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

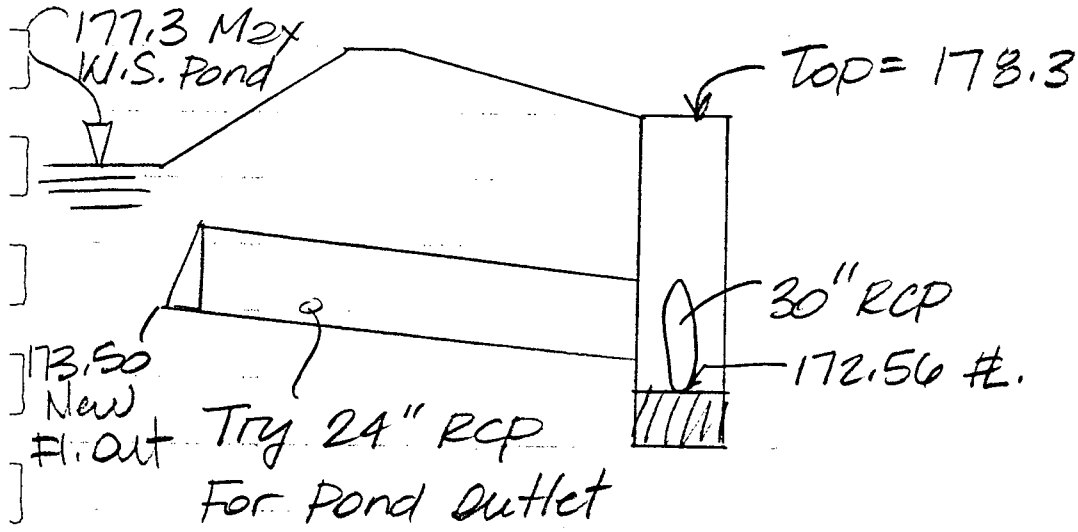
The Plaza @ Cherry Creek Hills
Drainage Plan

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 CMB

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)
Tc = 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 V/2 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
Tc = 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          *
*                                   *
*************************************
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X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X               X
XXXXXXX  XXXX     X         XXXXX X
X     X  X        X               X
X     X  X        X     X         X
X     X  XXXXXXX   XXXXX          XXX
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:::::::::::::::::::::::::::::::::::::::::::
:::::::::::::::::::::::::::::::::::::::::::
:::                                     :::
:::  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 PAGE 1

```
         LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
*** FREE ***
              1        ID    HECOX (OAK KNOLL) PLAT
              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  0.0166
             12        LS       0      93
             13        UD    0.20

             14        KK    POND
             15        RS       1    ELEV   173.5
             16        SA    0.52    0.55    0.56    0.63    0.68
             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
```



```
*****************************************
*                                       *
*   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          *
*                                   *
*************************************
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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	0.01	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

8.	27.	33.	26.	15.	8.	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	2.
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	1.	*	1	1625	198	0.01	0.00	0.01	2.
1	0425	54	0.01	0.01	0.00	1.	*	1	1630	199	0.01	0.00	0.01	2.
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	0.00	0.01	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	0.01	0.01	1.	*	1	1710	207	0.01	0.00	0.01	1.
1	0510	63	0.01	0.01	0.01	1.	*	1	1715	208	0.01	0.00	0.01	1.
1	0515	64	0.01	0.01	0.01	1.	*	1	1720	209	0.01	0.00	0.01	1.
1	0520	65	0.01	0.01	0.01	1.	*	1	1725	210	0.01	0.00	0.01	1.
1	0525	66	0.01	0.01	0.01	1.	*	1	1730	211	0.01	0.00	0.01	1.
1	0530	67	0.01	0.00	0.01	1.	*	1	1735	212	0.01	0.00	0.01	1.
1	0535	68	0.01	0.00	0.01	1.	*	1	1740	213	0.01	0.00	0.01	1.
1	0540	69	0.01	0.00	0.01	1.	*	1	1745	214	0.01	0.00	0.01	1.
1	0545	70	0.01	0.00	0.01	1.	*	1	1750	215	0.01	0.00	0.01	1.
1	0550	71	0.01	0.00	0.01	1.	*	1	1755	216	0.01	0.00	0.01	1.
1	0555	72	0.01	0.00	0.01	1.	*	1	1800	217	0.01	0.00	0.01	1.
1	0600	73	0.01	0.00	0.01	1.	*	1	1805	218	0.01	0.00	0.01	1.
1	0605	74	0.01	0.00	0.01	1.	*	1	1810	219	0.01	0.00	0.01	1.
1	0610	75	0.01	0.00	0.01	1.	*	1	1815	220	0.01	0.00	0.01	1.
1	0615	76	0.01	0.00	0.01	1.	*	1	1820	221	0.01	0.00	0.01	1.
1	0620	77	0.01	0.00	0.01	1.	*	1	1825	222	0.01	0.00	0.01	1.
1	0625	78	0.01	0.00	0.01	1.	*	1	1830	223	0.01	0.00	0.01	1.
1	0630	79	0.01	0.00	0.01	1.	*	1	1835	224	0.01	0.00	0.01	1.
1	0635	80	0.01	0.00	0.01	1.	*	1	1840	225	0.01	0.00	0.01	1.
1	0640	81	0.01	0.00	0.01	1.	*	1	1845	226	0.01	0.00	0.01	1.
1	0645	82	0.01	0.00	0.01	1.	*	1	1850	227	0.01	0.00	0.01	1.
1	0650	83	0.01	0.00	0.01	1.	*	1	1855	228	0.01	0.00	0.01	1.
1	0655	84	0.01	0.00	0.01	1.	*	1	1900	229	0.01	0.00	0.01	1.
1	0700	85	0.01	0.00	0.01	1.	*	1	1905	230	0.01	0.00	0.01	1.
1	0705	86	0.01	0.00	0.01	1.	*	1	1910	231	0.01	0.00	0.01	1.
1	0710	87	0.01	0.00	0.01	1.	*	1	1915	232	0.01	0.00	0.01	1.
1	0715	88	0.01	0.00	0.01	1.	*	1	1920	233	0.01	0.00	0.01	1.
1	0720	89	0.01	0.00	0.01	1.	*	1	1925	234	0.01	0.00	0.01	1.
1	0725	90	0.01	0.00	0.01	1.	*	1	1930	235	0.01	0.00	0.01	1.
1	0730	91	0.01	0.00	0.01	1.	*	1	1935	236	0.01	0.00	0.01	1.
1	0735	92	0.01	0.00	0.01	1.	*	1	1940	237	0.01	0.00	0.01	1.
1	0740	93	0.01	0.00	0.01	1.	*	1	1945	238	0.01	0.00	0.01	1.
1	0745	94	0.02	0.00	0.01	1.	*	1	1950	239	0.01	0.00	0.01	1.
1	0750	95	0.01	0.00	0.01	1.	*	1	1955	240	0.01	0.00	0.01	1.
1	0755	96	0.01	0.00	0.01	1.	*	1	2000	241	0.01	0.00	0.01	1.
1	0800	97	0.01	0.00	0.01	1.	*	1	2005	242	0.01	0.00	0.01	1.
1	0805	98	0.02	0.00	0.01	1.	*	1	2010	243	0.01	0.00	0.01	1.
1	0810	99	0.02	0.00	0.01	1.	*	1	2015	244	0.01	0.00	0.01	1.
1	0815	100	0.02	0.00	0.01	2.	*	1	2020	245	0.01	0.00	0.01	1.
1	0820	101	0.02	0.00	0.01	2.	*	1	2025	246	0.01	0.00	0.01	1.
1	0825	102	0.02	0.00	0.01	2.	*	1	2030	247	0.01	0.00	0.01	1.
1	0830	103	0.02	0.00	0.01	2.	*	1	2035	248	0.01	0.00	0.01	1.
1	0835	104	0.02	0.00	0.01	2.	*	1	2040	249	0.01	0.00	0.01	1.
1	0840	105	0.02	0.00	0.01	2.	*	1	2045	250	0.01	0.00	0.01	1.
1	0845	106	0.02	0.00	0.01	2.	*	1	2050	251	0.01	0.00	0.01	1.
1	0850	107	0.02	0.00	0.01	2.	*	1	2055	252	0.01	0.00	0.01	1.
1	0855	108	0.02	0.00	0.01	2.	*	1	2100	253	0.01	0.00	0.01	1.
1	0900	109	0.02	0.00	0.01	2.	*	1	2105	254	0.01	0.00	0.01	1.
1	0905	110	0.02	0.00	0.02	2.	*	1	2110	255	0.01	0.00	0.01	1.
1	0910	111	0.02	0.00	0.02	2.	*	1	2115	256	0.01	0.00	0.01	1.
1	0915	112	0.02	0.00	0.02	2.	*	1	2120	257	0.01	0.00	0.01	1.
1	0920	113	0.02	0.00	0.02	2.	*	1	2125	258	0.01	0.00	0.01	1.
1	0925	114	0.02	0.00	0.02	2.	*	1	2130	259	0.01	0.00	0.01	1.
1	0930	115	0.02	0.00	0.02	2.	*	1	2135	260	0.01	0.00	0.01	1.
1	0935	116	0.02	0.00	0.02	2.	*	1	2140	261	0.01	0.00	0.01	1.
1	0940	117	0.02	0.00	0.02	2.	*	1	2145	262	0.01	0.00	0.01	1.
1	0945	118	0.02	0.00	0.02	2.	*	1	2150	263	0.01	0.00	0.01	1.
1	0950	119	0.02	0.00	0.02	2.	*	1	2155	264	0.01	0.00	0.01	1.
1	0955	120	0.02	0.00	0.02	2.	*	1	2200	265	0.01	0.00	0.01	1.
1	1000	121	0.02	0.00	0.02	3.	*	1	2205	266	0.01	0.00	0.01	1.
1	1005	122	0.03	0.00	0.03	3.	*	1	2210	267	0.01	0.00	0.01	1.
1	1010	123	0.03	0.00	0.03	3.	*	1	2215	268	0.01	0.00	0.01	1.
1	1015	124	0.03	0.00	0.03	3.	*	1	2220	269	0.01	0.00	0.01	1.
1	1020	125	0.03	0.00	0.03	3.	*	1	2225	270	0.01	0.00	0.01	1.
1	1025	126	0.03	0.00	0.03	3.	*	1	2230	271	0.01	0.00	0.01	1.
1	1030	127	0.03	0.00	0.03	3.	*	1	2235	272	0.01	0.00	0.01	1.
1	1035	128	0.04	0.00	0.04	3.	*	1	2240	273	0.01	0.00	0.01	1.
1	1040	129	0.04	0.00	0.04	4.	*	1	2245	274	0.01	0.00	0.01	1.
1	1045	130	0.04	0.00	0.04	4.	*	1	2250	275	0.01	0.00	0.01	1.
1	1050	131	0.04	0.00	0.04	4.	*	1	2255	276	0.01	0.00	0.01	1.
1	1055	132	0.04	0.00	0.04	4.	*	1	2300	277	0.01	0.00	0.01	1.
1	1100	133	0.04	0.00	0.04	4.	*	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	1115	136	0.06	0.01	0.06	6.
1	1120	137	0.06	0.01	0.06	7.
1	1125	138	0.06	0.00	0.06	7.
1	1130	139	0.06	0.00	0.06	7.
1	1135	140	0.49	0.03	0.46	11.
1	1140	141	0.49	0.02	0.47	22.
1	1145	142	0.49	0.02	0.48	35.
1	1150	143	0.49	0.01	0.48	46.
1	1155	144	0.49	0.01	0.48	53.
1	1200	145	0.49	0.01	0.48	57.

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

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.00-HR
	(CFS)	(HR)				
(CFS)	57.	12.00	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

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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	173.9	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	2.	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	3.	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□	(CFS)	(HR)	
	(CFS)□	27.	12.33		9.	3.	3.	3.
	(INCHES)	5.138	6.820	6.820	6.820			
	(AC-FT)	5.	6.	6.	6.			

PEAK STORAGE TIME

MAXIMUM AVERAGE STORAGE

		6-HR	24-HR	72-HR	24.00-HR□	(AC-FT)	(HR)
2.	12.33	1.	0.	0.	0.		

PEAK STAGE TIME

MAXIMUM AVERAGE STAGE

		6-HR	24-HR	72-HR	24.00-HR□	(FEET)	(HR)
176.91	12.33	174.96	174.04	174.04	174.04		

□□ CUMULATIVE AREA = 0.02 SQ MI

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

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

*** 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	0.67	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)   *                    *   U.S. ARMY CORPS OF ENGINEERS      *
*             MAY    1991               *                    *   HYDROLOGIC ENGINEERING CENTER     *
*          VERSION 4.0.1E               *                    *        609 SECOND STREET            *
*                                       *                    *     DAVIS, CALIFORNIA 95616         *
*  RUN DATE  01/05/1999  TIME  10:37:46 *                    *        (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	0125	18	0.01	0.01	0.00	0.	*
1	0130	19	0.01	0.01	0.00	0.	*
1	0135	20	0.01	0.01	0.00	0.	*
1	0140	21	0.01	0.01	0.00	0.	*
1	0145	22	0.01	0.01	0.00	0.	*
1	0150	23	0.01	0.01	0.00	0.	*
1	0155	24	0.01	0.01	0.00	0.	*
1	0200	25	0.01	0.01	0.00	0.	*
1	0205	26	0.01	0.01	0.00	0.	*
1	0210	27	0.01	0.01	0.00	0.	*
1	0215	28	0.01	0.01	0.00	0.	*
1	0220	29	0.01	0.01	0.00	0.	*
1	0225	30	0.01	0.01	0.00	0.	*
1	0230	31	0.01	0.01	0.00	0.	*
1	0235	32	0.01	0.01	0.00	0.	*
1	0240	33	0.01	0.01	0.00	0.	*
1	0245	34	0.01	0.01	0.00	0.	*
1	0250	35	0.01	0.01	0.00	0.	*
1	0255	36	0.01	0.01	0.00	0.	*
1	0300	37	0.01	0.01	0.00	0.	*
1	0305	38	0.01	0.01	0.00	0.	*
1	0310	39	0.01	0.01	0.00	0.	*
1	0315	40	0.01	0.01	0.00	0.	*
1	0320	41	0.01	0.01	0.00	0.	*
1	0325	42	0.01	0.01	0.00	0.	*
1	0330	43	0.01	0.01	0.00	0.	*
1	0335	44	0.01	0.01	0.00	0.	*
1	0340	45	0.01	0.01	0.00	0.	*
1	0345	46	0.01	0.01	0.00	0.	*
1	0350	47	0.01	0.01	0.00	0.	*
1	0355	48	0.01	0.01	0.00	0.	*
1	0400	49	0.01	0.01	0.00	1.	*
1	0405	50	0.01	0.01	0.00	1.	*
1	0410	51	0.01	0.01	0.00	1.	*
1	0415	52	0.01	0.01	0.00	1.	*
1	0420	53	0.01	0.01	0.00	1.	*
1	0425	54	0.01	0.01	0.00	1.	*
1	0430	55	0.01	0.01	0.00	1.	*
1	0435	56	0.01	0.01	0.00	1.	*
1	0440	57	0.01	0.01	0.00	1.	*
1	0445	58	0.01	0.01	0.00	1.	*
1	0450	59	0.01	0.00	0.01	1.	*
1	0455	60	0.01	0.00	0.01	1.	*
1	0500	61	0.01	0.00	0.01	1.	*
1	0505	62	0.01	0.01	0.01	1.	*
1	0510	63	0.01	0.01	0.01	1.	*
1	0515	64	0.01	0.01	0.01	1.	*
1	0520	65	0.01	0.01	0.01	1.	*
1	0525	66	0.01	0.01	0.01	1.	*
1	0530	67	0.01	0.00	0.01	1.	*
1	0535	68	0.01	0.00	0.01	1.	*
1	0540	69	0.01	0.00	0.01	1.	*
1	0545	70	0.01	0.00	0.01	1.	*
1	0550	71	0.01	0.00	0.01	1.	*
1	0555	72	0.01	0.00	0.01	1.	*
1	0600	73	0.01	0.00	0.01	1.	*
1	0605	74	0.01	0.00	0.01	1.	*
1	0610	75	0.01	0.00	0.01	1.	*
1	0615	76	0.01	0.00	0.01	1.	*
1	0620	77	0.01	0.00	0.01	1.	*
1	0625	78	0.01	0.00	0.01	1.	*
1	0630	79	0.01	0.00	0.01	1.	*
1	0635	80	0.01	0.00	0.01	1.	*
1	0640	81	0.01	0.00	0.01	1.	*
1	0645	82	0.01	0.00	0.01	1.	*
1	0650	83	0.01	0.00	0.01	1.	*
1	0655	84	0.01	0.00	0.01	1.	*
1	0700	85	0.01	0.00	0.01	2.	*
1	0705	86	0.01	0.00	0.01	2.	*
1	0710	87	0.01	0.00	0.01	2.	*
1	1325	162	0.04	0.00	0.03	6.	
1	1330	163	0.03	0.00	0.03	6.	
1	1335	164	0.03	0.00	0.03	6.	
1	1340	165	0.03	0.00	0.03	6.	
1	1345	166	0.03	0.00	0.03	5.	
1	1350	167	0.03	0.00	0.03	5.	
1	1355	168	0.03	0.00	0.03	5.	
1	1400	169	0.03	0.00	0.03	5.	
1	1405	170	0.02	0.00	0.02	5.	
1	1410	171	0.02	0.00	0.02	5.	
1	1415	172	0.02	0.00	0.02	4.	
1	1420	173	0.02	0.00	0.02	4.	
1	1425	174	0.02	0.00	0.02	4.	
1	1430	175	0.02	0.00	0.02	4.	
1	1435	176	0.02	0.00	0.02	4.	
1	1440	177	0.02	0.00	0.02	4.	
1	1445	178	0.02	0.00	0.02	4.	
1	1450	179	0.02	0.00	0.02	4.	
1	1455	180	0.02	0.00	0.02	3.	
1	1500	181	0.02	0.00	0.02	3.	
1	1505	182	0.02	0.00	0.02	3.	
1	1510	183	0.02	0.00	0.02	3.	
1	1515	184	0.02	0.00	0.02	3.	
1	1520	185	0.02	0.00	0.02	3.	
1	1525	186	0.02	0.00	0.02	3.	
1	1530	187	0.02	0.00	0.02	3.	
1	1535	188	0.02	0.00	0.02	3.	
1	1540	189	0.02	0.00	0.02	3.	
1	1545	190	0.02	0.00	0.02	3.	
1	1550	191	0.02	0.00	0.02	3.	
1	1555	192	0.02	0.00	0.02	3.	
1	1600	193	0.02	0.00	0.02	3.	
1	1605	194	0.01	0.00	0.01	3.	
1	1610	195	0.01	0.00	0.01	3.	
1	1615	196	0.02	0.00	0.01	3.	
1	1620	197	0.01	0.00	0.01	3.	
1	1625	198	0.01	0.00	0.01	3.	
1	1630	199	0.01	0.00	0.01	3.	
1	1635	200	0.01	0.00	0.01	3.	
1	1640	201	0.01	0.00	0.01	3.	
1	1645	202	0.01	0.00	0.01	2.	
1	1650	203	0.01	0.00	0.01	2.	
1	1655	204	0.01	0.00	0.01	2.	
1	1700	205	0.01	0.00	0.01	2.	
1	1705	206	0.01	0.00	0.01	2.	
1	1710	207	0.01	0.00	0.01	2.	
1	1715	208	0.01	0.00	0.01	2.	
1	1720	209	0.01	0.00	0.01	2.	
1	1725	210	0.01	0.00	0.01	2.	
1	1730	211	0.01	0.00	0.01	2.	
1	1735	212	0.01	0.00	0.01	2.	
1	1740	213	0.01	0.00	0.01	2.	
1	1745	214	0.01	0.00	0.01	2.	
1	1750	215	0.01	0.00	0.01	2.	
1	1755	216	0.01	0.00	0.01	2.	
1	1800	217	0.01	0.00	0.01	2.	
1	1805	218	0.01	0.00	0.01	2.	
1	1810	219	0.01	0.00	0.01	2.	
1	1815	220	0.01	0.00	0.01	2.	
1	1820	221	0.01	0.00	0.01	2.	
1	1825	222	0.01	0.00	0.01	2.	
1	1830	223	0.01	0.00	0.01	2.	
1	1835	224	0.01	0.00	0.01	2.	
1	1840	225	0.01	0.00	0.01	2.	
1	1845	226	0.01	0.00	0.01	2.	
1	1850	227	0.01	0.00	0.01	2.	
1	1855	228	0.01	0.00	0.01	2.	
1	1900	229	0.01	0.00	0.01	2.	
1	1905	230	0.01	0.00	0.01	2.	
1	1910	231	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	1920	233	0.01	0.00	0.01	2.
1	0720	89	0.01	0.00	0.01	2.	*	1	1925	234	0.01	0.00	0.01	2.
1	0725	90	0.01	0.00	0.01	2.	*	1	1930	235	0.01	0.00	0.01	2.
1	0730	91	0.01	0.00	0.01	2.	*	1	1935	236	0.01	0.00	0.01	2.
1	0735	92	0.01	0.00	0.01	2.	*	1	1940	237	0.01	0.00	0.01	2.
1	0740	93	0.01	0.00	0.01	2.	*	1	1945	238	0.01	0.00	0.01	2.
1	0745	94	0.02	0.00	0.01	2.	*	1	1950	239	0.01	0.00	0.01	2.
1	0750	95	0.01	0.00	0.01	2.	*	1	1955	240	0.01	0.00	0.01	2.
1	0755	96	0.01	0.00	0.01	2.	*	1	2000	241	0.01	0.00	0.01	2.
1	0800	97	0.01	0.00	0.01	2.	*	1	2005	242	0.01	0.00	0.01	2.
1	0805	98	0.02	0.00	0.01	2.	*	1	2010	243	0.01	0.00	0.01	2.
1	0810	99	0.02	0.00	0.01	2.	*	1	2015	244	0.01	0.00	0.01	2.
1	0815	100	0.02	0.00	0.01	2.	*	1	2020	245	0.01	0.00	0.01	2.
1	0820	101	0.02	0.00	0.01	2.	*	1	2025	246	0.01	0.00	0.01	2.
1	0825	102	0.02	0.00	0.01	2.	*	1	2030	247	0.01	0.00	0.01	2.
1	0830	103	0.02	0.00	0.01	2.	*	1	2035	248	0.01	0.00	0.01	2.
1	0835	104	0.02	0.00	0.01	2.	*	1	2040	249	0.01	0.00	0.01	2.
1	0840	105	0.02	0.00	0.01	2.	*	1	2045	250	0.01	0.00	0.01	2.
1	0845	106	0.02	0.00	0.01	2.	*	1	2050	251	0.01	0.00	0.01	2.
1	0850	107	0.02	0.00	0.01	2.	*	1	2055	252	0.01	0.00	0.01	1.
1	0855	108	0.02	0.00	0.01	2.	*	1	2100	253	0.01	0.00	0.01	1.
1	0900	109	0.02	0.00	0.01	3.	*	1	2105	254	0.01	0.00	0.01	1.
1	0905	110	0.02	0.00	0.02	3.	*	1	2110	255	0.01	0.00	0.01	1.
1	0910	111	0.02	0.00	0.02	3.	*	1	2115	256	0.01	0.00	0.01	1.
1	0915	112	0.02	0.00	0.02	3.	*	1	2120	257	0.01	0.00	0.01	1.
1	0920	113	0.02	0.00	0.02	3.	*	1	2125	258	0.01	0.00	0.01	1.
1	0925	114	0.02	0.00	0.02	3.	*	1	2130	259	0.01	0.00	0.01	1.
1	0930	115	0.02	0.00	0.02	3.	*	1	2135	260	0.01	0.00	0.01	1.
1	0935	116	0.02	0.00	0.02	3.	*	1	2140	261	0.01	0.00	0.01	1.
1	0940	117	0.02	0.00	0.02	3.	*	1	2145	262	0.01	0.00	0.01	1.
1	0945	118	0.02	0.00	0.02	3.	*	1	2150	263	0.01	0.00	0.01	1.
1	0950	119	0.02	0.00	0.02	3.	*	1	2155	264	0.01	0.00	0.01	1.
1	0955	120	0.02	0.00	0.02	3.	*	1	2200	265	0.01	0.00	0.01	1.
1	1000	121	0.02	0.00	0.02	3.	*	1	2205	266	0.01	0.00	0.01	1.
1	1005	122	0.03	0.00	0.03	3.	*	1	2210	267	0.01	0.00	0.01	1.
1	1010	123	0.03	0.00	0.03	4.	*	1	2215	268	0.01	0.00	0.01	1.
1	1015	124	0.03	0.00	0.03	4.	*	1	2220	269	0.01	0.00	0.01	1.
1	1020	125	0.03	0.00	0.03	4.	*	1	2225	270	0.01	0.00	0.01	1.
1	1025	126	0.03	0.00	0.03	4.	*	1	2230	271	0.01	0.00	0.01	1.
1	1030	127	0.03	0.00	0.03	4.	*	1	2235	272	0.01	0.00	0.01	1.
1	1035	128	0.04	0.00	0.04	5.	*	1	2240	273	0.01	0.00	0.01	1.
1	1040	129	0.04	0.00	0.04	5.	*	1	2245	274	0.01	0.00	0.01	1.
1	1045	130	0.04	0.00	0.04	5.	*	1	2250	275	0.01	0.00	0.01	1.
1	1050	131	0.04	0.00	0.04	6.	*	1	2255	276	0.01	0.00	0.01	1.
1	1055	132	0.04	0.00	0.04	6.	*	1	2300	277	0.01	0.00	0.01	1.
1	1100	133	0.04	0.00	0.04	6.	*	1	2305	278	0.01	0.00	0.01	1.
1	1105	134	0.06	0.01	0.06	6.	*	1	2310	279	0.01	0.00	0.01	1.
1	1110	135	0.06	0.01	0.06	7.	*	1	2315	280	0.01	0.00	0.01	1.
1	1115	136	0.06	0.01	0.06	8.	*	1	2320	281	0.01	0.00	0.01	1.
1	1120	137	0.06	0.01	0.06	9.	*	1	2325	282	0.01	0.00	0.01	1.
1	1125	138	0.06	0.00	0.06	9.	*	1	2330	283	0.01	0.00	0.01	1.
1	1130	139	0.06	0.00	0.06	10.	*	1	2335	284	0.01	0.00	0.01	1.
1	1135	140	0.49	0.03	0.46	14.	*	1	2340	285	0.01	0.00	0.01	1.
1	1140	141	0.49	0.02	0.47	29.	*	1	2345	286	0.01	0.00	0.01	1.
1	1145	142	0.49	0.02	0.48	47.	*	1	2350	287	0.01	0.00	0.01	1.
1	1150	143	0.49	0.01	0.48	62.	*	1	2355	288	0.01	0.00	0.01	1.
1	1155	144	0.49	0.01	0.48	71.	*	2	0000	289	0.01	0.00	0.01	1.
1	1200	145	0.49	0.01	0.48	76.	*							

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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)
(CFS)		76.	12.00		13.	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
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WARNING --- ROUTED OUTFLOW (28.) IS GREATER THAN MAXIMUM OUTFLOW (28.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (30.) IS GREATER THAN MAXIMUM OUTFLOW (28.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (31.) IS GREATER THAN MAXIMUM OUTFLOW (28.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (31.) IS GREATER THAN MAXIMUM OUTFLOW (28.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (30.) IS GREATER THAN MAXIMUM OUTFLOW (28.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (30.) IS GREATER THAN MAXIMUM OUTFLOW (28.) IN STORAGE-OUTFLOW TABLE
WARNING --- 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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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.	0.2	173.8	*	1		1610	195	5.	0.7	174.5
1		0005	2	0.	0.0	173.5	*	1		0810	99	1.	0.2	173.8	*	1		1615	196	5.	0.7	174.5
1		0010	3	0.	0.0	173.5	*	1		0815	100	1.	0.2	173.8	*	1		1620	197	5.	0.7	174.5
1		0015	4	0.	0.0	173.5	*	1		0820	101	1.	0.2	173.8	*	1		1625	198	5.	0.7	174.4
1		0020	5	0.	0.0	173.5	*	1		0825	102	1.	0.2	173.8	*	1		1630	199	4.	0.7	174.4
1		0025	6	0.	0.0	173.5	*	1		0830	103	1.	0.2	173.8	*	1		1635	200	4.	0.6	174.4
1		0030	7	0.	0.0	173.5	*	1		0835	104	1.	0.2	173.8	*	1		1640	201	4.	0.6	174.4
1		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	0845	106	1.	0.3	173.9	*	1	1650	203	4.	0.6	174.3
1	0045	10	0.	0.0	173.5	*	1	0850	107	1.	0.3	173.9	*	1	1655	204	4.	0.6	174.3
1	0050	11	0.	0.0	173.5	*	1	0855	108	2.	0.3	173.9	*	1	1700	205	4.	0.6	174.3
1	0055	12	0.	0.0	173.5	*	1	0900	109	2.	0.3	173.9	*	1	1705	206	4.	0.6	174.3
1	0100	13	0.	0.0	173.5	*	1	0905	110	2.	0.3	173.9	*	1	1710	207	4.	0.6	174.3
1	0105	14	0.	0.0	173.5	*	1	0910	111	2.	0.3	173.9	*	1	1715	208	4.	0.5	174.3
1	0110	15	0.	0.0	173.5	*	1	0915	112	2.	0.3	173.9	*	1	1720	209	3.	0.5	174.2
1	0115	16	0.	0.0	173.5	*	1	0920	113	2.	0.3	173.9	*	1	1725	210	3.	0.5	174.2
1	0120	17	0.	0.0	173.5	*	1	0925	114	2.	0.3	173.9	*	1	1730	211	3.	0.5	174.2
1	0125	18	0.	0.0	173.5	*	1	0930	115	2.	0.3	173.9	*	1	1735	212	3.	0.5	174.2
1	0130	19	0.	0.0	173.5	*	1	0935	116	2.	0.3	174.0	*	1	1740	213	3.	0.5	174.2
1	0135	20	0.	0.0	173.5	*	1	0940	117	2.	0.3	174.0	*	1	1745	214	3.	0.5	174.2
1	0140	21	0.	0.0	173.5	*	1	0945	118	2.	0.3	174.0	*	1	1750	215	3.	0.5	174.2
1	0145	22	0.	0.0	173.5	*	1	0950	119	2.	0.3	174.0	*	1	1755	216	3.	0.5	174.2
1	0150	23	0.	0.0	173.5	*	1	0955	120	2.	0.4	174.0	*	1	1800	217	3.	0.5	174.2
1	0155	24	0.	0.0	173.5	*	1	1000	121	2.	0.4	174.0	*	1	1805	218	3.	0.5	174.1
1	0200	25	0.	0.0	173.5	*	1	1005	122	2.	0.4	174.0	*	1	1810	219	3.	0.5	174.1
1	0205	26	0.	0.0	173.5	*	1	1010	123	2.	0.4	174.0	*	1	1815	220	3.	0.5	174.1
1	0210	27	0.	0.0	173.5	*	1	1015	124	2.	0.4	174.1	*	1	1820	221	3.	0.4	174.1
1	0215	28	0.	0.0	173.5	*	1	1020	125	2.	0.4	174.1	*	1	1825	222	3.	0.4	174.1
1	0220	29	0.	0.0	173.5	*	1	1025	126	3.	0.4	174.1	*	1	1830	223	3.	0.4	174.1
1	0225	30	0.	0.0	173.5	*	1	1030	127	3.	0.4	174.1	*	1	1835	224	3.	0.4	174.1
1	0230	31	0.	0.0	173.5	*	1	1035	128	3.	0.4	174.1	*	1	1840	225	3.	0.4	174.1
1	0235	32	0.	0.0	173.5	*	1	1040	129	3.	0.5	174.1	*	1	1845	226	3.	0.4	174.1
1	0240	33	0.	0.0	173.5	*	1	1045	130	3.	0.5	174.2	*	1	1850	227	3.	0.4	174.1
1	0245	34	0.	0.0	173.5	*	1	1050	131	3.	0.5	174.2	*	1	1855	228	2.	0.4	174.1
1	0250	35	0.	0.0	173.5	*	1	1055	132	3.	0.5	174.2	*	1	1900	229	2.	0.4	174.1
1	0255	36	0.	0.0	173.5	*	1	1100	133	3.	0.5	174.2	*	1	1905	230	2.	0.4	174.1
1	0300	37	0.	0.0	173.5	*	1	1105	134	4.	0.5	174.3	*	1	1910	231	2.	0.4	174.1
1	0305	38	0.	0.0	173.5	*	1	1110	135	4.	0.6	174.3	*	1	1915	232	2.	0.4	174.1
1	0310	39	0.	0.0	173.5	*	1	1115	136	4.	0.6	174.3	*	1	1920	233	2.	0.4	174.1
1	0315	40	0.	0.0	173.5	*	1	1120	137	4.	0.6	174.4	*	1	1925	234	2.	0.4	174.0
1	0320	41	0.	0.0	173.5	*	1	1125	138	4.	0.7	174.4	*	1	1930	235	2.	0.4	174.0
1	0325	42	0.	0.0	173.5	*	1	1130	139	5.	0.7	174.5	*	1	1935	236	2.	0.4	174.0
1	0330	43	0.	0.0	173.5	*	1	1135	140	5.	0.7	174.5	*	1	1940	237	2.	0.4	174.0
1	0335	44	0.	0.0	173.5	*	1	1140	141	6.	0.8	174.7	*	1	1945	238	2.	0.4	174.0
1	0340	45	0.	0.0	173.5	*	1	1145	142	8.	1.1	175.0	*	1	1950	239	2.	0.4	174.0
1	0345	46	0.	0.0	173.5	*	1	1150	143	12.	1.4	175.4	*	1	1955	240	2.	0.4	174.0
1	0350	47	0.	0.0	173.5	*	1	1155	144	16.	1.7	175.8	*	1	2000	241	2.	0.4	174.0
1	0355	48	0.	0.0	173.5	*	1	1200	145	21.	2.1	176.3	*	1	2005	242	2.	0.4	174.0
1	0400	49	0.	0.0	173.5	*	1	1205	146	25.	2.5	176.7	*	1	2010	243	2.	0.4	174.0
1	0405	50	0.	0.0	173.5	*	1	1210	147	28.	2.8	177.0	*	1	2015	244	2.	0.4	174.0
1	0410	51	0.	0.0	173.5	*	1	1215	148	30.	2.9	177.2	*	1	2020	245	2.	0.4	174.0
1	0415	52	0.	0.0	173.5	*	1	1220	149	31.	3.0	177.3	*	1	2025	246	2.	0.4	174.0
1	0420	53	0.	0.0	173.5	*	1	1225	150	31.	3.0	177.3	*	1	2030	247	2.	0.4	174.0
1	0425	54	0.	0.0	173.6	*	1	1230	151	30.	3.0	177.2	*	1	2035	248	2.	0.4	174.0
1	0430	55	0.	0.0	173.6	*	1	1235	152	30.	2.9	177.2	*	1	2040	249	2.	0.4	174.0
1	0435	56	0.	0.0	173.6	*	1	1240	153	29.	2.8	177.1	*	1	2045	250	2.	0.4	174.0
1	0440	57	0.	0.0	173.6	*	1	1245	154	28.	2.7	177.0	*	1	2050	251	2.	0.4	174.0
1	0445	58	0.	0.0	173.6	*	1	1250	155	26.	2.6	176.8	*	1	2055	252	2.	0.3	174.0
1	0450	59	0.	0.1	173.6	*	1	1255	156	25.	2.5	176.7	*	1	2100	253	2.	0.3	174.0
1	0455	60	0.	0.1	173.6	*	1	1300	157	24.	2.4	176.6	*	1	2105	254	2.	0.3	174.0
1	0500	61	0.	0.1	173.6	*	1	1305	158	23.	2.3	176.5	*	1	2110	255	2.	0.3	174.0
1	0505	62	0.	0.1	173.6	*	1	1310	159	22.	2.2	176.4	*	1	2115	256	2.	0.3	174.0
1	0510	63	0.	0.1	173.6	*	1	1315	160	21.	2.1	176.3	*	1	2120	257	2.	0.3	174.0
1	0515	64	0.	0.1	173.6	*	1	1320	161	20.	2.0	176.2	*	1	2125	258	2.	0.3	174.0
1	0520	65	0.	0.1	173.6	*	1	1325	162	19.	1.9	176.1	*	1	2130	259	2.	0.3	174.0
1	0525	66	1.	0.1	173.6	*	1	1330	163	18.	1.8	176.0	*	1	2135	260	2.	0.3	174.0
1	0530	67	1.	0.1	173.6	*	1	1335	164	17.	1.8	175.9	*	1	2140	261	2.	0.3	174.0
1	0535	68	1.	0.1	173.6	*	1	1340	165	16.	1.7	175.8	*	1	2145	262	2.	0.3	173.9
1	0540	69	1.	0.1	173.6	*	1	1345	166	15.	1.6	175.7	*	1	2150	263	2.	0.3	173.9
1	0545	70	1.	0.1	173.6	*	1	1350	167	14.	1.6	175.6	*	1	2155	264	2.	0.3	173.9
1	0550	71	1.	0.1	173.6	*	1	1355	168	13.	1.5	175.5	*	1	2200	265	2.	0.3	173.9
1	0555	72	1.	0.1	173.6	*	1	1400	169	13.	1.4	175.5	*	1	2205	266	2.	0.3	173.9
1	0600	73	1.	0.1	173.6	*	1	1405	170	12.	1.4	175.4	*	1	2210	267	2.	0.3	173.9
1	0605	74	1.	0.1	173.6	*	1	1410	171	11.	1.3	175.3	*	1	2215	268	2.	0.3	173.9
1	0610	75	1.	0.1	173.6	*	1	1415	172	11.	1.3	175.3	*	1	2220	269	2.	0.3	173.9
1	0615	76	1.	0.1	173.7	*	1	1420	173	10.	1.3	175.2	*	1	2225	270	2.	0.3	173.9
1	0620	77	1.	0.1	173.7	*	1	1425	174	10.	1.2	175.2	*	1	2230	271	2.	0.3	173.9
1	0625	78	1.	0.1	173.7	*	1	1430	175	9.	1.2	175.1	*	1	2235	272	2.	0.3	173.9
1	0630	79	1.	0.1	173.7	*	1	1435	176	9.	1.2	175.1	*	1	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	173.8 *	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.
		(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.		

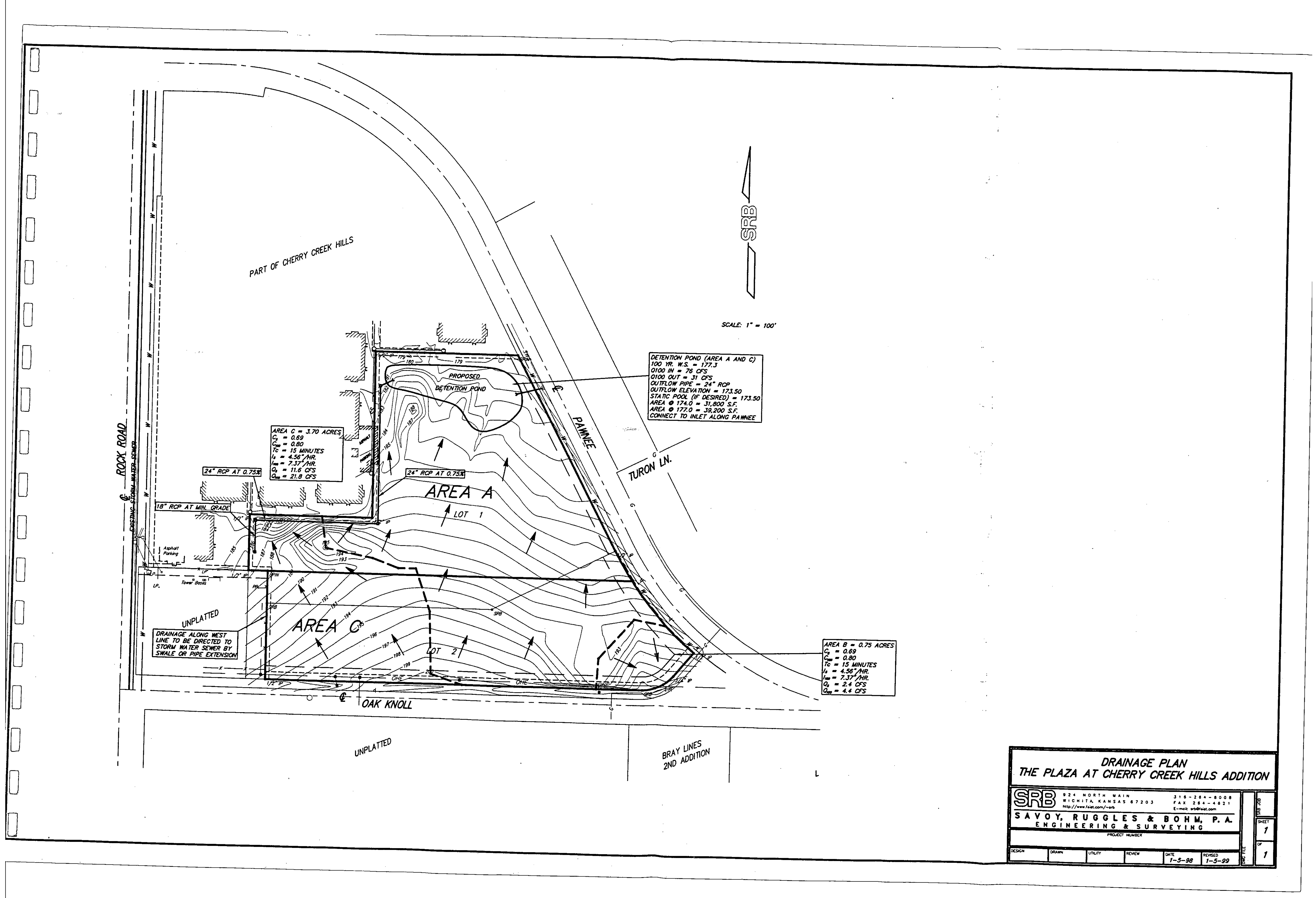
PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE					
		6-HR	24-HR	72-HR	24.00-HR	(FEET)	(HR)
177.32	12.33	175.33	174.19	174.19	174.19		

CUMULATIVE AREA = 0.02 SQ MI

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

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



PART OF CHERRY CREEK HILLS
ROCK ROAD
PAWNEE
TURON LN.
OAK KNOLL
UNPLATTED
BRAY LINES 2ND ADDITION
SCALE: 1" = 100'
SRB
PROPOSED DETENTION POND
AREA A
LOT 1
AREA C
LOT 2
24" RCP AT 0.75%
18" RCP AT MIN. GRADE
DETENTION POND (AREA A AND C)
100 YR. W.S. = 177.3
Q100 IN = 76 CFS
Q100 OUT = 31 CFS
OUTFLOW PIPE = 24" RCP
OUTFLOW ELEVATION = 173.50
STATIC POOL (IF DESIRED) = 173.50
AREA @ 174.0 = 31,800 S.F.
AREA @ 177.0 = 38,200 S.F.
CONNECT TO INLET ALONG PAWNEE
AREA C = 3.70 ACRES
C5 = 0.69
C100 = 0.80
TC = 15 MINUTES
I5 = 4.56"/HR.
I100 = 7.37"/HR.
Q5 = 11.6 CFS
Q100 = 21.8 CFS
AREA B = 0.75 ACRES
C5 = 0.69
C100 = 0.80
TC = 15 MINUTES
I5 = 4.56"/HR.
I100 = 7.37"/HR.
Q5 = 2.4 CFS
Q100 = 4.4 CFS
DRAINAGE ALONG WEST LINE TO BE DIRECTED TO STORM WATER SEWER BY SWALE OR PIPE EXTENSION
DRAINAGE PLAN
THE PLAZA AT CHERRY CREEK HILLS ADDITION
SRB
SAVOY, RUGGLES & BOHM, P.A.
ENGINEERING & SURVEYING
DATE 1-5-98
REVISED 1-5-99
SHEET 1 OF 1