JANUARY 2006

BUCKEYE/SUN VALLEY AREA DRAINAGE MASTER STUDY
TECHNICAL DATA NOTEBOOK

CONTRACT FCD 2002C027

VOLUME V-A1: AREA 3 HYDROLOGY REPORT

FINAL

PREPARED FOR

Flood Control District of Maricopa County

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Buckeye/Sun Valley Area Drainage Master Study

Contract FCD 2002C027

Technical Data Notebook

Volume V-A1: Area 3 Hydrology Report

2/8/2006

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1 Introduction

1.1 Purpose of the Study

The Flood Control District of Maricopa County (District) contracted with PBS&J to perform the Buckeye/Sun Valley Area Drainage Master Study (ADMS) to identify drainage, erosion, and sediment problems; evaluate existing floodplain delineations and delineate addition floodplains; identify a range of viable solutions; and develop preliminary development guidelines for the area. The ADMS encompasses 280 square miles and is divided into four distinct hydrologic study areas.

The purpose of this analysis is to develop hydrology for the Buckeye Structures Area (Area 3) which is the contributing watershed for the Buckeye Flood Retarding Structures (FRS) #1-3. The results will be used subsequently to obtain frequency-stage relationships for the FRSs. Another purpose of this study is to provide updated hydrologic models for both the existing and future conditions; specifically this study will update the current hydrologic study (Alpha Engineering, 1996). The updated hydrology will be used to determine existing and future drainage problems and to develop alternatives to mitigate those identified problems.

A subsequent study by Ayres Engineering indicated that the hydrologic results should be refined to reflect changes in alluvial fan apexes that would slightly affect the original results of this study. Since the original results had been used in the hydraulic analysis of Area 3 for both the Volume V-B: Area 3 Hydraulics Report and the PMF Report for Flood Retarding Structures, the original results have been moved to Appendix E in order to maintain the original data on which those studies were based. The body of this report and Appendix D contain the new hydrologic analysis with minor references to the old study. Appendices A, B, and C remain the same for both data sets.

1.2 Project Authorization

A notice to proceed (NTP) for this study was issued in June 2003 by the Flood Control District of Maricopa County (District). The FCD Contract Number for this project is 2002C027.

1.3 Location of Study

Area 3 covers all or part of sections in Township 1N to 3N, Range 3W to 5W, located in the Town of Buckeye, Arizona. A project location map is presented in Figure 1-1. Area 3 is bounded on the south by I-10, and is located between the White Tank Mountains and the Hassayampa River.

1.4 Methodology Used for Hydrology and Hydraulics

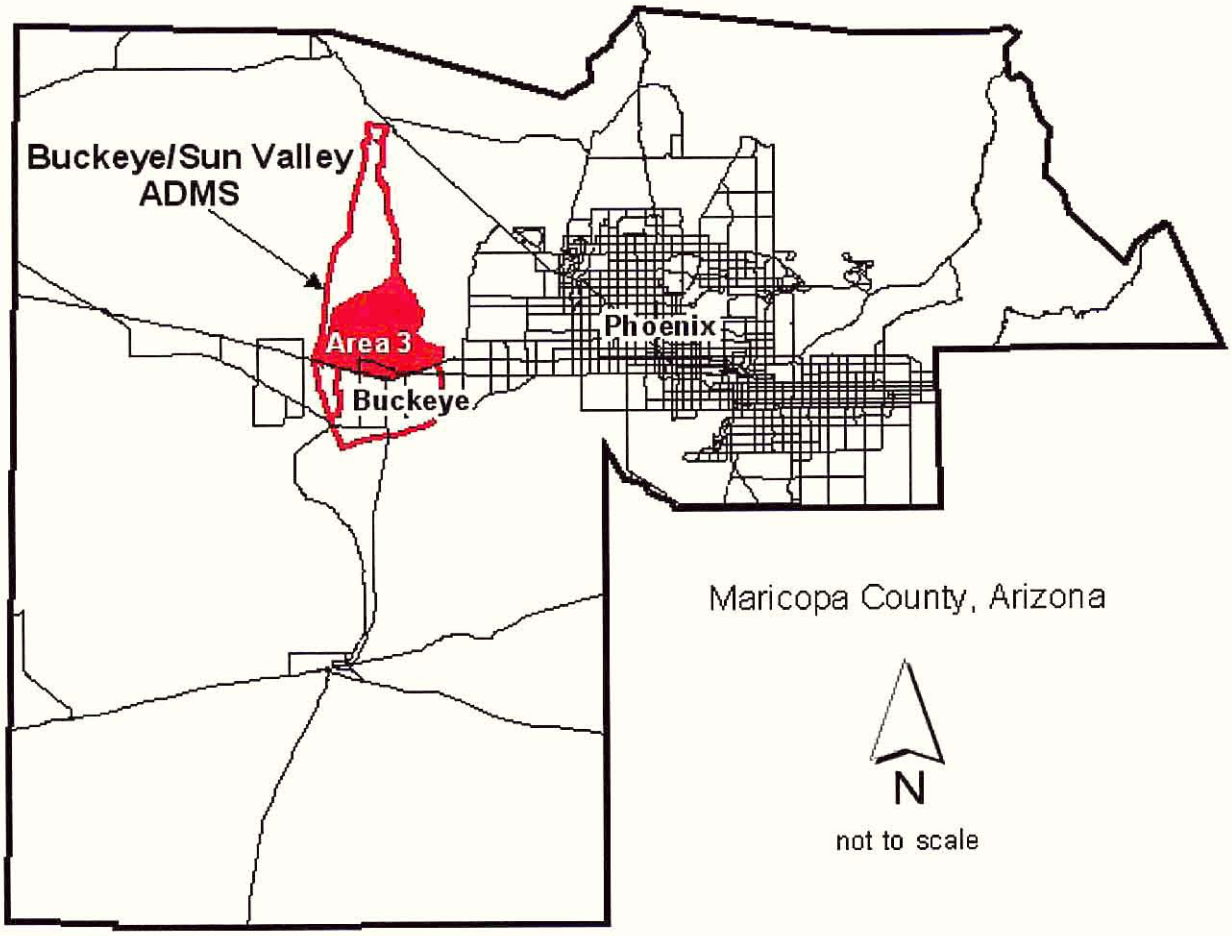
The previous hydrology model of the area (Alpha, 1996) was used as a basis for and comparison to the results produced in this study. HEC-1 (Version 4.0, 1991) embedded in WMS version 7.0 (September, 2003) was used to model the hydrologic response of the watershed for nine existing

storm events ranging from the 10-year, 6-hour storm to the 100-year, 10-day storm. The HEC-1 parameters were determined using the methods described in the Drainage Design Manual for Maricopa County, Arizona, Volume I, Hydrology, hereinafter referred to as the Hydrology Manual (Sabol et al., 1995) and adjusted based on field visits and aerial photography.

The unsteady flow module of HEC-RAS version 3.1.1 (May, 2003) was used to model the hydraulic response of the three FRSs for all of the various storm events. The HEC-RAS model parameters were determined using the methods described in the Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics, hereinafter referred to as the Hydraulics Manual (Sabol et al., 1995).

Figure 1-1

Buckeye Area 3 ADMS Vicinity Map



1.5 Alluvial Fan Apex Hydrologic Analysis

After the PBS&J Area 3 Hydrology had been reviewed and accepted by the District, multiple alluvial fans were identified in the Final Report Geomorphic Evaluation and Landform Stability Assessment for Buckeye/Sun Valley Area Drainage Master Study, William Spitz, Ayres and Associates, May 2005. The district contracted with PBS&J to perform additional hydrologic analyses, which included relocation of concentration points and further subdivision of sub-basins in order to obtain discharges at the location of the fan apexes. The 100-yr 6-hr, 100-yr 24-hr, 10-yr 6-hr, and 10-yr 24-hr existing conditions HEC-1 models were modified and rerun. Table 1-1 gives a summary of the concentration points or sub-basin boundaries that were modified due to the locations of the fan apexes. Figure 1-2 shows the location of the sub-basin boundaries, concentration points, and fan apexes.

Table 1-1

Summary of Fan Apex Hydrology

Fan Apex ID	Comment
1	No changes necessary.
2	No changes necessary.
3	No changes necessary.
4	The concentration point for sub-basin B1 was moved west to the apex of alluvial fan #4. Sub-basin A2 was split in half and labeled A2A and A2B. The runoff for sub-basin A2A combines with sub-basin B1 at alluvial fan #4 and then is routed through sub-basin B2. Some of the runoff in the alluvial fan region could be diverted to sub-basin A2B, however, the magnitude of the diversion was not determined and not included in the HEC-1 model.
5	The concentration point for sub-basin C1 was shifted to the west to the apex of alluvial fan #5.
6	Sub-basin E2 was split into three basin from north to south with the middle basin's concentration point (E2B) located on the fan. Sub-basin E2A on the north and E2C on the south does not contribute to alluvial fan #6. The sub-basin boundary was moved south as shown in Figure 1-2.
7	The concentration point for sub-basin M1 was shifted to the west to the apex of alluvial fan #36.
8	Sub-basin P1 was split into two basins from north to south. The north basin's (P1A) concentration point was located at the apex of alluvial fan #8.
8	No changes necessary.
10	No changes necessary.
11	No changes necessary.

12	Sub-basin Q1 was split into two basins from north to south. The north basin's (Q1A) concentration point was located at the apex of alluvial fan #12. The runoff is routed through sub-basin Q1B, however, some flow may be diverted through sub-basin P1B. The magnitude of the diversion was not determined and not included in the HEC-1 model.
13	No changes necessary.
14	No changes necessary.
15	No changes necessary.
16	No changes necessary.
36	The concentration point for sub-basin M1 was shifted to the west to the apex of alluvial fan #36.
37	Sub-basin L2 was split into four basins from east to west. The east basin's (L2A) concentration point in located at the apex of alluvial fan #38, and the runoff is routed through sub-basin K2B.
38	Sub-basin K2 was split into two basins from east to west. The east basin's (K2A) concentration point is located at the apex of alluvial fan #38, and the runoff is routed through sub-basin K2B.
39	The concentration point for sub-basin F1 was shifted to the west to the apex of alluvial fan #39. The runoff is routed through sub-basin F2, however, some flow may be diverted through sub-basin H1. The magnitude of the diversion was not determined and not included in the HEC-1 model.
Skyline East Tributary	No changes necessary.
Skyline Wash Fan	The concentration point for sub-basin W1 is already located near the alluvial fan at Skyline Wash and no changes wre incorporated for this location.

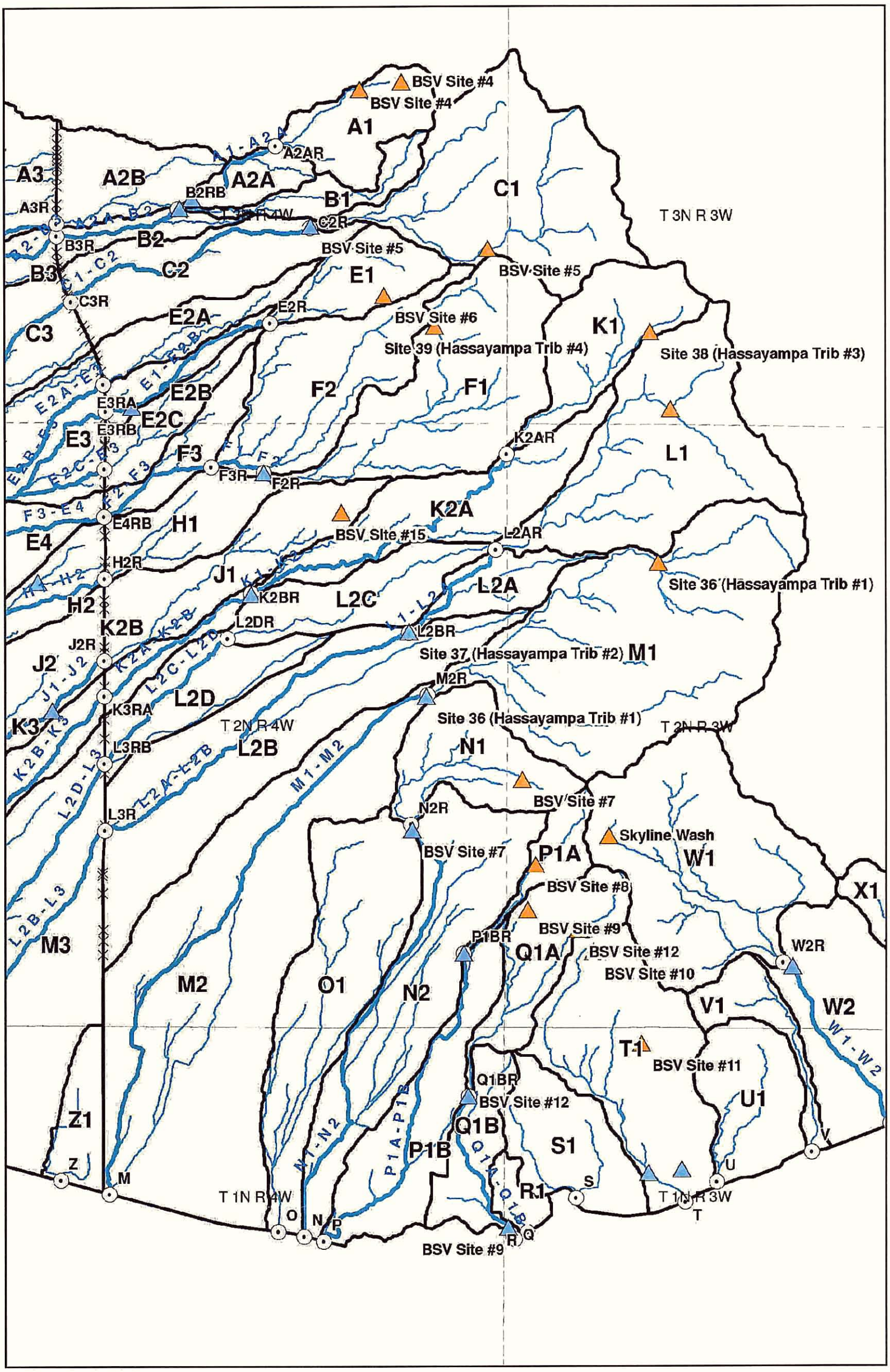


Figure 1-2
Fan Apex Locations

1.6 Acknowledgements

Ms. Valerie Swick, CFM (Project Manager, Flood Control District of Maricopa County) and Mr. Amir Motamedi, P.E. (Supervisor, Regulatory Division, Flood Control District of Maricopa County) provided guidance during the course of study. Mr. Tom Renckly, P.E. (Structures Management Branch Engineer, Planning and Project Management Division) commented on hydrologic issues related to the FRSs. Dr. Bing Zhao, P.E. (Engineering Application Development Branch Manager, Engineering Division, Flood Control District of Maricopa County) and Ms. Julie Cox (Hydrologist, Engineering Division, Flood Control District of Maricopa County) provided advice on technical issues and other suggestions. Ms. Laurie Miller, P.E. (LTM Engineering) provided thoroughly reading-proof review and valuable comments for the report. Mr. Joe Blanton (Town Manager, Town of Buckeye) provided assistance in historical flooding records. Mr. Hernan Aristizabal (P.E., Project Manager, Entellus) provided technical assistance for the 100-year 10-day hydrograph calculation.

1.7 Brief Description of Study Results

The results of the original and latest Area 3 hydrology study indicate the 100-year 24-hour storm event peak flows and runoff volumes are generally larger compared to the 100-year 6-hour storm event.

For the original study's future condition hydrologic analysis, peak discharges and runoff volumes generated from the sub-basins are effectively attenuated by the assumed retention basins (see Section 4.3.1.5) in storm events less than 100-year recurrence frequency. For the 100-year storm event, the retention basins still function; however, a 10 to 15% increase of peak discharge and runoff volume is observed.

A statistical analysis was conducted for all the storm events using data from Table 4-5a & b, Peak Flows Summary for Buckeye Area 3. The results indicate that the 200-year storm event generates flows on average 20% higher than the 100-year storm event; the 500-year storm event generates flows on average 45% higher than the 100-year storm event; and the PMP 6-hour storm, which for this analysis always produces higher peak flow than the PMP 72-hour storm, generates flows about 5 times that of the 100-year storm.

2 Flood Control District of Maricopa County Abstract

2.1 General Information

2.1.1 Community Name

The Town of Buckeye, Arizona and unincorporated areas of Maricopa County.

2.1.2 Community Number

040037

2.1.3 County

Maricopa

2.1.4 State

Arizona

2.1.5 Date Study Accepted

N/A

2.1.6 Study Contractor

PBS&J, 7310 N. 16th Street, Suite 310, Phoenix, Arizona, 85020.

Technical contact: Stephen W. Rogers, P.E., CFM

2.1.7 State Technical Reviewer

N/A

2.1.8 Local Technical Reviewer

Flood Control District of Maricopa County

2.1.9 River or Stream Name

Hassayampa River and White Tank Wash.

2.1.10 Reach Description

The Buckeye FRSs were designed and constructed by the SCS in the 1970s and have a combined contributing drainage area of 90 mi^2. The three FRSs were designed to function as a single system with the detained flows cascading west to the outfall at the Hassayampa River. The structures were designed to provide protection from storms up to the one percent exceedance level. Ungated low level outlets serve as principal spillways releasing runoff to the west. Free surface emergency spillways were provided for each FRS to control discharge for storms in excess of a storm event equivalent to "74% of the 100-year storm plus 26% of the probable maximum flood (PMF)". The dam crest, or "emergency spillway freeboard", was designed to contain the PMF without overtopping (SCS, 1985; Arizona Water Commission, 1979). The principal outlet discharges are routed to each downstream FRS through Buckeye Floodways #2 and #3. Emergency spillway discharges do not cascade to other FRSs but flow generally to the south through the Town of Buckeye toward the Gila River.

2.1.11 Study Type

Detailed hydrology.

2.2 Mapping Information

2.2.1 USGS Quad Sheets

N/A

2.2.2 Mapping for Hydrology Study

Ten-foot contour derived from 50-foot mass points and breaklines digital elevation model (DEM) and one-foot resolution Mr. SID format orthophotography provided by the District in year of 2003 are used as the base mapping for Area 3 hydrology study.

2.2.3 Mapping for Hydraulics Study

Two-foot contour derived from 50-foot mass points and breaklines digital elevation model (DEM) and one-foot resolution Mr. SID format orthophotography provided by the District in year of 2003 are used as the base mapping for Area 3 hydraulics study.

2.3 Hydrology

2.3.1 Model or Method Used

The methodologies for this study included Green & Ampt rainfall/runoff losses with S-graph unit hydrographs and normal depth routing using 8-point cross sections.

2.3.2 Storm Frequency and Duration

For existing conditions, the following storm frequencies and durations were updated by PBS&J in July 2005:

- 10-year 6-hour
- 10-year 24-hour
- 100-year 6-hour
- 100-year 24-hour

For both existing and future conditions, the following storm frequencies and durations were modeled by PBS&J in July 2004:

- 10-year 6-hour
- 10-year 24-hour
- 100-year 6-hour
- 100-year 24-hour
- 200-year 24-hour
- 500-year 24-hour
- 100-year 10-day
- PMP 6-hour
- PMP 24-hour

2.3.3 Hydrograph Type

S-graphs (Phoenix Mountain and Desert/Rangeland) developed for Maricopa County.

2.3.4 List of Gages used in Frequency Analysis or Calibration

N/A

2.3.5 Rainfall Amounts and Reference

The rainfall amounts were derived from the NOAA Atlas 2 isopluvial maps as provided in the Hydrology Manual for events up to the 100-year return frequency storm. The rainfall depths are presented in Table 4-1.

2.3.6 Unique Conditions and Problems

Special problems encountered in the course of study are discussed in subsequent sections, including:

- Flow splits and diversions among sub-basins
- Reduced conveyance capacity of the culverts along the Sun Valley Parkway due to excessive sedimentation
- Unit hydrograph K_n-values for desert/rangeland

- Future condition assumptions used for hydrology modeling

2.3.7 Coordination of Q's

The hydrologic models were submitted for review by Ms. Cox in July 2005.

2.4 Hydraulics

2.4.1 Model or Method Used

The unsteady flow module established in HEC-RAS (version 3.1.1) developed by the Corps of Engineers (May 2003). Refer to Volume V-B: Area 3 Hydraulics Report for all information regarding hydraulics.

2.4.2 Regime

The flow regime in the unsteady hydraulic model is assumed subcritical for all reaches.

2.4.3 Frequencies for which Profiles were Computed

For existing and future conditions, the following storm frequencies and durations were used:

- 10-year 6-hour
- 10-year 24-hour
- 100-year 6-hour
- 100-year 24-hour
- 200-year 24-hour
- 500-year 24-hour
- 100-year 10-day
- PMP 6-hour
- PMP 24-hour

2.4.4 Method of Floodway Calculation

N/A

2.4.5 Unique Conditions and Problems

Special problems encountered in the course of study are discussed in subsequent sections, including:

- Comparison of the level pool routing with unsteady hydraulic model results
- Modeling of roadways transverse to the FRS structure
- Modeling of the emergency spillways and dam crest for overtopping
- Development of suitable rating curves

2.5 Additional Study Information

N/A

3 Mapping and Survey Information

3.1 Field Survey Information

The first field investigation was conducted on June 20, 2003 to scope out the critical points of the watershed and to identify problematic areas. The first investigation was conducted on November 11 and 12, 2003 after the sub-basin boundaries were delineated and the physical parameters for each basin were set. Major culverts along the Sun Valley Parkway were surveyed and measured. The results show that as much as 50% of the culvert conveyance area is blocked by sediments accumulated upstream, downstream, and within the culverts (Table C-1, Appendix C). The sediments are mostly sand and gravel with some cobbles. Many of the culverts are also obstructed by dense weeds, brush, and trees. Many of the trees are mature and much taller than the culvert (Appendix C, Picture #1 - #47). All of these factors will cumulatively decrease the culvert conveyance capacity and impair its hydraulic function. Boundaries between sub-basins were surveyed and no visible evidence of diversion was found (Appendix C, Picture #48- #60).

The second investigation was conducted on November 18, 2003 for channel routings. Only routing channels which were significantly different from that of the previous study (Alpha, 1996) were investigated, which included a typical 8-point cross section measurement and estimation of Manning's "*n*" for left overbank (LOB), Main channel, and right overbank (ROB) (Appendix C, Picture #61-#75). The results of the routing channel measurements are summarized in Tables D.3-1 and D.3-2 in Appendix D. These data were used for basin lag time calculations.

3.2 Mapping

New mapping for Buckeye Areas 1 and 2 and the southern boundary of Area 3 (the three FRSs) was prepared for the District by Kenney Areal Mapping, Inc. in 2003. The new mapping provided 2-foot contour data, which are much more accurate than the USGS 7.5 digital elevation model (DEM).

Areal photography was flown in December 2002 as part of the District's ongoing effort to maintain current areal photography for the entire county. The areal photography for the study area is 2003 1-foot resolution orthophotography in Mr. SID format.

Mapping for the entire study area was prepared for the District by LandData Inc. in 2000. This mapping was prepared with 10-foot grid data derived from 50-foot mass points and break lines, and provides 10-foot contour elevations.

The District has some older strip mapping of the Buckeye FRSs survey prepared by McLain Harbers Co., Inc. in 1995. This strip mapping was 2-foot contour mapping.

The projected coordinates of State Plane NAD 1983, Arizona Central are used as the horizontal datum and the projected coordinates of NAVD 1988 are used as the vertical datum for all of the mapping.

4 Hydrology

4.1 Method Description

The hydrologic responses of Area 3 to the various storm events were simulated using the modified U.S. Army Corps of Engineers HEC-1 (June 1998) computer program embedded in WMS 7.0 (September, 2003). The HEC-1 parameters were determined using the methods described in the Hydrology Manual. The computational interval used to determine the unit hydrograph for each sub-basin is 5 minutes.

4.2 Parameter Estimation

This section includes a complete description of the methodology and calculations used to develop the hydrology.

4.2.1 Drainage Area Boundaries

Area 3 of the Buckeye/Sun Valley ADMS is defined as the area that drains to the Buckeye FRSs. The area begins at the west side of the White Tank Mountains and is approximately 90 square miles. The water flows in a south to southwest direction toward the Buckeye FRSs.

The three structures were designed for a 100-year event and drain west toward the Hassayampa River. Currently, this watershed is natural desert with several identified alluvial fans. A number of master planned communities are planned within this area. Sub-basins A through C do not contribute to the Buckeye FRSs, but are included in Area 3 hydrology for consistency in the updating of Alpha's study (1996). Figure 4-1 (Pocket) shows the drainage area boundaries, major sub-basin boundaries, and concentration points for existing future conditions.

4.2.2 Watershed Work Maps

The watershed work maps include:

- General watershed work map with the aerial photography and contour lines as background (Figure 4-1, in Pocket);
- HEC-1 schematic map (Figures 4-2 for existing conditions, in Pocket);
- Drainage basin map showing lag flow paths, and routing reaches (Figure 4-3, in Pocket);
- Soil map (Figure 4-4, in Pocket);
- Land use maps (Figures 4-5 for existing conditions, in Pocket);
- Flow maps including the drainage basin map with lag time paths (Figures 4-6, for existing conditions, in Pocket).

4.2.3 Gage Data

There are no existing precipitation gages or stage gages within the study watershed. There are precipitation and reservoir pool gages at the downstream end of the watershed at each of the three FRSs. There is also a weather station located in the Hassayampa River at the I-10 bridge.

4.2.4 Statistical Parameters

The statistical parameters such as rainfall depths and rainfall distributions for all design storms are based on the data provided in the Hydrology Manual.

4.2.5 Precipitation

4.2.5.1 Rainfall Depths

The NOAA Atlas 2 data set is used for point rainfall amounts in this study. The NOAA Atlas 14 data set is available for use; however, it has not been accepted to date by the District. For the same storm event, rainfall depths in NOAA 14 are approximately 15 to 25% less than that in NOAA 2.

The point rainfall depths for less than and equal to 100-year, 24-hour storm events are obtained from the isopluvial maps in the Hydrology Manual. The point rainfall depths presented in the following Table 4-1 are area-weighted based on the watershed contributing to each FRS respectively.

Table 4-1
Summary of Rainfall Depths for Area 3

Storm Event	FRS 1	FRS 2	FRS 3
	Depth [in]	Depth [in]	Depth [in]
10-yr, 6-hr	2.08	2.07	2.07
10-yr, 24-hr	2.62	2.56	2.58
100-yr, 6-hr	3.23	3.28	3.26
100-yr, 24-hr	4.16	4.13	4.14

Note: All values are area-weighted point rainfall depths.

The point rainfall depths are adjusted by aerial reduction factors (JD records) to develop the rainfall depths to be entered into the combined HEC-1 model by using the PC records. The aerial reduction factors are based on the Hydrology Manual as presented in JD records of HEC-1 input files (Appendix D.6).

4.2.5.2 Rainfall Distributions

Both the 6-hour and 24-hour rainfall distributions are based on the Hydrology Manual. The 24-hour rainfall distribution is the SCS Type II distribution for each sub-basin. The 6-hour rainfall distributions vary with the size of the sub-basin (distribution patterns were obtained from the

Maricopa County Rainfall Distribution module in WMS 7.0). This is different from Alpha's study (1996), which used one rainfall distribution pattern based on the entire Area 3 drainage area for the 100-year 6-hour storm. The values of rainfall distributions can be found in the final HEC-1 models (Appendix D.6).

4.2.6 Physical Parameters

This section describes the methods used for estimation of the physical hydrologic parameters such as rainfall losses, the unit hydrograph, and lag time for the desert/rangeland type terrain drainage area.

4.2.6.1 Rainfall Losses

The Green-Ampt procedure is used to compute rainfall losses in accordance with the Hydrology Manual. The digital soil file and land use files (both in GIS shape file format) for the study area were provided by the District. The digital soil file corresponds to SCS soil maps (Camp, 1986). The GIS land use shape file is based on published digital GIS land use maps (MAG, 2000), the most current land use information. Figures 4-4 and 4-5 describe the soils and land use, respectively. An apparent discrepancy for the same soil texture located in the vicinity of Township 1N in Area 3 (Figure 4-4) is due to two separate soil survey results. An average value from the two soil survey map units is used for this study.

The GIS land use shape files and soil files are imported into WMS 7.0. Two additional attribute tables (one for soil and another for land use, Tables D.2-1 and D.2-2) are imported into WMS 7.0 for the Green-Ampt rainfall loss parameter estimation. The attribute tables for the land use types can be found in Appendix D.2.

The Green-Ampt rainfall loss parameters used in the HEC-1 input files (Appendix D.6) can be found in Tables D.2-3 and D.2-4 for existing and future conditions, respectively. For future conditions, the Green-Ampt parameters are estimated based upon variations of land use types according to conceptual community plans within the study area. This study assumes that the Green & Ampt loss parameters do not change with storm return frequencies.

Five major land uses are identified for the watershed, which are vacant, estate residential (1/5 dwelling per acre to 1 dwelling per acre), rural residential (<1/5 dwelling per acre), large lot residential/single family (1 dwelling per acre to 2 dwellings per acre), and water (MAG, 2000). The surface retention losses, percent impervious, and vegetation cover for each land use type are estimated based on the Hydrology Manual and MAG (2000). The values of these parameters are shown in Table 4-2, which is a subset of Table D.2-1a in Appendix D.2.

Table 4-2
Land Use Surface Retention Losses, Percent Impervious, and Vegetation Cover

Land Uses	Surface Retention Losses: IA (inch)	Percent Impervious RTIMP (%)	Vegetation Cover (%)
Vacant	0.4	0.0	25.0
Estate Residential	0.3	5.0	30.0
Rural Residential	0.3	5.0	30.0
Large Lot Residential/Single Family	0.3	15.0	50.0
Water	0.0	100.0	100.0

4.2.6.2 Unit Hydrograph

The Maricopa County S-Graph method is used to compute unit hydrographs in accordance with the Hydrology Manual, because for routing rainfall excess in Maricopa County, the recommended procedures are either the Clark Unit Hydrograph or the application of selected S-graphs; the Clark Unit Hydrograph procedure is more appropriate for watersheds less than about 5 square miles in size with an upper limit of application of 10 square miles and is preferred for urban watersheds, while the Area 3 watershed is approximately 90 square miles and is characterized as desert/agriculture land type; and S-graph method was used in Alpha's study (1996).

The Phoenix Mountain and Desert/Rangeland S-Graphs are used to compute the unit hydrographs. Alpha (1996) used Phoenix Valley S-graph for desert area because the Desert S-Graph was still under development. The unit hydrographs are computed by using WMS 7.0. The unit hydrograph can be found in the UI record in the HEC-1 input files (see Appendix D.6).

4.2.6.3 Lag Time

Lag time must be estimated before S-Graph unit hydrographs can be computed. Four parameters must be computed to estimate the lag time for each sub-basin. These four parameters are the longest watercourse length measured from the concentration point to a most hydraulically upstream point (L), the slope for the longest watercourse (S), the length from the concentration point along the longest watercourse to a point opposite the centroid (L_{ca}), and the basin roughness (K_n).

The first three parameters (L, L_{ca}, and S) are automatically computed in WMS 7.0. Some L_{ca}-values were adjusted based on engineering judgment since the WMS program could not correctly locate the point opposite the centroid for several sub-basins with meandering flow paths. In this case, half of L length was used for L_{ca}. The basin roughness is a composite Manning's *n* value for all the channels in the sub-basins. An appropriate basin roughness value is determined for each sub-basin based on field observation, areal photographs, soil maps, and land use maps. Lag time for each basin is calculated by using the formula in the Hydrology Manual. The parameters for lag time calculation are summarized in Table D.2-5 (Appendix D.2).

Since Desert/Rangeland S-graphs are used for gently sloping natural areas, the K_n-value range is 0.02 to 0.03 as shown in Table 5-4 in the Hydrology Manual. However, based upon our field survey, we determined a range of 0.04 to 0.06 according to the base material, vegetation, obstruction, and irregularity in the basins. The selection of K_n values is in agreement with studies conducted at similar surface geographic watersheds (Zhao, 2003).

As the Hydrology Manual notes, "some adjustment in K_n should be made for use with rainfalls of different magnitudes (frequencies)." We agree that K_n should be adjusted for storms with different return frequencies in the study since the study storm events vary from 10-year, 6-hour to the PMP 72-hour. However, no quantitative adjustment factors are available. Therefore, no adjustment is made to K_n -value for different storm events.

4.2.6.4 Channel Routing Path Parameters

The normal depth channel routing in HEC-1 is used to route runoff hydrographs through sub-basins. The routing paths for the drainage area can be found in Figure 4-2 (pocket).

The channel routing parameters include NSTPS (the number of sub-reaches to be divided for the routing reach by HEC-1), initial outflow, Manning's n-values for left overbank (LOB), main channel, and right overbank (ROB), reach length, bed slope for the routing reach, and an eight-point cross section (RX-RY data). The initial outflow is set as the initial inflow, which is usually zero (0) cfs, implying a dry channel when routing starts. The eight-point cross section data was obtained from field surveys (See Appendix C survey notes). The reach length and channel bed slope are automatically computed by WMS 7.0. The estimation of Manning's n-value is based on field trips, aerial photo, land use maps, and soil maps using the procedures in USGS technical report: Estimated Manning's Roughness Coefficients for Stream Channels and Floodplains in Maricopa County, Arizona (USGS, 1991). NSTEPS values for routing reaches are calculated by an iterative process in WMS 7.0. All channel routing parameters are summarized in Tables D.3-1 through D.3-3 in Appendix D.3.

It is noted that several routing channels from field survey measurements are incapable of conveying peak discharges above the 100-year event (especially routing channels along the Sun Valley Parkway). This is because (1) there is really more than one routing channel per basin to convey the upstream discharges; (2) the routing channels are poorly-defined, and most of the flows are conveyed in the overbanks; and (3) the geological surface for the entire basin is flat. In those cases, the routing channel cross-sections are expanded according to the aerial photos and DEM data.

4.3 Problems Encountered During the Study

4.3.1 Special Problems and Solutions

Several issues have already been proposed and discussed in the previous sections, such as unit hydrographs and basin roughness K_n-values. This section covers additional issues encountered during the study. The next two sections are in Appendix E.

4.3.1.1 Time Interval for Rainfall

Previous hydrologic studies used a 30-minute interval for rainfall distributions, such as Alpha's (1996). In WMS 7.0, the Maricopa County Rainfall Distribution uses a 15-minute interval that gives better linear interpolations than the 30-minute interval. However, the peak discharge results from the 15-minute interval are typically 10% higher than the 30-minute interval provided that all other parameters are kept the same. A comparison was conducted for basins A through C as presented in Table E.6-1 (Appendix E.6). This 10% difference should be considered in verification or comparison with other studies and sources.

4.3.1.2 Phoenix Valley and Desert/Rangeland S-graphs

As mentioned in Section 4.2.6.2, Alpha (1996) used the Phoenix Valley S-Graph for natural desert rangelands because the Desert/Rangeland S-Graph was under development at that time. A comparison between Phoenix Valley and Desert S-Graphs was conducted for sub-basins A through C with all other parameters the same. The peak discharge results are summarized in Table E.6-2 (Appendix E.6). The Phoenix Valley S-Graph appears to provide a 0~23% greater discharge compared to the Desert/Rangeland S-Graph for the same basin.

4.3.1.3 Culvert Conveyance Capabilities along the Sun Valley Parkway

Field surveys were conducted for major culverts along the Sun Valley Parkway in Area 3. The results show that up to 50% of the culvert conveyance area is blocked by sediments accumulated upstream, downstream, and within the culvert (Appendix C, Table C-1). The sediments are mostly sand and gravel with some cobbles. Many of the culverts are obstructed by dense weeds, brush and trees. Many of the trees are mature and much taller than the culvert (Appendix C). All of these factors will cumulatively decrease culvert conveyance capacity and impair its hydraulic functions.

The culverts were designed to convey 100-year storm discharges (Collar Williams and White, 1987). It is unlikely the culverts in their current condition can convey their design capacities. This study updated Alpha's (1996) culvert capacity verification by field measured data. The field measured data included culvert effective rise and span and estimation of upstream and downstream Manning's n-values (USGS, 1991). These values were input into HY8 version 6.1 (FHWA, 1985) together with as-built Sun Valley Parkway roadway profiles and hydrologic results for each sub-basin from WMS 7.0 (this study). The results indicate the Sun Valley Parkway will be overtopped at the 100-year storm event due to the reduction of the culvert discharge capacity by sediments and higher roughness of the dense brush and trees (Table C-1). Without regular maintenance, the culvert discharge capacities will continue to be reduced, and the Sun Valley Parkway will be overtopped at lower-frequency storm events. Regular maintenance should include removal of existing obstructions such as sediments, trees, and bushes around the culverts.

4.3.1.4 Flow Diversions

Flow diversions along the Sun Valley Parkway sub-basins are minimal. Diversion as used in this study is defined as all or a portion of the flow in one sub-basin diverting to the adjacent sub-basin across a common boundary with or without overtopping the Sun Valley Parkway when the culvert in that basin is incapable of conveying the flow to its downstream routing basin. Thus, the diversion can only occur when the roadway profile is at least as high as the sub-basin boundaries. Most of the Sun Valley Parkway road profiles are in fact lower than that of the sub-basin boundaries; therefore, overtopping of the Sun Valley Parkway occurs first if the culvert capacity is inadequate to convey the discharge. For those segments where the Sun Valley Parkway road profiles are higher than the sub-basin boundaries, the diversion may occur prior to overtopping the Sun Valley Parkway. However, field survey indicated there is no apparent evidence of flow diversion across the basin boundaries (Appendix C). Also, Alpha's hydrologic analyses (1996) indicated no diversion occurred for 100-year 6-hour storm event in Area 3; and there was only one diversion that occurred in a 100-year 24-hour event. Out of a total flow of 3,084 cfs produced within Sub-basin F2, 490 cfs was diverted from Sub-basin F2 to H1 when the flow exceeded the culvert capacity. Therefore in this study, flow diversion from basin to basin is negligible and not considered in hydrologic modeling.

4.3.2 Model Warning and Error Messages

No error messages are present in the computer model output files. There are several warning messages about the channel routing, including the following:

```
*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR
OUTFLOWS BETWEEN     2617. TO 3974.

                  THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR
OUTFLOWS GREATER THAN PEAK INFLOWS.

                  THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR
INCREASING STORAGE (USE A LONGER REACH.)
```

A test was conducted by decreasing NSTEPS until the warning message disappeared. Since the "modified puls" routing method was not used, and there is less than 3% difference in peak discharge after the NSTEPS was changed, this type of warning is ignored.

4.4 Calibration

No calibration is performed because there is no gage station within the watershed. However, verification is performed (see Section 4.5.2, this report).

4.5 Final Results

4.5.1 Hydrologic Analysis Results

The results for Buckeye Area 3 hydrology were obtained using the 1998 revision of HEC-1 (version 4.1) embedded in WMS 7.0. All events are shown in Table 4-1. The peak discharges and times-to-peak at all of the concentration points within Area 3 are shown in Table 4-5a and 4-5b for existing and future conditions, respectively. The runoff volumes for the various storm events at the concentration points along the FRSs are shown in Table 4-6 for existing conditions.

The higher of the two peak discharges from the 100-year, 24-hour and 100-year, 6-hour storms is considered the critical peak discharge and should be used for floodplain delineation studies. As shown in Table 4-5a & b, the peak flows for the 100-year, 24-hour storm are larger at most downstream outlets than that for the 100-year, 6-hour storm. Therefore, the 100-year 24-hour results should be used for floodplain delineation studies. In general, for Area 3, if the drainage area is less than 1 square mile, peak flow in a 6-hour duration is higher than that in a 24-hour duration for the same return frequency. For larger drainage areas, the peak flow in a 24-hour duration is higher.

The FRS was originally designed to protect farmlands and the Town of Buckeye from the 100-year flood; consequently the storage pool was intended to contain the runoff volume from the 100-year storm event. As can be seen in Table 4-6, the runoff volumes generated from the 100-year 24-hour storm at most downstream outlets to the FRS are larger than that of the 6-hour storm. Therefore, the 100-year 24-hour results should be used to evaluate the adequacy of existing FRS storage volumes.

The peak discharge hydrographs from all the events were used as inputs for the unsteady hydraulic model of the Buckeye FRSs to develop a frequency-stage relationship (Volume V-B: Area 3 Hydraulics Report). The runoff volumes presented in Table 4-3 can be used to facilitate FRS management and to prepare an update of the emergency action plan for the structures.

4.5.2 Verification of Results

Previous studies in Area 3 were conducted by Alpha (1996) for 100-year storm events, and Dames & Moore (1990) for PMP storm events. The basin delineations and hydrologic parameters used in these studies as well as their results were compared to the parameters and results of the current study as verification.

The peak flows for the 100-year 6-hour storm event from this study were 10-15% higher than the Alpha study. Alpha determined a single aerial reduction factor based on the entire watershed size, while this study based aerial reduction factors on sub-basin size. The peak flows for the 100-year 24-hour storm event are very similar to each other for the same sub-basins (within ±10%).

The peak flows for PMP storm events from this study are 20% lower than that of the Dames & Moore study (1990). Dames & Moore used less detailed methods to delineate the watershed; and

used the SCS curve number method for rainfall-runoff conversion. The curve numbers determined in that study are relatively high compared to the Green and Ampt parameters used for this study. In addition, the rainfall precipitation amounts used in the Dames and Moore study were point values unmodified by the use of aerial reduction factors.

The results using indirect method No. 2 – USGS data for Arizona are presented in Figure 4-7. The LP3 regression curve and 75% tolerance limits from the USGS data are plotted along with the 100-year storm event peak discharges and trendline from this study. The results fit within the tolerance limits, and the trendline is very similar to the USGS's.

The second indirect method use Boughton and Malvick Envelope Curves, as presented in Figure 4-8. The Boughton and Malvick Envelope Curves are plotted along with the 100-year storm event peak discharge and trendline from this study. The results are all under the Boughton Envelope Curve, and are in agreement with the Malvick Envelope Curve.

The third indirect method of verification uses the USGS regional regression method (Thomas et al., 1995). Table 4-7 shows the USGS envelope curve data, 100-year regional data, and 100-year low-to-middle elevation peak discharges compared to basin size. Table 4-8, which is a sub-set of Table 4-5a, shows the peak discharges (100-year 6 & 24-hour) for all sub-basins in the Area 3 arranged in an ascending order of the sub-basin area. The comparison between Table 4-7 and Table 4-8 indicates the results from this study are relatively low compared with the regional 100-year discharges, but are all above the low-to-middle elevation values. The results are in agreement with those studies conducted in comparable areas (Zhao, 2003).

Figure 4-7
Indirect Method Verification - Buckeye Area 3 Study and USGS LP3 Analysis

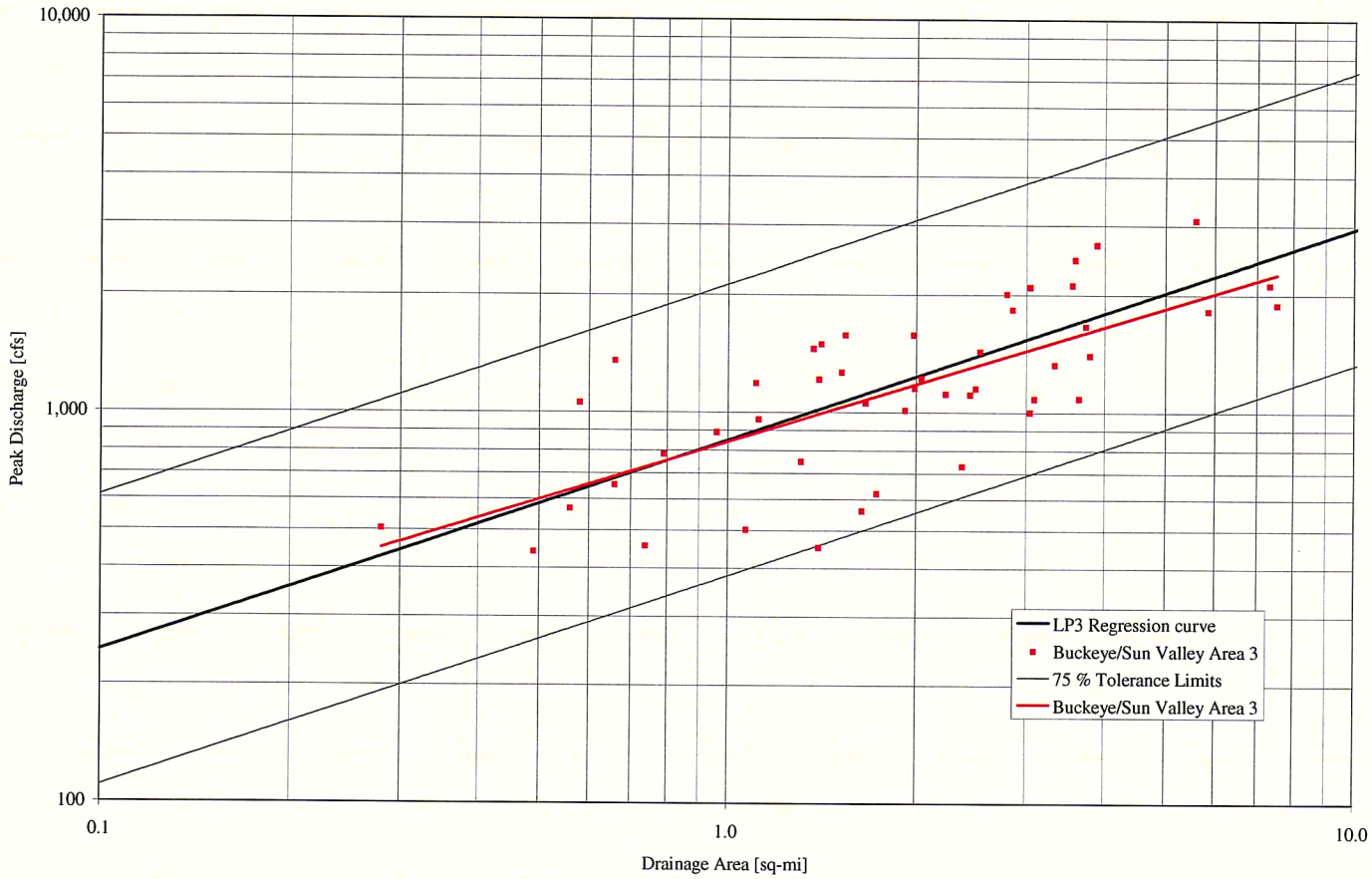


Figure 4-8
Indirect Method Verification - Buckeye Area 3 Study and Boughton and Malvick Envelope Curves

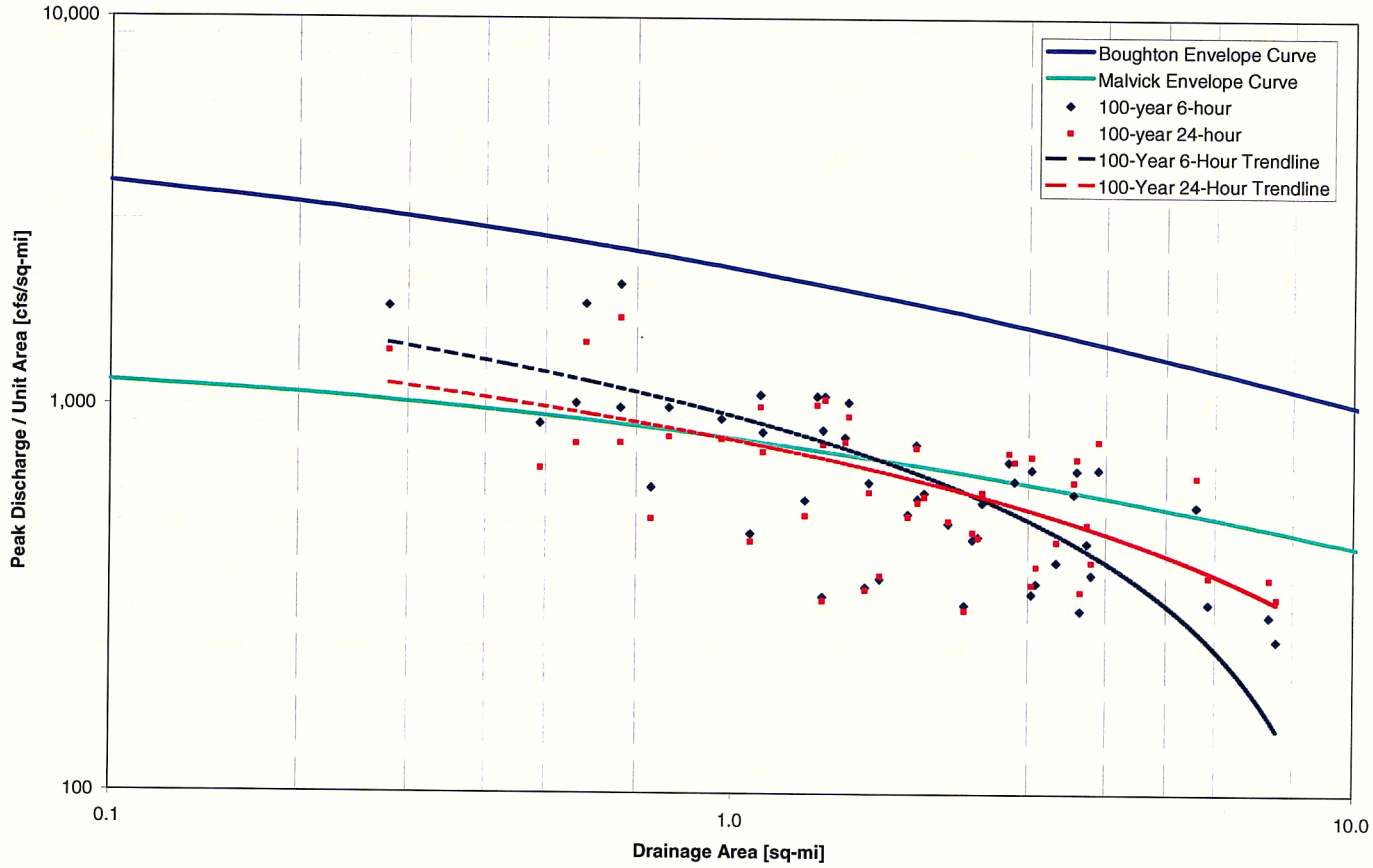


Table 4-3
Hydrologic Responses for Various Storm Events (Peak Discharge and Time to Peak – Existing Condition)

Station	Area [mi²]	10-YR 6-HR			10-YR 24-HR			100-YR 6-HR			100-YR 24-HR		
		Peak [cfs]	T_p [hr]	Unit Discharge [cfs/mi²]	Peak [cfs]	T_p [hr]	Unit Discharge [cfs/mi²]	Peak [cfs]	T_p [hr]	Unit Discharge [cfs/mi²]	Peak [cfs]	T_p [hr]	Unit Discharge [cfs/mi²]
A	4.91	313	4.9	64	734	12.9	149	1,578	4.9	321	1,858	12.9	378
A1	1.11	515	4.3	464	490	12.3	441	1,193	4.3	1,075	1,104	12.3	995
A2A	0.48	192	4.8	400	135	12.8	281	422	4.7	879	325	12.7	677
A2B	1.18	343	4.7	291	341	12.7	289	919	4.7	779	824	12.6	698
A3	3.73	397	4.9	106	738	12.9	198	1,673	4.9	449	1,855	12.9	497
B	4.62	337	6.8	73	488	14.8	106	1,146	6.3	248	1,333	14.2	289
B1	0.6	241	4.6	402	178	12.6	297	523	4.6	872	416	12.6	693
B2	0.44	161	4.7	366	108	12.7	245	361	4.7	820	277	12.7	630
B2RB	2.19	581	4.7	265	720	12.7	329	1,644	4.6	751	1,704	12.6	778
B3	1.99	370	4.8	186	451	12.8	227	1,142	4.8	574	1,104	12.8	555
B3R	2.64	513	4.9	194	720	12.9	273	1,719	4.8	651	1,835	12.8	695
C	10.69	772	6.3	72	1,341	14.0	125	2,831	5.7	265	3,502	13.6	328
C1	3.64	965	4.8	265	1,154	12.8	317	2,185	4.8	600	2,307	12.8	634
C2	1.86	360	4.8	194	442	12.8	238	1,130	4.8	608	1,105	12.7	594
C3	3.79	358	5.3	94	602	13.2	159	1,411	5.2	372	1,507	13.2	398
C3R	5.51	859	5.3	156	1,197	13.2	217	2,494	5.1	453	2,721	13.1	494
C4	1.4	521	4.6	372	522	12.6	373	1,308	4.5	934	1,211	12.5	865
C4R	9.29	766	6.3	82	1,339	14.0	144	2,832	5.8	305	3,437	13.7	370
E	31.24	543	9.3	17	1,967	16.4	63	3,535	8.3	113	5,760	16.0	184
E1	0.96	385	4.5	401	349	12.5	364	894	4.5	931	790	12.5	823
E2A	0.8	290	4.8	363	243	12.8	304	680	4.7	850	572	12.7	715
E2B	0.47	207	4.7	440	151	12.6	321	450	4.6	957	352	12.6	749
E2C	0.72	278	4.7	386	224	12.7	311	658	4.6	914	541	12.6	751
E3	2.49	354	5.1	142	460	13.1	185	1,149	5.1	461	1,130	13.0	454
E3RB	1.42	387	4.9	273	380	12.9	268	1,053	4.8	742	958	12.8	675
E4	3.04	232	5.5	76	378	13.4	124	923	5.4	304	966	13.4	318
E4RA	5.42	414	6.3	76	746	14.0	138	1,978	5.7	365	2,205	13.6	407
E4RB	6.05	761	5.2	126	1,303	13.1	215	2,569	5.1	425	3,032	13.1	501
E5	1.31	251	4.9	192	259	12.9	198	713	4.9	544	645	12.9	492
E5R	16.98	594	7.1	35	1,652	14.8	97	3,330	6.7	196	4,827	14.6	284
E6	2.04	408	4.8	200	491	12.8	241	1,228	4.8	602	1,194	12.8	585
E6R	29.2	551	8.7	19	2,019	15.9	69	3,596	7.8	123	5,888	15.6	202
F1	3.1	702	4.8	226	882	12.8	285	1,773	4.8	572	1,868	12.8	603
F2	2.21	466	4.8	211	579	12.8	262	1,306	4.8	591	1,333	12.8	603
F3	0.74	176	4.8	238	137	12.8	185	454	4.8	614	375	12.8	507
F3R	5.31	815	4.8	153	1,357	12.8	256	2,573	4.8	485	3,030	12.8	571
G1	1.12	358	4.7	320	346	12.7	309	927	4.7	828	819	12.6	731
H1	1.07	141	4.8	132	134	12.8	125	497	4.8	464	472	12.8	441
H2	1.4	136	5.3	97	153	13.3	109	446	5.3	319	432	13.3	309

Station	Area [mi²]	10-YR 6-HR			10-YR 24-HR			100-YR 6-HR			100-YR 24-HR		
		Peak [cfs]	T_p [hr]	Unit Discharge [cfs/mi²]	Peak [cfs]	T_p [hr]	Unit Discharge [cfs/mi²]	Peak [cfs]	T_p [hr]	Unit Discharge [cfs/mi²]	Peak [cfs]	T_p [hr]	Unit Discharge [cfs/mi²]
J1	1.73	175	5.1	101	227	13.1	131	626	5.1	362	633	13.1	366
J2	3.64	228	5.3	63	467	13.3	128	1,093	5.3	300	1,212	13.3	333
K1	1.54	790	4.5	513	742	12.5	482	1,564	4.5	1,016	1,433	12.5	931
K2A	1.95	317	5.3	163	346	13.3	177	894	5.3	458	827	13.3	424
K2B	0.42	115	4.6	274	62	12.6	148	309	4.6	736	217	12.6	517
K2BR	3.49	683	5.6	196	759	13.6	217	1,858	5.3	532	1,839	13.3	527
K3	1.64	153	5.3	93	187	13.3	114	520	5.3	317	507	13.3	309
K3RA	3.91	575	6.2	147	654	14.2	167	1,744	5.7	446	1,718	13.7	439
K3RB	5.37	151	5.3	28	464	13.3	86	998	5.3	186	1,206	13.3	225
L	16.73	624	8.1	37	1,284	15.4	77	2,552	6.9	153	3,437	14.8	205
L1	3.55	889	4.8	250	1,090	12.8	307	2,128	4.8	599	2,267	12.8	639
L2A	0.69	305	4.7	442	245	12.6	355	692	4.6	1,003	570	12.6	826
L2B	4.08	351	5.2	86	671	13.1	164	1,532	5.1	375	1,700	13.1	417
L2BR	4.24	906	5.0	214	1,153	13.0	272	2,391	4.9	564	2,519	12.9	594
L2C	1.33	257	4.8	193	272	12.8	205	754	4.8	567	692	12.8	520
L2D	1.23	239	4.8	194	248	12.8	202	706	4.8	574	655	12.8	533
L3	5.85	392	5.3	67	858	13.3	147	1,832	5.3	313	2,129	13.3	364
L3R	8.32	798	5.8	96	1,418	13.6	170	3,064	5.4	368	3,676	13.3	442
L3RB	2.56	227	5.3	89	371	13.2	145	1,043	5.0	407	1,104	13.0	431
M	13.12	815	6.8	62	1,393	14.6	106	2,555	6.6	195	3,187	14.5	243
M1	5.69	1,045	4.9	184	1,561	12.9	274	2,809	4.8	494	3,301	12.8	580
M2	7.44	274	5.4	37	910	13.4	122	1,849	5.4	249	2,347	13.4	315
N	4.85	311	6.2	64	567	13.3	117	1,201	6.0	248	1,385	13.3	286
N1	1.52	502	4.5	330	534	12.5	351	1,253	4.5	824	1,211	12.5	797
N2	3.33	354	5.3	106	564	13.3	169	1,193	5.2	358	1,331	13.2	400
O1	3.09	319	5.3	103	489	13.3	158	1,057	5.3	342	1,163	13.3	376
P	2.44	284	5.2	116	369	13.2	151	874	5.2	358	891	13.2	365
P1A	0.5	292	4.5	584	206	12.5	412	575	4.4	1,150	441	12.4	882
P1B	1.94	310	5.2	160	364	13.2	188	852	5.1	439	842	13.1	434
Q	2.23	408	5.1	183	460	13.2	206	1,105	5.1	496	1,059	13.1	475
Q1A	1.3	418	4.7	322	411	12.6	316	990	4.6	762	915	12.6	704
Q1B	0.94	392	4.6	417	343	12.6	365	851	4.5	905	740	12.5	787
R1	0.28	254	4.3	907	179	12.3	639	506	4.3	1,807	387	12.3	1,382
S1	1.41	621	4.3	440	624	12.3	443	1,542	4.3	1,094	1,449	12.3	1,028
T1	3.04	812	4.7	267	979	12.7	322	2,111	4.7	694	2,151	12.7	708
U1	1.37	638	4.4	466	615	12.4	449	1,496	4.4	1,092	1,365	12.4	996
V1	0.66	311	4.5	471	236	12.5	358	664	4.5	1,006	526	12.5	797
W	6.74	818	5.1	121	1,471	13.0	218	3,192	4.8	474	3,648	12.8	541
W1	3.89	933	4.6	240	1,343	12.6	345	2,623	4.6	674	2,976	12.5	765
W2	2.85	596	4.6	209	848	12.6	298	1,878	4.6	659	2,042	12.5	716
X1	0.79	358	4.5	453	288	12.5	365	787	4.5	996	645	12.5	816
Y1	0.58	513	4.2	884	371	12.2	640	1,077	4.2	1,857	837	12.2	1,443
Z1	0.66	310	4.5	470	239	12.5	362	694	4.5	1,052	558	12.5	845

Note:

1. Station designations can be found in Figure 4-6.
2. Basin series of A through D are not within the Area 3 boundary. They are presented in the table to update Alpha's study.

Table 4-4
Hydrologic Responses for Various Storm Events (Runoff Volumes – Existing Condition)

Outlet	Area [mi2]	10-yr 6-hr	10-yr 24-hr	100-yr 6-hr	100-yr 24-hr
E	31.24	170	656	1,038	1635
G	1.12	29	27	79	68
L	16.73	181	411	717	974
M	13.12	185	373	631	839
N	4.85	69	127	261	297
O	3.09	49	74	174	180
P	2.44	54	72	156	162
Q	2.23	63	81	160	169
R	0.28	11	9	23	20
S	1.41	38	41	104	95
T	3.04	87	108	231	233
U	1.37	43	43	111	99
V	0.66	26	25	56	52
W	6.74	121	215	400	471
X	0.79	29	28	64	59
Y	0.58	22	19	48	42
Z	0.66	21	18	50	41

Note: Station designations can be found in Figure 4-5; runoff volume unit: acre-feet

Table 4-5
USGS Regression Data (Digitized from Figure 41 in Thomas et al., 1995)

Drainage Area [sq-mi]	Envelope [cfs]	Regional [cfs]	Low-to-Middle Elevation [cfs]
0.1	300	182	110
0.2	700	308	156
0.3	1,162	419	192
0.4	1,600	522	222
0.5	2,028	618	249
0.6	2,500	710	273
0.7	3,000	798	296
0.8	3,500	884	317
0.9	3,887	967	336
1	4,403	1,047	355
2	7,878	1,678	505
3	10,676	2,210	621
4	13,809	2,688	720
5	16,047	3,128	806

Table 4-6
Area 3 Sub-Basin Existing 100-year Peak Flows

Station	Area [mi^2]	100-YR 6-HR Peak [cfs]	100-YR 24-HR Peak [cfs]
A1	1.11	1,193	1,104
A2A	0.48	422	325
A2B	1.18	919	824
A3	3.73	1,673	1,855
B1	0.6	523	416
B2	0.44	361	277
B3	1.99	1,142	1,104
C1	3.64	2,185	2,307
C2	1.86	1,130	1,105
C3	3.79	1,411	1,507
C4	1.4	1,308	1,211
E1	0.96	894	790
E2A	0.8	680	572
E2B	0.47	450	352
E2C	0.72	658	541
E3	2.49	1,149	1,130
E4	3.04	923	966
E5	1.31	713	645

Station	Area [mi^2]	100-YR 6-HR Peak [cfs]	100-YR 24-HR Peak [cfs]
E6	2.04	1,228	1,194
F1	3.1	1,773	1,868
F2	2.21	1,306	1,333
F3	0.74	454	375
G1	1.12	927	819
H1	1.07	497	472
H2	1.4	446	432
J1	1.73	626	633
J2	3.64	1,093	1,212
K1	1.54	1,564	1,433
K2A	1.95	894	827
K2B	0.42	309	217
K3	1.64	520	507
L1	3.55	2,128	2,267
L2A	0.69	692	570
L2B	4.08	1,532	1,700
L2C	1.33	754	692
L2D	1.23	706	655
L3	5.85	1,832	2,129
M1	5.69	2,809	3,301
M2	7.44	1,849	2,347
N1	1.52	1,253	1,211
N2	3.33	1,193	1,331
O1	3.09	1,057	1,163
P1A	0.5	575	441
P1B	1.94	852	842
Q1A	1.3	990	915
Q1B	0.94	851	740
R1	0.28	506	387
S1	1.41	1,542	1,449
T1	3.04	2,111	2,151
U1	1.37	1,496	1,365
V1	0.66	664	526
W1	3.89	2,623	2,976
W2	2.85	1,878	2,042
X1	0.79	787	645
Y1	0.58	1,077	837
Z1	0.66	694	558

Appendices

A. References

A.1 Data Collection Summary

The Data Collection Report was submitted on January 5, 2004. The following is the executive summary.

The Flood Control District of Maricopa County (District) contracted with PBS&J to perform the Buckeye/Sun Valley Area Drainage Master Study (ADMS). The study will identify area flooding, drainage, erosion, and sediment problems in the study area; evaluate existing floodplain delineations and delineate addition floodplains; identify a range of viable solutions; and develop preliminary development guidelines for the area. The data collection task is the first step in this effort, and is the foundation for subsequent detailed studies.

Available mapping was compiled and an inventory is included in this report. A map exhibit prepared for this study includes the boundaries of the study area, known flooding problems, land ownership, and existing and future land uses.

Existing infrastructure and major utilities within the study area were identified and will be integrated into the hydrologic study for each sub-watershed.

Historic flooding events were investigated and information was collected from various sources. Historic flooding descriptions and photos are presented in this report. The log of drainage and flooding complaints maintained by the District was examined. The complaints originating from the study area were reviewed and are summarized in this report. The sites experiencing repetitive flooding will be emphasized in the study.

Previous hydrologic and hydraulic studies related to this study were reviewed and discussed. The studies that could be used as a basis for hydrology in the Buckeye/Sun Valley ADMS were identified. The studies are reviewed in sufficient detail to provide a basis for determining whether updating elements of those studies is feasible and adequate for the purposes of this project.

A.2 Referenced Documents

Alpha Engineering. 1996a. White Tank Wash Flood Insurance Study, Hydrologic Analysis, Book A (FIS). *Flood Control District of Maricopa County – FCD 90-64*

Alpha Engineering. 1996b. White Tank Wash Flood Insurance Study, Hydrologic Analysis, Book B (FIS). *Flood Control District of Maricopa County – FCD 90-64*

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MAG. 2000. The Digital GIS Land Use Maps for Maricopa County *(Updated every 5 years)*

NRCS (1985). Earth Dams and Reservoirs. *U.S. Department of Agriculture*

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USGS. 1991. Estimated Manning's Roughness Coefficients for Stream Channels and Floodplains in Maricopa County, Arizona. *Water Resource Diversion, USGS.*

Zhao, Bing. Hydrologic Study for Bonita Dam, Maricopa County, Arizona. *Prepared for the Flood Control District of Maricopa County.*

B. General Documentation & Correspondence

The general documentation and correspondence for this project are organized in the Project Administration Report for the Buckeye/Sun Valley ADMS included in Volume VIII, Supporting Documents. The following sections are included in the Project Administration Report.

B.1 Special Problem Reports

N/A

B.2 Contact (telephone) Reports

N/A

B.3 Meeting Minutes or Reports

N/A

B.4 General Correspondence

N/A

B.5 Contract Documents

N/A

C. Survey Field Notes

C.1 Survey Field Notes for Aerial Mapping Control

N/A

C.2 Survey Field Notes for Hydrologic Modeling

C.2.1 Sun Valley Parkway Major Culverts

Note: Culvert number follows Alpha Engineering Report (1996)

Table C-1
Sun Valley Parkway Major Culverts

BASIN	ID	TYPE	STA	NO	SPAN (ft)	RISE (ft)	LENGTH (ft)	SLOPE (ft/ft)	SKEW	OUT INVERT ELEV	IN INVERT ELEV	ROAD ELEV	SVP SLOPE	COMMENTS
A2	41A	CSP	568+19.0	1	3.5	2.4	141.0	0.0156	-2.5	1,438.17	1,440.51	1,445.45	0.007295	
	41	RCBC	562+08.0	1	6.0	3.0	137.0	0.0061	11.1	1,434.18	1,435.00	1,440.80	0.007295	
	40D	CSP	557+56.0	1	4.1	2.8	161.0	0.0120	12.0	1,429.16	1,430.95	1,437.80	VC	
	40C	CSP	555+51.0	1	2.3	1.7	186.0	0.0370	33.3	1,427.33	1,434.14	1,438.20	-0.004736	
	40B	CSP	552+64.0	1	2.3	1.7	144.0	0.0245	-8.9	1,432.05	1,435.62	1,439.60	-0.004736	
	40A	CSP	550+50.0	1	2.9	2.0	158.0	0.0304	-11.8	1,429.85	1,434.62	1,440.40	VC	
	40	RCBC	549+16.0	1	6.0	5.0	152.0	0.0158	0.0	1,428.80	1,431.20	1,440.20	VC	
	39A	CSP	544+13.0	1	4.8	3.2	167.0	0.0180	0.0	1,427.15	1,429.99	1,438.40	0.003547	
	39	RCBC	539+47.0	1	10.0	3.0	134.0	0.0099	2.6	1,429.00	1,430.32	1,436.80	0.003547	
	38B	CSP	529+95.0	1	4.8	3.2	167.0	0.0162	-7.5	1,421.60	1,424.40	1,431.70	0.005599	
	38A	CSP	525+29.0	1	4.8	3.2	143.0	0.0080	-12.0	1,422.41	1,423.62	1,429.10	0.005599	
	38	RCBC	518+50.0	6	12.0	5.0	144.0	0.0040	-19.3	1,419.82	1,420.38	1,428.40	-0.002998	No sediment in culvert. Downstream contains thick brush and trees with some erosion. Upstream contains heavy shrubs.
B2	37	RCBC	512+67.0	4	10.0	4.0	135.0	0.0085	0.0	1,422.00	1,423.11	1,429.70	VC	Downstream heavy erosion, shrubs. Upstream slight sediment. Culvert has up to 6" of sediment.
	36C	CSP	504+51.5	2	4.0	2.0	205.0	0.0190	-35.3	1,412.80	1,416.72	1,424.80	0.006596	
	36B	CSP	499+65.0	1	4.0	2.0	179.0	0.0112	-35.0	1,414.90	1,416.92	1,423.60	0.003700	
	36A	CSP	496+86.0	1	2.0	2.0	146.0	0.0110	3.6	1,414.71	1,416.30	1,422.80	0.003700	
C2	36	RCBC	492+71.0	1	10.0	3.0	146.0	0.0094	-6.9	1,411.20	1,412.56	1,421.20	0.003700	Measured height = 2' 8"
	35A	CSP	490+16.0	1	3.0	2.0	186.0	0.0177	34.7	1,410.86	1,414.13	1,420.50	VC	
	35	RCBC	482+43.0	3	12.0	5.0	164.0	0.0030	-30.0	1,411.00	1,411.50	1,420.90	HC	Up to 1' sediment in the outlet, outlet blocked with heavy shrubs
	34	RCBC	481+03.0	6	10.0	5.0	143.0	0.0035	-6.0	1,411.00	1,411.50	1,420.20	HC	Up to 1' sediment in the outlet, outlet blocked with heavy shrubs
	33	RCBC	480+10.0	6	10.0	5.0	142.0	0.0035	0.0	1,411.00	1,411.50	1,420.00	HC	Up to 1' sediment in the outlet, outlet blocked with heavy shrubs
	32	RCBC	476+88.5	1	6.0	3.0	137.0	0.0104	-9.9	1,411.50	1,412.90	1,419.10	0.002525	
	31	RCBC	473+68.5	1	8.0	3.0	142.0	0.0163	19.9	1,410.80	1,412.98	1,418.40	VC	
	30A	CSP	463+30.0	2	3.0	3.0	148.0	0.0081	0.0	1,412.04	1,413.24	1,421.20	VC	
	30	RCBC	460+55.0	1	6.0	5.0	145.0	0.0138	7.9	1,410.00	1,412.00	1,420.20		
	29	RCBC	454+33.5	2	8.0	5.0	156.0	0.0123	27.4	1,407.80	1,409.70	1,416.70	0.005601	
E2	28	RCBC	446+26.0	1	8.0	4.0	134.0	0.0129	1.7	1,405.10	1,406.80	1,412.30	VC	
	27	RCBC	443+33.0	1	8.0	4.0	175.0	0.0172	-37.1	1,403.90	1,406.90	1,412.90	-0.003096	
	26A	CSP	437+17.0	2	3.0	2.0	142.0	0.0177	-1.4	1,407.66	1,410.17	1,414.70	-0.003096	
	26	RCP-H	430+69.0	2	8.0	5.0	144.0	0.0160	-10.1	1,402.30	1,404.60	1,412.50		
	25A	CMPA-H	424+87.0	2	3.0	2.0	164.0	0.0096	-36.1	1,402.35	1,404.00	1,409.20		
	25	CBC-30	415+81.5	6	10.0	3.0	172.0	0.0035	-39.5	1,394.40	1,395.00	1,401.40		Downstream has cobble with minor erosion. Upstream has heavy sediment and 1'-2' deep sediment inside culvert.
	24	CBC-90	412+74.0	3	10.0	3.0	162.0	0.0047	-34.3	1,392.76	1,393.50	1,398.10		Downstream has no well defined channel with no sediment in culvert. Upstream channel has shrubs with up to 2' sediment in culvert.
	23C	CMPA-H	404+55.0	2	3.0	2.0	173.0	0.0080	-38.0	1,381.70	1,383.08	1,387.60		
	23B	RCP-H	398+51.0	1	3.0	3.0	143.0	0.0080	-15.5	1,376.04	1,377.18	1,381.50		
	23A	RCP-H	397+66.0	1	3.0	3.0	144.0	0.0057	-21.5	1,375.82	1,376.61	1,381.00		
	23	CBC-30	386+05.0	1	10.0	4.0	165.0	0.0061	-35.0	1,361.69	1,362.61	1,368.80		

BASIN	ID	TYPE	STA	NO	SPAN (ft)	RISE (ft)	LENGTH (ft)	SLOPE (ft/ft)	SKEW	OUT INVERT ELEV	IN INVERT ELEV	ROAD ELEV	SVP SLOPE	COMMENTS
	22A	RCP-H	382+81.0	1	4.0	4.0	161.0	0.0067	-34.0	1,361.08	1,362.17	1,367.50		
	22	CBC-30	374+64.0	4	10.0	3.0	170.0	0.0037	-38.0	1,362.17	1,362.80	1,367.40		Upstream channel has trees and shrubs and up to 2' of sediment in culvert. Downstream has 1.2' sediment in culvert with heavy trees and shrubs in channel.
F3	21A	RCP-H	363+05.0	1	3.5	3.5	151.0	0.0100	-15.5	1,353.99	1,355.50	1,361.10		
	21	CBC-30	360+44.0	4	10.0	4.0	139.0	0.0032	-15.5	1,354.56	1,355.00	1,360.80		Upstream has heavy trees and inlet has up to 1.5' of sediment. Outlet has up to 2.2' of sediment.
H1	20	CBC-30	356+13.0	1	6.0	3.0	135.0	0.0021	-6.5	1,353.11	1,353.40	1,358.00		
	19A	RCP-H	350+40.0	1	3.0	3.0	153.0	0.0048	-20.0	1,347.04	1,347.76	1,352.60		
	19	CBC-0	337+14.0	1	10.0	4.0	209.0	0.0048	-50.0	1,339.00	1,339.86	1,345.50		
	18	CBC-30	333+84.0	3	10.0	4.0	135.0	0.0039	8.5	1,337.00	1,337.53	1,343.80		Inlet has up to 2.8' of sediment and outlet has up to 2.2' of sediment.
	17	CBC-30	629+27.0	2	10.0	3.0	144.0	0.0028	-22.0	1,336.40	1,336.80	1,342.20		
	16	CBC-30	327+07.0	3	8.0	3.0	169.0	0.0027	-37.1	1,335.45	1,335.90	1,341.40		Good condition with up to 3" of sediment in invert and outlet.
	15B	RCP-H	326+25.0	1	2.5	25.0	146.0	0.0037	-6.5	1,335.45	1,336.00	1,341.00		
J1	15A	RCP-H	316+73.0	2	3.0	3.0	271.0	0.0083	-60.4	1,322.16	1,324.42	1,330.68		
	15	CBC-30	312+17.0	1	6.0	3.0	157.0	0.0052	-31.0	1,319.88	1,320.70	1,326.30		
	14B	RCP-H	300+31.0	2	2.5	2.5	196.0	0.0085	-44.5	1,317.14	1,318.76	1,323.50		
	14A	RCP-H	292+09.0	1	3.5	3.5	173.0	0.0047	-37.0	1,312.31	1,313.12	1,318.00		
	14	CBC-30	289+26.0	1	10.0	3.0	161.0	0.0020	-33.0	1,312.20	1,312.52	1,317.10		
	13	CBC-30	285+00.0	4	10.0	4.0	136.0	0.0044	-10.0	1,307.96	1,308.56	1,314.10		Good condition
K2	12	CBC-30	271+21.5	3	10.0	3.0	181.0	0.0020	-41.5	1,297.39	1,297.75	1,303.20		Inlet has up to 2.4' of sediment with small shrubs in channel. Outlet has only 3" of sediment.
	11	CBC-30	266+49.5	6	10.0	4.0	148.0	0.0024	-25.5	1,293.34	1,293.70	1,299.80		Measured height = 2' 10" on both sides of culvert
L2	10A	RCP-H	253+94.0	1	3.5	3.5	172.0	0.0057	-38.0	1,282.67	1,283.64	1,288.80		
	10	CBC-30	243+74.0	1	10.0	3.0	169.0	0.0028	-38.0	1,275.94	1,276.42	1,281.00		
	9	CBC-30	230+27.0	2	10.0	3.0	175.0	0.0024	-40.0	1,265.70	1,266.12	1,270.80		
	8	CBC-30	227+85.0	2	10.0	3.0	155.0	0.0036	-30.0	1,264.33	1,264.87	1,269.60		
	7	CBC-30	225+19.0	3	10.0	3.0	171.0	0.0040	-38.5	1,261.86	1,262.54	1,267.40		3" sediment, heavy shrubs in channel
	6	CBC-30	197+95.5	4	10.0	3.0	252.0	0.0034	-57.8	1,235.45	1,236.30	1,242.48		4" sediment in outlet and 1' sediment in the inlet
	5	CBC-30	195+10.0	6	10.0	4.0	138.0	0.0034	-13.4	1,233.92	1,233.44	1,240.80		Measured height = 1' 7", heavy shrubs in channel
	4	CBC-30	172+93.0	2	8.0	3.0	173.0	0.0036	-39.0	1,215.53	1,216.15	1,221.20		
	3A	RCP-H	171+20.0	1	2.5	2.5	177.0	0.0039	-31.0	1,214.92	1,215.60	1,220.00		
	3	CBC-30	161+67.0	6	10.0	3.0	146.0	0.0037	-23.0	1,207.05	1,207.59	1,212.30		Measured height = 2' 2" (outlet) 1' 5" (inlet)
	2A	RCP-H	142+50.0	1	3.5	3.5	180.0	0.0060	-41.0	1,190.42	1,191.50	1,196.30		
	2	CBC-30	136+90.0	3	10.0	3.0	196.0	0.0060	-46.0	1,186.40	1,187.39	1,192.00		4" sediment downstream and 2" sediment upstream
	1	CBC-30	129+55.0	3	10.0	3.0	178.0	0.0044	-41.3	1,180.36	1,181.15	1,185.90		1' 3" sediment downstream and 8" sediment upstream

Picture.1
Culvert #1 looking downstream

Picture.2
Culvert #1 looking upstream

Picture.3
Culvert #2 looking downstream

Picture.4
Culvert #2 looking upstream

Picture.5
Culvert #3 looking downstream

Picture.6
Culvert #3 looking upstream

Picture.7
Culvert #5 inlet

Picture.8
Culvert #5 looking downstream

Picture.9
Culvert #5 looking downstream into culvert

Picture.10
Culvert #5 looking upstream

Picture.11
Culvert #6 looking downstream

Picture.12
Culvert #6 looking downstream into culvert

Picture.13
Culvert #7 looking downstream

Picture.14
Culvert #10A looking upstream

Picture.15
Culvert #11 looking downstream

Picture.16
Culvert #11 looking downstream into culvert

Picture.17
Culvert #11 looking downstream into culvert

Picture.18
Culvert #11 looking upstream

Picture.19
Culvert #11 looking upstream into culvert

Picture.20
Culvert #12 looking downstream

Picture.21
Culvert #12 looking upstream

Picture.22
Culvert #13 looking downstream

Picture.23
Culvert #13 looking upstream

Picture.24
Culvert #16 looking downstream

Picture.25
Culvert #16 looking upstream

Picture.26
Culvert #18 looking downstream

Picture.27
Culvert #18 looking upstream

Picture.28
Culvert #21 looking downstream

Picture.29
Culvert #21 looking upstream

Picture.30
Culvert #22 looking downstream

Picture.31
Culvert #22 looking downstream into culvert

Picture.32
Culvert #22 looking upstream

Picture.33
Culvert #24 looking downstream

Picture.34
Culvert #24 looking downstream into culvert

Picture.35
Culvert #24 looking upstream

Picture.36
Culvert #25 looking downstream

Picture.37
Culvert #25 looking downstream into culvert

Picture.38
Culvert #25 looking upstream

Picture.39
Culvert #35 looking downstream

Picture.40
Culvert #36 looking downstream

Picture.41
Culvert #36 looking upstream into culvert

Picture.42
Culvert #37 looking downstream

Picture.43
Culvert #37 looking downstream into culvert

Picture.44
Culvert #37 looking upstream

Picture.45
Culvert #38 looking downstream

Picture.46
Culvert #38 looking upstream

Picture.47
Culvert #38 looking upstream into culvert

C.2.2 Sub-basin Boundaries Along Sun Valley Parkway

Picture.48

A2/A3 Boundary at Sun Valley Parkway looking east

Picture.49

C2/E2 Boundary at Sun Valley Parkway looking east

Picture.50

C2/E2 Boundary at Sun Valley Parkway looking west

Picture.51

E2/F3 Boundary at Sun Valley Parkway looking east

Picture.52

F3/H1 Boundary at Sun Valley Parkway looking south

Picture.53

F3/H1 Boundary at Sun Valley Parkway looking east

Picture.54

F3/H1 Boundary at Sun Valley Parkway looking north

Picture.55

H1/J1 Boundary at Sun Valley Parkway looking south

Picture.56

H1/J1 Boundary at Sun Valley Parkway looking east

Picture.57

H1/J1 Boundary at Sun Valley Parkway looking north

Picture.58

L2/M2 Boundary at Sun Valley Parkway looking south

Picture.59

L2/M2 Boundary at Sun Valley Parkway looking east

Picture.60

L2/M2 Boundary at Sun Valley Parkway looking north

C.2.3 Routing Channels

Picture.61
Routing channel B1-B2

Picture.62
Routing channel B1-B2 (LOB)

Picture.63
Routing channel B1-B2 (ROB)

Picture.64
Routing channel J1-J2

Picture.65
Routing channel J1-J2 (LOB)

Picture.66
Routing channel J1-J2 (ROB)

Picture.67
Routing channel L2-L3

Picture.68
Routing channel L2-L3 (LOB)

Picture.69
Routing channel L2-L3 (ROB)

Picture.70
Routing channel M1-M2

Picture.71
Routing channel M1-M2 (LOB)

Picture.72
Routing channel M1-M2 (ROB)

Picture.73
Routing channel W1-W2

Picture.74
Routing channel W1-W2 (LOB)

Picture.75
Routing channel W1-W2 (ROB)

C.2.2 Routing Field Notes

Basin ID: W2

Routing Channel ID: _____

STA NO.: 1

Date: 11/18/03

Project: Buckeye ADMS Area 3

N: 27° 776'
W: 33.144

	NO.	LONG	LAT	DEPTH (ft)	Manning's "n"	
LOB	1			4.5	nb= 0.025 n1= 0.005 n2= — n3= 0.020 n=nb+n1+n2+n3 = 0.055	40'
	2	27.918	30.277	3.7		22'
	3	27.915	37.274	3.8		
MAIN	4	27.912	33.278	2.2	nb= 0.025 n1= 0.005 n2= — n3= 0.020 n=nb+n1+n2+n3 = 0.050	12'
	5			3.4		88'
ROB	6			5.6	nb= 0.025 n1= 0.005 n2= — n3= 0.020 n=nb+n1+n2+n3 = 0.050	17'
	7			6.0		36'
	8			6.3		75'

Note: nb - manning's n-value based upon bed materials - data from Table 1 (USGS, 1991)
n1 - manning's n-value based upon channel surface irregularities from Table 2 (USGS, 1991)
n2 - manning's n-value based upon channel obstruction from Table 2 (USGS, 1991)
n3 - manning's n-value based upon vegetation from Table 2 (USGS, 1991)
dashes indicate = roughness coefficient of zero

Basin ID: B3

Routing Channel ID: _____

STA NO.: 1

Date: 11/18/03

Project: Buckeye ADMS - Area 3

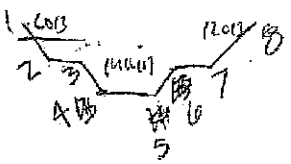
	NO.	LONG	LAT	DEPTH (ft)	Manning's "n"
LOB	1	34.599 ~~34.595~~	41.302'	4.9	nb= 0.030
	2	34.618	41.314	1.45	n1= 0.005
	3	34.632	41.344	3.0	n2= —
					n3= 0.015
					n=nb+n1+n2+n3 = 0.050
MAIN (16.5')	4	34.625	41.343	1.5	nb= 0.025
	5	34.632	41.341	1.5	n1= —
					n2= —
					n3= —
					n=nb+n1+n2+n3 = 0.025
ROB	6	34.636	41.348	2.9	nb= 0.030
	7	34.648	41.370	2.2	n1= 0.005
	8	34.655	41.385	4.05	n2= 0.015
					n3=
					n=nb+n1+n2+n3 = 0.050

} 7' horizontal

16.5' top measure

} 11'

Note: nb - manning's n-value based upon bed material - data from Table 1 (USGS, 1991)
n1 - manning's n-value based upon channel surface irregularities from Table 2 (USGS, 1991)
n2 - manning's n-value based upon channel obstruction from Table 2 (USGS, 1991)
n3 - manning's n-value based upon vegetation from Table 2 (USGS, 1991)
dashes indicate a roughness coefficient of zero



Basin ID: J2

Date: 11/18/03

Routing Channel ID:

Project:

STA NO.: 1

W 40.669, N 30.9[illegible]5

	NO.	LONG	LAT	DEPTH (ft)	Manning's "n"
LOB	1	30.955	40.757	4.1	nb= 0.030 n1= 0.009 n2= — n3= 0.020 n=nb+n1+n2+n3 = 0.055
	2	30.956	40.776	1.9	
	3	30.956	40.794	1.6	
MAIN	4	30.955	40.793	0.2	nb= 0.040 n1= — n2= — n3= — n=nb+n1+n2+n3 = 0.040
	5	30.957	40.797	-0.6	
ROB	6	30.959	40.799	1.5	nb= 0.030 n1= 0.005 n2= — n3= 0.020 n=nb+n1+n2+n3 = 0.055
	7	30.969	40.818	2.3	
	8	30.988	40.837	2.8	

}71'

}171'

}8'

Note: nb = manning's n-value based upon bed materials - data from Table 1 (USGS, 1991)
n1 = manning's n-value based upon channel surface irregularities from Table 2 (USGS, 1991)
n2 = manning's n-value based upon channel obstruction from Table 2 (USGS, 1991)
n3 = manning's n-value based upon vegetation from Table 2 (USGS, 1991)
dashes indicate a roughness coefficient of zero

Cross section was measured @ right upstream of split channels

Basin ID: L3 close to Culvert #6 Date: 11/18/03

Routing Channel ID: _____ Project: Buckeye ADMS Area 3

STA NO.: 1 Ref: ~~672582~~ W:40.652 N:29.571

	NO.	LONG	LAT	DEPTH (ft)	Manning's "n"	
LOB	1	29.489	40.699	5.7	nb= 0.030 n1= 0.005 n2= ~~0.005~~ NO. n3= 0.015 n=nb+n1+n2+n3 = 0.050	38'
	2	29.501'	40.711	4.3		
	3	29.507'	40.736'	4.2		
MAIN	4	29.507'	40.736'	2.5	nb= 0.025 n1= 0.005 n2= 0.005 n3= 0.010 n=nb+n1+n2+n3 = 0.040	10'
	5	29.508'	40.737	2.5		
ROB	6	29.509	40.738	4.2	nb=0.035 n1= 0.005 n2= — n3= 0.020 n=nb+n1+n2+n3 = 0.06	37'
	7	29.531	40.734	5.1		
	8	29.535	40.774	5.3		

Note: nb = manning's n-value based upon bed materials - data from Table 1 (USGS, 1991)
n1 - manning's n-value based upon channel surface irregularities from Table 2 (USGS, 1991)
n2 - manning's n-value based upon channel obstruction from Table 2 (USGS, 1991)
n3 - manning's n-value based upon vegetation from Table 2 (USGS, 1991)
Dashes indicate a roughness coefficient of zero

.676580 | .675864
.442769 | .445085

Basin ID: M2

Date: 11/18/03

Routing Channel ID: ____

Project: Buckeye ADMS

STA NO.: 1

Ref. 40.594'; 26.563' / 40.552'; 26.705'

	NO.	LONG	LAT	DEPTH (ft)	Manning's "n"	
LOB	1	27.048	40.436'	5.–	nb= 0.025 n1= – n2= – n3= 0.015 n=nb+n1+n2+n3 = ~~0.045~~ 0.040	23'
	2	27.051	40.448	4.8		
	3	27.053	40.461	4.6		
MAIN	4	27.051	40.463	3.1	nb= 0.025 n1= – n2= – n3= 0.015 n=nb+n1+n2+n3 = 0.040	85'
	5	27.043	40.469	2.8		
ROB	6	27.048	40.477	3.8	nb= 0.025 n1= – n2= – n3= 0.020 n=nb+n1+n2+n3 = 0.045	17'
	7	27.049	40.485	4.0		
	8	27.050	40.499	4.5		

Notes: nb - manning's n-value based upon bed materials - data from Table 1 (USGS, 1991)
n1 - manning's n-value based upon channel surface irregularities from Table 2 (USGS, 1991)
n2 - manning's n-value based upon channel obstruction from Table 2 (USGS, 1991)
n3 - manning's n-value based upon vegetation from Table 2 (USGS, 1991)
(–) indicate a roughness coefficient of zero

D.Hydrologic Analysis Supporting Documentation

D.1 Precipitation Data

Table D.1-1

Rainfall Amount Calculation from Prefre, in DDMSW (ver. 2.1)

	FRS 1 (Area=75.76 sq-mile)					
	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
	2	5	10	25	50	100
5 MIN	0.34	0.43	0.49	0.58	0.65	0.72
10 MIN	0.50	0.65	0.74	0.88	0.99	1.10
15 MIN	0.61	0.81	0.94	1.12	1.27	1.41
30 MIN	0.81	1.08	1.26	1.52	1.71	1.91
1 HOUR	0.99	1.33	1.56	1.89	2.14	2.39
2 HOUR	1.08	1.48	1.74	2.11	2.39	2.67
3 HOUR	1.15	1.57	1.86	2.25	2.56	2.87
6 HOUR	1.27	1.76	2.08	2.53	2.88	3.23
12 HOUR	1.39	1.97	2.35	2.88	3.29	3.69
24 HOUR	1.52	2.18	2.62	3.23	3.70	4.16
	FRS 2 (Area=5.82 sq-mile)					
	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
	2	5	10	25	50	100
5 MIN	0.32	0.42	0.49	0.59	0.66	0.74
10 MIN	0.48	0.64	0.75	0.90	1.02	1.13
15 MIN	0.59	0.80	0.94	1.14	1.30	1.45
30 MIN	0.77	1.07	1.27	1.54	1.76	1.97
1 HOUR	0.94	1.32	1.57	1.92	2.19	2.46
2 HOUR	1.03	1.46	1.74	2.14	2.44	2.74
3 HOUR	1.09	1.55	1.86	2.28	2.60	2.93
6 HOUR	1.20	1.72	2.07	2.55	2.91	3.28
12 HOUR	1.31	1.91	2.31	2.86	3.29	3.70
24 HOUR	1.42	2.11	2.56	3.18	3.66	4.13
	FRS 3 (Area=8.77 sq-mile)					
	2-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr
	2	5	10	25	50	100
5 MIN	0.32	0.42	0.49	0.58	0.66	0.73
10 MIN	0.48	0.63	0.74	0.89	1.00	1.12
15 MIN	0.58	0.79	0.93	1.13	1.28	1.43
30 MIN	0.77	1.06	1.26	1.53	1.74	1.95
1 HOUR	0.94	1.31	1.56	1.90	2.17	2.43
2 HOUR	1.03	1.45	1.73	2.12	2.42	2.71
3 HOUR	1.09	1.55	1.85	2.26	2.58	2.90
6 HOUR	1.21	1.72	2.07	2.54	2.90	3.26

12 HOUR	1.33	1.93	2.32	2.86	3.28	3.70
24 HOUR	1.45	2.13	2.58	3.19	3.67	4.14

Figure D.1-1a

Buckeye Area 3 FRS #1 I-D-F Graph

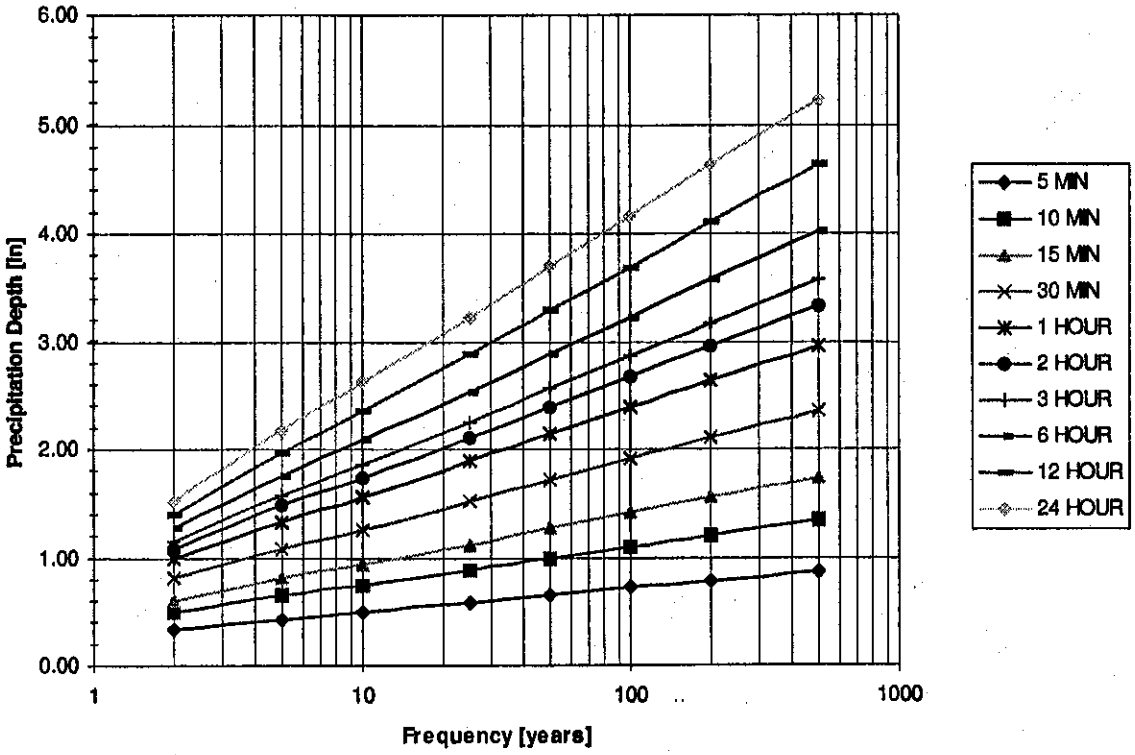


Figure D.1-1b

Buckeye Area 3 FRS #2 I-D-F Graph

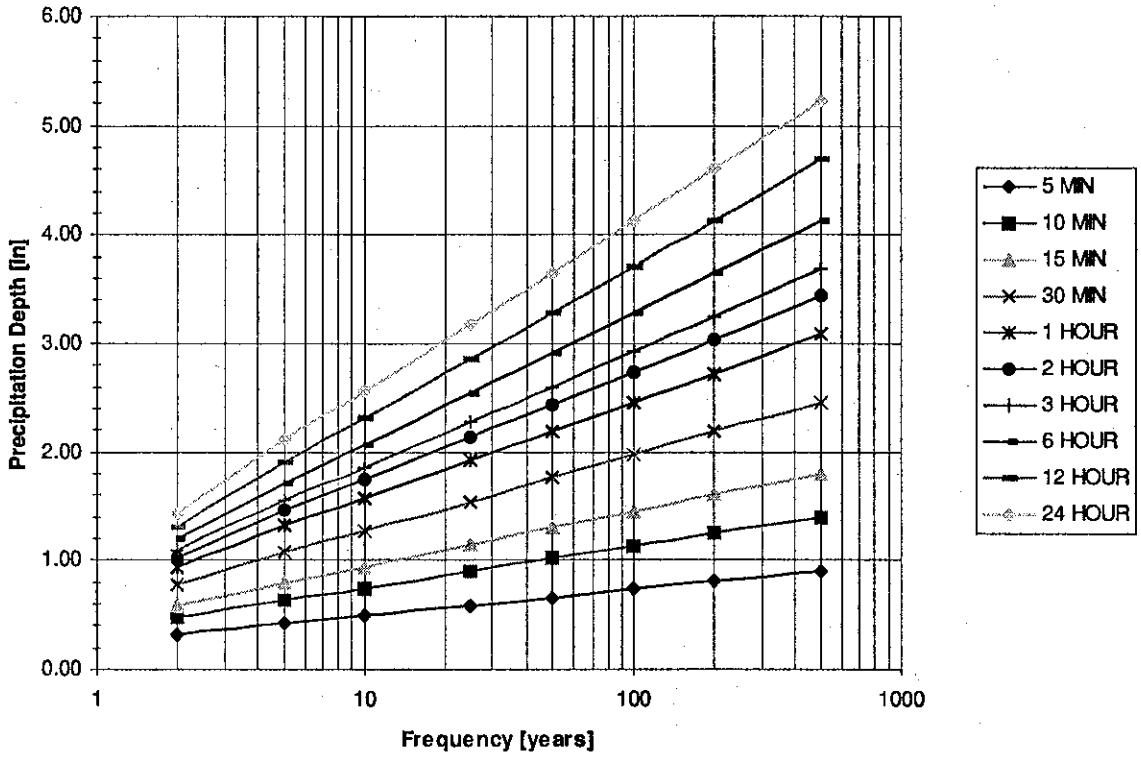
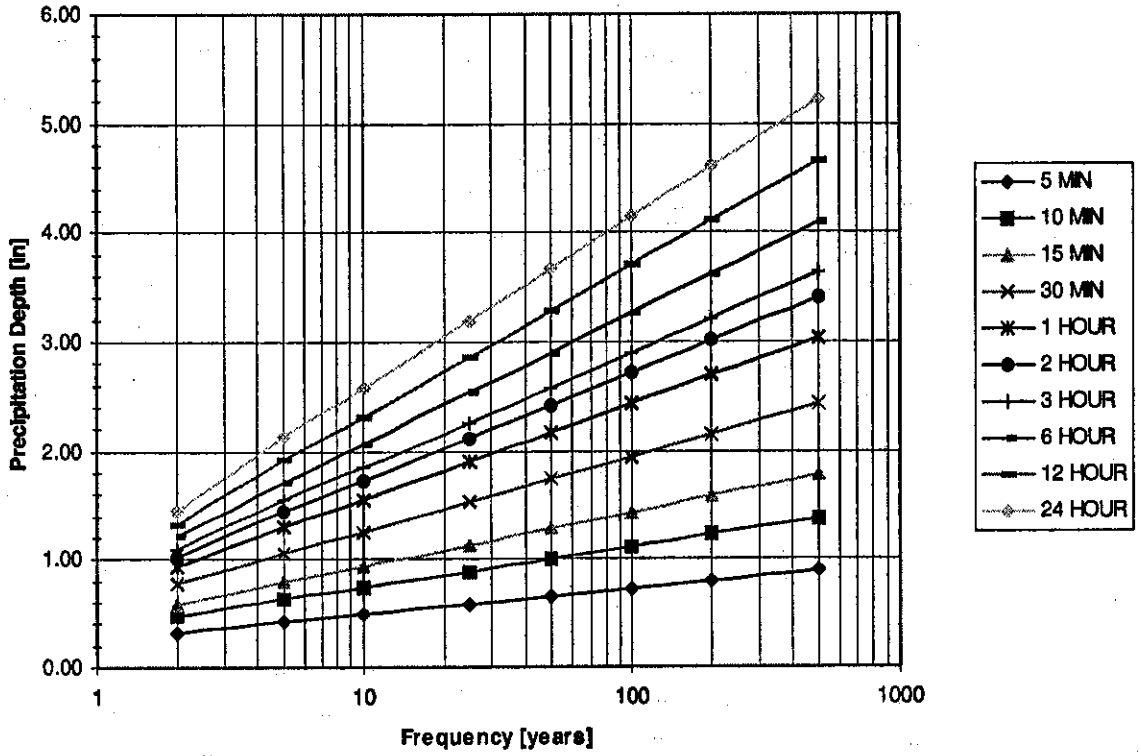


Figure D.1-1c

Buckeye Area 3 FRS #3 I-D-F Graph



D.2 Physical Parameter Calculations

Table D.2-1

Existing Conditions Land Use Look-up Table for Area 3

LU Code	Land Use Description	IA	RTIMP	% Veg	Saturation
110	Rural Residential (<= 1/5 du per acre)	0.30	5	30	normal
120	Estate Residential (1/5 du per acre to 1 du per acre)	0.30	5	30	normal
130	Large Lot Residential - Single Family (1 du per acre to 2 du per acre)	0.30	15	50	normal
140	Medium Lot Residential - Single Family (2-4 du per acre)	0.25	30	50	normal
150	Small Lot Residential - Single Family (4-6 du per acre)	0.25	30	50	normal
160	Very Small Lot Residential - Single Family (>6 du per acre-includes mobile home	0.25	40	50	normal
170	Medium Density Residential - Multi Family (5-10 du per acre)	0.25	45	50	normal
180	High Density Residential - Multi Family (10-15 du per acre)	0.25	45	50	normal
190	Very High Density Residential - Multi Family (> 15 du per acre)	0.25	45	50	normal
200	General Commercial (Commercial where no detail available)	0.10	80	60	normal

LU Code	Land Use Description	IA	RTIMP	% Veg	Saturation
210	Specialty Commercial (<=50,000 sq. ft.)	0.10	80	65	normal
220	Neighborhood Commercial (50,000 to 100,000 sq. ft.)	0.10	80	65	normal
230	Community Commercial (100,000 to 500,000 sq. ft.)	0.10	80	75	normal
240	Regional Commercial (500,000 to 1,000,000 sq. ft.)	0.10	80	65	normal
250	Super-Regional Commercial (>= 1,000,000 sq. ft.)	0.10	80	70	normal
300	General Industrial (Industrial where no detail available)	0.15	55	60	normal
310	Warehouse/Distribution Centers	0.10	80	75	normal
320	Industrial	0.15	55	60	normal
400	Office General (Office where no detail available)	0.10	80	75	normal
410	Office Low Rise (1-4 stories)	0.10	80	75	normal
420	Office Mid Rise (5-12 stories)	0.10	80	75	normal
430	Office High Rise (13 stories or more)	0.10	80	75	normal
510	Tourist and Visitor Accommodations (Hotels, motels and resorts)	0.10	80	75	normal
520	Educational (Public schools, private schools and universities)	0.29	45	80	normal
530	Institutional (Includes hospitals and churches)	0.10	80	75	normal
540	Cemeteries	0.10	5	90	normal
550	Public Facilities (Includes community centers, power sub-stations, libraries, ci	0.10	80	75	normal
560	Special Events (Includes stadiums, sports complexes and fairgrounds)	0.10	80	75	normal
570	Other Employment - low (Proving grounds and land fills)	0.10	80	75	normal
580	Other Employment - medium	0.10	80	75	normal
590	Other Employment - high	0.10	80	75	normal
600	General Transportation (Transportation where no detail available)	0.10	80	75	normal
610	Transportation (Includes railroads, railyards, transit centers and freeways)	0.10	80	75	normal
620	Airports (Includes public use airports)	0.15	55	60	normal
700	General Open Space (Open space where no detail available)	0.10	5	90	normal
710	Active Open Space (Includes parks)	0.10	5	90	normal
720	Golf courses	0.10	5	90	normal
730	Passive Open Space (Includes mountain preserves and washes)	0.10	0	90	normal
740	Water	0.00	0	0	wet
750	Agriculture	0.50	0	85	normal
810	Business Park (Includes enclosed industrial, office or retail in a planned envir	0.10	80	75	normal
900	Vacant (Existing land use database only)	0.35	0	25	dry

Table D.2-2

Soil Map look-up Table for Buckeye Area 3

Soil LID	Soil Description	XKSAT	RTIMP	% Effective
6451	Antho sandy loams	0.41	0	100
6452	Antho gravelly sandy loams	0.41	0	100
6453	Antho-Carrizo-Maripo complex	0.58	0	100
6454	Antho-Carrizo-Maripo complex, low precipitation	0.58	0	100
6455	Anthony sandy loam	0.43	0	100
6456	Anthony-Arizo complex	0.62	0	100

Soil LID	Soil Description	XKSAT	RTIMP	% Effectiv
6457	Anthony-Arizo complex, low precipitation	0.62	0	1
6458	Arizo cobbly sandy loam	0.96	0	100
6459	Beeline-Cipriano complex, 3 to 45 percent slopes	0.27	0	100
6531	Agualt and Ripley soils	0	0	100
6532	Agualt and Ripley soils, saline-sodic	0	0	100
6533	Ajo-Gunsight-Pompeli complex, 3 to 25 percent slopes	0.66	0	100
6535	Carrizo-Dateland complex, 0 to 3 percent slopes	0.82	0	100
6536	Carrizo-Momoli complex, 0 to 3 percent slopes	1.2	0	100
6537	Cherioni very cobbly fine sandy loam, 3 to 10 percent slopes	0.4	0	100
6538	Cherioni-Coolidge complex, 1 to 15 percent slopes	0	0	100
6539	Cipriano-Hyder-Rock outcrop complex, 15 to 65 percent slopes	0.59	15	100
6581	Brios gravelly loamy sand,3 to 5 percent slopes	0	0	100
6582	Brios very fine sandy loam,0 to 2 percent slopes	0	0	100
6583	Carrizo-Momoli complex, 1 to 3 percent slopes	0	0	100
6584	Carrizo-Pinamt complex, 1 to 5 percent slopes	0	0	100
6585	Carrizo very gravelly coarse sand, 0 to 1 percent slopes	0	0	100
6586	Casa Grande clay loam, 0 to 1 percent slopes	0	0	100
6587	Casa Grande complex, 0 to 5 percent slopes	0	0	100
6588	Casa Grande fine sandy loam, 0 to 3 percent slopes	0	0	100
6589	Cavelt-Carrizo-Gunsight complex, 1 to 10 percent slopes	0	0	100
7031	Ajo-pinamt, deep, complex, 3 to 15 percent slopes	0	0	100
7032	Anklam-cellar-rock outcrop complex, 15 to 55 percent slopes	0	0	100
7033	Anklam very gravelly sandy loam, 3 to 15 percent slopes	0	0	100
20012	Sandy Loam	0.4	0	1
20073	Sandy Loam	0.4	0	100
64510	Brios-Carrizo complex, 1 to 5 percent slopes	0.94	0	100
64511	Brios-Carrizo complex, low precipitation, 1 to 5 percent slopes	0.94	0	100
64512	Carefree cobbly clay loam, 1 to 8 percent slopes	0.01	0	100
64513	Carefree-Beardsley complex	0.01	0	100
64514	Carrizo very gravelly sand	1.04	0	100
64515	Carrizo-Gunsight complex, 1 to 5 percent slopes	0.54	0	100
64516	Cellar-Rock outcrop complex, 10 to 70 percent slopes	0.44	15	100
64517	Cellar-Rock outcrop complex, low precipitation, 10 to 70 percent slopes	0.44	15	100
64518	Cheriono-Rock outcrop complex, 5 to 60 percent slopes	0.33	15	100
64519	Chuckawalla-Gunsight complex, 1 to 8 percent slopes	0.19	0	100
64520	Chuckawalla-Gunsight complex, low precipitation, 1 to 8 percent slopes	0.19	0	100
64521	Cipriano very gravelly loam	0.38	0	100
64522	Contine clay loam	0.04	0	100
64523	Contine clay	0.01	0	100
64524	continental clay loam, 0 to 3 percent slopes	0.02	0	100
64525	Continental clay, 0 to 3 percent slopes	0.02	0	100
64526	Continental cobbly clay loam, 1 to 8 percent slopes	0.01	0	100
64527	Continental-Mohave complex, 1 to 7 percent slopes	0.01	0	100
64528	Continental-Ohaco complex	0.02	0	100
64529	Denure-Momoli-Carrizo complex	0.34	0	100
64530	Denure-Momoli-Carrizo complex, low precipitation	0.34	0	100

Soil LID	Soil Description	XKSAT	RTIMP	% Effective
64531	Dixaleta-Rock outcrop complex, 25 to 65 percent slopes	0.33	35	100
64532	Dixaleta-Rock outcrop complex, low precipitation, 25 to 65 percent slopes	0.33	35	100
64533	Eba very gravelly loam, 1 to 8 percent slopes	0.23	0	100
64534	Eba very gravelly loam, 8 to 20 percent slopes	0.23	0	100
64535	Eba very gravelly loam, low precipitation, 8 to 20 percent slopes	0.23	0	100
64536	Eba-Continental complex, 1 to 8 percent slopes	0.07	0	100
64537	Eba-Continental-Cave association, 3 to 20 percent slopes	0.13	0	100
64538	Eba-Continental-Cave association, low precipitation, 3 to 20 percent	0.13	0	100
64539	Eba-Nickel-Cave association, 3 to 25 percent slopes	0.29	0	100
64540	Eba-Pinaleno complex, 3 to 20 percent slopes	0.17	0	100
64541	Eba-Pinaleno complex, 20 to 40 percent slopes	0.17	0	100
64542	Eba-Pinaleno complex, low precipitation, 3 to 20 percent slopes	0.17	0	100
64543	Eba-Pinaleno complex, low precipitation, 20 to 40 percent slopes	0.17	0	100
64544	Ebon very gravelly loam, 1 to 8 percent slopes	0.03	0	100
64545	Ebon very gravelly loam, 8 to 20 percent slopes	0.03	0	100
64546	Ebon-Contine complex, 1 to 8 percent	0.03	0	100
64547	Ebon-Gunsight-Cipriano association, 3 to 25 percent slopes	0.11	0	100
64548	Ebon-Pinamt complex, 3 to 20 percent slopes	0.06	0	100
64549	Ebon-Pinamt complex, 20 to 40 percent slopes	0.06	0	100
64550	Estrella loams	0.26	0	100
64551	Gachado-Lomitas complex, 8 to 25 percent slopes	0.24	0	100
64552	Gachado-Lomitas-Rock outcrop complex, 7 to 55 percent slopes	0.16	20	100
64553	Gadsden clay	0.02	0	100
64554	Gila fine sandy loams	0.29	0	100
64555	Gilman loams	0.27	0	100
64556	Gilman loams, low precipitation	0.27	0	100
64557	Gilman clay loam	0.06	0	100
64558	Gilman-Momoli-Denure complex	0.34	0	100
64559	Gilman-Momoli-Denure complex, low precipitation	0.34	0	100
64560	Glenbar loams	0.26	0	100
64561	Gran-Wickenburg complex, 1 to 10 percent slopes	0.15	0	100
64562	Gran-Wickenburg complex, low precipitation, 1 to 10 percent slopes	0.15	0	100
64563	Gran-Wickenburg-Rock outcrop complex, 1 to 7 percent slopes	0.14	25	100
64564	Gran-Wickenburg-Rock outcrop complex, low precipitation, 10 to 65 percent slopes	0.14	25	100
64565	Greyeagle-Continental-Nickel association, 1 to 40 percent slopes	0.19	0	100
64566	Greyeagle-Suncity Variant complex, 1 to 7 percent slopes	0.23	0	100
64567	Guest clay	0.01	0	100
64568	Gunsight-Cipriano complex, 1 to 7 percent slopes	0.63	0	100
64569	Gunsight-Cipriano complex, low precipitation, 1 to 7 percent slopes	0.63	0	100
64570	Gunsight-Rillito complex, 1 to 25 percent slopes	0.36	0	100
64571	Gunsight-Rillito complex, low precipitation, 1 to 40 percent slopes	0.36	0	100
64572	Lehmans-Rock outcrop complex, 8 to 65 percent slopes	0.09	30	100
64573	Lehmans-Rock outcrop complex, low precipitation, 8 to 65 percent slopes	0.09	30	100
64574	Luke-Cipriano association, 1 to 15 percent slopes	0.08	0	100
64575	Mohall loam	0.23	0	100
64576	Mohall loam, calcareous solum	0.23	0	100

Soil LID	Soil Description	XKSAT	RTIMP	% Effectiv
64577	Mohall clay loam	0.05	0	100
64578	Mohall clay loam, calcareous solum	0.05	0	100
64579	Mohall clay	0.02	0	100
64580	Mohall-Tremant complex, 1 to 8 percent slopes	0.08	0	100
64581	Mohall-Tremant complex, low precipitation, 1 to 8 percent slopes	0.08	0	100
64582	Mohave sandy loam	0.04	0	100
64583	Mohave loam	0.04	0	100
64584	Mohave loam, calcareous solum	0.05	0	100
64585	Mohave clay loam	0.04	0	100
64586	Mohave clay loam, calcareous solum	0.05	0	100
64587	Mohave complex	0.04	0	100
64588	Mohave-Guest complex	0.02	0	100
64589	Mohave-Tres Hermanos complex, 1 to 8 percent slopes	0.06	0	100
64590	Momoli gravelly sandy loam, 1 to 5 percent slopes	0.39	0	100
64591	Momoli-Carrizo complex	0.93	0	100
64592	Momoli-Carrizo complex, low precipitation	0.93	0	100
64593	Nickel-Cave complex, 8 to 30 percent slopes	0.33	0	100
64594	Nickel-Cave complex, low precipitation, 8 to 30 percent slopes	0.33	0	100
64595	Ohaco gravelly loam	0.04	0	100
64596	Pinaleno-Tres Hermanos complex, 1 to 10 percent slopes	0.07	0	100
64597	Pinaleno-Tres Hermanos complex, low precipitation, 1 to 10 percent slopes	0.07	0	100
64598	Pinamt-Tremant complex, 1 to 10 percent slopes	0.37	0	100
64599	Pinamt-Tremant complex, low precipitation, 1 to 10 percent slopes	0.37	0	100
65164	Lakes, ponds, reservoirs - perennial	0	0	[illegible]
65310	Cipriano-Momoli complex, 1 to 7 percent slopes	0.5	0	100
65311	Coolidge complex, 0 to 3 percent slopes	0	0	100
65312	Cuerda-Why-Lagunita complex	0.35	0	100
65313	Dateland very fine sandy loam	0	0	100
65314	Dateland-Cuerda complex, 0 to 3 percent slopes	0.25	0	100
65315	Dateland-Denure fine sandy loams, saline-sodic, 0 to 3 percent slopes	0.28	0	100
65316	Denure sandy loam	0	0	100
65317	Denure gravelly fine sandy loam, 1 to 3 percent slopes	0.56	0	100
65318	Denure-Carrizo, bench, gravelly fine sandy loams	0	0	100
65319	Denure-Cavelt complex, 0 to 3 percent slopes	0	0	100
65320	Denure-Coolidge complex, 1 to 3 percent slopes	0.5	0	100
65321	Denure-Rillito-Why complex, 1 to 5 percent slopes	0.4	0	100
65322	Denure-Why complex, 1 to 5 percent slopes	0	0	100
65324	Gadsden clay loam, 0 to 3 percent slopes	0	0	100
65325	Gadsden and Kofa silty clay loams, saline-sodic	0	0	100
65327	Gilman very fine sandy loam	0	0	100
65328	Gilman very fine sandy loam, saline-sodic	0	0	100
65329	Glenbar silty clay loam	0	0	100
65330	Glenbar silty clay loam, saline-sodic	0	0	100
65331	Growler-Momoli complex, 1 to 3 percent slopes	0.84	0	100
65332	Growler-Wellton complex, 1 to 3 percent slopes	0.49	0	100
65333	Gunsight-Ajolito extremely gravelly sandy loams, 1 to 15 percent slopes	1.2	0	100

Soil LID	Soil Description	XKSAT	RTIMP	% Effective
65334	Gunsight-Chuckawalla complex, 1 to 15 percent slopes	0.84	0	100
65335	Gunsight-Cipriano complex, 1 to 15 percent slopes	0.91	0	100
65336	Gunsight-Pinamt complex, 1 to 15 percent slopes	0.84	0	100
65337	Gunsight-Rillito-Carrizo complex, 1 to 15 percent slopes	0.8	0	100
65338	Harqua fine sandy loam, 0 to 3 percent slopes	0	0	100
65339	Harqua-Cavelt complex, 1 to 10 percent slopes	0	0	100
65340	Hyder-Gachado-Gunsight extremely gravelly sandy loams, 1 to 25 percent slopes	0.4	15	100
65341	Indio silt loam	0	0	100
65342	Indio silt loam, saline-sodic	0	0	100
65343	Lagunita-Vint complex	0	0	100
65344	Mohall fine sandy loam	0	0	100
65345	Mohall loam	0.28	0	100
65346	Mohall loam, occasionally flooded	0	0	100
65347	Mohall clay loam	0	0	100
65348	Mohall complex, 0 to 3 percent slopes	0	0	100
65349	Momoli-Carrizo extremely gravelly sandy loams, 1 to 10 percent slopes	1.2	0	100
65350	Momoli-Carrizo, bench, very gravelly sandy loams, 1 to 3 percent slopes	1.2	0	100
65351	Momoli-Comobabi association, 5 to 15 percent slopes	0.48	0	100
65352	Pits	0	0	100
65353	Quilotosa-Momoli-Carrizo complex, 1 to 15 percent slopes	1.2	15	100
65354	Quilotosa-Rock outcrop complex, 15 to 55 percent slopes	0.97	26	100
65355	Riverwash	0	0	100
65356	Rock outcrop-Hyder complex. 25 to 65 percent slopes	0	0	100
65357	Rositas-Denure loamy fine sands, 1 to 10 percent slopes	0	0	100
65358	Schenco-Laposa-Rock outcrop complex, 10 to 55 percent slopes	0.63	19	100
65359	Tremant gravelly fine sandy loam	0	0	100
65360	Tucson loam	0.25	0	100
65361	Vaiva-Quilotosa extremely gravelly sandy loams, 3 to 25 percent slopes	0	0	100
65362	Vaiva-Quilotosa extremely stony sandy loams, 25 to 55 percent slopes	0	0	100
65363	Vint very fine sandy loam	0	0	100
65364	Lakes, ponds, reservoirs - perennial	0	0	100
65365	Wellton complex	0	0	100
65366	Why gravelly fine sandy loam	0	0	100
65367	Why-Carrizo complex, 0 to 3 percent slopes	0.44	0	100
65564	Lakes, ponds, reservoirs - perennial	0	0	100
65810	Chuckwalla-Gunsight complex, 1 to 5 percent slopes	0	0	100
65811	Cristobal-Gunsight complex, 3 to 15 percent slopes	0	0	100
65812	Dateland-Cuerda complex, saline-sodic, 0 to 3 percent slopes	0	0	100
65813	Denure-Pahaka complex, 1 to 3 percent slopes	0	0	100
65814	Denure-Pahaka complex, 3 to 5 percent slopes	0	0	100
65815	Gadsden, Glenbar and Vint soils, saline-sodic, 0 to 2 percent slopes	0	0	100
65816	Gadsden silty clay loam, saline-sodic, 0 to 2 percent slopes	0	0	100
65817	Glenbar silt loam, saline-sodic, 0 to 2 percent slopes	0	0	100
65818	Indio silt loam, saline-sodic, 0 to 2 percent slopes	0	0	100
65819	Indio-Vint complex, saline-sodic, 0 to 3 percent slopes	0	0	100
65820	Kamato complex, 0 to 5 percent slopes	0	0	100

Soil LID	Soil Description	XKSAT	RTIMP	% Effectiv
65821	Kamato loam, 0 to 2 percent slopes	0	0	100
65822	Lagunita silt loam, 0 to 2 percent slopes	0	0	100
65823	Laveen fine sandy loam, saline-sodic, 0 to 2 percent slopes	0	0	100
65824	Momoli cobbly sandy loam, 5 to 15 percent slopes	0	0	100
65825	Pompeii-Lomitas-Rock outcrop complex, 15 to 65 percent slopes	0	0	100
65826	Quilotosa-Momoli-Valva complex, 1 to 15 percent slopes	0	0	100
65827	Quilotosa-Rock outcrop-Valva complex, 20 to 65 percent slopes	0	0	100
65828	Redun-Shontik complex, 1 to 3 percent slopes	0	0	100
65829	Rillito-Gunsight complex, 3 to 15 percent slopes	0	0	100
65830	Rositas-Casa Grande-Slickspots complex, 1 to 15 percent slopes	0	0	100
65831	Rositas loamy fine sand, sodic, 0 to 3 percent slopes	0	0	100
65832	Shontik-Redun complex, 0 to 3 percent slopes	0	0	100
65833	Talal silt loam, 0 to 2 percent slopes	0	0	100
65834	Trix loam, saline-sodic, 0 to 1 percent slopes	0	0	100
65835	Vint-Yahana complex, saline-sodic, 0 to 10 percent slopes	0	0	100
65836	Why-Brios complex, 0 to 2 percent slopes	0	0	100
65837	Yahana-Indio complex, saline-sodic, 0 to 3 percent slopes	0	0	100
65838	Yahana silty clay loam, 0 to 2 percent slopes	0	0	100
70313	Chutum loam, 1 to 3 percent slopes	0	0	100
70315	Dateland-denure association, 1 to 3 percent slopes	0	0	100
70316	Delnorte-stagecoach complex, 1 to 20 percent slopes	0	0	100
70318	Delthorny-garzona-rock outcrop complex, 15 to 60 percent slopes	0	0	100
70319	Denure-momoli complex, 1 to 5 percent slopes	0	0	100
70323	Gachado-lomitas-rock outcrop complex, 15 to 45 percent slopes	0	0	1
70324	Gadsden silty clay loam, 0 to 1 percent slopes	0	0	100
70325	Gilman very fine sandy loam, 0 to 1 percent slopes	0	0	100
70327	Glenbar loam, 0 to 1 percent slopes	0	0	100
70328	Glendale clay loam, 0 to 2 percent slopes, flooded	0	0	100
70329	Glendale silt loam, 1 to 3 percent slopes	0	0	100
70330	Glendale-pajarito complex, 1 to 3 percent slopes	0	0	100
70331	Grabe-vado complex, 1 to 5 percent slopes	0	0	100
70332	Granolite-rock outcrop complex, 15 to 65 percent slopes	0	0	100
70334	Hantz clay loam, 0 to 1 percent slopes	0	0	100
70336	Hickiwan-gunsight-momoli complex, 3 to 15 percent slopes	0	0	100
70340	Lajitas-bosa-rock outcrop complex, 15 to 50 percent slopes	0	0	100
70343	Mohall-pahaka complex, 1 to 3 percent slopes	0	0	100
70344	Mohall-trix complex, 0 to 1 percent slopes	0	0	100
70345	Nahda-stagecoach complex, 1 to 15 percent slopes	0	0	100
70347	Pajarito-sahuarita complex, 1 to 3 percent slopes	0	0	100
70348	Pantano-granolite complex, 5 to 25 percent slopes	0	0	100
70349	Pinamt-momoli complex, 1 to 10 percent slopes	0	0	100
70355	Sasco loam, 0 to 1 percent slopes	0	0	100
70360	Vado-agustin complex, 1 to 8 percent slopes	0	0	100
70362	Wintersburg loam, 0 to 1 percent slopes	0	0	100
70363	Water	0	0	100
100103	Sandy Clay Loam	0.12	0	100

Soil LID	Soil Description	XKSAT	RTIMP	% Effective
100121	Sandy Clay Loam	0.12	0	100
100126	Sandy Loam	0.4	15	100
100301	Sandy Loam	0.4	0	100
100303	Sandy Loam	0.4	15	100
200239	Sandy Loam	0.4	30	100
200292	Sandy Loam	0.4	30	100
200300	Sandy Clay Loam	0.06	0	100
200301	Sandy Clay Loam	0.06	0	100
200352	Sandy Loam	0.4	10	100
200381	Sandy Loam	0.4	0	100
200382	Sandy Loam	0.4	15	100
200390	Sandy Clay Loam	0.06	0	100
200391	Sandy Clay Loam	0.06	0	100
200400	Sandy Clay Loam	0.06	0	100
200401	Sandy Clay Loam	0.06	0	100
200402	Sandy Loam	0.4	10	100
200415	Sandy Loam	0.4	0	100
200416	Sandy Clay Loam	0.06	0	100
200417	Loam	0.25	20	100
200418	Sandy Loam	0.4	0	100
200451	Loam	0.25	0	100
200452	Loam	0.25	20	100
300337	Saucedo volcanics - includes rhyolite, latite, and andesite	0	0	100
645100	Quilotosa-Vaiva-Rock outcrop complex, 20 to 65 percent slopes	0.4	20	100
645101	Rillito loam, 0 to 3 percent slopes	0.28	0	100
645102	Rillito gravelly loam, 1 to 8 percent slopes	0.4	0	100
645103	Rock outcrop-Gachado complex, 5 to 55 percent slopes	0.1	65	100
645104	Rock outcrop-Lehmans complex, 15 to 65 percent slopes	0.14	60	100
645105	Rock outcrop-Lehmans complex, low precipitation, 15 to 65 percent slopes	0.14	60	100
645106	Sal-Cipriano complex, 1 to 10 percent slopes	0.18	0	100
645107	Sal-Cipriano complex, low precipitation, 1 to 10 percent slopes	0.18	0	100
645108	Schenco-Rock outcrop complex, 3 to 25 percent slopes	0.31	30	100
645109	Schenco-Rock outcrop complex, 25 to 60 percent slopes	0.35	35	100
645110	Suncity-Cipriano complex, 1 to 7 percent slopes	0.13	0	100
645111	Torriorthents, 15 to 40 percent slopes	0.4	0	100
645112	Tremant gravelly sandy loams	0.39	0	100
645113	Tremant gravelly loams	0.39	0	100
645114	Tremant gravelly loams, low precipitation	0.39	0	100
645115	Tremant-Antho complex, 1 to 5 percent slopes	0.39	0	100
645116	Tremant-Gunsight-Rillito complex, 1 to 5 percent slopes	0.23	0	100
645117	Tremant-Gunsight-Rillito complex, low precipitation, 1 to 5 percent slopes	0.23	0	100
645118	Tremant-Rillito complex	0.42	0	100
645119	Tremant-Suncity complex, 1 to 8 percent slopes	0.14	0	100
645120	Tres Hermanos gravelly sandy loams	0.06	0	100
645121	Tres Hermanos-Anthony complex, 1 to 5 percent slopes	0.12	0	100
645122	Vado gravelly sandy loam, 1 to 5 percent slopes	0.33	0	100

Soil LID	Soil Description	XKSAT	RTIMP	% Effectiv
645123	Vaiva very gravelly loam, 1 to 20 percent slopes	0.37	0	100
645124	Valencia sandy loams	0.39	0	100
645125	Vint loamy fine sand	0.43	0	100
645999	Blank/Unknown/Uncertain	0	0	100
651999	Blank/Unknown/Uncertain	0	0	100
655999	Blank/Unknown/Uncertain	0	0	100
999999	Blank/Unknown/Uncertain	0	0	100
6512021	Agualt loam	0.26	0	100
6512025	Antho sandy loam, saline-alkali	0.39	0	100
6512029	Antho-Brios sandy loams	0.39	0	100
6512042	Antho association	0.4	0	100
6512044	Antho-Valencia association	0.39	0	100
6512047	Avonda clay loam	0.05	0	100
6512049	Avondale clay loam	0.04	0	100
6512051	Avondale clay loam, saline-alkali	0.04	0	100
6512228	Beardsley loam	0.24	0	100
6512255	Brios loamy sand	1.05	0	100
6512257	Brios sandy loam	0.39	0	100
6512259	Brios loam	0.25	0	100
6512423	Carrizo gravelly sandy loam	0.4	0	100
6512430	Carrizo and Brios soils	0.5	0	100
6512433	Casa Grande Sandy loam	0.24	0	100
6512435	Casa Grande loam	0.24	0	100
6512441	Casa Grande complex	0.3	0	1
6512445	Casa Grande-Leveen complex, alkali	0.26	0	100
6512447	Cashion clay, saline-alkali	0.01	0	100
6512448	Cheriono-Rock outcrop complex	0.29	20	100
6512451	Coolidge sandy loam	0.4	0	100
6512457	Coolidge-Tremant complex	0.19	0	100
6512462	Coolidge-Laveen association	0.39	0	100
6512647	Dune land	1.2	0	100
6512857	Estrella loam	0.25	0	100
6512859	Estrella loam, saline-alkali	0.25	0	100
6513220	Gachado-Rock outcrop complex	0.1	40	100
6513223	Gadsden clay loam	0.04	0	100
6513225	Gadsden clay	0.01	0	100
6513227	Gadsden clay, saline-alkali	0.01	0	100
6513229	Gilman fine sandy loam	0.26	0	100
6513231	Gilman fine sandy loam, saline-alkali	0.24	0	100
6513235	Gilman loam, saline-alkali	0.24	0	100
6513242	Gilman complex, saline-alkali	0.25	0	100
6513244	Gilman-Antho association	0.29	0	100
6513246	Gilman-Laveen association	0.25	0	100
6513251	Gilman loam, clayey subsoil variant, moderately saline	0.24	0	100
6513255	Glenbar loam	0.23	0	100
6513257	Glenbar loam, saline-alkali	0.23	0	100

Soil LID	Soil Description	XKSAT	RTIMP	% Effective
6513259	Glenbar clay loam	0.04	0	100
6513261	Glenbar clay loam, saline-alkali	0.04	0	100
6513263	Glenbar clay	0.01	0	100
6513444	Harqua-Laveen complex	0.15	0	100
6514221	La Palma very fine sandy loam	0.26	0	100
6514223	Laveen sandy loam	0.4	0	100
6514227	Laveen loam, saline-alkali	0.25	0	100
6514229	Laveen clay loam	0.04	0	100
6514231	Laveen-Antho complex, saline-alkali	0.33	0	100
6514421	Maripo sandy loam	0.4	0	100
6514449	Mohall sandy loam	0.39	0	100
6514451	Mohall loam	0.25	0	100
6514455	Mohall clay loam	0.05	0	100
6514457	Mohall clay	0.01	0	100
6514462	Mohall-Laveen association	0.15	0	100
6515021	Perryville sandy loam	0.4	0	100
6515023	Perryville loam, saline-alkali	0.38	0	100
6515058	Pinal gravelly loam	0.4	0	100
6515456	Rock outcrop-Cherioni complex	0.4	65	100
6515821	Toltec loam	0.25	0	100
6515822	Torrifluvents	0.4	0	100
6515825	Torriorthents	0.4	0	100
6515826	Torripsamments and Torrifluvents, frequently flooded	1.2	0	100
6515829	Tremant loam	0.25	0	100
6515833	Tremant clay loam	0.04	0	100
6515835	Tremant gravelly clay loam	0.04	0	100
6515859	Trix clay loam	0.04	0	100
6515861	Tucson loam	0.25	0	100
6515865	Tucson clay loam	0.05	0	100
6516221	Valencia sandy loam	0.39	0	100
6516223	Valencia sandy loam, saline-alkali	0.39	0	100
6516225	Valencia gravelly sandy loam	0.39	0	100
6516229	Vecont loam	0.25	0	100
6516231	Vecont clay	0.01	0	100
6516233	Vint loamy fine sand	0.91	0	100
6516235	Vint fine sandy loam	0.27	0	100
6516241	Vint loam	0.26	0	100
6516247	Vint clay loam	0.04	0	100
6516255	Vint-Carrizo complex	0.63	0	100
6516433	Wintersburg complex	0.03	0	100
6552031	Agualt fine sandy loam	0.25	0	100
6552033	Agualt loam	0.25	0	100
6552045	Alluvial land	1.2	0	100
6552063	Avondale clay loam	0.04	0	100
6552421	Carrizo gravelly loamy sand	1.2	0	100
6552423	Carrizo fine sandy loam	0.25	0	100

Soil LID	Soil Description	XKSAT	RTIMP	% Effecti
6552425	Cashion clay	0.01	0	100
6552449	Contine clay loam	0.04	0	100
6552857	Estrella loam	0.25	0	100
6553231	Gilman fine sandy loam	0.25	0	100
6553245	Gilman loam	0.25	0	100
6553247	Glenbar clay loam	0.04	0	100
6553255	Gravelly alluvial land	1.2	0	100
6554449	Mohall sandy loam	0.4	0	100
6554463	Mohall loam	0.25	0	100
6555045	Pimer clay loam	0.04	0	100
6555049	Pinal loam, moderately deep variant	0.25	0	100
6555449	Rock land	0.25	65	100
6555461	Rough broken land	0.4	20	100
6555867	Trix clay loam	0.04	0	100
6556221	Valencia sandy loam	0.4	0	100
6556229	Vecont clay	0.01	0	100
6556231	Vint loamy fine sand	1.2	0	100
65124202	Calciorthids and Torriorthents, eroded	0.38	0	100
65132493	Gilman,Antho and Glenbar soils, severely eroded	0.19	0	100
651202320	Anthosandy loam, 0 to 1 percent slopes	0.38	0	100
651202322	Antho sandy loam, 1 to 3 percent slopes	0.39	0	100
651202720	Antho gravelly sandy loam, 0 to 1 percent slopes	0.4	0	100
651202722	Antho gravelly sandy loam, 1 to 3 percent slopes	0.4	0	1
651203120	Antho-Carrizo complex, 0 to 1 percent slopes	0.38	0	1
651203122	Antho-Carrizo complex, 1 to 3 percent slopes	0.4	0	100
651203222	Antho-Carrizo complex, 0 to 3 percent slopes	0.4	0	100
651203424	Antho-Tremant complex, 1 to 5 percent slopes	0.38	0	100
651204122	Antho-Tremant-Mohall complex, 1 to 5 percent slopes	0.27	0	100
651225036	Borrow pit	0	0	100
651242926	Carrizo-Ebon complex, 3 to 12 percent slopes	0.19	0	100
651245522	Coolidge gravelly sandy loam, 1 to 3 percent slopes	0.4	0	100
651282326	Ebon gravelly loam, 0 to 8 percent slopes	0.1	0	100
651285026	Ebon-Pinamt complex, 0 to 10 percent slopes	0.12	0	100
651323320	Gilman loan, 0 to 1 percent slopes	0.25	0	100
651323322	Gilman loam, 1 to 3 percent slopes	0.26	0	100
651325036	Gravel pit	0	0	100
651326426	Gunsight-Pinal complex, 1 to 10 percent slopes	0.35	0	100
651326720	Gunsight-Rillito complex, 0 to 1 percent slopes	0.23	0	100
651326722	Gunsight-Rillito complex, 1 to 3 percent slopes	0.24	0	100
651326826	Gunsight-Rillito complex, 0 to 10 percent slopes	0.26	0	100
651342022	Harqua complex, 0 to 3 percent slopes	0.07	0	100
651342024	Harqua complex, 3 to 8 percent slopes	0.05	0	100
651344224	Harqua-Gunsight complex, 0 to 5 percent slopes	0.14	0	100
651345522	Harqua-Rillito complex, 1 to 3 percent slopes	0.12	0	100
651422520	Laveen loam, 0 to 1 percent slopes	0.25	0	100
651422522	Laveen loam, 1 to 3 percent slopes	0.25	0	100

Soil LID	Soil Description	XKSAT	RTIMP	% Effective
651422862	Man-made levee	0	0	100
651441064	Waste stabilization pond	0	0	100
651445822	Mohall-Tremant complex, 0 to 3 percent slopes	0.15	0	100
651502920	Perryville gravelly loam, 0 to 1 percent slopes	0.37	0	100
651502922	Perryville gravelly loam, 1 to 3 percent slopes	0.38	0	100
651505422	Perryville-Rillito complex, 0 to 3 percent slopes	0.28	0	100
651505720	Pinal loam, 0 to 1 percent slopes	0.25	0	100
651505722	Pinal loam, 1 to 3 percent slopes	0.26	0	100
651506322	Pinal-La Palma loams, 1 to 3 percent slopes	0.25	0	100
651506422	Pinal-Suncity complex, 0 to 3 percent slopes	0.38	0	100
651506826	Pinamt-Tremant complex, 1 to 10 percent slopes	0.2	0	100
651542120	Rillito sandy loam, 0 to 1 percent slopes	0.39	0	100
651542122	Rillito sandy loam, 1 to 3 percent slopes	0.39	0	100
651542320	Rillito loam, 0 to 1 percent slopes	0.26	0	100
651542322	Rillito loam, 1 to 3 percent slopes	0.25	0	100
651543522	Rillito-Harqua complex, 1 to 3 percent slopes	0.23	0	100
651545128	Rillito-Perryville complex, 5 to 20 percent slopes	0.29	0	100
651583120	Tremant gravelly loam, 0 to 1 percent slopes	0.37	0	100
651583122	Tremant gravelly loam 1 to 3 percent slopes	0.36	0	100
651585022	Tremant complex, 0 to 3 percent slopes	0.12	0	100
651585520	Tremant-Rillito complex, 0 to 1 percent slopes	0.11	0	100
651585522	Tremant-Rillito complex, 1 to 3 percent slopes	0.13	0	100
651585624	Tremant-Rillito complex, 0 to 5 percent slopes	0.14	0	100
653422862	Man-made levee	0	0	100
655204720	Antho sandy loam, 0 to 1 percent slopes	0.4	0	100
655204722	Antho sandy loam, 1 to 3 percent slopes	0.4	0	100
655204922	Antho gravelly sandy loam, 1 to 3 percent slopes	0.4	0	100
655242924	Cavelt gravelly loam, 1 to 5 percent slopes	0.4	0	100
655325462	Gravel pit	0	0	100
655422120	Laveen loam, 0 to 1 percent slopes	0.25	0	100
655422122	Laveen loam, 1 to 3 percent slopes	0.25	0	100
655422920	Laveen clay loam, 0 to 1 percent slopes	0.04	0	100
655504720	Pinal gravelly loam, 0 to 1 percent slopes	0.4	0	100
655504724	Pinal gravelly loam, 1 to 3 percent slopes	0.4	0	100
655506320	Pinamt very gravelly loam, 0 to 1 percent slopes	0.4	0	100
655506324	Pinamt very gravelly loam, 3 to 5 percent slopes	0.4	0	100
655543720	Rillito gravelly loam, 0 to 1 percent slopes	0.4	0	100
655543722	Rillito gravelly loam, 1 to 3 percent slopes	0.4	0	100
655585522	Tremant gravelly loam, 1 to 3 percent slopes	0.1	0	100

Table D.2-3

Summary of Green & Ampt Parameters for Buckeye Area 3 Existing Conditions

Subbasin	Area [mi^2]	IA	DTHETA	PSIF	XKSAT	RTIMP
A1	1.11	0.350	0.350	4.057	0.417	9.735
A2A	0.48	0.350	0.350	4.605	0.325	0.000
A2B	1.18	0.350	0.350	4.507	0.348	0.000
A3	3.73	0.350	0.350	4.230	0.405	0.000
B1	0.60	0.350	0.350	3.766	0.462	5.699
B2	0.44	0.350	0.350	3.628	0.511	0.000
B3	1.99	0.332	0.332	4.284	0.389	0.000
C1	3.64	0.218	0.297	3.922	0.411	21.031
C2	1.86	0.350	0.350	3.949	0.428	0.000
C3	3.79	0.345	0.345	4.357	0.371	0.000
C4	1.40	0.327	0.327	4.737	0.290	0.000
E1	0.96	0.350	0.378	5.377	0.222	0.690
E2A	0.80	0.350	0.380	5.600	0.210	0.000
E2B	0.47	0.350	0.380	5.600	0.210	0.000
E2C	0.72	0.350	0.350	4.343	0.357	0.000
E3	2.49	0.350	0.350	4.362	0.346	0.000
E4	3.04	0.350	0.350	3.816	0.439	0.000
E5	1.31	0.347	0.344	3.940	0.429	0.968
E6	2.04	0.343	0.336	4.356	0.367	0.711
F1	3.10	0.297	0.329	4.244	0.378	12.997
F2	2.21	0.350	0.350	4.375	0.362	3.346
F3	0.74	0.350	0.350	3.284	0.640	0.000
G1	1.12	0.350	0.350	4.680	0.299	0.000
H1	1.07	0.350	0.350	2.733	0.945	0.000
H2	1.40	0.350	0.350	3.222	0.664	0.000
J1	1.73	0.350	0.350	3.250	0.653	0.000
J2	3.64	0.349	0.348	3.621	0.496	0.281
K1	1.54	0.112	0.255	4.365	0.366	21.277
K2A	1.95	0.341	0.347	4.907	0.278	1.288
K2B	0.42	0.350	0.350	2.708	0.961	0.000
K3	1.64	0.350	0.350	3.421	0.582	0.000
L1	3.55	0.271	0.318	4.363	0.351	16.279
L2A	0.69	0.350	0.384	5.641	0.202	0.000
L2B	4.08	0.350	0.350	4.179	0.399	0.000
L2C	1.33	0.350	0.350	4.189	0.422	0.000
L2D	1.23	0.350	0.350	3.578	0.544	0.000
L3	5.85	0.341	0.328	3.980	0.419	1.050
M1	5.69	0.350	0.350	4.297	0.350	16.637
M2	7.44	0.350	0.350	3.959	0.445	0.291
N1	1.52	0.350	0.350	4.075	0.419	8.380
N2	3.33	0.350	0.350	4.117	0.405	2.670

Subbasin	Area [mi^2]	IA	DTHETA	PSIF	XKSAT	RTIMP
O1	3.09	0.350	0.350	4.191	0.393	2.105
P1A	0.50	0.350	0.350	3.987	0.405	16.364
P1B	1.94	0.350	0.350	4.230	0.393	4.667
Q1A	1.30	0.350	0.350	4.127	0.400	11.200
Q1B	0.94	0.350	0.350	4.320	0.373	14.815
R1	0.28	0.350	0.350	4.358	0.374	8.387
S1	1.41	0.350	0.350	4.484	0.352	6.918
T1	3.04	0.350	0.350	4.644	0.299	11.497
U1	1.37	0.350	0.370	5.258	0.233	6.449
V1	0.66	0.350	0.350	3.972	0.405	13.864
W1	3.89	0.350	0.350	3.976	0.410	15.199
W2	2.85	0.350	0.350	4.081	0.402	3.547
X1	0.79	0.350	0.350	3.955	0.417	12.555
Y1	0.58	0.350	0.350	4.044	0.415	10.947
Z1	0.66	0.321	0.292	4.004	0.430	2.909

Table D.2-4

Summary of Lag Time Estimation for Buckeye Area 3 Sub-basins

Subbasin	Area [mi^2]	L [mi]	L_{ca} [mi]	S [ft/mi]	S-Graph Type	K_n	Lag [min]
A1	1.11	2.20	0.86	322.08	Phx Mnt	0.050	30
A2A	0.48	1.90	1.28	55.92	Des Rnglnd	0.055	51
A2B	1.18	2.10	1.12	76.27	Des Rnglnd	0.055	47
A3	3.73	3.92	1.89	58.21	Des Rnglnd	0.045	64
B1	0.60	3.11	1.55	213.96	Phx Mnt	0.050	47
B2	0.44	2.69	0.84	67.29	Des Rnglnd	0.055	48
B3	1.99	3.72	1.65	63.31	Des Rnglnd	0.045	59
C1	4.66	4.66	2.77	333.05	Phx Mnt	0.050	63
C2	1.86	2.86	1.20	92.12	Des Rnglnd	0.055	53
C3	3.79	4.44	2.51	56.33	Des Rnglnd	0.050	84
C4	1.40	2.18	0.88	44.31	Des Rnglnd	0.045	40
E1	0.96	2.51	1.13	178.34	Phx Mnt	0.055	43
E2A	0.80	2.90	1.20	100.83	Des Rnglnd	0.055	52
E2B	0.47	2.08	1.07	87.98	Des Rnglnd	0.055	45
E2C	0.72	2.38	1.01	92.90	Des Rnglnd	0.055	46
E3	2.49	3.87	1.99	49.65	Des Rnglnd	0.050	75
E4	3.04	5.36	2.81	38.26	Des Rnglnd	0.050	102
E5	1.31	3.01	1.41	28.56	Des Rnglnd	0.050	66
E6	2.04	3.04	1.06	34.17	Des Rnglnd	0.050	57
F1	3.10	5.07	2.57	369.39	Phx Mnt	0.050	62
F2	2.21	3.88	1.80	161.60	Phx Mnt	0.050	57
F3	0.74	2.71	1.26	81.34	Des Rnglnd	0.055	54
G1	1.12	2.38	1.08	33.76	Des Rnglnd	0.045	47

Subbasin	Area [mi^2]	L [mi]	L_{ca} [mi]	S [ft/mi]	S-Graph Type	K_n	Lag [min]
H1	1.07	2.41	1.09	64.59	Des Rnglnd	0.055	51
H2	1.40	4.41	2.60	44.71	Des Rnglnd	0.050	89
J1	1.73	4.09	1.78	70.82	Des Rnglnd	0.055	75
J2	3.64	5.18	2.51	45.01	Des Rnglnd	0.050	93
K1	1.54	3.23	1.84	681.00	Phx Mnt	0.050	40
K2A	1.95	5.29	2.72	126.78	Des Rnglnd	0.055	87
K2B	0.42	2.01	0.83	60.78	Des Rnglnd	0.055	43
K3	1.64	4.92	2.65	44.16	Des Rnglnd	0.050	94
L1	3.55	4.93	2.29	308.27	Phx Mnt	0.050	61
L2A	0.69	2.46	1.12	136.18	Des Rnglnd	0.055	45
L2B	4.08	5.13	1.82	93.37	Des Rnglnd	0.055	78
L2C	1.33	3.20	1.55	91.31	Des Rnglnd	0.055	61
L2D	1.23	2.77	1.24	74.13	Des Rnglnd	0.055	55
L3	5.85	4.75	2.00	44.27	Des Rnglnd	0.055	91
M1	5.69	5.19	2.41	230.06	Phx Mnt	0.050	67
M2	7.44	6.59	3.00	71.62	Des Rnglnd	0.050	100
N1	1.52	2.79	1.44	340.38	Phx Mnt	0.050	40
N2	3.33	5.64	3.27	170.14	Phx Mnt	0.055	91
O1	3.09	5.20	2.79	64.07	Phx Mnt	0.055	100
P1A	0.50	2.28	1.41	461.40	Phx Mnt	0.055	38
P1B	1.94	4.39	2.32	70.84	Phx Mnt	0.055	85
Q1A	1.30	3.13	1.52	256.86	Phx Mnt	0.055	49
Q1B	0.94	2.35	1.14	141.40	Phx Mnt	0.055	44
R1	0.28	1.01	0.46	213.31	Phx Mnt	0.050	19
S1	1.41	2.32	0.52	143.99	Phx Mnt	0.050	29
T1	3.04	4.34	1.58	274.89	Phx Mnt	0.050	51
U1	1.37	2.37	1.03	326.50	Phx Mnt	0.050	33
V1	0.66	2.86	1.75	344.82	Phx Mnt	0.050	43
W1	3.89	3.46	1.78	486.28	Phx Mnt	0.050	44
W2	2.85	3.25	1.19	178.54	Phx Mnt	0.050	44
X1	0.79	2.60	1.44	288.89	Phx Mnt	0.050	40
Y1	0.58	1.37	0.53	771.84	Phx Mnt	0.050	17
Z1	0.66	1.70	0.66	47.00	Des Rnglnd	0.055	39

D.3 Hydrograph Routing Data

Table D.3-1

Summary of Routing Channel Parameters – Length, Slope and Manning's n

Routing Channel	n-left	n-channel	n-right	L [ft]	S [ft/ft]
A1-A2A	0.045	0.045	0.045	7,200	0.0147

Routing Channel	n-left	n-channel	n-right	L [ft]	S [ft/ft]
A2B-A3	0.050	0.043	0.050	18,881	0.0112
B1-B2	0.055	0.042	0.055	7,166	0.0133
B2-B3	0.050	0.025	0.050	20,075	0.0118
C1-C2	0.050	0.044	0.050	15,078	0.0174
C2-C3	0.046	0.050	0.046	23,814	0.0105
E1-E2B	0.050	0.047	0.046	10,993	0.0160
E2A-E3	0.052	0.046	0.052	19,625	0.0093
E2B-E3	0.052	0.046	0.052	19,626	0.0088
E2C-E3	0.052	0.046	0.052	17,293	0.0082
E3-E4	0.056	0.049	0.056	13,855	0.0048
E4H2-E5	0.060	0.050	0.060	15,206	0.0051
E5K3-E6	0.063	0.051	0.063	5,083	0.0037
F1-F2	0.053	0.045	0.055	3,313	0.0106
F2-F3	0.050	0.047	0.048	7,059	0.0100
F3-E4	0.050	0.044	0.050	27,656	0.0072
H1-H2	0.053	0.050	0.053	21,738	0.0082
J1-J2	0.055	0.040	0.055	24,090	0.0086
J2-K3	0.050	0.048	0.050	4,072	0.0059
K1-K2A	0.050	0.048	0.050	19,422	0.0170
K2A-K2B	0.050	0.048	0.050	10,599	0.0115
K2B-K3	0.050	0.048	0.050	25,950	0.0084
L1-L2A	0.046	0.045	0.046	7,079	0.0174
L2A-L2B	0.046	0.045	0.046	20,653	0.0147
L2C-L2D	0.046	0.045	0.046	9,626	0.0122
L2D-L3	0.050	0.040	0.060	27,374	0.0077
L2B-L3	0.050	0.040	0.060	19,943	0.0089
M1-M2	0.040	0.040	0.045	34,795	0.0136
N1-N2	0.050	0.047	0.050	26,511	0.0115
P1A-P1B	0.050	0.047	0.050	20,103	0.0111
Q1A-Q1B	0.050	0.047	0.050	9,170	0.0117
W1-W2	0.050	0.050	0.060	11,249	0.0189

Table D.3-2

Summary of Routing Channel Parameters – Representative Cross Sections

	A1-A2A		A2B-A3		B1-B2		B2-B3		C1-C2		C2-C3		E1-E2B		E2A-E3	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
1	0	27.0	0	20.0	0	20.0	0	13.5	0	21.0	0	26.0	0	24.0	0	22.0
2	75	23.0	20	19.0	75	17.0	120	10.0	35	19.0	60	25.0	65	21.0	133	17.0
3	125	19.0	30	18.0	140	14.0	278	11.6	90	16.0	125	23.0	140	17.0	173	14.0
4	185	10.0	165	10.0	167	10.0	285	10.1	138	10.0	140	10.0	170	10.0	213	10.0
5	190	10.0	186	10.0	193	10.0	301.5	10.1	159	10.0	172	10.0	185	10.0	223	10.0
6	220	20.0	346	20.0	226	13.0	312.5	11.5	209	15.0	232	16.0	200	14.0	263	15.0
7	280	26.0	361	21.0	296	17.0	446.5	10.8	264	20.0	292	20.0	270	18.0	303	18.0
8	340	32.0	381	22.0	371	22.0	529.5	12.6	309	24.0	352	23.0	340	22.0	403	22.0

	E2B-E3		E2C-E3		E3-E4		F3-E4		E4-E5		E5-E6		F1-F2		F2-F3	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
1	0	22.0	0	22.0	0	21.0	0	20.0	0	27.0	0	25.0	0	27.0	0	20.0
2	133	17.0	133	17.0	570	14.0	570	14.0	1010	16.0	850	13.0	60	26.0	350	15.0
3	173	14.0	173	14.0	650	13.0	650	13.0	1080	15.0	980	13.0	120	25.0	425	13.0
4	213	10.0	213	10.0	690	10.0	690	10.0	1090	10.0	990	10.0	146	10.0	455	10.0
5	223	10.0	223	10.0	705	10.0	705	10.0	1110	10.0	1030	10.0	178	10.0	472	10.0
6	263	15.0	263	15.0	735	12.5	735	12.5	1120	14.0	1040	12.0	208	24.0	499	12.0
7	303	18.0	303	18.0	810	14.5	810	14.5	1190	16.0	1230	12.0	268	26.0	569	14.0
8	403	22.0	403	22.0	1200	21.0	1200	20.0	2200	27.0	2020	25.0	328	28.0	900	20.0

	H1-H2		J1-J2		K1-K2A		K2A-K2B		K2B-K3		J2-K3		L1-L2A		L2A-L2B	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
1	0	17.0	0	17.0	0	22.0	0	22.0	0	20.0	0	20.0	0	19.0	0	19.0
2	330	14.0	161	12.5	20	21.0	20	21.0	390	14.5	390	14.5	80	17.0	80	17.0
3	430	12.0	247	12.2	55	20.0	55	20.0	490	11.5	490	11.5	165	14.0	165	14.0
4	465	10.0	254	10.8	85	10.0	85	10.0	502	10.0	502	10.0	200	10.0	200	10.0
5	495	10.0	271	10.0	235	10.0	235	10.0	520	10.0	520	10.0	215	10.0	215	10.0
6	530	12.0	279	12.1	259	20.0	259	20.0	532	11.5	532	11.5	255	14.0	255	14.0
7	630	14.0	393	12.9	289	21.0	289	21.0	632	14.5	632	14.5	340	18.0	340	18.0
8	960	17.0	660	17.0	309	22.0	309	22.0	1022	20.0	1022	20.0	420	22.0	420	22.0

	L2C-L2D		L2D-L3		L2B-L3		M1-M2		N1-N2		P1A-P1B		Q1A-Q1B		W1-W2	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
1	0	19.0	0	18	0	18	0	15.5	0	17.0	0	17.0	0	17.0	0	17.5
2	80	17.0	1093	11.8	1093	11.8	961	12.0	280	13.0	280	13.0	280	13.0	350	11.5
3	165	14.0	1210	11.7	1210	11.7	1028	11.8	350	11.5	350	11.5	350	11.5	372	11.6
4	200	10.0	1215	10	1215	10	1051	10.3	358	10.0	358	10.0	358	10.0	384	10.0
5	215	10.0	1225	10	1225	10	1136	10.0	367	10.0	367	10.0	367	10.0	472	11.2
6	255	14.0	1232	11.7	1232	11.7	1153	11.0	381	11.5	381	11.5	381	11.5	489	13.4
7	340	18.0	1372	11.8	1372	11.8	1193	11.2	451	13.0	451	13.0	451	13.0	525	13.8
8	420	22.0	2000	18	2000	18	1900	15.5	730	17.0	730	17.0	730	17.0	1005	17.5

Table D.3-3

Summary of Routing Channel Parameters – NSTEPS Used in HEC-1 Models (Existing Conditions

Routing Channel	10-yr 6-hr	10-yr 24-hr	100-yr 6-hr	100-yr 24-hr
A1-A2A	5	5	4	4
A2B-A3	15	15	11	12
B1-B2	4	4	4	4
B2-B3	24	24	17	18
C1-C2	6	6	5	5
C2-C3	13	12	9	9

E1-E2B	7	7	5	5
E2A-E3	15	17	13	13
E2B-E3	16	16	11	12
E2C-E3	15	16	12	13
E3-E4	14	13	14	14
E4H2-E5	12	15	16	14
E5K3-E6	9	7	7	6
F1-F2	2	2	1	1
F2-F3	5	4	4	4
F3-E4	20	20	20	19
H1-H2	29	31	19	21
J1-J2	20	17	28	28
J2-K3	5	5	4	4
K1-K2A	14	14	9	10
K2A-K2B	8	8	6	6
K2B-K3	23	22	19	19
L1-L2A	3	4	3	3
L2A-L2B	10	9	7	7
L2B-L3	29	23	19	18
L2C-L2D	8	7	6	6
L2D-L3	54	57	40	39
M1-M2	23	22	24	23
N1-N2	22	23	21	20
P1A-P1B	18	17	18	19
Q1A-Q1B	8	9	8	8
W1-W2	7	6	6	6

D.4 Reservoir Routing Data

N/A

D.5 Flow Splits and Diversion Data

N/A

D.6.1 HEC-1 Output File 10-Year 6-Hour & 24-Hour

D.6.1.a HEC-1 Output File for 10-year 6-hour Storm (Existing Conditions)

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*            MAY  1991              *
*         VERSION 4.0.1E            *
*                                   *
* RUN DATE _______ TIME _______     *
```

```
*************************************
*                                   *
*   U.S. ARMY CORPS OF ENGINEERS    *
*  HYDROLOGIC ENGINEERING CENTER    *
*        609 SECOND STREET          *
*     DAVIS, CALIFORNIA 95616       *
*        (916) 551-1748             *
```

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

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

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

                                    HEC-1 INPUT                                                    PAGE  1

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

  1           ID  Buckeye/Sun Valley ADMS - May 2005
  2           ID  Michael Baker Jr., Inc. - Modeler: Jacob Lesue
  3           ID  10-year 6-hour
  4           ID  Existing Conditions
  5           ID  Area 3 - Sub-basins A-C (Aluvial Fan updates)
  6           ID  Rainfall Loss Method - Green & Ampt
  7           ID  Unit Hydrograph Method - FCDMC S-Graph
  8           ID  Channel Routing Method - Normal Depth
  9           ID  Land Use - FCDMC GIS Data: mag_landuse (2000)
 10           ID  Soil Data - USDA SCS Soil Survey (1972 & 1981)
 11           ID  Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
              *DIAGRAM
 12           IT       5 01JAN94       0    2000
 13           IO       3
 14           IN      15 01JAN94       0
 15           JD    2.08    0.01
              * 6-hour distribution, pattern 1.0
 16           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 17           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 18           PC   0.962   0.972   0.983   0.991     1.0
 19           IN      15 01JAN94       0
 20           JD   2.068     0.5
              * 6-hour distribution, pattern 1.0
 21           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 22           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 23           PC   0.962   0.972   0.983   0.991     1.0
 24           IN      15 01JAN94       0
 25           JD   2.053     1.0
              * 6-hour distribution, pattern 1.4
 26           PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
 27           PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
 28           PC  0.9572  0.9684  0.9798  0.9898     1.0
 29           IN      15 01JAN94       0
 30           JD   1.997     5.0
              * 6-hour distribution, pattern 2.3
 31           PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
 32           PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
 33           PC  0.9487   0.962  0.9743  0.9877     1.0
 34           IN      15 01JAN94       0
 35           JD   1.955    10.0
              * 6-hour distribution, pattern 2.7
 36           PC     0.0  0.0134  0.0189  0.0287  0.0443  0.0574  0.0694  0.0818  0.0949  0.1076
 37           PC  0.1223  0.1382  0.1604  0.2063  0.2902  0.4664  0.6764  0.8069  0.8765  0.9189
 38           PC  0.9471  0.9608  0.9735  0.9873     1.0
 39           IN      15 01JAN94       0
 40           JD   1.893    20.0
              * 6-hour distribution, pattern 3.1
 41           PC     0.0  0.0158   0.022  0.0329  0.0511  0.0663  0.0799  0.0948  0.1102  0.1246
 42           PC   0.141  0.1587  0.1828    0.23  0.3122  0.4758  0.6684  0.7929  0.9643  0.9087
 43           PC  0.9434   0.958  0.9718  0.9863     1.0
 44           IN      15 01JAN94       0
 45           JD   1.851    30.0
              * 6-hour distribution, pattern 3.4
 46           PC     0.0  0.0172  0.0256  0.0378  0.0565  0.0719  0.0868   0.103  0.1191  0.1342
 47           PC  0.1513  0.1702  0.1961  0.2439  0.3263  0.4824  0.6655  0.7875   0.858  0.9031

                                    HEC-1 INPUT                                                    PAGE  2

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

 48           PC   0.939  0.9544  0.9697  0.9851     1.0
 49           IN      15 01JAN94       0
 50           JD    1.81    40.0
              * 6-hour distribution, pattern 3.5
 51           PC     0.0  0.0182  0.0281  0.0413  0.0604  0.0759  0.0916  0.1088  0.1254   0.141
 52           PC  0.1586  0.1783  0.2056  0.2537  0.3362   0.487  0.6636  0.7836  0.8535  0.8991
 53           PC  0.9358  0.9519  0.9682  0.9843     1.0
 54           IN      15 01JAN94       0
 55           JD   1.664   100.0
              * 6-hour distribution, pattern 4.1
 56           PC     0.0  0.0212  0.0355  0.0515  0.0715  0.0877   0.106  0.1261  0.1443  0.1618
 57           PC  0.1812  0.2036  0.2347  0.2837   0.367   0.501  0.6559  0.7704  0.8392  0.8864
 58           PC  0.9256   0.944  0.9633  0.9817     1.0

 59           KK      C1
 60           KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 61           KM   L=4.66      Lca=2.77      S=333.05      Kn=0.050      LAG=62.9
 62           KM   S-GRAPH TYPE=PRX MMT
 63           KO       0       0     0.0       1      22
 64           BA   3.643
 65           LG   0.218   0.297   3.922   0.411  21.031
              * C1
 66           UI     0.0  194.68  194.68  231.91  577.25  796.73 1066.06 1245.68  1408.6 1543.98
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 67          UI  1838.6 2327.02 1821.51  1384.7 1210.78 1130.06 1041.17  959.73  894.23  808.89
 68          UI  756.21   659.7  585.69  510.14  476.35  449.65  420.33  381.94  319.83  282.59
 69          UI  248.76  239.66  213.22  213.22   174.2  149.26  149.26  149.26  104.45   95.27
 70          UI   95.27   95.27   95.27   95.27   42.65   37.31   37.31   37.31   37.31   37.31
 71          UI   37.31   37.31   37.31   37.31   37.31   37.31   37.31   37.31   37.31     0.0

 72          KK   C1-C2   CNAME     C2R
 73          KO       0       0     0.0       0      22
 74          RS       6    FLOW     0.0     0.0
 75          RC    0.05   0.044    0.0515078.46  0.0175     0.0
             * C1-C2
 76          RX     0.0    35.0    90.0   138.0   159.0   209.0   264.0   309.0
 77          RY    21.0    19.0    16.0    10.0    10.0    15.0    20.0    24.0

 78          KK      C2
 79          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 80          KM   L=2.86      Lca=1.20      S=92.12      Kn=0.055      LAG=53.0
 81          KM   S-GRAPH TYPE=DES RNGLND
 82          KO       0       0     0.0       1      22
 83          BA   1.864
 84          LG    0.35    0.35   3.949   0.428     0.0
             * C2
 85          UI     0.0   118.4   118.4  243.16  436.28  623.51  787.34  927.02  1049.4 1109.51
 86          UI  1134.6 1098.82 1033.89  875.19  752.87  635.49  539.38  457.23   387.5  333.21
 87          UI  271.71  232.03  202.69  181.55  130.95  125.49   98.72   81.05   81.05   78.92
 88          UI   28.82   28.82   28.82   28.82   28.82   28.82   28.82   28.82   28.82     0.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 89          KK     C3R   CNAME   C2-C3
 90          KO       0       0     0.0       0      22
 91          HC       2

 92          KK   C2-C3   CNAME     C3R
 93          KO       0       0     0.0       0      22
 94          RS      13    FLOW     0.0     0.0
 95          RC   0.046    0.05   0.04623814.25  0.0107     0.0
             * C2-C3
 96          RX     0.0    60.0   125.0   140.0   172.0   232.0   292.0   352.0
 97          RY    26.0    25.0    23.0    10.0    10.0    16.0    20.0    23.0

 98          KK      C3
 99          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
100          KM   L=4.44      Lca=2.51      S=36.33      Kn=0.050      LAG=84.0
101          KM   S-GRAPH TYPE=DES RNGLND
102          KO       0       0     0.0       1      22
103          BA   3.786
104          LG   0.345   0.345   4.357   0.371     0.0
             * C3
105          UI     0.0  151.75  151.75  151.75  190.45  436.29  559.28  700.14  855.71  975.54
106          UI  1073.3 1242.31 1321.34 1364.98 1437.02 1454.29 1454.29 1418.23 1372.67 1299.22
107          UI  1161.9 1057.67  941.42  855.16  770.05  694.16   628.6  566.68  510.91  460.19
108          UI  415.51  362.41  338.86  288.07  286.09  237.34  232.69  204.47  160.84  160.84
109          UI  160.84  118.28  103.88  103.88  103.88  103.88   97.02   36.93   36.93   36.93
110          UI   36.93   36.93   36.93   36.93   36.93   36.93   36.93   36.93   36.93   36.93
111          UI   36.93   36.93     0.0

112          KK     C4R   CNAME   C3-C4
113          KO       0       0     0.0       0      22
114          HC       2

115          KK      C4
116          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
117          KM   L=2.18      Lca=0.88      S=44.31      Kn=0.045      LAG=39.9
118          KM   S-GRAPH TYPE=DES RNGLND
119          KO       0       0     0.0       1      22
120          BA     1.4
121          LG   0.327   0.327   4.737    0.29     0.0
             * C4
122          UI     0.0  117.85   153.2  406.58  642.01  848.78  1023.5 1108.79 1120.35 1044.06
123          UI   868.1  694.77  559.79  452.88  361.01  288.87  232.67  190.32  149.01  124.91
124          UI    88.1   60.67   73.18   28.68   28.68   28.68   28.68   28.68   28.68   28.68
125          UI     0.0

126          KK       C   CNAME     13R
127          KO       0       0     0.0       0      22
128          HC       2
```



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

129          KK     13R   CNAME       C
130          KO       0       0     0.0       0      22
131          RN     13R

132          KK      A1
133          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
134          KM   L=2.20      Lca=0.86      S=322.08      Kn=0.050      LAG=29.9
135          KM   S-GRAPH TYPE=PHX MNT
136          KO       0       0     0.0       1      22
137          BA   1.107
138          LG    0.35    0.35   4.057   0.417   9.735
             * A1
139          UI     0.0  124.21  285.27   628.5  881.01  1178.4 1187.83  769.91  652.54  550.25
140          UI  454.04   347.4  294.07  245.69  184.11  150.55  131.96   95.23   84.89   60.78
141          UI   60.78   43.03   23.81   23.81   23.81   23.81   23.81   23.81     0.0

142          KK  A1-A2A   CNAME     A2R
143          KO       0       0     0.0       0      22
144          RS       5    FLOW     0.0     0.0
145          RC    0.045   0.045   0.045 7200.57  0.0147     0.0
             * A1-A2
146          RX     0.0    75.0   125.0   185.0   190.0   220.0   280.0   340.0
147          RY    27.0    23.0    19.0    10.0    10.0    20.0    26.0    32.0

148          KK      B1
149          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
150          KM   L=3.11      Lca=1.55      S=213.96      Kn=0.050      LAG=46.7
151          KM   S-GRAPH TYPE=PHX MNT
```

```
152        KO      0       0     0.0       1      22
153        BA   0.603
154        LG    0.35    0.35   3.766   0.462   5.699
           * B1
155        UI     0.0    43.2    43.2  114.65  185.49   261.9  308.36  353.56  464.75  433.83
156        UI  297.08  257.03  233.32  209.37  187.06  167.52   142.1  119.29  106.02   98.41
157        UI   88.94   70.98   59.05    54.7   47.32   46.04   33.12   33.12   29.89   21.14
158        UI   21.14   21.14   21.14   10.18    8.28    8.28    8.28    8.28    8.28    8.28
159        UI    8.28    8.28    8.28    8.28     0.0

160        KK     A2A
161        KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
162        KM   L=1.90      Lca=1.28      S=55.92      Kn=0.055      LAG=51.0
163        KM   S-GRAPH TYPE=DES RNGLND
164        KO      0       0     0.0       1      22
165        BA   0.484
166        LG    0.35    0.35   4.605   0.325     0.0
           * A2A
167        UI     0.0   31.98   31.98   71.19   126.1  175.43  218.56  263.08  286.07  306.44
168        UI  305.77  290.65  260.58   220.3  184.93  156.29  131.91  111.15   93.27   77.88
169        UI    65.3   56.86   49.03   37.31   33.89   27.16   21.89   21.89    20.0    7.78
170        UI    7.78    7.78    7.78    7.78    7.78    7.78    7.78    7.78     0.0
```



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

171        KK    B2RB    CNAME   A2A-B2
172        KO      0       0     0.0       0      22
173        KC      3

174        KK  A2A-B2    CNAME    B2RB
175        KO      0       0     0.0       0      22
176        KR      4    FLOW     0.0     0.0
177        RC   0.055   0.042   0.055 7166.98  0.0133     0.0
           * B1-B2
178        RX     0.0    75.0   140.0   167.0   193.0   226.0   296.0   371.0
179        RY    20.0    17.0    14.0    10.0    10.0    13.0    17.0    22.0

180        KK      B2
181        KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
182        KM   L=2.69      Lca=0.84      S=67.29      Kn=0.055      LAG=47.9
183        KM   S-GRAPH TYPE=DES RNGLND
184        KO      0       0     0.0       1      22
185        BA   0.442
186        LG    0.35    0.35   3.628   0.511     0.0
           * B2
187        UI     0.0   30.97   30.97   77.73   133.4  183.82  226.98   266.1  287.65  296.82
188        UI  287.47  267.05  223.78   185.3  155.58  129.98  108.43   90.02   74.14    61.7
189        UI   52.71   46.29   32.83   32.83   21.22    21.2    21.2   10.64    7.54    7.54
190        UI    7.54    7.54    7.54    7.54    7.54    7.54     0.0

191        KK     B3R    CNAME   B2-B3
192        KO      0       0     0.0       0      22
193        KC      2

194        KK   B2-B3    CNAME     B3R
195        KO      0       0     0.0       0      22
196        RS     24    FLOW     0.0     0.0
197        RC    0.05   0.025   0.0520075.26  0.0118     0.0
           * B2-B3
198        RX     0.0   120.0   278.0   285.0   301.5   312.5   446.5   529.5
199        RY    13.5    10.0    11.6    10.1    10.1    11.5    10.8    12.6

200        KK      B3
201        KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
202        KM   L=3.72      Lca=1.65      S=63.31      Kn=0.045      LAG=58.6
203        KM   S-GRAPH TYPE=DES RNGLND
204        KO      0       0     0.0       1      22
205        BA   1.987
206        LG   0.332   0.332   4.284   0.389     0.0
           * B3
207        UI     0.0  113.39  113.39  174.19  365.68  513.61  667.07  787.08  935.28  1014.0
208        UI  1066.6 1086.65 1065.13 1007.44  902.76  777.12  664.52  576.27  502.41   427.5
209        UI  369.71   321.5  269.65  233.59  211.46  173.86  158.41  120.18  120.18   89.23
210        UI   77.62   77.62   77.62   39.48    27.6    27.6    27.6    27.6    27.6    27.6
211        UI    27.6    27.6    27.6    27.6     0.0
```



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

212        KK       B    CNAME      4R
213        KO       0       0     0.0       0      22
214        KC       2

215        KK      4R    CNAME       B
216        KO       0       0     0.0       0      22
217        RN      4R

218        KK     A2B
219        KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
220        KM   L=2.10      Lca=1.12      S=76.27      Kn=0.055      LAG=47.5
221        KM   S-GRAPH TYPE=DES RNGLND
222        KO       0       0     0.0       1      22
223        BA   1.178
224        LG    0.35    0.35   4.507   0.348     0.0
           * A2B
225        UI     0.0   84.39   84.39  224.42  373.68  509.86  634.46  735.71   789.8  808.75
226        UI  774.44  702.18  582.93  482.21  402.04  335.57  277.24  233.92  186.27   159.1
227        UI  131.56  108.73   89.45   74.32   57.77   57.77   45.88   20.54   20.54   20.54
228        UI   20.54   20.54   20.54   20.54   20.54     0.0

229        KK  A2B-A3    CNAME     A3R
230        KO       0       0     0.0       0      22
231        RS      15    FLOW     0.0     0.0
232        RC    0.05   0.043   0.0518881.09  0.0112     0.0
           * A2B-A3
233        RX     0.0    20.0    30.0   165.0   186.0   346.0   361.0   381.0
234        RY    20.0    19.0    18.0    10.0    10.0    20.0    21.0    22.0

235        KK      A3
```

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236     KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
237     KM   L=3.92      Lca=1.89      S=58.21      Kn=0.045      LAG=64.1
238     KM   S-GRAPH TYPE=DES RNGLND
239     KO       0        0     0.0        1       22
240     BA   3.729
241     LG    0.35     0.35    4.23    0.405      0.0
        * A3
242     UI     0.0    196.2   196.2    216.8    570.5   813.36  1043.2 1275.52 1464.33 1668.96
243     UI  1757.8  1877.01 1880.24  1841.14  1751.55  1593.0 1387.92 1202.85 1048.96  919.73
244     UI  805.44   710.06  606.86   538.24   447.15   397.83   367.9  300.84  290.73  207.95
245     UI  207.95   183.56   134.3    134.3    134.3   131.67   47.75   47.75   47.75   47.75
246     UI   47.75    47.75   47.75    47.75    47.75    47.75   47.75   47.75

247     KK       A    CNAME      5R
248     KO       0        0     0.0        0       22
249     HC       2

250     KK      5R    CNAME       A
251     KO       0        0     0.0        0       22
252     RN      5R
253     ZZ
```

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	C1	965.	4.83	260.	67.	22.	3.64		
+	ROUTED TO	C1-C2	859.	5.25	259.	67.	22.	3.64		
+	HYDROGRAPH AT	C2	360.	4.75	65.	16.	5.	1.86		
+	2 COMBINED AT	C3R	859.	5.25	272.	71.	24.	5.51		
+	ROUTED TO	C2-C3	768.	6.25	269.	70.	23.	5.51		
+	HYDROGRAPH AT	C3	358.	5.25	102.	25.	8.	3.79		
+	2 COMBINED AT	C4R	766.	6.25	301.	81.	27.	9.29		
+	HYDROGRAPH AT	C4	521.	4.58	73.	18.	6.	1.40		
+	2 COMBINED AT	C	772.	6.25	337.	91.	30.	10.69		
+	ROUTED TO	13R	697.	6.25	310.	84.	28.	10.69		
+	HYDROGRAPH AT	A1	515.	4.33	68.	17.	6.	1.11		
+	ROUTED TO	A1-A2A	452.	4.67	68.	17.	6.	1.11		
+	HYDROGRAPH AT	B1	241.	4.58	40.	10.	3.	0.60		
+	HYDROGRAPH AT	A2A	192.	4.75	33.	8.	3.	0.48		
+	3 COMBINED AT	B2RB	581.	4.67	99.	25.	8.	2.19		
+	ROUTED TO	A2A-B2	510.	4.92	98.	25.	8.	2.19		
+	HYDROGRAPH AT	B2	161.	4.67	26.	7.	2.	0.44		
+	2 COMBINED AT	B3R	513.	4.92	102.	26.	9.	2.64		
+	ROUTED TO	B2-B3	350.	6.83	101.	26.	9.	2.64		
+	HYDROGRAPH AT	B3	370.	4.83	74.	19.	6.	1.99		
+	2 COMBINED AT	B	337.	6.83	153.	40.	13.	4.62		
+	ROUTED TO	4R	261.	7.00	119.	31.	10.	4.62		
+	HYDROGRAPH AT	A2B	343.	4.67	55.	14.	5.	1.18		
+	ROUTED TO	A2B-A3	243.	5.83	55.	14.	5.	1.18		
+	HYDROGRAPH AT	A3	397.	4.92	86.	22.	7.	3.73		
+	2 COMBINED AT	A	313.	4.92	97.	24.	8.	4.91		
+	ROUTED TO	5R	313.	4.92	97.	24.	8.	4.91		

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*** NORMAL END OF HEC-1 ***
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*             MAY  1991                *
*           VERSION 4.0.1E             *
*                                      *
*  RUN DATE _______  TIME _______      *
*                                      *
****************************************

****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*          (916) 551-1748              *
*                                      *
****************************************

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

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

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

                                    HEC-1 INPUT                                          PAGE  1

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

   1          ID  Buckeye/Sun Valley ADMS - May 2005
   2          ID  Michael Baker Jr., Inc. - Modeler: Jacob Lesue
   3          ID  basins E-K with Aluvial Fan updates
   4          ID  10-year 6-hour
   5          ID  Existing Conditions
   6          ID  Area 3 - Sub-basins E-K (Aluvial Fan updates)
   7          ID  Rainfall Loss Method - Green & Ampt
   8          ID  Unit Hydrograph Method - FCDMC S-Graph
   9          ID  Channel Routing Method - Normal Depth
  10          ID  Land Use - FCDMC GIS Data: mag_landuse (2000)
  11          ID  Soil Data - USDA SCS Soil Survey (1972 & 1981)
  12          ID  Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
              *DIAGRAM
  13          IT       5 01JAN94       0    2000
  14          IO       3
  15          IN      15 01JAN94       0
  16          JD    2.06    0.01
              * 6-hour distribution, pattern 1.0
  17          PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
  18          PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
  19          PC   0.962   0.972   0.983   0.991     1.0
  20          IN      15 01JAN94       0
  21          JD   2.066     0.5
              * 6-hour distribution, pattern 1.0
  22          PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
  23          PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
  24          PC   0.962   0.972   0.983   0.991     1.0
  25          IN      15 01JAN94       0
  26          JD   2.033     1.0
              * 6-hour distribution, pattern 1.4
  27          PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
  28          PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
  29          PC  0.9572  0.9684  0.9798  0.9898     1.0
  30          IN      15 01JAN94       0
  31          JD   1.997     3.0
              * 6-hour distribution, pattern 2.3
  32          PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
  33          PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
  34          PC  0.9487   0.962  0.9743  0.9877     1.0
  35          IN      15 01JAN94       0
  36          JD   1.955    10.0
              * 6-hour distribution, pattern 2.7
  37          PC     0.0  0.0134  0.0189  0.0287  0.0443  0.0574  0.0694  0.0818  0.0949  0.1076
  38          PC  0.1223  0.1382  0.1604  0.2063  0.2902  0.4664  0.6764  0.8069  0.8765  0.9189
  39          PC  0.9471  0.9608  0.9735  0.9873     1.0
  40          IN      15 01JAN94       0
  41          JD   1.893    20.0
              * 6-hour distribution, pattern 3.1
  42          PC     0.0  0.0158   0.022  0.0329  0.0511  0.0663  0.0799  0.0948  0.1102  0.1246
  43          PC   0.141  0.1587  0.1828    0.23  0.3122  0.4758  0.6684  0.7929  0.8643  0.9087
  44          PC  0.9434   0.958  0.9718  0.9863     1.0
  45          IN      15 01JAN94       0
  46          JD   1.851    30.0
              * 6-hour distribution, pattern 3.4
  47          PC     0.0  0.0172  0.0256  0.0378  0.0565  0.0719  0.0868   0.103  0.1191  0.1342

                                    HEC-1 INPUT                                          PAGE  2

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

  48          PC  0.1513  0.1702  0.1961  0.2439  0.3263  0.4824  0.6655  0.7875   0.858  0.9031
  49          PC   0.939  0.9544  0.9697  0.9851     1.0
  50          IN      15 01JAN94       0
  51          JD    1.81    40.0
              * 6-hour distribution, pattern 3.8
  52          PC     0.0  0.0182  0.0281  0.0413  0.0604  0.0759  0.0916  0.1088  0.1254   0.141
  53          PC  0.1586  0.1783  0.2056  0.2537  0.3362   0.487  0.6636  0.7836  0.8535  0.8991
  54          PC  0.9358  0.9519  0.9682  0.9843     1.0
  55          IN      15 01JAN94       0
  56          JD   1.664   100.0
              * 6-hour distribution, pattern 4.1
  57          PC     0.0  0.0212  0.0355  0.0515  0.0715  0.0877   0.106  0.1261  0.1463  0.1618
  58          PC  0.1812  0.2036  0.2347  0.2837   0.367   0.501  0.6559  0.7704  0.8392  0.8864
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 59          PC  0.9256   0.944  0.9633  0.9817     1.0

 60          KK      G1
 61          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 62          KM   L=2.38      Lca=1.08      S=33.76      Kn=0.045      LAG=47.1
 63          KM   S-GRAPH TYPE=DES RNGLND
 64          KO      0        0     0.0        1       22
 65          BA   1.119
 66          LG    0.35     0.35    4.68   0.299      0.0
             * G1
 67          UI     0.0    80.16   80.16  213.17  354.95   484.3  602.66  698.84  750.22  768.22
 68          UI  735.63   666.98  553.71  458.04  381.89  318.75  263.34   222.2  176.93  151.12
 69          UI  124.96   103.28   84.96   70.59   54.87   54.87   43.58   19.51   19.51   19.51
 70          UI   19.51    19.51   19.51   19.51   19.51     0.0

 71          KK      1R   CNAME       G
 72          KO       0       0     0.0       0      22
 73          RN      1R

 74          KK      K1
 75          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 76          KM   L=3.23      Lca=1.84      S=681.00      Kn=0.050      LAG=40.4
 77          KM   S-GRAPH TYPE=PHX MNT
 78          KO       0       0     0.0       1      22
 79          BA   1.543
 80          LG   0.112    0.255   4.365   0.366  21.277
             * K1
 81          UI     0.0   129.88  168.84  442.11  706.31  896.38 1061.91 1457.77 1111.25  821.11
 82          UI  726.82   641.11  561.31  488.34  403.67  331.29  304.06  271.41  213.37  169.75
 83          UI  154.58   142.25  108.11   99.57   85.17   63.56   63.56   63.56   38.81   24.89
 84          UI   24.89    24.89   24.89   24.89   24.89   24.89   24.89     0.0

 85          KK  K1-K2A   CNAME    K2AR
 86          KO       0       0     0.0       0      22
 87          RS      14    FLOW     0.0     0.0
 88          RC    0.05   0.048   0.0519434.11   0.017     0.0
             * K1-K2A
 89          RX     0.0    20.0    55.0    85.0   235.0   259.0   289.0   309.0
 90          RY    22.0    21.0    20.0    10.0    10.0    20.0    21.0    22.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 91          KK     K2A
 92          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 93          KM   L=5.29      Lca=2.72      S=126.78      Kn=0.055      LAG=87.2
 94          KM   S-GRAPH TYPE=DES RNGLND
 95          KO       0       0     0.0       1      22
 96          BA   1.949
 97          LG   0.341   0.347   4.907   0.278   1.288
             * K2A
 98          UI     0.0   75.43   75.43   75.43   75.43  216.57  263.63  333.08  400.43  470.31
 99          UI  527.14  583.18  638.37  674.27  692.72  722.84  722.84  721.83  689.53  671.99
100          UI  627.55  556.08  517.43  456.81  416.13  375.78  341.84  309.53  280.25  253.48
101          UI  229.53  206.53  183.27  168.43  146.97   142.2  123.74  115.66  112.61   79.95
102          UI   79.95   79.95   71.18   51.63   51.63   51.63   51.63   51.63   36.22   18.36
103          UI   18.36   18.36   18.36   18.36   18.36   18.36   18.36   18.36   18.36   18.36
104          UI   18.36   18.36   18.36   18.36     0.0

105          KK    K2BR   CNAME  K2A-2B
106          KO       0       0     0.0       0      22
107          HC       2

108          KK  K2A-2B   CNAME    K2BR
109          KO       0       0     0.0       0      22
110          RS       8    FLOW     0.0     0.0
111          RC    0.05   0.048   0.0510602.71  0.0115     0.0
             * K2A-K2B
112          RX     0.0    20.0    55.0    85.0   235.0   259.0   289.0   309.0
113          RY    22.0    21.0    20.0    10.0    10.0    20.0    21.0    22.0

114          KK     K2B
115          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
116          KM   L=2.01      Lca=0.83      S=60.78      Kn=0.055      LAG=43.5
117          KM   S-GRAPH TYPE=DES RNGLND
118          KO       0       0     0.0       1      22
119          BA   0.416
120          LG    0.35    0.35   2.708   0.961     0.0
             * K2B
121          UI     0.0   32.57   33.92  104.78  161.25  216.88  267.55  297.02  312.16  302.35
122          UI  276.72  225.58  183.68  151.33  123.31   99.92    81.2   65.94    55.1   45.93
123          UI   34.52    29.7    22.3    22.3   15.04    7.93    7.93    7.93    7.93    7.93
124          UI    7.93    7.93     0.0

125          KK    K3RA   CNAME  K2B-K3
126          KO       0       0     0.0       0      22
127          HC       2

128          KK  K2B-K3   CNAME    K3RA
129          KO       0       0     0.0       0      22
130          RS      23    FLOW     0.0     0.0
131          RC    0.05   0.048   0.0525950.11  0.0084     0.0
             * K2B-K3
132          RX     0.0   390.0   490.0   502.0   520.0   532.0   632.0  1022.0
133          RY    20.0    14.5    11.5    10.0    10.0    11.5    14.5    20.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

134          KK     E2A
135          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
136          KM   L=2.90      Lca=1.20      S=100.83      Kn=0.055      LAG=52.4
137          KM   S-GRAPH TYPE=DES RNGLND
138          KO       0       0     0.0       1      22
139          BA   0.797
140          LG    0.35    0.38     5.6    0.21     0.0
             * E2A
141          UI     0.0    51.6    51.6  110.43  196.83  277.44  347.94  413.76  460.03   489.1
142          UI  494.55   472.6  438.77  369.81  310.92  263.99  224.69  190.62  158.99  135.09
143          UI  112.23   97.29   80.97   70.86    54.7   53.12   35.32   35.32   35.32   21.96
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144          UI   12.56   12.56   12.56   12.56   12.56   12.56   12.56   12.56   12.56     0.0

145          KK  E2A-E3   CNAME    E3RA
146          KO       0       0     0.0       0      22
147          RS      15    FLOW     0.0     0.0
148          RC   0.052   0.046  0.05219626.03  0.0093     0.0
             * E2A-E3
149          RX     0.0   133.0   173.0   213.0   223.0   263.0   303.0   403.0
150          RY    22.0    17.0    14.0    10.0    10.0    15.0    18.0    22.0

151          KK     E2C
152          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
153          KM   L=2.38     Lca=1.01     S=92.90     Kn=0.055     LAG=46.0
154          KM   S-GRAPH TYPE=DES RNGLND
155          KO       0       0     0.0       1      22
156          BA   0.716
157          LG    0.35    0.35   4.343   0.357     0.0
             * E2C
158          UI     0.0   55.12   55.12  154.82  250.83  342.33  421.22  487.29  519.92  527.55
159          UI  498.61  439.15  363.63   300.5  250.15  205.65  169.32  139.69  114.34   97.44
160          UI   84.51   59.64   58.42   38.62   37.73   37.73   16.68   13.41   13.41   13.41
161          UI   13.41   13.41   13.41   13.41     0.0

162          KK  E2C-E3   CNAME    E3RC
163          KO       0       0     0.0       0      22
164          RS      15    FLOW     0.0     0.0
165          RC   0.052   0.046  0.052 17293.5  0.0082     0.0
             * E2C-E3
166          RX     0.0   133.0   173.0   213.0   223.0   263.0   303.0   403.0
167          RY    22.0    17.0    14.0    10.0    10.0    15.0    18.0    22.0

168          KK      E1
169          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
170          KM   L=2.51     Lca=1.13     S=178.34     Kn=0.055     LAG=43.3
171          KM   S-GRAPH TYPE=PRK MNT
172          KO       0       0     0.0       1      22
173          BA   0.956
174          LG    0.35   0.378   5.377   0.222    0.69
             * E1
175          UI     0.0   74.86   77.94  239.17  368.29  486.24  570.86   714.2  832.85  536.73
176          UI  451.19  405.28  360.54  317.72  278.78  233.78  192.26  176.85  160.99  130.76
177          UI  107.56   95.43   81.98   76.82   57.39   57.39   44.31   36.63   36.63   36.63
178          UI   23.53   14.35   14.35   14.35   14.35   14.35   14.35   14.35   14.35   14.35
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

179          UI     0.0

180          KK  E1-E2B   CNAME     E2R
181          KO       0       0     0.0       0      22
182          RS       7    FLOW     0.0     0.0
183          RC    0.05   0.047  0.04610992.72   0.016     0.0
             * E1-E2B
184          RX     0.0    65.0   140.0   170.0   185.0   200.0   270.0   340.0
185          RY    24.0    21.0    17.0    10.0    10.0    14.0    18.0    22.0

186          KK     E2B
187          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
188          KM   L=2.08     Lca=1.07     S=87.98     Kn=0.055     LAG=45.2
189          KM   S-GRAPH TYPE=DES RNGLND
190          KO       0       0     0.0       1      22
191          BA   0.466
192          LG    0.35    0.38     5.6    0.21     0.0
             * E2B
193          UI     0.0    32.1    32.1   94.97  150.03  204.82  250.49  285.24   306.5  304.84
194          UI  285.73  244.25   203.0  165.28   137.3  113.17   92.95    75.5   62.33   52.17
195          UI   43.31   34.02   28.77   21.97   21.97   16.14    7.81    7.81    7.81    7.81
196          UI    7.81    7.81    7.81    7.81

197          KK    E3RB   CNAME  E2B-E3
198          KO       0       0     0.0       0      22
199          NC       2

200          KK  E2B-E3   CNAME    E3RB
201          KO       0       0     0.0       0      22
202          RS      16    FLOW     0.0     0.0
203          RC   0.052   0.046  0.05219617.83  0.0088     0.0
             * E2B-E3
204          RX     0.0   133.0   173.0   213.0   223.0   263.0   303.0   403.0
205          RY    22.0    17.0    14.0    10.0    10.0    15.0    18.0    22.0

206          KK      E3
207          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
208          KM   L=3.87     Lca=1.99     S=49.65     Kn=0.050     LAG=74.8
209          KM   S-GRAPH TYPE=DES RNGLND
210          KO       0       0     0.0       1      22
211          BA   2.488
212          LG    0.35    0.35   4.362   0.346     0.0
             * E3
213          UI     0.0  111.69  111.69  111.69  226.88  361.12  481.81  599.56  708.99  795.91
214          UI  924.44  961.52 1023.08 1070.39 1070.39 1054.33 1012.16  958.83  843.16   765.0
215          UI  671.82  595.75  537.55  476.38  423.35  378.09  335.18  305.82   252.8  234.07
216          UI  210.57  188.36  171.26  154.61  118.38  118.38  115.87   76.46   76.46   76.46
217          UI   76.46   75.47   27.18   27.18   27.18   27.18   27.18   27.18   27.18   27.18
218          UI   27.18   27.18   27.18   27.18   27.18   27.18
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

219          KK    E4RA   CNAME   E3-E4
220          KO       0       0     0.0       0      22
221          NC       4

222          KK   E3-E4   CNAME    E4RA
223          KO       0       0     0.0       0      22
224          RS      14    FLOW     0.0     0.0
225          RC   0.056   0.049  0.05613854.98  0.0048     0.0
             * E3-E4
226          RX     0.0   570.0   650.0   690.0   705.0   735.0   810.0  1200.0
227          RY    21.0    14.0    13.0    10.0    10.0    12.5    14.5    21.0
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228          KK      F1
229          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
230          KM   L=5.07      Lca=2.57      S=369.39      Kn=0.050      LAG=61.9
231          KM   S-GRAPH TYPE=PHX MNT
232          KO       0        0      0.0        1       22
233          BA   3.103
234          LG   0.297    0.329    4.244    0.378   12.997
             * F1
235          UI     0.0   168.51   168.51   215.27   509.66   699.18   943.72  1090.63  1237.28  1359.21
236          UI  1651.0  2027.63  1459.34  1157.38  1028.29   961.49   882.67   818.34    750.5   687.24
237          UI  625.11   552.31   479.89   429.51   404.49   384.89   352.34   298.58   276.84   216.79
238          UI  215.32   192.43   184.56   176.81   129.19   129.19   129.19   109.56    82.46    82.46
239          UI   82.46    82.46    82.46    52.76     32.3     32.3     32.3     32.3     32.3     32.3
240          UI    32.3     32.3     32.3     32.3     32.3     32.3     32.3     32.3      0.0

241          KK   F1-F2    CNAME     F2R
242          KO       0        0      0.0        0       22
243          RS       2     FLOW      0.0      0.0
244          RC   0.053    0.045    0.055  3313.03   0.0106      0.0
             * F1-F2
245          RX     0.0     60.0    120.0    146.0    178.0    208.0    268.0    328.0
246          RY    27.0     26.0     25.0     10.0     10.0     24.0     26.0     28.0

247          KK      F2
248          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
249          KM   L=3.88      Lca=1.80      S=161.60      Kn=0.050      LAG=57.0
250          KM   S-GRAPH TYPE=PHX MNT
251          KO       0        0      0.0        1       22
252          BA   2.209
253          LG    0.35     0.35    4.375    0.362    3.346
             * F2
254          UI     0.0   130.48   130.48   222.96   433.41   610.23    794.3   912.18  1015.11  1202.18
255          UI  1548.4  1176.04   896.54   790.99   735.01   667.95   615.82   555.86   511.22   447.69
256          UI  388.02   337.31   314.94   297.77   272.83   224.19   203.12   166.73   162.35   142.91
257          UI  142.91   109.04   100.04   100.04    86.65    63.85    63.85    63.85    63.85    63.39
258          UI   25.01    25.01    25.01    25.01    25.01    25.01    25.01    25.01    25.01    25.01
259          UI   25.01    25.01    25.01      0.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

260          KK     F3R    CNAME    F2-F3
261          KO       0        0      0.0        0       22
262          HC       2

263          KK   F2-F3    CNAME     F3R
264          KO       0        0      0.0        0       22
265          RS       5     FLOW      0.0      0.0
266          RC    0.05    0.047    0.048  7056.98     0.01      0.0
             * F2-F3
267          RX     0.0    350.0    425.0    455.0    472.0    499.0    569.0    900.0
268          RY    20.0     15.0     13.0     10.0     10.0     12.0     14.0     20.0

269          KK      F3
270          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
271          KM   L=2.71      Lca=1.26      S=81.34      Kn=0.055      LAG=54.2
272          KM   S-GRAPH TYPE=DES RNGLND
273          KO       0        0      0.0        1       22
274          BA   0.736
275          LG    0.35     0.35    3.284     0.64      0.0
             * F3
276          UI     0.0    45.89    45.89    90.29   163.16   236.62    300.0    352.3   401.58   427.19
277          UI  439.78   431.51   405.77   355.07   304.27   256.06   219.26   187.54   158.37   134.34
278          UI  113.67    96.02    85.11    70.36    60.22    48.64    46.52    31.41    31.41    31.41
279          UI    21.4    11.17    11.17    11.17    11.17    11.17    11.17    11.17    11.17    11.17
280          UI     0.0

281          KK    E4RB    CNAME    F3-E4
282          KO       0        0      0.0        0       22
283          HC       2

284          KK   F3-E4    CNAME     E4RB
285          KO       0        0      0.0        0       22
286          RS      20     FLOW      0.0      0.0
287          RC    0.05    0.044   0.0527  650.48   0.0072      0.0
             * F3-E4
288          RX     0.0    570.0    650.0    690.0    705.0    735.0    810.0   1200.0
289          RY    20.0     14.0     13.0     10.0     10.0     12.5     14.5     20.0

290          KK      H1
291          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
292          KM   L=2.41      Lca=1.09      S=64.59      Kn=0.055      LAG=51.2
293          KM   S-GRAPH TYPE=DES RNGLND
294          KO       0        0      0.0        1       22
295          BA   1.066
296          LG    0.35     0.35    2.733    0.945      0.0
             * H1
297          UI     0.0    70.38    70.38   156.67   277.53   386.09   481.01    579.0    629.6   674.43
298          UI  672.95   639.66   573.48   484.85   407.01   343.97   290.32   244.62   205.27    171.4
299          UI  143.72   125.14   107.91    82.11    74.59    59.78    48.17    48.17    44.03    17.13
300          UI   17.13    17.13    17.13    17.13    17.13    17.13    17.13    17.13      0.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

301          KK   H1-H2    CNAME     H2R
302          KO       0        0      0.0        0       22
303          RS      29     FLOW      0.0      0.0
304          RC   0.053     0.05  0.05321  739.03   0.0082      0.0
             * H1-H2
305          RX     0.0    330.0    430.0    465.0    495.0    530.0    630.0    960.0
306          RY    17.0     14.0     12.0     10.0     10.0     12.0     14.0     17.0

307          KK      H2
308          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
309          KM   L=4.41      Lca=2.60      S=44.71      Kn=0.050      LAG=88.9
310          KM   S-GRAPH TYPE=DES RNGLND
311          KO       0        0      0.0        1       22
312          BA     1.4
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313          LG    0.35    0.35   3.222   0.664     0.0
             * H2
314          UI     0.0   52.96   52.96   52.96   52.96  142.93  178.39   226.9  274.71  319.58
315          UI  365.35   394.2  441.12  466.71   479.3  507.56  507.56  507.56  494.47  478.59
316          UI  456.68  413.58  373.47  343.47  306.13  279.54  254.31  232.29  208.19  189.77
317          UI  169.44  155.74  145.02  121.24  117.25   99.85   99.85   83.38   81.21   75.85
318          UI   56.14   56.14   56.14   49.15   36.25   36.25   36.25   36.25   36.25    27.6
319          UI   12.89   12.89   12.89   12.89   12.89   12.89   12.89   12.89   12.89   12.89
320          UI   12.89   12.89   12.89   12.89   12.89   12.89     0.0

321          KK      E4
322          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
323          KM   L=5.36      Lca=2.81      S=38.26      Kn=0.050      LAG=101.9
324          KM   S-GRAPH TYPE=DES RNGLND
325          KO       0        0     0.0        1       22
326          BA   3.042
327          LG    0.35    0.35   3.816   0.439     0.0
             * E4
328          UI     0.0  100.41  100.41  100.41  100.41   158.4  288.69  358.15  433.82  515.05
329          UI  586.72  661.74  710.91  802.48  849.78  890.67  905.99   962.3   962.3   962.3
330          UI  958.07  920.61  904.77  855.38  781.14  712.32  671.29  604.26   557.2  512.12
331          UI  469.45  435.76   392.7  363.69  334.37  307.94  277.85  264.88  224.23  220.83
332          UI  189.31  189.31  167.81  153.97  153.97   127.9  106.43  106.43  106.43  101.85
333          UI   68.74   68.74   68.74   68.74   68.74   68.74    56.9   24.44   24.44   24.44
334          UI   24.44   24.44   24.44   24.44   24.44   24.44   24.44   24.44   24.44   24.44
335          UI   24.44   24.44   24.44   24.44   24.44   24.44

336          KK     E5R   CNAME   E4-E5
337          KO       0       0     0.0       0       22
338          RC       5

339          KK   E4-E5   CNAME     E5R
340          KO       0       0     0.0       0       22
341          RS      12    FLOW     0.0     0.0
342          RC    0.06    0.03  0.0615206.17  0.0051     0.0
             * E4-E5
343          RX     0.0  1010.0  1080.0  1090.0  1110.0  1120.0  1190.0  2200.0
344          RY    27.0    16.0    15.0    10.0    10.0    14.0    16.0    27.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

345          KK      J1
346          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
347          KM   L=4.09      Lca=1.78      S=70.82      Kn=0.055      LAG=74.8
348          KM   S-GRAPH TYPE=DES RNGLND
349          KO       0        0     0.0        1       22
350          BA   1.734
351          LG    0.35    0.35    3.25   0.652     0.0
             * J1
352          UI     0.0   77.84   77.84   77.84  158.12  251.68   335.8  417.86  494.13  554.71
353          UI  644.28  684.07  713.03   746.0   746.0  734.81  705.42  668.25  587.63  533.16
354          UI  468.22   415.2  374.64  332.01  295.05  263.51  233.61  213.14  176.18  163.13
355          UI  146.75  131.28  119.36  107.75   82.51   82.51   80.75   53.29   53.29   53.29
356          UI   53.29    52.6   18.95   18.95   18.95   18.95   18.95   18.95   18.95   18.95
357          UI   18.95   18.95   18.95   18.95   18.95   18.95

358          KK   J1-J2   CNAME     J2R
359          KO       0       0     0.0       0       22
360          RS      20    FLOW     0.0     0.0
361          RC   0.055    0.04   0.055 24097.0  0.0086     0.0
             * J1-J2
362          RX     0.0   161.0   247.0   254.0   271.0   279.0   393.0   660.0
363          RY    17.0    12.5    12.2    10.8    10.0    12.1    12.9    17.0

364          KK      J2
365          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
366          KM   L=5.18      Lca=2.51      S=45.01      Kn=0.050      LAG=93.2
367          KM   S-GRAPH TYPE=DES RNGLND
368          KO       0        0     0.0        1       22
369          BA   3.638
370          LG   0.349   0.348   3.621   0.496   0.281
             * J2
371          UI     0.0  131.71  131.71  131.71  131.71  310.01   410.2  529.51  653.09  756.38
372          UI  857.33  932.04 1064.81 1131.31 1183.05 1211.21 1262.21 1262.21 1262.21 1218.54
373          UI 1189.1 1123.19 1016.15  925.91  854.62  766.36  699.93  639.84  585.79  530.33
374          UI  484.44   441.0  403.56  360.63  330.99  294.11  269.84   248.3  236.22  201.95
375          UI  201.95  172.61   139.6   139.6   139.6  118.12   90.16   90.16   90.16   90.16
376          UI   90.16   79.42   32.06   32.06   32.06   32.06   32.06   32.06   32.06   32.06
377          UI   32.06   32.06   32.06   32.06   32.06   32.06   32.06   32.06   32.06     0.0

378          KK    K3RB   CNAME   J2-K3
379          KO       0       0     0.0       0       22
380          RC       2

381          KK   J2-K3   CNAME    K3RB
382          KO       0       0     0.0       0       22
383          RS       5    FLOW     0.0     0.0
384          RC    0.05   0.048    0.05 4071.93  0.0059     0.0
             * J2-K3
385          RX     0.0   390.0   490.0   502.0   520.0   532.0   632.0  1022.0
386          RY    20.0    14.5    11.5    10.0    10.0    11.5    14.5    20.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

387          KK      K3
388          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
389          KM   L=4.92      Lca=2.65      S=44.16      Kn=0.050      LAG=93.6
390          KM   S-GRAPH TYPE=DES RNGLND
391          KO       0        0     0.0        1       22
392          BA   1.636
393          LG    0.35    0.35   3.421   0.582     0.0
             * K3
394          UI     0.0    58.6    58.6    58.6    58.6  132.87  178.79  231.72  287.22  333.42
395          UI  374.63  416.06  465.04   498.4  523.32  535.26  561.57  561.57  561.57  546.52
396          UI  528.98  508.31  466.83  418.22  391.32  351.35  318.32  291.61  266.72  243.82
397          UI   222.2   205.3   179.7  166.92  157.94  130.85  127.83  110.47  110.47   92.85
398          UI   89.85   88.89   62.11   62.11   62.11   62.11    41.1   40.11   40.11   40.11
399          UI   40.11   40.11   23.61   14.26   14.26   14.26   14.26   14.26   14.26   14.26
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 400          UI   14.26   14.26   14.26   14.26   14.26   14.26   14.26   14.26   14.26   14.26

 401          KK      E5
 402          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 403          KM   L=3.01     Lca=1.41     S=28.56     Kn=0.050     LAG=65.8
 404          KM   S-GRAPH TYPE=DES RNGLND
 405          KO       0       0     0.0       1      22
 406          BA   1.308
 407          LG   0.347   0.344    3.94   0.429   0.958
              * E5
 408          UI     0.0   66.73   66.73   66.73  187.33  261.54  342.37  416.83  480.54  556.36
 409          UI  598.07  622.96  639.46  636.14  605.78  574.36  496.51  443.91  383.22  336.88
 410          UI  298.49  258.94  227.11  198.14  176.39   149.0   129.8   120.7  102.31   94.02
 411          UI   70.72   70.72   61.39   45.68   45.68   45.68   45.68   18.08   16.24   16.24
 412          UI   16.24   16.24   16.24   16.24   16.24   16.24   16.24   16.24   16.24     0.0

 413          KK     E6R   CNAME   E5-E6
 414          KO       0       0     0.0       0      22
 415          HC       5

 416          KK   E5-E6   CNAME     E6R
 417          KO       0       0     0.0       0      22
 418          RS       9    FLOW     0.0     0.0
 419          RC   0.063   0.051   0.063  5105.8  0.0037     0.0
              * E5-E6
 420          RX     0.0   850.0   980.0   990.0  1030.0  1040.0  1230.0  2020.0
 421          RY    25.0    13.0    13.0    10.0    10.0    12.0    12.0    25.0

 422          KK      E6
 423          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 424          KM   L=3.04     Lca=1.06     S=34.17     Kn=0.050     LAG=57.1
 425          KM   S-GRAPH TYPE=DES RNGLND
 426          KO       0       0     0.0       1      22
 427          BA   2.038
 428          LG   0.343   0.336   4.356   0.367   0.711
              * E6
 429          UI     0.0  120.38  120.38   205.7  403.51   574.9  733.36  874.59  1019.0 1083.61
 430          UI  1153.6 1153.67 1100.2 1038.99  882.77  767.24  653.83  562.64  487.32  412.46
 431          UI  353.67  303.21  257.92  226.95  190.12   175.5  127.59  127.59   96.61    82.4
 432          UI    82.4    82.4   36.99    29.3    29.3    29.3    29.3    29.3    29.3    29.3
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 433          UI    29.3    29.3     0.0

 434          KK       E   CNAME      2R
 435          KO       0       0     0.0       0      22
 436          HC       2

 437          KK      2R   CNAME       E
 438          KO       0       0     0.0       0      22
 439          RN      2R
 440          ZZ
```

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	G1	358.	4.67	58.	14.	5.	1.12		
+	ROUTED TO	1R	358.	4.67	58.	14.	5.	1.12		
+	HYDROGRAPH AT	K1	790.	4.50	145.	36.	12.	1.54		
+	ROUTED TO	K1-K2A	546.	5.58	144.	36.	12.	1.54		
+	HYDROGRAPH AT	K2A	317.	5.25	94.	23.	8.	1.95		
+	2 COMBINED AT	K2BR	683.	5.58	207.	53.	18.	3.49		
+	ROUTED TO	K2A-2B	580.	6.17	207.	53.	18.	3.49		
+	HYDROGRAPH AT	K2B	115.	4.58	17.	4.	1.	0.42		
+	2 COMBINED AT	K3RA	575.	6.17	207.	53.	18.	3.91		
+	ROUTED TO	K2B-K3	465.	8.00	198.	52.	17.	3.91		
+	HYDROGRAPH AT	E2A	290.	4.75	51.	13.	4.	0.80		
+	ROUTED TO	E2A-E3	214.	5.92	51.	13.	4.	0.80		
+	HYDROGRAPH AT	E2C	278.	4.67	44.	11.	4.	0.72		
+	ROUTED TO	E2C-E3	198.	5.83	43.	11.	4.	0.72		
+	HYDROGRAPH AT	E1	385.	4.50	58.	15.	5.	0.96		
+	ROUTED TO	E1-E2B	322.	5.00	58.	15.	5.	0.96		
+	HYDROGRAPH AT	E2B	207.	4.67	32.	8.	3.	0.47		

+	2 COMBINED AT	E3RB	387.	4.92	76.	19.	6.	1.42
+	ROUTED TO	E2B-E3	283.	6.17	76.	19.	6.	1.42
+	HYDROGRAPH AT	E3	354.	5.08	90.	22.	7.	2.49
+	4 COMBINED AT	E4RA	414.	6.25	156.	40.	13.	5.42
+	ROUTED TO	E3-E4	361.	7.33	152.	40.	13.	5.42
+	HYDROGRAPH AT	F1	702.	4.83	173.	44.	15.	3.10
+	ROUTED TO	F1-F2	684.	4.92	173.	44.	15.	3.10
+	HYDROGRAPH AT	F2	466.	4.75	92.	23.	8.	2.21
+	2 COMBINED AT	F3R	815.	4.83	212.	54.	18.	5.31
+	ROUTED TO	F2-F3	761.	5.17	212.	54.	18.	5.31
+	HYDROGRAPH AT	F3	176.	4.75	32.	8.	3.	0.74
+	2 COMBINED AT	E4RB	761.	5.17	213.	55.	18.	6.05
+	ROUTED TO	F3-E4	594.	6.75	204.	54.	18.	6.05
+	HYDROGRAPH AT	H1	141.	4.75	24.	6.	2.	1.07
+	ROUTED TO	H1-H2	80.	7.08	24.	6.	2.	1.07
+	HYDROGRAPH AT	H2	136.	5.25	40.	10.	3.	1.40
+	HYDROGRAPH AT	E4	232.	5.50	79.	20.	7.	3.04
+	5 COMBINED AT	E5R	594.	7.08	275.	76.	25.	16.98
+	ROUTED TO	E4-E5	481.	8.00	235.	66.	22.	16.98
+	HYDROGRAPH AT	J1	175.	5.08	44.	11.	4.	1.73
+	ROUTED TO	J1-J2	130.	6.75	43.	11.	4.	1.73
+	HYDROGRAPH AT	J2	228.	5.33	71.	18.	6.	3.64
+	2 COMBINED AT	K3RB	151.	5.33	54.	14.	5.	5.37
+	ROUTED TO	J2-K3	148.	5.67	54.	14.	5.	5.37
+	HYDROGRAPH AT	K3	153.	5.33	48.	12.	4.	1.64
+	HYDROGRAPH AT	E5	251.	4.92	57.	14.	5.	1.31
+	5 COMBINED AT	E6R	551.	8.67	288.	82.	27.	29.20
+	ROUTED TO	E5-E6	542.	9.33	286.	82.	27.	29.20
+	HYDROGRAPH AT	E6	408.	4.83	80.	20.	7.	2.04
+	2 COMBINED AT	E	543.	9.33	286.	86.	29.	31.24
+	ROUTED TO	2R	519.	9.33	276.	82.	27.	31.24

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*** NORMAL END OF HEC-1 ***
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*             MAY  1991                *
*          VERSION 4.0.1E              *
*                                      *
*  RUN DATE _______ TIME _________     *
*                                      *
****************************************
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*************************************
*                                   *
*   U.S. ARMY CORPS OF ENGINEERS    *
*   HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET         *
*      DAVIS, CALIFORNIA 95616      *
*          (916) 551-1748           *
*                                   *
*************************************
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X    X XXXXXXX  XXXXX        X
X    X X       X    X      XX
X    X X       X            X
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XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
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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 SUBEMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

HEC-1 INPUT PAGE 1

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

  1           ID  Buckeye/Sun Valley ADMS - May 2005
  2           ID  Michael Baker Jr., Inc. - Modeler: Jacob Lesue
  3           ID  10-year 6-hour
  4           ID  Existing Conditions
  5           ID  Area 3 - Sub-basins L-R (Aluvial Fan updates)
  6           ID  Reinfall Loss Method - Green & Ampt
  7           ID  Unit Hydrograph Method - FCDMC S-Graph
  8           ID  Channel Routing Method - Normal Depth
  9           ID  Land Use - FCDMC GIS Data: mag_landuse (2000)
 10           ID  Soil Data - USDA SCS Soil Survey (1972 & 1981)
 11           ID  Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
              *DIAGRAM
 12           IT       5 01JAN94       0    2000
 13           IO       3
 14           IN      15 01JAN94       0
 15           JD    2.08    0.01
              * 6-hour distribution, pattern 1.0
 16           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 17           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 18           PC   0.962   0.972   0.983   0.991     1.0
 19           IN      15 01JAN94       0
 20           JD   2.068     0.5
              * 6-hour distribution, pattern 1.0
 21           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 22           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 23           PC   0.962   0.972   0.983   0.991     1.0
 24           IN      15 01JAN94       0
 25           JD   2.053     1.0
              * 6-hour distribution, pattern 1.4
 26           PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
 27           PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
 28           PC  0.9572  0.9684  0.9798  0.9898     1.0
 29           IN      15 01JAN94       0
 30           JD   1.997     5.0
              * 6-hour distribution, pattern 2.3
 31           PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
 32           PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
 33           PC  0.9487   0.962  0.9743  0.9877     1.0
 34           IN      15 01JAN94       0
 35           JD   1.955    10.0
              * 6-hour distribution, pattern 2.7
 36           PC     0.0  0.0134  0.0189  0.0287  0.0443  0.0574  0.0694  0.0818  0.0949  0.1076
 37           PC  0.1223  0.1382  0.1604  0.2063  0.2902  0.4664  0.6764  0.8069  0.8765  0.9189
 38           PC  0.9471  0.9608  0.9735  0.9873     1.0
 39           IN      15 01JAN94       0
 40           JD   1.893    20.0
              * 6-hour distribution, pattern 3.1
 41           PC     0.0  0.0158   0.022  0.0329  0.0511  0.0663  0.0799  0.0948  0.1102  0.1246
 42           PC   0.141  0.1587  0.1828    0.23  0.3122  0.4758  0.6684  0.7929  0.8643  0.9087
 43           PC  0.9434   0.958  0.9718  0.9863     1.0
 44           IN      15 01JAN94       0
 45           JD   1.851    30.0
              * 6-hour distribution, pattern 3.4
 46           PC     0.0  0.0172  0.0256  0.0378  0.0565  0.0719  0.0868   0.103  0.1191  0.1342
 47           PC  0.1513  0.1702  0.1961  0.2439  0.3263  0.4824  0.6655  0.7875   0.858  0.9031
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HEC-1 INPUT PAGE 2

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

 48           PC   0.939  0.9544  0.9697  0.9851     1.0
 49           IN      15 01JAN94       0
 50           JD    1.81    40.0
              * 6-hour distribution, pattern 3.5
 51           PC     0.0  0.0182  0.0281  0.0413  0.0604  0.0759  0.0916  0.1088  0.1254   0.141
 52           PC  0.1586  0.1783  0.2056  0.2537  0.3362   0.487  0.6636  0.7836  0.8535  0.8991
 53           PC  0.9358  0.9519  0.9682  0.9843     1.0

 54           KK      R1
 55           KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 56           KM   L=1.01      Lca=0.46      S=213.31      Kn=0.050      LAG=18.8
 57           KM   S-GRAPH TYPE=PHX MNT
 58           KO      0       0     0.0       1      22
 59           BA   0.284
 60           LG    0.35    0.35   4.358   0.374   8.387
              * R1
 61           UI     0.0   62.14  236.01  401.85  464.97  281.72   216.1  150.63  113.71   76.28
 62           UI   57.55   39.69   27.53   24.54    9.63    9.63    9.63    9.63     0.0

 63           KK     13R   CNAME       R
 64           KO       0       0     0.0       0      22
 65           RN     13R

 66           KK      M1
 67           KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 68           KM   L=5.19      Lca=2.41      S=230.06      Kn=0.050      LAG=66.8
 69           KM   S-GRAPH TYPE=PHX MNT
 70           KO       0       0     0.0       1      22
 71           BA   5.686
 72           LG    0.35    0.35   4.297    0.35  16.637
              * M1
 73           UI     0.0  285.74  285.74  285.74  777.57 1062.36 1436.64 1746.69  1963.2  2166.6
 74           UI  2402.0 2950.38 3432.01 2399.97 1965.75 1755.17 1651.21 1526.96  1413.1 1330.61
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 75          UI  1198.5 1122.73 1012.84  904.53  777.77  717.96  682.12  653.26  597.45  521.66
 76          UI  469.43  394.74  365.11  349.25  312.95  312.95  266.95  219.07  219.07  219.07
 77          UI  181.82  139.83  139.83  139.83  139.83  139.83   125.2   54.77   54.77   54.77
 78          UI   54.77   54.77   54.77   54.77   54.77   54.77   54.77   54.77   54.77   54.77
 79          UI   54.77   54.77     0.0

 80          KK   M1-M2   CNAME     M2R
 81          KO       0       0     0.0       0      22
 82          RS      23    FLOW     0.0     0.0
 83          RC    0.04    0.04   0.04534769.89  0.0133     0.0
             * M1-M2
 84          RX     0.0   961.0  1028.0  1051.0  1136.0  1153.0  1193.0  1900.0
 85          RY    15.5    12.0    11.8    10.3    10.0    11.0    11.2    15.5

 86          KK      M2
 87          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 88          KM   L=6.59      Lca=3.00      S=71.62      Kn=0.050      LAG=100.2
 89          KM   S-GRAPH TYPE=DES RNGLND
 90          KO       0       0     0.0       1      22
 91          BA   7.436
 92          LG    0.35    0.35   3.959   0.445   0.291
             * M2
```



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

 93          UI     0.0  250.38  250.38  250.38  250.38  438.17  719.85  924.82 1114.75 1312.86
 94          UI  1497.2  1700.9 1779.05 2056.71 2161.12 2246.81 2290.07 2399.49 2399.49 2399.49
 95          UI  2351.5 2259.21 2219.84 2074.04 1956.21 1745.08 1567.89 1438.64 1323.61 1214.96
 96          UI  1118.4 1022.47  940.03  874.15  767.84  718.48  685.57  569.22   559.1  484.22
 97          UI  472.03  435.02  383.92  383.92  334.13  265.38  265.38  265.38  257.86  171.39
 98          UI  171.39  171.39  171.39  171.39  171.39  131.63   60.94   60.94   60.94   60.94
 99          UI   60.94   60.94   60.94   60.94   60.94   60.94   60.94   60.94   60.94   60.94
100          UI   60.94   60.94   60.94   60.94     0.0

101          KK       M   CNAME      5R
102          KO       0       0     0.0       0      22
103          NC       2

104          KK      5R   CNAME       M
105          KO       0       0     0.0       0      22
106          RN      5R

107          KK      N1
108          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
109          KM   L=2.79      Lca=1.44      S=340.38      Kn=0.050      LAG=39.7
110          KM   S-GRAPH TYPE=PHX MNT
111          KO       0       0     0.0       1      22
112          BA   1.524
113          LG    0.35    0.35   4.075   0.419    8.38
             * N1
114          UI     0.0  128.28  166.77  436.68  697.63  885.37 1048.86 1439.85 1097.59  811.01
115          UI  717.69  633.24  554.41  482.34  398.71  327.22  300.33  268.08  210.75  167.66
116          UI  152.68   140.5  106.78   98.35   84.12   62.78   62.78   62.78   38.34   24.59
117          UI   24.59   24.59   24.59   24.59   24.59   24.59   24.59     0.0

118          KK   N1-N2   CNAME     N2R
119          KO       0       0     0.0       0      22
120          RS      22    FLOW     0.0     0.0
121          RC    0.05   0.047   0.0525647.52  0.0115     0.0
             * N1-N2
122          RX     0.0   280.0   350.0   358.0   367.0   381.0   451.0   730.0
123          RY    17.0    13.0    11.5    10.0    10.0    11.5    13.0    17.0

124          KK      N2
125          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
126          KM   L=5.64      Lca=3.27      S=170.14      Kn=0.055      LAG=90.7
127          KM   S-GRAPH TYPE=PHX MNT
128          KO       0       0     0.0       1      22
129          BA   3.325
130          LG    0.35    0.35   4.117   0.405    2.67
             * N2
131          UI     0.0  123.04  123.04  123.04  123.04  310.82  395.95  496.74  616.35  730.85
132          UI  796.45  869.05  928.56  990.24 1125.95 1316.06 1517.94 1186.36  925.57  634.34
133          UI  764.31  726.51  694.11  654.42   619.9  586.86  557.14  517.77  491.74   466.8
134          UI  422.37  387.25   352.0  325.27  302.29  296.75  282.99  272.23  257.26  234.33
135          UI  202.13  202.13  163.14  157.22  157.22  143.92  134.76  134.76  134.76  103.63
136          UI   94.33   94.33   94.33   94.33   83.75   60.21   60.21   60.21   60.21   60.21
137          UI   60.21   60.21   60.21   32.52   23.58   23.58   23.58   23.58   23.58   23.58
138          UI   23.58   23.58   23.58   23.58   23.58   23.58   23.58   23.58   23.58   23.58
139          UI   23.58   23.58   23.58   23.58   23.58
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

140          KK       N   CNAME      8R
141          KO       0       0     0.0       0      22
142          NC       2

143          KK      8R   CNAME       N
144          KO       0       0     0.0       0      22
145          RN      8R

146          KK     P1A
147          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
148          KM   L=2.28      Lca=1.41      S=461.40      Kn=0.055      LAG=37.8
149          KM   S-GRAPH TYPE=PHX MNT
150          KO       0       0     0.0       1      22
151          BA     0.5
152          LG    0.35    0.35   3.987   0.405  16.364
             * P1A
153          UI     0.0   44.27   65.19   161.0  254.76  318.08  389.84  500.04  319.07  264.12
154          UI  232.17  203.71  176.98  147.14  118.21  105.19   95.13   74.96   59.42   52.89
155          UI   48.49   35.98   33.94   26.82   21.67   21.67   21.56    8.49    8.49    8.49
156          UI    8.49    8.49    8.49    8.49    8.49    8.49

157          KK  P1A-1B   CNAME    P1BR
158          KO       0       0     0.0       0      22
159          RS      18    FLOW     0.0     0.0
160          RC    0.05   0.047   0.0520102.87  0.0111     0.0
             * P1A-P1B
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161          RX     0.0   280.0   350.0   358.0   367.0   381.0   451.0   730.0
162          RY    17.0    13.0    11.5    10.0    10.0    11.5    13.0    17.0

163          KK     P1B
164          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
165          KM   L=4.39      Lca=2.32      S=70.84      Kn=0.055      LAG=85.3
166          KM   S-GRAPH TYPE=PRX MNT
167          KO      0         0     0.0       1       22
168          BA   1.937
169          LG   0.35     0.35    4.23   0.393   4.667
             * P1B
170          UI     0.0   76.72   76.72   76.72   89.67  220.58  274.25  335.86  432.98  478.15
171          UI  527.91  570.85  609.55  668.62  814.07   942.3  716.43   568.2  506.83  467.32
172          UI   446.8  421.86  394.79  374.39  356.44  329.11  305.33  293.98  263.37  241.82
173          UI  216.83  200.89  187.72  181.75  176.46  163.15  160.42  127.42  126.04   109.8
174          UI   98.03   98.03   90.75   84.03   84.03   84.03   60.08   58.82   58.82   58.82
175          UI   58.82   40.74   37.54   37.54   37.54   37.54   37.54   37.54   37.54    17.9
176          UI   14.71   14.71   14.71   14.71   14.71   14.71   14.71   14.71   14.71   14.71
177          UI   14.71   14.71   14.71   14.71   14.71   14.71   14.71   14.71   14.71     0.0

178          KK       P   CNAME     12R
179          KO       0       0     0.0       0       22
180          HC       2
```



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

181          KK     12R   CNAME       P
182          KO       0       0     0.0       0       22
183          RN     12R

184          KK      O1
185          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
186          KM   L=5.20      Lca=2.79      S=64.07      Kn=0.055      LAG=99.9
187          KM   S-GRAPH TYPE=PRX MNT
188          KO      0         0     0.0       1       22
189          BA   3.088
190          LG   0.35     0.35   4.191   0.393   2.105
             * O1
191          UI     0.0  103.98  103.98  103.98  103.98  181.97  298.95  378.66  446.43  550.06
192          UI  624.46  676.83  731.54  781.25  824.52  905.38 1042.04 1204.77  1242.7  887.05
193          UI   765.3   690.9  643.35  614.88  590.49  558.55  530.78  506.48  485.09  454.93
194          UI  429.36  410.34   388.6  356.95  326.56   302.9  274.89  260.97  234.42  242.21
195          UI  239.16  221.76  217.42  189.46  170.83  170.83  140.46  132.86  132.86  129.07
196          UI  113.88  113.88  113.88  113.88   79.72   79.72   79.72   79.72   79.72   79.72
197          UI   50.88   50.88   50.88   50.88   50.88   50.88   50.88   50.88   50.88   32.31
198          UI   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93
199          UI   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93
200          UI   19.93   19.93   19.93     0.0

201          KK      7R   CNAME       O
202          KO       0       0     0.0       0       22
203          RN      7R

204          KK     Q1A
205          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
206          KM   L=3.13      Lca=1.52      S=256.86      Kn=0.055      LAG=49.3
207          KM   S-GRAPH TYPE=PRX MNT
208          KO      0         0     0.0       1       22
209          BA   1.297
210          LG   0.35     0.35   4.127     0.4    11.2
             * Q1A
211          UI     0.0   89.12   89.12  213.78  363.94  517.41  613.88  697.52  873.62 1020.97
212          UI  663.18  556.48  506.64  454.84  413.29  367.46  326.01  281.03  232.04  214.37
213          UI  199.35   177.4  146.41  118.69  112.45   97.61   96.73   68.33   68.33    66.1
214          UI   43.61   43.61   43.61   43.61   30.77   17.08   17.08   17.08   17.08   17.08
215          UI   17.08   17.08   17.08   17.08   17.08   17.08     0.0

216          KK  Q1A-1B   CNAME    Q1BR
217          KO       0       0     0.0       0       22
218          RS       8    FLOW     0.0     0.0
219          RC    0.05   0.047    0.05 9170.53  0.0117     0.0
             * Q1A-Q1B
220          RX     0.0   280.0   350.0   358.0   367.0   381.0   451.0   730.0
221          RY    17.0    13.0    11.5    10.0    10.0    11.5    13.0    17.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

222          KK     Q1B
223          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
224          KM   L=2.35      Lca=1.14      S=141.40      Kn=0.055      LAG=44.3
225          KM   S-GRAPH TYPE=PRX MNT
226          KO      0         0     0.0       1       22
227          BA   0.937
228          LG   0.35     0.35    4.32   0.373  14.815
             * Q1B
229          UI     0.0   71.67   71.67  221.51  340.68  455.79   538.5  651.95  833.61  538.15
230          UI  443.72  398.92  355.79  316.26  280.46  235.89  196.37  173.35  160.17  138.81
231          UI  114.82   91.58   84.67    78.5   62.48   54.95   54.15   35.07   35.07   35.07
232          UI   35.07   15.79   13.74   13.74   13.74   13.74   13.74   13.74   13.74   13.74
233          UI   13.74     0.0

234          KK       Q   CNAME     14R
235          KO       0       0     0.0       0       22
236          HC       2

237          KK     14R   CNAME       Q
238          KO       0       0     0.0       0       22
239          RN     14R

240          KK      L1
241          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
242          KM   L=4.93      Lca=2.29      S=306.27      Kn=0.050      LAG=60.6
243          KM   S-GRAPH TYPE=PRX MNT
244          KO      0         0     0.0       1       22
245          BA   3.546
246          LG  0.271    0.318   4.363   0.351  16.279
             * L1
247          UI     0.0  195.74  195.74  266.93  603.63  823.25 1120.55 1287.08 1452.32 1611.07
```

```
248          UI  1991.3 2326.76 1575.06 1312.31 1173.43 1097.39 1002.28  929.54   850.5  775.66
249          UI  701.22  620.51  525.99  484.91  458.87  430.63  397.34  321.57  290.98  250.11
250          UI  241.62  214.38  214.38  171.29  150.06  150.06  149.52   95.79   95.79   95.79
251          UI   95.79   95.79    79.7   37.52   37.52   37.52   37.52   37.52   37.52   37.52
252          UI   37.52   37.52   37.52   37.52   37.52   37.52   37.52     0.0

253          KK  L1-L2A   CNAME    L2AR
254          KO       0       0     0.0       0      22
255          RS       3    FLOW     0.0     0.0
256          RC   0.046   0.045   0.046 7076.75  0.0174     0.0
             * L1-L2A
257          RX     0.0    80.0   165.0   200.0   215.0   255.0   340.0   420.0
258          RY    19.0    17.0    14.0    10.0    10.0    14.0    18.0    22.0

259          KK     L2A
260          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
261          KM   L=2.46     Lca=1.12     S=136.18     Kn=0.055     LAG=45.0
262          KM   S-GRAPH TYPE=DES RNGLND
263          KO       0       0     0.0       1      22
264          BA   0.693
265          LG    0.35   0.384   5.641   0.202     0.0
             * L2A
266          UI     0.0   51.83   51.83  153.34  242.24  330.72  404.46  460.56  494.88  492.21
```



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

267          UI  461.36  394.37  327.78  266.87  221.69  182.72  150.08  121.91  100.64   84.23
268          UI   69.92   54.93   46.45   35.48   35.48   26.06   12.61   12.61   12.61   12.61
269          UI   12.61   12.61   12.61   12.61

270          KK    L2BR   CNAME  L2A-2B
271          KO       0       0     0.0       0      22
272          HC       2

273          KK  L2A-2B   CNAME    L2BR
274          KO       0       0     0.0       0      22
275          RS      10    FLOW     0.0     0.0
276          RC   0.046   0.045   0.04620743.37  0.0147     0.0
             * L2A-L2B
277          RX     0.0    80.0   165.0   200.0   215.0   255.0   340.0   420.0
278          RY    19.0    17.0    14.0    10.0    10.0    14.0    18.0    22.0

279          KK     L2B
280          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
281          KM   L=5.13     Lca=1.82     S=93.37     Kn=0.055     LAG=78.1
282          KM   S-GRAPH TYPE=DES RNGLND
283          KO       0       0     0.0       1      22
284          BA   4.077
285          LG    0.35    0.35   4.179   0.399     0.0
             * L2B
286          UI     0.0  175.97  175.97  175.97  311.91  535.45  724.28   902.8 1071.35 1224.63
287          UI  1376.8 1511.61 1580.95 1658.53 1686.39 1686.39 1632.48 1568.59 1460.56 1278.33
288          UI  1172.5 1030.99  927.32  829.82  742.49   663.7  594.61  529.93  481.83   405.6
289          UI   377.6  331.75  310.22  269.82  269.19  186.51  186.51  186.51   145.4  120.46
290          UI  120.46  120.46  120.46    90.9   42.83   42.83   42.83   42.83   42.83   42.83
291          UI   42.83   42.83   42.83   42.83   42.83   42.83   42.83   42.83     0.0

292          KK     L3R   CNAME  L2B-L3
293          KO       0       0     0.0       0      22
294          HC       2

295          KK  L2B-L3   CNAME     L3R
296          KO       0       0     0.0       0      22
297          RS      29    FLOW     0.0     0.0
298          RC    0.05    0.04   0.06199942.62  0.0089     0.0
             * L2B-L3
299          RX     0.0  1093.0  1210.0  1215.0  1225.0  1232.0  1372.0  2000.0
300          RY    18.0    11.8    11.7    10.0    10.0    11.7    11.8    18.0

301          KK     L2C
302          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
303          KM   L=3.20     Lca=1.55     S=91.31     Kn=0.055     LAG=61.2
304          KM   S-GRAPH TYPE=DES RNGLND
305          KO       0       0     0.0       1      22
306          BA   1.328
307          LG    0.35    0.35   4.189   0.422     0.0
             * L2C
308          UI     0.0   73.31   73.31   99.98  227.13  318.43   414.0  500.47   577.1  643.23
309          UI  678.82  702.58  699.63  666.25  621.65  533.29  468.31  402.86  351.31  303.79
310          UI   266.7  226.83  200.74  164.03  144.98  131.86  112.41   97.97    77.7    77.7
311          UI   56.55   50.18   50.18   50.18   28.53   17.84   17.84   17.84   17.84   17.84
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

312          UI   17.84   17.84   17.84   17.84   17.84     0.0

313          KK  L2C-2D   CNAME    L2DR
314          KO       0       0     0.0       0      22
315          RS       8    FLOW     0.0     0.0
316          RC   0.046   0.045   0.046 9752.35  0.0122     0.0
             * L2C-L2D
317          RX     0.0    80.0   165.0   200.0   215.0   255.0   340.0   420.0
318          RY    19.0    17.0    14.0    10.0    10.0    14.0    18.0    22.0

319          KK     L2D
320          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
321          KM   L=2.77     Lca=1.24     S=74.13     Kn=0.055     LAG=53.4
322          KM   S-GRAPH TYPE=DES RNGLND
323          KO       0       0     0.0       1      22
324          BA   1.232
325          LG    0.35    0.38   3.578   0.544     0.0
             * L2D
326          UI     0.0   75.42   75.42  141.88  262.35  378.71  482.07  569.62  651.08   696.0
327          UI  722.74  714.79  677.77  607.49  518.22  439.07   376.3  322.28  277.17  232.67
328          UI  200.55   167.8  142.18   124.1  114.53   79.93   79.93    61.7   51.62   51.62
329          UI   51.62   20.09   18.36   18.36   18.36   18.36   18.36   18.36   18.36   18.36
330          UI   18.36     0.0

331          KK    L3RB   CNAME  L2D-L3
332          KO       0       0     0.0       0      22
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 333          HC       2

 334          KK  L2D-L3   CNAME     L3RB
 335          KO       0       0      0.0       0      22
 336          RS      54    FLOW      0.0     0.0
 337          RC    0.05    0.04     0.06 27374.0  0.0077     0.0
              * L2D-L3
 338          RX     0.0  1093.0   1210.0  1215.0  1225.0  1232.0  1372.0  2000.0
 339          RY    18.0    11.8     11.7    10.0    10.0    11.7    11.8    18.0

 340          KK      L3
 341          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 342          KM   L=4.75      Lca=2.00      S=44.27      Kn=0.055      LAG=91.0
 343          KM   S-GRAPH TYPE=DES RNGLND
 344          KO       0       0      0.0       1      22
 345          BA   5.852
 346          LG   0.341   0.328     3.98   0.419    1.05
              * L3
 347          UI     0.0  216.51   216.51  216.51  216.51  546.97   701.8  899.01 1098.32 1266.32
 348          UI  1460.0 1557.8 1786.11 1888.64 1950.18 2034.93 2074.93 2074.93 2053.76  1965.5
 349          UI  1920.6 1789.17 1583.49 1486.07 1313.64 1207.78 1091.43  994.63  909.22  825.03
 350          UI   759.9  663.98  614.46  574.55  483.48  461.45  408.18  402.68  331.99  331.99
 351          UI  296.91  229.48  229.48  229.48  197.56  148.21  148.21  148.21  148.21  148.21
 352          UI  121.69    52.7    52.7    52.7    52.7    52.7    52.7    52.7    52.7    52.7
 353          UI    52.7    52.7    52.7    52.7    52.7    52.7    52.7     0.0
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 354          KK       L   CNAME      1R
 355          KO       0       0      0.0       0      22
 356          HC       3

 357          KK      1R   CNAME       L
 358          KO       0       0      0.0       0      22
 359          RN      1R

 360          KK      Z1
 361          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 362          KM   L=1.70      Lca=0.66      S=47.00      Kn=0.055      LAG=39.1
 363          KM   S-GRAPH TYPE=DES RNGLND
 364          KO       0       0      0.0       1      22
 365          BA   0.664
 366          LG   0.321   0.292    4.004    0.43   2.909
              * Z1
 367          UI     0.0   57.36    79.52  205.33  321.78  424.03  504.07   545.2  540.96  493.73
 368          UI  399.49  319.19   256.28   205.1  164.91  127.66  104.64   87.86    60.8    54.1
 369          UI   39.27   39.27     21.8   13.96   13.96   13.96   13.96   13.96   13.96     0.0

 370          KK      4R   CNAME       Z
 371          KO       0       0      0.0       0      22
 372          RN      4R
 373          ZZ
```

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	R1	254.	4.25	22.	6.	2.	0.28		
+	ROUTED TO	13R	254.	4.25	22.	6.	2.	0.28		
+	HYDROGRAPH AT	M1	1045.	4.92	303.	79.	26.	5.69		
+	ROUTED TO	M1-M2	815.	6.75	297.	79.	26.	5.69		
+	HYDROGRAPH AT	M2	274.	5.42	92.	23.	8.	7.44		
+	2 COMBINED AT	M	815.	6.75	341.	93.	31.	13.12		
+	ROUTED TO	5R	703.	6.75	293.	81.	27.	13.12		
+	HYDROGRAPH AT	N1	502.	4.50	81.	20.	7.	1.52		
+	ROUTED TO	N1-N2	312.	6.25	80.	20.	7.	1.52		
+	HYDROGRAPH AT	N2	354.	5.25	100.	26.	9.	3.33		
+	2 COMBINED AT	N	311.	6.17	134.	35.	12.	4.85		
+	ROUTED TO	8R	300.	6.17	129.	34.	11.	4.85		
+	HYDROGRAPH AT	P1A	292.	4.50	45.	11.	4.	0.50		
+	ROUTED TO	P1A-1B	190.	5.92	45.	11.	4.	0.50		
+	HYDROGRAPH AT	P1B	310.	5.17	83.	21.	7.	1.94		
+	2 COMBINED AT	P	284.	5.17	106.	27.	9.	2.44		
+	ROUTED TO	12R	284.	5.17	106.	27.	9.	2.44		

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+          HYDROGRAPH AT
                    O1      319.   5.33        96.        25.        8.      3.09
+          ROUTED TO
                    7R      319.   5.33        96.        25.        8.      3.09
+          HYDROGRAPH AT
                   Q1A      418.   4.67        80.        20.        7.      1.30
+          ROUTED TO
                 Q1A-1B     338.   5.25        80.        20.        7.      1.30
+          HYDROGRAPH AT
                   Q1B      392.   4.58        70.        18.        6.      0.94
+          2 COMBINED AT
                     Q      408.   5.08       125.        32.       11.      2.23
+          ROUTED TO
                   14R      408.   5.08       125.        32.       11.      2.23
+          HYDROGRAPH AT
                    L1      889.   4.83       227.        58.       19.      3.55
+          ROUTED TO
                 L1-L2A     834.   5.00       226.        58.       19.      3.55
+          HYDROGRAPH AT
                   L2A      305.   4.67        47.        12.        4.      0.69
+          2 COMBINED AT
                  L2BR      906.   5.00       247.        64.       21.      4.24
+          ROUTED TO
                 L2A-2B     800.   5.75       246.        64.       21.      4.24
+          HYDROGRAPH AT
                   L2B      351.   5.17        93.        23.        8.      4.08
+          2 COMBINED AT
                   L3R      798.   5.75       271.        70.       23.      8.32
+          ROUTED TO
                 L2B-L3     632.   6.08       268.        70.       23.      8.32
+          HYDROGRAPH AT
                   L2C      257.   4.83        53.        13.        4.      1.33
+          ROUTED TO
                 L2C-2D     236.   5.33        53.        13.        4.      1.33
+          HYDROGRAPH AT
                   L2D      239.   4.75        44.        11.        4.      1.23
+          2 COMBINED AT
                  L3RB      227.   5.33        65.        16.        5.      2.56
+          ROUTED TO
                 L2D-L3     121.   9.67        63.        16.        5.      2.56
+          HYDROGRAPH AT
                    L3      392.   5.33       123.        31.       10.      5.85
+          3 COMBINED AT
                     L      624.   8.08       331.        91.       30.     16.73
+          ROUTED TO
                    1R      482.   8.33       265.        73.       24.     16.73
+          HYDROGRAPH AT
                    Z1      310.   4.50        43.        11.        4.      0.66
+          ROUTED TO
                    4R      310.   4.50        43.        11.        4.      0.66
```

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 *** NORMAL END OF HEC-1 ***
1*************************************
 *                                   *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
 *             MAY  1991             *
 *          VERSION 4.0.1E           *
 *                                   *
 *  RUN DATE _______ TIME _______    *
 *                                   *
 *************************************
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*************************************
*                                   *
*   U.S. ARMY CORPS OF ENGINEERS    *
*   HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET         *
*      DAVIS, CALIFORNIA 95616      *
*          (916) 551-1748           *
*                                   *
*************************************
```

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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X       XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

HEC-1 INPUT PAGE 1

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

  1           ID   Buckeye/Sun Valley ADMS - 1 March 2004
  2           ID   PBS&J - Modelers: Jacob Lesue & Wen Chen
  3           ID   10-year 6-hour
  4           ID   Existing Conditions
  5           ID   FRS #2 (Sub-basins S-U)
  6           ID   Reinfall Loss Method - Green & Ampt
  7           ID   Unit Hydrograph Method - FCDMC S-Graph
  8           ID   Channel Routing Method - Normal Depth
  9           ID   Land Use - FCDMC GIS Data: mag_landuse (2000)
 10           ID   Soil Data - USDA SCS Soil Survey (1972 & 1981)
 11           ID   Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
              *DIAGRAM
 12           IT       5  1JAN94       0    2000
 13           IO       3
 14           IN      15 01JAN94       0
 15           JD    2.07    0.01
              * 6-hour distribution, pattern 1.0
 16           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 17           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 18           PC   0.962   0.972   0.983   0.991     1.0
 19           IN      15 01JAN94       0
 20           JD   2.058     0.5
              * 6-hour distribution, pattern 1.0
 21           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 22           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 23           PC   0.962   0.972   0.983   0.991     1.0
 24           IN      15 01JAN94       0
 25           JD   2.043     1.0
              * 6-hour distribution, pattern 1.4
 26           PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
 27           PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
 28           PC  0.9572  0.9684  0.9798  0.9898     1.0
 29           IN      15 01JAN94       0
 30           JD   1.987     5.0
              * 6-hour distribution, pattern 2.3
 31           PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
 32           PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
 33           PC  0.9487   0.962  0.9743  0.9877     1.0
 34           IN      15 01JAN94       0
 35           JD   1.946    10.0
              * 6-hour distribution, pattern 2.7
 36           PC     0.0  0.0134  0.0189  0.0287  0.0443  0.0574  0.0694  0.0818  0.0949  0.1076
 37           PC  0.1223  0.1382  0.1604  0.2063  0.2902  0.4664  0.6764  0.8069  0.8765  0.9189
 38           PC  0.9471  0.9608  0.9735  0.9873     1.0

 39           KK      S1
 40           KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 41           KM   L=2.32     Lca=0.52     S=143.99     Kn=0.050     LAG=29.0
 42           KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
 43           KO       0       0     0.0       1      22
 44           BA  1.4105
 45           LG    0.35    0.35   4.484   0.352   6.918
              * S1
 46           UI     0.0  163.76  399.96  863.78 1191.38 1674.04 1389.89  974.39  824.12  687.96
 47           UI  554.64  420.01  366.82  290.75  215.71   183.9  145.46  125.55   85.13   80.14
```



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

 48           UI   72.14   31.39   31.39   31.39   31.39   31.39   31.39     0.0

 49           KK     SCP    CNAME       S
 50           KO       0       0     0.0       0      22
 51           RN     SCP

 52           KK      U1
 53           KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 54           KM   L=2.37     Lca=1.03     S=326.50     Kn=0.050     LAG=33.0
 55           KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
 56           KO       0       0     0.0       1      22
 57           BA  1.3705
 58           LG    0.35    0.37   5.258   0.233   6.449
              * U1
 59           UI     0.0  139.83   266.2  626.33  919.49 1139.88 1569.26 1014.69  819.13  707.21
 60           UI  603.81  505.84  395.99  334.05  299.65  225.43  178.67   155.8  129.72   107.2
 61           UI   86.65   68.43   68.43   50.61    26.8    26.8    26.8    26.8    26.8    26.8
 62           UI    26.8     0.0

 63           KK     UCP    CNAME       U
 64           KO       0       0     0.0       0      22
 65           RN     UCP

 66           KK      T1
 67           KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 68           KM   L=4.34     Lca=1.58     S=274.89     Kn=0.050     LAG=51.0
 69           KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
 70           KO       0       0     0.0       1      22
 71           BA  3.0415
 72           LG    0.35    0.35   4.644   0.299  11.497
              * T1
 73           UI     0.0   200.8   200.8  447.02  773.33 1107.71 1336.75 1525.87 1807.83 2359.26
 74           UI  1728.6 1335.29 1184.68 1081.59  978.95  886.26  793.63  697.43  590.13  511.99
 75           UI  476.04  440.92  386.02  329.88  260.38  252.47  219.92  219.92  155.92  153.94
 76           UI  153.94  103.27   98.26   98.26   98.26   91.33   38.49   38.49   38.49   38.49
 77           UI   38.49   38.49   38.49   38.49   38.49   38.49   38.49   38.49

 78           KK     TCP    CNAME       T
 79           KO       0       0     0.0       0      22
 80           RN     TCP
 81           ZZ
```

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	S1	621.	4.33	77.	19.	6.	1.41		

```
          ROUTED TO
+                         SCP      621.   4.33        77.        19.        6.      1.41
          HYDROGRAPH AT
+                         U1       638.   4.42        87.        22.        7.      1.37
          ROUTED TO
+                         UCP      638.   4.42        87.        22.        7.      1.37
          HYDROGRAPH AT
+                         T1       812.   4.67       172.        44.       15.      3.04
          ROUTED TO
+                         TCP      812.   4.67       172.        44.       15.      3.04

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

1*************************************                                    *************************************
 *                                   *                                    *                                   *
 *  FLOOD HYDROGRAPH PACKAGE  (HEC-1)*                                    *  U.S. ARMY CORPS OF ENGINEERS     *
 *            JUN  1998              *                                    *  HYDROLOGIC ENGINEERING CENTER    *
 *          VERSION 4.1              *                                    *        609 SECOND STREET          *
 *                                   *                                    *      DAVIS, CALIFORNIA 95616      *
 *  RUN DATE   09JAN06  TIME  09:20:39*                                    *          (916) 756-1104           *
 *                                   *                                    *                                   *
 *************************************                                    *************************************

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

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

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

1                                                   HEC-1 INPUT                                                    PAGE  1

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

          1           ID   Buckeye/Sun Valley ADMS - 01 March 2004
          2           ID   PBS&J - Modelers: Jacob Issue & Wan Chen
          3           ID   10-year 6-hour
          4           ID   Existing Conditions
          5           ID   FRS #3 (Sub-basins V-Y)
          6           ID   Reinfall Loss Method - Green & Ampt
          7           ID   Unit Hydrograph Method - FCDMC S-Graph
          8           ID   Channel Routing Method - Normal Depth
          9           ID   Land Use - FCDMC GIS Data: mag_landuse (2000)
         10           ID   Soil Data - USDA SCS Soil Survey (1972 & 1981)
         11           ID   Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
                      *DIAGRAM
         12           IT       5  1JAN94       0    2000
         13           IO       3
         14           IN      15 01JAN94       0
         15           JD    2.07    0.01
                      * 6-hour distribution, pattern 1.0
         16           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
         17           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
         18           PC   0.962   0.972   0.983   0.991     1.0
         19           IN      15 01JAN94       0
         20           JD   2.058     0.5
                      * 6-hour distribution, pattern 1.0
         21           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
         22           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
         23           PC   0.962   0.972   0.983   0.991     1.0
         24           IN      15 01JAN94       0
         25           JD   2.043     1.0
                      * 6-hour distribution, pattern 1.4
         26           PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
         27           PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
         28           PC  0.9572  0.9684  0.9798  0.9898     1.0
         29           IN      15 01JAN94       0
         30           JD   1.987     5.0
                      * 6-hour distribution, pattern 2.3
         31           PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
         32           PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
         33           PC  0.9487   0.962  0.9743  0.9877     1.0
         34           IN      15 01JAN94       0
         35           JD   1.946    10.0
                      * 6-hour distribution, pattern 2.7
         36           PC     0.0  0.0134  0.0189  0.0287  0.0443  0.0574  0.0694  0.0818  0.0949  0.1076
         37           PC  0.1223  0.1382  0.1604  0.2063  0.2902  0.4664  0.6764  0.8069  0.8765  0.9189
         38           PC  0.9471  0.9608  0.9735  0.9873     1.0

         39           KK      V1
         40           KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
         41           KM   L=2.86      Lca=1.75      S=344.82     Kn=0.050     LAG=43.0
         42           KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
         43           KO       0       0     0.0       1      22
         44           BA  0.6646
         45           LG    0.35    0.35   3.972   0.405  13.864
                      * V1
         46           UI     0.0   52.04   54.19  166.27  256.03  338.03  396.86  496.81  578.99  373.13
         47           UI  313.66  281.75  250.64  220.87  193.81  162.52  133.66  122.94  111.92    90.9
1                                                   HEC-1 INPUT                                                    PAGE  2
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  48          UI   74.78   66.34   56.99    53.4    39.9    39.9   30.81   25.47   25.47   25.47
  49          UI   16.36    9.97    9.97    9.97    9.97    9.97    9.97    9.97    9.97    9.97
  50          UI     0.0

  51          KK     VCP   CNAME       V
  52          KO       0       0     0.0       0      22
  53          RN     VCP

  54          KK      W1
  55          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  56          KM   L=3.46     Lca=1.78     S=486.28     Kn=0.050     LAG=44.0
  57          KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
  58          KO       0       0     0.0       1      22
  59          BA   3.894
  60          LG    0.35    0.35   3.976    0.41  15.199
              * W1
  61          UI     0.0  297.97  297.97  920.94 1416.37 1894.97 2238.82 2710.48 3465.75 2237.36
  62          UI  1844.7 1658.52 1479.19 1314.83 1166.02  980.71   816.4  720.69  665.9  577.11
  63          UI  477.35  380.74  352.03  326.35  259.78  228.45  225.14  145.82  145.82  145.82
  64          UI  145.82   65.63   57.11   57.11   57.11   57.11   57.11   57.11   57.11   57.11
  65          UI   57.11     0.0

  66          KK   W1-W2   CNAME     W2R
  67          KO       0       0     0.0       0      22
  68          RS       7    FLOW     0.0     0.0
  69          RC   0.050    0.05    0.06 11249.0  0.0169     0.0
              * W1-W2
  70          RX     0.0   350.0   372.0   384.0   472.0   489.0   525.0  1005.0
  71          RY    17.5    11.5    11.6    10.0    11.2    13.4    13.8    17.5

  72          KK      W2
  73          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  74          KM   L=3.25     Lca=1.19     S=178.54     Kn=0.050     LAG=44.0
  75          KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
  76          KO       0       0     0.0       1      22
  77          BA  2.8478
  78          LG    0.35    0.35   4.081   0.402   3.547
              * W2
  79          UI     0.0  217.92  217.92  673.51 1035.83 1385.85 1637.32 1982.26  2534.6 1636.25
  80          UI  1349.1 1212.93 1081.78  961.58  852.74  717.22  597.06  527.06  486.99  422.06
  81          UI   349.1  278.45  257.45  238.67  189.98  167.07  164.65  106.64  106.64  106.64
  82          UI  106.64    48.0   41.77   41.77   41.77   41.77   41.77   41.77   41.77   41.77
  83          UI   41.77     0.0

  84          KK       W   CNAME     WCP
  85          KO       0       0     0.0       0      22
  86          HC       2     0.0

  87          KK     WCP   CNAME       W
  88          KO       0       0     0.0       0      22
  89          RN     WCP
1                                          HEC-1 INPUT                                          PAGE  3

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

  90          KK      X1
  91          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  92          KM   L=2.60     Lca=1.44     S=288.89     Kn=0.050     LAG=40.0
  93          KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
  94          KO       0       0     0.0       1      22
  95          BA  0.7867
  96          LG    0.35    0.35   3.955   0.417  12.555
              * X1
  97          UI     0.0   66.22   86.09  225.41  360.12  457.02  541.42  743.25  566.57  418.64
  98          UI  370.57  326.87  286.18  248.98  205.81  168.91  155.03  138.38  108.79   86.55
  99          UI   78.81   72.53   55.12   50.77   43.42   32.41   32.41   32.41   19.79   12.69
 100          UI   12.69   12.69   12.69   12.69   12.69   12.69   12.69     0.0

 101          KK     XCP   CNAME       X
 102          KO       0       0     0.0       0      22
 103          RN     XCP

 104          KK      Y1
 105          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 106          KM   L=1.37     Lca=0.53     S=771.84     Kn=0.050     LAG=17.0
 107          KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
 108          KO       0       0     0.0       1      22
 109          BA  0.5808
 110          LG    0.35    0.35   4.044   0.415  10.947
              * Y1
 111          UI     0.0  162.05  614.46 1087.12   811.3  562.72  397.42  272.87  186.43   132.2
 112          UI   88.57   57.25   43.55   22.05   22.05   22.05     0.0

 113          KK     YCP   CNAME       Y
 114          KO       0       0     0.0       0      22
 115          RN     YCP
 116          ZZ
                                          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
+                          V1   311.   4.50          53.         13.          4.        .66
        ROUTED TO
+                         VCP   311.   4.50          53.         13.          4.        .66
        HYDROGRAPH AT
+                          W1   933.   4.58         200.         51.         17.       3.89
        ROUTED TO
+                       W1-W2   790.   5.08         199.         51.         17.       3.89
        HYDROGRAPH AT
+                          W2   596.   4.58         100.         25.          8.       2.85
```

```
+        2 COMBINED AT
                          W      619.   5.08      237.      61.      20.     6.74
+        ROUTED TO
                         WCP     619.   5.08      237.      61.      20.     6.74
+        HYDROGRAPH AT
                          X1     358.   4.50       57.      14.       5.      .79
+        ROUTED TO
                         XCP     358.   4.50       57.      14.       5.      .79
+        HYDROGRAPH AT
                          Y1     513.   4.17       45.      11.       4.      .56
+        ROUTED TO
                         YCP     513.   4.17       45.      11.       4.      .56

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

D.6.1.b HEC-1 Output File for 10-year 24-hour Storm (Existing Conditions)

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*            MAY   1991             *
*          VERSION 4.0.1E           *
*                                   *
* RUN DATE _______ TIME _______     *
*                                   *
*************************************

*************************************
*                                   *
*   U.S. ARMY CORPS OF ENGINEERS    *
*   HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET         *
*      DAVIS, CALIFORNIA 95616      *
*         (916) 551-1748            *
*                                   *
*************************************

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

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

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

                                        HEC-1 INPUT                                                    PAGE  1

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

   1          ID  Buckeye/Sun Valley ADMS - May 2005
   2          ID  Michael Baker Jr., Inc. - Modeler: Jacob Lesue
   3          ID  10-year 24-hour
   4          ID  Existing Conditions
   5          ID  Area 3 - Sub-basins A-C (Aluvial Fan updates)
   6          ID  Rainfall Loss Method - Green & Ampt
   7          ID  Unit Hydrograph Method - FCDMC S-Graph
   8          ID  Channel Routing Method - Normal Depth
   9          ID  Land Use - FCDMC GIS Data: mag_landuse (2000)
  10          ID  Soil Data - USDA SCS Soil Survey (1972 & 1981)
  11          ID  Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
              *DIAGRAM
  12          IT       5 01JAN94       0    2000
  13          IO       3
  14          IN      15 01JAN94       0
  15          JD    2.62    0.01
              * 24-hour distribution
  16          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
  17          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
  18          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
  19          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
  20          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
  21          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
  22          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
  23          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
  24          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
  25          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
  26          IN      15 01JAN94       0
  27          JD   2.489    10.0
              * 24-hour distribution
  28          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
  29          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
  30          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
  31          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
  32          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
  33          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
  34          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
  35          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
  36          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
  37          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
```

```
 38          IN      15 01JAN94       0
 39          JD   2.405    20.0
             * 24-hour distribution
 40          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 41          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 42          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 43          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 44          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 45          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 46          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 47          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 48          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 49          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 50          IN      15 01JAN94       0
 51          JD   2.324    40.0
             * 24-hour distribution
```



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

 52          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 53          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 54          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 55          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 56          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 57          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 58          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 59          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 60          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 61          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 62          IN      15 01JAN94       0
 63          JD   2.245    80.0
             * 24-hour distribution
 64          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 65          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 66          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 67          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 68          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 69          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 70          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 71          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 72          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 73          PC   0.963   0.986   0.989   0.992   0.995   0.998     1.0

 74          KK      C1
 75          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 76          KM   L=4.66      Lca=2.77      S=333.05      Kn=0.050      LAG=62.9
 77          KM   S-GRAPH TYPE=PHX MNT
 78          KO       0        0     0.0        1       22
 79          BA   3.643
 80          LG   0.218    0.297   3.922   0.411   21.031
             * C1
 81          UI     0.0   194.68   194.68   231.91   577.25   796.73 1066.06 1245.68  1408.6 1543.98
 82          UI  1838.6 2327.02 1821.51  1384.7 1210.78 1130.06 1041.17   959.73   894.23  808.89
 83          UI  756.21    659.7   565.69   510.14   476.35   449.65   420.33   381.94   319.83  282.59
 84          UI  248.76   239.66   213.22   213.22    174.2   149.26   149.26   149.26   104.45   95.27
 85          UI   95.27    95.27    95.27    95.27    42.65    37.31    37.31    37.31    37.31   37.31
 86          UI   37.31    37.31    37.31    37.31    37.31    37.31    37.31    37.31    37.31     0.0

 87          KK   C1-C2    CNAME     C2R
 88          KO       0        0     0.0        0       22
 89          RS       6     FLOW     0.0      0.0
 90          RC    0.05    0.044   0.0515078.46   0.0175      0.0
             * C1-C2
 91          RX     0.0     35.0     90.0    138.0    159.0    209.0    264.0    309.0
 92          RY    21.0     19.0     16.0     10.0     10.0     15.0     20.0     24.0

 93          KK      C2
 94          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 95          KM   L=2.86      Lca=1.20      S=92.12      Kn=0.055      LAG=53.0
 96          KM   S-GRAPH TYPE=DES RNGLND
 97          KO       0        0     0.0        1       22
 98          BA   1.864
 99          LG    0.35     0.35   3.949   0.428      0.0
             * C2
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

100          UI     0.0    118.4    118.4   243.16   436.28   623.51   787.34   927.02  1049.4 1109.51
101          UI  1134.6 1098.82 1033.89   875.19   752.87   635.49   539.38   457.23   387.5  333.21
102          UI  271.71   232.03   202.69   181.55   130.95   125.49    98.72    81.05   81.05   78.92
103          UI   28.82    28.82    28.82    28.82    28.82    28.82    28.82    28.82   28.82     0.0

104          KK     C3R    CNAME   C2-C3
105          KO       0        0     0.0        0       22
106          RC       2

107          KK   C2-C3    CNAME     C3R
108          KO       0        0     0.0        0       22
109          RS      12     FLOW     0.0      0.0
110          RC   0.046     0.05   0.04623814.25   0.0107      0.0
             * C2-C3
111          RX     0.0     60.0    125.0    140.0    172.0    232.0    292.0    352.0
112          RY    26.0     25.0     23.0     10.0     10.0     16.0     20.0     23.0

113          KK      C3
114          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
115          KM   L=4.44      Lca=2.51      S=56.33      Kn=0.050      LAG=84.0
116          KM   S-GRAPH TYPE=DES RNGLND
117          KO       0        0     0.0        1       22
118          BA   3.786
119          LG   0.345    0.345   4.357   0.371      0.0
             * C3
120          UI     0.0   151.75   151.75   151.75   190.45   436.29   559.28   700.14   855.71  975.54
121          UI  1073.3 1242.31 1321.34 1364.98 1437.02 1454.29 1454.29 1418.23 1372.67 1299.22
122          UI  1161.9 1057.67   941.42   855.16   770.05   694.16    628.6   565.68   510.91  460.19
123          UI  415.51   362.41   338.86   288.07   286.09   237.34   232.69   204.47   160.84  160.84
124          UI  160.84   118.28   103.88   103.88   103.88   103.88    97.02    36.93    36.93   36.93
125          UI   36.93    36.93    36.93    36.93    36.93    36.93    36.93    36.93    36.93   36.93
126          UI   36.93    36.93      0.0
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127          KK     C4R   CNAME   C3-C4
128          KO       0       0     0.0       0      22
129          BC       2

130          KK      C4
131          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
132          KM   L=2.18      Lca=0.88      S=44.31      Kn=0.045      LAG=39.9
133          KM   S-GRAPH TYPE=DES RNGLND
134          KO       0       0     0.0       1      22
135          BA     1.4
136          LG   0.327   0.327   4.737    0.29     0.0
             * C4
137          UI     0.0  117.85   153.2  406.58  642.01  649.78  1023.5 1108.79 1120.35 1044.06
138          UI   866.1  694.77  559.79  452.88  361.01  288.87  232.67  190.32  149.01  124.91
139          UI    88.1   80.67   73.18   28.68   28.68   28.68   28.68   28.68   28.68   28.68
140          UI     0.0

                                          HEC-1 INPUT                                          PAGE  4

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

141          KK       C   CNAME     13R
142          KO       0       0     0.0       0      22
143          BC       2

144          KK     13R   CNAME       C
145          KO       0       0     0.0       0      22
146          RW     13R

147          KK      A1
148          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
149          KM   L=2.20      Lca=0.86      S=322.08      Kn=0.050      LAG=29.9
150          KM   S-GRAPH TYPE=PHX MNT
151          KO       0       0     0.0       1      22
152          BA   1.107
153          LG    0.35    0.35   4.057   0.417   9.735
             * A1
164          UI     0.0  124.21  285.27   628.5  891.01  1178.4 1187.83  769.91  652.54  550.25
155          UI  454.04   347.4  294.07  245.69  184.11  150.55  131.96   95.23   84.89   60.78
156          UI   60.78   43.03   23.81   23.81   23.81   23.81   23.81   23.81     0.0

157          KK  A1-A2A   CNAME     A2R
158          KO       0       0     0.0       0      22
159          RS       5    FLOW     0.0     0.0
160          RC   0.045   0.045   0.045 7200.57  0.0147     0.0
             * A1-A2
161          RX     0.0    75.0   125.0   185.0   190.0   220.0   280.0   340.0
162          RY    27.0    23.0    19.0    10.0    10.0    20.0    26.0    32.0

163          KK      B1
164          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
165          KM   L=3.11      Lca=1.55      S=213.96      Kn=0.050      LAG=46.7
166          KM   S-GRAPH TYPE=PHX MNT
167          KO       0       0     0.0       1      22
168          BA   0.603
169          LG    0.35    0.35   3.766   0.462   5.699
             * B1
170          UI     0.0    43.2    43.2  114.65  185.49   261.9  308.36  353.56  464.75  433.83
171          UI  297.08  257.03  233.32  209.37  187.06  167.52   142.1  119.29  106.02   98.41
172          UI   88.94   70.98   59.05    54.7   47.32   46.04   33.12   33.12   29.89   21.14
173          UI   21.14   21.14   21.14   10.18    8.28    8.28    8.28    8.28    8.28    8.28
174          UI    8.28    8.28    8.28    8.28     0.0

175          KK     A2A
176          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
177          KM   L=1.90      Lca=1.28      S=55.92      Kn=0.055      LAG=51.0
178          KM   S-GRAPH TYPE=DES RNGLND
179          KO       0       0     0.0       1      22
180          BA   0.484
181          LG    0.35    0.35   4.605   0.325     0.0
             * A2A
182          UI     0.0   31.98   31.98   71.19   126.1  175.43  218.56  263.08  286.07  306.44
183          UI  305.77  290.65  260.58   220.3  184.93  156.29  131.91  111.15   93.27   77.88
184          UI    65.3   56.86   49.03   37.31   33.89   27.16   21.89   21.89    20.0    7.78
185          UI    7.78    7.78    7.78    7.78    7.78    7.78    7.78    7.78     0.0

                                          HEC-1 INPUT                                          PAGE  5

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

186          KK    B2RB   CNAME  A2A-B2
187          KO       0       0     0.0       0      22
188          BC       3

189          KK  A2A-B2   CNAME    B2RB
190          KO       0       0     0.0       0      22
191          RS       4    FLOW     0.0     0.0
192          RC   0.055   0.042   0.055 7166.98  0.0133     0.0
             * B1-B2
193          RX     0.0    75.0   140.0   167.0   193.0   226.0   296.0   371.0
194          RY    20.0    17.0    14.0    10.0    10.0    13.0    17.0    22.0

195          KK      B2
196          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
197          KM   L=2.69      Lca=0.84      S=67.29      Kn=0.055      LAG=47.9
198          KM   S-GRAPH TYPE=DES RNGLND
199          KO       0       0     0.0       1      22
200          BA   0.442
201          LG    0.35    0.35   3.628   0.511     0.0
             * B2
202          UI     0.0   30.97   30.97   77.73   133.4  183.82  226.98   266.1  287.65  296.82
203          UI  287.47  267.05  223.78   185.3  155.58  129.98  108.43   90.02   74.14    61.7
204          UI   52.71   46.29   32.83   32.83   21.22    21.2    21.2   10.64    7.54    7.54
205          UI    7.54    7.54    7.54    7.54    7.54    7.54     0.0

206          KK     B3R   CNAME   B2-B3
207          KO       0       0     0.0       0      22
208          BC       2

209          KK   B2-B3   CNAME     B3R
210          KO       0       0     0.0       0      22
211          RS      24    FLOW     0.0     0.0
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 212          RC    0.05    0.025    0.0520075.26  0.0118     0.0
              * B2-B3
 213          RX     0.0    120.0    278.0   285.0   301.5   312.5   446.5   529.5
 214          RY    13.5     10.0     11.6    10.1    10.1    11.5    10.8    12.6

 215          KK      B3
 216          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 217          KM   L=3.72      Lca=1.65      S=63.31      Kn=0.045      LAG=58.6
 218          KM   S-GRAPH TYPE=DES RNGLND
 219          KO      0        0      0.0       1       22
 220          BA   1.987
 221          LG   0.332    0.332    4.284   0.389      0.0
              * B3
 222          UI     0.0   113.39   113.39   174.19   365.68   513.61   667.07   787.08   935.28   1014.0
 223          UI  1066.6  1086.65  1065.13  1007.44   902.76   777.12   664.52   576.27   502.41    427.5
 224          UI  369.71    321.5   269.65   233.59   211.46   173.86   158.41   120.18   120.18    89.23
 225          UI   77.62    77.62    77.62    39.48     27.6     27.6     27.6     27.6     27.6     27.6
 226          UI    27.6     27.6     27.6     27.6      0.0
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 227          KK       B   CNAME      4R
 228          KO       0       0     0.0       0       22
 229          HC       2

 230          KK      4R   CNAME       B
 231          KO       0       0     0.0       0       22
 232          RN      4R

 233          KK     A2B
 234          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 235          KM   L=2.10      Lca=1.12      S=76.27      Kn=0.055      LAG=47.5
 236          KM   S-GRAPH TYPE=DES RNGLND
 237          KO      0        0      0.0       1       22
 238          BA   1.178
 239          LG   0.35     0.35    4.507   0.348      0.0
              * A2B
 240          UI     0.0    84.39    84.39   224.42   373.68   509.86   634.46   735.71    769.8   808.75
 241          UI  774.44   702.18   582.93   482.21   402.04   335.57   277.24   233.92   186.27    159.1
 242          UI  131.56   108.73    89.45    74.32    57.77    57.77    45.88    20.54    20.54    20.54
 243          UI   20.54    20.54    20.54    20.54    20.54      0.0

 244          KK  A2B-A3   CNAME     A3R
 245          KO       0       0     0.0       0       22
 246          RS      15    FLOW     0.0     0.0
 247          RC    0.05   0.043   0.0518881.09  0.0112      0.0
              * A2B-A3
 248          RX     0.0    20.0    30.0   165.0   186.0   346.0   361.0   381.0
 249          RY    20.0    19.0    18.0    10.0    10.0    20.0    21.0    22.0

 250          KK      A3
 251          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 252          KM   L=3.92      Lca=1.89      S=58.21      Kn=0.045      LAG=64.1
 253          KM   S-GRAPH TYPE=DES RNGLND
 254          KO      0        0      0.0       1       22
 255          BA   3.729
 256          LG   0.35     0.35    4.23   0.405      0.0
              * A3
 257          UI     0.0    196.2    196.2   216.8    570.5   813.36   1043.2  1275.52  1464.33  1668.96
 258          UI  1757.8  1877.01  1880.24  1841.14  1751.55   1593.0  1387.92  1202.85  1048.96   919.73
 259          UI  805.44   710.06   606.86   538.24   447.15   397.83    367.9   300.84   290.73   207.95
 260          UI  207.95   183.56    134.3    134.3    134.3   131.67    47.75    47.75    47.75    47.75
 261          UI   47.75    47.75    47.75    47.75    47.75    47.75    47.75    47.75

 262          KK       A   CNAME      5R
 263          KO       0       0     0.0       0       22
 264          HC       2

 265          KK      5R   CNAME       A
 266          KO       0       0     0.0       0       22
 267          RN      5R
 268          ZZ
```

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	C1	1154.	12.83	285.	86.	29.	3.64		
+	ROUTED TO	C1-C2	981.	13.25	284.	86.	29.	3.64		
+	HYDROGRAPH AT	C2	442.	12.75	79.	20.	7.	1.86		
+	2 COMBINED AT	C3R	1197.	13.17	360.	105.	35.	5.51		
+	ROUTED TO	C2-C3	1064.	14.08	354.	105.	35.	5.51		
+	HYDROGRAPH AT	C3	602.	13.17	169.	42.	14.	3.79		
+	2 COMBINED AT	C4R	1339.	14.00	508.	146.	49.	9.29		
+	HYDROGRAPH AT	C4	522.	12.58	72.	18.	6.	1.40		
+	2 COMBINED AT	C	1341.	14.00	573.	163.	54.	10.69		
+	ROUTED TO	13R	1341.	14.00	573.	163.	54.	10.69		
	HYDROGRAPH AT									

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+                    A1      490.  12.33      64.      18.      6.      1.11
        ROUTED TO
+                A1-A2A      424.  12.67      64.      18.      6.      1.11
        HYDROGRAPH AT
+                    B1      178.  12.58      31.       8.      3.      0.60
        HYDROGRAPH AT
+                   A2A      135.  12.75      23.       6.      2.      0.48
        3 COMBINED AT
+                  B2RB      720.  12.67     116.      32.     11.      2.19
        ROUTED TO
+                A2A-B2      640.  12.92     116.      32.     11.      2.19
        HYDROGRAPH AT
+                    B2      108.  12.67      18.       4.      1.      0.44
        2 COMBINED AT
+                   B3R      720.  12.92     133.      36.     12.      2.64
        ROUTED TO
+                 B2-B3      479.  14.75     132.      36.     12.      2.64
        HYDROGRAPH AT
+                    B3      451.  12.83      90.      22.      7.      1.99
        2 COMBINED AT
+                     B      486.  14.75     216.      58.     19.      4.62
        ROUTED TO
+                    4R      488.  14.75     216.      58.     19.      4.62
        HYDROGRAPH AT
+                   A2B      341.  12.67      54.      14.      5.      1.18
        ROUTED TO
+                A2B-A3      246.  13.83      54.      14.      5.      1.18
        HYDROGRAPH AT
+                    A3      738.  12.92     158.      40.     13.      3.73
        2 COMBINED AT
+                     A      734.  12.92     211.      53.     18.      4.91
        ROUTED TO
+                    5R      734.  12.92     211.      53.     18.      4.91

 *** NORMAL END OF HEC-1 ***
1*************************************
 *                                   *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
 *             MAY   1991            *
 *           VERSION 4.0.1E          *
 *                                   *
 *  RUN DATE _________ TIME _________*
 *                                   *
 *************************************

 *************************************
 *                                   *
 *    U.S. ARMY CORPS OF ENGINEERS   *
 *   HYDROLOGIC ENGINEERING CENTER   *
 *          609 SECOND STREET        *
 *       DAVIS, CALIFORNIA 95616     *
 *          (916) 551-1748           *
 *                                   *
 *************************************

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

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

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

                                    HEC-1 INPUT                                                    PAGE  1

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

    1           ID  Buckeye/Sun Valley ADMS - May 2005
    2           ID  Michael Baker Jr., Inc. - Modeler: Jacob Lesue
    3           ID  basins E-K with Aluvial Fan updates
    4           ID  10-year 24-hour
    5           ID  Existing Conditions
    6           ID  Area 3 - Sub-basins E-K (Aluvial Fan updates)
    7           ID  Rainfall Loss Method - Green & Ampt
    8           ID  Unit Hydrograph Method - FCDMC S-Graph
    9           ID  Channel Routing Method - Normal Depth
   10           ID  Land Use - FCDMC GIS Data: mag_landuse (2000)
   11           ID  Soil Data - USDA SCS Soil Survey (1972 & 1981)
   12           ID  Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
                *DIAGRAM
   13           IT       5 01JAN94       0    2000
   14           IO       3
   15           IN      15 01JAN94       0
   16           JD    2.62    0.01
                * 24-hour distribution
   17           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
   18           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
   19           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
   20           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
   21           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
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 22          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 23          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 24          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 25          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 26          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 27          IN      15 01JAN94       0
 28          JD   2.489    20.0
             * 24-hour distribution
 29          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 30          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 31          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 32          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 33          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 34          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 35          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 36          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 37          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 38          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 39          IN      15 01JAN94       0
 40          JD   2.405    20.0
             * 24-hour distribution
 41          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 42          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 43          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 44          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 45          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 46          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 47          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 48          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 49          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 50          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 51          IN      15 01JAN94       0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 52          JD   2.324    40.0
             * 24-hour distribution
 53          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 54          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 55          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 56          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 57          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 58          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 59          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 60          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 61          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 62          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 63          IN      15 01JAN94       0
 64          JD   2.245    80.0
             * 24-hour distribution
 65          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 66          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 67          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 68          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 69          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 70          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 71          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 72          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 73          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 74          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 75          IN      15 01JAN94       0
 76          JD   2.203   120.0
             * 24-hour distribution
 77          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 78          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 79          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 80          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 81          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 82          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 83          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 84          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 85          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 86          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0

 87          KK      G1
 88          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 89          KM   L=2.36      Lca=1.08      S=33.76      Kn=0.045      LAG=47.1
 90          KM   S-GRAPH TYPE-DES RNGLND
 91          KO       0        0     0.0        1       22
 92          BA   1.119
 93          LG    0.35     0.35    4.68    0.299      0.0
             * G1
 94          UI     0.0    80.16   80.16  213.17  354.95   484.3  602.66  698.84  750.22  768.22
 95          UI  735.63   666.98  553.71  458.04  381.89  318.75  263.34   222.2  176.93  151.12
 96          UI  124.96   103.28   84.96   70.59   54.87   54.87   43.58   19.51   19.51   19.51
 97          UI   19.51    19.51   19.51   19.51   19.51     0.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 98          KK      1R    CNAME       G
 99          KO       0        0     0.0        0       22
100          RN      1R

101          KK      K1
102          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
103          KM   L=3.23      Lca=1.84      S=681.00      Kn=0.050      LAG=40.4
104          KM   S-GRAPH TYPE=PHX MNT
105          KO       0        0     0.0        1       22
106          BA   1.543
107          LG   0.112    0.255    4.365    0.366   21.277
             * K1
108          UI     0.0   129.88  168.84  442.11  706.31  896.38 1061.91 1457.77 1111.25  821.11
109          UI  726.82   641.11  561.31  488.34  403.67  331.29  304.06  271.41  213.37  169.75
110          UI  154.58   142.25  108.11   99.57   85.17   63.56   63.56   63.56   38.81   24.89
111          UI   24.89    24.89   24.89   24.89   24.89   24.89   24.89     0.0

112          KK  K1-K2A    CNAME    K2AR
113          KO       0        0     0.0        0       22
114          RS      14     FLOW     0.0      0.0
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115          RC    0.05    0.048    0.0519434.11    0.017     0.0
             * K1-K2A
116          RX     0.0     20.0     55.0     85.0    235.0    259.0    289.0    309.0
117          RY    22.0     21.0     20.0     10.0     10.0     20.0     21.0     22.0

118          KK     K2A
119          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
120          KM   L=5.29      Lca=2.72      S=126.78      Kn=0.055      LAG=87.2
121          KM   S-GRAPH TYPE=DES RNGLWD
122          KO       0        0     0.0        1       22
123          BA   1.949
124          LG   0.341    0.347    4.907    0.278    1.288
             * K2A
125          UI     0.0    75.43    75.43    75.43    75.43   216.57   263.63   333.08   400.43   470.31
126          UI  527.14   583.18   638.37   674.27   692.72   722.84   722.84   721.83   689.53   671.99
127          UI  627.55   556.08   517.43   456.81   416.13   375.78   341.84   309.53   280.25   253.48
128          UI  229.53   206.53   183.27   168.43   146.97    142.2   123.74   115.66   112.61    79.95
129          UI   79.95    79.95    71.18    51.63    51.63    51.63    51.63    51.63    36.22    18.36
130          UI   18.36    18.36    18.36    18.36    18.36    18.36    18.36    18.36    18.36    18.36
131          UI   18.36    18.36    18.36    18.36      0.0

132          KK    K2BR    CNAME   K2A-2B
133          KO       0        0     0.0        0       22
134          RC       2

135          KK  K2A-2B    CNAME    K2BR
136          KO       0        0     0.0        0       22
137          RS       8     FLOW     0.0      0.0
138          RC    0.05    0.048    0.0510602.71   0.0115     0.0
             * K2A-K2B
139          RX     0.0     20.0     55.0     85.0    235.0    259.0    289.0    309.0
140          RY    22.0     21.0     20.0     10.0     10.0     20.0     21.0     22.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

141          KK     K2B
142          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
143          KM   L=2.01      Lca=0.83      S=60.78      Kn=0.055      LAG=43.5
144          KM   S-GRAPH TYPE=DES RNGLWD
145          KO       0        0     0.0        1       22
146          BA   0.416
147          LG    0.35     0.35    2.708    0.961     0.0
             * K2B
148          UI     0.0    32.97    33.92   104.78   161.25   216.88   267.55   297.02   312.16   302.35
149          UI  276.72   225.58   183.68   151.33   123.31    99.92     81.2    65.94     55.1    45.93
150          UI   34.52     29.7     22.3     22.3    15.04     7.93     7.93     7.93     7.93     7.93
151          UI    7.93     7.93      0.0

152          KK    K3RA    CNAME   K2B-K3
153          KO       0        0     0.0        0       22
154          RC       2

155          KK  K2B-K3    CNAME    K3RA
156          KO       0        0     0.0        0       22
157          RS      22     FLOW     0.0      0.0
158          RC    0.05    0.048    0.0525980.11   0.0084     0.0
             * K2B-K3
159          RX     0.0    390.0    490.0    502.0    520.0    532.0    632.0   1022.0
160          RY    20.0     14.5     11.5     10.0     10.0     11.5     14.5     20.0

161          KK     E2A
162          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
163          KM   L=2.90      Lca=1.20      S=100.83      Kn=0.055      LAG=52.4
164          KM   S-GRAPH TYPE=DES RNGLWD
165          KO       0        0     0.0        1       22
166          BA   0.797
167          LG    0.35     0.38     5.6     0.21     0.0
             * E2A
168          UI     0.0     51.6     51.6   110.43   196.83   277.44   347.94   413.76   460.03    489.1
169          UI  494.55    472.6   438.77   369.81   310.92   263.99   224.69   190.62   158.99   135.09
170          UI  112.23    97.29    80.97    70.86     54.7    53.12    35.32    35.32    35.32    21.96
171          UI   12.56    12.56    12.56    12.56    12.56    12.56    12.56    12.56    12.56      0.0

172          KK  E2A-E3    CNAME    E3RA
173          KO       0        0     0.0        0       22
174          RS      17     FLOW     0.0      0.0
175          RC   0.052    0.046   0.05219626.03   0.0093     0.0
             * E2A-E3
176          RX     0.0    133.0    173.0    213.0    223.0    263.0    303.0    403.0
177          RY    22.0     17.0     14.0     10.0     10.0     15.0     18.0     22.0

178          KK     E2C
179          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
180          KM   L=2.38      Lca=1.01      S=92.90      Kn=0.055      LAG=46.0
181          KM   S-GRAPH TYPE=DES RNGLWD
182          KO       0        0     0.0        1       22
183          BA   0.716
184          LG    0.35     0.35    4.343    0.357     0.0
             * E2C
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

185          UI     0.0    55.12    55.12   154.82   250.83   342.33   421.22   487.29   519.92   527.55
186          UI  498.61   439.15   363.83    300.5   250.15   205.65   169.32   139.69   114.34    97.44
187          UI   84.51    59.64    58.42    38.62    37.73    37.73    16.68    13.41    13.41    13.41
188          UI   13.41    13.41    13.41    13.41      0.0

189          KK  E2C-E3    CNAME    E3RC
190          KO       0        0     0.0        0       22
191          RS      16     FLOW     0.0      0.0
192          RC   0.052    0.046   0.052 17293.5   0.0082     0.0
             * E2C-E3
193          RX     0.0    133.0    173.0    213.0    223.0    263.0    303.0    403.0
194          RY    22.0     17.0     14.0     10.0     10.0     15.0     18.0     22.0

195          KK      E1
196          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
197          KM   L=2.51      Lca=1.13      S=178.34      Kn=0.055      LAG=43.3
198          KM   S-GRAPH TYPE=PHX MNT
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199          KO       0       0     0.0       1      22
200          BA   0.956
201          LG    0.35   0.378   5.377   0.222    0.69
             * E1
202          UI     0.0   74.86   77.94  239.17  368.29  486.24  570.86   714.2  832.85  536.73
203          UI  451.19  405.28  360.54  317.72  278.78  233.78  192.26  176.85  160.99  130.76
204          UI  107.56   95.43   81.98   76.82   57.39   57.39   44.31   36.63   36.63   36.63
205          UI   23.53   14.35   14.35   14.35   14.35   14.35   14.35   14.35   14.35   14.35
206          UI     0.0

207          KK  E1-E2B   CNAME     E2R
208          KO       0       0     0.0       0      22
209          RS       7    FLOW     0.0     0.0
210          RC    0.05   0.047  0.04610992.72   0.016     0.0
             * E1-E2B
211          RX     0.0    65.0   140.0   170.0   185.0   200.0   270.0   340.0
212          RY    24.0    21.0    17.0    10.0    10.0    14.0    18.0    22.0

213          KK     E2B
214          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
215          KM   L=2.08      Lca=1.07      S=87.98      Kn=0.055      LAG=45.2
216          KM   S-GRAPH TYPE=DES RNGLND
217          KO       0       0     0.0       1      22
218          BA   0.466
219          LG    0.35    0.38     5.6    0.21     0.0
             * E2B
220          UI     0.0    32.1    32.1   94.97  150.03  204.82  250.49  285.24   306.5  304.84
221          UI  285.73  244.25   203.0  165.28   137.3  113.17   92.95    75.5   62.33   52.17
222          UI   43.31   34.02   28.77   21.97   21.97   16.14    7.81    7.81    7.81    7.81
223          UI    7.81    7.81    7.81    7.81

224          KK    E3RB   CNAME  E2B-E3
225          KO       0       0     0.0       0      22
226          HC       2
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

227          KK  E2B-E3   CNAME    E3RB
228          KO       0       0     0.0       0      22
229          RS      16    FLOW     0.0     0.0
230          RC   0.052   0.046  0.05219617.83  0.0088     0.0
             * E2B-E3
231          RX     0.0   133.0   173.0   213.0   223.0   263.0   303.0   403.0
232          RY    22.0    17.0    14.0    10.0    10.0    15.0    18.0    22.0

233          KK      E3
234          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
235          KM   L=3.87      Lca=1.99      S=49.65      Kn=0.050      LAG=74.5
236          KM   S-GRAPH TYPE=DES RNGLND
237          KO       0       0     0.0       1      22
238          BA   2.488
239          LG    0.35    0.35   4.362   0.346     0.0
             * E3
240          UI     0.0  111.69  111.69  111.69  226.88  361.12  481.81  599.55  708.99  795.91
241          UI  924.44  981.52 1023.08 1070.39 1070.39 1054.33 1012.16  958.83  843.16   765.0
242          UI  671.82  595.75  537.55  476.38  423.35  378.09  335.18  305.82   252.8  234.07
243          UI  210.57  188.36  171.26  154.61  118.38  118.38  115.87   76.46   76.46   76.46
244          UI   76.46   75.47   27.18   27.18   27.18   27.18   27.18   27.18   27.18   27.18
245          UI   27.18   27.18   27.18   27.18   27.18   27.18

246          KK    E4RA   CNAME   E3-E4
247          KO       0       0     0.0       0      22
248          HC       4

249          KK   E3-E4   CNAME    E4RA
250          KO       0       0     0.0       0      22
251          RS      13    FLOW     0.0     0.0
252          RC   0.056   0.049  0.05613854.98  0.0048     0.0
             * E3-E4
253          RX     0.0   570.0   650.0   690.0   705.0   735.0   810.0  1200.0
254          RY    21.0    14.0    13.0    10.0    10.0    12.5    14.5    21.0

255          KK      F1
256          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
257          KM   L=5.07      Lca=2.57      S=369.39      Kn=0.050      LAG=61.9
258          KM   S-GRAPH TYPE=PHX MNT
259          KO       0       0     0.0       1      22
260          BA   3.103
261          LG   0.297   0.329   4.244   0.378  12.997
             * F1
262          UI     0.0  168.51  168.51  215.27  509.66  699.18  943.72 1090.63 1237.28 1359.21
263          UI  1651.0 2027.63 1459.34 1157.38 1028.29  961.49  882.67  818.34   750.5  687.24
264          UI  625.11  552.31  479.89  429.51  404.49  384.89  352.34  298.58  276.84  216.79
265          UI  215.32  192.43  184.56  176.81  129.19  129.19  129.19  109.56   82.46   82.46
266          UI   82.46   82.46   82.46   52.76    32.3    32.3    32.3    32.3    32.3    32.3
267          UI    32.3    32.3    32.3    32.3    32.3    32.3    32.3    32.3     0.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

268          KK   F1-F2   CNAME     F2R
269          KO       0       0     0.0       0      22
270          RS       2    FLOW     0.0     0.0
271          RC   0.053   0.045   0.055 3313.03  0.0106     0.0
             * F1-F2
272          RX     0.0    60.0   120.0   146.0   178.0   208.0   268.0   328.0
273          RY    27.0    26.0    25.0    10.0    10.0    24.0    26.0    28.0

274          KK      F2
275          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
276          KM   L=3.88      Lca=1.80      S=161.60      Kn=0.050      LAG=57.0
277          KM   S-GRAPH TYPE=PHX MNT
278          KO       0       0     0.0       1      22
279          BA   2.209
280          LG    0.35    0.35   4.375   0.362   3.346
             * F2
281          UI     0.0  130.48  130.48  222.96  433.41  610.23   794.3  912.18 1015.11 1202.18
282          UI  1548.4 1176.04  896.54  790.99  735.01  667.95  615.82  555.86  511.22  447.69
283          UI  388.02  337.31  314.94  297.77  272.83  224.19  203.12  166.73  162.35  142.91
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284          UI  142.91  109.04  100.04  100.04   86.65   63.85   63.85   63.85   63.85   63.39
285          UI   25.01   25.01   25.01   25.01   25.01   25.01   25.01   25.01   25.01   25.01
286          UI   25.01   25.01   25.01    0.0

287          KK     F3R   CNAME   F2-F3
288          KO       0       0     0.0       0      22
289          HC       2

290          KK   F2-F3   CNAME     F3R
291          KO       0       0     0.0       0      22
292          RS       4    FLOW     0.0     0.0
293          RC    0.05   0.047   0.048 7056.98    0.01     0.0
             * F2-F3
294          RX     0.0   350.0   425.0   455.0   472.0   499.0   569.0   900.0
295          RY    20.0    15.0    13.0    10.0    10.0    12.0    14.0    20.0

296          KK      F3
297          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
298          KM   L=2.71     Lca=1.26     S=81.34     Kn=0.055     LAG=54.2
299          KM   S-GRAPH TYPE=DES RNGLND
300          KO       0       0     0.0       1      22
301          BA   0.736
302          LG    0.35    0.35   3.284    0.64     0.0
             * F3
303          UI     0.0   45.89   45.89   90.29  163.16  236.62   300.0   352.3  401.58  427.19
304          UI  439.78  431.51  405.77  355.07  304.27  256.06  219.26  187.54  158.37  134.34
305          UI  113.67   96.02   85.11   70.36   60.22   48.64   46.52   31.41   31.41   31.41
306          UI    21.4   11.17   11.17   11.17   11.17   11.17   11.17   11.17   11.17   11.17
307          UI     0.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

308          KK    E4RB   CNAME   F3-E4
309          KO       0       0     0.0       0      22
310          HC       2

311          KK   F3-E4   CNAME    E4RB
312          KO       0       0     0.0       0      22
313          RS      20    FLOW     0.0     0.0
314          RC    0.05   0.044   0.0527650.48  0.0072     0.0
             * F3-E4
315          RX     0.0   570.0   650.0   690.0   705.0   735.0   810.0  1200.0
316          RY    20.0    14.0    13.0    10.0    10.0    12.5    14.5    20.0

317          KK      H1
318          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
319          KM   L=2.41     Lca=1.09     S=64.59     Kn=0.055     LAG=51.2
320          KM   S-GRAPH TYPE=DES RNGLND
321          KO       0       0     0.0       1      22
322          BA   1.066
323          LG    0.35    0.35   2.733   0.945     0.0
             * H1
324          UI     0.0   70.38   70.38  156.67  277.53  386.09  481.01   579.0   629.6  674.43
325          UI  672.95  639.66  573.48  484.85  407.01  343.97  290.32  244.62  205.27   171.4
326          UI  143.72  125.14  107.91   82.11   74.59   59.78   48.17   48.17   44.03   17.13
327          UI   17.13   17.13   17.13   17.13   17.13   17.13   17.13   17.13     0.0

328          KK   H1-H2   CNAME     H2R
329          KO       0       0     0.0       0      22
330          RS      31    FLOW     0.0     0.0
331          RC   0.053    0.05   0.05321739.03  0.0082     0.0
             * H1-H2
332          RX     0.0   330.0   430.0   465.0   495.0   530.0   630.0   960.0
333          RY    17.0    14.0    12.0    10.0    10.0    12.0    14.0    17.0

334          KK      H2
335          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
336          KM   L=4.41     Lca=2.60     S=44.71     Kn=0.050     LAG=88.9
337          KM   S-GRAPH TYPE=DES RNGLND
338          KO       0       0     0.0       1      22
339          BA     1.4
340          LG    0.35    0.35   3.222   0.664     0.0
             * H2
341          UI     0.0   52.96   52.96   52.96   52.96  142.93  178.39   226.9  274.71  319.58
342          UI  365.35   394.2  441.12  466.71   479.3  507.56  507.56  507.56  494.47  478.59
343          UI  456.68  413.58  373.47  343.47  306.13  279.54  254.31  232.29  208.19  189.77
344          UI  169.44  155.74  145.02  121.24  117.25   99.85   99.85   63.38   81.21   75.85
345          UI   56.14   56.14   56.14   49.15   36.25   36.25   36.25   36.25   36.25    27.6
346          UI   12.89   12.89   12.89   12.89   12.89   12.89   12.89   12.89   12.89   12.89
347          UI   12.89   12.89   12.89   12.89   12.89   12.89     0.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

348          KK      E4
349          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
350          KM   L=5.36     Lca=2.81     S=38.26     Kn=0.050     LAG=101.9
351          KM   S-GRAPH TYPE=DES RNGLND
352          KO       0       0     0.0       1      22
353          BA   3.042
354          LG    0.35    0.35   3.816   0.439     0.0
             * E4
355          UI     0.0  100.41  100.41  100.41  100.41   158.4  288.69  358.15  433.82  515.05
356          UI  586.72  661.74  710.91  802.48  849.78  890.67  905.99   962.3   962.3   962.3
357          UI  958.07  920.61  904.77  855.38  781.14  712.32  671.29  604.26   557.2  512.12
358          UI  469.45  435.76   392.7  363.69  334.37  307.94  277.85  264.88  224.23  220.83
359          UI  189.31  189.31  167.81  153.97  153.97   127.9  106.43  106.43  106.43  101.85
360          UI   68.74   68.74   68.74   68.74   68.74   68.74    56.9   24.44   24.44   24.44
361          UI   24.44   24.44   24.44   24.44   24.44   24.44   24.44   24.44   24.44   24.44
362          UI   24.44   24.44   24.44   24.44   24.44   24.44

363          KK     E5R   CNAME   E4-E5
364          KO       0       0     0.0       0      22
365          HC       5

366          KK   E4-E5   CNAME     E5R
367          KO       0       0     0.0       0      22
368          RS      15    FLOW     0.0     0.0
369          RC    0.06    0.05   0.0615206.17  0.0051     0.0
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            * E4-E5
370         RX     0.0  1010.0  1080.0  1090.0  1110.0  1120.0  1190.0  2200.0
371         RY    27.0    16.0    15.0    10.0    10.0    14.0    16.0    27.0

372         KK      J1
373         KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
374         KM   L=4.09     Lca=1.78     S=70.82     Kn=0.055     LAG=74.8
375         KM   S-GRAPH TYPE=DES RNGLND
376         KO       0        0     0.0       1      22
377         BA   1.734
378         LG    0.35     0.35    3.25   0.652     0.0
            * J1
379         UI     0.0    77.84   77.84   77.84  158.12  251.68   335.8  417.86  494.13  554.71
380         UI  644.28   684.07  713.03   746.0   746.0  734.81  705.42  668.25  587.63  533.16
381         UI  468.22    415.2  374.64  332.01  295.05  263.51  233.61  213.14  176.18  163.13
382         UI  146.75   131.28  119.36  107.75   62.51   82.51   80.75   53.29   53.29   53.29
383         UI   53.29     52.6   18.95   18.95   18.95   18.95   18.95   18.95   18.95   18.95
384         UI   18.95    18.95   18.95   18.95   18.95   18.95

385         KK   J1-J2    CNAME     J2R
386         KO       0        0     0.0       0      22
387         RS      17     FLOW     0.0     0.0
388         RC   0.055     0.04   0.055 24097.0  0.0086     0.0
            * J1-J2
389         RX     0.0    161.0   247.0   254.0   271.0   279.0   393.0   660.0
390         RY    17.0     12.5    12.2    10.8    10.0    12.1    12.9    17.0
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

391         KK      J2
392         KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
393         KM   L=5.18     Lca=2.51     S=45.01     Kn=0.050     LAG=93.2
394         KM   S-GRAPH TYPE=DES RNGLND
395         KO       0        0     0.0       1      22
396         BA   3.638
397         LG   0.349    0.348   3.621   0.496   0.281
            * J2
398         UI     0.0   131.71  131.71  131.71  131.71  310.01   410.2  529.51  653.09  756.38
399         UI  857.33   932.04 1064.81 1131.31 1163.05 1211.21 1262.21 1262.21 1262.21 1218.54
400         UI 1189.1  1123.19 1016.15  925.91  854.62  766.36  659.93  639.84  585.79  530.33
401         UI  484.44    441.0  403.56  360.63  330.99  294.11  269.84   248.3  236.22  201.95
402         UI  201.95   172.61   139.6   139.6   139.6  118.12   90.16   90.16   90.16   90.16
403         UI   90.16    79.42   32.06   32.06   32.06   32.06   32.06   32.06   32.06   32.06
404         UI   32.06    32.06   32.06   32.06   32.06   32.06   32.06   32.06   32.06     0.0

405         KK    K3RB    CNAME    J2-K3
406         KO       0        0     0.0       0      22
407         RC       2

408         KK   J2-K3    CNAME     K3RB
409         KO       0        0     0.0       0      22
410         RS       5     FLOW     0.0     0.0
411         RC    0.05    0.048    0.05 4071.93  0.0059     0.0
            * J2-K3
412         RX     0.0    390.0   490.0   502.0   520.0   532.0   632.0  1022.0
413         RY    20.0     14.5    11.5    10.0    10.0    11.5    14.5    20.0

414         KK      K3
415         KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
416         KM   L=4.92     Lca=2.65     S=44.16     Kn=0.050     LAG=93.6
417         KM   S-GRAPH TYPE=DES RNGLND
418         KO       0        0     0.0       1      22
419         BA   1.636
420         LG    0.35     0.35   3.421   0.582     0.0
            * K3
421         UI     0.0     58.6    58.6    58.6    58.6  132.87  178.79  231.72  287.22  333.42
422         UI  374.63   416.06  465.04   498.4  523.32  535.26  561.57  561.57  561.57  546.52
423         UI  528.98   508.31  466.83  418.22  391.32  351.35  318.32  291.61  266.72  243.82
424         UI   222.2    205.3   179.7  166.92  157.94  130.85  127.83  110.47  110.47   92.85
425         UI   89.85    88.89   62.11   62.11   62.11   62.11    41.1   40.11   40.11   40.11
426         UI   40.11    40.11   23.61   14.26   14.26   14.26   14.26   14.26   14.26   14.26
427         UI   14.26    14.26   14.26   14.26   14.26   14.26   14.26   14.26   14.26   14.26

428         KK      E5
429         KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
430         KM   L=3.01     Lca=1.41     S=28.56     Kn=0.050     LAG=65.8
431         KM   S-GRAPH TYPE=DES RNGLND
432         KO       0        0     0.0       1      22
433         BA   1.308
434         LG   0.347    0.344    3.94   0.429   0.968
            * E5
435         UI     0.0    66.73   66.73   66.73  187.33  261.54  342.37  416.83  480.54  556.36
436         UI  598.07   622.96  639.46  636.14  605.78  574.36  496.51  443.91  383.22  336.88
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

437         UI  298.49   258.94  227.11  198.14  176.39   149.0   129.8   120.7  102.31   94.82
438         UI   70.72    70.72   61.39   45.68   45.68   45.68   45.68   18.08   16.24   16.24
439         UI   16.24    16.24   16.24   16.24   16.24   16.24   16.24   16.24   16.24     0.0

440         KK     E6R    CNAME    E5-E6
441         KO       0        0     0.0       0      22
442         RC       5

443         KK   E5-E6    CNAME     E6R
444         KO       0        0     0.0       0      22
445         RS       7     FLOW     0.0     0.0
446         RC   0.063    0.051   0.063  5105.8  0.0037     0.0
            * E5-E6
447         RX     0.0    850.0   980.0   990.0  1030.0  1040.0  1230.0  2020.0
448         RY    25.0     13.0    13.0    10.0    10.0    12.0    12.0    25.0

449         KK      E6
450         KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
451         KM   L=3.04     Lca=1.06     S=34.17     Kn=0.050     LAG=57.1
452         KM   S-GRAPH TYPE=DES RNGLND
453         KO       0        0     0.0       1      22
454         BA   2.038
455         LG   0.343    0.336   4.356   0.367   0.711
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                    * E6
456                 UI     0.0  120.38  120.38   205.7  403.51   574.9  733.36  874.59  1019.0 1083.61
457                 UI  1153.6 1153.67 1100.2 1038.99  882.77  767.24  653.83  562.64  487.32  412.46
458                 UI  353.67  303.21  257.92  226.95  190.12   175.5  127.59  127.59   96.61    82.4
459                 UI    82.4    82.4   36.99    29.3    29.3    29.3    29.3    29.3    29.3    29.3
460                 UI    29.3    29.3     0.0

461                 KK       E   CNAME      2R
462                 KO       0       0     0.0       0      22
463                 HC       2

464                 KK      2R   CNAME       E
465                 KO       0       0     0.0       0      22
466                 RN      2R
467                 ZZ
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	G1	346.	12.67	55.	14.	5.	1.12		
+	ROUTED TO	1R	346.	12.67	55.	14.	5.	1.12		
+	HYDROGRAPH AT	K1	742.	12.50	131.	39.	13.	1.54		
+	ROUTED TO	K1-K2A	471.	13.58	131.	39.	13.	1.54		
+	HYDROGRAPH AT	K2A	346.	13.25	102.	26.	9.	1.95		
+	2 COMBINED AT	K2BR	759.	13.58	230.	65.	22.	3.49		
+	ROUTED TO	K2A-2B	653.	14.17	230.	64.	22.	3.49		
+	HYDROGRAPH AT	K2B	62.	12.58	9.	2.	1.	0.42		
+	2 COMBINED AT	K3RA	654.	14.17	237.	66.	22.	3.91		
+	ROUTED TO	K2B-K3	542.	15.83	233.	66.	22.	3.91		
+	HYDROGRAPH AT	E2A	243.	12.75	43.	11.	4.	0.80		
+	ROUTED TO	E2A-E3	180.	14.00	43.	11.	4.	0.80		
+	HYDROGRAPH AT	E2C	224.	12.67	35.	9.	3.	0.72		
+	ROUTED TO	E2C-E3	188.	13.92	35.	9.	3.	0.72		
+	HYDROGRAPH AT	E1	349.	12.50	52.	13.	4.	0.96		
+	ROUTED TO	E1-E2B	287.	13.00	52.	13.	4.	0.96		
+	HYDROGRAPH AT	E2B	151.	12.58	23.	6.	2.	0.47		
+	2 COMBINED AT	E3RB	380.	12.92	74.	19.	6.	1.42		
+	ROUTED TO	E2B-E3	283.	14.08	74.	19.	6.	1.42		
+	HYDROGRAPH AT	E3	460.	13.08	116.	29.	10.	2.49		
+	4 COMBINED AT	E4RA	746.	14.00	259.	66.	22.	5.42		
+	ROUTED TO	E3-E4	649.	15.00	253.	66.	22.	5.42		
+	HYDROGRAPH AT	F1	882.	12.83	202.	59.	20.	3.10		
+	ROUTED TO	F1-F2	856.	12.92	202.	59.	20.	3.10		
+	HYDROGRAPH AT	F2	579.	12.75	111.	29.	10.	2.21		
+	2 COMBINED AT	F3R	1357.	12.83	310.	87.	29.	5.31		
+	ROUTED TO	F2-F3	1212.	13.08	310.	87.	29.	5.31		
+	HYDROGRAPH AT	F3	137.	12.75	25.	6.	2.	0.74		
+	2 COMBINED AT	E4RB	1303.	13.08	333.	93.	31.	6.05		
+	ROUTED TO	F3-E4	1036.	14.67	330.	93.	31.	6.05		
	HYDROGRAPH AT									

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+                    H1      134.  12.75      23.       6.       2.     1.07
        ROUTED TO
+                 H1-H2       73.  15.17      23.       6.       2.     1.07
        HYDROGRAPH AT
+                    H2      153.  13.25      46.      11.       4.     1.40
        HYDROGRAPH AT
+                    E4      378.  13.42     128.      32.      11.     3.04
        5 COMBINED AT
+                   E5R     1652.  14.75     699.     193.      65.    16.98
        ROUTED TO
+                 E4-E5     1532.  16.00     694.     193.      65.    16.98
        HYDROGRAPH AT
+                    J1      227.  13.08      57.      14.       5.     1.73
        ROUTED TO
+                 J1-J2      188.  14.42      56.      14.       5.     1.73
        HYDROGRAPH AT
+                    J2      467.  13.33     145.      37.      12.     3.64
        2 COMBINED AT
+                   K3RB     464.  13.33     196.      50.      17.     5.37
        ROUTED TO
+                 J2-K3      454.  13.67     195.      50.      17.     5.37
        HYDROGRAPH AT
+                    K3      187.  13.33      59.      15.       5.     1.64
        HYDROGRAPH AT
+                    E5      259.  12.92      58.      15.       5.     1.31
        5 COMBINED AT
+                   E6R     2019.  15.92    1065.     309.     103.    29.20
        ROUTED TO
+                 E5-E6     1967.  16.42    1059.     309.     103.    29.20
        HYDROGRAPH AT
+                    E6      491.  12.83      96.      24.       8.     2.04
        2 COMBINED AT
+                     E     1967.  16.42    1091.     329.     110.    31.24
        ROUTED TO
+                    2R     1950.  16.42    1082.     327.     109.    31.24

 *** NORMAL END OF HEC-1 ***
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*            MAY  1991              *
*          VERSION 4.0.1E           *
*                                   *
* RUN DATE _________ TIME _________ *
*                                   *
*************************************

*************************************
*                                   *
*   U.S. ARMY CORPS OF ENGINEERS    *
*   HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET         *
*       DAVIS, CALIFORNIA 95616     *
*          (916) 551-1748           *
*                                   *
*************************************

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

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

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

                                    HEC-1 INPUT                                          PAGE  1

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

   1          ID  Buckeye/Sun Valley ADMS - May 2005
   2          ID  Michael Baker Jr., Inc. - Modeler: Jacob Lesue
   3          ID  10-year 24-hour
   4          ID  Existing Conditions
   5          ID  Area 3 - Sub-basins L-R (Aluvial Fan updates)
   6          ID  Rainfall Loss Method - Green & Ampt
   7          ID  Unit Hydrograph Method - FCDMC S-Graph
   8          ID  Channel Routing Method - Normal Depth
   9          ID  Land Use - FCDMC GIS Data: mag_landuse (2000)
  10          ID  Soil Data - USDA SCS Soil Survey (1972 & 1981)
  11          ID  Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
              *DIAGRAM
  12          IT       5 01JAN94       0    2000
  13          IO       3
  14          IN      15 01JAN94       0
  15          JD    2.62    0.01
              * 24-hour distribution
  16          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
  17          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
  18          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
```

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 19          PC    0.11    0.115    0.12    0.126    0.133    0.14    0.147    0.155    0.163    0.172
 20          PC   0.181    0.191   0.203    0.218    0.236   0.257    0.283    0.367    0.663    0.707
 21          PC   0.735    0.758   0.776    0.791    0.804   0.815    0.825    0.834    0.842    0.849
 22          PC   0.856    0.863   0.869    0.875    0.881   0.887    0.893    0.898    0.903    0.908
 23          PC   0.913    0.918   0.922    0.926     0.93   0.934    0.938    0.942    0.946     0.95
 24          PC   0.953    0.956   0.959    0.962    0.965   0.968    0.971    0.974    0.977     0.98
 25          PC   0.983    0.986   0.989    0.992    0.995   0.998      1.0
 26          IN      15 01JAN94       0
 27          JD   2.489     10.0
             * 24-hour distribution
 28          PC     0.0    0.002   0.005    0.008    0.011   0.014    0.017     0.02    0.023    0.026
 29          PC   0.029    0.032   0.035    0.038    0.041   0.044    0.048    0.052    0.056     0.06
 30          PC   0.064    0.068   0.072    0.076     0.08   0.085     0.09    0.095      0.1    0.105
 31          PC    0.11    0.115    0.12    0.126    0.133    0.14    0.147    0.155    0.163    0.172
 32          PC   0.181    0.191   0.203    0.218    0.236   0.257    0.283    0.367    0.663    0.707
 33          PC   0.735    0.758   0.776    0.791    0.804   0.815    0.825    0.834    0.842    0.849
 34          PC   0.856    0.863   0.869    0.875    0.881   0.887    0.893    0.898    0.903    0.908
 35          PC   0.913    0.918   0.922    0.926     0.93   0.934    0.938    0.942    0.946     0.95
 36          PC   0.953    0.956   0.959    0.962    0.965   0.968    0.971    0.974    0.977     0.98
 37          PC   0.983    0.986   0.989    0.992    0.995   0.998      1.0
 38          IN      15 01JAN94       0
 39          JD   2.405     20.0
             * 24-hour distribution
 40          PC     0.0    0.002   0.005    0.008    0.011   0.014    0.017     0.02    0.023    0.026
 41          PC   0.029    0.032   0.035    0.038    0.041   0.044    0.048    0.052    0.056     0.06
 42          PC   0.064    0.068   0.072    0.076     0.08   0.085     0.09    0.095      0.1    0.105
 43          PC    0.11    0.115    0.12    0.126    0.133    0.14    0.147    0.155    0.163    0.172
 44          PC   0.181    0.191   0.203    0.218    0.236   0.257    0.283    0.367    0.663    0.707
 45          PC   0.735    0.758   0.776    0.791    0.804   0.815    0.825    0.834    0.842    0.849
 46          PC   0.856    0.863   0.869    0.875    0.881   0.887    0.893    0.898    0.903    0.908
 47          PC   0.913    0.918   0.922    0.926     0.93   0.934    0.938    0.942    0.946     0.95
 48          PC   0.953    0.956   0.959    0.962    0.965   0.968    0.971    0.974    0.977     0.98
 49          PC   0.983    0.986   0.989    0.992    0.995   0.998      1.0
 50          IN      15 01JAN94       0
 51          JD   2.324     40.0
             * 24-hour distribution
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 52          PC     0.0    0.002   0.005    0.008    0.011   0.014    0.017     0.02    0.023    0.026
 53          PC   0.029    0.032   0.035    0.038    0.041   0.044    0.048    0.052    0.056     0.06
 54          PC   0.064    0.068   0.072    0.076     0.08   0.085     0.09    0.095      0.1    0.105
 55          PC    0.11    0.115    0.12    0.126    0.133    0.14    0.147    0.155    0.163    0.172
 56          PC   0.181    0.191   0.203    0.218    0.236   0.257    0.283    0.367    0.663    0.707
 57          PC   0.735    0.758   0.776    0.791    0.804   0.815    0.825    0.834    0.842    0.849
 58          PC   0.856    0.863   0.869    0.875    0.881   0.887    0.893    0.898    0.903    0.908
 59          PC   0.913    0.918   0.922    0.926     0.93   0.934    0.938    0.942    0.946     0.95
 60          PC   0.953    0.956   0.959    0.962    0.965   0.968    0.971    0.974    0.977     0.98
 61          PC   0.983    0.986   0.989    0.992    0.995   0.998      1.0
 62          IN      15 01JAN94       0
 63          JD   2.245     80.0
             * 24-hour distribution
 64          PC     0.0    0.002   0.005    0.008    0.011   0.014    0.017     0.02    0.023    0.026
 65          PC   0.029    0.032   0.035    0.038    0.041   0.044    0.048    0.052    0.056     0.06
 66          PC   0.064    0.068   0.072    0.076     0.08   0.085     0.09    0.095      0.1    0.105
 67          PC    0.11    0.115    0.12    0.126    0.133    0.14    0.147    0.155    0.163    0.172
 68          PC   0.181    0.191   0.203    0.218    0.236   0.257    0.283    0.367    0.663    0.707
 69          PC   0.735    0.758   0.776    0.791    0.804   0.815    0.825    0.834    0.842    0.849
 70          PC   0.856    0.863   0.869    0.875    0.881   0.887    0.893    0.898    0.903    0.908
 71          PC   0.913    0.918   0.922    0.926     0.93   0.934    0.938    0.942    0.946     0.95
 72          PC   0.953    0.956   0.959    0.962    0.965   0.968    0.971    0.974    0.977     0.98
 73          PC   0.983    0.986   0.989    0.992    0.995   0.998      1.0
 74          IN      15 01JAN94       0
 75          JD   2.203    120.0
             * 24-hour distribution
 76          PC     0.0    0.002   0.005    0.008    0.011   0.014    0.017     0.02    0.023    0.026
 77          PC   0.029    0.032   0.035    0.038    0.041   0.044    0.048    0.052    0.056     0.06
 78          PC   0.064    0.068   0.072    0.076     0.08   0.085     0.09    0.095      0.1    0.105
 79          PC    0.11    0.115    0.12    0.126    0.133    0.14    0.147    0.155    0.163    0.172
 80          PC   0.181    0.191   0.203    0.218    0.236   0.257    0.283    0.367    0.663    0.707
 81          PC   0.735    0.758   0.776    0.791    0.804   0.815    0.825    0.834    0.842    0.849
 82          PC   0.856    0.863   0.869    0.875    0.881   0.887    0.893    0.898    0.903    0.908
 83          PC   0.913    0.918   0.922    0.926     0.93   0.934    0.938    0.942    0.946     0.95
 84          PC   0.953    0.956   0.959    0.962    0.965   0.968    0.971    0.974    0.977     0.98
 85          PC   0.983    0.986   0.989    0.992    0.995   0.998      1.0

 86          KK      R1
 87          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 88          KM   L=1.01      Lca=0.46      S=213.31      Kn=0.050      LAG=18.8
 89          KM   S-GRAPH TYPE=PRX MNT
 90          KO      0         0     0.0        1       22
 91          BA   0.284
 92          LG    0.35      0.35   4.358    0.374    8.387
             * R1
 93          UI     0.0    62.14  236.01   401.85   464.97  281.72    216.1   150.63   113.71    76.28
 94          UI   57.55    39.69   27.53    24.54     9.63    9.63     9.63     9.63      0.0

 95          KK     13R    CNAME       R
 96          KO       0         0     0.0        0       22
 97          RN     13R
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 98          KK      M1
 99          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
100          KM   L=5.19      Lca=2.41      S=230.06      Kn=0.050      LAG=66.8
101          KM   S-GRAPH TYPE=PRX MNT
102          KO       0         0     0.0        1       22
103          BA   5.686
104          LG    0.35      0.35   4.297     0.35   16.637
             * M1
105          UI     0.0   285.74  285.74   285.74   777.57 1062.36 1436.64 1746.69  1963.2  2166.6
106          UI  2402.0  2950.38 3432.01  2399.97  1965.75 1755.17 1651.21 1526.96  1413.1 1330.61
107          UI  1198.5  1122.73 1012.84   904.53   777.77  717.96  682.12  653.26   597.45  521.66
108          UI  469.43   394.74  365.11   349.25   312.95  312.95  266.95  219.07   219.07  219.07
109          UI  181.82   139.83  139.83   139.83   139.83  139.83   125.2   54.77    54.77   54.77
110          UI   54.77    54.77   54.77    54.77    54.77   54.77   54.77   54.77    54.77   54.77
111          UI   54.77    54.77     0.0
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112          KK   M1-M2   CNAME     M2R
113          KO       0       0     0.0       0      22
114          RS      22    FLOW     0.0     0.0
115          RC    0.04    0.04  0.04534769.69  0.0133     0.0
             * M1-M2
116          RX     0.0   961.0  1028.0  1051.0  1136.0  1153.0  1193.0  1900.0
117          RY    15.5    12.0    11.8    10.3    10.0    11.0    11.2    15.5

118          KK      M2
119          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
120          KM   L=6.59      Lca=3.00      S=71.62      Kn=0.050      LAG=100.2
121          KM   S-GRAPH TYPE=DES RNGLND
122          KO       0       0     0.0       1      22
123          BA   7.436
124          LG    0.35    0.35   3.959   0.445   0.291
             * M2
125          UI     0.0  250.38  250.38  250.38  250.38  438.17  719.85  924.82 1114.75 1312.86
126          UI  1497.2  1700.9 1779.05 2056.71 2161.12 2246.81 2290.07 2399.49 2399.49 2399.49
127          UI  2351.5 2259.21 2219.84 2074.04 1858.21 1745.08 1567.89 1438.64 1323.61 1214.96
128          UI  1118.4 1022.47  940.03  874.15  767.84  718.48  685.57  569.22   559.1  484.22
129          UI  472.03  435.02  383.92  383.92  334.13  265.38  265.38  265.38  257.86  171.39
130          UI  171.39  171.39  171.39  171.39  171.39  131.63   60.94   60.94   60.94   60.94
131          UI   60.94   60.94   60.94   60.94   60.94   60.94   60.94   60.94   60.94   60.94
132          UI   60.94   60.94   60.94   60.94     0.0

133          KK       M   CNAME      5R
134          KO       0       0     0.0       0      22
135          HC       2

136          KK      5R   CNAME       M
137          KO       0       0     0.0       0      22
138          RN      5R
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HEC-1 INPUT PAGE 4

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

139          KK      N1
140          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
141          KM   L=2.79      Lca=1.44      S=340.38      Kn=0.050      LAG=39.7
142          KM   S-GRAPH TYPE=PHX MNT
143          KO       0       0     0.0       1      22
144          BA   1.524
145          LG    0.35    0.35   4.075   0.419    8.38
             * N1
146          UI     0.0  128.28  166.77  436.68  697.63  885.37 1048.86 1439.85 1097.59  811.01
147          UI  717.89  633.24  554.41  482.34  398.71  327.22  300.33  268.08  210.75  167.66
148          UI  152.68   140.5  106.78   98.35   84.12   62.78   62.78   62.78   38.34   24.59
149          UI   24.59   24.59   24.59   24.59   24.59   24.59   24.59     0.0

150          KK   N1-N2   CNAME     N2R
151          KO       0       0     0.0       0      22
152          RS      23    FLOW     0.0     0.0
153          RC    0.05   0.047   0.0525647.52  0.0115     0.0
             * N1-N2
154          RX     0.0   280.0   350.0   358.0   367.0   381.0   451.0   730.0
155          RY    17.0    13.0    11.5    10.0    10.0    11.5    13.0    17.0

156          KK      N2
157          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
158          KM   L=5.64      Lca=3.27      S=170.14      Kn=0.055      LAG=90.7
159          KM   S-GRAPH TYPE=PHX MNT
160          KO       0       0     0.0       1      22
161          BA   3.325
162          LG    0.35    0.35   4.117   0.405    2.67
             * N2
163          UI     0.0  123.04  123.04  123.04  123.04  310.82  395.95  496.74  616.35  730.85
164          UI  796.45  869.05  928.56  990.24 1125.95 1316.06 1517.94 1186.36  925.57  834.34
165          UI  764.31  726.51  694.11  654.42   619.9  586.86  557.14  517.77  491.74   466.8
166          UI  422.37  387.25   352.0  325.27  302.29  296.75  282.99  272.23  257.26  234.33
167          UI  202.13  202.13  163.14  157.22  157.22  143.92  134.76  134.76  134.76  103.63
168          UI   94.33   94.33   94.33   94.33   83.75   60.21   60.21   60.21   60.21   60.21
169          UI   60.21   60.21   60.21   32.52   23.58   23.58   23.58   23.58   23.58   23.58
170          UI   23.58   23.58   23.58   23.58   23.58   23.58   23.58   23.58   23.58   23.58
171          UI   23.58   23.58   23.58   23.58   23.58

172          KK       N   CNAME      8R
173          KO       0       0     0.0       0      22
174          HC       2

175          KK      8R   CNAME       N
176          KO       0       0     0.0       0      22
177          RN      8R

178          KK     P1A
179          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
180          KM   L=2.28      Lca=1.41      S=461.40      Kn=0.055      LAG=37.8
181          KM   S-GRAPH TYPE=PHX MNT
182          KO       0       0     0.0       1      22
183          BA     0.5
184          LG    0.35    0.35   3.987   0.405  16.364
             * P1A
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HEC-1 INPUT PAGE 5

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

185          UI     0.0   44.27   65.19   161.0  254.76  318.08  389.84  500.04  319.07  264.12
186          UI  232.17  203.71  176.98  147.14  118.21  105.19   95.13   74.96   59.42   52.89
187          UI   48.49   35.98   33.94   26.82   21.67   21.67   21.56    8.49    8.49    8.49
188          UI    8.49    8.49    8.49    8.49    8.49    8.49

189          KK  P1A-1B   CNAME    P1BR
190          KO       0       0     0.0       0      22
191          RS      17    FLOW     0.0     0.0
192          RC    0.05   0.047   0.0520102.87  0.0111     0.0
             * P1A-P1B
193          RX     0.0   280.0   350.0   358.0   367.0   381.0   451.0   730.0
194          RY    17.0    13.0    11.5    10.0    10.0    11.5    13.0    17.0

195          KK     P1B
196          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
197          KM   L=4.39      Lca=2.32      S=70.84      Kn=0.055      LAG=85.3
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198          KM   S-GRAPH TYPE=PHX MNT
199          KO       0       0     0.0       1      22
200          BA   1.937
201          LG    0.35    0.35    4.23   0.393   4.667
             * P1B
202          UI     0.0   76.72   76.72   76.72   89.67  220.58  274.25  335.86  432.98  478.15
203          UI  527.91  570.85  609.55  688.62  814.07   942.3  716.43   568.2  506.83  467.32
204          UI   446.8  421.86  394.79  374.39  356.44  329.11  309.33  293.98  263.37  241.82
205          UI  216.83  200.89  187.72  181.75  176.46  163.15  160.42  127.42  126.04   109.8
206          UI   98.03   98.03   90.75   84.03   84.03   84.03   60.08   58.82   58.82   58.82
207          UI   58.82   40.74   37.54   37.54   37.54   37.54   37.54   37.54   37.54    17.9
208          UI   14.71   14.71   14.71   14.71   14.71   14.71   14.71   14.71   14.71   14.71
209          UI   14.71   14.71   14.71   14.71   14.71   14.71   14.71   14.71   14.71     0.0

210          KK       P   CNAME     12R
211          KO       0       0     0.0       0      22
212          NC       2

213          KK     12R   CNAME       P
214          KO       0       0     0.0       0      22
215          RN     12R

216          KK      D1
217          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
218          KM   L=5.20     Lca=2.79     S=64.07     Kn=0.055     LAG=99.9
219          KM   S-GRAPH TYPE=PHX MNT
220          KO       0       0     0.0       1      22
221          BA   3.088
222          LG    0.35    0.35   4.191   0.393   2.105
             * D1
223          UI     0.0  103.98  103.98  103.98  103.98  181.97  298.95  378.66  446.43  550.06
224          UI  624.46  676.83  731.54  781.25  824.52  905.38 1042.04 1204.77  1242.7  887.05
225          UI   765.3   690.9  643.35  614.88  590.49  558.55  530.78  506.48  485.09  454.93
226          UI  429.36  410.34   388.6  356.95  326.56   302.9  274.89  260.97  254.42  242.21
227          UI  239.16  221.76  217.42  189.46  170.83  170.83  140.46  132.86  132.86  129.07
228          UI  113.88  113.88  113.88  113.88   79.72   79.72   79.72   79.72   79.72   79.72
229          UI   50.88   50.88   50.88   50.88   50.88   50.88   50.88   50.88   50.88   32.31
230          UI   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93
231          UI   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

232          UI   19.93   19.93   19.93     0.0

233          KK      7R   CNAME       O
234          KO       0       0     0.0       0      22
235          RN      7R

236          KK     Q1A
237          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
238          KM   L=3.13     Lca=1.52     S=256.86     Kn=0.055     LAG=49.3
239          KM   S-GRAPH TYPE=PHX MNT
240          KO       0       0     0.0       1      22
241          BA   1.297
242          LG    0.35    0.35   4.127     0.4    11.2
             * Q1A
243          UI     0.0   89.12   89.12  213.78  363.94  517.41  613.88  697.52  873.62 1020.97
244          UI  663.18  556.48  506.64  454.84  413.29  367.46  326.01  281.03  232.04  214.37
245          UI  199.35   177.4  146.41  118.69  112.45   97.61   86.73   68.33   68.33    66.1
246          UI   43.61   43.61   43.61   43.61   30.77   17.08   17.08   17.08   17.08   17.08
247          UI   17.08   17.08   17.08   17.08   17.08   17.08     0.0

248          KK  Q1A-1B   CNAME    Q1BR
249          KO       0       0     0.0       0      22
250          RS       9    FLOW     0.0     0.0
251          RC    0.05   0.047    0.05 9170.53  0.0117     0.0
             * Q1A-Q1B
252          RX     0.0   280.0   350.0   358.0   367.0   381.0   451.0   730.0
253          RY    17.0    13.0    11.5    10.0    10.0    11.5    13.0    17.0

254          KK     Q1B
255          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
256          KM   L=2.35     Lca=1.14     S=141.40     Kn=0.055     LAG=44.3
257          KM   S-GRAPH TYPE=PHX MNT
258          KO       0       0     0.0       1      22
259          BA   0.937
260          LG    0.35    0.35    4.32   0.373  14.815
             * Q1B
261          UI     0.0   71.67   71.67  221.51  340.68  455.79   538.5  651.95  833.61  838.18
262          UI  443.72  398.92  355.79  316.26  280.46  235.89  196.37  173.35  160.17  138.81
263          UI  114.82   91.58   84.67    78.5   62.48   54.95   54.15   35.07   35.07   35.07
264          UI   35.07   15.79   13.74   13.74   13.74   13.74   13.74   13.74   13.74   13.74
265          UI   13.74     0.0

266          KK       Q   CNAME     14R
267          KO       0       0     0.0       0      22
268          NC       2

269          KK     14R   CNAME       Q
270          KO       0       0     0.0       0      22
271          RN     14R
```



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

272          KK      L1
273          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
274          KM   L=4.93     Lca=2.29     S=308.27     Kn=0.050     LAG=60.6
275          KM   S-GRAPH TYPE=PHX MNT
276          KO       0       0     0.0       1      22
277          BA   3.546
278          LG   0.271   0.318   4.363   0.351  16.279
             * L1
279          UI     0.0  195.74  195.74  266.93  603.63  823.25 1120.55 1287.08 1452.32 1611.07
280          UI  1991.3 2326.76 1575.06 1312.31 1173.43 1097.39 1002.28  929.54   850.5  775.66
281          UI  701.22  620.51  525.99  484.91  458.87  430.63  397.34  321.57  290.98  250.11
282          UI  241.82  214.38  214.38  171.29  150.06  150.06  149.52   95.79   95.79   95.79
283          UI   95.79   95.79    79.7   37.52   37.52   37.52   37.52   37.52   37.52   37.52
284          UI   37.52   37.52   37.52   37.52   37.52   37.52   37.52     0.0
```

```
285          KK  L1-L2A   CNAME    L2AR
286          KO       0       0     0.0       0      22
287          RS       4    FLOW     0.0     0.0
288          RC   0.046   0.045   0.046 7078.75  0.0174     0.0
             * L1-L2A
289          RX     0.0    80.0   165.0   200.0   215.0   255.0   340.0   420.0
290          RY    19.0    17.0    14.0    10.0    10.0    14.0    18.0    22.0

291          KK     L2A
292          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
293          KM   L=2.46     Lca=1.12     S=136.18     Kn=0.055     LAG=45.0
294          KM   S-GRAPH TYPE=DES RNGLND
295          KO       0       0     0.0       1      22
296          BA   0.693
297          LG    0.35   0.384   5.641   0.202     0.0
             * L2A
298          UI     0.0   51.83   51.83  153.34  242.24  330.72  404.46  460.56  494.88  492.21
299          UI  461.36  394.37  327.78  266.87  221.69  182.72  150.08  121.91  100.64   84.23
300          UI   69.92   54.93   46.45   35.48   35.48   26.06   12.61   12.61   12.61   12.61
301          UI   12.61   12.61   12.61   12.61

302          KK    L2BR   CNAME  L2A-2B
303          KO       0       0     0.0       0      22
304          HC       2

305          KK  L2A-2B   CNAME    L2BR
306          KO       0       0     0.0       0      22
307          RS       9    FLOW     0.0     0.0
308          RC   0.046   0.045   0.04620743.37  0.0147     0.0
             * L2A-L2B
309          RX     0.0    80.0   165.0   200.0   215.0   255.0   340.0   420.0
310          RY    19.0    17.0    14.0    10.0    10.0    14.0    18.0    22.0

311          KK     L2B
312          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
313          KM   L=5.13     Lca=1.82     S=93.37     Kn=0.055     LAG=78.1
314          KM   S-GRAPH TYPE=DES RNGLND
315          KO       0       0     0.0       1      22
316          BA   4.077
```



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

317          LG    0.35    0.35   4.179   0.399     0.0
             * L2B
318          UI     0.0  175.97  175.97  175.97  311.91  535.45  724.28   902.8 1071.35 1224.63
319          UI  1376.8 1511.61 1580.95 1658.53 1686.39 1686.39 1632.48 1568.59 1460.56 1278.33
320          UI  1172.5 1030.99  927.32  829.82  742.49   663.7  594.61  529.93  481.83   405.6
321          UI   377.6  331.75  310.22  269.82  269.19  186.51  186.51  186.51   145.4  120.46
322          UI  120.46  120.46  120.46    90.9   42.83   42.83   42.83   42.83   42.83   42.83
323          UI   42.83   42.83   42.83   42.83   42.83   42.83   42.83   42.83     0.0

324          KK     L3R   CNAME  L2B-L3
325          KO       0       0     0.0       0      22
326          HC       2

327          KK  L2B-L3   CNAME     L3R
328          KO       0       0     0.0       0      22
329          RS      23    FLOW     0.0     0.0
330          RC    0.05    0.04   0.0619942.62  0.0089     0.0
             * L2B-L3
331          RX     0.0  1093.0  1210.0  1215.0  1225.0  1232.0  1372.0  2000.0
332          RY    18.0    11.8    11.7    10.0    10.0    11.7    11.8    18.0

333          KK     L2C
334          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
335          KM   L=3.20     Lca=1.55     S=91.31     Kn=0.055     LAG=61.2
336          KM   S-GRAPH TYPE=DES RNGLND
337          KO       0       0     0.0       1      22
338          BA   1.328
339          LG    0.35    0.35   4.189   0.422     0.0
             * L2C
340          UI     0.0   73.31   73.31   99.98  227.13  318.43   414.0  500.47   577.1  643.23
341          UI  678.82  702.58  699.63  666.25  621.66  533.29  468.31  402.86  351.31  303.79
342          UI   266.7  226.83  200.74  164.03  144.98  131.86  112.41   97.97    77.7    77.7
343          UI   56.55   50.18   50.18   50.18   28.53   17.84   17.84   17.84   17.84   17.84
344          UI   17.84   17.84   17.84   17.84   17.84     0.0

345          KK  L2C-2D   CNAME    L2DR
346          KO       0       0     0.0       0      22
347          RS       7    FLOW     0.0     0.0
348          RC   0.046   0.045   0.046 9752.35  0.0122     0.0
             * L2C-L2D
349          RX     0.0    80.0   165.0   200.0   215.0   255.0   340.0   420.0
350          RY    19.0    17.0    14.0    10.0    10.0    14.0    18.0    22.0

351          KK     L2D
352          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
353          KM   L=2.77     Lca=1.24     S=74.13     Kn=0.055     LAG=55.4
354          KM   S-GRAPH TYPE=DES RNGLND
355          KO       0       0     0.0       1      22
356          BA   1.232
357          LG    0.35    0.35   3.578   0.544     0.0
             * L2D
358          UI     0.0   75.42   75.42  141.88  262.35  378.71  482.07  569.62  651.08   696.0
359          UI  722.74  714.79  677.77  607.49  518.22  439.07   376.3  322.28  277.17  232.67
360          UI  200.55   167.8  142.18   124.1  114.53   79.93   79.93    61.7   51.62   51.62
361          UI   51.62   20.09   18.36   18.36   18.36   18.36   18.36   18.36   18.36   18.36
```



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

362          UI   18.36     0.0

363          KK    L3RB   CNAME  L2D-L3
364          KO       0       0     0.0       0      22
365          HC       2

366          KK  L2D-L3   CNAME    L3RB
367          KO       0       0     0.0       0      22
368          RS      57    FLOW     0.0     0.0
369          RC    0.05    0.04    0.06 27374.0  0.0077     0.0
```

```
                    * L2D-L3
 370                RX     0.0  1093.0  1210.0  1215.0  1225.0  1232.0  1372.0  2000.0
 371                RY    18.0    11.8    11.7    10.0    10.0    11.7    11.8    18.0

 372                KK      L3
 373                KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 374                KM   L=4.75      Lca=2.00     S=44.27     Kn=0.055     LAG=91.0
 375                KM   S-GRAPH TYPE=DES RNGLND
 376                KO      0        0     0.0       1      22
 377                BA   5.852
 378                LG   0.341   0.328    3.98   0.419    1.05
                    * L3
 379                UI     0.0  216.51  216.51  216.51  216.51  546.97   701.8  899.01 1098.32 1266.32
 380                UI  1460.0  1557.8 1786.11 1888.64 1950.18 2034.93 2074.93 2074.93 2053.76  1965.5
 381                UI  1920.6 1789.17 1583.49 1486.07 1313.64 1207.78 1091.43  994.63  909.22  825.03
 382                UI   759.9  663.98  614.46  574.55  483.48  461.45  408.18  402.68  331.99  331.99
 383                UI  296.91  229.48  229.48  229.48  197.56  148.21  148.21  148.21  148.21  148.21
 384                UI  121.69    52.7    52.7    52.7    52.7    52.7    52.7    52.7    52.7    52.7
 385                UI    52.7    52.7    52.7    52.7    52.7    52.7    52.7     0.0

 386                KK       L   CNAME      1R
 387                KO       0       0     0.0       0      22
 388                BC       3

 389                KK      1R   CNAME       L
 390                KO       0       0     0.0       0      22
 391                RN      1R

 392                KK      E1
 393                KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 394                KM   L=1.70      Lca=0.66     S=47.00     Kn=0.055     LAG=39.1
 395                KM   S-GRAPH TYPE=DES RNGLND
 396                KO       0       0     0.0       1      22
 397                BA   0.664
 398                LG   0.321   0.292   4.004    0.43   2.909
                    * E1
 399                UI     0.0   57.36   79.52  205.33  321.78  424.03  504.07   548.2  540.96  493.73
 400                UI  399.49  319.19  256.28   205.1  164.91  127.66  104.64   87.86    60.8    54.1
 401                UI   39.27   39.27    21.8   13.96   13.96   13.96   13.96   13.96   13.96     0.0
                                                HEC-1 INPUT                                          PAGE 10

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

 402                KK      4R   CNAME       E
 403                KO       0       0     0.0       0      22
 404                RN      4R
 405                ZZ
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      6-HOUR     24-HOUR     72-HOUR      AREA      STAGE     MAX STAGE

        HYDROGRAPH AT
+                          R1           179.    12.25        17.          5.          2.      0.28

        ROUTED TO
+                         13R           179.    12.25        17.          5.          2.      0.28

        HYDROGRAPH AT
+                          M1          1561.    12.92       395.        117.         39.      5.69

        ROUTED TO
+                       M1-M2          1059.    14.67       390.        117.         39.      5.69

        HYDROGRAPH AT
+                          M2           910.    13.42       303.         76.         25.      7.44

        2 COMBINED AT
+                           M          1393.    14.58       657.        187.         63.     13.12

        ROUTED TO
+                          5R          1393.    14.58       657.        187.         63.     13.12

        HYDROGRAPH AT
+                          N1           534.    12.50        84.         24.          8.      1.52

        ROUTED TO
+                       N1-N2           327.    14.33        84.         24.          8.      1.52

        HYDROGRAPH AT
+                          N2           564.    13.25       154.         41.         14.      3.33

        2 COMBINED AT
+                           N           567.    13.25       235.         64.         21.      4.85

        ROUTED TO
+                          8R           567.    13.25       235.         64.         21.      4.85

        HYDROGRAPH AT
+                         P1A           206.    12.50        35.         10.          3.      0.50

        ROUTED TO
+                      P1A-1B           133.    13.83        34.         10.          3.      0.50

        HYDROGRAPH AT
+                         P1B           364.    13.17        97.         26.          9.      1.94

        2 COMBINED AT
+                           P           369.    13.17       130.         36.         12.      2.44

        ROUTED TO
+                         12R           369.    13.17       130.         36.         12.      2.44

        HYDROGRAPH AT
+                          O1           489.    13.33       141.         37.         12.      3.09

        ROUTED TO
+                          7R           489.    13.33       141.         37.         12.      3.09
```

+	HYDROGRAPH AT	Q1A	411.	12.58	79.	23.	8.	1.30
+	ROUTED TO	Q1A-1B	333.	13.25	79.	22.	8.	1.30
+	HYDROGRAPH AT	Q1B	343.	12.58	63.	18.	6.	0.94
+	2 COMBINED AT	Q	460.	13.17	140.	40.	14.	2.23
+	ROUTED TO	14R	460.	13.17	140.	40.	14.	2.23
+	HYDROGRAPH AT	L1	1090.	12.75	255.	75.	25.	3.55
+	ROUTED TO	L1-L2A	1021.	13.00	254.	75.	25.	3.55
+	HYDROGRAPH AT	L2A	245.	12.58	38.	9.	3.	0.69
+	2 COMBINED AT	L2BR	1153.	13.00	291.	84.	28.	4.24
+	ROUTED TO	L2A-2B	984.	13.67	289.	84.	28.	4.24
+	HYDROGRAPH AT	L2B	671.	13.08	175.	44.	15.	4.08
+	2 COMBINED AT	L3R	1418.	13.58	458.	127.	42.	8.32
+	ROUTED TO	L2B-L3	1161.	15.42	455.	127.	42.	8.32
+	HYDROGRAPH AT	L2C	272.	12.83	56.	14.	5.	1.33
+	ROUTED TO	L2C-2D	248.	13.33	56.	14.	5.	1.33
+	HYDROGRAPH AT	L2D	248.	12.75	46.	12.	4.	1.23
+	2 COMBINED AT	L3RB	371.	13.17	101.	25.	8.	2.56
+	ROUTED TO	L2D-L3	244.	17.75	99.	25.	8.	2.56
+	HYDROGRAPH AT	L3	858.	13.33	264.	67.	22.	5.85
+	3 COMBINED AT	L	1284.	15.42	730.	206.	69.	16.73
+	ROUTED TO	1R	1284.	15.42	730.	206.	69.	16.73
+	HYDROGRAPH AT	Z1	239.	12.50	34.	9.	3.	0.66
+	ROUTED TO	4R	239.	12.50	34.	9.	3.	0.66

```
*** NORMAL END OF HEC-1 ***
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*              MAY  1991            *
*           VERSION 4.0.1E          *
*                                   *
*  RUN DATE _______ TIME _______    *
*                                   *
*************************************
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*************************************
*                                   *
*   U.S. ARMY CORPS OF ENGINEERS    *
*   HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET         *
*      DAVIS, CALIFORNIA 95616      *
*          (916) 551-1748           *
*                                   *
*************************************
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HECIGS, HEC1DB, AND HECIKW.

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

HEC-1 INPUT PAGE 1

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

   1          ID   Buckeye/Sun Valley ADMS - 1 March 2004
   2          ID   PBS&J - Modelers: Jacob Lesue & Wen Chen
   3          ID   10-year 24-hour
   4          ID   Existing Conditions
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ID   FRS #2 (Sub-basins S-U)
ID   Rainfall Loss Method - Green & Ampt
ID   Unit Hydrograph Method - FCDMC S-Graph
ID   Channel Routing Method - Normal Depth
ID   Land Use - FCDMC GIS Data: mag_landuse (2000)
ID   Soil Data - USDA SCS Soil Survey (1972 & 1981)
ID   Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
*DIAGRAM
IT       5  1JAN94       0    2000
IO       3
IN      15 01JAN94       0
JD    2.56    0.01
* 24-hour distribution
PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
IN      15 01JAN94       0
JD   2.432    10.0
* 24-hour distribution
PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0

KK      81
KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
KM   L=2.32     Lca=0.52     S=143.99     Kn=0.050     LAG=29.0
KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
KO       0        0      0.0        1       22
BA  1.4108
LG    0.35     0.35    4.484    0.352    6.918
* 81
UI     0.0  163.76  399.96  863.78 1191.38 1674.04 1389.89  974.39  824.12  687.96
UI  554.64  420.01  366.82  290.75  215.71   183.9  145.46  125.55   95.13   80.14
UI   72.14   31.39   31.39   31.39   31.39   31.39   31.39     0.0
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                                        HEC-1 INPUT                                          PAGE  2

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

        48          KK     SCP   CNAME       S
        49          KO       0       0     0.0       0      22
        50          RN     SCP

        51          KK      U1
        52          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
        53          KM   L=2.37      Lca=1.03      S=326.50      Kn=0.050      LAG=33.0
        54          KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
        55          KO       0       0     0.0       1      22
        56          BA  1.3705
        57          LG    0.35    0.37   5.258   0.233   6.449
                    * U1
        58          UI     0.0  139.63   266.2  626.33  919.49 1139.88 1569.26 1014.69  819.13  707.21
        59          UI  603.81  505.84  395.99  334.05  299.65  225.43  178.67   155.8  129.72   107.2
        60          UI   86.65   68.43   68.43   50.61    26.8    26.8    26.8    26.8    26.8    26.8
        61          UI    26.8     0.0

        62          KK     UCP   CNAME       U
        63          KO       0       0     0.0       0      22
        64          RN     UCP

        65          KK      T1
        66          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
        67          KM   L=4.34      Lca=1.58      S=274.89      Kn=0.050      LAG=51.0
        68          KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
        69          KO       0       0     0.0       1      22
        70          BA  3.0415
        71          LG    0.35    0.35   4.644   0.299  11.497
                    * T1
        72          UI     0.0   200.8   200.8  447.02  773.33 1107.71 1336.75 1525.87 1807.83 2359.26
        73          UI  1728.6 1335.29 1184.68 1081.59  978.95  886.26  793.63  697.43  590.13  511.99
        74          UI  476.04  440.92  386.02  329.88  260.38  252.47  219.92  219.92  155.92  153.94
        75          UI  153.94  103.27   98.26   98.26   98.26   91.33   38.49   38.49   38.49   38.49
        76          UI   38.49   38.49   38.49   38.49   38.49   38.49   38.49   38.49

        77          KK     TCP   CNAME       T
        78          KO       0       0     0.0       0      22
        79          RN     TCP
        80          ZZ
                                          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
+                          S1        624.   12.33          76.         21.          7.       1.41

        ROUTED TO
+                         SCP        624.   12.33          76.         21.          7.       1.41

        HYDROGRAPH AT
+                          U1        615.   12.42          81.         22.          7.       1.37

        ROUTED TO
+                         UCP        615.   12.42          81.         22.          7.       1.37

        HYDROGRAPH AT
+                          T1        979.   12.67         191.         54.         18.       3.04

        ROUTED TO
+                         TCP        979.   12.67         191.         54.         18.       3.04


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

1*************************************                                  *************************************
 *                                   *                                  *                                   *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                  *   U.S. ARMY CORPS OF ENGINEERS    *
 *              JUN   1998           *                                  *   HYDROLOGIC ENGINEERING CENTER   *
 *           VERSION 4.1             *                                  *         609 SECOND STREET         *
 *                                   *                                  *      DAVIS, CALIFORNIA 95616      *
 *  RUN DATE   09JAN06  TIME  09:28:23  *                                  *          (916) 756-1104           *
 *                                   *                                  *                                   *
 *************************************                                  *************************************


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


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

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

1                                         HEC-1 INPUT                                          PAGE  1

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

        1           ID   Buckeye/Sun Valley ADMS - 01 March 2004
```

```
 2          ID   PBS&J - Modelers: Jacob Lesue & Wen Chen
 3          ID   10-year 24-hour
 4          ID   Existing Conditions
 5          ID   FRS #3 (Sub-basins V-Y)
 6          ID   Rainfall Loss Method - Green & Ampt
 7          ID   Unit Hydrograph Method - FCDMC S-Graph
 8          ID   Channel Routing Method - Normal Depth
 9          ID   Land Use - FCDMC GIS Data: mag_landuse (2000)
10          ID   Soil Data - USDA SCS Soil Survey (1972 & 1981)
11          ID   Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
            *DIAGRAM
12          IT       5  1JAN94       0    2000
13          IO       3
14          IN      15 01JAN94       0
15          JD    2.58    0.01
            * 24-hour distribution
16          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
17          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
18          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
19          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
20          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
21          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
22          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
23          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
24          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
25          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
26          IN      15 01JAN94       0
27          JD   2.451    10.0
            * 24-hour distribution
28          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
29          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
30          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
31          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
32          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
33          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
34          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
35          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
36          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
37          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0

38          KK      V1
39          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
40          KM   L=2.86      Lca=1.75      S=344.82      Kn=0.050      LAG=43.0
41          KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
42          KO       0       0     0.0       1      22
43          BA  0.6646
44          LG    0.35    0.35   3.972   0.405  13.864
            * V1
45          UI     0.0   52.04   54.19  166.27  256.03  338.03  396.86  496.51  578.99  373.13
46          UI  313.66  281.75  250.64  220.87  193.81  162.52  133.66  122.94  111.92    90.9
47          UI   74.78   66.34   56.99    53.4    39.9    39.9   30.81   25.47   25.47   25.47
48          UI   16.35    9.97    9.97    9.97    9.97    9.97    9.97    9.97    9.97    9.97
49          UI     0.0
1                                          HEC-1 INPUT                                          PAGE  2

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

50          KK     VCP   CNAME       V
51          KO       0       0     0.0       0      22
52          RN     VCP

53          KK      W1
54          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
55          KM   L=3.46      Lca=1.78      S=486.28      Kn=0.050      LAG=44.0
56          KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
57          KO       0       0     0.0       1      22
58          BA   3.894
59          LG    0.35    0.35   3.976    0.41  15.199
            * W1
60          UI     0.0  297.97  297.97  920.94 1416.37 1694.97 2238.82 2710.48 3465.75 2237.36
61          UI  1844.7 1658.52 1479.19 1314.83 1166.02  980.71   816.4  720.69   665.9  577.11
62          UI  477.35  380.74  352.03  326.35  259.78  228.45  225.14  145.82  145.82  145.82
63          UI  145.82   65.63   57.11   57.11   57.11   57.11   57.11   57.11   57.11   57.11
64          UI   57.11     0.0

65          KK   W1-W2   CNAME     W2R
66          KO       0       0     0.0       0      22
67          RS       6    FLOW     0.0     0.0
68          RC   0.050    0.05    0.06 11249.0  0.0189     0.0
            * W1-W2
69          RX     0.0   350.0   372.0   384.0   472.0   489.0   525.0  1003.0
70          RY    17.5    11.5    11.6    10.0    11.3    13.4    13.8    17.5

71          KK      W2
72          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
73          KM   L=3.25      Lca=1.19      S=178.54      Kn=0.050      LAG=44.0
74          KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
75          KO       0       0     0.0       1      22
76          BA  2.8478
77          LG    0.35    0.35   4.081   0.402   3.547
            * W2
78          UI     0.0  217.92  217.92  673.51 1035.83 1385.85 1637.32 1982.26  2534.6 1636.25
79          UI  1349.1 1212.93 1081.78  961.58  852.74  717.22  597.06  527.06  486.99  422.06
80          UI   349.1  278.45  257.45  238.67  189.98  167.07  164.65  106.64  106.64  106.64
81          UI  106.64    48.0   41.77   41.77   41.77   41.77   41.77   41.77   41.77   41.77
82          UI   41.77     0.0

83          KK       W   CNAME     WCP
84          KO       0       0     0.0       0      22
85          RC       2     0.0

86          KK     WCP   CNAME       W
87          KO       0       0     0.0       0      22
88          RN     WCP

89          KK      X1
90          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
91          KM   L=2.60      Lca=1.44      S=288.89      Kn=0.050      LAG=40.0
92          KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
93          KO       0       0     0.0       1      22
94          BA  0.7867
1                                          HEC-1 INPUT                                          PAGE  3
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  95          LG    0.35    0.35   3.955   0.417  12.555
              * X1
  96          UI     0.0   66.22   86.09  225.41  360.12  457.02  541.42  743.25  566.57  418.64
  97          UI  370.57  326.87  286.18  248.98  205.81  168.91  155.03  138.38  108.79   86.55
  98          UI   78.81   72.53   55.12   50.77   43.42   32.41   32.41   32.41   19.79   12.69
  99          UI   12.69   12.69   12.69   12.69   12.69   12.69   12.69     0.0

 100          KK     XCP   CNAME       X
 101          KO       0       0     0.0       0      22
 102          RN     XCP

 103          KK      Y1
 104          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 105          KM   L=1.37     Lca=0.53     S=771.84     Km=0.050     LAG=17.0
 106          KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
 107          KO       0       0     0.0       1      22
 108          BA  0.5808
 109          LG    0.35    0.35   4.044   0.415  10.947
              * Y1
 110          UI     0.0  162.05  614.46 1087.12   811.3  562.72  397.42  272.87  186.43   132.2
 111          UI   88.57   57.25   43.55   22.05   22.05   22.05     0.0

 112          KK     YCP   CNAME       Y
 113          KO       0       0     0.0       0      22
 114          RN     YCP
 115          ZZ
```

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	V1	236.	12.50	42.	12.	4.	.66		
+	ROUTED TO	VCP	236.	12.50	42.	12.	4.	.66		
+	HYDROGRAPH AT	W1	1343.	12.58	249.	74.	25.	3.89		
+	ROUTED TO	W1-W2	1083.	13.00	248.	73.	25.	3.89		
+	HYDROGRAPH AT	W2	848.	12.58	134.	36.	12.	2.85		
+	2 COMBINED AT	W	1478.	13.00	378.	108.	36.	6.74		
+	ROUTED TO	WCP	1478.	13.00	378.	108.	36.	6.74		
+	HYDROGRAPH AT	X1	288.	12.50	48.	14.	5.	.79		
+	ROUTED TO	XCP	288.	12.50	48.	14.	5.	.79		
+	HYDROGRAPH AT	Y1	371.	12.17	34.	10.	3.	.58		
+	ROUTED TO	YCP	371.	12.17	34.	10.	3.	.58		

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

D.6.2 HEC-1 Output File 100-Year 6-Hour & 24-Hour

D.6.2.a HEC-1 Output File for 100-year 6-hour Storm (Existing Conditions)

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*             MAY  1981             *
*          VERSION 4.0.1E           *
*                                   *
* RUN DATE _______ TIME _______     *
*                                   *
*************************************
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*************************************
*                                   *
*   U.S. ARMY CORPS OF ENGINEERS    *
*   HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET         *
*      DAVIS, CALIFORNIA 95616      *
*          (916) 551-1748           *
*                                   *
*************************************
```

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

```
X     X X       X     X          X
X     X XXXXXXX  XXXXX          XXX
```

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

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

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                                    HEC-1 INPUT                                                    PAGE  1

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

  1           ID  Buckeye/Sun Valley ADMS - May 2005
  2           ID  Michael Baker Jr., Inc. - Modeler: Jacob Lesue
  3           ID  100-year 6-hour
  4           ID  Existing Conditions
  5           ID  Area 3 - Sub-basins A-C (Aluvial Fan updates)
  6           ID  Rainfall Loss Method - Green & Ampt
  7           ID  Unit Hydrograph Method - FCDMC S-Graph
  8           ID  Channel Routing Method - Normal Depth
  9           ID  Land Use - FCDMC GIS Data: mag_landuse (2000)
 10           ID  Soil Data - USDA SCS Soil Survey (1972 & 1981)
 11           ID  Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
              *DIAGRAM
 12           IT       5 01JAN94        0    2000
 13           IO       3
 14           IN      15 01JAN94        0
 15           JD    3.23    0.01
              * 6-hour distribution, pattern 1.0
 16           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 17           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 18           PC   0.962   0.972   0.983   0.991     1.0
 19           IN      15 01JAN94        0
 20           JD   3.211     0.5
              * 6-hour distribution, pattern 1.0
 21           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 22           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 23           PC   0.962   0.972   0.983   0.991     1.0
 24           IN      15 01JAN94        0
 25           JD   3.168     1.0
              * 6-hour distribution, pattern 1.4
 26           PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
 27           PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
 28           PC  0.9572  0.9684  0.9798  0.9898     1.0
 29           IN      15 01JAN94        0
 30           JD   3.101     5.0
              * 6-hour distribution, pattern 2.3
 31           PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
 32           PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
 33           PC  0.9487   0.962  0.9743  0.9877     1.0
 34           IN      15 01JAN94        0
 35           JD   3.036    10.0
              * 6-hour distribution, pattern 2.7
 36           PC     0.0  0.0134  0.0189  0.0287  0.0443  0.0574  0.0694  0.0818  0.0949  0.1076
 37           PC  0.1223  0.1382  0.1604  0.2063  0.2902  0.4664  0.6764  0.8069  0.8765  0.9189
 38           PC  0.9471  0.9608  0.9735  0.9873     1.0
 39           IN      15 01JAN94        0
 40           JD   2.939    20.0
              * 6-hour distribution, pattern 3.1
 41           PC     0.0  0.0158   0.022  0.0329  0.0511  0.0663  0.0799  0.0948  0.1102  0.1246
 42           PC   0.141  0.1587  0.1828    0.23  0.3122  0.4758  0.6684  0.7929  0.8643  0.9087
 43           PC  0.9434   0.958  0.9716  0.9863     1.0
 44           IN      15 01JAN94        0
 45           JD   2.875    30.0
              * 6-hour distribution, pattern 3.4
 46           PC     0.0  0.0172  0.0256  0.0378  0.0565  0.0719  0.0868   0.103  0.1191  0.1342
 47           PC  0.1513  0.1702  0.1961  0.2439  0.3263  0.4824  0.6655  0.7875   0.858  0.9031

                                    HEC-1 INPUT                                                    PAGE  2

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

 48           PC   0.939  0.9544  0.9697  0.9851     1.0
 49           IN      15 01JAN94        0
 50           JD    2.81    40.0
              * 6-hour distribution, pattern 3.5
 51           PC     0.0  0.0182  0.0281  0.0413  0.0604  0.0759  0.0916  0.1088  0.1254   0.141
 52           PC  0.1586  0.1783  0.2056  0.2537  0.3362   0.487  0.6636  0.7836  0.8535  0.8991
 53           PC  0.9358  0.9519  0.9682  0.9843     1.0
 54           IN      15 01JAN94        0
 55           JD   2.584   100.0
              * 6-hour distribution, pattern 4.1
 56           PC     0.0  0.0212  0.0355  0.0515  0.0715  0.0877   0.106  0.1261  0.1443  0.1618
 57           PC  0.1812  0.2036  0.2347  0.2837   0.367   0.501  0.6559  0.7704  0.8392  0.8864
 58           PC  0.9256   0.944  0.9633  0.9817     1.0

 59           KK      C1
 60           KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 61           KM   L=4.66      Lca=2.77      S=333.05      Km=0.050      LAG=62.9
 62           KM   S-GRAPH TYPE=PRK MNT
 63           KO       0        0     0.0        1       22
 64           BA   3.643
 65           LG   0.218    0.297    3.922    0.411   21.031
              * C1
 66           UI     0.0   194.68   194.68   231.91   577.25   796.73  1066.06  1245.68   1408.6  1543.98
 67           UI  1838.6  2327.02  1821.51   1384.7  1210.78  1130.06  1041.17   959.73   894.23   808.89
 68           UI  756.21    659.7   585.69   510.14   476.35   449.65   420.33   381.94   319.83   262.59
 69           UI  248.76   239.66   213.22   213.22    174.2   149.26   149.26   149.26   104.45    95.27
 70           UI   95.27    95.27    95.27    95.27    42.65    37.31    37.31    37.31    37.31    37.31
 71           UI   37.31    37.31    37.31    37.31    37.31    37.31    37.31    37.31    37.31      0.0

 72           KK   C1-C2    CNAME      C2R
 73           KO       0        0     0.0        0       22
 74           RS       5     FLOW     0.0      0.0
 75           RC    0.05    0.044   0.0515078.46   0.0175      0.0
              * C1-C2
 76           RX     0.0     35.0     90.0    138.0    159.0    209.0    264.0    309.0
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 77          RY    21.0    19.0    16.0    10.0    10.0    15.0    20.0    24.0

 78          KK      C2
 79          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 80          KM   L=2.86     Lca=1.20     S=92.12     Kn=0.055     LAG=53.0
 81          KM   S-GRAPH TYPE=DES RNGLND
 82          KO       0       0     0.0       1      22
 83          BA   1.864
 84          LG    0.35    0.35   3.949   0.428     0.0
             * C2
 85          UI     0.0   118.4   118.4  243.16  436.28  623.51  787.34  927.02  1049.4 1109.51
 86          UI  1134.6 1098.82 1033.89  875.19  752.87  635.49  539.38  457.23   387.5  333.21
 87          UI  271.71  232.03  202.69  181.55  130.95  125.49   98.72   81.05   81.05   78.92
 88          UI   28.82   28.82   28.82   28.82   28.82   28.82   28.82   28.82   28.82     0.0
```



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

 89          KK     C3R   CNAME   C2-C3
 90          KO       0       0     0.0       0      22
 91          HC       2

 92          KK   C2-C3   CNAME     C3R
 93          KO       0       0     0.0       0      22
 94          RS       9    FLOW     0.0     0.0
 95          RC   0.046    0.05   0.04623814.25  0.0107     0.0
             * C2-C3
 96          RX     0.0    60.0   125.0   140.0   172.0   232.0   292.0   352.0
 97          RY    26.0    25.0    23.0    10.0    10.0    16.0    20.0    23.0

 98          KK      C3
 99          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
100          KM   L=4.44     Lca=2.51     S=56.33     Kn=0.050     LAG=84.0
101          KM   S-GRAPH TYPE=DES RNGLND
102          KO       0       0     0.0       1      22
103          BA   3.786
104          LG   0.345   0.345   4.357   0.371     0.0
             * C3
105          UI     0.0  151.75  151.75  151.75  190.45  436.29  559.28  700.14  855.71  975.54
106          UI  1073.3 1242.31 1321.34 1364.98 1437.02 1454.29 1454.29 1418.23 1372.67 1299.22
107          UI  1161.9 1057.67  941.42  855.16  770.05  694.16   628.6  566.66  510.91  460.19
108          UI  415.51  362.41  338.86  288.07  286.09  237.34  232.69  204.47  160.84  160.84
109          UI  160.84  118.28  103.88  103.88  103.88  103.88   97.02   36.93   36.93   36.93
110          UI   36.93   36.93   36.93   36.93   36.93   36.93   36.93   36.93   36.93   36.93
111          UI   36.93   36.93     0.0

112          KK     C4R   CNAME   C3-C4
113          KO       0       0     0.0       0      22
114          HC       2

115          KK      C4
116          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
117          KM   L=2.18     Lca=0.88     S=44.31     Kn=0.045     LAG=39.9
118          KM   S-GRAPH TYPE=DES RNGLND
119          KO       0       0     0.0       1      22
120          BA     1.4
121          LG   0.327   0.327   4.737    0.29     0.0
             * C4
122          UI     0.0  117.85   153.2  406.58  642.01  848.78  1023.5 1108.79 1120.35 1044.06
123          UI   868.1  694.77  559.79  452.88  361.01  288.87  232.67  190.32  149.01  124.91
124          UI    88.1   80.67   73.18   28.68   28.68   28.68   28.68   28.68   28.68   28.68
125          UI     0.0

126          KK       C   CNAME     13R
127          KO       0       0     0.0       0      22
128          HC       2
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                                        HEC-1 INPUT                                                          PAGE  4

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

 129          KK     13R   CNAME       C
 130          KO       0       0     0.0       0      22
 131          RN     13R

 132          KK      A1
 133          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 134          KM   L=2.20      Lca=0.86     S=322.08     Kn=0.050     LAG=29.9
 135          KM   S-GRAPH TYPE=PHX MNT
 136          KO       0       0     0.0       1      22
 137          BA   1.107
 138          LG    0.35    0.35   4.057   0.417   9.735
              * A1
 139          UI     0.0  124.21  285.27  628.5  881.01  1178.4 1187.83  769.91  652.54  550.25
 140          UI  454.04   347.4  294.07  245.69  184.11  150.55  131.96   95.23   84.89   60.78
 141          UI   60.78   43.03   23.81   23.81   23.81   23.81   23.81   23.81     0.0

 142          KK  A1-A2A   CNAME     A2R
 143          KO       0       0     0.0       0      22
 144          RS       4    FLOW     0.0     0.0
 145          RC   0.045   0.045   0.045 7200.57  0.0147     0.0
              * A1-A2
 146          RX     0.0    75.0   129.0   185.0   190.0   220.0   280.0   340.0
 147          RY    27.0    23.0    19.0    10.0    10.0    20.0    26.0    32.0

 148          KK      B1
 149          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 150          KM   L=3.11      Lca=1.59     S=213.96     Kn=0.050     LAG=46.7
 151          KM   S-GRAPH TYPE=PHX MNT
 152          KO       0       0     0.0       1      22
 153          BA   0.603
 154          LG    0.35    0.35   3.766   0.462   5.699
              * B1
 155          UI     0.0    43.2    43.2  114.65  185.49   261.9  308.36  353.56  464.75  433.83
 156          UI  297.08  257.03  233.32  209.37  187.06  167.52   142.1  119.29  106.02   98.41
 157          UI   88.94   70.98   59.05    54.7   47.32   46.04   33.12   33.12   29.89   21.14
 158          UI   21.14   21.14   21.14   10.18    8.28    8.28    8.28    8.28    8.28    8.28
 159          UI    8.28    8.28    8.28    8.28     0.0

 160          KK     A2A
 161          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 162          KM   L=1.90      Lca=1.28     S=55.92      Kn=0.055     LAG=51.0
 163          KM   S-GRAPH TYPE=DES RNGLND
 164          KO       0       0     0.0       1      22
 165          BA   0.484
 166          LG    0.35    0.35   4.605   0.325     0.0
              * A3A
 167          UI     0.0   31.98   31.98   71.19   126.1  175.43  218.56  263.08  286.07  306.44
 168          UI  305.77  290.65  260.58   220.3  184.93  156.29  131.91  111.15   93.27   77.88
 169          UI    65.3   56.86   49.03   37.31   33.89   27.16   21.89   21.89    20.0    7.78
 170          UI    7.78    7.78    7.78    7.78    7.78    7.78    7.78    7.78     0.0

                                        HEC-1 INPUT                                                          PAGE  5

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

 171          KK    B2RB   CNAME  A2A-B2
 172          KO       0       0     0.0       0      22
 173          RC       3

 174          KK  A2A-B2   CNAME    B2RB
 175          KO       0       0     0.0       0      22
 176          RS       4    FLOW     0.0     0.0
 177          RC   0.055   0.042   0.055 7166.98  0.0133     0.0
              * B1-B2
 178          RX     0.0    75.0   140.0   167.0   193.0   226.0   296.0   371.0
 179          RY    20.0    17.0    14.0    10.0    10.0    13.0    17.0    22.0

 180          KK      B2
 181          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 182          KM   L=2.69      Lca=0.84     S=67.29      Kn=0.055     LAG=47.9
 183          KM   S-GRAPH TYPE=DES RNGLND
 184          KO       0       0     0.0       1      22
 185          BA   0.442
 186          LG    0.35    0.35   3.628   0.511     0.0
              * B2
 187          UI     0.0   30.97   30.97   77.73   133.4  183.82  226.98   266.1  287.65  296.82
 188          UI  287.47  267.05  223.78   185.3  155.58  129.98  108.43   90.02   74.14    61.7
 189          UI   52.71   46.29   32.83   32.83   21.22    21.2    21.2   10.64    7.54    7.54
 190          UI    7.54    7.54    7.54    7.54    7.54    7.54     0.0

 191          KK     B3R   CNAME   B2-B3
 192          KO       0       0     0.0       0      22
 193          RC       2

 194          KK   B2-B3   CNAME     B3R
 195          KO       0       0     0.0       0      22
 196          RS      17    FLOW     0.0     0.0
 197          RC    0.05   0.025   0.052 0075.26  0.0118     0.0
              * B2-B3
 198          RX     0.0   120.0   270.0   285.0   301.5   312.5   446.5   529.5
 199          RY    13.5    10.0    11.6    10.1    10.1    11.5    10.8    12.6

 200          KK      B3
 201          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 202          KM   L=3.72      Lca=1.68     S=63.31      Kn=0.045     LAG=58.6
 203          KM   S-GRAPH TYPE=DES RNGLND
 204          KO       0       0     0.0       1      22
 205          BA   1.987
 206          LG   0.332   0.332   4.284   0.369     0.0
              * B3
 207          UI     0.0  113.39  113.39  174.19  365.68  513.61  667.07  787.08  935.28  1014.0
 208          UI  1066.6 1086.65 1065.13 1007.44  902.76  777.12  664.52  576.27  502.41   427.5
 209          UI  369.71   321.5  269.65  233.59  211.46  173.86  158.41  120.18  120.18   89.23
 210          UI   77.62   77.62   77.62   39.48    27.6    27.6    27.6    27.6    27.6    27.6
 211          UI    27.6    27.6    27.6    27.6     0.0
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HEC-1 INPUT PAGE 6

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

 212          KK       B   CNAME      4R
 213          KO       0       0     0.0       0      22
 214          HC       2

 215          KK      4R   CNAME       B
 216          KO       0       0     0.0       0      22
 217          RN      4R

 218          KK     A2B
 219          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 220          KM   L=2.10     Lca=1.12     S=76.27     Kn=0.055     LAG=47.5
 221          KM   S-GRAPH TYPE=DES RNGLND
 222          KO       0       0     0.0       1      22
 223          BA   1.178
 224          LG    0.35    0.35   4.507   0.348     0.0
              * A2B
 225          UI     0.0   84.39   84.39  224.42  373.68  509.86  634.46  735.71   789.8  808.75
 226          UI  774.44  702.18  582.93  482.21  402.04  335.57  277.24  233.92  186.27   159.1
 227          UI  131.56  108.73   89.45   74.32   57.77   57.77   45.88   20.54   20.54   20.54
 228          UI   20.54   20.54   20.54   20.54   20.54     0.0

 229          KK  A2B-A3   CNAME     A3R
 230          KO       0       0     0.0       0      22
 231          RS      11    FLOW     0.0     0.0
 232          RC    0.05   0.043   0.0518881.09  0.0112     0.0
              * A2B-A3
 233          RK     0.0    20.0    30.0   165.0   186.0   346.0   361.0   381.0
 234          RY    20.0    19.0    18.0    10.0    10.0    20.0    21.0    22.0

 235          KK      A3
 236          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 237          KM   L=3.92     Lca=1.89     S=58.21     Kn=0.045     LAG=64.1
 238          KM   S-GRAPH TYPE=DES RNGLND
 239          KO       0       0     0.0       1      22
 240          BA   3.729
 241          LG    0.35    0.35   4.23   0.405     0.0
              * A3
 242          UI     0.0   196.2   196.2   216.8   570.5  813.36  1043.2 1275.52 1464.33 1668.96
 243          UI  1757.8 1877.01 1880.24 1841.14 1751.55  1593.0 1387.92 1202.85 1048.96  919.73
 244          UI  805.44  710.06  606.86  538.24  447.15  397.83   367.9  300.84  290.73  207.95
 245          UI  207.95  183.56   134.3   134.3   134.3  131.67   47.75   47.75   47.75   47.75
 246          UI   47.75   47.75   47.75   47.75   47.75   47.75   47.75   47.75

 247          KK       A   CNAME      5R
 248          KO       0       0     0.0       0      22
 249          HC       2

 250          KK      5R   CNAME       A
 251          KO       0       0     0.0       0      22
 252          RN      5R
 253          ZZ
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	C1	2185.	4.83	584.	150.	50.	3.64		
+	ROUTED TO	C1-C2	2031.	5.17	582.	150.	50.	3.64		
+	HYDROGRAPH AT	C2	1130.	4.75	216.	54.	18.	1.86		
+	2 COMBINED AT	C3R	2494.	5.08	730.	187.	62.	5.51		
+	ROUTED TO	C2-C3	2262.	5.83	722.	187.	62.	5.51		
+	HYDROGRAPH AT	C3	1411.	5.17	411.	103.	34.	3.79		
+	2 COMBINED AT	C4R	2832.	5.75	1004.	260.	87.	9.29		
+	HYDROGRAPH AT	C4	1308.	4.50	201.	50.	17.	1.40		
+	2 COMBINED AT	C	2831.	5.67	1129.	292.	97.	10.69		
+	ROUTED TO	13R	2819.	5.67	1125.	291.	97.	10.69		
+	HYDROGRAPH AT	A1	1193.	4.33	163.	41.	14.	1.11		
+	ROUTED TO	A1-A2A	1103.	4.58	163.	41.	14.	1.11		
+	HYDROGRAPH AT	B1	523.	4.58	89.	22.	7.	0.60		
+	HYDROGRAPH AT	A2A	422.	4.67	75.	19.	6.	0.48		
+	3 COMBINED AT	B2RB	1644.	4.58	283.	71.	24.	2.19		
+	ROUTED TO	A2A-B2	1556.	4.83	282.	71.	24.	2.19		

+ HYDROGRAPH AT	B2	361.	4.67	60.	15.	5.	0.44
+ 2 COMBINED AT	B3R	1719.	4.83	316.	80.	27.	2.64
+ ROUTED TO	B2-B3	1143.	6.25	316.	80.	27.	2.64
+ HYDROGRAPH AT	B3	1142.	4.83	241.	60.	20.	1.99
+ 2 COMBINED AT	B	1146.	6.25	488.	124.	41.	4.62
+ ROUTED TO	4R	1146.	6.25	488.	124.	41.	4.62
+ HYDROGRAPH AT	A2B	919.	4.67	157.	39.	13.	1.18
+ ROUTED TO	A2B-A3	732.	8.50	157.	39.	13.	1.18
+ HYDROGRAPH AT	A3	1673.	4.92	383.	96.	32.	3.73
+ 2 COMBINED AT	A	1578.	4.92	486.	122.	41.	4.91
+ ROUTED TO	5R	1578.	4.92	486.	122.	41.	4.91

```
*** NORMAL END OF HEC-1 ***
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*            MAY  1991              *
*          VERSION 4.0.1E           *
*                                   *
*  RUN DATE _______ TIME _______    *
*                                   *
*************************************
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*************************************
*                                   *
*     U.S. ARMY CORPS OF ENGINEERS  *
*   HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*          (916) 551-1748           *
*                                   *
*************************************
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

HEC-1 INPUT PAGE 1

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

  1           ID  Buckeye/Sun Valley ADMS - May 2005
  2           ID  Michael Baker Jr., Inc. - Modeler: Jacob Lesue
  3           ID  basins E-K with Aluvial Fan updates
  4           ID  100-year 6-hour
  5           ID  Existing Conditions
  6           ID  Area 3 - Sub-basins E-K (Aluvial Fan updates)
  7           ID  Rainfall Loss Method - Green & Ampt
  8           ID  Unit Hydrograph Method - FCDMC S-Graph
  9           ID  Channel Routing Method - Normal Depth
 10           ID  Land Use - FCDMC GIS Data: mag_landuse (2000)
 11           ID  Soil Data - USDA SCS Soil Survey (1972 & 1981)
 12           ID  Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
              *DIAGRAM
 13           IT       5 01JAN94       0    2000
 14           IO       3
 15           IN      15 01JAN94       0
 16           JD    3.23     0.01
              * 6-hour distribution, pattern 1.0
 17           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 18           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.634   0.911   0.931    0.95
 19           PC   0.962   0.972   0.983   0.991     1.0
 20           IN      15 01JAN94       0
 21           JD   3.211     0.5
              * 6-hour distribution, pattern 1.0
 22           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 23           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.634   0.911   0.931    0.95
 24           PC   0.962   0.972   0.983   0.991     1.0
 25           IN      15 01JAN94       0
 26           JD   3.188     1.0
              * 6-hour distribution, pattern 1.4
 27           PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
 28           PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
 29           PC  0.9572  0.9684  0.9798  0.9898     1.0
 30           IN      15 01JAN94       0
 31           JD   3.101     5.0
              * 6-hour distribution, pattern 2.3
 32           PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
 33           PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
 34           PC  0.9487   0.962  0.9743  0.9877     1.0
 35           IN      15 01JAN94       0
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 36          JD   3.036    10.0
             * 6-hour distribution, pattern 2.7
 37          PC     0.0  0.0134  0.0189  0.0287  0.0443  0.0574  0.0694  0.0818  0.0949  0.1076
 38          PC  0.1223  0.1382  0.1604  0.2063  0.2902  0.4664  0.6764  0.8069  0.8765  0.9189
 39          PC  0.9471  0.9608  0.9735  0.9873     1.0
 40          IN      15 01JAN94       0
 41          JD   2.939    20.0
             * 6-hour distribution, pattern 3.1
 42          PC     0.0  0.0158   0.022  0.0329  0.0511  0.0663  0.0799  0.0948  0.1102  0.1246
 43          PC   0.141  0.1587  0.1828    0.23  0.3122  0.4758  0.6684  0.7929  0.8643  0.9087
 44          PC  0.9434   0.958  0.9718  0.9863     1.0
 45          IN      15 01JAN94       0
 46          JD   2.875    30.0
             * 6-hour distribution, pattern 3.4
 47          PC     0.0  0.0172  0.0256  0.0378  0.0565  0.0719  0.0868   0.103  0.1191  0.1342
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 48          PC  0.1513  0.1702  0.1961  0.2439  0.3263  0.4824  0.6655  0.7875   0.858  0.9031
 49          PC   0.939  0.9544  0.9697  0.9851     1.0
 50          IN      15 01JAN94       0
 51          JD    2.81    40.0
             * 6-hour distribution, pattern 3.5
 52          PC     0.0  0.0182  0.0281  0.0413  0.0604  0.0759  0.0916  0.1088  0.1254   0.141
 53          PC  0.1586  0.1783  0.2056  0.2537  0.3362   0.487  0.6636  0.7836  0.8535  0.8991
 54          PC  0.9358  0.9519  0.9682  0.9843     1.0
 55          IN      15 01JAN94       0
 56          JD   2.584   100.0
             * 6-hour distribution, pattern 4.1
 57          PC     0.0  0.0212  0.0355  0.0515  0.0715  0.0877   0.106  0.1261  0.1443  0.1618
 58          PC  0.1812  0.2036  0.2347  0.2837   0.367   0.501  0.6539  0.7704  0.8392  0.8864
 59          PC  0.9256   0.944  0.9633  0.9817     1.0

 60          KK      G1
 61          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 62          KM   L=2.38      Lca=1.08      S=33.76      Kn=0.045      LAG=47.1
 63          KM   S-GRAPH TYPE-DES RNGLND
 64          KO       0        0     0.0        1       22
 65          BA   1.119
 66          LG    0.35     0.35    4.68   0.299     0.0
             * G1
 67          UI     0.0    80.16   80.16  213.17  354.95   484.3  602.66  698.84  750.22  768.22
 68          UI  735.63   666.98  553.71  458.04  381.89  318.75  263.34   222.2  176.93  151.12
 69          UI  124.96   103.28   84.96   70.59   54.87   54.87   43.58   19.51   19.51   19.51
 70          UI   19.51    19.51   19.51   19.51   19.51     0.0

 71          KK      1R    CNAME       G
 72          KO       0        0     0.0        0       22
 73          RN      1R

 74          KK      K1
 75          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 76          KM   L=3.23      Lca=1.84      S=681.00      Kn=0.050      LAG=40.4
 77          KM   S-GRAPH TYPE-PHX MNT
 78          KO       0        0     0.0        1       22
 79          BA   1.543
 80          LG   0.112    0.255   4.365   0.366  21.277
             * K1
 81          UI     0.0   129.88  168.84  442.11  706.31  896.38 1061.91 1457.77 1111.25  821.11
 82          UI  726.82   641.11  561.31  488.34  403.67  331.29  304.06  271.41  213.37  169.75
 83          UI  154.58   142.25  108.11   99.57   85.17   63.56   63.56   63.56   38.81   24.89
 84          UI   24.89    24.89   24.89   24.89   24.89   24.89   24.89     0.0

 85          KK  K1-K2A    CNAME     K2AR
 86          KO       0        0     0.0        0       22
 87          RS       9     FLOW     0.0      0.0
 88          RC    0.05    0.048   0.0519434.11   0.017     0.0
             * K1-K2A
 89          RX     0.0     20.0    55.0    85.0   235.0   259.0   289.0   309.0
 90          RY    22.0     21.0    20.0    10.0    10.0    20.0    21.0    22.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 91          KK     K2A
 92          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 93          KM   L=5.29      Lca=2.72      S=126.78      Kn=0.055      LAG=87.2
 94          KM   S-GRAPH TYPE-DES RNGLND
 95          KO       0        0     0.0        1       22
 96          BA   1.949
 97          LG   0.341    0.347   4.907   0.278   1.288
             * K2A
 98          UI     0.0    75.43   75.43   75.43   75.43  216.57  263.63  333.08  400.43  470.31
 99          UI  527.14   583.18  638.37  674.27  692.72  722.84  722.84  721.83  689.53  671.99
100          UI  627.55   556.08  517.43  456.81  416.13  375.78  341.84  309.53  280.25  253.48
101          UI  229.53   206.53  183.27  168.43  146.97   142.2  123.74  115.66  112.61   79.95
102          UI   79.95    79.95   71.18   51.63   51.63   51.63   51.63   51.63   36.22   18.36
103          UI   18.36    18.36   18.36   18.36   18.36   18.36   18.36   18.36   18.36   18.36
104          UI   18.36    18.36   18.36   18.36     0.0

105          KK    K2BR    CNAME   K2A-2B
106          KO       0        0     0.0        0       22
107          HC       2

108          KK  K2A-2B    CNAME    K2BR
109          KO       0        0     0.0        0       22
110          RS       6     FLOW     0.0      0.0
111          RC    0.05    0.048   0.0510602.71  0.0115     0.0
             * K2A-K2B
112          RX     0.0     20.0    55.0    85.0   235.0   259.0   289.0   309.0
113          RY    22.0     21.0    20.0    10.0    10.0    20.0    21.0    22.0

114          KK     K2B
115          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
116          KM   L=2.01      Lca=0.83      S=60.78      Kn=0.055      LAG=43.5
117          KM   S-GRAPH TYPE-DES RNGLND
118          KO       0        0     0.0        1       22
119          BA   0.416
120          LG    0.35     0.35   2.708   0.961     0.0
             * K2B
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121          UI     0.0   32.57   33.92  104.78  161.25  216.88  267.55  297.02  312.16  302.35
122          UI  276.72  225.58  183.68  151.33  123.31   99.92   81.2   65.94   55.1   45.93
123          UI   34.52   29.7    22.3    22.3   15.04    7.93    7.93    7.93    7.93    7.93
124          UI    7.93    7.93    0.0

125          KK   K3RA   CNAME  K2B-K3
126          KO      0       0     0.0       0      22
127          KC      2

128          KK  K2B-K3   CNAME    K3RA
129          KO      0       0     0.0       0      22
130          RS     19    FLOW     0.0     0.0
131          RC   0.05   0.048   0.0525950.11  0.0084     0.0
             * K2B-K3
132          RX    0.0   390.0   490.0   502.0   520.0   532.0   632.0  1022.0
133          RY   20.0    14.5    11.5    10.0    10.0    11.5    14.5    20.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

134          KK     E2A
135          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
136          KM   L=2.90     Lca=1.20     S=100.83     Kn=0.055     LAG=52.4
137          KM   S-GRAPH TYPE=DES RNGLND
138          KO      0       0     0.0       1      22
139          BA   0.797
140          LG    0.35    0.38     5.6    0.21     0.0
             * E2A
141          UI     0.0    51.6    51.6  110.43  196.83  277.44  347.94  413.76  460.03   489.1
142          UI  494.55   472.6  438.77  369.81  310.92  263.99  224.69  190.62  158.99  135.09
143          UI  112.23   97.29   80.97   70.86    54.7   53.12   35.32   35.32   35.32   21.96
144          UI   12.56   12.56   12.56   12.56   12.56   12.56   12.56   12.56   12.56     0.0

145          KK  E2A-E3   CNAME    E3RA
146          KO      0       0     0.0       0      22
147          RS     13    FLOW     0.0     0.0
148          RC   0.052   0.046   0.05219626.03  0.0093     0.0
             * E2A-E3
149          RX    0.0   133.0   173.0   213.0   223.0   263.0   303.0   403.0
150          RY   22.0    17.0    14.0    10.0    10.0    15.0    18.0    22.0

151          KK     E2C
152          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
153          KM   L=2.38     Lca=1.01     S=92.90     Kn=0.055     LAG=46.0
154          KM   S-GRAPH TYPE=DES RNGLND
155          KO      0       0     0.0       1      22
156          BA   0.716
157          LG    0.35    0.35   4.343   0.357     0.0
             * E2C
158          UI     0.0   55.12   55.12  154.82  250.83  342.33  421.22  487.29  519.92  527.55
159          UI  498.61  439.15  363.83   300.5  250.15  205.65  169.32  139.69  114.34   97.44
160          UI   84.51   59.64   58.42   38.62   37.73   37.73   16.68   13.41   13.41   13.41
161          UI   13.41   13.41   13.41   13.41     0.0

162          KK  E2C-E3   CNAME    E3RC
163          KO      0       0     0.0       0      22
164          RS     12    FLOW     0.0     0.0
165          RC   0.052   0.046   0.052 17293.5  0.0082     0.0
             * E2C-E3
166          RX    0.0   133.0   173.0   213.0   223.0   263.0   303.0   403.0
167          RY   22.0    17.0    14.0    10.0    10.0    15.0    18.0    22.0

168          KK      E1
169          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
170          KM   L=2.51     Lca=1.13     S=178.34     Kn=0.055     LAG=43.3
171          KM   S-GRAPH TYPE=PRX MNT
172          KO      0       0     0.0       1      22
173          BA   0.956
174          LG    0.35    0.378   5.377   0.222    0.69
             * E1
175          UI     0.0   74.86   77.94  239.17  368.29  486.24  570.86   714.2  832.85  536.73
176          UI  451.19  405.28  360.54  317.72  278.78  233.78  192.26  176.85  160.99  130.76
177          UI  107.56   95.43   81.98   76.82   57.39   57.39   44.31   36.63   36.63   36.63
178          UI   23.53   14.35   14.35   14.35   14.35   14.35   14.35   14.35   14.35   14.35
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

179          UI     0.0

180          KK  E1-E2B   CNAME     E2B
181          KO      0       0     0.0       0      22
182          RS      3    FLOW     0.0     0.0
183          RC   0.05   0.047   0.04610992.72   0.016     0.0
             * E1-E2B
184          RX    0.0    65.0   140.0   170.0   185.0   200.0   270.0   340.0
185          RY   24.0    21.0    17.0    10.0    10.0    14.0    18.0    22.0

186          KK     E2B
187          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
188          KM   L=2.08     Lca=1.07     S=87.98     Kn=0.055     LAG=45.2
189          KM   S-GRAPH TYPE=DES RNGLND
190          KO      0       0     0.0       1      22
191          BA   0.466
192          LG    0.35    0.38     5.6    0.21     0.0
             * E2B
193          UI     0.0    32.1    32.1    94.97  150.03  204.82  250.49  285.24   306.5  304.84
194          UI  285.73  244.25   203.0  165.28   137.3  113.17   92.95    75.5   62.33   52.17
195          UI   43.31   34.02   28.77   21.97   21.97   16.14    7.81    7.81    7.81    7.81
196          UI    7.81    7.81    7.81    7.81

197          KK    E3RB   CNAME  E2B-E3
198          KO      0       0     0.0       0      22
199          KC      2

200          KK  E2B-E3   CNAME    E3RB
201          KO      0       0     0.0       0      22
202          RS     11    FLOW     0.0     0.0
203          RC   0.052   0.046   0.05219617.83  0.0088     0.0
             * E2B-E3
204          RX    0.0   133.0   173.0   213.0   223.0   263.0   303.0   403.0
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205          RY    22.0    17.0    14.0    10.0    10.0    15.0    18.0    22.0

206          KK      E3
207          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
208          KM   L=3.87      Lca=1.99      S=49.65      Kn=0.050      LAG=74.5
209          KM   S-GRAPH TYPE=DES RNGLND
210          KO       0       0     0.0       1      22
211          BA   2.488
212          LG    0.35    0.35   4.362   0.346     0.0
             * E3
213          UI     0.0  111.69  111.69  111.69  226.88  361.12  481.81  599.56  708.99  795.91
214          UI  924.44  981.52 1023.08 1070.39 1070.39 1054.33 1012.16  958.83  843.16   765.0
215          UI  671.82  595.75  537.55  476.38  423.35  378.09  335.18  305.82   252.8  234.07
216          UI  210.57  188.36  171.26  154.61  118.38  118.38  115.87   76.46   76.46   76.46
217          UI   76.46   75.47   27.18   27.18   27.18   27.18   27.18   27.18   27.18   27.18
218          UI   27.18   27.18   27.18   27.18   27.18   27.18
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

219          KK    E4RA   CNAME   E3-E4
220          KO       0       0     0.0       0      22
221          NC       4

222          KK   E3-E4   CNAME    E4RA
223          KO       0       0     0.0       0      22
224          RS      14    FLOW     0.0     0.0
225          RC   0.056   0.049   0.05613854.98  0.0048     0.0
             * E3-E4
226          RX     0.0   570.0   650.0   690.0   705.0   735.0   810.0  1200.0
227          RY    21.0    14.0    13.0    10.0    10.0    12.5    14.5    21.0

228          KK      F1
229          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
230          KM   L=5.07      Lca=2.57      S=369.39      Kn=0.050      LAG=61.9
231          KM   S-GRAPH TYPE=PHX MNT
232          KO       0       0     0.0       1      22
233          BA   3.103
234          LG   0.297   0.329   4.244   0.378  12.997
             * F1
235          UI     0.0  168.51  168.51  215.27  509.66  699.18  943.72 1090.63 1237.28 1359.21
236          UI  1651.0 2027.63 1459.34 1157.38 1028.29  961.49  882.67  818.34   750.5  687.24
237          UI  625.11  552.31  479.89  429.51  404.49  384.89  352.34  298.58  276.84  216.79
238          UI  215.32  192.43  184.56  176.81  129.19  129.19  129.19  109.56   82.46   82.46
239          UI   82.46   82.46   82.46   52.76    32.3    32.3    32.3    32.3    32.3    32.3
240          UI    32.3    32.3    32.3    32.3    32.3    32.3    32.3    32.3     0.0

241          KK   F1-F2   CNAME     F2R
242          KO       0       0     0.0       0      22
243          RS       1    FLOW     0.0     0.0
244          RC   0.053   0.045   0.055 3313.03  0.0106     0.0
             * F1-F2
245          RX     0.0    60.0   120.0   146.0   178.0   208.0   268.0   328.0
246          RY    27.0    26.0    25.0    10.0    10.0    24.0    26.0    28.0

247          KK      F2
248          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
249          KM   L=3.88      Lca=1.80      S=161.60      Kn=0.050      LAG=57.0
250          KM   S-GRAPH TYPE=PHX MNT
251          KO       0       0     0.0       1      22
252          BA   2.209
253          LG    0.35    0.35   4.375   0.362   3.346
             * F2
254          UI     0.0  130.48  130.48  222.96  433.41  610.23   794.3  912.18 1015.11 1202.18
255          UI  1548.4 1176.04  896.54  790.99  735.01  667.95  615.82  555.86  511.22  447.69
256          UI  388.02  337.31  314.94  297.77  272.83  224.19  203.12  166.73  162.35  142.91
257          UI  142.91  109.04  100.04  100.04   86.65   63.85   63.85   63.85   63.85   63.39
258          UI   25.01   25.01   25.01   25.01   25.01   25.01   25.01   25.01   25.01   25.01
259          UI   25.01   25.01   25.01     0.0
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HEC-1 INPUT PAGE 7

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

260          KK     F3R   CNAME   F2-F3
261          KO       0       0     0.0       0      22
262          NC       2

263          KK   F2-F3   CNAME     F3R
264          KO       0       0     0.0       0      22
265          RS       4    FLOW     0.0     0.0
266          RC    0.05   0.047   0.048 7056.98    0.01     0.0
             * F2-F3
267          RX     0.0   350.0   425.0   455.0   472.0   499.0   569.0   900.0
268          RY    20.0    15.0    13.0    10.0    10.0    12.0    14.0    20.0

269          KK      F3
270          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
271          KM   L=2.71      Lca=1.26      S=81.34      Kn=0.055      LAG=54.2
272          KM   S-GRAPH TYPE=DES RNGLND
273          KO       0       0     0.0       1      22
274          BA   0.736
275          LG    0.35    0.35   3.284    0.64     0.0
             * F3
276          UI     0.0   45.89   45.89   90.29  163.16  236.62   300.0   352.3  401.58  427.19
277          UI  439.78  431.51  405.77  355.07  304.27  256.06  219.26  187.54  158.37  134.34
278          UI  113.67   96.02   85.11   70.36   60.22   48.64   46.52   31.41   31.41   31.41
279          UI    21.4   11.17   11.17   11.17   11.17   11.17   11.17   11.17   11.17   11.17
280          UI     0.0

281          KK    E4RB   CNAME   F3-E4
282          KO       0       0     0.0       0      22
283          NC       2

284          KK   F3-E4   CNAME    E4RB
285          KO       0       0     0.0       0      22
286          RS      20    FLOW     0.0     0.0
287          RC    0.05   0.044   0.0527650.48  0.0072     0.0
             * F3-E4
288          RX     0.0   570.0   650.0   690.0   705.0   735.0   810.0  1200.0
289          RY    20.0    14.0    13.0    10.0    10.0    12.5    14.5    20.0
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290          KK      H1
291          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
292          KM   L=2.41      Lca=1.09      S=64.59      Kn=0.055      LAG=51.2
293          KM   S-GRAPH TYPE=DES RNGLND
294          KO       0        0      0.0        1       22
295          BA   1.066
296          LG    0.35     0.35    2.733    0.945      0.0
             * H1
297          UI     0.0    70.38    70.38   156.67   277.53   386.09   481.01    579.0    629.6   674.43
298          UI  672.95   639.66   573.48   484.85   407.01   343.97   290.32   244.62   205.27    171.4
299          UI  143.72   125.14   107.91    82.11    74.59    59.78    48.17    48.17    44.03    17.13
300          UI   17.13    17.13    17.13    17.13    17.13    17.13    17.13    17.13      0.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

301          KK   H1-H2   CNAME     H2R
302          KO       0       0     0.0       0      22
303          RS      19    FLOW     0.0     0.0
304          RC   0.053    0.05 0.05321739.03  0.0082     0.0
             * H1-H2
305          RX     0.0   330.0   430.0   465.0   495.0   530.0   630.0   960.0
306          RY    17.0    14.0    12.0    10.0    10.0    12.0    14.0    17.0

307          KK      H2
308          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
309          KM   L=4.41      Lca=2.60      S=44.71      Kn=0.050      LAG=88.9
310          KM   S-GRAPH TYPE=DES RNGLND
311          KO       0        0      0.0        1       22
312          BA     1.4
313          LG    0.35     0.35    3.222    0.664      0.0
             * H2
314          UI     0.0    52.96    52.96    52.96    52.96   142.93   178.39    226.9   274.71   319.58
315          UI  365.35    394.2   441.12   466.71    479.3   507.56   507.56   507.56   494.47   478.59
316          UI  456.68   413.58   373.47   343.47   306.13   279.54   254.31   232.29   208.19   189.77
317          UI  169.44   155.74   145.02   121.24   117.25    99.85    99.85    83.38    81.21    75.85
318          UI   56.14    56.14    56.14    49.15    36.25    36.25    36.25    36.25    36.25     27.6
319          UI   12.89    12.89    12.89    12.89    12.89    12.89    12.89    12.89    12.89    12.89
320          UI   12.89    12.89    12.89    12.89    12.89    12.89      0.0

321          KK      E4
322          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
323          KM   L=5.36      Lca=2.81      S=38.26      Kn=0.050      LAG=101.9
324          KM   S-GRAPH TYPE=DES RNGLND
325          KO       0        0      0.0        1       22
326          BA   3.042
327          LG    0.35     0.35    3.816    0.439      0.0
             * E4
328          UI     0.0   100.41   100.41   100.41   100.41    158.4   288.69   358.15   433.82   515.05
329          UI  586.72   661.74   710.91   802.48   849.78   890.67   905.99    962.3    962.3    962.3
330          UI  958.07   920.61   904.77   855.38   781.14   712.32   671.29   604.26    557.2   512.12
331          UI  469.45   435.76    392.7   363.69   334.37   307.94   277.85   264.88   224.23   220.83
332          UI  189.31   189.31   167.81   153.97   153.97    127.9   106.43   106.43   106.43   101.85
333          UI   68.74    68.74    68.74    68.74    68.74    68.74     56.9    24.44    24.44    24.44
334          UI   24.44    24.44    24.44    24.44    24.44    24.44    24.44    24.44    24.44    24.44
335          UI   24.44    24.44    24.44    24.44    24.44    24.44

336          KK     E5R   CNAME    E4-E5
337          KO       0       0     0.0       0      22
338          KC       5

339          KK   E4-E5   CNAME     E5R
340          KO       0       0     0.0       0      22
341          RS      16    FLOW     0.0     0.0
342          RC    0.04    0.05  0.0615206.17  0.0051     0.0
             * E4-E5
343          RX     0.0  1010.0  1080.0  1090.0  1110.0  1120.0  1190.0  2200.0
344          RY    27.0    16.0    15.0    10.0    10.0    14.0    16.0    27.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

345          KK      J1
346          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
347          KM   L=4.09      Lca=1.78      S=70.82      Kn=0.055      LAG=74.8
348          KM   S-GRAPH TYPE=DES RNGLND
349          KO       0        0      0.0        1       22
350          BA   1.734
351          LG    0.35     0.35     3.25    0.652      0.0
             * J1
352          UI     0.0    77.84    77.84    77.84   158.12   251.68    335.0   417.86   494.13   554.71
353          UI  644.28   684.07   713.03    746.0    746.0   734.81   705.42   668.25   587.63   533.16
354          UI  468.22    415.2   374.64   332.01   295.05   263.51   233.61   213.14   176.18   163.13
355          UI  146.75   131.28   119.36   107.75    82.51    82.51    80.75    53.29    53.29    53.29
356          UI   53.29     52.6    18.95    18.95    18.95    18.95    18.95    18.95    18.95    18.95
357          UI   18.95    18.95    18.95    18.95    18.95    18.95

358          KK   J1-J2   CNAME     J2R
359          KO       0       0     0.0       0      22
360          RS      28    FLOW     0.0     0.0
361          RC   0.055    0.04   0.055 24097.0  0.0086     0.0
             * J1-J2
362          RX     0.0   161.0   247.0   254.0   271.0   279.0   393.0   660.0
363          RY    17.0    12.5    12.2    10.8    10.0    12.1    12.9    17.0

364          KK      J2
365          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
366          KM   L=5.18      Lca=2.51      S=45.01      Kn=0.050      LAG=93.2
367          KM   S-GRAPH TYPE=DES RNGLND
368          KO       0        0      0.0        1       22
369          BA   3.638
370          LG   0.349    0.348    3.621    0.496    0.281
             * J2
371          UI     0.0   131.71   131.71   131.71   131.71   310.01    410.2   529.51   653.09   756.38
372          UI  857.33   932.04  1064.81  1131.31  1183.05  1211.21  1262.21  1262.21  1262.21  1218.54
373          UI  1189.1  1123.19  1016.15   925.91   854.62   766.36   699.93   639.84   585.79   530.33
374          UI  484.44    441.0   403.56   360.63   330.99   294.11   269.84    248.3   236.22   201.95
375          UI  201.95   172.61    139.6    139.6    139.6   118.12    90.16    90.16    90.16    90.16
376          UI   90.16    79.42    32.06    32.06    32.06    32.06    32.06    32.06    32.06    32.06
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 377          UI   32.06   32.06   32.06   32.06   32.06   32.06   32.06   32.06   32.06     0.0

 378          KK    K3RB   CNAME   J2-K3
 379          KO       0       0     0.0       0      22
 380          HC       2

 381          KK   J2-K3   CNAME    K3RB
 382          KO       0       0     0.0       0      22
 383          RS       4    FLOW     0.0     0.0
 384          RC    0.05   0.048    0.05 4071.93  0.0059     0.0
              * J2-K3
 385          RX     0.0   390.0   490.0   502.0   520.0   532.0   632.0  1022.0
 386          RY    20.0    14.5    11.5    10.0    10.0    11.5    14.5    20.0

                                          HEC-1 INPUT                                          PAGE 10

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


 387          KK      K3
 388          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 389          KM   L=4.92      Lca=2.65     S=44.16     Kn=0.050     LAG=93.6
 390          KM   S-GRAPH TYPE=DES RNGLND
 391          KO       0       0     0.0       1      22
 392          BA   1.636
 393          LG    0.35    0.35   3.421   0.582     0.0
              * K3
 394          UI     0.0    58.6    58.6    58.6    58.6  132.87  178.79  231.72  287.22  333.42
 395          UI  374.63  416.06  465.04   498.4  523.32  535.26  561.57  561.57  561.57  546.52
 396          UI  528.98  508.31  466.83  418.22  391.32  351.35  318.32  291.61  266.72  243.82
 397          UI   222.2   205.3   179.7  166.92  157.94  130.85  127.83  110.47  110.47   92.85
 398          UI   89.85   88.89   62.11   62.11   62.11   62.11    41.1   40.11   40.11   40.11
 399          UI   40.11   40.11   23.61   14.26   14.26   14.26   14.26   14.26   14.26   14.26
 400          UI   14.26   14.26   14.26   14.26   14.26   14.26   14.26   14.26   14.26   14.26

 401          KK      E5
 402          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 403          KM   L=3.01      Lca=1.41     S=28.56     Kn=0.050     LAG=65.8
 404          KM   S-GRAPH TYPE=DES RNGLND
 405          KO       0       0     0.0       1      22
 406          BA   1.308
 407          LG   0.347   0.344    3.94   0.429   0.968
              * E5
 408          UI     0.0    66.73   66.73   66.73  187.33  261.54  342.37  416.83  480.54  556.36
 409          UI  598.07  622.96  639.46  636.14  605.78  574.36  496.51  443.91  383.22  336.88
 410          UI  298.49  258.94  227.11  198.14  176.39   149.0   129.8   120.7  102.31   94.82
 411          UI   70.72   70.72   61.39   45.68   45.68   45.68   45.68   18.08   16.24   16.24
 412          UI   16.24   16.24   16.24   16.24   16.24   16.24   16.24   16.24   16.24     0.0

 413          KK     E6R   CNAME   E5-E6
 414          KO       0       0     0.0       0      22
 415          HC       5

 416          KK   E5-E6   CNAME     E6R
 417          KO       0       0     0.0       0      22
 418          RS       7    FLOW     0.0     0.0
 419          RC   0.063   0.051   0.063  5105.8  0.0037     0.0
              * E5-E6
 420          RX     0.0   850.0   980.0   990.0  1030.0  1040.0  1230.0  2020.0
 421          RY    25.0    13.0    13.0    10.0    10.0    12.0    12.0    25.0

 422          KK      E6
 423          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 424          KM   L=3.04      Lca=1.06     S=34.17     Kn=0.050     LAG=57.1
 425          KM   S-GRAPH TYPE=DES RNGLND
 426          KO       0       0     0.0       1      22
 427          BA   2.038
 428          LG   0.343   0.336   4.356   0.367   0.711
              * E6
 429          UI     0.0  120.38  120.38   205.7  403.51   574.9  733.36  874.59  1019.0 1083.61
 430          UI  1153.6 1153.67 1100.2 1038.99  882.77  767.24  653.83  562.64  487.32  412.46
 431          UI  353.67  303.21  257.92  226.95  190.12   175.5  127.59  127.59   96.61    82.4
 432          UI    82.4    82.4   36.99    29.3    29.3    29.3    29.3    29.3    29.3    29.3

                                          HEC-1 INPUT                                          PAGE 11

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

 433          UI    29.3    29.3     0.0

 434          KK       E   CNAME      2R
 435          KO       0       0     0.0       0      22
 436          HC       2

 437          KK      2R   CNAME       E
 438          KO       0       0     0.0       0      22
 439          RN      2R
 440          ZZ
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
+                            G1      927.    4.67         160.         40.         13.      1.12

        ROUTED TO
+                            1R      927.    4.67         160.         40.         13.      1.12

        HYDROGRAPH AT
+                            K1     1564.    4.50         291.         73.         24.      1.54

        ROUTED TO
+                       K1-K2A     1208.    5.25         289.         73.         24.      1.54

        HYDROGRAPH AT
+                           K2A      894.    5.25         269.         68.         23.      1.95

        2 COMBINED AT
+                         K2BR     1858.    5.25         517.        131.         44.      3.49
```

+	ROUTED TO	K2A-2B	1750.	5.67	513.	131.	44.	3.49
+	HYDROGRAPH AT	K2B	309.	4.58	45.	11.	4.	0.42
+	2 COMBINED AT	K3RA	1744.	5.67	529.	135.	45.	3.91
+	ROUTED TO	K2B-K3	1420.	7.17	517.	134.	45.	3.91
+	HYDROGRAPH AT	E2A	680.	4.67	127.	32.	11.	0.80
+	ROUTED TO	E2A-K3	561.	5.67	126.	32.	11.	0.80
+	HYDROGRAPH AT	E2C	658.	4.58	108.	27.	9.	0.72
+	ROUTED TO	E2C-K3	523.	5.50	108.	27.	9.	0.72
+	HYDROGRAPH AT	E1	994.	4.50	148.	37.	12.	0.96
+	ROUTED TO	E1-E2B	794.	4.83	148.	37.	12.	0.96
+	HYDROGRAPH AT	E2B	450.	4.58	72.	18.	6.	0.47
+	2 COMBINED AT	E3RB	1083.	4.83	205.	51.	17.	1.42
+	ROUTED TO	E2B-K3	833.	5.67	203.	51.	17.	1.42
+	HYDROGRAPH AT	E3	1149.	5.08	301.	75.	25.	2.49
+	4 COMBINED AT	E4RA	1978.	5.67	608.	154.	51.	5.42
+	ROUTED TO	E3-E4	1737.	6.67	601.	154.	51.	5.42
+	HYDROGRAPH AT	F1	1773.	4.83	444.	113.	38.	3.10
+	ROUTED TO	F1-F2	1739.	4.83	443.	113.	38.	3.10
+	HYDROGRAPH AT	F2	1306.	4.75	280.	70.	23.	2.21
+	2 COMBINED AT	F3R	2873.	4.83	655.	166.	55.	5.31
+	ROUTED TO	F2-F3	2432.	5.08	654.	166.	55.	5.31
+	HYDROGRAPH AT	F3	454.	4.75	84.	21.	7.	0.74
+	2 COMBINED AT	E4RB	2569.	5.08	692.	176.	59.	6.05
+	ROUTED TO	F3-E4	2151.	6.67	685.	176.	59.	6.05
+	HYDROGRAPH AT	H1	497.	4.75	86.	22.	7.	1.07
+	ROUTED TO	H1-H2	323.	6.33	85.	22.	7.	1.07
+	HYDROGRAPH AT	H2	446.	5.25	134.	33.	11.	1.40
+	HYDROGRAPH AT	E4	923.	5.42	319.	80.	27.	3.04
+	5 COMBINED AT	E5R	3330.	6.67	1300.	341.	114.	16.98
+	ROUTED TO	E4-E5	3088.	7.92	1294.	341.	114.	16.98
+	HYDROGRAPH AT	J1	626.	5.08	160.	40.	13.	1.73
+	ROUTED TO	J1-J2	488.	7.33	158.	40.	13.	1.73
+	HYDROGRAPH AT	J2	1093.	5.33	349.	87.	29.	3.64
+	2 COMBINED AT	K3RB	998.	5.33	434.	110.	37.	5.37
+	ROUTED TO	J2-K3	979.	5.58	433.	110.	37.	5.37
+	HYDROGRAPH AT	K3	520.	5.33	165.	41.	14.	1.64
+	HYDROGRAPH AT	E5	713.	4.92	165.	41.	14.	1.31
+	5 COMBINED AT	E6R	3596.	7.83	1780.	487.	162.	29.20

```
        ROUTED TO
+                    E5-E6     3534.    8.25      1773.      487.      162.     29.20

        HYDROGRAPH AT
+                      E6      1228.    4.75       253.       63.       21.      2.04

        2 COMBINED AT
+                       E      3535.    8.25      1845.      523.      174.     31.24

        ROUTED TO
+                      2R      3448.    8.25      1797.      511.      170.     31.24


 *** NORMAL END OF HEC-1 ***
1*************************************                    *************************************
*                                   *                    *                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                 *   U.S. ARMY CORPS OF ENGINEERS    *
*            MAY  1991              *                    *   HYDROLOGIC ENGINEERING CENTER   *
*          VERSION 4.0.1E           *                    *        609 SECOND STREET          *
*                                   *                    *      DAVIS, CALIFORNIA 95616      *
*  RUN DATE _________ TIME _________ *                   *        (916) 551-1748             *
*                                   *                    *                                   *
*************************************                    *************************************

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


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

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

                                          HEC-1 INPUT                                          PAGE  1

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

    1           ID  Buckeye/Sun Valley ADMS - May 2005
    2           ID  Michael Baker Jr., Inc. - Modeler: Jacob Lesue
    3           ID  100-year 6-hour
    4           ID  Existing Conditions
    5           ID  Area 3 - Sub-basins L-R (Aluvial Fan updates)
    6           ID  Rainfall Loss Method - Green & Ampt
    7           ID  Unit Hydrograph Method - FCDMC S-Graph
    8           ID  Channel Routing Method - Normal Depth
    9           ID  Land Use - FCDMC GIS Data: mag_landuse (2000)
   10           ID  Soil Data - USDA SCS Soil Survey (1972 & 1981)
   11           ID  Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
                *DIAGRAM
   12           IT       5 01JAN94       0    2000
   13           IO       3
   14           IN      15 01JAN94       0
   15           JD    3.23    0.01
                * 6-hour distribution, pattern 1.0
   16           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
   17           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
   18           PC   0.962   0.972   0.983   0.991     1.0
   19           IN      15 01JAN94       0
   20           JD   3.211     0.5
                * 6-hour distribution, pattern 1.0
   21           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
   22           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
   23           PC   0.962   0.972   0.983   0.991     1.0
   24           IN      15 01JAN94       0
   25           JD   3.188     1.0
                * 6-hour distribution, pattern 1.4
   26           PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
   27           PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
   28           PC  0.9572  0.9684  0.9798  0.9898     1.0
   29           IN      15 01JAN94       0
   30           JD   3.101     5.0
                * 6-hour distribution, pattern 2.3
   31           PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
   32           PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
   33           PC  0.9487   0.962  0.9743  0.9877     1.0
   34           IN      15 01JAN94       0
   35           JD   3.036    10.0
                * 6-hour distribution, pattern 2.7
   36           PC     0.0  0.0134  0.0189  0.0287  0.0443  0.0574  0.0694  0.0818  0.0949  0.1076
   37           PC  0.1223  0.1382  0.1604  0.2063  0.2902  0.4664  0.6764  0.8069  0.8765  0.9189
   38           PC  0.9471  0.9608  0.9735  0.9873     1.0
   39           IN      15 01JAN94       0
   40           JD   2.939    20.0
                * 6-hour distribution, pattern 3.1
   41           PC     0.0  0.0158   0.022  0.0329  0.0511  0.0663  0.0799  0.0948  0.1102  0.1246
   42           PC   0.141  0.1587  0.1828    0.23  0.3122  0.4758  0.6684  0.7929  0.8643  0.9087
   43           PC  0.9434   0.958  0.9718  0.9863     1.0
   44           IN      15 01JAN94       0
   45           JD   2.875    30.0
                * 6-hour distribution, pattern 3.4
   46           PC     0.0  0.0172  0.0256  0.0378  0.0565  0.0719  0.0868   0.103  0.1191  0.1342
   47           PC  0.1513  0.1702  0.1961  0.2439  0.3263  0.4824  0.6655  0.7875   0.858  0.9031
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                                        HEC-1 INPUT                                                    PAGE  2

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

  48          PC   0.939  0.9544  0.9697  0.9851     1.0
  49          IN      15 01JAN94       0
  50          JD    2.81    40.0
              * 6-hour distribution, pattern 3.5
  51          PC     0.0  0.0182  0.0281  0.0413  0.0604  0.0759  0.0916  0.1088  0.1254   0.141
  52          PC  0.1586  0.1783  0.2056  0.2537  0.3362   0.467  0.6636  0.7836  0.8535  0.8991
  53          PC  0.9358  0.9519  0.9692  0.9843     1.0

  54          KK      R1
  55          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  56          KM   L=1.01      Lca=0.46      S=213.31      Kn=0.050      LAG=18.8
  57          KM   S-GRAPH TYPE=PHX MNT
  58          KO       0       0     0.0       1      22
  59          BA   0.284
  60          LG    0.35    0.35   4.358   0.374   8.387
              * R1
  61          UI     0.0   62.14  236.01  401.85  464.97  281.72   216.1  150.63  113.71   76.28
  62          UI   57.58   39.69   27.53   24.54    9.63    9.63    9.63    9.63     0.0

  63          KK     13R   CNAME       R
  64          KO       0       0     0.0       0      22
  65          KM     13R

  66          KK      M1
  67          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  68          KM   L=5.19      Lca=2.41      S=230.06      Kn=0.050      LAG=66.8
  69          KM   S-GRAPH TYPE=PHX MNT
  70          KO       0       0     0.0       1      22
  71          BA   5.666
  72          LG    0.35    0.35   4.297    0.35  16.637
              * M1
  73          UI     0.0  285.74  285.74  285.74  777.57 1062.36 1436.64 1746.69 1963.2  2166.6
  74          UI  2402.0 2950.38 3432.01 2399.97 1965.75 1758.17 1651.21 1526.96  1413.1 1330.61
  75          UI  1198.5 1122.73 1012.84  904.53  777.77  717.96  682.12  653.26  597.45  521.66
  76          UI  469.43  394.74  365.11  349.28  312.95  312.95  266.95  219.07  219.07  219.07
  77          UI  181.82  139.83  139.83  139.83  139.83  139.83   125.2   54.77   54.77   54.77
  78          UI   54.77   54.77   54.77   54.77   54.77   54.77   54.77   54.77   54.77   54.77
  79          UI   54.77   54.77     0.0

  80          KK   M1-M2   CNAME     M2R
  81          KO       0       0     0.0       0      22
  82          RS      24    FLOW     0.0     0.0
  83          RC    0.04    0.04  0.04534769.89  0.0133     0.0
              * M1-M2
  84          RX     0.0   961.0  1028.0  1051.0  1136.0  1153.0  1193.0  1900.0
  85          RY    15.5    12.0    11.8    10.3    10.0    11.0    11.2    15.5

  86          KK      M2
  87          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  88          KM   L=6.59      Lca=3.00      S=71.62      Kn=0.050      LAG=100.2
  89          KM   S-GRAPH TYPE=DES RNGLND
  90          KO       0       0     0.0       1      22
  91          BA   7.436
  92          LG    0.35    0.35   3.959   0.445   0.291
              * M2

                                        HEC-1 INPUT                                                    PAGE  3

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

  93          UI     0.0  250.38  250.38  250.38  250.38  438.17  719.85  924.82 1114.75 1312.86
  94          UI  1497.2 1700.9 1779.05 2056.71 2161.12 2246.81 2290.07 2399.49 2399.49 2399.49
  95          UI  2351.5 2259.21 2219.84 2074.04 1858.21 1745.08 1567.89 1438.64 1323.61 1214.96
  96          UI  1118.4 1022.47  940.03  874.15  767.84  718.48  685.57  569.22   559.1  484.22
  97          UI  472.03  435.02  363.92  363.92  334.13  265.38  265.38  265.38  257.86  171.39
  98          UI  171.39  171.39  171.39  171.39  171.39  131.63   60.94   60.94   60.94   60.94
  99          UI   60.94   60.94   60.94   60.94   60.94   60.94   60.94   60.94   60.94   60.94
 100          UI   60.94   60.94   60.94   60.94     0.0

 101          KK       M   CNAME      5R
 102          KO       0       0     0.0       0      22
 103          HC       2

 104          KK      5R   CNAME       M
 105          KO       0       0     0.0       0      22
 106          KM      5R

 107          KK      N1
 108          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 109          KM   L=2.79      Lca=1.44      S=340.38      Kn=0.050      LAG=39.7
 110          KM   S-GRAPH TYPE=PHX MNT
 111          KO       0       0     0.0       1      22
 112          BA   1.524
 113          LG    0.35    0.35   4.075   0.419   8.38
              * N1
 114          UI     0.0  128.28  166.77  436.68  697.63  885.37 1048.86 1439.85 1097.59  811.01
 115          UI  717.69  633.24  554.41  482.34  398.71  327.22  300.33  268.08  210.75  167.66
 116          UI  152.68   140.5  106.78   98.35   84.12   62.78   62.78   62.78   38.34   24.59
 117          UI   24.59   24.59   24.59   24.59   24.59   24.59   24.59     0.0

 118          KK   N1-N2   CNAME     N2R
 119          KO       0       0     0.0       0      22
 120          RS      21    FLOW     0.0     0.0
 121          RC    0.05   0.047   0.0525647.52  0.0115     0.0
              * N1-N2
 122          RX     0.0   280.0   350.0   358.0   367.0   381.0   451.0   730.0
 123          RY    17.0    13.0    11.5    10.0    10.0    11.5    13.0    17.0

 124          KK      N2
 125          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 126          KM   L=5.64      Lca=3.27      S=170.14      Kn=0.055      LAG=90.7
 127          KM   S-GRAPH TYPE=PHX MNT
 128          KO       0       0     0.0       1      22
 129          BA   3.325
 130          LG    0.35    0.35   4.117   0.405    2.67
              * N2
 131          UI     0.0  123.04  123.04  123.04  123.04  310.82  395.95  496.74  616.35  730.85
 132          UI  796.45  869.05  928.56  990.24 1125.95 1316.06 1517.94 1186.36  925.57  834.34
 133          UI  764.31  726.51  694.11  654.42   619.9  586.86  557.14  517.77  491.74   466.8
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134          UI  422.37  387.25   352.0  325.27  302.29  296.75  282.99  272.23  257.26  234.33
135          UI  202.13  202.13  163.14  157.22  157.22  143.92  134.76  134.76  134.76  103.63
136          UI   94.33   94.33   94.33   94.33   83.75   60.21   60.21   60.21   60.21   60.21
137          UI   60.21   60.21   60.21   32.52   23.58   23.58   23.58   23.58   23.58   23.58
138          UI   23.58   23.58   23.58   23.58   23.58   23.58   23.58   23.58   23.58   23.58
139          UI   23.58   23.58   23.58   23.58   23.58
                                          HEC-1 INPUT                                          PAGE  4

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

140          KK       N   CNAME      8R
141          KO       0       0     0.0       0      22
142          HC       2

143          KK      8R   CNAME       N
144          KO       0       0     0.0       0      22
145          RN      8R

146          KK     P1A
147          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
148          KM   L=2.28      Lca=1.41      S=461.40      Kn=0.055      LAG=37.8
149          KM   S-GRAPH TYPE-PHX MNT
150          KO       0       0     0.0       1      22
151          BA     0.5
152          LG    0.35    0.35   3.987   0.405  16.364
             * P1A
153          UI     0.0   44.27   65.19   161.0  254.76  318.08  389.84  500.04  319.07  264.12
154          UI  232.17  203.71  176.98  147.14  118.21  105.19   95.13   74.96   59.42   52.89
155          UI   48.49   35.98   33.94   26.82   21.67   21.67   21.56    8.49    8.49    8.49
156          UI    8.49    8.49    8.49    8.49    8.49    8.49

157          KK  P1A-1B   CNAME    P1BR
158          KO       0       0     0.0       0      22
159          RS      18    FLOW     0.0     0.0
160          RC    0.05   0.047   0.0520102.87  0.0111     0.0
             * P1A-P1B
161          RX     0.0   280.0   350.0   358.0   367.0   381.0   451.0   730.0
162          RY    17.0    13.0    11.5    10.0    10.0    11.5    13.0    17.0

163          KK     P1B
164          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
165          KM   L=4.39      Lca=2.32      S=70.84      Kn=0.055      LAG=85.3
166          KM   S-GRAPH TYPE-PHX MNT
167          KO       0       0     0.0       1      22
168          BA   1.937
169          LG    0.35    0.35    4.23   0.393   4.667
             * P1B
170          UI     0.0   76.72   76.72   76.72   89.67  220.58  274.25  335.86  432.98  478.15
171          UI  527.91  570.85  609.55  688.62  814.07   942.3  716.43   568.2  506.83  467.32
172          UI   446.8  421.86  394.79  374.39  356.44  329.11  309.33  293.98  263.37  241.82
173          UI  216.83  200.89  187.72  181.75  176.46  163.15  160.42  127.42  126.04   109.8
174          UI   98.03   98.03   90.75   84.03   84.03   84.03   60.08   58.82   58.82   58.82
175          UI   58.82   40.74   37.54   37.54   37.54   37.54   37.54   37.54   37.54    17.9
176          UI   14.71   14.71   14.71   14.71   14.71   14.71   14.71   14.71   14.71   14.71
177          UI   14.71   14.71   14.71   14.71   14.71   14.71   14.71   14.71   14.71     0.0

178          KK       P   CNAME     12R
179          KO       0       0     0.0       0      22
180          HC       2
                                          HEC-1 INPUT                                          PAGE  5

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

181          KK     12R   CNAME       P
182          KO       0       0     0.0       0      22
183          RN     12R

184          KK      O1
185          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
186          KM   L=5.20      Lca=2.79      S=64.07      Kn=0.055      LAG=99.9
187          KM   S-GRAPH TYPE-PHX MNT
188          KO       0       0     0.0       1      22
189          BA   3.088
190          LG    0.35    0.35   4.191   0.393   2.105
             * O1
191          UI     0.0  103.98  103.98  103.98  103.98  181.97  298.95  378.66  446.43  550.06
192          UI  624.46  676.83  731.54  781.25  824.52  905.36 1042.04 1204.77  1242.7  887.05
193          UI   765.3   690.9  643.35  614.88  590.49  558.55  530.78  506.48  485.09  454.93
194          UI  429.36  410.34   388.6  356.95  326.56   302.9  274.89  260.97  254.42  242.21
195          UI  239.16  221.76  217.42  189.46  170.83  170.83  140.46  132.86  132.86  129.07
196          UI  113.88  113.88  113.88  113.88   79.72   79.72   79.72   79.72   79.72   79.72
197          UI   50.88   50.88   50.88   50.88   50.88   50.88   50.88   50.88   50.88   32.31
198          UI   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93
199          UI   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93
200          UI   19.93   19.93   19.93     0.0

201          KK      7R   CNAME       O
202          KO       0       0     0.0       0      22
203          RN      7R

204          KK     Q1A
205          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
206          KM   L=3.13      Lca=1.52      S=256.86      Kn=0.055      LAG=49.3
207          KM   S-GRAPH TYPE-PHX MNT
208          KO       0       0     0.0       1      22
209          BA   1.297
210          LG    0.35    0.35   4.127     0.4    11.2
             * Q1A
211          UI     0.0   89.12   89.12  213.78  363.94  517.41  613.88  697.52  873.62 1020.97
212          UI  663.18  556.48  506.64  454.84  413.29  367.46  326.01  281.03  232.04  214.37
213          UI  199.35   177.4  146.41  118.69  112.45   97.61   96.73   68.33   68.33    66.1
214          UI   43.61   43.61   43.61   43.61   30.77   17.08   17.08   17.08   17.08   17.08
215          UI   17.08   17.08   17.08   17.08   17.08   17.08     0.0

216          KK  Q1A-1B   CNAME    Q1BR
217          KO       0       0     0.0       0      22
218          RS       8    FLOW     0.0     0.0
219          RC    0.05   0.047    0.05 9170.53  0.0117     0.0
             * Q1A-Q1B
220          RX     0.0   280.0   350.0   358.0   367.0   381.0   451.0   730.0
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221          RY    17.0    13.0    11.5    10.0    10.0    11.5    13.0    17.0
                                          HEC-1 INPUT                                                    PAGE  6
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

222          KK     Q1B
223          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
224          KM   L=2.35     Lca=1.14     S=141.40     Kn=0.055     LAG=44.3
225          KM   S-GRAPH TYPE=PHX MNT
226          KO       0        0     0.0       1      22
227          BA   0.937
228          LG    0.35     0.35    4.32   0.373  14.815
             * Q1B
229          UI     0.0   71.67   71.67  221.51  340.68  455.79   538.5  651.95  833.61  538.15
230          UI  443.72  398.92  355.79  316.26  280.46  235.89  196.37  173.35  160.17  138.81
231          UI  114.82   91.58   84.67    78.5   62.48   54.95   54.15   35.07   35.07   35.07
232          UI   35.07   15.79   13.74   13.74   13.74   13.74   13.74   13.74   13.74   13.74
233          UI   13.74     0.0

234          KK       Q   CNAME     14R
235          KO       0        0     0.0       0      22
236          RC       2

237          KK     14R   CNAME       Q
238          KO       0        0     0.0       0      22
239          RM     14R

240          KK      L1
241          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
242          KM   L=4.93     Lca=2.29     S=308.27     Kn=0.050     LAG=60.6
243          KM   S-GRAPH TYPE=PHX MNT
244          KO       0        0     0.0       1      22
245          BA   3.546
246          LG   0.271    0.318   4.363   0.351  16.279
             * L1
247          UI     0.0  195.74  195.74  266.93  603.63  823.25 1120.55 1287.08 1452.32 1611.07
248          UI  1991.3 2326.76 1575.06 1312.31 1173.43 1097.39 1002.28  929.54   850.5  775.66
249          UI  701.22  620.51  525.99  484.91  458.87  430.63  397.34  321.57  290.98  250.11
250          UI  241.82  214.38  214.38  171.29  150.06  150.06  149.52   95.79   95.79   95.79
251          UI   95.79   95.79    79.7   37.52   37.52   37.52   37.52   37.52   37.52   37.52
252          UI   37.52   37.52   37.52   37.52   37.52   37.52   37.52     0.0

253          KK  L1-L2A   CNAME    L2AR
254          KO       0        0     0.0       0      22
255          RS       3     FLOW     0.0     0.0
256          RC   0.046    0.045   0.046 7078.75  0.0174     0.0
             * L1-L2A
257          RX     0.0     80.0   165.0   200.0   215.0   255.0   340.0   420.0
258          RY    19.0     17.0    14.0    10.0    10.0    14.0    18.0    22.0

259          KK     L2A
260          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
261          KM   L=2.46     Lca=1.12     S=136.18     Kn=0.055     LAG=43.0
262          KM   S-GRAPH TYPE=DES RNGLND
263          KO       0        0     0.0       1      22
264          BA   0.693
265          LG    0.35    0.304   5.641   0.202     0.0
             * L2A
266          UI     0.0    51.83   51.83  153.34  242.24  330.72  404.46  460.56  494.88  492.21
                                          HEC-1 INPUT                                                    PAGE  7
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

267          UI  461.36  394.37  327.78  266.87  221.69  182.72  150.08  121.91  100.64   84.23
268          UI   69.92   54.93   46.45   35.48   35.48   26.06   12.61   12.61   12.61   12.61
269          UI   12.61   12.61   12.61   12.61

270          KK    L2BR   CNAME  L2A-2B
271          KO       0        0     0.0       0      22
272          RC       2

273          KK  L2A-2B   CNAME    L2BR
274          KO       0        0     0.0       0      22
275          RS       7     FLOW     0.0     0.0
276          RC   0.046    0.045   0.04620743.37  0.0147     0.0
             * L2A-L2B
277          RX     0.0     80.0   165.0   200.0   215.0   255.0   340.0   420.0
278          RY    19.0     17.0    14.0    10.0    10.0    14.0    18.0    22.0

279          KK     L2B
280          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
281          KM   L=5.13     Lca=1.82     S=93.37     Kn=0.055     LAG=76.1
282          KM   S-GRAPH TYPE=DES RNGLND
283          KO       0        0     0.0       1      22
284          BA   4.077
285          LG    0.35    0.35   4.179   0.399     0.0
             * L2B
286          UI     0.0  175.97  175.97  175.97  311.91  535.45  724.28   902.5 1071.35 1224.63
287          UI  1376.8 1511.61 1580.95 1658.53 1686.39 1686.39 1632.48 1568.59 1460.56 1278.33
288          UI  1172.5 1030.99  927.32  829.82  742.49   663.7  594.61  529.93  481.83   405.6
289          UI   377.5  331.75  310.22  269.82  269.19  186.51  186.51  186.51   145.4  120.46
290          UI  120.46  120.46  120.46    90.9   42.83   42.83   42.83   42.83   42.83   42.83
291          UI   42.83   42.83   42.83   42.83   42.83   42.83   42.83   42.83     0.0

292          KK     L3R   CNAME  L2B-L3
293          KO       0        0     0.0       0      22
294          RC       2

295          KK  L2B-L3   CNAME     L3R
296          KO       0        0     0.0       0      22
297          RS      19     FLOW     0.0     0.0
298          RC    0.05     0.04   0.0619942.62  0.0089     0.0
             * L2B-L3
299          RX     0.0   1093.0  1210.0  1215.0  1225.0  1232.0  1372.0  2000.0
300          RY    18.0     11.8    11.7    10.0    10.0    11.7    11.8    18.0

301          KK     L2C
302          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
303          KM   L=3.20     Lca=1.55     S=91.31     Kn=0.055     LAG=61.2
304          KM   S-GRAPH TYPE=DES RNGLND
305          KO       0        0     0.0       1      22
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306          BA   1.328
307          LG    0.35    0.35   4.189   0.422     0.0
             * L2C
308          UI     0.0   73.31   73.31   99.98  227.13  318.43   414.0  500.47   577.1  643.23
309          UI  678.82  702.58  699.63  666.25  621.66  533.29  468.31  402.86  351.31  303.79
310          UI   266.7  226.83  200.74  164.03  144.98  131.86  112.41   97.97    77.7    77.7
311          UI   56.55   50.18   50.18   50.18   28.53   17.84   17.84   17.84   17.84   17.84
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

312          UI   17.84   17.84   17.84   17.84   17.84     0.0

313          KK  L2C-2D   CNAME    L2DR
314          KO       0       0     0.0       0      22
315          RS       6    FLOW     0.0     0.0
316          RC   0.046   0.045   0.046 9752.35  0.0122     0.0
             * L2C-L2D
317          RX     0.0    80.0   165.0   200.0   215.0   255.0   340.0   420.0
318          RY    19.0    17.0    14.0    10.0    10.0    14.0    18.0    22.0

319          KK     L2D
320          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
321          KM   L=2.77      Lca=1.24      S=74.13      Kn=0.055      LAG=55.4
322          KM   S-GRAPH TYPE=DES RNGLND
323          KO       0       0     0.0       1      22
324          BA   1.232
325          LG    0.35    0.35   3.578   0.544     0.0
             * L2D
326          UI     0.0   75.42   75.42  141.88  262.35  378.71  482.07  569.62  651.08   696.0
327          UI  722.74  714.79  677.77  607.49  518.22  439.07   376.3  322.28  277.17  232.67
328          UI  200.55   167.8  142.18   124.1  114.53   79.93   79.93    61.7   51.62   51.62
329          UI   51.62   20.09   18.36   18.36   18.36   18.36   18.36   18.36   18.36   18.36
330          UI   18.36     0.0

331          KK    L3RB   CNAME  L2D-L3
332          KO       0       0     0.0       0      22
333          HC       2

334          KK  L2D-L3   CNAME    L3RB
335          KO       0       0     0.0       0      22
336          RS      40    FLOW     0.0     0.0
337          RC    0.05    0.04    0.06 27374.0  0.0077     0.0
             * L2D-L3
338          RX     0.0  1093.0  1210.0  1215.0  1225.0  1232.0  1372.0  2000.0
339          RY    18.0    11.8    11.7    10.0    10.0    11.7    11.8    18.0

340          KK      L3
341          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
342          KM   L=4.75      Lca=2.00      S=44.27      Kn=0.055      LAG=91.0
343          KM   S-GRAPH TYPE=DES RNGLND
344          KO       0       0     0.0       1      22
345          BA   5.852
346          LG   0.341   0.328    3.98   0.419    1.05
             * L3
347          UI     0.0  216.51  216.51  216.51  216.51  546.97   701.8  899.01 1098.32 1266.32
348          UI  1460.0 1557.8 1786.11 1888.64 1950.18 2034.93 2074.93 2074.93 2053.76  1965.5
349          UI  1920.6 1789.17 1583.49 1486.07 1313.64 1207.78 1091.43  994.63  909.22  825.03
350          UI   759.9  663.98  614.46  574.55  483.48  461.45  408.18  402.68  331.99  331.99
351          UI  296.91  229.48  229.48  229.48  197.56  148.21  148.21  148.21  148.21  148.21
352          UI  121.69    52.7    52.7    52.7    52.7    52.7    52.7    52.7    52.7    52.7
353          UI    52.7    52.7    52.7    52.7    52.7    52.7    52.7     0.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

354          KK       L   CNAME      1R
355          KO       0       0     0.0       0      22
356          HC       3

357          KK      1R   CNAME       L
358          KO       0       0     0.0       0      22
359          RN      1R

360          KK      Z1
361          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
362          KM   L=1.70      Lca=0.66      S=47.00      Kn=0.055      LAG=39.1
363          KM   S-GRAPH TYPE=DES RNGLND
364          KO       0       0     0.0       1      22
365          BA   0.664
366          LG   0.321   0.292   4.004    0.43   2.909
             * Z1
367          UI     0.0   57.36   79.52  205.33  321.78  424.03  504.07   545.2  540.96  493.73
368          UI  399.49  319.19  256.28   205.1  164.91  127.66  104.64   87.86    60.8    54.1
369          UI   39.27   39.27    21.8   13.96   13.96   13.96   13.96   13.96   13.96     0.0

370          KK      4R   CNAME       Z
371          KO       0       0     0.0       0      22
372          RN      4R
373          ZZ
```

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	R1	506.	4.25	47.	12.	4.	0.28		
+	ROUTED TO	13R	506.	4.25	47.	12.	4.	0.28		
+	HYDROGRAPH AT	M1	2809.	4.83	790.	203.	68.	5.69		
+	ROUTED TO	M1-M2	2265.	6.75	784.	203.	68.	5.69		
	HYDROGRAPH AT									

+		M2	1849.	5.42	633.	159.	53.	7.44
+	2 COMBINED AT	M	2555.	6.58	1219.	318.	106.	13.12
+	ROUTED TO	5R	2555.	6.58	1219.	318.	106.	13.12
+	HYDROGRAPH AT	N1	1253.	4.50	210.	53.	18.	1.52
+	ROUTED TO	N1-N2	840.	6.17	209.	53.	18.	1.52
+	HYDROGRAPH AT	N2	1193.	5.17	366.	93.	31.	3.33
+	2 COMBINED AT	N	1201.	6.00	515.	131.	44.	4.85
+	ROUTED TO	8R	1201.	6.00	515.	131.	44.	4.85
+	HYDROGRAPH AT	P1A	575.	4.42	89.	22.	7.	0.80
+	ROUTED TO	P1A-1B	379.	5.83	88.	22.	7.	0.80
+	HYDROGRAPH AT	P1B	852.	5.08	244.	62.	21.	1.94
+	2 COMBINED AT	P	874.	5.17	309.	79.	26.	2.44
+	ROUTED TO	12R	874.	5.17	309.	79.	26.	2.44
+	HYDROGRAPH AT	O1	1057.	5.33	343.	88.	29.	3.09
+	ROUTED TO	7R	1057.	5.33	343.	88.	29.	3.09
+	HYDROGRAPH AT	Q1A	990.	4.58	193.	49.	16.	1.30
+	ROUTED TO	Q1A-1B	843.	5.17	193.	49.	16.	1.30
+	HYDROGRAPH AT	Q1B	851.	4.50	155.	39.	13.	0.94
+	2 COMBINED AT	Q	1105.	5.08	318.	81.	27.	2.23
+	ROUTED TO	14R	1105.	5.08	318.	81.	27.	2.23
+	HYDROGRAPH AT	L1	2128.	4.75	543.	139.	46.	3.55
+	ROUTED TO	L1-L2A	2066.	4.92	543.	139.	46.	3.55
+	HYDROGRAPH AT	L2A	692.	4.58	113.	28.	9.	0.69
+	2 COMBINED AT	L2BR	2391.	4.92	623.	159.	53.	4.24
+	ROUTED TO	L2A-2B	2167.	5.50	621.	159.	53.	4.24
+	HYDROGRAPH AT	L2B	1532.	5.08	418.	104.	35.	4.08
+	2 COMBINED AT	L3R	3064.	5.42	929.	236.	79.	8.32
+	ROUTED TO	L2B-L3	2951.	6.92	918.	236.	79.	8.32
+	HYDROGRAPH AT	L2C	754.	4.83	161.	40.	13.	1.33
+	ROUTED TO	L2C-2D	712.	5.25	161.	40.	13.	1.33
+	HYDROGRAPH AT	L2D	706.	4.75	136.	34.	11.	1.23
+	2 COMBINED AT	L3RB	1043.	5.00	260.	65.	22.	2.56
+	ROUTED TO	L2D-L3	653.	8.25	258.	65.	22.	2.56
+	HYDROGRAPH AT	L3	1832.	5.25	581.	146.	49.	5.85
+	3 COMBINED AT	L	2552.	6.92	1340.	361.	120.	16.73
+	ROUTED TO	1R	2552.	6.92	1340.	361.	120.	16.73
+	HYDROGRAPH AT	E1	694.	4.50	100.	25.	8.	0.66
+	ROUTED TO	4R	694.	4.50	100.	25.	8.	0.66

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*** NORMAL END OF HEC-1 ***
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*             MAY  1991             *
*           VERSION 4.0.1E          *
*                                   *
*  RUN DATE _______ TIME _______    *
*                                   *
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*************************************
*                                   *
*   U.S. ARMY CORPS OF ENGINEERS    *
*   HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET         *
*      DAVIS, CALIFORNIA 95616      *
*          (916) 551-1748           *
*                                   *
*************************************
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X     X  XXXXXXX  XXXXX          X
X     X  X        X     X       XX
X     X  X        X             X
XXXXXXX  XXXX     X       XXXXX X
X     X  X        X             X
X     X  X        X     X       X
X     X  XXXXXXX  XXXXX         XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

HEC-1 INPUT PAGE 1

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

  1           ID   Buckeye/Sun Valley ADMS - 1 March 2004
  2           ID   PBS&J - Modeler: Jacob Lesue & Wen Chen
  3           ID   100-year 6-hour
  4           ID   Existing Conditions
  5           ID   FRS #2 (Sub-basins S-U)
  6           ID   Reinfall Loss Method - Green & Ampt
  7           ID   Unit Hydrograph Method - FCDMC S-Graph
  8           ID   Channel Routing Method - Normal Depth
  9           ID   Land Use - FCDMC GIS Data: mag_landuse (2000)
 10           ID   Soil Data - USDA SCS Soil Survey (1972 & 1981)
 11           ID   Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
              *DIAGRAM
 12           IT       5  1JAN94       0    2000
 13           IO       3
 14           IN      15 01JAN94       0
 15           JD    3.28     0.01
              * 6-hour distribution, pattern 1.0
 16           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 17           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 18           PC   0.962   0.972   0.983   0.991     1.0
 19           IN      15 01JAN94       0
 20           JD    3.26     0.5
              * 6-hour distribution, pattern 1.0
 21           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 22           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 23           PC   0.962   0.972   0.983   0.991     1.0
 24           IN      15 01JAN94       0
 25           JD   3.237     1.0
              * 6-hour distribution, pattern 1.4
 26           PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
 27           PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
 28           PC  0.9572  0.9684  0.9798  0.9898     1.0
 29           IN      15 01JAN94       0
 30           JD   3.149     5.0
              * 6-hour distribution, pattern 2.3
 31           PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
 32           PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
 33           PC  0.9487   0.962  0.9743  0.9877     1.0
 34           IN      15 01JAN94       0
 35           JD   3.083    10.0
              * 6-hour distribution, pattern 2.7
 36           PC     0.0  0.0134  0.0189  0.0267  0.0443  0.0574  0.0694  0.0818  0.0949  0.1076
 37           PC  0.1223  0.1382  0.1604  0.2063  0.2902  0.4664  0.6764  0.8069  0.8765  0.9189
 38           PC  0.9471  0.9608  0.9735  0.9873     1.0

 39           KK      S1
 40           KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 41           KM   L=2.32    Lca=0.52     S=143.99     Kn=0.050     LAG=29.0
 42           KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
 43           KO       0       0     0.0       1      22
 44           BA  1.4105
 45           LG    0.35    0.35   4.484   0.352   6.918
              * S1
 46           UI     0.0  163.76  399.96  863.78 1191.38 1674.04 1389.89  974.39  824.12  687.96
 47           UI  554.64  420.01  366.82  290.75  215.71   183.9  145.46  125.55   85.13   80.14
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                                        HEC-1 INPUT                                                    PAGE  2

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

          48          UI   72.14   31.39   31.39   31.39   31.39   31.39   31.39     0.0

          49          KK     SCP   CNAME       S
          50          KO       0       0     0.0       0      22
          51          RM     SCP

          52          KK      U1
          53          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
          54          KM   L=2.37     Lca=1.03     S=326.50     Kn=0.050     LAG=33.0
          55          KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
          56          KO       0       0     0.0       1      22
          57          BA  1.3705
          58          LG    0.35    0.37   5.256   0.233   6.449
                      * U1
          59          UI     0.0  139.83   266.2  626.33  919.49 1139.88 1569.26 1014.69  819.13  707.21
          60          UI  603.81  505.84  395.99  334.05  299.65  225.43  178.67   155.8  129.72   107.2
          61          UI   86.65   68.43   68.43   50.61    26.8    26.8    26.8    26.8    26.8    26.8
          62          UI    26.8     0.0

          63          KK     UCP   CNAME       U
          64          KO       0       0     0.0       0      22
          65          RM     UCP

          66          KK      T1
          67          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
          68          KM   L=4.34     Lca=1.58     S=274.89     Kn=0.050     LAG=51.0
          69          KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
          70          KO       0       0     0.0       1      22
          71          BA  3.0415
          72          LG    0.35    0.35   4.644   0.289  11.497
                      * T1
          73          UI     0.0   200.8   200.8  447.02  773.33 1107.71 1336.75 1525.87 1807.83 2389.26
          74          UI  1728.6 1335.29 1184.68 1081.59  978.95  886.26  793.63  697.43  590.13  511.99
          75          UI  476.04  440.92  386.02  329.88  260.38  252.47  219.92  219.92  155.92  153.94
          76          UI  153.94  103.27   98.26   98.26   98.26   91.33   38.49   38.49   38.49   38.49
          77          UI   38.49   38.49   38.49   38.49   38.49   38.49   38.49   38.49

          78          KK     TCP   CNAME       T
          79          KO       0       0     0.0       0      22
          80          RM     TCP
          81          ZZ
 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
+                          S1     1542.   4.33         209.         52.         17.      1.41

        ROUTED TO
+                         SCP     1542.   4.33         209.         52.         17.      1.41

        HYDROGRAPH AT
+                          U1     1496.   4.42         223.         56.         19.      1.37

        ROUTED TO
+                         UCP     1496.   4.42         223.         56.         19.      1.37

        HYDROGRAPH AT
+                          T1     2111.   4.67         461.        116.         39.      3.04

        ROUTED TO
+                         TCP     2111.   4.67         461.        116.         39.      3.04


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

 ************************************                                  ************************************
 *                                  *                                  *                                  *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                              *   U.S. ARMY CORPS OF ENGINEERS   *
 *             JUN   1998           *                                  *   HYDROLOGIC ENGINEERING CENTER  *
 *           VERSION 4.1            *                                  *         609 SECOND STREET        *
 *                                  *                                  *      DAVIS, CALIFORNIA 95616     *
 *  RUN DATE   09JAN06  TIME  09:27:40  *                              *         (916) 756-1104           *
 *                                  *                                  *                                  *
 ************************************                                  ************************************

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


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

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

1                                       HEC-1 INPUT                                                    PAGE  1

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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 1          ID   Buckeye/Sun Valley ADMS - 01 March 2004
 2          ID   PBS&J - Modelers: Jacob Lesue & Wen Chen
 3          ID   100-year 6-hour
 4          ID   Existing Conditions
 5          ID   FRS #3 (Sub-basins V-Y)
 6          ID   Rainfall Loss Method - Green & Ampt
 7          ID   Unit Hydrograph Method - FCDMC S-Graph
 8          ID   Channel Routing Method - Normal Depth
 9          ID   Land Use - FCDMC GIS Data: mag_landuse (2000)
10          ID   Soil Data - USDA SCS Soil Survey (1972 & 1981)
11          ID   Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
            *DIAGRAM
12          IT       5  1JAN94       0    2000
13          IO       3
14          IN      15 01JAN94       0
15          JD    3.26    0.01
            * 6-hour distribution, pattern 1.0
16          PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
17          PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
18          PC   0.962   0.972   0.983   0.991     1.0
19          IN      15 01JAN94       0
20          JD    3.24     0.5
            * 6-hour distribution, pattern 1.0
21          PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
22          PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
23          PC   0.962   0.972   0.983   0.991     1.0
24          IN      15 01JAN94       0
25          JD   3.218     1.0
            * 6-hour distribution, pattern 1.4
26          PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
27          PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
28          PC  0.9572  0.9684  0.9798  0.9898     1.0
29          IN      15 01JAN94       0
30          JD    3.13     5.0
            * 6-hour distribution, pattern 2.3
31          PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
32          PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
33          PC  0.9487   0.962  0.9743  0.9877     1.0
34          IN      15 01JAN94       0
35          JD   3.064    10.0
            * 6-hour distribution, pattern 2.7
36          PC     0.0  0.0134  0.0189  0.0287  0.0443  0.0574  0.0694  0.0818  0.0949  0.1076
37          PC  0.1223  0.1362  0.1604  0.2063  0.2902  0.4664  0.6764  0.8069  0.8765  0.9189
38          PC  0.9471  0.9608  0.9735  0.9873     1.0

39          KK      V1
40          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
41          KM   L=2.86      Lca=1.75      S=344.82      Kn=0.050      LAG=43.0
42          KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
43          KO       0        0     0.0        1       22
44          BA  0.6646
45          LG    0.35     0.35   3.972    0.405   13.864
            * V1
46          UI     0.0    52.04   54.19   166.27  256.03  338.03  396.86  496.51  578.99  373.13
47          UI  313.66   281.75  250.64   220.87  193.61  162.52  133.66  122.94  111.92    90.9
1                                          HEC-1 INPUT                                          PAGE  2
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

48          UI   74.78    66.34    56.99    53.4    39.9    39.9   30.81   25.47   25.47   25.47
49          UI   16.36     9.97     9.97    9.97    9.97    9.97    9.97    9.97    9.97    9.97
50          UI     0.0

51          KK     VCP    CNAME       V
52          KO       0        0     0.0        0       22
53          RN     VCP

54          KK      W1
55          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
56          KM   L=3.46      Lca=1.78      S=486.28      Kn=0.050      LAG=44.0
57          KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
58          KO       0        0     0.0        1       22
59          BA   3.894
60          LG    0.35     0.35   3.976    0.41   15.199
            * W1
61          UI     0.0   297.97  297.97   920.94 1416.37 1894.97 2238.82 2710.48 3465.75 2237.36
62          UI  1844.7  1658.52 1479.19  1314.83 1166.02  980.71   816.4  720.69   665.9  577.11
63          UI  477.35   380.74  352.03   326.35  259.78  228.45  225.14  145.82  145.82  145.82
64          UI  145.82    65.63   57.11    57.11   57.11   57.11   57.11   57.11   57.11   57.11
65          UI   57.11      0.0

66          KK   W1-W2    CNAME     W2R
67          KO       0        0     0.0        0       22
68          RS       6     FLOW     0.0      0.0
69          RC   0.050     0.05    0.06  11249.0  0.0189     0.0
            * W1-W2
70          RX     0.0    350.0   372.0    384.0   472.0   489.0   525.0  1005.0
71          RY    17.5     11.5    11.6     10.0    11.2    13.4    13.8    17.5

72          KK      W2
73          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
74          KM   L=3.25      Lca=1.19      S=178.54      Kn=0.050      LAG=44.0
75          KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
76          KO       0        0     0.0        1       22
77          BA  2.8478
78          LG    0.35     0.35   4.081    0.402   3.547
            * W2
79          UI     0.0   217.92  217.92   673.51 1035.83 1385.85 1637.32 1982.26  2534.6 1636.25
80          UI  1349.1  1212.93 1081.78   961.58  852.74  717.22  597.06  527.06  486.99  422.06
81          UI   349.1   276.45  257.45   238.67  189.98  167.07  164.65  106.64  106.64  106.64
82          UI  106.64     48.0   41.77    41.77   41.77   41.77   41.77   41.77   41.77   41.77
83          UI   41.77      0.0

84          KK       W    CNAME     WCP
85          KO       0        0     0.0        0       22
86          HC       2      0.0

87          KK     WCP    CNAME       W
88          KO       0        0     0.0        0       22
89          RN     WCP
1                                          HEC-1 INPUT                                          PAGE  3
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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 90          KK      X1
 91          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 92          KM    L=2.60      Lca=1.44      S=288.89      Kn=0.050      LAG=40.0
 93          KM    S-GRAPH TYPE=PHOENIX MOUNTAIN
 94          KO       0        0      0.0        1       22
 95          BA  0.7867
 96          LG    0.35     0.35    3.955    0.417   12.555
             * X1
 97          UI     0.0    66.22    86.09   225.41   360.12   457.02   541.42   743.25   566.57   418.64
 98          UI  370.57   326.87   286.18   248.98   205.81   168.91   155.03   138.38   108.79    86.55
 99          UI   78.81    72.53    55.12    50.77    43.42    32.41    32.41    32.41    19.79    12.69
100          UI   12.69    12.69    12.69    12.69    12.69    12.69    12.69      0.0

101          KK     XCP    CNAME       X
102          KO       0        0      0.0        0       22
103          RM     XCP

104          KK      Y1
105          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
106          KM    L=1.37      Lca=0.53      S=771.84      Kn=0.050      LAG=17.0
107          KM    S-GRAPH TYPE=PHOENIX MOUNTAIN
108          KO       0        0      0.0        1       22
109          BA  0.5808
110          LG    0.35     0.35    4.044    0.415   10.947
             * Y1
111          UI     0.0   162.05   614.46  1087.12    811.3   562.72   397.42   272.87   186.43    132.2
112          UI   88.57    57.25    43.55    22.05    22.05    22.05      0.0

113          KK     YCP    CNAME       Y
114          KO       0        0      0.0        0       22
115          RM     YCP
116          KK
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	V1	664.	4.50	113.	28.	9.	.66		
+	ROUTED TO	VCP	664.	4.50	113.	28.	9.	.66		
+	HYDROGRAPH AT	W1	2623.	4.58	544.	137.	46.	3.89		
+	ROUTED TO	W1-W2	2383.	4.92	542.	137.	46.	3.89		
+	HYDROGRAPH AT	W2	1078.	4.58	342.	86.	29.	2.85		
+	2 COMBINED AT	W	3219.	4.83	796.	202.	67.	6.74		
+	ROUTED TO	WCP	3219.	4.83	796.	202.	67.	6.74		
+	HYDROGRAPH AT	X1	787.	4.50	128.	32.	11.	.79		
+	ROUTED TO	XCP	787.	4.50	128.	32.	11.	.79		
+	HYDROGRAPH AT	Y1	1077.	4.17	96.	24.	8.	.58		
+	ROUTED TO	YCP	1077.	4.17	96.	24.	8.	.58		

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

D.6.2.b HEC-1 Output File for 100-year 24-hour Storm (Existing Conditions)

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*              MAY  1991            *
*           VERSION 4.0.1E          *
*                                   *
*  RUN DATE _______ TIME ________   *
*                                   *
*************************************
```

```
*************************************
*                                   *
*   U.S. ARMY CORPS OF ENGINEERS    *
*   HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET         *
*      DAVIS, CALIFORNIA 95616      *
*          (916) 551-1748           *
*                                   *
*************************************
```

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

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

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

                                        HEC-1 INPUT                                                    PAGE  1

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

  1           ID  Buckeye/Sun Valley ADMS - May 2005
  2           ID  Michael Baker Jr., Inc. - Modeler: Jacob Lesue
  3           ID  100-year 24-hour
  4           ID  Existing Conditions
  5           ID  Area 3 - Sub-basins A-C (Aluvial Fan updates)
  6           ID  Rainfall Loss Method - Green & Ampt
  7           ID  Unit Hydrograph Method - FCDMC S-Graph
  8           ID  Channel Routing Method - Normal Depth
  9           ID  Land Use - FCDMC GIS Data: mag_landuse (2000)
 10           ID  Soil Data - USDA SCS Soil Survey (1972 & 1981)
 11           ID  Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
              *DIAGRAM
 12           IT       5 01JAN94       0    2000
 13           IO       3
 14           IN      15 01JAN94       0
 15           JD    4.16    0.01
              * 24-hour distribution
 16           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 17           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 18           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 19           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 20           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 21           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 22           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 23           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 24           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 25           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 26           IN      15 01JAN94       0
 27           JD   3.952    10.0
              * 24-hour distribution
 28           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 29           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 30           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 31           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 32           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 33           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 34           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 35           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 36           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 37           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 38           IN      15 01JAN94       0
 39           JD   3.819    20.0
              * 24-hour distribution
 40           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 41           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 42           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 43           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 44           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 45           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 46           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 47           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 48           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 49           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 50           IN      15 01JAN94       0
 51           JD    3.69    40.0
              * 24-hour distribution
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                                        HEC-1 INPUT                                                          PAGE  2

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

  52          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
  53          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
  54          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
  55          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
  56          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
  57          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
  58          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
  59          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
  60          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
  61          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
  62          IN      15 01JAN94       0
  63          JD   3.565    80.0
              * 24-hour distribution
  64          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
  65          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
  66          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
  67          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
  68          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
  69          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
  70          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
  71          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
  72          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
  73          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0

  74          KK      C1
  75          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  76          KM   L=4.66      Lca=2.77      S=333.03      Kn=0.050      LAG=62.9
  77          KM   S-GRAPH TYPE=PHX MNT
  78          KO       0        0     0.0       1      22
  79          BA   3.643
  80          LG   0.218   0.297   3.922   0.411  21.031
              * C1
  81          UI     0.0  194.68  194.68  231.91  577.25  796.73 1066.06 1245.68 1408.6 1543.98
  82          UI  1838.6 2327.02 1621.51 1384.7 1210.78 1130.06 1041.17  959.73  894.23  808.89
  83          UI  756.21   659.7  565.69  510.14  476.35  449.65  420.33  381.94  319.83  282.59
  84          UI  248.76  239.66  213.22  213.22   174.2  149.26  149.26  149.26  104.45   95.27
  85          UI   95.27   95.27   95.27   95.27   42.65   37.31   37.31   37.31   37.31   37.31
  86          UI   37.31   37.31   37.31   37.31   37.31   37.31   37.31   37.31   37.31     0.0

  87          KK   C1-C2   CNAME     C2R
  88          KO       0       0     0.0       0      22
  89          RS       3    FLOW     0.0     0.0
  90          RC    0.05   0.044   0.0515078.46  0.0175     0.0
              * C1-C2
  91          RX     0.0    35.0    90.0   136.0   159.0   209.0   264.0   309.0
  92          RY    21.0    19.0    16.0    10.0    10.0    15.0    20.0    24.0

  93          KK      C2
  94          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  95          KM   L=2.86      Lca=1.20      S=92.12      Kn=0.055      LAG=53.0
  96          KM   S-GRAPH TYPE=DES RNGLMD
  97          KO       0       0     0.0       1      22
  98          BA   1.864
  99          LG    0.35    0.35   3.949   0.428     0.0
              * C2
```



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

 100          UI     0.0   118.4   118.4  243.16  436.28  623.51  787.34  927.02 1049.4 1109.51
 101          UI  1134.6 1098.82 1033.89  875.19  752.87  635.49  539.38  457.23  387.5  333.21
 102          UI  271.71  232.03  202.69  161.55  130.95  125.49   96.72   61.05   61.05   78.92
 103          UI   28.82   28.82   28.82   28.82   28.82   28.82   28.82   28.82   28.82     0.0

 104          KK     C3R   CNAME   C2-C3
 105          KO       0       0     0.0       0      22
 106          RC       2

 107          KK   C2-C3   CNAME     C3R
 108          KO       0       0     0.0       0      22
 109          RS       9    FLOW     0.0     0.0
 110          RC   0.046    0.05  0.04623814.25  0.0107     0.0
              * C2-C3
 111          RX     0.0    60.0   125.0   140.0   172.0   232.0   292.0   352.0
 112          RY    26.0    25.0    23.0    10.0    10.0    16.0    20.0    23.0

 113          KK      C3
 114          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 115          KM   L=4.44      Lca=2.51      S=56.33      Kn=0.050      LAG=84.0
 116          KM   S-GRAPH TYPE=DES RNGLMD
 117          KO       0       0     0.0       1      22
 118          BA   3.796
 119          LG   0.345   0.348   4.357   0.371     0.0
              * C3
 120          UI     0.0  151.75  151.75  151.75  190.45  436.29  559.28  700.14  855.71  975.54
 121          UI  1073.3 1242.31 1321.34 1364.98 1437.02 1454.29 1454.29 1418.23 1372.67 1299.22
 122          UI  1161.9 1057.67  941.42  855.16  770.05  694.16   628.6  566.68  510.91  460.19
 123          UI  415.51  362.41  338.86  288.07  286.09  237.34  232.69  204.47  160.84  160.84
 124          UI  160.84  118.28  103.88  103.88  103.88  103.88   97.02   36.93   36.93   36.93
 125          UI   36.93   36.93   36.93   36.93   36.93   36.93   36.93   36.93   36.93   36.93
 126          UI   36.93   36.93     0.0

 127          KK     C4R   CNAME   C3-C4
 128          KO       0       0     0.0       0      22
 129          RC       2

 130          KK      C4
 131          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 132          KM   L=2.18      Lca=0.88      S=44.31      Kn=0.045      LAG=38.9
 133          KM   S-GRAPH TYPE=DES RNGLMD
 134          KO       0       0     0.0       1      22
 135          BA     1.4
 136          LG   0.327   0.327   4.737   0.29     0.0
              * C4
 137          UI     0.0  117.85  153.2  406.58  642.01  848.78 1023.5 1108.79 1120.35 1044.06
 138          UI   868.1  694.77  559.79  452.88  361.01  288.87  232.67  190.32  149.01  124.91
 139          UI    88.1   80.67   73.18   28.68   28.68   28.68   28.68   28.68   28.68   28.68
 140          UI     0.0
```

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                                    HEC-1 INPUT                                                          PAGE  4

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

  141         KK       C   CNAME     13R
  142         KO       0       0     0.0       0      22
  143         HC       2

  144         KK     13R   CNAME       C
  145         KO       0       0     0.0       0      22
  146         RN     13R

  147         KK      A1
  148         KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  149         KM   L=2.20      Lca=0.86      S=322.08      Kn=0.050      LAG=29.9
  150         KM   S-GRAPH TYPE=PHX MNT
  151         KO       0       0     0.0       1      22
  152         BA   1.107
  153         LG    0.35    0.35   4.057   0.417   9.735
              * A1
  154         UI     0.0  124.21  285.27   628.5  881.01  1178.4 1187.83  769.91  652.54  550.25
  155         UI  454.04   347.4  294.07  245.69  184.11  150.55  131.96   95.23   84.89   60.78
  156         UI   60.78   43.03   23.81   23.81   23.81   23.81   23.81   23.81     0.0

  157         KK  A1-A2A   CNAME     A2R
  158         KO       0       0     0.0       0      22
  159         RS       4    FLOW     0.0     0.0
  160         RC   0.045   0.045   0.045 7200.57  0.0147     0.0
              * A1-A2
  161         RX     0.0    75.0   125.0   185.0   190.0   220.0   280.0   340.0
  162         RY    27.0    23.0    19.0    10.0    10.0    20.0    26.0    32.0

  163         KK      B1
  164         KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  165         KM   L=3.11      Lca=1.55      S=213.96      Kn=0.050      LAG=46.7
  166         KM   S-GRAPH TYPE=PHX MNT
  167         KO       0       0     0.0       1      22
  168         BA   0.603
  169         LG    0.35    0.35   3.766   0.462   5.699
              * B1
  170         UI     0.0    43.2    43.2  114.65  185.49   261.9  308.36  353.56  464.75  433.83
  171         UI  297.08  257.03  233.32  209.37  187.06  167.52   142.1  119.29  106.02   98.41
  172         UI   88.94   70.98   59.05    54.7   47.32   46.04   33.12   33.12   29.89   21.14
  173         UI   21.14   21.14   21.14   10.18    8.28    8.28    8.28    8.28    8.28    8.28
  174         UI    8.28    8.28    8.28    8.28     0.0

  175         KK     A2A
  176         KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  177         KM   L=1.90      Lca=1.28      S=55.92      Kn=0.055      LAG=51.0
  178         KM   S-GRAPH TYPE=DES RNGLND
  179         KO       0       0     0.0       1      22
  180         BA   0.484
  181         LG    0.35    0.35   4.605   0.325     0.0
              * A2A
  182         UI     0.0   31.98   31.98   71.19   126.1  175.43  218.56  263.08  286.07  306.44
  183         UI  305.77  290.65  260.58   220.3  184.93  156.29  131.91  111.15   93.27   77.88
  184         UI    65.3   56.86   49.03   37.31   33.89   27.16   21.89   21.89    20.0    7.78
  185         UI    7.78    7.78    7.78    7.78    7.78    7.78    7.78    7.78     0.0

                                    HEC-1 INPUT                                                          PAGE  5

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

  186         KK    B2RB   CNAME  A2A-B2
  187         KO       0       0     0.0       0      22
  188         HC       3

  189         KK  A2A-B2   CNAME    B2RB
  190         KO       0       0     0.0       0      22
  191         RS       4    FLOW     0.0     0.0
  192         RC   0.055   0.042   0.055 7166.98  0.0133     0.0
              * B1-B2
  193         RX     0.0    75.0   140.0   167.0   193.0   226.0   296.0   371.0
  194         RY    20.0    17.0    14.0    10.0    10.0    13.0    17.0    22.0

  195         KK      B2
  196         KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  197         KM   L=2.69      Lca=0.84      S=67.29      Kn=0.055      LAG=47.9
  198         KM   S-GRAPH TYPE=DES RNGLND
  199         KO       0       0     0.0       1      22
  200         BA   0.442
  201         LG    0.35    0.35   3.628   0.511     0.0
              * B2
  202         UI     0.0   30.97   30.97   77.73   133.4  183.82  226.98   266.1  287.65  296.82
  203         UI  287.47  267.05  223.78   185.3  155.58  129.98  108.43   90.02   74.14    61.7
  204         UI   52.71   46.29   32.83   32.83   21.22    21.2    21.2   10.64    7.54    7.54
  205         UI    7.54    7.54    7.54    7.54    7.54    7.54     0.0

  206         KK     B3R   CNAME   B2-B3
  207         KO       0       0     0.0       0      22
  208         HC       2

  209         KK   B2-B3   CNAME     B3R
  210         KO       0       0     0.0       0      22
  211         RS      18    FLOW     0.0     0.0
  212         RC    0.05   0.025    0.0520075.26  0.0118     0.0
              * B2-B3
  213         RX     0.0   120.0   278.0   285.0   301.5   312.5   446.5   529.5
  214         RY    13.5    10.0    11.6    10.1    10.1    11.5    10.8    12.6

  215         KK      B3
  216         KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  217         KM   L=3.72      Lca=1.65      S=63.31      Kn=0.045      LAG=58.6
  218         KM   S-GRAPH TYPE=DES RNGLND
  219         KO       0       0     0.0       1      22
  220         BA   1.987
  221         LG   0.332   0.332   4.284   0.389     0.0
              * B3
  222         UI     0.0  113.39  113.39  174.19  365.68  513.61  667.07  787.08  935.28  1014.0
  223         UI  1066.6 1086.65 1065.13 1007.44  902.76  777.12  664.52  576.27  502.41   427.5
  224         UI  369.71   321.5  269.65  233.59  211.46  173.86  158.41  120.18  120.18   89.23
```

```
225          UI   77.62   77.62   77.62   39.40    27.6    27.6    27.6    27.6    27.6    27.6
226          UI    27.6    27.6    27.6    27.6     0.0
                                          HEC-1 INPUT                                          PAGE  6
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

227          KK      B   CNAME      4R
228          KO      0       0     0.0       0      22
229          KC      2

230          KK     4R   CNAME       B
231          KO      0       0     0.0       0      22
232          KM     4R

233          KK    A2B
234          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
235          KM   L=2.10     Lca=1.12     S=76.27     Kn=0.035     LAG=47.5
236          KM   S-GRAPH TYPE=DES RNGLMD
237          KO      0       0     0.0       1      22
238          BA   1.178
239          LG    0.35    0.35    4.507   0.348     0.0
             * A2B
240          UI     0.0   84.39   84.39  224.42  373.68  509.86  634.46  735.71   789.8  808.75
241          UI  774.44  702.18  582.93  462.21  402.04  335.57  277.24  233.92  186.27   159.1
242          UI  131.56  108.73   89.45   74.32   57.77   57.77   45.88   20.54   20.54   20.54
243          UI   20.54   20.54   20.54   20.54   20.54     0.0

244          KK  A2B-A3   CNAME     A3R
245          KO       8       0     0.0       0      22
246          RS      12    FLOW     0.0     0.0
247          RC    0.08   0.043   0.0518801.09  0.0112     0.0
             * A2B-A3
248          RX     0.0    20.0    30.0   165.0   186.0   346.0   361.0   381.0
249          RY    20.8    19.0    18.0    10.0    10.0    20.0    21.8    22.0

250          KK      A3
251          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
252          KM   L=3.92     Lca=1.89     S=58.21     Kn=0.045     LAG=64.1
253          KM   S-GRAPH TYPE=DES RNGLMD
254          KO      0       0     0.0       1      22
255          BA   3.729
256          LG    0.35    0.35    4.23   0.408     0.0
             * A3
257          UI     0.0   196.2   196.2   216.8   570.5   813.36  1043.2 1275.52 1464.33 1668.96
258          UI  1757.8 1877.01 1880.24 1841.14 1751.55  1593.0 1367.92 1202.85 1048.96  919.73
259          UI  805.44  710.06  606.86  538.24  447.15  397.83   367.9  300.84  290.73  207.95
260          UI  207.95  183.56   134.3   134.3   134.3  131.67   47.75   47.75   47.75   47.75
261          UI   47.75   47.75   47.75   47.75   47.75   47.75   47.75   47.75

262          KK       A   CNAME      5R
263          KO       0       0     0.0       0      22
264          KC       2

265          KK      5R   CNAME       A
266          KO       0       0     0.0       0      22
267          KM      5R
268          ZZ
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	C1	2307.	12.83	568.	166.	56.	3.64		
+	ROUTED TO	C1-C2	2051.	13.17	567.	166.	56.	3.64		
+	HYDROGRAPH AT	C2	1105.	12.67	204.	51.	17.	1.86		
+	2 COMBINED AT	C3R	2721.	13.08	765.	215.	72.	5.51		
+	ROUTED TO	C2-C3	2445.	13.75	757.	215.	72.	5.51		
+	HYDROGRAPH AT	C3	1507.	13.17	427.	107.	36.	3.79		
+	2 COMBINED AT	C4R	3437.	13.67	1164.	319.	107.	9.29		
+	HYDROGRAPH AT	C4	1211.	12.50	176.	44.	15.	1.40		
+	2 COMBINED AT	C	3502.	13.58	1326.	360.	120.	10.69		
+	ROUTED TO	13R	3502.	13.58	1326.	360.	120.	10.69		
+	HYDROGRAPH AT	A1	1104.	12.33	143.	39.	13.	1.11		
+	ROUTED TO	A1-A2A	991.	12.58	143.	39.	13.	1.11		
+	HYDROGRAPH AT	B1	416.	12.58	72.	19.	6.	0.60		
+	HYDROGRAPH AT	A2A	325.	12.67	58.	14.	5.	0.48		
+	3 COMBINED AT	B2RB	1704.	12.58	270.	72.	24.	2.19		
+	ROUTED TO	A2A-B2	1579.	12.75	270.	72.	24.	2.19		

```
          HYDROGRAPH AT
+                    B2      277.  12.67        46.        12.        4.      0.44
          2 COMBINED AT
+                   B3R     1835.  12.75       315.        83.       28.      2.64
          ROUTED TO
+                 B2-B3     1211.  14.17       314.        83.       28.      2.64
          HYDROGRAPH AT
+                    B3     1104.  12.75       225.        56.       19.      1.99
          2 COMBINED AT
+                     B     1333.  14.17       529.       138.       46.      4.62
          ROUTED TO
+                    4R     1333.  14.17       529.       138.       46.      4.62
          HYDROGRAPH AT
+                   A2B      824.  12.58       137.        34.       11.      1.18
          ROUTED TO
+                 A2B-A3     652.  13.50       136.        34.       11.      1.18
          HYDROGRAPH AT
+                    A3     1855.  12.92       407.       102.       34.      3.73
          2 COMBINED AT
+                     A     1858.  12.92       539.       135.       45.      4.91
          ROUTED TO
+                    5R     1858.  12.92       539.       135.       45.      4.91

 *** NORMAL END OF HEC-1 ***
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*            MAY  1991              *
*          VERSION 4.0.1E           *
*                                   *
*  RUN DATE _______ TIME _______    *
*                                   *
*************************************

*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 551-1748          *
*                                   *
*************************************

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

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

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

                                    HEC-1 INPUT                                    PAGE  1

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

   1          ID  Buckeye/Sun Valley ADMS - May 2005
   2          ID  Michael Baker Jr., Inc. - Modeler: Jacob Lesue
   3          ID  basins E-K with Aluvial Fan updates
   4          ID  100-year 24-hour
   5          ID  Existing Conditions
   6          ID  Area 3 - Sub-basins E-K (Aluvial Fan updates)
   7          ID  Rainfall Loss Method - Green & Ampt
   8          ID  Unit Hydrograph Method - FCDMC S-Graph
   9          ID  Channel Routing Method - Normal Depth
  10          ID  Land Use - FCDMC GIS Data: mag_landuse (2000)
  11          ID  Soil Data - USDA SCS Soil Survey (1972 & 1981)
  12          ID  Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
              *DIAGRAM
  13          IT       5 01JAN94       0    2000
  14          IO       3
  15          IN      15 01JAN94       0
  16          JD    4.16    0.01
              * 24-hour distribution
  17          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
  18          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
  19          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
  20          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
  21          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
  22          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
  23          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
  24          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
  25          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
  26          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
  27          IN      15 01JAN94       0
  28          JD   3.952    10.0
              * 24-hour distribution
  29          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
  30          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
  31          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
  32          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
  33          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
  34          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
  35          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
  36          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
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 37   PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 38   PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 39   IN      15 01JAN94       0
 40   JD   3.819    20.0
      * 24-hour distribution
 41   PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 42   PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 43   PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 44   PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 45   PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 46   PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 47   PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 48   PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 49   PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 50   PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 51   IN      15 01JAN94       0
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LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 52       JD    3.69    40.0
          * 24-hour distribution
 53       PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 54       PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 55       PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 56       PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 57       PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 58       PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 59       PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 60       PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 61       PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 62       PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 63       IN      15 01JAN94       0
 64       JD   3.565    80.0
          * 24-hour distribution
 65       PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 66       PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 67       PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 68       PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 69       PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 70       PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 71       PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 72       PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 73       PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 74       PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0

 75       KK      K1
 76       KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 77       KM   L=3.23      Lca=1.84      S=681.00      Kn=0.050      LAG=40.4
 78       KM   S-GRAPH TYPE=PRK MNT
 79       KO      0        0     0.0        1       22
 80       BA   1.549
 81       LG   0.112    0.255    4.365    0.366   21.277
          * K1
 82       UI     0.0  129.88  169.84  442.11  706.31  896.38 1061.91 1457.77 1111.25  821.11
 83       UI  726.82  641.11  561.31  488.34  403.67  331.29  304.06  271.41  213.37  169.75
 84       UI  154.58  142.25  108.11   99.57   85.17   63.56   63.56   63.56   38.81   24.89
 85       UI   24.89   24.89   24.89   24.89   24.89   24.89   24.89     0.0

 86       KK  K1-K2A    CNAME    K2AR
 87       KO      0        0     0.0        0       22
 88       RS     10     FLOW     0.0      0.0
 89       RC   0.05    0.049   0.0519434.11   0.017     0.0
          * K1-K2A
 90       RX    0.0     20.0     55.0     85.0    235.0    259.0    289.0    309.0
 91       RY   22.0     21.0     20.0     10.0     10.0     20.0     21.0     22.0

 92       KK     K2A
 93       KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 94       KM   L=5.29      Lca=2.72      S=126.78      Kn=0.055      LAG=87.2
 95       KM   S-GRAPH TYPE=DES RNGLND
 96       KO      0        0     0.0        1       22
 97       BA   1.949
 98       LG   0.341    0.347    4.907    0.278    1.288
          * K2A
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LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 99       UI     0.0   75.43   75.43   75.43   75.43  216.57  263.63  333.08  400.43  470.31
100       UI  527.14  583.18  638.37  674.27  692.72  722.84  722.84  721.83  689.53  671.99
101       UI  627.55  556.08  517.43  456.81  416.13  375.78  341.84  309.53  280.25  253.48
102       UI  229.53  206.53  183.27  168.43  146.97   142.2  123.74  115.66  112.61   79.95
103       UI   79.95   79.95   71.18   51.63   51.63   51.63   51.63   51.63   36.22   18.36
104       UI   18.36   18.36   18.36   18.36   18.36   18.36   18.36   18.36   18.36   18.36
105       UI   18.36   18.36   18.36   18.36     0.0

106       KK    K2BR    CNAME   K2A-2B
107       KO      0        0     0.0        0       22
108       NC      2

109       KK  K2A-2B    CNAME    K2BR
110       KO      0        0     0.0        0       22
111       RS      6     FLOW     0.0      0.0
112       RC   0.05    0.048   0.0510602.71  0.0115     0.0
          * K2A-K2B
113       RX    0.0     20.0     55.0     85.0    235.0    259.0    289.0    309.0
114       RY   22.0     21.0     20.0     10.0     10.0     20.0     21.0     22.0

115       KK     K2B
116       KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
117       KM   L=2.01      Lca=0.83      S=60.78      Kn=0.055      LAG=43.5
118       KM   S-GRAPH TYPE=DES RNGLND
119       KO      0        0     0.0        1       22
120       BA   0.416
121       LG    0.35     0.35    2.704    0.961      0.0
          * K2B
122       UI     0.0    32.57    33.92   104.78   161.25   216.88   267.55   297.02   312.16   302.35
123       UI  276.72   228.58   183.68   151.33   123.31    99.92     81.2    65.94     55.1    45.93
124       UI   34.52     29.7     22.3     22.3    15.04     7.93     7.93     7.93     7.93     7.93
125       UI    7.93     7.93      0.0
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126          KK    K3RA    CNAME   K2B-K3
127          KO       0        0      0.0        0       22
128          BC       2

129          KK   K2B-K3    CNAME    K3RA
130          KO       0        0      0.0        0       22
131          RS      19     FLOW      0.0      0.0
132          RC    0.05    0.048    0.052595 0.11  0.0084     0.0
             * K2B-K3
133          RX     0.0    390.0    490.0    502.0   520.0    532.0    632.0   1022.0
134          RY    20.0     14.5     11.5     10.0    10.0     11.5     14.5     20.0

135          KK     E2A
136          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
137          KM   L=2.90     Lca=1.20     S=100.83     Kn=0.055     LAG=52.4
138          KM   S-GRAPH TYPE-DES RNGLND
139          KO       0        0      0.0        1       22
140          BA   0.797
141          LG    0.35     0.38      5.6      0.21      0.0
             * E2A
142          UI     0.0     51.6     51.6   110.43  196.83   277.44   347.94   413.76   460.03    489.1
143          UI  494.55    472.6   438.77   369.81  310.92   263.99   224.69   190.62   158.99   135.09
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

144          UI  112.23    97.29    80.97    70.86    54.7    53.12    35.32    35.32    35.32    21.96
145          UI   12.56    12.56    12.56    12.56   12.56    12.56    12.56    12.56    12.56      0.0

146          KK   E2A-E3    CNAME    E3RA
147          KO       0        0      0.0        0       22
148          RS      13     FLOW      0.0      0.0
149          RC   0.052    0.046   0.052196 26.03  0.0093     0.0
             * E2A-E3
150          RX     0.0    133.0    173.0    213.0   223.0    263.0    303.0    403.0
151          RY    22.0     17.0     14.0     10.0    10.0     15.0     18.0     22.0

152          KK     E2C
153          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
154          KM   L=2.38     Lca=1.01     S=92.90     Kn=0.055     LAG=46.0
155          KM   S-GRAPH TYPE-DES RNGLND
156          KO       0        0      0.0        1       22
157          BA   0.716
158          LG    0.35     0.35    4.343    0.357      0.0
             * E2C
159          UI     0.0    55.12    55.12   154.82  250.83   342.33   421.22   487.29   519.92   527.55
160          UI  498.61   439.15   363.83    300.5  250.15   205.65   169.32   139.69   114.34    97.44
161          UI   84.51    59.64    58.42    38.62   37.73    37.73    16.68    13.41    13.41    13.41
162          UI   13.41    13.41    13.41    13.41     0.0

163          KK   E2C-E3    CNAME    E3RC
164          KO       0        0      0.0        0       22
165          RS      13     FLOW      0.0      0.0
166          RC   0.052    0.046   0.052 17293.5  0.0082     0.0
             * E2C-E3
167          RX     0.0    133.0    173.0    213.0   223.0    263.0    303.0    403.0
168          RY    22.0     17.0     14.0     10.0    10.0     15.0     18.0     22.0

169          KK      E1
170          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
171          KM   L=2.51     Lca=1.13     S=178.34     Kn=0.055     LAG=43.3
172          KM   S-GRAPH TYPE-PRK MNT
173          KO       0        0      0.0        1       22
174          BA   0.956
175          LG    0.35    0.378    5.377    0.222     0.69
             * E1
176          UI     0.0    74.86    77.94   239.17  368.29   486.24   570.86    714.2   832.85   536.73
177          UI  451.19   405.28   360.54   317.72  278.78   233.78   192.26   176.85   160.99   130.76
178          UI  107.56    95.43    81.98    76.82   57.39    57.39    44.31    36.63    36.63    36.63
179          UI   23.53    14.35    14.35    14.35   14.35    14.35    14.35    14.35    14.35    14.35
180          UI     0.0

181          KK   E1-E2B    CNAME     E2R
182          KO       0        0      0.0        0       22
183          RS       5     FLOW      0.0      0.0
184          RC    0.05    0.047   0.046109 2.72   0.016     0.0
             * E1-E2B
185          RX     0.0     65.0    140.0    170.0   185.0    200.0    270.0    340.0
186          RY    24.0     21.0     17.0     10.0    10.0     14.0     18.0     22.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

187          KK     E2B
188          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
189          KM   L=2.08     Lca=1.07     S=87.98     Kn=0.055     LAG=45.2
190          KM   S-GRAPH TYPE-DES RNGLND
191          KO       0        0      0.0        1       22
192          BA   0.466
193          LG    0.35     0.38      5.6      0.21      0.0
             * E2B
194          UI     0.0     32.1     32.1    94.97  150.03   204.82   250.49   285.24    306.5   304.84
195          UI  285.73   244.25    203.0   165.28   137.3   113.17    92.95     75.5    62.33    52.17
196          UI   43.31    34.02    28.77    21.97   21.97    16.14     7.81     7.81     7.81     7.81
197          UI    7.81     7.81     7.81     7.81

198          KK    E3RB    CNAME   E2B-E3
199          KO       0        0      0.0        0       22
200          BC       2

201          KK   E2B-E3    CNAME    E3RB
202          KO       0        0      0.0        0       22
203          RS      12     FLOW      0.0      0.0
204          RC   0.052    0.046   0.052196 17.83  0.0088     0.0
             * E2B-E3
205          RX     0.0    133.0    173.0    213.0   223.0    263.0    303.0    403.0
206          RY    22.0     17.0     14.0     10.0    10.0     15.0     18.0     22.0

207          KK      E3
208          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
209          KM   L=3.87     Lca=1.99     S=49.65     Kn=0.050     LAG=74.5
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210          KM   S-GRAPH TYPE=DES RNGLND
211          KO       0       0     0.0       1      22
212          BA   2.488
213          LG    0.35    0.35   4.362   0.346     0.0
             * E3
214          UI     0.0  111.69  111.69  111.69  226.88  361.12  481.81  599.56  708.99  795.91
215          UI  924.44  981.52 1023.08 1070.39 1070.39 1054.33 1012.16  958.83  843.16   765.0
216          UI  671.82  595.75  537.53  476.38  423.35  378.09  335.18  305.82   252.8  234.07
217          UI  210.57  188.36  171.26  154.61  118.38  118.38  115.87   76.46   76.46   76.46
218          UI   76.46   75.47   27.18   27.18   27.18   27.18   27.18   27.18   27.18   27.18
219          UI   27.18   27.18   27.18   27.18   27.18   27.18

220          KK    E4RA   CNAME   E3-E4
221          KO       0       0     0.0       0      22
222          RC       4

223          KK   E3-E4   CNAME    E4RA
224          KO       0       0     0.0       0      22
225          RS      14    FLOW     0.0     0.0
226          RC   0.056   0.049  0.05613854.98  0.0048     0.0
             * E3-E4
227          RX     0.0   570.0   650.0   690.0   705.0   735.0   810.0  1200.0
228          RY    21.0    14.0    13.0    10.0    10.0    12.5    14.5    21.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

229          KK      F1
230          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
231          KM   L=5.07     Lca=2.57     S=369.39     Kn=0.050     LAG=61.9
232          KM   S-GRAPH TYPE=PRM MNT
233          KO       0       0     0.0       1      22
234          BA   3.103
235          LG   0.297   0.329   4.244   0.378  12.897
             * F1
236          UI     0.0  168.51  168.51  218.27  509.66  699.18  943.72 1090.63 1237.28 1359.21
237          UI  1651.0 2027.63 1459.34 1157.38 1028.29  961.49  882.67  818.34   750.5  687.24
238          UI  625.11  552.31  479.89  429.51  404.49  384.89  352.34  298.58  276.84  216.79
239          UI  215.32  192.43  184.56  176.81  129.19  129.19  129.19  109.56   82.46   82.46
240          UI   82.46   82.46   82.46   52.76    32.3    32.3    32.3    32.3    32.3    32.3
241          UI    32.3    32.3    32.3    32.3    32.3    32.3    32.3    32.3     0.0

242          KK   F1-F2   CNAME     F2R
243          KO       0       0     0.0       0      22
244          RS       1    FLOW     0.0     0.0
245          RC   0.053   0.045   0.055 3313.03  0.0106     0.0
             * F1-F2
246          RX     0.0    60.0   120.0   146.0   178.0   208.0   268.0   328.0
247          RY    27.0    26.0    25.0    10.0    10.0    24.0    26.0    28.0

248          KK      F2
249          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
250          KM   L=3.88     Lca=1.80     S=161.60     Kn=0.050     LAG=57.0
251          KM   S-GRAPH TYPE=PRM MNT
252          KO       0       0     0.0       1      22
253          BA   2.209
254          LG    0.35    0.35   4.375   0.362   3.346
             * F2
255          UI     0.0  130.48  130.48  222.96  433.41  610.23   794.3  912.18 1015.11 1202.18
256          UI  1548.4 1176.04  896.54  790.99  735.01  667.95  615.82  555.86  511.22  447.69
257          UI  388.02  337.31  314.94  297.77  272.83  224.19  203.12  166.73  162.35  142.91
258          UI  142.91  109.04  100.04  100.04   86.65   63.85   63.85   63.85   63.85   63.39
259          UI   25.01   25.01   25.01   25.01   25.01   25.01   25.01   25.01   25.01   25.01
260          UI   25.01   25.01   25.01     0.0

261          KK     F3R   CNAME   F2-F3
262          KO       0       0     0.0       0      22
263          RC       2

264          KK   F2-F3   CNAME     F3R
265          KO       0       0     0.0       0      22
266          RS       4    FLOW     0.0     0.0
267          RC    0.05   0.047   0.048 7056.98    0.01     0.0
             * F2-F3
268          RX     0.0   350.0   425.0   455.0   472.0   499.0   569.0   900.0
269          RY    20.0    15.0    13.0    10.0    10.0    12.0    14.0    20.0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

270          KK      F3
271          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
272          KM   L=2.71     Lca=1.26     S=81.34     Kn=0.055     LAG=54.3
273          KM   S-GRAPH TYPE=DES RNGLND
274          KO       0       0     0.0       1      22
275          BA   0.736
276          LG    0.35    0.35   3.284    0.64     0.0
             * F3
277          UI     0.0   45.89   45.89   90.29  163.16  236.62   300.0   352.3  401.58  427.19
278          UI  439.78  431.51  405.77  355.07  304.27  256.06  219.26  187.54  158.37  134.34
279          UI  113.67   96.02   85.11   70.36   60.22   48.64   46.52   31.41   31.41   31.41
280          UI    21.4   11.17   11.17   11.17   11.17   11.17   11.17   11.17   11.17   11.17
281          UI     0.0

282          KK    E4RB   CNAME   F3-E4
283          KO       0       0     0.0       0      22
284          RC       2

285          KK   F3-E4   CNAME    E4RB
286          KO       0       0     0.0       0      22
287          RS      19    FLOW     0.0     0.0
288          RC    0.05   0.044   0.0527650.48  0.0072     0.0
             * F3-E4
289          RX     0.0   570.0   650.0   690.0   705.0   735.0   810.0  1200.0
290          RY    20.0    14.0    13.0    10.0    10.0    12.5    14.5    20.0

291          KK      N1
292          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
293          KM   L=2.41     Lca=1.09     S=64.59     Kn=0.055     LAG=51.2
294          KM   S-GRAPH TYPE=DES RNGLND
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295          KO       0       0     0.0       1      22
296          BA   1.066
297          LG    0.35    0.35   2.733   0.945     0.0
             * H1
298          UI     0.0   70.38   70.38  156.67  277.53  386.09  481.01   579.0   629.6  674.43
299          UI  672.95  639.66  573.48  484.85  407.01  343.97  290.32  244.62  205.27   171.4
300          UI  143.72  125.14  107.91   82.11   74.59   59.78   48.17   48.17   44.03   17.13
301          UI   17.13   17.13   17.13   17.13   17.13   17.13   17.13   17.13     0.0

302          KK   H1-H2   CNAME     H2R
303          KO       0       0     0.0       0      22
304          RS      21    FLOW     0.0     0.0
305          RC   0.053    0.05   0.05321739.03  0.0082     0.0
             * H1-H2
306          RX     0.0   330.0   430.0   465.0   495.0   530.0   630.0   960.0
307          RY    17.0    14.0    12.0    10.0    10.0    12.0    14.0    17.0

308          KK      H2
309          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
310          KM   L=4.41      Lca=2.60      S=44.71      Kn=0.050      LAG=88.9
311          KM   S-GRAPH TYPE=DES RNGLND
312          KO       0       0     0.0       1      22
313          BA     1.4
314          LG    0.35    0.35   3.222   0.664     0.0
             * H2
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

315          UI     0.0   52.96   52.96   52.96   52.96  142.93  178.39   226.9  274.71  319.58
316          UI  365.35   394.2  441.12  466.71   479.3  507.56  507.56  507.56  494.47  478.59
317          UI  456.68  413.58  373.47  343.47  306.13  279.54  254.31  232.29  208.19  189.77
318          UI  169.44  155.74  145.02  121.24  117.25   99.85   99.85   83.38   81.21   75.85
319          UI   56.14   56.14   56.14   49.15   36.25   36.25   36.25   36.25   36.25    27.6
320          UI   12.89   12.89   12.89   12.89   12.89   12.89   12.89   12.89   12.89   12.89
321          UI   12.89   12.89   12.89   12.89   12.89   12.89     0.0

322          KK      E4
323          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
324          KM   L=5.36      Lca=2.81      S=38.26      Kn=0.050      LAG=101.9
325          KM   S-GRAPH TYPE=DES RNGLND
326          KO       0       0     0.0       1      22
327          BA   3.042
328          LG    0.35    0.35   3.816   0.439     0.0
             * E4
329          UI     0.0  100.41  100.41  100.41  100.41   158.4  288.69  358.15  433.82  515.05
330          UI  586.72  661.74  710.91  802.48  849.78  890.67  905.99   962.3   962.3   962.3
331          UI  958.07  920.61  904.77  855.38  781.14  712.32  671.29  604.26   557.2  512.12
332          UI  469.45  435.76   392.7  363.69  334.37  307.94  277.85  264.88  224.23  220.83
333          UI  189.31  189.31  167.81  153.97  153.97   127.9  106.43  106.43  106.43  101.85
334          UI   68.74   68.74   68.74   68.74   68.74   68.74    56.9   24.44   24.44   24.44
335          UI   24.44   24.44   24.44   24.44   24.44   24.44   24.44   24.44   24.44   24.44
336          UI   24.44   24.44   24.44   24.44   24.44   24.44

337          KK     E5R   CNAME   E4-E5
338          KO       0       0     0.0       0      22
339          RC       5

340          KK   E4-E5   CNAME     E5R
341          KO       0       0     0.0       0      22
342          RS      14    FLOW     0.0     0.0
343          RC    0.06    0.05   0.0615206.17  0.0051     0.0
             * E4-E5
344          RX     0.0  1010.0  1080.0  1090.0  1110.0  1120.0  1190.0  2200.0
345          RY    27.0    16.0    15.0    10.0    10.0    14.0    16.0    27.0

346          KK      J1
347          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
348          KM   L=4.09      Lca=1.78      S=70.62      Kn=0.055      LAG=74.8
349          KM   S-GRAPH TYPE=DES RNGLND
350          KO       0       0     0.0       1      22
351          BA   1.734
352          LG    0.35    0.35    3.25   0.652     0.0
             * J1
353          UI     0.0   77.84   77.84   77.84  158.12  251.68   335.8  417.86  494.13  554.71
354          UI  644.28  684.07  713.03   746.0   746.0  734.81  705.42  668.25  587.63  533.16
355          UI  468.22   415.2  374.64  332.01  295.05  263.51  233.61  213.14  176.18  163.13
356          UI  146.75  131.28  119.36  107.75   82.51   82.51   80.75   53.29   53.29   53.29
357          UI   53.29    52.6   18.95   18.95   18.95   18.95   18.95   18.95   18.95   18.95
358          UI   18.95   18.95   18.95   18.95   18.95   18.95
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

359          KK   J1-J2   CNAME     J2R
360          KO       0       0     0.0       0      22
361          RS      28    FLOW     0.0     0.0
362          RC   0.055    0.04   0.055 24097.0  0.0086     0.0
             * J1-J2
363          RX     0.0   161.0   247.0   254.0   271.0   279.0   393.0   660.0
364          RY    17.0    12.5    12.2    10.8    10.0    12.1    12.9    17.0

365          KK      J2
366          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
367          KM   L=5.18      Lca=2.51      S=45.01      Kn=0.050      LAG=93.2
368          KM   S-GRAPH TYPE=DES RNGLND
369          KO       0       0     0.0       1      22
370          BA   3.638
371          LG   0.349   0.348   3.621   0.496   0.281
             * J2
372          UI     0.0  131.71  131.71  131.71  131.71  310.01   410.2  529.51  653.09  756.38
373          UI  857.33  932.04 1064.81 1131.31 1183.05 1211.21 1262.21 1262.21 1262.21 1218.54
374          UI 1189.1 1123.19 1016.15  925.91  854.62  766.36  699.93  639.84  585.79  530.33
375          UI  484.44   441.0  403.56  360.63  330.99  294.11  269.84   248.3  236.22  201.95
376          UI  201.95  172.61   139.6   139.6   139.6  118.12   90.16   90.16   90.16   90.16
377          UI   90.16   79.42   32.06   32.06   32.06   32.06   32.06   32.06   32.06   32.06
378          UI   32.06   32.06   32.06   32.06   32.06   32.06   32.06   32.06   32.06     0.0

379          KK    K3RB   CNAME   J2-K3
380          KO       0       0     0.0       0      22
381          RC       2
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 382          KK   J2-K3   CNAME    K3RB
 383          KO      0       0     0.0       0      22
 384          RS      4    FLOW     0.0     0.0
 385          RC   0.05   0.048    0.05 4071.93  0.0039     0.0
              * J2-K3
 386          RK    0.0   390.0   490.0   502.0   520.0   532.0   632.0  1022.0
 387          RY   20.0    14.5    11.5    10.0    10.0    11.5    14.5    20.0

 388          KK      K3
 389          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 390          KM   L=4.92      Lca=2.65      S=44.16      Kn=0.050      LAG=93.6
 391          KM   S-GRAPH TYPE-DES RNGLND
 392          KO      0       0     0.0       1      22
 393          BA   1.636
 394          LG   0.35    0.35   3.421   0.552     0.0
              * K3
 395          UI    0.0    58.6    58.6    58.6    58.6  132.87  178.79  231.72  287.22  333.42
 396          UI  374.63  416.06  465.04   498.4  523.32  535.26  561.57  561.57  561.57  546.52
 397          UI  528.98  508.31  466.83  418.22  391.32  351.35  318.32  291.61  266.72  243.82
 398          UI   222.2   205.3   179.7  166.92  157.94  130.85  127.83  110.47  110.47   92.85
 399          UI   89.85   88.89   62.11   62.11   62.11   62.11    41.1   40.11   40.11   40.11
 400          UI   40.11   40.11   23.61   14.26   14.26   14.26   14.26   14.26   14.26   14.26
 401          UI   14.26   14.26   14.26   14.26   14.26   14.26   14.26   14.26   14.26   14.26
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 402          KK      E5
 403          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 404          KM   L=3.01      Lca=1.41      S=28.56      Kn=0.050      LAG=65.8
 405          KM   S-GRAPH TYPE-DES RNGLND
 406          KO      0       0     0.0       1      22
 407          BA   1.308
 408          LG   0.347   0.344    3.94   0.429   0.968
              * E5
 409          UI    0.0   66.73   66.73   66.73  187.33  261.54  342.37  416.83  480.54  556.36
 410          UI  598.07  622.96  639.46  636.14  605.78  574.36  496.51  443.91  383.22  336.88
 411          UI  298.49  258.94  227.11  198.14  176.39   149.0   129.8   120.7  102.31   94.82
 412          UI   70.72   70.72   61.39   45.68   45.68   45.68   45.68   18.08   16.24   16.24
 413          UI   16.24   16.24   16.24   16.24   16.24   16.24   16.24   16.24   16.24     0.0

 414          KK     E6R   CNAME    E5-E6
 415          KO      0       0     0.0       0      22
 416          RC      5

 417          KK   E5-E6   CNAME     E6R
 418          KO      0       0     0.0       0      22
 419          RS      6    FLOW     0.0     0.0
 420          RC   0.063   0.051   0.063  5105.8  0.0037     0.0
              * E5-E6
 421          RK    0.0   850.0   980.0   990.0  1030.0  1040.0  1230.0  2020.0
 422          RY   25.0    13.0    13.0    10.0    10.0    12.0    12.0    25.0

 423          KK      E6
 424          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 425          KM   L=3.04      Lca=1.06      S=34.17      Kn=0.050      LAG=57.1
 426          KM   S-GRAPH TYPE-DES RNGLND
 427          KO      0       0     0.0       1      22
 428          BA   2.038
 429          LG   0.343   0.336   4.356   0.367   0.711
              * E6
 430          UI    0.0  120.38  120.38   205.7  403.51   574.9  733.36  874.59 1019.0 1083.61
 431          UI 1153.6 1153.67 1100.2 1038.99  882.77  767.24  653.83  562.64  487.32  412.46
 432          UI 353.67  303.21  257.92  226.95  190.12   175.5  127.59  127.59   96.61    82.4
 433          UI   82.4    82.4   36.99    29.3    29.3    29.3    29.3    29.3    29.3    29.3
 434          UI   29.3    29.3     0.0

 435          KK      E     CNAME      2R
 436          KO      0       0     0.0       0      22
 437          RC      2

 438          KK     2R   CNAME       E
 439          KO      0       0     0.0       0      22
 440          RN     2R

 441          KK      G1
 442          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 443          KM   L=2.38      Lca=1.08      S=33.76      Kn=0.045      LAG=47.1
 444          KM   S-GRAPH TYPE-DES RNGLND
 445          KO      0       0     0.0       1      22
 446          BA   1.119
```



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

 447          LG   0.35    0.35    4.68   0.299     0.0
              * G1
 448          UI    0.0   80.16   80.16  213.17  354.95   484.3  602.66  698.84  750.22  768.22
 449          UI 735.63  666.98  553.71  458.04  381.89  318.75  263.34   222.2  176.93  151.12
 450          UI 124.96  103.28   84.96   70.59   54.87   54.87   43.58   19.51   19.51   19.51
 451          UI  19.51   19.51   19.51   19.51   19.51     0.0

 452          KK     1R   CNAME       G
 453          KO      0       0     0.0       0      22
 454          RN     1R
 455          ZZ
```

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	K1	1433.	12.50	254.	74.	25.	1.54		
+	ROUTED TO	K1-K2A	1031.	13.25	254.	74.	25.	1.54		

+	HYDROGRAPH AT	K2A	827.	13.25	245.	62.	21.	1.95
+	2 COMBINED AT	K2BR	1839.	13.25	495.	135.	45.	3.49
+	ROUTED TO	K2A-2B	1701.	13.67	493.	135.	45.	3.49
+	HYDROGRAPH AT	K2B	217.	12.58	32.	8.	3.	0.42
+	2 COMBINED AT	K3RA	1718.	13.67	520.	142.	48.	3.91
+	ROUTED TO	K2B-K3	1392.	15.17	514.	142.	48.	3.91
+	HYDROGRAPH AT	E2A	572.	12.67	105.	26.	9.	0.80
+	ROUTED TO	E2A-E3	461.	13.67	105.	26.	9.	0.80
+	HYDROGRAPH AT	E2C	541.	12.58	88.	22.	7.	0.72
+	ROUTED TO	E2C-E3	424.	13.58	88.	22.	7.	0.72
+	HYDROGRAPH AT	E1	790.	12.50	125.	32.	11.	0.96
+	ROUTED TO	E1-E2B	687.	12.83	125.	32.	11.	0.96
+	HYDROGRAPH AT	E2B	352.	12.58	57.	14.	5.	0.47
+	2 COMBINED AT	E3RB	958.	12.83	181.	45.	15.	1.42
+	ROUTED TO	E2B-E3	751.	13.75	179.	45.	15.	1.42
+	HYDROGRAPH AT	E3	1130.	13.00	289.	72.	24.	2.49
+	4 COMBINED AT	E4RA	2205.	13.58	645.	163.	54.	5.42
+	ROUTED TO	E3-E4	1911.	14.67	637.	163.	54.	5.42
+	HYDROGRAPH AT	F1	1868.	12.83	433.	121.	40.	3.10
+	ROUTED TO	F1-F2	1823.	12.83	432.	121.	40.	3.10
+	HYDROGRAPH AT	F2	1333.	12.75	266.	69.	23.	2.21
+	2 COMBINED AT	F3R	3030.	12.83	693.	188.	63.	5.31
+	ROUTED TO	F2-F3	2783.	13.08	692.	188.	63.	5.31
+	HYDROGRAPH AT	F3	375.	12.75	69.	17.	6.	0.74
+	2 COMBINED AT	E4RB	3032.	13.08	758.	205.	68.	6.05
+	ROUTED TO	F3-E4	2414.	14.58	752.	204.	68.	6.05
+	HYDROGRAPH AT	H1	472.	12.75	82.	20.	7.	1.07
+	ROUTED TO	H1-H2	314.	14.33	80.	20.	7.	1.07
+	HYDROGRAPH AT	H2	432.	13.25	128.	32.	11.	1.40
+	HYDROGRAPH AT	E4	966.	13.42	328.	83.	28.	3.04
+	5 COMBINED AT	E5R	4827.	14.58	1788.	475.	159.	16.98
+	ROUTED TO	E4-E5	4422.	15.67	1782.	475.	159.	16.98
+	HYDROGRAPH AT	J1	633.	13.08	160.	40.	13.	1.73
+	ROUTED TO	J1-J2	494.	15.33	158.	40.	13.	1.73
+	HYDROGRAPH AT	J2	1212.	13.33	379.	95.	32.	3.64
+	2 COMBINED AT	K3RB	1206.	13.33	529.	134.	45.	5.37
+	ROUTED TO	J2-K3	1184.	13.58	527.	134.	45.	5.37
+	HYDROGRAPH AT	K3	507.	13.33	160.	40.	13.	1.64

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        HYDROGRAPH AT
+                    E5      645.  12.92       147.       37.       12.      1.31
        5 COMBINED AT
+                   E5R     5888.  15.58      2826.      770.      257.     29.20
        ROUTED TO
+                  E5-E6    5765.  16.00      2814.      770.      257.     29.20
        HYDROGRAPH AT
+                    E6     1194.  12.75       237.       60.       20.      2.04
        2 COMBINED AT
+                     E     5760.  16.00      2947.      822.      275.     31.24
        ROUTED TO
+                    2R     5727.  16.00      2931.      818.      273.     31.24
        HYDROGRAPH AT
+                    G1      819.  12.58       136.       34.       11.      1.12
        ROUTED TO
+                    1R      819.  12.58       136.       34.       11.      1.12

 *** NORMAL END OF HEC-1 ***
1*************************************                                  *************************************
*                                   *                                  *                                   *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)*                                  *   U.S. ARMY CORPS OF ENGINEERS    *
*            MAY  1991              *                                  *   HYDROLOGIC ENGINEERING CENTER   *
*          VERSION 4.0.1E           *                                  *        609 SECOND STREET          *
*                                   *                                  *      DAVIS, CALIFORNIA 95616      *
*  RUN DATE _______ TIME _______    *                                  *          (916) 551-1748           *
*                                   *                                  *                                   *
*************************************                                  *************************************

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

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

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

                                        HEC-1 INPUT                                                    PAGE  1

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

   1          ID  Buckeye/Sun Valley ADMS - May 2005
   2          ID  Michael Baker Jr., Inc. - Modeler: Jacob Lesue
   3          ID  100-year 24-hour
   4          ID  Existing Conditions
   5          ID  Area 3 - Sub-basins L-R (Aluvial Fan updates)
   6          ID  Rainfall Loss Method - Green & Ampt
   7          ID  Unit Hydrograph Method - FCDMC S-Graph
   8          ID  Channel Routing Method - Normal Depth
   9          ID  Land Use - FCDMC GIS Data: mag_landuse (2000)
  10          ID  Soil Data - USDA SCS Soil Survey (1972 & 1981)
  11          ID  Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
              *DIAGRAM
  12          IT       5 01JAN94       0    2000
  13          IO       3
  14          IN      15 01JAN94       0
  15          JD    4.16    0.01
              * 24-hour distribution
  16          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
  17          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
  18          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
  19          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
  20          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
  21          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
  22          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
  23          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
  24          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
  25          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
  26          IN      15 01JAN94       0
  27          JD   3.952    10.0
              * 24-hour distribution
  28          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
  29          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
  30          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
  31          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
  32          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
  33          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
  34          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
  35          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
  36          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
  37          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
  38          IN      15 01JAN94       0
  39          JD   3.819    20.0
              * 24-hour distribution
  40          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
  41          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
  42          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
  43          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
  44          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
```

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 45          PC   0.735   0.750   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 46          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 47          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 48          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 49          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 50          IN      15 01JAN94       0
 51          JD    3.69    40.0
             * 24-hour distribution
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 52          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 53          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 54          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 55          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 56          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 57          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 58          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 59          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 60          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 61          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 62          IN      15 01JAN94       0
 63          JD   3.565    80.0
             * 24-hour distribution
 64          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 65          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 66          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 67          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 68          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 69          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 70          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 71          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 72          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 73          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 74          IN      15 01JAN94       0
 75          JD   3.499   120.0
             * 24-hour distribution
 76          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 77          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 78          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 79          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 80          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 81          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 82          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 83          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 84          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 85          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0

 86          KK      R1
 87          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 88          KM   L=1.01     Lca=0.46     S=213.31     Kn=0.050     LAG=18.8
 89          KM   S-GRAPH TYPE=PHX MNT
 90          KO      0        0     0.0       1      22
 91          BA   0.284
 92          LG    0.35     0.35   4.358   0.374   8.387
             * R1
 93          UI     0.0    62.14  236.01  401.85  464.97  281.72   216.1  150.63  113.71   76.28
 94          UI   57.55    39.69   27.53   24.54    9.63    9.63    9.63    9.63     0.0

 95          KK     13R   CNAME       R
 96          KO      0        0     0.0       0      22
 97          RW     13R
```



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

 98          KK      M1
 99          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
100          KM   L=5.19     Lca=2.41     S=230.06     Kn=0.050     LAG=66.8
101          KM   S-GRAPH TYPE=PHX MNT
102          KO      0        0     0.0       1      22
103          BA   5.686
104          LG    0.35     0.35   4.297    0.35  16.637
             * M1
105          UI     0.0   285.74  285.74  285.74  777.57 1062.36 1436.64 1746.69  1963.2  2166.6
106          UI  2402.0 2950.38 3432.01 2399.97 1965.75 1755.17 1651.21 1526.96  1413.1 1330.61
107          UI  1198.5 1122.73 1012.84  904.53  777.77  717.96  682.12  653.26  597.45  521.66
108          UI  469.43  394.74  365.11  349.25  312.95  312.95  266.95  219.07  219.07  219.07
109          UI  181.82  139.83  139.83  139.83  139.83  139.83   125.2   54.77   54.77   54.77
110          UI   54.77   54.77   54.77   54.77   54.77   54.77   54.77   54.77   54.77   54.77
111          UI   54.77   54.77     0.0

112          KK   M1-M2   CNAME     M2R
113          KO      0        0     0.0       0      22
114          RS     23     FLOW     0.0     0.0
115          RC    0.04     0.04  0.04534769.89  0.0133     0.0
             * M1-M2
116          RX     0.0    961.0  1028.0  1051.0  1136.0  1153.0  1193.0  1900.0
117          RY    15.5     12.0    11.8    10.3    10.0    11.0    11.2    15.5

118          KK      M2
119          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
120          KM   L=6.59     Lca=3.00     S=71.62     Kn=0.050     LAG=100.2
121          KM   S-GRAPH TYPE=DES RNGLND
122          KO      0        0     0.0       1      22
123          BA   7.436
124          LG    0.35     0.35   3.959   0.445   0.291
             * M2
125          UI     0.0   250.38  250.38  250.38  250.38  438.17  719.85  924.82 1114.75 1312.86
126          UI  1497.2  1700.9 1779.05 2056.71 2161.12 2246.81 2290.07 2399.49 2399.49 2399.49
127          UI  2351.5 2259.21 2219.84 2074.04 1858.21 1745.08 1567.89 1438.64 1323.61 1214.96
128          UI  1118.4 1022.47  940.03  874.15  767.84  718.48  685.57  569.22   559.1  484.22
129          UI  472.03  435.02  383.92  383.92  334.13  265.38  265.38  265.38  257.86  171.39
130          UI  171.39  171.39  171.39  171.39  171.39  131.63   60.94   60.94   60.94   60.94
131          UI   60.94   60.94   60.94   60.94   60.94   60.94   60.94   60.94   60.94   60.94
132          UI   60.94   60.94   60.94   60.94     0.0

133          KK       M   CNAME      5R
134          KO       0        0     0.0       0      22
135          HC       2
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136          KK      5R   CNAME      N
137          KO       0       0     0.0       0      22
138          RN      5R

                                    HEC-1 INPUT                                                    PAGE  4

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

139          KK      N1
140          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
141          KM   L=2.79      Lca=1.44     S=340.38     Kn=0.050     LAG=39.7
142          KM   S-GRAPH TYPE=PRX MNT
143          KO       0       0     0.0       1      22
144          BA   1.524
145          LG    0.35    0.35   4.075   0.419    8.38
             * N1
146          UI     0.0  128.28  166.77  436.68  697.63  885.37 1048.86 1439.85 1097.59  811.01
147          UI  717.89  633.24  554.41  482.34  398.71  327.22  300.33  268.08  210.75  167.66
148          UI  152.68   140.5  106.78   98.35   84.12   62.78   62.78   62.78   38.34   24.59
149          UI   24.59   24.59   24.59   24.59   24.59   24.59   24.59     0.0

150          KK   N1-N2   CNAME     N2R
151          KO       0       0     0.0       0      22
152          RS      20    FLOW     0.0     0.0
153          RC    0.05   0.047   0.0525647.52  0.0115     0.0
             * N1-N2
154          RX     0.0   280.0   350.0   358.0   367.0   381.0   451.0   730.0
155          RY    17.0    13.0    11.5    10.0    10.0    11.5    13.0    17.0

156          KK      N2
157          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
158          KM   L=5.64      Lca=3.27     S=170.14     Kn=0.055     LAG=90.7
159          KM   S-GRAPH TYPE=PRX MNT
160          KO       0       0     0.0       1      22
161          BA   3.325
162          LG    0.35    0.35   4.117   0.408    2.67
             * N2
163          UI     0.0  123.04  123.04  123.04  123.04  310.82  395.95  496.74  616.35  730.85
164          UI  796.45  869.05  928.56  990.24 1125.95 1316.08 1517.94 1186.36  925.57  834.34
165          UI  764.31  726.51  694.11  654.42   619.9  586.86  557.14  517.77  491.74   466.0
166          UI  422.37  387.25   352.0  325.27  302.29  296.75  282.99  272.23  257.26  234.33
167          UI  202.13  202.13  163.14  157.22  157.22  143.92  134.76  134.76  134.76  103.63
168          UI   94.33   94.33   94.33   94.33   83.75   60.21   60.21   60.21   60.21   60.21
169          UI   60.21   60.21   60.21   32.52   23.58   23.58   23.58   23.58   23.58   23.58
170          UI   23.58   23.58   23.58   23.58   23.58   23.58   23.58   23.58   23.58   23.58
171          UI   23.58   23.58   23.58   23.58   23.58

172          KK       N   CNAME     5R
173          KO       0       0     0.0       0      22
174          RC       2

175          KK      5R   CNAME      N
176          KO       0       0     0.0       0      22
177          RN      5R

178          KK     P1A
179          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
180          KM   L=2.28      Lca=1.41     S=461.40     Kn=0.055     LAG=37.8
181          KM   S-GRAPH TYPE=PRX MNT
182          KO       0       0     0.0       1      22
183          BA     0.5
184          LG    0.35    0.35   3.987   0.405   16.364
             * P1A

                                    HEC-1 INPUT                                                    PAGE  5

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

185          UI     0.0   44.27   65.19   161.0  254.76  318.08  389.84  500.04  319.07  264.12
186          UI  232.17  203.71  176.98  147.14  118.21  105.19   95.13   74.96   59.42   52.89
187          UI   48.49   35.98   33.94   26.82   21.67   21.67   21.56    8.49    8.49    8.49
188          UI    8.49    8.49    8.49    8.49    8.49    8.49

189          KK  P1A-1B   CNAME    P1BR
190          KO       0       0     0.0       0      22
191          RS      19    FLOW     0.0     0.0
192          RC    0.05   0.047   0.0520102.87  0.0111     0.0
             * P1A-P1B
193          RX     0.0   280.0   350.0   358.0   367.0   381.0   451.0   730.0
194          RY    17.0    13.0    11.5    10.0    10.0    11.5    13.0    17.0

195          KK     P1B
196          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
197          KM   L=4.39      Lca=2.32     S=70.84      Kn=0.055     LAG=85.3
198          KM   S-GRAPH TYPE=PRX MNT
199          KO       0       0     0.0       1      22
200          BA   1.937
201          LG    0.35    0.35   4.23   0.393   4.667
             * P1B
202          UI     0.0   76.72   76.72   76.72   89.67  220.58  274.28  335.86  432.98  478.15
203          UI  527.91  570.85  609.55  688.62  814.07   942.3  716.43   568.2  506.83  467.32
204          UI   446.8  421.86  394.79  374.39  356.44  329.11  309.33  293.98  263.37  241.82
205          UI  216.83  200.89  187.72  181.75  176.46  163.18  160.42  127.42  126.04   109.8
206          UI   98.03   98.03   90.75   84.03   84.03   84.03   60.08   58.82   58.82   58.82
207          UI   58.82   40.74   37.54   37.54   37.54   37.54   37.54   37.54   37.54    17.9
208          UI   14.71   14.71   14.71   14.71   14.71   14.71   14.71   14.71   14.71   14.71
209          UI   14.71   14.71   14.71   14.71   14.71   14.71   14.71   14.71   14.71     0.0

210          KK       P   CNAME    12R
211          KO       0       0     0.0       0      22
212          RC       2

213          KK     12R   CNAME      P
214          KO       0       0     0.0       0      22
215          RN     12R

216          KK      O1
217          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
218          KM   L=5.20      Lca=2.79     S=64.07      Kn=0.055     LAG=99.9
219          KM   S-GRAPH TYPE=PRX MNT
220          KO       0       0     0.0       1      22
221          BA   3.088
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 222          LG    0.35    0.35   4.191   0.393   2.105
              * O1
 223          UI     0.0  103.98  103.98  103.98  103.98  181.97  298.95  378.66  446.43  550.06
 224          UI  624.46  676.83  731.54  781.25  824.52  905.38 1042.04 1204.77 1242.7  887.05
 225          UI   765.3   690.9  643.35  614.88  590.49  558.55  530.78  506.48  485.09  454.93
 226          UI  429.36  410.34   388.6  356.95  326.56   302.9  274.89  260.97  254.42  242.21
 227          UI  239.16  221.76  217.42  189.46  170.83  170.83  140.46  132.86  132.86  129.07
 228          UI  113.88  113.88  113.88  113.88   79.72   79.72   79.72   79.72   79.72   79.72
 229          UI   50.88   50.88   50.88   50.88   50.88   50.88   50.88   50.88   50.88   32.31
 230          UI   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93
 231          UI   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93   19.93
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 232          UI   19.93   19.93   19.93     0.0

 233          KK      7R   CNAME       O
 234          KO       0       0     0.0       0      22
 235          RN      7R

 236          KK     Q1A
 237          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 238          KM   L=3.13     Lca=1.52     S=256.86     Kn=0.055     LAG=49.3
 239          KM   S-GRAPH TYPE-PHX MNT
 240          KO       0       0     0.0       1      22
 241          BA   1.297
 242          LG    0.35    0.35   4.127     0.4    11.2
              * Q1A
 243          UI     0.0   89.12   89.12  213.78  363.94  517.41  613.88  697.52  873.62 1020.97
 244          UI  663.18  556.48  506.64  454.84  413.29  367.46  326.01  281.03  232.04  214.37
 245          UI  199.35   177.4  146.41  118.69  112.45   97.61   96.73   68.33   68.33    66.1
 246          UI   43.61   43.61   43.61   43.61   30.77   17.08   17.08   17.08   17.08   17.08
 247          UI   17.08   17.08   17.08   17.08   17.08   17.08     0.0

 248          KK  Q1A-1B   CNAME    Q1BR
 249          KO       0       0     0.0       0      22
 250          RS       8    FLOW     0.0     0.0
 251          RC    0.05   0.047    0.05 9170.53  0.0117     0.0
              * Q1A-Q1B
 252          RX     0.0   280.0   350.0   358.0   367.0   381.0   451.0   730.0
 253          RY    17.0    13.0    11.5    10.0    10.0    11.5    13.0    17.0

 254          KK     Q1B
 255          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 256          KM   L=2.35     Lca=1.14     S=141.40     Kn=0.055     LAG=44.3
 257          KM   S-GRAPH TYPE-PHX MNT
 258          KO       0       0     0.0       1      22
 259          BA   0.937
 260          LG    0.35    0.35    4.32   0.373  14.815
              * Q1B
 261          UI     0.0   71.67   71.67  221.51  340.68  455.79   538.5  651.95  833.61  538.15
 262          UI  443.72  398.92  355.79  316.26  280.46  235.89  196.37  173.35  160.17  138.81
 263          UI  114.82   91.58   84.67    78.5   62.48   54.95   54.15   35.07   35.07   35.07
 264          UI   35.07   15.79   13.74   13.74   13.74   13.74   13.74   13.74   13.74   13.74
 265          UI   13.74     0.0

 266          KK       Q   CNAME     14R
 267          KO       0       0     0.0       0      22
 268          HC       2

 269          KK     14R   CNAME       Q
 270          KO       0       0     0.0       0      22
 271          RN     14R
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 272          KK      L1
 273          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 274          KM   L=4.93     Lca=2.29     S=308.27     Kn=0.050     LAG=60.6
 275          KM   S-GRAPH TYPE-PHX MNT
 276          KO       0       0     0.0       1      22
 277          BA   3.546
 278          LG   0.271   0.318   4.363   0.351  16.279
              * L1
 279          UI     0.0  195.74  195.74  266.93  603.63  823.25 1120.55 1287.08 1452.32 1611.07
 280          UI  1991.3 2326.76 1575.06 1312.31 1173.43 1097.39 1002.28  929.54   850.5  775.66
 281          UI  701.22  620.51  525.99  484.91  458.87  430.63  397.34  321.57  290.98  250.11
 282          UI  241.82  214.38  214.38  171.29  150.06  150.06  149.52   95.79   95.79   95.79
 283          UI   95.79   95.79    79.7   37.52   37.52   37.52   37.52   37.52   37.52   37.52
 284          UI   37.52   37.52   37.52   37.52   37.52   37.52   37.52     0.0

 285          KK  L1-L2A   CNAME    L2AR
 286          KO       0       0     0.0       0      22
 287          RS       3    FLOW     0.0     0.0
 288          RC   0.046   0.045   0.046 7098.75  0.0174     0.0
              * L1-L2A
 289          RX     0.0    80.0   165.0   200.0   215.0   255.0   340.0   420.0
 290          RY    19.0    17.0    14.0    10.0    10.0    14.0    18.0    22.0

 291          KK     L2A
 292          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 293          KM   L=2.46     Lca=1.12     S=136.18     Kn=0.055     LAG=45.0
 294          KM   S-GRAPH TYPE-DES RNGLND
 295          KO       0       0     0.0       1      22
 296          BA   0.693
 297          LG    0.35   0.304   5.641   0.202     0.0
              * L2A
 298          UI     0.0   51.83   51.83  153.34  242.24  330.72  404.46  460.56  494.88  492.21
 299          UI  461.36  394.37  327.78  266.87  221.69  182.72  150.08  121.91  100.64   84.23
 300          UI   69.92   54.93   46.45   35.48   35.48   26.06   12.61   12.61   12.61   12.61
 301          UI   12.61   12.61   12.61   12.61

 302          KK    L2BR   CNAME  L2A-2B
 303          KO       0       0     0.0       0      22
 304          HC       2

 305          KK  L2A-2B   CNAME    L2BR
 306          KO       0       0     0.0       0      22
 307          RS       7    FLOW     0.0     0.0
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308          RC   0.046    0.045    0.04620743.37  0.0147     0.0
             * L2A-L2B
309          RX     0.0     80.0    165.0    200.0    215.0    255.0    340.0    420.0
310          RY    19.0     17.0     14.0     10.0     10.0     14.0     18.0     22.0

311          KK     L2B
312          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
313          KM   L=5.13      Lca=1.82      S=93.37      Km=0.055      LAG=78.1
314          KM   S-GRAPH TYPE=DES RNGLMD
315          KO       0        0      0.0        1       22
316          BA   4.077

                                          HEC-1 INPUT                                                          PAGE  8

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

317          LG    0.35     0.35    4.179    0.399      0.0
             * L2B
318          UI     0.0   175.97   175.97   175.97   311.91   535.45   724.28    902.8  1071.35  1224.63
319          UI  1376.8  1511.61  1580.95  1658.53  1686.39  1686.39  1632.48  1568.59  1460.56  1278.33
320          UI  1172.5  1030.99   927.32   829.82   742.49    663.7   594.61   529.93   481.83    405.6
321          UI   377.6   331.75   310.22   269.82   269.19   186.51   186.51   186.81    145.4   120.46
322          UI  120.46   120.46   120.46     90.9    42.83    42.83    42.83    42.83    42.83    42.83
323          UI   42.83    42.83    42.83    42.83    42.83    42.83    42.83    42.83      0.0

324          KK     L3R    CNAME   L2B-L3
325          KO       0        0      0.0        0       22
326          RC       2

327          KK  L2B-L3    CNAME     L3R
328          KO       0        0      0.0        0       22
329          RS      18     FLOW      0.0      0.0
330          RC    0.05     0.04    0.0619942.62  0.0089     0.0
             * L2B-L3
331          RX     0.0   1093.0   1210.0   1215.0   1225.0   1232.0   1372.0   2000.0
332          RY    18.0     11.8     11.7     10.0     10.0     11.7     11.8     18.0

333          KK     L2C
334          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
335          KM   L=3.20      Lca=1.55      S=91.31      Km=0.055      LAG=61.2
336          KM   S-GRAPH TYPE=DES RNGLMD
337          KO       0        0      0.0        1       22
338          BA   1.328
339          LG    0.35     0.35    4.189    0.422      0.0
             * L2C
340          UI     0.0    73.31    73.31    99.98   227.13   318.43    414.0   500.47    577.1   643.23
341          UI  678.82   702.58   699.63   666.25   621.66   533.29   468.31   402.86   351.31   303.79
342          UI   266.7   226.83   200.74   164.03   144.98   131.86   112.41    97.97     77.7     77.7
343          UI   56.55    50.18    50.18    50.18    28.53    17.84    17.84    17.84    17.84    17.84
344          UI   17.84    17.84    17.84    17.84    17.84      0.0

345          KK  L2C-2D    CNAME    L2DR
346          KO       0        0      0.0        0       22
347          RS       6     FLOW      0.0      0.0
348          RC   0.046    0.045    0.046 9752.35  0.0122     0.0
             * L2C-L2D
349          RX     0.0     80.0    165.0    200.0    215.0    255.0    340.0    420.0
350          RY    19.0     17.0     14.0     10.0     10.0     14.0     18.0     22.0

351          KK     L2D
352          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
353          KM   L=2.77      Lca=1.24      S=74.13      Km=0.055      LAG=55.4
354          KM   S-GRAPH TYPE=DES RNGLMD
355          KO       0        0      0.0        1       22
356          BA   1.232
357          LG    0.35     0.35    3.578    0.544      0.0
             * L2D
358          UI     0.0    75.42    75.42   141.88   262.35   378.71   482.07   569.62   651.08    696.0
359          UI  722.74   714.79   677.77   607.49   518.22   439.07    376.3   322.28   277.17   232.67
360          UI  200.55    167.8   142.18    124.1   114.53    79.93    79.93     61.7    51.62    51.62
361          UI   51.62    20.09    18.36    18.36    18.36    18.36    18.36    18.36    18.36    18.36

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

362          UI   18.36      0.0

363          KK    L3RB    CNAME   L2D-L3
364          KO       0        0      0.0        0       22
365          RC       2

366          KK  L2D-L3    CNAME    L3RB
367          KO       0        0      0.0        0       22
368          RS      39     FLOW      0.0      0.0
369          RC    0.05     0.04     0.06 27374.0  0.0077     0.0
             * L2D-L3
370          RX     0.0   1093.0   1210.0   1215.0   1225.0   1232.0   1372.0   2000.0
371          RY    18.0     11.8     11.7     10.0     10.0     11.7     11.8     18.0

372          KK      L3
373          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
374          KM   L=4.78      Lca=2.00      S=44.27      Km=0.055      LAG=91.0
375          KM   S-GRAPH TYPE=DES RNGLMD
376          KO       0        0      0.0        1       22
377          BA   5.852
378          LG   0.341    0.328    3.98    0.419     1.05
             * L3
379          UI     0.0   216.51   216.51   216.51   216.51   546.97    701.8   899.01  1098.32  1266.32
380          UI  1460.0   1557.8  1786.11  1888.64  1950.18  2034.93  2074.93  2074.93  2053.76   1965.5
381          UI  1920.6  1789.17  1583.49  1486.07  1313.64  1207.78  1091.43   994.63   909.22   825.03
382          UI   759.9   663.98   614.46   574.55   483.48   461.45   408.18   402.68   331.99   331.99
383          UI  296.91   229.48   229.48   229.48   197.56   148.21   148.21   148.21   148.21   148.21
384          UI  121.69     52.7     52.7     52.7     52.7     52.7     52.7     52.7     52.7     52.7
385          UI    52.7     52.7     52.7     52.7     52.7     52.7     52.7      0.0

386          KK       L    CNAME      1R
387          KO       0        0      0.0        0       22
388          RC       3

389          KK      1R    CNAME       L
390          KO       0        0      0.0        0       22
391          RM      1R
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 392          KK      Z1
 393          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 394          KM   L=1.70     Lca=0.66     S=47.00     Kn=0.055     LAG=39.1
 395          KM   S-GRAPH TYPE=DES RNGLND
 396          KO      0       0     0.0       1      22
 397          BA   0.664
 398          LG   0.321   0.292   4.004    0.43   2.909
              + Z1
 399          UI     0.0   57.36   79.52  205.33  321.78  424.03  504.07   545.2  540.96  493.73
 400          UI  399.49  319.19  256.28   205.1  164.91  127.66  104.64   87.86    60.8    54.1
 401          UI   39.27   39.27    21.8   13.96   13.96   13.96   13.96   13.96   13.96     0.0
                                                 HEC-1 INPUT                                          PAGE 10

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

 402          KK      4R   CNAME      Z
 403          KO       0      0     0.0       0      22
 404          RN      4R
 405          ZZ
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	R1	387.	12.25	37.	10.	3.	0.28		
+	ROUTED TO	13R	387.	12.25	37.	10.	3.	0.28		
+	HYDROGRAPH AT	M1	3301.	12.83	825.	236.	79.	5.69		
+	ROUTED TO	M1-M2	2392.	14.67	820.	235.	79.	5.69		
+	HYDROGRAPH AT	M2	2347.	13.42	786.	198.	66.	7.44		
+	2 COMBINED AT	M	3187.	14.50	1544.	421.	141.	13.12		
+	ROUTED TO	5R	3187.	14.50	1544.	421.	141.	13.12		
+	HYDROGRAPH AT	N1	1211.	12.50	192.	52.	17.	1.52		
+	ROUTED TO	N1-N2	758.	14.08	192.	52.	17.	1.52		
+	HYDROGRAPH AT	N2	1331.	13.17	378.	99.	33.	3.33		
+	2 COMBINED AT	N	1385.	13.25	565.	149.	50.	4.85		
+	ROUTED TO	8R	1385.	13.25	565.	149.	50.	4.85		
+	HYDROGRAPH AT	P1A	441.	12.42	73.	21.	7.	0.50		
+	ROUTED TO	P1A-1B	296.	13.92	72.	21.	7.	0.50		
+	HYDROGRAPH AT	P1B	842.	13.08	231.	61.	20.	1.94		
+	2 COMBINED AT	P	891.	13.17	301.	81.	27.	2.44		
+	ROUTED TO	12R	891.	13.17	301.	81.	27.	2.44		
+	HYDROGRAPH AT	Q1	1163.	13.33	349.	91.	30.	3.09		
+	ROUTED TO	7R	1163.	13.33	349.	91.	30.	3.09		
+	HYDROGRAPH AT	Q1A	915.	12.58	173.	48.	16.	1.30		
+	ROUTED TO	Q1A-1B	757.	13.17	173.	48.	16.	1.30		
+	HYDROGRAPH AT	Q1B	740.	12.50	134.	38.	13.	0.94		
+	2 COMBINED AT	Q	1059.	13.08	304.	85.	28.	2.23		
+	ROUTED TO	14R	1059.	13.08	304.	85.	28.	2.23		
+	HYDROGRAPH AT	L1	2267.	12.75	527.	150.	50.	3.55		
+	ROUTED TO	L1-L2A	2154.	12.92	527.	150.	50.	3.55		
+	HYDROGRAPH AT	L2A	570.	12.58	92.	23.	8.	0.69		
+	2 COMBINED AT	L2BR	2519.	12.92	616.	172.	57.	4.24		
	ROUTED TO									

```
+                    L2A-2B    2226.  13.42    614.    172.    57.    4.24
        HYDROGRAPH AT
+                      L2B    1700.  13.08    449.    112.    37.    4.08
        2 COMBINED AT
+                      L3R    3676.  13.33   1051.    282.    94.    8.32
        ROUTED TO
+                    L2B-L3   3004.  14.75   1039.    282.    94.    8.32
        HYDROGRAPH AT
+                      L2C     692.  12.83    145.     36.    12.    1.33
        ROUTED TO
+                    L2C-2D    651.  13.25    145.     36.    12.    1.33
        HYDROGRAPH AT
+                      L2D     655.  12.75    124.     31.    10.    1.23
        2 COMBINED AT
+                     L3RB    1104.  13.00    266.     66.    22.    2.56
        ROUTED TO
+                    L2D-L3    705.  16.17    263.     65.    22.    2.56
        HYDROGRAPH AT
+                       L3    2129.  13.25    658.    166.    56.    5.85
        3 COMBINED AT
+                        L    3437.  14.75   1778.    490.   164.   16.73
        ROUTED TO
+                       1R    3437.  14.75   1778.    490.   164.   16.73
        HYDROGRAPH AT
+                       S1     558.  12.50     80.     21.     7.    0.66
        ROUTED TO
+                       4R     558.  12.50     80.     21.     7.    0.66

 *** NORMAL END OF HEC-1 ***
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*            MAY  1991              *
*          VERSION 4.0.1E           *
*                                   *
* RUN DATE _______ TIME _______     *
*                                   *
*************************************

*************************************
*                                   *
*   U.S. ARMY CORPS OF ENGINEERS    *
*   HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET         *
*      DAVIS, CALIFORNIA 95616      *
*          (916) 551-1748           *
*                                   *
*************************************

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

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

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

                                        HEC-1 INPUT                                                    PAGE  1

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

   1          ID   Buckeye/Sun Valley ADMS - 1 March 2004
   2          ID   PBS&J - Modelers: Jacob Lesue & Wen Chen
   3          ID   100-year 24-hour
   4          ID   Existing Conditions
   5          ID   FRS #2 (Sub-basins S-U)
   6          ID   Rainfall Loss Method - Green & Ampt
   7          ID   Unit Hydrograph Method - FCDMC S-Graph
   8          ID   Channel Routing Method - Normal Depth
   9          ID   Land Use - FCDMC GIS Data: mag_landuse (2000)
  10          ID   Soil Data - USDA SCS Soil Survey (1972 & 1981)
  11          ID   Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
              *DIAGRAM
  12          IT       5  1JAN94       0    2000
  13          IO       3
  14          IN      15 01JAN94       0
  15          JD    4.13     0.01
              * 24-hour distribution
  16          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
  17          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
  18          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
  19          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
  20          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
  21          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
  22          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
  23          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
  24          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
  25          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
  26          IN      15 01JAN94       0
  27          JD   3.923    10.0
              * 24-hour distribution
  28          PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
  29          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
```

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30          PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
31          PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
32          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
33          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
34          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
35          PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
36          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
37          PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0

38          KK      S1
39          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
40          KM   L=2.32     Lca=0.52      S=143.99      Kn=0.050      LAG=29.0
41          KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
42          KO       0        0     0.0        1       22
43          BA  1.4108
44          LG    0.35     0.35   4.484   0.352   6.918
            * S1
45          UI     0.0  163.76  399.96  863.78 1191.38 1674.04 1389.89  974.39  824.12  687.96
46          UI  554.64  420.01  366.82  290.75  215.71   183.9  145.46  125.55   85.13   80.14
47          UI   72.14   31.39   31.39   31.39   31.39   31.39   31.39     0.0
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                                        HEC-1 INPUT                                                    PAGE  2

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

            48          KK     SCP   CNAME      S
            49          KO       0       0     0.0       0      22
            50          RN     SCP

            51          KK      U1
            52          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
            53          KM   L=2.37     Lca=1.03     S=326.50     Kn=0.050     LAG=33.0
            54          KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
            55          KO       0       0     0.0       1      22
            56          BA  1.3705
            57          LG    0.35    0.37   3.258   0.233   6.449
                        * U1
            58          UI     0.0  139.83   266.2  626.33  919.49 1139.88 1569.26 1014.69  819.13  707.21
            59          UI  603.81  505.84  395.99  334.05  299.65  225.43  178.67   155.8  129.72   107.2
            60          UI   86.65   68.43   68.43   50.61    26.8    26.8    26.8    26.8    26.8    26.8
            61          UI    26.8     0.0

            62          KK     UCP   CNAME      U
            63          KO       0       0     0.0       0      22
            64          RN     UCP

            65          KK      T1
            66          KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
            67          KM   L=4.34     Lca=1.58     S=274.89     Kn=0.050     LAG=81.0
            68          KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
            69          KO       0       0     0.0       1      22
            70          BA  3.0415
            71          LG    0.35    0.35   4.444   0.299  11.497
                        * T1
            72          UI     0.0   200.8   200.8  447.02  773.33 1107.71 1336.75 1525.87 1807.83 2359.26
            73          UI  1728.6 1335.29 1184.48 1081.59  978.95  886.26  793.63  697.43  590.13  511.99
            74          UI  476.04  440.92  386.02  329.88  260.38  252.47  219.92  219.92  155.92  153.94
            75          UI  153.94  103.27   98.26   98.26   98.26   91.33   38.49   38.49   38.49   38.49
            76          UI   38.49   38.49   38.49   38.49   38.49   38.49   38.49   38.49

            77          KK     TCP   CNAME      T
            78          KO       0       0     0.0       0      22
            79          RN     TCP
            80          ZZ
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
+                           S1       1449.   12.33         179.         48.         16.      1.41

          ROUTED TO
+                          SCP       1449.   12.33         179.         48.         16.      1.41

          HYDROGRAPH AT
+                           U1       1365.   12.42         189.         50.         17.      1.37

          ROUTED TO
+                          UCP       1365.   12.42         189.         50.         17.      1.37

          HYDROGRAPH AT
+                           T1       2151.   12.67         425.        117.         39.      3.04

          ROUTED TO
+                          TCP       2151.   12.67         425.        117.         39.      3.04

1*************************************                                    *************************************
*                                   *                                    *                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*                                   *   U.S. ARMY CORPS OF ENGINEERS    *
*              JUN   1998           *                                    *   HYDROLOGIC ENGINEERING CENTER   *
*            VERSION 4.1            *                                    *         609 SECOND STREET         *
*                                   *                                    *      DAVIS, CALIFORNIA 95616      *
*  RUN DATE   09JAN06  TIME  09:21:26*                                   *        (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 HEC1KN.

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

1                                       HEC-1 INPUT                                                    PAGE  1

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

            1           ID   Buckeye/Sun Valley ADMS - 01 March 2004
            2           ID   PBS&J - Modeler: Jacob Lesue & Wen Chen
            3           ID   100-year 24-hour
            4           ID   Existing Conditions
            5           ID   FRS #3 (Sub-basins V-Y)
```

```
 6        ID   Rainfall Loss Method - Green & Ampt
 7        ID   Unit Hydrograph Method - FCDMC S-Graph
 8        ID   Channel Routing Method - Normal Depth
 9        ID   Land Use - FCDMC GIS Data: mag_landuse (2000)
10        ID   Soil Data - USDA SCS Soil Survey (1972 & 1981)
11        ID   Units - L(mi)   Lca(mi)   S(ft/mi)   LAG(min)
          *DIAGRAM
12        IT       5  1JAN94       0    2000
13        IO       3
14        IN      15 01JAN94       0
15        JD    4.14    0.01
          * 24-hour distribution
16        PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
17        PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
18        PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
19        PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
20        PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
21        PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
22        PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
23        PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
24        PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
25        PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
26        IN      15 01JAN94       0
27        JD   3.933    10.0
          * 24-hour distribution
28        PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
29        PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
30        PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
31        PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
32        PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
33        PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
34        PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
35        PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
36        PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
37        PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0

38        KK      V1
39        KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
40        KM   L=2.86      Lca=1.75      S=344.82      Kn=0.050      LAG=43.0
41        KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
42        KO       0       0     0.0       1      22
43        BA  0.6646
44        LG    0.35    0.35   3.972   0.405  13.864
          * V1
45        UI     0.0   52.04   54.19  166.27  256.03  338.03  396.86  496.51  578.99  373.13
46        UI  313.66  281.75  250.64  220.87  193.81  162.52  133.66  122.94  111.92    90.9
47        UI   74.78   66.34   56.99    53.4    39.9    39.9   30.81   25.47   25.47   25.47
48        UI   16.36    9.97    9.97    9.97    9.97    9.97    9.97    9.97    9.97    9.97
49        UI     0.0
1                                        HEC-1 INPUT                                          PAGE  2

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

50        KK     VCP   CNAME       V
51        KO       0       0     0.0       0      22
52        RN     VCP

53        KK      W1
54        KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
55        KM   L=3.46      Lca=1.78      S=486.28      Kn=0.050      LAG=44.0
56        KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
57        KO       0       0     0.0       1      22
58        BA   3.894
59        LG    0.35    0.35   3.976    0.41  15.199
          * W1
60        UI     0.0  297.97  297.97  920.94 1416.37 1894.97 2238.82 2710.48 3465.75 2237.36
61        UI  1844.7 1658.52 1479.19 1314.03 1166.02  980.71   816.4  720.69   665.9  577.11
62        UI  477.35  380.74  352.03  326.35  259.78  228.45  225.14  145.82  145.82  145.82
63        UI  145.82   65.63   57.11   57.11   57.11   57.11   57.11   57.11   57.11   57.11
64        UI   57.11     0.0

65        KK   W1-W2   CNAME     W2R
66        KO       0       0     0.0       0      22
67        RS       6    FLOW     0.0     0.0
68        RC   0.050    0.05    0.06 11249.0  0.0189     0.0
          * W1-W2
69        RX     0.0   350.0   372.0   384.0   472.0   489.0   525.0  1005.0
70        RY    17.5    11.5    11.6    10.0    11.2    13.4    13.8    17.5

71        KK      W2
72        KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
73        KM   L=3.25      Lca=1.19      S=178.54      Kn=0.050      LAG=44.0
74        KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
75        KO       0       0     0.0       1      22
76        BA  2.8478
77        LG    0.35    0.35   4.081   0.402   3.547
          * W2
78        UI     0.0  217.92  217.92  673.51 1035.83 1385.85 1637.32 1982.26  2534.6 1636.25
79        UI  1349.1 1212.93 1081.78  961.58  852.74  717.22  597.06  527.06  486.99  422.06
80        UI   349.1  278.45  257.45  238.67  189.98  167.07  164.65  106.64  106.64  106.64
81        UI  106.64    48.0   41.77   41.77   41.77   41.77   41.77   41.77   41.77   41.77
82        UI   41.77     0.0

83        KK       W   CNAME     WCP
84        KO       0       0     0.0       0      22
85        RC       2     0.0

86        KK     WCP   CNAME       W
87        KO       0       0     0.0       0      22
88        RN     WCP

89        KK      X1
90        KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
91        KM   L=2.60      Lca=1.44      S=288.89      Kn=0.050      LAG=40.0
92        KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
93        KO       0       0     0.0       1      22
94        BA  0.7867
1                                        HEC-1 INPUT                                          PAGE  3

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

95        LG    0.35    0.35   3.955   0.417  12.555
          * X1
```

```
 96        UI     0.0   66.22   86.09  225.41  360.12  457.02  541.42  743.25  566.57  418.64
 97        UI  370.57  326.87  286.18  248.98  205.81  168.91  155.03  138.38  108.79   86.55
 98        UI   78.81   72.53   55.12   50.77   43.42   32.41   32.41   32.41   19.79   12.69
 99        UI   12.69   12.69   12.69   12.69   12.69   12.69   12.69     0.0

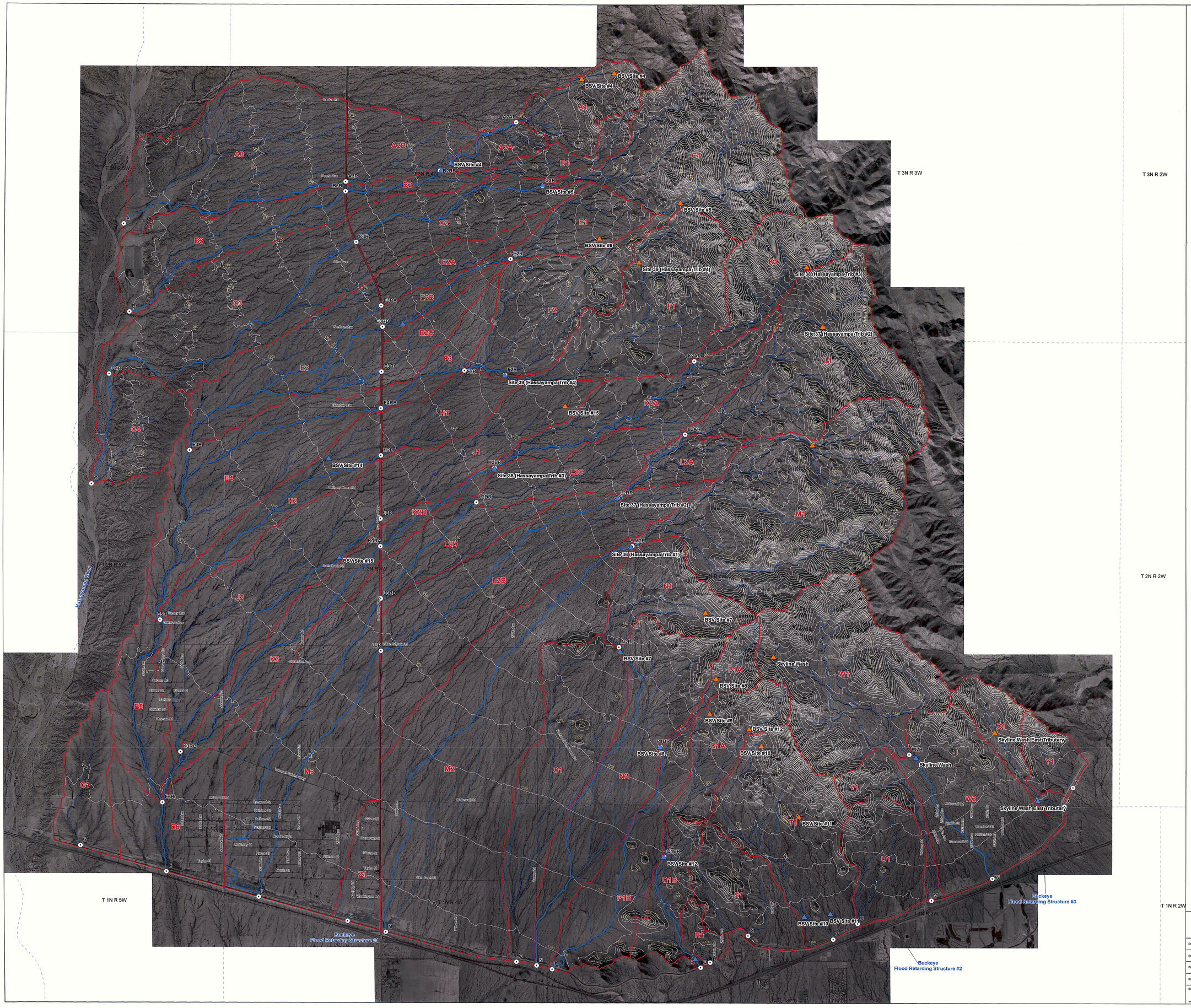
100        KK    XCP   CNAME       X
101        KO      0       0     0.0       0      22
102        RM    XCP

103        KK     Y1
104        KM   THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
105        KM   L=1.37     Lca=0.53     S=771.84     Kn=0.050     LAG=17.0
106        KM   S-GRAPH TYPE=PHOENIX MOUNTAIN
107        KO      0       0     0.0       1      22
108        BA  0.5808
109        LG    0.35    0.39   4.044   0.415  10.947
           * Y1
110        UI     0.0  162.05  614.46 1087.12   811.3  562.72  397.42  272.87  186.43   132.2
111        UI   88.57   57.25   43.55   22.05   22.05   22.05     0.0

112        KK    YCP   CNAME       Y
113        KO      0       0     0.0       0      22
114        RM    YCP
115        ZZ
```

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	Y1	526.	12.50	92.	26.	9.	.66		
+	ROUTED TO	YCP	526.	12.50	92.	26.	9.	.66		
+	HYDROGRAPH AT	W1	2976.	12.50	539.	153.	51.	3.89		
+	ROUTED TO	W1-W2	2589.	12.92	538.	153.	51.	3.89		
+	HYDROGRAPH AT	W2	2042.	12.50	332.	86.	29.	2.85		
+	2 COMBINED AT	W	3686.	12.83	863.	237.	79.	6.74		
+	ROUTED TO	WCP	3686.	12.83	863.	237.	79.	6.74		
+	HYDROGRAPH AT	X1	645.	12.50	106.	30.	10.	.79		
+	ROUTED TO	XCP	645.	12.50	106.	30.	10.	.79		
+	HYDROGRAPH AT	Y1	837.	12.17	77.	21.	7.	.58		
+	ROUTED TO	YCP	837.	12.17	77.	21.	7.	.58		



BUCKEYE/SUN VALLEY
AREA DRAINAGE MASTER STUDY
FCD CONTRACT NO. 2002C027

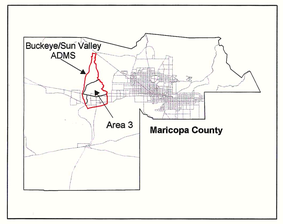
Figure 4-1
Area 3 Watershed Workmap

LEGEND

- Concentration/Combining Point
- Sub-Basin Boundary
- Road
- Township - Range
- Drainage Path
- Routing Channel
- Culvert
- Contour
- Hydrographic Apex
- Topographic Apex

NOTES

INDEX MAP



0 2,000 4,000 6,000 Feet

1 inch equals 2,000 feet
contour interval equals 50 feet

Horizontal Coordinate System:
NAD 1983 State Plane Arizona Central
Vertical Coordinate System:
NAVD 1988

N

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CHIEF ENGINEER AND GENERAL MANAGER

SHEET 1 OF 1

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FCD CONTRACT NO. 2002C027

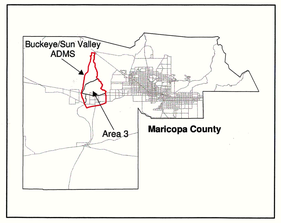
Figure 4-2
Area 3 Existing Conditions Schematic Map

LEGEND

- E1 Sub-Basin ID
- E Concentration/Combining Point
- E1-E2 Routing Channel ID
- Sub-Basin Boundary
- Routing Channel
- Drainage Path
- Culvert
- Road
- Contour (50ft)
- Township - Range

NOTES

INDEX MAP



0 2,000 4,000 6,000 Feet

1 inch equals 2,000 feet

N

Horizontal Coordinate System:
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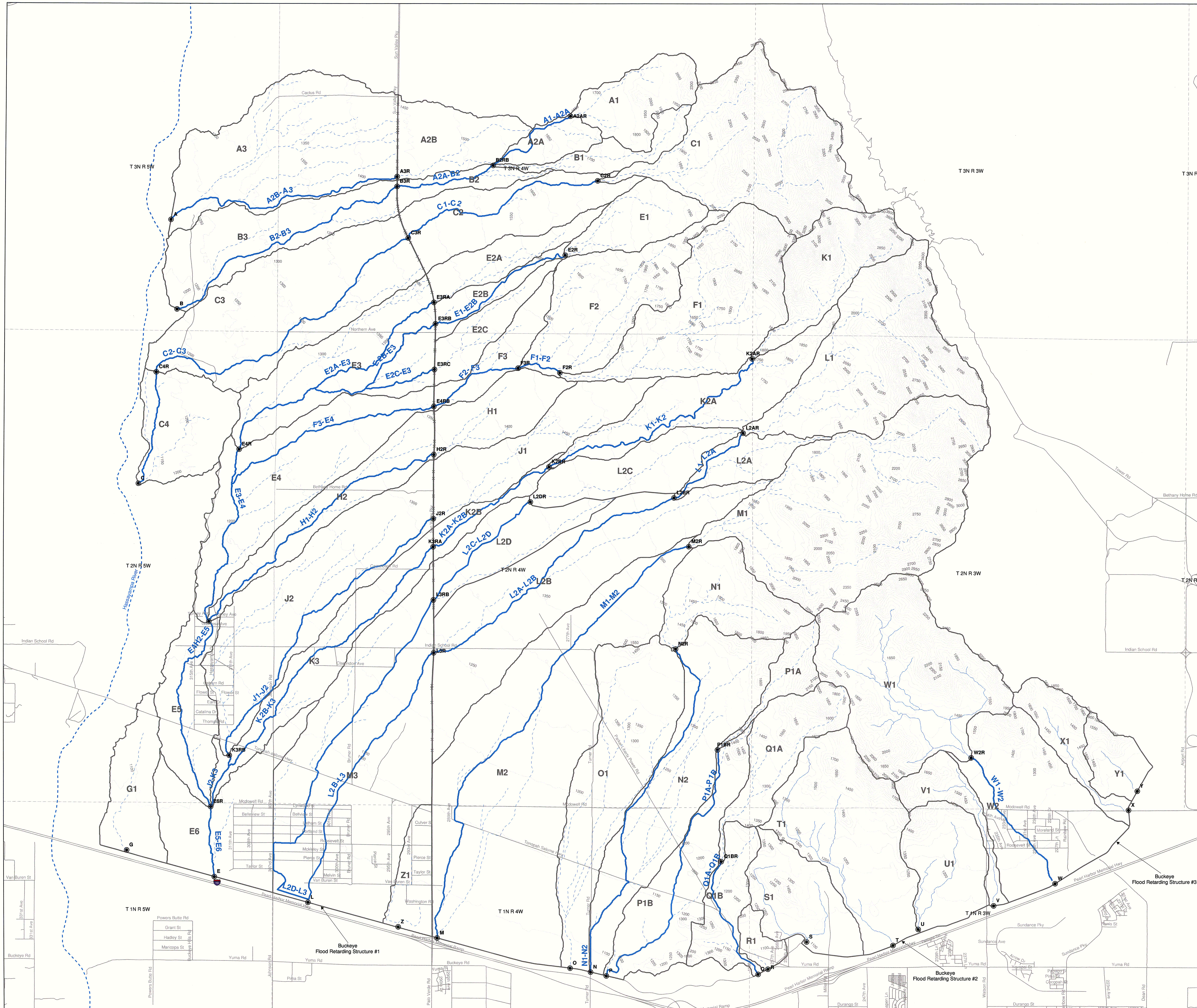


BUCKEYE/SUN VALLEY AREA DRAINAGE MASTER STUDY
FCD CONTRACT NO. 2002C027

Figure 4-3
Area 3 Routing Map

LEGEND

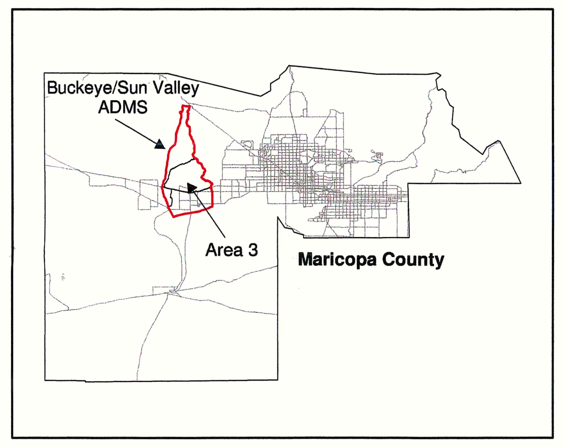
E1	Sub-Basin Boundary
E	Concentration Point
E1-E2	Routing Channel
	Drainage Path
×	Culvert
	Road
	Contour (50ft)
	Township - Range

NOTES

Please refer to Volume V-A1 Area 3 Hydrology Report Appendix D for cross section data, "n" value selection, culvert dimensions, slopes, and all other hydraulic data.

Registered Professional Engineer (Civil)
CERTIFICATE NO. 42881
STEPHEN W. ROGERS
Date Signed 1-26-06
ARIZONA U.S.A.

INDEX MAP



Feet
0 2,000 4,000 6,000
1 inch equals 2,000 feet

N

Horizontal Coordinate System:
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Vertical Coordinate System:
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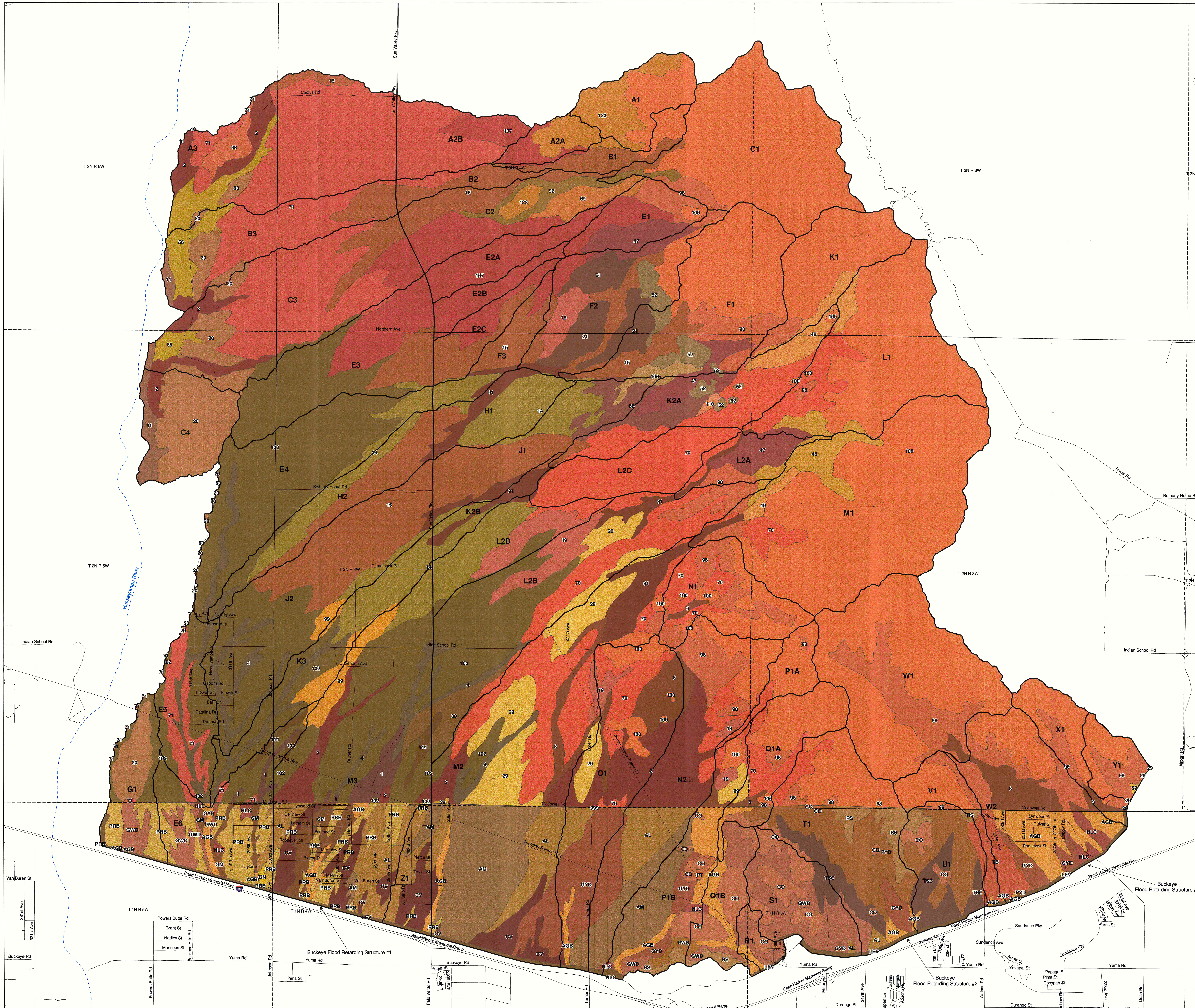

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F.C.D. CONTRACT NO. 2002C027

Figure 4-4
Area 3 Soils Map

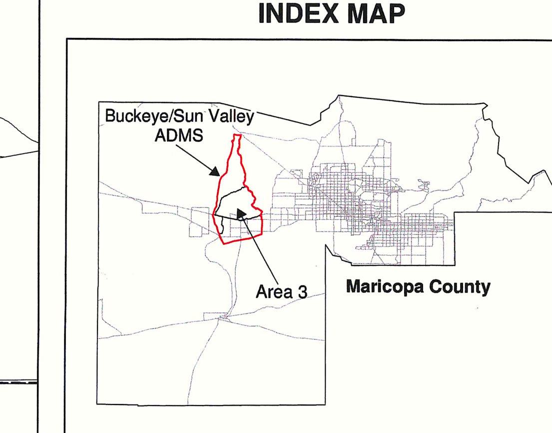
LEGEND

- E1 Sub-Basin Boundary
- Aba Soil Type
- Township-Range
- Roads

NOTES

Table D.2-2 lists the soil characteristics for each ID number.

INDEX MAP



0 2,000 4,000 6,000 Feet

1 inch equals 2,000 feet

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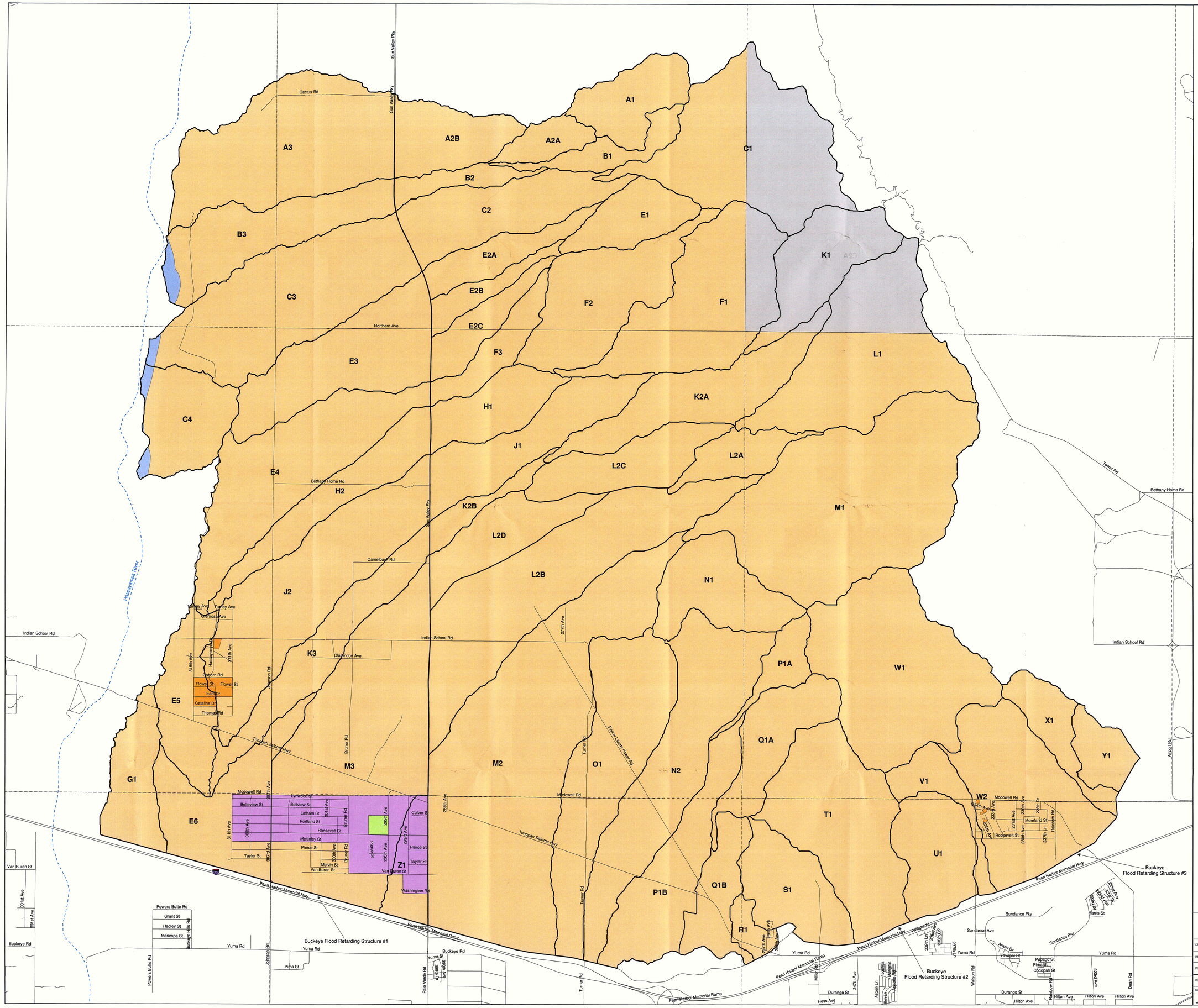

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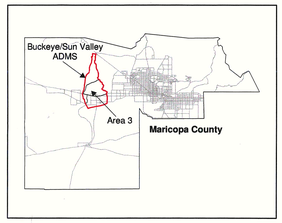
Figure 4-5
Area 3 Existing Conditions Land Use Map

LEGEND

- E1 Sub-Basin Boundary
- Road
- *Estate Residential*
- *Large Lot Residential - Single Family*
- *Transportation*
- *Active Open Space (Includes parks)*
- *Water*
- *Agriculture*
- *Vacant*
- Township-Range

NOTES

INDEX MAP



0 2,000 4,000 6,000 Feet

1 inch equals 2,000 feet

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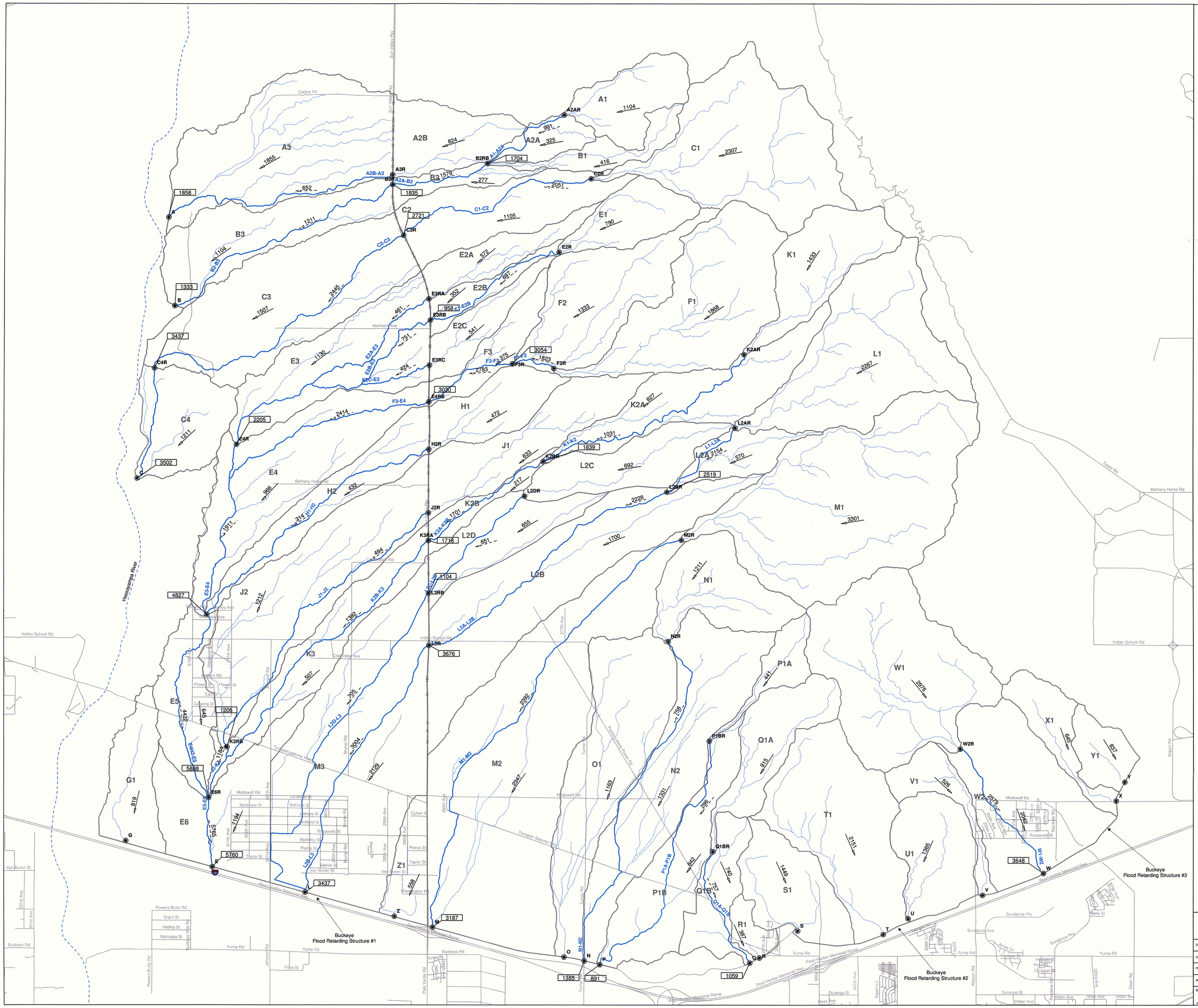

Flood Control District of Maricopa County

BUCKEYE/SUN VALLEY
AREA DRAINAGE MASTER STUDY
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Figure 4-6
Area 3 Existing Conditions Flow Map

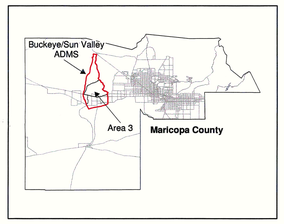
LEGEND

- E1 — Sub-Basin Boundary
- E1 — Concentration Point
- E1-E2 — Routing Channel
- Drainage Path
- Culvert
- Contour (50ft)
- Township - Range
- Road
- 1254 — Existing 100-year 24-hour Combined Peak Flow (CFS)
- 548 — Existing 100-year 24-hour Sub-Basin Peak Flow (CFS)
- 674 — Existing 100-year 24-hour Routed Peak Flow (CFS)

NOTES

Please refer to Volume V-A Area 3 Hydrology Report for all other peak flows.

INDEX MAP



0 2,000 4,000 6,000 Feet
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			SHEET 1 OF 1