Property of
Flood Control District of MC Library
Please Return to
2801 W. Durango
Phoenix, AZ 85009

PRICE

SANTAN

SOUTH MOUNTAIN

Arizona
Loop 101 South

Final Concept Drainage Report

South Mountain Freeway

I-10 Papago to I-10 Maricopa

Volume III: Technical Appendix
Segments IV and V

Contract 88-24
Price Expressway
General Consultant
TRACS No. H-2222-01D

Prepared for :

Arizona Department of Transportation

Prepared by:

HDR Engineering, Inc.

Phoenix, Arizona

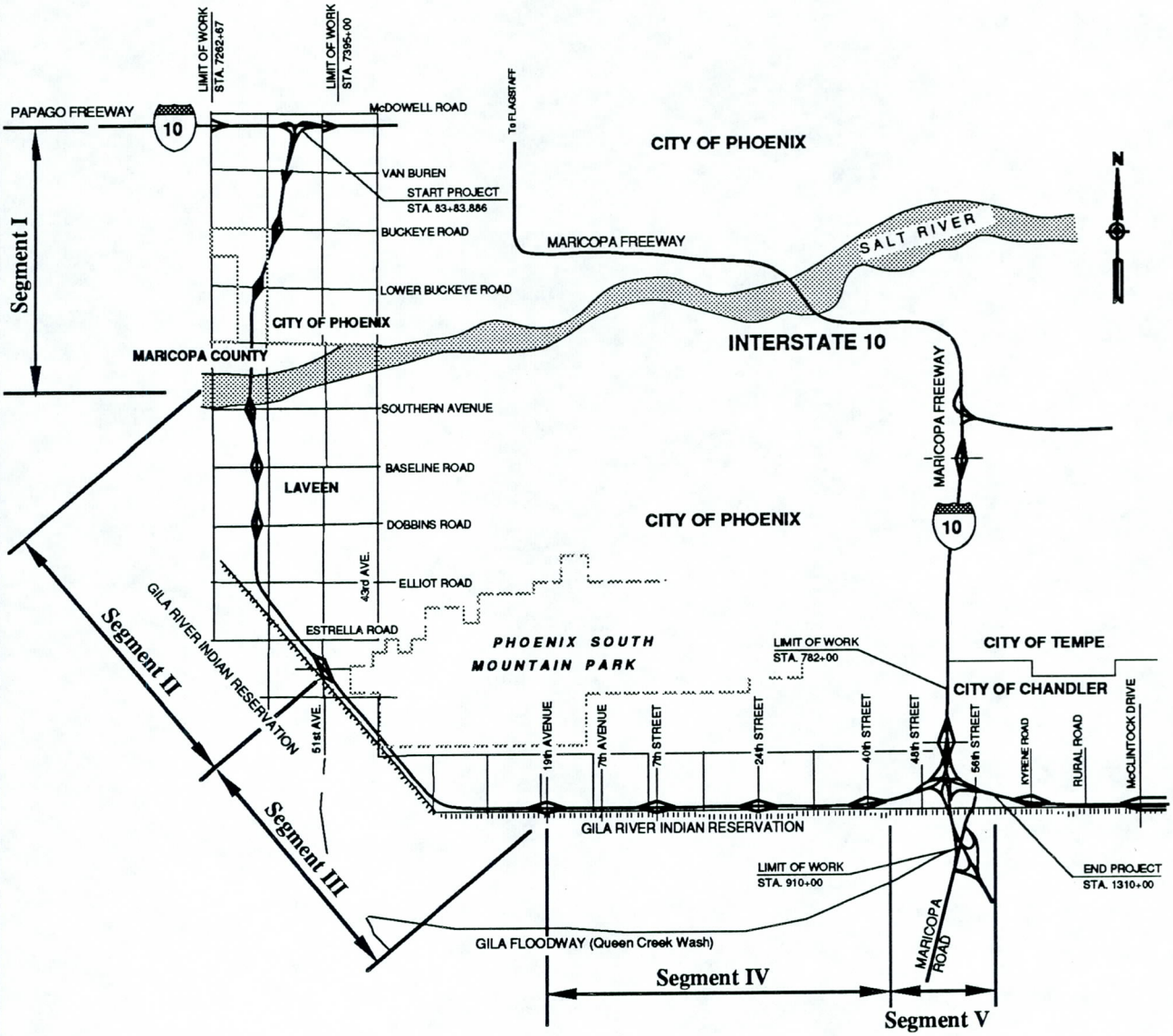
REGISTERED PROFESSIONAL ENGINEER (CIVIL)
CERTIFICATE NO.
25118
JEROME J.
ZOVNE
Date Signed 2-26-93
ARIZONA U.S.A.

February, 1993

South Mountain Freeway Concept Drainage Report
Volume III
Technical Appendix
Table of Contents

Description of Item	Page
SEGMENT IV	
1. Project Location Map	602
2. Precipitation Calculations	603
3. Subarea Parameter Sheets	606
4. SCS Curve Number Calculations	607
5. HEC-1 Analysis (fn=GOLDMAN)	608
6. Culvert Design Sheets	
Design Discharge Summary for C200 thru C218	619
C-200	620
C-201	624
C-202	628
C-203	632
C-204	636
C-205	640
C-206	644
C-207	648
C-208	652
C-209	656
C-210	660
C-211	663
C-212	666
C-213	669
C-214	672
C-215	675
C-216	678
C-217	681
C-218	684
7. Channel Design Sheets	
Channel Construction Detail (Suggested)	686A
Main Off-Site Channel to C-202	687

Description of Item	Page
SEGMENT IV continued	
Main Off-Site Channel to C-203	688
Main Off-Site Channel to C-204	689
Sta. 956+00 to Sta. 958+40	690
958+40 to 959+50	691
Main Off-Site Channel to C-210	692
Main Off-Site Channel to C-211	693
Main Off-Site Channel to C-212	694
Main Off-Site Channel to C-213	695
Relocated 600 cfs Channel (Goldman Ranch)	696
Main Off-Site Channel to C-218	697
8. Salt River Project Basin Criteria	697A
SEGMENT V	
1. Precipitation Calculations	698
2. Subarea Parameter Sheets	701
3. SCS Curve Number Calculations	713
4. HEC-1 Analyses	
Q50 Off-Site (fn=PRICE5)	716
Q100 Off-Site (fn=PRICE5)	794
Q50 On-Site (fn=SPUMP)	874
Q100 Off-Site (fn=SPUMP100)	968
5. Culvert Design Sheets	
C-219	1044
C-227 (56th Street)	1047
6. Channel Design Sheets	
Sta. 1207+50 to Sta. 1217+00	1050
1217+00 to 1241+70	1051
1242+00 to 1247+00	1052
1247+00 to SW 15+00	1053
SW 15+00 to SW 5+80	1054
Santan Collector	1055
7. On-Site System Calculations	
Rational Subarea Calculations	1057
Storm Drain Hydraulic Calculations	1058
Manhole Loss Calculations	1059



CONTRACT 88-24
SOUTH MOUNTAIN FREEWAY
GENERAL CONSULTANT
TRACS NO. H-2222-01D

CONCEPT DRAINAGE REPORT
FIGURE I.1
PROJECT LOCATION MAP

HDR Engineering, Inc.

SOUTH MOUNTAIN FREEWAY
SEGMENT IV
TECHNICAL APPENDIX

SEGMENT IV
PRECIPITATION CALCULATIONS

Job No. | No.

Computation

HDR

Project PRICE ROAD GEC - PH II		Computed SMC	Date 01-14-92
Subject SMF Hydrology Study		Checked	Date
Task Recip Values SMF - I-10 Maricopa IC.		Sheet 1	Of 3

1 hr values.

$$Y_2 = -0.011 + 0.942\left(\frac{1.24^2}{1.50}\right)$$
$$= 0.955$$

$$Y_{100} = 0.494 + 0.755\left(\frac{3.37^2}{4.0}\right)$$
$$= 2.638$$

Duration	5 mins	15 min	60 min	2 hr	3 hr	6 hr	12 hr	24 hr
Return Period (yrs)								
50	0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52
100	0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00

NOTE: These values used for Segments N & V.

ADDENDUM to "HYDROLOGIC DESIGN FOR HIGHWAY DRAINAGE IN ARIZONA" April 1975

Steps to be used to determine precipitation values for various durations and return periods.

STEP 1. From the precipitation maps in the manual "Hydrologic Design for Highway Drainage in Arizona", determine the precipitation values for the 6 and 24 hour duration storms for return periods of 2, 5, 10, 25, 50 and 100 years. Tabulate these values in Table 1 in the column headed 'Map Values'

TABLE 1

PRICE ROAD - Ph III , SMF - I-10 Maricopa IC. 9-14-92.

Return Period (Years)	1hr / Corrected Value	Precipitation Values (inches)			
		6 hour duration		24 hour duration	
		Map Value	Corrected Value	Map Value	Corrected Value
2	0.96	1.2	1.24	1.5	1.50
5	1.37	1.7	1.77	2.1	2.12
10	1.63	2.1	2.11	2.5	2.52
25	2.0	2.65	2.55	3.2	3.06
50	2.31	3.0	2.97	3.5	3.52
100	2.64	3.3	3.37	4.0	4.00

NOTE: There is a possibility of making an error while reading the maps because, (1) a site is not easy to locate precisely on a series of 12 maps, (2) there may be some slight registration differences in printing, and (3) precise interpolation between isolines is difficult. In order to minimize any errors in reading the maps, these values should be plotted on the diagram "Precipitation Depth versus Return Period" Fig. 1.

Project No. PRICE ROAD - PH III
01-14-92

Station SEGMENT IV & V

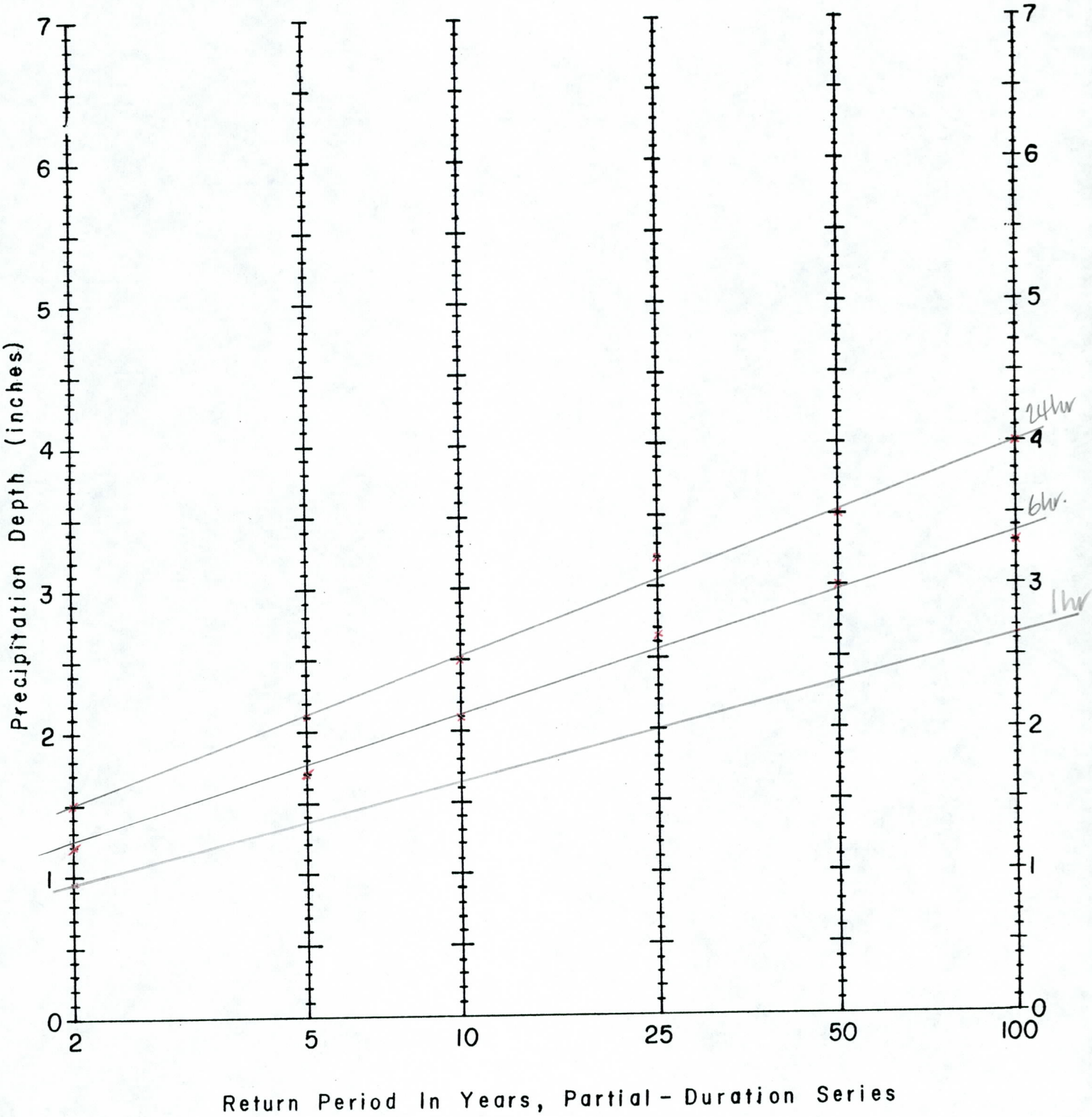


Figure 1 Precipitation Depth Versus Return Period for Partial – Duration Series

605

SEGMENT IV
SUBAREA PARAMETER SHEETS
(TIME OF CONCENTRATION CALCULATIONS)

Price Road GEC
South Mountain Freeway

SUBAREA PARAMETERS

Subarea Number: Goldman

Drainage Area: 0.220 Square Miles

Time of Concentration:

Overland Flow Length		100	feet
N Value		0.05	
2-Year Precipitation		1.55	inches
Upstream Elevation			feet
Downstream Elevation			feet
Overland Flow Slope		0.100	ft/ft
Overland Flow Velocity		0.56	fps
Overland Travel Time		0.05	hours
Shallow Concentrated Flow Length		300	feet
Upstream Elevation			feet
Downstream Elevation			feet
Slope		0.286	ft/ft
Velocity		8.6	fps
Conc. Flow Travel Time		0.01	hours
Channel Flow Length	1700	1500	feet
Upstream Elevation	1190	1170	feet
Downstream Elevation	1170	1165	feet
Channel Slope	0.012	0.003	ft/ft
Channel Velocity	5.2	3.1	fps
Channel Travel Time		0.23	hours
TOTAL TRAVEL TIME		0.28	hours
Tlag		0.17	hours

Curve Number: 85.5

Routing Through Downstream Waterway:

Routing Length	feet
Upstream Elevation	feet
Downstream Elevation	feet
Routing Slope	ft/ft
Manning N Value	
Bottom Width	feet
Side Slope	h/v
Method Used	

SEGMENT IV
SCS CURVE NUMBER CALCULATIONS

Price Road Phase III
Hydrology (South Mountain Freeway)

Computed SMc Date 5-6-92
Sheet 1 of

Subarea Goldman D.A. = 144 acres

Land use acreage values approx. from aerial photography

Land use	Soil Group	Area	CN
mtn desert shrub	D	58	98
	B	86	77

Composite CN = 85.5

(Historical Curve No. used. No master drainage plan available at time of this report.)

SEGMENT IV
HEC-1 ANALYSES

EC1 S/N: HMVersion: 6.00 Data File: c:\scott\goldman

```
*****************************************
*                                       *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)    *
*        SEPTEMBER 1990                 *
*         VERSION 4.0                   *
*                                       *
*  RUN DATE  02/13/1992  TIME  13:57:56 *
*                                       *
*****************************************
```


```
*****************************************
*                                       *
*    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
```

```
::::::::::::::::::::::::::::::::::::::::::::
::::::::::::::::::::::::::::::::::::::::::::
:::                                      :::
:::  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

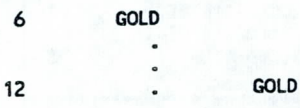
```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

   1      ID        PRICE ROAD PHASE III HYDROLOGY CHECK                <GOLDMAN>
   2      ID        SOUTH MOUNTAIN (19TH AVE TO I-10 MARICOPA)
   3      ID        50-YEAR & 100-YEAR 24-HOUR STORM EVENT
          *DIAGRAM
   4      IT      10                    300
   5      IO       3

   6      KK    GOLDMAN
   7      PH              0    0.79    1.55    2.72    2.97    3.14    3.45    3.74    4.05
   8      BA    0.22
   9      LS           85.5
  10      UD    0.17
  11      KO       1

  12      KK    GOLDMAN
  13      PH              0    0.69    1.35    2.37    2.60    2.76    3.05    3.32    3.60
  14      BA    0.22
  15      LS           85.5
  16      UD    0.17
  17      KO       1
  18      ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO.

(V) ROUTING (---->) DIVERSION OR PUMP FLOW

(.) CONNECTOR (<----) RETURN OF DIVERTED OR PUMPED FLOW



***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
EC1 S/N:                    HMVersion: 6.00   Data File: c:\scott\goldman

*******************************************                          ***************************************
                                          *                          *                                     *
  FLOOD HYDROGRAPH PACKAGE  (HEC-1)       *                          *   U.S. ARMY CORPS OF ENGINEERS      *
           SEPTEMBER 1990                 *                          *   HYDROLOGIC ENGINEERING CENTER     *
            VERSION 4.0                   *                          *         609 SECOND STREET           *
                                          *                          *      DAVIS, CALIFORNIA 95616        *
  RUN DATE  02/13/1992  TIME  13:57:56    *                          *          (916) 756-1104             *
                                          *                          *                                     *
*******************************************                          ***************************************


                        PRICE ROAD PHASE III HYDROLOGY CHECK              <GOLDMAN>
                        SOUTH MOUNTAIN (19TH AVE TO I-10 MARICOPA)
                        50-YEAR & 100-YEAR 24-HOUR STORM EVENT

  5 IO        OUTPUT CONTROL VARIABLES
                    IPRNT          3  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT        HYDROGRAPH TIME DATA
                     NMIN         10  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1   0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      3   0  ENDING DATE
                   NDTIME       0150  ENDING TIME
                    ICENT         19  CENTURY MARK

             COMPUTATION INTERVAL     .17 HOURS
                  TOTAL TIME BASE   49.83 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

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

         ***************
         *             *
  6 KK   *     GOLD    *     MAN
         *             *
         ***************

 11 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          1  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

           SUBBASIN RUNOFF DATA

  8 BA        SUBBASIN CHARACTERISTICS
                    TAREA        .22  SUBBASIN AREA

              PRECIPITATION DATA

  7 PH                              DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
              ..... HYDRO-35 ......   ............... TP-40 ...............   ........... TP-49 ...........
              5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                .79    1.55    2.72    2.97    3.14    3.45    3.74    4.05     .00     .00     .00     .00

                                           STORM AREA =      .22

  9 LS        SCS LOSS RATE
                   STRTL         .34  INITIAL ABSTRACTION                 611
                  CRVNBR       85.50  CURVE NUMBER
```

RTIMP .00 PERCENT IMPERVIOUS AREA

10 UD SCS DIMENSIONLESS UNITGRAPH
TLAG .17 LAG

***

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

UNIT HYDROGRAPH
7 END-OF-PERIOD ORDINATES
313. 353. 122. 43. 15. 5. 2.

HYDROGRAPH AT STATION GOLD

DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
1		0000	1	.00	.00	.00	0.	2		0100	151	.00	.00	.00	0.
1		0010	2	.00	.00	.00	0.	2		0110	152	.00	.00	.00	0.
1		0020	3	.00	.00	.00	0.	2		0120	153	.00	.00	.00	0.
1		0030	4	.00	.00	.00	0.	2		0130	154	.00	.00	.00	0.
1		0040	5	.00	.00	.00	0.	2		0140	155	.00	.00	.00	0.
1		0050	6	.00	.00	.00	0.	2		0150	156	.00	.00	.00	0.
1		0100	7	.00	.00	.00	0.	2		0200	157	.00	.00	.00	0.
1		0110	8	.00	.00	.00	0.	2		0210	158	.00	.00	.00	0.
1		0120	9	.00	.00	.00	0.	2		0220	159	.00	.00	.00	0.
1		0130	10	.00	.00	.00	0.	2		0230	160	.00	.00	.00	0.
1		0140	11	.00	.00	.00	0.	2		0240	161	.00	.00	.00	0.
1		0150	12	.00	.00	.00	0.	2		0250	162	.00	.00	.00	0.
1		0200	13	.00	.00	.00	0.	2		0300	163	.00	.00	.00	0.
1		0210	14	.00	.00	.00	0.	2		0310	164	.00	.00	.00	0.
1		0220	15	.00	.00	.00	0.	2		0320	165	.00	.00	.00	0.
1		0230	16	.00	.00	.00	0.	2		0330	166	.00	.00	.00	0.
1		0240	17	.00	.00	.00	0.	2		0340	167	.00	.00	.00	0.
1		0250	18	.00	.00	.00	0.	2		0350	168	.00	.00	.00	0.
1		0300	19	.00	.00	.00	0.	2		0400	169	.00	.00	.00	0.
1		0310	20	.00	.00	.00	0.	2		0410	170	.00	.00	.00	0.
1		0320	21	.00	.00	.00	0.	2		0420	171	.00	.00	.00	0.
1		0330	22	.00	.00	.00	0.	2		0430	172	.00	.00	.00	0.
1		0340	23	.00	.00	.00	0.	2		0440	173	.00	.00	.00	0.
1		0350	24	.00	.00	.00	0.	2		0450	174	.00	.00	.00	0.
1		0400	25	.00	.00	.00	0.	2		0500	175	.00	.00	.00	0.
1		0410	26	.00	.00	.00	0.	2		0510	176	.00	.00	.00	0.
1		0420	27	.00	.00	.00	0.	2		0520	177	.00	.00	.00	0.
1		0430	28	.00	.00	.00	0.	2		0530	178	.00	.00	.00	0.
1		0440	29	.00	.00	.00	0.	2		0540	179	.00	.00	.00	0.
1		0450	30	.01	.01	.00	0.	2		0550	180	.00	.00	.00	0.
1		0500	31	.01	.01	.00	0.	2		0600	181	.00	.00	.00	0.
1		0510	32	.01	.01	.00	0.	2		0610	182	.00	.00	.00	0.
1		0520	33	.01	.01	.00	0.	2		0620	183	.00	.00	.00	0.
1		0530	34	.01	.01	.00	0.	2		0630	184	.00	.00	.00	0.
1		0540	35	.01	.01	.00	0.	2		0640	185	.00	.00	.00	0.
1		0550	36	.01	.01	.00	0.	2		0650	186	.00	.00	.00	0.
1		0600	37	.01	.01	.00	0.	2		0700	187	.00	.00	.00	0.
1		0610	38	.01	.01	.00	0.	2		0710	188	.00	.00	.00	0.
1		0620	39	.01	.01	.00	0.	2		0720	189	.00	.00	.00	0.
1		0630	40	.01	.01	.00	0.	2		0730	190	.00	.00	.00	0.
1		0640	41	.01	.01	.00	0.	2		0740	191	.00	.00	.00	0.
1		0650	42	.01	.01	.00	0.	2		0750	192	.00	.00	.00	0.
1		0700	43	.01	.01	.00	0.	2		0800	193	.00	.00	.00	0.
1		0710	44	.01	.01	.00	0.	2		0810	194	.00	.00	.00	0.
1		0720	45	.01	.01	.00	0.	2		0820	195	.00	.00	.00	0.
1		0730	46	.01	.01	.00	0.	2		0830	196	.00	.00	.00	0.
1		0740	47	.01	.01	.00	0.	2		0840	197	.00	.00	.00	0.
1		0750	48	.01	.01	.00	0.	2		0850	198	.00	.00	.00	0.
1		0800	49	.01	.01	.00	0.	2		0900	199	.00	.00	.00	0.
1		0810	50	.01	.01	.00	0.	2		0910	200	.00	.00	.00	0.
1		0820	51	.01	.01	.00	0.	2		0920	201	.00	.00	.00	0.
1		0830	52	.01	.01	.00	0.	2		0930	202	.00	.00	.00	0.
1		0840	53	.01	.01	.00	0.	2		0940	203	.00	.00	.00	0.
1		0850	54	.01	.01	.00	0.	2		0950	204	.00	.00	.00	0.
1		0900	55	.01	.01	.00	0.	2		1000	205	.00	.00	.00	0.
1		0910	56	.01	.01	.00	0.	2		1010	206	.00	.00	.00	0.
1		0920	57	.01	.01	.00	0.	2		1020	207	.00	.00	.00	0.
1		0930	58	.01	.01	.00	0.	2		1030	208	.00	.00	.00	0.
1		0940	59	.02	.02	.00	0.	2		1040	209	.00	.00	.00	0.

1	0950	60	.02	.02	.00	0.	*	2	1050	210	.00	.00	.00	0.
1	1000	61	.02	.02	.00	0.	*	2	1100	211	.00	.00	.00	0.
1	1010	62	.02	.02	.00	1.	*	2	1110	212	.00	.00	.00	0.
1	1020	63	.02	.02	.00	1.	*	2	1120	213	.00	.00	.00	0.
1	1030	64	.02	.02	.00	2.	*	2	1130	214	.00	.00	.00	0.
1	1040	65	.02	.02	.00	2.	*	2	1140	215	.00	.00	.00	0.
1	1050	66	.03	.02	.00	3.	*	2	1150	216	.00	.00	.00	0.
1	1100	67	.03	.03	.01	4.	*	2	1200	217	.00	.00	.00	0.
1	1110	68	.03	.03	.01	5.	*	2	1210	218	.00	.00	.00	0.
1	1120	69	.04	.03	.01	6.	*	2	1220	219	.00	.00	.00	0.
1	1130	70	.05	.03	.01	8.	*	2	1230	220	.00	.00	.00	0.
1	1140	71	.17	.11	.06	25.	*	2	1240	221	.00	.00	.00	0.
1	1150	72	.23	.13	.10	56.	*	2	1250	222	.00	.00	.00	0.
1	1200	73	.53	.21	.31	143.	*	2	1300	223	.00	.00	.00	0.
1	1210	74	1.24	.29	.95	422.	*	2	1310	224	.00	.00	.00	0.
1	1220	75	.36	.05	.30	472.	*	2	1320	225	.00	.00	.00	0.
1	1230	76	.20	.03	.17	290.	*	2	1330	226	.00	.00	.00	0.
1	1240	77	.05	.01	.05	157.	*	2	1340	227	.00	.00	.00	0.
1	1250	78	.04	.01	.04	77.	*	2	1350	228	.00	.00	.00	0.
1	1300	79	.04	.00	.03	45.	*	2	1400	229	.00	.00	.00	0.
1	1310	80	.03	.00	.03	32.	*	2	1410	230	.00	.00	.00	0.
1	1320	81	.03	.00	.03	26.	*	2	1420	231	.00	.00	.00	0.
1	1330	82	.03	.00	.02	22.	*	2	1430	232	.00	.00	.00	0.
1	1340	83	.02	.00	.02	20.	*	2	1440	233	.00	.00	.00	0.
1	1350	84	.02	.00	.02	18.	*	2	1450	234	.00	.00	.00	0.
1	1400	85	.02	.00	.02	16.	*	2	1500	235	.00	.00	.00	0.
1	1410	86	.02	.00	.02	15.	*	2	1510	236	.00	.00	.00	0.
1	1420	87	.02	.00	.02	14.	*	2	1520	237	.00	.00	.00	0.
1	1430	88	.02	.00	.01	13.	*	2	1530	238	.00	.00	.00	0.
1	1440	89	.02	.00	.01	12.	*	2	1540	239	.00	.00	.00	0.
1	1450	90	.01	.00	.01	11.	*	2	1550	240	.00	.00	.00	0.
1	1500	91	.01	.00	.01	11.	*	2	1600	241	.00	.00	.00	0.
1	1510	92	.01	.00	.01	10.	*	2	1610	242	.00	.00	.00	0.
1	1520	93	.01	.00	.01	9.	*	2	1620	243	.00	.00	.00	0.
1	1530	94	.01	.00	.01	8.	*	2	1630	244	.00	.00	.00	0.
1	1540	95	.01	.00	.01	8.	*	2	1640	245	.00	.00	.00	0.
1	1550	96	.01	.00	.01	7.	*	2	1650	246	.00	.00	.00	0.
1	1600	97	.01	.00	.01	7.	*	2	1700	247	.00	.00	.00	0.
1	1610	98	.01	.00	.01	7.	*	2	1710	248	.00	.00	.00	0.
1	1620	99	.01	.00	.01	7.	*	2	1720	249	.00	.00	.00	0.
1	1630	100	.01	.00	.01	6.	*	2	1730	250	.00	.00	.00	0.
1	1640	101	.01	.00	.01	6.	*	2	1740	251	.00	.00	.00	0.
1	1650	102	.01	.00	.01	6.	*	2	1750	252	.00	.00	.00	0.
1	1700	103	.01	.00	.01	6.	*	2	1800	253	.00	.00	.00	0.
1	1710	104	.01	.00	.01	6.	*	2	1810	254	.00	.00	.00	0.
1	1720	105	.01	.00	.01	5.	*	2	1820	255	.00	.00	.00	0.
1	1730	106	.01	.00	.01	5.	*	2	1830	256	.00	.00	.00	0.
1	1740	107	.01	.00	.01	5.	*	2	1840	257	.00	.00	.00	0.
1	1750	108	.01	.00	.01	5.	*	2	1850	258	.00	.00	.00	0.
1	1800	109	.01	.00	.01	5.	*	2	1900	259	.00	.00	.00	0.
1	1810	110	.01	.00	.01	5.	*	2	1910	260	.00	.00	.00	0.
1	1820	111	.01	.00	.01	5.	*	2	1920	261	.00	.00	.00	0.
1	1830	112	.01	.00	.01	4.	*	2	1930	262	.00	.00	.00	0.
1	1840	113	.01	.00	.00	4.	*	2	1940	263	.00	.00	.00	0.
1	1850	114	.01	.00	.00	4.	*	2	1950	264	.00	.00	.00	0.
1	1900	115	.01	.00	.00	4.	*	2	2000	265	.00	.00	.00	0.
1	1910	116	.01	.00	.00	4.	*	2	2010	266	.00	.00	.00	0.
1	1920	117	.01	.00	.00	4.	*	2	2020	267	.00	.00	.00	0.
1	1930	118	.00	.00	.00	4.	*	2	2030	268	.00	.00	.00	0.
1	1940	119	.00	.00	.00	4.	*	2	2040	269	.00	.00	.00	0.
1	1950	120	.00	.00	.00	4.	*	2	2050	270	.00	.00	.00	0.
1	2000	121	.00	.00	.00	4.	*	2	2100	271	.00	.00	.00	0.
1	2010	122	.00	.00	.00	4.	*	2	2110	272	.00	.00	.00	0.
1	2020	123	.00	.00	.00	4.	*	2	2120	273	.00	.00	.00	0.
1	2030	124	.00	.00	.00	3.	*	2	2130	274	.00	.00	.00	0.
1	2040	125	.00	.00	.00	3.	*	2	2140	275	.00	.00	.00	0.
1	2050	126	.00	.00	.00	3.	*	2	2150	276	.00	.00	.00	0.
1	2100	127	.00	.00	.00	3.	*	2	2200	277	.00	.00	.00	0.
1	2110	128	.00	.00	.00	3.	*	2	2210	278	.00	.00	.00	0.
1	2120	129	.00	.00	.00	3.	*	2	2220	279	.00	.00	.00	0.
1	2130	130	.00	.00	.00	3.	*	2	2230	280	.00	.00	.00	0.
1	2140	131	.00	.00	.00	3.	*	2	2240	281	.00	.00	.00	0.
1	2150	132	.00	.00	.00	3.	*	2	2250	282	.00	.00	.00	0.
1	2200	133	.00	.00	.00	3.	*	2	2300	283	.00	.00	.00	0.
1	2210	134	.00	.00	.00	3.	*	2	2310	284	.00	.00	.00	0.
1	2220	135	.00	.00	.00	3.	*	2	2320	285	.00	.00	.00	0.
1	2230	136	.00	.00	.00	3.	*	2	2330	286	.00	.00	.00	0.
1	2240	137	.00	.00	.00	3.	*	2	2340	287	.00	.00	.00	0.
1	2250	138	.00	.00	.00	3.	*	2	2350	288	.00	.00	.00	0.
1	2300	139	.00	.00	.00	3.	*	3	0000	289	.00	.00	.00	0.

1	2310	140	.00	.00	.00	3.	*	3	0010	290	.00	.00	.00	0.
1	2320	141	.00	.00	.00	3.	*	3	0020	291	.00	.00	.00	0.
1	2330	142	.00	.00	.00	3.	*	3	0030	292	.00	.00	.00	0.
1	2340	143	.00	.00	.00	3.	*	3	0040	293	.00	.00	.00	0.
1	2350	144	.00	.00	.00	3.	*	3	0050	294	.00	.00	.00	0.
2	0000	145	.00	.00	.00	3.	*	3	0100	295	.00	.00	.00	0.
2	0010	146	.00	.00	.00	2.	*	3	0110	296	.00	.00	.00	0.
2	0020	147	.00	.00	.00	1.	*	3	0120	297	.00	.00	.00	0.
2	0030	148	.00	.00	.00	0.	*	3	0130	298	.00	.00	.00	0.
2	0040	149	.00	.00	.00	0.	*	3	0140	299	.00	.00	.00	0.
2	0050	150	.00	.00	.00	0.	*	3	0150	300	.00	.00	.00	0.
							*							

****

TOTAL RAINFALL = 4.05, TOTAL LOSS = 1.50, TOTAL EXCESS = 2.55

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.83-HR
472.	12.33	(CFS)	56.	15.	7.	7.
		(INCHES)	2.349	2.546	2.546	2.546
		(AC-FT)	28.	30.	30.	30.

CUMULATIVE AREA = .22 SQ MI

* ***

```
**************
*            *
*      GOLD  *     MAN
*            *
**************
```

12 KK

17 KO OUTPUT CONTROL VARIABLES

IPRNT	1	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

14 BA SUBBASIN CHARACTERISTICS

TAREA	.22	SUBBASIN AREA

PRECIPITATION DATA

13 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
.69	1.35	2.37	2.60	2.76	3.05	3.32	3.60	.00	.00	.00	.00

STORM AREA = .22

15 LS SCS LOSS RATE

STRTL	.34	INITIAL ABSTRACTION
CRVNBR	85.50	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

16 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	.17	LAG

***

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

UNIT HYDROGRAPH
7 END-OF-PERIOD ORDINATES

313.	353.	122.	43.	15.	5.	2.

****

HYDROGRAPH AT STATION GOLD

****

DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q		DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
1		0000	1	.00	.00	.00	0.	* 614	2		0100	151	.00	.00	.00	0.

1	0010	2	.00	.00	.00	0.	*	2	0110	152	.00	.00	.00	0.
1	0020	3	.00	.00	.00	0.	*	2	0120	153	.00	.00	.00	0.
1	0030	4	.00	.00	.00	0.	*	2	0130	154	.00	.00	.00	0.
1	0040	5	.00	.00	.00	0.	*	2	0140	155	.00	.00	.00	0.
1	0050	6	.00	.00	.00	0.	*	2	0150	156	.00	.00	.00	0.
1	0100	7	.00	.00	.00	0.	*	2	0200	157	.00	.00	.00	0.
1	0110	8	.00	.00	.00	0.	*	2	0210	158	.00	.00	.00	0.
1	0120	9	.00	.00	.00	0.	*	2	0220	159	.00	.00	.00	0.
1	0130	10	.00	.00	.00	0.	*	2	0230	160	.00	.00	.00	0.
1	0140	11	.00	.00	.00	0.	*	2	0240	161	.00	.00	.00	0.
1	0150	12	.00	.00	.00	0.	*	2	0250	162	.00	.00	.00	0.
1	0200	13	.00	.00	.00	0.	*	2	0300	163	.00	.00	.00	0.
1	0210	14	.00	.00	.00	0.	*	2	0310	164	.00	.00	.00	0.
1	0220	15	.00	.00	.00	0.	*	2	0320	165	.00	.00	.00	0.
1	0230	16	.00	.00	.00	0.	*	2	0330	166	.00	.00	.00	0.
1	0240	17	.00	.00	.00	0.	*	2	0340	167	.00	.00	.00	0.
1	0250	18	.00	.00	.00	0.	*	2	0350	168	.00	.00	.00	0.
1	0300	19	.00	.00	.00	0.	*	2	0400	169	.00	.00	.00	0.
1	0310	20	.00	.00	.00	0.	*	2	0410	170	.00	.00	.00	0.
1	0320	21	.00	.00	.00	0.	*	2	0420	171	.00	.00	.00	0.
1	0330	22	.00	.00	.00	0.	*	2	0430	172	.00	.00	.00	0.
1	0340	23	.00	.00	.00	0.	*	2	0440	173	.00	.00	.00	0.
1	0350	24	.00	.00	.00	0.	*	2	0450	174	.00	.00	.00	0.
1	0400	25	.00	.00	.00	0.	*	2	0500	175	.00	.00	.00	0.
1	0410	26	.00	.00	.00	0.	*	2	0510	176	.00	.00	.00	0.
1	0420	27	.00	.00	.00	0.	*	2	0520	177	.00	.00	.00	0.
1	0430	28	.00	.00	.00	0.	*	2	0530	178	.00	.00	.00	0.
1	0440	29	.00	.00	.00	0.	*	2	0540	179	.00	.00	.00	0.
1	0450	30	.00	.00	.00	0.	*	2	0550	180	.00	.00	.00	0.
1	0500	31	.00	.00	.00	0.	*	2	0600	181	.00	.00	.00	0.
1	0510	32	.00	.00	.00	0.	*	2	0610	182	.00	.00	.00	0.
1	0520	33	.00	.00	.00	0.	*	2	0620	183	.00	.00	.00	0.
1	0530	34	.00	.00	.00	0.	*	2	0630	184	.00	.00	.00	0.
1	0540	35	.01	.01	.00	0.	*	2	0640	185	.00	.00	.00	0.
1	0550	36	.01	.01	.00	0.	*	2	0650	186	.00	.00	.00	0.
1	0600	37	.01	.01	.00	0.	*	2	0700	187	.00	.00	.00	0.
1	0610	38	.01	.01	.00	0.	*	2	0710	188	.00	.00	.00	0.
1	0620	39	.01	.01	.00	0.	*	2	0720	189	.00	.00	.00	0.
1	0630	40	.01	.01	.00	0.	*	2	0730	190	.00	.00	.00	0.
1	0640	41	.01	.01	.00	0.	*	2	0740	191	.00	.00	.00	0.
1	0650	42	.01	.01	.00	0.	*	2	0750	192	.00	.00	.00	0.
1	0700	43	.01	.01	.00	0.	*	2	0800	193	.00	.00	.00	0.
1	0710	44	.01	.01	.00	0.	*	2	0810	194	.00	.00	.00	0.
1	0720	45	.01	.01	.00	0.	*	2	0820	195	.00	.00	.00	0.
1	0730	46	.01	.01	.00	0.	*	2	0830	196	.00	.00	.00	0.
1	0740	47	.01	.01	.00	0.	*	2	0840	197	.00	.00	.00	0.
1	0750	48	.01	.01	.00	0.	*	2	0850	198	.00	.00	.00	0.
1	0800	49	.01	.01	.00	0.	*	2	0900	199	.00	.00	.00	0.
1	0810	50	.01	.01	.00	0.	*	2	0910	200	.00	.00	.00	0.
1	0820	51	.01	.01	.00	0.	*	2	0920	201	.00	.00	.00	0.
1	0830	52	.01	.01	.00	0.	*	2	0930	202	.00	.00	.00	0.
1	0840	53	.01	.01	.00	0.	*	2	0940	203	.00	.00	.00	0.
1	0850	54	.01	.01	.00	0.	*	2	0950	204	.00	.00	.00	0.
1	0900	55	.01	.01	.00	0.	*	2	1000	205	.00	.00	.00	0.
1	0910	56	.01	.01	.00	0.	*	2	1010	206	.00	.00	.00	0.
1	0920	57	.01	.01	.00	0.	*	2	1020	207	.00	.00	.00	0.
1	0930	58	.01	.01	.00	0.	*	2	1030	208	.00	.00	.00	0.
1	0940	59	.01	.01	.00	0.	*	2	1040	209	.00	.00	.00	0.
1	0950	60	.02	.02	.00	0.	*	2	1050	210	.00	.00	.00	0.
1	1000	61	.02	.02	.00	0.	*	2	1100	211	.00	.00	.00	0.
1	1010	62	.02	.02	.00	0.	*	2	1110	212	.00	.00	.00	0.
1	1020	63	.02	.02	.00	1.	*	2	1120	213	.00	.00	.00	0.
1	1030	64	.02	.02	.00	1.	*	2	1130	214	.00	.00	.00	0.
1	1040	65	.02	.02	.00	1.	*	2	1140	215	.00	.00	.00	0.
1	1050	66	.03	.02	.00	2.	*	2	1150	216	.00	.00	.00	0.
1	1100	67	.03	.02	.00	3.	*	2	1200	217	.00	.00	.00	0.
1	1110	68	.03	.02	.01	4.	*	2	1210	218	.00	.00	.00	0.
1	1120	69	.04	.03	.01	5.	*	2	1220	219	.00	.00	.00	0.
1	1130	70	.04	.03	.01	7.	*	2	1230	220	.00	.00	.00	0.
1	1140	71	.15	.10	.05	19.	*	2	1240	221	.00	.00	.00	0.
1	1150	72	.20	.12	.08	43.	*	2	1250	222	.00	.00	.00	0.
1	1200	73	.46	.21	.25	114.	*	2	1300	223	.00	.00	.00	0.
1	1210	74	1.08	.29	.79	348.	*	2	1310	224	.00	.00	.00	0.
1	1220	75	.31	.06	.25	392.	*	2	1320	225	.00	.00	.00	0.
1	1230	76	.17	.03	.14	243.	*	2	1330	226	.00	.00	.00	0.
1	1240	77	.05	.01	.04	132.	*	2	1340	227	.00	.00	.00	0.
1	1250	78	.04	.01	.03	66.	*	2	1350	228	.00	.00	.00	0.
1	1300	79	.03	.00	.03	40.	*	2	1400	229	.00	.00	.00	0.
1	1310	80	.03	.00	.03	29.	*	2	1410	230	.00	.00	.00	0.
1	1320	81	.03	.00	.02	23.	*	2	1420	231	.00	.00	.00	0.

1015

1	1330	82	.02	.00	.02	20.	*	2	1430	232	.00	.00	.00	0.
1	1340	83	.02	.00	.02	18.	*	2	1440	233	.00	.00	.00	0.
1	1350	84	.02	.00	.02	16.	*	2	1450	234	.00	.00	.00	0.
1	1400	85	.02	.00	.02	15.	*	2	1500	235	.00	.00	.00	0.
1	1410	86	.02	.00	.01	14.	*	2	1510	236	.00	.00	.00	0.
1	1420	87	.02	.00	.01	13.	*	2	1520	237	.00	.00	.00	0.
1	1430	88	.01	.00	.01	12.	*	2	1530	238	.00	.00	.00	0.
1	1440	89	.01	.00	.01	11.	*	2	1540	239	.00	.00	.00	0.
1	1450	90	.01	.00	.01	10.	*	2	1550	240	.00	.00	.00	0.
1	1500	91	.01	.00	.01	10.	*	2	1600	241	.00	.00	.00	0.
1	1510	92	.01	.00	.01	9.	*	2	1610	242	.00	.00	.00	0.
1	1520	93	.01	.00	.01	8.	*	2	1620	243	.00	.00	.00	0.
1	1530	94	.01	.00	.01	7.	*	2	1630	244	.00	.00	.00	0.
1	1540	95	.01	.00	.01	7.	*	2	1640	245	.00	.00	.00	0.
1	1550	96	.01	.00	.01	7.	*	2	1650	246	.00	.00	.00	0.
1	1600	97	.01	.00	.01	6.	*	2	1700	247	.00	.00	.00	0.
1	1610	98	.01	.00	.01	6.	*	2	1710	248	.00	.00	.00	0.
1	1620	99	.01	.00	.01	6.	*	2	1720	249	.00	.00	.00	0.
1	1630	100	.01	.00	.01	6.	*	2	1730	250	.00	.00	.00	0.
1	1640	101	.01	.00	.01	6.	*	2	1740	251	.00	.00	.00	0.
1	1650	102	.01	.00	.01	5.	*	2	1750	252	.00	.00	.00	0.
1	1700	103	.01	.00	.01	5.	*	2	1800	253	.00	.00	.00	0.
1	1710	104	.01	.00	.01	5.	*	2	1810	254	.00	.00	.00	0.
1	1720	105	.01	.00	.01	5.	*	2	1820	255	.00	.00	.00	0.
1	1730	106	.01	.00	.01	5.	*	2	1830	256	.00	.00	.00	0.
1	1740	107	.01	.00	.01	5.	*	2	1840	257	.00	.00	.00	0.
1	1750	108	.01	.00	.01	5.	*	2	1850	258	.00	.00	.00	0.
1	1800	109	.01	.00	.01	4.	*	2	1900	259	.00	.00	.00	0.
1	1810	110	.01	.00	.00	4.	*	2	1910	260	.00	.00	.00	0.
1	1820	111	.01	.00	.00	4.	*	2	1920	261	.00	.00	.00	0.
1	1830	112	.01	.00	.00	4.	*	2	1930	262	.00	.00	.00	0.
1	1840	113	.00	.00	.00	4.	*	2	1940	263	.00	.00	.00	0.
1	1850	114	.00	.00	.00	4.	*	2	1950	264	.00	.00	.00	0.
1	1900	115	.00	.00	.00	4.	*	2	2000	265	.00	.00	.00	0.
1	1910	116	.00	.00	.00	4.	*	2	2010	266	.00	.00	.00	0.
1	1920	117	.00	.00	.00	3.	*	2	2020	267	.00	.00	.00	0.
1	1930	118	.00	.00	.00	3.	*	2	2030	268	.00	.00	.00	0.
1	1940	119	.00	.00	.00	3.	*	2	2040	269	.00	.00	.00	0.
1	1950	120	.00	.00	.00	3.	*	2	2050	270	.00	.00	.00	0.
1	2000	121	.00	.00	.00	3.	*	2	2100	271	.00	.00	.00	0.
1	2010	122	.00	.00	.00	3.	*	2	2110	272	.00	.00	.00	0.
1	2020	123	.00	.00	.00	3.	*	2	2120	273	.00	.00	.00	0.
1	2030	124	.00	.00	.00	3.	*	2	2130	274	.00	.00	.00	0.
1	2040	125	.00	.00	.00	3.	*	2	2140	275	.00	.00	.00	0.
1	2050	126	.00	.00	.00	3.	*	2	2150	276	.00	.00	.00	0.
1	2100	127	.00	.00	.00	3.	*	2	2200	277	.00	.00	.00	0.
1	2110	128	.00	.00	.00	3.	*	2	2210	278	.00	.00	.00	0.
1	2120	129	.00	.00	.00	3.	*	2	2220	279	.00	.00	.00	0.
1	2130	130	.00	.00	.00	3.	*	2	2230	280	.00	.00	.00	0.
1	2140	131	.00	.00	.00	3.	*	2	2240	281	.00	.00	.00	0.
1	2150	132	.00	.00	.00	3.	*	2	2250	282	.00	.00	.00	0.
1	2200	133	.00	.00	.00	3.	*	2	2300	283	.00	.00	.00	0.
1	2210	134	.00	.00	.00	3.	*	2	2310	284	.00	.00	.00	0.
1	2220	135	.00	.00	.00	3.	*	2	2320	285	.00	.00	.00	0.
1	2230	136	.00	.00	.00	3.	*	2	2330	286	.00	.00	.00	0.
1	2240	137	.00	.00	.00	2.	*	2	2340	287	.00	.00	.00	0.
1	2250	138	.00	.00	.00	2.	*	2	2350	288	.00	.00	.00	0.
1	2300	139	.00	.00	.00	2.	*	3	0000	289	.00	.00	.00	0.
1	2310	140	.00	.00	.00	2.	*	3	0010	290	.00	.00	.00	0.
1	2320	141	.00	.00	.00	2.	*	3	0020	291	.00	.00	.00	0.
1	2330	142	.00	.00	.00	2.	*	3	0030	292	.00	.00	.00	0.
1	2340	143	.00	.00	.00	2.	*	3	0040	293	.00	.00	.00	0.
1	2350	144	.00	.00	.00	2.	*	3	0050	294	.00	.00	.00	0.
2	0000	145	.00	.00	.00	2.	*	3	0100	295	.00	.00	.00	0.
2	0010	146	.00	.00	.00	1.	*	3	0110	296	.00	.00	.00	0.
2	0020	147	.00	.00	.00	0.	*	3	0120	297	.00	.00	.00	0.
2	0030	148	.00	.00	.00	0.	*	3	0130	298	.00	.00	.00	0.
2	0040	149	.00	.00	.00	0.	*	3	0140	299	.00	.00	.00	0.
2	0050	150	.00	.00	.00	0.	*	3	0150	300	.00	.00	.00	0.

****

TOTAL RAINFALL = 3.60, TOTAL LOSS = 1.45, TOTAL EXCESS = 2.14

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	49.83-HR
392.	12.33	(CFS)	47.	13.	6.	6.
		(INCHES)	1.975	2.144	2.144	2.144
		(AC-FT)	23.	25.	25.	25.

6/16

CUMULATIVE AREA = .22 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	GOLD	472.	12.33	56.	15.	7.	.22		
HYDROGRAPH AT	GOLD	392.	12.33	47.	13.	6.	.22		

** NORMAL END OF HEC-1 ***
Elapsed Time - 00:00:11.21 (11.21 Seconds)
NORMAL END OF HEC-1

SEGMENT IV
CULVERT DESIGN SHEETS

Price Road GEC
South Mountain Freeway Hydrology Study - Segment IV (19th Ave to 40th St.)
Culvert Summary

22-May-92

HDR Culvert No.	50yr-24hr Design Discharge	100yr-24hr Design Discharge	Consultant Culvert Designation	Consultant 100yr-2hr Discharge	Development Name	Engineering Consultant	Remarks
C200	338	402	F	387	Foothills Ph III	Carter Assoc.	Carter's HEC-1 model used with detention basins recoded as reqd.
C201	122	147	E	122	Foothills Ph III	Carter Assoc.	Carter's HEC-1 model used with detention basins recoded as reqd.
C202	1975	2349	D	2040	Foothills Ph III	Carter Assoc.	Carter's HEC-1 model used with detention basins recoded as reqd.
C203	1129	1335	C	1231	Foothills Ph III	Carter Assoc.	Carter's HEC-1 model used with detention basins recoded as reqd.
C204	535	624	B	651	Foothills Ph III	Carter Assoc.	Carter's HEC-1 model used.
On-site	--	--	A	--	Foothills Ph III	Carter Assoc.	Drainage area becomes onsite
C205	257	300	C8	303	Foothills Ph I & II	Rick Engineering	Rick's HEC-1 model used with detention basins recoded as reqd.
C206	297	313	C9	314	Foothills Ph I & II	Rick Engineering	Rick's HEC-1 model used with detention basins recoded as reqd.
C207	77	88	C10	96	Foothills Ph I & II	Rick Engineering	Rick's HEC-1 model used.
On-site	--	--	C105	--	Foothills Ph I & II	Rick Engineering	Drainage area becomes onsite
C208	1567	1818	C16	1708	Foothills Ph I & II	Rick Engineering	Rick's HEC-1 model used with detention basins recoded as reqd.
C209	49	56	C19	104	Foothills Ph I & II	Rick Engineering	Refer HDR model in Technical Appendix - original not supplied by Rick.
C210	374	447	C20	379	Foothills Ph I & II	Rick Engineering	Rick's HEC-1 model used.
C211	431	521	C21	436	Foothills Ph I & II	Rick Engineering	Rick's HEC-1 model used.
C212	598	725	C22	614	Foothills Ph I & II	Rick Engineering	Due to Right-of-Way constraints two culverts are required to outlet drainage
C213	173	201	C22	614	Foothills Ph I & II	Rick Engineering	area contributing to Rick's culvert C22.
C214	992	1072	Goldman	--	Goldman Ranch	Hess-Rountree	Refer HDR model in Technical Appendix.
C215	2200	2500	28-th St.	--	Lakewood	Coe & Van Loo	Design discharges from consultants' reports, no additional HDR modelling.
C216	244	284	32-nd St.	--	Lakewood	Coe & Van Loo	Design discharges from consultants' reports, no additional HDR modelling.
C217	770	926	Central Spine	--	Lakewood	Coe & Van Loo	Design discharges from consultants' reports, no additional HDR modelling.
C218	1172	1238	40-th St.	--	Pecos Road PCD	Van Loo & Patel	Design discharges from consultants' reports, no additional HDR modelling.

Note: Rick Engineering formerly Collar Williams and White Engineering.

CULVERT ANALYSIS VERSION 2.0

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
04-24-19	14:24:42	C200	10-31-91

PERFORMANCE CURVE DISCHARGE RANGE
OF FLOWS ANALYZED

MINUMUM DISCHARGE (CFS)	0
DESIGN DISCHARGE (CFS)	338
MAXIMUM DISCHARGE (CFS)	402

CULV #	A - SITE DATA			B - CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANN. N	INLET TYPE
1	1155.00	1153.00	850.00	1 - RCB	10.00	6.00	.013	CONVENTIONAL
2								
3								
4								
5								
6								

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
04-24-19	14:24:42	C200	10-31-91

CULVERT NUMBER: 1

CULVERT INVERT DATA

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1155.00
OUTLET STATION (FT)	850.00
OUTLET ELEVATION (FT)	1153.00
NUMBER OF BARRELS	1.00
SLOPE (V-FT/H-FT)	0.0024
CULVERT LENGTH ALONG SLOPE (FT)	850.00

BARREL SHAPE: 10.00 FT X 6.00 FT BOX
BARREL MATERIAL: CONCRETE
WITH A MANNING'S N OF 0.013
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION: NONE

DOWNSTREAM CHANNEL CROSS-SECTION

BOTTOM WIDTH (FT)	40.00
SIDE SLOPE H/V _:1	7.0
CHANNEL SLOPE V/H (FT/FT)	0.030
MANNING'S N (.01-0.1)	0.035
CHANNEL INVERT ELEVATION (FT)	1153.00
CULVERT OUTLET INVERT ELEVATION AT	1153.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
04-24-19	14:24:42	C200	10-31-91

UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NO.	VEL. (FPS)	SHEAR (PSF)
0.00	1153.00	0.000	0.00	0.00
40.20	1153.30	0.000	3.19	0.56
80.40	1153.45	0.000	4.12	0.85
120.60	1153.57	0.000	4.78	1.07
160.80	1153.68	0.000	5.30	1.27
201.00	1153.77	0.000	5.73	1.45
241.20	1153.86	0.000	6.11	1.61
281.40	1153.94	0.000	6.44	1.76
321.60	1154.01	0.000	6.74	1.90
338.00	1154.04	0.000	6.86	1.95
402.00	1154.15	0.000	7.27	2.15

SELECTED OVERTOPPING CREST

ROADWAY SURFACE:	PAVED
EMBANKMENT TOP WIDTH (FT):	160.00

CONSTANT ROADWAY ELEVATION PROFILE

CREST LENGTH (FT)	100.00
OVERTOPPING CREST ELEVATION (FT)	1163.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
04-24-19	14:24:42	C200	10-31-91

SUMMARY OF CULVERT FLOWS (CFS) FILE: C200 DATE: 10-31-91

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1155.00	0	0	0	0	0	0	0	0	0
1156.33	40	40	0	0	0	0	0	0	2
1157.12	80	80	0	0	0	0	0	0	2
1157.78	121	121	0	0	0	0	0	0	2
1158.36	161	161	0	0	0	0	0	0	2
1158.90	201	201	0	0	0	0	0	0	2
1159.40	241	241	0	0	0	0	0	0	2
1159.88	281	281	0	0	0	0	0	0	2
1160.33	322	322	0	0	0	0	0	0	2
1160.51	338	338	0	0	0	0	0	0	2
1161.19	402	402	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE
FOR 1 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
0	1155.00	1153.00	0.00	-2.00	-2.00	1155.00	0.00	0.00
40	1156.33	1153.30	1.21	1.33	1.33	0.00	0.00	5.05
80	1157.12	1153.45	1.90	2.12	2.12	0.00	0.00	6.36
121	1157.78	1153.57	2.52	2.78	2.78	0.00	0.00	7.28
161	1158.36	1153.68	3.07	3.36	3.36	0.00	0.00	8.01
201	1158.90	1153.77	3.58	3.90	3.90	0.00	0.00	8.63
241	1159.40	1153.86	4.05	4.40	4.40	0.00	0.00	9.17
281	1159.88	1153.94	4.49	4.88	4.88	0.00	0.00	9.66
322	1160.33	1154.01	4.91	5.33	5.33	0.00	0.00	10.10
338	1160.51	1154.04	5.08	5.51	5.51	0.00	0.00	10.26
402	1161.19	1154.15	5.73	6.19	6.19	0.00	0.00	10.88

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C200 DATE: 10-31-91

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1155.00	0.00	0	0	0.00
1156.33	0.00	40	0	0.00
1157.12	0.00	80	0	0.00
1157.78	0.00	121	0	0.00
1158.36	0.00	161	0	0.00
1158.90	0.00	201	0	0.00
1159.40	0.00	241	0	0.00
1159.88	0.00	281	0	0.00
1160.33	0.00	322	0	0.00
1160.51	0.00	338	0	0.00
1161.19	0.00	402	0	0.00

CULVERT ANALYSIS VERSION 2.0

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-11-19	08:36:50	C201	10-31-91

PERFORMANCE CURVE DISCHARGE RANGE
OF FLOWS ANALYZED

MINUMUM DISCHARGE (CFS)	0
DESIGN DISCHARGE (CFS)	122
MAXIMUM DISCHARGE (CFS)	147

CU LV #	A - SITE DATA			B - CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANN. N	INLET TYPE
1	1170.00	1169.00	280.00	2 - RCP	4.00	4.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-11-19	08:36:50	C201	10-31-91

CULVERT NUMBER: 1

CULVERT INVERT DATA

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1170.00
OUTLET STATION (FT)	280.00
OUTLET ELEVATION (FT)	1169.00
NUMBER OF BARRELS	2.00
SLOPE (V-FT/H-FT)	0.0036
CULVERT LENGTH ALONG SLOPE (FT)	280.00

BARREL SHAPE: CIRCULAR 4.00 FT IN DIAMETER
BARREL MATERIAL:
WITH A MANNING'S N OF 0.012
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: SQUARE EDGE WITH HEADWALL
INLET DEPRESSION: NONE

DOWNSTREAM CHANNEL CROSS-SECTION

BOTTOM WIDTH (FT)	20.00
SIDE SLOPE H/V _:1	10.0
CHANNEL SLOPE V/H (FT/FT)	0.004
MANNING'S N (.01-0.1)	0.035
CHANNEL INVERT ELEVATION (FT)	1169.00
CULVERT OUTLET INVERT ELEVATION AT	1169.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-11-19	08:36:50	C201	10-31-91

UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NO.	VEL. (FPS)	SHEAR (PSF)
0.00	1169.00	0.000	0.00	0.00
14.70	1169.45	0.000	1.32	0.10
29.40	1169.67	0.000	1.65	0.15
44.10	1169.83	0.000	1.87	0.18
58.80	1169.97	0.000	2.04	0.21
73.50	1170.09	0.000	2.17	0.24
88.20	1170.20	0.000	2.29	0.26
102.90	1170.30	0.000	2.39	0.28
117.60	1170.39	0.000	2.49	0.30
122.00	1170.42	0.000	2.51	0.31
147.00	1170.56	0.000	2.64	0.34

SELECTED OVERTOPPING CREST

ROADWAY SURFACE:	PAVED
EMBANKMENT TOP WIDTH (FT):	160.00

CONSTANT ROADWAY ELEVATION PROFILE

CREST LENGTH (FT)	200.00
OVERTOPPING CREST ELEVATION (FT)	1176.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-11-19	08:36:50	C201	10-31-91

SUMMARY OF CULVERT FLOWS (CFS) FILE: C201 DATE: 10-31-91

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1170.00	0	0	0	0	0	0	0	0	0
1170.94	15	15	0	0	0	0	0	0	2
1171.45	29	29	0	0	0	0	0	0	2
1171.89	44	44	0	0	0	0	0	0	2
1172.27	59	59	0	0	0	0	0	0	2
1172.61	74	74	0	0	0	0	0	0	2
1172.92	88	88	0	0	0	0	0	0	2
1173.21	103	103	0	0	0	0	0	0	2
1173.74	118	118	0	0	0	0	0	0	2
1173.82	122	122	0	0	0	0	0	0	2
1174.25	147	147	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE FOR 2 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
0	1170.00	1169.00	0.00	-1.00	-1.00	1170.00	0.00	0.00
15	1170.94	1169.45	0.94	0.20	0.20	0.00	0.00	4.48
29	1171.45	1169.67	1.45	0.72	0.72	0.00	0.00	5.48
44	1171.89	1169.83	1.89	1.15	1.15	0.00	0.00	6.11
59	1172.27	1169.97	2.27	1.51	1.51	0.00	0.00	6.59
74	1172.61	1170.09	2.61	1.85	1.85	0.00	0.00	7.00
88	1172.92	1170.20	2.92	2.16	2.16	0.00	0.00	7.32
103	1173.21	1170.30	3.21	2.46	2.46	0.00	0.00	7.60
118	1173.74	1170.39	3.49	3.74	3.74	0.00	0.00	7.86
122	1173.82	1170.42	3.57	3.82	3.82	0.00	0.00	7.95
147	1174.25	1170.56	4.05	4.25	4.25	0.00	0.00	8.57

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C201 DATE: 10-31-91

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1170.00	0.00	0	0	0.00
1170.94	0.00	15	0	0.00
1171.45	0.00	29	0	0.00
1171.89	0.00	44	0	0.00
1172.27	0.00	59	0	0.00
1172.61	0.00	74	0	0.00
1172.92	0.00	88	0	0.00
1173.21	0.00	103	0	0.00
1173.74	0.00	118	0	0.00
1173.82	0.00	122	0	0.00
1174.25	0.00	147	0	0.00

CULVERT ANALYSIS VERSION 2.0

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-10-19	15:03:04	C202	11-01-91

PERFORMANCE CURVE DISCHARGE RANGE
OF FLOWS ANALYZED

MINUMUM DISCHARGE (CFS)	1000
DESIGN DISCHARGE (CFS)	1975
MAXIMUM DISCHARGE (CFS)	2350

CULV #	A - SITE DATA			B - CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANN. N	INLET TYPE
1	1179.00	1178.00	235.00	5 - RCB	10.00	6.00	.013	CONVENTIONAL
2								
3								
4								
5								
6								

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-10-19	15:03:04	C202	11-01-91

CULVERT NUMBER: 1

CULVERT INVERT DATA

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1179.00
OUTLET STATION (FT)	235.00
OUTLET ELEVATION (FT)	1178.00
NUMBER OF BARRELS	5.00
SLOPE (V-FT/H-FT)	0.0043
CULVERT LENGTH ALONG SLOPE (FT)	235.00

BARREL SHAPE: 10.00 FT X 6.00 FT BOX
BARREL MATERIAL: CONCRETE
WITH A MANNING'S N OF 0.013
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION: NONE

DOWNSTREAM CHANNEL CROSS-SECTION

BOTTOM WIDTH (FT)	65.00
SIDE SLOPE H/V _:1	5.0
CHANNEL SLOPE V/H (FT/FT)	0.007
MANNING'S N (.01-0.1)	0.035
CHANNEL INVERT ELEVATION (FT)	1178.00
CULVERT OUTLET INVERT ELEVATION AT	1178.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-10-19	15:03:04	C202	11-01-91

UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NO.	VEL. (FPS)	SHEAR (PSF)
1000.00	1180.31	0.000	5.64	1.01
1135.00	1180.49	0.000	5.89	1.09
1270.00	1180.65	0.000	6.11	1.16
1405.00	1180.81	0.000	6.32	1.23
1540.00	1180.96	0.000	6.52	1.29
1675.00	1181.11	0.000	6.70	1.36
1810.00	1181.24	0.000	6.87	1.42
1945.00	1181.38	0.000	7.03	1.48
1975.00	1181.41	0.000	7.06	1.49
2215.00	1181.63	0.000	7.33	1.59
2350.00	1181.76	0.000	7.47	1.64

SELECTED OVERTOPPING CREST

ROADWAY SURFACE:	PAVED
EMBANKMENT TOP WIDTH (FT):	160.00

CONSTANT ROADWAY ELEVATION PROFILE

CREST LENGTH (FT)	200.00
OVERTOPPING CREST ELEVATION (FT)	1193.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-10-19	15:03:04	C202	11-01-91

SUMMARY OF CULVERT FLOWS (CFS) FILE: C202 DATE: 11-01-91

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1182.56	1000	1000	0	0	0	0	0	0	2
1182.88	1135	1135	0	0	0	0	0	0	2
1183.19	1270	1270	0	0	0	0	0	0	2
1183.48	1405	1405	0	0	0	0	0	0	2
1183.76	1540	1540	0	0	0	0	0	0	2
1184.04	1675	1675	0	0	0	0	0	0	2
1184.32	1810	1810	0	0	0	0	0	0	2
1184.59	1945	1945	0	0	0	0	0	0	2
1184.66	1975	1975	0	0	0	0	0	0	2
1185.15	2215	2215	0	0	0	0	0	0	2
1185.44	2350	2350	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE
FOR 5 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
1000	1182.56	1180.31	3.56	2.94	2.94	0.00	0.00	8.64
1135	1182.88	1180.49	3.88	3.28	3.28	0.00	0.00	9.12
1270	1183.19	1180.65	4.19	3.61	3.61	0.00	0.00	9.57
1405	1183.48	1180.81	4.48	3.94	3.94	0.00	0.00	10.00
1540	1183.76	1180.96	4.76	4.25	4.25	0.00	0.00	10.40
1675	1184.04	1181.11	5.04	4.55	4.55	0.00	0.00	10.79
1810	1184.32	1181.24	5.32	4.84	4.84	0.00	0.00	11.16
1945	1184.59	1181.38	5.59	5.13	5.13	0.00	0.00	11.51
1975	1184.66	1181.41	5.66	5.19	5.19	0.00	0.00	11.59
2215	1185.15	1181.63	6.15	5.69	5.69	0.00	0.00	12.19
2350	1185.44	1181.76	6.44	5.96	5.96	0.00	0.00	12.46

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C202 DATE: 11-01-91

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1182.56	0.00	1000	0	0.00
1182.88	0.00	1135	0	0.00
1183.19	0.00	1270	0	0.00
1183.48	0.00	1405	0	0.00
1183.76	0.00	1540	0	0.00
1184.04	0.00	1675	0	0.00
1184.32	0.00	1810	0	0.00
1184.59	0.00	1945	0	0.00
1184.66	0.00	1975	0	0.00
1185.15	0.00	2215	0	0.00
1185.44	0.00	2350	0	0.00

CULVERT ANALYSIS VERSION 2.0

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-10-19	16:57:44	C203	11-01-91

PERFORMANCE CURVE DISCHARGE RANGE
OF FLOWS ANALYZED

MINUMUM DISCHARGE (CFS)	1000
DESIGN DISCHARGE (CFS)	1129
MAXIMUM DISCHARGE (CFS)	1335

CULV #	A - SITE DATA			B - CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANN. N	INLET TYPE
1	1171.50	1171.00	270.00	3 - RCB	10.00	6.00	.013	CONVENTIONAL
2								
3								
4								
5								
6								

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-10-19	16:57:44	C203	11-01-91

CULVERT NUMBER: 1

CULVERT INVERT DATA

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1171.50
OUTLET STATION (FT)	270.00
OUTLET ELEVATION (FT)	1171.00
NUMBER OF BARRELS	3.00
SLOPE (V-FT/H-FT)	0.0019
CULVERT LENGTH ALONG SLOPE (FT)	270.00

BARREL SHAPE: 10.00 FT X 6.00 FT BOX
BARREL MATERIAL: CONCRETE
WITH A MANNING'S N OF 0.013
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION: NONE

DOWNSTREAM CHANNEL CROSS-SECTION

BOTTOM WIDTH (FT)	30.00
SIDE SLOPE H/V _:1	3.0
CHANNEL SLOPE V/H (FT/FT)	0.004
MANNING'S N (.01-0.1)	0.035
CHANNEL INVERT ELEVATION (FT)	1171.00
CULVERT OUTLET INVERT ELEVATION AT	1171.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-10-19	16:57:44	C203	11-01-91

UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NO.	VEL. (FPS)	SHEAR (PSF)
1000.00	1175.12	0.000	5.73	1.03
1033.50	1175.20	0.000	5.78	1.05
1067.00	1175.27	0.000	5.84	1.07
1100.50	1175.34	0.000	5.89	1.08
1129.00	1175.40	0.000	5.94	1.10
1167.50	1175.48	0.000	6.00	1.12
1201.00	1175.55	0.000	6.05	1.14
1234.50	1175.62	0.000	6.10	1.15
1268.00	1175.68	0.000	6.15	1.17
1301.50	1175.75	0.000	6.19	1.19
1335.00	1175.81	0.000	6.24	1.20

SELECTED OVERTOPPING CREST

ROADWAY SURFACE:	PAVED
EMBANKMENT TOP WIDTH (FT):	160.00

CONSTANT ROADWAY ELEVATION PROFILE

CREST LENGTH (FT)	200.00
OVERTOPPING CREST ELEVATION (FT)	1191.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-10-19	16:57:44	C203	11-01-91

SUMMARY OF CULVERT FLOWS (CFS) FILE: C203 DATE: 11-01-91

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1177.03	1000	1000	0	0	0	0	0	0	2
1177.15	1034	1034	0	0	0	0	0	0	2
1177.27	1067	1067	0	0	0	0	0	0	2
1177.38	1101	1101	0	0	0	0	0	0	2
1177.48	1129	1129	0	0	0	0	0	0	2
1177.62	1168	1168	0	0	0	0	0	0	2
1177.68	1201	1201	0	0	0	0	0	0	2
1177.80	1235	1235	0	0	0	0	0	0	2
1177.91	1268	1268	0	0	0	0	0	0	2
1178.02	1302	1302	0	0	0	0	0	0	2
1178.14	1335	1335	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE FOR 3 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
1000	1177.03	1175.12	5.03	5.53	5.53	0.00	0.00	8.09
1034	1177.15	1175.20	5.15	5.65	5.65	0.00	0.00	8.21
1067	1177.27	1175.27	5.26	5.77	5.77	0.00	0.00	8.33
1101	1177.38	1175.34	5.38	5.88	5.88	0.00	0.00	8.45
1129	1177.48	1175.40	5.47	5.98	5.98	0.00	0.00	8.55
1168	1177.62	1175.48	5.60	6.12	6.12	0.00	0.00	8.69
1201	1177.68	1175.55	5.72	6.18	6.18	0.00	0.00	8.80
1235	1177.80	1175.62	5.83	6.30	6.30	0.00	0.00	8.91
1268	1177.91	1175.68	5.95	6.41	6.41	0.00	0.00	9.02
1302	1178.02	1175.75	6.06	6.52	6.52	0.00	0.00	9.13
1335	1178.14	1175.81	6.18	6.64	6.64	0.00	0.00	9.24

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C203 DATE: 11-01-91

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1177.03	0.00	1000	0	0.00
1177.15	0.00	1034	0	0.00
1177.27	0.00	1067	0	0.00
1177.38	0.00	1101	0	0.00
1177.48	0.00	1129	0	0.00
1177.62	0.00	1168	0	0.00
1177.68	0.00	1201	0	0.00
1177.80	0.00	1235	0	0.00
1177.91	0.00	1268	0	0.00
1178.02	0.00	1302	0	0.00
1178.14	0.00	1335	0	0.00

CULVERT ANALYSIS VERSION 2.0

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-11-19	08:37:28	C204	11-01-91

PERFORMANCE CURVE DISCHARGE RANGE
OF FLOWS ANALYZED

MINUMUM DISCHARGE (CFS)	500
DESIGN DISCHARGE (CFS)	535
MAXIMUM DISCHARGE (CFS)	651

CULV #	A - SITE DATA			B - CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANN. N	INLET TYPE
1	1171.00	1170.00	255.00	2 - RCB	8.00	6.00	.013	CONVENTIONAL
2								
3								
4								
5								
6								

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-11-19	08:37:28	C204	11-01-91

CULVERT NUMBER: 1

CULVERT INVERT DATA

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1171.00
OUTLET STATION (FT)	255.00
OUTLET ELEVATION (FT)	1170.00
NUMBER OF BARRELS	2.00
SLOPE (V-FT/H-FT)	0.0039
CULVERT LENGTH ALONG SLOPE (FT)	255.00

BARREL SHAPE: 8.00 FT X 6.00 FT BOX
BARREL MATERIAL: CONCRETE
WITH A MANNING'S N OF 0.013
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION: NONE

DOWNSTREAM CHANNEL CROSS-SECTION

BOTTOM WIDTH (FT)	20.00
SIDE SLOPE H/V _:1	3.0
CHANNEL SLOPE V/H (FT/FT)	0.025
MANNING'S N (.01-0.1)	0.035
CHANNEL INVERT ELEVATION (FT)	1170.00
CULVERT OUTLET INVERT ELEVATION AT	1170.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-11-19	08:37:28	C204	11-01-91

UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NO.	VEL. (FPS)	SHEAR (PSF)
500.00	1172.06	0.000	9.30	3.21
515.10	1172.09	0.000	9.39	3.26
530.20	1172.12	0.000	9.47	3.31
535.00	1172.13	0.000	9.50	3.33
560.40	1172.19	0.000	9.63	3.42
575.50	1172.22	0.000	9.71	3.47
590.60	1172.25	0.000	9.79	3.52
605.70	1172.29	0.000	9.87	3.57
620.80	1172.32	0.000	9.94	3.61
635.90	1172.35	0.000	10.02	3.66
651.00	1172.38	0.000	10.09	3.71

SELECTED OVERTOPPING CREST

ROADWAY SURFACE:	PAVED
EMBANKMENT TOP WIDTH (FT):	160.00

CONSTANT ROADWAY ELEVATION PROFILE

CREST LENGTH (FT)	200.00
OVERTOPPING CREST ELEVATION (FT)	1189.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-11-19	08:37:28	C204	11-01-91

SUMMARY OF CULVERT FLOWS (CFS) FILE: C204 DATE: 11-01-91

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1175.81	500	500	0	0	0	0	0	0	2
1175.91	515	515	0	0	0	0	0	0	2
1176.01	530	530	0	0	0	0	0	0	2
1176.04	535	535	0	0	0	0	0	0	2
1176.20	560	560	0	0	0	0	0	0	2
1176.30	576	576	0	0	0	0	0	0	2
1176.39	591	591	0	0	0	0	0	0	2
1176.49	606	606	0	0	0	0	0	0	2
1176.59	621	621	0	0	0	0	0	0	2
1176.68	636	636	0	0	0	0	0	0	2
1176.78	651	651	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE
FOR 2 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
500	1175.81	1172.06	4.81	4.30	4.30	0.00	0.00	10.32
515	1175.91	1172.09	4.91	4.40	4.40	0.00	0.00	10.40
530	1176.01	1172.12	5.01	4.51	4.51	0.00	0.00	10.49
535	1176.04	1172.13	5.04	4.54	4.54	0.00	0.00	10.51
560	1176.20	1172.19	5.20	4.72	4.72	0.00	0.00	10.65
576	1176.30	1172.22	5.30	4.82	4.82	0.00	0.00	10.72
591	1176.39	1172.25	5.39	4.92	4.92	0.00	0.00	10.80
606	1176.49	1172.29	5.49	5.02	5.02	0.00	0.00	10.87
621	1176.59	1172.32	5.59	5.12	5.12	0.00	0.00	10.93
636	1176.68	1172.35	5.68	5.22	5.22	0.00	0.00	10.89
651	1176.78	1172.38	5.78	5.32	5.32	0.00	0.00	11.07

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C204 DATE: 11-01-91

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1175.81	0.00	500	0	0.00
1175.91	0.00	515	0	0.00
1176.01	0.00	530	0	0.00
1176.04	0.00	535	0	0.00
1176.20	0.00	560	0	0.00
1176.30	0.00	576	0	0.00
1176.39	0.00	591	0	0.00
1176.49	0.00	606	0	0.00
1176.59	0.00	621	0	0.00
1176.68	0.00	636	0	0.00
1176.78	0.00	651	0	0.00

CULVERT ANALYSIS VERSION 2.0

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-11-19	08:56:08	C205	11-01-91

PERFORMANCE CURVE DISCHARGE RANGE
OF FLOWS ANALYZED

MINUMUM DISCHARGE (CFS)	0
DESIGN DISCHARGE (CFS)	257
MAXIMUM DISCHARGE (CFS)	303

CULV #	A - SITE DATA			B - CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANN. N	INLET TYPE
1	1175.00	1171.00	230.00	1 - RCB	6.00	6.00	.013	CONVENTIONAL
2								
3								
4								
5								
6								

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-11-19	08:56:08	C205	11-01-91

CULVERT NUMBER: 1

CULVERT INVERT DATA

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1175.00
OUTLET STATION (FT)	230.00
OUTLET ELEVATION (FT)	1171.00
NUMBER OF BARRELS	1.00
SLOPE (V-FT/H-FT)	0.0174
CULVERT LENGTH ALONG SLOPE (FT)	230.00

BARREL SHAPE: 6.00 FT X 6.00 FT BOX
BARREL MATERIAL: CONCRETE
WITH A MANNING'S N OF 0.013
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION: NONE

DOWNSTREAM CHANNEL CROSS-SECTION

BOTTOM WIDTH (FT)	10.00
SIDE SLOPE H/V _:1	3.0
CHANNEL SLOPE V/H (FT/FT)	0.004
MANNING'S N (.01-0.1)	0.035
CHANNEL INVERT ELEVATION (FT)	1171.00
CULVERT OUTLET INVERT ELEVATION AT	1171.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-11-19	08:56:08	C205	11-01-91

UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NO.	VEL. (FPS)	SHEAR (PSF)
0.00	1171.00	0.000	0.00	0.00
30.30	1172.01	0.000	2.31	0.25
60.60	1172.47	0.000	2.86	0.37
90.90	1172.83	0.000	3.22	0.46
121.20	1173.12	0.000	3.49	0.53
151.50	1173.38	0.000	3.72	0.59
181.80	1173.61	0.000	3.91	0.65
212.10	1173.82	0.000	4.07	0.70
242.40	1174.01	0.000	4.22	0.75
257.00	1174.10	0.000	4.29	0.77
303.00	1174.36	0.000	4.49	0.84

SELECTED OVERTOPPING CREST

ROADWAY SURFACE:	PAVED
EMBANKMENT TOP WIDTH (FT):	160.00

CONSTANT ROADWAY ELEVATION PROFILE

CREST LENGTH (FT)	200.00
OVERTOPPING CREST ELEVATION (FT)	1186.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-11-19	08:56:08	C205	11-01-91

SUMMARY OF CULVERT FLOWS (CFS) FILE: C205 DATE: 11-01-91

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1175.00	0	0	0	0	0	0	0	0	0
1176.35	30	30	0	0	0	0	0	0	2
1177.18	61	61	0	0	0	0	0	0	2
1177.91	91	91	0	0	0	0	0	0	2
1178.55	121	121	0	0	0	0	0	0	2
1179.13	152	152	0	0	0	0	0	0	2
1179.67	182	182	0	0	0	0	0	0	2
1180.19	212	212	0	0	0	0	0	0	2
1180.71	242	242	0	0	0	0	0	0	2
1180.96	257	257	0	0	0	0	0	0	2
1181.78	303	303	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE FOR 1 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
0	1175.00	1171.00	0.00	-4.00	-4.00	1175.00	0.00	0.00
30	1176.35	1172.01	1.35	-2.44	-2.44	0.00	0.00	5.02
61	1177.18	1172.47	2.18	-1.50	-1.50	0.00	0.00	6.87
91	1177.91	1172.83	2.91	-0.73	-0.73	0.00	0.00	8.30
121	1178.55	1173.12	3.55	-0.04	-0.04	0.00	0.00	9.52
152	1179.13	1173.38	4.13	0.60	0.60	0.00	0.00	10.61
182	1179.67	1173.61	4.67	1.19	1.19	0.00	0.00	11.61
212	1180.19	1173.82	5.19	1.75	1.75	0.00	0.00	12.54
242	1180.71	1174.01	5.71	2.29	2.29	0.00	0.00	13.40
257	1180.96	1174.10	5.96	2.54	2.54	0.00	0.00	13.81
303	1181.78	1174.36	6.78	3.30	3.30	0.00	0.00	15.02

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C205 DATE: 11-01-91

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1175.00	0.00	0	0	0.00
1176.35	0.00	30	0	0.00
1177.18	0.00	61	0	0.00
1177.91	0.00	91	0	0.00
1178.55	0.00	121	0	0.00
1179.13	0.00	152	0	0.00
1179.67	0.00	182	0	0.00
1180.19	0.00	212	0	0.00
1180.71	0.00	242	0	0.00
1180.96	0.00	257	0	0.00
1181.78	0.00	303	0	0.00

CULVERT ANALYSIS VERSION 2.0

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-10-19	17:00:15	C206	11-04-91

PERFORMANCE CURVE DISCHARGE RANGE
OF FLOWS ANALYZED

MINUMUM DISCHARGE (CFS)	100
DESIGN DISCHARGE (CFS)	297
MAXIMUM DISCHARGE (CFS)	315

CU LV #	A - SITE DATA			B - CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANN. N	INLET TYPE
1	1179.00	1178.00	300.00	1 - RCB	8.00	6.00	.013	CONVENTIONAL
2								
3								
4								
5								
6								

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-10-19	17:00:15	C206	11-04-91

CULVERT NUMBER: 1

CULVERT INVERT DATA

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1179.00
OUTLET STATION (FT)	300.00
OUTLET ELEVATION (FT)	1178.00
NUMBER OF BARRELS	1.00
SLOPE (V-FT/H-FT)	0.0033
CULVERT LENGTH ALONG SLOPE (FT)	300.00

BARREL SHAPE: 8.00 FT X 6.00 FT BOX
BARREL MATERIAL: CONCRETE
WITH A MANNING'S N OF 0.013
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION: NONE

DOWNSTREAM CHANNEL CROSS-SECTION

BOTTOM WIDTH (FT)	20.00
SIDE SLOPE H/V _:1	6.0
CHANNEL SLOPE V/H (FT/FT)	0.020
MANNING'S N (.01-0.1)	0.035
CHANNEL INVERT ELEVATION (FT)	1178.00
CULVERT OUTLET INVERT ELEVATION AT	1178.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-10-19	17:00:15	C206	11-04-91

UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NO.	VEL. (FPS)	SHEAR (PSF)
100.00	1178.84	0.000	4.73	1.05
121.50	1178.94	0.000	5.03	1.17
143.00	1179.03	0.000	5.30	1.29
164.50	1179.11	0.000	5.54	1.39
186.00	1179.19	0.000	5.75	1.49
207.50	1179.26	0.000	5.95	1.58
229.00	1179.33	0.000	6.13	1.67
250.50	1179.40	0.000	6.30	1.75
272.00	1179.46	0.000	6.45	1.83
293.50	1179.53	0.000	6.60	1.90
297.00	1179.53	0.000	6.63	1.92

SELECTED OVERTOPPING CREST

ROADWAY SURFACE:	PAVED
EMBANKMENT TOP WIDTH (FT):	160.00

CONSTANT ROADWAY ELEVATION PROFILE

CREST LENGTH (FT)	200.00
OVERTOPPING CREST ELEVATION (FT)	1195.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-10-19	17:00:15	C206	11-04-91

SUMMARY OF CULVERT FLOWS (CFS) FILE: C206 DATE: 11-04-91

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1181.58	100	100	0	0	0	0	0	0	2
1181.95	122	122	0	0	0	0	0	0	2
1182.30	143	143	0	0	0	0	0	0	2
1183.01	165	165	0	0	0	0	0	0	2
1183.35	186	186	0	0	0	0	0	0	2
1183.68	208	208	0	0	0	0	0	0	2
1183.97	229	229	0	0	0	0	0	0	2
1184.27	251	251	0	0	0	0	0	0	2
1184.57	272	272	0	0	0	0	0	0	2
1184.86	294	294	0	0	0	0	0	0	2
1184.91	297	297	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE
FOR 1 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
100	1181.58	1178.84	2.58	1.88	1.88	0.00	0.00	7.44
122	1181.95	1178.94	2.95	2.28	2.28	0.00	0.00	7.90
143	1182.30	1179.03	3.30	2.65	2.65	0.00	0.00	8.31
165	1183.01	1179.11	3.63	4.01	4.01	0.00	0.00	8.70
186	1183.35	1179.19	3.95	4.35	4.35	0.00	0.00	9.06
208	1183.68	1179.26	4.25	4.68	4.68	0.00	0.00	9.40
229	1183.97	1179.33	4.54	4.97	4.97	0.00	0.00	9.71
251	1184.27	1179.40	4.82	5.27	5.27	0.00	0.00	10.01
272	1184.57	1179.46	5.10	5.57	5.57	0.00	0.00	10.28
294	1184.86	1179.53	5.37	5.86	5.86	0.00	0.00	10.55
297	1184.91	1179.53	5.42	5.91	5.91	0.00	0.00	10.59

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C206 DATE: 11-04-91

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1181.58	0.00	100	0	0.00
1181.95	0.00	122	0	0.00
1182.30	0.00	143	0	0.00
1183.01	0.00	165	0	0.00
1183.35	0.00	186	0	0.00
1183.68	0.00	208	0	0.00
1183.97	0.00	229	0	0.00
1184.27	0.00	251	0	0.00
1184.57	0.00	272	0	0.00
1184.86	0.00	294	0	0.00
1184.91	0.00	297	0	0.00

CULVERT ANALYSIS VERSION 2.0

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-09-19	14:02:27	C207	11-04-91

PERFORMANCE CURVE DISCHARGE RANGE
OF FLOWS ANALYZED

MINUMUM DISCHARGE (CFS)	0
DESIGN DISCHARGE (CFS)	77
MAXIMUM DISCHARGE (CFS)	96

CU LV #	A - SITE DATA			B - CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANN. N	INLET TYPE
1	1196.00	1195.00	370.00	1 - RCP	5.00	5.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-09-19	14:02:27	C207	11-04-91

CULVERT NUMBER: 1

CULVERT INVERT DATA

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1196.00
OUTLET STATION (FT)	370.00
OUTLET ELEVATION (FT)	1195.00
NUMBER OF BARRELS	1.00
SLOPE (V-FT/H-FT)	0.0027
CULVERT LENGTH ALONG SLOPE (FT)	370.00

BARREL SHAPE: CIRCULAR 5.00 FT IN DIAMETER
BARREL MATERIAL:
WITH A MANNING'S N OF 0.012
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: SQUARE EDGE WITH HEADWALL
INLET DEPRESSION: NONE

DOWNSTREAM CHANNEL CROSS-SECTION

BOTTOM WIDTH (FT)	40.00
SIDE SLOPE H/V _:1	3.0
CHANNEL SLOPE V/H (FT/FT)	0.025
MANNING'S N (.01-0.1)	0.035
CHANNEL INVERT ELEVATION (FT)	1195.00
CULVERT OUTLET INVERT ELEVATION AT	1195.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-09-19	14:02:27	C207	11-04-91

UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NO.	VEL. (FPS)	SHEAR (PSF)
0.00	1195.00	0.000	0.00	0.00
9.60	1195.14	0.000	1.76	0.21
19.20	1195.20	0.000	2.31	0.32
28.80	1195.26	0.000	2.70	0.41
38.40	1195.31	0.000	3.02	0.48
48.00	1195.35	0.000	3.30	0.55
57.60	1195.40	0.000	3.54	0.62
67.20	1195.43	0.000	3.76	0.68
76.80	1195.47	0.000	3.95	0.73
77.00	1195.47	0.000	3.96	0.73
96.00	1195.54	0.000	4.31	0.84

SELECTED OVERTOPPING CREST

ROADWAY SURFACE:	PAVED
EMBANKMENT TOP WIDTH (FT):	160.00

CONSTANT ROADWAY ELEVATION PROFILE

CREST LENGTH (FT)	100.00
OVERTOPPING CREST ELEVATION (FT)	1204.00

USD

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-09-19	14:02:27	C207	11-04-91

SUMMARY OF CULVERT FLOWS (CFS) FILE: C207 DATE: 11-04-91

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1196.00	0	0	0	0	0	0	0	0	0
1197.28	10	10	0	0	0	0	0	0	2
1197.85	19	19	0	0	0	0	0	0	2
1198.29	29	29	0	0	0	0	0	0	2
1198.68	38	38	0	0	0	0	0	0	2
1199.02	48	48	0	0	0	0	0	0	2
1199.31	58	58	0	0	0	0	0	0	2
1199.61	67	67	0	0	0	0	0	0	2
1199.90	77	77	0	0	0	0	0	0	2
1199.91	77	77	0	0	0	0	0	0	1
1200.42	96	96	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE
FOR 1 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
0	1196.00	1195.00	0.00	-1.00	-1.00	1196.00	0.00	0.00
10	1197.28	1195.14	1.00	1.28	1.28	0.00	0.00	4.49
19	1197.85	1195.20	1.51	1.85	1.85	0.00	0.00	5.34
29	1198.29	1195.26	1.96	2.29	2.29	0.00	0.00	5.88
38	1198.68	1195.31	2.36	2.68	2.68	0.00	0.00	6.44
48	1199.02	1195.35	2.72	3.02	3.02	0.00	0.00	6.84
58	1199.31	1195.40	3.06	3.31	3.31	0.00	0.00	7.27
67	1199.61	1195.43	3.36	3.61	3.61	0.00	0.00	7.65
77	1199.90	1195.47	3.65	3.90	3.90	0.00	0.00	7.97
77	1199.91	1195.47	3.65	3.91	3.91	0.00	0.00	7.98
96	1200.42	1195.54	4.18	4.42	4.42	0.00	0.00	8.60

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C207 DATE: 11-04-91

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1196.00	0.00	0	0	0.00
1197.28	0.00	10	0	0.00
1197.85	0.00	19	0	0.00
1198.29	0.00	29	0	0.00
1198.68	0.00	38	0	0.00
1199.02	0.00	48	0	0.00
1199.31	0.00	58	0	0.00
1199.61	0.00	67	0	0.00
1199.90	0.00	77	0	0.00
1199.91	0.01	77	0	0.00
1200.42	0.00	96	0	0.00

CULVERT ANALYSIS VERSION 2.0

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-10-19	17:01:01	C208	11-12-91

PERFORMANCE CURVE DISCHARGE RANGE
OF FLOWS ANALYZED

MINUMUM DISCHARGE (CFS)	1500
DESIGN DISCHARGE (CFS)	1567
MAXIMUM DISCHARGE (CFS)	1818

CULV #	A - SITE DATA INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	B - CULVERT SHAPE, MATERIAL, INLET BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANN. N	INLET TYPE
1	1192.00	1191.00	530.00	3 - RCB	10.00	6.00	.013	CONVENTIONAL
2								
3								
4								
5								
6								

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-10-19	17:01:01	C208	11-12-91

CULVERT NUMBER: 1

CULVERT INVERT DATA

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1192.00
OUTLET STATION (FT)	530.00
OUTLET ELEVATION (FT)	1191.00
NUMBER OF BARRELS	3.00
SLOPE (V-FT/H-FT)	0.0019
CULVERT LENGTH ALONG SLOPE (FT)	530.00

BARREL SHAPE: 10.00 FT X 6.00 FT BOX
BARREL MATERIAL: CONCRETE
WITH A MANNING'S N OF 0.013
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION: NONE

DOWNSTREAM CHANNEL CROSS-SECTION

BOTTOM WIDTH (FT)	40.00
SIDE SLOPE H/V _:1	10.0
CHANNEL SLOPE V/H (FT/FT)	0.008
MANNING'S N (.01-0.1)	0.035
CHANNEL INVERT ELEVATION (FT)	1191.00
CULVERT OUTLET INVERT ELEVATION AT	1191.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-10-19	17:01:01	C208	11-12-91

UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NO.	VEL. (FPS)	SHEAR (PSF)
1500.00	1194.22	0.000	6.46	1.61
1531.80	1194.25	0.000	6.50	1.62
1563.60	1194.29	0.000	6.53	1.64
1567.00	1194.29	0.000	6.54	1.64
1627.20	1194.35	0.000	6.60	1.67
1659.00	1194.38	0.000	6.64	1.69
1690.80	1194.42	0.000	6.67	1.71
1722.60	1194.45	0.000	6.71	1.72
1754.40	1194.48	0.000	6.74	1.74
1786.20	1194.51	0.000	6.77	1.75
1818.00	1194.54	0.000	6.81	1.77

SELECTED OVERTOPPING CREST

ROADWAY SURFACE:	PAVED
EMBANKMENT TOP WIDTH (FT):	320.00

CONSTANT ROADWAY ELEVATION PROFILE

CREST LENGTH (FT)	340.00
OVERTOPPING CREST ELEVATION (FT)	1220.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-10-19	17:01:01	C208	11-12-91

SUMMARY OF CULVERT FLOWS (CFS) FILE: C208 DATE: 11-12-91

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1199.20	1500	1500	0	0	0	0	0	0	2
1198.88	1532	1532	0	0	0	0	0	0	2
1199.00	1564	1564	0	0	0	0	0	0	2
1199.01	1567	1567	0	0	0	0	0	0	2
1199.24	1627	1627	0	0	0	0	0	0	2
1199.36	1659	1659	0	0	0	0	0	0	2
1199.49	1691	1691	0	0	0	0	0	0	2
1199.62	1723	1723	0	0	0	0	0	0	2
1199.74	1754	1754	0	0	0	0	0	0	2
1199.87	1786	1786	0	0	0	0	0	0	2
1200.00	1818	1818	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE FOR 3 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
1500	1199.20	1194.22	6.77	7.20	7.20	0.00	0.00	11.70
1532	1199.30	1194.25	6.88	7.30	7.30	0.00	0.00	11.78
1564	1199.40	1194.29	7.00	7.40	7.40	0.00	0.00	11.86
1567	1199.41	1194.29	7.01	7.41	7.41	0.00	0.00	11.87
1627	1199.60	1194.35	7.24	7.60	7.60	0.00	0.00	12.02
1659	1199.69	1194.38	7.37	7.69	7.69	0.00	0.00	12.09
1691	1199.81	1194.42	7.49	7.81	7.81	0.00	0.00	12.17
1723	1199.90	1194.45	7.62	7.90	7.90	0.00	0.00	12.25
1754	1200.00	1194.48	7.74	8.00	8.00	0.00	0.00	12.32
1786	1200.09	1194.51	7.87	8.09	8.09	0.00	0.00	12.40
1818	1200.18	1194.54	8.00	8.18	8.18	0.00	0.00	12.47

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C208 DATE: 11-12-91

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1199.20	0.00	1500	0	0.00
1198.88	0.00	1532	0	0.00
1199.00	0.00	1564	0	0.00
1199.01	0.00	1567	0	0.00
1199.24	0.00	1627	0	0.00
1199.36	0.00	1659	0	0.00
1199.49	0.00	1691	0	0.00
1199.62	0.00	1723	0	0.00
1199.74	0.00	1754	0	0.00
1199.87	0.00	1786	0	0.00
1200.00	0.00	1818	0	0.00

CULVERT ANALYSIS VERSION 2.0

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-09-19	12:37:55	C209	11-07-91

PERFORMANCE CURVE DISCHARGE RANGE
OF FLOWS ANALYZED

MINUMUM DISCHARGE (CFS)	0
DESIGN DISCHARGE (CFS)	49
MAXIMUM DISCHARGE (CFS)	151

CU LV #	A - SITE DATA			B - CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANN. N	INLET TYPE
1	1208.50	1206.00	275.00	1 - RCP	5.00	5.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-09-19	12:37:55	C209	11-07-91

CULVERT NUMBER: 1

CULVERT INVERT DATA

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1208.50
OUTLET STATION (FT)	275.00
OUTLET ELEVATION (FT)	1206.00
NUMBER OF BARRELS	1.00
SLOPE (V-FT/H-FT)	0.0091
CULVERT LENGTH ALONG SLOPE (FT)	275.00

BARREL SHAPE: CIRCULAR 5.00 FT IN DIAMETER
BARREL MATERIAL:
WITH A MANNING'S N OF 0.012
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: SQUARE EDGE WITH HEADWALL
INLET DEPRESSION: NONE

DOWNSTREAM CHANNEL CROSS-SECTION

BOTTOM WIDTH (FT)	20.00
SIDE SLOPE H/V _:1	3.0
CHANNEL SLOPE V/H (FT/FT)	0.010
MANNING'S N (.01-0.1)	0.035
CHANNEL INVERT ELEVATION (FT)	1206.00
CULVERT OUTLET INVERT ELEVATION AT	1206.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-09-19	12:37:55	C209	11-07-91

UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NO.	VEL. (FPS)	SHEAR (PSF)
0.00	1206.00	0.000	0.00	0.00
15.10	1206.35	0.000	2.04	0.22
30.20	1206.53	0.000	2.64	0.33
45.30	1206.67	0.000	3.06	0.42
49.00	1206.70	0.000	3.14	0.44
75.50	1206.91	0.000	3.66	0.57
90.60	1207.01	0.000	3.90	0.63
105.70	1207.10	0.000	4.11	0.69
120.80	1207.19	0.000	4.30	0.74
135.90	1207.27	0.000	4.48	0.80
151.00	1207.35	0.000	4.64	0.84

SELECTED OVERTOPPING CREST

ROADWAY SURFACE:	PAVED
EMBANKMENT TOP WIDTH (FT):	160.00

CONSTANT ROADWAY ELEVATION PROFILE

CREST LENGTH (FT)	300.00
OVERTOPPING CREST ELEVATION (FT)	1215.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-09-19	12:37:55	C209	11-07-91

SUMMARY OF CULVERT FLOWS (CFS) FILE: C209 DATE: 11-07-91

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1208.50	0	0	0	0	0	0	0	0	0
1209.78	15	15	0	0	0	0	0	0	2
1210.50	30	30	0	0	0	0	0	0	2
1211.11	45	45	0	0	0	0	0	0	2
1211.24	49	49	0	0	0	0	0	0	2
1212.09	76	76	0	0	0	0	0	0	2
1212.52	91	91	0	0	0	0	0	0	2
1212.93	106	106	0	0	0	0	0	0	2
1213.34	121	121	0	0	0	0	0	0	2
1213.76	136	136	0	0	0	0	0	0	2
1214.21	151	151	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE
FOR 1 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
0	1208.50	1206.00	0.00	-2.50	-2.50	1208.50	0.00	0.00
15	1209.78	1206.35	1.28	-0.87	-0.87	0.00	0.00	7.72
30	1210.50	1206.53	2.00	-0.14	-0.14	0.00	0.00	9.20
45	1211.11	1206.67	2.61	0.43	0.43	0.00	0.00	10.26
49	1211.24	1206.70	2.74	0.56	0.56	0.00	0.00	10.48
76	1212.09	1206.91	3.59	1.41	1.41	0.00	0.00	11.84
91	1212.52	1207.01	4.02	1.84	1.84	0.00	0.00	11.98
106	1212.93	1207.10	4.43	2.26	2.26	0.00	0.00	12.93
121	1213.34	1207.19	4.84	2.67	2.67	0.00	0.00	12.88
136	1213.76	1207.27	5.26	3.07	3.07	0.00	0.00	13.28
151	1214.21	1207.35	5.71	3.45	3.45	0.00	0.00	13.65

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C209 DATE: 11-07-91

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1208.50	0.00	0	0	0.00
1209.78	0.00	15	0	0.00
1210.50	0.00	30	0	0.00
1211.11	0.00	45	0	0.00
1211.24	0.00	49	0	0.00
1212.09	0.00	76	0	0.00
1212.52	0.00	91	0	0.00
1212.93	0.00	106	0	0.00
1213.34	0.00	121	0	0.00
1213.76	0.00	136	0	0.00
1214.21	0.00	151	0	0.00

CULVERT ANALYSIS VERSION 2.0

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-09-19	16:36:44	C210	01-31-92

PERFORMANCE CURVE DISCHARGE RANGE
OF FLOWS ANALYZED

MINUMUM DISCHARGE (CFS)	0
DESIGN DISCHARGE (CFS)	374
MAXIMUM DISCHARGE (CFS)	447

CULV #	A - SITE DATA			B - CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANN. N	INLET TYPE
1	1194.00	1193.00	290.00	1 - RCB	10.00	6.00	.013	CONVENTIONAL
2								
3								
4								
5								
6								

6010

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-09-19	16:36:44	C210	01-31-92

CULVERT NUMBER: 1

CULVERT INVERT DATA

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1194.00
OUTLET STATION (FT)	290.00
OUTLET ELEVATION (FT)	1193.00
NUMBER OF BARRELS	1.00
SLOPE (V-FT/H-FT)	0.0034
CULVERT LENGTH ALONG SLOPE (FT)	290.00

BARREL SHAPE: 10.00 FT X 6.00 FT BOX
BARREL MATERIAL: CONCRETE
WITH A MANNING'S N OF 0.013
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION: NONE

CONSTANT WATER SURFACE ELEVATION
1197.50

SELECTED OVERTOPPING CREST

ROADWAY SURFACE:	PAVED
EMBANKMENT TOP WIDTH (FT):	160.00

CONSTANT ROADWAY ELEVATION PROFILE

CREST LENGTH (FT)	100.00
OVERTOPPING CREST ELEVATION (FT)	1204.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-09-19	16:36:44	C210	01-31-92

SUMMARY OF CULVERT FLOWS (CFS) FILE: C210 DATE: 01-31-92

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1194.00	0	0	0	0	0	0	0	0	0
1197.56	45	45	0	0	0	0	0	0	2
1197.67	89	89	0	0	0	0	0	0	2
1197.85	134	134	0	0	0	0	0	0	2
1198.09	179	179	0	0	0	0	0	0	2
1198.41	224	224	0	0	0	0	0	0	2
1198.80	268	268	0	0	0	0	0	0	2
1199.27	313	313	0	0	0	0	0	0	2
1199.83	358	358	0	0	0	0	0	0	2
1200.00	374	374	0	0	0	0	0	0	2
1200.74	447	447	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE
FOR 1 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
0	1197.50	1197.50	0.00	3.50	3.50	1194.00	0.00	0.00
45	1197.56	1197.50	1.29	3.56	3.56	0.00	0.00	0.99
89	1197.67	1197.50	2.04	3.67	3.67	0.00	0.00	1.99
134	1197.85	1197.50	2.71	3.85	3.85	0.00	0.00	2.98
179	1198.09	1197.50	3.30	4.09	4.09	0.00	0.00	3.97
224	1198.41	1197.50	3.84	4.41	4.41	0.00	0.00	4.97
268	1198.80	1197.50	4.34	4.80	4.80	0.00	0.00	5.96
313	1199.27	1197.50	4.82	5.27	5.27	0.00	0.00	6.95
358	1199.83	1197.50	5.28	5.83	5.83	0.00	0.00	7.95
374	1200.00	1197.50	5.44	6.00	6.00	0.00	0.00	8.31
447	1200.74	1197.50	6.20	6.74	6.74	0.00	0.00	9.93

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C210 DATE: 01-31-92

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1194.00	0.00	0	0	0.00
1197.56	0.00	45	0	0.00
1197.67	0.00	89	0	0.00
1197.85	0.00	134	0	0.00
1198.09	0.00	179	0	0.00
1198.41	0.00	224	0	0.00
1198.80	0.00	268	0	0.00
1199.27	0.00	313	0	0.00
1199.83	0.00	358	0	0.00
1200.00	0.00	374	0	0.00
1200.74	0.00	447	0	0.00

CULVERT ANALYSIS VERSION 2.0

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-10-19	11:14:10	C211	02-03-92

PERFORMANCE CURVE DISCHARGE RANGE
OF FLOWS ANALYZED

MINUMUM DISCHARGE (CFS)	0
DESIGN DISCHARGE (CFS)	431
MAXIMUM DISCHARGE (CFS)	521

CULV #	A - SITE DATA			B - CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANN. N	INLET TYPE
1	1180.00	1179.00	305.00	2 - RCB	8.00	6.00	.013	CONVENTIONAL
2								
3								
4								
5								
6								

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-10-19	11:14:10	C211	02-03-92

CULVERT NUMBER: 1

CULVERT INVERT DATA

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1180.00
OUTLET STATION (FT)	305.00
OUTLET ELEVATION (FT)	1179.00
NUMBER OF BARRELS	2.00
SLOPE (V-FT/H-FT)	0.0033
CULVERT LENGTH ALONG SLOPE (FT)	305.00

BARREL SHAPE: 8.00 FT X 6.00 FT BOX
BARREL MATERIAL: CONCRETE
WITH A MANNING'S N OF 0.013
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION: NONE

CONSTANT WATER SURFACE ELEVATION
1185.50

SELECTED OVERTOPPING CREST

ROADWAY SURFACE:	PAVED
EMBANKMENT TOP WIDTH (FT):	160.00

CONSTANT ROADWAY ELEVATION PROFILE

CREST LENGTH (FT)	100.00
OVERTOPPING CREST ELEVATION (FT)	1193.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
03-10-19	11:14:10	C211	02-03-92

SUMMARY OF CULVERT FLOWS (CFS) FILE: C211 DATE: 02-03-92

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1180.00	0	0	0	0	0	0	0	0	0
1185.56	52	52	0	0	0	0	0	0	2
1185.57	104	104	0	0	0	0	0	0	2
1185.59	156	156	0	0	0	0	0	0	2
1185.94	208	208	0	0	0	0	0	0	2
1185.25	261	261	0	0	0	0	0	0	2
1185.36	313	313	0	0	0	0	0	0	2
1185.48	365	365	0	0	0	0	0	0	2
1185.64	417	417	0	0	0	0	0	0	2
1185.68	431	431	0	0	0	0	0	0	2
1185.98	521	521	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE
FOR 2 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
0	1185.50	1185.50	0.00	5.50	5.50	1180.00	0.00	0.00
52	1185.56	1185.50	1.07	5.56	5.56	0.00	0.00	0.54
104	1185.57	1185.50	1.65	5.57	5.57	0.00	0.00	1.09
156	1185.59	1185.50	2.17	5.59	5.59	0.00	0.00	1.63
208	1185.94	1185.50	2.66	5.94	5.94	0.00	0.00	2.17
261	1185.25	1185.50	3.10	5.25	5.25	0.00	0.00	2.17
313	1185.36	1185.50	3.51	5.36	5.36	0.00	0.00	2.17
365	1185.48	1185.50	3.89	5.48	5.48	0.00	0.00	2.17
417	1185.64	1185.50	4.26	5.64	5.64	0.00	0.00	2.17
431	1185.68	1185.50	4.36	5.68	5.68	0.00	0.00	2.17
521	1185.98	1185.50	4.95	5.98	5.98	0.00	0.00	2.17

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C211 DATE: 02-03-92

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1180.00	0.00	0	0	0.00
1185.56	0.00	52	0	0.00
1185.57	0.00	104	0	0.00
1185.59	0.00	156	0	0.00
1185.94	0.00	208	0	0.00
1185.25	0.00	261	0	0.00
1185.36	0.00	313	0	0.00
1185.48	0.00	365	0	0.00
1185.64	0.00	417	0	0.00
1185.68	0.00	431	0	0.00
1185.98	0.00	521	0	0.00

CULVERT ANALYSIS VERSION 2.0

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-17-19	07:31:32	C212	02-17-92

PERFORMANCE CURVE DISCHARGE RANGE
OF FLOWS ANALYZED

MINUMUM DISCHARGE (CFS)	400
DESIGN DISCHARGE (CFS)	598
MAXIMUM DISCHARGE (CFS)	725

CULV #	A - SITE DATA INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	B - CULVERT SHAPE, MATERIAL, INLET BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANN. N	INLET TYPE
1	1173.00	1172.00	400.00	2 - RCB	10.00	6.00	.013	CONVENTIONAL
2								
3								
4								
5								
6								

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-17-19	07:31:32	C212	02-17-92

CULVERT NUMBER: 1

CULVERT INVERT DATA

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1173.00
OUTLET STATION (FT)	400.00
OUTLET ELEVATION (FT)	1172.00
NUMBER OF BARRELS	2.00
SLOPE (V-FT/H-FT)	0.0025
CULVERT LENGTH ALONG SLOPE (FT)	400.00

BARREL SHAPE: 10.00 FT X 6.00 FT BOX
BARREL MATERIAL: CONCRETE
WITH A MANNING'S N OF 0.013
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION: NONE

CONSTANT WATER SURFACE ELEVATION
1178.00

SELECTED OVERTOPPING CREST

ROADWAY SURFACE:	PAVED
EMBANKMENT TOP WIDTH (FT):	160.00

CONSTANT ROADWAY ELEVATION PROFILE

CREST LENGTH (FT)	100.00
OVERTOPPING CREST ELEVATION (FT)	1190.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-17-19	07:31:32	C212	02-17-92

SUMMARY OF CULVERT FLOWS (CFS) FILE: C212 DATE: 02-17-92

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1178.39	400	400	0	0	0	0	0	0	2
1178.45	433	433	0	0	0	0	0	0	2
1178.52	465	465	0	0	0	0	0	0	2
1178.59	498	498	0	0	0	0	0	0	2
1178.67	530	530	0	0	0	0	0	0	2
1178.75	563	563	0	0	0	0	0	0	2
1178.84	595	595	0	0	0	0	0	0	2
1178.85	598	598	0	0	0	0	0	0	2
1179.03	660	660	0	0	0	0	0	0	2
1179.13	693	693	0	0	0	0	0	0	2
1179.24	725	725	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE
FOR 2 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
400	1178.39	1178.00	3.57	5.39	5.39	0.00	0.00	0.00
433	1178.45	1178.00	3.76	5.45	5.45	0.00	0.00	0.00
465	1178.52	1178.00	3.95	5.52	5.52	0.00	0.00	0.00
498	1178.59	1178.00	4.13	5.59	5.59	0.00	0.00	0.00
530	1178.67	1178.00	4.31	5.67	5.67	0.00	0.00	0.00
563	1178.75	1178.00	4.49	5.75	5.75	0.00	0.00	0.00
595	1178.84	1178.00	4.66	5.84	5.84	0.00	0.00	0.00
598	1178.85	1178.00	4.67	5.85	5.85	0.00	0.00	0.00
660	1179.03	1178.00	5.00	6.03	6.03	0.00	0.00	0.00
693	1179.13	1178.00	5.16	6.13	6.13	0.00	0.00	0.00
725	1179.24	1178.00	5.33	6.24	6.24	0.00	0.00	0.00

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C212 DATE: 02-17-92

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1178.39	0.00	400	0	0.00
1178.45	0.00	433	0	0.00
1178.52	0.00	465	0	0.00
1178.59	0.00	498	0	0.00
1178.67	0.00	530	0	0.00
1178.75	0.00	563	0	0.00
1178.84	0.00	595	0	0.00
1178.85	0.00	598	0	0.00
1179.03	0.00	660	0	0.00
1179.13	0.00	693	0	0.00
1179.24	0.00	725	0	0.00

CULVERT ANALYSIS VERSION 2.0

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-17-19	09:31:30	C213	02-17-92

PERFORMANCE CURVE DISCHARGE RANGE
OF FLOWS ANALYZED

MINUMUM DISCHARGE (CFS)	0
DESIGN DISCHARGE (CFS)	173
MAXIMUM DISCHARGE (CFS)	201

CULV #	A - SITE DATA INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	B - CULVERT SHAPE, MATERIAL, INLET BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANN. N	INLET TYPE
1	1165.00	1164.00	575.00	1 - RCB	8.00	6.00	.013	CONVENTIONAL
2								
3								
4								
5								
6								

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-17-19	09:31:30	C213	02-17-92

CULVERT NUMBER: 1

CULVERT INVERT DATA

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1165.00
OUTLET STATION (FT)	575.00
OUTLET ELEVATION (FT)	1164.00
NUMBER OF BARRELS	1.00
SLOPE (V-FT/H-FT)	0.0017
CULVERT LENGTH ALONG SLOPE (FT)	575.00

BARREL SHAPE: 8.00 FT X 6.00 FT BOX
BARREL MATERIAL: CONCRETE
WITH A MANNING'S N OF 0.013
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION: NONE

CONSTANT WATER SURFACE ELEVATION
1172.00

SELECTED OVERTOPPING CREST

ROADWAY SURFACE:	PAVED
EMBANKMENT TOP WIDTH (FT):	160.00

CONSTANT ROADWAY ELEVATION PROFILE

CREST LENGTH (FT)	100.00
OVERTOPPING CREST ELEVATION (FT)	1175.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-17-19	09:31:30	C213	02-17-92

SUMMARY OF CULVERT FLOWS (CFS) FILE: C213 DATE: 02-17-92

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1165.00	0	0	0	0	0	0	0	0	0
1172.01	20	20	0	0	0	0	0	0	1
1172.03	40	40	0	0	0	0	0	0	2
1172.07	60	60	0	0	0	0	0	0	2
1172.12	80	80	0	0	0	0	0	0	2
1172.19	101	101	0	0	0	0	0	0	2
1172.27	121	121	0	0	0	0	0	0	2
1172.37	141	141	0	0	0	0	0	0	2
1172.48	161	161	0	0	0	0	0	0	2
1172.56	173	173	0	0	0	0	0	0	2
1172.76	201	201	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE
FOR 1 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
0	1172.00	1172.00	0.00	7.00	7.00	1165.00	0.00	0.00
20	1172.01	1172.00	0.93	7.01	7.01	0.00	0.00	0.42
40	1172.03	1172.00	1.39	7.03	7.03	0.00	0.00	0.84
60	1172.07	1172.00	1.82	7.07	7.07	0.00	0.00	1.26
80	1172.12	1172.00	2.22	7.12	7.12	0.00	0.00	1.68
101	1172.19	1172.00	2.59	7.19	7.19	0.00	0.00	2.09
121	1172.27	1172.00	2.94	7.27	7.27	0.00	0.00	2.51
141	1172.37	1172.00	3.27	7.37	7.37	0.00	0.00	2.93
161	1172.48	1172.00	3.58	7.48	7.48	0.00	0.00	3.35
173	1172.56	1172.00	3.76	7.56	7.56	0.00	0.00	3.60
201	1172.76	1172.00	4.16	7.76	7.76	0.00	0.00	4.19

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C213 DATE: 02-17-92

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1165.00	0.00	0	0	0.00
1172.01	0.01	20	0	0.00
1172.03	0.00	40	0	0.00
1172.07	0.00	60	0	0.00
1172.12	0.00	80	0	0.00
1172.19	0.00	101	0	0.00
1172.27	0.00	121	0	0.00
1172.37	0.00	141	0	0.00
1172.48	0.00	161	0	0.00
1172.56	0.00	173	0	0.00
1172.76	0.00	201	0	0.00

CULVERT ANALYSIS VERSION 2.0

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-14-19	07:27:52	C214	02-14-92

PERFORMANCE CURVE DISCHARGE RANGE
OF FLOWS ANALYZED

MINUMUM DISCHARGE (CFS)	500
DESIGN DISCHARGE (CFS)	992
MAXIMUM DISCHARGE (CFS)	1072

CULVERT #	A - SITE DATA			B - CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANN. N	INLET TYPE
1	1167.00	1165.00	470.00	3 - RCB	10.00	6.00	.013	CONVENTIONAL
2								
3								
4								
5								
6								

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-14-19	07:27:52	C214	02-14-92

CULVERT NUMBER: 1

CULVERT INVERT DATA

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1167.00
OUTLET STATION (FT)	470.00
OUTLET ELEVATION (FT)	1165.00
NUMBER OF BARRELS	3.00
SLOPE (V-FT/H-FT)	0.0043
CULVERT LENGTH ALONG SLOPE (FT)	470.00

BARREL SHAPE: 10.00 FT X 6.00 FT BOX
BARREL MATERIAL: CONCRETE
WITH A MANNING'S N OF 0.013
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION: NONE

CONSTANT WATER SURFACE ELEVATION
1169.00

SELECTED OVERTOPPING CREST

ROADWAY SURFACE:	PAVED
EMBANKMENT TOP WIDTH (FT):	160.00

CONSTANT ROADWAY ELEVATION PROFILE

CREST LENGTH (FT)	100.00
OVERTOPPING CREST ELEVATION (FT)	1184.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-14-19	07:27:52	C214	02-14-92

SUMMARY OF CULVERT FLOWS (CFS) FILE: C214 DATE: 02-14-92

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1170.15	500	500	0	0	0	0	0	0	2
1170.39	557	557	0	0	0	0	0	0	2
1170.62	614	614	0	0	0	0	0	0	2
1170.85	672	672	0	0	0	0	0	0	2
1171.06	729	729	0	0	0	0	0	0	2
1171.27	786	786	0	0	0	0	0	0	2
1171.48	843	843	0	0	0	0	0	0	2
1171.68	900	900	0	0	0	0	0	0	2
1171.88	958	958	0	0	0	0	0	0	2
1172.00	992	992	0	0	0	0	0	0	2
1172.27	1072	1072	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE
FOR 3 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
500	1170.15	1169.00	3.15	2.98	2.98	0.00	0.00	4.17
557	1170.39	1169.00	3.39	3.07	3.07	0.00	0.00	4.64
614	1170.62	1169.00	3.62	3.16	3.16	0.00	0.00	5.12
672	1170.85	1169.00	3.85	3.25	3.25	0.00	0.00	5.60
729	1171.06	1169.00	4.06	3.33	3.33	0.00	0.00	6.07
786	1171.27	1169.00	4.27	3.42	3.42	0.00	0.00	6.55
843	1171.48	1169.00	4.48	3.50	3.50	0.00	0.00	7.03
900	1171.68	1169.00	4.68	3.64	3.64	0.00	0.00	7.50
958	1171.88	1169.00	4.88	3.72	3.72	0.00	0.00	7.98
992	1172.00	1169.00	5.00	3.78	3.78	0.00	0.00	8.27
1072	1172.27	1169.00	5.27	3.94	3.94	0.00	0.00	8.93

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C214 DATE: 02-14-92

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1170.15	0.00	500	0	0.00
1170.39	0.00	557	0	0.00
1170.62	0.00	614	0	0.00
1170.85	0.00	672	0	0.00
1171.06	0.00	729	0	0.00
1171.27	0.00	786	0	0.00
1171.48	0.00	843	0	0.00
1171.68	0.00	900	0	0.00
1171.88	0.00	958	0	0.00
1172.00	0.00	992	0	0.00
1172.27	0.00	1072	0	0.00

CULVERT ANALYSIS VERSION 2.0

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-10-19	14:12:02	C215	02-06-92

PERFORMANCE CURVE DISCHARGE RANGE
OF FLOWS ANALYZED

MINUMUM DISCHARGE (CFS)	1500
DESIGN DISCHARGE (CFS)	2200
MAXIMUM DISCHARGE (CFS)	2500

CULV #	A - SITE DATA			B - CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANN. N	INLET TYPE
1	1175.50	1174.50	230.00	7 - RCB	10.00	6.00	.013	CONVENTIONAL
2								
3								
4								
5								
6								

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-10-19	14:12:02	C215	02-06-92

CULVERT NUMBER: 1

CULVERT INVERT DATA

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1175.50
OUTLET STATION (FT)	230.00
OUTLET ELEVATION (FT)	1174.50
NUMBER OF BARRELS	7.00
SLOPE (V-FT/H-FT)	0.0043
CULVERT LENGTH ALONG SLOPE (FT)	230.00

BARREL SHAPE: 10.00 FT X 6.00 FT BOX
BARREL MATERIAL: CONCRETE
WITH A MANNING'S N OF 0.013
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION: NONE

TAILWATER RATING CURVE

FLOW(CFS)	W.S.E.(FT)
1500	1177.79
1600	1177.83
1700	1177.86
1800	1177.90
1900	1177.93
2000	1177.96
2100	1177.99
2200	1178.03
2300	1178.06
2400	1178.09
2500	1178.12

SELECTED OVERTOPPING CREST

ROADWAY SURFACE:	PAVED
EMBANKMENT TOP WIDTH (FT):	160.00

CONSTANT ROADWAY ELEVATION PROFILE

CREST LENGTH (FT)	100.00
OVERTOPPING CREST ELEVATION (FT)	1188.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-10-19	14:12:02	C215	02-06-92

SUMMARY OF CULVERT FLOWS (CFS) FILE: C215 DATE: 02-06-92

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1179.23	1500	1500	0	0	0	0	0	0	2
1179.40	1600	1600	0	0	0	0	0	0	2
1179.56	1700	1700	0	0	0	0	0	0	2
1179.72	1800	1800	0	0	0	0	0	0	2
1179.88	1900	1900	0	0	0	0	0	0	2
1180.03	2000	2000	0	0	0	0	0	0	2
1180.18	2100	2100	0	0	0	0	0	0	2
1180.33	2200	2200	0	0	0	0	0	0	2
1180.48	2300	2300	0	0	0	0	0	0	2
1180.62	2400	2400	0	0	0	0	0	0	2
1180.77	2500	2500	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE
FOR 7 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
1500	1179.23	1177.79	3.73	3.55	3.55	0.00	0.00	6.51
1600	1179.40	1177.83	3.90	3.68	3.68	0.00	0.00	6.86
1700	1179.56	1177.86	4.06	3.76	3.76	0.00	0.00	7.23
1800	1179.72	1177.90	4.22	3.88	3.88	0.00	0.00	7.56
1900	1179.88	1177.93	4.38	3.99	3.99	0.00	0.00	7.91
2000	1180.03	1177.96	4.53	4.11	4.11	0.00	0.00	8.26
2100	1180.18	1177.99	4.68	4.23	4.23	0.00	0.00	8.60
2200	1180.33	1178.03	4.83	4.34	4.34	0.00	0.00	8.90
2300	1180.48	1178.06	4.98	4.46	4.46	0.00	0.00	9.23
2400	1180.62	1178.09	5.12	4.62	4.62	0.00	0.00	9.55
2500	1180.77	1178.12	5.27	4.78	4.78	0.00	0.00	9.87

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C215 DATE: 02-06-92

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1179.23	0.00	1500	0	0.00
1179.40	0.00	1600	0	0.00
1179.56	0.00	1700	0	0.00
1179.72	0.00	1800	0	0.00
1179.88	0.00	1900	0	0.00
1180.03	0.00	2000	0	0.00
1180.18	0.00	2100	0	0.00
1180.33	0.00	2200	0	0.00
1180.48	0.00	2300	0	0.00
1180.62	0.00	2400	0	0.00
1180.77	0.00	2500	0	0.00

CULVERT ANALYSIS VERSION 2.0

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-11-19	08:29:03	C216	02-11-92

PERFORMANCE CURVE DISCHARGE RANGE
OF FLOWS ANALYZED

MINUMUM DISCHARGE (CFS)	0
DESIGN DISCHARGE (CFS)	245
MAXIMUM DISCHARGE (CFS)	285

CULV #	A - SITE DATA			B - CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANN. N	INLET TYPE
1	1173.80	1173.20	220.00	2 - RCB	6.00	6.00	.013	CONVENTIONAL
2								
3								
4								
5								
6								

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-11-19	08:29:03	C216	02-11-92

CULVERT NUMBER: 1

CULVERT INVERT DATA

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1173.80
OUTLET STATION (FT)	220.00
OUTLET ELEVATION (FT)	1173.20
NUMBER OF BARRELS	2.00
SLOPE (V-FT/H-FT)	0.0027
CULVERT LENGTH ALONG SLOPE (FT)	220.00

BARREL SHAPE: 6.00 FT X 6.00 FT BOX
BARREL MATERIAL: CONCRETE
WITH A MANNING'S N OF 0.013
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION: NONE

CONSTANT WATER SURFACE ELEVATION
1178.00

SELECTED OVERTOPPING CREST

ROADWAY SURFACE:	PAVED
EMBANKMENT TOP WIDTH (FT):	160.00

CONSTANT ROADWAY ELEVATION PROFILE

CREST LENGTH (FT)	100.00
OVERTOPPING CREST ELEVATION (FT)	1181.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-11-19	08:29:03	C216	02-11-92

SUMMARY OF CULVERT FLOWS (CFS) FILE: C216 DATE: 02-11-92

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1173.80	0	0	0	0	0	0	0	0	0
1178.02	29	29	0	0	0	0	0	0	2
1178.04	57	57	0	0	0	0	0	0	2
1178.07	86	86	0	0	0	0	0	0	2
1178.13	114	114	0	0	0	0	0	0	2
1178.20	143	143	0	0	0	0	0	0	2
1178.29	171	171	0	0	0	0	0	0	2
1178.39	200	200	0	0	0	0	0	0	2
1178.51	228	228	0	0	0	0	0	0	2
1178.58	245	245	0	0	0	0	0	0	2
1178.78	285	285	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE
FOR 2 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
0	1178.00	1178.00	0.00	4.20	4.20	1173.80	0.00	0.00
29	1178.02	1178.00	0.90	4.22	4.22	0.00	0.00	0.49
57	1178.04	1178.00	1.34	4.24	4.24	0.00	0.00	0.99
86	1178.07	1178.00	1.75	4.27	4.27	0.00	0.00	1.48
114	1178.13	1178.00	2.13	4.33	4.33	0.00	0.00	1.98
143	1178.20	1178.00	2.49	4.40	4.40	0.00	0.00	2.47
171	1178.29	1178.00	2.83	4.49	4.49	0.00	0.00	2.97
200	1178.39	1178.00	3.14	4.59	4.59	0.00	0.00	3.46
228	1178.51	1178.00	3.45	4.71	4.71	0.00	0.00	3.96
245	1178.58	1178.00	3.62	4.78	4.78	0.00	0.00	4.25
285	1178.78	1178.00	4.01	4.98	4.98	0.00	0.00	4.95

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C216 DATE: 02-11-92

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1173.80	0.00	0	0	0.00
1178.02	0.00	29	0	0.00
1178.04	0.00	57	0	0.00
1178.07	0.00	86	0	0.00
1178.13	0.00	114	0	0.00
1178.20	0.00	143	0	0.00
1178.29	0.00	171	0	0.00
1178.39	0.00	200	0	0.00
1178.51	0.00	228	0	0.00
1178.58	0.00	245	0	0.00
1178.78	0.00	285	0	0.00

CULVERT ANALYSIS VERSION 2.0

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-11-19	13:56:03	C217	02-11-92

PERFORMANCE CURVE DISCHARGE RANGE
OF FLOWS ANALYZED

MINUMUM DISCHARGE (CFS)	500
DESIGN DISCHARGE (CFS)	770
MAXIMUM DISCHARGE (CFS)	926

CULV #	A - SITE DATA INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	B - CULVERT SHAPE, MATERIAL, INLET BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANN. N	INLET TYPE
1	1165.20	1164.50	260.00	4 - RCB	8.00	6.00	.013	CONVENTIONAL
2								
3								
4								
5								
6								

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-11-19	13:56:03	C217	02-11-92

CULVERT NUMBER: 1

CULVERT INVERT DATA

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1165.20
OUTLET STATION (FT)	260.00
OUTLET ELEVATION (FT)	1164.50
NUMBER OF BARRELS	4.00
SLOPE (V-FT/H-FT)	0.0027
CULVERT LENGTH ALONG SLOPE (FT)	260.00

BARREL SHAPE: 8.00 FT X 6.00 FT BOX
BARREL MATERIAL: CONCRETE
WITH A MANNING'S N OF 0.013
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION: NONE

CONSTANT WATER SURFACE ELEVATION
1170.50

SELECTED OVERTOPPING CREST

ROADWAY SURFACE:	PAVED
EMBANKMENT TOP WIDTH (FT):	160.00

CONSTANT ROADWAY ELEVATION PROFILE

CREST LENGTH (FT)	100.00
OVERTOPPING CREST ELEVATION (FT)	1175.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-11-19	13:56:03	C217	02-11-92

SUMMARY OF CULVERT FLOWS (CFS) FILE: C217 DATE: 02-11-92

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1170.72	500	500	0	0	0	0	0	0	2
1170.75	543	543	0	0	0	0	0	0	2
1170.79	585	585	0	0	0	0	0	0	2
1170.83	628	628	0	0	0	0	0	0	2
1170.87	670	670	0	0	0	0	0	0	2
1170.93	713	713	0	0	0	0	0	0	2
1170.97	756	756	0	0	0	0	0	0	2
1171.00	770	770	0	0	0	0	0	0	2
1171.09	841	841	0	0	0	0	0	0	2
1171.15	883	883	0	0	0	0	0	0	2
1171.21	926	926	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE FOR 4 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
500	1170.72	1170.50	3.01	5.52	5.52	0.00	0.00	0.00
543	1170.75	1170.50	3.19	5.55	5.55	0.00	0.00	0.00
585	1170.79	1170.50	3.36	5.59	5.59	0.00	0.00	0.00
628	1170.83	1170.50	3.52	5.63	5.63	0.00	0.00	0.00
670	1170.87	1170.50	3.68	5.67	5.67	0.00	0.00	0.00
713	1170.93	1170.50	3.84	5.73	5.73	0.00	0.00	0.00
756	1170.97	1170.50	3.99	5.77	5.77	0.00	0.00	0.00
770	1171.00	1170.50	4.04	5.80	5.80	0.00	0.00	0.00
841	1171.09	1170.50	4.29	5.89	5.89	0.00	0.00	0.00
883	1171.15	1170.50	4.43	5.95	5.95	0.00	0.00	0.00
926	1171.21	1170.50	4.57	6.01	6.01	0.00	0.00	0.00

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C217 DATE: 02-11-92

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1170.72	0.00	500	0	0.00
1170.75	0.00	543	0	0.00
1170.79	0.00	585	0	0.00
1170.83	0.00	628	0	0.00
1170.87	0.00	670	0	0.00
1170.93	0.00	713	0	0.00
1170.97	0.00	756	0	0.00
1171.00	0.00	770	0	0.00
1171.09	0.00	841	0	0.00
1171.15	0.00	883	0	0.00
1171.21	0.00	926	0	0.00

CULVERT ANALYSIS VERSION 2.0

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-12-19	09:24:28	C218	02-12-92

PERFORMANCE CURVE DISCHARGE RANGE
OF FLOWS ANALYZED

MINUMUM DISCHARGE (CFS)	1000
DESIGN DISCHARGE (CFS)	1172
MAXIMUM DISCHARGE (CFS)	1238

CULV #	A - SITE DATA			B - CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANN. N	INLET TYPE
1	1165.00	1164.00	475.00	4 - RCB	10.00	6.00	.013	CONVENTIONAL
2								
3								
4								
5								
6								

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-12-19	09:24:28	C218	02-12-92

CULVERT NUMBER: 1

CULVERT INVERT DATA

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1165.00
OUTLET STATION (FT)	475.00
OUTLET ELEVATION (FT)	1164.00
NUMBER OF BARRELS	4.00
SLOPE (V-FT/H-FT)	0.0021
CULVERT LENGTH ALONG SLOPE (FT)	475.00

BARREL SHAPE: 10.00 FT X 6.00 FT BOX
BARREL MATERIAL: CONCRETE
WITH A MANNING'S N OF 0.013
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION: NONE

CONSTANT WATER SURFACE ELEVATION
1167.00

SELECTED OVERTOPPING CREST

ROADWAY SURFACE:	PAVED
EMBANKMENT TOP WIDTH (FT):	100.00

CONSTANT ROADWAY ELEVATION PROFILE

CREST LENGTH (FT)	100.00
OVERTOPPING CREST ELEVATION (FT)	1172.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
02-12-19	09:24:28	C218	02-12-92

SUMMARY OF CULVERT FLOWS (CFS) FILE: C218 DATE: 02-12-92

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1169.51	1000	1000	0	0	0	0	0	0	2
1169.58	1024	1024	0	0	0	0	0	0	2
1169.65	1048	1048	0	0	0	0	0	0	2
1169.72	1071	1071	0	0	0	0	0	0	2
1169.79	1095	1095	0	0	0	0	0	0	2
1169.86	1119	1119	0	0	0	0	0	0	2
1169.93	1143	1143	0	0	0	0	0	0	2
1170.00	1167	1167	0	0	0	0	0	0	2
1170.01	1172	1172	0	0	0	0	0	0	2
1170.13	1214	1214	0	0	0	0	0	0	2
1170.20	1238	1238	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE FOR 4 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
1000	1169.51	1167.00	4.15	4.51	4.51	0.00	0.00	8.33
1024	1169.58	1167.00	4.21	4.58	4.58	0.00	0.00	8.53
1048	1169.65	1167.00	4.28	4.65	4.65	0.00	0.00	8.73
1071	1169.72	1167.00	4.34	4.72	4.72	0.00	0.00	8.93
1095	1169.79	1167.00	4.41	4.79	4.79	0.00	0.00	9.13
1119	1169.86	1167.00	4.47	4.86	4.86	0.00	0.00	9.32
1143	1169.93	1167.00	4.54	4.93	4.93	0.00	0.00	9.52
1167	1170.00	1167.00	4.60	5.00	5.00	0.00	0.00	9.72
1172	1170.01	1167.00	4.61	5.01	5.01	0.00	0.00	9.77
1214	1170.13	1167.00	4.72	5.13	5.13	0.00	0.00	9.90
1238	1170.20	1167.00	4.79	5.20	5.20	0.00	0.00	9.97

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C218 DATE: 02-12-92

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1169.51	0.00	1000	0	0.00
1169.58	0.00	1024	0	0.00
1169.65	0.00	1048	0	0.00
1169.72	0.00	1071	0	0.00
1169.79	0.00	1095	0	0.00
1169.86	0.00	1119	0	0.00
1169.93	0.00	1143	0	0.00
1170.00	0.00	1167	0	0.00
1170.01	0.00	1172	0	0.00
1170.13	0.00	1214	0	0.00
1170.20	0.00	1238	0	0.00

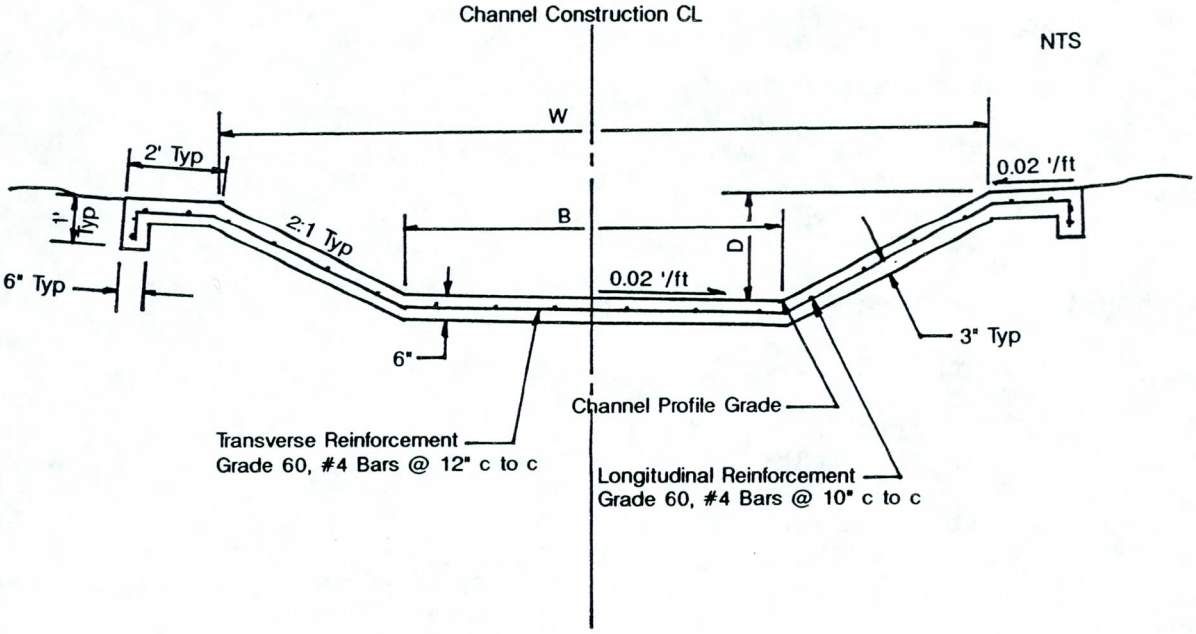
SEGMENT IV
CHANNEL DESIGN SHEETS

Job No. | No.

Computation

HDR

Project SOUTH MOUNTAIN FREEWAY	Computed EL	Date 6-1-92
Subject CHANNEL CONSTRUCTION DETAIL (SUGGESTED)	Checked	Date
Task	Sheet	Of



NOTES :

1. Concrete fc=3000 psi.
2. Channel Lining Shall be Cast-in-Place Concrete with Reinforcing as Shown.
3. Reinforcing Shall be Continuous.

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: c202main

Comment: Main Offsite channel to C202

Solve For Depth

Given Input Data:

Bottom Width.....	60.00 ft
Left Side Slope..	2.00:1 (H:V)
Right Side Slope.	2.00:1 (H:V)
Manning's n.....	0.035
Channel Slope....	0.0050 ft/ft
Discharge.....	2350.00 cfs

Computed Results:

Depth.....	4.56 ft
Velocity.....	7.46 fps
Flow Area.....	314.95 sf
Flow Top Width...	78.23 ft
Wetted Perimeter.	80.38 ft
Critical Depth...	3.48 ft
Critical Slope...	0.0125 ft/ft
Froude Number....	0.66 (flow is Subcritical)

Open Channel Flow Module, Version 3.16 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: c203main

Comment: Main Offsite channel to C203

Solve For Depth

Given Input Data:

Bottom Width.....	32.00 ft
Left Side Slope..	2.00:1 (H:V)
Right Side Slope.	2.00:1 (H:V)
Manning's n.....	0.035
Channel Slope....	0.0025 ft/ft
Discharge.....	1335.00 cfs

Computed Results:

Depth.....	5.58 ft
Velocity.....	5.55 fps
Flow Area.....	240.60 sf
Flow Top Width...	54.30 ft
Wetted Perimeter.	56.94 ft
Critical Depth...	3.50 ft
Critical Slope...	0.0130 ft/ft
Froude Number....	0.46 (flow is Subcritical)

Open Channel Flow Module, Version 3.16 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: c204main

Comment: Main Offsite channel to C204

Solve For Depth

Given Input Data:

Bottom Width.....	17.00 ft
Left Side Slope..	2.00:1 (H:V)
Right Side Slope.	2.00:1 (H:V)
Manning's n.....	0.035
Channel Slope....	0.0100 ft/ft
Discharge.....	651.00 cfs

Computed Results:

Depth.....	3.45 ft
Velocity.....	7.91 fps
Flow Area.....	82.35 sf
Flow Top Width...	30.79 ft
Wetted Perimeter.	32.41 ft
Critical Depth...	3.14 ft
Critical Slope...	0.0141 ft/ft
Froude Number....	0.85 (flow is Subcritical)

Open Channel Flow Module, Version 3.16 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: c205a

Comment: 956+00 to 958+40

Solve For Depth

Given Input Data:

Bottom Width.....	8.00 ft
Left Side Slope..	2.00:1 (H:V)
Right Side Slope.	2.00:1 (H:V)
Manning's n.....	0.018
Channel Slope....	0.0025 ft/ft
Discharge.....	100.00 cfs

Computed Results:

Depth.....	1.77 ft
Velocity.....	4.88 fps
Flow Area.....	20.49 sf
Flow Top Width...	15.10 ft
Wetted Perimeter.	15.93 ft
Critical Depth...	1.49 ft
Critical Slope...	0.0048 ft/ft
Froude Number....	0.74 (flow is Subcritical)

Open Channel Flow Module, Version 3.16 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: c205b

Comment: 958+40 to 959+50

Solve For Depth

Given Input Data:

Bottom Width.....	8.00 ft
Left Side Slope..	2.00:1 (H:V)
Right Side Slope.	2.00:1 (H:V)
Manning's n.....	0.018
Channel Slope....	0.0027 ft/ft
Discharge.....	100.00 cfs

Computed Results:

Depth.....	1.74 ft
Velocity.....	5.02 fps
Flow Area.....	19.94 sf
Flow Top Width...	14.95 ft
Wetted Perimeter.	15.77 ft
Critical Depth...	1.49 ft
Critical Slope...	0.0048 ft/ft
Froude Number....	0.77 (flow is Subcritical)

Open Channel Flow Module, Version 3.16 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: c210main

Comment: Main Offsite channel to C210

Solve For Depth

Given Input Data:

Bottom Width.....	10.00 ft
Left Side Slope..	2.00:1 (H:V)
Right Side Slope.	2.00:1 (H:V)
Manning's n.....	0.035
Channel Slope....	0.0025 ft/ft
Discharge.....	447.00 cfs

Computed Results:

Depth.....	4.98 ft
Velocity.....	4.49 fps
Flow Area.....	99.45 sf
Flow Top Width...	29.93 ft
Wetted Perimeter.	32.28 ft
Critical Depth...	3.18 ft
Critical Slope...	0.0148 ft/ft
Froude Number....	0.43 (flow is Subcritical)

Open Channel Flow Module, Version 3.16 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: c211main

Comment: Main Offsite channel to C211

Solve For Depth

Given Input Data:

Bottom Width.....	17.00 ft
Left Side Slope..	2.00:1 (H:V)
Right Side Slope.	2.00:1 (H:V)
Manning's n.....	0.035
Channel Slope....	0.0025 ft/ft
Discharge.....	521.00 cfs

Computed Results:

Depth.....	4.44 ft
Velocity.....	4.53 fps
Flow Area.....	114.97 sf
Flow Top Width...	34.77 ft
Wetted Perimeter.	36.86 ft
Critical Depth...	2.75 ft
Critical Slope...	0.0146 ft/ft
Froude Number....	0.44 (flow is Subcritical)

Open Channel Flow Module, Version 3.16 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: c212main

Comment: Main Offsite channel to C212

Solve For Depth

Given Input Data:

Bottom Width.....	20.00 ft
Left Side Slope..	2.00:1 (H:V)
Right Side Slope.	2.00:1 (H:V)
Manning's n.....	0.035
Channel Slope....	0.0025 ft/ft
Discharge.....	725.00 cfs

Computed Results:

Depth.....	4.95 ft
Velocity.....	4.90 fps
Flow Area.....	147.86 sf
Flow Top Width...	39.79 ft
Wetted Perimeter.	42.12 ft
Critical Depth...	3.09 ft
Critical Slope...	0.0140 ft/ft
Froude Number....	0.45 (flow is Subcritical)

Open Channel Flow Module, Version 3.16 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: c213main

Comment: Main Offsite channel to C213

Solve For Depth

Given Input Data:

Bottom Width.....	8.00 ft
Left Side Slope..	2.00:1 (H:V)
Right Side Slope.	2.00:1 (H:V)
Manning's n.....	0.018
Channel Slope....	0.0110 ft/ft
Discharge.....	201.00 cfs

Computed Results:

Depth.....	1.73 ft
Velocity.....	10.11 fps
Flow Area.....	19.88 sf
Flow Top Width...	14.93 ft
Wetted Perimeter.	15.75 ft
Critical Depth...	2.22 ft
Critical Slope...	0.0043 ft/ft
Froude Number....	1.54 (flow is Supercritical)

Open Channel Flow Module, Version 3.16 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: c214

Comment: Relocated 600cfs channel (Goldman Ranch)

Solve For Depth

Given Input Data:

Bottom Width.....	8.00 ft
Left Side Slope..	2.00:1 (H:V)
Right Side Slope.	2.00:1 (H:V)
Manning's n.....	0.018
Channel Slope....	0.0024 ft/ft
Discharge.....	600.00 cfs

Computed Results:

Depth.....	4.49 ft
Velocity.....	7.87 fps
Flow Area.....	76.23 sf
Flow Top Width...	25.96 ft
Wetted Perimeter.	28.08 ft
Critical Depth...	4.02 ft
Critical Slope...	0.0038 ft/ft
Froude Number....	0.81 (flow is Subcritical)

Open Channel Flow Module, Version 3.16 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: c218

Comment: Main Offsite channel to C218

Solve For Depth

Given Input Data:

Bottom Width.....	20.00 ft
Left Side Slope..	2.00:1 (H:V)
Right Side Slope.	2.00:1 (H:V)
Manning's n.....	0.035
Channel Slope....	0.0079 ft/ft
Discharge.....	1238.00 cfs

Computed Results:

Depth.....	4.84 ft
Velocity.....	8.62 fps
Flow Area.....	143.69 sf
Flow Top Width...	39.36 ft
Wetted Perimeter.	41.65 ft
Critical Depth...	4.24 ft
Critical Slope...	0.0129 ft/ft
Froude Number....	0.79 (flow is Subcritical)

Open Channel Flow Module, Version 3.16 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Telephone Conversation Record

HDR

Project PRICE ROAD GEC PH III. | Project No.

Time 10:15 am | Date 01-29-92

Call to Bill Phillips SRP. 236-2732 Phone No. | Call from Scott McKenzie, HDR Phone No.

Discussion, Agreement and/or Action

Bill specified verbally some general requirements for SRP access roads to transmission lines. These are as follows:

(1.) Turning radii — 100 ft min.

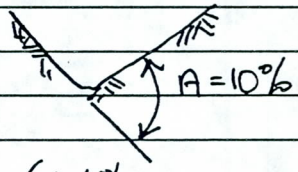
(2.) Cross-slopes — generally level/graded to drain
2% max cross-slope.

(3.) Longitudinal grades — 10% max

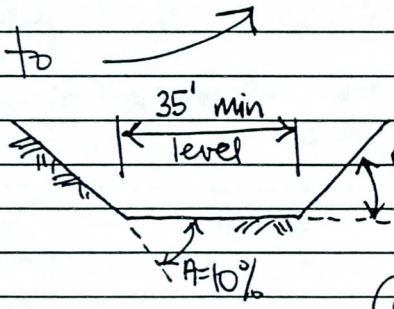
(4.) Changes of grade — max Algebraic difference = 10%

ie

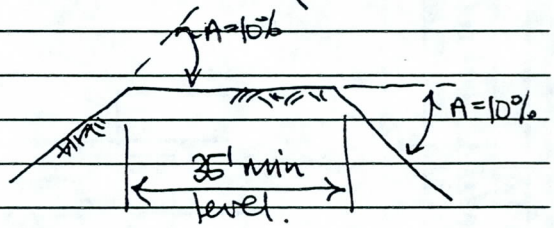
&



Alternatives to



&



(Crane is 35' long)

(5.) Max Vertical "bump" or Curb = 1 ft.

Note: Use these guiddines in conjunction with SRP "Storm Water Retention Basin Guidlines" (SE500)

cc:

697A

STORM WATER RETENTION BASIN GUIDELINES

The following list of minimum criteria is required of subdividers or others wishing to use Salt River Project transmission line easements for storm water retention basins. Specific written approval must be obtained from the SRP Land Department before any construction may proceed within the easement property.

1. The property in question must be owned, in fee, by the subdivision developer or other requestor of easement multiple use.

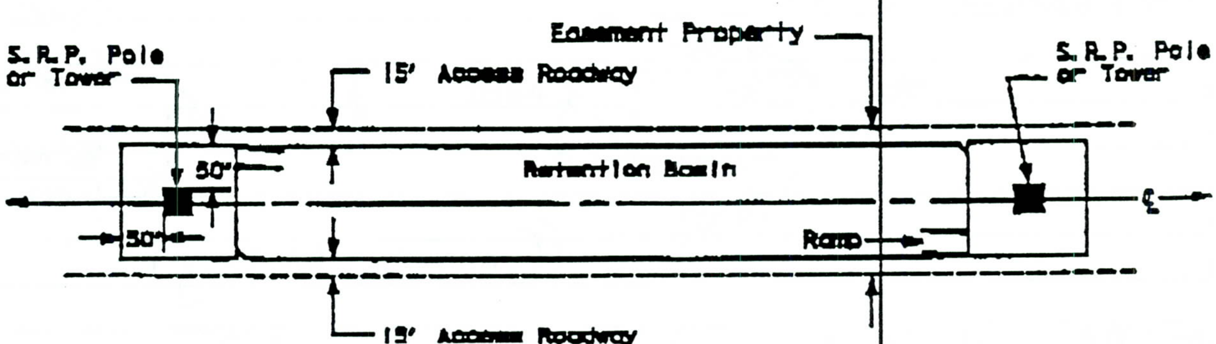
2. The rectangular retention basin design must provide for a 15-foot wide strip of level land (above high water) on each side of the easement for ingress and egress of Salt River project trucks and cranes. Sixteen-foot wide openings or gates (in approved locations) must be provided in an fences or walls crossing the easement.

3. As a crane set-up area and to protect the integrity of each pole or tower, a level area of ground (above high water) must be provided measuring a minimum of 50 feet in each direction from the outside edge of any foundation. Fill is acceptable, provided the grades remain approximately 6" below the top of foundations.

4. The retention basin may have side slopes of 1:1 (maximum), but must provide 15-foot wide access ramps (10:1 maximum) into the basin from each structure location. All areas must be protected from soil erosion.

5. All shrubbery or trees planted in the easement must not exceed 15 feet in height at full growth and must have appropriate set-backs from the 15-foot roadways and the 50-foot areas around the structures. SRP reserves the right to remove any landscaping which creates a clearance or maintenance problem.

6. If a water flow is required across the 15-foot roadways or the 50-foot areas around the structures, it must be constructed of pipe capable of withstanding H20 type loading.



ELECTRIC TRANSMISSION CONSTRUCTION STANDARDS

STORM WATER RETENTION BASIN GUIDELINES

SE-500

697B

7/27/88

SOUTH MOUNTAIN FREEWAY
SEGMENT V
TECHNICAL APPENDIX

SEGMENT V
PRECIPITATION CALCULATIONS

Job No. | No.

Computation

HDR

Project PRICE ROAD GEC - PH III		Computed SMC	Date 01-14-92
Subject SMF Hydrology Study		Checked	Date
Task Recip Values SMF → I-10 Maricopa IC.		Sheet 1	Of 3

1 hr values.

$$Y_2 = -0.011 + 0.942\left(\frac{1.24^2}{1.50}\right)$$
$$= 0.955$$

$$Y_{100} = 0.494 + 0.755\left(\frac{3.37^2}{4.0}\right)$$
$$= 2.638$$

Duration	5 mins	15 min	60 min	2 hr	3 hr	6 hr	12 hr	24
Return Period (yrs)								
50	0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52
100	0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.0

NOTE: These values used for Segments N & V.

ADDENDUM to "HYDROLOGIC DESIGN FOR HIGHWAY DRAINAGE IN ARIZONA" April 1975

Steps to be used to determine precipitation values for various durations and return periods.

STEP 1. From the precipitation maps in the manual "Hydrologic Design for Highway Drainage in Arizona", determine the precipitation values for the 6 and 24 hour duration storms for return periods of 2, 5, 10, 25, 50 and 100 years. Tabulate these values in Table 1 in the column headed 'Map Values'

TABLE 1

PRICE ROAD - Ph II , SMF - I-10 Maricopa IC. 9-14-02.

Return Period (Years)	lhw / Corrected Value	Precipitation Values (inches)			
		6 hour duration		24 hour duration	
		Map Value	Corrected Value	Map Value	Corrected Value
2	0.96	1.2	1.24	1.5	1.50
5	1.37	1.7	1.77	2.1	2.12
10	1.63	2.1	2.11	2.5	2.62
25	2.0	2.65	2.55	3.2	3.06
50	2.31	3.0	2.97	3.5	3.52
100	2.64	3.3	3.37	4.0	4.00

NOTE: There is a possibility of making an error while reading the maps because, (1) a site is not easy to locate precisely on a series of 12 maps, (2) there may be some slight registration differences in printing, and (3) precise interpolation between isolines is difficult. In order to minimize any errors in reading the maps, these values should be plotted on the diagram "Precipitation Depth versus Return Period" Fig. 1.

Project No. PRICE ROAD - PH. II
01-14-92

Station SEGMENT IV & V

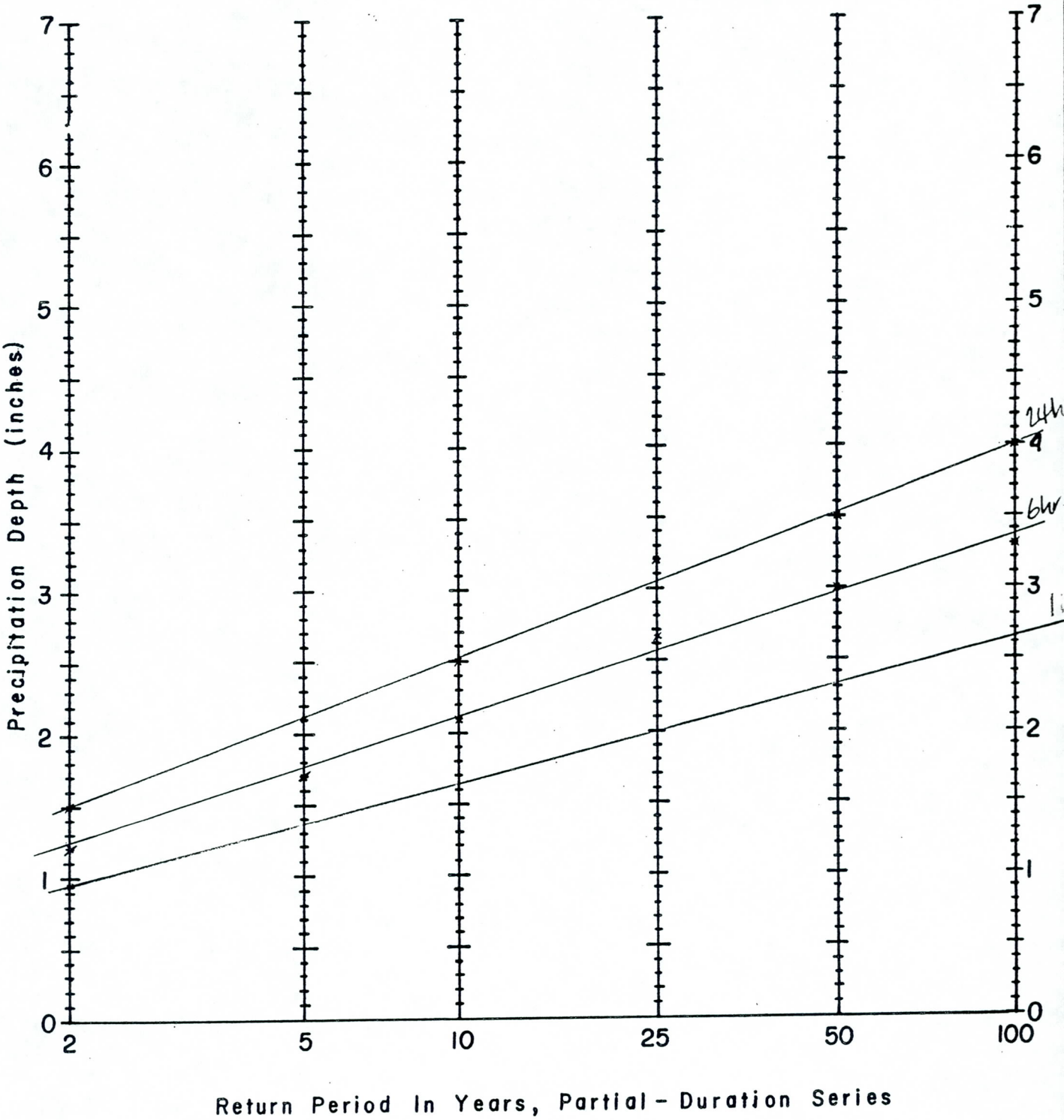


Figure 1 Precipitation Depth Versus Return Period for Partial – Duration Series

SEGMENT V
SUBAREA PARAMETER SHEETS

Price Road GEC
South Mountain Freeway

SUBAREA PARAMETERS

Subarea Number: 511

Drainage Area: 0.356 Square Miles

Time of Concentration:

Overland Flow Length		100	feet
N Value		0.05	
2-Year Precipitation		1.55	inches
Upstream Elevation			feet
Downstream Elevation			feet
Overland Flow Slope		0.280	ft/ft
Overland Flow Velocity		0.93	fps
Overland Travel Time		0.03	hours
Shallow Concentrated Flow Length	3000	6800	feet
Upstream Elevation	1350	1290	feet
Downstream Elevation	1290	1230	feet
Slope	0.020	0.009	ft/ft
Velocity	2.3	2.0	fps
Conc. Flow Travel Time		1.31	hours
Channel Flow Length			feet
Upstream Elevation			feet
Downstream Elevation			feet
Channel Slope			ft/ft
Channel Velocity			fps
Channel Travel Time			hours
TOTAL TRAVEL TIME		1.34	hours
Tlag		0.80	hours

Curve Number: 80.0

Routing Through Downstream Waterway:

Routing Length	feet
Upstream Elevation	feet
Downstream Elevation	feet
Routing Slope	ft/ft
Manning N Value	
Bottom Width	feet
Side Slope	h/v
Method Used	

Price Road GEC
South Mountain Freeway

SUBAREA PARAMETERS

Subarea Number: 512

Drainage Area: 0.125 Square Miles

Time of Concentration:

Overland Flow Length	100	feet
N Value	0.01	
2-Year Precipitation	1.55	inches
Upstream Elevation		feet
Downstream Elevation		feet
Overland Flow Slope	0.010	ft/ft
Overland Flow Velocity	0.69	fps
Overland Travel Time	0.04	hours
Shallow Concentrated Flow Length	2800	feet
Upstream Elevation	1245	feet
Downstream Elevation	1215	feet
Slope	0.011	ft/ft
Velocity	1.7	fps
Conc. Flow Travel Time	0.46	hours
Channel Flow Length		feet
Upstream Elevation		feet
Downstream Elevation		feet
Channel Slope		ft/ft
Channel Velocity		fps
Channel Travel Time		hours
TOTAL TRAVEL TIME	0.50	hours
Tlag	0.30	hours

Curve Number: 77.0

Routing Through Downstream Waterway:

Routing Length	feet
Upstream Elevation	feet
Downstream Elevation	feet
Routing Slope	ft/ft
Manning N Value	
Bottom Width	feet
Side Slope	h/v
Method Used	

Price Road GEC
South Mountain Freeway

SUBAREA PARAMETERS

Subarea Number: 516

Drainage Area: 0.149 Square Miles

Time of Concentration:

Overland Flow Length		100	feet
N Value		0.01	
2-Year Precipitation		1.55	inches
Upstream Elevation			feet
Downstream Elevation			feet
Overland Flow Slope		0.010	ft/ft
Overland Flow Velocity		0.69	fps
Overland Travel Time		0.04	hours
Shallow Concentrated Flow Length		3000	feet
Upstream Elevation		1245	feet
Downstream Elevation		1215	feet
Slope		0.010	ft/ft
Velocity		1.6	fps
Conc. Flow Travel Time		0.52	hours
Channel Flow Length		500	feet
Upstream Elevation			feet
Downstream Elevation			feet
Channel Slope	(Channel info. from	0.006	ft/ft
Channel Velocity	Clouse Eng plans)	10.4	fps
Channel Travel Time		0.01	hours
TOTAL TRAVEL TIME		0.57	hours
Tlag		0.34	hours

Curve Number: 77.0

Routing Through Downstream Waterway:

Routing Length	feet
Upstream Elevation	feet
Downstream Elevation	feet
Routing Slope	ft/ft
Manning N Value	
Bottom Width	feet
Side Slope	h/v
Method Used	

Price Road GEC
South Mountain Freeway

SUBAREA PARAMETERS

Subarea Number: 518

Drainage Area: 0.099 Square Miles

Time of Concentration:

Overland Flow Length	100	feet
N Value	0.06	
2-Year Precipitation	1.55	inches
Upstream Elevation		feet
Downstream Elevation		feet
Overland Flow Slope	0.006	ft/ft
Overland Flow Velocity	0.15	fps
Overland Travel Time	0.18	hours
Shallow Concentrated Flow Length	3400	feet
Upstream Elevation	1215	feet
Downstream Elevation	1195	feet
Slope	0.006	ft/ft
Velocity	1.2	fps
Conc. Flow Travel Time	0.79	hours
Channel Flow Length		feet
Upstream Elevation		feet
Downstream Elevation		feet
Channel Slope		ft/ft
Channel Velocity		fps
Channel Travel Time		hours
TOTAL TRAVEL TIME	0.97	hours
Tlag	0.58	hours

Curve Number: 81.0

Routing Through Downstream Waterway:

Routing Length	feet
Upstream Elevation	feet
Downstream Elevation	feet
Routing Slope	ft/ft
Manning N Value	
Bottom Width	feet
Side Slope	h/v
Method Used	

Price Road GEC
South Mountain Freeway

SUBAREA PARAMETERS

Subarea Number: 519a

Drainage Area: 0.220 Square Miles

Time of Concentration:

Overland Flow Length	100	feet
N Value	0.06	
2-Year Precipitation	1.55	inches
Upstream Elevation		feet
Downstream Elevation		feet
Overland Flow Slope	0.010	ft/ft
Overland Flow Velocity	0.19	fps
Overland Travel Time	0.15	hours
Shallow Concentrated Flow Length	4800	feet
Upstream Elevation	1215	feet
Downstream Elevation	1175	feet
Slope	0.008	ft/ft
Velocity	1.5	fps
Conc. Flow Travel Time	0.89	hours
Channel Flow Length		feet
Upstream Elevation		feet
Downstream Elevation		feet
Channel Slope		ft/ft
Channel Velocity		fps
Channel Travel Time		hours
TOTAL TRAVEL TIME	1.04	hours
Tlag	0.62	hours

Curve Number: 81.0

Routing Through Downstream Waterway:

Routing Length	feet
Upstream Elevation	feet
Downstream Elevation	feet
Routing Slope	ft/ft
Manning N Value	
Bottom Width	feet
Side Slope	h/v
Method Used	

Price Road GEC
South Mountain Freeway

SUBAREA PARAMETERS

Subarea Number: 519b

Drainage Area: 0.320 Square Miles

Time of Concentration:

Overland Flow Length	100	feet
N Value	0.011	
2-Year Precipitation	1.55	inches
Upstream Elevation		feet
Downstream Elevation		feet
Overland Flow Slope	0.010	ft/ft
Overland Flow Velocity	0.69	fps
Overland Travel Time	0.04	hours
Shallow Concentrated Flow Length	4400	feet
Upstream Elevation	1215	feet
Downstream Elevation	1175	feet
Slope	0.009	ft/ft
Velocity	2.0	fps
Conc. Flow Travel Time	0.61	hours
Channel Flow Length	1800	feet
Upstream Elevation		feet
Downstream Elevation		feet
Channel Slope	0.002	ft/ft
Channel Velocity	7.0	fps
Channel Travel Time	0.07	hours
TOTAL TRAVEL TIME	0.72	hours
Tlag	0.43	hours

Curve Number: 85.0

Routing Through Downstream Waterway:

Routing Length	feet
Upstream Elevation	feet
Downstream Elevation	feet
Routing Slope	ft/ft
Manning N Value	
Bottom Width	feet
Side Slope	h/v
Method Used	

Price Road GEC
South Mountain Freeway

SUBAREA PARAMETERS

Subarea Number: 520a

Drainage Area: 0.127 Square Miles

Time of Concentration:

Overland Flow Length	100	feet
N Value	0.011	
2-Year Precipitation	1.55	inches
Upstream Elevation		feet
Downstream Elevation		feet
Overland Flow Slope	0.010	ft/ft
Overland Flow Velocity	0.69	fps
Overland Travel Time	0.04	hours
Shallow Concentrated Flow Length	4000	feet
Upstream Elevation	1275	feet
Downstream Elevation	1230	feet
Slope	0.011	ft/ft
Velocity	1.7	fps
Conc. Flow Travel Time	0.65	hours
Channel Flow Length		feet
Upstream Elevation		feet
Downstream Elevation		feet
Channel Slope		ft/ft
Channel Velocity		fps
Channel Travel Time		hours
TOTAL TRAVEL TIME	0.69	hours
Tlag	0.42	hours

Curve Number: 80.0

Routing Through Downstream Waterway:

Routing Length	feet
Upstream Elevation	feet
Downstream Elevation	feet
Routing Slope	ft/ft
Manning N Value	
Bottom Width	feet
Side Slope	h/v
Method Used	

Price Road GEC
South Mountain Freeway

SUBAREA PARAMETERS

Subarea Number: 520b

Drainage Area: 0.224 Square Miles

Time of Concentration:

Overland Flow Length	100	feet
N Value	0.011	
2-Year Precipitation	1.55	inches
Upstream Elevation		feet
Downstream Elevation		feet
Overland Flow Slope	0.010	ft/ft
Overland Flow Velocity	0.69	fps
Overland Travel Time	0.04	hours
Shallow Concentrated Flow Length	2800	feet
Upstream Elevation	1245	feet
Downstream Elevation	1220	feet
Slope	0.009	ft/ft
Velocity	1.5	fps
Conc. Flow Travel Time	0.52	hours
Channel Flow Length	600	feet
Upstream Elevation		feet
Downstream Elevation		feet
Channel Slope	0.006	ft/ft
Channel Velocity	6.0	fps
Channel Travel Time	0.03	hours
TOTAL TRAVEL TIME	0.59	hours
Tlag	0.35	hours

Curve Number: 87.5

Routing Through Downstream Waterway:

Routing Length	feet
Upstream Elevation	feet
Downstream Elevation	feet
Routing Slope	ft/ft
Manning N Value	
Bottom Width	feet
Side Slope	h/v
Method Used	

Price Road GEC
South Mountain Freeway

SUBAREA PARAMETERS

Subarea Number: 521a

Drainage Area: 0.094 Square Miles

Time of Concentration:

Overland Flow Length		100	feet
N Value		0.011	
2-Year Precipitation		1.55	inches
Upstream Elevation			feet
Downstream Elevation			feet
Overland Flow Slope		0.010	ft/ft
Overland Flow Velocity		0.69	fps
Overland Travel Time		0.04	hours
Shallow Concentrated Flow Length	1300	1500	feet
Upstream Elevation	1228	1216	feet
Downstream Elevation	1216	1213	feet
Slope	0.009	0.002	ft/ft
Velocity	1.5	0.7	fps
Conc. Flow Travel Time		0.84	hours
Channel Flow Length			feet
Upstream Elevation			feet
Downstream Elevation			feet
Channel Slope			ft/ft
Channel Velocity			fps
Channel Travel Time			hours
TOTAL TRAVEL TIME		0.88	hours
Tlag		0.53	hours

Curve Number: 77.0

Routing Through Downstream Waterway:

Routing Length	feet
Upstream Elevation	feet
Downstream Elevation	feet
Routing Slope	ft/ft
Manning N Value	
Bottom Width	feet
Side Slope	h/v
Method Used	

Price Road GEC
South Mountain Freeway

SUBAREA PARAMETERS

Subarea Number: 521b

Drainage Area: 0.391 Square Miles

Time of Concentration:

Overland Flow Length	100	feet
N Value	0.06	
2-Year Precipitation	1.55	inches
Upstream Elevation		feet
Downstream Elevation		feet
Overland Flow Slope	0.010	ft/ft
Overland Flow Velocity	0.19	fps
Overland Travel Time	0.15	hours
Shallow Concentrated Flow Length	3400	feet
Upstream Elevation	1211	feet
Downstream Elevation	1188	feet
Slope	0.007	ft/ft
Velocity	1.4	fps
Conc. Flow Travel Time	0.70	hours
Channel Flow Length		feet
Upstream Elevation		feet
Downstream Elevation		feet
Channel Slope		ft/ft
Channel Velocity		fps
Channel Travel Time		hours
TOTAL TRAVEL TIME	0.85	hours
Tlag	0.51	hours

Curve Number: 81.0

Routing Through Downstream Waterway:

Routing Length	feet
Upstream Elevation	feet
Downstream Elevation	feet
Routing Slope	ft/ft
Manning N Value	
Bottom Width	feet
Side Slope	h/v
Method Used	

Price Road GEC
South Mountain Freeway

SUBAREA PARAMETERS

Subarea Number: 522a

Drainage Area: 0.174 Square Miles

Time of Concentration:

Overland Flow Length	100	feet
N Value	0.06	
2-Year Precipitation	1.55	inches
Upstream Elevation		feet
Downstream Elevation		feet
Overland Flow Slope	0.010	ft/ft
Overland Flow Velocity	0.19	fps
Overland Travel Time	0.15	hours
Shallow Concentrated Flow Length	3100	feet
Upstream Elevation	1197	feet
Downstream Elevation	1176	feet
Slope	0.007	ft/ft
Velocity	1.4	fps
Conc. Flow Travel Time	0.64	hours
Channel Flow Length		feet
Upstream Elevation		feet
Downstream Elevation		feet
Channel Slope		ft/ft
Channel Velocity		fps
Channel Travel Time		hours
TOTAL TRAVEL TIME	0.79	hours
Tlag	0.47	hours

Curve Number: 81.0

Routing Through Downstream Waterway:

Routing Length	feet
Upstream Elevation	feet
Downstream Elevation	feet
Routing Slope	ft/ft
Manning N Value	
Bottom Width	feet
Side Slope	h/v
Method Used	

Price Road GEC
South Mountain Freeway

SUBAREA PARAMETERS

Subarea Number: 522b

Drainage Area: 0.091 Square Miles

Time of Concentration:

Overland Flow Length	100	feet
N Value	0.06	
2-Year Precipitation	1.55	inches
Upstream Elevation		feet
Downstream Elevation		feet
Overland Flow Slope	0.010	ft/ft
Overland Flow Velocity	0.19	fps
Overland Travel Time	0.15	hours
Shallow Concentrated Flow Length	3100	feet
Upstream Elevation	1197	feet
Downstream Elevation	1175	feet
Slope	0.007	ft/ft
Velocity	1.4	fps
Conc. Flow Travel Time	0.64	hours
Channel Flow Length	1200	feet
Upstream Elevation		feet
Downstream Elevation		feet
Channel Slope	0.002	ft/ft
Channel Velocity	8.5	fps
Channel Travel Time	0.04	hours
TOTAL TRAVEL TIME	0.83	hours
Tlag	0.50	hours

Curve Number: 81.0

Routing Through Downstream Waterway:

Routing Length	feet
Upstream Elevation	feet
Downstream Elevation	feet
Routing Slope	ft/ft
Manning N Value	
Bottom Width	feet
Side Slope	h/v
Method Used	

SEGMENT V
SCS CURVE NUMBER CALCULATIONS

Price Road Phase III
Hydrology (South Mountain Freeway)

Computed SMc Date 5-6-92
Sheet 1 of

Subarea 511 D.A. = 228 acres

Land use acreage values approx. from aerial photography

Land use	Soil Group	Area	CN
mtn.	D	5	98
W. desert urban	B	53	77
residential	B	170	80

Composite CN = 80

Subarea 512 D.A. = 80 acres

Land use	Soil Group	Area	CN
desert shrub	B	80	77

Composite CN = 77

Subarea 516 D.A. = 95 acres

Land use	Soil Group	Area	CN
desert shrub	A	95	77

Composite CN = 77

Subarea 518 D.A. = 64 acres

Land use	Soil Group	Area	CN
ag, row	B	64	81

Composite CN = 81

Subarea 519a D.A. = 141 acres

Land use	Soil Group	Area	CN
ag, row	B	141	81

Composite CN = 81

Subarea 519b D.A. = 205 acres

Land use acreage values approx. from aerial photography

Land use	Soil Group	Area	CN
residential	B	205	85

Composite CN = 85

Subarea 520a D.A. = 81 acres

Land use	Soil Group	Area	CN
residential	B	81	80

Composite CN = 80

Subarea 520b D.A. = 143 acres

Land use	Soil Group	Area	CN
residential	B	83	80
impervious	--	60	98

Composite CN = 87.6

Subarea 521a D.A. = 60 acres

Land use	Soil Group	Area	CN
desert shrub	B	60	77

Composite CN = 77

Subarea 521b D.A. = 250 acres

Land use	Soil Group	Area	CN
ag, row	B	250	81

Composite CN = 81

Price Road Phase III
Hydrology (South Mountain Freeway)

Computed SMc Date 5-6-92
Sheet 3 of

Subarea 522a D.A. = 111 acres

Land use acreage values approx. from aerial photography

Land use	Soil Group	Area	CN
ag, row	B	111	81

Composite CN = 81

Subarea 522b D.A. = 58 acres

Land use	Soil Group	Area	CN
ag, row	B	58	81

Composite CN = 81

SEGMENT V
HEC-1 ANALYSIS
OFF-SITE

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              MAY   1991               *
*            VERSION 4.0.1E             *
*                                       *
*  RUN DATE  05/06/92  TIME  12:55:21   *
*                                       *
*****************************************
```


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


Q50-24HR

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

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

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

1 HEC-1 INPUT

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

    1         ID        PRICE ROAD PHASE III HYDROLOGY CHECK              <PRICE5>
    2         ID        SOUTH MOUNTAIN FREEWAY (40TH ST TO I-10 MARICOPA AREA)
    3         ID        50-YEAR 24-HOUR STORM EVENT
    4         ID        This file is a translation of Coe & Van-Loo's TR-20 model in
    5         ID        "48th St & Chandler Blvd" report to HEC-1 format. i.e. Their
    6         ID        basin areas, curve numbers, times, were used (as noted).Channel data
    7         ID        was estimated by HDR from site visits & photographs and from asbuilts
    8         ID        of development in the area.
    9         ID        Areas not covered by their report were also added to this file
   10         ID
   11         ID
   12         ID
   13         ID                                                  05-06-92 SMc.
              *DIAGRAM
   14         IT      1                  1440
   15         IO      3

   16         KK   DA501  (CVL1)  CVL data, HDR storm data.
   17         PH              0    0.67    1.32    2.31    2.54    2.69    2.97    3.24    3.52
   18         BA   0.38
   19         LS             90
   20         UD   0.144

   21         KK   DIV501
   22         KM        Ahwatukee Drainage Report shows 25-75 split. 25% to Study area.
   23         KM        Based on HDR site visit assume 50-50 split.
   24         DT   DIVOUT
   25         DI      0    1000
   26         DQ      0     500

   27         KK   RT501  Channel size approx.
   28         RS      1    FLOW      -1
   29         RC  0.035   0.025   0.035    2500   0.016
   30         RX     98      99     100     108     133     141     142     143
   31         RY   10.2    10.1      10       2       2      10    10.1    10.2

   32         KK   DA502  (CVL120) CVL data
   33         BA   0.42
   34         LS             86
   35         UD   0.246

   36         KK   AD502  Combine 502 and diverted flow from 501
```

716

```
37        HC       2

38        KK  DIV502  70% East to study area, other 30% South to MPR east watershed.
39        KM          According to Ahwatukee report there should be another diversion
40        KM          out of study area and back to Ahwatukee PhIV. This diversion was
41        KM          not found on HDR site visit and is not coded.
42        DT  DIVOUT
43        DI        0    1000
44        DQ        0     300
```



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

45        KK   RT502  Channel size approx.
46        RS        1    FLOW      -1
47        RC    0.035   0.025   0.035    2700   0.011
48        RX       98      99     100     106     131     137     138     139
49        RY     10.2    10.1      10       4       4      10    10.1    10.2

50        KK   DA503  (CVL201) CVL data
51        BA    0.086
52        LS               82
53        UD     0.21

54        KK   AD503  Combine 503 and flow from 501 & 502
55        HC        2

56        KK   RT503  Channel size approx.
57        RS        1    FLOW      -1
58        RC    0.040   0.035   0.040    1200  0.0125
59        RX       80      90     100     105     125     130     140     150
60        RY     10.2    10.1      10       5       5      10    10.1    10.2

61        KK   DA504 (CVL130) CVL data
62        BA    0.066
63        LS               84
64        UD    0.186

65        KK   AD504  Combine 504 and flow from north
66        HC        2

67        KK   RT504  Channel size approx.
68        RS        1    FLOW      -1
69        RC    0.040   0.035   0.040     850   0.01
70        RX       80      90     100     105     125     130     140     150
71        RY     10.3    10.1      10       5       5      10    10.1    10.2

72        KK   DA505  (CVL132) CVL data
73        BA   0.0357
74        LS               84
75        UD     0.16

76        KK   AD505  Combine 505 and flow from north
77        HC        2

78        KK   RT505  Channel size approx.
79        RS        1    FLOW      -1
80        RC    0.040   0.035   0.040     400   0.01
81        RX     79.9      80     100     105     120     125     145   145.1
82        RY       12    10.4      10       5       5      10    10.4      12

83        KK  DIV505  85% East to study area.
84        DT  DIVOUT
85        DI        0    1000
86        DQ        0     150
```



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

87        KK   RT505  Channel size approx.
88        RS        1    FLOW      -1
89        RC    0.040   0.035   0.040    1200   0.01
90        RX       80      90     100     105     120     125     135     145
91        RY     10.4    10.2      10       5       5      10    10.2    10.4

92        KK   DA506  (CVL207) CVL data
93        BA   0.0431
94        LS               85
```

```
 95          UD   0.198

 96          KK   AD506  Combine 506 and flow from 85% diversion
 97          HC      2

 98          KK   DA507  (CVL205) CVL data
 99          BA  0.0406
100          LS             84
101          UD    0.18

102          KK   RT507  Assumed pipe size.
103          RK    1400    0.01   0.020            CIRC     4.5

104          KK   AD506  Combine routed flow from 507 with 506 and flow from diversion.
105          HC      2

106          KK   RT506  Assumed channel size.
107          RS      1    FLOW      -1
108          RC  0.040   0.035   0.040     900    0.01
109          RX     50      90     100     105     120     125     135     175
110          RY     11    10.2      10       5       5      10    10.2      11

111          KK   DA508  (CVL210) CVL data
112          BA  0.0204
113          LS             85
114          UD   0.168

115          KK   DA509  (CVL212) CVL data
116          BA  0.0131
117          LS             88
118          UD    0.12

119          KK   AD509  Combine 509, 508 & flow from east along Ray Rd, at Ray Rd and 44th St.
120          HC      3

121          KK   DA510  (CVL214) CVL data
122          BA  0.0449
123          LS             85
124          UD   0.162
```



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

125          KK   AD510  Add in 510
126          HC      2

127          KK   RT510  Route flows moving east along North side of Ray Rd.
128          KM          Channel size from Brooks-Hersey Ray Rd, 44th to 48th St, plans.
129          RS      1    FLOW      -1
130          RC  0.040   0.025   0.030     900  0.0085
131          RX      0      50     100     112   130.5   142.5   178.5  178.51
132          RY     12      11      10       7       7      10   10.72   11.32

133          KK   PIPES  Diversion due to overtopping of 3-48" CMPs.
134          DT  45THST
135          DI      0     128    2000
136          DQ      0       0    1872

137          KK  RTPIPE  Route pipe flow to cnr 48th St & Ray.
138          KM          78" CMP gives approx same velocity for routing as 3-48" CMPs.
139          RK    1680  0.0078   0.024            CIRC     6.5

140          KK   DA511  (CVL304) HDR data
141          KM          Initial abstraction to allow for High School 100yr-2hr retention.
142          BA   0.356
143          LS   0.894      80
144          UD    0.80

145          KK   AD511  Combine 511 and 3-48" CMPs at cnr of 48th St and Ray Rd.
146          HC      2

147          KK   RT511  Channel for first 650 ft south of Ray Rd -- West side of 48th.
148          RS      1    FLOW      -1
149          RC  0.040   0.025   0.040     650  0.0037
150          RX     80      90     100     116     123     135     145     155
151          RY   10.2    10.1      10       2       2      10    10.1    10.2

152          KK  45THST  Retrieve diversion due to overtopping of pipes at 45th St & Ray.
153          DR  45THST
```

```
154          KK  RT45ST  Flow that overtops 3-48" CMPs is routed over land to 48th St.
155          RS       2    FLOW      -1
156          RC   0.035   0.035   0.035    2000    0.01
157          RX      80      90     100     110     610     620     630     640
158          RY      10      10      10       9       9      10      10      10

159          KK   AD511  Combine at S end of improved channel W side 48th St. 650ft S of Ray.
160          HC       2

161          KK   RT511  Channel size estimated using CVL's 48th & Chandler report.
162          RS       1    FLOW      -1
163          RC   0.040   0.035   0.040    1950   0.004
164          RX       0      25      60      65      75      78     115     120
165          RY      22    18.5      18      17      17      18      18      22
1                                      HEC-1 INPUT                                  PAGE  5

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

166          KK   DA512  (CVL310) HDR data
167          BA  0.1250
168          LS              77
169          UD    0.30

170          KK   AD512  Combine at 48th St and Highline canal.
171          HC       2

172          KK  DIV512  As per CVL report 60 cfs goes south, the balance south-east.
173          DT   CANAL
174          DI       0      60      60    1000    1500
175          DQ       0       0       1     940    1440

176          KK   DA513  (CVL195) CVL data
177          BA  0.0879
178          LS              85
179          UD   0.204

180          KK   DA514  (CVL197) CVL data
181          BA  0.0564
182          LS            84.1
183          UD   0.144

184          KK   DA515  (CVL199) CVL data
185          BA  0.0466
186          LS              84
187          UD   0.186

188          KK   AD515  Combine 515, 514 and 513
189          HC       3

190          KK   RT515  Channel info from Clouse plans.
191          RS       1    FLOW      -1
192          RC   0.040   0.020   0.040    2600  0.0059
193          RX      80      90     100     106     116     122     132     142
194          RY      10      10      10       6       6      10      10      10

195          KK   DA516  (CVL311) HDR data
196          BA   0.149
197          LS              77
198          UD    0.34

199          KK   AD516  Combine flows from west, 60 cfs from north and DA516 at 48th
200          KM           and Highline canal.
201          HC       3

202          KK   RT516  Channel info from Clouse plans.
203          RS       1    FLOW      -1
204          RC   0.040   0.020   0.040    1800   0.003
205          RX      80      90     100     106     116     122     132     142
206          RY      10      10      10       6       6      10      10      10
1                                      HEC-1 INPUT                                  PAGE  6

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

207          KK   DA517  (CVL320) CVL data
208          BA  0.1700
209          LS              77
210          UD   0.258
```

```
211          KK   AD517  Add in 517
212          HC      2

213          KK   RT517  Assumed channel shape based on estimated 48th St. cross-section.
214          RS      1    FLOW      -1
215          RC  0.020   0.025   0.040     850   0.005
216          RX     78      80     100     112     116     118     122     222
217          RY     12     9.6      10    9.76    7.76    7.76      10      12

218          KK   DA518
219          BA   0.099
220          LS               81
221          UD    0.58

222          KK   AD518  Combine 518 with flow moving south in 48th St.
223          HC      2

224          KK  DIV518 Assume 50-50 split at 48th & Chandler IC.
225          DT   DIVSE
226          DI      0    2000
227          DQ      0    1000

228          KK   RT518  Assume channel size based on existing tail-water ditch.
229          RS      1    FLOW      -1
230          RC  0.035   0.025   0.035    3600  0.0061
231          RX     80      90     100     105     110     115     125     135
232          RY   10.4    10.2      10       5       5      10    10.2    10.4

233          KK  DA519a
234          BA   0.22
235          LS               81
236          UD    0.62

237          KK  AD519a  Combine 519a and flow from N. at 48th & SMF.
238          HC      2

239          KK  DA520a
240          BA   0.127
241          LS               80
242          UD    0.41

243          KK  RT520a  Channel info from K-Mart Drainage report.
244          RS      1    FLOW      -1
245          RC  0.040   0.025   0.040    2100  0.0016
246          RX     80      90     100     112     114     126     136     146
247          RY     10      10      10       4       4      10      10      10
```



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

248          KK  DA520b
249          KM           Initial abstraction to allow for "K-mart development" 100yr-2hr Ret.
250          BA   0.224
251          LS   0.473    87.5
252          UD    0.34

253          KK  AD520b  Combine 520b and routed 520a at NW cnr of 48th & Ray Rd.
254          HC      2

255          KK  DIV520  Divert weir flow thru Equip. crossing under EB off-ramp
256          DT  DIVBOX
257          DI      0     100     200     300     400     500
258          DQ      0       0      60     143     230     320

259          KK  RT520b  Channel info from ADOT Ray Rd. TI Drainage report.
260          RS      1    FLOW      -1
261          RC  0.035   0.035   0.040    1000  0.0099
262          RX     80      90     100     108     118     122     132     222
263          RY   15.0    12.5      10       8       8      10    10.1      11

264          KK  DIVBOX  Retreive flow thru equipment crossing.
265          DR  DIVBOX

266          KK  AD520b  Re-combine flow diverted thru equip. crossing.
267          HC      2

268          KK  RT520b  Channel info from ADOT Ray Rd. TI Drainage report.
269          RS      1    FLOW      -1
```

```
270          RC   0.035   0.035   0.040    4200  0.0099
271          RX      80      90     100     108     118     122     132     222
272          RY    15.0    12.5      10       8       8      10    10.1      11

273          KK  DA521a
274          BA   0.094
275          LS               77
276          UD    0.53

277          KK   CANAL  Retrieve SE diversion from 48th St and Highline canal.
278          DR   CANAL

279          KK  ADHIGH  Combine retrieved diversion & 521a at Highline Canal.
280          HC       2

281          KK  RTHIGH  Route to I-10 & Chandler thru assumed channel overland flow
282          RS       5    FLOW      -1
283          RC   0.035   0.035   0.035    3500   0.008
284          RX      80      90     100     110    1110    1120    1130    1140
285          RY      10      10      10       9       9      10      10      10
```



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

286          KK  DA521b
287          BA   0.391
288          LS               81
289          UD    0.51

290          KK  AD521b  Combine overland flow, 521b and flow parallel to I-10
291          KM           at I-10 and Chandler Blvd.
292          HC       3

293          KK  CHNDLR  Route thru 24" RCP under, and weir flow over, Chandler Blvd
294          RS       1    STOR       0
295          SV       0    42.3    47.1    50.9    54.2    56.9    59.4    62.0    64.1    66.3
296          SV    68.2
297          SE    1189 1193.33 1193.57 1193.75 1193.90 1194.02 1194.13 1194.24 1194.33 1194.42
298          SE  1194.5
299          SQ       0     200     400     600     800    1000    1200    1400    1600    1800
300          SQ    2000

301          KK  CHNDLR  Divert flow thru 24" RCP out of study area.
302          DT  DIVOUT
303          DI       0     200     400     600    1200    2000
304          DQ       0      24      25      26      27      28

305          KK  RTCHLR  Assumed channel size. Route weir flow over Chandler overland to
306          KM           collector channel N. side of SMF.
307          RS       3    FLOW      -1
308          RC   0.035   0.035   0.035    1800   0.005
309          RX      80      90     100     110    1110    1120    1130    1140
310          RY      10      10      10       9       9      10      10      10

311          KK     ONS  On-site hydrograph from a portion of I-10 N. of TI.
312          BA    0.04
313          IN      10                     145
314          QI       0       0       0       0       0       0       0       0       0
315          QI       0       0       0       0       0       0       0       0       0
316          QI       0       0       0       0       0       0       0       0       0
317          QI       0       0       0       0       0       0       0       0       0
318          QI       0       0       0       0       0       0       0       0       0
319          QI       0       0       0       0       0       0       0       0       1
320          QI       1       1       1       1       1       1       1       2       3
321          QI       7      15      39     107      55      28      14       6       5       4
322          QI       3       3       3       3       2       2       2       2       2       2
323          QI       2       2       1       1       1       1       1       1       1       1
324          QI       1       1       1       1       1       1       1       1       1       1
325          QI       1       1       1       1       1       1       1       1       1       1
326          QI       1       1       1       1       1       1       1       1       0       0
327          QI       0       0       0       0       0       0       0       0       0       0
328          QI       0       0       0       0       0
```



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

329          KK   ADONS  Combine onsite from I-10 with routed overland flow from Chandler Blvd.
330          HC       2
```

```
331          KK  RTCHLR  Proposed channel north of SMF to approx
332          KM          50th St alignment location.
333          RS       1    FLOW      -1
334          RC   0.035   0.018   0.035    1000   0.002
335          RX      80      90     100     112     140     155     162     172
336          RY      10      10      10       4       4      10      10      10

337          KK   DIVSE   Retrieve SE part of diversion from 48th St and Chandler Blvd IC.
338          DR   DIVSE

339          KK    RTSE  Route to approx 50th St. thru assumed channel overland
340          RS       5    FLOW      -1
341          RC   0.035   0.035   0.035    3100   0.005
342          RX      80      90     100     110     610     620     630     640
343          RY      10      10      10       9       9      10      10      10

344          KK  DA522a
345          BA   0.174
346          LS               81
347          UD    0.47

348          KK  AD522a  Combine 522a with flow in channel N. side SMF.
349          HC       3

350          KK  RT522a  Route to 48th St thru assumed channel.
351          RS       1    FLOW      -1
352          RC   0.035   0.018   0.035    1600   0.002
353          RX      80      90     100     112     140     152     162     172
354          RY      10      10      10       4       4      10      10      10

355          KK  DA522b
356          BA   0.091
357          LS               81
358          UD    0.50

359          KK  AD522b  Combine 522b and flow in channel from E. at 48th St.
360          HC       2

361          KK  AD522b  Add in DA519a and flow moving S. down 48th St.
362          HC       2

363          KK  DA519b
364          BA   0.322
365          LS               85
366          UD    0.43
```

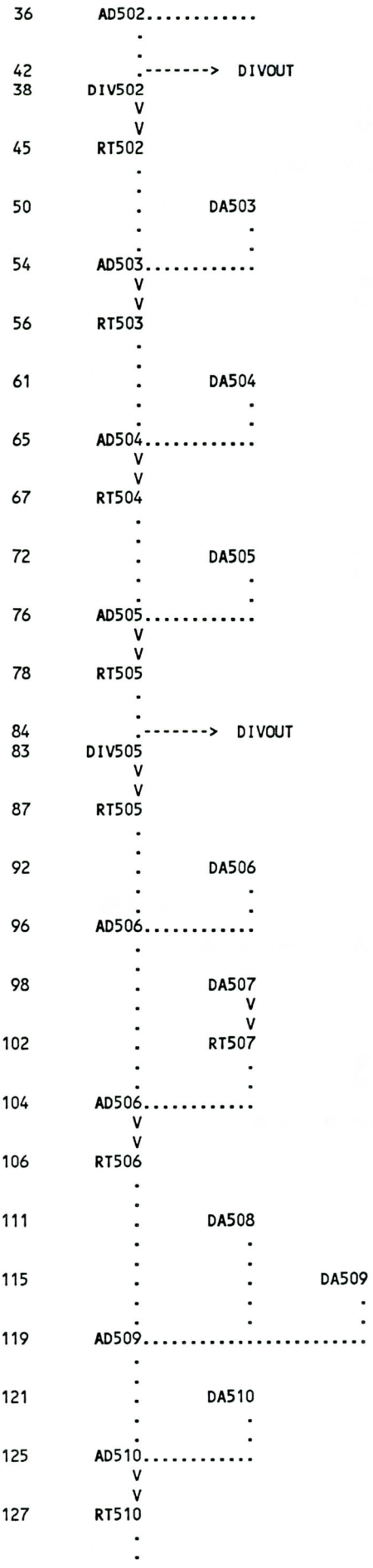


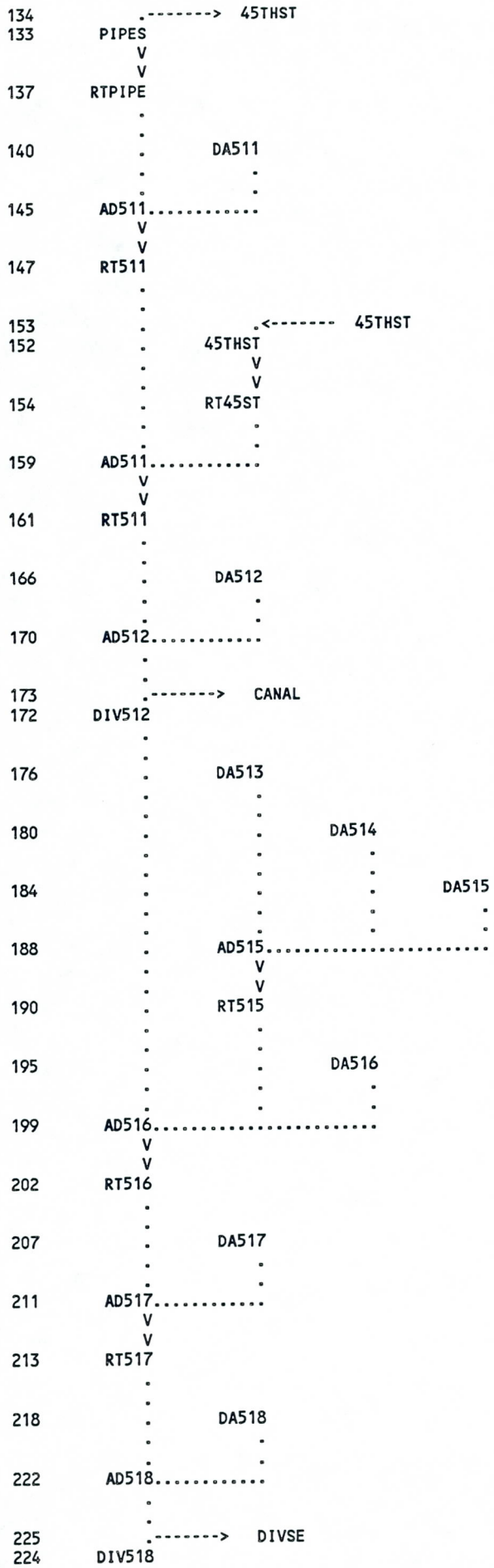
```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

367          KK  RT519b  Assume channel size and route 519b back to 48th St.
368          RS       1    FLOW      -1
369          RC   0.035   0.018   0.035    2800  0.0011
370          RX      80      90     100     112     124     136     146     156
371          RY      10      10      10       4       4      10      10      10

372          KK  AD519b  Combine all flows approx. 400ft West of 48th St. Design Q - C219.
373          HC       2
374          ZZ
```

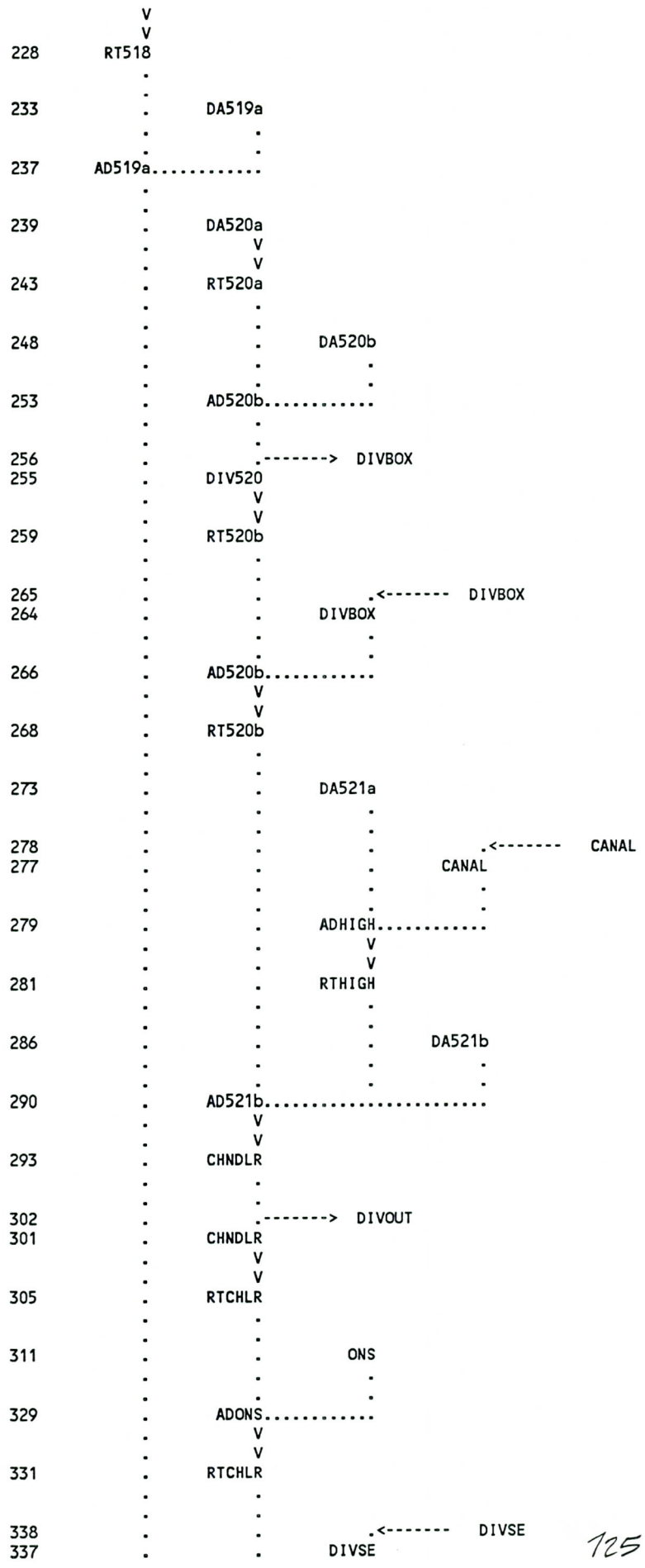
1

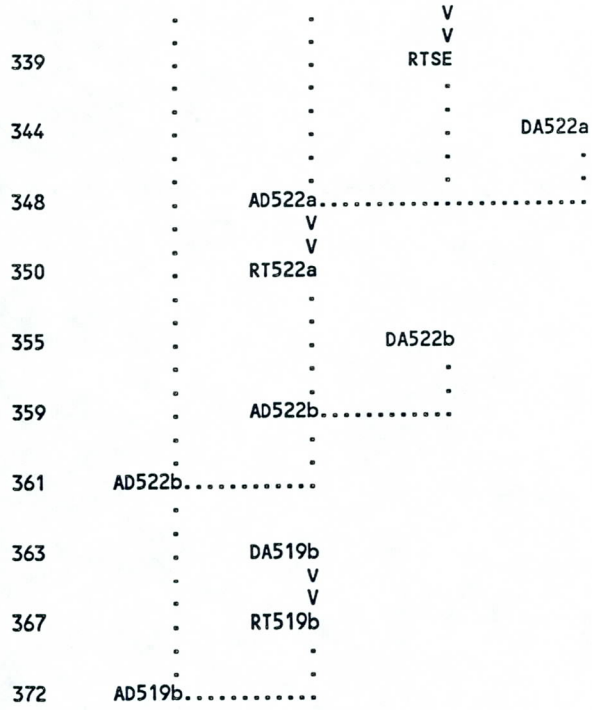
SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   16       DA501
              .
              .
   24         .--------> DIVOUT
   21       DIV501
              V
              V
   27       RT501
              .
              .
   32         .       DA502
              .          .
              .          .
```


36 AD502
42 DIVOUT
38 DIV502
45 RT502
50 DA503
54 AD503
56 RT503
61 DA504
65 AD504
67 RT504
72 DA505
76 AD505
78 RT505
84 DIVOUT
83 DIV505
87 RT505
92 DA506
96 AD506
98 DA507
102 RT507
104 AD506
106 RT506
111 DA508
115 DA509
119 AD509
121 DA510
125 AD510
127 RT510


134
133 PIPES
137 RTPIPE
140 DA511
145 AD511
147 RT511
153
152 45THST
154 RT45ST
159 AD511
161 RT511
166 DA512
170 AD512
173
172 DIV512
176 DA513
180 DA514
184 DA515
188 AD515
190 RT515
195 DA516
199 AD516
202 RT516
207 DA517
211 AD517
213 RT517
218 DA518
222 AD518
225
224 DIV518
.-------> 45THST
.<------- 45THST
.-------> CANAL
.-------> DIVSE


228 RT518
233 DA519a
237 AD519a
239 DA520a
243 RT520a
248 DA520b
253 AD520b
256 DIVBOX
255 DIV520
259 RT520b
265 DIVBOX
264 DIVBOX
266 AD520b
268 RT520b
273 DA521a
278 CANAL
277 CANAL
279 ADHIGH
281 RTHIGH
286 DA521b
290 AD521b
293 CHNDLR
302 DIVOUT
301 CHNDLR
305 RTCHLR
311 ONS
329 ADONS
331 RTCHLR
338 DIVSE
337 DIVSE



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              MAY   1991               *
*           VERSION 4.0.1E              *
*                                       *
*  RUN DATE  05/06/92  TIME  12:55:21   *
*                                       *
*****************************************
```

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

PRICE ROAD PHASE III HYDROLOGY CHECK <PRICE5>
SOUTH MOUNTAIN FREEWAY (40TH ST TO I-10 MARICOPA AREA)
50-YEAR 24-HOUR STORM EVENT
This file is a translation of Coe & Van-Loo's TR-20 model in
"48th St & Chandler Blvd" report to HEC-1 format. i.e. Their
basin areas, curve numbers, times, were used (as noted).Channel data
was estimated by HDR from site visits & photographs and from asbuilts
of development in the area.
Areas not covered by their report were also added to this file

05-06-92 SMc.

```
 15 IO         OUTPUT CONTROL VARIABLES
                    IPRNT          3  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT         HYDROGRAPH TIME DATA
                   NMIN            1  MINUTES IN COMPUTATION INTERVAL
                   IDATE       1   0  STARTING DATE
                   ITIME          0000  STARTING TIME
                     NQ           1440  NUMBER OF HYDROGRAPH ORDINATES
                  NDDATE       1   0  ENDING DATE
                  NDTIME          2359  ENDING TIME
                  ICENT             19  CENTURY MARK

                COMPUTATION INTERVAL    0.02 HOURS
                    TOTAL TIME BASE   23.98 HOURS

       ENGLISH UNITS
            DRAINAGE AREA         SQUARE MILES
            PRECIPITATION DEPTH   INCHES
```

126

```
            LENGTH, ELEVATION     FEET
            FLOW                  CUBIC FEET PER SECOND
            STORAGE VOLUME        ACRE-FEET
            SURFACE AREA          ACRES
            TEMPERATURE           DEGREES FAHRENHEIT


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


          **************
          *            *
 16 KK    *     DA501  *       (CVL1)  CVL data, HDR storm data.
          *            *
          **************

            SUBBASIN RUNOFF DATA

 18 BA        SUBBASIN CHARACTERISTICS
                    TAREA        0.38  SUBBASIN AREA

              PRECIPITATION DATA

 17 PH                                DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
              ..... HYDRO-35 .....    ............... TP-40 ...............   ........... TP-49 ...........
              5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
               0.67    1.32    2.31    2.54    2.69    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                  STORM AREA =    0.38

 19 LS        SCS LOSS RATE
                    STRTL        0.22  INITIAL ABSTRACTION
                   CRVNBR       90.00  CURVE NUMBER
                    RTIMP        0.00  PERCENT IMPERVIOUS AREA

 20 UD        SCS DIMENSIONLESS UNITGRAPH
                     TLAG        0.14  LAG

                                                        ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                  UNIT HYDROGRAPH
                                              45 END-OF-PERIOD ORDINATES
              44.      141.      270.      446.      674.      904.     1075.     1175.     1203.     1194.
            1118.     1024.      913.      774.      625.      512.      427.      356.      303.      255.
             214.      175.      149.      124.      104.       87.       72.       61.       51.       43.
              35.       30.       25.       21.       17.       15.       13.       11.        9.        8.
               6.        5.        4.        2.        1.

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

                       HYDROGRAPH AT STATION    DA501

    TOTAL RAINFALL =    3.52, TOTAL LOSS =    1.05, TOTAL EXCESS =    2.46

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                         (CFS)
+    1047.     12.15                   92.         25.         25.         25.
                        (INCHES)     2.252       2.462       2.462       2.462
                        (AC-FT)        46.         50.         50.         50.

                       CUMULATIVE AREA =    0.38 SQ MI


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


          **************
          *            *
 21 KK    *    DIV501  *
          *            *
          **************
```

Ahwatukee Drainage Report shows 25-75 split. 25% to Study area.
Based on HDR site visit assume 50-50 split.

```
     DT          DIVERSION
                      ISTAD      DIVOUT  DIVERSION HYDROGRAPH IDENTIFICATION

     DI              INFLOW        0.00   1000.00

     DQ       DIVERTED FLOW        0.00    500.00

                                                  ***

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

                        DIVERSION HYDROGRAPH   DIVOUT

   PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR     23.98-HR
+    (CFS)       (HR)
                  (CFS)
+      524.     12.15                      46.          13.          13.          13.
                (INCHES)                1.126        1.231        1.231        1.231
                 (AC-FT)                  23.          25.          25.          25.

                        CUMULATIVE AREA =    0.38 SQ MI

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

                        HYDROGRAPH AT STATION   DIV501

   PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR     23.98-HR
+    (CFS)       (HR)
                  (CFS)
+      524.     12.15                      46.          13.          13.          13.
                (INCHES)                1.126        1.231        1.231        1.231
                 (AC-FT)                  23.          25.          25.          25.

                        CUMULATIVE AREA =    0.38 SQ MI


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


              **************
              *            *
   27 KK      *     RT501  *       Channel size approx.
              *            *
              **************

                 HYDROGRAPH ROUTING DATA

   28 RS           STORAGE ROUTING
                        NSTPS          1  NUMBER OF SUBREACHES
                         ITYP       FLOW  TYPE OF INITIAL CONDITION
                        RSVRIC      -1.00  INITIAL CONDITION
                            X        0.00 WORKING R AND D COEFFICIENT

   29 RC           NORMAL DEPTH CHANNEL
                          ANL       0.035  LEFT OVERBANK N-VALUE
                         ANCH       0.025  MAIN CHANNEL N-VALUE
                          ANR       0.035  RIGHT OVERBANK N-VALUE
                        RLNTH       2500.  REACH LENGTH
                          SEL      0.0160  ENERGY SLOPE
                        ELMAX         0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                                --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
   31 RY        ELEVATION     10.20     10.10     10.00      2.00      2.00     10.00     10.10     10.20
   30 RX        DISTANCE      98.00     99.00    100.00    108.00    133.00    141.00    142.00    143.00

                                                  ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

              STORAGE         0.00      0.63      1.28      1.95      2.65      3.36      4.10      4.86      5.64      6.44
              OUTFLOW         0.00     46.30    146.66    287.86    464.65    673.98    913.86   1182.93   1480.23   1805.04
            ELEVATION         2.00      2.43      2.86      3.29      3.73      4.16      4.59      5.02      5.45      5.88
```

```
          STORAGE      7.26      8.11      8.97      9.86     10.76     11.69     12.64     13.62     14.61     15.65
          OUTFLOW   2156.89   2535.40   2940.35   3371.59   3829.03   4312.65   4822.46   5358.53   5920.95   6560.13
        ELEVATION      6.32      6.75      7.18      7.61      8.04      8.47      8.91      9.34      9.77     10.20


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

                              HYDROGRAPH AT STATION     RT501

   PEAK FLOW       TIME                          MAXIMUM AVERAGE FLOW
                                         6-HR        24-HR        72-HR     23.98-HR
+    (CFS)        (HR)
                              (CFS)
+      490.      12.20                     46.          13.          13.          13.
                           (INCHES)      1.125        1.229        1.229        1.229
                            (AC-FT)        23.          25.          25.          25.

  PEAK STORAGE     TIME                         MAXIMUM AVERAGE STORAGE
                                         6-HR        24-HR        72-HR     23.98-HR
+   (AC-FT)       (HR)
          3.     12.20                      0.           0.           0.           0.

   PEAK STAGE      TIME                          MAXIMUM AVERAGE STAGE
                                         6-HR        24-HR        72-HR     23.98-HR
+    (FEET)       (HR)
        3.78     12.20                    2.26         2.08         2.08         2.08

                            CUMULATIVE AREA =      0.38 SQ MI


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

                ***************
                *             *
   32 KK        *     DA502   *         (CVL120) CVL data
                *             *
                ***************

                   SUBBASIN RUNOFF DATA

   33 BA             SUBBASIN CHARACTERISTICS
                           TAREA         0.42   SUBBASIN AREA

                     PRECIPITATION DATA

   17 PH                                      DEPTHS FOR    0-PERCENT HYPOTHETICAL STORM
                     ..... HYDRO-35 ......     ................ TP-40 ................      ............ TP-49 ...........
                     5-MIN  15-MIN  60-MIN      2-HR     3-HR     6-HR    12-HR    24-HR    2-DAY    4-DAY    7-DAY   10-DAY
                      0.67    1.32    2.31      2.54     2.69     2.97     3.24     3.52     0.00     0.00     0.00     0.00

                                                             STORM AREA =       0.42

   34 LS             SCS LOSS RATE
                          STRTL          0.33   INITIAL ABSTRACTION
                         CRVNBR         86.00   CURVE NUMBER
                          RTIMP          0.00   PERCENT IMPERVIOUS AREA

   35 UD             SCS DIMENSIONLESS UNITGRAPH
                           TLAG          0.25   LAG

                                                                          ***

 VALUE EXCEEDS TABLE IN LOGLOG          0.01667          0.01667          24.00000

                                                                   UNIT HYDROGRAPH
                                                             76 END-OF-PERIOD ORDINATES
                   16.        41.        78.       124.       178.       241.       322.       412.       511.       597.
                  672.       730.       767.       791.       796.       794.       783.       752.       717.       679.
                  637.       589.       536.       473.       416.       365.       328.       294.       263.       237.
                  214.       195.       176.       158.       143.       127.       113.       103.        92.        83.
                   75.        67.        60.        54.        48.        43.        39.        35.        31.        29.
                   26.        23.        21.        19.        17.        15.        14.        12.        11.        10.
                    9.         8.         8.         7.         6.         6.         5.         4.         4.         3.
                    3.         2.         2.         1.         1.         0.

    ***             ***             ***             ***        129   ***
```

HYDROGRAPH AT STATION DA502

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.40, TOTAL EXCESS = 2.11

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
(CFS)	(HR)	(CFS)				
770.	12.27		88.	24.	24.	24.
		(INCHES)	1.942	2.109	2.109	2.109
		(AC-FT)	44.	47.	47.	47.

CUMULATIVE AREA = 0.42 SQ MI

*** ***

```
**************
*            *
*    AD502   *
*            *
**************
```

36 KK Combine 502 and diverted flow from 501

37 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD502

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
(CFS)	(HR)	(CFS)				
1226.	12.23		134.	36.	36.	36.
		(INCHES)	1.553	1.691	1.691	1.691
		(AC-FT)	66.	72.	72.	72.

CUMULATIVE AREA = 0.80 SQ MI

*** ***

```
**************
*            *
*    DIV502  *
*            *
**************
```

38 KK 70% East to study area, other 30% South to MPR east watershed.

According to Ahwatukee report there should be another diversion out of study area and back to Ahwatukee PhIV. This diversion was not found on HDR site visit and is not coded.

DT DIVERSION
ISTAD DIVOUT DIVERSION HYDROGRAPH IDENTIFICATION

DI INFLOW 0.00 1000.00

DQ DIVERTED FLOW 0.00 300.00

***

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

DIVERSION HYDROGRAPH DIVOUT

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
(CFS)	(HR)	(CFS)				
368.	12.23		40.	11.	11.	11.
		(INCHES)	0.466	0.507	0.507	0.507
		(AC-FT)	20.	22.	22.	22.

CUMULATIVE AREA = 0.80 SQ MI

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

HYDROGRAPH AT STATION DIV502

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 858.	12.23		94.	25.	25.	25.
		(INCHES)	1.087	1.184	1.184	1.184
		(AC-FT)	46.	51.	51.	51.

CUMULATIVE AREA = 0.80 SQ MI

*** ***

```
              ***************
              *             *
  45 KK       *    RT502    *      Channel size approx.
              *             *
              ***************
```

HYDROGRAPH ROUTING DATA

```
 46 RS        STORAGE ROUTING
                    NSTPS          1  NUMBER OF SUBREACHES
                     ITYP       FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC      -1.00  INITIAL CONDITION
                        X       0.00 WORKING R AND D COEFFICIENT

 47 RC        NORMAL DEPTH CHANNEL
                      ANL      0.035  LEFT OVERBANK N-VALUE
                     ANCH      0.025  MAIN CHANNEL N-VALUE
                      ANR      0.035  RIGHT OVERBANK N-VALUE
                    RLNTH      2700.  REACH LENGTH
                      SEL     0.0110  ENERGY SLOPE
                    ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION
```

CROSS-SECTION DATA

		--- LEFT OVERBANK --- +		------ MAIN CHANNEL		------- +	--- RIGHT OVERBANK ---		
49 RY	ELEVATION	10.20	10.10	10.00	4.00	4.00	10.00	10.10	10.20
48 RX	DISTANCE	98.00	99.00	100.00	106.00	131.00	137.00	138.00	139.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.51	1.04	1.58	2.13	2.69	3.27	3.86	4.47	5.09
OUTFLOW	0.00	24.11	76.39	149.92	241.92	350.71	475.16	614.48	768.06	935.45
ELEVATION	4.00	4.33	4.65	4.98	5.31	5.63	5.96	6.28	6.61	6.94
STORAGE	5.72	6.36	7.02	7.69	8.37	9.07	9.78	10.50	11.24	12.01
OUTFLOW	1116.28	1310.29	1517.25	1737.02	1969.44	2214.44	2471.94	2741.89	3024.26	3348.04
ELEVATION	7.26	7.59	7.92	8.24	8.57	8.89	9.22	9.55	9.87	10.20

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

HYDROGRAPH AT STATION RT502

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 823.	12.28		93.	25.	25.	25.
		(INCHES)	1.086	1.182	1.182	1.182
		(AC-FT)	46.	50.	50.	50.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)					
5.	12.28		1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
6.72	12.28	4.54	4.16	4.16	4.16

CUMULATIVE AREA = 0.80 SQ MI

*** ***

```
          **************
          *            *
50 KK     *     DA503  *       (CVL201) CVL data
          *            *
          **************
```

SUBBASIN RUNOFF DATA

51 BA SUBBASIN CHARACTERISTICS

TAREA 0.09 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.09

52 LS SCS LOSS RATE

STRTL 0.44 INITIAL ABSTRACTION

CRVNBR 82.00 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

53 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.21 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
65 END-OF-PERIOD ORDINATES

4.	13.	24.	37.	55.	77.	102.	129.	152.	169.
182.	189.	190.	189.	183.	174.	164.	152.	139.	123.
106.	91.	80.	71.	62.	55.	49.	44.	39.	34.
30.	26.	23.	21.	18.	16.	14.	13.	11.	10.
9.	8.	7.	6.	5.	5.	4.	4.	3.	3.
3.	2.	2.	2.	2.	1.	1.	1.	1.	1.
1.	1.	0.	0.	0.					

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

HYDROGRAPH AT STATION DA503

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.72, TOTAL EXCESS = 1.80

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 146.	12.23		15.	4.	4.	4.
		(INCHES)	1.657	1.795	1.795	1.795
		(AC-FT)	8.	8.	8.	8.

CUMULATIVE AREA = 0.09 SQ MI

*** ***


```
          **************
          *            *
```

```
 54 KK      *     AD503  *       Combine 503 and flow from 501 & 502
            *            *
            **************

 55 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                        HYDROGRAPH AT STATION    AD503

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+     963.     12.28                  109.        30.         30.         30.
                        (INCHES)     1.142       1.241       1.241       1.241
                        (AC-FT)       54.         59.         59.         59.

                        CUMULATIVE AREA =    0.89 SQ MI


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


            **************
            *            *
 56 KK      *     RT503  *       Channel size approx.
            *            *
            **************

               HYDROGRAPH ROUTING DATA

 57 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC     -1.00  INITIAL CONDITION
                         X       0.00 WORKING R AND D COEFFICIENT

 58 RC          NORMAL DEPTH CHANNEL
                       ANL      0.040  LEFT OVERBANK N-VALUE
                      ANCH      0.035  MAIN CHANNEL N-VALUE
                       ANR      0.040  RIGHT OVERBANK N-VALUE
                     RLNTH      1200.  REACH LENGTH
                       SEL     0.0125  ENERGY SLOPE
                     ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 60 RY       ELEVATION     10.20     10.10     10.00      5.00      5.00     10.00     10.10     10.20
 59 RX       DISTANCE      80.00     90.00    100.00    105.00    125.00    130.00    140.00    150.00

                                                    ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE       0.00      0.15      0.31      0.47      0.64      0.81      0.98      1.16      1.34      1.52
          OUTFLOW       0.00     10.95     34.70     68.11    109.90    159.34    215.90    279.24    349.08    425.23
        ELEVATION       5.00      5.27      5.55      5.82      6.09      6.37      6.64      6.92      7.19      7.46

          STORAGE       1.71      1.91      2.11      2.31      2.52      2.73      2.94      3.16      3.38      3.72
          OUTFLOW     507.53    595.85    690.12    790.25    896.20   1007.93   1125.42   1248.64   1377.59   1531.74
        ELEVATION       7.74      8.01      8.28      8.56      8.83      9.11      9.38      9.65      9.93     10.20

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

                        HYDROGRAPH AT STATION    RT503

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+     954.     12.30                  109.        30.         30.         30.
                        (INCHES)     1.141       1.239       1.239       1.239
                        (AC-FT)       54.         59.         59.         59.
```

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
3.	12.30	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
8.97	12.30	5.83	5.27	5.27	5.27

CUMULATIVE AREA = 0.89 SQ MI

*** ***

```
**************
*            *
*     DA504  *      (CVL130) CVL data
*            *
**************
```

SUBBASIN RUNOFF DATA

61 KK

62 BA SUBBASIN CHARACTERISTICS

TAREA 0.07 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

HYDRO-35			TP-40					TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.07

63 LS SCS LOSS RATE

STRTL 0.38 INITIAL ABSTRACTION

CRVNBR 84.00 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

64 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.19 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
58 END-OF-PERIOD ORDINATES

4.	13.	25.	40.	58.	82.	108.	131.	148.	158.
163.	164.	161.	153.	143.	132.	118.	103.	87.	74.
64.	55.	48.	42.	37.	32.	28.	24.	21.	18.
16.	14.	12.	11.	9.	8.	7.	6.	5.	5.
4.	3.	3.	3.	2.	2.	2.	2.	1.	1.
1.	1.	1.	1.	0.	0.	0.	0.		

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

HYDROGRAPH AT STATION DA504

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.57, TOTAL EXCESS = 1.95

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)				
		(CFS)			
+ 129.	12.20	13.	3.	3.	3.
		(INCHES) 1.798	1.949	1.949	1.949
		(AC-FT) 6.	7.	7.	7.

CUMULATIVE AREA = 0.07 SQ MI

*** ***

```
          **************
          *            *
 65 KK    *     AD504  *       Combine 504 and flow from north
          *            *
          **************

 66 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                        ***

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

                       HYDROGRAPH AT STATION    AD504

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                        (CFS)
+    1062.     12.30                  122.         33.         33.         33.
                      (INCHES)       1.187       1.289       1.289       1.289
                       (AC-FT)        60.         65.         65.         65.

                      CUMULATIVE AREA =    0.95 SQ MI


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


          **************
          *            *
 67 KK    *     RT504  *       Channel size approx.
          *            *
          **************

             HYDROGRAPH ROUTING DATA

 68 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC      -1.00  INITIAL CONDITION
                         X        0.00 WORKING R AND D COEFFICIENT

 69 RC          NORMAL DEPTH CHANNEL
                       ANL      0.040  LEFT OVERBANK N-VALUE
                      ANCH      0.035  MAIN CHANNEL N-VALUE
                       ANR      0.040  RIGHT OVERBANK N-VALUE
                     RLNTH       850.  REACH LENGTH
                       SEL     0.0100  ENERGY SLOPE
                     ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 71 RY       ELEVATION    10.30     10.10     10.00      5.00      5.00     10.00     10.10     10.20
 70 RX       DISTANCE     80.00     90.00    100.00    105.00    125.00    130.00    140.00    150.00

                                                ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE      0.00      0.11      0.22      0.34      0.46      0.58      0.71      0.84      0.97      1.10
          OUTFLOW      0.00     10.11     32.04     62.88    101.47    147.11    199.34    257.84    322.35    392.69
        ELEVATION      5.00      5.28      5.56      5.84      6.12      6.39      6.67      6.95      7.23      7.51

          STORAGE      1.24      1.38      1.53      1.67      1.82      1.97      2.13      2.29      2.45      2.76
          OUTFLOW    468.72    550.34    637.46    730.03    827.99    931.31   1039.97   1153.96   1274.75   1428.56
        ELEVATION      7.79      8.07      8.35      8.63      8.91      9.18      9.46      9.74     10.02     10.30

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

                       HYDROGRAPH AT STATION    RT504

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
```

		(CFS)				
+ 1057.	12.32		122.	33.	33.	33.
		(INCHES)	1.187	1.287	1.287	1.287
		(AC-FT)	60.	65.	65.	65.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
2.	12.32	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
9.51	12.32	5.95	5.31	5.31	5.31

CUMULATIVE AREA = 0.95 SQ MI

*** ***

```
**************
*            *
72 KK   *  DA505  *      (CVL132) CVL data
*            *
**************
```

SUBBASIN RUNOFF DATA

73 BA SUBBASIN CHARACTERISTICS

TAREA	0.04	SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.04

74 LS SCS LOSS RATE

STRTL	0.38	INITIAL ABSTRACTION
CRVNBR	84.00	CURVE NUMBER
RTIMP	0.00	PERCENT IMPERVIOUS AREA

75 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	0.16	LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
50 END-OF-PERIOD ORDINATES

3.	10.	19.	31.	47.	66.	83.	94.	101.	102.
102.	96.	89.	81.	71.	59.	49.	41.	35.	30.
26.	22.	19.	16.	14.	11.	10.	8.	7.	6.
5.	4.	4.	3.	3.	2.	2.	2.	1.	1.
1.	1.	1.	1.	1.	0.	0.	0.	0.	0.

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

HYDROGRAPH AT STATION DA505

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.57, TOTAL EXCESS = 1.95

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)				
		(CFS)			
+ 75.	12.18	7.	2.	2.	2.
		(INCHES)	1.798	1.950	1.950	1.950
		(AC-FT)	3.	4.	4.	4.

CUMULATIVE AREA = 0.04 SQ MI

*** ***

```
          **************
          *            *
 76 KK    *     AD505  *       Combine 505 and flow from north
          *            *
          **************

 77 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***
     ***             ***             ***             ***             ***

                       HYDROGRAPH AT STATION    AD505

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+    1109.      12.30                128.        35.         35.         35.
                         (INCHES)    1.209       1.311       1.311       1.311
                         (AC-FT)      64.         69.         69.         69.

                       CUMULATIVE AREA =    0.99 SQ MI
```

*** ***

```
          **************
          *            *
 78 KK    *     RT505  *       Channel size approx.
          *            *
          **************

             HYDROGRAPH ROUTING DATA

 79 RS          STORAGE ROUTING
                     NSTPS           1  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC      -1.00  INITIAL CONDITION
                         X        0.00 WORKING R AND D COEFFICIENT

 80 RC          NORMAL DEPTH CHANNEL
                       ANL       0.040  LEFT OVERBANK N-VALUE
                      ANCH       0.035  MAIN CHANNEL N-VALUE
                       ANR       0.040  RIGHT OVERBANK N-VALUE
                     RLNTH        400.  REACH LENGTH
                       SEL      0.0100  ENERGY SLOPE
                     ELMAX         0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 82 RY       ELEVATION    12.00     10.40     10.00      5.00      5.00     10.00     10.40     12.00
 81 RX       DISTANCE     79.90     80.00    100.00    105.00    120.00    125.00    145.00    145.10
                                                          ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE      0.00      0.05      0.11      0.16      0.22      0.28      0.35      0.42      0.49      0.56
          OUTFLOW      0.00     12.04     38.13     74.87    120.98    175.76    238.78    309.78    388.59    475.12
        ELEVATION      5.00      5.37      5.74      6.11      6.47      6.84      7.21      7.58      7.95      8.32

          STORAGE      0.63      0.71      0.79      0.87      0.97      1.16      1.38      1.60      1.82      2.04
          OUTFLOW    569.33    671.20    780.75    898.02   1033.92   1213.03   1435.82   1690.89   1973.88   2281.98
        ELEVATION      8.68      9.05      9.42      9.79     10.16     10.53     10.89     11.26     11.63     12.00

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

                       HYDROGRAPH AT STATION    RT505
```

```
 PEAK FLOW      TIME                                 MAXIMUM AVERAGE FLOW
                                          6-HR         24-HR        72-HR       23.98-HR
+    (CFS)       (HR)
                                (CFS)
+     1107.      12.32                     128.          35.          35.          35.
                            (INCHES)      1.209        1.311        1.311        1.311
                             (AC-FT)        64.          69.          69.          69.

 PEAK STORAGE   TIME                                 MAXIMUM AVERAGE STORAGE
                                          6-HR         24-HR        72-HR       23.98-HR
+  (AC-FT)       (HR)
         1.      12.32                       0.           0.           0.           0.

 PEAK STAGE     TIME                                 MAXIMUM AVERAGE STAGE
                                          6-HR         24-HR        72-HR       23.98-HR
+   (FEET)       (HR)
      10.31      12.32                     6.16         5.37         5.37         5.37

                        CUMULATIVE AREA =     0.99 SQ MI


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

           ***************
           *             *
  83 KK    *    DIV505   *       85% East to study area.
           *             *
           ***************

     DT          DIVERSION
                      ISTAD        DIVOUT  DIVERSION HYDROGRAPH IDENTIFICATION

     DI              INFLOW          0.00    1000.00

     DQ        DIVERTED FLOW         0.00     150.00
                                                                            ***

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

                         DIVERSION HYDROGRAPH    DIVOUT

 PEAK FLOW      TIME                                 MAXIMUM AVERAGE FLOW
                                          6-HR         24-HR        72-HR       23.98-HR
+    (CFS)       (HR)
                                (CFS)
+      166.      12.32                      19.           5.           5.           5.
                            (INCHES)      0.181        0.197        0.197        0.197
                             (AC-FT)        10.          10.          10.          10.

                        CUMULATIVE AREA =     0.99 SQ MI

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

                         HYDROGRAPH AT STATION    DIV505

 PEAK FLOW      TIME                                 MAXIMUM AVERAGE FLOW
                                          6-HR         24-HR        72-HR       23.98-HR
+    (CFS)       (HR)
                                (CFS)
+      941.      12.32                     109.          30.          30.          30.
                            (INCHES)      1.027        1.114        1.114        1.114
                             (AC-FT)        54.          59.          59.          59.

                        CUMULATIVE AREA =     0.99 SQ MI


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

           ***************
           *             *
  87 KK    *    RT505    *       Channel size approx.
           *             *
```

```
**************

   HYDROGRAPH ROUTING DATA

88 RS      STORAGE ROUTING
                NSTPS          1  NUMBER OF SUBREACHES
                 ITYP       FLOW  TYPE OF INITIAL CONDITION
               RSVRIC      -1.00  INITIAL CONDITION
                    X       0.00 WORKING R AND D COEFFICIENT

89 RC      NORMAL DEPTH CHANNEL
                  ANL      0.040  LEFT OVERBANK N-VALUE
                 ANCH      0.035  MAIN CHANNEL N-VALUE
                  ANR      0.040  RIGHT OVERBANK N-VALUE
                RLNTH      1200.  REACH LENGTH
                  SEL     0.0100  ENERGY SLOPE
                ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
91 RY      ELEVATION     10.40     10.20     10.00      5.00      5.00     10.00     10.20     10.40
90 RX      DISTANCE      80.00     90.00    100.00    105.00    120.00    125.00    135.00    145.00

                                                ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE       0.00      0.12      0.24      0.37      0.51      0.64      0.78      0.93      1.08      1.24
          OUTFLOW       0.00      7.82     24.76     48.60     78.47    113.85    154.43    200.00    250.39    305.51
        ELEVATION       5.00      5.28      5.57      5.85      6.14      6.42      6.71      6.99      7.27      7.56

          STORAGE       1.40      1.56      1.73      1.90      2.08      2.26      2.45      2.64      2.85      3.25
          OUTFLOW     365.28    429.66    498.61    572.13    650.21    732.86    820.08    911.91   1016.06   1145.44
        ELEVATION       7.84      8.13      8.41      8.69      8.98      9.26      9.55      9.83     10.12     10.40

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

                      HYDROGRAPH AT STATION    RT505

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+     931.     12.35                109.         30.         30.         30.
                         (INCHES)   1.027       1.112       1.112       1.112
                         (AC-FT)     54.         59.         59.         59.

 PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
                                     6-HR       24-HR       72-HR     23.98-HR
+  (AC-FT)      (HR)
        3.     12.35                  1.          0.          0.          0.

  PEAK STAGE   TIME                          MAXIMUM AVERAGE STAGE
                                     6-HR       24-HR       72-HR     23.98-HR
+   (FEET)      (HR)
      9.88     12.35                6.06        5.34        5.34        5.34

                      CUMULATIVE AREA =    0.99 SQ MI


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


          **************
          *            *
92 KK     *     DA506  *       (CVL207) CVL data
          *            *
          **************

   SUBBASIN RUNOFF DATA

93 BA      SUBBASIN CHARACTERISTICS
                TAREA       0.04  SUBBASIN AREA

   PRECIPITATION DATA

17 PH                          DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
```

HYDRO-35			TP-40					TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.04

94 LS SCS LOSS RATE
STRTL 0.35 INITIAL ABSTRACTION
CRVNBR 85.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

95 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.20 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
61 END-OF-PERIOD ORDINATES

2.	7.	14.	22.	32.	45.	60.	74.	86.	94.
99.	101.	100.	98.	93.	87.	81.	73.	64.	55.
47.	41.	36.	31.	28.	25.	22.	19.	17.	14.
13.	11.	10.	9.	7.	7.	6.	5.	4.	4.
3.	3.	3.	2.	2.	2.	2.	1.	1.	1.
1.	1.	1.	1.	1.	0.	0.	0.	0.	0.
0.									

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

HYDROGRAPH AT STATION DA506

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.49, TOTAL EXCESS = 2.03

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
			(CFS)			
+	85.	12.22	9.	2.	2.	2.
			(INCHES) 1.871	2.029	2.029	2.029
			(AC-FT) 4.	5.	5.	5.

CUMULATIVE AREA = 0.04 SQ MI

*** ***

****
* *
96 KK * AD506 * Combine 506 and flow from 85% diversion
* *
****

97 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD506

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
			(CFS)			
+	997.	12.33	118.	32.	32.	32.
			(INCHES) 1.062	1.151	1.151	1.151
			(AC-FT) 58.	63.	63.	63.

CUMULATIVE AREA = 1.03 SQ MI

*** ***

```
          **************
          *            *
 98 KK    *     DA507  *       (CVL205) CVL data
          *            *
          **************

             SUBBASIN RUNOFF DATA

 99 BA          SUBBASIN CHARACTERISTICS
                      TAREA        0.04  SUBBASIN AREA

                PRECIPITATION DATA

 17 PH                                DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 0.67    1.32    2.31    2.54    2.69    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                 STORM AREA =    0.04

 100 LS         SCS LOSS RATE
                      STRTL        0.38  INITIAL ABSTRACTION
                     CRVNBR       84.00  CURVE NUMBER
                      RTIMP        0.00  PERCENT IMPERVIOUS AREA

 101 UD         SCS DIMENSIONLESS UNITGRAPH
                      TLAG        0.18  LAG

                                                        ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                  UNIT HYDROGRAPH
                                               56 END-OF-PERIOD ORDINATES
                3.       9.      17.      27.      39.      55.      72.      86.      96.     102.
              104.     103.     100.      94.      87.      80.      70.      59.      50.      43.
               37.      32.      28.      24.      21.      18.      16.      14.      12.      10.
                9.       8.       7.       6.       5.       4.       4.       3.       3.       2.
                2.       2.       2.       1.       1.       1.       1.       1.       1.       1.
                1.       0.       0.       0.       0.       0.

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

                       HYDROGRAPH AT STATION    DA507

    TOTAL RAINFALL =    3.52, TOTAL LOSS =    1.57, TOTAL EXCESS =    1.95

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+      81.     12.20                     8.          2.          2.          2.
                         (INCHES)     1.798       1.950       1.950       1.950
                         (AC-FT)         4.          4.          4.          4.

                       CUMULATIVE AREA =    0.04 SQ MI


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


          **************
          *            *
102 KK    *     RT507  *       Assumed pipe size.
          *            *
          **************

             HYDROGRAPH ROUTING DATA

103 RK          KINEMATIC WAVE STREAM ROUTING
                          L        1400.  CHANNEL LENGTH
                          S      0.0100  SLOPE
                          N       0.020  CHANNEL ROUGHNESS COEFFICIENT
                         CA        0.00  CONTRIBUTING AREA
                      SHAPE        CIRC  CHANNEL SHAPE
                         WD        4.50  BOTTOM WIDTH OR DIAMETER
                          Z        0.00  SIDE SLOPE
```

NDXMIN 2 MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	5.17	1.25	0.80	466.67	80.71	733.42	1.95	11.19

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4222E+01 EXCESS=0.0000E+00 OUTFLOW=0.4221E+01 BASIN STORAGE=0.2364E-02 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	5.17	1.25	1.00		80.60	733.00	1.95

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

HYDROGRAPH AT STATION RT507

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+ 81.	12.22	(CFS)	8.	2.	2.	2.
		(INCHES)	1.799	1.949	1.949	1.949
		(AC-FT)	4.	4.	4.	4.

CUMULATIVE AREA = 0.04 SQ MI

*** ***

```
         ***************
         *             *
104 KK   *    AD506    *      Combine routed flow from 507 with 506 and flow from diversion.
         *             *
         ***************
```

105 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD506

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+ 1061.	12.33	(CFS)	126.	34.	34.	34.
		(INCHES)	1.090	1.181	1.181	1.181
		(AC-FT)	62.	67.	67.	67.

CUMULATIVE AREA = 1.07 SQ MI

*** ***

```
         ***************
         *             *
106 KK   *    RT506    *      Assumed channel size.
         *             *
         ***************
```


HYDROGRAPH ROUTING DATA

```
107 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC      -1.00  INITIAL CONDITION
                         X       0.00 WORKING R AND D COEFFICIENT

108 RC          NORMAL DEPTH CHANNEL
                       ANL      0.040  LEFT OVERBANK N-VALUE
                      ANCH      0.035  MAIN CHANNEL N-VALUE
                       ANR      0.040  RIGHT OVERBANK N-VALUE
                     RLNTH       900.  REACH LENGTH
                       SEL     0.0100  ENERGY SLOPE
                     ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                        CROSS-SECTION DATA
                              --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
110 RY          ELEVATION     11.00     10.20     10.00      5.00      5.00     10.00     10.20     11.00
109 RX          DISTANCE      50.00     90.00    100.00    105.00    120.00    125.00    135.00    175.00

                                                    ***

                                        COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

                STORAGE         0.00      0.10      0.20      0.31      0.42      0.54      0.66      0.79      0.91      1.05
                OUTFLOW         0.00      9.32     29.50     57.92     93.53    135.77    184.27    238.78    299.15    365.28
              ELEVATION         5.00      5.32      5.63      5.95      6.26      6.58      6.89      7.21      7.53      7.84

                STORAGE         1.18      1.33      1.47      1.62      1.77      1.93      2.10      2.40      2.90      3.62
                OUTFLOW       437.09    514.55    597.65    686.38    780.75    880.79    989.89   1129.89   1302.72   1522.13
              ELEVATION         8.16      8.47      8.79      9.11      9.42      9.74     10.05     10.37     10.68     11.00

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

                        HYDROGRAPH AT STATION    RT506

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+    1050.      12.35                126.         34.         34.         34.
                         (INCHES)    1.090       1.180       1.180       1.180
                         (AC-FT)      62.         67.         67.         67.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR        24-HR       72-HR     23.98-HR
+  (AC-FT)      (HR)
       2.       12.35                 0.          0.          0.          0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR        24-HR       72-HR     23.98-HR
+   (FEET)      (HR)
     10.19      12.35                6.15        5.37        5.37        5.37

                        CUMULATIVE AREA =    1.07 SQ MI


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


              **************
              *            *
111 KK        *     DA508  *       (CVL210) CVL data
              *            *
              **************

                 SUBBASIN RUNOFF DATA

112 BA             SUBBASIN CHARACTERISTICS
                        TAREA        0.02  SUBBASIN AREA

                   PRECIPITATION DATA

 17 PH                                 DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                  ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                  5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                   0.67    1.32    2.31    2.54    2.69    2.97    3.24    3.52    0.00    0.00    0.00    0.00
```

STORM AREA = 0.02

113 LS SCS LOSS RATE
STRTL 0.35 INITIAL ABSTRACTION
CRVNBR 85.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

114 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.17 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
52 END-OF-PERIOD ORDINATES

2.	5.	10.	16.	24.	33.	42.	49.	54.	56.
56.	54.	51.	47.	43.	37.	31.	26.	22.	19.
16.	14.	12.	10.	9.	8.	7.	6.	5.	4.
4.	3.	3.	2.	2.	2.	1.	1.	1.	1.
1.	1.	1.	1.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA508

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.49, TOTAL EXCESS = 2.03

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	44.	12.18		4.	1.	1.	1.
			(INCHES)	1.871	2.030	2.030	2.030
			(AC-FT)	2.	2.	2.	2.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

****
* *
115 KK * DA509 * (CVL212) CVL data
* *
****

SUBBASIN RUNOFF DATA

116 BA SUBBASIN CHARACTERISTICS
TAREA 0.01 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.01

117 LS SCS LOSS RATE
STRTL 0.27 INITIAL ABSTRACTION
CRVNBR 88.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

118 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.12 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
38 END-OF-PERIOD ORDINATES

```
                3.       8.      15.      25.      36.      45.      49.      49.      47.      42.
               37.      30.      23.      19.      15.      12.      10.       8.       7.       5.
                4.       3.       3.       2.       2.       1.       1.       1.       1.       1.
                1.       0.       0.       0.       0.       0.       0.       0.

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

                        HYDROGRAPH AT STATION    DA509

    TOTAL RAINFALL =    3.52, TOTAL LOSS =    1.23, TOTAL EXCESS =    2.29

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+      36.     12.13                   3.          1.          1.          1.
                          (INCHES)  2.097       2.284       2.284       2.284
                          (AC-FT)      1.          2.          2.          2.

                        CUMULATIVE AREA =    0.01 SQ MI


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


            **************
            *            *
  119 KK    *     AD509  *       Combine 509, 508 & flow from east along Ray Rd, at Ray Rd and 44th St.
            *            *
            **************

  120 HC          HYDROGRAPH COMBINATION
                       ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                ***

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

                        HYDROGRAPH AT STATION    AD509

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+    1092.      12.35                 133.         36.         36.         36.
                          (INCHES)  1.115       1.209       1.209       1.209
                          (AC-FT)      66.         71.         71.         71.

                        CUMULATIVE AREA =    1.10 SQ MI


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


            **************
            *            *
  121 KK    *     DA510  *       (CVL214) CVL data
            *            *
            **************

               SUBBASIN RUNOFF DATA

  122 BA          SUBBASIN CHARACTERISTICS
                       TAREA        0.04  SUBBASIN AREA

                  PRECIPITATION DATA

   17 PH                                DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                  ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                  5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                   0.67    1.32    2.31    2.54    2.69    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                 STORM AREA =    0.04

  123 LS          SCS LOSS RATE
                       STRTL        0.35  INITIAL ABSTRACTION   145
```

```
                    CRVNBR        85.00  CURVE NUMBER
                     RTIMP         0.00  PERCENT IMPERVIOUS AREA

 124 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG         0.16  LAG

                                                  ***

 VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                UNIT HYDROGRAPH
                                          51 END-OF-PERIOD ORDINATES
                    4.      12.      23.      38.      58.      81.     101.     116.     125.     127.
                  126.     120.     112.     102.      91.      77.      63.      53.      45.      38.
                   33.      29.      24.      21.      18.      15.      13.      11.       9.       8.
                    7.       6.       5.       4.       4.       3.       3.       2.       2.       2.
                    1.       1.       1.       1.       1.       1.       1.       0.       0.       0.
                    0.

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

                          HYDROGRAPH AT STATION    DA510

      TOTAL RAINFALL =    3.52, TOTAL LOSS =    1.49, TOTAL EXCESS =    2.03

    PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     23.98-HR
  +   (CFS)       (HR)
                             (CFS)
  +      98.     12.18                   9.          2.          2.          2.
                             (INCHES)  1.871       2.030       2.030       2.030
                             (AC-FT)     4.          5.          5.          5.

                          CUMULATIVE AREA =    0.04 SQ MI


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


              **************
              *            *
    125 KK    *     AD510  *       Add in 510
              *            *
              **************

    126 HC          HYDROGRAPH COMBINATION
                         ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***

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

                          HYDROGRAPH AT STATION    AD510

    PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     23.98-HR
  +   (CFS)       (HR)
                             (CFS)
  +    1151.     12.35                 142.         38.         38.         38.
                             (INCHES)  1.144       1.241       1.241       1.241
                             (AC-FT)    70.         76.         76.         76.

                          CUMULATIVE AREA =    1.15 SQ MI


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


              **************
              *            *
    127 KK    *     RT510  *       Route flows moving east along North side of Ray Rd.
              *            *
              **************
                                    Channel size from Brooks-Hersey Ray Rd, 44th to 48th St, plans.

                HYDROGRAPH ROUTING DATA                                                    144
```

```
129 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC      -1.00  INITIAL CONDITION
                         X       0.00 WORKING R AND D COEFFICIENT

130 RC          NORMAL DEPTH CHANNEL
                       ANL      0.040  LEFT OVERBANK N-VALUE
                      ANCH      0.025  MAIN CHANNEL N-VALUE
                       ANR      0.030  RIGHT OVERBANK N-VALUE
                     RLNTH       900.  REACH LENGTH
                       SEL     0.0085  ENERGY SLOPE
                     ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
132 RY        ELEVATION     12.00     11.00     10.00      7.00      7.00     10.00     10.72     11.32
131 RX        DISTANCE       0.00     50.00    100.00    112.00    130.50    142.50    178.50    178.51

                                                ***

                                    COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        0.00      0.11      0.22      0.35      0.49      0.65      0.81      0.98      1.17      1.37
          OUTFLOW        0.00     11.19     36.27     72.91    120.58    179.21    248.92    329.93    422.55    527.09
        ELEVATION        7.00      7.26      7.53      7.79      8.05      8.32      8.58      8.84      9.11      9.37

          STORAGE        1.58      1.80      2.05      2.44      2.97      3.62      4.34      5.13      6.00      6.93
          OUTFLOW      643.89    773.33    933.40   1128.66   1358.55   1636.26   1957.89   2323.52   2734.65   3192.41
        ELEVATION        9.63      9.89     10.16     10.42     10.68     10.95     11.21     11.47     11.74     12.00

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

                          HYDROGRAPH AT STATION    RT510

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+    1143.     12.37                   142.          38.         38.          38.
                          (INCHES)    1.144         1.240       1.240        1.240
                          (AC-FT)       70.          76.         76.          76.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR        24-HR       72-HR     23.98-HR
+  (AC-FT)      (HR)
       2.      12.37                    0.           0.          0.           0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR        24-HR       72-HR     23.98-HR
+   (FEET)      (HR)
     10.44     12.37                  7.86         7.28        7.28         7.28

                          CUMULATIVE AREA =    1.15 SQ MI


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


              **************
              *            *
133 KK        *     PIPES  *       Diversion due to overtopping of 3-48" CMPs.
              *            *
              **************

     DT          DIVERSION
                      ISTAD      45THST  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW        0.00    128.00   2000.00

     DQ       DIVERTED FLOW       0.00      0.00   1872.00

                                                ***

     ***           ***           ***           ***           ***
```

DIVERSION HYDROGRAPH 45THST

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1015.	12.37		86.	22.	22.	22.
		(INCHES)	0.696	0.696	0.696	0.696
		(AC-FT)	43.	43.	43.	43.

CUMULATIVE AREA = 1.15 SQ MI

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

HYDROGRAPH AT STATION PIPES

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 128.	12.02		55.	17.	17.	17.
		(INCHES)	0.448	0.543	0.543	0.543
		(AC-FT)	27.	33.	33.	33.

CUMULATIVE AREA = 1.15 SQ MI

*** ***

```
              ***************
              *             *
137 KK        *   RTPIPE    *      Route pipe flow to cnr 48th St & Ray.
              *             *
              ***************
                                   78" CMP gives approx same velocity for routing as 3-48" CMPs.
```

HYDROGRAPH ROUTING DATA

139 RK KINEMATIC WAVE STREAM ROUTING

L	1680.	CHANNEL LENGTH
S	0.0078	SLOPE
N	0.024	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	6.50	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE
NDXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	4.04	1.25	0.93	560.00	128.01	794.40	0.54	10.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3331E+02 EXCESS=0.0000E+00 OUTFLOW=0.3328E+02 BASIN STORAGE=0.3558E-01 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	4.04	1.25	1.00		128.00	794.00	0.54

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

HYDROGRAPH AT STATION RTPIPE

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				

```
+     128.     13.23                    55.          17.          17.          17.
                          (INCHES)      0.448        0.543        0.543        0.543
                          (AC-FT)         27.          33.          33.          33.

                          CUMULATIVE AREA =     1.15 SQ MI


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


          **************
          *            *
140 KK    *     DA511  *       (CVL304) HDR data
          *            *
          **************
                               Initial abstraction to allow for High School 100yr-2hr retention.

               SUBBASIN RUNOFF DATA

142 BA              SUBBASIN CHARACTERISTICS
                         TAREA         0.36  SUBBASIN AREA

                    PRECIPITATION DATA

 17 PH                                    DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                    ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                    5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                     0.67    1.32    2.31    2.54    2.69    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                    STORM AREA =     0.36

143 LS              SCS LOSS RATE
                         STRTL         0.89  INITIAL ABSTRACTION
                        CRVNBR        80.00  CURVE NUMBER
                         RTIMP         0.00  PERCENT IMPERVIOUS AREA

144 UD              SCS DIMENSIONLESS UNITGRAPH
                         TLAG         0.80  LAG

                                                      ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                UNIT HYDROGRAPH
                                            242 END-OF-PERIOD ORDINATES
                    1.       3.       4.       5.       7.      10.      13.      16.      19.      22.
                   26.      30.      34.      38.      43.      48.      53.      59.      64.      70.
                   77.      84.      91.      98.     106.     115.     123.     131.     140.     147.
                  154.     161.     168.     175.     180.     184.     189.     194.     198.     201.
                  204.     206.     209.     211.     211.     212.     212.     213.     213.     212.
                  212.     211.     211.     209.     206.     204.     201.     198.     195.     192.
                  189.     186.     183.     180.     176.     173.     169.     165.     161.     157.
                  152.     148.     143.     138.     133.     128.     122.     117.     113.     109.
                  104.     100.      96.      93.      90.      87.      84.      81.      78.      76.
                   73.      71.      68.      66.      64.      62.      60.      58.      56.      55.
                   53.      52.      50.      48.      47.      45.      44.      42.      41.      40.
                   38.      37.      36.      34.      33.      32.      31.      30.      29.      28.
                   27.      26.      25.      25.      24.      23.      22.      22.      21.      20.
                   20.      19.      18.      18.      17.      16.      16.      15.      15.      14.
                   14.      13.      13.      12.      12.      12.      11.      11.      11.      10.
                   10.      10.       9.       9.       9.       8.       8.       8.       8.       7.
                    7.       7.       7.       6.       6.       6.       6.       6.       5.       5.
                    5.       5.       5.       5.       4.       4.       4.       4.       4.       4.
                    4.       3.       3.       3.       3.       3.       3.       3.       3.       3.
                    3.       3.       2.       2.       2.       2.       2.       2.       2.       2.
                    2.       2.       2.       2.       2.       2.       2.       2.       2.       1.
                    1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
                    1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
                    1.       0.       0.       0.       0.       0.       0.       0.       0.       0.
                    0.       0.

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

                              HYDROGRAPH AT STATION     DA511

     TOTAL RAINFALL =     3.52, TOTAL LOSS =     2.17, TOTAL EXCESS =     1.34

 PEAK FLOW      TIME                              MAXIMUM AVERAGE FLOW
```

			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 183.	12.93		46.	13.	13.	13.
		(INCHES)	1.210	1.329	1.329	1.329
		(AC-FT)	23.	25.	25.	25.

CUMULATIVE AREA = 0.36 SQ MI

*** ***

```
**************
*            *
*     AD511  *
*            *
**************
```

145 KK Combine 511 and 3-48" CMPs at cnr of 48th St and Ray Rd.

146 HC HYDROGRAPH COMBINATION

ICOMP	2	NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD511

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 311.	12.93		101.	30.	30.	30.
		(INCHES)	0.626	0.729	0.729	0.729
		(AC-FT)	50.	59.	59.	59.

CUMULATIVE AREA = 1.51 SQ MI

*** ***

```
**************
*            *
*     RT511  *
*            *
**************
```

147 KK Channel for first 650 ft south of Ray Rd -- West side of 48th.

HYDROGRAPH ROUTING DATA

148 RS STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	0.00	WORKING R AND D COEFFICIENT

149 RC NORMAL DEPTH CHANNEL

ANL	0.040	LEFT OVERBANK N-VALUE
ANCH	0.025	MAIN CHANNEL N-VALUE
ANR	0.040	RIGHT OVERBANK N-VALUE
RLNTH	650.	REACH LENGTH
SEL	0.0037	ENERGY SLOPE
ELMAX	0.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---	
151 RY	ELEVATION	10.20	10.10	10.00	2.00	10.00	10.10	10.20
150 RX	DISTANCE	80.00	90.00	100.00	116.00	123.00	135.00	145.00	155.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.05	0.11	0.18	0.26	0.35	0.45	0.55	0.67	0.80
OUTFLOW	0.00	6.40	21.01	42.94	72.31	109.47	154.83	208.83	271.93	344.60
ELEVATION	2.00	2.43	2.86	3.29	3.73	4.16	4.59	5.02	5.45	5.88

STORAGE	0.94	1.08	1.24	1.41	1.58	1.77	1.97	2.17	2.39	2.67
OUTFLOW	427.29	520.45	624.53	739.97	867.20	1006.64	1158.72	1323.84	1502.43	1718.82
ELEVATION	6.32	6.75	7.18	7.61	8.04	8.47	8.91	9.34	9.77	10.20

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

HYDROGRAPH AT STATION RT511

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 310.	12.95		101.	29.	29.	29.
		(INCHES)	0.626	0.728	0.728	0.728
		(AC-FT)	50.	58.	58.	58.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
1.	12.95	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
5.68	12.95	3.86	2.66	2.66	2.66

CUMULATIVE AREA = 1.51 SQ MI

*** ***

152 KK 45THST Retrieve diversion due to overtopping of pipes at 45th St & Ray.

153 DR RETRIEVE DIVERSION HYDROGRAPH
ISTAD 45THST DIVERSION HYDROGRAPH IDENTIFICATION

***

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

HYDROGRAPH AT STATION 45THST

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1015.	12.37		86.	22.	22.	22.
		(INCHES)	0.532	0.532	0.532	0.532
		(AC-FT)	43.	43.	43.	43.

CUMULATIVE AREA = 0.00 SQ MI

*** ***

154 KK RT45ST Flow that overtops 3-48" CMPs is routed over land to 48th St.

HYDROGRAPH ROUTING DATA

155 RS STORAGE ROUTING

NSTPS	2	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	0.00	WORKING R AND D COEFFICIENT

156 RC NORMAL DEPTH CHANNEL

ANL	0.035	LEFT OVERBANK N-VALUE
ANCH	0.035	MAIN CHANNEL N-VALUE
ANR	0.035	RIGHT OVERBANK N-VALUE
RLNTH	2000.	REACH LENGTH
SEL	0.0100	ENERGY SLOPE
ELMAX	0.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---			+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---	
158 RY	ELEVATION	10.00	10.00	10.00	9.00	9.00	10.00	10.00	10.00
157 RX	DISTANCE	80.00	90.00	100.00	110.00	610.00	620.00	630.00	640.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	1.21	2.42	3.64	4.85	6.07	7.30	8.52	9.75	10.98
OUTFLOW	0.00	15.74	49.99	98.28	158.80	230.43	312.36	404.00	504.88	614.61
ELEVATION	9.00	9.05	9.11	9.16	9.21	9.26	9.32	9.37	9.42	9.47
STORAGE	12.21	13.44	14.68	15.92	17.16	18.41	19.66	20.91	22.16	23.42
OUTFLOW	732.85	859.32	993.78	1136.01	1285.82	1443.03	1607.48	1779.04	1957.56	2142.93
ELEVATION	9.53	9.58	9.63	9.68	9.74	9.79	9.84	9.89	9.95	10.00

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

HYDROGRAPH AT STATION RT45ST

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 907.	12.50		86.	22.	22.	22.
		(INCHES)	0.000	0.000	0.000	0.000
		(AC-FT)	43.	43.	43.	43.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
7.	12.50	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
9.60	12.50	9.08	9.02	9.02	9.02

CUMULATIVE AREA = 0.00 SQ MI

*** ***

```
**************
*            *
*     AD511  *
*            *
**************
```

159 KK Combine at S end of improved channel W side 48th St. 650ft S of Ray.

160 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD511

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1129.	12.52		187.	51.	51.	51.
		(INCHES)	1.158	1.259	1.259	1.259
		(AC-FT)	93.	101.	101.	101.

CUMULATIVE AREA = 1.51 SQ MI

*** ***

****
* *
161 KK * RT511 * Channel size estimated using CVL's 48th & Chandler report.
* *
****

HYDROGRAPH ROUTING DATA

162 RS STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	0.00	WORKING R AND D COEFFICIENT

163 RC NORMAL DEPTH CHANNEL

ANL	0.040	LEFT OVERBANK N-VALUE
ANCH	0.035	MAIN CHANNEL N-VALUE
ANR	0.040	RIGHT OVERBANK N-VALUE
RLNTH	1950.	REACH LENGTH
SEL	0.0040	ENERGY SLOPE
ELMAX	0.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---		
165 RY	ELEVATION	22.00	18.50	18.00	17.00	17.00	18.00	18.00	22.00
164 RX	DISTANCE	0.00	25.00	60.00	65.00	75.00	78.00	115.00	120.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.13	0.29	0.47	0.76	1.56	2.58	3.67	4.78	5.92
OUTFLOW	0.00	3.02	9.98	20.53	35.88	70.88	127.69	206.70	303.88	417.87
ELEVATION	17.00	17.26	17.53	17.79	18.05	18.32	18.58	18.84	19.11	19.37
STORAGE	7.09	8.28	9.50	10.74	12.01	13.31	14.63	15.98	17.36	18.76
OUTFLOW	547.78	693.00	853.09	1027.73	1216.66	1419.71	1636.73	1867.62	2112.31	2370.76
ELEVATION	19.63	19.89	20.16	20.42	20.68	20.95	21.21	21.47	21.74	22.00

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

HYDROGRAPH AT STATION RT511

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)	(CFS)				
+ 1031.	12.62		187.	51.	51.	51.
		(INCHES)	1.156	1.256	1.256	1.256
		(AC-FT)	93.	101.	101.	101.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
11.	12.62	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
20.43	12.62	18.53	17.56	17.56	17.56

CUMULATIVE AREA = 1.51 SQ MI

*** ***

****
* *

```
166 KK      *     DA512  *       (CVL310) HDR data
            *            *
            **************

               SUBBASIN RUNOFF DATA

167 BA            SUBBASIN CHARACTERISTICS
                       TAREA         0.13  SUBBASIN AREA

                  PRECIPITATION DATA

 17 PH                                DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                  ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                  5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                   0.67   1.32    2.31    2.54    2.69    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                  STORM AREA =     0.13

168 LS            SCS LOSS RATE
                       STRTL         0.60  INITIAL ABSTRACTION
                      CRVNBR        77.00  CURVE NUMBER
                       RTIMP         0.00  PERCENT IMPERVIOUS AREA

169 UD            SCS DIMENSIONLESS UNITGRAPH
                       TLAG         0.30  LAG

                                                        ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667         0.01667        24.00000

                                                  UNIT HYDROGRAPH
                                              92 END-OF-PERIOD ORDINATES
                    3.      7.     14.     22.     32.     43.     56.     71.     88.    107.
                  127.    144.    161.    173.    183.    190.    194.    195.    195.    194.
                  190.    183.    176.    169.    160.    152.    141.    130.    117.    105.
                   95.     86.     79.     72.     66.     60.     55.     51.     47.     43.
                   40.     36.     33.     30.     28.     25.     23.     21.     20.     18.
                   16.     15.     14.     13.     11.     10.     10.      9.      8.      7.
                    7.      6.      6.      5.      5.      4.      4.      4.      3.      3.
                    3.      3.      2.      2.      2.      2.      2.      2.      2.      1.
                    1.      1.      1.      1.      1.      1.      1.      0.      0.      0.
                    0.      0.

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

                        HYDROGRAPH AT STATION    DA512

     TOTAL RAINFALL =   3.52, TOTAL LOSS =    2.07, TOTAL EXCESS =    1.44

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR      23.98-HR
+   (CFS)       (HR)
                                (CFS)
+     137.      12.35                      18.          5.           5.           5.
                              (INCHES)    1.324        1.440        1.440        1.440
                              (AC-FT)       9.          10.          10.          10.

                        CUMULATIVE AREA =    0.13 SQ MI


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


            **************
            *            *
170 KK      *     AD512  *       Combine at 48th St and Highline canal.
            *            *
            **************

171 HC            HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                        ***

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

                        HYDROGRAPH AT STATION    AD512
```

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1117.	12.62		205.	56.	56.	56.
		(INCHES)	1.168	1.270	1.270	1.270
		(AC-FT)	102.	110.	110.	110.

CUMULATIVE AREA = 1.63 SQ MI

*** ***

```
          **************
          *            *
172 KK    *    DIV512  *       As per CVL report 60 cfs goes south, the balance south-east.
          *            *
          **************
```

DT DIVERSION ISTAD CANAL DIVERSION HYDROGRAPH IDENTIFICATION

DI	INFLOW	0.00	60.00	60.00	1000.00	1500.00
DQ	DIVERTED FLOW	0.00	0.00	1.00	940.00	1440.00

***

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

DIVERSION HYDROGRAPH CANAL

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1057.	12.62		155.	39.	39.	39.
		(INCHES)	0.885	0.885	0.885	0.885
		(AC-FT)	77.	77.	77.	77.

CUMULATIVE AREA = 1.63 SQ MI

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

HYDROGRAPH AT STATION DIV512

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 60.	12.52		50.	17.	17.	17.
		(INCHES)	0.283	0.385	0.385	0.385
		(AC-FT)	25.	33.	33.	33.

CUMULATIVE AREA = 1.63 SQ MI

*** ***

```
          **************
          *            *
176 KK    *     DA513  *       (CVL195) CVL data
          *            *
          **************
```

SUBBASIN RUNOFF DATA

177 BA SUBBASIN CHARACTERISTICS
TAREA 0.09 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.09

178 LS SCS LOSS RATE
STRTL 0.35 INITIAL ABSTRACTION
CRVNBR 85.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

179 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.20 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
63 END-OF-PERIOD ORDINATES

5.	14.	26.	41.	60.	85.	113.	141.	165.	183.
194.	199.	200.	198.	189.	178.	166.	153.	138.	119.
102.	88.	77.	68.	60.	53.	47.	42.	37.	32.
28.	25.	22.	19.	17.	15.	13.	11.	10.	9.
8.	7.	6.	5.	5.	4.	4.	3.	3.	3.
2.	2.	2.	2.	1.	1.	1.	1.	1.	1.
0.	0.	0.							

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

HYDROGRAPH AT STATION DA513

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.49, TOTAL EXCESS = 2.03

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	171.	12.22		18.	5.	5.	5.
			(INCHES)	1.870	2.029	2.029	2.029
			(AC-FT)	9.	10.	10.	10.

CUMULATIVE AREA = 0.09 SQ MI

*** ***

****
* *
180 KK * DA514 * (CVL197) CVL data
* *
****

SUBBASIN RUNOFF DATA

181 BA SUBBASIN CHARACTERISTICS
TAREA 0.06 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.06

182 LS SCS LOSS RATE
STRTL 0.38 INITIAL ABSTRACTION
CRVNBR 84.10 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

183 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.14 LAG

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
45 END-OF-PERIOD ORDINATES

7.	21.	40.	66.	100.	134.	160.	174.	179.	177.
166.	152.	136.	115.	93.	76.	63.	53.	45.	38.
32.	26.	22.	18.	16.	13.	11.	9.	8.	6.
5.	4.	4.	3.	3.	2.	2.	2.	1.	1.
1.	1.	1.	0.	0.					

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

HYDROGRAPH AT STATION DA514

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.56, TOTAL EXCESS = 1.96

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)	(CFS)				
+ 125.	12.17		11.	3.	3.	3.
		(INCHES)	1.806	1.958	1.958	1.958
		(AC-FT)	5.	6.	6.	6.

CUMULATIVE AREA = 0.06 SQ MI

*** ***

```
**************
*            *
*     DA515  *
*            *
**************
```

184 KK (CVL199) CVL data

SUBBASIN RUNOFF DATA

185 BA SUBBASIN CHARACTERISTICS
TAREA 0.05 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.05

186 LS SCS LOSS RATE
STRTL 0.38 INITIAL ABSTRACTION
CRVNBR 84.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

187 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.19 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
58 END-OF-PERIOD ORDINATES

3.	9.	18.	28.	41.	58.	77.	92.	104.	112.
115.	116.	114.	108.	101.	93.	84.	73.	61.	52.
45.	39.	34.	30.	26.	23.	20.	17.	15.	13.
11.	10.	9.	7.	6.	6.	5.	4.	4.	3.
3.	2.	2.	2.	2.	1.	1.	1.	1.	1.
1.	1.	1.	0.	0.	0.	0.	0.		

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

HYDROGRAPH AT STATION DA515

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.57, TOTAL EXCESS = 1.95

PEAK FLOW TIME MAXIMUM AVERAGE FLOW

			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 91.	12.20		9.	2.	2.	2.
		(INCHES)	1.798	1.949	1.949	1.949
		(AC-FT)	4.	5.	5.	5.

CUMULATIVE AREA = 0.05 SQ MI

*** ***

```
**************
*            *
*     AD515  *
*            *
**************
```

188 KK Combine 515, 514 and 513

189 HC HYDROGRAPH COMBINATION
ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

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

HYDROGRAPH AT STATION AD515

			MAXIMUM AVERAGE FLOW			
PEAK FLOW	TIME		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 379.	12.20		38.	10.	10.	10.
		(INCHES)	1.834	1.989	1.989	1.989
		(AC-FT)	19.	20.	20.	20.

CUMULATIVE AREA = 0.19 SQ MI

*** ***

```
**************
*            *
*     RT515  *
*            *
**************
```

190 KK Channel info from Clouse plans.

HYDROGRAPH ROUTING DATA

191 RS STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	0.00	WORKING R AND D COEFFICIENT

192 RC NORMAL DEPTH CHANNEL

ANL	0.040	LEFT OVERBANK N-VALUE
ANCH	0.020	MAIN CHANNEL N-VALUE
ANR	0.040	RIGHT OVERBANK N-VALUE
RLNTH	2600.	REACH LENGTH
SEL	0.0059	ENERGY SLOPE
ELMAX	0.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---			+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---	
194 RY	ELEVATION	10.00	10.00	10.00	6.00	6.00	1.00	10.00	10.00
193 RX	DISTANCE	80.00	90.00	100.00	106.00	116.00	122.00	132.00	142.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.02	0.06	0.14	0.25	0.39	0.56	0.76	0.99	1.25
OUTFLOW	0.00	0.36	2.28	6.73	14.49	26.27	42.72	64.44	92.01	125.96
ELEVATION	1.00	1.47	1.95	2.42	2.89	3.37	3.84	4.32	4.79	5.26

STORAGE	1.55	2.00	2.64	3.32	4.03	4.78	5.56	6.38	7.23	8.12
OUTFLOW	166.82	173.17	271.18	390.05	529.07	687.87	866.29	1064.32	1282.01	1430.34
ELEVATION	5.74	6.21	6.68	7.16	7.63	8.11	8.58	9.05	9.53	10.00

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

HYDROGRAPH AT STATION RT515

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 332.	12.28		38.	10.	10.	10.
		(INCHES)	1.832	1.983	1.983	1.983
		(AC-FT)	19.	20.	20.	20.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)					
3.	12.28		0.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)					
6.93	12.28		3.09	1.81	1.81	1.81

CUMULATIVE AREA = 0.19 SQ MI

*** ***

```
**************
*            *
*    DA516   *
*            *
**************
```

195 KK (CVL311) HDR data

SUBBASIN RUNOFF DATA

196 BA SUBBASIN CHARACTERISTICS

TAREA 0.15 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

HYDRO-35			TP-40					TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.15

197 LS SCS LOSS RATE

STRTL 0.60 INITIAL ABSTRACTION

CRVNBR 77.00 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

198 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.34 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
104 END-OF-PERIOD ORDINATES

3.	6.	12.	19.	28.	37.	48.	60.	74.	90.
107.	126.	144.	159.	173.	184.	194.	200.	205.	206.
207.	206.	204.	199.	193.	186.	179.	171.	163.	154.
144.	133.	121.	110.	100.	92.	85.	78.	72.	67.
62.	57.	54.	50.	46.	43.	40.	37.	34.	31.
29.	27.	25.	23.	21.	20.	18.	17.	15.	14.
13.	12.	11.	10.	10.	9.	8.	8.	7.	7.
6.	6.	5.	5.	4.	4.	4.	4.	3.	3.
3.	3.	2.	2.	2.	2.	2.	2.	2.	2.
1.	1.	1.	1.	1.	1.	1.	1.	1.	0.

```
                0.       0.       0.       0.

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

                        HYDROGRAPH AT STATION     DA516

     TOTAL RAINFALL =    3.52, TOTAL LOSS =     2.07, TOTAL EXCESS =     1.44

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+     152.      12.40                      21.          6.           6.           6.
                          (INCHES)      1.324       1.439        1.439        1.439
                          (AC-FT)         11.          11.          11.          11.

                        CUMULATIVE AREA =    0.15 SQ MI


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


            **************
            *            *
  199 KK    *     AD516  *       Combine flows from west, 60 cfs from north and DA516 at 48th
            *            *
            **************
                                  and Highline canal.

  201 HC          HYDROGRAPH COMBINATION
                       ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                    ***
     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     AD516

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+     527.      12.30                     108.         33.          33.          33.
                          (INCHES)      0.510       0.619        0.619        0.619
                          (AC-FT)         54.          65.          65.          65.

                        CUMULATIVE AREA =    1.97 SQ MI


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


            **************
            *            *
  202 KK    *     RT516  *       Channel info from Clouse plans.
            *            *
            **************

               HYDROGRAPH ROUTING DATA

  203 RS          STORAGE ROUTING
                       NSTPS          1  NUMBER OF SUBREACHES
                        ITYP       FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC      -1.00  INITIAL CONDITION
                           X       0.00 WORKING R AND D COEFFICIENT

  204 RC          NORMAL DEPTH CHANNEL
                         ANL      0.040  LEFT OVERBANK N-VALUE
                        ANCH      0.020  MAIN CHANNEL N-VALUE
                         ANR      0.040  RIGHT OVERBANK N-VALUE
                       RLNTH     1800.   REACH LENGTH
                         SEL     0.0030  ENERGY SLOPE
                       ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
```

206 RY	ELEVATION	10.00	10.00	10.00	6.00	6.00	1.00	10.00	10.00
205 RX	DISTANCE	80.00	90.00	100.00	106.00	116.00	122.00	132.00	142.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.01	0.04	0.10	0.17	0.27	0.39	0.52	0.69	0.87
OUTFLOW	0.00	0.26	1.63	4.80	10.33	18.73	30.46	45.95	65.61	89.82
ELEVATION	1.00	1.47	1.95	2.42	2.89	3.37	3.84	4.32	4.79	5.26
STORAGE	1.07	1.38	1.83	2.30	2.79	3.31	3.85	4.42	5.01	5.62
OUTFLOW	118.95	123.48	193.37	278.14	377.27	490.50	617.73	758.94	914.17	1019.94
ELEVATION	5.74	6.21	6.68	7.16	7.63	8.11	8.58	9.05	9.53	10.00

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

HYDROGRAPH AT STATION RT516

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 505.	12.37		108.	33.	33.	33.
		(INCHES)	0.509	0.617	0.617	0.617
		(AC-FT)	54.	65.	65.	65.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)					
3.	12.37		1.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)					
8.16	12.37		5.17	2.74	2.74	2.74

CUMULATIVE AREA = 1.97 SQ MI

*** ***

207 KK

****
* *
* DA517 *
* *
****

(CVL320) CVL data

SUBBASIN RUNOFF DATA

208 BA

SUBBASIN CHARACTERISTICS
TAREA 0.17 SUBBASIN AREA

PRECIPITATION DATA

17 PH

DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.17

209 LS

SCS LOSS RATE
STRTL 0.60 INITIAL ABSTRACTION
CRVNBR 77.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

210 UD

SCS DIMENSIONLESS UNITGRAPH
TLAG 0.26 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
79 END-OF-PERIOD ORDINATES

```
     6.     15.     28.     45.     63.     87.    114.    145.    182.    216.
   247.    270.    289.    301.    306.    308.    306.    300.    289.    276.
   262.    246.    228.    209.    186.    164.    145.    131.    118.    106.
    96.     86.     79.     72.     65.     59.     53.     47.     43.     39.
    35.     32.     29.     26.     23.     21.     19.     17.     15.     14.
    13.     11.     10.      9.      8.      8.      7.      6.      6.      5.
     5.      4.      4.      3.      3.      3.      3.      2.      2.      2.
     2.      2.      1.      1.      1.      1.      1.      0.      0.

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

                    HYDROGRAPH AT STATION    DA517

  TOTAL RAINFALL =   3.52, TOTAL LOSS =    2.07, TOTAL EXCESS =    1.44

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     23.98-HR
+  (CFS)       (HR)
                 (CFS)
+    203.     12.30                 24.         7.          7.          7.
                (INCHES)           1.325       1.440       1.440       1.440
                (AC-FT)             12.         13.         13.         13.

                    CUMULATIVE AREA =    0.17 SQ MI


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


          **************
          *            *
 211 KK   *     AD517  *       Add in 517
          *            *
          **************

 212 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                    HYDROGRAPH AT STATION    AD517

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     23.98-HR
+  (CFS)       (HR)
                 (CFS)
+    700.     12.35                132.         39.         39.         39.
                (INCHES)           0.574       0.682       0.682       0.682
                (AC-FT)             66.         78.         78.         78.

                    CUMULATIVE AREA =    2.14 SQ MI


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


          **************
          *            *
 213 KK   *     RT517  *       Assumed channel shape based on estimated 48th St. cross-section.
          *            *
          **************

             HYDROGRAPH ROUTING DATA

 214 RS          STORAGE ROUTING
                      NSTPS          1  NUMBER OF SUBREACHES
                       ITYP       FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC     -1.00  INITIAL CONDITION
                          X      0.00 WORKING R AND D COEFFICIENT

 215 RC          NORMAL DEPTH CHANNEL
                        ANL      0.020  LEFT OVERBANK N-VALUE
                       ANCH      0.025  MAIN CHANNEL N-VALUE
                        ANR      0.040  RIGHT OVERBANK N-VALUE
```

RLNTH 850. REACH LENGTH
SEL 0.0050 ENERGY SLOPE
ELMAX 0.0 MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL	-------	+	--- RIGHT OVERBANK ---	
217 RY	ELEVATION	12.00	9.60	10.00	9.76	7.76	7.76	10.00	12.00
216 RX	DISTANCE	78.00	80.00	100.00	112.00	116.00	118.00	122.00	222.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.01	0.02	0.04	0.06	0.09	0.12	0.15	0.19	0.24
OUTFLOW	0.00	0.74	2.50	5.28	9.13	14.16	20.45	28.10	37.20	47.05
ELEVATION	7.76	7.98	8.21	8.43	8.65	8.88	9.10	9.32	9.55	9.77
STORAGE	0.37	0.58	0.84	1.14	1.50	1.90	2.36	2.86	3.41	4.02
OUTFLOW	50.35	87.54	146.00	221.63	314.66	425.77	555.76	705.45	875.70	1067.34
ELEVATION	9.99	10.21	10.44	10.66	10.88	11.11	11.33	11.55	11.78	12.00

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

HYDROGRAPH AT STATION RT517

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 685.	12.40		132.	39.	39.	39.
		(INCHES)	0.574	0.682	0.682	0.682
		(AC-FT)	65.	78.	78.	78.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
3.	12.40	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
11.52	12.40	10.22	8.76	8.76	8.76

CUMULATIVE AREA = 2.14 SQ MI

*** ***

```
          **************
          *            *
218 KK    *    DA518   *
          *            *
          **************
```

SUBBASIN RUNOFF DATA

219 BA SUBBASIN CHARACTERISTICS
TAREA 0.10 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35	......		.... TP-40	....				.... TP-49	....	
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.10

220 LS SCS LOSS RATE
STRTL 0.47 INITIAL ABSTRACTION
CRVNBR 81.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

221 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.58 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
176 END-OF-PERIOD ORDINATES

1.	1.	2.	3.	5.	6.	8.	10.	12.	14.
17.	19.	22.	25.	28.	32.	36.	40.	44.	48.
53.	57.	60.	64.	67.	70.	72.	75.	77.	78.
79.	81.	81.	81.	81.	81.	81.	81.	80.	79.
77.	76.	75.	73.	71.	70.	68.	66.	64.	62.
60.	57.	55.	52.	50.	47.	44.	42.	40.	37.
36.	34.	33.	31.	30.	28.	27.	26.	25.	23.
22.	22.	21.	20.	19.	18.	17.	17.	16.	15.
15.	14.	13.	12.	12.	11.	11.	10.	10.	10.
9.	9.	8.	8.	8.	7.	7.	7.	6.	6.
6.	5.	5.	5.	5.	4.	4.	4.	4.	4.
4.	3.	3.	3.	3.	3.	3.	3.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.				

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

HYDROGRAPH AT STATION DA518

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.80, TOTAL EXCESS = 1.72

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 87.	12.65		17.	5.	5.	5.
		(INCHES)	1.581	1.713	1.713	1.713
		(AC-FT)	8.	9.	9.	9.

CUMULATIVE AREA = 0.10 SQ MI

*** ***

```
          ***************
          *             *
222 KK    *     AD518   *       Combine 518 with flow moving south in 48th St.
          *             *
          ***************
```

223 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD518

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 748.	12.40		149.	44.	44.	44.
		(INCHES)	0.618	0.727	0.727	0.727
		(AC-FT)	74.	87.	87.	87.

CUMULATIVE AREA = 2.24 SQ MI

*** ***

```
          ***************
          *             *
```

```
224 KK      *    DIV518  *      Assume 50-50 split at 48th & Chandler IC.
            *            *
            **************

     DT          DIVERSION
                      ISTAD       DIVSE  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW        0.00   2000.00

     DQ       DIVERTED FLOW       0.00   1000.00

                                                                    ***

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

                        DIVERSION HYDROGRAPH    DIVSE

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR      23.98-HR
+   (CFS)        (HR)
                    (CFS)
+      374.      12.40                   74.         22.         22.         22.
                 (INCHES)              0.309       0.364       0.364       0.364
                 (AC-FT)                37.         43.         43.         43.

                        CUMULATIVE AREA =    2.24 SQ MI

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

                        HYDROGRAPH AT STATION   DIV518

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR      23.98-HR
+   (CFS)        (HR)
                    (CFS)
+      374.      12.40                   74.         22.         22.         22.
                 (INCHES)              0.309       0.364       0.364       0.364
                 (AC-FT)                37.         43.         43.         43.

                        CUMULATIVE AREA =    2.24 SQ MI


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


            **************
            *            *
228 KK      *     RT518  *      Assume channel size based on existing tail-water ditch.
            *            *
            **************

               HYDROGRAPH ROUTING DATA

229 RS           STORAGE ROUTING
                      NSTPS          1  NUMBER OF SUBREACHES
                       ITYP       FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC     -1.00  INITIAL CONDITION
                          X      0.00 WORKING R AND D COEFFICIENT

230 RC           NORMAL DEPTH CHANNEL
                        ANL      0.035  LEFT OVERBANK N-VALUE
                       ANCH      0.025  MAIN CHANNEL N-VALUE
                        ANR      0.035  RIGHT OVERBANK N-VALUE
                      RLNTH      3600.  REACH LENGTH
                        SEL     0.0061  ENERGY SLOPE
                      ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
232 RY        ELEVATION     10.40     10.20     10.00      5.00      5.00     10.00     10.20     10.40
231 RX        DISTANCE      80.00     90.00    100.00    105.00    110.00    115.00    125.00    135.00

                                                ***

                                    COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE       0.00      0.12      0.26      0.41      0.58      0.75      0.94      1.15      1.37      1.60
```

OUTFLOW	0.00	2.84	9.02	17.84	29.12	42.80	58.90	77.44	98.48	122.08
ELEVATION	5.00	5.28	5.57	5.85	6.14	6.42	6.71	6.99	7.27	7.56
STORAGE	1.84	2.10	2.37	2.65	2.95	3.26	3.59	3.93	4.33	5.29
OUTFLOW	148.32	177.27	209.01	243.61	281.14	321.69	365.34	412.16	467.62	542.30
ELEVATION	7.84	8.13	8.41	8.69	8.98	9.26	9.55	9.83	10.12	10.40

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

HYDROGRAPH AT STATION RT518

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 344.	12.52		74.	22.	22.	22.
		(INCHES)	0.308	0.361	0.361	0.361
		(AC-FT)	37.	43.	43.	43.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
3.	12.52	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
9.41	12.52	6.73	5.61	5.61	5.61

CUMULATIVE AREA = 2.24 SQ MI

*** ***

```
**************
*            *
*            *
*    DA519a  *
*            *
*            *
**************
```

233 KK

SUBBASIN RUNOFF DATA

234 BA SUBBASIN CHARACTERISTICS

TAREA 0.22 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.22

235 LS SCS LOSS RATE

STRTL 0.47 INITIAL ABSTRACTION

CRVNBR 81.00 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

236 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.62 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
188 END-OF-PERIOD ORDINATES

1.	3.	4.	6.	9.	12.	15.	19.	23.	27.
31.	36.	41.	47.	52.	59.	66.	73.	81.	89.
98.	106.	114.	122.	129.	136.	142.	147.	152.	157.
160.	162.	165.	167.	168.	168.	169.	169.	169.	168.
168.	166.	163.	161.	158.	155.	152.	149.	145.	142.
138.	135.	131.	126.	122.	117.	113.	107.	102.	96.
92.	87.	83.	78.	75.	72.	69.	66.	63.	60.
58.	55.	53.	50.	48.	46.	45.	43.	41.	40.

38.	37.	35.	34.	32.	31.	30.	28.	27.	26.
24.	23.	23.	22.	21.	20.	19.	18.	17.	17.
16.	15.	15.	14.	13.	13.	12.	12.	11.	11.
10.	10.	9.	9.	9.	8.	8.	8.	7.	7.
7.	6.	6.	6.	6.	5.	5.	5.	5.	5.
4.	4.	4.	4.	4.	4.	3.	3.	3.	3.
3.	3.	3.	2.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	2.	2.	2.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.		

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

HYDROGRAPH AT STATION DA519a

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.79, TOTAL EXCESS = 1.72

```
  PEAK FLOW    TIME                    MAXIMUM AVERAGE FLOW
                                  6-HR      24-HR      72-HR    23.98-HR
+   (CFS)      (HR)
                          (CFS)
+    183.     12.70                37.       10.        10.        10.
                        (INCHES)  1.579     1.712      1.712      1.712
                         (AC-FT)   19.       20.        20.        20.
```

CUMULATIVE AREA = 0.22 SQ MI

*** ***

```
             ***************
             *             *
 237 KK      *   AD519a    *      Combine 519a and flow from N. at 48th & SMF.
             *             *
             ***************

 238 HC            HYDROGRAPH COMBINATION
                         ICOMP            2  NUMBER OF HYDROGRAPHS TO COMBINE
```

***

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

HYDROGRAPH AT STATION AD519a

```
  PEAK FLOW    TIME                    MAXIMUM AVERAGE FLOW
                                  6-HR      24-HR      72-HR    23.98-HR
+   (CFS)      (HR)
                          (CFS)
+    511.     12.57               111.       32.        32.        32.
                        (INCHES)  0.421     0.482      0.482      0.482
                         (AC-FT)   55.       63.        63.        63.
```

CUMULATIVE AREA = 2.46 SQ MI

*** ***

```
             ***************
             *             *
 239 KK      *   DA520a    *
             *             *
             ***************

                SUBBASIN RUNOFF DATA

 240 BA           SUBBASIN CHARACTERISTICS
                        TAREA        0.13  SUBBASIN AREA

                  PRECIPITATION DATA

  17 PH                                  DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                 ..... HYDRO-35 ......   ............... TP-40 ...............   ........... TP-49 ...........
```

5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.13

241 LS SCS LOSS RATE

STRTL	0.50	INITIAL ABSTRACTION
CRVNBR	80.00	CURVE NUMBER
RTIMP	0.00	PERCENT IMPERVIOUS AREA

242 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	0.41	LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
125 END-OF-PERIOD ORDINATES

2.	4.	6.	10.	15.	20.	25.	31.	38.	45.
54.	64.	74.	85.	96.	106.	115.	123.	129.	136.
140.	143.	145.	146.	147.	146.	146.	144.	140.	137.
133.	129.	124.	120.	115.	109.	104.	97.	90.	83.
77.	71.	66.	62.	58.	54.	51.	47.	45.	42.
39.	37.	35.	33.	31.	29.	27.	25.	24.	22.
21.	20.	18.	17.	16.	15.	14.	13.	12.	12.
11.	10.	10.	9.	8.	8.	7.	7.	6.	6.
6.	5.	5.	5.	4.	4.	4.	4.	3.	3.
3.	3.	3.	2.	2.	2.	2.	2.	2.	2.
2.	2.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	0.	0.	0.	0.
0.	0.	0.	0.	0.					

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

HYDROGRAPH AT STATION DA520a

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.87, TOTAL EXCESS = 1.65

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	133.	12.47		21.	6.	6.	6.
			(INCHES)	1.517	1.644	1.644	1.644
			(AC-FT)	10.	11.	11.	11.

CUMULATIVE AREA = 0.13 SQ MI

*** ***

```
**************
*            *
*   RT520a   *
*            *
**************
```

Channel info from K-Mart Drainage report.

HYDROGRAPH ROUTING DATA

244 RS STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	0.00	WORKING R AND D COEFFICIENT

245 RC NORMAL DEPTH CHANNEL

ANL	0.040	LEFT OVERBANK N-VALUE
ANCH	0.025	MAIN CHANNEL N-VALUE
ANR	0.040	RIGHT OVERBANK N-VALUE
RLNTH	2100.	REACH LENGTH
SEL	0.0016	ENERGY SLOPE
ELMAX	0.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---			+ ------ MAIN CHANNEL -------		+ --- RIGHT OVERBANK ---		
247 RY	ELEVATION	10.00	10.00	10.00	4.00	4.00	10.00	10.00	10.00

148

246 RX DISTANCE 80.00 90.00 100.00 112.00 114.00 126.00 136.00 146.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.04	0.10	0.18	0.28	0.39	0.53	0.68	0.86	1.05
OUTFLOW	0.00	0.77	2.79	6.20	11.23	18.08	26.97	38.09	51.62	67.76
ELEVATION	4.00	4.32	4.63	4.95	5.26	5.58	5.89	6.21	6.53	6.84
STORAGE	1.27	1.50	1.75	2.02	2.31	2.62	2.95	3.30	3.66	4.05
OUTFLOW	86.67	108.52	133.49	161.73	193.39	228.65	267.64	310.51	357.41	408.49
ELEVATION	7.16	7.47	7.79	8.11	8.42	8.74	9.05	9.37	9.68	10.00

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

HYDROGRAPH AT STATION RT520a

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 121.	12.60		21.	6.	6.	6.
		(INCHES)	1.509	1.636	1.636	1.636
		(AC-FT)	10.	11.	11.	11.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
2.	12.60	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
7.63	12.60	5.31	4.45	4.45	4.45

CUMULATIVE AREA = 0.13 SQ MI

*** ***

```
**************
*            *
*    DA520b  *
*            *
**************
```

248 KK

Initial abstraction to allow for "K-mart development" 100yr-2hr Ret.

SUBBASIN RUNOFF DATA

250 BA SUBBASIN CHARACTERISTICS

TAREA 0.22 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.22

251 LS SCS LOSS RATE

STRTL 0.47 INITIAL ABSTRACTION
CRVNBR 87.50 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

252 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.34 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
104 END-OF-PERIOD ORDINATES

4.	9.	19.	29.	42.	55.	72.	90.	112.	135.
162.	190.	216.	240.	261.	277.	291.	300.	308.	309.
310.	309.	307.	299.	290.	279.	269.	257.	245.	231.
216.	200.	182.	166.	151.	138.	128.	118.	109.	100.
93.	86.	80.	75.	70.	64.	60.	55.	51.	46.
43.	40.	37.	34.	32.	30.	27.	25.	23.	21.
20.	18.	17.	16.	15.	13.	12.	12.	11.	10.
9.	8.	8.	7.	7.	6.	6.	5.	5.	4.
4.	4.	4.	3.	3.	3.	3.	3.	2.	2.
2.	2.	2.	2.	1.	1.	1.	1.	1.	1.
1.	0.	0.	0.						

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

HYDROGRAPH AT STATION DA520b

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.45, TOTAL EXCESS = 2.07

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
(CFS)	(HR)					
		(CFS)				
341.	12.38		46.	12.	12.	12.
		(INCHES)	1.918	2.066	2.066	2.066
		(AC-FT)	23.	25.	25.	25.

CUMULATIVE AREA = 0.22 SQ MI

*** ***

253 KK AD520b Combine 520b and routed 520a at NW cnr of 48th & Ray Rd.

254 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD520b

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
(CFS)	(HR)					
		(CFS)				
431.	12.43		67.	18.	18.	18.
		(INCHES)	1.768	1.910	1.910	1.910
		(AC-FT)	33.	36.	36.	36.

CUMULATIVE AREA = 0.35 SQ MI

*** ***

255 KK DIV520 Divert weir flow thru Equip. crossing under EB off-ramp

DT DIVERSION

ISTAD DIVBOX DIVERSION HYDROGRAPH IDENTIFICATION

DI	INFLOW	0.00	100.00	200.00	300.00	400.00	500.00
DQ	DIVERTED FLOW	0.00	0.00	60.00	143.00	230.00	320.00

***

```
     ***              ***              ***              ***              ***

                          DIVERSION HYDROGRAPH   DIVBOX

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR        72-HR       23.98-HR
+   (CFS)        (HR)
                             (CFS)
+     258.      12.43                    23.          6.          6.            6.
                          (INCHES)     0.604       0.604       0.604         0.604
                           (AC-FT)       11.         11.         11.           11.

                          CUMULATIVE AREA =     0.35 SQ MI

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

                          HYDROGRAPH AT STATION    DIV520

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR        72-HR       23.98-HR
+   (CFS)        (HR)
                             (CFS)
+     173.      12.43                    44.         12.         12.           12.
                          (INCHES)     1.164       1.306       1.306         1.306
                           (AC-FT)       22.         24.         24.           24.

                          CUMULATIVE AREA =     0.35 SQ MI


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


            ***************
            *             *
 259 KK     *    RT520b   *        Channel info from ADOT Ray Rd. TI Drainage report.
            *             *
            ***************

               HYDROGRAPH ROUTING DATA

 260 RS          STORAGE ROUTING
                       NSTPS            1  NUMBER OF SUBREACHES
                        ITYP         FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC        -1.00  INITIAL CONDITION
                           X         0.00 WORKING R AND D COEFFICIENT

 261 RC          NORMAL DEPTH CHANNEL
                         ANL        0.035  LEFT OVERBANK N-VALUE
                        ANCH        0.035  MAIN CHANNEL N-VALUE
                         ANR        0.040  RIGHT OVERBANK N-VALUE
                       RLNTH        1000.  REACH LENGTH
                         SEL       0.0099  ENERGY SLOPE
                       ELMAX          0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                                 CROSS-SECTION DATA
                             --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 263 RY        ELEVATION     15.00      12.50      10.00       8.00       8.00      10.00      10.10      11.00
 262 RX         DISTANCE     80.00      90.00     100.00     108.00     118.00     122.00     132.00     222.00
                                                                   ***

                                                 COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE       0.00       0.09       0.21       0.34       0.49       0.66       0.89       1.43       2.28       3.35
            OUTFLOW       0.00       8.30      27.49      56.56      95.76     145.57     215.27     326.11     498.52     773.28
          ELEVATION       8.00       8.37       8.74       9.11       9.47       9.84      10.21      10.58      10.95      11.32

            STORAGE       4.43       5.53       6.64       7.76       8.89      10.03      11.19      12.36      13.54      14.74
            OUTFLOW    1126.00    1545.60    2027.73    2569.34    3168.14    3822.38    4530.64    5291.79    6104.88    6969.11
          ELEVATION      11.68      12.05      12.42      12.79      13.16      13.53      13.89      14.26      14.63      15.00

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

                          HYDROGRAPH AT STATION    RT520b

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
```

			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)	(CFS)				
+ 173.	12.47		44.	12.	12.	12.
		(INCHES)	1.162	1.304	1.304	1.304
		(AC-FT)	22.	24.	24.	24.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
1.	12.45	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
9.98	12.47	8.81	8.26	8.26	8.26

CUMULATIVE AREA = 0.35 SQ MI

*** ***

```
          ***************
          *             *
264 KK    *    DIVBOX   *       Retreive flow thru equipment crossing.
          *             *
          ***************
```

265 DR RETRIEVE DIVERSION HYDROGRAPH
ISTAD DIVBOX DIVERSION HYDROGRAPH IDENTIFICATION

***

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

HYDROGRAPH AT STATION DIVBOX

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)				
		(CFS)			
+ 258.	12.43	23.	6.	6.	6.
		(INCHES)	0.604	0.604	0.604	0.604
		(AC-FT)	11.	11.	11.	11.

CUMULATIVE AREA = 0.00 SQ MI

*** ***

```
          ***************
          *             *
266 KK    *    AD520b   *       Re-combine flow diverted thru equip. crossing.
          *             *
          ***************
```

267 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD520b

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)				
		(CFS)			
+ 430.	12.43	67.	18.	18.	18.
		(INCHES)	1.767	1.908	1.908	1.908
		(AC-FT)	33.	36.	36.	36.

CUMULATIVE AREA = 0.35 SQ MI

*** ***

****
* *
268 KK * RT520b * Channel info from ADOT Ray Rd. TI Drainage report.
* *
****

HYDROGRAPH ROUTING DATA

269 RS STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	0.00	WORKING R AND D COEFFICIENT

270 RC NORMAL DEPTH CHANNEL

ANL	0.035	LEFT OVERBANK N-VALUE
ANCH	0.035	MAIN CHANNEL N-VALUE
ANR	0.040	RIGHT OVERBANK N-VALUE
RLNTH	4200.	REACH LENGTH
SEL	0.0099	ENERGY SLOPE
ELMAX	0.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---	+	------ MAIN CHANNEL -------	+	--- RIGHT OVERBANK ---		
272 RY	ELEVATION	15.00	12.50	10.00	8.00	8.00	10.00	10.10	11.00
271 RX	DISTANCE	80.00	90.00	100.00	108.00	118.00	122.00	132.00	222.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.39	0.87	1.42	2.05	2.76	3.75	5.99	9.59	14.08
OUTFLOW	0.00	8.30	27.49	56.56	95.76	145.57	215.27	326.11	498.52	773.28
ELEVATION	8.00	8.37	8.74	9.11	9.47	9.84	10.21	10.58	10.95	11.32
STORAGE	18.62	23.22	27.87	32.58	37.33	42.14	47.00	51.92	56.88	61.90
OUTFLOW	1126.00	1545.60	2027.73	2569.34	3168.14	3822.38	4530.64	5291.79	6104.88	6969.11
ELEVATION	11.68	12.05	12.42	12.79	13.16	13.53	13.89	14.26	14.63	15.00

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

HYDROGRAPH AT STATION RT520b

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 345.	12.63		66.	18.	18.	18.
		(INCHES)	1.754	1.899	1.899	1.899
		(AC-FT)	33.	36.	36.	36.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
6.	12.63	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
10.62	12.63	8.92	8.29	8.29	8.29

CUMULATIVE AREA = 0.35 SQ MI

*** ***

****
* *
273 KK * DA521a *

```
  *              *
  ****************

     SUBBASIN RUNOFF DATA

274 BA        SUBBASIN CHARACTERISTICS
                 TAREA        0.09  SUBBASIN AREA

              PRECIPITATION DATA

17 PH                                 DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
              ..... HYDRO-35 ......    ................ TP-40 ..............   ........... TP-49 ...........
              5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
               0.67   1.32    2.31     2.54    2.69    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                              STORM AREA =      0.09

275 LS        SCS LOSS RATE
                 STRTL        0.60  INITIAL ABSTRACTION
                 CRVNBR      77.00  CURVE NUMBER
                 RTIMP        0.00  PERCENT IMPERVIOUS AREA

276 UD        SCS DIMENSIONLESS UNITGRAPH
                 TLAG         0.53  LAG

                                                          ***

VALUE EXCEEDS TABLE IN LOGLOG           0.01667        0.01667        24.00000

                                                 UNIT HYDROGRAPH
                                            161 END-OF-PERIOD ORDINATES
              1.        2.        2.        4.        6.        8.       10.       12.       14.       17.
             20.       23.       26.       31.       35.       39.       44.       49.       54.       58.
             62.       67.       70.       73.       76.       79.       80.       82.       83.       84.
             84.       84.       84.       84.       84.       83.       81.       80.       78.       76.
             74.       73.       70.       68.       66.       64.       61.       59.       56.       53.
             49.       46.       44.       41.       39.       37.       35.       33.       32.       30.
             28.       27.       26.       24.       23.       22.       21.       20.       19.       18.
             18.       17.       16.       15.       14.       14.       13.       12.       12.       11.
             11.       10.       10.        9.        9.        8.        8.        7.        7.        7.
              6.        6.        6.        5.        5.        5.        5.        4.        4.        4.
              4.        4.        3.        3.        3.        3.        3.        3.        3.        2.
              2.        2.        2.        2.        2.        2.        2.        2.        2.        1.
              1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
              1.        1.        1.        1.        1.        1.        1.        1.        1.        1.
              1.        1.        0.        0.        0.        0.        0.        0.        0.        0.
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
              0.

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

                    HYDROGRAPH AT STATION    DA521a

    TOTAL RAINFALL =    3.52, TOTAL LOSS =     2.07, TOTAL EXCESS =     1.44

  PEAK FLOW      TIME                        MAXIMUM AVERAGE FLOW
                                         6-HR      24-HR      72-HR     23.98-HR
+  (CFS)         (HR)
                              (CFS)
+      72.       12.62                    13.         4.         4.         4.
                             (INCHES)    1.319      1.436      1.436      1.436
                             (AC-FT)        7.         7.         7.         7.

                           CUMULATIVE AREA =     0.09 SQ MI

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

              ***************
              *             *
277 KK        *    CANAL    *      Retrieve SE diversion from 48th St and Highline canal.
              *             *
              ***************

278 DR          RETRIEVE DIVERSION HYDROGRAPH
                   ISTAD        CANAL  DIVERSION HYDROGRAPH IDENTIFICATION
```

```
                                                  ***

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

                        HYDROGRAPH AT STATION    CANAL

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+    1057.     12.62                 155.         39.          39.          39.
                        (INCHES)    15.353       15.353       15.353       15.353
                        (AC-FT)      77.          77.          77.          77.

                        CUMULATIVE AREA =    0.00 SQ MI


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


            **************
            *            *
  279 KK    *    ADHIGH  *       Combine retrieved diversion & 521a at Highline Canal.
            *            *
            **************

  280 HC          HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***

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

                        HYDROGRAPH AT STATION   ADHIGH

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+    1129.     12.62                 169.         42.          42.          42.
                        (INCHES)    16.672       16.789       16.789       16.789
                        (AC-FT)      84.          84.          84.          84.

                        CUMULATIVE AREA =    0.09 SQ MI


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


            **************
            *            *
  281 KK    *    RTHIGH  *       Route to I-10 & Chandler thru assumed channel overland flow
            *            *
            **************

               HYDROGRAPH ROUTING DATA

  282 RS          STORAGE ROUTING
                       NSTPS           5  NUMBER OF SUBREACHES
                        ITYP        FLOW  TYPE OF INITIAL CONDITION
                       RSVRIC       -1.00  INITIAL CONDITION
                           X         0.00 WORKING R AND D COEFFICIENT

  283 RC          NORMAL DEPTH CHANNEL
                         ANL       0.035  LEFT OVERBANK N-VALUE
                        ANCH       0.035  MAIN CHANNEL N-VALUE
                         ANR       0.035  RIGHT OVERBANK N-VALUE
                       RLNTH        3500.  REACH LENGTH
                         SEL      0.0080  ENERGY SLOPE
                       ELMAX         0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
  285 RY        ELEVATION    10.00     10.00     10.00      9.00      9.00     10.00     10.00     10.00
  284 RX        DISTANCE     80.00     90.00    100.00    110.00   1110.00   1120.00   1130.00   1140.00
```

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	4.23	8.47	12.71	16.95	21.20	25.45	29.71	33.97	38.24
OUTFLOW	0.00	28.15	89.39	175.72	283.88	411.84	558.18	721.82	901.89	1097.71
ELEVATION	9.00	9.05	9.11	9.16	9.21	9.26	9.32	9.37	9.42	9.47
STORAGE	42.51	46.79	51.07	55.35	59.64	63.93	68.23	72.53	76.84	81.15
OUTFLOW	1308.65	1534.22	1773.96	2027.48	2294.43	2574.48	2867.35	3172.78	3490.51	3820.33
ELEVATION	9.53	9.58	9.63	9.68	9.74	9.79	9.84	9.89	9.95	10.00

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

HYDROGRAPH AT STATION RTHIGH

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
		(CFS)				
972.	12.95		168.	42.	42.	42.
		(INCHES)	16.620	16.761	16.761	16.761
		(AC-FT)	83.	84.	84.	84.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	23.98-HR
7.	12.95	2.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	23.98-HR
9.44	12.95	9.12	9.03	9.03	9.03

CUMULATIVE AREA = 0.09 SQ MI

*** ***

```
**************
*            *
*    DA521b  *
*            *
**************
```

286 KK

SUBBASIN RUNOFF DATA

287 BA SUBBASIN CHARACTERISTICS

TAREA 0.39 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

HYDRO-35			TP-40					TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.39

288 LS SCS LOSS RATE

STRTL 0.47 INITIAL ABSTRACTION

CRVNBR 81.00 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

289 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.51 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
155 END-OF-PERIOD ORDINATES

4.	7.	11.	18.	26.	35.	45.	55.	66.	79.
93.	107.	123.	142.	161.	181.	204.	226.	247.	266.
284.	302.	315.	328.	340.	347.	354.	361.	362.	363.

364.	363.	362.	361.	355.	348.	341.	333.	325.	317.
308.	299.	289.	279.	267.	255.	243.	229.	215.	201.
190.	178.	167.	158.	150.	142.	135.	128.	121.	115.
109.	103.	99.	94.	90.	86.	81.	77.	73.	70.
66.	63.	59.	56.	53.	50.	48.	46.	43.	41.
39.	37.	35.	33.	32.	30.	28.	27.	26.	24.
23.	22.	20.	19.	19.	18.	17.	16.	15.	14.
14.	13.	12.	12.	11.	10.	10.	10.	9.	9.
8.	8.	7.	7.	7.	6.	6.	6.	5.	5.
5.	5.	4.	4.	4.	4.	4.	4.	3.	3.
3.	3.	3.	3.	3.	2.	2.	2.	2.	2.
2.	2.	1.	1.	1.	1.	1.	1.	1.	1.
1.	0.	0.	0.	0.					

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

HYDROGRAPH AT STATION DA521b

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.79, TOTAL EXCESS = 1.72

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 373.	12.58		66.	18.	18.	18.
		(INCHES)	1.581	1.713	1.713	1.713
		(AC-FT)	33.	36.	36.	36.

CUMULATIVE AREA = 0.39 SQ MI

*** ***

```
          ***************
          *             *
290 KK    *   AD521b    *     Combine overland flow, 521b and flow parallel to I-10
          *             *
          ***************
                                at I-10 and Chandler Blvd.

292 HC         HYDROGRAPH COMBINATION
                    ICOMP            3  NUMBER OF HYDROGRAPHS TO COMBINE
```

***

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

HYDROGRAPH AT STATION AD521b

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1483.	12.90		300.	78.	78.	78.
		(INCHES)	3.339	3.483	3.483	3.483
		(AC-FT)	149.	155.	155.	155.

CUMULATIVE AREA = 0.84 SQ MI

*** ***

```
          ***************
          *             *
293 KK    *   CHNDLR    *     Route thru 24" RCP under, and weir flow over, Chandler Blvd
          *             *
          ***************

               HYDROGRAPH ROUTING DATA

294 RS         STORAGE ROUTING
                    NSTPS            1  NUMBER OF SUBREACHES
                     ITYP         STOR  TYPE OF INITIAL CONDITION
                   RSVRIC         0.00  INITIAL CONDITION
```

777

```
                    X       0.00 WORKING R AND D COEFFICIENT

295 SV          STORAGE       0.0      42.3      47.1      50.9      54.2      56.9      59.4      62.0      64.1      66.3
                             68.2

297 SE          ELEVATION  1189.00   1193.33   1193.57   1193.75   1193.90   1194.02   1194.13   1194.24   1194.33   1194.42
                         1194.50

299 SQ          DISCHARGE     0.       200.      400.      600.      800.     1000.     1200.     1400.     1600.     1800.
                             2000.

                                                          ***

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

                    HYDROGRAPH AT STATION   CHNDLR

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR       72-HR      23.98-HR
+   (CFS)       (HR)
                          (CFS)
+    1032.     13.22                268.         76.         76.         76.
                       (INCHES)    2.985       3.397       3.397       3.397
                       (AC-FT)       133.        151.        151.        151.

 PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
                                    6-HR        24-HR       72-HR      23.98-HR
+  (AC-FT)      (HR)
      57.      13.22                 35.         11.         11.         11.

 PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                    6-HR        24-HR       72-HR      23.98-HR
+   (FEET)      (HR)
   1194.04     13.22              1192.44     1190.06     1190.06     1190.06

                    CUMULATIVE AREA =    0.84 SQ MI


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


          **************
          *            *
301 KK    *    CHNDLR  *       Divert flow thru 24" RCP out of study area.
          *            *
          **************

     DT         DIVERSION
                     ISTAD      DIVOUT  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW       0.00     200.00     400.00     600.00    1200.00    2000.00

     DQ      DIVERTED FLOW       0.00      24.00      25.00      26.00      27.00      28.00

                                                          ***

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

                    DIVERSION HYDROGRAPH   DIVOUT

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR       72-HR      23.98-HR
+   (CFS)       (HR)
                          (CFS)
+      27.     13.22                 19.          6.          6.          6.
                       (INCHES)   0.210       0.260       0.260       0.260
                       (AC-FT)       9.          12.         12.         12.

                    CUMULATIVE AREA =    0.84 SQ MI

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

                    HYDROGRAPH AT STATION   CHNDLR

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR       72-HR      23.98-HR
+   (CFS)       (HR)
```

		(CFS)				
+	1005.	13.22	250.	71.	71.	71.
		(INCHES)	2.775	3.138	3.138	3.138
		(AC-FT)	124.	140.	140.	140.

CUMULATIVE AREA = 0.84 SQ MI

*** ***

```
          **************
          *            *
305 KK    *    RTCHLR  *       Assumed channel size. Route weir flow over Chandler overland to
          *            *
          **************
                                collector channel N. side of SMF.

             HYDROGRAPH ROUTING DATA

307 RS          STORAGE ROUTING
                     NSTPS          3  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC      -1.00  INITIAL CONDITION
                         X       0.00 WORKING R AND D COEFFICIENT

308 RC          NORMAL DEPTH CHANNEL
                       ANL      0.035  LEFT OVERBANK N-VALUE
                      ANCH      0.035  MAIN CHANNEL N-VALUE
                       ANR      0.035  RIGHT OVERBANK N-VALUE
                     RLNTH       1800.  REACH LENGTH
                       SEL     0.0050  ENERGY SLOPE
                     ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
310 RY       ELEVATION      10.00     10.00     10.00      9.00      9.00      10.00     10.00     10.00
309 RX       DISTANCE       80.00     90.00    100.00    110.00   1110.00    1120.00   1130.00   1140.00

                                              ***

                                    COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE      0.00      2.18      4.35      6.53      8.72     10.90     13.09     15.28     17.47     19.67
          OUTFLOW      0.00     22.25     70.67    138.92    224.43    325.59    441.28    570.65    713.01    867.81
        ELEVATION      9.00      9.05      9.11      9.16      9.21      9.26      9.32      9.37      9.42      9.47

          STORAGE     21.86     24.06     26.26     28.47     30.67     32.88     35.09     37.30     39.52     41.74
          OUTFLOW   1034.58   1212.91   1402.44   1602.87   1813.91   2035.31   2266.84   2508.30   2759.49   3020.24
        ELEVATION      9.53      9.58      9.63      9.68      9.74      9.79      9.84      9.89      9.95     10.00

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

                    HYDROGRAPH AT STATION   RTCHLR

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+     945.      13.43         247.         70.          70.          70.
                      (INCHES)  2.748        3.096        3.096        3.096
                      (AC-FT)   123.         138.         138.         138.

 PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR        24-HR        72-HR     23.98-HR
+  (AC-FT)      (HR)
        7.     13.43                  3.           1.           1.           1.

 PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR        24-HR        72-HR     23.98-HR
+   (FEET)      (HR)
       9.50    13.43                 9.20         9.07         9.07         9.07

                    CUMULATIVE AREA =   0.84 SQ MI
```

*** ***

```
**************
*            *
311 KK  *      ONS   *      On-site hydrograph from a portion of I-10 N. of TI.
*            *
**************

313 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN          10  TIME INTERVAL IN MINUTES
                    JXDATE      1   0  STARTING DATE
                    JXTIME          0  STARTING TIME

              SUBBASIN RUNOFF DATA

312 BA          SUBBASIN CHARACTERISTICS
                    TAREA       0.04  SUBBASIN AREA

                                                    ***

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

                        HYDROGRAPH AT STATION      ONS

 PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+     107.      12.17                      9.           2.           2.           2.
                          (INCHES)     2.105        2.318        2.318        2.318
                          (AC-FT)         4.           5.           5.           5.

                        CUMULATIVE AREA =    0.04 SQ MI
```

*** ***

```
**************
*            *
329 KK  *     ADONS  *      Combine onsite from I-10 with routed overland flow from Chandler Blvd.
*            *
**************

330 HC          HYDROGRAPH COMBINATION
                    ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                        HYDROGRAPH AT STATION    ADONS

 PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+     948.      13.43                    249.          72.          72.          72.
                          (INCHES)     2.639        3.061        3.061        3.061
                          (AC-FT)       123.         143.         143.         143.

                        CUMULATIVE AREA =    0.88 SQ MI
```

*** ***

```
**************
*            *
331 KK  *     RTCHLR *      Proposed channel north of SMF to approx
*            *
**************
                        50th St alignment location.
```

```
            HYDROGRAPH ROUTING DATA

333 RS          STORAGE ROUTING
                     NSTPS            1  NUMBER OF SUBREACHES
                      ITYP         FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC        -1.00  INITIAL CONDITION
                         X         0.00 WORKING R AND D COEFFICIENT

334 RC          NORMAL DEPTH CHANNEL
                       ANL        0.035  LEFT OVERBANK N-VALUE
                      ANCH        0.018  MAIN CHANNEL N-VALUE
                       ANR        0.035  RIGHT OVERBANK N-VALUE
                     RLNTH        1000.  REACH LENGTH
                       SEL       0.0020  ENERGY SLOPE
                     ELMAX          0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                             CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
336 RY        ELEVATION     10.00     10.00     10.00      4.00      4.00     10.00     10.00     10.00
335 RX        DISTANCE      80.00     90.00    100.00    112.00    140.00    155.00    162.00    172.00

                                                                  ***

                                                 COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

             STORAGE       0.00      0.21      0.43      0.66      0.89      1.14      1.40      1.67      1.95      2.24
             OUTFLOW       0.00     15.27     48.78     96.58    157.23    229.96    314.35    410.15    517.21    635.47
           ELEVATION       4.00      4.32      4.63      4.95      5.26      5.58      5.89      6.21      6.53      6.84

             STORAGE       2.54      2.86      3.18      3.51      3.85      4.20      4.57      4.94      5.32      5.72
             OUTFLOW     764.94    905.63   1057.63   1221.01   1395.88   1582.34   1780.54   1990.61   2212.69   2446.92
           ELEVATION       7.16      7.47      7.79      8.11      8.42      8.74      9.05      9.37      9.68     10.00

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

                              HYDROGRAPH AT STATION     RTCHLR

  PEAK FLOW       TIME                             MAXIMUM AVERAGE FLOW
                                           6-HR          24-HR         72-HR      23.98-HR
+    (CFS)       (HR)
                              (CFS)
+      944.      13.47                     248.            72.           72.           72.
                            (INCHES)      2.637          3.056         3.056         3.056
                            (AC-FT)        123.           143.          143.          143.

 PEAK STORAGE     TIME                           MAXIMUM AVERAGE STORAGE
                                           6-HR          24-HR         72-HR      23.98-HR
+   (AC-FT)      (HR)
          3.     13.45                       1.             0.            0.            0.

  PEAK STAGE      TIME                             MAXIMUM AVERAGE STAGE
                                           6-HR          24-HR         72-HR      23.98-HR
+    (FEET)      (HR)
        7.55     13.47                     5.51           4.51          4.51          4.51

                            CUMULATIVE AREA =     0.88 SQ MI


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

             ***************
             *             *
337 KK       *     DIVSE   *          Retrieve SE part of diversion from 48th St and Chandler Blvd IC.
             *             *
             ***************

338 DR          RETRIEVE DIVERSION HYDROGRAPH
                     ISTAD        DIVSE  DIVERSION HYDROGRAPH IDENTIFICATION

                                                                  ***

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

                              HYDROGRAPH AT STATION     DIVSE

  PEAK FLOW       TIME                             MAXIMUM AVERAGE FLOW
```

			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 374.	12.40		74.	22.	22.	22.
		(INCHES)	0.790	0.930	0.930	0.930
		(AC-FT)	37.	43.	43.	43.

CUMULATIVE AREA = 0.00 SQ MI

*** ***

```
**************
*            *
*      RTSE  *
*            *
**************
```

339 KK Route to approx 50th St. thru assumed channel overland

HYDROGRAPH ROUTING DATA

340 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	0.00	WORKING R AND D COEFFICIENT

341 RC NORMAL DEPTH CHANNEL

ANL	0.035	LEFT OVERBANK N-VALUE
ANCH	0.035	MAIN CHANNEL N-VALUE
ANR	0.035	RIGHT OVERBANK N-VALUE
RLNTH	3100.	REACH LENGTH
SEL	0.0050	ENERGY SLOPE
ELMAX	0.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---		
343 RY	ELEVATION	10.00	10.00	10.00	9.00	10.00	10.00	10.00	
342 RX	DISTANCE	80.00	90.00	100.00	110.00	610.00	620.00	630.00	640.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	1.87	3.75	5.64	7.52	9.41	11.31	13.21	15.11	17.01
OUTFLOW	0.00	11.13	35.35	69.50	112.29	162.94	220.87	285.67	357.01	434.59
ELEVATION	9.00	9.05	9.11	9.16	9.21	9.26	9.32	9.37	9.42	9.47
STORAGE	18.93	20.84	22.76	24.68	26.61	28.54	30.47	32.41	34.35	36.29
OUTFLOW	518.20	607.63	702.71	803.28	909.21	1020.38	1136.66	1257.97	1384.20	1515.28
ELEVATION	9.53	9.58	9.63	9.68	9.74	9.79	9.84	9.89	9.95	10.00

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

HYDROGRAPH AT STATION RTSE

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 295.	12.85		72.	21.	21.	21.
		(INCHES)	0.000	0.000	0.000	0.000
		(AC-FT)	35.	42.	42.	42.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
3.	12.85	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
9.38	12.85	9.15	9.05	9.05	9.05

CUMULATIVE AREA = 0.00 SQ MI

*** ***

```
          **************
          *            *
344 KK    *    DA522a  *
          *            *
          **************

             SUBBASIN RUNOFF DATA

345 BA          SUBBASIN CHARACTERISTICS
                      TAREA        0.17  SUBBASIN AREA

                PRECIPITATION DATA

 17 PH                                DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                ..... HYDRO-35 .....   ................ TP-40 ................   ........... TP-49 ...........
                5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 0.67   1.32    2.31    2.54    2.69    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                 STORM AREA =     0.17

346 LS          SCS LOSS RATE
                      STRTL        0.47  INITIAL ABSTRACTION
                     CRVNBR       81.00  CURVE NUMBER
                      RTIMP        0.00  PERCENT IMPERVIOUS AREA

347 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG        0.47  LAG

                                                        ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                UNIT HYDROGRAPH
                                            143 END-OF-PERIOD ORDINATES
                  2.       4.       6.      10.      14.      19.      25.      30.      36.      44.
                 51.      60.      69.      79.      90.     102.     113.     124.     133.     143.
                150.     157.     164.     167.     171.     174.     175.     175.     176.     175.
                174.     172.     169.     165.     161.     157.     152.     148.     143.     138.
                132.     126.     120.     113.     105.      98.      92.      86.      80.      76.
                 71.      67.      64.      60.      57.      53.      50.      48.      46.      43.
                 41.      39.      37.      35.      33.      31.      29.      27.      26.      24.
                 23.      22.      21.      20.      18.      18.      17.      16.      15.      14.
                 13.      12.      12.      11.      10.      10.       9.       9.       8.       8.
                  7.       7.       7.       6.       6.       6.       5.       5.       5.       5.
                  4.       4.       4.       4.       3.       3.       3.       3.       3.       3.
                  2.       2.       2.       2.       2.       2.       2.       2.       2.       2.
                  1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
                  1.       1.       1.       1.       1.       0.       0.       0.       0.       0.
                  0.       0.       0.

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

                        HYDROGRAPH AT STATION   DA522a

     TOTAL RAINFALL =    3.52, TOTAL LOSS =    1.80, TOTAL EXCESS =    1.72

   PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                              6-HR       24-HR       72-HR     23.98-HR
+    (CFS)       (HR)
                    (CFS)
+      175.     12.53                          30.         8.          8.          8.
                                  (INCHES)    1.583       1.715       1.715       1.715
                                   (AC-FT)     15.         16.         16.         16.

                        CUMULATIVE AREA =    0.17 SQ MI
```

*** ***

```
          **************
          *            *
348 KK    *    AD522a  *       Combine 522a with flow in channel N. side SMF.
          *            *
          **************
```

```
          *           *
          ***************

 349 HC          HYDROGRAPH COMBINATION
                      ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                          HYDROGRAPH AT STATION   AD522a

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                                (CFS)
+    1117.      13.43                      343.         101.         101.         101.
                              (INCHES)    3.035        3.579        3.579        3.579
                              (AC-FT)      170.         200.         200.         200.

                          CUMULATIVE AREA =    1.05 SQ MI


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


          ***************
          *             *
 350 KK   *    RT522a   *       Route to 48th St thru assumed channel.
          *             *
          ***************

             HYDROGRAPH ROUTING DATA

 351 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC      -1.00  INITIAL CONDITION
                          X        0.00 WORKING R AND D COEFFICIENT

 352 RC          NORMAL DEPTH CHANNEL
                        ANL       0.035  LEFT OVERBANK N-VALUE
                       ANCH       0.018  MAIN CHANNEL N-VALUE
                        ANR       0.035  RIGHT OVERBANK N-VALUE
                      RLNTH        1600.  REACH LENGTH
                        SEL      0.0020  ENERGY SLOPE
                      ELMAX         0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 354 RY       ELEVATION    10.00    10.00    10.00     4.00     4.00    10.00    10.00    10.00
 353 RX       DISTANCE     80.00    90.00   100.00   112.00   140.00   152.00   162.00   172.00

                                                ***

                                COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

             STORAGE      0.00     0.33     0.68     1.04     1.42     1.81     2.21     2.63     3.07     3.52
             OUTFLOW      0.00    15.25    48.65    96.17   156.31   228.26   311.53   405.80   510.90   626.71
           ELEVATION      4.00     4.32     4.63     4.95     5.26     5.58     5.89     6.21     6.53     6.84

             STORAGE      3.98     4.46     4.95     5.46     5.98     6.52     7.07     7.64     8.22     8.82
             OUTFLOW    753.19   890.32  1038.12  1196.64  1365.94  1546.10  1737.22  1939.39  2152.71  2377.31
           ELEVATION      7.16     7.47     7.79     8.11     8.42     8.74     9.05     9.37     9.68    10.00

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

                          HYDROGRAPH AT STATION   RT522a

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                                (CFS)
+    1106.      13.48                      342.         101.         101.         101.
                              (INCHES)    3.031        3.570        3.570        3.570
                              (AC-FT)      170.         200.         200.         200.
```

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
5.	13.48	2.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
7.93	13.48	5.88	4.65	4.65	4.65

CUMULATIVE AREA = 1.05 SQ MI

*** ***

355 KK

****
* *
* DA522b *
* *
****

SUBBASIN RUNOFF DATA

356 BA SUBBASIN CHARACTERISTICS

TAREA	0.09	SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.09

357 LS SCS LOSS RATE

STRTL	0.47	INITIAL ABSTRACTION
CRVNBR	81.00	CURVE NUMBER
RTIMP	0.00	PERCENT IMPERVIOUS AREA

358 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	0.50	LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
152 END-OF-PERIOD ORDINATES

1.	2.	3.	4.	6.	8.	11.	13.	16.	19.
23.	26.	30.	35.	40.	45.	50.	55.	60.	65.
69.	73.	76.	79.	81.	83.	85.	86.	86.	86.
86.	86.	86.	85.	83.	81.	80.	78.	76.	74.
71.	69.	67.	64.	61.	58.	55.	51.	48.	45.
42.	39.	38.	36.	34.	32.	30.	28.	27.	26.
24.	23.	22.	21.	20.	19.	18.	17.	16.	15.
15.	14.	13.	12.	12.	11.	11.	10.	9.	9.
9.	8.	8.	7.	7.	6.	6.	6.	6.	5.
5.	5.	4.	4.	4.	4.	4.	3.	3.	3.
3.	3.	3.	2.	2.	2.	2.	2.	2.	2.
2.	2.	2.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA522b

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.80, TOTAL EXCESS = 1.72

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)				
+ 88.	12.57	(CFS) 15.	4.	4.185	4.

(INCHES)	1.583	1.715	1.715	1.715
(AC-FT)	8.	8.	8.	8.

CUMULATIVE AREA = 0.09 SQ MI

*** ***

```
**************
*            *
*    AD522b  *
*            *
**************
```

359 KK Combine 522b and flow in channel from E. at 48th St.

360 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD522b

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1123.	13.48	357.	105.	105.	105.
		(INCHES) 2.911	3.422	3.422	3.422
		(AC-FT) 177.	208.	208.	208.

CUMULATIVE AREA = 1.14 SQ MI

*** ***

```
**************
*            *
*    AD522b  *
*            *
**************
```

361 KK Add in DA519a and flow moving S. down 48th St.

362 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD522b

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1267.	13.47	468.	137.	137.	137.
		(INCHES) 1.209	1.414	1.414	1.414
		(AC-FT) 232.	271.	271.	271.

CUMULATIVE AREA = 3.60 SQ MI

*** ***

```
**************
*            *
*    DA519b  *
*            *
**************
```

SUBBASIN RUNOFF DATA

```
 364 BA          SUBBASIN CHARACTERISTICS
                       TAREA        0.32  SUBBASIN AREA

                 PRECIPITATION DATA

  17 PH                                DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                  ..... HYDRO-35 .....   ..... TP-40 .....   ..... TP-49 .....
                 5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                  0.67   1.32    2.31     2.54    2.69    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                  STORM AREA =     0.32

 365 LS          SCS LOSS RATE
                       STRTL        0.35  INITIAL ABSTRACTION
                      CRVNBR       85.00  CURVE NUMBER
                       RTIMP        0.00  PERCENT IMPERVIOUS AREA

 366 UD          SCS DIMENSIONLESS UNITGRAPH
                        TLAG        0.43  LAG

                                                  ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                  UNIT HYDROGRAPH
                                                131 END-OF-PERIOD ORDINATES
                  4.       8.      14.      24.      33.      44.      57.      69.      85.     102.
                120.     142.     164.     189.     214.     239.     261.     282.     300.     315.
                329.     338.     346.     352.     353.     354.     354.     353.     351.     343.
                335.     326.     316.     307.     296.     286.     274.     261.     247.     232.
                216.     200.     186.     173.     160.     151.     142.     133.     125.     117.
                110.     103.      97.      92.      88.      83.      78.      73.      69.      65.
                 61.      57.      53.      50.      47.      44.      42.      39.      37.      35.
                 33.      31.      29.      27.      25.      24.      22.      21.      19.      18.
                 17.      16.      15.      14.      14.      13.      12.      11.      11.      10.
                  9.       9.       8.       8.       7.       7.       7.       6.       6.       5.
                  5.       5.       4.       4.       4.       4.       4.       3.       3.       3.
                  3.       3.       3.       2.       2.       2.       2.       2.       2.       2.
                  1.       1.       1.       1.       1.       1.       1.       0.       0.       0.
                  0.

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

                          HYDROGRAPH AT STATION   DA519b

     TOTAL RAINFALL =    3.52, TOTAL LOSS =    1.49, TOTAL EXCESS =    2.03

   PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                              6-HR       24-HR       72-HR     23.98-HR
 +    (CFS)       (HR)
                    (CFS)
 +      408.     12.48                         65.         18.         18.         18.
                 (INCHES)                    1.867       2.023       2.023       2.023
                 (AC-FT)                      32.         35.         35.         35.

                          CUMULATIVE AREA =    0.32 SQ MI


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


                 **************
                 *            *
 367 KK          *    RT519b  *       Assume channel size and route 519b back to 48th St.
                 *            *
                 **************

                    HYDROGRAPH ROUTING DATA

 368 RS          STORAGE ROUTING
                       NSTPS           1  NUMBER OF SUBREACHES
                        ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC       -1.00  INITIAL CONDITION
                           X        0.00 WORKING R AND D COEFFICIENT

 369 RC          NORMAL DEPTH CHANNEL                                    187
                       ANL        0.035  LEFT OVERBANK N-VALUE
```

```
                     ANCH       0.018  MAIN CHANNEL N-VALUE
                      ANR       0.035  RIGHT OVERBANK N-VALUE
                    RLNTH       2800.  REACH LENGTH
                      SEL      0.0011  ENERGY SLOPE
                    ELMAX         0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                       CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 371 RY        ELEVATION     10.00     10.00     10.00      4.00      4.00     10.00     10.00     10.00
 370 RX        DISTANCE      80.00     90.00    100.00    112.00    124.00    136.00    146.00    156.00

                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE       0.00      0.26      0.54      0.85      1.18      1.54      1.92      2.33      2.77      3.23
          OUTFLOW       0.00      4.88     15.72     31.42     51.70     76.47    105.77    139.64    178.18    221.51
        ELEVATION       4.00      4.32      4.63      4.95      5.26      5.58      5.89      6.21      6.53      6.84

          STORAGE       3.72      4.23      4.77      5.33      5.92      6.54      7.18      7.85      8.54      9.26
          OUTFLOW     269.76    323.04    381.49    445.26    514.47    589.27    669.80    756.20    848.60    947.14
        ELEVATION       7.16      7.47      7.79      8.11      8.42      8.74      9.05      9.37      9.68     10.00


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

                      HYDROGRAPH AT STATION    RT519b

  PEAK FLOW      TIME                           MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR       72-HR      23.98-HR
+   (CFS)        (HR)
                             (CFS)
+     378.      12.60                       64.         17.         17.         17.
                          (INCHES)       1.860       2.013       2.013       2.013
                           (AC-FT)         32.         35.         35.         35.

 PEAK STORAGE    TIME                         MAXIMUM AVERAGE STORAGE
                                          6-HR        24-HR       72-HR      23.98-HR
+  (AC-FT)       (HR)
        5.      12.60                        1.          0.          0.          0.

  PEAK STAGE     TIME                          MAXIMUM AVERAGE STAGE
                                          6-HR        24-HR       72-HR      23.98-HR
+   (FEET)       (HR)
      7.77      12.60                      5.12        4.36        4.36        4.36

                    CUMULATIVE AREA =      0.32 SQ MI


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


             ***************
             *             *
  372 KK     *   AD519b    *      Combine all flows approx. 400ft West of 48th St. Design Q - C219.
             *             *
             ***************

  373 HC        HYDROGRAPH COMBINATION
                    ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***

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

                      HYDROGRAPH AT STATION    AD519b

  PEAK FLOW      TIME                           MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR       72-HR      23.98-HR
+   (CFS)        (HR)
                             (CFS)
+    1347.      13.45                      532.        154.        154.        154.
                          (INCHES)       1.261       1.463       1.463       1.463
                           (AC-FT)        264.        306.        306.        306.

                    CUMULATIVE AREA =      3.92 SQ MI
```

738

1

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	DA501	1047.	12.15	92.	25.	25.	0.38		
DIVERSION TO	DIVOUT	524.	12.15	46.	13.	13.	0.38		
HYDROGRAPH AT	DIV501	524.	12.15	46.	13.	13.	0.38		
ROUTED TO	RT501	490.	12.20	46.	13.	13.	0.38	3.78	12.20
HYDROGRAPH AT	DA502	770.	12.27	88.	24.	24.	0.42		
2 COMBINED AT	AD502	1226.	12.23	134.	36.	36.	0.80		
DIVERSION TO	DIVOUT	368.	12.23	40.	11.	11.	0.80		
HYDROGRAPH AT	DIV502	858.	12.23	94.	25.	25.	0.80		
ROUTED TO	RT502	823.	12.28	93.	25.	25.	0.80	6.72	12.28
HYDROGRAPH AT	DA503	146.	12.23	15.	4.	4.	0.09		
2 COMBINED AT	AD503	963.	12.28	109.	30.	30.	0.89		
ROUTED TO	RT503	954.	12.30	109.	30.	30.	0.89	8.97	12.30
HYDROGRAPH AT	DA504	129.	12.20	13.	3.	3.	0.07		
2 COMBINED AT	AD504	1062.	12.30	122.	33.	33.	0.95		
ROUTED TO	RT504	1057.	12.32	122.	33.	33.	0.95	9.51	12.32
HYDROGRAPH AT	DA505	75.	12.18	7.	2.	2.	0.04		
2 COMBINED AT	AD505	1109.	12.30	128.	35.	35.	0.99		
ROUTED TO	RT505	1107.	12.32	128.	35.	35.	0.99	10.31	12.32
DIVERSION TO	DIVOUT	166.	12.32	19.	5.	5.	0.99		
HYDROGRAPH AT	DIV505	941.	12.32	109.	30.	30.	0.99		
ROUTED TO	RT505	931.	12.35	109.	30.	30.	0.99	9.88	12.35
HYDROGRAPH AT	DA506	85.	12.22	9.	2.	2.	0.04		

2 COMBINED AT	AD506	997.	12.33	118.	32.	32.	1.03		
HYDROGRAPH AT	DA507	81.	12.20	8.	2.	2.	0.04		
ROUTED TO	RT507	81.	12.22	8.	2.	2.	0.04		
2 COMBINED AT	AD506	1061.	12.33	126.	34.	34.	1.07		
ROUTED TO	RT506	1050.	12.35	126.	34.	34.	1.07	10.19	12.35
HYDROGRAPH AT	DA508	44.	12.18	4.	1.	1.	0.02		
HYDROGRAPH AT	DA509	36.	12.13	3.	1.	1.	0.01		
3 COMBINED AT	AD509	1092.	12.35	133.	36.	36.	1.10		
HYDROGRAPH AT	DA510	98.	12.18	9.	2.	2.	0.04		
2 COMBINED AT	AD510	1151.	12.35	142.	38.	38.	1.15		
ROUTED TO	RT510	1143.	12.37	142.	38.	38.	1.15	10.44	12.37
DIVERSION TO	45THST	1015.	12.02	86.	22.	22.	1.15		
HYDROGRAPH AT	PIPES	128.	12.02	55.	17.	17.	1.15		
ROUTED TO	RTPIPE	128.	13.23	55.	17.	17.	1.15		
HYDROGRAPH AT	DA511	183.	12.93	46.	13.	13.	0.36		
2 COMBINED AT	AD511	311.	12.93	101.	30.	30.	1.51		
ROUTED TO	RT511	310.	12.95	101.	29.	29.	1.51	5.68	12.95
HYDROGRAPH AT	45THST	1015.	12.37	86.	22.	22.	0.00		
ROUTED TO	RT45ST	907.	12.50	86.	22.	22.	0.00	9.60	12.50
2 COMBINED AT	AD511	1129.	12.52	187.	51.	51.	1.51		
ROUTED TO	RT511	1031.	12.62	187.	51.	51.	1.51	20.43	12.62
HYDROGRAPH AT	DA512	137.	12.35	18.	5.	5.	0.13		
2 COMBINED AT	AD512	1117.	12.62	205.	56.	56.	1.63		
DIVERSION TO	CANAL	1057.	12.52	155.	39.	39.	1.63		
HYDROGRAPH AT	DIV512	60.	12.52	50.	17.	17.	1.63		

+	HYDROGRAPH AT	DA513	171.	12.22	18.	5.	5.	0.09	
+	HYDROGRAPH AT	DA514	125.	12.17	11.	3.	3.	0.06	
+	HYDROGRAPH AT	DA515	91.	12.20	9.	2.	2.	0.05	
+	3 COMBINED AT	AD515	379.	12.20	38.	10.	10.	0.19	
+	ROUTED TO	RT515	332.	12.28	38.	10.	10.	0.19	
+									6.93 12.28
+	HYDROGRAPH AT	DA516	152.	12.40	21.	6.	6.	0.15	
+	3 COMBINED AT	AD516	527.	12.30	108.	33.	33.	1.97	
+	ROUTED TO	RT516	505.	12.37	108.	33.	33.	1.97	
+									8.16 12.37
+	HYDROGRAPH AT	DA517	203.	12.30	24.	7.	7.	0.17	
+	2 COMBINED AT	AD517	700.	12.35	132.	39.	39.	2.14	
+	ROUTED TO	RT517	685.	12.40	132.	39.	39.	2.14	
+									11.52 12.40
+	HYDROGRAPH AT	DA518	87.	12.65	17.	5.	5.	0.10	
+	2 COMBINED AT	AD518	748.	12.40	149.	44.	44.	2.24	
+	DIVERSION TO	DIVSE	374.	12.40	74.	22.	22.	2.24	
+	HYDROGRAPH AT	DIV518	374.	12.40	74.	22.	22.	2.24	
+	ROUTED TO	RT518	344.	12.52	74.	22.	22.	2.24	
+									9.41 12.52
+	HYDROGRAPH AT	DA519a	183.	12.70	37.	10.	10.	0.22	
+	2 COMBINED AT	AD519a	511.	12.57	111.	32.	32.	2.46	
+	HYDROGRAPH AT	DA520a	133.	12.47	21.	6.	6.	0.13	
+	ROUTED TO	RT520a	121.	12.60	21.	6.	6.	0.13	
+									7.63 12.60
+	HYDROGRAPH AT	DA520b	341.	12.38	46.	12.	12.	0.22	
+	2 COMBINED AT	AD520b	431.	12.43	67.	18.	18.	0.35	
+	DIVERSION TO	DIVBOX	258.	12.43	23.	6.	6.	0.35	
+	HYDROGRAPH AT	DIV520	173.	12.43	44.	12.	12.	0.35	
+	ROUTED TO	RT520b	173.	12.47	44.	12.	12.	0.35	
+									9.98 12.47

+	HYDROGRAPH AT	DIVBOX	258.	12.43	23.	6.	6.	0.00		
+	2 COMBINED AT	AD520b	430.	12.43	67.	18.	18.	0.35		
+	ROUTED TO	RT520b	345.	12.63	66.	18.	18.	0.35	10.62	12.63
+	HYDROGRAPH AT	DA521a	72.	12.62	13.	4.	4.	0.09		
+	HYDROGRAPH AT	CANAL	1057.	12.62	155.	39.	39.	0.00		
+	2 COMBINED AT	ADHIGH	1129.	12.62	169.	42.	42.	0.09		
+	ROUTED TO	RTHIGH	972.	12.95	168.	42.	42.	0.09	9.44	12.95
+	HYDROGRAPH AT	DA521b	373.	12.58	66.	18.	18.	0.39		
+	3 COMBINED AT	AD521b	1483.	12.90	300.	78.	78.	0.84		
+	ROUTED TO	CHNDLR	1032.	13.22	268.	76.	76.	0.84	1194.04	13.22
+	DIVERSION TO	DIVOUT	27.	13.22	19.	6.	6.	0.84		
+	HYDROGRAPH AT	CHNDLR	1005.	13.22	250.	71.	71.	0.84		
+	ROUTED TO	RTCHLR	945.	13.43	247.	70.	70.	0.84	9.50	13.43
+	HYDROGRAPH AT	ONS	107.	12.17	9.	2.	2.	0.04		
+	2 COMBINED AT	ADONS	948.	13.43	249.	72.	72.	0.88		
+	ROUTED TO	RTCHLR	944.	13.47	248.	72.	72.	0.88	7.55	13.47
+	HYDROGRAPH AT	DIVSE	374.	12.40	74.	22.	22.	0.00		
+	ROUTED TO	RTSE	295.	12.85	72.	21.	21.	0.00	9.38	12.85
+	HYDROGRAPH AT	DA522a	175.	12.53	30.	8.	8.	0.17		
+	3 COMBINED AT	AD522a	1117.	13.43	343.	101.	101.	1.05		
+	ROUTED TO	RT522a	1106.	13.48	342.	101.	101.	1.05	7.93	13.48
+	HYDROGRAPH AT	DA522b	88.	12.57	15.	4.	4.	0.09		
+	2 COMBINED AT	AD522b	1123.	13.48	357.	105.	105.	1.14		
+	2 COMBINED AT	AD522b	1267.	13.47	468.	137.	137.	3.60		

HYDROGRAPH AT
+ DA519b 408. 12.48 65. 18. 18. 0.32
ROUTED TO
+ RT519b 378. 12.60 64. 17. 17. 0.32
+ 7.77 12.60
2 COMBINED AT
+ AD519b 1347. 13.45 532. 154. 154. 3.92
1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

						INTERPOLATED TO COMPUTATION INTERVAL			
ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
RT507	MANE	0.80	80.71	733.42	1.95	1.00	80.60	733.00	1.95

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4222E+01 EXCESS=0.0000E+00 OUTFLOW=0.4221E+01 BASIN STORAGE=0.2364E-02 PERCENT ERROR= 0.0

RTPIPE	MANE	0.93	128.01	794.40	0.54	1.00	128.00	794.00	0.54

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3331E+02 EXCESS=0.0000E+00 OUTFLOW=0.3328E+02 BASIN STORAGE=0.3558E-01 PERCENT ERROR= 0.0

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

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              MAY   1991               *
*            VERSION 4.0.1E             *
*                                       *
*  RUN DATE  05/06/92  TIME  12:42:49   *
*                                       *
*****************************************
```


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


Q100-24HR

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

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

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

1 HEC-1 INPUT PAGE 1

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

  1           ID        PRICE ROAD PHASE III HYDROLOGY CHECK              <PRICE5>
  2           ID        SOUTH MOUNTAIN FREEWAY (40TH ST TO I-10 MARICOPA AREA)
  3           ID        100-YEAR 24-HOUR STORM EVENT
  4           ID        This file is a translation of Coe & Van-Loo's TR-20 model in
  5           ID        "48th St & Chandler Blvd" report to HEC-1 format. i.e. Their
  6           ID        basin areas, curve numbers, times, were used (as noted).Channel data
  7           ID        was estimated by HDR from site visits & photographs and from asbuilts
  8           ID        of development in the area.
  9           ID        Areas not covered by their report were also added to this file
 10           ID
 11           ID
 12           ID
 13           ID                                                  05-06-92 SMc.
              *DIAGRAM
 14           IT      1                 1440
 15           IO      3

 16           KK   DA501  (CVL1)  CVL data, HDR storm data.
 17           PH             0    0.77    1.50    2.64    2.89    3.06    3.37    3.68    4.00
 18           BA    0.38
 19           LS              90
 20           UD   0.144

 21           KK  DIV501
 22           KM         Ahwatukee Drainage Report shows 25-75 split. 25% to Study area.
 23           KM         Based on HDR site visit assume 50-50 split.
 24           DT  DIVOUT
 25           DI      0    1000
 26           DQ      0     500

 27           KK   RT501  Channel size approx.
 28           RS      1     FLOW      -1
 29           RC  0.035   0.025   0.035    2500   0.016
 30           RX     98      99     100     108     133     141     142     143
 31           RY   10.2    10.1      10       2       2      10    10.1    10.2

 32           KK   DA502  (CVL120) CVL data
 33           BA    0.42
 34           LS              86
 35           UD   0.246

 36           KK   AD502  Combine 502 and diverted flow from 501
```

```
 37          HC       2

 38          KK  DIV502  70% East to study area, other 30% South to MPR east watershed.
 39          KM          According to Ahwatukee report there should be another diversion
 40          KM          out of study area and back to Ahwatukee PhIV. This diversion was
 41          KM          not found on HDR site visit and is not coded.
 42          DT  DIVOUT
 43          DI        0     1000
 44          DQ        0      300
1                                        HEC-1 INPUT                                    PAGE  2

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

 45          KK   RT502  Channel size approx.
 46          RS       1    FLOW      -1
 47          RC   0.035   0.025   0.035    2700   0.011
 48          RX      98      99     100     106     131     137     138     139
 49          RY    10.2    10.1      10       4       4      10    10.1    10.2

 50          KK   DA503  (CVL201) CVL data
 51          BA   0.086
 52          LS              82
 53          UD    0.21

 54          KK   AD503  Combine 503 and flow from 501 & 502
 55          HC       2

 56          KK   RT503  Channel size approx.
 57          RS       1    FLOW      -1
 58          RC   0.040   0.035   0.040    1200  0.0125
 59          RX      80      90     100     105     125     130     140     150
 60          RY    10.2    10.1      10       5       5      10    10.1    10.2

 61          KK   DA504 (CVL130) CVL data
 62          BA   0.066
 63          LS              84
 64          UD   0.186

 65          KK   AD504  Combine 504 and flow from north
 66          HC       2

 67          KK   RT504  Channel size approx.
 68          RS       1    FLOW      -1
 69          RC   0.040   0.035   0.040     850    0.01
 70          RX      80      90     100     105     125     130     140     150
 71          RY    10.3    10.1      10       5       5      10    10.1    10.2

 72          KK   DA505  (CVL132) CVL data
 73          BA  0.0357
 74          LS              84
 75          UD    0.16

 76          KK   AD505  Combine 505 and flow from north
 77          HC       2

 78          KK   RT505  Channel size approx.
 79          RS       1    FLOW      -1
 80          RC   0.040   0.035   0.040     400    0.01
 81          RX    79.9      80     100     105     120     125     145   145.1
 82          RY      12    10.4      10       5       5      10    10.4      12

 83          KK  DIV505  85% East to study area.
 84          DT  DIVOUT
 85          DI        0     1000
 86          DQ        0      150
1                                        HEC-1 INPUT                                    PAGE  3

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

 87          KK   RT505  Channel size approx.
 88          RS       1    FLOW      -1
 89          RC   0.040   0.035   0.040    1200    0.01
 90          RX      80      90     100     105     120     125     135     145
 91          RY    10.4    10.2      10       5       5      10    10.2    10.4

 92          KK   DA506  (CVL207) CVL data
 93          BA  0.0431
 94          LS              85
```

```
 95          UD   0.198

 96          KK   AD506  Combine 506 and flow from 85% diversion
 97          HC      2

 98          KK   DA507  (CVL205) CVL data
 99          BA  0.0406
100          LS             84
101          UD    0.18

102          KK   RT507  Assumed pipe size.
103          RK    1400    0.01   0.020            CIRC     4.5

104          KK   AD506  Combine routed flow from 507 with 506 and flow from diversion.
105          HC      2

106          KK   RT506  Assumed channel size.
107          RS      1    FLOW      -1
108          RC  0.040   0.035   0.040     900    0.01
109          RX     50      90     100     105     120     125     135     175
110          RY     11    10.2      10       5       5      10    10.2      11

111          KK   DA508  (CVL210) CVL data
112          BA  0.0204
113          LS             85
114          UD   0.168

115          KK   DA509  (CVL212) CVL data
116          BA  0.0131
117          LS             88
118          UD    0.12

119          KK   AD509  Combine 509, 508 & flow from east along Ray Rd, at Ray Rd and 44th St.
120          HC      3

121          KK   DA510  (CVL214) CVL data
122          BA  0.0449
123          LS             85
124          UD   0.162
```



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

125          KK   AD510  Add in 510
126          HC      2

127          KK   RT510  Route flows moving east along North side of Ray Rd.
128          KM           Channel size from Brooks-Hersey Ray Rd, 44th to 48th St, plans.
129          RS      1    FLOW      -1
130          RC  0.040   0.025   0.030     900  0.0085
131          RX      0      50     100     112   130.5   142.5   178.5  178.51
132          RY     12      11      10       7       7      10   10.72   11.32

133          KK   PIPES  Diversion due to overtopping of 3-48" CMPs.
134          DT  45THST
135          DI      0     128    2000
136          DQ      0       0    1872

137          KK  RTPIPE  Route pipe flow to cnr 48th St & Ray.
138          KM           78" CMP gives approx same velocity for routing as 3-48" CMPs.
139          RK    1680  0.0078   0.024            CIRC     6.5

140          KK   DA511  (CVL304) HDR data
141          KM           Initial abstraction to allow for High School 100yr-2hr retention.
142          BA   0.356
143          LS   0.894      80
144          UD    0.80

145          KK   AD511  Combine 511 and 3-48" CMPs at cnr of 48th St and Ray Rd.
146          HC      2

147          KK   RT511  Channel for first 650 ft south of Ray Rd -- West side of 48th.
148          RS      1    FLOW      -1
149          RC  0.040   0.025   0.040     650  0.0037
150          RX     80      90     100     116     123     135     145     155
151          RY   10.2    10.1      10       2       2      10    10.1    10.2

152          KK  45THST  Retrieve diversion due to overtopping of pipes at 45th St & Ray.
153          DR  45THST
```

```
154          KK  RT45ST  Flow that overtops 3-48" CMPs is routed over land to 48th St.
155          RS       2    FLOW      -1
156          RC   0.035   0.035   0.035    2000    0.01
157          RX      80      90     100     110     610     620     630     640
158          RY      10      10      10       9       9      10      10      10

159          KK   AD511  Combine at S end of improved channel W side 48th St. 650ft S of Ray.
160          HC       2

161          KK   RT511  Channel size estimated using CVL's 48th & Chandler report.
162          RS       1    FLOW      -1
163          RC   0.040   0.035   0.040    1950   0.004
164          RX       0      25      60      65      75      78     115     120
165          RY      22    18.5      18      17      17      18      18      22
```



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

166          KK   DA512  (CVL310) HDR data
167          BA  0.1250
168          LS              77
169          UD    0.30

170          KK   AD512  Combine at 48th St and Highline canal.
171          HC       2

172          KK  DIV512  As per CVL report 60 cfs goes south, the balance south-east.
173          DT   CANAL
174          DI       0      60      60    1000    1500
175          DQ       0       0       1     940    1440

176          KK   DA513  (CVL195) CVL data
177          BA  0.0879
178          LS              85
179          UD   0.204

180          KK   DA514  (CVL197) CVL data
181          BA  0.0564
182          LS            84.1
183          UD   0.144

184          KK   DA515  (CVL199) CVL data
185          BA  0.0466
186          LS              84
187          UD   0.186

188          KK   AD515  Combine 515, 514 and 513
189          HC       3

190          KK   RT515  Channel info from Clouse plans.
191          RS       1    FLOW      -1
192          RC   0.040   0.020   0.040    2600  0.0059
193          RX      80      90     100     106     116     122     132     142
194          RY      10      10      10       6       6      10      10      10

195          KK   DA516  (CVL311) HDR data
196          BA   0.149
197          LS              77
198          UD    0.34

199          KK   AD516  Combine flows from west, 60 cfs from north and DA516 at 48th
200          KM           and Highline canal.
201          HC       3

202          KK   RT516  Channel info from Clouse plans.
203          RS       1    FLOW      -1
204          RC   0.040   0.020   0.040    1800   0.003
205          RX      80      90     100     106     116     122     132     142
206          RY      10      10      10       6       6      10      10      10
```



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

207          KK   DA517  (CVL320) CVL data
208          BA  0.1700
209          LS              77
210          UD   0.258
```

```
211          KK   AD517  Add in 517
212          HC      2

213          KK   RT517  Assumed channel shape based on estimated 48th St. cross-section.
214          RS      1    FLOW      -1
215          RC  0.020   0.025   0.040     850   0.005
216          RX     78      80     100     112     116     118     122     222
217          RY     12     9.6      10    9.76    7.76    7.76      10      12

218          KK   DA518
219          BA   0.099
220          LS               81
221          UD    0.58

222          KK   AD518  Combine 518 with flow moving south in 48th St.
223          HC      2

224          KK  DIV518 Assume 50-50 split at 48th & Chandler IC.
225          DT   DIVSE
226          DI      0    2000
227          DQ      0    1000

228          KK   RT518  Assume channel size based on existing tail-water ditch.
229          RS      1    FLOW      -1
230          RC  0.035   0.025   0.035    3600  0.0061
231          RX     80      90     100     105     110     115     125     135
232          RY   10.4    10.2      10       5       5      10    10.2    10.4

233          KK  DA519a
234          BA   0.22
235          LS               81
236          UD    0.62

237          KK  AD519a  Combine 519a and flow from N. at 48th & SMF.
238          HC      2

239          KK  DA520a
240          BA   0.127
241          LS               80
242          UD    0.41

243          KK  RT520a  Channel info from K-Mart Drainage report.
244          RS      1    FLOW      -1
245          RC  0.040   0.025   0.040    2100  0.0016
246          RX     80      90     100     112     114     126     136     146
247          RY     10      10      10       4       4      10      10      10
```



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

248          KK  DA520b
249          KM          Initial abstraction to allow for "K-mart development" 100yr-2hr Ret.
250          BA   0.224
251          LS   0.473    87.5
252          UD    0.35

253          KK  AD520b  Combine 520b and routed 520a at NW cnr of 48th & Ray Rd.
254          HC      2

255          KK  DIV520  Divert weir flow thru Equip. crossing under EB off-ramp
256          DT  DIVBOX
257          DI      0     100     200     300     400     500
258          DQ      0       0      60     143     230     320

259          KK  RT520b  Channel info from ADOT Ray Rd. TI Drainage report.
260          RS      1    FLOW      -1
261          RC  0.035   0.035   0.040    1000  0.0099
262          RX     80      90     100     108     118     122     132     222
263          RY   15.0    12.5      10       8       8      10    10.1      11

264          KK  DIVBOX  Retreive flow thru equipment crossing.
265          DR  DIVBOX

266          KK  AD520b  Re-combine flow diverted thru equip. crossing.
267          HC      2

268          KK  RT520b  Channel info from ADOT Ray Rd. TI Drainage report.
269          RS      1    FLOW      -1
```

```
270          RC   0.035   0.035   0.040    4200  0.0099
271          RX      80      90     100     108     118     122     132     222
272          RY    15.0    12.5      10       8       8      10    10.1      11

273          KK  DA521a
274          BA   0.094
275          LS               77
276          UD    0.53

277          KK   CANAL  Retrieve SE diversion from 48th St and Highline canal.
278          DR   CANAL

279          KK  ADHIGH  Combine retrieved diversion & 521a at Highline Canal.
280          HC       2

281          KK  RTHIGH  Route to I-10 & Chandler thru assumed channel overland flow
282          RS       5    FLOW      -1
283          RC   0.035   0.035   0.035    3500   0.008
284          RX      80      90     100     110    1110    1120    1130    1140
285          RY      10      10      10       9       9      10      10      10
```



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

286          KK  DA521b
287          BA   0.391
288          LS               81
289          UD    0.51

290          KK  AD521b  Combine overland flow, 521b and flow parallel to I-10
291          KM          at I-10 and Chandler Blvd.
292          HC       3

293          KK  CHNDLR  Route thru 24" RCP under, and weir flow over, Chandler Blvd
294          RS       1    STOR       0
295          SV       0    42.3    47.1    50.9    54.2    56.9    59.4    62.0    64.1    66.3
296          SV    68.2
297          SE    1189 1193.33 1193.57 1193.75 1193.90 1194.02 1194.13 1194.24 1194.33 1194.42
298          SE  1194.5
299          SQ       0     200     400     600     800    1000    1200    1400    1600    1800
300          SQ    2000

301          KK  CHNDLR  Divert flow thru 24" RCP out of study area.
302          DT  DIVOUT
303          DI       0     200     400     600    1200    2000
304          DQ       0      24      25      26      27      28

305          KK  RTCHLR  Assumed channel size. Route weir flow over Chandler overland to
306          KM          collector channel N. side of SMF.
307          RS       3    FLOW      -1
308          RC   0.035   0.035   0.035    1800   0.005
309          RX      80      90     100     110    1110    1120    1130    1140
310          RY      10      10      10       9       9      10      10      10

311          KK     ONS  On-site hydrograph from a portion of I-10 N. of TI.
312          BA    0.04
313          IN      10                     145
314          QI       0       0       0       0       0       0       0       0       0       0
315          QI       0       0       0       0       0       0       0       0       0       0
316          QI       0       0       0       0       0       0       0       0       0       0
317          QI       0       0       0       0       0       0       0       0       0       0
318          QI       0       0       0       0       0       0       0       0       0       0
319          QI       0       0       0       0       0       0       1       1       1       1
320          QI       1       1       1       1       1       2       2       2       3       3
321          QI       8      19      47     125      63      32      16       7       5       4
322          QI       4       4       3       3       3       3       2       2       2       2
323          QI       2       2       2       1       1       1       1       1       1       1
324          QI       1       1       1       1       1       1       1       1       1       1
325          QI       1       1       1       1       1       1       1       1       1       1
326          QI       1       1       1       1       1       1       1       1       1       1
327          QI       1       1       1       1       1       1       1       0       0       0
328          QI       0       0       0       0       0
```



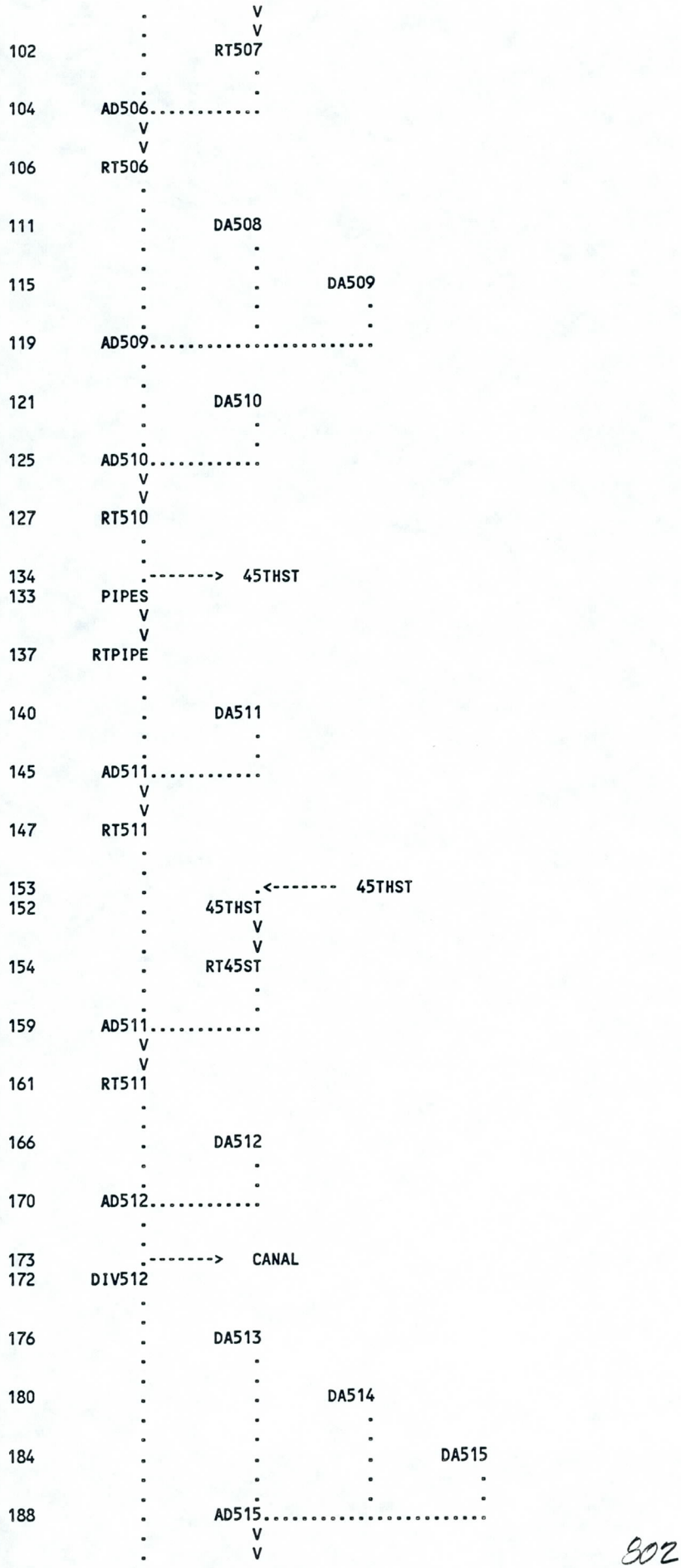
```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

329          KK   ADONS  Combine onsite from I-10 with routed overland flow from Chandler Blvd.
330          HC       2
```

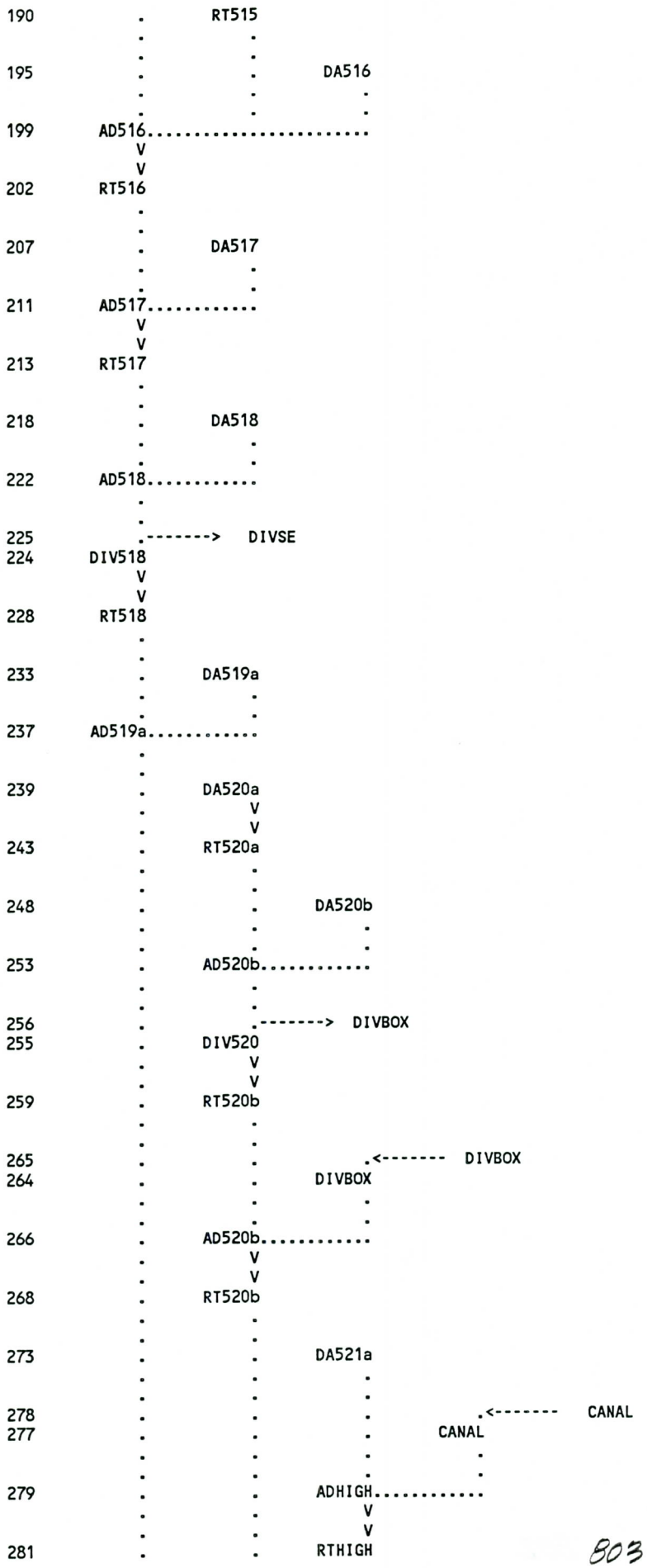
```
331          KK  RTCHLR  Proposed channel north of SMF to approx
332          KM          50th St alignment location.
333          RS       1    FLOW      -1
334          RC   0.035   0.018   0.035    1000   0.002
335          RX      80      90     100     112     140     155     162     172
336          RY      10      10      10       4       4      10      10      10

337          KK   DIVSE  Retrieve SE part of diversion from 48th St and Chandler Blvd IC.
338          DR   DIVSE

339          KK    RTSE  Route to approx 50th St. thru assumed channel overland
340          RS       5    FLOW      -1
341          RC   0.035   0.035   0.035    3100   0.005
342          RX      80      90     100     110     610     620     630     640
343          RY      10      10      10       9       9      10      10      10

344          KK  DA522a
345          BA   0.174
346          LS               81
347          UD    0.47

348          KK  AD522a  Combine 522a with flow in channel N. side SMF.
349          HC       3

350          KK  RT522a  Route to 48th St thru assumed channel.
351          RS       1    FLOW      -1
352          RC   0.035   0.018   0.035    1600   0.002
353          RX      80      90     100     112     140     152     162     172
354          RY      10      10      10       4       4      10      10      10

355          KK  DA522b
356          BA   0.091
357          LS               81
358          UD    0.50

359          KK  AD522b  Combine 522b and flow in channel from E. at 48th St.
360          HC       2

361          KK  AD522b  Add in DA519a and flow moving S. down 48th St.
362          HC       2

363          KK  DA519b
364          BA   0.322
365          LS               85
366          UD    0.43
```



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

367          KK  RT519b  Assume channel size and route 519b back to 48th St.
368          RS       1    FLOW      -1
369          RC   0.035   0.018   0.035    2800  0.0011
370          RX      80      90     100     112     124     136     146     156
371          RY      10      10      10       4       4      10      10      10

372          KK  AD519b  Combine all flows approx. 400ft West of 48th St. Design Q - C219.
373          HC       2

374          KK     PMP  TI on-site pumpstation hydrograph.
375          BA    0.16
376          IN      10                      145
377          QI       0       0       0       0       0       0       0       0       0       0
378          QI       0       0       0       0       0       0       0       0       0       0
379          QI       0       0       0       0       0       0       0       0       0       0
380          QI       0       0       0       0       0       0       0       0       0       0
381          QI       0       0       0       0       0       0       0       0       0       0
382          QI       0       0       0       0       0       0       0       0       0       0
383          QI       0       0       0       0       0      40       0      40       0       0
384          QI      41      41      83     209     210     211      51      51      11      11
385          QI      11      11      51      11      11      11      11      11      11      11
386          QI      51      11      11      10      10      10      10      50      10      10
387          QI      10      10      50      10      10      10      10      10      10      10
388          QI      10      10      10      10      10      10       9       9       9       9
389          QI      49       9       9       9       9       9       9       9       9       9
390          QI       9       9       9       9       9       9       9       9       9       9
391          QI       9       9       9       9       9

392          KK   ADPMP  combine flows from IC onsite pumpstation and route thru basin.
```

```
393           HC       2

394           KK     DET  Route thru detention basin S. side of SMF, outlet to Gila Floodway
395           KM          thru 54" RCP.
396           RS       1    STOR       0
397           SV       0    13.8    23.0   118.9   221.8   243.2   264.9   286.9   309.2   331.6
398           SE    1143  1144.5    1145    1150    1155    1156    1157    1158    1159    1160
399           SQ       0      13      20      79      98     102     105     108     111     114
400           ZZ
1
     SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   16      DA501
             .
             .
   24        .--------> DIVOUT
   21      DIV501
             V
             V
   27      RT501
             .
             .
   32        .       DA502
             .           .
             .           .
   36      AD502.............
             .
             .
   42        .--------> DIVOUT
   38      DIV502
             V
             V
   45      RT502
             .
             .
   50        .       DA503
             .           .
             .           .
   54      AD503.............
             V
             V
   56      RT503
             .
             .
   61        .       DA504
             .           .
             .           .
   65      AD504.............
             V
             V
   67      RT504
             .
             .
   72        .       DA505
             .           .
             .           .
   76      AD505.............
             V
             V
   78      RT505
             .
             .
   84        .--------> DIVOUT
   83      DIV505
             V
             V
   87      RT505
             .
             .
   92        .       DA506
             .           .
             .           .
   96      AD506.............
             .
             .
   98        .       DA507
```


102 RT507
104 AD506
106 RT506
111 DA508
115 DA509
119 AD509
121 DA510
125 AD510
127 RT510
134 45THST
133 PIPES
137 RTPIPE
140 DA511
145 AD511
147 RT511
153 45THST
152 45THST
154 RT45ST
159 AD511
161 RT511
166 DA512
170 AD512
173 CANAL
172 DIV512
176 DA513
180 DA514
184 DA515
188 AD515


190 RT515
195 DA516
199 AD516
202 RT516
207 DA517
211 AD517
213 RT517
218 DA518
222 AD518
225 DIVSE
224 DIV518
228 RT518
233 DA519a
237 AD519a
239 DA520a
243 RT520a
248 DA520b
253 AD520b
256 DIVBOX
255 DIV520
259 RT520b
265 DIVBOX
264 DIVBOX
266 AD520b
268 RT520b
273 DA521a
278 CANAL
277 CANAL
279 ADHIGH
281 RTHIGH

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              MAY   1991               *
*            VERSION 4.0.1E             *
*                                       *
*  RUN DATE  05/06/92  TIME  12:55:21   *
*                                       *
*****************************************
```


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


Q50-24HR

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

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

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

1 HEC-1 INPUT

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

  1           ID        PRICE ROAD PHASE III HYDROLOGY CHECK              <PRICE5>
  2           ID        SOUTH MOUNTAIN FREEWAY (40TH ST TO I-10 MARICOPA AREA)
  3           ID        50-YEAR 24-HOUR STORM EVENT
  4           ID        This file is a translation of Coe & Van-Loo's TR-20 model in
  5           ID        "48th St & Chandler Blvd" report to HEC-1 format. i.e. Their
  6           ID        basin areas, curve numbers, times, were used (as noted).Channel data
  7           ID        was estimated by HDR from site visits & photographs and from asbuilts
  8           ID        of development in the area.
  9           ID        Areas not covered by their report were also added to this file
 10           ID
 11           ID
 12           ID
 13           ID                                                  05-06-92 SMc.
              *DIAGRAM
 14           IT      1                  1440
 15           IO      3

 16           KK   DA501  (CVL1)  CVL data, HDR storm data.
 17           PH              0    0.67    1.32    2.31    2.54    2.69    2.97    3.24    3.52
 18           BA   0.38
 19           LS             90
 20           UD   0.144

 21           KK   DIV501
 22           KM        Ahwatukee Drainage Report shows 25-75 split. 25% to Study area.
 23           KM        Based on HDR site visit assume 50-50 split.
 24           DT   DIVOUT
 25           DI      0    1000
 26           DQ      0     500

 27           KK   RT501  Channel size approx.
 28           RS      1    FLOW      -1
 29           RC  0.035   0.025   0.035    2500   0.016
 30           RX     98      99     100     108     133     141     142     143
 31           RY   10.2    10.1      10       2       2      10    10.1    10.2

 32           KK   DA502  (CVL120) CVL data
 33           BA   0.42
 34           LS             86
 35           UD   0.246

 36           KK   AD502  Combine 502 and diverted flow from 501
```

716

```
37        HC       2

38        KK  DIV502  70% East to study area, other 30% South to MPR east watershed.
39        KM          According to Ahwatukee report there should be another diversion
40        KM          out of study area and back to Ahwatukee PhIV. This diversion was
41        KM          not found on HDR site visit and is not coded.
42        DT  DIVOUT
43        DI        0     1000
44        DQ        0      300
```



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

45        KK   RT502  Channel size approx.
46        RS        1    FLOW      -1
47        RC    0.035   0.025   0.035    2700   0.011
48        RX       98      99     100     106     131     137     138     139
49        RY     10.2    10.1      10       4       4      10    10.1    10.2

50        KK   DA503  (CVL201) CVL data
51        BA    0.086
52        LS               82
53        UD     0.21

54        KK   AD503  Combine 503 and flow from 501 & 502
55        HC        2

56        KK   RT503  Channel size approx.
57        RS        1    FLOW      -1
58        RC    0.040   0.035   0.040    1200  0.0125
59        RX       80      90     100     105     125     130     140     150
60        RY     10.2    10.1      10       5       5      10    10.1    10.2

61        KK   DA504 (CVL130) CVL data
62        BA    0.066
63        LS               84
64        UD    0.186

65        KK   AD504  Combine 504 and flow from north
66        HC        2

67        KK   RT504  Channel size approx.
68        RS        1    FLOW      -1
69        RC    0.040   0.035   0.040     850   0.01
70        RX       80      90     100     105     125     130     140     150
71        RY     10.3    10.1      10       5       5      10    10.1    10.2

72        KK   DA505  (CVL132) CVL data
73        BA   0.0357
74        LS               84
75        UD     0.16

76        KK   AD505  Combine 505 and flow from north
77        HC        2

78        KK   RT505  Channel size approx.
79        RS        1    FLOW      -1
80        RC    0.040   0.035   0.040     400   0.01
81        RX     79.9      80     100     105     120     125     145   145.1
82        RY       12    10.4      10       5       5      10    10.4      12

83        KK  DIV505  85% East to study area.
84        DT  DIVOUT
85        DI        0     1000
86        DQ        0      150
```



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

87        KK   RT505  Channel size approx.
88        RS        1    FLOW      -1
89        RC    0.040   0.035   0.040    1200   0.01
90        RX       80      90     100     105     120     125     135     145
91        RY     10.4    10.2      10       5       5      10    10.2    10.4

92        KK   DA506  (CVL207) CVL data
93        BA   0.0431
94        LS               85
```

```
 95          UD   0.198

 96          KK   AD506  Combine 506 and flow from 85% diversion
 97          HC      2

 98          KK   DA507  (CVL205) CVL data
 99          BA  0.0406
100          LS           84
101          UD    0.18

102          KK   RT507  Assumed pipe size.
103          RK    1400   0.01   0.020            CIRC     4.5

104          KK   AD506  Combine routed flow from 507 with 506 and flow from diversion.
105          HC      2

106          KK   RT506  Assumed channel size.
107          RS      1    FLOW      -1
108          RC  0.040   0.035   0.040     900    0.01
109          RX     50      90     100     105     120     125     135     175
110          RY     11    10.2      10       5       5      10    10.2      11

111          KK   DA508  (CVL210) CVL data
112          BA  0.0204
113          LS           85
114          UD   0.168

115          KK   DA509  (CVL212) CVL data
116          BA  0.0131
117          LS           88
118          UD    0.12

119          KK   AD509  Combine 509, 508 & flow from east along Ray Rd, at Ray Rd and 44th St.
120          HC      3

121          KK   DA510  (CVL214) CVL data
122          BA  0.0449
123          LS           85
124          UD   0.162
1                                    HEC-1 INPUT                                    PAGE  4

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

125          KK   AD510  Add in 510
126          HC      2

127          KK   RT510  Route flows moving east along North side of Ray Rd.
128          KM           Channel size from Brooks-Hersey Ray Rd, 44th to 48th St, plans.
129          RS      1    FLOW      -1
130          RC  0.040   0.025   0.030     900  0.0085
131          RX      0      50     100     112   130.5   142.5   178.5  178.51
132          RY     12      11      10       7       7      10   10.72   11.32

133          KK   PIPES  Diversion due to overtopping of 3-48" CMPs.
134          DT  45THST
135          DI      0     128    2000
136          DQ      0       0    1872

137          KK  RTPIPE  Route pipe flow to cnr 48th St & Ray.
138          KM           78" CMP gives approx same velocity for routing as 3-48" CMPs.
139          RK    1680  0.0078   0.024            CIRC     6.5

140          KK   DA511  (CVL304) HDR data
141          KM           Initial abstraction to allow for High School 100yr-2hr retention.
142          BA   0.356
143          LS   0.894      80
144          UD    0.80

145          KK   AD511  Combine 511 and 3-48" CMPs at cnr of 48th St and Ray Rd.
146          HC      2

147          KK   RT511  Channel for first 650 ft south of Ray Rd -- West side of 48th.
148          RS      1    FLOW      -1
149          RC  0.040   0.025   0.040     650  0.0037
150          RX     80      90     100     116     123     135     145     155
151          RY   10.2    10.1      10       2       2      10    10.1    10.2

152          KK  45THST  Retrieve diversion due to overtopping of pipes at 45th St & Ray.
153          DR  45THST
```

```
154          KK  RT45ST  Flow that overtops 3-48" CMPs is routed over land to 48th St.
155          RS       2    FLOW      -1
156          RC   0.035   0.035   0.035    2000    0.01
157          RX      80      90     100     110     610     620     630     640
158          RY      10      10      10       9       9      10      10      10

159          KK   AD511  Combine at S end of improved channel W side 48th St. 650ft S of Ray.
160          HC       2

161          KK   RT511  Channel size estimated using CVL's 48th & Chandler report.
162          RS       1    FLOW      -1
163          RC   0.040   0.035   0.040    1950   0.004
164          RX       0      25      60      65      75      78     115     120
165          RY      22    18.5      18      17      17      18      18      22
```



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

166          KK   DA512  (CVL310) HDR data
167          BA  0.1250
168          LS              77
169          UD    0.30

170          KK   AD512  Combine at 48th St and Highline canal.
171          HC       2

172          KK  DIV512  As per CVL report 60 cfs goes south, the balance south-east.
173          DT   CANAL
174          DI       0      60      60    1000    1500
175          DQ       0       0       1     940    1440

176          KK   DA513  (CVL195) CVL data
177          BA  0.0879
178          LS              85
179          UD   0.204

180          KK   DA514  (CVL197) CVL data
181          BA  0.0564
182          LS            84.1
183          UD   0.144

184          KK   DA515  (CVL199) CVL data
185          BA  0.0466
186          LS              84
187          UD   0.186

188          KK   AD515  Combine 515, 514 and 513
189          HC       3

190          KK   RT515  Channel info from Clouse plans.
191          RS       1    FLOW      -1
192          RC   0.040   0.020   0.040    2600  0.0059
193          RX      80      90     100     106     116     122     132     142
194          RY      10      10      10       6       6      10      10      10

195          KK   DA516  (CVL311) HDR data
196          BA   0.149
197          LS              77
198          UD    0.34

199          KK   AD516  Combine flows from west, 60 cfs from north and DA516 at 48th
200          KM           and Highline canal.
201          HC       3

202          KK   RT516  Channel info from Clouse plans.
203          RS       1    FLOW      -1
204          RC   0.040   0.020   0.040    1800   0.003
205          RX      80      90     100     106     116     122     132     142
206          RY      10      10      10       6       6      10      10      10
```



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

207          KK   DA517  (CVL320) CVL data
208          BA  0.1700
209          LS              77
210          UD   0.258
```

```
211          KK   AD517  Add in 517
212          HC       2

213          KK   RT517  Assumed channel shape based on estimated 48th St. cross-section.
214          RS       1    FLOW      -1
215          RC   0.020   0.025   0.040     850   0.005
216          RX      78      80     100     112     116     118     122     222
217          RY      12     9.6      10    9.76    7.76    7.76      10      12

218          KK   DA518
219          BA   0.099
220          LS               81
221          UD    0.58

222          KK   AD518  Combine 518 with flow moving south in 48th St.
223          HC       2

224          KK  DIV518 Assume 50-50 split at 48th & Chandler IC.
225          DT   DIVSE
226          DI       0    2000
227          DQ       0    1000

228          KK   RT518  Assume channel size based on existing tail-water ditch.
229          RS       1    FLOW      -1
230          RC   0.035   0.025   0.035    3600  0.0061
231          RX      80      90     100     105     110     115     125     135
232          RY    10.4    10.2      10       5       5      10    10.2    10.4

233          KK  DA519a
234          BA    0.22
235          LS               81
236          UD    0.62

237          KK  AD519a  Combine 519a and flow from N. at 48th & SMF.
238          HC       2

239          KK  DA520a
240          BA   0.127
241          LS               80
242          UD    0.41

243          KK  RT520a  Channel info from K-Mart Drainage report.
244          RS       1    FLOW      -1
245          RC   0.040   0.025   0.040    2100  0.0016
246          RX      80      90     100     112     114     126     136     146
247          RY      10      10      10       4       4      10      10      10
```



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

248          KK  DA520b
249          KM          Initial abstraction to allow for "K-mart development" 100yr-2hr Ret.
250          BA   0.224
251          LS   0.473    87.5
252          UD    0.34

253          KK  AD520b  Combine 520b and routed 520a at NW cnr of 48th & Ray Rd.
254          HC       2

255          KK  DIV520  Divert weir flow thru Equip. crossing under EB off-ramp
256          DT  DIVBOX
257          DI       0     100     200     300     400     500
258          DQ       0       0      60     143     230     320

259          KK  RT520b  Channel info from ADOT Ray Rd. TI Drainage report.
260          RS       1    FLOW      -1
261          RC   0.035   0.035   0.040    1000  0.0099
262          RX      80      90     100     108     118     122     132     222
263          RY    15.0    12.5      10       8       8      10    10.1      11

264          KK  DIVBOX  Retreive flow thru equipment crossing.
265          DR  DIVBOX

266          KK  AD520b  Re-combine flow diverted thru equip. crossing.
267          HC       2

268          KK  RT520b  Channel info from ADOT Ray Rd. TI Drainage report.
269          RS       1    FLOW      -1
```

```
270          RC   0.035   0.035   0.040    4200  0.0099
271          RX      80      90     100     108     118     122     132     222
272          RY    15.0    12.5      10       8       8      10    10.1      11

273          KK  DA521a
274          BA   0.094
275          LS               77
276          UD    0.53

277          KK   CANAL  Retrieve SE diversion from 48th St and Highline canal.
278          DR   CANAL

279          KK  ADHIGH  Combine retrieved diversion & 521a at Highline Canal.
280          HC       2

281          KK  RTHIGH  Route to I-10 & Chandler thru assumed channel overland flow
282          RS       5    FLOW      -1
283          RC   0.035   0.035   0.035    3500   0.008
284          RX      80      90     100     110    1110    1120    1130    1140
285          RY      10      10      10       9       9      10      10      10
```



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

286          KK  DA521b
287          BA   0.391
288          LS               81
289          UD    0.51

290          KK  AD521b  Combine overland flow, 521b and flow parallel to I-10
291          KM           at I-10 and Chandler Blvd.
292          HC       3

293          KK  CHNDLR  Route thru 24" RCP under, and weir flow over, Chandler Blvd
294          RS       1    STOR       0
295          SV       0    42.3    47.1    50.9    54.2    56.9    59.4    62.0    64.1    66.3
296          SV    68.2
297          SE    1189 1193.33 1193.57 1193.75 1193.90 1194.02 1194.13 1194.24 1194.33 1194.42
298          SE  1194.5
299          SQ       0     200     400     600     800    1000    1200    1400    1600    1800
300          SQ    2000

301          KK  CHNDLR  Divert flow thru 24" RCP out of study area.
302          DT  DIVOUT
303          DI       0     200     400     600    1200    2000
304          DQ       0      24      25      26      27      28

305          KK  RTCHLR  Assumed channel size. Route weir flow over Chandler overland to
306          KM           collector channel N. side of SMF.
307          RS       3    FLOW      -1
308          RC   0.035   0.035   0.035    1800   0.005
309          RX      80      90     100     110    1110    1120    1130    1140
310          RY      10      10      10       9       9      10      10      10

311          KK     ONS  On-site hydrograph from a portion of I-10 N. of TI.
312          BA    0.04
313          IN      10                     145
314          QI       0       0       0       0       0       0       0       0       0
315          QI       0       0       0       0       0       0       0       0       0
316          QI       0       0       0       0       0       0       0       0       0
317          QI       0       0       0       0       0       0       0       0       0
318          QI       0       0       0       0       0       0       0       0       0
319          QI       0       0       0       0       0       0       0       0       1
320          QI       1       1       1       1       1       1       1       2       2       3
321          QI       7      15      39     107      55      28      14       6       5       4
322          QI       3       3       3       3       2       2       2       2       2       2
323          QI       2       2       1       1       1       1       1       1       1       1
324          QI       1       1       1       1       1       1       1       1       1       1
325          QI       1       1       1       1       1       1       1       1       1       1
326          QI       1       1       1       1       1       1       1       1       0       0
327          QI       0       0       0       0       0       0       0       0       0       0
328          QI       0       0       0       0       0
```



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

329          KK   ADONS  Combine onsite from I-10 with routed overland flow from Chandler Blvd.
330          HC       2
```

```
331          KK  RTCHLR  Proposed channel north of SMF to approx
332          KM          50th St alignment location.
333          RS       1    FLOW      -1
334          RC   0.035   0.018   0.035    1000   0.002
335          RX      80      90     100     112     140     155     162     172
336          RY      10      10      10       4       4      10      10      10

337          KK   DIVSE   Retrieve SE part of diversion from 48th St and Chandler Blvd IC.
338          DR   DIVSE

339          KK    RTSE  Route to approx 50th St. thru assumed channel overland
340          RS       5    FLOW      -1
341          RC   0.035   0.035   0.035    3100   0.005
342          RX      80      90     100     110     610     620     630     640
343          RY      10      10      10       9       9      10      10      10

344          KK  DA522a
345          BA   0.174
346          LS               81
347          UD    0.47

348          KK  AD522a  Combine 522a with flow in channel N. side SMF.
349          HC       3

350          KK  RT522a  Route to 48th St thru assumed channel.
351          RS       1    FLOW      -1
352          RC   0.035   0.018   0.035    1600   0.002
353          RX      80      90     100     112     140     152     162     172
354          RY      10      10      10       4       4      10      10      10

355          KK  DA522b
356          BA   0.091
357          LS               81
358          UD    0.50

359          KK  AD522b  Combine 522b and flow in channel from E. at 48th St.
360          HC       2

361          KK  AD522b  Add in DA519a and flow moving S. down 48th St.
362          HC       2

363          KK  DA519b
364          BA   0.322
365          LS               85
366          UD    0.43
```

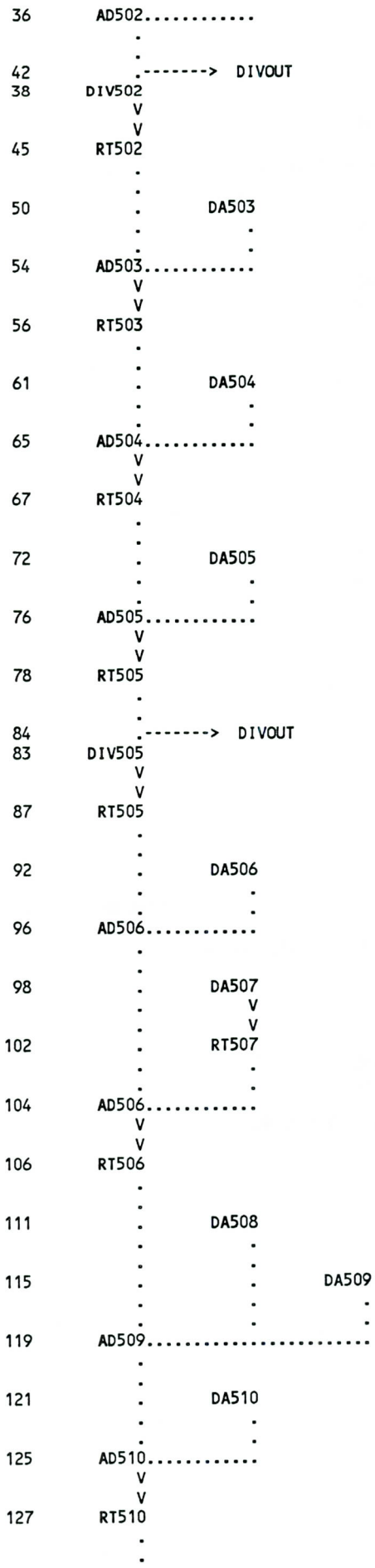


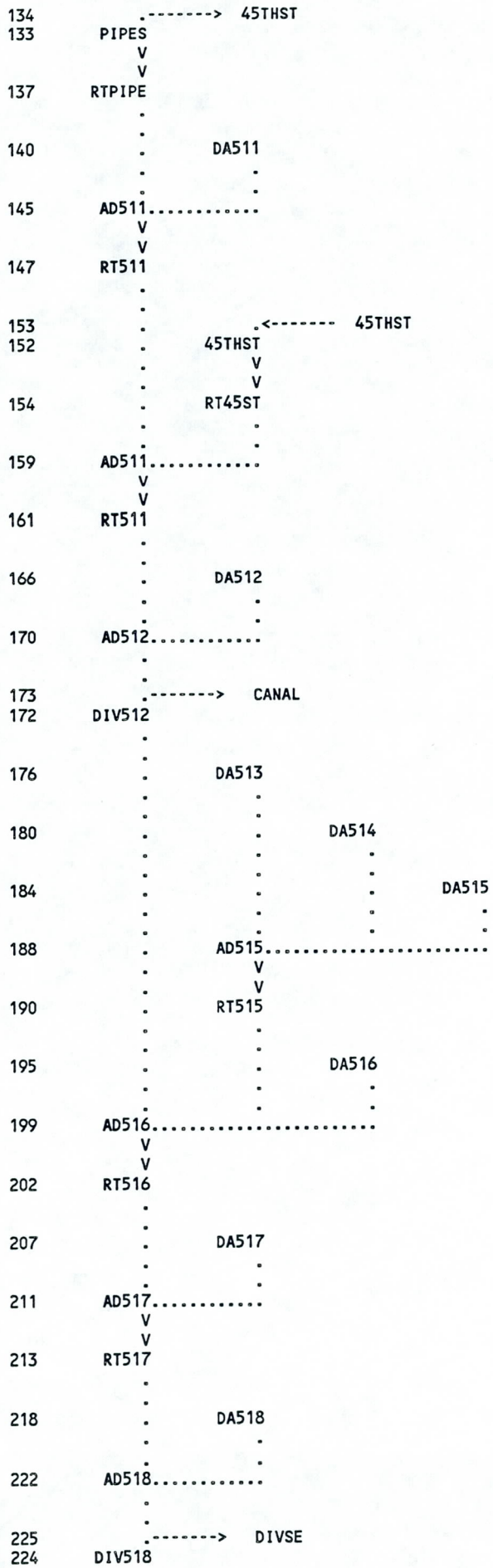
```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

367          KK  RT519b  Assume channel size and route 519b back to 48th St.
368          RS       1    FLOW      -1
369          RC   0.035   0.018   0.035    2800  0.0011
370          RX      80      90     100     112     124     136     146     156
371          RY      10      10      10       4       4      10      10      10

372          KK  AD519b  Combine all flows approx. 400ft West of 48th St. Design Q - C219.
373          HC       2
374          ZZ
```

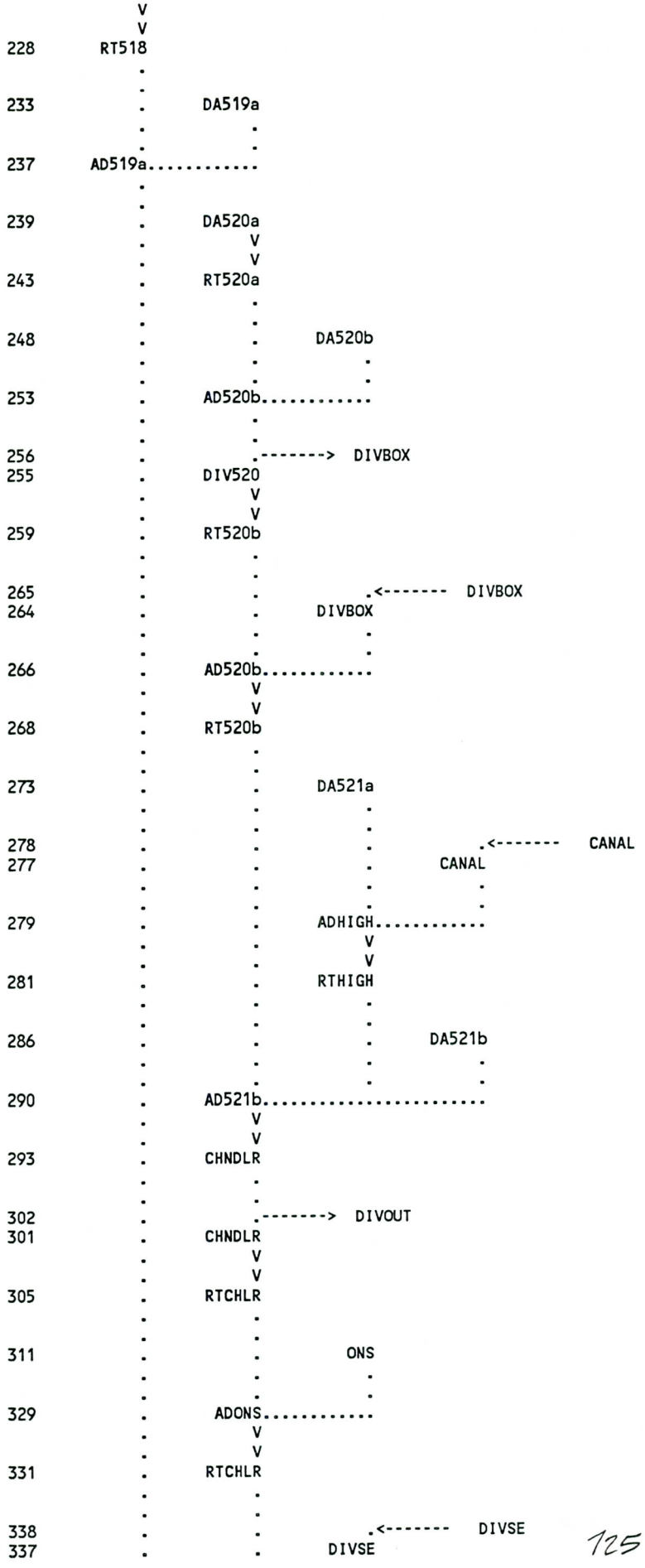
1

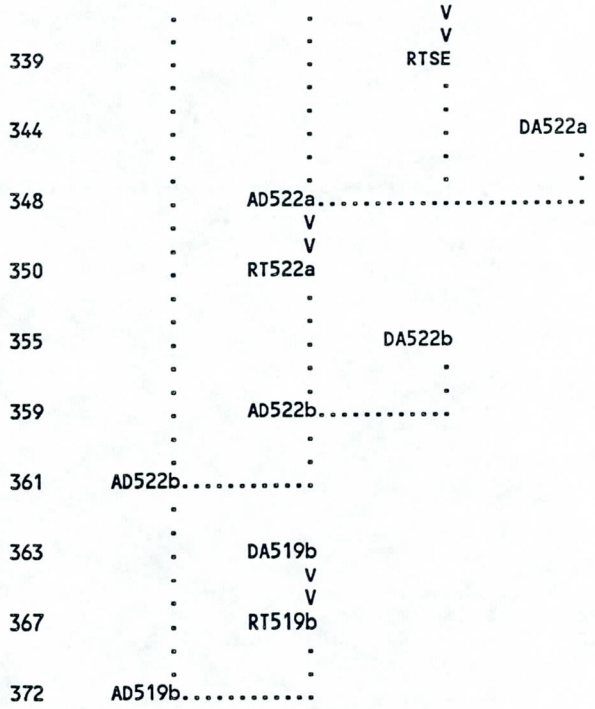
SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   16       DA501
                .
                .
   24           .-------->  DIVOUT
   21       DIV501
                V
                V
   27       RT501
                .
                .
   32           .       DA502
                .          .
                .          .
```


36 AD502
42 DIVOUT
38 DIV502
45 RT502
50 DA503
54 AD503
56 RT503
61 DA504
65 AD504
67 RT504
72 DA505
76 AD505
78 RT505
84 DIVOUT
83 DIV505
87 RT505
92 DA506
96 AD506
98 DA507
102 RT507
104 AD506
106 RT506
111 DA508
115 DA509
119 AD509
121 DA510
125 AD510
127 RT510


134
133 PIPES
137 RTPIPE
140 DA511
145 AD511
147 RT511
153
152 45THST
154 RT45ST
159 AD511
161 RT511
166 DA512
170 AD512
173
172 DIV512
176 DA513
180 DA514
184 DA515
188 AD515
190 RT515
195 DA516
199 AD516
202 RT516
207 DA517
211 AD517
213 RT517
218 DA518
222 AD518
225
224 DIV518
45THST
CANAL
DIVSE


228 RT518
233 DA519a
237 AD519a
239 DA520a
243 RT520a
248 DA520b
253 AD520b
256 DIVBOX
255 DIV520
259 RT520b
265 DIVBOX
264 DIVBOX
266 AD520b
268 RT520b
273 DA521a
278 CANAL
277 CANAL
279 ADHIGH
281 RTHIGH
286 DA521b
290 AD521b
293 CHNDLR
302 DIVOUT
301 CHNDLR
305 RTCHLR
311 ONS
329 ADONS
331 RTCHLR
338 DIVSE
337 DIVSE



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              MAY   1991               *
*            VERSION 4.0.1E             *
*                                       *
*  RUN DATE  05/06/92  TIME  12:55:21   *
*                                       *
*****************************************
```

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

PRICE ROAD PHASE III HYDROLOGY CHECK <PRICE5>
SOUTH MOUNTAIN FREEWAY (40TH ST TO I-10 MARICOPA AREA)
50-YEAR 24-HOUR STORM EVENT
This file is a translation of Coe & Van-Loo's TR-20 model in
"48th St & Chandler Blvd" report to HEC-1 format. i.e. Their
basin areas, curve numbers, times, were used (as noted).Channel data
was estimated by HDR from site visits & photographs and from asbuilts
of development in the area.
Areas not covered by their report were also added to this file

05-06-92 SMc.

```
15 IO          OUTPUT CONTROL VARIABLES
                    IPRNT          3  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

   IT          HYDROGRAPH TIME DATA
                    NMIN           1  MINUTES IN COMPUTATION INTERVAL
                   IDATE      1    0  STARTING DATE
                   ITIME        0000  STARTING TIME
                      NQ        1440  NUMBER OF HYDROGRAPH ORDINATES
                  NDDATE      1    0  ENDING DATE
                  NDTIME        2359  ENDING TIME
                   ICENT          19  CENTURY MARK

                COMPUTATION INTERVAL    0.02 HOURS
                    TOTAL TIME BASE   23.98 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


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


          **************
          *            *
 16 KK    *     DA501  *       (CVL1)  CVL data, HDR storm data.
          *            *
          **************

             SUBBASIN RUNOFF DATA

 18 BA         SUBBASIN CHARACTERISTICS
                     TAREA        0.38  SUBBASIN AREA

               PRECIPITATION DATA

 17 PH                                DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
               ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
               5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                0.67   1.32    2.31    2.54    2.69    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                 STORM AREA =    0.38

 19 LS         SCS LOSS RATE
                     STRTL        0.22  INITIAL ABSTRACTION
                    CRVNBR       90.00  CURVE NUMBER
                     RTIMP        0.00  PERCENT IMPERVIOUS AREA

 20 UD         SCS DIMENSIONLESS UNITGRAPH
                     TLAG        0.14  LAG

                                                      ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                 UNIT HYDROGRAPH
                                              45 END-OF-PERIOD ORDINATES
                44.      141.      270.      446.      674.      904.     1075.     1175.     1203.     1194.
              1118.     1024.      913.      774.      625.      512.      427.      356.      303.      255.
               214.      175.      149.      124.      104.       87.       72.       61.       51.       43.
                35.       30.       25.       21.       17.       15.       13.       11.        9.        8.
                 6.        5.        4.        2.        1.

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

                       HYDROGRAPH AT STATION    DA501

    TOTAL RAINFALL =    3.52, TOTAL LOSS =    1.05, TOTAL EXCESS =    2.46

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                        (CFS)
+    1047.     12.15                   92.         25.         25.         25.
                       (INCHES)      2.252       2.462       2.462       2.462
                       (AC-FT)         46.         50.         50.         50.

                       CUMULATIVE AREA =    0.38 SQ MI


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


          **************
          *            *
 21 KK    *    DIV501  *
          *            *
          **************

                              Ahwatukee Drainage Report shows 25-75 split. 25% to Study area.
                              Based on HDR site visit assume 50-50 split.
```

```
DT        DIVERSION
              ISTAD       DIVOUT  DIVERSION HYDROGRAPH IDENTIFICATION

DI            INFLOW      0.00  1000.00

DQ     DIVERTED FLOW      0.00   500.00
                                                        ***

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

                 DIVERSION HYDROGRAPH   DIVOUT

PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                             6-HR       24-HR      72-HR      23.98-HR
+  (CFS)      (HR)
                       (CFS)
+    524.     12.15           46.         13.        13.          13.
                    (INCHES)  1.126       1.231      1.231        1.231
                     (AC-FT)  23.         25.        25.          25.

                  CUMULATIVE AREA =    0.38 SQ MI

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

                 HYDROGRAPH AT STATION   DIV501

PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                             6-HR       24-HR      72-HR      23.98-HR
+  (CFS)      (HR)
                       (CFS)
+    524.     12.15           46.         13.        13.          13.
                    (INCHES)  1.126       1.231      1.231        1.231
                     (AC-FT)  23.         25.        25.          25.

                  CUMULATIVE AREA =    0.38 SQ MI


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

            ***************
            *             *
 27 KK      *    RT501    *      Channel size approx.
            *             *
            ***************

           HYDROGRAPH ROUTING DATA

 28 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC      -1.00  INITIAL CONDITION
                         X       0.00 WORKING R AND D COEFFICIENT

 29 RC          NORMAL DEPTH CHANNEL
                       ANL      0.035  LEFT OVERBANK N-VALUE
                      ANCH      0.025  MAIN CHANNEL N-VALUE
                       ANR      0.035  RIGHT OVERBANK N-VALUE
                     RLNTH      2500.  REACH LENGTH
                       SEL     0.0160  ENERGY SLOPE
                     ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                        CROSS-SECTION DATA
                      --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 31 RY       ELEVATION    10.20     10.10     10.00      2.00      2.00     10.00     10.10     10.20
 30 RX       DISTANCE     98.00     99.00    100.00    108.00    133.00    141.00    142.00    143.00
                                                        ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

   STORAGE      0.00      0.63      1.28      1.95      2.65      3.36      4.10      4.86      5.64      6.44
   OUTFLOW      0.00     46.30    146.66    287.86    464.65    673.98    913.86   1182.93   1480.23   1805.04
 ELEVATION      2.00      2.43      2.86      3.29      3.73      4.16      4.59      5.02      5.45      5.88
```

728

STORAGE	7.26	8.11	8.97	9.86	10.76	11.69	12.64	13.62	14.61	15.65
OUTFLOW	2156.89	2535.40	2940.35	3371.59	3829.03	4312.65	4822.46	5358.53	5920.95	6560.13
ELEVATION	6.32	6.75	7.18	7.61	8.04	8.47	8.91	9.34	9.77	10.20

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

HYDROGRAPH AT STATION RT501

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)				
		(CFS)			
+ 490.	12.20	46.	13.	13.	13.
		(INCHES) 1.125	1.229	1.229	1.229
		(AC-FT) 23.	25.	25.	25.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
3.	12.20	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
3.78	12.20	2.26	2.08	2.08	2.08

CUMULATIVE AREA = 0.38 SQ MI

*** ***

```
**************
*            *
32 KK   *  DA502  *     (CVL120) CVL data
*            *
**************
```

SUBBASIN RUNOFF DATA

33 BA SUBBASIN CHARACTERISTICS
TAREA 0.42 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.42

34 LS SCS LOSS RATE
STRTL 0.33 INITIAL ABSTRACTION
CRVNBR 86.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

35 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.25 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
76 END-OF-PERIOD ORDINATES

16.	41.	78.	124.	178.	241.	322.	412.	511.	597.
672.	730.	767.	791.	796.	794.	783.	752.	717.	679.
637.	589.	536.	473.	416.	365.	328.	294.	263.	237.
214.	195.	176.	158.	143.	127.	113.	103.	92.	83.
75.	67.	60.	54.	48.	43.	39.	35.	31.	29.
26.	23.	21.	19.	17.	15.	14.	12.	11.	10.
9.	8.	8.	7.	6.	6.	5.	4.	4.	3.
3.	2.	2.	1.	1.	0.				

*** *** *** *** 129 ***

HYDROGRAPH AT STATION DA502

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.40, TOTAL EXCESS = 2.11

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 770.	12.27		88.	24.	24.	24.
		(INCHES)	1.942	2.109	2.109	2.109
		(AC-FT)	44.	47.	47.	47.

CUMULATIVE AREA = 0.42 SQ MI

*** ***

```
**************
*            *
*    AD502   *
*            *
**************
```

36 KK Combine 502 and diverted flow from 501

37 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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

HYDROGRAPH AT STATION AD502

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1226.	12.23		134.	36.	36.	36.
		(INCHES)	1.553	1.691	1.691	1.691
		(AC-FT)	66.	72.	72.	72.

CUMULATIVE AREA = 0.80 SQ MI

*** ***

```
**************
*            *
*    DIV502  *
*            *
**************
```

38 KK 70% East to study area, other 30% South to MPR east watershed.

According to Ahwatukee report there should be another diversion out of study area and back to Ahwatukee PhIV. This diversion was not found on HDR site visit and is not coded.

DT DIVERSION ISTAD DIVOUT DIVERSION HYDROGRAPH IDENTIFICATION

DI INFLOW 0.00 1000.00

DQ DIVERTED FLOW 0.00 300.00

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

DIVERSION HYDROGRAPH DIVOUT

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 368.	12.23		40.	11.	11.	11.
		(INCHES)	0.466	0.507	0.507	0.507
		(AC-FT)	20.	22.	22.	22.

CUMULATIVE AREA = 0.80 SQ MI

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

HYDROGRAPH AT STATION DIV502

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 858.	12.23		94.	25.	25.	25.
		(INCHES)	1.087	1.184	1.184	1.184
		(AC-FT)	46.	51.	51.	51.

CUMULATIVE AREA = 0.80 SQ MI

*** ***

```
           ***************
           *             *
 45 KK     *    RT502    *       Channel size approx.
           *             *
           ***************
```

HYDROGRAPH ROUTING DATA

```
 46 RS         STORAGE ROUTING
                    NSTPS           1  NUMBER OF SUBREACHES
                     ITYP        FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC       -1.00  INITIAL CONDITION
                        X        0.00  WORKING R AND D COEFFICIENT

 47 RC         NORMAL DEPTH CHANNEL
                      ANL       0.035  LEFT OVERBANK N-VALUE
                     ANCH       0.025  MAIN CHANNEL N-VALUE
                      ANR       0.035  RIGHT OVERBANK N-VALUE
                    RLNTH       2700.  REACH LENGTH
                      SEL      0.0110  ENERGY SLOPE
                    ELMAX         0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION
```

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL		------- +	--- RIGHT OVERBANK ---		
49 RY	ELEVATION	10.20	10.10	10.00	4.00	4.00	10.00	10.10	10.20
48 RX	DISTANCE	98.00	99.00	100.00	106.00	131.00	137.00	138.00	139.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.51	1.04	1.58	2.13	2.69	3.27	3.86	4.47	5.09
OUTFLOW	0.00	24.11	76.39	149.92	241.92	350.71	475.16	614.48	768.06	935.45
ELEVATION	4.00	4.33	4.65	4.98	5.31	5.63	5.96	6.28	6.61	6.94
STORAGE	5.72	6.36	7.02	7.69	8.37	9.07	9.78	10.50	11.24	12.01
OUTFLOW	1116.28	1310.29	1517.25	1737.02	1969.44	2214.44	2471.94	2741.89	3024.26	3348.04
ELEVATION	7.26	7.59	7.92	8.24	8.57	8.89	9.22	9.55	9.87	10.20

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

HYDROGRAPH AT STATION RT502

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 823.	12.28		93.	25.	25.	25.
		(INCHES)	1.086	1.182	1.182	1.182
		(AC-FT)	46.	50.	50.	50.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)					
5.	12.28		1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
6.72	12.28	4.54	4.16	4.16	4.16

CUMULATIVE AREA = 0.80 SQ MI

*** ***

```
**************
*            *
50 KK  *  DA503  *   (CVL201) CVL data
*            *
**************
```

SUBBASIN RUNOFF DATA

51 BA SUBBASIN CHARACTERISTICS

TAREA 0.09 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.09

52 LS SCS LOSS RATE

STRTL 0.44 INITIAL ABSTRACTION

CRVNBR 82.00 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

53 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.21 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
65 END-OF-PERIOD ORDINATES

4.	13.	24.	37.	55.	77.	102.	129.	152.	169.
182.	189.	190.	189.	183.	174.	164.	152.	139.	123.
106.	91.	80.	71.	62.	55.	49.	44.	39.	34.
30.	26.	23.	21.	18.	16.	14.	13.	11.	10.
9.	8.	7.	6.	5.	5.	4.	4.	3.	3.
3.	2.	2.	2.	2.	1.	1.	1.	1.	1.
1.	1.	0.	0.	0.					

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

HYDROGRAPH AT STATION DA503

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.72, TOTAL EXCESS = 1.80

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)				
		(CFS)			
+ 146.	12.23	15.	4.	4.	4.
		(INCHES) 1.657	1.795	1.795	1.795
		(AC-FT) 8.	8.	8.	8.

CUMULATIVE AREA = 0.09 SQ MI

*** ***


```
**************
*            *
```

```
 54 KK      *     AD503  *       Combine 503 and flow from 501 & 502
            *            *
            **************

 55 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                        HYDROGRAPH AT STATION    AD503

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                         (CFS)
+     963.     12.28                  109.        30.         30.         30.
                       (INCHES)      1.142       1.241       1.241       1.241
                       (AC-FT)        54.         59.         59.         59.

                       CUMULATIVE AREA =    0.89 SQ MI


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


            **************
            *            *
 56 KK      *     RT503  *       Channel size approx.
            *            *
            **************

               HYDROGRAPH ROUTING DATA

 57 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC     -1.00  INITIAL CONDITION
                         X       0.00 WORKING R AND D COEFFICIENT

 58 RC          NORMAL DEPTH CHANNEL
                       ANL      0.040  LEFT OVERBANK N-VALUE
                      ANCH      0.035  MAIN CHANNEL N-VALUE
                       ANR      0.040  RIGHT OVERBANK N-VALUE
                     RLNTH      1200.  REACH LENGTH
                       SEL     0.0125  ENERGY SLOPE
                     ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 60 RY       ELEVATION     10.20     10.10     10.00      5.00      5.00     10.00     10.10     10.20
 59 RX       DISTANCE      80.00     90.00    100.00    105.00    125.00    130.00    140.00    150.00

                                                    ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE       0.00      0.15      0.31      0.47      0.64      0.81      0.98      1.16      1.34      1.52
          OUTFLOW       0.00     10.95     34.70     68.11    109.90    159.34    215.90    279.24    349.08    425.23
        ELEVATION       5.00      5.27      5.55      5.82      6.09      6.37      6.64      6.92      7.19      7.46

          STORAGE       1.71      1.91      2.11      2.31      2.52      2.73      2.94      3.16      3.38      3.72
          OUTFLOW     507.53    595.85    690.12    790.25    896.20   1007.93   1125.42   1248.64   1377.59   1531.74
        ELEVATION       7.74      8.01      8.28      8.56      8.83      9.11      9.38      9.65      9.93     10.20

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

                        HYDROGRAPH AT STATION    RT503

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                         (CFS)
+     954.     12.30                  109.        30.         30.         30.
                       (INCHES)      1.141       1.239       1.239       1.239
                       (AC-FT)        54.         59.         59.         59.
```

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
3.	12.30	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
8.97	12.30	5.83	5.27	5.27	5.27

CUMULATIVE AREA = 0.89 SQ MI

*** ***

```
**************
*            *
*     DA504  *
*            *
**************
```

61 KK (CVL130) CVL data

SUBBASIN RUNOFF DATA

62 BA SUBBASIN CHARACTERISTICS

TAREA	0.07	SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

HYDRO-35			TP-40					TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.07

63 LS SCS LOSS RATE

STRTL	0.38	INITIAL ABSTRACTION
CRVNBR	84.00	CURVE NUMBER
RTIMP	0.00	PERCENT IMPERVIOUS AREA

64 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	0.19	LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
58 END-OF-PERIOD ORDINATES

4.	13.	25.	40.	58.	82.	108.	131.	148.	158.
163.	164.	161.	153.	143.	132.	118.	103.	87.	74.
64.	55.	48.	42.	37.	32.	28.	24.	21.	18.
16.	14.	12.	11.	9.	8.	7.	6.	5.	5.
4.	3.	3.	3.	2.	2.	2.	2.	1.	1.
1.	1.	1.	1.	0.	0.	0.	0.		

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

HYDROGRAPH AT STATION DA504

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.57, TOTAL EXCESS = 1.95

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)				
		(CFS)			
+ 129.	12.20	13.	3.	3.	3.
		(INCHES) 1.798	1.949	1.949	1.949
		(AC-FT) 6.	7.	7.	7.

CUMULATIVE AREA = 0.07 SQ MI

*** ***

```
          **************
          *            *
 65 KK    *    AD504   *      Combine 504 and flow from north
          *            *
          **************

 66 HC         HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                        HYDROGRAPH AT STATION    AD504

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+    1062.     12.30                  122.         33.         33.         33.
                        (INCHES)     1.187       1.289       1.289       1.289
                         (AC-FT)      60.         65.         65.         65.

                        CUMULATIVE AREA =    0.95 SQ MI


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


          **************
          *            *
 67 KK    *    RT504   *      Channel size approx.
          *            *
          **************

            HYDROGRAPH ROUTING DATA

 68 RS        STORAGE ROUTING
                   NSTPS          1  NUMBER OF SUBREACHES
                    ITYP       FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC      -1.00  INITIAL CONDITION
                       X        0.00 WORKING R AND D COEFFICIENT

 69 RC        NORMAL DEPTH CHANNEL
                     ANL      0.040  LEFT OVERBANK N-VALUE
                    ANCH      0.035  MAIN CHANNEL N-VALUE
                     ANR      0.040  RIGHT OVERBANK N-VALUE
                   RLNTH       850.  REACH LENGTH
                     SEL     0.0100  ENERGY SLOPE
                   ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 71 RY       ELEVATION    10.30     10.10     10.00      5.00      5.00     10.00     10.10     10.20
 70 RX       DISTANCE     80.00     90.00    100.00    105.00    125.00    130.00    140.00    150.00

                                                ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE      0.00      0.11      0.22      0.34      0.46      0.58      0.71      0.84      0.97      1.10
          OUTFLOW      0.00     10.11     32.04     62.88    101.47    147.11    199.34    257.84    322.35    392.69
        ELEVATION      5.00      5.28      5.56      5.84      6.12      6.39      6.67      6.95      7.23      7.51

          STORAGE      1.24      1.38      1.53      1.67      1.82      1.97      2.13      2.29      2.45      2.76
          OUTFLOW    468.72    550.34    637.46    730.03    827.99    931.31   1039.97   1153.96   1274.75   1428.56
        ELEVATION      7.79      8.07      8.35      8.63      8.91      9.18      9.46      9.74     10.02     10.30

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

                        HYDROGRAPH AT STATION    RT504

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
```

```
                          (CFS)
+    1057.      12.32                    122.          33.          33.          33.
                          (INCHES)       1.187         1.287        1.287        1.287
                          (AC-FT)        60.           65.          65.          65.

 PEAK STORAGE    TIME                                MAXIMUM AVERAGE STORAGE
                                          6-HR         24-HR        72-HR       23.98-HR
+  (AC-FT)       (HR)
       2.       12.32                    0.            0.           0.           0.

 PEAK STAGE      TIME                                MAXIMUM AVERAGE STAGE
                                          6-HR         24-HR        72-HR       23.98-HR
+  (FEET)        (HR)
      9.51      12.32                    5.95          5.31         5.31         5.31

                          CUMULATIVE AREA =    0.95 SQ MI


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


          **************
          *            *
 72 KK    *     DA505  *       (CVL132) CVL data
          *            *
          **************

             SUBBASIN RUNOFF DATA

 73 BA          SUBBASIN CHARACTERISTICS
                     TAREA        0.04  SUBBASIN AREA

                PRECIPITATION DATA

 17 PH                                DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 0.67    1.32    2.31    2.54    2.69    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                  STORM AREA =    0.04

 74 LS          SCS LOSS RATE
                     STRTL       0.38  INITIAL ABSTRACTION
                     CRVNBR     84.00  CURVE NUMBER
                     RTIMP       0.00  PERCENT IMPERVIOUS AREA

 75 UD          SCS DIMENSIONLESS UNITGRAPH
                     TLAG        0.16  LAG

                                                  ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667       0.01667      24.00000

                                                UNIT HYDROGRAPH
                                            50 END-OF-PERIOD ORDINATES
                3.      10.      19.      31.      47.      66.      83.      94.     101.     102.
              102.      96.      89.      81.      71.      59.      49.      41.      35.      30.
               26.      22.      19.      16.      14.      11.      10.       8.       7.       6.
                5.       4.       4.       3.       3.       2.       2.       2.       1.       1.
                1.       1.       1.       1.       1.       0.       0.       0.       0.       0.

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

                          HYDROGRAPH AT STATION    DA505

    TOTAL RAINFALL =    3.52, TOTAL LOSS =    1.57, TOTAL EXCESS =    1.95

 PEAK FLOW      TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR         24-HR        72-HR       23.98-HR
+  (CFS)         (HR)
                          (CFS)
+     75.       12.18                    7.            2.           2.           2.
                          (INCHES)       1.798         1.950        1.950        1.950
                          (AC-FT)        3.            4.           4.           4.

                          CUMULATIVE AREA =    0.04 SQ MI
```

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 76 KK    *     AD505  *       Combine 505 and flow from north
          *            *
          **************

 77 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                       HYDROGRAPH AT STATION    AD505

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+    1109.      12.30                128.         35.          35.          35.
                         (INCHES)    1.209        1.311        1.311        1.311
                         (AC-FT)      64.          69.          69.          69.

                       CUMULATIVE AREA =    0.99 SQ MI


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

          **************
          *            *
 78 KK    *     RT505  *       Channel size approx.
          *            *
          **************

             HYDROGRAPH ROUTING DATA

 79 RS          STORAGE ROUTING
                     NSTPS           1  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC      -1.00  INITIAL CONDITION
                         X        0.00 WORKING R AND D COEFFICIENT

 80 RC          NORMAL DEPTH CHANNEL
                       ANL       0.040  LEFT OVERBANK N-VALUE
                       ANCH      0.035  MAIN CHANNEL N-VALUE
                       ANR       0.040  RIGHT OVERBANK N-VALUE
                      RLNTH       400.  REACH LENGTH
                       SEL      0.0100  ENERGY SLOPE
                      ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 82 RY       ELEVATION     12.00     10.40     10.00      5.00      5.00     10.00     10.40     12.00
 81 RX       DISTANCE      79.90     80.00    100.00    105.00    120.00    125.00    145.00    145.10

                                                    ***

                                 COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE       0.00      0.05      0.11      0.16      0.22      0.28      0.35      0.42      0.49      0.56
          OUTFLOW       0.00     12.04     38.13     74.87    120.98    175.76    238.78    309.78    388.59    475.12
        ELEVATION       5.00      5.37      5.74      6.11      6.47      6.84      7.21      7.58      7.95      8.32

          STORAGE       0.63      0.71      0.79      0.87      0.97      1.16      1.38      1.60      1.82      2.04
          OUTFLOW     569.33    671.20    780.75    898.02   1033.92   1213.03   1435.82   1690.89   1973.88   2281.98
        ELEVATION       8.68      9.05      9.42      9.79     10.16     10.53     10.89     11.26     11.63     12.00

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

                       HYDROGRAPH AT STATION    RT505
```

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1107.	12.32		128.	35.	35.	35.
		(INCHES)	1.209	1.311	1.311	1.311
		(AC-FT)	64.	69.	69.	69.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)					
1.	12.32		0.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)					
10.31	12.32		6.16	5.37	5.37	5.37

CUMULATIVE AREA = 0.99 SQ MI

*** ***

```
          **************
          *            *
 83 KK    *    DIV505  *      85% East to study area.
          *            *
          **************
```

DT	DIVERSION ISTAD	DIVOUT	DIVERSION HYDROGRAPH IDENTIFICATION
DI	INFLOW	0.00	1000.00
DQ	DIVERTED FLOW	0.00	150.00

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

DIVERSION HYDROGRAPH DIVOUT

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 166.	12.32		19.	5.	5.	5.
		(INCHES)	0.181	0.197	0.197	0.197
		(AC-FT)	10.	10.	10.	10.

CUMULATIVE AREA = 0.99 SQ MI

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

HYDROGRAPH AT STATION DIV505

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 941.	12.32		109.	30.	30.	30.
		(INCHES)	1.027	1.114	1.114	1.114
		(AC-FT)	54.	59.	59.	59.

CUMULATIVE AREA = 0.99 SQ MI

*** ***

```
          **************
          *            *
 87 KK    *     RT505  *      Channel size approx.
          *            *
```

```
          ***************

             HYDROGRAPH ROUTING DATA

  88 RS          STORAGE ROUTING
                       NSTPS            1  NUMBER OF SUBREACHES
                        ITYP         FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC        -1.00  INITIAL CONDITION
                           X         0.00  WORKING R AND D COEFFICIENT

  89 RC          NORMAL DEPTH CHANNEL
                         ANL        0.040  LEFT OVERBANK N-VALUE
                        ANCH        0.035  MAIN CHANNEL N-VALUE
                         ANR        0.040  RIGHT OVERBANK N-VALUE
                       RLNTH        1200.  REACH LENGTH
                         SEL       0.0100  ENERGY SLOPE
                       ELMAX          0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                            CROSS-SECTION DATA
                              --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
  91 RY        ELEVATION     10.40      10.20      10.00      5.00      5.00      10.00      10.20      10.40
  90 RX        DISTANCE      80.00      90.00     100.00    105.00    120.00     125.00     135.00     145.00

                                                                   ***

                                              COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE       0.00      0.12      0.24      0.37      0.51      0.64      0.78      0.93      1.08      1.24
            OUTFLOW       0.00      7.82     24.76     48.60     78.47    113.85    154.43    200.00    250.39    305.51
          ELEVATION       5.00      5.28      5.57      5.85      6.14      6.42      6.71      6.99      7.27      7.56

            STORAGE       1.40      1.56      1.73      1.90      2.08      2.26      2.45      2.64      2.85      3.25
            OUTFLOW     365.28    429.66    498.61    572.13    650.21    732.86    820.08    911.91   1016.06   1145.44
          ELEVATION       7.84      8.13      8.41      8.69      8.98      9.26      9.55      9.83     10.12     10.40

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

                          HYDROGRAPH AT STATION     RT505

   PEAK FLOW       TIME                        MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR      23.98-HR
 +   (CFS)         (HR)
                            (CFS)
 +     931.      12.35                109.          30.          30.          30.
                          (INCHES)   1.027        1.112        1.112        1.112
                           (AC-FT)     54.          59.          59.          59.

  PEAK STORAGE     TIME                      MAXIMUM AVERAGE STORAGE
                                      6-HR        24-HR        72-HR      23.98-HR
 +  (AC-FT)        (HR)
          3.     12.35                  1.           0.           0.           0.

   PEAK STAGE      TIME                       MAXIMUM AVERAGE STAGE
                                      6-HR        24-HR        72-HR      23.98-HR
 +   (FEET)        (HR)
        9.88     12.35                6.06         5.34         5.34         5.34

                         CUMULATIVE AREA =      0.99 SQ MI


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

          ***************
          *             *
  92 KK   *     DA506   *       (CVL207) CVL data
          *             *
          ***************

             SUBBASIN RUNOFF DATA

  93 BA          SUBBASIN CHARACTERISTICS
                       TAREA         0.04  SUBBASIN AREA

                 PRECIPITATION DATA

  17 PH                                   DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
```

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.04

94 LS SCS LOSS RATE
STRTL 0.35 INITIAL ABSTRACTION
CRVNBR 85.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

95 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.20 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
61 END-OF-PERIOD ORDINATES

2.	7.	14.	22.	32.	45.	60.	74.	86.	94.
99.	101.	100.	98.	93.	87.	81.	73.	64.	55.
47.	41.	36.	31.	28.	25.	22.	19.	17.	14.
13.	11.	10.	9.	7.	7.	6.	5.	4.	4.
3.	3.	3.	2.	2.	2.	2.	1.	1.	1.
1.	1.	1.	1.	1.	0.	0.	0.	0.	0.
0.									

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

HYDROGRAPH AT STATION DA506

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.49, TOTAL EXCESS = 2.03

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 85.	12.22		9.	2.	2.	2.
		(INCHES)	1.871	2.029	2.029	2.029
		(AC-FT)	4.	5.	5.	5.

CUMULATIVE AREA = 0.04 SQ MI

*** ***

****
* *
96 KK * AD506 * Combine 506 and flow from 85% diversion
* *
****

97 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD506

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 997.	12.33		118.	32.	32.	32.
		(INCHES)	1.062	1.151	1.151	1.151
		(AC-FT)	58.	63.	63.	63.

CUMULATIVE AREA = 1.03 SQ MI

*** ***

```
          **************
          *            *
 98 KK    *     DA507  *       (CVL205) CVL data
          *            *
          **************

             SUBBASIN RUNOFF DATA

 99 BA          SUBBASIN CHARACTERISTICS
                      TAREA        0.04  SUBBASIN AREA

                PRECIPITATION DATA

 17 PH                                DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 0.67    1.32    2.31    2.54    2.69    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                 STORM AREA =     0.04

100 LS          SCS LOSS RATE
                      STRTL        0.38  INITIAL ABSTRACTION
                     CRVNBR       84.00  CURVE NUMBER
                      RTIMP        0.00  PERCENT IMPERVIOUS AREA

101 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG        0.18  LAG

                                                        ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                  UNIT HYDROGRAPH
                                               56 END-OF-PERIOD ORDINATES
                3.       9.      17.      27.      39.      55.      72.      86.      96.     102.
              104.     103.     100.      94.      87.      80.      70.      59.      50.      43.
               37.      32.      28.      24.      21.      18.      16.      14.      12.      10.
                9.       8.       7.       6.       5.       4.       4.       3.       3.       2.
                2.       2.       2.       1.       1.       1.       1.       1.       1.       1.
                1.       0.       0.       0.       0.       0.

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

                         HYDROGRAPH AT STATION    DA507

     TOTAL RAINFALL =    3.52, TOTAL LOSS =    1.57, TOTAL EXCESS =    1.95

   PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
                                          6-HR       24-HR       72-HR     23.98-HR
+    (CFS)       (HR)
                          (CFS)
+       81.     12.20                        8.          2.          2.          2.
                          (INCHES)       1.798       1.950       1.950       1.950
                          (AC-FT)            4.          4.          4.          4.

                         CUMULATIVE AREA =    0.04 SQ MI


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


          **************
          *            *
102 KK    *     RT507  *       Assumed pipe size.
          *            *
          **************

             HYDROGRAPH ROUTING DATA

103 RK          KINEMATIC WAVE STREAM ROUTING
                          L         1400.  CHANNEL LENGTH
                          S       0.0100  SLOPE
                          N        0.020  CHANNEL ROUGHNESS COEFFICIENT
                         CA         0.00  CONTRIBUTING AREA
                      SHAPE         CIRC  CHANNEL SHAPE
                         WD         4.50  BOTTOM WIDTH OR DIAMETER
                          Z         0.00  SIDE SLOPE
```

NDXMIN 2 MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	5.17	1.25	0.80	466.67	80.71	733.42	1.95	11.19

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4222E+01 EXCESS=0.0000E+00 OUTFLOW=0.4221E+01 BASIN STORAGE=0.2364E-02 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	5.17	1.25	1.00		80.60	733.00	1.95	

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

HYDROGRAPH AT STATION RT507

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 81.	12.22		8.	2.	2.	2.
		(INCHES)	1.799	1.949	1.949	1.949
		(AC-FT)	4.	4.	4.	4.

CUMULATIVE AREA = 0.04 SQ MI

*** ***

```
               ***************
               *             *
104 KK         *    AD506    *      Combine routed flow from 507 with 506 and flow from diversion.
               *             *
               ***************
```

105 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD506

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1061.	12.33		126.	34.	34.	34.
		(INCHES)	1.090	1.181	1.181	1.181
		(AC-FT)	62.	67.	67.	67.

CUMULATIVE AREA = 1.07 SQ MI

*** ***

```
               ***************
               *             *
106 KK         *    RT506    *      Assumed channel size.
               *             *
               ***************
```


HYDROGRAPH ROUTING DATA

```
107 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC      -1.00  INITIAL CONDITION
                         X       0.00 WORKING R AND D COEFFICIENT

108 RC          NORMAL DEPTH CHANNEL
                       ANL      0.040  LEFT OVERBANK N-VALUE
                      ANCH      0.035  MAIN CHANNEL N-VALUE
                       ANR      0.040  RIGHT OVERBANK N-VALUE
                     RLNTH       900.  REACH LENGTH
                       SEL     0.0100  ENERGY SLOPE
                     ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
110 RY        ELEVATION     11.00     10.20     10.00      5.00      5.00     10.00     10.20     11.00
109 RX        DISTANCE      50.00     90.00    100.00    105.00    120.00    125.00    135.00    175.00

                                              ***

                                    COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

              STORAGE      0.00      0.10      0.20      0.31      0.42      0.54      0.66      0.79      0.91      1.05
              OUTFLOW      0.00      9.32     29.50     57.92     93.53    135.77    184.27    238.78    299.15    365.28
            ELEVATION      5.00      5.32      5.63      5.95      6.26      6.58      6.89      7.21      7.53      7.84

              STORAGE      1.18      1.33      1.47      1.62      1.77      1.93      2.10      2.40      2.90      3.62
              OUTFLOW    437.09    514.55    597.65    686.38    780.75    880.79    989.89   1129.89   1302.72   1522.13
            ELEVATION      8.16      8.47      8.79      9.11      9.42      9.74     10.05     10.37     10.68     11.00

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

                         HYDROGRAPH AT STATION    RT506

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+    1050.     12.35                  126.         34.         34.         34.
                         (INCHES)     1.090       1.180       1.180       1.180
                         (AC-FT)       62.         67.         67.         67.

 PEAK STORAGE   TIME                       MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     23.98-HR
+  (AC-FT)      (HR)
        2.     12.35                    0.          0.          0.          0.

  PEAK STAGE    TIME                       MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     23.98-HR
+   (FEET)      (HR)
     10.19     12.35                   6.15        5.37        5.37        5.37

                         CUMULATIVE AREA =    1.07 SQ MI


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


               **************
               *            *
111 KK         *     DA508  *       (CVL210) CVL data
               *            *
               **************

                  SUBBASIN RUNOFF DATA

112 BA              SUBBASIN CHARACTERISTICS
                          TAREA        0.02  SUBBASIN AREA

                    PRECIPITATION DATA

17 PH                                    DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                    ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                    5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                     0.67    1.32    2.31    2.54    2.69    2.97    3.24    3.52    0.00    0.00    0.00    0.00
```

```
                                                    STORM AREA =     0.02

 113 LS          SCS LOSS RATE
                       STRTL          0.35  INITIAL ABSTRACTION
                      CRVNBR         85.00  CURVE NUMBER
                       RTIMP          0.00  PERCENT IMPERVIOUS AREA

 114 UD          SCS DIMENSIONLESS UNITGRAPH
                        TLAG          0.17  LAG

                                                                    ***

VALUE EXCEEDS TABLE IN LOGLOG           0.01667        0.01667       24.00000

                                                        UNIT HYDROGRAPH
                                                   52 END-OF-PERIOD ORDINATES
                    2.        5.       10.       16.       24.       33.       42.       49.       54.       56.
                   56.       54.       51.       47.       43.       37.       31.       26.       22.       19.
                   16.       14.       12.       10.        9.        8.        7.        6.        5.        4.
                    4.        3.        3.        2.        2.        2.        1.        1.        1.        1.
                    1.        1.        1.        1.        0.        0.        0.        0.        0.        0.
                    0.        0.

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

                             HYDROGRAPH AT STATION    DA508

     TOTAL RAINFALL =    3.52, TOTAL LOSS =    1.49, TOTAL EXCESS =    2.03

  PEAK FLOW       TIME                        MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR       23.98-HR
+   (CFS)         (HR)
                               (CFS)
+      44.       12.18                     4.          1.          1.           1.
                            (INCHES)   1.871       2.030       2.030        2.030
                             (AC-FT)       2.          2.          2.           2.

                            CUMULATIVE AREA =     0.02 SQ MI


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


               ***************
               *             *
 115 KK        *    DA509    *         (CVL212) CVL data
               *             *
               ***************

                  SUBBASIN RUNOFF DATA

 116 BA          SUBBASIN CHARACTERISTICS
                       TAREA          0.01  SUBBASIN AREA

                 PRECIPITATION DATA

  17 PH                                   DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                 ..... HYDRO-35 ......    ................ TP-40 ................    ........... TP-49 ...........
                 5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                  0.67    1.32    2.31    2.54    2.69    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                    STORM AREA =     0.01

 117 LS          SCS LOSS RATE
                       STRTL          0.27  INITIAL ABSTRACTION
                      CRVNBR         88.00  CURVE NUMBER
                       RTIMP          0.00  PERCENT IMPERVIOUS AREA

 118 UD          SCS DIMENSIONLESS UNITGRAPH
                        TLAG          0.12  LAG

                                                                    ***

VALUE EXCEEDS TABLE IN LOGLOG           0.01667        0.01667       24.00000

                                                        UNIT HYDROGRAPH
                                                   38 END-OF-PERIOD ORDINATES
```

```
                3.       8.      15.      25.      36.      45.      49.      49.      47.      42.
               37.      30.      23.      19.      15.      12.      10.       8.       7.       5.
                4.       3.       3.       2.       2.       1.       1.       1.       1.       1.
                1.       0.       0.       0.       0.       0.       0.       0.

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

                          HYDROGRAPH AT STATION    DA509

    TOTAL RAINFALL =    3.52, TOTAL LOSS =    1.23, TOTAL EXCESS =    2.29

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     23.98-HR
+   (CFS)        (HR)
                          (CFS)
+      36.      12.13                     3.          1.          1.          1.
                          (INCHES)     2.097       2.284       2.284       2.284
                          (AC-FT)         1.          2.          2.          2.

                          CUMULATIVE AREA =    0.01 SQ MI


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


            **************
            *            *
  119 KK    *     AD509  *       Combine 509, 508 & flow from east along Ray Rd, at Ray Rd and 44th St.
            *            *
            **************

  120 HC          HYDROGRAPH COMBINATION
                       ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                ***

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

                          HYDROGRAPH AT STATION    AD509

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     23.98-HR
+   (CFS)        (HR)
                          (CFS)
+    1092.      12.35                   133.         36.         36.         36.
                          (INCHES)     1.115       1.209       1.209       1.209
                          (AC-FT)         66.         71.         71.         71.

                          CUMULATIVE AREA =    1.10 SQ MI


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


            **************
            *            *
  121 KK    *     DA510  *       (CVL214) CVL data
            *            *
            **************

             SUBBASIN RUNOFF DATA

  122 BA       SUBBASIN CHARACTERISTICS
                    TAREA        0.04  SUBBASIN AREA

               PRECIPITATION DATA

  17 PH                                DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
               ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
               5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                0.67    1.32    2.31    2.54    2.69    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                              STORM AREA =    0.04

  123 LS       SCS LOSS RATE
                    STRTL        0.35  INITIAL ABSTRACTION   145
```

```
                    CRVNBR        85.00  CURVE NUMBER
                    RTIMP          0.00  PERCENT IMPERVIOUS AREA

 124 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG         0.16  LAG

                                                                  ***

 VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667        24.00000

                                                  UNIT HYDROGRAPH
                                              51 END-OF-PERIOD ORDINATES
                    4.      12.      23.      38.      58.      81.     101.     116.     125.     127.
                  126.     120.     112.     102.      91.      77.      63.      53.      45.      38.
                   33.      29.      24.      21.      18.      15.      13.      11.       9.       8.
                    7.       6.       5.       4.       4.       3.       3.       2.       2.       2.
                    1.       1.       1.       1.       1.       1.       1.       0.       0.       0.
                    0.

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

                          HYDROGRAPH AT STATION     DA510

      TOTAL RAINFALL =    3.52, TOTAL LOSS =     1.49, TOTAL EXCESS =     2.03

    PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR      23.98-HR
  +   (CFS)        (HR)
                                (CFS)
  +      98.      12.18                     9.           2.           2.           2.
                                (INCHES)  1.871        2.030        2.030        2.030
                                (AC-FT)      4.           5.           5.           5.

                          CUMULATIVE AREA =     0.04 SQ MI


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


                ***************
                *             *
 125 KK         *      AD510  *        Add in 510
                *             *
                ***************

 126 HC            HYDROGRAPH COMBINATION
                        ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                          HYDROGRAPH AT STATION     AD510

    PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR      23.98-HR
  +   (CFS)        (HR)
                                (CFS)
  +    1151.      12.35                   142.          38.          38.          38.
                                (INCHES)  1.144        1.241        1.241        1.241
                                (AC-FT)     70.          76.          76.          76.

                          CUMULATIVE AREA =     1.15 SQ MI


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


                ***************
                *             *
 127 KK         *      RT510  *        Route flows moving east along North side of Ray Rd.
                *             *
                ***************
                                        Channel size from Brooks-Hersey Ray Rd, 44th to 48th St, plans.

                   HYDROGRAPH ROUTING DATA
```

```
129 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC      -1.00  INITIAL CONDITION
                         X       0.00 WORKING R AND D COEFFICIENT

130 RC          NORMAL DEPTH CHANNEL
                       ANL      0.040  LEFT OVERBANK N-VALUE
                      ANCH      0.025  MAIN CHANNEL N-VALUE
                       ANR      0.030  RIGHT OVERBANK N-VALUE
                     RLNTH       900.  REACH LENGTH
                       SEL     0.0085  ENERGY SLOPE
                     ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                           --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
132 RY        ELEVATION      12.00     11.00     10.00      7.00      7.00     10.00     10.72     11.32
131 RX        DISTANCE        0.00     50.00    100.00    112.00    130.50    142.50    178.50    178.51

                                                  ***

                                    COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        0.00      0.11      0.22      0.35      0.49      0.65      0.81      0.98      1.17      1.37
          OUTFLOW        0.00     11.19     36.27     72.91    120.58    179.21    248.92    329.93    422.55    527.09
        ELEVATION        7.00      7.26      7.53      7.79      8.05      8.32      8.58      8.84      9.11      9.37

          STORAGE        1.58      1.80      2.05      2.44      2.97      3.62      4.34      5.13      6.00      6.93
          OUTFLOW      643.89    773.33    933.40   1128.66   1358.55   1636.26   1957.89   2323.52   2734.65   3192.41
        ELEVATION        9.63      9.89     10.16     10.42     10.68     10.95     11.21     11.47     11.74     12.00

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

                          HYDROGRAPH AT STATION    RT510

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+    1143.     12.37                   142.          38.         38.          38.
                          (INCHES)    1.144         1.240       1.240        1.240
                          (AC-FT)       70.          76.         76.          76.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR        24-HR       72-HR     23.98-HR
+  (AC-FT)      (HR)
       2.      12.37                    0.           0.          0.           0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR        24-HR       72-HR     23.98-HR
+   (FEET)      (HR)
     10.44     12.37                  7.86         7.28        7.28         7.28

                          CUMULATIVE AREA =    1.15 SQ MI


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


              **************
              *            *
133 KK        *     PIPES  *       Diversion due to overtopping of 3-48" CMPs.
              *            *
              **************

     DT          DIVERSION
                      ISTAD      45THST  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW        0.00    128.00   2000.00

     DQ       DIVERTED FLOW       0.00      0.00   1872.00

                                                  ***

     ***           ***           ***           ***           ***
```

DIVERSION HYDROGRAPH 45THST

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1015.	12.37		86.	22.	22.	22.
		(INCHES)	0.696	0.696	0.696	0.696
		(AC-FT)	43.	43.	43.	43.

CUMULATIVE AREA = 1.15 SQ MI

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

HYDROGRAPH AT STATION PIPES

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 128.	12.02		55.	17.	17.	17.
		(INCHES)	0.448	0.543	0.543	0.543
		(AC-FT)	27.	33.	33.	33.

CUMULATIVE AREA = 1.15 SQ MI

*** ***

```
              ***************
              *             *
137 KK        *   RTPIPE    *     Route pipe flow to cnr 48th St & Ray.
              *             *
              ***************
```

78" CMP gives approx same velocity for routing as 3-48" CMPs.

HYDROGRAPH ROUTING DATA

139 RK KINEMATIC WAVE STREAM ROUTING

L	1680.	CHANNEL LENGTH
S	0.0078	SLOPE
N	0.024	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	6.50	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE
NDXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	4.04	1.25	0.93	560.00	128.01	794.40	0.54	10.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3331E+02 EXCESS=0.0000E+00 OUTFLOW=0.3328E+02 BASIN STORAGE=0.3558E-01 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	4.04	1.25	1.00		128.00	794.00	0.54

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

HYDROGRAPH AT STATION RTPIPE

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				

```
+     128.     13.23                    55.          17.          17.          17.
                          (INCHES)      0.448        0.543        0.543        0.543
                          (AC-FT)         27.          33.          33.          33.

                          CUMULATIVE AREA =    1.15 SQ MI


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


          **************
          *            *
 140 KK   *     DA511  *       (CVL304) HDR data
          *            *
          **************
                               Initial abstraction to allow for High School 100yr-2hr retention.

             SUBBASIN RUNOFF DATA

 142 BA          SUBBASIN CHARACTERISTICS
                       TAREA        0.36  SUBBASIN AREA

                 PRECIPITATION DATA

  17 PH                                DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                 ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                 5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                  0.67    1.32    2.31    2.54    2.69    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                  STORM AREA =    0.36

 143 LS          SCS LOSS RATE
                       STRTL        0.89  INITIAL ABSTRACTION
                      CRVNBR       80.00  CURVE NUMBER
                       RTIMP        0.00  PERCENT IMPERVIOUS AREA

 144 UD          SCS DIMENSIONLESS UNITGRAPH
                       TLAG        0.80  LAG

                                                  ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                UNIT HYDROGRAPH
                                            242 END-OF-PERIOD ORDINATES
                  1.       3.       4.       5.       7.      10.      13.      16.      19.      22.
                 26.      30.      34.      38.      43.      48.      53.      59.      64.      70.
                 77.      84.      91.      98.     106.     115.     123.     131.     140.     147.
                154.     161.     168.     175.     180.     184.     189.     194.     198.     201.
                204.     206.     209.     211.     211.     212.     212.     213.     213.     212.
                212.     211.     211.     209.     206.     204.     201.     198.     195.     192.
                189.     186.     183.     180.     176.     173.     169.     165.     161.     157.
                152.     148.     143.     138.     133.     128.     122.     117.     113.     109.
                104.     100.      96.      93.      90.      87.      84.      81.      78.      76.
                 73.      71.      68.      66.      64.      62.      60.      58.      56.      55.
                 53.      52.      50.      48.      47.      45.      44.      42.      41.      40.
                 38.      37.      36.      34.      33.      32.      31.      30.      29.      28.
                 27.      26.      25.      25.      24.      23.      22.      22.      21.      20.
                 20.      19.      18.      18.      17.      16.      16.      15.      15.      14.
                 14.      13.      13.      12.      12.      12.      11.      11.      11.      10.
                 10.      10.       9.       9.       9.       8.       8.       8.       8.       7.
                  7.       7.       7.       6.       6.       6.       6.       6.       5.       5.
                  5.       5.       5.       5.       4.       4.       4.       4.       4.       4.
                  4.       3.       3.       3.       3.       3.       3.       3.       3.       3.
                  3.       3.       2.       2.       2.       2.       2.       2.       2.       2.
                  2.       2.       2.       2.       2.       2.       2.       2.       2.       1.
                  1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
                  1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
                  1.       0.       0.       0.       0.       0.       0.       0.       0.       0.
                  0.       0.

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

                          HYDROGRAPH AT STATION     DA511

    TOTAL RAINFALL =     3.52, TOTAL LOSS =     2.17, TOTAL EXCESS =     1.34

 PEAK FLOW      TIME                              MAXIMUM AVERAGE FLOW
```

```
                                        6-HR        24-HR       72-HR      23.98-HR
+   (CFS)       (HR)
                    (CFS)
+     183.      12.93                    46.         13.         13.         13.
                  (INCHES)             1.210       1.329       1.329       1.329
                  (AC-FT)                23.         25.         25.         25.

                  CUMULATIVE AREA =    0.36 SQ MI


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


          **************
          *            *
145 KK    *     AD511  *       Combine 511 and 3-48" CMPs at cnr of 48th St and Ray Rd.
          *            *
          **************

146 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                    HYDROGRAPH AT STATION    AD511

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR       72-HR      23.98-HR
+   (CFS)       (HR)
                    (CFS)
+     311.      12.93                   101.         30.         30.         30.
                  (INCHES)             0.626       0.729       0.729       0.729
                  (AC-FT)                50.         59.         59.         59.

                  CUMULATIVE AREA =    1.51 SQ MI


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


          **************
          *            *
147 KK    *     RT511  *       Channel for first 650 ft south of Ray Rd -- West side of 48th.
          *            *
          **************

             HYDROGRAPH ROUTING DATA

148 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC      -1.00  INITIAL CONDITION
                         X        0.00 WORKING R AND D COEFFICIENT

149 RC          NORMAL DEPTH CHANNEL
                       ANL       0.040  LEFT OVERBANK N-VALUE
                      ANCH       0.025  MAIN CHANNEL N-VALUE
                       ANR       0.040  RIGHT OVERBANK N-VALUE
                     RLNTH        650.  REACH LENGTH
                       SEL      0.0037  ENERGY SLOPE
                     ELMAX         0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
151 RY        ELEVATION     10.20     10.10     10.00      2.00      2.00     10.00     10.10     10.20
150 RX        DISTANCE      80.00     90.00    100.00    116.00    123.00    135.00    145.00    155.00

                                                    ***

                                    COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE       0.00      0.05      0.11      0.18      0.26      0.35      0.45      0.55      0.67      0.80
          OUTFLOW       0.00      6.40     21.01     42.94     72.31    109.47    154.83    208.83    271.93    344.60
        ELEVATION       2.00      2.43      2.86      3.29      3.73      4.16      4.59      5.02      5.45      5.88
```

STORAGE	0.94	1.08	1.24	1.41	1.58	1.77	1.97	2.17	2.39	2.67
OUTFLOW	427.29	520.45	624.53	739.97	867.20	1006.64	1158.72	1323.84	1502.43	1718.82
ELEVATION	6.32	6.75	7.18	7.61	8.04	8.47	8.91	9.34	9.77	10.20

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

HYDROGRAPH AT STATION RT511

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 310.	12.95		101.	29.	29.	29.
		(INCHES)	0.626	0.728	0.728	0.728
		(AC-FT)	50.	58.	58.	58.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
1.	12.95	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
5.68	12.95	3.86	2.66	2.66	2.66

CUMULATIVE AREA = 1.51 SQ MI

*** ***

152 KK **********
* *
* 45THST *
* *
****

Retrieve diversion due to overtopping of pipes at 45th St & Ray.

153 DR RETRIEVE DIVERSION HYDROGRAPH
ISTAD 45THST DIVERSION HYDROGRAPH IDENTIFICATION

***

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

HYDROGRAPH AT STATION 45THST

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1015.	12.37		86.	22.	22.	22.
		(INCHES)	0.532	0.532	0.532	0.532
		(AC-FT)	43.	43.	43.	43.

CUMULATIVE AREA = 0.00 SQ MI

*** ***

154 KK **********
* *
* RT45ST *
* *
****

Flow that overtops 3-48" CMPs is routed over land to 48th St.

HYDROGRAPH ROUTING DATA

155 RS STORAGE ROUTING

NSTPS	2	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	0.00	WORKING R AND D COEFFICIENT

156 RC NORMAL DEPTH CHANNEL

ANL	0.035	LEFT OVERBANK N-VALUE
ANCH	0.035	MAIN CHANNEL N-VALUE
ANR	0.035	RIGHT OVERBANK N-VALUE
RLNTH	2000.	REACH LENGTH
SEL	0.0100	ENERGY SLOPE
ELMAX	0.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---		
158 RY	ELEVATION	10.00	10.00	10.00	9.00	9.00	10.00	10.00	10.00
157 RX	DISTANCE	80.00	90.00	100.00	110.00	610.00	620.00	630.00	640.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	1.21	2.42	3.64	4.85	6.07	7.30	8.52	9.75	10.98
OUTFLOW	0.00	15.74	49.99	98.28	158.80	230.43	312.36	404.00	504.88	614.61
ELEVATION	9.00	9.05	9.11	9.16	9.21	9.26	9.32	9.37	9.42	9.47
STORAGE	12.21	13.44	14.68	15.92	17.16	18.41	19.66	20.91	22.16	23.42
OUTFLOW	732.85	859.32	993.78	1136.01	1285.82	1443.03	1607.48	1779.04	1957.56	2142.93
ELEVATION	9.53	9.58	9.63	9.68	9.74	9.79	9.84	9.89	9.95	10.00

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

HYDROGRAPH AT STATION RT45ST

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)	(CFS)				
+ 907.	12.50		86.	22.	22.	22.
		(INCHES)	0.000	0.000	0.000	0.000
		(AC-FT)	43.	43.	43.	43.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
7.	12.50	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
9.60	12.50	9.08	9.02	9.02	9.02

CUMULATIVE AREA = 0.00 SQ MI

*** ***

```
**************
*            *
*    AD511   *
*            *
**************
```

159 KK Combine at S end of improved channel W side 48th St. 650ft S of Ray.

160 HC HYDROGRAPH COMBINATION

ICOMP	2	NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD511

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)	(CFS)				
+ 1129.	12.52		187.	51.	51.	51.
		(INCHES)	1.158	1.259	1.259	1.259
		(AC-FT)	93.	101.	101.	101.

CUMULATIVE AREA = 1.51 SQ MI

*** ***

****
* *
161 KK * RT511 * Channel size estimated using CVL's 48th & Chandler report.
* *
****

HYDROGRAPH ROUTING DATA

162 RS STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	0.00	WORKING R AND D COEFFICIENT

163 RC NORMAL DEPTH CHANNEL

ANL	0.040	LEFT OVERBANK N-VALUE
ANCH	0.035	MAIN CHANNEL N-VALUE
ANR	0.040	RIGHT OVERBANK N-VALUE
RLNTH	1950.	REACH LENGTH
SEL	0.0040	ENERGY SLOPE
ELMAX	0.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---	
165 RY	ELEVATION	22.00	18.50	18.00	17.00	17.00	18.00	18.00	22.00
164 RX	DISTANCE	0.00	25.00	60.00	65.00	75.00	78.00	115.00	120.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.13	0.29	0.47	0.76	1.56	2.58	3.67	4.78	5.92
OUTFLOW	0.00	3.02	9.98	20.53	35.88	70.88	127.69	206.70	303.88	417.87
ELEVATION	17.00	17.26	17.53	17.79	18.05	18.32	18.58	18.84	19.11	19.37
STORAGE	7.09	8.28	9.50	10.74	12.01	13.31	14.63	15.98	17.36	18.76
OUTFLOW	547.78	693.00	853.09	1027.73	1216.66	1419.71	1636.73	1867.62	2112.31	2370.76
ELEVATION	19.63	19.89	20.16	20.42	20.68	20.95	21.21	21.47	21.74	22.00

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

HYDROGRAPH AT STATION RT511

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)	(CFS)				
+ 1031.	12.62		187.	51.	51.	51.
		(INCHES)	1.156	1.256	1.256	1.256
		(AC-FT)	93.	101.	101.	101.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)					
11.	12.62		3.	1.	1.	1.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)					
20.43	12.62		18.53	17.56	17.56	17.56

CUMULATIVE AREA = 1.51 SQ MI

*** ***

****
* *

```
166 KK      *     DA512  *       (CVL310) HDR data
            *            *
            **************

               SUBBASIN RUNOFF DATA

167 BA            SUBBASIN CHARACTERISTICS
                       TAREA         0.13  SUBBASIN AREA

                  PRECIPITATION DATA

 17 PH                                 DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                  ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                  5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                   0.67   1.32    2.31    2.54    2.69    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                  STORM AREA =     0.13

168 LS            SCS LOSS RATE
                       STRTL         0.60  INITIAL ABSTRACTION
                      CRVNBR        77.00  CURVE NUMBER
                       RTIMP         0.00  PERCENT IMPERVIOUS AREA

169 UD            SCS DIMENSIONLESS UNITGRAPH
                       TLAG         0.30  LAG

                                                        ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667         0.01667        24.00000

                                                  UNIT HYDROGRAPH
                                              92 END-OF-PERIOD ORDINATES
                    3.      7.     14.     22.     32.     43.     56.     71.     88.    107.
                  127.    144.    161.    173.    183.    190.    194.    195.    195.    194.
                  190.    183.    176.    169.    160.    152.    141.    130.    117.    105.
                   95.     86.     79.     72.     66.     60.     55.     51.     47.     43.
                   40.     36.     33.     30.     28.     25.     23.     21.     20.     18.
                   16.     15.     14.     13.     11.     10.     10.      9.      8.      7.
                    7.      6.      6.      5.      5.      4.      4.      4.      3.      3.
                    3.      3.      2.      2.      2.      2.      2.      2.      2.      1.
                    1.      1.      1.      1.      1.      1.      1.      0.      0.      0.
                    0.      0.

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

                              HYDROGRAPH AT STATION     DA512

      TOTAL RAINFALL =    3.52, TOTAL LOSS =     2.07, TOTAL EXCESS =     1.44

                                                  MAXIMUM AVERAGE FLOW
   PEAK FLOW     TIME                      6-HR        24-HR        72-HR      23.98-HR
+    (CFS)       (HR)
                                (CFS)
+      137.     12.35                      18.          5.           5.           5.
                              (INCHES)    1.324        1.440        1.440        1.440
                              (AC-FT)       9.          10.          10.          10.

                              CUMULATIVE AREA =     0.13 SQ MI


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


            **************
            *            *
170 KK      *     AD512  *       Combine at 48th St and Highline canal.
            *            *
            **************

171 HC            HYDROGRAPH COMBINATION
                       ICOMP            2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                        ***

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

                              HYDROGRAPH AT STATION     AD512
```

```
  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                        (CFS)
+    1117.     12.62                205.         56.          56.          56.
                        (INCHES)    1.168        1.270        1.270        1.270
                        (AC-FT)     102.         110.         110.         110.

                      CUMULATIVE AREA =    1.63 SQ MI


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


          **************
          *            *
 172 KK   *    DIV512  *       As per CVL report 60 cfs goes south, the balance south-east.
          *            *
          **************

     DT          DIVERSION
                      ISTAD       CANAL  DIVERSION HYDROGRAPH IDENTIFICATION

     DI              INFLOW        0.00     60.00     60.00   1000.00   1500.00

     DQ       DIVERTED FLOW        0.00      0.00      1.00    940.00   1440.00
                                                                  ***

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

                      DIVERSION HYDROGRAPH    CANAL

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                        (CFS)
+    1057.     12.62                155.         39.          39.          39.
                        (INCHES)    0.885        0.885        0.885        0.885
                        (AC-FT)      77.          77.          77.          77.

                      CUMULATIVE AREA =    1.63 SQ MI

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

                      HYDROGRAPH AT STATION   DIV512

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                        (CFS)
+      60.     12.52                 50.         17.          17.          17.
                        (INCHES)    0.283        0.385        0.385        0.385
                        (AC-FT)      25.          33.          33.          33.

                      CUMULATIVE AREA =    1.63 SQ MI


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


          **************
          *            *
 176 KK   *     DA513  *       (CVL195) CVL data
          *            *
          **************

            SUBBASIN RUNOFF DATA

 177 BA       SUBBASIN CHARACTERISTICS
                   TAREA        0.09  SUBBASIN AREA

            PRECIPITATION DATA

  17 PH                              DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
```

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.09

178 LS SCS LOSS RATE
STRTL 0.35 INITIAL ABSTRACTION
CRVNBR 85.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

179 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.20 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
63 END-OF-PERIOD ORDINATES

5.	14.	26.	41.	60.	85.	113.	141.	165.	183.
194.	199.	200.	198.	189.	178.	166.	153.	138.	119.
102.	88.	77.	68.	60.	53.	47.	42.	37.	32.
28.	25.	22.	19.	17.	15.	13.	11.	10.	9.
8.	7.	6.	5.	5.	4.	4.	3.	3.	3.
2.	2.	2.	2.	1.	1.	1.	1.	1.	1.
0.	0.	0.							

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

HYDROGRAPH AT STATION DA513

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.49, TOTAL EXCESS = 2.03

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)	(CFS)			
+	171.	12.22	18.	5.	5.	5.
			(INCHES) 1.870	2.029	2.029	2.029
			(AC-FT) 9.	10.	10.	10.

CUMULATIVE AREA = 0.09 SQ MI

*** ***

****
* *
180 KK * DA514 * (CVL197) CVL data
* *
****

SUBBASIN RUNOFF DATA

181 BA SUBBASIN CHARACTERISTICS
TAREA 0.06 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.06

182 LS SCS LOSS RATE
STRTL 0.38 INITIAL ABSTRACTION
CRVNBR 84.10 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

183 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.14 LAG

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
45 END-OF-PERIOD ORDINATES

7.	21.	40.	66.	100.	134.	160.	174.	179.	177.
166.	152.	136.	115.	93.	76.	63.	53.	45.	38.
32.	26.	22.	18.	16.	13.	11.	9.	8.	6.
5.	4.	4.	3.	3.	2.	2.	2.	1.	1.
1.	1.	1.	0.	0.					

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

HYDROGRAPH AT STATION DA514

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.56, TOTAL EXCESS = 1.96

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
			(CFS)			
+	125.	12.17	11.	3.	3.	3.
			(INCHES) 1.806	1.958	1.958	1.958
			(AC-FT) 5.	6.	6.	6.

CUMULATIVE AREA = 0.06 SQ MI

*** ***

```
          **************
          *            *
184 KK    *     DA515  *       (CVL199) CVL data
          *            *
          **************
```

SUBBASIN RUNOFF DATA

185 BA SUBBASIN CHARACTERISTICS
TAREA 0.05 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.05

186 LS SCS LOSS RATE
STRTL 0.38 INITIAL ABSTRACTION
CRVNBR 84.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

187 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.19 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
58 END-OF-PERIOD ORDINATES

3.	9.	18.	28.	41.	58.	77.	92.	104.	112.
115.	116.	114.	108.	101.	93.	84.	73.	61.	52.
45.	39.	34.	30.	26.	23.	20.	17.	15.	13.
11.	10.	9.	7.	6.	6.	5.	4.	4.	3.
3.	2.	2.	2.	2.	1.	1.	1.	1.	1.
1.	1.	1.	0.	0.	0.	0.	0.		

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

HYDROGRAPH AT STATION DA515

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.57, TOTAL EXCESS = 1.95

PEAK FLOW TIME MAXIMUM AVERAGE FLOW

			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 91.	12.20		9.	2.	2.	2.
		(INCHES)	1.798	1.949	1.949	1.949
		(AC-FT)	4.	5.	5.	5.

CUMULATIVE AREA = 0.05 SQ MI

*** ***

```
**************
*            *
*     AD515  *
*            *
**************
```

188 KK Combine 515, 514 and 513

189 HC HYDROGRAPH COMBINATION
ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

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

HYDROGRAPH AT STATION AD515

			MAXIMUM AVERAGE FLOW			
PEAK FLOW	TIME		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 379.	12.20		38.	10.	10.	10.
		(INCHES)	1.834	1.989	1.989	1.989
		(AC-FT)	19.	20.	20.	20.

CUMULATIVE AREA = 0.19 SQ MI

*** ***

```
**************
*            *
*     RT515  *
*            *
**************
```

190 KK Channel info from Clouse plans.

HYDROGRAPH ROUTING DATA

191 RS STORAGE ROUTING
NSTPS 1 NUMBER OF SUBREACHES
ITYP FLOW TYPE OF INITIAL CONDITION
RSVRIC -1.00 INITIAL CONDITION
X 0.00 WORKING R AND D COEFFICIENT

192 RC NORMAL DEPTH CHANNEL
ANL 0.040 LEFT OVERBANK N-VALUE
ANCH 0.020 MAIN CHANNEL N-VALUE
ANR 0.040 RIGHT OVERBANK N-VALUE
RLNTH 2600. REACH LENGTH
SEL 0.0059 ENERGY SLOPE
ELMAX 0.0 MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---			+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---	
194 RY	ELEVATION	10.00	10.00	10.00	6.00	6.00	1.00	10.00	10.00
193 RX	DISTANCE	80.00	90.00	100.00	106.00	116.00	122.00	132.00	142.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.02	0.06	0.14	0.25	0.39	0.56	0.76	0.99	1.25
OUTFLOW	0.00	0.36	2.28	6.73	14.49	26.27	42.72	64.44	92.01	125.96
ELEVATION	1.00	1.47	1.95	2.42	2.89	3.37	3.84	4.32	4.79	5.26

STORAGE	1.55	2.00	2.64	3.32	4.03	4.78	5.56	6.38	7.23	8.12
OUTFLOW	166.82	173.17	271.18	390.05	529.07	687.87	866.29	1064.32	1282.01	1430.34
ELEVATION	5.74	6.21	6.68	7.16	7.63	8.11	8.58	9.05	9.53	10.00

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

HYDROGRAPH AT STATION RT515

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 332.	12.28		38.	10.	10.	10.
		(INCHES)	1.832	1.983	1.983	1.983
		(AC-FT)	19.	20.	20.	20.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)					
3.	12.28		0.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)					
6.93	12.28		3.09	1.81	1.81	1.81

CUMULATIVE AREA = 0.19 SQ MI

*** ***

```
**************
*            *
*     DA516  *       (CVL311) HDR data
*            *
**************
```

195 KK

SUBBASIN RUNOFF DATA

196 BA

SUBBASIN CHARACTERISTICS

TAREA 0.15 SUBBASIN AREA

PRECIPITATION DATA

17 PH

DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.15

197 LS

SCS LOSS RATE

STRTL 0.60 INITIAL ABSTRACTION

CRVNBR 77.00 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

198 UD

SCS DIMENSIONLESS UNITGRAPH

TLAG 0.34 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
104 END-OF-PERIOD ORDINATES

3.	6.	12.	19.	28.	37.	48.	60.	74.	90.
107.	126.	144.	159.	173.	184.	194.	200.	205.	206.
207.	206.	204.	199.	193.	186.	179.	171.	163.	154.
144.	133.	121.	110.	100.	92.	85.	78.	72.	67.
62.	57.	54.	50.	46.	43.	40.	37.	34.	31.
29.	27.	25.	23.	21.	20.	18.	17.	15.	14.
13.	12.	11.	10.	10.	9.	8.	8.	7.	7.
6.	6.	5.	5.	4.	4.	4.	4.	3.	3.
3.	3.	2.	2.	2.	2.	2.	2.	2.	2.
1.	1.	1.	1.	1.	1.	1.	1.	1.	0.

```
                0.       0.       0.       0.

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

                          HYDROGRAPH AT STATION     DA516

     TOTAL RAINFALL =    3.52, TOTAL LOSS =     2.07, TOTAL EXCESS =     1.44

   PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR     23.98-HR
+    (CFS)       (HR)
                          (CFS)
+      152.     12.40                      21.          6.           6.           6.
                          (INCHES)      1.324       1.439        1.439        1.439
                          (AC-FT)          11.          11.          11.          11.

                          CUMULATIVE AREA =     0.15 SQ MI


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


            **************
            *            *
  199 KK    *     AD516  *       Combine flows from west, 60 cfs from north and DA516 at 48th
            *            *
            **************
                                  and Highline canal.

  201 HC              HYDROGRAPH COMBINATION
                           ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                          HYDROGRAPH AT STATION     AD516

   PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR     23.98-HR
+    (CFS)       (HR)
                          (CFS)
+      527.     12.30                     108.         33.          33.          33.
                          (INCHES)      0.510       0.619        0.619        0.619
                          (AC-FT)          54.          65.          65.          65.

                          CUMULATIVE AREA =     1.97 SQ MI


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


            **************
            *            *
  202 KK    *     RT516  *       Channel info from Clouse plans.
            *            *
            **************

               HYDROGRAPH ROUTING DATA

  203 RS             STORAGE ROUTING
                          NSTPS           1  NUMBER OF SUBREACHES
                           ITYP        FLOW  TYPE OF INITIAL CONDITION
                         RSVRIC       -1.00  INITIAL CONDITION
                              X        0.00 WORKING R AND D COEFFICIENT

  204 RC             NORMAL DEPTH CHANNEL
                            ANL       0.040  LEFT OVERBANK N-VALUE
                           ANCH       0.020  MAIN CHANNEL N-VALUE
                            ANR       0.040  RIGHT OVERBANK N-VALUE
                          RLNTH       1800.  REACH LENGTH
                            SEL      0.0030  ENERGY SLOPE
                          ELMAX         0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                      --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
```

206 RY ELEVATION 10.00 10.00 10.00 6.00 6.00 1.00 10.00 10.00
205 RX DISTANCE 80.00 90.00 100.00 106.00 116.00 122.00 132.00 142.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.01	0.04	0.10	0.17	0.27	0.39	0.52	0.69	0.87
OUTFLOW	0.00	0.26	1.63	4.80	10.33	18.73	30.46	45.95	65.61	89.82
ELEVATION	1.00	1.47	1.95	2.42	2.89	3.37	3.84	4.32	4.79	5.26
STORAGE	1.07	1.38	1.83	2.30	2.79	3.31	3.85	4.42	5.01	5.62
OUTFLOW	118.95	123.48	193.37	278.14	377.27	490.50	617.73	758.94	914.17	1019.94
ELEVATION	5.74	6.21	6.68	7.16	7.63	8.11	8.58	9.05	9.53	10.00

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

HYDROGRAPH AT STATION RT516

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 505.	12.37		108.	33.	33.	33.
		(INCHES)	0.509	0.617	0.617	0.617
		(AC-FT)	54.	65.	65.	65.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
3.	12.37	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
8.16	12.37	5.17	2.74	2.74	2.74

CUMULATIVE AREA = 1.97 SQ MI

*** ***

```
**************
*            *
*     DA517  *
*            *
**************
```

207 KK (CVL320) CVL data

SUBBASIN RUNOFF DATA

208 BA SUBBASIN CHARACTERISTICS
TAREA 0.17 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

HYDRO-35			TP-40					TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.17

209 LS SCS LOSS RATE
STRTL 0.60 INITIAL ABSTRACTION
CRVNBR 77.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

210 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.26 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
79 END-OF-PERIOD ORDINATES

6.	15.	28.	45.	63.	87.	114.	145.	182.	216.
247.	270.	289.	301.	306.	308.	306.	300.	289.	276.
262.	246.	228.	209.	186.	164.	145.	131.	118.	106.
96.	86.	79.	72.	65.	59.	53.	47.	43.	39.
35.	32.	29.	26.	23.	21.	19.	17.	15.	14.
13.	11.	10.	9.	8.	8.	7.	6.	6.	5.
5.	4.	4.	3.	3.	3.	3.	2.	2.	2.
2.	2.	1.	1.	1.	1.	1.	0.	0.	

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

HYDROGRAPH AT STATION DA517

TOTAL RAINFALL = 3.52, TOTAL LOSS = 2.07, TOTAL EXCESS = 1.44

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	203.	12.30		24.	7.	7.	7.
			(INCHES)	1.325	1.440	1.440	1.440
			(AC-FT)	12.	13.	13.	13.

CUMULATIVE AREA = 0.17 SQ MI

*** ***

```
**************
*            *
*     AD517  *
*            *
**************
```

211 KK Add in 517

212 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD517

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	700.	12.35		132.	39.	39.	39.
			(INCHES)	0.574	0.682	0.682	0.682
			(AC-FT)	66.	78.	78.	78.

CUMULATIVE AREA = 2.14 SQ MI

*** ***

```
**************
*            *
*     RT517  *
*            *
**************
```

213 KK Assumed channel shape based on estimated 48th St. cross-section.

HYDROGRAPH ROUTING DATA

214 RS STORAGE ROUTING

NSTPS 1 NUMBER OF SUBREACHES
ITYP FLOW TYPE OF INITIAL CONDITION
RSVRIC -1.00 INITIAL CONDITION
X 0.00 WORKING R AND D COEFFICIENT

215 RC NORMAL DEPTH CHANNEL

ANL 0.020 LEFT OVERBANK N-VALUE
ANCH 0.025 MAIN CHANNEL N-VALUE
ANR 0.040 RIGHT OVERBANK N-VALUE

RLNTH 850. REACH LENGTH
SEL 0.0050 ENERGY SLOPE
ELMAX 0.0 MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---		
217 RY	ELEVATION	12.00	9.60	10.00	9.76	7.76	7.76	10.00	12.00
216 RX	DISTANCE	78.00	80.00	100.00	112.00	116.00	118.00	122.00	222.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.01	0.02	0.04	0.06	0.09	0.12	0.15	0.19	0.24
OUTFLOW	0.00	0.74	2.50	5.28	9.13	14.16	20.45	28.10	37.20	47.05
ELEVATION	7.76	7.98	8.21	8.43	8.65	8.88	9.10	9.32	9.55	9.77
STORAGE	0.37	0.58	0.84	1.14	1.50	1.90	2.36	2.86	3.41	4.02
OUTFLOW	50.35	87.54	146.00	221.63	314.66	425.77	555.76	705.45	875.70	1067.34
ELEVATION	9.99	10.21	10.44	10.66	10.88	11.11	11.33	11.55	11.78	12.00

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

HYDROGRAPH AT STATION RT517

PEAK FLOW + (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
		(CFS)				
+ 685.	12.40		132.	39.	39.	39.
		(INCHES)	0.574	0.682	0.682	0.682
		(AC-FT)	65.	78.	78.	78.

PEAK STORAGE + (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	23.98-HR
3.	12.40	1.	0.	0.	0.

PEAK STAGE + (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	23.98-HR
11.52	12.40	10.22	8.76	8.76	8.76

CUMULATIVE AREA = 2.14 SQ MI

*** ***

```
**************
*            *
*    DA518   *
*            *
**************
```

218 KK

SUBBASIN RUNOFF DATA

219 BA

SUBBASIN CHARACTERISTICS
TAREA 0.10 SUBBASIN AREA

PRECIPITATION DATA

17 PH

DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.10

220 LS

SCS LOSS RATE
STRTL 0.47 INITIAL ABSTRACTION
CRVNBR 81.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

221 UD

SCS DIMENSIONLESS UNITGRAPH
TLAG 0.58 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
176 END-OF-PERIOD ORDINATES

1.	1.	2.	3.	5.	6.	8.	10.	12.	14.
17.	19.	22.	25.	28.	32.	36.	40.	44.	48.
53.	57.	60.	64.	67.	70.	72.	75.	77.	78.
79.	81.	81.	81.	81.	81.	81.	81.	80.	79.
77.	76.	75.	73.	71.	70.	68.	66.	64.	62.
60.	57.	55.	52.	50.	47.	44.	42.	40.	37.
36.	34.	33.	31.	30.	28.	27.	26.	25.	23.
22.	22.	21.	20.	19.	18.	17.	17.	16.	15.
15.	14.	13.	12.	12.	11.	11.	10.	10.	10.
9.	9.	8.	8.	8.	7.	7.	7.	6.	6.
6.	5.	5.	5.	5.	4.	4.	4.	4.	4.
4.	3.	3.	3.	3.	3.	3.	3.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.				

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

HYDROGRAPH AT STATION DA518

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.80, TOTAL EXCESS = 1.72

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 87.	12.65		17.	5.	5.	5.
		(INCHES)	1.581	1.713	1.713	1.713
		(AC-FT)	8.	9.	9.	9.

CUMULATIVE AREA = 0.10 SQ MI

*** ***

222 KK

****
* *
* AD518 *
* *
****

Combine 518 with flow moving south in 48th St.

223 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD518

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 748.	12.40		149.	44.	44.	44.
		(INCHES)	0.618	0.727	0.727	0.727
		(AC-FT)	74.	87.	87.	87.

CUMULATIVE AREA = 2.24 SQ MI

*** ***

****
* *

```
224 KK      *    DIV518  *      Assume 50-50 split at 48th & Chandler IC.
            *            *
            **************

      DT          DIVERSION
                       ISTAD       DIVSE  DIVERSION HYDROGRAPH IDENTIFICATION

      DI             INFLOW        0.00   2000.00

      DQ       DIVERTED FLOW       0.00   1000.00

                                                                    ***

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

                          DIVERSION HYDROGRAPH    DIVSE

  PEAK FLOW      TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR      23.98-HR
+    (CFS)        (HR)
                    (CFS)
+      374.      12.40                     74.          22.          22.          22.
                (INCHES)                 0.309        0.364        0.364        0.364
                 (AC-FT)                  37.          43.          43.          43.

                          CUMULATIVE AREA =    2.24 SQ MI

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

                          HYDROGRAPH AT STATION   DIV518

  PEAK FLOW      TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR      23.98-HR
+    (CFS)        (HR)
                    (CFS)
+      374.      12.40                     74.          22.          22.          22.
                (INCHES)                 0.309        0.364        0.364        0.364
                 (AC-FT)                  37.          43.          43.          43.

                          CUMULATIVE AREA =    2.24 SQ MI


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


            **************
            *            *
228 KK      *     RT518  *      Assume channel size based on existing tail-water ditch.
            *            *
            **************

               HYDROGRAPH ROUTING DATA

229 RS            STORAGE ROUTING
                       NSTPS          1  NUMBER OF SUBREACHES
                        ITYP       FLOW  TYPE OF INITIAL CONDITION
                       RSVRIC      -1.00 INITIAL CONDITION
                           X        0.00 WORKING R AND D COEFFICIENT

230 RC            NORMAL DEPTH CHANNEL
                        ANL       0.035  LEFT OVERBANK N-VALUE
                       ANCH       0.025  MAIN CHANNEL N-VALUE
                        ANR       0.035  RIGHT OVERBANK N-VALUE
                       RLNTH      3600.  REACH LENGTH
                         SEL     0.0061  ENERGY SLOPE
                       ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
232 RY       ELEVATION     10.40     10.20     10.00      5.00      5.00     10.00     10.20     10.40
231 RX       DISTANCE      80.00     90.00    100.00    105.00    110.00    115.00    125.00    135.00

                                                ***

                                    COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE        0.00      0.12      0.26      0.41      0.58      0.75      0.94      1.15      1.37      1.60
```

NS

OUTFLOW	0.00	2.84	9.02	17.84	29.12	42.80	58.90	77.44	98.48	122.08
ELEVATION	5.00	5.28	5.57	5.85	6.14	6.42	6.71	6.99	7.27	7.56
STORAGE	1.84	2.10	2.37	2.65	2.95	3.26	3.59	3.93	4.33	5.29
OUTFLOW	148.32	177.27	209.01	243.61	281.14	321.69	365.34	412.16	467.62	542.30
ELEVATION	7.84	8.13	8.41	8.69	8.98	9.26	9.55	9.83	10.12	10.40

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

HYDROGRAPH AT STATION RT518

PEAK FLOW + (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
		(CFS)				
344.	12.52		74.	22.	22.	22.
		(INCHES)	0.308	0.361	0.361	0.361
		(AC-FT)	37.	43.	43.	43.

PEAK STORAGE + (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	23.98-HR
3.	12.52	1.	0.	0.	0.

PEAK STAGE + (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	23.98-HR
9.41	12.52	6.73	5.61	5.61	5.61

CUMULATIVE AREA = 2.24 SQ MI

*** ***

233 KK

****
* *
* DA519a *
* *
****

SUBBASIN RUNOFF DATA

234 BA SUBBASIN CHARACTERISTICS
TAREA 0.22 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.22

235 LS SCS LOSS RATE
STRTL 0.47 INITIAL ABSTRACTION
CRVNBR 81.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

236 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.62 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
188 END-OF-PERIOD ORDINATES

1.	3.	4.	6.	9.	12.	15.	19.	23.	27.
31.	36.	41.	47.	52.	59.	66.	73.	81.	89.
98.	106.	114.	122.	129.	136.	142.	147.	152.	157.
160.	162.	165.	167.	168.	168.	169.	169.	169.	168.
168.	166.	163.	161.	158.	155.	152.	149.	145.	142.
138.	135.	131.	126.	122.	117.	113.	107.	102.	96.
92.	87.	83.	78.	75.	72.	69.	66.	63.	60.
58.	55.	53.	50.	48.	46.	45.	43.	41.	40.

38.	37.	35.	34.	32.	31.	30.	28.	27.	26.
24.	23.	23.	22.	21.	20.	19.	18.	17.	17.
16.	15.	15.	14.	13.	13.	12.	12.	11.	11.
10.	10.	9.	9.	9.	8.	8.	8.	7.	7.
7.	6.	6.	6.	6.	5.	5.	5.	5.	5.
4.	4.	4.	4.	4.	4.	3.	3.	3.	3.
3.	3.	3.	2.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	2.	2.	2.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.		

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

HYDROGRAPH AT STATION DA519a

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.79, TOTAL EXCESS = 1.72

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
			(CFS)			
+	183.	12.70	37.	10.	10.	10.
			(INCHES) 1.579	1.712	1.712	1.712
			(AC-FT) 19.	20.	20.	20.

CUMULATIVE AREA = 0.22 SQ MI

*** ***

237 KK — AD519a — Combine 519a and flow from N. at 48th & SMF.

238 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD519a

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
			(CFS)			
+	511.	12.57	111.	32.	32.	32.
			(INCHES) 0.421	0.482	0.482	0.482
			(AC-FT) 55.	63.	63.	63.

CUMULATIVE AREA = 2.46 SQ MI

*** ***

239 KK — DA520a

SUBBASIN RUNOFF DATA

240 BA SUBBASIN CHARACTERISTICS
TAREA 0.13 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM
..... HYDRO-35 .... TP-40 .... TP-49 .....

5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.13

```
241 LS          SCS LOSS RATE
                     STRTL          0.50  INITIAL ABSTRACTION
                    CRVNBR         80.00  CURVE NUMBER
                     RTIMP          0.00  PERCENT IMPERVIOUS AREA

242 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG          0.41  LAG
```

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
125 END-OF-PERIOD ORDINATES

2.	4.	6.	10.	15.	20.	25.	31.	38.	45.
54.	64.	74.	85.	96.	106.	115.	123.	129.	136.
140.	143.	145.	146.	147.	146.	146.	144.	140.	137.
133.	129.	124.	120.	115.	109.	104.	97.	90.	83.
77.	71.	66.	62.	58.	54.	51.	47.	45.	42.
39.	37.	35.	33.	31.	29.	27.	25.	24.	22.
21.	20.	18.	17.	16.	15.	14.	13.	12.	12.
11.	10.	10.	9.	8.	8.	7.	7.	6.	6.
6.	5.	5.	5.	4.	4.	4.	4.	3.	3.
3.	3.	3.	2.	2.	2.	2.	2.	2.	2.
2.	2.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	0.	0.	0.	0.
0.	0.	0.	0.	0.					

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

HYDROGRAPH AT STATION DA520a

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.87, TOTAL EXCESS = 1.65

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 133.	12.47		21.	6.	6.	6.
		(INCHES)	1.517	1.644	1.644	1.644
		(AC-FT)	10.	11.	11.	11.

CUMULATIVE AREA = 0.13 SQ MI

*** ***

```
               ***************
               *             *
243 KK         *   RT520a    *      Channel info from K-Mart Drainage report.
               *             *
               ***************

            HYDROGRAPH ROUTING DATA

244 RS          STORAGE ROUTING
                     NSTPS             1  NUMBER OF SUBREACHES
                      ITYP          FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC         -1.00  INITIAL CONDITION
                         X          0.00 WORKING R AND D COEFFICIENT

245 RC          NORMAL DEPTH CHANNEL
                       ANL         0.040  LEFT OVERBANK N-VALUE
                      ANCH         0.025  MAIN CHANNEL N-VALUE
                       ANR         0.040  RIGHT OVERBANK N-VALUE
                     RLNTH         2100.  REACH LENGTH
                       SEL        0.0016  ENERGY SLOPE
                     ELMAX           0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION
```

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+	------ MAIN CHANNEL -------	+	--- RIGHT OVERBANK ---	
247 RY	ELEVATION	10.00	10.00	10.00	4.00	4.00	10.00	10.00	10.00

246 RX DISTANCE 80.00 90.00 100.00 112.00 114.00 126.00 136.00 146.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.04	0.10	0.18	0.28	0.39	0.53	0.68	0.86	1.05
OUTFLOW	0.00	0.77	2.79	6.20	11.23	18.08	26.97	38.09	51.62	67.76
ELEVATION	4.00	4.32	4.63	4.95	5.26	5.58	5.89	6.21	6.53	6.84
STORAGE	1.27	1.50	1.75	2.02	2.31	2.62	2.95	3.30	3.66	4.05
OUTFLOW	86.67	108.52	133.49	161.73	193.39	228.65	267.64	310.51	357.41	408.49
ELEVATION	7.16	7.47	7.79	8.11	8.42	8.74	9.05	9.37	9.68	10.00

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

HYDROGRAPH AT STATION RT520a

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 121.	12.60		21.	6.	6.	6.
		(INCHES)	1.509	1.636	1.636	1.636
		(AC-FT)	10.	11.	11.	11.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
2.	12.60	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
7.63	12.60	5.31	4.45	4.45	4.45

CUMULATIVE AREA = 0.13 SQ MI

*** ***

```
        ***************
        *             *
248 KK  *    DA520b   *
        *             *
        ***************
```

Initial abstraction to allow for "K-mart development" 100yr-2hr Ret.

SUBBASIN RUNOFF DATA

250 BA SUBBASIN CHARACTERISTICS
TAREA 0.22 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35	......		.... TP-40	....			.... TP-49	....		
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.69	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.22

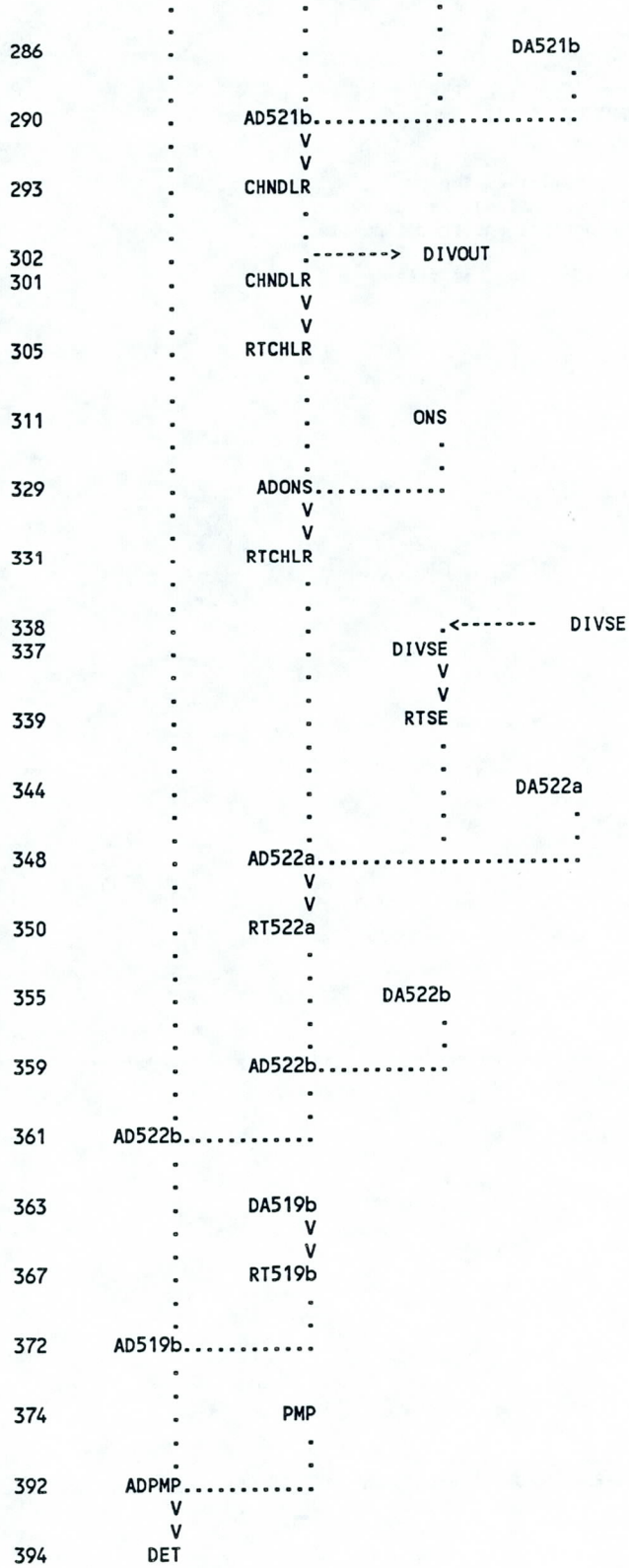
251 LS SCS LOSS RATE
STRTL 0.47 INITIAL ABSTRACTION
CRVNBR 87.50 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

252 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.34 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
104 END-OF-PERIOD ORDINATES



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              MAY   1991               *
*           VERSION 4.0.1E              *
*                                       *
*  RUN DATE  05/06/92  TIME  12:42:49   *
*                                       *
*****************************************
```

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

PRICE ROAD PHASE III HYDROLOGY CHECK <PRICE5>
SOUTH MOUNTAIN FREEWAY (40TH ST TO I-10 MARICOPA AREA)
100-YEAR 24-HOUR STORM EVENT
This file is a translation of Coe & Van-Loo's TR-20 model in
"48th St & Chandler Blvd" report to HEC-1 format. i.e. Their
basin areas, curve numbers, times, were used (as noted).Channel data
was estimated by HDR from site visits & photographs and from asbuilts
of development in the area.
Areas not covered by their report were also added to this file

05-06-92 SMc.

```
 15 IO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                      NMIN          1  MINUTES IN COMPUTATION INTERVAL
                     IDATE      1   0  STARTING DATE
                     ITIME       0000  STARTING TIME
                        NQ       1440  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE     1   0  ENDING DATE
                     NDTIME       2359  ENDING TIME
                     ICENT          19  CENTURY MARK

                   COMPUTATION INTERVAL    0.02 HOURS
                       TOTAL TIME BASE   23.98 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


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


          **************
          *            *
 16 KK    *     DA501  *       (CVL1)  CVL data, HDR storm data.
          *            *
          **************

             SUBBASIN RUNOFF DATA

 18 BA         SUBBASIN CHARACTERISTICS
                     TAREA        0.38  SUBBASIN AREA

               PRECIPITATION DATA

 17 PH                                DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
               ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
               5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                0.77   1.50   2.64    2.89    3.06    3.37    3.68    4.00    0.00    0.00    0.00    0.00

                                                 STORM AREA =    0.38

 19 LS         SCS LOSS RATE
                     STRTL        0.22  INITIAL ABSTRACTION
                    CRVNBR       90.00  CURVE NUMBER
                     RTIMP        0.00  PERCENT IMPERVIOUS AREA

 20 UD         SCS DIMENSIONLESS UNITGRAPH
                     TLAG        0.14  LAG

                                                  ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667 805 24.00000
```

UNIT HYDROGRAPH
45 END-OF-PERIOD ORDINATES

44.	141.	270.	446.	674.	904.	1075.	1175.	1203.	1194.
1118.	1024.	913.	774.	625.	512.	427.	356.	303.	255.
214.	175.	149.	124.	104.	87.	72.	61.	51.	43.
35.	30.	25.	21.	17.	15.	13.	11.	9.	8.
6.	5.	4.	2.	1.					

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

HYDROGRAPH AT STATION DA501

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.08, TOTAL EXCESS = 2.92

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW	6-HR	24-HR	72-HR	23.98-HR
1237.	12.15	(CFS)	109.	30.	30.	30.
		(INCHES)	2.657	2.913	2.913	2.913
		(AC-FT)	54.	59.	59.	59.

CUMULATIVE AREA = 0.38 SQ MI

*** ***

21 KK

****
* *
* DIV501 *
* *
****

Ahwatukee Drainage Report shows 25-75 split. 25% to Study area.
Based on HDR site visit assume 50-50 split.

DT	DIVERSION ISTAD	DIVOUT	DIVERSION HYDROGRAPH IDENTIFICATION
DI	INFLOW	0.00	1000.00
DQ	DIVERTED FLOW	0.00	500.00

***

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

DIVERSION HYDROGRAPH DIVOUT

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW	6-HR	24-HR	72-HR	23.98-HR
619.	12.15	(CFS)	54.	15.	15.	15.
		(INCHES)	1.329	1.457	1.457	1.457
		(AC-FT)	27.	30.	30.	30.

CUMULATIVE AREA = 0.38 SQ MI

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

HYDROGRAPH AT STATION DIV501

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW	6-HR	24-HR	72-HR	23.98-HR
619.	12.15	(CFS)	54.	15.	15.	15.
		(INCHES)	1.329	1.457	1.457	1.457
		(AC-FT)	27.	30.	30.	30.

CUMULATIVE AREA = 0.38 SQ MI

804

*** ***

****
* *
27 KK * RT501 * Channel size approx.
* *
****

HYDROGRAPH ROUTING DATA

28 RS STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	0.00	WORKING R AND D COEFFICIENT

29 RC NORMAL DEPTH CHANNEL

ANL	0.035	LEFT OVERBANK N-VALUE
ANCH	0.025	MAIN CHANNEL N-VALUE
ANR	0.035	RIGHT OVERBANK N-VALUE
RLNTH	2500.	REACH LENGTH
SEL	0.0160	ENERGY SLOPE
ELMAX	0.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---		
31 RY	ELEVATION	10.20	10.10	10.00	2.00	2.00	10.00	10.10	10.20
30 RX	DISTANCE	98.00	99.00	100.00	108.00	133.00	141.00	142.00	143.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.63	1.28	1.95	2.65	3.36	4.10	4.86	5.64	6.44
OUTFLOW	0.00	46.30	146.66	287.86	464.65	673.98	913.86	1182.93	1480.23	1805.04
ELEVATION	2.00	2.43	2.86	3.29	3.73	4.16	4.59	5.02	5.45	5.88
STORAGE	7.26	8.11	8.97	9.86	10.76	11.69	12.64	13.62	14.61	15.65
OUTFLOW	2156.89	2535.40	2940.35	3371.59	3829.03	4312.65	4822.46	5358.53	5920.95	6560.13
ELEVATION	6.32	6.75	7.18	7.61	8.04	8.47	8.91	9.34	9.77	10.20

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

HYDROGRAPH AT STATION RT501

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 582.	12.20		54.	15.	15.	15.
		(INCHES)	1.328	1.455	1.455	1.455
		(AC-FT)	27.	29.	29.	29.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)					
3.	12.20		0.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)					
3.97	12.20		2.30	2.09	2.09	2.09

CUMULATIVE AREA = 0.38 SQ MI

*** ***

****
* *
32 KK * DA502 * (CVL120) CVL data
* *
****

807

SUBBASIN RUNOFF DATA

33 BA SUBBASIN CHARACTERISTICS
TAREA 0.42 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			.... TP-40					.... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.42

34 LS SCS LOSS RATE
STRTL 0.33 INITIAL ABSTRACTION
CRVNBR 86.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

35 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.25 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
76 END-OF-PERIOD ORDINATES

16.	41.	78.	124.	178.	241.	322.	412.	511.	597.
672.	730.	767.	791.	796.	794.	783.	752.	717.	679.
637.	589.	536.	473.	416.	365.	328.	294.	263.	237.
214.	195.	176.	158.	143.	127.	113.	103.	92.	83.
75.	67.	60.	54.	48.	43.	39.	35.	31.	29.
26.	23.	21.	19.	17.	15.	14.	12.	11.	10.
9.	8.	8.	7.	6.	6.	5.	4.	4.	3.
3.	2.	2.	1.	1.	0.				

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

HYDROGRAPH AT STATION DA502

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.45, TOTAL EXCESS = 2.54

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 928.	12.27		105.	29.	29.	29.
		(INCHES)	2.332	2.538	2.538	2.538
		(AC-FT)	52.	57.	57.	57.

CUMULATIVE AREA = 0.42 SQ MI

*** ***

```
***************
*             *
36 KK *    AD502   *      Combine 502 and diverted flow from 501
*             *
***************
```

37 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD502

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
- (CFS)	(HR)					
		(CFS)				
- 1468.	12.23		160.	44.	44.	44.
		(INCHES)	1.854	2.024	2.024	2.024
		(AC-FT)	79.	86.	86.	86.

808

CUMULATIVE AREA = 0.80 SQ MI

*** ***

38 KK — DIV502 — 70% East to study area, other 30% South to MPR east watershed.

According to Ahwatukee report there should be another diversion out of study area and back to Ahwatukee PhIV. This diversion was not found on HDR site visit and is not coded.

DT	DIVERSION ISTAD	DIVOUT	DIVERSION HYDROGRAPH IDENTIFICATION
DI	INFLOW	0.00	1000.00
DQ	DIVERTED FLOW	0.00	300.00

***

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

DIVERSION HYDROGRAPH DIVOUT

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
		(CFS)				
440.	12.23		48.	13.	13.	13.
		(INCHES)	0.556	0.607	0.607	0.607
		(AC-FT)	24.	26.	26.	26.

CUMULATIVE AREA = 0.80 SQ MI

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

HYDROGRAPH AT STATION DIV502

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
		(CFS)				
1028.	12.23		112.	30.	30.	30.
		(INCHES)	1.298	1.417	1.417	1.417
		(AC-FT)	55.	60.	60.	60.

CUMULATIVE AREA = 0.80 SQ MI

*** ***

45 KK — RT502 — Channel size approx.

HYDROGRAPH ROUTING DATA

46 RS — STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	0.00	WORKING R AND D COEFFICIENT

47 RC — NORMAL DEPTH CHANNEL

ANL	0.035	LEFT OVERBANK N-VALUE
ANCH	0.025	MAIN CHANNEL N-VALUE
ANR	0.035	RIGHT OVERBANK N-VALUE

```
                RLNTH      2700.  REACH LENGTH
                  SEL    0.0110  ENERGY SLOPE
                ELMAX       0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                        CROSS-SECTION DATA
                                --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
49 RY       ELEVATION     10.20    10.10    10.00     4.00     4.00    10.00    10.10    10.20
48 RX       DISTANCE      98.00    99.00   100.00   106.00   131.00   137.00   138.00   139.00

                                              ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE          0.00     0.51     1.04     1.58     2.13     2.69     3.27     3.86     4.47     5.09
          OUTFLOW          0.00    24.11    76.39   149.92   241.92   350.71   475.16   614.48   768.06   935.45
        ELEVATION          4.00     4.33     4.65     4.98     5.31     5.63     5.96     6.28     6.61     6.94

          STORAGE          5.72     6.36     7.02     7.69     8.37     9.07     9.78    10.50    11.24    12.01
          OUTFLOW       1116.28  1310.29  1517.25  1737.02  1969.44  2214.44  2471.94  2741.89  3024.26  3348.04
        ELEVATION          7.26     7.59     7.92     8.24     8.57     8.89     9.22     9.55     9.87    10.20

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

                        HYDROGRAPH AT STATION     RT502

 PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR      23.98-HR
+   (CFS)       (HR)
                                (CFS)
+    989.      12.28              112.         30.          30.          30.
                          (INCHES)  1.297        1.414        1.414        1.414
                          (AC-FT)     55.         60.          60.          60.

 PEAK STORAGE  TIME                               MAXIMUM AVERAGE STORAGE
                                          6-HR        24-HR        72-HR      23.98-HR
+  (AC-FT)      (HR)
      5.       12.28               1.          0.           0.           0.

 PEAK STAGE    TIME                               MAXIMUM AVERAGE STAGE
                                          6-HR        24-HR        72-HR      23.98-HR
+   (FEET)      (HR)
     7.03      12.28              4.61         4.19         4.19         4.19

                        CUMULATIVE AREA =     0.80 SQ MI


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


                **************
                *            *
50 KK           *     DA503  *       (CVL201) CVL data
                *            *
                **************

                  SUBBASIN RUNOFF DATA

51 BA               SUBBASIN CHARACTERISTICS
                          TAREA       0.09  SUBBASIN AREA

                    PRECIPITATION DATA

17 PH                                    DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                    ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                    5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                     0.77    1.50    2.64    2.89    3.06    3.37    3.68    4.00    0.00    0.00    0.00    0.00

                                                  STORM AREA =     0.09

52 LS               SCS LOSS RATE
                          STRTL       0.44  INITIAL ABSTRACTION
                         CRVNBR      82.00  CURVE NUMBER
                          RTIMP       0.00  PERCENT IMPERVIOUS AREA

53 UD               SCS DIMENSIONLESS UNITGRAPH
                          TLAG       0.21  LAG
```

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
65 END-OF-PERIOD ORDINATES

4.	13.	24.	37.	55.	77.	102.	129.	152.	169.
182.	189.	190.	189.	183.	174.	164.	152.	139.	123.
106.	91.	80.	71.	62.	55.	49.	44.	39.	34.
30.	26.	23.	21.	18.	16.	14.	13.	11.	10.
9.	8.	7.	6.	5.	5.	4.	4.	3.	3.
3.	2.	2.	2.	2.	1.	1.	1.	1.	1.
1.	1.	0.	0.	0.					

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

HYDROGRAPH AT STATION DA503

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.80, TOTAL EXCESS = 2.20

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	179.	12.23		19.	5.	5.	5.
			(INCHES)	2.027	2.198	2.198	2.198
			(AC-FT)	9.	10.	10.	10.

CUMULATIVE AREA = 0.09 SQ MI

*** ***

****
* *
54 KK * AD503 * Combine 503 and flow from 501 & 502
* *
****

55 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD503

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	1162.	12.27		130.	36.	36.	36.
			(INCHES)	1.368	1.490	1.490	1.490
			(AC-FT)	65.	70.	70.	70.

CUMULATIVE AREA = 0.89 SQ MI

*** ***

****
* *
56 KK * RT503 * Channel size approx.
* *
****

HYDROGRAPH ROUTING DATA

57 RS STORAGE ROUTING
NSTPS 1 NUMBER OF SUBREACHES
ITYP FLOW TYPE OF INITIAL CONDITION
RSVRIC -1.00 INITIAL CONDITION
X 0.00 WORKING R AND D COEFFICIENT 8/1

58 RC NORMAL DEPTH CHANNEL

ANL	0.040	LEFT OVERBANK N-VALUE
ANCH	0.035	MAIN CHANNEL N-VALUE
ANR	0.040	RIGHT OVERBANK N-VALUE
RLNTH	1200.	REACH LENGTH
SEL	0.0125	ENERGY SLOPE
ELMAX	0.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

--- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---

60 RY	ELEVATION	10.20	10.10	10.00	5.00	5.00	10.00	10.10	10.20
59 RX	DISTANCE	80.00	90.00	100.00	105.00	125.00	130.00	140.00	150.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.15	0.31	0.47	0.64	0.81	0.98	1.16	1.34	1.52
OUTFLOW	0.00	10.95	34.70	68.11	109.90	159.34	215.90	279.24	349.08	425.23
ELEVATION	5.00	5.27	5.55	5.82	6.09	6.37	6.64	6.92	7.19	7.46
STORAGE	1.71	1.91	2.11	2.31	2.52	2.73	2.94	3.16	3.38	3.72
OUTFLOW	507.53	595.85	690.12	790.25	896.20	1007.93	1125.42	1248.64	1377.59	1531.74
ELEVATION	7.74	8.01	8.28	8.56	8.83	9.11	9.38	9.65	9.93	10.20

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

HYDROGRAPH AT STATION RT503

PEAK FLOW + (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
		(CFS)	130.	35.	35.	35.
+ 1152.	12.30	(INCHES)	1.368	1.488	1.488	1.488
		(AC-FT)	65.	70.	70.	70.

PEAK STORAGE + (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	23.98-HR
3.	12.30	1.	0.	0.	0.

PEAK STAGE + (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	23.98-HR
9.44	12.30	5.92	5.30	5.30	5.30

CUMULATIVE AREA = 0.89 SQ MI

*** ***

```
**************
*            *
*     DA504  *
*            *
**************
```

61 KK (CVL130) CVL data

SUBBASIN RUNOFF DATA

62 BA SUBBASIN CHARACTERISTICS

TAREA	0.07	SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.07

63 LS SCS LOSS RATE

STRTL	0.38	INITIAL ABSTRACTION
CRVNBR	84.00	CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

64 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.19 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
58 END-OF-PERIOD ORDINATES

4.	13.	25.	40.	58.	82.	108.	131.	148.	158.
163.	164.	161.	153.	143.	132.	118.	103.	87.	74.
64.	55.	48.	42.	37.	32.	28.	24.	21.	18.
16.	14.	12.	11.	9.	8.	7.	6.	5.	5.
4.	3.	3.	3.	2.	2.	2.	2.	1.	1.
1.	1.	1.	1.	0.	0.	0.	0.		

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

HYDROGRAPH AT STATION DA504

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.63, TOTAL EXCESS = 2.37

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
			(CFS)			
+	157.	12.20	15.	4.	4.	4.
			(INCHES) 2.179	2.366	2.366	2.366
			(AC-FT) 8.	8.	8.	8.

CUMULATIVE AREA = 0.07 SQ MI

*** ***

****
* *
65 KK * AD504 * Combine 504 and flow from north
* *
****

66 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD504

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
			(CFS)			
+	1287.	12.28	146.	40.	40.	40.
			(INCHES) 1.424	1.549	1.549	1.549
			(AC-FT) 72.	79.	79.	79.

CUMULATIVE AREA = 0.95 SQ MI

*** ***

****
* *
67 KK * RT504 * Channel size approx.
* *
****

HYDROGRAPH ROUTING DATA

68 RS STORAGE ROUTING

	NSTPS	1	NUMBER OF SUBREACHES
	ITYP	FLOW	TYPE OF INITIAL CONDITION
	RSVRIC	-1.00	INITIAL CONDITION
	X	0.00	WORKING R AND D COEFFICIENT

69 RC NORMAL DEPTH CHANNEL

ANL	0.040	LEFT OVERBANK N-VALUE
ANCH	0.035	MAIN CHANNEL N-VALUE
ANR	0.040	RIGHT OVERBANK N-VALUE
RLNTH	850.	REACH LENGTH
SEL	0.0100	ENERGY SLOPE
ELMAX	0.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---		
71 RY	ELEVATION	10.30	10.10	10.00	5.00	5.00	10.00	10.10	10.20
70 RX	DISTANCE	80.00	90.00	100.00	105.00	125.00	130.00	140.00	150.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.11	0.22	0.34	0.46	0.58	0.71	0.84	0.97	1.10
OUTFLOW	0.00	10.11	32.04	62.88	101.47	147.11	199.34	257.84	322.35	392.69
ELEVATION	5.00	5.28	5.56	5.84	6.12	6.39	6.67	6.95	7.23	7.51
STORAGE	1.24	1.38	1.53	1.67	1.82	1.97	2.13	2.29	2.45	2.76
OUTFLOW	468.72	550.34	637.46	730.03	827.99	931.31	1039.97	1153.96	1274.75	1428.56
ELEVATION	7.79	8.07	8.35	8.63	8.91	9.18	9.46	9.74	10.02	10.30

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

HYDROGRAPH AT STATION RT504

PEAK FLOW + (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
		(CFS)				
+ 1280.	12.30		146.	40.	40.	40.
		(INCHES)	1.424	1.547	1.547	1.547
		(AC-FT)	72.	79.	79.	79.

PEAK STORAGE + (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	23.98-HR
2.	12.30	0.	0.	0.	0.

PEAK STAGE + (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	23.98-HR
10.03	12.30	6.05	5.35	5.35	5.35

CUMULATIVE AREA = 0.95 SQ MI

*** ***

```
**************
*            *
*     DA505  *
*            *
**************
```

72 KK (CVL132) CVL data

SUBBASIN RUNOFF DATA

73 BA SUBBASIN CHARACTERISTICS

TAREA	0.04	SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.04 8/4

```
 74 LS          SCS LOSS RATE
                     STRTL        0.38  INITIAL ABSTRACTION
                    CRVNBR       84.00  CURVE NUMBER
                     RTIMP        0.00  PERCENT IMPERVIOUS AREA

 75 UD          SCS DIMENSIONLESS UNITGRAPH
                     TLAG        0.16  LAG

                                                  ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667       0.01667      24.00000

                                                UNIT HYDROGRAPH
                                            50 END-OF-PERIOD ORDINATES
              3.      10.      19.      31.      47.      66.      83.      94.     101.     102.
            102.      96.      89.      81.      71.      59.      49.      41.      35.      30.
             26.      22.      19.      16.      14.      11.      10.       8.       7.       6.
              5.       4.       4.       3.       3.       2.       2.       2.       1.       1.
              1.       1.       1.       1.       1.       0.       0.       0.       0.       0.

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

                    HYDROGRAPH AT STATION    DA505

    TOTAL RAINFALL =    4.00, TOTAL LOSS =    1.63, TOTAL EXCESS =    2.37

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                     (CFS)
+      91.     12.17                    8.          2.          2.          2.
                  (INCHES)         2.179       2.367       2.367       2.367
                   (AC-FT)           4.          5.          5.          5.

                  CUMULATIVE AREA =    0.04 SQ MI


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


          **************
          *            *
 76 KK    *     AD505  *       Combine 505 and flow from north
          *            *
          **************

 77 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***

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

                    HYDROGRAPH AT STATION    AD505

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                     (CFS)
+    1345.     12.30                  154.         42.         42.         42.
                  (INCHES)         1.451       1.577       1.577       1.577
                   (AC-FT)          76.         83.         83.         83.

                  CUMULATIVE AREA =    0.99 SQ MI


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


          **************
          *            *
 78 KK    *     RT505  *       Channel size approx.
          *            *
          **************
```

HYDROGRAPH ROUTING DATA

79 RS STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	0.00	WORKING R AND D COEFFICIENT

80 RC NORMAL DEPTH CHANNEL

ANL	0.040	LEFT OVERBANK N-VALUE
ANCH	0.035	MAIN CHANNEL N-VALUE
ANR	0.040	RIGHT OVERBANK N-VALUE
RLNTH	400.	REACH LENGTH
SEL	0.0100	ENERGY SLOPE
ELMAX	0.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---		
82 RY	ELEVATION	12.00	10.40	10.00	5.00	5.00	10.00	10.40	12.00
81 RX	DISTANCE	79.90	80.00	100.00	105.00	120.00	125.00	145.00	145.10

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.05	0.11	0.16	0.22	0.28	0.35	0.42	0.49	0.56
OUTFLOW	0.00	12.04	38.13	74.87	120.98	175.76	238.78	309.78	388.59	475.12
ELEVATION	5.00	5.37	5.74	6.11	6.47	6.84	7.21	7.58	7.95	8.32
STORAGE	0.63	0.71	0.79	0.87	0.97	1.16	1.38	1.60	1.82	2.04
OUTFLOW	569.33	671.20	780.75	898.02	1033.92	1213.03	1435.82	1690.89	1973.88	2281.98
ELEVATION	8.68	9.05	9.42	9.79	10.16	10.53	10.89	11.26	11.63	12.00

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

HYDROGRAPH AT STATION RT505

PEAK FLOW + (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
		(CFS)				
1342.	12.32		154.	42.	42.	42.
		(INCHES)	1.451	1.576	1.576	1.576
		(AC-FT)	76.	83.	83.	83.

PEAK STORAGE + (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	23.98-HR
1.	12.32	0.	0.	0.	0.

PEAK STAGE + (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	23.98-HR
10.74	12.32	6.28	5.42	5.42	5.42

CUMULATIVE AREA = 0.99 SQ MI

*** ***

```
**************
*            *
*    DIV505  *
*            *
**************
```

83 KK 85% East to study area.

DT DIVERSION ISTAD DIVOUT DIVERSION HYDROGRAPH IDENTIFICATION

DI INFLOW 0.00 1000.00

DQ DIVERTED FLOW 0.00 150.00

***

*** *** *** *** 816 ***

DIVERSION HYDROGRAPH DIVOUT

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 201.	12.32		23.	6.	6.	6.
		(INCHES)	0.218	0.236	0.236	0.236
		(AC-FT)	11.	12.	12.	12.

CUMULATIVE AREA = 0.99 SQ MI

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

HYDROGRAPH AT STATION DIV505

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1141.	12.32		131.	36.	36.	36.
		(INCHES)	1.233	1.340	1.340	1.340
		(AC-FT)	65.	71.	71.	71.

CUMULATIVE AREA = 0.99 SQ MI

*** ***

```
          ***************
          *             *
 87 KK    *    RT505    *     Channel size approx.
          *             *
          ***************
```

HYDROGRAPH ROUTING DATA

88 RS STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	0.00	WORKING R AND D COEFFICIENT

89 RC NORMAL DEPTH CHANNEL

ANL	0.040	LEFT OVERBANK N-VALUE
ANCH	0.035	MAIN CHANNEL N-VALUE
ANR	0.040	RIGHT OVERBANK N-VALUE
RLNTH	1200.	REACH LENGTH
SEL	0.0100	ENERGY SLOPE
ELMAX	0.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK --- +		------ MAIN CHANNEL -------		+ --- RIGHT OVERBANK ---			
91 RY	ELEVATION	10.40	10.20	10.00	5.00	5.00	10.00	10.20	10.40
90 RX	DISTANCE	80.00	90.00	100.00	105.00	120.00	125.00	135.00	145.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.12	0.24	0.37	0.51	0.64	0.78	0.93	1.08	1.24
OUTFLOW	0.00	7.82	24.76	48.60	78.47	113.85	154.43	200.00	250.39	305.51
ELEVATION	5.00	5.28	5.57	5.85	6.14	6.42	6.71	6.99	7.27	7.56
STORAGE	1.40	1.56	1.73	1.90	2.08	2.26	2.45	2.64	2.85	3.25
OUTFLOW	365.28	429.66	498.61	572.13	650.21	732.86	820.08	911.91	1016.06	1145.44
ELEVATION	7.84	8.13	8.41	8.69	8.98	9.26	9.55	9.83	10.12	10.40

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

HYDROGRAPH AT STATION RT505

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR

+	(CFS)	(HR)					
			(CFS)				
+	1119.	12.35		131.	36.	36.	36.
			(INCHES)	1.233	1.338	1.338	1.338
			(AC-FT)	65.	70.	70.	70.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)					
3.	12.35		1.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)					
10.34	12.35		6.17	5.38	5.38	5.38

CUMULATIVE AREA = 0.99 SQ MI

*** ***

```
**************
*            *
92 KK   *  DA506  *      (CVL207) CVL data
*            *
**************
```

SUBBASIN RUNOFF DATA

93 BA SUBBASIN CHARACTERISTICS

TAREA	0.04	SUBBASIN AREA

PRECIPITATION DATA

17 PH

DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40				..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.04

94 LS SCS LOSS RATE

STRTL	0.35	INITIAL ABSTRACTION
CRVNBR	85.00	CURVE NUMBER
RTIMP	0.00	PERCENT IMPERVIOUS AREA

95 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	0.20	LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
61 END-OF-PERIOD ORDINATES

2.	7.	14.	22.	32.	45.	60.	74.	86.	94.
99.	101.	100.	98.	93.	87.	81.	73.	64.	55.
47.	41.	36.	31.	28.	25.	22.	19.	17.	14.
13.	11.	10.	9.	7.	7.	6.	5.	4.	4.
3.	3.	3.	2.	2.	2.	2.	1.	1.	1.
1.	1.	1.	1.	1.	0.	0.	0.	0.	0.
0.									

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

HYDROGRAPH AT STATION DA506

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.54, TOTAL EXCESS = 2.46

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 103.	12.22		10.	3.	3.	3.
		(INCHES)	2.256	2.453	2.453	2.453
		(AC-FT)	5.	6.	6.	6.

CUMULATIVE AREA = 0.04 SQ MI

*** ***

```
          **************
          *            *
 96 KK    *    AD506   *      Combine 506 and flow from 85% diversion
          *            *
          **************
```

 97 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD506

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	1198.	12.33		141.	38.	38.	38.
			(INCHES)	1.276	1.385	1.385	1.385
			(AC-FT)	70.	76.	76.	76.

CUMULATIVE AREA = 1.03 SQ MI

*** ***

```
          **************
          *            *
 98 KK    *    DA507   *      (CVL205) CVL data
          *            *
          **************
```

SUBBASIN RUNOFF DATA

 99 BA SUBBASIN CHARACTERISTICS
TAREA 0.04 SUBBASIN AREA

PRECIPITATION DATA

 17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.04

100 LS SCS LOSS RATE
STRTL 0.38 INITIAL ABSTRACTION
CRVNBR 84.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

101 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.18 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
56 END-OF-PERIOD ORDINATES

3.	9.	17.	27.	39.	55.	72.	86.	96.	102.
104.	103.	100.	94.	87.	80.	70.	59.	50.	43.
37.	32.	28.	24.	21.	18.	16.	14.	12.	10.
9.	8.	7.	6.	5.	4.	4.	3.	3.	2.
2.	2.	2.	1.	1.	1.	1.	1.	1.	1.
1.	0.	0.	0.	0.	0.				

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

HYDROGRAPH AT STATION DA507

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.63, TOTAL EXCESS = 2.37

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)	(CFS)				
+ 98.	12.20		10.	3.	3.	3.
		(INCHES)	2.179	2.366	2.366	2.366
		(AC-FT)	5.	5.	5.	5.

CUMULATIVE AREA = 0.04 SQ MI

*** ***

```
**************
*            *
*     RT507  *
*            *
**************
```

102 KK Assumed pipe size.

HYDROGRAPH ROUTING DATA

103 RK KINEMATIC WAVE STREAM ROUTING

L	1400.	CHANNEL LENGTH
S	0.0100	SLOPE
N	0.020	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	4.50	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE
NDXMIN	2	MINIMUM NUMBER OF DX INTERVALS

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	5.17	1.25	0.82	466.67	98.17	732.97	2.37	11.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5124E+01 EXCESS=0.0000E+00 OUTFLOW=0.5122E+01 BASIN STORAGE=0.2690E-02 PERCENT ERROR= 0.0

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	5.17	1.25	1.00	98.16	733.00	2.37

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

HYDROGRAPH AT STATION RT507

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)	(CFS)				
+ 98.	12.22		10.	3.	3.	3.
		(INCHES)	2.180	2.366	2.366	2.366
		(AC-FT)	5.	5.	5.	5.

CUMULATIVE AREA = 0.04 SQ MI

*** ***

```
          **************
          *            *
104 KK    *     AD506  *       Combine routed flow from 507 with 506 and flow from diversion.
          *            *
          **************

105 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                        HYDROGRAPH AT STATION    AD506

  PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
                                          6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+    1275.     12.33                     151.        41.         41.         41.
                         (INCHES)       1.310       1.422       1.422       1.422
                         (AC-FT)          75.         81.         81.         81.

                        CUMULATIVE AREA =    1.07 SQ MI


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


          **************
          *            *
106 KK    *     RT506  *       Assumed channel size.
          *            *
          **************

             HYDROGRAPH ROUTING DATA

107 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC      -1.00  INITIAL CONDITION
                         X       0.00 WORKING R AND D COEFFICIENT

108 RC          NORMAL DEPTH CHANNEL
                       ANL      0.040  LEFT OVERBANK N-VALUE
                      ANCH      0.035  MAIN CHANNEL N-VALUE
                       ANR      0.040  RIGHT OVERBANK N-VALUE
                     RLNTH       900.  REACH LENGTH
                       SEL     0.0100  ENERGY SLOPE
                     ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
110 RY       ELEVATION    11.00    10.20    10.00     5.00     5.00    10.00    10.20    11.00
109 RX       DISTANCE     50.00    90.00   100.00   105.00   120.00   125.00   135.00   175.00

                                                    ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE      0.00     0.10     0.20     0.31     0.42     0.54     0.66     0.79     0.91     1.05
          OUTFLOW      0.00     9.32    29.50    57.92    93.53   135.77   184.27   238.78   299.15   365.28
        ELEVATION      5.00     5.32     5.63     5.95     6.26     6.58     6.89     7.21     7.53     7.84

          STORAGE      1.18     1.33     1.47     1.62     1.77     1.93     2.10     2.40     2.90     3.62
          OUTFLOW    437.09   514.55   597.65   686.38   780.75   880.79   989.89  1129.89  1302.72  1522.13
        ELEVATION      8.16     8.47     8.79     9.11     9.42     9.74    10.05    10.37    10.68    11.00

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

                        HYDROGRAPH AT STATION    RT506

  PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
                                          6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+    1258.     12.37                     151.        41.         41.  821    41.
```

	(INCHES)	1.310	1.420	1.420	1.420
	(AC-FT)	75.	81.	81.	81.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
3.	12.37	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
10.60	12.37	6.27	5.42	5.42	5.42

CUMULATIVE AREA = 1.07 SQ MI

*** ***

```
**************
*            *
*    DA508   *
*            *
**************
```

111 KK (CVL210) CVL data

SUBBASIN RUNOFF DATA

112 BA SUBBASIN CHARACTERISTICS

TAREA 0.02 SUBBASIN AREA

PRECIPITATION DATA

17 PH

DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.02

113 LS SCS LOSS RATE

STRTL 0.35 INITIAL ABSTRACTION

CRVNBR 85.00 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

114 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.17 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
52 END-OF-PERIOD ORDINATES

2.	5.	10.	16.	24.	33.	42.	49.	54.	56.
56.	54.	51.	47.	43.	37.	31.	26.	22.	19.
16.	14.	12.	10.	9.	8.	7.	6.	5.	4.
4.	3.	3.	2.	2.	2.	1.	1.	1.	1.
1.	1.	1.	1.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA508

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.54, TOTAL EXCESS = 2.46

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)				
		(CFS)			
+ 53.	12.18	5.	1.	1.	1.
		(INCHES) 2.257	2.453	2.453	2.453
		(AC-FT) 2.	3.	3.	3.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

```
          **************
          *            *
115 KK    *     DA509  *       (CVL212) CVL data
          *            *
          **************

             SUBBASIN RUNOFF DATA

116 BA          SUBBASIN CHARACTERISTICS
                     TAREA        0.01  SUBBASIN AREA

                PRECIPITATION DATA

 17 PH                                DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 0.77   1.50    2.64    2.89    3.06    3.37    3.68    4.00    0.00    0.00    0.00    0.00

                                                 STORM AREA =    0.01

117 LS          SCS LOSS RATE
                     STRTL        0.27  INITIAL ABSTRACTION
                    CRVNBR       88.00  CURVE NUMBER
                     RTIMP        0.00  PERCENT IMPERVIOUS AREA

118 UD          SCS DIMENSIONLESS UNITGRAPH
                     TLAG        0.12  LAG

                                                      ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                UNIT HYDROGRAPH
                                             38 END-OF-PERIOD ORDINATES
                3.       8.      15.      25.      36.      45.      49.      49.      47.      42.
               37.      30.      23.      19.      15.      12.      10.       8.       7.       5.
                4.       3.       3.       2.       2.       1.       1.       1.       1.       1.
                1.       0.       0.       0.       0.       0.       0.       0.

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

                      HYDROGRAPH AT STATION    DA509

    TOTAL RAINFALL =    4.00, TOTAL LOSS =    1.27, TOTAL EXCESS =    2.73

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+      43.     12.13                    4.          1.          1.          1.
                         (INCHES)    2.496       2.726       2.726       2.726
                         (AC-FT)        2.          2.          2.          2.

                      CUMULATIVE AREA =    0.01 SQ MI
```

*** ***

```
          **************
          *            *
119 KK    *     AD509  *       Combine 509, 508 & flow from east along Ray Rd, at Ray Rd and 44th St.
          *            *
          **************

120 HC          HYDROGRAPH COMBINATION
                     ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                      ***

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

                      HYDROGRAPH AT STATION    AD509
```

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1305.	12.35		159.	43.	43.	43.
		(INCHES)	1.341	1.455	1.455	1.455
		(AC-FT)	79.	86.	86.	86.

CUMULATIVE AREA = 1.10 SQ MI

*** ***

```
**************
*            *
*     DA510  *
*            *
**************
```

121 KK (CVL214) CVL data

SUBBASIN RUNOFF DATA

122 BA SUBBASIN CHARACTERISTICS

TAREA 0.04 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.04

123 LS SCS LOSS RATE

STRTL 0.35 INITIAL ABSTRACTION

CRVNBR 85.00 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

124 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.16 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
51 END-OF-PERIOD ORDINATES

4.	12.	23.	38.	58.	81.	101.	116.	125.	127.
126.	120.	112.	102.	91.	77.	63.	53.	45.	38.
33.	29.	24.	21.	18.	15.	13.	11.	9.	8.
7.	6.	5.	4.	4.	3.	3.	2.	2.	2.
1.	1.	1.	1.	1.	1.	1.	0.	0.	0.
0.									

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

HYDROGRAPH AT STATION DA510

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.54, TOTAL EXCESS = 2.46

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 118.	12.18		11.	3.	3.	3.
		(INCHES)	2.257	2.453	2.453	2.453
		(AC-FT)	5.	6.	6.	6.

CUMULATIVE AREA = 0.04 SQ MI

*** ***

****

```
          *           *
125 KK    *    AD510  *      Add in 510
          *           *
          ***************

126 HC         HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                       HYDROGRAPH AT STATION    AD510

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                      (CFS)
+    1375.     12.35                170.         46.         46.         46.
                     (INCHES)      1.377       1.494       1.494       1.494
                     (AC-FT)        84.         92.         92.         92.

                     CUMULATIVE AREA =    1.15 SQ MI


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


          ***************
          *           *
127 KK    *    RT510  *      Route flows moving east along North side of Ray Rd.
          *           *
          ***************
                           Channel size from Brooks-Hersey Ray Rd, 44th to 48th St, plans.

             HYDROGRAPH ROUTING DATA

129 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC      -1.00  INITIAL CONDITION
                         X        0.00 WORKING R AND D COEFFICIENT

130 RC          NORMAL DEPTH CHANNEL
                       ANL      0.040  LEFT OVERBANK N-VALUE
                      ANCH      0.025  MAIN CHANNEL N-VALUE
                       ANR      0.030  RIGHT OVERBANK N-VALUE
                     RLNTH       900.  REACH LENGTH
                       SEL     0.0085  ENERGY SLOPE
                     ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
132 RY       ELEVATION     12.00     11.00     10.00      7.00      7.00     10.00     10.72     11.32
131 RX       DISTANCE       0.00     50.00    100.00    112.00    130.50    142.50    178.50    178.51

                                                ***

                                    COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE      0.00      0.11      0.22      0.35      0.49      0.65      0.81      0.98      1.17      1.37
          OUTFLOW      0.00     11.19     36.27     72.91    120.58    179.21    248.92    329.93    422.55    527.09
        ELEVATION      7.00      7.26      7.53      7.79      8.05      8.32      8.58      8.84      9.11      9.37

          STORAGE      1.58      1.80      2.05      2.44      2.97      3.62      4.34      5.13      6.00      6.93
          OUTFLOW    643.89    773.33    933.40   1128.66   1358.55   1636.26   1957.89   2323.52   2734.65   3192.41
        ELEVATION      9.63      9.89     10.16     10.42     10.68     10.95     11.21     11.47     11.74     12.00

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

                       HYDROGRAPH AT STATION    RT510

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
   (CFS)       (HR)
                      (CFS)
    1365.     12.37                170.         46.         46.  825    46.
```

	(INCHES)	1.376	1.493	1.493	1.493
	(AC-FT)	84.	92.	92.	92.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
3.	12.37	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
10.69	12.37	7.94	7.31	7.31	7.31

CUMULATIVE AREA = 1.15 SQ MI

*** ***

133 KK — PIPES — Diversion due to overtopping of 3-48" CMPs.

DT	DIVERSION ISTAD	45THST	DIVERSION HYDROGRAPH IDENTIFICATION	
DI	INFLOW	0.00	128.00	2000.00
DQ	DIVERTED FLOW	0.00	0.00	1872.00

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

DIVERSION HYDROGRAPH 45THST

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)	(CFS)			
+ 1237.	12.37	110.	28.	28.	28.
		(INCHES) 0.889	0.889	0.889	0.889
		(AC-FT) 55.	55.	55.	55.

CUMULATIVE AREA = 1.15 SQ MI

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

HYDROGRAPH AT STATION PIPES

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)	(CFS)			
+ 128.	11.97	60.	19.	19.	19.
		(INCHES) 0.487	0.603	0.603	0.603
		(AC-FT) 30.	37.	37.	37.

CUMULATIVE AREA = 1.15 SQ MI

*** ***

137 KK — RTPIPE — Route pipe flow to cnr 48th St & Ray.

78" CMP gives approx same velocity for routing as 3-48" CMPs.

HYDROGRAPH ROUTING DATA

```
139 RK          KINEMATIC WAVE STREAM ROUTING
                       L      1680.  CHANNEL LENGTH
                       S    0.0078  SLOPE
                       N     0.024  CHANNEL ROUGHNESS COEFFICIENT
                      CA      0.00  CONTRIBUTING AREA
                   SHAPE      CIRC  CHANNEL SHAPE
                      WD      6.50  BOTTOM WIDTH OR DIAMETER
                       Z      0.00  SIDE SLOPE
                  NDXMIN         2  MINIMUM NUMBER OF DX INTERVALS

                                                ***
                                  COMPUTED KINEMATIC PARAMETERS
                                       VARIABLE TIME STEP
                                    (DT SHOWN IS A MINIMUM)

                    ELEMENT    ALPHA       M        DT        DX       PEAK    TIME TO      VOLUME    MAXIMUM
                                                                                   PEAK                 CELERITY
                                                     (MIN)     (FT)     (CFS)    (MIN)       (IN)      (FPS)

                    MAIN         4.04      1.25      0.97    560.00    128.00   720.29       0.60      10.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3698E+02  EXCESS=0.0000E+00 OUTFLOW=0.3695E+02 BASIN STORAGE=0.4033E-01 PERCENT ERROR=   0.0

                                       INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                    MAIN         4.04      1.25      1.00              128.00   721.00       0.60

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

                          HYDROGRAPH AT STATION   RTPIPE

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                  (CFS)
+     128.      12.02                      60.         19.         19.         19.
                (INCHES)                0.487       0.602       0.602       0.602
                (AC-FT)                    30.         37.         37.         37.

                CUMULATIVE AREA =     1.15 SQ MI


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


              **************
              *            *
140 KK        *     DA511  *       (CVL304) HDR data
              *            *
              **************
                                Initial abstraction to allow for High School 100yr-2hr retention.

              SUBBASIN RUNOFF DATA

142 BA          SUBBASIN CHARACTERISTICS
                      TAREA        0.36  SUBBASIN AREA

                PRECIPITATION DATA

17 PH                                   DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 0.77    1.50    2.64    2.89    3.06    3.37    3.68    4.00    0.00    0.00    0.00    0.00

                                                STORM AREA =     0.36

143 LS          SCS LOSS RATE
                      STRTL        0.89  INITIAL ABSTRACTION
                     CRVNBR       80.00  CURVE NUMBER
                      RTIMP        0.00  PERCENT IMPERVIOUS AREA

144 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG        0.80  LAG
```

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
242 END-OF-PERIOD ORDINATES

1.	3.	4.	5.	7.	10.	13.	16.	19.	22.
26.	30.	34.	38.	43.	48.	53.	59.	64.	70.
77.	84.	91.	98.	106.	115.	123.	131.	140.	147.
154.	161.	168.	175.	180.	184.	189.	194.	198.	201.
204.	206.	209.	211.	211.	212.	212.	213.	213.	212.
212.	211.	211.	209.	206.	204.	201.	198.	195.	192.
189.	186.	183.	180.	176.	173.	169.	165.	161.	157.
152.	148.	143.	138.	133.	128.	122.	117.	113.	109.
104.	100.	96.	93.	90.	87.	84.	81.	78.	76.
73.	71.	68.	66.	64.	62.	60.	58.	56.	55.
53.	52.	50.	48.	47.	45.	44.	42.	41.	40.
38.	37.	36.	34.	33.	32.	31.	30.	29.	28.
27.	26.	25.	25.	24.	23.	22.	22.	21.	20.
20.	19.	18.	18.	17.	16.	16.	15.	15.	14.
14.	13.	13.	12.	12.	12.	11.	11.	11.	10.
10.	10.	9.	9.	9.	8.	8.	8.	8.	7.
7.	7.	7.	6.	6.	6.	6.	6.	5.	5.
5.	5.	5.	5.	4.	4.	4.	4.	4.	4.
4.	3.	3.	3.	3.	3.	3.	3.	3.	3.
3.	3.	2.	2.	2.	2.	2.	2.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	2.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA511

TOTAL RAINFALL = 4.00, TOTAL LOSS = 2.28, TOTAL EXCESS = 1.72

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 240.	12.92		60.	16.	16.	16.
		(INCHES)	1.557	1.702	1.702	1.702
		(AC-FT)	30.	32.	32.	32.

CUMULATIVE AREA = 0.36 SQ MI

*** ***

```
              ***************
              *             *
145 KK        *    AD511    *     Combine 511 and 3-48" CMPs at cnr of 48th St and Ray Rd.
              *             *
              ***************
```

146 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD511

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 368.	12.92		119.	35.	35.	35.
		(INCHES)	0.737	0.862	0.862	0.862
		(AC-FT)	59.	69.	69.	69.

CUMULATIVE AREA = 1.51 SQ MI

*** ***

```
          **************
          *            *
147 KK    *     RT511  *       Channel for first 650 ft south of Ray Rd -- West side of 48th.
          *            *
          **************
```

HYDROGRAPH ROUTING DATA

```
148 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC      -1.00 INITIAL CONDITION
                         X        0.00 WORKING R AND D COEFFICIENT

149 RC          NORMAL DEPTH CHANNEL
                       ANL      0.040  LEFT OVERBANK N-VALUE
                      ANCH      0.025  MAIN CHANNEL N-VALUE
                       ANR      0.040  RIGHT OVERBANK N-VALUE
                     RLNTH       650.  REACH LENGTH
                       SEL     0.0037  ENERGY SLOPE
                     ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION
```

CROSS-SECTION DATA

		--- LEFT OVERBANK ---			+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---	
151 RY	ELEVATION	10.20	10.10	10.00	2.00	2.00	10.00	10.10	10.20
150 RX	DISTANCE	80.00	90.00	100.00	116.00	123.00	135.00	145.00	155.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.05	0.11	0.18	0.26	0.35	0.45	0.55	0.67	0.80
OUTFLOW	0.00	6.40	21.01	42.94	72.31	109.47	154.83	208.83	271.93	344.60
ELEVATION	2.00	2.43	2.86	3.29	3.73	4.16	4.59	5.02	5.45	5.88
STORAGE	0.94	1.08	1.24	1.41	1.58	1.77	1.97	2.17	2.39	2.67
OUTFLOW	427.29	520.45	624.53	739.97	867.20	1006.64	1158.72	1323.84	1502.43	1718.82
ELEVATION	6.32	6.75	7.18	7.61	8.04	8.47	8.91	9.34	9.77	10.20

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

HYDROGRAPH AT STATION RT511

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 368.	12.93		119.	35.	35.	35.
		(INCHES)	0.737	0.861	0.861	0.861
		(AC-FT)	59.	69.	69.	69.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
1.	12.92	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
6.01	12.93	4.03	2.73	2.73	2.73

CUMULATIVE AREA = 1.51 SQ MI

*** ***

```
          **************
          *            *
152 KK    *   45THST   *       Retrieve diversion due to overtopping of pipes at 45th St & Ray.
          *            *
          **************
```

```
153 DR          RETRIEVE DIVERSION HYDROGRAPH
                      ISTAD      45THST  DIVERSION HYDROGRAPH IDENTIFICATION

                                                                  ***

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

                        HYDROGRAPH AT STATION   45THST

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR      23.98-HR
+   (CFS)       (HR)
                                (CFS)
+    1237.      12.37                     110.         28.          28.          28.
                             (INCHES)    0.679        0.679        0.679        0.679
                             (AC-FT)      55.          55.          55.          55.

                        CUMULATIVE AREA =    0.00 SQ MI


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


               **************
               *            *
154 KK         *   RT45ST   *       Flow that overtops 3-48" CMPs is routed over land to 48th St.
               *            *
               **************

                  HYDROGRAPH ROUTING DATA

155 RS            STORAGE ROUTING
                       NSTPS          2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC      -1.00  INITIAL CONDITION
                           X       0.00 WORKING R AND D COEFFICIENT

156 RC            NORMAL DEPTH CHANNEL
                        ANL      0.035  LEFT OVERBANK N-VALUE
                       ANCH      0.035  MAIN CHANNEL N-VALUE
                        ANR      0.035  RIGHT OVERBANK N-VALUE
                      RLNTH      2000.  REACH LENGTH
                        SEL     0.0100  ENERGY SLOPE
                      ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
158 RY      ELEVATION     10.00     10.00     10.00      9.00      9.00     10.00     10.00     10.00
157 RX      DISTANCE      80.00     90.00    100.00    110.00    610.00    620.00    630.00    640.00

                                                  ***

                                COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

              STORAGE      0.00      1.21      2.42      3.64      4.85      6.07      7.30      8.52      9.75     10.98
              OUTFLOW      0.00     15.74     49.99     98.28    158.80    230.43    312.36    404.00    504.88    614.61
            ELEVATION      9.00      9.05      9.11      9.16      9.21      9.26      9.32      9.37      9.42      9.47

              STORAGE     12.21     13.44     14.68     15.92     17.16     18.41     19.66     20.91     22.16     23.42
              OUTFLOW    732.85    859.32    993.78   1136.01   1285.82   1443.03   1607.48   1779.04   1957.56   2142.93
            ELEVATION      9.53      9.58      9.63      9.68      9.74      9.79      9.84      9.89      9.95     10.00

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

                        HYDROGRAPH AT STATION   RT45ST

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR      23.98-HR
+   (CFS)       (HR)
                                (CFS)
+    1151.      12.48                     110.         28.          28.          28.
                             (INCHES)    0.000        0.000        0.000        0.000
                             (AC-FT)      55.          55.          55.          55.

  PEAK STORAGE  TIME                                MAXIMUM AVERAGE STORAGE
                                          6-HR        24-HR        72-HR      23.98-HR
+   (AC-FT)     (HR)
```

```
      8.     12.48                  1.          0.          0.          0.

 PEAK STAGE    TIME                            MAXIMUM AVERAGE STAGE
                                    6-HR        24-HR       72-HR     23.98-HR
+   (FEET)      (HR)
      9.69     12.48                9.09        9.02        9.02        9.02

                       CUMULATIVE AREA =    0.00 SQ MI


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


            **************
            *            *
 159 KK     *     AD511  *       Combine at S end of improved channel W side 48th St. 650ft S of Ray.
            *            *
            **************

 160 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                        HYDROGRAPH AT STATION    AD511

 PEAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                        (CFS)
+    1406.      12.50                229.        62.         62.         62.
                      (INCHES)      1.416       1.540       1.540       1.540
                       (AC-FT)      114.        124.        124.        124.

                       CUMULATIVE AREA =    1.51 SQ MI


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


            **************
            *            *
 161 KK     *     RT511  *       Channel size estimated using CVL's 48th & Chandler report.
            *            *
            **************

            HYDROGRAPH ROUTING DATA

 162 RS       STORAGE ROUTING
                   NSTPS          1  NUMBER OF SUBREACHES
                    ITYP       FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC      -1.00  INITIAL CONDITION
                       X       0.00 WORKING R AND D COEFFICIENT

 163 RC       NORMAL DEPTH CHANNEL
                     ANL      0.040  LEFT OVERBANK N-VALUE
                    ANCH      0.035  MAIN CHANNEL N-VALUE
                     ANR      0.040  RIGHT OVERBANK N-VALUE
                   RLNTH      1950.  REACH LENGTH
                     SEL     0.0040  ENERGY SLOPE
                   ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 165 RY       ELEVATION    22.00    18.50    18.00    17.00    17.00    18.00    18.00    22.00
 164 RX       DISTANCE      0.00    25.00    60.00    65.00    75.00    78.00   115.00   120.00

                                                ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE      0.00     0.13     0.29     0.47     0.76     1.56     2.58     3.67     4.78     5.92
          OUTFLOW      0.00     3.02     9.98    20.53    35.88    70.88   127.69   206.70   303.88   417.87
        ELEVATION     17.00    17.26    17.53    17.79    18.05    18.32    18.58    18.84    19.11    19.37
```

STORAGE	7.09	8.28	9.50	10.74	12.01	13.31	14.63	15.98	17.36	18.76
OUTFLOW	547.78	693.00	853.09	1027.73	1216.66	1419.71	1636.73	1867.62	2112.31	2370.76
ELEVATION	19.63	19.89	20.16	20.42	20.68	20.95	21.21	21.47	21.74	22.00

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

HYDROGRAPH AT STATION RT511

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1308.	12.60		229.	62.	62.	62.
		(INCHES)	1.414	1.536	1.536	1.536
		(AC-FT)	114.	123.	123.	123.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)					
13.	12.60		3.	1.	1.	1.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)					
20.80	12.60		18.65	17.61	17.61	17.61

CUMULATIVE AREA = 1.51 SQ MI

*** ***

```
**************
*            *
*    DA512   *
*            *
**************
```

166 KK (CVL310) HDR data

SUBBASIN RUNOFF DATA

167 BA SUBBASIN CHARACTERISTICS

TAREA 0.13 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40				..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.13

168 LS SCS LOSS RATE

STRTL 0.60 INITIAL ABSTRACTION

CRVNBR 77.00 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

169 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.30 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
92 END-OF-PERIOD ORDINATES

3.	7.	14.	22.	32.	43.	56.	71.	88.	107.
127.	144.	161.	173.	183.	190.	194.	195.	195.	194.
190.	183.	176.	169.	160.	152.	141.	130.	117.	105.
95.	86.	79.	72.	66.	60.	55.	51.	47.	43.
40.	36.	33.	30.	28.	25.	23.	21.	20.	18.
16.	15.	14.	13.	11.	10.	10.	9.	8.	7.
7.	6.	6.	5.	5.	4.	4.	4.	3.	3.
3.	3.	2.	2.	2.	2.	2.	2.	2.	1.
1.	1.	1.	1.	1.	1.	1.	0.	0.	0.
0.	0.								

```
      ***           ***           ***           ***           ***

                        HYDROGRAPH AT STATION    DA512

     TOTAL RAINFALL =    4.00, TOTAL LOSS =    2.19, TOTAL EXCESS =    1.81

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+     174.      12.35                 22.          6.           6.           6.
                          (INCHES)   1.664        1.805        1.805        1.805
                          (AC-FT)      11.          12.          12.          12.

                        CUMULATIVE AREA =    0.13 SQ MI


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


            **************
            *            *
  170 KK    *     AD512  *       Combine at 48th St and Highline canal.
            *            *
            **************

  171 HC          HYDROGRAPH COMBINATION
                        ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                    ***
      ***           ***           ***           ***           ***

                        HYDROGRAPH AT STATION    AD512

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+    1421.      12.58                251.         68.          68.          68.
                          (INCHES)   1.433        1.557        1.557        1.557
                          (AC-FT)     125.         135.         135.         135.

                        CUMULATIVE AREA =    1.63 SQ MI


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


            **************
            *            *
  172 KK    *    DIV512  *       As per CVL report 60 cfs goes south, the balance south-east.
            *            *
            **************

      DT          DIVERSION
                        ISTAD       CANAL  DIVERSION HYDROGRAPH IDENTIFICATION

      DI             INFLOW        0.00     60.00     60.00   1000.00   1500.00

      DQ       DIVERTED FLOW       0.00      0.00      1.00    940.00   1440.00
                                                                    ***
      ***           ***           ***           ***           ***

                        DIVERSION HYDROGRAPH    CANAL

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+    1361.      12.58                199.         50.          50.          50.
                          (INCHES)   1.134        1.134        1.134        1.134
                          (AC-FT)      99.          99.          99.          99.
```

```
                 CUMULATIVE AREA =     1.63 SQ MI

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

                  HYDROGRAPH AT STATION   DIV512

   PEAK FLOW      TIME                        MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR      23.98-HR
 +   (CFS)        (HR)
                               (CFS)
 +      60.      12.43                  52.         19.         19.          19.
                             (INCHES)  0.299       0.423       0.423        0.423
                              (AC-FT)    26.         37.         37.          37.

                 CUMULATIVE AREA =     1.63 SQ MI


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


                ***************
                *             *
 176 KK         *    DA513    *       (CVL195) CVL data
                *             *
                ***************

              SUBBASIN RUNOFF DATA

 177 BA         SUBBASIN CHARACTERISTICS
                      TAREA         0.09  SUBBASIN AREA

                PRECIPITATION DATA

  17 PH                             DEPTHS FOR   0-PERCENT  HYPOTHETICAL STORM
                ..... HYDRO-35 ......   ............... TP-40 ...............   ........... TP-49 ...........
                5-MIN  15-MIN  60-MIN   2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 0.77    1.50    2.64   2.89    3.06    3.37    3.68    4.00    0.00    0.00    0.00    0.00

                                                STORM AREA =     0.09

 178 LS         SCS LOSS RATE
                      STRTL         0.35  INITIAL ABSTRACTION
                     CRVNBR        85.00  CURVE NUMBER
                      RTIMP         0.00  PERCENT IMPERVIOUS AREA

 179 UD         SCS DIMENSIONLESS UNITGRAPH
                       TLAG         0.20  LAG

                                                        ***

VALUE EXCEEDS TABLE IN LOGLOG           0.01667        0.01667       24.00000

                                                    UNIT HYDROGRAPH
                                               63 END-OF-PERIOD ORDINATES
                  5.        14.        26.        41.        60.        85.       113.       141.       165.       183.
                194.       199.       200.       198.       189.       178.       166.       153.       138.       119.
                102.        88.        77.        68.        60.        53.        47.        42.        37.        32.
                 28.        25.        22.        19.        17.        15.        13.        11.        10.         9.
                  8.         7.         6.         5.         5.         4.         4.         3.         3.         3.
                  2.         2.         2.         2.         1.         1.         1.         1.         1.         1.
                  0.         0.         0.

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

                  HYDROGRAPH AT STATION   DA513

     TOTAL RAINFALL =     4.00, TOTAL LOSS =     1.54, TOTAL EXCESS =     2.46

   PEAK FLOW      TIME                        MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR      23.98-HR
 +   (CFS)        (HR)
                               (CFS)
 +     207.      12.22                  21.          6.          6.           6.
                             (INCHES)  2.256       2.452       2.452        2.452
                              (AC-FT)    11.         11.         11.          11.
```

834

CUMULATIVE AREA = 0.09 SQ MI

*** ***

****
* *
180 KK * DA514 * (CVL197) CVL data
* *
****

SUBBASIN RUNOFF DATA

181 BA SUBBASIN CHARACTERISTICS
TAREA 0.06 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.06

182 LS SCS LOSS RATE
STRTL 0.38 INITIAL ABSTRACTION
CRVNBR 84.10 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

183 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.14 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
45 END-OF-PERIOD ORDINATES

7.	21.	40.	66.	100.	134.	160.	174.	179.	177.
166.	152.	136.	115.	93.	76.	63.	53.	45.	38.
32.	26.	22.	18.	16.	13.	11.	9.	8.	6.
5.	4.	4.	3.	3.	2.	2.	2.	1.	1.
1.	1.	1.	0.	0.					

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

HYDROGRAPH AT STATION DA514

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.62, TOTAL EXCESS = 2.38

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
			(CFS)			
+	152.	12.15	13.	4.	4.	4.
			(INCHES) 2.187	2.376	2.376	2.376
			(AC-FT) 7.	7.	7.	7.

CUMULATIVE AREA = 0.06 SQ MI

*** ***

****
* *
184 KK * DA515 * (CVL199) CVL data
* *
****

SUBBASIN RUNOFF DATA

185 BA SUBBASIN CHARACTERISTICS
TAREA 0.05 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			.... TP-40					.... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.05

186 LS SCS LOSS RATE
STRTL 0.38 INITIAL ABSTRACTION
CRVNBR 84.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

187 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.19 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
58 END-OF-PERIOD ORDINATES

3.	9.	18.	28.	41.	58.	77.	92.	104.	112.
115.	116.	114.	108.	101.	93.	84.	73.	61.	52.
45.	39.	34.	30.	26.	23.	20.	17.	15.	13.
11.	10.	9.	7.	6.	6.	5.	4.	4.	3.
3.	2.	2.	2.	2.	1.	1.	1.	1.	1.
1.	1.	1.	0.	0.	0.	0.	0.		

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

HYDROGRAPH AT STATION DA515

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.63, TOTAL EXCESS = 2.37

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 111.	12.20		11.	3.	3.	3.
		(INCHES)	2.179	2.366	2.366	2.366
		(AC-FT)	5.	6.	6.	6.

CUMULATIVE AREA = 0.05 SQ MI

*** ***

```
              ***************
              *             *
188 KK        *    AD515    *      Combine 515, 514 and 513
              *             *
              ***************
```

189 HC HYDROGRAPH COMBINATION
ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD515

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 460.	12.20		46.	12.	12.	12.
		(INCHES)	2.217	2.409	2.409	2.409
		(AC-FT)	23.	25.	25.	25.

CUMULATIVE AREA = 0.19 SQ MI

*** ***

```
          **************
          *            *
190 KK    *     RT515  *       Channel info from Clouse plans.
          *            *
          **************

             HYDROGRAPH ROUTING DATA

191 RS         STORAGE ROUTING
                    NSTPS          1  NUMBER OF SUBREACHES
                    ITYP       FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC      -1.00 INITIAL CONDITION
                        X       0.00 WORKING R AND D COEFFICIENT

192 RC         NORMAL DEPTH CHANNEL
                     ANL       0.040 LEFT OVERBANK N-VALUE
                    ANCH       0.020 MAIN CHANNEL N-VALUE
                     ANR       0.040 RIGHT OVERBANK N-VALUE
                   RLNTH       2600. REACH LENGTH
                     SEL      0.0059 ENERGY SLOPE
                   ELMAX         0.0 MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                 CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
194 RY       ELEVATION    10.00    10.00    10.00     6.00     6.00     1.00    10.00    10.00
193 RX       DISTANCE     80.00    90.00   100.00   106.00   116.00   122.00   132.00   142.00

                                          ***

                                 COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE      0.00     0.02     0.06     0.14     0.25     0.39     0.56     0.76     0.99     1.25
          OUTFLOW      0.00     0.36     2.28     6.73    14.49    26.27    42.72    64.44    92.01   125.96
        ELEVATION      1.00     1.47     1.95     2.42     2.89     3.37     3.84     4.32     4.79     5.26

          STORAGE      1.55     2.00     2.64     3.32     4.03     4.78     5.56     6.38     7.23     8.12
          OUTFLOW    166.82   173.17   271.18   390.05   529.07   687.87   866.29  1064.32  1282.01  1430.34
        ELEVATION      5.74     6.21     6.68     7.16     7.63     8.11     8.58     9.05     9.53    10.00

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

                       HYDROGRAPH AT STATION    RT515

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                  6-HR        24-HR       72-HR      23.98-HR
+   (CFS)       (HR)
                (CFS)
+     412.     12.27                45.          12.         12.          12.
                (INCHES)          2.215        2.403       2.403        2.403
                (AC-FT)            23.          24.         24.          24.

 PEAK STORAGE  TIME                      MAXIMUM AVERAGE STORAGE
                                  6-HR        24-HR       72-HR      23.98-HR
+  (AC-FT)      (HR)
       3.      12.27                 1.          0.          0.           0.

 PEAK STAGE    TIME                        MAXIMUM AVERAGE STAGE
                                  6-HR        24-HR       72-HR      23.98-HR
+   (FEET)      (HR)
      7.23     12.27                3.23        1.88        1.88         1.88

                       CUMULATIVE AREA =    0.19 SQ MI
```

*** ***

```
          **************
          *            *
195 KK    *     DA516  *       (CVL311) HDR data
          *            *
          **************
```

SUBBASIN RUNOFF DATA

196 BA SUBBASIN CHARACTERISTICS
TAREA 0.15 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.15

197 LS SCS LOSS RATE
STRTL 0.60 INITIAL ABSTRACTION
CRVNBR 77.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

198 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.34 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
104 END-OF-PERIOD ORDINATES

3.	6.	12.	19.	28.	37.	48.	60.	74.	90.
107.	126.	144.	159.	173.	184.	194.	200.	205.	206.
207.	206.	204.	199.	193.	186.	179.	171.	163.	154.
144.	133.	121.	110.	100.	92.	85.	78.	72.	67.
62.	57.	54.	50.	46.	43.	40.	37.	34.	31.
29.	27.	25.	23.	21.	20.	18.	17.	15.	14.
13.	12.	11.	10.	10.	9.	8.	8.	7.	7.
6.	6.	5.	5.	4.	4.	4.	4.	3.	3.
3.	3.	2.	2.	2.	2.	2.	2.	2.	2.
1.	1.	1.	1.	1.	1.	1.	1.	1.	0.
0.	0.	0.	0.						

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

HYDROGRAPH AT STATION DA516

TOTAL RAINFALL = 4.00, TOTAL LOSS = 2.19, TOTAL EXCESS = 1.81

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)	(CFS)			
+	193.	12.40	27.	7.	7.	7.
			(INCHES) 1.663	1.804	1.804	1.804
			(AC-FT) 13.	14.	14.	14.

CUMULATIVE AREA = 0.15 SQ MI

*** ***

199 KK
```
**************
*            *
*     AD516  *
*            *
**************
```
Combine flows from west, 60 cfs from north and DA516 at 48th and Highline canal.

201 HC HYDROGRAPH COMBINATION
ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD516

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR

+ (CFS)	(HR)					
		(CFS)				
+ 641.	12.30		124.	38.	38.	38.
		(INCHES)	0.586	0.719	0.719	0.719
		(AC-FT)	62.	76.	76.	76.

CUMULATIVE AREA = 1.97 SQ MI

*** ***

```
          **************
          *            *
202 KK    *     RT516  *       Channel info from Clouse plans.
          *            *
          **************
```

HYDROGRAPH ROUTING DATA

203 RS	STORAGE ROUTING		
	NSTPS	1	NUMBER OF SUBREACHES
	ITYP	FLOW	TYPE OF INITIAL CONDITION
	RSVRIC	-1.00	INITIAL CONDITION
	X	0.00	WORKING R AND D COEFFICIENT
204 RC	NORMAL DEPTH CHANNEL		
	ANL	0.040	LEFT OVERBANK N-VALUE
	ANCH	0.020	MAIN CHANNEL N-VALUE
	ANR	0.040	RIGHT OVERBANK N-VALUE
	RLNTH	1800.	REACH LENGTH
	SEL	0.0030	ENERGY SLOPE
	ELMAX	0.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------		+ --- RIGHT OVERBANK ---		
206 RY	ELEVATION	10.00	10.00	10.00	6.00	6.00	1.00	10.00	10.00
205 RX	DISTANCE	80.00	90.00	100.00	106.00	116.00	122.00	132.00	142.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.01	0.04	0.10	0.17	0.27	0.39	0.52	0.69	0.87
OUTFLOW	0.00	0.26	1.63	4.80	10.33	18.73	30.46	45.95	65.61	89.82
ELEVATION	1.00	1.47	1.95	2.42	2.89	3.37	3.84	4.32	4.79	5.26
STORAGE	1.07	1.38	1.83	2.30	2.79	3.31	3.85	4.42	5.01	5.62
OUTFLOW	118.95	123.48	193.37	278.14	377.27	490.50	617.73	758.94	914.17	1019.94
ELEVATION	5.74	6.21	6.68	7.16	7.63	8.11	8.58	9.05	9.53	10.00

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

HYDROGRAPH AT STATION RT516

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 617.	12.35		124.	38.	38.	38.
		(INCHES)	0.586	0.717	0.717	0.717
		(AC-FT)	62.	75.	75.	75.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
4.	12.35	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
8.58	12.35	5.35	2.86	2.86	2.86

CUMULATIVE AREA = 1.97 SQ MI

*** ***

```
          **************
          *            *
207 KK    *     DA517  *       (CVL320) CVL data
          *            *
          **************

             SUBBASIN RUNOFF DATA

208 BA          SUBBASIN CHARACTERISTICS
                     TAREA        0.17  SUBBASIN AREA

                PRECIPITATION DATA

 17 PH                                DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 0.77    1.50    2.64    2.89    3.06    3.37    3.68    4.00    0.00    0.00    0.00    0.00

                                                 STORM AREA =     0.17

209 LS          SCS LOSS RATE
                     STRTL        0.60  INITIAL ABSTRACTION
                     CRVNBR      77.00  CURVE NUMBER
                     RTIMP        0.00  PERCENT IMPERVIOUS AREA

210 UD          SCS DIMENSIONLESS UNITGRAPH
                     TLAG         0.26  LAG

                                                      ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667         0.01667        24.00000

                                                 UNIT HYDROGRAPH
                                              79 END-OF-PERIOD ORDINATES
                    6.      15.      28.      45.      63.      87.     114.     145.     182.     216.
                  247.     270.     289.     301.     306.     308.     306.     300.     289.     276.
                  262.     246.     228.     209.     186.     164.     145.     131.     118.     106.
                   96.      86.      79.      72.      65.      59.      53.      47.      43.      39.
                   35.      32.      29.      26.      23.      21.      19.      17.      15.      14.
                   13.      11.      10.       9.       8.       8.       7.       6.       6.       5.
                    5.       4.       4.       3.       3.       3.       3.       2.       2.       2.
                    2.       2.       1.       1.       1.       1.       1.       0.       0.

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

                              HYDROGRAPH AT STATION     DA517

          TOTAL RAINFALL =     4.00, TOTAL LOSS =     2.19, TOTAL EXCESS =     1.81

          PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                                   6-HR        24-HR        72-HR      23.98-HR
        +   (CFS)       (HR)
                                    (CFS)
        +     258.      12.30                       30.          8.           8.           8.
                                  (INCHES)         1.665        1.806        1.806        1.806
                                  (AC-FT)             15.          16.          16.          16.

                              CUMULATIVE AREA =     0.17 SQ MI


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

          **************
          *            *
211 KK    *     AD517  *       Add in 517
          *            *
          **************

212 HC          HYDROGRAPH COMBINATION
                     ICOMP            2  NUMBER OF HYDROGRAPHS TO COMBINE
```

*** 840

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

HYDROGRAPH AT STATION AD517

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 867.	12.33		154.	46.	46.	46.
		(INCHES)	0.671	0.803	0.803	0.803
		(AC-FT)	77.	92.	92.	92.

CUMULATIVE AREA = 2.14 SQ MI

*** ***

```
          ***************
          *             *
213 KK    *     RT517   *      Assumed channel shape based on estimated 48th St. cross-section.
          *             *
          ***************
```

HYDROGRAPH ROUTING DATA

214 RS STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	0.00	WORKING R AND D COEFFICIENT

215 RC NORMAL DEPTH CHANNEL

ANL	0.020	LEFT OVERBANK N-VALUE
ANCH	0.025	MAIN CHANNEL N-VALUE
ANR	0.040	RIGHT OVERBANK N-VALUE
RLNTH	850.	REACH LENGTH
SEL	0.0050	ENERGY SLOPE
ELMAX	0.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---	+	------ MAIN CHANNEL	-------	+	--- RIGHT OVERBANK ---	
217 RY	ELEVATION	12.00	9.60	10.00	9.76	7.76	7.76	10.00	12.00
216 RX	DISTANCE	78.00	80.00	100.00	112.00	116.00	118.00	122.00	222.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.01	0.02	0.04	0.06	0.09	0.12	0.15	0.19	0.24
OUTFLOW	0.00	0.74	2.50	5.28	9.13	14.16	20.45	28.10	37.20	47.05
ELEVATION	7.76	7.98	8.21	8.43	8.65	8.88	9.10	9.32	9.55	9.77
STORAGE	0.37	0.58	0.84	1.14	1.50	1.90	2.36	2.86	3.41	4.02
OUTFLOW	50.35	87.54	146.00	221.63	314.66	425.77	555.76	705.45	875.70	1067.34
ELEVATION	9.99	10.21	10.44	10.66	10.88	11.11	11.33	11.55	11.78	12.00

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

HYDROGRAPH AT STATION RT517

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 850.	12.38		154.	46.	46.	46.
		(INCHES)	0.671	0.802	0.802	0.802
		(AC-FT)	77.	92.	92.	92.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
3.	12.38	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				

11.74 12.38 10.32 8.84 8.84 8.84

CUMULATIVE AREA = 2.14 SQ MI

*** ***

```
***************
*             *
*    DA518    *
*             *
***************
```

218 KK DA518

SUBBASIN RUNOFF DATA

219 BA SUBBASIN CHARACTERISTICS
TAREA 0.10 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35	......		....		TP-40	....		....	TP-49	....	
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.10

220 LS SCS LOSS RATE
STRTL 0.47 INITIAL ABSTRACTION
CRVNBR 81.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

221 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.58 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
176 END-OF-PERIOD ORDINATES

1.	1.	2.	3.	5.	6.	8.	10.	12.	14.
17.	19.	22.	25.	28.	32.	36.	40.	44.	48.
53.	57.	60.	64.	67.	70.	72.	75.	77.	78.
79.	81.	81.	81.	81.	81.	81.	81.	80.	79.
77.	76.	75.	73.	71.	70.	68.	66.	64.	62.
60.	57.	55.	52.	50.	47.	44.	42.	40.	37.
36.	34.	33.	31.	30.	28.	27.	26.	25.	23.
22.	22.	21.	20.	19.	18.	17.	17.	16.	15.
15.	14.	13.	12.	12.	11.	11.	10.	10.	10.
9.	9.	8.	8.	8.	7.	7.	7.	6.	6.
6.	5.	5.	5.	5.	4.	4.	4.	4.	4.
4.	3.	3.	3.	3.	3.	3.	3.	2.	2.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.				

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

HYDROGRAPH AT STATION DA518

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.88, TOTAL EXCESS = 2.12

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 107.	12.65		21.	6.	6.	6.
		(INCHES)	1.946	2.108	2.108	2.108
		(AC-FT)	10.	11.	11.	11.

CUMULATIVE AREA = 0.10 SQ MI

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 222 KK   *    AD518   *      Combine 518 with flow moving south in 48th St.
          *            *
          **************

 223 HC         HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                       HYDROGRAPH AT STATION    AD518

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+     927.      12.40                175.         52.         52.         52.
                          (INCHES)   0.727        0.860       0.860       0.860
                          (AC-FT)     87.         103.        103.        103.

                       CUMULATIVE AREA =    2.24 SQ MI


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

          **************
          *            *
 224 KK   *    DIV518  *      Assume 50-50 split at 48th & Chandler IC.
          *            *
          **************

     DT         DIVERSION
                     ISTAD       DIVSE  DIVERSION HYDROGRAPH IDENTIFICATION

     DI            INFLOW        0.00   2000.00

     DQ      DIVERTED FLOW       0.00   1000.00

                                                          ***

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

                       DIVERSION HYDROGRAPH    DIVSE

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+     464.      12.40                 88.         26.         26.         26.
                          (INCHES)   0.363        0.430       0.430       0.430
                          (AC-FT)     43.          51.         51.         51.

                       CUMULATIVE AREA =    2.24 SQ MI

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

                       HYDROGRAPH AT STATION   DIV518

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+     464.      12.40                 88.         26.         26.         26.
                          (INCHES)   0.363        0.430       0.430       0.430
                          (AC-FT)     43.          51.         51.         51.

                       CUMULATIVE AREA =    2.24 SQ MI
```

*** ***

```
          **************
          *            *
228 KK    *     RT518  *       Assume channel size based on existing tail-water ditch.
          *            *
          **************
```

HYDROGRAPH ROUTING DATA

229 RS STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	0.00	WORKING R AND D COEFFICIENT

230 RC NORMAL DEPTH CHANNEL

ANL	0.035	LEFT OVERBANK N-VALUE
ANCH	0.025	MAIN CHANNEL N-VALUE
ANR	0.035	RIGHT OVERBANK N-VALUE
RLNTH	3600.	REACH LENGTH
SEL	0.0061	ENERGY SLOPE
ELMAX	0.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---			+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---	
232 RY	ELEVATION	10.40	10.20	10.00	5.00	5.00	10.00	10.20	10.40
231 RX	DISTANCE	80.00	90.00	100.00	105.00	110.00	115.00	125.00	135.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.12	0.26	0.41	0.58	0.75	0.94	1.15	1.37	1.60
OUTFLOW	0.00	2.84	9.02	17.84	29.12	42.80	58.90	77.44	98.48	122.08
ELEVATION	5.00	5.28	5.57	5.85	6.14	6.42	6.71	6.99	7.27	7.56
STORAGE	1.84	2.10	2.37	2.65	2.95	3.26	3.59	3.93	4.33	5.29
OUTFLOW	148.32	177.27	209.01	243.61	281.14	321.69	365.34	412.16	467.62	542.30
ELEVATION	7.84	8.13	8.41	8.69	8.98	9.26	9.55	9.83	10.12	10.40

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

HYDROGRAPH AT STATION RT518

PEAK FLOW + (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
		(CFS)				
+ 429.	12.50		87.	26.	26.	26.
		(INCHES)	0.362	0.428	0.428	0.428
		(AC-FT)	43.	51.	51.	51.

PEAK STORAGE + (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	23.98-HR
4.	12.50	1.	0.	0.	0.

PEAK STAGE + (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	23.98-HR
9.92	12.50	6.87	5.67	5.67	5.67

CUMULATIVE AREA = 2.24 SQ MI

*** ***

```
          **************
          *            *
233 KK    *    DA519a  *
          *            *
          **************
```

```
              ***************

                SUBBASIN RUNOFF DATA

 234 BA           SUBBASIN CHARACTERISTICS
                        TAREA       0.22  SUBBASIN AREA

                  PRECIPITATION DATA

  17 PH                                 DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                  ..... HYDRO-35 ......   ................ TP-40 ................   ........... TP-49 ...........
                  5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                   0.77    1.50    2.64    2.89    3.06    3.37    3.68    4.00    0.00    0.00    0.00    0.00

                                                  STORM AREA =     0.22

 235 LS           SCS LOSS RATE
                       STRTL        0.47  INITIAL ABSTRACTION
                      CRVNBR       81.00  CURVE NUMBER
                       RTIMP        0.00  PERCENT IMPERVIOUS AREA

 236 UD           SCS DIMENSIONLESS UNITGRAPH
                        TLAG        0.62  LAG

                                                              ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667          0.01667          24.00000

                                                        UNIT HYDROGRAPH
                                                   188 END-OF-PERIOD ORDINATES
                   1.         3.         4.         6.         9.        12.        15.        19.        23.        27.
                  31.        36.        41.        47.        52.        59.        66.        73.        81.        89.
                  98.       106.       114.       122.       129.       136.       142.       147.       152.       157.
                 160.       162.       165.       167.       168.       168.       169.       169.       169.       168.
                 168.       166.       163.       161.       158.       155.       152.       149.       145.       142.
                 138.       135.       131.       126.       122.       117.       113.       107.       102.        96.
                  92.        87.        83.        78.        75.        72.        69.        66.        63.        60.
                  58.        55.        53.        50.        48.        46.        45.        43.        41.        40.
                  38.        37.        35.        34.        32.        31.        30.        28.        27.        26.
                  24.        23.        23.        22.        21.        20.        19.        18.        17.        17.
                  16.        15.        15.        14.        13.        13.        12.        12.        11.        11.
                  10.        10.         9.         9.         9.         8.         8.         8.         7.         7.
                   7.         6.         6.         6.         6.         5.         5.         5.         5.         5.
                   4.         4.         4.         4.         4.         4.         3.         3.         3.         3.
                   3.         3.         3.         2.         2.         2.         2.         2.         2.         2.
                   2.         2.         2.         2.         2.         2.         2.         1.         1.         1.
                   1.         1.         1.         1.         1.         1.         1.         1.         1.         1.
                   1.         1.         1.         1.         1.         1.         1.         0.         0.         0.
                   0.         0.         0.         0.         0.         0.         0.         0.

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

                        HYDROGRAPH AT STATION    DA519a

   TOTAL RAINFALL =     4.00, TOTAL LOSS =     1.88, TOTAL EXCESS =     2.12

  PEAK FLOW       TIME                           MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR       23.98-HR
+    (CFS)       (HR)
                             (CFS)
+     228.      12.68                       46.          12.          12.           12.
                           (INCHES)      1.944        2.106        2.106         2.106
                            (AC-FT)        23.          25.          25.           25.

                       CUMULATIVE AREA =     0.22 SQ MI


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


              ***************
              *             *
 237 KK       *   AD519a    *       Combine 519a and flow from N. at 48th & SMF.
              *             *
              ***************

 238 HC          HYDROGRAPH COMBINATION
                       ICOMP            2  NUMBER OF HYDROGRAPHS TO COMBINE
```

***

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

HYDROGRAPH AT STATION AD519a

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
		(CFS)				
632.	12.55		133.	38.	38.	38.
		(INCHES)	0.503	0.578	0.578	0.578
		(AC-FT)	66.	76.	76.	76.

CUMULATIVE AREA = 2.46 SQ MI

*** ***

```
**************
*            *
*    DA520a  *
*            *
**************
```

239 KK

SUBBASIN RUNOFF DATA

240 BA SUBBASIN CHARACTERISTICS

TAREA 0.13 SUBBASIN AREA

PRECIPITATION DATA

17 PH

DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

HYDRO-35			TP-40					TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.13

241 LS SCS LOSS RATE

STRTL 0.50 INITIAL ABSTRACTION

CRVNBR 80.00 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

242 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.41 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
125 END-OF-PERIOD ORDINATES

2.	4.	6.	10.	15.	20.	25.	31.	38.	45.
54.	64.	74.	85.	96.	106.	115.	123.	129.	136.
140.	143.	145.	146.	147.	146.	146.	144.	140.	137.
133.	129.	124.	120.	115.	109.	104.	97.	90.	83.
77.	71.	66.	62.	58.	54.	51.	47.	45.	42.
39.	37.	35.	33.	31.	29.	27.	25.	24.	22.
21.	20.	18.	17.	16.	15.	14.	13.	12.	12.
11.	10.	10.	9.	8.	8.	7.	7.	6.	6.
6.	5.	5.	5.	4.	4.	4.	4.	3.	3.
3.	3.	3.	2.	2.	2.	2.	2.	2.	2.
2.	2.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	0.	0.	0.	0.
0.	0.	0.	0.	0.					

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

HYDROGRAPH AT STATION DA520a

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.96, TOTAL EXCESS = 2.04

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR

84.0

			(CFS)				
+	166.	12.47		26.	7.	7.	7.
			(INCHES)	1.876	2.032	2.032	2.032
			(AC-FT)	13.	14.	14.	14.

CUMULATIVE AREA = 0.13 SQ MI

*** ***

```
          **************
          *            *
243 KK    *    RT520a  *       Channel info from K-Mart Drainage report.
          *            *
          **************

             HYDROGRAPH ROUTING DATA

244 RS          STORAGE ROUTING
                     NSTPS           1  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X        0.00 WORKING R AND D COEFFICIENT

245 RC          NORMAL DEPTH CHANNEL
                       ANL       0.040  LEFT OVERBANK N-VALUE
                      ANCH       0.025  MAIN CHANNEL N-VALUE
                       ANR       0.040  RIGHT OVERBANK N-VALUE
                     RLNTH       2100.  REACH LENGTH
                       SEL      0.0016  ENERGY SLOPE
                     ELMAX         0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
247 RY        ELEVATION    10.00    10.00    10.00     4.00     4.00    10.00    10.00    10.00
246 RX        DISTANCE     80.00    90.00   100.00   112.00   114.00   126.00   136.00   146.00

                                           ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

             STORAGE      0.00     0.04     0.10     0.18     0.28     0.39     0.53     0.68     0.86     1.05
             OUTFLOW      0.00     0.77     2.79     6.20    11.23    18.08    26.97    38.09    51.62    67.76
           ELEVATION      4.00     4.32     4.63     4.95     5.26     5.58     5.89     6.21     6.53     6.84

             STORAGE      1.27     1.50     1.75     2.02     2.31     2.62     2.95     3.30     3.66     4.05
             OUTFLOW     86.67   108.52   133.49   161.73   193.39   228.65   267.64   310.51   357.41   408.49
           ELEVATION      7.16     7.47     7.79     8.11     8.42     8.74     9.05     9.37     9.68    10.00

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

                        HYDROGRAPH AT STATION   RT520a

 PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+     152.      12.58         26.          7.           7.           7.
                      (INCHES)       1.869        2.023        2.023        2.023
                      (AC-FT)           13.          14.          14.          14.

 PEAK STORAGE  TIME                              MAXIMUM AVERAGE STORAGE
                                          6-HR        24-HR        72-HR     23.98-HR
+  (AC-FT)     (HR)
        2.     12.58          0.           0.           0.           0.

 PEAK STAGE    TIME                              MAXIMUM AVERAGE STAGE
                                          6-HR        24-HR        72-HR     23.98-HR
+   (FEET)      (HR)
      8.00     12.58         5.44         4.49         4.49         4.49

                        CUMULATIVE AREA =    0.13 SQ MI
```

*** ***

****
* *
248 KK * DA520b *
* *
****

Initial abstraction to allow for "K-mart development" 100yr-2hr Ret.

SUBBASIN RUNOFF DATA

250 BA SUBBASIN CHARACTERISTICS
TAREA 0.22 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

HYDRO-35			TP-40					TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.22

251 LS SCS LOSS RATE
STRTL 0.47 INITIAL ABSTRACTION
CRVNBR 87.50 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

252 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.35 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
107 END-OF-PERIOD ORDINATES

4.	8.	17.	27.	39.	52.	67.	83.	103.	125.
149.	175.	202.	224.	246.	262.	278.	288.	296.	300.
301.	301.	300.	296.	288.	279.	269.	259.	248.	237.
223.	209.	193.	176.	161.	147.	134.	125.	115.	107.
99.	92.	85.	79.	74.	69.	64.	60.	55.	51.
47.	43.	40.	38.	35.	32.	30.	28.	26.	24.
22.	20.	19.	17.	16.	15.	14.	13.	12.	11.
10.	10.	9.	8.	8.	7.	7.	6.	6.	5.
5.	4.	4.	4.	4.	3.	3.	3.	3.	3.
2.	2.	2.	2.	2.	2.	1.	1.	1.	1.
1.	1.	1.	0.	0.	0.	0.			

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

HYDROGRAPH AT STATION DA520b

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.49, TOTAL EXCESS = 2.51

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)	(CFS)			
+	407.	12.38	56.	15.	15.	15.
			(INCHES) 2.320	2.500	2.500	2.500
			(AC-FT) 28.	30.	30.	30.

CUMULATIVE AREA = 0.22 SQ MI

*** ***

****
* *
253 KK * AD520b * Combine 520b and routed 520a at NW cnr of 48th & Ray Rd.
* *
****

254 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE 848

***

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

HYDROGRAPH AT STATION AD520b

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 527.	12.43		81.	22.	22.	22.
		(INCHES)	2.154	2.328	2.328	2.328
		(AC-FT)	40.	44.	44.	44.

CUMULATIVE AREA = 0.35 SQ MI

*** ***

```
           ***************
           *             *
 255 KK    *    DIV520   *       Divert weir flow thru Equip. crossing under EB off-ramp
           *             *
           ***************
```

DT	DIVERSION ISTAD	DIVBOX	DIVERSION HYDROGRAPH IDENTIFICATION				
DI	INFLOW	0.00	100.00	200.00	300.00	400.00	500.00
DQ	DIVERTED FLOW	0.00	0.00	60.00	143.00	230.00	320.00

***

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

DIVERSION HYDROGRAPH DIVBOX

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 344.	12.43		32.	8.	8.	8.
		(INCHES)	0.855	0.855	0.855	0.855
		(AC-FT)	16.	16.	16.	16.

CUMULATIVE AREA = 0.35 SQ MI

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

HYDROGRAPH AT STATION DIV520

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
(CFS)	(HR)					
		(CFS)				
183.	12.43		49.	14.	14.	14.
		(INCHES)	1.300	1.473	1.473	1.473
		(AC-FT)	24.	28.	28.	28.

CUMULATIVE AREA = 0.35 SQ MI

*** ***

```
           ***************
           *             *
 259 KK    *    RT520b   *       Channel info from ADOT Ray Rd. TI Drainage report.
           *             *
           ***************
```

HYDROGRAPH ROUTING DATA

```
260 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC      -1.00  INITIAL CONDITION
                         X       0.00 WORKING R AND D COEFFICIENT

261 RC          NORMAL DEPTH CHANNEL
                       ANL      0.035  LEFT OVERBANK N-VALUE
                      ANCH      0.035  MAIN CHANNEL N-VALUE
                       ANR      0.040  RIGHT OVERBANK N-VALUE
                     RLNTH      1000.  REACH LENGTH
                       SEL     0.0099  ENERGY SLOPE
                     ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
263 RY       ELEVATION     15.00     12.50     10.00      8.00      8.00     10.00     10.10     11.00
262 RX       DISTANCE      80.00     90.00    100.00    108.00    118.00    122.00    132.00    222.00

                                              ***

                                    COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE       0.00      0.09      0.21      0.34      0.49      0.66      0.89      1.43      2.28      3.35
          OUTFLOW       0.00      8.30     27.49     56.56     95.76    145.57    215.27    326.11    498.52    773.28
        ELEVATION       8.00      8.37      8.74      9.11      9.47      9.84     10.21     10.58     10.95     11.32

          STORAGE       4.43      5.53      6.64      7.76      8.89     10.03     11.19     12.36     13.54     14.74
          OUTFLOW    1126.00   1545.60   2027.73   2569.34   3168.14   3822.38   4530.64   5291.79   6104.88   6969.11
        ELEVATION      11.68     12.05     12.42     12.79     13.16     13.53     13.89     14.26     14.63     15.00

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

                         HYDROGRAPH AT STATION   RT520b

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR      23.98-HR
+   (CFS)       (HR)
                                (CFS)
+     182.      12.48               49.          14.          14.          14.
                             (INCHES)          1.298        1.470        1.470        1.470
                              (AC-FT)             24.          28.          28.          28.

  PEAK STORAGE  TIME                                MAXIMUM AVERAGE STORAGE
                                          6-HR        24-HR        72-HR      23.98-HR
+ (AC-FT)       (HR)
        1.      12.45                      0.           0.           0.           0.

  PEAK STAGE    TIME                                MAXIMUM AVERAGE STAGE
                                          6-HR        24-HR        72-HR      23.98-HR
+   (FEET)      (HR)
     10.03      12.48                     8.87         8.29         8.29         8.29

                         CUMULATIVE AREA =    0.35 SQ MI


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


                **************
                *            *
264 KK          *    DIVBOX  *       Retreive flow thru equipment crossing.
                *            *
                **************

265 DR          RETRIEVE DIVERSION HYDROGRAPH
                     ISTAD      DIVBOX  DIVERSION HYDROGRAPH IDENTIFICATION

                                              ***

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

                         HYDROGRAPH AT STATION   DIVBOX

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR      23.98-HR
```

```
+   (CFS)       (HR)
                          (CFS)
+     344.      12.43                  32.          8.          8.          8.
                          (INCHES)     0.855       0.855       0.855       0.855
                          (AC-FT)       16.         16.         16.         16.

                          CUMULATIVE AREA =    0.00 SQ MI


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


              **************
              *            *
  266 KK      *    AD520b  *       Re-combine flow diverted thru equip. crossing.
              *            *
              **************

  267 HC            HYDROGRAPH COMBINATION
                         ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                          HYDROGRAPH AT STATION   AD520b

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR      23.98-HR
+   (CFS)       (HR)
                          (CFS)
+     526.      12.43                  81.         22.         22.         22.
                          (INCHES)    2.153       2.325       2.325       2.325
                          (AC-FT)       40.         44.         44.         44.

                          CUMULATIVE AREA =    0.35 SQ MI


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


              **************
              *            *
  268 KK      *    RT520b  *       Channel info from ADOT Ray Rd. TI Drainage report.
              *            *
              **************

                 HYDROGRAPH ROUTING DATA

  269 RS           STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        FLOW  TYPE OF INITIAL CONDITION
                       RSVRIC       -1.00  INITIAL CONDITION
                            X        0.00 WORKING R AND D COEFFICIENT

  270 RC           NORMAL DEPTH CHANNEL
                          ANL       0.035  LEFT OVERBANK N-VALUE
                         ANCH       0.035  MAIN CHANNEL N-VALUE
                          ANR       0.040  RIGHT OVERBANK N-VALUE
                        RLNTH       4200.  REACH LENGTH
                          SEL      0.0099  ENERGY SLOPE
                        ELMAX         0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                        CROSS-SECTION DATA
                              --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
  272 RY          ELEVATION     15.00     12.50     10.00      8.00      8.00     10.00     10.10     11.00
  271 RX          DISTANCE      80.00     90.00    100.00    108.00    118.00    122.00    132.00    222.00

                                                          ***

                                        COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE        0.00      0.39      0.87      1.42      2.05      2.76      3.75      5.99      9.59     14.08
            OUTFLOW        0.00      8.30     27.49     56.56     95.76    145.57    215.27    326.11    498.52    773.28
          ELEVATION        8.00      8.37      8.74      9.11      9.47      9.84     10.21     10.58     10.95     11.32
```

STORAGE	18.62	23.22	27.87	32.58	37.33	42.14	47.00	51.92	56.88	61.90
OUTFLOW	1126.00	1545.60	2027.73	2569.34	3168.14	3822.38	4530.64	5291.79	6104.88	6969.11
ELEVATION	11.68	12.05	12.42	12.79	13.16	13.53	13.89	14.26	14.63	15.00

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

HYDROGRAPH AT STATION RT520b

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 421.	12.65		81.	22.	22.	22.
		(INCHES)	2.141	2.314	2.314	2.314
		(AC-FT)	40.	43.	43.	43.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
8.	12.65	2.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
10.78	12.65	9.01	8.32	8.32	8.32

CUMULATIVE AREA = 0.35 SQ MI

*** ***

```
                 ***************
                 *             *
273 KK           *    DA521a   *
                 *             *
                 ***************
```

SUBBASIN RUNOFF DATA

274 BA SUBBASIN CHARACTERISTICS
TAREA 0.09 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35	......		.... TP-40	....				.... TP-49	....		
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.09

275 LS SCS LOSS RATE
STRTL 0.60 INITIAL ABSTRACTION
CRVNBR 77.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

276 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.53 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
161 END-OF-PERIOD ORDINATES

1.	2.	2.	4.	6.	8.	10.	12.	14.	17.
20.	23.	26.	31.	35.	39.	44.	49.	54.	58.
62.	67.	70.	73.	76.	79.	80.	82.	83.	84.
84.	84.	84.	84.	84.	83.	81.	80.	78.	76.
74.	73.	70.	68.	66.	64.	61.	59.	56.	53.
49.	46.	44.	41.	39.	37.	35.	33.	32.	30.
28.	27.	26.	24.	23.	22.	21.	20.	19.	18.
18.	17.	16.	15.	14.	14.	13.	12.	12.	11.
11.	10.	10.	9.	9.	8.	8.	7.	7.	7.
6.	6.	6.	5.	5.	5.	5.	4.	4.	4.
4.	4.	3.	3.	3.	3.	3.	3.	3.	2.

```
     2.       2.       2.       2.       2.       2.       2.       2.       2.       1.
     1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
     1.       1.       1.       1.       1.       1.       1.       1.       1.       1.
     1.       1.       0.       0.       0.       0.       0.       0.       0.       0.
     0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
     0.

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

                 HYDROGRAPH AT STATION   DA521a

 TOTAL RAINFALL =    4.00, TOTAL LOSS =    2.19, TOTAL EXCESS =    1.81

 PEAK FLOW      TIME                     MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR     23.98-HR
+  (CFS)        (HR)
                          (CFS)
+     92.      12.60                17.          5.          5.          5.
                        (INCHES)  1.658       1.800       1.800       1.800
                         (AC-FT)     8.          9.          9.          9.

                   CUMULATIVE AREA =    0.09 SQ MI


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

          ***************
          *             *
 277 KK   *    CANAL    *       Retrieve SE diversion from 48th St and Highline canal.
          *             *
          ***************

 278 DR        RETRIEVE DIVERSION HYDROGRAPH
                    ISTAD       CANAL  DIVERSION HYDROGRAPH IDENTIFICATION

                                                                   ***

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

                 HYDROGRAPH AT STATION    CANAL

 PEAK FLOW      TIME                     MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR     23.98-HR
+  (CFS)        (HR)
                          (CFS)
+   1361.      12.58               199.         50.         50.         50.
                        (INCHES) 19.667      19.667      19.667      19.667
                         (AC-FT)    99.         99.         99.         99.

                   CUMULATIVE AREA =    0.00 SQ MI


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

          ***************
          *             *
 279 KK   *   ADHIGH    *       Combine retrieved diversion & 521a at Highline Canal.
          *             *
          ***************

 280 HC        HYDROGRAPH COMBINATION
                    ICOMP            2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                   ***

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

                 HYDROGRAPH AT STATION   ADHIGH

 PEAK FLOW      TIME                     MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR     23.98-HR
+  (CFS)        (HR)
                          (CFS)
+   1453.      12.58               216.         54.         54.         54.
```

(INCHES)	21.325	21.467	21.467	21.467
(AC-FT)	107.	108.	108.	108.

CUMULATIVE AREA = 0.09 SQ MI

*** ***

```
**************
*            *
*    RTHIGH  *
*            *
**************
```

281 KK Route to I-10 & Chandler thru assumed channel overland flow

HYDROGRAPH ROUTING DATA

282 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	0.00	WORKING R AND D COEFFICIENT

283 RC NORMAL DEPTH CHANNEL

ANL	0.035	LEFT OVERBANK N-VALUE
ANCH	0.035	MAIN CHANNEL N-VALUE
ANR	0.035	RIGHT OVERBANK N-VALUE
RLNTH	3500.	REACH LENGTH
SEL	0.0080	ENERGY SLOPE
ELMAX	0.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---			+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---	
285 RY	ELEVATION	10.00	10.00	10.00	9.00	9.00	10.00	10.00	10.00
284 RX	DISTANCE	80.00	90.00	100.00	110.00	1110.00	1120.00	1130.00	1140.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	4.23	8.47	12.71	16.95	21.20	25.45	29.71	33.97	38.24
OUTFLOW	0.00	28.15	89.39	175.72	283.88	411.84	558.18	721.82	901.89	1097.71
ELEVATION	9.00	9.05	9.11	9.16	9.21	9.26	9.32	9.37	9.42	9.47
STORAGE	42.51	46.79	51.07	55.35	59.64	63.93	68.23	72.53	76.84	81.15
OUTFLOW	1308.65	1534.22	1773.96	2027.48	2294.43	2574.48	2867.35	3172.78	3490.51	3820.33
ELEVATION	9.53	9.58	9.63	9.68	9.74	9.79	9.84	9.89	9.95	10.00

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

HYDROGRAPH AT STATION RTHIGH

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)	(CFS)				
+ 1277.	12.88		215.	54.	54.	54.
		(INCHES)	21.258	21.434	21.434	21.434
		(AC-FT)	107.	107.	107.	107.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
8.	12.88	2.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
9.52	12.88	9.13	9.03	9.03	9.03

CUMULATIVE AREA = 0.09 SQ MI

*** ***

```
              **************
              *            *
286 KK        *   DA521b   *
              *            *
              **************

              SUBBASIN RUNOFF DATA

287 BA              SUBBASIN CHARACTERISTICS
                          TAREA        0.39  SUBBASIN AREA

                    PRECIPITATION DATA

 17 PH                                 DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
                   ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                   5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                    0.77   1.50   2.64     2.89    3.06    3.37    3.68    4.00    0.00    0.00    0.00    0.00

                                                  STORM AREA =     0.39

 288 LS             SCS LOSS RATE
                          STRTL        0.47  INITIAL ABSTRACTION
                          CRVNBR      81.00  CURVE NUMBER
                          RTIMP        0.00  PERCENT IMPERVIOUS AREA

 289 UD             SCS DIMENSIONLESS UNITGRAPH
                          TLAG         0.51  LAG

                                                                  ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                  UNIT HYDROGRAPH
                                              155 END-OF-PERIOD ORDINATES
                    4.      7.     11.     18.     26.     35.     45.     55.     66.     79.
                   93.    107.    123.    142.    161.    181.    204.    226.    247.    266.
                  284.    302.    315.    328.    340.    347.    354.    361.    362.    363.
                  364.    363.    362.    361.    355.    348.    341.    333.    325.    317.
                  308.    299.    289.    279.    267.    255.    243.    229.    215.    201.
                  190.    178.    167.    158.    150.    142.    135.    128.    121.    115.
                  109.    103.     99.     94.     90.     86.     81.     77.     73.     70.
                   66.     63.     59.     56.     53.     50.     48.     46.     43.     41.
                   39.     37.     35.     33.     32.     30.     28.     27.     26.     24.
                   23.     22.     20.     19.     19.     18.     17.     16.     15.     14.
                   14.     13.     12.     12.     11.     10.     10.     10.      9.      9.
                    8.      8.      7.      7.      7.      6.      6.      6.      5.      5.
                    5.      5.      4.      4.      4.      4.      4.      4.      3.      3.
                    3.      3.      3.      3.      3.      2.      2.      2.      2.      2.
                    2.      2.      1.      1.      1.      1.      1.      1.      1.      1.
                    1.      0.      0.      0.      0.

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

                          HYDROGRAPH AT STATION   DA521b

     TOTAL RAINFALL =    4.00, TOTAL LOSS =     1.88, TOTAL EXCESS =     2.12

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                              6-HR        24-HR       72-HR      23.98-HR
+   (CFS)       (HR)
                          (CFS)
+     463.      12.57                          82.         22.         22.         22.
                          (INCHES)          1.946       2.108       2.108       2.108
                          (AC-FT)              41.         44.         44.         44.

                          CUMULATIVE AREA =   0.39 SQ MI


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


              **************
              *            *
290 KK        *   AD521b   *       Combine overland flow, 521b and flow parallel to I-10
              *            *
              **************

                                    at I-10 and Chandler Blvd.
```

```
292 HC          HYDROGRAPH COMBINATION
                     ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                        ***

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

                        HYDROGRAPH AT STATION   AD521b

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR      23.98-HR
+   (CFS)       (HR)
                                (CFS)
+    1975.      12.85                      377.         98.          98.          98.
                             (INCHES)     4.191        4.367        4.367        4.367
                             (AC-FT)        187.         195.         195.         195.

                        CUMULATIVE AREA =    0.84 SQ MI


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


          **************
          *            *
293 KK    *    CHNDLR  *       Route thru 24" RCP under, and weir flow over, Chandler Blvd
          *            *
          **************

             HYDROGRAPH ROUTING DATA

294 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       STOR  TYPE OF INITIAL CONDITION
                     RSVRIC      0.00  INITIAL CONDITION
                         X       0.00 WORKING R AND D COEFFICIENT

295 SV            STORAGE        0.0       42.3       47.1       50.9       54.2       56.9       59.4       62.0       64.1       66.3
                                68.2

297 SE            ELEVATION   1189.00    1193.33    1193.57    1193.75    1193.90    1194.02    1194.13    1194.24    1194.33    1194.42
                           1194.50

299 SQ            DISCHARGE      0.       200.       400.       600.       800.      1000.      1200.      1400.      1600.      1800.
                             2000.

                                                        ***

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

                        HYDROGRAPH AT STATION   CHNDLR

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR      23.98-HR
+   (CFS)       (HR)
                                (CFS)
+    1503.      13.10                      343.         96.          96.          96.
                             (INCHES)     3.809        4.270        4.270        4.270
                             (AC-FT)        170.         190.         190.         190.

 PEAK STORAGE   TIME                                MAXIMUM AVERAGE STORAGE
                                          6-HR        24-HR        72-HR      23.98-HR
+  (AC-FT)      (HR)
      63.      13.10                       37.         11.          11.          11.

  PEAK STAGE    TIME                                MAXIMUM AVERAGE STAGE
                                          6-HR        24-HR        72-HR      23.98-HR
+   (FEET)      (HR)
   1194.29      13.10                  1192.62     1190.13      1190.13      1190.13

                        CUMULATIVE AREA =    0.84 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
```

```
          **************
          *            *
301 KK    *    CHNDLR  *       Divert flow thru 24" RCP out of study area.
          *            *
          **************

     DT          DIVERSION
                      ISTAD      DIVOUT  DIVERSION HYDROGRAPH IDENTIFICATION

     DI              INFLOW        0.00    200.00    400.00    600.00   1200.00   2000.00

     DQ       DIVERTED FLOW        0.00     24.00     25.00     26.00     27.00     28.00

                                                                 ***

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

                        DIVERSION HYDROGRAPH   DIVOUT

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+      27.     13.10                       20.          6.          6.          6.
                        (INCHES)       0.220       0.276       0.276       0.276
                        (AC-FT)          10.          12.          12.          12.

                        CUMULATIVE AREA =    0.84 SQ MI


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

                        HYDROGRAPH AT STATION   CHNDLR

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+    1475.     13.10                      323.         90.         90.         90.
                        (INCHES)       3.589       3.994       3.994       3.994
                        (AC-FT)          160.         178.         178.         178.

                        CUMULATIVE AREA =    0.84 SQ MI


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


          **************
          *            *
305 KK    *    RTCHLR  *       Assumed channel size. Route weir flow over Chandler overland to
          *            *
          **************
                           collector channel N. side of SMF.

             HYDROGRAPH ROUTING DATA

307 RS          STORAGE ROUTING
                     NSTPS          3  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC      -1.00  INITIAL CONDITION
                          X       0.00 WORKING R AND D COEFFICIENT

308 RC          NORMAL DEPTH CHANNEL
                       ANL      0.035  LEFT OVERBANK N-VALUE
                      ANCH      0.035  MAIN CHANNEL N-VALUE
                       ANR      0.035  RIGHT OVERBANK N-VALUE
                     RLNTH       1800.  REACH LENGTH
                       SEL     0.0050  ENERGY SLOPE
                     ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                           --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
310 RY        ELEVATION     10.00     10.00     10.00      9.00      9.00     10.00     10.00     10.00
309 RX        DISTANCE      80.00     90.00    100.00    110.00   1110.00   1120.00   1130.00   1140.00
```

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	2.18	4.35	6.53	8.72	10.90	13.09	15.28	17.47	19.67
OUTFLOW	0.00	22.25	70.67	138.92	224.43	325.59	441.28	570.65	713.01	867.81
ELEVATION	9.00	9.05	9.11	9.16	9.21	9.26	9.32	9.37	9.42	9.47
STORAGE	21.86	24.06	26.26	28.47	30.67	32.88	35.09	37.30	39.52	41.74
OUTFLOW	1034.58	1212.91	1402.44	1602.87	1813.91	2035.31	2266.84	2508.30	2759.49	3020.24
ELEVATION	9.53	9.58	9.63	9.68	9.74	9.79	9.84	9.89	9.95	10.00

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

HYDROGRAPH AT STATION RTCHLR

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1399.	13.28		320.	89.	89.	89.
		(INCHES)	3.558	3.949	3.949	3.949
		(AC-FT)	159.	176.	176.	176.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
9.	13.28	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
9.63	13.28	9.23	9.07	9.07	9.07

CUMULATIVE AREA = 0.84 SQ MI

*** ***

```
               ***************
               *             *
 311 KK        *     ONS     *        On-site hydrograph from a portion of I-10 N. of TI.
               *             *
               ***************

 313 IN              TIME DATA FOR INPUT TIME SERIES
                          JXMIN          10  TIME INTERVAL IN MINUTES
                         JXDATE     1     0  STARTING DATE
                         JXTIME           0  STARTING TIME

                  SUBBASIN RUNOFF DATA

 312 BA              SUBBASIN CHARACTERISTICS
                          TAREA        0.04  SUBBASIN AREA
```

***

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

HYDROGRAPH AT STATION ONS

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 125.	12.17		11.	3.	3.	3.
		(INCHES)	2.454	2.744	2.744	2.744
		(AC-FT)	5.	6.	6.	6.

CUMULATIVE AREA = 0.04 SQ MI

*** ***

```
          **************
          *            *
329 KK    *    ADONS   *       Combine onsite from I-10 with routed overland flow from Chandler Blvd.
          *            *
          **************

330 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                        HYDROGRAPH AT STATION    ADONS

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                         (CFS)
+    1403.     13.28                322.         92.         92.         92.
                        (INCHES)    3.414       3.894       3.894       3.894
                        (AC-FT)     160.        182.        182.        182.

                        CUMULATIVE AREA =    0.88 SQ MI


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


          **************
          *            *
331 KK    *    RTCHLR  *       Proposed channel north of SMF to approx
          *            *
          **************
                          50th St alignment location.

             HYDROGRAPH ROUTING DATA

333 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC      -1.00 INITIAL CONDITION
                         X        0.00 WORKING R AND D COEFFICIENT

334 RC          NORMAL DEPTH CHANNEL
                       ANL       0.035  LEFT OVERBANK N-VALUE
                      ANCH       0.018  MAIN CHANNEL N-VALUE
                       ANR       0.035  RIGHT OVERBANK N-VALUE
                     RLNTH       1000.  REACH LENGTH
                       SEL      0.0020  ENERGY SLOPE
                     ELMAX         0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
336 RY       ELEVATION     10.00     10.00     10.00      4.00      4.00     10.00     10.00     10.00
335 RX       DISTANCE      80.00     90.00    100.00    112.00    140.00    155.00    162.00    172.00

                                                    ***

                                    COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE       0.00      0.21      0.43      0.66      0.89      1.14      1.40      1.67      1.95      2.24
          OUTFLOW       0.00     15.27     48.78     96.58    157.23    229.96    314.35    410.15    517.21    635.47
        ELEVATION       4.00      4.32      4.63      4.95      5.26      5.58      5.89      6.21      6.53      6.84

          STORAGE       2.54      2.86      3.18      3.51      3.85      4.20      4.57      4.94      5.32      5.72
          OUTFLOW     764.94    905.63   1057.63   1221.01   1395.88   1582.34   1780.54   1990.61   2212.69   2446.92
        ELEVATION       7.16      7.47      7.79      8.11      8.42      8.74      9.05      9.37      9.68     10.00

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

                        HYDROGRAPH AT STATION    RTCHLR

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                         (CFS)
```

```
+    1398.     13.30                    321.        92.         92.         92.
                              (INCHES)  3.412       3.889       3.889       3.889
                              (AC-FT)   159.        182.        182.        182.

 PEAK STORAGE    TIME                              MAXIMUM AVERAGE STORAGE
                                          6-HR        24-HR       72-HR      23.98-HR
+  (AC-FT)       (HR)
       4.       13.30                     1.          0.          0.          0.

 PEAK STAGE      TIME                              MAXIMUM AVERAGE STAGE
                                          6-HR        24-HR       72-HR      23.98-HR
+  (FEET)        (HR)
     8.42       13.30                    5.70        4.57        4.57        4.57

                              CUMULATIVE AREA =    0.88 SQ MI


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


                 **************
                 *            *
337 KK           *     DIVSE  *       Retrieve SE part of diversion from 48th St and Chandler Blvd IC.
                 *            *
                 **************

338 DR                RETRIEVE DIVERSION HYDROGRAPH
                           ISTAD       DIVSE  DIVERSION HYDROGRAPH IDENTIFICATION

                                                                  ***

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

                            HYDROGRAPH AT STATION    DIVSE

 PEAK FLOW       TIME                              MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR       72-HR      23.98-HR
+   (CFS)        (HR)
                                (CFS)
+     464.      12.40                     88.         26.         26.         26.
                              (INCHES)  0.929       1.099       1.099       1.099
                              (AC-FT)   43.         51.         51.         51.

                              CUMULATIVE AREA =    0.00 SQ MI


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


                 **************
                 *            *
339 KK           *      RTSE  *       Route to approx 50th St. thru assumed channel overland
                 *            *
                 **************

                    HYDROGRAPH ROUTING DATA

340 RS                 STORAGE ROUTING
                            NSTPS          5  NUMBER OF SUBREACHES
                             ITYP       FLOW  TYPE OF INITIAL CONDITION
                            RSVRIC      -1.00  INITIAL CONDITION
                                 X       0.00 WORKING R AND D COEFFICIENT

341 RC                 NORMAL DEPTH CHANNEL
                              ANL      0.035  LEFT OVERBANK N-VALUE
                             ANCH      0.035  MAIN CHANNEL N-VALUE
                              ANR      0.035  RIGHT OVERBANK N-VALUE
                            RLNTH       3100.  REACH LENGTH
                              SEL     0.0050  ENERGY SLOPE
                            ELMAX        0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                                CROSS-SECTION DATA
                                  --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
343 RY          ELEVATION      10.00     10.00     10.00      9.00      10.00     10.00     10.00
342 RX          DISTANCE       80.00     90.00    100.00    110.00     610.00    620.00    630.00
```

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	1.87	3.75	5.64	7.52	9.41	11.31	13.21	15.11	17.01
OUTFLOW	0.00	11.13	35.35	69.50	112.29	162.94	220.87	285.67	357.01	434.59
ELEVATION	9.00	9.05	9.11	9.16	9.21	9.26	9.32	9.37	9.42	9.47
STORAGE	18.93	20.84	22.76	24.68	26.61	28.54	30.47	32.41	34.35	36.29
OUTFLOW	518.20	607.63	702.71	803.28	909.21	1020.38	1136.66	1257.97	1384.20	1515.28
ELEVATION	9.53	9.58	9.63	9.68	9.74	9.79	9.84	9.89	9.95	10.00

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

HYDROGRAPH AT STATION RTSE

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 377.	12.78		85.	25.	25.	25.
		(INCHES)	0.000	0.000	0.000	0.000
		(AC-FT)	42.	49.	49.	49.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
3.	12.78	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
9.43	12.78	9.16	9.06	9.06	9.06

CUMULATIVE AREA = 0.00 SQ MI

*** ***

```
**************
*            *
*    DA522a  *
*            *
**************
```

344 KK

SUBBASIN RUNOFF DATA

345 BA SUBBASIN CHARACTERISTICS

TAREA 0.17 SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

HYDRO-35			TP-40					TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.17

346 LS SCS LOSS RATE

STRTL 0.47 INITIAL ABSTRACTION
CRVNBR 81.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

347 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.47 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
143 END-OF-PERIOD ORDINATES

2.	4.	6.	10.	14.	19.	25.	30.	36.	44.
51.	60.	69.	79.	90.	102.	113.	124.	133.	143.
150.	157.	164.	167.	171.	174.	175.	175.	176.	175.

174.	172.	169.	165.	161.	157.	152.	148.	143.	138.
132.	126.	120.	113.	105.	98.	92.	86.	80.	76.
71.	67.	64.	60.	57.	53.	50.	48.	46.	43.
41.	39.	37.	35.	33.	31.	29.	27.	26.	24.
23.	22.	21.	20.	18.	18.	17.	16.	15.	14.
13.	12.	12.	11.	10.	10.	9.	9.	8.	8.
7.	7.	7.	6.	6.	6.	5.	5.	5.	5.
4.	4.	4.	4.	3.	3.	3.	3.	3.	3.
2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	0.	0.	0.	0.	0.
0.	0.	0.							

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

HYDROGRAPH AT STATION DA522a

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.88, TOTAL EXCESS = 2.12

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)				
		(CFS)			
+ 218.	12.53	36.	10.	10.	10.
		(INCHES) 1.948	2.110	2.110	2.110
		(AC-FT) 18.	20.	20.	20.

CUMULATIVE AREA = 0.17 SQ MI

*** ***

```
              **************
              *            *
348 KK        *   AD522a   *      Combine 522a with flow in channel N. side SMF.
              *            *
              **************
```

349 HC HYDROGRAPH COMBINATION
ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD522a

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)				
		(CFS)			
+ 1648.	13.28	436.	127.	127.	127.
		(INCHES) 3.865	4.478	4.478	4.478
		(AC-FT) 216.	251.	251.	251.

CUMULATIVE AREA = 1.05 SQ MI

*** ***

```
              **************
              *            *
350 KK        *   RT522a   *      Route to 48th St thru assumed channel.
              *            *
              **************
```

HYDROGRAPH ROUTING DATA

351 RS STORAGE ROUTING
NSTPS 1 NUMBER OF SUBREACHES
ITYP FLOW TYPE OF INITIAL CONDITION
RSVRIC -1.00 INITIAL CONDITION
X 0.00 WORKING R AND D COEFFICIENT

352 RC NORMAL DEPTH CHANNEL

ANL	0.035	LEFT OVERBANK N-VALUE
ANCH	0.018	MAIN CHANNEL N-VALUE
ANR	0.035	RIGHT OVERBANK N-VALUE
RLNTH	1600.	REACH LENGTH
SEL	0.0020	ENERGY SLOPE
ELMAX	0.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---		
354 RY	ELEVATION	10.00	10.00	10.00	4.00	4.00	10.00	10.00	10.00
353 RX	DISTANCE	80.00	90.00	100.00	112.00	140.00	152.00	162.00	172.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.33	0.68	1.04	1.42	1.81	2.21	2.63	3.07	3.52
OUTFLOW	0.00	15.25	48.65	96.17	156.31	228.26	311.53	405.80	510.90	626.71
ELEVATION	4.00	4.32	4.63	4.95	5.26	5.58	5.89	6.21	6.53	6.84
STORAGE	3.98	4.46	4.95	5.46	5.98	6.52	7.07	7.64	8.22	8.82
OUTFLOW	753.19	890.32	1038.12	1196.64	1365.94	1546.10	1737.22	1939.39	2152.71	2377.31
ELEVATION	7.16	7.47	7.79	8.11	8.42	8.74	9.05	9.37	9.68	10.00

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

HYDROGRAPH AT STATION RT522a

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1632.	13.32		436.	126.	126.	126.
		(INCHES)	3.861	4.468	4.468	4.468
		(AC-FT)	216.	250.	250.	250.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
7.	13.32	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
8.88	13.32	6.12	4.72	4.72	4.72

CUMULATIVE AREA = 1.05 SQ MI

*** ***

```
**************
*            *
355 KK  *   DA522b  *
*            *
**************
```

SUBBASIN RUNOFF DATA

356 BA SUBBASIN CHARACTERISTICS

TAREA	0.09	SUBBASIN AREA

PRECIPITATION DATA

17 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.09

357 LS SCS LOSS RATE

STRTL	0.47	INITIAL ABSTRACTION
CRVNBR	81.00	CURVE NUMBER
RTIMP	0.00	PERCENT IMPERVIOUS AREA

358 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.50 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
152 END-OF-PERIOD ORDINATES

1.	2.	3.	4.	6.	8.	11.	13.	16.	19.
23.	26.	30.	35.	40.	45.	50.	55.	60.	65.
69.	73.	76.	79.	81.	83.	85.	86.	86.	86.
86.	86.	86.	85.	83.	81.	80.	78.	76.	74.
71.	69.	67.	64.	61.	58.	55.	51.	48.	45.
42.	39.	38.	36.	34.	32.	30.	28.	27.	26.
24.	23.	22.	21.	20.	19.	18.	17.	16.	15.
15.	14.	13.	12.	12.	11.	11.	10.	9.	9.
9.	8.	8.	7.	7.	6.	6.	6.	6.	5.
5.	5.	4.	4.	4.	4.	4.	3.	3.	3.
3.	3.	3.	2.	2.	2.	2.	2.	2.	2.
2.	2.	2.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA522b

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.88, TOTAL EXCESS = 2.12

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
109.	12.57	(CFS)	19.	5.	5.	5.
		(INCHES)	1.948	2.110	2.110	2.110
		(AC-FT)	9.	10.	10.	10.

CUMULATIVE AREA = 0.09 SQ MI

*** ***

359 KK AD522b Combine 522b and flow in channel from E. at 48th St.

360 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION AD522b

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
1660.	13.32	(CFS)	454.	131.	131.	131.
		(INCHES)	3.703	4.280	4.280	4.280
		(AC-FT)	225.	260.	260.	260.

CUMULATIVE AREA = 1.14 SQ MI

*** ***

```
          **************
          *            *
361 KK    *   AD522b   *      Add in DA519a and flow moving S. down 48th St.
          *            *
          **************

362 HC         HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                         HYDROGRAPH AT STATION   AD522b

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR      23.98-HR
+   (CFS)       (HR)
                          (CFS)
+    1867.      13.30                587.        170.        170.        170.
                        (INCHES)     1.515       1.751       1.751       1.751
                        (AC-FT)      291.        336.        336.        336.

                         CUMULATIVE AREA =    3.60 SQ MI


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


          **************
          *            *
363 KK    *   DA519b   *
          *            *
          **************

            SUBBASIN RUNOFF DATA

364 BA         SUBBASIN CHARACTERISTICS
                    TAREA          0.32  SUBBASIN AREA

               PRECIPITATION DATA

 17 PH                                DEPTHS FOR   0-PERCENT HYPOTHETICAL STORM
               ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
               5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                0.77   1.50    2.64    2.89    3.06    3.37    3.68    4.00    0.00    0.00    0.00    0.00

                                                STORM AREA =     0.32

365 LS         SCS LOSS RATE
                    STRTL          0.35  INITIAL ABSTRACTION
                   CRVNBR         85.00  CURVE NUMBER
                    RTIMP          0.00  PERCENT IMPERVIOUS AREA

366 UD         SCS DIMENSIONLESS UNITGRAPH
                    TLAG           0.43  LAG

                                                    ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                        UNIT HYDROGRAPH
                                    131 END-OF-PERIOD ORDINATES
      4.      8.     14.     24.     33.     44.     57.     69.     85.    102.
    120.    142.    164.    189.    214.    239.    261.    282.    300.    315.
    329.    338.    346.    352.    353.    354.    354.    353.    351.    343.
    335.    326.    316.    307.    296.    286.    274.    261.    247.    232.
    216.    200.    186.    173.    160.    151.    142.    133.    125.    117.
    110.    103.     97.     92.     88.     83.     78.     73.     69.     65.
     61.     57.     53.     50.     47.     44.     42.     39.     37.     35.
     33.     31.     29.     27.     25.     24.     22.     21.     19.     18.
     17.     16.     15.     14.     14.     13.     12.     11.     11.     10.
      9.      9.      8.      8.      7.      7.      7.      6.      6.      5.
      5.      5.      4.      4.      4.      4.      4.      3.      3.      3.
      3.      3.      3.      2.      2.      2.      2.      2.      2.      2.
      1.      1.      1.      1.      1.      1.      1.      0.      0.      0.
      0.
```

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

HYDROGRAPH AT STATION DA519b

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.54, TOTAL EXCESS = 2.46

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 495.	12.47		78.	21.	21.	21.
		(INCHES)	2.253	2.446	2.446	2.446
		(AC-FT)	39.	42.	42.	42.

CUMULATIVE AREA = 0.32 SQ MI

*** ***

```
          **************
          *            *
367 KK    *    RT519b  *       Assume channel size and route 519b back to 48th St.
          *            *
          **************
```

HYDROGRAPH ROUTING DATA

```
368 RS      STORAGE ROUTING
                 NSTPS          1  NUMBER OF SUBREACHES
                 ITYP       FLOW  TYPE OF INITIAL CONDITION
                RSVRIC      -1.00  INITIAL CONDITION
                    X        0.00 WORKING R AND D COEFFICIENT

369 RC      NORMAL DEPTH CHANNEL
                  ANL       0.035  LEFT OVERBANK N-VALUE
                 ANCH       0.018  MAIN CHANNEL N-VALUE
                  ANR       0.035  RIGHT OVERBANK N-VALUE
                RLNTH       2800.  REACH LENGTH
                  SEL      0.0011  ENERGY SLOPE
                ELMAX         0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION
```

CROSS-SECTION DATA

		--- LEFT OVERBANK ---			+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---	
371 RY	ELEVATION	10.00	10.00	10.00	4.00	4.00	10.00	10.00	10.00
370 RX	DISTANCE	80.00	90.00	100.00	112.00	124.00	136.00	146.00	156.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.26	0.54	0.85	1.18	1.54	1.92	2.33	2.77	3.23
OUTFLOW	0.00	4.88	15.72	31.42	51.70	76.47	105.77	139.64	178.18	221.51
ELEVATION	4.00	4.32	4.63	4.95	5.26	5.58	5.89	6.21	6.53	6.84
STORAGE	3.72	4.23	4.77	5.33	5.92	6.54	7.18	7.85	8.54	9.26
OUTFLOW	269.76	323.04	381.49	445.26	514.47	589.27	669.80	756.20	848.60	947.14
ELEVATION	7.16	7.47	7.79	8.11	8.42	8.74	9.05	9.37	9.68	10.00

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

HYDROGRAPH AT STATION RT519b

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 462.	12.58		78.	21.	21.	21.
		(INCHES)	2.248	2.433	2.433	2.433
		(AC-FT)	39.	42.	42.	42.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
5.	12.58	1.	0.	0.	0.

PEAK STAGE TIME MAXIMUM AVERAGE STAGE 8606

			6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)					
8.18	12.58		5.24	4.41	4.41	4.41

CUMULATIVE AREA = 0.32 SQ MI

*** ***

```
          ***************
          *             *
372 KK    *   AD519b    *     Combine all flows approx. 400ft West of 48th St. Design Q - C219.
          *             *
          ***************
```

373 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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

HYDROGRAPH AT STATION AD519b

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1995.	13.28		664.	191.	191.	191.
		(INCHES)	1.574	1.807	1.807	1.807
		(AC-FT)	329.	378.	378.	378.

CUMULATIVE AREA = 3.92 SQ MI

*** ***

```
          ***************
          *             *
374 KK    *     PMP     *     TI on-site pumpstation hydrograph.
          *             *
          ***************
```

376 IN TIME DATA FOR INPUT TIME SERIES
JXMIN 10 TIME INTERVAL IN MINUTES
JXDATE 1 0 STARTING DATE
JXTIME 0 STARTING TIME

SUBBASIN RUNOFF DATA

375 BA SUBBASIN CHARACTERISTICS
TAREA 0.16 SUBBASIN AREA

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

HYDROGRAPH AT STATION PMP

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 211.	12.50		38.	13.	13.	13.
		(INCHES)	2.183	2.950	2.950	2.950
		(AC-FT)	19.	25.	25.	25.

CUMULATIVE AREA = 0.16 SQ MI

*** ***

```
          **************
          *            *
392 KK    *    ADPMP   *      combine flows from IC onsite pumpstation and route thru basin.
          *            *
          **************

393 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                        HYDROGRAPH AT STATION    ADPMP

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR      23.98-HR
+   (CFS)       (HR)
                                (CFS)
+    2006.      13.28                     699.         203.         203.         203.
                              (INCHES)    1.591        1.852        1.852        1.852
                              (AC-FT)     346.         403.         403.         403.

                        CUMULATIVE AREA =    4.08 SQ MI


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


          **************
          *            *
394 KK    *     DET    *      Route thru detention basin S. side of SMF, outlet to Gila Floodway
          *            *
          **************
                               thru 54" RCP.

               HYDROGRAPH ROUTING DATA

396 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       STOR  TYPE OF INITIAL CONDITION
                     RSVRIC      0.00  INITIAL CONDITION
                         X       0.00 WORKING R AND D COEFFICIENT

397 SV            STORAGE        0.0       13.8       23.0      118.9      221.8      243.2      264.9      286.9      309.2      331.6

398 SE            ELEVATION   1143.00    1144.50    1145.00    1150.00    1155.00    1156.00    1157.00    1158.00    1159.00    1160.00

399 SQ            DISCHARGE      0.        13.        20.        79.        98.        102.       105.       108.       111.       114.

                                                                  ***

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

                          HYDROGRAPH AT STATION      DET

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR      23.98-HR
+   (CFS)       (HR)
                                (CFS)
+     111.      20.15                     111.          51.          51.          51.
                              (INCHES)    0.253        0.461        0.461        0.461
                              (AC-FT)     55.          100.         100.         100.

  PEAK STORAGE  TIME                                MAXIMUM AVERAGE STORAGE
                                          6-HR        24-HR        72-HR      23.98-HR
+  (AC-FT)      (HR)
      312.      20.18                     309.         133.         133.         133.

  PEAK STAGE    TIME                                MAXIMUM AVERAGE STAGE
                                          6-HR        24-HR        72-HR      23.98-HR
+   (FEET)      (HR)
   1159.10      20.20                  1158.98     1149.97      1149.97      1149.97
```

CUMULATIVE AREA = 4.08 SQ MI

1

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	DA501	1237.	12.15	109.	30.	30.	0.38		
DIVERSION TO	DIVOUT	619.	12.15	54.	15.	15.	0.38		
HYDROGRAPH AT	DIV501	619.	12.15	54.	15.	15.	0.38		
ROUTED TO	RT501	582.	12.20	54.	15.	15.	0.38	3.97	12.20
HYDROGRAPH AT	DA502	928.	12.27	105.	29.	29.	0.42		
2 COMBINED AT	AD502	1468.	12.23	160.	44.	44.	0.80		
DIVERSION TO	DIVOUT	440.	12.23	48.	13.	13.	0.80		
HYDROGRAPH AT	DIV502	1028.	12.23	112.	30.	30.	0.80		
ROUTED TO	RT502	989.	12.28	112.	30.	30.	0.80	7.03	12.28
HYDROGRAPH AT	DA503	179.	12.23	19.	5.	5.	0.09		
2 COMBINED AT	AD503	1162.	12.27	130.	36.	36.	0.89		
ROUTED TO	RT503	1152.	12.30	130.	35.	35.	0.89	9.44	12.30
HYDROGRAPH AT	DA504	157.	12.20	15.	4.	4.	0.07		
2 COMBINED AT	AD504	1287.	12.28	146.	40.	40.	0.95		
ROUTED TO	RT504	1280.	12.30	146.	40.	40.	0.95	10.03	12.30
HYDROGRAPH AT	DA505	91.	12.17	8.	2.	2.	0.04		
2 COMBINED AT	AD505	1345.	12.30	154.	42.	42.	0.99		
ROUTED TO	RT505	1342.	12.32	154.	42.	42.	0.99	10.74	12.32
DIVERSION TO	DIVOUT	201.	12.32	23.	6.	6.	0.99		
HYDROGRAPH AT	DIV505	1141.	12.32	131.	36.	36.	0.99		
ROUTED TO	RT505	1119.	12.35	131.	36.	36.	0.99	10.34	12.35

HYDROGRAPH AT	DA506	103.	12.22	10.	3.	3.	0.04		
2 COMBINED AT	AD506	1198.	12.33	141.	38.	38.	1.03		
HYDROGRAPH AT	DA507	98.	12.20	10.	3.	3.	0.04		
ROUTED TO	RT507	98.	12.22	10.	3.	3.	0.04		
2 COMBINED AT	AD506	1275.	12.33	151.	41.	41.	1.07		
ROUTED TO	RT506	1258.	12.37	151.	41.	41.	1.07	10.60	12.37
HYDROGRAPH AT	DA508	53.	12.18	5.	1.	1.	0.02		
HYDROGRAPH AT	DA509	43.	12.13	4.	1.	1.	0.01		
3 COMBINED AT	AD509	1305.	12.35	159.	43.	43.	1.10		
HYDROGRAPH AT	DA510	118.	12.18	11.	3.	3.	0.04		
2 COMBINED AT	AD510	1375.	12.35	170.	46.	46.	1.15		
ROUTED TO	RT510	1365.	12.37	170.	46.	46.	1.15	10.69	12.37
DIVERSION TO	45THST	1237.	11.97	110.	28.	28.	1.15		
HYDROGRAPH AT	PIPES	128.	11.97	60.	19.	19.	1.15		
ROUTED TO	RTPIPE	128.	12.02	60.	19.	19.	1.15		
HYDROGRAPH AT	DA511	240.	12.92	60.	16.	16.	0.36		
2 COMBINED AT	AD511	368.	12.92	119.	35.	35.	1.51		
ROUTED TO	RT511	368.	12.93	119.	35.	35.	1.51	6.01	12.93
HYDROGRAPH AT	45THST	1237.	12.37	110.	28.	28.	0.00		
ROUTED TO	RT45ST	1151.	12.48	110.	28.	28.	0.00	9.69	12.48
2 COMBINED AT	AD511	1406.	12.50	229.	62.	62.	1.51		
ROUTED TO	RT511	1308.	12.60	229.	62.	62.	1.51	20.80	12.60
HYDROGRAPH AT	DA512	174.	12.35	22.	6.	6.	0.13		
2 COMBINED AT	AD512	1421.	12.58	251.	68.	68.	1.63		
DIVERSION TO	CANAL	1361.	12.43	199.	50.	50.	1.63		

+	HYDROGRAPH AT	DIV512	60.	12.43	52.	19.	19.	1.63	
+	HYDROGRAPH AT	DA513	207.	12.22	21.	6.	6.	0.09	
+	HYDROGRAPH AT	DA514	152.	12.15	13.	4.	4.	0.06	
+	HYDROGRAPH AT	DA515	111.	12.20	11.	3.	3.	0.05	
+	3 COMBINED AT	AD515	460.	12.20	46.	12.	12.	0.19	
+	ROUTED TO	RT515	412.	12.27	45.	12.	12.	0.19	
+									7.23 12.27
+	HYDROGRAPH AT	DA516	193.	12.40	27.	7.	7.	0.15	
+	3 COMBINED AT	AD516	641.	12.30	124.	38.	38.	1.97	
+	ROUTED TO	RT516	617.	12.35	124.	38.	38.	1.97	
+									8.58 12.35
+	HYDROGRAPH AT	DA517	258.	12.30	30.	8.	8.	0.17	
+	2 COMBINED AT	AD517	867.	12.33	154.	46.	46.	2.14	
+	ROUTED TO	RT517	850.	12.38	154.	46.	46.	2.14	
+									11.74 12.38
+	HYDROGRAPH AT	DA518	107.	12.65	21.	6.	6.	0.10	
+	2 COMBINED AT	AD518	927.	12.40	175.	52.	52.	2.24	
+	DIVERSION TO	DIVSE	464.	12.40	88.	26.	26.	2.24	
+	HYDROGRAPH AT	DIV518	464.	12.40	88.	26.	26.	2.24	
+	ROUTED TO	RT518	429.	12.50	87.	26.	26.	2.24	
+									9.92 12.50
+	HYDROGRAPH AT	DA519a	228.	12.68	46.	12.	12.	0.22	
+	2 COMBINED AT	AD519a	632.	12.55	133.	38.	38.	2.46	
+	HYDROGRAPH AT	DA520a	166.	12.47	26.	7.	7.	0.13	
+	ROUTED TO	RT520a	152.	12.58	26.	7.	7.	0.13	
+									8.00 12.58
+	HYDROGRAPH AT	DA520b	407.	12.38	56.	15.	15.	0.22	
+	2 COMBINED AT	AD520b	527.	12.43	81.	22.	22.	0.35	
+	DIVERSION TO	DIVBOX	344.	12.43	32.	8.	8.	0.35	
+	HYDROGRAPH AT	DIV520	183.	12.43	49.	14.	14.	0.35	

+	ROUTED TO	RT520b	182.	12.48	49.	14.	14.	0.35	10.03	12.48
+	HYDROGRAPH AT	DIVBOX	344.	12.43	32.	8.	8.	0.00		
+	2 COMBINED AT	AD520b	526.	12.43	81.	22.	22.	0.35		
+	ROUTED TO	RT520b	421.	12.65	81.	22.	22.	0.35	10.78	12.65
+	HYDROGRAPH AT	DA521a	92.	12.60	17.	5.	5.	0.09		
+	HYDROGRAPH AT	CANAL	1361.	12.58	199.	50.	50.	0.00		
+	2 COMBINED AT	ADHIGH	1453.	12.58	216.	54.	54.	0.09		
+	ROUTED TO	RTHIGH	1277.	12.88	215.	54.	54.	0.09	9.52	12.88
+	HYDROGRAPH AT	DA521b	463.	12.57	82.	22.	22.	0.39		
+	3 COMBINED AT	AD521b	1975.	12.85	377.	98.	98.	0.84		
+	ROUTED TO	CHNDLR	1503.	13.10	343.	96.	96.	0.84	1194.29	13.10
+	DIVERSION TO	DIVOUT	27.	13.10	20.	6.	6.	0.84		
+	HYDROGRAPH AT	CHNDLR	1475.	13.10	323.	90.	90.	0.84		
+	ROUTED TO	RTCHLR	1399.	13.28	320.	89.	89.	0.84	9.63	13.28
+	HYDROGRAPH AT	ONS	125.	12.17	11.	3.	3.	0.04		
+	2 COMBINED AT	ADONS	1403.	13.28	322.	92.	92.	0.88		
+	ROUTED TO	RTCHLR	1398.	13.30	321.	92.	92.	0.88	8.42	13.30
+	HYDROGRAPH AT	DIVSE	464.	12.40	88.	26.	26.	0.00		
+	ROUTED TO	RTSE	377.	12.78	85.	25.	25.	0.00	9.43	12.78
+	HYDROGRAPH AT	DA522a	218.	12.53	36.	10.	10.	0.17		
+	3 COMBINED AT	AD522a	1648.	13.28	436.	127.	127.	1.05		
+	ROUTED TO	RT522a	1632.	13.32	436.	126.	126.	1.05	8.88	13.32
+	HYDROGRAPH AT	DA522b	109.	12.57	19.	5.	5.	0.09		
+	2 COMBINED AT	AD522b	1660.	13.32	454.	131.	131.	1.14		

```
          2 COMBINED AT
+                         AD522b     1867.   13.30        587.       170.       170.       3.60
          HYDROGRAPH AT
+                         DA519b      495.   12.47         78.        21.        21.       0.32
          ROUTED TO
+                         RT519b      462.   12.58         78.        21.        21.       0.32
+                                                                                          8.18       12.58
          2 COMBINED AT
+                         AD519b     1995.   13.28        664.       191.       191.       3.92
          HYDROGRAPH AT
+                           PMP       211.   12.50         38.        13.        13.       0.16
          2 COMBINED AT
+                         ADPMP      2006.   13.28        699.       203.       203.       4.08
          ROUTED TO
+                           DET       111.   20.15        111.        51.        51.       4.08
+                                                                                       1159.10       20.20
1
                                    SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                        (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                                  INTERPOLATED TO
                                                                                  COMPUTATION INTERVAL
            ISTAQ    ELEMENT      DT        PEAK     TIME TO      VOLUME      DT        PEAK     TIME TO      VOLUME
                                                       PEAK                                        PEAK

                                  (MIN)     (CFS)      (MIN)      (IN)     (MIN)      (CFS)      (MIN)       (IN)

              RT507  MANE         0.82     98.17     732.97      2.37      1.00      98.16     733.00       2.37

 CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5124E+01 EXCESS=0.0000E+00 OUTFLOW=0.5122E+01 BASIN STORAGE=0.2690E-02 PERCENT ERROR=   0.0

              RTPIPE  MANE         0.97     128.00     720.29      0.60      1.00      128.00     721.00       0.60

 CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3698E+02 EXCESS=0.0000E+00 OUTFLOW=0.3695E+02 BASIN STORAGE=0.4033E-01 PERCENT ERROR=   0.0


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

SEGMENT V
HEC-1 ANALYSIS
ON-SITE

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              MAY   1991               *
*            VERSION 4.0.1E             *
*                                       *
*  RUN DATE  05/14/92  TIME  11:38:03   *
*                                       *
*****************************************
```

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

FN = SPUMP

50 Year

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

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

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

1 HEC-1 INPUT PAGE 1

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

  1           ID        PRICE ROAD HYDROLOGY
  2           ID        I-10 AND SOUTH MOUNTAIN FREEWAY INTERCHANGE
  3           ID        DETENTION BASIN ROUTING AND PUMP STATION
  4           ID        50-YEAR 24-HOUR
              *DIAGRAM
  5           IT      1                    1440
  6           IO      3

  7           KK    DA01
  8           PH       2       0    0.67    1.32    2.31    2.54    2.68    2.97    3.24    3.52
  9           BA    .0099
 10           LS             95.7
 11           UD    0.10

 12           KK    RTE01
 13           RD     840   .0094    .012            CIRC     2.5

 14           KK    DA02
 15           BA    .0075
 16           LS             94.8
 17           UD    0.10
```

874

```
 18          KK    DA03
 19          BA    .0047
 20          LS            89.6
 21          UD     .10

 22          KK    ADD03   ADD HYD. 01 THRU 03
 23          HC       3

 24          KK    RTE03
 25          RD     490    .0074    .012           CIRC     3.5

 26          KK    DA04
 27          BA    .0038
 28          LS            93.4
 29          UD     .10

 30          KK    DA05
 31          BA    .0066
 32          LS            90.4
 33          UD     .10

 34          KK    ADD05
 35          HC       3

 36          KK    RTE05
 37          RD     685    .0045    .012           CIRC     4.0

 38          KK    DA06
 39          BA    .0088
 40          LS            90.7
 41          UD     .10
```



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

 42          KK    ADD06
 43          HC       2

 44          KK    RTE06
 45          RD     700    .0045    .012           CIRC     4.0

 46          KK    DA07
 47          BA    .0203
 48          LS            81.3
 49          UD     .10

 50          KK    ADD07
 51          HC       2

 52          KK    RTE07
 53          RD     605    .0022    .012           CIRC       5

 54          KK    DA08
 55          BA    .0056
 56          LS            94.8
 57          UD     .10

 58          KK    RTE08
 59          RD     700    .0072    .012           CIRC     2.5
```

```
 60          KK   ADD08
 61          HC       2

 62          KK    DA09
 63          BA   .0284
 64          LS            80.8
 65          UD     .10

 66          KK   ADD09
 67          HC       2

 68          KK    PUMP  96" STORAGE RCP'S
 69          KM          L=1070 FEET     200 CFS STATION
 70          RS       1    ELEV    1132       0
 71          SV       0     .24    0.62    0.99    1.24
 72          SE    1132    1134    1136    1138    1140
 73          SQ     .01     .02     .03     .04     .05
 74          WP                             PUMP
 75          WP    1134      40    1133    PUMP
 76          WP    1135      40    1134    PUMP
 77          WP    1136      40    1135    PUMP
 78          WP    1136      40    1133    PUMP
 79          WP    1136      40    1132    PUMP
 80          KO       1
1                                    HEC-1 INPUT                                    PAGE  3

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

 81          KK   PUMPR
 82          WR    PUMP

 83          KK    DA19
 84          BA   .0112
 85          LS            75.6
 86          UD     .10

 87          KK   RTE19
 88          RD     150  .00670    .012           CIRC     2.5

 89          KK    DA20
 90          BA   .0104
 91          LS            90.7
 92          UD     .10

 93          KK   ADD20
 94          HC       2

 95          KK   RTE20
 96          RD      90   .0028    .012           CIRC     3.5

 97          KK    DA21
 98          BA   .0016
 99          LS              98
100          UD     .10

101          KK   ADD21
102          HC       2
```

876

```
103          KK   RTE21
104          RD     90   .0028    .012           CIRC       4

105          KK    DA22
106          BA   .0133
107          LS           91.3
108          UD    .10

109          KK   ADD22
110          HC       2

111          KK   RTE22
112          RD    260   .0028    .012           CIRC     4.5

113          KK    DA23
114          BA   .0319
115          LS           81.5
116          UD    .10
```



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

117          KK   ADD23
118          HC       2

119          KK   RTE23  INFIELD AREA - 30" OUTLET (INLET CONTROL) basin 12
120          RS       1    STOR     0.0
121          SV       0    0.24    0.91    7.44
122          SE    1160    1161    1162    1165
123          SQ       0       0       4      25

124          KK    DA24
125          BA   .0025
126          LS             98
127          UD    .10

128          KK   ADD24
129          HC       2

130          KK    DA25
131          BA   .0195
132          LS           84.4
133          UD    .10

134          KK   ADD25
135          HC       2

136          KK   RTE25  INFIELD AREA - 24" OUTLET (INLET CONTROL) basin 11
137          RS       1    STOR     0.0
138          SV       0     .16     .91   13.37
139          SE    1159    1160    1161    1165
140          SQ       0       0       4      30

141          KK    DA26
142          BA   .0156
143          LS           78.5
144          UD    .10

145          KK   ADD26
```

```
146          HC       2

147          KK    RTE26  INFIELD AREA - 18" OUTLET (INLET CONTROL) basin 10
148          RS        1    STOR      0.0
149          SV        0     .28     2.19     5.59
150          SE     1158    1159     1160     1161
151          SQ        0       0      3.4        9

152          KK     DA27
153          BA    .0253
154          LS             84.3
155          UD      .10
```

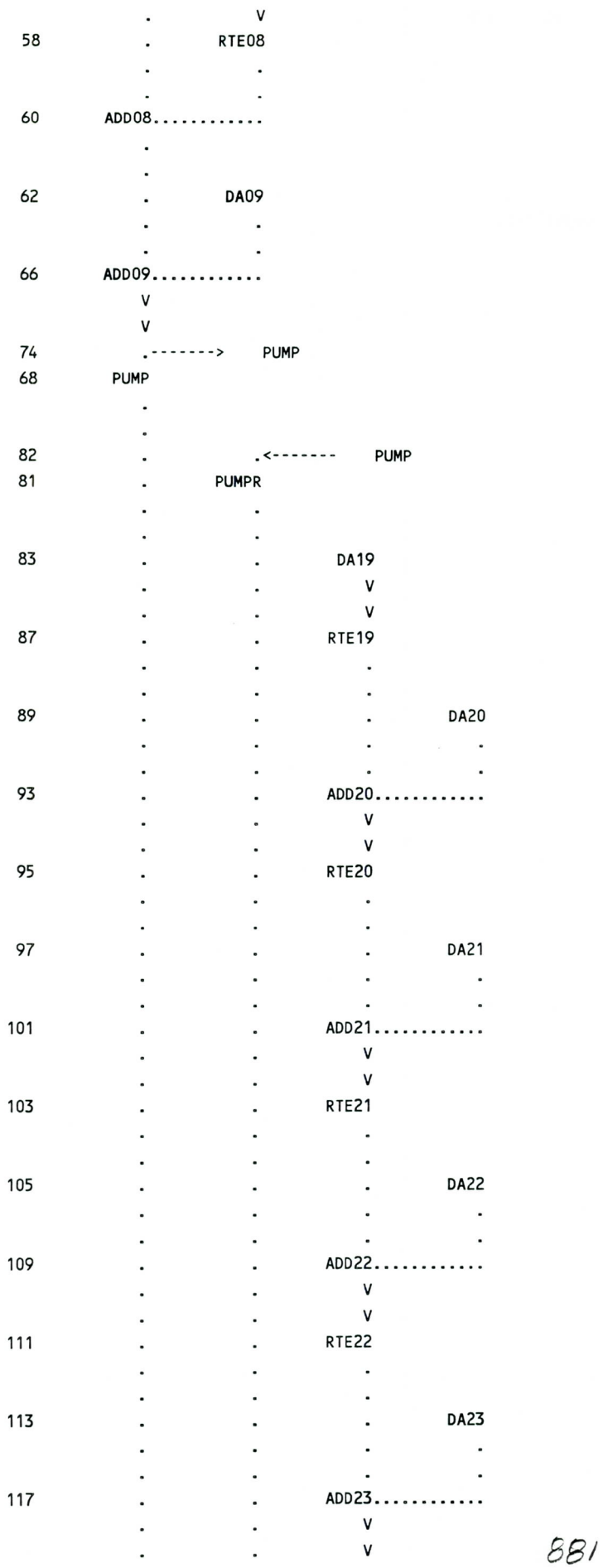


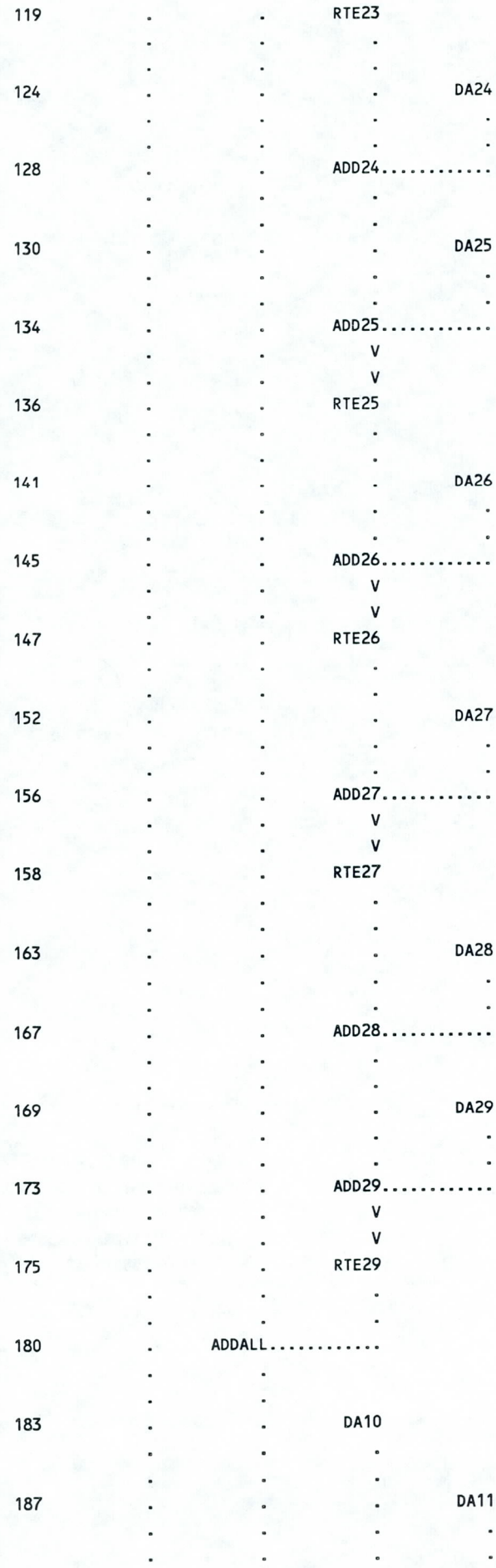
```
LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10


156          KK    ADD27
157          HC        2

158          KK    RTE27  INFIELD AREA - 24" OUTLET (INLET CONTROL) basin 9
159          RS        1    STOR      0.0
160          SV        0    0.19     2.57     4.87
161          SE   1157.9  1158.4     1160     1161
162          SQ        0       0        9       17

163          KK     DA28
164          BA    .0025
165          LS               98
166          UD      .10

167          KK    ADD28
168          HC        2

169          KK     DA29
170          BA    .0286
171          LS             83.5
172          UD      .10

173          KK    ADD29
174          HC        2

175          KK    RTE29  INFIELD AREA - 24" OUTLET (INLET CONTROL) basin 8
176          RS        1    STOR      0.0
177          SV        0     .04     1.21     5.62
178          SE   1157.0  1157.5     1159     1161
179          SQ        0       0        8       23

180          KK   ADDALL
181          KM          ADD LOCAL RUNOFF AND PUMP STATION OUTFLOW
182          HC        2

183          KK     DA10  UPPER 1-10 DRAINAGE AREAS WHICH DRAIN TO WEST CHANNEL
184          BA     .006
185          LS               92
186          UD      .10

187          KK     DA11
188          BA    .0019
189          LS               98
```

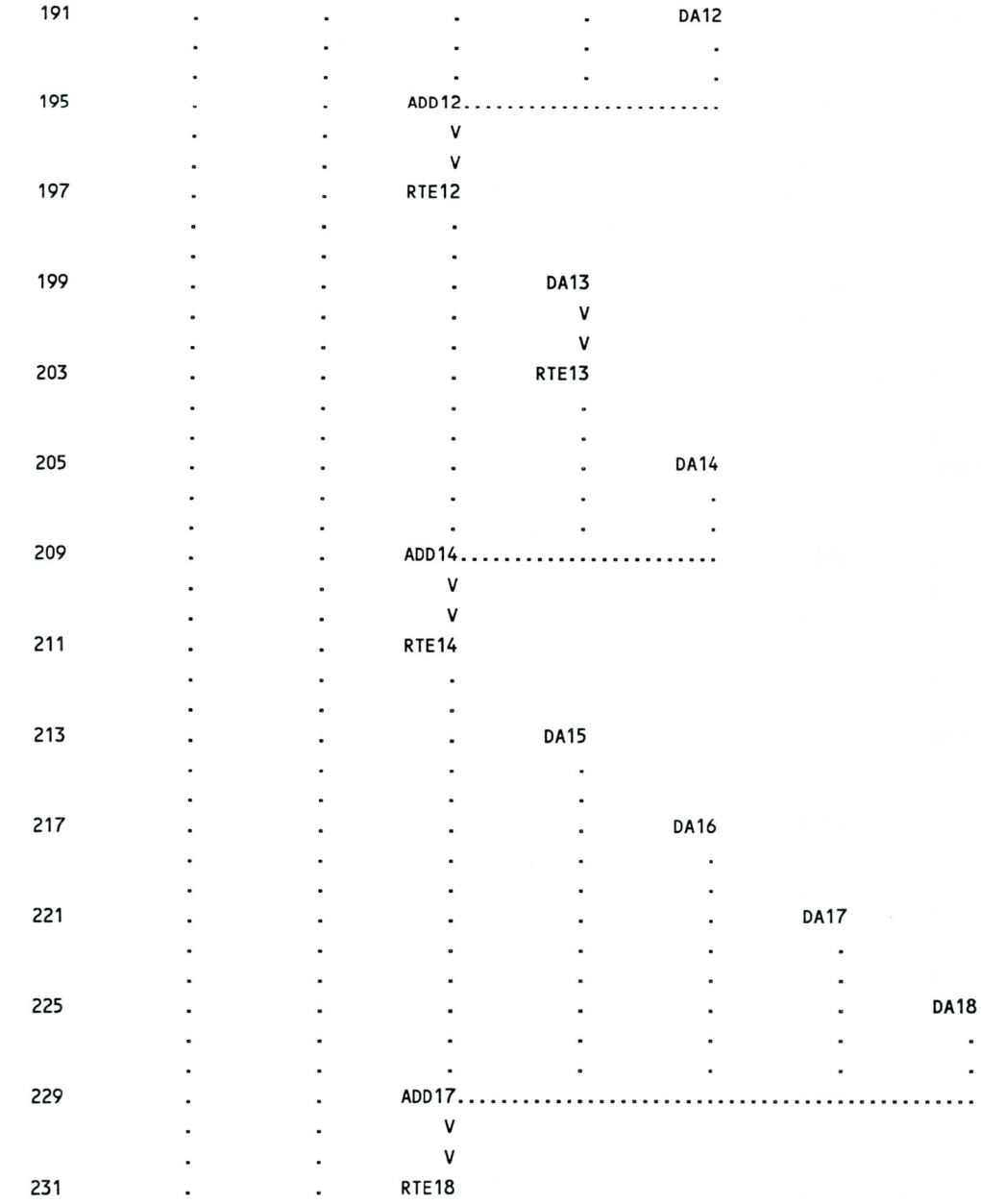
```
 190          UD     .10

 191          KK    DA12
 192          BA   .0079
 193          LS             91
 194          UD     .10
1                                        HEC-1 INPUT                                                    PAGE  6

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


 195          KK   ADD12
 196          HC       3

 197          KK   RTE12
 198          RD     140   .0036    .012           CIRC     2.5

 199          KK    DA13
 200          BA   .0026
 201          LS             90.1
 202          UD     .10

 203          KK   RTE13
 204          RD     300   .0017    .012           CIRC     2.0

 205          KK    DA14
 206          BA   .0043
 207          LS             88.4
 208          UD     .10

 209          KK   ADD14
 210          HC       3

 211          KK   RTE14
 212          RD    1060   .0029    .012           CIRC     4.0

 213          KK    DA15
 214          BA   .0050
 215          LS             90.9
 216          UD     .10

 217          KK    DA16
 218          BA   .0016
 219          LS               98
 220          UD     .10

 221          KK    DA17
 222          BA   .0052
 223          LS             90.6
 224          UD     .10

 225          KK    DA18
 226          BA   .0017
 227          LS             90.7
 228          UD     .10

 229          KK   ADD17
 230          HC       5

 231          KK   RTE18
```

```
      232          RD     380   .0008    .012          CIRC     4.5
      233          KO       1
      234          ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW
   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW
     7        DA01
                V
                V
    12        RTE01
                .
                .
    14          .          DA02
                .            .
                .            .
    18          .            .          DA03
                .            .            .
                .            .            .
    22        ADD03.......................
                V
                V
    24        RTE03
                .
                .
    26          .          DA04
                .            .
                .            .
    30          .            .          DA05
                .            .            .
                .            .            .
    34        ADD05.......................
                V
                V
    36        RTE05
                .
                .
    38          .          DA06
                .            .
                .            .
    42        ADD06............
                V
                V
    44        RTE06
                .
                .
    46          .          DA07
                .            .
                .            .
    50        ADD07............
                V
                V
    52        RTE07
                .
                .
    54          .          DA08
                .            V
```

380


58 RTE08
60 ADD08
62 DA09
66 ADD09
74 PUMP
68 PUMP
82 PUMP
81 PUMPR
83 DA19
87 RTE19
89 DA20
93 ADD20
95 RTE20
97 DA21
101 ADD21
103 RTE21
105 DA22
109 ADD22
111 RTE22
113 DA23
117 ADD23


119
RTE23
124
DA24
128
ADD24
130
DA25
134
ADD25
136
RTE25
141
DA26
145
ADD26
147
RTE26
152
DA27
156
ADD27
158
RTE27
163
DA28
167
ADD28
169
DA29
173
ADD29
175
RTE29
180
ADDALL
183
DA10
187
DA11



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              MAY   1991               *
*           VERSION 4.0.1E              *
*                                       *
*  RUN DATE  05/14/92  TIME  11:38:03   *
*                                       *
*****************************************
```

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

PRICE ROAD HYDROLOGY
I-10 AND SOUTH MOUNTAIN FREEWAY INTERCHANGE
DETENTION BASIN ROUTING AND PUMP STATION
50-YEAR 24-HOUR

6 IO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

NMIN		1	MINUTES IN COMPUTATION INTERVAL
IDATE	1	0	STARTING DATE
ITIME		0000	STARTING TIME
NQ		1440	NUMBER OF HYDROGRAPH ORDINATES
NDDATE	1	0	ENDING DATE
NDTIME		2359	ENDING TIME
ICENT		19	CENTURY MARK

COMPUTATION INTERVAL 0.02 HOURS
TOTAL TIME BASE 23.98 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

*** ***

****
* *
7 KK * DA01 *
* *
****

SUBBASIN RUNOFF DATA

9 BA SUBBASIN CHARACTERISTICS

TAREA	0.01	SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.68	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.01

10 LS SCS LOSS RATE

STRTL	0.09	INITIAL ABSTRACTION
CRVNBR	95.70	CURVE NUMBER
RTIMP	0.00	PERCENT IMPERVIOUS AREA

11 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	0.10	LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

3.	9.	18.	30.	40.	44.	44.	40.	35.	28.
21.	16.	12.	10.	8.	6.	5.	4.	3.	2.
2.	1.	1.	1.	1.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA01

TOTAL RAINFALL = 3.52, TOTAL LOSS = 0.49, TOTAL EXCESS = 3.03

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	37.	12.10		3.	1.	1.	1.
			(INCHES)	2.716	3.030	3.030	3.030
			(AC-FT)	1.	2.	2.	2.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

```
**************
*            *
*     RTE01  *
*            *
**************
```

12 KK

HYDROGRAPH ROUTING DATA

13 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	840.	CHANNEL LENGTH
S	0.0094	SLOPE
N	0.012	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	2.50	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS
COMPUTATION TIME STEP

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	7.57	1.25	1.00	420.00	36.83	727.00	3.03	11.31

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	7.57	1.25	1.00	36.83	727.00	3.03

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1600E+01 EXCESS=0.0000E+00 OUTFLOW=0.1599E+01 BASIN STORAGE=0.6625E-03 PERCENT ERROR= 0.0

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

HYDROGRAPH AT STATION RTE01

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 37.	12.12		3.	1.	1.	1.
		(INCHES)	2.715	3.029	3.029	3.029
		(AC-FT)	1.	2.	2.	2.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

```
          ***************
          *             *
14 KK     *    DA02     *
          *             *
          ***************
```

SUBBASIN RUNOFF DATA

15 BA SUBBASIN CHARACTERISTICS
TAREA 0.01 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35	......		.... TP-40		....			.... TP-49		....	
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.68	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.01

16 LS SCS LOSS RATE
STRTL 0.11 INITIAL ABSTRACTION
CRVNBR 94.80 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

17 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

2.	7.	14.	23.	30.	33.	33.	30.	27.	21.
16.	12.	9.	7.	6.	5.	4.	3.	2.	2.
1.	1.	1.	1.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA02

TOTAL RAINFALL = 3.52, TOTAL LOSS = 0.58, TOTAL EXCESS = 2.94

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	27.	12.10		2.	1.	1.	1.
			(INCHES)	2.643	2.935	2.935	2.935
			(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

```
          **************
          *            *
18 KK     *     DA03   *
          *            *
          **************
```

SUBBASIN RUNOFF DATA

19 BA SUBBASIN CHARACTERISTICS
TAREA 0.00 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			.... TP-40					.... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.68	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.00

20 LS SCS LOSS RATE
STRTL 0.23 INITIAL ABSTRACTION
CRVNBR 89.60 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

21 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.10 LAG

```
VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                   UNIT HYDROGRAPH
                                              32 END-OF-PERIOD ORDINATES
            1.         4.         9.        14.        19.        21.        21.        19.        17.        13.
           10.         8.         6.         5.         4.         3.         2.         2.         1.         1.
            1.         1.         0.         0.         0.         0.         0.         0.         0.         0.
            0.         0.

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

                           HYDROGRAPH AT STATION       DA03

    TOTAL RAINFALL =     3.52, TOTAL LOSS =      1.09, TOTAL EXCESS =     2.43

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR        72-HR      23.98-HR

+   (CFS)        (HR)
                           (CFS)
+       15.     12.10                      1.           0.           0.           0.
                         (INCHES)       2.221        2.428        2.428        2.428
                         (AC-FT)           1.           1.           1.           1.

                         CUMULATIVE AREA =       0.00 SQ MI


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


              ***************
              *             *
  22 KK       *    ADD03    *        ADD HYD. 01 THRU 03
              *             *
              ***************

  23 HC           HYDROGRAPH COMBINATION
                        ICOMP             3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                           HYDROGRAPH AT STATION      ADD03

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR        72-HR      23.98-HR

+   (CFS)        (HR)
                           (CFS)
+       79.     12.12                      6.           2.           2.           2.
                         (INCHES)       2.583        2.869        2.869        2.869
                         (AC-FT)           3.           3.           3.           3.

                         CUMULATIVE AREA =       0.02 SQ MI
```

*** ***

****
* *
24 KK * RTE03 *
* *
****

HYDROGRAPH ROUTING DATA

25 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	490.	CHANNEL LENGTH
S	0.0074	SLOPE
N	0.012	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	3.50	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS

ELEMENT	ALPHA	M	COMPUTATION TIME STEP DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	7.10	1.25	0.65	245.00	78.33	727.15	2.87	12.50

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	7.10	1.25	1.00	78.17	727.00	2.87	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3382E+01 EXCESS=0.0000E+00 OUTFLOW=0.3381E+01 BASIN STORAGE=0.7649E-03 PERCENT ERROR= 0.0

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

HYDROGRAPH AT STATION RTE03

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+ 78.	12.12	(CFS)	6.	2.	2.	2.
		(INCHES)	2.582	2.868	2.868	2.868
		(AC-FT)	3.	3.	3.	3.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

```
**************
*            *
26 KK     *      DA04  *
*            *
**************

   SUBBASIN RUNOFF DATA

27 BA          SUBBASIN CHARACTERISTICS
                    TAREA        0.00  SUBBASIN AREA

               PRECIPITATION DATA

 8 PH                                DEPTHS FOR   2-PERCENT HYPOTHETICAL STORM
               ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
               5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                0.67    1.32    2.31    2.54    2.68    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                  STORM AREA =     0.00

28 LS          SCS LOSS RATE
                    STRTL        0.14  INITIAL ABSTRACTION
                   CRVNBR       93.40  CURVE NUMBER
                    RTIMP        0.00  PERCENT IMPERVIOUS AREA

29 UD          SCS DIMENSIONLESS UNITGRAPH
                    TLAG        0.10  LAG

                                                  ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667         0.01667        24.00000

                                                UNIT HYDROGRAPH
                                            32 END-OF-PERIOD ORDINATES
                    1.      3.      7.     12.     15.     17.     17.     15.     13.     11.
                    8.      6.      5.      4.      3.      2.      2.      1.      1.      1.
                    1.      1.      0.      0.      0.      0.      0.      0.      0.      0.
                    0.      0.

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

                         HYDROGRAPH AT STATION     DA04

     TOTAL RAINFALL =    3.52, TOTAL LOSS =     0.73, TOTAL EXCESS =     2.79

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                                6-HR        24-HR       72-HR      23.98-HR
+   (CFS)       (HR)
                                 (CFS)
+      13.      12.10                            1.          0.          0.          0.
                                 (INCHES)      2.528       2.792       2.792       2.792
                                 (AC-FT)         1.          1.          1.          1.

                         CUMULATIVE AREA =     0.00 SQ MI

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
```

```
          **************
          *            *
30 KK     *      DA05  *
          *            *
          **************

             SUBBASIN RUNOFF DATA

31 BA          SUBBASIN CHARACTERISTICS
                     TAREA        0.01  SUBBASIN AREA

               PRECIPITATION DATA

 8 PH                              DEPTHS FOR   2-PERCENT HYPOTHETICAL STORM
               ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
               5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                0.67   1.32    2.31    2.54    2.68    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                STORM AREA =    0.01

32 LS          SCS LOSS RATE
                     STRTL        0.21  INITIAL ABSTRACTION
                    CRVNBR       90.40  CURVE NUMBER
                     RTIMP        0.00  PERCENT IMPERVIOUS AREA

33 UD          SCS DIMENSIONLESS UNITGRAPH
                     TLAG        0.10  LAG

                                                ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                UNIT HYDROGRAPH
                                              32 END-OF-PERIOD ORDINATES
                2.       6.      12.      20.      26.      29.      29.      27.      23.      19.
               14.      11.       8.       7.       5.       4.       3.       2.       2.       1.
                1.       1.       1.       1.       0.       0.       0.       0.       0.       0.
                0.       0.

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

                     HYDROGRAPH AT STATION     DA05

    TOTAL RAINFALL =    3.52, TOTAL LOSS =    1.02, TOTAL EXCESS =    2.50

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+      21.     12.10                     2.          0.          0.          0.
                          (INCHES)     2.285       2.501       2.501       2.501
                          (AC-FT)         1.          1.          1.          1.

                     CUMULATIVE AREA =    0.01 SQ MI

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
```

```
          **************
          *            *
34 KK     *     ADD05  *
          *            *
          **************

35 HC          HYDROGRAPH COMBINATION
                     ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                         HYDROGRAPH AT STATION    ADD05

  PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
                                          6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                       (CFS)
+     113.      12.12                        9.          2.          2.          2.
                       (INCHES)         2.514       2.785       2.785       2.785
                       (AC-FT)             4.          5.          5.          5.

                         CUMULATIVE AREA =     0.03 SQ MI


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


          **************
          *            *
36 KK     *     RTE05  *
          *            *
          **************

             HYDROGRAPH ROUTING DATA

37 RD          MUSKINGUM-CUNGE CHANNEL ROUTING
                        L        685.  CHANNEL LENGTH
                        S      0.0045  SLOPE
                        N       0.012  CHANNEL ROUGHNESS COEFFICIENT
                       CA        0.00  CONTRIBUTING AREA
                    SHAPE        CIRC  CHANNEL SHAPE
                       WD        4.00  BOTTOM WIDTH OR DIAMETER
                        Z        0.00  SIDE SLOPE

                                                        ***

                              COMPUTED MUSKINGUM-CUNGE PARAMETERS
                                        COMPUTATION TIME STEP
                ELEMENT    ALPHA      M        DT        DX       PEAK    TIME TO      VOLUME    MAXIMUM
                                                                            PEAK                   CELERITY
                                                   (MIN)     (FT)    (CFS)    (MIN)       (IN)      (FPS)

                  MAIN       5.66    1.25         1.00    685.00   111.61   728.00       2.78      11.21
```

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	5.66	1.25	1.00	111.61	728.00	2.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4827E+01 EXCESS=0.0000E+00 OUTFLOW=0.4823E+01 BASIN STORAGE=0.1736E-02 PERCENT ERROR= 0.0

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

HYDROGRAPH AT STATION RTE05

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
		(CFS)				
+	112.	12.13	9.	2.	2.	2.
		(INCHES)	2.512	2.782	2.782	2.782
		(AC-FT)	4.	5.	5.	5.

CUMULATIVE AREA = 0.03 SQ MI

*** ***

38 KK

****
* *
* DA06 *
* *
****

SUBBASIN RUNOFF DATA

39 BA SUBBASIN CHARACTERISTICS

TAREA 0.01 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.68	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.01

40 LS SCS LOSS RATE

STRTL 0.21 INITIAL ABSTRACTION
CRVNBR 90.70 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

41 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

3.	8.	16.	27.	35.	39.	39.	36.	31.	25.
18.	14.	11.	9.	7.	5.	4.	3.	2.	2.
2.	1.	1.	1.	1.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA06

TOTAL RAINFALL = 3.52, TOTAL LOSS = 0.99, TOTAL EXCESS = 2.53

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	29.	12.10		2.	1.	1.	1.
			(INCHES)	2.309	2.529	2.529	2.529
			(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

```
          **************
          *            *
42 KK     *     ADD06  *
          *            *
          **************
```

43 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION ADD06

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	139.	12.13		11.	3.	3.	3.
			(INCHES)	2.468	2.728	2.728	2.728
			(AC-FT)	5.	6.	6.	6.

CUMULATIVE AREA = 0.04 SQ MI

*** ***

```
          **************
          *            *
44 KK     *     RTE06  *
          *            *
          **************

   HYDROGRAPH ROUTING DATA

45 RD          MUSKINGUM-CUNGE CHANNEL ROUTING
                       L       700.  CHANNEL LENGTH
                       S    0.0045  SLOPE
                       N     0.012  CHANNEL ROUGHNESS COEFFICIENT
                      CA      0.00  CONTRIBUTING AREA
                   SHAPE      CIRC  CHANNEL SHAPE
                      WD      4.00  BOTTOM WIDTH OR DIAMETER
                       Z      0.00  SIDE SLOPE

                                                    ***
                                COMPUTED MUSKINGUM-CUNGE PARAMETERS
                                      COMPUTATION TIME STEP
                    ELEMENT    ALPHA       M         DT         DX       PEAK    TIME TO      VOLUME    MAXIMUM
                                                                                     PEAK                 CELERITY
                                                      (MIN)      (FT)     (CFS)    (MIN)       (IN)      (FPS)

                      MAIN       5.66     1.25       1.00     700.00    137.63   728.62       2.73      11.69

                                          INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                      MAIN       5.66     1.25       1.00               136.72   728.00       2.73

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6010E+01 EXCESS=0.0000E+00 OUTFLOW=0.6004E+01 BASIN STORAGE=0.2143E-02 PERCENT ERROR=   0.1

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

                          HYDROGRAPH AT STATION    RTE06

 PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR       24-HR       72-HR     23.98-HR
+   (CFS)      (HR)
                          (CFS)
+    137.     12.13                       11.         3.          3.          3.
                        (INCHES)         2.466       2.726       2.726       2.726
                          (AC-FT)           5.          6.          6.          6.

                          CUMULATIVE AREA =    0.04 SQ MI

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

          **************
```

```
          *          *
46 KK     *     DA07 *
          *          *
          **************

          SUBBASIN RUNOFF DATA

47 BA          SUBBASIN CHARACTERISTICS
                    TAREA        0.02  SUBBASIN AREA

               PRECIPITATION DATA

 8 PH                                  DEPTHS FOR   2-PERCENT HYPOTHETICAL STORM
               ..... HYDRO-35 .....   ............. TP-40 .............   ........... TP-49 ...........
               5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                0.67   1.32    2.31    2.54    2.68    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                  STORM AREA =     0.02

48 LS          SCS LOSS RATE
                    STRTL        0.46  INITIAL ABSTRACTION
                   CRVNBR       81.30  CURVE NUMBER
                    RTIMP        0.00  PERCENT IMPERVIOUS AREA

49 UD          SCS DIMENSIONLESS UNITGRAPH
                    TLAG        0.10  LAG

                                                       ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667         0.01667        24.00000

                                                  UNIT HYDROGRAPH
                                              32 END-OF-PERIOD ORDINATES
                    6.      18.      37.      62.      81.      90.      90.      82.      72.      57.
                   42.      33.      25.      20.      16.      12.       9.       7.       6.       4.
                    3.       3.       2.       2.       1.       1.       1.       1.       0.       0.
                    0.       0.

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

                         HYDROGRAPH AT STATION     DA07

     TOTAL RAINFALL =    3.52, TOTAL LOSS =    1.77, TOTAL EXCESS =    1.75

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR        72-HR      23.98-HR
+   (CFS)       (HR)
                          (CFS)
+      46.      12.12                       4.           1.           1.           1.
                          (INCHES)       1.610        1.745        1.745        1.745
                          (AC-FT)           2.           2.           2.           2.

                         CUMULATIVE AREA =    0.02 SQ MI
```

*** ***

```
          **************
          *            *
 50 KK    *     ADD07  *
          *            *
          **************

 51 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                      HYDROGRAPH AT STATION    ADD07

  PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                        (CFS)
+     182.     12.13                14.          4.          4.          4.
                       (INCHES)    2.175       2.403       2.403       2.403
                       (AC-FT)        7.          8.          8.          8.

                      CUMULATIVE AREA =    0.06 SQ MI


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


          **************
          *            *
 52 KK    *     RTE07  *
          *            *
          **************

             HYDROGRAPH ROUTING DATA

 53 RD          MUSKINGUM-CUNGE CHANNEL ROUTING
                          L        605.  CHANNEL LENGTH
                          S      0.0022  SLOPE
                          N       0.012  CHANNEL ROUGHNESS COEFFICIENT
                         CA        0.00  CONTRIBUTING AREA
                      SHAPE        CIRC  CHANNEL SHAPE
                         WD        5.00  BOTTOM WIDTH OR DIAMETER
                          Z        0.00  SIDE SLOPE

                                                    ***

                          COMPUTED MUSKINGUM-CUNGE PARAMETERS
                                  COMPUTATION TIME STEP
                ELEMENT    ALPHA       M         DT         DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                              PEAK                  CELERITY
                                                   (MIN)      (FT)     (CFS)    (MIN)       (IN)      (FPS)

                  MAIN       4.11      1.25       1.00     605.00    176.95   729.00       2.40      9.54

                                INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL
```

MAIN	4.11	1.25	1.00	176.95	729.00	2.40

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7894E+01 EXCESS=0.0000E+00 OUTFLOW=0.7872E+01 BASIN STORAGE=0.3163E-02 PERCENT ERROR= 0.2

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

HYDROGRAPH AT STATION RTE07

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 177.	12.15		14.	4.	4.	4.
		(INCHES)	2.169	2.396	2.396	2.396
		(AC-FT)	7.	8.	8.	8.

CUMULATIVE AREA = 0.06 SQ MI

*** ***

```
              **************
              *            *
54 KK         *     DA08   *
              *            *
              **************
```

SUBBASIN RUNOFF DATA

55 BA SUBBASIN CHARACTERISTICS

TAREA 0.01 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			.... TP-40					.... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.68	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.01

56 LS SCS LOSS RATE

STRTL 0.11 INITIAL ABSTRACTION

CRVNBR 94.80 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

57 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

2.	5.	10.	17.	22.	25.	25.	23.	20.	16.
12.	9.	7.	6.	4.	3.	3.	2.	2.	1.
1.	1.	1.	0.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA08

TOTAL RAINFALL = 3.52, TOTAL LOSS = 0.58, TOTAL EXCESS = 2.94

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	20.	12.10		2.	0.	0.	0.
			(INCHES)	2.643	2.935	2.935	2.935
			(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

58 KK

****
* *
* RTE08 *
* *
****

HYDROGRAPH ROUTING DATA

59 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	700.	CHANNEL LENGTH
S	0.0072	SLOPE
N	0.012	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	2.50	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS
COMPUTATION TIME STEP

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	6.62	1.25	1.00	350.00	20.40	727.00	2.93	9.03

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	6.62	1.25	1.00	899	20.40	727.00	2.93

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8767E+00 EXCESS=0.0000E+00 OUTFLOW=0.8762E+00 BASIN STORAGE=0.3875E-03 PERCENT ERROR= 0.0

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

HYDROGRAPH AT STATION RTE08

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 20.	12.12		2.	0.	0.	0.
		(INCHES)	2.642	2.934	2.934	2.934
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

```
               ***************
               *             *
60 KK          *    ADD08    *
               *             *
               ***************
```

61 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION ADD08

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 196.	12.15		16.	4.	4.	4.
		(INCHES)	2.207	2.441	2.441	2.441
		(AC-FT)	8.	9.	9.	9.

CUMULATIVE AREA = 0.07 SQ MI

*** ***

```
               ***************
               *             *
62 KK          *    DA09     *
```

900

```
*              *
**************

            SUBBASIN RUNOFF DATA

 63 BA          SUBBASIN CHARACTERISTICS
                      TAREA        0.03  SUBBASIN AREA

                PRECIPITATION DATA

  8 PH                                DEPTHS FOR   2-PERCENT HYPOTHETICAL STORM
                ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 0.67    1.32    2.31    2.54    2.68    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                STORM AREA =     0.03

 64 LS          SCS LOSS RATE
                      STRTL        0.48  INITIAL ABSTRACTION
                     CRVNBR       80.80  CURVE NUMBER
                      RTIMP        0.00  PERCENT IMPERVIOUS AREA

 65 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG        0.10  LAG

                                                ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667         0.01667        24.00000

                                                UNIT HYDROGRAPH
                                            32 END-OF-PERIOD ORDINATES
                    9.      25.      52.      87.     114.     126.     126.     115.     100.      80.
                   59.      46.      35.      28.      22.      17.      13.      10.       8.       6.
                    5.       4.       3.       2.       2.       1.       1.       1.       1.       0.
                    0.       0.

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

                        HYDROGRAPH AT STATION     DA09

     TOTAL RAINFALL =    3.52, TOTAL LOSS =     1.81, TOTAL EXCESS =     1.71

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                                6-HR        24-HR        72-HR      23.98-HR
+   (CFS)        (HR)
                          (CFS)
+      64.      12.12                            5.           1.           1.           1.
                          (INCHES)             1.576        1.708        1.708        1.708
                          (AC-FT)                2.           3.           3.           3.

                        CUMULATIVE AREA =     0.03 SQ MI


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


              **************
              *              *
```

```
66 KK     *     ADD09  *
          *            *
          ***************

67 HC          HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                    HYDROGRAPH AT STATION    ADD09

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                     (CFS)
+     257.      12.13                 21.         6.          6.          6.
                     (INCHES)       2.015       2.223       2.223       2.223
                     (AC-FT)          10.         11.         11.         11.

                    CUMULATIVE AREA =     0.10 SQ MI


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


          ***************
          *             *
68 KK     *      PUMP   *       96" STORAGE RCP'S
          *             *
          ***************
                               L=1070 FEET     200 CFS STATION

80 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          1  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

70 RS          STORAGE ROUTING
                    NSTPS          1  NUMBER OF SUBREACHES
                     ITYP       ELEV  TYPE OF INITIAL CONDITION
                    RSVRIC     1132.00  INITIAL CONDITION
                        X         0.00 WORKING R AND D COEFFICIENT

71 SV            STORAGE         0.0        0.2        0.6        1.0        1.2

72 SE          ELEVATION     1132.00    1134.00    1136.00    1138.00    1140.00

73 SQ          DISCHARGE          0.         0.         0.         0.         0.

75 WP          PUMPING DATA

                 PUMP ON    PUMPING    PUMP OFF
                 ELEVATION    RATE     ELEVATION
```

1134.0	40.	1133.0
1135.0	40.	1134.0
1136.0	40.	1135.0
1136.0	40.	1133.0
1136.0	40.	1132.0

ISTAD PUMP PUMP FLOW HYDROGRAPH IDENTIFICATION

***

HYDROGRAPH AT STATION PUMP

DA	MON	HRMN	ORD	PUMP Q	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	PUMP Q	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	0.	0.0	1132.0	1		1200	721	80.	0.	0.5	1135.1
1		0001	2	0.	0.	0.0	1132.0	1		1201	722	80.	0.	0.5	1135.3
1		0002	3	0.	0.	0.0	1132.0	1		1202	723	80.	0.	0.6	1135.7
1		0003	4	0.	0.	0.0	1132.0	1		1203	724	80.	0.	0.7	1136.2
1		0004	5	0.	0.	0.0	1132.0	1		1204	725	200.	0.	0.6	1136.1
1		0005	6	0.	0.	0.0	1132.0	1		1205	726	200.	0.	0.6	1136.1
1		0006	7	0.	0.	0.0	1132.0	1		1206	727	200.	0.	0.7	1136.3
1		0007	8	0.	0.	0.0	1132.0	1		1207	728	200.	0.	0.7	1136.6
1		0008	9	0.	0.	0.0	1132.0	1		1208	729	200.	0.	0.8	1137.0
1		0009	10	0.	0.	0.0	1132.0	1		1209	730	200.	0.	0.9	1137.5
1		0010	11	0.	0.	0.0	1132.0	1		1210	731	200.	0.	1.0	1137.9
1		0011	12	0.	0.	0.0	1132.0	1		1211	732	200.	0.	1.0	1138.3
1		0012	13	0.	0.	0.0	1132.0	1		1212	733	200.	0.	1.1	1138.6
1		0013	14	0.	0.	0.0	1132.0	1		1213	734	200.	0.	1.1	1138.8
1		0014	15	0.	0.	0.0	1132.0	1		1214	735	200.	0.	1.1	1138.8
1		0015	16	0.	0.	0.0	1132.0	1		1215	736	200.	0.	1.1	1138.6
1		0016	17	0.	0.	0.0	1132.0	1		1216	737	200.	0.	1.0	1138.3
1		0017	18	0.	0.	0.0	1132.0	1		1217	738	200.	0.	1.0	1137.9
1		0018	19	0.	0.	0.0	1132.0	1		1218	739	200.	0.	0.9	1137.4
1		0019	20	0.	0.	0.0	1132.0	1		1219	740	200.	0.	0.8	1136.9
1		0020	21	0.	0.	0.0	1132.0	1		1220	741	200.	0.	0.7	1136.4
1		0021	22	0.	0.	0.0	1132.0	1		1221	742	200.	0.	0.6	1135.7
1		0022	23	0.	0.	0.0	1132.0	1		1222	743	200.	0.	0.4	1135.0
1		0023	24	0.	0.	0.0	1132.0	1		1223	744	200.	0.	0.3	1134.3
1		0024	25	0.	0.	0.0	1132.0	1		1224	745	160.	0.	0.2	1133.6
1		0025	26	0.	0.	0.0	1132.0	1		1225	746	120.	0.	0.1	1133.2
1		0026	27	0.	0.	0.0	1132.0	1		1226	747	120.	0.	0.1	1132.7
1		0027	28	0.	0.	0.0	1132.0	1		1227	748	40.	0.	0.1	1133.1
1		0028	29	0.	0.	0.0	1132.0	1		1228	749	40.	0.	0.2	1133.4
1		0029	30	0.	0.	0.0	1132.0	1		1229	750	40.	0.	0.2	1133.7
1		0030	31	0.	0.	0.0	1132.0	1		1230	751	40.	0.	0.2	1133.9
1		0031	32	0.	0.	0.0	1132.0	1		1231	752	40.	0.	0.3	1134.1
1		0032	33	0.	0.	0.0	1132.0	1		1232	753	80.	0.	0.2	1133.9
1		0033	34	0.	0.	0.0	1132.0	1		1233	754	80.	0.	0.2	1133.6
1		0034	35	0.	0.	0.0	1132.0	1		1234	755	80.	0.	0.2	1133.3
1		0035	36	0.	0.	0.0	1132.0	1		1235	756	80.	0.	0.1	1132.9
1		0036	37	0.	0.	0.0	1132.0	1		1236	757	40.	0.	0.1	1132.9
1		0037	38	0.	0.	0.0	1132.0	1		1237	758	40.	0.	0.1	1132.9
1		0038	39	0.	0.	0.0	1132.0	1		1238	759	40.	0.	0.1	1132.9
1		0039	40	0.	0.	0.0	1132.0	1		1239	760	40.	0.	0.1	1132.8
1		0040	41	0.	0.	0.0	1132.0	1		1240	761	40.	0.	0.1	1132.7
1		0041	42	0.	0.	0.0	1132.0	1		1241	762	40.	0.	0.1	1132.5

1	0042	43	0.	0.	0.0	1132.0	*	1	1242	763	40.	0.	0.0	1132.4
1	0043	44	0.	0.	0.0	1132.0	*	1	1243	764	40.	0.	0.0	1132.2
1	0044	45	0.	0.	0.0	1132.0	*	1	1244	765	40.	0.	0.0	1132.0
1	0045	46	0.	0.	0.0	1132.0	*	1	1245	766	0.	0.	0.0	1132.0
1	0046	47	0.	0.	0.0	1132.0	*	1	1246	767	0.	0.	0.0	1132.2
1	0047	48	0.	0.	0.0	1132.0	*	1	1247	768	0.	0.	0.0	1132.4
1	0048	49	0.	0.	0.0	1132.0	*	1	1248	769	0.	0.	0.1	1132.6
1	0049	50	0.	0.	0.0	1132.0	*	1	1249	770	0.	0.	0.1	1132.8
1	0050	51	0.	0.	0.0	1132.0	*	1	1250	771	0.	0.	0.1	1132.9
1	0051	52	0.	0.	0.0	1132.0	*	1	1251	772	0.	0.	0.1	1133.1
1	0052	53	0.	0.	0.0	1132.0	*	1	1252	773	0.	0.	0.1	1133.2
1	0053	54	0.	0.	0.0	1132.0	*	1	1253	774	0.	0.	0.2	1133.4
1	0054	55	0.	0.	0.0	1132.0	*	1	1254	775	0.	0.	0.2	1133.5
1	0055	56	0.	0.	0.0	1132.0	*	1	1255	776	0.	0.	0.2	1133.7
1	0056	57	0.	0.	0.0	1132.0	*	1	1256	777	0.	0.	0.2	1133.8
1	0057	58	0.	0.	0.0	1132.0	*	1	1257	778	0.	0.	0.2	1133.9
1	0058	59	0.	0.	0.0	1132.0	*	1	1258	779	0.	0.	0.2	1134.0
1	0059	60	0.	0.	0.0	1132.0	*	1	1259	780	40.	0.	0.2	1133.7
1	0100	61	0.	0.	0.0	1132.0	*	1	1300	781	40.	0.	0.2	1133.4
1	0101	62	0.	0.	0.0	1132.0	*	1	1301	782	40.	0.	0.1	1133.1
1	0102	63	0.	0.	0.0	1132.0	*	1	1302	783	40.	0.	0.1	1132.7
1	0103	64	0.	0.	0.0	1132.0	*	1	1303	784	0.	0.	0.1	1132.8
1	0104	65	0.	0.	0.0	1132.0	*	1	1304	785	0.	0.	0.1	1133.0
1	0105	66	0.	0.	0.0	1132.0	*	1	1305	786	0.	0.	0.1	1133.1
1	0106	67	0.	0.	0.0	1132.0	*	1	1306	787	0.	0.	0.1	1133.2
1	0107	68	0.	0.	0.0	1132.0	*	1	1307	788	0.	0.	0.2	1133.3
1	0108	69	0.	0.	0.0	1132.0	*	1	1308	789	0.	0.	0.2	1133.4
1	0109	70	0.	0.	0.0	1132.0	*	1	1309	790	0.	0.	0.2	1133.5
1	0110	71	0.	0.	0.0	1132.0	*	1	1310	791	0.	0.	0.2	1133.6
1	0111	72	0.	0.	0.0	1132.0	*	1	1311	792	0.	0.	0.2	1133.7
1	0112	73	0.	0.	0.0	1132.0	*	1	1312	793	0.	0.	0.2	1133.8
1	0113	74	0.	0.	0.0	1132.0	*	1	1313	794	0.	0.	0.2	1133.9
1	0114	75	0.	0.	0.0	1132.0	*	1	1314	795	0.	0.	0.2	1134.0
1	0115	76	0.	0.	0.0	1132.0	*	1	1315	796	40.	0.	0.2	1133.7
1	0116	77	0.	0.	0.0	1132.0	*	1	1316	797	40.	0.	0.2	1133.3
1	0117	78	0.	0.	0.0	1132.0	*	1	1317	798	40.	0.	0.1	1132.9
1	0118	79	0.	0.	0.0	1132.0	*	1	1318	799	0.	0.	0.1	1133.0
1	0119	80	0.	0.	0.0	1132.0	*	1	1319	800	0.	0.	0.1	1133.1
1	0120	81	0.	0.	0.0	1132.0	*	1	1320	801	0.	0.	0.1	1133.2
1	0121	82	0.	0.	0.0	1132.0	*	1	1321	802	0.	0.	0.2	1133.3
1	0122	83	0.	0.	0.0	1132.0	*	1	1322	803	0.	0.	0.2	1133.4
1	0123	84	0.	0.	0.0	1132.0	*	1	1323	804	0.	0.	0.2	1133.5
1	0124	85	0.	0.	0.0	1132.0	*	1	1324	805	0.	0.	0.2	1133.6
1	0125	86	0.	0.	0.0	1132.0	*	1	1325	806	0.	0.	0.2	1133.6
1	0126	87	0.	0.	0.0	1132.0	*	1	1326	807	0.	0.	0.2	1133.7
1	0127	88	0.	0.	0.0	1132.0	*	1	1327	808	0.	0.	0.2	1133.8
1	0128	89	0.	0.	0.0	1132.0	*	1	1328	809	0.	0.	0.2	1133.9
1	0129	90	0.	0.	0.0	1132.0	*	1	1329	810	0.	0.	0.2	1134.0
1	0130	91	0.	0.	0.0	1132.0	*	1	1330	811	0.	0.	0.2	1134.0
1	0131	92	0.	0.	0.0	1132.0	*	1	1331	812	40.	0.	0.2	1133.7
1	0132	93	0.	0.	0.0	1132.0	*	1	1332	813	40.	0.	0.2	1133.3
1	0133	94	0.	0.	0.0	1132.0	*	1	1333	814	40.	0.	0.1	1132.9
1	0134	95	0.	0.	0.0	1132.0	*	1	1334	815	0.	0.	0.1	1133.0
1	0135	96	0.	0.	0.0	1132.0	*	1	1335	816	0.	0.	0.1	1133.0
1	0136	97	0.	0.	0.0	1132.0	*	1	1336	817	0.	0.	0.1	1133.1
1	0137	98	0.	0.	0.0	1132.0	*	1	1337	818	0.	0.	0.1	1133.2
1	0138	99	0.	0.	0.0	1132.0	*	1	1338	819	0.	0.	0.2	1133.3
1	0139	100	0.	0.	0.0	1132.0	*	1	1339	820	0.	0.	0.2	1133.4
1	0140	101	0.	0.	0.0	1132.0	*	1	1340	821	0.	0.	0.2	1133.4
1	0141	102	0.	0.	0.0	1132.0	*904	1	1341	822	0.	0.	0.2	1133.5

1	0142	103	0.	0.	0.0	1132.0	*	1	1342	823	0.	0.	0.2	1133.6
1	0143	104	0.	0.	0.0	1132.0	*	1	1343	824	0.	0.	0.2	1133.7
1	0144	105	0.	0.	0.0	1132.0	*	1	1344	825	0.	0.	0.2	1133.7
1	0145	106	0.	0.	0.0	1132.0	*	1	1345	826	0.	0.	0.2	1133.8
1	0146	107	0.	0.	0.0	1132.0	*	1	1346	827	0.	0.	0.2	1133.9
1	0147	108	0.	0.	0.0	1132.0	*	1	1347	828	0.	0.	0.2	1134.0
1	0148	109	0.	0.	0.0	1132.0	*	1	1348	829	0.	0.	0.2	1134.0
1	0149	110	0.	0.	0.0	1132.0	*	1	1349	830	40.	0.	0.2	1133.6
1	0150	111	0.	0.	0.0	1132.0	*	1	1350	831	40.	0.	0.2	1133.3
1	0151	112	0.	0.	0.0	1132.0	*	1	1351	832	40.	0.	0.1	1132.9
1	0152	113	0.	0.	0.0	1132.0	*	1	1352	833	0.	0.	0.1	1133.0
1	0153	114	0.	0.	0.0	1132.0	*	1	1353	834	0.	0.	0.1	1133.0
1	0154	115	0.	0.	0.0	1132.0	*	1	1354	835	0.	0.	0.1	1133.1
1	0155	116	0.	0.	0.0	1132.0	*	1	1355	836	0.	0.	0.1	1133.2
1	0156	117	0.	0.	0.0	1132.0	*	1	1356	837	0.	0.	0.1	1133.2
1	0157	118	0.	0.	0.0	1132.0	*	1	1357	838	0.	0.	0.2	1133.3
1	0158	119	0.	0.	0.0	1132.0	*	1	1358	839	0.	0.	0.2	1133.4
1	0159	120	0.	0.	0.0	1132.0	*	1	1359	840	0.	0.	0.2	1133.4
1	0200	121	0.	0.	0.0	1132.0	*	1	1400	841	0.	0.	0.2	1133.5
1	0201	122	0.	0.	0.0	1132.0	*	1	1401	842	0.	0.	0.2	1133.6
1	0202	123	0.	0.	0.0	1132.0	*	1	1402	843	0.	0.	0.2	1133.6
1	0203	124	0.	0.	0.0	1132.0	*	1	1403	844	0.	0.	0.2	1133.7
1	0204	125	0.	0.	0.0	1132.0	*	1	1404	845	0.	0.	0.2	1133.8
1	0205	126	0.	0.	0.0	1132.0	*	1	1405	846	0.	0.	0.2	1133.8
1	0206	127	0.	0.	0.0	1132.0	*	1	1406	847	0.	0.	0.2	1133.9
1	0207	128	0.	0.	0.0	1132.0	*	1	1407	848	0.	0.	0.2	1134.0
1	0208	129	0.	0.	0.0	1132.0	*	1	1408	849	0.	0.	0.2	1134.0
1	0209	130	0.	0.	0.0	1132.0	*	1	1409	850	40.	0.	0.2	1133.6
1	0210	131	0.	0.	0.0	1132.0	*	1	1410	851	40.	0.	0.1	1133.2
1	0211	132	0.	0.	0.0	1132.0	*	1	1411	852	40.	0.	0.1	1132.8
1	0212	133	0.	0.	0.0	1132.0	*	1	1412	853	0.	0.	0.1	1132.9
1	0213	134	0.	0.	0.0	1132.0	*	1	1413	854	0.	0.	0.1	1133.0
1	0214	135	0.	0.	0.0	1132.0	*	1	1414	855	0.	0.	0.1	1133.0
1	0215	136	0.	0.	0.0	1132.0	*	1	1415	856	0.	0.	0.1	1133.1
1	0216	137	0.	0.	0.0	1132.0	*	1	1416	857	0.	0.	0.1	1133.2
1	0217	138	0.	0.	0.0	1132.0	*	1	1417	858	0.	0.	0.1	1133.2
1	0218	139	0.	0.	0.0	1132.0	*	1	1418	859	0.	0.	0.2	1133.3
1	0219	140	0.	0.	0.0	1132.0	*	1	1419	860	0.	0.	0.2	1133.3
1	0220	141	0.	0.	0.0	1132.0	*	1	1420	861	0.	0.	0.2	1133.4
1	0221	142	0.	0.	0.0	1132.0	*	1	1421	862	0.	0.	0.2	1133.5
1	0222	143	0.	0.	0.0	1132.0	*	1	1422	863	0.	0.	0.2	1133.5
1	0223	144	0.	0.	0.0	1132.0	*	1	1423	864	0.	0.	0.2	1133.6
1	0224	145	0.	0.	0.0	1132.0	*	1	1424	865	0.	0.	0.2	1133.6
1	0225	146	0.	0.	0.0	1132.0	*	1	1425	866	0.	0.	0.2	1133.7
1	0226	147	0.	0.	0.0	1132.0	*	1	1426	867	0.	0.	0.2	1133.7
1	0227	148	0.	0.	0.0	1132.0	*	1	1427	868	0.	0.	0.2	1133.8
1	0228	149	0.	0.	0.0	1132.0	*	1	1428	869	0.	0.	0.2	1133.8
1	0229	150	0.	0.	0.0	1132.0	*	1	1429	870	0.	0.	0.2	1133.9
1	0230	151	0.	0.	0.0	1132.0	*	1	1430	871	0.	0.	0.2	1134.0
1	0231	152	0.	0.	0.0	1132.0	*	1	1431	872	0.	0.	0.2	1134.0
1	0232	153	0.	0.	0.0	1132.0	*	1	1432	873	40.	0.	0.2	1133.6
1	0233	154	0.	0.	0.0	1132.0	*	1	1433	874	40.	0.	0.1	1133.2
1	0234	155	0.	0.	0.0	1132.0	*	1	1434	875	40.	0.	0.1	1132.8
1	0235	156	0.	0.	0.0	1132.0	*	1	1435	876	0.	0.	0.1	1132.8
1	0236	157	0.	0.	0.0	1132.0	*	1	1436	877	0.	0.	0.1	1132.9
1	0237	158	0.	0.	0.0	1132.0	*	1	1437	878	0.	0.	0.1	1133.0
1	0238	159	0.	0.	0.0	1132.0	*	1	1438	879	0.	0.	0.1	1133.0
1	0239	160	0.	0.	0.0	1132.0	*	1	1439	880	0.	0.	0.1	1133.1
1	0240	161	0.	0.	0.0	1132.0	*	1	1440	881	0.	0.	0.1	1133.1
1	0241	162	0.	0.	0.0	1132.0	*	1	1441	882	0.	0.	0.1	1133.2

1	0242	163	0.	0.	0.0	1132.0	*	1	1442	883	0.	0.	0.1	1133.2
1	0243	164	0.	0.	0.0	1132.0	*	1	1443	884	0.	0.	0.2	1133.3
1	0244	165	0.	0.	0.0	1132.0	*	1	1444	885	0.	0.	0.2	1133.3
1	0245	166	0.	0.	0.0	1132.0	*	1	1445	886	0.	0.	0.2	1133.4
1	0246	167	0.	0.	0.0	1132.0	*	1	1446	887	0.	0.	0.2	1133.4
1	0247	168	0.	0.	0.0	1132.0	*	1	1447	888	0.	0.	0.2	1133.5
1	0248	169	0.	0.	0.0	1132.0	*	1	1448	889	0.	0.	0.2	1133.5
1	0249	170	0.	0.	0.0	1132.0	*	1	1449	890	0.	0.	0.2	1133.6
1	0250	171	0.	0.	0.0	1132.0	*	1	1450	891	0.	0.	0.2	1133.6
1	0251	172	0.	0.	0.0	1132.0	*	1	1451	892	0.	0.	0.2	1133.7
1	0252	173	0.	0.	0.0	1132.0	*	1	1452	893	0.	0.	0.2	1133.7
1	0253	174	0.	0.	0.0	1132.0	*	1	1453	894	0.	0.	0.2	1133.8
1	0254	175	0.	0.	0.0	1132.0	*	1	1454	895	0.	0.	0.2	1133.8
1	0255	176	0.	0.	0.0	1132.0	*	1	1455	896	0.	0.	0.2	1133.9
1	0256	177	0.	0.	0.0	1132.0	*	1	1456	897	0.	0.	0.2	1133.9
1	0257	178	0.	0.	0.0	1132.0	*	1	1457	898	0.	0.	0.2	1133.9
1	0258	179	0.	0.	0.0	1132.0	*	1	1458	899	0.	0.	0.2	1134.0
1	0259	180	0.	0.	0.0	1132.0	*	1	1459	900	0.	0.	0.2	1134.0
1	0300	181	0.	0.	0.0	1132.0	*	1	1500	901	40.	0.	0.2	1133.6
1	0301	182	0.	0.	0.0	1132.0	*	1	1501	902	40.	0.	0.1	1133.2
1	0302	183	0.	0.	0.0	1132.0	*	1	1502	903	40.	0.	0.1	1132.8
1	0303	184	0.	0.	0.0	1132.0	*	1	1503	904	0.	0.	0.1	1132.8
1	0304	185	0.	0.	0.0	1132.0	*	1	1504	905	0.	0.	0.1	1132.9
1	0305	186	0.	0.	0.0	1132.0	*	1	1505	906	0.	0.	0.1	1132.9
1	0306	187	0.	0.	0.0	1132.0	*	1	1506	907	0.	0.	0.1	1133.0
1	0307	188	0.	0.	0.0	1132.0	*	1	1507	908	0.	0.	0.1	1133.0
1	0308	189	0.	0.	0.0	1132.0	*	1	1508	909	0.	0.	0.1	1133.1
1	0309	190	0.	0.	0.0	1132.0	*	1	1509	910	0.	0.	0.1	1133.1
1	0310	191	0.	0.	0.0	1132.0	*	1	1510	911	0.	0.	0.1	1133.2
1	0311	192	0.	0.	0.0	1132.0	*	1	1511	912	0.	0.	0.1	1133.2
1	0312	193	0.	0.	0.0	1132.0	*	1	1512	913	0.	0.	0.1	1133.2
1	0313	194	0.	0.	0.0	1132.0	*	1	1513	914	0.	0.	0.2	1133.3
1	0314	195	0.	0.	0.0	1132.0	*	1	1514	915	0.	0.	0.2	1133.3
1	0315	196	0.	0.	0.0	1132.0	*	1	1515	916	0.	0.	0.2	1133.3
1	0316	197	0.	0.	0.0	1132.0	*	1	1516	917	0.	0.	0.2	1133.4
1	0317	198	0.	0.	0.0	1132.0	*	1	1517	918	0.	0.	0.2	1133.4
1	0318	199	0.	0.	0.0	1132.0	*	1	1518	919	0.	0.	0.2	1133.5
1	0319	200	0.	0.	0.0	1132.0	*	1	1519	920	0.	0.	0.2	1133.5
1	0320	201	0.	0.	0.0	1132.0	*	1	1520	921	0.	0.	0.2	1133.5
1	0321	202	0.	0.	0.0	1132.0	*	1	1521	922	0.	0.	0.2	1133.6
1	0322	203	0.	0.	0.0	1132.0	*	1	1522	923	0.	0.	0.2	1133.6
1	0323	204	0.	0.	0.0	1132.0	*	1	1523	924	0.	0.	0.2	1133.6
1	0324	205	0.	0.	0.0	1132.0	*	1	1524	925	0.	0.	0.2	1133.7
1	0325	206	0.	0.	0.0	1132.0	*	1	1525	926	0.	0.	0.2	1133.7
1	0326	207	0.	0.	0.0	1132.0	*	1	1526	927	0.	0.	0.2	1133.7
1	0327	208	0.	0.	0.0	1132.0	*	1	1527	928	0.	0.	0.2	1133.8
1	0328	209	0.	0.	0.0	1132.0	*	1	1528	929	0.	0.	0.2	1133.8
1	0329	210	0.	0.	0.0	1132.0	*	1	1529	930	0.	0.	0.2	1133.8
1	0330	211	0.	0.	0.0	1132.0	*	1	1530	931	0.	0.	0.2	1133.9
1	0331	212	0.	0.	0.0	1132.0	*	1	1531	932	0.	0.	0.2	1133.9
1	0332	213	0.	0.	0.0	1132.0	*	1	1532	933	0.	0.	0.2	1133.9
1	0333	214	0.	0.	0.0	1132.0	*	1	1533	934	0.	0.	0.2	1134.0
1	0334	215	0.	0.	0.0	1132.0	*	1	1534	935	0.	0.	0.2	1134.0
1	0335	216	0.	0.	0.0	1132.0	*	1	1535	936	0.	0.	0.2	1134.0
1	0336	217	0.	0.	0.0	1132.0	*	1	1536	937	40.	0.	0.2	1133.6
1	0337	218	0.	0.	0.0	1132.0	*	1	1537	938	40.	0.	0.1	1133.2
1	0338	219	0.	0.	0.0	1132.0	*	1	1538	939	40.	0.	0.1	1132.8
1	0339	220	0.	0.	0.0	1132.0	*	1	1539	940	0.	0.	0.1	1132.8
1	0340	221	0.	0.	0.0	1132.0	*	1	1540	941	0.	0.	0.1	1132.8
1	0341	222	0.	0.	0.0	1132.0	* 906	1	1541	942	0.	0.	0.1	1132.9

1	0342	223	0.	0.	0.0	1132.0	*	1	1542	943	0.	0.	0.1	1132.9
1	0343	224	0.	0.	0.0	1132.0	*	1	1543	944	0.	0.	0.1	1132.9
1	0344	225	0.	0.	0.0	1132.0	*	1	1544	945	0.	0.	0.1	1133.0
1	0345	226	0.	0.	0.0	1132.0	*	1	1545	946	0.	0.	0.1	1133.0
1	0346	227	0.	0.	0.0	1132.0	*	1	1546	947	0.	0.	0.1	1133.0
1	0347	228	0.	0.	0.0	1132.0	*	1	1547	948	0.	0.	0.1	1133.0
1	0348	229	0.	0.	0.0	1132.0	*	1	1548	949	0.	0.	0.1	1133.1
1	0349	230	0.	0.	0.0	1132.0	*	1	1549	950	0.	0.	0.1	1133.1
1	0350	231	0.	0.	0.0	1132.0	*	1	1550	951	0.	0.	0.1	1133.1
1	0351	232	0.	0.	0.0	1132.0	*	1	1551	952	0.	0.	0.1	1133.2
1	0352	233	0.	0.	0.0	1132.0	*	1	1552	953	0.	0.	0.1	1133.2
1	0353	234	0.	0.	0.0	1132.0	*	1	1553	954	0.	0.	0.1	1133.2
1	0354	235	0.	0.	0.0	1132.0	*	1	1554	955	0.	0.	0.2	1133.3
1	0355	236	0.	0.	0.0	1132.0	*	1	1555	956	0.	0.	0.2	1133.3
1	0356	237	0.	0.	0.0	1132.0	*	1	1556	957	0.	0.	0.2	1133.3
1	0357	238	0.	0.	0.0	1132.0	*	1	1557	958	0.	0.	0.2	1133.4
1	0358	239	0.	0.	0.0	1132.0	*	1	1558	959	0.	0.	0.2	1133.4
1	0359	240	0.	0.	0.0	1132.0	*	1	1559	960	0.	0.	0.2	1133.4
1	0400	241	0.	0.	0.0	1132.0	*	1	1600	961	0.	0.	0.2	1133.5
1	0401	242	0.	0.	0.0	1132.0	*	1	1601	962	0.	0.	0.2	1133.5
1	0402	243	0.	0.	0.0	1132.0	*	1	1602	963	0.	0.	0.2	1133.5
1	0403	244	0.	0.	0.0	1132.0	*	1	1603	964	0.	0.	0.2	1133.6
1	0404	245	0.	0.	0.0	1132.0	*	1	1604	965	0.	0.	0.2	1133.6
1	0405	246	0.	0.	0.0	1132.0	*	1	1605	966	0.	0.	0.2	1133.6
1	0406	247	0.	0.	0.0	1132.0	*	1	1606	967	0.	0.	0.2	1133.6
1	0407	248	0.	0.	0.0	1132.0	*	1	1607	968	0.	0.	0.2	1133.7
1	0408	249	0.	0.	0.0	1132.0	*	1	1608	969	0.	0.	0.2	1133.7
1	0409	250	0.	0.	0.0	1132.0	*	1	1609	970	0.	0.	0.2	1133.7
1	0410	251	0.	0.	0.0	1132.0	*	1	1610	971	0.	0.	0.2	1133.7
1	0411	252	0.	0.	0.0	1132.0	*	1	1611	972	0.	0.	0.2	1133.8
1	0412	253	0.	0.	0.0	1132.0	*	1	1612	973	0.	0.	0.2	1133.8
1	0413	254	0.	0.	0.0	1132.0	*	1	1613	974	0.	0.	0.2	1133.8
1	0414	255	0.	0.	0.0	1132.0	*	1	1614	975	0.	0.	0.2	1133.9
1	0415	256	0.	0.	0.0	1132.0	*	1	1615	976	0.	0.	0.2	1133.9
1	0416	257	0.	0.	0.0	1132.0	*	1	1616	977	0.	0.	0.2	1133.9
1	0417	258	0.	0.	0.0	1132.0	*	1	1617	978	0.	0.	0.2	1133.9
1	0418	259	0.	0.	0.0	1132.0	*	1	1618	979	0.	0.	0.2	1134.0
1	0419	260	0.	0.	0.0	1132.0	*	1	1619	980	0.	0.	0.2	1134.0
1	0420	261	0.	0.	0.0	1132.0	*	1	1620	981	0.	0.	0.2	1134.0
1	0421	262	0.	0.	0.0	1132.0	*	1	1621	982	40.	0.	0.2	1133.6
1	0422	263	0.	0.	0.0	1132.0	*	1	1622	983	40.	0.	0.1	1133.1
1	0423	264	0.	0.	0.0	1132.0	*	1	1623	984	40.	0.	0.1	1132.7
1	0424	265	0.	0.	0.0	1132.0	*	1	1624	985	0.	0.	0.1	1132.7
1	0425	266	0.	0.	0.0	1132.0	*	1	1625	986	0.	0.	0.1	1132.8
1	0426	267	0.	0.	0.0	1132.0	*	1	1626	987	0.	0.	0.1	1132.8
1	0427	268	0.	0.	0.0	1132.0	*	1	1627	988	0.	0.	0.1	1132.8
1	0428	269	0.	0.	0.0	1132.0	*	1	1628	989	0.	0.	0.1	1132.9
1	0429	270	0.	0.	0.0	1132.0	*	1	1629	990	0.	0.	0.1	1132.9
1	0430	271	0.	0.	0.0	1132.0	*	1	1630	991	0.	0.	0.1	1132.9
1	0431	272	0.	0.	0.0	1132.0	*	1	1631	992	0.	0.	0.1	1132.9
1	0432	273	0.	0.	0.0	1132.0	*	1	1632	993	0.	0.	0.1	1133.0
1	0433	274	0.	0.	0.0	1132.0	*	1	1633	994	0.	0.	0.1	1133.0
1	0434	275	0.	0.	0.0	1132.0	*	1	1634	995	0.	0.	0.1	1133.0
1	0435	276	0.	0.	0.0	1132.0	*	1	1635	996	0.	0.	0.1	1133.1
1	0436	277	0.	0.	0.0	1132.0	*	1	1636	997	0.	0.	0.1	1133.1
1	0437	278	0.	0.	0.0	1132.0	*	1	1637	998	0.	0.	0.1	1133.1
1	0438	279	0.	0.	0.0	1132.0	*	1	1638	999	0.	0.	0.1	1133.1
1	0439	280	0.	0.	0.0	1132.0	*	1	1639	1000	0.	0.	0.1	1133.2
1	0440	281	0.	0.	0.0	1132.0	*	1	1640	1001	0.	0.	0.1	1133.2
1	0441	282	0.	0.	0.0	1132.0	*	1	1641	1002	0.	0.	0.1	1133.2

1	0442	283	0.	0.	0.0	1132.0	*	1	1642	1003	0.	0.	0.1	1133.2
1	0443	284	0.	0.	0.0	1132.0	*	1	1643	1004	0.	0.	0.2	1133.3
1	0444	285	0.	0.	0.0	1132.0	*	1	1644	1005	0.	0.	0.2	1133.3
1	0445	286	0.	0.	0.0	1132.0	*	1	1645	1006	0.	0.	0.2	1133.3
1	0446	287	0.	0.	0.0	1132.0	*	1	1646	1007	0.	0.	0.2	1133.3
1	0447	288	0.	0.	0.0	1132.0	*	1	1647	1008	0.	0.	0.2	1133.4
1	0448	289	0.	0.	0.0	1132.0	*	1	1648	1009	0.	0.	0.2	1133.4
1	0449	290	0.	0.	0.0	1132.0	*	1	1649	1010	0.	0.	0.2	1133.4
1	0450	291	0.	0.	0.0	1132.0	*	1	1650	1011	0.	0.	0.2	1133.5
1	0451	292	0.	0.	0.0	1132.0	*	1	1651	1012	0.	0.	0.2	1133.5
1	0452	293	0.	0.	0.0	1132.0	*	1	1652	1013	0.	0.	0.2	1133.5
1	0453	294	0.	0.	0.0	1132.0	*	1	1653	1014	0.	0.	0.2	1133.5
1	0454	295	0.	0.	0.0	1132.0	*	1	1654	1015	0.	0.	0.2	1133.6
1	0455	296	0.	0.	0.0	1132.0	*	1	1655	1016	0.	0.	0.2	1133.6
1	0456	297	0.	0.	0.0	1132.0	*	1	1656	1017	0.	0.	0.2	1133.6
1	0457	298	0.	0.	0.0	1132.0	*	1	1657	1018	0.	0.	0.2	1133.6
1	0458	299	0.	0.	0.0	1132.0	*	1	1658	1019	0.	0.	0.2	1133.6
1	0459	300	0.	0.	0.0	1132.0	*	1	1659	1020	0.	0.	0.2	1133.7
1	0500	301	0.	0.	0.0	1132.0	*	1	1700	1021	0.	0.	0.2	1133.7
1	0501	302	0.	0.	0.0	1132.0	*	1	1701	1022	0.	0.	0.2	1133.7
1	0502	303	0.	0.	0.0	1132.0	*	1	1702	1023	0.	0.	0.2	1133.7
1	0503	304	0.	0.	0.0	1132.0	*	1	1703	1024	0.	0.	0.2	1133.8
1	0504	305	0.	0.	0.0	1132.0	*	1	1704	1025	0.	0.	0.2	1133.8
1	0505	306	0.	0.	0.0	1132.0	*	1	1705	1026	0.	0.	0.2	1133.8
1	0506	307	0.	0.	0.0	1132.0	*	1	1706	1027	0.	0.	0.2	1133.8
1	0507	308	0.	0.	0.0	1132.0	*	1	1707	1028	0.	0.	0.2	1133.8
1	0508	309	0.	0.	0.0	1132.0	*	1	1708	1029	0.	0.	0.2	1133.9
1	0509	310	0.	0.	0.0	1132.0	*	1	1709	1030	0.	0.	0.2	1133.9
1	0510	311	0.	0.	0.0	1132.0	*	1	1710	1031	0.	0.	0.2	1133.9
1	0511	312	0.	0.	0.0	1132.0	*	1	1711	1032	0.	0.	0.2	1133.9
1	0512	313	0.	0.	0.0	1132.0	*	1	1712	1033	0.	0.	0.2	1134.0
1	0513	314	0.	0.	0.0	1132.0	*	1	1713	1034	0.	0.	0.2	1134.0
1	0514	315	0.	0.	0.0	1132.0	*	1	1714	1035	0.	0.	0.2	1134.0
1	0515	316	0.	0.	0.0	1132.0	*	1	1715	1036	0.	0.	0.2	1134.0
1	0516	317	0.	0.	0.0	1132.0	*	1	1716	1037	40.	0.	0.2	1133.6
1	0517	318	0.	0.	0.0	1132.0	*	1	1717	1038	40.	0.	0.1	1133.1
1	0518	319	0.	0.	0.0	1132.0	*	1	1718	1039	40.	0.	0.1	1132.7
1	0519	320	0.	0.	0.0	1132.0	*	1	1719	1040	0.	0.	0.1	1132.7
1	0520	321	0.	0.	0.0	1132.0	*	1	1720	1041	0.	0.	0.1	1132.8
1	0521	322	0.	0.	0.0	1132.0	*	1	1721	1042	0.	0.	0.1	1132.8
1	0522	323	0.	0.	0.0	1132.0	*	1	1722	1043	0.	0.	0.1	1132.8
1	0523	324	0.	0.	0.0	1132.0	*	1	1723	1044	0.	0.	0.1	1132.8
1	0524	325	0.	0.	0.0	1132.0	*	1	1724	1045	0.	0.	0.1	1132.9
1	0525	326	0.	0.	0.0	1132.0	*	1	1725	1046	0.	0.	0.1	1132.9
1	0526	327	0.	0.	0.0	1132.0	*	1	1726	1047	0.	0.	0.1	1132.9
1	0527	328	0.	0.	0.0	1132.0	*	1	1727	1048	0.	0.	0.1	1132.9
1	0528	329	0.	0.	0.0	1132.0	*	1	1728	1049	0.	0.	0.1	1132.9
1	0529	330	0.	0.	0.0	1132.0	*	1	1729	1050	0.	0.	0.1	1133.0
1	0530	331	0.	0.	0.0	1132.0	*	1	1730	1051	0.	0.	0.1	1133.0
1	0531	332	0.	0.	0.0	1132.0	*	1	1731	1052	0.	0.	0.1	1133.0
1	0532	333	0.	0.	0.0	1132.0	*	1	1732	1053	0.	0.	0.1	1133.0
1	0533	334	0.	0.	0.0	1132.0	*	1	1733	1054	0.	0.	0.1	1133.1
1	0534	335	0.	0.	0.0	1132.0	*	1	1734	1055	0.	0.	0.1	1133.1
1	0535	336	0.	0.	0.0	1132.0	*	1	1735	1056	0.	0.	0.1	1133.1
1	0536	337	0.	0.	0.0	1132.0	*	1	1736	1057	0.	0.	0.1	1133.1
1	0537	338	0.	0.	0.0	1132.0	*	1	1737	1058	0.	0.	0.1	1133.2
1	0538	339	0.	0.	0.0	1132.0	*	1	1738	1059	0.	0.	0.1	1133.2
1	0539	340	0.	0.	0.0	1132.0	*	1	1739	1060	0.	0.	0.1	1133.2
1	0540	341	0.	0.	0.0	1132.0	*	1	1740	1061	0.	0.	0.1	1133.2
1	0541	342	0.	0.	0.0	1132.0	*	1	1741	1062	0.	0.	0.1	1133.2

1	0542	343	0.	0.	0.0	1132.0	*	1	1742	1063	0.	0.	0.2	1133.3
1	0543	344	0.	0.	0.0	1132.0	*	1	1743	1064	0.	0.	0.2	1133.3
1	0544	345	0.	0.	0.0	1132.0	*	1	1744	1065	0.	0.	0.2	1133.3
1	0545	346	0.	0.	0.0	1132.0	*	1	1745	1066	0.	0.	0.2	1133.3
1	0546	347	0.	0.	0.0	1132.0	*	1	1746	1067	0.	0.	0.2	1133.4
1	0547	348	0.	0.	0.0	1132.0	*	1	1747	1068	0.	0.	0.2	1133.4
1	0548	349	0.	0.	0.0	1132.0	*	1	1748	1069	0.	0.	0.2	1133.4
1	0549	350	0.	0.	0.0	1132.0	*	1	1749	1070	0.	0.	0.2	1133.4
1	0550	351	0.	0.	0.0	1132.0	*	1	1750	1071	0.	0.	0.2	1133.4
1	0551	352	0.	0.	0.0	1132.0	*	1	1751	1072	0.	0.	0.2	1133.5
1	0552	353	0.	0.	0.0	1132.0	*	1	1752	1073	0.	0.	0.2	1133.5
1	0553	354	0.	0.	0.0	1132.0	*	1	1753	1074	0.	0.	0.2	1133.5
1	0554	355	0.	0.	0.0	1132.0	*	1	1754	1075	0.	0.	0.2	1133.5
1	0555	356	0.	0.	0.0	1132.0	*	1	1755	1076	0.	0.	0.2	1133.6
1	0556	357	0.	0.	0.0	1132.0	*	1	1756	1077	0.	0.	0.2	1133.6
1	0557	358	0.	0.	0.0	1132.0	*	1	1757	1078	0.	0.	0.2	1133.6
1	0558	359	0.	0.	0.0	1132.0	*	1	1758	1079	0.	0.	0.2	1133.6
1	0559	360	0.	0.	0.0	1132.0	*	1	1759	1080	0.	0.	0.2	1133.6
1	0600	361	0.	0.	0.0	1132.0	*	1	1800	1081	0.	0.	0.2	1133.7
1	0601	362	0.	0.	0.0	1132.0	*	1	1801	1082	0.	0.	0.2	1133.7
1	0602	363	0.	0.	0.0	1132.0	*	1	1802	1083	0.	0.	0.2	1133.7
1	0603	364	0.	0.	0.0	1132.0	*	1	1803	1084	0.	0.	0.2	1133.7
1	0604	365	0.	0.	0.0	1132.0	*	1	1804	1085	0.	0.	0.2	1133.7
1	0605	366	0.	0.	0.0	1132.0	*	1	1805	1086	0.	0.	0.2	1133.7
1	0606	367	0.	0.	0.0	1132.0	*	1	1806	1087	0.	0.	0.2	1133.8
1	0607	368	0.	0.	0.0	1132.0	*	1	1807	1088	0.	0.	0.2	1133.8
1	0608	369	0.	0.	0.0	1132.0	*	1	1808	1089	0.	0.	0.2	1133.8
1	0609	370	0.	0.	0.0	1132.0	*	1	1809	1090	0.	0.	0.2	1133.8
1	0610	371	0.	0.	0.0	1132.0	*	1	1810	1091	0.	0.	0.2	1133.8
1	0611	372	0.	0.	0.0	1132.0	*	1	1811	1092	0.	0.	0.2	1133.8
1	0612	373	0.	0.	0.0	1132.0	*	1	1812	1093	0.	0.	0.2	1133.8
1	0613	374	0.	0.	0.0	1132.0	*	1	1813	1094	0.	0.	0.2	1133.9
1	0614	375	0.	0.	0.0	1132.0	*	1	1814	1095	0.	0.	0.2	1133.9
1	0615	376	0.	0.	0.0	1132.0	*	1	1815	1096	0.	0.	0.2	1133.9
1	0616	377	0.	0.	0.0	1132.0	*	1	1816	1097	0.	0.	0.2	1133.9
1	0617	378	0.	0.	0.0	1132.0	*	1	1817	1098	0.	0.	0.2	1133.9
1	0618	379	0.	0.	0.0	1132.0	*	1	1818	1099	0.	0.	0.2	1134.0
1	0619	380	0.	0.	0.0	1132.0	*	1	1819	1100	0.	0.	0.2	1134.0
1	0620	381	0.	0.	0.0	1132.0	*	1	1820	1101	0.	0.	0.2	1134.0
1	0621	382	0.	0.	0.0	1132.0	*	1	1821	1102	0.	0.	0.2	1134.0
1	0622	383	0.	0.	0.0	1132.0	*	1	1822	1103	40.	0.	0.2	1133.6
1	0623	384	0.	0.	0.0	1132.0	*	1	1823	1104	40.	0.	0.1	1133.1
1	0624	385	0.	0.	0.0	1132.0	*	1	1824	1105	40.	0.	0.1	1132.7
1	0625	386	0.	0.	0.0	1132.0	*	1	1825	1106	0.	0.	0.1	1132.7
1	0626	387	0.	0.	0.0	1132.0	*	1	1826	1107	0.	0.	0.1	1132.7
1	0627	388	0.	0.	0.0	1132.0	*	1	1827	1108	0.	0.	0.1	1132.7
1	0628	389	0.	0.	0.0	1132.0	*	1	1828	1109	0.	0.	0.1	1132.8
1	0629	390	0.	0.	0.0	1132.0	*	1	1829	1110	0.	0.	0.1	1132.8
1	0630	391	0.	0.	0.0	1132.0	*	1	1830	1111	0.	0.	0.1	1132.8
1	0631	392	0.	0.	0.0	1132.0	*	1	1831	1112	0.	0.	0.1	1132.8
1	0632	393	0.	0.	0.0	1132.0	*	1	1832	1113	0.	0.	0.1	1132.8
1	0633	394	0.	0.	0.0	1132.0	*	1	1833	1114	0.	0.	0.1	1132.9
1	0634	395	0.	0.	0.0	1132.0	*	1	1834	1115	0.	0.	0.1	1132.9
1	0635	396	0.	0.	0.0	1132.0	*	1	1835	1116	0.	0.	0.1	1132.9
1	0636	397	0.	0.	0.0	1132.0	*	1	1836	1117	0.	0.	0.1	1132.9
1	0637	398	0.	0.	0.0	1132.0	*	1	1837	1118	0.	0.	0.1	1132.9
1	0638	399	0.	0.	0.0	1132.0	*	1	1838	1119	0.	0.	0.1	1133.0
1	0639	400	0.	0.	0.0	1132.0	*	1	1839	1120	0.	0.	0.1	1133.0
1	0640	401	0.	0.	0.0	1132.0	*	1	1840	1121	0.	0.	0.1	1133.0
1	0641	402	0.	0.	0.0	1132.0	*	1	1841	1122	0.	0.	0.1	1133.0

1	0642	403	0.	0.	0.0	1132.0	*	1	1842	1123	0.	0.	0.1	1133.0
1	0643	404	0.	0.	0.0	1132.0	*	1	1843	1124	0.	0.	0.1	1133.0
1	0644	405	0.	0.	0.0	1132.0	*	1	1844	1125	0.	0.	0.1	1133.1
1	0645	406	0.	0.	0.0	1132.0	*	1	1845	1126	0.	0.	0.1	1133.1
1	0646	407	0.	0.	0.0	1132.1	*	1	1846	1127	0.	0.	0.1	1133.1
1	0647	408	0.	0.	0.0	1132.1	*	1	1847	1128	0.	0.	0.1	1133.1
1	0648	409	0.	0.	0.0	1132.1	*	1	1848	1129	0.	0.	0.1	1133.1
1	0649	410	0.	0.	0.0	1132.1	*	1	1849	1130	0.	0.	0.1	1133.2
1	0650	411	0.	0.	0.0	1132.1	*	1	1850	1131	0.	0.	0.1	1133.2
1	0651	412	0.	0.	0.0	1132.1	*	1	1851	1132	0.	0.	0.1	1133.2
1	0652	413	0.	0.	0.0	1132.1	*	1	1852	1133	0.	0.	0.1	1133.2
1	0653	414	0.	0.	0.0	1132.1	*	1	1853	1134	0.	0.	0.1	1133.2
1	0654	415	0.	0.	0.0	1132.1	*	1	1854	1135	0.	0.	0.1	1133.2
1	0655	416	0.	0.	0.0	1132.1	*	1	1855	1136	0.	0.	0.2	1133.3
1	0656	417	0.	0.	0.0	1132.1	*	1	1856	1137	0.	0.	0.2	1133.3
1	0657	418	0.	0.	0.0	1132.1	*	1	1857	1138	0.	0.	0.2	1133.3
1	0658	419	0.	0.	0.0	1132.1	*	1	1858	1139	0.	0.	0.2	1133.3
1	0659	420	0.	0.	0.0	1132.1	*	1	1859	1140	0.	0.	0.2	1133.3
1	0700	421	0.	0.	0.0	1132.1	*	1	1900	1141	0.	0.	0.2	1133.4
1	0701	422	0.	0.	0.0	1132.1	*	1	1901	1142	0.	0.	0.2	1133.4
1	0702	423	0.	0.	0.0	1132.1	*	1	1902	1143	0.	0.	0.2	1133.4
1	0703	424	0.	0.	0.0	1132.1	*	1	1903	1144	0.	0.	0.2	1133.4
1	0704	425	0.	0.	0.0	1132.1	*	1	1904	1145	0.	0.	0.2	1133.4
1	0705	426	0.	0.	0.0	1132.1	*	1	1905	1146	0.	0.	0.2	1133.4
1	0706	427	0.	0.	0.0	1132.1	*	1	1906	1147	0.	0.	0.2	1133.5
1	0707	428	0.	0.	0.0	1132.1	*	1	1907	1148	0.	0.	0.2	1133.5
1	0708	429	0.	0.	0.0	1132.1	*	1	1908	1149	0.	0.	0.2	1133.5
1	0709	430	0.	0.	0.0	1132.1	*	1	1909	1150	0.	0.	0.2	1133.5
1	0710	431	0.	0.	0.0	1132.1	*	1	1910	1151	0.	0.	0.2	1133.5
1	0711	432	0.	0.	0.0	1132.1	*	1	1911	1152	0.	0.	0.2	1133.5
1	0712	433	0.	0.	0.0	1132.1	*	1	1912	1153	0.	0.	0.2	1133.6
1	0713	434	0.	0.	0.0	1132.1	*	1	1913	1154	0.	0.	0.2	1133.6
1	0714	435	0.	0.	0.0	1132.1	*	1	1914	1155	0.	0.	0.2	1133.6
1	0715	436	0.	0.	0.0	1132.1	*	1	1915	1156	0.	0.	0.2	1133.6
1	0716	437	0.	0.	0.0	1132.1	*	1	1916	1157	0.	0.	0.2	1133.6
1	0717	438	0.	0.	0.0	1132.1	*	1	1917	1158	0.	0.	0.2	1133.6
1	0718	439	0.	0.	0.0	1132.1	*	1	1918	1159	0.	0.	0.2	1133.7
1	0719	440	0.	0.	0.0	1132.1	*	1	1919	1160	0.	0.	0.2	1133.7
1	0720	441	0.	0.	0.0	1132.1	*	1	1920	1161	0.	0.	0.2	1133.7
1	0721	442	0.	0.	0.0	1132.1	*	1	1921	1162	0.	0.	0.2	1133.7
1	0722	443	0.	0.	0.0	1132.1	*	1	1922	1163	0.	0.	0.2	1133.7
1	0723	444	0.	0.	0.0	1132.1	*	1	1923	1164	0.	0.	0.2	1133.7
1	0724	445	0.	0.	0.0	1132.1	*	1	1924	1165	0.	0.	0.2	1133.7
1	0725	446	0.	0.	0.0	1132.1	*	1	1925	1166	0.	0.	0.2	1133.8
1	0726	447	0.	0.	0.0	1132.1	*	1	1926	1167	0.	0.	0.2	1133.8
1	0727	448	0.	0.	0.0	1132.1	*	1	1927	1168	0.	0.	0.2	1133.8
1	0728	449	0.	0.	0.0	1132.1	*	1	1928	1169	0.	0.	0.2	1133.8
1	0729	450	0.	0.	0.0	1132.1	*	1	1929	1170	0.	0.	0.2	1133.8
1	0730	451	0.	0.	0.0	1132.1	*	1	1930	1171	0.	0.	0.2	1133.8
1	0731	452	0.	0.	0.0	1132.1	*	1	1931	1172	0.	0.	0.2	1133.8
1	0732	453	0.	0.	0.0	1132.1	*	1	1932	1173	0.	0.	0.2	1133.8
1	0733	454	0.	0.	0.0	1132.1	*	1	1933	1174	0.	0.	0.2	1133.9
1	0734	455	0.	0.	0.0	1132.1	*	1	1934	1175	0.	0.	0.2	1133.9
1	0735	456	0.	0.	0.0	1132.1	*	1	1935	1176	0.	0.	0.2	1133.9
1	0736	457	0.	0.	0.0	1132.1	*	1	1936	1177	0.	0.	0.2	1133.9
1	0737	458	0.	0.	0.0	1132.1	*	1	1937	1178	0.	0.	0.2	1133.9
1	0738	459	0.	0.	0.0	1132.1	*	1	1938	1179	0.	0.	0.2	1133.9
1	0739	460	0.	0.	0.0	1132.1	*	1	1939	1180	0.	0.	0.2	1133.9
1	0740	461	0.	0.	0.0	1132.1	*	1	1940	1181	0.	0.	0.2	1133.9
1	0741	462	0.	0.	0.0	1132.1	*	1	1941	1182	0.	0.	0.2	1133.9

1	0742	463	0.	0.	0.0	1132.1	*	1	1942	1183	0.	0.	0.2	1134.0
1	0743	464	0.	0.	0.0	1132.1	*	1	1943	1184	0.	0.	0.2	1134.0
1	0744	465	0.	0.	0.0	1132.1	*	1	1944	1185	0.	0.	0.2	1134.0
1	0745	466	0.	0.	0.0	1132.2	*	1	1945	1186	0.	0.	0.2	1134.0
1	0746	467	0.	0.	0.0	1132.2	*	1	1946	1187	0.	0.	0.2	1134.0
1	0747	468	0.	0.	0.0	1132.2	*	1	1947	1188	40.	0.	0.2	1133.6
1	0748	469	0.	0.	0.0	1132.2	*	1	1948	1189	40.	0.	0.1	1133.1
1	0749	470	0.	0.	0.0	1132.2	*	1	1949	1190	40.	0.	0.1	1132.7
1	0750	471	0.	0.	0.0	1132.2	*	1	1950	1191	0.	0.	0.1	1132.7
1	0751	472	0.	0.	0.0	1132.2	*	1	1951	1192	0.	0.	0.1	1132.7
1	0752	473	0.	0.	0.0	1132.2	*	1	1952	1193	0.	0.	0.1	1132.7
1	0753	474	0.	0.	0.0	1132.2	*	1	1953	1194	0.	0.	0.1	1132.7
1	0754	475	0.	0.	0.0	1132.2	*	1	1954	1195	0.	0.	0.1	1132.8
1	0755	476	0.	0.	0.0	1132.2	*	1	1955	1196	0.	0.	0.1	1132.8
1	0756	477	0.	0.	0.0	1132.2	*	1	1956	1197	0.	0.	0.1	1132.8
1	0757	478	0.	0.	0.0	1132.2	*	1	1957	1198	0.	0.	0.1	1132.8
1	0758	479	0.	0.	0.0	1132.2	*	1	1958	1199	0.	0.	0.1	1132.8
1	0759	480	0.	0.	0.0	1132.2	*	1	1959	1200	0.	0.	0.1	1132.8
1	0800	481	0.	0.	0.0	1132.2	*	1	2000	1201	0.	0.	0.1	1132.9
1	0801	482	0.	0.	0.0	1132.2	*	1	2001	1202	0.	0.	0.1	1132.9
1	0802	483	0.	0.	0.0	1132.2	*	1	2002	1203	0.	0.	0.1	1132.9
1	0803	484	0.	0.	0.0	1132.2	*	1	2003	1204	0.	0.	0.1	1132.9
1	0804	485	0.	0.	0.0	1132.2	*	1	2004	1205	0.	0.	0.1	1132.9
1	0805	486	0.	0.	0.0	1132.2	*	1	2005	1206	0.	0.	0.1	1132.9
1	0806	487	0.	0.	0.0	1132.2	*	1	2006	1207	0.	0.	0.1	1132.9
1	0807	488	0.	0.	0.0	1132.2	*	1	2007	1208	0.	0.	0.1	1133.0
1	0808	489	0.	0.	0.0	1132.2	*	1	2008	1209	0.	0.	0.1	1133.0
1	0809	490	0.	0.	0.0	1132.2	*	1	2009	1210	0.	0.	0.1	1133.0
1	0810	491	0.	0.	0.0	1132.2	*	1	2010	1211	0.	0.	0.1	1133.0
1	0811	492	0.	0.	0.0	1132.2	*	1	2011	1212	0.	0.	0.1	1133.0
1	0812	493	0.	0.	0.0	1132.2	*	1	2012	1213	0.	0.	0.1	1133.0
1	0813	494	0.	0.	0.0	1132.2	*	1	2013	1214	0.	0.	0.1	1133.1
1	0814	495	0.	0.	0.0	1132.2	*	1	2014	1215	0.	0.	0.1	1133.1
1	0815	496	0.	0.	0.0	1132.2	*	1	2015	1216	0.	0.	0.1	1133.1
1	0816	497	0.	0.	0.0	1132.2	*	1	2016	1217	0.	0.	0.1	1133.1
1	0817	498	0.	0.	0.0	1132.2	*	1	2017	1218	0.	0.	0.1	1133.1
1	0818	499	0.	0.	0.0	1132.2	*	1	2018	1219	0.	0.	0.1	1133.1
1	0819	500	0.	0.	0.0	1132.2	*	1	2019	1220	0.	0.	0.1	1133.1
1	0820	501	0.	0.	0.0	1132.2	*	1	2020	1221	0.	0.	0.1	1133.2
1	0821	502	0.	0.	0.0	1132.3	*	1	2021	1222	0.	0.	0.1	1133.2
1	0822	503	0.	0.	0.0	1132.3	*	1	2022	1223	0.	0.	0.1	1133.2
1	0823	504	0.	0.	0.0	1132.3	*	1	2023	1224	0.	0.	0.1	1133.2
1	0824	505	0.	0.	0.0	1132.3	*	1	2024	1225	0.	0.	0.1	1133.2
1	0825	506	0.	0.	0.0	1132.3	*	1	2025	1226	0.	0.	0.1	1133.2
1	0826	507	0.	0.	0.0	1132.3	*	1	2026	1227	0.	0.	0.2	1133.3
1	0827	508	0.	0.	0.0	1132.3	*	1	2027	1228	0.	0.	0.2	1133.3
1	0828	509	0.	0.	0.0	1132.3	*	1	2028	1229	0.	0.	0.2	1133.3
1	0829	510	0.	0.	0.0	1132.3	*	1	2029	1230	0.	0.	0.2	1133.3
1	0830	511	0.	0.	0.0	1132.3	*	1	2030	1231	0.	0.	0.2	1133.3
1	0831	512	0.	0.	0.0	1132.3	*	1	2031	1232	0.	0.	0.2	1133.3
1	0832	513	0.	0.	0.0	1132.3	*	1	2032	1233	0.	0.	0.2	1133.3
1	0833	514	0.	0.	0.0	1132.3	*	1	2033	1234	0.	0.	0.2	1133.4
1	0834	515	0.	0.	0.0	1132.3	*	1	2034	1235	0.	0.	0.2	1133.4
1	0835	516	0.	0.	0.0	1132.3	*	1	2035	1236	0.	0.	0.2	1133.4
1	0836	517	0.	0.	0.0	1132.3	*	1	2036	1237	0.	0.	0.2	1133.4
1	0837	518	0.	0.	0.0	1132.3	*	1	2037	1238	0.	0.	0.2	1133.4
1	0838	519	0.	0.	0.0	1132.3	*	1	2038	1239	0.	0.	0.2	1133.4
1	0839	520	0.	0.	0.0	1132.3	*	1	2039	1240	0.	0.	0.2	1133.4
1	0840	521	0.	0.	0.0	1132.3	*	1	2040	1241	0.	0.	0.2	1133.5
1	0841	522	0.	0.	0.0	1132.3	*	1	2041	1242	0.	0.	0.2	1133.5

1	0842	523	0.	0.	0.0	1132.3	*	1	2042	1243	0.	0.	0.2	1133.5
1	0843	524	0.	0.	0.0	1132.3	*	1	2043	1244	0.	0.	0.2	1133.5
1	0844	525	0.	0.	0.0	1132.3	*	1	2044	1245	0.	0.	0.2	1133.5
1	0845	526	0.	0.	0.0	1132.3	*	1	2045	1246	0.	0.	0.2	1133.5
1	0846	527	0.	0.	0.0	1132.4	*	1	2046	1247	0.	0.	0.2	1133.5
1	0847	528	0.	0.	0.0	1132.4	*	1	2047	1248	0.	0.	0.2	1133.6
1	0848	529	0.	0.	0.0	1132.4	*	1	2048	1249	0.	0.	0.2	1133.6
1	0849	530	0.	0.	0.0	1132.4	*	1	2049	1250	0.	0.	0.2	1133.6
1	0850	531	0.	0.	0.0	1132.4	*	1	2050	1251	0.	0.	0.2	1133.6
1	0851	532	0.	0.	0.0	1132.4	*	1	2051	1252	0.	0.	0.2	1133.6
1	0852	533	0.	0.	0.0	1132.4	*	1	2052	1253	0.	0.	0.2	1133.6
1	0853	534	0.	0.	0.0	1132.4	*	1	2053	1254	0.	0.	0.2	1133.6
1	0854	535	0.	0.	0.0	1132.4	*	1	2054	1255	0.	0.	0.2	1133.6
1	0855	536	0.	0.	0.0	1132.4	*	1	2055	1256	0.	0.	0.2	1133.7
1	0856	537	0.	0.	0.0	1132.4	*	1	2056	1257	0.	0.	0.2	1133.7
1	0857	538	0.	0.	0.0	1132.4	*	1	2057	1258	0.	0.	0.2	1133.7
1	0858	539	0.	0.	0.0	1132.4	*	1	2058	1259	0.	0.	0.2	1133.7
1	0859	540	0.	0.	0.1	1132.4	*	1	2059	1260	0.	0.	0.2	1133.7
1	0900	541	0.	0.	0.1	1132.4	*	1	2100	1261	0.	0.	0.2	1133.7
1	0901	542	0.	0.	0.1	1132.4	*	1	2101	1262	0.	0.	0.2	1133.7
1	0902	543	0.	0.	0.1	1132.4	*	1	2102	1263	0.	0.	0.2	1133.7
1	0903	544	0.	0.	0.1	1132.4	*	1	2103	1264	0.	0.	0.2	1133.8
1	0904	545	0.	0.	0.1	1132.4	*	1	2104	1265	0.	0.	0.2	1133.8
1	0905	546	0.	0.	0.1	1132.4	*	1	2105	1266	0.	0.	0.2	1133.8
1	0906	547	0.	0.	0.1	1132.5	*	1	2106	1267	0.	0.	0.2	1133.8
1	0907	548	0.	0.	0.1	1132.5	*	1	2107	1268	0.	0.	0.2	1133.8
1	0908	549	0.	0.	0.1	1132.5	*	1	2108	1269	0.	0.	0.2	1133.8
1	0909	550	0.	0.	0.1	1132.5	*	1	2109	1270	0.	0.	0.2	1133.8
1	0910	551	0.	0.	0.1	1132.5	*	1	2110	1271	0.	0.	0.2	1133.8
1	0911	552	0.	0.	0.1	1132.5	*	1	2111	1272	0.	0.	0.2	1133.8
1	0912	553	0.	0.	0.1	1132.5	*	1	2112	1273	0.	0.	0.2	1133.8
1	0913	554	0.	0.	0.1	1132.5	*	1	2113	1274	0.	0.	0.2	1133.9
1	0914	555	0.	0.	0.1	1132.5	*	1	2114	1275	0.	0.	0.2	1133.9
1	0915	556	0.	0.	0.1	1132.5	*	1	2115	1276	0.	0.	0.2	1133.9
1	0916	557	0.	0.	0.1	1132.5	*	1	2116	1277	0.	0.	0.2	1133.9
1	0917	558	0.	0.	0.1	1132.5	*	1	2117	1278	0.	0.	0.2	1133.9
1	0918	559	0.	0.	0.1	1132.5	*	1	2118	1279	0.	0.	0.2	1133.9
1	0919	560	0.	0.	0.1	1132.5	*	1	2119	1280	0.	0.	0.2	1133.9
1	0920	561	0.	0.	0.1	1132.6	*	1	2120	1281	0.	0.	0.2	1133.9
1	0921	562	0.	0.	0.1	1132.6	*	1	2121	1282	0.	0.	0.2	1133.9
1	0922	563	0.	0.	0.1	1132.6	*	1	2122	1283	0.	0.	0.2	1133.9
1	0923	564	0.	0.	0.1	1132.6	*	1	2123	1284	0.	0.	0.2	1134.0
1	0924	565	0.	0.	0.1	1132.6	*	1	2124	1285	0.	0.	0.2	1134.0
1	0925	566	0.	0.	0.1	1132.6	*	1	2125	1286	0.	0.	0.2	1134.0
1	0926	567	0.	0.	0.1	1132.6	*	1	2126	1287	0.	0.	0.2	1134.0
1	0927	568	0.	0.	0.1	1132.6	*	1	2127	1288	0.	0.	0.2	1134.0
1	0928	569	0.	0.	0.1	1132.6	*	1	2128	1289	0.	0.	0.2	1134.0
1	0929	570	0.	0.	0.1	1132.6	*	1	2129	1290	0.	0.	0.2	1134.0
1	0930	571	0.	0.	0.1	1132.6	*	1	2130	1291	40.	0.	0.2	1133.6
1	0931	572	0.	0.	0.1	1132.6	*	1	2131	1292	40.	0.	0.1	1133.1
1	0932	573	0.	0.	0.1	1132.7	*	1	2132	1293	40.	0.	0.1	1132.7
1	0933	574	0.	0.	0.1	1132.7	*	1	2133	1294	0.	0.	0.1	1132.7
1	0934	575	0.	0.	0.1	1132.7	*	1	2134	1295	0.	0.	0.1	1132.7
1	0935	576	0.	0.	0.1	1132.7	*	1	2135	1296	0.	0.	0.1	1132.7
1	0936	577	0.	0.	0.1	1132.7	*	1	2136	1297	0.	0.	0.1	1132.7
1	0937	578	0.	0.	0.1	1132.7	*	1	2137	1298	0.	0.	0.1	1132.7
1	0938	579	0.	0.	0.1	1132.7	*	1	2138	1299	0.	0.	0.1	1132.7
1	0939	580	0.	0.	0.1	1132.7	*	1	2139	1300	0.	0.	0.1	1132.8
1	0940	581	0.	0.	0.1	1132.7	*	1	2140	1301	0.	0.	0.1	1132.8
1	0941	582	0.	0.	0.1	1132.7	*	1	2141	1302	0.	0.	0.1	1132.8

1	0942	583	0.	0.	0.1	1132.7	*	1	2142	1303	0.	0.	0.1	1132.8
1	0943	584	0.	0.	0.1	1132.8	*	1	2143	1304	0.	0.	0.1	1132.8
1	0944	585	0.	0.	0.1	1132.8	*	1	2144	1305	0.	0.	0.1	1132.8
1	0945	586	0.	0.	0.1	1132.8	*	1	2145	1306	0.	0.	0.1	1132.8
1	0946	587	0.	0.	0.1	1132.8	*	1	2146	1307	0.	0.	0.1	1132.9
1	0947	588	0.	0.	0.1	1132.8	*	1	2147	1308	0.	0.	0.1	1132.9
1	0948	589	0.	0.	0.1	1132.8	*	1	2148	1309	0.	0.	0.1	1132.9
1	0949	590	0.	0.	0.1	1132.8	*	1	2149	1310	0.	0.	0.1	1132.9
1	0950	591	0.	0.	0.1	1132.8	*	1	2150	1311	0.	0.	0.1	1132.9
1	0951	592	0.	0.	0.1	1132.8	*	1	2151	1312	0.	0.	0.1	1132.9
1	0952	593	0.	0.	0.1	1132.9	*	1	2152	1313	0.	0.	0.1	1132.9
1	0953	594	0.	0.	0.1	1132.9	*	1	2153	1314	0.	0.	0.1	1132.9
1	0954	595	0.	0.	0.1	1132.9	*	1	2154	1315	0.	0.	0.1	1133.0
1	0955	596	0.	0.	0.1	1132.9	*	1	2155	1316	0.	0.	0.1	1133.0
1	0956	597	0.	0.	0.1	1132.9	*	1	2156	1317	0.	0.	0.1	1133.0
1	0957	598	0.	0.	0.1	1132.9	*	1	2157	1318	0.	0.	0.1	1133.0
1	0958	599	0.	0.	0.1	1132.9	*	1	2158	1319	0.	0.	0.1	1133.0
1	0959	600	0.	0.	0.1	1132.9	*	1	2159	1320	0.	0.	0.1	1133.0
1	1000	601	0.	0.	0.1	1133.0	*	1	2200	1321	0.	0.	0.1	1133.0
1	1001	602	0.	0.	0.1	1133.0	*	1	2201	1322	0.	0.	0.1	1133.1
1	1002	603	0.	0.	0.1	1133.0	*	1	2202	1323	0.	0.	0.1	1133.1
1	1003	604	0.	0.	0.1	1133.0	*	1	2203	1324	0.	0.	0.1	1133.1
1	1004	605	0.	0.	0.1	1133.0	*	1	2204	1325	0.	0.	0.1	1133.1
1	1005	606	0.	0.	0.1	1133.0	*	1	2205	1326	0.	0.	0.1	1133.1
1	1006	607	0.	0.	0.1	1133.0	*	1	2206	1327	0.	0.	0.1	1133.1
1	1007	608	0.	0.	0.1	1133.0	*	1	2207	1328	0.	0.	0.1	1133.1
1	1008	609	0.	0.	0.1	1133.1	*	1	2208	1329	0.	0.	0.1	1133.1
1	1009	610	0.	0.	0.1	1133.1	*	1	2209	1330	0.	0.	0.1	1133.2
1	1010	611	0.	0.	0.1	1133.1	*	1	2210	1331	0.	0.	0.1	1133.2
1	1011	612	0.	0.	0.1	1133.1	*	1	2211	1332	0.	0.	0.1	1133.2
1	1012	613	0.	0.	0.1	1133.1	*	1	2212	1333	0.	0.	0.1	1133.2
1	1013	614	0.	0.	0.1	1133.1	*	1	2213	1334	0.	0.	0.1	1133.2
1	1014	615	0.	0.	0.1	1133.1	*	1	2214	1335	0.	0.	0.1	1133.2
1	1015	616	0.	0.	0.1	1133.2	*	1	2215	1336	0.	0.	0.1	1133.2
1	1016	617	0.	0.	0.1	1133.2	*	1	2216	1337	0.	0.	0.1	1133.2
1	1017	618	0.	0.	0.1	1133.2	*	1	2217	1338	0.	0.	0.2	1133.3
1	1018	619	0.	0.	0.1	1133.2	*	1	2218	1339	0.	0.	0.2	1133.3
1	1019	620	0.	0.	0.1	1133.2	*	1	2219	1340	0.	0.	0.2	1133.3
1	1020	621	0.	0.	0.1	1133.2	*	1	2220	1341	0.	0.	0.2	1133.3
1	1021	622	0.	0.	0.2	1133.3	*	1	2221	1342	0.	0.	0.2	1133.3
1	1022	623	0.	0.	0.2	1133.3	*	1	2222	1343	0.	0.	0.2	1133.3
1	1023	624	0.	0.	0.2	1133.3	*	1	2223	1344	0.	0.	0.2	1133.3
1	1024	625	0.	0.	0.2	1133.3	*	1	2224	1345	0.	0.	0.2	1133.3
1	1025	626	0.	0.	0.2	1133.3	*	1	2225	1346	0.	0.	0.2	1133.4
1	1026	627	0.	0.	0.2	1133.3	*	1	2226	1347	0.	0.	0.2	1133.4
1	1027	628	0.	0.	0.2	1133.4	*	1	2227	1348	0.	0.	0.2	1133.4
1	1028	629	0.	0.	0.2	1133.4	*	1	2228	1349	0.	0.	0.2	1133.4
1	1029	630	0.	0.	0.2	1133.4	*	1	2229	1350	0.	0.	0.2	1133.4
1	1030	631	0.	0.	0.2	1133.4	*	1	2230	1351	0.	0.	0.2	1133.4
1	1031	632	0.	0.	0.2	1133.4	*	1	2231	1352	0.	0.	0.2	1133.4
1	1032	633	0.	0.	0.2	1133.5	*	1	2232	1353	0.	0.	0.2	1133.4
1	1033	634	0.	0.	0.2	1133.5	*	1	2233	1354	0.	0.	0.2	1133.5
1	1034	635	0.	0.	0.2	1133.5	*	1	2234	1355	0.	0.	0.2	1133.5
1	1035	636	0.	0.	0.2	1133.5	*	1	2235	1356	0.	0.	0.2	1133.5
1	1036	637	0.	0.	0.2	1133.5	*	1	2236	1357	0.	0.	0.2	1133.5
1	1037	638	0.	0.	0.2	1133.5	*	1	2237	1358	0.	0.	0.2	1133.5
1	1038	639	0.	0.	0.2	1133.6	*	1	2238	1359	0.	0.	0.2	1133.5
1	1039	640	0.	0.	0.2	1133.6	*	1	2239	1360	0.	0.	0.2	1133.5
1	1040	641	0.	0.	0.2	1133.6	*	1	2240	1361	0.	0.	0.2	1133.5
1	1041	642	0.	0.	0.2	1133.6	*	1	2241	1362	0.	0.	0.2	1133.6

1	1042	643	0.	0.	0.2	1133.6	*	1	2242	1363	0.	0.	0.2	1133.6
1	1043	644	0.	0.	0.2	1133.7	*	1	2243	1364	0.	0.	0.2	1133.6
1	1044	645	0.	0.	0.2	1133.7	*	1	2244	1365	0.	0.	0.2	1133.6
1	1045	646	0.	0.	0.2	1133.7	*	1	2245	1366	0.	0.	0.2	1133.6
1	1046	647	0.	0.	0.2	1133.7	*	1	2246	1367	0.	0.	0.2	1133.6
1	1047	648	0.	0.	0.2	1133.7	*	1	2247	1368	0.	0.	0.2	1133.6
1	1048	649	0.	0.	0.2	1133.7	*	1	2248	1369	0.	0.	0.2	1133.6
1	1049	650	0.	0.	0.2	1133.8	*	1	2249	1370	0.	0.	0.2	1133.6
1	1050	651	0.	0.	0.2	1133.8	*	1	2250	1371	0.	0.	0.2	1133.6
1	1051	652	0.	0.	0.2	1133.8	*	1	2251	1372	0.	0.	0.2	1133.7
1	1052	653	0.	0.	0.2	1133.8	*	1	2252	1373	0.	0.	0.2	1133.7
1	1053	654	0.	0.	0.2	1133.8	*	1	2253	1374	0.	0.	0.2	1133.7
1	1054	655	0.	0.	0.2	1133.8	*	1	2254	1375	0.	0.	0.2	1133.7
1	1055	656	0.	0.	0.2	1133.9	*	1	2255	1376	0.	0.	0.2	1133.7
1	1056	657	0.	0.	0.2	1133.9	*	1	2256	1377	0.	0.	0.2	1133.7
1	1057	658	0.	0.	0.2	1133.9	*	1	2257	1378	0.	0.	0.2	1133.7
1	1058	659	0.	0.	0.2	1133.9	*	1	2258	1379	0.	0.	0.2	1133.7
1	1059	660	0.	0.	0.2	1134.0	*	1	2259	1380	0.	0.	0.2	1133.7
1	1100	661	0.	0.	0.2	1134.0	*	1	2300	1381	0.	0.	0.2	1133.7
1	1101	662	0.	0.	0.2	1134.0	*	1	2301	1382	0.	0.	0.2	1133.8
1	1102	663	40.	0.	0.2	1133.6	*	1	2302	1383	0.	0.	0.2	1133.8
1	1103	664	40.	0.	0.1	1133.1	*	1	2303	1384	0.	0.	0.2	1133.8
1	1104	665	40.	0.	0.1	1132.7	*	1	2304	1385	0.	0.	0.2	1133.8
1	1105	666	0.	0.	0.1	1132.7	*	1	2305	1386	0.	0.	0.2	1133.8
1	1106	667	0.	0.	0.1	1132.8	*	1	2306	1387	0.	0.	0.2	1133.8
1	1107	668	0.	0.	0.1	1132.8	*	1	2307	1388	0.	0.	0.2	1133.8
1	1108	669	0.	0.	0.1	1132.8	*	1	2308	1389	0.	0.	0.2	1133.8
1	1109	670	0.	0.	0.1	1132.9	*	1	2309	1390	0.	0.	0.2	1133.8
1	1110	671	0.	0.	0.1	1132.9	*	1	2310	1391	0.	0.	0.2	1133.8
1	1111	672	0.	0.	0.1	1132.9	*	1	2311	1392	0.	0.	0.2	1133.8
1	1112	673	0.	0.	0.1	1133.0	*	1	2312	1393	0.	0.	0.2	1133.9
1	1113	674	0.	0.	0.1	1133.0	*	1	2313	1394	0.	0.	0.2	1133.9
1	1114	675	0.	0.	0.1	1133.0	*	1	2314	1395	0.	0.	0.2	1133.9
1	1115	676	0.	0.	0.1	1133.1	*	1	2315	1396	0.	0.	0.2	1133.9
1	1116	677	0.	0.	0.1	1133.1	*	1	2316	1397	0.	0.	0.2	1133.9
1	1117	678	0.	0.	0.1	1133.1	*	1	2317	1398	0.	0.	0.2	1133.9
1	1118	679	0.	0.	0.1	1133.2	*	1	2318	1399	0.	0.	0.2	1133.9
1	1119	680	0.	0.	0.1	1133.2	*	1	2319	1400	0.	0.	0.2	1133.9
1	1120	681	0.	0.	0.2	1133.3	*	1	2320	1401	0.	0.	0.2	1133.9
1	1121	682	0.	0.	0.2	1133.3	*	1	2321	1402	0.	0.	0.2	1133.9
1	1122	683	0.	0.	0.2	1133.3	*	1	2322	1403	0.	0.	0.2	1133.9
1	1123	684	0.	0.	0.2	1133.4	*	1	2323	1404	0.	0.	0.2	1133.9
1	1124	685	0.	0.	0.2	1133.4	*	1	2324	1405	0.	0.	0.2	1133.9
1	1125	686	0.	0.	0.2	1133.5	*	1	2325	1406	0.	0.	0.2	1134.0
1	1126	687	0.	0.	0.2	1133.5	*	1	2326	1407	0.	0.	0.2	1134.0
1	1127	688	0.	0.	0.2	1133.6	*	1	2327	1408	0.	0.	0.2	1134.0
1	1128	689	0.	0.	0.2	1133.6	*	1	2328	1409	0.	0.	0.2	1134.0
1	1129	690	0.	0.	0.2	1133.7	*	1	2329	1410	0.	0.	0.2	1134.0
1	1130	691	0.	0.	0.2	1133.7	*	1	2330	1411	0.	0.	0.2	1134.0
1	1131	692	0.	0.	0.2	1133.8	*	1	2331	1412	0.	0.	0.2	1134.0
1	1132	693	0.	0.	0.2	1133.8	*	1	2332	1413	0.	0.	0.2	1134.0
1	1133	694	0.	0.	0.2	1133.9	*	1	2333	1414	40.	0.	0.2	1133.6
1	1134	695	0.	0.	0.2	1134.0	*	1	2334	1415	40.	0.	0.1	1133.1
1	1135	696	0.	0.	0.2	1134.0	*	1	2335	1416	40.	0.	0.1	1132.7
1	1136	697	40.	0.	0.2	1133.7	*	1	2336	1417	0.	0.	0.1	1132.7
1	1137	698	40.	0.	0.2	1133.3	*	1	2337	1418	0.	0.	0.1	1132.7
1	1138	699	40.	0.	0.1	1133.0	*	1	2338	1419	0.	0.	0.1	1132.7
1	1139	700	0.	0.	0.1	1133.1	*	1	2339	1420	0.	0.	0.1	1132.7
1	1140	701	0.	0.	0.2	1133.3	*	1	2340	1421	0.	0.	0.1	1132.7
1	1141	702	0.	0.	0.2	1133.4	*	1	2341	1422	0.	0.	0.1	1132.7

1	1142	703	0.	0.	0.2	1133.6	*	1	2342	1423	0.	0.	0.1	1132.7
1	1143	704	0.	0.	0.2	1133.8	*	1	2343	1424	0.	0.	0.1	1132.8
1	1144	705	0.	0.	0.2	1134.0	*	1	2344	1425	0.	0.	0.1	1132.8
1	1145	706	40.	0.	0.2	1133.8	*	1	2345	1426	0.	0.	0.1	1132.8
1	1146	707	40.	0.	0.2	1133.6	*	1	2346	1427	0.	0.	0.1	1132.8
1	1147	708	40.	0.	0.2	1133.5	*	1	2347	1428	0.	0.	0.1	1132.8
1	1148	709	40.	0.	0.2	1133.3	*	1	2348	1429	0.	0.	0.1	1132.8
1	1149	710	40.	0.	0.1	1133.2	*	1	2349	1430	0.	0.	0.1	1132.8
1	1150	711	40.	0.	0.1	1133.1	*	1	2350	1431	0.	0.	0.1	1132.8
1	1151	712	40.	0.	0.1	1133.0	*	1	2351	1432	0.	0.	0.1	1132.8
1	1152	713	0.	0.	0.2	1133.4	*	1	2352	1433	0.	0.	0.1	1132.9
1	1153	714	0.	0.	0.2	1133.9	*	1	2353	1434	0.	0.	0.1	1132.9
1	1154	715	0.	0.	0.3	1134.2	*	1	2354	1435	0.	0.	0.1	1132.9
1	1155	716	40.	0.	0.3	1134.3	*	1	2355	1436	0.	0.	0.1	1132.9
1	1156	717	40.	0.	0.3	1134.4	*	1	2356	1437	0.	0.	0.1	1132.9
1	1157	718	40.	0.	0.3	1134.5	*	1	2357	1438	0.	0.	0.1	1132.9
1	1158	719	40.	0.	0.4	1134.8	*	1	2358	1439	0.	0.	0.1	1132.9
1	1159	720	40.	0.	0.4	1135.0	*	1	2359	1440	0.	0.	0.1	1132.9
							*							

****

PEAK OUTFLOW IS 0. AT TIME 12.22 HOURS

***** PUMP FLOW HYDROGRAPH *****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 200.	12.07		21.	6.	6.	6.
		(INCHES)	2.010	2.172	2.172	2.172
		(AC-FT)	10.	11.	11.	11.

***** OUTFLOW HYDROGRAPH *****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 0.	12.20		0.	0.	0.	0.
		(INCHES)	0.002	0.005	0.005	0.005
		(AC-FT)	0.	0.	0.	0.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
1.	12.22	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
1138.77	12.22	1133.66	1132.91	1132.91	1132.91

CUMULATIVE AREA = 0.10 SQ MI

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              ***************
              *             *
  81 KK       *    PUMPR    *
              *             *
              ***************

  82 WR          RETRIEVE PUMP FLOW HYDROGRAPH
                     ISTAD         PUMP  PUMP FLOW HYDROGRAPH IDENTIFICATION

                                                                  ***

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

                          HYDROGRAPH AT STATION    PUMPR

  PEAK FLOW      TIME                            MAXIMUM AVERAGE FLOW
                                         6-HR        24-HR       72-HR     23.98-HR
+   (CFS)        (HR)
                              (CFS)
+      200.     12.07                     21.          6.          6.          6.
                           (INCHES)     2.010       2.172       2.172       2.172
                           (AC-FT)        10.         11.         11.         11.

                           CUMULATIVE AREA =     0.00 SQ MI

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

              ***************
              *             *
  83 KK       *    DA19     *
              *             *
              ***************

                 SUBBASIN RUNOFF DATA

  84 BA          SUBBASIN CHARACTERISTICS
                     TAREA         0.01  SUBBASIN AREA

                 PRECIPITATION DATA

   8 PH                                  DEPTHS FOR   2-PERCENT HYPOTHETICAL STORM
                 ..... HYDRO-35 ......   ............... TP-40 ...............   ........... TP-49 ...........
                 5-MIN  15-MIN  60-MIN   2-HR   3-HR   6-HR  12-HR  24-HR  2-DAY  4-DAY  7-DAY  10-DAY
                  0.67    1.32    2.31   2.54   2.68   2.97   3.24   3.52   0.00   0.00   0.00    0.00

                                                 STORM AREA =     0.01

  85 LS          SCS LOSS RATE
                     STRTL         0.65  INITIAL ABSTRACTION
                     CRVNBR       75.60  CURVE NUMBER
                     RTIMP         0.00  PERCENT IMPERVIOUS AREA

  86 UD          SCS DIMENSIONLESS UNITGRAPH
```

914

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

3.	10.	20.	34.	45.	50.	50.	45.	40.	32.
23.	18.	14.	11.	9.	7.	5.	4.	3.	2.
2.	1.	1.	1.	1.	1.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA19

TOTAL RAINFALL = 3.52, TOTAL LOSS = 2.17, TOTAL EXCESS = 1.35

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
			(CFS)			
+	19.	12.12	1.	0.	0.	0.
			(INCHES) 1.242	1.352	1.352	1.352
			(AC-FT) 1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

```
**************
*            *
*     RTE19  *
*            *
**************
```

87 KK

HYDROGRAPH ROUTING DATA

88 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	150.	CHANNEL LENGTH
S	0.0067	SLOPE
N	0.012	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	2.50	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS
COMPUTATION TIME STEP

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	6.39	1.25	0.29	150.00	19.40	727.22	1.35	8.69

9/17

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	6.39	1.25	1.00	19.35	727.00	1.35

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8077E+00 EXCESS=0.0000E+00 OUTFLOW=0.8076E+00 BASIN STORAGE=0.1160E-03 PERCENT ERROR= 0.0

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

HYDROGRAPH AT STATION RTE19

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
		(CFS)				
+	19.	12.12	1.	0.	0.	0.
		(INCHES)	1.242	1.352	1.352	1.352
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

```
**************
*            *
*      DA20  *
*            *
**************
```

89 KK

SUBBASIN RUNOFF DATA

90 BA SUBBASIN CHARACTERISTICS

TAREA	0.01	SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.68	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.01

91 LS SCS LOSS RATE

STRTL	0.21	INITIAL ABSTRACTION
CRVNBR	90.70	CURVE NUMBER
RTIMP	0.00	PERCENT IMPERVIOUS AREA

92 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	0.10	LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

3.	9.	19.	32.	42.	46.	46.	42.	37.	29.
22.	17.	13.	10.	8.	6.	5.	4.	3.	2.
2.	1.	1.	1.	1.	1.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA20

TOTAL RAINFALL = 3.52, TOTAL LOSS = 0.99, TOTAL EXCESS = 2.53

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 34.	12.10		3.	1.	1.	1.
		(INCHES)	2.309	2.529	2.529	2.529
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

```
          ***************
          *             *
93 KK     *    ADD20    *
          *             *
          ***************
```

94 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION ADD20

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 53.	12.12		4.	1.	1.	1.
		(INCHES)	1.746	1.919	1.919	1.919
		(AC-FT)	2.	2.	2.	2.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

```
          **************
          *            *
95 KK     *     RTE20  *
          *            *
          **************
```

HYDROGRAPH ROUTING DATA

96 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	90.	CHANNEL LENGTH
S	0.0028	SLOPE
N	0.012	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	3.50	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS

ELEMENT	ALPHA	M	COMPUTATION TIME STEP DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	4.37	1.25	0.19	90.00	52.87	726.92	1.92	7.83

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	4.37	1.25	1.00		52.86	727.00	1.92

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2211E+01 EXCESS=0.0000E+00 OUTFLOW=0.2210E+01 BASIN STORAGE=0.1785E-03 PERCENT ERROR= 0.0

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

HYDROGRAPH AT STATION RTE20

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
			(CFS)			
+	53.	12.12	4.	1.	1.	1.
			(INCHES) 1.745	1.919	1.919	1.919
			(AC-FT) 2.	2.	2.	2.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

```
          **************
          *            *
97 KK     *      DA21  *
          *            *
          **************

             SUBBASIN RUNOFF DATA

98 BA          SUBBASIN CHARACTERISTICS
                     TAREA        0.00  SUBBASIN AREA

               PRECIPITATION DATA

 8 PH                              DEPTHS FOR   2-PERCENT HYPOTHETICAL STORM
               ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
               5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                0.67   1.32    2.31    2.54    2.68    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                STORM AREA =    0.00

99 LS          SCS LOSS RATE
                     STRTL        0.04  INITIAL ABSTRACTION
                    CRVNBR       98.00  CURVE NUMBER
                     RTIMP        0.00  PERCENT IMPERVIOUS AREA

100 UD         SCS DIMENSIONLESS UNITGRAPH
                     TLAG        0.10  LAG

                                                ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                UNIT HYDROGRAPH
                                            32 END-OF-PERIOD ORDINATES
               0.       1.       3.       5.       6.       7.       7.       6.       6.       5.
               3.       3.       2.       2.       1.       1.       1.       1.       0.       0.
               0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
               0.       0.

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

                    HYDROGRAPH AT STATION     DA21

    TOTAL RAINFALL =    3.52, TOTAL LOSS =    0.23, TOTAL EXCESS =    3.29

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+       6.     12.10                     0.          0.          0.          0.
                         (INCHES)     2.887       3.284       3.284       3.284
                         (AC-FT)         0.          0.          0.          0.

                    CUMULATIVE AREA =    0.00 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
```

```
          **************
          *            *
101 KK    *     ADD21  *
          *            *
          **************

102 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                        HYDROGRAPH AT STATION    ADD21

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                     (CFS)
+      59.     12.12                    5.          1.          1.          1.
                     (INCHES)       1.819       2.013       2.013       2.013
                     (AC-FT)           2.          2.          2.          2.

                        CUMULATIVE AREA =    0.02 SQ MI


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


          **************
          *            *
103 KK    *     RTE21  *
          *            *
          **************

             HYDROGRAPH ROUTING DATA

104 RD          MUSKINGUM-CUNGE CHANNEL ROUTING
                       L         90.  CHANNEL LENGTH
                       S     0.0028  SLOPE
                       N      0.012  CHANNEL ROUGHNESS COEFFICIENT
                      CA       0.00  CONTRIBUTING AREA
                   SHAPE       CIRC  CHANNEL SHAPE
                      WD       4.00  BOTTOM WIDTH OR DIAMETER
                       Z       0.00  SIDE SLOPE

                                                          ***

                        COMPUTED MUSKINGUM-CUNGE PARAMETERS
                                COMPUTATION TIME STEP
                ELEMENT    ALPHA       M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                             PEAK                  CELERITY
                                                 (MIN)     (FT)     (CFS)   (MIN)       (IN)      (FPS)

                  MAIN       4.47     1.25      0.18     90.00     58.78   726.98       2.01      8.14
```

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	4.47	1.25	1.00		58.77	727.00	2.01

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2491E+01 EXCESS=0.0000E+00 OUTFLOW=0.2490E+01 BASIN STORAGE=0.1878E-03 PERCENT ERROR= 0.0

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

HYDROGRAPH AT STATION RTE21

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	59.	12.12		5.	1.	1.	1.
			(INCHES)	1.819	2.013	2.013	2.013
			(AC-FT)	2.	2.	2.	2.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

```
              **************
              *            *
105 KK        *    DA22    *
              *            *
              **************
```

SUBBASIN RUNOFF DATA

106 BA SUBBASIN CHARACTERISTICS

TAREA 0.01 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			.... TP-40					.... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.68	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.01

107 LS SCS LOSS RATE

STRTL 0.19 INITIAL ABSTRACTION

CRVNBR 91.30 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

108 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

4.	12.	24.	41.	53.	59.	59.	54.	47.	38.
28.	21.	17.	13.	10.	8.	6.	5.	4.	3.
2.	2.	1.	1.	1.	1.	1.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA22

TOTAL RAINFALL = 3.52, TOTAL LOSS = 0.93, TOTAL EXCESS = 2.59

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	44.	12.10		3.	1.	1.	1.
			(INCHES)	2.357	2.586	2.586	2.586
			(AC-FT)	2.	2.	2.	2.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

109 KK

****
* *
* ADD22 *
* *
****

110 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION ADD22

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	103.	12.12		8.	2.	2.	2.
			(INCHES)	2.014	2.222	2.222	2.222
			(AC-FT)	4.	4.	4.	4.

CUMULATIVE AREA = 0.04 SQ MI

*** ***

```
          **************
          *            *
111 KK    *     RTE22  *
          *            *
          **************

             HYDROGRAPH ROUTING DATA

112 RD          MUSKINGUM-CUNGE CHANNEL ROUTING
                        L       260.  CHANNEL LENGTH
                        S    0.0028  SLOPE
                        N     0.012  CHANNEL ROUGHNESS COEFFICIENT
                       CA      0.00  CONTRIBUTING AREA
                    SHAPE      CIRC  CHANNEL SHAPE
                       WD      4.50  BOTTOM WIDTH OR DIAMETER
                        Z      0.00  SIDE SLOPE

                                                    ***
                                  COMPUTED MUSKINGUM-CUNGE PARAMETERS
                                          COMPUTATION TIME STEP
                    ELEMENT    ALPHA       M         DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                                    PEAK                CELERITY
                                                      (MIN)     (FT)     (CFS)    (MIN)       (IN)      (FPS)

                       MAIN     4.56     1.25      0.47    260.00    101.71   727.16      2.22      9.24

                                          INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                       MAIN     4.56     1.25      1.00              101.58   727.00      2.22

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4325E+01 EXCESS=0.0000E+00 OUTFLOW=0.4322E+01 BASIN STORAGE=0.7969E-03 PERCENT ERROR=   0.1


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

                        HYDROGRAPH AT STATION    RTE22

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+     102.     12.12                    8.          2.          2.          2.
                          (INCHES)  2.012       2.220       2.220       2.220
                          (AC-FT)      4.          4.          4.          4.

                        CUMULATIVE AREA =    0.04 SQ MI


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

                                                    925

          **************
```

```
              *             *
113 KK        *     DA23    *
              *             *
              ***************

                 SUBBASIN RUNOFF DATA

114 BA             SUBBASIN CHARACTERISTICS
                         TAREA        0.03  SUBBASIN AREA

                   PRECIPITATION DATA

  8 PH                                   DEPTHS FOR   2-PERCENT HYPOTHETICAL STORM
                   ..... HYDRO-35 ......   ............... TP-40 ...............  ........... TP-49 ...........
                   5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                    0.67    1.32    2.31    2.54    2.68    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                       STORM AREA =     0.03

115 LS             SCS LOSS RATE
                        STRTL        0.45  INITIAL ABSTRACTION
                       CRVNBR       81.50  CURVE NUMBER
                        RTIMP        0.00  PERCENT IMPERVIOUS AREA

116 UD             SCS DIMENSIONLESS UNITGRAPH
                         TLAG        0.10  LAG

                                                                 ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667         0.01667         24.00000

                                                           UNIT HYDROGRAPH
                                                      32 END-OF-PERIOD ORDINATES
                      10.        28.        58.        97.       128.       141.       141.       129.       113.        90.
                      67.        52.        40.        32.        25.        19.        15.        12.         9.         7.
                       5.         4.         3.         3.         2.         2.         1.         1.         1.         1.
                       0.         0.

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

                               HYDROGRAPH AT STATION      DA23

     TOTAL RAINFALL =      3.52, TOTAL LOSS =      1.76, TOTAL EXCESS =      1.76

     PEAK FLOW      TIME                                  MAXIMUM AVERAGE FLOW
                                              6-HR         24-HR         72-HR      23.98-HR

 +    (CFS)        (HR)
                                  (CFS)
 +       74.      12.12                          6.            2.            2.            2.
                               (INCHES)       1.624         1.759         1.759         1.759
                                (AC-FT)          3.            3.            3.            3.

                               CUMULATIVE AREA =      0.03 SQ MI

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
```

```
          **************
          *            *
 117 KK   *     ADD23  *
          *            *
          **************

 118 HC          HYDROGRAPH COMBINATION
                       ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                        ***

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

                        HYDROGRAPH AT STATION    ADD23

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+     175.     12.12                  13.         4.          4.          4.
                         (INCHES)     1.827       2.005       2.005       2.005
                          (AC-FT)       7.          7.          7.          7.

                        CUMULATIVE AREA =    0.07 SQ MI


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


          **************
          *            *
 119 KK   *     RTE23  *       INFIELD AREA - 30" OUTLET (INLET CONTROL) basin 12
          *            *
          **************

             HYDROGRAPH ROUTING DATA

 120 RS          STORAGE ROUTING
                      NSTPS          1  NUMBER OF SUBREACHES
                       ITYP       STOR  TYPE OF INITIAL CONDITION
                      RSVRIC      0.00  INITIAL CONDITION
                          X       0.00 WORKING R AND D COEFFICIENT

 121 SV            STORAGE        0.0       0.2       0.9       7.4

 122 SE          ELEVATION     1160.00   1161.00   1162.00   1165.00

 123 SQ          DISCHARGE        0.        0.        4.       25.

                                                        ***

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

                        HYDROGRAPH AT STATION    RTE23

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
```

		(CFS)				
+ 16.	12.65		11.	3.	3.	3.
		(INCHES)	1.469	1.886	1.886	1.886
		(AC-FT)	5.	7.	7.	7.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
5.	12.65	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
1163.76	12.65	1162.97	1161.23	1161.23	1161.23

CUMULATIVE AREA = 0.07 SQ MI

*** ***

```
**************
*            *
*            *
*      DA24  *
*            *
**************
```

124 KK

SUBBASIN RUNOFF DATA

125 BA SUBBASIN CHARACTERISTICS

TAREA 0.00 SUBBASIN AREA

PRECIPITATION DATA

8 PH

DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.68	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.00

126 LS SCS LOSS RATE

STRTL 0.04 INITIAL ABSTRACTION

CRVNBR 98.00 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

127 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH

32 END-OF-PERIOD ORDINATES

1.	2.	5.	8.	10.	11.	11.	10.	9.	7.
5.	4.	3.	2.	2.	2.	1.	1.	1.	1.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

```
                0.        0.

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

                        HYDROGRAPH AT STATION     DA24

     TOTAL RAINFALL =    3.52, TOTAL LOSS =    0.23, TOTAL EXCESS =    3.29

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+      10.     12.10                     1.          0.           0.          0.
                        (INCHES)      2.887       3.284        3.284       3.284
                        (AC-FT)         0.          0.           0.          0.

                        CUMULATIVE AREA =    0.00 SQ MI


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


           **************
           *            *
  128 KK   *     ADD24  *
           *            *
           **************

  129 HC          HYDROGRAPH COMBINATION
                        ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                        ***

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

                        HYDROGRAPH AT STATION    ADD24

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+      18.     12.15                    11.          4.           4.          4.
                        (INCHES)      1.496       1.935        1.935       1.935
                        (AC-FT)         6.          7.           7.          7.

                        CUMULATIVE AREA =    0.07 SQ MI


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


           **************
           *            *
  130 KK   *      DA25  *
           *            *
           **************
```

SUBBASIN RUNOFF DATA

131 BA SUBBASIN CHARACTERISTICS

TAREA 0.02 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			.... TP-40					.... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.68	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.02

132 LS SCS LOSS RATE

STRTL 0.37 INITIAL ABSTRACTION

CRVNBR 84.40 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

133 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH

32 END-OF-PERIOD ORDINATES

6.	17.	36.	60.	78.	86.	86.	79.	69.	55.
41.	32.	24.	19.	15.	12.	9.	7.	6.	4.
3.	3.	2.	2.	1.	1.	1.	1.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA25

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.53, TOTAL EXCESS = 1.99

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 51.	12.12		4.	1.	1.	1.
		(INCHES)	1.828	1.983	1.983	1.983
		(AC-FT)	2.	2.	2.	2.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

```
**************
*            *
*    ADD25   *
*            *
```

134 KK ADD25

930

```
          **************

  135 HC          HYDROGRAPH COMBINATION
                        ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                         HYDROGRAPH AT STATION    ADD25

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+      68.     12.12                  15.          5.           5.           5.
                        (INCHES)     1.552        1.945        1.945        1.945
                         (AC-FT)       7.           9.           9.           9.

                         CUMULATIVE AREA =    0.09 SQ MI



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


          **************
          *            *
  136 KK  *     RTE25  *       INFIELD AREA - 24" OUTLET (INLET CONTROL) basin 11
          *            *
          **************

             HYDROGRAPH ROUTING DATA

  137 RS          STORAGE ROUTING
                       NSTPS           1  NUMBER OF SUBREACHES
                        ITYP        STOR  TYPE OF INITIAL CONDITION
                       RSVRIC       0.00  INITIAL CONDITION
                           X        0.00 WORKING R AND D COEFFICIENT

  138 SV            STORAGE         0.0         0.2         0.9        13.4

  139 SE          ELEVATION     1159.00     1160.00     1161.00     1165.00

  140 SQ          DISCHARGE          0.          0.          4.         30.

                                                                  ***

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

                         HYDROGRAPH AT STATION    RTE25

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+      10.     15.80                   9.          4.           4.           4.
                        (INCHES)     0.956        1.645        1.645        1.645
                         (AC-FT)       5.           8.           8.           8.
```

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE		
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
4.	15.83	3.	1.	1.	1.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE		
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
1161.89	15.80	1161.82	1160.35	1160.35	1160.35

CUMULATIVE AREA = 0.09 SQ MI

*** ***

```
              **************
              *            *
141 KK        *    DA26    *
              *            *
              **************
```

SUBBASIN RUNOFF DATA

142 BA SUBBASIN CHARACTERISTICS

TAREA 0.02 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			.... TP-40					.... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.68	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.02

143 LS SCS LOSS RATE

STRTL 0.55 INITIAL ABSTRACTION

CRVNBR 78.50 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

144 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH

32 END-OF-PERIOD ORDINATES

5.	14.	28.	48.	62.	69.	69.	63.	55.	44.
33.	25.	19.	16.	12.	9.	7.	6.	4.	3.
3.	2.	2.	1.	1.	1.	1.	1.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA26

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.97, TOTAL EXCESS = 1.55

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	31.	12.12		2.	1.	1.	1.
			(INCHES)	1.424	1.545	1.545	1.545
			(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

```
          **************
          *            *
145 KK    *     ADD26  *
          *            *
          **************
```

146 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION ADD26

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	35.	12.12		11.	5.	5.	5.
			(INCHES)	0.964	1.630	1.630	1.630
			(AC-FT)	5.	9.	9.	9.

CUMULATIVE AREA = 0.11 SQ MI

*** ***

```
          **************
          *            *
147 KK    *     RTE26  *       INFIELD AREA - 18" OUTLET (INLET CONTROL) basin 10
          *            *
          **************
```

HYDROGRAPH ROUTING DATA

148 RS STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	STOR	TYPE OF INITIAL CONDITION
RSVRIC	0.00	INITIAL CONDITION
X	0.00	WORKING R AND D COEFFICIENT

149 SV	STORAGE	0.0	0.3	2.2	5.6
150 SE	ELEVATION	1158.00	1159.00	1160.00	1161.00
151 SQ	DISCHARGE	0.	0.	3.	9.

***

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

HYDROGRAPH AT STATION RTE26

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 7.	21.70		7.	3.	3.	3.
		(INCHES)	0.578	0.900	0.900	0.900
		(AC-FT)	3.	5.	5.	5.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
4.	21.67	4.	2.	2.	2.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
1160.61	21.78	1160.57	1159.14	1159.14	1159.14

CUMULATIVE AREA = 0.11 SQ MI

*** ***

```
          ***************
          *             *
152 KK    *     DA27    *
          *             *
          ***************
```

SUBBASIN RUNOFF DATA

153 BA SUBBASIN CHARACTERISTICS

TAREA 0.03 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35	......		.... TP-40	....				.... TP-49	....		
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.68	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.03

154 LS SCS LOSS RATE

STRTL	0.37	INITIAL ABSTRACTION
CRVNBR	84.30	CURVE NUMBER
RTIMP	0.00	PERCENT IMPERVIOUS AREA

155 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	0.10	LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

8.	22.	46.	77.	101.	112.	112.	103.	89.	72.
53.	41.	32.	25.	20.	15.	12.	9.	7.	6.
4.	3.	3.	2.	2.	1.	1.	1.	1.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA27

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.54, TOTAL EXCESS = 1.98

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	66.	12.12		5.	1.	1.	1.
			(INCHES)	1.820	1.975	1.975	1.975
			(AC-FT)	2.	3.	3.	3.

CUMULATIVE AREA = 0.03 SQ MI

*** ***

****
* *
156 KK * ADD27 *
* *
****

157 HC HYDROGRAPH COMBINATION

ICOMP	2	NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION ADD27

PEAK FLOW TIME MAXIMUM AVERAGE FLOW 935

			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 66.	12.12		8.	4.	4.	4.
		(INCHES)	0.588	1.107	1.107	1.107
		(AC-FT)	4.	8.	8.	8.

CUMULATIVE AREA = 0.13 SQ MI

*** ***

```
          **************
          *            *
158 KK    *     RTE27  *       INFIELD AREA - 24" OUTLET (INLET CONTROL) basin 9
          *            *
          **************
```

HYDROGRAPH ROUTING DATA

159 RS	STORAGE ROUTING					
		NSTPS	1	NUMBER OF SUBREACHES		
		ITYP	STOR	TYPE OF INITIAL CONDITION		
		RSVRIC	0.00	INITIAL CONDITION		
		X	0.00	WORKING R AND D COEFFICIENT		
160 SV	STORAGE		0.0	0.2	2.6	4.9
161 SE	ELEVATION		1157.90	1158.40	1160.00	1161.00
162 SQ	DISCHARGE		0.	0.	9.	17.

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

HYDROGRAPH AT STATION RTE27

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 7.	23.98		6.	3.	3.	3.
		(INCHES)	0.446	0.825	0.825	0.825
		(AC-FT)	3.	6.	6.	6.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
2.	23.90	2.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
1159.60	23.97	1159.52	1158.68	1158.68	1158.68

CUMULATIVE AREA = 0.13 SQ MI

936

*** ***

```
          **************
          *            *
163 KK    *      DA28  *
          *            *
          **************
```

SUBBASIN RUNOFF DATA

164 BA SUBBASIN CHARACTERISTICS

TAREA	0.00	SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.68	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.00

165 LS SCS LOSS RATE

STRTL	0.04	INITIAL ABSTRACTION
CRVNBR	98.00	CURVE NUMBER
RTIMP	0.00	PERCENT IMPERVIOUS AREA

166 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	0.10	LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

1.	2.	5.	8.	10.	11.	11.	10.	9.	7.
5.	4.	3.	2.	2.	2.	1.	1.	1.	1.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA28

TOTAL RAINFALL = 3.52, TOTAL LOSS = 0.23, TOTAL EXCESS = 3.29

			MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ PEAK FLOW (CFS)	TIME (HR)					
		(CFS)				
+ 10.	12.10		1.	0.	0.	0.
		(INCHES)	2.887	3.284	3.284	3.284
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 0.00 SQ MI

*** ***

****
* *
167 KK * ADD28 *
* *
****

168 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION ADD28

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 12.	12.12		6.	3.	3.	3.
		(INCHES)	0.441	0.871	0.871	0.871
		(AC-FT)	3.	6.	6.	6.

CUMULATIVE AREA = 0.13 SQ MI

*** ***

****
* *
169 KK * DA29 *
* *
****

SUBBASIN RUNOFF DATA

170 BA SUBBASIN CHARACTERISTICS
TAREA 0.03 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.68	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.03

938

171 LS SCS LOSS RATE

```
                    STRTL       0.40  INITIAL ABSTRACTION
                   CRVNBR      83.50  CURVE NUMBER
                    RTIMP       0.00  PERCENT IMPERVIOUS AREA

 172 UD          SCS DIMENSIONLESS UNITGRAPH
                    TLAG       0.10  LAG

                                                    ***

 VALUE EXCEEDS TABLE IN LOGLOG         0.01667       0.01667      24.00000

                                                UNIT HYDROGRAPH
                                              32 END-OF-PERIOD ORDINATES
                9.      25.      52.      87.     114.     127.     127.     116.     101.      81.
               60.      46.      36.      29.      22.      17.      13.      10.       8.       6.
                5.       4.       3.       2.       2.       1.       1.       1.       1.       0.
                0.       0.

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

                      HYDROGRAPH AT STATION     DA29

     TOTAL RAINFALL =    3.52, TOTAL LOSS =    1.61, TOTAL EXCESS =    1.91

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                        (CFS)
+      72.     12.12                     5.          1.          1.          1.
                      (INCHES)       1.763       1.912       1.912       1.912
                      (AC-FT)           3.          3.          3.          3.

                      CUMULATIVE AREA =    0.03 SQ MI


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


           ***************
           *             *
 173 KK    *     ADD29   *
           *             *
           ***************

 174 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                      HYDROGRAPH AT STATION    ADD29

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                        (CFS)
+      84.     12.12                    11.          5.          5.939       5.
```

(INCHES)	0.639	1.054	1.054	1.054
(AC-FT)	6.	9.	9.	9.

CUMULATIVE AREA = 0.16 SQ MI

*** ***

```
          ***************
          *             *
175 KK    *    RTE29    *       INFIELD AREA - 24" OUTLET (INLET CONTROL) basin 8
          *             *
          ***************
```

HYDROGRAPH ROUTING DATA

176 RS STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	STOR	TYPE OF INITIAL CONDITION
RSVRIC	0.00	INITIAL CONDITION
X	0.00	WORKING R AND D COEFFICIENT

177 SV	STORAGE	0.0	0.0	1.2	5.6
178 SE	ELEVATION	1157.00	1157.50	1159.00	1161.00
179 SQ	DISCHARGE	0.	0.	8.	23.

***

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

HYDROGRAPH AT STATION RTE29

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 11.	12.70		9.	4.	4.	4.
		(INCHES)	0.541	0.932	0.932	0.932
		(AC-FT)	5.	8.	8.	8.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
2.	12.68	2.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
1159.46	12.70	1159.19	1158.05	1158.05	1158.05

CUMULATIVE AREA = 0.16 SQ MI

*** ***

```
          **************
          *            *
180 KK    *   ADDALL   *
          *            *
          **************
```

ADD LOCAL RUNOFF AND PUMP STATION OUTFLOW

182 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION ADDALL

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
		(CFS)				
+	211.	12.38	30.	10.	10.	10.
		(INCHES)	1.695	2.211	2.211	2.211
		(AC-FT)	15.	19.	19.	19.

CUMULATIVE AREA = 0.16 SQ MI

*** ***

```
          **************
          *            *
183 KK    *    DA10    *    UPPER 1-10 DRAINAGE AREAS WHICH DRAIN TO WEST CHANNEL
          *            *
          **************
```

SUBBASIN RUNOFF DATA

184 BA SUBBASIN CHARACTERISTICS

TAREA 0.01 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.68	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.01

185 LS SCS LOSS RATE

STRTL 0.17 INITIAL ABSTRACTION

CRVNBR 92.00 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

186 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH

32 END-OF-PERIOD ORDINATES

2.	5.	11.	18.	24.	27.	27.	24.	21.	17.
13.	10.	7.	6.	5.	4.	3.	2.	2.	1.
1.	1.	1.	0.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA10

TOTAL RAINFALL = 3.52, TOTAL LOSS = 0.86, TOTAL EXCESS = 2.66

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 20.	12.10		2.	0.	0.	0.
		(INCHES)	2.414	2.653	2.653	2.653
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

```
          **************
          *            *
187 KK    *     DA11   *
          *            *
          **************
```

SUBBASIN RUNOFF DATA

188 BA SUBBASIN CHARACTERISTICS

TAREA 0.00 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			.... TP-40					.... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.68	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.00

189 LS SCS LOSS RATE

STRTL 0.04 INITIAL ABSTRACTION

CRVNBR 98.00 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

942

```
190 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG        0.10  LAG

                                                    ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                UNIT HYDROGRAPH
                                            32 END-OF-PERIOD ORDINATES
                1.       2.       3.       6.       8.       8.       8.       8.       7.       5.
                4.       3.       2.       2.       1.       1.       1.       1.       1.       0.
                0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
                0.       0.

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

                      HYDROGRAPH AT STATION     DA11

    TOTAL RAINFALL =    3.52, TOTAL LOSS =    0.23, TOTAL EXCESS =    3.29

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                        (CFS)
+       7.     12.10                   1.          0.          0.          0.
                      (INCHES)      2.887       3.284       3.284       3.284
                      (AC-FT)          0.          0.          0.          0.

                      CUMULATIVE AREA =    0.00 SQ MI


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


          **************
          *            *
191 KK    *      DA12  *
          *            *
          **************

             SUBBASIN RUNOFF DATA

192 BA          SUBBASIN CHARACTERISTICS
                      TAREA        0.01  SUBBASIN AREA

                PRECIPITATION DATA

  8 PH                                DEPTHS FOR   2-PERCENT HYPOTHETICAL STORM
                ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 0.67    1.32    2.31    2.54    2.68    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                STORM AREA =    0.01

193 LS          SCS LOSS RATE
                      STRTL        0.20  INITIAL ABSTRACTION
                      CRVNBR      91.00  CURVE NUMBER
```

943

RTIMP 0.00 PERCENT IMPERVIOUS AREA

194 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

2.	7.	14.	24.	32.	35.	35.	32.	28.	22.
16.	13.	10.	8.	6.	5.	4.	3.	2.	2.
1.	1.	1.	1.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA12

TOTAL RAINFALL = 3.52, TOTAL LOSS = 0.96, TOTAL EXCESS = 2.56

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	26.	12.10		2.	1.	1.	1.
			(INCHES)	2.333	2.558	2.558	2.558
			(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

****
* *
195 KK * ADD12 *
* *
****

196 HC HYDROGRAPH COMBINATION
ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION ADD12

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	54.	12.10		4.	1.	1.	1.
			(INCHES)	2.426	2.681	2.681	2.681
			(AC-FT)	2.	2.	2.	944 2.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

```
          **************
          *            *
197 KK    *     RTE12  *
          *            *
          **************
```

HYDROGRAPH ROUTING DATA

198 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	140.	CHANNEL LENGTH
S	0.0036	SLOPE
N	0.012	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	2.50	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS

			COMPUTATION TIME STEP					
ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	4.68	1.25	0.28	140.00	53.38	726.37	2.68	8.30
			INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL					
MAIN	4.68	1.25	1.00		53.24	727.00	2.68	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2259E+01 EXCESS=0.0000E+00 OUTFLOW=0.2259E+01 BASIN STORAGE=0.2296E-03 PERCENT ERROR= 0.0

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

HYDROGRAPH AT STATION RTE12

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
			(CFS)			
+	53.	12.12	4.	1.	1.	1.
			(INCHES) 2.426	2.680	2.680	2.680
			(AC-FT) 2.	2.	2.	2.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

```
          **************
          *            *
199 KK    *      DA13  *
          *            *
          **************
```

SUBBASIN RUNOFF DATA

200 BA SUBBASIN CHARACTERISTICS

TAREA 0.00 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.68	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.00

201 LS SCS LOSS RATE

STRTL 0.22 INITIAL ABSTRACTION

CRVNBR 90.10 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

202 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH

32 END-OF-PERIOD ORDINATES

1.	2.	5.	8.	10.	12.	12.	11.	9.	7.
5.	4.	3.	3.	2.	2.	1.	1.	1.	1.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA13

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.04, TOTAL EXCESS = 2.48

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
		(CFS)	1.	0.	0.	0.
+	8.	12.10				
		(INCHES)	2.261	2.473	2.473	2.473
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 0.00 SQ MI

946

*** ***

****
* *
203 KK * RTE13 *
* *
****

HYDROGRAPH ROUTING DATA

204 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	300.	CHANNEL LENGTH
S	0.0017	SLOPE
N	0.012	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	2.00	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS

			COMPUTATION TIME STEP					
ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	3.10	1.25	1.00	300.00	8.07	727.00	2.47	4.11

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	3.10	1.25	1.00	8.07	727.00	2.47

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3430E+00 EXCESS=0.0000E+00 OUTFLOW=0.3421E+00 BASIN STORAGE=0.1590E-03 PERCENT ERROR= 0.2

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

HYDROGRAPH AT STATION RTE13

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 8.	12.12		1.	0.	0.	0.
		(INCHES)	2.254	2.467	2.467	2.467
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 0.00 SQ MI

*** ***

****
* *
205 KK * DA14 *
* *
****

SUBBASIN RUNOFF DATA

206 BA SUBBASIN CHARACTERISTICS
TAREA 0.00 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.68	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.00

207 LS SCS LOSS RATE
STRTL 0.26 INITIAL ABSTRACTION
CRVNBR 88.40 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

208 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

1.	4.	8.	13.	17.	19.	19.	17.	15.	12.
9.	7.	5.	4.	3.	3.	2.	2.	1.	1.
1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA14

TOTAL RAINFALL = 3.52, TOTAL LOSS = 1.20, TOTAL EXCESS = 2.32

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
		(CFS)				
+	13.	12.10	1.	0.	0.	0.
		(INCHES)	2.127	2.320	2.320	2.320
		(AC-FT)	0.	1.	1.	1.

CUMULATIVE AREA = 0.00 SQ MI

*** ***

```
          **************
          *            *
209 KK    *     ADD14  *
          *            *
          **************
```

210 HC HYDROGRAPH COMBINATION

ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION ADD14

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 74.	12.12		6.	2.	2.	2.
		(INCHES)	2.348	2.588	2.588	2.588
		(AC-FT)	3.	3.	3.	3.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

```
          **************
          *            *
211 KK    *     RTE14  *
          *            *
          **************
```

HYDROGRAPH ROUTING DATA

212 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	1060.	CHANNEL LENGTH
S	0.0029	SLOPE
N	0.012	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	4.00	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS

COMPUTATION TIME STEP

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)

MAIN	4.55	1.25	1.00	530.00	72.06	728.00	2.58	8.65

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	4.55	1.25	1.00		72.06	728.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3133E+01 EXCESS=0.0000E+00 OUTFLOW=0.3124E+01 BASIN STORAGE=0.2364E-02 PERCENT ERROR= 0.2

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

HYDROGRAPH AT STATION RTE14

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 72.	12.13		6.	2.	2.	2.
		(INCHES)	2.342	2.580	2.580	2.580
		(AC-FT)	3.	3.	3.	3.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

```
               ***************
               *             *
213 KK         *     DA15    *
               *             *
               ***************
```

SUBBASIN RUNOFF DATA

214 BA SUBBASIN CHARACTERISTICS
TAREA 0.00 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35	......		....	.... TP-40	....			.....	.... TP-49	....	
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.68	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.00

215 LS SCS LOSS RATE
STRTL 0.20 INITIAL ABSTRACTION
CRVNBR 90.90 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

216 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.10 LAG

950

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

2.	4.	9.	15.	20.	22.	22.	20.	18.	14.
10.	8.	6.	5.	4.	3.	2.	2.	1.	1.
1.	1.	1.	0.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA15

TOTAL RAINFALL = 3.52, TOTAL LOSS = 0.97, TOTAL EXCESS = 2.55

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
		(CFS)				
+	16.	12.10	1.	0.	0.	0.
		(INCHES)	2.325	2.548	2.548	2.548
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.00 SQ MI

*** ***

```
          **************
          *            *
217 KK    *      DA16  *
          *            *
          **************
```

SUBBASIN RUNOFF DATA

218 BA SUBBASIN CHARACTERISTICS

TAREA 0.00 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.68	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.00

219 LS SCS LOSS RATE

STRTL 0.04 INITIAL ABSTRACTION
CRVNBR 98.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

220 UD SCS DIMENSIONLESS UNITGRAPH

951

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

0.	1.	3.	5.	6.	7.	7.	6.	6.	5.
3.	3.	2.	2.	1.	1.	1.	1.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA16

TOTAL RAINFALL = 3.52, TOTAL LOSS = 0.23, TOTAL EXCESS = 3.29

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	6.	12.10		0.	0.	0.	0.
			(INCHES)	2.887	3.284	3.284	3.284
			(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 0.00 SQ MI

*** ***

```
**************
*            *
*      DA17  *
*            *
**************
```

221 KK

SUBBASIN RUNOFF DATA

222 BA SUBBASIN CHARACTERISTICS

TAREA 0.01 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.67	1.32	2.31	2.54	2.68	2.97	3.24	3.52	0.00	0.00	0.00	0.00

STORM AREA = 0.01

223 LS SCS LOSS RATE

STRTL 0.21 INITIAL ABSTRACTION

CRVNBR 90.60 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

```
224 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG        0.10  LAG

                                                ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                UNIT HYDROGRAPH
                                              32 END-OF-PERIOD ORDINATES
                2.        5.        9.       16.       21.       23.       23.       21.       18.       15.
               11.        8.        6.        5.        4.        3.        2.        2.        1.        1.
                1.        1.        1.        0.        0.        0.        0.        0.        0.        0.
                0.        0.

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

                      HYDROGRAPH AT STATION     DA17

    TOTAL RAINFALL =    3.52, TOTAL LOSS =    1.00, TOTAL EXCESS =    2.52

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                        (CFS)
+      17.      12.10                 1.          0.          0.          0.
                      (INCHES)      2.301       2.520       2.520       2.520
                      (AC-FT)         1.          1.          1.          1.

                      CUMULATIVE AREA =    0.01 SQ MI


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


          **************
          *            *
225 KK    *      DA18  *
          *            *
          **************

             SUBBASIN RUNOFF DATA

226 BA          SUBBASIN CHARACTERISTICS
                      TAREA        0.00  SUBBASIN AREA

                PRECIPITATION DATA

  8 PH                                DEPTHS FOR   2-PERCENT HYPOTHETICAL STORM
                ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 0.67    1.32    2.31    2.54    2.68    2.97    3.24    3.52    0.00    0.00    0.00    0.00

                                                STORM AREA =    0.00

227 LS          SCS LOSS RATE
                      STRTL        0.21  INITIAL ABSTRACTION
                      CRVNBR      90.70  CURVE NUMBER
                      RTIMP        0.00  PERCENT IMPERVIOUS AREA
```

953

```
228 UD          SCS DIMENSIONLESS UNITGRAPH
                     TLAG        0.10  LAG

                                                       ***

VALUE EXCEEDS TABLE IN LOGLOG        0.01667      0.01667      24.00000

                                               UNIT HYDROGRAPH
                                           32 END-OF-PERIOD ORDINATES
              1.        2.        3.        5.        7.        8.        8.        7.        6.        5.
              4.        3.        2.        2.        1.        1.        1.        1.        0.        0.
              0.        0.        0.        0.        0.        0.        0.        0.        0.        0.
              0.        0.

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

                        HYDROGRAPH AT STATION     DA18

    TOTAL RAINFALL =     3.52, TOTAL LOSS =     0.99, TOTAL EXCESS =     2.53

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                         6-HR       24-HR       72-HR     23.98-HR
+   (CFS)        (HR)
                              (CFS)
+        6.      12.10                     0.          0.          0.          0.
                           (INCHES)    2.309       2.529       2.529       2.529
                            (AC-FT)       0.          0.          0.          0.

                        CUMULATIVE AREA =      0.00 SQ MI


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

            ***************
            *             *
229 KK      *    ADD17    *
            *             *
            ***************

230 HC          HYDROGRAPH COMBINATION
                     ICOMP           5  NUMBER OF HYDROGRAPHS TO COMBINE

                                                       ***

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

                        HYDROGRAPH AT STATION     ADD17

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                         6-HR       24-HR       72-HR     23.98-HR
+   (CFS)        (HR)
                              (CFS)
+      115.      12.13                     9.          3.          3.          3.
                           (INCHES)    2.354       2.596       2.596       2.596
                            (AC-FT)       5.          5.          5.          5.
```

CUMULATIVE AREA = 0.04 SQ MI

*** ***

```
          **************
          *            *
231 KK    *     RTE18  *
          *            *
          **************
```

233 KO OUTPUT CONTROL VARIABLES

IPRNT	1	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

232 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	380.	CHANNEL LENGTH
S	0.0008	SLOPE
N	0.012	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	4.50	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS

ELEMENT	ALPHA	M	COMPUTATION TIME STEP DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	2.43	1.25	1.00	380.00	108.14	728.00	2.57	5.73
INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL								
MAIN	2.43	1.25	1.00		108.14	728.00	2.57	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5012E+01 EXCESS=0.0000E+00 OUTFLOW=0.4964E+01 BASIN STORAGE=0.2032E-02 PERCENT ERROR= 0.9

****

HYDROGRAPH AT STATION RTE18

****

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	0.	1		0600	361	0.	1		1200	721	45.	1		1800	1081	1.
1		0001	2	0.	1		0601	362	0.	1		1201	722	53.	1		1801	1082	1.

1	0002	3	0.	*	1	0602	363	0.	*	1	1202	723	63.	*	1	1802	1083	1.
1	0003	4	0.	*	1	0603	364	0.	*	1	1203	724	74.	*	1	1803	1084	1.
1	0004	5	0.	*	1	0604	365	0.	*	1	1204	725	85.	*	1	1804	1085	1.
1	0005	6	0.	*	1	0605	366	0.	*	1	1205	726	94.	*	1	1805	1086	1.
1	0006	7	0.	*	1	0606	367	0.	*	1	1206	727	102.	*	1	1806	1087	1.
1	0007	8	0.	*	1	0607	368	0.	*	1	1207	728	107.	*	1	1807	1088	1.
1	0008	9	0.	*	1	0608	369	0.	*	1	1208	729	108.	*	1	1808	1089	1.
1	0009	10	0.	*	1	0609	370	0.	*	1	1209	730	107.	*	1	1809	1090	1.
1	0010	11	0.	*	1	0610	371	0.	*	1	1210	731	103.	*	1	1810	1091	1.
1	0011	12	0.	*	1	0611	372	0.	*	1	1211	732	98.	*	1	1811	1092	1.
1	0012	13	0.	*	1	0612	373	0.	*	1	1212	733	92.	*	1	1812	1093	1.
1	0013	14	0.	*	1	0613	374	0.	*	1	1213	734	86.	*	1	1813	1094	1.
1	0014	15	0.	*	1	0614	375	0.	*	1	1214	735	80.	*	1	1814	1095	1.
1	0015	16	0.	*	1	0615	376	0.	*	1	1215	736	74.	*	1	1815	1096	1.
1	0016	17	0.	*	1	0616	377	0.	*	1	1216	737	69.	*	1	1816	1097	1.
1	0017	18	0.	*	1	0617	378	0.	*	1	1217	738	64.	*	1	1817	1098	1.
1	0018	19	0.	*	1	0618	379	0.	*	1	1218	739	59.	*	1	1818	1099	1.
1	0019	20	0.	*	1	0619	380	0.	*	1	1219	740	55.	*	1	1819	1100	1.
1	0020	21	0.	*	1	0620	381	0.	*	1	1220	741	51.	*	1	1820	1101	1.
1	0021	22	0.	*	1	0621	382	0.	*	1	1221	742	47.	*	1	1821	1102	1.
1	0022	23	0.	*	1	0622	383	0.	*	1	1222	743	44.	*	1	1822	1103	1.
1	0023	24	0.	*	1	0623	384	0.	*	1	1223	744	41.	*	1	1823	1104	1.
1	0024	25	0.	*	1	0624	385	0.	*	1	1224	745	38.	*	1	1824	1105	1.
1	0025	26	0.	*	1	0625	386	0.	*	1	1225	746	35.	*	1	1825	1106	1.
1	0026	27	0.	*	1	0626	387	0.	*	1	1226	747	33.	*	1	1826	1107	1.
1	0027	28	0.	*	1	0627	388	0.	*	1	1227	748	31.	*	1	1827	1108	1.
1	0028	29	0.	*	1	0628	389	0.	*	1	1228	749	29.	*	1	1828	1109	1.
1	0029	30	0.	*	1	0629	390	0.	*	1	1229	750	28.	*	1	1829	1110	1.
1	0030	31	0.	*	1	0630	391	0.	*	1	1230	751	26.	*	1	1830	1111	1.
1	0031	32	0.	*	1	0631	392	0.	*	1	1231	752	25.	*	1	1831	1112	1.
1	0032	33	0.	*	1	0632	393	0.	*	1	1232	753	24.	*	1	1832	1113	1.
1	0033	34	0.	*	1	0633	394	0.	*	1	1233	754	23.	*	1	1833	1114	1.
1	0034	35	0.	*	1	0634	395	0.	*	1	1234	755	21.	*	1	1834	1115	1.
1	0035	36	0.	*	1	0635	396	0.	*	1	1235	756	20.	*	1	1835	1116	1.
1	0036	37	0.	*	1	0636	397	0.	*	1	1236	757	19.	*	1	1836	1117	1.
1	0037	38	0.	*	1	0637	398	0.	*	1	1237	758	17.	*	1	1837	1118	1.
1	0038	39	0.	*	1	0638	399	0.	*	1	1238	759	16.	*	1	1838	1119	1.
1	0039	40	0.	*	1	0639	400	0.	*	1	1239	760	14.	*	1	1839	1120	1.
1	0040	41	0.	*	1	0640	401	0.	*	1	1240	761	13.	*	1	1840	1121	1.
1	0041	42	0.	*	1	0641	402	0.	*	1	1241	762	12.	*	1	1841	1122	1.
1	0042	43	0.	*	1	0642	403	0.	*	1	1242	763	11.	*	1	1842	1123	1.
1	0043	44	0.	*	1	0643	404	0.	*	1	1243	764	10.	*	1	1843	1124	1.
1	0044	45	0.	*	1	0644	405	0.	*	1	1244	765	9.	*	1	1844	1125	1.
1	0045	46	0.	*	1	0645	406	0.	*	1	1245	766	8.	*	1	1845	1126	1.
1	0046	47	0.	*	1	0646	407	0.	*	1	1246	767	8.	*	1	1846	1127	1.
1	0047	48	0.	*	1	0647	408	0.	*	1	1247	768	7.	*	1	1847	1128	1.
1	0048	49	0.	*	1	0648	409	0.	*	1	1248	769	7.	*	1	1848	1129	1.
1	0049	50	0.	*	1	0649	410	0.	*	1	1249	770	6.	*	1	1849	1130	1.
1	0050	51	0.	*	1	0650	411	0.	*	1	1250	771	6.	*	1	1850	1131	1.
1	0051	52	0.	*	1	0651	412	0.	*	1	1251	772	6.	*	1	1851	1132	1.
1	0052	53	0.	*	1	0652	413	0.	*	1	1252	773	6.	*	1	1852	1133	1.
1	0053	54	0.	*	1	0653	414	0.	*	1	1253	774	5.	*	1	1853	1134	1.
1	0054	55	0.	*	1	0654	415	0.	*	1	1254	775	5.	*	1	1854	1135	1.
1	0055	56	0.	*	1	0655	416	0.	*	1	1255	776	5.	*	1	1855	1136	1.
1	0056	57	0.	*	1	0656	417	0.	*	1	1256	777	5.	*	1	1856	1137	1.
1	0057	58	0.	*	1	0657	418	0.	*	1	1257	778	5.	*	1	1857	1138	1.
1	0058	59	0.	*	1	0658	419	0.	*	1	1258	779	5.	*	1	1858	1139	1.
1	0059	60	0.	*	1	0659	420	0.	*	1	1259	780	5.	*	1	1859	1140	1.
1	0100	61	0.	*	1	0700	421	0.	*	1	1300	781	5.	*	1	1900	1141	1.
1	0101	62	0.	*	1	0701	422	0.	*	1	1301	782	4.	*	1	1901	1142	1.

1	0102	63	0.	*	1	0702	423	0.	*	1	1302	783	4.	*	1	1902	1143	1.
1	0103	64	0.	*	1	0703	424	0.	*	1	1303	784	4.	*	1	1903	1144	1.
1	0104	65	0.	*	1	0704	425	0.	*	1	1304	785	4.	*	1	1904	1145	1.
1	0105	66	0.	*	1	0705	426	0.	*	1	1305	786	4.	*	1	1905	1146	1.
1	0106	67	0.	*	1	0706	427	0.	*	1	1306	787	4.	*	1	1906	1147	1.
1	0107	68	0.	*	1	0707	428	0.	*	1	1307	788	4.	*	1	1907	1148	1.
1	0108	69	0.	*	1	0708	429	0.	*	1	1308	789	4.	*	1	1908	1149	1.
1	0109	70	0.	*	1	0709	430	0.	*	1	1309	790	4.	*	1	1909	1150	1.
1	0110	71	0.	*	1	0710	431	0.	*	1	1310	791	4.	*	1	1910	1151	1.
1	0111	72	0.	*	1	0711	432	0.	*	1	1311	792	4.	*	1	1911	1152	1.
1	0112	73	0.	*	1	0712	433	0.	*	1	1312	793	4.	*	1	1912	1153	1.
1	0113	74	0.	*	1	0713	434	0.	*	1	1313	794	4.	*	1	1913	1154	1.
1	0114	75	0.	*	1	0714	435	0.	*	1	1314	795	4.	*	1	1914	1155	1.
1	0115	76	0.	*	1	0715	436	0.	*	1	1315	796	4.	*	1	1915	1156	1.
1	0116	77	0.	*	1	0716	437	0.	*	1	1316	797	3.	*	1	1916	1157	1.
1	0117	78	0.	*	1	0717	438	0.	*	1	1317	798	3.	*	1	1917	1158	1.
1	0118	79	0.	*	1	0718	439	0.	*	1	1318	799	3.	*	1	1918	1159	1.
1	0119	80	0.	*	1	0719	440	0.	*	1	1319	800	3.	*	1	1919	1160	1.
1	0120	81	0.	*	1	0720	441	0.	*	1	1320	801	3.	*	1	1920	1161	1.
1	0121	82	0.	*	1	0721	442	0.	*	1	1321	802	3.	*	1	1921	1162	1.
1	0122	83	0.	*	1	0722	443	0.	*	1	1322	803	3.	*	1	1922	1163	1.
1	0123	84	0.	*	1	0723	444	0.	*	1	1323	804	3.	*	1	1923	1164	1.
1	0124	85	0.	*	1	0724	445	0.	*	1	1324	805	3.	*	1	1924	1165	1.
1	0125	86	0.	*	1	0725	446	0.	*	1	1325	806	3.	*	1	1925	1166	1.
1	0126	87	0.	*	1	0726	447	0.	*	1	1326	807	3.	*	1	1926	1167	1.
1	0127	88	0.	*	1	0727	448	0.	*	1	1327	808	3.	*	1	1927	1168	1.
1	0128	89	0.	*	1	0728	449	0.	*	1	1328	809	3.	*	1	1928	1169	1.
1	0129	90	0.	*	1	0729	450	0.	*	1	1329	810	3.	*	1	1929	1170	1.
1	0130	91	0.	*	1	0730	451	0.	*	1	1330	811	3.	*	1	1930	1171	1.
1	0131	92	0.	*	1	0731	452	0.	*	1	1331	812	3.	*	1	1931	1172	1.
1	0132	93	0.	*	1	0732	453	0.	*	1	1332	813	3.	*	1	1932	1173	1.
1	0133	94	0.	*	1	0733	454	0.	*	1	1333	814	3.	*	1	1933	1174	1.
1	0134	95	0.	*	1	0734	455	0.	*	1	1334	815	3.	*	1	1934	1175	1.
1	0135	96	0.	*	1	0735	456	0.	*	1	1335	816	3.	*	1	1935	1176	1.
1	0136	97	0.	*	1	0736	457	0.	*	1	1336	817	3.	*	1	1936	1177	1.
1	0137	98	0.	*	1	0737	458	0.	*	1	1337	818	3.	*	1	1937	1178	1.
1	0138	99	0.	*	1	0738	459	0.	*	1	1338	819	3.	*	1	1938	1179	1.
1	0139	100	0.	*	1	0739	460	0.	*	1	1339	820	3.	*	1	1939	1180	1.
1	0140	101	0.	*	1	0740	461	0.	*	1	1340	821	3.	*	1	1940	1181	1.
1	0141	102	0.	*	1	0741	462	0.	*	1	1341	822	3.	*	1	1941	1182	1.
1	0142	103	0.	*	1	0742	463	0.	*	1	1342	823	3.	*	1	1942	1183	1.
1	0143	104	0.	*	1	0743	464	0.	*	1	1343	824	3.	*	1	1943	1184	1.
1	0144	105	0.	*	1	0744	465	0.	*	1	1344	825	3.	*	1	1944	1185	1.
1	0145	106	0.	*	1	0745	466	0.	*	1	1345	826	3.	*	1	1945	1186	1.
1	0146	107	0.	*	1	0746	467	0.	*	1	1346	827	3.	*	1	1946	1187	1.
1	0147	108	0.	*	1	0747	468	0.	*	1	1347	828	3.	*	1	1947	1188	1.
1	0148	109	0.	*	1	0748	469	0.	*	1	1348	829	3.	*	1	1948	1189	1.
1	0149	110	0.	*	1	0749	470	0.	*	1	1349	830	3.	*	1	1949	1190	1.
1	0150	111	0.	*	1	0750	471	0.	*	1	1350	831	3.	*	1	1950	1191	1.
1	0151	112	0.	*	1	0751	472	0.	*	1	1351	832	3.	*	1	1951	1192	1.
1	0152	113	0.	*	1	0752	473	0.	*	1	1352	833	3.	*	1	1952	1193	1.
1	0153	114	0.	*	1	0753	474	0.	*	1	1353	834	3.	*	1	1953	1194	1.
1	0154	115	0.	*	1	0754	475	0.	*	1	1354	835	3.	*	1	1954	1195	1.
1	0155	116	0.	*	1	0755	476	0.	*	1	1355	836	3.	*	1	1955	1196	1.
1	0156	117	0.	*	1	0756	477	0.	*	1	1356	837	3.	*	1	1956	1197	1.
1	0157	118	0.	*	1	0757	478	0.	*	1	1357	838	3.	*	1	1957	1198	1.
1	0158	119	0.	*	1	0758	479	0.	*	1	1358	839	3.	*	1	1958	1199	1.
1	0159	120	0.	*	1	0759	480	0.	*	1	1359	840	2.	*	1	1959	1200	1.
1	0200	121	0.	*	1	0800	481	0.	*	1	1400	841	2.	*	1	2000	1201	1.
1	0201	122	0.	*	1	0801	482	0.	*	1	1401	842	2.	*	1	2001	1202	1.

1	0202	123	0.	*	1	0802	483	0.	*	1	1402	843	2.	*	1	2002	1203	1.
1	0203	124	0.	*	1	0803	484	0.	*	1	1403	844	2.	*	1	2003	1204	1.
1	0204	125	0.	*	1	0804	485	0.	*	1	1404	845	2.	*	1	2004	1205	1.
1	0205	126	0.	*	1	0805	486	0.	*	1	1405	846	2.	*	1	2005	1206	1.
1	0206	127	0.	*	1	0806	487	0.	*	1	1406	847	2.	*	1	2006	1207	1.
1	0207	128	0.	*	1	0807	488	0.	*	1	1407	848	2.	*	1	2007	1208	1.
1	0208	129	0.	*	1	0808	489	0.	*	1	1408	849	2.	*	1	2008	1209	1.
1	0209	130	0.	*	1	0809	490	0.	*	1	1409	850	2.	*	1	2009	1210	1.
1	0210	131	0.	*	1	0810	491	0.	*	1	1410	851	2.	*	1	2010	1211	1.
1	0211	132	0.	*	1	0811	492	0.	*	1	1411	852	2.	*	1	2011	1212	1.
1	0212	133	0.	*	1	0812	493	0.	*	1	1412	853	2.	*	1	2012	1213	1.
1	0213	134	0.	*	1	0813	494	0.	*	1	1413	854	2.	*	1	2013	1214	1.
1	0214	135	0.	*	1	0814	495	0.	*	1	1414	855	2.	*	1	2014	1215	1.
1	0215	136	0.	*	1	0815	496	0.	*	1	1415	856	2.	*	1	2015	1216	1.
1	0216	137	0.	*	1	0816	497	0.	*	1	1416	857	2.	*	1	2016	1217	1.
1	0217	138	0.	*	1	0817	498	0.	*	1	1417	858	2.	*	1	2017	1218	1.
1	0218	139	0.	*	1	0818	499	0.	*	1	1418	859	2.	*	1	2018	1219	1.
1	0219	140	0.	*	1	0819	500	0.	*	1	1419	860	2.	*	1	2019	1220	1.
1	0220	141	0.	*	1	0820	501	0.	*	1	1420	861	2.	*	1	2020	1221	1.
1	0221	142	0.	*	1	0821	502	0.	*	1	1421	862	2.	*	1	2021	1222	1.
1	0222	143	0.	*	1	0822	503	0.	*	1	1422	863	2.	*	1	2022	1223	1.
1	0223	144	0.	*	1	0823	504	0.	*	1	1423	864	2.	*	1	2023	1224	1.
1	0224	145	0.	*	1	0824	505	0.	*	1	1424	865	2.	*	1	2024	1225	1.
1	0225	146	0.	*	1	0825	506	0.	*	1	1425	866	2.	*	1	2025	1226	1.
1	0226	147	0.	*	1	0826	507	0.	*	1	1426	867	2.	*	1	2026	1227	1.
1	0227	148	0.	*	1	0827	508	0.	*	1	1427	868	2.	*	1	2027	1228	1.
1	0228	149	0.	*	1	0828	509	0.	*	1	1428	869	2.	*	1	2028	1229	1.
1	0229	150	0.	*	1	0829	510	0.	*	1	1429	870	2.	*	1	2029	1230	1.
1	0230	151	0.	*	1	0830	511	0.	*	1	1430	871	2.	*	1	2030	1231	1.
1	0231	152	0.	*	1	0831	512	0.	*	1	1431	872	2.	*	1	2031	1232	1.
1	0232	153	0.	*	1	0832	513	0.	*	1	1432	873	2.	*	1	2032	1233	1.
1	0233	154	0.	*	1	0833	514	0.	*	1	1433	874	2.	*	1	2033	1234	1.
1	0234	155	0.	*	1	0834	515	0.	*	1	1434	875	2.	*	1	2034	1235	1.
1	0235	156	0.	*	1	0835	516	0.	*	1	1435	876	2.	*	1	2035	1236	1.
1	0236	157	0.	*	1	0836	517	0.	*	1	1436	877	2.	*	1	2036	1237	1.
1	0237	158	0.	*	1	0837	518	0.	*	1	1437	878	2.	*	1	2037	1238	1.
1	0238	159	0.	*	1	0838	519	0.	*	1	1438	879	2.	*	1	2038	1239	1.
1	0239	160	0.	*	1	0839	520	0.	*	1	1439	880	2.	*	1	2039	1240	1.
1	0240	161	0.	*	1	0840	521	0.	*	1	1440	881	2.	*	1	2040	1241	1.
1	0241	162	0.	*	1	0841	522	0.	*	1	1441	882	2.	*	1	2041	1242	1.
1	0242	163	0.	*	1	0842	523	0.	*	1	1442	883	2.	*	1	2042	1243	1.
1	0243	164	0.	*	1	0843	524	0.	*	1	1443	884	2.	*	1	2043	1244	1.
1	0244	165	0.	*	1	0844	525	0.	*	1	1444	885	2.	*	1	2044	1245	1.
1	0245	166	0.	*	1	0845	526	0.	*	1	1445	886	2.	*	1	2045	1246	1.
1	0246	167	0.	*	1	0846	527	0.	*	1	1446	887	2.	*	1	2046	1247	1.
1	0247	168	0.	*	1	0847	528	0.	*	1	1447	888	2.	*	1	2047	1248	1.
1	0248	169	0.	*	1	0848	529	0.	*	1	1448	889	2.	*	1	2048	1249	1.
1	0249	170	0.	*	1	0849	530	0.	*	1	1449	890	2.	*	1	2049	1250	1.
1	0250	171	0.	*	1	0850	531	0.	*	1	1450	891	2.	*	1	2050	1251	1.
1	0251	172	0.	*	1	0851	532	0.	*	1	1451	892	2.	*	1	2051	1252	1.
1	0252	173	0.	*	1	0852	533	0.	*	1	1452	893	2.	*	1	2052	1253	1.
1	0253	174	0.	*	1	0853	534	0.	*	1	1453	894	2.	*	1	2053	1254	1.
1	0254	175	0.	*	1	0854	535	0.	*	1	1454	895	2.	*	1	2054	1255	1.
1	0255	176	0.	*	1	0855	536	0.	*	1	1455	896	2.	*	1	2055	1256	1.
1	0256	177	0.	*	1	0856	537	0.	*	1	1456	897	2.	*	1	2056	1257	1.
1	0257	178	0.	*	1	0857	538	0.	*	1	1457	898	2.	*	1	2057	1258	1.
1	0258	179	0.	*	1	0858	539	0.	*	1	1458	899	2.	*	1	2058	1259	1.
1	0259	180	0.	*	1	0859	540	0.	*	1	1459	900	2.	*	1	2059	1260	1.
1	0300	181	0.	*	1	0900	541	0.	*	1	1500	901	2.	*	1	2100	1261	1.
1	0301	182	0.	*	1	0901	542	0.	*	1	1501	902	2.	*	1	2101	1262	1.

1	0302	183	0.	*	1	0902	543	0.	*	1	1502	903	2.	*	1	2102	1263	1.
1	0303	184	0.	*	1	0903	544	0.	*	1	1503	904	2.	*	1	2103	1264	1.
1	0304	185	0.	*	1	0904	545	0.	*	1	1504	905	2.	*	1	2104	1265	1.
1	0305	186	0.	*	1	0905	546	0.	*	1	1505	906	2.	*	1	2105	1266	1.
1	0306	187	0.	*	1	0906	547	0.	*	1	1506	907	2.	*	1	2106	1267	1.
1	0307	188	0.	*	1	0907	548	0.	*	1	1507	908	2.	*	1	2107	1268	1.
1	0308	189	0.	*	1	0908	549	0.	*	1	1508	909	2.	*	1	2108	1269	1.
1	0309	190	0.	*	1	0909	550	0.	*	1	1509	910	2.	*	1	2109	1270	1.
1	0310	191	0.	*	1	0910	551	0.	*	1	1510	911	1.	*	1	2110	1271	1.
1	0311	192	0.	*	1	0911	552	0.	*	1	1511	912	1.	*	1	2111	1272	0.
1	0312	193	0.	*	1	0912	553	0.	*	1	1512	913	1.	*	1	2112	1273	0.
1	0313	194	0.	*	1	0913	554	0.	*	1	1513	914	1.	*	1	2113	1274	0.
1	0314	195	0.	*	1	0914	555	0.	*	1	1514	915	1.	*	1	2114	1275	0.
1	0315	196	0.	*	1	0915	556	0.	*	1	1515	916	1.	*	1	2115	1276	0.
1	0316	197	0.	*	1	0916	557	0.	*	1	1516	917	1.	*	1	2116	1277	0.
1	0317	198	0.	*	1	0917	558	0.	*	1	1517	918	1.	*	1	2117	1278	0.
1	0318	199	0.	*	1	0918	559	0.	*	1	1518	919	1.	*	1	2118	1279	0.
1	0319	200	0.	*	1	0919	560	0.	*	1	1519	920	1.	*	1	2119	1280	0.
1	0320	201	0.	*	1	0920	561	0.	*	1	1520	921	1.	*	1	2120	1281	0.
1	0321	202	0.	*	1	0921	562	0.	*	1	1521	922	1.	*	1	2121	1282	0.
1	0322	203	0.	*	1	0922	563	0.	*	1	1522	923	1.	*	1	2122	1283	0.
1	0323	204	0.	*	1	0923	564	0.	*	1	1523	924	1.	*	1	2123	1284	0.
1	0324	205	0.	*	1	0924	565	0.	*	1	1524	925	1.	*	1	2124	1285	0.
1	0325	206	0.	*	1	0925	566	0.	*	1	1525	926	1.	*	1	2125	1286	0.
1	0326	207	0.	*	1	0926	567	0.	*	1	1526	927	1.	*	1	2126	1287	0.
1	0327	208	0.	*	1	0927	568	0.	*	1	1527	928	1.	*	1	2127	1288	0.
1	0328	209	0.	*	1	0928	569	0.	*	1	1528	929	1.	*	1	2128	1289	0.
1	0329	210	0.	*	1	0929	570	0.	*	1	1529	930	1.	*	1	2129	1290	0.
1	0330	211	0.	*	1	0930	571	0.	*	1	1530	931	1.	*	1	2130	1291	0.
1	0331	212	0.	*	1	0931	572	0.	*	1	1531	932	1.	*	1	2131	1292	0.
1	0332	213	0.	*	1	0932	573	0.	*	1	1532	933	1.	*	1	2132	1293	0.
1	0333	214	0.	*	1	0933	574	0.	*	1	1533	934	1.	*	1	2133	1294	0.
1	0334	215	0.	*	1	0934	575	0.	*	1	1534	935	1.	*	1	2134	1295	0.
1	0335	216	0.	*	1	0935	576	0.	*	1	1535	936	1.	*	1	2135	1296	0.
1	0336	217	0.	*	1	0936	577	0.	*	1	1536	937	1.	*	1	2136	1297	0.
1	0337	218	0.	*	1	0937	578	0.	*	1	1537	938	1.	*	1	2137	1298	0.
1	0338	219	0.	*	1	0938	579	0.	*	1	1538	939	1.	*	1	2138	1299	0.
1	0339	220	0.	*	1	0939	580	0.	*	1	1539	940	1.	*	1	2139	1300	0.
1	0340	221	0.	*	1	0940	581	0.	*	1	1540	941	1.	*	1	2140	1301	0.
1	0341	222	0.	*	1	0941	582	0.	*	1	1541	942	1.	*	1	2141	1302	0.
1	0342	223	0.	*	1	0942	583	1.	*	1	1542	943	1.	*	1	2142	1303	0.
1	0343	224	0.	*	1	0943	584	1.	*	1	1543	944	1.	*	1	2143	1304	0.
1	0344	225	0.	*	1	0944	585	1.	*	1	1544	945	1.	*	1	2144	1305	0.
1	0345	226	0.	*	1	0945	586	1.	*	1	1545	946	1.	*	1	2145	1306	0.
1	0346	227	0.	*	1	0946	587	1.	*	1	1546	947	1.	*	1	2146	1307	0.
1	0347	228	0.	*	1	0947	588	1.	*	1	1547	948	1.	*	1	2147	1308	0.
1	0348	229	0.	*	1	0948	589	1.	*	1	1548	949	1.	*	1	2148	1309	0.
1	0349	230	0.	*	1	0949	590	1.	*	1	1549	950	1.	*	1	2149	1310	0.
1	0350	231	0.	*	1	0950	591	1.	*	1	1550	951	1.	*	1	2150	1311	0.
1	0351	232	0.	*	1	0951	592	1.	*	1	1551	952	1.	*	1	2151	1312	0.
1	0352	233	0.	*	1	0952	593	1.	*	1	1552	953	1.	*	1	2152	1313	0.
1	0353	234	0.	*	1	0953	594	1.	*	1	1553	954	1.	*	1	2153	1314	0.
1	0354	235	0.	*	1	0954	595	1.	*	1	1554	955	1.	*	1	2154	1315	0.
1	0355	236	0.	*	1	0955	596	1.	*	1	1555	956	1.	*	1	2155	1316	0.
1	0356	237	0.	*	1	0956	597	1.	*	1	1556	957	1.	*	1	2156	1317	0.
1	0357	238	0.	*	1	0957	598	1.	*	1	1557	958	1.	*	1	2157	1318	0.
1	0358	239	0.	*	1	0958	599	1.	*	1	1558	959	1.	*	1	2158	1319	0.
1	0359	240	0.	*	1	0959	600	1.	*	1	1559	960	1.	*	1	2159	1320	0.
1	0400	241	0.	*	1	1000	601	1.	*	1	1600	961	1.	*	1	2200	1321	0.
1	0401	242	0.	*	1	1001	602	1.	*	1	1601	962	1.	*	1	2201	1322	0.

1	0402	243	0.	*	1	1002	603	1.	*	1	1602	963	1.	*	1	2202	1323	0.
1	0403	244	0.	*	1	1003	604	1.	*	1	1603	964	1.	*	1	2203	1324	0.
1	0404	245	0.	*	1	1004	605	1.	*	1	1604	965	1.	*	1	2204	1325	0.
1	0405	246	0.	*	1	1005	606	1.	*	1	1605	966	1.	*	1	2205	1326	0.
1	0406	247	0.	*	1	1006	607	1.	*	1	1606	967	1.	*	1	2206	1327	0.
1	0407	248	0.	*	1	1007	608	1.	*	1	1607	968	1.	*	1	2207	1328	0.
1	0408	249	0.	*	1	1008	609	1.	*	1	1608	969	1.	*	1	2208	1329	0.
1	0409	250	0.	*	1	1009	610	1.	*	1	1609	970	1.	*	1	2209	1330	0.
1	0410	251	0.	*	1	1010	611	1.	*	1	1610	971	1.	*	1	2210	1331	0.
1	0411	252	0.	*	1	1011	612	1.	*	1	1611	972	1.	*	1	2211	1332	0.
1	0412	253	0.	*	1	1012	613	1.	*	1	1612	973	1.	*	1	2212	1333	0.
1	0413	254	0.	*	1	1013	614	1.	*	1	1613	974	1.	*	1	2213	1334	0.
1	0414	255	0.	*	1	1014	615	1.	*	1	1614	975	1.	*	1	2214	1335	0.
1	0415	256	0.	*	1	1015	616	1.	*	1	1615	976	1.	*	1	2215	1336	0.
1	0416	257	0.	*	1	1016	617	1.	*	1	1616	977	1.	*	1	2216	1337	0.
1	0417	258	0.	*	1	1017	618	1.	*	1	1617	978	1.	*	1	2217	1338	0.
1	0418	259	0.	*	1	1018	619	1.	*	1	1618	979	1.	*	1	2218	1339	0.
1	0419	260	0.	*	1	1019	620	1.	*	1	1619	980	1.	*	1	2219	1340	0.
1	0420	261	0.	*	1	1020	621	1.	*	1	1620	981	1.	*	1	2220	1341	0.
1	0421	262	0.	*	1	1021	622	1.	*	1	1621	982	1.	*	1	2221	1342	0.
1	0422	263	0.	*	1	1022	623	1.	*	1	1622	983	1.	*	1	2222	1343	0.
1	0423	264	0.	*	1	1023	624	1.	*	1	1623	984	1.	*	1	2223	1344	0.
1	0424	265	0.	*	1	1024	625	1.	*	1	1624	985	1.	*	1	2224	1345	0.
1	0425	266	0.	*	1	1025	626	1.	*	1	1625	986	1.	*	1	2225	1346	0.
1	0426	267	0.	*	1	1026	627	1.	*	1	1626	987	1.	*	1	2226	1347	0.
1	0427	268	0.	*	1	1027	628	1.	*	1	1627	988	1.	*	1	2227	1348	0.
1	0428	269	0.	*	1	1028	629	1.	*	1	1628	989	1.	*	1	2228	1349	0.
1	0429	270	0.	*	1	1029	630	1.	*	1	1629	990	1.	*	1	2229	1350	0.
1	0430	271	0.	*	1	1030	631	1.	*	1	1630	991	1.	*	1	2230	1351	0.
1	0431	272	0.	*	1	1031	632	1.	*	1	1631	992	1.	*	1	2231	1352	0.
1	0432	273	0.	*	1	1032	633	1.	*	1	1632	993	1.	*	1	2232	1353	0.
1	0433	274	0.	*	1	1033	634	1.	*	1	1633	994	1.	*	1	2233	1354	0.
1	0434	275	0.	*	1	1034	635	1.	*	1	1634	995	1.	*	1	2234	1355	0.
1	0435	276	0.	*	1	1035	636	1.	*	1	1635	996	1.	*	1	2235	1356	0.
1	0436	277	0.	*	1	1036	637	1.	*	1	1636	997	1.	*	1	2236	1357	0.
1	0437	278	0.	*	1	1037	638	1.	*	1	1637	998	1.	*	1	2237	1358	0.
1	0438	279	0.	*	1	1038	639	1.	*	1	1638	999	1.	*	1	2238	1359	0.
1	0439	280	0.	*	1	1039	640	1.	*	1	1639	1000	1.	*	1	2239	1360	0.
1	0440	281	0.	*	1	1040	641	1.	*	1	1640	1001	1.	*	1	2240	1361	0.
1	0441	282	0.	*	1	1041	642	1.	*	1	1641	1002	1.	*	1	2241	1362	0.
1	0442	283	0.	*	1	1042	643	1.	*	1	1642	1003	1.	*	1	2242	1363	0.
1	0443	284	0.	*	1	1043	644	1.	*	1	1643	1004	1.	*	1	2243	1364	0.
1	0444	285	0.	*	1	1044	645	1.	*	1	1644	1005	1.	*	1	2244	1365	0.
1	0445	286	0.	*	1	1045	646	1.	*	1	1645	1006	1.	*	1	2245	1366	0.
1	0446	287	0.	*	1	1046	647	1.	*	1	1646	1007	1.	*	1	2246	1367	0.
1	0447	288	0.	*	1	1047	648	1.	*	1	1647	1008	1.	*	1	2247	1368	0.
1	0448	289	0.	*	1	1048	649	1.	*	1	1648	1009	1.	*	1	2248	1369	0.
1	0449	290	0.	*	1	1049	650	1.	*	1	1649	1010	1.	*	1	2249	1370	0.
1	0450	291	0.	*	1	1050	651	1.	*	1	1650	1011	1.	*	1	2250	1371	0.
1	0451	292	0.	*	1	1051	652	1.	*	1	1651	1012	1.	*	1	2251	1372	0.
1	0452	293	0.	*	1	1052	653	1.	*	1	1652	1013	1.	*	1	2252	1373	0.
1	0453	294	0.	*	1	1053	654	1.	*	1	1653	1014	1.	*	1	2253	1374	0.
1	0454	295	0.	*	1	1054	655	1.	*	1	1654	1015	1.	*	1	2254	1375	0.
1	0455	296	0.	*	1	1055	656	1.	*	1	1655	1016	1.	*	1	2255	1376	0.
1	0456	297	0.	*	1	1056	657	1.	*	1	1656	1017	1.	*	1	2256	1377	0.
1	0457	298	0.	*	1	1057	658	1.	*	1	1657	1018	1.	*	1	2257	1378	0.
1	0458	299	0.	*	1	1058	659	1.	*	1	1658	1019	1.	*	1	2258	1379	0.
1	0459	300	0.	*	1	1059	660	1.	*	1	1659	1020	1.	*	1	2259	1380	0.
1	0500	301	0.	*	1	1100	661	1.	*	1	1700	1021	1.	*	1	2300	1381	0.
1	0501	302	0.	*	1	1101	662	1.	*	1	1701	1022	1.	*	1	2301	1382	0.

1	0502	303	0.	*	1	1102	663	1.	*	1	1702	1023	1.	*	1	2302	1383	0.
1	0503	304	0.	*	1	1103	664	1.	*	1	1703	1024	1.	*	1	2303	1384	0.
1	0504	305	0.	*	1	1104	665	2.	*	1	1704	1025	1.	*	1	2304	1385	0.
1	0505	306	0.	*	1	1105	666	2.	*	1	1705	1026	1.	*	1	2305	1386	0.
1	0506	307	0.	*	1	1106	667	2.	*	1	1706	1027	1.	*	1	2306	1387	0.
1	0507	308	0.	*	1	1107	668	2.	*	1	1707	1028	1.	*	1	2307	1388	0.
1	0508	309	0.	*	1	1108	669	2.	*	1	1708	1029	1.	*	1	2308	1389	0.
1	0509	310	0.	*	1	1109	670	2.	*	1	1709	1030	1.	*	1	2309	1390	0.
1	0510	311	0.	*	1	1110	671	2.	*	1	1710	1031	1.	*	1	2310	1391	0.
1	0511	312	0.	*	1	1111	672	2.	*	1	1711	1032	1.	*	1	2311	1392	0.
1	0512	313	0.	*	1	1112	673	2.	*	1	1712	1033	1.	*	1	2312	1393	0.
1	0513	314	0.	*	1	1113	674	2.	*	1	1713	1034	1.	*	1	2313	1394	0.
1	0514	315	0.	*	1	1114	675	2.	*	1	1714	1035	1.	*	1	2314	1395	0.
1	0515	316	0.	*	1	1115	676	2.	*	1	1715	1036	1.	*	1	2315	1396	0.
1	0516	317	0.	*	1	1116	677	2.	*	1	1716	1037	1.	*	1	2316	1397	0.
1	0517	318	0.	*	1	1117	678	2.	*	1	1717	1038	1.	*	1	2317	1398	0.
1	0518	319	0.	*	1	1118	679	2.	*	1	1718	1039	1.	*	1	2318	1399	0.
1	0519	320	0.	*	1	1119	680	2.	*	1	1719	1040	1.	*	1	2319	1400	0.
1	0520	321	0.	*	1	1120	681	2.	*	1	1720	1041	1.	*	1	2320	1401	0.
1	0521	322	0.	*	1	1121	682	2.	*	1	1721	1042	1.	*	1	2321	1402	0.
1	0522	323	0.	*	1	1122	683	2.	*	1	1722	1043	1.	*	1	2322	1403	0.
1	0523	324	0.	*	1	1123	684	2.	*	1	1723	1044	1.	*	1	2323	1404	0.
1	0524	325	0.	*	1	1124	685	2.	*	1	1724	1045	1.	*	1	2324	1405	0.
1	0525	326	0.	*	1	1125	686	2.	*	1	1725	1046	1.	*	1	2325	1406	0.
1	0526	327	0.	*	1	1126	687	3.	*	1	1726	1047	1.	*	1	2326	1407	0.
1	0527	328	0.	*	1	1127	688	3.	*	1	1727	1048	1.	*	1	2327	1408	0.
1	0528	329	0.	*	1	1128	689	3.	*	1	1728	1049	1.	*	1	2328	1409	0.
1	0529	330	0.	*	1	1129	690	3.	*	1	1729	1050	1.	*	1	2329	1410	0.
1	0530	331	0.	*	1	1130	691	3.	*	1	1730	1051	1.	*	1	2330	1411	0.
1	0531	332	0.	*	1	1131	692	3.	*	1	1731	1052	1.	*	1	2331	1412	0.
1	0532	333	0.	*	1	1132	693	3.	*	1	1732	1053	1.	*	1	2332	1413	0.
1	0533	334	0.	*	1	1133	694	3.	*	1	1733	1054	1.	*	1	2333	1414	0.
1	0534	335	0.	*	1	1134	695	3.	*	1	1734	1055	1.	*	1	2334	1415	0.
1	0535	336	0.	*	1	1135	696	4.	*	1	1735	1056	1.	*	1	2335	1416	0.
1	0536	337	0.	*	1	1136	697	4.	*	1	1736	1057	1.	*	1	2336	1417	0.
1	0537	338	0.	*	1	1137	698	5.	*	1	1737	1058	1.	*	1	2337	1418	0.
1	0538	339	0.	*	1	1138	699	6.	*	1	1738	1059	1.	*	1	2338	1419	0.
1	0539	340	0.	*	1	1139	700	7.	*	1	1739	1060	1.	*	1	2339	1420	0.
1	0540	341	0.	*	1	1140	701	8.	*	1	1740	1061	1.	*	1	2340	1421	0.
1	0541	342	0.	*	1	1141	702	8.	*	1	1741	1062	1.	*	1	2341	1422	0.
1	0542	343	0.	*	1	1142	703	9.	*	1	1742	1063	1.	*	1	2342	1423	0.
1	0543	344	0.	*	1	1143	704	10.	*	1	1743	1064	1.	*	1	2343	1424	0.
1	0544	345	0.	*	1	1144	705	11.	*	1	1744	1065	1.	*	1	2344	1425	0.
1	0545	346	0.	*	1	1145	706	12.	*	1	1745	1066	1.	*	1	2345	1426	0.
1	0546	347	0.	*	1	1146	707	12.	*	1	1746	1067	1.	*	1	2346	1427	0.
1	0547	348	0.	*	1	1147	708	13.	*	1	1747	1068	1.	*	1	2347	1428	0.
1	0548	349	0.	*	1	1148	709	14.	*	1	1748	1069	1.	*	1	2348	1429	0.
1	0549	350	0.	*	1	1149	710	15.	*	1	1749	1070	1.	*	1	2349	1430	0.
1	0550	351	0.	*	1	1150	711	16.	*	1	1750	1071	1.	*	1	2350	1431	0.
1	0551	352	0.	*	1	1151	712	17.	*	1	1751	1072	1.	*	1	2351	1432	0.
1	0552	353	0.	*	1	1152	713	19.	*	1	1752	1073	1.	*	1	2352	1433	0.
1	0553	354	0.	*	1	1153	714	21.	*	1	1753	1074	1.	*	1	2353	1434	0.
1	0554	355	0.	*	1	1154	715	22.	*	1	1754	1075	1.	*	1	2354	1435	0.
1	0555	356	0.	*	1	1155	716	25.	*	1	1755	1076	1.	*	1	2355	1436	0.
1	0556	357	0.	*	1	1156	717	27.	*	1	1756	1077	1.	*	1	2356	1437	0.
1	0557	358	0.	*	1	1157	718	30.	*	1	1757	1078	1.	*	1	2357	1438	0.
1	0558	359	0.	*	1	1158	719	34.	*	1	1758	1079	1.	*	1	2358	1439	0.
1	0559	360	0.	*	1	1159	720	39.	*	1	1759	1080	1.	*	1	2359	1440	0.
				*					*					*				

****

961

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
(CFS)	(HR)					
		(CFS)				
108.	12.13		9.	3.	3.	3.
		(INCHES)	2.329	2.571	2.571	2.571
		(AC-FT)	4.	5.	5.	5.

CUMULATIVE AREA = 0.04 SQ MI

1

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	DA01	37.	12.10	3.	1.	1.	0.01		
ROUTED TO	RTE01	37.	12.12	3.	1.	1.	0.01		
HYDROGRAPH AT	DA02	27.	12.10	2.	1.	1.	0.01		
HYDROGRAPH AT	DA03	15.	12.10	1.	0.	0.	0.00		
3 COMBINED AT	ADD03	79.	12.12	6.	2.	2.	0.02		
ROUTED TO	RTE03	78.	12.12	6.	2.	2.	0.02		
HYDROGRAPH AT	DA04	13.	12.10	1.	0.	0.	0.00		
HYDROGRAPH AT	DA05	21.	12.10	2.	0.	0.	0.01		
3 COMBINED AT	ADD05	113.	12.12	9.	2.	2.	0.03		
ROUTED TO	RTE05	112.	12.13	9.	2.	2.	0.03		
HYDROGRAPH AT	DA06	29.	12.10	2.	1.	1.	0.01		
2 COMBINED AT	ADD06	139.	12.13	11.	3.	3.	0.04		
ROUTED TO	RTE06	137.	12.13	11.	3.	3.	0.04		
HYDROGRAPH AT									

+		DA07	46.	12.12	4.	1.	1.	0.02	
	2 COMBINED AT								
+		ADD07	182.	12.13	14.	4.	4.	0.06	
	ROUTED TO								
+		RTE07	177.	12.15	14.	4.	4.	0.06	
	HYDROGRAPH AT								
+		DA08	20.	12.10	2.	0.	0.	0.01	
	ROUTED TO								
+		RTE08	20.	12.12	2.	0.	0.	0.01	
	2 COMBINED AT								
+		ADD08	196.	12.15	16.	4.	4.	0.07	
	HYDROGRAPH AT								
+		DA09	64.	12.12	5.	1.	1.	0.03	
	2 COMBINED AT								
+		ADD09	257.	12.13	21.	6.	6.	0.10	
	PUMP FLOW TO								
+		PUMP	200.	12.07	21.	6.	6.	0.10	
	HYDROGRAPH AT								
+		PUMP	0.	12.20	0.	0.	0.	0.10	
+									1138.77 12.22
	HYDROGRAPH AT								
+		PUMPR	200.	12.07	21.	6.	6.	0.00	
	HYDROGRAPH AT								
+		DA19	19.	12.12	1.	0.	0.	0.01	
	ROUTED TO								
+		RTE19	19.	12.12	1.	0.	0.	0.01	
	HYDROGRAPH AT								
+		DA20	34.	12.10	3.	1.	1.	0.01	
	2 COMBINED AT								
+		ADD20	53.	12.12	4.	1.	1.	0.02	
	ROUTED TO								
+		RTE20	53.	12.12	4.	1.	1.	0.02	
	HYDROGRAPH AT								
+		DA21	6.	12.10	0.	0.	0.	0.00	
	2 COMBINED AT								
+		ADD21	59.	12.12	5.	1.	1.	0.02	
	ROUTED TO								
+		RTE21	59.	12.12	5.	1.	1.	0.02	
	HYDROGRAPH AT								
+		DA22	44.	12.10	3.	1.	1.	0.01	

	2 COMBINED AT								
+		ADD22	103.	12.12	8.	2.	2.	0.04	
	ROUTED TO								
+		RTE22	102.	12.12	8.	2.	2.	0.04	
	HYDROGRAPH AT								
+		DA23	74.	12.12	6.	2.	2.	0.03	
	2 COMBINED AT								
+		ADD23	175.	12.12	13.	4.	4.	0.07	
	ROUTED TO								
+		RTE23	16.	12.65	11.	3.	3.	0.07	
+									1163.76 12.65
	HYDROGRAPH AT								
+		DA24	10.	12.10	1.	0.	0.	0.00	
	2 COMBINED AT								
+		ADD24	18.	12.15	11.	4.	4.	0.07	
	HYDROGRAPH AT								
+		DA25	51.	12.12	4.	1.	1.	0.02	
	2 COMBINED AT								
+		ADD25	68.	12.12	15.	5.	5.	0.09	
	ROUTED TO								
+		RTE25	10.	15.80	9.	4.	4.	0.09	
+									1161.89 15.80
	HYDROGRAPH AT								
+		DA26	31.	12.12	2.	1.	1.	0.02	
	2 COMBINED AT								
+		ADD26	35.	12.12	11.	5.	5.	0.11	
	ROUTED TO								
+		RTE26	7.	21.70	7.	3.	3.	0.11	
+									1160.61 21.78
	HYDROGRAPH AT								
+		DA27	66.	12.12	5.	1.	1.	0.03	
	2 COMBINED AT								
+		ADD27	66.	12.12	8.	4.	4.	0.13	
	ROUTED TO								
+		RTE27	7.	23.98	6.	3.	3.	0.13	
+									1159.60 23.97
	HYDROGRAPH AT								
+		DA28	10.	12.10	1.	0.	0.	0.00	
	2 COMBINED AT								
+		ADD28	12.	12.12	6.	3.	3.	0.13	
	HYDROGRAPH AT								
+		DA29	72.	12.12	5.	1.	1.	0.03	

	2 COMBINED AT								
+		ADD29	84.	12.12	11.	5.	5.	0.16	
	ROUTED TO								
+		RTE29	11.	12.70	9.	4.	4.	0.16	
+									1159.46 12.70
	2 COMBINED AT								
+		ADDALL	211.	12.38	30.	10.	10.	0.16	
	HYDROGRAPH AT								
+		DA10	20.	12.10	2.	0.	0.	0.01	
	HYDROGRAPH AT								
+		DA11	7.	12.10	1.	0.	0.	0.00	
	HYDROGRAPH AT								
+		DA12	26.	12.10	2.	1.	1.	0.01	
	3 COMBINED AT								
+		ADD12	54.	12.10	4.	1.	1.	0.02	
	ROUTED TO								
+		RTE12	53.	12.12	4.	1.	1.	0.02	
	HYDROGRAPH AT								
+		DA13	8.	12.10	1.	0.	0.	0.00	
	ROUTED TO								
+		RTE13	8.	12.12	1.	0.	0.	0.00	
	HYDROGRAPH AT								
+		DA14	13.	12.10	1.	0.	0.	0.00	
	3 COMBINED AT								
+		ADD14	74.	12.12	6.	2.	2.	0.02	
	ROUTED TO								
+		RTE14	72.	12.13	6.	2.	2.	0.02	
	HYDROGRAPH AT								
+		DA15	16.	12.10	1.	0.	0.	0.00	
	HYDROGRAPH AT								
+		DA16	6.	12.10	0.	0.	0.	0.00	
	HYDROGRAPH AT								
+		DA17	17.	12.10	1.	0.	0.	0.01	
	HYDROGRAPH AT								
+		DA18	6.	12.10	0.	0.	0.	0.00	
	5 COMBINED AT								
+		ADD17	115.	12.13	9.	3.	3.	0.04	
	ROUTED TO								
+		RTE18	108.	12.13	9.	3.	3.	0.04	

1

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING

(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
RTE01	MANE	1.00	36.83	727.00	3.03	1.00	36.83	727.00	3.03

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1600E+01 EXCESS=0.0000E+00 OUTFLOW=0.1599E+01 BASIN STORAGE=0.6625E-03 PERCENT ERROR= 0.0

RTE03	MANE	0.65	78.33	727.15	2.87	1.00	78.17	727.00	2.87

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3382E+01 EXCESS=0.0000E+00 OUTFLOW=0.3381E+01 BASIN STORAGE=0.7649E-03 PERCENT ERROR= 0.0

RTE05	MANE	1.00	111.61	728.00	2.78	1.00	111.61	728.00	2.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4827E+01 EXCESS=0.0000E+00 OUTFLOW=0.4823E+01 BASIN STORAGE=0.1736E-02 PERCENT ERROR= 0.0

RTE06	MANE	1.00	137.63	728.62	2.73	1.00	136.72	728.00	2.73

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6010E+01 EXCESS=0.0000E+00 OUTFLOW=0.6004E+01 BASIN STORAGE=0.2143E-02 PERCENT ERROR= 0.1

RTE07	MANE	1.00	176.95	729.00	2.40	1.00	176.95	729.00	2.40

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7894E+01 EXCESS=0.0000E+00 OUTFLOW=0.7872E+01 BASIN STORAGE=0.3163E-02 PERCENT ERROR= 0.2

RTE08	MANE	1.00	20.40	727.00	2.93	1.00	20.40	727.00	2.93

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8767E+00 EXCESS=0.0000E+00 OUTFLOW=0.8762E+00 BASIN STORAGE=0.3875E-03 PERCENT ERROR= 0.0

RTE19	MANE	0.29	19.40	727.22	1.35	1.00	19.35	727.00	1.35

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8077E+00 EXCESS=0.0000E+00 OUTFLOW=0.8076E+00 BASIN STORAGE=0.1160E-03 PERCENT ERROR= 0.0

RTE20	MANE	0.19	52.87	726.92	1.92	1.00	52.86	727.00	1.92

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2211E+01 EXCESS=0.0000E+00 OUTFLOW=0.2210E+01 BASIN STORAGE=0.1785E-03 PERCENT ERROR= 0.0

RTE21	MANE	0.18	58.78	726.98	2.01	1.00	58.77	727.00	2.01

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2491E+01 EXCESS=0.0000E+00 OUTFLOW=0.2490E+01 BASIN STORAGE=0.1878E-03 PERCENT ERROR= 0.0

RTE22 MANE 0.47 101.71 727.16 2.22 1.00 101.58 727.00 2.22

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4325E+01 EXCESS=0.0000E+00 OUTFLOW=0.4322E+01 BASIN STORAGE=0.7969E-03 PERCENT ERROR= 0.1

RTE12 MANE 0.28 53.38 726.37 2.68 1.00 53.24 727.00 2.68

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2259E+01 EXCESS=0.0000E+00 OUTFLOW=0.2259E+01 BASIN STORAGE=0.2296E-03 PERCENT ERROR= 0.0

RTE13 MANE 1.00 8.07 727.00 2.47 1.00 8.07 727.00 2.47

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3430E+00 EXCESS=0.0000E+00 OUTFLOW=0.3421E+00 BASIN STORAGE=0.1590E-03 PERCENT ERROR= 0.2

RTE14 MANE 1.00 72.06 728.00 2.58 1.00 72.06 728.00 2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3133E+01 EXCESS=0.0000E+00 OUTFLOW=0.3124E+01 BASIN STORAGE=0.2364E-02 PERCENT ERROR= 0.2

RTE18 MANE 1.00 108.14 728.00 2.57 1.00 108.14 728.00 2.57

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5012E+01 EXCESS=0.0000E+00 OUTFLOW=0.4964E+01 BASIN STORAGE=0.2032E-02 PERCENT ERROR= 0.9

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

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              MAY   1991               *
*            VERSION 4.0.1E             *
*                                       *
*  RUN DATE  05/08/92  TIME  10:02:24   *
*                                       *
*****************************************
```


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


FN=SPUMP100
SMF/I-10 PAPAGO TI
100-YEAR

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

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

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

1 HEC-1 INPUT

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

   1          ID        PRICE ROAD HYDROLOGY
   2          ID        I-10 AND SOUTH MOUNTAIN FREEWAY INTERCHANGE
   3          ID        DETENTION BASIN ROUTING AND PUMP STATION
   4          ID        100-YEAR 24-HOUR
              *DIAGRAM
   5          IT     1                    1440
   6          IO     3

   7          KK     DA01
   8          PH     2          0    0.77    1.50    2.64    2.89    3.06    3.37    3.68    4.00
   9          BA     .0099
  10          LS                95.7
  11          UD     0.10

  12          KK     RTE01
  13          RD      840    .0094    .012              CIRC     2.5

  14          KK     DA02
  15          BA     .0075
  16          LS                94.8
  17          UD     0.10
```

```
 18          KK    DA03
 19          BA    .0047
 20          LS            89.6
 21          UD     .10

 22          KK    ADD03   ADD HYD. 01 THRU 03
 23          HC        3

 24          KK    RTE03
 25          RD      490   .0074    .012           CIRC      3.5

 26          KK    DA04
 27          BA    .0038
 28          LS            93.4
 29          UD     .10

 30          KK    DA05
 31          BA    .0066
 32          LS            90.4
 33          UD     .10

 34          KK    ADD05
 35          HC        3

 36          KK    RTE05
 37          RD      685   .0045    .012           CIRC      4.0

 38          KK    DA06
 39          BA    .0088
 40          LS            90.7
 41          UD     .10
```



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

 42          KK    ADD06
 43          HC        2

 44          KK    RTE06
 45          RD      700   .0045    .012           CIRC      4.0

 46          KK    DA07
 47          BA    .0203
 48          LS            81.3
 49          UD     .10

 50          KK    ADD07
 51          HC        2

 52          KK    RTE07
 53          RD      605   .0022    .012           CIRC        5

 54          KK    DA08
 55          BA    .0056
 56          LS            94.8
 57          UD     .10

 58          KK    RTE08
 59          RD      700   .0072    .012           CIRC      2.5
```

```
 60          KK   ADD08
 61          HC       2

 62          KK    DA09
 63          BA   .0284
 64          LS            80.8
 65          UD     .10

 66          KK   ADD09
 67          HC       2

 68          KK    PUMP  96" STORAGE RCP'S
 69          KM          L=1070 FEET     200 CFS STATION
 70          RS        1   ELEV    1132        0
 71          SV        0     .24    0.62    0.99     1.24
 72          SE     1132    1134    1136    1138     1140
 73          SQ      .01     .02     .03     .04      .05
 74          WP                              PUMP
 75          WP     1134      40    1133    PUMP
 76          WP     1135      40    1134    PUMP
 77          WP     1136      40    1135    PUMP
 78          WP     1136      40    1133    PUMP
 79          WP     1136      40    1132    PUMP
1                                            HEC-1 INPUT                                                    PAGE  3

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

 80          KK   PUMPR
 81          WR    PUMP

 82          KK    DA19
 83          BA   .0112
 84          LS            75.6
 85          UD     .10

 86          KK   RTE19
 87          RD      150  .00670    .012           CIRC     2.5

 88          KK    DA20
 89          BA   .0104
 90          LS            90.7
 91          UD     .10

 92          KK   ADD20
 93          HC       2

 94          KK   RTE20
 95          RD       90  .0028    .012           CIRC     3.5

 96          KK    DA21
 97          BA   .0016
 98          LS              98
 99          UD     .10

100          KK   ADD21
101          HC       2

102          KK   RTE21
```

```
103          RD      90   .0028    .012          CIRC       4

104          KK    DA22
105          BA   .0133
106          LS           91.3
107          UD     .10

108          KK   ADD22
109          HC       2

110          KK   RTE22
111          RD     260   .0028    .012          CIRC     4.5

112          KK    DA23
113          BA   .0319
114          LS           81.5
115          UD     .10
```



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

116          KK   ADD23
117          HC       2

118          KK   RTE23  INFIELD AREA - 30" OUTLET (INLET CONTROL) basin 12
119          RS       1   STOR     0.0
120          SV       0   0.24    0.91    7.44
121          SE    1160   1161    1162    1165
122          SQ       0      0       4      25

123          KK    DA24
124          BA   .0025
125          LS           98
126          UD     .10

127          KK   ADD24
128          HC       2

129          KK    DA25
130          BA   .0195
131          LS           84.4
132          UD     .10

133          KK   ADD25
134          HC       2

135          KK   RTE25  INFIELD AREA - 24" OUTLET (INLET CONTROL) basin 11
136          RS       1   STOR     0.0
137          SV       0    .16     .91   13.37
138          SE    1159   1160    1161    1165
139          SQ       0      0       4      30

140          KK    DA26
141          BA   .0156
142          LS           78.5
143          UD     .10

144          KK   ADD26
145          HC       2
```

```
146          KK   RTE26  INFIELD AREA - 18" OUTLET (INLET CONTROL) basin 10
147          RS       1    STOR     0.0
148          SV       0    0.01     1.91     5.31
149          SE    1158    1159     1160     1161
150          SQ       0       0      3.4        9

151          KK    DA27
152          BA   .0253
153          LS            84.3
154          UD     .10
```



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


155          KK   ADD27
156          HC       2

157          KK   RTE27  INFIELD AREA - 24" OUTLET (INLET CONTROL) basin 9
158          RS       1    STOR     0.0
159          SV       0    0.01     1.34     3.53
160          SE  1157.9  1158.4     1160     1161
161          SQ       0       0        9       17

162          KK    DA28
163          BA   .0025
164          LS              98
165          UD     .10

166          KK   ADD28
167          HC       2

168          KK    DA29
169          BA   .0286
170          LS            83.5
171          UD     .10

172          KK   ADD29
173          HC       2

174          KK   RTE29  INFIELD AREA - 24" OUTLET (INLET CONTROL) basin 8
175          RS       1    STOR     0.0
176          SV       0     .01     0.02     4.41
177          SE  1157.0  1157.5     1159     1161
178          SQ       0       0        8       23

179          KK  ADDALL
180          KM        ADD LOCAL RUNOFF AND PUMP STATION OUTFLOW
181          HC       2

182          KK    DA10  UPPER 1-10 DRAINAGE AREAS WHICH DRAIN TO WEST CHANNEL
183          BA    .006
184          LS              92
185          UD     .10

186          KK    DA11
187          BA   .0019
188          LS              98
189          UD     .10
```

912

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

  190     KK   DA12
  191     BA   .0079
  192     LS             91
  193     UD    .10

  194     KK   ADD12
  195     HC     3

  196     KK   RTE12
  197     RD    140   .0036   .012          CIRC    2.5

  198     KK   DA13
  199     BA   .0026
  200     LS             90.1
  201     UD    .10

  202     KK   RTE13
  203     RD    300   .0017   .012          CIRC    2.0

  204     KK   DA14
  205     BA   .0043
  206     LS             88.4
  207     UD    .10

  208     KK   ADD14
  209     HC     3

  210     KK   RTE14
  211     RD   1060   .0029   .012          CIRC    4.0

  212     KK   DA15
  213     BA   .0050
  214     LS             90.9
  215     UD    .10

  216     KK   DA16
  217     BA   .0016
  218     LS             98
  219     UD    .10

  220     KK   DA17
  221     BA   .0052
  222     LS             90.6
  223     UD    .10

  224     KK   DA18
  225     BA   .0017
  226     LS             90.7
  227     UD    .10

  228     KK   ADD17
  229     HC     5

  230     KK   RTE18
  231     RD    380   .0008   .012          CIRC    4.5
```

232 ZZ

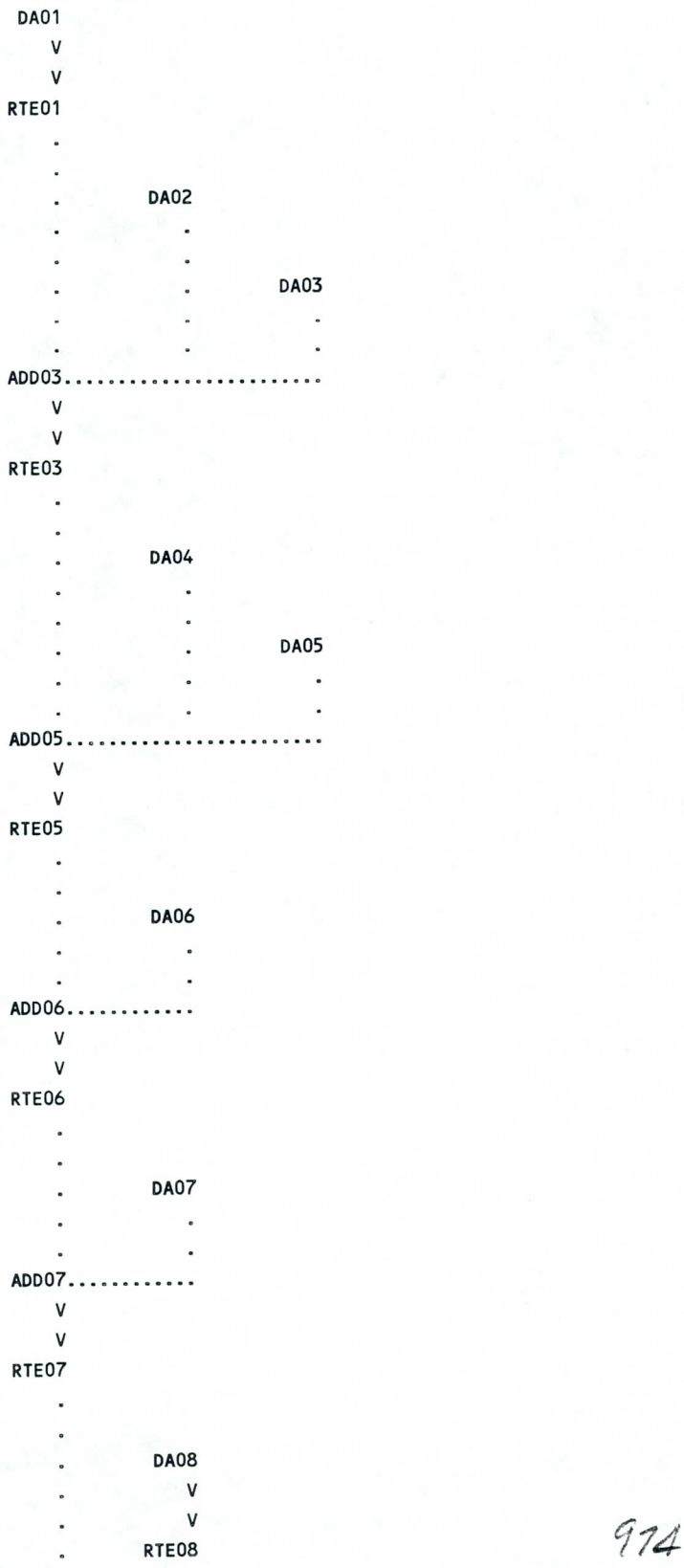
1

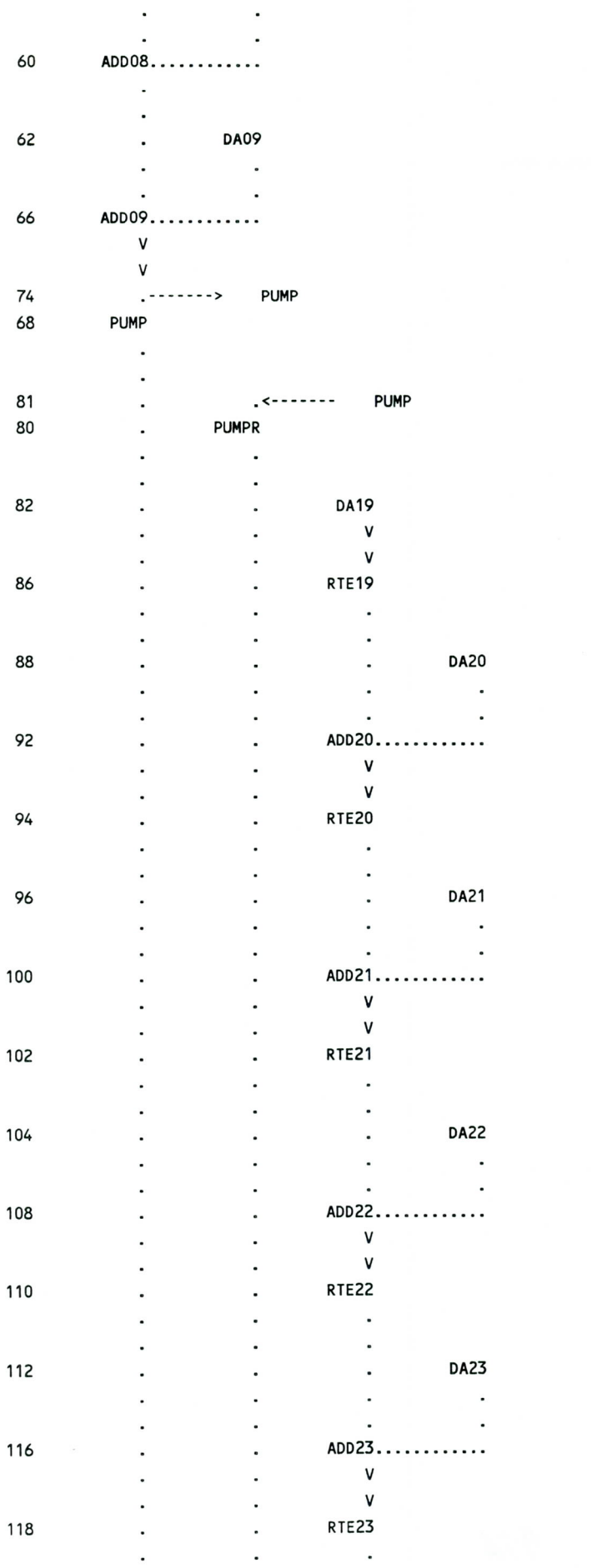
SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO.

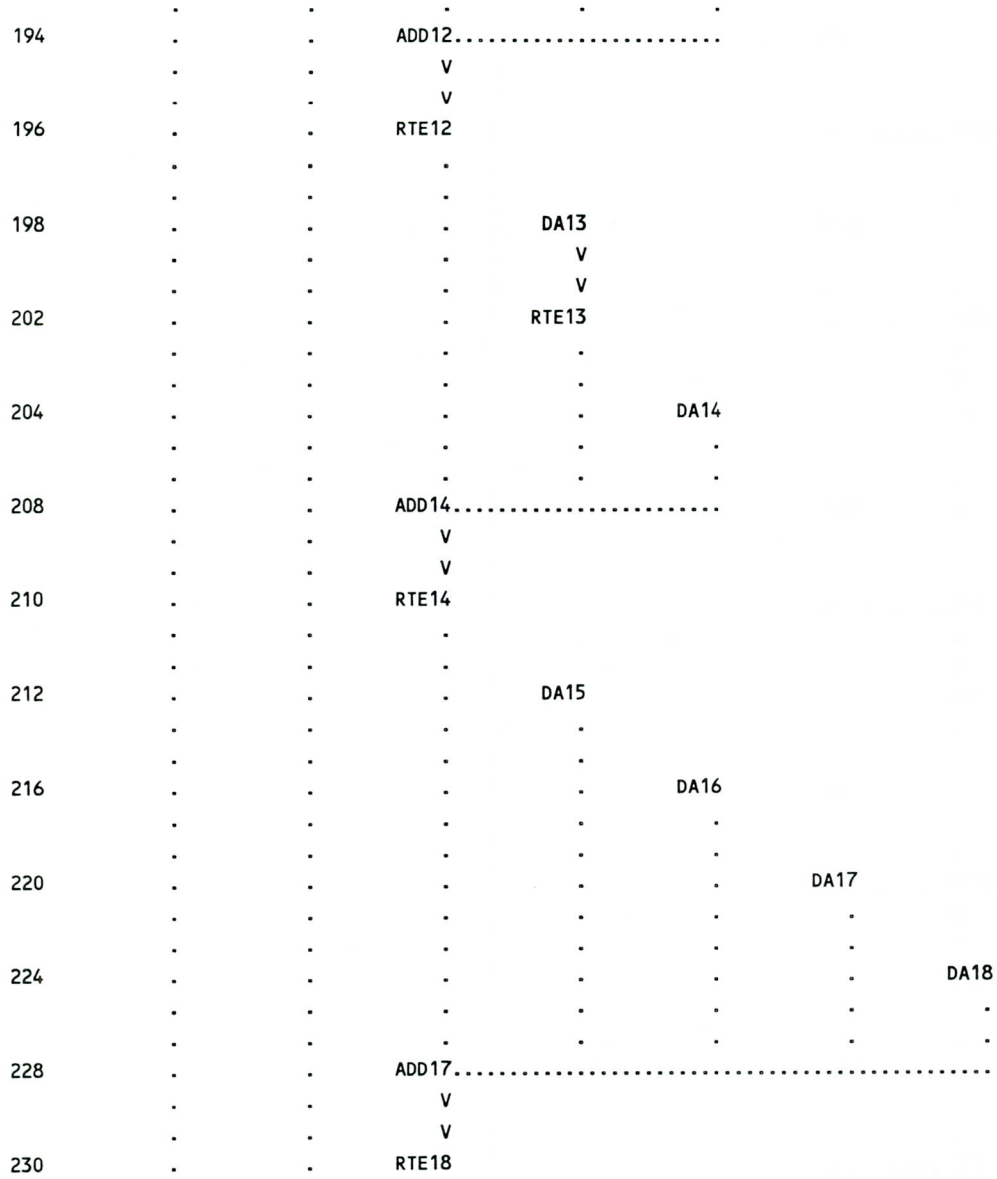
(V) ROUTING (---->) DIVERSION OR PUMP FLOW

(.) CONNECTOR (<----) RETURN OF DIVERTED OR PUMPED FLOW




60 ADD08
62 DA09
66 ADD09
74 PUMP
68 PUMP
81 PUMP
80 PUMPR
82 DA19
86 RTE19
88 DA20
92 ADD20
94 RTE20
96 DA21
100 ADD21
102 RTE21
104 DA22
108 ADD22
110 RTE22
112 DA23
116 ADD23
118 RTE23

```
                .       .       .
123             .       .       .       DA24
                .       .       .         .
                .       .       .         .
127             .       .   ADD24.............
                .       .       .
                .       .       .
129             .       .       .       DA25
                .       .       .         .
                .       .       .         .
133             .       .   ADD25.............
                .       .       V
                .       .       V
135             .       .   RTE25
                .       .       .
                .       .       .
140             .       .       .       DA26
                .       .       .         .
                .       .       .         .
144             .       .   ADD26.............
                .       .       V
                .       .       V
146             .       .   RTE26
                .       .       .
                .       .       .
151             .       .       .       DA27
                .       .       .         .
                .       .       .         .
155             .       .   ADD27.............
                .       .       V
                .       .       V
157             .       .   RTE27
                .       .       .
                .       .       .
162             .       .       .       DA28
                .       .       .         .
                .       .       .         .
166             .       .   ADD28.............
                .       .       .
                .       .       .
168             .       .       .       DA29
                .       .       .         .
                .       .       .         .
172             .       .   ADD29.............
                .       .       V
                .       .       V
174             .       .   RTE29
                .       .       .
                .       .       .
179             .   ADDALL.............
                .       .
                .       .
182             .       .    DA10
                .       .       .
                .       .       .
186             .       .       .       DA11
                .       .       .         .
                .       .       .         .
190             .       .       .         .       DA12
                .       .       .         .         .
```



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              MAY   1991               *
*           VERSION 4.0.1E              *
*                                       *
*  RUN DATE  05/08/92  TIME  10:02:24   *
*                                       *
*****************************************
```

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

PRICE ROAD HYDROLOGY
I-10 AND SOUTH MOUNTAIN FREEWAY INTERCHANGE
DETENTION BASIN ROUTING AND PUMP STATION
100-YEAR 24-HOUR

6 IO OUTPUT CONTROL VARIABLES

```
                IPRNT          3  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL          0.  HYDROGRAPH PLOT SCALE

  IT        HYDROGRAPH TIME DATA
                NMIN           1  MINUTES IN COMPUTATION INTERVAL
                IDATE      1   0  STARTING DATE
                ITIME       0000  STARTING TIME
                  NQ        1440  NUMBER OF HYDROGRAPH ORDINATES
               NDDATE      1   0  ENDING DATE
               NDTIME       2359  ENDING TIME
               ICENT          19  CENTURY MARK

             COMPUTATION INTERVAL    0.02 HOURS
                TOTAL TIME BASE   23.98 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


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


          **************
          *            *
  7 KK    *      DA01  *
          *            *
          **************

             SUBBASIN RUNOFF DATA

  9 BA       SUBBASIN CHARACTERISTICS
                TAREA        0.01  SUBBASIN AREA

             PRECIPITATION DATA

  8 PH                                DEPTHS FOR   2-PERCENT HYPOTHETICAL STORM
             ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
             5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
              0.77   1.50    2.64    2.89    3.06    3.37    3.68    4.00    0.00    0.00    0.00    0.00

                                                STORM AREA =     0.01

 10 LS       SCS LOSS RATE
                STRTL        0.09  INITIAL ABSTRACTION
               CRVNBR       95.70  CURVE NUMBER
                RTIMP        0.00  PERCENT IMPERVIOUS AREA

 11 UD       SCS DIMENSIONLESS UNITGRAPH
                TLAG         0.10  LAG
```

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

3.	9.	18.	30.	40.	44.	44.	40.	35.	28.
21.	16.	12.	10.	8.	6.	5.	4.	3.	2.
2.	1.	1.	1.	1.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA01

TOTAL RAINFALL = 4.00, TOTAL LOSS = 0.49, TOTAL EXCESS = 3.51

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	43.	12.10		3.	1.	1.	1.
			(INCHES)	3.129	3.504	3.504	3.504
			(AC-FT)	2.	2.	2.	2.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

```
          **************
          *            *
12 KK     *     RTE01  *
          *            *
          **************
```

HYDROGRAPH ROUTING DATA

13 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	840.	CHANNEL LENGTH
S	0.0094	SLOPE
N	0.012	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	2.50	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS
COMPUTATION TIME STEP

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	7.57	1.25	1.00	420.00	42.48	727.00	3.50	11.64

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

```
                    MAIN        7.57      1.25      1.00              42.48    727.00      3.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1850E+01 EXCESS=0.0000E+00 OUTFLOW=0.1849E+01 BASIN STORAGE=0.7389E-03 PERCENT ERROR=    0.0


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

                        HYDROGRAPH AT STATION    RTE01

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR       72-HR     23.98-HR
+   (CFS)      (HR)
                        (CFS)
+     42.     12.12                  3.          1.          1.          1.
                       (INCHES)    3.128       3.502       3.502       3.502
                       (AC-FT)        2.          2.          2.          2.

                       CUMULATIVE AREA =    0.01 SQ MI


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


          **************
          *            *
 14 KK    *      DA02  *
          *            *
          **************

             SUBBASIN RUNOFF DATA

 15 BA          SUBBASIN CHARACTERISTICS
                     TAREA        0.01  SUBBASIN AREA

                PRECIPITATION DATA

  8 PH                                DEPTHS FOR   2-PERCENT HYPOTHETICAL STORM
                ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 0.77    1.50    2.64    2.89    3.06    3.37    3.68    4.00    0.00    0.00    0.00    0.00

                                                STORM AREA =    0.01

 16 LS          SCS LOSS RATE
                     STRTL        0.11  INITIAL ABSTRACTION
                    CRVNBR       94.80  CURVE NUMBER
                     RTIMP        0.00  PERCENT IMPERVIOUS AREA

 17 UD          SCS DIMENSIONLESS UNITGRAPH
                     TLAG        0.10  LAG

                                                ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667       0.01667      24.00000
```

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

2.	7.	14.	23.	30.	33.	33.	30.	27.	21.
16.	12.	9.	7.	6.	5.	4.	3.	2.	2.
1.	1.	1.	1.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA02

TOTAL RAINFALL = 4.00, TOTAL LOSS = 0.59, TOTAL EXCESS = 3.41

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	32.	12.10		2.	1.	1.	1.
			(INCHES)	3.057	3.407	3.407	3.407
			(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

```
          **************
          *            *
18 KK     *      DA03  *
          *            *
          **************
```

SUBBASIN RUNOFF DATA

19 BA SUBBASIN CHARACTERISTICS

TAREA	0.00	SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.00

20 LS SCS LOSS RATE

STRTL	0.23	INITIAL ABSTRACTION
CRVNBR	89.60	CURVE NUMBER
RTIMP	0.00	PERCENT IMPERVIOUS AREA

21 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	0.10	LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

1.	4.	9.	14.	19.	21.	21.	19.	17.	13.
10.	8.	6.	5.	4.	3.	2.	2.	1.	1.
1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA03

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.12, TOTAL EXCESS = 2.88

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 18.	12.10		1.	0.	0.	0.
		(INCHES)	2.627	2.878	2.878	2.878
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.00 SQ MI

*** ***

```
          ***************
          *             *
 22 KK    *    ADD03    *       ADD HYD. 01 THRU 03
          *             *
          ***************
```

23 HC HYDROGRAPH COMBINATION
ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION ADD03

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 91.	12.12		7.	2.	2.	2.
		(INCHES)	2.995	3.337	3.337	3.337
		(AC-FT)	4.	4.	4.	4.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

```
          **************
          *            *
24 KK     *     RTE03  *
          *            *
          **************

     HYDROGRAPH ROUTING DATA

25 RD          MUSKINGUM-CUNGE CHANNEL ROUTING
                        L       490.  CHANNEL LENGTH
                        S    0.0074  SLOPE
                        N     0.012  CHANNEL ROUGHNESS COEFFICIENT
                       CA      0.00  CONTRIBUTING AREA
                    SHAPE      CIRC  CHANNEL SHAPE
                       WD      3.50  BOTTOM WIDTH OR DIAMETER
                        Z      0.00  SIDE SLOPE

                                                    ***
                                COMPUTED MUSKINGUM-CUNGE PARAMETERS
                                      COMPUTATION TIME STEP
                  ELEMENT    ALPHA       M        DT        DX       PEAK    TIME TO      VOLUME    MAXIMUM
                                                                              PEAK                   CELERITY
                                                    (MIN)     (FT)     (CFS)    (MIN)       (IN)      (FPS)

                   MAIN       7.10      1.25       0.63    245.00     90.81   727.48       3.34      12.88

                                      INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                   MAIN       7.10      1.25       1.00                90.77   727.00       3.34

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3933E+01 EXCESS=0.0000E+00 OUTFLOW=0.3932E+01 BASIN STORAGE=0.8550E-03 PERCENT ERROR=   0.0


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

                        HYDROGRAPH AT STATION    RTE03

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+      91.     12.12                   7.          2.          2.          2.
                        (INCHES)     2.994       3.336       3.336       3.336
                         (AC-FT)        4.          4.          4.          4.

                        CUMULATIVE AREA =    0.02 SQ MI


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

          **************
          *            *
```

```
26 KK      *      DA04  *
           *            *
           ***************

                SUBBASIN RUNOFF DATA

27 BA           SUBBASIN CHARACTERISTICS
                      TAREA         0.00  SUBBASIN AREA

                PRECIPITATION DATA

 8 PH                                 DEPTHS FOR   2-PERCENT HYPOTHETICAL STORM
                ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 0.77   1.50    2.64    2.89    3.06    3.37    3.68    4.00    0.00    0.00    0.00    0.00

                                                 STORM AREA =     0.00

28 LS           SCS LOSS RATE
                      STRTL         0.14  INITIAL ABSTRACTION
                     CRVNBR        93.40  CURVE NUMBER
                      RTIMP         0.00  PERCENT IMPERVIOUS AREA

29 UD           SCS DIMENSIONLESS UNITGRAPH
                      TLAG         0.10  LAG

                                                      ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                UNIT HYDROGRAPH
                                            32 END-OF-PERIOD ORDINATES
                     1.       3.       7.      12.      15.      17.      17.      15.      13.      11.
                     8.       6.       5.       4.       3.       2.       2.       1.       1.       1.
                     1.       1.       0.       0.       0.       0.       0.       0.       0.       0.
                     0.       0.

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

                          HYDROGRAPH AT STATION     DA04

     TOTAL RAINFALL =    4.00, TOTAL LOSS =    0.74, TOTAL EXCESS =    3.26

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                           (CFS)
+      16.      12.10                     1.          0.          0.          0.
                          (INCHES)     2.942       3.258       3.258       3.258
                          (AC-FT)          1.          1.          1.          1.

                          CUMULATIVE AREA =    0.00 SQ MI


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


               ***************
```

```
          *           *
30 KK     *      DA05 *
          *           *
          ***************
```

SUBBASIN RUNOFF DATA

31 BA SUBBASIN CHARACTERISTICS

TAREA	0.01	SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

HYDRO-35			TP-40					TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.01

32 LS SCS LOSS RATE

STRTL	0.21	INITIAL ABSTRACTION
CRVNBR	90.40	CURVE NUMBER
RTIMP	0.00	PERCENT IMPERVIOUS AREA

33 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	0.10	LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

2.	6.	12.	20.	26.	29.	29.	27.	23.	19.
14.	11.	8.	7.	5.	4.	3.	2.	2.	1.
1.	1.	1.	1.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA05

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.04, TOTAL EXCESS = 2.96

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
			(CFS)			
+	25.	12.10	2.	1.	1.	1.
			(INCHES) 2.693	2.955	2.955	2.955
			(AC-FT) 1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

```
          **************
          *            *
34 KK     *     ADD05  *
          *            *
          **************

35 HC          HYDROGRAPH COMBINATION
                    ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                      HYDROGRAPH AT STATION    ADD05

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR      23.98-HR
+   (CFS)       (HR)
                          (CFS)
+     131.      12.12                10.          3.          3.          3.
                         (INCHES)    2.926       3.250       3.250       3.250
                         (AC-FT)        5.          6.          6.          6.

                      CUMULATIVE AREA =    0.03 SQ MI


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


          **************
          *            *
36 KK     *     RTE05  *
          *            *
          **************

     HYDROGRAPH ROUTING DATA

37 RD          MUSKINGUM-CUNGE CHANNEL ROUTING
                        L        685.  CHANNEL LENGTH
                        S      0.0045  SLOPE
                        N       0.012  CHANNEL ROUGHNESS COEFFICIENT
                       CA        0.00  CONTRIBUTING AREA
                    SHAPE        CIRC  CHANNEL SHAPE
                       WD        4.00  BOTTOM WIDTH OR DIAMETER
                        Z        0.00  SIDE SLOPE

                                                          ***

                      COMPUTED MUSKINGUM-CUNGE PARAMETERS
                                COMPUTATION TIME STEP
          ELEMENT    ALPHA       M          DT         DX        PEAK     TIME TO      VOLUME     MAXIMUM
                                                                            PEAK                    CELERITY
                                                      (MIN)      (FT)      (CFS)     (MIN)        (IN)      (FPS)

            MAIN       5.66      1.25        0.99     685.00     129.04    727.33        3.25      11.55

                                INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL
```

```
                    MAIN        5.66       1.25       1.00              128.95     728.00       3.25

 CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5633E+01 EXCESS=0.0000E+00 OUTFLOW=0.5628E+01 BASIN STORAGE=0.1942E-02 PERCENT ERROR=    0.1


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

                        HYDROGRAPH AT STATION     RTE05

  PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR        72-HR      23.98-HR
+    (CFS)        (HR)
                      (CFS)
+      129.      12.13                 10.          3.           3.           3.
                    (INCHES)         2.923        3.246        3.246        3.246
                     (AC-FT)           5.           6.           6.           6.

                     CUMULATIVE AREA =     0.03 SQ MI


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


          **************
          *            *
  38 KK   *      DA06  *
          *            *
          **************

             SUBBASIN RUNOFF DATA

  39 BA          SUBBASIN CHARACTERISTICS
                      TAREA         0.01  SUBBASIN AREA

                 PRECIPITATION DATA

   8 PH                                DEPTHS FOR   2-PERCENT HYPOTHETICAL STORM
                 ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                 5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                  0.77    1.50    2.64    2.89    3.06    3.37    3.68    4.00    0.00    0.00    0.00    0.00

                                                STORM AREA =     0.01

  40 LS          SCS LOSS RATE
                      STRTL         0.21  INITIAL ABSTRACTION
                     CRVNBR        90.70  CURVE NUMBER
                      RTIMP         0.00  PERCENT IMPERVIOUS AREA

  41 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG         0.10  LAG

                                                ***

 VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000
```

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

3.	8.	16.	27.	35.	39.	39.	36.	31.	25.
18.	14.	11.	9.	7.	5.	4.	3.	2.	2.
2.	1.	1.	1.	1.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA06

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.01, TOTAL EXCESS = 2.99

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)				
	(CFS)				
+ 34.	12.10	3.	1.	1.	1.
	(INCHES)	2.718	2.985	2.985	2.985
	(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

```
          ***************
          *             *
42 KK     *     ADD06   *
          *             *
          ***************
```

43 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION ADD06

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)				
	(CFS)				
+ 161.	12.12	13.	4.	4.	4.
	(INCHES)	2.879	3.191	3.191	3.191
	(AC-FT)	6.	7.	7.	7.

CUMULATIVE AREA = 0.04 SQ MI

*** ***

```
          **************
          *            *
44 KK     *     RTE06  *
          *            *
          **************

     HYDROGRAPH ROUTING DATA

45 RD          MUSKINGUM-CUNGE CHANNEL ROUTING
                        L        700.  CHANNEL LENGTH
                        S      0.0045  SLOPE
                        N       0.012  CHANNEL ROUGHNESS COEFFICIENT
                       CA        0.00  CONTRIBUTING AREA
                    SHAPE        CIRC  CHANNEL SHAPE
                       WD        4.00  BOTTOM WIDTH OR DIAMETER
                        Z        0.00  SIDE SLOPE

                                                    ***
                              COMPUTED MUSKINGUM-CUNGE PARAMETERS
                                      COMPUTATION TIME STEP
                 ELEMENT    ALPHA       M         DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                              PEAK                  CELERITY
                                                   (MIN)     (FT)     (CFS)    (MIN)       (IN)      (FPS)

                    MAIN     5.66      1.25       0.97    700.00    159.51   728.65       3.19      12.04

                                      INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                    MAIN     5.66      1.25       1.00                158.91   728.00       3.19

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7027E+01 EXCESS=0.0000E+00 OUTFLOW=0.7020E+01 BASIN STORAGE=0.2398E-02 PERCENT ERROR=   0.1

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

                        HYDROGRAPH AT STATION    RTE06

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+     159.     12.13                    13.         4.          4.          4.
                         (INCHES)     2.875       3.186       3.186       3.186
                         (AC-FT)         6.          7.          7.          7.

                        CUMULATIVE AREA =    0.04 SQ MI

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

          **************
          *            *
46 KK     *     DA07   *
```

```
*          *
**********

          SUBBASIN RUNOFF DATA

 47 BA          SUBBASIN CHARACTERISTICS
                     TAREA        0.02  SUBBASIN AREA

                PRECIPITATION DATA

  8 PH                                DEPTHS FOR   2-PERCENT HYPOTHETICAL STORM
                ..... HYDRO-35 .....   ............. TP-40 .............   ........... TP-49 ...........
                5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 0.77   1.50    2.64    2.89    3.06    3.37    3.68    4.00    0.00    0.00    0.00    0.00

                                                STORM AREA =     0.02

 48 LS          SCS LOSS RATE
                     STRTL        0.46  INITIAL ABSTRACTION
                     CRVNBR      81.30  CURVE NUMBER
                     RTIMP        0.00  PERCENT IMPERVIOUS AREA

 49 UD          SCS DIMENSIONLESS UNITGRAPH
                     TLAG         0.10  LAG

                                                  ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                UNIT HYDROGRAPH
                                           32 END-OF-PERIOD ORDINATES
                     6.      18.     37.     62.     81.     90.     90.     82.     72.     57.
                    42.      33.     25.     20.     16.     12.      9.      7.      6.      4.
                     3.       3.      2.      2.      1.      1.      1.      1.      0.      0.
                     0.       0.

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

                          HYDROGRAPH AT STATION     DA07

     TOTAL RAINFALL =    4.00, TOTAL LOSS =    1.85, TOTAL EXCESS =    2.15

  PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
                                                  6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                                  (CFS)
+      57.     12.12                              4.          1.          1.          1.
                                  (INCHES)       1.976       2.143       2.143       2.143
                                  (AC-FT)        2.          2.          2.          2.

                          CUMULATIVE AREA =    0.02 SQ MI


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

**********
*          *
```

```
 50 KK      *      ADD07  *
            *             *
            ***************

 51 HC           HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                        HYDROGRAPH AT STATION    ADD07

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                       (CFS)
+     215.     12.13                   17.         5.          5.          5.
                      (INCHES)       2.570       2.843       2.843       2.843
                      (AC-FT)          8.          9.          9.          9.

                      CUMULATIVE AREA =    0.06 SQ MI


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


            ***************
            *             *
 52 KK      *     RTE07   *
            *             *
            ***************

               HYDROGRAPH ROUTING DATA

 53 RD          MUSKINGUM-CUNGE CHANNEL ROUTING
                          L        605.  CHANNEL LENGTH
                          S      0.0022  SLOPE
                          N       0.012  CHANNEL ROUGHNESS COEFFICIENT
                         CA        0.00  CONTRIBUTING AREA
                      SHAPE        CIRC  CHANNEL SHAPE
                         WD        5.00  BOTTOM WIDTH OR DIAMETER
                          Z        0.00  SIDE SLOPE

                                                    ***
                          COMPUTED MUSKINGUM-CUNGE PARAMETERS
                                  COMPUTATION TIME STEP
                 ELEMENT    ALPHA       M         DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                               PEAK                  CELERITY
                                                  (MIN)     (FT)     (CFS)    (MIN)       (IN)      (FPS)

                   MAIN       4.11      1.25      1.00    605.00    208.23   729.00        2.83      9.86

                                  INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                   MAIN       4.11      1.25      1.00    991       208.23   729.00        2.83
```

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9339E+01 EXCESS=0.0000E+00 OUTFLOW=0.9312E+01 BASIN STORAGE=0.3564E-02 PERCENT ERROR= 0.3

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

HYDROGRAPH AT STATION RTE07

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
		(CFS)				
+	208.	12.15	17.	5.	5.	5.
		(INCHES)	2.562	2.834	2.834	2.834
		(AC-FT)	8.	9.	9.	9.

CUMULATIVE AREA = 0.06 SQ MI

*** ***

```
**************
*            *
*      DA08  *
*            *
**************
```

54 KK

SUBBASIN RUNOFF DATA

55 BA SUBBASIN CHARACTERISTICS

TAREA 0.01 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.01

56 LS SCS LOSS RATE

STRTL 0.11 INITIAL ABSTRACTION

CRVNBR 94.80 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

57 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH

32 END-OF-PERIOD ORDINATES

2.	5.	10.	17.	22.	25.	25.	23.	20.	16.
12.	9.	7.	6.	4.	3.	3.	2.	2.	1.
1.	1.	1.	0.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA08

TOTAL RAINFALL = 4.00, TOTAL LOSS = 0.59, TOTAL EXCESS = 3.41

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	24.	12.10		2.	1.	1.	1.
			(INCHES)	3.057	3.407	3.407	3.407
			(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

```
**************
*            *
*            *
*     RTE08  *
*            *
*            *
**************
```

58 KK

HYDROGRAPH ROUTING DATA

59 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	700.	CHANNEL LENGTH
S	0.0072	SLOPE
N	0.012	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	2.50	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS

COMPUTATION TIME STEP

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	6.62	1.25	1.00	350.00	23.62	727.00	3.40	9.30

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	6.62	1.25	1.00		23.62	727.00	3.40

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1017E+01 EXCESS=0.0000E+00 OUTFLOW=0.1017E+01 BASIN STORAGE=0.4325E-03 PERCENT ERROR= 0.0

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

HYDROGRAPH AT STATION RTE08

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 24.	12.12		2.	1.	1.	1.
		(INCHES)	3.056	3.405	3.405	3.405
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

```
**************
*            *
*     ADD08  *
*            *
**************
```

60 KK

61 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION ADD08

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 231.	12.15		19.	5.	5.	5.
		(INCHES)	2.602	2.882	2.882	2.882
		(AC-FT)	9.	10.	10.	10.

CUMULATIVE AREA = 0.07 SQ MI

*** ***

```
**************
*            *
*      DA09  *
*            *
**************
```

62 KK

SUBBASIN RUNOFF DATA

63 BA SUBBASIN CHARACTERISTICS

TAREA 0.03 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			.... TP-40					.... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.03

64 LS SCS LOSS RATE

STRTL 0.48 INITIAL ABSTRACTION

CRVNBR 80.80 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

65 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH

32 END-OF-PERIOD ORDINATES

9.	25.	52.	87.	114.	126.	126.	115.	100.	80.
59.	46.	35.	28.	22.	17.	13.	10.	8.	6.
5.	4.	3.	2.	2.	1.	1.	1.	1.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA09

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.89, TOTAL EXCESS = 2.10

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 79.	12.12		6.	2.	2.	2.
		(INCHES)	1.940	2.103	2.103	2.103
		(AC-FT)	3.	3.	3.	3.

CUMULATIVE AREA = 0.03 SQ MI

*** ***

```
         ***************
         *             *
66 KK    *    ADD09    *
         *             *
```

995

```
          **************

 67 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                       HYDROGRAPH AT STATION    ADD09

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                     (CFS)
+     306.     12.13                  25.         7.          7.          7.
                     (INCHES)       2.400       2.650       2.650       2.650
                     (AC-FT)         12.         14.         14.         14.

                       CUMULATIVE AREA =    0.10 SQ MI


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


          **************
          *            *
 68 KK    *      PUMP  *       96" STORAGE RCP'S
          *            *
          **************
                              L=1070 FEET     200 CFS STATION

             HYDROGRAPH ROUTING DATA

 70 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       ELEV  TYPE OF INITIAL CONDITION
                     RSVRIC    1132.00  INITIAL CONDITION
                         X        0.00 WORKING R AND D COEFFICIENT

 71 SV            STORAGE        0.0        0.2        0.6        1.0        1.2

 72 SE          ELEVATION    1132.00    1134.00    1136.00    1138.00    1140.00

 73 SQ          DISCHARGE         0.         0.         0.         0.         0.

 75 WP          PUMPING DATA

                  PUMP ON    PUMPING    PUMP OFF
                 ELEVATION     RATE    ELEVATION

                   1134.0       40.      1133.0
                   1135.0       40.      1134.0
                   1136.0       40.      1135.0
                   1136.0       40.      1133.0
                   1136.0       40.      1132.0

                    ISTAD        PUMP  PUMP FLOW HYDROGRAPH IDENTIFICATION
```

***

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

HYDROGRAPH AT STATION PUMP

PEAK OUTFLOW IS 0. AT TIME 12.25 HOURS

***** PUMP FLOW HYDROGRAPH *****

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	200.	12.05		25.	7.	7.	7.
			(INCHES)	2.399	2.593	2.593	2.593
			(AC-FT)	12.	13.	13.	13.

***** OUTFLOW HYDROGRAPH *****

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	0.	12.23		0.	0.	0.	0.
			(INCHES)	0.002	0.005	0.005	0.005
			(AC-FT)	0.	0.	0.	0.

	PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	23.98-HR
+	(AC-FT)	(HR)				
	2.	12.25	0.	0.	0.	0.

	PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	23.98-HR
+	(FEET)	(HR)				
	1144.41	12.25	1133.98	1133.02	1133.02	1133.02

CUMULATIVE AREA = 0.10 SQ MI

*** ***

```
          ***************
          *             *
80 KK     *    PUMPR    *
          *             *
          ***************
```

81 WR RETRIEVE PUMP FLOW HYDROGRAPH

ISTAD PUMP PUMP FLOW HYDROGRAPH IDENTIFICATION

***

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

HYDROGRAPH AT STATION PUMPR

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 200.	12.05		25.	7.	7.	7.
		(INCHES)	2.399	2.593	2.593	2.593
		(AC-FT)	12.	13.	13.	13.

CUMULATIVE AREA = 0.00 SQ MI

*** ***

```
          ***************
          *             *
82 KK     *     DA19    *
          *             *
          ***************
```

SUBBASIN RUNOFF DATA

83 BA SUBBASIN CHARACTERISTICS
TAREA 0.01 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			.... TP-40					.... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.01

84 LS SCS LOSS RATE
STRTL 0.65 INITIAL ABSTRACTION
CRVNBR 75.60 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

85 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

3.	10.	20.	34.	45.	50.	50.	45.	40.	32.
23.	18.	14.	11.	9.	7.	5.	4.	3.	2.
2.	1.	1.	1.	1.	1.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA19

TOTAL RAINFALL = 4.00, TOTAL LOSS = 2.29, TOTAL EXCESS = 1.71

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 25.	12.12		2.	1.	1.	1.
		(INCHES)	1.572	1.707	1.707	1.707
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

86 KK

****
* *
* RTE19 *
* *
****

HYDROGRAPH ROUTING DATA

87 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	150.	CHANNEL LENGTH
S	0.0067	SLOPE
N	0.012	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	2.50	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS

			COMPUTATION TIME STEP					
ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	MAXIMUM CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
MAIN	6.39	1.25	0.27	150.00	24.88	727.29	1.71	9.13
INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL								
MAIN	6.39	1.25	1.00		24.86	727.00	1.71	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1020E+01 EXCESS=0.0000E+00 OUTFLOW=0.1020E+01 BASIN STORAGE=0.1347E-03 PERCENT ERROR= 0.0

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

HYDROGRAPH AT STATION RTE19

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 25.	12.12		2.	1.	1.	1.
		(INCHES)	1.572	1.707	1.707	1.707
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

88 KK

****
* *
* DA20 *
* *
****

SUBBASIN RUNOFF DATA

89 BA SUBBASIN CHARACTERISTICS

TAREA 0.01 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.01

90 LS SCS LOSS RATE

STRTL 0.21 INITIAL ABSTRACTION
CRVNBR 90.70 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

91 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

3.	9.	19.	32.	42.	46.	46.	42.	37.	29.
22.	17.	13.	10.	8.	6.	5.	4.	3.	2.
2.	1.	1.	1.	1.	1.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA20 1000

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.01, TOTAL EXCESS = 2.99

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)				
	(CFS)				
+ 40.	12.10	3.	1.	1.	1.
	(INCHES)	2.718	2.985	2.985	2.985
	(AC-FT)	2.	2.	2.	2.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

92 KK

****
* *
* ADD20 *
* *
****

93 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION ADD20

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)				
	(CFS)				
+ 65.	12.12	5.	1.	1.	1.
	(INCHES)	2.110	2.322	2.322	2.322
	(AC-FT)	2.	3.	3.	3.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

94 KK

****
* *
* RTE20 *
* *
****

HYDROGRAPH ROUTING DATA

95 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L 90. CHANNEL LENGTH

1001

S	0.0028	SLOPE
N	0.012	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	3.50	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS

COMPUTATION TIME STEP

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	4.37	1.25	0.18	90.00	64.32	726.93	2.32	8.14
INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL								
MAIN	4.37	1.25	1.00		64.25	727.00	2.32	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2675E+01 EXCESS=0.0000E+00 OUTFLOW=0.2674E+01 BASIN STORAGE=0.2035E-03 PERCENT ERROR= 0.0

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

HYDROGRAPH AT STATION RTE20

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
			(CFS)			
+	64.	12.12	5.	1.	1.	1.
			(INCHES) 2.110	2.322	2.322	2.322
			(AC-FT) 2.	3.	3.	3.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

```
**************
*            *
*      DA21  *
*            *
**************
```

96 KK

SUBBASIN RUNOFF DATA

97 BA

SUBBASIN CHARACTERISTICS

TAREA 0.00 SUBBASIN AREA

PRECIPITATION DATA

```
 8 PH                                DEPTHS FOR   2-PERCENT HYPOTHETICAL STORM
                ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 0.77    1.50    2.64    2.89    3.06    3.37    3.68    4.00    0.00    0.00    0.00    0.00

                                                STORM AREA =    0.00

 98 LS          SCS LOSS RATE
                      STRTL        0.04  INITIAL ABSTRACTION
                     CRVNBR       98.00  CURVE NUMBER
                      RTIMP        0.00  PERCENT IMPERVIOUS AREA

 99 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG        0.10  LAG

                                                ***

VALUE EXCEEDS TABLE IN LOGLOG         0.01667       0.01667       24.00000

                                                UNIT HYDROGRAPH
                                            32 END-OF-PERIOD ORDINATES
                0.       1.       3.       5.       6.       7.       7.       6.       6.       5.
                3.       3.       2.       2.       1.       1.       1.       1.       0.       0.
                0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
                0.       0.

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

                      HYDROGRAPH AT STATION     DA21

    TOTAL RAINFALL =    4.00, TOTAL LOSS =    0.23, TOTAL EXCESS =    3.76

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                          6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                       (CFS)
+       7.     12.10                       1.          0.          0.          0.
                     (INCHES)          3.294       3.762       3.762       3.762
                     (AC-FT)             0.          0.          0.          0.

                      CUMULATIVE AREA =    0.00 SQ MI


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


          **************
          *            *
 100 KK   *     ADD21  *
          *            *
          **************

 101 HC         HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                ***

     ***              ***              ***              ***  1003  ***
```

HYDROGRAPH AT STATION ADD21

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	71.	12.12		5.	2.	2.	2.
			(INCHES)	2.186	2.421	2.421	2.421
			(AC-FT)	3.	3.	3.	3.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

```
          **************
          *            *
102 KK    *     RTE21  *
          *            *
          **************
```

HYDROGRAPH ROUTING DATA

103 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	90.	CHANNEL LENGTH
S	0.0028	SLOPE
N	0.012	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	4.00	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS

COMPUTATION TIME STEP

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	4.47	1.25	0.18	90.00	71.05	726.96	2.42	8.46

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	4.47	1.25	1.00		71.05	727.00	2.42

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2996E+01 EXCESS=0.0000E+00 OUTFLOW=0.2995E+01 BASIN STORAGE=0.2137E-03 PERCENT ERROR= 0.0

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

HYDROGRAPH AT STATION RTE21

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 71.	12.12		5.	2.	2.	2.
		(INCHES)	2.186	2.421	2.421	2.421
		(AC-FT)	3.	3.	3.	3.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

104 KK

****
* *
* DA22 *
* *
****

SUBBASIN RUNOFF DATA

105 BA SUBBASIN CHARACTERISTICS

TAREA 0.01 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.01

106 LS SCS LOSS RATE

STRTL 0.19 INITIAL ABSTRACTION
CRVNBR 91.30 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

107 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

4.	12.	24.	41.	53.	59.	59.	54.	47.	38.
28.	21.	17.	13.	10.	8.	6.	5.	4.	3.
2.	2.	1.	1.	1.	1.	1.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA22

TOTAL RAINFALL = 4.00, TOTAL LOSS = 0.95, TOTAL EXCESS = 3.05

1005

```
  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR      23.98-HR
+   (CFS)       (HR)
                        (CFS)
+      52.     12.10                 4.           1.           1.           1.
                          (INCHES)  2.768        3.044        3.044        3.044
                          (AC-FT)     2.           2.           2.           2.

                        CUMULATIVE AREA =    0.01 SQ MI


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


              **************
              *            *
  108 KK      *     ADD22  *
              *            *
              **************

  109 HC           HYDROGRAPH COMBINATION
                         ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                       HYDROGRAPH AT STATION    ADD22

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR        24-HR        72-HR      23.98-HR
+   (CFS)       (HR)
                        (CFS)
+     123.      12.12                 9.           3.           3.           3.
                          (INCHES)  2.397        2.648        2.648        2.648
                          (AC-FT)     5.           5.           5.           5.

                        CUMULATIVE AREA =    0.04 SQ MI


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


              **************
              *            *
  110 KK      *     RTE22  *
              *            *
              **************

                HYDROGRAPH ROUTING DATA

  111 RD           MUSKINGUM-CUNGE CHANNEL ROUTING
                             L        260.  CHANNEL LENGTH
                             S      0.0028  SLOPE
                             N       0.012  CHANNEL ROUGHNESS COEFFICIENT
```

CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	4.50	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS

COMPUTATION TIME STEP

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	4.56	1.25	0.45	260.00	121.34	726.78	2.65	9.58

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	4.56	1.25	1.00		121.34	727.00	2.65

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5154E+01 EXCESS=0.0000E+00 OUTFLOW=0.5150E+01 BASIN STORAGE=0.9021E-03 PERCENT ERROR= 0.1

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

HYDROGRAPH AT STATION RTE22

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
		(CFS)				
121.	12.12		9.	3.	3.	3.
		(INCHES)	2.395	2.646	2.646	2.646
		(AC-FT)	5.	5.	5.	5.

CUMULATIVE AREA = 0.04 SQ MI

*** ***

112 KK

****
* *
* DA23 *
* *
****

SUBBASIN RUNOFF DATA

113 BA SUBBASIN CHARACTERISTICS

TAREA 0.03 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35 .... TP-40 .... TP-49 .....

5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.03

114 LS SCS LOSS RATE
STRTL 0.45 INITIAL ABSTRACTION
CRVNBR 81.50 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

115 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

10.	28.	58.	97.	128.	141.	141.	129.	113.	90.
67.	52.	40.	32.	25.	19.	15.	12.	9.	7.
5.	4.	3.	3.	2.	2.	1.	1.	1.	1.
0.	0.								

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

HYDROGRAPH AT STATION DA23

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.84, TOTAL EXCESS = 2.16

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	91.	12.12		7.	2.	2.	2.
			(INCHES)	1.991	2.159	2.159	2.159
			(AC-FT)	3.	4.	4.	4.

CUMULATIVE AREA = 0.03 SQ MI

*** ***

```
          **************
          *            *
116 KK    *   ADD23    *
          *            *
          **************
```

117 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION ADD23

1008

```
  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                          6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                        (CFS)
+     212.     12.12                       16.         4.          4.          4.
                        (INCHES)         2.202       2.419       2.419       2.419
                        (AC-FT)             8.          9.          9.          9.

                        CUMULATIVE AREA =    0.07 SQ MI


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


           **************
           *            *
 118 KK    *     RTE23  *       INFIELD AREA - 30" OUTLET (INLET CONTROL) basin 12
           *            *
           **************

              HYDROGRAPH ROUTING DATA

 119 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        STOR  TYPE OF INITIAL CONDITION
                      RSVRIC       0.00  INITIAL CONDITION
                          X        0.00 WORKING R AND D COEFFICIENT

 120 SV           STORAGE         0.0        0.2        0.9        7.4

 121 SE           ELEVATION    1160.00    1161.00    1162.00    1165.00

 122 SQ           DISCHARGE          0.         0.         4.        25.
                                                                    ***

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

                        HYDROGRAPH AT STATION    RTE23

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                          6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                        (CFS)
+      20.     12.65                       13.         4.          4.          4.
                        (INCHES)         1.760       2.285       2.285       2.285
                        (AC-FT)             6.          8.          8.          8.

 PEAK STORAGE   TIME                       MAXIMUM AVERAGE STORAGE
                                          6-HR       24-HR       72-HR     23.98-HR
+  (AC-FT)      (HR)
        6.     12.65                        4.          1.          1.          1.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                          6-HR       24-HR       72-HR     23.98-HR
+   (FEET)      (HR)
    1164.24     12.65                  1163.28    1161.36    1161.36    1161.36
```

CUMULATIVE AREA = 0.07 SQ MI

*** ***

```
          **************
          *            *
123 KK    *      DA24  *
          *            *
          **************
```

SUBBASIN RUNOFF DATA

124 BA SUBBASIN CHARACTERISTICS

TAREA 0.00 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.00

125 LS SCS LOSS RATE

STRTL 0.04 INITIAL ABSTRACTION

CRVNBR 98.00 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

126 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

1.	2.	5.	8.	10.	11.	11.	10.	9.	7.
5.	4.	3.	2.	2.	2.	1.	1.	1.	1.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA24

TOTAL RAINFALL = 4.00, TOTAL LOSS = 0.23, TOTAL EXCESS = 3.76

		MAXIMUM AVERAGE FLOW			
PEAK FLOW	TIME	6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)				
	(CFS)				
+ 11.	12.10	1.	0.	0.	0.
	(INCHES)	3.294	3.762	3.762	3.762

(AC-FT) 0. 1. 1. 1.

CUMULATIVE AREA = 0.00 SQ MI

*** ***

****
* *
127 KK * ADD24 *
* *
****

128 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION ADD24

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)				
		(CFS)			
+ 21.	12.17	14.	4.	4.	4.
		(INCHES) 1.788	2.337	2.337	2.337
		(AC-FT) 7.	9.	9.	9.

CUMULATIVE AREA = 0.07 SQ MI

*** ***

****
* *
129 KK * DA25 *
* *
****

SUBBASIN RUNOFF DATA

130 BA SUBBASIN CHARACTERISTICS
TAREA 0.02 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.02

```
 131 LS          SCS LOSS RATE
                      STRTL        0.37  INITIAL ABSTRACTION
                     CRVNBR       84.40  CURVE NUMBER
                      RTIMP        0.00  PERCENT IMPERVIOUS AREA

 132 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG        0.10  LAG

                                                    ***

 VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                  UNIT HYDROGRAPH
                                              32 END-OF-PERIOD ORDINATES
                 6.       17.       36.       60.       78.       86.       86.       79.       69.       55.
                41.       32.       24.       19.       15.       12.        9.        7.        6.        4.
                 3.        3.        2.        2.        1.        1.        1.        1.        0.        0.
                 0.        0.

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

                        HYDROGRAPH AT STATION     DA25

     TOTAL RAINFALL =    4.00, TOTAL LOSS =    1.59, TOTAL EXCESS =    2.41

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                          6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+      62.     12.10                        5.          1.          1.          1.
                         (INCHES)       2.210       2.403       2.403       2.403
                         (AC-FT)           2.          2.          2.          2.

                        CUMULATIVE AREA =    0.02 SQ MI


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


            **************
            *            *
 133 KK     *     ADD25  *
            *            *
            **************

 134 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                        HYDROGRAPH AT STATION    ADD25

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                          6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
```

			(CFS)				
+	82.	12.12		18.	6.	6.	6.
			(INCHES)	1.860	2.351	2.351	2.351
			(AC-FT)	9.	11.	11.	11.

CUMULATIVE AREA = 0.09 SQ MI

*** ***

```
          **************
          *            *
135 KK    *     RTE25  *       INFIELD AREA - 24" OUTLET (INLET CONTROL) basin 11
          *            *
          **************
```

HYDROGRAPH ROUTING DATA

136 RS	STORAGE ROUTING			
	NSTPS	1	NUMBER OF SUBREACHES	
	ITYP	STOR	TYPE OF INITIAL CONDITION	
	RSVRIC	0.00	INITIAL CONDITION	
	X	0.00	WORKING R AND D COEFFICIENT	
137 SV	STORAGE	0.0	0.2	0.9	13.4
138 SE	ELEVATION	1159.00	1160.00	1161.00	1165.00
139 SQ	DISCHARGE	0.	0.	4.	30.

***

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

HYDROGRAPH AT STATION RTE25

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 12.	15.87		11.	5.	5.	5.
		(INCHES)	1.126	1.945	1.945	1.945
		(AC-FT)	5.	9.	9.	9.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)				
5.	15.80	4.	2.	2.	2.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)				
1162.16	15.87	1162.07	1160.48	1160.48	1160.48

CUMULATIVE AREA = 0.09 SQ MI

*** ***

```
          **************
          *            *
140 KK    *      DA26  *
          *            *
          **************
```

SUBBASIN RUNOFF DATA

141 BA SUBBASIN CHARACTERISTICS

TAREA 0.02 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.02

142 LS SCS LOSS RATE

STRTL 0.55 INITIAL ABSTRACTION

CRVNBR 78.50 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

143 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

5.	14.	28.	48.	62.	69.	69.	63.	55.	44.
33.	25.	19.	16.	12.	9.	7.	6.	4.	3.
3.	2.	2.	1.	1.	1.	1.	1.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA26

TOTAL RAINFALL = 4.00, TOTAL LOSS = 2.07, TOTAL EXCESS = 1.92

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
		(CFS)				
+	39.	12.12	3.	1.	1.	1.
		(INCHES)	1.774	1.923	1.923	1.923
		(AC-FT)	1.	2.	2.	2.

CUMULATIVE AREA = 0.02 SQ MI

1014

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
144 KK    *     ADD26  *
          *            *
          **************

145 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                      HYDROGRAPH AT STATION    ADD26

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                       (CFS)
+      44.     12.12                13.         6.          6.          6.
                     (INCHES)     1.143       1.942       1.942       1.942
                      (AC-FT)       6.         11.         11.         11.

                      CUMULATIVE AREA =    0.11 SQ MI



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


          **************
          *            *
146 KK    *     RTE26  *       INFIELD AREA - 18" OUTLET (INLET CONTROL) basin 10
          *            *
          **************

             HYDROGRAPH ROUTING DATA

147 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       STOR  TYPE OF INITIAL CONDITION
                     RSVRIC      0.00  INITIAL CONDITION
                         X       0.00 WORKING R AND D COEFFICIENT

148 SV            STORAGE        0.0       0.0       1.9       5.3

149 SE          ELEVATION     1158.00   1159.00   1160.00   1161.00

150 SQ          DISCHARGE          0.        0.        3.        9.

                                                    ***

     ***            ***            ***            ***            ***
```

HYDROGRAPH AT STATION RTE26

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 8.	21.70		8.	3.	3.	3.
		(INCHES)	0.699	1.117	1.117	1.117
		(AC-FT)	4.	6.	6.	6.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	23.98-HR
+ (AC-FT)	(HR)					
5.	21.68		5.	2.	2.	2.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	23.98-HR
+ (FEET)	(HR)					
1160.86	21.70		1160.81	1159.28	1159.28	1159.28

CUMULATIVE AREA = 0.11 SQ MI

*** ***

```
          **************
          *            *
151 KK    *      DA27  *
          *            *
          **************
```

SUBBASIN RUNOFF DATA

152 BA SUBBASIN CHARACTERISTICS

TAREA 0.03 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.03

153 LS SCS LOSS RATE

STRTL 0.37 INITIAL ABSTRACTION

CRVNBR 84.30 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

154 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

10/L9

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

8.	22.	46.	77.	101.	112.	112.	103.	89.	72.
53.	41.	32.	25.	20.	15.	12.	9.	7.	6.
4.	3.	3.	2.	2.	1.	1.	1.	1.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA27

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.60, TOTAL EXCESS = 2.40

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 80.	12.10		6.	2.	2.	2.
		(INCHES)	2.203	2.394	2.394	2.394
		(AC-FT)	3.	3.	3.	3.

CUMULATIVE AREA = 0.03 SQ MI

*** ***

```
**************
*            *
*            *
155 KK  *     ADD27  *
*            *
*            *
**************
```

156 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION ADD27

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 80.	12.12		10.	5.	5.	5.
		(INCHES)	0.732	1.363	1.363	1.363
		(AC-FT)	5.	10.	10.	10.

CUMULATIVE AREA = 0.13 SQ MI

*** ***

```
          **************
          *            *
157 KK    *     RTE27  *       INFIELD AREA - 24" OUTLET (INLET CONTROL) basin 9
          *            *
          **************

             HYDROGRAPH ROUTING DATA

158 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       STOR  TYPE OF INITIAL CONDITION
                     RSVRIC      0.00  INITIAL CONDITION
                          X      0.00 WORKING R AND D COEFFICIENT

159 SV            STORAGE        0.0       0.0       1.3       3.5

160 SE          ELEVATION     1157.90   1158.40   1160.00   1161.00

161 SQ          DISCHARGE          0.        0.        9.       17.

                                                                ***

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

                        HYDROGRAPH AT STATION    RTE27

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+      11.      12.62                   9.          4.          4.          4.
                          (INCHES)  0.613       1.185       1.185       1.185
                          (AC-FT)     4.          8.          8.          8.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     23.98-HR
+  (AC-FT)      (HR)
        2.      12.60                   1.          1.          1.          1.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     23.98-HR
+   (FEET)      (HR)
    1160.29     12.62               1159.91    1158.92     1158.92     1158.92

                        CUMULATIVE AREA =     0.13 SQ MI


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


          **************
          *            *
162 KK    *      DA28  *
          *            *
          **************

             SUBBASIN RUNOFF DATA
```

```
 163 BA          SUBBASIN CHARACTERISTICS
                       TAREA        0.00  SUBBASIN AREA

                 PRECIPITATION DATA

   8 PH                              DEPTHS FOR   2-PERCENT HYPOTHETICAL STORM
                 ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                 5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                  0.77   1.50    2.64    2.89    3.06    3.37    3.68    4.00    0.00    0.00    0.00    0.00

                                                 STORM AREA =     0.00

 164 LS          SCS LOSS RATE
                       STRTL        0.04  INITIAL ABSTRACTION
                      CRVNBR       98.00  CURVE NUMBER
                       RTIMP        0.00  PERCENT IMPERVIOUS AREA

 165 UD          SCS DIMENSIONLESS UNITGRAPH
                       TLAG        0.10  LAG

                                                      ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                  UNIT HYDROGRAPH
                                               32 END-OF-PERIOD ORDINATES
                 1.       2.       5.       8.      10.      11.      11.      10.       9.       7.
                 5.       4.       3.       2.       2.       2.       1.       1.       1.       1.
                 0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
                 0.       0.

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

                        HYDROGRAPH AT STATION     DA28

    TOTAL RAINFALL =    4.00, TOTAL LOSS =    0.23, TOTAL EXCESS =    3.76

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+      11.      12.10                     1.          0.          0.          0.
                         (INCHES)     3.294       3.762       3.762       3.762
                         (AC-FT)         0.          1.          1.          1.

                         CUMULATIVE AREA =    0.00 SQ MI


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


                 ***************
                 *             *
 166 KK          *     ADD28   *
                 *             *
                 ***************
```

```
 167 HC          HYDROGRAPH COMBINATION
                       ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                        HYDROGRAPH AT STATION    ADD28

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                        (CFS)
+       18.     12.13                  9.          4.          4.          4.
                      (INCHES)      0.644       1.233       1.233       1.233
                       (AC-FT)        5.          9.          9.          9.

                      CUMULATIVE AREA =    0.13 SQ MI


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


            **************
            *            *
 168 KK     *      DA29  *
            *            *
            **************

               SUBBASIN RUNOFF DATA

 169 BA          SUBBASIN CHARACTERISTICS
                      TAREA        0.03  SUBBASIN AREA

                 PRECIPITATION DATA

  8 PH                                 DEPTHS FOR   2-PERCENT HYPOTHETICAL STORM
                 ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                 5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                  0.77    1.50    2.64    2.89    3.06    3.37    3.68    4.00    0.00    0.00    0.00    0.00

                                              STORM AREA =    0.03

 170 LS          SCS LOSS RATE
                      STRTL        0.40  INITIAL ABSTRACTION
                     CRVNBR       83.50  CURVE NUMBER
                      RTIMP        0.00  PERCENT IMPERVIOUS AREA

 171 UD          SCS DIMENSIONLESS UNITGRAPH
                       TLAG        0.10  LAG

                                                    ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667         0.01667        24.00000

                                                UNIT HYDROGRAPH
                                              32 END-OF-PERIOD ORDINATES
                 9.      25.      52.      87.     114.     127.     127.     116.     101.      81.
```

```
                60.       46.       36.       29.       22.       17.       13.       10.        8.        6.
                 5.        4.        3.        2.        2.        1.        1.        1.        1.        0.
                 0.        0.

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

                        HYDROGRAPH AT STATION     DA29

     TOTAL RAINFALL =    4.00, TOTAL LOSS =    1.67, TOTAL EXCESS =    2.33

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+      87.     12.12                     7.          2.          2.          2.
                        (INCHES)      2.141       2.326       2.326       2.326
                        (AC-FT)          3.          4.          4.          4.

                        CUMULATIVE AREA =    0.03 SQ MI


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


           **************
           *            *
  172 KK   *     ADD29  *
           *            *
           **************

  173 HC          HYDROGRAPH COMBINATION
                        ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                        HYDROGRAPH AT STATION    ADD29

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+     105.      12.12                    16.          6.          6.          6.
                        (INCHES)      0.893       1.425       1.425       1.425
                        (AC-FT)          8.         12.         12.         12.

                        CUMULATIVE AREA =    0.16 SQ MI


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


           **************
           *            *
  174 KK   *     RTE29  *       INFIELD AREA - 24" OUTLET (INLET CONTROL) basin 8
           *            *
```

```
          *           *
          **************

             HYDROGRAPH ROUTING DATA

  175 RS          STORAGE ROUTING
                       NSTPS           1  NUMBER OF SUBREACHES
                        ITYP        STOR  TYPE OF INITIAL CONDITION
                       RSVRIC        0.00  INITIAL CONDITION
                           X         0.00 WORKING R AND D COEFFICIENT

  176 SV            STORAGE         0.0       0.0       0.0       4.4

  177 SE          ELEVATION      1157.00   1157.50   1159.00   1161.00

  178 SQ          DISCHARGE          0.        0.        8.       23.

                                                                   ***

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

                        HYDROGRAPH AT STATION    RTE29

   PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR     23.98-HR
+    (CFS)       (HR)
                          (CFS)
+       16.     12.75                  14.          6.          6.          6.
                        (INCHES)      0.796       1.387       1.387       1.387
                        (AC-FT)         7.          12.         12.         12.

  PEAK STORAGE   TIME                       MAXIMUM AVERAGE STORAGE
                                      6-HR        24-HR       72-HR     23.98-HR
+   (AC-FT)      (HR)
         3.     12.73                   2.          1.          1.          1.

   PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR        24-HR       72-HR     23.98-HR
+    (FEET)      (HR)
     1160.13     12.75               1159.79     1158.41     1158.41     1158.41

                      CUMULATIVE AREA =    0.16 SQ MI



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


          **************
          *           *
  179 KK  *    ADDALL  *
          *           *
          **************
                           ADD LOCAL RUNOFF AND PUMP STATION OUTFLOW

  181 HC          HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
```

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

HYDROGRAPH AT STATION ADDALL

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 216.	12.48		38.	13.	13.	13.
		(INCHES)	2.175	2.914	2.914	2.914
		(AC-FT)	19.	25.	25.	25.

CUMULATIVE AREA = 0.16 SQ MI

*** ***

182 KK

****
* *
* DA10 *
* *
****

UPPER 1-10 DRAINAGE AREAS WHICH DRAIN TO WEST CHANNEL

SUBBASIN RUNOFF DATA

183 BA SUBBASIN CHARACTERISTICS

TAREA 0.01 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.01

184 LS SCS LOSS RATE

STRTL 0.17 INITIAL ABSTRACTION
CRVNBR 92.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

185 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

2.	5.	11.	18.	24.	27.	27.	24.	21.	17.
13.	10.	7.	6.	5.	4.	3.	2.	2.	1.
1.	1.	1.	0.	0.	0.	0.	0.	0.	0.
0.	0.								

```
   ***          ***          ***          ***          ***

                    HYDROGRAPH AT STATION     DA10

    TOTAL RAINFALL =    4.00, TOTAL LOSS =    0.88, TOTAL EXCESS =    3.12

 PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR     23.98-HR
+   (CFS)      (HR)
                    (CFS)
+      24.     12.10                2.          1.          1.          1.
                  (INCHES)       2.826       3.115       3.115       3.115
                  (AC-FT)           1.          1.          1.          1.

                    CUMULATIVE AREA =    0.01 SQ MI


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


          **************
          *            *
186 KK    *      DA11  *
          *            *
          **************

             SUBBASIN RUNOFF DATA

187 BA          SUBBASIN CHARACTERISTICS
                      TAREA        0.00  SUBBASIN AREA

                PRECIPITATION DATA

 8 PH                                DEPTHS FOR   2-PERCENT HYPOTHETICAL STORM
                ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 0.77    1.50    2.64    2.89    3.06    3.37    3.68    4.00    0.00    0.00    0.00    0.00

                                                STORM AREA =     0.00

188 LS          SCS LOSS RATE
                      STRTL       0.04  INITIAL ABSTRACTION
                     CRVNBR      98.00  CURVE NUMBER
                      RTIMP       0.00  PERCENT IMPERVIOUS AREA

189 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG        0.10  LAG

                                                ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667       24.00000

                                                UNIT HYDROGRAPH
                                            32 END-OF-PERIOD ORDINATES
                    1.      2.      3.      6.      8.      8.      8.      8.      7.      5.
                    4.      3.      2.      2.      1.      1.      1.      1.      1.      0.
                    0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                    0.      0.                                                  1024
```

```
      ***           ***           ***           ***           ***

                        HYDROGRAPH AT STATION     DA11

    TOTAL RAINFALL =    4.00, TOTAL LOSS =    0.23, TOTAL EXCESS =    3.76

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                        6-HR       24-HR       72-HR     23.98-HR
+   (CFS)       (HR)
                          (CFS)
+       8.     12.10                     1.          0.          0.          0.
                        (INCHES)      3.294       3.762       3.762       3.762
                        (AC-FT)          0.          0.          0.          0.

                        CUMULATIVE AREA =    0.00 SQ MI


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


          **************
          *            *
190 KK    *      DA12  *
          *            *
          **************

             SUBBASIN RUNOFF DATA

191 BA          SUBBASIN CHARACTERISTICS
                      TAREA        0.01  SUBBASIN AREA

                PRECIPITATION DATA

  8 PH                                 DEPTHS FOR   2-PERCENT HYPOTHETICAL STORM
                ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 0.77    1.50    2.64    2.89    3.06    3.37    3.68    4.00    0.00    0.00    0.00    0.00

                                                STORM AREA =    0.01

192 LS          SCS LOSS RATE
                      STRTL        0.20  INITIAL ABSTRACTION
                     CRVNBR       91.00  CURVE NUMBER
                      RTIMP        0.00  PERCENT IMPERVIOUS AREA

193 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG        0.10  LAG

                                                ***

VALUE EXCEEDS TABLE IN LOGLOG         0.01667        0.01667       24.00000

                                                UNIT HYDROGRAPH
                                                32 END-OF-PERIOD ORDINATES
                2.       7.      14.      24.      32.      35.      35.      32.      28.      22.
               16.      13.      10.       8.       6.       5.       4.       3.       2.       2.
                1.       1.       1.       1.       0.       0.       0.       0.       0.       0.
```

0.   0.

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

HYDROGRAPH AT STATION   DA12

TOTAL RAINFALL =   4.00, TOTAL LOSS =   0.98, TOTAL EXCESS =   3.02

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 31.	12.10		2.	1.	1.	1.
		(INCHES)	2.743	3.014	3.014	3.014
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA =   0.01 SQ MI

*** ***

```
          ***************
          *             *
194 KK    *    ADD12    *
          *             *
          ***************
```

195 HC   HYDROGRAPH COMBINATION
              ICOMP   3 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION   ADD12

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 63.	12.10		5.	1.	1.	1.
		(INCHES)	2.837	3.142	3.142	3.142
		(AC-FT)	2.	3.	3.	3.

CUMULATIVE AREA =   0.02 SQ MI

*** ***

```
          ***************
          *             *
196 KK    *    RTE12    *
          *             *
          ***************
```

1026

HYDROGRAPH ROUTING DATA

197 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	140.	CHANNEL LENGTH
S	0.0036	SLOPE
N	0.012	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	2.50	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS

ELEMENT	ALPHA	M	COMPUTATION TIME STEP DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	4.68	1.25	0.27	140.00	62.46	726.15	3.14	8.57
INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL								
MAIN	4.68	1.25	1.00		62.32	726.00	3.14	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2648E+01 EXCESS=0.0000E+00 OUTFLOW=0.2647E+01 BASIN STORAGE=0.2573E-03 PERCENT ERROR= 0.0

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

HYDROGRAPH AT STATION RTE12

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
		(CFS)				
62.	12.10		5.	1.	1.	1.
		(INCHES)	2.836	3.141	3.141	3.141
		(AC-FT)	2.	3.	3.	3.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

198 KK

SUBBASIN RUNOFF DATA

```
199 BA          SUBBASIN CHARACTERISTICS
                      TAREA          0.00  SUBBASIN AREA

                PRECIPITATION DATA

  8 PH                                    DEPTHS FOR   2-PERCENT HYPOTHETICAL STORM
                ..... HYDRO-35 ......    ............... TP-40 ...............    ........... TP-49 ...........
                5-MIN  15-MIN  60-MIN     2-HR    3-HR    6-HR   12-HR  24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 0.77    1.50    2.64     2.89    3.06    3.37    3.68   4.00    0.00    0.00    0.00    0.00

                                                      STORM AREA =     0.00

200 LS          SCS LOSS RATE
                      STRTL          0.22  INITIAL ABSTRACTION
                     CRVNBR         90.10  CURVE NUMBER
                      RTIMP          0.00  PERCENT IMPERVIOUS AREA

201 UD          SCS DIMENSIONLESS UNITGRAPH
                       TLAG          0.10  LAG

                                                            ***

VALUE EXCEEDS TABLE IN LOGLOG          0.01667        0.01667        24.00000

                                                                UNIT HYDROGRAPH
                                                          32 END-OF-PERIOD ORDINATES
                1.         2.         5.         8.        10.        12.        12.        11.         9.         7.
                5.         4.         3.         3.         2.         2.         1.         1.         1.         1.
                0.         0.         0.         0.         0.         0.         0.         0.         0.         0.
                0.         0.

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

                          HYDROGRAPH AT STATION      DA13

    TOTAL RAINFALL =      4.00, TOTAL LOSS =      1.07, TOTAL EXCESS =      2.93

  PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
                                       6-HR          24-HR          72-HR        23.98-HR
+   (CFS)       (HR)
                            (CFS)
+      10.     12.10                      1.            0.             0.            0.
                          (INCHES)    2.668          2.926          2.926         2.926
                           (AC-FT)       0.            0.             0.            0.

                          CUMULATIVE AREA =      0.00 SQ MI

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

             **************
             *            *
202 KK       *    RTE13   *
             *            *
             **************

             HYDROGRAPH ROUTING DATA
```

1028

203 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	300.	CHANNEL LENGTH
S	0.0017	SLOPE
N	0.012	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	2.00	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS

ELEMENT	ALPHA	M	COMPUTATION TIME STEP DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	3.10	1.25	1.00	300.00	9.52	727.00	2.92	4.25

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	3.10	1.25	1.00		9.52	727.00	2.92

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4058E+00 EXCESS=0.0000E+00 OUTFLOW=0.4046E+00 BASIN STORAGE=0.1788E-03 PERCENT ERROR= 0.2

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

HYDROGRAPH AT STATION RTE13

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	10.	12.12		1.	0.	0.	0.
			(INCHES)	2.660	2.918	2.918	2.918
			(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 0.00 SQ MI

*** ***

****
* *
204 KK * DA14 *
* *
****

SUBBASIN RUNOFF DATA

205 BA SUBBASIN CHARACTERISTICS

TAREA 0.00 SUBBASIN AREA 1029

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			.... TP-40					.... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.00

206 LS SCS LOSS RATE

STRTL	0.26	INITIAL ABSTRACTION
CRVNBR	88.40	CURVE NUMBER
RTIMP	0.00	PERCENT IMPERVIOUS AREA

207 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

1.	4.	8.	13.	17.	19.	19.	17.	15.	12.
9.	7.	5.	4.	3.	3.	2.	2.	1.	1.
1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA14

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.23, TOTAL EXCESS = 2.77

	PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
				6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)					
			(CFS)				
+	15.	12.10		1.	0.	0.	0.
			(INCHES)	2.529	2.764	2.764	2.764
			(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.00 SQ MI

*** ***

```
          **************
          *            *
208 KK    *    ADD14   *
          *            *
          **************
```

209 HC HYDROGRAPH COMBINATION

ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

1030

***

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

HYDROGRAPH AT STATION ADD14

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 87.	12.12		7.	2.	2.	2.
		(INCHES)	2.757	3.044	3.044	3.044
		(AC-FT)	3.	4.	4.	4.

CUMULATIVE AREA = 0.02 SQ MI

***

```
          ***************
          *             *
 210 KK   *    RTE14    *
          *             *
          ***************
```

HYDROGRAPH ROUTING DATA

211 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	1060.	CHANNEL LENGTH
S	0.0029	SLOPE
N	0.012	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	4.00	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS

COMPUTATION TIME STEP

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	4.55	1.25	1.00	530.00	84.58	728.00	3.04	8.93

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME	
MAIN	4.55	1.25	1.00		84.58	728.00	3.04	

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3686E+01 EXCESS=0.0000E+00 OUTFLOW=0.3675E+01 BASIN STORAGE=0.2653E-02 PERCENT ERROR= 0.2

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

HYDROGRAPH AT STATION RTE14

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 85.	12.13		7.	2.	2.	2.
		(INCHES)	2.749	3.035	3.035	3.035
		(AC-FT)	3.	4.	4.	4.

CUMULATIVE AREA = 0.02 SQ MI

*** ***

```
          ***************
          *             *
212 KK    *      DA15   *
          *             *
          ***************
```

SUBBASIN RUNOFF DATA

213 BA SUBBASIN CHARACTERISTICS
TAREA 0.00 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			.... TP-40					.... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.00

214 LS SCS LOSS RATE
STRTL 0.20 INITIAL ABSTRACTION
CRVNBR 90.90 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

215 UD SCS DIMENSIONLESS UNITGRAPH
TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

2.	4.	9.	15.	20.	22.	22.	20.	18.	14.
10.	8.	6.	5.	4.	3.	2.	2.	1.	1.
1.	1.	1.	0.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA15

TOTAL RAINFALL = 4.00, TOTAL LOSS = 0.99, TOTAL EXCESS = 3.01

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
(CFS)	(HR)					
		(CFS)				
19.	12.10		1.	0.	0.	0.
		(INCHES)	2.734	3.005	3.005	3.005
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.00 SQ MI

*** ***

```
**************
*            *
*      DA16  *
*            *
**************
```

216 KK

SUBBASIN RUNOFF DATA

217 BA SUBBASIN CHARACTERISTICS

TAREA 0.00 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.00

218 LS SCS LOSS RATE

STRTL 0.04 INITIAL ABSTRACTION

CRVNBR 98.00 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

219 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

0.	1.	3.	5.	6.	7.	7.	6.	6.	5.
3.	3.	2.	2.	1.	1.	1.	1.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA16

TOTAL RAINFALL = 4.00, TOTAL LOSS = 0.23, TOTAL EXCESS = 3.76

	PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.98-HR
+	(CFS)	(HR)				
		(CFS)				
+	7.	12.10	1.	0.	0.	0.
		(INCHES)	3.294	3.762	3.762	3.762
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 0.00 SQ MI

*** ***

```
          **************
          *            *
220 KK    *      DA17  *
          *            *
          **************
```

SUBBASIN RUNOFF DATA

221 BA SUBBASIN CHARACTERISTICS

TAREA 0.01 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.01

222 LS SCS LOSS RATE

STRTL 0.21 INITIAL ABSTRACTION

CRVNBR 90.60 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

223 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

2.	5.	9.	16.	21.	23.	23.	21.	18.	15.
11.	8.	6.	5.	4.	3.	2.	2.	1.	1.
1.	1.	1.	0.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA17

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.02, TOTAL EXCESS = 2.98

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)				
	(CFS)				
+ 20.	12.10	2.	0.	0.	0.
	(INCHES)	2.710	2.975	2.975	2.975
	(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

*** ***

```
          **************
          *            *
224 KK    *      DA18  *
          *            *
          **************
```

SUBBASIN RUNOFF DATA

225 BA SUBBASIN CHARACTERISTICS

TAREA 0.00 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35			..... TP-40					..... TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.77	1.50	2.64	2.89	3.06	3.37	3.68	4.00	0.00	0.00	0.00	0.00

STORM AREA = 0.00

226 LS SCS LOSS RATE

STRTL 0.21 INITIAL ABSTRACTION

CRVNBR 90.70 CURVE NUMBER

RTIMP 0.00 PERCENT IMPERVIOUS AREA

227 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 0.10 LAG

***

VALUE EXCEEDS TABLE IN LOGLOG 0.01667 0.01667 24.00000

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

1.	2.	3.	5.	7.	8.	8.	7.	6.	5.
4.	3.	2.	2.	1.	1.	1.	1.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.								

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

HYDROGRAPH AT STATION DA18

TOTAL RAINFALL = 4.00, TOTAL LOSS = 1.01, TOTAL EXCESS = 2.99

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 7.	12.10		0.	0.	0.	0.
		(INCHES)	2.718	2.985	2.985	2.985
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 0.00 SQ MI

*** ***

228 KK

****
* *
* ADD17 *
* *
****

229 HC HYDROGRAPH COMBINATION

ICOMP 5 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION ADD17

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
+ (CFS)	(HR)					
		(CFS)				
+ 135.	12.12		11.	3.	3.	3.
		(INCHES)	2.762	3.052	3.052	3.052
		(AC-FT)	5.	6.	6.	6.

CUMULATIVE AREA = 0.04 SQ MI

*** ***

230 KK

****
* *
* RTE18 *
* *
****

HYDROGRAPH ROUTING DATA

231 RD MUSKINGUM-CUNGE CHANNEL ROUTING

L	380.	CHANNEL LENGTH
S	0.0008	SLOPE
N	0.012	CHANNEL ROUGHNESS COEFFICIENT
CA	0.00	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	4.50	BOTTOM WIDTH OR DIAMETER
Z	0.00	SIDE SLOPE

***

COMPUTED MUSKINGUM-CUNGE PARAMETERS

ELEMENT	ALPHA	M	COMPUTATION TIME STEP DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
MAIN	2.43	1.25	1.00	380.00	127.18	728.00	3.02	5.91

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

MAIN	2.43	1.25	1.00		127.18	728.00	3.02

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5893E+01 EXCESS=0.0000E+00 OUTFLOW=0.5836E+01 BASIN STORAGE=0.2280E-02 PERCENT ERROR= 0.9

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

HYDROGRAPH AT STATION RTE18

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.98-HR
		(CFS)				
127.	12.13		11.	3.	3.	3.
		(INCHES)	2.733	3.022	3.022	3.022
		(AC-FT)	5.	6.	6.	6.

CUMULATIVE AREA = 0.04 SQ MI

1

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	DA01	43.	12.10	3.	1.	1.	0.01		
ROUTED TO	RTE01	42.	12.12	3.	1.	1.	0.01		

+	HYDROGRAPH AT	DA02	32.	12.10	2.	1.	1.	0.01
+	HYDROGRAPH AT	DA03	18.	12.10	1.	0.	0.	0.00
+	3 COMBINED AT	ADD03	91.	12.12	7.	2.	2.	0.02
+	ROUTED TO	RTE03	91.	12.12	7.	2.	2.	0.02
+	HYDROGRAPH AT	DA04	16.	12.10	1.	0.	0.	0.00
+	HYDROGRAPH AT	DA05	25.	12.10	2.	1.	1.	0.01
+	3 COMBINED AT	ADD05	131.	12.12	10.	3.	3.	0.03
+	ROUTED TO	RTE05	129.	12.13	10.	3.	3.	0.03
+	HYDROGRAPH AT	DA06	34.	12.10	3.	1.	1.	0.01
+	2 COMBINED AT	ADD06	161.	12.12	13.	4.	4.	0.04
+	ROUTED TO	RTE06	159.	12.13	13.	4.	4.	0.04
+	HYDROGRAPH AT	DA07	57.	12.12	4.	1.	1.	0.02
+	2 COMBINED AT	ADD07	215.	12.13	17.	5.	5.	0.06
+	ROUTED TO	RTE07	208.	12.15	17.	5.	5.	0.06
+	HYDROGRAPH AT	DA08	24.	12.10	2.	1.	1.	0.01
+	ROUTED TO	RTE08	24.	12.12	2.	1.	1.	0.01
+	2 COMBINED AT	ADD08	231.	12.15	19.	5.	5.	0.07
+	HYDROGRAPH AT	DA09	79.	12.12	6.	2.	2.	0.03
+	2 COMBINED AT	ADD09	306.	12.13	25.	7.	7.	0.10
+	PUMP FLOW TO	PUMP	200.	12.05	25.	7.	7.	0.10

	HYDROGRAPH AT								
+		PUMP	0.	12.23	0.	0.	0.	0.10	
+								1144.41	12.25
	HYDROGRAPH AT								
+		PUMPR	200.	12.05	25.	7.	7.	0.00	
	HYDROGRAPH AT								
+		DA19	25.	12.12	2.	1.	1.	0.01	
	ROUTED TO								
+		RTE19	25.	12.12	2.	1.	1.	0.01	
	HYDROGRAPH AT								
+		DA20	40.	12.10	3.	1.	1.	0.01	
	2 COMBINED AT								
+		ADD20	65.	12.12	5.	1.	1.	0.02	
	ROUTED TO								
+		RTE20	64.	12.12	5.	1.	1.	0.02	
	HYDROGRAPH AT								
+		DA21	7.	12.10	1.	0.	0.	0.00	
	2 COMBINED AT								
+		ADD21	71.	12.12	5.	2.	2.	0.02	
	ROUTED TO								
+		RTE21	71.	12.12	5.	2.	2.	0.02	
	HYDROGRAPH AT								
+		DA22	52.	12.10	4.	1.	1.	0.01	
	2 COMBINED AT								
+		ADD22	123.	12.12	9.	3.	3.	0.04	
	ROUTED TO								
+		RTE22	121.	12.12	9.	3.	3.	0.04	
	HYDROGRAPH AT								
+		DA23	91.	12.12	7.	2.	2.	0.03	
	2 COMBINED AT								
+		ADD23	212.	12.12	16.	4.	4.	0.07	
	ROUTED TO								
+		RTE23	20.	12.65	13.	4.	4.	0.07	
+								1164.24	12.65
	HYDROGRAPH AT								
+		DA24	11.	12.10	1.	0.	0.	0.00	
	2 COMBINED AT								
+		ADD24	21.	12.17	14.	4.	4.	0.07	
	HYDROGRAPH AT								
+		DA25	62.	12.10	5.	1.	1.	0.02	

2 COMBINED AT

+		ADD25	82.	12.12	18.	6.	6.	0.09	
	ROUTED TO								
+		RTE25	12.	15.87	11.	5.	5.	0.09	
+									1162.16 15.87
	HYDROGRAPH AT								
+		DA26	39.	12.12	3.	1.	1.	0.02	
	2 COMBINED AT								
+		ADD26	44.	12.12	13.	6.	6.	0.11	
	ROUTED TO								
+		RTE26	8.	21.70	8.	3.	3.	0.11	
+									1160.86 21.70
	HYDROGRAPH AT								
+		DA27	80.	12.10	6.	2.	2.	0.03	
	2 COMBINED AT								
+		ADD27	80.	12.12	10.	5.	5.	0.13	
	ROUTED TO								
+		RTE27	11.	12.62	9.	4.	4.	0.13	
+									1160.29 12.62
	HYDROGRAPH AT								
+		DA28	11.	12.10	1.	0.	0.	0.00	
	2 COMBINED AT								
+		ADD28	18.	12.13	9.	4.	4.	0.13	
	HYDROGRAPH AT								
+		DA29	87.	12.12	7.	2.	2.	0.03	
	2 COMBINED AT								
+		ADD29	105.	12.12	16.	6.	6.	0.16	
	ROUTED TO								
+		RTE29	16.	12.75	14.	6.	6.	0.16	
+									1160.13 12.75
	2 COMBINED AT								
+		ADDALL	216.	12.48	38.	13.	13.	0.16	
	HYDROGRAPH AT								
+		DA10	24.	12.10	2.	1.	1.	0.01	
	HYDROGRAPH AT								
+		DA11	8.	12.10	1.	0.	0.	0.00	
	HYDROGRAPH AT								
+		DA12	31.	12.10	2.	1.	1.	0.01	
	3 COMBINED AT								
+		ADD12	63.	12.10	5.	1.	1.	0.02	
	ROUTED TO								
+		RTE12	62.	12.10	5.	1.	1.	0.02	

```
          HYDROGRAPH AT
+                         DA13        10.   12.10          1.          0.          0.        0.00

          ROUTED TO
+                         RTE13       10.   12.12          1.          0.          0.        0.00

          HYDROGRAPH AT
+                         DA14        15.   12.10          1.          0.          0.        0.00

          3 COMBINED AT
+                         ADD14       87.   12.12          7.          2.          2.        0.02

          ROUTED TO
+                         RTE14       85.   12.13          7.          2.          2.        0.02

          HYDROGRAPH AT
+                         DA15        19.   12.10          1.          0.          0.        0.00

          HYDROGRAPH AT
+                         DA16         7.   12.10          1.          0.          0.        0.00

          HYDROGRAPH AT
+                         DA17        20.   12.10          2.          0.          0.        0.01

          HYDROGRAPH AT
+                         DA18         7.   12.10          0.          0.          0.        0.00

          5 COMBINED AT
+                         ADD17      135.   12.12         11.          3.          3.        0.04

          ROUTED TO
+                         RTE18      127.   12.13         11.          3.          3.        0.04
1
```

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

						INTERPOLATED TO COMPUTATION INTERVAL			
ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
RTE01	MANE	1.00	42.48	727.00	3.50	1.00	42.48	727.00	3.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1850E+01 EXCESS=0.0000E+00 OUTFLOW=0.1849E+01 BASIN STORAGE=0.7389E-03 PERCENT ERROR= 0.0

RTE03	MANE	0.63	90.81	727.48	3.34	1.00	90.77	727.00	3.34

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3933E+01 EXCESS=0.0000E+00 OUTFLOW=0.3932E+01 BASIN STORAGE=0.8550E-03 PERCENT ERROR= 0.0

RTE05	MANE	0.99	129.04	727.33	3.25	1.00	128.95	728.00	3.25

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5633E+01 EXCESS=0.0000E+00 OUTFLOW=0.5628E+01 BASIN STORAGE=0.1942E-02 PERCENT ERROR= 0.1

RTE06 MANE 0.97 159.51 728.65 3.19 1.00 158.91 728.00 3.19

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7027E+01 EXCESS=0.0000E+00 OUTFLOW=0.7020E+01 BASIN STORAGE=0.2398E-02 PERCENT ERROR= 0.1

RTE07 MANE 1.00 208.23 729.00 2.83 1.00 208.23 729.00 2.83

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9339E+01 EXCESS=0.0000E+00 OUTFLOW=0.9312E+01 BASIN STORAGE=0.3564E-02 PERCENT ERROR= 0.3

RTE08 MANE 1.00 23.62 727.00 3.40 1.00 23.62 727.00 3.40

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1017E+01 EXCESS=0.0000E+00 OUTFLOW=0.1017E+01 BASIN STORAGE=0.4325E-03 PERCENT ERROR= 0.0

RTE19 MANE 0.27 24.88 727.29 1.71 1.00 24.86 727.00 1.71

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1020E+01 EXCESS=0.0000E+00 OUTFLOW=0.1020E+01 BASIN STORAGE=0.1347E-03 PERCENT ERROR= 0.0

RTE20 MANE 0.18 64.32 726.93 2.32 1.00 64.25 727.00 2.32

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2675E+01 EXCESS=0.0000E+00 OUTFLOW=0.2674E+01 BASIN STORAGE=0.2035E-03 PERCENT ERROR= 0.0

RTE21 MANE 0.18 71.05 726.96 2.42 1.00 71.05 727.00 2.42

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2996E+01 EXCESS=0.0000E+00 OUTFLOW=0.2995E+01 BASIN STORAGE=0.2137E-03 PERCENT ERROR= 0.0

RTE22 MANE 0.45 121.34 726.78 2.65 1.00 121.34 727.00 2.65

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5154E+01 EXCESS=0.0000E+00 OUTFLOW=0.5150E+01 BASIN STORAGE=0.9021E-03 PERCENT ERROR= 0.1

RTE12 MANE 0.27 62.46 726.15 3.14 1.00 62.32 726.00 3.14

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2648E+01 EXCESS=0.0000E+00 OUTFLOW=0.2647E+01 BASIN STORAGE=0.2573E-03 PERCENT ERROR= 0.0

RTE13 MANE 1.00 9.52 727.00 2.92 1.00 9.52 727.00 2.92

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4058E+00 EXCESS=0.0000E+00 OUTFLOW=0.4046E+00 BASIN STORAGE=0.1788E-03 PERCENT ERROR= 0.2

RTE14 MANE 1.00 84.58 728.00 3.04 1.00 84.58 728.00 3.04

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3686E+01 EXCESS=0.0000E+00 OUTFLOW=0.3675E+01 BASIN STORAGE=0.2653E-02 PERCENT ERROR= 0.2

RTE18	MANE	1.00	127.18	728.00	3.02	1.00	127.18	728.00	3.02

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5893E+01 EXCESS=0.0000E+00 OUTFLOW=0.5836E+01 BASIN STORAGE=0.2280E-02 PERCENT ERROR= 0.9

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

SEGMENT V
CULVERT DESIGN SHEETS

CULVERT ANALYSIS VERSION 2.0

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
05-26-19	10:18:56	C219	03-04-92

PERFORMANCE CURVE DISCHARGE RANGE
OF FLOWS ANALYZED

MINUMUM DISCHARGE (CFS)	1000
DESIGN DISCHARGE (CFS)	1347
MAXIMUM DISCHARGE (CFS)	1995

CULV #	A - SITE DATA			B - CULVERT SHAPE, MATERIAL, INLET				
	INLET ELEV. (FT)	OUTLET ELEV. (FT)	CULVERT LENGTH (FT)	BARRELS SHAPE MATERIAL	SPAN (FT)	RISE (FT)	MANN. N	INLET TYPE
1	1159.00	1144.50	875.00	3 - RCB	10.00	6.00	.013	CONVENTIONAL
2								
3								
4								
5								
6								

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
05-26-19	10:18:56	C219	03-04-92

CULVERT NUMBER: 1

CULVERT INVERT DATA

INLET STATION (FT)	0.00
INLET ELEVATION (FT)	1159.00
OUTLET STATION (FT)	875.00
OUTLET ELEVATION (FT)	1144.50
NUMBER OF BARRELS	3.00
SLOPE (V-FT/H-FT)	0.0166
CULVERT LENGTH ALONG SLOPE (FT)	875.00

BARREL SHAPE: 10.00 FT X 6.00 FT BOX
BARREL MATERIAL: CONCRETE
WITH A MANNING'S N OF 0.013
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: SQUARE EDGE (30-75 DEG. FLARE)
INLET DEPRESSION: NONE

CONSTANT WATER SURFACE ELEVATION
1159.10

SELECTED OVERTOPPING CREST

ROADWAY SURFACE:	PAVED
EMBANKMENT TOP WIDTH (FT):	100.00

CONSTANT ROADWAY ELEVATION PROFILE

CREST LENGTH (FT)	100.00
OVERTOPPING CREST ELEVATION (FT)	1175.00

CURRENT DATE	CURRENT TIME	FILE NAME	FILE DATE
05-26-19	10:18:56	C219	03-04-92

SUMMARY OF CULVERT FLOWS (CFS) FILE: C219 DATE: 03-04-92

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1163.99	1000	1000	0	0	0	0	0	0	2
1164.33	1100	1100	0	0	0	0	0	0	2
1164.67	1199	1199	0	0	0	0	0	0	2
1165.01	1299	1299	0	0	0	0	0	0	2
1165.18	1347	1347	0	0	0	0	0	0	2
1165.71	1498	1498	0	0	0	0	0	0	2
1166.08	1597	1597	0	0	0	0	0	0	2
1166.47	1697	1697	0	0	0	0	0	0	2
1166.87	1796	1796	0	0	0	0	0	0	2
1167.29	1896	1896	0	0	0	0	0	0	2
1167.73	1995	1995	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE
FOR 3 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
1000	1163.99	1159.10	4.99	1.66	1.66	0.00	0.00	5.56
1100	1164.33	1159.10	5.33	1.99	1.99	0.00	0.00	6.11
1199	1164.67	1159.10	5.67	2.34	2.34	0.00	0.00	6.66
1299	1165.01	1159.10	6.01	2.73	2.73	0.00	0.00	7.21
1347	1165.18	1159.10	6.18	2.93	2.93	0.00	0.00	7.48
1498	1165.71	1159.10	6.71	3.60	3.60	0.00	0.00	8.32
1597	1166.08	1159.10	7.08	4.08	4.08	0.00	0.00	8.87
1697	1166.47	1159.10	7.47	4.59	4.59	0.00	0.00	9.43
1796	1166.87	1159.10	7.87	5.13	5.13	0.00	0.00	9.98
1896	1167.29	1159.10	8.29	5.70	5.70	0.00	0.00	10.53
1995	1167.73	1159.10	8.73	6.31	6.31	0.00	0.00	11.08

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: C219 DATE: 03-04-92

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1163.99	0.00	1000	0	0.00
1164.33	0.00	1100	0	0.00
1164.67	0.00	1199	0	0.00
1165.01	0.00	1299	0	0.00
1165.18	0.00	1347	0	0.00
1165.71	0.00	1498	0	0.00
1166.08	0.00	1597	0	0.00
1166.47	0.00	1697	0	0.00
1166.87	0.00	1796	0	0.00
1167.29	0.00	1896	0	0.00
1167.73	0.00	1995	0	0.00

MINUMUM DISCHARGE (CFS) 0
DESIGN DISCHARGE (CFS) 130
MAXIMUM DISCHARGE (CFS) 156

C	A - SITE DATA			B - CULVERT SHAPE, MATERIAL, INLET				
U								
L	INLET	OUTLET	CULVERT	BARRELS	SPAN	RISE	MANN.	INLET
V	ELEV.	ELEV.	LENGTH	SHAPE			N	TYPE
#	(FT)	(FT)	(FT)	MATERIAL	(FT)	(FT)		
1	1152.73	1151.91	170.00	2 - RCP	5.00	5.00	.012	CONVENTIONAL
2								
3								
4								
5								
6								

CULVERT NUMBER: 1
INLET STATION (FT) 0.00
INLET ELEVATION (FT) 1152.73
OUTLET STATION (FT) 170.00
OUTLET ELEVATION (FT) 1151.91
NUMBER OF BARRELS 2.00
SLOPE (V-FT/H-FT) 0.0048
CULVERT LENGTH ALONG SLOPE (FT) 170.00

BARREL SHAPE: CIRCULAR 5.00 FT IN DIAMETER
BARREL MATERIAL:
WITH A MANNING'S N OF 0.012
INLET TYPE: CONVENTIONAL
INLET EDGE AND WALL: GROOVED END IN HEADWALL
INLET DEPRESSION: NONE

DOWNSTREAM CHANNEL CROSS-SECTION
BOTTOM WIDTH (FT) 24.00
SIDE SLOPE H/V _:1 2.0
CHANNEL SLOPE V/H (FT/FT) 0.001
MANNING'S N (.01-0.1) 0.018
CHANNEL INVERT ELEVATION (FT) 1152.03

UNIFORM FLOW RATING CURVE FOR DOWNSTREAM CHANNEL

FLOW (CFS)	W.S.E. (FT)	FROUDE NO.	VEL. (FPS)	SHEAR (PSF)
0.00	1152.03	0.000	0.00	0.00
15.60	1152.45	0.000	1.49	0.03
31.20	1152.67	0.000	1.94	0.04
46.80	1152.84	0.000	2.26	0.05
62.40	1152.99	0.000	2.51	0.07
78.00	1153.12	0.000	2.72	0.08
93.60	1153.25	0.000	2.91	0.08
109.20	1153.36	0.000	3.07	0.09
124.80	1153.47	0.000	3.22	0.10
130.00	1153.51	0.000	3.26	0.10
156.00	1153.67	0.000	3.48	0.11

SELECTED OVERTOPPING CREST

ROADWAY SURFACE: PAVED

EMBANKMENT TOP WIDTH (FT): 150.00

CONSTANT ROADWAY ELEVATION PROFILE
CREST LENGTH (FT) 100.00
OVERTOPPING CREST ELEVATION (FT) 1162.00

SUMMARY OF CULVERT FLOWS (CFS) FILE: 56TH DATE: 02-17-1992

ELEV (FT)	TOTAL	1	2	3	4	5	6	OVERTOP	ITER
1152.73	0	0	0	0	0	0	0	0	0
1153.72	16	16	0	0	0	0	0	0	2
1154.12	31	31	0	0	0	0	0	0	2
1154.47	47	47	0	0	0	0	0	0	2
1154.80	62	62	0	0	0	0	0	0	2
1155.09	78	78	0	0	0	0	0	0	2
1155.37	94	94	0	0	0	0	0	0	2
1155.62	109	109	0	0	0	0	0	0	2
1155.85	125	125	0	0	0	0	0	0	2
1155.92	130	130	0	0	0	0	0	0	2
1156.28	156	156	0	0	0	0	0	0	2

CULVERT # 1 PERFORMANCE CURVE
FOR 2 BARREL(S)

Q (cfs)	HWE (ft)	TWE (ft)	ICH (ft)	OCH (ft)	CCE (ft)	FCE (ft)	TCE (ft)	VO (fps)
0	1152.73	1152.03	0.00	-0.70	-0.70	1152.73	0.00	0.00
16	1153.72	1152.45	0.99	0.25	0.25	0.00	0.00	4.94
31	1154.12	1152.67	1.39	0.72	0.72	0.00	0.00	6.05
47	1154.47	1152.84	1.74	1.09	1.09	0.00	0.00	6.46
62	1154.80	1152.99	2.07	1.41	1.41	0.00	0.00	7.40
78	1155.09	1153.12	2.36	1.69	1.69	0.00	0.00	7.80
94	1155.37	1153.25	2.64	1.95	1.95	0.00	0.00	8.25
109	1155.62	1153.36	2.89	2.19	2.19	0.00	0.00	8.31
125	1155.85	1153.47	3.12	2.42	2.42	0.00	0.00	8.66
130	1155.92	1153.51	3.19	2.50	2.50	0.00	0.00	8.77
156	1156.28	1153.67	3.55	2.86	2.86	0.00	0.00	9.32

SUMMARY OF ITERATIVE SOLUTION ERRORS FILE: 56TH DATE: 02-17-1992

HEAD ELEV(FT)	HEAD ERROR(FT)	TOTAL FLOW(CFS)	FLOW ERROR(CFS)	% FLOW ERROR
1152.73	0.00	0	0	0.00
1153.72	0.00	16	0	0.00
1154.12	0.00	31	0	0.00
1154.47	0.00	47	0	0.00
1154.80	0.00	62	0	0.00
1155.09	0.00	78	0	0.00
1155.37	0.00	94	0	0.00
1155.62	0.00	109	0	0.00
1155.85	0.00	125	0	0.00
1155.92	0.00	130	0	0.00

1156.28	0.00	156	0	0.00

SEGMENT V
CHANNEL DESIGN SHEETS

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: C219a

Comment: 1207+50 to 1217+00

Solve For Depth

Given Input Data:

Bottom Width.....	8.00 ft
Left Side Slope..	2.00:1 (H:V)
Right Side Slope.	2.00:1 (H:V)
Manning's n.....	0.018
Channel Slope....	0.0011 ft/ft
Discharge.....	350.00 cfs

Computed Results:

Depth.....	4.18 ft
Velocity.....	5.12 fps
Flow Area.....	68.30 sf
Flow Top Width...	24.71 ft
Wetted Perimeter.	26.68 ft
Critical Depth...	3.02 ft
Critical Slope...	0.0040 ft/ft
Froude Number....	0.54 (flow is Subcritical)

Open Channel Flow Module, Version 3.16 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: C219b

Comment: 1217+00 to 1241+70

Solve For Depth

Given Input Data:

Bottom Width.....	8.00 ft
Left Side Slope..	2.00:1 (H:V)
Right Side Slope.	2.00:1 (H:V)
Manning's n.....	0.018
Channel Slope....	0.0011 ft/ft
Discharge.....	495.00 cfs

Computed Results:

Depth.....	4.94 ft
Velocity.....	5.61 fps
Flow Area.....	88.22 sf
Flow Top Width...	27.75 ft
Wetted Perimeter.	30.08 ft
Critical Depth...	3.64 ft
Critical Slope...	0.0039 ft/ft
Froude Number....	0.55 (flow is Subcritical)

Open Channel Flow Module, Version 3.16 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: C219c

Comment: 1242+00 to 1247+00

Solve For Depth

Given Input Data:

Bottom Width.....	35.00 ft
Left Side Slope..	2.00:1 (H:V)
Right Side Slope.	2.00:1 (H:V)
Manning's n.....	0.018
Channel Slope....	0.0020 ft/ft
Discharge.....	1995.00 cfs

Computed Results:

Depth.....	4.90 ft
Velocity.....	9.08 fps
Flow Area.....	219.65 sf
Flow Top Width...	54.61 ft
Wetted Perimeter.	56.92 ft
Critical Depth...	4.27 ft
Critical Slope...	0.0033 ft/ft
Froude Number....	0.80 (flow is Subcritical)

Open Channel Flow Module, Version 3.16 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: C219d

Comment: SMF sta 1247+00 to Ramp S-W sta 15+00

Solve For Depth

Given Input Data:

Bottom Width.....	28.00 ft
Left Side Slope..	2.00:1 (H:V)
Right Side Slope.	2.00:1 (H:V)
Manning's n.....	0.018
Channel Slope....	0.0020 ft/ft
Discharge.....	1660.00 cfs

Computed Results:

Depth.....	4.93 ft
Velocity.....	8.88 fps
Flow Area.....	186.87 sf
Flow Top Width...	47.74 ft
Wetted Perimeter.	50.07 ft
Critical Depth...	4.29 ft
Critical Slope...	0.0033 ft/ft
Froude Number....	0.79 (flow is Subcritical)

Open Channel Flow Module, Version 3.16 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: c219e

Comment: Ramp S-W sta 15+00 to sta 5+80

Solve For Depth

Given Input Data:

Bottom Width.....	34.00 ft
Left Side Slope..	2.00:1 (H:V)
Right Side Slope.	2.00:1 (H:V)
Manning's n.....	0.018
Channel Slope....	0.0014 ft/ft
Discharge.....	1660.00 cfs

Computed Results:

Depth.....	4.96 ft
Velocity.....	7.62 fps
Flow Area.....	217.77 sf
Flow Top Width...	53.83 ft
Wetted Perimeter.	56.18 ft
Critical Depth...	3.88 ft
Critical Slope...	0.0033 ft/ft
Froude Number....	0.67 (flow is Subcritical)

Open Channel Flow Module, Version 3.16 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: nei-10

Comment: SANTAN COLLECTOR - NE QUAD. OF I-10 TI

Solve For Depth

Given Input Data:

Bottom Width.....	8.00 ft
Left Side Slope..	2.00:1 (H:V)
Right Side Slope.	2.00:1 (H:V)
Manning's n.....	0.018
Channel Slope....	0.0032 ft/ft .0032 1/,
Discharge.....	130.00 cfs

Computed Results:

Depth.....	1.91 ft
Velocity.....	5.75 fps
Flow Area.....	22.61 sf
Flow Top Width...	15.65 ft
Wetted Perimeter.	16.55 ft
Critical Depth...	1.73 ft
Critical Slope...	0.0046 ft/ft
Froude Number....	0.84 (flow is Subcritical)

Open Channel Flow Module, Version 3.16 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: nei-10

Comment: SANTAN COLLECTOR - NE QUAD. OF I-10 TI

Solve For Depth

Given Input Data:

Bottom Width.....	8.00 ft
Left Side Slope..	2.00:1 (H:V)
Right Side Slope.	2.00:1 (H:V)
Manning's n.....	0.018
Channel Slope....	0.0032 ft/ft .0032
Discharge.....	156.00 cfs

Computed Results:

Depth.....	2.11 ft
Velocity.....	6.06 fps
Flow Area.....	25.75 sf
Flow Top Width...	16.43 ft
Wetted Perimeter.	17.43 ft
Critical Depth...	1.92 ft
Critical Slope...	0.0045 ft/ft
Froude Number....	0.85 (flow is Subcritical)

Open Channel Flow Module, Version 3.16 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

SEGMENT V
ON-SITE STORM DRAIN
AND MANHOLE LOSS CALCULATIONS

PRICE ROAD GEC
ON-SITE SR-218 SW LOOP
STORM SEWER DESIGN FREQUENCY=50 YEARS P6= P24= P1=~~2.37~~ 2.31 IN.
RUNOFF CALCULATION SHEET

FN=A:RAT5.WS
3-23-92

DA NO.	STATION FROM - TO	AREA ACRES	*	C	PAV'T A	PAV'T CA	*	C	3:1 DG A	3:1 DG CA	*	C	DG A	DG CA	*	SUM CA	Tc MIN	I IN/HR	Q CFS
	I-10/S.MTN TI NEAR		*				*				*				*				
	MARICOPA RD.		*				*				*				*				
SM1	122200-123500	6.36	*	0.95	5.17	4.91	*	0.70	1.19	0.83	*	0.60	0.00	0.00	*	5.74	10	6.30	36
SM2	123500-124346	4.80	*	0.95	3.59	3.41	*	0.70	1.21	0.85	*	0.60	0.00	0.00	*	4.26	10	6.30	27
SM3	E-S 630-1900	3.00	*	0.95	0.98	0.93	*	0.70	2.02	1.41	*	0.60	0.00	0.00	*	2.35	10	6.30	15
SM4	124346-124837	2.43	*	0.95	1.54	1.46	*	0.70	0.89	0.62	*	0.60	0.00	0.00	*	2.09	10	6.30	13
SM5	N-W 4710-6290	4.20	*	0.95	1.63	1.55	*	0.70	2.57	1.80	*	0.60	0.00	0.00	*	3.35	10	6.30	21
SM6	124837-125500	5.66	*	0.95	2.35	2.23	*	0.70	3.31	2.32	*	0.60	0.00	0.00	*	4.55	10	6.30	29
SM7	125500-126200	12.97	*	0.95	3.56	3.38	*	0.70	0.00	0.00	*	0.40	9.41	3.76	*	7.15	10	6.30	45
SM8	127500-128300	3.58	*	0.95	2.66	2.53	*	0.70	0.92	0.64	*	0.60	0.00	0.00	*	3.17	10	6.30	20
SM9	126200-127500	18.16	*	0.95	4.61	4.38	*	0.70	0.00	0.00	*	0.40	13.55	5.42	*	9.80	10	6.30	62
			*				*				*				*				
			*				*				*				*				
SM10	81250-82410	3.90	*	0.95	2.04	1.94	*	0.70	1.86	1.30	*	0.60	0.00	0.00	*	3.24	10	6.30	20
SM11	80900-82410	1.24	*	0.95	1.24	1.18	*	0.70	0.00	0.00	*	0.60	0.00	0.00	*	1.18	10	6.30	7
SM12	80900-82410	5.04	*	0.95	2.23	2.12	*	0.70	2.81	1.97	*	0.60	0.00	0.00	*	4.09	10	6.30	26
SM13	82540-83220	1.70	*	0.95	0.63	0.60	*	0.70	1.07	0.75	*	0.60	0.00	0.00	*	1.35	10	6.30	8
SM14	82540-83400	2.76	*	0.95	0.63	0.60	*	0.70	2.13	1.49	*	0.60	0.00	0.00	*	2.09	10	6.30	13
SM15	82540-83770	3.17	*	0.95	1.38	1.31	*	0.70	1.79	1.25	*	0.60	0.00	0.00	*	2.56	10	6.30	16
SM16	82540-83770	1.02	*	0.95	1.02	0.97	*	0.70	0.00	0.00	*	0.60	0.00	0.00	*	0.97	10	6.30	6
SM17	82540-83770	3.31	*	0.95	1.36	1.29	*	0.70	1.95	1.37	*	0.60	0.00	0.00	*	2.66	10	6.30	17
SM18	83400-83770	1.09	*	0.95	0.45	0.43	*	0.70	0.64	0.45	*	0.60	0.00	0.00	*	0.88	10	6.30	6
SM19	85000	7.18	*	0.95	0.19	0.18	*	0.70	0.00	0.00	*	0.40	6.99	2.80	*	2.98	10	6.30	19
SM20	83770-85140	6.65	*	0.95	2.76	2.62	*	0.70	3.89	2.72	*	0.60	0.00	0.00	*	5.35	10	6.30	34
SM21	83770-85140	1.02	*	0.95	1.02	0.97	*	0.70	0.00	0.00	*	0.60	0.00	0.00	*	0.97	10	6.30	6
SM22	83770-85140	8.52	*	0.95	3.97	3.77	*	0.70	4.55	3.19	*	0.60	0.00	0.00	*	6.96	10	6.30	44
			*				*				*				*				
SM23	127200-130200	20.43	*	0.95	3.18	3.02	*	0.70	0.00	0.00	*	0.50	17.25	8.63	*	11.65	10	6.30	73
SM24	128300-129840	1.63	*	0.95	1.63	1.55	*	0.70	0.00	0.00	*	0.60	0.00	0.00	*	1.55	10	6.30	10
SM25	137700-129850	12.47	*	0.95	3.78	3.59	*	0.70	0.00	0.00	*	0.50	8.69	4.35	*	7.94	10	6.30	50
SM26	127700-128800	10.01	*	0.95	0.00	0.00	*	0.70	0.00	0.00	*	0.50	10.01	5.01	*	5.01	10	6.30	32
SM27	85150-87600	16.16	*	0.95	4.77	4.53	*	0.70	0.00	0.00	*	0.50	11.39	5.70	*	10.23	10	6.30	64
SM28	85660-87600	1.60	*	0.95	1.60	1.52	*	0.70	0.00	0.00	*	0.60	0.00	0.00	*	1.52	10	6.30	10
SM29	85150-87600	18.33	*	0.95	4.69	4.46	*	0.70	0.00	0.00	*	0.50	13.64	6.82	*	11.28	10	6.30	71

PRICE EXPRESSWAY PRICE ROAD GEC

ON-SITE STORM SEWER DESIGN FREQUENCY=50 YEARS P6=2.97 IN. P24=3.52 IN. P1=2.31 IN. FN=A:STORM7.WS

SEWER CALCULATION SHEET PIPE N=.012 TW= 4-1-92 ETL

LINE NO.	STATION FROM - TO	DA NO.	INCREM CA	SUM CA	TIME INLET	TIME SEWER	TIME DESIGN	I IN/HR	Q CFS	CROWN EL INLET	CROWN EL OUTLET	LENGTH FT	SLOPE FT/FT	DIAM IN	QFULL CFS	V FPS	SF FT/FT	HL FT	ELEV INLET	ELEV OUTLET	ASSUMED STR LOSS FT
	NORTHERN I-10 STORM DRAIN SYSTEM																				
	(N. OF I-10/S.MTN TI)																				
S-10	82335 LT TO CL	10	3.24	3.24	10.0	-	10.0	6.30	20	1183.00	1182.50	140	0.00357	30	27.0	4.1	0.00203	0.28	1183.03	1182.62	0.13
S-11	CL TO 82335 RT	11	1.18	4.42	10.0	0.6	10.6	6.20	27	1182.50	1182.00	125	0.00400	30	28.0	5.5	0.00369	0.46	1182.62	1181.93	0.23
S-12	82335 TO 82614	12	4.09	8.51	10.0	0.5	11.1	6.00	51	1182.00	1180.50	280	0.00536	36	53.0	7.2	0.00498	1.39	1181.93	1180.21	0.33
S-13	82614LT/82614RT	13	1.35	1.35	10.0	-	10.0	6.30	9	1181.00	1180.50	300	0.00167	24	10.0	2.7	0.00135	0.40	1180.67	1180.21	0.06
S-14	82614 TO 83670	14	2.09	11.95	10.0	0.5	11.6	5.90	71	1180.50	1177.40	1060	0.00292	48	84.0	5.6	0.00208	2.20	1180.21	1177.93	0.07
S-15	83670 TO CL	15	2.56	2.56	10.0	-	10.0	6.30	16	1178.00	1177.80	88	0.00227	30	21.0	3.3	0.00130	0.11	1178.63	1178.43	0.08
S-16	CL TO 83670 RT	16	0.97	3.53	10.0	0.4	10.4	6.20	22	1177.80	1177.60	90	0.00222	36	34.0	3.1	0.00093	0.08	1178.43	1178.27	0.07
S-17	83670RT/83670RT	17	2.66	6.19	10.0	0.3	10.7	6.10	38	1177.60	1177.40	180	0.00111	42	36.0	3.9	0.00122	0.22	1178.27	1177.93	0.12
S-18	83670RT TO MH	18	0.88	19.02	10.0	3.5	15.1	5.20	99	1177.40	1177.28	80	0.00150	54	82.0	6.2	0.00216	0.17	1177.93	1177.02	0.74
S-18A	MH TO CHANNEL	-	-	-	-	-	-	-	99	1177.28	1177.05	300	0.00077	54	59.0	6.2	0.00216	0.65	1177.02	1175.95 (2)	0.42
	NORTHERN I-10 STORM DRAIN SYSTEM																				
	(N. OF I-10/S.MTN TI) TO DETENTION AREA 23																				
S-19	D 2600R/85100RT	19	2.98	2.98	10.0	-	10.0	6.30	19	1170.50	1170.30	95	0.00211	30	20.0	3.8	0.00601	0.57	1171.48	1170.79	0.11
S-20	85100R7 TO CL	20	5.35	8.33	10.0	0.4	10.4	6.20	52	1170.30	1170.00	80	0.00375	36	44.0	7.3	0.00518	0.41	1170.79	1169.96	0.41
S-21	CL TO 85100LT	21	0.97	9.30	10.0	0.2	10.6	6.10	57	1170.00	1169.70	80	0.00375	42	67.0	5.9	0.00274	0.22	1169.96	1169.33	0.41
S-22	85100 LT TO MH	22	6.96	16.26	10.0	0.2	10.8	6.00	98	1169.70	1169.50	70	0.00286	54	114.0	6.1	0.00212	0.15	1169.33	1168.89	0.29
S-22A	MH TO DET AREA	-	-	-	-	-	-	-	98	1169.50	1169.30	200	0.00100	54	67.0	6.2	0.00212	0.42	1168.89	1168.20 (2)	0.27
	AREAS CONTRIBUTING TO ON-SITE PUMP STATION																				
	I-10/S.MTN TI																				
S-01	123500-124072	1	5.74	5.74	10.0	-	10.0	6.30	36	1158.00	1143.10	572	0.02605	30	72.0	7.3	0.00657	3.76	1158.63	1154.46	0.41
S-01A	124072-124342	1	5.74	5.74	10.0	-	10.0	6.30	36	1143.10	1142.29	270	0.00300	30	24.0	7.3	0.00657	1.77	1154.46	1152.28	0.41
S-03	124342 RT	3	2.35	2.35	10.0	-	10.0	6.30	15	1150.50	1142.29	82	0.10012	24	78.0	4.6	0.00375	0.31	1152.75	1152.28	0.17
S-02	124342-124815	2	4.26	12.35	10.0	1.8	11.8	5.80	72	1142.29	1141.58	473	0.00150	42	42.0	7.4	0.00437	2.07	1152.28	1149.57	0.64
S-04	124815 LT	5	3.35	3.35	10.0	-	10.0	6.30	21	1149.00	1141.58	266	0.02789	24	41.0	6.7	0.00734	1.95	1151.87	1149.57	0.35
S-05	124815-125500	4	2.09	17.79	10.0	1.1	12.9	5.60	100	1141.58	1140.55	685	0.00150	48	60.0	7.9	0.00413	2.83	1149.57	1145.94	0.80
S-06	125500-126200	6	4.55	22.34	10.0	1.4	14.3	5.40	121	1140.55	1139.50	700	0.00150	48	60.0	9.6	0.00605	4.24	1145.94	1140.99	0.72
S-07	126200-126805	7	7.15	29.49	10.0	1.5	15.8	5.20	153	1139.50	1138.59	605	0.00150	60	109.0	7.8	0.00294	1.78	1140.99	1138.74	0.47
S-08	126805-127500	8	3.17	3.17	10.0	-	10.0	6.30	20	1144.00	1138.59	695	0.00778	24	22.0	6.4	0.00666	4.63	1143.68	1138.74	0.31
S-09	126805 RT to PS	9	9.80	42.46	10.0	1.8	17.6	4.85	206 (1)	1138.59	1138.04	1070	0.00051	96	224.0	4.1	0.00041	0.44	1138.74	1138.04 (3)	0.26

(1) Full discharge disregarding u.g. storage. Storage and pump station analysis performed using HEC-1 and 24 hour storm duration. Inflows may differ between Rational and Unit Hydrograph methods.

(2) (D+Dc)/2 (3) TOP OF PIPE

1058

Reference : Design of Urban Highway Drainage - The State-of-the-Art
Reitz and Jens, Inc., St. Louis, MO
August 1979
Federal Highway Administration, Washington, DC

5.10.2 (p. 5-73) Losses at Junctions of Several Flows in a Manhole
Formula: Hl-Ho=Vo*Vo/2g-(Ql/Qo)(0.3Vl*Vl/2g)-(Qu/Qo)(Vu*Vu/2g) (5-23)
Hl-Ho="change in hydraulic grade at the manhole (or loss due to the change of direction of flow, expansion and contraction, collision of flows, etc.)"

Also assume losses for changes in direction of less than than 90 degrees to be:

90 degrees 0.7 V*V/2g of velocity of water being turned
45 degrees 2/3 of 0.7 V*V/2g
30 degrees 1/2 of 0.7 V*V/2g

Vo=Velocity of outgoing flow Qo=Outgoing flow
Vl=Velocity of lateral flow Ql=Lateral flow
Vu=Velocity of incoming flow Qu=Incoming flow

Location	Vo	Vl	Vu	Qo	Ql	Qu	2g	Hl-Ho	
s-18	6.20	5.60	3.90	99	71	38	64.40	0.40	
						90deg		0.34	Turn Loss of lateral
								0.74	Hl total

Location	Vo	Vl	Vu	Qo	Ql	Qu	2g	Hl-Ho	
s-14	5.60	2.70	7.20	71	9	51	64.40	-0.10	
						90deg		0.07	Turn Loss of lateral
								-0.0	Hl total

Location	Vo	Vl	Vu	Qo	Ql	Qu	2g	Hl-Ho	
s-02	7.40	4.60	7.30	72	15	36	64.40	0.42	
						90deg		0.23	Turn Loss of lateral
								0.64	Hl total

Location	Vo	Vl	Vu	Qo	Ql	Qu	2g	Hl-Ho	
s-09	4.10						64.40		
						90deg		0.26	Tot. VH of outgoing flow
								0.26	Hl total

Location	Vo	Vl	Vu	Qo	Ql	Qu	2g	Hl-Ho	
s-05	7.90	6.70	7.40	100	21	72	64.40	0.31	
						90deg		0.48	Turn Loss of lateral
								0.80	Hl total