HYDROLOGIC ANALYSIS
OF
SCOTTSDALE ALLUVIAL FAN AREA

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

FLOOD CONTROL DISTRICT
OF
MARICOPA COUNTY

MAY 1991

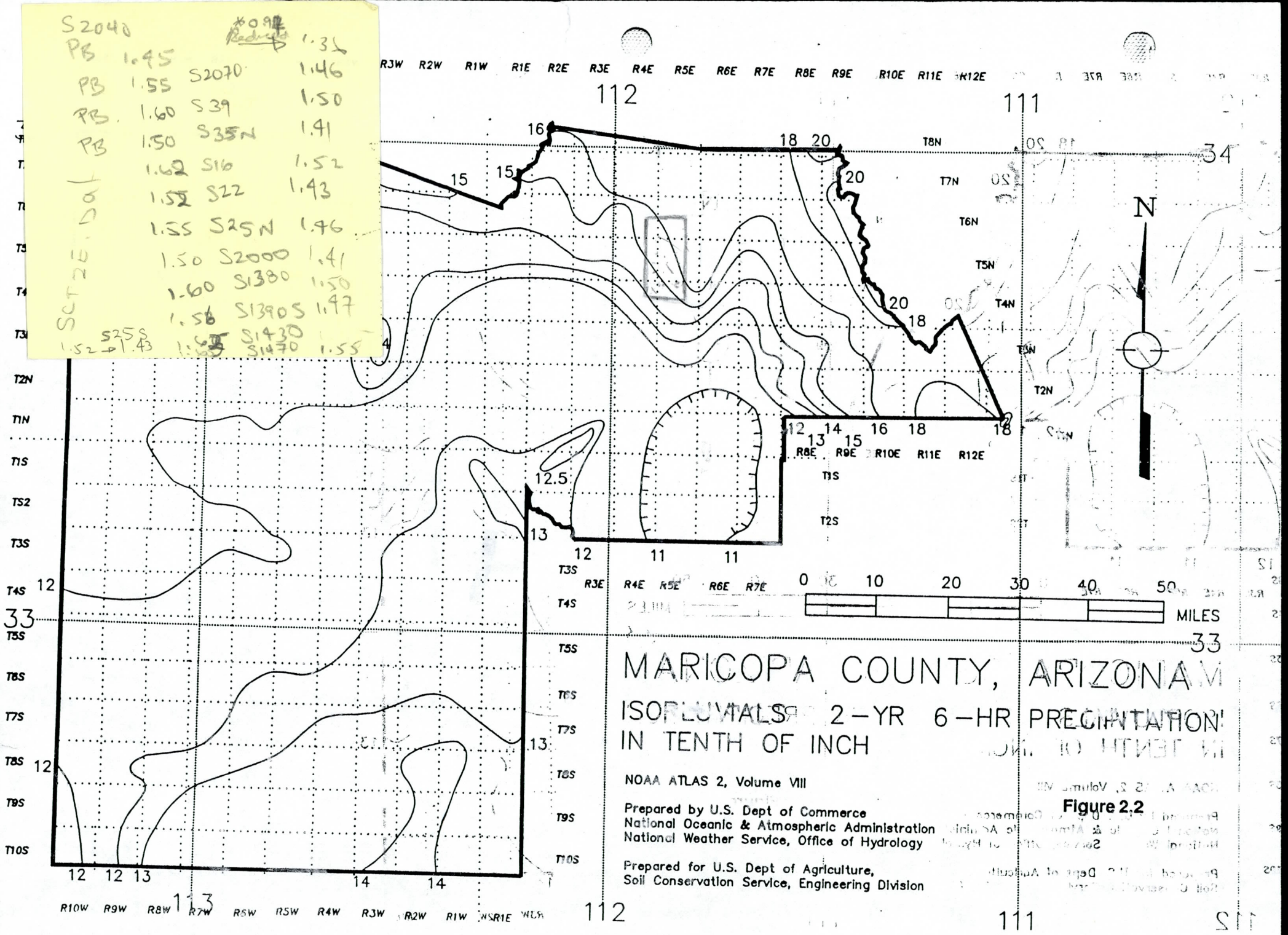

MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 2-YR 6-HR PRECIPITATION
IN TENTH OF INCH
NOAA ATLAS 2, Volume VIII
Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division
N
MILES
0 10 20 30 40 50
R10W R9W R8W R7W R6W R5W R4W R3W R2W R1W R1E R2E R3E R4E R5E R6E R7E R8E R9E R10E R11E R12E
T8N T7N T6N T5N T4N T3N T2N T1N T1S T2S T3S T4S T5S T6S T7S T8S T9S T10S
112 111 113 34 33
S2040 1.45
PB 1.55 S2070 1.46
PB 1.60 S39 1.50
PB 1.50 S35N 1.41
1.62 S16 1.52
1.52 S22 1.43
1.55 S25N 1.46
1.50 S2000 1.41
1.60 S1380 1.50
1.56 S1390S 1.47
S25S 1.52 1.43
S1430
S1470 1.55

Figure 2.2

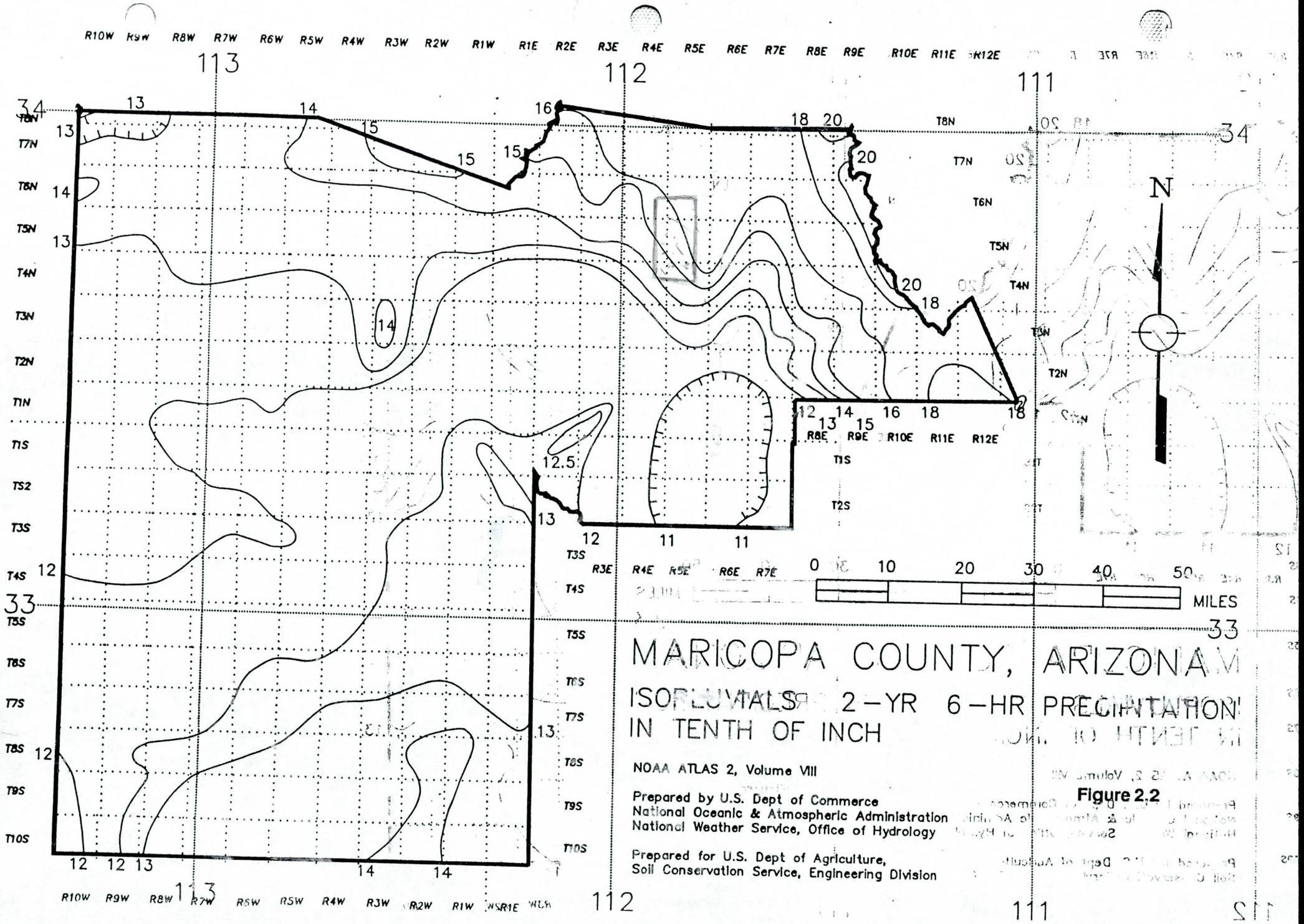

MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 2-YR 6-HR PRECIPITATION
IN TENTH OF INCH
NOAA ATLAS 2, Volume VIII
Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division
N
0 10 20 30 40 50
MILES
R10W R9W R8W R7W R6W R5W R4W R3W R2W R1W R1E R2E R3E R4E R5E R6E R7E R8E R9E R10E R11E R12E
T8N T7N T6N T5N T4N T3N T2N T1N T1S T2S T3S T4S T5S T6S T7S T8S T9S T10S
113 112 111
34 33

Figure 2.2

INTRODUCTION

In the fall of 1990, the Flood Control District of Maricopa County received new hydrology developed by the technical consultants for FEMA; Baker Engineers, for the Scottsdale Alluvial Fan area. The hydrology was produced in order to estimate the 100 year flow at the apices of 6 streams, an area of 25 square miles (See Exhibit 1). These flows were to be used later on to map Flood Hazard Zones downstream of the apices.

FEMA's study differs in few aspects from the previous studies by Water Resources Associates (WRA) for the City of Scottsdale as well as City of Phoenix. First, the study boundaries have changed since the terminus of the watersheds, the apices, have been moved from the previous studies. Also, a newer version of HEC-1 (June 1988) was used.

The Flood Control District of Maricopa County (FCDMC) undertook a revision to FEMA's study using the methodology found in the "Hydrologic Design Manual for Maricopa County" (HDM). This revision will leave the sub-basin boundaries unchanged from those developed by FEMA. However, the methodologies used for the estimating the peak discharges have been changed. The results obtained by this study were compared to FEMA's. Even though the basin boundaries are different from those in WRA's study, it is believed the resulting change in peak will be negligible.

In order to compare the FCDMC's study with WRA's study, and the proposed projects downstream, this package includes the estimated peaks for the 2 and 100 year frequency for the following conditions:

1. Existing Conditions (same base year as WRA's study)

2. Future Condition (Fully developed, same as WRA's study)

3. Maximum Density (maximum possible density, as defined by WRA's study.

The following is a brief summary of the steps taken to revise the hydrology of the Scottsdale Alluvial Fan study.

RAINFALL

For this study to be compatible with previous studies, it was decided not to change the rainfall parameters and use the 24-hr, SCS type IIA rainfall. The two year rainfall frequency also uses SCS Type IIA distribution.

RAINFALL LOSSES

The Green and Ampt infiltration methodology was used for estimating rainfall losses. The soil units present in the study area were identified using the Soil Survey maps developed by the Soil Conservation Service. Using the soil texture of each soil type found in a soil unit, and its relative amount to the soil unit composition, the weighted parameters for the Green and Ampt equation were calculated for each soil unit. These parameters are saturated hydraulic conductivity (XKSAT), wetting front capillary suction (PSIF), and volumetric soil moisture deficit (PSIF). It was assumed that the soil is initially dry prior to the start of the rain. The soil map of the area was obtained and the sub-basins for the area were super-imposed on the map. The areas for different soil units were measured in each sub-basin, and the parameters were area averaged. Initial abstraction values (IA) are taken from Table 4.1 in the HDM.

If the soil complex contained rock outcrop, the area of the rock outcrop was subtracted and the remaining soil percentages were used to determine the weighted XKSAT value for the soil complex. The percentage of rock outcrop was used as the impervious value--RTIMP (at 60% connected).
The XKSAT value was adjusted for vegetation cover for soils other than sand or loamy sand. The percentage of vegetation cover was estimated as 25%.

A table of the rainfall loss parameters can be found in the appendix. Also, a description of all the soil types in the area and the calculations leading to the table of values are included.

The impervious areas include rock outcrops and existing developments. For future condition and maximum density conditions, this percent impervious was increased based on the information found in the WRA report for Scottsdale. A table showing the combined percent impervious for each sub-basin is included in the appendix.

Unit Hydrograph

The Phoenix Mountain and Phoenix Valley S-Graphs developed by Army Corp of Engineers were used for the unit hydrograph calculations. The use of these S-Graphs is recommended in the HDM.

The Lag was measured according to the equation:

$$Lag = 24Kn \times (L \times L^{ca} / S^{0.5})^{0.38}$$

where Kn= watershed roughness coefficient
L= Length of longest watercourse (miles)
L_{ca}= Length to centroid (miles)
S= Watercourse slope (ft/mile)

Values for Kn were estimated using Figure 5.11 of the HDM. If the topography of a sub-basin was mountainous, the Kn value used to calculate Lag corresponds to the description of rugged area. If the topography is not mountainous, the Kn value corresponds to the description of a flat area. When the topography of a sub-basin consists of a combination of both mountainous and non-mountainous areas, the Kn value selected corresponds to the topography condition which is most prominent by quantity.

The slope "S" in the Lag equation above is based on the maximum difference in elevation along the watercourse. The slopes were adjusted according to Figure 5.4 of the HDM.

A table of lag calculations and the necessary parameters can be found in the appendix.

The MCUHP2 program was used to develop the unit hydrographs from the given S-Graphs. The particular S-graph for each sub-basin model is chosen according to the major percentage of topography type (Mountain or Valley) found in the sub-basin.

ROUTING

The normal depth routing methodology was used in this model to replace the Kinematic wave used in FEMA's model. It is believed that normal depth will be a much better representation of the sheet flow situation found in this region.

The dimensions of the cross sections and the Manning's "n" values for the channels were measured and estimated in the field. A sketch of the cross sections and an index map of their location is included in the appendix.

MODEL STRUCTURE

Essentially the same HEC-1 structure was kept as in FEMA's model. FEMA developed 6 different models for six streams. For ease of operation, FCDMC combined all 6 streams into one model.

RESULTS

FCDMC model predicts the estimated peak flows to be generally lower than those estimated by FEMA. Following table shows the estimated 100-year peak flows for the sub-basins as defined by FEMA. At the time of this report, FCDMC did not have the latest or the complete reports from WRA, therefore no comparison has been made at this point.

STREAM	APEX	AREA	100-YEAR DISCHARGE FEMA		FCDMC	
	*	SQ MILES *	CFS	CFS/SQ MI	* CFS	CFS/SQ MI
1	2051	1.79	3,470	1,939	2,303	1,287
1	2070	1.46	3,380	2,315	2,359	1,616
2	CP51	7.88	15,150	1,922	5,370	681
2	2000	0.80	1,790	2,238	1,334	1,668
3	35N	0.41	820	2,000	543	1,324
4	21	9.70	12,310	1,269	4,698	484
4	C24	1.78	3,850	2,163	1,645	924
4	24	2.27	4,320	1,903	1,945	857
4	25N	0.78	1,380	1,769	405	519
4	25S	0.63	1,420	2,254	622	987
5	1475	1.99	3,460	1,739	1,163	584
6	1390N	1.49	2,380	1,597	915	614
6	1390S	0.43	800	1,860	300	698
6	1441	3.32	4,660	1,404	1,702	513

TABLE 1

COMPARISON OF 100-YEAR DISCHARGES
FCDMC vs FEMA

STREAM	APEX	AREA	2-YEAR DISCHARGE FEMA		2-YEAR DISCHARGE FCDMC	
	*	SQ MILES *	CFS	CFS/SQ MI	* CFS	CFS/SQ MI
1	2051	1.79	26	15	512	286
1	2070	1.46	51	35	593	406
2	CP51	7.88	216	27	1,487	188
2	2000	0.80	23	29	366	458
3	35N	0.41	7	17	163	398
4	21	9.70	165	17	1,267	131
4	C24	1.78	56	31	466	261
4	24	2.27	58	26	505	222
4	25N	0.78	19	24	111	142
4	25S	0.63	36	57	185	294
5	1475	1.99	50	25	246	124
6	1390N	1.49	26	17	198	133
6	1390S	0.43	10	23	49	114
6	1441	3.32	50	15	402	121

TABLE 2

COMPARISON OF 2-YEAR DISCHARGES
FCDMC vs FEMA

CP	AREA	EXISTING FCDMC	FUTURE FCDMC	MAXIMUM FCDMC
15	1.40	500	537	550
16	1.46	708	747	761
17	1.19	944	982	996
18	1.26	1470	1481	1484
19	0.19	239	254	257
20	0.57	714	723	726
21	3.67	2480	2569	2606
22	1.39	1483	1506	1516
23	0.40	276	284	287
24	0.49	347	361	367
25N	0.78	405	421	427
25S	0.63	622	640	647
35N	0.41	543	564	568
39	1.93	1239	1338	1359
40	0.58	723	752	763
41	0.79	425	451	460
42	0.58	699	750	761
43	1.07	1467	1528	1549
44	0.84	773	804	814
45	0.20	327	349	355
45A	0.17	315	328	332
46	0.93	1293	1313	1319
47	0.38	457	472	476
48	0.04	57	57	58
50	0.36	468	472	475
1380	0.93	650	689	704
1390N	0.56	355	382	393
1390S	0.43	300	318	327
1430	1.43	657	733	760
1440	1.89	1126	1221	1251
1470	0.30	218	231	236
1475	1.69	1064	1238	1287
2000	0.80	1334	1346	1349
2040	0.93	1304	1347	1358
2050	0.86	1016	1057	1068
2070	1.46	2359	2381	2384

TABLE 3

COMPARISON OF 100-YEAR DISCHARGE
EXISTING - FUTURE - MAXIMUM

ATTACHMENTS

1. Rainfall Losses calculations
2. Sub-Basin Parameter Calculations,
3. HEC-1 Computer Program Output File
4. Field Notes & Index Map For Cross Sections
5. Copy of The Work Map Including The Soils Delineation And Sub-Basin Boundaries, Scale 1:24000.

APPENDIX

Procedure for Rainfall Losses Calculation

1- Obtain the Soil Map of the area.
2- Describe the soil texture percentage for each map unit number.
3- Obtain the XKSAT value from Table 4.2 in Hydrology Manual for each soil texture of each map unit number.
4- Calculate the final XKSAT value of the map unit by multiplying the percentage for each unit number with the obtained XKSAT value of each soil texture, (step 2* step 4).
5- Adjust this value in accordance to the percent of vegetation in the area, assumed 25% vegetation.
6- From the calculated XKSAT value, obtain the final PSIF, DTHETA values from Table 4.2 in Hydrology Manual.
7- If the map unit number has rock outcrop as part of its texture, use this percentage for the percent impervious value, RTIMP.
8- Measure the area of each soil unit within the sub-basins.
9- Calculate the percent area of each soil unit for the sub-basin.
10- Calculate the XKSAT, PSIF, DTHETA, RTIMP values for each sub-basin using the percent of each soil unit.
11- Measure the Initial Abstraction value IA, for each sub-basin in accordance with the surface cover in each sub-basin, Table 4.1 in Hydrology Manual.

Sample Calculations.

1,2- Soil Unit #	Soil Texture
8	100% Arizo Cobbly Sandy Loam
40	45% Eba very gravelly loam 35% Pinaleno very gravelly Clay Loam 20% Arizo, Anthony, Continental, Ohaco, Greyeagle, Nickel, Vado and Tres Hermans.

3 4,5- Soil Unit #	% Texture	XKSAT	Weighted XKSAT	Adjusted XKSAT
8	100	0.40	1(0.4)=0.4	0.46
40	45	0.25	.45(.25)=.1125	
	35	0.04	.35(.04)=.0140	
	2.5	0.40	.025(.40)=0.010	
	2.5	0.40	.025(.40)=0.010	
	2.5	0.04	.025(.04)=0.001	
	2.5	0.25	.025(.25)=0.006	
	2.5	0.25	.025(.25)=0.006	
	2.5	0.40	.025(.40)=0.010	
	2.5	0.25	.025(.25)=0.006	
	2.5	0.40	.025(.40)=0.010	
			.11+.014+.01+.01+.001+ .006+.006+.01+.006+.01= 0.19	0.21

6,7- Soil Unit #	XKSAT	PSIF	DTHETA	RTIMP
8	0.40(0.46)	4.16	0.35	0
40	0.19(0.21)	4.70	0.37	0

8,9- Sub-basin #	Map Unit #	Area	% of Total Area
48	8	0.014	(.014/.045)= 31.11
	40	0.031	(.031/.045)= 68.89

		0.045	

10- Sub Basin	Soil Unit #	% of Soil Unit for sub-basin Area	XKSAT	PSIF	DTHTETA	RTIMP
48	8	31.11	0.46	4.16	0.35	0
	40	68.89	0.21	4.70	0.37	0
			---	---	---	---
			.31(.46)+	.31(4.16)+	.31(.35)+	.31(0)
			.69(.21)	.69(4.70)	.69(.37)	.69(0)
			---	---	---	---
			0.29	4.53	0.36	0
			---	---	---	---

11- Sub-basin	IA
48	0.15

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial Fans PAGE 1 OF 3

DETAIL Description of Soil Type in the area. COMPUTED A.A DATE 01/03/91

CHECKED BY _____ DATE _____

Map Unit #	Soil Name	Description
6	Anthony-Arizo Complex	0-3% Slope. 40% Anthony Sandy loam 40% Arizo gravelly Sandy loam 20% Sandy Soils
8	Arizo Cobbly Sandy loam	0-3% Slope 100% Cobbly Sandy loam
26	Continental Cobbly clay loam	85% Clay loam 15% Ohaco & Suncity Variant Soils
31	Dixaleta-Rock Outcrop	25-65% Slopes 55% Dixaleta extremely Channery Sandy loam 35% Rock outcrop. 10% Ohaco, Nickel, Cave & Eba, Gran & Lehmans
33	Eba very gravelly loam	1-8% Slopes 80% very gravelly loam 20% Pinaleno & Continental Soils
34	Eba very gravelly loam	8-20% Slopes 80% very gravelly loam 20% Pinaleno & Continental Soils

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial Fans PAGE 2 OF 3

DETAIL Description of Soil Types in the area COMPUTED A.A DATE 01/03/91

CHECKED BY _____ DATE _____

Map Unit #	Soil Name	Description
40	Eba-Pinaleno Complex	3-20% Slopes 45% Eba very gravelly loam 35% Pinaleno very gravelly clay loam 20% Arizo, Anthony, Continental, Ohaco Greyeagle, Nickle, Vado & Tres Hermanos
41	Eba-Pinaleno Complex	20-40% Slopes 45% Eba very gravelly loam 35% Pinaleno very gravelly clay loam 20% Ohaco, Tres Hermanos, Anthony & Arizo.
61	Gran-Wickenburg Complex	1-10% Slopes 40% Gran very gravelly Sandy loam 35% Wickenburg gravelly Sandy loam 25% Eba, Pinaleno, Arizo & Rock outcrop
63	Gran-Wickenburg-Rock Outcrop Complex	10-65% Slopes 30% Gran very gravelly sandy loam 25% Wickenburg gravelly Sandy loam. 25% Rock Outcrop. 20% Dixaleta, Lehmans, Eba, Pinaleno, Arizo.
72	Lehmans-Rock outcrop Complex	8-65% Slopes 45% Lehmans very gravelly clay loam 30% Rock Outcrop 25% Arizo, Eba, Pinaleno, Greyeagle Nickel.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial Fans PAGE 3 OF 3

DETAIL Description of Soil Types in the area COMPUTED A.A. DATE 01-03-91

CHECKED BY _____ DATE _____

Map Unit #	Soil Name	Description
91	Momoil Carrizo Complex	0-3% Slopes 45% Momoli Very gravelly Sandy loam 35% Carrizo very gravelly Sandy loam 20% Mohall, Tremant, Gunsight, Chuckawalla Denure, Gilman, Maripo & Carrizo.
93	Nickel - Cave Complex	8-30% Slopes 50% Nickel gravelly Sandy loam 35% Cave gravelly loam. 15% Arizo, Anthony, Pinaleno & Greyeagle
96	Pinaleno - Tres Hermanos	1-10% slopes 45% Pinaleno very gravelly clay loam 40% Tres Hermanos gravelly loam 15% Arizo, Mohave, Greyeagle, Eba, Vado & Nickel Soils.
104	Rock Outcrop Lehmans Complex	15-65% Slopes 60% Rock outcrop 20% Lehmans very gravelly clay loam. 20% Arizo, Eba, Pinaleno
121	Tres Hermanos Anthony Complex	50% Tres Hermanos gravelly loam 35% Anthony Sandy loam 15% Arizo, Pinaleno & Nickel
122	Vado gravelly loam	25% Anthony, Arizo, Pinaleno & Tres Hermano 75% Gravelly Sandy loam

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial Fans PAGE 1 OF 6

DETAIL % of Soils in each Subbasin COMPUTED AA DATE 01/03/91

CHECKED BY _____ DATE _____

Subbasin	Map Unit #	Area	% of Total Area
2070	8	0.053	3.87
	31	1.285	93.73
	63	0.033	2.41
		1.371 (1.4649)	
2050	8	0.011+0.089+0.011 = 0.111	13.14
	31	0.618	73.14
	91	0.098+0.018 = 0.116	13.73
		(0.8580) 0.845	
2040	8	0.076	8.61
	31	0.744	84.26
	91	0.063	7.13
		(0.9290) 0.883	
2000	31	0.683	75.3
	93	0.112	12.3
	96	0.112	12.3
		(0.7999) 0.907	
46	31	0.861	94.41
	63	0.051	5.59
		(0.9268) 0.912	
44	61	0.69	87.80
	63	0.036+0.007 = 0.043	5.46
	121	= 0.053	6.73
		(0.8389) 0.787	
45A	31	0.148	75.51
	61	0.031+0.004 = 0.035	17.86
	63	0.013	6.63
		(0.1720) 0.196	
45	6	0.023 = 0.023	11.27
	61	0.053+0.035 = 0.088	43.14
	63	0.012+0.023+0.021 = 0.056	27.45
	121	0.037	18.14
		(0.[illegible]) 0.204	

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial Fans PAGE 2 OF 6

DETAIL % of Soils in each Subbasin COMPUTED AA DATE 01/03/9

CHECKED BY DATE

Subbasin	Map Unit #	Area		% of Total Area
50	31	0.319	0.319	76.5
	40	0.0070+0.091 =	0.098	23.5
		(0.3580)	0.417	
48	8	0.012+0.002 =	0.014	31.11
	40	0.012+0.019	0.031	68.89
		(0.0438)	0.045	
47	6		0.007	1.79
	8		0.079	20.26
	31	0.028+0.069 =	0.097	24.87
	40	0.012+0.037 =	0.049	12.56
	41		0.023	5.90
	61		0.102	26.15
	63		0.019	4.87
	96		0.014	3.59
		(0.3757)	0.390	
42	6		0.037	5.61
	40		0.051	7.73
	61		0.138	20.91
	63	0.040+0.075 =	0.115	17.42
	96		0.319	48.33
		(0.5844)	0.660	
43	6		0.047	4.21
	61		0.941	84.24
	63	0.026+0.021+0.082 =	0.129	11.55
		(1.0665)	1.117	
41	6	0.107+0.005 =	0.112	12.40
	33	0.016+0.007 =	0.023	2.55
	61		0.054	5.98
	63		0.210	23.26
	93		0.028	3.10
	96		0.154	17.05
	121		0.322	35.66
		(0.7[illegible])	0.903	

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial Fans PAGE 3 OF 6

DETAIL % Soils in each Subbasin COMPUTED AK DATE 01/03/91

CHECKED BY _____ DATE _____

Subbasin	MapUnit	Area	% of Total Area
40	6	= 0.091	12.67
	61	0.492 + 0.009 = 0.501	69.78
	63	0.100 + 0.019 = 0.119	16.57
	121	= 0.007	0.97
		(0.5844) 0.718	
39	6	= 0.051	2.52
	33	= 0.028	1.38
	61	0.0023 + 1.80 = 1.802	88.94
	63	0.014 + 0.028 + 0.040 + 0.003 + 0.007 + 0.009 = 0.101	4.99
	96	0.023 + 0.021 = 0.044	2.17
		(1.9302) 2.026	
35N	33	= 0.115	25.33
	61	0.005 + 0.002 = 0.124	27.31
	63	0.136	29.96
	96	0.068	14.98
	121	0.011	2.42
		(0.4068) 0.454	
25S	61	0.103 + 0.400 = 0.503	77.62
	63	0.042 + 0.103 = 0.145	22.38
		(0.6256) 0.648	
25N	61	0.133 + 0.483 = 0.616	83.70
	63	= 0.080	10.87
	96	= 0.040	5.43
		(0.7824) 0.736	
23	6	0.014	4.42
	61	0.280	88.33
	63	0.016	5.05
	96	0.007	2.21
		(0.324) 0.317	

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial Fans PAGE 4 OF 6

DETAIL % Soils in each Subbasin COMPUTED AA DATE 01/13/91

CHECKED BY _____ DATE _____

Subbasin	Map Unit	Area	% of Total Area
	6	0.084	18.34
	33	0.014	3.06
24	61	0.026 + 0.135 = 0.161	35.15
	63	0.028 + 0.031 + 0.012 = 0.071	15.50
	96	0.049 + 0.007 + 0.009 + 0.063 = 0.128	27.95
		(0.4907) 0.458	
22	6	0.063	4.05
	33	0.005	0.32
	61	1.273	81.86
	63	0.03 + 0.049 = 0.079	5.08
	72	0.009	0.58
	96	0.112 + 0.014 = 0.126	8.10
		(1.3860) 1.555	
21	6	0.006 + 0.205 + 0.219 = 0.430	13.34
	33	0.103 + 0.271 = 0.374	11.60
	61	0.071 + 0.090 + 1.497 = 1.638	50.81
	63	0.059 + 0.005 + 0.014 + 0.019 + 0.119 = 0.216	6.70
	72	0.026	0.81
	96	0.072 + 0.326 = 0.398	12.34
	122	0.028 + 0.037 + 0.077 = 0.142	4.40
		(3.6659) 3.224	
20	6	0.012	1.92
	33	0.014 + 0.033 = 0.047	7.53
	61	0.074 + 0.007 + 0.140 = 0.221	35.42
	63	0.044	7.05
	72	0.198 + 0.022 = 0.220	35.26
	96	= 0.045	7.21
	121	= 0.035	5.61
		(0.5698) 0.624	

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial Fans PAGE 5 OF 6

DETAIL % of Soils in each Subbasin COMPUTED 01/08/91 DATE

CHECKED BY DATE

Subbasin	Map Unit	Area		% of Total Area
19	6		= 0.028	9.62
	33		= 0.00.	0.69
	61		= 0.112	38.49
	72	0.0037 + 0.105	= 0.142	48.80
	96		= 0.007	2.41
		(0.1872)	0.291	
18	33	0.022 + 0.005 + 0.01	= 0.037	2.72
	61	0.498 + 0.0281	= 0.526	38.73
	63		= 0.154	11.34
	72	0.253 + 0.0853	= 0.390	28.72
	93	0.04 + 0.017	= 0.057	4.20
	96	0.125 + 0.022 + 0.007 + 0.0104	= 0.164	12.08
	121	0.037 - 0.007	= 0.030	2.21
		(1.264)	1.358	
17	33		0.0096	0.81
	61		0.548	46.17
	63		0.107	9.01
	72	0.150 + 0.04 + 0.016 + 0.009	= 0.215	18.11
	93		0.005	0.42
	96		0.277	23.34
	121		0.025	2.11
		(1.185)	1.187	
16	6		0.023	1.71
	33		0.499	37.16
	61	0.004 + 0.034 + 0.601	= 0.636	47.36
	72	0.011 + 0.016	= 0.027	2.01
	93	0.014	= 0.014	1.04
	96	0.054 + 0.088 + 0.002	= 0.144	10.72
		1.157	1.343	

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial Fans PAGE 6 OF 6

DETAIL % of Soils in each subbasin COMPUTED AA DATE 01/08/91

CHECKED BY DATE

Subbasin	Map Unit	Area	% of Total Subbasin
15	6	0.016	1.11
	33	0.078 + 0.004 + 0.378 + 0.058 = 0.518	36.05
	61	0.136 + 0.592 = 0.728	50.66
	72	0.051	3.55
	96	0.004 + 0.12 = 0.124	8.63
		1.437	

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial Fans PAGE ____ OF ____

DETAIL % of Soils in each Subbasin COMPUTED AA DATE 12/3/96

CHECKED BY ____ DATE ____

Subbasin	MapUnit	Area		% of Total Area
1380	33		0.66	69.7
	96		0.087	9.2
	61		0.190	20.1
	6		0.010	1.0
		(0.9305)	0.947	
1390N	96		0.013	2.23
	33		0.240	41.17
	61		0.270	46.31
	6		0.060	10.29
		(0.5610)	0.583	
1390S	61		0.26	60.5
	33		0.16	37.2
	6		0.01	2.3
		(0.4347)	0.43	
1430	6	0.14 + 0.01 =	0.15	8.62
	93	0.09 + 0.004 =	0.094	5.17
	72		0.01	0.57
	61		0.18	10.34
	26		0.03	1.72
	34		0.16	9.20
	96		0.044	2.30
	33	0.940 + 0.148 =	1.080	62.07
		(1.4319)	1.74	
1440	61		0.07	3.78
	93		0.026	1.41
	72		0.040	2.16
	26	0.02 + 0.04 =	0.06	3.24
	96		0.226	12.22
	34		0.052	2.81
	33		1.380	74.60
		(1.8882)	1.86	

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT _____ PAGE ____ OF ____

DETAIL _____ COMPUTED _____ DATE ____

_____ CHECKED BY _____ DATE ____

Subbasin	Map Unit	Area	% of Total Area
1470	33	(0.2977) 0.294	100
1475	33	0.366	21.45
	96	0.030	1.76
	61	1.110	65.06
	26	0.04	2.34
	72	0.07	4.10
	93	0.08	4.69
	6	0.01	0.59
		(1.6895) 1.706	

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial Fans PAGE 1 OF 10

DETAIL Green & Ampt Calculation COMPUTED AA DATE 01/09/9

CHECKED BY DATE

Subbasin 2000

Map Unit	% Map Unit	Textural Class	XKSAT	PSIF	DTHETA	% Impervious	25 % Veg
31 (75.3)	84.62	Sandy loam	0.40			35% x 60	
	2.56	gravelly loam	0.25				
	2.56	Sandy loam	0.40				
	2.56	gravelly loam	0.25				
	2.56	gravelly loam	0.25				
	2.56	Sandy loam	0.40				
	2.56	clay loam	0.04				
			0.38 (0.44)	4.21	0.35	21.0	
93 (12.3)	50	Sandy loam	0.40				
	35	loam	0.25				
	3.75	Sandy loam	0.40				
	3.75	Sandy loam	0.40				
	3.75	clay loam	0.04				
	3.75	loam	0.25				
			0.33 (0.38)	4.2	0.35		
96 (12.3)	45	Clay loam	0.04				
	40	gravelly loam	0.25				
	2.5	Sandy loam	0.40				
	2.5	loam	0.25				
	2.5	loam	0.25				
	2.5	gravelly loam	0.25				
	2.5	Sandy loam	0.40				
	2.5	Sandy loam	0.40				
			0.17 (0.20)	5.1	0.38		

Subbasin 2040

Map Unit	% Map Unit	Textural Class	XKSAT	PSIF	DTHETA	% Impervious	25 % Veg
8 (8.61)	100	Sandy loam	0.40				
			0.40 (0.46)	4.16	0.35		
31 (84.26)	Same as above						
			0.38 (0.44)	4.21	0.35	21.0	
91 (7.13)	45	Sandy loam	0.40				
	35	Sandy loam	0.40				
	2.5	loam	0.25				
	2.5	loam	0.25				
	2.5	Sandy loam	0.40				
	2.5	gravelly loam	0.25				
	2.5	Sandy loam	0.40				
	2.5	loam	0.25				
	2.5	Sandy loam	0.40				
	2.5	Sand	4.6				
			0.49 (0.56)	3.92	0.35		

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial PAGE 2 OF 10

DETAIL Green & Ampt Calculation COMPUTED AA DATE 01/09/91

CHECKED BY DATE

Subbasin 2050

Map Unit	% Map Unit	Textural class	XKSAT	PSIF	DTHETA	% Impervious
8(13.14)	100	Sandy loam				
			0.40 (0.46)	4.16	0.35	
31 (73.14)	Same as	before				
			0.38 (0.44)	4.21	0.35	35% x 60 = 21.
91 (13.73)	Same as	before.				
			0.49 (0.56)	3.92	0.35	

Subbasin 2070

8 (3.87)	Same as	before				
			0.40 (0.46)	4.16	0.35	
31 (93.73)	Same as	before.				
			0.38 (0.44)	4.21	0.35	35% x 60 = 21.
3 (2.41)	40.	Sandy loam	0.40			25% x 60 = 15.
	33.33	Sandy loam	0.40			
	5.33	Sandy loam	0.40			
	5.33	Clay loam	0.04			
	5.33	gravelly loam	0.25			
	5.33	Clay loam	0.04			
	5.33	Sandy loam	0.40			
		0.90	0.35 (0.40)	4.3	0.35	15.0

Final Green & Ampt Values for each subbasin

	Subbasin	XKSAT	PSIF	DTHETA	% Impervious	IA
	2000	0.41	4.31	0.35	15.8	0.15
*	2040	0.45	4.19	0.35	17.69	0.25
	2050	0.46	4.16	0.35	15.36	0.25
	2070	0.44	4.21	0.35	20.0	0.25

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial PAGE 3 OF 10

DETAIL Green & Ampt Calculation COMPUTED AA DATE 01/09/91

CHECKED BY DATE

Subbasin 15

Map Unit	% Map Unit	Textural Class	XKSAT	PSIF	DTHETA	% Impervious
6 (1.11)	40	Sandy loam	0.40			
	40	Sandy loam	0.40			
	20	Sandy	4.6			
			1.24	2.37	0.35	
33 (36.05)	80	loam	0.25			
	10	clay loam	0.04			
	10	clay loam	0.04			
		0.40	0.21 (0.24)	3.8	0.35	
61 (50.66)	40	gravelly Sandy loam	0.4			
	35	gravelly Sandy loam	0.4			
	6.25	gravelly loam	0.25			
	6.25	Clay loam	0.04			
	6.25	Sandy loam	0.4			
	6.25	Rock outcrop	0.0			
			0.17 (0.20)	5.1	0.38	0.032

Subbasin 16

6 (1.71)	Same as	above	1.24	2.37	0.35	
33 (37.16)	Same as	above	0.21 (0.24)	3.8	0.35	
61 (47.36)	Same as	above	0.17 (0.20)	5.1	0.38	
72 (2.01)	64.29	gravelly clay loam	0.04			35x60
	7.14	Sandy loam	0.4			
	7.14	gravelly loam	0.25			
	7.14	Clay loam	0.04			
	7.14	loam	0.25			
	7.14	Sandy loam	0.40			
			0.12 (0.14)	6.8	0.39	21.0
93 (1.04)	Same as	before	0.33 (0.38)	4.2	0.35	
96 (10.72)	Same as	before	0.17 (0.20)	5.1	0.38	

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial PAGE 4 OF 10

DETAIL Green & Ampt Calculation COMPUTED AA DATE 01/09/91

CHECKED BY DATE

Subbasin 17

Map Unit	% Map Unit	Textural Class	XKSAT	PSIF	DTHETA	% Impervious
33 (0.81)	Same as	before.				
			0.21 (0.24)	3.8	0.35	
61 (46.17)	Same as	before.				
			0.17 (0.20)	5.1	0.38	
63 (19.01)	Same as	before				
			0.35 (0.4)	4.3	0.35	15.0
72 (18.11)	Same as	before.				
			0.12 (0.14)	6.8	0.39	21.0
93 (0.42)	Same as	before.				
			0.33 (0.38)	4.2	0.35	
96 (23.34)	Same as	before				
			0.17 (0.20)	5.1	0.38	
121 (2.11)	50	gravelly loam	0.25			
	35	Sandy loam	0.40			
	5	Sandy loam	0.40			
	5	Clay loam	0.04			
	5	Sandy loam	0.40			
		0.06, 1.20	0.27 (0.31)	3.8	0.35	

Subbasin 18

33 (2.72)						
			0.21 (0.24)	3.8	0.35	
61 (38.73)						
			0.17 (0.20)	5.1	0.38	
63 (11.34)						
			0.35 (0.4)	4.3	0.35	15.0
72 (28.72)						
			0.12 (0.14)	6.8	0.39	21.
93 (4.20)						
			0.33 (0.38)	4.2	0.35	
96 (12.08)						
			0.17 (0.20)	5.1	0.38	
121 (2.21)						
			0.27 (0.31)	3.8	0.35	

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial PAGE 5 OF 10

DETAIL Green & Ampt Parameters COMPUTED AA DATE 01-09-91

CHECKED BY _____ DATE _____

Subbasin 19

Map Unit	% Map Unit	Textural Class	XKSAT	PSIF	DTHETA	% Impervious
6 (9.62)						
			1.24	2.37	0.35	
33 (0.69)						
			0.21 (0.24)	3.8	0.35	
61 (38.49)						
			0.17 (0.20)	5.1	0.38	
72 (48.80)						
			0.12 (0.14)	6.8	0.39	21.0
96 (2.45)						
			0.17 (0.20)	5.1	0.38	

Subbasin 20

6 (1.92)			1.24	2.37	0.35	
33 (7.53)			0.21 (0.24)	3.80	0.35	
61 (35.42)						
			0.17 (0.20)	5.1	0.38	
63 (7.05)						
			0.35 (0.4)	4.3	0.35	15.0
72 (35.26)						
			0.12 (0.14)	6.8	0.39	21.0
96 (7.21)						
			0.17 (0.2)	5.1	0.38	
121 (5.61)						
			0.27 (0.31)	3.8	0.35	

Subbasin 21

6 (13.34)			1.24	2.37	0.35	
33 (11.60)			0.21 (0.24)	3.80	0.35	
61 (50.81)			0.17 (0.20)	5.1	0.38	
63 (6.70)						
			0.35 (0.4)	4.30	0.35	15.0
72 (0.81)						
			0.12 (0.14)	6.8	0.39	21.0
96 (12.34)			0.17 (0.2)	5.10	0.38	
122 (4.40)	75	Sandy loam	0.40			
	6.25	Sandy loam	0.40			
	6.25	Sandy loam	0.40			
	6.25	Clay loam	0.04			
	6.25	Sandy loam	0.40			
			0.38 (0.44)	4.21	0.35	

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial PAGE 6 OF 10

DETAIL Green & Ampt Parameter COMPUTED AA DATE 01-09-91

CHECKED BY DATE

Map Unit	% Map Unit	Textural Class	XKSAT	PSIF	DTHETA	% Impervious
			Subbasin 22			
6 (4.05)			1.24	2.37	0.35	
33 (0.32)			0.21 (0.24)	3.80	0.35	
61 (81.86)			0.17 (0.20)	5.1	0.38	
63 (5.08)			0.35 (0.40)	4.3	0.35	15.0
72 (0.58)			0.12 (0.14)	6.8	0.39	21.0
96 (8.10)			0.17 (0.2)	5.1	0.38	
			Subbasin 23			
6 (1.36)			1.24	2.37	0.35	
61 (96.38)			0.17 (0.20)	5.1	0.38	
63 (1.57)			0.35 (0.4)	4.3	0.35	15.0
96 (0.69)			0.17 (0.2)	5.1	0.38	
			Subbasin 24			
6 (18.34)			1.24	2.37	0.35	
33 (3.06)			0.21 (0.24)	3.80	0.35	
61 (35.15)			0.17 (0.20)	5.10	0.38	
63 (15.50)			0.35 (0.4)	4.30	0.35	15.0
96 (27.95)			0.17 (0.2)	5.10	0.38	
			Subbasin 25N			
61 (83.70)			0.17 (0.2)	5.1	0.38	
63 (10.87)			0.35 (0.4)	4.30	0.35	15.0
96 (5.43)			0.17 (0.2)	5.10	0.38	
			Subbasin 25S			
61 (77.62)			0.17 (0.2)	5.1	0.38	
63 (22.38)			0.35 (0.4)	4.30	0.35	15.0

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial PAGE 7 OF 10

DETAIL Green & Ampt Parameters. COMPUTED AA DATE 01-09-91

CHECKED BY DATE

Subbasin 35N

Map Unit	% Map Unit	Textural Class	XKSAT	PSIF	DTHETA	% Impervious
33 (25.33)			0.21 (0.24)	3.80	0.35	
61 (27.31)			0.17 (0.20)	5.1	0.38	
63 (29.96)			0.35 (0.40)	4.3	0.35	15.0
96 (14.98)			0.17 (0.20)	5.1	0.38	
121 (2.42)			0.27 (0.31)	3.8	0.35	

Subbasin 39

6 (2.52)			1.24 [illegible]	2.37	0.35	
33 (1.38)			0.21 (0.24)	3.80	0.35	
61 (88.94)			0.17 (0.20)	5.10	0.38	
63 (4.99)			0.35 (0.40)	4.3	0.35	15.0
96 (2.17)			0.17 (0.20)	5.10	0.38	

Subbasin 40.

6 (12.67)			1.24 [illegible]	2.37	0.35	
61 (69.78)			0.17 (0.20)	5.10	0.38	
63 (16.57)			0.35 (0.40)	4.30	0.35	15.0
121 (0.97)			0.27 (0.3)	3.80	0.35	

Subbasin 41.

6 (12.40)			1.24 [illegible]	2.37	0.35	
33 (2.55)			0.21 (0.24)	3.80	0.35	
61 (5.98)			0.17 (0.2)	5.10	0.38	
63 (23.26)			0.35 (0.4)	4.30	0.35	15.0
13 (3.10)			0.33 (0.38)	4.20	0.35	
96 (17.05			0.17 (0.2)	5.10	0.38	
121 (35.66)			0.27 (0.3)	3.8	0.35	

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial PAGE 8 OF 10

DETAIL Green & Ampt Parameters COMPUTED AA DATE 01-09-9

CHECKED BY DATE

Subbasin 42

Map Unit	% Map Unit	Textural Class	XKSAT	PSIF	DTHETA	% Impervious
6 (5.61)			1.24	2.37	0.35	
40 (7.73)	45	gravelly loam	0.25			
	35	clay loam	0.04			
	2.5	Sandy loam	0.40			
	2.5	Sandy loam	0.4			
	2.5	clay loam	0.04			
	2.5	gravelly loam	0.25			
	2.5	loam	0.25			
	2.5	Sandy loam	0.40			
	2.5	gravelly loam	0.25			
	2.5	Sandy loam	0.40			
		0.40	0.19 (0.21)	4.7	0.37	
61 (20.91)			0.17 (0.2)	5.10	0.38	
3 (17.42)			0.35 (0.40)	4.30	0.35	15.0
96 (48.33)			0.17 (0.2)	5.10	0.38	

Subbasin 43

6 (4.21)			1.24	2.37	0.35	
61 (84.24)			0.17 (0.20)	5.10	0.38	
63 (11.55)			0.35 (0.40)	4.30	0.35	15.0

Subbasin 44

61 (87.80)			0.17 (0.2)	5.10	0.38	
63 (5.46)			0.35 (0.40)	4.30	0.35	15.0
121 (6.73)			0.27 (0.31)	3.8	0.35	

Subbasin 45A

31 (75.51)			0.38 (0.44)	4.21	0.35	21.0
61 (17.86)			0.17 (0.20)	5.10	0.38	
63 (6.63)			0.35 (0.40)	4.30	0.35	15.0

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial PAGE 9 OF 10

DETAIL Green & Ampt Parameters COMPUTED AA DATE 01-09-91

CHECKED BY DATE

Map Unit	% Map Unit	Textural Class	XKSAT	PSIF	DTHETA	% Impervious
			Subbasin 45			
6 (11.27)			1.24	2.37	0.35	
61 (43.14)			0.17 (0.20)	5.10	0.38	
63 (27.45)			0.35 (0.40)	4.30	0.35	15.0
121 (18.14)			0.27 (0.31)	3.80	0.35	
			Subbasin 46			
31 (94.41)			0.38 (0.44)	4.21	0.35	21.0
63 (5.59)			0.35 (0.40)	4.30	0.35	15.0
			Subbasin 47			
(0.91)			1.24	2.37	0.35	
8 (10.22)			0.4 (0.46)	4.16	0.35	
31 (14.49)			0.38 (0.44)	4.21	0.35	21.0
40 (6.34)			0.19 (0.21)	4.7	0.37	
41 (2.98)	45	gravelly loam	0.25			
	35	clay loam	0.04			
	5	gravelly loam	0.25			
	5	Sandy loam	0.40			
	5	Sandy loam	0.40			
	5	Sandy loam	0.40			
			0.20 (0.23)	4.10	0.35	
61 (60.80)			0.17 (0.20)	5.10	0.38	
63 (2.46)			0.35 (0.40)	4.30	0.35	15.0
96 (1.81)			0.17 (0.20)	5.10	0.38	

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial PAGE 10 OF 10

DETAIL Green & Ampt Parameters COMPUTED AA DATE 01-09-91

CHECKED BY DATE

Subbasin 48

Map Unit	% Map Unit	Textural Class	XKSAT	PSIF	ΔTHETA	% Impervious
8 (31.11)			0.4 (0.46)	4.16	0.35	
40 (68.89)			0.19 (0.21)	4.7	0.37	

Subbasin 50

31 (76.5)			0.38 (0.49)	4.21	0.35	21.0
40 (23.5)			0.19 (0.21)	4.7	0.37	

Green & Ampt Results for each subbasin.

Subbasin	XKSAT	PSIF	ΔTHETA	% Impervious	IA
15	0.20	4.0	0.32	0.03	0.15
16	0.23	4.60	0.37	0.45	0.15
17	0.21	5.29	0.38	5.18	0.15
18	0.22	5.40	0.38	7.75	0.15
19	0.27	5.66	0.38	10.27	0.15
20	0.22	5.42	0.38	8.48	0.15
21	0.37	4.51	0.37	1.21	0.15
22	0.25	4.95	0.38	0.93	0.15
23	0.22	5.05	0.38	0.30	0.15
24	0.42	4.44	0.37	2.35	0.15
25N	0.22	5.01	0.38	1.68	0.15
25S	0.24	4.92	0.37	3.41	0.15
35N	0.27	4.50	0.36	4.51	0.15
39	0.24	4.97	0.38	0.80	0.15
40	0.37	4.61	0.37	2.53	0.15
41	0.42	4.05	0.36	3.50	0.15
42	0.29	4.77	0.37	2.63	0.15
43	0.27	4.89	0.38	1.79	0.15
44	0.22	4.97	0.38	0.87	0.15
45A	0.39	4.37	0.36	1.01	0.25
45	0.39	4.34	0.36	4.14	0.15
46	0.44	4.22	0.35	20.66	0.25
47	0.28	4.78	0.37	3.45	0.15
48	0.29	4.53	0.36	0	0.15
50	0.39	4.33	0.35	16.07	0.15

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial Fan PAGE ____ OF ____

DETAIL Green & Ampt Calculation COMPUTED ____ DATE 11/06/90

CHECKED BY ____ DATE ____

Soil Unit	XKSAT	Sub-Basin	XKSAT Area Avg	XKSAT Adj Vegetation 25% Vegetation	PSIF	DTHETA	RTIMP
6	1.24	1380	0.24	0.28	3.70	0.35	1.26
61	0.34	1390N	0.38	0.44	4.22	0.35	2.89
33	0.21						
96	0.17	1390S	0.31	0.36	4.1	0.35	3.78
26	0.08						
34	0.21	1430	0.42	0.48	4.14	0.35	0.82
72	0.12	1440	0.24	0.28	3.70	0.35	0.88
93	2.4	1470	0.21	0.24	3.80	0.34	0
		1475	0.40	0.46	4.18	0.35	5.30

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial Fan PAGE 2 OF 9

DETAIL Subbasin 1 1380, 1390N COMPUTED AA, AMM DATE 11/06/90

CHECKED BY _____ DATE _____

Green & Ampt Loss Method (Subbasin 1)

Map Unit	% Map Unit	Soil Name	Textural Class	XKSAT	PSIF	DTHETA
6 (4.6%)	40%	Anthony	Sandy loam	0.40		
	40%	Arizo	gravelly Sandy loam	0.40		
	20%	Sand	Sandy	4.6		
				1.24 (1.43)	2.4	0.35
Avg.						
61 (30%)	40%	Gran	gravelly Sandy loam	0.40		
	35%	Wickenburg	gravelly Sandy loam	0.40		
	25%	6% Eba	gravelly loam	0.25		
		6% Pinaleno	gravelly clay loam	0.04		
		6% Arizo	gravelly Sandy loam	0.40		
		6% Rock outcrop		0.00		
				0.34 (.39)	4.0	0.35
33 (58.8%)	80%	Eba	gravelly loam	0.25		
	20%	10% Pinaleno	gravelly clay loam	0.04		
		10% Continental	Clay loam	0.04		
				0.21 (.24)	4.7	0.37
96 (6.6%)	45%	Pinaleno	gravelly clay loam	0.04		
	40%	Tres Hermanos	gravelly loam	0.25		
	15%	2.5% Arizo	gravelly Sandy loam	0.40		
		Mohave	Sandy loam	0.40		
		Greyeagle	Very gravelly loam	0.25		
		Eba	Very gravelly loam	0.25		
		Vado	gravelly Sandy loam	0.40		
		Nickel	gravelly Sandy loam	0.40		
				0.17 (.2)	6.0	0.39

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial Fan PAGE 3 OF 9

DETAIL Subbasin 2 1390S COMPUTED AAAMN DATE 11/00

CHECKED BY _____ DATE _____

Map Unit	% Map Unit	Soil Name	Textural Class	KKSAT	PSIF	DTHETA
6 (2%)	40%	Anthony	Sandy loam	0.40		
	40%	Arizo	gravelly Sandy loam	0.40		
	20%	Sand	Sandy	4.6		
				1.24 (1.43)	2.4	0.35
61 (61%)	40%	Gran	gravelly Sandy loam	0.4		
	35%	Wickenburg	gravelly Sandy loam	0.4		
	25%	6 Eba	gravelly loam	0.25		
		6 Pinaleno	gravelly clay loam	0.04		
		6 Arizo	gravelly Sandy loam	0.40		
		6 Rock outcrop	0	0		
				0.34 (.39)	4.0	0.35
33 (37%)	80%	Eba	gravelly loam	0.25		
	20%	Pinaleno	gravelly clay loam	0.04		
		Continental	clay loam	0.04		
				0.21 (0.24)	4.7	0.37

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT [illegible] PAGE 4 OF 9

DETAIL Subbasin 3 1430, 1440 COMPUTED AA, AMM DATE 11/06/90

CHECKED BY _____ DATE _____

Map Unit	% Map Use	Soil Name	Textural Class	KKSAT	PSIF	DTHETA
6 (4%)	40%	Anthony	Sandy loam	0.40		
	40%	Arizo	gravelly Sandy loam	0.40		
	20%	Sand	Sandy	4.6		
				1.24 (1.43)	2.4	0.35
26 (2%)	85%	Continental	Cobby clay loam	0.04		
	15%	Ohaco	gravelly loam	0.25		
		Suncity Variant	very gravelly Sandy loam	0.40		
				0.08 (.09)	8.1	0.30
33 (68%)	80%	Eba	gravelly loam	0.25		
	20%	Pinaleno	gravelly clay loam	0.04		
		Continental	clay loam	0.04		
				0.21 (.24)	4.7	0.37
34 (6%)	80%	Eba	very gravelly loam	0.25		
	20%	Pinaleno	gravelly clay loam	0.04		
		Continental	clay loam	0.04		
				0.21 (.24)	4.7	0.37
61 (7%)	40%	Gran	gravelly Sandy loam	0.4		
	35%	Wickenburg	gravelly Sandy loam	0.4		
	25%	Eba	very gravelly	0.25		
		Pinaleno	gravelly clay loam	0.04		
		Arizo	gravelly Sandy loam	0.40		
		Rock Out Crop		0		
				0.34 (.39)	4.0	0.35
72* (1%)	45% (64%)	Lehmans	very gravelly Clay loam	0.04		
	30%	Rock outcrop				
	25% (36)	Arizo	gravelly Sandy loam	0.40		
		Eba	gravelly loam	0.25		
		Pinaleno	gravelly clay loam	0.04		
		Greyeagle	very gravelly loam	0.25 (.14)		
		Nickel	gravelly Sandy loam	0.40 0.12	7.1	0.37

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial Fan PAGE 5 OF 9

DETAIL Subbasin 3 (Cont) 430,440 COMPUTED AA, AMM DATE 11/06/91

CHECKED BY _____ DATE _____

Map Unit	% Map Use	Soil Name	Textural Class	XKSAT	PSIF	DT*ETA
93 (3%)	50%	Nickel	gravelly Sandy	4.6		
	35%	Cave	gravelly loam	0.25		
	15%	Arizo	gravelly Sandy loam	0.40		
		Anthony	Sandy loam	0.4		
		Pinaleno	gravelly clay loam	0.04		
				2.4 (2.76)	2.2	0.35
96 (7%)	45%	Pinaleno	gravelly clay loam	0.04		
	40%	Tres Hermanos	gravelly loam	0.25		
	15%	Arizo	gravelly Sandy loam	0.40		
		Mohave	Sandy loam	0.40		
		Greyeagle	Very gravelly loam	0.25		
		Eba	very gravelly loam	0.25		
		Vado	gravelly sandy loam	0.40		
		Nickel	gravelly Sandy loam	0.40		
				0.17 (.2)	6.0	0.39

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial Fan PAGE 6 OF 9

DETAIL Subbasin 4 1470, 1475 COMPUTED AA, AMM DATE 11/0 /9

CHECKED BY _____ DATE _____

Map Unit	% Map Unit	Soil Name	Textural Class	XKSAT	PSIF	DTHETA
6 (0.5%)	40%	Anthony	Sandy loam	0.40		
	40%	Arizo	gravelly Sandy loam	0.40		
	20%	Sand	Sandy	4.6		
				1.24 (1.93)	2.4	0.35
26 (2%)	85%	Continental	Cobbly clay loam	0.04		
	15%	Ohaco Sun City Variant	gravelly loam	0.25		
			very gravelly Sandy loam	0.40		
				0.08 (0.09)	8.1	0.30
33 (32.8%)	80%	Eba	gravelly loam	0.25		
	20%	Pinaleno	gravelly clay loam	0.04		
		Continental	clay loam	0.04		
				0.21 (0.24)	4.7	0.37
61 (55.7%)	40%	Gran	gravelly Sandy loam	0.40		
	35%	Wickenburg	gravelly Sandy loam	0.40		
	25%	Eba	gravelly loam	0.25		
		Pinaleno	gravelly Clay loam	0.04		
		Arizo	gravelly Sandy loam	0.40		
		Rock Outcrop		0.0		
				0.34 (0.39)	4.0	0.35
72* (35%)	45%	Lehmans	very gravelly	0.04		
	30%	Rock Outcrop				
	25%	Arizo	gravelly Sandy loam	0.40		
		Eba	gravelly loam	0.25		
		Pinaleno	gravelly clay loam	0.04		
		Greyeagle	very gravelly loam	0.25		
		Nickel	gravelly Sandy loam	0.40		
				0.12 (0.14)	7.1	0.37

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluv Fan PAGE 7 OF 9

DETAIL Subbasin 4 (cont) 1970, 1975 COMPUTED AA, AMM DATE 11-06-90

CHECKED BY _____ DATE _____

Map Unit	% Map Unit	Soil Name	Textural Class	XKSAT	PSIF	DTHETA
93 (4%)	50%	Nickel	gravelly Sandy	4.6		
	35%	Cave	gravelly loam	0.25		
	15%	5% Arizo	gravelly Sandy loam	0.40		
		5% Anthony	Sandy loam	0.40		
		5% Pinaleno	gravelly clay loam	0.04		
				2.4 (2.76)	2.2	0.35
96 (1.5%)	45%	Pinaleno	gravelly clay loam	0.04		
	40%	Tres Hermanos	gravelly loam	0.25		
	15%	Arizo	gravelly Sandy loam	0.40		
		Mojave	Sandy loam	0.40		
		Greyeagle	Very gravelly loam	0.25		
		Eba	Very gravelly loam	0.25		
		Vado	gravelly Sandy loam	0.40		
		Nickel	gravelly Sandy loam	0.40		
				0.17 (0.2)	6.0	0.39

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial Fans PAGE 1 OF

DETAIL % Impervious COMPUTED AMM DATE 4/23/91

CHECKED BY DATE

Calculations for % impervious area per sub-basin,

Assumptions:

1. Existing: - The existing % impervious accounts for rock out crops + existing developments.

- The rock outcrops are assumed to be 60% effective (connected).

- The % impervious for existing developments were taken directly from "General Drainage Plan for North Scottsdale, Arizona," WRA, June 7, 1989. Eventhough the sub-basins are slightly different from the above report, it was assumed resulting change in % imperviousness is negligable.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial Fans PAGE 2 OF

DETAIL % Impervious COMPUTED AMM DATE 4,23,91

CHECKED BY DATE

2. Future: same as existing, only future land use conditions were used accordingly, based on projections in the Tonto Foothills Plan and Scottsdale General Plan.

3. Maximum Density Buildout: same as existing, only for conditions that would greatly exceed the planning set forth by Future condition plans.

SUBBASIN *a	ROCK OUT CROP	FCD EXT	WRA EXT	WRA FUT	WRA MAX	D-RTIMP 1 *b	D-RTIMP 2 *c
15	0.03	0.03	0.00	14.70	20.00	14.73	20.03
16	0.45	0.45	0.00	12.37	16.77	12.82	17.22
17	5.18	5.18	0.00	10.77	14.55	15.95	19.73
18	7.75	7.75	0.00	2.45	3.06	10.20	10.81
19	10.27	10.27	0.00	11.29	15.27	21.56	25.54
20	8.48	8.48	0.00	4.39	5.71	12.87	14.19
21	1.21	2.29	1.08	7.34	9.96	8.55	11.17
22	0.93	0.93	0.00	4.87	6.90	5.80	7.83
23	0.30	0.30	0.00	7.30	10.16	7.60	10.46
24	2.35	3.42	1.07	7.92	10.97	10.27	13.32
25N	1.68	2.70	1.02	9.55	13.03	11.23	14.71
25S	3.41	4.43	1.02	9.55	13.03	12.96	16.44
35N	4.51	5.94	1.43	14.46	16.92	18.97	21.43
39	0.80	2.40	1.60	20.57	24.67	21.37	25.47
40	2.53	3.59	1.06	10.55	13.97	13.08	16.50
41	3.50	5.54	2.04	11.66	14.95	15.16	18.45
42	2.63	3.87	1.24	22.21	26.30	24.84	28.93
43	1.79	2.82	1.03	14.67	19.37	16.46	21.16
44	0.87	0.87	0.00	10.65	14.38	11.52	15.25
45	4.14	4.14	0.00	17.28	22.16	21.42	26.30
45A	1.01	1.01	0.00	10.16	13.07	11.17	14.08
46	20.66	20.66	0.00	3.34	4.25	24.00	24.91
47	3.45	4.73	1.28	10.72	13.78	14.17	17.23
48	0.00	4.14	4.14	6.28	9.05	6.28	9.05
50	16.07	17.46	1.39	3.69	4.89	19.76	20.96
1380	1.26	2.52	1.26	14.70	20.00	15.96	21.26
1390N	2.89	4.08	1.19	13.07	17.74	15.96	20.63
1390S	3.78	4.97	1.19	13.07	17.74	16.85	21.52
1430	0.82	2.01	1.19	16.58	22.11	17.40	22.93
1440	0.88	0.88	0.00	17.67	23.16	18.55	24.04
1470	0.00	0.00	0.00	14.70	20.00	14.70	20.00
1475	5.30	5.30	0.00	24.72	31.62	30.02	36.92
2000	15.80	15.80	0.00	2.23	2.88	18.03	18.68
2040	17.69	17.69	0.00	6.59	8.25	24.28	25.94
2050	15.36	15.36	0.00	7.54	9.49	22.90	24.85
2070	20.00	20.00	0.00	2.08	2.40	22.08	22.40

*a : As defined by FEMA

*b : FCD future condition % RTIMP

*c : FCD maximum density % RTIMP

Procedure for Lag Calculation

1- Measure the longest watercourse length in miles, L .
2- Measure the length along the watercourse to a point opposite to the centroid in miles, Lca .
3- Calculate the watercourse slope of the sub-basin in ft/mile, S .
4- Adjust the calculated slope according to Figure 5.4 in Flood Control District's Hydrology Manual.
5- Estimate a value of Kn, the mean Manning's n for all channels within the area.
6- Calculate the Lag in minutes according to the equation:
   Lag= 24*Kn*[L*Lca/S^0.5]^0.38 * 60

Sample Calculation

Sub basin 2000:

L= 1.33 mi
Lca= 0.71 mi.
S=(2880-1950/1.33)=699.2 ft/mi.
Adjusted according to Fig 5.4 (Extrapolated), S= 310 ft/mi.
Estimated Kn= 0.055
Lag= 26.06 min

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial PAGE 1 OF

DETAIL Table of Values for Lag Calculation COMPUTED AA DATE 01/12/9

CHECKED BY DATE

Subbasin	Area (mile²)	Area Acres	L mile	L_{ca} mile	Slope ft/mile	Adjusted slope ft/mile	K_n*	$Lag = 24 K_n \left[\frac{L L_{ca}}{S^{0.5}}\right]^{0.38} \times 60$ (min)
2000	0.7999	511.9	1.33	0.71	$\frac{2880-1950}{1.33} = 699.2$	310.0	0.055	26.06
2040	0.9290	594.6	1.57	0.95	$\frac{2650-1980}{1.57} = 426.8$	290.7	0.055	31.38
2050	0.8580	549.1	2.19	1.29	$\frac{3800-1980}{2.19} = 831.1$	310.0	0.055	39.51
2070	1.4649	937.5	1.71	0.76	$\frac{3740-2280}{1.7} = 859.0$	310.0	0.050	26.74
15	1.3702	876.9	4.67	3.33	$\frac{3120-2580}{4.67} = 115.6$	115.6	0.14	231.95
16	1.457	932.5	3.05	2.00	$\frac{2940-2620}{3.05} = 104.9$	104.9	0.14	165.56
17	1.1851	758.5	2.48	1.33	$\frac{2945-2620}{2.48} = 131.10$	131.10	0.10	89.74
18	1.2641	809.02	2.24	1.14	$\frac{3406-2620}{2.24} = 350.9$	278.9	0.075	54.16
19	0.1872	119.8	1.33	0.67	$\frac{3263-2565}{1.33} = 524.8$	305.5	0.10	46.47
20	0.5698	364.7	1.76	1.23	$\frac{3263-2540}{1.76} = 410.8$	289.10	0.075	99.35
21	3.6659	2346.2	4.36	2.76	$\frac{2560-2130}{4.46} = 96.41$	96.41	0.06	93.34
22	1.3860	887.04	2.76	1.57	$\frac{2800-2460}{2.76} = 123.2$	123.2	0.06	60.43
23	0.3945	252.48	2.10	1.05	$\frac{2800-2460}{2.10} = 161.9$	161.9	0.14	103.57
24	0.4907	314.05	1.62	0.86	$\frac{2560-2300}{1.62} = 160.5$	160.5	0.13	87.13
25N	0.7834	501.38	3.14	1.90	$\frac{2830-2350}{3.14} = 152.9$	152.9	0.14	152.83
25S	0.6256	400.38	1.67	0.90	$\frac{2670-2414}{1.67} = 153.3$	153.3	0.10	64.62
35N	0.4068	260.35	1.24	0.77	$\frac{2680-2460}{1.24} = 177.4$	177.4	0.08	42.32
39	1.9302	1235.3	2.33	1.43	$\frac{2810-2510}{2.33} = 128.8$	128.8	0.12	108.46
40	0.5844	374.0	1.19	0.67	$\frac{2760-2550}{1.19} = 176.5$	176.5	0.08	39.55
41	0.7911	506.3	1.97	1.43	$\frac{2520-2230}{1.97} = 147.2$	147.2	0.08	115.20
42	0.5844	374.02	1.52	1.00	$\frac{3240-2220}{1.52} = 671.1$	310.0	0.08	45.41
43	1.0665	682.56	1.62	0.57	$\frac{3460-2550}{1.62} = 561.7$	309.2	0.08	38.00
44	0.8389	536.90	2.10	1.05	$\frac{3440-2550}{2.10} = 423.8$	290.4	0.10	66.20
45A	0.1720	110.08	0.95	0.57	$\frac{3100-2440}{0.95} = 694.7$	310.0	0.05	19.18
45	0.2037	130.37	1.15	0.67	$\frac{3000-2420}{1.15} = 504.3$	303.4	0.06	26.42
46	0.9268	593.15	2.19	1.10	$\frac{3880-2920}{2.19} = 666.7$	310.0	0.05	33.81
47	0.3757	240.45	1.54	0.81	$\frac{2600-2250}{1.54} = 227.3$	223.1	0.08	44.85

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial PAGE 2 OF

DETAIL Table of values for Lag Calculation COMPUTED AA DATE 01/10/9

CHECKED BY DATE

Subbasin	Area (mile)^2	Area Acres	L (mile)	Lca (mile)	Slope ft/mile	Adj slope ft/slope	Kn	$Lag = 24Kn\left[\frac{LLca}{S^{0.5}}\right]^{0.38} \times 60$ min.
48	0.0438	28.03	0.57	0.29	$\frac{2300-2200}{0.57} = 175.4$	175.4	0.15	40.83
50	0.3580	229.12	1.52	0.86	$\frac{2640-2200}{1.52} = 289.5$	259.8	0.07	38.81

* The Kn values are estimated on the basis of the topography of each subbasin. The range of n values are 0.2 - 0.05. If mountains are present in the subbasin the n value is closer to 0.05 which is the value for a rugged area. If the topography of the subbasin is basically uniform slopes the value is closer to 0.2 which is a value for drainage area with comparatively uniform slopes.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial PAGE 1 OF

DETAIL Lag Calculation COMPUTED AA DATE 12,10,90

Using Hydrology Manual CHECKED BY DATE

Basin	Area (mile²)	Area (acres)	L (mile)	L_{ca} (mile)	slope	kn	Lag = 24 kn $\left[\frac{L L_{ca}}{S^{0.05}}\right]^{.38}$ x60 (min)
1380	0.9305	595.5	3.4	1.7	170.6	0.12	127
1390N	0.5610	359.0	2.6	1.3	100	0.13	124
1390S	0.4347	278.2	2.4	1.2	95.8	0.13	118
1430	1.4319	916.4	4.9	2.45	153.1	0.12	171
1440	1.8882	1208.4	4.7	2.35	159.6	0.11	151
1470	0.2977	190.5	2.8	1.40	153.6	0.13	121
1475	1.6895	1081.3	3.3	1.65	115.2	0.11	122

* point rainfall from NOAA ATLAS II

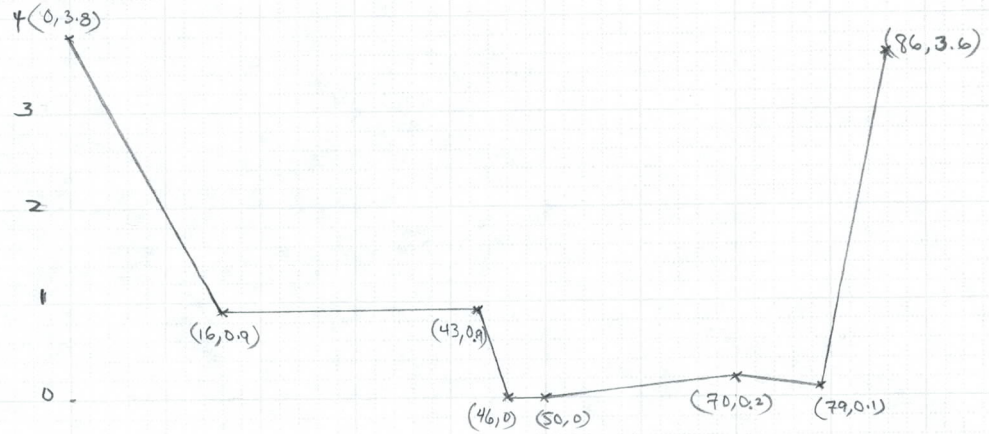
* value Lag = 24 x , 24 was a corrected value from Hydrology Manual

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial PAGE 1 OF 2

DETAIL Xsections for Routings COMPUTED _____ DATE _____

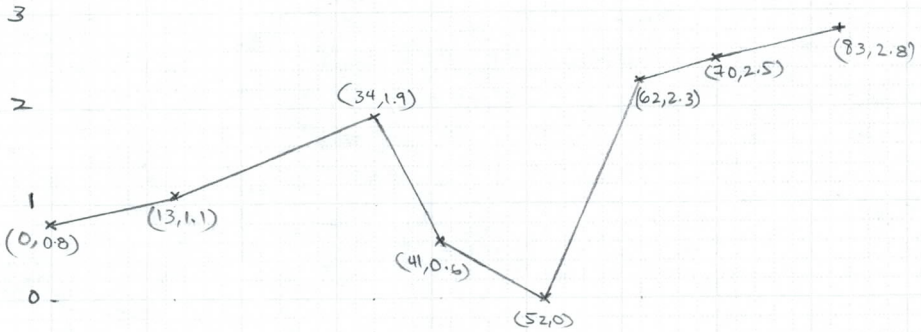
CHECKED BY _____ DATE _____



$n_{channel} = 0.045$

$n_{side\ slopes} = 0.080$

X-SECTION A

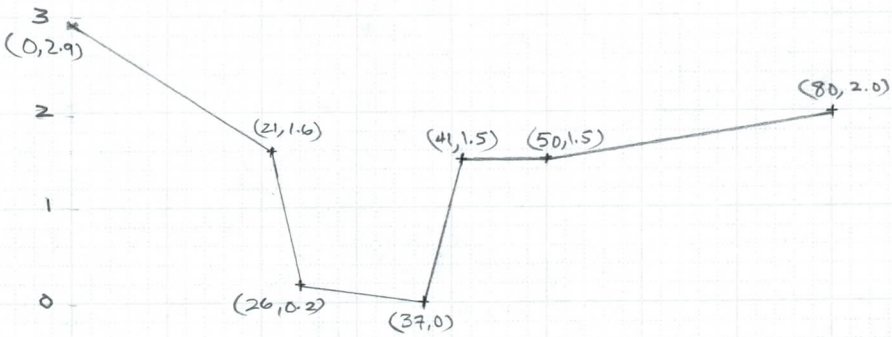


$n_{channel} = 0.045$

$n_{side\ slopes} = 0.07$ left side

$= 0.08$ Right side

XSECTION B



$n_{channel} = 0.045$

$n_{side\ Slopes} = 0.075$

XSECTION C

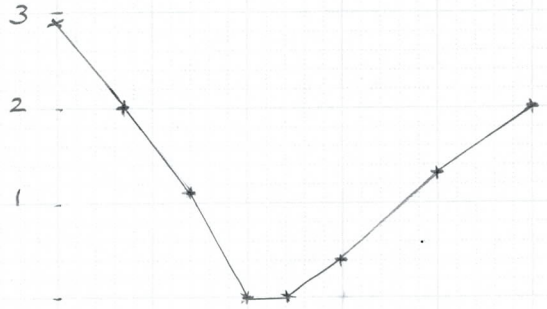
0 10 20 30 40 50 60 70 80 90 100 110 120

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Scottsdale Alluvial PAGE 2 OF 2

DETAIL X Sections for Routing COMPUTED _____ DATE _____

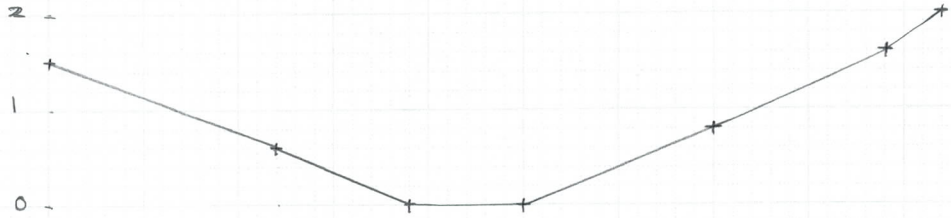
CHECKED BY _____ DATE _____



$n_{channel} = 0.045$

$n_{side\ slopes} = 0.08$

XSECTION D



$n_{channel} = 0.045$

$n_{side\ slope} = 0.07$.

XSECTION E

0 10 20 30 40 50 60 70 80 90 100 110

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            SEPTEMBER 1990            *
*             VERSION 4.0              *
*                                      *
*[redacted]I DATE  04/24/1991  TIME  09:14:23 *
*                                      *
****************************************
```

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

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

1003

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

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

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

  1           ID    SCOTTSDALE ALLUVIAL FAN, ALL SUBBASINS
  2           ID    EXISTING CONDITIONS
  3           ID    PHONIX MOUNTAIN AND PHOENIX VALLEY S-GRAPHS
  4           ID    100 YEAR 24 HOUR TYPE IIA DISTRIBUTION
  5           ID    GREEN AND AMPT INFILTRATION EQUATION FOR SOIL LOSSES
  6           ID    CHANGED %IMPERVIOUS AREAS TO REFLECT FUTURE CONDITION
  7           ID    FCD 04/12/91 AA, REV. AMM, 4/19/91
              *DIAGRAM
  8           IT       5                    300
  9           IO       5

 10           KK   S2040
 11           KM   SUB-BASIN 2040
 12           BA   .9290
 13           IN      30
 14           PB    4.33
 15           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
 16           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
 17           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
 18           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
 19           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
 20           LG     .25     .35    4.19     .45   17.69
 21           UI    100.    209.    479.    682.    872.   1055.    660.    554.    472.    398.
 22           UI    315.    251.    221.    177.    134.    115.     97.     76.     63.     49.
 23           UI     49.     33.     19.     19.     19.     19.     19.     19.      0.      0.
 24           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 25           KK   S2050
 26           KM   SUB-BASIN 2050
 27           BA   .8580
 28           LG     .25     .35    4.16     .46   15.36
 29           UI     73.     98.    253.    403.    509.    609.    831.    594.    456.    403.
 30           UI    355.    310.    268.    218.    184.    167.    145.    116.     93.     84.
 31           UI     79.     56.     56.     42.     36.     36.     36.     15.     14.     14.
 32           UI     14.     14.     14.     14.     14.     14.      0.      0.      0.      0.
 33           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 34           KK    2051
 35           HC       2

 36           KK   S2070
 37           KM   SUB-BASIN 2070
 38           BA  1.4649
 39           PB    4.38
 40           LG     .25     .35    4.21     .44   20.00
 41           UI    184.    514.   1069.   1446.   1980.   1240.   1004.    830.    667.    498.
 42           UI    420.    331.    242.    204.    152.    130.     90.     90.     51.     35.
 43           UI     35.     35.     35.     35.      0.      0.      0.      0.      0.      0.
 44           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

Ran IA

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

  45          KK   STRM1
  46          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
  47          HC       2

  48          KK     S39
  49          KM   SUB-BASIN 39
  50          BA  1.9302
  51          PB    4.39
  52          LG     .15      .36     3.80      .24     2.40
  53          UI     60.      60.      60.      60.      61.     172.     188.     230.     274.     337.
  54          UI    367.     392.     423.     449.     470.     508.     577.     660.     749.     608.
  55          UI    471.     423.     392.     367.     353.     340.     323.     308.     295.     283.
  56          UI    270.     254.     242.     231.     216.     204.     186.     172.     158.     151.
  57          UI    147.     142.     138.     133.     125.     125.      98.      98.      98.      77.
  58          UI     77.      77.      76.      66.      66.      66.      66.      55.      46.      46.
  59          UI     46.      46.      46.      46.      29.      29.      29.      29.      29.      29.
  60          UI     29.      29.      29.      29.      15.      11.      11.      11.      11.      11.
  61          UI     11.      11.      11.      11.      11.      11.      11.      11.      11.      11.
  62          UI     11.      11.      11.      11.      11.      11.      11.      11.      11.      11.
  63          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
  64          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

  65          KK     S40
  66          KM   SUB-BASIN 40
  67          BA   .5844
  68          LG     .15      .35     4.10      .37     3.59
  69          UI     50.      67.     172.     274.     346.     414.     565.     406.     310.     275.
  70          UI    242.     211.     183.     149.     125.     114.      99.      79.      64.      57.
  71          UI     54.      38.      38.      29.      24.      24.      24.      10.      10.      10.
  72          UI     10.      10.      10.      10.      10.      10.       0.       0.       0.       0.
  73          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

  74          KK    CP41
  75          KM    COMBINE HYDROGRAPHS S39 AND S40
  76          HC       2

  77          KK   RCP41
  78          KM    ROUTE CP41
  79          RS      10     STOR       0
  80          RC   0.075    0.045    0.075     9400   0.0282
  81          RX       0      300      321      326      337      350      380      680
  82          RY     5.9      2.9      1.6      0.2        0      1.5      2.0      5.0

  83          KK     S41
  84          KM   SUB-BASIN 41
  85          BA   .7911
  86          LG     .15      .35     4.20      .42     5.54
  87          UI     23.      23.      23.      23.      23.      54.      66.      85.      97.     115.
  88          UI    136.     144.     154.     166.     174.     183.     197.     222.     252.     290.
  89          UI    251.     185.     170.     155.     145.     138.     134.     129.     123.     117.
  90          UI    113.     109.     104.      98.      93.      90.      85.      79.      73.      70.
  91          UI     61.      60.      57.      57.      53.      53.      50.      48.      47.      38.
  92          UI     38.      38.      30.      30.      30.      30.      26.      25.      25.      25.
  93          UI     25.      18.      18.      18.      18.      18.      18.      18.      11.      11.
```

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

  94          UI     11.     11.     11.     11.     11.     11.     11.     11.     10.      4.
  95          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
  96          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
  97          UI      4.      4.      4.      4.      4.      4.      0.      0.      0.      0.
  98          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  99          KK       A
 100          KM    BASIN 41 AND ROUTED CP41
 101          HC       2

 102          KK     S42
 103          KM   SUB-BASIN 42
 104          BA   .5844
 105          LG     .15     .35    3.70     .29    3.87
 106          UI     43.     43.    125.    197.    269.    317.    374.    500.    369.    281.
 107          UI    250.    224.    201.    177.    156.    129.    110.    102.     93.     76.
 108          UI     64.     55.     49.     47.     34.     33.     31.     21.     21.     21.
 109          UI     21.      9.      8.      8.      8.      8.      8.      8.      8.      8.
 110          UI      8.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 111          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 112          KK     S43
 113          KM   SUB-BASIN 43
 114          BA  1.0665
 115          LG     .15     .35    3.60     .27    2.82
 116          UI     94.    139.    344.    544.    679.    832.   1067.    681.    564.    496.
 117          UI    435.    378.    314.    252.    224.    203.    160.    127.    113.    103.
 118          UI     77.     72.     57.     46.     46.     46.     18.     18.     18.     18.
 119          UI     18.     18.     18.     18.     18.      0.      0.      0.      0.      0.
 120          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 121          KK     S44
 122          KM   SUB-BASIN 44
 123          BA   .8389
 124          LG     .15     .37    4.40     .22     .87
 125          UI     43.     43.     43.    119.    163.    218.    263.    297.    326.    367.
 126          UI    451.    506.    338.    288.    258.    243.    225.    209.    194.    177.
 127          UI    166.    146.    130.    113.    105.    100.     95.     89.     71.     69.
 128          UI     55.     55.     49.     47.     47.     34.     33.     33.     33.     22.
 129          UI     21.     21.     21.     21.     21.     12.      8.      8.      8.      8.
 130          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
 131          UI      8.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 132          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 133          KK    CP45
 134          KM    COMBINE HYDROGRAPHS S43 AND S44
 135          HC       2

 136          KK   RCP45
 137          KM    ROUTE OF CP45
 138          RS       4    STOR       0
 139          RC    0.08   0.045    0.08    3600   .0366
 140          RX       0     300     307     320     324     330     350     650
 141          RY     5.9     2.9     2.0       0       0     0.4     2.0     5.0
```

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

 142          KK     S45
 143          KM   SUB-BASIN 45
 144          BA   .2037
 145          LG     .15     .35    4.20     .39    4.14
 146          UI     26.     74.    152.    207.    276.    171.    139.    115.     91.     68.
 147          UI     58.     44.     33.     28.     20.     17.     13.     13.      6.      5.
 148          UI      5.      5.      5.      5.      0.      0.      0.      0.      0.      0.
 149          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 150          KK       B
 151          KM    COMBINE S45 AND ROUTED CP45
 152          HC       2

 153          KK    S45A
 154          KM   SUB-BASIN 45A
 155          BA   .1720
 156          LG     .25     .35    4.20     .39    1.01
 157          UI     37.    140.    239.    283.    171.     132.     93.     69.     48.     35.
 158          UI     25.     17.     15.      7.      6.      6.      6.      0.      0.      0.
 159          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 160          KK     S46
 161          KM   SUB-BASIN 46
 162          BA   .9268
 163          LG     .25     .35    4.20     .44   20.66
 164          UI     92.    169.    398.    595.    730.   1025.    727.    555.    480.    415.
 165          UI    350.    279.    230.    204.    165.    127.    109.     99.     71.     69.
 166          UI     45.     45.     45.     21.     18.     18.     18.     18.     18.     18.
 167          UI     18.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 168          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 169          KK    CP47
 170          KM    COMBINE HYDROGRAPHS S45,S45A,AND S46
 171          HC       3

 172          KK   RCP47
 173          KM    ROUTING OF CP47
 174          RS      10    STOR       0
 175          RC    0.07   0.045    0.07    9600  0.0217
 176          RX       0     300     324     338     350     388     394     694
 177          RY     4.5     1.5     0.6       0       0     1.6     2.0     5.0

 178          KK     S47
 179          KM   SUB-BASIN 47
 180          BA   .3757
 181          LG     .15     .35    3.80     .28    4.73
 182          UI     28.     28.     84.    130.    177.    209.    248.    328.    228.    179.
 183          UI    161.    143.    128.    113.     98.     81.     71.     65.     59.     47.
 184          UI     39.     35.     31.     29.     22.     22.     17.     14.     14.     14.
 185          UI     11.      5.      5.      5.      5.      5.      5.      5.      5.      5.
 186          UI      5.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 187          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

 188          KK       C
 189          KM    COMBINE ROUTED CP47 AND S47
 190          HC       2

 191          KK    CP48
 192          KM    COMBINE HYDROGRAPHS S41,S42,S47
 193          HC       3

 194          KK   RCP48
 195          KM    ROUTE CP48
 196          RS       2    STOR       0
 197          RC    0.07   0.045    0.07    1300  0.0338
 198          RX       0     300     324     338     350     388     394     694
 199          RY     4.5     1.5     0.6       0       0     1.6     2.0     5.0

 200          KK     S48
 201          KM   SUB-BASIN 48
 202          BA   .0438
 203          LG     .15     .35    3.70     .29    4.14
 204          UI      4.      4.     12.     19.     24.     29.     39.     34.     24.     21.
 205          UI     18.     16.     14.     12.     10.      9.      8.      6.      5.      5.
 206          UI      4.      4.      3.      3.      2.      2.      2.      2.      1.      1.
 207          UI      1.      1.      1.      1.      1.      1.      1.      0.      0.      0.
 208          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 209          KK       D
 210          KM    COMBINE S48 AND ROUTED CP48
 211          HC       2

 212          KK     S50
 213          KM   SUB-BASIN 50
 214          BA   .3580
 215          LG     .15     .35    4.20     .39   17.46
 216          UI     31.     44.    110.    175.    219.    265.    355.    237.    189.    167.
 217          UI    148.    127.    109.     88.     76.     69.     57.     46.     39.     34.
 218          UI     30.     24.     23.     15.     15.     15.     11.      6.      6.      6.
 219          UI      6.      6.      6.      6.      6.      0.      0.      0.      0.      0.
 220          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 221          KK    CP51
 222          KM    COMBINE HYDROGRAPHS S48 AND S50
 223          HC       2

 224          KK   S2000
 225          KM   SUB-BASIN 2000
 226          BA   .7999
 227          LG     .15     .35    4.31     .41   15.80
 228          UI    103.    302.    615.    835.   1082.    668.    545.    448.    354.    262.
 229          UI    226.    164.    127.    107.     79.     61.     51.     45.     20.     20.
 230          UI     20.     20.     20.     20.      0.      0.      0.      0.      0.      0.
 231          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

 232          KK   STRM2
 233          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
 234          HC       2

 235          KK    S35N
 236          KM   SUB-BASIN 35N
 237          BA   .4068
 238          PB    4.49
 239          LG     .15      .35     3.60      .27     5.94
 240          UI     32.      36.     105.     163.     213.     250.     320.     346.     225.     192.
 241          UI    171.     153.     133.     117.      95.      82.      75.      67.      53.      43.
 242          UI     39.      35.      29.      25.      25.      16.      16.      16.      15.       6.
 243          UI      6.       6.       6.       6.       6.       6.       6.       6.       6.       0.
 244          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
 245          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 246          KK     S16
 247          KM   SUB-BASIN 16
 248          BA   1.457
 249          PB    4.62
 250          LG     .15      .37     4.10      .23     0.45
 251          UI     30.      30.      30.      30.      30.      30.      30.      51.      85.      85.
 252          UI    106.     114.     131.     139.     170.     177.     184.     193.     203.     214.
 253          UI    221.     228.     236.     248.     270.     291.     321.     349.     378.     322.
 254          UI    252.     228.     214.     202.     192.     184.     178.     175.     170.     165.
 255          UI    160.     155.     149.     146.     142.     138.     135.     126.     124.     120.
 256          UI    117.     114.     109.     102.     100.      92.      92.      82.      78.      78.
 257          UI     73.      73.      73.      69.      68.      68.      65.      62.      62.      62.
 258          UI     51.      49.      49.      49.      47.      38.      38.      38.      38.      38.
 259          UI     37.      32.      32.      32.      32.      32.      32.      30.      23.      23.
 260          UI     23.      23.      23.      23.      23.      23.      23.      20.      15.      14.
 261          UI     15.      14.      15.      14.      15.      14.      14.      15.      14.      15.
 262          UI     14.      15.      14.       8.       6.       6.       6.       6.       6.       6.
 263          UI      6.       6.       6.       6.       6.       6.       6.       6.       6.       6.
 264          UI      6.       6.       6.       6.       6.       6.       6.       6.       6.       6.
 265          UI      6.       6.       6.       6.       6.       6.       6.       6.       6.       6.
 266          UI      6.       6.       0.       0.       0.       0.       0.       0.       0.       0.
 267          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 268          KK     S17
 269          KM   SUB-BASIN 17
 270          BA  1.1851
 271          LG     .15      .38     4.70      .21     5.18
 272          UI     44.      44.      44.      44.     117.     146.     183.     228.     267.     291.
 273          UI    318.     339.     364.     419.     491.     543.     394.     327.     293.     271.
 274          UI    260.     247.     232.     219.     209.     196.     183.     174.     162.     148.
 275          UI    138.     118.     114.     109.     104.     102.      94.      93.      74.      73.
 276          UI     66.      57.      57.      55.      49.      49.      49.      42.      34.      34.
 277          UI     34.      34.      33.      22.      22.      22.      22.      22.      22.      22.
 278          UI     22.      14.       9.       9.       9.       9.       9.       9.       9.       9.
 279          UI      9.       9.       9.       9.       9.       9.       9.       9.       9.       9.
 280          UI      9.       9.       0.       0.       0.       0.       0.       0.       0.       0.
 281          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
```

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

 282          KK     S18
 283          KM   SUB-BASIN 18
 284          BA  1.2641
 285          LG     .15      .38     4.40      .22     7.75
 286          UI     78.      78.     149.     270.     393.     491.     564.     632.     792.     900.
 287          UI    589.     498.     455.     414.     379.     345.     311.     278.     240.     203.
 288          UI    189.     178.     163.     133.     119.     100.      95.      85.      84.      60.
 289          UI     60.      60.      43.      38.      38.      38.      38.      23.      15.      15.
 290          UI     15.      15.      15.      15.      15.      15.      15.      15.      15.      15.
 291          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
 292          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 293          KK    C19A
 294          KM    COMBINE 16,17,18
 295          HC       3

 296          KK     R19
 297          KM    ROUTE C19A
 298          RS       1    STOR       0
 299          RC    0.08   0.045    0.08     1100   0.0155
 300          RX       0     300     316      346      350      370      386      660
 301          RY     6.8     3.8     0.9        0        0      0.2      3.6      6.6

 302          KK     S15
 303          KM   SUB-BASIN 15
 304          BA  1.3702
 305          LG     .15      .37     5.10      .20     0.03
 306          UI     20.      20.      20.      20.      20.      20.      20.      20.      20.      20.
 307          UI     32.      57.      57.      57.      69.      76.      76.      89.      91.     103.
 308          UI    114.     118.     120.     126.     129.     135.     140.     144.     148.     151.
 309          UI    154.     158.     163.     172.     183.     194.     205.     221.     234.     256.
 310          UI    239.     212.     173.     158.     152.     143.     138.     134.     127.     125.
 311          UI    120.     119.     117.     115.     114.     109.     109.     104.     104.     100.
 312          UI     99.      96.      95.      93.      91.      90.      85.      85.      81.      80.
 313          UI     80.      76.      76.      74.      68.      68.      67.      62.      62.      62.
 314          UI     55.      53.      53.      53.      50.      49.      49.      49.      48.      46.
 315          UI     46.      46.      46.      43.      42.      42.      42.      42.      36.      33.
 316          UI     33.      33.      33.      33.      32.      25.      25.      25.      25.      25.
 317          UI     25.      25.      25.      22.      22.      22.      22.      22.      22.      22.
 318          UI     22.      22.      21.      15.      15.      15.      15.      15.      15.      15.
 319          UI     15.      15.      15.      15.      15.      15.      14.      10.      10.      10.
 320          UI     10.      10.      10.      10.      10.      10.      10.      10.      10.      10.
 321          UI     10.      10.      10.      10.      10.      10.      10.      10.       8.       4.
 322          UI      4.       4.       4.       4.       4.       4.       4.       4.       4.       4.
 323          UI      4.       4.       4.       4.       4.       4.       4.       4.       4.       4.
 324          UI      4.       4.       4.       4.       4.       4.       4.       4.       4.       4.
 325          UI      4.       4.       4.       4.       4.       4.       4.       4.       4.       4.
 326          UI      4.       4.       4.       4.       4.       4.       4.       4.       4.       4.
 327          UI      4.       4.       4.       4.       0.       0.       0.       0.       0.       0.
 328          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
```

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

 329          KK    C19C
 330          KM    COMBINE 15 AND R19
 331          HC       2

 332          KK   RC19C
 333          KM    ROUTING C19C
 334          RS       2    STOR       0
 335          RC   0.075   0.045   0.075    1800    0.02
 336          RX       0     300     316     346     350     370     386     686
 337          RY     6.8     3.8     0.9       0       0     0.2     3.6     6.6

 338          KK     S19
 339          KM   SUB-BASIN 19
 340          BA   .1872
 341          LG     .15     .35    3.60     .27   1.027
 342          UI     14.     14.     37.     59.     83.     98.    113.    151.    129.     91.
 343          UI     80.     72.     65.     58.     51.     44.     36.     33.     30.     27.
 344          UI     22.     17.     17.     15.     13.     10.     10.      8.      7.      7.
 345          UI      7.      6.      3.      3.      3.      3.      3.      3.      3.      3.
 346          UI      3.      3.      0.      0.      0.      0.      0.      0.      0.      0.
 347          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 348          KK       A
 349          KM    ADDITION OF S19 AND RC19C
 350          HC       2

 351          KK     S20
 352          KM   SUB-BASIN 20
 353          BA   .5698
 354          LG     .15     .38    4.40     .22    8.48
 355          UI     39.     39.     92.    157.    224.    266.    303.    375.    453.    293.
 356          UI    245.    222.    201.    182.    161.    145.    125.    103.     94.     88.
 357          UI     80.     64.     54.     50.     43.     43.     32.     30.     30.     20.
 358          UI     19.     19.     19.     16.      7.      7.      7.      7.      7.      7.
 359          UI      7.      7.      7.      7.      7.      0.      0.      0.      0.      0.
 360          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 361          KK     C21
 362          KM    COMBINE A AND 20
 363          HC       2

 364          KK    RC21
 365          KM    ROUTE C21
 366          RS      30    STOR       0
 367          RC   0.075   0.045   0.075   27600  0.0196
 368          RX       0     300     316     346     350     370     386     686
 369          RY     6.8     3.8     0.9       0       0     0.2     3.6     6.6

 370          KK     S21
 371          KM   SUB-BASIN 21
 372          BA    3.67
 373          LG     .15     .35    4.70     .37    2.29
 374          UI    132.    132.    132.    132.    307.    407.    516.    633.    777.    833.
 375          UI    917.    982.   1041.   1147.   1333.   1568.   1513.   1051.    936.    859.
```

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

 376          UI    794.    768.    728.    684.    651.    621.    584.    547.    521.    488.
 377          UI    449.    411.    367.    347.    324.    317.    304.    291.    276.    251.
 378          UI    217.    217.    178.    169.    169.    158.    145.    145.    145.    122.
 379          UI    101.    101.    101.    101.    101.     67.     65.     65.     65.     65.
 380          UI     65.     65.     65.     59.     25.     25.     25.     25.     25.     25.
 381          UI     25.     25.     25.     25.     25.     25.     25.     25.     25.     25.
 382          UI     25.     25.     25.     25.     25.     25.      0.      0.      0.      0.
 383          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 384          KK       B
 385          KM    ADDITION OF ROUTED C21 AND S21
 386          HC       2

 387          KK     S22
 388          KM   SUB-BASIN 22
 389          BA  1.3860
 390          PB    4.61
 391          LG     .15     .35    3.50     .25    0.93
 392          UI     77.     77.    109.    241.    327.    448.    513.    576.    643.    803.
 393          UI    909.    595.    509.    459.    427.    392.    363.    328.    303.    271.
 394          UI    236.    203.    189.    179.    166.    148.    127.    108.     99.     91.
 395          UI     85.     85.     60.     59.     59.     52.     38.     38.     38.     38.
 396          UI     38.     22.     15.     15.     15.     15.     15.     15.     15.     15.
 397          UI     15.     15.     15.     15.     15.      0.      0.      0.      0.      0.
 398          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 399          KK     S23
 400          KM   SUB-BASIN 23
 401          BA   .3945
 402          LG     .15     .38    4.40     .22     0.3
 403          UI     13.     13.     13.     13.     18.     37.     44.     52.     63.     76.
 404          UI     81.     88.     94.     99.    105.    120.    137.    160.    135.    101.
 405          UI     91.     84.     78.     75.     72.     68.     65.     62.     60.     56.
 406          UI     53.     51.     49.     44.     41.     39.     34.     33.     31.     31.
 407          UI     29.     29.     27.     26.     21.     21.     20.     16.     16.     16.
 408          UI     15.     14.     14.     14.     14.     10.     10.     10.     10.     10.
 409          UI     10.      7.      6.      6.      6.      6.      6.      6.      6.      6.
 410          UI      6.      2.      2.      2.      2.      2.      2.      2.      2.      2.
 411          UI      2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
 412          UI      2.      2.      2.      2.      2.      0.      0.      0.      0.      0.
 413          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 414          KK     C24
 415          KM    COMBINE 22 AND 23
 416          HC       2

 417          KK    RC24
 418          KM    ROUTE C24
 419          RS       8    STOR       0
 420          RC    0.07   0.045    0.08    6800  0.0257
 421          RX       0     300     313     334     352     362     383     683
 422          RY     3.8     0.8     1.1     1.9       0     2.3     2.8     5.8
```

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

 423          KK     S24
 424          KM   SUB-BASIN 24
 425          BA   .4907
 426          LG     .15     .35    4.20     .42    3.42
 427          UI     19.     19.     19.     19.     54.     65.     81.    102.    117.    127.
 428          UI    139.    148.    162.    190.    227.    206.    148.    132.    119.    113.
 429          UI    107.    101.     96.     90.     85.     79.     75.     70.     64.     59.
 430          UI     51.     49.     46.     44.     44.     40.     39.     31.     31.     27.
 431          UI     24.     24.     23.     21.     21.     21.     16.     15.     15.     15.
 432          UI     15.     11.      9.      9.      9.      9.      9.      9.      9.      7.
 433          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 434          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 435          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 436          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 437          KK       C
 438          KM    COMBINE ROUTED C24 AND S24
 439          HC       2

 440          KK    S25N
 441          KM   SUB-BASIN 25N
 442          BA   .7834
 443          PB    4.59
 444          LG     .15     .38    4.40     .22    2.70
 445          UI     17.     17.     17.     17.     17.     17.     17.     49.     50.     58.
 446          UI     66.     75.     83.     99.    104.    109.    115.    121.    127.    131.
 447          UI    136.    142.    156.    169.    188.    204.    217.    176.    139.    129.
 448          UI    121.    114.    109.    104.    102.     99.     96.     93.     90.     86.
 449          UI     84.     82.     79.     75.     73.     70.     69.     66.     63.     59.
 450          UI     57.     54.     52.     46.     46.     44.     42.     42.     41.     40.
 451          UI     40.     38.     36.     36.     35.     28.     28.     28.     28.     23.
 452          UI     22.     22.     22.     22.     21.     19.     19.     19.     19.     19.
 453          UI     19.     13.     13.     13.     13.     13.     13.     13.     13.     13.
 454          UI      9.      8.      8.      8.      8.      8.      8.      8.      8.      8.
 455          UI      8.      8.      8.      8.      6.      3.      3.      3.      3.      3.
 456          UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
 457          UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
 458          UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
 459          UI      3.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 460          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 461          KK    S25S
 462          KM   SUB-BASIN 25S
 463          BA   .6256
 464          PB    4.52
 465          LG     .15     .36    3.80     .24    4.43
 466          UI     33.     33.     34.     94.    130.    172.    205.    231.    253.    293.
 467          UI    364.    354.    243.    211.    193.    181.    166.    154.    142.    130.
 468          UI    119.    105.     91.     83.     78.     75.     68.     59.     54.     44.
 469          UI     42.     39.     36.     36.     28.     25.     25.     25.     17.     16.
 470          UI     16.     16.     16.     16.      8.      6.      6.      6.      6.      6.
 471          UI      6.      6.      6.      6.      6.      6.      6.      6.      6.      0.
 472          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 473          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

 474          KK   STRM4
 475          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
 476          HC       4

 477          KK    1380
 478          KM   SUB-BASIN 1380
 479          BA   .9305
 480          PB    4.78
 481          LG     .20      .35     3.70      .28     2.52
 482          UI     25.      25.      25.      25.      25.      34.      81.      86.      95.     111.
 483          UI    118.     125.     134.     140.     148.     156.     166.     179.     188.     200.
 484          UI    221.     251.     289.     316.     322.     288.     263.     242.     227.     214.
 485          UI    203.     193.     182.     169.     158.     149.     141.     129.     121.     115.
 486          UI    105.      95.      72.      71.      46.      44.      44.      42.      41.      41.
 487          UI     40.      25.      25.      25.      25.      25.      21.       8.       8.       8.
 488          UI      8.       8.       8.       8.       8.       8.       8.       8.       8.       8.
 489          UI      8.       8.       8.       8.       8.       0.       0.       0.       0.       0.
 490          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 491          KK   R1380
 492          KM    ROUTING OF 1380
 493          RS      15     STOR       0
 494          RC     .08     .045      .08    13900    .0190
 495          RX       0       27       45       54       79       88      106      133
 496          RY      18        9        3        0        0        3        9       18

 497          KK  S1390N
 498          KM   SUB-BASIN 1390N
 499          BA   .5610
 500          LG     .20      .35     4.22      .44     4.08
 501          UI     15.      15.      15.      15.      15.      26.      50.      55.      59.      70.
 502          UI     74.      79.      84.      88.      93.      98.     105.     114.     119.     129.
 503          UI    146.     172.     180.     204.     186.     168.     154.     143.     135.     127.
 504          UI    121.     114.     106.      99.      93.      88.      80.      75.      72.      65.
 505          UI     58.      45.      44.      28.      27.      27.      26.      25.      25.      23.
 506          UI     15.      15.      15.      15.      15.       9.       5.       5.       5.       5.
 507          UI      5.       5.       5.       5.       5.       5.       5.       5.       5.       5.
 508          UI      5.       5.       5.       5.       0.       0.       0.       0.       0.       0.
 509          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 510          KK   1390N
 511          HC       2

 512          KK   1390S
 513          KM   SUB-BASIN 1390S
 514          BA   .4347
 515          PB    4.74
 516          LG     .20      .35     4.10      .36     4.97
 517          UI     12.      12.      12.      12.      12.      29.      41.      47.      52.      58.
 518          UI     62.      67.      70.      74.      79.      85.      91.      96.     104.     119.
 519          UI    141.     148.     165.     148.     134.     123.     114.     107.     101.      96.
 520          UI     89.      82.      77.      73.      67.      62.      59.      54.      48.      37.
 521          UI     35.      22.      22.      22.      20.      20.      20.      15.      12.      12.
 522          UI     12.      12.      10.       4.       4.       4.       4.       4.       4.       4.
```

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

 523          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 524          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 525          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 526          KK    1430
 527          KM   SUB-BASIN 1430
 528          BA  1.4319
 529          PB    4.76
 530          LG     .20     .35    4.14     .48    2.01
 531          UI     28.     28.     28.     28.     28.     28.     28.     37.     93.     93.
 532          UI    104.    108.    123.    130.    138.    143.    151.    157.    162.    168.
 533          UI    175.    184.    193.    204.    213.    220.    232.    251.    276.    305.
 534          UI    331.    357.    380.    352.    326.    303.    286.    271.    258.    247.
 535          UI    237.    228.    220.    211.    199.    189.    180.    172.    165.    159.
 536          UI    147.    140.    137.    130.    121.    108.     98.     81.     81.     61.
 537          UI     50.     50.     50.     49.     46.     46.     46.     46.     39.     28.
 538          UI     28.     28.     28.     28.     28.     28.     18.      9.      9.      9.
 539          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
 540          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
 541          UI      9.      9.      0.      0.      0.      0.      0.      0.      0.      0.
 542          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 543          KK    1440
 544          KM   SUB-BASIN 1440
 545          BA  1.8882
 546          LG     .20     .35    3.70     .28    0.88
 547          UI     42.     42.     42.     42.     42.     42.     47.    138.    138.    160.
 548          UI    166.    194.    201.    210.    225.    235.    244.    255.    267.    282.
 549          UI    299.    316.    328.    349.    382.    427.    496.    499.    568.    530.
 550          UI    485.    449.    419.    396.    377.    358.    343.    329.    313.    293.
 551          UI    277.    263.    251.    241.    220.    210.    202.    194.    168.    161.
 552          UI    121.    121.     94.     74.     74.     74.     71.     69.     69.     69.
 553          UI     58.     42.     42.     42.     42.     42.     42.     28.     13.     13.
 554          UI     13.     13.     13.     13.     13.     13.     13.     13.     13.     13.
 555          UI     13.     13.     13.     13.     13.     13.     13.     13.     13.     13.
 556          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 557          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 558          KK    1441
 559          KM    COMBINATION OF ABOVE
 560          HC       2

 561          KK    1470
 562          KM   SUB-BASIN 1470
 563          BA   .2977
 564          PB    4.73
 565          LG     .20     .34    3.80     .24       0
 566          UI      8.      8.      8.      8.      8.     17.     27.     31.     34.     38.
 567          UI     41.     44.     46.     49.     52.     55.     59.     63.     67.     74.
 568          UI     84.     97.    108.    106.     95.     86.     80.     75.     70.     67.
 569          UI     63.     58.     54.     51.     48.     44.     41.     39.     36.     32.
 570          UI     24.     24.     15.     15.     15.     14.     14.     14.     11.      8.
 571          UI      8.      8.      8.      8.      3.      3.      3.      3.      3.      3.
 572          UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
 573          UI      3.      3.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

 574          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 575          KK   R1470
 576          KM    ROUTING OF 1470
 577          RS      20    STOR       0
 578          RC     .08    .045     .08   17600   .0188
 579          RX       0      27      45      54      79      88     106     133
 580          RY      18       9       3       0       0       3       9      18

 581          KK   S1475
 582          KM   SUB-BASIN 1475
 583          BA  1.6895
 584          LG     .20     .35    4.18     .46    5.30
 585          UI     47.     47.     47.     47.     47.     88.    153.    171.    186.    214.
 586          UI    228.    246.    259.    272.    288.    307.    331.    352.    370.    411.
 587          UI    465.    542.    588.    611.    545.    495.    457.    425.    402.    379.
 588          UI    362.    335.    311.    292.    276.    256.    237.    224.    212.    179.
 589          UI    152.    134.    101.     82.     82.     80.     77.     77.     75.     47.
 590          UI     47.     47.     47.     47.     32.     14.     14.     14.     14.     14.
 591          UI     14.     14.     14.     14.     14.     14.     14.     14.     14.     14.
 592          UI     14.     14.      0.      0.      0.      0.      0.      0.      0.      0.
 593          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 594          KK    1475
 595          HC       2

 596          KK  STRM56
 597          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
 598          HC       4
 599          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

  10        S2040
                .
                .
  25            .       S2050
                .           .
                .           .
  34         2051............
                .
                .
  36            .       S2070
                .           .
                .           .
  45        STRM1............
                .
                .
  48            .         S39
                .           .
                .           .
  65            .           .         S40
                .           .           .
                .           .           .
  74            .        CP41............
                .           V
                .           V
  77            .       RCP41
                .           .
                .           .
  83            .           .         S41
                .           .           .
                .           .           .
  99            .           A............
                .           .
                .           .
                .           .         S42
                .           .           .
                .           .           .
 112            .           .           .        S43
                .           .           .          .
                .           .           .          .
 121            .           .           .          .         S44
                .           .           .          .           .
                .           .           .          .           .
 133            .           .           .       CP45............
                .           .           .          V
                .           .           .          V
 136            .           .           .      RCP45
                .           .           .          .
                .           .           .          .
 142            .           .           .          .         S45
                .           .           .          .           .
                .           .           .          .           .
 150            .           .           .          B............
                .           .           .          .
                .           .           .          .
 153            .           .           .          .       S45A
                .           .           .          .           .
                .           .           .          .           .
 160            .           .           .          .           .         S46
                .           .           .          .           .           .
```

```
169                 CP47.......................
                       V
                       V
172                 RCP47
                       .
                       .
178                    .          S47
                       .            .
                       .            .
188                    C............
                       .
                       .
191            CP48.......................
                  V
                  V
194            RCP48
                  .
                  .
200                  .        S48
                     .          .
                     .          .
209                  D............
                     .
                     .
212                  .        S50
                     .          .
                     .          .
221            CP51............
                     .
                     .
224                  .      S2000
                     .          .
                     .          .
232            STRM2............
                     .
                     .
235                  .       S35N
                     .          .
                     .          .
                       S16
                       .
                       .
268                    .          S17
                       .            .
                       .            .
282                    .            .          S18
                       .            .            .
                       .            .            .
293                 C19A.......................
                       V
                       V
296                 R19
                       .
                       .
302                    .          S15
                       .            .
                       .            .
329                 C19C............
                       V
                       V
332                 RC19C
                       .
                       .
338                    .          S19
                       .            .
```

```
348                 A............
                    .
                    .
351                 .        S20
                    .          .
                    .          .
361               C21...........
                    V
                    V
364               RC21
                    .
                    .
370                 .        S21
                    .          .
                    .          .
384                 B............
                    .
                    .
387                 .        S22
                    .          .
                    .          .
399                 .          .        S23
                    .          .          .
                    .          .          .
414                 .        C24...........
                    .          V
                    .          V
417                 .       RC24
                    .          .
                    .          .
423                 .          .        S24
                    .          .          .
                    .          .          .
437                 .          C...........
                    .          .
                    .          .
440                 .          .       S25N
                    .          .          .
                    .          .          .
                    .          .          .       S25S
                    .          .          .         .
                    .          .          .         .
474               STRM4.................................
                    .
                    .
477                 .       1380
                    .          V
                    .          V
491                 .      R1380
                    .          .
                    .          .
497                 .          .     S1390N
                    .          .          .
                    .          .          .
510                 .      1390N...........
                    .          .
                    .          .
512                 .          .      1390S
                    .          .          .
                    .          .          .
526                 .          .          .       1430
                    .          .          .         .
                    .          .          .         .
543                 .          .          .         .       1440
                    .          .          .         .         .
```

```
558                                                  1441............
561                                                                  1470
                                                                       V
                                                                       V
575                                                                  R1470
581                                                                                S1475
594                                                                  1475............
596                                                STRM56.....................................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            SEPTEMBER 1990            *
*             VERSION 4.0              *
*                                      *
*  RUN DATE  04/24/1991  TIME  09:14:23 *
*                                      *
****************************************
```

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

```
                    SCOTTSDALE ALLUVIAL FAN, ALL SUBBASINS
                    EXISTING CONDITIONS
                    PHONIX MOUNTAIN AND PHOENIX VALLEY S-GRAPHS
                    100 YEAR 24 HOUR TYPE IIA DISTRIBUTION
                    GREEN AND AMPT INFILTRATION EQUATION FOR SOIL LOSSES
                    CHANGED %IMPERVIOUS AREAS TO REFLECT FUTURE CONDITION
                    FCD 04/12/91 AA, REV. AMM, 4/19/91

 9 IO        OUTPUT CONTROL VARIABLES
                  IPRNT          5  PRINT CONTROL
                  IPLOT          0  PLOT CONTROL
                  QSCAL         0.  HYDROGRAPH PLOT SCALE

   IT        HYDROGRAPH TIME DATA
                   NMIN          5  MINUTES IN COMPUTATION INTERVAL
                  IDATE      1   0  STARTING DATE
                  ITIME       0000  STARTING TIME
                     NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                 NDDATE      2   0  ENDING DATE
                 NDTIME       0055  ENDING TIME
                  ICENT         19  CENTURY MARK

            COMPUTATION INTERVAL     .08 HOURS
                 TOTAL TIME BASE   24.92 HOURS

       ENGLISH UNITS
            DRAINAGE AREA          SQUARE MILES
            PRECIPITATION DEPTH    INCHES
            LENGTH, ELEVATION      FEET
            FLOW                   CUBIC FEET PER SECOND
            STORAGE VOLUME         ACRE-FEET
            SURFACE AREA           ACRES
            TEMPERATURE            DEGREES FAHRENHEIT
```

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	S2040	1304.	6.25	195.	52.	50.	.93		
+	HYDROGRAPH AT	S2050	1016.	6.33	176.	47.	45.	.86		
+	2 COMBINED AT	2051	2303.	6.25	371.	99.	95.	1.79		
+	HYDROGRAPH AT	S2070	2359.	6.17	322.	86.	83.	1.46		
+	2 COMBINED AT	STRM1	4573.	6.25	693.	185.	178.	3.25		
+	HYDROGRAPH AT	S39	1239.	7.25	427.	111.	107.	1.93		
+	HYDROGRAPH AT	S40	723.	6.33	119.	30.	29.	.58		
+	2 COMBINED AT	CP41	1404.	7.17	545.	141.	136.	2.51		
+	ROUTED TO	RCP41	1344.	7.67	543.	141.	135.	2.51	3.31	7.67
+	HYDROGRAPH AT	S41	425.	7.33	152.	40.	39.	.79		
+	2 COMBINED AT	A	1707.	7.50	695.	181.	174.	3.31		
+	HYDROGRAPH AT	S42	699.	6.33	129.	33.	31.	.58		
+	HYDROGRAPH AT	S43	1467.	6.25	239.	60.	58.	1.07		
+	HYDROGRAPH AT	S44	773.	6.67	187.	47.	45.	.84		
+	2 COMBINED AT	CP45	2031.	6.42	427.	107.	104.	1.91		
+	ROUTED TO	RCP45	1987.	6.58	427.	107.	103.	1.91	3.83	6.58
+	HYDROGRAPH AT	S45	327.	6.17	41.	10.	10.	.20		
+	2 COMBINED AT	B	2123.	6.50	467.	118.	113.	2.11		
	HYDROGRAPH AT									

+		S45A	315.	6.08	32.	8.	8.	.17		
	HYDROGRAPH AT									
+		S46	1293.	6.25	206.	55.	53.	.93		
	3 COMBINED AT									
+		CP47	3324.	6.33	705.	181.	175.	3.21		
	ROUTED TO									
+		RCP47	3143.	6.83	705.	181.	174.	3.21		
+									3.50	6.83
	HYDROGRAPH AT									
+		S47	457.	6.33	84.	21.	21.	.38		
	2 COMBINED AT									
+		C	3398.	6.83	788.	202.	195.	3.58		
	3 COMBINED AT									
+		CP48	5167.	6.83	1608.	416.	401.	7.47		
	ROUTED TO									
+		RCP48	5158.	6.92	1608.	416.	401.	7.47		
+									3.84	6.92
	HYDROGRAPH AT									
+		S48	57.	6.33	10.	2.	2.	.04		
	2 COMBINED AT									
+		D	5182.	6.92	1618.	418.	403.	7.52		
	HYDROGRAPH AT									
+		S50	468.	6.33	81.	22.	21.	.36		
	2 COMBINED AT									
+		CP51	5370.	6.92	1697.	440.	424.	7.88		
	HYDROGRAPH AT									
+		S2000	1334.	6.17	176.	47.	45.	.80		
	2 COMBINED AT									
+		STRM2	5641.	6.83	1872.	487.	469.	8.68		
	HYDROGRAPH AT									
+		S35N	543.	6.33	97.	25.	24.	.41		
	HYDROGRAPH AT									
+		S16	708.	8.00	313.	88.	85.	1.46		
	HYDROGRAPH AT									
+		S17	944.	7.00	289.	74.	72.	1.19		
	HYDROGRAPH AT									
+		S18	1470.	6.50	318.	82.	79.	1.26		
	3 COMBINED AT									
+		C19A	2344.	6.67	914.	244.	235.	3.91		
	ROUTED TO									
+		R19	2330.	6.75	914.	244.	235.	3.91		
+									4.19	6.75
	HYDROGRAPH AT									
+		S15	500.	9.00	258.	82.	79.	1.37		
	2 COMBINED AT									

+		C19C	2435.	6.75	1158.	326.	314.	5.28	
	ROUTED TO								
+		RC19C	2426.	6.83	1158.	326.	314.	5.28	
+									4.00 6.83
	HYDROGRAPH AT								
+		S19	239.	6.42	45.	11.	11.	.19	
	2 COMBINED AT								
+		A	2567.	6.75	1201.	337.	324.	5.46	
	HYDROGRAPH AT								
+		S20	714.	6.42	144.	37.	36.	.57	
	2 COMBINED AT								
+		C21	3152.	6.67	1342.	374.	360.	6.03	
	ROUTED TO								
+		RC21	2999.	7.83	1315.	372.	358.	6.03	
+									4.45 7.83
	HYDROGRAPH AT								
+		S21	2480.	7.00	762.	195.	188.	3.67	
	2 COMBINED AT								
+		B	4698.	7.08	2023.	567.	546.	9.70	
	HYDROGRAPH AT								
+		S22	1483.	6.58	337.	85.	82.	1.39	
	HYDROGRAPH AT								
+		S23	276.	7.17	92.	23.	23.	.39	
	2 COMBINED AT								
+		C24	1645.	6.58	429.	108.	104.	1.78	
	ROUTED TO								
+		RC24	1598.	6.92	428.	108.	104.	1.78	
+									2.94 6.92
	HYDROGRAPH AT								
+		S24	347.	6.92	102.	26.	25.	.49	
	2 COMBINED AT								
+		C	1945.	6.92	530.	134.	129.	2.27	
	HYDROGRAPH AT								
+		S25N	405.	7.83	172.	47.	46.	.78	
	HYDROGRAPH AT								
+		S25S	622.	6.58	150.	38.	37.	.63	
	4 COMBINED AT								
+		STRM4	7285.	7.00	2870.	787.	758.	13.38	
	HYDROGRAPH AT								
+		1380	650.	7.75	229.	58.	56.	.93	
	ROUTED TO								
+		R1380	639.	8.17	228.	58.	56.	.93	
+									2.59 8.17
	HYDROGRAPH AT								
+		S1390N	355.	7.75	121.	31.	30.	.56	

	2 COMBINED AT								
+		1390N	915.	8.08	348.	89.	86.	1.49	
	HYDROGRAPH AT								
+		1390S	300.	7.67	99.	25.	24.	.43	
	HYDROGRAPH AT								
+		1430	657.	8.50	287.	75.	72.	1.43	
	HYDROGRAPH AT								
+		1440	1126.	8.17	450.	115.	111.	1.89	
	2 COMBINED AT								
+		1441	1702.	8.33	736.	190.	183.	3.32	
	HYDROGRAPH AT								
+		1470	218.	7.67	74.	19.	18.	.30	
	ROUTED TO								
+		R1470	211.	8.33	74.	19.	18.	.30	
+									1.34 8.33
	HYDROGRAPH AT								
+		S1475	1064.	7.75	360.	92.	89.	1.69	
	2 COMBINED AT								
+		1475	1163.	7.83	433.	111.	107.	1.99	
	4 COMBINED AT								
+		STRM56	3784.	8.08	1615.	415.	399.	7.23	

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

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            SEPTEMBER 1990            *
*             VERSION 4.0              *
*                                      *
*  RUN DATE  04/24/1991  TIME  09:17:08 *
*                                      *
****************************************
```

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

100F

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

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

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

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

  1           ID    SCOTTSDALE ALLUVIAL FAN, ALL SUBBASINS
  2           ID    FUTURE CONDITION
  3           ID    PHONIX MOUNTAIN AND PHOENIX VALLEY S-GRAPHS
  4           ID    100 YEAR 24 HOUR TYPE IIA DISTRIBUTION
  5           ID    GREEN AND AMPT INFILTRATION EQUATION FOR SOIL LOSSES
  6           ID    CHANGED %IMPERVIOUS AREAS TO REFLECT FUTURE CONDITION
  7           ID    FCD 04/12/91 AA, REV. AMM, 4/19/91
              *DIAGRAM
  8           IT       5                    300
  9           IO       5

 10           KK   S2040
 11           KM   SUB-BASIN 2040
 12           BA   .9290
 13           IN      30
 14           PB    4.33
 15           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
 16           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
 17           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
 18           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
 19           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
 20           LG     .25     .35    4.19     .45   24.28
 21           UI    100.    209.    479.    682.    872.   1055.    660.    554.    472.    398.
 22           UI    315.    251.    221.    177.    134.    115.     97.     76.     63.     49.
 23           UI     49.     33.     19.     19.     19.     19.     19.     19.      0.      0.
 24           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 25           KK   S2050
 26           KM   SUB-BASIN 2050
 27           BA   .8580
 28           LG     .25     .35    4.16     .46   22.90
 29           UI     73.     98.    253.    403.    509.    609.    831.    594.    456.    403.
 30           UI    355.    310.    268.    218.    184.    167.    145.    116.     93.     84.
 31           UI     79.     56.     56.     42.     36.     36.     36.     15.     14.     14.
 32           UI     14.     14.     14.     14.     14.     14.      0.      0.      0.      0.
 33           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 34           KK    2051
 35           HC       2

 36           KK   S2070
 37           KM   SUB-BASIN 2070
 38           BA  1.4649
 39           PB    4.38
 40           LG     .25     .35    4.21     .44   22.08
 41           UI    184.    514.   1069.   1446.   1980.   1240.   1004.    830.    667.    498.
 42           UI    420.    331.    242.    204.    152.    130.     90.     90.     51.     35.
 43           UI     35.     35.     35.     35.      0.      0.      0.      0.      0.      0.
 44           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

  45          KK   STRM1
  46          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
  47          HC       2

  48          KK     S39
  49          KM   SUB-BASIN 39
  50          BA  1.9302
  51          PB    4.39
  52          LG     .15      .36     3.80      .24    21.37
  53          UI     60.      60.      60.      60.      61.     172.     188.     230.     274.     337.
  54          UI    367.     392.     423.     449.     470.     508.     577.     660.     749.     608.
  55          UI    471.     423.     392.     367.     353.     340.     323.     308.     295.     283.
  56          UI    270.     254.     242.     231.     216.     204.     186.     172.     158.     151.
  57          UI    147.     142.     138.     133.     125.     125.      98.      98.      98.      77.
  58          UI     77.      77.      76.      66.      66.      66.      66.      55.      46.      46.
  59          UI     46.      46.      46.      46.      29.      29.      29.      29.      29.      29.
  60          UI     29.      29.      29.      29.      15.      11.      11.      11.      11.      11.
  61          UI     11.      11.      11.      11.      11.      11.      11.      11.      11.      11.
  62          UI     11.      11.      11.      11.      11.      11.      11.      11.      11.      11.
  63          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
  64          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

  65          KK     S40
  66          KM   SUB-BASIN 40
  67          BA   .5844
  68          LG     .15      .35     4.10      .37    13.08
  69          UI     50.      67.     172.     274.     346.     414.     565.     406.     310.     275.
  70          UI    242.     211.     183.     149.     125.     114.      99.      79.      64.      57.
  71          UI     54.      38.      38.      29.      24.      24.      24.      10.      10.      10.
  72          UI     10.      10.      10.      10.      10.      10.       0.       0.       0.       0.
  73          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

  74          KK    CP41
  75          KM    COMBINE HYDROGRAPHS S39 AND S40
  76          HC       2

  77          KK   RCP41
  78          KM    ROUTE CP41
  79          RS      10     STOR       0
  80          RC   0.075    0.045    0.075     9400   0.0282
  81          RX       0      300      321      326      337      350      380      680
  82          RY     5.9      2.9      1.6      0.2        0      1.5      2.0      5.0

  83          KK     S41
  84          KM   SUB-BASIN 41
  85          BA   .7911
  86          LG     .15      .35     4.20      .42    15.16
  87          UI     23.      23.      23.      23.      23.      54.      66.      85.      97.     115.
  88          UI    136.     144.     154.     166.     174.     183.     197.     222.     252.     290.
  89          UI    251.     185.     170.     155.     145.     138.     134.     129.     123.     117.
  90          UI    113.     109.     104.      98.      93.      90.      85.      79.      73.      70.
  91          UI     61.      60.      57.      57.      53.      53.      50.      48.      47.      38.
  92          UI     38.      38.      30.      30.      30.      30.      26.      25.      25.      25.
  93          UI     25.      18.      18.      18.      18.      18.      18.      18.      11.      11.
```

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

  94          UI     11.     11.     11.     11.     11.     11.     11.     11.     10.      4.
  95          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
  96          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
  97          UI      4.      4.      4.      4.      4.      4.      0.      0.      0.      0.
  98          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  99          KK       A
 100          KM    BASIN 41 AND ROUTED CP41
 101          HC       2

 102          KK     S42
 103          KM   SUB-BASIN 42
 104          BA   .5844
 105          LG     .15     .35    3.70     .29   24.84
 106          UI     43.     43.    125.    197.    269.    317.    374.    500.    369.    281.
 107          UI    250.    224.    201.    177.    156.    129.    110.    102.     93.     76.
 108          UI     64.     55.     49.     47.     34.     33.     31.     21.     21.     21.
 109          UI     21.      9.      8.      8.      8.      8.      8.      8.      8.      8.
 110          UI      8.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 111          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 112          KK     S43
 113          KM   SUB-BASIN 43
 114          BA  1.0665
 115          LG     .15     .35    3.60     .27   16.46
 116          UI     94.    139.    344.    544.    679.    832.   1067.    681.    564.    496.
 117          UI    435.    378.    314.    252.    224.    203.    160.    127.    113.    103.
 118          UI     77.     72.     57.     46.     46.     46.     18.     18.     18.     18.
 119          UI     18.     18.     18.     18.     18.      0.      0.      0.      0.      0.
 120          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 121          KK     S44
 122          KM   SUB-BASIN 44
 123          BA   .8389
 124          LG     .15     .37    4.40     .22   11.52
 125          UI     43.     43.     43.    119.    163.    218.    263.    297.    326.    367.
 126          UI    451.    506.    338.    288.    258.    243.    225.    209.    194.    177.
 127          UI    166.    146.    130.    113.    105.    100.     95.     89.     71.     69.
 128          UI     55.     55.     49.     47.     47.     34.     33.     33.     33.     22.
 129          UI     21.     21.     21.     21.     21.     12.      8.      8.      8.      8.
 130          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
 131          UI      8.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 132          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 133          KK    CP45
 134          KM    COMBINE HYDROGRAPHS S43 AND S44
 135          HC       2

 136          KK   RCP45
 137          KM    ROUTE OF CP45
 138          RS       4    STOR       0
 139          RC    0.08   0.045    0.08    3600   .0366
 140          RX       0     300     307     320     324     330     350     650
 141          RY     5.9     2.9     2.0       0       0     0.4     2.0     5.0
```

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

  142         KK     S45
  143         KM   SUB-BASIN 45
  144         BA   .2037
  145         LG     .15      .35     4.20      .39    21.42
  146         UI     26.      74.     152.     207.     276.     171.     139.     115.      91.      68.
  147         UI     58.      44.      33.      28.      20.      17.      13.      13.       6.       5.
  148         UI      5.       5.       5.       5.       0.       0.       0.       0.       0.       0.
  149         UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

  150         KK       B
  151         KM    COMBINE S45 AND ROUTED CP45
  152         HC       2

  153         KK    S45A
  154         KM   SUB-BASIN 45A
  155         BA   .1720
  156         LG     .25      .35     4.20      .39    11.17
  157         UI     37.     140.     239.     283.     171.     132.      93.      69.      48.      35.
  158         UI     25.      17.      15.       7.       6.       6.       6.       0.       0.       0.
  159         UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

  160         KK     S46
  161         KM   SUB-BASIN 46
  162         BA   .9268
  163         LG     .25      .35     4.20      .44    24.0
  164         UI     92.     169.     398.     595.     730.    1025.     727.     555.     480.     415.
  165         UI    350.     279.     230.     204.     165.     127.     109.      99.      71.      69.
  166         UI     45.      45.      45.      21.      18.      18.      18.      18.      18.      18.
  167         UI     18.       0.       0.       0.       0.       0.       0.       0.       0.       0.
  168         UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

  169         KK    CP47
  170         KM    COMBINE HYDROGRAPHS S45,S45A,AND S46
  171         HC       3

  172         KK   RCP47
  173         KM    ROUTING OF CP47
  174         RS      10     STOR       0
  175         RC    0.07    0.045     0.07     9600  0.0217
  176         RX       0      300      324      338      350      388      394      694
  177         RY     4.5      1.5      0.6        0        0      1.6      2.0      5.0

  178         KK     S47
  179         KM   SUB-BASIN 47
  180         BA   .3757
  181         LG     .15      .35     3.80      .28    14.17
  182         UI     28.      28.      84.     130.     177.     209.     248.     328.     228.     179.
  183         UI    161.     143.     128.     113.      98.      81.      71.      65.      59.      47.
  184         UI     39.      35.      31.      29.      22.      22.      17.      14.      14.      14.
  185         UI     11.       5.       5.       5.       5.       5.       5.       5.       5.       5.
  186         UI      5.       0.       0.       0.       0.       0.       0.       0.       0.       0.
  187         UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
```

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

 188          KK       C
 189          KM    COMBINE ROUTED CP47 AND S47
 190          HC       2

 191          KK    CP48
 192          KM    COMBINE HYDROGRAPHS S41,S42,S47
 193          HC       3

 194          KK   RCP48
 195          KM    ROUTE CP48
 196          RS       2    STOR       0
 197          RC    0.07   0.045    0.07    1300  0.0338
 198          RX       0     300     324     338     350     388     394     694
 199          RY     4.5     1.5     0.6       0       0     1.6     2.0     5.0

 200          KK     S48
 201          KM   SUB-BASIN 48
 202          BA   .0438
 203          LG     .15     .35    3.70     .29    6.28
 204          UI      4.      4.     12.     19.     24.     29.     39.     34.     24.     21.
 205          UI     18.     16.     14.     12.     10.      9.      8.      6.      5.      5.
 206          UI      4.      4.      3.      3.      2.      2.      2.      2.      1.      1.
 207          UI      1.      1.      1.      1.      1.      1.      1.      0.      0.      0.
 208          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 209          KK       D
 210          KM    COMBINE S48 AND ROUTED CP48
 211          HC       2

 212          KK     S50
 213          KM   SUB-BASIN 50
 214          BA   .3580
 215          LG     .15     .35    4.20     .39   19.76
 216          UI     31.     44.    110.    175.    219.    265.    355.    237.    189.    167.
 217          UI    148.    127.    109.     88.     76.     69.     57.     46.     39.     34.
 218          UI     30.     24.     23.     15.     15.     15.     11.      6.      6.      6.
 219          UI      6.      6.      6.      6.      6.      0.      0.      0.      0.      0.
 220          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 221          KK    CP51
 222          KM    COMBINE HYDROGRAPHS S48 AND S50
 223          HC       2

 224          KK   S2000
 225          KM   SUB-BASIN 2000
 226          BA   .7999
 227          LG     .15     .35    4.31     .41   18.03
 228          UI    103.    302.    615.    835.   1082.    668.    545.    448.    354.    262.
 229          UI    226.    164.    127.    107.     79.     61.     51.     45.     20.     20.
 230          UI     20.     20.     20.     20.      0.      0.      0.      0.      0.      0.
 231          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

 232          KK   STRM2
 233          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
 234          HC       2

 235          KK    S35N
 236          KM   SUB-BASIN 35N
 237          BA   .4068
 238          PB    4.49
 239          LG     .15      .35     3.60      .27    18.97
 240          UI     32.      36.     105.     163.     213.     250.     320.     346.     225.     192.
 241          UI    171.     153.     133.     117.      95.      82.      75.      67.      53.      43.
 242          UI     39.      35.      29.      25.      25.      16.      16.      16.      15.       6.
 243          UI      6.       6.       6.       6.       6.       6.       6.       6.       6.       0.
 244          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
 245          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 246          KK     S16
 247          KM   SUB-BASIN 16
 248          BA   1.457
 249          PB    4.62
 250          LG     .15      .37     4.10      .23    12.82
 251          UI     30.      30.      30.      30.      30.      30.      30.      51.      85.      85.
 252          UI    106.     114.     131.     139.     170.     177.     184.     193.     203.     214.
 253          UI    221.     228.     236.     248.     270.     291.     321.     349.     378.     322.
 254          UI    252.     228.     214.     202.     192.     184.     178.     175.     170.     165.
 255          UI    160.     155.     149.     146.     142.     138.     135.     126.     124.     120.
 256          UI    117.     114.     109.     102.     100.      92.      92.      82.      78.      78.
 257          UI     73.      73.      73.      69.      68.      68.      65.      62.      62.      62.
 258          UI     51.      49.      49.      49.      47.      38.      38.      38.      38.      38.
 259          UI     37.      32.      32.      32.      32.      32.      32.      30.      23.      23.
 260          UI     23.      23.      23.      23.      23.      23.      23.      20.      15.      14.
 261          UI     15.      14.      15.      14.      15.      14.      14.      15.      14.      15.
 262          UI     14.      15.      14.       8.       6.       6.       6.       6.       6.       6.
 263          UI      6.       6.       6.       6.       6.       6.       6.       6.       6.       6.
 264          UI      6.       6.       6.       6.       6.       6.       6.       6.       6.       6.
 265          UI      6.       6.       6.       6.       6.       6.       6.       6.       6.       6.
 266          UI      6.       6.       0.       0.       0.       0.       0.       0.       0.       0.
 267          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 268          KK     S17
 269          KM   SUB-BASIN 17
 270          BA  1.1851
 271          LG     .15      .38     4.70      .21    15.95
 272          UI     44.      44.      44.      44.     117.     146.     183.     228.     267.     291.
 273          UI    318.     339.     364.     419.     491.     543.     394.     327.     293.     271.
 274          UI    260.     247.     232.     219.     209.     196.     183.     174.     162.     148.
 275          UI    138.     118.     114.     109.     104.     102.      94.      93.      74.      73.
 276          UI     66.      57.      57.      55.      49.      49.      49.      42.      34.      34.
 277          UI     34.      34.      33.      22.      22.      22.      22.      22.      22.      22.
 278          UI     22.      14.       9.       9.       9.       9.       9.       9.       9.       9.
 279          UI      9.       9.       9.       9.       9.       9.       9.       9.       9.       9.
 280          UI      9.       9.       0.       0.       0.       0.       0.       0.       0.       0.
 281          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
```

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

 282          KK     S18
 283          KM   SUB-BASIN 18
 284          BA  1.2641
 285          LG     .15     .38    4.40     .22   10.20
 286          UI     78.     78.    149.    270.    393.    491.    564.    632.    792.    900.
 287          UI    589.    498.    455.    414.    379.    345.    311.    278.    240.    203.
 288          UI    189.    178.    163.    133.    119.    100.     95.     85.     84.     60.
 289          UI     60.     60.     43.     38.     38.     38.     38.     23.     15.     15.
 290          UI     15.     15.     15.     15.     15.     15.     15.     15.     15.     15.
 291          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 292          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 293          KK    C19A
 294          KM    COMBINE 16,17,18
 295          HC       3

 296          KK     R19
 297          KM    ROUTE C19A
 298          RS       1    STOR       0
 299          RC    0.08   0.045    0.08    1100  0.0155
 300          RX       0     300     316     346     350     370     386     660
 301          RY     6.8     3.8     0.9       0       0     0.2     3.6     6.6

 302          KK     S15
 303          KM   SUB-BASIN 15
 304          BA  1.3702
 305          LG     .15     .37    5.10     .20   14.73
 306          UI     20.     20.     20.     20.     20.     20.     20.     20.     20.     20.
 307          UI     32.     57.     57.     57.     69.     76.     76.     89.     91.    103.
 308          UI    114.    118.    120.    126.    129.    135.    140.    144.    148.    151.
 309          UI    154.    158.    163.    172.    183.    194.    205.    221.    234.    256.
 310          UI    239.    212.    173.    158.    152.    143.    138.    134.    127.    125.
 311          UI    120.    119.    117.    115.    114.    109.    109.    104.    104.    100.
 312          UI     99.     96.     95.     93.     91.     90.     85.     85.     81.     80.
 313          UI     80.     76.     76.     74.     68.     68.     67.     62.     62.     62.
 314          UI     55.     53.     53.     53.     50.     49.     49.     49.     48.     46.
 315          UI     46.     46.     46.     43.     42.     42.     42.     42.     36.     33.
 316          UI     33.     33.     33.     33.     32.     25.     25.     25.     25.     25.
 317          UI     25.     25.     25.     22.     22.     22.     22.     22.     22.     22.
 318          UI     22.     22.     21.     15.     15.     15.     15.     15.     15.     15.
 319          UI     15.     15.     15.     15.     15.     15.     14.     10.     10.     10.
 320          UI     10.     10.     10.     10.     10.     10.     10.     10.     10.     10.
 321          UI     10.     10.     10.     10.     10.     10.     10.     10.      8.      4.
 322          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 323          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 324          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 325          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 326          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 327          UI      4.      4.      4.      4.      0.      0.      0.      0.      0.      0.
 328          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

 329          KK    C19C
 330          KM    COMBINE 15 AND R19
 331          HC       2

 332          KK   RC19C
 333          KM    ROUTING C19C
 334          RS       2    STOR       0
 335          RC   0.075   0.045   0.075    1800    0.02
 336          RX       0     300     316     346     350     370     386     686
 337          RY     6.8     3.8     0.9       0       0     0.2     3.6     6.6

 338          KK     S19
 339          KM   SUB-BASIN 19
 340          BA   .1872
 341          LG     .15     .35    3.60     .27   21.56
 342          UI     14.     14.     37.     59.     83.     98.    113.    151.    129.     91.
 343          UI     80.     72.     65.     58.     51.     44.     36.     33.     30.     27.
 344          UI     22.     17.     17.     15.     13.     10.     10.      8.      7.      7.
 345          UI      7.      6.      3.      3.      3.      3.      3.      3.      3.      3.
 346          UI      3.      3.      0.      0.      0.      0.      0.      0.      0.      0.
 347          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 348          KK       A
 349          KM    ADDITION OF S19 AND RC19C
 350          HC       2

 351          KK     S20
 352          KM   SUB-BASIN 20
 353          BA   .5698
 354          LG     .15     .38    4.40     .22   12.87
 355          UI     39.     39.     92.    157.    224.    266.    303.    375.    453.    293.
 356          UI    245.    222.    201.    182.    161.    145.    125.    103.     94.     88.
 357          UI     80.     64.     54.     50.     43.     43.     32.     30.     30.     20.
 358          UI     19.     19.     19.     16.      7.      7.      7.      7.      7.      7.
 359          UI      7.      7.      7.      7.      7.      0.      0.      0.      0.      0.
 360          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 361          KK     C21
 362          KM    COMBINE A AND 20
 363          HC       2

 364          KK    RC21
 365          KM    ROUTE C21
 366          RS      30    STOR       0
 367          RC   0.075   0.045   0.075   27600  0.0196
 368          RX       0     300     316     346     350     370     386     686
 369          RY     6.8     3.8     0.9       0       0     0.2     3.6     6.6

 370          KK     S21
 371          KM   SUB-BASIN 21
 372          BA    3.67
 373          LG     .15     .35    4.70     .37    8.55
 374          UI    132.    132.    132.    132.    307.    407.    516.    633.    777.    833.
 375          UI    917.    982.   1041.   1147.   1333.   1568.   1513.   1051.    936.    859.
```

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

 376          UI    794.    768.    728.    684.    651.    621.    584.    547.    521.    488.
 377          UI    449.    411.    367.    347.    324.    317.    304.    291.    276.    251.
 378          UI    217.    217.    178.    169.    169.    158.    145.    145.    145.    122.
 379          UI    101.    101.    101.    101.    101.     67.     65.     65.     65.     65.
 380          UI     65.     65.     65.     59.     25.     25.     25.     25.     25.     25.
 381          UI     25.     25.     25.     25.     25.     25.     25.     25.     25.     25.
 382          UI     25.     25.     25.     25.     25.     25.      0.      0.      0.      0.
 383          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 384          KK       B
 385          KM    ADDITION OF ROUTED C21 AND S21
 386          HC       2

 387          KK     S22
 388          KM   SUB-BASIN 22
 389          BA  1.3860
 390          PB    4.61
 391          LG     .15     .35    3.50     .25    5.80
 392          UI     77.     77.    109.    241.    327.    448.    513.    576.    643.    803.
 393          UI    909.    595.    509.    459.    427.    392.    363.    328.    303.    271.
 394          UI    236.    203.    189.    179.    166.    148.    127.    108.     99.     91.
 395          UI     85.     85.     60.     59.     59.     52.     38.     38.     38.     38.
 396          UI     38.     22.     15.     15.     15.     15.     15.     15.     15.     15.
 397          UI     15.     15.     15.     15.     15.      0.      0.      0.      0.      0.
 398          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 399          KK     S23
 400          KM   SUB-BASIN 23
 401          BA   .3945
 402          LG     .15     .38    4.40     .22    7.60
 403          UI     13.     13.     13.     13.     18.     37.     44.     52.     63.     76.
 404          UI     81.     88.     94.     99.    105.    120.    137.    160.    135.    101.
 405          UI     91.     84.     78.     75.     72.     68.     65.     62.     60.     56.
 406          UI     53.     51.     49.     44.     41.     39.     34.     33.     31.     31.
 407          UI     29.     29.     27.     26.     21.     21.     20.     16.     16.     16.
 408          UI     15.     14.     14.     14.     14.     10.     10.     10.     10.     10.
 409          UI     10.      7.      6.      6.      6.      6.      6.      6.      6.      6.
 410          UI      6.      2.      2.      2.      2.      2.      2.      2.      2.      2.
 411          UI      2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
 412          UI      2.      2.      2.      2.      2.      0.      0.      0.      0.      0.
 413          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 414          KK     C24
 415          KM    COMBINE 22 AND 23
 416          HC       2

 417          KK    RC24
 418          KM    ROUTE C24
 419          RS       8    STOR       0
 420          RC    0.07   0.045    0.08    6800  0.0257
 421          RX       0     300     313     334     352     362     383     683
 422          RY     3.8     0.8     1.1     1.9       0     2.3     2.8     5.8
```

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

 423          KK     S24
 424          KM   SUB-BASIN 24
 425          BA   .4907
 426          LG     .15      .35     4.20      .42    10.27
 427          UI     19.      19.      19.      19.      54.      65.      81.     102.     117.     127.
 428          UI    139.     148.     162.     190.     227.     206.     148.     132.     119.     113.
 429          UI    107.     101.      96.      90.      85.      79.      75.      70.      64.      59.
 430          UI     51.      49.      46.      44.      44.      40.      39.      31.      31.      27.
 431          UI     24.      24.      23.      21.      21.      21.      16.      15.      15.      15.
 432          UI     15.      11.       9.       9.       9.       9.       9.       9.       9.       7.
 433          UI      4.       4.       4.       4.       4.       4.       4.       4.       4.       4.
 434          UI      4.       4.       4.       4.       4.       4.       4.       4.       4.       4.
 435          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
 436          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 437          KK       C
 438          KM    COMBINE ROUTED C24 AND S24
 439          HC       2

 440          KK    S25N
 441          KM   SUB-BASIN 25N
 442          BA   .7834
 443          PB    4.59
 444          LG     .15      .38     4.40      .22    11.23
 445          UI     17.      17.      17.      17.      17.      17.      17.      49.      50.      58.
 446          UI     66.      75.      83.      99.     104.     109.     115.     121.     127.     131.
 447          UI    136.     142.     156.     169.     188.     204.     217.     176.     139.     129.
 448          UI    121.     114.     109.     104.     102.      99.      96.      93.      90.      86.
 449          UI     84.      82.      79.      75.      73.      70.      69.      66.      63.      59.
 450          UI     57.      54.      52.      46.      46.      44.      42.      42.      41.      40.
 451          UI     40.      38.      36.      36.      35.      28.      28.      28.      28.      23.
 452          UI     22.      22.      22.      22.      21.      19.      19.      19.      19.      19.
 453          UI     19.      13.      13.      13.      13.      13.      13.      13.      13.      13.
 454          UI      9.       8.       8.       8.       8.       8.       8.       8.       8.       8.
 455          UI      8.       8.       8.       8.       6.       3.       3.       3.       3.       3.
 456          UI      3.       3.       3.       3.       3.       3.       3.       3.       3.       3.
 457          UI      3.       3.       3.       3.       3.       3.       3.       3.       3.       3.
 458          UI      3.       3.       3.       3.       3.       3.       3.       3.       3.       3.
 459          UI      3.       0.       0.       0.       0.       0.       0.       0.       0.       0.
 460          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 461          KK    S25S
 462          KM   SUB-BASIN 25S
 463          BA   .6256
 464          PB    4.52
 465          LG     .15      .36     3.80      .24    12.96
 466          UI     33.      33.      34.      94.     130.     172.     205.     231.     253.     293.
 467          UI    364.     354.     243.     211.     193.     181.     166.     154.     142.     130.
 468          UI    119.     105.      91.      83.      78.      75.      68.      59.      54.      44.
 469          UI     42.      39.      36.      36.      28.      25.      25.      25.      17.      16.
 470          UI     16.      16.      16.      16.       8.       6.       6.       6.       6.       6.
 471          UI      6.       6.       6.       6.       6.       6.       6.       6.       6.       0.
 472          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
 473          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
```

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

 474          KK   STRM4
 475          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
 476          HC       4

 477          KK    1380
 478          KM   SUB-BASIN 1380
 479          BA   .9305
 480          PB    4.78
 481          LG     .20      .35     3.70      .28    15.96
 482          UI     25.      25.      25.      25.      25.      34.      81.      86.      95.     111.
 483          UI    118.     125.     134.     140.     148.     156.     166.     179.     188.     200.
 484          UI    221.     251.     289.     316.     322.     288.     263.     242.     227.     214.
 485          UI    203.     193.     182.     169.     158.     149.     141.     129.     121.     115.
 486          UI    105.      95.      72.      71.      46.      44.      44.      42.      41.      41.
 487          UI     40.      25.      25.      25.      25.      25.      21.       8.       8.       8.
 488          UI      8.       8.       8.       8.       8.       8.       8.       8.       8.       8.
 489          UI      8.       8.       8.       8.       8.       0.       0.       0.       0.       0.
 490          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 491          KK   R1380
 492          KM    ROUTING OF 1380
 493          RS      15    STOR       0
 494          RC     .08    .045     .08    13900    .0190
 495          RX       0      27      45       54       79       88      106      133
 496          RY      18       9       3        0        0        3        9       18

 497          KK  S1390N
 498          KM   SUB-BASIN 1390N
 499          BA   .5610
 500          LG     .20      .35     4.22      .44    15.96
 501          UI     15.      15.      15.      15.      15.      26.      50.      55.      59.      70.
 502          UI     74.      79.      84.      88.      93.      98.     105.     114.     119.     129.
 503          UI    146.     172.     180.     204.     186.     168.     154.     143.     135.     127.
 504          UI    121.     114.     106.      99.      93.      88.      80.      75.      72.      65.
 505          UI     58.      45.      44.      28.      27.      27.      26.      25.      25.      23.
 506          UI     15.      15.      15.      15.      15.       9.       5.       5.       5.       5.
 507          UI      5.       5.       5.       5.       5.       5.       5.       5.       5.       5.
 508          UI      5.       5.       5.       5.       0.       0.       0.       0.       0.       0.
 509          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 510          KK   1390N
 511          HC       2

 512          KK   1390S
 513          KM   SUB-BASIN 1390S
 514          BA   .4347
 515          PB    4.74
 516          LG     .20      .35     4.10      .36    15.96
 517          UI     12.      12.      12.      12.      12.      29.      41.      47.      52.      58.
 518          UI     62.      67.      70.      74.      79.      85.      91.      96.     104.     119.
 519          UI    141.     148.     165.     148.     134.     123.     114.     107.     101.      96.
 520          UI     89.      82.      77.      73.      67.      62.      59.      54.      48.      37.
 521          UI     35.      22.      22.      22.      20.      20.      20.      15.      12.      12.
 522          UI     12.      12.      10.       4.       4.       4.       4.       4.       4.       4.
```

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

 523          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 524          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 525          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 526          KK    1430
 527          KM   SUB-BASIN 1430
 528          BA  1.4319
 529          PB    4.76
 530          LG     .20     .35    4.14     .48   17.40
 531          UI     28.     28.     28.     28.     28.     28.     28.     37.     93.     93.
 532          UI    104.    108.    123.    130.    138.    143.    151.    157.    162.    168.
 533          UI    175.    184.    193.    204.    213.    220.    232.    251.    276.    305.
 534          UI    331.    357.    380.    352.    326.    303.    286.    271.    258.    247.
 535          UI    237.    228.    220.    211.    199.    189.    180.    172.    165.    159.
 536          UI    147.    140.    137.    130.    121.    108.     98.     81.     81.     61.
 537          UI     50.     50.     50.     49.     46.     46.     46.     46.     39.     28.
 538          UI     28.     28.     28.     28.     28.     28.     18.      9.      9.      9.
 539          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
 540          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
 541          UI      9.      9.      0.      0.      0.      0.      0.      0.      0.      0.
 542          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 543          KK    1440
 544          KM   SUB-BASIN 1440
 545          BA  1.8882
 546          LG     .20     .35    3.70     .28   18.55
 547          UI     42.     42.     42.     42.     42.     42.     47.    138.    138.    160.
 548          UI    166.    194.    201.    210.    225.    235.    244.    255.    267.    282.
 549          UI    299.    316.    328.    349.    382.    427.    496.    499.    568.    530.
 550          UI    485.    449.    419.    396.    377.    358.    343.    329.    313.    293.
 551          UI    277.    263.    251.    241.    220.    210.    202.    194.    168.    161.
 552          UI    121.    121.     94.     74.     74.     74.     71.     69.     69.     69.
 553          UI     58.     42.     42.     42.     42.     42.     42.     28.     13.     13.
 554          UI     13.     13.     13.     13.     13.     13.     13.     13.     13.     13.
 555          UI     13.     13.     13.     13.     13.     13.     13.     13.     13.     13.
 556          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 557          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 558          KK    1441
 559          KM    COMBINATION OF ABOVE
 560          HC       2

 561          KK    1470
 562          KM   SUB-BASIN 1470
 563          BA   .2977
 564          PB    4.73
 565          LG     .20     .34    3.80     .24   14.70
 566          UI      8.      8.      8.      8.      8.     17.     27.     31.     34.     38.
 567          UI     41.     44.     46.     49.     52.     55.     59.     63.     67.     74.
 568          UI     84.     97.    108.    106.     95.     86.     80.     75.     70.     67.
 569          UI     63.     58.     54.     51.     48.     44.     41.     39.     36.     32.
 570          UI     24.     24.     15.     15.     15.     14.     14.     14.     11.      8.
 571          UI      8.      8.      8.      8.      3.      3.      3.      3.      3.      3.
 572          UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
 573          UI      3.      3.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

 574          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 575          KK   R1470
 576          KM    ROUTING OF 1470
 577          RS      20    STOR       0
 578          RC     .08    .045     .08   17600   .0188
 579          RX       0      27      45      54      79      88     106     133
 580          RY      18       9       3       0       0       3       9      18

 581          KK   S1475
 582          KM   SUB-BASIN 1475
 583          BA  1.6895
 584          LG     .20     .35    4.18     .46   30.02
 585          UI     47.     47.     47.     47.     47.     88.    153.    171.    186.    214.
 586          UI    228.    246.    259.    272.    288.    307.    331.    352.    370.    411.
 587          UI    465.    542.    588.    611.    545.    495.    457.    425.    402.    379.
 588          UI    362.    335.    311.    292.    276.    256.    237.    224.    212.    179.
 589          UI    152.    134.    101.     82.     82.     80.     77.     77.     75.     47.
 590          UI     47.     47.     47.     47.     32.     14.     14.     14.     14.     14.
 591          UI     14.     14.     14.     14.     14.     14.     14.     14.     14.     14.
 592          UI     14.     14.      0.      0.      0.      0.      0.      0.      0.      0.
 593          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 594          KK    1475
 595          HC       2

 596          KK  STRM56
 597          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
 598          HC       4
 599          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

  10       S2040
               .
               .
  25           .       S2050
               .           .
               .           .
  34        2051............
               .
               .
  36           .       S2070
               .           .
               .           .
  45       STRM1............
               .
               .
  48           .         S39
               .           .
               .           .
  65           .           .         S40
               .           .           .
               .           .           .
  74           .        CP41............
               .           V
               .           V
  77           .       RCP41
               .           .
               .           .
  83           .           .         S41
               .           .           .
               .           .           .
  99           .           A............
               .           .
               .           .
 102           .           .         S42
               .           .           .
               .           .           .
 112           .           .           .        S43
               .           .           .          .
               .           .           .          .
 121           .           .           .          .         S44
               .           .           .          .           .
               .           .           .          .           .
 133           .           .           .       CP45............
               .           .           .          V
               .           .           .          V
 136           .           .           .      RCP45
               .           .           .          .
               .           .           .          .
 142           .           .           .          .         S45
               .           .           .          .           .
               .           .           .          .           .
 150           .           .           .          B............
               .           .           .          .
               .           .           .          .
 153           .           .           .          .       S45A
               .           .           .          .           .
               .           .           .          .           .
 160           .           .           .          .           .        S46
               .           .           .          .           .          .
```

```
169                 CP47.......................
                       V
                       V
172                 RCP47
                       .
                       .
178                    .          S47
                       .            .
                       .            .
188                    C............
                       .
                       .
191            CP48.......................
                  V
                  V
194            RCP48
                  .
                  .
200               .        S48
                  .          .
                  .          .
209               D............
                  .
                  .
212               .        S50
                  .          .
                  .          .
221            CP51............
                  .
                  .
224               .      S2000
                  .          .
                  .          .
232            STRM2...........
                  .
                  .
235               .       S35N
                  .          .
                  .          .
6                 .          .      S16
                  .          .       .
                  .          .       .
268               .          .       .        S17
                  .          .       .         .
                  .          .       .         .
282               .          .       .         .        S18
                  .          .       .         .         .
                  .          .       .         .         .
293               .          .    C19A.......................
                  .          .       V
                  .          .       V
296               .          .     R19
                  .          .       .
                  .          .       .
302               .          .       .        S15
                  .          .       .         .
                  .          .       .         .
329               .          .    C19C............
                  .          .       V
                  .          .       V
332               .          .   RC19C
                  .          .       .
                  .          .       .
338               .          .       .        S19
                  .          .       .         .
```

```
348                 A............
                    .
351                 .        S20
                    .          .
361               C21...........
                    V
                    V
364               RC21
                    .
370                 .        S21
                    .          .
384                 B............
                    .
387                 .        S22
                    .          .
399                 .          .        S23
                    .          .          .
414                 .        C24...........
                    .          V
                    .          V
417                 .       RC24
                    .          .
423                 .          .        S24
                    .          .          .
437                 .          C...........
                    .          .
440                 .          .       S25N
                    .          .          .
1                   .          .          .       S25S
                    .          .          .         .
474               STRM4.......................................
                    .
477                 .       1380
                    .          V
                    .          V
491                 .      R1380
                    .          .
497                 .          .     S1390N
                    .          .          .
510                 .      1390N...........
                    .          .
512                 .          .      1390S
                    .          .          .
526                 .          .          .       1430
                    .          .          .         .
543                 .          .          .         .       1440
                    .          .          .         .         .
```

```
                .         .         .         .         .         .         .         .
  558           .         .         .         .         .         .      1441.........
                .         .         .         .         .         .         .
                .         .         .         .         .         .         .
  561           .         .         .         .         .         .         .      1470
                .         .         .         .         .         .         .         V
                .         .         .         .         .         .         .         V
  575           .         .         .         .         .         .         .     R1470
                .         .         .         .         .         .         .         .
                .         .         .         .         .         .         .         .
  581           .         .         .         .         .         .         .         .      S1475
                .         .         .         .         .         .         .         .         .
                .         .         .         .         .         .         .         .         .
  594           .         .         .         .         .         .         .      1475.........
                .         .         .         .         .         .         .         .
                .         .         .         .         .         .         .         .
  596           .         .         .         .     STRM56.................................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            SEPTEMBER 1990            *
*             VERSION 4.0              *
*                                      *
*  RUN DATE  04/24/1991  TIME  09:17:08 *
*                                      *
****************************************
```

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

```
                    SCOTTSDALE ALLUVIAL FAN, ALL SUBBASINS
                    FUTURE CONDITION
                    PHONIX MOUNTAIN AND PHOENIX VALLEY S-GRAPHS
                    100 YEAR 24 HOUR TYPE IIA DISTRIBUTION
                    GREEN AND AMPT INFILTRATION EQUATION FOR SOIL LOSSES
                    CHANGED %IMPERVIOUS AREAS TO REFLECT FUTURE CONDITION
                    FCD 04/12/91 AA, REV. AMM, 4/19/91

  9 IO        OUTPUT CONTROL VARIABLES
                  IPRNT          5  PRINT CONTROL
                  IPLOT          0  PLOT CONTROL
                  QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT        HYDROGRAPH TIME DATA
                   NMIN          5  MINUTES IN COMPUTATION INTERVAL
                  IDATE      1   0  STARTING DATE
                  ITIME       0000  STARTING TIME
                     NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                 NDDATE      2   0  ENDING DATE
                 NDTIME       0055  ENDING TIME
                 ICENT         19  CENTURY MARK

            COMPUTATION INTERVAL     .08 HOURS
                 TOTAL TIME BASE   24.92 HOURS

      ENGLISH UNITS
           DRAINAGE AREA          SQUARE MILES
           PRECIPITATION DEPTH    INCHES
           LENGTH, ELEVATION      FEET
           FLOW                   CUBIC FEET PER SECOND
           STORAGE VOLUME         ACRE-FEET
           SURFACE AREA           ACRES
           TEMPERATURE            DEGREES FAHRENHEIT
```

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	S2040	1347.	6.25	208.	57.	55.	.93		
+	HYDROGRAPH AT	S2050	1057.	6.33	189.	51.	49.	.86		
+	2 COMBINED AT	2051	2387.	6.25	398.	108.	104.	1.79		
+	HYDROGRAPH AT	S2070	2381.	6.17	328.	89.	85.	1.46		
+	2 COMBINED AT	STRM1	4679.	6.25	726.	196.	189.	3.25		
+	HYDROGRAPH AT	S39	1338.	7.25	485.	133.	128.	1.93		
+	HYDROGRAPH AT	S40	752.	6.33	129.	34.	33.	.58		
+	2 COMBINED AT	CP41	1520.	7.17	613.	167.	161.	2.51		
+	ROUTED TO	RCP41	1458.	7.67	612.	167.	160.	2.51		
+									3.40	7.67
+	HYDROGRAPH AT	S41	451.	7.33	167.	46.	44.	.79		
+	2 COMBINED AT	A	1844.	7.50	778.	212.	204.	3.31		
+	HYDROGRAPH AT	S42	750.	6.42	150.	40.	39.	.58		
+	HYDROGRAPH AT	S43	1528.	6.25	264.	70.	67.	1.07		
+	HYDROGRAPH AT	S44	804.	6.67	202.	53.	51.	.84		
+	2 COMBINED AT	CP45	2120.	6.42	466.	122.	118.	1.91		
+	ROUTED TO	RCP45	2076.	6.58	466.	122.	118.	1.91		
+									3.88	6.58
+	HYDROGRAPH AT	S45	349.	6.17	48.	13.	12.	.20		
+	2 COMBINED AT	B	2229.	6.50	514.	135.	130.	2.11		
	HYDROGRAPH AT									

+		S45A	328.	6.08	36.	9.	9.	.17		
	HYDROGRAPH AT									
+		S46	1313.	6.25	212.	58.	56.	.93		
	3 COMBINED AT									
+		CP47	3456.	6.33	762.	202.	195.	3.21		
	ROUTED TO									
+		RCP47	3276.	6.83	761.	201.	194.	3.21		
+									3.55	6.83
	HYDROGRAPH AT									
+		S47	472.	6.33	90.	24.	23.	.38		
	2 COMBINED AT									
+		C	3546.	6.83	851.	225.	217.	3.58		
	3 COMBINED AT									
+		CP48	5462.	6.83	1775.	478.	460.	7.47		
	ROUTED TO									
+		RCP48	5455.	6.92	1775.	477.	460.	7.47		
+									3.91	6.92
	HYDROGRAPH AT									
+		S48	57.	6.33	10.	3.	2.	.04		
	2 COMBINED AT									
+		D	5479.	6.92	1785.	480.	462.	7.52		
	HYDROGRAPH AT									
+		S50	472.	6.33	83.	22.	21.	.36		
	2 COMBINED AT									
+		CP51	5671.	6.92	1866.	502.	484.	7.88		
	HYDROGRAPH AT									
+		S2000	1346.	6.17	180.	48.	46.	.80		
	2 COMBINED AT									
+		STRM2	5945.	6.83	2044.	550.	530.	8.68		
	HYDROGRAPH AT									
+		S35N	564.	6.33	106.	28.	27.	.41		
	HYDROGRAPH AT									
+		S16	747.	8.00	340.	99.	95.	1.46		
	HYDROGRAPH AT									
+		S17	982.	7.00	310.	83.	80.	1.19		
	HYDROGRAPH AT									
+		S18	1481.	6.50	323.	83.	80.	1.26		
	3 COMBINED AT									
+		C19A	2407.	6.67	966.	265.	255.	3.91		
	ROUTED TO									
+		R19	2395.	6.75	966.	265.	255.	3.91		
+									4.25	6.75
	HYDROGRAPH AT									
+		S15	537.	9.00	285.	94.	91.	1.37		
	2 COMBINED AT									

+		C19C	2511.	6.75	1236.	359.	346.	5.28	
	ROUTED TO								
+		RC19C	2503.	6.83	1235.	359.	346.	5.28	
+									4.06 6.83
	HYDROGRAPH AT								
+		S19	254.	6.42	52.	14.	13.	.19	
	2 COMBINED AT								
+		A	2659.	6.83	1285.	373.	359.	5.46	
	HYDROGRAPH AT								
+		S20	723.	6.42	148.	39.	37.	.57	
	2 COMBINED AT								
+		C21	3239.	6.58	1430.	411.	396.	6.03	
	ROUTED TO								
+		RC21	3090.	7.92	1408.	408.	393.	6.03	
+									4.50 7.92
	HYDROGRAPH AT								
+		S21	2569.	7.00	807.	212.	204.	3.67	
	2 COMBINED AT								
+		B	4793.	7.17	2157.	620.	597.	9.70	
	HYDROGRAPH AT								
+		S22	1506.	6.58	349.	89.	86.	1.39	
	HYDROGRAPH AT								
+		S23	284.	7.17	96.	25.	24.	.39	
	2 COMBINED AT								
+		C24	1673.	6.58	445.	114.	110.	1.78	
	ROUTED TO								
+		RC24	1626.	6.92	444.	114.	110.	1.78	
+									2.96 6.92
	HYDROGRAPH AT								
+		S24	361.	6.92	109.	29.	28.	.49	
	2 COMBINED AT								
+		C	1987.	6.92	552.	143.	137.	2.27	
	HYDROGRAPH AT								
+		S25N	421.	7.83	182.	52.	50.	.78	
	HYDROGRAPH AT								
+		S25S	640.	6.58	159.	42.	40.	.63	
	4 COMBINED AT								
+		STRM4	7402.	7.00	3044.	855.	824.	13.38	
	HYDROGRAPH AT								
+		1380	689.	7.83	251.	66.	64.	.93	
	ROUTED TO								
+		R1380	678.	8.17	250.	66.	64.	.93	
+									2.69 8.17
	HYDROGRAPH AT								
+		S1390N	382.	7.75	135.	36.	35.	.56	

```
          2 COMBINED AT
+                        1390N      980.    8.08       383.       102.       99.      1.49

          HYDROGRAPH AT
+                        1390S      318.    7.67       108.        29.       28.       .43

          HYDROGRAPH AT
+                         1430      733.    8.50       332.        91.       88.      1.43

          HYDROGRAPH AT
+                         1440     1221.    8.17       507.       137.      132.      1.89

          2 COMBINED AT
+                         1441     1872.    8.33       839.       228.      220.      3.32

          HYDROGRAPH AT
+                         1470      231.    7.67        81.        21.       21.       .30

          ROUTED TO
+                        R1470      223.    8.33        81.        21.       21.       .30
+                                                                                   1.39        8.33

          HYDROGRAPH AT
+                        S1475     1238.    7.75       449.       124.      119.      1.69

          2 COMBINED AT
+                         1475     1367.    7.75       529.       145.      140.      1.99

          4 COMBINED AT
+                       STRM56     4207.    8.08      1858.       504.      486.      7.23


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

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            SEPTEMBER 1990            *
*             VERSION 4.0              *
*                                      *
*   RUN DATE  04/24/1991  TIME  09:18:15 *
*                                      *
****************************************
```

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

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

100M

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

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

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

  1           ID    SCOTTSDALE ALLUVIAL FAN, ALL SUBBASINS
  2           ID    MAXIMUM BUIDOUT CONDITIONS
  3           ID    PHONIX MOUNTAIN AND PHOENIX VALLEY S-GRAPHS
  4           ID    100 YEAR 24 HOUR TYPE IIA DISTRIBUTION
  5           ID    GREEN AND AMPT INFILTRATION EQUATION FOR SOIL LOSSES
  6           ID    CHANGED %IMPERVIOUS AREAS TO REFLECT FUTURE CONDITION
  7           ID    FCD 04/12/91 AA, REV. AMM, 4/19/91
              *DIAGRAM
  8           IT       5                    300
  9           IO       5

 10           KK   S2040
 11           KM   SUB-BASIN 2040
 12           BA   .9290
 13           IN      30
 14           PB    4.33
 15           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
 16           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
 17           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
 18           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
 19           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
 20           LG     .25     .35    4.19     .45   25.94
 21           UI    100.    209.    479.    682.    872.   1055.    660.    554.    472.    398.
 22           UI    315.    251.    221.    177.    134.    115.     97.     76.     63.     49.
 23           UI     49.     33.     19.     19.     19.     19.     19.     19.      0.      0.
 24           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 25           KK   S2050
 26           KM   SUB-BASIN 2050
 27           BA   .8580
 28           LG     .25     .35    4.16     .46   24.85
 29           UI     73.     98.    253.    403.    509.    609.    831.    594.    456.    403.
 30           UI    355.    310.    268.    218.    184.    167.    145.    116.     93.     84.
 31           UI     79.     56.     56.     42.     36.     36.     36.     15.     14.     14.
 32           UI     14.     14.     14.     14.     14.     14.      0.      0.      0.      0.
 33           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 34           KK    2051
 35           HC       2

 36           KK   S2070
 37           KM   SUB-BASIN 2070
 38           BA  1.4649
 39           PB    4.38
 40           LG     .25     .35    4.21     .44   22.40
 41           UI    184.    514.   1069.   1446.   1980.   1240.   1004.    830.    667.    498.
 42           UI    420.    331.    242.    204.    152.    130.     90.     90.     51.     35.
 43           UI     35.     35.     35.     35.      0.      0.      0.      0.      0.      0.
 44           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

  45          KK   STRM1
  46          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
  47          HC       2

  48          KK     S39
  49          KM   SUB-BASIN 39
  50          BA  1.9302
  51          PB    4.39
  52          LG     .15      .36     3.80      .24    25.47
  53          UI     60.      60.      60.      60.      61.     172.     188.     230.     274.     337.
  54          UI    367.     392.     423.     449.     470.     508.     577.     660.     749.     608.
  55          UI    471.     423.     392.     367.     353.     340.     323.     308.     295.     283.
  56          UI    270.     254.     242.     231.     216.     204.     186.     172.     158.     151.
  57          UI    147.     142.     138.     133.     125.     125.      98.      98.      98.      77.
  58          UI     77.      77.      76.      66.      66.      66.      66.      55.      46.      46.
  59          UI     46.      46.      46.      46.      29.      29.      29.      29.      29.      29.
  60          UI     29.      29.      29.      29.      15.      11.      11.      11.      11.      11.
  61          UI     11.      11.      11.      11.      11.      11.      11.      11.      11.      11.
  62          UI     11.      11.      11.      11.      11.      11.      11.      11.      11.      11.
  63          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
  64          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

  65          KK     S40
  66          KM   SUB-BASIN 40
  67          BA   .5844
  68          LG     .15      .35     4.10      .37    16.50
  69          UI     50.      67.     172.     274.     346.     414.     565.     406.     310.     275.
  70          UI    242.     211.     183.     149.     125.     114.      99.      79.      64.      57.
  71          UI     54.      38.      38.      29.      24.      24.      24.      10.      10.      10.
  72          UI     10.      10.      10.      10.      10.      10.       0.       0.       0.       0.
  73          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

  74          KK    CP41
  75          KM    COMBINE HYDROGRAPHS S39 AND S40
  76          HC       2

  77          KK   RCP41
  78          KM    ROUTE CP41
  79          RS      10     STOR        0
  80          RC   0.075    0.045    0.075     9400   0.0282
  81          RX       0      300      321      326      337      350      380      680
  82          RY     5.9      2.9      1.6      0.2        0      1.5      2.0      5.0

  83          KK     S41
  84          KM   SUB-BASIN 41
  85          BA   .7911
  86          LG     .15      .35     4.20      .42    18.45
  87          UI     23.      23.      23.      23.      23.      54.      66.      85.      97.     115.
  88          UI    136.     144.     154.     166.     174.     183.     197.     222.     252.     290.
  89          UI    251.     185.     170.     155.     145.     138.     134.     129.     123.     117.
  90          UI    113.     109.     104.      98.      93.      90.      85.      79.      73.      70.
  91          UI     61.      60.      57.      57.      53.      53.      50.      48.      47.      38.
  92          UI     38.      38.      30.      30.      30.      30.      26.      25.      25.      25.
  93          UI     25.      18.      18.      18.      18.      18.      18.      18.      11.      11.
```

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

  94          UI     11.     11.     11.     11.     11.     11.     11.     11.     10.      4.
  95          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
  96          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
  97          UI      4.      4.      4.      4.      4.      4.      0.      0.      0.      0.
  98          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  99          KK       A
 100          KM    BASIN 41 AND ROUTED CP41
 101          HC       2

 102          KK     S42
 103          KM   SUB-BASIN 42
 104          BA   .5844
 105          LG     .15     .35    3.70     .29   28.93
 106          UI     43.     43.    125.    197.    269.    317.    374.    500.    369.    281.
 107          UI    250.    224.    201.    177.    156.    129.    110.    102.     93.     76.
 108          UI     64.     55.     49.     47.     34.     33.     31.     21.     21.     21.
 109          UI     21.      9.      8.      8.      8.      8.      8.      8.      8.      8.
 110          UI      8.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 111          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 112          KK     S43
 113          KM   SUB-BASIN 43
 114          BA  1.0665
 115          LG     .15     .35    3.60     .27   21.16
 116          UI     94.    139.    344.    544.    679.    832.   1067.    681.    564.    496.
 117          UI    435.    378.    314.    252.    224.    203.    160.    127.    113.    103.
 118          UI     77.     72.     57.     46.     46.     46.     18.     18.     18.     18.
 119          UI     18.     18.     18.     18.     18.      0.      0.      0.      0.      0.
 120          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 121          KK     S44
 122          KM   SUB-BASIN 44
 123          BA   .8389
 124          LG     .15     .37    4.40     .22   15.25
 125          UI     43.     43.     43.    119.    163.    218.    263.    297.    326.    367.
 126          UI    451.    506.    338.    288.    258.    243.    225.    209.    194.    177.
 127          UI    166.    146.    130.    113.    105.    100.     95.     89.     71.     69.
 128          UI     55.     55.     49.     47.     47.     34.     33.     33.     33.     22.
 129          UI     21.     21.     21.     21.     21.     12.      8.      8.      8.      8.
 130          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
 131          UI      8.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 132          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 133          KK    CP45
 134          KM    COMBINE HYDROGRAPHS S43 AND S44
 135          HC       2

 136          KK   RCP45
 137          KM    ROUTE OF CP45
 138          RS       4    STOR       0
 139          RC    0.08   0.045    0.08    3600   .0366
 140          RX       0     300     307     320     324     330     350     650
 141          RY     5.9     2.9     2.0       0       0     0.4     2.0     5.0
```

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

 142          KK     S45
 143          KM   SUB-BASIN 45
 144          BA   .2037
 145          LG     .15      .35     4.20      .39    26.30
 146          UI     26.      74.     152.     207.     276.     171.     139.     115.      91.      68.
 147          UI     58.      44.      33.      28.      20.      17.      13.      13.       6.       5.
 148          UI      5.       5.       5.       5.       0.       0.       0.       0.       0.       0.
 149          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 150          KK       B
 151          KM    COMBINE S45 AND ROUTED CP45
 152          HC       2

 153          KK    S45A
 154          KM   SUB-BASIN 45A
 155          BA   .1720
 156          LG     .25      .35     4.20      .39    14.08
 157          UI     37.     140.     239.     283.     171.     132.      93.      69.      48.      35.
 158          UI     25.      17.      15.       7.       6.       6.       6.       0.       0.       0.
 159          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 160          KK     S46
 161          KM   SUB-BASIN 46
 162          BA   .9268
 163          LG     .25      .35     4.20      .44    24.91
 164          UI     92.     169.     398.     595.     730.    1025.     727.     555.     480.     415.
 165          UI    350.     279.     230.     204.     165.     127.     109.      99.      71.      69.
 166          UI     45.      45.      45.      21.      18.      18.      18.      18.      18.      18.
 167          UI     18.       0.       0.       0.       0.       0.       0.       0.       0.       0.
 168          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 169          KK    CP47
 170          KM    COMBINE HYDROGRAPHS S45,S45A,AND S46
 171          HC       3

 172          KK   RCP47
 173          KM    ROUTING OF CP47
 174          RS      10     STOR       0
 175          RC    0.07    0.045    0.07     9600   0.0217
 176          RX       0      300     324      338      350      388      394      694
 177          RY     4.5      1.5     0.6        0        0      1.6      2.0      5.0

 178          KK     S47
 179          KM   SUB-BASIN 47
 180          BA   .3757
 181          LG     .15      .35     3.80      .28    17.23
 182          UI     28.      28.      84.     130.     177.     209.     248.     328.     228.     179.
 183          UI    161.     143.     128.     113.      98.      81.      71.      65.      59.      47.
 184          UI     39.      35.      31.      29.      22.      22.      17.      14.      14.      14.
 185          UI     11.       5.       5.       5.       5.       5.       5.       5.       5.       5.
 186          UI      5.       0.       0.       0.       0.       0.       0.       0.       0.       0.
 187          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
```

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

 188          KK       C
 189          KM    COMBINE ROUTED CP47 AND S47
 190          HC       2

 191          KK    CP48
 192          KM    COMBINE HYDROGRAPHS S41,S42,S47
 193          HC       3

 194          KK   RCP48
 195          KM    ROUTE CP48
 196          RS       2    STOR       0
 197          RC    0.07   0.045    0.07    1300  0.0338
 198          RX       0     300     324     338     350     388     394     694
 199          RY     4.5     1.5     0.6       0       0     1.6     2.0     5.0

 200          KK     S48
 201          KM   SUB-BASIN 48
 202          BA   .0438
 203          LG     .15     .35    3.70     .29    9.05
 204          UI      4.      4.     12.     19.     24.     29.     39.     34.     24.     21.
 205          UI     18.     16.     14.     12.     10.      9.      8.      6.      5.      5.
 206          UI      4.      4.      3.      3.      2.      2.      2.      2.      1.      1.
 207          UI      1.      1.      1.      1.      1.      1.      1.      0.      0.      0.
 208          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 209          KK       D
 210          KM    COMBINE S48 AND ROUTED CP48
 211          HC       2

 212          KK     S50
 213          KM   SUB-BASIN 50
 214          BA   .3580
 215          LG     .15     .35    4.20     .39   20.96
 216          UI     31.     44.    110.    175.    219.    265.    355.    237.    189.    167.
 217          UI    148.    127.    109.     88.     76.     69.     57.     46.     39.     34.
 218          UI     30.     24.     23.     15.     15.     15.     11.      6.      6.      6.
 219          UI      6.      6.      6.      6.      6.      0.      0.      0.      0.      0.
 220          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 221          KK    CP51
 222          KM    COMBINE HYDROGRAPHS S48 AND S50
 223          HC       2

 224          KK   S2000
 225          KM   SUB-BASIN 2000
 226          BA   .7999
 227          LG     .15     .35    4.31     .41   18.68
 228          UI    103.    302.    615.    835.   1082.    668.    545.    448.    354.    262.
 229          UI    226.    164.    127.    107.     79.     61.     51.     45.     20.     20.
 230          UI     20.     20.     20.     20.      0.      0.      0.      0.      0.      0.
 231          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

 232          KK   STRM2
 233          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
 234          HC       2

 235          KK    S35N
 236          KM   SUB-BASIN 35N
 237          BA   .4068
 238          PB    4.49
 239          LG     .15      .35     3.60      .27    21.43
 240          UI     32.      36.     105.     163.     213.     250.     320.     346.     225.     192.
 241          UI    171.     153.     133.     117.      95.      82.      75.      67.      53.      43.
 242          UI     39.      35.      29.      25.      25.      16.      16.      16.      15.       6.
 243          UI      6.       6.       6.       6.       6.       6.       6.       6.       6.       0.
 244          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
 245          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 246          KK     S16
 247          KM   SUB-BASIN 16
 248          BA   1.457
 249          PB    4.62
 250          LG     .15      .37     4.10      .23    17.22
 251          UI     30.      30.      30.      30.      30.      30.      30.      51.      85.      85.
 252          UI    106.     114.     131.     139.     170.     177.     184.     193.     203.     214.
 253          UI    221.     228.     236.     248.     270.     291.     321.     349.     378.     322.
 254          UI    252.     228.     214.     202.     192.     184.     178.     175.     170.     165.
 255          UI    160.     155.     149.     146.     142.     138.     135.     126.     124.     120.
 256          UI    117.     114.     109.     102.     100.      92.      92.      82.      78.      78.
 257          UI     73.      73.      73.      69.      68.      68.      65.      62.      62.      62.
 258          UI     51.      49.      49.      49.      47.      38.      38.      38.      38.      38.
 259          UI     37.      32.      32.      32.      32.      32.      32.      30.      23.      23.
 260          UI     23.      23.      23.      23.      23.      23.      23.      20.      15.      14.
 261          UI     15.      14.      15.      14.      15.      14.      14.      15.      14.      15.
 262          UI     14.      15.      14.       8.       6.       6.       6.       6.       6.       6.
 263          UI      6.       6.       6.       6.       6.       6.       6.       6.       6.       6.
 264          UI      6.       6.       6.       6.       6.       6.       6.       6.       6.       6.
 265          UI      6.       6.       6.       6.       6.       6.       6.       6.       6.       6.
 266          UI      6.       6.       0.       0.       0.       0.       0.       0.       0.       0.
 267          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 268          KK     S17
 269          KM   SUB-BASIN 17
 270          BA  1.1851
 271          LG     .15      .38     4.70      .21    19.73
 272          UI     44.      44.      44.      44.     117.     146.     183.     228.     267.     291.
 273          UI    318.     339.     364.     419.     491.     543.     394.     327.     293.     271.
 274          UI    260.     247.     232.     219.     209.     196.     183.     174.     162.     148.
 275          UI    138.     118.     114.     109.     104.     102.      94.      93.      74.      73.
 276          UI     66.      57.      57.      55.      49.      49.      49.      42.      34.      34.
 277          UI     34.      34.      33.      22.      22.      22.      22.      22.      22.      22.
 278          UI     22.      14.       9.       9.       9.       9.       9.       9.       9.       9.
 279          UI      9.       9.       9.       9.       9.       9.       9.       9.       9.       9.
 280          UI      9.       9.       0.       0.       0.       0.       0.       0.       0.       0.
 281          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
```

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

 282          KK     S18
 283          KM   SUB-BASIN 18
 284          BA  1.2641
 285          LG     .15     .38    4.40     .22   10.81
 286          UI     78.     78.    149.    270.    393.    491.    564.    632.    792.    900.
 287          UI    589.    498.    455.    414.    379.    345.    311.    278.    240.    203.
 288          UI    189.    178.    163.    133.    119.    100.     95.     85.     84.     60.
 289          UI     60.     60.     43.     38.     38.     38.     38.     23.     15.     15.
 290          UI     15.     15.     15.     15.     15.     15.     15.     15.     15.     15.
 291          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 292          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 293          KK    C19A
 294          KM    COMBINE 16,17,18
 295          HC       3

 296          KK     R19
 297          KM    ROUTE C19A
 298          RS       1    STOR       0
 299          RC    0.08   0.045    0.08    1100  0.0155
 300          RX       0     300     316     346     350     370     386     660
 301          RY     6.8     3.8     0.9       0       0     0.2     3.6     6.6

 302          KK     S15
 303          KM   SUB-BASIN 15
 304          BA  1.3702
 305          LG     .15     .37    5.10     .20   20.03
 306          UI     20.     20.     20.     20.     20.     20.     20.     20.     20.     20.
 307          UI     32.     57.     57.     57.     69.     76.     76.     89.     91.    103.
 308          UI    114.    118.    120.    126.    129.    135.    140.    144.    148.    151.
 309          UI    154.    158.    163.    172.    183.    194.    205.    221.    234.    256.
 310          UI    239.    212.    173.    158.    152.    143.    138.    134.    127.    125.
 311          UI    120.    119.    117.    115.    114.    109.    109.    104.    104.    100.
 312          UI     99.     96.     95.     93.     91.     90.     85.     85.     81.     80.
 313          UI     80.     76.     76.     74.     68.     68.     67.     62.     62.     62.
 314          UI     55.     53.     53.     53.     50.     49.     49.     49.     48.     46.
 315          UI     46.     46.     46.     43.     42.     42.     42.     42.     36.     33.
 316          UI     33.     33.     33.     33.     32.     25.     25.     25.     25.     25.
 317          UI     25.     25.     25.     22.     22.     22.     22.     22.     22.     22.
 318          UI     22.     22.     21.     15.     15.     15.     15.     15.     15.     15.
 319          UI     15.     15.     15.     15.     15.     15.     14.     10.     10.     10.
 320          UI     10.     10.     10.     10.     10.     10.     10.     10.     10.     10.
 321          UI     10.     10.     10.     10.     10.     10.     10.     10.      8.      4.
 322          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 323          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 324          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 325          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 326          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 327          UI      4.      4.      4.      4.      0.      0.      0.      0.      0.      0.
 328          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

 329          KK    C19C
 330          KM    COMBINE 15 AND R19
 331          HC       2

 332          KK   RC19C
 333          KM    ROUTING C19C
 334          RS       2    STOR       0
 335          RC   0.075   0.045   0.075    1800    0.02
 336          RX       0     300     316     346     350     370     386     686
 337          RY     6.8     3.8     0.9       0       0     0.2     3.6     6.6

 338          KK     S19
 339          KM   SUB-BASIN 19
 340          BA   .1872
 341          LG     .15     .35    3.60     .27   25.54
 342          UI     14.     14.     37.     59.     83.     98.    113.    151.    129.     91.
 343          UI     80.     72.     65.     58.     51.     44.     36.     33.     30.     27.
 344          UI     22.     17.     17.     15.     13.     10.     10.      8.      7.      7.
 345          UI      7.      6.      3.      3.      3.      3.      3.      3.      3.      3.
 346          UI      3.      3.      0.      0.      0.      0.      0.      0.      0.      0.
 347          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 348          KK       A
 349          KM    ADDITION OF S19 AND RC19C
 350          HC       2

 351          KK     S20
 352          KM   SUB-BASIN 20
 353          BA   .5698
 354          LG     .15     .38    4.40     .22   14.19
 355          UI     39.     39.     92.    157.    224.    266.    303.    375.    453.    293.
 356          UI    245.    222.    201.    182.    161.    145.    125.    103.     94.     88.
 357          UI     80.     64.     54.     50.     43.     43.     32.     30.     30.     20.
 358          UI     19.     19.     19.     16.      7.      7.      7.      7.      7.      7.
 359          UI      7.      7.      7.      7.      7.      0.      0.      0.      0.      0.
 360          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 361          KK     C21
 362          KM    COMBINE A AND 20
 363          HC       2

 364          KK    RC21
 365          KM    ROUTE C21
 366          RS      30    STOR       0
 367          RC   0.075   0.045   0.075   27600  0.0196
 368          RX       0     300     316     346     350     370     386     686
 369          RY     6.8     3.8     0.9       0       0     0.2     3.6     6.6

 370          KK     S21
 371          KM   SUB-BASIN 21
 372          BA    3.67
 373          LG     .15     .35    4.70     .37   11.17
 374          UI    132.    132.    132.    132.    307.    407.    516.    633.    777.    833.
 375          UI    917.    982.   1041.   1147.   1333.   1568.   1513.   1051.    936.    859.
```

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

 376          UI    794.    768.    728.    684.    651.    621.    584.    547.    521.    488.
 377          UI    449.    411.    367.    347.    324.    317.    304.    291.    276.    251.
 378          UI    217.    217.    178.    169.    169.    158.    145.    145.    145.    122.
 379          UI    101.    101.    101.    101.    101.     67.     65.     65.     65.     65.
 380          UI     65.     65.     65.     59.     25.     25.     25.     25.     25.     25.
 381          UI     25.     25.     25.     25.     25.     25.     25.     25.     25.     25.
 382          UI     25.     25.     25.     25.     25.     25.      0.      0.      0.      0.
 383          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 384          KK       B
 385          KM    ADDITION OF ROUTED C21 AND S21
 386          HC       2

 387          KK     S22
 388          KM   SUB-BASIN 22
 389          BA  1.3860
 390          PB    4.61
 391          LG     .15     .35    3.50     .25    7.83
 392          UI     77.     77.    109.    241.    327.    448.    513.    576.    643.    803.
 393          UI    909.    595.    509.    459.    427.    392.    363.    328.    303.    271.
 394          UI    236.    203.    189.    179.    166.    148.    127.    108.     99.     91.
 395          UI     85.     85.     60.     59.     59.     52.     38.     38.     38.     38.
 396          UI     38.     22.     15.     15.     15.     15.     15.     15.     15.     15.
 397          UI     15.     15.     15.     15.     15.      0.      0.      0.      0.      0.
 398          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 399          KK     S23
 400          KM   SUB-BASIN 23
 401          BA   .3945
 402          LG     .15     .38    4.40     .22   10.46
 403          UI     13.     13.     13.     13.     18.     37.     44.     52.     63.     76.
 404          UI     81.     88.     94.     99.    105.    120.    137.    160.    135.    101.
 405          UI     91.     84.     78.     75.     72.     68.     65.     62.     60.     56.
 406          UI     53.     51.     49.     44.     41.     39.     34.     33.     31.     31.
 407          UI     29.     29.     27.     26.     21.     21.     20.     16.     16.     16.
 408          UI     15.     14.     14.     14.     14.     10.     10.     10.     10.     10.
 409          UI     10.      7.      6.      6.      6.      6.      6.      6.      6.      6.
 410          UI      6.      2.      2.      2.      2.      2.      2.      2.      2.      2.
 411          UI      2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
 412          UI      2.      2.      2.      2.      2.      0.      0.      0.      0.      0.
 413          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 414          KK     C24
 415          KM    COMBINE 22 AND 23
 416          HC       2

 417          KK    RC24
 418          KM    ROUTE C24
 419          RS       8    STOR       0
 420          RC    0.07   0.045    0.08    6800  0.0257
 421          RX       0     300     313     334     352     362     383     683
 422          RY     3.8     0.8     1.1     1.9       0     2.3     2.8     5.8
```

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

 423          KK     S24
 424          KM   SUB-BASIN 24
 425          BA   .4907
 426          LG     .15      .35     4.20      .42    13.32
 427          UI     19.      19.      19.      19.      54.      65.      81.     102.     117.     127.
 428          UI    139.     148.     162.     190.     227.     206.     148.     132.     119.     113.
 429          UI    107.     101.      96.      90.      85.      79.      75.      70.      64.      59.
 430          UI     51.      49.      46.      44.      44.      40.      39.      31.      31.      27.
 431          UI     24.      24.      23.      21.      21.      21.      16.      15.      15.      15.
 432          UI     15.      11.       9.       9.       9.       9.       9.       9.       9.       7.
 433          UI      4.       4.       4.       4.       4.       4.       4.       4.       4.       4.
 434          UI      4.       4.       4.       4.       4.       4.       4.       4.       4.       4.
 435          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
 436          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 437          KK       C
 438          KM    COMBINE ROUTED C24 AND S24
 439          HC       2

 440          KK    S25N
 441          KM   SUB-BASIN 25N
 442          BA   .7834
 443          PB    4.59
 444          LG     .15      .38     4.40      .22    14.71
 445          UI     17.      17.      17.      17.      17.      17.      17.      49.      50.      58.
 446          UI     66.      75.      83.      99.     104.     109.     115.     121.     127.     131.
 447          UI    136.     142.     156.     169.     188.     204.     217.     176.     139.     129.
 448          UI    121.     114.     109.     104.     102.      99.      96.      93.      90.      86.
 449          UI     84.      82.      79.      75.      73.      70.      69.      66.      63.      59.
 450          UI     57.      54.      52.      46.      46.      44.      42.      42.      41.      40.
 451          UI     40.      38.      36.      36.      35.      28.      28.      28.      28.      23.
 452          UI     22.      22.      22.      22.      21.      19.      19.      19.      19.      19.
 453          UI     19.      13.      13.      13.      13.      13.      13.      13.      13.      13.
 454          UI      9.       8.       8.       8.       8.       8.       8.       8.       8.       8.
 455          UI      8.       8.       8.       8.       6.       3.       3.       3.       3.       3.
 456          UI      3.       3.       3.       3.       3.       3.       3.       3.       3.       3.
 457          UI      3.       3.       3.       3.       3.       3.       3.       3.       3.       3.
 458          UI      3.       3.       3.       3.       3.       3.       3.       3.       3.       3.
 459          UI      3.       0.       0.       0.       0.       0.       0.       0.       0.       0.
 460          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 461          KK    S25S
 462          KM   SUB-BASIN 25S
 463          BA   .6256
 464          PB    4.52
 465          LG     .15      .36     3.80      .24    16.44
 466          UI     33.      33.      34.      94.     130.     172.     205.     231.     253.     293.
 467          UI    364.     354.     243.     211.     193.     181.     166.     154.     142.     130.
 468          UI    119.     105.      91.      83.      78.      75.      68.      59.      54.      44.
 469          UI     42.      39.      36.      36.      28.      25.      25.      25.      17.      16.
 470          UI     16.      16.      16.      16.       8.       6.       6.       6.       6.       6.
 471          UI      6.       6.       6.       6.       6.       6.       6.       6.       6.       0.
 472          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
 473          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
```

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

 474          KK   STRM4
 475          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
 476          HC       4

 477          KK    1380
 478          KM   SUB-BASIN 1380
 479          BA   .9305
 480          PB    4.78
 481          LG     .20      .35     3.70      .28    21.26
 482          UI     25.      25.      25.      25.      25.      34.      81.      86.      95.     111.
 483          UI    118.     125.     134.     140.     148.     156.     166.     179.     188.     200.
 484          UI    221.     251.     289.     316.     322.     288.     263.     242.     227.     214.
 485          UI    203.     193.     182.     169.     158.     149.     141.     129.     121.     115.
 486          UI    105.      95.      72.      71.      46.      44.      44.      42.      41.      41.
 487          UI     40.      25.      25.      25.      25.      25.      21.       8.       8.       8.
 488          UI      8.       8.       8.       8.       8.       8.       8.       8.       8.       8.
 489          UI      8.       8.       8.       8.       8.       0.       0.       0.       0.       0.
 490          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 491          KK   R1380
 492          KM    ROUTING OF 1380
 493          RS      15    STOR       0
 494          RC     .08    .045     .08    13900    .0190
 495          RX       0      27      45       54       79       88      106      133
 496          RY      18       9       3        0        0        3        9       18

 497          KK  S1390N
 498          KM   SUB-BASIN 1390N
 499          BA   .5610
 500          LG     .20      .35     4.22      .44    20.63
 501          UI     15.      15.      15.      15.      15.      26.      50.      55.      59.      70.
 502          UI     74.      79.      84.      88.      93.      98.     105.     114.     119.     129.
 503          UI    146.     172.     180.     204.     186.     168.     154.     143.     135.     127.
 504          UI    121.     114.     106.      99.      93.      88.      80.      75.      72.      65.
 505          UI     58.      45.      44.      28.      27.      27.      26.      25.      25.      23.
 506          UI     15.      15.      15.      15.      15.       9.       5.       5.       5.       5.
 507          UI      5.       5.       5.       5.       5.       5.       5.       5.       5.       5.
 508          UI      5.       5.       5.       5.       0.       0.       0.       0.       0.       0.
 509          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 510          KK   1390N
 511          HC       2

 512          KK   1390S
 513          KM   SUB-BASIN 1390S
 514          BA   .4347
 515          PB    4.74
 516          LG     .20      .35     4.10      .36    21.52
 517          UI     12.      12.      12.      12.      12.      29.      41.      47.      52.      58.
 518          UI     62.      67.      70.      74.      79.      85.      91.      96.     104.     119.
 519          UI    141.     148.     165.     148.     134.     123.     114.     107.     101.      96.
 520          UI     89.      82.      77.      73.      67.      62.      59.      54.      48.      37.
 521          UI     35.      22.      22.      22.      20.      20.      20.      15.      12.      12.
 522          UI     12.      12.      10.       4.       4.       4.       4.       4.       4.       4.
```

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

 523          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 524          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 525          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 526          KK    1430
 527          KM   SUB-BASIN 1430
 528          BA  1.4319
 529          PB    4.76
 530          LG     .20     .35    4.14     .48   22.93
 531          UI     28.     28.     28.     28.     28.     28.     28.     37.     93.     93.
 532          UI    104.    108.    123.    130.    138.    143.    151.    157.    162.    168.
 533          UI    175.    184.    193.    204.    213.    220.    232.    251.    276.    305.
 534          UI    331.    357.    380.    352.    326.    303.    286.    271.    258.    247.
 535          UI    237.    228.    220.    211.    199.    189.    180.    172.    165.    159.
 536          UI    147.    140.    137.    130.    121.    108.     98.     81.     81.     61.
 537          UI     50.     50.     50.     49.     46.     46.     46.     46.     39.     28.
 538          UI     28.     28.     28.     28.     28.     28.     18.      9.      9.      9.
 539          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
 540          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
 541          UI      9.      9.      0.      0.      0.      0.      0.      0.      0.      0.
 542          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 543          KK    1440
 544          KM   SUB-BASIN 1440
 545          BA  1.8882
 546          LG     .20     .35    3.70     .28   24.04
 547          UI     42.     42.     42.     42.     42.     42.     47.    138.    138.    160.
 548          UI    166.    194.    201.    210.    225.    235.    244.    255.    267.    282.
 549          UI    299.    316.    328.    349.    382.    427.    496.    499.    568.    530.
 550          UI    485.    449.    419.    396.    377.    358.    343.    329.    313.    293.
 551          UI    277.    263.    251.    241.    220.    210.    202.    194.    168.    161.
 552          UI    121.    121.     94.     74.     74.     74.     71.     69.     69.     69.
 553          UI     58.     42.     42.     42.     42.     42.     42.     28.     13.     13.
 554          UI     13.     13.     13.     13.     13.     13.     13.     13.     13.     13.
 555          UI     13.     13.     13.     13.     13.     13.     13.     13.     13.     13.
 556          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 557          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 558          KK    1441
 559          KM    COMBINATION OF ABOVE
 560          HC       2

 561          KK    1470
 562          KM   SUB-BASIN 1470
 563          BA   .2977
 564          PB    4.73
 565          LG     .20     .34    3.80     .24   20.00
 566          UI      8.      8.      8.      8.      8.     17.     27.     31.     34.     38.
 567          UI     41.     44.     46.     49.     52.     55.     59.     63.     67.     74.
 568          UI     84.     97.    108.    106.     95.     86.     80.     75.     70.     67.
 569          UI     63.     58.     54.     51.     48.     44.     41.     39.     36.     32.
 570          UI     24.     24.     15.     15.     15.     14.     14.     14.     11.      8.
 571          UI      8.      8.      8.      8.      3.      3.      3.      3.      3.      3.
 572          UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
 573          UI      3.      3.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

 574          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 575          KK   R1470
 576          KM    ROUTING OF 1470
 577          RS      20    STOR       0
 578          RC     .08    .045     .08   17600   .0188
 579          RX       0      27      45      54      79      88     106     133
 580          RY      18       9       3       0       0       3       9      18

 581          KK   S1475
 582          KM   SUB-BASIN 1475
 583          BA  1.6895
 584          LG     .20     .35    4.18     .46   36.92
 585          UI     47.     47.     47.     47.     47.     88.    153.    171.    186.    214.
 586          UI    228.    246.    259.    272.    288.    307.    331.    352.    370.    411.
 587          UI    465.    542.    588.    611.    545.    495.    457.    425.    402.    379.
 588          UI    362.    335.    311.    292.    276.    256.    237.    224.    212.    179.
 589          UI    152.    134.    101.     82.     82.     80.     77.     77.     75.     47.
 590          UI     47.     47.     47.     47.     32.     14.     14.     14.     14.     14.
 591          UI     14.     14.     14.     14.     14.     14.     14.     14.     14.     14.
 592          UI     14.     14.      0.      0.      0.      0.      0.      0.      0.      0.
 593          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 594          KK    1475
 595          HC       2

 596          KK  STRM56
 597          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
 598          HC       4
 599          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

  10        S2040
                .
                .
  25            .       S2050
                .           .
                .           .
  34         2051............
                .
                .
  36            .       S2070
                .           .
                .           .
  45        STRM1............
                .
                .
  48            .         S39
                .           .
                .           .
  65            .           .         S40
                .           .           .
                .           .           .
  74            .        CP41............
                .           V
                .           V
  77            .       RCP41
                .           .
                .           .
  83            .           .         S41
                .           .           .
                .           .           .
  99            .           A............
                .           .
                .           .
 102            .           .         S42
                .           .           .
                .           .           .
 112            .           .           .         S43
                .           .           .           .
                .           .           .           .
 121            .           .           .           .         S44
                .           .           .           .           .
                .           .           .           .           .
 133            .           .           .        CP45............
                .           .           .           V
                .           .           .           V
 136            .           .           .       RCP45
                .           .           .           .
                .           .           .           .
 142            .           .           .           .         S45
                .           .           .           .           .
                .           .           .           .           .
 150            .           .           .           B............
                .           .           .           .
                .           .           .           .
 153            .           .           .           .       S45A
                .           .           .           .           .
                .           .           .           .           .
 160            .           .           .           .           .         S46
                .           .           .           .           .           .
```

```
169                 CP47.......................
                       V
                       V
172                 RCP47
                       .
                       .
178                    .          S47
                       .            .
                       .            .
188                    C............
                       .
                       .
191             CP48.......................
                   V
                   V
194             RCP48
                   .
                   .
200                .        S48
                   .          .
                   .          .
209                D............
                   .
                   .
212                .        S50
                   .          .
                   .          .
221             CP51............
                   .
                   .
224                .      S2000
                   .          .
                   .          .
232             STRM2...........
                   .
                   .
235                .       S35N
                   .          .
                   .          .
246                .          .      S16
                   .          .        .
                   .          .        .
268                .          .        .        S17
                   .          .        .          .
                   .          .        .          .
282                .          .        .          .        S18
                   .          .        .          .          .
                   .          .        .          .          .
293                .          .     C19A.......................
                   .          .        V
                   .          .        V
296                .          .      R19
                   .          .        .
                   .          .        .
302                .          .        .        S15
                   .          .        .          .
                   .          .        .          .
329                .          .     C19C............
                   .          .        V
                   .          .        V
332                .          .    RC19C
                   .          .        .
                   .          .        .
338                .          .        .        S19
                   .          .        .          .
```

```
348                 A............
                    .
351                 .        S20
                    .          .
361               C21...........
                    V
                    V
364               RC21
                    .
                    .
370                 .        S21
                    .          .
384                 B............
                    .
                    .
387                 .        S22
                    .          .
                    .          .
399                 .          .        S23
                    .          .          .
                    .          .          .
414                 .        C24...........
                    .          V
                    .          V
417                 .       RC24
                    .          .
                    .          .
423                 .          .        S24
                    .          .          .
                    .          .          .
437                 .          C...........
                    .          .
                    .          .
440                 .          .       S25N
                    .          .          .
                    .          .          .
461                 .          .          .       S25S
                    .          .          .         .
                    .          .          .         .
474               STRM4..................................
                    .
                    .
477                 .       1380
                    .          V
                    .          V
491                 .      R1380
                    .          .
                    .          .
497                 .          .     S1390N
                    .          .          .
                    .          .          .
510                 .      1390N...........
                    .          .
                    .          .
512                 .          .      1390S
                    .          .          .
                    .          .          .
526                 .          .          .       1430
                    .          .          .         .
                    .          .          .         .
543                 .          .          .         .       1440
                    .          .          .         .         .
```

```
                .         .         .         .         .         .         .         .
558             .         .         .         .         .         .      1441.........
                .         .         .         .         .         .         .
                .         .         .         .         .         .         .
561             .         .         .         .         .         .         .      1470
                .         .         .         .         .         .         .         V
                .         .         .         .         .         .         .         V
575             .         .         .         .         .         .         .     R1470
                .         .         .         .         .         .         .         .
                .         .         .         .         .         .         .         .
581             .         .         .         .         .         .         .         .      S1475
                .         .         .         .         .         .         .         .         .
                .         .         .         .         .         .         .         .         .
594             .         .         .         .         .         .         .      1475.........
                .         .         .         .         .         .         .         .
                .         .         .         .         .         .         .         .
596             .         .         .         .     STRM56.......................................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            SEPTEMBER 1990            *
*             VERSION 4.0              *
*                                      *
*  RUN DATE  04/24/1991  TIME  09:18:15 *
*                                      *
****************************************
```

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

```
                    SCOTTSDALE ALLUVIAL FAN, ALL SUBBASINS
                    MAXIMUM BUIDOUT CONDITIONS
                    PHONIX MOUNTAIN AND PHOENIX VALLEY S-GRAPHS
                    100 YEAR 24 HOUR TYPE IIA DISTRIBUTION
                    GREEN AND AMPT INFILTRATION EQUATION FOR SOIL LOSSES
                    CHANGED %IMPERVIOUS AREAS TO REFLECT FUTURE CONDITION
                    FCD 04/12/91 AA, REV. AMM, 4/19/91

  9 IO        OUTPUT CONTROL VARIABLES
                IPRNT          5  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE

   IT         HYDROGRAPH TIME DATA
                 NMIN          5  MINUTES IN COMPUTATION INTERVAL
                IDATE      1   0  STARTING DATE
                ITIME       0000  STARTING TIME
                   NQ        300  NUMBER OF HYDROGRAPH ORDINATES
              NDDATE      2   0  ENDING DATE
              NDTIME       0055  ENDING TIME
              ICENT          19  CENTURY MARK

           COMPUTATION INTERVAL     .08 HOURS
                TOTAL TIME BASE   24.92 HOURS

      ENGLISH UNITS
           DRAINAGE AREA         SQUARE MILES
           PRECIPITATION DEPTH   INCHES
           LENGTH, ELEVATION     FEET
           FLOW                  CUBIC FEET PER SECOND
           STORAGE VOLUME        ACRE-FEET
           SURFACE AREA          ACRES
           TEMPERATURE           DEGREES FAHRENHEIT
1
                                        RUNOFF SUMMARY
                                   FLOW IN CUBIC FEET PER SECOND
                                 TIME IN HOURS,  AREA IN SQUARE MILES

                                PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
      OPERATION       STATION   FLOW    PEAK                                            AREA      STAGE     MAX STAGE
+                                                   6-HOUR     24-HOUR     72-HOUR

      HYDROGRAPH AT
+                       S2040   1358.   6.25         211.        58.         56.        .93

      HYDROGRAPH AT
+                       S2050   1068.   6.33         193.        52.         51.        .86

      2 COMBINED AT
+                        2051   2408.   6.25         404.       110.        106.       1.79

      HYDROGRAPH AT
```

+		S2070	2384.	6.17	329.	89.	86.	1.46	
	2 COMBINED AT								
+		STRM1	4704.	6.25	734.	199.	192.	3.25	
	HYDROGRAPH AT								
+		S39	1359.	7.25	497.	138.	133.	1.93	
	HYDROGRAPH AT								
+		S40	763.	6.33	133.	35.	34.	.58	
	2 COMBINED AT								
+		CP41	1548.	7.17	629.	173.	167.	2.51	
	ROUTED TO								
+		RCP41	1487.	7.67	628.	173.	166.	2.51	
+									3.42 7.67
	HYDROGRAPH AT								
+		S41	460.	7.33	172.	47.	46.	.79	
	2 COMBINED AT								
+		A	1881.	7.50	799.	220.	212.	3.31	
	HYDROGRAPH AT								
+		S42	761.	6.42	154.	42.	40.	.58	
	HYDROGRAPH AT								
+		S43	1549.	6.25	273.	73.	70.	1.07	
	HYDROGRAPH AT								
+		S44	814.	6.67	207.	54.	52.	.84	
	2 COMBINED AT								
+		CP45	2151.	6.42	480.	127.	123.	1.91	
	ROUTED TO								
+		RCP45	2107.	6.58	480.	127.	123.	1.91	
+									3.90 6.58
	HYDROGRAPH AT								
+		S45	355.	6.17	50.	14.	13.	.20	
	2 COMBINED AT								
+		B	2265.	6.50	529.	141.	136.	2.11	
	HYDROGRAPH AT								
+		S45A	332.	6.08	37.	10.	9.	.17	
	HYDROGRAPH AT								
+		S46	1319.	6.25	214.	58.	56.	.93	
	3 COMBINED AT								
+		CP47	3498.	6.33	780.	209.	201.	3.21	
	ROUTED TO								
+		RCP47	3319.	6.83	780.	208.	200.	3.21	
+									3.57 6.83
	HYDROGRAPH AT								
+		S47	476.	6.33	92.	24.	23.	.38	
	2 COMBINED AT								
+		C	3593.	6.83	871.	232.	224.	3.58	
	3 COMBINED AT								

+		CP48	5546.	6.83	1821.	494.	476.	7.47		
	ROUTED TO									
+		RCP48	5540.	6.92	1821.	494.	476.	7.47		
+									3.94	6.92
	HYDROGRAPH AT									
+		S48	58.	6.33	10.	3.	3.	.04		
	2 COMBINED AT									
+		D	5565.	6.92	1831.	497.	479.	7.52		
	HYDROGRAPH AT									
+		S50	475.	6.33	84.	22.	22.	.36		
	2 COMBINED AT									
+		CP51	5759.	6.92	1913.	519.	500.	7.88		
	HYDROGRAPH AT									
+		S2000	1349.	6.17	181.	48.	47.	.80		
	2 COMBINED AT									
+		STRM2	6033.	6.83	2092.	568.	547.	8.68		
	HYDROGRAPH AT									
+		S35N	568.	6.33	107.	29.	28.	.41		
	HYDROGRAPH AT									
+		S16	761.	8.00	349.	103.	99.	1.46		
	HYDROGRAPH AT									
+		S17	996.	7.00	318.	86.	82.	1.19		
	HYDROGRAPH AT									
+		S18	1484.	6.50	324.	84.	81.	1.26		
	3 COMBINED AT									
+		C19A	2428.	6.67	984.	272.	262.	3.91		
	ROUTED TO									
+		R19	2416.	6.75	984.	272.	262.	3.91		
+									4.27	6.75
	HYDROGRAPH AT									
+		S15	550.	9.00	295.	99.	95.	1.37		
	2 COMBINED AT									
+		C19C	2537.	6.75	1263.	371.	357.	5.28		
	ROUTED TO									
+		RC19C	2530.	6.83	1262.	371.	357.	5.28		
+									4.09	6.83
	HYDROGRAPH AT									
+		S19	257.	6.42	53.	14.	14.	.19		
	2 COMBINED AT									
+		A	2689.	6.83	1313.	385.	371.	5.46		
	HYDROGRAPH AT									
+		S20	726.	6.42	149.	39.	38.	.57		
	2 COMBINED AT									
+		C21	3266.	6.58	1459.	424.	409.	6.03		
	ROUTED TO									

+		RC21	3119.	7.92	1439.	421.	405.	6.03	
+									4.52 7.92
	HYDROGRAPH AT								
+		S21	2606.	7.00	826.	218.	210.	3.67	
	2 COMBINED AT								
+		B	4837.	7.17	2205.	639.	615.	9.70	
	HYDROGRAPH AT								
+		S22	1516.	6.58	353.	91.	87.	1.39	
	HYDROGRAPH AT								
+		S23	287.	7.17	98.	26.	25.	.39	
	2 COMBINED AT								
+		C24	1685.	6.58	451.	117.	112.	1.78	
	ROUTED TO								
+		RC24	1638.	6.92	450.	116.	112.	1.78	
+									2.96 6.92
	HYDROGRAPH AT								
+		S24	367.	6.92	112.	30.	29.	.49	
	2 COMBINED AT								
+		C	2005.	6.92	561.	146.	141.	2.27	
	HYDROGRAPH AT								
+		S25N	427.	7.83	186.	53.	51.	.78	
	HYDROGRAPH AT								
+		S25S	647.	6.58	163.	43.	41.	.63	
	4 COMBINED AT								
+		STRM4	7463.	7.00	3109.	881.	849.	13.38	
	HYDROGRAPH AT								
+		1380	704.	7.83	260.	70.	67.	.93	
	ROUTED TO								
+		R1380	694.	8.17	259.	70.	67.	.93	
+									2.73 8.17
	HYDROGRAPH AT								
+		S1390N	393.	7.75	141.	38.	37.	.56	
	2 COMBINED AT								
+		1390N	1006.	8.08	397.	108.	104.	1.49	
	HYDROGRAPH AT								
+		1390S	327.	7.67	113.	30.	29.	.43	
	HYDROGRAPH AT								
+		1430	760.	8.50	349.	97.	94.	1.43	
	HYDROGRAPH AT								
+		1440	1251.	8.17	525.	144.	139.	1.89	
	2 COMBINED AT								
+		1441	1928.	8.33	873.	241.	232.	3.32	
	HYDROGRAPH AT								
+		1470	236.	7.67	84.	22.	22.	.30	
	ROUTED TO								

```
+                    R1470      228.    8.33        84.        22.        21.       .30
+                                                                                          1.41       8.33

        HYDROGRAPH AT
+                    S1475     1287.    7.75       474.       133.       128.      1.69

        2 COMBINED AT
+                     1475     1430.    7.75       556.       155.       149.      1.99

        4 COMBINED AT
+                   STRM56     4345.    8.08      1939.       534.       514.      7.23
```

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

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            SEPTEMBER 1990            *
*             VERSION 4.0              *
*                                      *
*   RUN DATE  06/14/1991  TIME  16:02:45 *
*                                      *
****************************************
```

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

```
                    SCOTTSDALE ALLUVIAL FAN, ALL SUBBASINS
                    EXISTING CONDITIONS
                    PHOENIX MOUNTAIN AND PHOENIX VALLEY S-GRAPHS
                    2 YEAR 6 HOUR, MIXED PATTERN DISTRIBUTION
                    THE DISTRIBUTION PATTERNS WERE SELECTED ACCORDING TO
                    THE AREA BEHIND EACH APICES.
                    GREEN AND AMPT INFILTRATION EQUATION FOR SOIL LOSSES
                    CHANGED %IMPERVIOUS AREAS TO REFLECT FUTURE CONDITION
                    FCD 05/10/91 AA

 11 IO        OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT        HYDROGRAPH TIME DATA
                     NMIN          5  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1   0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      2   0  ENDING DATE
                   NDTIME       0055  ENDING TIME
                   ICENT         19  CENTURY MARK

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

        ENGLISH UNITS
             DRAINAGE AREA          SQUARE MILES
             PRECIPITATION DEPTH    INCHES
             LENGTH, ELEVATION      FEET
             FLOW                   CUBIC FEET PER SECOND
             STORAGE VOLUME         ACRE-FEET
             SURFACE AREA           ACRES
             TEMPERATURE            DEGREES FAHRENHEIT
```

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	S2040	97.	4.33	24.	6.	6.	.93		
HYDROGRAPH AT	S2050	71.	4.42	19.	5.	5.	.86		
2 COMBINED AT	2051	166.	4.33	43.	11.	10.	1.79		
HYDROGRAPH AT	S2070	203.	4.25	46.	12.	11.	1.46		
2 COMBINED AT	STRM1	367.	4.33	88.	22.	22.	3.25		
HYDROGRAPH AT	S39	105.	5.42	36.	9.	9.	1.93		
HYDROGRAPH AT	S40	19.	4.50	4.	1.	1.	.58		
2 COMBINED AT	CP41	111.	5.42	40.	11.	10.	2.51		
ROUTED TO	RCP41	105.	5.75	39.	11.	10.	2.51	1.25	5.75
HYDROGRAPH AT	S41	13.	5.42	6.	2.	2.	.79		
2 COMBINED AT	A	117.	5.75	45.	12.	12.	3.31		
HYDROGRAPH AT	S42	46.	4.50	9.	2.	2.	.58		
HYDROGRAPH AT	S43	111.	4.42	19.	5.	5.	1.07		
HYDROGRAPH AT	S44	58.	4.83	13.	3.	3.	.84		
2 COMBINED AT	CP45	146.	4.50	32.	8.	8.	1.91		
ROUTED TO	RCP45	141.	4.58	32.	8.	8.	1.91	1.42	4.58
HYDROGRAPH AT	S45	7.	4.33	1.	0.	0.	.20		
2 COMBINED AT	B	146.	4.58	33.	8.	8.	2.11		
HYDROGRAPH AT									

+		S45A	1.	4.17	0.	0.	0.	.17	
	HYDROGRAPH AT								
+		S46	103.	4.33	30.	8.	7.	.93	
	3 COMBINED AT								
+		CP47	239.	4.58	63.	16.	16.	3.21	
	ROUTED TO								
+		RCP47	222.	5.17	63.	16.	16.	3.21	
+									1.27 5.17
	HYDROGRAPH AT								
+		S47	32.	4.50	7.	2.	2.	.38	
	2 COMBINED AT								
+		C	237.	5.08	69.	18.	17.	3.58	
	3 COMBINED AT								
+		CP48	341.	5.17	122.	32.	31.	7.47	
	ROUTED TO								
+		RCP48	340.	5.25	122.	32.	31.	7.47	
+									1.39 5.25
	HYDROGRAPH AT								
+		S48	4.	4.50	1.	0.	0.	.04	
	2 COMBINED AT								
+		D	341.	5.25	122.	33.	31.	7.52	
	HYDROGRAPH AT								
+		S50	34.	4.50	10.	3.	2.	.36	
	2 COMBINED AT								
+		CP51	359.	5.17	131.	35.	34.	7.88	
	HYDROGRAPH AT								
+		S2000	94.	4.25	20.	5.	5.	.80	
	2 COMBINED AT								
+		STRM2	380.	5.17	150.	40.	39.	8.68	
	HYDROGRAPH AT								
+		S35N	132.	4.42	20.	5.	5.	.41	
	HYDROGRAPH AT								
+		S16	146.	6.25	58.	16.	16.	1.46	
	HYDROGRAPH AT								
+		S17	212.	5.17	56.	15.	14.	1.19	
	HYDROGRAPH AT								
+		S18	350.	4.67	65.	17.	16.	1.26	
	3 COMBINED AT								
+		C19A	510.	4.67	177.	47.	46.	3.91	
	ROUTED TO								
+		R19	499.	4.75	177.	47.	46.	3.91	
+									1.87 4.75
	HYDROGRAPH AT								
+		S15	97.	7.17	47.	15.	14.	1.37	
	2 COMBINED AT								

+		C19C	512.	4.75	221.	62.	60.	5.28	
	ROUTED TO								
+		RC19C	501.	4.83	221.	62.	60.	5.28	
+									1.76 4.83
	HYDROGRAPH AT								
+		S19	54.	4.58	8.	2.	2.	.19	
	2 COMBINED AT								
+		A	534.	4.75	229.	64.	62.	5.46	
	HYDROGRAPH AT								
+		S20	172.	4.58	30.	8.	7.	.57	
	2 COMBINED AT								
+		C21	654.	4.75	257.	72.	69.	6.03	
	ROUTED TO								
+		RC21	643.	5.67	248.	72.	69.	6.03	
+									2.00 5.67
	HYDROGRAPH AT								
+		S21	431.	5.25	114.	29.	28.	3.67	
	2 COMBINED AT								
+		B	872.	5.67	346.	101.	97.	9.70	
	HYDROGRAPH AT								
+		S22	154.	4.75	33.	8.	8.	1.39	
	HYDROGRAPH AT								
+		S23	24.	5.33	7.	2.	2.	.39	
	2 COMBINED AT								
+		C24	168.	4.75	40.	10.	10.	1.78	
	ROUTED TO								
+		RC24	139.	5.42	40.	10.	10.	1.78	
+									1.55 5.42
	HYDROGRAPH AT								
+		S24	10.	5.17	3.	1.	1.	.49	
	2 COMBINED AT								
+		C	147.	5.42	43.	11.	11.	2.27	
	HYDROGRAPH AT								
+		S25N	42.	6.00	17.	5.	5.	.78	
	HYDROGRAPH AT								
+		S25S	70.	4.75	17.	4.	4.	.63	
	4 COMBINED AT								
+		STRM4	1064.	5.67	422.	121.	117.	13.38	
	HYDROGRAPH AT								
+		1380	58.	5.92	20.	5.	5.	.93	
	ROUTED TO								
+		R1380	52.	6.92	20.	5.	5.	.93	
+									.46 6.92
	HYDROGRAPH AT								
+		S1390N	11.	5.92	5.	1.	1.	.56	

	2 COMBINED AT								
+		1390N	59.	6.83	25.	6.	6.	1.49	
	HYDROGRAPH AT								
+		1390S	57.	5.75	18.	5.	4.	.43	
	HYDROGRAPH AT								
+		1430	79.	6.67	33.	9.	8.	1.43	
	HYDROGRAPH AT								
+		1440	198.	6.33	74.	19.	18.	1.89	
	2 COMBINED AT								
+		1441	260.	6.33	107.	27.	26.	3.32	
	HYDROGRAPH AT								
+		1470	26.	5.83	9.	2.	2.	.30	
	ROUTED TO								
+		R1470	23.	7.08	9.	2.	2.	.30	
+									.20 7.08
	HYDROGRAPH AT								
+		S1475	45.	5.83	18.	5.	5.	1.69	
	2 COMBINED AT								
+		1475	55.	5.92	26.	7.	7.	1.99	
	4 COMBINED AT								
+		STRM56	394.	6.33	175.	45.	43.	7.23	

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

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            SEPTEMBER 1990             *
*             VERSION 4.0               *
*                                       *
*   RUN DATE  04/24/1991  TIME  09:26:20 *
*                                       *
*****************************************
```

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

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

2E

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

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

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

  1           ID    SCOTTSDALE ALLUVIAL FAN, ALL SUBBASINS
  2           ID    EXISTING CONDITIONS
  3           ID    PHOENIX MOUNTAIN AND PHOENIX VALLEY S-GRAPHS
  4           ID    2 YEAR 6 HOUR, MIXED PATTERN DISTRIBUTION
  5           ID    THE DISTRIBUTION PATTERNS WERE SELECTED ACCORDING TO
  6           ID    THE AREA BEHIND EACH APICES.
  7           ID    GREEN AND AMPT INFILTRATION EQUATION FOR SOIL LOSSES
  8           ID    CHANGED %IMPERVIOUS AREAS TO REFLECT FUTURE CONDITION
  9           ID    FCD 05/10/91 AA
              *DIAGRAM
 10           IT       5                    300
 11           IO       5

 12           KK   S2040
 13           KM   SUB-BASIN 2040
 14           BA   .9290
 15           IN      15
 16           PB    1.36
 17           PC     0.0   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.067   0.076
 18           PC   0.087   0.100   0.120   0.163   0.252   0.451   0.694   0.837   0.900   0.938
 19           PC   0.950   0.963   0.975   0.988   1.000
 20           LG     .25     .35    4.19     .45   17.69
 21           UI    100.    209.    479.    682.    872.   1055.    660.    554.    472.    398.
 22           UI    315.    251.    221.    177.    134.    115.     97.     76.     63.     49.
 23           UI     49.     33.     19.     19.     19.     19.     19.     19.      0.      0.
 24           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 25           KK   S2050
 26           KM   SUB-BASIN 2050
 27           BA   .8580
 28           LG     .25     .35    4.16     .46   15.36
 29           UI     73.     98.    253.    403.    509.    609.    831.    594.    456.    403.
 30           UI    355.    310.    268.    218.    184.    167.    145.    116.     93.     84.
 31           UI     79.     56.     56.     42.     36.     36.     36.     15.     14.     14.
 32           UI     14.     14.     14.     14.     14.     14.      0.      0.      0.      0.
 33           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 34           KK    2051
 35           HC       2

 36           KK   S2070
 37           KM   SUB-BASIN 2070
 38           BA  1.4649
 39           PB    1.46
 40           LG     .25     .35    4.21     .44   20.00
 41           UI    184.    514.   1069.   1446.   1980.   1240.   1004.    830.    667.    498.
 42           UI    420.    331.    242.    204.    152.    130.     90.     90.     51.     35.
 43           UI     35.     35.     35.     35.      0.      0.      0.      0.      0.      0.
 44           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

  45          KK   STRM1
  46          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
  47          HC       2

  48          KK     S39
  49          KM   SUB-BASIN 39
  50          BA  1.9302
  51          PB    1.50
  52          PC     0.0   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
  53          PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
  54          PC   0.946   0.960   0.973   0.987   1.000
  55          LG     .15     .36    3.80     .24    2.40
  56          UI     60.     60.     60.     60.     61.    172.    188.    230.    274.    337.
  57          UI    367.    392.    423.    449.    470.    508.    577.    660.    749.    608.
  58          UI    471.    423.    392.    367.    353.    340.    323.    308.    295.    283.
  59          UI    270.    254.    242.    231.    216.    204.    186.    172.    158.    151.
  60          UI    147.    142.    138.    133.    125.    125.     98.     98.     98.     77.
  61          UI     77.     77.     76.     66.     66.     66.     66.     55.     46.     46.
  62          UI     46.     46.     46.     46.     29.     29.     29.     29.     29.     29.
  63          UI     29.     29.     29.     29.     15.     11.     11.     11.     11.     11.
  64          UI     11.     11.     11.     11.     11.     11.     11.     11.     11.     11.
  65          UI     11.     11.     11.     11.     11.     11.     11.     11.     11.     11.
  66          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
  67          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  68          KK     S40
  69          KM   SUB-BASIN 40
  70          BA   .5844
  71          LG     .15     .35    4.10     .37    3.59
  72          UI     50.     67.    172.    274.    346.    414.    565.    406.    310.    275.
  73          UI    242.    211.    183.    149.    125.    114.     99.     79.     64.     57.
  74          UI     54.     38.     38.     29.     24.     24.     24.     10.     10.     10.
  75          UI     10.     10.     10.     10.     10.     10.      0.      0.      0.      0.
  76          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  77          KK    CP41
  78          KM    COMBINE HYDROGRAPHS S39 AND S40
  79          HC       2

  80          KK   RCP41
  81          KM    ROUTE CP41
  82          RS      10    STOR       0
  83          RC   0.075   0.045   0.075    9400  0.0282
  84          RX       0     300     321     326     337     350     380     680
  85          RY     5.9     2.9     1.6     0.2       0     1.5     2.0     5.0

  86          KK     S41
  87          KM   SUB-BASIN 41
  88          BA   .7911
  89          LG     .15     .35    4.20     .42    5.54
  90          UI     23.     23.     23.     23.     23.     54.     66.     85.     97.    115.
  91          UI    136.    144.    154.    166.    174.    183.    197.    222.    252.    290.
  92          UI    251.    185.    170.    155.    145.    138.    134.    129.    123.    117.
  93          UI    113.    109.    104.     98.     93.     90.     85.     79.     73.     70.
```

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

  94          UI     61.     60.     57.     57.     53.     53.     50.     48.     47.     38.
  95          UI     38.     38.     30.     30.     30.     30.     26.     25.     25.     25.
  96          UI     25.     18.     18.     18.     18.     18.     18.     18.     11.     11.
  97          UI     11.     11.     11.     11.     11.     11.     11.     11.     10.      4.
  98          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
  99          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 100          UI      4.      4.      4.      4.      4.      4.      0.      0.      0.      0.
 101          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 102          KK       A
 103          KM    BASIN 41 AND ROUTED CP41
 104          HC       2

 105          KK     S42
 106          KM   SUB-BASIN 42
 107          BA   .5844
 108          LG     .15     .35    3.70     .29    3.87
 109          UI     43.     43.    125.    197.    269.    317.    374.    500.    369.    281.
 110          UI    250.    224.    201.    177.    156.    129.    110.    102.     93.     76.
 111          UI     64.     55.     49.     47.     34.     33.     31.     21.     21.     21.
 112          UI     21.      9.      8.      8.      8.      8.      8.      8.      8.      8.
 113          UI      8.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 114          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 115          KK     S43
 116          KM   SUB-BASIN 43
 117          BA  1.0665
 118          LG     .15     .35    3.60     .27    2.82
 119          UI     94.    139.    344.    544.    679.    832.   1067.    681.    564.    496.
 120          UI    435.    378.    314.    252.    224.    203.    160.    127.    113.    103.
 121          UI     77.     72.     57.     46.     46.     46.     18.     18.     18.     18.
 122          UI     18.     18.     18.     18.     18.      0.      0.      0.      0.      0.
 123          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 124          KK     S44
 125          KM   SUB-BASIN 44
 126          BA   .8389
 127          LG     .15     .37    4.40     .22     .87
 128          UI     43.     43.     43.    119.    163.    218.    263.    297.    326.    367.
 129          UI    451.    506.    338.    288.    258.    243.    225.    209.    194.    177.
 130          UI    166.    146.    130.    113.    105.    100.     95.     89.     71.     69.
 131          UI     55.     55.     49.     47.     47.     34.     33.     33.     33.     22.
 132          UI     21.     21.     21.     21.     21.     12.      8.      8.      8.      8.
 133          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
 134          UI      8.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 135          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 136          KK    CP45
 137          KM    COMBINE HYDROGRAPHS S43 AND S44
 138          HC       2
```

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

 139          KK   RCP45
 140          KM    ROUTE OF CP45
 141          RS       4    STOR       0
 142          RC    0.08   0.045    0.08    3600   .0366
 143          RX       0     300     307     320     324     330     350     650
 144          RY     5.9     2.9     2.0       0       0     0.4     2.0     5.0

 145          KK     S45
 146          KM   SUB-BASIN 45
 147          BA   .2037
 148          LG     .15     .35    4.20     .39    4.14
 149          UI     26.     74.    152.    207.    276.    171.    139.    115.     91.     68.
 150          UI     58.     44.     33.     28.     20.     17.     13.     13.      6.      5.
 151          UI      5.      5.      5.      5.      0.      0.      0.      0.      0.      0.
 152          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 153          KK       B
 154          KM    COMBINE S45 AND ROUTED CP45
 155          HC       2

 156          KK    S45A
 157          KM   SUB-BASIN 45A
 158          BA   .1720
 159          LG     .25     .35    4.20     .39    1.01
 160          UI     37.    140.    239.    283.    171.    132.     93.     69.     48.     35.
 161          UI     25.     17.     15.      7.      6.      6.      6.      0.      0.      0.
 162          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 163          KK     S46
 164          KM   SUB-BASIN 46
 165          BA   .9268
 166          LG     .25     .35    4.20     .44   20.66
 167          UI     92.    169.    398.    595.    730.   1025.    727.    555.    480.    415.
 168          UI    350.    279.    230.    204.    165.    127.    109.     99.     71.     69.
 169          UI     45.     45.     45.     21.     18.     18.     18.     18.     18.     18.
 170          UI     18.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 171          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 172          KK    CP47
 173          KM    COMBINE HYDROGRAPHS S45,S45A,AND S46
 174          HC       3

 175          KK   RCP47
 176          KM    ROUTING OF CP47
 177          RS      10    STOR       0
 178          RC    0.07   0.045    0.07    9600  0.0217
 179          RX       0     300     324     338     350     388     394     694
 180          RY     4.5     1.5     0.6       0       0     1.6     2.0     5.0
```

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

 181          KK     S47
 182          KM   SUB-BASIN 47
 183          BA   .3757
 184          LG     .15      .35     3.80      .28     4.73
 185          UI     28.      28.      84.     130.     177.     209.     248.     328.     228.     179.
 186          UI    161.     143.     128.     113.      98.      81.      71.      65.      59.      47.
 187          UI     39.      35.      31.      29.      22.      22.      17.      14.      14.      14.
 188          UI     11.       5.       5.       5.       5.       5.       5.       5.       5.       5.
 189          UI      5.       0.       0.       0.       0.       0.       0.       0.       0.       0.
 190          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 191          KK       C
 192          KM    COMBINE ROUTED CP47 AND S47
 193          HC       2

 194          KK    CP48
 195          KM    COMBINE HYDROGRAPHS S41,S42,S47
 196          HC       3

 197          KK   RCP48
 198          KM    ROUTE CP48
 199          RS       2    STOR       0
 200          RC    0.07   0.045    0.07    1300  0.0338
 201          RX       0     300     324     338     350     388     394     694
 202          RY     4.5     1.5     0.6       0       0     1.6     2.0     5.0

 203          KK     S48
 204          KM   SUB-BASIN 48
 205          BA   .0438
 206          LG     .15      .35     3.70      .29     4.14
 207          UI      4.       4.      12.      19.      24.      29.      39.      34.      24.      21.
 208          UI     18.      16.      14.      12.      10.       9.       8.       6.       5.       5.
 209          UI      4.       4.       3.       3.       2.       2.       2.       2.       1.       1.
 210          UI      1.       1.       1.       1.       1.       1.       1.       0.       0.       0.
 211          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 212          KK       D
 213          KM    COMBINE S48 AND ROUTED CP48
 214          HC       2

 215          KK     S50
 216          KM   SUB-BASIN 50
 217          BA   .3580
 218          LG     .15      .35     4.20      .39    17.46
 219          UI     31.      44.     110.     175.     219.     265.     355.     237.     189.     167.
 220          UI    148.     127.     109.      88.      76.      69.      57.      46.      39.      34.
 221          UI     30.      24.      23.      15.      15.      15.      11.       6.       6.       6.
 222          UI      6.       6.       6.       6.       6.       0.       0.       0.       0.       0.
 223          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
```

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

 224          KK    CP51
 225          KM    COMBINE HYDROGRAPHS S48 AND S50
 226          HC       2

 227          KK   S2000
 228          KM   SUB-BASIN 2000
 229          BA   .7999
 230          PB    1.41
 231          PC     0.0   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.067   0.076
 232          PC   0.087   0.100   0.120   0.163   0.252   0.451   0.694   0.837   0.900   0.938
 233          PC   0.950   0.963   0.975   0.988   1.000
 234          LG     .15     .35    4.31     .41   15.80
 235          UI    103.    302.    615.    835.   1082.    668.    545.    448.    354.    262.
 236          UI    226.    164.    127.    107.     79.     61.     51.     45.     20.     20.
 237          UI     20.     20.     20.     20.      0.      0.      0.      0.      0.      0.
 238          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 239          KK   STRM2
 240          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
 241          HC       2

 242          KK    S35N
 243          KM   SUB-BASIN 35N
 244          BA   .4068
 245          PB    1.41
 246          PC    0.00   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
 247          PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
 248          PC   0.962   0.972   0.983   0.991   1.000
 249          LG     .15     .35    3.60     .27    5.94
 250          UI     32.     36.    105.    163.    213.    250.    320.    346.    225.    192.
 251          UI    171.    153.    133.    117.     95.     82.     75.     67.     53.     43.
 252          UI     39.     35.     29.     25.     25.     16.     16.     16.     15.      6.
 253          UI      6.      6.      6.      6.      6.      6.      6.      6.      6.      0.
 254          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 255          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 256          KK     S16
 257          KM   SUB-BASIN 16
 258          BA   1.457
 259          PB    1.52
 260          PC     0.0   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
 261          PC   0.135   0.152   0.175   0.222   0.304   0.142   0.670   0.796   0.868   0.912
 262          PC   0.946   0.960   0.973   0.987   1.000
 263          LG     .15     .37    4.10     .23    0.45
 264          UI     30.     30.     30.     30.     30.     30.     30.     51.     85.     85.
 265          UI    106.    114.    131.    139.    170.    177.    184.    193.    203.    214.
 266          UI    221.    228.    236.    248.    270.    291.    321.    349.    378.    322.
 267          UI    252.    228.    214.    202.    192.    184.    178.    175.    170.    165.
 268          UI    160.    155.    149.    146.    142.    138.    135.    126.    124.    120.
 269          UI    117.    114.    109.    102.    100.     92.     92.     82.     78.     78.
 270          UI     73.     73.     73.     69.     68.     68.     65.     62.     62.     62.
 271          UI     51.     49.     49.     49.     47.     38.     38.     38.     38.     38.
 272          UI     37.     32.     32.     32.     32.     32.     32.     30.     23.     23.
 273          UI     23.     23.     23.     23.     23.     23.     23.     20.     15.     14.
```

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

 274          UI     15.     14.     15.     14.     15.     14.     14.     15.     14.     15.
 275          UI     14.     15.     14.      8.      6.      6.      6.      6.      6.      6.
 276          UI      6.      6.      6.      6.      6.      6.      6.      6.      6.      6.
 277          UI      6.      6.      6.      6.      6.      6.      6.      6.      6.      6.
 278          UI      6.      6.      6.      6.      6.      6.      6.      6.      6.      6.
 279          UI      6.      6.      0.      0.      0.      0.      0.      0.      0.      0.
 280          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 281          KK     S17
 282          KM   SUB-BASIN 17
 283          BA  1.1851
 284          LG     .15     .38    4.70     .21    5.18
 285          UI     44.     44.     44.     44.    117.    146.    183.    228.    267.    291.
 286          UI    318.    339.    364.    419.    491.    543.    394.    327.    293.    271.
 287          UI    260.    247.    232.    219.    209.    196.    183.    174.    162.    148.
 288          UI    138.    118.    114.    109.    104.    102.     94.     93.     74.     73.
 289          UI     66.     57.     57.     55.     49.     49.     49.     42.     34.     34.
 290          UI     34.     34.     33.     22.     22.     22.     22.     22.     22.     22.
 291          UI     22.     14.      9.      9.      9.      9.      9.      9.      9.      9.
 292          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
 293          UI      9.      9.      0.      0.      0.      0.      0.      0.      0.      0.
 294          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 295          KK     S18
 296          KM   SUB-BASIN 18
 297          BA  1.2641
 298          LG     .15     .38    4.40     .22    7.75
 299          UI     78.     78.    149.    270.    393.    491.    564.    632.    792.    900.
 300          UI    589.    498.    455.    414.    379.    345.    311.    278.    240.    203.
 301          UI    189.    178.    163.    133.    119.    100.     95.     85.     84.     60.
 302          UI     60.     60.     43.     38.     38.     38.     38.     23.     15.     15.
 303          UI     15.     15.     15.     15.     15.     15.     15.     15.     15.     15.
 304          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 305          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 306          KK    C19A
 307          KM    COMBINE 16,17,18
 308          HC       3

 309          KK     R19
 310          KM    ROUTE C19A
 311          RS       1    STOR       0
 312          RC    0.08   0.045    0.08    1100  0.0155
 313          RX       0     300     316     346     350     370     386     660
 314          RY     6.8     3.8     0.9       0       0     0.2     3.6     6.6

 315          KK     S15
 316          KM   SUB-BASIN 15
 317          BA  1.3702
 318          LG     .15     .37    5.10     .20    0.03
 319          UI     20.     20.     20.     20.     20.     20.     20.     20.     20.     20.
 320          UI     32.     57.     57.     57.     69.     76.     76.     89.     91.    103.
 321          UI    114.    118.    120.    126.    129.    135.    140.    144.    148.    151.
 322          UI    154.    158.    163.    172.    183.    194.    205.    221.    234.    256.
 323          UI    239.    212.    173.    158.    152.    143.    138.    134.    127.    125.
```

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

 324          UI    120.    119.    117.    115.    114.    109.    109.    104.    104.    100.
 325          UI     99.     96.     95.     93.     91.     90.     85.     85.     81.     80.
 326          UI     80.     76.     76.     74.     68.     68.     67.     62.     62.     62.
 327          UI     55.     53.     53.     53.     50.     49.     49.     49.     48.     46.
 328          UI     46.     46.     46.     43.     42.     42.     42.     42.     36.     33.
 329          UI     33.     33.     33.     33.     32.     25.     25.     25.     25.     25.
 330          UI     25.     25.     25.     22.     22.     22.     22.     22.     22.     22.
 331          UI     22.     22.     21.     15.     15.     15.     15.     15.     15.     15.
 332          UI     15.     15.     15.     15.     15.     15.     14.     10.     10.     10.
 333          UI     10.     10.     10.     10.     10.     10.     10.     10.     10.     10.
 334          UI     10.     10.     10.     10.     10.     10.     10.     10.      8.      4.
 335          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 336          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 337          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 338          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 339          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 340          UI      4.      4.      4.      4.      0.      0.      0.      0.      0.      0.
 341          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 342          KK    C19C
 343          KM    COMBINE 15 AND R19
 344          HC       2

 345          KK   RC19C
 346          KM    ROUTING C19C
 347          RS       2    STOR       0
 348          RC   0.075   0.045   0.075    1800    0.02
 349          RX       0     300     316     346     350     370     386     686
 350          RY     6.8     3.8     0.9       0       0     0.2     3.6     6.6

 351          KK     S19
 352          KM   SUB-BASIN 19
 353          BA   .1872
 354          LG     .15     .35    3.60     .27   1.027
 355          UI     14.     14.     37.     59.     83.     98.    113.    151.    129.     91.
 356          UI     80.     72.     65.     58.     51.     44.     36.     33.     30.     27.
 357          UI     22.     17.     17.     15.     13.     10.     10.      8.      7.      7.
 358          UI      7.      6.      3.      3.      3.      3.      3.      3.      3.      3.
 359          UI      3.      3.      0.      0.      0.      0.      0.      0.      0.      0.
 360          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 361          KK       A
 362          KM    ADDITION OF S19 AND RC19C
 363          HC       2

 364          KK     S20
 365          KM   SUB-BASIN 20
 366          BA   .5698
 367          LG     .15     .38    4.40     .22    8.48
 368          UI     39.     39.     92.    157.    224.    266.    303.    375.    453.    293.
 369          UI    245.    222.    201.    182.    161.    145.    125.    103.     94.     88.
 370          UI     80.     64.     54.     50.     43.     43.     32.     30.     30.     20.
 371          UI     19.     19.     19.     16.      7.      7.      7.      7.      7.      7.
 372          UI      7.      7.      7.      7.      7.      0.      0.      0.      0.      0.
 373          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

 374          KK     C21
 375          KM    COMBINE A AND 20
 376          HC       2

 377          KK    RC21
 378          KM    ROUTE C21
 379          RS      30    STOR       0
 380          RC   0.075   0.045   0.075   27600  0.0196
 381          RX       0     300     316     346     350     370     386     686
 382          RY     6.8     3.8     0.9       0       0     0.2     3.6     6.6

 383          KK     S21
 384          KM   SUB-BASIN 21
 385          BA    3.67
 386          LG     .15     .35    4.70     .37    2.29
 387          UI    132.    132.    132.    132.    307.    407.    516.    633.    777.    833.
 388          UI    917.    982.   1041.   1147.   1333.   1568.   1513.   1051.    936.    859.
 389          UI    794.    768.    728.    684.    651.    621.    584.    547.    521.    488.
 390          UI    449.    411.    367.    347.    324.    317.    304.    291.    276.    251.
 391          UI    217.    217.    178.    169.    169.    158.    145.    145.    145.    122.
 392          UI    101.    101.    101.    101.    101.     67.     65.     65.     65.     65.
 393          UI     65.     65.     65.     59.     25.     25.     25.     25.     25.     25.
 394          UI     25.     25.     25.     25.     25.     25.     25.     25.     25.     25.
 395          UI     25.     25.     25.     25.     25.     25.      0.      0.      0.      0.
 396          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 397          KK       B
 398          KM    ADDITION OF ROUTED C21 AND S21
 399          HC       2

 400          KK     S22
 401          KM   SUB-BASIN 22
 402          BA  1.3860
 403          PB    1.43
 404          PC     0.0   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.067   0.076
 405          PC   0.087   0.100   0.120   0.163   0.252   0.451   0.694   0.837   0.900   0.938
 406          PC   0.950   0.963   0.975   0.988   1.000
 407          LG     .15     .35    3.50     .25    0.93
 408          UI     77.     77.    109.    241.    327.    448.    513.    576.    643.    803.
 409          UI    909.    595.    509.    459.    427.    392.    363.    328.    303.    271.
 410          UI    236.    203.    189.    179.    166.    148.    127.    108.     99.     91.
 411          UI     85.     85.     60.     59.     59.     52.     38.     38.     38.     38.
 412          UI     38.     22.     15.     15.     15.     15.     15.     15.     15.     15.
 413          UI     15.     15.     15.     15.     15.      0.      0.      0.      0.      0.
 414          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 415          KK     S23
 416          KM   SUB-BASIN 23
 417          BA   .3945
 418          LG     .15     .38    4.40     .22     0.3
 419          UI     13.     13.     13.     13.     18.     37.     44.     52.     63.     76.
 420          UI     81.     88.     94.     99.    105.    120.    137.    160.    135.    101.
 421          UI     91.     84.     78.     75.     72.     68.     65.     62.     60.     56.
 422          UI     53.     51.     49.     44.     41.     39.     34.     33.     31.     31.
```

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

 423          UI     29.     29.     27.     26.     21.     21.     20.     16.     16.     16.
 424          UI     15.     14.     14.     14.     14.     10.     10.     10.     10.     10.
 425          UI     10.      7.      6.      6.      6.      6.      6.      6.      6.      6.
 426          UI      6.      2.      2.      2.      2.      2.      2.      2.      2.      2.
 427          UI      2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
 428          UI      2.      2.      2.      2.      2.      0.      0.      0.      0.      0.
 429          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 430          KK     C24
 431          KM    COMBINE 22 AND 23
 432          HC       2

 433          KK    RC24
 434          KM    ROUTE C24
 435          RS       8    STOR       0
 436          RC    0.07   0.045    0.08    6800  0.0257
 437          RX       0     300     313     334     352     362     383     683
 438          RY     3.8     0.8     1.1     1.9       0     2.3     2.8     5.8

 439          KK     S24
 440          KM   SUB-BASIN 24
 441          BA   .4907
 442          LG     .15     .35    4.20     .42    3.42
 443          UI     19.     19.     19.     19.     54.     65.     81.    102.    117.    127.
 444          UI    139.    148.    162.    190.    227.    206.    148.    132.    119.    113.
 445          UI    107.    101.     96.     90.     85.     79.     75.     70.     64.     59.
 446          UI     51.     49.     46.     44.     44.     40.     39.     31.     31.     27.
 447          UI     24.     24.     23.     21.     21.     21.     16.     15.     15.     15.
 448          UI     15.     11.      9.      9.      9.      9.      9.      9.      9.      7.
 449          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 450          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 451          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 452          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 453          KK       C
 454          KM    COMBINE ROUTED C24 AND S24
 455          HC       2

 456          KK    S25N
 457          KM   SUB-BASIN 25N
 458          BA   .7834
 459          PB    1.46
 460          LG     .15     .38    4.40     .22    2.70
 461          UI     17.     17.     17.     17.     17.     17.     17.     49.     50.     58.
 462          UI     66.     75.     83.     99.    104.    109.    115.    121.    127.    131.
 463          UI    136.    142.    156.    169.    188.    204.    217.    176.    139.    129.
 464          UI    121.    114.    109.    104.    102.     99.     96.     93.     90.     86.
 465          UI     84.     82.     79.     75.     73.     70.     69.     66.     63.     59.
 466          UI     57.     54.     52.     46.     46.     44.     42.     42.     41.     40.
 467          UI     40.     38.     36.     36.     35.     28.     28.     28.     28.     23.
 468          UI     22.     22.     22.     22.     21.     19.     19.     19.     19.     19.
 469          UI     19.     13.     13.     13.     13.     13.     13.     13.     13.     13.
 470          UI      9.      8.      8.      8.      8.      8.      8.      8.      8.      8.
 471          UI      8.      8.      8.      8.      6.      3.      3.      3.      3.      3.
 472          UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
```

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

 473          UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
 474          UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
 475          UI      3.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 476          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 477          KK    S25S
 478          KM   SUB-BASIN 25S
 479          BA   .6256
 480          PB    1.43
 481          LG     .15     .36    3.80     .24    4.43
 482          UI     33.     33.     34.     94.    130.    172.    205.    231.    253.    293.
 483          UI    364.    354.    243.    211.    193.    181.    166.    154.    142.    130.
 484          UI    119.    105.     91.     83.     78.     75.     68.     59.     54.     44.
 485          UI     42.     39.     36.     36.     28.     25.     25.     25.     17.     16.
 486          UI     16.     16.     16.     16.      8.      6.      6.      6.      6.      6.
 487          UI      6.      6.      6.      6.      6.      6.      6.      6.      6.      0.
 488          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 489          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 490          KK   STRM4
 491          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
 492          HC       4

 493          KK    1380
 494          KM   SUB-BASIN 1380
 495          BA   .9305
 496          PB    1.50
 497          LG     .20     .35    3.70     .28    2.52
 498          UI     25.     25.     25.     25.     25.     34.     81.     86.     95.    111.
 499          UI    118.    125.    134.    140.    148.    156.    166.    179.    188.    200.
 500          UI    221.    251.    289.    316.    322.    288.    263.    242.    227.    214.
 501          UI    203.    193.    182.    169.    158.    149.    141.    129.    121.    115.
 502          UI    105.     95.     72.     71.     46.     44.     44.     42.     41.     41.
 503          UI     40.     25.     25.     25.     25.     25.     21.      8.      8.      8.
 504          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
 505          UI      8.      8.      8.      8.      8.      0.      0.      0.      0.      0.
 506          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 507          KK   R1380
 508          KM    ROUTING OF 1380
 509          RS      15    STOR       0
 510          RC     .08    .045     .08   13900   .0190
 511          RX       0      27      45      54      79      88     106     133
 512          RY      18       9       3       0       0       3       9      18

 513          KK  S1390N
 514          KM   SUB-BASIN 1390N
 515          BA   .5610
 516          LG     .20     .35    4.22     .44    4.08
 517          UI     15.     15.     15.     15.     15.     26.     50.     55.     59.     70.
 518          UI     74.     79.     84.     88.     93.     98.    105.    114.    119.    129.
 519          UI    146.    172.    180.    204.    186.    168.    154.    143.    135.    127.
 520          UI    121.    114.    106.     99.     93.     88.     80.     75.     72.     65.
 521          UI     58.     45.     44.     28.     27.     27.     26.     25.     25.     23.
 522          UI     15.     15.     15.     15.     15.      9.      5.      5.      5.      5.
```

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

 523          UI      5.      5.      5.      5.      5.      5.      5.      5.      5.      5.
 524          UI      5.      5.      5.      5.      0.      0.      0.      0.      0.      0.
 525          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 526          KK   1390N
 527          HC       2

 528          KK   1390S
 529          KM   SUB-BASIN 1390S
 530          BA   .4347
 531          PB    1.47
 532          PC    0.00   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
 533          PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
 534          PC   0.962   0.972   0.983   0.991   1.000
 535          LG     .20     .35    4.10     .36    4.97
 536          UI     12.     12.     12.     12.     12.     29.     41.     47.     52.     58.
 537          UI     62.     67.     70.     74.     79.     85.     91.     96.    104.    119.
 538          UI    141.    148.    165.    148.    134.    123.    114.    107.    101.     96.
 539          UI     89.     82.     77.     73.     67.     62.     59.     54.     48.     37.
 540          UI     35.     22.     22.     22.     20.     20.     20.     15.     12.     12.
 541          UI     12.     12.     10.      4.      4.      4.      4.      4.      4.      4.
 542          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 543          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 544          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 545          KK    1430
 546          KM   SUB-BASIN 1430
 547          BA  1.4319
 548          PB    1.52
 549          PC     0.0   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
 550          PC   0.135   0.152   0.175   0.222   0.304   0.142   0.670   0.796   0.868   0.912
 551          PC   0.946   0.960   0.973   0.987   1.000
 552          LG     .20     .35    4.14     .48    2.01
 553          UI     28.     28.     28.     28.     28.     28.     28.     37.     93.     93.
 554          UI    104.    108.    123.    130.    138.    143.    151.    157.    162.    168.
 555          UI    175.    184.    193.    204.    213.    220.    232.    251.    276.    305.
 556          UI    331.    357.    380.    352.    326.    303.    286.    271.    258.    247.
 557          UI    237.    228.    220.    211.    199.    189.    180.    172.    165.    159.
 558          UI    147.    140.    137.    130.    121.    108.     98.     81.     81.     61.
 559          UI     50.     50.     50.     49.     46.     46.     46.     46.     39.     28.
 560          UI     28.     28.     28.     28.     28.     28.     18.      9.      9.      9.
 561          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
 562          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
 563          UI      9.      9.      0.      0.      0.      0.      0.      0.      0.      0.
 564          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 565          KK    1440
 566          KM   SUB-BASIN 1440
 567          BA  1.8882
 568          LG     .20     .35    3.70     .28    0.88
 569          UI     42.     42.     42.     42.     42.     42.     47.    138.    138.    160.
 570          UI    166.    194.    201.    210.    225.    235.    244.    255.    267.    282.
 571          UI    299.    316.    328.    349.    382.    427.    496.    499.    568.    530.
 572          UI    485.    449.    419.    396.    377.    358.    343.    329.    313.    293.
 573          UI    277.    263.    251.    241.    220.    210.    202.    194.    168.    161.
```



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

 574          UI    121.    121.     94.     74.     74.     74.     71.     69.     69.     69.
 575          UI     58.     42.     42.     42.     42.     42.     42.     28.     13.     13.
 576          UI     13.     13.     13.     13.     13.     13.     13.     13.     13.     13.
```

```
577          UI     13.     13.     13.     13.     13.     13.     13.     13.     13.     13.
578          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
579          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

580          KK    1441
581          KM    COMBINATION OF ABOVE
582          HC       2

583          KK    1470
584          KM   SUB-BASIN 1470
585          BA   .2977
586          PB    1.55
587          PC     0.0   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.067   0.076
588          PC   0.087   0.100   0.120   0.163   0.252   0.451   0.694   0.837   0.900   0.938
589          PC   0.950   0.963   0.975   0.988   1.000
590          LG     .20     .34    3.80     .24       0
591          UI      8.      8.      8.      8.      8.     17.     27.     31.     34.     38.
592          UI     41.     44.     46.     49.     52.     55.     59.     63.     67.     74.
593          UI     84.     97.    108.    106.     95.     86.     80.     75.     70.     67.
594          UI     63.     58.     54.     51.     48.     44.     41.     39.     36.     32.
595          UI     24.     24.     15.     15.     15.     14.     14.     14.     11.      8.
596          UI      8.      8.      8.      8.      3.      3.      3.      3.      3.      3.
597          UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
598          UI      3.      3.      0.      0.      0.      0.      0.      0.      0.      0.
599          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

600          KK   R1470
601          KM    ROUTING OF 1470
602          RS      20    STOR       0
603          RC     .08    .045     .08   17600   .0188
604          RX       0      27      45      54      79      88     106     133
605          RY      18       9       3       0       0       3       9      18

606          KK   S1475
607          KM   SUB-BASIN 1475
608          BA  1.6895
609          LG     .20     .35    4.18     .46    5.30
610          UI     47.     47.     47.     47.     47.     88.    153.    171.    186.    214.
611          UI    228.    246.    259.    272.    288.    307.    331.    352.    370.    411.
612          UI    465.    542.    588.    611.    545.    495.    457.    425.    402.    379.
613          UI    362.    335.    311.    292.    276.    256.    237.    224.    212.    179.
614          UI    152.    134.    101.     82.     82.     80.     77.     77.     75.     47.
615          UI     47.     47.     47.     47.     32.     14.     14.     14.     14.     14.
616          UI     14.     14.     14.     14.     14.     14.     14.     14.     14.     14.
617          UI     14.     14.      0.      0.      0.      0.      0.      0.      0.      0.
618          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

 619          KK    1475
 620          HC       2

 621          KK  STRM56
 622          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
 623          HC       4
 624          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

  12       S2040
               .
               .
  25           .       S2050
               .           .
               .           .
  34        2051............
               .
               .
  36           .       S2070
               .           .
               .           .
  45       STRM1............
               .
               .
  48           .         S39
               .           .
               .           .
  68           .           .         S40
               .           .           .
               .           .           .
  77           .        CP41............
               .           V
               .           V
  80           .       RCP41
               .           .
               .           .
  86           .           .         S41
               .           .           .
               .           .           .
 102           .           A............
               .           .
               .           .
 125           .           .         S42
               .           .           .
               .           .           .
 115           .           .           .        S43
               .           .           .          .
               .           .           .          .
 124           .           .           .          .        S44
               .           .           .          .          .
               .           .           .          .          .
 136           .           .           .       CP45............
               .           .           .          V
               .           .           .          V
 139           .           .           .      RCP45
               .           .           .          .
               .           .           .          .
 145           .           .           .          .        S45
               .           .           .          .          .
               .           .           .          .          .
 153           .           .           .          B............
               .           .           .          .
               .           .           .          .
 156           .           .           .          .       S45A
               .           .           .          .          .
               .           .           .          .          .
 163           .           .           .          .          .        S46
               .           .           .          .          .          .
```

```
172          .          .          .        CP47.......................
             .          .          .           V
             .          .          .           V
175          .          .          .       RCP47
             .          .          .
             .          .          .
181          .          .          .                S47
             .          .          .
             .          .          .
191          .          .          .           C............
             .          .          .
             .          .          .
194          .       CP48........................
             .          V
             .          V
197          .      RCP48
             .          .
             .          .
203          .          .       S48
             .          .
             .          .
212          .          D............
             .          .
             .          .
215          .          .       S50
             .          .
             .          .
224          .       CP51............
             .          .
             .          .
227          .          .      S2000
             .          .
             .          .
239          .      STRM2............
             .          .
             .          .
242          .          .      S35N
             .          .
             .          .
6            .          .        S16
             .          .
             .          .
281          .          .          .        S17
             .          .          .
             .          .          .
295          .          .          .          .        S18
             .          .          .          .
             .          .          .          .
306          .          .        C19A.......................
             .          .           V
             .          .           V
309          .          .        R19
             .          .
             .          .
315          .          .          .        S15
             .          .          .
             .          .          .
342          .          .        C19C............
             .          .           V
             .          .           V
345          .          .       RC19C
             .          .
             .          .
351          .          .          .        S19
             .          .          .
```

```
361                A.............
                   .
364                .        S20
                   .          .
                   .          .
374             C21.............
                  V
                  V
377             RC21
                   .
                   .
383                .        S21
                   .          .
                   .          .
397                B.............
                   .
                   .
400                .        S22
                   .          .
                   .          .
415                .          .        S23
                   .          .          .
                   .          .          .
430                .        C24.............
                   .          V
                   .          V
433                .       RC24
                   .          .
                   .          .
439                .          .        S24
                   .          .          .
                   .          .          .
453                .          C.............
                   .          .
                   .          .
456                .          .       S25N
                   .          .          .
                   .          .          .
77                 .          .          .        S25S
                   .          .          .          .
                   .          .          .          .
490             STRM4.................................
                   .
                   .
493                .       1380
                   .          V
                   .          V
507                .      R1380
                   .          .
                   .          .
513                .          .     S1390N
                   .          .          .
                   .          .          .
526                .      1390N.............
                   .          .
                   .          .
528                .          .      1390S
                   .          .          .
                   .          .          .
545                .          .          .        1430
                   .          .          .          .
                   .          .          .          .
565                .          .          .          .        1440
                   .          .          .          .          .
```

```
580                                                  1441............
                                                      .
583                                                   .      1470
                                                      .        V
                                                      .        V
600                                                   .     R1470
                                                      .         .
606                                                   .         .      S1475
                                                      .         .         .
                                                      .         .         .
619                                                   .      1475...........
                                                      .         .
                                                      .         .
621                                         STRM56.................................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            SEPTEMBER 1990             *
*             VERSION 4.0               *
*                                       *
*   RUN DATE  06/14/1991  TIME  16:01:12 *
*                                       *
*****************************************
```

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

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

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

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

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

  1           ID    SCOTTSDALE ALLUVIAL FAN, ALL SUBBASINS
  2           ID    FUTURE CONDITION
  3           ID    PHONIX MOUNTAIN AND PHOENIX VALLEY S-GRAPHS
  4           ID    2 YEAR 6 HOUR, MIXED PATTERN DISTRIBUTION
  5           ID    THE DISTRIBUTION PATTERNS WERE SELECTED ACCORDING TO
  6           ID    THE AREA BEHIND EACH APICES.
  7           ID    GREEN AND AMPT INFILTRATION EQUATION FOR SOIL LOSSES
  8           ID    CHANGED %IMPERVIOUS AREAS TO REFLECT FUTURE CONDITION
  9           ID    FCD 05/10/91 AA
              *DIAGRAM
 10           IT       5                    300
 11           IO       5

 12           KK   S2040
 13           KM   SUB-BASIN 2040
 14           BA   .9290
 15           IN      15
 16           PB    1.36
 17           PC       0    .009    .016    .025    .034    .042    .051    .059    .067    .076
 18           PC    .087    .100    .120    .163    .252    .451    .694    .837    .900    .938
 19           PC    .950    .963    .975    .988    1.00
 20           LG     .25     .35    4.19     .45   24.28
 21           UI    100.    209.    479.    682.    872.   1055.    660.    554.    472.    398.
 22           UI    315.    251.    221.    177.    134.    115.     97.     76.     63.     49.
 23           UI     49.     33.     19.     19.     19.     19.     19.     19.      0.      0.
 24           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 25           KK   S2050
 26           KM   SUB-BASIN 2050
 27           BA   .8580
 28           LG     .25     .35    4.16     .46   22.90
 29           UI     73.     98.    253.    403.    509.    609.    831.    594.    456.    403.
 30           UI    355.    310.    268.    218.    184.    167.    145.    116.     93.     84.
 31           UI     79.     56.     56.     42.     36.     36.     36.     15.     14.     14.
 32           UI     14.     14.     14.     14.     14.     14.      0.      0.      0.      0.
 33           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 34           KK    2051
 35           HC       2

 36           KK   S2070
 37           KM   SUB-BASIN 2070
 38           BA  1.4649
 39           PB    1.46
 40           LG     .25     .35    4.21     .44   22.08
 41           UI    184.    514.   1069.   1446.   1980.   1240.   1004.    830.    667.    498.
 42           UI    420.    331.    242.    204.    152.    130.     90.     90.     51.     35.
 43           UI     35.     35.     35.     35.      0.      0.      0.      0.      0.      0.
 44           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

  45          KK   STRM1
  46          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
  47          HC       2

  48          KK     S39
  49          KM   SUB-BASIN 39
  50          BA  1.9302
  51          PB    1.50
  52          PC     0.0    .015    .020    .030    .048    .063    .076    .090    .105    .119
  53          PC    .135    .152    .175    .222    .304    .472    .670    .796    .868    .912
  54          PC    .946    .960    .973    .987    1.00
  55          LG     .15     .36    3.80     .24   21.37
  56          UI     60.     60.     60.     60.     61.    172.    188.    230.    274.    337.
  57          UI    367.    392.    423.    449.    470.    508.    577.    660.    749.    608.
  58          UI    471.    423.    392.    367.    353.    340.    323.    308.    295.    283.
  59          UI    270.    254.    242.    231.    216.    204.    186.    172.    158.    151.
  60          UI    147.    142.    138.    133.    125.    125.     98.     98.     98.     77.
  61          UI     77.     77.     76.     66.     66.     66.     66.     55.     46.     46.
  62          UI     46.     46.     46.     46.     29.     29.     29.     29.     29.     29.
  63          UI     29.     29.     29.     29.     15.     11.     11.     11.     11.     11.
  64          UI     11.     11.     11.     11.     11.     11.     11.     11.     11.     11.
  65          UI     11.     11.     11.     11.     11.     11.     11.     11.     11.     11.
  66          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
  67          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  68          KK     S40
  69          KM   SUB-BASIN 40
  70          BA   .5844
  71          LG     .15     .35    4.10     .37   13.08
  72          UI     50.     67.    172.    274.    346.    414.    565.    406.    310.    275.
  73          UI    242.    211.    183.    149.    125.    114.     99.     79.     64.     57.
  74          UI     54.     38.     38.     29.     24.     24.     24.     10.     10.     10.
  75          UI     10.     10.     10.     10.     10.     10.      0.      0.      0.      0.
  76          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  77          KK    CP41
  78          KM    COMBINE HYDROGRAPHS S39 AND S40
  79          HC       2

  80          KK   RCP41
  81          KM    ROUTE CP41
  82          RS      10    STOR       0
  83          RC   0.075   0.045   0.075    9400  0.0282
  84          RX       0     300     321     326     337     350     380     680
  85          RY     5.9     2.9     1.6     0.2       0     1.5     2.0     5.0

  86          KK     S41
  87          KM   SUB-BASIN 41
  88          BA   .7911
  89          LG     .15     .35    4.20     .42   15.16
  90          UI     23.     23.     23.     23.     23.     54.     66.     85.     97.    115.
  91          UI    136.    144.    154.    166.    174.    183.    197.    222.    252.    290.
  92          UI    251.    185.    170.    155.    145.    138.    134.    129.    123.    117.
  93          UI    113.    109.    104.     98.     93.     90.     85.     79.     73.     70.
```

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

  94          UI     61.     60.     57.     57.     53.     53.     50.     48.     47.     38.
  95          UI     38.     38.     30.     30.     30.     30.     26.     25.     25.     25.
  96          UI     25.     18.     18.     18.     18.     18.     18.     18.     11.     11.
  97          UI     11.     11.     11.     11.     11.     11.     11.     11.     10.      4.
  98          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
  99          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 100          UI      4.      4.      4.      4.      4.      4.      0.      0.      0.      0.
 101          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 102          KK       A
 103          KM    BASIN 41 AND ROUTED CP41
 104          HC       2

 105          KK     S42
 106          KM   SUB-BASIN 42
 107          BA   .5844
 108          LG     .15     .35    3.70     .29   24.84
 109          UI     43.     43.    125.    197.    269.    317.    374.    500.    369.    281.
 110          UI    250.    224.    201.    177.    156.    129.    110.    102.     93.     76.
 111          UI     64.     55.     49.     47.     34.     33.     31.     21.     21.     21.
 112          UI     21.      9.      8.      8.      8.      8.      8.      8.      8.      8.
 113          UI      8.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 114          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 115          KK     S43
 116          KM   SUB-BASIN 43
 117          BA  1.0665
 118          LG     .15     .35    3.60     .27   16.46
 119          UI     94.    139.    344.    544.    679.    832.   1067.    681.    564.    496.
 120          UI    435.    378.    314.    252.    224.    203.    160.    127.    113.    103.
 121          UI     77.     72.     57.     46.     46.     46.     18.     18.     18.     18.
 122          UI     18.     18.     18.     18.     18.      0.      0.      0.      0.      0.
 123          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 124          KK     S44
 125          KM   SUB-BASIN 44
 126          BA   .8389
 127          LG     .15     .37    4.40     .22   11.52
 128          UI     43.     43.     43.    119.    163.    218.    263.    297.    326.    367.
 129          UI    451.    506.    338.    288.    258.    243.    225.    209.    194.    177.
 130          UI    166.    146.    130.    113.    105.    100.     95.     89.     71.     69.
 131          UI     55.     55.     49.     47.     47.     34.     33.     33.     33.     22.
 132          UI     21.     21.     21.     21.     21.     12.      8.      8.      8.      8.
 133          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
 134          UI      8.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 135          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 136          KK    CP45
 137          KM    COMBINE HYDROGRAPHS S43 AND S44
 138          HC       2
```

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

 139          KK   RCP45
 140          KM    ROUTE OF CP45
 141          RS       4    STOR       0
 142          RC    0.08   0.045    0.08    3600   .0366
 143          RX       0     300     307     320     324     330     350     650
 144          RY     5.9     2.9     2.0       0       0     0.4     2.0     5.0

 145          KK     S45
 146          KM   SUB-BASIN 45
 147          BA   .2037
 148          LG     .15     .35    4.20     .39   21.42
 149          UI     26.     74.    152.    207.    276.    171.    139.    115.     91.     68.
 150          UI     58.     44.     33.     28.     20.     17.     13.     13.      6.      5.
 151          UI      5.      5.      5.      5.      0.      0.      0.      0.      0.      0.
 152          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 153          KK       B
 154          KM    COMBINE S45 AND ROUTED CP45
 155          HC       2

 156          KK    S45A
 157          KM   SUB-BASIN 45A
 158          BA   .1720
 159          LG     .25     .35    4.20     .39   11.17
 160          UI     37.    140.    239.    283.    171.    132.     93.     69.     48.     35.
 161          UI     25.     17.     15.      7.      6.      6.      6.      0.      0.      0.
 162          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 163          KK     S46
 164          KM   SUB-BASIN 46
 165          BA   .9268
 166          LG     .25     .35    4.20     .44    24.0
 167          UI     92.    169.    398.    595.    730.   1025.    727.    555.    480.    415.
 168          UI    350.    279.    230.    204.    165.    127.    109.     99.     71.     69.
 169          UI     45.     45.     45.     21.     18.     18.     18.     18.     18.     18.
 170          UI     18.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 171          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 172          KK    CP47
 173          KM    COMBINE HYDROGRAPHS S45,S45A,AND S46
 174          HC       3

 175          KK   RCP47
 176          KM    ROUTING OF CP47
 177          RS      10    STOR       0
 178          RC    0.07   0.045    0.07    9600  0.0217
 179          RX       0     300     324     338     350     388     394     694
 180          RY     4.5     1.5     0.6       0       0     1.6     2.0     5.0
```

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

 181          KK     S47
 182          KM   SUB-BASIN 47
 183          BA   .3757
 184          LG     .15      .35     3.80      .28    14.17
 185          UI     28.      28.      84.     130.     177.     209.     248.     328.     228.     179.
 186          UI    161.     143.     128.     113.      98.      81.      71.      65.      59.      47.
 187          UI     39.      35.      31.      29.      22.      22.      17.      14.      14.      14.
 188          UI     11.       5.       5.       5.       5.       5.       5.       5.       5.       5.
 189          UI      5.       0.       0.       0.       0.       0.       0.       0.       0.       0.
 190          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 191          KK       C
 192          KM    COMBINE ROUTED CP47 AND S47
 193          HC       2

 194          KK    CP48
 195          KM    COMBINE HYDROGRAPHS S41,S42,S47
 196          HC       3

 197          KK   RCP48
 198          KM    ROUTE CP48
 199          RS       2    STOR       0
 200          RC    0.07   0.045    0.07     1300  0.0338
 201          RX       0     300     324      338     350      388      394      694
 202          RY     4.5     1.5     0.6        0       0      1.6      2.0      5.0

 203          KK     S48
 204          KM   SUB-BASIN 48
 205          BA   .0438
 206          LG     .15      .35     3.70      .29    6.28
 207          UI      4.       4.      12.      19.     24.      29.      39.      34.      24.      21.
 208          UI     18.      16.      14.      12.     10.       9.       8.       6.       5.       5.
 209          UI      4.       4.       3.       3.      2.       2.       2.       2.       1.       1.
 210          UI      1.       1.       1.       1.      1.       1.       1.       0.       0.       0.
 211          UI      0.       0.       0.       0.      0.       0.       0.       0.       0.       0.

 212          KK       D
 213          KM    COMBINE S48 AND ROUTED CP48
 214          HC       2

 215          KK     S50
 216          KM   SUB-BASIN 50
 217          BA   .3580
 218          LG     .15      .35     4.20      .39   19.76
 219          UI     31.      44.     110.     175.    219.     265.     355.     237.     189.     167.
 220          UI    148.     127.     109.      88.     76.      69.      57.      46.      39.      34.
 221          UI     30.      24.      23.      15.     15.      15.      11.       6.       6.       6.
 222          UI      6.       6.       6.       6.      6.       0.       0.       0.       0.       0.
 223          UI      0.       0.       0.       0.      0.       0.       0.       0.       0.       0.
```

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

 224          KK    CP51
 225          KM    COMBINE HYDROGRAPHS S48 AND S50
 226          HC       2

 227          KK   S2000
 228          KM   SUB-BASIN 2000
 229          BA   .7999
 230          PB    1.41
 231          PC       0    .009    .016    .025    .034    .042    .051    .059    .067    .076
 232          PC    .087    .100    .120    .163    .252    .451    .694    .837    .900    .938
 233          PC    .950    .963    .975    .988    1.00
 234          LG     .15     .35    4.31     .41   18.03
 235          UI    103.    302.    615.    835.   1082.    668.    545.    448.    354.    262.
 236          UI    226.    164.    127.    107.     79.     61.     51.     45.     20.     20.
 237          UI     20.     20.     20.     20.      0.      0.      0.      0.      0.      0.
 238          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 239          KK   STRM2
 240          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
 241          HC       2

 242          KK    S35N
 243          KM   SUB-BASIN 35N
 244          BA   .4068
 245          PB    1.41
 246          PC     .00    .008    .016    .025    .033    .041    .050    .058    .066    .074
 247          PC    .087    .099    .118    .138    .216    .377    .834    .911    .931    .950
 248          PC    .962    .972    .983    .991    1.00
 249          LG     .15     .35    3.60     .27   18.97
 250          UI     32.     36.    105.    163.    213.    250.    320.    346.    225.    192.
 251          UI    171.    153.    133.    117.     95.     82.     75.     67.     53.     43.
 252          UI     39.     35.     29.     25.     25.     16.     16.     16.     15.      6.
 253          UI      6.      6.      6.      6.      6.      6.      6.      6.      6.      0.
 254          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 255          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 256          KK     S16
 257          KM   SUB-BASIN 16
 258          BA   1.457
 259          PB    1.52
 260          PC     0.0    .015    .020    .030    .048    .063    .076    .090    .105    .119
 261          PC    .135    .152    .175    .222    .304    .472    .670    .796    .868    .912
 262          PC    .946    .960    .973    .987    1.00
 263          LG     .15     .37    4.10     .23   12.82
 264          UI     30.     30.     30.     30.     30.     30.     30.     51.     85.     85.
 265          UI    106.    114.    131.    139.    170.    177.    184.    193.    203.    214.
 266          UI    221.    228.    236.    248.    270.    291.    321.    349.    378.    322.
 267          UI    252.    228.    214.    202.    192.    184.    178.    175.    170.    165.
 268          UI    160.    155.    149.    146.    142.    138.    135.    126.    124.    120.
 269          UI    117.    114.    109.    102.    100.     92.     92.     82.     78.     78.
 270          UI     73.     73.     73.     69.     68.     68.     65.     62.     62.     62.
 271          UI     51.     49.     49.     49.     47.     38.     38.     38.     38.     38.
 272          UI     37.     32.     32.     32.     32.     32.     32.     30.     23.     23.
 273          UI     23.     23.     23.     23.     23.     23.     23.     20.     15.     14.
```

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

 274          UI     15.     14.     15.     14.     15.     14.     14.     15.     14.     15.
 275          UI     14.     15.     14.      8.      6.      6.      6.      6.      6.      6.
 276          UI      6.      6.      6.      6.      6.      6.      6.      6.      6.      6.
 277          UI      6.      6.      6.      6.      6.      6.      6.      6.      6.      6.
 278          UI      6.      6.      6.      6.      6.      6.      6.      6.      6.      6.
 279          UI      6.      6.      0.      0.      0.      0.      0.      0.      0.      0.
 280          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 281          KK     S17
 282          KM   SUB-BASIN 17
 283          BA  1.1851
 284          LG     .15     .38    4.70     .21   15.95
 285          UI     44.     44.     44.     44.    117.    146.    183.    228.    267.    291.
 286          UI    318.    339.    364.    419.    491.    543.    394.    327.    293.    271.
 287          UI    260.    247.    232.    219.    209.    196.    183.    174.    162.    148.
 288          UI    138.    118.    114.    109.    104.    102.     94.     93.     74.     73.
 289          UI     66.     57.     57.     55.     49.     49.     49.     42.     34.     34.
 290          UI     34.     34.     33.     22.     22.     22.     22.     22.     22.     22.
 291          UI     22.     14.      9.      9.      9.      9.      9.      9.      9.      9.
 292          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
 293          UI      9.      9.      0.      0.      0.      0.      0.      0.      0.      0.
 294          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 295          KK     S18
 296          KM   SUB-BASIN 18
 297          BA  1.2641
 298          LG     .15     .38    4.40     .22   10.20
 299          UI     78.     78.    149.    270.    393.    491.    564.    632.    792.    900.
 300          UI    589.    498.    455.    414.    379.    345.    311.    278.    240.    203.
 301          UI    189.    178.    163.    133.    119.    100.     95.     85.     84.     60.
 302          UI     60.     60.     43.     38.     38.     38.     38.     23.     15.     15.
 303          UI     15.     15.     15.     15.     15.     15.     15.     15.     15.     15.
 304          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 305          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 306          KK    C19A
 307          KM    COMBINE 16,17,18
 308          HC       3

 309          KK     R19
 310          KM    ROUTE C19A
 311          RS       1    STOR       0
 312          RC    0.08   0.045    0.08    1100  0.0155
 313          RX       0     300     316     346     350     370     386     660
 314          RY     6.8     3.8     0.9       0       0     0.2     3.6     6.6

 315          KK     S15
 316          KM   SUB-BASIN 15
 317          BA  1.3702
 318          LG     .15     .37    5.10     .20   14.73
 319          UI     20.     20.     20.     20.     20.     20.     20.     20.     20.     20.
 320          UI     32.     57.     57.     57.     69.     76.     76.     89.     91.    103.
 321          UI    114.    118.    120.    126.    129.    135.    140.    144.    148.    151.
 322          UI    154.    158.    163.    172.    183.    194.    205.    221.    234.    256.
 323          UI    239.    212.    173.    158.    152.    143.    138.    134.    127.    125.
```

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

 324          UI    120.    119.    117.    115.    114.    109.    109.    104.    104.    100.
 325          UI     99.     96.     95.     93.     91.     90.     85.     85.     81.     80.
 326          UI     80.     76.     76.     74.     68.     68.     67.     62.     62.     62.
 327          UI     55.     53.     53.     53.     50.     49.     49.     49.     48.     46.
 328          UI     46.     46.     46.     43.     42.     42.     42.     42.     36.     33.
 329          UI     33.     33.     33.     33.     32.     25.     25.     25.     25.     25.
 330          UI     25.     25.     25.     22.     22.     22.     22.     22.     22.     22.
 331          UI     22.     22.     21.     15.     15.     15.     15.     15.     15.     15.
 332          UI     15.     15.     15.     15.     15.     15.     14.     10.     10.     10.
 333          UI     10.     10.     10.     10.     10.     10.     10.     10.     10.     10.
 334          UI     10.     10.     10.     10.     10.     10.     10.     10.      8.      4.
 335          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 336          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 337          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 338          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 339          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 340          UI      4.      4.      4.      4.      0.      0.      0.      0.      0.      0.
 341          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 342          KK    C19C
 343          KM    COMBINE 15 AND R19
 344          HC       2

 345          KK   RC19C
 346          KM    ROUTING C19C
 347          RS       2    STOR       0
 348          RC   0.075   0.045   0.075    1800    0.02
 349          RX       0     300     316     346     350     370     386     686
 350          RY     6.8     3.8     0.9       0       0     0.2     3.6     6.6

 351          KK     S19
 352          KM   SUB-BASIN 19
 353          BA   .1872
 354          LG     .15     .35    3.60     .27   21.56
 355          UI     14.     14.     37.     59.     83.     98.    113.    151.    129.     91.
 356          UI     80.     72.     65.     58.     51.     44.     36.     33.     30.     27.
 357          UI     22.     17.     17.     15.     13.     10.     10.      8.      7.      7.
 358          UI      7.      6.      3.      3.      3.      3.      3.      3.      3.      3.
 359          UI      3.      3.      0.      0.      0.      0.      0.      0.      0.      0.
 360          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 361          KK       A
 362          KM    ADDITION OF S19 AND RC19C
 363          HC       2

 364          KK     S20
 365          KM   SUB-BASIN 20
 366          BA   .5698
 367          LG     .15     .38    4.40     .22   12.87
 368          UI     39.     39.     92.    157.    224.    266.    303.    375.    453.    293.
 369          UI    245.    222.    201.    182.    161.    145.    125.    103.     94.     88.
 370          UI     80.     64.     54.     50.     43.     43.     32.     30.     30.     20.
 371          UI     19.     19.     19.     16.      7.      7.      7.      7.      7.      7.
 372          UI      7.      7.      7.      7.      7.      0.      0.      0.      0.      0.
 373          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

 374          KK     C21
 375          KM    COMBINE A AND 20
 376          HC       2

 377          KK    RC21
 378          KM    ROUTE C21
 379          RS      30    STOR       0
 380          RC   0.075   0.045   0.075   27600  0.0196
 381          RX       0     300     316     346     350     370     386     686
 382          RY     6.8     3.8     0.9       0       0     0.2     3.6     6.6

 383          KK     S21
 384          KM   SUB-BASIN 21
 385          BA    3.67
 386          LG     .15     .35    4.70     .37    8.55
 387          UI    132.    132.    132.    132.    307.    407.    516.    633.    777.    833.
 388          UI    917.    982.   1041.   1147.   1333.   1568.   1513.   1051.    936.    859.
 389          UI    794.    768.    728.    684.    651.    621.    584.    547.    521.    488.
 390          UI    449.    411.    367.    347.    324.    317.    304.    291.    276.    251.
 391          UI    217.    217.    178.    169.    169.    158.    145.    145.    145.    122.
 392          UI    101.    101.    101.    101.    101.     67.     65.     65.     65.     65.
 393          UI     65.     65.     65.     59.     25.     25.     25.     25.     25.     25.
 394          UI     25.     25.     25.     25.     25.     25.     25.     25.     25.     25.
 395          UI     25.     25.     25.     25.     25.     25.      0.      0.      0.      0.
 396          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 397          KK       B
 398          KM    ADDITION OF ROUTED C21 AND S21
 399          HC       2

 400          KK     S22
 401          KM   SUB-BASIN 22
 402          BA  1.3860
 403          PB    1.43
 404          PC       0    .009    .016    .025    .034    .042    .051    .059    .067    .076
 405          PC    .087    .100    .120    .163    .252    .451    .694    .837    .900    .938
 406          PC    .950    .963    .975    .988    1.00
 407          LG     .15     .35    3.50     .25    5.80
 408          UI     77.     77.    109.    241.    327.    448.    513.    576.    643.    803.
 409          UI    909.    595.    509.    459.    427.    392.    363.    328.    303.    271.
 410          UI    236.    203.    189.    179.    166.    148.    127.    108.     99.     91.
 411          UI     85.     85.     60.     59.     59.     52.     38.     38.     38.     38.
 412          UI     38.     22.     15.     15.     15.     15.     15.     15.     15.     15.
 413          UI     15.     15.     15.     15.     15.      0.      0.      0.      0.      0.
 414          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 415          KK     S23
 416          KM   SUB-BASIN 23
 417          BA   .3945
 418          LG     .15     .38    4.40     .22    7.60
 419          UI     13.     13.     13.     13.     18.     37.     44.     52.     63.     76.
 420          UI     81.     88.     94.     99.    105.    120.    137.    160.    135.    101.
 421          UI     91.     84.     78.     75.     72.     68.     65.     62.     60.     56.
 422          UI     53.     51.     49.     44.     41.     39.     34.     33.     31.     31.
```

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

 423          UI     29.     29.     27.     26.     21.     21.     20.     16.     16.     16.
 424          UI     15.     14.     14.     14.     14.     10.     10.     10.     10.     10.
 425          UI     10.      7.      6.      6.      6.      6.      6.      6.      6.      6.
 426          UI      6.      2.      2.      2.      2.      2.      2.      2.      2.      2.
 427          UI      2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
 428          UI      2.      2.      2.      2.      2.      0.      0.      0.      0.      0.
 429          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 430          KK     C24
 431          KM    COMBINE 22 AND 23
 432          HC       2

 433          KK    RC24
 434          KM    ROUTE C24
 435          RS       8    STOR       0
 436          RC    0.07   0.045    0.08    6800  0.0257
 437          RX       0     300     313     334     352     362     383     683
 438          RY     3.8     0.8     1.1     1.9       0     2.3     2.8     5.8

 439          KK     S24
 440          KM   SUB-BASIN 24
 441          BA   .4907
 442          LG     .15     .35    4.20     .42   10.27
 443          UI     19.     19.     19.     19.     54.     65.     81.    102.    117.    127.
 444          UI    139.    148.    162.    190.    227.    206.    148.    132.    119.    113.
 445          UI    107.    101.     96.     90.     85.     79.     75.     70.     64.     59.
 446          UI     51.     49.     46.     44.     44.     40.     39.     31.     31.     27.
 447          UI     24.     24.     23.     21.     21.     21.     16.     15.     15.     15.
 448          UI     15.     11.      9.      9.      9.      9.      9.      9.      9.      7.
 449          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 450          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 451          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 452          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 453          KK       C
 454          KM    COMBINE ROUTED C24 AND S24
 455          HC       2

 456          KK    S25N
 457          KM   SUB-BASIN 25N
 458          BA   .7834
 459          PB    1.46
 460          LG     .15     .38    4.40     .22   11.23
 461          UI     17.     17.     17.     17.     17.     17.     17.     49.     50.     58.
 462          UI     66.     75.     83.     99.    104.    109.    115.    121.    127.    131.
 463          UI    136.    142.    156.    169.    188.    204.    217.    176.    139.    129.
 464          UI    121.    114.    109.    104.    102.     99.     96.     93.     90.     86.
 465          UI     84.     82.     79.     75.     73.     70.     69.     66.     63.     59.
 466          UI     57.     54.     52.     46.     46.     44.     42.     42.     41.     40.
 467          UI     40.     38.     36.     36.     35.     28.     28.     28.     28.     23.
 468          UI     22.     22.     22.     22.     21.     19.     19.     19.     19.     19.
 469          UI     19.     13.     13.     13.     13.     13.     13.     13.     13.     13.
 470          UI      9.      8.      8.      8.      8.      8.      8.      8.      8.      8.
 471          UI      8.      8.      8.      8.      6.      3.      3.      3.      3.      3.
 472          UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
```

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

 473          UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
 474          UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
 475          UI      3.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 476          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 477          KK    S25S
 478          KM   SUB-BASIN 25S
 479          BA   .6256
 480          PB    1.43
 481          LG     .15     .36    3.80     .24   12.96
 482          UI     33.     33.     34.     94.    130.    172.    205.    231.    253.    293.
 483          UI    364.    354.    243.    211.    193.    181.    166.    154.    142.    130.
 484          UI    119.    105.     91.     83.     78.     75.     68.     59.     54.     44.
 485          UI     42.     39.     36.     36.     28.     25.     25.     25.     17.     16.
 486          UI     16.     16.     16.     16.      8.      6.      6.      6.      6.      6.
 487          UI      6.      6.      6.      6.      6.      6.      6.      6.      6.      0.
 488          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 489          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 490          KK   STRM4
 491          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
 492          HC       4

 493          KK    1380
 494          KM   SUB-BASIN 1380
 495          BA   .9305
 496          PB    1.50
 497          LG     .20     .35    3.70     .28   15.96
 498          UI     25.     25.     25.     25.     25.     34.     81.     86.     95.    111.
 499          UI    118.    125.    134.    140.    148.    156.    166.    179.    188.    200.
 500          UI    221.    251.    289.    316.    322.    288.    263.    242.    227.    214.
 501          UI    203.    193.    182.    169.    158.    149.    141.    129.    121.    115.
 502          UI    105.     95.     72.     71.     46.     44.     44.     42.     41.     41.
 503          UI     40.     25.     25.     25.     25.     25.     21.      8.      8.      8.
 504          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
 505          UI      8.      8.      8.      8.      8.      0.      0.      0.      0.      0.
 506          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 507          KK   R1380
 508          KM    ROUTING OF 1380
 509          RS      15    STOR       0
 510          RC     .08    .045     .08   13900   .0190
 511          RX       0      27      45      54      79      88     106     133
 512          RY      18       9       3       0       0       3       9      18

 513          KK  S1390N
 514          KM   SUB-BASIN 1390N
 515          BA   .5610
 516          LG     .20     .35    4.22     .44   15.96
 517          UI     15.     15.     15.     15.     15.     26.     50.     55.     59.     70.
 518          UI     74.     79.     84.     88.     93.     98.    105.    114.    119.    129.
 519          UI    146.    172.    180.    204.    186.    168.    154.    143.    135.    127.
 520          UI    121.    114.    106.     99.     93.     88.     80.     75.     72.     65.
 521          UI     58.     45.     44.     28.     27.     27.     26.     25.     25.     23.
 522          UI     15.     15.     15.     15.     15.      9.      5.      5.      5.      5.
```

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

  523         UI      5.      5.      5.      5.      5.      5.      5.      5.      5.      5.
  524         UI      5.      5.      5.      5.      0.      0.      0.      0.      0.      0.
  525         UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  526         KK   1390N
  527         HC       2

  528         KK   1390S
  529         KM   SUB-BASIN 1390S
  530         BA   .4347
  531         PB    1.47
  532         PC     .00    .008    .016    .025    .033    .041    .050    .058    .066    .074
  533         PC    .087    .099    .118    .138    .216    .377    .834    .911    .931    .950
  534         PC    .962    .972    .983    .991    1.00
  535         LG     .20     .35    4.10     .36   15.96
  536         UI     12.     12.     12.     12.     12.     29.     41.     47.     52.     58.
  537         UI     62.     67.     70.     74.     79.     85.     91.     96.    104.    119.
  538         UI    141.    148.    165.    148.    134.    123.    114.    107.    101.     96.
  539         UI     89.     82.     77.     73.     67.     62.     59.     54.     48.     37.
  540         UI     35.     22.     22.     22.     20.     20.     20.     15.     12.     12.
  541         UI     12.     12.     10.      4.      4.      4.      4.      4.      4.      4.
  542         UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
  543         UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
  544         UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  545         KK    1430
  546         KM   SUB-BASIN 1430
  547         BA  1.4319
  548         PB    1.52
  549         PC     0.0    .015    .020    .030    .048    .063    .076    .090    .105    .119
  550         PC    .135    .152    .175    .222    .304    .472    .670    .796    .868    .912
  551         PC    .946    .960    .973    .987    1.00
  552         LG     .20     .35    4.14     .48   17.40
  553         UI     28.     28.     28.     28.     28.     28.     28.     37.     93.     93.
  554         UI    104.    108.    123.    130.    138.    143.    151.    157.    162.    168.
  555         UI    175.    184.    193.    204.    213.    220.    232.    251.    276.    305.
  556         UI    331.    357.    380.    352.    326.    303.    286.    271.    258.    247.
  557         UI    237.    228.    220.    211.    199.    189.    180.    172.    165.    159.
  558         UI    147.    140.    137.    130.    121.    108.     98.     81.     81.     61.
  559         UI     50.     50.     50.     49.     46.     46.     46.     46.     39.     28.
  560         UI     28.     28.     28.     28.     28.     28.     18.      9.      9.      9.
  561         UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
  562         UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
  563         UI      9.      9.      0.      0.      0.      0.      0.      0.      0.      0.
  564         UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  565         KK    1440
  566         KM   SUB-BASIN 1440
  567         BA  1.8882
  568         LG     .20     .35    3.70     .28   18.55
  569         UI     42.     42.     42.     42.     42.     42.     47.    138.    138.    160.
  570         UI    166.    194.    201.    210.    225.    235.    244.    255.    267.    282.
  571         UI    299.    316.    328.    349.    382.    427.    496.    499.    568.    530.
  572         UI    485.    449.    419.    396.    377.    358.    343.    329.    313.    293.
  573         UI    277.    263.    251.    241.    220.    210.    202.    194.    168.    161.
```

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

 574          UI    121.    121.     94.     74.     74.     74.     71.     69.     69.     69.
 575          UI     58.     42.     42.     42.     42.     42.     42.     28.     13.     13.
 576          UI     13.     13.     13.     13.     13.     13.     13.     13.     13.     13.
 577          UI     13.     13.     13.     13.     13.     13.     13.     13.     13.     13.
 578          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 579          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 580          KK    1441
 581          KM    COMBINATION OF ABOVE
 582          HC       2

 583          KK    1470
 584          KM   SUB-BASIN 1470
 585          BA   .2977
 586          PB    1.55
 587          PC       0    .009    .016    .025    .034    .042    .051    .059    .067    .076
 588          PC    .087    .100    .120    .163    .252    .451    .694    .837    .900    .938
 589          PC    .950    .963    .975    .988    1.00
 590          LG     .20     .34    3.80     .24   14.70
 591          UI      8.      8.      8.      8.      8.     17.     27.     31.     34.     38.
 592          UI     41.     44.     46.     49.     52.     55.     59.     63.     67.     74.
 593          UI     84.     97.    108.    106.     95.     86.     80.     75.     70.     67.
 594          UI     63.     58.     54.     51.     48.     44.     41.     39.     36.     32.
 595          UI     24.     24.     15.     15.     15.     14.     14.     14.     11.      8.
 596          UI      8.      8.      8.      8.      3.      3.      3.      3.      3.      3.
 597          UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
 598          UI      3.      3.      0.      0.      0.      0.      0.      0.      0.      0.
 599          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 600          KK   R1470
 601          KM    ROUTING OF 1470
 602          RS      20    STOR       0
 603          RC     .08    .045     .08   17600   .0188
 604          RX       0      27      45      54      79      88     106     133
 605          RY      18       9       3       0       0       3       9      18

 606          KK   S1475
 607          KM   SUB-BASIN 1475
 608          BA  1.6895
 609          LG     .20     .35    4.18     .46   30.02
 610          UI     47.     47.     47.     47.     47.     88.    153.    171.    186.    214.
 611          UI    228.    246.    259.    272.    288.    307.    331.    352.    370.    411.
 612          UI    465.    542.    588.    611.    545.    495.    457.    425.    402.    379.
 613          UI    362.    335.    311.    292.    276.    256.    237.    224.    212.    179.
 614          UI    152.    134.    101.     82.     82.     80.     77.     77.     75.     47.
 615          UI     47.     47.     47.     47.     32.     14.     14.     14.     14.     14.
 616          UI     14.     14.     14.     14.     14.     14.     14.     14.     14.     14.
 617          UI     14.     14.      0.      0.      0.      0.      0.      0.      0.      0.
 618          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

 619          KK    1475
 620          HC       2

 621          KK  STRM56
 622          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
 623          HC       4
 624          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

           (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

  12       S2040
              .
              .
  25          .       S2050
              .          .
              .          .
  34        2051............
              .
              .
  36          .       S2070
              .          .
              .          .
  45       STRM1............
              .
              .
  48          .         S39
              .          .
              .          .
  68          .          .         S40
              .          .          .
              .          .          .
  77          .        CP41............
              .          V
              .          V
  80          .       RCP41
              .          .
              .          .
  86          .          .         S41
              .          .          .
              .          .          .
  102         .          A............
              .          .
              .          .
              .          .         S42
              .          .          .
              .          .          .
  115         .          .          .        S43
              .          .          .         .
              .          .          .         .
  124         .          .          .         .         S44
              .          .          .         .          .
              .          .          .         .          .
  136         .          .          .       CP45............
              .          .          .         V
              .          .          .         V
  139         .          .          .      RCP45
              .          .          .         .
              .          .          .         .
  145         .          .          .         .         S45
              .          .          .         .          .
              .          .          .         .          .
  153         .          .          .         B............
              .          .          .         .
              .          .          .         .
  156         .          .          .         .       S45A
              .          .          .         .          .
              .          .          .         .          .
  163         .          .          .         .          .        S46
              .          .          .         .          .         .
```

```
172                 CP47.......................
                       V
                       V
175                 RCP47
                       .
                       .
181                    .         S47
                       .           .
                       .           .
191                    C............
                       .
                       .
194            CP48.......................
                  V
                  V
197            RCP48
                  .
                  .
203                  .      S48
                     .        .
                     .        .
212                  D............
                     .
                     .
215                  .      S50
                     .        .
                     .        .
224            CP51............
                     .
                     .
227                  .    S2000
                     .        .
                     .        .
239            STRM2............
                     .
                     .
242                  .     S35N
                     .        .
                     .        .
                     .      S16
                     .        .
                     .        .
281                  .        .         S17
                     .        .           .
                     .        .           .
295                  .        .           .         S18
                     .        .           .           .
                     .        .           .           .
306                  .      C19A.......................
                     .        V
                     .        V
309                  .      R19
                     .        .
                     .        .
315                  .        .         S15
                     .        .           .
                     .        .           .
342                  .      C19C............
                     .        V
                     .        V
345                  .     RC19C
                     .        .
                     .        .
351                  .        .         S19
                     .        .           .
```

```
361          A............
364                  S20
374        C21............
             V
             V
377        RC21
383                  S21
397          B............
400                  S22
415                          S23
430                  C24............
                       V
                       V
433                RC24
439                          S24
453                  C............
456                          S25N
                                          S25S
490        STRM4.................................
493                1380
                     V
                     V
507                R1380
513                          S1390N
526                1390N............
528                          1390S
545                                          1430
565                                                        1440
```

```
580                                                  1441............
583                                                                  1470
                                                                       V
                                                                       V
600                                                                  R1470
606                                                                                S1475
619                                                                  1475............
621                                                STRM56.....................................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            SEPTEMBER 1990             *
*             VERSION 4.0               *
*                                       *
*   RUN DATE  06/14/1991  TIME  16:01:12 *
*                                       *
*****************************************
```

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

```
                    SCOTTSDALE ALLUVIAL FAN, ALL SUBBASINS
                    FUTURE CONDITION
                    PHONIX MOUNTAIN AND PHOENIX VALLEY S-GRAPHS
                    2 YEAR 6 HOUR, MIXED PATTERN DISTRIBUTION
                    THE DISTRIBUTION PATTERNS WERE SELECTED ACCORDING TO
                    THE AREA BEHIND EACH APICES.
                    GREEN AND AMPT INFILTRATION EQUATION FOR SOIL LOSSES
                    CHANGED %IMPERVIOUS AREAS TO REFLECT FUTURE CONDITION
                    FCD 05/10/91 AA

 11 IO        OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT        HYDROGRAPH TIME DATA
                     NMIN          5  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1   0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      2   0  ENDING DATE
                   NDTIME       0055  ENDING TIME
                    ICENT         19  CENTURY MARK

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

        ENGLISH UNITS
             DRAINAGE AREA          SQUARE MILES
             PRECIPITATION DEPTH    INCHES
             LENGTH, ELEVATION      FEET
             FLOW                   CUBIC FEET PER SECOND
             STORAGE VOLUME         ACRE-FEET
             SURFACE AREA           ACRES
             TEMPERATURE            DEGREES FAHRENHEIT
```

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	S2040	133.	4.33	32.	8.	8.	.93		
HYDROGRAPH AT	S2050	106.	4.42	28.	7.	7.	.86		
2 COMBINED AT	2051	237.	4.33	61.	15.	15.	1.79		
HYDROGRAPH AT	S2070	223.	4.25	51.	13.	12.	1.46		
2 COMBINED AT	STRM1	457.	4.33	111.	28.	27.	3.25		
HYDROGRAPH AT	S39	198.	5.42	83.	23.	22.	1.93		
HYDROGRAPH AT	S40	46.	4.50	13.	3.	3.	.58		
2 COMBINED AT	CP41	217.	5.33	94.	26.	25.	2.51		
ROUTED TO	RCP41	212.	5.67	94.	26.	25.	2.51	1.70	5.67
HYDROGRAPH AT	S41	35.	5.42	17.	5.	5.	.79		
2 COMBINED AT	A	245.	5.67	112.	31.	30.	3.31		
HYDROGRAPH AT	S42	97.	4.50	27.	7.	7.	.58		
HYDROGRAPH AT	S43	173.	4.42	40.	10.	10.	1.07		
HYDROGRAPH AT	S44	88.	4.83	25.	7.	6.	.84		
2 COMBINED AT	CP45	235.	4.50	65.	17.	16.	1.91		
ROUTED TO	RCP45	231.	4.58	65.	17.	16.	1.91	1.78	4.58
HYDROGRAPH AT	S45	27.	4.25	7.	2.	2.	.20		
2 COMBINED AT	B	252.	4.58	71.	18.	18.	2.11		
HYDROGRAPH AT									

+		S45A	12.	4.17	3.	1.	1.	.17		
	HYDROGRAPH AT									
+		S46	119.	4.33	35.	9.	9.	.93		
	3 COMBINED AT									
+		CP47	367.	4.58	109.	28.	27.	3.21		
	ROUTED TO									
+		RCP47	349.	5.08	109.	28.	27.	3.21		
+									1.56	5.08
	HYDROGRAPH AT									
+		S47	47.	4.50	12.	3.	3.	.38		
	2 COMBINED AT									
+		C	376.	5.00	120.	31.	30.	3.58		
	3 COMBINED AT									
+		CP48	638.	5.08	255.	69.	66.	7.47		
	ROUTED TO									
+		RCP48	636.	5.17	255.	69.	66.	7.47		
+									1.81	5.17
	HYDROGRAPH AT									
+		S48	4.	4.50	1.	0.	0.	.04		
	2 COMBINED AT									
+		D	638.	5.17	256.	69.	67.	7.52		
	HYDROGRAPH AT									
+		S50	38.	4.42	11.	3.	3.	.36		
	2 COMBINED AT									
+		CP51	659.	5.08	266.	72.	69.	7.88		
	HYDROGRAPH AT									
+		S2000	105.	4.25	23.	6.	6.	.80		
	2 COMBINED AT									
+		STRM2	690.	5.08	288.	78.	75.	8.68		
	HYDROGRAPH AT									
+		S35N	153.	4.42	26.	7.	6.	.41		
	HYDROGRAPH AT									
+		S16	87.	6.17	43.	13.	12.	1.46		
	HYDROGRAPH AT									
+		S17	118.	5.08	43.	11.	11.	1.19		
	HYDROGRAPH AT									
+		S18	147.	4.67	37.	10.	9.	1.26		
	3 COMBINED AT									
+		C19A	267.	4.75	120.	34.	33.	3.91		
	ROUTED TO									
+		R19	265.	5.08	120.	34.	33.	3.91		
+									1.38	5.08
	HYDROGRAPH AT									
+		S15	66.	7.17	39.	13.	12.	1.37		
	2 COMBINED AT									

+		C19C	290.	5.08	157.	47.	45.	5.28	
	ROUTED TO								
+		RC19C	290.	5.17	157.	47.	45.	5.28	
+									1.35 5.17
	HYDROGRAPH AT								
+		S19	32.	4.50	9.	2.	2.	.19	
	2 COMBINED AT								
+		A	308.	5.08	164.	49.	47.	5.46	
	HYDROGRAPH AT								
+		S20	77.	4.58	19.	5.	5.	.57	
	2 COMBINED AT								
+		C21	369.	4.83	182.	54.	52.	6.03	
	ROUTED TO								
+		RC21	360.	5.83	179.	54.	52.	6.03	
+									1.50 5.83
	HYDROGRAPH AT								
+		S21	115.	5.17	50.	14.	13.	3.67	
	2 COMBINED AT								
+		B	445.	5.83	213.	67.	65.	9.70	
	HYDROGRAPH AT								
+		S22	178.	4.75	41.	10.	10.	1.39	
	HYDROGRAPH AT								
+		S23	32.	5.33	11.	3.	3.	.39	
	2 COMBINED AT								
+		C24	198.	4.75	52.	13.	13.	1.78	
	ROUTED TO								
+		RC24	172.	5.33	52.	13.	13.	1.78	
+									1.62 5.33
	HYDROGRAPH AT								
+		S24	22.	5.08	8.	2.	2.	.49	
	2 COMBINED AT								
+		C	191.	5.33	60.	15.	15.	2.27	
	HYDROGRAPH AT								
+		S25N	56.	6.00	25.	7.	7.	.78	
	HYDROGRAPH AT								
+		S25S	88.	4.75	23.	6.	6.	.63	
	4 COMBINED AT								
+		STRM4	674.	5.83	318.	96.	92.	13.38	
	HYDROGRAPH AT								
+		1380	95.	5.92	37.	10.	9.	.93	
	ROUTED TO								
+		R1380	87.	6.83	37.	10.	9.	.93	
+									.77 6.83
	HYDROGRAPH AT								
+		S1390N	34.	5.92	15.	4.	4.	.56	

	2 COMBINED AT								
+		1390N	108.	6.75	51.	13.	13.	1.49	
	HYDROGRAPH AT								
+		1390S	70.	5.75	23.	6.	6.	.43	
	HYDROGRAPH AT								
+		1430	66.	6.58	37.	10.	10.	1.43	
	HYDROGRAPH AT								
+		1440	141.	6.33	68.	18.	18.	1.89	
	2 COMBINED AT								
+		1441	205.	6.33	105.	29.	27.	3.32	
	HYDROGRAPH AT								
+		1470	38.	5.83	14.	4.	4.	.30	
	ROUTED TO								
+		R1470	35.	7.00	14.	4.	4.	.30	
+									.31 7.00
	HYDROGRAPH AT								
+		S1475	195.	5.83	83.	22.	21.	1.69	
	2 COMBINED AT								
+		1475	211.	5.83	97.	25.	25.	1.99	
	4 COMBINED AT								
+		STRM56	539.	6.17	277.	73.	71.	7.23	

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

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            SEPTEMBER 1990            *
*             VERSION 4.0              *
*                                      *
*   RUN DATE  06/14/1991  TIME  16:08:52 *
*                                      *
****************************************
```

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

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

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

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

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

  1           ID    SCOTTSDALE ALLUVIAL FAN, ALL SUBBASINS
  2           ID    MAXIMUM BUILDOUT CONDITIONS
  3           ID    PHONIX MOUNTAIN AND PHOENIX VALLEY S-GRAPHS
  4           ID    2 YEAR 6 HOUR, MIXED PATTERN DSTRIBUTION
  5           ID    THE DISTRIBUTION PATTERNS WERE SELECTED ACCORDING TO
  6           ID    THE AREA BEHIND EACH APICES.
  7           ID    GREEN AND AMPT INFILTRATION EQUATION FOR SOIL LOSSES
  8           ID    CHANGED %IMPERVIOUS AREAS TO REFLECT FUTURE CONDITION
  9           ID    FCD 05/10/91 AA
              *DIAGRAM
 10           IT       5                    300
 11           IO       5

 12           KK   S2040
 13           KM   SUB-BASIN 2040
 14           BA   .9290
 15           IN      15
 16           PB    1.36
 17           PC       0    .009    .016    .025    .034    .042    .051    .059    .067    .076
 18           PC    .087    .100    .120    .163    .252    .451    .694    .837    .900    .938
 19           PC    .950    .963    .975    .988    1.00
 20           LG     .25     .35    4.19     .45   25.94
 21           UI    100.    209.    479.    682.    872.   1055.    660.    554.    472.    398.
 22           UI    315.    251.    221.    177.    134.    115.     97.     76.     63.     49.
 23           UI     49.     33.     19.     19.     19.     19.     19.     19.      0.      0.
 24           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 25           KK   S2050
 26           KM   SUB-BASIN 2050
 27           BA   .8580
 28           LG     .25     .35    4.16     .46   24.85
 29           UI     73.     98.    253.    403.    509.    609.    831.    594.    456.    403.
 30           UI    355.    310.    268.    218.    184.    167.    145.    116.     93.     84.
 31           UI     79.     56.     56.     42.     36.     36.     36.     15.     14.     14.
 32           UI     14.     14.     14.     14.     14.     14.      0.      0.      0.      0.
 33           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 34           KK    2051
 35           HC       2

 36           KK   S2070
 37           KM   SUB-BASIN 2070
 38           BA  1.4649
 39           PB    1.46
 40           LG     .25     .35    4.21     .44   22.40
 41           UI    184.    514.   1069.   1446.   1980.   1240.   1004.    830.    667.    498.
 42           UI    420.    331.    242.    204.    152.    130.     90.     90.     51.     35.
 43           UI     35.     35.     35.     35.      0.      0.      0.      0.      0.      0.
 44           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

  45          KK   STRM1
  46          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
  47          HC       2

  48          KK     S39
  49          KM   SUB-BASIN 39
  50          BA  1.9302
  51          PB    1.50
  52          PC       0    .015    .020    .030    .048    .063    .076    .090    .105    .119
  53          PC    .135    .152    .175    .222    .304    .472    .670    .796    .868    .912
  54          PC    .946    .960    .973    .987    1.00
  55          LG     .15     .36    3.80     .24   25.47
  56          UI     60.     60.     60.     60.     61.    172.    188.    230.    274.    337.
  57          UI    367.    392.    423.    449.    470.    508.    577.    660.    749.    608.
  58          UI    471.    423.    392.    367.    353.    340.    323.    308.    295.    283.
  59          UI    270.    254.    242.    231.    216.    204.    186.    172.    158.    151.
  60          UI    147.    142.    138.    133.    125.    125.     98.     98.     98.     77.
  61          UI     77.     77.     76.     66.     66.     66.     66.     55.     46.     46.
  62          UI     46.     46.     46.     46.     29.     29.     29.     29.     29.     29.
  63          UI     29.     29.     29.     29.     15.     11.     11.     11.     11.     11.
  64          UI     11.     11.     11.     11.     11.     11.     11.     11.     11.     11.
  65          UI     11.     11.     11.     11.     11.     11.     11.     11.     11.     11.
  66          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
  67          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  68          KK     S40
  69          KM   SUB-BASIN 40
  70          BA   .5844
  71          LG     .15     .35    4.10     .37   16.50
  72          UI     50.     67.    172.    274.    346.    414.    565.    406.    310.    275.
  73          UI    242.    211.    183.    149.    125.    114.     99.     79.     64.     57.
  74          UI     54.     38.     38.     29.     24.     24.     24.     10.     10.     10.
  75          UI     10.     10.     10.     10.     10.     10.      0.      0.      0.      0.
  76          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  77          KK    CP41
  78          KM    COMBINE HYDROGRAPHS S39 AND S40
  79          HC       2

  80          KK   RCP41
  81          KM    ROUTE CP41
  82          RS      10    STOR       0
  83          RC   0.075   0.045   0.075    9400  0.0282
  84          RX       0     300     321     326     337     350     380     680
  85          RY     5.9     2.9     1.6     0.2       0     1.5     2.0     5.0

  86          KK     S41
  87          KM   SUB-BASIN 41
  88          BA   .7911
  89          LG     .15     .35    4.20     .42   18.45
  90          UI     23.     23.     23.     23.     23.     54.     66.     85.     97.    115.
  91          UI    136.    144.    154.    166.    174.    183.    197.    222.    252.    290.
  92          UI    251.    185.    170.    155.    145.    138.    134.    129.    123.    117.
  93          UI    113.    109.    104.     98.     93.     90.     85.     79.     73.     70.
```

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

  94          UI     61.     60.     57.     57.     53.     53.     50.     48.     47.     38.
  95          UI     38.     38.     30.     30.     30.     30.     26.     25.     25.     25.
  96          UI     25.     18.     18.     18.     18.     18.     18.     18.     11.     11.
  97          UI     11.     11.     11.     11.     11.     11.     11.     11.     10.      4.
  98          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
  99          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 100          UI      4.      4.      4.      4.      4.      4.      0.      0.      0.      0.
 101          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 102          KK       A
 103          KM    BASIN 41 AND ROUTED CP41
 104          HC       2

 105          KK     S42
 106          KM   SUB-BASIN 42
 107          BA   .5844
 108          LG     .15     .35    3.70     .29   28.93
 109          UI     43.     43.    125.    197.    269.    317.    374.    500.    369.    281.
 110          UI    250.    224.    201.    177.    156.    129.    110.    102.     93.     76.
 111          UI     64.     55.     49.     47.     34.     33.     31.     21.     21.     21.
 112          UI     21.      9.      8.      8.      8.      8.      8.      8.      8.      8.
 113          UI      8.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 114          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 115          KK     S43
 116          KM   SUB-BASIN 43
 117          BA  1.0665
 118          LG     .15     .35    3.60     .27   21.16
 119          UI     94.    139.    344.    544.    679.    832.   1067.    681.    564.    496.
 120          UI    435.    378.    314.    252.    224.    203.    160.    127.    113.    103.
 121          UI     77.     72.     57.     46.     46.     46.     18.     18.     18.     18.
 122          UI     18.     18.     18.     18.     18.      0.      0.      0.      0.      0.
 123          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 124          KK     S44
 125          KM   SUB-BASIN 44
 126          BA   .8389
 127          LG     .15     .37    4.40     .22   15.25
 128          UI     43.     43.     43.    119.    163.    218.    263.    297.    326.    367.
 129          UI    451.    506.    338.    288.    258.    243.    225.    209.    194.    177.
 130          UI    166.    146.    130.    113.    105.    100.     95.     89.     71.     69.
 131          UI     55.     55.     49.     47.     47.     34.     33.     33.     33.     22.
 132          UI     21.     21.     21.     21.     21.     12.      8.      8.      8.      8.
 133          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
 134          UI      8.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 135          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 136          KK    CP45
 137          KM    COMBINE HYDROGRAPHS S43 AND S44
 138          HC       2
```

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

 139          KK   RCP45
 140          KM    ROUTE OF CP45
 141          RS       4    STOR       0
 142          RC    0.08   0.045    0.08    3600   .0366
 143          RX       0     300     307     320     324     330     350     650
 144          RY     5.9     2.9     2.0       0       0     0.4     2.0     5.0

 145          KK     S45
 146          KM   SUB-BASIN 45
 147          BA   .2037
 148          LG     .15     .35    4.20     .39   26.30
 149          UI     26.     74.    152.    207.    276.    171.    139.    115.     91.     68.
 150          UI     58.     44.     33.     28.     20.     17.     13.     13.      6.      5.
 151          UI      5.      5.      5.      5.      0.      0.      0.      0.      0.      0.
 152          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 153          KK       B
 154          KM    COMBINE S45 AND ROUTED CP45
 155          HC       2

 156          KK    S45A
 157          KM   SUB-BASIN 45A
 158          BA   .1720
 159          LG     .25     .35    4.20     .39   14.08
 160          UI     37.    140.    239.    283.    171.    132.     93.     69.     48.     35.
 161          UI     25.     17.     15.      7.      6.      6.      6.      0.      0.      0.
 162          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 163          KK     S46
 164          KM   SUB-BASIN 46
 165          BA   .9268
 166          LG     .25     .35    4.20     .44   24.91
 167          UI     92.    169.    398.    595.    730.   1025.    727.    555.    480.    415.
 168          UI    350.    279.    230.    204.    165.    127.    109.     99.     71.     69.
 169          UI     45.     45.     45.     21.     18.     18.     18.     18.     18.     18.
 170          UI     18.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 171          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 172          KK    CP47
 173          KM    COMBINE HYDROGRAPHS S45,S45A,AND S46
 174          HC       3

 175          KK   RCP47
 176          KM    ROUTING OF CP47
 177          RS      10    STOR       0
 178          RC    0.07   0.045    0.07    9600  0.0217
 179          RX       0     300     324     338     350     388     394     694
 180          RY     4.5     1.5     0.6       0       0     1.6     2.0     5.0
```

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

 181          KK     S47
 182          KM   SUB-BASIN 47
 183          BA   .3757
 184          LG     .15      .35     3.80      .28    17.23
 185          UI     28.      28.      84.     130.     177.     209.     248.     328.     228.     179.
 186          UI    161.     143.     128.     113.      98.      81.      71.      65.      59.      47.
 187          UI     39.      35.      31.      29.      22.      22.      17.      14.      14.      14.
 188          UI     11.       5.       5.       5.       5.       5.       5.       5.       5.       5.
 189          UI      5.       0.       0.       0.       0.       0.       0.       0.       0.       0.
 190          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.

 191          KK       C
 192          KM    COMBINE ROUTED CP47 AND S47
 193          HC       2

 194          KK    CP48
 195          KM    COMBINE HYDROGRAPHS S41,S42,S47
 196          HC       3

 197          KK   RCP48
 198          KM    ROUTE CP48
 199          RS       2    STOR       0
 200          RC    0.07   0.045    0.07     1300  0.0338
 201          RX       0     300     324      338     350     388     394     694
 202          RY     4.5     1.5     0.6        0       0     1.6     2.0     5.0

 203          KK     S48
 204          KM   SUB-BASIN 48
 205          BA   .0438
 206          LG     .15      .35     3.70      .29    9.05
 207          UI      4.       4.      12.      19.     24.      29.      39.      34.      24.      21.
 208          UI     18.      16.      14.      12.     10.       9.       8.       6.       5.       5.
 209          UI      4.       4.       3.       3.      2.       2.       2.       2.       1.       1.
 210          UI      1.       1.       1.       1.      1.       1.       1.       0.       0.       0.
 211          UI      0.       0.       0.       0.      0.       0.       0.       0.       0.       0.

 212          KK       D
 213          KM    COMBINE S48 AND ROUTED CP48
 214          HC       2

 215          KK     S50
 216          KM   SUB-BASIN 50
 217          BA   .3580
 218          LG     .15      .35     4.20      .39   20.96
 219          UI     31.      44.     110.     175.     219.     265.     355.     237.     189.     167.
 220          UI    148.     127.     109.      88.      76.      69.      57.      46.      39.      34.
 221          UI     30.      24.      23.      15.      15.      15.      11.       6.       6.       6.
 222          UI      6.       6.       6.       6.      6.       0.       0.       0.       0.       0.
 223          UI      0.       0.       0.       0.      0.       0.       0.       0.       0.       0.
```

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

 224          KK    CP51
 225          KM    COMBINE HYDROGRAPHS S48 AND S50
 226          HC       2

 227          KK   S2000
 228          KM   SUB-BASIN 2000
 229          BA   .7999
 230          PB    1.41
 231          PC       0    .009    .016    .025    .034    .042    .051    .059    .067    .076
 232          PC    .087    .100    .120    .163    .252    .451    .694    .837    .900    .938
 233          PC    .950    .963    .975    .988    1.00
 234          LG     .15     .35    4.31     .41   18.68
 235          UI    103.    302.    615.    835.   1082.    668.    545.    448.    354.    262.
 236          UI    226.    164.    127.    107.     79.     61.     51.     45.     20.     20.
 237          UI     20.     20.     20.     20.      0.      0.      0.      0.      0.      0.
 238          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 239          KK   STRM2
 240          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
 241          HC       2

 242          KK    S35N
 243          KM   SUB-BASIN 35N
 244          BA   .4068
 245          PB    1.41
 246          PC       0    .008    .016    .025    .033    .041    .050    .058    .066    .074
 247          PC    .087    .099    .118    .138    .216    .377    .834    .911    .931    .950
 248          PC    .962    .972    .983    .991    1.00
 249          LG     .15     .35    3.60     .27   21.43
 250          UI     32.     36.    105.    163.    213.    250.    320.    346.    225.    192.
 251          UI    171.    153.    133.    117.     95.     82.     75.     67.     53.     43.
 252          UI     39.     35.     29.     25.     25.     16.     16.     16.     15.      6.
 253          UI      6.      6.      6.      6.      6.      6.      6.      6.      6.      0.
 254          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 255          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 256          KK     S16
 257          KM   SUB-BASIN 16
 258          BA   1.457
 259          PB    1.52
 260          PC       0    .015    .020    .030    .048    .063    .076    .090    .105    .119
 261          PC    .135    .152    .175    .222    .304    .472    .670    .796    .868    .912
 262          PC    .946    .960    .973    .987    1.00
 263          LG     .15     .37    4.10     .23   17.22
 264          UI     30.     30.     30.     30.     30.     30.     30.     51.     85.     85.
 265          UI    106.    114.    131.    139.    170.    177.    184.    193.    203.    214.
 266          UI    221.    228.    236.    248.    270.    291.    321.    349.    378.    322.
 267          UI    252.    228.    214.    202.    192.    184.    178.    175.    170.    165.
 268          UI    160.    155.    149.    146.    142.    138.    135.    126.    124.    120.
 269          UI    117.    114.    109.    102.    100.     92.     92.     82.     78.     78.
 270          UI     73.     73.     73.     69.     68.     68.     65.     62.     62.     62.
 271          UI     51.     49.     49.     49.     47.     38.     38.     38.     38.     38.
 272          UI     37.     32.     32.     32.     32.     32.     32.     30.     23.     23.
 273          UI     23.     23.     23.     23.     23.     23.     23.     20.     15.     14.
```

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

 274          UI     15.     14.     15.     14.     15.     14.     14.     15.     14.     15.
 275          UI     14.     15.     14.      8.      6.      6.      6.      6.      6.      6.
 276          UI      6.      6.      6.      6.      6.      6.      6.      6.      6.      6.
 277          UI      6.      6.      6.      6.      6.      6.      6.      6.      6.      6.
 278          UI      6.      6.      6.      6.      6.      6.      6.      6.      6.      6.
 279          UI      6.      6.      0.      0.      0.      0.      0.      0.      0.      0.
 280          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 281          KK     S17
 282          KM   SUB-BASIN 17
 283          BA  1.1851
 284          LG     .15     .38    4.70     .21   19.73
 285          UI     44.     44.     44.     44.    117.    146.    183.    228.    267.    291.
 286          UI    318.    339.    364.    419.    491.    543.    394.    327.    293.    271.
 287          UI    260.    247.    232.    219.    209.    196.    183.    174.    162.    148.
 288          UI    138.    118.    114.    109.    104.    102.     94.     93.     74.     73.
 289          UI     66.     57.     57.     55.     49.     49.     49.     42.     34.     34.
 290          UI     34.     34.     33.     22.     22.     22.     22.     22.     22.     22.
 291          UI     22.     14.      9.      9.      9.      9.      9.      9.      9.      9.
 292          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
 293          UI      9.      9.      0.      0.      0.      0.      0.      0.      0.      0.
 294          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 295          KK     S18
 296          KM   SUB-BASIN 18
 297          BA  1.2641
 298          LG     .15     .38    4.40     .22   10.81
 299          UI     78.     78.    149.    270.    393.    491.    564.    632.    792.    900.
 300          UI    589.    498.    455.    414.    379.    345.    311.    278.    240.    203.
 301          UI    189.    178.    163.    133.    119.    100.     95.     85.     84.     60.
 302          UI     60.     60.     43.     38.     38.     38.     38.     23.     15.     15.
 303          UI     15.     15.     15.     15.     15.     15.     15.     15.     15.     15.
 304          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 305          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 306          KK    C19A
 307          KM    COMBINE 16,17,18
 308          HC       3

 309          KK     R19
 310          KM    ROUTE C19A
 311          RS       1    STOR       0
 312          RC    0.08   0.045    0.08    1100  0.0155
 313          RX       0     300     316     346     350     370     386     660
 314          RY     6.8     3.8     0.9       0       0     0.2     3.6     6.6

 315          KK     S15
 316          KM   SUB-BASIN 15
 317          BA  1.3702
 318          LG     .15     .37    5.10     .20   20.03
 319          UI     20.     20.     20.     20.     20.     20.     20.     20.     20.     20.
 320          UI     32.     57.     57.     57.     69.     76.     76.     89.     91.    103.
 321          UI    114.    118.    120.    126.    129.    135.    140.    144.    148.    151.
 322          UI    154.    158.    163.    172.    183.    194.    205.    221.    234.    256.
 323          UI    239.    212.    173.    158.    152.    143.    138.    134.    127.    125.
```

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

 324          UI    120.    119.    117.    115.    114.    109.    109.    104.    104.    100.
 325          UI     99.     96.     95.     93.     91.     90.     85.     85.     81.     80.
 326          UI     80.     76.     76.     74.     68.     68.     67.     62.     62.     62.
 327          UI     55.     53.     53.     53.     50.     49.     49.     49.     48.     46.
 328          UI     46.     46.     46.     43.     42.     42.     42.     42.     36.     33.
 329          UI     33.     33.     33.     33.     32.     25.     25.     25.     25.     25.
 330          UI     25.     25.     25.     22.     22.     22.     22.     22.     22.     22.
 331          UI     22.     22.     21.     15.     15.     15.     15.     15.     15.     15.
 332          UI     15.     15.     15.     15.     15.     15.     14.     10.     10.     10.
 333          UI     10.     10.     10.     10.     10.     10.     10.     10.     10.     10.
 334          UI     10.     10.     10.     10.     10.     10.     10.     10.      8.      4.
 335          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 336          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 337          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 338          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 339          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 340          UI      4.      4.      4.      4.      0.      0.      0.      0.      0.      0.
 341          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 342          KK    C19C
 343          KM    COMBINE 15 AND R19
 344          HC       2

 345          KK   RC19C
 346          KM    ROUTING C19C
 347          RS       2    STOR       0
 348          RC   0.075   0.045   0.075    1800    0.02
 349          RX       0     300     316     346     350     370     386     686
 350          RY     6.8     3.8     0.9       0       0     0.2     3.6     6.6

 351          KK     S19
 352          KM   SUB-BASIN 19
 353          BA   .1872
 354          LG     .15     .35    3.60     .27   25.54
 355          UI     14.     14.     37.     59.     83.     98.    113.    151.    129.     91.
 356          UI     80.     72.     65.     58.     51.     44.     36.     33.     30.     27.
 357          UI     22.     17.     17.     15.     13.     10.     10.      8.      7.      7.
 358          UI      7.      6.      3.      3.      3.      3.      3.      3.      3.      3.
 359          UI      3.      3.      0.      0.      0.      0.      0.      0.      0.      0.
 360          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 361          KK       A
 362          KM    ADDITION OF S19 AND RC19C
 363          HC       2

 364          KK     S20
 365          KM   SUB-BASIN 20
 366          BA   .5698
 367          LG     .15     .38    4.40     .22   14.19
 368          UI     39.     39.     92.    157.    224.    266.    303.    375.    453.    293.
 369          UI    245.    222.    201.    182.    161.    145.    125.    103.     94.     88.
 370          UI     80.     64.     54.     50.     43.     43.     32.     30.     30.     20.
 371          UI     19.     19.     19.     16.      7.      7.      7.      7.      7.      7.
 372          UI      7.      7.      7.      7.      7.      0.      0.      0.      0.      0.
 373          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

 374          KK     C21
 375          KM    COMBINE A AND 20
 376          HC       2

 377          KK    RC21
 378          KM    ROUTE C21
 379          RS      30    STOR       0
 380          RC   0.075   0.045   0.075   27600  0.0196
 381          RX       0     300     316     346     350     370     386     686
 382          RY     6.8     3.8     0.9       0       0     0.2     3.6     6.6

 383          KK     S21
 384          KM   SUB-BASIN 21
 385          BA    3.67
 386          LG     .15     .35    4.70     .37   11.17
 387          UI    132.    132.    132.    132.    307.    407.    516.    633.    777.    833.
 388          UI    917.    982.   1041.   1147.   1333.   1568.   1513.   1051.    936.    859.
 389          UI    794.    768.    728.    684.    651.    621.    584.    547.    521.    488.
 390          UI    449.    411.    367.    347.    324.    317.    304.    291.    276.    251.
 391          UI    217.    217.    178.    169.    169.    158.    145.    145.    145.    122.
 392          UI    101.    101.    101.    101.    101.     67.     65.     65.     65.     65.
 393          UI     65.     65.     65.     59.     25.     25.     25.     25.     25.     25.
 394          UI     25.     25.     25.     25.     25.     25.     25.     25.     25.     25.
 395          UI     25.     25.     25.     25.     25.     25.      0.      0.      0.      0.
 396          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 397          KK       B
 398          KM    ADDITION OF ROUTED C21 AND S21
 399          HC       2

 400          KK     S22
 401          KM   SUB-BASIN 22
 402          BA  1.3860
 403          PB    1.43
 404          PC       0    .009    .016    .025    .034    .042    .051    .059    .067    .076
 405          PC    .087    .100    .120    .163    .252    .451    .694    .837    .900    .938
 406          PC    .950    .963    .975    .988    1.00
 407          LG     .15     .35    3.50     .25    7.83
 408          UI     77.     77.    109.    241.    327.    448.    513.    576.    643.    803.
 409          UI    909.    595.    509.    459.    427.    392.    363.    328.    303.    271.
 410          UI    236.    203.    189.    179.    166.    148.    127.    108.     99.     91.
 411          UI     85.     85.     60.     59.     59.     52.     38.     38.     38.     38.
 412          UI     38.     22.     15.     15.     15.     15.     15.     15.     15.     15.
 413          UI     15.     15.     15.     15.     15.      0.      0.      0.      0.      0.
 414          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 415          KK     S23
 416          KM   SUB-BASIN 23
 417          BA   .3945
 418          LG     .15     .38    4.40     .22   10.46
 419          UI     13.     13.     13.     13.     18.     37.     44.     52.     63.     76.
 420          UI     81.     88.     94.     99.    105.    120.    137.    160.    135.    101.
 421          UI     91.     84.     78.     75.     72.     68.     65.     62.     60.     56.
 422          UI     53.     51.     49.     44.     41.     39.     34.     33.     31.     31.
```

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

 423          UI     29.     29.     27.     26.     21.     21.     20.     16.     16.     16.
 424          UI     15.     14.     14.     14.     14.     10.     10.     10.     10.     10.
 425          UI     10.      7.      6.      6.      6.      6.      6.      6.      6.      6.
 426          UI      6.      2.      2.      2.      2.      2.      2.      2.      2.      2.
 427          UI      2.      2.      2.      2.      2.      2.      2.      2.      2.      2.
 428          UI      2.      2.      2.      2.      2.      0.      0.      0.      0.      0.
 429          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 430          KK     C24
 431          KM    COMBINE 22 AND 23
 432          HC       2

 433          KK    RC24
 434          KM    ROUTE C24
 435          RS       8    STOR       0
 436          RC    0.07   0.045    0.08    6800  0.0257
 437          RX       0     300     313     334     352     362     383     683
 438          RY     3.8     0.8     1.1     1.9       0     2.3     2.8     5.8

 439          KK     S24
 440          KM   SUB-BASIN 24
 441          BA   .4907
 442          LG     .15     .35    4.20     .42   13.32
 443          UI     19.     19.     19.     19.     54.     65.     81.    102.    117.    127.
 444          UI    139.    148.    162.    190.    227.    206.    148.    132.    119.    113.
 445          UI    107.    101.     96.     90.     85.     79.     75.     70.     64.     59.
 446          UI     51.     49.     46.     44.     44.     40.     39.     31.     31.     27.
 447          UI     24.     24.     23.     21.     21.     21.     16.     15.     15.     15.
 448          UI     15.     11.      9.      9.      9.      9.      9.      9.      9.      7.
 449          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 450          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 451          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 452          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 453          KK       C
 454          KM    COMBINE ROUTED C24 AND S24
 455          HC       2

 456          KK    S25N
 457          KM   SUB-BASIN 25N
 458          BA   .7834
 459          PB    1.46
 460          LG     .15     .38    4.40     .22   14.71
 461          UI     17.     17.     17.     17.     17.     17.     17.     49.     50.     58.
 462          UI     66.     75.     83.     99.    104.    109.    115.    121.    127.    131.
 463          UI    136.    142.    156.    169.    188.    204.    217.    176.    139.    129.
 464          UI    121.    114.    109.    104.    102.     99.     96.     93.     90.     86.
 465          UI     84.     82.     79.     75.     73.     70.     69.     66.     63.     59.
 466          UI     57.     54.     52.     46.     46.     44.     42.     42.     41.     40.
 467          UI     40.     38.     36.     36.     35.     28.     28.     28.     28.     23.
 468          UI     22.     22.     22.     22.     21.     19.     19.     19.     19.     19.
 469          UI     19.     13.     13.     13.     13.     13.     13.     13.     13.     13.
 470          UI      9.      8.      8.      8.      8.      8.      8.      8.      8.      8.
 471          UI      8.      8.      8.      8.      6.      3.      3.      3.      3.      3.
 472          UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
```

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

 473          UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
 474          UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
 475          UI      3.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 476          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 477          KK    S25S
 478          KM   SUB-BASIN 25S
 479          BA   .6256
 480          PB    1.43
 481          LG     .15     .36    3.80     .24   16.44
 482          UI     33.     33.     34.     94.    130.    172.    205.    231.    253.    293.
 483          UI    364.    354.    243.    211.    193.    181.    166.    154.    142.    130.
 484          UI    119.    105.     91.     83.     78.     75.     68.     59.     54.     44.
 485          UI     42.     39.     36.     36.     28.     25.     25.     25.     17.     16.
 486          UI     16.     16.     16.     16.      8.      6.      6.      6.      6.      6.
 487          UI      6.      6.      6.      6.      6.      6.      6.      6.      6.      0.
 488          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 489          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 490          KK   STRM4
 491          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
 492          HC       4

 493          KK    1380
 494          KM   SUB-BASIN 1380
 495          BA   .9305
 496          PB    1.50
 497          LG     .20     .35    3.70     .28   21.26
 498          UI     25.     25.     25.     25.     25.     34.     81.     86.     95.    111.
 499          UI    118.    125.    134.    140.    148.    156.    166.    179.    188.    200.
 500          UI    221.    251.    289.    316.    322.    288.    263.    242.    227.    214.
 501          UI    203.    193.    182.    169.    158.    149.    141.    129.    121.    115.
 502          UI    105.     95.     72.     71.     46.     44.     44.     42.     41.     41.
 503          UI     40.     25.     25.     25.     25.     25.     21.      8.      8.      8.
 504          UI      8.      8.      8.      8.      8.      8.      8.      8.      8.      8.
 505          UI      8.      8.      8.      8.      8.      0.      0.      0.      0.      0.
 506          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 507          KK   R1380
 508          KM    ROUTING OF 1380
 509          RS      15    STOR       0
 510          RC     .08    .045     .08   13900   .0190
 511          RX       0      27      45      54      79      88     106     133
 512          RY      18       9       3       0       0       3       9      18

 513          KK  S1390N
 514          KM   SUB-BASIN 1390N
 515          BA   .5610
 516          LG     .20     .35    4.22     .44   20.63
 517          UI     15.     15.     15.     15.     15.     26.     50.     55.     59.     70.
 518          UI     74.     79.     84.     88.     93.     98.    105.    114.    119.    129.
 519          UI    146.    172.    180.    204.    186.    168.    154.    143.    135.    127.
 520          UI    121.    114.    106.     99.     93.     88.     80.     75.     72.     65.
 521          UI     58.     45.     44.     28.     27.     27.     26.     25.     25.     23.
 522          UI     15.     15.     15.     15.     15.      9.      5.      5.      5.      5.
```

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

 523          UI      5.      5.      5.      5.      5.      5.      5.      5.      5.      5.
 524          UI      5.      5.      5.      5.      0.      0.      0.      0.      0.      0.
 525          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 526          KK   1390N
 527          HC       2

 528          KK   1390S
 529          KM   SUB-BASIN 1390S
 530          BA   .4347
 531          PB    1.47
 532          PC       0    .008    .016    .025    .033    .041    .050    .058    .066    .074
 533          PC    .087    .099    .118    .138    .216    .377    .834    .911    .931    .950
 534          PC    .962    .972    .983    .991    1.00
 535          LG     .20     .35    4.10     .36   21.52
 536          UI     12.     12.     12.     12.     12.     29.     41.     47.     52.     58.
 537          UI     62.     67.     70.     74.     79.     85.     91.     96.    104.    119.
 538          UI    141.    148.    165.    148.    134.    123.    114.    107.    101.     96.
 539          UI     89.     82.     77.     73.     67.     62.     59.     54.     48.     37.
 540          UI     35.     22.     22.     22.     20.     20.     20.     15.     12.     12.
 541          UI     12.     12.     10.      4.      4.      4.      4.      4.      4.      4.
 542          UI      4.      4.      4.      4.      4.      4.      4.      4.      4.      4.
 543          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 544          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 545          KK    1430
 546          KM   SUB-BASIN 1430
 547          BA  1.4319
 548          PB    1.52
 549          PC       0    .015    .020    .030    .048    .063    .076    .090    .105    .119
 550          PC    .135    .152    .175    .222    .304    .472    .670    .796    .868    .912
 551          PC    .946    .960    .973    .987    1.00
 552          LG     .20     .35    4.14     .48   22.93
 553          UI     28.     28.     28.     28.     28.     28.     28.     37.     93.     93.
 554          UI    104.    108.    123.    130.    138.    143.    151.    157.    162.    168.
 555          UI    175.    184.    193.    204.    213.    220.    232.    251.    276.    305.
 556          UI    331.    357.    380.    352.    326.    303.    286.    271.    258.    247.
 557          UI    237.    228.    220.    211.    199.    189.    180.    172.    165.    159.
 558          UI    147.    140.    137.    130.    121.    108.     98.     81.     81.     61.
 559          UI     50.     50.     50.     49.     46.     46.     46.     46.     39.     28.
 560          UI     28.     28.     28.     28.     28.     28.     18.      9.      9.      9.
 561          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
 562          UI      9.      9.      9.      9.      9.      9.      9.      9.      9.      9.
 563          UI      9.      9.      0.      0.      0.      0.      0.      0.      0.      0.
 564          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 565          KK    1440
 566          KM   SUB-BASIN 1440
 567          BA  1.8882
 568          LG     .20     .35    3.70     .28   24.04
 569          UI     42.     42.     42.     42.     42.     42.     47.    138.    138.    160.
 570          UI    166.    194.    201.    210.    225.    235.    244.    255.    267.    282.
 571          UI    299.    316.    328.    349.    382.    427.    496.    499.    568.    530.
 572          UI    485.    449.    419.    396.    377.    358.    343.    329.    313.    293.
 573          UI    277.    263.    251.    241.    220.    210.    202.    194.    168.    161.
```

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

 574          UI    121.    121.     94.     74.     74.     74.     71.     69.     69.     69.
 575          UI     58.     42.     42.     42.     42.     42.     42.     28.     13.     13.
 576          UI     13.     13.     13.     13.     13.     13.     13.     13.     13.     13.
 577          UI     13.     13.     13.     13.     13.     13.     13.     13.     13.     13.
 578          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 579          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 580          KK    1441
 581          KM    COMBINATION OF ABOVE
 582          HC       2

 583          KK    1470
 584          KM   SUB-BASIN 1470
 585          BA   .2977
 586          PB    1.55
 587          PC       0    .009    .016    .025    .034    .042    .051    .059    .067    .076
 588          PC    .087    .100    .120    .163    .252    .451    .694    .837    .900    .938
 589          PC    .950    .963    .975    .988    1.00
 590          LG     .20     .34    3.80     .24   20.00
 591          UI      8.      8.      8.      8.      8.     17.     27.     31.     34.     38.
 592          UI     41.     44.     46.     49.     52.     55.     59.     63.     67.     74.
 593          UI     84.     97.    108.    106.     95.     86.     80.     75.     70.     67.
 594          UI     63.     58.     54.     51.     48.     44.     41.     39.     36.     32.
 595          UI     24.     24.     15.     15.     15.     14.     14.     14.     11.      8.
 596          UI      8.      8.      8.      8.      3.      3.      3.      3.      3.      3.
 597          UI      3.      3.      3.      3.      3.      3.      3.      3.      3.      3.
 598          UI      3.      3.      0.      0.      0.      0.      0.      0.      0.      0.
 599          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 600          KK   R1470
 601          KM    ROUTING OF 1470
 602          RS      20    STOR       0
 603          RC     .08    .045     .08   17600   .0188
 604          RX       0      27      45      54      79      88     106     133
 605          RY      18       9       3       0       0       3       9      18

 606          KK   S1475
 607          KM   SUB-BASIN 1475
 608          BA  1.6895
 609          LG     .20     .35    4.18     .46   36.92
 610          UI     47.     47.     47.     47.     47.     88.    153.    171.    186.    214.
 611          UI    228.    246.    259.    272.    288.    307.    331.    352.    370.    411.
 612          UI    465.    542.    588.    611.    545.    495.    457.    425.    402.    379.
 613          UI    362.    335.    311.    292.    276.    256.    237.    224.    212.    179.
 614          UI    152.    134.    101.     82.     82.     80.     77.     77.     75.     47.
 615          UI     47.     47.     47.     47.     32.     14.     14.     14.     14.     14.
 616          UI     14.     14.     14.     14.     14.     14.     14.     14.     14.     14.
 617          UI     14.     14.      0.      0.      0.      0.      0.      0.      0.      0.
 618          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

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

 619          KK    1475
 620          HC       2

 621          KK  STRM56
 622          KM   THIS COMBINATION IS FOR MODELING PURPOSES ONLY, NO PHYSICAL BASIS
 623          HC       4
 624          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

          (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

  12       S2040
              .
              .
  25          .       S2050
              .           .
              .           .
  34        2051............
              .
              .
  36          .       S2070
              .           .
              .           .
  45       STRM1............
              .
              .
  48          .         S39
              .           .
              .           .
  68          .           .         S40
              .           .           .
              .           .           .
  77          .        CP41............
              .           V
              .           V
  80          .       RCP41
              .           .
              .           .
  86          .           .         S41
              .           .           .
              .           .           .
 102          .           A............
              .           .
              .           .
              .           .         S42
              .           .           .
              .           .           .
 115          .           .           .        S43
              .           .           .          .
              .           .           .          .
 124          .           .           .          .         S44
              .           .           .          .           .
              .           .           .          .           .
 136          .           .           .       CP45............
              .           .           .          V
              .           .           .          V
 139          .           .           .      RCP45
              .           .           .          .
              .           .           .          .
 145          .           .           .          .         S45
              .           .           .          .           .
              .           .           .          .           .
 153          .           .           .          B............
              .           .           .          .
              .           .           .          .
 156          .           .           .          .       S45A
              .           .           .          .           .
              .           .           .          .           .
 163          .           .           .          .           .         S46
              .           .           .          .           .           .
```

```
172          .          .          .       CP47.......................
             .          .          .          V
             .          .          .          V
175          .          .          .      RCP47
             .          .          .          .
             .          .          .          .
181          .          .          .          .         S47
             .          .          .          .           .
             .          .          .          .           .
191          .          .          .          C............
             .          .          .          .
             .          .          .          .
194          .       CP48........................
             .          V
             .          V
197          .      RCP48
             .          .
             .          .
203          .          .        S48
             .          .          .
             .          .          .
212          .          D............
             .          .
             .          .
215          .          .        S50
             .          .          .
             .          .          .
224          .       CP51............
             .          .
             .          .
227          .          .      S2000
             .          .          .
             .          .          .
239          .      STRM2............
             .          .
             .          .
242          .          .       S35N
             .          .          .
             .          .          .
             .          .          .       S16
             .          .          .          .
             .          .          .          .
281          .          .          .          .         S17
             .          .          .          .           .
             .          .          .          .           .
295          .          .          .          .           .         S18
             .          .          .          .           .           .
             .          .          .          .           .           .
306          .          .          .       C19A.......................
             .          .          .          V
             .          .          .          V
309          .          .          .       R19
             .          .          .          .
             .          .          .          .
315          .          .          .          .         S15
             .          .          .          .           .
             .          .          .          .           .
342          .          .          .       C19C............
             .          .          .          V
             .          .          .          V
345          .          .          .      RC19C
             .          .          .          .
             .          .          .          .
351          .          .          .          .         S19
             .          .          .          .           .
```

```
361          A............
364                     S20
374       C21............
            V
            V
377      RC21
383                     S21
397          B............
400                     S22
415                                 S23
430                     C24............
                          V
                          V
433                    RC24
439                                 S24
453                       C............
456                                 S25N
                                              S25S
490      STRM4.................................
493                    1380
                          V
                          V
507                   R1380
513                                 S1390N
526                   1390N............
528                                 1390S
545                                              1430
565                                                          1440
```

```
580                                                  1441............
583                                                                  1470
                                                                        V
                                                                        V
600                                                                  R1470
606                                                                                 S1475
619                                                                  1475............
621                                          STRM56.....................................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            SEPTEMBER 1990             *
*             VERSION 4.0               *
*                                       *
*   RUN DATE  06/14/1991  TIME  16:08:52 *
*                                       *
*****************************************
```

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

```
                    SCOTTSDALE ALLUVIAL FAN, ALL SUBBASINS
                    MAXIMUM BUILDOUT CONDITIONS
                    PHONIX MOUNTAIN AND PHOENIX VALLEY S-GRAPHS
                    2 YEAR 6 HOUR, MIXED PATTERN DSTRIBUTION
                    THE DISTRIBUTION PATTERNS WERE SELECTED ACCORDING TO
                    THE AREA BEHIND EACH APICES.
                    GREEN AND AMPT INFILTRATION EQUATION FOR SOIL LOSSES
                    CHANGED %IMPERVIOUS AREAS TO REFLECT FUTURE CONDITION
                    FCD 05/10/91 AA

 11 IO        OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT        HYDROGRAPH TIME DATA
                     NMIN          5  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1   0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      2   0  ENDING DATE
                   NDTIME       0055  ENDING TIME
                    ICENT         19  CENTURY MARK

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

         ENGLISH UNITS
              DRAINAGE AREA          SQUARE MILES
              PRECIPITATION DEPTH    INCHES
              LENGTH, ELEVATION      FEET
              FLOW                   CUBIC FEET PER SECOND
              STORAGE VOLUME         ACRE-FEET
              SURFACE AREA           ACRES
              TEMPERATURE            DEGREES FAHRENHEIT
```

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

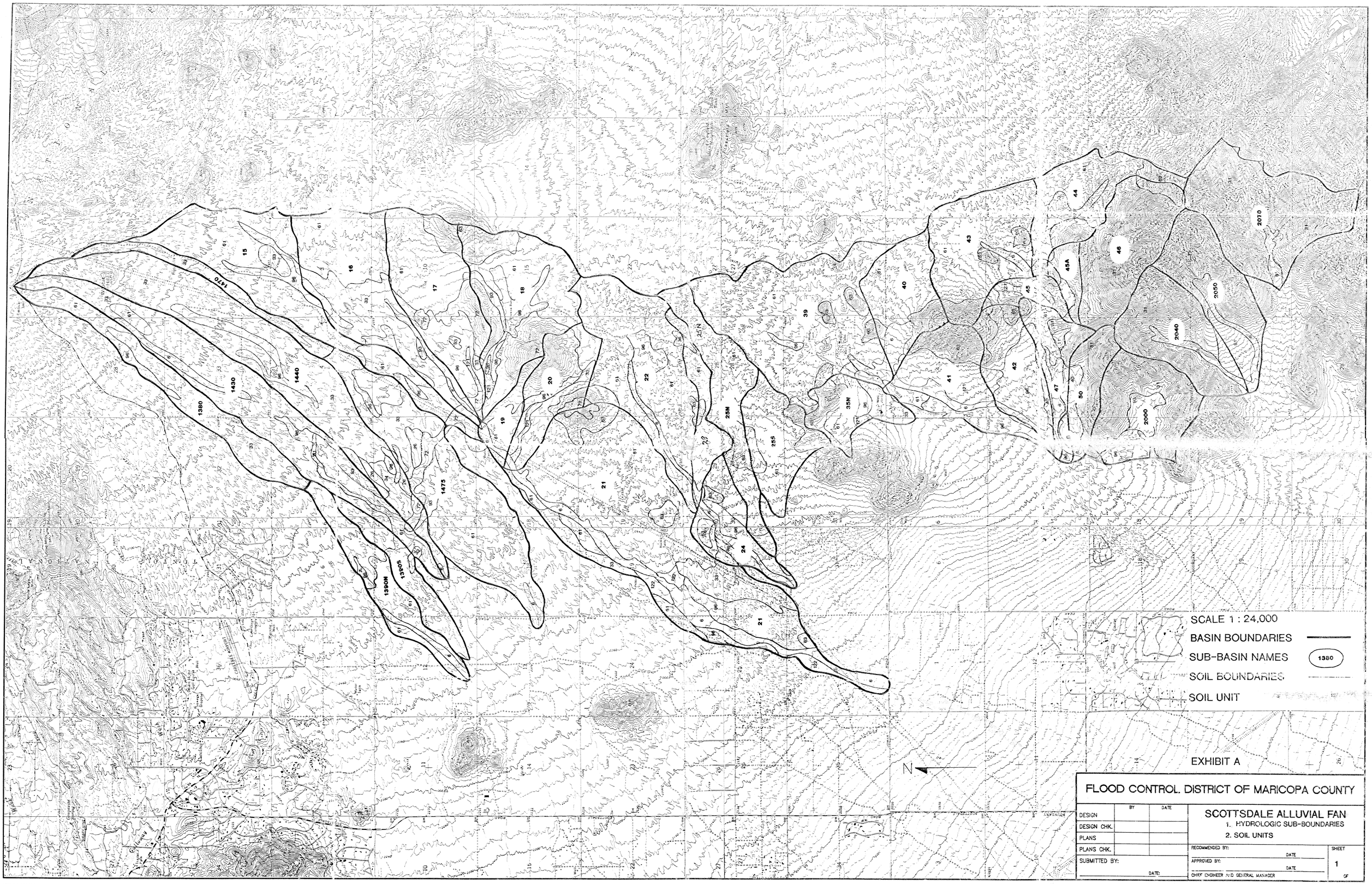
	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	S2040	142.	4.33	35.	9.	8.	.93		
+	HYDROGRAPH AT	S2050	114.	4.42	31.	8.	8.	.86		
+	2 COMBINED AT	2051	254.	4.33	65.	17.	16.	1.79		
+	HYDROGRAPH AT	S2070	227.	4.25	51.	13.	13.	1.46		
+	2 COMBINED AT	STRM1	478.	4.33	117.	30.	28.	3.25		
+	HYDROGRAPH AT	S39	219.	5.42	93.	26.	25.	1.93		
+	HYDROGRAPH AT	S40	56.	4.50	16.	4.	4.	.58		
+	2 COMBINED AT	CP41	242.	5.33	108.	30.	29.	2.51		
+	ROUTED TO	RCP41	237.	5.67	108.	30.	29.	2.51		
+									1.78	5.67
+	HYDROGRAPH AT	S41	43.	5.42	21.	6.	6.	.79		
+	2 COMBINED AT	A	278.	5.67	128.	36.	34.	3.31		
+	HYDROGRAPH AT	S42	107.	4.50	31.	8.	8.	.58		
+	HYDROGRAPH AT	S43	194.	4.42	47.	12.	11.	1.07		
+	HYDROGRAPH AT	S44	98.	4.83	30.	8.	7.	.84		
+	2 COMBINED AT	CP45	266.	4.50	76.	20.	19.	1.91		
+	ROUTED TO	RCP45	260.	4.58	76.	20.	19.	1.91		
+									1.88	4.58
+	HYDROGRAPH AT	S45	33.	4.25	9.	2.	2.	.20		
+	2 COMBINED AT	B	286.	4.58	84.	22.	21.	2.11		
	HYDROGRAPH AT									

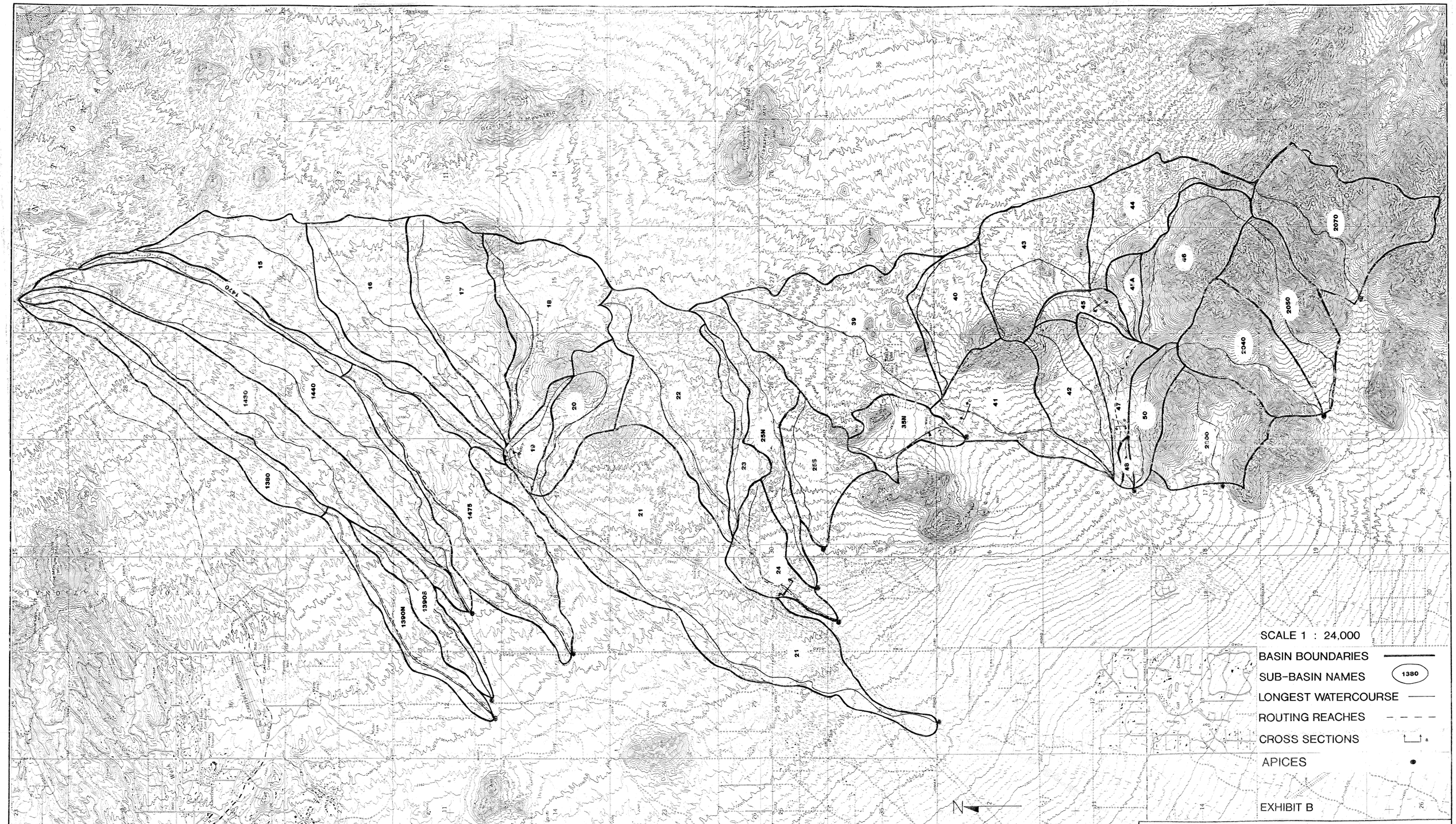
+		S45A	16.	4.17	4.	1.	1.	.17	
	HYDROGRAPH AT								
+		S46	124.	4.33	37.	9.	9.	.93	
	3 COMBINED AT								
+		CP47	407.	4.58	124.	32.	31.	3.21	
	ROUTED TO								
+		RCP47	392.	5.00	124.	32.	31.	3.21	
+									1.63 5.00
	HYDROGRAPH AT								
+		S47	52.	4.50	13.	3.	3.	.38	
	2 COMBINED AT								
+		C	425.	5.00	137.	36.	34.	3.58	
	3 COMBINED AT								
+		CP48	720.	5.08	292.	79.	76.	7.47	
	ROUTED TO								
+		RCP48	720.	5.08	292.	79.	76.	7.47	
+									1.90 5.08
	HYDROGRAPH AT								
+		S48	5.	4.50	1.	0.	0.	.04	
	2 COMBINED AT								
+		D	722.	5.08	293.	79.	76.	7.52	
	HYDROGRAPH AT								
+		S50	40.	4.42	12.	3.	3.	.36	
	2 COMBINED AT								
+		CP51	746.	5.08	304.	82.	79.	7.88	
	HYDROGRAPH AT								
+		S2000	109.	4.25	23.	6.	6.	.80	
	2 COMBINED AT								
+		STRM2	778.	5.00	326.	88.	85.	8.68	
	HYDROGRAPH AT								
+		S35N	157.	4.42	27.	7.	7.	.41	
	HYDROGRAPH AT								
+		S16	100.	6.17	51.	15.	15.	1.46	
	HYDROGRAPH AT								
+		S17	131.	5.08	49.	13.	13.	1.19	
	HYDROGRAPH AT								
+		S18	150.	4.67	38.	10.	9.	1.26	
	3 COMBINED AT								
+		C19A	290.	5.00	135.	38.	37.	3.91	
	ROUTED TO								
+		R19	289.	5.08	135.	38.	37.	3.91	
+									1.44 5.08
	HYDROGRAPH AT								
+		S15	78.	7.17	46.	15.	15.	1.37	
	2 COMBINED AT								

+		C19C	321.	5.08	179.	54.	52.	5.28	
	ROUTED TO								
+		RC19C	320.	5.17	179.	54.	52.	5.28	
+									1.42 5.17
	HYDROGRAPH AT								
+		S19	35.	4.50	10.	2.	2.	.19	
	2 COMBINED AT								
+		A	340.	5.17	187.	56.	54.	5.46	
	HYDROGRAPH AT								
+		S20	80.	4.58	20.	5.	5.	.57	
	2 COMBINED AT								
+		C21	400.	4.83	205.	61.	59.	6.03	
	ROUTED TO								
+		RC21	392.	5.83	203.	61.	59.	6.03	
+									1.57 5.83
	HYDROGRAPH AT								
+		S21	147.	5.17	64.	17.	17.	3.67	
	2 COMBINED AT								
+		B	503.	5.75	250.	78.	76.	9.70	
	HYDROGRAPH AT								
+		S22	187.	4.75	45.	11.	11.	1.39	
	HYDROGRAPH AT								
+		S23	35.	5.33	12.	3.	3.	.39	
	2 COMBINED AT								
+		C24	210.	4.75	57.	15.	14.	1.78	
	ROUTED TO								
+		RC24	185.	5.33	57.	15.	14.	1.78	
+									1.64 5.33
	HYDROGRAPH AT								
+		S24	27.	5.08	10.	3.	3.	.49	
	2 COMBINED AT								
+		C	208.	5.33	67.	17.	17.	2.27	
	HYDROGRAPH AT								
+		S25N	61.	6.00	28.	8.	8.	.78	
	HYDROGRAPH AT								
+		S25S	96.	4.75	26.	7.	6.	.63	
	4 COMBINED AT								
+		STRM4	763.	5.75	367.	111.	107.	13.38	
	HYDROGRAPH AT								
+		1380	109.	5.92	44.	11.	11.	.93	
	ROUTED TO								
+		R1380	101.	6.83	44.	11.	11.	.93	
+									.89 6.83
	HYDROGRAPH AT								
+		S1390N	43.	5.83	19.	5.	5.	.56	

	2 COMBINED AT								
+		1390N	128.	6.75	62.	16.	16.	1.49	
	HYDROGRAPH AT								
+		1390S	77.	5.75	26.	7.	6.	.43	
	HYDROGRAPH AT								
+		1430	87.	6.58	49.	13.	13.	1.43	
	HYDROGRAPH AT								
+		1440	168.	6.33	83.	22.	21.	1.89	
	2 COMBINED AT								
+		1441	252.	6.33	131.	36.	34.	3.32	
	HYDROGRAPH AT								
+		1470	43.	5.83	16.	4.	4.	.30	
	ROUTED TO								
+		R1470	39.	7.00	16.	4.	4.	.30	
+									.34 7.00
	HYDROGRAPH AT								
+		S1475	237.	5.83	102.	27.	26.	1.69	
	2 COMBINED AT								
+		1475	255.	5.83	117.	31.	30.	1.99	
	4 COMBINED AT								
+		STRM56	650.	6.17	336.	90.	86.	7.23	

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


SCALE 1 : 24,000
BASIN BOUNDARIES
SUB-BASIN NAMES
1350
SOIL BOUNDARIES
SOIL UNIT
N
EXHIBIT A
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
DESIGN
DESIGN CHK.
PLANS
PLANS CHK.
SUBMITTED BY:
DATE:
BY
DATE
SCOTTSDALE ALLUVIAL FAN
1. HYDROLOGIC SUB-BOUNDARIES
2. SOIL UNITS
RECOMMENDED BY:
DATE
APPROVED BY:
DATE
CHIEF ENGINEER AND GENERAL MANAGER
SHEET
1
OF



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

	BY	DATE
DESIGN		
DESIGN CHK.		
PLANS		
PLANS CHK.		
SUBMITTED BY:		DATE:

SCOTTSDALE ALLUVIAL FAN
1. LONGEST WATER COURSE
2. ROUTING REACHES
3. CROSS SECTIONS

RECOMMENDED BY: DATE
APPROVED BY: DATE
CHIEF ENGINEER AND GENERAL MANAGER

SHEET OF