DRAINAGE PLAN

GRAY'S 5TH ADDITION

TO

WICHITA, SEDGWICK COUNTY, KANSAS

Baughman Company, P.A.

DRAINAGE PLAN

GRAY'S 5TH ADDITION

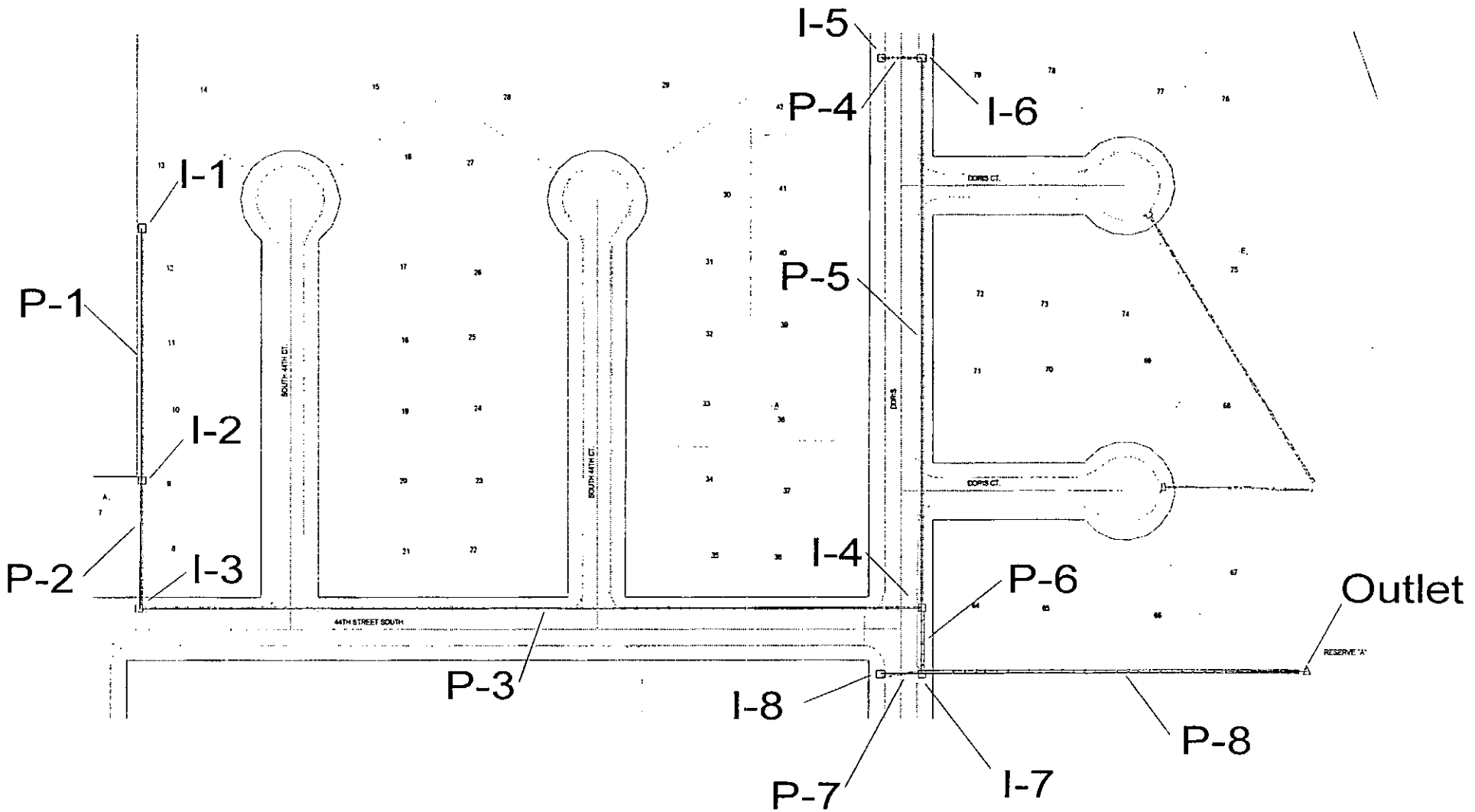
TO

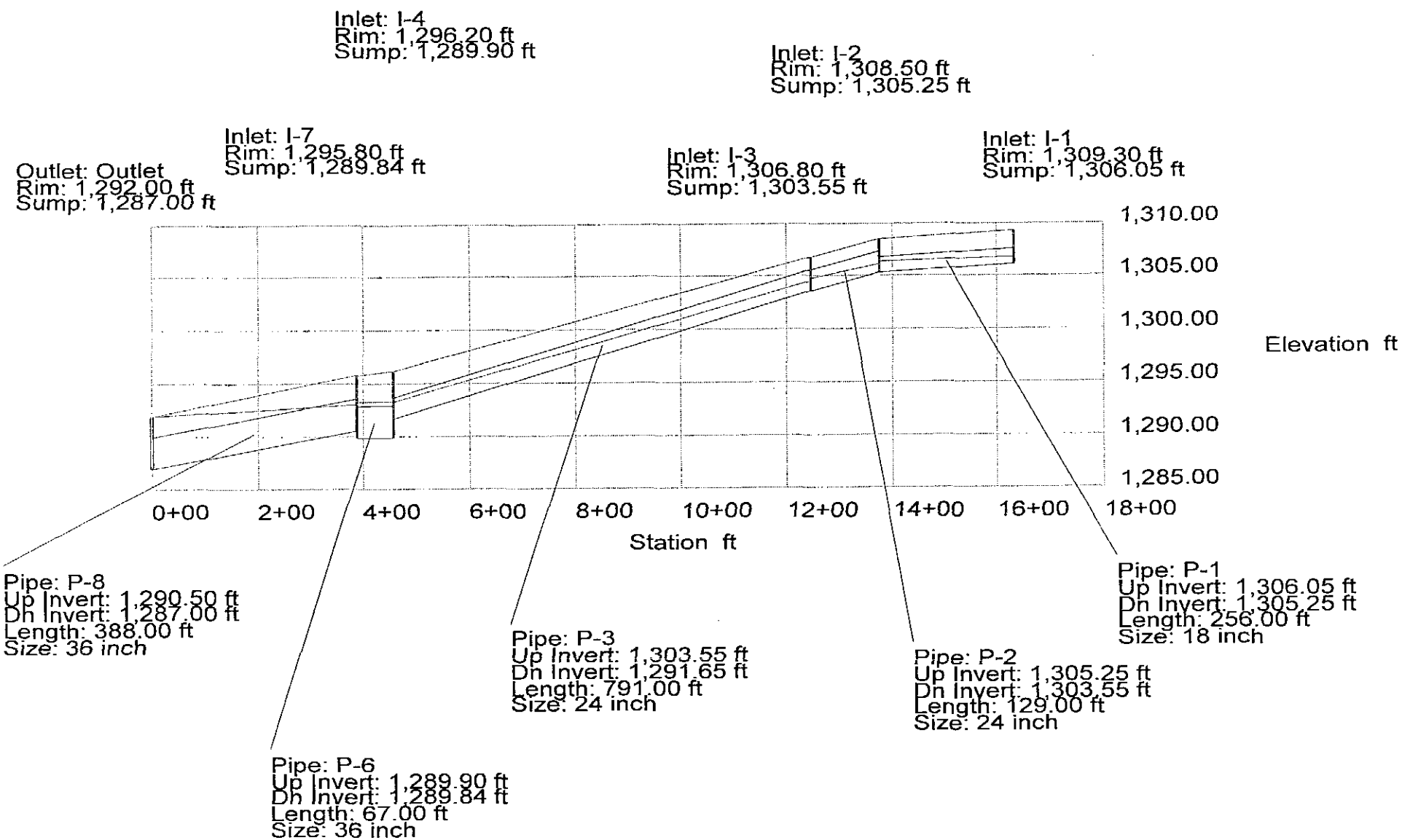
WICHITA, SEDGWICK COUNTY, KANSAS

Prepared By

BAUGHMAN COMPANY, P.A.
ENGINEERING, SURVEYING & PLANNING
316/262-7271 FAX 316/262-0149 WICHITA, KANSAS 67211

November 15, 2001




Inlet: I-4
Rim: 1,296.20 ft
Sump: 1,289.90 ft
Inlet: I-2
Rim: 1,308.50 ft
Sump: 1,305.25 ft
Inlet: I-7
Rim: 1,295.80 ft
Sump: 1,289.84 ft
Inlet: I-3
Rim: 1,306.80 ft
Sump: 1,303.55 ft
Inlet: I-1
Rim: 1,309.30 ft
Sump: 1,306.05 ft
Outlet: Outlet
Rim: 1,292.00 ft
Sump: 1,287.00 ft
1,310.00
1,305.00
1,300.00
1,295.00
1,290.00
1,285.00
Elevation ft
0+00
2+00
4+00
6+00
8+00
10+00
12+00
14+00
16+00
18+00
Station ft
Pipe: P-8
Up Invert: 1,290.50 ft
Dn Invert: 1,287.00 ft
Length: 388.00 ft
Size: 36 inch
Pipe: P-6
Up Invert: 1,289.90 ft
Dn Invert: 1,289.84 ft
Length: 67.00 ft
Size: 36 inch
Pipe: P-3
Up Invert: 1,303.55 ft
Dn Invert: 1,291.65 ft
Length: 791.00 ft
Size: 24 inch
Pipe: P-2
Up Invert: 1,305.25 ft
Dn Invert: 1,303.55 ft
Length: 129.00 ft
Size: 24 inch
Pipe: P-1
Up Invert: 1,306.05 ft
Dn Invert: 1,305.25 ft
Length: 256.00 ft
Size: 18 inch

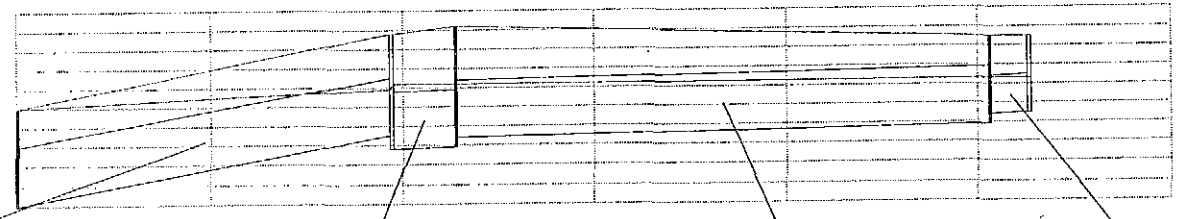
Inlet: I-4
Rim: 1,296.20 ft
Sump: 1,289.90 ft

Inlet: I-5
Rim: 1,295.50 ft
Sump: 1,291.50 ft

Inlet: I-7
Rim: 1,295.80 ft
Sump: 1,289.84 ft

Inlet: I-6
Rim: 1,295.50 ft
Sump: 1,290.96 ft

Outlet: Outlet
Rim: 1,292.00 ft
Sump: 1,287.00 ft



Pipe: P-8
Up Invert: 1,290.50 ft
Dn Invert: 1,287.00 ft
Length: 388.00 ft
Size: 36 inch

Pipe: P-6
Up Invert: 1,289.90 ft
Dn Invert: 1,289.84 ft
Length: 67.00 ft
Size: 36 inch

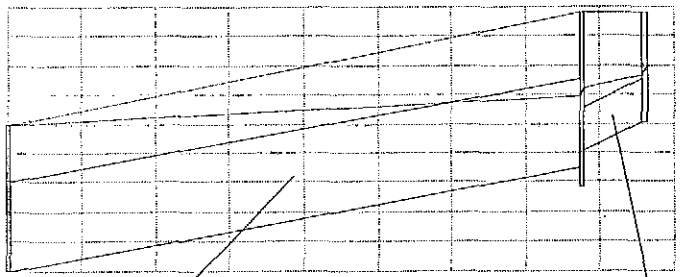
Pipe: P-5
Up Invert: 1,290.96 ft
Dn Invert: 1,290.40 ft
Length: 557.00 ft
Size: 36 inch

Pipe: P-4
Up Invert: 1,291.50 ft
Dn Invert: 1,291.46 ft
Length: 41.00 ft
Size: 24 inch

Inlet: I-8
Rim: 1,295.80 ft
Sump: 1,292.05 ft

Outlet: Outlet
Rim: 1,292.00 ft
Sump: 1,287.00 ft

Inlet: I-7
Rim: 1,295.80 ft
Sump: 1,289.84 ft



Pipe: P-8
Up Invert: 1,290.50 ft
Dn Invert: 1,287.00 ft
Length: 388.00 ft
Size: 36 inch

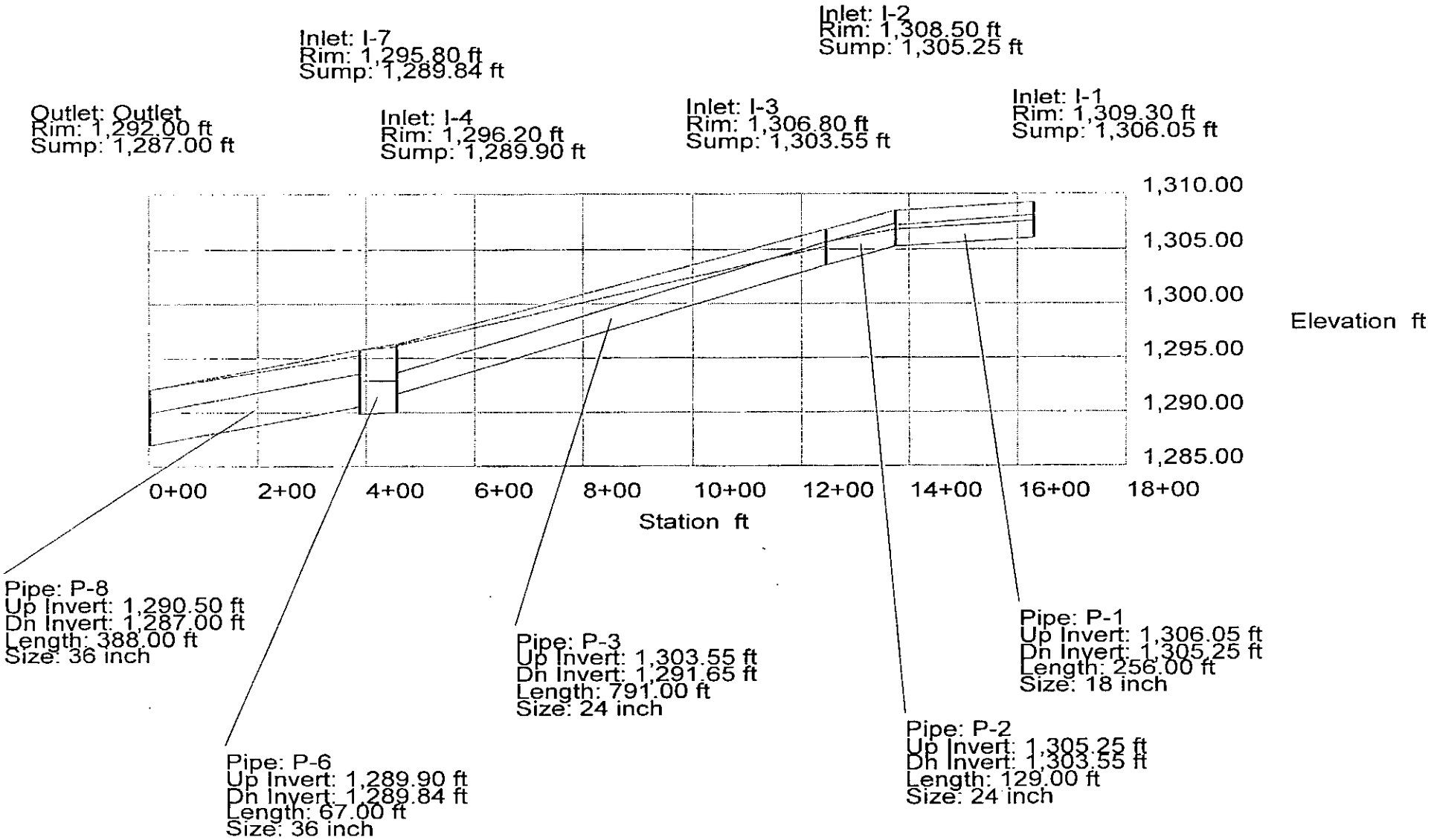
Pipe: P-7
Up Invert: 1,292.05 ft
Dn Invert: 1,291.09 ft
Length: 42.00 ft
Size: 18 inch

Node Report

Node	Inlet A (acres)	C	Tot CA (acres)	TC (min)	Sys Flow Time (min)	I (in/hr)	Tot CIA (cfs)	Add. Q (cfs)	Known Flow (cfs)	Q (cfs)	Gr Elev (ft)	HGL In (ft)	HGL Out (ft)	I (in/hr)
I-8	0.00	0.00	0.00	15.00	15.00	0.00	0.00	11.00	0.00	11.00	1,295.80	1,293.99	1,293.69	0.00
I-5	0.00	0.00	0.00	15.00	15.00	0.00	0.00	5.10	0.00	5.10	1,295.50	1,293.36	1,293.34	0.00
I-6	0.00	0.00	0.00	15.00	15.41	0.00	0.00	0.50	0.00	5.60	1,295.50	1,293.32	1,293.31	0.00
I-1	0.00	0.00	0.00	15.00	15.00	0.00	0.00	2.40	0.00	2.40	1,309.30	1,306.80	1,306.72	0.00
I-2	0.00	0.00	0.00	15.00	16.74	0.00	0.00	4.20	0.00	6.60	1,308.50	1,306.34	1,306.16	0.00
I-3	0.00	0.00	0.00	15.00	17.27	0.00	0.00	1.10	0.00	7.70	1,306.80	1,304.73	1,304.54	0.00
I-4	0.00	0.00	0.00	15.00	26.05	0.00	0.00	0.20	0.00	13.50	1,296.20	1,293.28	1,293.25	0.00
I-7	0.00	0.00	0.00	15.00	26.64	0.00	0.00	11.00	0.00	35.50	1,295.80	1,293.23	1,292.97	0.00
Outlet	N/A	N/A	0.00	N/A	27.85	0.00	0.00	N/A	N/A	N/A	1,292.00	1,292.00	1,292.00	N/A

Pipe Report

Upstream Node	Downstream Node	Inlet Area (acres)	Weighted Roughness Coefficient	Discharge (cfs)	Constructed Slope (ft/ft)	Section Size	Roughness	Section Material	Length (ft)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Upstream Ground Elevation (ft)	Downstream Ground Elevation (ft)	Upstream HGL (ft)	Downstream HGL (ft)
I-8	I-7	0.00	0.00	11.00	0.022976	18 inch	0.013	Concrete	42.00	1,292.05	1,291.09	1,295.80	1,295.80	1,293.69	1,293.23
I-5	I-6	0.00	0.00	5.10	0.001000	24 inch	0.013	Concrete	41.00	1,291.50	1,291.46	1,295.50	1,295.50	1,293.34	1,293.32
I-6	I-4	0.00	0.00	5.60	0.001000	36 inch	0.013	Concrete	557.00	1,290.96	1,290.40	1,295.50	1,296.20	1,293.31	1,293.28
I-1	I-2	0.00	0.00	2.40	0.003125	18 inch	0.013	Concrete	256.00	1,306.05	1,305.25	1,309.30	1,308.50	1,306.72	1,306.34
I-2	I-3	0.00	0.00	6.60	0.013178	24 inch	0.013	Concrete	129.00	1,305.25	1,303.55	1,308.50	1,306.80	1,306.16	1,304.73
I-3	I-4	0.00	0.00	7.70	0.015042	24 inch	0.013	Concrete	791.00	1,303.55	1,291.65	1,306.80	1,296.20	1,304.54	1,293.28
I-4	I-7	0.00	0.00	13.50	0.001000	36 inch	0.013	Concrete	67.00	1,289.90	1,289.84	1,296.20	1,295.80	1,293.25	1,293.23
I-7	Outlet	0.00	0.00	35.50	0.009021	36 inch	0.013	Concrete	388.00	1,290.50	1,287.00	1,295.80	1,292.00	1,292.97	1,292.00


Inlet: I-7
Rim: 1,295.80 ft
Sump: 1,289.84 ft
Inlet: I-2
Rim: 1,308.50 ft
Sump: 1,305.25 ft
Outlet: Outlet
Rim: 1,292.00 ft
Sump: 1,287.00 ft
Inlet: I-4
Rim: 1,296.20 ft
Sump: 1,289.90 ft
Inlet: I-3
Rim: 1,306.80 ft
Sump: 1,303.55 ft
Inlet: I-1
Rim: 1,309.30 ft
Sump: 1,306.05 ft
1,310.00
1,305.00
1,300.00
1,295.00
1,290.00
1,285.00
Elevation ft
0+00
2+00
4+00
6+00
8+00
10+00
12+00
14+00
16+00
18+00
Station ft
Pipe: P-8
Up Invert: 1,290.50 ft
Dn Invert: 1,287.00 ft
Length: 388.00 ft
Size: 36 inch
Pipe: P-6
Up Invert: 1,289.90 ft
Dn Invert: 1,289.84 ft
Length: 67.00 ft
Size: 36 inch
Pipe: P-3
Up Invert: 1,303.55 ft
Dn Invert: 1,291.65 ft
Length: 791.00 ft
Size: 24 inch
Pipe: P-2
Up Invert: 1,305.25 ft
Dn Invert: 1,303.55 ft
Length: 129.00 ft
Size: 24 inch
Pipe: P-1
Up Invert: 1,306.05 ft
Dn Invert: 1,305.25 ft
Length: 256.00 ft
Size: 18 inch

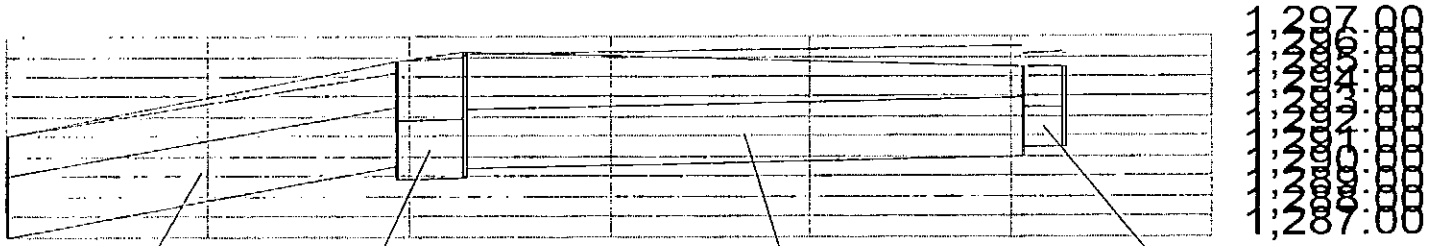
Inlet: I-5
Rim: 1,295.50 ft
Sump: 1,291.50 ft

Inlet: I-7
Rim: 1,295.80 ft
Sump: 1,289.84 ft

Inlet: I-4
Rim: 1,296.20 ft
Sump: 1,289.90 ft

Inlet: I-6
Rim: 1,295.50 ft
Sump: 1,290.96 ft

Outlet: Outlet
Rim: 1,292.00 ft
Sump: 1,287.00 ft



Pipe: P-4
Up Invert: 1,291.50 ft
Dn Invert: 1,291.46 ft
Length: 41.00 ft
Size: 24 inch

Pipe: P-6
Up Invert: 1,289.90 ft
Dn Invert: 1,289.84 ft
Length: 67.00 ft
Size: 36 inch

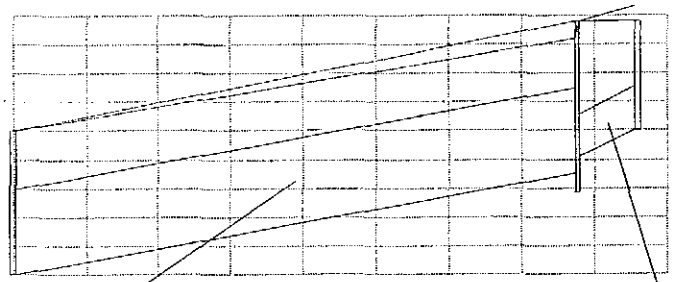
Pipe: P-5
Up Invert: 1,290.96 ft
Dn Invert: 1,290.40 ft
Length: 557.00 ft
Size: 36 inch

Pipe: P-8
Up Invert: 1,290.50 ft
Dn Invert: 1,287.00 ft
Length: 388.00 ft
Size: 36 inch

Inlet: I-7
Rim: 1,295.80 ft
Sump: 1,289.84 ft

Inlet: I-8
Rim: 1,295.80 ft
Sump: 1,292.05 ft

Outlet: Outlet
Rim: 1,292.00 ft
Sump: 1,287.00 ft



1,296.00
1,295.00
1,294.00
1,293.00
1,292.00
1,291.00
1,290.00
1,289.00
1,288.00
1,287.00

Elevation ft

0+00 0+50

Station ft

Pipe: P-8
Up Invert: 1,290.50 ft
Dn Invert: 1,287.00 ft
Length: 388.00 ft
Size: 36 inch

Pipe: P-7
Up Invert: 1,292.05 ft
Dn Invert: 1,291.09 ft
Length: 42.00 ft
Size: 18 inch

Node Report

Node	Inlet A (acres)	C	Tot CA (acres)	TC (min)	Sys Flow Time (min)	I (in/hr)	Tot CIA (cfs)	Add. Q (cfs)	Known Flow (cfs)	Q (cfs)	Gr Elev (ft)	HGL In (ft)	HGL Out (ft)	I (in/hr)
I-8	0.00	0.00	0.00	15.00	15.00	0.00	0.00	12.00	0.00	12.00	1,295.80	1,295.80	1,295.80	0.00
I-5	0.00	0.00	0.00	15.00	15.00	0.00	0.00	8.00	0.00	8.00	1,295.50	1,296.18	1,296.18	0.00
I-6	0.00	0.00	0.00	15.00	15.27	0.00	0.00	8.00	0.00	16.00	1,295.50	1,296.18	1,296.18	0.00
I-1	0.00	0.00	0.00	15.00	15.00	0.00	0.00	6.50	0.00	6.50	1,309.30	1,308.23	1,308.13	0.00
I-2	0.00	0.00	0.00	15.00	16.16	0.00	0.00	11.30	0.00	17.80	1,308.50	1,307.15	1,306.77	0.00
I-3	0.00	0.00	0.00	15.00	16.50	0.00	0.00	2.40	0.00	20.20	1,306.80	1,305.59	1,305.16	0.00
I-4	0.00	0.00	0.00	15.00	19.37	0.00	0.00	0.40	0.00	36.60	1,296.20	1,296.18	1,295.98	0.00
I-7	0.00	0.00	0.00	15.00	19.59	0.00	0.00	12.00	0.00	60.60	1,295.80	1,295.77	1,295.20	0.00
Outlet	N/A	N/A	0.00	N/A	20.34	0.00	0.00	N/A	N/A	N/A	1,292.00	1,292.00	1,292.00	N/A

Pipe Report

Upstream Node	Downstream Node	Inlet Area (acres)	Weighted Roughness Coefficient	Discharge (cfs)	Constructed Slope (ft/ft)	Section Size	Roughness	Section Material	Length (ft)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Upstream Ground Elevation (ft)	Downstream Ground Elevation (ft)	Upstream HGL (ft)	Downstream HGL (ft)
I-8	I-7	0.00	0.00	12.00	0.022976	18 inch	0.013	Concrete	42.00	1,292.05	1,291.09	1,295.80	1,295.80	1,296.32	1,295.77
I-5	I-6	0.00	0.00	8.00	0.001000	24 inch	0.013	Concrete	41.00	1,291.50	1,291.46	1,295.50	1,295.50	1,296.24	1,296.18
I-6	I-4	0.00	0.00	16.00	0.001000	36 inch	0.013	Concrete	557.00	1,290.96	1,290.40	1,295.50	1,296.20	1,296.51	1,296.18
I-1	I-2	0.00	0.00	6.50	0.003125	18 inch	0.013	Concrete	256.00	1,306.05	1,305.25	1,309.30	1,308.50	1,308.13	1,307.15
I-2	I-3	0.00	0.00	17.80	0.013178	24 inch	0.013	Concrete	129.00	1,305.25	1,303.55	1,308.50	1,306.80	1,306.77	1,305.59
I-3	I-4	0.00	0.00	20.20	0.015042	24 inch	0.013	Concrete	791.00	1,303.55	1,291.65	1,306.80	1,296.20	1,305.16	1,296.18
I-4	I-7	0.00	0.00	36.60	0.001000	36 inch	0.013	Concrete	67.00	1,289.90	1,289.84	1,296.20	1,295.80	1,295.98	1,295.77
I-7	Outlet	0.00	0.00	60.60	0.009021	36 inch	0.013	Concrete	388.00	1,290.50	1,287.00	1,295.80	1,292.00	1,295.20	1,292.00

Gray's 5th Add

By BLG Date Page Of

BAUGHMAN COMPANY, P.A.

The three cul-de-sacs located along and discharging into Reserve "A" will be sized using the following assumptions:

1) the largest area will produce the design peak flow
2) the least elevation change will be applied to each
3) the longest pipe run will produce the largest friction loss
4) the discharge outlet is submerged, and under tailwater control
5) the 100-yr WS elev will be tail water constraint regardless of event.

TRY 15" RCP w/ D.A. = 1.2 ac L = 320 ft
TW_{100} = 1292 T.C. = 1295.0

$Q_{100} = (0.59)(7.37)(1.2) = 5.2$ cfs $\Longrightarrow$ use 6 cfs

$$\frac{P_1}{\gamma} + \frac{V_1^2}{2g} + WS_1 = \frac{P_2}{\gamma} + \frac{V_2^2}{2g} + WS_2 + \left[K_e + K_x + \frac{fL}{4R}\right]\left[\frac{\bar{V}^2}{2g}\right]$$

$K_e = 0.5$, $K_x = 1.0$, $\frac{fL}{4R} = \frac{(0.022)(320)}{4R}$, $R = 0.3125$

$$WS_1 = 1292 + \left[0.5 + 1.0 + \frac{0.022\,(320)}{4\,(0.3125)}\right]\frac{\bar{V}^2}{2g}$$

$$WS_1 = 1292 + 7.13\,\frac{(4.89)^2}{2g} \qquad V = \frac{Q}{A} = \frac{6}{1.23} = 4.89$$

$WS_1 = 1294.6$ $WS_1 < T.C. \Longrightarrow$ <u>use 15"</u>

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*             MAY  1991                *
*          VERSION 4.0.1E              *
*     Lahey F77L-EM/32 version 5.01    *
*       Dodson & Associates, Inc.      *
*  RUN DATE  11/15/01  TIME  12:18:41  *
****************************************
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****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*         609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 551-1748             *
*                                      *
****************************************
```

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

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


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

    1         ID  GRAY'S 5TH ADDITION
              *
    2         IT       5 15NOV01    0000     300                    2000
    3         IO       3       0
    4         JR    PREC  1.0000  1.3143  1.5143  1.7714  2.0000  2.2286
              *DIAGRAM
              *
              * EXISTING

    5         KK   EXIST
    6         BA   0.072                                          35min   24hr
    7         PB     3.5                                           1.42     3.5
    8         IN      60                                          4.375      60
    9         PC       0   0.011   0.022   0.035   0.048   0.063   0.080   0.098   0.120   0.147
   10         PC   0.181   0.235   0.663   0.772   0.820   0.854   0.880   0.902   0.921   0.937
   11         PC   0.952   0.965   0.978   0.989   1.000
   12         UD     .35
   13         LS       0      76
              *

   14         KK   DEVEL
   15         BA    .072
   16         UD    0.20
   17         LS       0      88       0
              *

   18         KK    POND
   19         RS       1    ELEV    1289
   20         SA     1.8     2.3
   21         SE    1288    1292
   22         SS    1289       8    2.86     1.5
              *
   23         ZZ
```

```
          *             *
  5 KK    *     EXIST   *
          *             *
          ***************

  8 IN          TIME DATA FOR INPUT TIME SERIES
                      JXMIN         60  TIME INTERVAL IN MINUTES
                     JXDATE     15NOV 1  STARTING DATE
                     JXTIME          0  STARTING TIME

              SUBBASIN RUNOFF DATA

  6 BA          SUBBASIN CHARACTERISTICS
                      TAREA       0.07  SUBBASIN AREA

                PRECIPITATION DATA

  7 PB                STORM       3.50  BASIN TOTAL PRECIPITATION

  9 PI            INCREMENTAL PRECIPITATION PATTERN
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.04     0.04     0.04     0.04     0.04     0.04     0.04     0.04
                     0.04     0.04     0.04     0.04     0.01     0.01     0.01     0.01     0.01     0.01
                     0.01     0.01     0.01     0.01     0.01     0.01     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00

 13 LS          SCS LOSS RATE
                      STRTL       0.63  INITIAL ABSTRACTION
                     CRVNBR      76.00  CURVE NUMBER
                      RTIMP       0.00  PERCENT IMPERVIOUS AREA

 12 UD          SCS DIMENSIONLESS UNITGRAPH
                       TLAG       0.35  LAG

                                                           ***

                                                    UNIT HYDROGRAPH
                                               23 END-OF-PERIOD ORDINATES
              10.       31.       64.       85.       88.       78.       61.       41.       29.       21.
              15.       10.        7.        5.        4.        3.        2.        1.        1.        1.
               0.        0.        0.

   TOTAL RAINFALL =     3.50, TOTAL LOSS =     2.13, TOTAL EXCESS =     1.37

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR        24-HR        72-HR      24.92-HR
+  (CFS)        (HR)
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+   (CFS)       (HR)
                          (CFS)
+      80.     12.08                  22.          7.          7.           7.
                        (INCHES)    2.858       3.552       3.552        3.552
                         (AC-FT)      11.         14.         14.          14.

                       CUMULATIVE AREA =     0.07 SQ MI

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

                        HYDROGRAPH AT STATION    EXIST
                          FOR PLAN 1, RATIO = 2.00

     TOTAL RAINFALL =    7.00, TOTAL LOSS =    2.74, TOTAL EXCESS =    4.26

   PEAK FLOW     TIME                           MAXIMUM AVERAGE FLOW
                                         6-HR        24-HR       72-HR      24.92-HR
+   (CFS)       (HR)
                          (CFS)
+      96.     12.08                  26.          8.          8.           8.
                        (INCHES)    3.413       4.256       4.256        4.256
                         (AC-FT)      13.         16.         16.          16.

                       CUMULATIVE AREA =     0.07 SQ MI

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

                        HYDROGRAPH AT STATION    EXIST
                          FOR PLAN 1, RATIO = 2.23

     TOTAL RAINFALL =    7.80, TOTAL LOSS =    2.82, TOTAL EXCESS =    4.98

   PEAK FLOW     TIME                           MAXIMUM AVERAGE FLOW
                                         6-HR        24-HR       72-HR      24.92-HR
+   (CFS)       (HR)
                          (CFS)
+     112.     12.08                  31.         10.          9.           9.
                        (INCHES)    3.976       4.975       4.975        4.975
                         (AC-FT)      15.         19.         19.          19.

                       CUMULATIVE AREA =     0.07 SQ MI

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

              **************
              *            *
   14 KK      *    DEVEL   *
              *            *
              **************

                 SUBBASIN RUNOFF DATA

   15 BA           SUBBASIN CHARACTERISTICS
                        TAREA        0.07  SUBBASIN AREA

                   PRECIPITATION DATA

    7 PB                STORM        3.50  BASIN TOTAL PRECIPITATION

    9 PI             INCREMENTAL PRECIPITATION PATTERN
                       0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                       0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                       0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                       0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                       0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
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*** *** *** *** ***

HYDROGRAPH AT STATION DEVEL
FOR PLAN 1, RATIO = 1.31

TOTAL RAINFALL = 4.60, TOTAL LOSS = 1.31, TOTAL EXCESS = 3.29

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
		(CFS)			
+ 78.	12.00	20.	6.	6.	6.
		(INCHES) 2.606	3.290	3.290	3.290
		(AC-FT) 10.	13.	13.	13.

CUMULATIVE AREA = 0.07 SQ MI

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

HYDROGRAPH AT STATION DEVEL
FOR PLAN 1, RATIO = 1.51

TOTAL RAINFALL = 5.30, TOTAL LOSS = 1.35, TOTAL EXCESS = 3.95

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
		(CFS)			
+ 93.	12.00	24.	8.	7.	7.
		(INCHES) 3.116	3.955	3.955	3.955
		(AC-FT) 12.	15.	15.	15.

CUMULATIVE AREA = 0.07 SQ MI

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

HYDROGRAPH AT STATION DEVEL
FOR PLAN 1, RATIO = 1.77

TOTAL RAINFALL = 6.20, TOTAL LOSS = 1.38, TOTAL EXCESS = 4.82

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
		(CFS)			
+ 111.	12.00	29.	9.	9.	9.
		(INCHES) 3.773	4.819	4.819	4.819
		(AC-FT) 14.	19.	19.	19.

CUMULATIVE AREA = 0.07 SQ MI

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

HYDROGRAPH AT STATION DEVEL
FOR PLAN 1, RATIO = 2.00

TOTAL RAINFALL = 7.00, TOTAL LOSS = 1.41, TOTAL EXCESS = 5.59

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
		(CFS)			
+ 128.	12.00	34.	11.	10.	10.
		(INCHES) 4.357	5.593	5.593	5.593
		(AC-FT) 17.	21.	21.	21.

CUMULATIVE AREA = 0.07 SQ MI

OUTFLOW	20.38	27.13	35.23	44.79	55.94	68.80	83.50	100.15	118.89
ELEVATION	1289.93	1290.12	1290.33	1290.56	1290.81	1291.08	1291.37	1291.68	1292.00

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

HYDROGRAPH AT STATION POND
FOR PLAN 1, RATIO = 1.00

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
		(CFS)				
+ 35.	12.25		14.	4.	4.	4.
		(INCHES)	1.745	2.199	2.199	2.199
		(AC-FT)	7.	8.	8.	8.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)					
5.	12.25		3.	2.	2.	2.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)					
1290.32	12.25		1289.67	1289.25	1289.24	1289.24

CUMULATIVE AREA = 0.07 SQ MI

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

HYDROGRAPH AT STATION POND
FOR PLAN 1, RATIO = 1.31

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
		(CFS)				
+ 54.	12.25		20.	6.	6.	6.
		(INCHES)	2.542	3.207	3.207	3.207
		(AC-FT)	10.	12.	12.	12.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)					
5.	12.25		4.	2.	2.	2.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)					
1290.77	12.25		1289.85	1289.32	1289.31	1289.31

CUMULATIVE AREA = 0.07 SQ MI

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

HYDROGRAPH AT STATION POND
FOR PLAN 1, RATIO = 1.51

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
		(CFS)				
+ 66.	12.25		24.	7.	7.	7.
		(INCHES)	3.051	3.864	3.864	3.864
		(AC-FT)	12.	15.	15.	15.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)					

+	112.	12.17		38.	12.	12.	12.
			(INCHES)	4.873	6.258	6.258	6.258
			(AC-FT)	19.	24.	24.	24.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)				
8.	12.17	4.	3.	3.	3.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)				
1291.89	12.17	1290.30	1289.52	1289.50	1289.50

CUMULATIVE AREA = 0.07 SQ MI

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION RATIO 1	RATIO 2	RATIO 3	RATIO 4	RATIO 5	RATIO 6
					1.00	1.31	1.51	1.77	2.00	2.23
HYDROGRAPH AT										
+	EXIST	0.07	1	FLOW	31.	50.	63.	80.	96.	112.
				TIME	12.17	12.17	12.08	12.08	12.08	12.08
HYDROGRAPH AT										
+	DEVEL	0.07	1	FLOW	55.	78.	93.	111.	128.	144.
				TIME	12.00	12.00	12.00	12.00	12.00	12.00
ROUTED TO										
+	POND	0.07	1	FLOW	35.	54.	66.	83.	98.	112.
				TIME	12.25	12.25	12.25	12.17	12.17	12.17
			** PEAK STAGES IN FEET **							
			1	STAGE	1290.32	1290.77	1291.03	1291.36	1291.63	1291.89
				TIME	12.25	12.25	12.25	12.17	12.17	12.17

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