Technical Data Notebook

Section 4 – Hydrologic Analysis

Upper Rawhide Wash
Floodplain Delineation Study
(FCD 98-12)

Volume 3 of 4

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March, 2002

KHA Project #091131.02

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Section 4 – Hydrologic Analysis

Upper Rawhide Wash

Floodplain Delineation Study

FCD 98-12

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Volume 3 of 4

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4.1 METHOD DESCRIPTION

The hydrology for this project was completed using the methodology outlined in the Maricopa County Drainage Design Manual. The U.S. Army Corps of Engineers HEC-1 package was used for the modeling and routing runoff hydrographs. The Drainage Design Menu System (DDMS) developed by the FCDMC was utilized as a preprocessor for HEC-1.

4.2 PARAMETER ESTIMATION

4.2.1 Drainage Area Boundaries

The project consists of approximately twelve (12) river miles of the Upper Rawhide Wash and four (4) of its major tributaries. The watershed is approximately 14 square miles and extends from Hayden and Jomax Roads upstream approximately 6.9 miles to the Tonto National Forest Boundary/City of Scottsdale corporate boundary from Township 5 North, Range 4 East to Township 6 North, Range 5 East (see Figure 4-1).

The watershed is primarily undeveloped open desert with approximately 10 – 15% vegetative cover. There are several areas of rock outcrop, including Granite Mountain and three hills in the Brown Ranch area, the two biggest being locally referred to as "Big Brownie Hill" and "Little Brownie Hill".

The hydrology developed for the Upper Rawhide Wash watershed represents the existing land use and conditions at the time of the study. Existing land use conditions were determined through field observations and from the City of Scottsdale General Plan digital zoning maps and aerial photos. This hydrology model was developed for floodplain/floodway determination for Upper Rawhide Wash and its tributaries for the proposed Rawhide Wash Detention Basin to be located north of Jomax Road, and west of Pima Road. The hydrologic model incorporates a proposed element of the Rawhide Wash Detention Basin Project. This element is a tributary diversion channel that diverts storm water flows from FEMA tributary streams 4A and 4B located east of the basin to the basin site.

4.2.2 Watershed Work Maps

Work maps for the Upper Rawhide study area has been included in Appendix G. The maps provide subbasin boundaries and locate concentration points (Figure G - 1), indicate flow paths

(Figure G - 2), and hydrograph routing paths (Figure G - 3) for the watershed.

Subbasin labels are represented by an alphanumeric numbering convention beginning with the lowest basin numbers in the northern portion of the watershed. The numbering starts with subbasin 005 and continues downstream to basin 070. The basin numbers are incremental and consecutive. In the event that a basin needs to be further subdivided, the numbering remains consecutive. For example, in the first iteration of the model it was determined that basin 010 needed to be subdivided (from 010 to 010 and 012) to better represent the existing hydrologic conditions.

Concentration points are labeled CPxxx or CPxxxy where CP signifies concentration point, *xxx* is the concentration point number and *y* is a designation (A or B). In some cases, hydrographs were combined prior to others for ease of hydraulic modeling. The *y* in the numbering scheme Cp*xxxy* indicates these locations and signifies that there is more than one set of hydrographs at the same point. For example, four hydrographs are ultimately combined at CP022, but they are separated into two groups, CP022A and CP022B before they are combined at CP022.

Routing labels were assigned according to the downstream end of a routing reach. The routing operations are labeled R*xxx-y*, where R stands for Route, *xxx* is the number of the concentration point the flow is being routed to and *y* denotes the number of the hydrograph routed. For example, there are two hydrographs being routed to Concentration Point (CP) CP030 so the KK record designations for these routings are R030-1 and R030-2. Diversion records are labeled D*xxx* where D denotes diversion and *xxx* is the CP immediately upstream of the diversion.

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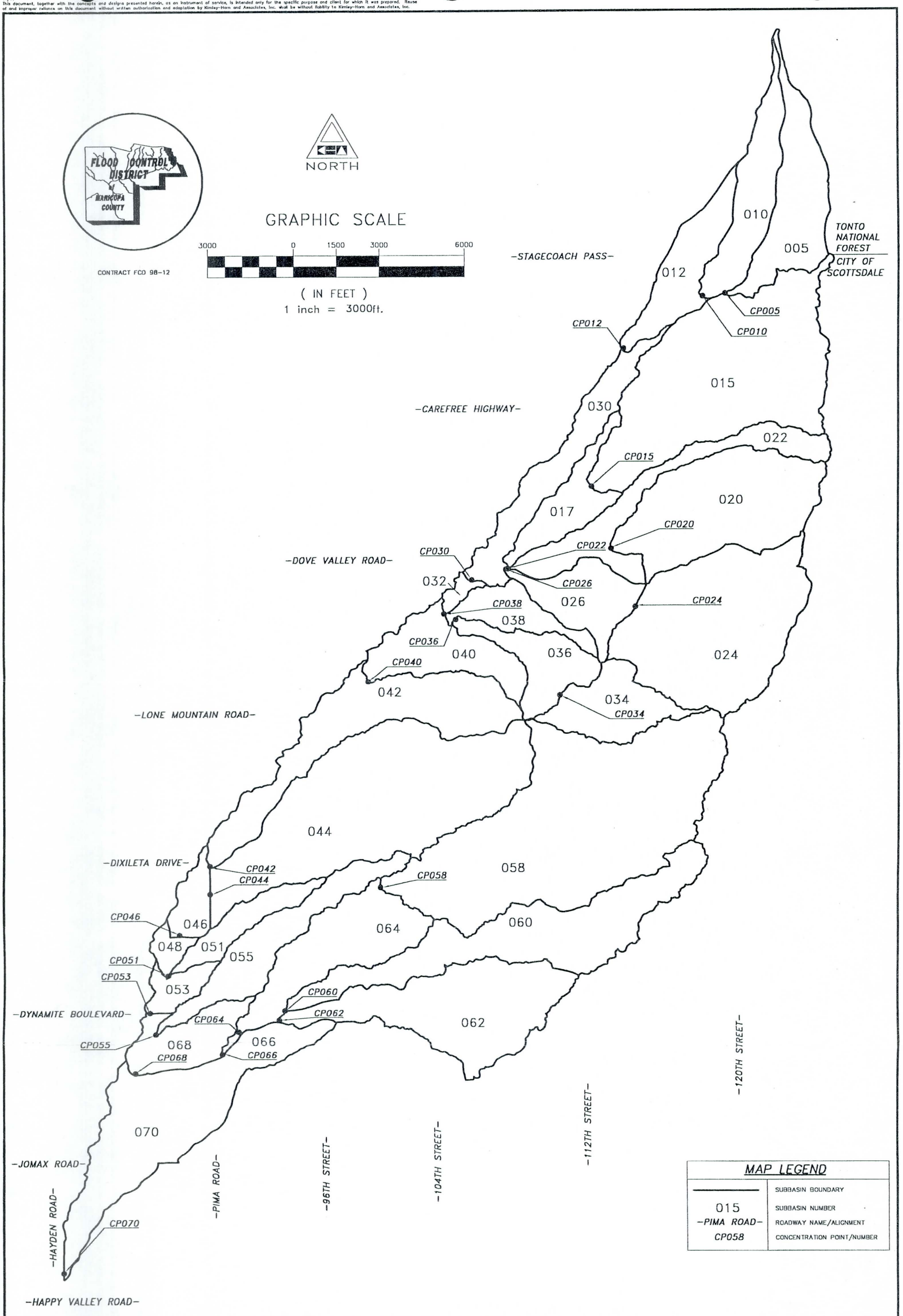

1 of 1	DWG. NAME 3102DR41	PROJECT NO. 091131.02	

UPPER RAWHIDE WASH

FLOODPLAIN DELINEATION STUDY GENERAL WATERSHED MAP

FIGURE 4-1

SCALE (H): 1"=3000'
SCALE (V): NONE
DRAWN BY: BKB
DESIGNED BY: LSM
CHECKED BY: RAE
DATE: 5/25/99

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4.2.3 Gage Data

No gage data was used in this study to verify or calibrate the runoff characteristics of the study area basins since none was determined to be available at the time of the study.

4.2.4 Statistical Parameters

The most comprehensive and available source of rainfall data analysis for Maricopa County is the NOAA Precipitation-Frequency Atlas of the Western United States. It has been adopted by the Flood Control District of Maricopa County as the basis for point depth rainfall parameters used for drainage design purposes in Maricopa County. Other sources of long-term data records or statistical parameters for the study watershed were not readily available at the time of the study.

4.2.5 Precipitation

Precipitation in Maricopa County is strongly influenced by variation in climate. Precipitation is typically divided into two seasons of comparative rainfall depth: summer (June through October) and winter (December through March). Warm, moist tropical air can move into Arizona at any time of the year, but most often does so in the summer months, resulting in severe storms and local flooding. Storms of large areal extent are usually associated with frontal or convergence storm activity that may result in long duration rainfall and flooding of major drainage watercourses. These types of storms and flooding usually occur in the winter.

The FCDMC has adopted the 6-hour local storm as defined in the Drainage Design Manual Volume I Hydrology for drainage areas of 0 to 20 square miles. The 24-hour general storm duration using the SCS Type II distribution has also been used for this study. The PREFRE program within the DDMS was utilized along with point rainfall depths obtained from the NOAA Precipitation-Frequency Atlas of the Western United States (NOAA Atlas 2, Volume VIII). A reduction factor is used to convert the point rainfall to an equivalent uniform depth rainfall over the entire watershed. The depth-area reduction curve that is used in Maricopa County is the curve taken from Figure 15 of the NWS HYDRO-40 (Zehr and Myers, 1984). This depth area reduction factor is automatically determined and applied as part of the MCUHP1 program within the DDMS.

The PREFRE model is a part of the DDMS and it calculates precipitation depth-duration-frequency values for the Western United States. It was developed by the National Weather Service and was later revised by the Bureau of Reclamation. For this project, a Primary Zone number of 7 and a Short Duration Zone number of 8 were used for all major basins. The rainfall

depths used in the HEC-1 models are shown in Table 4-1.

Table 4-1: Point Rainfall Values

Storm Duration	100 year depth [in]
6 hour	3.45
24 hour	4.60

4.2.6 Physical Parameters

The unit hydrograph for the watershed is determined from the Clark Unit Hydrograph methodology outlined in Section 5.2 of the Drainage Design Manual for Maricopa County, Arizona; Volume I: Hydrology. This methodology is applied through the use of the DDMS program MCUHP1. The application of the Clark Unit Hydrograph requires the estimation of the time of concentration, Tc, for each subbasin. The MCUHP1 program facilitates the calculation of Tc using the Papadakis equation:

$$Tc = 11.4\, L^{0.50} K_b^{0.52} S^{-0.31} I^{-0.38}$$

Tc = time of concentration in hours
L = length of the flow path for Tc in miles
K_b = representative watershed resistance coefficient
S = watercourse slope in feet/mile
i = the average rainfall excess intensity, during the time Tc, in inches/hour

K_b values are assigned within DDMS based on the SCS Aguila-Carefree soil descriptions and the FCDMC land use codes (Figure G - 5). The land use codes have been modified to reflect different levels of vegetative cover. A table of land use characteristics has been included in Appendix D, Section D.2.

The preferred method for calculation of rainfall losses in Maricopa County is the Green and Ampt equation. According to the Drainage Design Manual for Maricopa County, Arizona - Volume I Hydrology, this method should be used for most studies in Maricopa County where the land surface is soil, the infiltration of water is controlled by soil texture, and the bulk density of the soil is affected by vegetation. The Soil Survey of Aguila-Carefree Area, Parts of Maricopa and Pinal Counties, Arizona, April 1986 was used in the determination of soil parameters. A soils map (Figure G - 4) showing the soil classifications in the study area is included in Appendix G. A table showing the combined soil survey information with XKSAT (hydraulic conductivity) is

included in section D.2, Appendix D.

Normal depth channel routing was used to route hydrographs downstream. Cross sections for each reach were cut using from the City of Scottsdale topography using BOSS RMS software. Each section was then input into FlowMaster as a BOSS section, and also reduced to an 8-point cross section. Verification was made to determine the accuracy of selected eight point sections as an approximation of the full section (see Appendix D). The value NSTPS for the RS record was determined using the normal depth velocities calculated by FlowMaster. The HEC-1 model was initially run with all NSTPS equal to 1. The flow rate generated for each routing reach was then input into the FlowMaster section beginning at the furthest upstream sections and the normal depth velocity was determined. This velocity was used to determine a new value for NSTPS and the HEC-1 model was re-run. These steps were repeated downstream until the NSTPS values remained unchanged.

4.3 PROBLEMS ENCOUNTERED DURING THE STUDY

4.3.1 Special Problems and Solutions

A review of available USGS topographic mapping and previous studies was conducted prior to the development of the existing conditions hydrologic models. The review indicated a potential flow split in Rawhide Wash at the downstream end of Basin 012. Subsequent field observations of Rawhide Wash at the southern limit of Basin 012 confirmed that a flow split occurs at this location. Initially, the flow split was assumed to be 50/50; 50% of the flow splits out of Rawhide Wash and leaves the project watershed, and the remaining 50% stays within Rawhide Wash proper. Field surveys of the flow split were conducted at the time of this study in order to develop a rating curve of the diversion. The results of the rating curve analysis are provided in Table 4-2.

Table 4-2: Rating Curve for Diversion at CP012

Rating Curve for Diversion at 012			
Elevation	Q_{total}	Q_{out}	$Q_{remaining}$
[ft]	[cfs]	[cfs]	[cfs]
2760.00	0	0	0
2760.25	43	10	33
2760.50	152	43	109
2760.75	330	105	225
2761.00	586	203	383
2761.25	929	344	584
2761.50	1365	533	832
2761.75	1904	776	1128
2762.00	2554	1078	1476

The rating curve could change in the future as peak flows and/or sedimentation change the channel cross section characteristics and distribution of flow.

4.3.2 Modeling Warning and Error Messages

The models contain the following warning message for some routing reaches (with different outflow ranges).

> *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 5067. TO 9942. THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS. THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH).

For most warnings the flow being routed is less than the lower end of the range identified in the warning. The parameters have been adjusted as suggested by the warning, all routed hydrographs were examined and there are no outflows greater than peak inflows.

4.4 CALIBRATION

No calibration was undertaken due to the lack of available physical runoff volumes and peak discharges of record for the study area.

4.5 FINAL RESULTS

4.5.1 Hydrologic Analysis Results

See Table 4-3 for the peak discharge, time-to-peak, and runoff volume for each subbasin modeled and at each concentration point. Table 4-4 illustrates the peak flow rates at the split flow location at Concentration Point CP012.

Table 4-3: Hydrologic Analysis Results

Location	Basin Area	100 yr, 6 hr				100 yr, 24 hr			
		Peak Discharge	Q_{peak}/ sq. mi	Time to Peak	Runoff Volume	Peak Discharge	Q_{peak}/ sq. mi	Time to Peak	Runoff Volume
	[mi^2]	[cfs]	[cfs/mi^2]	[hr]	[ac-ft]	[cfs]	[cfs/mi^2]	[hr]	[ac-ft]
Basin 005	0.42	289	688	4.53	33	484	1152	12.30	35
Basin 010	0.34	230	676	4.50	25	395	1162	12.30	28
CP010	0.75	518	691	4.53	58	867	1156	12.33	62
Basin 012	0.30	194	647	4.50	21	344	1147	12.30	23
CP012	1.05	697	664	4.63	79	1111	1058	12.43	86
Basin 030	0.35	194	554	4.67	28	297	849	12.43	31
CP030A	1.40	552	394	5.37	81	731	522	13.17	88
Basin 015	1.27	1021	804	4.47	96	1766	1391	12.33	104
Basin 017	0.22	165	750	4.43	17	286	1300	12.27	19
CP022A	1.48	1163	786	4.63	113	1875	1267	12.47	123
Basin 020	0.76	803	1057	4.27	68	1458	1918	12.20	75
Basin 022	0.38	231	608	4.67	34	340	895	12.40	37
CP022B	1.14	996	874	4.50	102	1633	1432	12.40	111
CP022	2.62	2138	816	4.60	215	3445	1315	12.43	234
Basin 024	1.02	1273	1248	4.17	91	2481	2432	12.10	100
Basin 026	0.27	202	748	4.50	28	309	1144	12.27	32
CP026A	1.29	1388	1076	4.40	119	2481	1923	12.27	133
CP026	3.91	3421	875	4.50	334	5412	1384	12.40	367
CP030	5.32	3599	677	4.53	415	5666	1065	12.43	455
Basin 034	0.30	264	880	4.37	28	444	1480	12.27	31
Basin 036	0.25	261	1044	4.27	25	463	1852	12.17	28
CP036	0.55	477	867	4.50	53	648	1178	12.40	59
Basin 038	0.18	178	989	4.27	17	323	1794	12.17	19
CP038A	0.73	638	874	4.47	70	855	1171	12.30	79
Basin 032	0.03	26	867	4.23	2	55	1833	12.13	2
CP038	6.08	4204	691	4.57	487	6445	1060	12.43	536
Basin 040	0.33	282	855	4.30	25	529	1603	12.20	27
CP040	6.41	4373	682	4.67	512	6600	1030	12.50	563

Table 4-3 continued

Location	Basin Area	100 yr, 6				100 yr, 24			
		Peak Discharg	Q_{peak}/ sq. mi	Time to Peak	Runoff Volume	Peak Discharg	Q_{peak}/ sq. mi	Time to Peak	Runoff Volume
	[mi^2]	[cfs]	[cfs/mi^2]	[hr]	[ac-ft]	[cfs]	[cfs/mi^2]	[hr]	[ac-ft]
Basin	0.06	48	800	4.30	4	97	1617	12.17	5
Basin	0.32	306	956	4.27	26	579	1809	12.17	29
CP042	6.79	4581	675	4.70	542	6755	995	12.53	597
Basin	0.29	145	500	4.63	18	253	872	12.37	21
CP043	7.08	4646	656	4.87	561	6720	949	12.70	617
Basin	1.40	1234	881	4.37	108	2207	1576	12.27	119
Basin	0.11	97	882	4.27	8	191	1736	12.17	9
CP046	8.59	5319	619	4.93	677	7150	832	12.80	745
Basin	0.06	53	883	4.20	4	108	1800	12.13	4
Basin	0.16	112	700	4.50	13	192	1200	12.27	14
CP051	8.81	5380	611	5.00	693	7153	812	12.87	763
Basin	0.09	93	1033	4.23	8	175	1944	12.13	8
CP053	8.91	5403	606	5.00	701	7157	803	12.87	771
Basin	0.37	213	576	4.63	29	338	914	12.37	31
CP055	9.27	5564	600	5.03	730	7319	790	12.90	802
Basin	1.76	1483	843	4.47	136	2569	1460	12.33	148
Basin	0.78	500	641	4.63	65	764	979	12.40	70
Basin	0.73	614	841	4.40	61	1056	1447	12.27	67
CP062	1.51	1084	718	4.53	126	1707	1130	12.33	136
Basin	0.47	396	843	4.37	38	694	1477	12.27	41
CP064	3.74	2817	753	4.67	299	4244	1135	12.50	325
Basin	0.01	5	500	4.17	0	10	1000	12.07	0
CP066	3.74	2817	753	4.67	299	4243	1134	12.50	325
Basin	0.25	219	876	4.30	18	421	1684	12.20	20
CP068	13.27	7977	601	5.03	1047	9990	753	12.90	1146
Basin	0.79	462	585	4.60	49	833	1054	12.37	58
CP070	14.06	8079	575	5.23	1096	9940	707	13.07	1202

Table 4-4: Hydrologic Analysis Results - Diversion Record

HEC-1 Flows for Diversion at 012		
	6 hour storm	24 hour storm
	[cfs]	[cfs]
Flow to diversion	697	1111
Flow diverted out of study area	249	423
Flow remaining in study area	448	688

4.5.2 Verification of Results

Indirect Verification Methods

We have provided for verification of the hydrology for Upper Rawhide Wash by using the regional regression equations from the Arizona Department of Transportation. We conducted the verification using peak flow rates based on non-reduced rainfall and distributions for the existing conditions 100-year, 24-hour storm. We used the non-reduced rainfall for comparison with the peak subbasin discharges as computed using the region 12 and region 13 regression equations. A summary of the computations is in Appendix D.8.

Table D.8.1 is a summary of the HEC-1 peak discharges for the 100-year 24-hour with areal reduction. Table D.8.2 is a summary of the HEC-1 peak discharges for the 100-year 24-hour with no areal reduction. Both tables are for existing project conditions and provide a unit discharge for each subbasin in cfs per square mile.

Table D.8.3 summarizes the computation using the ADOT regression equations for indirect method No 2 (see page 10-5 ADOT highway drainage manual). Indirect method No. 2 provides a regression equation for the 100-year peak discharge and a regression equation for the maximum recorded discharge. A review of Table D.8.3 indicates fair agreement between the HEC-1 peak discharges and the ADOT indirect method 100-year discharge on a subbasin by subbasin comparison. Examination of the concentration points result in somewhat of a scatter of results. This is due to the fact that the HEC-1 model accounts for routing and summation of hydrographs for determination of peak discharges while the ADOT method only uses watershed area.

We have plotted on ADOT figures 10-3 and 10-4 the 100-year HEC-1 peak discharges for subbasins from 0.1 to 2.0 square miles and for 1.0 to 20 square miles, respectively. On figure 10-3, the plotted subbasins are well within the 75% tolerance limit lines about the 100-year

discharge line. On figure 10-4, the plotted subbasins are mainly located at the upper 75% tolerance limit. These plots indicate that the HEC-1 peak discharges are within reasonable expectations and agreement with previous studies conducted in Arizona.

Our next step for hydrology verification was to follow ADOT indirect method No. 3 using regional regression equations. Table D.8.4 provides a summary of the data required to use the regression equations presented in the ADOT manual. The Upper Rawhide Wash watershed is located in near the boundaries of regions 12 and 13. Therefore, we computed the 100-year peak discharge using the regression equations for both regions 12 and 13.

The results of the computations are plotted by subbasin area and 100-year discharge for region 12 on figures 10-20 and 10-21. Examination of the plotted data points on figure 10-20 indicates that most of the points are outside the "cloud of common values". This is due to the fact that the Upper Rawhide Wash subbasins are one-square mile or less in area as opposed to the drainage area range given in the cloud of common values. However, the drainage area versus peak discharge plotted values in figure 10-21 are relatively consistent with the regression line. We then plotted the 100-year discharge for region 13 on figure 10-22. We observe the same consistency in figure 10-22 as observed in figure 10-21. The plotted data points are clustered fairly well around the regression line and follow the trend of the regression.

Finally, we plotted the subbasin drainage area versus peak discharge on the USGS figures 41 and 42 from their report titled "Methods for Estimating Magnitude and Frequency of Floods in the Southwestern United States" (USGS Open file report 93-419). These figures are the same as the ADOT figures 10-20 and 10-21, but ADOT did not include the bounding limits as shown in the USGS figures. A review of the plots on figures 41 and 42 indicate that the regression results for the subbasins fall within the envelope curves and the 100-year peak discharge relationship for the regions 12 and 13.

The results of the verification analysis using the ADOT methodology indicates reasonable agreement between the HEC-1 model results and the regression results, particularly when plotted on the regression curves. Variations may be explained by differing site conditions relating to soils, land slope, drainage area, vegetation cover, land use, etc.

Comparison with Previous Models of the Watershed

The results of this study were compared to two other models - the General Drainage Plan for North Scottsdale, Arizona by Water Resources Associates, Inc. (WRA) completed in 1988 and revised in 1989; and the Scottsdale Desert Greenbelt, Rawhide Wash Hydrologic Report done

by Greiner, Inc. and the City of Scottsdale in 1994. The Greiner hydrology was based on the WRA hydrology and followed the same methodology.

The draft TDN completed by Kimley-Horn and Associates, Inc. (KHA) and dated January 1999 contained a detailed comparison of KHA's preliminary results and the above models. After subsequent discussions with the Flood Control District of Maricopa County and the City of Scottsdale review comments were incorporated and this report reflects the final results. Adjustments were made to the vegetative cover, subbasins and concentration points were added and flow paths were adjusted. A comparison of final flow values for this study are in Table 4-3.

Table 4-3: Comparison of Final Flows to WRA & Greiner Models

	Drainage Area	*100 yr, 6*		*100 yr, 24*	
		Q	Time to peak	Q	Time to peak
	[mi^2]	[cfs]	[hr]	[cfs]	[hr]
KHA	14.06	8079	5.2	9940	13.07
Greiner	13.81	10456	3.9		
%		23%			

The differences in the methodologies used for the WRA & Greiner studies and the KHA study are as follows:

Table 4-4: HEC-1 Methodology Comparison (KHA vs. WRA & Greiner)

Method	***KHA***	***WRA &***
Rainfall	FCDMC Point	Hypothetical
Losses	Green and	SCS Curve
Unit	Clark - Time of from DDMS -	Kinematic wave

The variation of flow results between our work and that done by others is primarily related to the Clark Unit Hydrograph vs. Kinematic Wave Routing and perhaps to a lesser degree the difference in rainfall distribution. We are of the opinion that the Clark Unit Hydrograph better represents natural watersheds, and that the District's rainfall distributions are more representative of a high intensity desert storm.

As a further check we put the Greiner hypothetical rainfall distribution into our model, with the

100-yr rainfall of 3.66 in. This resulted in a watershed Qpeak for the KHA model of 12,346 cfs as compared to Greiner's Qpeak of 10,456 cfs.

APPENDIX D Hydrologic Analysis Supporting Documentation

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 Upper Rawhide Wash,
     PRIMARY ZONE NUMBER=   7
     SHORT-DURATION ZONE NUMBER=   8
```

POINT VALUES

DURATION	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR	500-YR	
				RETURN PERIOD				
5-MIN	.40	.47	.53	.61	.67	.73	.88	5-MIN
10-MIN	.59	.71	.80	.93	1.03	1.13	1.35	10-MIN
15-MIN	.72	.89	1.01	1.18	1.31	1.44	1.75	15-MIN
30-MIN	.96	1.19	1.35	1.59	1.77	1.96	2.38	30-MIN
1-HR	1.17	1.47	1.68	1.98	2.21	2.45	2.99	1-HR
2-HR	1.31	1.66	1.91	2.25	2.52	2.79	3.41	2-HR
3-HR	1.41	1.79	2.06	2.43	2.73	3.02	3.69	3-HR
6-HR	1.60	2.04	2.34	2.78	3.11	3.45	4.23	6-HR
12-HR	1.83	2.35	2.71	3.23	3.63	4.03	4.94	12-HR
24-HR	2.05	2.66	3.08	3.68	4.14	4.60	5.66	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=Upper Rawhide Wash,
ZONE= 7    SHORT-DURATION ZONE= 8
LATITUDE=   .00    LONGITUDE= 100.00    ELEVATION=    0
2-YR, 6-HR PCPN= 1.60    100-YR, 6-HR PCPN= 3.45
2-YR, 24-HR PCPN= 2.05    100-YR, 24-HR PCPN= 4.60
```

D.2 PHYSICAL PARAMETER CALCULATIONS

DDMS Input Data								
Basin ID		Basin Area		Top Elev.	Bottom Elev.	Travel Length	Travel Length	Basin Slope
	(sf)	(mi^2)	(acres)	(ft)	(ft)	(ft)	(mi)	(ft/mi)
005	11,629,309	0.417	267	3140	2866	11097	2.10	130
010	9,323,166	0.334	214	3130	2848	10168	1.93	146
012	8,273,168	0.297	190	2970	2774	8859	1.68	117
015	35,357,241	1.268	812	2960	2686	13391	2.54	108
017	5,986,909	0.215	137	2755	2604	7096	1.34	112
020	21,219,770	0.761	487	3020	2673	9186	1.74	199
022	10,589,401	0.380	243	2952	2604	14294	2.71	129
024	28,428,373	1.020	653	3237	2684	8234	1.56	355
026	7,536,216	0.270	173	3250	2604	5861	1.11	582
030	9,921,955	0.356	228	2821	2582	12568	2.38	100
032	900,351	0.032	21	2598	2558	2112	0.40	100
034	8,320,157	0.298	191	2804	2676	6977	1.32	97
036	7,003,459	0.251	161	3054	2570	7238	1.37	353
038	5,095,160	0.183	117	3198	2558	6723	1.27	503
040	9,180,512	0.329	211	2896	2490	8150	1.54	263
041	1,791,128	0.064	41	2544	2452	3656	0.69	133
042	9,048,122	0.325	208	3054	2452	7965	1.51	399
043	7,956,499	0.285	183	2512	2322	10120	1.92	99
044	39,011,591	1.399	896	3054	2306	15811	2.99	250
046	3,102,819	0.111	71	2346	2278	3528	0.67	102
048	1,537,499	0.055	35	2300	2252	2295	0.43	110
051	4,541,717	0.163	104	2432	2252	7420	1.41	128
053	2,608,978	0.094	60	2313	2230	3461	0.66	127
055	10,168,239	0.365	233	2516	2213	12851	2.43	124
058	48,929,471	1.755	1123	2808	2464	15088	2.86	120
060	21,722,678	0.779	499	2846	2330	17922	3.39	152
062	20,323,405	0.729	467	2680	2324	11908	2.26	158
064	13,232,251	0.475	304	2555	2287	9528	1.80	149
066	176,121	0.006	4	2287	2265	934	0.18	124
068	6,915,310	0.248	159	2324	2184	5543	1.05	133
070	22,122,557	0.794	508	2385	2035	14143	2.68	131

Soils Table (by Area)

Basin ID	Basin Area (acres)	Soil Type - Area in Acres									
		6	33	61	63	72	90	93	96	121	122
005	267		13.8	219.9					33.3		
010	214		97.7	84.6					31.7		
012	190		172.2						17.7		
015	812		260.1	475.2		0.5		9.5	66.3		
017	137	8.7	51.1	19.8		8.0			49.8		
020	487			263.2	94.9	74.8		6.6	47.3	0.3	
022	243		2.7	92.0		43.6		3.7	82.1	18.9	
024	653		6.1	305.1	106.6	96.9		42.6	95.2	0.1	
026	173	0.2	7.5			123.2		0.3	18.8	22.1	
030	228	8.7	88.2	80.4		38.7		1.3	10.4		
032	21	9.0		10.7				1.0			
034	191		13.8	81.5	4.1	78.6		7.8	5.3		
036	161			31.0	10.2	77.3			26.0	16.3	
038	117			63.6		50.3			1.0	2.1	
040	211	27.0	2.4	164.3	11.4	4.7				0.9	
041	41	14.6	1.0	25.5							
042	208	4.7		162.4	37.4	3.2					
043	183	44.9	40.2	67.0							30.6
044	896	48.5	36.4	679.3	71.5	7.8			32.6		19.4
046	71	34.9		8.3					28.1		
048	35	19.7							15.6		
051	104	2.7	38.6	20.8					42.1		
053	60	14.0							45.8		
055	233	0.5	103.3	59.1	17.0				53.5		
058	1123	51.1	1.3	935.6	46.8	1.7			86.8		
060	499			407.0	64.2				27.5		
062	467	10.9		330.9	96.2				28.6		
064	304	47.4	3.1	106.4	25.2				121.7		
066	4	3.0							1.2		
068	159	34.4	23.0					32.5	51.6		17.2
070	508	111.6	28.6	8.4			28.4	17.9	70.2		242.7

Soil Descriptions

FCDMC Soil Number	NRCS Soil Code	XKSAT	Rock Outcropping	Soil Definition
43	6	0.620	0	Anthony-Arizo complex
70	33	0.230	0	Eba very gravelly loam, 1 to 8 percent slopes
98	61	0.150	0	Gran-Wickenburg complex, 1 to 10 percent slopes
100	63	0.140	25	Gran-Wickenburg-Rock outcrop complex, 1 to 7 percent slopes
109	72	0.090	30	Lehmans-Rock outcrop complex, 8 to 65 percent slopes
127	90	0.390	0	Momoli gravelly sandy loam, 1 to 5 percent slopes
130	93	0.330	0	Nickel-Cave complex, 8 to 30 percent slopes
133	96	0.070	0	Pinaleno-Tres Hermanos complex, 1 to 10 percent slopes
158	121	0.120	0	Tres Hermanos-Anthony complex, 1 to 5 percent slopes
159	122	0.330	0	Vado gravelly sandy loam, 1 to 5 percent slopes

EXISTING CONDITIONS LAND USE (by %)				
Basin ID	Basin Area (acres)	Desert10 [1] %	Desert15 [2] %	VLDR [3] %
005	267		100%	0%
010	214		100%	0%
012	190		100%	0%
015	812		100%	0%
017	137		100%	0%
020	487		100%	0%
022	243		100%	0%
024	653		100%	0%
026	173		100%	0%
030	228		100%	0%
032	21		100%	0%
034	191		100%	0%
036	161		100%	0%
038	117		100%	0%
040	211		100%	0%
041	41		100%	0%
042	208		100%	0%
043	183		100%	0%
044	896		100%	0%
046	71		100%	0%
048	35		100%	0%
051	104		100%	0%
053	60		100%	0%
055	233		100%	0%
058	1123		100%	0%
060	499	100%		0%
062	467	100%		0%
064	304	100%		0%
066	4	100%		0%
068	159	100%		0%
070	508	90%		10%

Notes:

All land use categories are based on the Maricopa County Hydrology Manual Table 4.2a and the DDMS.
The desert categories were adjusted to reflect differing values of vegetative cover.

[1] Desert conditions with 10% vegetative cover

[2] Desert conditions with 15% vegetative cover

[3] Very Low Density Residential

D.3 HYDROGRAPH ROUTING DATA

Normal Depth (8 Point Cross Section) Routing Parameters

		From CP005 to CP010	*From CP010 to CP012*	*From CP012 to CP030*	*From CP015 to CP022*	*From CP020 to CP022*	*From CP024 to CP026*	*From CP026 to CP030*	*From CP030 to CP038*	*From CP034 to CP036*	*From CP036 to CP038*	*From CP038 to CP040*	*From CP040 to CP042*	*From CP042 to CP043*	*From CP043 to CP046*	*From CP044 to CP046*	*From CP046 to CP051*	*From CP051 to CP053*	*From CP053 to CP055*	*From CP055 to CP068*	*From CP058 to CP064*	*From CP060 to CP062*	*From CP062 to CP064*	*From CP064 to CP066*	*From CP066 to CP068*	*From CP068 to CP070*
		R010-1	*R012-1*	*R030-1*	*R022-1*	*R022-2*	*R026-1*	*R030-2*	*R038-1*	*R036-1*	*R038-2*	*R040-1*	*R042-1*	*R043-1*	*R046-1*	*R046-2*	*R051-1*	*R053-1*	*R055-1*	*R068-1*	*R064-1*	*R062-1*	*R064-2*	*R066-1*	*R068-2*	*R070-1*
RC Record	*LOB n-value*	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045
	Channel n-value	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
	ROB n-value	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045
	Reach length [ft]	884	3716	10780	4466	4146	4976	1354	1605	5295	424	3775	2074	7504	2845	1882	1557	1681	784	1728	7694	441	1554	934	3234	7672
	High elev	2866	2848	2774	2686	2673	2684	2604	2582	2676	2570	2558	2490	2452	2322	2306	2278	2252	2230	2213	2464	2330	2324	2287	2265	2184
	Low elev	2848	2774	2582	2604	2604	2604	2582	2558	2570	2558	2490	2452	2322	2278	2278	2252	2230	2213	2184	2287	2324	2287	2265	2184	2035
	Slope [ft/ft]	0.020	0.020	0.018	0.018	0.017	0.016	0.016	0.015	0.020	0.028	0.018	0.018	0.017	0.015	0.015	0.017	0.013	0.022	0.017	0.023	0.014	0.024	0.024	0.025	0.019
RX Record	LOB Sta	0	261	428	9714	9805	9712	214	290	9725	9837	47	263	263	9425	9425	9822	9910	111	111	0	0	0	0	198	65
	LOB Sta	40	486	497	9798	9902	9782	314	378	9842	9891	75	349	349	9601	9601	9952	9935	154	154	76	20	17	31	224	146
	Left Bank Sta	156	555	753	9905	10081	9851	479	536	9891	9971	224	381	381	9923	9923	9976	9963	304	304	102	38	23	66	270	307
	Channel Sta	172	684	780	9943	10090	9931	518	538	9970	9988	433	450	450	9945	9945	9977	9987	389	389	111	41	73	104	283	320
	Channel Sta	201	700	835	10002	10098	9950	654	607	10030	10012	448	522	522	10019	10019	10023	10041	510	510	117	45	83	111	684	550
	Right Bank Sta	253	716	868	10037	10102	10050	771	650	10032	10126	523	756	756	10043	10043	10046	10046	725	725	118	60	90	121	688	565
	ROB Sta	546	743	897	10299	10253	10176	852	727	10143	10148	609	847	847	10267	10267	10356	10075	836	836	168	94	99	129	721	810
	ROB Sta	571	778	992	10412	10264	10237	939	753	10241	10177	678	973	973	10435	10435	10509	10085	937	937	205	128	107	149	769	964
RY Record	LOB Elev	2870	2794	2684	2740	2690	2700	2604	2582	2652	2578	2540	2486	2486	2300	2300	2275	2249	2208	2208	2323	2328	2316	2281	2228	2130
	LOB Elev	2868	2792	2680	2734	2686	2692	2598	2576	2646	2574	2536	2482	2482	2288	2288	2261	2245	2202	2202	2321	2328	2316	2281	2227	2127
	Left Bank Elev	2868	2792	2680	2734	2688	2688	2598	2574	2646	2574	2530	2476	2476	2288	2288	2262	2245	2200	2200	2319	2327	2315	2280	2227	2127
	Channel Elev	2866	2790	2682	2728	2686	2688	2596	2572	2642	2572	2530	2482	2482	2286	2286	2260	2238	2197	2197	2319	2327	2315	2280	2226.5	2125.5
	Channel Elev	2866	2788	2682	2726	2686	2686	2596	2572	2642	2572	2528	2476	2476	2286	2286	2260	2238	2199	2199	2320	2326	2316	2281	2226.5	2125.5
	Right Bank Elev	2868	2790	2680	2728	2688	2686	2594	2580	2644	2574	2528	2476	2476	2288	2288	2263	2239	2200	2200	2321	2326	2317	2282	2227	2124
	ROB Elev	2868	2792	2680	2730	2688	2696	2594	2580	2644	2576	2534	2482	2482	2288	2288	2264	2239	2199	2199	2323	2327	2318	2283	2227	2124
	ROB Elev	2870	2794	2684	2740	2690	2700	2604	2582	2652	2578	2540	2486	2486	2302	2302	2275	2242	2208	2208	2325	2327	2319	2284	2228	2130

D.4 ROUTING PARAMETER – NSTPS

Existing Conditions NSTPS Values For RK Records

6-hour NMIN 2 min

	From CP005 to CP010	From CP010 to CP012	From CP012 to CP030	From CP015 to CP022	From CP020 to CP022	From CP024 to CP026	From CP026 to CP030	From CP030 to CP038	From CP034 to CP036	From CP036 to CP038	From CP038 to CP040	From CP040 to CP042	From CP042 to CP043	From CP043 to CP046	From CP044 to CP046	From CP046 to CP051	From CP051 to CP053	From CP053 to CP055	From CP055 to CP068	From CP058 to CP064	From CP060 to CP062	From CP062 to CP064	From CP064 to CP066	From CP066 to CP068	From CP068 to CP070
	R010-1	R012-1	R030-1	R022-1	R022-2	R026-1	R030-2	R038-1	R036-1	R038-2	R040-1	R042-1	R043-1	R046-1	R046-2	R051-1	R053-1	R055-1	R068-1	R064-1	R062-1	R064-2	R066-1	R068-2	R070-1
Reach length [ft]	884	3716	10780	4466	4146	4976	1354	1605	5295	424	3775	2074	7504	2845	1882	1557	1681	784	1728	7694	441	1554	934	3234	7672
Velocity [ft/s]	5.60	5.48	3.08	5.68	4.83	6.57	6.68	7.26	4.69	5.69	7.62	8.07	8.17	5.37	3.48	7.52	15.60	6.86	6.86	7.89	5.30	8.41	10.28	6.08	8.28
NSTPS	1	6	29	7	7	6	2	2	9	1	4	2	8	4	5	2	1	1	2	8	1	2	1	4	8
Qpre	292	518	431	1003	766	1167	3345	3505	264	475	4080	4256	4391	4421	1229	5296	5374	5393	5532	1480	500	1083	2791	2755	7845
Qnstps	289	514	430	1011	776	1189	3409	3573	260	477	4166	4353	4516	4607	1222	5296	5374	5393	5532	1446	500	1083	2815	2801	7845
Diff[1]	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

24-hour NMIN 2 min

	From CP005 to CP010	From CP010 to CP012	From CP012 to CP030	From CP015 to CP022	From CP020 to CP022	From CP024 to CP026	From CP026 to CP030	From CP030 to CP038	From CP034 to CP036	From CP036 to CP038	From CP038 to CP040	From CP040 to CP042	From CP042 to CP043	From CP043 to CP046	From CP044 to CP046	From CP046 to CP051	From CP051 to CP053	From CP053 to CP055	From CP055 to CP068	From CP058 to CP064	From CP060 to CP062	From CP062 to CP064	From CP064 to CP066	From CP066 to CP068	From CP068 to CP070
	R010-1	R012-1	R030-1	R022-1	R022-2	R026-1	R030-2	R038-1	R036-1	R038-2	R040-1	R042-1	R043-1	R046-1	R046-2	R051-1	R053-1	R055-1	R068-1	R064-1	R062-1	R064-2	R066-1	R068-2	R070-1
Reach length [ft]	884	3716	10780	4466	4146	4976	1354	1605	5295	424	3775	2074	7504	2845	1882	1557	1681	784	1728	7694	441	1554	934	3234	7672
Velocity [ft/s]	6.45	6.01	3.48	6.18	5.48	6.67	7.90	8.54	5.51	6.15	8.87	9.25	9.25	6.16	4.32	7.34	15.33	7.59	7.65	9.12	6.01	9.89	11.78	6.99	8.97
NSTPS	1	5	26	6	6	6	1	2	8	1	4	2	7	4	4	2	1	1	2	7	1	1	1	4	7
Qpre	482	860	595	1748	1293	2173	5286	5541	415	632	6270	6557	6555	6583	2096	7079	7142	7136	7280	2296	763	1696	4162	4164	9712
Qnstps	484	832	599	1674	1293	2173	5366	5638	415	647	6379	6557	6555	6583	2118	7079	7142	7136	7280	2367	761	1694	4241	4181	9712
Diff[1]	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

[1] Tolerance = 5%

D.5 RESERVOIR ROUTING DATA

There was no reservoir routing in the models.

D.6 FLOW SPLITS AND DIVERSIONS DATA

Rating Curve for Diversion at 012

Elevation	Q_{total}	Q_{out}	$Q_{remaining}$
[ft]	[cfs]	[cfs]	[cfs]
2760.00	0	0	0
2760.25	43	10	33
2760.50	152	43	109
2760.75	330	105	225
2761.00	586	203	383
2761.25	929	344	584
2761.50	1365	533	832
2761.75	1904	776	1128
2762.00	2554	1078	1476

HEC-1 Flows for Diversion at 012

	6 hour storm	24 hour storm
	[cfs]	[cfs]
Flow to diversion	697	1111
Flow diverted out of study area	249	423
Flow remaining in study area	448	688

Rating Table for Flow Diverted Out at CP012
Rating Table for Irregular Channel

Project Description	
Worksheet	012 Diversion (
Flow Element	Irregular Chan
Method	Manning's Forr
Solve For	Discharge

Input Data	
Slope	019000 ft/ft

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Attribute	Minimum	Maximum	Increment
Water Surface Eleva	2,760.00	2,762.00	0.25

Water Surface Elevation (ft)	Discharge (cfs)	Velocity (ft/s)	Flow Area (ft²)	Wetted Perimeter (ft)	Top Width (ft)
2,760.00	N/A	N/A	N/A	N/A	N/A
2,760.25	10.29	1.84	5.6	31.68	31.67
2,760.50	42.87	2.71	15.8	50.31	50.29
2,760.75	104.95	3.41	30.7	68.95	68.91
2,761.00	203.30	4.04	50.3	87.58	87.52
2,761.25	344.15	4.62	74.5	106.21	106.14
2,761.50	533.31	5.16	103.4	124.84	124.76
2,761.75	776.26	5.67	136.9	143.47	143.38
2,762.00	1,078.22	6.16	175.1	162.11	162.00

Rating Table for Flows Remaining After Diversion at CP012
Rating Table for Irregular Channel

Project Description	
Worksheet	012 Diversion rema
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Discharge

Input Data	
Slope	019000 ft/ft

Options	
Current Roughness Metho	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Attribute	Minimum	Maximum	Increment
Water Surface Eleva	2,760.00	2,762.00	0.25

Water Surface Elevation (ft)	Discharge (cfs)	Velocity (ft/s)	Flow Area (ft²)	Wetted Perimeter (ft)	Top Width (ft)
2,760.00	N/A	N/A	N/A	N/A	N/A
2,760.25	32.72	2.18	15.0	66.26	66.25
2,760.50	109.04	3.29	33.1	78.52	78.50
2,760.75	225.45	4.15	54.3	90.78	90.75
2,761.00	383.18	4.88	78.5	103.04	103.00
2,761.25	584.46	5.53	105.8	115.31	115.25
2,761.50	831.84	6.11	136.1	127.57	127.50
2,761.75	1,128.04	6.65	169.5	139.83	139.75
2,762.00	1,475.77	7.16	206.0	152.09	152.00

D.7 HYDROLOGIC CALCULATIONS

DDMS Files - 100-yr 6 Hour Storm Event

1

*** O U T P U T D A T A ***
REVISED JUNE 1988 TO UPDATE COMPUTATION OF SHORT-DURATION VALUES

PRECIPITATION FREQUENCY VALUES FOR Upper Rawhide Wash,
PRIMARY ZONE NUMBER= 7
SHORT-DURATION ZONE NUMBER= 8

POINT VALUES

DURATION	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR	500-YR	
			RETURN PERIOD					
5-MIN	.40	.47	.53	.61	.67	.73	.88	5-MIN
10-MIN	.59	.71	.80	.93	1.03	1.13	1.35	10-MIN
15-MIN	.72	.89	1.01	1.18	1.31	1.44	1.75	15-MIN
30-MIN	.96	1.19	1.35	1.59	1.77	1.96	2.38	30-MIN
1-HR	1.17	1.47	1.68	1.98	2.21	2.45	2.99	1-HR
2-HR	1.31	1.66	1.91	2.25	2.52	2.79	3.41	2-HR
3-HR	1.41	1.79	2.06	2.43	2.73	3.02	3.69	3-HR
6-HR	1.60	2.04	2.34	2.78	3.11	3.45	4.23	6-HR
12-HR	1.83	2.35	2.71	3.23	3.63	4.03	4.94	12-HR
24-HR	2.05	2.66	3.08	3.68	4.14	4.60	5.66	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=Upper Rawhide Wash,
ZONE= 7 SHORT-DURATION ZONE= 8
LATITUDE= .00 LONGITUDE= 100.00 ELEVATION= 0
2-YR, 6-HR PCPN= 1.60 100-YR, 6-HR PCPN= 3.45
2-YR, 24-HR PCPN= 2.05 100-YR, 24-HR PCPN= 4.60

* * * * E N D O F R U N * * * *

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LAND USE DEFAULTS
Desert10, DRY, 10.0, 3.00, 0.150, 0.035, Low
Desert15, DRY, 15.0, 3.00, 0.150, 0.035, Low
Desert20, DRY, 20.0, 3.00, 0.150, 0.035, Low
Desert30, DRY, 30.0, 3.00, 0.150, 0.035, Low
Desert40, DRY, 40.0, 3.00, 0.150, 0.035, Low
V.L.D.R, NORMAL, 30.0, 5.00, 0.300, 0.050, Low
L.D.R., NORMAL, 50.0, 15.00, 0.300, 0.050, Low
M.D.R., NORMAL, 50.0, 30.00, 0.250, 0.050, Low
M.F.R., NORMAL, 50.0, 45.00, 0.250, 0.050, Low
Ind, NORMAL, 60.0, 55.00, 0.150, 0.030, Min
Comm, NORMAL, 75.0, 80.00, 0.100, 0.020, Min
Park, NORMAL, 90.0, 0.00, 0.200, 0.100, Hi
END_FILE
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SUBBASIN 005, Aguila/Carefree, Acres, 1.0000
SOILS
33, 14.000, 5.2, 0.23, 0
61, 220.000, 82.4, 0.15, 0
96, 33.000, 12.4, 0.07, 0
SOIL TOTALS
267.000 0.14 0 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 267.000, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.05,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
267.00 15 3 0.15 0.035 0.047 -0.013750 0.080
MCUHP 005, 0.417 0.15 0.39 3 6.20 0.15 0.035 0.047
0.39 0.23 0.00 6.20
100 0 0
SUBBASIN 010, Aguila/Carefree, Acres, 1.0000
SOILS
33, 98.000, 45.6, 0.23, 0
61, 85.000, 39.5, 0.15, 0
96, 32.000, 14.9, 0.07, 0
SOIL TOTALS
215.000 0.16 0 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 215.000, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.05,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
215.00 15 3 0.15 0.035 0.048 -0.013750 0.080
MCUHP 010, 0.336 0.15 0.39 3 5.80 0.17 0.035 0.048
0.39 0.25 0.00 5.80
100 0 0
SUBBASIN 012, Aguila/Carefree, Acres, 1.0000
SOILS
33, 172.000, 90.5, 0.23, 0
96, 18.000, 9.5, 0.07, 0
SOIL TOTALS
0.000 0.21 0 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 190.000, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.05,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
190.00 15 3 0.15 0.035 0.049 -0.013750 0.080
MCUHP 012, 0.297 0.15 0.37 3 5.20 0.22 0.035 0.049
0.37 0.25 0.00 5.20
100 0 0
SUBBASIN 015, Aguila/Carefree, Acres, 1.0000
SOILS
33, 260.100, 32.0, 0.23, 0
61, 475.200, 58.6, 0.15, 0
72, 0.500, 0.1, 0.09, 30
93, 9.500, 1.2, 0.33, 0
96, 66.300, 8.2, 0.07, 0
SOIL TOTALS
811.600 0.16 0 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 811.600, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.04,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
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LAND USE TOTALS
811.60 15 3 0.15 0.035 0.040 -0.013750 0.080
MCUHP 015, 1.268 0.15 0.39 3 5.80 0.17 0.035 0.040
0.39 0.25 0.00 5.80
100 0 0
SUBBASIN 017, Aguila/Carefree, Acres, 1.0000
SOILS
6, 9.000, 6.5, 0.62, 0
33, 51.000, 37.0, 0.23, 0
61, 20.000, 14.5, 0.15, 0
72, 8.000, 5.8, 0.09, 30
SOIL TOTALS
138.000 0.14 2 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 138.000, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.05,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
138.00 15 3 0.15 0.035 0.051 -0.013750 0.080
MCUHP 017, 0.216 0.15 0.39 5 6.20 0.15 0.035 0.051
0.39 0.23 0.00 6.20
100 0 0
SUBBASIN 020, Aguila/Carefree, Acres, 1.0000
SOILS
61, 263.000, 54.0, 0.15, 0
63, 95.000, 19.5, 0.14, 25
72, 75.000, 15.4, 0.09, 30
93, 7.000, 1.4, 0.33, 0
96, 47.000, 9.7, 0.07, 0
SOIL TOTALS
487.000 0.13 9 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 487.000, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.04,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
487.00 15 3 0.15 0.035 0.043 -0.013750 0.080
MCUHP 020, 0.761 0.15 0.38 12 6.40 0.14 0.035 0.043
0.38 0.21 0.00 6.40
100 0 0
SUBBASIN 022, Aguila/Carefree, Acres, 1.0000
SOILS
33, 3.000, 1.2, 0.23, 0
61, 92.000, 37.7, 0.15, 0
72, 44.000, 18.0, 0.09, 30
93, 4.000, 1.6, 0.33, 0
96, 82.000, 33.6, 0.07, 0
121, 19.000, 7.8, 0.12, 0
SOIL TOTALS
244.000 0.11 5 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 244.000, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.05,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
244.00 15 3 0.15 0.035 0.047 -0.013750 0.080
MCUHP 022, 0.381 0.15 0.36 8 6.80 0.12 0.035 0.047
0.36 0.17 0.00 6.80
100 0 0
SUBBASIN 024, Aguila/Carefree, Acres, 1.0000
SOILS
33, 6.000, 0.9, 0.23, 0
61, 305.000, 46.7, 0.15, 0
63, 107.000, 16.4, 0.14, 25
72, 97.000, 14.9, 0.09, 30
93, 43.000, 6.6, 0.33, 0
96, 95.000, 14.5, 0.07, 0
121, 0.100, 0.0, 0.12, 0
SOIL TOTALS
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653.100 0.13 9 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 653.100, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.04,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
653.10 15 3 0.15 0.035 0.041 -0.013750 0.080
MCUHP 024, 1.020 0.15 0.38 12 6.40 0.14 0.035 0.041
0.38 0.21 0.00 6.40
100 0 0
SUBBASIN 026, Aguila/Carefree, Acres, 1.0000
SOILS
33, 7.500, 4.4, 0.23, 0
6, 0.200, 0.1, 0.62, 0
63, 0.000, 0.0, 0.14, 25
72, 123.000, 71.5, 0.09, 30
93, 0.300, 0.2, 0.33, 0
96, 19.000, 11.0, 0.07, 0
121, 22.000, 12.8, 0.12, 0
SOIL TOTALS
172.000 0.10 21 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 172.000, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.05,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
172.00 15 3 0.15 0.035 0.049 -0.013750 0.080
MCUHP 026, 0.269 0.15 0.35 24 7.00 0.11 0.035 0.049
0.35 0.15 0.00 7.00
100 0 0
SUBBASIN 030, Aguila/Carefree, Acres, 1.0000
SOILS
6, 9.000, 4.0, 0.62, 0
33, 88.000, 38.8, 0.23, 0
61, 80.000, 35.2, 0.15, 0
72, 39.000, 17.2, 0.09, 30
93, 1.000, 0.4, 0.33, 0
96, 10.000, 4.4, 0.07, 0
SOIL TOTALS
227.000 0.17 5 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 227.000, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.05,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
227.00 15 3 0.15 0.035 0.048 -0.013750 0.080
MCUHP 030, 0.355 0.15 0.39 8 5.70 0.18 0.035 0.048
0.39 0.25 0.00 5.70
100 0 0
SUBBASIN 032, Aguila/Carefree, Acres, 1.0000
SOILS
6, 9.000, 42.9, 0.62, 0
61, 11.000, 52.4, 0.15, 0
93, 1.000, 4.8, 0.33, 0
SOIL TOTALS
21.000 0.29 0 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 21.000, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.06,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
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LAND USE TOTALS
21.000 15 3 0.15 0.035 0.062 -0.013750 0.080
MCUHP 032, 0.033 0.15 0.35 3 4.55 0.31 0.035 0.062
0.35 0.25 0.00 4.55
100 0 0
SUBBASIN 034, Aguila/Carefree, Acres, 1.0000
SOILS
33, 14.000, 7.3, 0.23, 0
61, 81.000, 42.4, 0.15, 0
63, 4.000, 2.1, 0.14, 25
72, 79.000, 41.4, 0.09, 30
93, 8.000, 4.2, 0.33, 0
96, 5.000, 2.6, 0.07, 0
SOIL TOTALS
191.000 0.13 13 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 191.000, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.05,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
191.00 15 3 0.15 0.035 0.049 -0.013750 0.080
MCUHP 034, 0.298 0.15 0.38 16 6.40 0.14 0.035 0.049
0.38 0.21 0.00 6.40
100 0 0
SUBBASIN 036, Aguila/Carefree, Acres, 1.0000
SOILS
61, 31.000, 19.4, 0.15, 0
63, 10.000, 6.2, 0.14, 25
72, 77.000, 48.1, 0.09, 30
96, 26.000, 16.2, 0.07, 0
121, 16.000, 10.0, 0.12, 0
SOIL TOTALS
160.000 0.10 16 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 160.000, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.05,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
160.00 15 3 0.15 0.035 0.050 -0.013750 0.080
MCUHP 036, 0.250 0.15 0.35 19 7.00 0.11 0.035 0.050
0.35 0.15 0.00 7.00
100 0 0
SUBBASIN 038, Aguila/Carefree, Acres, 1.0000
SOILS
61, 64.000, 54.7, 0.15, 0
72, 50.000, 42.7, 0.09, 30
96, 1.000, 0.9, 0.07, 0
121, 2.000, 1.7, 0.12, 0
SOIL TOTALS
117.000 0.12 13 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 117.000, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.05,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
117.00 15 3 0.15 0.035 0.052 -0.013750 0.080
MCUHP 038, 0.183 0.15 0.37 16 6.60 0.13 0.035 0.052
0.37 0.19 0.00 6.60
100 0 0
SUBBASIN 040, Aguila/Carefree, Acres, 1.0000
SOILS
6, 27.000, 12.9, 0.62, 0
33, 2.000, 1.0, 0.23, 0
61, 164.000, 78.1, 0.15, 0
63, 11.000, 5.2, 0.14, 25
72, 5.000, 2.4, 0.09, 30
121, 1.000, 0.5, 0.12, 0
SOIL TOTALS
210.000 0.18 2 100
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LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 210.000, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.05,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
210.00 15 3 0.15 0.035 0.048 -0.013750 0.080
MCUHP 040, 0.328 0.15 0.38 5 5.60 0.19 0.035 0.048
0.38 0.25 0.00 5.60
100 0 0
SUBBASIN 041, Aguila/Carefree, Acres, 1.0000
SOILS
6, 14.600, 35.5, 0.62, 0
33, 0.980, 2.4, 0.23, 0
61, 25.500, 62.1, 0.15, 0
SOIL TOTALS
41.080 0.25 0 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 41.080, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.06,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
41.080 15 3 0.15 0.035 0.058 -0.013750 0.080
MCUHP 041, 0.064 0.15 0.35 3 4.80 0.26 0.035 0.058
0.35 0.25 0.00 4.80
100 0 0
SUBBASIN 042, Aguila/Carefree, Acres, 1.0000
SOILS
6, 4.720, 2.3, 0.62, 0
61, 162.400, 78.2, 0.15, 0
63, 37.400, 18.0, 0.14, 25
72, 3.200, 1.5, 0.09, 30
SOIL TOTALS
207.720 0.15 5 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 207.720, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.05,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
207.72 15 3 0.15 0.035 0.048 -0.013750 0.080
MCUHP 042, 0.325 0.15 0.40 8 6.00 0.16 0.035 0.048
0.40 0.25 0.00 6.00
100 0 0
SUBBASIN 043, Aguila/Carefree, Acres, 1.0000
SOILS
6, 44.900, 24.6, 0.62, 0
33, 40.200, 22.0, 0.23, 0
61, 67.000, 36.7, 0.15, 0
122, 30.700, 16.8, 0.33, 0
SOIL TOTALS
182.800 0.27 0 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 182.800, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.05,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
182.80 15 3 0.15 0.035 0.049 -0.013750 0.080
MCUHP 043, 0.286 0.15 0.35 3 4.65 0.29 0.035 0.049
0.35 0.25 0.00 4.65
100 0 0
SUBBASIN 044, Aguila/Carefree, Acres, 1.0000
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SOILS
6, 49.000, 5.5, 0.62, 0
33, 36.000, 4.0, 0.23, 0
61, 679.000, 75.8, 0.15, 0
63, 72.000, 8.0, 0.14, 25
72, 8.000, 0.9, 0.09, 30
96, 33.000, 3.7, 0.07, 0
122, 19.000, 2.1, 0.33, 0
SOIL TOTALS
896.000 0.16 2 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 896.000, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.04,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
896.00 15 3 0.15 0.035 0.039 -0.013750 0.080
MCUHP 044, 1.400 0.15 0.39 5 5.80 0.17 0.035 0.039
0.39 0.25 0.00 5.80
100 0 0
SUBBASIN 046, Aguila/Carefree, Acres, 1.0000
SOILS
6, 35.000, 49.3, 0.62, 0
61, 8.000, 11.3, 0.15, 0
96, 28.000, 39.4, 0.07, 0
SOIL TOTALS
71.000 0.22 0 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 71.000, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.05,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
71.000 15 3 0.15 0.035 0.055 -0.013750 0.080
MCUHP 046, 0.111 0.15 0.36 3 5.10 0.23 0.035 0.055
0.36 0.25 0.00 5.10
100 0 0
SUBBASIN 048, Aguila/Carefree, Acres, 1.0000
SOILS
6, 20.000, 55.6, 0.62, 0
96, 16.000, 44.4, 0.07, 0
SOIL TOTALS
36.000 0.24 0 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 36.000, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.06,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
36.000 15 3 0.15 0.035 0.059 -0.013750 0.080
MCUHP 048, 0.056 0.15 0.35 3 4.90 0.25 0.035 0.059
0.35 0.25 0.00 4.90
100 0 0
SUBBASIN 051, Aguila/Carefree, Acres, 1.0000
SOILS
6, 3.000, 2.9, 0.62, 0
33, 39.000, 37.1, 0.23, 0
61, 21.000, 20.0, 0.15, 0
96, 42.000, 40.0, 0.07, 0
SOIL TOTALS
105.000 0.14 0 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 105.000, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.05,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
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Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
105.00 15 3 0.15 0.035 0.052 -0.013750 0.080
MCUHP 051, 0.164 0.15 0.39 3 6.20 0.15 0.035 0.052
0.39 0.23 0.00 6.20
100 0 0
SUBBASIN 053, Aguila/Carefree, Acres, 1.0000
SOILS
6, 14.000, 23.3, 0.62, 0
96, 46.000, 76.7, 0.07, 0
SOIL TOTALS
60.000 0.12 0 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 60.000, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.06,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
60.000 15 3 0.15 0.035 0.056 -0.013750 0.080
MCUHP 053, 0.094 0.15 0.37 3 6.60 0.13 0.035 0.056
0.37 0.19 0.00 6.60
100 0 0
SUBBASIN 055, Aguila/Carefree, Acres, 1.0000
SOILS
6, 1.000, 0.4, 0.62, 0
33, 103.000, 44.0, 0.23, 0
61, 59.000, 25.2, 0.15, 0
63, 17.000, 7.3, 0.14, 25
96, 54.000, 23.1, 0.07, 0
SOIL TOTALS
234.000 0.15 2 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 234.000, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.05,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
234.00 15 3 0.15 0.035 0.047 -0.013750 0.080
MCUHP 055, 0.366 0.15 0.40 5 6.00 0.16 0.035 0.047
0.40 0.25 0.00 6.00
100 0 0
SUBBASIN 058, Aguila/Carefree, Acres, 1.0000
SOILS
6, 51.000, 4.5, 0.62, 0
33, 1.000, 0.1, 0.23, 0
61, 936.000, 83.3, 0.15, 0
63, 47.000, 4.2, 0.14, 25
72, 2.000, 0.2, 0.09, 30
96, 87.000, 7.7, 0.07, 0
SOIL TOTALS
1124.000 0.15 1 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 1124.00, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.04,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
1124.0 15 3 0.15 0.035 0.038 -0.013750 0.080
MCUHP 058, 1.756 0.15 0.40 4 6.00 0.16 0.035 0.038
0.40 0.25 0.00 6.00
100 0 0
SUBBASIN 060, Aguila/Carefree, Acres, 1.0000
SOILS
61, 407.000, 81.7, 0.15, 0
63, 64.000, 12.9, 0.14, 25
96, 27.000, 5.4, 0.07, 0
SOIL TOTALS
498.000 0.14 3 100
LAND USE
Desert10, 498.000, 100.0, DRY, 10, 3, 0.15, 0.035, Low, 0.04,
Desert15, , , DRY, 15, 3, 0.15, 0.035, Low, ,
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Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
498.00 10 3 0.15 0.035 0.043 -0.013750 0.080
MCUHP 060, 0.778 0.15 0.39 6 6.20 0.14 0.035 0.043
0.39 0.23 0.00 6.20
100 0 0
SUBBASIN 062, Aguila/Carefree, Acres, 1.0000
SOILS
6, 11.000, 2.4, 0.62, 0
61, 331.000, 70.9, 0.15, 0
63, 96.000, 20.6, 0.14, 25
96, 29.000, 6.2, 0.07, 0
SOIL TOTALS
467.000 0.15 5 100
LAND USE
Desert10, 467.000, 100.0, DRY, 10, 3, 0.15, 0.035, Low, 0.04,
Desert15, , , DRY, 15, 3, 0.15, 0.035, Low, ,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
467.00 10 3 0.15 0.035 0.043 -0.013750 0.080
MCUHP 062, 0.730 0.15 0.40 8 6.00 0.15 0.035 0.043
0.40 0.25 0.00 6.00
100 0 0
SUBBASIN 064, Aguila/Carefree, Acres, 1.0000
SOILS
6, 47.000, 15.5, 0.62, 0
33, 3.000, 1.0, 0.23, 0
61, 106.000, 35.0, 0.15, 0
63, 25.000, 8.3, 0.14, 25
96, 122.000, 40.3, 0.07, 0
SOIL TOTALS
303.000 0.14 2 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 303.000, 100.0, DRY, 15, 3, 0.15, 0.035, Low, 0.05,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
303.00 15 3 0.15 0.035 0.046 -0.013750 0.080
MCUHP 064, 0.473 0.15 0.39 5 6.20 0.15 0.035 0.046
0.39 0.23 0.00 6.20
100 0 0
SUBBASIN 066, Aguila/Carefree, Acres, 1.0000
SOILS
6, 3.000, 75.0, 0.62, 0
96, 1.000, 25.0, 0.07, 0
SOIL TOTALS
4.000 0.36 0 100
LAND USE
Desert10, 4.000, 100.0, DRY, 10, 3, 0.15, 0.035, Low, 0.07,
Desert15, , , DRY, 15, 3, 0.15, 0.035, Low, ,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
4.000 10 3 0.15 0.035 0.072 -0.013750 0.080
MCUHP 066, 0.006 0.15 0.35 3 4.20 0.36 0.035 0.072
0.35 0.25 0.00 4.20
100 0 0
SUBBASIN 068, Aguila/Carefree, Acres, 1.0000
SOILS
6, 34.000, 21.4, 0.62, 0
33, 23.000, 14.5, 0.23, 0
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93, 33.000, 20.8, 0.33, 0
96, 52.000, 32.7, 0.07, 0
122, 17.000, 10.7, 0.33, 0
SOIL TOTALS
159.000 0.22 0 100
LAND USE
Desert10, 159.000, 100.0, DRY, 10, 3, 0.15, 0.035, Low, 0.05,
Desert15, , , DRY, 15, 3, 0.15, 0.035, Low, ,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
159.00 10 3 0.15 0.035 0.050 -0.013750 0.080
MCUHP 068, 0.248 0.15 0.36 3 5.10 0.22 0.035 0.050
0.36 0.25 0.00 5.10
100 0 0
SUBBASIN 070, Aguila/Carefree, Acres, 1.0000
SOILS
6, 112.000, 22.0, 0.62, 0
33, 29.000, 5.7, 0.23, 0
61, 8.000, 1.6, 0.15, 0
90, 28.000, 5.5, 0.39, 0
93, 18.000, 3.5, 0.33, 0
96, 70.000, 13.8, 0.07, 0
122, 243.000, 47.8, 0.33, 0
SOIL TOTALS
508.000 0.30 0 100
LAND USE
Desert10, 457.000, 90.0, DRY, 10, 3, 0.15, 0.035, Low, 0.04,
Desert15, , , DRY, 15, 3, 0.15, 0.035, Low, ,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, 51.000, 10.0, NORMAL, 30, 5, 0.30, 0.050, Low, 0.06,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
508.00 12 3 0.17 0.036 0.043 -0.013750 0.080
MCUHP 070, 0.794 0.17 0.34 3 4.50 0.31 0.036 0.043
0.35 0.25 0.00 4.50
90 10 0
```

```
E3102-6.M1O                          Name of output file
DDM MCUHP1 Upper Rawhide Wash - Existing Conditions 100 yr, 6 hr storm
1                                    1=single storm, 2=multiple storm
14.06                                storm size (sq. miles)
1                                    rain: 1=6hr, 2=2hr, 3=24hr, 4=manual
3.45                                 point rainfall depth
005                        <*****    basin name *************************
0.417                                basin area (square miles)
2.10                                 flow path length (miles)
0.047                                basin roughness - Kb
130.0        HE=3140.0               basin slope (ft./mile)
1          LE=2866.0                 loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.390 6.20 0.150 3.0           IA, DTHETA, PSIF, XKSAT, RTIMP
2                                    UA-record: 1=urban, 2=natural, 3=manual input
1                                    Continue? 1 = next subbasin, 2 = stop
010                        <*****    basin name *************************
0.336                                basin area (square miles)
1.93                                 flow path length (miles)
0.048                                basin roughness - Kb
146.0        HE=3130.0               basin slope (ft./mile)
1          LE=2848.0                 loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.390 5.80 0.170 3.0           IA, DTHETA, PSIF, XKSAT, RTIMP
2                                    UA-record: 1=urban, 2=natural, 3=manual input
1                                    Continue? 1 = next subbasin, 2 = stop
012                        <*****    basin name *************************
0.297                                basin area (square miles)
1.68                                 flow path length (miles)
0.049                                basin roughness - Kb
117.0        HE=2970.0               basin slope (ft./mile)
1          LE=2774.0                 loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.370 5.20 0.220 3.0           IA, DTHETA, PSIF, XKSAT, RTIMP
2                                    UA-record: 1=urban, 2=natural, 3=manual input
1                                    Continue? 1 = next subbasin, 2 = stop
015                        <*****    basin name *************************
1.268                                basin area (square miles)
2.54                                 flow path length (miles)
0.040                                basin roughness - Kb
108.0        HE=2960.0               basin slope (ft./mile)
1          LE=2686.0                 loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.390 5.80 0.170 3.0           IA, DTHETA, PSIF, XKSAT, RTIMP
2                                    UA-record: 1=urban, 2=natural, 3=manual input
1                                    Continue? 1 = next subbasin, 2 = stop
017                        <*****    basin name *************************
0.216                                basin area (square miles)
1.34                                 flow path length (miles)
0.051                                basin roughness - Kb
113.0        HE=2755.0               basin slope (ft./mile)
1          LE=2604.0                 loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.390 6.20 0.150 5.0           IA, DTHETA, PSIF, XKSAT, RTIMP
2                                    UA-record: 1=urban, 2=natural, 3=manual input
1                                    Continue? 1 = next subbasin, 2 = stop
020                        <*****    basin name *************************
0.761                                basin area (square miles)
1.74                                 flow path length (miles)
0.043                                basin roughness - Kb
199.0        HE=3020.0               basin slope (ft./mile)
1          LE=2673.0                 loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.380 6.40 0.140 12.0          IA, DTHETA, PSIF, XKSAT, RTIMP
2                                    UA-record: 1=urban, 2=natural, 3=manual input
1                                    Continue? 1 = next subbasin, 2 = stop
022                        <*****    basin name *************************
0.381                                basin area (square miles)
2.71                                 flow path length (miles)
0.047                                basin roughness - Kb
128.0        HE=2952.0               basin slope (ft./mile)
1          LE=2604.0                 loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.360 6.80 0.120 8.0           IA, DTHETA, PSIF, XKSAT, RTIMP
2                                    UA-record: 1=urban, 2=natural, 3=manual input
1                                    Continue? 1 = next subbasin, 2 = stop
024                        <*****    basin name *************************
1.020                                basin area (square miles)
1.35                                 flow path length (miles)
0.041                                basin roughness - Kb
294.0        HE=3237.0               basin slope (ft./mile)
1          LE=2704.0                 loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.380 6.40 0.140 12.0          IA, DTHETA, PSIF, XKSAT, RTIMP
2                                    UA-record: 1=urban, 2=natural, 3=manual input
1                                    Continue? 1 = next subbasin, 2 = stop
026                        <*****    basin name *************************
0.269                                basin area (square miles)
2.41                                 flow path length (miles)
0.049                                basin roughness - Kb
249.8        HE=3250.0               basin slope (ft./mile)
1          LE=2604.0                 loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.350 7.00 0.110 24.0          IA, DTHETA, PSIF, XKSAT, RTIMP
2                                    UA-record: 1=urban, 2=natural, 3=manual input
1                                    Continue? 1 = next subbasin, 2 = stop
030                        <*****    basin name *************************
0.355                                basin area (square miles)
2.38                                 flow path length (miles)
0.048                                basin roughness - Kb
100.0        HE=2821.0               basin slope (ft./mile)
1          LE=2582.0                 loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.390 5.70 0.180 8.0           IA, DTHETA, PSIF, XKSAT, RTIMP
2                                    UA-record: 1=urban, 2=natural, 3=manual input
1                                    Continue? 1 = next subbasin, 2 = stop
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032                         <*****  basin name *************************
0.033                               basin area (square miles)
0.40                                flow path length (miles)
0.062                               basin roughness - Kb
100.0        HE=2598.0              basin slope (ft./mile)
1           LE=2558.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.350 4.55 0.310 3.0          IA, DTHETA, PSIF, XKSAT, RTIMP
2                                   UA-record: 1=urban, 2=natural, 3=manual input
1                                   Continue? 1 = next subbasin, 2 = stop
034                         <*****  basin name *************************
0.298                               basin area (square miles)
1.32                                flow path length (miles)
0.049                               basin roughness - Kb
97.0        HE=2804.0               basin slope (ft./mile)
1           LE=2676.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.380 6.40 0.140 16.0         IA, DTHETA, PSIF, XKSAT, RTIMP
2                                   UA-record: 1=urban, 2=natural, 3=manual input
1                                   Continue? 1 = next subbasin, 2 = stop
036                         <*****  basin name *************************
0.250                               basin area (square miles)
1.37                                flow path length (miles)
0.050                               basin roughness - Kb
278.2        HE=3054.0              basin slope (ft./mile)
1           LE=2570.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.350 7.00 0.110 19.0         IA, DTHETA, PSIF, XKSAT, RTIMP
2                                   UA-record: 1=urban, 2=natural, 3=manual input
1                                   Continue? 1 = next subbasin, 2 = stop
038                         <*****  basin name *************************
0.183                               basin area (square miles)
1.27                                flow path length (miles)
0.052                               basin roughness - Kb
303.0        HE=3198.0              basin slope (ft./mile)
1           LE=2558.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.370 6.60 0.130 16.0         IA, DTHETA, PSIF, XKSAT, RTIMP
2                                   UA-record: 1=urban, 2=natural, 3=manual input
1                                   Continue? 1 = next subbasin, 2 = stop
040                         <*****  basin name *************************
0.328                               basin area (square miles)
1.56                                flow path length (miles)
0.048                               basin roughness - Kb
245.0        HE=2896.0              basin slope (ft./mile)
1           LE=2490.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.380 5.60 0.190 5.0          IA, DTHETA, PSIF, XKSAT, RTIMP
2                                   UA-record: 1=urban, 2=natural, 3=manual input
1                                   Continue? 1 = next subbasin, 2 = stop
041                         <*****  basin name *************************
0.064                               basin area (square miles)
0.69                                flow path length (miles)
0.058                               basin roughness - Kb
133.0        HE=2544.0              basin slope (ft./mile)
1           LE=2452.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.350 4.80 0.260 3.0          IA, DTHETA, PSIF, XKSAT, RTIMP
2                                   UA-record: 1=urban, 2=natural, 3=manual input
1                                   Continue? 1 = next subbasin, 2 = stop
042                         <*****  basin name *************************
0.325                               basin area (square miles)
1.51                                flow path length (miles)
0.048                               basin roughness - Kb
296.4        HE=3054.0              basin slope (ft./mile)
1           LE=2452.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.400 6.00 0.160 8.0          IA, DTHETA, PSIF, XKSAT, RTIMP
2                                   UA-record: 1=urban, 2=natural, 3=manual input
1                                   Continue? 1 = next subbasin, 2 = stop
043                         <*****  basin name *************************
0.286                               basin area (square miles)
1.92                                flow path length (miles)
0.049                               basin roughness - Kb
99.0        HE=2512.0               basin slope (ft./mile)
1           LE=2322.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.350 4.65 0.290 3.0          IA, DTHETA, PSIF, XKSAT, RTIMP
2                                   UA-record: 1=urban, 2=natural, 3=manual input
1                                   Continue? 1 = next subbasin, 2 = stop
044                         <*****  basin name *************************
1.400                               basin area (square miles)
2.99                                flow path length (miles)
0.039                               basin roughness - Kb
240.0        HE=3054.0              basin slope (ft./mile)
1           LE=2306.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.390 5.80 0.170 5.0          IA, DTHETA, PSIF, XKSAT, RTIMP
2                                   UA-record: 1=urban, 2=natural, 3=manual input
1                                   Continue? 1 = next subbasin, 2 = stop
046                         <*****  basin name *************************
0.111                               basin area (square miles)
0.67                                flow path length (miles)
0.055                               basin roughness - Kb
101.0        HE=2346.0              basin slope (ft./mile)
1           LE=2278.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.360 5.10 0.230 3.0          IA, DTHETA, PSIF, XKSAT, RTIMP
2                                   UA-record: 1=urban, 2=natural, 3=manual input
1                                   Continue? 1 = next subbasin, 2 = stop
048                         <*****  basin name *************************
0.056                               basin area (square miles)
0.43                                flow path length (miles)
0.059                               basin roughness - Kb
112.0        HE=2300.0              basin slope (ft./mile)
1           LE=2252.0               loss method: 1=Green-Ampt, 2 = init & uniform
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0.150 0.350 4.90 0.250 3.0        IA, DTHETA, PSIF, XKSAT, RTIMP
2                                 UA-record: 1=urban, 2=natural, 3=manual input
1                                 Continue? 1 = next subbasin, 2 = stop
051                       <*****  basin name *************************
0.164                             basin area (square miles)
1.41                              flow path length (miles)
0.052                             basin roughness - Kb
128.0        HE=2432.0            basin slope (ft./mile)
1           LE=2252.0             loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.390 6.20 0.150 3.0        IA, DTHETA, PSIF, XKSAT, RTIMP
2                                 UA-record: 1=urban, 2=natural, 3=manual input
1                                 Continue? 1 = next subbasin, 2 = stop
053                       <*****  basin name *************************
0.094                             basin area (square miles)
0.66                              flow path length (miles)
0.056                             basin roughness - Kb
126.0        HE=2313.0            basin slope (ft./mile)
1           LE=2230.0             loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.370 6.60 0.130 3.0        IA, DTHETA, PSIF, XKSAT, RTIMP
2                                 UA-record: 1=urban, 2=natural, 3=manual input
1                                 Continue? 1 = next subbasin, 2 = stop
055                       <*****  basin name *************************
0.366                             basin area (square miles)
2.43                              flow path length (miles)
0.047                             basin roughness - Kb
125.0        HE=2516.0            basin slope (ft./mile)
1           LE=2213.0             loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.400 6.00 0.160 5.0        IA, DTHETA, PSIF, XKSAT, RTIMP
2                                 UA-record: 1=urban, 2=natural, 3=manual input
1                                 Continue? 1 = next subbasin, 2 = stop
058                       <*****  basin name *************************
1.756                             basin area (square miles)
2.86                              flow path length (miles)
0.038                             basin roughness - Kb
120.0        HE=2808.0            basin slope (ft./mile)
1           LE=2464.0             loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.400 6.00 0.160 4.0        IA, DTHETA, PSIF, XKSAT, RTIMP
2                                 UA-record: 1=urban, 2=natural, 3=manual input
1                                 Continue? 1 = next subbasin, 2 = stop
060                       <*****  basin name *************************
0.778                             basin area (square miles)
3.39                              flow path length (miles)
0.043                             basin roughness - Kb
152.0        HE=2846.0            basin slope (ft./mile)
1           LE=2330.0             loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.390 6.20 0.140 6.0        IA, DTHETA, PSIF, XKSAT, RTIMP
2                                 UA-record: 1=urban, 2=natural, 3=manual input
1                                 Continue? 1 = next subbasin, 2 = stop
062                       <*****  basin name *************************
0.730                             basin area (square miles)
2.26                              flow path length (miles)
0.043                             basin roughness - Kb
158.0        HE=2680.0            basin slope (ft./mile)
1           LE=2324.0             loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.400 6.00 0.150 8.0        IA, DTHETA, PSIF, XKSAT, RTIMP
2                                 UA-record: 1=urban, 2=natural, 3=manual input
1                                 Continue? 1 = next subbasin, 2 = stop
064                       <*****  basin name *************************
0.473                             basin area (square miles)
1.80                              flow path length (miles)
0.046                             basin roughness - Kb
149.0        HE=2555.0            basin slope (ft./mile)
1           LE=2287.0             loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.390 6.20 0.150 5.0        IA, DTHETA, PSIF, XKSAT, RTIMP
2                                 UA-record: 1=urban, 2=natural, 3=manual input
1                                 Continue? 1 = next subbasin, 2 = stop
066                       <*****  basin name *************************
0.006                             basin area (square miles)
0.18                              flow path length (miles)
0.072                             basin roughness - Kb
122.0        HE=2287.0            basin slope (ft./mile)
1           LE=2265.0             loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.350 4.20 0.360 3.0        IA, DTHETA, PSIF, XKSAT, RTIMP
2                                 UA-record: 1=urban, 2=natural, 3=manual input
1                                 Continue? 1 = next subbasin, 2 = stop
068                       <*****  basin name *************************
0.248                             basin area (square miles)
1.05                              flow path length (miles)
0.050                             basin roughness - Kb
133.0        HE=2324.0            basin slope (ft./mile)
1           LE=2184.0             loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.360 5.10 0.220 3.0        IA, DTHETA, PSIF, XKSAT, RTIMP
2                                 UA-record: 1=urban, 2=natural, 3=manual input
1                                 Continue? 1 = next subbasin, 2 = stop
070                       <*****  basin name *************************
0.794                             basin area (square miles)
2.68                              flow path length (miles)
0.043                             basin roughness - Kb
131.0        HE=2385.0            basin slope (ft./mile)
1           LE=2035.0             loss method: 1=Green-Ampt, 2 = init & uniform
0.170 0.340 4.50 0.310 3.0        IA, DTHETA, PSIF, XKSAT, RTIMP
2                                 UA-record: 1=urban, 2=natural, 3=manual input
2                                 Continue? 1 = next subbasin, 2 = stop
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ID DDM MCUHP1 Upper Rawhide Wash - Existing Conditions 100 yr, 6 hr storm
ID
IT     5                    300
IO     3
KK
KM SUB-BASIN 005
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 2.10  Kb = .047  Adj. Slope =  130.0
BA  .417
IN    15
KM RAINFALL DEPTH OF 3.45 WAS SPACIALLY REDUCED AS SHOWN BY THE PB RECORD
PB 3.201
KM THE FOLLOWING PC RECORD USED A 6-HOUR STORM WITH A PATTERN No. OF 2.93
PC  .000    .015    .020    .030    .047    .061    .074    .088    .102    .116
PC  .131    .148    .171    .218    .300    .470    .672    .799    .870    .914
PC  .946    .960    .973    .987   1.000
LG  .150    .390   6.200    .150   3.000
UC  .608    .635
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 010
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.93  Kb = .048  Adj. Slope =  146.0
BA  .336
LG  .150    .390   5.800    .170   3.000
UC  .567    .621
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 012
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.68  Kb = .049  Adj. Slope =  117.0
BA  .297
LG  .150    .370   5.200    .220   3.000
UC  .583    .615
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 015
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 2.54  Kb = .040  Adj. Slope =  108.0
BA 1.268
LG  .150    .390   5.800    .170   3.000
UC  .663    .431
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 017
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.34  Kb = .051  Adj. Slope =  113.0
BA  .216
LG  .150    .390   6.200    .150   5.000
UC  .517    .538
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 020
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.74  Kb = .043  Adj. Slope =  199.0
BA  .761
LG  .150    .380   6.400    .140  12.000
UC  .442    .272
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 022
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 2.71  Kb = .047  Adj. Slope =  128.0
BA  .381
LG  .150    .360   6.800    .120   8.000
UC  .688    .939
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 024
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.35  Kb = .041  Adj. Slope =  294.0
BA 1.020
LG  .150    .380   6.400    .140  12.000
UC  .329    .135
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 026
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 2.41  Kb = .049  Adj. Slope =  249.8
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BA  .269
LG  .150    .350   7.000    .110  24.000
UC  .508    .746
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 030
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 2.38  Kb = .048  Adj. Slope =  100.0
BA  .355
LG  .150    .390   5.700    .180   8.000
UC  .729    .941
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 032
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L =  .40  Kb = .062  Adj. Slope =  100.0
BA  .033
LG  .150    .350   4.550    .310   3.000
UC  .329    .362
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 034
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.32  Kb = .049  Adj. Slope =   97.0
BA  .298
LG  .150    .380   6.400    .140  16.000
UC  .517    .443
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 036
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.37  Kb = .050  Adj. Slope =  278.2
BA  .250
LG  .150    .350   7.000    .110  19.000
UC  .371    .349
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 038
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.27  Kb = .052  Adj. Slope =  303.0
BA  .183
LG  .150    .370   6.600    .130  16.000
UC  .358    .377
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 040
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.56  Kb = .048  Adj. Slope =  245.0
BA  .328
LG  .150    .380   5.600    .190   5.000
UC  .425    .386
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 041
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L =  .69  Kb = .058  Adj. Slope =  133.0
BA  .064
LG  .150    .350   4.800    .260   3.000
UC  .383    .454
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 042
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.51  Kb = .048  Adj. Slope =  296.4
BA  .325
LG  .150    .400   6.000    .160   8.000
UC  .387    .341
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 043
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.92  Kb = .049  Adj. Slope =   99.0
BA  .286
LG  .150    .350   4.650    .290   3.000
UC  .688    .840
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
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KM SUB-BASIN 044
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 2.99  Kb = .039  Adj. Slope =  240.0
BA 1.400
LG  .150    .390   5.800    .170   5.000
UC  .538    .368
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 046
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L =  .67  Kb = .055  Adj. Slope =  101.0
BA  .111
LG  .150    .360   5.100    .230   3.000
UC  .396    .336
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 048
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L =  .43  Kb = .059  Adj. Slope =  112.0
BA  .056
LG  .150    .350   4.900    .250   3.000
UC  .317    .272
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 051
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.41  Kb = .052  Adj. Slope =  128.0
BA  .164
LG  .150    .390   6.200    .150   3.000
UC  .517    .656
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 053
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L =  .66  Kb = .056  Adj. Slope =  126.0
BA  .094
LG  .150    .370   6.600    .130   3.000
UC  .358    .327
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 055
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 2.43  Kb = .047  Adj. Slope =  125.0
BA  .366
LG  .150    .400   6.000    .160   5.000
UC  .671    .857
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 058
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 2.86  Kb = .038  Adj. Slope =  120.0
BA 1.756
LG  .150    .400   6.000    .160   4.000
UC  .663    .394
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 060
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 3.39  Kb = .043  Adj. Slope =  152.0
BA  .778
LG  .150    .390   6.200    .140   6.000
UC  .708    .773
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 062
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 2.26  Kb = .043  Adj. Slope =  158.0
BA  .730
LG  .150    .400   6.000    .150   8.000
UC  .558    .445
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 064
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.80  Kb = .046  Adj. Slope =  149.0
BA  .473
LG  .150    .390   6.200    .150   5.000
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UC  .521    .440
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 066
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L =  .18  Kb = .072  Adj. Slope =  122.0
BA  .006
LG  .150    .350   4.200    .360   3.000
UC  .225    .331
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 068
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.05  Kb = .050  Adj. Slope =  133.0
BA  .248
LG  .150    .360   5.100    .220   3.000
UC  .433    .337
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 070
KM 6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 2.68  Kb = .043  Adj. Slope =  131.0
BA  .794
LG  .170    .340   4.500    .310   3.000
UC  .704    .629
UA     0       3       5       8      12      20      43      75      90      96
UA   100
ZZ
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D.7 HYDROLOGIC CALCULATIONS

HEC-1 Output - 100-yr 6 Hour Storm Event

```
1****************************************                                    ******************************
 *                                      *                                    *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                    *   U.S. ARMY CORPS OF ENGINEE
 *              JUL   1997              *                                    *   HYDROLOGIC ENGINEERING CEN
 *           VERSION 4.1                *                                    *         609 SECOND STREET
 *                                      *                                    *      DAVIS, CALIFORNIA 95616
 *  RUN DATE   21OCT99  TIME  06:50:06  *                                    *          (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 STRUCTUR
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   DDM MCUHP1 Upper Rawhide Wash - Existing Conditions 100 yr, 6 hr storm
                      * ******************************************************************************
                      *                                                                              *
                      *                 Flood Control District of Maricopa County                    *
                      *               Upper Rawhide Wash Floodplain Delineation Study                *
                      *                                FCD98-12                                      *
                      *                                                                              *
                      *                        EXISTING CONDITIONS HYDROLOGY                         *
                      *                                                                              *
                      *                          100 yr, 6 hr storm event                            *
                      *                  Prepared by Kimley-Horn and Associates, Inc.                *
                      *                             KHA Job No. 091131.02                            *
                      *                                                                              *
                      *                                 October 1999                                 *
                      *                                                                              *
                      *                                                                              *
                      *  This hydrology represents conditions of the Upper Rawhide Wash and its      *
                      *  tributaries in existing conditions.                                         *
                      *                                                                              *
                      *  There are two existing flow splits at CP062 and CP066, they will be cut off *
                      *  and routed 100% to the dam site as part of the dam project.  This model     *
                      *  accounts for the proposed diversion works with Rawhide Wash Dam.            *
                      *                                                                              *
                      *  Input parameters for the model were determined using the Flood Control      *
                      *  District of Maricopa County's (FCDMC) Drainage Design Menu System (DDMS).   *
                      *                                                                              *
                      *  The values entered into DDMS were based on the following:                   *
                      *                                                                              *
                      *       Rainfall depths   Point precipitation values were determined using     *
                      *                         the isopluvial maps in the FCDMC Hydrology Manual    *
                      *                                                                              *
                      *       Rainfall excess   The Green and Ampt Methodology was used for          *
                      *                         estimation of rainfall losses.  Digital soil         *
                      *                         maps for the City of Scottsdale were used to         *
                      *                         determine soil distributions.                        *
                      *                                                                              *
                      *                         Existing land use conditions were determined from    *
                      *                         the City of Scottsdale General Plan digital          *
                      *                         zoning map and aerial photos.                        *
                      *                                                                              *
                      *       Unit hydrographs  The Clark Unit Hydrograph methodology was applied.   *
                      *                         City of Scottsdale digital topographic mapping       *
                      *                         with 1' and 2' contour intervals was used.           *
                      *                                                                              *
                      *       Routing           Normal Depth Channel Routing was used with 8 point   *
                      *                         cross sections approximated from the BOSS River      *
                      *                         Modeling System.                                     *
                      *                                                                              *
                      * ******************************************************************************
                      *
                      *DIAGRAM
           2          IT       2                    750
           3          IO       3
           4          IN      15
                      * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                                    PAGE  2

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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 5          KK     005
 6          KM   SUB-BASIN 005
 7          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
 8          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
 9          KM     L = 2.10  Kb = .047  Adj. Slope =  130.0
10          BA    .417
11          IN      15
12          KM   RAINFALL DEPTH OF 3.45 WAS SPACIALLY REDUCED AS SHOWN BY THE PB RECORD
13          PB   3.201
14          KM   THE FOLLOWING PC RECORD USED A 6-HOUR STORM WITH A PATTERN No. OF 2.93
15          PC    .000    .015    .020    .030    .047    .061    .074    .088    .102    .1
16          PC    .131    .148    .171    .218    .300    .470    .672    .799    .870    .9
17          PC    .946    .960    .973    .987   1.000
18          LG    .150    .390   6.200    .150   3.000
19          UC    .608    .635
20          UA       0       3       5       8      12      20      43      75      90      96
21          UA     100
            * DDM   ***** Preserved *****

22          KK  R010-1
23          KM   Route the runoff hydrograph from CP005 to CP010
24          RS       1    FLOW      -1
25          RC   0.045   0.035   0.045     884   0.024
26          RX       0      40     156     172     201     253     546     571
27          RY    2870    2868    2868    2866    2866    2868    2868    2870
            * DDM   ***** Preserved *****

28          KK     010
29          KM   SUB-BASIN 010
30          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
31          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
32          KM     L = 1.93  Kb = .048  Adj. Slope =  146.0
33          BA    .336
34          LG    .150    .390   5.800    .170   3.000
35          UC    .567    .621
36          UA       0       3       5       8      12      20      43      75      90      96
37          UA     100
            * DDM   ***** Preserved *****

38          KK   CP010
39          KM   Combine routed hydrograph from 005 and runoff hydrograph from 010
40          HC       2
            * DDM   ***** Preserved *****

41          KK  R012-1
42          KM   Route the combined hydrograph from CP010 to CP012
43          RS       6    FLOW      -1
44          RC   0.045   0.035   0.045    3716   0.019
45          RX     261     486     555     684     700     716     743     778
46          RY    2794    2792    2792    2790    2788    2790    2792    2794
            * DDM   ***** Preserved *****
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

47          KK     012
48          KM   SUB-BASIN 012
49          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
50          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
51          KM     L = 1.68  Kb = .049  Adj. Slope =  117.0
52          BA    .297
53          LG    .150    .370   5.200    .220   3.000
54          UC    .583    .615
55          UA       0       3       5       8      12      20      43      75      90      96
56          UA     100
            * DDM   ***** Preserved *****

57          KK   CP012
58          KM   Combine runoff hydrograph from 012 with routed hydrograph from CP010
59          HC       2
            * DDM   ***** Preserved *****

60          KK    D012
61          KM   Divert flow away from main Rawhide Wash to the West.
62          DT  012OUT
63          DI       0      43     152     330     586     929    1365
64          DQ       0      10      43     105     203     344     533
            * DDM   ***** Preserved *****

65          KK  R030-1
66          KM   Route the combined hydrograph from CP012 to CP030A.
67          RS      29    FLOW      -1
68          RC   0.045   0.035   0.045   10780   0.018
69          RX     428     497     753     780     835     868     897     992
70          RY    2684    2680    2680    2682    2682    2680    2680    2684
            * DDM   ***** Preserved *****

71          KK     030
72          KM   SUB-BASIN 030
73          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
74          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
75          KM     L = 2.38  Kb = .048  Adj. Slope =  100.0
76          BA    .355
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 77          LG    .150    .390   5.700    .180   8.000
 78          UC    .729    .941
 79          UA       0       3       5       8      12      20      43      75      90      96
 80          UA     100
             * DDM   ***** Preserved *****

 81          KK  CP030A
 82          KM   Combine routed hydrographs from CP012 with runoff hydrographs from 030.
 83          KM   This combination was made for use in the hydraulic modeling of a
 84          KM   tributary to Rawhide Wash.
 85          HC       2
             * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE  4

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

 86          KK     015
 87          KM   SUB-BASIN 015
 88          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
 89          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
 90          KM     L = 2.54  Kb = .040  Adj. Slope =  108.0
 91          BA   1.268
 92          LG    .150    .390   5.800    .170   3.000
 93          UC    .663    .431
 94          UA       0       3       5       8      12      20      43      75      90      96
 95          UA     100
             * DDM   ***** Preserved *****

 96          KK  R022-1
 97          KM   Route the runoff hydrograph from 015 to CP022A.
 98          RS       7    FLOW      -1
 99          RC   0.045   0.035   0.045    4466   0.018
100          RX    9714    9798    9905    9943   10002   10037   10299   10412
101          RY    2740    2734    2734    2728    2726    2728    2730    2740
             * DDM   ***** Preserved *****

102          KK     017
103          KM   SUB-BASIN 017
104          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
105          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
106          KM     L = 1.34  Kb = .051  Adj. Slope =  113.0
107          BA    .216
108          LG    .150    .390   6.200    .150   5.000
109          UC    .517    .538
110          UA       0       3       5       8      12      20      43      75      90      96
111          UA     100
             * DDM   ***** Preserved *****

112          KK  CP022A
113          KM   Combine routed hydrographs from CP015 with runoff hydrographs from 017.
114          KM   This combination was made for use in the hydraulic modeling of a
115          KM   tributary to Rawhide Wash.
116          HC       2
             * DDM   ***** Preserved *****

117          KK     020
118          KM   SUB-BASIN 020
119          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
120          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
121          KM     L = 1.74  Kb = .043  Adj. Slope =  199.0
122          BA    .761
123          LG    .150    .380   6.400    .140  12.000
124          UC    .442    .272
125          UA       0       3       5       8      12      20      43      75      90      96
126          UA     100
             * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE  5

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

127          KK  R022-2
128          KM   Route the runoff hydrograph from 020 to CP022B.
129          RS       7    FLOW      -1
130          RC   0.045   0.035   0.045    4146   0.017
131          RX    9805    9902   10081   10090   10098   10102   10253   10264
132          RY    2690    2686    2688    2686    2686    2688    2688    2690
             * DDM   ***** Preserved *****

133          KK     022
134          KM   SUB-BASIN 022
135          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
136          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
137          KM     L = 2.71  Kb = .047  Adj. Slope =  128.0
138          BA    .381
139          LG    .150    .360   6.800    .120   8.000
140          UC    .688    .939
141          UA       0       3       5       8      12      20      43      75      90      96
142          UA     100
             * DDM   ***** Preserved *****

143          KK  CP022B
144          KM   Combine routed hydrographs from CP020 with runoff hydrographs from 022.
145          KM   This combination was made for use in the hydraulic modeling of a
146          KM   tributary to Rawhide Wash.
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147          HC       2
             * DDM   ***** Preserved *****

148          KK   CP022
149          KM   Combine hydrographs from CP022A and CP022B.
150          KM   This combination was made for use in the hydraulic modeling of a
151          KM   tributary to Rawhide Wash.
152          HC       2
             * DDM   ***** Preserved *****

153          KK     024
154          KM   SUB-BASIN 024
155          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
156          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
157          KM     L = 1.35  Kb = .041  Adj. Slope =  294.0
158          BA   1.020
159          LG    .150    .380   6.400    .140  12.000
160          UC    .329    .135
161          UA       0       3       5       8      12      20      43      75      90      96
162          UA     100
             * DDM   ***** Preserved *****

163          KK  R026-1
164          KM   Route the runoff hydrograph from 024 to CP026A.
165          RS       6    FLOW      -1
166          RC   0.045   0.035   0.045    6097   0.016
167          RX    9712    9782    9851    9931    9950   10050   10176   10237
168          RY    2700    2692    2688    2688    2686    2686    2696    2700
             * DDM   ***** Preserved *****
1                                        HEC-1 INPUT                                        PAGE  6

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

169          KK     026
170          KM   SUB-BASIN 026
171          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
172          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
173          KM     L = 2.41  Kb = .049  Adj. Slope =  249.8
174          BA    .269
175          LG    .150    .350   7.000    .110  24.000
176          UC    .508    .746
177          UA       0       3       5       8      12      20      43      75      90      96
178          UA     100
             * DDM   ***** Preserved *****

179          KK  CP026A
180          KM   Combine routed hydrographs from 024 with runoff hydrographs from 026.
181          KM   This combination was made for use in the hydraulic modeling of a
182          KM   tributary to Rawhide Wash.
183          HC       2
             * DDM   ***** Preserved *****

184          KK   CP026
185          KM   Combine hydrograph from CP022 with hydrograph from CP026A.
186          HC       2
             * DDM   ***** Preserved *****

187          KK  R030-2
188          KM   Route the combined hydrograph from CP026 to CP030
189          RS       2    FLOW      -1
190          RC   0.045   0.035   0.045    1354   0.016
191          RX     214     314     479     518     654     771     852     939
192          RY    2604    2598    2598    2596    2596    2594    2594    2604
             * DDM   ***** Preserved *****

193          KK   CP030
194          KM   Combine routed hydrographs from CP026 and CP030A.
195          KM   This combination was made for use in the hydraulic modeling of a
196          KM   tributary to Rawhide Wash.
197          HC       2
             * DDM   ***** Preserved *****

198          KK  R038-1
199          KM   Route combined hydrograph from CP030 to CP038
200          RS       2    FLOW      -1
201          RC   0.045   0.035   0.045    1605   0.012
202          RX     290     378     536     538     607     650     727     753
203          RY    2582    2576    2574    2572    2572    2580    2580    2582
             * DDM   ***** Preserved *****

204          KK     034
205          KM   SUB-BASIN 034
206          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
207          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
208          KM     L = 1.32  Kb = .049  Adj. Slope =   97.0
209          BA    .298
210          LG    .150    .380   6.400    .140  16.000
1                                        HEC-1 INPUT                                        PAGE  7

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

211          UC    .517    .443
212          UA       0       3       5       8      12      20      43      75      90      96
213          UA     100
             * DDM   ***** Preserved *****
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214          KK  R036-1
215          KM   Route runoff hydrograph from 034 to CP036
216          RS       9    FLOW      -1
217          RC   0.045   0.035   0.045    5295   0.019
218          RX    9725    9842    9891    9970   10030   10032   10143   10241
219          RY    2652    2646    2646    2642    2642    2644    2644    2652
             * DDM   ***** Preserved *****

220          KK     036
221          KM   SUB-BASIN 036
222          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
223          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
224          KM     L = 1.37  Kb = .050  Adj. Slope =  278.2
225          BA    .250
226          LG    .150    .350   7.000    .110  19.000
227          UC    .371    .349
228          UA       0       3       5       8      12      20      43      75      90      96
229          UA     100
             * DDM   ***** Preserved *****

230          KK   CP036
231          KM   Combine routed hydrograph from 034 with runoff hydrograph from 036
232          HC       2
             * DDM   ***** Preserved *****

233          KK  R038-2
234          KM   Route combined hydrograph from CP036 to CP038A.
235          RS       1    FLOW      -1
236          RC   0.045   0.035   0.045     483   0.025
237          RX    9837    9891    9971    9988   10012   10126   10148   10177
238          RY    2578    2574    2574    2572    2572    2574    2576    2578
             * DDM   ***** Preserved *****

239          KK     038
240          KM   SUB-BASIN 038
241          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
242          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
243          KM     L = 1.27  Kb = .052  Adj. Slope =  303.0
244          BA    .183
245          LG    .150    .370   6.600    .130  16.000
246          UC    .358    .377
247          UA       0       3       5       8      12      20      43      75      90      96
248          UA     100
             * DDM   ***** Preserved *****
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

249          KK  CP038A
250          KM   Combine routed hydrographs from CP036 with runoff hydrograph from 038.
251          KM   This combination was made for use in the hydraulic modeling of a
252          KM   tributary to Rawhide Wash.
253          HC       2
             * DDM   ***** Preserved *****

254          KK     032
255          KM   SUB-BASIN 032
256          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
257          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
258          KM     L =  .40  Kb = .062  Adj. Slope =  100.0
259          BA    .033
260          LG    .150    .350   4.550    .310   3.000
261          UC    .329    .362
262          UA       0       3       5       8      12      20      43      75      90      96
263          UA     100
             * DDM   ***** Preserved *****

264          KK   CP038
265          KM   Combine hydrograph from CP030A and CP036 with runoff hydrographs from 032.
266          KM   This combination was made for use in the hydraulic modeling of a
267          KM   tributary to Rawhide Wash.
268          HC       3
             * DDM   ***** Preserved *****

269          KK  R040-1
270          KM   Route combined hydrograph from CP038 to CP040
271          RS       4    FLOW      -1
272          RC   0.045   0.035   0.045    3775   0.019
273          RX      47      75     224     433     448     523     609     678
274          RY    2540    2536    2530    2530    2528    2528    2534    2540
             * DDM   ***** Preserved *****

275          KK     040
276          KM   SUB-BASIN 040
277          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
278          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
279          KM     L = 1.56  Kb = .048  Adj. Slope =  245.0
280          BA    .328
281          LG    .150    .380   5.600    .190   5.000
282          UC    .425    .386
283          UA       0       3       5       8      12      20      43      75      90      96
284          UA     100
             * DDM   ***** Preserved *****
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 285          KK   CP040
 286          KM   Combine routed hydrographs from CP038 with runoff hydrograph from 040
 287          HC       2
              * DDM   ***** Preserved *****
1                                        HEC-1 INPUT                                                    PAGE  9

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


 288          KK  R042-1
 289          KM   Route combined hydrograph from CP040 to CP042
 290          RS       2    FLOW      -1
 291          RC   0.045   0.035   0.045    2074   0.018
 292          RX     263     349     381     450     522     756     847     973
 293          RY    2486    2482    2476    2482    2476    2476    2482    2486
              *
              * DDM   ***** Preserved *****

 294          KK     041
 295          KM   SUB-BASIN 041
 296          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
 297          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
 298          KM     L =  .69  Kb = .058  Adj. Slope =  133.0
 299          BA    .064
 300          LG    .150    .350   4.800    .260   3.000
 301          UC    .383    .454
 302          UA       0       3       5       8      12      20      43      75      90      96
 303          UA     100
              * DDM   ***** Preserved *****

 304          KK     042
 305          KM   SUB-BASIN 042
 306          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
 307          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
 308          KM     L = 1.51  Kb = .048  Adj. Slope =  296.4
 309          BA    .325
 310          LG    .150    .400   6.000    .160   8.000
 311          UC    .387    .341
 312          UA       0       3       5       8      12      20      43      75      90      96
 313          UA     100
              * DDM   ***** Preserved *****

 314          KK   CP042
 315          KM   Combine routed hydrograph from CP040 with runoff hydrographs from 041 & 042
 316          HC       3
              * DDM   ***** Preserved *****

 317          KK  R043-1
 318          KM   Route combined hydrograph from CP040 to CP042
 319          RS       8    FLOW      -1
 320          RC   0.045   0.035   0.045    7504   0.017
 321          RX     263     349     381     450     522     756     847     973
 322          RY    2486    2482    2476    2482    2476    2476    2482    2486
              * DDM   ***** Preserved *****

 323          KK     043
 324          KM   SUB-BASIN 043
 325          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
 326          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
 327          KM     L = 1.92  Kb = .049  Adj. Slope =   99.0
 328          BA    .286
 329          LG    .150    .350   4.650    .290   3.000
 330          UC    .688    .840
1                                        HEC-1 INPUT                                                    PAGE 10

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

 331          UA       0       3       5       8      12      20      43      75      90      96
 332          UA     100
              * DDM   ***** Preserved *****

 333          KK   CP043
 334          KM   Combine routed hydrograph from CP042 with runoff hydrograph from 043
 335          HC       2
              * DDM   ***** Preserved *****

 336          KK  R046-1
 337          KM   Route combined hydrograph from CP043 to CP046
 338          RS       4    FLOW      -1
 339          RC   0.045   0.035   0.045    2845   0.015
 340          RX    9425    9601    9923    9945   10019   10043   10267   10435
 341          RY    2300    2288    2288    2286    2286    2288    2288    2302
              * DDM   ***** Preserved *****

 342          KK     044
 343          KM   SUB-BASIN 044
 344          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
 345          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
 346          KM     L = 2.99  Kb = .039  Adj. Slope =  240.0
 347          BA   1.400
 348          LG    .150    .390   5.800    .170   5.000
 349          UC    .538    .368
 350          UA       0       3       5       8      12      20      43      75      90      96
 351          UA     100
              * DDM   ***** Preserved *****
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352          KK  R046-2
353          KM   Route runoff hydrograph from 044 to CP046
354          RS       5    FLOW      -1
355          RC   0.045   0.035   0.045    1882   0.016
356          RX    9425    9601    9923    9945   10019   10043   10267   10435
357          RY    2300    2288    2288    2286    2286    2288    2288    2302
             * DDM   ***** Preserved *****

358          KK     046
359          KM   SUB-BASIN 046
360          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
361          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
362          KM     L =  .67  Kb = .055  Adj. Slope =  101.0
363          BA    .111
364          LG    .150    .360   5.100    .230   3.000
365          UC    .396    .336
366          UA       0       3       5       8      12      20      43      75      90      96
367          UA     100
             * DDM   ***** Preserved *****

368          KK   CP046
369          KM   Combine routed hydrographs from CP042 and 044 with runoff hydrograph from
370          KM   046
371          HC       3
             * DDM   ***** Preserved *****
1                                    HEC-1 INPUT                                          PAGE 11

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

372          KK  R051-1
373          KM   Route combined hydrograph from CP046 to CP051
374          RS       2    FLOW      -1
375          RC   0.045   0.035   0.045    1557   0.017
376          RX    9822    9952    9976    9977   10023   10046   10356   10509
377          RY    2275    2261    2262    2260    2260    2263    2264    2275
             * DDM   ***** Preserved *****

378          KK     048
379          KM   SUB-BASIN 048
380          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
381          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
382          KM     L =  .43  Kb = .059  Adj. Slope =  112.0
383          BA    .056
384          LG    .150    .350   4.900    .250   3.000
385          UC    .317    .272
386          UA       0       3       5       8      12      20      43      75      90      96
387          UA     100
             * DDM   ***** Preserved *****

388          KK     051
389          KM   SUB-BASIN 051
390          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
391          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
392          KM     L = 1.41  Kb = .052  Adj. Slope =  128.0
393          BA    .164
394          LG    .150    .390   6.200    .150   3.000
395          UC    .517    .656
396          UA       0       3       5       8      12      20      43      75      90      96
397          UA     100
             * DDM   ***** Preserved *****

398          KK   CP051
399          KM   Combine routed hydrograph from CP046 with runoff hydrographs from 048 and 051
400          HC       3
             * DDM   ***** Preserved *****

401          KK  R053-1
402          KM   Route combined hydrograph from CP051 to CP053
403          RS       1    FLOW      -1
404          RC   0.045   0.035   0.045    1681   0.030
405          RX    9910    9935    9963    9987   10041   10046   10075   10085
406          RY    2249    2245    2245    2238    2238    2239    2239    2242
             * DDM   ***** Preserved *****

407          KK     053
408          KM   SUB-BASIN 053
409          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
410          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
411          KM     L =  .66  Kb = .056  Adj. Slope =  126.0
412          BA    .094
413          LG    .150    .370   6.600    .130   3.000
414          UC    .358    .327
415          UA       0       3       5       8      12      20      43      75      90      96
1                                    HEC-1 INPUT                                          PAGE 12

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

416          UA     100
             * DDM   ***** Preserved *****

417          KK   CP053
418          KM   Combine routed hydrographs from CP051 with runoff hydrograph from 053
419          HC       2
             * DDM   ***** Preserved *****
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420          KK  R055-1
421          KM   Route combined hydrograph from CP053 to CP055
422          RS       1    FLOW      -1
423          RC   0.045   0.035   0.045     784   0.019
424          RX     111     154     304     389     510     725     836     937
425          RY    2208    2202    2200    2197    2199    2200    2199    2208
             * DDM   ***** Preserved *****

426          KK     055
427          KM   SUB-BASIN 055
428          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
429          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
430          KM     L = 2.43  Kb = .047  Adj. Slope =  125.0
431          BA    .366
432          LG    .150    .400   6.000    .160   5.000
433          UC    .671    .857
434          UA       0       3       5       8      12      20      43      75      90      96
435          UA     100
             * DDM   ***** Preserved *****

436          KK   CP055
437          KM   Combine routed hydrograph from CP053 with runoff hydrograph from 055
438          HC       2
             * DDM   ***** Preserved *****

439          KK  R068-1
440          KM   Route combined hydrograph from CP055 to CP068
441          RS       2    FLOW      -1
442          RC   0.045   0.035   0.045    1728   0.017
443          RX     111     154     304     389     510     725     836     937
444          RY    2208    2202    2200    2197    2197    2200    2199    2208
             * DDM   ***** Preserved *****

445          KK     058
446          KM   SUB-BASIN 058
447          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
448          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
449          KM     L = 2.86  Kb = .038  Adj. Slope =  120.0
450          BA   1.756
451          LG    .150    .400   6.000    .160   4.000
452          UC    .663    .394
453          UA       0       3       5       8      12      20      43      75      90      96
454          UA     100
             * DDM   ***** Preserved *****
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

455          KK  R064-1
456          KM   Route runoff hydrograph from 058
457          RS       8    FLOW      -1
458          RC   0.045   0.035   0.045    7694   0.023
459          RX       0      76     102     111     117     118     168     205
460          RY    2323    2321    2319    2319    2320    2321    2323    2325
             * DDM   ***** Preserved *****

461          KK     060
462          KM   SUB-BASIN 060
463          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
464          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
465          KM     L = 3.39  Kb = .043  Adj. Slope =  152.0
466          BA    .778
467          LG    .150    .390   6.200    .140   6.000
468          UC    .708    .773
469          UA       0       3       5       8      12      20      43      75      90      96
470          UA     100
             * DDM   ***** Preserved *****

471          KK  R062-1
472          KM   Route runoff hydrograph from 060
473          RS       1    FLOW      -1
474          RC   0.045   0.035   0.045     441   0.018
475          RX       0      20      38      41      45      60      94     128
476          RY  2328.5    2328    2327    2327    2326    2326    2327  2328.5
             * DDM   ***** Preserved *****

477          KK     062
478          KM   SUB-BASIN 062
479          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
480          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
481          KM     L = 2.26  Kb = .043  Adj. Slope =  158.0
482          BA    .730
483          LG    .150    .400   6.000    .150   8.000
484          UC    .558    .445
485          UA       0       3       5       8      12      20      43      75      90      96
486          UA     100
             * DDM   ***** Preserved *****

487          KK   CP062
488          KM   Combine routed hydrograph from 060 with runoff hydrograph from 062
489          HC       2
             *
             * Currently flow splits at this location.  With the Rawhide Wash Dam project
             * these flows will be cut off and routed to the dam site.  The routing in this
             * model indicates this.
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                    *
                    * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                                          PAGE 14

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

           490      KK  R064-2
           491      KM   Route combined hydrograph from CP062
           492      RS       2    FLOW      -1
           493      RC   0.045   0.035   0.045    1554   0.024
           494      RX       0      17      23      73      83      90      99     107
           495      RY    2316    2316    2315    2315    2316    2317    2318    2319
                    * DDM   ***** Preserved *****

           496      KK     064
           497      KM   SUB-BASIN 064
           498      KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
           499      KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
           500      KM     L = 1.80  Kb = .046  Adj. Slope =  149.0
           501      BA    .473
           502      LG    .150    .390   6.200    .150   5.000
           503      UC    .521    .440
           504      UA       0       3       5       8      12      20      43      75      90      96
           505      UA     100
                    * DDM   ***** Preserved *****

           506      KK   CP064
           507      KM   Combine routed hydrographs from 058 and CP062 with runoff hydrograph from
           508      KM   064
           509      HC       3
                    * DDM   ***** Preserved *****

           510      KK  R066-1
           511      KM   Route combined hydrograph from CP064
           512      RS       1    FLOW      -1
           513      RC   0.045   0.035   0.045     934   0.021
           514      RX       0      31      66     104     111     121     129     149
           515      RY    2281    2281    2280    2280    2281    2282    2283    2284
                    * DDM   ***** Preserved *****

           516      KK     066
           517      KM   SUB-BASIN 066
           518      KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
           519      KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
           520      KM     L =  .18  Kb = .072  Adj. Slope =  122.0
           521      BA    .006
           522      LG    .150    .350   4.200    .360   3.000
           523      UC    .225    .331
           524      UA       0       3       5       8      12      20      43      75      90      96
           525      UA     100
                    * DDM   ***** Preserved *****

           526      KK   CP066
           527      KM   Combine routed hydrograph from CP064 with runoff hydrograph from 066
           528      HC       2
                    *
                    * Currently flow splits at this location.  With the Rawhide Wash Dam project
                    * these flows will be cut off and routed to the dam site.  The routing in this
                    * model indicates this.
                    *
                    * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                                          PAGE 15

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

           529      KK  R068-2
           530      KM   Route combined hydrograph from CP066
           531      RS       4    FLOW      -1
           532      RC   0.045   0.035   0.045    3234   0.025
           533      RX     198     224     270     283     684     688     721     769
           534      RY    2228    2227    2227  2226.5  2226.5    2227    2227    2228
                    * DDM   ***** Preserved *****

           535      KK     068
           536      KM   SUB-BASIN 068
           537      KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
           538      KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
           539      KM     L = 1.05  Kb = .050  Adj. Slope =  133.0
           540      BA    .248
           541      LG    .150    .360   5.100    .220   3.000
           542      UC    .433    .337
           543      UA       0       3       5       8      12      20      43      75      90      96
           544      UA     100
                    * DDM   ***** Preserved *****

           545      KK   CP068
           546      KM   Combine routed hydrographs from CP055 and CP066 with runoff hydrograph from
           547      KM   068
           548      HC       3
                    * DDM   ***** Preserved *****

           549      KK  R070-1
           550      KM   Route combined hydrograph from CP068
           551      RS       8    FLOW      -1
```

```
552          RC   0.045   0.035   0.045    7672   0.019
553          RX    65.2   145.6   307.4   320.0   550.3   564.7   809.8   963.5
554          RY    2130    2127    2127  2125.5  2125.5    2124    2124    2130
             * DDM   ***** Preserved *****

555          KK     070
556          KM   SUB-BASIN 070
557          KM   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
558          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
559          KM     L = 2.68  Kb = .043  Adj. Slope =  131.0
560          BA    .794
561          LG    .170    .340   4.500    .310   3.000
562          UC    .704    .629
563          UA       0       3       5       8      12      20      43      75      90      96
564          UA     100
             * DDM   ***** Preserved *****

565          KK   CP070
566          KM   Combine routed hydrograph from CP068 with runoff hydrograph from 070
567          HC       2
568          ZZ
1
                 SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

     5         005
                 V
                 V
    22      R010-1
                 .
                 .
    28           .         010
                 .           .
                 .           .
    38       CP010............
                 V
                 V
    41      R012-1
                 .
                 .
    47           .         012
                 .           .
                 .           .
    57       CP012............
                 .
                 .
    62           .-------> 012OUT
    60        D012
                 V
                 V
    65      R030-1
                 .
                 .
    71           .         030
                 .           .
                 .           .
    81      CP030A...........
                 .
                 .
    86           .         015
                 .           V
                 .           V
    96           .      R022-1
                 .           .
                 .           .
   102           .           .         017
                 .           .           .
                 .           .           .
   112           .      CP022A...........
                 .           .
                 .           .
   117           .           .         020
                 .           .           V
                 .           .           V
   127           .           .      R022-2
                 .           .           .
                 .           .           .
   133           .           .           .         022
                 .           .           .           .
                 .           .           .           .
   143           .           .      CP022B...........
                 .           .           .
                 .           .           .
   148           .       CP022............
                 .           .
                 .           .
   153           .           .         024
                 .           .           V
                 .           .           V
   163           .           .      R026-1
                 .           .           .
                 .           .           .
   169           .           .           .         026
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                .          .          .          .
                .          .          .          .
179             .          .     CP026............
                .          .          .
                .          .          .
184             .      CP026............
                .          V
                .          V
187             .     R030-2
                .          .
                .          .
193         CP030............
                V
                V
198         R038-1
                .
                .
204             .        034
                .          V
                .          V
214             .     R036-1
                .          .
                .          .
220             .          .        036
                .          .          .
                .          .          .
230             .      CP036............
                .          V
                .          V
233             .     R038-2
                .          .
                .          .
239             .          .        038
                .          .          .
                .          .          .
249             .     CP038A...........
                .          .
                .          .
254             .          .        032
                .          .          .
                .          .          .
264         CP038........................
                V
                V
269         R040-1
                .
                .
275             .        040
                .          .
                .          .
285         CP040............
                V
                V
288         R042-1
                .
                .
294             .        041
                .          .
                .          .
304             .          .        042
                .          .          .
                .          .          .
314         CP042........................
                V
                V
317         R043-1
                .
                .
323             .        043
                .          .
                .          .
333         CP043............
                V
                V
336         R046-1
                .
                .
342             .        044
                .          V
                .          V
352             .     R046-2
                .          .
                .          .
358             .          .        046
                .          .          .
                .          .          .
368         CP046........................
                V
                V
372         R051-1
                .
                .
378             .        048
                .          .
                .          .
388             .          .        051
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                .          .          .
                .          .          .
  398       CP051.......................
                V
                V
  401      R053-1
                .
                .
  407           .         053
                .           .
                .           .
  417       CP053............
                V
                V
  420      R055-1
                .
                .
  426           .         055
                .           .
                .           .
  436       CP055............
                V
                V
  439      R068-1
                .
                .
  445           .         058
                .           V
                .           V
  455           .      R064-1
                .           .
                .           .
  461           .           .         060
                .           .           V
                .           .           V
  471           .           .      R062-1
                .           .           .
                .           .           .
  477           .           .           .         062
                .           .           .           .
                .           .           .           .
  487           .           .       CP062............
                .           .           V
                .           .           V
  490           .           .      R064-2
                .           .           .
                .           .           .
  496           .           .           .         064
                .           .           .           .
                .           .           .           .
  506           .       CP064.......................
                .           V
                .           V
  510           .      R066-1
                .           .
                .           .
  516           .           .         066
                .           .           .
                .           .           .
  526           .       CP066............
                .           V
                .           V
  529           .      R068-2
                .           .
                .           .
  535           .           .         068
                .           .           .
                .           .           .
  545       CP068.......................
                V
                V
  549      R070-1
                .
                .
  555           .         070
                .           .
                .           .
  565       CP070............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUL   1997              *
 *           VERSION 4.1                *
 *                                      *
 *  RUN DATE   21OCT99  TIME  06:50:06  *
 *                                      *
 ****************************************
```

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

```
  3 IO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                       NMIN           2  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1    0  STARTING DATE
                      ITIME        0000  STARTING TIME
                         NQ         750  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      2    0  ENDING DATE
                     NDTIME        0058  ENDING TIME
                      ICENT          19  CENTURY MARK

                 COMPUTATION INTERVAL     .03 HOURS
                      TOTAL TIME BASE   24.97 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


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


            **************
            *            *
  5 KK      *       005  *
            *            *
            **************
                          SUB-BASIN 005
                          6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                          THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                            L = 2.10  Kb = .047  Adj. Slope =  130.0
                          RAINFALL DEPTH OF 3.45 WAS SPACIALLY REDUCED AS SHOWN BY THE PB RECORD
                          THE FOLLOWING PC RECORD USED A 6-HOUR STORM WITH A PATTERN No. OF 2.93

 11 IN          TIME DATA FOR INPUT TIME SERIES
                      JXMIN          15  TIME INTERVAL IN MINUTES
                     JXDATE      1    0  STARTING DATE
                     JXTIME           0  STARTING TIME

             SUBBASIN RUNOFF DATA

 10 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .42  SUBBASIN AREA

                PRECIPITATION DATA

 14 PB                STORM        3.20  BASIN TOTAL PRECIPITATION

 14 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                     .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                     .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                     .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                     .00       .00       .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

 18 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .15  STARTING LOSS
                        DTH         .39  MOISTURE DEFICIT
                       PSIF        6.20  WETTING FRONT SUCTION
                      XKSAT         .15  HYDRAULIC CONDUCTIVITY
                      RTIMP        3.00  PERCENT IMPERVIOUS AREA

 19 UC          CLARK UNITGRAPH
                         TC         .61  TIME OF CONCENTRATION
                          R         .63  STORAGE COEFFICIENT

 20 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                       .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                    100.0

                                                   ***

                                          UNIT HYDROGRAPH PARAMETERS
                                     CLARK   TC=    .61 HR,       R=    .63 HR
```

```
                                        SNYDER   TP=   .54 HR,      CP=   .59

                                                   UNIT HYDROGRAPH
                                             113 END-OF-PERIOD ORDINATES
                3.      10.      15.      19.      24.      30.      37.      48.      62.      92.
              138.     193.     252.     287.     303.     307.     303.     298.     288.     274.
              260.     247.     234.     222.     211.     200.     190.     180.     171.     162.
              154.     146.     139.     132.     125.     118.     112.     107.     101.      96.
               91.      86.      82.      78.      74.      70.      66.      63.      60.      57.
               54.      51.      49.      46.      44.      41.      39.      37.      35.      34.
               32.      30.      29.      27.      26.      25.      23.      22.      21.      20.
               19.      18.      17.      16.      15.      15.      14.      13.      12.      12.
               11.      11.      10.      10.       9.       9.       8.       8.       7.       7.
                7.       6.       6.       6.       5.       5.       5.       5.       4.       4.
                4.       4.       4.       3.       3.       3.       3.       3.       3.       2.
                2.       2.       2.

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

                        HYDROGRAPH AT STATION      005

    TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.72, TOTAL EXCESS =    1.48

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                           (CFS)
+     289.      4.53                 66.         17.         16.         16.
                         (INCHES)   1.470       1.476       1.476       1.476
                          (AC-FT)     33.         33.         33.         33.

                        CUMULATIVE AREA =     .42 SQ MI


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


            **************
            *            *
  22 KK     *    R010-1  *
            *            *
            **************
                           Route the runoff hydrograph from CP005 to CP010

              HYDROGRAPH ROUTING DATA

  24 RS         STORAGE ROUTING
                      NSTPS          1  NUMBER OF SUBREACHES
                       ITYP       FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC      -1.00  INITIAL CONDITION
                          X        .00 WORKING R AND D COEFFICIENT

  25 RC         NORMAL DEPTH CHANNEL
                        ANL       .045  LEFT OVERBANK N-VALUE
                       ANCH       .035  MAIN CHANNEL N-VALUE
                        ANR       .045  RIGHT OVERBANK N-VALUE
                      RLNTH       884.  REACH LENGTH
                        SEL      .0240  ENERGY SLOPE
                      ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
  27 RY       ELEVATION   2870.00   2868.00   2868.00   2866.00   2866.00   2868.00   2868.00   2870.00
  26 RX       DISTANCE        .00     40.00    156.00    172.00    201.00    253.00    546.00    571.00

                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .14       .31       .51       .74      1.00      1.29      1.62      1.97      2.35
          OUTFLOW        .00     14.92     49.95    103.74    177.08    271.14    387.28    526.86    691.27    881.88
        ELEVATION    2866.00   2866.21   2866.42   2866.63   2866.84   2867.05   2867.26   2867.47   2867.68   2867.89

          STORAGE       3.63      5.82      8.04     10.29     12.57     14.88     17.21     19.58     21.97     24.40
          OUTFLOW    1172.90   1726.14   2463.48   3359.20   4399.50   5575.31   6880.10   8308.89   9857.77  11523.57
        ELEVATION    2868.10   2868.31   2868.53   2868.74   2868.95   2869.16   2869.37   2869.58   2869.79   2870.00

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

                        HYDROGRAPH AT STATION   R010-1

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                           (CFS)
+     288.      4.57                 66.         17.         16.         16.
                         (INCHES)   1.470       1.476       1.476       1.476
                          (AC-FT)     33.         33.         33.         33.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
       1.       4.57                  0.          0.          0.          0.
```

```
  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR      24.97-HR
+   (FEET)      (HR)
   2867.08      4.57              2866.35     2866.09     2866.09      2866.09

                        CUMULATIVE AREA =     .42 SQ MI


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


            **************
            *            *
  28 KK     *       010  *
            *            *
            **************
                          SUB-BASIN 010
                          6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                          THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                            L = 1.93  Kb = .048  Adj. Slope =  146.0

               SUBBASIN RUNOFF DATA

  33 BA          SUBBASIN CHARACTERISTICS
                       TAREA         .34  SUBBASIN AREA

                 PRECIPITATION DATA

  14 PB                STORM        3.20  BASIN TOTAL PRECIPITATION

  14 PI            INCREMENTAL PRECIPITATION PATTERN
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                       .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                       .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                       .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                       .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                       .00       .00       .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

  34 LG          GREEN AND AMPT LOSS RATE
                       STRTL         .15  STARTING LOSS
                         DTH         .39  MOISTURE DEFICIT
                        PSIF        5.80  WETTING FRONT SUCTION
                       XKSAT         .17  HYDRAULIC CONDUCTIVITY
                       RTIMP        3.00  PERCENT IMPERVIOUS AREA

  35 UC          CLARK UNITGRAPH
                          TC         .57  TIME OF CONCENTRATION
                           R         .62  STORAGE COEFFICIENT

  36 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                        .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                     100.0

                                                    ***

                                                UNIT HYDROGRAPH PARAMETERS
                                         CLARK   TC=    .57 HR,       R=    .62 HR
                                        SNYDER   TP=    .50 HR,      CP=    .58

                                                UNIT HYDROGRAPH
                                          110 END-OF-PERIOD ORDINATES
                 3.        9.       13.       17.       21.       27.       34.       45.       66.      101.
               149.      202.      237.      251.      255.      253.      248.      239.      227.      215.
               203.      193.      183.      173.      164.      156.      147.      140.      132.      126.
               119.      113.      107.      101.       96.       91.       86.       82.       77.       73.
                70.       66.       62.       59.       56.       53.       50.       48.       45.       43.
                41.       39.       37.       35.       33.       31.       29.       28.       26.       25.
                24.       23.       21.       20.       19.       18.       17.       16.       15.       15.
                14.       13.       12.       12.       11.       11.       10.       10.        9.        9.
                 8.        8.        7.        7.        7.        6.        6.        6.        5.        5.
                 5.        4.        4.        4.        4.        4.        3.        3.        3.        3.
                 3.        3.        2.        2.        2.        2.        2.        2.        2.        2.

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

                        HYDROGRAPH AT STATION      010

   TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.77, TOTAL EXCESS =    1.43

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR      24.97-HR
```

```
+   (CFS)       (HR)
                          (CFS)
+     230.      4.50                  51.         13.         12.         12.
                        (INCHES)    1.422       1.427       1.427       1.427
                         (AC-FT)      25.         26.         26.         26.

                        CUMULATIVE AREA =     .34 SQ MI


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


            **************
            *            *
  38 KK     *    CP010   *
            *            *
            **************
                          Combine routed hydrograph from 005 and runoff hydrograph from 010

  40 HC          HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                         HYDROGRAPH AT STATION    CP010

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+     518.      4.53                 117.         29.         28.         28.
                        (INCHES)    1.448       1.454       1.454       1.454
                         (AC-FT)      58.         58.         58.         58.

                        CUMULATIVE AREA =     .75 SQ MI


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


            **************
            *            *
  41 KK     *   R012-1   *
            *            *
            **************
                          Route the combined hydrograph from CP010 to CP012

              HYDROGRAPH ROUTING DATA

  43 RS          STORAGE ROUTING
                       NSTPS           6  NUMBER OF SUBREACHES
                        ITYP        FLOW  TYPE OF INITIAL CONDITION
                       RSVRIC      -1.00  INITIAL CONDITION
                            X        .00 WORKING R AND D COEFFICIENT

  44 RC          NORMAL DEPTH CHANNEL
                         ANL        .045  LEFT OVERBANK N-VALUE
                        ANCH        .035  MAIN CHANNEL N-VALUE
                         ANR        .045  RIGHT OVERBANK N-VALUE
                       RLNTH       3716.  REACH LENGTH
                         SEL       .0190  ENERGY SLOPE
                       ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
  46 RY        ELEVATION   2794.00   2792.00   2792.00   2790.00   2788.00   2790.00   2792.00   2794.00
  45 RX        DISTANCE     261.00    486.00    555.00    684.00    700.00    716.00    743.00    778.00

                                                                  ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .07       .27       .61      1.09      1.70      2.45      3.45      5.08      7.38
          OUTFLOW        .00      1.36      8.63     25.45     54.80     99.36    161.57    215.99    312.74    473.97
        ELEVATION    2788.00   2788.32   2788.63   2788.95   2789.26   2789.58   2789.89   2790.21   2790.53   2790.84

          STORAGE      10.34     13.96     18.25     23.83     31.67     40.61     50.66     61.81     74.07     87.43
          OUTFLOW     708.36   1026.17   1437.71   2004.60   2839.19   3857.50   5066.87   6477.20   8098.83   9942.11
        ELEVATION    2791.16   2791.47   2791.79   2792.10   2792.42   2792.74   2793.05   2793.37   2793.68   2794.00


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     5067. TO     9942.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                         HYDROGRAPH AT STATION   R012-1

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
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```
                                        6-HR        24-HR        72-HR      24.97-HR
+   (CFS)        (HR)
                            (CFS)
+     514.       4.70                   117.          29.          28.          28.
                         (INCHES)     1.448       1.454        1.454        1.454
                          (AC-FT)        58.          58.          58.          58.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                        6-HR        24-HR        72-HR      24.97-HR
+  (AC-FT)       (HR)
       1.       4.70                     0.           0.           0.           0.

  PEAK STAGE    TIME                           MAXIMUM AVERAGE STAGE
                                        6-HR        24-HR        72-HR      24.97-HR
+   (FEET)       (HR)
   2790.89      4.70                 2789.27      2788.34      2788.33      2788.33

                         CUMULATIVE AREA =      .75 SQ MI


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


            **************
            *            *
  47 KK     *      012   *
            *            *
            **************
                          SUB-BASIN 012
                          6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                          THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                            L = 1.68  Kb = .049  Adj. Slope =  117.0

              SUBBASIN RUNOFF DATA

  52 BA         SUBBASIN CHARACTERISTICS
                      TAREA          .30  SUBBASIN AREA

                PRECIPITATION DATA

  14 PB               STORM        3.20  BASIN TOTAL PRECIPITATION

  14 PI           INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                      .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                      .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                      .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                      .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                      .00       .00       .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

  53 LG         GREEN AND AMPT LOSS RATE
                      STRTL         .15  STARTING LOSS
                        DTH         .37  MOISTURE DEFICIT
                       PSIF        5.20  WETTING FRONT SUCTION
                      XKSAT         .22  HYDRAULIC CONDUCTIVITY
                      RTIMP        3.00  PERCENT IMPERVIOUS AREA

  54 UC         CLARK UNITGRAPH
                         TC         .58  TIME OF CONCENTRATION
                          R         .62  STORAGE COEFFICIENT

  55 UA         ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                        .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                     100.0

                                                   ***

                                                UNIT HYDROGRAPH PARAMETERS
                                         CLARK   TC=   .58 HR,       R=   .62 HR
                                        SNYDER   TP=   .51 HR,      CP=   .58

                                                UNIT HYDROGRAPH
                                            109 END-OF-PERIOD ORDINATES
                 3.        7.       11.       14.       19.       23.       29.       38.       53.       80.
               120.      165.      201.      220.      226.      224.      221.      214.      205.      194.
               184.      174.      165.      156.      148.      140.      133.      126.      119.      113.
               107.      101.       96.       91.       86.       81.       77.       73.       69.       66.
                62.       59.       56.       53.       50.       47.       45.       43.       40.       38.
                36.       34.       32.       31.       29.       28.       26.       25.       23.       22.
                21.       20.       19.       18.       17.       16.       15.       14.       14.       13.
                12.       12.       11.       10.       10.        9.        9.        8.        8.        7.
                 7.        7.        6.        6.        6.        5.        5.        5.        5.        4.
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```
                4.        4.        4.        4.        3.        3.        3.        3.        3.        3.
                2.        2.        2.        2.        2.        2.        2.        2.        2.

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

                        HYDROGRAPH AT STATION      012

    TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.87, TOTAL EXCESS =    1.33

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+     194.      4.50          42.         11.         10.          10.
                        (INCHES)      1.320       1.325       1.325        1.325
                         (AC-FT)        21.         21.         21.          21.

                        CUMULATIVE AREA =     .30 SQ MI


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

            **************
            *            *
  57 KK     *     CP012  *
            *            *
            **************
                           Combine runoff hydrograph from 012 with routed hydrograph from CP010

  59 HC          HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

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

                        HYDROGRAPH AT STATION    CP012

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+     697.      4.63         159.         40.         38.          38.
                        (INCHES)      1.412       1.417       1.417        1.417
                         (AC-FT)        79.         79.         79.          79.

                        CUMULATIVE AREA =    1.05 SQ MI


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

            **************
            *            *
  60 KK     *      D012  *
            *            *
            **************
                           Divert flow away from main Rawhide Wash to the West.

     DT          DIVERSION
                       ISTAD      012OUT  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW         .00     43.00    152.00    330.00    586.00    929.00   1365.00

     DQ      DIVERTED FLOW         .00     10.00     43.00    105.00    203.00    344.00    533.00
                                                                  ***

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

                        DIVERSION HYDROGRAPH   012OUT

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+     249.      4.63          52.         13.         13.          13.
                        (INCHES)       .462        .463        .463         .463
                         (AC-FT)        26.         26.         26.          26.

                        CUMULATIVE AREA =    1.05 SQ MI

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

                        HYDROGRAPH AT STATION     D012

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
```

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+     448.      4.63                 107.         27.         26.         26.
                          (INCHES)   .950        .954        .954        .954
                           (AC-FT)    53.         53.         53.         53.

                          CUMULATIVE AREA =    1.05 SQ MI


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


            **************
            *            *
  65 KK     *    R030-1  *
            *            *
            **************
                          Route the combined hydrograph from CP012 to CP030A.

               HYDROGRAPH ROUTING DATA

  67 RS          STORAGE ROUTING
                      NSTPS          29  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

  68 RC          NORMAL DEPTH CHANNEL
                        ANL        .045  LEFT OVERBANK N-VALUE
                       ANCH        .035  MAIN CHANNEL N-VALUE
                        ANR        .045  RIGHT OVERBANK N-VALUE
                      RLNTH      10780.  REACH LENGTH
                        SEL      .0180  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
  70 RY        ELEVATION   2684.00   2680.00   2680.00   2682.00   2682.00   2680.00   2680.00   2684.00
  69 RX        DISTANCE     428.00    497.00    753.00    780.00    835.00    868.00    897.00    992.00

                                                          ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE        .00     15.23     31.24     48.03     65.60     83.94    103.07    122.97    143.65    165.10
            OUTFLOW        .00     95.62    308.06    614.56   1007.54   1483.37   2040.18   2677.06   3393.75   4190.36
          ELEVATION    2680.00   2680.21   2680.42   2680.63   2680.84   2681.05   2681.26   2681.47   2681.68   2681.89

            STORAGE     188.72    214.27    240.27    266.72    293.62    320.97    348.77    377.01    405.71    434.86
            OUTFLOW    4976.18   6007.34   7135.96   8359.29   9675.29  11082.43  12579.50  14165.55  15839.86  17601.83
          ELEVATION    2682.10   2682.31   2682.53   2682.74   2682.95   2683.16   2683.37   2683.58   2683.79   2684.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     1008. TO    17602.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R030-1

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR       72-HR     24.97-HR
+   (CFS)        (HR)
                           (CFS)
+     430.       5.37                 107.         27.         26.         26.
                          (INCHES)   .949        .954        .954        .954
                           (AC-FT)    53.         53.         53.         53.

 PEAK STORAGE    TIME                         MAXIMUM AVERAGE STORAGE
                                     6-HR        24-HR       72-HR     24.97-HR
+  (AC-FT)       (HR)
       1.        5.37                  0.          0.          0.          0.

  PEAK STAGE     TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR        24-HR       72-HR     24.97-HR
+   (FEET)       (HR)
  2680.50        5.37               2680.17     2680.04     2680.04     2680.04

                          CUMULATIVE AREA =    1.05 SQ MI


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


            **************
            *            *
  71 KK     *       030  *
            *            *
            **************
                          SUB-BASIN 030
                          6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                          THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                            L = 2.38  Kb = .048  Adj. Slope =  100.0
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                SUBBASIN RUNOFF DATA

 76 BA            SUBBASIN CHARACTERISTICS
                       TAREA          .35  SUBBASIN AREA

                  PRECIPITATION DATA

 14 PB                 STORM        3.20  BASIN TOTAL PRECIPITATION

 14 PI              INCREMENTAL PRECIPITATION PATTERN
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                       .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                       .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                       .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                       .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                       .00       .00       .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

 77 LG            GREEN AND AMPT LOSS RATE
                       STRTL         .15  STARTING LOSS
                         DTH         .39  MOISTURE DEFICIT
                        PSIF        5.70  WETTING FRONT SUCTION
                       XKSAT         .18  HYDRAULIC CONDUCTIVITY
                       RTIMP        8.00  PERCENT IMPERVIOUS AREA

 78 UC            CLARK UNITGRAPH
                          TC         .73  TIME OF CONCENTRATION
                           R         .94  STORAGE COEFFICIENT

 79 UA            ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                        .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                     100.0

                                                   ***

                                                UNIT HYDROGRAPH PARAMETERS
                                         CLARK   TC=   .73 HR,       R=   .94 HR
                                       SNYDER   TP=   .65 HR,      CP=   .51

                                                UNIT HYDROGRAPH
                                            163 END-OF-PERIOD ORDINATES
                 2.        5.        8.       10.       12.       14.       17.       21.       25.       31.
                40.       56.       79.      106.      136.      160.      174.      182.      184.      184.
               183.      181.      176.      170.      164.      158.      153.      148.      143.      138.
               133.      128.      124.      119.      115.      111.      107.      104.      100.       97.
                93.       90.       87.       84.       81.       78.       75.       73.       70.       68.
                65.       63.       61.       59.       57.       55.       53.       51.       49.       48.
                46.       44.       43.       41.       40.       38.       37.       36.       35.       33.
                32.       31.       30.       29.       28.       27.       26.       25.       24.       23.
                23.       22.       21.       20.       20.       19.       18.       18.       17.       16.
                16.       15.       15.       14.       14.       13.       13.       12.       12.       12.
                11.       11.       10.       10.       10.        9.        9.        9.        8.        8.
                 8.        8.        7.        7.        7.        7.        6.        6.        6.        6.
                 5.        5.        5.        5.        5.        5.        4.        4.        4.        4.
                 4.        4.        4.        3.        3.        3.        3.        3.        3.        3.
                 3.        3.        3.        2.        2.        2.        2.        2.        2.        2.
                 2.        2.        2.        2.        2.        2.        2.        1.        1.        1.
                 1.        1.        1.

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

                        HYDROGRAPH AT STATION      030

    TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.70, TOTAL EXCESS =    1.50

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+     194.      4.67                  56.         14.         14.         14.
                        (INCHES)    1.464       1.489       1.489       1.489
                        (AC-FT)       28.         28.         28.         28.

                        CUMULATIVE AREA =     .35 SQ MI


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


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                 *            *
 81 KK           *    CP030A  *
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                *            *
                **************
                              Combine routed hydrographs from CP012 with runoff hydrographs from 030.
                              This combination was made for use in the hydraulic modeling of a
                              tributary to Rawhide Wash.

  85 HC          HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                   ***

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

                         HYDROGRAPH AT STATION   CP030A

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+     552.      5.37                162.         41.         40.          40.
                         (INCHES)   1.075       1.089       1.089        1.089
                          (AC-FT)     81.         82.         82.          82.

                          CUMULATIVE AREA =    1.40 SQ MI


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


                **************
                *            *
  86 KK         *       015  *
                *            *
                **************
                              SUB-BASIN 015
                              6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                              THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                                L = 2.54  Kb = .040  Adj. Slope =  108.0

                SUBBASIN RUNOFF DATA

  91 BA           SUBBASIN CHARACTERISTICS
                       TAREA        1.27  SUBBASIN AREA

                  PRECIPITATION DATA

  14 PB                STORM        3.20  BASIN TOTAL PRECIPITATION

  14 PI             INCREMENTAL PRECIPITATION PATTERN
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                       .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                       .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                       .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                       .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                       .00       .00       .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

  92 LG           GREEN AND AMPT LOSS RATE
                       STRTL         .15  STARTING LOSS
                         DTH         .39  MOISTURE DEFICIT
                        PSIF        5.80  WETTING FRONT SUCTION
                       XKSAT         .17  HYDRAULIC CONDUCTIVITY
                       RTIMP        3.00  PERCENT IMPERVIOUS AREA

  93 UC           CLARK UNITGRAPH
                          TC         .66  TIME OF CONCENTRATION
                           R         .43  STORAGE COEFFICIENT

  94 UA           ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                          .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                       100.0

                                                                   ***

                                                   UNIT HYDROGRAPH PARAMETERS
                                             CLARK   TC=   .66 HR,       R=   .43 HR
                                            SNYDER   TP=   .55 HR,      CP=   .79

                                                      UNIT HYDROGRAPH
                                                 81 END-OF-PERIOD ORDINATES
                          14.       40.       60.       74.       92.      113.      137.      164.      208.      270.
                         396.      580.      793.     1022.     1156.     1204.     1207.     1171.     1129.     1080.
                        1016.      940.      870.      805.      745.      690.      638.      591.      547.      506.
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```
              469.      434.      401.      371.      344.      318.      295.      273.      252.      233.
              216.      200.      185.      171.      159.      147.      136.      126.      116.      108.
              100.       92.       85.       79.       73.       68.       63.       58.       54.       50.
               46.       43.       39.       36.       34.       31.       29.       27.       25.       23.
               21.       20.       18.       17.       16.       14.       13.       12.       11.       11.
               10.

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

                        HYDROGRAPH AT STATION      015

    TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.77, TOTAL EXCESS =    1.43

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+    1021.      4.47                194.         49.         47.         47.
                         (INCHES)   1.424      1.426       1.426       1.426
                          (AC-FT)     96.         96.         96.         96.

                         CUMULATIVE AREA =    1.27 SQ MI


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


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            *            *
  96 KK     *    R022-1  *
            *            *
            **************
                          Route the runoff hydrograph from 015 to CP022A.

              HYDROGRAPH ROUTING DATA

  98 RS         STORAGE ROUTING
                      NSTPS           7  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

  99 RC         NORMAL DEPTH CHANNEL
                        ANL        .045  LEFT OVERBANK N-VALUE
                       ANCH        .035  MAIN CHANNEL N-VALUE
                        ANR        .045  RIGHT OVERBANK N-VALUE
                      RLNTH       4466.  REACH LENGTH
                        SEL      .0180  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
  101 RY       ELEVATION   2740.00   2734.00   2734.00   2728.00   2726.00   2728.00   2730.00   2740.00
  100 RX       DISTANCE    9714.00   9798.00   9905.00   9943.00  10002.00  10037.00  10299.00  10412.00

                                                   ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

           STORAGE        .00      1.31      5.23     11.98     25.08     45.83     73.14    102.04    131.93    162.79
           OUTFLOW        .00     37.42    237.63    735.05   1761.95   3478.22   6207.14   9915.32  14419.45  19678.21
         ELEVATION    2726.00   2726.74   2727.47   2728.21   2728.95   2729.68   2730.42   2731.16   2731.89   2732.63

           STORAGE     194.64    228.62    270.78    314.36    359.34    405.73    453.53    502.74    553.35    605.38
           OUTFLOW   25666.15  32426.68  40529.64  49673.28  59794.69  70868.67  82882.85  95831.55 109713.20 124529.00
         ELEVATION    2733.37   2734.10   2734.84   2735.58   2736.32   2737.05   2737.79   2738.53   2739.26   2740.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     6207. TO   124529.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R022-1

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+    1011.      4.67                194.         49.         47.         47.
                         (INCHES)   1.424      1.426       1.426       1.426
                          (AC-FT)     96.         96.         96.         96.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
       2.       4.63                  0.          0.          0.          0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2728.41      4.63              2726.81     2726.20     2726.20     2726.20
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                    CUMULATIVE AREA =    1.27 SQ MI

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 102 KK   *      017   *
          *            *
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                    SUB-BASIN 017
                    6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                    THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                      L = 1.34  Kb = .051  Adj. Slope =  113.0

            SUBBASIN RUNOFF DATA

 107 BA       SUBBASIN CHARACTERISTICS
                  TAREA          .22  SUBBASIN AREA

              PRECIPITATION DATA

  14 PB           STORM        3.20  BASIN TOTAL PRECIPITATION

  14 PI         INCREMENTAL PRECIPITATION PATTERN
                  .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                  .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                  .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                  .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                  .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                  .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                  .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                  .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                  .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                  .01      .01      .01      .01      .01      .01      .01      .01      .01      .01
                  .01      .01      .01      .01      .01      .02      .02      .02      .02      .02
                  .02      .02      .02      .03      .03      .03      .03      .03      .03      .03
                  .02      .02      .02      .02      .02      .02      .02      .01      .01      .01
                  .01      .01      .01      .01      .01      .00      .00      .00      .00      .00
                  .00      .00      .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

 108 LG       GREEN AND AMPT LOSS RATE
                  STRTL          .15  STARTING LOSS
                    DTH          .39  MOISTURE DEFICIT
                   PSIF         6.20  WETTING FRONT SUCTION
                  XKSAT          .15  HYDRAULIC CONDUCTIVITY
                  RTIMP         5.00  PERCENT IMPERVIOUS AREA

 109 UC       CLARK UNITGRAPH
                     TC          .52  TIME OF CONCENTRATION
                      R          .54  STORAGE COEFFICIENT

 110 UA       ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                    .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                 100.0

                                                  ***

                                          UNIT HYDROGRAPH PARAMETERS
                                   CLARK   TC=   .52 HR,       R=   .54 HR
                                  SNYDER   TP=   .45 HR,      CP=   .59

                                          UNIT HYDROGRAPH
                                   96 END-OF-PERIOD ORDINATES
                2.        7.       10.       13.       18.       23.       30.       44.       69.      107.
              149.      176.      185.      187.      183.      177.      168.      158.      149.      140.
              131.      123.      116.      109.      103.       96.       91.       85.       80.       75.
               71.       66.       62.       59.       55.       52.       49.       46.       43.       40.
               38.       36.       34.       32.       30.       28.       26.       25.       23.       22.
               20.       19.       18.       17.       16.       15.       14.       13.       12.       12.
               11.       10.       10.        9.        9.        8.        8.        7.        7.        6.
                6.        6.        5.        5.        5.        4.        4.        4.        4.        3.
                3.        3.        3.        3.        2.        2.        2.        2.        2.        2.
                2.        2.        2.        1.        1.        1.

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

                    HYDROGRAPH AT STATION      017

   TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.68, TOTAL EXCESS =    1.52

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                              (CFS)
+     165.      4.43            35.          9.          8.          8.
                         (INCHES)     1.505       1.511       1.511       1.511
                          (AC-FT)       17.         17.         17.         17.

                    CUMULATIVE AREA =     .22 SQ MI
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            *            *
 112 KK     *    CP022A  *
            *            *
            **************
                           Combine routed hydrographs from CP015 with runoff hydrographs from 017.
                           This combination was made for use in the hydraulic modeling of a
                           tributary to Rawhide Wash.

 116 HC          HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                         HYDROGRAPH AT STATION   CP022A

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    1163.      4.63                229.         57.         55.         55.
                        (INCHES)    1.436       1.439       1.439       1.439
                         (AC-FT)     114.        114.        114.        114.

                        CUMULATIVE AREA =    1.48 SQ MI


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

            **************
            *            *
 117 KK     *       020  *
            *            *
            **************
                           SUB-BASIN 020
                           6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                           THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                             L = 1.74  Kb = .043  Adj. Slope =  199.0

              SUBBASIN RUNOFF DATA

 122 BA          SUBBASIN CHARACTERISTICS
                       TAREA         .76  SUBBASIN AREA

                 PRECIPITATION DATA

  14 PB                STORM        3.20  BASIN TOTAL PRECIPITATION

  14 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                      .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                      .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                      .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                      .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                      .00       .00       .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

 123 LG          GREEN AND AMPT LOSS RATE
                       STRTL         .15  STARTING LOSS
                         DTH         .38  MOISTURE DEFICIT
                        PSIF        6.40  WETTING FRONT SUCTION
                       XKSAT         .14  HYDRAULIC CONDUCTIVITY
                       RTIMP       12.00  PERCENT IMPERVIOUS AREA

 124 UC          CLARK UNITGRAPH
                          TC         .44  TIME OF CONCENTRATION
                           R         .27  STORAGE COEFFICIENT

 125 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                        .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                     100.0

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                                        UNIT HYDROGRAPH PARAMETERS
                                  CLARK   TC=   .44 HR,       R=   .27 HR
                                 SNYDER   TP=   .37 HR,      CP=   .83

                                          UNIT HYDROGRAPH
                                     52 END-OF-PERIOD ORDINATES
              19.      51.      75.     101.     134.     188.     297.     500.     797.    1037.
            1118.    1100.    1037.     949.     846.     749.     662.     586.     518.     458.
             405.     358.     317.     280.     248.     219.     194.     172.     152.     134.
             119.     105.      93.      82.      73.      64.      57.      50.      45.      39.
              35.      31.      27.      24.      21.      19.      17.      15.      13.      12.
              10.       9.

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

                      HYDROGRAPH AT STATION      020

   TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.52, TOTAL EXCESS =    1.68

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+     803.      4.27                136.         34.         33.         33.
                         (INCHES)   1.666       1.670       1.670       1.670
                          (AC-FT)     68.         68.         68.         68.

                         CUMULATIVE AREA =     .76 SQ MI


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


            **************
            *            *
  127 KK    *    R022-2  *
            *            *
            **************
                            Route the runoff hydrograph from 020 to CP022B.

              HYDROGRAPH ROUTING DATA

  129 RS        STORAGE ROUTING
                      NSTPS           7  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

  130 RC        NORMAL DEPTH CHANNEL
                        ANL        .045  LEFT OVERBANK N-VALUE
                       ANCH        .035  MAIN CHANNEL N-VALUE
                        ANR        .045  RIGHT OVERBANK N-VALUE
                      RLNTH       4146.  REACH LENGTH
                        SEL       .0170  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
  132 RY      ELEVATION   2690.00   2686.00   2688.00   2686.00   2686.00   2688.00   2688.00   2690.00
  131 RX      DISTANCE    9805.00   9902.00  10081.00  10090.00  10098.00  10102.00  10253.00  10264.00

                                                   ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE        .00       .41      1.33      2.76      4.70      7.14     10.09     13.54     17.50     21.97
            OUTFLOW        .00      5.82     26.51     68.00    135.60    234.17    368.21    541.98    759.51   1024.65
          ELEVATION    2686.00   2686.21   2686.42   2686.63   2686.84   2687.05   2687.26   2687.47   2687.68   2687.89

            STORAGE      28.40     36.53     44.78     53.16     61.66     70.29     79.05     87.93     96.93    106.06
            OUTFLOW    1387.11   1896.58   2502.97   3197.06   3973.60   4829.03   5760.71   6766.61   7845.13   8994.96
          ELEVATION    2688.10   2688.31   2688.53   2688.74   2688.95   2689.16   2689.37   2689.58   2689.79   2690.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     4829. TO     8995.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                      HYDROGRAPH AT STATION   R022-2

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+     776.      4.50                136.         34.         33.         33.
                         (INCHES)   1.664       1.670       1.670       1.670
                          (AC-FT)     68.         68.         68.         68.

  PEAK STORAGE  TIME                        MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
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      3.      4.50                    1.          0.          0.          0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2687.70      4.50               2686.59     2686.15     2686.15     2686.15

                        CUMULATIVE AREA =     .76 SQ MI


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


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            *            *
 133 KK     *      022   *
            *            *
            **************
                          SUB-BASIN 022
                          6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                          THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                            L = 2.71  Kb = .047  Adj. Slope =  128.0

                SUBBASIN RUNOFF DATA

 138 BA           SUBBASIN CHARACTERISTICS
                        TAREA         .38  SUBBASIN AREA

                  PRECIPITATION DATA

  14 PB                 STORM        3.20  BASIN TOTAL PRECIPITATION

  14 PI             INCREMENTAL PRECIPITATION PATTERN
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                        .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                        .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                        .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                        .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                        .00       .00       .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

 139 LG           GREEN AND AMPT LOSS RATE
                        STRTL         .15  STARTING LOSS
                          DTH         .36  MOISTURE DEFICIT
                         PSIF        6.80  WETTING FRONT SUCTION
                        XKSAT         .12  HYDRAULIC CONDUCTIVITY
                        RTIMP        8.00  PERCENT IMPERVIOUS AREA

 140 UC           CLARK UNITGRAPH
                           TC         .69  TIME OF CONCENTRATION
                            R         .94  STORAGE COEFFICIENT

 141 UA           ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                          .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                       100.0

                                                    ***

                                                UNIT HYDROGRAPH PARAMETERS
                                         CLARK   TC=   .69 HR,       R=   .94 HR
                                       SNYDER   TP=   .62 HR,      CP=   .49

                                                UNIT HYDROGRAPH
                                          162 END-OF-PERIOD ORDINATES
                          2.        6.        9.       11.       13.       17.       20.       24.       30.       39.
                         54.       77.      107.      141.      170.      188.      197.      200.      200.      199.
                        196.      191.      184.      178.      172.      166.      160.      154.      149.      144.
                        139.      134.      129.      125.      120.      116.      112.      108.      104.      101.
                         97.       94.       91.       87.       84.       81.       79.       76.       73.       71.
                         68.       66.       64.       61.       59.       57.       55.       53.       51.       50.
                         48.       46.       45.       43.       41.       40.       39.       37.       36.       35.
                         34.       32.       31.       30.       29.       28.       27.       26.       25.       24.
                         24.       23.       22.       21.       20.       20.       19.       18.       18.       17.
                         16.       16.       15.       15.       14.       14.       13.       13.       12.       12.
                         12.       11.       11.       10.       10.       10.        9.        9.        9.        8.
                          8.        8.        8.        7.        7.        7.        7.        6.        6.        6.
                          6.        5.        5.        5.        5.        5.        5.        4.        4.        4.
                          4.        4.        4.        4.        3.        3.        3.        3.        3.        3.
                          3.        3.        3.        3.        2.        2.        2.        2.        2.        2.
                          2.        2.        2.        2.        2.        2.        2.        2.        1.        1.
                          1.        1.

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                        HYDROGRAPH AT STATION      022

    TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.51, TOTAL EXCESS =    1.69

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+     231.      4.67                68.         17.         17.         17.
                        (INCHES)   1.657       1.683       1.683       1.683
                         (AC-FT)    34.         34.         34.         34.

                        CUMULATIVE AREA =     .38 SQ MI


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


            **************
            *            *
  143 KK    *    CP022B  *
            *            *
            **************
                          Combine routed hydrographs from CP020 with runoff hydrographs from 022.
                          This combination was made for use in the hydraulic modeling of a
                          tributary to Rawhide Wash.

  147 HC          HYDROGRAPH COMBINATION
                        ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                        HYDROGRAPH AT STATION   CP022B

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+     996.      4.50                203.         51.         49.         49.
                        (INCHES)   1.653       1.674       1.674       1.674
                         (AC-FT)   101.        102.        102.        102.

                        CUMULATIVE AREA =    1.14 SQ MI


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


            **************
            *            *
  148 KK    *     CP022  *
            *            *
            **************
                          Combine hydrographs from CP022A and CP022B.
                          This combination was made for use in the hydraulic modeling of a
                          tributary to Rawhide Wash.

  152 HC          HYDROGRAPH COMBINATION
                        ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                        HYDROGRAPH AT STATION    CP022

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    2138.      4.60                432.        109.        105.        105.
                        (INCHES)   1.530       1.541       1.541       1.541
                         (AC-FT)   214.        216.        216.        216.

                        CUMULATIVE AREA =    2.63 SQ MI


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


            **************
            *            *
  153 KK    *        024 *
            *            *
            **************
                          SUB-BASIN 024
                          6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
```

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                    THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                      L = 1.35  Kb = .041  Adj. Slope =  294.0

            SUBBASIN RUNOFF DATA

158 BA        SUBBASIN CHARACTERISTICS
                   TAREA        1.02  SUBBASIN AREA

              PRECIPITATION DATA

 14 PB             STORM        3.20  BASIN TOTAL PRECIPITATION

 14 PI          INCREMENTAL PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                  .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                  .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                  .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                  .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                  .00       .00       .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

159 LG        GREEN AND AMPT LOSS RATE
                  STRTL         .15  STARTING LOSS
                    DTH         .38  MOISTURE DEFICIT
                   PSIF        6.40  WETTING FRONT SUCTION
                  XKSAT         .14  HYDRAULIC CONDUCTIVITY
                  RTIMP       12.00  PERCENT IMPERVIOUS AREA

160 UC        CLARK UNITGRAPH
                     TC         .33  TIME OF CONCENTRATION
                      R         .13  STORAGE COEFFICIENT

161 UA        ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                     .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                  100.0

                                                          ***

                                                UNIT HYDROGRAPH PARAMETERS
                                          CLARK   TC=   .33 HR,       R=   .13 HR
                                         SNYDER   TP=   .27 HR,      CP=  1.04

                                                   UNIT HYDROGRAPH
                                              28 END-OF-PERIOD ORDINATES
                66.      161.      237.      345.      559.     1154.     2091.     2610.     2473.     2133.
              1740.     1358.     1059.      827.      645.      503.      393.      306.      239.      186.
               145.      114.       89.       69.       54.       42.       33.       26.

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

                        HYDROGRAPH AT STATION      024

   TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.52, TOTAL EXCESS =    1.68

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    1273.      4.17                 183.         46.         44.         44.
                        (INCHES)    1.668      1.670       1.670       1.670
                         (AC-FT)     91.         91.         91.         91.

                        CUMULATIVE AREA =    1.02 SQ MI


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


            **************
            *            *
163 KK      *    R026-1  *
            *            *
            **************
                      Route the runoff hydrograph from 024 to CP026A.

            HYDROGRAPH ROUTING DATA

165 RS        STORAGE ROUTING
                  NSTPS           6  NUMBER OF SUBREACHES
                   ITYP        FLOW  TYPE OF INITIAL CONDITION
                 RSVRIC       -1.00  INITIAL CONDITION
                      X         .00 WORKING R AND D COEFFICIENT
```

```
 166 RC          NORMAL DEPTH CHANNEL
                       ANL        .045  LEFT OVERBANK N-VALUE
                      ANCH        .035  MAIN CHANNEL N-VALUE
                       ANR        .045  RIGHT OVERBANK N-VALUE
                     RLNTH       6097.  REACH LENGTH
                       SEL       .0160  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                         CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 168 RY        ELEVATION   2700.00   2692.00   2688.00   2688.00   2686.00   2686.00   2696.00   2700.00
 167 RX        DISTANCE    9712.00   9782.00   9851.00   9931.00   9950.00  10050.00  10176.00  10237.00

                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

           STORAGE        .00     11.15     23.98     40.88     65.78     92.95    122.39    154.10    188.08    224.09
           OUTFLOW        .00    334.93   1100.22   1820.00   3853.22   6532.27   9844.59  13788.80  18369.50  23637.11
         ELEVATION    2686.00   2686.74   2687.47   2688.21   2688.95   2689.68   2690.42   2691.16   2691.89   2692.63

           STORAGE     261.72    300.98    341.86    384.37    428.51    474.45    522.21    571.79    623.20    676.43
           OUTFLOW   29545.92  36086.96  43261.93  51074.35  59496.30  68532.05  78237.41  88621.69  99694.59 111466.10
         ELEVATION    2693.37   2694.10   2694.84   2695.58   2696.32   2697.05   2697.79   2698.53   2699.26   2700.00


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     9845. TO   111466.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R026-1

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+    1189.      4.40                    183.         46.         44.         44.
                         (INCHES)     1.667      1.670       1.670       1.670
                          (AC-FT)       91.         91.         91.         91.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                        6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
       4.       4.40                      1.          0.          0.          0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                        6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2687.56      4.40                 2686.30     2686.07     2686.07     2686.07

                         CUMULATIVE AREA =    1.02 SQ MI


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


            **************
            *            *
 169 KK     *       026  *
            *            *
            **************
                          SUB-BASIN 026
                          6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                          THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                            L = 2.41  Kb = .049  Adj. Slope =  249.8

              SUBBASIN RUNOFF DATA

 174 BA         SUBBASIN CHARACTERISTICS
                     TAREA         .27  SUBBASIN AREA

                PRECIPITATION DATA

  14 PB              STORM        3.20  BASIN TOTAL PRECIPITATION

  14 PI           INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                     .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                     .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                     .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                     .00       .00       .01       .01       .01       .01       .01       .01       .01       .01
                     .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

175 LG          GREEN AND AMPT LOSS RATE
                      STRTL        .15  STARTING LOSS
                        DTH        .35  MOISTURE DEFICIT
                       PSIF       7.00  WETTING FRONT SUCTION
                      XKSAT        .11  HYDRAULIC CONDUCTIVITY
                      RTIMP      24.00  PERCENT IMPERVIOUS AREA

176 UC          CLARK UNITGRAPH
                         TC        .51  TIME OF CONCENTRATION
                          R        .75  STORAGE COEFFICIENT

177 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                       .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                    100.0

                                                                  ***

                                                        UNIT HYDROGRAPH PARAMETERS
                                                  CLARK   TC=   .51 HR,       R=   .75 HR
                                                 SNYDER   TP=   .47 HR,      CP=   .48

                                                          UNIT HYDROGRAPH
                                                   128 END-OF-PERIOD ORDINATES
                  2.        6.        9.       13.       17.       22.       29.       44.       70.      107.
                145.      169.      179.      181.      180.      176.      169.      161.      154.      148.
                141.      135.      129.      123.      118.      113.      108.      103.       99.       94.
                 90.       86.       83.       79.       75.       72.       69.       66.       63.       60.
                 58.       55.       53.       50.       48.       46.       44.       42.       40.       39.
                 37.       35.       34.       32.       31.       30.       28.       27.       26.       25.
                 24.       23.       22.       21.       20.       19.       18.       17.       17.       16.
                 15.       14.       14.       13.       13.       12.       12.       11.       11.       10.
                 10.        9.        9.        8.        8.        8.        7.        7.        7.        6.
                  6.        6.        6.        5.        5.        5.        5.        5.        4.        4.
                  4.        4.        4.        3.        3.        3.        3.        3.        3.        3.
                  3.        2.        2.        2.        2.        2.        2.        2.        2.        2.
                  2.        2.        1.        1.        1.        1.        1.        1.

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

                         HYDROGRAPH AT STATION      026

    TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.21, TOTAL EXCESS =    1.99

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                           (CFS)
+     202.      4.50                  56.         14.         14.         14.
                         (INCHES)   1.941      1.982       1.982       1.982
                          (AC-FT)     28.         28.         28.         28.

                         CUMULATIVE AREA =     .27 SQ MI


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


            **************
            *            *
179 KK      *   CP026A   *
            *            *
            **************
                         Combine routed hydrographs from 024 with runoff hydrographs from 026.
                         This combination was made for use in the hydraulic modeling of a
                         tributary to Rawhide Wash.

183 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                         HYDROGRAPH AT STATION   CP026A

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                           (CFS)
+    1388.      4.40                 238.         60.         58.         58.
                         (INCHES)   1.719      1.735       1.735       1.735
                          (AC-FT)    118.        119.        119.        119.

                         CUMULATIVE AREA =    1.29 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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                **************
                *            *
 184 KK         *     CP026  *
                *            *
                **************
                              Combine hydrograph from CP022 with hydrograph from CP026A.

 186 HC           HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                            HYDROGRAPH AT STATION    CP026

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR      24.97-HR
+   (CFS)        (HR)
                             (CFS)
+    3421.       4.50                670.         169.         162.         162.
                          (INCHES)  1.591        1.605        1.605        1.605
                           (AC-FT)   332.         335.         335.         335.

                           CUMULATIVE AREA =    3.91 SQ MI


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


                **************
                *            *
 187 KK         *    R030-2  *
                *            *
                **************
                              Route the combined hydrograph from CP026 to CP030

                HYDROGRAPH ROUTING DATA

 189 RS           STORAGE ROUTING
                       NSTPS           2  NUMBER OF SUBREACHES
                        ITYP        FLOW  TYPE OF INITIAL CONDITION
                       RSVRIC      -1.00  INITIAL CONDITION
                            X        .00 WORKING R AND D COEFFICIENT

 190 RC           NORMAL DEPTH CHANNEL
                         ANL        .045  LEFT OVERBANK N-VALUE
                        ANCH        .035  MAIN CHANNEL N-VALUE
                         ANR        .045  RIGHT OVERBANK N-VALUE
                       RLNTH       1354.  REACH LENGTH
                         SEL       .0160  ENERGY SLOPE
                       ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                           --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 192 RY         ELEVATION   2604.00   2598.00   2598.00   2596.00   2596.00   2594.00   2594.00   2604.00
 191 RX         DISTANCE     214.00    314.00    479.00    518.00    654.00    771.00    852.00    939.00

                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE        .00      1.61      3.81      6.58     10.37     16.29     22.45     28.86     36.59     46.15
            OUTFLOW        .00    135.45    490.76   1084.49   1751.86   3365.03   5493.72   8096.17  11260.71  15276.39
          ELEVATION    2594.00   2594.53   2595.05   2595.58   2596.11   2596.63   2597.16   2597.68   2598.21   2598.74

            STORAGE      55.94     65.95     76.17     86.61     97.27    108.15    119.25    130.57    142.10    153.85
            OUTFLOW   19974.87  25303.44  31232.77  37743.36  44821.39  52456.68  60641.67  69370.69  78639.52  88446.43
          ELEVATION    2599.26   2599.79   2600.32   2600.84   2601.37   2601.90   2602.42   2602.95   2603.47   2604.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     5494. TO    88446.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                            HYDROGRAPH AT STATION   R030-2

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR      24.97-HR
+   (CFS)        (HR)
                             (CFS)
+    3410.       4.53                670.         169.         162.         162.
                          (INCHES)  1.590        1.605        1.605        1.605
                           (AC-FT)   332.         335.         335.         335.

 PEAK STORAGE    TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR        24-HR        72-HR      24.97-HR
+  (AC-FT)       (HR)
       8.       4.53                  2.           1.           0.           0.

  PEAK STAGE     TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR        24-HR        72-HR      24.97-HR
```

```
+   (FEET)      (HR)
   2596.64      4.53                2594.85     2594.22     2594.21      2594.21

                        CUMULATIVE AREA =    3.91 SQ MI


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


            **************
            *            *
 193 KK     *    CP030   *
            *            *
            **************
                          Combine routed hydrographs from CP026 and CP030A.
                          This combination was made for use in the hydraulic modeling of a
                          tributary to Rawhide Wash.

 197 HC          HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                        HYDROGRAPH AT STATION    CP030

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR      24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    3599.      4.53                826.        210.        202.         202.
                        (INCHES)    1.443       1.469       1.469        1.469
                         (AC-FT)    410.        417.        417.         417.

                        CUMULATIVE AREA =    5.32 SQ MI


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


            **************
            *            *
 198 KK     *   R038-1   *
            *            *
            **************
                          Route combined hydrograph from CP030 to CP038

              HYDROGRAPH ROUTING DATA

 200 RS          STORAGE ROUTING
                      NSTPS           2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC      -1.00  INITIAL CONDITION
                           X        .00 WORKING R AND D COEFFICIENT

 201 RC          NORMAL DEPTH CHANNEL
                        ANL        .045  LEFT OVERBANK N-VALUE
                       ANCH        .035  MAIN CHANNEL N-VALUE
                        ANR        .045  RIGHT OVERBANK N-VALUE
                      RLNTH       1605.  REACH LENGTH
                        SEL       .0120  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 203 RY        ELEVATION   2582.00   2576.00   2574.00   2572.00   2572.00   2580.00   2580.00   2582.00
 202 RX        DISTANCE     290.00    378.00    536.00    538.00    607.00    650.00    727.00    753.00

                                                                  ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.37      2.81      4.31      5.89      8.08     11.13     15.04     19.76     24.80
          OUTFLOW        .00    111.07    354.99    702.85   1145.64   1708.56   2438.05   3373.12   4578.89   6077.35
        ELEVATION    2572.00   2572.53   2573.05   2573.58   2574.11   2574.63   2575.16   2575.68   2576.21   2576.74

          STORAGE      30.05     35.50     41.16     47.02     53.08     59.35     67.05     75.33     83.88     92.72
          OUTFLOW    7807.90   9764.12  11942.63  14341.88  16961.61  19802.34  23091.44  26775.24  30785.12  35113.73
        ELEVATION    2577.26   2577.79   2578.32   2578.84   2579.37   2579.90   2580.42   2580.95   2581.47   2582.00


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     9764. TO     35114.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R038-1

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR      24.97-HR
```

```
+   (CFS)        (HR)
                          (CFS)
+    3573.       4.60                  826.        210.        202.        202.
                          (INCHES)    1.443       1.469       1.469       1.469
                          (AC-FT)     409.        417.        417.        417.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                        6-HR        24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
        8.      4.60                      2.          1.          1.          1.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                        6-HR        24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2575.77      4.60                 2573.36     2572.36     2572.34     2572.34

                          CUMULATIVE AREA =    5.32 SQ MI


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  204 KK    *       034  *
            *            *
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                          SUB-BASIN 034
                          6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                          THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                            L = 1.32  Kb = .049  Adj. Slope =   97.0

                SUBBASIN RUNOFF DATA

  209 BA          SUBBASIN CHARACTERISTICS
                        TAREA         .30  SUBBASIN AREA

                  PRECIPITATION DATA

   14 PB                STORM        3.20  BASIN TOTAL PRECIPITATION

   14 PI            INCREMENTAL PRECIPITATION PATTERN
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                        .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                        .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                        .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                        .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                        .00       .00       .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

  210 LG          GREEN AND AMPT LOSS RATE
                        STRTL         .15  STARTING LOSS
                          DTH         .38  MOISTURE DEFICIT
                         PSIF        6.40  WETTING FRONT SUCTION
                        XKSAT         .14  HYDRAULIC CONDUCTIVITY
                        RTIMP       16.00  PERCENT IMPERVIOUS AREA

  211 UC          CLARK UNITGRAPH
                           TC         .52  TIME OF CONCENTRATION
                            R         .44  STORAGE COEFFICIENT

  212 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                        .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                     100.0

                                                   ***

                                                UNIT HYDROGRAPH PARAMETERS
                                          CLARK   TC=   .52 HR,       R=   .44 HR
                                         SNYDER   TP=   .44 HR,      CP=   .67

                                                UNIT HYDROGRAPH
                                            80 END-OF-PERIOD ORDINATES
                     4.       11.       17.       22.       29.       37.       49.       71.      113.      175.
                   241.      284.      297.      296.      288.      275.      258.      239.      222.      206.
                   191.      177.      164.      152.      141.      131.      122.      113.      105.       97.
                    90.       83.       77.       72.       67.       62.       57.       53.       49.       46.
                    42.       39.       36.       34.       31.       29.       27.       25.       23.       22.
                    20.       19.       17.       16.       15.       14.       13.       12.       11.       10.
                     9.        9.        8.        8.        7.        6.        6.        6.        5.        5.
                     4.        4.        4.        4.        3.        3.        3.        3.        2.        2.

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                    HYDROGRAPH AT STATION      034

   TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.45, TOTAL EXCESS =    1.75

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+     264.      4.37                  55.         14.         13.         13.
                        (INCHES)    1.728       1.738       1.738       1.738
                         (AC-FT)     27.         28.         28.         28.

                        CUMULATIVE AREA =     .30 SQ MI


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  214 KK    *    R036-1  *
            *            *
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                     Route runoff hydrograph from 034 to CP036

               HYDROGRAPH ROUTING DATA

  216 RS          STORAGE ROUTING
                       NSTPS           9  NUMBER OF SUBREACHES
                        ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC       -1.00  INITIAL CONDITION
                           X         .00 WORKING R AND D COEFFICIENT

  217 RC          NORMAL DEPTH CHANNEL
                         ANL        .045  LEFT OVERBANK N-VALUE
                        ANCH        .035  MAIN CHANNEL N-VALUE
                         ANR        .045  RIGHT OVERBANK N-VALUE
                       RLNTH       5295.  REACH LENGTH
                         SEL       .0190  ENERGY SLOPE
                       ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
  219 RY        ELEVATION   2652.00   2646.00   2646.00   2642.00   2642.00   2644.00   2644.00   2652.00
  218 RX        DISTANCE    9725.00   9842.00   9891.00   9970.00  10030.00  10032.00  10143.00  10241.00

                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

           STORAGE        .00      4.19      9.08     14.66     22.38     36.73     52.16     68.66     87.50    109.29
           OUTFLOW        .00    124.69    410.56    838.99   1423.58   2375.94   3679.40   5308.21   7367.13   9992.12
         ELEVATION    2642.00   2642.53   2643.05   2643.58   2644.11   2644.63   2645.16   2645.68   2646.21   2646.74

           STORAGE     132.15    156.08    181.08    207.15    234.28    262.49    291.76    322.11    353.52    386.00
           OUTFLOW   13022.68  16447.67  20263.81  24471.14  29071.57  34068.16  39464.79  45265.89  51476.34  58102.60
         ELEVATION    2647.26   2647.79   2648.32   2648.84   2649.37   2649.90   2650.42   2650.95   2651.47   2652.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     2376. TO     58103.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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                    HYDROGRAPH AT STATION   R036-1

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+     260.      4.60                  55.         14.         13.         13.
                        (INCHES)    1.727       1.738       1.738       1.738
                         (AC-FT)     27.         28.         28.         28.

  PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
       1.       4.60                   0.          0.          0.          0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2642.78      4.60               2642.20     2642.05     2642.05     2642.05

                        CUMULATIVE AREA =     .30 SQ MI


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              *            *
 220 KK       *     036    *
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                             SUB-BASIN 036
                             6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                             THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                               L = 1.37  Kb = .050  Adj. Slope =  278.2

                 SUBBASIN RUNOFF DATA

 225 BA            SUBBASIN CHARACTERISTICS
                        TAREA          .25  SUBBASIN AREA

                   PRECIPITATION DATA

  14 PB                 STORM        3.20  BASIN TOTAL PRECIPITATION

  14 PI              INCREMENTAL PRECIPITATION PATTERN
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                        .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                        .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                        .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                        .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                        .00       .00       .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

 226 LG            GREEN AND AMPT LOSS RATE
                        STRTL         .15  STARTING LOSS
                          DTH         .35  MOISTURE DEFICIT
                         PSIF        7.00  WETTING FRONT SUCTION
                        XKSAT         .11  HYDRAULIC CONDUCTIVITY
                        RTIMP       19.00  PERCENT IMPERVIOUS AREA

 227 UC            CLARK UNITGRAPH
                           TC         .37  TIME OF CONCENTRATION
                            R         .35  STORAGE COEFFICIENT

 228 UA            ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                          .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                       100.0

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                                                   UNIT HYDROGRAPH PARAMETERS
                                          CLARK   TC=   .37 HR,       R=   .35 HR
                                         SNYDER   TP=   .33 HR,      CP=   .64

                                                      UNIT HYDROGRAPH
                                                 63 END-OF-PERIOD ORDINATES
                 6.       16.       24.       34.       51.       87.      159.      253.      314.      325.
               315.      296.      270.      245.      223.      203.      184.      167.      152.      138.
               126.      114.      104.       94.       86.       78.       71.       64.       58.       53.
                48.       44.       40.       36.       33.       30.       27.       25.       22.       20.
                19.       17.       15.       14.       13.       12.       10.       10.        9.        8.
                 7.        6.        6.        5.        5.        4.        4.        4.        3.        3.
                 3.        2.        2.

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

                          HYDROGRAPH AT STATION      036

    TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.29, TOTAL EXCESS =    1.91

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                             (CFS)
+     261.      4.27            51.        13.        12.        12.
                         (INCHES)     1.895      1.904      1.904      1.904
                         (AC-FT)        25.        25.        25.        25.

                          CUMULATIVE AREA =     .25 SQ MI


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              *            *
 230 KK       *    CP036   *
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                             Combine routed hydrograph from 034 with runoff hydrograph from 036

  232 HC          HYDROGRAPH COMBINATION
                        ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

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                          HYDROGRAPH AT STATION    CP036

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+     477.      4.50                106.         27.         26.          26.
                         (INCHES)    1.800       1.814       1.814        1.814
                          (AC-FT)     53.         53.         53.          53.

                         CUMULATIVE AREA =     .55 SQ MI


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  233 KK      *    R038-2  *
              *            *
              **************
                             Route combined hydrograph from CP036 to CP038A.

                HYDROGRAPH ROUTING DATA

  235 RS          STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        FLOW  TYPE OF INITIAL CONDITION
                        RSVRIC      -1.00  INITIAL CONDITION
                             X        .00 WORKING R AND D COEFFICIENT

  236 RC          NORMAL DEPTH CHANNEL
                          ANL       .045  LEFT OVERBANK N-VALUE
                         ANCH       .035  MAIN CHANNEL N-VALUE
                          ANR       .045  RIGHT OVERBANK N-VALUE
                        RLNTH       483.  REACH LENGTH
                          SEL      .0250  ENERGY SLOPE
                        ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
  238 RY        ELEVATION   2578.00   2574.00   2574.00   2572.00   2572.00   2574.00   2576.00   2578.00
  237 RX        DISTANCE    9837.00   9891.00   9971.00   9988.00  10012.00  10126.00  10148.00  10177.00

                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE        .00       .12       .31       .58       .92      1.32      1.81      2.54      3.39      4.27
            OUTFLOW        .00     28.37    108.39    250.90    467.74    770.07   1168.46   1781.94   2624.95   3632.54
          ELEVATION    2572.00   2572.32   2572.63   2572.95   2573.26   2573.58   2573.89   2574.21   2574.53   2574.84

            STORAGE       5.18      6.12      7.08      8.07      9.09     10.14     11.22     12.33     13.48     14.65
            OUTFLOW    4794.00   6103.20   7556.16   9149.00  10879.70  12750.32  14760.52  16910.30  19199.89  21629.75
          ELEVATION    2575.16   2575.47   2575.79   2576.10   2576.42   2576.74   2577.05   2577.37   2577.68   2578.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      468. TO    21630.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                          HYDROGRAPH AT STATION   R038-2

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+     477.      4.50                106.         27.         26.          26.
                         (INCHES)    1.800       1.814       1.814        1.814
                          (AC-FT)     53.         53.         53.          53.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
       1.       4.50                  0.          0.          0.           0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2573.27      4.50              2572.45     2572.11     2572.11      2572.11

                         CUMULATIVE AREA =     .55 SQ MI
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              *            *
 239 KK       *     038    *
              *            *
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                             SUB-BASIN 038
                             6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                             THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                               L = 1.27  Kb = .052  Adj. Slope =  303.0

                 SUBBASIN RUNOFF DATA

 244 BA            SUBBASIN CHARACTERISTICS
                         TAREA          .18  SUBBASIN AREA

                   PRECIPITATION DATA

  14 PB                  STORM        3.20  BASIN TOTAL PRECIPITATION

  14 PI              INCREMENTAL PRECIPITATION PATTERN
                         .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                         .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                         .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                         .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                         .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                         .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                         .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                         .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                         .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                         .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                         .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                         .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                         .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                         .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                         .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                         .00       .00       .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

 245 LG            GREEN AND AMPT LOSS RATE
                         STRTL          .15  STARTING LOSS
                           DTH          .37  MOISTURE DEFICIT
                          PSIF         6.60  WETTING FRONT SUCTION
                         XKSAT          .13  HYDRAULIC CONDUCTIVITY
                         RTIMP        16.00  PERCENT IMPERVIOUS AREA

 246 UC            CLARK UNITGRAPH
                            TC          .36  TIME OF CONCENTRATION
                             R          .38  STORAGE COEFFICIENT

 247 UA            ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                           .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                        100.0

                                                                  ***

                                                        UNIT HYDROGRAPH PARAMETERS
                                                 CLARK   TC=   .36 HR,       R=   .38 HR
                                                SNYDER   TP=   .32 HR,      CP=   .59

                                                          UNIT HYDROGRAPH
                                                     67 END-OF-PERIOD ORDINATES
                     4.       11.       17.       25.       37.       68.      126.      188.      221.      225.
                   218.      204.      186.      171.      156.      143.      131.      120.      110.      100.
                    92.       84.       77.       70.       64.       59.       54.       49.       45.       41.
                    38.       35.       32.       29.       27.       24.       22.       20.       19.       17.
                    16.       14.       13.       12.       11.       10.        9.        8.        8.        7.
                     6.        6.        5.        5.        5.        4.        4.        3.        3.        3.
                     3.        2.        2.        2.        2.        2.        2.

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                            HYDROGRAPH AT STATION      038

      TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.42, TOTAL EXCESS =    1.78

    PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     24.97-HR
+     (CFS)        (HR)
                             (CFS)
+      178.        4.27                 35.          9.          8.          8.
                            (INCHES)  1.766       1.774       1.774       1.774
                            (AC-FT)     17.         17.         17.         17.

                            CUMULATIVE AREA =     .18 SQ MI
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            *            *
 249 KK     *    CP038A  *
            *            *
            **************
                           Combine routed hydrographs from CP036 with runoff hydrograph from 038.
                           This combination was made for use in the hydraulic modeling of a
                           tributary to Rawhide Wash.

 253 HC          HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                         HYDROGRAPH AT STATION   CP038A

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)      (HR)
                          (CFS)
+     638.     4.47                141.         35.         34.         34.
                        (INCHES)    1.791       1.804       1.804       1.804
                         (AC-FT)      70.         70.         70.         70.

                        CUMULATIVE AREA =     .73 SQ MI


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


            **************
            *            *
 254 KK     *       032  *
            *            *
            **************
                           SUB-BASIN 032
                           6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                           THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                             L =  .40  Kb = .062  Adj. Slope =  100.0

                SUBBASIN RUNOFF DATA

 259 BA          SUBBASIN CHARACTERISTICS
                       TAREA         .03  SUBBASIN AREA

                 PRECIPITATION DATA

  14 PB                STORM        3.20  BASIN TOTAL PRECIPITATION

  14 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                      .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                      .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                      .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                      .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                      .00       .00       .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

 260 LG          GREEN AND AMPT LOSS RATE
                       STRTL         .15  STARTING LOSS
                         DTH         .35  MOISTURE DEFICIT
                        PSIF        4.55  WETTING FRONT SUCTION
                       XKSAT         .31  HYDRAULIC CONDUCTIVITY
                       RTIMP        3.00  PERCENT IMPERVIOUS AREA

 261 UC          CLARK UNITGRAPH
                          TC         .33  TIME OF CONCENTRATION
                           R         .36  STORAGE COEFFICIENT

 262 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                        .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                     100.0

                                                                  ***

                                                UNIT HYDROGRAPH PARAMETERS
                                          CLARK   TC=    .33 HR,       R=    .36 HR
                                         SNYDER   TP=    .30 HR,      CP=    .59
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```
                                                UNIT HYDROGRAPH
                                            64 END-OF-PERIOD ORDINATES
              1.       2.       3.       5.       9.      17.      31.      41.      43.      42.
             39.      36.      33.      30.      27.      25.      23.      21.      19.      17.
             16.      14.      13.      12.      11.      10.       9.       8.       7.       7.
              6.       6.       5.       5.       4.       4.       4.       3.       3.       3.
              2.       2.       2.       2.       2.       2.       1.       1.       1.       1.
              1.       1.       1.       1.       1.       1.       1.       1.       0.       0.
              0.       0.       0.       0.

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

                      HYDROGRAPH AT STATION      032

   TOTAL RAINFALL =    3.20, TOTAL LOSS =    2.04, TOTAL EXCESS =    1.16

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                         (CFS)
+     26.       4.23                  4.          1.          1.          1.
                       (INCHES)     1.152       1.153       1.153       1.153
                        (AC-FT)       2.          2.          2.          2.

                       CUMULATIVE AREA =     .03 SQ MI


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


            **************
            *            *
  264 KK    *     CP038  *
            *            *
            **************
                          Combine hydrograph from CP030A and CP036 with runoff hydrographs from 032.
                          This combination was made for use in the hydraulic modeling of a
                          tributary to Rawhide Wash.

  268 HC          HYDROGRAPH COMBINATION
                       ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

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

                      HYDROGRAPH AT STATION    CP038

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                         (CFS)
+    4204.      4.57                967.        247.        237.        237.
                       (INCHES)     1.478       1.507       1.507       1.507
                        (AC-FT)      480.        489.        489.        489.

                       CUMULATIVE AREA =    6.08 SQ MI


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


            **************
            *            *
  269 KK    *    R040-1  *
            *            *
            **************
                          Route combined hydrograph from CP038 to CP040

              HYDROGRAPH ROUTING DATA

  271 RS          STORAGE ROUTING
                       NSTPS           4  NUMBER OF SUBREACHES
                        ITYP        FLOW  TYPE OF INITIAL CONDITION
                       RSVRIC      -1.00  INITIAL CONDITION
                            X        .00 WORKING R AND D COEFFICIENT

  272 RC          NORMAL DEPTH CHANNEL
                         ANL        .045  LEFT OVERBANK N-VALUE
                        ANCH        .035  MAIN CHANNEL N-VALUE
                         ANR        .045  RIGHT OVERBANK N-VALUE
                       RLNTH       3775.  REACH LENGTH
                         SEL       .0190  ENERGY SLOPE
                       ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                                 --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
  274 RY        ELEVATION   2540.00   2536.00   2530.00   2530.00   2528.00   2528.00   2534.00   2540.00
  273 RX        DISTANCE      47.00     75.00    224.00    433.00    448.00    523.00    609.00    678.00

                                                                  ***
```

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	4.48	9.72	15.71	32.20	51.94	73.04	95.48	119.29	144.44
OUTFLOW	.00	212.85	702.51	1434.46	2238.57	4782.60	8128.00	12242.12	17109.96	22725.81
ELEVATION	2528.00	2528.63	2529.26	2529.89	2530.53	2531.16	2531.79	2532.42	2533.05	2533.68
STORAGE	170.94	198.71	227.73	257.97	288.99	320.65	352.95	385.89	419.47	453.69
OUTFLOW	29105.71	36248.01	44138.50	52852.61	62452.03	72781.60	83832.40	95597.65	108072.30	121252.80
ELEVATION	2534.32	2534.95	2535.58	2536.21	2536.84	2537.47	2538.11	2538.74	2539.37	2540.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 8128. TO 121253.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

HYDROGRAPH AT STATION R040-1

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.97-HR
+ (CFS)	(HR)					
		(CFS)				
+ 4166.	4.67		967.	247.	237.	237.
		(INCHES)	1.478	1.507	1.507	1.507
		(AC-FT)	480.	489.	489.	489.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	24.97-HR
+ (AC-FT)	(HR)				
12.	4.67	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	24.97-HR
+ (FEET)	(HR)				
2531.00	4.67	2529.16	2528.30	2528.29	2528.29

CUMULATIVE AREA = 6.08 SQ MI

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              **************
              *            *
 275 KK       *     040    *
              *            *
              **************
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SUB-BASIN 040
6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
THIS BASIN USED RAINFALL REDUCTION FACTOR OF .928
L = 1.56 Kb = .048 Adj. Slope = 245.0

SUBBASIN RUNOFF DATA

280 BA SUBBASIN CHARACTERISTICS
TAREA .33 SUBBASIN AREA

PRECIPITATION DATA

14 PB STORM 3.20 BASIN TOTAL PRECIPITATION

14 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.02	.02	.02	.02	.02
.02	.02	.02	.03	.03	.03	.03	.03	.03	.03
.02	.02	.02	.02	.02	.02	.02	.01	.01	.01
.01	.01	.01	.01	.01	.00	.00	.00	.00	.00
.00	.00	.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

281 LG GREEN AND AMPT LOSS RATE

STRTL	.15	STARTING LOSS
DTH	.38	MOISTURE DEFICIT
PSIF	5.60	WETTING FRONT SUCTION
XKSAT	.19	HYDRAULIC CONDUCTIVITY
RTIMP	5.00	PERCENT IMPERVIOUS AREA

282 UC CLARK UNITGRAPH

TC	.43	TIME OF CONCENTRATION
R	.39	STORAGE COEFFICIENT

```
 283 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                   100.0

                                                                  ***

                                                        UNIT HYDROGRAPH PARAMETERS
                                                 CLARK   TC=   .43 HR,       R=   .39 HR
                                                SNYDER   TP=   .37 HR,      CP=   .65

                                                          UNIT HYDROGRAPH
                                                 70 END-OF-PERIOD ORDINATES
                 6.       17.       25.       34.       46.       66.      112.      193.      294.      364.
               381.      376.      361.      337.      309.      284.      260.      239.      219.      201.
               184.      169.      155.      142.      130.      120.      110.      101.       92.       85.
                78.       71.       65.       60.       55.       50.       46.       42.       39.       36.
                33.       30.       28.       25.       23.       21.       19.       18.       16.       15.
                14.       13.       12.       11.       10.        9.        8.        8.        7.        6.
                 6.        5.        5.        4.        4.        4.        3.        3.        3.        3.

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

                        HYDROGRAPH AT STATION      040

    TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.78, TOTAL EXCESS =    1.42

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    282.       4.30                    50.         13.         12.         12.
                        (INCHES)     1.415       1.418       1.418       1.418
                         (AC-FT)       25.         25.         25.         25.

                        CUMULATIVE AREA =     .33 SQ MI


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


            **************
            *            *
 285 KK     *     CP040  *
            *            *
            **************
                          Combine routed hydrographs from CP038 with runoff hydrograph from 040

 287 HC          HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                        HYDROGRAPH AT STATION    CP040

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    4372.      4.67                  1017.        259.        249.        249.
                        (INCHES)     1.474       1.503       1.503       1.503
                         (AC-FT)      504.        514.        514.        514.

                        CUMULATIVE AREA =    6.41 SQ MI


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


            **************
            *            *
 288 KK     *    R042-1  *
            *            *
            **************
                          Route combined hydrograph from CP040 to CP042

               HYDROGRAPH ROUTING DATA

 290 RS          STORAGE ROUTING
                       NSTPS           2  NUMBER OF SUBREACHES
                        ITYP        FLOW  TYPE OF INITIAL CONDITION
                       RSVRIC       -1.00  INITIAL CONDITION
                            X         .00 WORKING R AND D COEFFICIENT

 291 RC          NORMAL DEPTH CHANNEL
                          ANL        .045  LEFT OVERBANK N-VALUE
                         ANCH        .035  MAIN CHANNEL N-VALUE
                          ANR        .045  RIGHT OVERBANK N-VALUE
                        RLNTH       2074.  REACH LENGTH
                          SEL       .0180  ENERGY SLOPE
                        ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION
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                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 293 RY        ELEVATION   2486.00   2482.00   2476.00   2482.00   2476.00   2476.00   2482.00   2486.00
 292 RX        DISTANCE     263.00    349.00    381.00    450.00    522.00    756.00    847.00    973.00

                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE        .00      6.15     12.89     20.21     28.10     36.58     45.63     55.27     65.49     76.29
            OUTFLOW        .00    467.93   1516.16   3041.86   5015.44   7426.14  10271.74  13554.71  17280.37  21455.83
          ELEVATION    2476.00   2476.53   2477.05   2477.58   2478.11   2478.63   2479.16   2479.68   2480.21   2480.74

            STORAGE      87.67     99.62    112.19    125.44    139.39    154.03    169.38    185.43    202.18    219.62
            OUTFLOW   26089.49  31190.58  37005.86  43561.91  50711.01  58449.63  66781.48  75713.59  85254.71  95416.02
          ELEVATION    2481.26   2481.79   2482.32   2482.84   2483.37   2483.90   2484.42   2484.95   2485.47   2486.00

 *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    13555. TO    95416.
                 THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                 THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R042-1

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+    4353.      4.70                1016.        259.        249.         249.
                         (INCHES)   1.474       1.503       1.503        1.503
                          (AC-FT)    504.        514.        514.         514.

  PEAK STORAGE  TIME                       MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
       13.      4.70                  4.          1.          1.           1.

  PEAK STAGE    TIME                        MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2477.93      4.70              2476.63     2476.16     2476.16      2476.16

                         CUMULATIVE AREA =    6.41 SQ MI


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


            **************
            *            *
 294 KK     *       041  *
            *            *
            **************
                          SUB-BASIN 041
                          6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                          THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                            L =  .69  Kb = .058  Adj. Slope =  133.0

                SUBBASIN RUNOFF DATA

 299 BA           SUBBASIN CHARACTERISTICS
                       TAREA         .06  SUBBASIN AREA

                  PRECIPITATION DATA

  14 PB                STORM        3.20  BASIN TOTAL PRECIPITATION

  14 PI             INCREMENTAL PRECIPITATION PATTERN
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                       .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                       .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                       .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                       .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                       .00       .00       .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

 300 LG           GREEN AND AMPT LOSS RATE
                       STRTL        .15  STARTING LOSS
                         DTH        .35  MOISTURE DEFICIT
                        PSIF       4.80  WETTING FRONT SUCTION
```

```
                    XKSAT        .26  HYDRAULIC CONDUCTIVITY
                    RTIMP       3.00  PERCENT IMPERVIOUS AREA

 301 UC         CLARK UNITGRAPH
                         TC        .38  TIME OF CONCENTRATION
                          R        .45  STORAGE COEFFICIENT

 302 UA         ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      .0      3.0      5.0      8.0     12.0     20.0     43.0     75.0     90.0     96.0
                   100.0

                                                    ***

                                                UNIT HYDROGRAPH PARAMETERS
                                         CLARK   TC=   .38 HR,       R=   .45 HR
                                        SNYDER   TP=   .34 HR,      CP=   .54

                                                UNIT HYDROGRAPH
                                            80 END-OF-PERIOD ORDINATES
                1.       3.       5.       7.      10.      16.      28.      48.      62.      67.
               67.      65.      61.      57.      53.      49.      45.      42.      39.      36.
               34.      31.      29.      27.      25.      23.      22.      20.      19.      17.
               16.      15.      14.      13.      12.      11.      10.      10.       9.       8.
                8.       7.       7.       6.       6.       5.       5.       5.       4.       4.
                4.       3.       3.       3.       3.       3.       2.       2.       2.       2.
                2.       2.       2.       1.       1.       1.       1.       1.       1.       1.
                1.       1.       1.       1.       1.       1.       1.       1.       0.       0.

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

                     HYDROGRAPH AT STATION      041

   TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.93, TOTAL EXCESS =    1.27

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
+   (CFS)       (HR)                   6-HR       24-HR       72-HR     24.97-HR
                                     (CFS)
+     48.       4.30                    9.          2.          2.          2.
                                 (INCHES)     1.262       1.265       1.265       1.265
                                  (AC-FT)        4.          4.          4.          4.

                                 CUMULATIVE AREA =     .06 SQ MI


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


            **************
            *            *
 304 KK     *      042   *
            *            *
            **************
                          SUB-BASIN 042
                          6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                          THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                            L = 1.51  Kb = .048  Adj. Slope =  296.4

              SUBBASIN RUNOFF DATA

 309 BA         SUBBASIN CHARACTERISTICS
                    TAREA        .32  SUBBASIN AREA

                PRECIPITATION DATA

  14 PB             STORM       3.20  BASIN TOTAL PRECIPITATION

  14 PI           INCREMENTAL PRECIPITATION PATTERN
                     .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                     .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                     .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                     .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                     .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                     .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                     .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                     .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                     .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                     .01      .01      .01      .01      .01      .01      .01      .01      .01      .01
                     .01      .01      .01      .01      .01      .02      .02      .02      .02      .02
                     .02      .02      .02      .03      .03      .03      .03      .03      .03      .03
                     .02      .02      .02      .02      .02      .02      .02      .01      .01      .01
                     .01      .01      .01      .01      .01      .00      .00      .00      .00      .00
                     .00      .00      .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

 310 LG         GREEN AND AMPT LOSS RATE
                    STRTL        .15  STARTING LOSS
                      DTH        .40  MOISTURE DEFICIT
                     PSIF       6.00  WETTING FRONT SUCTION
                    XKSAT        .16  HYDRAULIC CONDUCTIVITY
                    RTIMP       8.00  PERCENT IMPERVIOUS AREA
```

```
 311 UC          CLARK UNITGRAPH
                          TC          .39  TIME OF CONCENTRATION
                           R          .34  STORAGE COEFFICIENT

 312 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                       .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                   100.0

                                                                  ***

                                                          UNIT HYDROGRAPH PARAMETERS
                                                   CLARK   TC=   .39 HR,       R=   .34 HR
                                                 SNYDER   TP=   .34 HR,      CP=   .67

                                                            UNIT HYDROGRAPH
                                                   62 END-OF-PERIOD ORDINATES
                  8.       20.       30.       43.       62.       97.      175.      298.      394.      423.
                417.      397.      366.      332.      301.      273.      248.      224.      204.      185.
                167.      152.      138.      125.      113.      103.       93.       84.       77.       69.
                 63.       57.       52.       47.       43.       39.       35.       32.       29.       26.
                 24.       21.       19.       18.       16.       15.       13.       12.       11.       10.
                  9.        8.        7.        7.        6.        5.        5.        4.        4.        4.
                  3.        3.

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

                          HYDROGRAPH AT STATION      042

    TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.66, TOTAL EXCESS =    1.54

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+     306.      4.27                     53.         13.         13.         13.
                         (INCHES)     1.525       1.529       1.529       1.529
                          (AC-FT)      26.         27.         27.         27.

                         CUMULATIVE AREA =     .32 SQ MI


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


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            *            *
 314 KK     *     CP042  *
            *            *
            **************
                           Combine routed hydrograph from CP040 with runoff hydrographs from 041 & 042

 316 HC          HYDROGRAPH COMBINATION
                       ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                          HYDROGRAPH AT STATION    CP042

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+    4580.      4.70                   1077.        275.        264.        264.
                         (INCHES)     1.473       1.502       1.502       1.502
                          (AC-FT)     534.        545.        545.        545.

                         CUMULATIVE AREA =    6.80 SQ MI


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


            **************
            *            *
 317 KK     *    R043-1  *
            *            *
            **************
                           Route combined hydrograph from CP040 to CP042

               HYDROGRAPH ROUTING DATA

 319 RS          STORAGE ROUTING
                       NSTPS           8  NUMBER OF SUBREACHES
                        ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC       -1.00  INITIAL CONDITION
                           X         .00 WORKING R AND D COEFFICIENT

 320 RC          NORMAL DEPTH CHANNEL
                         ANL        .045  LEFT OVERBANK N-VALUE
                        ANCH        .035  MAIN CHANNEL N-VALUE
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                    ANR        .045  RIGHT OVERBANK N-VALUE
                  RLNTH       7504.  REACH LENGTH
                    SEL       .0170  ENERGY SLOPE
                  ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 322 RY       ELEVATION  2486.00   2482.00   2476.00   2482.00   2476.00   2476.00   2482.00   2486.00
 321 RX       DISTANCE    263.00    349.00    381.00    450.00    522.00    756.00    847.00    973.00

                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

           STORAGE        .00     22.27     46.64     73.11    101.67    132.34    165.11    199.98    236.95    276.02
           OUTFLOW        .00    454.75   1473.44   2956.16   4874.13   7216.91   9982.34  13172.81  16793.50  20851.32
         ELEVATION    2476.00   2476.53   2477.05   2477.58   2478.11   2478.63   2479.16   2479.68   2480.21   2480.74

           STORAGE     317.19    360.46    405.90    453.84    504.32    557.32    612.85    670.91    731.50    794.62
           OUTFLOW   25354.43  30311.79  35963.23  42334.57  49282.25  56802.84  64899.93  73580.38  82852.70  92727.70
         ELEVATION    2481.26   2481.79   2482.32   2482.84   2483.37   2483.90   2484.42   2484.95   2485.47   2486.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     9982. TO    92728.
               THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
               THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R043-1

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+    4514.      4.87                 1077.        275.        264.        264.
                         (INCHES)   1.472       1.502       1.502       1.502
                          (AC-FT)    534.        545.        545.        545.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
      12.       4.87                   4.          1.          1.          1.

  PEAK STAGE    TIME                         MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2478.01      4.87              2476.68     2476.18     2476.17     2476.17

                        CUMULATIVE AREA =    6.80 SQ MI


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


            **************
            *            *
 323 KK     *       043  *
            *            *
            **************
                          SUB-BASIN 043
                          6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                          THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                            L = 1.92  Kb = .049  Adj. Slope =   99.0

              SUBBASIN RUNOFF DATA

 328 BA         SUBBASIN CHARACTERISTICS
                     TAREA         .29  SUBBASIN AREA

                PRECIPITATION DATA

  14 PB               STORM        3.20  BASIN TOTAL PRECIPITATION

  14 PI           INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                     .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                     .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                     .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                     .00       .00       .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
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329 LG          GREEN AND AMPT LOSS RATE
                      STRTL        .15  STARTING LOSS
                        DTH        .35  MOISTURE DEFICIT
                       PSIF       4.65  WETTING FRONT SUCTION
                      XKSAT        .29  HYDRAULIC CONDUCTIVITY
                      RTIMP       3.00  PERCENT IMPERVIOUS AREA

330 UC          CLARK UNITGRAPH
                         TC        .69  TIME OF CONCENTRATION
                          R        .84  STORAGE COEFFICIENT

331 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                       .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                    100.0
                                                                  ***

                                                        UNIT HYDROGRAPH PARAMETERS
                                                  CLARK   TC=   .69 HR,       R=   .84 HR
                                                 SNYDER   TP=   .62 HR,      CP=   .53

                                                          UNIT HYDROGRAPH
                                                   147 END-OF-PERIOD ORDINATES
                 2.        5.        7.        9.       11.       14.       17.       20.       25.       32.
                44.       64.       89.      117.      141.      155.      162.      165.      164.      162.
               159.      155.      149.      143.      137.      132.      127.      122.      117.      113.
               108.      104.      100.       96.       92.       89.       85.       82.       79.       76.
                73.       70.       67.       65.       62.       60.       57.       55.       53.       51.
                49.       47.       45.       43.       42.       40.       39.       37.       36.       34.
                33.       32.       30.       29.       28.       27.       26.       25.       24.       23.
                22.       21.       20.       20.       19.       18.       17.       17.       16.       15.
                15.       14.       14.       13.       13.       12.       12.       11.       11.       10.
                10.       10.        9.        9.        9.        8.        8.        8.        7.        7.
                 7.        6.        6.        6.        6.        6.        5.        5.        5.        5.
                 5.        4.        4.        4.        4.        4.        4.        3.        3.        3.
                 3.        3.        3.        3.        3.        2.        2.        2.        2.        2.
                 2.        2.        2.        2.        2.        2.        2.        2.        1.        1.
                 1.        1.        1.        1.        1.        1.        1.

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

                        HYDROGRAPH AT STATION      043

   TOTAL RAINFALL =    3.20, TOTAL LOSS =    2.00, TOTAL EXCESS =    1.20

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    145.       4.63                     36.         9.          9.          9.
                        (INCHES)      1.186       1.194       1.194       1.194
                         (AC-FT)       18.         18.         18.         18.

                        CUMULATIVE AREA =     .29 SQ MI


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


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            *            *
333 KK      *     CP043  *
            *            *
            **************
                          Combine routed hydrograph from CP042 with runoff hydrograph from 043

335 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                        HYDROGRAPH AT STATION    CP043

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+   4644.       4.87                   1113.       284.        273.        273.
                        (INCHES)      1.461       1.489       1.489       1.489
                         (AC-FT)      552.        563.        563.        563.

                        CUMULATIVE AREA =    7.09 SQ MI


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


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            *            *
336 KK      *    R046-1  *
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            *            *
            **************
                          Route combined hydrograph from CP043 to CP046

               HYDROGRAPH ROUTING DATA

 338 RS          STORAGE ROUTING
                      NSTPS           4  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 339 RC          NORMAL DEPTH CHANNEL
                        ANL        .045  LEFT OVERBANK N-VALUE
                       ANCH        .035  MAIN CHANNEL N-VALUE
                        ANR        .045  RIGHT OVERBANK N-VALUE
                      RLNTH       2845.  REACH LENGTH
                        SEL       .0150  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                            --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 341 RY        ELEVATION   2300.00   2288.00   2288.00   2286.00   2286.00   2288.00   2288.00   2302.00
 340 RX        DISTANCE    9425.00   9601.00   9923.00   9945.00  10019.00  10043.00  10267.00  10435.00

                                                                    ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE        .00      4.60     10.27     35.80     73.81    113.06    153.55    195.27    238.23    282.42
            OUTFLOW        .00    304.39   1022.54   2988.66   7644.51  14316.07  22761.18  32851.81  44508.63  57679.07
          ELEVATION    2286.00   2286.84   2287.68   2288.53   2289.37   2290.21   2291.05   2291.89   2292.74   2293.58

            STORAGE     327.84    374.50    422.40    471.53    521.89    573.49    626.33    680.35    735.06    790.33
            OUTFLOW   72327.22  88428.42 105966.00 124929.20 145311.60 167110.60 190325.90 215531.00 243137.20 272184.30
          ELEVATION    2294.42   2295.26   2296.10   2296.95   2297.79   2298.63   2299.47   2300.31   2301.16   2302.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    14316. TO   272184.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R046-1

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+    4604.      4.97                 1113.        284.        273.         273.
                         (INCHES)    1.460       1.489       1.489        1.489
                          (AC-FT)     552.        563.        563.         563.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
      12.       4.97                    3.          1.          1.           1.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2288.82      4.97                2287.23     2286.32     2286.31      2286.31

                         CUMULATIVE AREA =    7.09 SQ MI


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


            **************
            *            *
 342 KK     *       044  *
            *            *
            **************
                          SUB-BASIN 044
                          6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                          THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                            L = 2.99  Kb = .039  Adj. Slope =  240.0

               SUBBASIN RUNOFF DATA

 347 BA          SUBBASIN CHARACTERISTICS
                      TAREA        1.40  SUBBASIN AREA

                 PRECIPITATION DATA

  14 PB                STORM        3.20  BASIN TOTAL PRECIPITATION

  14 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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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
                    .01      .01      .01      .01      .01      .01      .01      .01      .01      .01
                    .01      .01      .01      .01      .01      .02      .02      .02      .02      .02
                    .02      .02      .02      .03      .03      .03      .03      .03      .03      .03
                    .02      .02      .02      .02      .02      .02      .02      .01      .01      .01
                    .01      .01      .01      .01      .01      .00      .00      .00      .00      .00
                    .00      .00      .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

348 LG          GREEN AND AMPT LOSS RATE
                      STRTL        .15  STARTING LOSS
                        DTH        .39  MOISTURE DEFICIT
                       PSIF       5.80  WETTING FRONT SUCTION
                      XKSAT        .17  HYDRAULIC CONDUCTIVITY
                      RTIMP       5.00  PERCENT IMPERVIOUS AREA

349 UC          CLARK UNITGRAPH
                         TC        .54  TIME OF CONCENTRATION
                          R        .37  STORAGE COEFFICIENT

350 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                        .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                     100.0

                                                          ***

                                                UNIT HYDROGRAPH PARAMETERS
                                          CLARK   TC=   .54 HR,       R=   .37 HR
                                         SNYDER   TP=   .45 HR,      CP=   .76

                                                   UNIT HYDROGRAPH
                                              69 END-OF-PERIOD ORDINATES
                 22.       61.       89.      116.      149.      188.      246.      328.      517.      820.
               1170.     1448.     1571.     1582.     1526.     1459.     1366.     1252.     1143.     1044.
                954.      871.      796.      727.      664.      606.      554.      506.      462.      422.
                385.      352.      321.      294.      268.      245.      224.      204.      187.      170.
                156.      142.      130.      119.      108.       99.       90.       83.       75.       69.
                 63.       57.       52.       48.       44.       40.       36.       33.       30.       28.
                 25.       23.       21.       19.       18.       16.       15.       13.       12.

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

                        HYDROGRAPH AT STATION      044

    TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.73, TOTAL EXCESS =    1.47

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                             (CFS)
+    1234.      4.37          220.        55.        53.        53.
                         (INCHES)      1.460      1.463      1.463      1.463
                          (AC-FT)       109.       109.       109.       109.

                         CUMULATIVE AREA =    1.40 SQ MI


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


            **************
            *            *
352 KK      *    R046-2  *
            *            *
            **************
                          Route runoff hydrograph from 044 to CP046

                HYDROGRAPH ROUTING DATA

354 RS          STORAGE ROUTING
                      NSTPS          5  NUMBER OF SUBREACHES
                       ITYP       FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC      -1.00  INITIAL CONDITION
                          X        .00 WORKING R AND D COEFFICIENT

355 RC          NORMAL DEPTH CHANNEL
                        ANL       .045  LEFT OVERBANK N-VALUE
                       ANCH       .035  MAIN CHANNEL N-VALUE
                        ANR       .045  RIGHT OVERBANK N-VALUE
                      RLNTH      1882.  REACH LENGTH
                        SEL      .0160  ENERGY SLOPE
                      ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
357 RY        ELEVATION   2300.00   2288.00   2288.00   2286.00   2286.00   2288.00   2288.00   2302.00
356 RX        DISTANCE    9425.00   9601.00   9923.00   9945.00  10019.00  10043.00  10267.00  10435.00
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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	3.04	6.79	23.68	48.83	74.79	101.57	129.17	157.59	186.82
OUTFLOW	.00	314.37	1056.07	3086.67	7895.22	14785.57	23507.65	33929.21	45968.32	59570.69
ELEVATION	2286.00	2286.84	2287.68	2288.53	2289.37	2290.21	2291.05	2291.89	2292.74	2293.58
STORAGE	216.87	247.74	279.42	311.92	345.24	379.37	414.32	450.06	486.25	522.81
OUTFLOW	74699.23	91328.48	109441.20	129026.30	150077.20	172591.00	196567.80	222599.40	251111.00	281110.70
ELEVATION	2294.42	2295.26	2296.10	2296.95	2297.79	2298.63	2299.47	2300.31	2301.16	2302.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 314. TO 281111.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

HYDROGRAPH AT STATION R046-2

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.97-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1222.	4.47		220.	55.	53.	53.
		(INCHES)	1.460	1.463	1.463	1.463
		(AC-FT)	109.	109.	109.	109.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	24.97-HR
+ (AC-FT)	(HR)				
2.	4.47	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	24.97-HR
+ (FEET)	(HR)				
2287.75	4.47	2286.41	2286.10	2286.10	2286.10

CUMULATIVE AREA = 1.40 SQ MI

*** ***

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              **************
              *            *
  358 KK      *       046  *
              *            *
              **************
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SUB-BASIN 046
6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
THIS BASIN USED RAINFALL REDUCTION FACTOR OF .928
L = .67 Kb = .055 Adj. Slope = 101.0

SUBBASIN RUNOFF DATA

363 BA SUBBASIN CHARACTERISTICS
TAREA .11 SUBBASIN AREA

PRECIPITATION DATA

14 PB STORM 3.20 BASIN TOTAL PRECIPITATION

14 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.02	.02	.02	.02	.02
.02	.02	.02	.03	.03	.03	.03	.03	.03	.03
.02	.02	.02	.02	.02	.02	.02	.01	.01	.01
.01	.01	.01	.01	.01	.00	.00	.00	.00	.00
.00	.00	.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

364 LG GREEN AND AMPT LOSS RATE

STRTL	.15	STARTING LOSS
DTH	.36	MOISTURE DEFICIT
PSIF	5.10	WETTING FRONT SUCTION
XKSAT	.23	HYDRAULIC CONDUCTIVITY
RTIMP	3.00	PERCENT IMPERVIOUS AREA

365 UC CLARK UNITGRAPH

TC	.40	TIME OF CONCENTRATION
R	.34	STORAGE COEFFICIENT

```
366 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                     .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                  100.0

                                                                  ***

                                                        UNIT HYDROGRAPH PARAMETERS
                                                 CLARK   TC=   .40 HR,       R=   .34 HR
                                                SNYDER   TP=   .34 HR,      CP=   .67

                                                          UNIT HYDROGRAPH
                                                 61 END-OF-PERIOD ORDINATES
                 3.        7.       10.       14.       20.       30.       55.       96.      130.      144.
               144.      138.      128.      116.      105.       95.       86.       78.       71.       64.
                58.       52.       48.       43.       39.       35.       32.       29.       26.       24.
                21.       19.       18.       16.       14.       13.       12.       11.       10.        9.
                 8.        7.        7.        6.        5.        5.        4.        4.        4.        3.
                 3.        3.        2.        2.        2.        2.        2.        1.        1.        1.
                 1.

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

                        HYDROGRAPH AT STATION      046

    TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.88, TOTAL EXCESS =    1.32

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                              (CFS)
+     97.       4.27            16.          4.          4.          4.
                         (INCHES)      1.313       1.315       1.315       1.315
                          (AC-FT)        8.          8.          8.          8.

                        CUMULATIVE AREA =     .11 SQ MI


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


            **************
            *            *
368 KK      *     CP046  *
            *            *
            **************
                          Combine routed hydrographs from CP042 and 044 with runoff hydrograph from
                          046

371 HC          HYDROGRAPH COMBINATION
                      ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                        HYDROGRAPH AT STATION    CP046

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                              (CFS)
+   5305.       4.93          1345.        343.        330.        330.
                         (INCHES)      1.454       1.483       1.483       1.483
                          (AC-FT)       667.        680.        680.        680.

                        CUMULATIVE AREA =    8.60 SQ MI


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


            **************
            *            *
372 KK      *    R051-1  *
            *            *
            **************
                          Route combined hydrograph from CP046 to CP051

               HYDROGRAPH ROUTING DATA

374 RS          STORAGE ROUTING
                      NSTPS           2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

375 RC          NORMAL DEPTH CHANNEL
                        ANL        .045  LEFT OVERBANK N-VALUE
                       ANCH        .035  MAIN CHANNEL N-VALUE
                        ANR        .045  RIGHT OVERBANK N-VALUE
                      RLNTH       1557.  REACH LENGTH
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                    SEL        .0170  ENERGY SLOPE
                  ELMAX           .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 377 RY       ELEVATION  2275.00   2261.00   2262.00   2260.00   2260.00   2263.00   2264.00   2275.00
 376 RX       DISTANCE   9822.00   9952.00   9976.00   9977.00  10023.00  10046.00  10356.00  10509.00

                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.39      3.16      5.77      8.97     17.13     29.52     42.45     55.90     69.86
          OUTFLOW        .00    175.45    580.60   1264.40   2280.04   4032.57   7248.55  11658.77  17126.96  23592.90
        ELEVATION    2260.00   2260.79   2261.58   2262.37   2263.16   2263.95   2264.74   2265.53   2266.32   2267.11

          STORAGE      84.34     99.34    114.85    130.88    147.43    164.49    182.07    200.17    218.78    237.91
          OUTFLOW   31022.00  39393.51  48695.23  58920.66  70067.29  82135.57  95128.18 109049.50 123905.30 139706.00
        ELEVATION    2267.90   2268.69   2269.47   2270.26   2271.05   2271.84   2272.63   2273.42   2274.21   2275.00


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    11659. TO   139706.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R051-1

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    5278.      5.00                1345.        343.        330.         330.
                        (INCHES)    1.454       1.483       1.483        1.483
                         (AC-FT)     667.        680.        680.         680.

  PEAK STORAGE  TIME                        MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
       11.      5.00                   3.          1.          1.           1.

  PEAK STAGE    TIME                        MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2264.25      5.00              2261.94     2260.51     2260.49      2260.49

                        CUMULATIVE AREA =    8.60 SQ MI


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


            **************
            *            *
 378 KK     *       048  *
            *            *
            **************
                          SUB-BASIN 048
                          6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                          THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                            L =  .43  Kb = .059  Adj. Slope =  112.0

                SUBBASIN RUNOFF DATA

 383 BA           SUBBASIN CHARACTERISTICS
                        TAREA         .06  SUBBASIN AREA

                  PRECIPITATION DATA

  14 PB                 STORM        3.20  BASIN TOTAL PRECIPITATION

  14 PI             INCREMENTAL PRECIPITATION PATTERN
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                        .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                        .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                        .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                        .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                        .00       .00       .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

 384 LG           GREEN AND AMPT LOSS RATE
                        STRTL         .15  STARTING LOSS
```

```
                    DTH        .35  MOISTURE DEFICIT
                   PSIF       4.90  WETTING FRONT SUCTION
                  XKSAT        .25  HYDRAULIC CONDUCTIVITY
                  RTIMP       3.00  PERCENT IMPERVIOUS AREA

385 UC        CLARK UNITGRAPH
                     TC        .32  TIME OF CONCENTRATION
                      R        .27  STORAGE COEFFICIENT

386 UA        ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                  .0      3.0      5.0      8.0     12.0     20.0     43.0     75.0     90.0     96.0
               100.0

                                                  ***

                                          UNIT HYDROGRAPH PARAMETERS
                                   CLARK   TC=   .32 HR,       R=   .27 HR
                                  SNYDER   TP=   .27 HR,      CP=   .67

                                            UNIT HYDROGRAPH
                                     50 END-OF-PERIOD ORDINATES
             2.       5.       8.      12.      22.      44.      73.      89.      90.      84.
            76.      67.      59.      52.      46.      41.      36.      32.      28.      25.
            22.      20.      17.      15.      14.      12.      11.       9.       8.       7.
             7.       6.       5.       5.       4.       4.       3.       3.       2.       2.
             2.       2.       1.       1.       1.       1.       1.       1.       1.       1.

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

                  HYDROGRAPH AT STATION      048

  TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.91, TOTAL EXCESS =    1.29

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+  (CFS)       (HR)
                          (CFS)
+     53.      4.20                    8.          2.          2.          2.
                        (INCHES)    1.284       1.285       1.285       1.285
                         (AC-FT)       4.          4.          4.          4.

                        CUMULATIVE AREA =     .06 SQ MI


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


          **************
          *            *
388 KK    *       051  *
          *            *
          **************
                   SUB-BASIN 051
                   6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                     L = 1.41  Kb = .052  Adj. Slope =  128.0

            SUBBASIN RUNOFF DATA

393 BA        SUBBASIN CHARACTERISTICS
                  TAREA        .16  SUBBASIN AREA

              PRECIPITATION DATA

 14 PB            STORM       3.20  BASIN TOTAL PRECIPITATION

 14 PI          INCREMENTAL PRECIPITATION PATTERN
                  .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                  .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                  .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                  .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                  .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                  .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                  .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                  .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                  .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                  .01      .01      .01      .01      .01      .01      .01      .01      .01      .01
                  .01      .01      .01      .01      .01      .02      .02      .02      .02      .02
                  .02      .02      .02      .03      .03      .03      .03      .03      .03      .03
                  .02      .02      .02      .02      .02      .02      .02      .01      .01      .01
                  .01      .01      .01      .01      .01      .00      .00      .00      .00      .00
                  .00      .00      .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

394 LG        GREEN AND AMPT LOSS RATE
                  STRTL        .15  STARTING LOSS
                    DTH        .39  MOISTURE DEFICIT
                   PSIF       6.20  WETTING FRONT SUCTION
                  XKSAT        .15  HYDRAULIC CONDUCTIVITY
                  RTIMP       3.00  PERCENT IMPERVIOUS AREA

395 UC        CLARK UNITGRAPH
```

```
                    TC          .52  TIME OF CONCENTRATION
                     R          .66  STORAGE COEFFICIENT

 396 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                   100.0

                                                          ***

                                                UNIT HYDROGRAPH PARAMETERS
                                          CLARK   TC=   .52 HR,       R=   .66 HR
                                         SNYDER   TP=   .47 HR,      CP=   .53

                                                   UNIT HYDROGRAPH
                                             114 END-OF-PERIOD ORDINATES
                 2.        4.        6.        9.       11.       14.       19.       28.       44.       69.
                95.      113.      120.      122.      121.      118.      113.      107.      102.       97.
                92.       88.       83.       79.       75.       72.       68.       65.       61.       58.
                55.       53.       50.       48.       45.       43.       41.       39.       37.       35.
                33.       32.       30.       29.       27.       26.       25.       23.       22.       21.
                20.       19.       18.       17.       16.       16.       15.       14.       13.       13.
                12.       11.       11.       10.       10.        9.        9.        8.        8.        8.
                 7.        7.        7.        6.        6.        6.        5.        5.        5.        5.
                 4.        4.        4.        4.        4.        3.        3.        3.        3.        3.
                 3.        2.        2.        2.        2.        2.        2.        2.        2.        2.
                 2.        2.        1.        1.        1.        1.        1.        1.        1.        1.
                 1.        1.        1.        1.

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

                       HYDROGRAPH AT STATION      051

   TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.72, TOTAL EXCESS =    1.48

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                                     (CFS)
+    112.       4.50                    26.          7.          6.          6.
                                  (INCHES)      1.470       1.476       1.476       1.476
                                   (AC-FT)        13.         13.         13.         13.

                       CUMULATIVE AREA =     .16 SQ MI


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


              **************
              *            *
 398 KK       *     CP051  *
              *            *
              **************
                              Combine routed hydrograph from CP046 with runoff hydrographs from 048 and 051

 400 HC          HYDROGRAPH COMBINATION
                      ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                       HYDROGRAPH AT STATION    CP051

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                                     (CFS)
+    5361.      4.97                  1378.        351.        338.        338.
                                  (INCHES)      1.453       1.482       1.482       1.482
                                   (AC-FT)       683.        697.        697.        697.

                       CUMULATIVE AREA =    8.82 SQ MI


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


              **************
              *            *
 401 KK       *    R053-1  *
              *            *
              **************
                              Route combined hydrograph from CP051 to CP053

                HYDROGRAPH ROUTING DATA

 403 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT
```

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404 RC          NORMAL DEPTH CHANNEL
                      ANL        .045  LEFT OVERBANK N-VALUE
                     ANCH        .035  MAIN CHANNEL N-VALUE
                      ANR        .045  RIGHT OVERBANK N-VALUE
                    RLNTH       1681.  REACH LENGTH
                      SEL       .0300  ENERGY SLOPE
                    ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
406 RY        ELEVATION   2249.00   2245.00   2245.00   2238.00   2238.00   2239.00   2239.00   2242.00
405 RX        DISTANCE    9910.00   9935.00   9963.00   9987.00  10041.00  10046.00  10075.00  10085.00

                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.26      2.81      4.92      7.11      9.40     11.77     14.23     16.75     19.32
          OUTFLOW        .00    162.41    535.30   1165.96   2016.62   3065.61   4301.85   5722.16   7355.02   9162.64
        ELEVATION    2238.00   2238.58   2239.16   2239.74   2240.32   2240.89   2241.47   2242.05   2242.63   2243.21

          STORAGE      21.93     24.58     27.28     30.61     34.07     37.62     41.24     44.95     48.74     52.61
          OUTFLOW   11140.55  13285.33  15594.36  18301.48  21279.04  24488.79  27923.77  31580.25  35456.09  39550.02
        ELEVATION    2243.79   2244.37   2244.95   2245.53   2246.10   2246.68   2247.26   2247.84   2248.42   2249.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     9163. TO    39550.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R053-1

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    5356.      5.00                1378.        351.        338.        338.
                        (INCHES)    1.453       1.481       1.481       1.481
                         (AC-FT)     683.        697.        697.        697.

 PEAK STORAGE  TIME                       MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
      14.       5.00                   5.          1.          1.          1.

 PEAK STAGE    TIME                       MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2241.90      5.00              2239.59     2238.42     2238.41     2238.41

                        CUMULATIVE AREA =    8.82 SQ MI


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


            **************
            *            *
407 KK      *       053  *
            *            *
            **************
                          SUB-BASIN 053
                          6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                          THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                            L =  .66  Kb = .056  Adj. Slope =  126.0

              SUBBASIN RUNOFF DATA

412 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .09  SUBBASIN AREA

                PRECIPITATION DATA

 14 PB                STORM        3.20  BASIN TOTAL PRECIPITATION

 14 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                     .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                     .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                     .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                     .00       .00       .01       .01       .01       .01       .01       .01       .01       .01
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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

413 LG          GREEN AND AMPT LOSS RATE
                     STRTL        .15  STARTING LOSS
                       DTH        .37  MOISTURE DEFICIT
                      PSIF       6.60  WETTING FRONT SUCTION
                     XKSAT        .13  HYDRAULIC CONDUCTIVITY
                     RTIMP       3.00  PERCENT IMPERVIOUS AREA

414 UC          CLARK UNITGRAPH
                        TC        .36  TIME OF CONCENTRATION
                         R        .33  STORAGE COEFFICIENT

415 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                   100.0

                                                   ***

                                              UNIT HYDROGRAPH PARAMETERS
                                       CLARK   TC=   .36 HR,       R=   .33 HR
                                      SNYDER   TP=   .31 HR,      CP=   .64

                                                UNIT HYDROGRAPH
                                           59 END-OF-PERIOD ORDINATES
                 2.        6.       10.       14.       22.       39.       73.      108.      127.      128.
               123.      113.      102.       92.       83.       75.       68.       61.       55.       50.
                45.       41.       37.       33.       30.       27.       24.       22.       20.       18.
                16.       15.       13.       12.       11.       10.        9.        8.        7.        7.
                 6.        5.        5.        4.        4.        4.        3.        3.        3.        2.
                 2.        2.        2.        2.        1.        1.        1.        1.        1.

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

                        HYDROGRAPH AT STATION      053

   TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.64, TOTAL EXCESS =    1.56

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                       6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+      93.      4.23                   16.         4.          4.          4.
                        (INCHES)     1.554       1.556       1.556       1.556
                         (AC-FT)       8.          8.          8.          8.

                        CUMULATIVE AREA =     .09 SQ MI


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            *            *
 417 KK     *     CP053  *
            *            *
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                        Combine routed hydrographs from CP051 with runoff hydrograph from 053

 419 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                   ***

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

                        HYDROGRAPH AT STATION    CP053

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                       6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    5382.      5.00                 1393.       355.        341.        341.
                        (INCHES)     1.453       1.482       1.482       1.482
                         (AC-FT)      691.        705.        705.        705.

                        CUMULATIVE AREA =    8.91 SQ MI


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


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 420 KK     *    R055-1  *
            *            *
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                        Route combined hydrograph from CP053 to CP055

                HYDROGRAPH ROUTING DATA
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422 RS          STORAGE ROUTING
                     NSTPS           1  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

423 RC          NORMAL DEPTH CHANNEL
                       ANL        .045  LEFT OVERBANK N-VALUE
                      ANCH        .035  MAIN CHANNEL N-VALUE
                       ANR        .045  RIGHT OVERBANK N-VALUE
                     RLNTH        784.  REACH LENGTH
                       SEL       .0190  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
425 RY        ELEVATION   2208.00   2202.00   2200.00   2197.00   2199.00   2200.00   2199.00   2208.00
424 RX        DISTANCE     111.00    154.00    304.00    389.00    510.00    725.00    836.00    937.00

                                                   ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

           STORAGE        .00       .27      1.07      2.41      4.53      8.69     14.48     20.83     27.69     35.05
           OUTFLOW        .00     38.21    242.59    715.24   1417.61   2839.03   5983.19  10362.77  15810.12  22358.68
         ELEVATION    2197.00   2197.58   2198.16   2198.74   2199.32   2199.89   2200.47   2201.05   2201.63   2202.21

           STORAGE      42.60     50.27     58.04     65.92     73.92     82.03     90.24     98.57    107.01    115.56
           OUTFLOW   30008.63  38626.77  48170.81  58608.81  69915.68  82071.25  95058.98 108865.20 123478.40 138889.00
         ELEVATION    2202.79   2203.37   2203.95   2204.53   2205.10   2205.68   2206.26   2206.84   2207.42   2208.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    10363. TO    138889.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R055-1

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+    5371.      5.03                1393.        355.        341.        341.
                         (INCHES)   1.453       1.482       1.482       1.482
                          (AC-FT)    691.        705.        705.        705.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
       13.      5.03                  4.          1.          1.          1.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2200.36      5.03              2198.86     2197.55     2197.53     2197.53

                        CUMULATIVE AREA =    8.91 SQ MI


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            *            *
 426 KK     *       055  *
            *            *
            **************
                        SUB-BASIN 055
                        6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                        THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                          L = 2.43  Kb = .047  Adj. Slope =  125.0

              SUBBASIN RUNOFF DATA

 431 BA         SUBBASIN CHARACTERISTICS
                     TAREA         .37  SUBBASIN AREA

                PRECIPITATION DATA

  14 PB              STORM        3.20  BASIN TOTAL PRECIPITATION

  14 PI           INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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                .01      .01      .01      .01      .01      .01      .01      .01      .01      .01
                .01      .01      .01      .01      .01      .02      .02      .02      .02      .02
                .02      .02      .02      .03      .03      .03      .03      .03      .03      .03
                .02      .02      .02      .02      .02      .02      .02      .01      .01      .01
                .01      .01      .01      .01      .01      .00      .00      .00      .00      .00
                .00      .00      .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

432 LG        GREEN AND AMPT LOSS RATE
                STRTL        .15  STARTING LOSS
                  DTH        .40  MOISTURE DEFICIT
                 PSIF       6.00  WETTING FRONT SUCTION
                XKSAT        .16  HYDRAULIC CONDUCTIVITY
                RTIMP       5.00  PERCENT IMPERVIOUS AREA

433 UC        CLARK UNITGRAPH
                   TC        .67  TIME OF CONCENTRATION
                    R        .86  STORAGE COEFFICIENT

434 UA        ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                  .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
               100.0

                                                  ***

                                          UNIT HYDROGRAPH PARAMETERS
                                   CLARK   TC=    .67 HR,       R=    .86 HR
                                  SNYDER   TP=    .60 HR,      CP=    .51

                                          UNIT HYDROGRAPH
                                     149 END-OF-PERIOD ORDINATES
              2.       6.       9.      11.      14.      18.      22.      26.      33.      43.
             61.      89.     122.     160.     186.     200.     208.     208.     207.     205.
            200.     193.     185.     178.     172.     165.     159.     153.     147.     141.
            136.     131.     126.     121.     116.     112.     108.     103.     100.      96.
             92.      89.      85.      82.      79.      76.      73.      70.      67.      65.
             62.      60.      58.      56.      53.      51.      49.      48.      46.      44.
             42.      41.      39.      38.      36.      35.      33.      32.      31.      30.
             29.      28.      27.      26.      25.      24.      23.      22.      21.      20.
             19.      19.      18.      17.      17.      16.      15.      15.      14.      14.
             13.      13.      12.      12.      11.      11.      10.      10.      10.       9.
              9.       9.       8.       8.       8.       7.       7.       7.       7.       6.
              6.       6.       6.       5.       5.       5.       5.       5.       4.       4.
              4.       4.       4.       4.       4.       3.       3.       3.       3.       3.
              3.       3.       3.       2.       2.       2.       2.       2.       2.       2.
              2.       2.       2.       2.       2.       2.       1.       1.       1.

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

                     HYDROGRAPH AT STATION      055

   TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.72, TOTAL EXCESS =    1.48

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    213.       4.63                  57.         15.         14.         14.
                        (INCHES)    1.460       1.475       1.475       1.475
                         (AC-FT)     29.         29.         29.         29.

                       CUMULATIVE AREA =     .37 SQ MI


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            *            *
 436 KK     *     CP055  *
            *            *
            **************
                          Combine routed hydrograph from CP053 with runoff hydrograph from 055

 438 HC         HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***

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

                     HYDROGRAPH AT STATION    CP055

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    5539.      5.03                1450.        370.        355.        355.
                        (INCHES)    1.453       1.482       1.482       1.482
                         (AC-FT)     719.        733.        733.        733.

                       CUMULATIVE AREA =    9.28 SQ MI
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              *            *
 439 KK       *    R068-1  *
              *            *
              **************
                             Route combined hydrograph from CP055 to CP068

                HYDROGRAPH ROUTING DATA

 441 RS           STORAGE ROUTING
                       NSTPS           2  NUMBER OF SUBREACHES
                        ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC       -1.00  INITIAL CONDITION
                           X         .00 WORKING R AND D COEFFICIENT

 442 RC           NORMAL DEPTH CHANNEL
                         ANL        .045  LEFT OVERBANK N-VALUE
                        ANCH        .035  MAIN CHANNEL N-VALUE
                         ANR        .045  RIGHT OVERBANK N-VALUE
                       RLNTH       1728.  REACH LENGTH
                         SEL       .0170  ENERGY SLOPE
                       ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                            --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 444 RY        ELEVATION   2208.00   2202.00   2200.00   2197.00   2197.00   2200.00   2199.00   2208.00
 443 RX        DISTANCE     111.00    154.00    304.00    389.00    510.00    725.00    836.00    937.00

                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE        .00      3.44      8.22     14.32     21.99     32.45     45.25     59.24     74.37     90.58
            OUTFLOW        .00    297.46   1051.28   2293.08   4091.70   6610.61  10594.41  15649.59  21647.76  28636.85
          ELEVATION    2197.00   2197.58   2198.16   2198.74   2199.32   2199.89   2200.47   2201.05   2201.63   2202.21

            STORAGE     107.23    124.12    141.25    158.63    176.25    194.12    212.23    230.59    249.19    268.03
            OUTFLOW   36627.41  45500.60  55221.59  65764.09  77107.39  89234.84 102132.80 115789.90 130196.80 145345.30
          ELEVATION    2202.79   2203.37   2203.95   2204.53   2205.10   2205.68   2206.26   2206.84   2207.42   2208.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    15650. TO   145345.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                          HYDROGRAPH AT STATION   R068-1

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     24.97-HR
+   (CFS)        (HR)
                             (CFS)
+    5509.       5.07                  1450.        370.        355.        355.
                          (INCHES)     1.453       1.482       1.482       1.482
                           (AC-FT)      719.        733.        733.        733.

 PEAK STORAGE    TIME                          MAXIMUM AVERAGE STORAGE
                                        6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)       (HR)
      14.        5.07                     5.          1.          1.          1.

  PEAK STAGE     TIME                          MAXIMUM AVERAGE STAGE
                                        6-HR       24-HR       72-HR     24.97-HR
+   (FEET)       (HR)
   2199.64       5.07                 2198.11     2197.29     2197.28     2197.28

                          CUMULATIVE AREA =    9.28 SQ MI


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

              **************
              *            *
 445 KK       *       058  *
              *            *
              **************
                             SUB-BASIN 058
                             6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                             THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                               L = 2.86  Kb = .038  Adj. Slope =  120.0

                SUBBASIN RUNOFF DATA

 450 BA           SUBBASIN CHARACTERISTICS
                       TAREA        1.76  SUBBASIN AREA
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                PRECIPITATION DATA

 14 PB                STORM        3.20  BASIN TOTAL PRECIPITATION

 14 PI             INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                      .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                      .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                      .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                      .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                      .00       .00       .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

451 LG            GREEN AND AMPT LOSS RATE
                      STRTL         .15  STARTING LOSS
                        DTH         .40  MOISTURE DEFICIT
                       PSIF        6.00  WETTING FRONT SUCTION
                      XKSAT         .16  HYDRAULIC CONDUCTIVITY
                      RTIMP        4.00  PERCENT IMPERVIOUS AREA

452 UC            CLARK UNITGRAPH
                         TC         .66  TIME OF CONCENTRATION
                          R         .39  STORAGE COEFFICIENT

453 UA            ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                        .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                     100.0

                                                   ***

                                                UNIT HYDROGRAPH PARAMETERS
                                         CLARK   TC=    .66 HR,       R=    .39 HR
                                        SNYDER   TP=    .55 HR,      CP=    .83

                                                UNIT HYDROGRAPH
                                            76 END-OF-PERIOD ORDINATES
                 21.       61.       90.      111.      137.      167.      203.      243.      308.      399.
                588.      863.     1179.     1518.     1712.     1775.     1771.     1710.     1639.     1558.
               1456.     1338.     1230.     1130.     1038.      954.      876.      805.      740.      680.
                625.      574.      527.      485.      445.      409.      376.      345.      317.      292.
                268.      246.      226.      208.      191.      175.      161.      148.      136.      125.
                115.      106.       97.       89.       82.       75.       69.       64.       58.       54.
                 49.       45.       42.       38.       35.       32.       30.       27.       25.       23.
                 21.       19.       18.       16.       15.       14.

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

                      HYDROGRAPH AT STATION      058

   TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.74, TOTAL EXCESS =    1.46

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    1483.      4.47                  275.         69.         66.         66.
                        (INCHES)    1.455      1.457       1.457       1.457
                         (AC-FT)     136.        136.        136.        136.

                        CUMULATIVE AREA =    1.76 SQ MI


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


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            *            *
 455 KK     *    R064-1  *
            *            *
            **************
                          Route runoff hydrograph from 058

                HYDROGRAPH ROUTING DATA

 457 RS           STORAGE ROUTING
                      NSTPS           8  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC       -1.00  INITIAL CONDITION
                           X         .00 WORKING R AND D COEFFICIENT

 458 RC           NORMAL DEPTH CHANNEL
                         ANL        .045  LEFT OVERBANK N-VALUE
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                    ANCH        .035  MAIN CHANNEL N-VALUE
                     ANR        .045  RIGHT OVERBANK N-VALUE
                   RLNTH       7694.  REACH LENGTH
                     SEL      .0230  ENERGY SLOPE
                   ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
460 RY       ELEVATION  2323.00   2321.00   2319.00   2319.00   2320.00   2321.00   2323.00   2325.00
459 RX       DISTANCE       .00     76.00    102.00    111.00    117.00    118.00    168.00    205.00

                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .67      1.67      3.01      4.65      6.54      8.68     11.25     14.88     19.62
          OUTFLOW        .00      9.78     35.31     78.03    143.67    230.48    338.65    459.52    618.19    829.03
        ELEVATION    2319.00   2319.32   2319.63   2319.95   2320.26   2320.58   2320.89   2321.21   2321.53   2321.84

          STORAGE      25.48     32.44     40.50     49.64     59.28     69.24     79.53     90.14    101.08    112.35
          OUTFLOW    1099.51   1437.19   1849.40   2371.41   3034.28   3778.27   4602.60   5506.89   6491.07   7555.25
        ELEVATION    2322.16   2322.47   2322.79   2323.10   2323.42   2323.74   2324.05   2324.37   2324.68   2325.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     6491. TO     7555.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R064-1

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)        (HR)
                                   (CFS)
+    1446.       4.73                275.         69.         66.         66.
                                (INCHES)       1.454       1.457       1.457       1.457
                                 (AC-FT)        136.        136.        136.        136.

 PEAK STORAGE    TIME                         MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)       (HR)
       4.        4.73                  1.          0.          0.          0.

  PEAK STAGE     TIME                         MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     24.97-HR
+   (FEET)       (HR)
   2322.48       4.73             2320.14     2319.29     2319.28     2319.28

                        CUMULATIVE AREA =    1.76 SQ MI


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


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            *            *
 461 KK     *       060  *
            *            *
            **************
                          SUB-BASIN 060
                          6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                          THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                            L = 3.39  Kb = .043  Adj. Slope =  152.0

                SUBBASIN RUNOFF DATA

 466 BA           SUBBASIN CHARACTERISTICS
                       TAREA          .78  SUBBASIN AREA

                  PRECIPITATION DATA

  14 PB                STORM        3.20  BASIN TOTAL PRECIPITATION

  14 PI              INCREMENTAL PRECIPITATION PATTERN
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                        .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                        .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                        .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                        .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                        .00       .00       .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
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467 LG          GREEN AND AMPT LOSS RATE
                      STRTL        .15  STARTING LOSS
                        DTH        .39  MOISTURE DEFICIT
                       PSIF       6.20  WETTING FRONT SUCTION
                      XKSAT        .14  HYDRAULIC CONDUCTIVITY
                      RTIMP       6.00  PERCENT IMPERVIOUS AREA

468 UC          CLARK UNITGRAPH
                         TC        .71  TIME OF CONCENTRATION
                          R        .77  STORAGE COEFFICIENT

469 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                     .0      3.0      5.0      8.0     12.0     20.0     43.0     75.0     90.0     96.0
                  100.0

                                                  ***

                                                UNIT HYDROGRAPH PARAMETERS
                                         CLARK   TC=   .71 HR,       R=   .77 HR
                                        SNYDER   TP=   .62 HR,      CP=   .57

                                                UNIT HYDROGRAPH
                                          136 END-OF-PERIOD ORDINATES
                    4.      13.      20.      26.      32.      39.      47.      57.      69.      87.
                  116.     166.     231.     307.     387.     438.     464.     476.     473.     469.
                  461.     449.     432.     414.     396.     379.     363.     348.     333.     319.
                  306.     293.     281.     269.     257.     246.     236.     226.     217.     207.
                  199.     190.     182.     175.     167.     160.     153.     147.     141.     135.
                  129.     124.     118.     113.     109.     104.     100.      95.      91.      88.
                   84.      80.      77.      74.      71.      68.      65.      62.      59.      57.
                   54.      52.      50.      48.      46.      44.      42.      40.      39.      37.
                   35.      34.      32.      31.      30.      29.      27.      26.      25.      24.
                   23.      22.      21.      20.      19.      19.      18.      17.      16.      16.
                   15.      14.      14.      13.      13.      12.      12.      11.      11.      10.
                   10.       9.       9.       9.       8.       8.       7.       7.       7.       7.
                    6.       6.       6.       6.       5.       5.       5.       5.       4.       4.
                    4.       4.       4.       4.       3.       3.

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

                        HYDROGRAPH AT STATION      060

    TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.62, TOTAL EXCESS =    1.58

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                                    (CFS)
+    500.       4.63                 130.         33.         32.         32.
                                 (INCHES)       1.554       1.569       1.569       1.569
                                  (AC-FT)        64.         65.         65.         65.

                        CUMULATIVE AREA =     .78 SQ MI


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            *            *
471 KK      *   R062-1   *
            *            *
            **************
                          Route runoff hydrograph from 060

              HYDROGRAPH ROUTING DATA

473 RS          STORAGE ROUTING
                      NSTPS          1  NUMBER OF SUBREACHES
                       ITYP       FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC      -1.00  INITIAL CONDITION
                          X        .00 WORKING R AND D COEFFICIENT

474 RC          NORMAL DEPTH CHANNEL
                        ANL       .045  LEFT OVERBANK N-VALUE
                       ANCH       .035  MAIN CHANNEL N-VALUE
                        ANR       .045  RIGHT OVERBANK N-VALUE
                      RLNTH       441.  REACH LENGTH
                        SEL      .0180  ENERGY SLOPE
                      ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
476 RY        ELEVATION  2328.50   2328.00   2327.00   2327.00   2326.00   2326.00   2327.00   2328.50
475 RX        DISTANCE       .00     20.00     38.00     41.00     45.00     60.00     94.00    128.00

                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE        .00       .02       .05       .09       .13       .18       .24       .30       .37       .46
            OUTFLOW        .00      3.15     10.71     22.50     38.67     59.49     85.22    116.17    146.03    192.97
          ELEVATION    2326.00   2326.13   2326.26   2326.39   2326.53   2326.66   2326.79   2326.92   2327.05   2327.18
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STORAGE	.54	.64	.74	.85	.97	1.09	1.22	1.37	1.52	1.69
OUTFLOW	246.61	307.28	375.26	450.85	534.33	625.98	724.30	831.98	949.90	1078.53
ELEVATION	2327.32	2327.45	2327.58	2327.71	2327.84	2327.97	2328.11	2328.24	2328.37	2328.50

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 534. TO 1079.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION R062-1

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.97-HR
+ (CFS)	(HR)	(CFS)				
+ 499.	4.67		130.	33.	32.	32.
		(INCHES)	1.554	1.569	1.569	1.569
		(AC-FT)	64.	65.	65.	65.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	24.97-HR
+ (AC-FT)	(HR)				
1.	4.63	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	24.97-HR
+ (FEET)	(HR)				
2327.79	4.67	2326.76	2326.20	2326.19	2326.19

CUMULATIVE AREA = .78 SQ MI

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              *            *
477 KK        *       062  *
              *            *
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SUB-BASIN 062
6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
THIS BASIN USED RAINFALL REDUCTION FACTOR OF .928
L = 2.26 Kb = .043 Adj. Slope = 158.0

SUBBASIN RUNOFF DATA

482 BA SUBBASIN CHARACTERISTICS
TAREA .73 SUBBASIN AREA

PRECIPITATION DATA

14 PB STORM 3.20 BASIN TOTAL PRECIPITATION

14 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.02	.02	.02	.02	.02
.02	.02	.02	.03	.03	.03	.03	.03	.03	.03
.02	.02	.02	.02	.02	.02	.02	.01	.01	.01
.01	.01	.01	.01	.01	.00	.00	.00	.00	.00
.00	.00	.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

483 LG GREEN AND AMPT LOSS RATE

STRTL	.15	STARTING LOSS
DTH	.40	MOISTURE DEFICIT
PSIF	6.00	WETTING FRONT SUCTION
XKSAT	.15	HYDRAULIC CONDUCTIVITY
RTIMP	8.00	PERCENT IMPERVIOUS AREA

484 UC CLARK UNITGRAPH

TC	.56	TIME OF CONCENTRATION
R	.44	STORAGE COEFFICIENT

485 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
100.0									

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                                        UNIT HYDROGRAPH PARAMETERS
                                  CLARK   TC=   .56 HR,       R=   .44 HR
                                 SNYDER   TP=   .48 HR,      CP=   .70

                                          UNIT HYDROGRAPH
                                   82 END-OF-PERIOD ORDINATES
              9.      26.      38.      50.      63.      80.     102.     135.     203.     312.
            455.     602.     687.     712.     708.     688.     660.     621.     576.     535.
            496.     460.     427.     396.     368.     341.     316.     294.     272.     253.
            234.     218.     202.     187.     174.     161.     150.     139.     129.     119.
            111.     103.      95.      89.      82.      76.      71.      66.      61.      56.
             52.      49.      45.      42.      39.      36.      33.      31.      29.      27.
             25.      23.      21.      20.      18.      17.      16.      15.      14.      13.
             12.      11.      10.       9.       9.       8.       7.       7.       6.       6.
              6.       5.

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

                    HYDROGRAPH AT STATION      062

   TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.63, TOTAL EXCESS =    1.57

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                                   (CFS)
+     614.      4.40                123.        31.         30.         30.
                              (INCHES)      1.561       1.567       1.567       1.567
                               (AC-FT)       61.         61.         61.         61.

                              CUMULATIVE AREA =     .73 SQ MI


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            **************
            *            *
 487 KK     *     CP062  *
            *            *
            **************
                          Combine routed hydrograph from 060 with runoff hydrograph from 062

 489 HC          HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

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

                    HYDROGRAPH AT STATION    CP062

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                                   (CFS)
+    1085.      4.53                252.        64.         61.         61.
                              (INCHES)      1.552       1.568       1.568       1.568
                               (AC-FT)      125.        126.        126.        126.

                              CUMULATIVE AREA =    1.51 SQ MI


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


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            *            *
 490 KK     *    R064-2  *
            *            *
            **************
                          Route combined hydrograph from CP062

              HYDROGRAPH ROUTING DATA

 492 RS          STORAGE ROUTING
                      NSTPS           2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 493 RC          NORMAL DEPTH CHANNEL
                        ANL        .045  LEFT OVERBANK N-VALUE
                       ANCH        .035  MAIN CHANNEL N-VALUE
                        ANR        .045  RIGHT OVERBANK N-VALUE
                      RLNTH       1554.  REACH LENGTH
                        SEL       .0240  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                        CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 495 RY        ELEVATION   2316.00   2316.00   2315.00   2315.00   2316.00   2317.00   2318.00   2319.00
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494 RX        DISTANCE        .00     17.00     23.00     73.00     83.00     90.00     99.00    107.00
                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .39       .80      1.24      1.70      2.22      2.86      3.50      4.15      4.82
          OUTFLOW        .00     24.88     80.05    159.50    261.21    380.70    537.92    721.34    929.32   1160.80
        ELEVATION    2315.00   2315.21   2315.42   2315.63   2315.84   2316.05   2316.26   2316.47   2316.68   2316.89

          STORAGE       5.49      6.18      6.89      7.60      8.34      9.08      9.84     10.61     11.40     12.20
          OUTFLOW    1423.55   1718.28   2036.46   2377.85   2742.27   3129.69   3539.77   3972.29   4427.11   4904.13
        ELEVATION    2317.10   2317.31   2317.53   2317.74   2317.95   2318.16   2318.37   2318.58   2318.79   2319.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     1161. TO     4904.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R064-2

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)      (HR)
                              (CFS)
+   1083.      4.57            252.         64.         61.         61.
                          (INCHES)      1.552      1.568       1.568       1.568
                           (AC-FT)       125.       126.        126.        126.

 PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)     (HR)
       2.      4.57                  1.          0.          0.          0.

  PEAK STAGE   TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)     (HR)
   2316.82     4.57            2315.63     2315.16     2315.16     2315.16

                        CUMULATIVE AREA =    1.51 SQ MI


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


            **************
            *            *
 496 KK     *       064  *
            *            *
            **************
                        SUB-BASIN 064
                        6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                        THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                          L = 1.80  Kb = .046  Adj. Slope =  149.0

              SUBBASIN RUNOFF DATA

 501 BA         SUBBASIN CHARACTERISTICS
                      TAREA         .47  SUBBASIN AREA

                PRECIPITATION DATA

  14 PB               STORM        3.20  BASIN TOTAL PRECIPITATION

  14 PI           INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                      .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                      .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                      .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                      .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                      .00       .00       .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

 502 LG         GREEN AND AMPT LOSS RATE
                      STRTL         .15  STARTING LOSS
                        DTH         .39  MOISTURE DEFICIT
                       PSIF        6.20  WETTING FRONT SUCTION
                      XKSAT         .15  HYDRAULIC CONDUCTIVITY
                      RTIMP        5.00  PERCENT IMPERVIOUS AREA

 503 UC         CLARK UNITGRAPH
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                    TC          .52  TIME OF CONCENTRATION
                     R          .44  STORAGE COEFFICIENT

504 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                     .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                  100.0

                                                                  ***

                                                        UNIT HYDROGRAPH PARAMETERS
                                                 CLARK   TC=   .52 HR,       R=   .44 HR
                                                SNYDER   TP=   .45 HR,      CP=   .67

                                                          UNIT HYDROGRAPH
                                                 80 END-OF-PERIOD ORDINATES
                 6.       18.       26.       35.       45.       58.       77.      109.      174.      271.
               379.      450.      471.      472.      460.      440.      413.      383.      355.      329.
               305.      283.      262.      243.      225.      209.      194.      180.      167.      154.
               143.      133.      123.      114.      106.       98.       91.       84.       78.       72.
                67.       62.       58.       53.       50.       46.       43.       39.       37.       34.
                31.       29.       27.       25.       23.       22.       20.       18.       17.       16.
                15.       14.       13.       12.       11.       10.        9.        9.        8.        7.
                 7.        6.        6.        5.        5.        5.        4.        4.        4.        3.

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

                    HYDROGRAPH AT STATION      064

   TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.68, TOTAL EXCESS =    1.52

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    396.       4.37                  77.         19.         18.         18.
                        (INCHES)    1.507       1.511       1.511       1.511
                         (AC-FT)     38.         38.         38.         38.

                        CUMULATIVE AREA =     .47 SQ MI


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


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            *            *
506 KK      *     CP064  *
            *            *
            **************
                          Combine routed hydrographs from 058 and CP062 with runoff hydrograph from
                          064

509 HC          HYDROGRAPH COMBINATION
                     ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                    HYDROGRAPH AT STATION    CP064

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+   2816.       4.67                 603.        152.        146.        146.
                        (INCHES)    1.499       1.509       1.509       1.509
                         (AC-FT)    299.        301.        301.        301.

                        CUMULATIVE AREA =    3.74 SQ MI


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


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            *            *
510 KK      *    R066-1  *
            *            *
            **************
                          Route combined hydrograph from CP064

               HYDROGRAPH ROUTING DATA

512 RS          STORAGE ROUTING
                     NSTPS           1  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

513 RC          NORMAL DEPTH CHANNEL
                       ANL        .045  LEFT OVERBANK N-VALUE
```

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                    ANCH        .035  MAIN CHANNEL N-VALUE
                     ANR        .045  RIGHT OVERBANK N-VALUE
                   RLNTH        934.  REACH LENGTH
                     SEL       .0210  ENERGY SLOPE
                   ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 515 RY       ELEVATION  2281.00   2281.00   2280.00   2280.00   2281.00   2282.00   2283.00   2284.00
 514 RX       DISTANCE       .00     31.00     66.00    104.00    111.00    121.00    129.00    149.00

                                                  ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .19       .42       .69      1.00      1.39      1.90      2.42      2.94      3.48
          OUTFLOW        .00     18.40     61.41    126.66    214.24    310.48    467.25    656.42    875.88   1124.27
        ELEVATION    2280.00   2280.21   2280.42   2280.63   2280.84   2281.05   2281.26   2281.47   2281.68   2281.89

          STORAGE       4.02      4.58      5.14      5.71      6.28      6.87      7.48      8.10      8.75      9.41
          OUTFLOW    1410.84   1735.81   2088.53   2468.48   2875.18   3306.93   3765.90   4252.77   4767.77   5311.19
        ELEVATION    2282.10   2282.31   2282.53   2282.74   2282.95   2283.16   2283.37   2283.58   2283.79   2284.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     2875. TO     5311.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                      HYDROGRAPH AT STATION   R066-1

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+    2814.      4.67                603.        152.        146.        146.
                         (INCHES)  1.499       1.509       1.509       1.509
                          (AC-FT)   299.        301.        301.        301.

 PEAK STORAGE   TIME                       MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
       6.       4.67                  2.          0.          0.          0.

  PEAK STAGE    TIME                        MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2282.91      4.67             2281.02     2280.27     2280.26     2280.26

                         CUMULATIVE AREA =    3.74 SQ MI


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


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            *            *
 516 KK     *       066  *
            *            *
            **************
                         SUB-BASIN 066
                         6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                         THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                           L =  .18  Kb = .072  Adj. Slope =  122.0

              SUBBASIN RUNOFF DATA

 521 BA         SUBBASIN CHARACTERISTICS
                      TAREA         .01  SUBBASIN AREA

                PRECIPITATION DATA

  14 PB               STORM        3.20  BASIN TOTAL PRECIPITATION

  14 PI           INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                     .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                     .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                     .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                     .00       .00       .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
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522 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .15  STARTING LOSS
                        DTH         .35  MOISTURE DEFICIT
                       PSIF        4.20  WETTING FRONT SUCTION
                      XKSAT         .36  HYDRAULIC CONDUCTIVITY
                      RTIMP        3.00  PERCENT IMPERVIOUS AREA

523 UC          CLARK UNITGRAPH
                         TC         .22  TIME OF CONCENTRATION
                          R         .33  STORAGE COEFFICIENT

524 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                   100.0

                                                          ***

                                                   UNIT HYDROGRAPH PARAMETERS
                                            CLARK   TC=   .22 HR,       R=   .33 HR
                                           SNYDER   TP=   .21 HR,      CP=   .48

                                                      UNIT HYDROGRAPH
                                                 57 END-OF-PERIOD ORDINATES
                 0.        1.        1.        3.        6.        9.        9.        8.        8.        7.
                 6.        6.        5.        5.        4.        4.        3.        3.        3.        2.
                 2.        2.        2.        2.        2.        1.        1.        1.        1.        1.
                 1.        1.        1.        1.        1.        0.        0.        0.        0.        0.
                 0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
                 0.        0.        0.        0.        0.        0.        0.

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

                        HYDROGRAPH AT STATION      066

    TOTAL RAINFALL =    3.20, TOTAL LOSS =    2.11, TOTAL EXCESS =    1.09

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+       5.      4.17                      1.          0.          0.          0.
                        (INCHES)      1.080       1.081       1.081       1.081
                         (AC-FT)         0.          0.          0.          0.

                        CUMULATIVE AREA =     .01 SQ MI


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


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            *            *
526 KK      *     CP066  *
            *            *
            **************
                          Combine routed hydrograph from CP064 with runoff hydrograph from 066

528 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                        HYDROGRAPH AT STATION    CP066

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    2816.      4.67                    603.        152.        146.        146.
                        (INCHES)      1.498       1.508       1.508       1.508
                         (AC-FT)      299.        301.        301.        301.

                        CUMULATIVE AREA =    3.74 SQ MI


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


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            *            *
529 KK      *    R068-2  *
            *            *
            **************
                          Route combined hydrograph from CP066

                HYDROGRAPH ROUTING DATA

531 RS          STORAGE ROUTING
                      NSTPS           4  NUMBER OF SUBREACHES
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                    ITYP        FLOW  TYPE OF INITIAL CONDITION
                  RSVRIC       -1.00  INITIAL CONDITION
                       X         .00 WORKING R AND D COEFFICIENT

532 RC          NORMAL DEPTH CHANNEL
                     ANL        .045  LEFT OVERBANK N-VALUE
                    ANCH        .035  MAIN CHANNEL N-VALUE
                     ANR        .045  RIGHT OVERBANK N-VALUE
                   RLNTH       3234.  REACH LENGTH
                     SEL       .0250  ENERGY SLOPE
                   ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
534 RY        ELEVATION   2228.00   2227.00   2227.00   2226.50   2226.50   2227.00   2227.00   2228.00
533 RX        DISTANCE     198.00    224.00    270.00    283.00    684.00    688.00    721.00    769.00

                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      2.36      4.73      7.11      9.52     11.93     14.37     17.13     20.08     23.06
          OUTFLOW        .00     39.18    124.54    245.07    396.30    575.50    780.76   1016.19   1284.93   1582.74
        ELEVATION    2226.50   2226.58   2226.66   2226.74   2226.82   2226.89   2226.97   2227.05   2227.13   2227.21

          STORAGE      26.08     29.13     32.22     35.34     38.49     41.68     44.90     48.16     51.45     54.77
          OUTFLOW    1908.11   2260.02   2637.71   3040.54   3468.02   3919.71   4395.25   4894.34   5416.68   5962.06
        ELEVATION    2227.29   2227.37   2227.45   2227.53   2227.60   2227.68   2227.76   2227.84   2227.92   2228.00

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

                        HYDROGRAPH AT STATION   R068-2

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                           (CFS)
+    2800.      4.77                603.        152.        146.        146.
                         (INCHES)  1.497       1.508       1.508       1.508
                          (AC-FT)   299.        301.        301.        301.

 PEAK STORAGE   TIME                        MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
       8.       4.77                  2.          1.          1.          1.

  PEAK STAGE    TIME                        MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2227.48      4.77             2226.81     2226.58     2226.58     2226.58

                        CUMULATIVE AREA =    3.74 SQ MI


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


            **************
            *            *
535 KK      *       068  *
            *            *
            **************
                        SUB-BASIN 068
                        6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                        THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                          L = 1.05  Kb = .050  Adj. Slope =  133.0

              SUBBASIN RUNOFF DATA

540 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .25  SUBBASIN AREA

                PRECIPITATION DATA

 14 PB               STORM        3.20  BASIN TOTAL PRECIPITATION

 14 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                     .02       .02       .02       .03       .03       .03       .03       .03       .03       .03
                     .02       .02       .02       .02       .02       .02       .02       .01       .01       .01
                     .01       .01       .01       .01       .01       .00       .00       .00       .00       .00
                     .00       .00       .01       .01       .01       .01       .01       .01       .01       .01
                     .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

541 LG        GREEN AND AMPT LOSS RATE
                STRTL        .15  STARTING LOSS
                  DTH        .36  MOISTURE DEFICIT
                 PSIF       5.10  WETTING FRONT SUCTION
                XKSAT        .22  HYDRAULIC CONDUCTIVITY
                RTIMP       3.00  PERCENT IMPERVIOUS AREA

542 UC        CLARK UNITGRAPH
                   TC        .43  TIME OF CONCENTRATION
                    R        .34  STORAGE COEFFICIENT

543 UA        ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                  .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
               100.0

                                                  ***

                                          UNIT HYDROGRAPH PARAMETERS
                                   CLARK   TC=   .43 HR,       R=   .34 HR
                                  SNYDER   TP=   .37 HR,      CP=   .72

                                            UNIT HYDROGRAPH
                                   62 END-OF-PERIOD ORDINATES
            5.       14.       21.       28.       38.       54.       89.      151.      236.      298.
          315.      312.      299.      277.      251.      227.      206.      187.      169.      153.
          139.      126.      114.      103.       93.       85.       77.       69.       63.       57.
           52.       47.       42.       38.       35.       31.       28.       26.       23.       21.
           19.       17.       16.       14.       13.       12.       11.       10.        9.        8.
            7.        6.        6.        5.        5.        4.        4.        4.        3.        3.
            3.        2.

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

                    HYDROGRAPH AT STATION      068

  TOTAL RAINFALL =    3.20, TOTAL LOSS =    1.85, TOTAL EXCESS =    1.35

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+  (CFS)       (HR)
                          (CFS)
+    219.      4.30                  36.         9.          9.          9.
                        (INCHES)   1.345       1.346       1.346       1.346
                         (AC-FT)     18.         18.         18.         18.

                       CUMULATIVE AREA =     .25 SQ MI


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


            **************
            *            *
545 KK      *     CP068  *
            *            *
            **************
                       Combine routed hydrographs from CP055 and CP066 with runoff hydrograph from
                       068

548 HC        HYDROGRAPH COMBINATION
                    ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                  ***

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

                    HYDROGRAPH AT STATION    CP068

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+  (CFS)       (HR)
                          (CFS)
+   7937.      5.03                2086.       530.        510.        510.
                        (INCHES)   1.462       1.487       1.487       1.487
                         (AC-FT)   1035.      1052.       1052.       1052.

                       CUMULATIVE AREA =   13.27 SQ MI


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


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            *            *
549 KK      *    R070-1  *
            *            *
            **************
                       Route combined hydrograph from CP068
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                HYDROGRAPH ROUTING DATA

 551 RS           STORAGE ROUTING
                       NSTPS          8  NUMBER OF SUBREACHES
                        ITYP       FLOW  TYPE OF INITIAL CONDITION
                       RSVRIC      -1.00  INITIAL CONDITION
                            X        .00 WORKING R AND D COEFFICIENT

 552 RC           NORMAL DEPTH CHANNEL
                         ANL       .045  LEFT OVERBANK N-VALUE
                        ANCH       .035  MAIN CHANNEL N-VALUE
                         ANR       .045  RIGHT OVERBANK N-VALUE
                       RLNTH      7672.  REACH LENGTH
                         SEL      .0190  ENERGY SLOPE
                       ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                            --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 554 RY        ELEVATION   2130.00   2127.00   2127.00   2125.50   2125.50   2124.00   2124.00   2130.00
 553 RX        DISTANCE      65.20    145.60    307.40    320.00    550.30    564.70    809.80    963.50

                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE        .00     13.94     28.49     43.66     59.45     79.04    108.85    139.27    170.28    201.88
            OUTFLOW        .00    165.45    530.95   1055.00   1722.83   2510.37   3728.37   5279.11   7122.69   9238.23
          ELEVATION    2124.00   2124.32   2124.63   2124.95   2125.26   2125.58   2125.89   2126.21   2126.53   2126.84

            STORAGE     238.59    280.71    323.75    367.70    412.58    458.38    505.10    552.73    601.29    650.77
            OUTFLOW   11656.61  14483.25  17665.88  21182.98  25022.35  29175.93  33638.05  38404.60  43472.63  48839.98
          ELEVATION    2127.16   2127.47   2127.79   2128.10   2128.42   2128.74   2129.05   2129.37   2129.68   2130.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    29176. TO    48840.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R070-1

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+    7802.      5.23                  2082.        530.        510.         510.
                          (INCHES)   1.459       1.487       1.487        1.487
                           (AC-FT)   1032.       1052.       1052.        1052.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                        6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
      23.       5.23                     8.          2.          2.           2.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                        6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2126.63      5.23                2125.13     2124.30     2124.29      2124.29

                          CUMULATIVE AREA =   13.27 SQ MI


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


            **************
            *            *
 555 KK     *       070  *
            *            *
            **************
                          SUB-BASIN 070
                          6-HOUR RAINFALL, PATTERN NO. 2.93 WAS USED TO FIND TC & R FOR THIS BASIN
                          THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                            L = 2.68  Kb = .043  Adj. Slope =  131.0

                SUBBASIN RUNOFF DATA

 560 BA           SUBBASIN CHARACTERISTICS
                       TAREA         .79  SUBBASIN AREA

                  PRECIPITATION DATA

  14 PB                STORM        3.20  BASIN TOTAL PRECIPITATION

  14 PI              INCREMENTAL PRECIPITATION PATTERN
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .01      .01      .01      .01      .01      .01      .01      .01      .01      .01
                .01      .01      .01      .01      .01      .02      .02      .02      .02      .02
                .02      .02      .02      .03      .03      .03      .03      .03      .03      .03
                .02      .02      .02      .02      .02      .02      .02      .01      .01      .01
                .01      .01      .01      .01      .01      .00      .00      .00      .00      .00
                .00      .00      .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

561 LG        GREEN AND AMPT LOSS RATE
                STRTL        .17  STARTING LOSS
                  DTH        .34  MOISTURE DEFICIT
                 PSIF       4.50  WETTING FRONT SUCTION
                XKSAT        .31  HYDRAULIC CONDUCTIVITY
                RTIMP       3.00  PERCENT IMPERVIOUS AREA

562 UC        CLARK UNITGRAPH
                   TC        .70  TIME OF CONCENTRATION
                    R        .63  STORAGE COEFFICIENT

563 UA        ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                  .0      3.0      5.0      8.0     12.0     20.0     43.0     75.0     90.0     96.0
               100.0

                                                  ***

                                          UNIT HYDROGRAPH PARAMETERS
                                   CLARK   TC=   .70 HR,       R=   .63 HR
                                  SNYDER   TP=   .61 HR,      CP=   .65

                                            UNIT HYDROGRAPH
                                       113 END-OF-PERIOD ORDINATES
              6.      17.      25.      32.      39.      48.      58.      69.      85.     107.
            144.     207.     289.     383.     476.     533.     560.     569.     562.     552.
            538.     519.     493.     468.     444.     421.     399.     378.     359.     340.
            323.     306.     290.     275.     261.     248.     235.     223.     211.     200.
            190.     180.     171.     162.     154.     146.     138.     131.     124.     118.
            112.     106.     101.      95.      90.      86.      81.      77.      73.      69.
             66.      62.      59.      56.      53.      50.      48.      45.      43.      41.
             39.      37.      35.      33.      31.      30.      28.      27.      25.      24.
             23.      22.      21.      19.      18.      17.      17.      16.      15.      14.
             13.      13.      12.      11.      11.      10.      10.       9.       9.       8.
              8.       7.       7.       7.       6.       6.       6.       5.       5.       5.
              5.       4.       4.

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

                     HYDROGRAPH AT STATION      070

   TOTAL RAINFALL =    3.20, TOTAL LOSS =    2.03, TOTAL EXCESS =    1.17

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+     462.      4.60                 99.         25.         24.         24.
                        (INCHES)    1.157       1.162       1.162       1.162
                         (AC-FT)     49.         49.         49.         49.

                       CUMULATIVE AREA =     .79 SQ MI


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


            **************
            *            *
  565 KK    *     CP070  *
            *            *
            **************
                     Combine routed hydrograph from CP068 with runoff hydrograph from 070

  567 HC        HYDROGRAPH COMBINATION
                  ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***

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

                     HYDROGRAPH AT STATION    CP070

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    8038.      5.20                2174.        555.        534.        534.
                        (INCHES)    1.438       1.468       1.468       1.468
                         (AC-FT)    1078.       1101.       1101.       1101.

                       CUMULATIVE AREA =   14.06 SQ MI
```

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 STAG
+	HYDROGRAPH AT	005	289.	4.53	66.	17.	16.	.42		
+	ROUTED TO	R010-1	288.	4.57	66.	17.	16.	.42	2867.08	4.57
+	HYDROGRAPH AT	010	230.	4.50	51.	13.	12.	.34		
+	2 COMBINED AT	CP010	518.	4.53	117.	29.	28.	.75		
+	ROUTED TO	R012-1	514.	4.70	117.	29.	28.	.75	2790.89	4.70
+	HYDROGRAPH AT	012	194.	4.50	42.	11.	10.	.30		
+	2 COMBINED AT	CP012	697.	4.63	159.	40.	38.	1.05		
+	DIVERSION TO	012OUT	249.	4.63	52.	13.	13.	1.05		
+	HYDROGRAPH AT	D012	448.	4.63	107.	27.	26.	1.05		
+	ROUTED TO	R030-1	430.	5.37	107.	27.	26.	1.05	2680.50	5.37
+	HYDROGRAPH AT	030	194.	4.67	56.	14.	14.	.35		
+	2 COMBINED AT	CP030A	552.	5.37	162.	41.	40.	1.40		
+	HYDROGRAPH AT	015	1021.	4.47	194.	49.	47.	1.27		
+	ROUTED TO	R022-1	1011.	4.67	194.	49.	47.	1.27	2728.41	4.63
+	HYDROGRAPH AT	017	165.	4.43	35.	9.	8.	.22		
+	2 COMBINED AT	CP022A	1163.	4.63	229.	57.	55.	1.48		
+	HYDROGRAPH AT	020	803.	4.27	136.	34.	33.	.76		
+	ROUTED TO	R022-2	776.	4.50	136.	34.	33.	.76	2687.70	4.50
+	HYDROGRAPH AT	022	231.	4.67	68.	17.	17.	.38		
+	2 COMBINED AT	CP022B	996.	4.50	203.	51.	49.	1.14		
+	2 COMBINED AT	CP022	2138.	4.60	432.	109.	105.	2.63		
+	HYDROGRAPH AT	024	1273.	4.17	183.	46.	44.	1.02		
+	ROUTED TO	R026-1	1189.	4.40	183.	46.	44.	1.02	2687.56	4.40
+	HYDROGRAPH AT	026	202.	4.50	56.	14.	14.	.27		
+	2 COMBINED AT	CP026A	1388.	4.40	238.	60.	58.	1.29		
+	2 COMBINED AT	CP026	3421.	4.50	670.	169.	162.	3.91		
+	ROUTED TO	R030-2	3410.	4.53	670.	169.	162.	3.91	2596.64	4.53

```
                2 COMBINED AT
+                          CP030     3599.   4.53      826.      210.      202.     5.32
                ROUTED TO
+                          R038-1    3573.   4.60      826.      210.      202.     5.32
+                                                                                          2575.77     4.60
                HYDROGRAPH AT
+                          034        264.   4.37       55.       14.       13.      .30
                ROUTED TO
+                          R036-1     260.   4.60       55.       14.       13.      .30
+                                                                                          2642.78     4.60
                HYDROGRAPH AT
+                          036        261.   4.27       51.       13.       12.      .25
                2 COMBINED AT
+                          CP036      477.   4.50      106.       27.       26.      .55
                ROUTED TO
+                          R038-2     477.   4.50      106.       27.       26.      .55
+                                                                                          2573.27     4.50
                HYDROGRAPH AT
+                          038        178.   4.27       35.        9.        8.      .18
                2 COMBINED AT
+                          CP038A     638.   4.47      141.       35.       34.      .73
                HYDROGRAPH AT
+                          032         26.   4.23        4.        1.        1.      .03
                3 COMBINED AT
+                          CP038     4204.   4.57      967.      247.      237.     6.08
                ROUTED TO
+                          R040-1    4166.   4.67      967.      247.      237.     6.08
+                                                                                          2531.00     4.67
                HYDROGRAPH AT
+                          040        282.   4.30       50.       13.       12.      .33
                2 COMBINED AT
+                          CP040     4372.   4.67     1017.      259.      249.     6.41
                ROUTED TO
+                          R042-1    4353.   4.70     1016.      259.      249.     6.41
+                                                                                          2477.93     4.70
                HYDROGRAPH AT
+                          041         48.   4.30        9.        2.        2.      .06
                HYDROGRAPH AT
+                          042        306.   4.27       53.       13.       13.      .32
                3 COMBINED AT
+                          CP042     4580.   4.70     1077.      275.      264.     6.80
                ROUTED TO
+                          R043-1    4514.   4.87     1077.      275.      264.     6.80
+                                                                                          2478.01     4.87
                HYDROGRAPH AT
+                          043        145.   4.63       36.        9.        9.      .29
                2 COMBINED AT
+                          CP043     4644.   4.87     1113.      284.      273.     7.09
                ROUTED TO
+                          R046-1    4604.   4.97     1113.      284.      273.     7.09
+                                                                                          2288.82     4.97
                HYDROGRAPH AT
+                          044       1234.   4.37      220.       55.       53.     1.40
                ROUTED TO
+                          R046-2    1222.   4.47      220.       55.       53.     1.40
+                                                                                          2287.75     4.47
                HYDROGRAPH AT
+                          046         97.   4.27       16.        4.        4.      .11
                3 COMBINED AT
+                          CP046     5305.   4.93     1345.      343.      330.     8.60
                ROUTED TO
+                          R051-1    5278.   5.00     1345.      343.      330.     8.60
+                                                                                          2264.25     5.00
                HYDROGRAPH AT
+                          048         53.   4.20        8.        2.        2.      .06
                HYDROGRAPH AT
+                          051        112.   4.50       26.        7.        6.      .16
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                 3 COMBINED AT
+                                CP051     5361.    4.97      1378.      351.      338.     8.82
                 ROUTED TO
+                                R053-1    5356.    5.00      1378.      351.      338.     8.82
+                                                                                          2241.90      5.00
                 HYDROGRAPH AT
+                                 053        93.    4.23        16.        4.        4.      .09
                 2 COMBINED AT
+                                CP053     5382.    5.00      1393.      355.      341.     8.91
                 ROUTED TO
+                                R055-1    5371.    5.03      1393.      355.      341.     8.91
+                                                                                          2200.36      5.03
                 HYDROGRAPH AT
+                                 055       213.    4.63        57.       15.       14.      .37
                 2 COMBINED AT
+                                CP055     5539.    5.03      1450.      370.      355.     9.28
                 ROUTED TO
+                                R068-1    5509.    5.07      1450.      370.      355.     9.28
+                                                                                          2199.64      5.07
                 HYDROGRAPH AT
+                                 058      1483.    4.47       275.       69.       66.     1.76
                 ROUTED TO
+                                R064-1    1446.    4.73       275.       69.       66.     1.76
+                                                                                          2322.48      4.73
                 HYDROGRAPH AT
+                                 060       500.    4.63       130.       33.       32.      .78
                 ROUTED TO
+                                R062-1     499.    4.67       130.       33.       32.      .78
+                                                                                          2327.79      4.67
                 HYDROGRAPH AT
+                                 062       614.    4.40       123.       31.       30.      .73
                 2 COMBINED AT
+                                CP062     1085.    4.53       252.       64.       61.     1.51
                 ROUTED TO
+                                R064-2    1083.    4.57       252.       64.       61.     1.51
+                                                                                          2316.82      4.57
                 HYDROGRAPH AT
+                                 064       396.    4.37        77.       19.       18.      .47
                 3 COMBINED AT
+                                CP064     2816.    4.67       603.      152.      146.     3.74
                 ROUTED TO
+                                R066-1    2814.    4.67       603.      152.      146.     3.74
+                                                                                          2282.91      4.67
                 HYDROGRAPH AT
+                                 066         5.    4.17         1.        0.        0.      .01
                 2 COMBINED AT
+                                CP066     2816.    4.67       603.      152.      146.     3.74
                 ROUTED TO
+                                R068-2    2800.    4.77       603.      152.      146.     3.74
+                                                                                          2227.48      4.77
                 HYDROGRAPH AT
+                                 068       219.    4.30        36.        9.        9.      .25
                 3 COMBINED AT
+                                CP068     7937.    5.03      2086.      530.      510.    13.27
                 ROUTED TO
+                                R070-1    7802.    5.23      2082.      530.      510.    13.27
+                                                                                          2126.63      5.23
                 HYDROGRAPH AT
+                                 070       462.    4.60        99.       25.       24.      .79
                 2 COMBINED AT
+                                CP070     8038.    5.20      2174.      555.      534.    14.06
```

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

D.7 HYDROLOGIC CALCULATIONS

DDMS Files - 100-yr 24 Hour Storm Event

1

*** O U T P U T D A T A ***
REVISED JUNE 1988 TO UPDATE COMPUTATION OF SHORT-DURATION VALUES

PRECIPITATION FREQUENCY VALUES FOR Upper Rawhide Wash,
PRIMARY ZONE NUMBER= 7
SHORT-DURATION ZONE NUMBER= 8

POINT VALUES

RETURN PERIOD

DURATION	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR	500-YR	
5-MIN	.40	.47	.53	.61	.67	.73	.88	5-MIN
10-MIN	.59	.71	.80	.93	1.03	1.13	1.35	10-MIN
15-MIN	.72	.89	1.01	1.18	1.31	1.44	1.75	15-MIN
30-MIN	.96	1.19	1.35	1.59	1.77	1.96	2.38	30-MIN
1-HR	1.17	1.47	1.68	1.98	2.21	2.45	2.99	1-HR
2-HR	1.31	1.66	1.91	2.25	2.52	2.79	3.41	2-HR
3-HR	1.41	1.79	2.06	2.43	2.73	3.02	3.69	3-HR
6-HR	1.60	2.04	2.34	2.78	3.11	3.45	4.23	6-HR
12-HR	1.83	2.35	2.71	3.23	3.63	4.03	4.94	12-HR
24-HR	2.05	2.66	3.08	3.68	4.14	4.60	5.66	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=Upper Rawhide Wash,
ZONE= 7 SHORT-DURATION ZONE= 8
LATITUDE= .00 LONGITUDE= 100.00 ELEVATION= 0
2-YR, 6-HR PCPN= 1.60 100-YR, 6-HR PCPN= 3.45
2-YR, 24-HR PCPN= 2.05 100-YR, 24-HR PCPN= 4.60

* * * * E N D O F R U N * * * *

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LAND USE DEFAULTS
Desert10, DRY, 10.0, 3.00, 0.150, 0.035, Low
Desert15, DRY, 15.0, 3.00, 0.150, 0.035, Low
Desert20, DRY, 20.0, 3.00, 0.150, 0.035, Low
Desert30, DRY, 30.0, 3.00, 0.150, 0.035, Low
Desert40, DRY, 40.0, 3.00, 0.150, 0.035, Low
V.L.D.R, NORMAL, 30.0, 5.00, 0.300, 0.050, Low
L.D.R., NORMAL, 50.0, 15.00, 0.300, 0.050, Low
M.D.R., NORMAL, 50.0, 30.00, 0.250, 0.050, Low
M.F.R., NORMAL, 50.0, 45.00, 0.250, 0.050, Low
Ind, NORMAL, 60.0, 55.00, 0.150, 0.030, Min
Comm, NORMAL, 75.0, 80.00, 0.100, 0.020, Min
Park, NORMAL, 90.0, 0.00, 0.200, 0.100, Hi
END_FILE
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```
SUBBASIN 005, Aguila/Carefree, Acres, 1.0000
SOILS
33, 14.000, 5.2, 0.23, 0
61, 220.000, 82.4, 0.15, 0
96, 33.000, 12.4, 0.07, 0
SOIL TOTALS
267.000 0.14 0 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, , , DRY, 15, 3, 0.15, 0.035, Low, ,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, 267.000, 100.0, DRY, 30, 3, 0.15, 0.035, Low, 0.05,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
267.00 30 3 0.15 0.035 0.047 -0.013750 0.080
MCUHP 005, 0.417 0.15 0.39 3 6.20 0.17 0.035 0.047
0.39 0.23 0.00 6.20
100 0 0
SUBBASIN 010, Aguila/Carefree, Acres, 1.0000
SOILS
33, 98.000, 45.6, 0.23, 0
61, 85.000, 39.5, 0.15, 0
96, 32.000, 14.9, 0.07, 0
SOIL TOTALS
215.000 0.16 0 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, , , DRY, 15, 3, 0.15, 0.035, Low, ,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, 215.000, 100.0, DRY, 30, 3, 0.15, 0.035, Low, 0.05,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
215.00 30 3 0.15 0.035 0.048 -0.013750 0.080
MCUHP 010, 0.336 0.15 0.39 3 5.80 0.20 0.035 0.048
0.39 0.25 0.00 5.80
100 0 0
SUBBASIN 012, Aguila/Carefree, Acres, 1.0000
SOILS
33, 172.000, 90.5, 0.23, 0
96, 18.000, 9.5, 0.07, 0
SOIL TOTALS
190.000 0.21 0 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, , , DRY, 15, 3, 0.15, 0.035, Low, ,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, 190.000, 100.0, DRY, 30, 3, 0.15, 0.035, Low, 0.05,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
190.00 30 3 0.15 0.035 0.049 -0.013750 0.080
MCUHP 012, 0.297 0.15 0.37 3 5.20 0.26 0.035 0.049
0.37 0.25 0.00 5.20
100 0 0
SUBBASIN 015, Aguila/Carefree, Acres, 1.0000
SOILS
6, 9.000, 0.9, 0.62, 0
33, 311.000, 32.8, 0.23, 0
61, 495.000, 52.2, 0.15, 0
72, 8.000, 0.8, 0.09, 30
93, 9.000, 0.9, 0.33, 0
96, 116.000, 12.2, 0.07, 0
SOIL TOTALS
948.000 0.16 0 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, , , DRY, 15, 3, 0.15, 0.035, Low, ,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, 948.000, 100.0, DRY, 30, 3, 0.15, 0.035, Low, 0.04,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
```

```
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
948.00 30 3 0.15 0.035 0.039 -0.013750 0.080
MCUHP 015, 1.481 0.15 0.39 3 5.80 0.20 0.035 0.039
0.39 0.25 0.00 5.80
100 0 0
SUBBASIN 020, Aguila/Carefree, Acres, 1.0000
SOILS
33, 4.000, 0.5, 0.23, 0
61, 355.000, 48.6, 0.15, 0
63, 95.000, 13.0, 0.14, 25
72, 118.000, 16.2, 0.09, 30
93, 10.000, 1.4, 0.33, 0
96, 129.000, 17.7, 0.07, 0
121, 19.000, 2.6, 0.12, 0
SOIL TOTALS
730.000 0.12 8 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 292.000, 40.0, DRY, 15, 3, 0.15, 0.035, Low, 0.05,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, 438.000, 60.0, DRY, 30, 3, 0.15, 0.035, Low, 0.04,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
730.00 24 3 0.15 0.035 0.041 -0.013750 0.080
MCUHP 020, 1.141 0.15 0.37 11 6.60 0.14 0.035 0.041
0.37 0.19 0.00 6.60
100 0 0
SUBBASIN 025, Aguila/Carefree, Acres, 1.0000
SOILS
33, 14.000, 1.7, 0.23, 0
61, 305.000, 36.9, 0.15, 0
63, 107.000, 13.0, 0.14, 25
72, 220.000, 26.6, 0.09, 30
93, 43.000, 5.2, 0.33, 0
96, 114.000, 13.8, 0.07, 0
121, 23.000, 2.8, 0.12, 0
SOIL TOTALS
826.000 0.12 11 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 495.000, 59.9, DRY, 15, 3, 0.15, 0.035, Low, 0.04,
Desert20, 331.000, 40.1, DRY, 20, 3, 0.15, 0.035, Low, 0.05,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
826.00 17 3 0.15 0.035 0.040 -0.013750 0.080
MCUHP 025, 1.291 0.15 0.37 14 6.60 0.13 0.035 0.040
0.37 0.19 0.00 6.60
100 0 0
SUBBASIN 030, Aguila/Carefree, Acres, 1.0000
SOILS
6, 9.000, 3.9, 0.62, 0
33, 88.000, 38.6, 0.23, 0
61, 80.000, 35.1, 0.15, 0
72, 39.000, 17.1, 0.09, 30
93, 2.000, 0.9, 0.33, 0
96, 10.000, 4.4, 0.07, 0
SOIL TOTALS
228.000 0.17 5 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, , , DRY, 15, 3, 0.15, 0.035, Low, ,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, 114.000, 50.0, DRY, 30, 3, 0.15, 0.035, Low, 0.05,
Desert40, 114.000, 50.0, DRY, 40, 3, 0.15, 0.035, Low, 0.05,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
228.00 35 3 0.15 0.035 0.048 -0.013750 0.080
MCUHP 030, 0.356 0.15 0.39 8 5.70 0.22 0.035 0.048
0.39 0.25 0.00 5.70
100 0 0
SUBBASIN 035, Aguila/Carefree, Acres, 1.0000
SOILS
33, 14.000, 3.0, 0.23, 0
61, 176.000, 37.5, 0.15, 0
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63, 14.000, 3.0, 0.14, 25
72, 206.000, 43.9, 0.09, 30
93, 9.000, 1.9, 0.33, 0
96, 32.000, 6.8, 0.07, 0
121, 18.000, 3.8, 0.12, 0
SOIL TOTALS
469.000 0.12 14 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, 117.000, 24.9, DRY, 15, 3, 0.15, 0.035, Low, 0.05,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, 352.000, 75.1, DRY, 30, 3, 0.15, 0.035, Low, 0.04,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
469.00 26 3 0.15 0.035 0.043 -0.013750 0.080
MCUHP 035, 0.733 0.15 0.37 17 6.60 0.14 0.035 0.043
0.37 0.19 0.00 6.60
100 0 0
SUBBASIN 040, Aguila/Carefree, Acres, 1.0000
SOILS
6, 36.000, 15.6, 0.62, 0
33, 2.000, 0.9, 0.23, 0
61, 175.000, 75.8, 0.15, 0
63, 11.000, 4.8, 0.14, 25
72, 5.000, 2.2, 0.09, 30
93, 1.000, 0.4, 0.33, 0
121, 1.000, 0.4, 0.12, 0
SOIL TOTALS
231.000 0.19 2 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, , , DRY, 15, 3, 0.15, 0.035, Low, ,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, 116.000, 50.2, DRY, 30, 3, 0.15, 0.035, Low, 0.05,
Desert40, 115.000, 49.8, DRY, 40, 3, 0.15, 0.035, Low, 0.05,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
231.00 35 3 0.15 0.035 0.048 -0.013750 0.080
MCUHP 040, 0.361 0.15 0.38 5 5.40 0.24 0.035 0.048
0.38 0.25 0.00 5.40
100 0 0
SUBBASIN 045, Aguila/Carefree, Acres, 1.0000
SOILS
6, 64.000, 14.8, 0.62, 0
33, 41.000, 9.5, 0.23, 0
61, 255.000, 59.2, 0.15, 0
63, 37.000, 8.6, 0.14, 25
72, 3.000, 0.7, 0.09, 30
122, 31.000, 7.2, 0.33, 0
SOIL TOTALS
431.000 0.20 2 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, , , DRY, 15, 3, 0.15, 0.035, Low, ,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, 216.000, 50.1, DRY, 30, 3, 0.15, 0.035, Low, 0.05,
Desert40, 215.000, 49.9, DRY, 40, 3, 0.15, 0.035, Low, 0.05,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
431.00 35 3 0.15 0.035 0.044 -0.013750 0.080
MCUHP 045, 0.673 0.15 0.37 5 5.30 0.26 0.035 0.044
0.37 0.25 0.00 5.30
100 0 0
SUBBASIN 050, Aguila/Carefree, Acres, 1.0000
SOILS
6, 120.000, 10.3, 0.62, 0
33, 75.000, 6.4, 0.23, 0
61, 708.000, 60.7, 0.15, 0
63, 72.000, 6.2, 0.14, 25
72, 8.000, 0.7, 0.09, 30
96, 164.000, 14.1, 0.07, 0
122, 19.000, 1.6, 0.33, 0
SOIL TOTALS
1166.000 0.16 2 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, , , DRY, 15, 3, 0.15, 0.035, Low, ,
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Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, 583.000, 50.0, DRY, 30, 3, 0.15, 0.035, Low, 0.04,
Desert40, 583.000, 50.0, DRY, 40, 3, 0.15, 0.035, Low, 0.04,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
1166.0 35 3 0.15 0.035 0.038 -0.013750 0.080
MCUHP 050, 1.822 0.15 0.39 5 5.80 0.20 0.035 0.038
0.39 0.25 0.00 5.80
100 0 0
SUBBASIN 055, Aguila/Carefree, Acres, 1.0000
SOILS
6, 1.000, 0.4, 0.62, 0
33, 103.000, 44.0, 0.23, 0
61, 59.000, 25.2, 0.15, 0
63, 17.000, 7.3, 0.14, 25
96, 54.000, 23.1, 0.07, 0
SOIL TOTALS
234.000 0.15 2 100
LAND USE
Desert10, , , DRY, 10, 3, 0.15, 0.035, Low, ,
Desert15, , , DRY, 15, 3, 0.15, 0.035, Low, ,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, 117.000, 50.0, DRY, 30, 3, 0.15, 0.035, Low, 0.05,
Desert40, 117.000, 50.0, DRY, 40, 3, 0.15, 0.035, Low, 0.05,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
234.00 35 3 0.15 0.035 0.047 -0.013750 0.080
MCUHP 055, 0.366 0.15 0.40 5 6.00 0.19 0.035 0.047
0.40 0.25 0.00 6.00
100 0 0
SUBBASIN 060, Aguila/Carefree, Acres, 1.0000
SOILS
6, 114.000, 4.8, 0.62, 0
33, 4.000, 0.2, 0.23, 0
61, 1780.000, 74.2, 0.15, 0
63, 234.000, 9.8, 0.14, 25
72, 2.000, 0.1, 0.09, 30
96, 265.000, 11.0, 0.07, 0
SOIL TOTALS
2399.000 0.15 2 100
LAND USE
Desert10, 1055.00, 44.0, DRY, 10, 3, 0.15, 0.035, Low, 0.04,
Desert15, , , DRY, 15, 3, 0.15, 0.035, Low, ,
Desert20, 1079.00, 45.0, DRY, 20, 3, 0.15, 0.035, Low, 0.04,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, 265.000, 11.0, NORMAL, 30, 5, 0.30, 0.050, Low, 0.05,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
2399.0 17 3 0.17 0.037 0.034 -0.013750 0.080
MCUHP 060, 3.748 0.17 0.38 5 6.00 0.16 0.037 0.034
0.40 0.25 0.00 6.00
89 11 0
SUBBASIN 065, Aguila/Carefree, Acres, 1.0000
SOILS
6, 31.000, 19.9, 0.62, 0
33, 23.000, 14.7, 0.23, 0
93, 33.000, 21.2, 0.33, 0
96, 53.000, 34.0, 0.07, 0
122, 16.000, 10.3, 0.33, 0
SOIL TOTALS
156.000 0.21 0 100
LAND USE
Desert10, 156.000, 100.0, DRY, 10, 3, 0.15, 0.035, Low, 0.05,
Desert15, , , DRY, 15, 3, 0.15, 0.035, Low, ,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, , , NORMAL, 30, 5, 0.30, 0.050, Low, ,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
156.00 10 3 0.15 0.035 0.050 -0.013750 0.080
MCUHP 065, 0.244 0.15 0.37 3 5.20 0.21 0.035 0.050
0.37 0.25 0.00 5.20
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100 0 0
SUBBASIN 070, Aguila/Carefree, Acres, 1.0000
SOILS
6, 112.000, 22.0, 0.62, 0
33, 29.000, 5.7, 0.23, 0
61, 8.000, 1.6, 0.15, 0
90, 28.000, 5.5, 0.39, 0
93, 18.000, 3.5, 0.33, 0
96, 70.000, 13.8, 0.07, 0
122, 243.000, 47.8, 0.33, 0
SOIL TOTALS
508.000 0.30 0 100
LAND USE
Desert10, 457.000, 90.0, DRY, 10, 3, 0.15, 0.035, Low, 0.04,
Desert15, , , DRY, 15, 3, 0.15, 0.035, Low, ,
Desert20, , , DRY, 20, 3, 0.15, 0.035, Low, ,
Desert30, , , DRY, 30, 3, 0.15, 0.035, Low, ,
Desert40, , , DRY, 40, 3, 0.15, 0.035, Low, ,
V.L.D.R, 51.000, 10.0, NORMAL, 30, 5, 0.30, 0.050, Low, 0.06,
L.D.R., , , NORMAL, 50, 15, 0.30, 0.050, Low, ,
M.D.R., , , NORMAL, 50, 30, 0.25, 0.050, Low, ,
M.F.R., , , NORMAL, 50, 45, 0.25, 0.050, Low, ,
Ind, , , NORMAL, 60, 55, 0.15, 0.030, Min, ,
Comm, , , NORMAL, 75, 80, 0.10, 0.020, Min, ,
Park, , , NORMAL, 90, 0, 0.20, 0.100, Hi, ,
LAND USE TOTALS
508.00 12 3 0.17 0.036 0.043 -0.013750 0.080
MCUHP 070, 0.794 0.17 0.34 3 4.50 0.31 0.036 0.043
0.35 0.25 0.00 4.50
90 10 0
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E3102-24.M1O                        Name of output file
DDM MCUHP1 Upper Rawhide Wash 100   yr, 24 hr storm, Existing Conditions
1                                   1=single storm, 2=multiple storm
14.06                               storm size (sq. miles)
3                                   rain: 1=6hr, 2=2hr, 3=24hr, 4=manual
4.60                                point rainfall depth
0.928                               aerial reduction
005                        <*****   basin name *************************
0.417                               basin area (square miles)
2.27                                flow path length (miles)
0.047                               basin roughness - Kb
119.0        HE=3140.0              basin slope (ft./mile)
1           LE=2870.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.390 6.20 0.170 3.0          IA, DTHETA, PSIF, XKSAT, RTIMP
2                                   UA-record: 1=urban, 2=natural, 3=manual input
1                                   Continue? 1 = next subbasin, 2 = stop
010                        <*****   basin name *************************
0.336                               basin area (square miles)
1.93                                flow path length (miles)
0.048                               basin roughness - Kb
146.0        HE=3130.0              basin slope (ft./mile)
1           LE=2848.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.390 5.80 0.200 3.0          IA, DTHETA, PSIF, XKSAT, RTIMP
2                                   UA-record: 1=urban, 2=natural, 3=manual input
1                                   Continue? 1 = next subbasin, 2 = stop
012                        <*****   basin name *************************
0.297                               basin area (square miles)
1.68                                flow path length (miles)
0.049                               basin roughness - Kb
117.0        HE=2970.0              basin slope (ft./mile)
1           LE=2774.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.370 5.20 0.260 3.0          IA, DTHETA, PSIF, XKSAT, RTIMP
2                                   UA-record: 1=urban, 2=natural, 3=manual input
1                                   Continue? 1 = next subbasin, 2 = stop
015                        <*****   basin name *************************
1.481                               basin area (square miles)
3.43                                flow path length (miles)
0.039                               basin roughness - Kb
102.0        HE=2960.0              basin slope (ft./mile)
1           LE=2610.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.390 5.80 0.200 3.0          IA, DTHETA, PSIF, XKSAT, RTIMP
2                                   UA-record: 1=urban, 2=natural, 3=manual input
1                                   Continue? 1 = next subbasin, 2 = stop
020                        <*****   basin name *************************
1.141                               basin area (square miles)
2.65                                flow path length (miles)
0.041                               basin roughness - Kb
128.0        HE=2950.0              basin slope (ft./mile)
1           LE=2610.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.370 6.60 0.140 11.0         IA, DTHETA, PSIF, XKSAT, RTIMP
2                                   UA-record: 1=urban, 2=natural, 3=manual input
1                                   Continue? 1 = next subbasin, 2 = stop
025                        <*****   basin name *************************
1.291                               basin area (square miles)
2.50                                flow path length (miles)
0.040                               basin roughness - Kb
239.0        HE=3230.0              basin slope (ft./mile)
1           LE=2610.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.370 6.60 0.130 14.0         IA, DTHETA, PSIF, XKSAT, RTIMP
2                                   UA-record: 1=urban, 2=natural, 3=manual input
1                                   Continue? 1 = next subbasin, 2 = stop
030                        <*****   basin name *************************
0.356                               basin area (square miles)
2.38                                flow path length (miles)
0.048                               basin roughness - Kb
101.0        HE=2820.0              basin slope (ft./mile)
1           LE=2580.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.390 5.70 0.220 8.0          IA, DTHETA, PSIF, XKSAT, RTIMP
2                                   UA-record: 1=urban, 2=natural, 3=manual input
1                                   Continue? 1 = next subbasin, 2 = stop
035                        <*****   basin name *************************
0.733                               basin area (square miles)
2.42                                flow path length (miles)
0.043                               basin roughness - Kb
79.0         HE=2800.0              basin slope (ft./mile)
1           LE=2610.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.370 6.60 0.140 17.0         IA, DTHETA, PSIF, XKSAT, RTIMP
2                                   UA-record: 1=urban, 2=natural, 3=manual input
1                                   Continue? 1 = next subbasin, 2 = stop
040                        <*****   basin name *************************
0.361                               basin area (square miles)
1.54                                flow path length (miles)
0.048                               basin roughness - Kb
235.0        HE=2860.0              basin slope (ft./mile)
1           LE=2491.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.380 5.40 0.240 5.0          IA, DTHETA, PSIF, XKSAT, RTIMP
2                                   UA-record: 1=urban, 2=natural, 3=manual input
1                                   Continue? 1 = next subbasin, 2 = stop
045                        <*****   basin name *************************
0.673                               basin area (square miles)
2.92                                flow path length (miles)
0.044                               basin roughness - Kb
239.5        HE=3050.0              basin slope (ft./mile)
1           LE=2322.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.370 5.30 0.260 5.0          IA, DTHETA, PSIF, XKSAT, RTIMP
2                                   UA-record: 1=urban, 2=natural, 3=manual input
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1                                   Continue? 1 = next subbasin, 2 = stop
050                          <*****  basin name *************************
1.822                                basin area (square miles)
3.96                                 flow path length (miles)
0.038                                basin roughness - Kb
207.0         HE=3050.0              basin slope (ft./mile)
1            LE=2228.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.390 5.80 0.200 5.0           IA, DTHETA, PSIF, XKSAT, RTIMP
2                                    UA-record: 1=urban, 2=natural, 3=manual input
1                                    Continue? 1 = next subbasin, 2 = stop
055                          <*****  basin name *************************
0.366                                basin area (square miles)
2.43                                 flow path length (miles)
0.047                                basin roughness - Kb
122.0         HE=2510.0              basin slope (ft./mile)
1            LE=2213.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.400 6.00 0.190 5.0           IA, DTHETA, PSIF, XKSAT, RTIMP
2                                    UA-record: 1=urban, 2=natural, 3=manual input
1                                    Continue? 1 = next subbasin, 2 = stop
060                          <*****  basin name *************************
3.748                                basin area (square miles)
4.57                                 flow path length (miles)
0.034                                basin roughness - Kb
119.0         HE=2800.0              basin slope (ft./mile)
1            LE=2255.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.170 0.380 6.00 0.160 5.0           IA, DTHETA, PSIF, XKSAT, RTIMP
2                                    UA-record: 1=urban, 2=natural, 3=manual input
1                                    Continue? 1 = next subbasin, 2 = stop
065                          <*****  basin name *************************
0.244                                basin area (square miles)
1.07                                 flow path length (miles)
0.050                                basin roughness - Kb
122.0         HE=2315.0              basin slope (ft./mile)
1            LE=2184.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.150 0.370 5.20 0.210 3.0           IA, DTHETA, PSIF, XKSAT, RTIMP
2                                    UA-record: 1=urban, 2=natural, 3=manual input
1                                    Continue? 1 = next subbasin, 2 = stop
070                          <*****  basin name *************************
0.794                                basin area (square miles)
2.68                                 flow path length (miles)
0.043                                basin roughness - Kb
131.0         HE=2385.0              basin slope (ft./mile)
1            LE=2035.0               loss method: 1=Green-Ampt, 2 = init & uniform
0.170 0.340 4.50 0.310 3.0           IA, DTHETA, PSIF, XKSAT, RTIMP
2                                    UA-record: 1=urban, 2=natural, 3=manual input
2                                    Continue? 1 = next subbasin, 2 = stop
```

```
ID DDM MCUHP1 Upper Rawhide Wash - Existing Conditions 100 yr, 24 hr storm
ID
IT     5                    300
IO     3
KK
KM SUB-BASIN 005
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 2.10  Kb = .047  Adj. Slope =  130.0
BA  .417
IN    15
KM RAINFALL DEPTH OF 4.60 WAS SPACIALLY REDUCED AS SHOWN BY THE PB RECORD
PB 4.269
KM THE FOLLOWING PC RECORD USED A 24-HR SCS TYPE II STORM
PC  .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
PC  .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
PC  .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
PC  .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
PC  .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
PC  .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
PC  .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
PC  .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
PC  .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
PC  .983    .986    .989    .992    .995    .998   1.000
LG  .150    .390   6.200    .150   3.000
UC  .475    .483
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 010
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.93  Kb = .048  Adj. Slope =  146.0
BA  .336
LG  .150    .390   5.800    .170   3.000
UC  .442    .471
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 012
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.68  Kb = .049  Adj. Slope =  117.0
BA  .297
LG  .150    .370   5.200    .220   3.000
UC  .450    .461
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 015
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 2.54  Kb = .040  Adj. Slope =  108.0
BA 1.268
LG  .150    .390   5.800    .170   3.000
UC  .525    .333
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 017
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.34  Kb = .051  Adj. Slope =  113.0
BA  .216
LG  .150    .390   6.200    .150   5.000
UC  .400    .405
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 020
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.74  Kb = .043  Adj. Slope =  199.0
BA  .761
LG  .150    .380   6.400    .140  12.000
UC  .338    .202
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 022
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 2.71  Kb = .047  Adj. Slope =  128.0
BA  .381
LG  .150    .360   6.800    .120   8.000
UC  .563    .752
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 024
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.35  Kb = .041  Adj. Slope =  294.0
BA 1.020
LG  .150    .380   6.400    .140  12.000
UC  .242    .096
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UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 026
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 2.41  Kb = .049  Adj. Slope =  249.8
BA  .269
LG  .150    .350   7.000    .110  24.000
UC  .404    .578
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 030
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 2.38  Kb = .048  Adj. Slope =  100.0
BA  .355
LG  .150    .390   5.700    .180   8.000
UC  .600    .758
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 032
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L =  .40  Kb = .062  Adj. Slope =  100.0
BA  .033
LG  .150    .350   4.550    .310   3.000
UC  .233    .247
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 034
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.32  Kb = .049  Adj. Slope =   97.0
BA  .298
LG  .150    .380   6.400    .140  16.000
UC  .408    .341
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 036
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.37  Kb = .050  Adj. Slope =  278.2
BA  .250
LG  .150    .350   7.000    .110  19.000
UC  .275    .250
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 038
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.27  Kb = .052  Adj. Slope =  303.0
BA  .183
LG  .150    .370   6.600    .130  16.000
UC  .262    .267
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 040
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.56  Kb = .048  Adj. Slope =  245.0
BA  .328
LG  .150    .380   5.600    .190   5.000
UC  .317    .278
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 041
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L =  .69  Kb = .058  Adj. Slope =  133.0
BA  .064
LG  .150    .350   4.800    .260   3.000
UC  .271    .309
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 042
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.51  Kb = .048  Adj. Slope =  296.4
BA  .325
LG  .150    .400   6.000    .160   8.000
UC  .283    .241
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 043
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
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KM   L = 1.92  Kb = .049  Adj. Slope =   99.0
BA  .286
LG  .150    .350   4.650    .290   3.000
UC  .538    .639
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 044
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 2.99  Kb = .039  Adj. Slope =  240.0
BA 1.400
LG  .150    .390   5.800    .170   5.000
UC  .417    .278
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 046
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L =  .67  Kb = .055  Adj. Slope =  101.0
BA  .111
LG  .150    .360   5.100    .230   3.000
UC  .287    .236
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 048
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L =  .43  Kb = .059  Adj. Slope =  112.0
BA  .056
LG  .150    .350   4.900    .250   3.000
UC  .225    .186
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 051
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.41  Kb = .052  Adj. Slope =  128.0
BA  .164
LG  .150    .390   6.200    .150   3.000
UC  .400    .494
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 053
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L =  .66  Kb = .056  Adj. Slope =  126.0
BA  .094
LG  .150    .370   6.600    .130   3.000
UC  .258    .227
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 055
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 2.43  Kb = .047  Adj. Slope =  125.0
BA  .366
LG  .150    .400   6.000    .160   5.000
UC  .538    .670
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 058
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 2.86  Kb = .038  Adj. Slope =  120.0
BA 1.756
LG  .150    .400   6.000    .160   4.000
UC  .525    .304
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 060
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 3.39  Kb = .043  Adj. Slope =  152.0
BA  .778
LG  .150    .390   6.200    .140   6.000
UC  .583    .623
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 062
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 2.26  Kb = .043  Adj. Slope =  158.0
BA  .730
LG  .150    .400   6.000    .150   8.000
UC  .438    .340
UA     0       3       5       8      12      20      43      75      90      96
UA   100
```

```
KK
KM SUB-BASIN 064
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.80  Kb = .046  Adj. Slope =  149.0
BA  .473
LG  .150    .390   6.200    .150   5.000
UC  .404    .332
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 066
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L =  .18  Kb = .072  Adj. Slope =  122.0
BA  .006
LG  .150    .350   4.200    .360   3.000
UC  .158    .224
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 068
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 1.05  Kb = .050  Adj. Slope =  133.0
BA  .248
LG  .150    .360   5.100    .220   3.000
UC  .321    .241
UA     0       3       5       8      12      20      43      75      90      96
UA   100
KK
KM SUB-BASIN 070
KM 24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM   L = 2.68  Kb = .043  Adj. Slope =  131.0
BA  .794
LG  .170    .340   4.500    .310   3.000
UC  .550    .478
UA     0       3       5       8      12      20      43      75      90      96
UA   100
ZZ
```

D.7 HYDROLOGIC CALCULATIONS

HEC-1 Output - 100-yr 24 Hour Storm Event

```
1****************************************                    ******************************
 *                                      *                    *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                    *   U.S. ARMY CORPS OF ENGINEE
 *              JUL  1997               *                    *   HYDROLOGIC ENGINEERING CEN
 *           VERSION 4.1                *                    *         609 SECOND STREET
 *                                      *                    *      DAVIS, CALIFORNIA 95616
 *  RUN DATE   20OCT99  TIME  17:12:38  *                    *          (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 STRUCTUR
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   DDM MCUHP1 Upper Rawhide Wash - Existing Conditions 100 yr, 24 hr storm
                        * ******************************************************************************
                        *                                                                              *
                        *                Flood Control District of Maricopa County                     *
                        *             Upper Rawhide Wash Floodplain Delineation Study                  *
                        *                              FCD98-12                                        *
                        *                                                                              *
                        *                        EXISTING CONDITIONS HYDROLOGY                         *
                        *                                                                              *
                        *                          100 yr, 24 hr storm event                           *
                        *                 Prepared by Kimley-Horn and Associates, Inc.                 *
                        *                            KHA Job No. 091131.02                             *
                        *                                                                              *
                        *                               October 1999                                   *
                        *                                                                              *
                        *                                                                              *
                        *  This hydrology represents conditions of the Upper Rawhide Wash and its      *
                        *  tributaries in existing conditions.                                         *
                        *                                                                              *
                        *  There are two existing flow splits at CP062 and CP066, they will be cut off *
                        *  and routed 100% to the dam site as part of the dam project.  This model     *
                        *  accounts for the proposed diversion works with Rawhide Wash Dam.            *
                        *                                                                              *
                        *  Input parameters for the model were determined using the Flood Control      *
                        *  District of Maricopa County's (FCDMC) Drainage Design Menu System (DDMS).   *
                        *                                                                              *
                        *  The values entered into DDMS were based on the following:                   *
                        *                                                                              *
                        *       Rainfall depths   Point precipitation values were determined using     *
                        *                         the isopluvial maps in the FCDMC Hydrology Manual    *
                        *                                                                              *
                        *       Rainfall excess   The Green and Ampt Methodology was used for          *
                        *                         estimation of rainfall losses.  Digital soil         *
                        *                         maps for the City of Scottsdale were used to         *
                        *                         determine soil distributions.                        *
                        *                                                                              *
                        *                         Existing land use conditions were determined from    *
                        *                         the City of Scottsdale General Plan digital          *
                        *                         zoning map and aerial photos.                        *
                        *                                                                              *
                        *       Unit hydrographs  The Clark Unit Hydrograph methodology was applied.   *
                        *                         City of Scottsdale digital topographic mapping       *
                        *                         with 1' and 2' contour intervals was used.           *
                        *                                                                              *
                        *       Routing           Normal Depth Channel Routing was used with 8 point   *
                        *                         cross sections approximated from the BOSS River      *
                        *                         Modeling System.                                     *
                        *                                                                              *
                        * ******************************************************************************
                        *
                        *DIAGRAM
            2           IT       2                    750
            3           IO       3
            4           IN      15
                        * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                                    PAGE  2

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

```
 5          KK     005
 6          KM   SUB-BASIN 005
 7          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 8          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
 9          KM     L = 2.10  Kb = .047  Adj. Slope =  130.0
10          BA    .417
11          IN      15
12          KM   RAINFALL DEPTH OF 4.60 WAS SPACIALLY REDUCED AS SHOWN BY THE PB RECORD
13          PB   4.269
14          KM   THE FOLLOWING PC RECORD USED A 24-HR SCS TYPE II STORM
15          PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
16          PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
17          PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
18          PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
19          PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
20          PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
21          PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
22          PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
23          PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
24          PC    .983    .986    .989    .992    .995    .998   1.000
25          LG    .150    .390   6.200    .150   3.000
26          UC    .475    .483
27          UA       0       3       5       8      12      20      43      75      90      96
28          UA     100
            * DDM   ***** Preserved *****

29          KK  R010-1
30          KM   Route the runoff hydrograph from CP005 to CP010
31          RS       1    FLOW      -1
32          RC   0.045   0.035   0.045     884   0.024
33          RX       0      40     156     172     201     253     546     571
34          RY    2870    2868    2868    2866    2866    2868    2868    2870
            * DDM   ***** Preserved *****

35          KK     010
36          KM   SUB-BASIN 010
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  .928
39          KM     L = 1.93  Kb = .048  Adj. Slope =  146.0
40          BA    .336
41          LG    .150    .390   5.800    .170   3.000
42          UC    .442    .471
43          UA       0       3       5       8      12      20      43      75      90      96
44          UA     100
            * DDM   ***** Preserved *****

45          KK   CP010
46          KM   Combine routed hydrograph from 005 and runoff hydrograph from 010
47          HC       2
            * DDM   ***** Preserved *****
1                                   HEC-1 INPUT                                          PAGE  3
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

48          KK  R012-1
49          KM   Route the combined hydrograph from CP010 to CP012
50          RS       5    FLOW      -1
51          RC   0.045   0.035   0.045    3716   0.019
52          RX     261     486     555     684     700     716     743     778
53          RY    2794    2792    2792    2790    2788    2790    2792    2794
            * DDM   ***** Preserved *****

54          KK     012
55          KM   SUB-BASIN 012
56          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
57          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
58          KM     L = 1.68  Kb = .049  Adj. Slope =  117.0
59          BA    .297
60          LG    .150    .370   5.200    .220   3.000
61          UC    .450    .461
62          UA       0       3       5       8      12      20      43      75      90      96
63          UA     100
            * DDM   ***** Preserved *****

64          KK   CP012
65          KM   Combine runoff hydrograph from 012 with routed hydrograph from CP010
66          HC       2
            * DDM   ***** Preserved *****

67          KK    D012
68          KM   Divert flow away from main Rawhide Wash to the West.
69          DT  012OUT
70          DI       0      43     152     330     586     929    1365
71          DQ       0      10      43     105     203     344     533
            * DDM   ***** Preserved *****

72          KK  R030-1
73          KM   Route the combined hydrograph from CP012 to CP030A.
74          RS      26    FLOW      -1
75          RC   0.045   0.035   0.045   10780   0.018
76          RX     428     497     753     780     835     868     897     992
77          RY    2684    2680    2680    2682    2682    2680    2680    2684
            * DDM   ***** Preserved *****
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 78          KK     030
 79          KM   SUB-BASIN 030
 80          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 81          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
 82          KM     L = 2.38  Kb = .048  Adj. Slope =  100.0
 83          BA    .355
 84          LG    .150    .390   5.700    .180   8.000
 85          UC    .600    .758
 86          UA       0       3       5       8      12      20      43      75      90      96
 87          UA     100
             * DDM   ***** Preserved *****
1                                        HEC-1 INPUT                                          PAGE  4

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

 88          KK  CP030A
 89          KM   Combine routed hydrograph from CP012 with runoff hydrograph 030.
 90          KM   This combination was made for use in the hydraulic modeling of a
 91          KM   tributary to Rawhide Wash.
 92          HC       2
             * DDM   ***** Preserved *****

 93          KK     015
 94          KM   SUB-BASIN 015
 95          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 96          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
 97          KM     L = 2.54  Kb = .040  Adj. Slope =  108.0
 98          BA   1.268
 99          LG    .150    .390   5.800    .170   3.000
100          UC    .525    .333
101          UA       0       3       5       8      12      20      43      75      90      96
102          UA     100
             * DDM   ***** Preserved *****

103          KK  R022-1
104          KM   Route the runoff hydrograph from 015 to CP022A.
105          RS       6    FLOW      -1
106          RC   0.045   0.035   0.045    4466   0.018
107          RX    9714    9798    9905    9943   10002   10037   10299   10412
108          RY    2740    2734    2734    2728    2726    2728    2730    2740
             * DDM   ***** Preserved *****

109          KK     017
110          KM   SUB-BASIN 017
111          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
112          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
113          KM     L = 1.34  Kb = .051  Adj. Slope =  113.0
114          BA    .216
115          LG    .150    .390   6.200    .150   5.000
116          UC    .400    .405
117          UA       0       3       5       8      12      20      43      75      90      96
118          UA     100
             * DDM   ***** Preserved *****

119          KK  CP022A
120          KM   Combine routed hydrograph from 015 with runoff hydrograph from 017.
121          KM   This combination was made for use in the hydraulic modeling of a
122          KM   tributary to Rawhide Wash.
123          HC       2
             * DDM   ***** Preserved *****

124          KK     020
125          KM   SUB-BASIN 020
126          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
127          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
128          KM     L = 1.74  Kb = .043  Adj. Slope =  199.0
129          BA    .761
130          LG    .150    .380   6.400    .140  12.000
131          UC    .338    .202
1                                        HEC-1 INPUT                                          PAGE  5

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

132          UA       0       3       5       8      12      20      43      75      90      96
133          UA     100
             * DDM   ***** Preserved *****

134          KK  R022-2
135          KM   Route the runoff hydrograph from 020 to CP022B
136          RS       6    FLOW      -1
137          RC   0.045   0.035   0.045    4146   0.017
138          RX    9805    9902   10081   10090   10098   10102   10253   10264
139          RY    2690    2686    2688    2686    2686    2688    2688    2690
             * DDM   ***** Preserved *****

140          KK     022
141          KM   SUB-BASIN 022
142          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
143          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
144          KM     L = 2.71  Kb = .047  Adj. Slope =  128.0
145          BA    .381
146          LG    .150    .360   6.800    .120   8.000
147          UC    .563    .752
148          UA       0       3       5       8      12      20      43      75      90      96
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149          UA     100
             * DDM   ***** Preserved *****

150          KK  CP022B
151          KM   Combine routed hydrograph from 020 with runoff hydrograph from 022.
152          KM   This combination was made for use in the hydraulic modeling of a
153          KM   tributary to Rawhide Wash.
154          HC       2
             * DDM   ***** Preserved *****

155          KK   CP022
156          KM   Combine hydrographs from CP022A and CP022B.
157          KM   This combination was made for use in the hydraulic modeling of a
158          KM   tributary to Rawhide Wash.
159          HC       2
             * DDM   ***** Preserved *****

160          KK     024
161          KM   SUB-BASIN 024
162          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
163          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
164          KM     L = 1.35  Kb = .041  Adj. Slope =  294.0
165          BA   1.020
166          LG    .150    .380   6.400    .140  12.000
167          UC    .242    .096
168          UA       0       3       5       8      12      20      43      75      90      96
169          UA     100
             * DDM   ***** Preserved *****
1                                        HEC-1 INPUT                                          PAGE  6

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

170          KK  R026-1
171          KM   Route the runoff hydrograph from 024 to CP026A.
172          RS       6    FLOW      -1
173          RC   0.045   0.035   0.045    6097   0.016
174          RX    9712    9782    9851    9931    9950   10050   10176   10237
175          RY    2700    2692    2688    2688    2686    2686    2696    2700
             * DDM   ***** Preserved *****

176          KK     026
177          KM   SUB-BASIN 026
178          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
179          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
180          KM     L = 2.41  Kb = .049  Adj. Slope =  249.8
181          BA    .269
182          LG    .150    .350   7.000    .110  24.000
183          UC    .404    .578
184          UA       0       3       5       8      12      20      43      75      90      96
185          UA     100
             * DDM   ***** Preserved *****

186          KK  CP026A
187          KM   Combine routed hydrograph from 024 with runoff hydrograph from 026.
188          KM   This combination was made for use in the hydraulic modeling of a
189          KM   tributary to Rawhide Wash.
190          HC       2
             * DDM   ***** Preserved *****

191          KK   CP026
192          KM   Combine hydrographs from CP022 and CP026A.
193          KM   This combination was made for use in the hydraulic modeling of a
194          KM   tributary to Rawhide Wash.
195          HC       2
             * DDM   ***** Preserved *****

196          KK  R030-2
197          KM   Route the combined hydrograph from CP026 to CP030
198          RS       1    FLOW      -1
199          RC   0.045   0.035   0.045    1354   0.016
200          RX     214     314     479     518     654     771     852     939
201          RY    2604    2598    2598    2596    2596    2594    2594    2604
             * DDM   ***** Preserved *****

202          KK   CP030
203          KM   Combine hydrograph from CP026 and CP030A.
204          KM   This combination was made for use in the hydraulic modeling of a
205          KM   tributary to Rawhide Wash.
206          HC       2
             * DDM   ***** Preserved *****
1                                        HEC-1 INPUT                                          PAGE  7

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

207          KK  R038-1
208          KM   Route combined hydrograph from CP030 to CP038
209          RS       2    FLOW      -1
210          RC   0.045   0.035   0.045    1605   0.012
211          RX     290     378     536     538     607     650     727     753
212          RY    2582    2576    2574    2572    2572    2580    2580    2582
             * DDM   ***** Preserved *****

213          KK     034
214          KM   SUB-BASIN 034
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215          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
216          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
217          KM     L = 1.32  Kb = .049  Adj. Slope =   97.0
218          BA    .298
219          LG    .150    .380   6.400    .140  16.000
220          UC    .408    .341
221          UA       0       3       5       8      12      20      43      75      90      96
222          UA     100
             * DDM   ***** Preserved *****

223          KK  R036-1
224          KM   Route runoff hydrograph from 034 to CP036
225          RS       8    FLOW      -1
226          RC   0.045   0.035   0.045    5295   0.019
227          RX    9725    9842    9891    9970   10030   10032   10143   10241
228          RY    2652    2646    2646    2642    2642    2644    2644    2652
             * DDM   ***** Preserved *****

229          KK     036
230          KM   SUB-BASIN 036
231          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
232          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
233          KM     L = 1.37  Kb = .050  Adj. Slope =  278.2
234          BA    .250
235          LG    .150    .350   7.000    .110  19.000
236          UC    .275    .250
237          UA       0       3       5       8      12      20      43      75      90      96
238          UA     100
             * DDM   ***** Preserved *****

239          KK   CP036
240          KM   Combine routed hydrograph from 034 with runoff hydrograph from 036
241          HC       2
             * DDM   ***** Preserved *****

242          KK  R038-2
243          KM   Route combined hydrograph from CP036 to CP038A.
244          RS       1    FLOW      -1
245          RC   0.045   0.035   0.045     483   0.025
246          RX    9837    9891    9971    9988   10012   10126   10148   10177
247          RY    2578    2574    2574    2572    2572    2574    2576    2578
             * DDM   ***** Preserved *****
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

248          KK     038
249          KM   SUB-BASIN 038
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  .928
252          KM     L = 1.27  Kb = .052  Adj. Slope =  303.0
253          BA    .183
254          LG    .150    .370   6.600    .130  16.000
255          UC    .262    .267
256          UA       0       3       5       8      12      20      43      75      90      96
257          UA     100
             * DDM   ***** Preserved *****

258          KK  CP038A
259          KM   Combine routed hydrograph from CP036 with runoff hydrograph from 038.
260          KM   This combination was made for use in the hydraulic modeling of a
261          KM   tributary to Rawhide Wash.
262          HC       2
             * DDM   ***** Preserved *****

263          KK     032
264          KM   SUB-BASIN 032
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  .928
267          KM     L =  .40  Kb = .062  Adj. Slope =  100.0
268          BA    .033
269          LG    .150    .350   4.550    .310   3.000
270          UC    .233    .247
271          UA       0       3       5       8      12      20      43      75      90      96
272          UA     100
             * DDM   ***** Preserved *****

273          KK   CP038
274          KM   Combine hydrograph from CP038a with runoff hydrographs from 032.
275          KM   This combination was made for use in the hydraulic modeling of a
276          KM   tributary to Rawhide Wash.
277          HC       3
             * DDM   ***** Preserved *****

278          KK  R040-1
279          KM   Route combined hydrograph from CP038 to CP040
280          RS       4    FLOW      -1
281          RC   0.045   0.035   0.045    3775   0.019
282          RX      47      75     224     433     448     523     609     678
283          RY    2540    2536    2530    2530    2528    2528    2534    2540
             * DDM   ***** Preserved *****

284          KK     040
285          KM   SUB-BASIN 040
286          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
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 287          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
 288          KM     L = 1.56  Kb = .048  Adj. Slope =  245.0
 289          BA    .328
 290          LG    .150    .380   5.600    .190   5.000
 291          UC    .317    .278
1                                        HEC-1 INPUT                                                    PAGE  9

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

 292          UA       0       3       5       8      12      20      43      75      90      96
 293          UA     100
              * DDM   ***** Preserved *****

 294          KK   CP040
 295          KM   Combine routed hydrographs from CP038 with runoff hydrograph from 040
 296          HC       2
              * DDM   ***** Preserved *****

 297          KK  R042-1
 298          KM   Route combined hydrograph from CP040 to CP042
 299          RS       2    FLOW      -1
 300          RC   0.045   0.035   0.045    2074   0.018
 301          RX     263     349     381     450     522     756     847     973
 302          RY    2486    2482    2476    2482    2476    2476    2482    2486
              *
              * DDM   ***** Preserved *****

 303          KK     041
 304          KM   SUB-BASIN 041
 305          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 306          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
 307          KM     L =  .69  Kb = .058  Adj. Slope =  133.0
 308          BA    .064
 309          LG    .150    .350   4.800    .260   3.000
 310          UC    .271    .309
 311          UA       0       3       5       8      12      20      43      75      90      96
 312          UA     100
              * DDM   ***** Preserved *****

 313          KK     042
 314          KM   SUB-BASIN 042
 315          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 316          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
 317          KM     L = 1.51  Kb = .048  Adj. Slope =  296.4
 318          BA    .325
 319          LG    .150    .400   6.000    .160   8.000
 320          UC    .283    .241
 321          UA       0       3       5       8      12      20      43      75      90      96
 322          UA     100
              * DDM   ***** Preserved *****

 323          KK   CP042
 324          KM   Combine routed hydrograph from CP040 with runoff hydrographs from 041 & 042
 325          HC       3
              * DDM   ***** Preserved *****

 326          KK  R043-1
 327          KM   Route combined hydrograph from CP040 to CP042
 328          RS       7    FLOW      -1
 329          RC   0.045   0.035   0.045    7504   0.017
 330          RX     263     349     381     450     522     756     847     973
 331          RY    2486    2482    2476    2482    2476    2476    2482    2486
              * DDM   ***** Preserved *****
1                                        HEC-1 INPUT                                                    PAGE 10

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

 332          KK     043
 333          KM   SUB-BASIN 043
 334          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 335          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
 336          KM     L = 1.92  Kb = .049  Adj. Slope =   99.0
 337          BA    .286
 338          LG    .150    .350   4.650    .290   3.000
 339          UC    .538    .639
 340          UA       0       3       5       8      12      20      43      75      90      96
 341          UA     100
              * DDM   ***** Preserved *****

 342          KK   CP043
 343          KM   Combine routed hydrograph from CP042 with runoff hydrograph from 043
 344          HC       2
              * DDM   ***** Preserved *****

 345          KK  R046-1
 346          KM   Route combined hydrograph from CP043 to CP046
 347          RS       4    FLOW      -1
 348          RC   0.045   0.035   0.045    2845   0.015
 349          RX    9425    9601    9923    9945   10019   10043   10267   10435
 350          RY    2300    2288    2288    2286    2286    2288    2288    2302
              * DDM   ***** Preserved *****

 351          KK     044
 352          KM   SUB-BASIN 044
 353          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
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354          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
355          KM     L = 2.99  Kb = .039  Adj. Slope =  240.0
356          BA   1.400
357          LG    .150    .390   5.800    .170   5.000
358          UC    .417    .278
359          UA      0       3       5       8      12      20      43      75      90      96
360          UA     100
             * DDM   ***** Preserved *****

361          KK  R046-2
362          KM   Route runoff hydrograph from 044 to CP046
363          RS       4    FLOW      -1
364          RC   0.045   0.035   0.045    1882   0.016
365          RX    9425    9601    9923    9945   10019   10043   10267   10435
366          RY    2300    2288    2288    2286    2286    2288    2288    2302
             * DDM   ***** Preserved *****

367          KK     046
368          KM   SUB-BASIN 046
369          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
370          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
371          KM     L =  .67  Kb = .055  Adj. Slope =  101.0
372          BA    .111
373          LG    .150    .360   5.100    .230   3.000
374          UC    .287    .236
375          UA      0       3       5       8      12      20      43      75      90      96
1                                          HEC-1 INPUT                                          PAGE 11

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

376          UA     100
             * DDM   ***** Preserved *****

377          KK   CP046
378          KM   Combine routed hydrographs from CP042 and 044 with runoff hydrograph from
379          KM   046
380          HC       3
             * DDM   ***** Preserved *****

381          KK  R051-1
382          KM   Route combined hydrograph from CP046 to CP051
383          RS       2    FLOW      -1
384          RC   0.045   0.035   0.045    1557   0.017
385          RX    9822    9952    9976    9977   10023   10046   10356   10509
386          RY    2275    2261    2262    2260    2260    2263    2264    2275
             * DDM   ***** Preserved *****

387          KK     048
388          KM   SUB-BASIN 048
389          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
390          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
391          KM     L =  .43  Kb = .059  Adj. Slope =  112.0
392          BA    .056
393          LG    .150    .350   4.900    .250   3.000
394          UC    .225    .186
395          UA      0       3       5       8      12      20      43      75      90      96
396          UA     100
             * DDM   ***** Preserved *****

397          KK     051
398          KM   SUB-BASIN 051
399          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
400          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
401          KM     L = 1.41  Kb = .052  Adj. Slope =  128.0
402          BA    .164
403          LG    .150    .390   6.200    .150   3.000
404          UC    .400    .494
405          UA      0       3       5       8      12      20      43      75      90      96
406          UA     100
             * DDM   ***** Preserved *****

407          KK   CP051
408          KM   Combine routed hydrograph from CP046 with runoff hydrographs from 048 and 051
409          HC       3
             * DDM   ***** Preserved *****

410          KK  R053-1
411          KM   Route combined hydrograph from CP051 to CP053
412          RS       1    FLOW      -1
413          RC   0.045   0.035   0.045    1681   0.030
414          RX    9910    9935    9963    9987   10041   10046   10075   10085
415          RY    2249    2245    2245    2238    2238    2239    2239    2242
             * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE 12

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

416          KK     053
417          KM   SUB-BASIN 053
418          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
419          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
420          KM     L =  .66  Kb = .056  Adj. Slope =  126.0
421          BA    .094
422          LG    .150    .370   6.600    .130   3.000
423          UC    .258    .227
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UA       0       3       5       8      12      20      43      75      90      96
UA     100
* DDM   ***** Preserved *****

KK   CP053
KM   Combine routed hydrographs from CP051 with runoff hydrograph from 053
HC       2
* DDM   ***** Preserved *****

KK  R055-1
KM   Route combined hydrograph from CP053 to CP055
RS       1    FLOW      -1
RC   0.045   0.035   0.045     784   0.019
RX     111     154     304     389     510     725     836     937
RY    2208    2202    2200    2197    2199    2200    2199    2208
* DDM   ***** Preserved *****

KK     055
KM   SUB-BASIN 055
KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM     L = 2.43  Kb = .047  Adj. Slope =  125.0
BA    .366
LG    .150    .400   6.000    .160   5.000
UC    .538    .670
UA       0       3       5       8      12      20      43      75      90      96
UA     100
* DDM   ***** Preserved *****

KK   CP055
KM   Combine routed hydrograph from CP053 with runoff hydrograph from 055
HC       2
* DDM   ***** Preserved *****

KK  R068-1
KM   Route combined hydrograph from CP055 to CP068
RS       2    FLOW      -1
RC   0.045   0.035   0.045    1728   0.017
RX     111     154     304     389     510     725     836     937
RY    2208    2202    2200    2197    2199    2200    2199    2208
* DDM   ***** Preserved *****
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1 HEC-1 INPUT PAGE 13

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

KK     058
KM   SUB-BASIN 058
KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM     L = 2.86  Kb = .038  Adj. Slope =  120.0
BA   1.756
LG    .150    .400   6.000    .160   4.000
UC    .525    .304
UA       0       3       5       8      12      20      43      75      90      96
UA     100
* DDM   ***** Preserved *****

KK  R064-1
KM   Route runoff hydrograph from 058
RS       7    FLOW      -1
RC   0.045   0.035   0.045    7694   0.023
RX       0      76     102     111     117     118     168     205
RY    2323    2321    2319    2319    2320    2321    2323    2325
* DDM   ***** Preserved *****

KK     060
KM   SUB-BASIN 060
KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM     L = 3.39  Kb = .043  Adj. Slope =  152.0
BA    .778
LG    .150    .390   6.200    .140   6.000
UC    .583    .623
UA       0       3       5       8      12      20      43      75      90      96
UA     100
* DDM   ***** Preserved *****

KK  R062-1
KM   Route runoff hydrograph from 060
RS       1    FLOW      -1
RC   0.045   0.035   0.045     441   0.018
RX       0      20      38      41      45      60      94     128
RY  2328.5    2328    2327    2327    2326    2326    2327  2328.5
* DDM   ***** Preserved *****

KK     062
KM   SUB-BASIN 062
KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
KM     L = 2.26  Kb = .043  Adj. Slope =  158.0
BA    .730
LG    .150    .400   6.000    .150   8.000
UC    .438    .340
UA       0       3       5       8      12      20      43      75      90      96
UA     100
```

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                    * DDM   ***** Preserved *****
1                                   HEC-1 INPUT                                                    PAGE 14
LINE                ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 496                KK   CP062
 497                KM   Combine routed hydrograph from 060 with runoff hydrograph from 062
 498                HC       2
                    *
                    * Currently flow splits at this location.  With the Rawhide Wash Dam project
                    * these flows will be cut off and routed to the dam site.  The routing in this
                    * model indicates this.
                    *
                    * DDM   ***** Preserved *****

 499                KK  R064-2
 500                KM   Route combined hydrograph from CP062
 501                RS       1    FLOW      -1
 502                RC   0.045   0.035   0.045    1554   0.024
 503                RX       0      17      23      73      83      90      99     107
 504                RY    2316    2316    2315    2315    2316    2317    2318    2319
                    * DDM   ***** Preserved *****

 505                KK     064
 506                KM   SUB-BASIN 064
 507                KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 508                KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
 509                KM     L = 1.80  Kb = .046  Adj. Slope =  149.0
 510                BA    .473
 511                LG    .150    .390   6.200    .150   5.000
 512                UC    .404    .332
 513                UA       0       3       5       8      12      20      43      75      90      96
 514                UA     100
                    * DDM   ***** Preserved *****

 515                KK   CP064
 516                KM   Combine routed hydrographs from 058 and CP062 with runoff hydrograph from
 517                KM   064
 518                HC       3
                    * DDM   ***** Preserved *****

 519                KK  R066-1
 520                KM   Route combined hydrograph from CP064
 521                RS       1    FLOW      -1
 522                RC   0.045   0.035   0.045     934   0.021
 523                RX       0      31      66     104     111     121     129     149
 524                RY    2281    2281    2280    2280    2281    2282    2283    2284
                    * DDM   ***** Preserved *****

 525                KK     066
 526                KM   SUB-BASIN 066
 527                KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 528                KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
 529                KM     L =  .18  Kb = .072  Adj. Slope =  122.0
 530                BA    .006
 531                LG    .150    .350   4.200    .360   3.000
 532                UC    .158    .224
 533                UA       0       3       5       8      12      20      43      75      90      96
 534                UA     100
                    * DDM   ***** Preserved *****
1                                   HEC-1 INPUT                                                    PAGE 15
LINE                ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 535                KK   CP066
 536                KM   Combine routed hydrograph from CP064 with runoff hydrograph from 066
 537                HC       2
                    *
                    * Currently flow splits at this location.  With the Rawhide Wash Dam project
                    * these flows will be cut off and routed to the dam site.  The routing in this
                    * model indicates this.
                    *
                    * DDM   ***** Preserved *****

 538                KK  R068-2
 539                KM   Route combined hydrograph from CP066
 540                RS       4    FLOW      -1
 541                RC   0.045   0.035   0.045    3234   0.025
 542                RX     198     224     270     283     684     688     721     769
 543                RY    2228    2227    2227  2226.5  2226.5    2227    2227    2228
                    * DDM   ***** Preserved *****

 544                KK     068
 545                KM   SUB-BASIN 068
 546                KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 547                KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
 548                KM     L = 1.05  Kb = .050  Adj. Slope =  133.0
 549                BA    .248
 550                LG    .150    .360   5.100    .220   3.000
 551                UC    .321    .241
 552                UA       0       3       5       8      12      20      43      75      90      96
 553                UA     100
                    * DDM   ***** Preserved *****
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554          KK   CP068
555          KM   Combine routed hydrographs from CP055 and CP066 with runoff hydrograph from
556          KM   068
557          HC       3
             * DDM   ***** Preserved *****

558          KK  R070-1
559          KM   Route combined hydrograph from CP068
560          RS       7    FLOW      -1
561          RC   0.045   0.035   0.045    7672   0.019
562          RX    65.2   145.6   307.4   320.0   550.3   564.7   809.8   963.5
563          RY    2130    2127    2127  2125.5  2125.5    2124    2124    2130
             * DDM   ***** Preserved *****

564          KK     070
565          KM   SUB-BASIN 070
566          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
567          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
568          KM     L = 2.68  Kb = .043  Adj. Slope =  131.0
569          BA    .794
570          LG    .170    .340   4.500    .310   3.000
571          UC    .550    .478
572          UA       0       3       5       8      12      20      43      75      90      96
573          UA     100
             * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE 16

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


574          KK   CP070
575          KM   Combine routed hydrograph from CP068 with runoff hydrograph from 070
576          HC       2
             *
             * Notice:
             * This document, together with the concepts and designs presented herein, as an
             * instrument of service, is intended for the specific purpose and client for
             * which it was prepared.  Reuse of and improper reliance on this document
             * without written authorization and adaptation by Kimley-Horn and Associates,
             * Inc. shall be without liability to Kimley-Horn and Associates, Inc.
             *
577          ZZ
1
             SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

     5        005
                V
                V
    29      R010-1
                .
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    35          .         010
                .           .
                .           .
    45       CP010............
                V
                V
    48      R012-1
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    54          .         012
                .           .
                .           .
    64       CP012............
                .
                .
    69          .-------> 012OUT
    67        D012
                V
                V
    72      R030-1
                .
                .
    78          .         030
                .           .
                .           .
    88      CP030A...........
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                .
    93          .         015
                .           V
                .           V
   103          .      R022-1
                .           .
                .           .
   109          .           .         017
                .           .           .
                .           .           .
   119          .      CP022A...........
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                .           .
   124          .           .         020
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              .           .           V
              .           .           V
134           .           .      R022-2
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140           .           .           .         022
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              .           .           .           .
150           .           .      CP022B............
              .           .           .
              .           .           .
155           .       CP022............
              .           .
              .           .
160           .           .         024
              .           .           V
              .           .           V
170           .           .      R026-1
              .           .           .
              .           .           .
176           .           .           .         026
              .           .           .           .
              .           .           .           .
186           .           .      CP026A............
              .           .           .
              .           .           .
191           .       CP026............
              .           V
              .           V
196           .      R030-2
              .           .
              .           .
202       CP030............
              V
              V
207      R038-1
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213           .         034
              .           V
              .           V
223           .      R036-1
              .           .
              .           .
229           .           .         036
              .           .           .
              .           .           .
239           .       CP036............
              .           V
              .           V
242           .      R038-2
              .           .
              .           .
248           .           .         038
              .           .           .
              .           .           .
258           .      CP038A............
              .           .
              .           .
263           .           .         032
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              .           .           .
273       CP038........................
              V
              V
278      R040-1
              .
              .
284           .         040
              .           .
              .           .
294       CP040............
              V
              V
297      R042-1
              .
              .
303           .         041
              .           .
              .           .
313           .           .         042
              .           .           .
              .           .           .
323       CP042........................
              V
              V
326      R043-1
              .
              .
332           .         043
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342       CP043............
              V
              V
345      R046-1
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351             .        044
                .         V
                .         V
361             .     R046-2
                .          .
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367             .          .        046
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                .          .         .
377          CP046.......................
                V
                V
381         R051-1
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387             .        048
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397             .          .        051
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                .          .         .
407          CP051.......................
                V
                V
410         R053-1
                .
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416             .        053
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426          CP053............
                V
                V
429         R055-1
                .
                .
435             .        055
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                .          .
445          CP055............
                V
                V
448         R068-1
                .
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454             .        058
                .         V
                .         V
464             .     R064-1
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470             .          .        060
                .          .         V
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480             .          .     R062-1
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486             .          .          .        062
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496             .          .     CP062............
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499             .          .     R064-2
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505             .          .          .        064
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515             .     CP064........................
                .         V
                .         V
519             .     R066-1
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525             .          .        066
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535             .     CP066............
                .         V
                .         V
538             .     R068-2
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544             .          .        068
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554          CP068.......................
                V
                V
558         R070-1
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564             .        070
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  574       CP070...........

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************                                    ******************************
 *                                      *                                    *                            *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                    *   U.S. ARMY CORPS OF ENGINEE
 *              JUL   1997              *                                    *   HYDROLOGIC ENGINEERING CEN
 *           VERSION 4.1                *                                    *         609 SECOND STREET
 *                                      *                                    *      DAVIS, CALIFORNIA 95616
 *  RUN DATE   20OCT99  TIME  17:12:38  *                                    *          (916) 756-1104
 *                                      *                                    *                            *
 ****************************************                                    ******************************


                        DDM MCUHP1 Upper Rawhide Wash - Existing Conditions 100 yr, 24 hr storm

   3 IO          OUTPUT CONTROL VARIABLES
                       IPRNT          3  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE

     IT          HYDROGRAPH TIME DATA
                        NMIN          2  MINUTES IN COMPUTATION INTERVAL
                       IDATE      1    0  STARTING DATE
                       ITIME       0000  STARTING TIME
                          NQ        750  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      2    0  ENDING DATE
                      NDTIME       0058  ENDING TIME
                      ICENT          19  CENTURY MARK

                  COMPUTATION INTERVAL     .03 HOURS
                       TOTAL TIME BASE   24.97 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


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


            **************
            *            *
   5 KK     *      005   *
            *            *
            **************
                        SUB-BASIN 005
                        24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                        THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                          L = 2.10  Kb = .047  Adj. Slope =  130.0
                        RAINFALL DEPTH OF 4.60 WAS SPACIALLY REDUCED AS SHOWN BY THE PB RECORD
                        THE FOLLOWING PC RECORD USED A 24-HR SCS TYPE II STORM

  11 IN          TIME DATA FOR INPUT TIME SERIES
                      JXMIN         15  TIME INTERVAL IN MINUTES
                     JXDATE      1    0  STARTING DATE
                     JXTIME           0  STARTING TIME

               SUBBASIN RUNOFF DATA

  10 BA          SUBBASIN CHARACTERISTICS
                      TAREA        .42  SUBBASIN AREA

                 PRECIPITATION DATA

  14 PB               STORM       4.27  BASIN TOTAL PRECIPITATION

  14 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

25 LG GREEN AND AMPT LOSS RATE

STRTL	.15	STARTING LOSS
DTH	.39	MOISTURE DEFICIT
PSIF	6.20	WETTING FRONT SUCTION
XKSAT	.15	HYDRAULIC CONDUCTIVITY
RTIMP	3.00	PERCENT IMPERVIOUS AREA

26 UC CLARK UNITGRAPH

TC	.47	TIME OF CONCENTRATION
R	.48	STORAGE COEFFICIENT

27 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
100.0									

***

UNIT HYDROGRAPH PARAMETERS
CLARK TC= .47 HR, R= .48 HR
SNYDER TP= .42 HR, CP= .60

UNIT HYDROGRAPH
86 END-OF-PERIOD ORDINATES

6.	16.	23.	31.	42.	56.	77.	127.	210.	306.
374.	396.	398.	390.	373.	350.	327.	305.	285.	266.
248.	231.	216.	202.	188.	176.	164.	153.	143.	133.
124.	116.	108.	101.	94.	88.	82.	77.	72.	67.
62.	58.	54.	51.	47.	44.	41.	38.	36.	33.
31.	29.	27.	25.	24.	22.	21.	19.	18.	17.
16.	15.	14.	13.	12.	11.	10.	10.	9.	8.
8.	7.	7.	6.	6.	6.	5.	5.	5.	4.
4.	4.	3.	3.	3.	3.				

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

HYDROGRAPH AT STATION 005

TOTAL RAINFALL = 4.27, TOTAL LOSS = 2.69, TOTAL EXCESS = 1.58

PEAK FLOW TIME MAXIMUM AVERAGE FLOW

```
                                        6-HR        24-HR       72-HR      24.97-HR
+   (CFS)        (HR)
                          (CFS)
+     484.      12.30                   69.          18.         17.          17.
                        (INCHES)      1.534        1.571       1.571        1.571
                         (AC-FT)        34.          35.         35.          35.

                       CUMULATIVE AREA =     .42 SQ MI


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


            **************
            *            *
  29 KK     *    R010-1  *
            *            *
            **************
                          Route the runoff hydrograph from CP005 to CP010

              HYDROGRAPH ROUTING DATA

  31 RS         STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

  32 RC         NORMAL DEPTH CHANNEL
                        ANL        .045  LEFT OVERBANK N-VALUE
                       ANCH        .035  MAIN CHANNEL N-VALUE
                        ANR        .045  RIGHT OVERBANK N-VALUE
                      RLNTH        884.  REACH LENGTH
                        SEL       .0240  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                        CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
  34 RY       ELEVATION   2870.00   2868.00   2868.00   2866.00   2866.00   2868.00   2868.00   2870.00
  33 RX       DISTANCE        .00     40.00    156.00    172.00    201.00    253.00    546.00    571.00

                                                          ***

                                        COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .14       .31       .51       .74      1.00      1.29      1.62      1.97      2.35
          OUTFLOW        .00     14.92     49.95    103.74    177.08    271.14    387.28    526.86    691.27    881.88
        ELEVATION    2866.00   2866.21   2866.42   2866.63   2866.84   2867.05   2867.26   2867.47   2867.68   2867.89

          STORAGE       3.63      5.82      8.04     10.29     12.57     14.88     17.21     19.58     21.97     24.40
          OUTFLOW    1172.90   1726.14   2463.48   3359.20   4399.50   5575.31   6880.10   8308.89   9857.77  11523.57
        ELEVATION    2868.10   2868.31   2868.53   2868.74   2868.95   2869.16   2869.37   2869.58   2869.79   2870.00


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

                        HYDROGRAPH AT STATION   R010-1

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR       72-HR      24.97-HR
+   (CFS)        (HR)
                          (CFS)
+     480.      12.33                   69.          18.         17.          17.
                        (INCHES)      1.534        1.571       1.571        1.571
                         (AC-FT)        34.          35.         35.          35.

 PEAK STORAGE   TIME                        MAXIMUM AVERAGE STORAGE
                                        6-HR        24-HR       72-HR      24.97-HR
+  (AC-FT)       (HR)
        2.      12.33                    0.           0.          0.           0.

  PEAK STAGE    TIME                        MAXIMUM AVERAGE STAGE
                                        6-HR        24-HR       72-HR      24.97-HR
+   (FEET)       (HR)
   2867.40      12.33                2866.32      2866.08     2866.07      2866.07

                       CUMULATIVE AREA =     .42 SQ MI


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


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            *            *
  35 KK     *       010  *
            *            *
            **************
                          SUB-BASIN 010
                          24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                          THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                            L = 1.93  Kb = .048  Adj. Slope =  146.0
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                 SUBBASIN RUNOFF DATA

   40 BA           SUBBASIN CHARACTERISTICS
                         TAREA          .34  SUBBASIN AREA

                   PRECIPITATION DATA

   14 PB                 STORM         4.27  BASIN TOTAL PRECIPITATION

   14 PI             INCREMENTAL PRECIPITATION PATTERN
                           .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                           .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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                           .00       .00       .00       .00       .00       .01       .01       .01       .01       .01
                           .01       .01       .03       .04       .04       .04       .04       .04       .04       .04
                           .01       .01       .01       .01       .01       .01       .01       .00       .00       .00
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                           .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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                           .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

   41 LG           GREEN AND AMPT LOSS RATE
                         STRTL          .15  STARTING LOSS
                           DTH          .39  MOISTURE DEFICIT
                          PSIF         5.80  WETTING FRONT SUCTION
                         XKSAT          .17  HYDRAULIC CONDUCTIVITY
                         RTIMP         3.00  PERCENT IMPERVIOUS AREA

   42 UC           CLARK UNITGRAPH
                            TC          .44  TIME OF CONCENTRATION
                             R          .47  STORAGE COEFFICIENT

   43 UA           ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                            .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
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                    100.0

                                                        ***

                                                UNIT HYDROGRAPH PARAMETERS
                                         CLARK   TC=   .44 HR,       R=   .47 HR
                                        SNYDER   TP=   .39 HR,      CP=   .59

                                                  UNIT HYDROGRAPH
                                            83 END-OF-PERIOD ORDINATES
                 5.      14.      21.      28.      38.      53.      84.     140.     223.     295.
               327.     334.     328.     314.     294.     274.     255.     238.     221.     206.
               192.     179.     167.     155.     145.     135.     126.     117.     109.     102.
                95.      88.      82.      77.      71.      66.      62.      58.      54.      50.
                47.      43.      40.      38.      35.      33.      31.      28.      26.      25.
                23.      21.      20.      19.      17.      16.      15.      14.      13.      12.
                11.      11.      10.       9.       9.       8.       7.       7.       6.       6.
                 6.       5.       5.       5.       4.       4.       4.       3.       3.       3.
                 3.       3.       2.

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

                        HYDROGRAPH AT STATION      010

    TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.72, TOTAL EXCESS =    1.55

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                       6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+     395.     12.30                    54.         14.         13.         13.
                        (INCHES)     1.500       1.537       1.537       1.537
                         (AC-FT)       27.         28.         28.         28.

                        CUMULATIVE AREA =     .34 SQ MI


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


            **************
            *            *
  45 KK     *     CP010  *
            *            *
            **************
                          Combine routed hydrograph from 005 and runoff hydrograph from 010

  47 HC          HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                        ***

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

                        HYDROGRAPH AT STATION    CP010

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                       6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+     867.     12.33                   123.         32.         30.         30.
                        (INCHES)     1.519       1.556       1.556       1.556
                         (AC-FT)       61.         62.         62.         62.

                        CUMULATIVE AREA =     .75 SQ MI


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


            **************
            *            *
  48 KK     *    R012-1  *
            *            *
            **************
                          Route the combined hydrograph from CP010 to CP012

              HYDROGRAPH ROUTING DATA

  50 RS          STORAGE ROUTING
                       NSTPS           5  NUMBER OF SUBREACHES
                        ITYP        FLOW  TYPE OF INITIAL CONDITION
                       RSVRIC       -1.00  INITIAL CONDITION
                            X         .00 WORKING R AND D COEFFICIENT

  51 RC          NORMAL DEPTH CHANNEL
                         ANL        .045  LEFT OVERBANK N-VALUE
                        ANCH        .035  MAIN CHANNEL N-VALUE
                         ANR        .045  RIGHT OVERBANK N-VALUE
                       RLNTH       3716.  REACH LENGTH
                         SEL       .0190  ENERGY SLOPE
                       ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION
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                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 53 RY       ELEVATION   2794.00   2792.00   2792.00   2790.00   2788.00   2790.00   2792.00   2794.00
 52 RX       DISTANCE     261.00    486.00    555.00    684.00    700.00    716.00    743.00    778.00

                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .07       .27       .61      1.09      1.70      2.45      3.45      5.08      7.38
          OUTFLOW        .00      1.36      8.63     25.45     54.80     99.36    161.57    215.99    312.74    473.97
        ELEVATION    2788.00   2788.32   2788.63   2788.95   2789.26   2789.58   2789.89   2790.21   2790.53   2790.84

          STORAGE      10.34     13.96     18.25     23.83     31.67     40.61     50.66     61.81     74.07     87.43
          OUTFLOW     708.36   1026.17   1437.71   2004.60   2839.19   3857.50   5066.87   6477.20   8098.83   9942.11
        ELEVATION    2791.16   2791.47   2791.79   2792.10   2792.42   2792.74   2793.05   2793.37   2793.68   2794.00

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

                        HYDROGRAPH AT STATION   R012-1

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+     832.     12.47         123.        31.         30.         30.
                        (INCHES)      1.519       1.556       1.556       1.556
                         (AC-FT)       61.         62.         62.         62.

 PEAK STORAGE   TIME                        MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
       2.      12.47                  0.          0.          0.          0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2791.28     12.47             2789.14     2788.45     2788.43     2788.43

                        CUMULATIVE AREA =     .75 SQ MI


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


            **************
            *            *
 54 KK      *       012  *
            *            *
            **************
                        SUB-BASIN 012
                        24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                        THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                          L = 1.68  Kb = .049  Adj. Slope =  117.0

              SUBBASIN RUNOFF DATA

 59 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .30  SUBBASIN AREA

                PRECIPITATION DATA

 14 PB               STORM        4.27  BASIN TOTAL PRECIPITATION

 14 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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.00	.00	.00	.00	.00	.01	.01	.01	.01	.01
.01	.01	.03	.04	.04	.04	.04	.04	.04	.04
.01	.01	.01	.01	.01	.01	.01	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

```
60 LG          GREEN AND AMPT LOSS RATE
                     STRTL        .15  STARTING LOSS
                       DTH        .37  MOISTURE DEFICIT
                      PSIF       5.20  WETTING FRONT SUCTION
                     XKSAT        .22  HYDRAULIC CONDUCTIVITY
                     RTIMP       3.00  PERCENT IMPERVIOUS AREA

61 UC          CLARK UNITGRAPH
                        TC        .45  TIME OF CONCENTRATION
                         R        .46  STORAGE COEFFICIENT

62 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                     .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                  100.0

                                                  ***

                                          UNIT HYDROGRAPH PARAMETERS
                                   CLARK   TC=   .45 HR,       R=   .46 HR
                                  SNYDER   TP=   .40 HR,      CP=   .61

                                          UNIT HYDROGRAPH
                                   82 END-OF-PERIOD ORDINATES
              4.       12.       18.       25.       33.       46.       70.      117.      189.      256.
            291.      299.      294.      283.      266.      247.      230.      214.      199.      185.
            172.      160.      149.      139.      129.      120.      112.      104.       97.       90.
             84.       78.       72.       67.       63.       58.       54.       50.       47.       44.
             41.       38.       35.       33.       30.       28.       26.       24.       23.       21.
             20.       18.       17.       16.       15.       14.       13.       12.       11.       10.
             10.        9.        8.        8.        7.        7.        6.        6.        5.        5.
              5.        4.        4.        4.        3.        3.        3.        3.        3.        2.
              2.        2.

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

                    HYDROGRAPH AT STATION      012

   TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.79, TOTAL EXCESS =    1.48

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+     344.     12.30                  46.         12.         11.         11.
                        (INCHES)    1.435       1.472       1.472       1.472
                         (AC-FT)      23.         23.         23.         23.

                        CUMULATIVE AREA =     .30 SQ MI
```

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

              **************
              *            *
   64 KK      *     CP012  *
              *            *
              **************
                              Combine runoff hydrograph from 012 with routed hydrograph from CP010

   66 HC          HYDROGRAPH COMBINATION
                        ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

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

                          HYDROGRAPH AT STATION    CP012

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+    1111.     12.43                169.         43.         42.          42.
                         (INCHES)  1.495       1.532       1.532        1.532
                          (AC-FT)   84.         86.         86.          86.

                         CUMULATIVE AREA =    1.05 SQ MI


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

              **************
              *            *
   67 KK      *      D012  *
              *            *
              **************
                              Divert flow away from main Rawhide Wash to the West.

     DT          DIVERSION
                      ISTAD      012OUT  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW         .00     43.00    152.00    330.00    586.00    929.00   1365.00

     DQ      DIVERTED FLOW         .00     10.00     43.00    105.00    203.00    344.00    533.00
                                                                  ***

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

                          DIVERSION HYDROGRAPH   012OUT

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+     423.     12.43                 58.         15.         14.          14.
                         (INCHES)   .516        .524        .524         .524
                          (AC-FT)   29.         29.         29.          29.

                         CUMULATIVE AREA =    1.05 SQ MI

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

                          HYDROGRAPH AT STATION     D012

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+     688.     12.43                111.         28.         27.          27.
                         (INCHES)  .979       1.008       1.008        1.008
                          (AC-FT)   55.         56.         56.          56.

                         CUMULATIVE AREA =    1.05 SQ MI


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

              **************
              *            *
   72 KK      *    R030-1  *
              *            *
              **************
                              Route the combined hydrograph from CP012 to CP030A.

                HYDROGRAPH ROUTING DATA
```

```
 74 RS          STORAGE ROUTING
                     NSTPS          26  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

 75 RC          NORMAL DEPTH CHANNEL
                       ANL        .045  LEFT OVERBANK N-VALUE
                      ANCH        .035  MAIN CHANNEL N-VALUE
                       ANR        .045  RIGHT OVERBANK N-VALUE
                     RLNTH      10780.  REACH LENGTH
                       SEL       .0180  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                            --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 77 RY        ELEVATION   2684.00   2680.00   2680.00   2682.00   2682.00   2680.00   2680.00   2684.00
 76 RX        DISTANCE     428.00    497.00    753.00    780.00    835.00    868.00    897.00    992.00

                                                          ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00     15.23     31.24     48.03     65.60     83.94    103.07    122.97    143.65    165.10
          OUTFLOW        .00     95.62    308.06    614.56   1007.54   1483.37   2040.18   2677.06   3393.75   4190.36
        ELEVATION    2680.00   2680.21   2680.42   2680.63   2680.84   2681.05   2681.26   2681.47   2681.68   2681.89

          STORAGE     188.72    214.27    240.27    266.72    293.62    320.97    348.77    377.01    405.71    434.86
          OUTFLOW    4976.18   6007.34   7135.96   8359.29   9675.29  11082.43  12579.50  14165.55  15839.86  17601.83
        ELEVATION    2682.10   2682.31   2682.53   2682.74   2682.95   2683.16   2683.37   2683.58   2683.79   2684.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     1483. TO    17602.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R030-1

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)      (HR)
                          (CFS)
+     599.    13.17                 111.         28.         27.         27.
                        (INCHES)    .979       1.006       1.006       1.006
                         (AC-FT)     55.         56.         56.         56.

 PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)     (HR)
        2.    13.17                   0.          0.          0.          0.

 PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)     (HR)
  2680.62     13.17               2680.16     2680.04     2680.04     2680.04

                        CUMULATIVE AREA =    1.05 SQ MI


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


            **************
            *            *
 78 KK      *       030  *
            *            *
            **************
                          SUB-BASIN 030
                          24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                          THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                            L = 2.38  Kb = .048  Adj. Slope =  100.0

              SUBBASIN RUNOFF DATA

 83 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .35  SUBBASIN AREA

                PRECIPITATION DATA

 14 PB                STORM        4.27  BASIN TOTAL PRECIPITATION

 14 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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84 LG        GREEN AND AMPT LOSS RATE
                  STRTL        .15  STARTING LOSS
                    DTH        .39  MOISTURE DEFICIT
                   PSIF       5.70  WETTING FRONT SUCTION
                  XKSAT        .18  HYDRAULIC CONDUCTIVITY
                  RTIMP       8.00  PERCENT IMPERVIOUS AREA

85 UC        CLARK UNITGRAPH
                     TC        .60  TIME OF CONCENTRATION
                      R        .76  STORAGE COEFFICIENT

86 UA        ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                 .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
            100.0
```

***

UNIT HYDROGRAPH PARAMETERS
CLARK TC= .60 HR, R= .76 HR
SNYDER TP= .54 HR, CP= .52

UNIT HYDROGRAPH
132 END-OF-PERIOD ORDINATES

2.	7.	11.	14.	18.	22.	28.	36.	47.	70.
106.	148.	189.	214.	225.	228.	227.	224.	218.	208.
199.	191.	182.	175.	167.	160.	153.	146.	140.	134.
128.	123.	118.	112.	108.	103.	99.	94.	90.	86.
83.	79.	76.	72.	69.	66.	64.	61.	58.	56.
53.	51.	49.	47.	45.	43.	41.	39.	37.	36.
34.	33.	31.	30.	29.	28.	26.	25.	24.	23.
22.	21.	20.	19.	19.	18.	17.	16.	16.	15.
14.	14.	13.	12.	12.	11.	11.	10.	10.	10.

```
                9.        9.        8.        8.        8.        7.        7.        7.        6.        6.
                6.        6.        5.        5.        5.        5.        5.        4.        4.        4.
                4.        4.        3.        3.        3.        3.        3.        3.        3.        3.
                2.        2.        2.        2.        2.        2.        2.        2.        2.        2.
                2.        2.

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

                        HYDROGRAPH AT STATION      030

    TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.60, TOTAL EXCESS =    1.67

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                                (CFS)
+     297.     12.43                 60.         16.         15.         15.
                            (INCHES)     1.558       1.657       1.658       1.658
                             (AC-FT)      30.         31.         31.         31.

                           CUMULATIVE AREA =     .35 SQ MI


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


            **************
            *            *
  88 KK     *    CP030A  *
            *            *
            **************
                           Combine routed hydrograph from CP012 with runoff hydrograph 030.
                           This combination was made for use in the hydraulic modeling of a
                           tributary to Rawhide Wash.

  92 HC          HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                        HYDROGRAPH AT STATION   CP030A

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                                (CFS)
+     731.     13.17                170.         44.         43.         43.
                            (INCHES)     1.124       1.170       1.170       1.170
                             (AC-FT)      84.         88.         88.         88.

                           CUMULATIVE AREA =    1.40 SQ MI


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


            **************
            *            *
  93 KK     *       015  *
            *            *
            **************
                           SUB-BASIN 015
                           24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                           THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                             L = 2.54  Kb = .040  Adj. Slope =  108.0

              SUBBASIN RUNOFF DATA

  98 BA          SUBBASIN CHARACTERISTICS
                       TAREA        1.27  SUBBASIN AREA

                 PRECIPITATION DATA

  14 PB                STORM        4.27  BASIN TOTAL PRECIPITATION

  14 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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99 LG          GREEN AND AMPT LOSS RATE
                     STRTL        .15  STARTING LOSS
                       DTH        .39  MOISTURE DEFICIT
                      PSIF       5.80  WETTING FRONT SUCTION
                     XKSAT        .17  HYDRAULIC CONDUCTIVITY
                     RTIMP       3.00  PERCENT IMPERVIOUS AREA

100 UC         CLARK UNITGRAPH
                        TC        .52  TIME OF CONCENTRATION
                         R        .33  STORAGE COEFFICIENT

101 UA         ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                    .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                 100.0
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UNIT HYDROGRAPH PARAMETERS
CLARK TC= .52 HR, R= .33 HR
SNYDER TP= .44 HR, CP= .81

UNIT HYDROGRAPH
63 END-OF-PERIOD ORDINATES

22.	62.	90.	117.	152.	191.	253.	353.	563.	888.
1249.	1482.	1540.	1523.	1454.	1370.	1262.	1142.	1033.	934.
845.	765.	692.	626.	566.	512.	463.	419.	379.	343.
310.	281.	254.	230.	208.	188.	170.	154.	139.	126.
114.	103.	93.	84.	76.	69.	62.	57.	51.	46.
42.	38.	34.	31.	28.	25.	23.	21.	19.	17.
15.	14.	13.							

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

HYDROGRAPH AT STATION 015

TOTAL RAINFALL = 4.27, TOTAL LOSS = 2.72, TOTAL EXCESS = 1.55

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  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    1766.     12.33                205.         52.         50.          50.
                        (INCHES)   1.500       1.537       1.538        1.538
                         (AC-FT)   101.         104.        104.         104.

                       CUMULATIVE AREA =    1.27 SQ MI


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


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            *            *
 103 KK     *    R022-1  *
            *            *
            **************
                          Route the runoff hydrograph from 015 to CP022A.

              HYDROGRAPH ROUTING DATA

 105 RS         STORAGE ROUTING
                      NSTPS           6  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC      -1.00  INITIAL CONDITION
                           X        .00 WORKING R AND D COEFFICIENT

 106 RC         NORMAL DEPTH CHANNEL
                        ANL        .045  LEFT OVERBANK N-VALUE
                       ANCH        .035  MAIN CHANNEL N-VALUE
                        ANR        .045  RIGHT OVERBANK N-VALUE
                      RLNTH       4466.  REACH LENGTH
                        SEL      .0180  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 108 RY       ELEVATION   2740.00   2734.00   2734.00   2728.00   2726.00   2728.00   2730.00   2740.00
 107 RX       DISTANCE    9714.00   9798.00   9905.00   9943.00  10002.00  10037.00  10299.00  10412.00

                                                          ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.31      5.23     11.98     25.08     45.83     73.14    102.04    131.93    162.79
          OUTFLOW        .00     37.42    237.63    735.05   1761.95   3478.22   6207.14   9915.32  14419.45  19678.21
        ELEVATION    2726.00   2726.74   2727.47   2728.21   2728.95   2729.68   2730.42   2731.16   2731.89   2732.63

          STORAGE     194.64    228.62    270.78    314.36    359.34    405.73    453.53    502.74    553.35    605.38
          OUTFLOW   25666.15  32426.68  40529.64  49673.28  59794.69  70868.67  82882.85  95831.55 109713.20 124529.00
        ELEVATION    2733.37   2734.10   2734.84   2735.58   2736.32   2737.05   2737.79   2738.53   2739.26   2740.00


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     6207. TO   124529.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R022-1

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    1674.     12.50                205.         52.         50.          50.
                        (INCHES)   1.500       1.537       1.537        1.537
                         (AC-FT)   101.         104.        104.         104.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
       4.     12.50                  1.          0.          0.           0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2728.88     12.50              2726.70     2726.19     2726.18      2726.18

                       CUMULATIVE AREA =    1.27 SQ MI


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


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            *            *
 109 KK     *       017  *
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                     SUB-BASIN 017
                     24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                     THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                       L = 1.34  Kb = .051  Adj. Slope =  113.0

              SUBBASIN RUNOFF DATA

 114 BA         SUBBASIN CHARACTERISTICS
                      TAREA         .22  SUBBASIN AREA

                PRECIPITATION DATA

  14 PB               STORM        4.27  BASIN TOTAL PRECIPITATION

  14 PI           INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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 115 LG         GREEN AND AMPT LOSS RATE
                      STRTL         .15  STARTING LOSS
                        DTH         .39  MOISTURE DEFICIT
                       PSIF        6.20  WETTING FRONT SUCTION
                      XKSAT         .15  HYDRAULIC CONDUCTIVITY
                      RTIMP        5.00  PERCENT IMPERVIOUS AREA

 116 UC         CLARK UNITGRAPH
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                    TC          .40  TIME OF CONCENTRATION
                     R          .41  STORAGE COEFFICIENT

 117 UA        ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                    .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                 100.0

                                                          ***

                                                   UNIT HYDROGRAPH PARAMETERS
                                            CLARK   TC=   .40 HR,       R=   .41 HR
                                          SNYDER   TP=   .35 HR,      CP=   .61

                                                      UNIT HYDROGRAPH
                                                 72 END-OF-PERIOD ORDINATES
                 4.       11.       17.       24.       33.       48.       87.      153.      213.      242.
               246.      240.      226.      209.      192.      177.      163.      150.      138.      127.
               117.      108.       99.       92.       84.       78.       71.       66.       61.       56.
                51.       47.       44.       40.       37.       34.       31.       29.       27.       25.
                23.       21.       19.       18.       16.       15.       14.       13.       12.       11.
                10.        9.        8.        8.        7.        7.        6.        6.        5.        5.
                 4.        4.        4.        3.        3.        3.        3.        2.        2.        2.
                 2.        2.

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

                      HYDROGRAPH AT STATION      017

    TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.63, TOTAL EXCESS =    1.63

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                       6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+     286.     12.27                    36.         9.          9.          9.
                        (INCHES)     1.565       1.626       1.626       1.626
                         (AC-FT)      18.         19.         19.         19.

                        CUMULATIVE AREA =     .22 SQ MI


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


            **************
            *            *
 119 KK     *    CP022A  *
            *            *
            **************
                           Combine routed hydrograph from 015 with runoff hydrograph from 017.
                           This combination was made for use in the hydraulic modeling of a
                           tributary to Rawhide Wash.

 123 HC         HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                      HYDROGRAPH AT STATION   CP022A

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                       6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    1875.     12.47                   241.        62.         59.         59.
                        (INCHES)     1.510       1.550       1.550       1.550
                         (AC-FT)     119.        123.        123.        123.

                        CUMULATIVE AREA =    1.48 SQ MI


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


            **************
            *            *
 124 KK     *       020  *
            *            *
            **************
                           SUB-BASIN 020
                           24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                           THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                             L = 1.74  Kb = .043  Adj. Slope =  199.0

               SUBBASIN RUNOFF DATA

 129 BA         SUBBASIN CHARACTERISTICS
                     TAREA          .76  SUBBASIN AREA

                PRECIPITATION DATA
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14 PB          STORM        4.27  BASIN TOTAL PRECIPITATION

14 PI          INCREMENTAL PRECIPITATION PATTERN
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                   .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
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130 LG         GREEN AND AMPT LOSS RATE
                    STRTL         .15  STARTING LOSS
                      DTH         .38  MOISTURE DEFICIT
                     PSIF        6.40  WETTING FRONT SUCTION
                    XKSAT         .14  HYDRAULIC CONDUCTIVITY
                    RTIMP       12.00  PERCENT IMPERVIOUS AREA

131 UC         CLARK UNITGRAPH
                       TC         .34  TIME OF CONCENTRATION
                        R         .20  STORAGE COEFFICIENT

132 UA         ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                    .0      3.0      5.0      8.0     12.0     20.0     43.0     75.0     90.0     96.0
                 100.0

                                              ***

                                  UNIT HYDROGRAPH PARAMETERS
                               CLARK   TC=   .34 HR,       R=   .20 HR
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                                        SNYDER   TP=   .28 HR,      CP=   .83

                                                   UNIT HYDROGRAPH
                                              39 END-OF-PERIOD ORDINATES
              33.      84.     126.     184.     286.     571.    1073.    1440.    1483.    1382.
            1224.    1044.     885.     750.     636.     539.     457.     387.     328.     278.
             236.     200.     169.     143.     122.     103.      87.      74.      63.      53.
              45.      38.      32.      27.      23.      20.      17.      14.      12.

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

                        HYDROGRAPH AT STATION      020

    TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.41, TOTAL EXCESS =    1.85

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    1458.     12.20                139.         38.         36.         36.
                        (INCHES)    1.698       1.846       1.846       1.846
                         (AC-FT)     69.         75.         75.         75.

                        CUMULATIVE AREA =     .76 SQ MI


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


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            *            *
  134 KK    *    R022-2  *
            *            *
            **************
                          Route the runoff hydrograph from 020 to CP022B

              HYDROGRAPH ROUTING DATA

  136 RS          STORAGE ROUTING
                       NSTPS           6  NUMBER OF SUBREACHES
                        ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC       -1.00  INITIAL CONDITION
                           X         .00 WORKING R AND D COEFFICIENT

  137 RC          NORMAL DEPTH CHANNEL
                         ANL        .045  LEFT OVERBANK N-VALUE
                        ANCH        .035  MAIN CHANNEL N-VALUE
                         ANR        .045  RIGHT OVERBANK N-VALUE
                       RLNTH       4146.  REACH LENGTH
                         SEL       .0170  ENERGY SLOPE
                       ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
  139 RY        ELEVATION   2690.00   2686.00   2688.00   2686.00   2686.00   2688.00   2688.00   2690.00
  138 RX        DISTANCE    9805.00   9902.00  10081.00  10090.00  10098.00  10102.00  10253.00  10264.00

                                                          ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

           STORAGE        .00       .41      1.33      2.76      4.70      7.14     10.09     13.54     17.50     21.97
           OUTFLOW        .00      5.82     26.51     68.00    135.60    234.17    368.21    541.98    759.51   1024.65
         ELEVATION    2686.00   2686.21   2686.42   2686.63   2686.84   2687.05   2687.26   2687.47   2687.68   2687.89

           STORAGE      28.40     36.53     44.78     53.16     61.66     70.29     79.05     87.93     96.93    106.06
           OUTFLOW    1387.11   1896.58   2502.97   3197.06   3973.60   4829.03   5760.71   6766.61   7845.13   8994.96
         ELEVATION    2688.10   2688.31   2688.53   2688.74   2688.95   2689.16   2689.37   2689.58   2689.79   2690.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     7845. TO     8995.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R022-2

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    1293.     12.40                139.         38.         36.         36.
                        (INCHES)    1.698       1.845       1.845       1.845
                         (AC-FT)     69.         75.         75.         75.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
       4.      12.40                  1.          0.          0.          0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
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 2688.05      12.40              2686.55      2686.25      2686.24      2686.24

                          CUMULATIVE AREA =       .76 SQ MI


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

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              *            *
 140 KK       *      022   *
              *            *
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                       SUB-BASIN 022
                       24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                       THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                         L = 2.71  Kb = .047  Adj. Slope =  128.0

               SUBBASIN RUNOFF DATA

 145 BA          SUBBASIN CHARACTERISTICS
                       TAREA          .38  SUBBASIN AREA

                 PRECIPITATION DATA

  14 PB                STORM         4.27  BASIN TOTAL PRECIPITATION

  14 PI            INCREMENTAL PRECIPITATION PATTERN
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146 LG        GREEN AND AMPT LOSS RATE
                STRTL        .15  STARTING LOSS
                  DTH        .36  MOISTURE DEFICIT
                 PSIF       6.80  WETTING FRONT SUCTION
                XKSAT        .12  HYDRAULIC CONDUCTIVITY
                RTIMP       8.00  PERCENT IMPERVIOUS AREA

147 UC        CLARK UNITGRAPH
                   TC        .56  TIME OF CONCENTRATION
                    R        .75  STORAGE COEFFICIENT

148 UA        ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                  .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
               100.0

                                                  ***

                                          UNIT HYDROGRAPH PARAMETERS
                                   CLARK   TC=   .56 HR,       R=   .75 HR
                                  SNYDER   TP=   .51 HR,      CP=   .50

                                              UNIT HYDROGRAPH
                                         130 END-OF-PERIOD ORDINATES
            3.        8.       12.       16.       21.       26.       34.       44.       66.      100.
          147.      197.      230.      244.      249.      248.      245.      238.      228.      218.
          208.      199.      191.      182.      174.      167.      160.      153.      146.      140.
          134.      128.      122.      117.      112.      107.      102.       98.       94.       90.
           86.       82.       79.       75.       72.       69.       66.       63.       60.       58.
           55.       53.       50.       48.       46.       44.       42.       40.       39.       37.
           35.       34.       32.       31.       30.       28.       27.       26.       25.       24.
           23.       22.       21.       20.       19.       18.       17.       17.       16.       15.
           15.       14.       13.       13.       12.       12.       11.       11.       10.       10.
            9.        9.        9.        8.        8.        7.        7.        7.        7.        6.
            6.        6.        5.        5.        5.        5.        5.        4.        4.        4.
            4.        4.        4.        3.        3.        3.        3.        3.        3.        3.
            2.        2.        2.        2.        2.        2.        2.        2.        2.        2.

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

                     HYDROGRAPH AT STATION      022

   TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.46, TOTAL EXCESS =    1.81

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    340.     12.40                  70.         18.         18.         18.
                        (INCHES)   1.699      1.798       1.799       1.799
                         (AC-FT)     35.         37.         37.         37.

                        CUMULATIVE AREA =     .38 SQ MI


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


            **************
            *            *
150 KK      *   CP022B   *
            *            *
            **************
                          Combine routed hydrograph from 020 with runoff hydrograph from 022.
                          This combination was made for use in the hydraulic modeling of a
                          tributary to Rawhide Wash.

154 HC        HYDROGRAPH COMBINATION
                ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***

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

                     HYDROGRAPH AT STATION   CP022B

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+   1633.     12.40                 209.         56.         54.         54.
                        (INCHES)   1.698      1.829       1.829       1.829
                         (AC-FT)    103.        111.        111.        111.

                        CUMULATIVE AREA =    1.14 SQ MI
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              **************
              *            *
 155 KK       *     CP022  *
              *            *
              **************
                             Combine hydrographs from CP022A and CP022B.
                             This combination was made for use in the hydraulic modeling of a
                             tributary to Rawhide Wash.

 159 HC            HYDROGRAPH COMBINATION
                        ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                          HYDROGRAPH AT STATION    CP022

  PEAK FLOW      TIME                                MAXIMUM AVERAGE FLOW
+   (CFS)        (HR)                    6-HR        24-HR        72-HR      24.97-HR
                                  (CFS)
+    3445.       12.43                   449.         118.         113.         113.
                                (INCHES)  1.591        1.671        1.672        1.672
                                 (AC-FT)   223.         234.         234.         234.

                          CUMULATIVE AREA =    2.63 SQ MI


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

              **************
              *            *
 160 KK       *       024  *
              *            *
              **************
                             SUB-BASIN 024
                             24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                             THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                               L = 1.35  Kb = .041  Adj. Slope =  294.0

                SUBBASIN RUNOFF DATA

 165 BA           SUBBASIN CHARACTERISTICS
                       TAREA        1.02  SUBBASIN AREA

                  PRECIPITATION DATA

  14 PB                STORM        4.27  BASIN TOTAL PRECIPITATION

  14 PI             INCREMENTAL PRECIPITATION PATTERN
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 166 LG          GREEN AND AMPT LOSS RATE
                    STRTL        .15  STARTING LOSS
                      DTH        .38  MOISTURE DEFICIT
                     PSIF       6.40  WETTING FRONT SUCTION
                    XKSAT        .14  HYDRAULIC CONDUCTIVITY
                    RTIMP      12.00  PERCENT IMPERVIOUS AREA

 167 UC          CLARK UNITGRAPH
                       TC        .24  TIME OF CONCENTRATION
                        R        .10  STORAGE COEFFICIENT

 168 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      .0      3.0      5.0      8.0     12.0     20.0     43.0     75.0     90.0     96.0
                   100.0

                                                       ***

                                             UNIT HYDROGRAPH PARAMETERS
                                 CLARK   TC=   .24 HR,        R=   .10 HR
                                SNYDER   TP=   .20 HR,       CP=  1.03

                                                    UNIT HYDROGRAPH
                                             20 END-OF-PERIOD ORDINATES
              110.     289.     476.    1049.    2443.    3469.    3237.    2525.    1820.    1281.
              902.     635.     447.     315.     222.     156.     110.      77.      55.      38.

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

                        HYDROGRAPH AT STATION       024

     TOTAL RAINFALL =     4.27, TOTAL LOSS =     2.41, TOTAL EXCESS =     1.85

   PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                           6-HR       24-HR       72-HR      24.97-HR
 +   (CFS)        (HR)
                                (CFS)
 +    2481.      12.10                     186.         51.         49.          49.
                              (INCHES)    1.698       1.846       1.846        1.846
                               (AC-FT)      92.        100.        100.         100.

                             CUMULATIVE AREA =     1.02 SQ MI


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

              **************
              *            *
 170 KK       *   R026-1   *
              *            *
              **************
                      Route the runoff hydrograph from 024 to CP026A.

               HYDROGRAPH ROUTING DATA

 172 RS          STORAGE ROUTING
                    NSTPS          6  NUMBER OF SUBREACHES
                     ITYP       FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC      -1.00  INITIAL CONDITION
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                    X          .00 WORKING R AND D COEFFICIENT

173 RC        NORMAL DEPTH CHANNEL
                   ANL        .045  LEFT OVERBANK N-VALUE
                  ANCH        .035  MAIN CHANNEL N-VALUE
                   ANR        .045  RIGHT OVERBANK N-VALUE
                 RLNTH       6097.  REACH LENGTH
                   SEL       .0160  ENERGY SLOPE
                 ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                      --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
175 RY      ELEVATION   2700.00   2692.00   2688.00   2688.00   2686.00   2686.00   2696.00   2700.00
174 RX      DISTANCE    9712.00   9782.00   9851.00   9931.00   9950.00  10050.00  10176.00  10237.00

                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00     11.15     23.98     40.88     65.78     92.95    122.39    154.10    188.08    224.09
          OUTFLOW        .00    334.93   1100.22   1820.00   3853.22   6532.27   9844.59  13788.80  18369.50  23637.11
        ELEVATION    2686.00   2686.74   2687.47   2688.21   2688.95   2689.68   2690.42   2691.16   2691.89   2692.63

          STORAGE     261.72    300.98    341.86    384.37    428.51    474.45    522.21    571.79    623.20    676.43
          OUTFLOW   29545.92  36086.96  43261.93  51074.35  59496.30  68532.05  78237.41  88621.69  99694.59 111466.10
        ELEVATION    2693.37   2694.10   2694.84   2695.58   2696.32   2697.05   2697.79   2698.53   2699.26   2700.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     9845. TO   111466.
               THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
               THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R026-1

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     24.97-HR
+   (CFS)      (HR)
                            (CFS)
+    2173.     12.27        186.        51.         49.         49.
                        (INCHES)      1.698       1.846       1.846       1.846
                         (AC-FT)       92.        100.        100.        100.

 PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
                                    6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)     (HR)
       8.     12.27         1.          0.          0.          0.

  PEAK STAGE   TIME                          MAXIMUM AVERAGE STAGE
                                    6-HR       24-HR       72-HR     24.97-HR
+   (FEET)     (HR)
   2688.34    12.27      2686.28     2686.07     2686.06     2686.06

                        CUMULATIVE AREA =    1.02 SQ MI


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

            **************
            *            *
176 KK      *       026  *
            *            *
            **************
                        SUB-BASIN 026
                        24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                        THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                          L = 2.41  Kb = .049  Adj. Slope =  249.8

              SUBBASIN RUNOFF DATA

181 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .27  SUBBASIN AREA

                PRECIPITATION DATA

 14 PB               STORM        4.27  BASIN TOTAL PRECIPITATION

 14 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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182 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .15  STARTING LOSS
                       DTH         .35  MOISTURE DEFICIT
                      PSIF        7.00  WETTING FRONT SUCTION
                     XKSAT         .11  HYDRAULIC CONDUCTIVITY
                     RTIMP       24.00  PERCENT IMPERVIOUS AREA

183 UC          CLARK UNITGRAPH
                        TC         .40  TIME OF CONCENTRATION
                         R         .58  STORAGE COEFFICIENT

184 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                   100.0

                                                   ***

                                                UNIT HYDROGRAPH PARAMETERS
                                         CLARK   TC=   .40 HR,       R=   .58 HR
                                        SNYDER   TP=   .37 HR,      CP=   .49

                                                UNIT HYDROGRAPH
                                           100 END-OF-PERIOD ORDINATES
              4.       10.       15.       21.       30.       43.       77.      135.      191.      223.
            232.      231.      223.      212.      200.      188.      178.      168.      159.      150.
            141.      133.      126.      119.      112.      106.      100.       94.       89.       84.
             79.       75.       71.       67.       63.       59.       56.       53.       50.       47.
             45.       42.       40.       37.       35.       33.       32.       30.       28.       27.
             25.       24.       22.       21.       20.       19.       18.       17.       16.       15.
             14.       13.       13.       12.       11.       11.       10.        9.        9.        8.
              8.        7.        7.        7.        6.        6.        6.        5.        5.        5.
              4.        4.        4.        4.        4.        3.        3.        3.        3.        3.
              2.        2.        2.        2.        2.        2.        2.        2.        2.        1.

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

                HYDROGRAPH AT STATION      026
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    TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.00, TOTAL EXCESS =    2.27

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                              (CFS)
+    309.     12.27                 57.         16.         16.         16.
                           (INCHES)     1.960       2.255       2.257       2.257
                            (AC-FT)      28.         32.         32.         32.

                           CUMULATIVE AREA =     .27 SQ MI


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


              **************
              *            *
  186 KK      *    CP026A  *
              *            *
              **************
                                Combine routed hydrograph from 024 with runoff hydrograph from 026.
                                This combination was made for use in the hydraulic modeling of a
                                tributary to Rawhide Wash.

  190 HC          HYDROGRAPH COMBINATION
                        ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                   ***

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

                           HYDROGRAPH AT STATION   CP026A

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                              (CFS)
+    2481.    12.27                243.         67.         64.         64.
                           (INCHES)     1.752       1.931       1.932       1.932
                            (AC-FT)     120.        133.        133.        133.

                           CUMULATIVE AREA =    1.29 SQ MI


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


              **************
              *            *
  191 KK      *     CP026  *
              *            *
              **************
                                Combine hydrographs from CP022 and CP026A.
                                This combination was made for use in the hydraulic modeling of a
                                tributary to Rawhide Wash.

  195 HC          HYDROGRAPH COMBINATION
                        ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                   ***

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

                           HYDROGRAPH AT STATION    CP026

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                              (CFS)
+    5412.    12.40                692.        185.        178.        178.
                           (INCHES)     1.644       1.757       1.757       1.757
                            (AC-FT)     343.        367.        367.        367.

                           CUMULATIVE AREA =    3.91 SQ MI


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


              **************
              *            *
  196 KK      *    R030-2  *
              *            *
              **************
                                Route the combined hydrograph from CP026 to CP030

                HYDROGRAPH ROUTING DATA
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198 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC      -1.00  INITIAL CONDITION
                         X        .00 WORKING R AND D COEFFICIENT

199 RC          NORMAL DEPTH CHANNEL
                       ANL       .045  LEFT OVERBANK N-VALUE
                      ANCH       .035  MAIN CHANNEL N-VALUE
                       ANR       .045  RIGHT OVERBANK N-VALUE
                     RLNTH      1354.  REACH LENGTH
                       SEL      .0160  ENERGY SLOPE
                     ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
201 RY       ELEVATION  2604.00   2598.00   2598.00   2596.00   2596.00   2594.00   2594.00   2604.00
200 RX       DISTANCE    214.00    314.00    479.00    518.00    654.00    771.00    852.00    939.00

                                                   ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.61      3.81      6.58     10.37     16.29     22.45     28.86     36.59     46.15
          OUTFLOW        .00    135.45    490.76   1084.49   1751.86   3365.03   5493.72   8096.17  11260.71  15276.39
        ELEVATION    2594.00   2594.53   2595.05   2595.58   2596.11   2596.63   2597.16   2597.68   2598.21   2598.74

          STORAGE      55.94     65.95     76.17     86.61     97.27    108.15    119.25    130.57    142.10    153.85
          OUTFLOW   19974.87  25303.44  31232.77  37743.36  44821.39  52456.68  60641.67  69370.69  78639.52  88446.43
        ELEVATION    2599.26   2599.79   2600.32   2600.84   2601.37   2601.90   2602.42   2602.95   2603.47   2604.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    52457. TO    88446.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R030-2

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    5366.     12.43                692.        185.        178.        178.
                        (INCHES)    1.644       1.757       1.757       1.757
                         (AC-FT)    343.        367.        367.        367.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
      22.      12.43                  4.          1.          1.          1.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2597.13     12.43              2594.78     2594.23     2594.22     2594.22

                        CUMULATIVE AREA =    3.91 SQ MI


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


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            *            *
 202 KK     *     CP030  *
            *            *
            **************
                        Combine hydrograph from CP026 and CP030A.
                        This combination was made for use in the hydraulic modeling of a
                        tributary to Rawhide Wash.

 206 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                   ***

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

                        HYDROGRAPH AT STATION    CP030

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    5666.     12.43                861.        229.        220.        220.
                        (INCHES)    1.504       1.602       1.602       1.602
                         (AC-FT)    427.        454.        455.        455.

                        CUMULATIVE AREA =    5.32 SQ MI
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

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            *            *
 207 KK     *    R038-1  *
            *            *
            **************
                          Route combined hydrograph from CP030 to CP038

               HYDROGRAPH ROUTING DATA

 209 RS          STORAGE ROUTING
                      NSTPS           2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 210 RC          NORMAL DEPTH CHANNEL
                        ANL        .045  LEFT OVERBANK N-VALUE
                       ANCH        .035  MAIN CHANNEL N-VALUE
                        ANR        .045  RIGHT OVERBANK N-VALUE
                      RLNTH       1605.  REACH LENGTH
                        SEL       .0120  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                           --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 212 RY        ELEVATION   2582.00   2576.00   2574.00   2572.00   2572.00   2580.00   2580.00   2582.00
 211 RX        DISTANCE     290.00    378.00    536.00    538.00    607.00    650.00    727.00    753.00

                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE        .00      1.37      2.81      4.31      5.89      8.08     11.13     15.04     19.76     24.80
            OUTFLOW        .00    111.07    354.99    702.85   1145.64   1708.56   2438.05   3373.12   4578.89   6077.35
          ELEVATION    2572.00   2572.53   2573.05   2573.58   2574.11   2574.63   2575.16   2575.68   2576.21   2576.74

            STORAGE      30.05     35.50     41.16     47.02     53.08     59.35     67.05     75.33     83.88     92.72
            OUTFLOW    7807.90   9764.12  11942.63  14341.88  16961.61  19802.34  23091.44  26775.24  30785.12  35113.73
          ELEVATION    2577.26   2577.79   2578.32   2578.84   2579.37   2579.90   2580.42   2580.95   2581.47   2582.00

 *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     9764. TO    35114.
                 THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                 THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R038-1

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    5638.     12.47                 861.        229.        220.        220.
                        (INCHES)    1.504       1.602       1.602       1.602
                         (AC-FT)     427.        454.        454.        454.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
      12.      12.47                   2.          1.          1.          1.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2576.58     12.47               2573.29     2572.40     2572.38     2572.38

                        CUMULATIVE AREA =    5.32 SQ MI


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

            **************
            *            *
 213 KK     *       034  *
            *            *
            **************
                          SUB-BASIN 034
                          24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                          THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                            L = 1.32  Kb = .049  Adj. Slope =   97.0

               SUBBASIN RUNOFF DATA

 218 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .30  SUBBASIN AREA

                 PRECIPITATION DATA
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14 PB           STORM        4.27  BASIN TOTAL PRECIPITATION

14 PI         INCREMENTAL PRECIPITATION PATTERN
                 .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
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                 .01      .01      .03      .04      .04      .04      .04      .04      .04      .04
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219 LG        GREEN AND AMPT LOSS RATE
                 STRTL          .15  STARTING LOSS
                   DTH          .38  MOISTURE DEFICIT
                  PSIF         6.40  WETTING FRONT SUCTION
                 XKSAT          .14  HYDRAULIC CONDUCTIVITY
                 RTIMP        16.00  PERCENT IMPERVIOUS AREA

220 UC        CLARK UNITGRAPH
                    TC          .41  TIME OF CONCENTRATION
                     R          .34  STORAGE COEFFICIENT

221 UA        ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                  .0      3.0      5.0      8.0     12.0     20.0     43.0     75.0     90.0     96.0
               100.0

                                              ***

                                   UNIT HYDROGRAPH PARAMETERS
                             CLARK    TC=    .41 HR,       R=    .34 HR
                            SNYDER    TP=    .35 HR,      CP=    .68
```

UNIT HYDROGRAPH
62 END-OF-PERIOD ORDINATES

7.	17.	26.	37.	50.	73.	130.	228.	325.	377.
384.	370.	347.	317.	287.	260.	236.	214.	194.	176.
160.	145.	131.	119.	108.	98.	89.	80.	73.	66.
60.	54.	49.	45.	41.	37.	33.	30.	27.	25.
23.	20.	19.	17.	15.	14.	13.	11.	10.	9.
8.	8.	7.	6.	6.	5.	5.	4.	4.	4.
3.	3.								

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

HYDROGRAPH AT STATION 034

TOTAL RAINFALL = 4.27, TOTAL LOSS = 2.30, TOTAL EXCESS = 1.96

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.97-HR
+ (CFS)	(HR)					
		(CFS)				
+ 444.	12.27		56.	16.	15.	15.
		(INCHES)	1.757	1.954	1.955	1.955
		(AC-FT)	28.	31.	31.	31.

CUMULATIVE AREA = .30 SQ MI

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              *            *
 223 KK       *   R036-1   *
              *            *
              **************
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Route runoff hydrograph from 034 to CP036

HYDROGRAPH ROUTING DATA

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 225 RS          STORAGE ROUTING
                      NSTPS          8  NUMBER OF SUBREACHES
                       ITYP       FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC     -1.00  INITIAL CONDITION
                           X       .00  WORKING R AND D COEFFICIENT

 226 RC          NORMAL DEPTH CHANNEL
                        ANL       .045  LEFT OVERBANK N-VALUE
                       ANCH       .035  MAIN CHANNEL N-VALUE
                        ANR       .045  RIGHT OVERBANK N-VALUE
                      RLNTH      5295.  REACH LENGTH
                        SEL      .0190  ENERGY SLOPE
                      ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION
```

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---	
228 RY	ELEVATION	2652.00	2646.00	2646.00	2642.00	2642.00	2644.00	2644.00	2652.00
227 RX	DISTANCE	9725.00	9842.00	9891.00	9970.00	10030.00	10032.00	10143.00	10241.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	4.19	9.08	14.66	22.38	36.73	52.16	68.66	87.50	109.29
OUTFLOW	.00	124.69	410.56	838.99	1423.58	2375.94	3679.40	5308.21	7367.13	9992.12
ELEVATION	2642.00	2642.53	2643.05	2643.58	2644.11	2644.63	2645.16	2645.68	2646.21	2646.74
STORAGE	132.15	156.08	181.08	207.15	234.28	262.49	291.76	322.11	353.52	386.00
OUTFLOW	13022.68	16447.67	20263.81	24471.14	29071.57	34068.16	39464.79	45265.89	51476.34	58102.60
ELEVATION	2647.26	2647.79	2648.32	2648.84	2649.37	2649.90	2650.42	2650.95	2651.47	2652.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 3679. TO 58103.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

HYDROGRAPH AT STATION R036-1

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.97-HR
+ (CFS)	(HR)					
		(CFS)				
+ 415.	12.47		56.	16.	15.	15.
		(INCHES)	1.757	1.953	1.954	1.954
		(AC-FT)	28.	31.	31.	31.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	24.97-HR
+ (AC-FT)	(HR)				
1.	12.47	0.	0.	0.	0.

PEAK STAGE TIME MAXIMUM AVERAGE STAGE

```
                                        6-HR        24-HR        72-HR     24.97-HR
+   (FEET)       (HR)
   2643.06      12.47                2642.19      2642.04      2642.04      2642.04

                           CUMULATIVE AREA =        .30 SQ MI


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


               **************
               *            *
  229 KK       *     036    *
               *            *
               **************
                         SUB-BASIN 036
                         24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                         THIS BASIN USED RAINFALL REDUCTION FACTOR OF   .928
                           L = 1.37  Kb = .050  Adj. Slope =  278.2

                  SUBBASIN RUNOFF DATA

  234 BA            SUBBASIN CHARACTERISTICS
                          TAREA           .25  SUBBASIN AREA

                    PRECIPITATION DATA

   14 PB                  STORM        4.27  BASIN TOTAL PRECIPITATION

   14 PI              INCREMENTAL 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	.00	.00	.00	.00	.00	.00	.00
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235 LG          GREEN AND AMPT LOSS RATE
                     STRTL        .15  STARTING LOSS
                       DTH        .35  MOISTURE DEFICIT
                      PSIF       7.00  WETTING FRONT SUCTION
                     XKSAT        .11  HYDRAULIC CONDUCTIVITY
                     RTIMP      19.00  PERCENT IMPERVIOUS AREA

236 UC          CLARK UNITGRAPH
                        TC        .28  TIME OF CONCENTRATION
                         R        .25  STORAGE COEFFICIENT

237 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                       .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                   100.0

                                                         ***

                                                   UNIT HYDROGRAPH PARAMETERS
                                            CLARK   TC=   .28 HR,       R=   .25 HR
                                          SNYDER   TP=   .24 HR,      CP=   .65

                                                      UNIT HYDROGRAPH
                                                 45 END-OF-PERIOD ORDINATES
                 10.       28.       46.       78.      172.      333.      437.      442.      408.      361.
                316.      276.      242.      211.      185.      162.      142.      124.      108.       95.
                 83.       73.       64.       56.       49.       43.       37.       33.       29.       25.
                 22.       19.       17.       15.       13.       11.       10.        9.        8.        7.
                  6.        5.        4.        4.        3.

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

                        HYDROGRAPH AT STATION      036

   TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.13, TOTAL EXCESS =    2.14

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                       6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+     463.     12.17                    51.         14.         14.         14.
                        (INCHES)     1.893      2.127       2.128       2.128
                         (AC-FT)       25.         28.         28.         28.

                        CUMULATIVE AREA =     .25 SQ MI


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


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            *            *
239 KK      *     CP036  *
            *            *
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                          Combine routed hydrograph from 034 with runoff hydrograph from 036

241 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                         ***

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

                        HYDROGRAPH AT STATION    CP036

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                       6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+     648.     12.40                   107.         30.         29.         29.
                        (INCHES)     1.818      2.032       2.033       2.033
                         (AC-FT)       53.         59.         59.         59.

                        CUMULATIVE AREA =     .55 SQ MI


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


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242 KK      *    R038-2  *
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                             Route combined hydrograph from CP036 to CP038A.

                 HYDROGRAPH ROUTING DATA

  244 RS           STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        FLOW  TYPE OF INITIAL CONDITION
                       RSVRIC       -1.00  INITIAL CONDITION
                            X         .00 WORKING R AND D COEFFICIENT

  245 RC           NORMAL DEPTH CHANNEL
                          ANL        .045  LEFT OVERBANK N-VALUE
                         ANCH        .035  MAIN CHANNEL N-VALUE
                          ANR        .045  RIGHT OVERBANK N-VALUE
                        RLNTH        483.  REACH LENGTH
                          SEL       .0250  ENERGY SLOPE
                        ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                              CROSS-SECTION DATA
                            --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
  247 RY        ELEVATION   2578.00   2574.00   2574.00   2572.00   2572.00   2574.00   2576.00   2578.00
  246 RX        DISTANCE    9837.00   9891.00   9971.00   9988.00  10012.00  10126.00  10148.00  10177.00

                                                                  ***

                                              COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE        .00       .12       .31       .58       .92      1.32      1.81      2.54      3.39      4.27
            OUTFLOW        .00     28.37    108.39    250.90    467.74    770.07   1168.46   1781.94   2624.95   3632.54
          ELEVATION    2572.00   2572.32   2572.63   2572.95   2573.26   2573.58   2573.89   2574.21   2574.53   2574.84

            STORAGE       5.18      6.12      7.08      8.07      9.09     10.14     11.22     12.33     13.48     14.65
            OUTFLOW    4794.00   6103.20   7556.16   9149.00  10879.70  12750.32  14760.52  16910.30  19199.89  21629.75
          ELEVATION    2575.16   2575.47   2575.79   2576.10   2576.42   2576.74   2577.05   2577.37   2577.68   2578.00

 *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      468. TO    21630.
                 THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                 THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R038-2

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                           (CFS)
+     647.     12.40                107.         30.         29.         29.
                         (INCHES)  1.818       2.032       2.033       2.033
                          (AC-FT)    53.         59.         59.         59.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
       1.      12.40                  0.          0.          0.          0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2573.45     12.40              2572.42     2572.13     2572.13     2572.13

                        CUMULATIVE AREA =     .55 SQ MI


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


              **************
              *            *
  248 KK      *       038  *
              *            *
              **************
                             SUB-BASIN 038
                             24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                             THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                               L = 1.27  Kb = .052  Adj. Slope =  303.0

                 SUBBASIN RUNOFF DATA

  253 BA           SUBBASIN CHARACTERISTICS
                        TAREA         .18  SUBBASIN AREA

                   PRECIPITATION DATA

   14 PB                STORM        4.27  BASIN TOTAL PRECIPITATION

   14 PI             INCREMENTAL PRECIPITATION PATTERN
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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254 LG          GREEN AND AMPT LOSS RATE
                      STRTL          .15  STARTING LOSS
                        DTH          .37  MOISTURE DEFICIT
                       PSIF         6.60  WETTING FRONT SUCTION
                      XKSAT          .13  HYDRAULIC CONDUCTIVITY
                      RTIMP        16.00  PERCENT IMPERVIOUS AREA

255 UC          CLARK UNITGRAPH
                         TC          .26  TIME OF CONCENTRATION
                          R          .27  STORAGE COEFFICIENT

256 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                   100.0
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UNIT HYDROGRAPH PARAMETERS

CLARK TC= .26 HR, R= .27 HR

SNYDER TP= .23 HR, CP= .61

UNIT HYDROGRAPH

48 END-OF-PERIOD ORDINATES

7.	20.	34.	62.	145.	258.	313.	308.	281.	248.
219.	193.	171.	151.	133.	117.	104.	91.	81.	71.
63.	55.	49.	43.	38.	34.	30.	26.	23.	20.
18.	16.	14.	12.	11.	10.	8.	7.	7.	6.
5.	5.	4.	4.	3.	3.	2.	2.		

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

                        HYDROGRAPH AT STATION      038

    TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.28, TOTAL EXCESS =    1.99

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                                  (CFS)
+     323.     12.17                35.         10.          9.          9.
                              (INCHES)     1.784       1.981       1.982       1.982
                               (AC-FT)       17.         19.         19.         19.

                         CUMULATIVE AREA =     .18 SQ MI


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


            **************
            *            *
  258 KK    *    CP038A  *
            *            *
            **************
                           Combine routed hydrograph from CP036 with runoff hydrograph from 038.
                           This combination was made for use in the hydraulic modeling of a
                           tributary to Rawhide Wash.

  262 HC          HYDROGRAPH COMBINATION
                        ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                        HYDROGRAPH AT STATION   CP038A

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                                  (CFS)
+     855.     12.30               142.         40.         38.         38.
                              (INCHES)     1.810       2.019       2.020       2.020
                               (AC-FT)       71.         79.         79.         79.

                         CUMULATIVE AREA =     .73 SQ MI


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


            **************
            *            *
  263 KK    *       032  *
            *            *
            **************
                           SUB-BASIN 032
                           24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                           THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                             L =  .40  Kb = .062  Adj. Slope =  100.0

               SUBBASIN RUNOFF DATA

  268 BA          SUBBASIN CHARACTERISTICS
                        TAREA         .03  SUBBASIN AREA

                  PRECIPITATION DATA

   14 PB                STORM        4.27  BASIN TOTAL PRECIPITATION

   14 PI            INCREMENTAL PRECIPITATION PATTERN
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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269 LG          GREEN AND AMPT LOSS RATE
                      STRTL        .15  STARTING LOSS
                        DTH        .35  MOISTURE DEFICIT
                       PSIF       4.55  WETTING FRONT SUCTION
                      XKSAT        .31  HYDRAULIC CONDUCTIVITY
                      RTIMP       3.00  PERCENT IMPERVIOUS AREA

270 UC          CLARK UNITGRAPH
                         TC        .23  TIME OF CONCENTRATION
                          R        .25  STORAGE COEFFICIENT

271 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                   100.0
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***

UNIT HYDROGRAPH PARAMETERS

CLARK TC= .23 HR, R= .25 HR
SNYDER TP= .21 HR, CP= .59

UNIT HYDROGRAPH
44 END-OF-PERIOD ORDINATES

2.	4.	8.	19.	42.	60.	61.	56.	49.	43.
37.	33.	29.	25.	22.	19.	17.	15.	13.	11.
10.	8.	7.	6.	6.	5.	4.	4.	3.	3.
3.	2.	2.	2.	1.	1.	1.	1.	1.	1.
1.	1.	0.	0.						

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

HYDROGRAPH AT STATION 032

TOTAL RAINFALL = 4.27, TOTAL LOSS = 2.89, TOTAL EXCESS = 1.38

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.97-HR
+	(CFS)	(HR)	(CFS)	5.	1.	1.	1.
+	55.	12.13	(INCHES)	1.338	1.375	1.375	1.375
			(AC-FT)	2.	2.	2.	2.

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                    CUMULATIVE AREA =     .03 SQ MI

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

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            *            *
 273 KK     *     CP038  *
            *            *
            **************
                          Combine hydrograph from CP038a with runoff hydrographs from 032.
                          This combination was made for use in the hydraulic modeling of a
                          tributary to Rawhide Wash.

 277 HC          HYDROGRAPH COMBINATION
                      ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

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

                        HYDROGRAPH AT STATION    CP038

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                           (CFS)
+    6445.     12.43                1007.        270.        260.         260.
                         (INCHES)   1.539       1.650       1.651        1.651
                          (AC-FT)    499.        536.        536.         536.

                        CUMULATIVE AREA =    6.08 SQ MI

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

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            *            *
 278 KK     *    R040-1  *
            *            *
            **************
                          Route combined hydrograph from CP038 to CP040

               HYDROGRAPH ROUTING DATA

 280 RS          STORAGE ROUTING
                      NSTPS          4  NUMBER OF SUBREACHES
                       ITYP       FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC      -1.00  INITIAL CONDITION
                          X        .00 WORKING R AND D COEFFICIENT

 281 RC          NORMAL DEPTH CHANNEL
                        ANL       .045  LEFT OVERBANK N-VALUE
                       ANCH       .035  MAIN CHANNEL N-VALUE
                        ANR       .045  RIGHT OVERBANK N-VALUE
                      RLNTH      3775.  REACH LENGTH
                        SEL      .0190  ENERGY SLOPE
                      ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 283 RY        ELEVATION   2540.00   2536.00   2530.00   2530.00   2528.00   2528.00   2534.00   2540.00
 282 RX        DISTANCE      47.00     75.00    224.00    433.00    448.00    523.00    609.00    678.00
                                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

           STORAGE        .00      4.48      9.72     15.71     32.20     51.94     73.04     95.48    119.29    144.44
           OUTFLOW        .00    212.85    702.51   1434.46   2238.57   4782.60   8128.00  12242.12  17109.96  22725.81
         ELEVATION    2528.00   2528.63   2529.26   2529.89   2530.53   2531.16   2531.79   2532.42   2533.05   2533.68

           STORAGE     170.94    198.71    227.73    257.97    288.99    320.65    352.95    385.89    419.47    453.69
           OUTFLOW   29105.71  36248.01  44138.50  52852.61  62452.03  72781.60  83832.40  95597.65 108072.30 121252.80
         ELEVATION    2534.32   2534.95   2535.58   2536.21   2536.84   2537.47   2538.11   2538.74   2539.37   2540.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     8128. TO   121253.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R040-1

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                           (CFS)
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+    6379.      12.53                  1007.        270.        260.        260.
                           (INCHES)   1.539       1.650       1.650       1.650
                            (AC-FT)    499.        535.        535.        535.

 PEAK STORAGE    TIME                          MAXIMUM AVERAGE STORAGE
                                        6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)       (HR)
      16.       12.53                     3.          1.          1.          1.

  PEAK STAGE     TIME                          MAXIMUM AVERAGE STAGE
                                        6-HR       24-HR       72-HR     24.97-HR
+   (FEET)       (HR)
   2531.46      12.53                2529.09     2528.32     2528.31     2528.31

                           CUMULATIVE AREA =    6.08 SQ MI


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


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              *            *
  284 KK      *       040  *
              *            *
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                                SUB-BASIN 040
                                24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                                THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                                  L = 1.56  Kb = .048  Adj. Slope =  245.0

                 SUBBASIN RUNOFF DATA

  289 BA           SUBBASIN CHARACTERISTICS
                        TAREA         .33  SUBBASIN AREA

                   PRECIPITATION DATA

   14 PB                STORM        4.27  BASIN TOTAL PRECIPITATION

   14 PI             INCREMENTAL PRECIPITATION PATTERN
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290 LG          GREEN AND AMPT LOSS RATE
                      STRTL        .15  STARTING LOSS
                        DTH        .38  MOISTURE DEFICIT
                       PSIF       5.60  WETTING FRONT SUCTION
                      XKSAT        .19  HYDRAULIC CONDUCTIVITY
                      RTIMP       5.00  PERCENT IMPERVIOUS AREA

291 UC          CLARK UNITGRAPH
                         TC        .32  TIME OF CONCENTRATION
                          R        .28  STORAGE COEFFICIENT

292 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                        .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                     100.0

                                                          ***

                                                UNIT HYDROGRAPH PARAMETERS
                                         CLARK   TC=   .32 HR,       R=   .28 HR
                                        SNYDER   TP=   .27 HR,      CP=   .66

                                                     UNIT HYDROGRAPH
                                                51 END-OF-PERIOD ORDINATES
                 11.       29.       45.       70.      125.      251.      419.      513.      518.      486.
                439.      389.      345.      306.      272.      241.      214.      190.      168.      149.
                132.      117.      104.       92.       82.       73.       64.       57.       51.       45.
                 40.       35.       31.       28.       25.       22.       19.       17.       15.       14.
                 12.       11.        9.        8.        7.        7.        6.        5.        5.        4.
                  4.

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

                        HYDROGRAPH AT STATION      040

    TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.70, TOTAL EXCESS =    1.57

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                           (CFS)
+     529.     12.20                     53.         14.         13.         13.
                         (INCHES)     1.502       1.564       1.564       1.564
                          (AC-FT)       26.         27.         27.         27.

                         CUMULATIVE AREA =     .33 SQ MI


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


            **************
            *            *
294 KK      *     CP040  *
            *            *
            **************
                          Combine routed hydrographs from CP038 with runoff hydrograph from 040

296 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                        HYDROGRAPH AT STATION    CP040

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                           (CFS)
+    6600.     12.50                   1060.        284.        273.        273.
                         (INCHES)     1.537       1.646       1.646       1.646
                          (AC-FT)      526.        563.        563.        563.

                         CUMULATIVE AREA =    6.41 SQ MI
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 297 KK     *    R042-1  *
            *            *
            **************
                           Route combined hydrograph from CP040 to CP042

               HYDROGRAPH ROUTING DATA

 299 RS          STORAGE ROUTING
                      NSTPS           2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC       -1.00  INITIAL CONDITION
                           X         .00 WORKING R AND D COEFFICIENT

 300 RC          NORMAL DEPTH CHANNEL
                         ANL        .045  LEFT OVERBANK N-VALUE
                        ANCH        .035  MAIN CHANNEL N-VALUE
                         ANR        .045  RIGHT OVERBANK N-VALUE
                       RLNTH       2074.  REACH LENGTH
                         SEL       .0180  ENERGY SLOPE
                       ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                            --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 302 RY        ELEVATION   2486.00   2482.00   2476.00   2482.00   2476.00   2476.00   2482.00   2486.00
 301 RX        DISTANCE     263.00    349.00    381.00    450.00    522.00    756.00    847.00    973.00

                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE        .00      6.15     12.89     20.21     28.10     36.58     45.63     55.27     65.49     76.29
            OUTFLOW        .00    467.93   1516.16   3041.86   5015.44   7426.14  10271.74  13554.71  17280.37  21455.83
          ELEVATION    2476.00   2476.53   2477.05   2477.58   2478.11   2478.63   2479.16   2479.68   2480.21   2480.74

            STORAGE      87.67     99.62    112.19    125.44    139.39    154.03    169.38    185.43    202.18    219.62
            OUTFLOW   26089.49  31190.58  37005.86  43561.91  50711.01  58449.63  66781.48  75713.59  85254.71  95416.02
          ELEVATION    2481.26   2481.79   2482.32   2482.84   2483.37   2483.90   2484.42   2484.95   2485.47   2486.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    13555. TO    95416.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R042-1

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+    6557.     12.57       1060.        284.        273.         273.
                       (INCHES)      1.537       1.645       1.645        1.645
                       (AC-FT)        526.        563.        563.         563.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                        6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
      17.      12.57                     4.          1.          1.           1.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                        6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2478.44     12.57                 2476.61     2476.17     2476.16      2476.16

                       CUMULATIVE AREA =    6.41 SQ MI


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

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            *            *
 303 KK     *       041  *
            *            *
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                           SUB-BASIN 041
                           24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                           THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                             L =  .69  Kb = .058  Adj. Slope =  133.0

               SUBBASIN RUNOFF DATA

 308 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .06  SUBBASIN AREA
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PRECIPITATION DATA

14 PB STORM 4.27 BASIN TOTAL PRECIPITATION

14 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.01	.01	.03	.04	.04	.04	.04	.04	.04	.04
.01	.01	.01	.01	.01	.01	.01	.00	.00	.00
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309 LG GREEN AND AMPT LOSS RATE

STRTL	.15	STARTING LOSS
DTH	.35	MOISTURE DEFICIT
PSIF	4.80	WETTING FRONT SUCTION
XKSAT	.26	HYDRAULIC CONDUCTIVITY
RTIMP	3.00	PERCENT IMPERVIOUS AREA

310 UC CLARK UNITGRAPH

TC	.27	TIME OF CONCENTRATION
R	.31	STORAGE COEFFICIENT

311 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
100.0									

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                                        UNIT HYDROGRAPH PARAMETERS
                                 CLARK   TC=   .27 HR,       R=   .31 HR
                                SNYDER   TP=   .24 HR,      CP=   .56

                                          UNIT HYDROGRAPH
                                      55 END-OF-PERIOD ORDINATES
            2.       6.      10.      17.      39.      74.      95.      97.      91.      83.
           74.      67.      60.      54.      48.      43.      39.      35.      31.      28.
           25.      23.      20.      18.      16.      15.      13.      12.      11.      10.
            9.       8.       7.       6.       6.       5.       4.       4.       4.       3.
            3.       3.       2.       2.       2.       2.       2.       1.       1.       1.
            1.       1.       1.       1.       1.

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

                    HYDROGRAPH AT STATION      041

   TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.82, TOTAL EXCESS =    1.44

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     24.97-HR
+  (CFS)       (HR)
                              (CFS)
+     97.      12.17            10.          2.          2.          2.
                          (INCHES)      1.401       1.438       1.438       1.438
                           (AC-FT)        5.          5.          5.          5.

                    CUMULATIVE AREA =     .06 SQ MI


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


          **************
          *            *
 313 KK   *       042  *
          *            *
          **************
                    SUB-BASIN 042
                    24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                    THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                      L = 1.51  Kb = .048  Adj. Slope =  296.4

            SUBBASIN RUNOFF DATA

 318 BA       SUBBASIN CHARACTERISTICS
                  TAREA         .32  SUBBASIN AREA

              PRECIPITATION DATA

  14 PB            STORM        4.27  BASIN TOTAL PRECIPITATION

  14 PI         INCREMENTAL PRECIPITATION PATTERN
                   .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
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                   .01      .01      .03      .04      .04      .04      .04      .04      .04      .04
                   .01      .01      .01      .01      .01      .01      .01      .00      .00      .00
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319 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .15  STARTING LOSS
                       DTH         .40  MOISTURE DEFICIT
                      PSIF        6.00  WETTING FRONT SUCTION
                     XKSAT         .16  HYDRAULIC CONDUCTIVITY
                     RTIMP        8.00  PERCENT IMPERVIOUS AREA

320 UC          CLARK UNITGRAPH
                        TC         .28  TIME OF CONCENTRATION
                         R         .24  STORAGE COEFFICIENT

321 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                     .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                  100.0

                                                   ***

                                        UNIT HYDROGRAPH PARAMETERS
                                  CLARK  TC=   .28 HR,         R=   .24 HR
                                 SNYDER  TP=   .24 HR,        CP=   .67

                                             UNIT HYDROGRAPH
                                        44 END-OF-PERIOD ORDINATES
```

14.	37.	59.	99.	210.	420.	573.	587.	546.	485.
422.	367.	320.	279.	243.	211.	184.	160.	139.	121.
106.	92.	80.	70.	61.	53.	46.	40.	35.	30.
26.	23.	20.	17.	15.	13.	12.	10.	9.	8.
7.	6.	5.	4.						

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

                 HYDROGRAPH AT STATION        042

  TOTAL RAINFALL =    4.27, TOTAL LOSS =     2.57, TOTAL EXCESS =     1.69

  PEAK FLOW      TIME                         MAXIMUM AVERAGE FLOW
                                  6-HR        24-HR        72-HR      24.97-HR
+   (CFS)        (HR)
                          (CFS)
+      579.     12.17                55.          15.          14.          14.
                        (INCHES)  1.587        1.686        1.686        1.686
                         (AC-FT)    28.          29.          29.          29.

                  CUMULATIVE AREA =      .32 SQ MI


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

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            *            *
323 KK      *    CP042   *
            *            *
            **************
                 Combine routed hydrograph from CP040 with runoff hydrographs from 041 & 042

325 HC          HYDROGRAPH COMBINATION
                     ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                   ***

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                    HYDROGRAPH AT STATION    CP042

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    6755.     12.53                 1125.        301.        289.         289.
                        (INCHES)    1.537       1.645       1.645        1.645
                         (AC-FT)     558.        597.        597.         597.

                        CUMULATIVE AREA =    6.80 SQ MI


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


            **************
            *            *
 326 KK     *    R043-1  *
            *            *
            **************
                          Route combined hydrograph from CP040 to CP042

               HYDROGRAPH ROUTING DATA

 328 RS          STORAGE ROUTING
                      NSTPS           7  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC       -1.00  INITIAL CONDITION
                           X         .00 WORKING R AND D COEFFICIENT

 329 RC          NORMAL DEPTH CHANNEL
                        ANL        .045  LEFT OVERBANK N-VALUE
                       ANCH        .035  MAIN CHANNEL N-VALUE
                        ANR        .045  RIGHT OVERBANK N-VALUE
                       RLNTH       7504.  REACH LENGTH
                        SEL       .0170  ENERGY SLOPE
                       ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 331 RY        ELEVATION   2486.00   2482.00   2476.00   2482.00   2476.00   2476.00   2482.00   2486.00
 330 RX        DISTANCE     263.00    349.00    381.00    450.00    522.00    756.00    847.00    973.00

                                                                  ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE        .00     22.27     46.64     73.11    101.67    132.34    165.11    199.98    236.95    276.02
            OUTFLOW        .00    454.75   1473.44   2956.16   4874.13   7216.91   9982.34  13172.81  16793.50  20851.32
          ELEVATION    2476.00   2476.53   2477.05   2477.58   2478.11   2478.63   2479.16   2479.68   2480.21   2480.74

            STORAGE     317.19    360.46    405.90    453.84    504.32    557.32    612.85    670.91    731.50    794.62
            OUTFLOW   25354.43  30311.79  35963.23  42334.57  49282.25  56802.84  64899.93  73580.38  82852.70  92727.70
          ELEVATION    2481.26   2481.79   2482.32   2482.84   2483.37   2483.90   2484.42   2484.95   2485.47   2486.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    16793. TO    92728.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                    HYDROGRAPH AT STATION   R043-1

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    6555.     12.73                 1124.        300.        289.         289.
                        (INCHES)    1.537       1.643       1.643        1.643
                         (AC-FT)     557.        596.        596.         596.

 PEAK STORAGE   TIME                       MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
       18.     12.73                    4.          1.          1.           1.

  PEAK STAGE    TIME                        MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2478.48     12.73               2476.67     2476.18     2476.18      2476.18

                        CUMULATIVE AREA =    6.80 SQ MI


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332 KK      *      043  *
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                   SUB-BASIN 043
                   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                     L = 1.92  Kb = .049  Adj. Slope =    99.0

             SUBBASIN RUNOFF DATA

337 BA         SUBBASIN CHARACTERISTICS
                  TAREA         .29  SUBBASIN AREA

               PRECIPITATION DATA

 14 PB            STORM        4.27  BASIN TOTAL PRECIPITATION

 14 PI          INCREMENTAL PRECIPITATION PATTERN
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338 LG         GREEN AND AMPT LOSS RATE
                  STRTL         .15  STARTING LOSS
                    DTH         .35  MOISTURE DEFICIT
                   PSIF        4.65  WETTING FRONT SUCTION
                  XKSAT         .29  HYDRAULIC CONDUCTIVITY
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                    RTIMP        3.00  PERCENT IMPERVIOUS AREA

339 UC          CLARK UNITGRAPH
                         TC         .54  TIME OF CONCENTRATION
                          R         .64  STORAGE COEFFICIENT

340 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                   100.0

                                                          ***

                                                   UNIT HYDROGRAPH PARAMETERS
                                          CLARK   TC=   .54 HR,       R=   .64 HR
                                         SNYDER   TP=   .48 HR,      CP=   .54

                                                    UNIT HYDROGRAPH
                                             112 END-OF-PERIOD ORDINATES
                 3.       7.      11.      15.      19.      24.      32.      43.      67.     105.
               150.     188.     208.     215.     214.     211.     204.     194.     184.     175.
               166.     158.     150.     142.     135.     128.     121.     115.     109.     104.
                99.      94.      89.      84.      80.      76.      72.      68.      65.      62.
                59.      56.      53.      50.      47.      45.      43.      41.      39.      37.
                35.      33.      31.      30.      28.      27.      25.      24.      23.      22.
                21.      20.      19.      18.      17.      16.      15.      14.      14.      13.
                12.      12.      11.      10.      10.       9.       9.       8.       8.       8.
                 7.       7.       7.       6.       6.       6.       5.       5.       5.       5.
                 4.       4.       4.       4.       3.       3.       3.       3.       3.       3.
                 3.       2.       2.       2.       2.       2.       2.       2.       2.       2.
                 2.       1.

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

                        HYDROGRAPH AT STATION      043

    TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.86, TOTAL EXCESS =    1.41

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+     253.     12.37                  42.         11.         10.         10.
                        (INCHES)    1.362      1.399       1.399       1.399
                         (AC-FT)     21.         21.         21.         21.

                        CUMULATIVE AREA =     .29 SQ MI


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


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            *            *
342 KK      *     CP043  *
            *            *
            **************
                           Combine routed hydrograph from CP042 with runoff hydrograph from 043

344 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***

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

                        HYDROGRAPH AT STATION    CP043

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    6720.     12.70                1166.        311.        299.        299.
                        (INCHES)    1.530      1.633       1.633       1.633
                         (AC-FT)     578.        617.        617.        617.

                        CUMULATIVE AREA =    7.09 SQ MI


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


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            *            *
345 KK      *    R046-1  *
            *            *
            **************
                           Route combined hydrograph from CP043 to CP046

               HYDROGRAPH ROUTING DATA

347 RS          STORAGE ROUTING
                      NSTPS           4  NUMBER OF SUBREACHES
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                    ITYP        FLOW  TYPE OF INITIAL CONDITION
                  RSVRIC       -1.00  INITIAL CONDITION
                       X         .00 WORKING R AND D COEFFICIENT

 348 RC          NORMAL DEPTH CHANNEL
                     ANL        .045  LEFT OVERBANK N-VALUE
                    ANCH        .035  MAIN CHANNEL N-VALUE
                     ANR        .045  RIGHT OVERBANK N-VALUE
                   RLNTH       2845.  REACH LENGTH
                     SEL       .0150  ENERGY SLOPE
                   ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 350 RY        ELEVATION   2300.00   2288.00   2288.00   2286.00   2286.00   2288.00   2288.00   2302.00
 349 RX        DISTANCE    9425.00   9601.00   9923.00   9945.00  10019.00  10043.00  10267.00  10435.00

                                                          ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

           STORAGE        .00      4.60     10.27     35.80     73.81    113.06    153.55    195.27    238.23    282.42
           OUTFLOW        .00    304.39   1022.54   2988.66   7644.51  14316.07  22761.18  32851.81  44508.63  57679.07
         ELEVATION    2286.00   2286.84   2287.68   2288.53   2289.37   2290.21   2291.05   2291.89   2292.74   2293.58

           STORAGE     327.84    374.50    422.40    471.53    521.89    573.49    626.33    680.35    735.06    790.33
           OUTFLOW   72327.22  88428.42 105966.00 124929.20 145311.60 167110.60 190325.90 215531.00 243137.20 272184.30
         ELEVATION    2294.42   2295.26   2296.10   2296.95   2297.79   2298.63   2299.47   2300.31   2301.16   2302.00


 *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    14316. TO   272184.
                 THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                 THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R046-1

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                              (CFS)
+    6583.     12.83          1166.        311.        299.        299.
                        (INCHES)      1.530       1.632       1.633       1.633
                         (AC-FT)       578.        617.        617.        617.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
       16.     12.83             3.          1.          1.          1.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2289.18     12.83       2287.19     2286.35     2286.34     2286.34

                        CUMULATIVE AREA =    7.09 SQ MI


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


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           *            *
 351 KK    *       044  *
           *            *
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                        SUB-BASIN 044
                        24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                        THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                          L = 2.99  Kb = .039  Adj. Slope =  240.0

              SUBBASIN RUNOFF DATA

 356 BA         SUBBASIN CHARACTERISTICS
                     TAREA        1.40  SUBBASIN AREA

                PRECIPITATION DATA

  14 PB               STORM        4.27  BASIN TOTAL PRECIPITATION

  14 PI           INCREMENTAL PRECIPITATION PATTERN
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

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357 LG          GREEN AND AMPT LOSS RATE
                     STRTL          .15  STARTING LOSS
                       DTH          .39  MOISTURE DEFICIT
                      PSIF         5.80  WETTING FRONT SUCTION
                     XKSAT          .17  HYDRAULIC CONDUCTIVITY
                     RTIMP         5.00  PERCENT IMPERVIOUS AREA

358 UC          CLARK UNITGRAPH
                         TC          .42  TIME OF CONCENTRATION
                          R          .28  STORAGE COEFFICIENT

359 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                   100.0
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***

UNIT HYDROGRAPH PARAMETERS

CLARK	TC=	.42 HR,	R=	.28 HR
SNYDER	TP=	.35 HR,	CP=	.77

UNIT HYDROGRAPH
52 END-OF-PERIOD ORDINATES

37.	97.	144.	198.	265.	382.	671.	1167.	1712.	2044.
2071.	1967.	1824.	1643.	1457.	1292.	1146.	1017.	902.	800.
709.	629.	558.	495.	439.	389.	345.	306.	271.	241.
213.	189.	168.	149.	132.	117.	104.	92.	82.	72.
64.	57.	51.	45.	40.	35.	31.	28.	25.	22.
19.	17.								

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

HYDROGRAPH AT STATION 044

TOTAL RAINFALL = 4.27, TOTAL LOSS = 2.67, TOTAL EXCESS = 1.60

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  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                              (CFS)
+    2207.      12.27                231.         60.         58.         58.
                          (INCHES)  1.531       1.593       1.593       1.593
                          (AC-FT)   114.         119.        119.        119.

                          CUMULATIVE AREA =    1.40 SQ MI


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


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            *            *
 361 KK     *    R046-2  *
            *            *
            **************
                          Route runoff hydrograph from 044 to CP046

               HYDROGRAPH ROUTING DATA

 363 RS          STORAGE ROUTING
                      NSTPS          4  NUMBER OF SUBREACHES
                       ITYP       FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC     -1.00  INITIAL CONDITION
                           X       .00 WORKING R AND D COEFFICIENT

 364 RC          NORMAL DEPTH CHANNEL
                        ANL       .045  LEFT OVERBANK N-VALUE
                       ANCH       .035  MAIN CHANNEL N-VALUE
                        ANR       .045  RIGHT OVERBANK N-VALUE
                      RLNTH      1882.  REACH LENGTH
                        SEL      .0160  ENERGY SLOPE
                      ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 366 RY        ELEVATION   2300.00   2288.00   2288.00   2286.00   2286.00   2288.00   2288.00   2302.00
 365 RX        DISTANCE    9425.00   9601.00   9923.00   9945.00  10019.00  10043.00  10267.00  10435.00
                                                                   ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

           STORAGE        .00      3.04      6.79     23.68     48.83     74.79    101.57    129.17    157.59    186.82
           OUTFLOW        .00    314.37   1056.07   3086.67   7895.22  14785.57  23507.65  33929.21  45968.32  59570.69
         ELEVATION    2286.00   2286.84   2287.68   2288.53   2289.37   2290.21   2291.05   2291.89   2292.74   2293.58

           STORAGE     216.87    247.74    279.42    311.92    345.24    379.37    414.32    450.06    486.25    522.81
           OUTFLOW   74699.23  91328.48 109441.20 129026.30 150077.20 172591.00 196567.80 222599.40 251111.00 281110.70
         ELEVATION    2294.42   2295.26   2296.10   2296.95   2297.79   2298.63   2299.47   2300.31   2301.16   2302.00


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      314. TO   281111.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                          HYDROGRAPH AT STATION   R046-2

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                              (CFS)
+    2118.      12.37                231.         60.         58.         58.
                          (INCHES)  1.531       1.593       1.593       1.593
                          (AC-FT)   114.         119.        119.        119.

  PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
        4.     12.37                  0.          0.          0.          0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2288.12     12.37              2286.35     2286.09     2286.08     2286.08

                          CUMULATIVE AREA =    1.40 SQ MI


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


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            *            *
 367 KK     *       046  *
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SUB-BASIN 046
24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
THIS BASIN USED RAINFALL REDUCTION FACTOR OF .928
L = .67 Kb = .055 Adj. Slope = 101.0

SUBBASIN RUNOFF DATA

372 BA SUBBASIN CHARACTERISTICS
TAREA .11 SUBBASIN AREA

PRECIPITATION DATA

14 PB STORM 4.27 BASIN TOTAL PRECIPITATION

14 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

373 LG GREEN AND AMPT LOSS RATE

STRTL	.15	STARTING LOSS
DTH	.36	MOISTURE DEFICIT
PSIF	5.10	WETTING FRONT SUCTION
XKSAT	.23	HYDRAULIC CONDUCTIVITY
RTIMP	3.00	PERCENT IMPERVIOUS AREA

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 374 UC          CLARK UNITGRAPH
                          TC          .29  TIME OF CONCENTRATION
                           R          .24  STORAGE COEFFICIENT

 375 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                       .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                    100.0

                                                                  ***

                                                        UNIT HYDROGRAPH PARAMETERS
                                                 CLARK   TC=   .29 HR,       R=   .24 HR
                                                SNYDER   TP=   .24 HR,      CP=   .69

                                                            UNIT HYDROGRAPH
                                                        43 END-OF-PERIOD ORDINATES
                 5.       13.       20.       33.       70.      141.      196.      203.      190.      169.
               146.      127.      110.       96.       83.       72.       63.       54.       47.       41.
                36.       31.       27.       23.       20.       18.       15.       13.       11.       10.
                 9.        8.        7.        6.        5.        4.        4.        3.        3.        2.
                 2.        2.        2.

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

                          HYDROGRAPH AT STATION      046

    TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.80, TOTAL EXCESS =    1.47

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                           (CFS)
+     192.     12.17                     17.          4.          4.          4.
                         (INCHES)     1.429       1.466       1.466       1.466
                          (AC-FT)        8.          9.          9.          9.

                         CUMULATIVE AREA =     .11 SQ MI


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


            **************
            *            *
 377 KK     *     CP046  *
            *            *
            **************
                           Combine routed hydrographs from CP042 and 044 with runoff hydrograph from
                           046

 380 HC          HYDROGRAPH COMBINATION
                       ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                          HYDROGRAPH AT STATION    CP046

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                           (CFS)
+    7150.     12.80                   1412.        375.        361.        361.
                         (INCHES)     1.527       1.624       1.624       1.624
                          (AC-FT)      700.        745.        745.        745.

                         CUMULATIVE AREA =    8.60 SQ MI


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


            **************
            *            *
 381 KK     *    R051-1  *
            *            *
            **************
                           Route combined hydrograph from CP046 to CP051

               HYDROGRAPH ROUTING DATA

 383 RS          STORAGE ROUTING
                       NSTPS           2  NUMBER OF SUBREACHES
                        ITYP        FLOW  TYPE OF INITIAL CONDITION
                       RSVRIC       -1.00  INITIAL CONDITION
                            X         .00 WORKING R AND D COEFFICIENT

 384 RC          NORMAL DEPTH CHANNEL
                         ANL        .045  LEFT OVERBANK N-VALUE
                        ANCH        .035  MAIN CHANNEL N-VALUE
                         ANR        .045  RIGHT OVERBANK N-VALUE
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                    RLNTH        1557.  REACH LENGTH
                      SEL        .0170  ENERGY SLOPE
                    ELMAX           .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
386 RY       ELEVATION   2275.00   2261.00   2262.00   2260.00   2260.00   2263.00   2264.00   2275.00
385 RX       DISTANCE    9822.00   9952.00   9976.00   9977.00  10023.00  10046.00  10356.00  10509.00

                                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.39      3.16      5.77      8.97     17.13     29.52     42.45     55.90     69.86
          OUTFLOW        .00    175.45    580.60   1264.40   2280.04   4032.57   7248.55  11658.77  17126.96  23592.90
        ELEVATION    2260.00   2260.79   2261.58   2262.37   2263.16   2263.95   2264.74   2265.53   2266.32   2267.11

          STORAGE      84.34     99.34    114.85    130.88    147.43    164.49    182.07    200.17    218.78    237.91
          OUTFLOW   31022.00  39393.51  48695.23  58920.66  70067.29  82135.57  95128.18 109049.50 123905.30 139706.00
        ELEVATION    2267.90   2268.69   2269.47   2270.26   2271.05   2271.84   2272.63   2273.42   2274.21   2275.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    11659. TO    139706.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R051-1

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                              (CFS)
+    7079.     12.87          1412.        375.        361.        361.
                         (INCHES)   1.526       1.624       1.624       1.624
                          (AC-FT)    700.        744.        745.        745.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                     6-HR        24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
      14.      12.87                 3.          1.          1.          1.

  PEAK STAGE    TIME                         MAXIMUM AVERAGE STAGE
                                     6-HR        24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2264.70     12.87            2261.89     2260.57     2260.55     2260.55

                        CUMULATIVE AREA =    8.60 SQ MI


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


            **************
            *            *
387 KK      *       048  *
            *            *
            **************
                        SUB-BASIN 048
                        24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                        THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                          L =  .43  Kb = .059  Adj. Slope =  112.0

              SUBBASIN RUNOFF DATA

392 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .06  SUBBASIN AREA

                PRECIPITATION DATA

 14 PB                STORM        4.27  BASIN TOTAL PRECIPITATION

 14 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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393 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .15  STARTING LOSS
                       DTH         .35  MOISTURE DEFICIT
                      PSIF        4.90  WETTING FRONT SUCTION
                     XKSAT         .25  HYDRAULIC CONDUCTIVITY
                     RTIMP        3.00  PERCENT IMPERVIOUS AREA

394 UC          CLARK UNITGRAPH
                        TC         .22  TIME OF CONCENTRATION
                         R         .19  STORAGE COEFFICIENT

395 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                   100.0

                                                   ***

                                                UNIT HYDROGRAPH PARAMETERS
                                          CLARK   TC=    .22 HR,       R=    .19 HR
                                         SNYDER   TP=    .20 HR,      CP=    .70

                                                UNIT HYDROGRAPH
                                           34 END-OF-PERIOD ORDINATES
                 4.       10.       19.       45.       96.      129.      124.      108.       90.       75.
                63.       53.       44.       37.       31.       26.       21.       18.       15.       13.
                10.        9.        7.        6.        5.        4.        4.        3.        2.        2.
                 2.        1.        1.        1.

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

                         HYDROGRAPH AT STATION      048

    TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.81, TOTAL EXCESS =    1.46

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)        (HR)
                                    (CFS)
+     108.      12.13                  9.          2.          2.          2.
                                 (INCHES)      1.412       1.449       1.449       1.449
                                  (AC-FT)         4.          4.          4.          4.

                         CUMULATIVE AREA =      .06 SQ MI
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              **************
              *            *
397 KK        *      051   *
              *            *
              **************
                             SUB-BASIN 051
                             24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                             THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                               L = 1.41  Kb = .052  Adj. Slope =  128.0

                SUBBASIN RUNOFF DATA

402 BA            SUBBASIN CHARACTERISTICS
                        TAREA          .16  SUBBASIN AREA

                  PRECIPITATION DATA

 14 PB                  STORM         4.27  BASIN TOTAL PRECIPITATION

 14 PI              INCREMENTAL PRECIPITATION PATTERN
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 403 LG         GREEN AND AMPT LOSS RATE
                     STRTL        .15  STARTING LOSS
                       DTH        .39  MOISTURE DEFICIT
                      PSIF       6.20  WETTING FRONT SUCTION
                     XKSAT        .15  HYDRAULIC CONDUCTIVITY
                     RTIMP       3.00  PERCENT IMPERVIOUS AREA

 404 UC         CLARK UNITGRAPH
                        TC        .40  TIME OF CONCENTRATION
                         R        .49  STORAGE COEFFICIENT

 405 UA         ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                   100.0

                                                   ***

                                                UNIT HYDROGRAPH PARAMETERS
                                         CLARK   TC=   .40 HR,       R=   .49 HR
                                        SNYDER   TP=   .37 HR,      CP=   .54

                                                UNIT HYDROGRAPH
                                            86 END-OF-PERIOD ORDINATES
                 3.        7.       11.       15.       21.       31.       56.       98.      136.      156.
               161.      158.      152.      142.      132.      124.      116.      108.      101.       95.
                88.       83.       77.       72.       67.       63.       59.       55.       51.       48.
                45.       42.       39.       37.       34.       32.       30.       28.       26.       24.
                23.       21.       20.       19.       17.       16.       15.       14.       13.       12.
                12.       11.       10.       10.        9.        8.        8.        7.        7.        6.
                 6.        6.        5.        5.        5.        4.        4.        4.        3.        3.
                 3.        3.        3.        2.        2.        2.        2.        2.        2.        2.
                 2.        1.        1.        1.        1.        1.

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

                        HYDROGRAPH AT STATION      051

     TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.69, TOTAL EXCESS =    1.58

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)        (HR)
                                    (CFS)
+     192.      12.27                 27.          7.          7.          7.
                                 (INCHES)      1.534       1.571       1.571       1.571
                                  (AC-FT)        13.         14.         14.         14.

                                 CUMULATIVE AREA =     .16 SQ MI


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

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 407 KK          *    CP051   *
                 *            *
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                          Combine routed hydrograph from CP046 with runoff hydrographs from 048 and 051

 409 HC          HYDROGRAPH COMBINATION
                       ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                   ***

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

                        HYDROGRAPH AT STATION    CP051

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)        (HR)
                                    (CFS)
+    7153.      12.87                1447.        384.        370.        370.
                                 (INCHES)      1.526       1.621       1.622       1.622
                                  (AC-FT)       717.        763.        763.        763.

                                 CUMULATIVE AREA =    8.82 SQ MI


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

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 410 KK          *   R053-1   *
                 *            *
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                    Route combined hydrograph from CP051 to CP053

            HYDROGRAPH ROUTING DATA

412 RS        STORAGE ROUTING
                   NSTPS           1  NUMBER OF SUBREACHES
                    ITYP        FLOW  TYPE OF INITIAL CONDITION
                  RSVRIC       -1.00  INITIAL CONDITION
                       X         .00 WORKING R AND D COEFFICIENT

413 RC        NORMAL DEPTH CHANNEL
                     ANL        .045  LEFT OVERBANK N-VALUE
                    ANCH        .035  MAIN CHANNEL N-VALUE
                     ANR        .045  RIGHT OVERBANK N-VALUE
                   RLNTH       1681.  REACH LENGTH
                     SEL       .0300  ENERGY SLOPE
                   ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                      --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
415 RY      ELEVATION  2249.00   2245.00   2245.00   2238.00   2238.00   2239.00   2239.00   2242.00
414 RX      DISTANCE   9910.00   9935.00   9963.00   9987.00  10041.00  10046.00  10075.00  10085.00

                                                   ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.26      2.81      4.92      7.11      9.40     11.77     14.23     16.75     19.32
          OUTFLOW        .00    162.41    535.30   1165.96   2016.62   3065.61   4301.85   5722.16   7355.02   9162.64
        ELEVATION    2238.00   2238.58   2239.16   2239.74   2240.32   2240.89   2241.47   2242.05   2242.63   2243.21

          STORAGE      21.93     24.58     27.28     30.61     34.07     37.62     41.24     44.95     48.74     52.61
          OUTFLOW   11140.55  13285.33  15594.36  18301.48  21279.04  24488.79  27923.77  31580.25  35456.09  39550.02
        ELEVATION    2243.79   2244.37   2244.95   2245.53   2246.10   2246.68   2247.26   2247.84   2248.42   2249.00


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     9163. TO    39550.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                      HYDROGRAPH AT STATION   R053-1

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+    7142.     12.87                1447.        384.        370.        370.
                         (INCHES)   1.525       1.621       1.621       1.621
                          (AC-FT)    717.        762.        762.        762.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
      16.      12.87                   5.          1.          1.          1.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2242.56     12.87               2239.58     2238.48     2238.46     2238.46

                        CUMULATIVE AREA =    8.82 SQ MI


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


            **************
            *            *
 416 KK     *       053  *
            *            *
            **************
                        SUB-BASIN 053
                        24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                        THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                          L =  .66  Kb = .056  Adj. Slope =  126.0

              SUBBASIN RUNOFF DATA

 421 BA         SUBBASIN CHARACTERISTICS
                     TAREA         .09  SUBBASIN AREA

                PRECIPITATION DATA

  14 PB              STORM        4.27  BASIN TOTAL PRECIPITATION

  14 PI           INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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422 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .15  STARTING LOSS
                        DTH         .37  MOISTURE DEFICIT
                       PSIF        6.60  WETTING FRONT SUCTION
                      XKSAT         .13  HYDRAULIC CONDUCTIVITY
                      RTIMP        3.00  PERCENT IMPERVIOUS AREA

423 UC          CLARK UNITGRAPH
                         TC         .26  TIME OF CONCENTRATION
                          R         .23  STORAGE COEFFICIENT

424 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                       .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                    100.0

                                                  ***

                                                UNIT HYDROGRAPH PARAMETERS
                                         CLARK   TC=   .26 HR,       R=   .23 HR
                                        SNYDER   TP=   .23 HR,      CP=   .69

                                                  UNIT HYDROGRAPH
                                            41 END-OF-PERIOD ORDINATES
                     4.       12.       20.       39.       91.      156.      183.      175.      156.      134.
                   116.      100.       86.       75.       64.       56.       48.       41.       36.       31.
                    27.       23.       20.       17.       15.       13.       11.       10.        8.        7.
                     6.        5.        5.        4.        3.        3.        3.        2.        2.        2.
                     1.
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     ***            ***            ***            ***            ***

                    HYDROGRAPH AT STATION      053

   TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.63, TOTAL EXCESS =    1.64

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
+   (CFS)       (HR)                 6-HR       24-HR       72-HR     24.97-HR
                                   (CFS)
+     175.      12.13                16.          4.          4.          4.
                                (INCHES)       1.594       1.631       1.631       1.631
                                 (AC-FT)         8.          8.          8.          8.

                    CUMULATIVE AREA =     .09 SQ MI


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


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            *            *
 426 KK     *    CP053   *
            *            *
            **************
                    Combine routed hydrographs from CP051 with runoff hydrograph from 053

 428 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

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

                    HYDROGRAPH AT STATION    CP053

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
+   (CFS)       (HR)                 6-HR       24-HR       72-HR     24.97-HR
                                   (CFS)
+    7157.      12.87               1463.        389.        373.        373.
                                (INCHES)       1.526       1.621       1.621       1.621
                                 (AC-FT)       725.        771.        771.        771.

                    CUMULATIVE AREA =    8.91 SQ MI


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


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            *            *
 429 KK     *   R055-1   *
            *            *
            **************
                    Route combined hydrograph from CP053 to CP055

            HYDROGRAPH ROUTING DATA

 431 RS          STORAGE ROUTING
                      NSTPS          1  NUMBER OF SUBREACHES
                       ITYP       FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC      -1.00  INITIAL CONDITION
                          X        .00 WORKING R AND D COEFFICIENT

 432 RC          NORMAL DEPTH CHANNEL
                        ANL       .045  LEFT OVERBANK N-VALUE
                       ANCH       .035  MAIN CHANNEL N-VALUE
                        ANR       .045  RIGHT OVERBANK N-VALUE
                      RLNTH       784.  REACH LENGTH
                        SEL      .0190  ENERGY SLOPE
                      ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 434 RY     ELEVATION   2208.00   2202.00   2200.00   2197.00   2199.00   2200.00   2199.00   2208.00
 433 RX     DISTANCE     111.00    154.00    304.00    389.00    510.00    725.00    836.00    937.00

                                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .27      1.07      2.41      4.53      8.69     14.48     20.83     27.69     35.05
          OUTFLOW        .00     38.21    242.59    715.24   1417.61   2839.03   5983.19  10362.77  15810.12  22358.68
        ELEVATION    2197.00   2197.58   2198.16   2198.74   2199.32   2199.89   2200.47   2201.05   2201.63   2202.21

          STORAGE      42.60     50.27     58.04     65.92     73.92     82.03     90.24     98.57    107.01    115.56
          OUTFLOW   30008.63  38626.77  48170.81  58608.81  69915.68  82071.25  95058.98 108865.20 123478.40 138889.00
        ELEVATION    2202.79   2203.37   2203.95   2204.53   2205.10   2205.68   2206.26   2206.84   2207.42   2208.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    10363. TO   138889.
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THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

HYDROGRAPH AT STATION R055-1

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.97-HR
+ (CFS)	(HR)					
		(CFS)				
+ 7136.	12.90		1463.	388.	373.	373.
		(INCHES)	1.526	1.621	1.621	1.621
		(AC-FT)	725.	770.	770.	770.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	24.97-HR
+ (AC-FT)	(HR)				
16.	12.90	4.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	24.97-HR
+ (FEET)	(HR)				
2200.63	12.90	2198.82	2197.77	2197.74	2197.74

CUMULATIVE AREA = 8.91 SQ MI

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              **************
              *            *
435 KK        *       055  *
              *            *
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SUB-BASIN 055
24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
THIS BASIN USED RAINFALL REDUCTION FACTOR OF .928
L = 2.43 Kb = .047 Adj. Slope = 125.0

SUBBASIN RUNOFF DATA

440 BA SUBBASIN CHARACTERISTICS
TAREA .37 SUBBASIN AREA

PRECIPITATION DATA

14 PB STORM 4.27 BASIN TOTAL PRECIPITATION

14 PI INCREMENTAL PRECIPITATION PATTERN

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441 LG GREEN AND AMPT LOSS RATE

STRTL	.15	STARTING LOSS
DTH	.40	MOISTURE DEFICIT
PSIF	6.00	WETTING FRONT SUCTION
XKSAT	.16	HYDRAULIC CONDUCTIVITY
RTIMP	5.00	PERCENT IMPERVIOUS AREA

442 UC CLARK UNITGRAPH

TC	.54	TIME OF CONCENTRATION
R	.67	STORAGE COEFFICIENT

443 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
100.0									

***

UNIT HYDROGRAPH PARAMETERS

CLARK TC= .54 HR, R= .67 HR

SNYDER TP= .48 HR, CP= .52

UNIT HYDROGRAPH

117 END-OF-PERIOD ORDINATES

3.	9.	14.	18.	23.	30.	39.	52.	82.	129.
184.	231.	256.	265.	264.	261.	253.	241.	230.	219.
208.	198.	188.	179.	170.	162.	154.	147.	140.	133.
126.	120.	114.	109.	104.	99.	94.	89.	85.	81.
77.	73.	70.	66.	63.	60.	57.	54.	52.	49.
47.	44.	42.	40.	38.	36.	35.	33.	31.	30.
28.	27.	26.	24.	23.	22.	21.	20.	19.	18.
17.	16.	16.	15.	14.	13.	13.	12.	12.	11.
11.	10.	10.	9.	9.	8.	8.	7.	7.	7.
6.	6.	6.	5.	5.	5.	5.	5.	4.	4.
4.	4.	4.	3.	3.	3.	3.	3.	3.	2.
2.	2.	2.	2.	2.	2.	2.			

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

HYDROGRAPH AT STATION 055

TOTAL RAINFALL = 4.27, TOTAL LOSS = 2.66, TOTAL EXCESS = 1.61

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.97-HR
+ (CFS)	(HR)					
		(CFS)				
+ 338.	12.37		61.	16.	15.	15.
		(INCHES)	1.540	1.601	1.602	1.602
		(AC-FT)	30.	31.	31.	31.

CUMULATIVE AREA = .37 SQ MI

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        *            *
445 KK  *   CP055    *
        *            *
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Combine routed hydrograph from CP053 with runoff hydrograph from 055

447 HC HYDROGRAPH COMBINATION

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                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                      HYDROGRAPH AT STATION    CP055

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+    7319.     12.90                1523.        404.        389.        389.
                        (INCHES)    1.526       1.620       1.620       1.620
                         (AC-FT)     755.        802.        802.        802.

                       CUMULATIVE AREA =    9.28 SQ MI


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


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            *            *
 448 KK     *    R068-1  *
            *            *
            **************
                         Route combined hydrograph from CP055 to CP068

              HYDROGRAPH ROUTING DATA

 450 RS         STORAGE ROUTING
                      NSTPS           2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC      -1.00  INITIAL CONDITION
                           X        .00 WORKING R AND D COEFFICIENT

 451 RC         NORMAL DEPTH CHANNEL
                        ANL        .045  LEFT OVERBANK N-VALUE
                       ANCH        .035  MAIN CHANNEL N-VALUE
                        ANR        .045  RIGHT OVERBANK N-VALUE
                      RLNTH       1728.  REACH LENGTH
                        SEL       .0170  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 453 RY        ELEVATION   2208.00   2202.00   2200.00   2197.00   2199.00   2200.00   2199.00   2208.00
 452 RX        DISTANCE     111.00    154.00    304.00    389.00    510.00    725.00    836.00    937.00

                                                          ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .59      2.36      5.31      9.99     19.15     31.93     45.91     61.04     77.26
          OUTFLOW        .00     36.14    229.47    676.55   1340.93   2685.46   5659.53   9802.20  14954.88  21149.19
        ELEVATION    2197.00   2197.58   2198.16   2198.74   2199.32   2199.89   2200.47   2201.05   2201.63   2202.21

          STORAGE      93.90    110.79    127.92    145.30    162.92    180.79    198.90    217.26    235.86    254.70
          OUTFLOW   28385.32  36537.27  45565.02  55438.39  66133.62  77631.63  89916.80 102976.10 116798.90 131375.80
        ELEVATION    2202.79   2203.37   2203.95   2204.53   2205.10   2205.68   2206.26   2206.84   2207.42   2208.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    14955. TO   131376.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                      HYDROGRAPH AT STATION   R068-1

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                            (CFS)
+    7280.     12.93                1523.        404.        388.        388.
                        (INCHES)    1.526       1.620       1.620       1.620
                         (AC-FT)     755.        801.        801.        801.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
       19.     12.93                  5.          1.          1.          1.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2200.70     12.93               2198.88     2197.80     2197.77     2197.77

                       CUMULATIVE AREA =    9.28 SQ MI
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              *            *
454 KK        *      058   *
              *            *
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SUB-BASIN 058
24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
THIS BASIN USED RAINFALL REDUCTION FACTOR OF .928
L = 2.86 Kb = .038 Adj. Slope = 120.0

SUBBASIN RUNOFF DATA

459 BA SUBBASIN CHARACTERISTICS
TAREA 1.76 SUBBASIN AREA

PRECIPITATION DATA

14 PB STORM 4.27 BASIN TOTAL PRECIPITATION

14 PI INCREMENTAL PRECIPITATION PATTERN

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460 LG          GREEN AND AMPT LOSS RATE
                      STRTL        .15  STARTING LOSS
                        DTH        .40  MOISTURE DEFICIT
                       PSIF       6.00  WETTING FRONT SUCTION
                      XKSAT        .16  HYDRAULIC CONDUCTIVITY
                      RTIMP       4.00  PERCENT IMPERVIOUS AREA

461 UC          CLARK UNITGRAPH
                         TC        .52  TIME OF CONCENTRATION
                          R        .30  STORAGE COEFFICIENT

462 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                   100.0

                                                    ***

                                                UNIT HYDROGRAPH PARAMETERS
                                         CLARK   TC=   .52 HR,       R=   .30 HR
                                        SNYDER   TP=   .44 HR,      CP=   .85

                                                 UNIT HYDROGRAPH
                                            59 END-OF-PERIOD ORDINATES
                34.       93.      134.      175.      225.      284.      375.      523.      838.     1322.
              1857.     2196.     2269.     2228.     2113.     1976.     1804.     1616.     1448.     1298.
              1163.     1042.      934.      837.      750.      672.      602.      539.      483.      433.
               388.      348.      312.      279.      250.      224.      201.      180.      161.      144.
               129.      116.      104.       93.       83.       75.       67.       60.       54.       48.
                43.       39.       35.       31.       28.       25.       22.       20.       18.

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

                     HYDROGRAPH AT STATION      058

   TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.69, TOTAL EXCESS =    1.58

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
+   (CFS)      (HR)                 6-HR       24-HR       72-HR     24.97-HR
                                   (CFS)
+    2569.     12.33                288.         74.         71.         71.
                                (INCHES)       1.526       1.575       1.575       1.575
                                 (AC-FT)        143.        147.        148.        148.

                     CUMULATIVE AREA =    1.76 SQ MI


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

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                 *            *
464 KK           *    R064-1  *
                 *            *
                 **************
                               Route runoff hydrograph from 058

                 HYDROGRAPH ROUTING DATA

466 RS             STORAGE ROUTING
                        NSTPS          7  NUMBER OF SUBREACHES
                        ITYP       FLOW  TYPE OF INITIAL CONDITION
                       RSVRIC      -1.00  INITIAL CONDITION
                            X        .00 WORKING R AND D COEFFICIENT

467 RC             NORMAL DEPTH CHANNEL
                         ANL       .045  LEFT OVERBANK N-VALUE
                        ANCH       .035  MAIN CHANNEL N-VALUE
                         ANR       .045  RIGHT OVERBANK N-VALUE
                       RLNTH      7694.  REACH LENGTH
                         SEL      .0230  ENERGY SLOPE
                       ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
469 RY        ELEVATION   2323.00   2321.00   2319.00   2319.00   2320.00   2321.00   2323.00   2325.00
468 RX        DISTANCE        .00     76.00    102.00    111.00    117.00    118.00    168.00    205.00

                                                    ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .67      1.67      3.01      4.65      6.54      8.68     11.25     14.88     19.62
          OUTFLOW        .00      9.78     35.31     78.03    143.67    230.48    338.65    459.52    618.19    829.03
        ELEVATION    2319.00   2319.32   2319.63   2319.95   2320.26   2320.58   2320.89   2321.21   2321.53   2321.84

          STORAGE      25.48     32.44     40.50     49.64     59.28     69.24     79.53     90.14    101.08    112.35
          OUTFLOW    1099.51   1437.19   1849.40   2371.41   3034.28   3778.27   4602.60   5506.89   6491.07   7555.25
        ELEVATION    2322.16   2322.47   2322.79   2323.10   2323.42   2323.74   2324.05   2324.37   2324.68   2325.00

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

                     HYDROGRAPH AT STATION   R064-1
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 PEAK FLOW      TIME                              MAXIMUM AVERAGE FLOW
                                         6-HR        24-HR       72-HR       24.97-HR
+   (CFS)       (HR)
                              (CFS)
+    2367.      12.53                    288.         74.         71.           71.
                            (INCHES)    1.525       1.574       1.574         1.574
                            (AC-FT)      143.        147.        147.          147.

 PEAK STORAGE   TIME                              MAXIMUM AVERAGE STORAGE
                                         6-HR        24-HR       72-HR       24.97-HR
+  (AC-FT)      (HR)
        7.      12.53                      1.          0.          0.            0.

 PEAK STAGE     TIME                              MAXIMUM AVERAGE STAGE
                                         6-HR        24-HR       72-HR       24.97-HR
+   (FEET)      (HR)
   2323.10      12.53                 2320.02     2319.34     2319.32       2319.32

                          CUMULATIVE AREA =     1.76 SQ MI


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

              **************
              *            *
 470 KK       *      060   *
              *            *
              **************
                     SUB-BASIN 060
                     24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                     THIS BASIN USED RAINFALL REDUCTION FACTOR OF   .928
                       L = 3.39  Kb = .043  Adj. Slope =  152.0

               SUBBASIN RUNOFF DATA

 475 BA         SUBBASIN CHARACTERISTICS
                   TAREA         .78  SUBBASIN AREA

                PRECIPITATION DATA

  14 PB            STORM        4.27  BASIN TOTAL PRECIPITATION

  14 PI          INCREMENTAL PRECIPITATION PATTERN
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476 LG        GREEN AND AMPT LOSS RATE
                    STRTL        .15  STARTING LOSS
                      DTH        .39  MOISTURE DEFICIT
                     PSIF       6.20  WETTING FRONT SUCTION
                    XKSAT        .14  HYDRAULIC CONDUCTIVITY
                    RTIMP       6.00  PERCENT IMPERVIOUS AREA

477 UC        CLARK UNITGRAPH
                       TC        .58  TIME OF CONCENTRATION
                        R        .62  STORAGE COEFFICIENT

478 UA        ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                  .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
               100.0

                                                       ***

                                           UNIT HYDROGRAPH PARAMETERS
                                      CLARK   TC=   .58 HR,         R=   .62 HR
                                     SNYDER   TP=   .51 HR,        CP=   .58

                                                UNIT HYDROGRAPH
                                          110 END-OF-PERIOD ORDINATES
            7.       19.       29.       38.       48.       61.       75.       98.      137.      208.
          311.      428.      521.      570.      587.      582.      573.      557.      532.      504.
          478.      453.      430.      407.      386.      366.      347.      329.      312.      295.
          280.      265.      252.      238.      226.      214.      203.      193.      182.      173.
          164.      155.      147.      140.      132.      125.      119.      113.      107.      101.
           96.       91.       86.       82.       78.       73.       70.       66.       63.       59.
           56.       53.       51.       48.       45.       43.       41.       39.       37.       35.
           33.       31.       30.       28.       27.       25.       24.       23.       21.       20.
           19.       18.       17.       16.       16.       15.       14.       13.       13.       12.
           11.       11.       10.       10.        9.        9.        8.        8.        7.        7.
            7.        6.        6.        6.        5.        5.        5.        5.        4.        4.

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

                    HYDROGRAPH AT STATION       060

      TOTAL RAINFALL =     4.27, TOTAL LOSS =     2.58, TOTAL EXCESS =     1.69

   PEAK FLOW      TIME                         MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR        72-HR      24.97-HR
+   (CFS)         (HR)
                             (CFS)
+     764.        12.40                 135.          35.          34.          34.
                          (INCHES)    1.609        1.682        1.683        1.683
                           (AC-FT)      67.          70.          70.          70.

                        CUMULATIVE AREA =     .78 SQ MI


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

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             *            *
 480 KK      *   R062-1   *
             *            *
             **************
                      Route runoff hydrograph from 060

             HYDROGRAPH ROUTING DATA

 482 RS         STORAGE ROUTING
                     NSTPS           1  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00  WORKING R AND D COEFFICIENT
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483 RC          NORMAL DEPTH CHANNEL
                       ANL        .045  LEFT OVERBANK N-VALUE
                      ANCH        .035  MAIN CHANNEL N-VALUE
                       ANR        .045  RIGHT OVERBANK N-VALUE
                     RLNTH        441.  REACH LENGTH
                       SEL       .0180  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
485 RY        ELEVATION  2328.50   2328.00   2327.00   2327.00   2326.00   2326.00   2327.00   2328.50
484 RX        DISTANCE       .00     20.00     38.00     41.00     45.00     60.00     94.00    128.00

                                                   ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .02       .05       .09       .13       .18       .24       .30       .37       .46
          OUTFLOW        .00      3.15     10.71     22.50     38.67     59.49     85.22    116.17    146.03    192.97
        ELEVATION    2326.00   2326.13   2326.26   2326.39   2326.53   2326.66   2326.79   2326.92   2327.05   2327.18

          STORAGE        .54       .64       .74       .85       .97      1.09      1.22      1.37      1.52      1.69
          OUTFLOW     246.61    307.28    375.26    450.85    534.33    625.98    724.30    831.98    949.90   1078.53
        ELEVATION    2327.32   2327.45   2327.58   2327.71   2327.84   2327.97   2328.11   2328.24   2328.37   2328.50

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      534. TO     1079.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R062-1

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+     761.     12.43                135.         35.         34.         34.
                        (INCHES)    1.609       1.682       1.683       1.683
                         (AC-FT)     67.         70.         70.         70.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
        1.     12.43                  0.          0.          0.          0.

 PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2328.15     12.43              2326.71     2326.25     2326.24     2326.24

                        CUMULATIVE AREA =     .78 SQ MI


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


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            *            *
486 KK      *       062  *
            *            *
            **************
                        SUB-BASIN 062
                        24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                        THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                          L = 2.26  Kb = .043  Adj. Slope =  158.0

              SUBBASIN RUNOFF DATA

491 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .73  SUBBASIN AREA

                PRECIPITATION DATA

 14 PB                STORM        4.27  BASIN TOTAL PRECIPITATION

 14 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00
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492 LG          GREEN AND AMPT LOSS RATE
                     STRTL        .15  STARTING LOSS
                       DTH        .40  MOISTURE DEFICIT
                      PSIF       6.00  WETTING FRONT SUCTION
                     XKSAT        .15  HYDRAULIC CONDUCTIVITY
                     RTIMP       8.00  PERCENT IMPERVIOUS AREA

493 UC          CLARK UNITGRAPH
                        TC        .44  TIME OF CONCENTRATION
                         R        .34  STORAGE COEFFICIENT

494 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                   100.0

                                                   ***

                                              UNIT HYDROGRAPH PARAMETERS
                                       CLARK   TC=    .44 HR,       R=    .34 HR
                                      SNYDER   TP=    .37 HR,      CP=    .71

                                              UNIT HYDROGRAPH
                                         63 END-OF-PERIOD ORDINATES
              15.       40.       60.       82.      110.      155.      248.      418.      661.      852.
             918.      914.      877.      818.      744.      675.      612.      555.      503.      456.
             413.      375.      340.      308.      279.      253.      229.      208.      188.      171.
             155.      140.      127.      115.      105.       95.       86.       78.       71.       64.
              58.       53.       48.       43.       39.       36.       32.       29.       26.       24.
              22.       20.       18.       16.       15.       13.       12.       11.       10.        9.
               8.        7.        7.

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

                     HYDROGRAPH AT STATION      062

   TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.55, TOTAL EXCESS =    1.72

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
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+   (CFS)       (HR)
                          (CFS)
+    1056.      12.27                127.         34.         32.         32.
                         (INCHES)    1.613       1.711       1.712       1.712
                          (AC-FT)     63.         67.         67.         67.

                         CUMULATIVE AREA =     .73 SQ MI


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            **************
            *            *
 496 KK     *    CP062   *
            *            *
            **************
                         Combine routed hydrograph from 060 with runoff hydrograph from 062

 498 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                         HYDROGRAPH AT STATION    CP062

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR       72-HR     24.97-HR
+   (CFS)        (HR)
                          (CFS)
+    1707.      12.33                261.         69.         66.         66.
                         (INCHES)    1.610       1.696       1.697       1.697
                          (AC-FT)    130.        136.        136.        136.

                         CUMULATIVE AREA =    1.51 SQ MI


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


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            *            *
 499 KK     *   R064-2   *
            *            *
            **************
                         Route combined hydrograph from CP062

              HYDROGRAPH ROUTING DATA

 501 RS         STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 502 RC         NORMAL DEPTH CHANNEL
                        ANL        .045  LEFT OVERBANK N-VALUE
                       ANCH        .035  MAIN CHANNEL N-VALUE
                        ANR        .045  RIGHT OVERBANK N-VALUE
                      RLNTH       1554.  REACH LENGTH
                        SEL       .0240  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 504 RY       ELEVATION   2316.00   2316.00   2315.00   2315.00   2316.00   2317.00   2318.00   2319.00
 503 RX       DISTANCE        .00     17.00     23.00     73.00     83.00     90.00     99.00    107.00

                                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .39       .80      1.24      1.70      2.22      2.86      3.50      4.15      4.82
          OUTFLOW        .00     24.88     80.05    159.50    261.21    380.70    537.92    721.34    929.32   1160.80
        ELEVATION    2315.00   2315.21   2315.42   2315.63   2315.84   2316.05   2316.26   2316.47   2316.68   2316.89

          STORAGE       5.49      6.18      6.89      7.60      8.34      9.08      9.84     10.61     11.40     12.20
          OUTFLOW    1423.55   1718.28   2036.46   2377.85   2742.27   3129.69   3539.77   3972.29   4427.11   4904.13
        ELEVATION    2317.10   2317.31   2317.53   2317.74   2317.95   2318.16   2318.37   2318.58   2318.79   2319.00

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

                         HYDROGRAPH AT STATION   R064-2

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR       72-HR     24.97-HR
+   (CFS)        (HR)
                          (CFS)
+    1694.      12.37                261.         69.         66.         66.
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		(INCHES)	1.610	1.696	1.697	1.697
		(AC-FT)	129.	136.	136.	136.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.97-HR
+ (AC-FT)	(HR)				
6.	12.37	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.97-HR
+ (FEET)	(HR)				
2317.30	12.37	2315.59	2315.17	2315.16	2315.16

CUMULATIVE AREA = 1.51 SQ MI

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              *            *
505 KK        *      064   *
              *            *
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SUB-BASIN 064
24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
THIS BASIN USED RAINFALL REDUCTION FACTOR OF .928
L = 1.80 Kb = .046 Adj. Slope = 149.0

SUBBASIN RUNOFF DATA

510 BA SUBBASIN CHARACTERISTICS
TAREA .47 SUBBASIN AREA

PRECIPITATION DATA

14 PB STORM 4.27 BASIN TOTAL PRECIPITATION

14 PI INCREMENTAL PRECIPITATION PATTERN

.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	.01	.01	.01	.01	.01
.01	.01	.03	.04	.04	.04	.04	.04	.04	.04
.01	.01	.01	.01	.01	.01	.01	.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

 511 LG         GREEN AND AMPT LOSS RATE
                     STRTL        .15  STARTING LOSS
                       DTH        .39  MOISTURE DEFICIT
                      PSIF       6.20  WETTING FRONT SUCTION
                     XKSAT        .15  HYDRAULIC CONDUCTIVITY
                     RTIMP       5.00  PERCENT IMPERVIOUS AREA

 512 UC         CLARK UNITGRAPH
                        TC        .40  TIME OF CONCENTRATION
                         R        .33  STORAGE COEFFICIENT

 513 UA         ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                   100.0

                                                   ***

                                              UNIT HYDROGRAPH PARAMETERS
                                       CLARK   TC=   .40 HR,       R=   .33 HR
                                      SNYDER   TP=   .35 HR,      CP=   .69

                                                UNIT HYDROGRAPH
                                           61 END-OF-PERIOD ORDINATES
              11.       29.       43.       61.       84.      121.      218.      384.      538.      615.
             621.      597.      556.      505.      457.      413.      373.      338.      305.      276.
             250.      226.      204.      185.      167.      151.      137.      124.      112.      101.
              91.       83.       75.       68.       61.       55.       50.       45.       41.       37.
              33.       30.       27.       25.       22.       20.       18.       17.       15.       14.
              12.       11.       10.        9.        8.        7.        7.        6.        5.        5.
               4.

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

                     HYDROGRAPH AT STATION      064

    TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.63, TOTAL EXCESS =    1.63

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                                    (CFS)
+     694.     12.27                  80.         21.         20.         20.
                                 (INCHES)      1.565       1.627       1.627       1.627
                                  (AC-FT)       39.         41.         41.         41.

                     CUMULATIVE AREA =     .47 SQ MI


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


            **************
            *            *
 515 KK     *     CP064  *
            *            *
            **************
                       Combine routed hydrographs from 058 and CP062 with runoff hydrograph from
                       064

 518 HC         HYDROGRAPH COMBINATION
                     ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                   ***

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

                     HYDROGRAPH AT STATION    CP064

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                                    (CFS)
+    4244.     12.50                 629.        164.        157.        157.
                                 (INCHES)      1.565       1.630       1.630       1.630
                                  (AC-FT)       312.        325.        325.        325.
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                    CUMULATIVE AREA =    3.74 SQ MI


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


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          *            *
 519 KK   *    R066-1  *
          *            *
          **************
                         Route combined hydrograph from CP064

            HYDROGRAPH ROUTING DATA

 521 RS       STORAGE ROUTING
                   NSTPS          1  NUMBER OF SUBREACHES
                    ITYP       FLOW  TYPE OF INITIAL CONDITION
                  RSVRIC      -1.00  INITIAL CONDITION
                       X        .00 WORKING R AND D COEFFICIENT

 522 RC       NORMAL DEPTH CHANNEL
                     ANL       .045  LEFT OVERBANK N-VALUE
                    ANCH       .035  MAIN CHANNEL N-VALUE
                     ANR       .045  RIGHT OVERBANK N-VALUE
                   RLNTH       934.  REACH LENGTH
                     SEL      .0210  ENERGY SLOPE
                   ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 524 RY       ELEVATION  2281.00   2281.00   2280.00   2280.00   2281.00   2282.00   2283.00   2284.00
 523 RX       DISTANCE       .00     31.00     66.00    104.00    111.00    121.00    129.00    149.00

                                                   ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .19       .42       .69      1.00      1.39      1.90      2.42      2.94      3.48
          OUTFLOW        .00     18.40     61.41    126.66    214.24    310.48    467.25    656.42    875.88   1124.27
        ELEVATION    2280.00   2280.21   2280.42   2280.63   2280.84   2281.05   2281.26   2281.47   2281.68   2281.89

          STORAGE       4.02      4.58      5.14      5.71      6.28      6.87      7.48      8.10      8.75      9.41
          OUTFLOW    1410.84   1735.81   2088.53   2468.48   2875.18   3306.93   3765.90   4252.77   4767.77   5311.19
        ELEVATION    2282.10   2282.31   2282.53   2282.74   2282.95   2283.16   2283.37   2283.58   2283.79   2284.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     2875. TO     5311.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                      HYDROGRAPH AT STATION   R066-1

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                              (CFS)
+    4241.     12.50          629.        164.        157.        157.
                        (INCHES)      1.564       1.630       1.630       1.630
                         (AC-FT)       312.        325.        325.        325.

 PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
                                    6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
        8.     12.50                 2.          0.          0.          0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                    6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
   2283.57     12.50            2280.95     2280.32     2280.31     2280.31

                      CUMULATIVE AREA =    3.74 SQ MI


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


          **************
          *            *
 525 KK   *       066  *
          *            *
          **************
                         SUB-BASIN 066
                         24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                         THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                           L =  .18  Kb = .072  Adj. Slope =  122.0

            SUBBASIN RUNOFF DATA

 530 BA       SUBBASIN CHARACTERISTICS
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TAREA .01 SUBBASIN AREA

PRECIPITATION DATA

14 PB STORM 4.27 BASIN TOTAL PRECIPITATION

14 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.01	.01	.03	.04	.04	.04	.04	.04	.04	.04
.01	.01	.01	.01	.01	.01	.01	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

531 LG GREEN AND AMPT LOSS RATE

STRTL	.15	STARTING LOSS
DTH	.35	MOISTURE DEFICIT
PSIF	4.20	WETTING FRONT SUCTION
XKSAT	.36	HYDRAULIC CONDUCTIVITY
RTIMP	3.00	PERCENT IMPERVIOUS AREA

532 UC CLARK UNITGRAPH

TC	.16	TIME OF CONCENTRATION
R	.22	STORAGE COEFFICIENT

533 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
100.0									

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                                        UNIT HYDROGRAPH PARAMETERS
                                  CLARK   TC=   .16 HR,       R=   .22 HR
                                 SNYDER   TP=   .16 HR,      CP=   .53

                                        UNIT HYDROGRAPH
                                   39 END-OF-PERIOD ORDINATES
          0.       1.       5.      11.      13.      12.      10.       9.       8.       7.
          6.       5.       4.       4.       3.       3.       2.       2.       2.       1.
          1.       1.       1.       1.       1.       1.       1.       0.       0.       0.
          0.       0.       0.       0.       0.       0.       0.       0.       0.

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

                    HYDROGRAPH AT STATION      066

   TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.94, TOTAL EXCESS =    1.33

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                              (CFS)
+     10.      12.07                1.          0.          0.          0.
                           (INCHES)     1.289       1.326       1.326       1.326
                            (AC-FT)        0.          0.          0.          0.

                    CUMULATIVE AREA =     .01 SQ MI


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


          **************
          *            *
535 KK    *     CP066  *
          *            *
          **************
                    Combine routed hydrograph from CP064 with runoff hydrograph from 066

537 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                     ***

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

                    HYDROGRAPH AT STATION    CP066

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                              (CFS)
+    4243.     12.50               630.        164.        158.        158.
                           (INCHES)     1.564       1.629       1.630       1.630
                            (AC-FT)      312.        325.        325.        325.

                    CUMULATIVE AREA =    3.74 SQ MI


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


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          *            *
538 KK    *    R068-2  *
          *            *
          **************
                    Route combined hydrograph from CP066

             HYDROGRAPH ROUTING DATA

540 RS          STORAGE ROUTING
                     NSTPS           4  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

541 RC          NORMAL DEPTH CHANNEL
                       ANL        .045  LEFT OVERBANK N-VALUE
                      ANCH        .035  MAIN CHANNEL N-VALUE
                       ANR        .045  RIGHT OVERBANK N-VALUE
                     RLNTH       3234.  REACH LENGTH
                       SEL       .0250  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
543 RY       ELEVATION  2228.00   2227.00   2227.00   2226.50   2226.50   2227.00   2227.00   2228.00
542 RX       DISTANCE    198.00    224.00    270.00    283.00    684.00    688.00    721.00    769.00
                                                                  ***
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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	2.36	4.73	7.11	9.52	11.93	14.37	17.13	20.08	23.06
OUTFLOW	.00	39.18	124.54	245.07	396.30	575.50	780.76	1016.19	1284.93	1582.74
ELEVATION	2226.50	2226.58	2226.66	2226.74	2226.82	2226.89	2226.97	2227.05	2227.13	2227.21
STORAGE	26.08	29.13	32.22	35.34	38.49	41.68	44.90	48.16	51.45	54.77
OUTFLOW	1908.11	2260.02	2637.71	3040.54	3468.02	3919.71	4395.25	4894.34	5416.68	5962.06
ELEVATION	2227.29	2227.37	2227.45	2227.53	2227.60	2227.68	2227.76	2227.84	2227.92	2228.00

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HYDROGRAPH AT STATION R068-2

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.97-HR
+ (CFS)	(HR)					
		(CFS)				
+ 4181.	12.60		629.	164.	158.	158.
		(INCHES)	1.564	1.628	1.628	1.628
		(AC-FT)	312.	325.	325.	325.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	24.97-HR
+ (AC-FT)	(HR)				
11.	12.60	2.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	24.97-HR
+ (FEET)	(HR)				
2227.73	12.60	2226.79	2226.58	2226.57	2226.57

CUMULATIVE AREA = 3.74 SQ MI

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              **************
              *            *
544 KK        *       068  *
              *            *
              **************
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SUB-BASIN 068
24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
THIS BASIN USED RAINFALL REDUCTION FACTOR OF .928
L = 1.05 Kb = .050 Adj. Slope = 133.0

SUBBASIN RUNOFF DATA

549 BA SUBBASIN CHARACTERISTICS
TAREA .25 SUBBASIN AREA

PRECIPITATION DATA

14 PB STORM 4.27 BASIN TOTAL PRECIPITATION

14 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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550 LG          GREEN AND AMPT LOSS RATE
                      STRTL        .15  STARTING LOSS
                        DTH        .36  MOISTURE DEFICIT
                       PSIF       5.10  WETTING FRONT SUCTION
                      XKSAT        .22  HYDRAULIC CONDUCTIVITY
                      RTIMP       3.00  PERCENT IMPERVIOUS AREA

551 UC          CLARK UNITGRAPH
                         TC        .32  TIME OF CONCENTRATION
                          R        .24  STORAGE COEFFICIENT

552 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                     .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                  100.0

                                                     ***

                                              UNIT HYDROGRAPH PARAMETERS
                                        CLARK   TC=   .32 HR,        R=   .24 HR
                                       SNYDER   TP=   .27 HR,       CP=   .72

                                                   UNIT HYDROGRAPH
                                              45 END-OF-PERIOD ORDINATES
             10.       25.       38.       58.      100.      202.      346.      430.      431.      401.
            357.      311.      271.      236.      205.      179.      156.      135.      118.      103.
             89.       78.       68.       59.       51.       45.       39.       34.       30.       26.
             22.       19.       17.       15.       13.       11.       10.        8.        7.        6.
              6.        5.        4.        4.        3.

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

                    HYDROGRAPH AT STATION      068

   TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.78, TOTAL EXCESS =    1.49

  PEAK FLOW      TIME                      MAXIMUM AVERAGE FLOW
                                  6-HR        24-HR        72-HR      24.97-HR
+   (CFS)        (HR)
                            (CFS)
+     421.      12.20                39.          10.          10.          10.
                          (INCHES)  1.446        1.483        1.483        1.483
                           (AC-FT)    19.          20.          20.          20.

                        CUMULATIVE AREA =     .25 SQ MI


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


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               *            *
554 KK         *    CP068   *
               *            *
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                          Combine routed hydrographs from CP055 and CP066 with runoff hydrograph from
                          068
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557 HC          HYDROGRAPH COMBINATION
                     ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                        HYDROGRAPH AT STATION    CP068

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    9990.     12.90                2190.        578.        555.         555.
                        (INCHES)    1.534       1.619       1.619        1.619
                         (AC-FT)    1086.       1146.       1146.        1146.

                        CUMULATIVE AREA =   13.27 SQ MI


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

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            *            *
558 KK      *    R070-1  *
            *            *
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                          Route combined hydrograph from CP068

               HYDROGRAPH ROUTING DATA

560 RS          STORAGE ROUTING
                     NSTPS           7  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

561 RC          NORMAL DEPTH CHANNEL
                       ANL        .045  LEFT OVERBANK N-VALUE
                      ANCH        .035  MAIN CHANNEL N-VALUE
                       ANR        .045  RIGHT OVERBANK N-VALUE
                     RLNTH       7672.  REACH LENGTH
                       SEL       .0190  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
563 RY        ELEVATION   2130.00   2127.00   2127.00   2125.50   2125.50   2124.00   2124.00   2130.00
562 RX        DISTANCE      65.20    145.60    307.40    320.00    550.30    564.70    809.80    963.50

                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00     13.94     28.49     43.66     59.45     79.04    108.85    139.27    170.28    201.88
          OUTFLOW        .00    165.45    530.95   1055.00   1722.83   2510.37   3728.37   5279.11   7122.69   9238.23
        ELEVATION    2124.00   2124.32   2124.63   2124.95   2125.26   2125.58   2125.89   2126.21   2126.53   2126.84

          STORAGE     238.59    280.71    323.75    367.70    412.58    458.38    505.10    552.73    601.29    650.77
          OUTFLOW   11656.61  14483.25  17665.88  21182.98  25022.35  29175.93  33638.05  38404.60  43472.63  48839.98
        ELEVATION    2127.16   2127.47   2127.79   2128.10   2128.42   2128.74   2129.05   2129.37   2129.68   2130.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    38405. TO    48840.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                        HYDROGRAPH AT STATION   R070-1

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                          (CFS)
+    9712.     13.07                2185.        577.        554.         554.
                        (INCHES)    1.531       1.616       1.616        1.616
                         (AC-FT)    1083.       1144.       1144.        1144.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+  (AC-FT)      (HR)
      30.      13.07                   9.          3.          3.           3.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     24.97-HR
+   (FEET)      (HR)
  2126.90      13.07              2125.10     2124.34     2124.32      2124.32

                        CUMULATIVE AREA =   13.27 SQ MI
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564 KK        *      070   *
              *            *
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                             SUB-BASIN 070
                             24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
                             THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .928
                               L = 2.68  Kb = .043  Adj. Slope =  131.0

                SUBBASIN RUNOFF DATA

569 BA            SUBBASIN CHARACTERISTICS
                        TAREA          .79  SUBBASIN AREA

                  PRECIPITATION DATA

 14 PB                  STORM         4.27  BASIN TOTAL PRECIPITATION

 14 PI              INCREMENTAL PRECIPITATION PATTERN
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570 LG          GREEN AND AMPT LOSS RATE
                      STRTL        .17  STARTING LOSS
                        DTH        .34  MOISTURE DEFICIT
                       PSIF       4.50  WETTING FRONT SUCTION
                      XKSAT        .31  HYDRAULIC CONDUCTIVITY
                      RTIMP       3.00  PERCENT IMPERVIOUS AREA

571 UC          CLARK UNITGRAPH
                         TC        .55  TIME OF CONCENTRATION
                          R        .48  STORAGE COEFFICIENT

572 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                       .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                    100.0

                                                          ***

                                                   UNIT HYDROGRAPH PARAMETERS
                                            CLARK   TC=   .55 HR,       R=   .48 HR
                                           SNYDER   TP=   .47 HR,      CP=   .67

                                                     UNIT HYDROGRAPH
                                             87 END-OF-PERIOD ORDINATES
                 9.       27.       39.       51.       66.       84.      108.      144.      219.      340.
               493.      636.      717.      740.      733.      714.      685.      645.      601.      561.
               523.      488.      455.      424.      396.      369.      344.      321.      299.      279.
               260.      243.      226.      211.      197.      184.      171.      160.      149.      139.
               130.      121.      113.      105.       98.       91.       85.       80.       74.       69.
                64.       60.       56.       52.       49.       46.       42.       40.       37.       34.
                32.       30.       28.       26.       24.       23.       21.       20.       18.       17.
                16.       15.       14.       13.       12.       11.       11.       10.        9.        9.
                 8.        7.        7.        6.        6.        6.        5.

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

                      HYDROGRAPH AT STATION      070

    TOTAL RAINFALL =    4.27, TOTAL LOSS =    2.88, TOTAL EXCESS =    1.39

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                       6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                              (CFS)
+     833.     12.37                  115.         29.         28.         28.
                           (INCHES)  1.344      1.381       1.381       1.381
                            (AC-FT)    57.         58.         58.         58.

                      CUMULATIVE AREA =     .79 SQ MI


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


            **************
            *            *
 574 KK     *     CP070  *
            *            *
            **************
                      Combine routed hydrograph from CP068 with runoff hydrograph from 070

 576 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                      HYDROGRAPH AT STATION    CP070

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                       6-HR       24-HR       72-HR     24.97-HR
+   (CFS)       (HR)
                              (CFS)
+    9940.     13.07                 2293.        606.        583.        583.
                           (INCHES)  1.516      1.603       1.603       1.603
                            (AC-FT)  1137.      1202.       1202.       1202.

                      CUMULATIVE AREA =   14.06 SQ MI

1
                                                   RUNOFF SUMMARY
                                          FLOW IN CUBIC FEET PER SECOND
                                       TIME IN HOURS,  AREA IN SQUARE MILES

                                     PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
        OPERATION        STATION     FLOW    PEAK                                          AREA      STAGE      MAX STAG
+                                                          6-HOUR     24-HOUR     72-HOUR
        HYDROGRAPH AT
+                          005       484.   12.30          69.         18.         17.       .42
        ROUTED TO
```

```
+                    R010-1     480.   12.33      69.      18.      17.     .42
+                                                                          2867.40     12.33
        HYDROGRAPH AT
+                       010     395.   12.30      54.      14.      13.     .34
        2 COMBINED AT
+                     CP010     867.   12.33     123.      32.      30.     .75
        ROUTED TO
+                    R012-1     832.   12.47     123.      31.      30.     .75
+                                                                          2791.28     12.47
        HYDROGRAPH AT
+                       012     344.   12.30      46.      12.      11.     .30
        2 COMBINED AT
+                     CP012    1111.   12.43     169.      43.      42.    1.05
        DIVERSION TO
+                    012OUT     423.   12.43      58.      15.      14.    1.05
        HYDROGRAPH AT
+                      D012     688.   12.43     111.      28.      27.    1.05
        ROUTED TO
+                    R030-1     599.   13.17     111.      28.      27.    1.05
+                                                                          2680.62     13.17
        HYDROGRAPH AT
+                       030     297.   12.43      60.      16.      15.     .35
        2 COMBINED AT
+                    CP030A     731.   13.17     170.      44.      43.    1.40
        HYDROGRAPH AT
+                       015    1766.   12.33     205.      52.      50.    1.27
        ROUTED TO
+                    R022-1    1674.   12.50     205.      52.      50.    1.27
+                                                                          2728.88     12.50
        HYDROGRAPH AT
+                       017     286.   12.27      36.       9.       9.     .22
        2 COMBINED AT
+                    CP022A    1875.   12.47     241.      62.      59.    1.48
        HYDROGRAPH AT
+                       020    1458.   12.20     139.      38.      36.     .76
        ROUTED TO
+                    R022-2    1293.   12.40     139.      38.      36.     .76
+                                                                          2688.05     12.40
        HYDROGRAPH AT
+                       022     340.   12.40      70.      18.      18.     .38
        2 COMBINED AT
+                    CP022B    1633.   12.40     209.      56.      54.    1.14
        2 COMBINED AT
+                     CP022    3445.   12.43     449.     118.     113.    2.63
        HYDROGRAPH AT
+                       024    2481.   12.10     186.      51.      49.    1.02
        ROUTED TO
+                    R026-1    2173.   12.27     186.      51.      49.    1.02
+                                                                          2688.34     12.27
        HYDROGRAPH AT
+                       026     309.   12.27      57.      16.      16.     .27
        2 COMBINED AT
+                    CP026A    2481.   12.27     243.      67.      64.    1.29
        2 COMBINED AT
+                     CP026    5412.   12.40     692.     185.     178.    3.91
        ROUTED TO
+                    R030-2    5366.   12.43     692.     185.     178.    3.91
+                                                                          2597.13     12.43
        2 COMBINED AT
+                     CP030    5666.   12.43     861.     229.     220.    5.32
        ROUTED TO
+                    R038-1    5638.   12.47     861.     229.     220.    5.32
+                                                                          2576.58     12.47
        HYDROGRAPH AT
+                       034     444.   12.27      56.      16.      15.     .30
        ROUTED TO
+                    R036-1     415.   12.47      56.      16.      15.     .30
```

+									2643.06	12.47
+	HYDROGRAPH AT	036	463.	12.17	51.	14.	14.	.25		
+	2 COMBINED AT	CP036	648.	12.40	107.	30.	29.	.55		
+	ROUTED TO	R038-2	647.	12.40	107.	30.	29.	.55	2573.45	12.40
+	HYDROGRAPH AT	038	323.	12.17	35.	10.	9.	.18		
+	2 COMBINED AT	CP038A	855.	12.30	142.	40.	38.	.73		
+	HYDROGRAPH AT	032	55.	12.13	5.	1.	1.	.03		
+	3 COMBINED AT	CP038	6445.	12.43	1007.	270.	260.	6.08		
+	ROUTED TO	R040-1	6379.	12.53	1007.	270.	260.	6.08	2531.46	12.53
+	HYDROGRAPH AT	040	529.	12.20	53.	14.	13.	.33		
+	2 COMBINED AT	CP040	6600.	12.50	1060.	284.	273.	6.41		
+	ROUTED TO	R042-1	6557.	12.57	1060.	284.	273.	6.41	2478.44	12.57
+	HYDROGRAPH AT	041	97.	12.17	10.	2.	2.	.06		
+	HYDROGRAPH AT	042	579.	12.17	55.	15.	14.	.32		
+	3 COMBINED AT	CP042	6755.	12.53	1125.	301.	289.	6.80		
+	ROUTED TO	R043-1	6555.	12.73	1124.	300.	289.	6.80	2478.48	12.73
+	HYDROGRAPH AT	043	253.	12.37	42.	11.	10.	.29		
+	2 COMBINED AT	CP043	6720.	12.70	1166.	311.	299.	7.09		
+	ROUTED TO	R046-1	6583.	12.83	1166.	311.	299.	7.09	2289.18	12.83
+	HYDROGRAPH AT	044	2207.	12.27	231.	60.	58.	1.40		
+	ROUTED TO	R046-2	2118.	12.37	231.	60.	58.	1.40	2288.12	12.37
+	HYDROGRAPH AT	046	192.	12.17	17.	4.	4.	.11		
+	3 COMBINED AT	CP046	7150.	12.80	1412.	375.	361.	8.60		
+	ROUTED TO	R051-1	7079.	12.87	1412.	375.	361.	8.60	2264.70	12.87
+	HYDROGRAPH AT	048	108.	12.13	9.	2.	2.	.06		
+	HYDROGRAPH AT	051	192.	12.27	27.	7.	7.	.16		
+	3 COMBINED AT	CP051	7153.	12.87	1447.	384.	370.	8.82		
+	ROUTED TO	R053-1	7142.	12.87	1447.	384.	370.	8.82	2242.56	12.87
+	HYDROGRAPH AT	053	175.	12.13	16.	4.	4.	.09		
+	2 COMBINED AT	CP053	7157.	12.87	1463.	389.	373.	8.91		

+	ROUTED TO	R055-1	7136.	12.90	1463.	388.	373.	8.91	2200.63	12.90
+										
+	HYDROGRAPH AT	055	338.	12.37	61.	16.	15.	.37		
+	2 COMBINED AT	CP055	7319.	12.90	1523.	404.	389.	9.28		
+	ROUTED TO	R068-1	7280.	12.93	1523.	404.	388.	9.28	2200.70	12.93
+										
+	HYDROGRAPH AT	058	2569.	12.33	288.	74.	71.	1.76		
+	ROUTED TO	R064-1	2367.	12.53	288.	74.	71.	1.76	2323.10	12.53
+										
+	HYDROGRAPH AT	060	764.	12.40	135.	35.	34.	.78		
+	ROUTED TO	R062-1	761.	12.43	135.	35.	34.	.78	2328.15	12.43
+										
+	HYDROGRAPH AT	062	1056.	12.27	127.	34.	32.	.73		
+	2 COMBINED AT	CP062	1707.	12.33	261.	69.	66.	1.51		
+	ROUTED TO	R064-2	1694.	12.37	261.	69.	66.	1.51	2317.30	12.37
+										
+	HYDROGRAPH AT	064	694.	12.27	80.	21.	20.	.47		
+	3 COMBINED AT	CP064	4244.	12.50	629.	164.	157.	3.74		
+	ROUTED TO	R066-1	4241.	12.50	629.	164.	157.	3.74	2283.57	12.50
+										
+	HYDROGRAPH AT	066	10.	12.07	1.	0.	0.	.01		
+	2 COMBINED AT	CP066	4243.	12.50	630.	164.	158.	3.74		
+	ROUTED TO	R068-2	4181.	12.60	629.	164.	158.	3.74	2227.73	12.60
+										
+	HYDROGRAPH AT	068	421.	12.20	39.	10.	10.	.25		
+	3 COMBINED AT	CP068	9990.	12.90	2190.	578.	555.	13.27		
+	ROUTED TO	R070-1	9712.	13.07	2185.	577.	554.	13.27	2126.90	13.07
+										
+	HYDROGRAPH AT	070	833.	12.37	115.	29.	28.	.79		
+	2 COMBINED AT	CP070	9940.	13.07	2293.	606.	583.	14.06		

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

D.8 REGRESSION VERIFICATION OF HEC-1

This section contains the regression analysis output.

The primary peak discharge was calculated using HEC-1.

Table D.8.1
With areal reduction factor for entire watershed

Basin Name	Basin Area	HEC-1 $Q_{100,24}$	Q_{100}/A
	[mi^2]	[cfs]	[cfs/mi^2]
Basin 005	0.42	482	1148
Basin 010	0.34	394	1159
CP010	0.75	860	1147
Basin 012	0.30	343	1143
CP012	1.05	1086	1034
Basin 030	0.35	296	846
CP030A	1.40	685	489
Basin 015	1.27	1748	1376
Basin 017	0.22	285	1295
CP022A	1.48	1830	1236
Basin 020	0.76	1447	1904
Basin 022	0.38	340	895
CP022B	1.14	1576	1382
CP022	2.62	3350	1279
Basin 024	1.02	2483	2434
Basin 026	0.27	307	1137
CP026A	1.29	2288	1774
CP026	3.91	5286	1352
CP030	5.32	5541	1042
Basin 034	0.30	443	1477
Basin 036	0.25	461	1844
CP036	0.55	632	1149
Basin 038	0.18	323	1794
CP038A	0.73	856	1173
Basin 032	0.03	54	1800
CP038	6.08	6270	1031
Basin 040	0.33	527	1597
CP040	6.41	6323	986
Basin 042	0.67	802	1197
CP042	7.08	6341	896
Basin 044	1.40	2209	1578
Basin 046	0.11	191	1736
CP046	8.59	6501	757
Basin 048	0.06	107	1783
Basin 051	0.16	191	1194
CP051	8.81	6470	734
Basin 053	0.09	175	1944
CP053	8.91	6459	725
Basin 055	0.37	336	908
CP055	9.27	6631	715
Basin 058	1.76	2537	1441
Basin 060	0.78	763	978
Basin 062	0.73	1045	1432
CP062	1.51	1696	1123
Basin 064	0.47	695	1479
CP064	3.74	4163	1113
Basin 066	0.01	10	1000
CP066	3.74	4164	1113
Basin 068	0.25	419	1676
CP068	13.27	8975	676
Basin 070	0.79	829	1049
CP070	14.06	8904	633

Table D.8.2
With no areal reduction factor for upper reaches

Basin Name	Basin Area	HEC-1 $Q_{100,24}$	Q_{100}/A
	[mi^2]	[cfs]	[cfs/mi^2]
Basin 005	0.42	528	1257
Basin 010	0.34	433	1274
CP010	0.75	944	1259
Basin 012	0.30	378	1260
CP012	1.05	1200	1143
Basin 030	0.35	326	931
CP030A	1.40	763	545
Basin 015	1.27	1920	1512
Basin 017	0.22	312	1418
CP022A	1.48	2016	1362
Basin 020	0.76	1580	2079
Basin 022	0.38	373	982
CP022B	1.14	1726	1514
CP022	2.62	3680	1405
Basin 024	1.02	2704	2651
Basin 026	0.27	335	1241
CP026A	1.29	2604	2019
CP026	3.91	5708	1460
CP030	5.32	6019	1131
Basin 034	0.30	485	1617
Basin 036	0.25	502	2008
CP036	0.55	706	1284
Basin 038	0.18	352	1956
CP038A	0.73	949	1300
Basin 032	0.03	59	1967
CP038	6.08	6836	1124
Basin 040	0.33	579	1755
CP040	6.41	6957	1085
Basin 042	0.67	883	1318
CP042	7.08	7053	996
Basin 044	1.40	2422	1730
Basin 046	0.11	210	1909
CP046	8.59	7302	850
Basin 048	0.06	118	1967
Basin 051	0.16	209	1306
CP051	8.81	7278	826
Basin 053	0.09	191	2122
CP053	8.91	7279	817
Basin 055	0.37	370	1000
CP055	9.27	7442	803
Basin 058	1.76	2785	1582
Basin 060	0.78	837	1073
Basin 062	0.73	1145	1568
CP062	1.51	1862	1233
Basin 064	0.47	762	1621
CP064	3.74	4653	1244
Basin 066	0.01	11	1100
CP066	3.74	4653	1244
Basin 068	0.25	460	1840
CP068	13.27	10209	769
Basin 070	0.79	919	1163
CP070	14.06	10164	723

Verification with USGS Data for Arizona

1. The 100-year secondary peak discharge estimate by equation 10-1 and Qmax by equation 10-2.

Table D.8.3

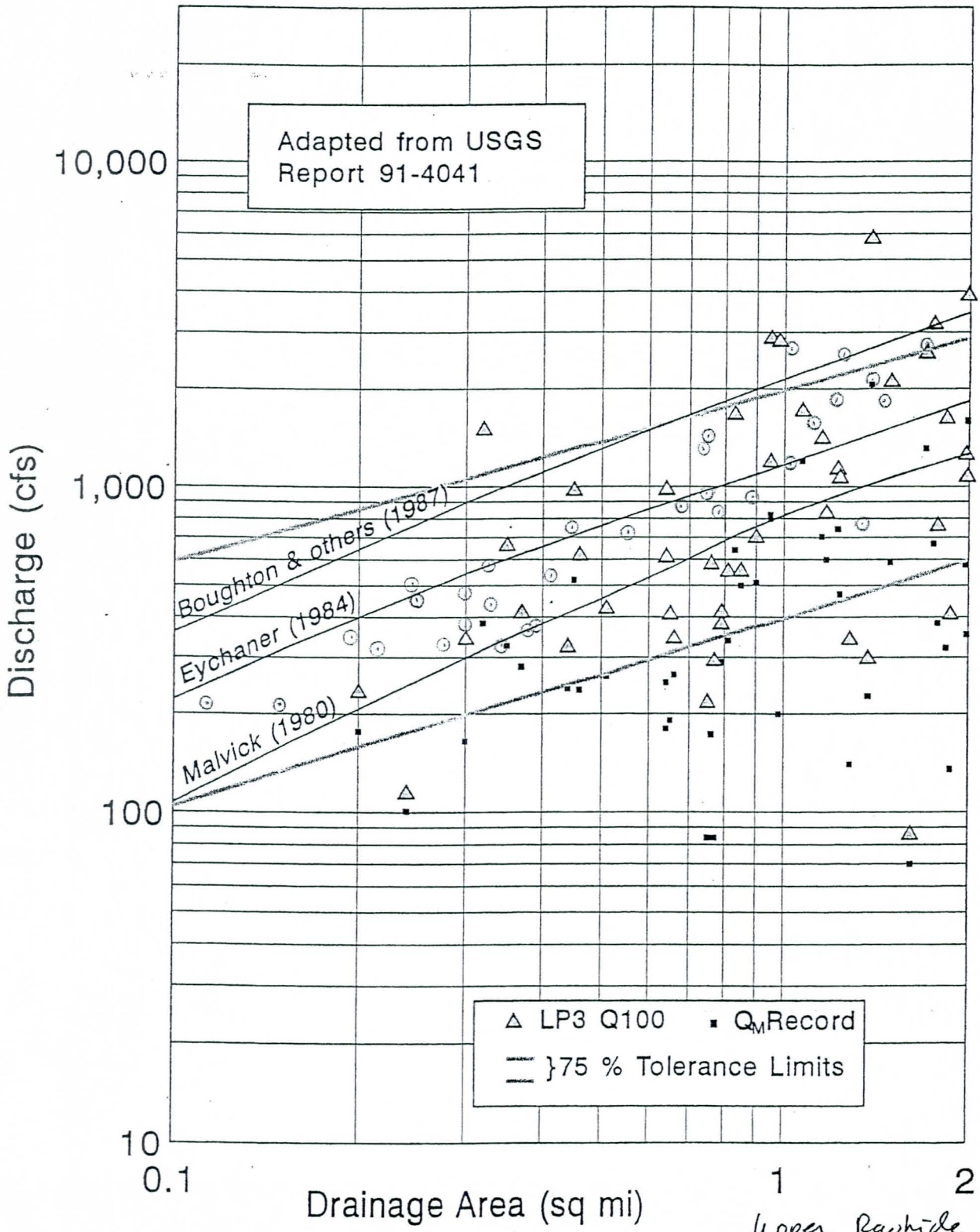
Basin Name	Basin Area	HEC-1 Q_{100}	USGS Q_{100}	USGS Q_{MAX}
	[mi^2]	[cfs]	[cfs]	[cfs]
Basin 005	0.42	528	532	216
Basin 010	0.34	433	475	190
CP010	0.75	944	728	310
Basin 012	0.30	378	444	175
CP012	1.05	1200	873	381
Basin 030	0.35	326	482	193
CP030A	1.40	763	1019	456
Basin 015	1.27	1920	967	429
Basin 017	0.22	312	375	145
CP022A	1.48	2016	1050	472
Basin 020	0.76	1580	733	312
Basin 022	0.38	373	504	203
CP022B	1.14	1726	912	401
CP022	2.62	3680	1430	672
Basin 024	1.02	2704	859	375
Basin 026	0.27	335	419	164
CP026A	1.29	2604	975	433
CP026	3.91	5708	1775	862
CP030	5.32	6019	2096	1043
Basin 034	0.30	485	444	175
Basin 036	0.25	502	402	157
CP036	0.55	706	615	255
Basin 038	0.18	352	337	128
CP038A	0.73	949	717	304
Basin 032	0.03	59	128	42
CP038	6.08	6836	2253	1133
Basin 040	0.33	579	467	186
CP040	6.41	6957	2318	1171
Basin 042	0.67	883	685	289
CP042	7.08	7053	2446	1245
Basin 044	1.40	2422	1019	456
Basin 046	0.11	210	258	94
CP046	8.59	7302	2715	1404
Basin 048	0.06	118	186	65
Basin 051	0.16	209	316	119
CP051	8.81	7278	2752	1426
Basin 053	0.09	191	232	83
CP053	8.91	7279	2769	1436
Basin 055	0.37	370	497	200
CP055	9.27	7442	2829	1472
Basin 058	1.76	2785	1153	525
Basin 060	0.78	837	743	317
Basin 062	0.73	1145	717	304
CP062	1.51	1862	1062	478
Basin 064	0.47	762	565	232
CP064	3.74	4653	1733	838
Basin 066	0.01	11	71	21
CP066	3.74	4653	1733	838
Basin 068	0.25	460	402	157
CP068	13.27	10209	3434	1838
Basin 070	0.79	919	748	320
CP070	14.06	10164	3543	1905

2. Plot the 100-year primary peak discharge (HEC-1) estimate on the copy of Figures 10-3 to 10-6.

See attached figures.

FIGURE 10-3

100-YEAR PEAK DISCHARGE BY LP3 ANALYSIS (LP3 Q100) AND MAXIMUM RECORDED DISCHARGE (Q_M RECORD) vs. DRAINAGE AREA FOR 0.1 TO 2.0 SQUARE MILES

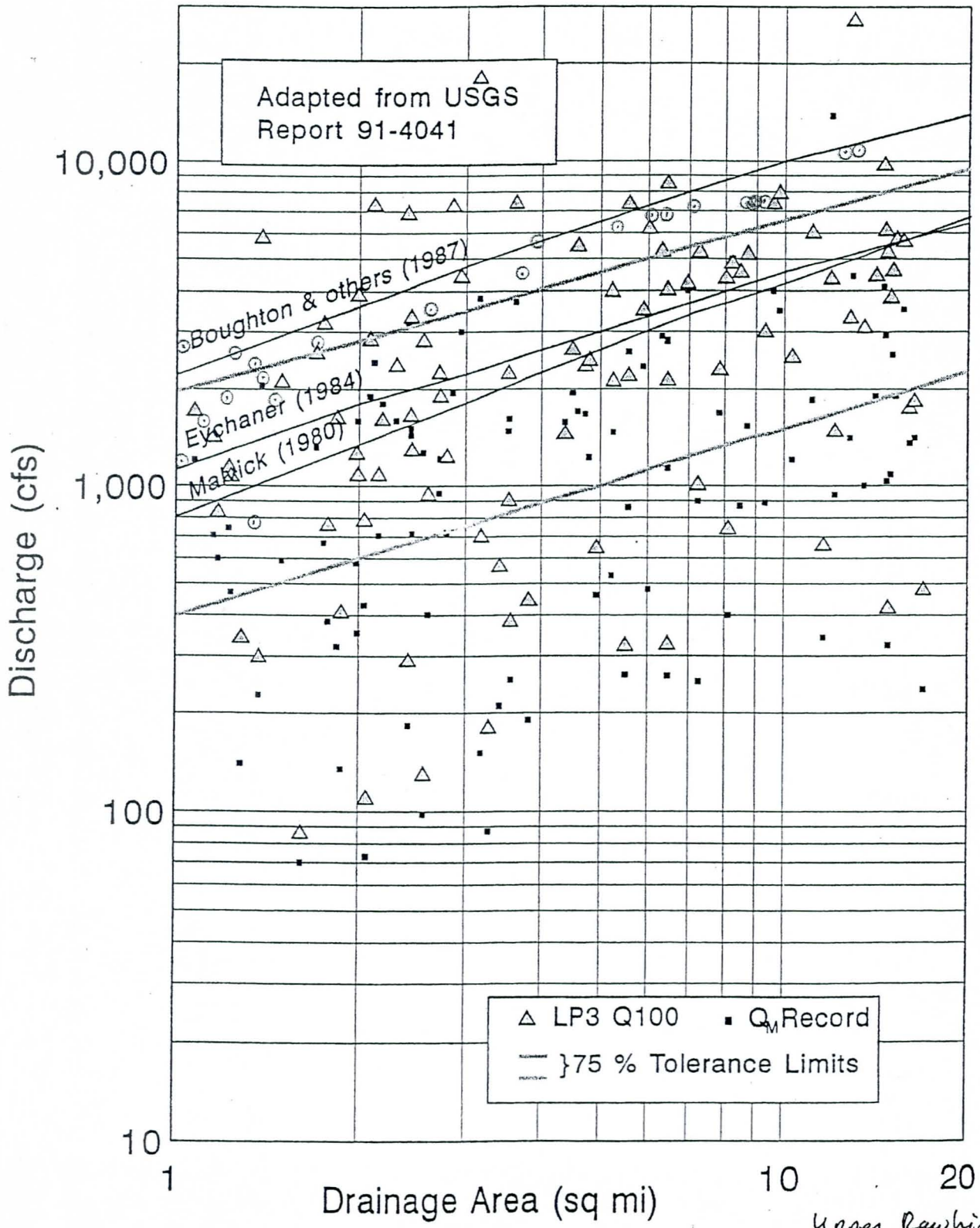


Upper Rawhide Wash
FCD 98-12
091131.02

(4)

FIGURE 10-4

100-YEAR PEAK DISCHARGE BY LP3 ANALYSIS (LP3 Q100) AND MAXIMUM RECORDED DISCHARGE (Q_M RECORD) vs. DRAINAGE AREA FOR 1 TO 20 SQUARE MILES



Upper Rawhide Wash
FCD 98-12
09113.02

Verification with Regional Regression Equations

Table D.8.4

Basin Name	Basin Area	HEC-1 Q_{100}	Mean Basin Elevation
	[mi^2]	[cfs]	[ft]
Basin 005	0.42	528	3003
Basin 010	0.34	433	2989
Basin 012	0.30	378	2872
Basin 030	0.35	326	2823
Basin 015	1.27	1920	2680
Basin 017	0.22	312	2847
Basin 020	0.76	1580	2778
Basin 022	0.38	373	2961
Basin 024	1.02	2704	2927
Basin 026	0.27	335	2702
Basin 034	0.30	485	2578
Basin 036	0.25	502	2740
Basin 038	0.18	352	2812
Basin 032	0.03	59	2878
Basin 040	0.33	579	2693
Basin 042	0.67	883	2688
Basin 044	1.40	2422	2680
Basin 046	0.11	210	2312
Basin 048	0.06	118	2276
Basin 051	0.16	209	2342
Basin 053	0.09	191	2272
Basin 055	0.37	370	2365
Basin 058	1.76	2785	2636
Basin 060	0.78	837	2588
Basin 062	0.73	1145	2502
Basin 064	0.47	762	2421
Basin 066	0.01	11	2276
Basin 068	0.25	460	2254
CP068	13.27	10209	2662
Basin 070	0.79	919	2210
CP070	14.06	10164	2588

See attached. Plotted the above values on the ADOT Curves for Regions 12 and 13.

There is no "cloud of common values" plot for Region 13 in the ADOT manual.

Verification with USGS Curves from "Methods for Estimating Magnitude and Frequency of Floods in the Southwestern United States" Open-File Report 93-419

The peak discharge values vs. drainage area are plotted on the USGS curves.

(6)

TABLE 10-6

FLOOD MAGNITUDE-FREQUENCY RELATIONS FOR THE CENTRAL ARIZONA REGION (R12)

Equation: Q, peak discharge, in cubic feet per second; AREA, drainage area, in square miles; and ELEV, mean basin elevation, in feet divided by 1,000.

Recurrence interval, in years	Equation	Average standard error of model, in percent
2	$Q = 41.1\ AREA^{0.629}$	102
5	$Q = 238\ AREA^{0.687}\ ELEV^{-0.358}$	64
10	$Q = 479\ AREA^{0.661}\ ELEV^{-0.398}$	47
25	$Q = 942\ AREA^{0.630}\ ELEV^{-0.383}$	34
50	$LOG\ Q = 7.36 - 4.17\ AREA^{-0.08} - 0.440\ LOG\ ELEV$	30
100	$LOG\ Q = 6.55 - 3.17\ AREA^{-0.11} - 0.454\ LOG\ ELEV$	31

Upper Rawhide Wash
FCD 98-12
091131.02

FIGURE 10-20

SCATTER DIAGRAM OF INDEPENDENT VARIABLES FOR R12 REGRESSION EQUATION

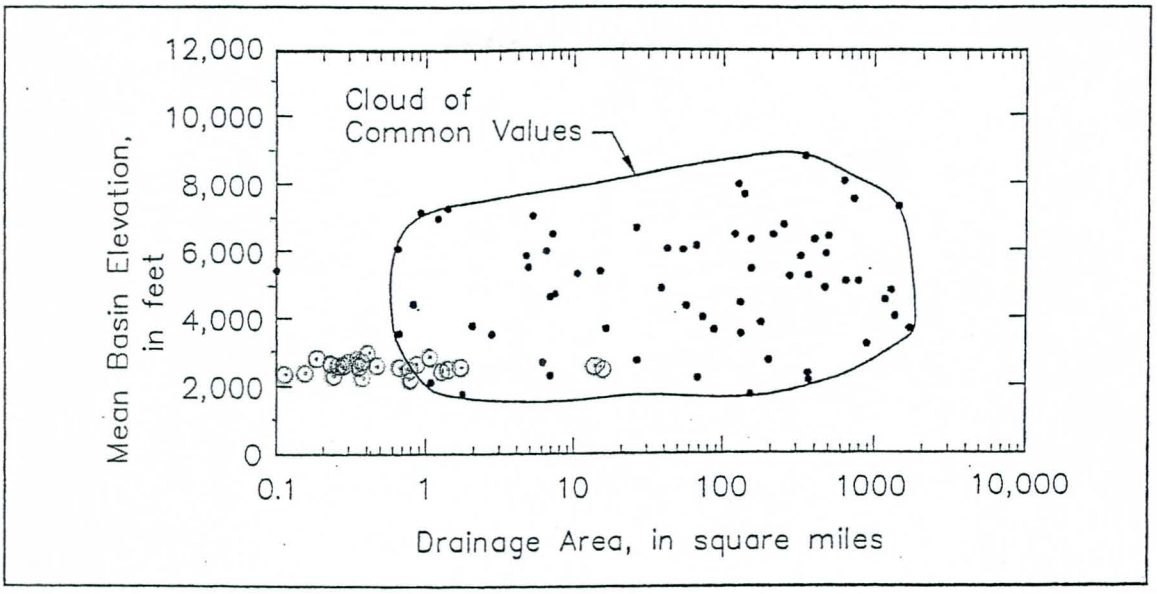
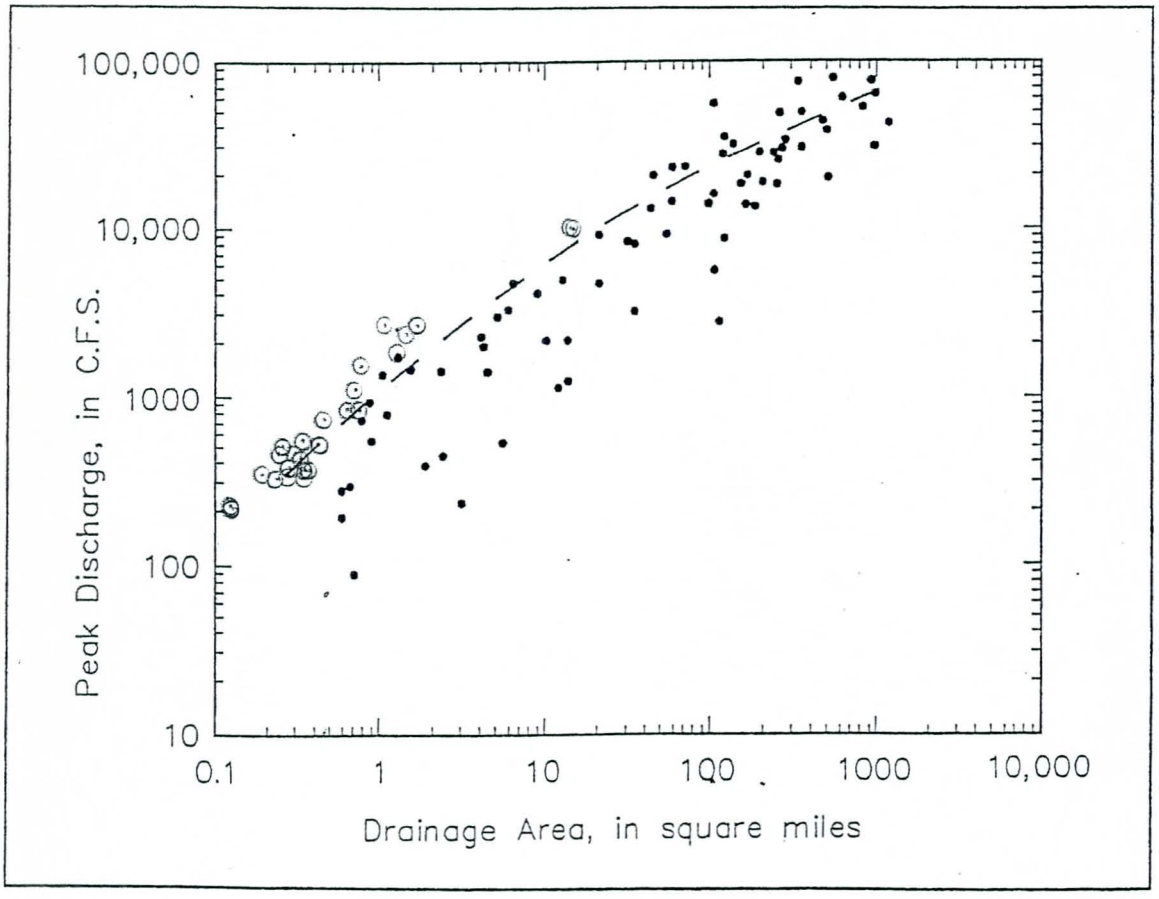


FIGURE 10-21

Q_{100} DATA POINTS AND 100-YEAR PEAK DISCHARGE RELATION FOR R12



Upper Rawhide Wash
FCD 98-12
091131.02

(8)

TABLE 10-7

FLOOD MAGNITUDE-FREQUENCY RELATIONS FOR THE SOUTHERN ARIZONA REGION (R13)

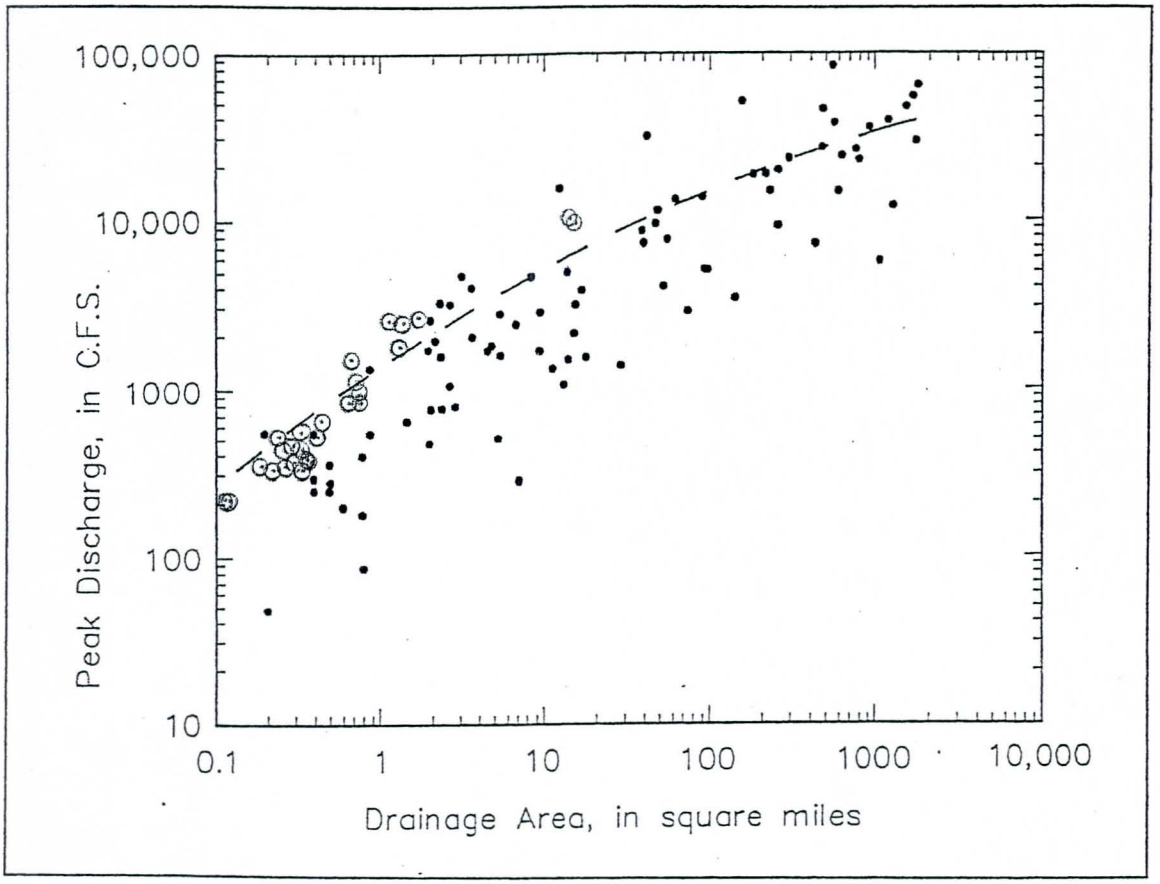
Equations: Q, peak discharge, in cubic feet per second; and AREA, drainage area, in square miles.

Recurrence interval, in years	Equation	Average standard error of model, in percent
2	$LOG\ Q = 6.38 - 4.29\ AREA^{-0.06}$	55
5	$LOG\ Q = 5.78 - 3.31\ AREA^{-0.08}$	38
10	$LOG\ Q = 5.68 - 3.02\ AREA^{-0.09}$	35
25	$LOG\ Q = 5.64 - 2.78\ AREA^{-0.10}$	37
50	$LOG\ Q = 5.57 - 2.59\ AREA^{-0.11}$	41
100	$LOG\ Q = 5.52 - 2.42\ AREA^{-0.12}$	46

Upper Rincon Wash
FCD 98-12
091131.02

FIGURE 10-22

Q_{100} DATA POINTS AND 100-YEAR PEAK DISCHARGE RELATION FOR R13



Upper Rawhide Wash
FCD 98-12
091131.02

(10)

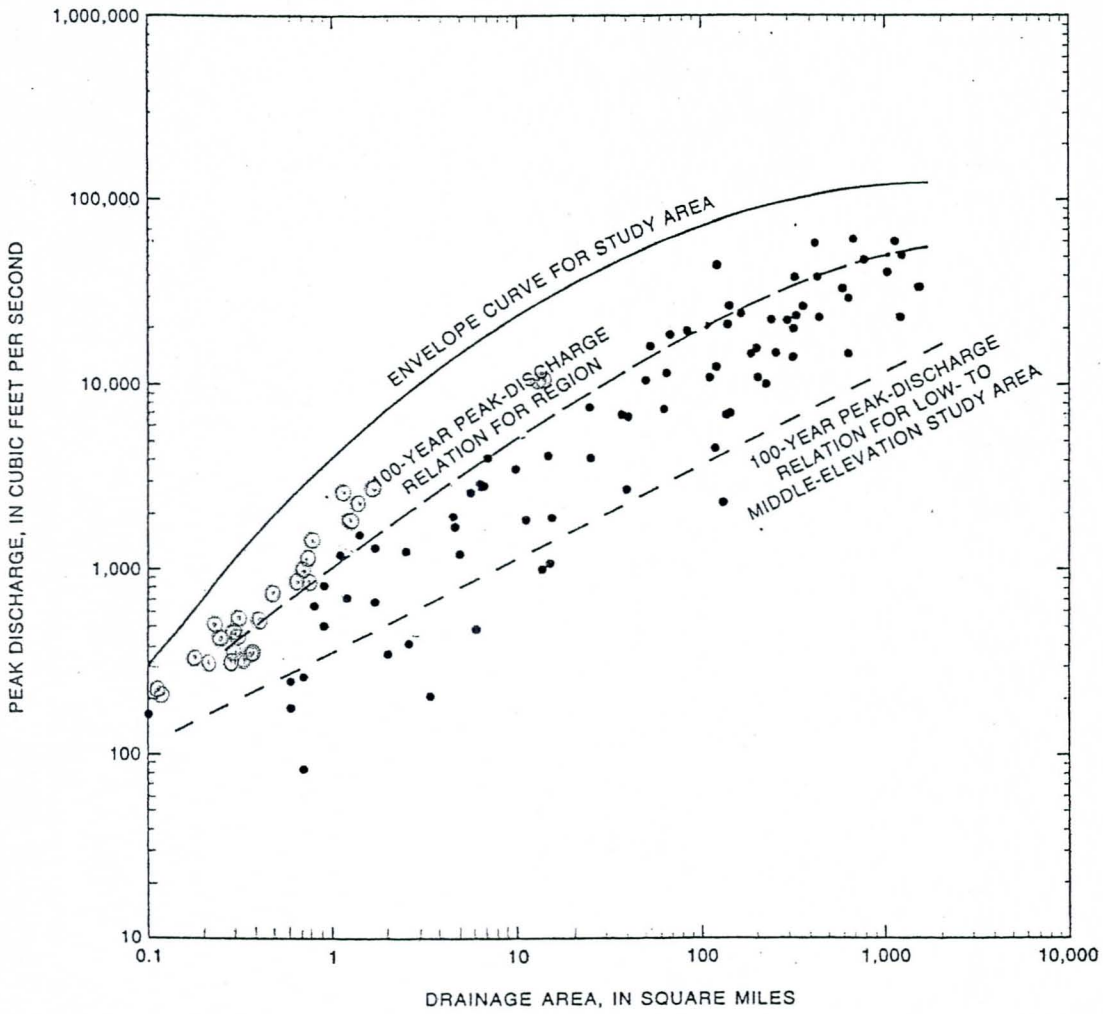


Figure 41. Relations between 100-year peak discharge and drainage area and plot of maximum peak discharge of record and drainage area for gaged sites in the Central Arizona Region 12.

Upper Rawhide Wash
FCD 98-12
091131.02

(11)

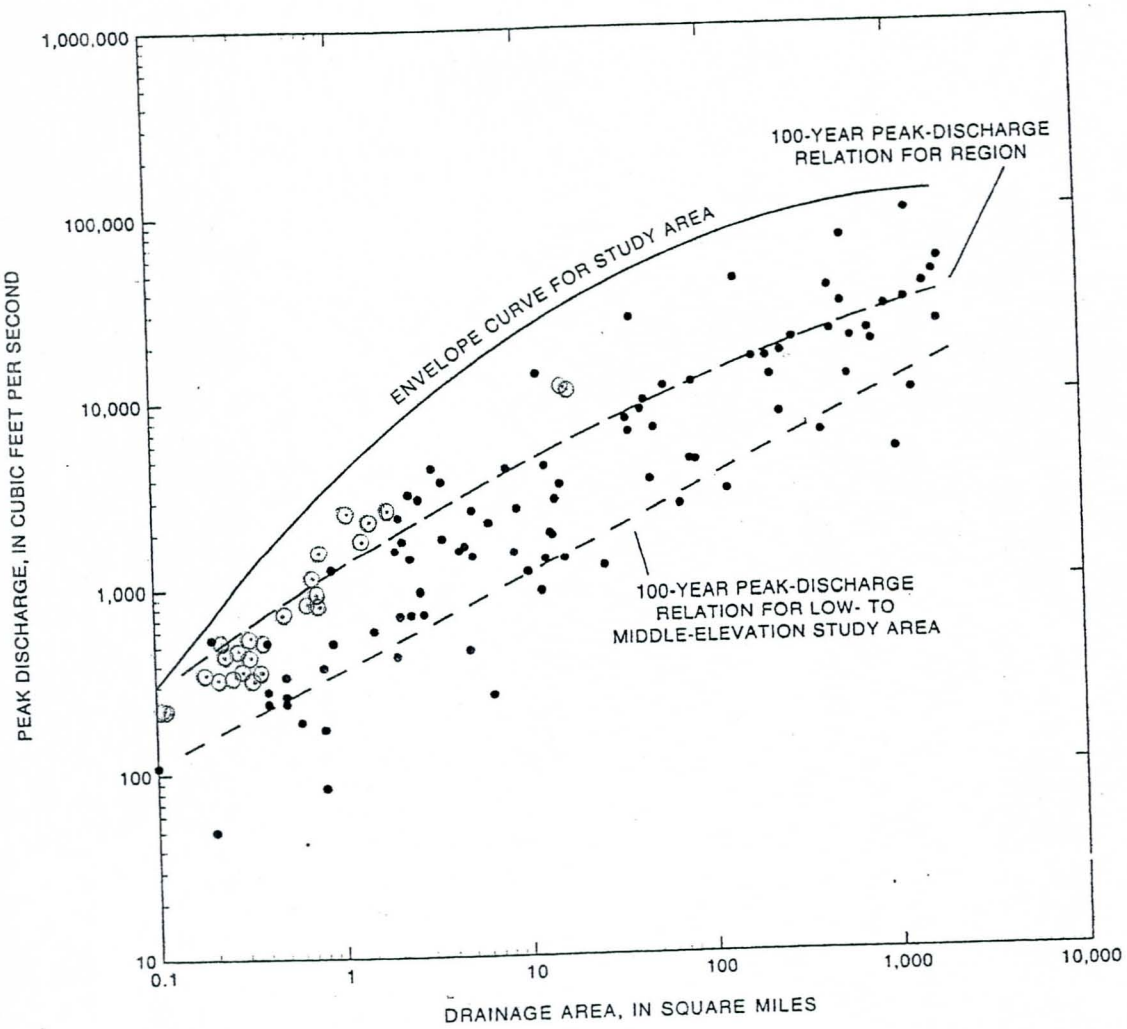


Figure 42. Relations between 100-year peak discharge and drainage area and plot of maximum peak discharge of record and drainage area for gaged sites in the Southern Arizona Region 13.

Table 17. Generalized least-squares regression equations for estimating regional flood-frequency relations for the Southern Arizona Region 13

Equation: Q, peak discharge, in cubic feet per second; and AREA, drainage area, in square miles. Data were based on 73 stations. Average number of years of systematic record is 21.

Recurrence interval, in years	Equation	Average standard error of prediction, in percent	Equivalent years of record
2	$Q=10^{(6.38-4.29AREA^{-0.06})}$	57	2.0
5	$Q=10^{(5.78-3.31AREA^{-0.08})}$	40	6.25
10	$Q=10^{(5.68-3.02AREA^{-0.09})}$	37	11.1
25	$Q=10^{(5.64-2.78AREA^{-0.10})}$	39	15.0
50	$Q=10^{(5.57-2.59AREA^{-0.11})}$	43	15.9
100	$Q=10^{(5.52-2.42AREA^{-0.12})}$	48	16.1

Upper Rawhide Wash
FCD 98-12
091131.02

APPENDIX G Exhibit Maps

The following foldout exhibit maps are in this appendix.

Figure G - 1: Watershed Work Map: Subbasins and Concentration Points

Figure G - 2: Watershed Work Map: Time of Concentration Flow Paths

Figure G - 3: Watershed Work Map: Hydrograph Routing Paths

Figure G - 4: Watershed Work Map: Soils Boundaries

Figure G - 5: Watershed Work Map: Land-Use Boundaries

Figure G - 6: Watershed Work Map With Topography (1 of 5)

Figure G - 7: Watershed Work Map With Topography (2 of 5)

Figure G - 8: Watershed Work Map With Topography (3 of 5)

Figure G - 9: Watershed Work Map With Topography (4 of 5)

Figure G - 10: Watershed Work Map With Topography (5 of 5)

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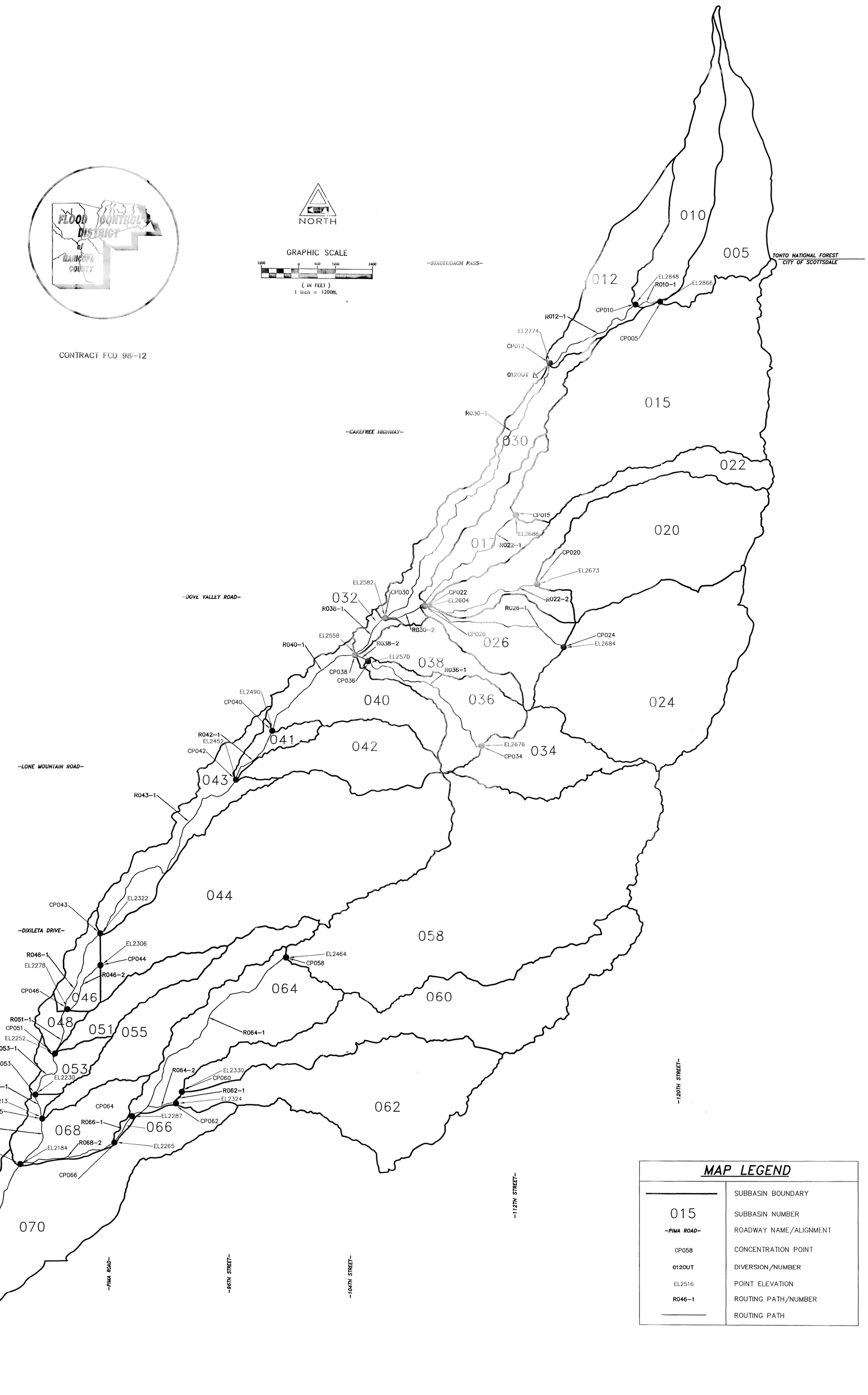
FLOOD CONTROL DISTRICT of MARICOPA COUNTY

CONTRACT FCD 98-12

NORTH

GRAPHIC SCALE
1200 0 600 1200 2400
(IN FEET)
1 inch = 1200ft.



MAP LEGEND

———	SUBBASIN BOUNDARY
015	SUBBASIN NUMBER
-PIMA ROAD-	ROADWAY NAME/ALIGNMENT
CP058	CONCENTRATION POINT
0120UT	DIVERSION/NUMBER
EL2516	POINT ELEVATION
R046-1	ROUTING PATH/NUMBER
———	ROUTING PATH

UPPER RAWHIDE WASH FLOODPLAIN DELINEATION STUDY

WATERSHED WORK MAP
HYDROGRAPH ROUTING PATHS

FIGURE G-3

SCALE (H): 1"=1200'
SCALE (V): NONE
DRAWN BY: OJP
DESIGNED BY: LSM
CHECKED BY: RAE
DATE: 9/30/99

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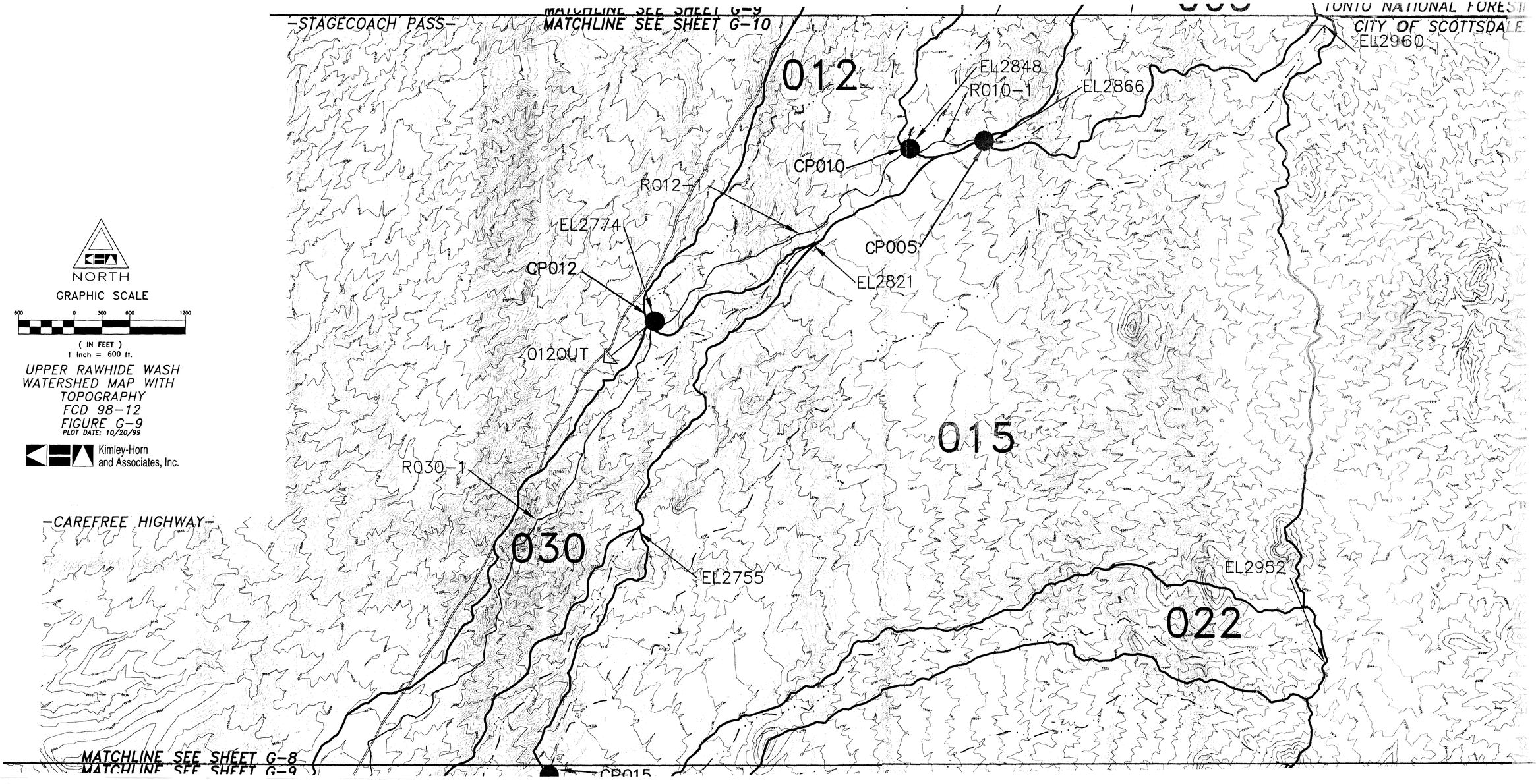
KHA DWG. NAME 3102DRG3
1 of 1


MATCHLINE SEE SHEET G-9
MATCHLINE SEE SHEET G-10
-STAGECOACH PASS-
TONTO NATIONAL FOREST
CITY OF SCOTTSDALE
EL2960
012
EL2848
R010-1
EL2866
CP010
R012-1
EL2774
CP005
CP012
EL2821
012OUT
015
R030-1
-CAREFREE HIGHWAY-
030
EL2755
EL2952
022
MATCHLINE SEE SHEET G-8
MATCHLINE SEE SHEET G-9
CP015
NORTH
GRAPHIC SCALE
600 0 300 600 1200
(IN FEET)
1 inch = 600 ft.
UPPER RAWHIDE WASH
WATERSHED MAP WITH
TOPOGRAPHY
FCD 98-12
FIGURE G-9
PLOT DATE: 10/20/99
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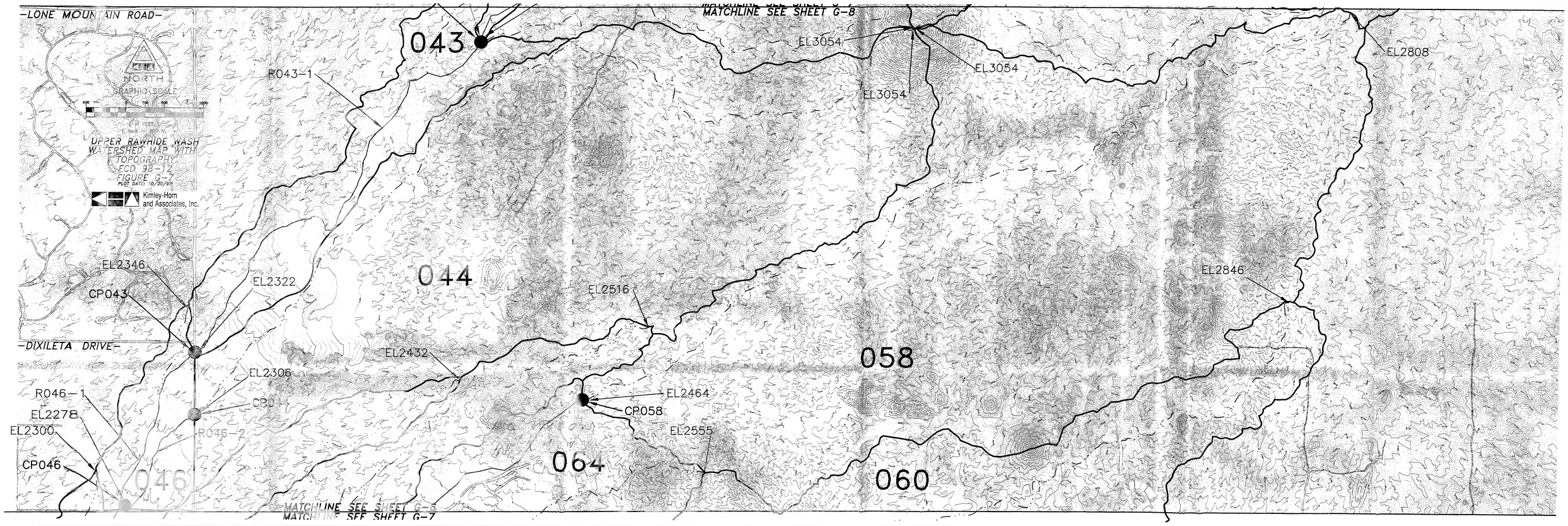
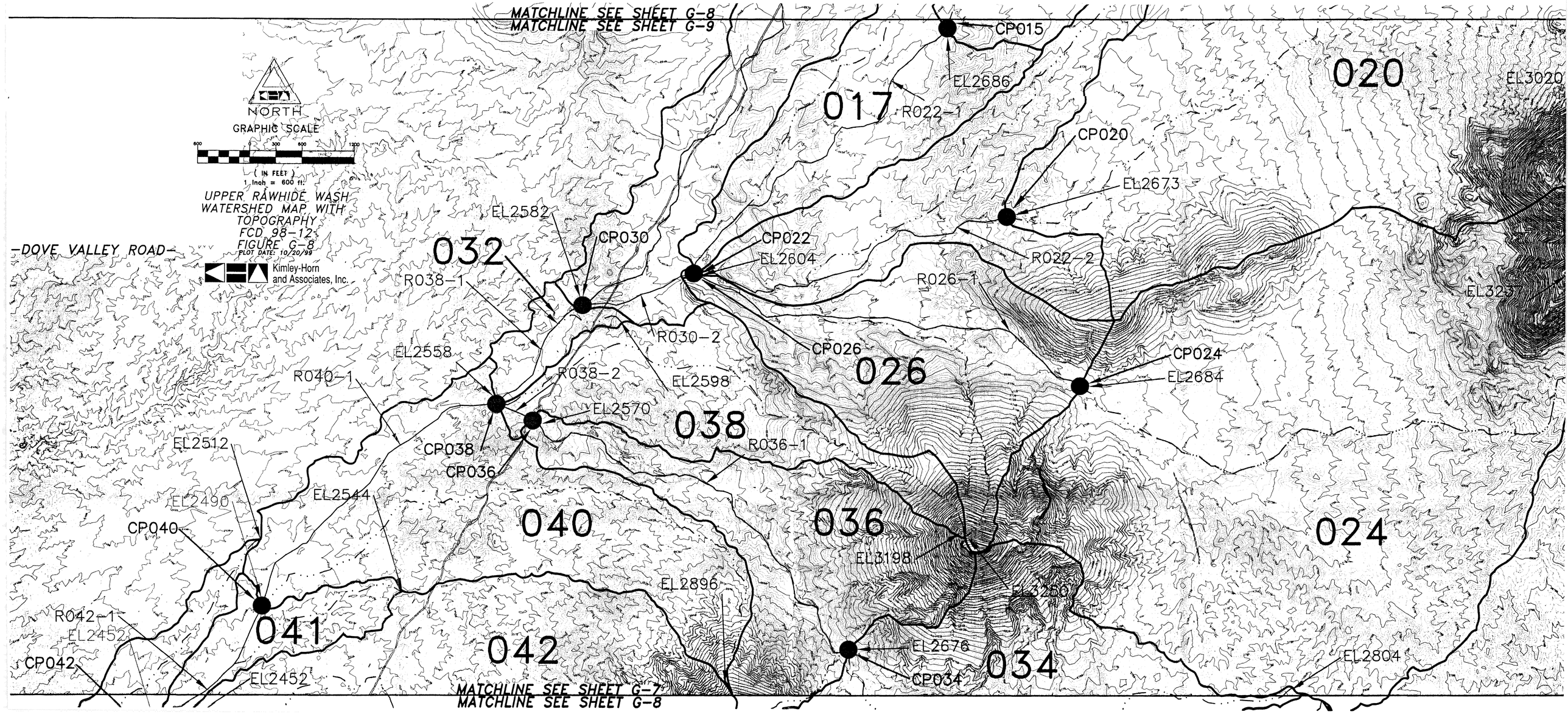
and Associates, Inc.


-LONE MOUNTAIN ROAD-
MATCHLINE SEE SHEET G-8
NORTH
GRAPHIC SCALE
UPPER RAWHIDE WASH
WATERSHED MAP WITH
TOPOGRAPHY
ECD 98-12
FIGURE
Kimley-Horn
and Associates, Inc.
043
R043-1
EL3054
EL3054
EL3054
EL2808
044
EL2346
CP043
EL2322
EL2516
EL2846
-DIXILETA DRIVE-
EL2432
058
EL2306
R046-1
CP044
EL2464
CP058
EL2278
EL2300
R046-2
EL2555
CP046
064
060
046
MATCHLINE SEE SHEET G-6
MATCHLINE SEE SHEET G-7


MATCHLINE SEE SHEET G-8
MATCHLINE SEE SHEET G-9
NORTH
GRAPHIC SCALE
600 0 300 600 1200
(IN FEET)
1 inch = 600 ft.
UPPER RAWHIDE WASH
WATERSHED MAP WITH
TOPOGRAPHY
FCD 98-12
FIGURE G-8
PLOT DATE: 10/20/99
Kimley-Horn
and Associates, Inc.
-DOVE VALLEY ROAD-
CP015
EL2686
017
R022-1
020
EL3020
CP020
EL2673
EL2582
CP030
032
R038-1
CP022
EL2604
R022-2
R026-1
EL3237
R030-2
CP026
026
CP024
EL2684
EL2558
R040-1
R038-2
EL2598
EL2570
038
CP038
CP036
R036-1
EL2512
EL2490
EL2544
CP040
040
036
024
EL3198
EL3200
EL2896
R042-1
EL2452
041
042
EL2676
CP034
034
EL2804
CP042
EL2452
MATCHLINE SEE SHEET G-7
MATCHLINE SEE SHEET G-8

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FLOOD CONTROL DISTRICT of MARICOPA COUNTY

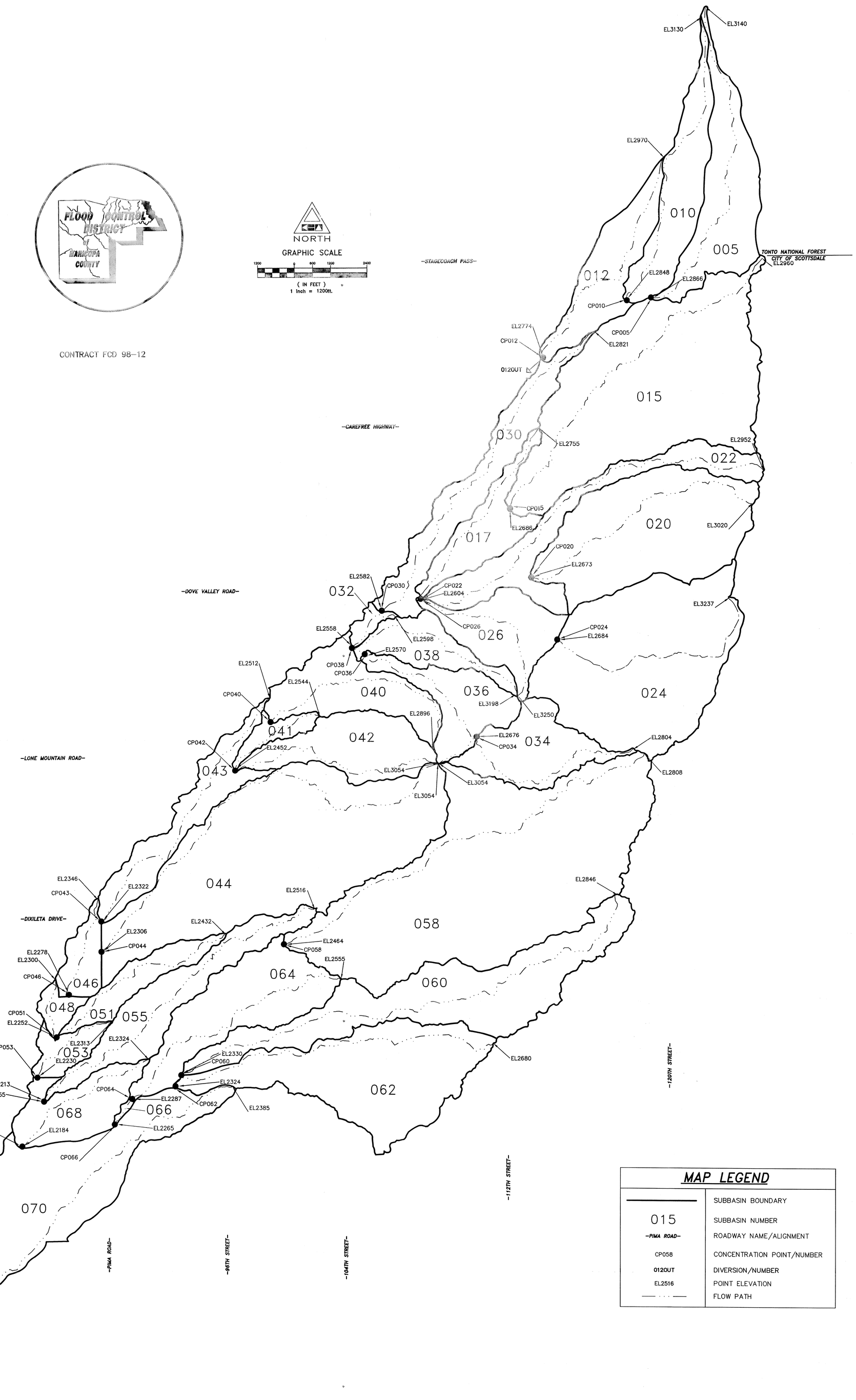
CONTRACT FCD 98-12

NORTH

GRAPHIC SCALE

1200 0 600 1200 2400

(IN FEET)
1 inch = 1200ft.



MAP LEGEND

———	SUBBASIN BOUNDARY
015	SUBBASIN NUMBER
-PIMA ROAD-	ROADWAY NAME/ALIGNMENT
CP058	CONCENTRATION POINT/NUMBER
0120UT	DIVERSION/NUMBER
EL2516	POINT ELEVATION
—— · · · ——	FLOW PATH

1 of 1

KHA DWG. NAME 3102DRG2

KHA PROJECT NO. 091131.02

UPPER RAWHIDE WASH FLOODPLAIN DELINEATION STUDY

WATERSHED WORK MAP
TIME OF CONCENTRATION FLOW PATHS

FIGURE G-2

SCALE (H): 1"=1200'
SCALE (V): NONE

DRAWN BY: OJP
DESIGNED BY: LSM
CHECKED BY: RAE

DATE: 9/30/99

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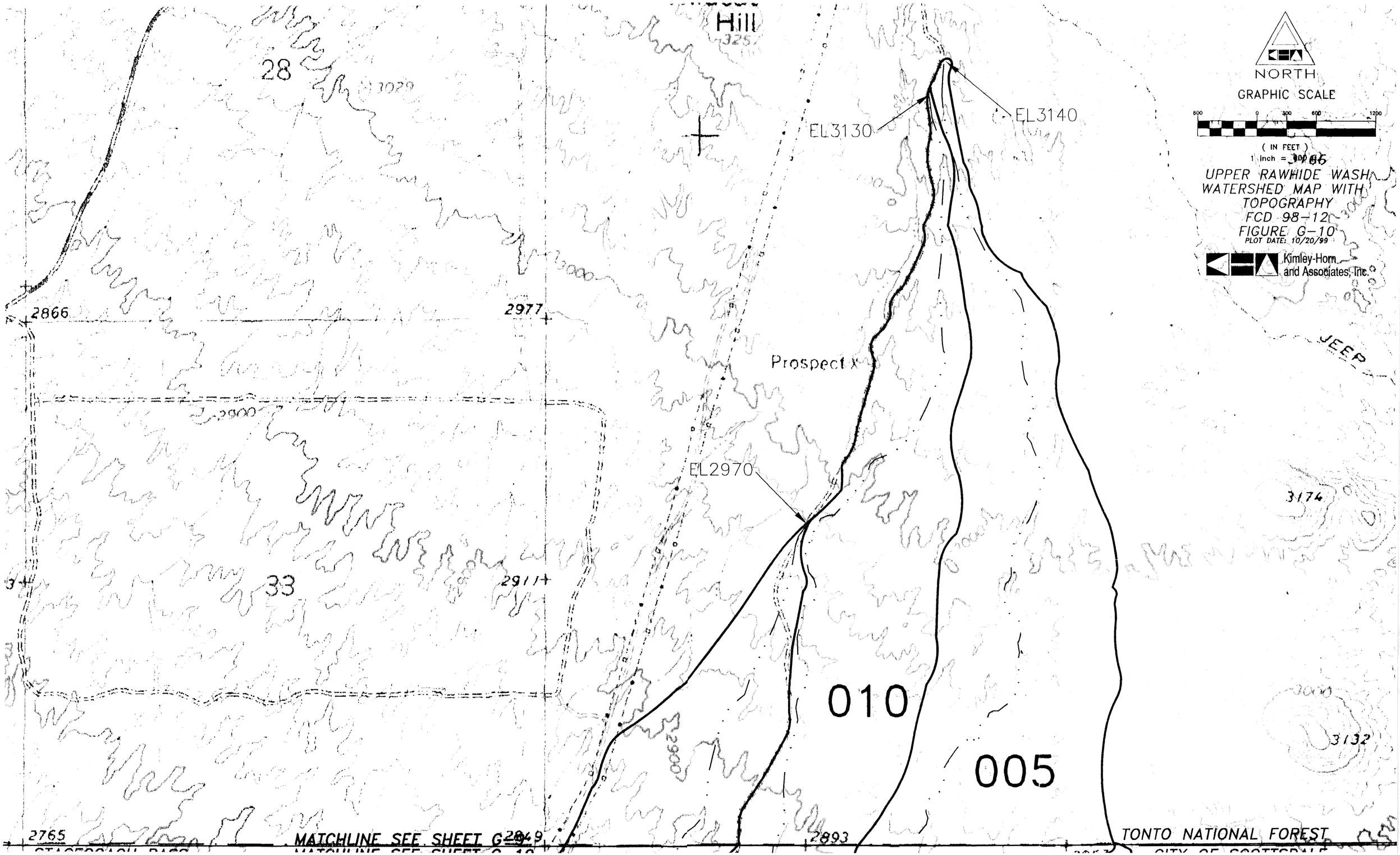

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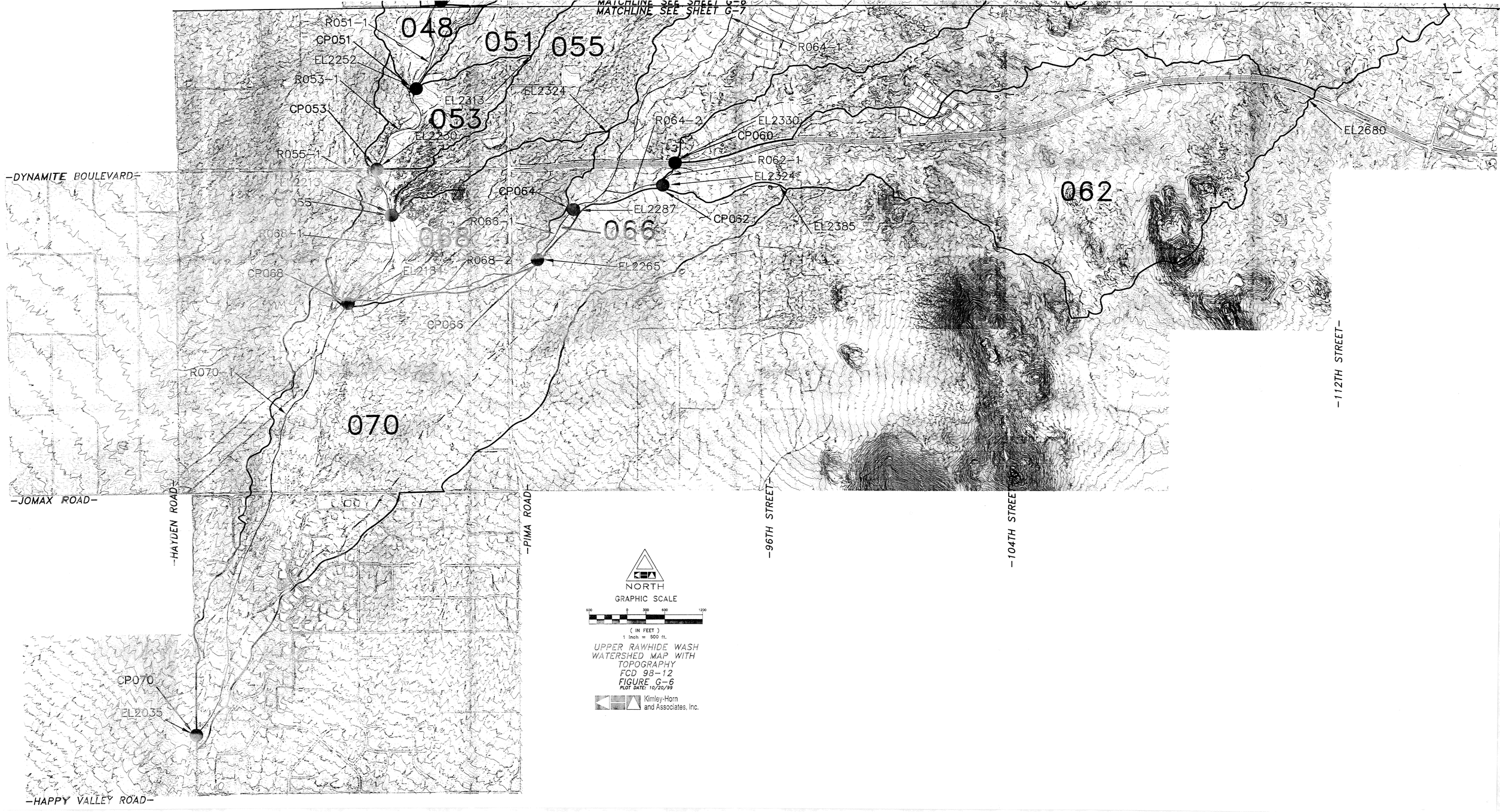
MATCHLINE SEE SHEET G-8
MATCHLINE SEE SHEET G-7
048
051
055
053
062
066
070
R051-1
CP051
EL2252
R053-1
CP053
EL2313
EL2230
R055-1
EL2324
R064-1
R064-2
EL2330
CP060
R062-1
EL2324
EL2680
CP064
EL2287
R066-1
CP062
EL2385
R068-1
R068-2
EL2265
EL2131
CP068
CP066
R070-1
CP070
EL2035
-DYNAMITE BOULEVARD-
-JOMAX ROAD-
-HAYDEN ROAD-
-PIMA ROAD-
-96TH STREET-
-104TH STREET-
-112TH STREET-
-HAPPY VALLEY ROAD-
NORTH
GRAPHIC SCALE
600 0 300 600 1200
(IN FEET)
1 inch = 500 ft.
UPPER RAWHIDE WASH
WATERSHED MAP WITH
TOPOGRAPHY
FCD 98-12
FIGURE G-6
PLOT DATE: 10/20/99
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

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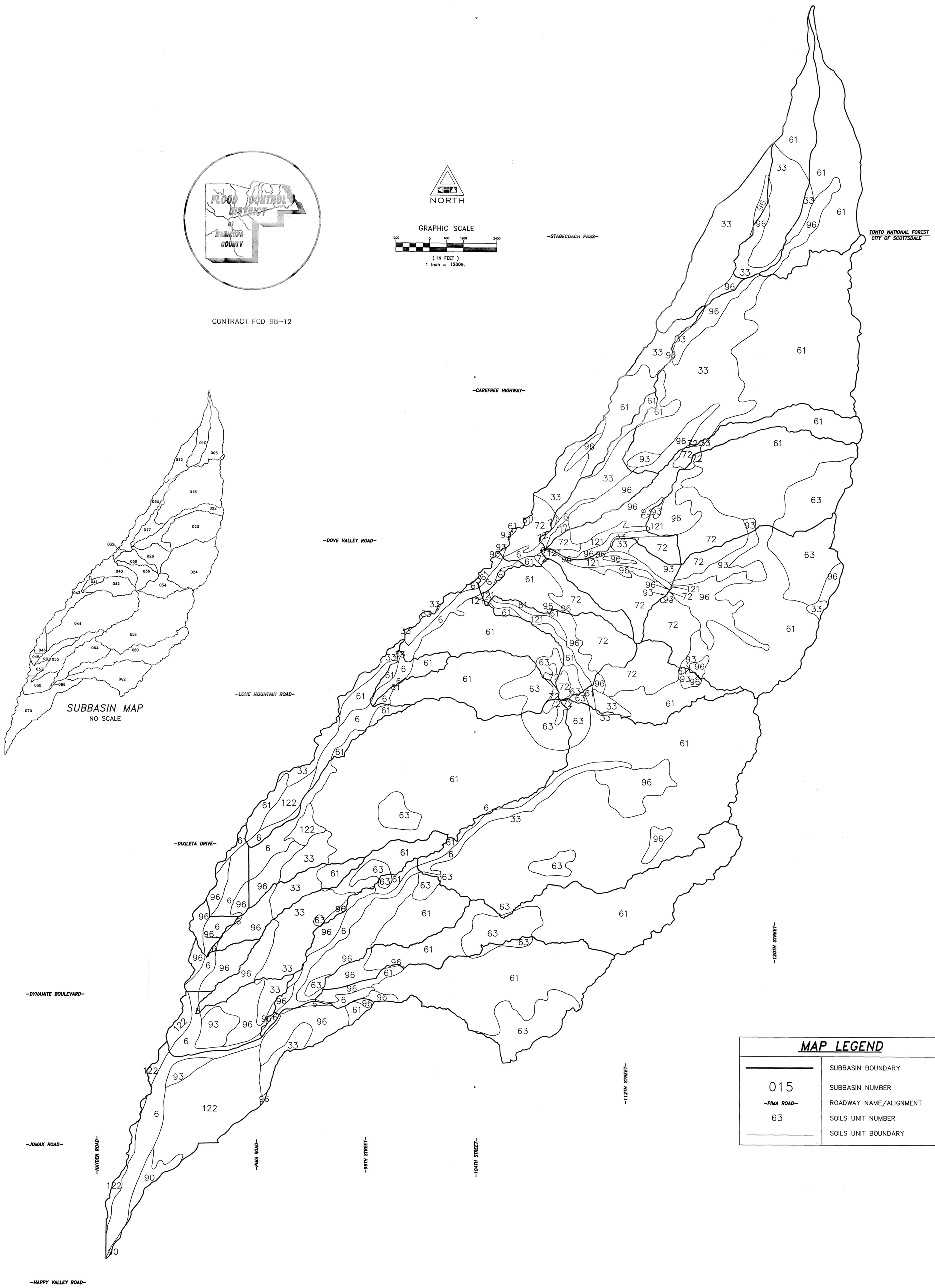
NORTH

GRAPHIC SCALE
1200 0 600 1200 2400
(IN FEET)
1 Inch = 1200ft.



MAP LEGEND

———	SUBBASIN BOUNDARY
015	SUBBASIN NUMBER
-PIMA ROAD-	ROADWAY NAME/ALIGNMENT
63	SOILS UNIT NUMBER
———	SOILS UNIT BOUNDARY

UPPER RAWHIDE WASH FLOODPLAIN DELINEATION STUDY

WATERSHED WORK MAP
SOILS BOUNDARIES

FIGURE G-4

SCALE (H): 1"=1200'
SCALE (V): NONE
DRAWN BY: OJP
DESIGNED BY: LSM
CHECKED BY: RAE
DATE: 9/30/99

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NORTH

GRAPHIC SCALE
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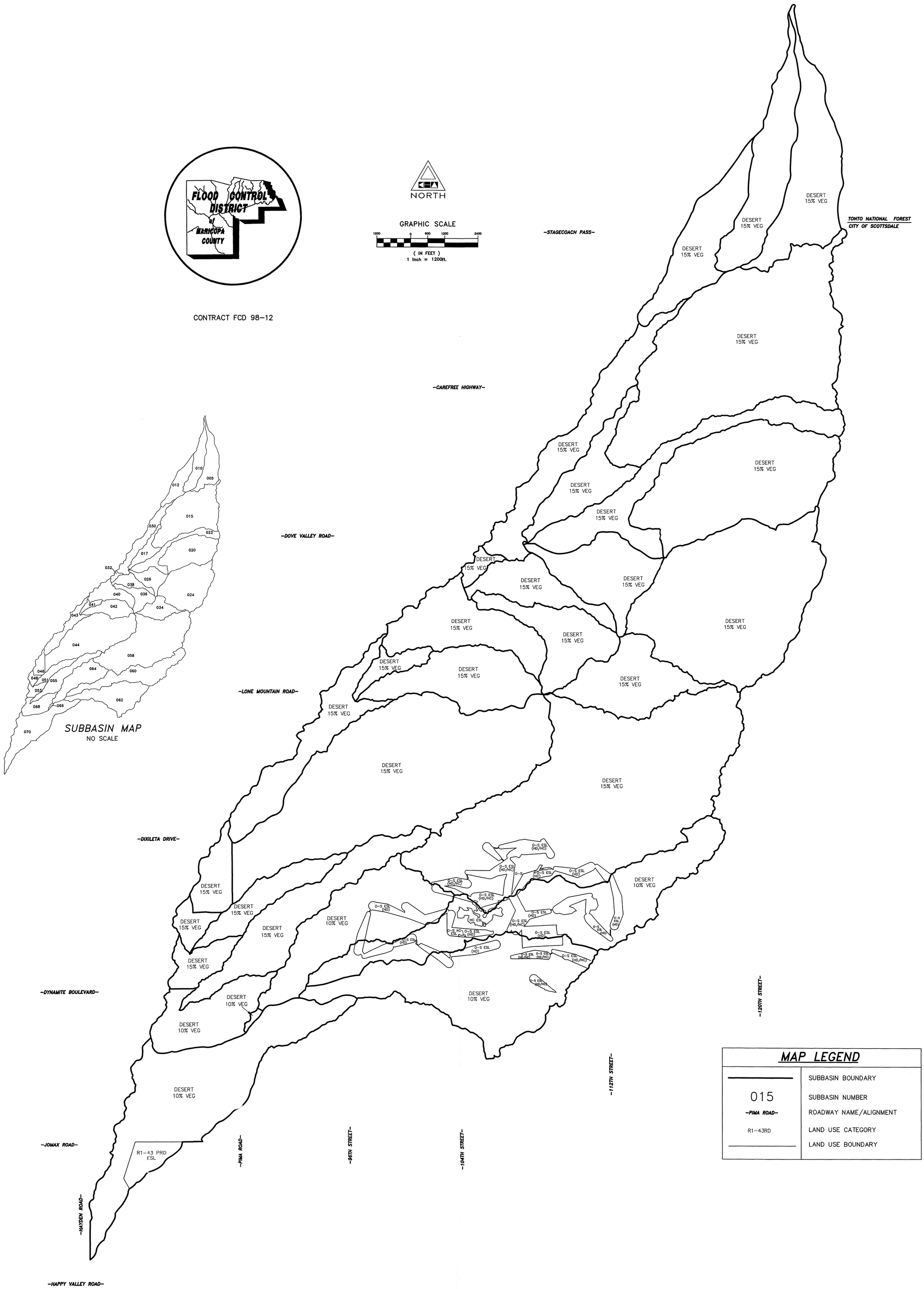
(IN FEET)
1 Inch = 1200ft.



MAP LEGEND

———	SUBBASIN BOUNDARY
015	SUBBASIN NUMBER
-PIMA ROAD-	ROADWAY NAME/ALIGNMENT
R1-43RD	LAND USE CATEGORY
———	LAND USE BOUNDARY

UPPER RAWHIDE WASH FLOODPLAIN DELINEATION STUDY

WATERSHED WORK MAP
LAND USE BOUNDARIES

FIGURE G-5

SCALE (H): 1"=1200'
SCALE (V): NONE
DRAWN BY: OJP
DESIGNED BY: LSM
CHECKED BY: RAE
DATE: 10/04/99

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KHA DWG. NAME 3102DRG5E
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CONTRACT FCD 98-12

NORTH

GRAPHIC SCALE
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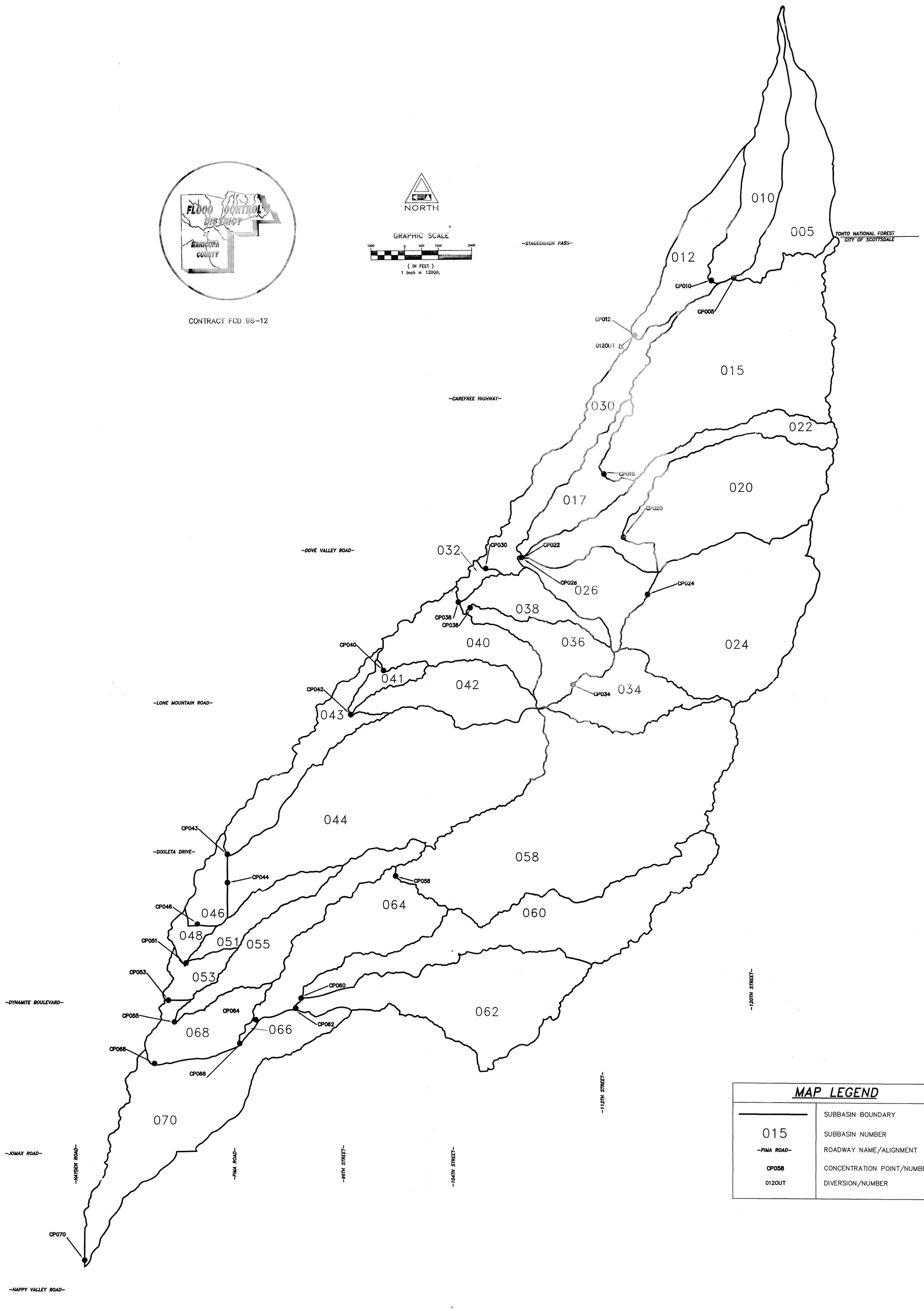
(IN FEET)
1 Inch = 1200ft.



MAP LEGEND

———	SUBBASIN BOUNDARY
015	SUBBASIN NUMBER
-PIMA ROAD-	ROADWAY NAME/ALIGNMENT
CP058	CONCENTRATION POINT/NUMBER
0120UT	DIVERSION/NUMBER

UPPER RAWHIDE WASH FLOODPLAIN DELINEATION STUDY

GENERAL WATERSHED MAP

FIGURE G-1

SCALE (H): 1"=1200'
SCALE (V): NONE
DRAWN BY: OJP
DESIGNED BY: LSM
CHECKED BY: RAE
DATE: 9/30/99

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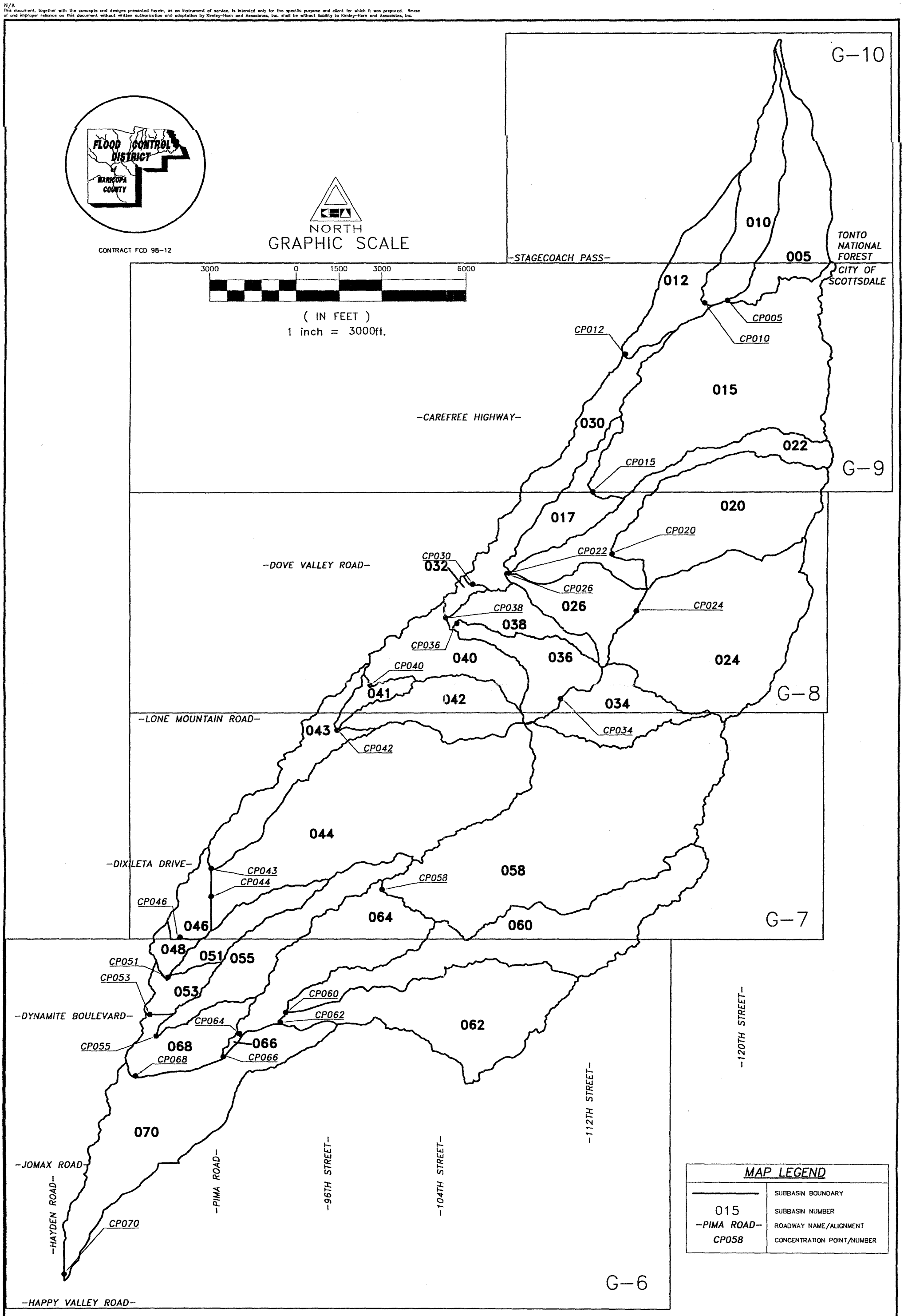

1 of 1

PROJECT NO. 091131.02
DWG. NAME 3102STRP

KEY MAP FOR FIGURES G6 - G10

SCALE (H): 1"=3000'
SCALE (V): NONE
DRAWN BY: OJP
DESIGNED BY: LSM
CHECKED BY: RAE
DATE: 10/21/99

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