23LDVCWW0490

Area Drainage Master Study

LITTLE DEER VALLEY

Conceptual Drainage Plan

Volume 2, Calculations

Prepared for:
CITY OF PHOENIX, ARIZONA
Engineering Department
Floodplain Management Section

Index Number ST-886358
Job Number 881111-11022

Collar, Williams and White Engineering
Water Resources Division
2702 North 44th Street, Suite 100A
Phoenix, Arizona 85008

Note :

(1) According to this report, Case III (Appendix C), is the most critical situation. This is based on the assumption that the City of Phoenix enforces it's on-site retention policy. In such cases, the existing conditions are going to be the most critical conditions. Because, any modification of land use types resulting in any excess runoff volume will be retained on-site.

(2) In Case III (Appendix C), basin 5 data files (for both 100-year and 2-year storms) are missing the basin area for sub-basin 5.41. As a result, the HEC-1 model reads the BA record from the previous KK group. In this particular case this was 0.3156 instead of 0.2303.

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Registered Professional Engineer (Civil) CERTIFICATE NO. 22083 DENNIS C. BOWLING Date Signed ARIZONA, U.S.A.

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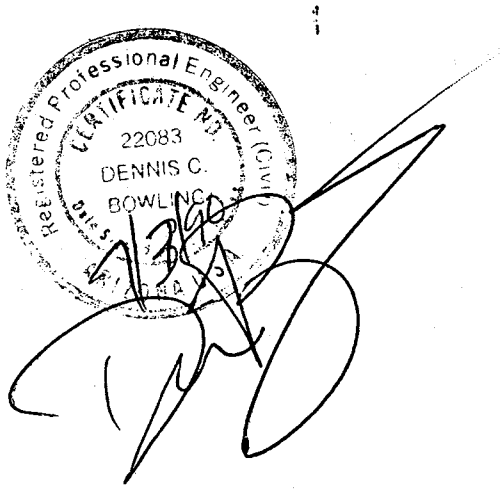

APPENDIX A

Existing Conditions HEC-1 (CASE I)

BASIN 1

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  07:53:44 *
*                                      *
****************************************
```

```
*************************************
*
*   U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2           ID   100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3           ID   FILE NAME BJLDV11 (AREA 1, CASE 1, 24 HOUR STORM)
*** FREE ***
                       *DIAGRAM
           4           IT       5       0       0     300
           5           IN      30
           6           IO       5

           7           KK   DA1.1
           8           BA   .0439
           9           PB     4.1
          10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15           LS       0      86
          16           UD    0.18

          17           KK   DA1.2
          18           BA  0.6563
          19           LS       0      85
          20           UD    1.05

          21           KKCP1.2>1.21-ROUTING
          22           RS       1    STOR      -1
          23           RC     .04     .03     .04    1200    0.01
          24           RX      98      99     100     101     110     130     270     470
          25           RY      10      10      10       1       1     1.5       5      10

          26           KK  DA1.21
          27           BA  0.1281
          28           LS       0      82
          29           UD    0.37

          30           KK1.2+1.21-COMBINE
          31           HC       2

          32           KK   DA1.3
          33           BA    0.30
          34           LS       0      79
          35           UD    0.63

          36           KK   DA1.4
          37           BA  0.1828
          38           LS       0      86
          39           UD    0.67

          40           KKCP1.4>1.3-ROUTING
          41           RS       1    STOR      -1
          42           RC     .04     .03     .04    2500    0.01
          43           RX      98      99     100     101     110     130     270     470
          44           RY      10      10      10       1       1     1.5       5      10
```

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

  45          KKCP1.3+1.4-COMBINE
  46          HC       2

  47          KK  DA1.31
  48          BA  0.0547
  49          LS       0      86       0
  50          UD    0.26

  51          KKCP1.3-COMBINE
  52          HC       2

  53          KK   DA1.5
  54          BA     .10
  55          LS       0      86
  56          UD    0.40
  57          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7       DA1.1
               .
               .
  17           .       DA1.2
               .           V
               .           V
  21           .    CP1.2>1.
               .           .
               .           .
  26           .           .     DA1.21
               .           .          .
               .           .          .
  30           .    1.2+1.21............
               .           .
               .           .
  32           .           .      DA1.3
               .           .          .
               .           .          .
  36           .           .          .      DA1.4
               .           .          .          V
               .           .          .          V
  40           .           .          .    CP1.4>1.
               .           .          .          .
               .           .          .          .
  45           .           .    CP1.3+1............
               .           .          .
               .           .          .
  47           .           .          .     DA1.31
               .           .          .          .
               .           .          .          .
  51           .           .    CP1.3-CO...........
               .           .          .
               .           .          .
  53           .           .          .      DA1.5
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  07:53:44 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME BJLDV11 (AREA 1, CASE 1, 24 HOUR STORM)

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

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

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA1.1	85.	6.08	10.	3.	3.	.04		
HYDROGRAPH AT	DA1.2	443.	7.00	146.	45.	43.	.66		
ROUTED TO	CP1.2>1.	442.	7.00	145.	45.	43.	.66	2.86	7.00
HYDROGRAPH AT	DA1.21	154.	6.25	26.	8.	8.	.13		
2 COMBINED AT	1.2+1.21	479.	6.92	171.	53.	51.	.78		
HYDROGRAPH AT	DA1.3	222.	6.50	53.	16.	16.	.30		
HYDROGRAPH AT	DA1.4	179.	6.50	43.	13.	12.	.18		
ROUTED TO	CP1.4>1.	171.	6.67	42.	13.	12.	.18	2.19	6.67
2 COMBINED AT	CP1.3+1.	388.	6.58	95.	29.	28.	.48		
HYDROGRAPH AT	DA1.31	92.	6.08	13.	4.	4.	.05		
2 COMBINED AT	CP1.3-CO	419.	6.58	108.	33.	32.	.54		
HYDROGRAPH AT	DA1.5	138.	6.25	24.	7.	7.	.10		

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

2-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*           REVISED 02 AUG 88          *
*                                      *
*  RUN DATE  09/19/1989  TIME  13:42:29 *
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*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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.
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DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

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

           1          ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2          ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3          ID   FILE NAME LDV112 (AREA 1, CASE 1, 2-HOUR STORM)
*** FREE ***
                      *DIAGRAM
           4          IT       5       0       0     300
           5          IN      30
           6          IO       5

           7          KK   DA1.1
           8          BA   .0439
           9          PB    1.44
          10          PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11          PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12          PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13          PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14          PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15          LS       0      86
          16          UD    0.18

          17          KK   DA1.2
          18          BA  0.6563
          19          LS       0      85
          20          UD    1.05

          21          KKCP1.2>1.21-ROUTING
          22          RS       1    STOR      -1
          23          RC     .04     .03     .04    1200    0.01
          24          RX      98      99     100     101     110     130     270     470
          25          RY      10      10      10       1       1     1.5       5      10

          26          KK  DA1.21
          27          BA  0.1281
          28          LS       0      82
          29          UD    0.37

          30          KK1.2+1.21-COMBINE
          31          HC       2

          32          KK   DA1.3
          33          BA    0.30
          34          LS       0      79
          35          UD    0.63

          36          KK   DA1.4
          37          BA  0.1828
          38          LS       0      86
          39          UD    0.67

          40          KKCP1.4>1.3-ROUTING
          41          RS       1    STOR      -1
          42          RC     .04     .03     .04    2500    0.01
          43          RX      98      99     100     101     110     130     270     470
          44          RY      10      10      10       1       1     1.5       5      10
```

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

  45          KKCP1.3+1.4-COMBINE
  46          HC       2

  47          KK  DA1.31
  48          BA  0.0547
  49          LS       0      86       0
  50          UD    0.26

  51          KKCP1.3-COMBINE
  52          HC       2

  53          KK   DA1.5
  54          BA     .10
  55          LS       0      86
  56          UD    0.40
  57          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7       DA1.1
               .
               .
  17           .       DA1.2
               .           V
               .           V
  21           .    CP1.2>1.
               .           .
               .           .
  26           .           .     DA1.21
               .           .          .
               .           .          .
  30           .    1.2+1.21............
               .           .
               .           .
  32           .           .      DA1.3
               .           .          .
               .           .          .
  36           .           .          .      DA1.4
               .           .          .          V
               .           .          .          V
  40           .           .          .    CP1.4>1.
               .           .          .          .
               .           .          .          .
  45           .           .    CP1.3+1.............
               .           .          .
               .           .          .
  47           .           .          .     DA1.31
               .           .          .          .
               .           .          .          .
  51           .           .    CP1.3-CO............
               .           .          .
               .           .          .
  53           .           .          .      DA1.5
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  08:23:09 *
*                                      *
****************************************
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*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE HYDROLOGIC ENGINEERING CENTER
*          609 SECOND STREET
*       DAVIS, CALIFORNIA 95616
*          (916) 551-1748
*
*************************************
```

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME LDV112 (AREA 1, CASE 1, 2-HOUR STORM)

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA1.1	13.	6.08	2.	1.	1.	.04		
HYDROGRAPH AT	DA1.2	58.	7.08	21.	7.	7.	.66		
ROUTED TO	CP1.2>1.	58.	7.17	21.	7.	7.	.66	1.70	7.17
HYDROGRAPH AT	DA1.21	15.	6.33	3.	1.	1.	.13		
2 COMBINED AT	1.2+1.21	62.	7.17	24.	8.	8.	.78		
HYDROGRAPH AT	DA1.3	17.	6.67	5.	2.	2.	.30		
HYDROGRAPH AT	DA1.4	25.	6.67	7.	2.	2.	.18		
ROUTED TO	CP1.4>1.	22.	6.92	7.	2.	2.	.18	1.49	6.92
2 COMBINED AT	CP1.3+1.	38.	6.83	12.	4.	4.	.48		
HYDROGRAPH AT	DA1.31	14.	6.17	2.	1.	1.	.05		
2 COMBINED AT	CP1.3-CO	41.	6.83	14.	5.	5.	.54		
HYDROGRAPH AT	DA1.5	19.	6.33	4.	1.	1.	.10		

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

BASIN 2

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  08:00:17 *
*                                      *
****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1          ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2          ID   100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3          ID   FILE NAME BJLDV21 (AREA 2, CASE 1, 24 HOUR STORM)
*** FREE ***
                      *DIAGRAM
           4          IT       5       0       0     300
           5          IN      30
           6          IO       5

           7          KK  DA2.10
           8          BA  1.1594
           9          PB     4.1
          10          PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11          PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12          PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13          PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14          PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15          LS       0      84
          16          UD    0.89

          17          KKCP2.1>CAP RESERVOIR-ROUTING
          18          RS       1    STOR       0
          19          SV       0    85.4   146.6   233.7   289.4
          20          SE    1518    1520    1522    1524    1525
          21          SQ       0      34      53      82      98
          22          SE 1514.41    1520    1522    1524    1525

          23          KKCP2.1>2.2 ROUTING
          24          RS       1    STOR      -1
          25          RC     .04     .03     .04    2600   .0167
          26          RX      98      99     100     101     110     130     270     470
          27          RY      10      10      10       1       1     1.5       5      10

          28          KK   DA2.2
          29          BA   .2656
          30          LS       0      80
          31          UD    0.80

          32          KK   CP2.2COMBINE
          33          HC       2

          34          KK   DA2.3
          35          BA  0.6094
          36          LS       0      85
          37          UD    1.10

          38          KKDA2.3-COMBINE
          39          HC       2

          40          KKCP2.3>2.4 ROUTING
          41          RS       1    STOR      -1
          42          RC     .04     .03     .04    2940   .0136
          43          RX      98      99     100     101     110     130     270     470
          44          RY      10      10      10       1       1     1.5       5      10
```

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

  45          KK   DA2.4
  46          BA  0.2141
  47          LS       0      86
  48          UD    0.26

  49          KK 2.3-2.4COMBINE
  50          HC       2

  51          KKCP2.4>2.5 ROUTING
  52          RS       1    STOR      -1
  53          RC     .04     .03     .04    1000   .0136
  54          RX      98      99     100     101     110     130     270     470
  55          RY      10      10      10       1       1     1.5       5      10

  56          KK   DA2.5
  57          BA  0.0641
  58          LS       0      86
  59          UD    0.16

  60          KK     CP2COMBINE
  61          HC       2

  62          KKCP2.4>2.41 ROUTING
  63          RS       1    STOR      -1
  64          RC     .04     .03     .04    2200   .0136
  65          RX      98      99     100     101     110     130     270     470
  66          RY      10      10      10       1       1     1.5       5      10

  67          KK  DA2.41
  68          BA  0.1078
  69          LS       0      74
  70          UD    0.57

  71          KK2.4+2.41-COMBINE
  72          HC       2

  73          KK   DA2.6
  74          BA  0.0969
  75          LS       0      86
  76          UD    0.20

  77          KKCP2N-COMBINE 2.0+2.6 IF SPLIT GOES NORTH
  78          HC       2
  79          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7      DA2.10
               V
               V
  17     CP2.1>CA
               V
               V
  23     CP2.1>2.
               .
               .
  28           .       DA2.2
               .           .
               .           .
  32       CP2.2............
               .
               .
  34           .       DA2.3
               .           .
               .           .
  38     DA2.3-CO............
               V
               V
  40     CP2.3>2.
               .
               .
  45           .       DA2.4
               .           .
               .           .
  49      2.3-2.4............
               V
               V
  51     CP2.4>2.
               .
               .
  56           .       DA2.5
               .           .
               .           .
  60         CP2............
               V
               V
  62     CP2.4>2.
               .
               .
  67           .      DA2.41
               .           .
               .           .
  71     2.4+2.41............
               .
               .
  73           .       DA2.6
               .           .
               .           .
  77     CP2N-COM............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  08:00:17 *
*                                      *
****************************************
```

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

```
                    LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
                    100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
                    FILE NAME BJLDV21 (AREA 2, CASE 1, 24 HOUR STORM)

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA2.10	847.	6.83	249.	76.	74.	1.16		
ROUTED TO	CP2.1>CA	40.	12.08	40.	30.	29.	1.16	1520.67	12.17
ROUTED TO	CP2.1>2.	40.	12.25	40.	30.	29.	1.16	1.54	12.33
HYDROGRAPH AT	DA2.2	174.	6.75	48.	15.	15.	.27		
2 COMBINED AT	CP2.2	199.	6.75	83.	45.	43.	1.42		
HYDROGRAPH AT	DA2.3	397.	7.00	135.	42.	40.	.61		
2 COMBINED AT	DA2.3-CO	582.	6.92	218.	86.	83.	2.03		
ROUTED TO	CP2.3>2.	572.	7.00	217.	86.	83.	2.03	2.95	7.00
HYDROGRAPH AT	DA2.4	361.	6.08	51.	15.	15.	.21		
2 COMBINED AT	2.3-2.4	616.	7.00	264.	101.	98.	2.25		
ROUTED TO	CP2.4>2.	616.	7.00	264.	101.	98.	2.25	3.01	7.00
HYDROGRAPH AT	DA2.5	126.	6.00	15.	5.	4.	.06		
2 COMBINED AT	CP2	626.	7.00	278.	106.	102.	2.31		
ROUTED TO	CP2.4>2.	623.	7.08	277.	105.	102.	2.31	3.01	7.08
HYDROGRAPH AT	DA2.41	66.	6.50	15.	5.	5.	.11		
2 COMBINED AT	2.4+2.41	657.	7.00	292.	110.	107.	2.42		
HYDROGRAPH AT	DA2.6	183.	6.08	23.	7.	7.	.10		
2 COMBINED AT	CP2N-COM	687.	6.25	314.	117.	113.	2.52		

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

2-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  08:34:50 *
*                                      *
****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

          1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
          2           ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
          3           ID   FILE NAME LDV212 (AREA 2, CASE 1, 2-HOUR STORM)
*** FREE ***
                      *DIAGRAM
          4           IT       5       0       0     300
          5           IN      30
          6           IO       5

          7           KK  DA2.10
          8           BA  1.1594
          9           PB    1.44
         10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
         11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
         12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
         13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
         14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
         15           LS       0      84
         16           UD    0.89

         17           KKCP2.1>CAP RESERVOIR-ROUTING
         18           RS       1    STOR       0
         19           SV       0    85.4   146.6   233.7   289.4
         20           SE    1518    1520    1522    1524    1525
         21           SQ       0      34      53      82      98
         22           SE 1514.41    1520    1522    1524    1525

         23           KKCP2.1>2.2 ROUTING
         24           RS       1    STOR      -1
         25           RC     .04     .03     .04    2600   .0167
         26           RX      98      99     100     101     110     130     270     470
         27           RY      10      10      10       1       1     1.5       5      10

         28           KK   DA2.2
         29           BA   .2656
         30           LS       0      80
         31           UD    0.80

         32           KK   CP2.2COMBINE
         33           HC       2

         34           KK   DA2.3
         35           BA  0.6094
         36           LS       0      85
         37           UD    1.10

         38           KKDA2.3-COMBINE
         39           HC       2

         40           KKCP2.3>2.4 ROUTING
         41           RS       1    STOR      -1
         42           RC     .04     .03     .04    2940   .0136
         43           RX      98      99     100     101     110     130     270     470
         44           RY      10      10      10       1       1     1.5       5      10
```

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

  45          KK   DA2.4
  46          BA  0.2141
  47          LS       0      86
  48          UD    0.26

  49          KK 2.3-2.4COMBINE
  50          HC       2

  51          KKCP2.4>2.5 ROUTING
  52          RS       1    STOR      -1
  53          RC     .04     .03     .04    1000   .0136
  54          RX      98      99     100     101     110     130     270     470
  55          RY      10      10      10       1       1     1.5       5      10

  56          KK   DA2.5
  57          BA  0.0641
  58          LS       0      86
  59          UD    0.16

  60          KK     CP2COMBINE
  61          HC       2

  62          KKCP2.4>2.41 ROUTING
  63          RS       1    STOR      -1
  64          RC     .04     .03     .04    2200   .0136
  65          RX      98      99     100     101     110     130     270     470
  66          RY      10      10      10       1       1     1.5       5      10

  67          KK  DA2.41
  68          BA  0.1078
  69          LS       0      74
  70          UD    0.57

  71          KK2.4+2.41-COMBINE
  72          HC       2

  73          KK   DA2.6
  74          BA  0.0969
  75          LS       0      86
  76          UD    0.20

  77          KKCP2N-COMBINE 2.0+2.6 IF SPLIT GOES NORTH
  78          HC       2
  79          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7     DA2.10
               V
               V
  17    CP2.1>CA
               V
               V
  23    CP2.1>2.
               .
               .
  28           .       DA2.2
               .           .
               .           .
  32      CP2.2............
               .
               .
  34           .       DA2.3
               .           .
               .           .
  38    DA2.3-CO............
               V
               V
  40    CP2.3>2.
               .
               .
  45           .       DA2.4
               .           .
               .           .
  49     2.3-2.4............
               V
               V
  51    CP2.4>2.
               .
               .
  56           .       DA2.5
               .           .
               .           .
  60        CP2............
               V
               V
  62    CP2.4>2.
               .
               .
  67           .      DA2.41
               .           .
               .           .
  71    2.4+2.41............
               .
               .
  73           .       DA2.6
               .           .
               .           .
  77    CP2N-COM............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  08:34:50 *
*                                      *
****************************************
```

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

```
                    LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
                    2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
                    FILE NAME LDV212 (AREA 2, CASE 1, 2-HOUR STORM)

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA2.10	103.	6.92	34.	12.	11.	1.16		
ROUTED TO	CP2.1>CA	23.	8.83	23.	12.	11.	1.16	1518.20	8.83
ROUTED TO	CP2.1>2.	23.	9.08	23.	12.	12.	1.16	1.42	9.17
HYDROGRAPH AT	DA2.2	15.	6.92	5.	2.	2.	.27		
2 COMBINED AT	CP2.2	36.	6.92	27.	14.	13.	1.42		
HYDROGRAPH AT	DA2.3	52.	7.17	20.	7.	6.	.61		
2 COMBINED AT	DA2.3-CO	88.	7.08	47.	20.	20.	2.03		
ROUTED TO	CP2.3>2.	86.	7.25	47.	21.	20.	2.03	1.80	7.25
HYDROGRAPH AT	DA2.4	53.	6.17	8.	3.	3.	.21		
2 COMBINED AT	2.3-2.4	93.	7.25	53.	23.	22.	2.25		
ROUTED TO	CP2.4>2.	92.	7.25	53.	23.	23.	2.25	1.83	7.25
HYDROGRAPH AT	DA2.5	20.	6.08	2.	1.	1.	.06		
2 COMBINED AT	CP2	94.	7.25	55.	24.	23.	2.31		
ROUTED TO	CP2.4>2.	93.	7.42	54.	24.	23.	2.31	1.84	7.42
HYDROGRAPH AT	DA2.41	3.	6.75	1.	0.	0.	.11		
2 COMBINED AT	2.4+2.41	95.	7.33	55.	24.	24.	2.42		
HYDROGRAPH AT	DA2.6	27.	6.08	4.	1.	1.	.10		
2 COMBINED AT	CP2N-COM	97.	7.33	58.	26.	25.	2.52		

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

BASIN 3

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  14:18:07 *
*                                      *
****************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*  THE 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

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

            1          ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
            2          ID   100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
            3          ID   FILE NAME LDV31(AREA 3, CASE 1, 24 HOUR STORM)
*** FREE ***
                       *DIAGRAM
            4          IT       5       0       0     300
            5          IN      30
            6          IO       5

            7          KK   DA3.5
            8          BA   .0484
            9          PB     4.1
           10          PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
           11          PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
           12          PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
           13          PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
           14          PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
           15          LS       0      74
           16          UD    0.48

           17          KK   DA3.6
           18          BA  0.0219
           19          LS       0      74
           20          UD    0.46

           21          KK   DA3.7
           22          BA  0.0484
           23          LS       0      74
           24          UD    0.51

           25          KKCP3.7-COMBINE 3.6+3.7
           26          HC       2

           27          KK   DA3.8
           28          BA  0.0150
           29          LS       0      74
           30          UD    0.32

           31          KK   DA3.1
           32          BA  0.2672
           33          LS       0      86
           34          UD    0.22

           35          KK   DA3.2
           36          BA  0.2422
           37          LS       0      84
           38          UD    0.36

           39          KKCP3A-COMBINE 3.1+3.2
           40          HC       2
```

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

  41          KKCP3.2>3A-ROUTING
  42          RS       1    STOR      -1
  43          RC     .04     .04     .04     500   0.012
  44          RX      30      80     100     106     116     122     142     192
  45          RY      10     9.5       9       6       6       9     9.5      10

  46          KKCP3A>3B-ROUTING
  47          RS       1    STOR      -1
  48          RC     .04     .04     .04     900   0.009
  49          RX      10     100     300     314     321     335     540     650
  50          RY      12      11       9       6       6       9      11      12

  51          KK   DA3.3
  52          BA  0.0266
  53          LS       0      74
  54          UD    0.50

  55          KKCP3.3>3B-ROUTING
  56          RS       1    STOR      -1
  57          RC     .04     .04     .04     750   0.014
  58          RX      30      80     100     106     116     122     142     192
  59          RY      10     9.5       9       6       6       9     9.5      10

  60          KKCP3B-COMBINE
  61          HC       2

  62          KKCP3B>3.0-ROUTING
  63          RS       1    STOR      -1
  64          RC     .04     .04     .04    2600   0.009
  65          RX      10     100     300     314     322     336     540     650
  66          RY      12      11       9       6       6       9      11      12

  67          KK   DA3.4
  68          BA  0.2141
  69          LS       0      81
  70          UD    0.59

  71          KKCP3.0-COMBINE
  72          HC       2

  73          KK   DA3.9
  74          BA  0.0906
  75          LS       0      74
  76          UD    0.43

  77          KK  DA3.95
  78          BA  0.0641
  79          LS       0      74
  80          UD    0.88
  81          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

  7       DA3.5
              .
              .
 17           .      DA3.6
              .          .
              .          .
 21           .          .      DA3.7
              .          .          .
              .          .          .
 25           .   CP3.7-CO............
              .          .
              .          .
 27           .          .      DA3.8
              .          .          .
              .          .          .
 31           .          .          .     DA3.1
              .          .          .         .
              .          .          .         .
 35           .          .          .         .      DA3.2
              .          .          .         .          .
              .          .          .         .          .
 39           .          .          .   CP3A-COM............
              .          .          .         V
              .          .          .         V
 41           .          .          .   CP3.2>3A
              .          .          .         V
              .          .          .         V
 46           .          .          .   CP3A>3B-
              .          .          .         .
              .          .          .         .
 51           .          .          .         .      DA3.3
              .          .          .         .          V
              .          .          .         .          V
 55           .          .          .         .   CP3.3>3B
              .          .          .         .          .
              .          .          .         .          .
 60           .          .          .   CP3B-COM............
              .          .          .         V
              .          .          .         V
 62           .          .          .   CP3B>3.0
              .          .          .         .
              .          .          .         .
 67           .          .          .         .      DA3.4
              .          .          .         .          .
              .          .          .         .          .
 71           .          .          .   CP3.0-CO............
              .          .          .         .
              .          .          .         .
 73           .          .          .         .      DA3.9
              .          .          .         .          .
              .          .          .         .          .
 77           .          .          .         .          .     DA3.95
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*             FEBRUARY 1981            *
*           REVISED 02 AUG 88          *
*                                      *
*  RUN DATE  09/19/1989  TIME  14:18:07 *
*                                      *
****************************************
```

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

```
                    LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
                    100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
                    FILE NAME LDV31(AREA 3, CASE 1, 24 HOUR STORM)

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

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

               COMPUTATION INTERVAL     .08 HOURS
                    TOTAL TIME BASE   24.92 HOURS

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

WARNING --- ROUTED OUTFLOW (    727.) IS GREATER THAN MAXIMUM OUTFLOW (    713.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    769.) IS GREATER THAN MAXIMUM OUTFLOW (    713.) IN STORAGE-OUTFLOW TABLE
```

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	DA3.5	33.	6.42	7.	2.	2.	.05		
HYDROGRAPH AT	DA3.6	15.	6.33	3.	1.	1.	.02		
HYDROGRAPH AT	DA3.7	32.	6.42	7.	2.	2.	.05		
2 COMBINED AT	CP3.7-CO	47.	6.42	10.	3.	3.	.07		
HYDROGRAPH AT	DA3.8	13.	6.17	2.	1.	1.	.01		
HYDROGRAPH AT	DA3.1	489.	6.08	63.	19.	18.	.27		
HYDROGRAPH AT	DA3.2	321.	6.25	53.	16.	15.	.24		
2 COMBINED AT	CP3A-COM	766.	6.08	116.	35.	34.	.51		
ROUTED TO	CP3.2>3A	769.	6.17	116.	35.	34.	.51	10.09	6.17
ROUTED TO	CP3A>3B-	737.	6.25	116.	35.	34.	.51	9.81	6.25
HYDROGRAPH AT	DA3.3	18.	6.42	4.	1.	1.	.03		
ROUTED TO	CP3.3>3B	17.	6.50	4.	1.	1.	.03	6.56	6.50
2 COMBINED AT	CP3B-COM	750.	6.25	119.	36.	35.	.54		
ROUTED TO	CP3B>3.0	656.	6.33	119.	36.	35.	.54	9.65	6.33
HYDROGRAPH AT	DA3.4	183.	6.50	41.	13.	12.	.21		
2 COMBINED AT	CP3.0-CO	828.	6.42	160.	49.	47.	.75		
HYDROGRAPH AT	DA3.9	66.	6.33	13.	4.	4.	.09		
HYDROGRAPH AT	DA3.95	29.	6.83	9.	3.	3.	.06		

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

2-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/20/1989  TIME  09:43:51 *
*                                      *
****************************************
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```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1          ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2          ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3          ID   FILE NAME LDV312 (AREA 3, CASE 1, 24 HOUR STORM)
*** FREE ***
                      *DIAGRAM
           4          IT       5       0       0     300
           5          IN      30
           6          IO       5

           7          KK   DA3.5
           8          BA   .0484
           9          PB    1.44
          10          PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11          PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12          PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13          PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14          PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15          LS       0      74
          16          UD    0.48

          17          KK   DA3.6
          18          BA  0.0219
          19          LS       0      74
          20          UD    0.46

          21          KK   DA3.7
          22          BA  0.0484
          23          LS       0      74
          24          UD    0.51

          25          KKCP3.7-COMBINE 3.6+3.7
          26          HC       2

          27          KK   DA3.8
          28          BA  0.0150
          29          LS       0      74
          30          UD    0.32

          31          KK   DA3.1
          32          BA  0.2672
          33          LS       0      86
          34          UD    0.22

          35          KK   DA3.2
          36          BA  0.2422
          37          LS       0      84
          38          UD    0.36

          39          KKCP3A-COMBINE 3.1+3.2
          40          HC       2
```

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

  41          KKCP3.2>3A-ROUTING
  42          RS       1    STOR      -1
  43          RC     .04     .04     .04     500   0.012
  44          RX      30      80     100     106     116     122     142     192
  45          RY      10     9.5       9       6       6       9     9.5      10

  46          KKCP3A>3B-ROUTING
  47          RS       1    STOR      -1
  48          RC     .04     .04     .04     900   0.009
  49          RX      10     100     300     314     321     335     540     650
  50          RY      12      11       9       6       6       9      11      12

  51          KK   DA3.3
  52          BA  0.0266
  53          LS       0      74
  54          UD    0.50

  55          KKCP3.3>3B-ROUTING
  56          RS       1    STOR      -1
  57          RC     .04     .04     .04     750   0.014
  58          RX      30      80     100     106     116     122     142     192
  59          RY      10     9.5       9       6       6       9     9.5      10

  60          KKCP3B-COMBINE
  61          HC       2

  62          KKCP3B>3.0-ROUTING
  63          RS       1    STOR      -1
  64          RC     .04     .04     .04    2600   0.009
  65          RX      10     100     300     314     322     336     540     650
  66          RY      12      11       9       6       6       9      11      12

  67          KK   DA3.4
  68          BA  0.2141
  69          LS       0      81
  70          UD    0.59

  71          KKCP3.0-COMBINE
  72          HC       2

  73          KK   DA3.9
  74          BA  0.0906
  75          LS       0      74
  76          UD    0.43

  77          KK  DA3.95
  78          BA  0.0641
  79          LS       0      74
  80          UD    0.88
  81          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7       DA3.5
               .
               .
  17           .       DA3.6
               .           .
               .           .
  21           .           .       DA3.7
               .           .           .
               .           .           .
  25           .    CP3.7-CO............
               .           .
               .           .
  27           .           .       DA3.8
               .           .           .
               .           .           .
  31           .           .           .       DA3.1
               .           .           .           .
               .           .           .           .
  35           .           .           .           .       DA3.2
               .           .           .           .           .
               .           .           .           .           .
  39           .           .           .    CP3A-COM............
               .           .           .           V
               .           .           .           V
  41           .           .           .    CP3.2>3A
               .           .           .           V
               .           .           .           V
  46           .           .           .    CP3A>3B-
               .           .           .           .
               .           .           .           .
  51           .           .           .           .       DA3.3
               .           .           .           .           V
               .           .           .           .           V
  55           .           .           .           .    CP3.3>3B
               .           .           .           .           .
               .           .           .           .           .
  60           .           .           .    CP3B-COM............
               .           .           .           V
               .           .           .           V
  62           .           .           .    CP3B>3.0
               .           .           .           .
               .           .           .           .
  67           .           .           .           .       DA3.4
               .           .           .           .           .
               .           .           .           .           .
  71           .           .           .    CP3.0-CO............
               .           .           .           .
               .           .           .           .
  73           .           .           .           .       DA3.9
               .           .           .           .           .
               .           .           .           .           .
  77           .           .           .           .           .     DA3.95
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/20/1989  TIME  09:43:51 *
*                                      *
****************************************
```

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

```
                    LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
                    2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
                    FILE NAME LDV312 (AREA 3, CASE 1, 24 HOUR STORM)

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

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

             COMPUTATION INTERVAL     .08 HOURS
                  TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA3.5	1.	6.67	0.	0.	0.	.05		
HYDROGRAPH AT	DA3.6	1.	6.58	0.	0.	0.	.02		
HYDROGRAPH AT	DA3.7	1.	6.67	0.	0.	0.	.05		
2 COMBINED AT	CP3.7-CO	2.	6.67	1.	0.	0.	.07		
HYDROGRAPH AT	DA3.8	0.	6.33	0.	0.	0.	.01		
HYDROGRAPH AT	DA3.1	70.	6.17	10.	3.	3.	.27		
HYDROGRAPH AT	DA3.2	38.	6.25	7.	2.	2.	.24		
2 COMBINED AT	CP3A-COM	104.	6.17	17.	6.	6.	.51		
ROUTED TO	CP3.2>3A	103.	6.17	17.	6.	6.	.51	7.63	6.17
ROUTED TO	CP3A>3B-	100.	6.25	17.	6.	6.	.51	7.73	6.25
HYDROGRAPH AT	DA3.3	1.	6.67	0.	0.	0.	.03		
ROUTED TO	CP3.3>3B	1.	6.83	0.	0.	0.	.03	6.04	6.83
2 COMBINED AT	CP3B-COM	101.	6.25	17.	6.	6.	.54		
ROUTED TO	CP3B>3.0	82.	6.42	17.	6.	6.	.54	7.51	6.42
HYDROGRAPH AT	DA3.4	17.	6.58	5.	2.	2.	.21		
2 COMBINED AT	CP3.0-CO	96.	6.42	22.	7.	7.	.75		
HYDROGRAPH AT	DA3.9	2.	6.58	1.	0.	0.	.09		
HYDROGRAPH AT	DA3.95	1.	7.17	1.	0.	0.	.06		

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

BASIN 4

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/17/1989  TIME  13:09:59 *
*                                      *
****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

          1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
          2           ID   100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
          3           ID   FILE NAME BJLDV41 (AREA 4, CASE 1, 24 HOUR STORM) 6/26/89
*** FREE ***
                      *DIAGRAM
          4           IT       5       0       0     300
          5           IN      30
          6           IO       5

          7           KK   DA4.1
          8           BA  0.5594
          9           PB     4.1
         10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
         11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
         12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
         13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
         14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
         15           LS       0      83
         16           UD    0.83

         17           KKCP4.1>4.4-ROUTING
         18           KM   ROUTE CP4.1 TO CP4.4
         19           RS       1    STOR      -1
         20           RC     .04     .04     .04    1980     .01
         21           RX      20     220     500     507     515     522     720     820
         22           RY      14      12       9       6       6       9      12      14

         23           KK   DA4.2
         24           BA   .1688
         25           LS       0      82
         26           UD    0.15

         27           KKCP4.2-COMBINE
         28           HC       2

         29           KK   DA4.3
         30           BA  0.2234
         31           LS       0      78
         32           UD    0.88

         33           KKCP4.3>4.2-ROUTING
         34           KM   ROUTE CP4.3 TO CP4.2
         35           RS       1    STOR      -1
         36           RC     .04     .04     .04    1900   .0125
         37           RX      30      80     100     107     114     121     141     191
         38           RY      10     9.5       9       7       7       9     9.5      10

         39           KK   DA4.4
         40           BA  0.0547
         41           LS       0      74
         42           UD    0.64
```

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

  43          KKCP4.4-COMBINE
  44          HC       2

  45          KKCP4A-COMBINE CP4.4+CP4.2
  46          HC       2

  47          KKCP4A>4B-ROUTING
  48          KM   ROUTE CP4A TO CP4B
  49          RS       1    STOR      -1
  50          RC     .04     .04     .04    3400    .008
  51          RX     200     350     500     506     526     532     630     650
  52          RY      13      11       9       6       6       9      12      13

  53          KK   DA4.7
  54          BA  0.2722
  55          LS       0      81
  56          UD    0.12

  57          KKCP4.7-COMBINE
  58          HC       2

  59          KK   DA4.5
  60          BA  0.0641
  61          LS       0      79
  62          UD    0.74

  63          KKCP4.5>4.6
  64          RS       1    STOR      -1
  65          RC     .04     .04     .04    5510     .01
  66          RX      30      80     100     106     116     122     142     192
  67          RY      10     9.5       9       6       6       9     9.5      10

  68          KK   DA4.6
  69          BA  0.0953
  70          LS       0      75
  71          UD    1.29

  72          KKCP4.6-COMBINE
  73          HC       2

  74          KKCP4B-COMBINE 4.6+4.7
  75          HC       2

  76          KKCP4B>4C-ROUTING
  77          KM   ROUTE CP4B TO CP4C
  78          RS       1    STOR      -1
  79          RC     .04     .04     .04    4845     .01
  80          RX      10     200     300     306     326     332     430     630
  81          RY      12      10       9       6       6       9      10      12
```

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

  82          KK   DA4.8
  83          BA  0.7000
  84          LS       0      78
  85          UD    1.26

  86          KKCP4C-COMBINE 4B+4.8
  87          HC       2

  88          KKCP4C>4.0 ROUTING
  89          KM   ROUTE CP4C TO CP4.0
  90          RS       1    STOR      -1
  91          RC     .04     .04     .04    2680   .0075
  92          RX     100     110     300     306     326     332     800    1300
  93          RY       8       7       5       2       2       5       7       8

  94          KK   DA4.9
  95          BA  0.1219
  96          LS       0      81
  97          UD    0.43

  98          KKCP4.0-COMBINE 4C+4.9
  99          HC       2

 100          KK  DA4.95
 101          BA  0.0391
 102          LS       0      86
 103          UD    0.04
 104          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7        DA4.1
                V
                V
  17     CP4.1>4.
                .
                .
  23            .       DA4.2
                .           .
                .           .
  27     CP4.2-CO............
                .
                .
  29            .       DA4.3
                .           V
                .           V
  33            .    CP4.3>4.
                .           .
                .           .
  39            .           .       DA4.4
                .           .           .
                .           .           .
  43            .    CP4.4-CO............
                .           .
                .           .
  45     CP4A-COM............
                V
                V
  47     CP4A>4B-
                .
                .
  53            .       DA4.7
                .           .
                .           .
  57     CP4.7-CO............
                .
                .
  59            .       DA4.5
                .           V
                .           V
  63            .    CP4.5>4.
                .           .
                .           .
  68            .           .       DA4.6
                .           .           .
                .           .           .
  72            .    CP4.6-CO............
                .           .
                .           .
  74     CP4B-COM............
                V
                V
  76     CP4B>4C-
                .
```

```
                .
 82             .        DA4.8
                .           .
                .           .
 86     CP4C-COM............
                V
                V
 88     CP4C>4.0
                .
                .
 94             .        DA4.9
                .           .
                .           .
 98     CP4.0-CO............
                .
                .
100             .       DA4.95
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
* RUN DATE  08/17/1989  TIME  13:09:59 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME BJLDV41 (AREA 4, CASE 1, 24 HOUR STORM) 6/26/89

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA4.1	412.	6.75	115.	36.	34.	.56		
ROUTED TO	CP4.1>4.	400.	6.83	115.	36.	34.	.56	9.46	6.83
HYDROGRAPH AT	DA4.2	289.	6.00	34.	10.	10.	.17		
2 COMBINED AT	CP4.2-CO	427.	6.83	148.	46.	44.	.73		
HYDROGRAPH AT	DA4.3	124.	6.83	37.	12.	11.	.22		
ROUTED TO	CP4.3>4.	123.	6.92	37.	12.	11.	.22	8.88	6.92
HYDROGRAPH AT	DA4.4	31.	6.58	8.	2.	2.	.05		
2 COMBINED AT	CP4.4-CO	148.	6.83	45.	14.	14.	.28		
2 COMBINED AT	CP4A-COM	575.	6.83	193.	60.	58.	1.01		
ROUTED TO	CP4A>4B-	563.	6.92	191.	60.	58.	1.01	9.31	6.92
HYDROGRAPH AT	DA4.7	482.	6.00	53.	16.	16.	.27		
2 COMBINED AT	CP4.7-CO	709.	6.08	243.	76.	73.	1.28		
HYDROGRAPH AT	DA4.5	42.	6.67	11.	4.	3.	.06		
ROUTED TO	CP4.5>4.	34.	7.00	11.	3.	3.	.06	6.91	7.00
HYDROGRAPH AT	DA4.6	34.	7.33	14.	4.	4.	.10		
2 COMBINED AT	CP4.6-CO	66.	7.08	24.	8.	8.	.16		
2 COMBINED AT	CP4B-COM	714.	6.08	267.	84.	81.	1.44		
ROUTED TO	CP4B>4C-	640.	7.17	264.	83.	80.	1.44	9.31	7.17
HYDROGRAPH AT	DA4.8	296.	7.25	115.	37.	35.	.70		
2 COMBINED AT	CP4C-COM	934.	7.17	379.	120.	116.	2.14		
ROUTED TO	CP4C>4.0	903.	7.33	377.	120.	115.	2.14	5.80	7.33
HYDROGRAPH AT	DA4.9	127.	6.33	23.	7.	7.	.12		
2 COMBINED AT	CP4.0-CO	926.	7.33	400.	127.	122.	2.26		
HYDROGRAPH AT	DA4.95	93.	6.00	9.	3.	3.	.04		

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

2-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
* RUN DATE  09/19/1989  TIME  12:54:52 *
*                                      *
****************************************
```

```
*************************************
*
*   U.S. ARMY CORPS OF ENGINEERS
* THE 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

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

           1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2           ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3           ID   FILE NAME LDV412 (AREA 4, CASE 1, 24 HOUR STORM) 9/19/89
*** FREE ***
                       *DIAGRAM
           4           IT       5       0       0     300
           5           IN      30
           6           IO       5

           7           KK   DA4.1
           8           BA  0.5594
           9           PB    1.44
          10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15           LS       0      83
          16           UD    0.83

          17           KKCP4.1>4.4-ROUTING
          18           KM   ROUTE CP4.1 TO CP4.4
          19           RS       1    STOR      -1
          20           RC     .04     .04     .04    1980     .01
          21           RX      20     220     500     507     515     522     720     820
          22           RY      14      12       9       6       6       9      12      14

          23           KK   DA4.2
          24           BA   .1688
          25           LS       0      82
          26           UD    0.15

          27           KKCP4.2-COMBINE
          28           HC       2

          29           KK   DA4.3
          30           BA  0.2234
          31           LS       0      78
          32           UD    0.88

          33           KKCP4.3>4.2-ROUTING
          34           KM   ROUTE CP4.3 TO CP4.2
          35           RS       1    STOR      -1
          36           RC     .04     .04     .04    1900   .0125
          37           RX      30      80     100     107     114     121     141     191
          38           RY      10     9.5       9       7       7       9     9.5      10

          39           KK   DA4.4
          40           BA  0.0547
          41           LS       0      74
          42           UD    0.64
```

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

  43          KKCP4.4-COMBINE
  44          HC       2

  45          KKCP4A-COMBINE CP4.4+CP4.2
  46          HC       2

  47          KKCP4A>4B-ROUTING
  48          KM   ROUTE CP4A TO CP4B
  49          RS       1    STOR      -1
  50          RC     .04     .04     .04    3400    .008
  51          RX     200     350     500     506     526     532     630     650
  52          RY      13      11       9       6       6       9      12      13

  53          KK   DA4.7
  54          BA  0.2722
  55          LS       0      81
  56          UD    0.12

  57          KKCP4.7-COMBINE
  58          HC       2

  59          KK   DA4.5
  60          BA  0.0641
  61          LS       0      79
  62          UD    0.74

  63          KKCP4.5>4.6
  64          RS       1    STOR      -1
  65          RC     .04     .04     .04    5510     .01
  66          RX      30      80     100     106     116     122     142     192
  67          RY      10     9.5       9       6       6       9     9.5      10

  68          KK   DA4.6
  69          BA  0.0953
  70          LS       0      75
  71          UD    1.29

  72          KKCP4.6-COMBINE
  73          HC       2

  74          KKCP4B-COMBINE 4.6+4.7
  75          HC       2

  76          KKCP4B>4C-ROUTING
  77          KM   ROUTE CP4B TO CP4C
  78          RS       1    STOR      -1
  79          RC     .04     .04     .04    4845     .01
  80          RX      10     200     300     306     326     332     430     630
  81          RY      12      10       9       6       6       9      10      12
```

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

  82          KK   DA4.8
  83          BA  0.7000
  84          LS       0      78
  85          UD    1.26

  86          KKCP4C-COMBINE 4B+4.8
  87          HC       2

  88          KKCP4C>4.0 ROUTING
  89          KM   ROUTE CP4C TO CP4.0
  90          RS       1    STOR      -1
  91          RC     .04     .04     .04    2680   .0075
  92          RX     100     110     300     306     326     332     800    1300
  93          RY       8       7       5       2       2       5       7       8

  94          KK   DA4.9
  95          BA  0.1219
  96          LS       0      81
  97          UD    0.43

  98          KKCP4.0-COMBINE 4C+4.9
  99          HC       2

 100          KK  DA4.95
 101          BA  0.0391
 102          LS       0      86
 103          UD    0.04
 104          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7        DA4.1
                V
                V
  17     CP4.1>4.
                .
                .
  23            .       DA4.2
                .           .
                .           .
  27     CP4.2-CO............
                .
                .
  29            .       DA4.3
                .           V
                .           V
  33            .    CP4.3>4.
                .           .
                .           .
  39            .           .       DA4.4
                .           .           .
                .           .           .
  43            .    CP4.4-CO............
                .           .
                .           .
  45     CP4A-COM............
                V
                V
  47     CP4A>4B-
                .
                .
  53            .       DA4.7
                .           .
                .           .
  57     CP4.7-CO............
                .
                .
  59            .       DA4.5
                .           V
                .           V
  63            .    CP4.5>4.
                .           .
                .           .
  68            .           .       DA4.6
                .           .           .
                .           .           .
  72            .    CP4.6-CO............
                .           .
                .           .
  74     CP4B-COM............
                V
                V
  76     CP4B>4C-
                .
```

```
              .
  82          .       DA4.8
              .          .
              .          .
  86    CP4C-COM............
              V
              V
  88    CP4C>4.0
              .
              .
  94          .       DA4.9
              .          .
              .          .
  98    CP4.0-CO............
              .
              .
 100          .      DA4.95
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  12:54:52 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME LDV412 (AREA 4, CASE 1, 24 HOUR STORM) 9/19/89

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

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

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA4.1	46.	6.92	15.	5.	5.	.56		
ROUTED TO	CP4.1>4.	45.	7.00	15.	5.	5.	.56	7.18	7.00
HYDROGRAPH AT	DA4.2	34.	6.08	4.	1.	1.	.17		
2 COMBINED AT	CP4.2-CO	49.	7.00	19.	7.	6.	.73		
HYDROGRAPH AT	DA4.3	9.	7.00	3.	1.	1.	.22		
ROUTED TO	CP4.3>4.	8.	7.25	3.	1.	1.	.22	7.44	7.25
HYDROGRAPH AT	DA4.4	1.	6.83	0.	0.	0.	.05		
2 COMBINED AT	CP4.4-CO	9.	7.17	4.	1.	1.	.28		
2 COMBINED AT	CP4A-COM	58.	7.00	22.	8.	8.	1.01		
ROUTED TO	CP4A>4B-	54.	7.25	22.	8.	8.	1.01	6.86	7.25
HYDROGRAPH AT	DA4.7	50.	6.08	6.	2.	2.	.27		
2 COMBINED AT	CP4.7-CO	59.	7.17	28.	10.	10.	1.28		
HYDROGRAPH AT	DA4.5	3.	6.83	1.	0.	0.	.06		
ROUTED TO	CP4.5>4.	2.	7.67	1.	0.	0.	.06	6.13	7.67
HYDROGRAPH AT	DA4.6	2.	7.67	1.	0.	0.	.10		
2 COMBINED AT	CP4.6-CO	3.	7.67	2.	1.	1.	.16		
2 COMBINED AT	CP4B-COM	63.	7.17	30.	11.	10.	1.44		
ROUTED TO	CP4B>4C-	59.	7.50	28.	11.	10.	1.44	6.85	7.50
HYDROGRAPH AT	DA4.8	21.	7.50	10.	4.	4.	.70		
2 COMBINED AT	CP4C-COM	80.	7.50	39.	15.	14.	2.14		
ROUTED TO	CP4C>4.0	78.	7.67	38.	14.	14.	2.14	3.10	7.67
HYDROGRAPH AT	DA4.9	12.	6.42	3.	1.	1.	.12		
2 COMBINED AT	CP4.0-CO	81.	7.67	40.	15.	15.	2.26		
HYDROGRAPH AT	DA4.95	17.	6.00	1.	0.	0.	.04		

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

BASIN 5

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  08:25:17 *
*                                      *
****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2           ID   100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3           ID   FILE NAME BJLDV51 (AREA 5, CASE 1, 24 HOUR STORM)
*** FREE ***
                       *DIAGRAM
           4           IT       5       0       0     300
           5           IN      30
           6           IO       5

           7           KK   DA5.1
           8           BA  0.3234
           9           PB     4.1
          10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15           LS       0      83
          16           UD    0.46

          17           KKCP5.1>5A-ROUTING
          18           KM   ROUTE CP5.1 TO CP5A
          19           RS       1    STOR      -1
          20           RC     .04     .04     .04    4870   .0105
          21           RX      30      80     104     108     114     118     142     192
          22           RY      10     9.5       9       7       7       9     9.5      10

          23           KK   DA5.2
          24           BA  0.1172
          25           LS       0      86
          26           UD    0.90

          27           KKCP5.2-COMBINE 5.1+5.2
          28           HC       2

          29           KK   DA5.3
          30           BA   .3156
          31           LS       0      77
          32           UD    1.53

          33           KK 1.3+1.2
          34           HC      2.

          35           KK CP5A>5BROUTING
          36           KM   ROUTE CP5A TO CP5B
          37           RS       1    STOR      -1
          38           RC    .035    .015    .035    5300   .0083
          39           RX      55      80     100     110     120     130     150     175
          40           RY      11       8      10    10.1    10.1      10       8      11
```

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

  41          KK  DA5.41
  42          BA  0.2303
  43          LS       0      74       0
  44          UD    0.35

  45          KKCP5.1-5.41-COMBINE
  46          HC       2

  47          KK  5BWEST
  48          KM   FLOW SPLIT AT CONCENTRATION POINT 5B
  49          DT  5EEAST
  50          DI       0     100     200     300     400     500
  51          DQ       0      50     100     150     200     250

  52          KK   DA5.4
  53          BA  0.7266
  54          LS       0      75      14
  55          UD    0.42

  56          KKCP5B-COMBINE 5B+5.4
  57          HC       2

  58          KK   DA5.5
  59          BA   .3078
  60          LS       0      81
  61          UD    0.53

  62          KK5.0-COMBINE 5B+5.5
  63          HC       2
  64          ZZ
```

```
                SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   7        DA5.1
                V
                V
  17     CP5.1>5A
                .
                .
  23            .       DA5.2
                .           .
                .           .
  27     CP5.2-CO............
                .
                .
  29            .       DA5.3
                .           .
                .           .
  33      1.3+1.2............
                V
                V
  35      CP5A>5B
                .
                .
  41            .      DA5.41
                .           .
                .           .
  45     CP5.1-5.............
                .
                .
  49            .-------> 5EEAST
  47       5BWEST
                .
                .
  52            .       DA5.4
                .           .
                .           .
  56     CP5B-COM............
                .
                .
  58            .       DA5.5
                .           .
                .           .
  62     5.0-COMB............

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
```

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  08:25:17 *
*                                      *
****************************************
```

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

```
                    LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
                    100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
                    FILE NAME BJLDV51 (AREA 5, CASE 1, 24 HOUR STORM)

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA5.1	357.	6.33	68.	21.	20.	.32		
ROUTED TO	CP5.1>5A	259.	6.58	67.	21.	20.	.32	9.79	6.58
HYDROGRAPH AT	DA5.2	93.	6.83	27.	8.	8.	.12		
2 COMBINED AT	CP5.2-CO	349.	6.67	94.	29.	28.	.44		
HYDROGRAPH AT	DA5.3	109.	7.58	49.	16.	15.	.32		
2 COMBINED AT	1.3+1.2	407.	6.75	142.	45.	43.	.76		
ROUTED TO	CP5A>5B	367.	7.08	140.	44.	43.	.76	10.17	7.08
HYDROGRAPH AT	DA5.41	192.	6.25	33.	10.	10.	.23		
2 COMBINED AT	CP5.1-5.	410.	7.00	171.	55.	53.	.99		
DIVERSION TO	5EEAST	205.	7.00	86.	27.	26.	.99		
HYDROGRAPH AT	5BWEST	205.	7.00	86.	27.	26.	.99		
HYDROGRAPH AT	DA5.4	693.	6.25	129.	40.	39.	.73		
2 COMBINED AT	CP5B-COM	834.	6.33	214.	68.	65.	1.71		
HYDROGRAPH AT	DA5.5	282.	6.42	59.	18.	18.	.31		
2 COMBINED AT	5.0-COMB	1110.	6.33	273.	86.	83.	2.02		

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

2-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  13:09:03 *
*                                      *
****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1          ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2          ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3          ID   FILE NAME LDV512 (AREA 5, CASE 1, 24 HOUR STORM)
*** FREE ***
                      *DIAGRAM
           4          IT       5       0       0     300
           5          IN      30
           6          IO       5

           7          KK   DA5.1
           8          BA  0.3234
           9          PB    1.44
          10          PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11          PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12          PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13          PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14          PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15          LS       0      83
          16          UD    0.46

          17          KKCP5.1>5A-ROUTING
          18          KM   ROUTE CP5.1 TO CP5A
          19          RS       1    STOR      -1
          20          RC     .04     .04     .04    4870   .0105
          21          RX      30      80     104     108     114     118     142     192
          22          RY      10     9.5       9       7       7       9     9.5      10

          23          KK   DA5.2
          24          BA  0.1172
          25          LS       0      86
          26          UD    0.90

          27          KKCP5.2-COMBINE 5.1+5.2
          28          HC       2

          29          KK   DA5.3
          30          BA   .3156
          31          LS       0      77
          32          UD    1.53

          33          KK 1.3+1.2
          34          HC      2.

          35          KK CP5A>5BROUTING
          36          KM   ROUTE CP5A TO CP5B
          37          RS       1    STOR      -1
          38          RC    .035    .015    .035    5300   .0083
          39          RX      55      80     100     110     120     130     150     175
          40          RY      11       8      10    10.1    10.1      10       8      11
```

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

  41          KK  DA5.41
  42          BA  0.2303
  43          LS       0      74       0
  44          UD    0.35

  45          KKCP5.1-5.41-COMBINE
  46          HC       2

  47          KK  5BWEST
  48          KM   FLOW SPLIT AT CONCENTRATION POINT 5B
  49          DT  5EEAST
  50          DI       0     100     200     300     400     500
  51          DQ       0      50     100     150     200     250

  52          KK   DA5.4
  53          BA  0.7266
  54          LS       0      75      14
  55          UD    0.42

  56          KKCP5B-COMBINE 5B+5.4
  57          HC       2

  58          KK   DA5.5
  59          BA   .3078
  60          LS       0      81
  61          UD    0.53

  62          KK5.0-COMBINE 5B+5.5
  63          HC       2
  64          ZZ
```

```
                SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   7        DA5.1
                V
                V
  17      CP5.1>5A
                .
                .
  23            .       DA5.2
                .           .
                .           .
  27      CP5.2-CO............
                .
                .
  29            .       DA5.3
                .           .
                .           .
  33       1.3+1.2............
                V
                V
  35       CP5A>5B
                .
                .
  41            .      DA5.41
                .           .
                .           .
  45      CP5.1-5.............
                .
                .
  49            .-------> 5EEAST
  47        5BWEST
                .
                .
  52            .       DA5.4
                .           .
                .           .
  56      CP5B-COM............
                .
                .
  58            .       DA5.5
                .           .
                .           .
  62      5.0-COMB............

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
```

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  13:09:03 *
*                                      *
****************************************
```

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

```
                    LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
                    2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
                    FILE NAME LDV512 (AREA 5, CASE 1, 24 HOUR STORM)

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA5.1	39.	6.42	9.	3.	3.	.32		
ROUTED TO	CP5.1>5A	29.	6.75	9.	3.	3.	.32	8.07	6.75
HYDROGRAPH AT	DA5.2	13.	6.92	4.	1.	1.	.12		
2 COMBINED AT	CP5.2-CO	41.	6.75	13.	4.	4.	.44		
HYDROGRAPH AT	DA5.3	7.	7.83	4.	2.	1.	.32		
2 COMBINED AT	1.3+1.2	44.	6.83	17.	6.	6.	.76		
ROUTED TO	CP5A>5B	33.	7.42	16.	6.	6.	.76	8.89	7.42
HYDROGRAPH AT	DA5.41	6.	6.42	2.	1.	1.	.23		
2 COMBINED AT	CP5.1-5.	36.	7.33	18.	7.	6.	.99		
DIVERSION TO	5EEAST	18.	7.33	9.	3.	3.	.99		
HYDROGRAPH AT	5BWEST	18.	7.33	9.	3.	3.	.99		
HYDROGRAPH AT	DA5.4	89.	6.25	19.	6.	6.	.73		
2 COMBINED AT	CP5B-COM	93.	6.25	27.	10.	9.	1.71		
HYDROGRAPH AT	DA5.5	26.	6.50	7.	2.	2.	.31		
2 COMBINED AT	5.0-COMB	114.	6.33	34.	12.	12.	2.02		

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

BASIN 6

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  08:34:06 *
*                                      *
****************************************
```

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*************************************
*
*   U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

          1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
          2           ID   100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
          3           ID   FILE NAME BJLDV61 (AREA 6, CASE 1, 24 HOUR STORM)
*** FREE ***
                      *DIAGRAM
          4           IT       5       0       0     300
          5           IN      30
          6           IO       5

          7           KK   DA5.1
          8           BA  0.3234
          9           PB     4.1
         10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
         11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
         12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
         13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
         14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
         15           LS       0      83
         16           UD    0.46

         17           KKCP5.1>5A-ROUTING
         18           KM   ROUTE CP5.1 TO CP5A
         19           RS       1    STOR      -1
         20           RC     .04     .04     .04    4870   .0105
         21           RX      30      80     104     108     114     118     142     192
         22           RY      10     9.5       9       7       7       9     9.5      10

         23           KK   DA5.2
         24           BA  0.1172
         25           LS       0      86
         26           UD    0.90

         27           KKCP5.2-COMBINE 5.1+5.2
         28           HC       2

         29           KK   DA5.3
         30           BA   .3156
         31           LS       0      77
         32           UD    1.56

         33           KK 5.3+5.2
         34           HC      2.

         35           KK CP5A>5BROUTING
         36           KM   ROUTE CP5A TO CP5B
         37           RS       1    STOR      -1
         38           RC    .035    .015    .035    5300   .0083
         39           RX      55      80     100     110     120     130     150     175
         40           RY      11       8      10    10.1    10.1      10       8      11
```

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

  41          KK  DA5.41
  42          BA  0.2303
  43          LS       0      74
  44          UD    0.35

  45          KK  5BWEST
  46          KM   FLOW SPLIT AT CONCENTRATION POINT 5B
  47          DT  5EEAST
  48          DI       0     100     200     300     400     500
  49          DQ       0      50     100     150     200     250

  50          KK   DA5.4
  51          BA  0.7266
  52          LS       0      75      14
  53          UD    0.42

  54          KKCP5B-COMBINE 5B+5.4
  55          HC       2

  56          KK   DA5.5
  57          BA   .3078
  58          LS       0      81
  59          UD    0.53

  60          KK5.0-COMBINE 5B+5.5
  61          HC       2

  62          KK   DA6.1
  63          BA   .3688
  64          LS       0      82
  65          UD    0.36

  66          KKCP6.1>6.2-ROUTING
  67          RS       1    STOR      -1
  68          RC     .04     .04     .04    2400   .0045
  69          RX      10     200     300     306     316     322     420     620
  70          RY      12      10       9       6       6       9      10      12

  71          KK   DA6.2
  72          BA   .3266
  73          LS       0      76
  74          UD    1.02

  75          KKCP6A-COMBINE 6.1+6.2
  76          HC       2

  77          KK   DA6.5
  78          BA  0.3125
  79          LS       0      77
  80          UD    0.93
```

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

 81           KKCP6.1+6.2+6.5
 82           HC        2

 83           KK    DA6.3
 84           BA    .3688
 85           LS        0       83
 86           UD     0.68

 87           KKCP6.3>6.31-ROUTE
 88           KM    NATURAL WASH
 89           RS        1     STOR      -1
 90           RC      .04      .04      .04     1500     .010
 91           RX       10      200      300      306      316      322      420      620
 92           RY       12       10        9        6        6        9       10       12

 93           KK   DA6.31
 94           BA   0.0781
 95           LS        0       74
 96           UD     0.67

 97           KK      6.4
 98           BA    .0953
 99           LS        0       78
100           UD      1.0

101           KKCP6A-COMBINE 6.2+6.3+6.4
102           HC        4

103           KK    DA6.6
104           BA    0.125
105           LS        0       75
106           UD     1.21

107           KKCP6.6-COMBINE 6A+6.6
108           HC        2

109           KKCP6.6>6.5-ROUTING
110           RS        1     STOR      -1
111           RC      .04      .04      .04     1700     .004
112           RX      200      300      400      500      600      700      800      900
113           RY       11       10        9        8        8        9       10       11

114           KK     6.51
115           BA    .2578
116           LS        0       74        8
117           UD     0.92

118           KKCP6.5-COMBINE 6.6+6.5
119           HC        2
```

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

 120          KKCP6.5>6.7A-ROUTING
 121          RS       1    STOR      -1
 122          RC    .035    .022    .035    1700   .0018
 123          RX      80      80     100     124     204     228     325     425
 124          RY      11    10.5      10       4       4      10    10.5      11

 125          KK6.7A>6.7-ROUTING
 126          KM   FROM OUTLET OF CHANNEL TO P.P. RD.
 127          RS       1    STOR      -1
 128          RC     .04     .04     .04    1000    .004
 129          RX     200     300     400     500     600     700     800     900
 130          RY      11      10       9       8       8       9      10      11

 131          KK  5EEAST
 132          KM   RETRIEVE FLOW SPLIT AT 5EEAST
 133          DR  5EEAST

 134          KK5E>6.0-ROUTING
 135          RS       1    STOR      -1
 136          RC     .04     .04     .04    2700    .001
 137          RX     650     700     760     769     770     780     790     800
 138          RY      10     9.5       9       8       8       9       9      10

 139          KK   DA6.7
 140          BA   .6359
 141          LS       0      74      14
 142          UD     .34

 143          KKCP6.0-COMBINE 5E+6.7+6.5
 144          HC       3
 145          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

  7       DA5.1
              V
              V
 17     CP5.1>5A
              .
              .
 23           .       DA5.2
              .           .
              .           .
 27     CP5.2-CO............
              .
              .
 29           .       DA5.3
              .           .
              .           .
 33      5.3+5.2............
              V
              V
 35      CP5A>5B
              .
              .
 41           .      DA5.41
              .           .
              .           .
 47           .           .-------> 5EEAST
 45           .     5BWEST
              .           .
              .           .
 50           .           .      DA5.4
              .           .          .
              .           .          .
 54           .    CP5B-COM............
              .           .
              .           .
 56           .           .      DA5.5
              .           .          .
              .           .          .
 60           .    5.0-COMB............
              .           .
              .           .
 62           .           .      DA6.1
              .           .          V
              .           .          V
 66           .           .   CP6.1>6.
              .           .          .
              .           .          .
 71           .           .          .       DA6.2
              .           .          .           .
              .           .          .           .
 75           .           .   CP6A-COM............
              .           .          .
              .           .          .
 77           .           .          .       DA6.5
```

```
                .         .         .         .
                .         .         .         .
 81             .         .   CP6.1+6............
                .         .         .
                .         .         .
 83             .         .         .     DA6.3
                .         .         .         V
                .         .         .         V
 87             .         .         .   CP6.3>6.
                .         .         .         .
                .         .         .         .
 93             .         .         .         .     DA6.31
                .         .         .         .         .
                .         .         .         .         .
 97             .         .         .         .         .         6.4
                .         .         .         .         .           .
                .         .         .         .         .           .
101             .         .   CP6A-COM...................................
                .         .         .
                .         .         .
103             .         .         .     DA6.6
                .         .         .         .
                .         .         .         .
107             .         .   CP6.6-CO............
                .         .       V
                .         .       V
109             .         .   CP6.6>6.
                .         .         .
                .         .         .
114             .         .         .      6.51
                .         .         .         .
                .         .         .         .
118             .         .   CP6.5-CO............
                .         .       V
                .         .       V
120             .         .   CP6.5>6.
                .         .       V
                .         .       V
125             .         .   6.7A>6.7
                .         .         .
                .         .         .
133             .         .         .         .<-------  5EEAST
131             .         .         .    5EEAST
                .         .         .         V
                .         .         .         V
134             .         .         .   5E>6.0-R
                .         .         .         .
                .         .         .         .
139             .         .         .         .     DA6.7
                .         .         .         .         .
                .         .         .         .         .
143             .         .   CP6.0-CO........................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  08:34:06 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME BJLDV61 (AREA 6, CASE 1, 24 HOUR STORM)

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA5.1	357.	6.33	68.	21.	20.	.32		
ROUTED TO	CP5.1>5A	259.	6.58	67.	21.	20.	.32	9.79	6.58
HYDROGRAPH AT	DA5.2	93.	6.83	27.	8.	8.	.12		
2 COMBINED AT	CP5.2-CO	349.	6.67	94.	29.	28.	.44		
HYDROGRAPH AT	DA5.3	107.	7.58	49.	16.	15.	.32		
2 COMBINED AT	5.3+5.2	404.	6.75	142.	45.	43.	.76		
ROUTED TO	CP5A>5B	364.	7.08	140.	44.	43.	.76	10.16	7.08
HYDROGRAPH AT	DA5.41	192.	6.25	33.	10.	10.	.23		
DIVERSION TO	5EEAST	96.	6.25	16.	5.	5.	.23		
HYDROGRAPH AT	5BWEST	96.	6.25	16.	5.	5.	.23		
HYDROGRAPH AT	DA5.4	693.	6.25	129.	40.	39.	.73		
2 COMBINED AT	CP5B-COM	789.	6.25	145.	46.	44.	.96		
HYDROGRAPH AT	DA5.5	282.	6.42	59.	18.	18.	.31		
2 COMBINED AT	5.0-COMB	1054.	6.33	204.	64.	62.	1.26		
HYDROGRAPH AT	DA6.1	449.	6.25	74.	23.	22.	.37		
ROUTED TO	CP6.1>6.	362.	6.42	74.	23.	22.	.37	9.67	6.42
HYDROGRAPH AT	DA6.2	147.	7.00	50.	16.	15.	.33		
2 COMBINED AT	CP6A-COM	451.	6.50	123.	38.	37.	.70		
HYDROGRAPH AT	DA6.5	158.	6.92	50.	16.	15.	.31		
2 COMBINED AT	CP6.1+6.	580.	6.58	173.	54.	52.	1.01		
HYDROGRAPH AT	DA6.3	313.	6.58	76.	23.	23.	.37		
ROUTED TO	CP6.3>6.	310.	6.67	76.	23.	23.	.37	9.08	6.67
HYDROGRAPH AT	DA6.31	43.	6.58	11.	3.	3.	.08		
HYDROGRAPH AT	6.4	48.	7.00	16.	5.	5.	.10		
4 COMBINED AT	CP6A-COM	970.	6.58	276.	86.	83.	1.55		
HYDROGRAPH AT	DA6.6	47.	7.25	18.	6.	6.	.13		

2 COMBINED AT	CP6.6-CO	1003.	6.67	294.	92.	89.	1.68		
ROUTED TO	CP6.6>6.	966.	6.83	291.	92.	88.	1.68	9.52	6.83
HYDROGRAPH AT	6.51	128.	6.83	40.	13.	12.	.26		
2 COMBINED AT	CP6.5-CO	1095.	6.83	331.	104.	101.	1.93		
ROUTED TO	CP6.5>6.	1086.	6.83	329.	104.	100.	1.93	6.47	6.83
ROUTED TO	6.7A>6.7	1074.	6.92	328.	104.	100.	1.93	9.59	6.92
HYDROGRAPH AT	5EEAST	96.	6.25	16.	5.	5.	.00		
ROUTED TO	5E>6.0-R	43.	6.75	16.	5.	5.	.00	9.58	6.75
HYDROGRAPH AT	DA6.7	654.	6.17	109.	34.	33.	.64		
3 COMBINED AT	CP6.0-CO	1291.	6.83	447.	143.	138.	2.57		

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

2-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  13:16:28 *
*                                      *
****************************************
```

```
*************************************
*
*   U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2           ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3           ID   FILE NAME LDV612 (AREA 6, CASE 1, 24 HOUR STORM)
*** FREE ***
                       *DIAGRAM
           4           IT       5       0       0     300
           5           IN      30
           6           IO       5

           7           KK   DA5.1
           8           BA  0.3234
           9           PB    1.44
          10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15           LS       0      83
          16           UD    0.46

          17           KKCP5.1>5A-ROUTING
          18           KM   ROUTE CP5.1 TO CP5A
          19           RS       1    STOR      -1
          20           RC     .04     .04     .04    4870   .0105
          21           RX      30      80     104     108     114     118     142     192
          22           RY      10     9.5       9       7       7       9     9.5      10

          23           KK   DA5.2
          24           BA  0.1172
          25           LS       0      86
          26           UD    0.90

          27           KKCP5.2-COMBINE 5.1+5.2
          28           HC       2

          29           KK   DA5.3
          30           BA   .3156
          31           LS       0      77
          32           UD    1.56

          33           KK 5.3+5.2
          34           HC      2.

          35           KK CP5A>5BROUTING
          36           KM   ROUTE CP5A TO CP5B
          37           RS       1    STOR      -1
          38           RC    .035    .015    .035    5300   .0083
          39           RX      55      80     100     110     120     130     150     175
          40           RY      11       8      10    10.1    10.1      10       8      11
```

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

  41          KK  DA5.41
  42          BA  0.2303
  43          LS       0      74
  44          UD    0.35

  45          KK  5BWEST
  46          KM   FLOW SPLIT AT CONCENTRATION POINT 5B
  47          DT  5EEAST
  48          DI       0     100     200     300     400     500
  49          DQ       0      50     100     150     200     250

  50          KK   DA5.4
  51          BA  0.7266
  52          LS       0      75      14
  53          UD    0.42

  54          KKCP5B-COMBINE 5B+5.4
  55          HC       2

  56          KK   DA5.5
  57          BA   .3078
  58          LS       0      81
  59          UD    0.53

  60          KK5.0-COMBINE 5B+5.5
  61          HC       2

  62          KK   DA6.1
  63          BA   .3688
  64          LS       0      82
  65          UD    0.36

  66          KKCP6.1>6.2-ROUTING
  67          RS       1    STOR      -1
  68          RC     .04     .04     .04    2400   .0045
  69          RX      10     200     300     306     316     322     420     620
  70          RY      12      10       9       6       6       9      10      12

  71          KK   DA6.2
  72          BA   .3266
  73          LS       0      76
  74          UD    1.02

  75          KKCP6A-COMBINE 6.1+6.2
  76          HC       2

  77          KK   DA6.5
  78          BA  0.3125
  79          LS       0      77
  80          UD    0.93
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```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 81           KKCP6.1+6.2+6.5
 82           HC       2

 83           KK   DA6.3
 84           BA   .3688
 85           LS       0      83
 86           UD    0.68

 87           KKCP6.3>6.31-ROUTE
 88           KM   NATURAL WASH
 89           RS       1    STOR      -1
 90           RC     .04     .04     .04    1500    .010
 91           RX      10     200     300     306     316     322     420     620
 92           RY      12      10       9       6       6       9      10      12

 93           KK  DA6.31
 94           BA  0.0781
 95           LS       0      74
 96           UD    0.67

 97           KK     6.4
 98           BA   .0953
 99           LS       0      78
100           UD     1.0

101           KKCP6A-COMBINE 6.2+6.3+6.4
102           HC       4

103           KK   DA6.6
104           BA   0.125
105           LS       0      75
106           UD    1.21

107           KKCP6.6-COMBINE 6A+6.6
108           HC       2

109           KKCP6.6>6.5-ROUTING
110           RS       1    STOR      -1
111           RC     .04     .04     .04    1700    .004
112           RX     200     300     400     500     600     700     800     900
113           RY      11      10       9       8       8       9      10      11

114           KK    6.51
115           BA   .2578
116           LS       0      74       8
117           UD    0.92

118           KKCP6.5-COMBINE 6.6+6.5
119           HC       2
```

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

 120          KKCP6.5>6.7A-ROUTING
 121          RS       1    STOR      -1
 122          RC    .035    .022    .035    1700   .0018
 123          RX      80      80     100     124     204     228     325     425
 124          RY      11    10.5      10       4       4      10    10.5      11

 125          KK6.7A>6.7-ROUTING
 126          KM   FROM OUTLET OF CHANNEL TO P.P. RD.
 127          RS       1    STOR      -1
 128          RC     .04     .04     .04    1000    .004
 129          RX     200     300     400     500     600     700     800     900
 130          RY      11      10       9       8       8       9      10      11

 131          KK  5EEAST
 132          KM   RETRIEVE FLOW SPLIT AT 5EEAST
 133          DR  5EEAST

 134          KK5E>6.0-ROUTING
 135          RS       1    STOR      -1
 136          RC     .04     .04     .04    2700    .001
 137          RX     650     700     760     769     770     780     790     800
 138          RY      10     9.5       9       8       8       9       9      10

 139          KK   DA6.7
 140          BA   .6359
 141          LS       0      74      14
 142          UD     .34

 143          KKCP6.0-COMBINE 5E+6.7+6.5
 144          HC       3
 145          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7      DA5.1
              V
              V
  17    CP5.1>5A
              .
              .
  23          .      DA5.2
              .          .
              .          .
  27    CP5.2-CO............
              .
              .
  29          .      DA5.3
              .          .
              .          .
  33     5.3+5.2............
              V
              V
  35     CP5A>5B
              .
              .
  41          .     DA5.41
              .          .
              .          .
  47          .          .-------> 5EEAST
  45          .     5BWEST
              .          .
              .          .
  50          .          .      DA5.4
              .          .          .
              .          .          .
  54          .    CP5B-COM............
              .          .
              .          .
  56          .          .      DA5.5
              .          .          .
              .          .          .
  60          .    5.0-COMB............
              .          .
              .          .
  62          .          .      DA6.1
              .          .          V
              .          .          V
  66          .          .    CP6.1>6.
              .          .          .
              .          .          .
  71          .          .          .      DA6.2
              .          .          .          .
              .          .          .          .
  75          .          .    CP6A-COM............
              .          .          .
              .          .          .
  77          .          .          .      DA6.5
```

```
                .         .         .         .
                .         .         .         .
 81             .         .   CP6.1+6............
                .         .         .
                .         .         .
 83             .         .         .     DA6.3
                .         .         .         V
                .         .         .         V
 87             .         .         .   CP6.3>6.
                .         .         .         .
                .         .         .         .
 93             .         .         .         .     DA6.31
                .         .         .         .         .
                .         .         .         .         .
 97             .         .         .         .         .        6.4
                .         .         .         .         .         .
                .         .         .         .         .         .
101             .         .   CP6A-COM...................................
                .         .         .
                .         .         .
103             .         .         .     DA6.6
                .         .         .         .
                .         .         .         .
107             .         .   CP6.6-CO............
                .         .         V
                .         .         V
109             .         .   CP6.6>6.
                .         .         .
                .         .         .
114             .         .         .      6.51
                .         .         .         .
                .         .         .         .
118             .         .   CP6.5-CO............
                .         .         V
                .         .         V
120             .         .   CP6.5>6.
                .         .         V
                .         .         V
125             .         .   6.7A>6.7
                .         .         .
                .         .         .
133             .         .         .         .<-------  5EEAST
131             .         .         .    5EEAST
                .         .         .         V
                .         .         .         V
134             .         .         .   5E>6.0-R
                .         .         .         .
                .         .         .         .
139             .         .         .         .     DA6.7
                .         .         .         .         .
                .         .         .         .         .
143             .         .   CP6.0-CO........................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  13:16:28 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME LDV612 (AREA 6, CASE 1, 24 HOUR STORM)

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

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

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA5.1	39.	6.42	9.	3.	3.	.32		
ROUTED TO	CP5.1>5A	29.	6.75	9.	3.	3.	.32	8.07	6.75
HYDROGRAPH AT	DA5.2	13.	6.92	4.	1.	1.	.12		
2 COMBINED AT	CP5.2-CO	41.	6.75	13.	4.	4.	.44		
HYDROGRAPH AT	DA5.3	7.	7.92	4.	2.	1.	.32		
2 COMBINED AT	5.3+5.2	44.	6.83	17.	6.	6.	.76		
ROUTED TO	CP5A>5B	33.	7.42	16.	6.	6.	.76	8.89	7.42
HYDROGRAPH AT	DA5.41	6.	6.42	2.	1.	1.	.23		
DIVERSION TO	5EEAST	3.	6.42	1.	0.	0.	.23		
HYDROGRAPH AT	5BWEST	3.	6.42	1.	0.	0.	.23		
HYDROGRAPH AT	DA5.4	89.	6.25	19.	6.	6.	.73		
2 COMBINED AT	CP5B-COM	92.	6.25	20.	7.	7.	.96		
HYDROGRAPH AT	DA5.5	26.	6.50	7.	2.	2.	.31		
2 COMBINED AT	5.0-COMB	113.	6.33	26.	9.	9.	1.26		
HYDROGRAPH AT	DA6.1	45.	6.33	9.	3.	3.	.37		
ROUTED TO	CP6.1>6.	36.	6.50	9.	3.	3.	.37	7.18	6.50
HYDROGRAPH AT	DA6.2	8.	7.25	4.	1.	1.	.33		
2 COMBINED AT	CP6A-COM	39.	6.58	12.	5.	4.	.70		
HYDROGRAPH AT	DA6.5	10.	7.08	4.	2.	1.	.31		
2 COMBINED AT	CP6.1+6.	46.	6.67	16.	6.	6.	1.01		
HYDROGRAPH AT	DA6.3	34.	6.67	10.	3.	3.	.37		
ROUTED TO	CP6.3>6.	34.	6.83	10.	3.	3.	.37	6.91	6.83
HYDROGRAPH AT	DA6.31	2.	6.92	1.	0.	0.	.08		
HYDROGRAPH AT	6.4	3.	7.17	1.	1.	1.	.10		
4 COMBINED AT	CP6A-COM	83.	6.75	28.	10.	10.	1.55		
HYDROGRAPH AT	DA6.6	2.	7.58	1.	0.	0.	.13		

should combine 2 hydrographs

2 COMBINED AT	CP6.6-CO	84.	6.75	30.	11.	10.	1.68		
ROUTED TO	CP6.6>6.	71.	7.17	29.	11.	10.	1.68	8.43	7.17
HYDROGRAPH AT	6.51	13.	6.92	5.	2.	2.	.26		
2 COMBINED AT	CP6.5-CO	83.	7.08	33.	12.	12.	1.93		
ROUTED TO	CP6.5>6.	80.	7.33	33.	12.	12.	1.93	4.51	7.33
ROUTED TO	6.7A>6.7	76.	7.50	32.	12.	12.	1.93	8.45	7.50
HYDROGRAPH AT	5EEAST	3.	6.42	1.	0.	0.	.00		
ROUTED TO	5E>6.0-R	1.	7.33	1.	0.	0.	.00	8.48	7.33
HYDROGRAPH AT	DA6.7	82.	6.17	16.	5.	5.	.64		
3 COMBINED AT	CP6.0-CO	88.	7.50	47.	18.	17.	2.57		

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

BASINS 7 & 8

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/19/1989  TIME  08:13:52 *
*                                      *
****************************************
```

```
****************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2           ID   100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3           ID   FILE NAME BJLDV781 (AREA 7&8 CASE 1, 24 HOUR STORM)
*** FREE ***
                       *DIAGRAM
           4           IT       5       0       0     300
           5           IN      30
           6           IO       5

           7           KK   DA8.1
           8           BA  0.4954
           9           PB     4.1
          10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15           LS       0      81
          16           UD    1.07

          17           KKCP8.1>8.0-ROUTING
          18           RS       1    STOR      -1
          19           RC     .04    .025     .04    7580    .002
          20           RX     180     190     200     215     227     242     252     266
          21           RY      12      11      10       5       5      10      11      12

          22           KK   DA8.2
          23           BA  0.3906
          24           LS       0      74      12
          25           UD    0.30

          26           KKCP8.0-COMBINE 8.1+8.2
          27           HC       2

          28           KK  DA8.25
          29           BA  0.2531
          30           LS       0      74      45
          31           UD    0.17

          32           KKCP2.81-2.85
          33           HC       2

          34           KK     DA7
          35           BA  0.1281
          36           LS       0      74      22
          37           UD    0.22
          38           ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

    7       DA8.1
                V
                V
   17    CP8.1>8.
                .
                .
   22           .       DA8.2
                .           .
                .           .
   26    CP8.0-CO............
                .
                .
   28           .      DA8.25
                .           .
                .           .
   32    CP2.81-2............
                .
                .
   34           .         DA7
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/19/1989  TIME  08:13:52 *
*                                      *
****************************************
```

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

```
                    LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
                    100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
                    FILE NAME BJLDV781 (AREA 7&8 CASE 1, 24 HOUR STORM)

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

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

             COMPUTATION INTERVAL     .08 HOURS
                  TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA8.1	275.	7.00	93.	29.	28.	.50		
ROUTED TO	CP8.1>8.	235.	7.42	91.	29.	28.	.50	7.79	7.42
HYDROGRAPH AT	DA8.2	424.	6.17	65.	21.	20.	.39		
2 COMBINED AT	CP8.0-CO	430.	6.17	154.	49.	48.	.89		
HYDROGRAPH AT	DA8.25	470.	6.00	61.	19.	18.	.25		
2 COMBINED AT	CP2.81-2	860.	6.08	213.	68.	66.	1.14		
HYDROGRAPH AT	DA7	180.	6.08	24.	8.	7.	.13		

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

2-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  13:29:36 *
*                                      *
****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2           ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3           ID   FILE NAME LDV7812 (AREA 7&8 CASE 1, 24 HOUR STORM)
*** FREE ***
                       *DIAGRAM
           4           IT       5       0       0     300
           5           IN      30
           6           IO       5

           7           KK   DA8.1
           8           BA  0.4954
           9           PB    1.44
          10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15           LS       0      81
          16           UD    1.07

          17           KKCP8.1>8.0-ROUTING
          18           RS       1    STOR      -1
          19           RC     .04    .025     .04    7580    .002
          20           RX     180     190     200     215     227     242     252     266
          21           RY      12      11      10       5       5      10      11      12

          22           KK   DA8.2
          23           BA  0.3906
          24           LS       0      74      12
          25           UD    0.30

          26           KKCP8.0-COMBINE 8.1+8.2
          27           HC       2

          28           KK  DA8.25
          29           BA  0.2531
          30           LS       0      74      45
          31           UD    0.17

          32           KKCP2.81-2.85
          33           HC       2

          34           KK     DA7
          35           BA  0.1281
          36           LS       0      74      22
          37           UD    0.22
          38           ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7        DA8.1
                V
                V
  17     CP8.1>8.
                .
                .
  22            .        DA8.2
                .           .
                .           .
  26     CP8.0-CO............
                .
                .
  28            .       DA8.25
                .           .
                .           .
  32     CP2.81-2............
                .
                .
  34            .         DA7
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  13:29:36 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME LDV7812 (AREA 7&8 CASE 1, 24 HOUR STORM)

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA8.1	26.	7.17	10.	4.	4.	.50		
ROUTED TO	CP8.1>8.	17.	7.92	10.	4.	4.	.50	5.65	7.92
HYDROGRAPH AT	DA8.2	47.	6.17	9.	3.	3.	.39		
2 COMBINED AT	CP8.0-CO	47.	6.17	18.	7.	6.	.89		
HYDROGRAPH AT	DA8.25	115.	6.00	16.	5.	5.	.25		
2 COMBINED AT	CP2.81-2	156.	6.08	33.	12.	11.	1.14		
HYDROGRAPH AT	DA7	29.	6.08	4.	1.	1.	.13		

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

APPENDIX B

Proposed Conditions HEC-1 (CASE II)

BASIN 1

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  07:55:06 *
*                                      *
****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1          ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2          ID   100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3          ID   FILE NAME BJLDV12 (AREA 1, CASE 2, 24 HOUR STORM)
*** FREE ***
                      *DIAGRAM
           4          IT       5       0       0     300
           5          IN      30
           6          IO       5

           7          KK   DA1.1
           8          BA   .0439
           9          PB     4.1
          10          PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11          PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12          PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13          PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14          PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15          LS       0      86      25
          16          UD    0.18

          17          KK   DA1.2
          18          BA  0.6563
          19          LS       0      85      27
          20          UD    1.05

          21          KKCP1.2>1.21-ROUTING
          22          RS       1    STOR      -1
          23          RC     .04     .03     .04    1200    0.01
          24          RX      98      99     100     101     110     130     270     470
          25          RY      10      10      10       1       1     1.5       5      10

          26          KK  DA1.21
          27          BA  0.1281
          28          LS       0      82      25
          29          UD    0.37

          30          KK1.2+1.21-COMBINE
          31          HC       2

          32          KK   DA1.3
          33          BA    0.30
          34          LS       0      79      22
          35          UD    0.63

          36          KK   DA1.4
          37          BA  0.1828
          38          LS       0      86      23
          39          UD    0.67

          40          KKCP1.4>1.3-ROUTING
          41          RS       1    STOR      -1
          42          RC     .04     .03     .04    2500    0.01
          43          RX      98      99     100     101     110     130     270     470
          44          RY      10      10      10       1       1     1.5       5      10
```

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

  45          KKCP1.3+1.4-COMBINE
  46          HC       2

  47          KK  DA1.31
  48          BA  0.0547
  49          LS       0      86      25
  50          UD    0.26

  51          KKCP1.3-COMBINE
  52          HC       2

  53          KK   DA1.5
  54          BA     .10
  55          LS       0      86      25
  56          UD    0.40
  57          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7       DA1.1
               .
               .
  17           .       DA1.2
               .           V
               .           V
  21           .    CP1.2>1.
               .           .
               .           .
  26           .           .     DA1.21
               .           .          .
               .           .          .
  30           .    1.2+1.21............
               .           .
               .           .
  32           .           .      DA1.3
               .           .          .
               .           .          .
  36           .           .          .      DA1.4
               .           .          .          V
               .           .          .          V
  40           .           .          .    CP1.4>1.
               .           .          .          .
               .           .          .          .
  45           .           .    CP1.3+1.............
               .           .          .
               .           .          .
  47           .           .          .     DA1.31
               .           .          .          .
               .           .          .          .
  51           .           .    CP1.3-CO............
               .           .          .
               .           .          .
  53           .           .          .      DA1.5
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  07:55:06 *
*                                      *
****************************************
```

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

```
                    LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
                    100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
                    FILE NAME BJLDV12 (AREA 1, CASE 2, 24 HOUR STORM)

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA1.1	93.	6.08	12.	4.	3.	.04		
HYDROGRAPH AT	DA1.2	525.	6.92	170.	52.	50.	.66		
ROUTED TO	CP1.2>1.	524.	7.00	170.	52.	50.	.66	3.00	7.00
HYDROGRAPH AT	DA1.21	184.	6.25	31.	9.	9.	.13		
2 COMBINED AT	1.2+1.21	569.	6.92	200.	61.	59.	.78		
HYDROGRAPH AT	DA1.3	280.	6.50	65.	20.	19.	.30		
HYDROGRAPH AT	DA1.4	204.	6.50	48.	15.	14.	.18		
ROUTED TO	CP1.4>1.	195.	6.67	48.	15.	14.	.18	2.27	6.67
2 COMBINED AT	CP1.3+1.	466.	6.58	113.	35.	33.	.48		
HYDROGRAPH AT	DA1.31	104.	6.08	15.	4.	4.	.05		
2 COMBINED AT	CP1.3-CO	502.	6.50	127.	39.	38.	.54		
HYDROGRAPH AT	DA1.5	156.	6.25	27.	8.	8.	.10		

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

2-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*           REVISED 02 AUG 88          *
*                                      *
*  RUN DATE  09/19/1989  TIME  08:31:22 *
*                                      *
****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

          1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
          2           ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
          3           ID   FILE NAME LDV122 (AREA 1, CASE 2, 2-HOUR STORM)
*** FREE ***
                      *DIAGRAM
          4           IT       5       0       0     300
          5           IN      30
          6           IO       5

          7           KK   DA1.1
          8           BA   .0439
          9           PB    1.44
         10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
         11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
         12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
         13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
         14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
         15           LS       0      86      25
         16           UD    0.18

         17           KK   DA1.2
         18           BA  0.6563
         19           LS       0      85      27
         20           UD    1.05

         21           KKCP1.2>1.21-ROUTING
         22           RS       1    STOR      -1
         23           RC     .04     .03     .04    1200    0.01
         24           RX      98      99     100     101     110     130     270     470
         25           RY      10      10      10       1       1     1.5       5      10

         26           KK  DA1.21
         27           BA  0.1281
         28           LS       0      82      25
         29           UD    0.37

         30           KK1.2+1.21-COMBINE
         31           HC       2

         32           KK   DA1.3
         33           BA    0.30
         34           LS       0      79      22
         35           UD    0.63

         36           KK   DA1.4
         37           BA  0.1828
         38           LS       0      86      23
         39           UD    0.67

         40           KKCP1.4>1.3-ROUTING
         41           RS       1    STOR      -1
         42           RC     .04     .03     .04    2500    0.01
         43           RX      98      99     100     101     110     130     270     470
         44           RY      10      10      10       1       1     1.5       5      10
```

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

  45          KKCP1.3+1.4-COMBINE
  46          HC       2

  47          KK  DA1.31
  48          BA  0.0547
  49          LS       0      86      25
  50          UD    0.26

  51          KKCP1.3-COMBINE
  52          HC       2

  53          KK   DA1.5
  54          BA     .10
  55          LS       0      86      25
  56          UD    0.40
  57          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7       DA1.1
               .
               .
  17           .       DA1.2
               .           V
               .           V
  21           .    CP1.2>1.
               .           .
               .           .
  26           .           .     DA1.21
               .           .          .
               .           .          .
  30           .    1.2+1.21............
               .           .
               .           .
  32           .           .      DA1.3
               .           .          .
               .           .          .
  36           .           .          .      DA1.4
               .           .          .          V
               .           .          .          V
  40           .           .          .    CP1.4>1.
               .           .          .          .
               .           .          .          .
  45           .           .    CP1.3+1.............
               .           .          .
               .           .          .
  47           .           .          .     DA1.31
               .           .          .          .
               .           .          .          .
  51           .           .    CP1.3-CO............
               .           .          .
               .           .          .
  53           .           .          .      DA1.5
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
* RUN DATE  09/19/1989  TIME  08:31:22 *
*                                      *
****************************************
```

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

```
                    LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
                    2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
                    FILE NAME LDV122 (AREA 1, CASE 2, 2-HOUR STORM)

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA1.1	20.	6.08	3.	1.	1.	.04		
HYDROGRAPH AT	DA1.2	112.	6.92	38.	12.	12.	.66		
ROUTED TO	CP1.2>1.	112.	7.00	38.	12.	12.	.66	1.99	7.00
HYDROGRAPH AT	DA1.21	35.	6.25	6.	2.	2.	.13		
2 COMBINED AT	1.2+1.21	121.	6.92	44.	14.	14.	.78		
HYDROGRAPH AT	DA1.3	49.	6.50	12.	4.	4.	.30		
HYDROGRAPH AT	DA1.4	42.	6.58	10.	3.	3.	.18		
ROUTED TO	CP1.4>1.	39.	6.75	10.	3.	3.	.18	1.59	6.75
2 COMBINED AT	CP1.3+1.	85.	6.58	23.	7.	7.	.48		
HYDROGRAPH AT	DA1.31	22.	6.17	3.	1.	1.	.05		
2 COMBINED AT	CP1.3-CO	93.	6.58	26.	8.	8.	.54		
HYDROGRAPH AT	DA1.5	33.	6.25	6.	2.	2.	.10		

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

BASIN 2

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  08:13:55 *
*                                      *
****************************************
```

```
*************************************
*
*   U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

          1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
          2           ID   100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
          3           ID   FILE NAME BJLDV22 (AREA 2, CASE 2, 24 HOUR STORM)
*** FREE ***
                      *DIAGRAM
          4           IT       2       0       0     300
          5           IN      30
          6           IO       5

          7           KK  DA2.10
          8           BA  1.1594
          9           PB     4.1
         10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
         11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
         12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
         13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
         14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
         15           LS       0      84      21
         16           UD    0.89

         17           KKCP2.1>CAP RESERVOIR-ROUTING
         18           RS       1    STOR       0
         19           SV       0    85.4   146.6   233.7   289.4
         20           SE    1518    1520    1522    1524    1525
         21           SQ       0      34      53      82      98
         22           SE 1514.41    1520    1522    1524    1525

         23           KKCP2.3>2.4 ROUTING
         24           RS       1    STOR      -1
         25           RC     .04     .03     .04    2600   .0167
         26           RX      98      99     100     101     110     130     270     470
         27           RY      10      10      10       1       1     1.5       5      10

         28           KK   DA2.2
         29           BA   .2656
         30           LS       0      80      25
         31           UD    0.80

         32           KK   CP2.2COMBINE
         33           HC       2

         34           KK   DA2.3
         35           BA  0.6094
         36           LS       0      85      25
         37           UD    1.10

         38           KKDA2.3-COMBINE
         39           HC       2

         40           KKCP2.3>2.4 ROUTING
         41           RS       1    STOR      -1
         42           RC     .04     .03     .04    2940   .0136
         43           RX      98      99     100     101     110     130     270     470
         44           RY      10      10      10       1       1     1.5       5      10
```

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

  45          KK   DA2.4
  46          BA  0.2141
  47          LS       0      86      13
  48          UD    0.26

  49          KK 2.3-2.4COMBINE
  50          HC       2

  51          KKCP2.4>2.5 ROUTING
  52          RS       1    STOR      -1
  53          RC     .04     .03     .04    1000   .0136
  54          RX      98      99     100     101     110     130     270     470
  55          RY      10      10      10       1       1     1.5       5      10

  56          KK   DA2.5
  57          BA  0.0641
  58          LS       0      86      25
  59          UD    0.16

  60          KK     CP2COMBINE
  61          HC       2

  62          KKCP2.4>2.41 ROUTING
  63          RS       1    STOR      -1
  64          RC     .04     .03     .04    2200   .0136
  65          RX      98      99     100     101     110     130     270     470
  66          RY      10      10      10       1       1     1.5       5      10

  67          KK  DA2.41
  68          BA  0.1078
  69          LS       0      74      25
  70          UD    0.57

  71          KK2.4+2.41-COMBINE
  72          HC       2

  73          KK   DA2.6
  74          BA  0.0969
  75          LS       0      86      25
  76          UD    0.20

  77          KKCP2N-COMBINE 2.0+2.6 IF SPLIT GOES NORTH
  78          HC       2
  79          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

  7      DA2.10
              V
              V
 17     CP2.1>CA
              V
              V
 23     CP2.3>2.
              .
              .
 28           .       DA2.2
              .           .
              .           .
 32       CP2.2............
              .
              .
 34           .       DA2.3
              .           .
              .           .
 38     DA2.3-CO............
              V
              V
 40     CP2.3>2.
              .
              .
 45           .       DA2.4
              .           .
              .           .
 49      2.3-2.4............
              V
              V
 51     CP2.4>2.
              .
              .
 56           .       DA2.5
              .           .
              .           .
 60         CP2............
              V
              V
 62     CP2.4>2.
              .
              .
 67           .      DA2.41
              .           .
              .           .
 71     2.4+2.41............
              .
              .
 73           .       DA2.6
              .           .
              .           .
 77     CP2N-COM............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  08:13:55 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME BJLDV22 (AREA 2, CASE 2, 24 HOUR STORM)

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

  IT          HYDROGRAPH TIME DATA
                     NMIN          2  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1   0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      1   0  ENDING DATE
                   NDTIME       0958  ENDING TIME
                    ICENT         19  CENTURY MARK

              COMPUTATION INTERVAL     .03 HOURS
                   TOTAL TIME BASE    9.97 HOURS

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

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	DA2.10	1239.	6.77	333.	202.	202.	1.16		
ROUTED TO	CP2.1>CA	54.	9.97	33.	21.	21.	1.16	1522.05	9.97
ROUTED TO	CP2.3>2.	54.	9.97	32.	21.	21.	1.16	1.60	9.97
HYDROGRAPH AT	DA2.2	283.	6.67	71.	43.	43.	.27		
2 COMBINED AT	CP2.2	308.	6.67	103.	64.	64.	1.42		
HYDROGRAPH AT	DA2.3	580.	6.97	180.	109.	109.	.61		
2 COMBINED AT	DA2.3-CO	863.	6.87	283.	174.	174.	2.03		
ROUTED TO	CP2.3>2.	850.	6.97	280.	172.	172.	2.03	3.32	6.97
HYDROGRAPH AT	DA2.4	494.	6.10	64.	39.	39.	.21		
2 COMBINED AT	2.3-2.4	907.	6.90	344.	211.	211.	2.25		
ROUTED TO	CP2.4>2.	906.	6.93	343.	210.	210.	2.25	3.39	6.93
HYDROGRAPH AT	DA2.5	177.	6.03	20.	12.	12.	.06		
2 COMBINED AT	CP2	919.	6.93	363.	223.	223.	2.31		
ROUTED TO	CP2.4>2.	914.	7.00	360.	221.	221.	2.31	3.40	7.00
HYDROGRAPH AT	DA2.41	124.	6.43	25.	15.	15.	.11		
2 COMBINED AT	2.4+2.41	978.	6.93	385.	237.	237.	2.42		
HYDROGRAPH AT	DA2.6	254.	6.07	31.	19.	19.	.10		
2 COMBINED AT	CP2N-COM	1051.	6.20	416.	255.	255.	2.52		

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

2-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  08:37:42 *
*                                      *
****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1          ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2          ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3          ID   FILE NAME LDV222 (AREA 2, CASE 2, 24-HOUR STORM)
*** FREE ***
                      *DIAGRAM
           4          IT       2       0       0     300
           5          IN      30
           6          IO       5

           7          KK  DA2.10
           8          BA  1.1594
           9          PB    1.44
          10          PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11          PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12          PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13          PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14          PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15          LS       0      84      21
          16          UD    0.89

          17          KKCP2.1>CAP RESERVOIR-ROUTING
          18          RS       1    STOR       0
          19          SV       0    85.4   146.6   233.7   289.4
          20          SE    1518    1520    1522    1524    1525
          21          SQ       0      34      53      82      98
          22          SE 1514.41    1520    1522    1524    1525

          23          KKCP2.3>2.4 ROUTING
          24          RS       1    STOR      -1
          25          RC     .04     .03     .04    2600   .0167
          26          RX      98      99     100     101     110     130     270     470
          27          RY      10      10      10       1       1     1.5       5      10

          28          KK   DA2.2
          29          BA   .2656
          30          LS       0      80      25
          31          UD    0.80

          32          KK   CP2.2COMBINE
          33          HC       2

          34          KK   DA2.3
          35          BA  0.6094
          36          LS       0      85      25
          37          UD    1.10

          38          KKDA2.3-COMBINE
          39          HC       2

          40          KKCP2.3>2.4 ROUTING
          41          RS       1    STOR      -1
          42          RC     .04     .03     .04    2940   .0136
          43          RX      98      99     100     101     110     130     270     470
          44          RY      10      10      10       1       1     1.5       5      10
```

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

  45          KK   DA2.4
  46          BA  0.2141
  47          LS       0      86      13
  48          UD    0.26

  49          KK 2.3-2.4COMBINE
  50          HC       2

  51          KKCP2.4>2.5 ROUTING
  52          RS       1    STOR      -1
  53          RC     .04     .03     .04    1000   .0136
  54          RX      98      99     100     101     110     130     270     470
  55          RY      10      10      10       1       1     1.5       5      10

  56          KK   DA2.5
  57          BA  0.0641
  58          LS       0      86      25
  59          UD    0.16

  60          KK     CP2COMBINE
  61          HC       2

  62          KKCP2.4>2.41 ROUTING
  63          RS       1    STOR      -1
  64          RC     .04     .03     .04    2200   .0136
  65          RX      98      99     100     101     110     130     270     470
  66          RY      10      10      10       1       1     1.5       5      10

  67          KK  DA2.41
  68          BA  0.1078
  69          LS       0      74      25
  70          UD    0.57

  71          KK2.4+2.41-COMBINE
  72          HC       2

  73          KK   DA2.6
  74          BA  0.0969
  75          LS       0      86      25
  76          UD    0.20

  77          KKCP2N-COMBINE 2.0+2.6 IF SPLIT GOES NORTH
  78          HC       2
  79          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

  7      DA2.10
              V
              V
 17     CP2.1>CA
              V
              V
 23     CP2.3>2.
              .
              .
 28           .       DA2.2
              .           .
              .           .
 32       CP2.2............
              .
              .
 34           .       DA2.3
              .           .
              .           .
 38     DA2.3-CO............
              V
              V
 40     CP2.3>2.
              .
              .
 45           .       DA2.4
              .           .
              .           .
 49      2.3-2.4............
              V
              V
 51     CP2.4>2.
              .
              .
 56           .       DA2.5
              .           .
              .           .
 60         CP2............
              V
              V
 62     CP2.4>2.
              .
              .
 67           .      DA2.41
              .           .
              .           .
 71     2.4+2.41............
              .
              .
 73           .       DA2.6
              .           .
              .           .
 77     CP2N-COM............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  08:37:42 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME LDV222 (AREA 2, CASE 2, 24-HOUR STORM)

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

    IT          HYDROGRAPH TIME DATA
                       NMIN          2  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1   0  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      1   0  ENDING DATE
                     NDTIME       0958  ENDING TIME
                      ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL     .03 HOURS
                      TOTAL TIME BASE    9.97 HOURS

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

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	DA2.10	248.	6.80	70.	43.	43.	1.16		
ROUTED TO	CP2.1>CA	26.	9.37	18.	12.	12.	1.16	1518.61	9.40
ROUTED TO	CP2.3>2.	26.	9.67	18.	12.	12.	1.16	1.47	9.77
HYDROGRAPH AT	DA2.2	56.	6.67	15.	9.	9.	.27		
2 COMBINED AT	CP2.2	78.	6.70	32.	21.	21.	1.42		
HYDROGRAPH AT	DA2.3	125.	7.00	41.	25.	25.	.61		
2 COMBINED AT	DA2.3-CO	197.	6.90	73.	46.	46.	2.03		
ROUTED TO	CP2.3>2.	194.	7.03	71.	45.	45.	2.03	2.17	7.03
HYDROGRAPH AT	DA2.4	97.	6.13	13.	8.	8.	.21		
2 COMBINED AT	2.3-2.4	206.	7.00	85.	53.	53.	2.25		
ROUTED TO	CP2.4>2.	206.	7.03	84.	53.	53.	2.25	2.21	7.03
HYDROGRAPH AT	DA2.5	40.	6.07	5.	3.	3.	.06		
2 COMBINED AT	CP2	209.	7.03	89.	56.	56.	2.31		
ROUTED TO	CP2.4>2.	207.	7.13	87.	55.	55.	2.31	2.21	7.13
HYDROGRAPH AT	DA2.41	23.	6.40	5.	3.	3.	.11		
2 COMBINED AT	2.4+2.41	217.	7.07	92.	59.	59.	2.42		
HYDROGRAPH AT	DA2.6	57.	6.10	7.	4.	4.	.10		
2 COMBINED AT	CP2N-COM	222.	7.07	99.	63.	63.	2.52		

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

BASIN 3

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
* RUN DATE  09/20/1989  TIME  09:55:13 *
*                                      *
****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2           ID   100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3           ID   FILE NAME BJLDV32(AREA 3, CASE 2, 24 HOUR STORM)
*** FREE ***
                       *DIAGRAM
           4           IT       5       0       0     300
           5           IN      30
           6           IO       5

           7           KK   DA3.5
           8           BA   .0484
           9           PB     4.1
          10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15           LS       0      74      25
          16           UD    0.48

          17           KK   DA3.6
          18           BA  0.0219
          19           LS       0      74      25
          20           UD    0.46

          21           KK   DA3.7
          22           BA  0.0484
          23           LS       0      74      25
          24           UD    0.51

          25           KKCP3.7-COMBINE 3.6+3.7
          26           HC       2

          27           KK   DA3.8
          28           BA  0.0150
          29           LS       0      74      25
          30           UD    0.32

          31           KK   DA3.1
          32           BA  0.2672
          33           LS       0      86      30
          34           UD    0.22

          35           KK   DA3.2
          36           BA  0.2422
          37           LS       0      84      51
          38           UD    0.36

          39           KKCP3A-COMBINE 3.1+3.2
          40           HC       2
```

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

  41          KKCP3.2>3A-ROUTING
  42          RS       1    STOR      -1
  43          RC     .04     .04     .04     500   0.012
  44          RX      30      80     100     106     116     122     142     192
  45          RY      10     9.5       9       6       6       9     9.5      10

  46          KKCP3A>3B-ROUTING
  47          RS       1    STOR      -1
  48          RC     .04     .04     .04     900   0.009
  49          RX      10     100     300     314     321     335     540     650
  50          RY      12      11       9       6       6       9      11      12

  51          KK   DA3.3
  52          BA  0.0266
  53          LS       0      74      72
  54          UD    0.50

  55          KKCP3.3>3B-ROUTING
  56          RS       1    STOR      -1
  57          RC     .04     .04     .04     750   0.014
  58          RX      30      80     100     106     116     122     142     192
  59          RY      10     9.5       9       6       6       9     9.5      10

  60          KKCP3B-COMBINE
  61          HC       2

  62          KKCP3B>3.0-ROUTING
  63          RS       1    STOR      -1
  64          RC     .04     .04     .04    2600   0.009
  65          RX      10     100     300     314     322     336     540     650
  66          RY      12      11       9       6       6       9      11      12

  67          KK   DA3.4
  68          BA  0.2141
  69          LS       0      81      60
  70          UD    0.59

  71          KKCP3.0-COMBINE
  72          HC       2

  73          KK   DA3.9
  74          BA  0.0906
  75          LS       0      74      25
  76          UD    0.43

  77          KK  DA3.95
  78          BA  0.0641
  79          LS       0      74      25
  80          UD    0.88
  81          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7      DA3.5
              .
              .
  17          .      DA3.6
              .          .
              .          .
  21          .          .      DA3.7
              .          .          .
              .          .          .
  25          .    CP3.7-CO............
              .          .
              .          .
  27          .          .      DA3.8
              .          .          .
              .          .          .
  31          .          .          .      DA3.1
              .          .          .          .
              .          .          .          .
  35          .          .          .          .      DA3.2
              .          .          .          .          .
              .          .          .          .          .
  39          .          .          .    CP3A-COM............
              .          .          .          V
              .          .          .          V
  41          .          .          .    CP3.2>3A
              .          .          .          V
              .          .          .          V
  46          .          .          .    CP3A>3B-
              .          .          .          .
              .          .          .          .
  51          .          .          .          .      DA3.3
              .          .          .          .          V
              .          .          .          .          V
  55          .          .          .          .    CP3.3>3B
              .          .          .          .          .
              .          .          .          .          .
  60          .          .          .    CP3B-COM............
              .          .          .          V
              .          .          .          V
  62          .          .          .    CP3B>3.0
              .          .          .          .
              .          .          .          .
  67          .          .          .          .      DA3.4
              .          .          .          .          .
              .          .          .          .          .
  71          .          .          .    CP3.0-CO............
              .          .          .          .
              .          .          .          .
  73          .          .          .          .      DA3.9
              .          .          .          .          .
              .          .          .          .          .
  77          .          .          .          .          .     DA3.95
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/20/1989  TIME  09:55:13 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME BJLDV32(AREA 3, CASE 2, 24 HOUR STORM)

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

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

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   24.92 HOURS

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

WARNING --- ROUTED OUTFLOW (    804.) IS GREATER THAN MAXIMUM OUTFLOW (    713.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    927.) IS GREATER THAN MAXIMUM OUTFLOW (    713.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    948.) IS GREATER THAN MAXIMUM OUTFLOW (    713.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    858.) IS GREATER THAN MAXIMUM OUTFLOW (    713.) IN STORAGE-OUTFLOW TABLE
```

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	DA3.5	48.	6.33	9.	3.	3.	.05		
HYDROGRAPH AT	DA3.6	22.	6.33	4.	1.	1.	.02		
HYDROGRAPH AT	DA3.7	46.	6.33	9.	3.	3.	.05		
2 COMBINED AT	CP3.7-CO	68.	6.33	14.	4.	4.	.07		
HYDROGRAPH AT	DA3.8	19.	6.17	3.	1.	1.	.01		
HYDROGRAPH AT	DA3.1	555.	6.08	73.	22.	21.	.27		
HYDROGRAPH AT	DA3.2	436.	6.17	70.	21.	21.	.24		
2 COMBINED AT	CP3A-COM	960.	6.08	143.	44.	42.	.51		
ROUTED TO	CP3.2>3A	948.	6.17	143.	44.	42.	.51	10.38	6.17
ROUTED TO	CP3A>3B-	918.	6.17	143.	43.	42.	.51	10.00	6.17
HYDROGRAPH AT	DA3.3	41.	6.33	8.	2.	2.	.03		
ROUTED TO	CP3.3>3B	41.	6.33	8.	2.	2.	.03	6.92	6.33
2 COMBINED AT	CP3B-COM	953.	6.17	151.	46.	44.	.54		
ROUTED TO	CP3B>3.0	840.	6.33	151.	46.	44.	.54	9.89	6.33
HYDROGRAPH AT	DA3.4	293.	6.42	63.	19.	19.	.21		
2 COMBINED AT	CP3.0-CO	1127.	6.33	214.	65.	63.	.75		
HYDROGRAPH AT	DA3.9	95.	6.25	18.	6.	5.	.09		
HYDROGRAPH AT	DA3.95	42.	6.75	12.	4.	4.	.06		

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

2-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/20/1989  TIME  09:45:17 *
*                                      *
****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2           ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3           ID   FILE NAME LDV322 (AREA 3, CASE 2, 24 HOUR STORM)
*** FREE ***
                       *DIAGRAM
           4           IT       5       0       0     300
           5           IN      30
           6           IO       5

           7           KK   DA3.5
           8           BA   .0484
           9           PB    1.44
          10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15           LS       0      74      25
          16           UD    0.48

          17           KK   DA3.6
          18           BA  0.0219
          19           LS       0      74      25
          20           UD    0.46

          21           KK   DA3.7
          22           BA  0.0484
          23           LS       0      74      25
          24           UD    0.51

          25           KKCP3.7-COMBINE 3.6+3.7
          26           HC       2

          27           KK   DA3.8
          28           BA  0.0150
          29           LS       0      74      25
          30           UD    0.32

          31           KK   DA3.1
          32           BA  0.2672
          33           LS       0      86      30
          34           UD    0.22

          35           KK   DA3.2
          36           BA  0.2422
          37           LS       0      84      51
          38           UD    0.36

          39           KKCP3A-COMBINE 3.1+3.2
          40           HC       2
```

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

  41          KKCP3.2>3A-ROUTING
  42          RS       1    STOR      -1
  43          RC     .04     .04     .04     500   0.012
  44          RX      30      80     100     106     116     122     142     192
  45          RY      10     9.5       9       6       6       9     9.5      10

  46          KKCP3A>3B-ROUTING
  47          RS       1    STOR      -1
  48          RC     .04     .04     .04     900   0.009
  49          RX      10     100     300     314     321     335     540     650
  50          RY      12      11       9       6       6       9      11      12

  51          KK   DA3.3
  52          BA  0.0266
  53          LS       0      74      72
  54          UD    0.50

  55          KKCP3.3>3B-ROUTING
  56          RS       1    STOR      -1
  57          RC     .04     .04     .04     750   0.014
  58          RX      30      80     100     106     116     122     142     192
  59          RY      10     9.5       9       6       6       9     9.5      10

  60          KKCP3B-COMBINE
  61          HC       2

  62          KKCP3B>3.0-ROUTING
  63          RS       1    STOR      -1
  64          RC     .04     .04     .04    2600   0.009
  65          RX      10     100     300     314     322     336     540     650
  66          RY      12      11       9       6       6       9      11      12

  67          KK   DA3.4
  68          BA  0.2141
  69          LS       0      81      60
  70          UD    0.59

  71          KKCP3.0-COMBINE
  72          HC       2

  73          KK   DA3.9
  74          BA  0.0906
  75          LS       0      74      25
  76          UD    0.43

  77          KK  DA3.95
  78          BA  0.0641
  79          LS       0      74      25
  80          UD    0.88
  81          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

  7       DA3.5
              .
              .
 17           .      DA3.6
              .          .
              .          .
 21           .          .      DA3.7
              .          .          .
              .          .          .
 25           .   CP3.7-CO............
              .          .
              .          .
 27           .          .      DA3.8
              .          .          .
              .          .          .
 31           .          .          .     DA3.1
              .          .          .         .
              .          .          .         .
 35           .          .          .         .      DA3.2
              .          .          .         .          .
              .          .          .         .          .
 39           .          .          .   CP3A-COM............
              .          .          .        V
              .          .          .        V
 41           .          .          .   CP3.2>3A
              .          .          .        V
              .          .          .        V
 46           .          .          .   CP3A>3B-
              .          .          .         .
              .          .          .         .
 51           .          .          .         .      DA3.3
              .          .          .         .          V
              .          .          .         .          V
 55           .          .          .         .   CP3.3>3B
              .          .          .         .          .
              .          .          .         .          .
 60           .          .          .   CP3B-COM............
              .          .          .        V
              .          .          .        V
 62           .          .          .   CP3B>3.0
              .          .          .         .
              .          .          .         .
 67           .          .          .         .      DA3.4
              .          .          .         .          .
              .          .          .         .          .
 71           .          .          .   CP3.0-CO............
              .          .          .         .
              .          .          .         .
 73           .          .          .         .      DA3.9
              .          .          .         .          .
              .          .          .         .          .
 77           .          .          .         .          .     DA3.95
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/20/1989  TIME  09:45:17 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME LDV322 (AREA 3, CASE 2, 24 HOUR STORM)

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA3.5	9.	6.33	2.	1.	1.	.05		
HYDROGRAPH AT	DA3.6	4.	6.25	1.	0.	0.	.02		
HYDROGRAPH AT	DA3.7	9.	6.33	2.	1.	1.	.05		
2 COMBINED AT	CP3.7-CO	13.	6.33	3.	1.	1.	.07		
HYDROGRAPH AT	DA3.8	3.	6.17	1.	0.	0.	.01		
HYDROGRAPH AT	DA3.1	124.	6.08	17.	5.	5.	.27		
HYDROGRAPH AT	DA3.2	115.	6.17	19.	6.	6.	.24		
2 COMBINED AT	CP3A-COM	230.	6.08	36.	11.	11.	.51		
ROUTED TO	CP3.2>3A	231.	6.17	36.	11.	11.	.51	8.54	6.17
ROUTED TO	CP3A>3B-	229.	6.17	36.	11.	11.	.51	8.56	6.17
HYDROGRAPH AT	DA3.3	13.	6.33	3.	1.	1.	.03		
ROUTED TO	CP3.3>3B	13.	6.33	3.	1.	1.	.03	6.46	6.33
2 COMBINED AT	CP3B-COM	239.	6.17	39.	12.	12.	.54		
ROUTED TO	CP3B>3.0	215.	6.33	39.	12.	12.	.54	8.41	6.33
HYDROGRAPH AT	DA3.4	84.	6.42	18.	6.	5.	.21		
2 COMBINED AT	CP3.0-CO	297.	6.33	57.	18.	17.	.75		
HYDROGRAPH AT	DA3.9	18.	6.25	3.	1.	1.	.09		
HYDROGRAPH AT	DA3.95	8.	6.75	2.	1.	1.	.06		

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

BASIN 4

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/17/1989  TIME  13:30:22 *
*                                      *
****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2           ID   100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3           ID   FILE NAME BJLDV42 (AREA 4, CASE 2, 24 HOUR STORM) 6/26/89
*** FREE ***
                       *DIAGRAM
           4           IT       5       0       0     300
           5           IN      30
           6           IO       5

           7           KK   DA4.1
           8           BA  0.5594
           9           PB     4.1
          10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15           LS       0      83      29
          16           UD    0.83

          17           KKCP4.1>4.4-ROUTING
          18           KM   ROUTE CP4.1 TO CP4.4
          19           RS       1    STOR      -1
          20           RC     .04     .04     .04    1980     .01
          21           RX      20     220     500     507     515     522     720     820
          22           RY      14      12       9       6       6       9      12      14

          23           KK   DA4.2
          24           BA   .1688
          25           LS       0      82      13
          26           UD    0.15

          27           KKCP4.2-COMBINE
          28           HC       2

          29           KK   DA4.3
          30           BA  0.2234
          31           LS       0      78      36
          32           UD    0.88

          33           KKCP4.3>4.2-ROUTING
          34           KM   ROUTE CP4.3 TO CP4.2
          35           RS       1    STOR      -1
          36           RC     .04     .04     .04    1900   .0125
          37           RX      30      80     100     107     114     121     141     191
          38           RY      10     9.5       9       7       7       9     9.5      10

          39           KK   DA4.4
          40           BA  0.0547
          41           LS       0      74      63
          42           UD    0.64
```

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

  43          KKCP4.4-COMBINE
  44          HC       2

  45          KKCP4A-COMBINE CP4.4+CP4.2
  46          HC       2

  47          KKCP4A>4B-ROUTING
  48          KM   ROUTE CP4A TO CP4B
  49          RS       1    STOR      -1
  50          RC     .04     .04     .04    3400    .008
  51          RX     200     350     500     506     526     532     630     650
  52          RY      13      11       9       6       6       9      12      13

  53          KK   DA4.7
  54          BA  0.2722
  55          LS       0      81      22
  56          UD    0.12

  57          KKCP4.7-COMBINE
  58          HC       2

  59          KK   DA4.5
  60          BA  0.0641
  61          LS       0      79      49
  62          UD    0.74

  63          KKCP4.5>4.6
  64          RS       1    STOR      -1
  65          RC     .04     .04     .04    5510     .01
  66          RX      30      80     100     106     116     122     142     192
  67          RY      10     9.5       9       6       6       9     9.5      10

  68          KK   DA4.6
  69          BA  0.0953
  70          LS       0      75      49
  71          UD    1.29

  72          KKCP4.6-COMBINE
  73          HC       2

  74          KKCP4B-COMBINE 4.6+4.7
  75          HC       2

  76          KKCP4B>4C-ROUTING
  77          KM   ROUTE CP4B TO CP4C
  78          RS       1    STOR      -1
  79          RC     .04     .04     .04    4845     .01
  80          RX      10     200     300     306     326     332     430     630
  81          RY      12      10       9       6       6       9      10      12
```

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

  82          KK   DA4.8
  83          BA  0.7000
  84          LS       0      78      33
  85          UD    1.26

  86          KKCP4C-COMBINE 4B+4.8
  87          HC       2

  88          KKCP4C>4.0 ROUTING
  89          KM   ROUTE CP4C TO CP4.0
  90          RS       1    STOR      -1
  91          RC     .04     .04     .04    2680   .0075
  92          RX     100     110     300     306     326     332     800    1300
  93          RY       8       7       5       2       2       5       7       8

  94          KK   DA4.9
  95          BA  0.1219
  96          LS       0      81      20
  97          UD    0.43

  98          KKCP4.0-COMBINE 4C+4.9
  99          HC       2

 100          KK  DA4.95
 101          BA  0.0391
 102          LS       0      86       7
 103          UD    0.04
 104          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7       DA4.1
               V
               V
  17    CP4.1>4.
               .
               .
  23           .       DA4.2
               .           .
               .           .
  27    CP4.2-CO............
               .
               .
  29           .       DA4.3
               .           V
               .           V
  33           .    CP4.3>4.
               .           .
               .           .
  39           .           .       DA4.4
               .           .           .
               .           .           .
  43           .    CP4.4-CO............
               .           .
               .           .
  45    CP4A-COM............
               V
               V
  47    CP4A>4B-
               .
               .
  53           .       DA4.7
               .           .
               .           .
  57    CP4.7-CO............
               .
               .
  59           .       DA4.5
               .           V
               .           V
  63           .    CP4.5>4.
               .           .
               .           .
  68           .           .       DA4.6
               .           .           .
               .           .           .
  72           .    CP4.6-CO............
               .           .
               .           .
  74    CP4B-COM............
               V
               V
  76    CP4B>4C-
               .
```

```
              .
 82           .       DA4.8
              .           .
              .           .
 86     CP4C-COM............
              V
              V
 88     CP4C>4.0
              .
              .
 94           .       DA4.9
              .           .
              .           .
 98     CP4.0-CO............
              .
              .
100           .      DA4.95
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/17/1989  TIME  13:30:22 *
*                                      *
****************************************
```

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

```
                    LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
                    100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
                    FILE NAME BJLDV42 (AREA 4, CASE 2, 24 HOUR STORM) 6/26/89

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA4.1	511.	6.67	140.	43.	42.	.56		
ROUTED TO	CP4.1>4.	495.	6.83	140.	43.	41.	.56	9.67	6.83
HYDROGRAPH AT	DA4.2	314.	6.00	37.	11.	11.	.17		
2 COMBINED AT	CP4.2-CO	524.	6.75	177.	54.	52.	.73		
HYDROGRAPH AT	DA4.3	183.	6.75	53.	16.	16.	.22		
ROUTED TO	CP4.3>4.	181.	6.83	53.	16.	16.	.22	9.22	6.83
HYDROGRAPH AT	DA4.4	67.	6.50	15.	5.	5.	.05		
2 COMBINED AT	CP4.4-CO	234.	6.75	68.	21.	20.	.28		
2 COMBINED AT	CP4A-COM	758.	6.75	245.	75.	73.	1.01		
ROUTED TO	CP4A>4B-	733.	6.92	245.	75.	72.	1.01	9.69	6.92
HYDROGRAPH AT	DA4.7	551.	6.00	62.	19.	18.	.27		
2 COMBINED AT	CP4.7-CO	888.	6.08	306.	94.	91.	1.28		
HYDROGRAPH AT	DA4.5	68.	6.58	17.	5.	5.	.06		
ROUTED TO	CP4.5>4.	57.	6.92	17.	5.	5.	.06	7.23	6.92
HYDROGRAPH AT	DA4.6	63.	7.17	24.	7.	7.	.10		
2 COMBINED AT	CP4.6-CO	117.	7.00	41.	13.	12.	.16		
2 COMBINED AT	CP4B-COM	910.	6.08	347.	107.	103.	1.44		
ROUTED TO	CP4B>4C-	850.	7.17	345.	107.	103.	1.44	9.66	7.17
HYDROGRAPH AT	DA4.8	426.	7.17	160.	50.	48.	.70		
2 COMBINED AT	CP4C-COM	1276.	7.17	505.	157.	151.	2.14		
ROUTED TO	CP4C>4.0	1241.	7.33	504.	156.	150.	2.14	6.09	7.33
HYDROGRAPH AT	DA4.9	152.	6.25	27.	8.	8.	.12		
2 COMBINED AT	CP4.0-CO	1265.	7.33	532.	165.	159.	2.26		
HYDROGRAPH AT	DA4.95	95.	6.00	10.	3.	3.	.04		

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

2-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
* RUN DATE  09/19/1989  TIME  12:56:52 *
*                                      *
****************************************
```

```
*************************************
*
*   U.S. ARMY CORPS OF ENGINEERS
* THE 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

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

           1          ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2          ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3          ID   FILE NAME LDV422 (AREA 4, CASE 2, 24 HOUR STORM) 9/19/89
*** FREE ***
                      *DIAGRAM
           4          IT       5       0       0     300
           5          IN      30
           6          IO       5

           7          KK   DA4.1
           8          BA  0.5594
           9          PB    1.44
          10          PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11          PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12          PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13          PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14          PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15          LS       0      83      29
          16          UD    0.83

          17          KKCP4.1>4.4-ROUTING
          18          KM   ROUTE CP4.1 TO CP4.4
          19          RS       1    STOR      -1
          20          RC     .04     .04     .04    1980     .01
          21          RX      20     220     500     507     515     522     720     820
          22          RY      14      12       9       6       6       9      12      14

          23          KK   DA4.2
          24          BA   .1688
          25          LS       0      82      13
          26          UD    0.15

          27          KKCP4.2-COMBINE
          28          HC       2

          29          KK   DA4.3
          30          BA  0.2234
          31          LS       0      78      36
          32          UD    0.88

          33          KKCP4.3>4.2-ROUTING
          34          KM   ROUTE CP4.3 TO CP4.2
          35          RS       1    STOR      -1
          36          RC     .04     .04     .04    1900   .0125
          37          RX      30      80     100     107     114     121     141     191
          38          RY      10     9.5       9       7       7       9     9.5      10

          39          KK   DA4.4
          40          BA  0.0547
          41          LS       0      74      63
          42          UD    0.64
```

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

  43          KKCP4.4-COMBINE
  44          HC       2

  45          KKCP4A-COMBINE CP4.4+CP4.2
  46          HC       2

  47          KKCP4A>4B-ROUTING
  48          KM   ROUTE CP4A TO CP4B
  49          RS       1    STOR      -1
  50          RC     .04     .04     .04    3400    .008
  51          RX     200     350     500     506     526     532     630     650
  52          RY      13      11       9       6       6       9      12      13

  53          KK   DA4.7
  54          BA  0.2722
  55          LS       0      81      22
  56          UD    0.12

  57          KKCP4.7-COMBINE
  58          HC       2

  59          KK   DA4.5
  60          BA  0.0641
  61          LS       0      79      49
  62          UD    0.74

  63          KKCP4.5>4.6
  64          RS       1    STOR      -1
  65          RC     .04     .04     .04    5510     .01
  66          RX      30      80     100     106     116     122     142     192
  67          RY      10     9.5       9       6       6       9     9.5      10

  68          KK   DA4.6
  69          BA  0.0953
  70          LS       0      75      49
  71          UD    1.29

  72          KKCP4.6-COMBINE
  73          HC       2

  74          KKCP4B-COMBINE 4.6+4.7
  75          HC       2

  76          KKCP4B>4C-ROUTING
  77          KM   ROUTE CP4B TO CP4C
  78          RS       1    STOR      -1
  79          RC     .04     .04     .04    4845     .01
  80          RX      10     200     300     306     326     332     430     630
  81          RY      12      10       9       6       6       9      10      12
```

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

  82          KK   DA4.8
  83          BA  0.7000
  84          LS       0      78      33
  85          UD    1.26

  86          KKCP4C-COMBINE 4B+4.8
  87          HC       2

  88          KKCP4C>4.0 ROUTING
  89          KM   ROUTE CP4C TO CP4.0
  90          RS       1    STOR      -1
  91          RC     .04     .04     .04    2680   .0075
  92          RX     100     110     300     306     326     332     800    1300
  93          RY       8       7       5       2       2       5       7       8

  94          KK   DA4.9
  95          BA  0.1219
  96          LS       0      81      20
  97          UD    0.43

  98          KKCP4.0-COMBINE 4C+4.9
  99          HC       2

 100          KK  DA4.95
 101          BA  0.0391
 102          LS       0      86       7
 103          UD    0.04
 104          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7        DA4.1
                V
                V
  17     CP4.1>4.
                .
                .
  23            .       DA4.2
                .           .
                .           .
  27     CP4.2-CO............
                .
                .
  29            .       DA4.3
                .           V
                .           V
  33            .    CP4.3>4.
                .           .
                .           .
  39            .           .       DA4.4
                .           .           .
                .           .           .
  43            .    CP4.4-CO............
                .           .
                .           .
  45     CP4A-COM............
                V
                V
  47     CP4A>4B-
                .
                .
  53            .       DA4.7
                .           .
                .           .
  57     CP4.7-CO............
                .
                .
  59            .       DA4.5
                .           V
                .           V
  63            .    CP4.5>4.
                .           .
                .           .
  68            .           .       DA4.6
                .           .           .
                .           .           .
  72            .    CP4.6-CO............
                .           .
                .           .
  74     CP4B-COM............
                V
                V
  76     CP4B>4C-
                .
```

```
                .
  82            .       DA4.8
                .           .
                .           .
  86    CP4C-COM............
                V
                V
  88    CP4C>4.0
                .
                .
  94            .       DA4.9
                .           .
                .           .
  98    CP4.0-CO............
                .
                .
 100            .      DA4.95
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  12:56:52 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME LDV422 (AREA 4, CASE 2, 24 HOUR STORM) 9/19/89

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

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

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA4.1	108.	6.67	31.	10.	10.	.56		
ROUTED TO	CP4.1>4.	106.	6.83	31.	10.	10.	.56	7.88	6.83
HYDROGRAPH AT	DA4.2	50.	6.08	6.	2.	2.	.17		
2 COMBINED AT	CP4.2-CO	113.	6.75	37.	12.	12.	.73		
HYDROGRAPH AT	DA4.3	42.	6.75	12.	4.	4.	.22		
ROUTED TO	CP4.3>4.	41.	6.83	12.	4.	4.	.22	8.07	6.83
HYDROGRAPH AT	DA4.4	20.	6.42	5.	1.	1.	.05		
2 COMBINED AT	CP4.4-CO	56.	6.67	17.	5.	5.	.28		
2 COMBINED AT	CP4A-COM	169.	6.75	54.	17.	17.	1.01		
ROUTED TO	CP4A>4B-	164.	6.92	54.	17.	17.	1.01	7.66	6.92
HYDROGRAPH AT	DA4.7	97.	6.00	12.	4.	4.	.27		
2 COMBINED AT	CP4.7-CO	172.	6.92	66.	21.	20.	1.28		
HYDROGRAPH AT	DA4.5	18.	6.58	5.	1.	1.	.06		
ROUTED TO	CP4.5>4.	13.	7.00	4.	1.	1.	.06	6.51	7.00
HYDROGRAPH AT	DA4.6	17.	7.17	6.	2.	2.	.10		
2 COMBINED AT	CP4.6-CO	29.	7.08	11.	3.	3.	.16		
2 COMBINED AT	CP4B-COM	201.	6.92	76.	25.	24.	1.44		
ROUTED TO	CP4B>4C-	194.	7.08	76.	24.	24.	1.44	7.72	7.08
HYDROGRAPH AT	DA4.8	94.	7.17	36.	11.	11.	.70		
2 COMBINED AT	CP4C-COM	287.	7.08	111.	36.	35.	2.14		
ROUTED TO	CP4C>4.0	284.	7.17	111.	36.	34.	2.14	4.33	7.17
HYDROGRAPH AT	DA4.9	26.	6.25	5.	2.	2.	.12		
2 COMBINED AT	CP4.0-CO	290.	7.17	116.	37.	36.	2.26		
HYDROGRAPH AT	DA4.95	19.	6.00	2.	1.	1.	.04		

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

BASIN 5

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*             FEBRUARY 1981            *
*           REVISED 02 AUG 88          *
*                                      *
*  RUN DATE  08/21/1989  TIME  08:30:40 *
*                                      *
****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

          1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
          2           ID   100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
          3           ID   FILE NAME BJLDV52(AREA 5, CASE 2, 24 HOUR STORM)
*** FREE ***
                      *DIAGRAM
          4           IT       5       0       0     300
          5           IN      30
          6           IO       5

          7           KK   DA5.1
          8           BA  0.3234
          9           PB     4.1
         10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
         11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
         12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
         13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
         14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
         15           LS       0      83      15
         16           UD    0.46

         17           KKCP5.1>5A-ROUTING
         18           KM   ROUTE CP5.1 TO CP5A
         19           RS       1    STOR      -1
         20           RC     .04     .04     .04    4870   .0105
         21           RX      30      80     104     108     114     118     142     192
         22           RY      10     9.5       9       7       7       9     9.5      10

         23           KK   DA5.2
         24           BA  0.1172
         25           LS       0      86      14
         26           UD    0.90

         27           KKCP5.2-COMBINE 5.1+5.2
         28           HC       2

         29           KK   DA5.3
         30           BA   .3156
         31           LS       0      77      48
         32           UD    1.53

         33           KK 1.3+1.2
         34           HC      2.

         35           KK CP5A>5BROUTING
         36           KM   ROUTE CP5A TO CP5B
         37           RS       1    STOR      -1
         38           RC    .035    .015    .035    5300   .0083
         39           RX      55      80     100     110     120     130     150     175
         40           RY      11       8      10    10.1    10.1      10       8      11
```

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

  41          KK  DA5.41
  42          BA  0.2303
  43          LS       0      74      25
  44          UD    0.35

  45          KKCP5.1-5.41-COMBINE
  46          HC       2

  47          KK  5BWEST
  48          KM   FLOW SPLIT AT CONCENTRATION POINT 5B
  49          DT  5EEAST
  50          DI       0     100     200     300     400     500
  51          DQ       0      50     100     150     200     250

  52          KK   DA5.4
  53          BA  0.7266
  54          LS       0      75      25
  55          UD    0.42

  56          KKCP5B-COMBINE 5B+5.4
  57          HC       2

  58          KK   DA5.5
  59          BA   .3078
  60          LS       0      81       9
  61          UD    0.53

  62          KK5.0-COMBINE 5B+5.5
  63          HC       2
  64          ZZ
```

```
                SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   7        DA5.1
                V
                V
  17     CP5.1>5A
                .
                .
  23            .       DA5.2
                .           .
                .           .
  27     CP5.2-CO............
                .
                .
  29            .       DA5.3
                .           .
                .           .
  33      1.3+1.2............
                V
                V
  35      CP5A>5B
                .
                .
  41            .      DA5.41
                .           .
                .           .
  45     CP5.1-5.............
                .
                .
  49            .-------> 5EEAST
  47       5BWEST
                .
                .
  52            .       DA5.4
                .           .
                .           .
  56     CP5B-COM............
                .
                .
  58            .       DA5.5
                .           .
                .           .
  62     5.0-COMB............

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
```

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  08:30:40 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME BJLDV51 (AREA 5, CASE 1, 24 HOUR STORM)

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

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

                COMPUTATION INTERVAL     .08 HOURS
                     TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA5.1	398.	6.33	75.	23.	22.	.32		
ROUTED TO	CP5.1>5A	290.	6.58	74.	23.	22.	.32	9.87	6.58
HYDROGRAPH AT	DA5.2	101.	6.75	29.	9.	9.	.12		
2 COMBINED AT	CP5.2-CO	386.	6.67	104.	32.	31.	.44		
HYDROGRAPH AT	DA5.3	185.	7.42	80.	25.	24.	.32		
2 COMBINED AT	1.3+1.2	507.	6.75	183.	57.	54.	.76		
ROUTED TO	CP5A>5B	471.	7.08	181.	56.	54.	.76	10.33	7.08
HYDROGRAPH AT	DA5.41	269.	6.17	45.	14.	14.	.23		
2 COMBINED AT	CP5.1-5.	524.	6.92	225.	70.	68.	.99		
DIVERSION TO	5EEAST	262.	6.92	112.	35.	34.	.99		
HYDROGRAPH AT	5BWEST	262.	6.92	112.	35.	34.	.99		
HYDROGRAPH AT	DA5.4	799.	6.25	146.	45.	44.	.73		
2 COMBINED AT	CP5B-COM	994.	6.25	258.	81.	78.	1.71		
HYDROGRAPH AT	DA5.5	306.	6.42	64.	20.	19.	.31		
2 COMBINED AT	5.0-COMB	1289.	6.33	321.	100.	97.	2.02		

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

2-YEAR

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            FEBRUARY 1981              *
*          REVISED 02 AUG 88            *
*                                       *
*  RUN DATE  09/19/1989  TIME  13:12:33 *
*                                       *
*****************************************
```

```
*************************************
*                                   *
*   U.S. ARMY CORPS OF ENGINEERS    *
*  THE 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

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

            1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
            2           ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
            3           ID   FILE NAME LDV522 (AREA 5, CASE 1, 24 HOUR STORM)
*** FREE ***
                        *DIAGRAM
            4           IT       5       0       0     300
            5           IN      30
            6           IO       5

            7           KK   DA5.1
            8           BA  0.3234
            9           PB    1.44
           10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
           11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
           12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
           13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
           14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
           15           LS       0      83      15
           16           UD    0.46

           17           KKCP5.1>5A-ROUTING
           18           KM   ROUTE CP5.1 TO CP5A
           19           RS       1    STOR      -1
           20           RC     .04     .04     .04    4870   .0105
           21           RX      30      80     104     108     114     118     142     192
           22           RY      10     9.5       9       7       7       9     9.5      10

           23           KK   DA5.2
           24           BA  0.1172
           25           LS       0      86      14
           26           UD    0.90

           27           KKCP5.2-COMBINE 5.1+5.2
           28           HC       2

           29           KK   DA5.3
           30           BA   .3156
           31           LS       0      77      48
           32           UD    1.53

           33           KK 1.3+1.2
           34           HC      2.

           35           KK CP5A>5BROUTING
           36           KM   ROUTE CP5A TO CP5B
           37           RS       1    STOR      -1
           38           RC    .035    .015    .035    5300   .0083
           39           RX      55      80     100     110     120     130     150     175
           40           RY      11       8      10    10.1    10.1      10       8      11
```

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

  41          KK  DA5.41
  42          BA  0.2303
  43          LS       0      74      25
  44          UD    0.35

  45          KKCP5.1-5.41-COMBINE
  46          HC       2

  47          KK  5BWEST
  48          KM   FLOW SPLIT AT CONCENTRATION POINT 5B
  49          DT  5EEAST
  50          DI       0     100     200     300     400     500
  51          DQ       0      50     100     150     200     250

  52          KK   DA5.4
  53          BA  0.7266
  54          LS       0      75      25
  55          UD    0.42

  56          KKCP5B-COMBINE 5B+5.4
  57          HC       2

  58          KK   DA5.5
  59          BA   .3078
  60          LS       0      81       9
  61          UD    0.53

  62          KK5.0-COMBINE 5B+5.5
  63          HC       2
  64          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7        DA5.1
                V
                V
  17      CP5.1>5A
                .
                .
  23            .        DA5.2
                .            .
                .            .
  27      CP5.2-CO............
                .
                .
  29            .        DA5.3
                .            .
                .            .
  33       1.3+1.2............
                V
                V
  35       CP5A>5B
                .
                .
  41            .       DA5.41
                .            .
                .            .
  45      CP5.1-5.............
                .
                .
  49            .-------->  5EEAST
  47        5BWEST
                .
                .
  52            .        DA5.4
                .            .
                .            .
  56      CP5B-COM............
                .
                .
  58            .        DA5.5
                .            .
                .            .
  62      5.0-COMB............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  13:12:33 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME LDV522 (AREA 5, CASE 1, 24 HOUR STORM)

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA5.1	65.	6.33	14.	4.	4.	.32		
ROUTED TO	CP5.1>5A	52.	6.58	13.	4.	4.	.32	8.48	6.58
HYDROGRAPH AT	DA5.2	18.	6.83	6.	2.	2.	.12		
2 COMBINED AT	CP5.2-CO	69.	6.67	19.	6.	6.	.44		
HYDROGRAPH AT	DA5.3	49.	7.42	21.	7.	6.	.32		
2 COMBINED AT	1.3+1.2	102.	6.83	40.	13.	12.	.76		
ROUTED TO	CP5A>5B	88.	7.33	39.	13.	12.	.76	9.29	7.33
HYDROGRAPH AT	DA5.41	49.	6.17	9.	3.	3.	.23		
2 COMBINED AT	CP5.1-5.	95.	7.25	48.	16.	15.	.99		
DIVERSION TO	5EEAST	47.	7.25	24.	8.	7.	.99		
HYDROGRAPH AT	5BWEST	47.	7.25	24.	8.	7.	.99		
HYDROGRAPH AT	DA5.4	146.	6.25	28.	9.	9.	.73		
2 COMBINED AT	CP5B-COM	177.	6.25	52.	17.	16.	1.71		
HYDROGRAPH AT	DA5.5	40.	6.42	10.	3.	3.	.31		
2 COMBINED AT	5.0-COMB	211.	6.25	61.	20.	19.	2.02		

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

BASIN 6

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  08:35:55 *
*                                      *
****************************************
```

```
*************************************
*
*   U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

          1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
          2           ID   100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
          3           ID   FILE NAME BJLDV62 (AREA 6, CASE 2, 24 HOUR STORM)
*** FREE ***
                      *DIAGRAM
          4           IT       5       0       0     300
          5           IN      30
          6           IO       5

          7           KK   DA5.1
          8           BA  0.3234
          9           PB     4.1
         10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
         11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
         12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
         13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
         14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
         15           LS       0      83      15
         16           UD    0.46

         17           KKCP5.1>5A-ROUTING
         18           KM   ROUTE CP5.1 TO CP5A
         19           RS       1    STOR      -1
         20           RC     .04     .04     .04    4870   .0105
         21           RX      30      80     104     108     114     118     142     192
         22           RY      10     9.5       9       7       7       9     9.5      10

         23           KK   DA5.2
         24           BA  0.1172
         25           LS       0      86      14
         26           UD    0.90

         27           KKCP5.2-COMBINE 5.1+5.2
         28           HC       2

         29           KK   DA5.3
         30           BA   .3156
         31           LS       0      77      48
         32           UD    1.56

         33           KK 5.3+5.2
         34           HC      2.

         35           KK CP5A>5BROUTING
         36           KM   ROUTE CP5A TO CP5B
         37           RS       1    STOR      -1
         38           RC    .035    .015    .035    5300   .0083
         39           RX      55      80     100     110     120     130     150     175
         40           RY      11       8      10    10.1    10.1      10       8      11
```

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

  41          KK  DA5.41
  42          BA  0.2303
  43          LS       0      74      25
  44          UD    0.35

  45          KK  5BWEST
  46          KM   FLOW SPLIT AT CONCENTRATION POINT 5B
  47          DT  5EEAST
  48          DI       0     100     200     300     400     500
  49          DQ       0      50     100     150     200     250

  50          KK   DA5.4
  51          BA  0.7266
  52          LS       0      75      25
  53          UD    0.42

  54          KKCP5B-COMBINE 5B+5.4
  55          HC       2

  56          KK   DA5.5
  57          BA   .3078
  58          LS       0      81       9
  59          UD    0.53

  60          KK5.0-COMBINE 5B+5.5
  61          HC       2

  62          KK   DA6.1
  63          BA   .3688
  64          LS       0      82      13
  65          UD    0.36

  66          KKCP6.1>6.2-ROUTING
  67          RS       1    STOR      -1
  68          RC     .04     .04     .04    2400   .0045
  69          RX      10     200     300     306     316     322     420     620
  70          RY      12      10       9       6       6       9      10      12

  71          KK   DA6.2
  72          BA   .3266
  73          LS       0      76      32
  74          UD    1.02

  75          KKCP6A-COMBINE 6.1+6.2
  76          HC       2

  77          KK   DA6.5
  78          BA  0.3125
  79          LS       0      77      22
  80          UD    0.93
```

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

 81           KKCP6.1+6.2+6.5
 82           HC       2

 83           KK   DA6.3
 84           BA   .3688
 85           LS       0      83      15
 86           UD    0.68

 87           KKCP6.3>6.31-ROUTE
 88           KM   NATURAL WASH
 89           RS       1    STOR      -1
 90           RC     .04     .04     .04    1500    .010
 91           RX      10     200     300     306     316     322     420     620
 92           RY      12      10       9       6       6       9      10      12

 93           KK  DA6.31
 94           BA  0.0781
 95           LS       0      74      48
 96           UD    0.67

 97           KK     6.4
 98           BA   .0953
 99           LS       0      78      46
100           UD     1.0

101           KKCP6A-COMBINE 6.2+6.3+6.4
102           HC       4

103           KK   DA6.6
104           BA   0.125
105           LS       0      75      38
106           UD    1.21

107           KKCP6.6-COMBINE 6A+6.6
108           HC       2

109           KKCP6.6>6.5-ROUTING
110           RS       1    STOR      -1
111           RC     .04     .04     .04    1700    .004
112           RX     200     300     400     500     600     700     800     900
113           RY      11      10       9       8       8       9      10      11

114           KK    6.51
115           BA   .2578
116           LS       0      74      32
117           UD    0.92

118           KKCP6.5-COMBINE 6.6+6.5
119           HC       2
```

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

 120          KKCP6.5>6.7A-ROUTING
 121          RS       1    STOR      -1
 122          RC    .035    .022    .035    1700   .0018
 123          RX      80      80     100     124     204     228     325     425
 124          RY      11    10.5      10       4       4      10    10.5      11

 125          KK6.7A>6.7-ROUTING
 126          KM   FROM OUTLET OF CHANNEL TO P.P. RD.
 127          RS       1    STOR      -1
 128          RC     .04     .04     .04    1000    .004
 129          RX     200     300     400     500     600     700     800     900
 130          RY      11      10       9       8       8       9      10      11

 131          KK  5EEAST
 132          KM   RETRIEVE FLOW SPLIT AT 5EEAST
 133          DR  5EEAST

 134          KK5E>6.0-ROUTING
 135          RS       1    STOR      -1
 136          RC     .04     .04     .04    2700    .001
 137          RX     650     700     760     769     770     780     790     800
 138          RY      10     9.5       9       8       8       9       9      10

 139          KK   DA6.7
 140          BA   .6359
 141          LS       0      74      30
 142          UD     .34

 143          KKCP6.0-COMBINE 5E+6.7+6.5
 144          HC       3
 145          ZZ
```

```
                 SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

  7         DA5.1
                V
                V
 17       CP5.1>5A
                .
                .
 23             .       DA5.2
                .           .
                .           .
 27       CP5.2-CO............
                .
                .
 29             .       DA5.3
                .           .
                .           .
 33        5.3+5.2............
                V
                V
 35        CP5A>5B
                .
                .
 41             .      DA5.41
                .           .
                .           .
 47             .           .-------> 5EEAST
 45             .      5BWEST
                .           .
                .           .
 50             .           .      DA5.4
                .           .          .
                .           .          .
 54             .    CP5B-COM............
                .           .
                .           .
 56             .           .      DA5.5
                .           .          .
                .           .          .
 60             .    5.0-COMB............
                .           .
                .           .
 62             .           .      DA6.1
                .           .          V
                .           .          V
 66             .           .    CP6.1>6.
                .           .          .
                .           .          .
 71             .           .          .      DA6.2
                .           .          .          .
                .           .          .          .
 75             .           .    CP6A-COM............
                .           .          .
                .           .          .
 77             .           .          .      DA6.5
```

```
                .         .         .         .
                .         .         .         .
 81             .         .   CP6.1+6............
                .         .         .
                .         .         .
 83             .         .         .     DA6.3
                .         .         .         V
                .         .         .         V
 87             .         .         .   CP6.3>6.
                .         .         .         .
                .         .         .         .
 93             .         .         .         .     DA6.31
                .         .         .         .         .
                .         .         .         .         .
 97             .         .         .         .         .         6.4
                .         .         .         .         .           .
                .         .         .         .         .           .
101             .         .   CP6A-COM...................................
                .         .         .
                .         .         .
103             .         .         .     DA6.6
                .         .         .         .
                .         .         .         .
107             .         .   CP6.6-CO............
                .         .         V
                .         .         V
109             .         .   CP6.6>6.
                .         .         .
                .         .         .
114             .         .         .      6.51
                .         .         .         .
                .         .         .         .
118             .         .   CP6.5-CO............
                .         .         V
                .         .         V
120             .         .   CP6.5>6.
                .         .         V
                .         .         V
125             .         .   6.7A>6.7
                .         .         .
                .         .         .
133             .         .         .         .<-------  5EEAST
131             .         .         .    5EEAST
                .         .         .         V
                .         .         .         V
134             .         .         .   5E>6.0-R
                .         .         .         .
                .         .         .         .
139             .         .         .         .     DA6.7
                .         .         .         .         .
                .         .         .         .         .
143             .         .   CP6.0-CO........................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  08:35:55 *
*                                      *
****************************************
```

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

```
                    LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
                    100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
                    FILE NAME BJLDV62 (AREA 6, CASE 2, 24 HOUR STORM)

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

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

                COMPUTATION INTERVAL     .08 HOURS
                     TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA5.1	398.	6.33	75.	23.	22.	.32		
ROUTED TO	CP5.1>5A	290.	6.58	74.	23.	22.	.32	9.87	6.58
HYDROGRAPH AT	DA5.2	101.	6.75	29.	9.	9.	.12		
2 COMBINED AT	CP5.2-CO	386.	6.67	104.	32.	31.	.44		
HYDROGRAPH AT	DA5.3	182.	7.42	79.	25.	24.	.32		
2 COMBINED AT	5.3+5.2	502.	6.75	183.	57.	54.	.76		
ROUTED TO	CP5A>5B	466.	7.08	181.	56.	54.	.76	10.32	7.08
HYDROGRAPH AT	DA5.41	269.	6.17	45.	14.	14.	.23		
DIVERSION TO	5EEAST	135.	6.17	22.	7.	7.	.23		
HYDROGRAPH AT	5BWEST	135.	6.17	22.	7.	7.	.23		
HYDROGRAPH AT	DA5.4	799.	6.25	146.	45.	44.	.73		
2 COMBINED AT	CP5B-COM	933.	6.25	168.	53.	51.	.96		
HYDROGRAPH AT	DA5.5	306.	6.42	64.	20.	19.	.31		
2 COMBINED AT	5.0-COMB	1210.	6.25	231.	72.	70.	1.26		
HYDROGRAPH AT	DA6.1	493.	6.25	82.	25.	24.	.37		
ROUTED TO	CP6.1>6.	400.	6.42	81.	25.	24.	.37	9.77	6.42
HYDROGRAPH AT	DA6.2	220.	6.92	71.	22.	21.	.33		
2 COMBINED AT	CP6A-COM	557.	6.50	153.	47.	45.	.70		
HYDROGRAPH AT	DA6.5	208.	6.83	63.	20.	19.	.31		
2 COMBINED AT	CP6.1+6.	739.	6.58	216.	67.	65.	1.01		
HYDROGRAPH AT	DA6.3	351.	6.58	85.	26.	25.	.37		
ROUTED TO	CP6.3>6.	344.	6.67	85.	26.	25.	.37	9.21	6.67
HYDROGRAPH AT	DA6.31	81.	6.50	19.	6.	6.	.08		
HYDROGRAPH AT	6.4	78.	6.83	24.	8.	7.	.10		
4 COMBINED AT	CP6A-COM	1231.	6.58	344.	107.	103.	1.55		
HYDROGRAPH AT	DA6.6	77.	7.08	28.	9.	8.	.13		

2 COMBINED AT	CP6.6-CO	1290.	6.67	372.	115.	111.	1.68		
ROUTED TO	CP6.6>6.	1254.	6.75	371.	115.	111.	1.68	9.70	6.75
HYDROGRAPH AT	6.51	179.	6.83	54.	17.	16.	.26		
2 COMBINED AT	CP6.5-CO	1433.	6.75	425.	132.	127.	1.93		
ROUTED TO	CP6.5>6.	1426.	6.83	424.	131.	127.	1.93	6.90	6.83
ROUTED TO	6.7A>6.7	1413.	6.92	423.	131.	126.	1.93	9.79	6.92
HYDROGRAPH AT	5EEAST	135.	6.17	22.	7.	7.	.00		
ROUTED TO	5E>6.0-R	67.	6.58	22.	7.	7.	.00	9.77	6.58
HYDROGRAPH AT	DA6.7	806.	6.17	131.	41.	40.	.64		
3 COMBINED AT	CP6.0-CO	1687.	6.83	572.	179.	173.	2.57		

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

2-YEAR

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*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             FEBRUARY 1981             *
*           REVISED 02 AUG 88           *
*                                       *
*  RUN DATE  09/19/1989  TIME  13:19:10 *
*                                       *
*****************************************
```

```
*************************************
*
*   U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1          ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2          ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3          ID   FILE NAME LDV622 (AREA 6, CASE 2, 24 HOUR STORM)
*** FREE ***
                      *DIAGRAM
           4          IT       5       0       0     300
           5          IN      30
           6          IO       5

           7          KK   DA5.1
           8          BA  0.3234
           9          PB    1.44
          10          PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11          PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12          PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13          PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14          PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15          LS       0      83      15
          16          UD    0.46

          17          KKCP5.1>5A-ROUTING
          18          KM   ROUTE CP5.1 TO CP5A
          19          RS       1    STOR      -1
          20          RC     .04     .04     .04    4870   .0105
          21          RX      30      80     104     108     114     118     142     192
          22          RY      10     9.5       9       7       7       9     9.5      10

          23          KK   DA5.2
          24          BA  0.1172
          25          LS       0      86      14
          26          UD    0.90

          27          KKCP5.2-COMBINE 5.1+5.2
          28          HC       2

          29          KK   DA5.3
          30          BA   .3156
          31          LS       0      77      48
          32          UD    1.56

          33          KK 5.3+5.2
          34          HC      2.

          35          KK CP5A>5BROUTING
          36          KM   ROUTE CP5A TO CP5B
          37          RS       1    STOR      -1
          38          RC    .035    .015    .035    5300   .0083
          39          RX      55      80     100     110     120     130     150     175
          40          RY      11       8      10    10.1    10.1      10       8      11
```

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

  41          KK  DA5.41
  42          BA  0.2303
  43          LS       0      74      25
  44          UD    0.35

  45          KK  5BWEST
  46          KM   FLOW SPLIT AT CONCENTRATION POINT 5B
  47          DT  5EEAST
  48          DI       0     100     200     300     400     500
  49          DQ       0      50     100     150     200     250

  50          KK   DA5.4
  51          BA  0.7266
  52          LS       0      75      25
  53          UD    0.42

  54          KKCP5B-COMBINE 5B+5.4
  55          HC       2

  56          KK   DA5.5
  57          BA   .3078
  58          LS       0      81       9
  59          UD    0.53

  60          KK5.0-COMBINE 5B+5.5
  61          HC       2

  62          KK   DA6.1
  63          BA   .3688
  64          LS       0      82      13
  65          UD    0.36

  66          KKCP6.1>6.2-ROUTING
  67          RS       1    STOR      -1
  68          RC     .04     .04     .04    2400   .0045
  69          RX      10     200     300     306     316     322     420     620
  70          RY      12      10       9       6       6       9      10      12

  71          KK   DA6.2
  72          BA   .3266
  73          LS       0      76      32
  74          UD    1.02

  75          KKCP6A-COMBINE 6.1+6.2
  76          HC       2

  77          KK   DA6.5
  78          BA  0.3125
  79          LS       0      77      22
  80          UD    0.93
```

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

  41          KK  DA5.41
  42          BA  0.2303
  43          LS       0      74      25
  44          UD    0.35

  45          KK  5BWEST
  46          KM   FLOW SPLIT AT CONCENTRATION POINT 5B
  47          DT  5EEAST
  48          DI       0     100     200     300     400     500
  49          DQ       0      50     100     150     200     250

  50          KK   DA5.4
  51          BA  0.7266
  52          LS       0      75      25
  53          UD    0.42

  54          KKCP5B-COMBINE 5B+5.4
  55          HC       2

  56          KK   DA5.5
  57          BA   .3078
  58          LS       0      81       9
  59          UD    0.53

  60          KK5.0-COMBINE 5B+5.5
  61          HC       2

  62          KK   DA6.1
  63          BA   .3688
  64          LS       0      82      13
  65          UD    0.36

  66          KKCP6.1>6.2-ROUTING
  67          RS       1    STOR      -1
  68          RC     .04     .04     .04    2400   .0045
  69          RX      10     200     300     306     316     322     420     620
  70          RY      12      10       9       6       6       9      10      12

  71          KK   DA6.2
  72          BA   .3266
  73          LS       0      76      32
  74          UD    1.02

  75          KKCP6A-COMBINE 6.1+6.2
  76          HC       2

  77          KK   DA6.5
  78          BA  0.3125
  79          LS       0      77      22
  80          UD    0.93
```

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

  81          KKCP6.1+6.2+6.5
  82          HC       2

  83          KK   DA6.3
  84          BA   .3688
  85          LS       0      83      15
  86          UD    0.68

  87          KKCP6.3>6.31-ROUTE
  88          KM   NATURAL WASH
  89          RS       1    STOR      -1
  90          RC     .04     .04     .04    1500    .010
  91          RX      10     200     300     306     316     322     420     620
  92          RY      12      10       9       6       6       9      10      12

  93          KK  DA6.31
  94          BA  0.0781
  95          LS       0      74      48
  96          UD    0.67

  97          KK     6.4
  98          BA   .0953
  99          LS       0      78      46
 100          UD     1.0

 101          KKCP6A-COMBINE 6.2+6.3+6.4
 102          HC       4

 103          KK   DA6.6
 104          BA   0.125
 105          LS       0      75      38
 106          UD    1.21

 107          KKCP6.6-COMBINE 6A+6.6
 108          HC       2

 109          KKCP6.6>6.5-ROUTING
 110          RS       1    STOR      -1
 111          RC     .04     .04     .04    1700    .004
 112          RX     200     300     400     500     600     700     800     900
 113          RY      11      10       9       8       8       9      10      11

 114          KK    6.51
 115          BA   .2578
 116          LS       0      74      32
 117          UD    0.92

 118          KKCP6.5-COMBINE 6.6+6.5
 119          HC       2
```

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

 120          KKCP6.5>6.7A-ROUTING
 121          RS       1    STOR      -1
 122          RC    .035    .022    .035    1700   .0018
 123          RX      80      80     100     124     204     228     325     425
 124          RY      11    10.5      10       4       4      10    10.5      11

 125          KK6.7A>6.7-ROUTING
 126          KM   FROM OUTLET OF CHANNEL TO P.P. RD.
 127          RS       1    STOR      -1
 128          RC     .04     .04     .04    1000    .004
 129          RX     200     300     400     500     600     700     800     900
 130          RY      11      10       9       8       8       9      10      11

 131          KK  5EEAST
 132          KM   RETRIEVE FLOW SPLIT AT 5EEAST
 133          DR  5EEAST

 134          KK5E>6.0-ROUTING
 135          RS       1    STOR      -1
 136          RC     .04     .04     .04    2700    .001
 137          RX     650     700     760     769     770     780     790     800
 138          RY      10     9.5       9       8       8       9       9      10

 139          KK   DA6.7
 140          BA   .6359
 141          LS       0      74      30
 142          UD     .34

 143          KKCP6.0-COMBINE 5E+6.7+6.5
 144          HC       3
 145          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

  7       DA5.1
              V
              V
 17     CP5.1>5A
              .
              .
 23           .       DA5.2
              .           .
              .           .
 27     CP5.2-CO............
              .
              .
 29           .       DA5.3
              .           .
              .           .
 33      5.3+5.2............
              V
              V
 35      CP5A>5B
              .
              .
 41           .      DA5.41
              .           .
              .           .
 47           .           .-------> 5EEAST
 45           .      5BWEST
              .           .
              .           .
 50           .           .      DA5.4
              .           .          .
              .           .          .
 54           .    CP5B-COM............
              .           .
              .           .
 56           .           .      DA5.5
              .           .          .
              .           .          .
 60           .    5.0-COMB............
              .           .
              .           .
 62           .           .      DA6.1
              .           .          V
              .           .          V
 66           .           .    CP6.1>6.
              .           .          .
              .           .          .
 71           .           .          .      DA6.2
              .           .          .          .
              .           .          .          .
 75           .           .    CP6A-COM............
              .           .          .
              .           .          .
 77           .           .          .      DA6.5
```

```
                .         .         .         .
                .         .         .         .
 81             .         .   CP6.1+6............
                .         .         .
                .         .         .
 83             .         .         .     DA6.3
                .         .         .         V
                .         .         .         V
 87             .         .         .   CP6.3>6.
                .         .         .         .
                .         .         .         .
 93             .         .         .         .     DA6.31
                .         .         .         .         .
                .         .         .         .         .
 97             .         .         .         .         .        6.4
                .         .         .         .         .         .
                .         .         .         .         .         .
101             .         .   CP6A-COM...................................
                .         .         .
                .         .         .
103             .         .         .     DA6.6
                .         .         .         .
                .         .         .         .
107             .         .   CP6.6-CO............
                .         .         V
                .         .         V
109             .         .   CP6.6>6.
                .         .         .
                .         .         .
114             .         .         .      6.51
                .         .         .         .
                .         .         .         .
118             .         .   CP6.5-CO............
                .         .         V
                .         .         V
120             .         .   CP6.5>6.
                .         .         V
                .         .         V
125             .         .   6.7A>6.7
                .         .         .
                .         .         .
133             .         .         .         .<-------  5EEAST
131             .         .         .   5EEAST
                .         .         .         V
                .         .         .         V
134             .         .         .   5E>6.0-R
                .         .         .         .
                .         .         .         .
139             .         .         .         .     DA6.7
                .         .         .         .         .
                .         .         .         .         .
143             .         .   CP6.0-CO........................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  13:19:10 *
*                                      *
****************************************
```

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

```
                    LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
                    2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
                    FILE NAME LDV622 (AREA 6, CASE 2, 24 HOUR STORM)

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA5.1	65.	6.33	14.	4.	4.	.32		
ROUTED TO	CP5.1>5A	52.	6.58	13.	4.	4.	.32	8.48	6.58
HYDROGRAPH AT	DA5.2	18.	6.83	6.	2.	2.	.12		
2 COMBINED AT	CP5.2-CO	69.	6.67	19.	6.	6.	.44		
HYDROGRAPH AT	DA5.3	48.	7.42	21.	7.	6.	.32		
2 COMBINED AT	5.3+5.2	101.	6.83	40.	13.	12.	.76		
ROUTED TO	CP5A>5B	87.	7.33	39.	13.	12.	.76	9.28	7.33
HYDROGRAPH AT	DA5.41	49.	6.17	9.	3.	3.	.23		
DIVERSION TO	5EEAST	25.	6.17	4.	1.	1.	.23		
HYDROGRAPH AT	5BWEST	25.	6.17	4.	1.	1.	.23		
HYDROGRAPH AT	DA5.4	146.	6.25	28.	9.	9.	.73		
2 COMBINED AT	CP5B-COM	170.	6.25	33.	11.	10.	.96		
HYDROGRAPH AT	DA5.5	40.	6.42	10.	3.	3.	.31		
2 COMBINED AT	5.0-COMB	203.	6.25	42.	14.	13.	1.26		
HYDROGRAPH AT	DA6.1	74.	6.25	14.	5.	4.	.37		
ROUTED TO	CP6.1>6.	64.	6.42	14.	5.	4.	.37	7.64	6.42
HYDROGRAPH AT	DA6.2	48.	6.92	16.	5.	5.	.33		
2 COMBINED AT	CP6A-COM	100.	6.50	29.	10.	9.	.70		
HYDROGRAPH AT	DA6.5	37.	6.83	12.	4.	4.	.31		
2 COMBINED AT	CP6.1+6.	133.	6.58	41.	13.	13.	1.01		
HYDROGRAPH AT	DA6.3	58.	6.58	15.	5.	5.	.37		
ROUTED TO	CP6.3>6.	57.	6.67	15.	5.	5.	.37	7.23	6.67
HYDROGRAPH AT	DA6.31	21.	6.50	5.	2.	2.	.08		
HYDROGRAPH AT	6.4	20.	6.83	6.	2.	2.	.10		
4 COMBINED AT	CP6A-COM	228.	6.58	68.	22.	21.	1.55		
HYDROGRAPH AT	DA6.6	18.	7.08	7.	2.	2.	.13		

2 COMBINED AT	CP6.6-CO	243.	6.67	75.	24.	23.	1.68		
ROUTED TO	CP6.6>6.	223.	6.92	74.	24.	23.	1.68	8.79	6.92
HYDROGRAPH AT	6.51	39.	6.75	12.	4.	4.	.26		
2 COMBINED AT	CP6.5-CO	260.	6.92	86.	28.	27.	1.93		
ROUTED TO	CP6.5>6.	256.	7.00	85.	28.	27.	1.93	5.05	7.00
ROUTED TO	6.7A>6.7	249.	7.17	85.	28.	27.	1.93	8.83	7.17
HYDROGRAPH AT	5EEAST	25.	6.17	4.	1.	1.	.00		
ROUTED TO	5E>6.0-R	12.	6.58	4.	1.	1.	.00	9.11	6.58
HYDROGRAPH AT	DA6.7	163.	6.17	28.	9.	9.	.64		
3 COMBINED AT	CP6.0-CO	284.	7.08	116.	38.	36.	2.57		

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

BASINS 7 & 8

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/19/1989  TIME  08:15:42 *
*                                      *
****************************************
```

```
*************************************
*
*   U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1          ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2          ID   100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3          ID   FILE NAME BJLDV782 (AREA 7&8 CASE 2, 24 HOUR STORM)
*** FREE ***
                      *DIAGRAM
           4          IT       5       0       0     300
           5          IN      30
           6          IO       5

           7          KK   DA8.1
           8          BA  0.4954
           9          PB     4.1
          10          PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11          PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12          PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13          PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14          PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15          LS       0      81
          16          UD    1.07

          17          KKCP8.1>8.0-ROUTING
          18          RS       1    STOR      -1
          19          RC     .04    .025     .04    7580    .002
          20          RX     180     190     200     215     227     242     252     266
          21          RY      12      11      10       5       5      10      11      12

          22          KK   DA8.2
          23          BA  0.3906
          24          LS       0      74      91
          25          UD    0.30

          26          KKCP8.0-COMBINE 8.1+8.2
          27          HC       2

          28          KK  DA8.25
          29          BA  0.2531
          30          LS       0      74      92
          31          UD    0.22

          32          KKCP2.81-2.85
          33          HC       2

          34          KK     DA7
          35          BA  0.1281
          36          LS       0      74      22
          37          UD    0.19
          38          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7        DA8.1
                V
                V
  17     CP8.1>8.
                .
                .
  22            .        DA8.2
                .           .
                .           .
  26     CP8.0-CO............
                .
                .
  28            .       DA8.25
                .           .
                .           .
  32     CP2.81-2............
                .
                .
  34            .         DA7
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/19/1989  TIME  08:15:42 *
*                                      *
****************************************
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```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE HYDROLOGIC ENGINEERING CENTER
*          609 SECOND STREET
*       DAVIS, CALIFORNIA 95616
*          (916) 551-1748
*
*************************************
```

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME BJLDV782 (AREA 7&8 CASE 2, 24 HOUR STORM)

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA8.1	275.	7.00	93.	29.	28.	.50		
ROUTED TO	CP8.1>8.	235.	7.42	91.	29.	28.	.50	7.79	7.42
HYDROGRAPH AT	DA8.2	891.	6.08	134.	41.	39.	.39		
2 COMBINED AT	CP8.0-CO	895.	6.08	221.	69.	67.	.89		
HYDROGRAPH AT	DA8.25	638.	6.08	88.	27.	26.	.25		
2 COMBINED AT	CP2.81-2	1534.	6.08	308.	96.	93.	1.14		
HYDROGRAPH AT	DA7	190.	6.08	24.	8.	7.	.13		

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

2-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  13:30:54 *
*                                      *
****************************************
```

```
*************************************
*
*   U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2           ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3           ID   FILE NAME LDV7822 (AREA 7&8 CASE 2, 24 HOUR STORM)
*** FREE ***
                       *DIAGRAM
           4           IT       5       0       0     300
           5           IN      30
           6           IO       5

           7           KK   DA8.1
           8           BA  0.4954
           9           PB    1.44
          10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15           LS       0      81
          16           UD    1.07

          17           KKCP8.1>8.0-ROUTING
          18           RS       1    STOR      -1
          19           RC     .04    .025     .04    7580    .002
          20           RX     180     190     200     215     227     242     252     266
          21           RY      12      11      10       5       5      10      11      12

          22           KK   DA8.2
          23           BA  0.3906
          24           LS       0      74      91
          25           UD    0.30

          26           KKCP8.0-COMBINE 8.1+8.2
          27           HC       2

          28           KK  DA8.25
          29           BA  0.2531
          30           LS       0      74      92
          31           UD    0.22

          32           KKCP2.81-2.85
          33           HC       2

          34           KK     DA7
          35           BA  0.1281
          36           LS       0      74      22
          37           UD    0.19
          38           ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7        DA8.1
                V
                V
  17     CP8.1>8.
                .
                .
  22            .       DA8.2
                .           .
                .           .
  26     CP8.0-CO............
                .
                .
  28            .      DA8.25
                .           .
                .           .
  32     CP2.81-2............
                .
                .
  34            .         DA7
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  13:30:54 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME LDV7822 (AREA 7&8 CASE 2, 24 HOUR STORM)

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

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

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA8.1	26.	7.17	10.	4.	4.	.50		
ROUTED TO	CP8.1>8.	17.	7.92	10.	4.	4.	.50	5.65	7.92
HYDROGRAPH AT	DA8.2	304.	6.08	46.	14.	13.	.39		
2 COMBINED AT	CP8.0-CO	304.	6.08	54.	17.	17.	.89		
HYDROGRAPH AT	DA8.25	217.	6.08	30.	9.	9.	.25		
2 COMBINED AT	CP2.81-2	521.	6.08	84.	27.	26.	1.14		
HYDROGRAPH AT	DA7	30.	6.08	4.	1.	1.	.13		

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

APPENDIX C

Existing Conditions with Proposed Improvements (CASE III)

BASIN 1

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
* RUN DATE  08/21/1989  TIME  07:56:36 *
*                                      *
****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1          ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
           2          ID   100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3          ID   FILE NAME BJLDV15 (AREA 1, CASE 5, 24 HOUR STORM)
*** FREE ***
                      *DIAGRAM
           4          IT       5       0       0     300
           5          IN      30
           6          IO       5

           7          KK   DA1.1
           8          BA   .0439
           9          PB     4.1
          10          PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11          PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12          PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13          PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14          PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15          LS       0      86
          16          UD    0.18

          17          KK   DA1.2
          18          KM   CULVERT UNDER PROPOSED 67TH STREET
          19          BA  0.6563
          20          LS       0      85
          21          UD    1.05

          22          KKCP1.2>1.21-ROUTING
          23          KM   NATURAL WASH
          24          RS       1    STOR      -1
          25          RC     .04     .03     .04    1100   0.015
          26          RX      98      99     100     101     110     130     270     470
          27          RY      10      10      10       1       1     1.5       5      10

          28          KK  DA1.21
          29          BA  0.1281
          30          LS       0      82
          31          UD    0.37

          32          KK1.2+1.21
          33          HC      2.

          34          KK   DA1.3
          35          BA    0.30
          36          LS       0      79
          37          UD    0.63

          38          KK   DA1.4
          39          BA  0.1828
          40          LS       0      86
          41          UD    0.67
```

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

  42          KKCP1.3-COMBINE
  43          KM   CULVERT UNDER PROPOSED 67TH STREET
  44          KM   NORTH OF CAP
  45          HC       2

  46          KKCP1.3>1.31-ROUTING
  47          KM   NATURAL WASH
  48          RS       1    STOR      -1
  49          RC     .04     .03     .04    1000    0.01
  50          RX      98      99     100     101     110     130     270     470
  51          RY      10      10      10       1       1     1.5       5      10

  52          KK  DA1.31
  53          LS       0      86
  54          UD    0.26

  55          KK1.3+1.31
  56          HC       2

  57          KK   DA1.5
  58          BA     .10
  59          LS       0      86
  60          UD    0.40
  61          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7       DA1.1
               .
               .
  17           .       DA1.2
               .           V
               .           V
  22           .    CP1.2>1.
               .           .
               .           .
  28           .           .     DA1.21
               .           .          .
               .           .          .
  32           .    1.2+1.21............
               .           .
               .           .
  34           .           .      DA1.3
               .           .          .
               .           .          .
  38           .           .          .      DA1.4
               .           .          .          .
               .           .          .          .
  42           .           .    CP1.3-CO............
               .           .          V
               .           .          V
  46           .           .    CP1.3>1.
               .           .          .
               .           .          .
  52           .           .          .     DA1.31
               .           .          .          .
               .           .          .          .
  55           .           .    1.3+1.31............
               .           .          .
               .           .          .
  57           .           .          .      DA1.5
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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	DA1.1	85.	6.08	10.	3.	3.	.04		
HYDROGRAPH AT	DA1.2	443.	7.00	146.	45.	43.	.66		
ROUTED TO	CP1.2>1.	443.	7.00	145.	45.	43.	.66	2.68	7.00
HYDROGRAPH AT	DA1.21	154.	6.25	26.	8.	8.	.13		
2 COMBINED AT	1.2+1.21	482.	6.92	171.	53.	51.	.78		
HYDROGRAPH AT	DA1.3	222.	6.50	53.	16.	16.	.30		
HYDROGRAPH AT	DA1.4	179.	6.50	43.	13.	12.	.18		
2 COMBINED AT	CP1.3-CO	401.	6.50	95.	29.	28.	.48		
ROUTED TO	CP1.3>1.	400.	6.58	95.	29.	28.	.48	2.77	6.58
HYDROGRAPH AT	DA1.31	308.	6.08	43.	13.	12.	.18		
2 COMBINED AT	1.3+1.31	524.	6.33	138.	42.	41.	.67		
HYDROGRAPH AT	DA1.5	138.	6.25	24.	7.	7.	.10		

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

2-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  08:33:02 *
*                                      *
****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

            1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
            2           ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
            3           ID   FILE NAME LDV152 (AREA 1, CASE 5, 2-HOUR STORM)
*** FREE ***
                        *DIAGRAM
            4           IT       5       0       0     300
            5           IN      30
            6           IO       5

            7           KK   DA1.1
            8           BA   .0439
            9           PB    1.44
           10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
           11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
           12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
           13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
           14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
           15           LS       0      86
           16           UD    0.18

           17           KK   DA1.2
           18           KM   CULVERT UNDER PROPOSED 67TH STREET
           19           BA  0.6563
           20           LS       0      85
           21           UD    1.05

           22           KKCP1.2>1.21-ROUTING
           23           KM   NATURAL WASH
           24           RS       1    STOR      -1
           25           RC     .04     .03     .04    1100   0.015
           26           RX      98      99     100     101     110     130     270     470
           27           RY      10      10      10       1       1     1.5       5      10

           28           KK  DA1.21
           29           BA  0.1281
           30           LS       0      82
           31           UD    0.37

           32           KK1.2+1.21
           33           HC      2.

           34           KK   DA1.3
           35           BA    0.30
           36           LS       0      79
           37           UD    0.63

           38           KK   DA1.4
           39           BA  0.1828
           40           LS       0      86
           41           UD    0.67
```

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

  42          KKCP1.3-COMBINE
  43          KM   CULVERT UNDER PROPOSED 67TH STREET
  44          KM   NORTH OF CAP
  45          HC       2

  46          KKCP1.3>1.31-ROUTING
  47          KM   NATURAL WASH
  48          RS       1    STOR      -1
  49          RC     .04     .03     .04    1000    0.01
  50          RX      98      99     100     101     110     130     270     470
  51          RY      10      10      10       1       1     1.5       5      10

  52          KK  DA1.31
  53          LS       0      86
  54          UD    0.26

  55          KK1.3+1.31
  56          HC       2

  57          KK   DA1.5
  58          BA     .10
  59          LS       0      86
  60          UD    0.40
  61          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7       DA1.1
               .
               .
  17           .       DA1.2
               .           V
               .           V
  22           .    CP1.2>1.
               .           .
               .           .
  28           .           .     DA1.21
               .           .          .
               .           .          .
  32           .    1.2+1.21............
               .           .
               .           .
  34           .           .      DA1.3
               .           .          .
               .           .          .
  38           .           .          .       DA1.4
               .           .          .          .
               .           .          .          .
  42           .           .    CP1.3-CO............
               .           .          V
               .           .          V
  46           .           .    CP1.3>1.
               .           .          .
               .           .          .
  52           .           .          .     DA1.31
               .           .          .          .
               .           .          .          .
  55           .           .    1.3+1.31............
               .           .          .
               .           .          .
  57           .           .          .       DA1.5
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  08:33:02 *
*                                      *
****************************************
```

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

```
                    LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
                    2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
                    FILE NAME LDV152 (AREA 1, CASE 5, 2-HOUR STORM)

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

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

             COMPUTATION INTERVAL     .08 HOURS
                  TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA1.1	13.	6.08	2.	1.	1.	.04		
HYDROGRAPH AT	DA1.2	58.	7.08	21.	7.	7.	.66		
ROUTED TO	CP1.2>1.	58.	7.17	21.	7.	7.	.66	1.64	7.17
HYDROGRAPH AT	DA1.21	15.	6.33	3.	1.	1.	.13		
2 COMBINED AT	1.2+1.21	62.	7.08	24.	8.	8.	.78		
HYDROGRAPH AT	DA1.3	17.	6.67	5.	2.	2.	.30		
HYDROGRAPH AT	DA1.4	25.	6.67	7.	2.	2.	.18		
2 COMBINED AT	CP1.3-CO	42.	6.67	12.	4.	4.	.48		
ROUTED TO	CP1.3>1.	41.	6.75	12.	4.	4.	.48	1.60	6.75
HYDROGRAPH AT	DA1.31	45.	6.17	7.	2.	2.	.18		
2 COMBINED AT	1.3+1.31	58.	6.58	19.	6.	6.	.67		
HYDROGRAPH AT	DA1.5	19.	6.33	4.	1.	1.	.10		

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

BASIN 2

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  08:09:18 *
*                                      *
****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
           2           ID   100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3           ID   FILE NAME BJLDV25 (AREA 2, CASE 5, 24 HOUR STORM)
*** FREE ***
                       *DIAGRAM
           4           IT       5       0       0     300
           5           IN      30
           6           IO       5

           7           KK  DA2.10
           8           BA  1.1594
           9           PB     4.1
          10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15           LS       0      84
          16           UD    0.89

          17           KKCP2.1>CAP RESERVOIR-ROUTING
          18           KM   EXISTING 42-IN CSP AS CONTROL
          19           RS       1    STOR       0
          20           SV       0    85.4   146.6   233.7   289.4
          21           SE    1518    1520    1522    1524    1525
          22           SQ       0      34      53      82      98
          23           SE 1514.41    1520    1522    1524    1525

          24           KKCP2.1>2.2 ROUTING
          25           RS      1.    STOR     -1.
          26           RC     .04     .03     .04    2600   .0167
          27           RX      98      99     100     101     110     130     270     470
          28           RY      10      10      10       1       1     1.5       5      10

          29           KK   DA2.2
          30           BA   .2656
          31           LS       0      80
          32           UD    0.80

          33           KK   CP2.2COMBINE
          34           KM   EXISTING DUAL 42-IN CSP UNDER
          35           KM   JOMAX ROAD
          36           HC       2

          37           KK   DA2.3
          38           BA  0.6094
          39           LS       0      85
          40           UD    1.10

          41           KKDA2.3-COMBINE
          42           HC       2
```

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

  43          KKCP2.3>2.4 ROUTING
  44          KM   PROPOSED 35-FT TRAP CHANNEL
  45          KM   UNLINED
  46          RS       1    STOR      -1
  47          RC     .05     .05     .05    2500   .0136
  48          RX      50      51      52      64      99     111     112     113
  49          RY       4       4       4       1       1       4       4       4

  50          KK   DA2.4
  51          BA  0.2141
  52          LS       0      86
  53          UD    0.26

  54          KK     CP2COMBINE
  55          HC       2

  56          KKCP2.4>2.5 ROUTING
  57          KM   PROPOSED 50-FT TRAP CHANNEL
  58          KM   UNLINED
  59          RS       1    STOR      -1
  60          RC     .05     .05     .05    1000   .0136
  61          RX      98      99     100     112     162     174     175     176
  62          RY       4       4       4       1       1       4       4       4

  63          KK   DA2.5
  64          BA  0.0641
  65          LS       0      86
  66          UD    0.16

  67          KK     CP2COMBINE
  68          HC       2

  69          KKCP2.3>2.4 ROUTING
  70          KM   NATURAL WASH
  71          RS       1    STOR      -1
  72          RC     .04     .03     .04    2200   .0136
  73          RX      98      99     100     101     110     130     270     470
  74          RY      10      10      10       1       1     1.5       5      10

  75          KK  DA1.41
  76          LS       0      74
  77          UD    0.57

  78          KK1.4+1.41
  79          KM   PROPOSED CROSSING AT 67TH AVE
  80          HC       2

  81          KK   DA2.6
  82          BA  0.0969
  83          LS       0      86
  84          UD    0.20
```

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

  85          KKCP2N-COMBINE 2.0+2.6 IF SPLIT GOES NORTH
  86          HC       2
  87          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7      DA2.10
               V
               V
  17     CP2.1>CA
               V
               V
  24     CP2.1>2.
               .
               .
  29           .       DA2.2
               .           .
               .           .
  33       CP2.2............
               .
               .
  37           .       DA2.3
               .           .
               .           .
  41     DA2.3-CO............
               V
               V
  43     CP2.3>2.
               .
               .
  50           .       DA2.4
               .           .
               .           .
  54         CP2............
               V
               V
  56     CP2.4>2.
               .
               .
  63           .       DA2.5
               .           .
               .           .
  67         CP2............
               V
               V
  69     CP2.3>2.
               .
               .
  75           .      DA1.41
               .           .
               .           .
  78     1.4+1.41............
               .
               .
  81           .       DA2.6
               .           .
               .           .
  85     CP2N-COM............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  08:09:18 *
*                                      *
****************************************
```

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

```
                    LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
                    100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
                    FILE NAME BJLDV25 (AREA 2, CASE 5, 24 HOUR STORM)

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA2.10	847.	6.83	249.	76.	74.	1.16		
ROUTED TO	CP2.1>CA	40.	12.08	40.	30.	29.	1.16	1520.67	12.17
ROUTED TO	CP2.1>2.	40.	12.25	40.	30.	29.	1.16	1.54	12.33
HYDROGRAPH AT	DA2.2	174.	6.75	48.	15.	15.	.27		
2 COMBINED AT	CP2.2	199.	6.75	83.	45.	43.	1.42		
HYDROGRAPH AT	DA2.3	397.	7.00	135.	42.	40.	.61		
2 COMBINED AT	DA2.3-CO	582.	6.92	218.	86.	83.	2.03		
ROUTED TO	CP2.3>2.	576.	7.00	217.	86.	83.	2.03	3.39	7.00
HYDROGRAPH AT	DA2.4	361.	6.08	51.	15.	15.	.21		
2 COMBINED AT	CP2	621.	6.92	263.	101.	98.	2.25		
ROUTED TO	CP2.4>2.	621.	7.00	263.	101.	98.	2.25	3.07	7.00
HYDROGRAPH AT	DA2.5	126.	6.00	15.	5.	4.	.06		
2 COMBINED AT	CP2	630.	7.00	277.	105.	102.	2.31		
ROUTED TO	CP2.3>2.	627.	7.08	276.	105.	102.	2.31	3.02	7.08
HYDROGRAPH AT	DA1.41	39.	6.50	9.	3.	3.	.06		
2 COMBINED AT	1.4+1.41	649.	7.00	285.	108.	105.	2.38		
HYDROGRAPH AT	DA2.6	183.	6.08	23.	7.	7.	.10		
2 COMBINED AT	CP2N-COM	665.	7.00	307.	115.	111.	2.47		

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

2-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  08:39:28 *
*                                      *
****************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*  THE 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

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

          1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
          2           ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
          3           ID   FILE NAME LDV252 (AREA 2, CASE 5, 24 HOUR STORM)
*** FREE ***
                      *DIAGRAM
          4           IT       5       0       0     300
          5           IN      30
          6           IO       5

          7           KK  DA2.10
          8           BA  1.1594
          9           PB    1.44
         10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
         11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
         12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
         13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
         14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
         15           LS       0      84
         16           UD    0.89

         17           KKCP2.1>CAP RESERVOIR-ROUTING
         18           KM   EXISTING 42-IN CSP AS CONTROL
         19           RS       1    STOR       0
         20           SV       0    85.4   146.6   233.7   289.4
         21           SE    1518    1520    1522    1524    1525
         22           SQ       0      34      53      82      98
         23           SE 1514.41    1520    1522    1524    1525

         24           KKCP2.1>2.2 ROUTING
         25           RS      1.    STOR     -1.
         26           RC     .04     .03     .04    2600   .0167
         27           RX      98      99     100     101     110     130     270     470
         28           RY      10      10      10       1       1     1.5       5      10

         29           KK   DA2.2
         30           BA   .2656
         31           LS       0      80
         32           UD    0.80

         33           KK   CP2.2COMBINE
         34           KM   EXISTING DUAL 42-IN CSP UNDER
         35           KM   JOMAX ROAD
         36           HC       2

         37           KK   DA2.3
         38           BA  0.6094
         39           LS       0      85
         40           UD    1.10

         41           KKDA2.3-COMBINE
         42           HC       2
```

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

  43          KKCP2.3>2.4 ROUTING
  44          KM   PROPOSED 35-FT TRAP CHANNEL
  45          KM   UNLINED
  46          RS       1    STOR      -1
  47          RC     .05     .05     .05    2500   .0136
  48          RX      50      51      52      64      99     111     112     113
  49          RY       4       4       4       1       1       4       4       4

  50          KK   DA2.4
  51          BA  0.2141
  52          LS       0      86
  53          UD    0.26

  54          KK     CP2COMBINE
  55          HC       2

  56          KKCP2.4>2.5 ROUTING
  57          KM   PROPOSED 50-FT TRAP CHANNEL
  58          KM   UNLINED
  59          RS       1    STOR      -1
  60          RC     .05     .05     .05    1000   .0136
  61          RX      98      99     100     112     162     174     175     176
  62          RY       4       4       4       1       1       4       4       4

  63          KK   DA2.5
  64          BA  0.0641
  65          LS       0      86
  66          UD    0.16

  67          KK     CP2COMBINE
  68          HC       2

  69          KKCP2.3>2.4 ROUTING
  70          KM   NATURAL WASH
  71          RS       1    STOR      -1
  72          RC     .04     .03     .04    2200   .0136
  73          RX      98      99     100     101     110     130     270     470
  74          RY      10      10      10       1       1     1.5       5      10

  75          KK  DA1.41
  76          LS       0      74
  77          UD    0.57

  78          KK1.4+1.41
  79          KM   PROPOSED CROSSING AT 67TH AVE
  80          HC       2

  81          KK   DA2.6
  82          BA  0.0969
  83          LS       0      86
  84          UD    0.20
```

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

  85          KKCP2N-COMBINE 2.0+2.6 IF SPLIT GOES NORTH
  86          HC       2
  87          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7     DA2.10
               V
               V
  17    CP2.1>CA
               V
               V
  24    CP2.1>2.
               .
               .
  29           .       DA2.2
               .           .
               .           .
  33      CP2.2............
               .
               .
  37           .       DA2.3
               .           .
               .           .
  41    DA2.3-CO............
               V
               V
  43    CP2.3>2.
               .
               .
  50           .       DA2.4
               .           .
               .           .
  54        CP2............
               V
               V
  56    CP2.4>2.
               .
               .
  63           .       DA2.5
               .           .
               .           .
  67        CP2............
               V
               V
  69    CP2.3>2.
               .
               .
  75           .      DA1.41
               .           .
               .           .
  78    1.4+1.41............
               .
               .
  81           .       DA2.6
               .           .
               .           .
  85    CP2N-COM............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  08:39:28 *
*                                      *
****************************************
```

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

```
                    LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
                    2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
                    FILE NAME LDV252 (AREA 2, CASE 5, 24 HOUR STORM)

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

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

            COMPUTATION INTERVAL     .08 HOURS
                 TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA2.10	103.	6.92	34.	12.	11.	1.16		
ROUTED TO	CP2.1>CA	23.	8.83	23.	12.	11.	1.16	1518.20	8.83
ROUTED TO	CP2.1>2.	23.	9.08	23.	12.	12.	1.16	1.42	9.17
HYDROGRAPH AT	DA2.2	15.	6.92	5.	2.	2.	.27		
2 COMBINED AT	CP2.2	36.	6.92	27.	14.	13.	1.42		
HYDROGRAPH AT	DA2.3	52.	7.17	20.	7.	6.	.61		
2 COMBINED AT	DA2.3-CO	88.	7.08	47.	20.	20.	2.03		
ROUTED TO	CP2.3>2.	85.	7.25	47.	21.	20.	2.03	1.79	7.25
HYDROGRAPH AT	DA2.4	53.	6.17	8.	3.	3.	.21		
2 COMBINED AT	CP2	92.	7.25	52.	23.	22.	2.25		
ROUTED TO	CP2.4>2.	92.	7.33	52.	23.	23.	2.25	1.67	7.33
HYDROGRAPH AT	DA2.5	20.	6.08	2.	1.	1.	.06		
2 COMBINED AT	CP2	94.	7.33	54.	24.	23.	2.31		
ROUTED TO	CP2.3>2.	93.	7.42	54.	24.	23.	2.31	1.83	7.42
HYDROGRAPH AT	DA1.41	2.	6.75	1.	0.	0.	.06		
2 COMBINED AT	1.4+1.41	94.	7.42	54.	24.	24.	2.38		
HYDROGRAPH AT	DA2.6	27.	6.08	4.	1.	1.	.10		
2 COMBINED AT	CP2N-COM	96.	7.42	57.	26.	25.	2.47		

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

BASIN 3

BASIN 3

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  07:56:36 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME BJLDV15 (AREA 1, CASE 5, 24 HOUR STORM)

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             FEBRUARY 1981             *
*           REVISED 02 AUG 88           *
*                                       *
*  RUN DATE  09/20/1989  TIME  10:04:29 *
*                                       *
*****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1          ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
           2          ID   100-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3          ID   FILE NAME BJLDV35(AREA 3, CASE 5, 24 HOUR STORM)
*** FREE ***
                      *DIAGRAM
           4          IT       5       0       0     300
           5          IN      30
           6          IO       5

           7          KK   DA3.5
           8          BA   .0484
           9          PB     4.1
          10          PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11          PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12          PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13          PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14          PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15          LS       0      74
          16          UD    0.48

          17          KK   DA3.6
          18          BA  0.0219
          19          LS       0      74
          20          UD    0.46

          21          KK   DA3.7
          22          BA  0.0484
          23          LS       0      74
          24          UD    0.51

          25          KKCP3.7-COMBINE 3.6+3.7
          26          HC       2

          27          KK   DA3.8
          28          BA  0.0150
          29          LS       0      74
          30          UD    0.32

          31          KK   DA3.1
          32          KM   PROPOSED CULVERT UNDER HAPPY VALLEY ROAD
          33          KM   EAST OF 67TH STREET
          34          BA  0.2672
          35          LS       0      86
          36          UD    0.22

          37          KK   DA3.2
          38          BA  0.2422
          39          LS       0      84
          40          UD    0.36
```

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

  41          KKCP3A-COMBINE 3.1+3.2
  42          HC       2

  43          KKCP3.2>3A-ROUTING
  44          KM   NATURAL WASH
  45          RS       1    STOR      -1
  46          RC     .04     .04     .04     500   0.012
  47          RX      30      80     100     106     116     122     142     192
  48          RY      10     9.5       9       6       6       9     9.5      10

  49          KKCP3A>3B-ROUTING
  50          KM   NATURAL WASH
  51          RS       1    STOR      -1
  52          RC     .04     .04     .04     900   0.009
  53          RX      10     100     300     314     321     335     540     650
  54          RY      12      11       9       6       6       9      11      12

  55          KK   DA3.3
  56          BA  0.0266
  57          LS       0      74
  58          UD    0.50

  59          KKCP3.3>3B-ROUTING
  60          KM   NATURAL WASH
  61          RS       1    STOR      -1
  62          RC     .04     .04     .04     750   0.014
  63          RX      30      80     100     106     116     122     142     192
  64          RY      10     9.5       9       6       6       9     9.5      10

  65          KKCP3B-COMBINE
  66          HC       2

  67          KKCP3B>3.0-ROUTING
  68          KM   NATURAL WASH
  69          RS       1    STOR      -1
  70          RC     .04     .04     .04    2600   0.009
  71          RX      10     100     300     314     322     336     540     650
  72          RY      12      11       9       6       6       9      11      12

  73          KK   DA3.4
  74          BA  0.2141
  75          LS       0      81
  76          UD    0.59

  77          KKCP3.0-COMBINE
  78          KM   PRPOSED CULVERT UNDER 67TH STREET
  79          KM   NORTH OF MARIPOSA
  80          HC       2
```

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

  81          KK   DA3.9
  82          BA  0.0906
  83          LS       0       74
  84          UD    0.43

  85          KK  DA3.95
  86          BA  0.0641
  87          LS       0       74
  88          UD    0.88
  89          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7      DA3.5
               .
               .
  17           .       DA3.6
               .           .
               .           .
  21           .           .       DA3.7
               .           .           .
               .           .           .
  25           .    CP3.7-CO............
               .           .
               .           .
  27           .           .       DA3.8
               .           .           .
               .           .           .
  31           .           .           .      DA3.1
               .           .           .          .
               .           .           .          .
  37           .           .           .          .       DA3.2
               .           .           .          .           .
               .           .           .          .           .
  41           .           .           .   CP3A-COM............
               .           .           .         V
               .           .           .         V
  43           .           .           .   CP3.2>3A
               .           .           .         V
               .           .           .         V
  49           .           .           .   CP3A>3B-
               .           .           .          .
               .           .           .          .
  55           .           .           .          .       DA3.3
               .           .           .          .           V
               .           .           .          .           V
  59           .           .           .          .    CP3.3>3B
               .           .           .          .           .
               .           .           .          .           .
  65           .           .           .   CP3B-COM............
               .           .           .         V
               .           .           .         V
  67           .           .           .   CP3B>3.0
               .           .           .          .
               .           .           .          .
  73           .           .           .          .       DA3.4
               .           .           .          .           .
               .           .           .          .           .
  77           .           .           .   CP3.0-CO............
               .           .           .          .
               .           .           .          .
  81           .           .           .          .       DA3.9
               .           .           .          .           .
               .           .           .          .           .
  85           .           .           .          .           .     DA3.95
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/20/1989  TIME  10:04:29 *
*                                      *
****************************************
```

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

```
                    LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
                    100-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
                    FILE NAME BJLDV35(AREA 3, CASE 5, 24 HOUR STORM)

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

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

                COMPUTATION INTERVAL     .08 HOURS
                     TOTAL TIME BASE   24.92 HOURS

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

WARNING --- ROUTED OUTFLOW (    727.) IS GREATER THAN MAXIMUM OUTFLOW (    713.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    769.) IS GREATER THAN MAXIMUM OUTFLOW (    713.) IN STORAGE-OUTFLOW TABLE
```

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	DA3.5	33.	6.42	7.	2.	2.	.05		
HYDROGRAPH AT	DA3.6	15.	6.33	3.	1.	1.	.02		
HYDROGRAPH AT	DA3.7	32.	6.42	7.	2.	2.	.05		
2 COMBINED AT	CP3.7-CO	47.	6.42	10.	3.	3.	.07		
HYDROGRAPH AT	DA3.8	13.	6.17	2.	1.	1.	.01		
HYDROGRAPH AT	DA3.1	489.	6.08	63.	19.	18.	.27		
HYDROGRAPH AT	DA3.2	321.	6.25	53.	16.	15.	.24		
2 COMBINED AT	CP3A-COM	766.	6.08	116.	35.	34.	.51		
ROUTED TO	CP3.2>3A	769.	6.17	116.	35.	34.	.51	10.09	6.17
ROUTED TO	CP3A>3B-	737.	6.25	116.	35.	34.	.51	9.81	6.25
HYDROGRAPH AT	DA3.3	18.	6.42	4.	1.	1.	.03		
ROUTED TO	CP3.3>3B	17.	6.50	4.	1.	1.	.03	6.56	6.50
2 COMBINED AT	CP3B-COM	750.	6.25	119.	36.	35.	.54		
ROUTED TO	CP3B>3.0	656.	6.33	119.	36.	35.	.54	9.65	6.33
HYDROGRAPH AT	DA3.4	183.	6.50	41.	13.	12.	.21		
2 COMBINED AT	CP3.0-CO	828.	6.42	160.	49.	47.	.75		
HYDROGRAPH AT	DA3.9	66.	6.33	13.	4.	4.	.09		
HYDROGRAPH AT	DA3.95	29.	6.83	9.	3.	3.	.06		

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

2-YEAR

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            FEBRUARY 1981              *
*          REVISED 02 AUG 88            *
*                                       *
*  RUN DATE  09/20/1989  TIME  09:46:45 *
*                                       *
*****************************************
```

```
*************************************
*
*   U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
           2           ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3           ID   FILE NAME LDV352 (AREA 3, CASE 5, 24 HOUR STORM)
*** FREE ***
                       *DIAGRAM
           4           IT       5       0       0     300
           5           IN      30
           6           IO       5

           7           KK   DA3.5
           8           BA   .0484
           9           PB    1.44
          10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15           LS       0      74
          16           UD    0.48

          17           KK   DA3.6
          18           BA  0.0219
          19           LS       0      74
          20           UD    0.46

          21           KK   DA3.7
          22           BA  0.0484
          23           LS       0      74
          24           UD    0.51

          25           KKCP3.7-COMBINE 3.6+3.7
          26           HC       2

          27           KK   DA3.8
          28           BA  0.0150
          29           LS       0      74
          30           UD    0.32

          31           KK   DA3.1
          32           KM   PROPOSED CULVERT UNDER HAPPY VALLEY ROAD
          33           KM   EAST OF 67TH STREET
          34           BA  0.2672
          35           LS       0      86
          36           UD    0.22

          37           KK   DA3.2
          38           BA  0.2422
          39           LS       0      84
          40           UD    0.36
```

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

  41          KKCP3A-COMBINE 3.1+3.2
  42          HC       2

  43          KKCP3.2>3A-ROUTING
  44          KM   NATURAL WASH
  45          RS       1    STOR      -1
  46          RC     .04     .04     .04     500   0.012
  47          RX      30      80     100     106     116     122     142     192
  48          RY      10     9.5       9       6       6       9     9.5      10

  49          KKCP3A>3B-ROUTING
  50          KM   NATURAL WASH
  51          RS       1    STOR      -1
  52          RC     .04     .04     .04     900   0.009
  53          RX      10     100     300     314     321     335     540     650
  54          RY      12      11       9       6       6       9      11      12

  55          KK   DA3.3
  56          BA  0.0266
  57          LS       0      74
  58          UD    0.50

  59          KKCP3.3>3B-ROUTING
  60          KM   NATURAL WASH
  61          RS       1    STOR      -1
  62          RC     .04     .04     .04     750   0.014
  63          RX      30      80     100     106     116     122     142     192
  64          RY      10     9.5       9       6       6       9     9.5      10

  65          KKCP3B-COMBINE
  66          HC       2

  67          KKCP3B>3.0-ROUTING
  68          KM   NATURAL WASH
  69          RS       1    STOR      -1
  70          RC     .04     .04     .04    2600   0.009
  71          RX      10     100     300     314     322     336     540     650
  72          RY      12      11       9       6       6       9      11      12

  73          KK   DA3.4
  74          BA  0.2141
  75          LS       0      81
  76          UD    0.59

  77          KKCP3.0-COMBINE
  78          KM   PRPOSED CULVERT UNDER 67TH STREET
  79          KM   NORTH OF MARIPOSA
  80          HC       2
```

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

  81          KK   DA3.9
  82          BA  0.0906
  83          LS       0      74
  84          UD    0.43

  85          KK  DA3.95
  86          BA  0.0641
  87          LS       0      74
  88          UD    0.88
  89          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

  7       DA3.5
              .
              .
 17           .      DA3.6
              .          .
              .          .
 21           .          .      DA3.7
              .          .          .
              .          .          .
 25           .   CP3.7-CO............
              .          .
              .          .
 27           .          .      DA3.8
              .          .          .
              .          .          .
 31           .          .          .     DA3.1
              .          .          .         .
              .          .          .         .
 37           .          .          .         .      DA3.2
              .          .          .         .          .
              .          .          .         .          .
 41           .          .          .   CP3A-COM............
              .          .          .         V
              .          .          .         V
 43           .          .          .   CP3.2>3A
              .          .          .         V
              .          .          .         V
 49           .          .          .   CP3A>3B-
              .          .          .         .
              .          .          .         .
 55           .          .          .         .      DA3.3
              .          .          .         .          V
              .          .          .         .          V
 59           .          .          .         .   CP3.3>3B
              .          .          .         .          .
              .          .          .         .          .
 65           .          .          .   CP3B-COM............
              .          .          .         V
              .          .          .         V
 67           .          .          .   CP3B>3.0
              .          .          .         .
              .          .          .         .
 73           .          .          .         .      DA3.4
              .          .          .         .          .
              .          .          .         .          .
 77           .          .          .   CP3.0-CO............
              .          .          .         .
              .          .          .         .
 81           .          .          .         .      DA3.9
              .          .          .         .          .
              .          .          .         .          .
 85           .          .          .         .          .     DA3.95
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
* RUN DATE  09/20/1989  TIME  09:46:45 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME LDV352 (AREA 3, CASE 5, 24 HOUR STORM)

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

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

             COMPUTATION INTERVAL     .08 HOURS
                 TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA3.5	1.	6.67	0.	0.	0.	.05		
HYDROGRAPH AT	DA3.6	1.	6.58	0.	0.	0.	.02		
HYDROGRAPH AT	DA3.7	1.	6.67	0.	0.	0.	.05		
2 COMBINED AT	CP3.7-CO	2.	6.67	1.	0.	0.	.07		
HYDROGRAPH AT	DA3.8	0.	6.33	0.	0.	0.	.01		
HYDROGRAPH AT	DA3.1	70.	6.17	10.	3.	3.	.27		
HYDROGRAPH AT	DA3.2	38.	6.25	7.	2.	2.	.24		
2 COMBINED AT	CP3A-COM	104.	6.17	17.	6.	6.	.51		
ROUTED TO	CP3.2>3A	103.	6.17	17.	6.	6.	.51	7.63	6.17
ROUTED TO	CP3A>3B-	100.	6.25	17.	6.	6.	.51	7.73	6.25
HYDROGRAPH AT	DA3.3	1.	6.67	0.	0.	0.	.03		
ROUTED TO	CP3.3>3B	1.	6.83	0.	0.	0.	.03	6.04	6.83
2 COMBINED AT	CP3B-COM	101.	6.25	17.	6.	6.	.54		
ROUTED TO	CP3B>3.0	82.	6.42	17.	6.	6.	.54	7.51	6.42
HYDROGRAPH AT	DA3.4	17.	6.58	5.	2.	2.	.21		
2 COMBINED AT	CP3.0-CO	96.	6.42	22.	7.	7.	.75		
HYDROGRAPH AT	DA3.9	2.	6.58	1.	0.	0.	.09		
HYDROGRAPH AT	DA3.95	1.	7.17	1.	0.	0.	.06		

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

BASIN 4

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/17/1989  TIME  13:49:14 *
*                                      *
****************************************
```

```
*************************************
*
*   U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1          ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
           2          ID   100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3          ID   FILE NAME BJLDV45 (AREA 4, CASE 5, 24 HOUR STORM) 6/26/89
*** FREE ***
                      *DIAGRAM
           4          IT       5       0       0     300
           5          IN      30
           6          IO       5

           7          KK   DA4.1
           8          BA   0.559
           9          PB     4.1
          10          PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11          PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12          PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13          PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14          PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15          LS       0      83
          16          UD    0.83

          17          KKCP4.1>4.4-ROUTING
          18          KM   ROUTE CP4.1 TO CP4.4
          19          KM   NATURAL WASH
          20          RS       1    STOR      -1
          21          RC     .04     .04     .04    1980     .01
          22          RX      20     220     500     507     515     522     720     820
          23          RY      14      12       9       6       6       9      12      14

          24          KK   DA4.2
          25          BA   .1688
          26          LS       0      82
          27          UD    0.15

          28          KKCP4.2-COMBINE
          29          HC       2

          30          KK   DA4.3
          31          BA  0.2234
          32          LS       0      78
          33          UD    0.88

          34          KKCP4.3>4.2-ROUTING
          35          KM   ROUTE CP4.3 TO CP4.2
          36          KM   NATURAL WASH
          37          RS       1    STOR      -1
          38          RC     .04     .04     .04    1900   .0125
          39          RX      30      80     100     107     114     121     141     191
          40          RY      10     9.5       9       7       7       9     9.5      10

          41          KK   DA4.4
          42          BA  0.0547
          43          LS       0      74
          44          UD    0.64
```

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

  45         KKCP4.4-COMBINE
  46         HC       2

  47         KKCP4A-COMBINE CP4.4+CP4.2
  48         HC       2

  49         KKCP4A>4B-ROUTING
  50         KM   ROUTE CP4A TO CP4B
  51         KM   NATURAL WASH
  52         RS       1    STOR      -1
  53         RC     .04     .04     .04    3400    .008
  54         RX     200     350     500     506     526     532     630     650
  55         RY      13      11       9       6       6       9      12      13

  56         KK   DA4.7
  57         KM   PROPOSED 38-FT. TRAP CHANNEL
  58         KM   ALONG HAPPY VALLEY ROAD
  59         BA  0.2722
  60         LS       0      81
  61         UD    0.12

  62         KKCP4.7-COMBINE
  63         KM   PRPOSED CULVERT UNDER HAPPY VALLEY ROAD
  64         KM   BETWEEN 67TH STREET AND 51ST STREET
  65         HC       2

  66         KK   DA4.5
  67         BA  0.0641
  68         LS       0      79
  69         UD    0.74

  70         KKCP4.5>4.6
  71         KM   NATURAL WASH
  72         RS       1    STOR      -1
  73         RC     .04     .04     .04    5510     .01
  74         RX      30      80     100     106     116     122     142     192
  75         RY      10     9.5       9       6       6       9     9.5      10

  76         KK   DA4.6
  77         BA  0.0953
  78         LS       0      75
  79         UD    1.29

  80         KKCP4.6-COMBINE
  81         HC       2

  82         KKCP4B-COMBINE 4.6+4.7
  83         HC       2
```

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

  84          KKCP4B>4C-ROUTING
  85          KM   ROUTE CP4B TO CP4C
  86          KM   NATURAL WASH
  87          RS       1    STOR      -1
  88          RC     .04     .04     .04    4845     .01
  89          RX      10     200     300     306     326     332     430     630
  90          RY      12      10       9       6       6       9      10      12

  91          KK   DA4.8
  92          BA  0.7000
  93          LS       0      78
  94          UD    1.26

  95          KKCP4C-COMBINE 4B+4.8
  96          HC       2

  97          KKCP4C>4.0 ROUTING
  98          KM   ROUTE CP4C TO CP4.0
  99          KM   NATURAL WASH
 100          RS       1    STOR      -1
 101          RC     .04     .04     .04    2680   .0075
 102          RX     100     110     300     306     326     332     800    1300
 103          RY       8       7       5       2       2       5       7       8

 104          KK   DA4.9
 105          BA  0.1219
 106          LS       0      81
 107          UD    0.43

 108          KKCP4.0-COMBINE 4C+4.9
 109          HC       2

 110          KK  DA4.95
 111          BA  0.0391
 112          LS       0      86
 113          UD    0.04
 114          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7        DA4.1
                V
                V
  17     CP4.1>4.
                .
                .
  24            .       DA4.2
                .           .
                .           .
  28     CP4.2-CO............
                .
                .
  30            .       DA4.3
                .           V
                .           V
  34            .    CP4.3>4.
                .           .
                .           .
  41            .           .       DA4.4
                .           .           .
                .           .           .
  45            .    CP4.4-CO............
                .           .
                .           .
  47     CP4A-COM............
                V
                V
  49     CP4A>4B-
                .
                .
  56            .       DA4.7
                .           .
                .           .
  62     CP4.7-CO............
                .
                .
  66            .       DA4.5
                .           V
                .           V
  70            .    CP4.5>4.
                .           .
                .           .
  76            .           .       DA4.6
                .           .           .
                .           .           .
  80            .    CP4.6-CO............
                .           .
                .           .
  82     CP4B-COM............
                V
                V
  84     CP4B>4C-
                .
```

```
              .
 91           .       DA4.8
              .           .
              .           .
 95     CP4C-COM............
              V
              V
 97     CP4C>4.0
              .
              .
104           .       DA4.9
              .           .
              .           .
108     CP4.0-CO............
              .
              .
110           .      DA4.95
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
* RUN DATE  06/16/1990  TIME  10:47:46 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME BJLDV45 (AREA 4, CASE 5, 24 HOUR STORM) 6/26/89

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA4.1	412.	6.75	115.	36.	34.	.56		
ROUTED TO	CP4.1>4.	400.	6.83	115.	35.	34.	.56	9.46	6.83
HYDROGRAPH AT	DA4.2	289.	6.00	34.	10.	10.	.17		
2 COMBINED AT	CP4.2-CO	427.	6.83	148.	46.	44.	.73		
HYDROGRAPH AT	DA4.3	124.	6.83	37.	12.	11.	.22		
ROUTED TO	CP4.3>4.	123.	6.92	37.	12.	11.	.22	8.88	6.92
HYDROGRAPH AT	DA4.4	31.	6.58	8.	2.	2.	.05		
2 COMBINED AT	CP4.4-CO	148.	6.83	45.	14.	14.	.28		
2 COMBINED AT	CP4A-COM	575.	6.83	193.	60.	58.	1.01		
ROUTED TO	CP4A>4B-	563.	6.92	191.	60.	58.	1.01	9.31	6.92
HYDROGRAPH AT	DA4.7	482.	6.00	53.	16.	16.	.27		
2 COMBINED AT	CP4.7-CO	709.	6.08	243.	76.	73.	1.28		
HYDROGRAPH AT	DA4.5	42.	6.67	11.	4.	3.	.06		
ROUTED TO	CP4.5>4.	34.	7.00	11.	3.	3.	.06	6.91	7.00
HYDROGRAPH AT	DA4.6	34.	7.33	14.	4.	4.	.10		
2 COMBINED AT	CP4.6-CO	66.	7.08	24.	8.	8.	.16		
2 COMBINED AT	CP4B-COM	714.	6.08	267.	84.	81.	1.44		
ROUTED TO	CP4B>4C-	640.	7.17	264.	83.	80.	1.44	9.31	7.17
HYDROGRAPH AT	DA4.8	296.	7.25	115.	37.	35.	.70		
2 COMBINED AT	CP4C-COM	934.	7.17	379.	120.	116.	2.14		
ROUTED TO	CP4C>4.0	903.	7.33	377.	120.	115.	2.14	5.80	7.33
HYDROGRAPH AT	DA4.9	127.	6.33	23.	7.	7.	.12		
2 COMBINED AT	CP4.0-CO	925.	7.33	400.	127.	122.	2.26		
HYDROGRAPH AT	DA4.95	93.	6.00	9.	3.	3.	.04		

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

2-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
* RUN DATE  09/19/1989  TIME  12:58:52 *
*                                      *
****************************************
```

```
*************************************
*
*   U.S. ARMY CORPS OF ENGINEERS
* THE 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

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

           1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
           2           ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3           ID   FILE NAME LDV452 (AREA 4, CASE 5, 24 HOUR STORM) 9/19/89
*** FREE ***
                       *DIAGRAM
           4           IT       5       0       0     300
           5           IN      30
           6           IO       5

           7           KK   DA4.1
           8           BA   0.559
           9           PB    1.44
          10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15           LS       0      83
          16           UD    0.83

          17           KKCP4.1>4.4-ROUTING
          18           KM   ROUTE CP4.1 TO CP4.4
          19           KM   NATURAL WASH
          20           RS       1    STOR      -1
          21           RC     .04     .04     .04    1980     .01
          22           RX      20     220     500     507     515     522     720     820
          23           RY      14      12       9       6       6       9      12      14

          24           KK   DA4.2
          25           BA   .1688
          26           LS       0      82
          27           UD    0.15

          28           KKCP4.2-COMBINE
          29           HC       2

          30           KK   DA4.3
          31           BA  0.2234
          32           LS       0      78
          33           UD    0.88

          34           KKCP4.3>4.2-ROUTING
          35           KM   ROUTE CP4.3 TO CP4.2
          36           KM   NATURAL WASH
          37           RS       1    STOR      -1
          38           RC     .04     .04     .04    1900   .0125
          39           RX      30      80     100     107     114     121     141     191
          40           RY      10     9.5       9       7       7       9     9.5      10

          41           KK   DA4.4
          42           BA  0.0547
          43           LS       0      74
          44           UD    0.64
```

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

  45          KKCP4.4-COMBINE
  46          HC       2

  47          KKCP4A-COMBINE CP4.4+CP4.2
  48          HC       2

  49          KKCP4A>4B-ROUTING
  50          KM   ROUTE CP4A TO CP4B
  51          KM   NATURAL WASH
  52          RS       1    STOR      -1
  53          RC     .04     .04     .04    3400    .008
  54          RX     200     350     500     506     526     532     630     650
  55          RY      13      11       9       6       6       9      12      13

  56          KK   DA4.7
  57          KM   PROPOSED 38-FT. TRAP CHANNEL
  58          KM   ALONG HAPPY VALLEY ROAD
  59          BA  0.2722
  60          LS       0      81
  61          UD    0.12

  62          KKCP4.7-COMBINE
  63          KM   PRPOSED CULVERT UNDER HAPPY VALLEY ROAD
  64          KM   BETWEEN 67TH STREET AND 51ST STREET
  65          HC       2

  66          KK   DA4.5
  67          BA  0.0641
  68          LS       0      79
  69          UD    0.74

  70          KKCP4.5>4.6
  71          KM   NATURAL WASH
  72          RS       1    STOR      -1
  73          RC     .04     .04     .04    5510    .01
  74          RX      30      80     100     106     116     122     142     192
  75          RY      10     9.5       9       6       6       9     9.5      10

  76          KK   DA4.6
  77          BA  0.0953
  78          LS       0      75
  79          UD    1.29

  80          KKCP4.6-COMBINE
  81          HC       2

  82          KKCP4B-COMBINE 4.6+4.7
  83          HC       2
```

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

  84          KKCP4B>4C-ROUTING
  85          KM   ROUTE CP4B TO CP4C
  86          KM   NATURAL WASH
  87          RS       1    STOR      -1
  88          RC     .04     .04     .04    4845     .01
  89          RX      10     200     300     306     326     332     430     630
  90          RY      12      10       9       6       6       9      10      12

  91          KK   DA4.8
  92          BA  0.7000
  93          LS       0      78
  94          UD    1.26

  95          KKCP4C-COMBINE 4B+4.8
  96          HC       2

  97          KKCP4C>4.0 ROUTING
  98          KM   ROUTE CP4C TO CP4.0
  99          KM   NATURAL WASH
 100          RS       1    STOR      -1
 101          RC     .04     .04     .04    2680   .0075
 102          RX     100     110     300     306     326     332     800    1300
 103          RY       8       7       5       2       2       5       7       8

 104          KK   DA4.9
 105          BA  0.1219
 106          LS       0      81
 107          UD    0.43

 108          KKCP4.0-COMBINE 4C+4.9
 109          HC       2

 110          KK  DA4.95
 111          BA  0.0391
 112          LS       0      86
 113          UD    0.04
 114          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7        DA4.1
                V
                V
  17     CP4.1>4.
                .
                .
  24            .       DA4.2
                .           .
                .           .
  28     CP4.2-CO............
                .
                .
  30            .       DA4.3
                .           V
                .           V
  34            .    CP4.3>4.
                .           .
                .           .
  41            .           .       DA4.4
                .           .           .
                .           .           .
  45            .    CP4.4-CO............
                .           .
                .           .
  47     CP4A-COM............
                V
                V
  49     CP4A>4B-
                .
                .
  56            .       DA4.7
                .           .
                .           .
  62     CP4.7-CO............
                .
                .
  66            .       DA4.5
                .           V
                .           V
  70            .    CP4.5>4.
                .           .
                .           .
  76            .           .       DA4.6
                .           .           .
                .           .           .
  80            .    CP4.6-CO............
                .           .
                .           .
  82     CP4B-COM............
                V
                V
  84     CP4B>4C-
                .
```

```
                .
 91             .       DA4.8
                .           .
                .           .
 95     CP4C-COM............
                V
                V
 97     CP4C>4.0
                .
                .
104             .       DA4.9
                .           .
                .           .
108     CP4.0-CO............
                .
                .
110             .      DA4.95
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  12:58:52 *
*                                      *
****************************************
```

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

```
                    LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
                    2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
                    FILE NAME LDV452 (AREA 4, CASE 5, 24 HOUR STORM) 9/19/89

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA4.1	46.	6.92	15.	5.	5.	.56		
ROUTED TO	CP4.1>4.	45.	7.00	15.	5.	5.	.56	7.18	7.00
HYDROGRAPH AT	DA4.2	34.	6.08	4.	1.	1.	.17		
2 COMBINED AT	CP4.2-CO	49.	7.00	19.	7.	6.	.73		
HYDROGRAPH AT	DA4.3	9.	7.00	3.	1.	1.	.22		
ROUTED TO	CP4.3>4.	8.	7.25	3.	1.	1.	.22	7.44	7.25
HYDROGRAPH AT	DA4.4	1.	6.83	0.	0.	0.	.05		
2 COMBINED AT	CP4.4-CO	9.	7.17	4.	1.	1.	.28		
2 COMBINED AT	CP4A-COM	58.	7.00	22.	8.	8.	1.01		
ROUTED TO	CP4A>4B-	54.	7.25	22.	8.	8.	1.01	6.86	7.25
HYDROGRAPH AT	DA4.7	50.	6.08	6.	2.	2.	.27		
2 COMBINED AT	CP4.7-CO	59.	7.17	28.	10.	10.	1.28		
HYDROGRAPH AT	DA4.5	3.	6.83	1.	0.	0.	.06		
ROUTED TO	CP4.5>4.	2.	7.67	1.	0.	0.	.06	6.13	7.67
HYDROGRAPH AT	DA4.6	2.	7.67	1.	0.	0.	.10		
2 COMBINED AT	CP4.6-CO	3.	7.67	2.	1.	1.	.16		
2 COMBINED AT	CP4B-COM	62.	7.17	30.	11.	10.	1.44		
ROUTED TO	CP4B>4C-	59.	7.50	28.	11.	10.	1.44	6.85	7.50
HYDROGRAPH AT	DA4.8	21.	7.50	10.	4.	4.	.70		
2 COMBINED AT	CP4C-COM	80.	7.50	39.	15.	14.	2.14		
ROUTED TO	CP4C>4.0	78.	7.67	38.	14.	14.	2.14	3.10	7.67
HYDROGRAPH AT	DA4.9	12.	6.42	3.	1.	1.	.12		
2 COMBINED AT	CP4.0-CO	81.	7.67	40.	15.	15.	2.26		
HYDROGRAPH AT	DA4.95	17.	6.00	1.	0.	0.	.04		

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

BASIN 5

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  08:31:41 *
*                                      *
****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1          ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
           2          ID   100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3          ID   FILE NAME BJLDV55 (AREA 5, CASE 5, 24 HOUR STORM)
*** FREE ***
                      *DIAGRAM
           4          IT       5       0       0     300
           5          IN      30
           6          IO       5

           7          KK   DA5.1
           8          BA  0.3234
           9          PB     4.1
          10          PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11          PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12          PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13          PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14          PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15          LS       0      83
          16          UD    0.46

          17          KKCP5.1>5A-ROUTING
          18          KM   ROUTE CP5.1 TO CP5A
          19          KM   PROPOSED 27-FT CHANNEL ALONG 51ST STREET
          20          RS       1    STOR      -1
          21          RC     .05     .05     .05    3100   .0105
          22          RX      80      81      82      94     121     133     134     135
          23          RY       4       4       4       1       1       4       4       4

          24          KK   DA5.2
          25          KM   MASONRY WALL WITH V-DITCH
          26          BA  0.1172
          27          LS       0      86
          28          UD    0.90

          29          KKCP5.2-COMBINE 5.1+5.2
          30          HC       2

          31          KKCP5.1>5.3-ROUTING
          32          KM   ROUTE CP5.1 TO CP5A
          33          KM   PROPOSED 27-FT CHANNEL ALONG 51ST STREET
          34          RS       1    STOR      -1
          35          RC     .05     .05     .05    1400   .0105
          36          RX      80      81      82      94     121     133     134     135
          37          RY       4       4       4       1       1       4       4       4

          38          KK   DA5.3
          39          KM   PROPOSED 2-FT UNLINED CHANNEL
          40          KM   ALONG HAPPY VALLEY ROAD
          41          BA   .3156
          42          LS       0      77
          43          UD    1.53
```

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

  44          KK 1.3+1.2
  45          KM   PROPOSED CULVERT UNDER HAPPY VALLEY ROAD
  46          KM   AT 51ST STREET
  47          HC      2.

  48          KK CP5A>5BROUTING
  49          KM   ROUTE CP5A TO CP5B
  50          KM   PROPOSED 19-FT CONCRETE CHANNEL
  51          RS       1    STOR      -1
  52          RC     .02     .02     .02    5300   .0083
  53          RX      55      56      57      67      86      96      97      98
  54          RY       5       5       5       1       1       5       5       5

  55          KK  DA5.41
  56          LS       0      74      25
  57          UD    0.35

  58          KK5.53+5.41
  59          HC       2

  60          KK   DA5.4
  61          BA  0.7266
  62          LS       0      75      14
  63          UD    0.42

  64          KKCP5B-COMBINE 5B+5.4
  65          KM   PROPOSED CULVERT UNDER PINNACLE PEAK ROAD
  66          HC       2

  67          KK   DA5.5
  68          BA   .3078
  69          LS       0      81
  70          UD    0.53

  71          KK5.0-COMBINE 5B+5.5
  72          HC       2
  73          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7        DA5.1
                V
                V
  17      CP5.1>5A
                .
                .
  24            .        DA5.2
                .            .
                .            .
  29      CP5.2-CO............
                V
                V
  31      CP5.1>5.
                .
                .
  38            .        DA5.3
                .            .
                .            .
  44       1.3+1.2............
                V
                V
  48       CP5A>5B
                .
                .
  55            .       DA5.41
                .            .
                .            .
  58      5.53+5.4............
                .
                .
  60            .        DA5.4
                .            .
                .            .
  64      CP5B-COM............
                .
                .
  67            .        DA5.5
                .            .
                .            .
  71      5.0-COMB............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  08:31:41 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME BJLDV55 (AREA 5, CASE 5, 24 HOUR STORM)

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

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

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA5.1	357.	6.33	68.	21.	20.	.32		
ROUTED TO	CP5.1>5A	321.	6.50	67.	20.	20.	.32	3.10	6.50
HYDROGRAPH AT	DA5.2	93.	6.83	27.	8.	8.	.12		
2 COMBINED AT	CP5.2-CO	400.	6.50	94.	29.	28.	.44		
ROUTED TO	CP5.1>5.	395.	6.58	93.	29.	28.	.44	3.36	6.58
HYDROGRAPH AT	DA5.3	109.	7.58	49.	16.	15.	.32		
2 COMBINED AT	1.3+1.2	440.	6.67	142.	45.	43.	.76		
ROUTED TO	CP5A>5B	425.	6.75	141.	44.	43.	.76	2.94	6.75
HYDROGRAPH AT	DA5.41	369.	6.17	62.	19.	19.	.32		
2 COMBINED AT	5.53+5.4	575.	6.67	200.	64.	61.	1.07		
HYDROGRAPH AT	DA5.4	693.	6.25	129.	40.	39.	.73		
2 COMBINED AT	CP5B-COM	1180.	6.33	328.	104.	100.	1.80		
HYDROGRAPH AT	DA5.5	282.	6.42	59.	18.	18.	.31		
2 COMBINED AT	5.0-COMB	1456.	6.33	387.	122.	118.	2.11		

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

2-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  13:14:56 *
*                                      *
****************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*  THE 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

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

           1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
           2           ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3           ID   FILE NAME LDV552 (AREA 5, CASE 5, 24 HOUR STORM)
*** FREE ***
                       *DIAGRAM
           4           IT       5       0       0     300
           5           IN      30
           6           IO       5

           7           KK   DA5.1
           8           BA  0.3234
           9           PB    1.44
          10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15           LS       0      83
          16           UD    0.46

          17           KKCP5.1>5A-ROUTING
          18           KM   ROUTE CP5.1 TO CP5A
          19           KM   PROPOSED 27-FT CHANNEL ALONG 51ST STREET
          20           RS       1    STOR      -1
          21           RC     .05     .05     .05    3100   .0105
          22           RX      80      81      82      94     121     133     134     135
          23           RY       4       4       4       1       1       4       4       4

          24           KK   DA5.2
          25           KM   MASONRY WALL WITH V-DITCH
          26           BA  0.1172
          27           LS       0      86
          28           UD    0.90

          29           KKCP5.2-COMBINE 5.1+5.2
          30           HC       2

          31           KKCP5.1>5.3-ROUTING
          32           KM   ROUTE CP5.1 TO CP5A
          33           KM   PROPOSED 27-FT CHANNEL ALONG 51ST STREET
          34           RS       1    STOR      -1
          35           RC     .05     .05     .05    1400   .0105
          36           RX      80      81      82      94     121     133     134     135
          37           RY       4       4       4       1       1       4       4       4

          38           KK   DA5.3
          39           KM   PROPOSED 2-FT UNLINED CHANNEL
          40           KM   ALONG HAPPY VALLEY ROAD
          41           BA   .3156
          42           LS       0      77
          43           UD    1.53
```

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

  44          KK 1.3+1.2
  45          KM   PROPOSED CULVERT UNDER HAPPY VALLEY ROAD
  46          KM   AT 51ST STREET
  47          HC      2.

  48          KK CP5A>5BROUTING
  49          KM   ROUTE CP5A TO CP5B
  50          KM   PROPOSED 19-FT CONCRETE CHANNEL
  51          RS       1    STOR      -1
  52          RC     .02     .02     .02    5300   .0083
  53          RX      55      56      57      67      86      96      97      98
  54          RY       5       5       5       1       1       5       5       5

  55          KK  DA5.41
  56          LS       0      74      25
  57          UD    0.35

  58          KK5.53+5.41
  59          HC       2

  60          KK   DA5.4
  61          BA  0.7266
  62          LS       0      75      14
  63          UD    0.42

  64          KKCP5B-COMBINE 5B+5.4
  65          KM   PROPOSED CULVERT UNDER PINNACLE PEAK ROAD
  66          HC       2

  67          KK   DA5.5
  68          BA   .3078
  69          LS       0      81
  70          UD    0.53

  71          KK5.0-COMBINE 5B+5.5
  72          HC       2
  73          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7       DA5.1
               V
               V
  17     CP5.1>5A
               .
               .
  24           .       DA5.2
               .           .
               .           .
  29     CP5.2-CO............
               V
               V
  31     CP5.1>5.
               .
               .
  38           .       DA5.3
               .           .
               .           .
  44      1.3+1.2............
               V
               V
  48      CP5A>5B
               .
               .
  55           .      DA5.41
               .           .
               .           .
  58     5.53+5.4............
               .
               .
  60           .       DA5.4
               .           .
               .           .
  64     CP5B-COM............
               .
               .
  67           .       DA5.5
               .           .
               .           .
  71     5.0-COMB............

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
```

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
* RUN DATE  09/19/1989  TIME  13:14:56 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME LDV552 (AREA 5, CASE 5, 24 HOUR STORM)

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA5.1	39.	6.42	9.	3.	3.	.32		
ROUTED TO	CP5.1>5A	28.	6.75	8.	3.	3.	.32	1.51	6.75
HYDROGRAPH AT	DA5.2	13.	6.92	4.	1.	1.	.12		
2 COMBINED AT	CP5.2-CO	40.	6.75	13.	4.	4.	.44		
ROUTED TO	CP5.1>5.	39.	6.92	13.	4.	4.	.44	1.62	6.92
HYDROGRAPH AT	DA5.3	7.	7.83	4.	2.	1.	.32		
2 COMBINED AT	1.3+1.2	43.	7.00	16.	6.	6.	.76		
ROUTED TO	CP5A>5B	38.	7.33	16.	6.	6.	.76	1.47	7.33
HYDROGRAPH AT	DA5.41	68.	6.17	12.	4.	4.	.32		
2 COMBINED AT	5.53+5.4	68.	6.17	27.	10.	9.	1.07		
HYDROGRAPH AT	DA5.4	89.	6.25	19.	6.	6.	.73		
2 COMBINED AT	CP5B-COM	155.	6.25	46.	16.	16.	1.80		
HYDROGRAPH AT	DA5.5	26.	6.50	7.	2.	2.	.31		
2 COMBINED AT	5.0-COMB	173.	6.25	52.	18.	18.	2.11		

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

BASIN 6

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*           REVISED 02 AUG 88          *
*                                      *
*  RUN DATE  08/21/1989  TIME  08:39:05 *
*                                      *
****************************************
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*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

            1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
            2           ID   100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
            3           ID   FILE NAME BJLDV65 (AREA 6, CASE 5, 24 HOUR STORM)
*** FREE ***
                        *DIAGRAM
            4           IT       5       0       0     300
            5           IN      30
            6           IO       5

            7           KK   DA6.1
            8           BA   .3688
            9           PB     4.1
           10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
           11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
           12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
           13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
           14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
           15           LS       0      82
           16           UD    0.36

           17           KKCP6.1>6.2-ROUTING
           18           KM   PROPOSED 26-FT TRAP CHANNEL
           19           KM   UNLINED
           20           RS       1    STOR      -1
           21           RC     .05     .05     .05    2400   .0045
           22           RX      10      11      12      24      50      62      63      64
           23           RY       4       4       4       1       1       4       4       4

           24           KK  DA6.50
           25           KM   PROPOSED 17-FT TRAP CHANNEL
           26           KM   ALONG HAPPY VALLEY ROAD
           27           BA   .3125
           28           LS       0      77
           29           UD    0.93

           30           KK   DA6.2
           31           KM   PROPOSED 20-FT TRAP CHANNEL DOWNSTREAM
           32           KM   OF BASIN 6.1
           33           BA   .3266
           34           LS       0      76
           35           UD    1.02

           36           KKCP6A-COMBINE 6.1+6.2+6.5
           37           KM   EXISTING 45-FT TRAP CHANNEL
           38           HC       3

           39           KK   DA6.3
           40           KM   PROPOSED CROSSING
           41           KM   UNDER LOOP FROM 39TH TO 43RD AVE
           42           BA   .3688
           43           LS       0      83
           44           UD    0.68
```

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

  45          KKCP6.3>6.31-ROUTING
  46          KM   NATURAL WASH
  47          RS       1    STOR      -1
  48          RC     .04     .04     .04    1500    .010
  49          RX      10     200     300     306     316     322     420     620
  50          RY      12      10       9       6       6       9      10      12

  51          KK  DA6.31
  52          BA   .0781
  53          LS       0      74
  54          UD    0.67

  55          KK     6.4
  56          BA   .0953
  57          LS       0      78
  58          UD     1.0

  59          KKCP6A-COMBINE 6.2+6.3+6.4
  60          KM   EXISTING 45-FT TRAP CHANNEL
  61          KM   EXISTING CULVERT UNDER HAPPY VALLEY ROAD
  62          KM   TO UPLAND HILLS DEVELOPMENT
  63          HC       3

  64          KKOCOMBINE ALL
  65          HC       2

  66          KK   DA6.6
  67          BA   0.125
  68          LS       0      75
  69          UD    1.21

  70          KKCP6.6-COMBINE 6A+6.6
  71          HC       2

  72          KKCP6.6>6.5-ROUTING
  73          KM   PROPOSED 80-FT TRAP CHANNEL
  74          KM   UNLINED
  75          RS       1    STOR      -1
  76          RC     .05     .05     .05    1400    .004
  77          RX     200     201     202     214     294     306     307     308
  78          RY       4       4       4       1       1       4       4       4

  79          KK    6.51
  80          BA   .2578
  81          LS       0      74      25
  82          UD    0.92

  83          KKCP6.5-COMBINE 6.6+6.5
  84          HC       2
```

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

 85           KKCP6.5>6.7A-ROUTING
 86           RS       1    STOR      -1
 87           RC    .035    .022    .035    1700   .0018
 88           RX      80      80     100     124     204     228     325     425
 89           RY      11    10.5      10       4       4      10    10.5      11

 90           KK6.7A>6.7-ROUTING
 91           KM   FROM OUTLET OF CHANNEL TO P.P. RD.
 92           RS       1    STOR      -1
 93           RC     .04     .04     .04    1000    .004
 94           RX     200     300     400     500     600     700     800     900
 95           RY      11      10       9       8       8       9      10      11

 96           KK   DA6.7
 97           BA   .6359
 98           LS       0      74      14
 99           UD     .34

100           KKCP6.0-COMBINE 6.7+6.5
101           KM   CULVERT UNDER PINNACLE PEAK ROAD
102           HC       2
103           ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

  7       DA6.1
              V
              V
 17     CP6.1>6.
              .
              .
 24           .      DA6.50
              .           .
              .           .
 30           .           .       DA6.2
              .           .           .
              .           .           .
 36     CP6A-COM.......................
              .
              .
 39           .       DA6.3
              .           V
              .           V
 45           .    CP6.3>6.
              .           .
              .           .
 51           .           .      DA6.31
              .           .           .
              .           .           .
 55           .           .           .         6.4
              .           .           .           .
              .           .           .           .
 59           .    CP6A-COM.......................
              .           .
              .           .
 64     OCOMBINE............
              .
              .
 66           .       DA6.6
              .           .
              .           .
 70     CP6.6-CO............
              V
              V
 72     CP6.6>6.
              .
              .
 79           .        6.51
              .           .
              .           .
 83     CP6.5-CO............
              V
              V
 85     CP6.5>6.
              V
              V
 90     6.7A>6.7
              .
```

```
              .
  96          .       DA6.7
              .          .
              .          .
 100    CP6.0-CO............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/21/1989  TIME  08:39:05 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME BJLDV65 (AREA 6, CASE 5, 24 HOUR STORM)

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA6.1	449.	6.25	74.	23.	22.	.37		
ROUTED TO	CP6.1>6.	390.	6.33	73.	23.	22.	.37	4.00	6.33
HYDROGRAPH AT	DA6.50	158.	6.92	50.	16.	15.	.31		
HYDROGRAPH AT	DA6.2	147.	7.00	50.	16.	15.	.33		
3 COMBINED AT	CP6A-COM	579.	6.50	172.	54.	52.	1.01		
HYDROGRAPH AT	DA6.3	313.	6.58	76.	23.	23.	.37		
ROUTED TO	CP6.3>6.	310.	6.67	76.	23.	23.	.37	9.08	6.67
HYDROGRAPH AT	DA6.31	43.	6.58	11.	3.	3.	.08		
HYDROGRAPH AT	6.4	48.	7.00	16.	5.	5.	.10		
3 COMBINED AT	CP6A-COM	395.	6.67	103.	32.	31.	.54		
2 COMBINED AT	OCOMBINE	960.	6.58	275.	86.	83.	1.55		
HYDROGRAPH AT	DA6.6	47.	7.25	18.	6.	6.	.13		
2 COMBINED AT	CP6.6-CO	988.	6.58	293.	92.	89.	1.68		
ROUTED TO	CP6.6>6.	979.	6.67	292.	92.	88.	1.68	3.98	6.67
HYDROGRAPH AT	6.51	164.	6.83	50.	16.	15.	.26		
2 COMBINED AT	CP6.5-CO	1137.	6.67	341.	107.	103.	1.93		
ROUTED TO	CP6.5>6.	1130.	6.75	340.	107.	103.	1.93	6.53	6.75
ROUTED TO	6.7A>6.7	1118.	6.83	338.	107.	103.	1.93	9.62	6.83
HYDROGRAPH AT	DA6.7	654.	6.17	109.	34.	33.	.64		
2 COMBINED AT	CP6.0-CO	1340.	6.75	442.	141.	136.	2.57		

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

2-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  13:22:17 *
*                                      *
****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

            1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
            2           ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
            3           ID   FILE NAME LDV652 (AREA 6, CASE 5, 24 HOUR STORM)
*** FREE ***
                        *DIAGRAM
            4           IT       5       0       0     300
            5           IN      30
            6           IO       5

            7           KK   DA6.1
            8           BA   .3688
            9           PB    1.44
           10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
           11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
           12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
           13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
           14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
           15           LS       0      82
           16           UD    0.36

           17           KKCP6.1>6.2-ROUTING
           18           KM   PROPOSED 26-FT TRAP CHANNEL
           19           KM   UNLINED
           20           RS       1    STOR      -1
           21           RC     .05     .05     .05    2400   .0045
           22           RX      10      11      12      24      50      62      63      64
           23           RY       4       4       4       1       1       4       4       4

           24           KK  DA6.50
           25           KM   PROPOSED 17-FT TRAP CHANNEL
           26           KM   ALONG HAPPY VALLEY ROAD
           27           BA   .3125
           28           LS       0      77
           29           UD    0.93

           30           KK   DA6.2
           31           KM   PROPOSED 20-FT TRAP CHANNEL DOWNSTREAM
           32           KM   OF BASIN 6.1
           33           BA   .3266
           34           LS       0      76
           35           UD    1.02

           36           KKCP6A-COMBINE 6.1+6.2+6.5
           37           KM   EXISTING 45-FT TRAP CHANNEL
           38           HC       3

           39           KK   DA6.3
           40           KM   PROPOSED CROSSING
           41           KM   UNDER LOOP FROM 39TH TO 43RD AVE
           42           BA   .3688
           43           LS       0      83
           44           UD    0.68
```

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

  45          KKCP6.3>6.31-ROUTING
  46          KM   NATURAL WASH
  47          RS       1    STOR      -1
  48          RC     .04     .04     .04    1500    .010
  49          RX      10     200     300     306     316     322     420     620
  50          RY      12      10       9       6       6       9      10      12

  51          KK  DA6.31
  52          BA   .0781
  53          LS       0      74
  54          UD    0.67

  55          KK     6.4
  56          BA   .0953
  57          LS       0      78
  58          UD     1.0

  59          KKCP6A-COMBINE 6.2+6.3+6.4
  60          KM   EXISTING 45-FT TRAP CHANNEL
  61          KM   EXISTING CULVERT UNDER HAPPY VALLEY ROAD
  62          KM   TO UPLAND HILLS DEVELOPMENT
  63          HC       3

  64          KKOCOMBINE ALL
  65          HC       2

  66          KK   DA6.6
  67          BA   0.125
  68          LS       0      75
  69          UD    1.21

  70          KKCP6.6-COMBINE 6A+6.6
  71          HC       2

  72          KKCP6.6>6.5-ROUTING
  73          KM   PROPOSED 80-FT TRAP CHANNEL
  74          KM   UNLINED
  75          RS       1    STOR      -1
  76          RC     .05     .05     .05    1400    .004
  77          RX     200     201     202     214     294     306     307     308
  78          RY       4       4       4       1       1       4       4       4

  79          KK    6.51
  80          BA   .2578
  81          LS       0      74      25
  82          UD    0.92

  83          KKCP6.5-COMBINE 6.6+6.5
  84          HC       2
```

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

  85          KKCP6.5>6.7A-ROUTING
  86          RS       1    STOR      -1
  87          RC    .035    .022    .035    1700   .0018
  88          RX      80      80     100     124     204     228     325     425
  89          RY      11    10.5      10       4       4      10    10.5      11

  90          KK6.7A>6.7-ROUTING
  91          KM   FROM OUTLET OF CHANNEL TO P.P. RD.
  92          RS       1    STOR      -1
  93          RC     .04     .04     .04    1000    .004
  94          RX     200     300     400     500     600     700     800     900
  95          RY      11      10       9       8       8       9      10      11

  96          KK   DA6.7
  97          BA   .6359
  98          LS       0      74      14
  99          UD     .34

 100          KKCP6.0-COMBINE 6.7+6.5
 101          KM   CULVERT UNDER PINNACLE PEAK ROAD
 102          HC       2
 103          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7      DA6.1
              V
              V
  17    CP6.1>6.
              .
              .
  24          .      DA6.50
              .           .
              .           .
  30          .           .      DA6.2
              .           .          .
              .           .          .
  36    CP6A-COM.......................
              .
              .
  39          .      DA6.3
              .          V
              .          V
  45          .    CP6.3>6.
              .           .
              .           .
  51          .           .     DA6.31
              .           .          .
              .           .          .
  55          .           .          .        6.4
              .           .          .          .
              .           .          .          .
  59          .    CP6A-COM.......................
              .           .
              .           .
  64    OCOMBINE............
              .
              .
  66          .      DA6.6
              .           .
              .           .
  70    CP6.6-CO............
              V
              V
  72    CP6.6>6.
              .
              .
  79          .       6.51
              .           .
              .           .
  83    CP6.5-CO............
              V
              V
  85    CP6.5>6.
              V
              V
  90    6.7A>6.7
              .
```

```
              .
  96          .       DA6.7
              .          .
              .          .
 100    CP6.0-CO............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
* RUN DATE  09/19/1989  TIME  13:22:17 *
*                                      *
****************************************
```

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

```
                    LITTLE DEER VALLEY CONCEPTUAL DRAINAGE STUDY
                    2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
                    FILE NAME LDV652 (AREA 6, CASE 5, 24 HOUR STORM)

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA6.1	45.	6.33	9.	3.	3.	.37		
ROUTED TO	CP6.1>6.	30.	6.67	9.	3.	3.	.37	1.70	6.67
HYDROGRAPH AT	DA6.50	10.	7.08	4.	2.	1.	.31		
HYDROGRAPH AT	DA6.2	8.	7.25	4.	1.	1.	.33		
3 COMBINED AT	CP6A-COM	43.	6.75	16.	6.	6.	1.01		
HYDROGRAPH AT	DA6.3	34.	6.67	10.	3.	3.	.37		
ROUTED TO	CP6.3>6.	34.	6.83	10.	3.	3.	.37	6.91	6.83
HYDROGRAPH AT	DA6.31	2.	6.92	1.	0.	0.	.08		
HYDROGRAPH AT	6.4	3.	7.17	1.	1.	1.	.10		
3 COMBINED AT	CP6A-COM	38.	6.83	12.	4.	4.	.54		
2 COMBINED AT	OCOMBINE	81.	6.83	28.	10.	10.	1.55		
HYDROGRAPH AT	DA6.6	2.	7.58	1.	0.	0.	.13		
2 COMBINED AT	CP6.6-CO	83.	6.83	29.	11.	10.	1.68		
ROUTED TO	CP6.6>6.	77.	7.08	29.	11.	10.	1.68	1.66	7.08
HYDROGRAPH AT	6.51	31.	6.75	10.	3.	3.	.26		
2 COMBINED AT	CP6.5-CO	106.	7.00	38.	14.	13.	1.93		
ROUTED TO	CP6.5>6.	101.	7.17	38.	14.	13.	1.93	4.59	7.17
ROUTED TO	6.7A>6.7	96.	7.33	37.	14.	13.	1.93	8.51	7.33
HYDROGRAPH AT	DA6.7	82.	6.17	16.	5.	5.	.64		
2 COMBINED AT	CP6.0-CO	109.	7.33	52.	19.	18.	2.57		

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

BASINS 7 & 8

100-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/19/1989  TIME  08:16:26 *
*                                      *
****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2           ID   100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3           ID   FILE NAME BJLDV785 (AREA 7&8 CASE 5, 24 HOUR STORM)
*** FREE ***
                       *DIAGRAM
           4           IT       5       0       0     300
           5           IN      30
           6           IO       5

           7           KK   DA8.1
           8           BA  0.4954
           9           PB     4.1
          10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15           LS       0      81
          16           UD    1.07

          17           KKCP8.1>8.0-ROUTING
          18           RS       1    STOR      -1
          19           RC     .04    .025     .04    7580    .002
          20           RX     180     190     200     215     227     242     252     266
          21           RY      12      11      10       5       5      10      11      12

          22           KK   DA8.2
          23           BA  0.3906
          24           LS       0      74      12
          25           UD    0.30

          26           KKCP8.0-COMBINE 8.1+8.2
          27           HC       2

          28           KK  DA8.25
          29           BA  0.2531
          30           LS       0      74      45
          31           UD    0.22

          32           KKCP2.81-2.85
          33           HC       2

          34           KK     DA7
          35           BA  0.1281
          36           LS       0      74      22
          37           UD    0.19
          38           ZZ
```

```
                SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

    7       DA8.1
                V
                V
   17    CP8.1>8.
                .
                .
   22           .       DA8.2
                .           .
                .           .
   26    CP8.0-CO............
                .
                .
   28           .      DA8.25
                .           .
                .           .
   32    CP2.81-2............
                .
                .
   34           .         DA7

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
```

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  08/19/1989  TIME  08:16:26 *
*                                      *
****************************************
```

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

```
                    LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
                    100 YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
                    FILE NAME BJLDV785 (AREA 7&8 CASE 5, 24 HOUR STORM)

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA8.1	275.	7.00	93.	29.	28.	.50		
ROUTED TO	CP8.1>8.	235.	7.42	91.	29.	28.	.50	7.79	7.42
HYDROGRAPH AT	DA8.2	424.	6.17	65.	21.	20.	.39		
2 COMBINED AT	CP8.0-CO	430.	6.17	154.	49.	48.	.89		
HYDROGRAPH AT	DA8.25	448.	6.08	61.	19.	18.	.25		
2 COMBINED AT	CP2.81-2	839.	6.08	214.	68.	66.	1.14		
HYDROGRAPH AT	DA7	190.	6.08	24.	8.	7.	.13		

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

2-YEAR

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  13:32:14 *
*                                      *
****************************************
```

```
*************************************
*
*    U.S. ARMY CORPS OF ENGINEERS
*  THE 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

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

           1           ID   LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
           2           ID   2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
           3           ID   FILE NAME LDV7852 (AREA 7&8 CASE 5, 24 HOUR STORM)
*** FREE ***
                       *DIAGRAM
           4           IT       5       0       0     300
           5           IN      30
           6           IO       5

           7           KK   DA8.1
           8           BA  0.4954
           9           PB    1.44
          10           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
          11           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
          12           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
          13           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
          14           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
          15           LS       0      81
          16           UD    1.07

          17           KKCP8.1>8.0-ROUTING
          18           RS       1    STOR      -1
          19           RC     .04    .025     .04    7580    .002
          20           RX     180     190     200     215     227     242     252     266
          21           RY      12      11      10       5       5      10      11      12

          22           KK   DA8.2
          23           BA  0.3906
          24           LS       0      74      12
          25           UD    0.30

          26           KKCP8.0-COMBINE 8.1+8.2
          27           HC       2

          28           KK  DA8.25
          29           BA  0.2531
          30           LS       0      74      45
          31           UD    0.22

          32           KKCP2.81-2.85
          33           HC       2

          34           KK     DA7
          35           BA  0.1281
          36           LS       0      74      22
          37           UD    0.19
          38           ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   7        DA8.1
                V
                V
  17     CP8.1>8.
                .
                .
  22            .       DA8.2
                .           .
                .           .
  26     CP8.0-CO............
                .
                .
  28            .      DA8.25
                .           .
                .           .
  32     CP2.81-2............
                .
                .
  34            .         DA7
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 02 AUG 88           *
*                                      *
*  RUN DATE  09/19/1989  TIME  13:32:14 *
*                                      *
****************************************
```

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

LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN
2-YEAR - 24 HOUR TYPE IIA STORM DISTRIBUTION
FILE NAME LDV7852 (AREA 7&8 CASE 5, 24 HOUR STORM)

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

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

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DA8.1	26.	7.17	10.	4.	4.	.50		
ROUTED TO	CP8.1>8.	17.	7.92	10.	4.	4.	.50	5.65	7.92
HYDROGRAPH AT	DA8.2	47.	6.17	9.	3.	3.	.39		
2 COMBINED AT	CP8.0-CO	47.	6.17	18.	7.	6.	.89		
HYDROGRAPH AT	DA8.25	109.	6.08	16.	5.	5.	.25		
2 COMBINED AT	CP2.81-2	154.	6.08	33.	12.	11.	1.14		
HYDROGRAPH AT	DA7	30.	6.08	4.	1.	1.	.13		

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

APPENDIX D

Calculations for HEC-1 Input Parameters

Collar, Williams & White Engineering
Consulting Engineers and Land Surveyors
2702 N. 44TH ST., SUITE 100A
PHOENIX, ARIZONA 85008
PHONE: (602) 957-3350

JOB NO. 88 1111 11022

LITTLE DEER VALLEY
JOB CONCEPTUAL DRAINAGE PLAN
SHEET NO. 1 OF 1
CALCULATED BY _____ DATE 7/10/89
CHECKED BY _____ DATE _____
SCALE _____

EQUATION USED FOR LAG TIME COMPUTATION IN HEC-1 ANALYSIS

(REFERENCE: US DEPARTMENT OF AGRICULTURE'S NATIONAL ENGINEERING HANDBOOK, SECTION 4 CIRCULAR; p. 3-6, MARCH, 1985)

$$L = \frac{\ell^{0.8}(S+1)^{0.7}}{1{,}900\, Y^{0.5}}$$

WHERE

L = LAG IN HOURS

ℓ = HYDRAULIC LENGTH OF WATERSHED IN FEET

$S = \frac{1{,}000}{CN} - 10$ (WHERE CN IS THE RETARDANCE FACTOR AND IS EQUIVALENT TO THE RUNOFF CURVE NUMBER)

Y = AVERAGE WATERSHED LAND SLOPE IN PERCENT

FOR DEVELOPED AREAS (SOUTH OF HAPPY VALLEY RD)

$$L = TC(0.6)$$

WHERE

TC = TIME OF CONCENTRATION

$$TC = \frac{\left[\dfrac{\text{LENGTH OF WATERCOURSE}}{\text{VELOCITY OF FLOW}}\right]}{3{,}600 \text{ SEC/HR}}$$

FORM 204-1

Collar, Williams & White Engineering
Consulting Engineers and Land Surveyors
2702 N. 44TH ST., SUITE 100A
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881111
JOB NO. 11022

LITTLE DEER VALLEY
JOB CONCEPTUAL DRAINAGE PLAN, CASE I
SHEET NO. 1 OF 6
CALCULATED BY _____ DATE 7/15/89
CHECKED BY _____ DATE _____
SCALE _____

WATERSHED DATA FOR CURVE NUMBER AND LAG TIME DETERMINATION
EXISTING CONDITIONS

BASIN	AREA (AC/SQ MI)	COVER TYPE	HYDROLOGIC SOIL GROUP	CURVE NUMBER (24HR)	FRACTION OF AREA (IN)	PARTIAL CURVE NUMBER	BASIN LENGTH (FT)	BASIN SLOPE (%)	LAG TIME (HRS)
1.1	28 / 0.0438	DESERT BRUSH 15%	D	86	1.0	86	1470	4.06	0.16
1.2	420 / 0.6557	DESERT BRUSH 15%	B D	74 86	0.38/4.57 4.19/4.57	6.2 78.8	7500	1.6	1.05
					1.0	85			
1.21	82 / 0.1281	DESERT BRUSH 15%	B D	74 86	0.34/0.89 0.55/0.89	28.3 53.2	2000	2.0	0.37
					1.0	82			
1.3	192 / 0.30	DESERT BRUSH 15%	B D	74 86	1.24/2.1 0.86/2.1	43.7 35.2	4500	3.1	0.63
					1.0	79			
1.31	35 / 0.0547	DESERT BRUSH 15%	D	86	1.0	86	1500	2.0	0.26
1.4	117 / 0.1826	DESERT BRUSH 15%	D	86	1.0	86	4100	1.46	0.67
1.5	64 / 0.10	DESERT BRUSH 15%	D	86	1.0	86	1820	1.1	0.4
2.1	742 / 1.1594	DESERT BRUSH 15%	B D	74 86	0.9/5.5 4.6/5.5	12 71.9	5806	1.36	0.89
					1.0	84			

FORM 204-1

Collar, Williams & White Engineering
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PHOENIX, ARIZONA 85008
PHONE: (602) 957-3350

881111
JOB NO. 11022

LITTLE DEER VALLEY
JOB CONCEPTUAL DRAINAGE PLAN, CASE 1
SHEET NO. 2 OF 6
CALCULATED BY _____ DATE 7/15/89
CHECKED BY _____ DATE _____
SCALE _____

WATERSHED DATA FOR CURVE NUMBER AND LAG TIME DETERMINATION
EXISTING CONDITIONS

BASIN	AREA (AC/SQ MI)	COVER TYPE	HYDROLOGIC SOIL GROUP	CURVE NUMBER (24HR)	FRACTION OF AREA (IN)	PARTIAL CURVE NUMBER	BASIN LENGTH (FT)	BASIN SLOPE (%)	LAG TIME (HRS)
2.2	170/0.2656	DESERT BRUSH 15%	B D	74 86	0.69/1.85 0.96/1.85	35.6 44.6	3620	1.22	0.80
					1.0	80			
2.3	390/0.6094	DESERT BRUSH 15%	B D	74 86	0.47/4.26 3.81/4.26	8.1 76.6	5280	0.85	1.1
					1.0	85			
2.4	137/0.2141	DESERT BRUSH 15%	D	86	1.0	86	3500	7.6	0.26
2.41	64/0.1076	DESERT BRUSH 15%	B	74	1.0	74	4000	2.0	0.57
2.5	41/0.0641	DESERT BRUSH 15%	D	86	1.0	86	1790	6.98	0.16
2.6	62/0.0969	DESERT BRUSH 15%	D	86	1.0	86	2260	6.26	0.20
3.1	171/0.2672	DESERT BRUSH 15%	D	86	1.0	86	4230	14.18	0.22
3.2	155/0.2422	DESERT BRUSH 15%	B D	74 86	0.39/2.73 2.34/2.73	10.6 73.7	5980	10.4	0.36
					1.0	84			
3.3	17/0.0266	DESERT BRUSH 15%	B	74	1.0	74	1930	1.66	0.50

FORM 204-1

LITTLE DEER VALLEY

Collar, Williams & White Engineering
Consulting Engineers and Land Surveyors
2702 N. 44TH ST., SUITE 100A
PHOENIX, ARIZONA 85008
PHONE: (602) 957-3350

JOB NO. 11022

JOB CONCEPTUAL DRAINAGE PLAN, CASE 1
SHEET NO. 3 OF 6
CALCULATED BY _____ DATE 7/15/89
CHECKED BY _____ DATE _____
SCALE _____

WATERSHED DATA FOR CURVE NUMBER AND LAG TIME DETERMINATION
EXISTING CONDITIONS

BASIN	AREA (AC/SQMI)	COVER TYPE	HYDROLOGIC SOIL GROUP	CURVE NUMBER (24HR)	FRACTION OF AREA (IN)	PARTIAL CURVE NUMBER	BASIN LENGTH (FT)	BASIN SLOPE (%)	LAG TIME (HRS)
3.4	137/0.2141	DESERT BRUSH 15%	B D	74 86	1.0/2.46 1.46/2.46	30.1 51.0	5290	3.97	0.69
					1.0	81			
3.5	31/0.0484	DESERT BRUSH 15%	B	74	1.0	74	2240	2.23	0.46
3.6	14/0.0219	DESERT BRUSH 15%	B	74	1.0	74	1450	1.24	0.46
3.7	31/0.0484	DESERT BRUSH 15%	B	74	1.0	74	1770	1.36	0.51
3.8	9.6/0.0150	DESERT BRUSH 15%	B	74	1.0	74	1250	2.0	0.32
3.9	58/0.0906	DESERT BRUSH 15%	B	74	1.0	74	3010	4.49	0.43
3.95	41/0.0641	DESERT BRUSH 15%	B	74	1.0	74	2230	0.67	0.66
4.1	356/0.5594	DESERT BRUSH 15%	B D	74 86	1.29/4.06 2.81/4.06	23.5 59.7	4470	1.34	0.83
					1.0	83			
4.2	106/0.1665	DESERT BRUSH 15%	B D	74 86	1.44/4.71 3.27/4.71	22.6 59.7	3180	23.4	0.15
					1.0	82			

FORM 204-1

LITTLE DEER VALLEY

Collar, Williams & White Engineering
Consulting Engineers and Land Surveyors
2702 N. 44TH ST., SUITE 100A
PHOENIX, ARIZONA 85008
PHONE: (602) 957-3350

JOB NO. 11022

JOB CONCEPTUAL DRAINAGE PLAN, CASE 1
SHEET NO. 4 OF 6
CALCULATED BY _____ DATE 7/15/89
CHECKED BY _____ DATE _____
SCALE _____

WATERSHED DATA FOR CURVE NUMBER AND LAG TIME DETERMINATION
EXISTING CONDITIONS

BASIN	AREA (AC/SQMI)	COVER TYPE	HYDROLOGIC SOIL GROUP	CURVE NUMBER (24HR)	FRACTION OF AREA (IN)	PARTIAL CURVE NUMBER	BASIN LENGTH (FT)	BASIN SLOPE (%)	LAG TIME (HRS)
4.3	143/0.2234	DESERT BRUSH 15%	B	74	0.97/1.64	43.6	4170	1.44	0.66
			D	86	0.67/1.64	34.5			
					1.0	78			
4.4	35/0.0547	DESERT BRUSH 15%	B	74	1.0	74	2360	1.36	0.64
4.5	41/0.0641	DESERT BRUSH 15%	B	74	1.07/1.19	44.4	3400	1.41	0.74
			D	86	0.12/1.19	34.4			
					1.0	79			
4.6	61/0.0953	DESERT BRUSH 15%	B	74	2.39/2.66	66.6	5000	1.06	1.29
			D	86	0.27/2.66	8.6			
					1.0	75			
4.7	177/0.2766	DESERT BRUSH 15%	B	74	1.13/2.64	31.7	2460	30.4	0.12
			D	86	1.51/2.64	49.2			
					1.0	81			
4.8	446/0.70	DESERT BRUSH 15%	B	74	4.53/6.35	52.8	5260	1.05	1.26
			D	86	1.82/6.35	24.9			
					1.0	78			
4.9	78/0.1219	DESERT BRUSH 15%	B	74	0.56/1.39	29.6	1300	23.6	0.078
			D	86	0.83/1.39	51.4	1700	1.76	0.355
					1.0	81			0.43
5.1	207/0.3234	DESERT BRUSH 15%	B	74	2.36/9.04	19.3	5450	5.95	0.46
			D	86	6.68/9.04	63.5			
					1.0	83			

FORM 204-1

Collar, Williams & White Engineering
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PHOENIX, ARIZONA 85008
PHONE: (602) 957-3350

JOB NO. 11022

LITTLE DEER VALLEY

JOB CONCEPTUAL DRAINAGE PLAN, CASE 1

SHEET NO. 5 OF 6

CALCULATED BY _____ DATE 7/15/89

CHECKED BY _____ DATE _____

SCALE _____

WATERSHED DATA FOR CURVE NUMBER AND LAG TIME DETERMINATION
EXISTING CONDITIONS

BASIN	AREA (AC/SQMI)	COVER TYPE	HYDROLOGIC SOIL GROUP	CURVE NUMBER (24HR)	FRACTION OF AREA (IN)	PARTIAL CURVE NUMBER	BASIN LENGTH (FT)	BASIN SLOPE (%)	LAG TIME (HRS)
5.2	75/0.1172	DESERT BRUSH 15%	D	86	1.0	86	4670	1.05	0.90
5.3	202/0.3156	DESERT BRUSH 15%	B D	74 86	2.31/3.26 0.91/3.26	53.5 23.9	7000	1.09	1.53
					1.0	77			
5.4	465/0.7266	DESERT BRUSH 15%	B D	74 86	4.49/5.1 0.61/5.1	65.1 10.3	8200	0.5	0.42
					1.0	75			
5.41	147/0.2303	DESERT BRUSH 15%	B	74	1.0	74	5000	0.8	0.35
5.5	197/0.3076	DESERT BRUSH 15%	B D	74 86	3.83/6.56 4.75/6.56	32.9 47.6	6690	6.95	0.53
					1.0	81			
6.1	236/0.3688	DESERT BRUSH 15%	B D	74 86	3.22/10.26 7.06/10.26	23.2 59	5090	9.47	0.36
					1.0	82			
6.2	209/0.3266	DESERT BRUSH 15%	B D	74 86	2.17/2.56 1.39/2.56	62.7 13.1	2600	0.64	1.02
					1.0	76			
6.3	236/0.3688	DESERT BRUSH 15%	B D	74 86	2.35/10.26 7.93/10.26	16.9 66.3	1500 3500	14.13 1.86	0.096 0.56
					1.0	83			0.66

FORM 204-1

Collar, Williams & White Engineering
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2702 N. 44TH ST., SUITE 100A
PHOENIX, ARIZONA 85008
PHONE: (602) 957-3350

JOB NO. 11022

LITTLE DEER VALLEY
JOB CONCEPTUAL DRAINAGE PLAN, CASE 1
SHEET NO. 6 OF 6
CALCULATED BY _____ DATE 7/15/89
CHECKED BY _____ DATE _____
SCALE _____

WATERSHED DATA FOR CURVE NUMBER AND LAG TIME DETERMINATION
EXISTING CONDITIONS

6.31	50/ 0.0781	DESERT BRUSH 15%	B	74	1.0	74	2000	1.0	0.67
6.4	61/ 1.0953	DESERT BRUSH 15%	B D	74 86	1.63/2.66 0.83/2.66 1.0	50.9 26.6 78	880 2660	27 0.75	0.045 0.959 1.0
6.5	200/ 0.3125	DESERT BRUSH 15%	B D	74 86	6.31/8.71 2.4/8.71 1.0	53.7 23.7 77	950 3500	29.6 1.17	0.05 0.88 0.93
6.51	165/ 0.2576	DESERT BRUSH 15%	B	74	1.0	74	3000	1.0	0.92
6.6	80/ 0.1250	GRADED BARE	B	75	1.0	75	2300	0.35	1.21
6.7	407/ 0.6359	DEVELOPED	B	74	1.0	74	7160	0.67	0.34
8.1	317/ 0.4953	DESERT BRUSH 15%	B D	74 86	2.09/5.41 3.32/5.41 1.0	28.6 52.6 81	2060 2610	9.71 0.69	0.15 0.92 1.07
8.2	189/ 0.2906	DEVELOPED	B	74	1.0	74	7560	0.37	0.30
					tc = (7560 FT)(0.5 fps) + 5 min/lot) .6				
7.0	82/ 0.1261	DEVELOPED	B	74	1.0	74	3790	0.4	0.19
				8.25	- tc = (3500 FT)(5 fps) + 5 min/lot)			(.6)	0.17

FORM 204-1

Collar, Williams & White Engineering
Consulting Engineers and Land Surveyors
2702 N. 44TH ST., SUITE 100A
PHOENIX, ARIZONA 85008
PHONE: (602) 957-3350

861111
JOB NO. 11022

LITTLE DEER VALLEY
JOB CONCEPTUAL DRAINAGE PLAN, CASE 2
SHEET NO. 1 OF 9
CALCULATED BY _____ DATE 7/24/89
CHECKED BY _____ DATE _____
SCALE _____

WATERSHED DATA WITH PROPOSED LAND USE FOR DETERMINATION OF PERCENT IMPERVIOUS

BASIN	AREA (AC/SQMI)	PROPOSED LAND USE	PERCENT IMPERVIOUS	PERCENT CONTRI-BUTING	FRACTION OF AREA (IN)		PARTIAL PERCENT IMPERVIOUS	TOTAL PERCENT IMPERVIOUS
1.1	26/ 0.0430	RES: 0-2 U/AC	25	100	1.0	(1)(25)	25	25
1.2	420/ 0.6557	HILLSIDE @ 22.5% : 0.7 U/AC	13	100	1.54/21.9	(0.07)(13)	0.9	
		RES: 0-2 U/AC	25	100	10.79/21.9	(0.49)(25)	12.3	
		RES: 2-5 U/AC	50	50	6.0/21.9	(0.27)(50)	13.5	
					1.0		26.7	27
1.21	82/ 0.1281	RES: 0-2 U/AC	25	100	1.0	(1)(25)	25	25
1.3	192/ 0.30	HILLSIDE @ 30% : 0.3 U/AC	5	100	1.35/8.36	(0.16)(5)	.8	
		RES: 0-2 U/AC	25	100	7.01/8.36	(0.84)(25)	21	
					1.0		21.8	22
1.31	35/ 0.0547	RES: 0-2 U/AC	25	100	1.0	(1)(25)	25	25
1.4	117/ 0.1828	HILLSIDE @ 40% : 0.2 U/AC	5	100	0.66/5.1	(0.13)(5)	0.7	
		RES: 0-2 U/AC	25	100	4.42/5.1	(0.87)(25)	21.8	
					1.0		22.5	23
1.5	64/ 0.10	RES: 0-2 U/AC	25	100	1.0	(1)(25)	25	25
2.1	742/ 1.1594	HILLSIDE @ 40% : 0.2 U/AC	5	100	5.33/32.33	(0.17)(5)	.9	
		RES: 0-2 U/AC	25	100	27/32.33	(0.83)(25)	20	
					1.0		20.9	21

FORM 204-1

Collar, Williams & White Engineering
Consulting Engineers and Land Surveyors
2702 N. 44TH ST., SUITE 100A
PHOENIX, ARIZONA 85008
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JOB NO. 11022

LITTLE DEER VALLEY
JOB CONCEPTUAL DRAINAGE PLAN, CASE 2
SHEET NO. 2 OF 9
CALCULATED BY _____ DATE 7/24/89
CHECKED BY _____ DATE _____
SCALE _____

WATERSHED DATA WITH PROPOSED LAND USE FOR DETERMINATION OF PERCENT IMPERVIOUS

BASIN	AREA (AC/SQMI)	PROPOSED LAND USE	PERCENT IMPERVIOUS	PERCENT CONTRIBUTING	FRACTION OF AREA (IN)		PARTIAL PERCENT IMPERVIOUS	TOTAL PERCENT IMPERVIOUS
2.2	170/	HILLSIDE @ 14.7% : 1.0 U/AC	23.5	100	1.02/7.4	(0.14)(23.5)	3.3	
	0.2656	RES: 0-2 U/AC	25	100	6.39/7.4	(0.86)(25)	21.6	
					1.0		24.9	25
2.3	390/ 0.6094	RES: 0-2 U/AC	25	100	1.0	(1)(25)	25	25
2.4	137/ 0.2141	HILLSIDE @ 24% : 0.7 U/AC	13	100	1.0	(1)(13)	13	13
2.41	69/ 0.1070	RES: 0-2 U/AC	25	100	1.0	(1)(25)	25	25
2.5	41/ 0.0641	RES: 0-2 U/AC	25	100	1.0	(1)(25)	25	25
2.6	62/ 0.0969	RES: 0-2 U/AC	25	100	1.0	(1)(25)	25	25
3.1	137/	HILLSIDE @ 29% : 0.5 U/AC	7	100	3.63/5.96	(0.61)(7)	4.3	
	0.2138	RES: 0-2 U/AC	25	100	0.66/5.96	(0.11)(25)	2.6	
		RES: 5-10 U/AC	75	50	1.06/5.96	(0.18)(75)	13.5	
		R3A: 22 U/AC	95	50	0.61/5.96	(0.10)(95)	9.5	
					1.0		30.1	30
3.2	172/	HILLSIDE @ 19% : 1.1 U/AC	14	100	2.61/7.46	(0.35)(14)	4.9	
	0.2690	RES: 0-2 U/AC	25	100	0.47/7.46	(0.06)(25)	1.5	
		RES: 5-10 U/AC	75	50	4.26/7.46	(0.57)(75)	42.8	
		COMMERCIAL	95	50	0.14/7.46	(0.02)(95)	1.9	
					1.0		51.1	51

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JOB NO. 11022 881111

LITTLE DEER VALLEY

JOB CONCEPTUAL DRAINAGE PLAN, CASE 2

SHEET NO. 3 OF 9

CALCULATED BY _____ DATE 7/24/89

CHECKED BY _____ DATE _____

SCALE _____

WATERSHED DATA WITH PROPOSED LAND USE FOR DETERMINATION OF PERCENT IMPERVIOUS

BASIN	AREA (AC/SQ MI)	PROPOSED LAND USE	PERCENT IMPERVIOUS	PERCENT CONTRIBUTING	FRACTION OF AREA (IN)		PARTIAL PERCENT IMPERVIOUS	TOTAL PERCENT IMPERVIOUS
3.3	21/ 0.0326	RES: 0-2 U/AC	25	50	0.14/0.91	(.15)(25)	3.6	
		RES: 5-10 U/AC	75	100	0.59/0.91	(0.65)(75)	48.6	
		COMMERCIAL	95	100	0.16/0.91	(0.2)(95)	19	
					1.0		71.6	72
3.4	147/ 0.2296	HILLSIDE: C 14% : 1.8 U/AC	23.5	100	1.33/6.4	(0.21)(23.5)	4.9	
		RES: 0-2 U/AC	25	100	0.93/6.4	(0.16)(25)	4	
		RES: 5-10 U/AC	75	50	3.57/6.4	(0.56)(75)	42	
		INDUSTRIAL	95	50	0.57/6.4	(0.09)(95)	8.6	
					1.0		59.5	60
3.5	31/ 0.0484	RES: 0-2 U/AC	25	100	1.0	(1)(25)	25	25
3.6	14/ 0.0219	RES: 0-2 U/AC	25	100	1.0	(1)(25)	25	25
3.7	31/ 0.0484	RES: 0-2 U/AC	25	100	1.0	(1)(25)	25	25
3.8	9.6/ 0.0150	RES: 0-2 U/AC	25	100	1.0	(1)(25)	25	25
3.9	58/ 0.0906	RES: 0-2 U/AC	25	100	1.0	(1)(25)	25	25
3.95	41/ 0.0641	RES: 0-2 U/AC	25	100	1.0	(1)(25)	25	25

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881111
JOB NO. 11022

LITTLE DEER VALLEY
JOB CONCEPTUAL DRAINAGE PLAN, CASE 2
SHEET NO. 4 OF 9
CALCULATED BY _____ DATE 7/24/89
CHECKED BY _____ DATE _____
SCALE _____

WATERSHED DATA WITH PROPOSED LAND USE FOR DETERMINATION OF PERCENT IMPERVIOUS

BASIN	AREA (AC/SQ MI)	PROPOSED LAND USE	PERCENT IMPERVIOUS	PERCENT CONTRIBUTING	FRACTION OF AREA (IN)		PARTIAL PERCENT IMPERVIOUS	TOTAL PERCENT IMPERVIOUS
4.1	356/	HILLSIDE @ 27% : 0.5 U/AC	7	100	4.53/15.6	(0.29)(7)	2.0	
	0.5594	PARK	10	20	0.73/15.6	(0.05)(10)	0.5	
		RES: 0-2 U/AC	25	100	0.46/15.6	(0.03)(25)	0.8	
		R1-8: 2.4 U/AC	28	50	4.53/15.6	(0.29)(28)	8.1	
		R1-6: 2.8 U/AC	32	50	3.62/15.6	(0.23)(32)	7.4	
		R-2: 5.4 U/AC	52.5	50	0.28/15.6	(0.02)(52.5)	1.1	
		INDUSTRIAL	95	50	1.45/15.6	(0.09)(95)	8.6	
					1.0		28.5	29
4.2	108/	HILLSIDE @ 33% : 0.3 U/AC	5	100	3.91/4.7	(0.83)(5)	4.2	
	0.1688	R-2 : 5.4 U/AC	52.5	50	0.79/4.7	(0.17)(52.5)	8.9	
					1.0		13.1	13
4.3	143/	R1-6: 2.8 U/AC	32	50	4.95/6.2	(0.80)(32)	25.6	
	0.2234	R-2: 5.4 U/AC	52.5	50	1.24/6.2	(0.2)(52.5)	10.5	
					1.0		36.1	36
4.4	35/	R-2: 5.4 U/AC	52.5	50	0.66/1.5	(.45)(52.5)	23.6	
	0.0547	R-3 : 12 U/AC	82	50	0.4/1.5	(.27)(82)	22.1	
		R-3A: 22 U/AC	95	50	0.27/1.5	(.18)(95)	17.1	
					1.0		62.8	63
4.5	41/	R1-6: 2.8 U/AC	32	50	1.44/1.6	(0.9)(32)	25.6	
	0.0641	R-2 : 5.4 U/AC	52.5	50	0.12/1.6	(0.07)(52.5)	3.7	
		INDUSTRIAL	95	50	0.24/1.6	(0.13)(95)	12.4	
					1.0		48.7	49

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JOB NO. 11022 881111

JOB LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN, CASE 2
SHEET NO. 5 OF 9
CALCULATED BY _____ DATE 7/24/89
CHECKED BY _____ DATE _____
SCALE _____

WATERSHED DATA WITH PROPOSED LAND USE FOR DETERMINATION OF PERCENT IMPERVIOUS

BASIN	AREA (AC/SQ MI)	PROPOSED LAND USE	PERCENT IMPERVIOUS	PERCENT CONTRIBUTING	FRACTION OF AREA (IN)		PARTIAL PERCENT IMPERVIOUS	TOTAL PERCENT IMPERVIOUS
4.6	61/ 0.0953	R1-6: 2.8 u/ac	32	50	1.74/2.7	(0.64)(32)	20.5	
		R-2: 5.4 u/ac	52.5	50	0.37/2.7	(0.14)(52.5)	7.4	
		C-2: COMMERCIAL	95	50	0.44/2.7	(0.06)(95)	15.2	
		INDUSTRIAL	95	50	0.15/2.7	(0.16)(95)	5.7	
					1.0		48.8	49
4.7	177/ 0.266	HILLSIDE @ 34% : 0.3 u/ac	5	100	5.74/7.7	(0.75)(5)	3.8	
		R1-6: 2.8 u/ac	32	50	0.61/7.7	(0.08)(32)	2.6	
		R-2: 5.4 u/ac	52.5	50	0.16/7.7	(0.02)(52.5)	1.1	
		R-3: 12 u/ac	82	50	0.58/7.7	(0.08)(82)	6.6	
		R-3A: 22 u/ac	95	50	0.37/7.7	(0.05)(95)	4.8	
		C-2: COMMERCIAL	95	50	0.22/7.7	(0.03)(95)	2.9	
.14 -2-5 .19 -5-10	52.5 75				1.0		21.8	22
4.8 .4	448/ 0.70	HILLSIDE @ 19% : 1.1 u/ac	14	100	6.29/19.5	(0.32)(14)	4.5	
		RES: 0-2 u/ac	25	100	9.66/19.5	(0.5)(25)	12.5	
		PUBLIC	85	50	3.22/19.5	(0.17)(85)	14.5	
					1.0		1.1 32.6	33
4.9	78/ 0.1219	HILLSIDE @ 23% : 0.7 u/ac	15	100	1.7/3.4	(0.5)(15)	7.5	
		RES: 0-2 u/ac	25	100	1.7/3.4	(0.5)(25)	12.5	
					1.0		20	20
4.95	25/ 0.0391	HILLSIDE @ 26% : 0.5 u/ac	7	100	1.0	(7)(1)	7	7
5.1	164/ 0.2565	HILLSIDE @ 18% : 1.1 u/ac	14	100	4.32/7.15	(0.6)(14)	8.4	
		PARK	10	20	1.96/7.15	(0.28)(10)	2.8	
		R1-6: 2.8 u/ac	32	50	0.85/7.15	(0.12)(32)	3.8	
					1.0		15	15

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JOB NO. 11022 601111

LITTLE DEER VALLEY
JOB CONCEPTUAL DRAINAGE PLAN, CASE 2
SHEET NO. 6 OF 9
CALCULATED BY _____ DATE 7/24/89
CHECKED BY _____ DATE _____
SCALE _____

WATERSHED DATA WITH PROPOSED LAND USE FOR DETERMINATION OF PERCENT IMPERVIOUS

BASIN	AREA (AC/SQMI)	PROPOSED LAND USE	PERCENT IMPERVIOUS	PERCENT CONTRIBUTING	FRACTION OF AREA (IN)		PARTIAL PERCENT IMPERVIOUS	TOTAL PERCENT IMPERVIOUS
5.2	112/ 0.1743	HILLSIDE @ 30% : 0.3u/ac	5	100	2.26/4.86	(0.47)(5)	2.4	
		PARK	10	20	0.87/4.86	(0.18)(10)	1.6	
		R1-18: 1.8u/ac	25	100	0.61/4.86	(0.13)(25)	3.3	
		R1-8: 2.4u/ac	26	50	1.12/4.86	(0.23)(26)	6.4	
					1.0		13.9	14
5.3	202/ 0.3156	R1-10: 2.2u/ac	27	50	1.3/8.6	(0.15)(27)	4.1	
		R1-8: 2.4u/ac	26	50	0.85/8.6	(0.10)(26)	2.6	
		R1-6: 2.8u/ac	32	50	3.91/8.6	(0.44)(32)	14.1	
		R-2: 5.4 u/ac	52.5	50	0.42/8.6	(0.05)(52.5)	2.6	
		C-2: COMMERCIAL	95	50	0.64/8.6	(0.07)(95)	6.7	
		INDUSTRIAL	95	50	1.66/8.6	(0.19)(95)	18.1	
					1.0		48.4	48
5.4	465/ 0.7266	HILLSIDE @ 25% : 0.5u/ac	7	100	2.67/20.3	(0.13)(7)	0.9	
		RES: 0-2u/ac	25	100	16.9/20.3	(0.83)(25)	20.8	
		RES: 2-5u/ac	50	50	0.34/20.3	(0.02)(50)	1.0	
		PUBLIC	65	50	0.15/20.3	(0.007)(65)	0.6	
		COMMERCIAL	95	50	0.12/20.3	(0.006)(95)	0.6	
		INDUSTRIAL	95	50	0.12/20.3	(0.006)(95)	0.6	
					1.0		24.5	25
5.41	147/ 0.2303	RES: 0-2u/ac	25	100	1.0	(1)(25)	25	25
5.5	202/ 0.3149	HILLSIDE @ 25% : 0.5u/ac	7	100	4.31/8.78	(0.49)(7)	3.4	
		PARK	10	20	4.47/8.78	(0.51)(10)	5.1	
					1.0		8.5	9

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JOB NO. 11022

JOB: LITTLE DEER VALLEY CONCEPTUAL DRAINAGE PLAN, CASE 2
SHEET NO. 7 OF 9
CALCULATED BY: DATE: 7/24/89
CHECKED BY: DATE:
SCALE:

WATERSHED DATA WITH PROPOSED LAND USE FOR DETERMINATION OF PERCENT IMPERVIOUS

BASIN	AREA (AC/SQ MI)	PROPOSED LAND USE	PERCENT IMPERVIOUS	PERCENT CONTRIBUTING	FRACTION OF AREA (IN)		PARTIAL PERCENT IMPERVIOUS	TOTAL PERCENT IMPERVIOUS
6.1	236/ 0.3688	HILLSIDE @ 30% : 0.3 u/ac	5	100	6.57/10.3	(0.64)(5)	3.2	
		R1-18: 1.8 u/ac	25	100	1.76/10.3	(0.17)(25)	4.3	
		R1-10: 2.2 u/ac	27	50	1.97/10.3	(0.19)(27)	5.1	
					1.0		12.6	13
6.2	209/ 0.3266	RES: 0-2 u/ac	25	100	2.46/9.1	(0.27)(25)	6.8	
		R1-18: 1.8 u/ac	25	100	1.53/9.1	(0.17)(25)	4.3	
		R1-10: 2.2 u/ac	27	50	1.2/9.1	(0.13)(25)	3.3	
		R1-8: 2.4 u/ac	28	50	1.93/9.1	(0.21)(28)	5.9	
		R1-6: 2.6 u/ac	32	50	1.36/9.1	(0.15)(32)	4.8	
		INDUSTRIAL	95	50	0.6/9.1	(0.07)(95)	6.7	
					1.0		31.8	32
6.3	236/ 0.3688	HILLSIDE @ 32% : 0.3 u/ac	5	100	6.13/10.33	(0.59)(5)	3.0	
		R1-8: 2.4 u/ac	28	50	2.36/10.33	(0.23)(28)	6.4	
		R1-6: 2.6 u/ac	32	50	1.84/10.33	(0.18)(32)	5.8	
					1.0		15.2	15
6.31	50/ 0.0781	R1-6: 2.6 u/ac	32	50	1.57/2.17	(0.72)(32)	23	
		R-2: 5.4 u/ac	52.5	50	0.09/2.17	(0.04)(52.5)	2.1	
		INDUSTRIAL	95	50	0.51/2.17	(0.24)(95)	22.8	
					1.0		47.9	48
6.4	61/ 0.10	HILLSIDE @ 21.5% : 0.5 u/ac	7	100	0.3/2.7	(0.11)(7)	0.8	
		PARK	10	20	0.32/2.7	(0.12)(10)	1.2	
		R1-6: 2.6 u/ac	32	50	0.51/2.7	(0.19)(32)	6.1	
		R-2: 5.4 u/ac	52.5	50	1.4/2.7	(0.52)(52.5)	27.3	
		INDUSTRIAL	95	50	0.3/2.7	(0.11)(95)	10.5	
					1.0		45.9	46

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JOB NO. 11022

LITTLE DEER VALLEY
JOB CONCEPTUAL DRAINAGE PLAN, CASE 2
SHEET NO. 8 OF 9
CALCULATED BY _____ DATE 7/24/89
CHECKED BY _____ DATE _____
SCALE _____

WATERSHED DATA WITH PROPOSED LAND USE FOR DETERMINATION OF PERCENT IMPERVIOUS

BASIN	AREA (AC/SQMI)	PROPOSED LAND USE	PERCENT IMPERVIOUS	PERCENT CONTRIBUTING	FRACTION OF AREA (IN)		PARTIAL PERCENT IMPERVIOUS	TOTAL PERCENT IMPERVIOUS
6.5	200/	HILLSIDE @ 25% : 0.50/ac	7	100	1.66/8.7	(0.19)(7)	1.3	
	0.3125	RES: 0-2 u/ac	25	100	6.25/8.7	(0.72)(25)	18	
		R1-18: 1.8u/ac	25	100	0.77/8.7	(0.09)(25)	2.3	
					1.0		21.6	22
6.51	165/	RES: 0-2 u/ac	25	100	5.27/7.2	(0.73)(25)	18.3	
	0.2578	RES: 2-5 u/ac	50	50	1.93/7.2	(0.27)(50)	13.5	
					1.0		31.8	32
6.6	80/	RES: 0-2 u/ac	25	100	1.74/3.48	(0.5)(25)	12.5	
	0.1250	RES: 2-5 u/ac	50	50	1.74/3.48	(0.5)(50)	25	
					1.0		37.5	38
6.7	407/	RES: 0-2 u/ac	25	100	14.19/17.73	(0.8)(25)	20	
	0.6359	RES: 2-5 u/ac	50	50	3.54/17.73	(0.2)(50)	10	
					1.0		30	30
8.1	317/	HILLSIDE @ 15% : 1.1 u/ac	14	100	3.81/13.81	(0.28)(14)	3.9	
	0.4953	PARK	10	20	3.50/13.81	(0.25)(10)	2.5	
		R1-6: 2.8u/ac	32	50	3.79/13.81	(0.27)(32)	8.6	
		R-2: 5.4u/ac	52.5	50	0.35/13.81	(0.03)(52.5)	1.6	
		EMPLOYMENT	95	50	1.06/13.81	(0.08)(95)	7.6	
		C-2: COMMERCIAL	95	50	1.01/13.81	(0.07)(95)	6.7	
		INDUSTRIAL	95	50	0.29/13.81	(0.02)(95)	1.9	
					1.0		32.8	33

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JOB NO. 11022

JOB CONCEPTUAL DRAINAGE PLAN
SHEET NO. 9 OF 9
CALCULATED BY _____ DATE 7/24/89
CHECKED BY _____ DATE _____
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WATERSHED DATA WITH PROPOSED LAND USE FOR DETERMINATION OF PERCENT IMPERVIOUS

BASIN	AREA (AC/SQMI)	PROPOSED LAND USE	PERCENT IMPERVIOUS	PERCENT CONTRIBUTING	FRACTION OF AREA (IN)		PARTIAL PERCENT IMPERVIOUS	TOTAL PERCENT IMPERVIOUS
8.2	259/ 0.3906	RES: S-15 U/2C	90	50	9.25/10.89	(0.85)(90)	76.5	
		RES: 15+ U/2C	95	50	0.43/10.89	(0.04)(95)	3.8	
		COMMERCIAL	95	50	0.04/10.89	(0.004)(95)	0.4	
		INDUSTRIAL	95	50	1.17/10.89	(0.11)(95)	10.5	
					1.0		91.2	91
7.0	82/ 0.1281	RES: 2-5 U/2C	50	50	1.0	(1)(50)	50	50
8.25	162/ 0.2531	RES: S-15 U/2C	90	50	1.36/7.06	(0.19)(90)	17.1	
		RES: 15+ U/2C	95	50	1.33/7.06	(0.19)(95)	18.1	
		COMMERCIAL	95	50	1.12/7.06	(0.16)(95)	15.2	
		RES: S-15 U/2C	90	50	3.25/7.06	(0.46)(90)	41.4	
					1.0		91.8	92

FORM 204-1

APPENDIX E

Steering Committee and Conference Memos and Hydraulic Design Charts

K. It is the purpose of this Section to establish regulations which recognize that development of land in hilly or mountainous areas involves special considerations and unique situations which result from the slope of the land. These special considerations and unique situations include but are not limited to increased hazards to development from rock falls, stormwater runoff, geologic hazards, increased limitations on vehicular travel, and increased difficulties in providing public services. In addition, steeply sloped lands introduce design limitations to roadways, cuts and fills, and building sites. In general, the more steeply the land slopes, the greater potential hazard and development limitation. Additionally, since hilly or mountainous areas within the city offer a desirable setting, visible to the entire city, they are a unique natural asset. It is intended through these regulations to preserve the visual integrity and character of hillside areas, while allowing reasonable development which is both safe and functional.

1. In all zoning districts, wherever the natural terrain of any lot or parcel or any portion thereof has a slope of ten percent (10%) or greater, that lot or parcel or that portion of the lot or parcel shall be considered to be in a hillside development area. The hillside development area shall commence at the midpoint of the one hundred (100) foot horizontal dimensions used to determine the slope as illustrated by Figure 1, attached hereto and by this reference made a part hereof.*

Development of land in any zoning district within a hillside development area shall also be regulated by the provisions of Section 32-44 of the Phoenix City Code, whether subdivided or not, and shall be subject to the following special conditions:

a. Special yard, height, area coverage, and density requirements for single-family residential development in the hillside development area in any zoning district shall be as follows:

(1) The maximum number of lots into which hillside development area land may be subdivided shall be the sum of the number of lots allowed by the zoning district or the sum of the number of lots allowed in each category of land as shown by the following table whichever is the lesser number:

*Editor's Note — Figure 1 is reproduced on Page 855 and Figure 2 is on Page 856 of this Code.

use Hillside for instead of 50% improvement

Slope of Land	Maximum Number of Lots Per Gross Acre
10% to 14.9%	1.80
15% to 19.9%	1.10
20% to 24.9%	0.70
25% to 29.9%	0.50
30% to 34.9%	0.30
35% and over	0.20

There shall be no more lots created than permitted by the slope category, except that lots not placed in a slope category may be placed in a lower slope category so long as the total number of lots in the hillside development area shall not exceed the sum of the lots permitted in each slope category.

To calculate the number of acres in each slope category:

(a) Determine those locations where slopes of ten percent (10%), fifteen percent (15%), twenty percent (20%), twenty-five percent (25%), thirty percent (30%), and thirty-five (35%) begin by application of one hundred (100) foot straight lines.

(b) Connect the midpoints of each series of one hundred (100) foot lines of the same slope category to establish the limits of that slope category.

(c) Measure the areas resulting between each series of straight lines to determine the areas in each slope category.

Figure 2, attached hereto and by this reference made a part hereof, illustrates the method used in calculating the slope categories.*

The topographic map shall be at a scale of 100 feet or less to the inch and shall contain contours at two foot intervals but may contain contours at five foot intervals for grades of more than 15%.

Application for slope category determination shall be made to the planning department. If the application meets the criteria of this Section, the City shall accept an applicant's slope category analysis. If the analysis is not acceptable, the applicant may accept either a slope category analysis by staff, or he may add any number of additional 100 foot lines to the staff analysis for a more precise determination of the slope category lines.

(2) No lot containing hillside development area shall be hereafter subdivided to provide less than 18,000 square feet nor to have a width of less than one hundred twenty (120) feet, nor a depth of less than one hundred twenty (120) feet unless in conformance with Section 32-44(a)(3) (M) and (N) of the City Code. Lot areas of more than 18,000 square

*Editor's Note — Figure 1 is reproduced on Page 855 and Figure 2 is on Page 856 of this Code.

Figure 4.1

Percent of Impervious Area vs.
Dwelling Units/Acre

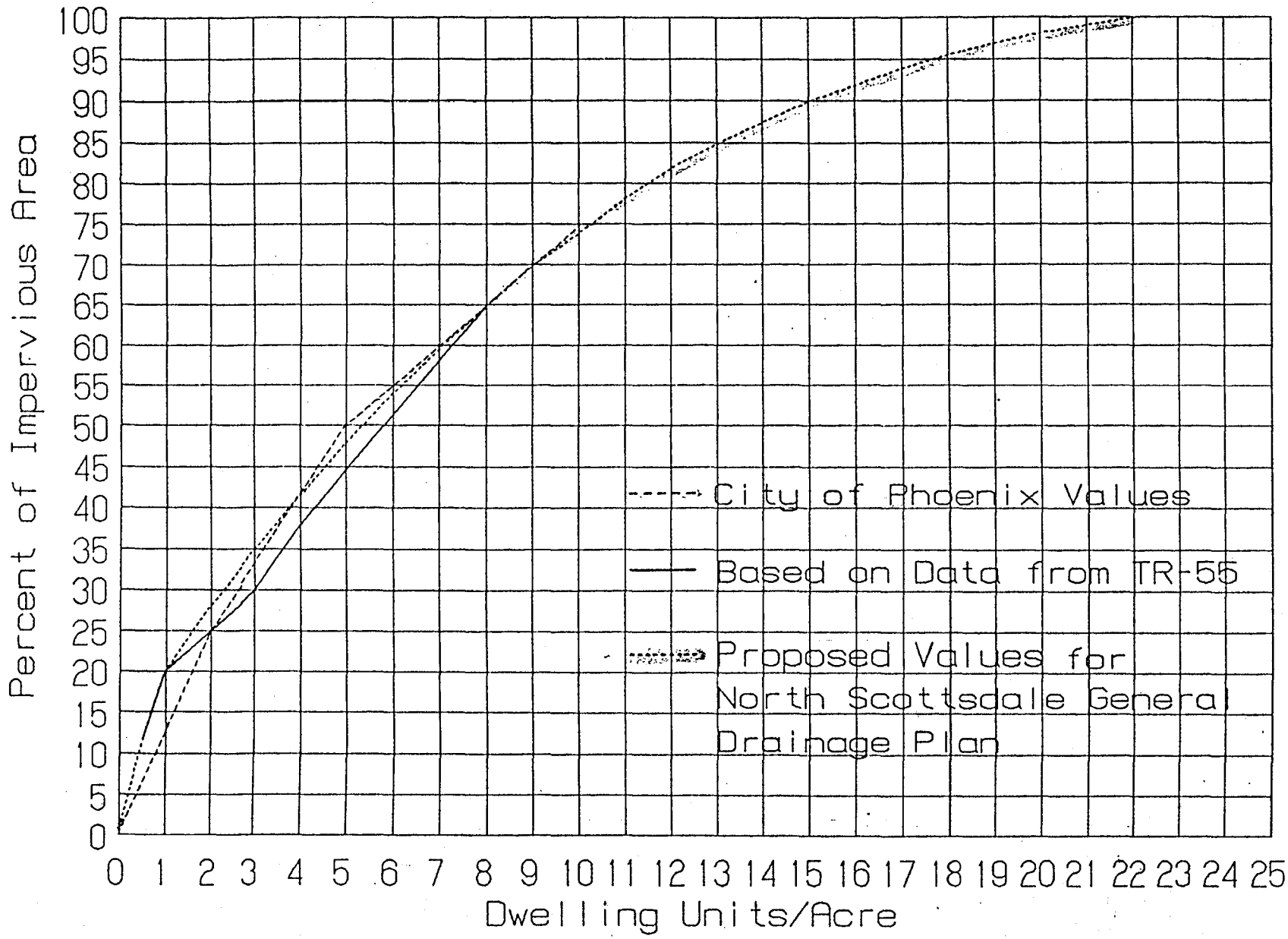


Table 5.1 contains the channel properties to be utilized by designers of open channels. It should be noted that the channel properties change with the design discharge, which is a result of the hydraulic characteristics of open channels. As the design discharge reaches values of 3000 cfs, rigid channel design becomes increasingly more difficult to achieve. Both safety consideration and the forces of water combine to demand greater and greater design skills as the design discharge increases.

TABLE 5.1
CHANNEL PROPERTIES

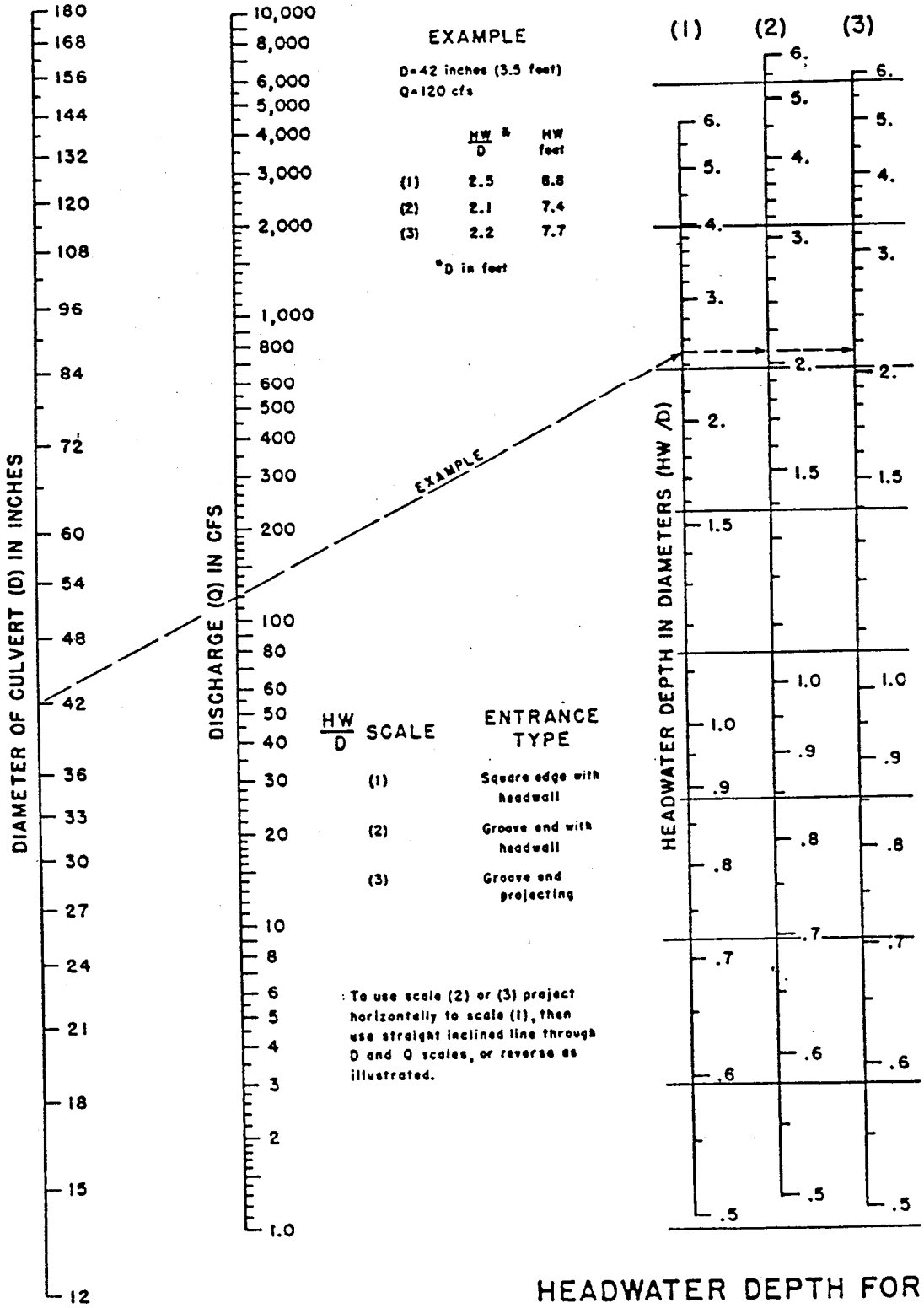
TYPE OF CHANNEL BOTTOM	MAX DEPTH ft.	SIDE SLOPES H:V	MAX VELOCITY f.p.s.	MIN+ FREEBOARD ft.	MAX FROUDE NO
SMALL CHANNELS Q < 1000 cfs					
Concrete/Gunnite	3	2:1	8.5*	1.0	0.95
Soil Cement	3	2:1	8.0	1.0	0.95
Riprap	3	2:1	8.0	1.0	0.90
Earth	2.5	4:1	5.0	0.5	0.6
Grass	3	4:1	7.5	0.75	0.8
MEDIUM CHANNELS 1000cfs < Q < 4000cfs					
Concrete/Gunnite	8	2:1	12.0*	2.0	0.95
Soil Cement	8	2:1	12.0	2.0	0.95
Riprap	6	2:1	12.0	2.0	0.90
Earth**	3	4:1	5.0	1.0	0.6
Grass**	4	4:1	7.0	1.0	0.8
LARGE CHANNELS Q > 4000 cfs					
Concrete/Gunnite	10	2:1	15*	3.5	0.95
Soil Cement	N/A				
Riprap	10	2:1	14	3.0	0.90
Earth	N/A				
Grass	N/A				

+ See Equation 5.2

* Max Velocity = 20 fps for supercritical flow. Froude numbers for supercritical flow shall be greater than 1.15 an less than 2.0.

** Compound sections may be required for discharge greater than 2000cfs.

CHART 1

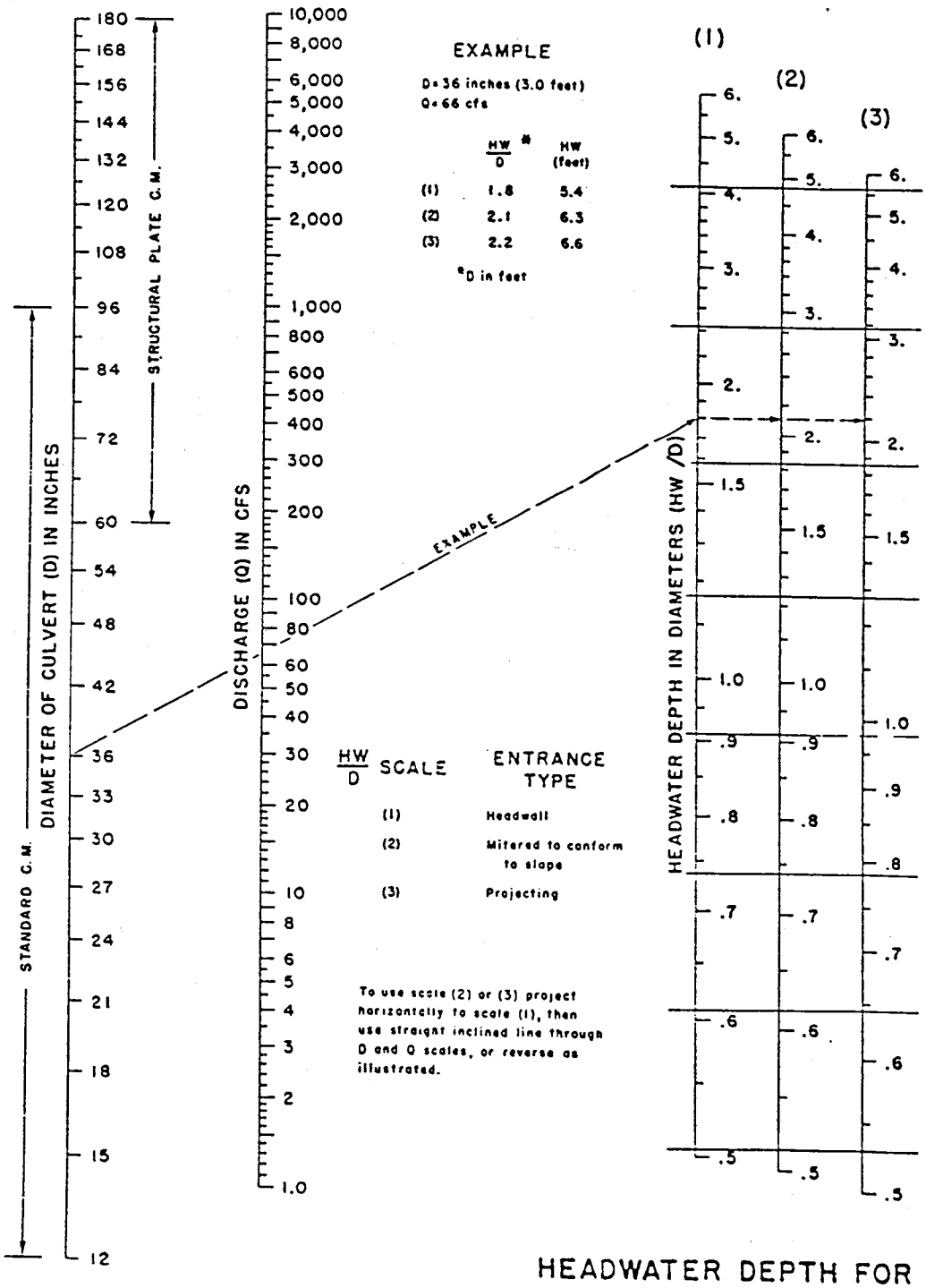


HEADWATER DEPTH FOR CONCRETE PIPE CULVERTS WITH INLET CONTROL

HEADWATER SCALES 2&3
REVISED MAY 1964

BUREAU OF PUBLIC ROADS JAN. 1963

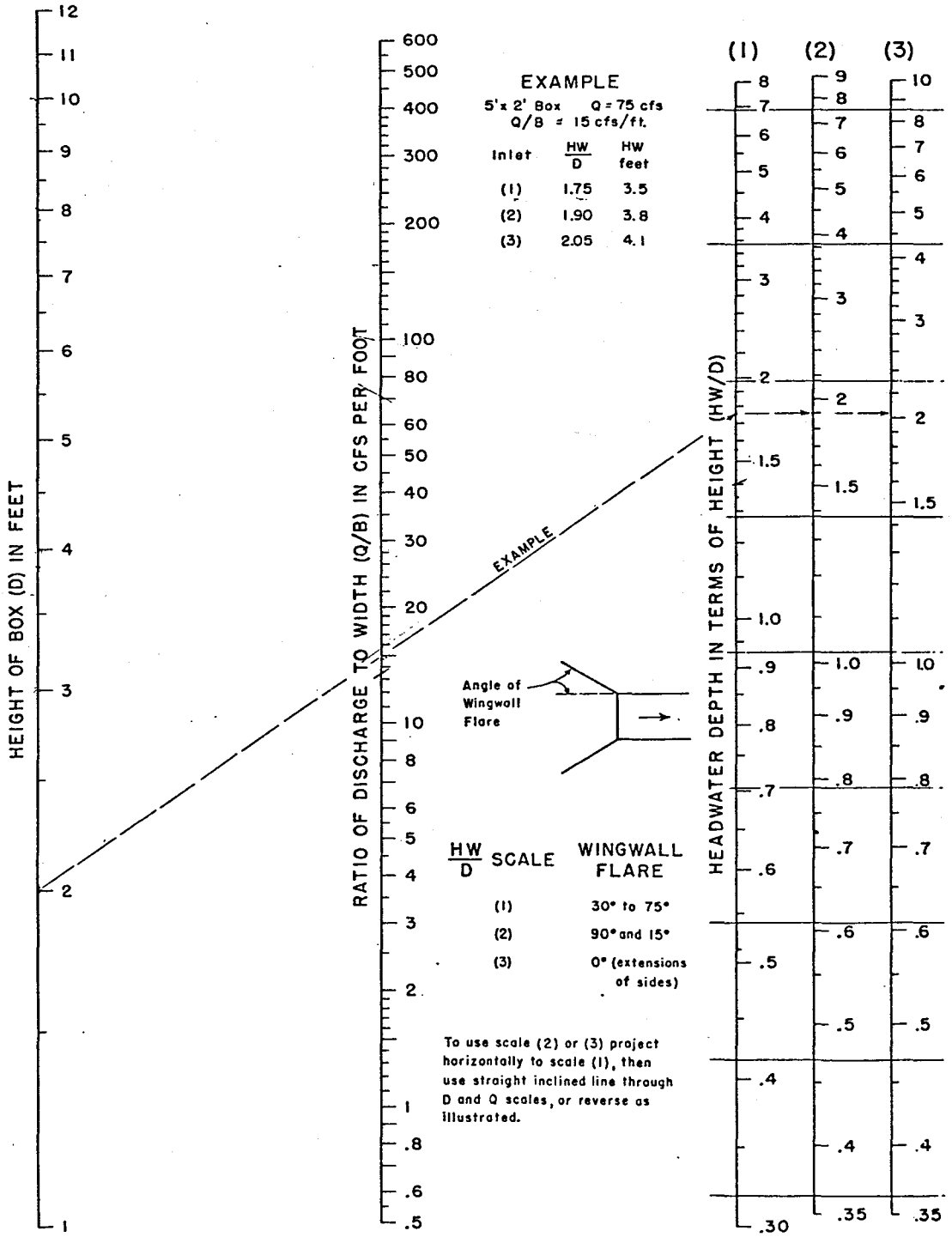
CHART 2



HEADWATER DEPTH FOR
C. M. PIPE CULVERTS
WITH INLET CONTROL

BUREAU OF PUBLIC ROADS JAN. 1963

CHART I



HEADWATER DEPTH FOR BOX CULVERTS WITH INLET CONTROL

BUREAU OF PUBLIC ROADS JAN. 1963

APPENDIX F

Arizona Department of Transportation (ADOT) Construction Costs

PERIPHERAL AREAS C & D
ESTIMATED CONSTRUCTION COSTS

The following estimated costs are from ADOT's "Construction Costs 1988" and the item numbers refer to ADOT Standard Specifications (where indicated).

1. Channel Excavation (From ADOT Roadway Excavation and Drainage Excavation Items 2030301 & 2030401) - Includes removal of material and placement on site nearby, and fine grading.

   Less than 10,000 CY $5/CY
   10,001 CY-100,000 CY $4/CY
   More than 100,000 CY $3/CY

2. Berms and Dykes (From ADOT Borrow, Item 2030901) - Includes importing material and placement on dyke.

   Less than 10,000 CY $10/CY
   10,001 CY - 50,000 CY $7/CY
   50,001 CY - 100,000 $5/CY
   More than 100,000 CY $3/CY

3. Structural Concrete (From ADOT Structural Excavation, Structural Concrete, and Structure Backfill; Items 2030501,6020003 & 2030506) - Includes excavation, concrete and backfill. $300/CY

4. Grader Ditch (ADOT 2030601) - $5/L.F.

5. Chain Link Fence - 72" (ADOT 9020004) - $10/L.F.

6. Sidewalk (ADOT 9080201) - $2/S.F.

   For 8' bikeway use $16/L.F.

7. Rip Rap (ADOT 9130003) - $75/CY

8. Retaining Walls (ADOT 9140121) - $30/S.F.

9. Channel Lining - 6" Concrete (ADOT 9201006) - $30/S.Y.

10. Bridge at major Streets - $55/S.F.

    For major streets use 80' width.

11. Drop Structures (Up to 6' drop) - $600/L.F.

12. Landscaping - $7500/Acre (includes irrigation system)

13. Land Cost - $10,000/Acre

14. Use the attached tables to estimate pipe costs. Add 2 miles of 30" lateral for each mile of main where appropriate.

COST FOR MAINLINE PIPE
STORM DRAINS
COST PER LIN. FT.

DEPTH TO SUBGRADE-FEET

PIPE SIZE IN.	6	7	8	9	10	11	12	14	PIPE SIZE IN.
12	50.44	52.38	53.35	55.29	56.26	57.23	58.20	60.14	12
15	52.38	53.35	54.32	56.26	58.20	59.17	60.14	62.08	15
18	55.29	56.26	58.20	60.14	61.11	61.11	63.05	64.99	18
21	56.26	57.23	59.17	61.11	62.08	63.05	65.96	68.87	21
24	59.17	60.14	62.08	63.05	64.02	65.96	68.87	72.75	24
27	62.08	63.05	64.99	66.93	67.90	69.84	71.78	76.63	27
30	66.93	67.90	69.84	70.81	72.75	75.66	78.57	83.42	30
33	71.78	73.72	75.66	77.60	79.54	84.39	86.33	91.18	33
36	78.57	80.51	83.42	85.36	87.30	90.21	92.15	97.97	36
39	87.30	89.24	92.15	94.09	96.03	98.94	101.85	106.70	39
42	96.03	97.97	100.88	102.82	105.73	108.64	111.55	117.37	42
45	104.76	106.70	109.61	111.55	114.46	117.37	121.25	127.07	45
48	113.49	115.43	118.34	121.25	124.16	127.07	130.95	136.77	48
51	122.22	125.13	128.04	130.95	133.86	136.77	140.65	146.47	51
54	130.95	133.86	137.74	140.65	143.56	146.47	150.35	157.14	54
57	139.68	142.59	146.47	149.38	153.26	156.17	160.05	166.84	57
60	149.38	153.26	157.14	160.05	163.93	166.84	169.75	177.51	60
63		162.96	166.84	170.72	174.60	178.48	182.36	189.15	63
66		172.66	177.51	181.39	185.27	189.15	193.03	199.82	66
69		186.24	191.09	195.94	199.82	202.73	206.61	212.43	69
72			199.82	203.70	208.55	212.43	216.31	224.07	72
75			211.46	215.34	220.19	224.07	228.92	236.68	75
78			224.07	227.95	232.80	237.65	242.50	251.23	78
81			237.65	241.53	246.38	251.23	257.05	266.75	81
84				257.05	261.90	266.75	271.60	282.27	84
87				272.57	278.39	284.21	291.00	302.64	87
90				288.09	293.91	300.70	308.46	322.04	90
93					310.40	319.13	327.86	344.35	93
96					329.80	336.59	343.38	356.96	96
102						356.96	365.69	382.18	102
108						376.36	385.09	401.58	108
114							402.55	419.04	114
120							422.92	442.32	120

COST FOR MAINLINE PIPE
STORM DRAINS
COST PER LIN. FT.

DEPTH TO SUBGRADE-FEET

PIPE SIZE IN.	14	16	18	20	22	24	26	28	PIPE SIZE IN.
24	72.75	78.57	84.39	90.21					24
27	76.63	82.45	88.27	93.12	97.97				27
30	83.42	89.24	94.09	98.94	103.79	108.64			30
33	91.18	95.06	100.88	106.70	115.43	123.19	130.95		33
36	97.97	103.79	109.61	116.40	122.22	131.92	141.62	156.17	36
39	106.70	113.49	120.28	128.04	135.80	143.55	156.17	168.78	39
42	117.37	124.16	130.95	138.71	147.44	155.20	167.81	180.42	42
45	127.07	134.83	141.62	149.38	158.11	166.84	180.42	194.00	45
48	136.77	145.50	154.23	161.99	170.72	179.45	193.03	206.61	48
51	146.47	155.20	163.93	172.66	179.45	192.06	205.64	219.22	51
54	157.14	162.96	172.66	185.27	194.97	203.70	218.25	232.80	54
57	166.84	178.48	190.12	200.79	208.55	216.31	230.86	245.41	57
60	177.51	186.24	196.91	208.55	218.25	228.92	242.47	258.99	60
63	193.03	199.82	210.49	221.16	231.83	242.50	257.05	272.57	63
66	199.82	211.46	222.13	233.77	244.44	256.08	271.60	287.12	66
69	212.43	224.07	235.71	247.35	256.08	269.66	286.15	302.64	69
72	224.07	236.68	249.29	260.93	272.57	286.15	302.64	318.16	72
75	236.68	249.29	261.90	273.54	288.09	300.70	318.16	334.65	75
78	251.23	263.84	277.42	290.03	303.61	316.22	334.65	352.11	78
81	266.75	279.36	292.94	305.55	320.10	333.68	352.11	371.51	81
84	282.27	293.91	306.52	322.04	335.62	352.11	370.54	391.88	84
87	302.64	316.22	325.92	343.38	359.87	376.36	397.70	419.04	87
90	322.04	337.56	353.08	368.60	385.09	401.58	423.89	446.20	90
93	344.35	360.84	377.33	393.82	414.19	433.59	455.90	477.24	93
96	356.96	375.39	393.82	413.22	434.56	455.90	480.15	504.40	96
102	382.18	401.58	420.98	441.35	463.66	487.91	515.07	544.17	102
108	401.58	420.98	432.62	459.78	484.03	508.28	538.35	569.39	108
114	419.04	430.68	451.05	479.18	503.43	531.56	562.60	593.64	114
120	442.32	457.84	479.18	503.43	529.62	558.72	589.76	620.80	120

CITY OF PHOENIX

TO C & D Consultants

DATE July 10, 1989

FROM Paul Kienow PK

SUBJECT UNIT CONSTRUCTION COSTS

Please revise your unit construction cost as follows:

#1 Channel Excavation (includes detention basins)

100,000 CY - 500,000 CY	$3/CY
More than 500,000 CY	$2/CY

PK/aff