ENGINEERING, SURVEYING & LAND PLANNING

SRB

SAVOY, RUGGLES & BOHM, P.A.

FINAL DRAINAGE PLAN

THE PLAZA AT CHERRY CREEK HILLS

JANUARY 6, 1999

SRB
924 NORTH MAIN
WICHITA, KANSAS 67203
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SAVOY, RUGGLES & BOHM, P.A.
ENGINEERING & SURVEYING

January 5, 1999

Ms. Vicky Huang
City of Wichita
City Hall - 7th Floor
455 N. Main
Wichita, KS 67202

Re: Drainage Plan for The Plaza At Cherry Creek Hills Addition, Wichita, Sedgwick County, Kansas.

Dear Ms. Huang,

Contained in this report is the drainage plan and supporting calculations for the above mentioned property. Please note that the plan has been modified from the original form, submitted in January, 1998.

As you may remember, we were attempting to acquire a drainage easement along the north line of the KGE Electric Transformer Station located at the northeast corner of Oak Knoll and Rock Road. Our efforts to obtain an answer from KGE have failed, so the drainage from Area C, previously designated to flow across the KGE property has been diverted via storm water sewer pipe to the proposed on-site detention pond.

A detention routing summary is included for the enlarged detention pond, however the shape of the pond can be determined at the time of actual design. In addition, the storm water sewer pipes as shown on the drainage map can be routed at the time of development to facilitate the land use.

If you have any questions or comments concerning this report, please do not hesitate to contact me.

Sincerely,

Christopher M. Bohm, P.E.

12/22/97 CMB

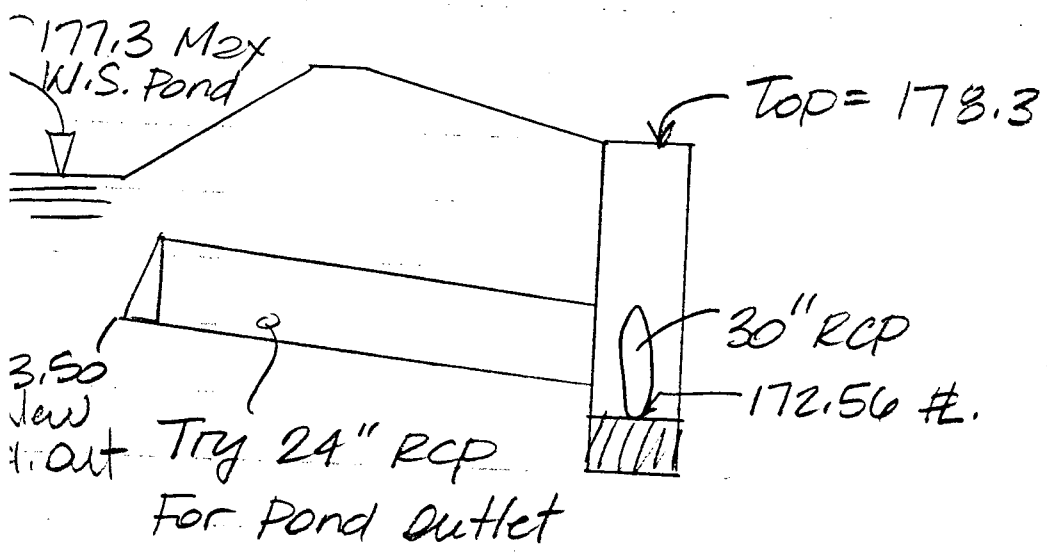
The Plaza @ Cherry Creek Hills
Drainage Plan

Pond located @ North East Corner of Site.
D_A = 10.6 Acres (Area A)
T_c = 20 minutes.

Aveibble outlet structure = Inlet : Pipe
Installed W/ KDOT Project for Pawnee.
12.5 Acres Used on Drainage Plan.

D.S. Pipe from Inlet = 30" RCP
@ Slope = 0.5% ; Capacity 30" RCP = ± 29 cfs.
(Gravity Flow, Mannings Equation).

Target < 29 cfs Outlet from Pond.



12/22/97 CMB

Use CN Developed = 93

Use 24" RCP From New Pond; Fl = 173.50

For Inlet Control - 24" RCP from Pond.

Elev.	HW	Q(24") RCP	Area (Acres) Pond	Area S.F.
177	3.5	26	0.68	29,620
176	2.5	18	0.63	27,440
175	1.5	8	0.56	24,394
174	0.5	2	0.55	23,960
173.5	0	0.1	0.52	22,650

Results: Q_{100} out = 27cfs
WS = 176.91 (Target 177.3)
Q_{in} = 57cfs

Required Pond:

Area @ Elev = 177 = 29,620
Side Slope (down) = 4:1
Outlet = 24" RCP, Flow out of pond = 173.5
Any amount of excavation below 173.5 is O.K. as desired.

12/22/97 CWB

For Balance of Area "A", Use on site SWS or overland flow to convey water to Pond.

Area "B" Southeast Corner of Site:

$A = 0.75$ Acres
$C_5 = 0.69$ (Neighborhood Business)
$C_{100} = 0.80$ (Ditto)
$T_c = 15$ minutes
$i_5 = 4.56$"/hr
$i_{100} = 7.37$"/hr
$Q_5 = 2.4$ cfs
$Q_{100} = 4.4$ cfs

Drainage to Pawnee; Oak Knoll Via Driveways.

Area "C" Southwest Corner of Plat.

Area = 3.7 Acres
$C_5 = 0.69$ $i_5 = 4.56$"/hr
$C_{100} = 0.80$ $i_{100} = 7.37$"/hr
$T_c = 15$ minutes
$Q_5 = 11.4$ cfs
$Q_{100} = 21.8$ cfs

Drainage Via Storm Water Sewer Across KGE Property to West.

HEC1 S/N: 1343000364 HMVersion: 6.33 Data File: HECOX.HC1

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             MAY  1991                 *
*          VERSION 4.0.1E               *
*                                       *
*  RUN DATE  12/22/1997  TIME  15:31:24 *
*                                       *
*****************************************
```

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

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

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:::::::::::::::::::::::::::::::::::::::::::::
:::::::::::::::::::::::::::::::::::::::::::::
:::                                         :::
:::  Full Microcomputer Implementation      :::
:::                 by                      :::
:::         Haestad Methods, Inc.           :::
:::                                         :::
:::::::::::::::::::::::::::::::::::::::::::::
:::::::::::::::::::::::::::::::::::::::::::::
```

37 Brookside Road * Waterbury, Connecticut 06708 * (203) 755-1666

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

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

□□

HEC-1 INPUT

```
     LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
*** FREE ***                                                                  PAGE  1
        1
        2          ID    HECOX (OAK KNOLL) PLAT
        3          IT       5
        4          IN      30                      289
                   IO       1

        5
        6          KK    DEVEL
        7          PC        0    0.04    0.08     .12     .17     .22     .27     .32     .37     .43
        8          PC      .49     .56     .62     .69     .77     .85     .94    1.04    1.15    1.27
        9          PC     1.41    1.59    1.83    2.21    5.17    5.73    6.02    6.23    6.40    6.54
       10          PC     6.65    6.76    6.86    6.95    7.02    7.09    7.16    7.23    7.29    7.36
       11          PC     7.43    7.49    7.54    7.59    7.63    7.68    7.72    7.76    7.80
       12          BA   0.0166
       13          LS        0      93
                   UD     0.20

       14
       15          KK    POND
       16          RS        1    ELEV   173.5
       17          SA     0.52    0.55    0.56    0.63    0.68
       18          SE    173.5     174     175     176     177
       19          SQ      0.1       2       8      18      28
       20          SE    173.5     174     175     176     177
6.33       Data File: HECOX.HC1
```


```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             MAY  1991                 *
*          VERSION 4.0.1E               *
*                                       *
*  RUN DATE  12/22/1997  TIME  15:31:24 *
*                                       *
*****************************************
```


□□HEC1 S/N: 1343000364 HMVersion:


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

4 IO OUTPUT CONTROL VARIABLES

IPRNT	1	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	289	NUMBER OF HYDROGRAPH ORDINATES
NDDATE	2 0	ENDING DATE
NDTIME	0000	ENDING TIME
ICENT	19	CENTURY MARK

COMPUTATION INTERVAL 0.08 HOURS

```
                     TOTAL TIME BASE   24.00 HOURS
        ENGLISH UNITS
            DRAINAGE AREA            SQUARE MILES
            PRECIPITATION DEPTH      INCHES
            LENGTH, ELEVATION        FEET
            FLOW                     CUBIC FEET PER SECOND
            STORAGE VOLUME           ACRE-FEET
            SURFACE AREA             ACRES
            TEMPERATURE              DEGREES FAHRENHEIT

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

                 **************
                 *            *
   5 KK          *    DEVEL   *
                 *            *
                 **************

   3 IN              TIME DATA FOR INPUT TIME SERIES
                        JXMIN           30  TIME INTERVAL IN MINUTES
                        JXDATE       1   0  STARTING DATE
                        JXTIME           0  STARTING TIME

                   SUBBASIN RUNOFF DATA

  11 BA              SUBBASIN CHARACTERISTICS
                        TAREA         0.02  SUBBASIN AREA

                     PRECIPITATION DATA

   6 PB                 STORM         7.80  BASIN TOTAL PRECIPITATION
   6 PI              INCREMENTAL PRECIPITATION PATTERN
                  0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                  0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                  0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                  0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                  0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                  0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                  0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                  0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                  0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                  0.01      0.01      0.02      0.01      0.01      0.01      0.02      0.02      0.02      0.02
                  0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02
                  0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02
                  0.03      0.03      0.03      0.03      0.03      0.03      0.04      0.04      0.04      0.04
                  0.04      0.04      0.06      0.06      0.06      0.06      0.06      0.06      0.49      0.49
                  0.49      0.49      0.49      0.49      0.09      0.09      0.09      0.09      0.09      0.09
                  0.05      0.05      0.05      0.05      0.05      0.05      0.03      0.04      0.03      0.03
                  0.04      0.03      0.03      0.03      0.03      0.03      0.03      0.03      0.02      0.02
                  0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02
                  0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02
                  0.02      0.02      0.01      0.02      0.02      0.01      0.01      0.01      0.01      0.01
                  0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                  0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                  0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                  0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                  0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                  0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                  0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                  0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                  0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01

  12 LS              SCS LOSS RATE
                        STRTL         0.15  INITIAL ABSTRACTION
                        CRVNBR       93.00  CURVE NUMBER
                        RTIMP         0.00  PERCENT IMPERVIOUS AREA

  13 UD              SCS DIMENSIONLESS UNITGRAPH
                        TLAG          0.20  LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG                                       ***

                                                           UNIT HYDROGRAPH
                                                       14 END-OF-PERIOD ORDINATES
              8.        27.        33.        26.        15.         6.         5.         3.         2.         1.
              1.         0.         0.         0.
*******************************************************************************************************************

***************************************************************************************************************************
                                              HYDROGRAPH AT STATION    DEVEL
***************************************************************************************************************************

  DA MON HRMN  ORD     RAIN    LOSS  EXCESS     COMP Q      *    DA MON HRMN  ORD     RAIN    LOSS  EXCESS     COMP Q
                                                            *
   1     0000    1     0.00    0.00    0.00         0.      *     1     1205  146     0.09    0.00    0.09        56.
   1     0005    2     0.01    0.01    0.00         0.      *     1     1210  147     0.09    0.00    0.09        47.
   1     0010    3     0.01    0.01    0.00         0.      *     1     1215  148     0.09    0.00    0.09        35.
   1     0015    4     0.01    0.01    0.00         0.      *     1     1220  149     0.09    0.00    0.09        25.
   1     0020    5     0.01    0.01    0.00         0.      *     1     1225  150     0.09    0.00    0.09        19.
   1     0025    6     0.01    0.01    0.00         0.      *     1     1230  151     0.09    0.00    0.09        16.
   1     0030    7     0.01    0.01    0.00         0.      *     1     1235  152     0.05    0.00    0.05        14.
   1     0035    8     0.01    0.01    0.00         0.      *     1     1240  153     0.05    0.00    0.05        12.
   1     0040    9     0.01    0.01    0.00         0.      *     1     1245  154     0.05    0.00    0.05        10.
   1     0045   10     0.01    0.01    0.00         0.      *     1     1250  155     0.05    0.00    0.05         8.
   1     0050   11     0.01    0.01    0.00         0.      *     1     1255  156     0.05    0.00    0.05         7.
   1     0055   12     0.01    0.01    0.00         0.      *     1     1300  157     0.05    0.00    0.05         7.
   1     0100   13     0.01    0.01    0.00         0.      *     1     1305  158     0.03    0.00    0.03         6.
   1     0105   14     0.01    0.01    0.00         0.      *     1     1310  159     0.04    0.00    0.03         6.
   1     0110   15     0.01    0.01    0.00         0.      *     1     1315  160     0.03    0.00    0.03         5.
   1     0115   16     0.01    0.01    0.00         0.      *     1     1320  161     0.03    0.00    0.03         5.
   1     0120   17     0.01    0.01    0.00         0.      *     1     1325  162     0.04    0.00    0.03         5.
   1     0125   18     0.01    0.01    0.00         0.      *     1     1330  163     0.03    0.00    0.03         5.
   1     0130   19     0.01    0.01    0.00         0.      *     1     1335  164     0.03    0.00    0.03         4.
   1     0135   20     0.01    0.01    0.00         0.      *     1     1340  165     0.03    0.00    0.03         4.
   1     0140   21     0.01    0.01    0.00         0.      *     1     1345  166     0.03    0.00    0.03         4.
```

1	0145	22	0.01	0.01	0.00	0.	*	1	1350	167	0.03	0.00	0.03	4.
1	0150	23	0.01	0.01	0.00	0.	*	1	1355	168	0.03	0.00	0.03	4.
1	0155	24	0.01	0.01	0.00	0.	*	1	1400	169	0.03	0.00	0.03	4.
1	0200	25	0.01	0.01	0.00	0.	*	1	1405	170	0.02	0.00	0.02	4.
1	0205	26	0.01	0.01	0.00	0.	*	1	1410	171	0.02	0.00	0.02	3.
1	0210	27	0.01	0.01	0.00	0.	*	1	1415	172	0.02	0.00	0.02	3.
1	0215	28	0.01	0.01	0.00	0.	*	1	1420	173	0.02	0.00	0.02	3.
1	0220	29	0.01	0.01	0.00	0.	*	1	1425	174	0.02	0.00	0.02	3.
1	0225	30	0.01	0.01	0.00	0.	*	1	1430	175	0.02	0.00	0.02	3.
1	0230	31	0.01	0.01	0.00	0.	*	1	1435	176	0.02	0.00	0.02	3.
1	0235	32	0.01	0.01	0.00	0.	*	1	1440	177	0.02	0.00	0.02	3.
1	0240	33	0.01	0.01	0.00	0.	*	1	1445	178	0.02	0.00	0.02	3.
1	0245	34	0.01	0.01	0.00	0.	*	1	1450	179	0.02	0.00	0.02	3.
1	0250	35	0.01	0.01	0.00	0.	*	1	1455	180	0.02	0.00	0.02	3.
1	0255	36	0.01	0.01	0.00	0.	*	1	1500	181	0.02	0.00	0.02	2.
1	0300	37	0.01	0.01	0.00	0.	*	1	1505	182	0.02	0.00	0.02	2.
1	0305	38	0.01	0.01	0.00	0.	*	1	1510	183	0.02	0.00	0.02	2.
1	0310	39	0.01	0.01	0.00	0.	*	1	1515	184	0.02	0.00	0.02	2.
1	0315	40	0.01	0.01	0.00	0.	*	1	1520	185	0.02	0.00	0.02	2.
1	0320	41	0.01	0.01	0.00	0.	*	1	1525	186	0.02	0.00	0.02	2.
1	0325	42	0.01	0.01	0.00	0.	*	1	1530	187	0.02	0.00	0.02	2.
1	0330	43	0.01	0.01	0.00	0.	*	1	1535	188	0.02	0.00	0.02	2.
1	0335	44	0.01	0.01	0.00	0.	*	1	1540	189	0.02	0.00	0.02	2.
1	0340	45	0.01	0.01	0.00	0.	*	1	1545	190	0.02	0.00	0.02	2.
1	0345	46	0.01	0.01	0.00	0.	*	1	1550	191	0.02	0.00	0.02	2.
1	0350	47	0.01	0.01	0.00	0.	*	1	1555	192	0.02	0.00	0.02	2.
1	0355	48	0.01	0.01	0.00	0.	*	1	1600	193	0.02	0.00	0.02	2.
1	0400	49	0.01	0.01	0.00	0.	*	1	1605	194	0.01	0.00	0.01	2.
1	0405	50	0.01	0.01	0.00	0.	*	1	1610	195	0.01	0.00	0.01	2.
1	0410	51	0.01	0.01	0.00	0.	*	1	1615	196	0.02	0.00	0.01	2.
1	0415	52	0.01	0.01	0.00	0.	*	1	1620	197	0.01	0.00	0.01	2.
1	0420	53	0.01	0.01	0.00	0.	*	1	1625	198	0.01	0.00	0.01	2.
1	0425	54	0.01	0.01	0.00	0.	*	1	1630	199	0.01	0.00	0.01	2.
1	0430	55	0.01	0.01	0.00	0.	*	1	1635	200	0.01	0.00	0.01	2.
1	0435	56	0.01	0.01	0.00	0.	*	1	1640	201	0.01	0.00	0.01	2.
1	0440	57	0.01	0.01	0.00	0.	*	1	1645	202	0.01	0.00	0.01	2.
1	0445	58	0.01	0.01	0.00	0.	*	1	1650	203	0.01	0.00	0.01	2.
1	0450	59	0.01	0.01	0.00	0.	*	1	1655	204	0.01	0.00	0.01	2.
1	0455	60	0.01	0.00	0.01	0.	*	1	1700	205	0.01	0.00	0.01	2.
1	0500	61	0.01	0.00	0.01	0.	*	1	1705	206	0.01	0.00	0.01	2.
1	0505	62	0.01	0.01	0.01	0.	*	1	1710	207	0.01	0.00	0.01	2.
1	0510	63	0.01	0.01	0.01	0.	*	1	1715	208	0.01	0.00	0.01	2.
1	0515	64	0.01	0.01	0.01	0.	*	1	1720	209	0.01	0.00	0.01	1.
1	0520	65	0.01	0.01	0.01	0.	*	1	1725	210	0.01	0.00	0.01	1.
1	0525	66	0.01	0.01	0.01	0.	*	1	1730	211	0.01	0.00	0.01	1.
1	0530	67	0.01	0.01	0.01	0.	*	1	1735	212	0.01	0.00	0.01	1.
1	0535	68	0.01	0.00	0.01	0.	*	1	1740	213	0.01	0.00	0.01	1.
1	0540	69	0.01	0.00	0.01	0.	*	1	1745	214	0.01	0.00	0.01	1.
1	0545	70	0.01	0.00	0.01	0.	*	1	1750	215	0.01	0.00	0.01	1.
1	0550	71	0.01	0.00	0.01	0.	*	1	1755	216	0.01	0.00	0.01	1.
1	0555	72	0.01	0.00	0.01	0.	*	1	1800	217	0.01	0.00	0.01	1.
1	0600	73	0.01	0.00	0.01	0.	*	1	1805	218	0.01	0.00	0.01	1.
1	0605	74	0.01	0.00	0.01	0.	*	1	1810	219	0.01	0.00	0.01	1.
1	0610	75	0.01	0.00	0.01	0.	*	1	1815	220	0.01	0.00	0.01	1.
1	0615	76	0.01	0.00	0.01	0.	*	1	1820	221	0.01	0.00	0.01	1.
1	0620	77	0.01	0.00	0.01	0.	*	1	1825	222	0.01	0.00	0.01	1.
1	0625	78	0.01	0.00	0.01	0.	*	1	1830	223	0.01	0.00	0.01	1.
1	0630	79	0.01	0.00	0.01	0.	*	1	1835	224	0.01	0.00	0.01	1.
1	0635	80	0.01	0.00	0.01	0.	*	1	1840	225	0.01	0.00	0.01	1.
1	0640	81	0.01	0.00	0.01	0.	*	1	1845	226	0.01	0.00	0.01	1.
1	0645	82	0.01	0.00	0.01	0.	*	1	1850	227	0.01	0.00	0.01	1.
1	0650	83	0.01	0.00	0.01	0.	*	1	1855	228	0.01	0.00	0.01	1.
1	0655	84	0.01	0.00	0.01	0.	*	1	1900	229	0.01	0.00	0.01	1.
1	0700	85	0.01	0.00	0.01	0.	*	1	1905	230	0.01	0.00	0.01	1.
1	0705	86	0.01	0.00	0.01	0.	*	1	1910	231	0.01	0.00	0.01	1.
1	0710	87	0.01	0.00	0.01	0.	*	1	1915	232	0.01	0.00	0.01	1.
1	0715	88	0.01	0.00	0.01	0.	*	1	1920	233	0.01	0.00	0.01	1.
1	0720	89	0.01	0.00	0.01	0.	*	1	1925	234	0.01	0.00	0.01	1.
1	0725	90	0.01	0.00	0.01	0.	*	1	1930	235	0.01	0.00	0.01	1.
1	0730	91	0.01	0.00	0.01	0.	*	1	1935	236	0.01	0.00	0.01	1.
1	0735	92	0.01	0.00	0.01	0.	*	1	1940	237	0.01	0.00	0.01	1.
1	0740	93	0.01	0.00	0.01	0.	*	1	1945	238	0.01	0.00	0.01	1.
1	0745	94	0.02	0.00	0.01	0.	*	1	1950	239	0.01	0.00	0.01	1.
1	0750	95	0.01	0.00	0.01	0.	*	1	1955	240	0.01	0.00	0.01	1.
1	0755	96	0.01	0.00	0.01	0.	*	1	2000	241	0.01	0.00	0.01	1.
1	0800	97	0.01	0.00	0.01	0.	*	1	2005	242	0.01	0.00	0.01	1.
1	0805	98	0.02	0.00	0.01	0.	*	1	2010	243	0.01	0.00	0.01	1.
1	0810	99	0.02	0.00	0.01	0.	*	1	2015	244	0.01	0.00	0.01	1.
1	0815	100	0.02	0.00	0.01	0.	*	1	2020	245	0.01	0.00	0.01	1.
1	0820	101	0.02	0.00	0.01	0.	*	1	2025	246	0.01	0.00	0.01	1.
1	0825	102	0.02	0.00	0.01	0.	*	1	2030	247	0.01	0.00	0.01	1.
1	0830	103	0.02	0.00	0.01	0.	*	1	2035	248	0.01	0.00	0.01	1.
1	0835	104	0.02	0.00	0.01	0.	*	1	2040	249	0.01	0.00	0.01	1.
1	0840	105	0.02	0.00	0.01	0.	*	1	2045	250	0.01	0.00	0.01	1.
1	0845	106	0.02	0.00	0.01	0.	*	1	2050	251	0.01	0.00	0.01	1.
1	0850	107	0.02	0.00	0.01	0.	*	1	2055	252	0.01	0.00	0.01	1.
1	0855	108	0.02	0.00	0.01	0.	*	1	2100	253	0.01	0.00	0.01	1.
1	0900	109	0.02	0.00	0.01	0.	*	1	2105	254	0.01	0.00	0.01	1.
1	0905	110	0.02	0.00	0.01	0.	*	1	2110	255	0.01	0.00	0.01	1.
1	0910	111	0.02	0.00	0.02	0.	*	1	2115	256	0.01	0.00	0.01	1.
1	0915	112	0.02	0.00	0.02	0.	*	1	2120	257	0.01	0.00	0.01	1.
1	0920	113	0.02	0.00	0.02	0.	*	1	2125	258	0.01	0.00	0.01	1.
1	0925	114	0.02	0.00	0.02	0.	*	1	2130	259	0.01	0.00	0.01	1.
1	0930	115	0.02	0.00	0.02	0.	*	1	2135	260	0.01	0.00	0.01	1.
1	0935	116	0.02	0.00	0.02	0.	*	1	2140	261	0.01	0.00	0.01	1.
1	0940	117	0.02	0.00	0.02	0.	*	1	2145	262	0.01	0.00	0.01	1.
1	0945	118	0.02	0.00	0.02	0.	*	1	2150	263	0.01	0.00	0.01	1.
1	0950	119	0.02	0.00	0.02	0.	*	1	2155	264	0.01	0.00	0.01	1.
1	0955	120	0.02	0.00	0.02	0.	*	1	2200	265	0.01	0.00	0.01	1.
1	1000	121	0.02	0.00	0.02	0.	*	1	2205	266	0.01	0.00	0.01	1.
1	1005	122	0.03	0.00	0.02	0.	*	1	2210	267	0.01	0.00	0.01	1.
1	1010	123	0.03	0.00	0.03	0.	*	1	2215	268	0.01	0.00	0.01	1.
1	1015	124	0.03	0.00	0.03	0.	*	1	2220	269	0.01	0.00	0.01	1.
1	1020	125	0.03	0.00	0.03	0.	*	1	2225	270	0.01	0.00	0.01	1.
1	1025	126	0.03	0.00	0.03	0.	*	1	2230	271	0.01	0.00	0.01	1.
1	1030	127	0.03	0.00	0.03	0.	*	1	2235	272	0.01	0.00	0.01	1.
1	1035	128	0.03	0.00	0.03	0.	*	1	2240	273	0.01	0.00	0.01	1.
1	1040	129	0.04	0.00	0.04	0.	*	1	2245	274	0.01	0.00	0.01	1.
1	1045	130	0.04	0.00	0.04	0.	*	1	2250	275	0.01	0.00	0.01	1.
1	1050	131	0.04	0.00	0.04	0.	*	1	2255	276	0.01	0.00	0.01	1.
1	1055	132	0.04	0.00	0.04	0.	*	1	2300	277	0.01	0.00	0.01	1.
1	1100	133	0.04	0.00	0.04	0.	*	1	2305	278	0.01	0.00	0.01	1.
1	1105	134	0.06	0.01	0.06	5.	*	1	2310	279	0.01	0.00	0.01	1.

1	1110	135	0.06	0.01	0.06	5.	*	1	2315	280	0.01	0.00	0.01	1.
1	1115	136	0.06	0.01	0.06	6.	*	1	2320	281	0.01	0.00	0.01	1.
1	1120	137	0.06	0.01	0.06	7.	*	1	2325	282	0.01	0.00	0.01	1.
1	1125	138	0.06	0.00	0.06	7.	*	1	2330	283	0.01	0.00	0.01	1.
1	1130	139	0.06	0.00	0.06	7.	*	1	2335	284	0.01	0.00	0.01	1.
1	1135	140	0.49	0.03	0.46	11.	*	1	2340	285	0.01	0.00	0.01	1.
1	1140	141	0.49	0.02	0.47	22.	*	1	2345	286	0.01	0.00	0.01	1.
1	1145	142	0.49	0.02	0.48	35.	*	1	2350	287	0.01	0.00	0.01	1.
1	1150	143	0.49	0.01	0.48	46.	*	1	2355	288	0.01	0.00	0.01	1.
1	1155	144	0.49	0.01	0.48	53.	*	2	0000	289	0.01	0.00	0.01	1.
1	1200	145	0.49	0.01	0.48	57.	*							

TOTAL RAINFALL = 7.80, TOTAL LOSS = 0.84, TOTAL EXCESS = 6.96

PEAK FLOW TIME MAXIMUM AVERAGE FLOW

		6-HR	24-HR	72-HR	24.00-HR
(CFS)	(HR)				
57.	12.00				
	(CFS)	9.	3.	3.	3.
	(INCHES)	5.261	6.943	6.943	6.943
	(AC-FT)	5.	6.	6.	6.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

14 KK * POND *

HYDROGRAPH ROUTING DATA

15 RS STORAGE ROUTING

NSTPS 1 NUMBER OF SUBREACHES

ITYP ELEV TYPE OF INITIAL CONDITION

RSVRIC 173.50 INITIAL CONDITION

X 0.00 WORKING R AND D COEFFICIENT

16 SA	AREA	0.5	0.6	0.6	0.6	0.7
17 SE	ELEVATION	173.50	174.00	175.00	176.00	177.00
18 SQ	DISCHARGE	0.	2.	8.	18.	28.
19 SE	ELEVATION	173.50	174.00	175.00	176.00	177.00

***

COMPUTED STORAGE-ELEVATION DATA

STORAGE	0.00	0.27	0.82	1.42	2.07
ELEVATION	173.50	174.00	175.00	176.00	177.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.27	0.82	1.42	2.07
OUTFLOW	0.10	2.00	8.00	18.00	28.00
ELEVATION	173.50	174.00	175.00	176.00	177.00

HYDROGRAPH AT STATION POND

DA MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	0000	1	0.	0.0	173.5	*	1	0805	98	1.	0.1	173.7	*	1	1610	195	3.	0.4	174.2
1	0005	2	0.	0.0	173.5	*	1	0810	99	1.	0.1	173.7	*	1	1615	196	3.	0.4	174.2
1	0010	3	0.	0.0	173.5	*	1	0815	100	1.	0.1	173.7	*	1	1620	197	3.	0.4	174.2
1	0015	4	0.	0.0	173.5	*	1	0820	101	1.	0.1	173.8	*	1	1625	198	3.	0.4	174.2
1	0020	5	0.	0.0	173.5	*	1	0825	102	1.	0.1	173.8	*	1	1630	199	3.	0.3	174.1
1	0025	6	0.	0.0	173.5	*	1	0830	103	1.	0.1	173.8	*	1	1635	200	3.	0.3	174.1
1	0030	7	0.	0.0	173.5	*	1	0835	104	1.	0.1	173.8	*	1	1640	201	3.	0.3	174.1
1	0035	8	0.	0.0	173.5	*	1	0840	105	1.	0.2	173.8	*	1	1645	202	3.	0.3	174.1
1	0040	9	0.	0.0	173.5	*	1	0845	106	1.	0.2	173.8	*	1	1650	203	3.	0.3	174.1
1	0045	10	0.	0.0	173.5	*	1	0850	107	1.	0.2	173.8	*	1	1655	204	3.	0.3	174.1
1	0050	11	0.	0.0	173.5	*	1	0855	108	1.	0.2	173.8	*	1	1700	205	2.	0.3	174.1
1	0055	12	0.	0.0	173.5	*	1	0900	109	1.	0.2	173.8	*	1	1705	206	2.	0.3	174.1
1	0100	13	0.	0.0	173.5	*	1	0905	110	1.	0.2	173.8	*	1	1710	207	2.	0.3	174.1
1	0105	14	0.	0.0	173.5	*	1	0910	111	1.	0.2	173.8	*	1	1715	208	2.	0.3	174.0
1	0110	15	0.	0.0	173.5	*	1	0915	112	1.	0.2	173.8	*	1	1720	209	2.	0.3	174.0
1	0115	16	0.	0.0	173.5	*	1	0920	113	1.	0.2	173.8	*	1	1725	210	2.	0.3	174.0
1	0120	17	0.	0.0	173.5	*	1	0925	114	1.	0.2	173.8	*	1	1730	211	2.	0.3	174.0
1	0125	18	0.	0.0	173.5	*	1	0930	115	1.	0.2	173.9	*	1	1735	212	2.	0.3	174.0
1	0130	19	0.	0.0	173.5	*	1	0935	116	1.	0.2	173.9	*	1	1740	213	2.	0.3	174.0
1	0135	20	0.	0.0	173.5	*	1	0940	117	2.	0.2	173.9	*	1	1745	214	2.	0.3	174.0
1	0140	21	0.	0.0	173.5	*	1	0945	118	2.	0.2	173.9	*	1	1750	215	2.	0.3	174.0
1	0145	22	0.	0.0	173.5	*	1	0950	119	2.	0.2	173.9	*	1	1755	216	2.	0.3	174.0
1	0150	23	0.	0.0	173.5	*	1	0955	120	2.	0.2	173.9	*	1	1800	217	2.	0.3	174.0
1	0155	24	0.	0.0	173.5	*	1	1000	121	2.	0.2	173.9	*	1	1805	218	2.	0.3	174.0
1	0200	25	0.	0.0	173.5	*	1	1005	122	2.	0.2	173.9	*	1	1810	219	2.	0.3	174.0
1	0205	26	0.	0.0	173.5	*	1	1010	123	2.	0.2	173.9	*	1	1815	220	2.	0.2	174.0
1	0210	27	0.	0.0	173.5	*	1	1015	124	2.	0.2	174.0	*	1	1820	221	2.	0.2	174.0
1	0215	28	0.	0.0	173.5	*	1	1020	125	2.	0.3	174.0	*	1	1825	222	2.	0.2	174.0
1	0220	29	0.	0.0	173.5	*	1	1025	126	2.	0.3	174.0	*	1	1830	223	2.	0.2	173.9
1	0225	30	0.	0.0	173.5	*	1	1030	127	2.	0.3	174.0	*	1	1835	224	2.	0.2	173.9
1	0230	31	0.	0.0	173.5	*	1	1035	128	2.	0.3	174.0	*	1	1840	225	2.	0.2	173.9
1	0235	32	0.	0.0	173.5	*	1	1040	129	2.	0.3	174.0	*	1	1845	226	2.	0.2	173.9
1	0240	33	0.	0.0	173.5	*	1	1045	130	2.	0.3	174.1	*	1	1850	227	2.	0.2	173.9
1	0245	34	0.	0.0	173.5	*	1	1050	131	2.	0.3	174.1	*	1	1855	228	2.	0.2	173.9
1	0250	35	0.	0.0	173.5	*	1	1055	132	2.	0.3	174.1	*	1	1900	229	2.	0.2	173.9
1	0255	36	0.	0.0	173.5	*	1	1100	133	3.	0.3	174.1	*	1	1905	230	2.	0.2	173.9
1	0300	37	0.	0.0	173.5	*	1	1105	134	3.	0.3	174.1	*	1	1910	231	2.	0.2	173.9
1	0305	38	0.	0.0	173.5	*	1	1110	135	3.	0.4	174.2	*	1	1915	232	2.	0.2	173.9
1	0310	39	0.	0.0	173.5	*	1	1115	136	3.	0.4	174.2	*	1	1920	233	2.	0.2	173.9
1	0315	40	0.	0.0	173.5	*	1	1120	137	3.	0.4	174.2	*	1	1925	234	2.	0.2	173.9

1	0320	41	0.	0.0	173.5 *	1	1125	138	4.	0.4	174.3 *	1	1930	235	2.	0.2	173.9
1	0325	42	0.	0.0	173.5 *	1	1130	139	4.	0.4	174.3 *	1	1935	236	2.	0.2	173.9
1	0330	43	0.	0.0	173.5 *	1	1135	140	4.	0.5	174.4 *	1	1940	237	2.	0.2	173.9
1	0335	44	0.	0.0	173.5 *	1	1140	141	5.	0.6	174.5 *	1	1945	238	2.	0.2	173.9
1	0340	45	0.	0.0	173.5 *	1	1145	142	7.	0.7	174.8 *	1	1950	239	2.	0.2	173.9
1	0345	46	0.	0.0	173.5 *	1	1150	143	10.	0.9	175.2 *	1	1955	240	2.	0.2	173.9
1	0350	47	0.	0.0	173.5 *	1	1155	144	14.	1.2	175.6 *	1	2000	241	2.	0.2	173.9
1	0355	48	0.	0.0	173.5 *	1	1200	145	19.	1.5	176.1 *	1	2005	242	2.	0.2	173.9
1	0400	49	0.	0.0	173.5 *	1	1205	146	22.	1.7	176.4 *	1	2010	243	2.	0.2	173.9
1	0405	50	0.	0.0	173.5 *	1	1210	147	25.	1.9	176.7 *	1	2015	244	2.	0.2	173.9
1	0410	51	0.	0.0	173.5 *	1	1215	148	27.	2.0	176.9 *	1	2020	245	2.	0.2	173.9
1	0415	52	0.	0.0	173.5 *	1	1220	149	27.	2.0	176.9 *	1	2025	246	2.	0.2	173.9
1	0420	53	0.	0.0	173.5 *	1	1225	150	27.	2.0	176.9 *	1	2030	247	2.	0.2	173.9
1	0425	54	0.	0.0	173.5 *	1	1230	151	26.	1.9	176.8 *	1	2035	248	2.	0.2	173.9
1	0430	55	0.	0.0	173.5 *	1	1235	152	25.	1.9	176.7 *	1	2040	249	2.	0.2	173.9
1	0435	56	0.	0.0	173.5 *	1	1240	153	23.	1.8	176.5 *	1	2045	250	1.	0.2	173.9
1	0440	57	0.	0.0	173.6 *	1	1245	154	22.	1.7	176.4 *	1	2050	251	1.	0.2	173.9
1	0445	58	0.	0.0	173.6 *	1	1250	155	21.	1.6	176.3 *	1	2055	252	1.	0.2	173.9
1	0450	59	0.	0.0	173.6 *	1	1255	156	20.	1.5	176.2 *	1	2100	253	1.	0.2	173.9
1	0455	60	0.	0.0	173.6 *	1	1300	157	18.	1.4	176.0 *	1	2105	254	1.	0.2	173.8
1	0500	61	0.	0.0	173.6 *	1	1305	158	17.	1.4	175.9 *	1	2110	255	1.	0.2	173.8
1	0505	62	0.	0.0	173.6 *	1	1310	159	16.	1.3	175.8 *	1	2115	256	1.	0.2	173.8
1	0510	63	0.	0.0	173.6 *	1	1315	160	15.	1.2	175.7 *	1	2120	257	1.	0.2	173.8
1	0515	64	0.	0.0	173.6 *	1	1320	161	14.	1.2	175.6 *	1	2125	258	1.	0.2	173.8
1	0520	65	0.	0.0	173.6 *	1	1325	162	13.	1.1	175.5 *	1	2130	259	1.	0.2	173.8
1	0525	66	0.	0.0	173.6 *	1	1330	163	12.	1.0	175.4 *	1	2135	260	1.	0.2	173.8
1	0530	67	0.	0.0	173.6 *	1	1335	164	11.	1.0	175.3 *	1	2140	261	1.	0.2	173.8
1	0535	68	0.	0.1	173.6 *	1	1340	165	10.	1.0	175.2 *	1	2145	262	1.	0.2	173.8
1	0540	69	0.	0.1	173.6 *	1	1345	166	10.	0.9	175.2 *	1	2150	263	1.	0.2	173.8
1	0545	70	1.	0.1	173.6 *	1	1350	167	9.	0.9	175.1 *	1	2155	264	1.	0.2	173.8
1	0550	71	1.	0.1	173.6 *	1	1355	168	8.	0.8	175.0 *	1	2200	265	1.	0.2	173.8
1	0555	72	1.	0.1	173.6 *	1	1400	169	8.	0.8	175.0 *	1	2205	266	1.	0.2	173.8
1	0600	73	1.	0.1	173.6 *	1	1405	170	8.	0.8	174.9 *	1	2210	267	1.	0.2	173.8
1	0605	74	1.	0.1	173.6 *	1	1410	171	7.	0.8	174.9 *	1	2215	268	1.	0.2	173.8
1	0610	75	1.	0.1	173.6 *	1	1415	172	7.	0.7	174.8 *	1	2220	269	1.	0.2	173.8
1	0615	76	1.	0.1	173.6 *	1	1420	173	7.	0.7	174.8 *	1	2225	270	1.	0.2	173.8
1	0620	77	1.	0.1	173.6 *	1	1425	174	7.	0.7	174.8 *	1	2230	271	1.	0.2	173.8
1	0625	78	1.	0.1	173.6 *	1	1430	175	6.	0.7	174.7 *	1	2235	272	1.	0.2	173.8
1	0630	79	1.	0.1	173.6 *	1	1435	176	6.	0.6	174.7 *	1	2240	273	1.	0.1	173.8
1	0635	80	1.	0.1	173.6 *	1	1440	177	6.	0.6	174.6 *	1	2245	274	1.	0.1	173.8
1	0640	81	1.	0.1	173.6 *	1	1445	178	6.	0.6	174.6 *	1	2250	275	1.	0.1	173.8
1	0645	82	1.	0.1	173.7 *	1	1450	179	5.	0.6	174.6 *	1	2255	276	1.	0.1	173.8
1	0650	83	1.	0.1	173.7 *	1	1455	180	5.	0.6	174.5 *	1	2300	277	1.	0.1	173.8
1	0655	84	1.	0.1	173.7 *	1	1500	181	5.	0.5	174.5 *	1	2305	278	1.	0.1	173.8
1	0700	85	1.	0.1	173.7 *	1	1505	182	5.	0.5	174.5 *	1	2310	279	1.	0.1	173.8
1	0705	86	1.	0.1	173.7 *	1	1510	183	5.	0.5	174.4 *	1	2315	280	1.	0.1	173.8
1	0710	87	1.	0.1	173.7 *	1	1515	184	4.	0.5	174.4 *	1	2320	281	1.	0.1	173.8
1	0715	88	1.	0.1	173.7 *	1	1520	185	4.	0.5	174.4 *	1	2325	282	1.	0.1	173.8
1	0720	89	1.	0.1	173.7 *	1	1525	186	4.	0.5	174.4 *	1	2330	283	1.	0.1	173.8
1	0725	90	1.	0.1	173.7 *	1	1530	187	4.	0.5	174.3 *	1	2335	284	1.	0.1	173.7
1	0730	91	1.	0.1	173.7 *	1	1535	188	4.	0.4	174.3 *	1	2340	285	1.	0.1	173.7
1	0735	92	1.	0.1	173.7 *	1	1540	189	4.	0.4	174.3 *	1	2345	286	1.	0.1	173.7
1	0740	93	1.	0.1	173.7 *	1	1545	190	4.	0.4	174.3 *	1	2350	287	1.	0.1	173.7
1	0745	94	1.	0.1	173.7 *	1	1550	191	4.	0.4	174.3 *	1	2355	288	1.	0.1	173.7
1	0750	95	1.	0.1	173.7 *	1	1555	192	3.	0.4	174.2 *	2	0000	289	1.	0.1	173.7
1	0755	96	1.	0.1	173.7 *	1	1600	193	3.	0.4	174.2 *						
1	0800	97	1.	0.1	173.7 *	1	1605	194	3.	0.4	174.2 *						

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.00-HR
27.	12.33	(CFS)	9.	3.	3.	3.
		(INCHES)	5.138	6.820	6.820	6.820
		(AC-FT)	5.	6.	6.	6.

(HR)

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	24.00-HR
2.	12.33	(AC-FT)	1.	0.	0.	0.

(HR)

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	24.00-HR
176.91	12.33	(FEET)	174.96	174.04	174.04	174.04

(HR)

CUMULATIVE AREA = 0.02 SQ MI

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	DEVEL	57.	12.00	9.	3.	3.	0.02		
ROUTED TO	POND	27.	12.33	9.	3.	3.	0.02	176.91	12.33

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

1/5/99 CMB

Revised Pond Routing
The Plaza @ Cherry Creek Hills
Drainage

New Area = Area A: 10.6 Acres
Area C: 3.7 Acres
Total 14.3 Acres (0.02234 Sq. Miles)

Use Same T_c = 20 minutes

Same outlet Structure As before

With Same pond Area / Storage Configuration
Max W.S. Elev. = 177.89 > Target of 177.3
Qmax = 37 cfs
Need larger Pond Surface

@ 10% Expansion WS = 177.69 ; Qmax = 35 cfs

	Old (Ac)	New (Ac)
177	0.68	0.75
176	0.63	0.69
175	0.56	0.62
174	0.55	0.60
173.5	0.52	0.57

1/5/99 CMB

Try 20% Expension over Orig. Size

	OLD (AC)	NEW (AC)
177	0.68	0.82
176	0.63	0.75
175	0.56	0.67
174	0.55	0.66
173.5	0.52	0.62

Results: WS: 177.52; Qp = 33 cfs
Very close

Last Trial; Use Additional 10% S. Area.

	PREVIOUS TRIAL	THIS TRIAL
177	0.82	0.90
176	0.75	0.83
175	9.67	0.737
174	0.66	0.73
173.5	0.62	0.68

Use This Size WS: 177.32 (100 yr.)
Qp = 31 cfs (Interpolated).

HEC1 S/N: 1343000364 HMVersion: 6.33 Data File: HECOX.HC1

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             MAY   1991                *
*           VERSION 4.0.1E              *
*                                       *
*  RUN DATE  01/05/1999  TIME  10:37:46 *
*                                       *
*****************************************
```

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

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

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::::::::::::::::::::::::::::::::::::::::::::
::::::::::::::::::::::::::::::::::::::::::::
:::                                        :::
:::  Full Microcomputer Implementation     :::
:::                 by                     :::
:::         Haestad Methods, Inc.          :::
:::                                        :::
::::::::::::::::::::::::::::::::::::::::::::
::::::::::::::::::::::::::::::::::::::::::::
```

37 Brookside Road * Waterbury, Connecticut 06708 * (203) 755-1666

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

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

HEC-1 INPUT


```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
*** FREE ***
    1     ID    REVISED 1-5-99 HECOX PLAT - THE PLAZA AT CHERRY CREEK HILLS
    2     IT       5                    289
    3     IN      30
    4     IO       1

    5     KK    DEVEL
    6     PC        0    0.04    0.08    .12     .17     .22     .27     .32     .37     .43
    7     PC      .49     .56     .62     .69     .77     .85     .94    1.04    1.15    1.27
    8     PC     1.41    1.59    1.83    2.21    5.17    5.73    6.02    6.23    6.40    6.54
    9     PC     6.65    6.76    6.86    6.95    7.02    7.09    7.16    7.23    7.29    7.36
   10     PC     7.43    7.49    7.54    7.59    7.63    7.68    7.72    7.76    7.80
   11     BA  0.02234
   12     LS        0      93
   13     UD     0.20

   14     KK     POND
   15     RS        1    ELEV   173.5
   16     SA     0.68    0.73    0.74    0.83     0.9
   17     SE    173.5     174     175     176     177
   18     SQ      0.1       2       8      18      28
   19     SE    173.5     174     175     176     177
   20     ZZ
```

```
HEC1 S/N: 1343000364          HMVersion: 6.33     Data File: HECOX.HC1

****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*             MAY   1991               *
*           VERSION 4.0.1E             *
*                                      *
* RUN DATE  01/05/1999  TIME  10:37:46 *
*                                      *
****************************************

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

                 REVISED 1-5-99 HECOX PLAT - THE PLAZA AT CHERRY CREEK HILLS
   4 IO         OUTPUT CONTROL VARIABLES
                     IPRNT           1  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         289  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE      2    0  ENDING DATE
                    NDTIME        0000  ENDING TIME
                     ICENT          19  CENTURY MARK

                COMPUTATION INTERVAL    0.08 HOURS
                     TOTAL TIME BASE   24.00 HOURS

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

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

          **************
          *            *
   5 KK   *    DEVEL   *
          *            *
          **************

   3 IN         TIME DATA FOR INPUT TIME SERIES
                    JXMIN          30  TIME INTERVAL IN MINUTES
                   JXDATE      1    0  STARTING DATE
                   JXTIME           0  STARTING TIME

              SUBBASIN RUNOFF DATA

  11 BA         SUBBASIN CHARACTERISTICS
                    TAREA        0.02  SUBBASIN AREA

              PRECIPITATION DATA

   6 PB             STORM        7.80  BASIN TOTAL PRECIPITATION

   6 PI         INCREMENTAL PRECIPITATION PATTERN
```

0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.02
0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04
0.04	0.04	0.06	0.06	0.06	0.06	0.06	0.06	0.49	0.49
0.49	0.49	0.49	0.49	0.09	0.09	0.09	0.09	0.09	0.09
0.05	0.05	0.05	0.05	0.05	0.05	0.03	0.04	0.03	0.03
0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02
0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
0.02	0.02	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01		

```
12 LS          SCS LOSS RATE
                    STRTL        0.15  INITIAL ABSTRACTION
                    CRVNBR      93.00  CURVE NUMBER
                    RTIMP        0.00  PERCENT IMPERVIOUS AREA

13 UD          SCS DIMENSIONLESS UNITGRAPH
                    TLAG         0.20  LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG                    ***

                                       UNIT HYDROGRAPH
                                14 END-OF-PERIOD ORDINATES
        11.      36.      45.      36.      20.      11.       6.       4.       2.       1.
         1.       0.       0.       0.
```

****

HYDROGRAPH AT STATION DEVEL

****

****

DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
1		0000	1	0.00	0.00	0.00	0.	*	1		1205	146	0.09	0.00	0.09	75.
1		0005	2	0.01	0.01	0.00	0.	*	1		1210	147	0.09	0.00	0.09	63.
1		0010	3	0.01	0.01	0.00	0.	*	1		1215	148	0.09	0.00	0.09	47.
1		0015	4	0.01	0.01	0.00	0.	*	1		1220	149	0.09	0.00	0.09	33.
1		0020	5	0.01	0.01	0.00	0.	*	1		1225	150	0.09	0.00	0.09	26.
1		0025	6	0.01	0.01	0.00	0.	*	1		1230	151	0.09	0.00	0.09	22.
1		0030	7	0.01	0.01	0.00	0.	*	1		1235	152	0.05	0.00	0.05	19.
1		0035	8	0.01	0.01	0.00	0.	*	1		1240	153	0.05	0.00	0.05	16.
1		0040	9	0.01	0.01	0.00	0.	*	1		1245	154	0.05	0.00	0.05	13.
1		0045	10	0.01	0.01	0.00	0.	*	1		1250	155	0.05	0.00	0.05	11.
1		0050	11	0.01	0.01	0.00	0.	*	1		1255	156	0.05	0.00	0.05	10.
1		0055	12	0.01	0.01	0.00	0.	*	1		1300	157	0.05	0.00	0.05	9.
1		0100	13	0.01	0.01	0.00	0.	*	1		1305	158	0.03	0.00	0.03	9.
1		0105	14	0.01	0.01	0.00	0.	*	1		1310	159	0.04	0.00	0.03	8.
1		0110	15	0.01	0.01	0.00	0.	*	1		1315	160	0.03	0.00	0.03	7.
1		0115	16	0.01	0.01	0.00	0.	*	1		1320	161	0.03	0.00	0.03	7.

1	0120	17	0.01	0.01	0.00	0.	*	1	1325	162	0.04	0.00	0.03	6.
1	0125	18	0.01	0.01	0.00	0.	*	1	1330	163	0.03	0.00	0.03	6.
1	0130	19	0.01	0.01	0.00	0.	*	1	1335	164	0.03	0.00	0.03	6.
1	0135	20	0.01	0.01	0.00	0.	*	1	1340	165	0.03	0.00	0.03	6.
1	0140	21	0.01	0.01	0.00	0.	*	1	1345	166	0.03	0.00	0.03	5.
1	0145	22	0.01	0.01	0.00	0.	*	1	1350	167	0.03	0.00	0.03	5.
1	0150	23	0.01	0.01	0.00	0.	*	1	1355	168	0.03	0.00	0.03	5.
1	0155	24	0.01	0.01	0.00	0.	*	1	1400	169	0.03	0.00	0.03	5.
1	0200	25	0.01	0.01	0.00	0.	*	1	1405	170	0.02	0.00	0.02	5.
1	0205	26	0.01	0.01	0.00	0.	*	1	1410	171	0.02	0.00	0.02	5.
1	0210	27	0.01	0.01	0.00	0.	*	1	1415	172	0.02	0.00	0.02	4.
1	0215	28	0.01	0.01	0.00	0.	*	1	1420	173	0.02	0.00	0.02	4.
1	0220	29	0.01	0.01	0.00	0.	*	1	1425	174	0.02	0.00	0.02	4.
1	0225	30	0.01	0.01	0.00	0.	*	1	1430	175	0.02	0.00	0.02	4.
1	0230	31	0.01	0.01	0.00	0.	*	1	1435	176	0.02	0.00	0.02	4.
1	0235	32	0.01	0.01	0.00	0.	*	1	1440	177	0.02	0.00	0.02	4.
1	0240	33	0.01	0.01	0.00	0.	*	1	1445	178	0.02	0.00	0.02	4.
1	0245	34	0.01	0.01	0.00	0.	*	1	1450	179	0.02	0.00	0.02	3.
1	0250	35	0.01	0.01	0.00	0.	*	1	1455	180	0.02	0.00	0.02	3.
1	0255	36	0.01	0.01	0.00	0.	*	1	1500	181	0.02	0.00	0.02	3.
1	0300	37	0.01	0.01	0.00	0.	*	1	1505	182	0.02	0.00	0.02	3.
1	0305	38	0.01	0.01	0.00	0.	*	1	1510	183	0.02	0.00	0.02	3.
1	0310	39	0.01	0.01	0.00	0.	*	1	1515	184	0.02	0.00	0.02	3.
1	0315	40	0.01	0.01	0.00	0.	*	1	1520	185	0.02	0.00	0.02	3.
1	0320	41	0.01	0.01	0.00	0.	*	1	1525	186	0.02	0.00	0.02	3.
1	0325	42	0.01	0.01	0.00	0.	*	1	1530	187	0.02	0.00	0.02	3.
1	0330	43	0.01	0.01	0.00	0.	*	1	1535	188	0.02	0.00	0.02	3.
1	0335	44	0.01	0.01	0.00	0.	*	1	1540	189	0.02	0.00	0.02	3.
1	0340	45	0.01	0.01	0.00	0.	*	1	1545	190	0.02	0.00	0.02	3.
1	0345	46	0.01	0.01	0.00	0.	*	1	1550	191	0.02	0.00	0.02	3.
1	0350	47	0.01	0.01	0.00	0.	*	1	1555	192	0.02	0.00	0.02	3.
1	0355	48	0.01	0.01	0.00	1.	*	1	1600	193	0.02	0.00	0.02	3.
1	0400	49	0.01	0.01	0.00	1.	*	1	1605	194	0.01	0.00	0.01	3.
1	0405	50	0.01	0.01	0.00	1.	*	1	1610	195	0.01	0.00	0.01	3.
1	0410	51	0.01	0.01	0.00	1.	*	1	1615	196	0.02	0.00	0.01	3.
1	0415	52	0.01	0.01	0.00	1.	*	1	1620	197	0.01	0.00	0.01	3.
1	0420	53	0.01	0.01	0.00	1.	*	1	1625	198	0.01	0.00	0.01	3.
1	0425	54	0.01	0.01	0.00	1.	*	1	1630	199	0.01	0.00	0.01	3.
1	0430	55	0.01	0.01	0.00	1.	*	1	1635	200	0.01	0.00	0.01	2.
1	0435	56	0.01	0.01	0.00	1.	*	1	1640	201	0.01	0.00	0.01	2.
1	0440	57	0.01	0.01	0.00	1.	*	1	1645	202	0.01	0.00	0.01	2.
1	0445	58	0.01	0.01	0.00	1.	*	1	1650	203	0.01	0.00	0.01	2.
1	0450	59	0.01	0.01	0.00	1.	*	1	1655	204	0.01	0.00	0.01	2.
1	0455	60	0.01	0.00	0.01	1.	*	1	1700	205	0.01	0.00	0.01	2.
1	0500	61	0.01	0.00	0.01	1.	*	1	1705	206	0.01	0.00	0.01	2.
1	0505	62	0.01	0.00	0.01	1.	*	1	1710	207	0.01	0.00	0.01	2.
1	0510	63	0.01	0.01	0.01	1.	*	1	1715	208	0.01	0.00	0.01	2.
1	0515	64	0.01	0.01	0.01	1.	*	1	1720	209	0.01	0.00	0.01	2.
1	0520	65	0.01	0.01	0.01	1.	*	1	1725	210	0.01	0.00	0.01	2.
1	0525	66	0.01	0.01	0.01	1.	*	1	1730	211	0.01	0.00	0.01	2.
1	0530	67	0.01	0.01	0.01	1.	*	1	1735	212	0.01	0.00	0.01	2.
1	0535	68	0.01	0.00	0.01	1.	*	1	1740	213	0.01	0.00	0.01	2.
1	0540	69	0.01	0.00	0.01	1.	*	1	1745	214	0.01	0.00	0.01	2.
1	0545	70	0.01	0.00	0.01	1.	*	1	1750	215	0.01	0.00	0.01	2.
1	0550	71	0.01	0.00	0.01	1.	*	1	1755	216	0.01	0.00	0.01	2.
1	0555	72	0.01	0.00	0.01	1.	*	1	1800	217	0.01	0.00	0.01	2.
1	0600	73	0.01	0.00	0.01	1.	*	1	1805	218	0.01	0.00	0.01	2.
1	0605	74	0.01	0.00	0.01	1.	*	1	1810	219	0.01	0.00	0.01	2.
1	0610	75	0.01	0.00	0.01	1.	*	1	1815	220	0.01	0.00	0.01	2.
1	0615	76	0.01	0.00	0.01	1.	*	1	1820	221	0.01	0.00	0.01	2.
1	0620	77	0.01	0.00	0.01	1.	*	1	1825	222	0.01	0.00	0.01	2.
1	0625	78	0.01	0.00	0.01	1.	*	1	1830	223	0.01	0.00	0.01	2.
1	0630	79	0.01	0.00	0.01	1.	*	1	1835	224	0.01	0.00	0.01	2.
1	0635	80	0.01	0.00	0.01	1.	*	1	1840	225	0.01	0.00	0.01	2.
1	0640	81	0.01	0.00	0.01	1.	*	1	1845	226	0.01	0.00	0.01	2.
1	0645	82	0.01	0.00	0.01	1.	*	1	1850	227	0.01	0.00	0.01	2.
1	0650	83	0.01	0.00	0.01	1.	*	1	1855	228	0.01	0.00	0.01	2.
1	0655	84	0.01	0.00	0.01	2.	*	1	1900	229	0.01	0.00	0.01	2.
1	0700	85	0.01	0.00	0.01	2.	*	1	1905	230	0.01	0.00	0.01	2.
1	0705	86	0.01	0.00	0.01	2.	*	1	1910	231	0.01	0.00	0.01	2.
1	0710	87	0.01	0.00	0.01	2.	*	1	1915	232	0.01	0.00	0.01	2.

1	0715	88	0.01	0.00	0.01	2.	*
1	0720	89	0.01	0.00	0.01	2.	*
1	0725	90	0.01	0.00	0.01	2.	*
1	0730	91	0.01	0.00	0.01	2.	*
1	0735	92	0.01	0.00	0.01	2.	*
1	0740	93	0.01	0.00	0.01	2.	*
1	0745	94	0.02	0.00	0.01	2.	*
1	0750	95	0.01	0.00	0.01	2.	*
1	0755	96	0.01	0.00	0.01	2.	*
1	0800	97	0.01	0.00	0.01	2.	*
1	0805	98	0.02	0.00	0.01	2.	*
1	0810	99	0.02	0.00	0.01	2.	*
1	0815	100	0.02	0.00	0.01	2.	*
1	0820	101	0.02	0.00	0.01	2.	*
1	0825	102	0.02	0.00	0.01	2.	*
1	0830	103	0.02	0.00	0.01	2.	*
1	0835	104	0.02	0.00	0.01	2.	*
1	0840	105	0.02	0.00	0.01	2.	*
1	0845	106	0.02	0.00	0.01	2.	*
1	0850	107	0.02	0.00	0.01	2.	*
1	0855	108	0.02	0.00	0.01	2.	*
1	0900	109	0.02	0.00	0.01	2.	*
1	0905	110	0.02	0.00	0.02	3.	*
1	0910	111	0.02	0.00	0.02	3.	*
1	0915	112	0.02	0.00	0.02	3.	*
1	0920	113	0.02	0.00	0.02	3.	*
1	0925	114	0.02	0.00	0.02	3.	*
1	0930	115	0.02	0.00	0.02	3.	*
1	0935	116	0.02	0.00	0.02	3.	*
1	0940	117	0.02	0.00	0.02	3.	*
1	0945	118	0.02	0.00	0.02	3.	*
1	0950	119	0.02	0.00	0.02	3.	*
1	0955	120	0.02	0.00	0.02	3.	*
1	1000	121	0.02	0.00	0.02	3.	*
1	1005	122	0.03	0.00	0.03	3.	*
1	1010	123	0.03	0.00	0.03	4.	*
1	1015	124	0.03	0.00	0.03	4.	*
1	1020	125	0.03	0.00	0.03	4.	*
1	1025	126	0.03	0.00	0.03	4.	*
1	1030	127	0.03	0.00	0.03	4.	*
1	1035	128	0.04	0.00	0.04	5.	*
1	1040	129	0.04	0.00	0.04	5.	*
1	1045	130	0.04	0.00	0.04	5.	*
1	1050	131	0.04	0.00	0.04	6.	*
1	1055	132	0.04	0.00	0.04	6.	*
1	1100	133	0.04	0.00	0.04	6.	*
1	1105	134	0.06	0.01	0.06	6.	*
1	1110	135	0.06	0.01	0.06	7.	*
1	1115	136	0.06	0.01	0.06	8.	*
1	1120	137	0.06	0.01	0.06	9.	*
1	1125	138	0.06	0.00	0.06	9.	*
1	1130	139	0.06	0.00	0.06	10.	*
1	1135	140	0.49	0.03	0.46	14.	*
1	1140	141	0.49	0.02	0.47	29.	*
1	1145	142	0.49	0.02	0.48	47.	*
1	1150	143	0.49	0.01	0.48	62.	*
1	1155	144	0.49	0.01	0.48	71.	*
1	1200	145	0.49	0.01	0.48	76.	*
							*

1	1920	233	0.01	0.00	0.01	2.
1	1925	234	0.01	0.00	0.01	2.
1	1930	235	0.01	0.00	0.01	2.
1	1935	236	0.01	0.00	0.01	2.
1	1940	237	0.01	0.00	0.01	2.
1	1945	238	0.01	0.00	0.01	2.
1	1950	239	0.01	0.00	0.01	2.
1	1955	240	0.01	0.00	0.01	2.
1	2000	241	0.01	0.00	0.01	2.
1	2005	242	0.01	0.00	0.01	2.
1	2010	243	0.01	0.00	0.01	2.
1	2015	244	0.01	0.00	0.01	2.
1	2020	245	0.01	0.00	0.01	2.
1	2025	246	0.01	0.00	0.01	2.
1	2030	247	0.01	0.00	0.01	2.
1	2035	248	0.01	0.00	0.01	2.
1	2040	249	0.01	0.00	0.01	2.
1	2045	250	0.01	0.00	0.01	2.
1	2050	251	0.01	0.00	0.01	2.
1	2055	252	0.01	0.00	0.01	1.
1	2100	253	0.01	0.00	0.01	1.
1	2105	254	0.01	0.00	0.01	1.
1	2110	255	0.01	0.00	0.01	1.
1	2115	256	0.01	0.00	0.01	1.
1	2120	257	0.01	0.00	0.01	1.
1	2125	258	0.01	0.00	0.01	1.
1	2130	259	0.01	0.00	0.01	1.
1	2135	260	0.01	0.00	0.01	1.
1	2140	261	0.01	0.00	0.01	1.
1	2145	262	0.01	0.00	0.01	1.
1	2150	263	0.01	0.00	0.01	1.
1	2155	264	0.01	0.00	0.01	1.
1	2200	265	0.01	0.00	0.01	1.
1	2205	266	0.01	0.00	0.01	1.
1	2210	267	0.01	0.00	0.01	1.
1	2215	268	0.01	0.00	0.01	1.
1	2220	269	0.01	0.00	0.01	1.
1	2225	270	0.01	0.00	0.01	1.
1	2230	271	0.01	0.00	0.01	1.
1	2235	272	0.01	0.00	0.01	1.
1	2240	273	0.01	0.00	0.01	1.
1	2245	274	0.01	0.00	0.01	1.
1	2250	275	0.01	0.00	0.01	1.
1	2255	276	0.01	0.00	0.01	1.
1	2300	277	0.01	0.00	0.01	1.
1	2305	278	0.01	0.00	0.01	1.
1	2310	279	0.01	0.00	0.01	1.
1	2315	280	0.01	0.00	0.01	1.
1	2320	281	0.01	0.00	0.01	1.
1	2325	282	0.01	0.00	0.01	1.
1	2330	283	0.01	0.00	0.01	1.
1	2335	284	0.01	0.00	0.01	1.
1	2340	285	0.01	0.00	0.01	1.
1	2345	286	0.01	0.00	0.01	1.
1	2350	287	0.01	0.00	0.01	1.
1	2355	288	0.01	0.00	0.01	1.
2	0000	289	0.01	0.00	0.01	1.

****

TOTAL RAINFALL = 7.80, TOTAL LOSS = 0.84, TOTAL EXCESS = 6.96

****

K FLOW	TIME		MAXIMUM AVERAGE FLOW		
		6-HR	24-HR	72-HR	24.00-HR
(CFS)	(HR)				
	(CFS)				
76.	12.00	13.	4.	4.	4.
	(INCHES)	5.261	6.943	6.943	6.943
	(AC-FT)	6.	8.	8.	8.

CUMULATIVE AREA = 0.02 SQ MI

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

              *************
              *           *
  14 KK       *    POND   *
              *           *
              *************

              HYDROGRAPH ROUTING DATA

  15 RS         STORAGE ROUTING
                      NSTPS            1  NUMBER OF SUBREACHES
                       ITYP         ELEV  TYPE OF INITIAL CONDITION
                     RSVRIC       173.50  INITIAL CONDITION
                          X         0.00  WORKING R AND D COEFFICIENT
  16 SA                AREA          0.7        0.7        0.7        0.8        0.9
  17 SE           ELEVATION       173.50     174.00     175.00     176.00     177.00
  18 SQ           DISCHARGE           0.         2.         8.        18.        28.
  19 SE           ELEVATION       173.50     174.00     175.00     176.00     177.00

                                                                ***

                                       COMPUTED STORAGE-ELEVATION DATA

          STORAGE        0.00       0.35       1.09       1.87       2.74
        ELEVATION      173.50     174.00     175.00     176.00     177.00

                                       COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        0.00       0.35       1.09       1.87       2.74
          OUTFLOW        0.10       2.00       8.00      18.00      28.00
        ELEVATION      173.50     174.00     175.00     176.00     177.00
ARNING --- ROUTED OUTFLOW (      28.) IS GREATER THAN MAXIMUM OUTFLOW (       28.) IN STORAGE-OUTFLOW TABLE
ARNING --- ROUTED OUTFLOW (      30.) IS GREATER THAN MAXIMUM OUTFLOW (       28.) IN STORAGE-OUTFLOW TABLE
RNING --- ROUTED OUTFLOW (      31.) IS GREATER THAN MAXIMUM OUTFLOW (       28.) IN STORAGE-OUTFLOW TABLE
RNING --- ROUTED OUTFLOW (      31.) IS GREATER THAN MAXIMUM OUTFLOW (       28.) IN STORAGE-OUTFLOW TABLE
NING --- ROUTED OUTFLOW (      30.) IS GREATER THAN MAXIMUM OUTFLOW (       28.) IN STORAGE-OUTFLOW TABLE
NING --- ROUTED OUTFLOW (      30.) IS GREATER THAN MAXIMUM OUTFLOW (       28.) IN STORAGE-OUTFLOW TABLE
NING --- ROUTED OUTFLOW (      29.) IS GREATER THAN MAXIMUM OUTFLOW (       28.) IN STORAGE-OUTFLOW TABLE
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                                        HYDROGRAPH AT STATION       POND

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ION HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
0000	1	0.	0.0	173.5	*	1		0805	98	1.	0.2	173.8	*	1		1610	195	5.	0.7	174.5
0005	2	0.	0.0	173.5	*	1		0810	99	1.	0.2	173.8	*	1		1615	196	5.	0.7	174.5
0010	3	0.	0.0	173.5	*	1		0815	100	1.	0.2	173.8	*	1		1620	197	5.	0.7	174.5
0015	4	0.	0.0	173.5	*	1		0820	101	1.	0.2	173.8	*	1		1625	198	5.	0.7	174.4
0020	5	0.	0.0	173.5	*	1		0825	102	1.	0.2	173.8	*	1		1630	199	4.	0.7	174.4
0025	6	0.	0.0	173.5	*	1		0830	103	1.	0.2	173.8	*	1		1635	200	4.	0.6	174.4
0030	7	0.	0.0	173.5	*	1		0835	104	1.	0.2	173.8	*	1		1640	201	4.	0.6	174.4
0035	8	0.	0.0	173.5	*	1		0840	105	1.	0.2	173.8	*	1		1645	202	4.	0.6	174.4

1	0040	9	0.	0.0	173.5	*	1
1	0045	10	0.	0.0	173.5	*	1
1	0050	11	0.	0.0	173.5	*	1
1	0055	12	0.	0.0	173.5	*	1
1	0100	13	0.	0.0	173.5	*	1
1	0105	14	0.	0.0	173.5	*	1
1	0110	15	0.	0.0	173.5	*	1
1	0115	16	0.	0.0	173.5	*	1
1	0120	17	0.	0.0	173.5	*	1
1	0125	18	0.	0.0	173.5	*	1
1	0130	19	0.	0.0	173.5	*	1
1	0135	20	0.	0.0	173.5	*	1
1	0140	21	0.	0.0	173.5	*	1
1	0145	22	0.	0.0	173.5	*	1
1	0150	23	0.	0.0	173.5	*	1
1	0155	24	0.	0.0	173.5	*	1
1	0200	25	0.	0.0	173.5	*	1
1	0205	26	0.	0.0	173.5	*	1
1	0210	27	0.	0.0	173.5	*	1
1	0215	28	0.	0.0	173.5	*	1
1	0220	29	0.	0.0	173.5	*	1
1	0225	30	0.	0.0	173.5	*	1
1	0230	31	0.	0.0	173.5	*	1
1	0235	32	0.	0.0	173.5	*	1
1	0240	33	0.	0.0	173.5	*	1
1	0245	34	0.	0.0	173.5	*	1
1	0250	35	0.	0.0	173.5	*	1
1	0255	36	0.	0.0	173.5	*	1
1	0300	37	0.	0.0	173.5	*	1
1	0305	38	0.	0.0	173.5	*	1
1	0310	39	0.	0.0	173.5	*	1
1	0315	40	0.	0.0	173.5	*	1
1	0320	41	0.	0.0	173.5	*	1
1	0325	42	0.	0.0	173.5	*	1
1	0330	43	0.	0.0	173.5	*	1
1	0335	44	0.	0.0	173.5	*	1
1	0340	45	0.	0.0	173.5	*	1
1	0345	46	0.	0.0	173.5	*	1
1	0350	47	0.	0.0	173.5	*	1
1	0355	48	0.	0.0	173.5	*	1
1	0400	49	0.	0.0	173.5	*	1
1	0405	50	0.	0.0	173.5	*	1
1	0410	51	0.	0.0	173.5	*	1
1	0415	52	0.	0.0	173.5	*	1
1	0420	53	0.	0.0	173.5	*	1
1	0425	54	0.	0.0	173.6	*	1
1	0430	55	0.	0.0	173.6	*	1
1	0435	56	0.	0.0	173.6	*	1
1	0440	57	0.	0.0	173.6	*	1
1	0445	58	0.	0.0	173.6	*	1
1	0450	59	0.	0.1	173.6	*	1
1	0455	60	0.	0.1	173.6	*	1
	0500	61	0.	0.1	173.6	*	1
	0505	62	0.	0.1	173.6	*	1
	0510	63	0.	0.1	173.6	*	1
	0515	64	0.	0.1	173.6	*	1
	0520	65	0.	0.1	173.6	*	1
	0525	66	1.	0.1	173.6	*	1
	0530	67	1.	0.1	173.6	*	1
	0535	68	1.	0.1	173.6	*	1
	0540	69	1.	0.1	173.6	*	1
	0545	70	1.	0.1	173.6	*	1
	0550	71	1.	0.1	173.6	*	1
	0555	72	1.	0.1	173.6	*	1
	0600	73	1.	0.1	173.6	*	1
	0605	74	1.	0.1	173.6	*	1
	0610	75	1.	0.1	173.6	*	1
	0615	76	1.	0.1	173.7	*	1
	0620	77	1.	0.1	173.7	*	1
	0625	78	1.	0.1	173.7	*	1
	0630	79	1.	0.1	173.7	*	1

0845	106	1.	0.3	173.9	*	1
0850	107	1.	0.3	173.9	*	1
0855	108	2.	0.3	173.9	*	1
0900	109	2.	0.3	173.9	*	1
0905	110	2.	0.3	173.9	*	1
0910	111	2.	0.3	173.9	*	1
0915	112	2.	0.3	173.9	*	1
0920	113	2.	0.3	173.9	*	1
0925	114	2.	0.3	173.9	*	1
0930	115	2.	0.3	173.9	*	1
0935	116	2.	0.3	174.0	*	1
0940	117	2.	0.3	174.0	*	1
0945	118	2.	0.3	174.0	*	1
0950	119	2.	0.3	174.0	*	1
0955	120	2.	0.4	174.0	*	1
1000	121	2.	0.4	174.0	*	1
1005	122	2.	0.4	174.0	*	1
1010	123	2.	0.4	174.0	*	1
1015	124	2.	0.4	174.1	*	1
1020	125	2.	0.4	174.1	*	1
1025	126	3.	0.4	174.1	*	1
1030	127	3.	0.4	174.1	*	1
1035	128	3.	0.4	174.1	*	1
1040	129	3.	0.5	174.1	*	1
1045	130	3.	0.5	174.2	*	1
1050	131	3.	0.5	174.2	*	1
1055	132	3.	0.5	174.2	*	1
1100	133	3.	0.5	174.2	*	1
1105	134	4.	0.5	174.3	*	1
1110	135	4.	0.6	174.3	*	1
1115	136	4.	0.6	174.3	*	1
1120	137	4.	0.6	174.4	*	1
1125	138	4.	0.7	174.4	*	1
1130	139	5.	0.7	174.5	*	1
1135	140	5.	0.7	174.5	*	1
1140	141	6.	0.8	174.7	*	1
1145	142	8.	1.1	175.0	*	1
1150	143	12.	1.4	175.4	*	1
1155	144	16.	1.7	175.8	*	1
1200	145	21.	2.1	176.3	*	1
1205	146	25.	2.5	176.7	*	1
1210	147	28.	2.8	177.0	*	1
1215	148	30.	2.9	177.2	*	1
1220	149	31.	3.0	177.3	*	1
1225	150	31.	3.0	177.3	*	1
1230	151	30.	3.0	177.2	*	1
1235	152	30.	2.9	177.2	*	1
1240	153	29.	2.8	177.1	*	1
1245	154	28.	2.7	177.0	*	1
1250	155	26.	2.6	176.8	*	1
1255	156	25.	2.5	176.7	*	1
1300	157	24.	2.4	176.6	*	1
1305	158	23.	2.3	176.5	*	1
1310	159	22.	2.2	176.4	*	1
1315	160	21.	2.1	176.3	*	1
1320	161	20.	2.0	176.2	*	1
1325	162	19.	1.9	176.1	*	1
1330	163	18.	1.8	176.0	*	1
1335	164	17.	1.8	175.9	*	1
1340	165	16.	1.7	175.8	*	1
1345	166	15.	1.6	175.7	*	1
1350	167	14.	1.6	175.6	*	1
1355	168	13.	1.5	175.5	*	1
1400	169	13.	1.4	175.5	*	1
1405	170	12.	1.4	175.4	*	1
1410	171	11.	1.3	175.3	*	1
1415	172	11.	1.3	175.3	*	1
1420	173	10.	1.3	175.2	*	1
1425	174	10.	1.2	175.2	*	1
1430	175	9.	1.2	175.1	*	1
1435	176	9.	1.2	175.1	*	1

1650	203	4.	0.6	174.3
1655	204	4.	0.6	174.3
1700	205	4.	0.6	174.3
1705	206	4.	0.6	174.3
1710	207	4.	0.6	174.3
1715	208	4.	0.5	174.3
1720	209	3.	0.5	174.2
1725	210	3.	0.5	174.2
1730	211	3.	0.5	174.2
1735	212	3.	0.5	174.2
1740	213	3.	0.5	174.2
1745	214	3.	0.5	174.2
1750	215	3.	0.5	174.2
1755	216	3.	0.5	174.2
1800	217	3.	0.5	174.2
1805	218	3.	0.5	174.1
1810	219	3.	0.5	174.1
1815	220	3.	0.5	174.1
1820	221	3.	0.4	174.1
1825	222	3.	0.4	174.1
1830	223	3.	0.4	174.1
1835	224	3.	0.4	174.1
1840	225	3.	0.4	174.1
1845	226	3.	0.4	174.1
1850	227	3.	0.4	174.1
1855	228	2.	0.4	174.1
1900	229	2.	0.4	174.1
1905	230	2.	0.4	174.1
1910	231	2.	0.4	174.1
1915	232	2.	0.4	174.1
1920	233	2.	0.4	174.1
1925	234	2.	0.4	174.0
1930	235	2.	0.4	174.0
1935	236	2.	0.4	174.0
1940	237	2.	0.4	174.0
1945	238	2.	0.4	174.0
1950	239	2.	0.4	174.0
1955	240	2.	0.4	174.0
2000	241	2.	0.4	174.0
2005	242	2.	0.4	174.0
2010	243	2.	0.4	174.0
2015	244	2.	0.4	174.0
2020	245	2.	0.4	174.0
2025	246	2.	0.4	174.0
2030	247	2.	0.4	174.0
2035	248	2.	0.4	174.0
2040	249	2.	0.4	174.0
2045	250	2.	0.4	174.0
2050	251	2.	0.4	174.0
2055	252	2.	0.3	174.0
2100	253	2.	0.3	174.0
2105	254	2.	0.3	174.0
2110	255	2.	0.3	174.0
2115	256	2.	0.3	174.0
2120	257	2.	0.3	174.0
2125	258	2.	0.3	174.0
2130	259	2.	0.3	174.0
2135	260	2.	0.3	174.0
2140	261	2.	0.3	174.0
2145	262	2.	0.3	173.9
2150	263	2.	0.3	173.9
2155	264	2.	0.3	173.9
2200	265	2.	0.3	173.9
2205	266	2.	0.3	173.9
2210	267	2.	0.3	173.9
2215	268	2.	0.3	173.9
2220	269	2.	0.3	173.9
2225	270	2.	0.3	173.9
2230	271	2.	0.3	173.9
2235	272	2.	0.3	173.9
2240	273	2.	0.3	173.9

1	0635	80	1.	0.1	173.7	*	1	1440	177	8.	1.1	175.0	*	1	2245	274	2.	0.3	173.9
1	0640	81	1.	0.1	173.7	*	1	1445	178	8.	1.1	175.0	*	1	2250	275	2.	0.3	173.9
1	0645	82	1.	0.1	173.7	*	1	1450	179	8.	1.1	175.0	*	1	2255	276	2.	0.3	173.9
1	0650	83	1.	0.1	173.7	*	1	1455	180	8.	1.0	174.9	*	1	2300	277	2.	0.3	173.9
1	0655	84	1.	0.1	173.7	*	1	1500	181	7.	1.0	174.9	*	1	2305	278	2.	0.3	173.9
1	0700	85	1.	0.1	173.7	*	1	1505	182	7.	1.0	174.8	*	1	2310	279	2.	0.3	173.9
1	0705	86	1.	0.1	173.7	*	1	1510	183	7.	0.9	174.8	*	1	2315	280	2.	0.3	173.9
1	0710	87	1.	0.2	173.7	*	1	1515	184	7.	0.9	174.8	*	1	2320	281	2.	0.3	173.9
1	0715	88	1.	0.2	173.7	*	1	1520	185	6.	0.9	174.7	*	1	2325	282	2.	0.3	173.9
1	0720	89	1.	0.2	173.7	*	1	1525	186	6.	0.9	174.7	*	1	2330	283	1.	0.3	173.9
1	0725	90	1.	0.2	173.7	*	1	1530	187	6.	0.9	174.7	*	1	2335	284	1.	0.3	173.9
1	0730	91	1.	0.2	173.7	*	1	1535	188	6.	0.8	174.7	*	1	2340	285	1.	0.3	173.9
1	0735	92	1.	0.2	173.7	*	1	1540	189	6.	0.8	174.6	*	1	2345	286	1.	0.3	173.9
1	0740	93	1.	0.2	173.7	*	1	1545	190	6.	0.8	174.6	*	1	2350	287	1.	0.2	173.9
1	0745	94	1.	0.2	173.8	*	1	1550	191	5.	0.8	174.6	*	1	2355	288	1.	0.2	173.9
1	0750	95	1.	0.2	173.8	*	1	1555	192	5.	0.8	174.6	*	2	0000	289	1.	0.2	173.8
1	0755	96	1.	0.2	173.8	*	1	1600	193	5.	0.7	174.5	*						
1	0800	97	1.	0.2	173.8	*	1	1605	194	5.	0.7	174.5	*						
						*							*						

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.00-HR
(CFS)	(HR)					
		(CFS)				
31.	12.33		12.	4.	4.	4.
		(INCHES)	5.064	6.751	6.751	6.751
		(AC-FT)	6.	8.	8.	8.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	24.00-HR
(AC-FT)	(HR)					
3.	12.33		1.	1.	1.	1.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	24.00-HR
(FEET)	(HR)					
177.32	12.33		175.33	174.19	174.19	174.19

CUMULATIVE AREA = 0.02 SQ MI

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD				BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
6-HOUR	24-HOUR	72-HOUR								
HYDROGRAPH AT										
			DEVEL	76.	12.00	13.	4.	4.	0.02	
177.32	ROUTED TO 12.33		POND	31.	12.33	12.	4.	4.	0.02	

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