APPENDIX 3.1.4-1

Drainage Study

DRAINAGE STUDY
FOR
ESCONDIDO COUNTRY CLUB

(PRELIMINARY ENGINEERING)

Job Number 17762-A

March 16, 2017

RICK
ENGINEERING COMPANY

DRAINAGE STUDY

FOR

ESCONDIDO COUNTRY CLUB

Job Number 17762-A

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1.0 INTRODUCTION

This drainage study presents hydrologic and hydraulic analyses for the proposed Escondido Country Club project (herein referred to as "the project"). The project as a whole is bounded by Interstate 15 (I-15) on the East, El Norte Parkway on the south, Golden Cir Drive on the west, and Gary Lane/Golden Cir Drive on the North, within the City of Escondido. See Figure 1, Vicinity Map, located at the end of Section 1.0. The project as a whole is approximately 110 acres and is currently a golf course.

Drainage Characteristics

The project is mostly pervious with only approximately 3.5 acres of impervious area (the existing club house). Storm water from the site in the existing condition is conveyed into four (4) points of interest and is conveyed via existing offsite open channels, storm drain, and culverts and ultimate discharge into San Marcos Creek. Drainage patterns for the post-project condition will remain similar to existing conditions and will maintain four (4) points of interest (Points of Compliance (POCs) for Hydromodification Management Plan (HMP), Water Quality, and Detention).

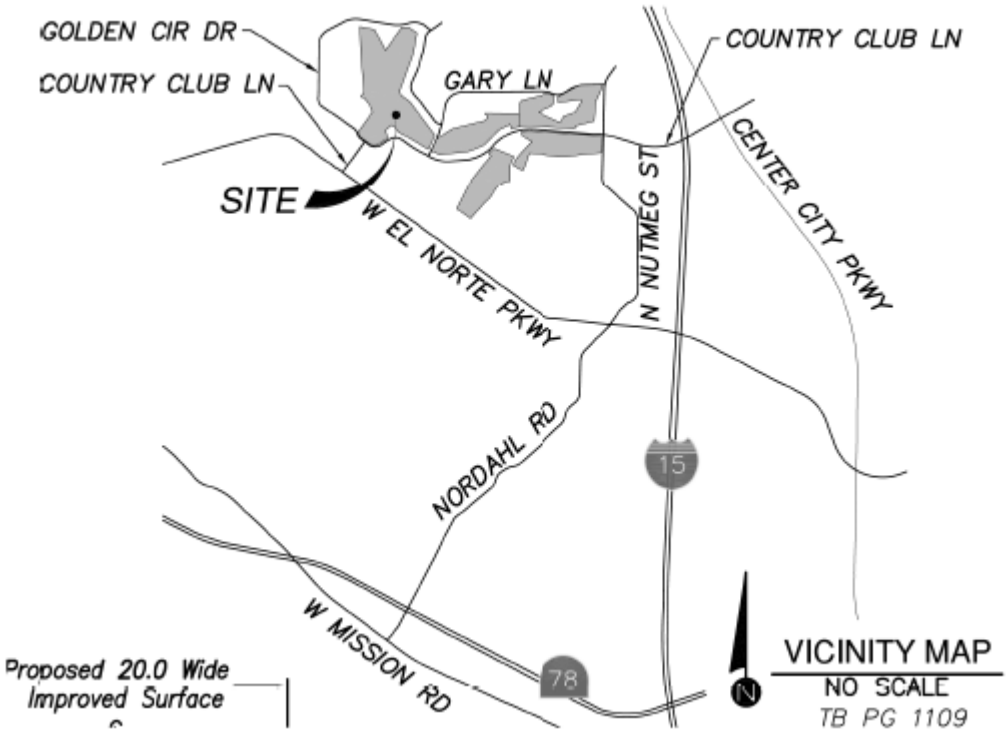
Hydrology, Hydraulics and Detention

Hydrology, hydraulics and detention are discussed in Sections 2.0, 3.0 and 4.0 of this report.

Water Quality & Hydromodification

The project proposes ten (10) biofiltration BMPs that are designed to meet water quality and HMP requirements. Post-project storm water runoff will be managed per the City's BMP Design Manual, and will be discussed in the report titled, "PDP SWQMP for Escondido Country Club," dated March 16,2019 (or any revision thereof), prepared by Rick Engineering Company (Job No. 17762-A).

Figure 1: Vicinity Map



2.0 HYDROLOGY

2.1 Methodology

Hydrologic calculations were computed in accordance with the City of Escondido Design Standards and Standard Drawings, dated April 2014 (manual). The Advanced Engineering Software (AES) 2012 Rational Method Analysis (Version 19.0) program was used to perform the hydrologic analysis in this study.

2.1.1 Modified Rational Method

The AES hydrologic model is developed by creating independent node-link models of each interior drainage basin and linking these sub-models together at confluence points. The program has the capability to perform calculations for 15 hydrologic processes. These processes are assigned code numbers that appear in the results. The code numbers and their significances are as follows:

Code 1: Confluence analysis at a node
Code 2: Initial subarea analysis
Code 3: Pipe flow travel time (computer-estimated pipe sizes)
Code 4: Pipe flow travel time (user-specified pipe size)
Code 5: Trapezoidal channel travel time
Code 6: Street flow analysis through a subarea
Code 7: User-specified information at a node
Code 8: Addition of the subarea runoff to mainline
Code 9: V-Gutter flow through a subarea
Code 10: Copy main-stream data onto a memory bank
Code 11: Confluence a memory bank with the main-stream memory
Code 12: Clear a memory bank
Code 13: Clear the main-stream memory
Code 14: Copy a memory bank onto the main-stream memory
Code 15: Hydrologic data bank storage functions

In order to perform the hydrologic analysis; base information for the study area is required. This information includes the existing drainage facility locations and sizes, existing land uses, flow patterns, drainage basin boundaries, and topographic elevations. Drainage basin boundaries, flow patterns, and topographic elevations are shown on the hydrologic workmaps in Map Pocket 1.

Area

Watersheds were delineated to distinguish areas with similar flow characteristics and hydrologic properties as well as to determine peak flows at confluence points, existing and proposed storm drain facilities, and to facilitate hydraulic analyses. Hydrologic workmaps for the existing and proposed condition have been included in Appendices 3 and 5 respectively.

Time of Concentration/Intensity

The time of concentration was calculated in AES using the San Diego County Hydrology Manual, dated June 2003, methodology. The rainfall intensity was calculated in AES using manually input Intensity-Duration data derived from "Figure 1: Run-off Intensity Duration Curve," annotated copies of this chart for the 50- and 100-year storm events have been included in Appendix A3. Table 2.1 includes the Intensity-Duration data utilized in the AES model.

Table 2.1: Intensity-Duration Summary:

Ordinate	Tc (min)	Intensity (in/hr)					
		City of Escondido		NOAA Atlas 14		San Diego County	
		50-Year	100-Year	50-Year	100-Year	50-Year (P6=2.98)	100-Year (P6=3.49)
1	5	4.19	4.42	3.85	4.34	7.84	9.19
2	6	3.91	4.20	--	--	6.97	8.17
3	7	3.72	3.96	--	--	6.31	7.39
4	8	3.52	3.79	--	--	5.79	6.78
5	9	3.39	3.60	--	--	5.37	6.29
6	10	3.22	3.45	2.76	3.11	5.01	5.88
7	12	3.00	3.19	--	--	4.46	5.22
8	14	2.80	2.99	--	--	4.04	4.73
9	15	2.71	2.89	2.55	2.51	3.86	4.52
10	16	2.63	2.80	--	--	3.70	4.34
11	18	2.49	2.65	--	--	3.43	4.02
12	20	2.36	2.51	--	--	3.21	3.76
13	22	2.24	2.40	--	--	3.02	3.53
14	24	2.13	2.29	--	--	2.85	3.34
15	26	2.05	2.19	--	--	2.71	3.17
16	28	1.96	2.10	--	--	2.58	3.02
17	30	1.88	2.00	1.57	1.77	2.47	2.89
18	60	1.23	1.31	1.20	1.35	1.58	1.85
19	600	0.297	0.317	--	--	0.36	0.42

The City of Escondido intensity data was compared to the San Diego County and NOAA Atlas 14 intensity data and found to be consistent with and slightly more conservative than the NOAA Atlas 14 data and it was concluded from this comparison that the San Diego County intensities were over conservative for this area. The City of Escondido intensity data was utilized in this study.

Back up for the NOAA Atlas 14 and San Diego County intensity data in Table 2.1 has also been included in Appendix A3.

Runoff Coefficients

The weighted runoff coefficients used for each minor basin were calculated and manually entered into AES. The weighted runoff coefficients were calculated using the SANGIS current Landuse GIS data, downloaded on February 12, 2017, and assigned runoff coefficients pursuant to the table on "Figure 1: Run-off Intensity Duration Curve." Calculations for the runoff coefficients have been included in Appendix A3. In the proposed condition, the on-site existing golf course land uses were revised as either 0.35 within the proposed creeks and detention basins or 0.7 within the proposed development areas.

Topography

The topography used for the hydrologic study was from the San Diego County 2-foot contours dated 2014 and on the NAVD-88 vertical datum.

2.3 Hydrologic Results

The discharges for the 50- and 100-year storm events have been calculated for the existing and proposed condition project. The AES output for the existing and proposed condition 50- and 100-year storm events can be found in Appendices A1 and A2 respectively. Hydrologic workmaps for the existing and proposed condition project have been prepared and can be found in Map Pocket 1. Also, hydrologic calculation backup information has been included in Appendix A3. Table 2.2 includes a summary of the peak flow rates calculated for each major drainage basin.

Table 2.2: Intensity-Duration Summary:

Major Basin	Existing Condition			Proposed Condition		
	Basin Area (acres)	Peak Flow Rate (cfs)		Basin Area (acres)	Peak Flow Rate (cfs)	
		50-year	100-year		50-year	100-year
1000	567.0	591.4	634.8	579.9	623.2	669.7
2000	472.6	602.8	647.0	459.7	652.4	699.6
3000	2.2	5.0	5.3	2.7	6.1	6.6
4000	36.7	49.9	53.4	34.6	65.0	68.8
5000	3.1	2.6	2.8	4.7	9.5	10.2
Total	1081.5	--	--	1081.5	--	--

As shown in Table 2.2 peak flows will increase as a result of the proposed project. Because of this, detention is proposed to reduce peak flows to existing levels. The proposed detention is discussed in detail in section 4.0 of this study.

3.0 HYDRAULICS

3.1 Hydraulic Methodology and Criteria

The 100-year post-project peak flow rates determined using the Modified Rational Method were used to preliminarily size the on-site storm drain system, including open channel sizing for vegetated swales. Additional hydraulic analyses such as open channel sizing for brow ditches, proposed inlet sizing, dry lane calculations, and energy dissipaters will be prepared during final engineering.

3.1.1 Storm Drain Sizing

Proposed storm drain pipes were designed using Manning's equation. The anticipated 100-year flow rate to each storm drain pipe was estimated by the Modified Rational Method. The anticipated 100-year flow rate with a 30% bump-up factor was used in calculations to provide recommended storm drain sizes. The 30% bump-up helps account for hydraulic losses within the system. A preliminary (general) storm drain sizing table was created to size proposed storm drain pipes.

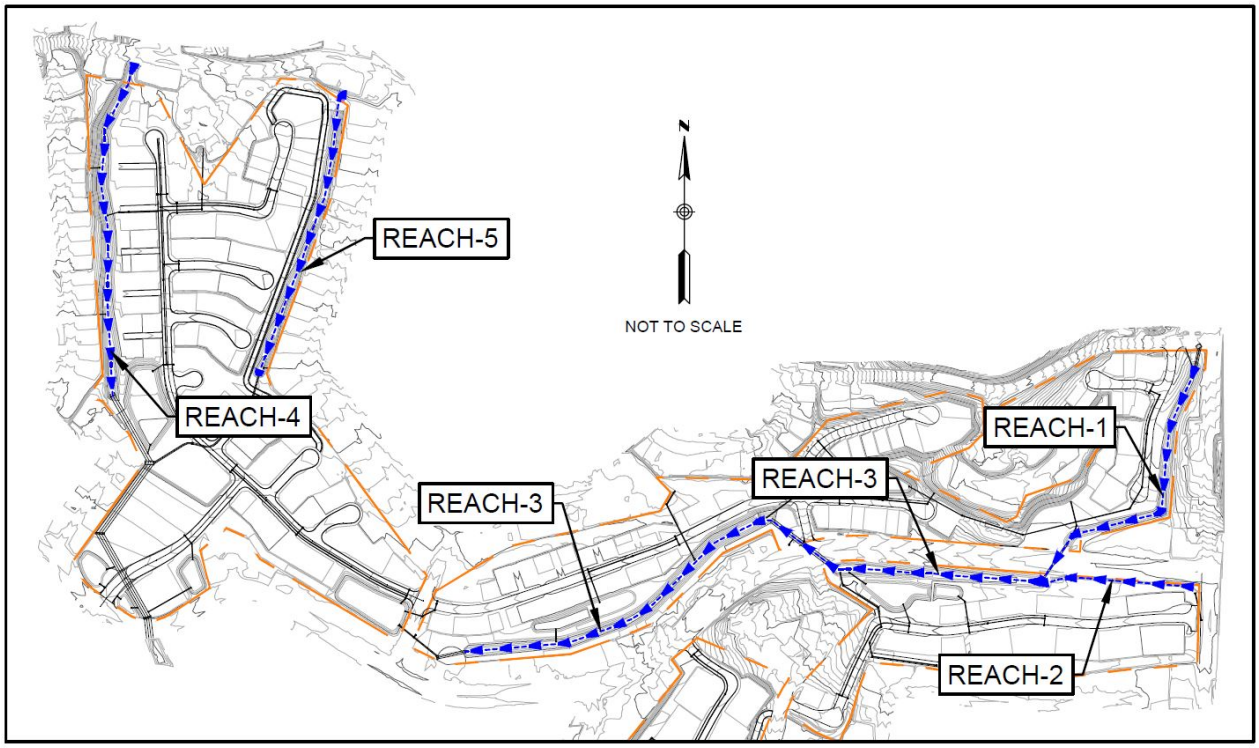
Storm Drain Results

The preliminary storm drain sizing table is provided in Appendix B of this report.

3.1.2 Open Channel Design

The proposed project includes multiple open channel reaches throughout the site. Figure 3.1 includes a schematic of the locations and naming for the reaches modeled.

Figure 2: Proposed Creek Reaches



FEMA does not have Zone A (100-year storm event) inundation mapped within the project site. However, the Flood Insurance Rate Map (FIRM) does show Zone X (Shaded) areas through portions of the project site. The Zone X area is shown on the HEC-RAS workmaps in Map Pocket 3. As FEMA only regulates mapping for the 100-year storm event, no FEMA processing is anticipated for this project.

To ensure that adjacent properties are not negatively impacted by the proposed project, U.S. Army Corps of Engineering (USACE) Hydrologic Engineering Center - River Analysis System (HEC-RAS) models were developed for the proposed condition. The HEC-RAS program is intended for calculating water surface elevations (WSEL) and velocities for supercritical, subcritical and mix flow regimes in natural or man-made channels.

Flow rates

The 50- and 100-year storm event flow rates were calculated as described in Section 2 of this report. The flow rates were assigned based on the peak calculated flow rate for each reach.

Starting Water Surface Elevations

The boundary condition for Reach-3, -4, and -5 were modeled as a known water surface elevation (WSEL).

The starting water surface elevations were determined using the Federal Highway Administration Inlet Control charts and based on the flow rate and the downstream storm drain geometry. Annotated inlet control charts for each condition are included in Appendix E2.

Topography

The topographic information used to develop the hydraulic models was based on 1-foot contours collected for the project site in 2016 and the proposed site grading.

Drop Structures

Large elevation changes are present within the project site. In order to achieve stable open channel geometries multiple drop structures are proposed along portions of the creek reaches. The drop structures have been designed to maintain a maximum of 1% slope throughout the creek reaches.

Manning's n Values

The proposed condition creeks have been designed to maintain 1 foot of freeboard at the 50-year storm event with a design Manning's n-value of 0.06. The creeks have been checked at a Manning's n-value of 0.15 for the 100-year storm event to ensure that no existing or proposed structures are negatively impacted by the creeks in the event more vegetation is established than anticipated. Additionally, the velocities of the creeks have been checked at a Manning's n-value of 0.03. Where erosive velocities in this model occur, additional stabilization measures will be placed in order to stabilize the channel until vegetation has been fully established.

Culverts

Two culvert crossings are modeled along Reach-3 where it crosses Country. The culverts have been sized to convey the 50-year storm event while providing 1 foot of freeboard. The proposed culvert sizes and locations are shown on the HEC-RAS workmaps in Map Pocket 3.

Ineffective Flow

Ineffective flow areas and were added to the cross sections as appropriate. Areas of ineffective flow were modeled in the conveyance shadow of the culverts, within the proposed water quality basins, or obstructions, as well as areas of flow expansion or contraction included in the modeling. A contraction ratio of 1:1 and an expansion ratio of 2:1 were utilized in the models.

3.1.3 HEC-RAS Creek Analysis Results

The HEC-RAS workmaps are included in Map Pocket 3, the HEC-RAS output for the proposed condition is included in Appendix C1. Back-Up information for the HEC-RAS analysis has been included is Appendix C2. The proposed condition creeks have been designed to maintain 1 foot of freeboard at the 50-year storm event with a design Manning's n-value of 0.06. The creeks have been checked at a Manning's n-value of 0.15 for the 100-year storm event to ensure that no existing or proposed structures are negatively impacted by the creeks in the event more vegetation is established than anticipated.

4.0 DETENTION ANALYSES

For the design of detention facilities, the modified rational method hydrologic analysis was performed to determine the 100-year flow rates for both the pre-project condition and the post-project condition. Pre-project and post-project rational method output for the project is provided in Appendices A of this report.

4.1 Hydrograph Development

The sizing of a detention facility requires an inflow hydrograph to obtain the necessary storage volume. The modified rational method only yields a peak discharge and time of concentration, and does not yield a hydrograph. In order to convert the peak discharge and time of concentration into a hydrograph, Rick Engineering's program, RatHydro was used. RatHydro generates a hydrograph from the following inputs: Time of concentration, 6-Hour Precipitation depth, basin area, rational method runoff coefficient, and peak discharge rate. The generated hydrograph can then be used as the inflow hydrograph for basin sizing within HEC-1.

4.3 HEC-1 Methodology and Criteria

100-year hydrographs and preliminary elevation-storage-outflow rating curves were used in the HEC-1 hydrologic model to perform routing calculations for the detention basin, and to determine the preliminary 100-year detention volumes required for the basin to reduce the post-project peak discharge rate back to the pre-project peak discharge rate. Actual storage and rating curves will be provided during final engineering along with detailed outlet-works designs for each BMP.

4.4 Detention Results

The 100-year, 6-hour post-project peak discharge rates were routed using the HEC-1 hydrologic model to determine the detention volume required for the basins to reduce the post-project peak discharge rates back to the pre-project peak discharge rates for select storm events. The HEC-1 detention analyses computer output is located in Appendix D of this report.

All of the proposed BMPs are designed to include water quality treatment, and volumes to comply with hydromodification management criteria. Detention volume sizing is provided within eight (8) of the ten (10) proposed BMPs (all BMPs except for BMPs 1D and 1E). These BMPs are designed to route the post-project peak discharge rate back to pre-project conditions at the project's POCs. Refer to Attachment D of this report for an exhibit of BMP locations and POC locations. Table 4.1 provides a summary of the detention analysis.

Table 4.1 Detention Analysis Summary

BMP ID	Pre-Project Q100 (cfs)	Post-Project Q (Un-detained) (cfs)	Post-Project Q (Detained) (cfs)
BMP 1A	17.1	47.5	17.1
BMP 1B	12.5	33.3	12.5
BMP 1C	4.8	6.9	4.8
BMP 2	7.7	20.8	7.7
BMP 3	9.5	24.2	9.5
BMP 4	8.9	26.2	8.9
BMP 5A	2.8	10.2	2.8
BMP 5B	13.1	28.5	13.1

5.0 CONCLUSION

This drainage study presents the hydrologic and hydraulic analyses for the Escondido Country Club Project. The pre-project and post-project condition peak discharge rates were determined using the Modified Rational Method based on the hydrologic methodology and criteria described in the City of Escondido Design Standards and Standard Drawings, dated April 2014.

Preliminary storm drain and open channel sizes have been determined based on the 100-year peak flow rates. Preliminary Detention sizing is provided for the 100-year, 6-hour storm event so that post-project peak discharge rates are routed back to pre-project conditions using the HEC-1 hydrologic model.

Post-project flows will be treated per the City of Escondido's BMP Design Manual, dated February 2016. Please refer to the project's PDP SWQMP, titled "PDP SWQMP for Escondido Country Club," prepared by Rick Engineering Company (Job No. 17762-A), for more information on water quality and HMP sizing.

APPENDIX A

Hydrology

APPENDIX A1

Existing Condition AES Output
[50-Year & 100-Year]

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

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2012 Advanced Engineering Software (aes)
              Ver. 19.0 Release Date: 06/01/2012  License ID 1261

                              Analysis prepared by:

                            Rick Engineering Company
                                5620 Friars Road
                               San Diego, CA. 92110
                          Ph 619-291-0707 Fx 619-291-4165

--------------------------------------------------------------------------
  FILE NAME: ECC050EX.DAT
  TIME/DATE OF STUDY: 14:21 02/23/2017
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  50.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  RAINFALL-INTENSITY ADJUSTMENT FACTOR = 1.000
  *USER SPECIFIED:
  NUMBER OF [TIME,INTENSITY] DATA PAIRS = 19
   1)   5.000;  4.190
   2)   6.000;  3.910
   3)   7.000;  3.720
   4)   8.000;  3.520
   5)   9.000;  3.390
   6)  10.000;  3.220
   7)  12.000;  3.000
   8)  14.000;  2.800
   9)  15.000;  2.710
  10)  16.000;  2.630
  11)  18.000;  2.490
  12)  20.000;  2.360
  13)  22.000;  2.240
  14)  24.000;  2.130
  15)  26.000;  2.050
  16)  28.000;  1.960
  17)  30.000;  1.880
  18)  60.000;  1.230
  19) 600.000;  0.297
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: ONLY PEAK CONFLUENCE VALUES CONSIDERED
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150
  2   20.0     15.0    0.020/0.020/0.020   0.50    1.50 0.0100 0.125 0.0180

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.50 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   1000.00 TO NODE   1001.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7770
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    90.00
  UPSTREAM ELEVATION(FEET) =   1501.00
  DOWNSTREAM ELEVATION(FEET) =   1470.00
  ELEVATION DIFFERENCE(FEET) =     31.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.560
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.190
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.23
  TOTAL AREA(ACRES) =      0.07   TOTAL RUNOFF(CFS) =      0.23

****************************************************************************
  FLOW PROCESS FROM NODE   1001.00 TO NODE   1050.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1470.00  DOWNSTREAM(FEET) =    774.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  6476.00   CHANNEL SLOPE =  0.1075
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   2.500
  MANNING'S FACTOR = 0.055   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.907
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3770
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     209.70
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  10.41
  AVERAGE FLOW DEPTH(FEET) =   2.01   TRAVEL TIME(MIN.) =  10.37
  Tc(MIN.) =   12.93
  SUBAREA AREA(ACRES) =   351.50       SUBAREA RUNOFF(CFS) =  385.26
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.377
  TOTAL AREA(ACRES) =      351.6         PEAK FLOW RATE(CFS) =     385.42

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  2.69   FLOW VELOCITY(FEET/SEC.) =  12.22
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1050.00 =    6566.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1050.00 TO NODE   1060.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    774.00  DOWNSTREAM(FEET) =    764.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   483.00   CHANNEL SLOPE =  0.0207
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.778
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3090
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     397.94
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.11
  AVERAGE FLOW DEPTH(FEET) =   1.91   TRAVEL TIME(MIN.) =   1.32
```

```
  Tc(MIN.) =   14.24
  SUBAREA AREA(ACRES) =    29.17       SUBAREA RUNOFF(CFS) =   25.04
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.372
  TOTAL AREA(ACRES) =      380.7         PEAK FLOW RATE(CFS) =     393.32

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  1.90   FLOW VELOCITY(FEET/SEC.) =   6.08
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1060.00 =    7049.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1055.00 TO NODE   1060.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.778
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6850
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3760
  SUBAREA AREA(ACRES) =    5.04   SUBAREA RUNOFF(CFS) =    9.59
  TOTAL AREA(ACRES) =      385.8   TOTAL RUNOFF(CFS) =     402.91
  TC(MIN.) =   14.24

****************************************************************************
  FLOW PROCESS FROM NODE   1060.00 TO NODE   1070.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    764.00  DOWNSTREAM(FEET) =    746.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   680.00   CHANNEL SLOPE =  0.0265
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     402.91
  FLOW VELOCITY(FEET/SEC.) =   7.75   FLOW DEPTH(FEET) =   2.06
  TRAVEL TIME(MIN.) =   1.46   Tc(MIN.) =   15.71
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1070.00 =    7729.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1065.00 TO NODE   1070.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.653
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6740
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3837
  SUBAREA AREA(ACRES) =   10.27   SUBAREA RUNOFF(CFS) =   18.37
  TOTAL AREA(ACRES) =      396.1   TOTAL RUNOFF(CFS) =     403.20
  TC(MIN.) =   15.71

****************************************************************************
  FLOW PROCESS FROM NODE   1070.00 TO NODE   1150.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    746.00  DOWNSTREAM(FEET) =    740.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   295.00   CHANNEL SLOPE =  0.0203
  CHANNEL BASE(FEET) =   30.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     403.20
```

```
  FLOW VELOCITY(FEET/SEC.) =   6.60   FLOW DEPTH(FEET) =   1.67
  TRAVEL TIME(MIN.) =   0.74   Tc(MIN.) =   16.45
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1150.00 =    8024.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1150.00 TO NODE   1150.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   16.45
  RAINFALL INTENSITY(INCH/HR) =   2.60
  TOTAL STREAM AREA(ACRES) =   396.05
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    403.20

****************************************************************************
  FLOW PROCESS FROM NODE   1080.00 TO NODE   1081.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    94.00
  UPSTREAM ELEVATION(FEET) =   1379.00
  DOWNSTREAM ELEVATION(FEET) =   1363.00
  ELEVATION DIFFERENCE(FEET) =     16.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.076
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.896
  SUBAREA RUNOFF(CFS) =      0.14
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.14

****************************************************************************
  FLOW PROCESS FROM NODE   1081.00 TO NODE   1120.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1363.00  DOWNSTREAM(FEET) =    822.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  3281.00   CHANNEL SLOPE =  0.1649
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   2.000
  MANNING'S FACTOR = 0.050   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.031
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4310
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      96.39
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   9.70
  AVERAGE FLOW DEPTH(FEET) =   0.85   TRAVEL TIME(MIN.) =   5.64
  Tc(MIN.) =   11.72
  SUBAREA AREA(ACRES) =   147.04       SUBAREA RUNOFF(CFS) =  192.10
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.431
  TOTAL AREA(ACRES) =      147.1         PEAK FLOW RATE(CFS) =     192.21

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  1.26   FLOW VELOCITY(FEET/SEC.) =  12.16
  LONGEST FLOWPATH FROM NODE   1080.00 TO NODE   1120.00 =    3375.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1120.00 TO NODE   1130.00 IS CODE =  41
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   822.00  DOWNSTREAM(FEET) =   790.00
  FLOW LENGTH(FEET) =   852.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  48.0 INCH PIPE IS  20.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.39
  GIVEN PIPE DIAMETER(INCH) =  48.00    NUMBER OF PIPES =   2
  PIPE-FLOW(CFS) =     192.21
  PIPE TRAVEL TIME(MIN.) =   0.73    Tc(MIN.) =   12.45
  LONGEST FLOWPATH FROM NODE   1080.00 TO NODE   1130.00 =    4227.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1130.00 TO NODE   1140.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    790.00  DOWNSTREAM(FEET) =    751.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1137.00   CHANNEL SLOPE =  0.0343
  CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   2.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     192.21
  FLOW VELOCITY(FEET/SEC.) =   8.84   FLOW DEPTH(FEET) =   2.45
  TRAVEL TIME(MIN.) =   2.14   Tc(MIN.) =   14.59
  LONGEST FLOWPATH FROM NODE   1080.00 TO NODE   1140.00 =    5364.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1135.00 TO NODE   1140.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.747
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6550
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.4333
  SUBAREA AREA(ACRES) =    1.59   SUBAREA RUNOFF(CFS) =    2.86
  TOTAL AREA(ACRES) =      148.7   TOTAL RUNOFF(CFS) =     192.21
  TC(MIN.) =   14.59
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   1140.00 TO NODE   1150.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    751.00  DOWNSTREAM(FEET) =    740.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   389.00   CHANNEL SLOPE =  0.0283
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     192.21
  FLOW VELOCITY(FEET/SEC.) =   5.82   FLOW DEPTH(FEET) =   1.72
  TRAVEL TIME(MIN.) =   1.11   Tc(MIN.) =   15.71
  LONGEST FLOWPATH FROM NODE   1080.00 TO NODE   1150.00 =    5753.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1150.00 TO NODE   1150.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
================================================================================
```

```
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =   15.71
 RAINFALL INTENSITY(INCH/HR) =   2.65
 TOTAL STREAM AREA(ACRES) =   148.73
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    192.21

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1      403.20    16.45        2.598        396.05
     2      192.21    15.71        2.654        148.73

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF       Tc      INTENSITY
 NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
     1      577.12    15.71       2.654
     2      591.41    16.45       2.598

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =     591.41   Tc(MIN.) =   16.45
 TOTAL AREA(ACRES) =      544.8
 LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1150.00 =    8024.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1150.00 TO NODE   1160.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    740.00  DOWNSTREAM(FEET) =    722.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   578.00   CHANNEL SLOPE =  0.0311
 CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   5.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     591.41
 FLOW VELOCITY(FEET/SEC.) =   9.12   FLOW DEPTH(FEET) =   2.40
 TRAVEL TIME(MIN.) =   1.06   Tc(MIN.) =   17.51
 LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1160.00 =    8602.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1160.00 TO NODE   1170.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   722.00  DOWNSTREAM(FEET) =   714.00
 FLOW LENGTH(FEET) =   578.00   MANNING'S N =  0.013
 ASSUME FULL-FLOWING PIPELINE
 PIPE-FLOW VELOCITY(FEET/SEC.) =  12.76
 (PIPE FLOW VELOCITY CORRESPONDING TO FULL PIPE CAPACITY FLOW)
 GIVEN PIPE DIAMETER(INCH) =  48.00    NUMBER OF PIPES =   2
 PIPE-FLOW(CFS) =     591.41
 PIPE TRAVEL TIME(MIN.) =   0.76    Tc(MIN.) =   18.26
 LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1170.00 =    9180.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1165.00 TO NODE   1170.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
```

```
  50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.473
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6390
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.4067
  SUBAREA AREA(ACRES) =   22.20   SUBAREA RUNOFF(CFS) =   35.08
  TOTAL AREA(ACRES) =      567.0   TOTAL RUNOFF(CFS) =     591.41
  TC(MIN.) =   18.26
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   2000.00 TO NODE   2001.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    94.00
  UPSTREAM ELEVATION(FEET) =   1274.00
  DOWNSTREAM ELEVATION(FEET) =   1233.00
  ELEVATION DIFFERENCE(FEET) =     41.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.076
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
  50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.896
  SUBAREA RUNOFF(CFS) =      0.16
  TOTAL AREA(ACRES) =      0.12   TOTAL RUNOFF(CFS) =      0.16

****************************************************************************
  FLOW PROCESS FROM NODE   2001.00 TO NODE   2002.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1233.00  DOWNSTREAM(FEET) =    867.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1422.00   CHANNEL SLOPE =  0.2574
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.055   MAXIMUM DEPTH(FEET) =  10.00
  50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.539
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .5420
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     151.74
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  12.95
  AVERAGE FLOW DEPTH(FEET) =   1.54   TRAVEL TIME(MIN.) =   1.83
  Tc(MIN.) =    7.91
  SUBAREA AREA(ACRES) =   159.31       SUBAREA RUNOFF(CFS) =  305.57
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.542
  TOTAL AREA(ACRES) =      159.4         PEAK FLOW RATE(CFS) =     305.72

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  2.11   FLOW VELOCITY(FEET/SEC.) =  15.52
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2002.00 =    1516.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2002.00 TO NODE   2004.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   867.00  DOWNSTREAM(FEET) =   849.50
  FLOW LENGTH(FEET) =   272.00   MANNING'S N =  0.024
  DEPTH OF FLOW IN  60.0 INCH PIPE IS  44.5 INCHES
```

```
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.57
  ESTIMATED PIPE DIAMETER(INCH) =  60.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     305.72
  PIPE TRAVEL TIME(MIN.) =   0.23    Tc(MIN.) =    8.14
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2004.00 =    1788.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2004.00 TO NODE   2008.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    849.50  DOWNSTREAM(FEET) =    771.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1704.00   CHANNEL SLOPE =  0.0461
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     305.72
  FLOW VELOCITY(FEET/SEC.) =   8.92   FLOW DEPTH(FEET) =   2.58
  TRAVEL TIME(MIN.) =   3.18   Tc(MIN.) =   11.32
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2008.00 =    3492.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2008.00 TO NODE   2010.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   771.00  DOWNSTREAM(FEET) =   768.00
  FLOW LENGTH(FEET) =   202.00   MANNING'S N =  0.024
  DEPTH OF FLOW IN  78.0 INCH PIPE IS  59.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  11.24
  ESTIMATED PIPE DIAMETER(INCH) =  78.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     305.72
  PIPE TRAVEL TIME(MIN.) =   0.30    Tc(MIN.) =   11.62
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2010.00 =    3694.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2010.00 TO NODE   2020.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    768.00  DOWNSTREAM(FEET) =    753.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   795.00   CHANNEL SLOPE =  0.0189
  CHANNEL BASE(FEET) =   20.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.795
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3010
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     310.34
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.44
  AVERAGE FLOW DEPTH(FEET) =   1.59   TRAVEL TIME(MIN.) =   2.44
  Tc(MIN.) =   14.06
  SUBAREA AREA(ACRES) =    10.97       SUBAREA RUNOFF(CFS) =    9.23
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.526
  TOTAL AREA(ACRES) =      170.4         PEAK FLOW RATE(CFS) =     305.72

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  1.58   FLOW VELOCITY(FEET/SEC.) =   5.42
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2020.00 =    4489.00 FEET.

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

```
 FLOW PROCESS FROM NODE   2015.00 TO NODE   2020.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.795
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .4090
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.5252
 SUBAREA AREA(ACRES) =    1.66   SUBAREA RUNOFF(CFS) =    1.90
 TOTAL AREA(ACRES) =      172.1   TOTAL RUNOFF(CFS) =     305.72
 TC(MIN.) =   14.06
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE   2020.00 TO NODE   2030.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    753.00  DOWNSTREAM(FEET) =    744.22
 CHANNEL LENGTH THRU SUBAREA(FEET) =   200.00   CHANNEL SLOPE =  0.0439
 CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   6.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     305.72
 FLOW VELOCITY(FEET/SEC.) =   8.60   FLOW DEPTH(FEET) =   1.86
 TRAVEL TIME(MIN.) =   0.39   Tc(MIN.) =   14.44
 LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2030.00 =    4689.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2030.00 TO NODE   2040.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   743.93  DOWNSTREAM(FEET) =   743.74
 FLOW LENGTH(FEET) =    17.00   MANNING'S N =  0.013
 ASSUME FULL-FLOWING PIPELINE
 PIPE-FLOW VELOCITY(FEET/SEC.) =   9.48
 (PIPE FLOW VELOCITY CORRESPONDING TO FULL PIPE CAPACITY FLOW)
 GIVEN PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   2
 PIPE-FLOW(CFS) =     305.72
 PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =   14.47
 LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2040.00 =    4706.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2035.00 TO NODE   2040.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.757
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .7100
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.5277
 SUBAREA AREA(ACRES) =    2.30   SUBAREA RUNOFF(CFS) =    4.50
 TOTAL AREA(ACRES) =      174.4   TOTAL RUNOFF(CFS) =     305.72
 TC(MIN.) =   14.47
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE   2040.00 TO NODE   2050.00 IS CODE =  41
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   743.74  DOWNSTREAM(FEET) =   740.50
  FLOW LENGTH(FEET) =    80.00   MANNING'S N =  0.013
  ASSUME FULL-FLOWING PIPELINE
  PIPE-FLOW VELOCITY(FEET/SEC.) =  18.01
  (PIPE FLOW VELOCITY CORRESPONDING TO FULL PIPE CAPACITY FLOW)
  GIVEN PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   2
  PIPE-FLOW(CFS) =     305.72
  PIPE TRAVEL TIME(MIN.) =   0.07    Tc(MIN.) =   14.55
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2050.00 =    4786.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2045.00 TO NODE   2050.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.751
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .9500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5292
  SUBAREA AREA(ACRES) =    0.63   SUBAREA RUNOFF(CFS) =    1.65
  TOTAL AREA(ACRES) =      175.0   TOTAL RUNOFF(CFS) =     305.72
  TC(MIN.) =   14.55
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   2050.00 TO NODE   2060.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   740.50  DOWNSTREAM(FEET) =   740.02
  FLOW LENGTH(FEET) =    21.00   MANNING'S N =  0.013
  ASSUME FULL-FLOWING PIPELINE
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.56
  (PIPE FLOW VELOCITY CORRESPONDING TO FULL PIPE CAPACITY FLOW)
  GIVEN PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   2
  PIPE-FLOW(CFS) =     305.72
  PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =   14.57
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2060.00 =    4807.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2055.00 TO NODE   2060.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.748
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7060
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5975
  SUBAREA AREA(ACRES) =  110.27   SUBAREA RUNOFF(CFS) =  213.96
  TOTAL AREA(ACRES) =      285.3   TOTAL RUNOFF(CFS) =     468.46
  TC(MIN.) =   14.57

****************************************************************************
  FLOW PROCESS FROM NODE   2060.00 TO NODE   2070.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
```

```
  ELEVATION DATA: UPSTREAM(FEET) =    740.02  DOWNSTREAM(FEET) =    735.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =   674.00   CHANNEL SLOPE =  0.0067
  CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   2.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.588
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .2790
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     474.41
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.53
  AVERAGE FLOW DEPTH(FEET) =   5.22   TRAVEL TIME(MIN.) =   2.03
  Tc(MIN.) =   16.61
  SUBAREA AREA(ACRES) =    16.46       SUBAREA RUNOFF(CFS) =   11.88
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.580
  TOTAL AREA(ACRES) =      301.7         PEAK FLOW RATE(CFS) =     468.46

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  5.19   FLOW VELOCITY(FEET/SEC.) =   5.51
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2070.00 =    5481.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2065.00 TO NODE   2070.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.588
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .5790
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5801
  SUBAREA AREA(ACRES) =   24.39   SUBAREA RUNOFF(CFS) =   36.54
  TOTAL AREA(ACRES) =      326.1   TOTAL RUNOFF(CFS) =     489.47
  TC(MIN.) =   16.61

****************************************************************************
  FLOW PROCESS FROM NODE   2070.00 TO NODE   2080.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    735.50  DOWNSTREAM(FEET) =    728.53
  CHANNEL LENGTH THRU SUBAREA(FEET) =   252.00   CHANNEL SLOPE =  0.0277
  CHANNEL BASE(FEET) =    7.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     489.47
  FLOW VELOCITY(FEET/SEC.) =   8.24   FLOW DEPTH(FEET) =   3.08
  TRAVEL TIME(MIN.) =   0.51   Tc(MIN.) =   17.12
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2080.00 =    5733.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2080.00 TO NODE   2090.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   728.53  DOWNSTREAM(FEET) =   727.50
  FLOW LENGTH(FEET) =   120.00   MANNING'S N =  0.024
  ASSUME FULL-FLOWING PIPELINE
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.49
  (PIPE FLOW VELOCITY CORRESPONDING TO FULL PIPE CAPACITY FLOW)
  GIVEN PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   3
  PIPE-FLOW(CFS) =     489.47
```

```
  PIPE TRAVEL TIME(MIN.) =   0.45    Tc(MIN.) =   17.56
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2090.00 =    5853.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2090.00 TO NODE   2110.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    727.50  DOWNSTREAM(FEET) =    726.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =   122.00   CHANNEL SLOPE =  0.0082
  CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.495
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .2860
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     497.80
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.60
  AVERAGE FLOW DEPTH(FEET) =   4.53   TRAVEL TIME(MIN.) =   0.36
  Tc(MIN.) =   17.92
  SUBAREA AREA(ACRES) =    23.35       SUBAREA RUNOFF(CFS) =   16.66
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.560
  TOTAL AREA(ACRES) =      349.5         PEAK FLOW RATE(CFS) =     489.47

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  4.50   FLOW VELOCITY(FEET/SEC.) =   5.58
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2110.00 =    5975.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2095.00 TO NODE   2110.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.495
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4600
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5597
  SUBAREA AREA(ACRES) =    2.36   SUBAREA RUNOFF(CFS) =    2.71
  TOTAL AREA(ACRES) =      351.8   TOTAL RUNOFF(CFS) =     491.39
  TC(MIN.) =   17.92

****************************************************************************
  FLOW PROCESS FROM NODE   2105.00 TO NODE   2110.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.495
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4470
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5593
  SUBAREA AREA(ACRES) =    1.37   SUBAREA RUNOFF(CFS) =    1.53
  TOTAL AREA(ACRES) =      353.2   TOTAL RUNOFF(CFS) =     492.92
  TC(MIN.) =   17.92

****************************************************************************
  FLOW PROCESS FROM NODE   2110.00 TO NODE   2120.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
```

```
 ELEVATION DATA: UPSTREAM(FEET) =    726.50  DOWNSTREAM(FEET) =    726.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   225.00   CHANNEL SLOPE =  0.0022
 CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   4.000
 MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     492.92
 FLOW VELOCITY(FEET/SEC.) =   3.23   FLOW DEPTH(FEET) =   5.47
 TRAVEL TIME(MIN.) =   1.16   Tc(MIN.) =   19.09
 LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2120.00 =    6200.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2115.00 TO NODE   2120.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.419
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6390
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.5616
 SUBAREA AREA(ACRES) =   10.70   SUBAREA RUNOFF(CFS) =   16.54
 TOTAL AREA(ACRES) =      363.9   TOTAL RUNOFF(CFS) =     494.47
 TC(MIN.) =   19.09

****************************************************************************
 FLOW PROCESS FROM NODE   2120.00 TO NODE   2130.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    726.00  DOWNSTREAM(FEET) =    725.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   375.00   CHANNEL SLOPE =  0.0027
 CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   3.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     494.47
 FLOW VELOCITY(FEET/SEC.) =   4.02   FLOW DEPTH(FEET) =   5.77
 TRAVEL TIME(MIN.) =   1.55   Tc(MIN.) =   20.64
 LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2130.00 =    6575.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2125.00 TO NODE   2130.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.322
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .5630
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.5618
 SUBAREA AREA(ACRES) =   36.32   SUBAREA RUNOFF(CFS) =   47.47
 TOTAL AREA(ACRES) =      400.2   TOTAL RUNOFF(CFS) =     521.95
 TC(MIN.) =   20.64

****************************************************************************
 FLOW PROCESS FROM NODE   2130.00 TO NODE   2140.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    725.00  DOWNSTREAM(FEET) =    713.20
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1323.00   CHANNEL SLOPE =  0.0089
 CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =   1.000
 MANNING'S FACTOR = 0.025   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     521.95
```

```
 FLOW VELOCITY(FEET/SEC.) =  10.36   FLOW DEPTH(FEET) =   7.10
 TRAVEL TIME(MIN.) =   2.13   Tc(MIN.) =   22.77
 LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2140.00 =    7898.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2140.00 TO NODE   2180.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   713.20  DOWNSTREAM(FEET) =   713.00
 FLOW LENGTH(FEET) =    22.00   MANNING'S N =  0.014
 ASSUME FULL-FLOWING PIPELINE
 PIPE-FLOW VELOCITY(FEET/SEC.) =   2.12
 (PIPE FLOW VELOCITY CORRESPONDING TO FULL PIPE CAPACITY FLOW)
 GIVEN PIPE DIAMETER(INCH) =   5.00    NUMBER OF PIPES =   2
 PIPE-FLOW(CFS) =     521.95
 PIPE TRAVEL TIME(MIN.) =   0.17    Tc(MIN.) =   22.94
 LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2180.00 =    7920.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2180.00 TO NODE   2180.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =   22.94
 RAINFALL INTENSITY(INCH/HR) =   2.19
 TOTAL STREAM AREA(ACRES) =   400.21
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    521.95

****************************************************************************
 FLOW PROCESS FROM NODE   2150.00 TO NODE   2151.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
 UPSTREAM ELEVATION(FEET) =    777.00
 DOWNSTREAM ELEVATION(FEET) =    771.00
 ELEVATION DIFFERENCE(FEET) =      6.00
 URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.489
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.817
 SUBAREA RUNOFF(CFS) =      0.11
 TOTAL AREA(ACRES) =      0.08   TOTAL RUNOFF(CFS) =      0.11

****************************************************************************
 FLOW PROCESS FROM NODE   2151.00 TO NODE   2160.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    771.00  DOWNSTREAM(FEET) =    746.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   778.00   CHANNEL SLOPE =  0.0321
 CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =  10.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.998
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .2580
 S.C.S. CURVE NUMBER (AMC II) =   0
```

```
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.71
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.35
  AVERAGE FLOW DEPTH(FEET) =   0.28   TRAVEL TIME(MIN.) =   5.53
  Tc(MIN.) =   12.02
  SUBAREA AREA(ACRES) =    14.10       SUBAREA RUNOFF(CFS) =   10.91
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.259
  TOTAL AREA(ACRES) =       14.2         PEAK FLOW RATE(CFS) =      10.99

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.39   FLOW VELOCITY(FEET/SEC.) =   2.83
  LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2160.00 =     863.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2155.00 TO NODE   2160.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.998
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6690
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.4446
  SUBAREA AREA(ACRES) =   11.76   SUBAREA RUNOFF(CFS) =   23.59
  TOTAL AREA(ACRES) =       25.9   TOTAL RUNOFF(CFS) =      34.58
  TC(MIN.) =   12.02

****************************************************************************
  FLOW PROCESS FROM NODE   2160.00 TO NODE   2164.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    746.00  DOWNSTREAM(FEET) =    716.12
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1236.00   CHANNEL SLOPE =  0.0242
  CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      34.58
  FLOW VELOCITY(FEET/SEC.) =   3.51   FLOW DEPTH(FEET) =   0.74
  TRAVEL TIME(MIN.) =   5.87   Tc(MIN.) =   17.89
  LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2164.00 =    2099.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2164.00 TO NODE   2170.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   716.12  DOWNSTREAM(FEET) =   714.75
  FLOW LENGTH(FEET) =    66.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  48.0 INCH PIPE IS  13.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  11.77
  GIVEN PIPE DIAMETER(INCH) =  48.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      34.58
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =   17.98
  LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2170.00 =    2165.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2165.00 TO NODE   2170.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.491
  *USER SPECIFIED(SUBAREA):
```

```
  USER-SPECIFIED RUNOFF COEFFICIENT = .6320
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5582
  SUBAREA AREA(ACRES) =   39.95   SUBAREA RUNOFF(CFS) =   62.90
  TOTAL AREA(ACRES) =       65.9   TOTAL RUNOFF(CFS) =      91.63
  TC(MIN.) =   17.98

****************************************************************************
  FLOW PROCESS FROM NODE   2170.00 TO NODE   2180.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   714.75  DOWNSTREAM(FEET) =   713.00
  FLOW LENGTH(FEET) =   135.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  54.0 INCH PIPE IS  24.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.86
  GIVEN PIPE DIAMETER(INCH) =  54.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      91.63
  PIPE TRAVEL TIME(MIN.) =   0.17    Tc(MIN.) =   18.16
  LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2180.00 =    2300.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2180.00 TO NODE   2180.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   18.16
  RAINFALL INTENSITY(INCH/HR) =   2.48
  TOTAL STREAM AREA(ACRES) =    65.89
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     91.63

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      521.95    22.94        2.188        400.21
      2       91.63    18.16        2.480         65.89

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      504.71    18.16       2.480
      2      602.81    22.94       2.188

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     602.81   Tc(MIN.) =   22.94
  TOTAL AREA(ACRES) =      466.1
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2180.00 =    7920.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2180.00 TO NODE   2190.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   713.00  DOWNSTREAM(FEET) =   712.00
  FLOW LENGTH(FEET) =   135.00   MANNING'S N =  0.014
```

```
  ASSUME FULL-FLOWING PIPELINE
  PIPE-FLOW VELOCITY(FEET/SEC.) =   1.92
  (PIPE FLOW VELOCITY CORRESPONDING TO FULL PIPE CAPACITY FLOW)
  GIVEN PIPE DIAMETER(INCH) =   5.00    NUMBER OF PIPES =   2
  PIPE-FLOW(CFS) =     602.81
  PIPE TRAVEL TIME(MIN.) =   1.17    Tc(MIN.) =   24.12
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2190.00 =    8055.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2185.00 TO NODE   2190.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.125
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7290
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5636
  SUBAREA AREA(ACRES) =     6.46   SUBAREA RUNOFF(CFS) =   10.01
  TOTAL AREA(ACRES) =      472.6   TOTAL RUNOFF(CFS) =     602.81
  TC(MIN.) =   24.12
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   3000.00 TO NODE   3001.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    92.00
  UPSTREAM ELEVATION(FEET) =    764.00
  DOWNSTREAM ELEVATION(FEET) =    754.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.889
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.190
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.37
  TOTAL AREA(ACRES) =      0.18   TOTAL RUNOFF(CFS) =      0.37

****************************************************************************
  FLOW PROCESS FROM NODE   3001.00 TO NODE   3005.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    754.00  DOWNSTREAM(FEET) =    736.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   251.00   CHANNEL SLOPE =  0.0717
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.752
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6220
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.67
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.16
  AVERAGE FLOW DEPTH(FEET) =   0.11   TRAVEL TIME(MIN.) =   1.94
  Tc(MIN.) =    6.83
  SUBAREA AREA(ACRES) =     1.98       SUBAREA RUNOFF(CFS) =    4.62
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.611
  TOTAL AREA(ACRES) =        2.2         PEAK FLOW RATE(CFS) =       4.95
```

```
  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.16   FLOW VELOCITY(FEET/SEC.) =   2.72
  LONGEST FLOWPATH FROM NODE   3000.00 TO NODE   3005.00 =     343.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3005.00 TO NODE   3010.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  736.00  DOWNSTREAM ELEVATION(FEET) =  726.00
  STREET LENGTH(FEET) =   301.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.96
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.33
    HALFSTREET FLOOD WIDTH(FEET) =   11.36
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.61
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.20
  STREET FLOW TRAVEL TIME(MIN.) =   1.39   Tc(MIN.) =    8.22
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.491
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6220
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.611
  SUBAREA AREA(ACRES) =    0.01      SUBAREA RUNOFF(CFS) =    0.02
  TOTAL AREA(ACRES) =        2.2        PEAK FLOW RATE(CFS) =       4.95

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.33   HALFSTREET FLOOD WIDTH(FEET) =  11.36
  FLOW VELOCITY(FEET/SEC.) =  3.60   DEPTH*VELOCITY(FT*FT/SEC.) =   1.20
  LONGEST FLOWPATH FROM NODE   3000.00 TO NODE   3010.00 =     644.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   4000.00 TO NODE   4001.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4690
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    88.00
  UPSTREAM ELEVATION(FEET) =    880.00
  DOWNSTREAM ELEVATION(FEET) =    868.00
  ELEVATION DIFFERENCE(FEET) =     12.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.946
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.190
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.33
  TOTAL AREA(ACRES) =      0.17   TOTAL RUNOFF(CFS) =      0.33
```

```
**************************************************************************
  FLOW PROCESS FROM NODE   4001.00 TO NODE   4010.00 IS CODE =  62
--------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
==========================================================================
  UPSTREAM ELEVATION(FEET) =  868.00  DOWNSTREAM ELEVATION(FEET) =  746.00
  STREET LENGTH(FEET) =  1460.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.05
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.29
    HALFSTREET FLOOD WIDTH(FEET) =    9.01
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.03
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.44
  STREET FLOW TRAVEL TIME(MIN.) =   4.83   Tc(MIN.) =    9.78
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.258
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4520
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.452
  SUBAREA AREA(ACRES) =   11.66      SUBAREA RUNOFF(CFS) =   17.17
  TOTAL AREA(ACRES) =       11.8        PEAK FLOW RATE(CFS) =      17.43

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.34   HALFSTREET FLOOD WIDTH(FEET) =  11.83
  FLOW VELOCITY(FEET/SEC.) =  5.87   DEPTH*VELOCITY(FT*FT/SEC.) =   2.00
  LONGEST FLOWPATH FROM NODE   4000.00 TO NODE   4010.00 =    1548.00 FEET.

**************************************************************************
  FLOW PROCESS FROM NODE   4010.00 TO NODE   4020.00 IS CODE =  51
--------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    746.00  DOWNSTREAM(FEET) =    732.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   562.00   CHANNEL SLOPE =  0.0249
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.025   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.097
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .2750
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      22.94
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.98
  AVERAGE FLOW DEPTH(FEET) =   1.81   TRAVEL TIME(MIN.) =   1.34
  Tc(MIN.) =   11.12
  SUBAREA AREA(ACRES) =    12.91       SUBAREA RUNOFF(CFS) =   10.99
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.360
  TOTAL AREA(ACRES) =       24.7         PEAK FLOW RATE(CFS) =      27.56

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  1.94   FLOW VELOCITY(FEET/SEC.) =   7.30
```

```
 LONGEST FLOWPATH FROM NODE   4000.00 TO NODE   4020.00 =    2110.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   4015.00 TO NODE   4020.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.097
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6010
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.4385
 SUBAREA AREA(ACRES) =   12.00   SUBAREA RUNOFF(CFS) =   22.33
 TOTAL AREA(ACRES) =       36.7   TOTAL RUNOFF(CFS) =      49.89
 TC(MIN.) =   11.12

****************************************************************************
 FLOW PROCESS FROM NODE   5000.00 TO NODE   5001.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .2730
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =    93.00
 UPSTREAM ELEVATION(FEET) =    752.00
 DOWNSTREAM ELEVATION(FEET) =    744.00
 ELEVATION DIFFERENCE(FEET) =      8.00
 URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.007
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.719
 SUBAREA RUNOFF(CFS) =      0.21
 TOTAL AREA(ACRES) =      0.21   TOTAL RUNOFF(CFS) =      0.21

****************************************************************************
 FLOW PROCESS FROM NODE   5001.00 TO NODE   5010.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    744.00  DOWNSTREAM(FEET) =    732.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   399.00   CHANNEL SLOPE =  0.0301
 CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  10.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.979
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .2830
 S.C.S. CURVE NUMBER (AMC II) =   0
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.44
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.28
 AVERAGE FLOW DEPTH(FEET) =   0.10   TRAVEL TIME(MIN.) =   5.20
 Tc(MIN.) =   12.21
 SUBAREA AREA(ACRES) =     2.87       SUBAREA RUNOFF(CFS) =    2.42
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.282
 TOTAL AREA(ACRES) =        3.1         PEAK FLOW RATE(CFS) =       2.59

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.14   FLOW VELOCITY(FEET/SEC.) =   1.62
 LONGEST FLOWPATH FROM NODE   5000.00 TO NODE   5010.00 =     492.00 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        3.1  TC(MIN.) =     12.21
 PEAK FLOW RATE(CFS)   =       2.59
============================================================================
```

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END OF RATIONAL METHOD ANALYSIS

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

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
          (c) Copyright 1982-2012 Advanced Engineering Software (aes)
              Ver. 19.0 Release Date: 06/01/2012  License ID 1261

                              Analysis prepared by:

                            Rick Engineering Company
                                5620 Friars Road
                               San Diego, CA. 92110
                          Ph 619-291-0707 Fx 619-291-4165

--------------------------------------------------------------------------
  FILE NAME: ECC100EX.DAT
  TIME/DATE OF STUDY: 16:13 02/23/2017
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) = 100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  RAINFALL-INTENSITY ADJUSTMENT FACTOR = 1.000
  *USER SPECIFIED:
  NUMBER OF [TIME,INTENSITY] DATA PAIRS = 19
   1)   5.000;  4.420
   2)   6.000;  4.200
   3)   7.000;  3.960
   4)   8.000;  3.790
   5)   9.000;  3.600
   6)  10.000;  3.450
   7)  12.000;  3.190
   8)  14.000;  2.990
   9)  15.000;  2.890
  10)  16.000;  2.800
  11)  18.000;  2.650
  12)  20.000;  2.510
  13)  22.000;  2.400
  14)  24.000;  2.290
  15)  26.000;  2.190
  16)  28.000;  2.100
  17)  30.000;  2.000
  18)  60.000;  1.310
  19) 600.000;  0.317
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: ONLY PEAK CONFLUENCE VALUES CONSIDERED
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150
  2   20.0     15.0    0.020/0.020/0.020   0.50    1.50 0.0100 0.125 0.0180

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.50 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   1000.00 TO NODE   1001.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7770
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    90.00
  UPSTREAM ELEVATION(FEET) =   1501.00
  DOWNSTREAM ELEVATION(FEET) =   1470.00
  ELEVATION DIFFERENCE(FEET) =     31.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.560
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.420
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.24
  TOTAL AREA(ACRES) =      0.07   TOTAL RUNOFF(CFS) =      0.24

****************************************************************************
  FLOW PROCESS FROM NODE   1001.00 TO NODE   1050.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1470.00  DOWNSTREAM(FEET) =    774.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  6476.00   CHANNEL SLOPE =  0.1075
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   2.500
  MANNING'S FACTOR = 0.055   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.117
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3770
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     225.12
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  10.61
  AVERAGE FLOW DEPTH(FEET) =   2.08   TRAVEL TIME(MIN.) =  10.17
  Tc(MIN.) =   12.73
  SUBAREA AREA(ACRES) =   351.50       SUBAREA RUNOFF(CFS) =  413.03
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.377
  TOTAL AREA(ACRES) =      351.6         PEAK FLOW RATE(CFS) =     413.20

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  2.78   FLOW VELOCITY(FEET/SEC.) =  12.44
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1050.00 =    6566.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1050.00 TO NODE   1060.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    774.00  DOWNSTREAM(FEET) =    764.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   483.00   CHANNEL SLOPE =  0.0207
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.988
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3090
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     426.66
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.23
  AVERAGE FLOW DEPTH(FEET) =   1.97   TRAVEL TIME(MIN.) =   1.29
```

```
  Tc(MIN.) =   14.02
  SUBAREA AREA(ACRES) =    29.17       SUBAREA RUNOFF(CFS) =   26.93
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.372
  TOTAL AREA(ACRES) =      380.7         PEAK FLOW RATE(CFS) =     422.98

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  1.97   FLOW VELOCITY(FEET/SEC.) =   6.21
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1060.00 =    7049.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1055.00 TO NODE   1060.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.988
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6850
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3760
  SUBAREA AREA(ACRES) =    5.04   SUBAREA RUNOFF(CFS) =   10.31
  TOTAL AREA(ACRES) =      385.8   TOTAL RUNOFF(CFS) =     433.30
  TC(MIN.) =   14.02

****************************************************************************
  FLOW PROCESS FROM NODE   1060.00 TO NODE   1070.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    764.00  DOWNSTREAM(FEET) =    746.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   680.00   CHANNEL SLOPE =  0.0265
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     433.30
  FLOW VELOCITY(FEET/SEC.) =   7.88   FLOW DEPTH(FEET) =   2.14
  TRAVEL TIME(MIN.) =   1.44   Tc(MIN.) =   15.46
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1070.00 =    7729.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1065.00 TO NODE   1070.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.848
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6740
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3837
  SUBAREA AREA(ACRES) =   10.27   SUBAREA RUNOFF(CFS) =   19.72
  TOTAL AREA(ACRES) =      396.1   TOTAL RUNOFF(CFS) =     433.30
  TC(MIN.) =   15.46
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   1070.00 TO NODE   1150.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    746.00  DOWNSTREAM(FEET) =    740.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   295.00   CHANNEL SLOPE =  0.0203
  CHANNEL BASE(FEET) =   30.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
```

```
  CHANNEL FLOW THRU SUBAREA(CFS) =     433.30
  FLOW VELOCITY(FEET/SEC.) =   6.76   FLOW DEPTH(FEET) =   1.73
  TRAVEL TIME(MIN.) =   0.73   Tc(MIN.) =   16.19
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1150.00 =    8024.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1150.00 TO NODE   1150.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   16.19
  RAINFALL INTENSITY(INCH/HR) =   2.79
  TOTAL STREAM AREA(ACRES) =   396.05
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    433.30

****************************************************************************
  FLOW PROCESS FROM NODE   1080.00 TO NODE   1081.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    94.00
  UPSTREAM ELEVATION(FEET) =   1379.00
  DOWNSTREAM ELEVATION(FEET) =   1363.00
  ELEVATION DIFFERENCE(FEET) =     16.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.076
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.182
  SUBAREA RUNOFF(CFS) =      0.15
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.15

****************************************************************************
  FLOW PROCESS FROM NODE   1081.00 TO NODE   1120.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1363.00  DOWNSTREAM(FEET) =    822.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  3281.00   CHANNEL SLOPE =  0.1649
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   2.000
  MANNING'S FACTOR = 0.050   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.246
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4310
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     103.29
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   9.95
  AVERAGE FLOW DEPTH(FEET) =   0.88   TRAVEL TIME(MIN.) =   5.49
  Tc(MIN.) =   11.57
  SUBAREA AREA(ACRES) =   147.04       SUBAREA RUNOFF(CFS) =  205.71
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.431
  TOTAL AREA(ACRES) =      147.1         PEAK FLOW RATE(CFS) =     205.82

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  1.32   FLOW VELOCITY(FEET/SEC.) =  12.39
  LONGEST FLOWPATH FROM NODE   1080.00 TO NODE   1120.00 =    3375.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1120.00 TO NODE   1130.00 IS CODE =  41
```

```
------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   822.00  DOWNSTREAM(FEET) =   790.00
  FLOW LENGTH(FEET) =   852.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  48.0 INCH PIPE IS  20.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.74
  GIVEN PIPE DIAMETER(INCH) =  48.00    NUMBER OF PIPES =   2
  PIPE-FLOW(CFS) =     205.82
  PIPE TRAVEL TIME(MIN.) =   0.72    Tc(MIN.) =   12.29
  LONGEST FLOWPATH FROM NODE   1080.00 TO NODE   1130.00 =    4227.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1130.00 TO NODE   1140.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    790.00  DOWNSTREAM(FEET) =    751.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1137.00   CHANNEL SLOPE =  0.0343
  CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   2.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     205.82
  FLOW VELOCITY(FEET/SEC.) =   8.99   FLOW DEPTH(FEET) =   2.53
  TRAVEL TIME(MIN.) =   2.11   Tc(MIN.) =   14.40
  LONGEST FLOWPATH FROM NODE   1080.00 TO NODE   1140.00 =    5364.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1135.00 TO NODE   1140.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.950
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6550
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.4333
  SUBAREA AREA(ACRES) =    1.59   SUBAREA RUNOFF(CFS) =    3.07
  TOTAL AREA(ACRES) =      148.7   TOTAL RUNOFF(CFS) =     205.82
  TC(MIN.) =   14.40
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   1140.00 TO NODE   1150.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    751.00  DOWNSTREAM(FEET) =    740.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   389.00   CHANNEL SLOPE =  0.0283
  CHANNEL BASE(FEET) =    2.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     205.82
  FLOW VELOCITY(FEET/SEC.) =   5.93   FLOW DEPTH(FEET) =   1.77
  TRAVEL TIME(MIN.) =   1.09   Tc(MIN.) =   15.49
  LONGEST FLOWPATH FROM NODE   1080.00 TO NODE   1150.00 =    5753.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1150.00 TO NODE   1150.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
```

```
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   15.49
  RAINFALL INTENSITY(INCH/HR) =   2.85
  TOTAL STREAM AREA(ACRES) =   148.73
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    205.82

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      433.30    16.19        2.786        396.05
      2      205.82    15.49        2.846        148.73

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      620.40    15.49       2.846
      2      634.77    16.19       2.786

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     634.77   Tc(MIN.) =   16.19
  TOTAL AREA(ACRES) =      544.8
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1150.00 =    8024.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1150.00 TO NODE   1160.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    740.00  DOWNSTREAM(FEET) =    722.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   578.00   CHANNEL SLOPE =  0.0311
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   5.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     634.77
  FLOW VELOCITY(FEET/SEC.) =   9.32   FLOW DEPTH(FEET) =   2.48
  TRAVEL TIME(MIN.) =   1.03   Tc(MIN.) =   17.22
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1160.00 =    8602.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1160.00 TO NODE   1170.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   722.00  DOWNSTREAM(FEET) =   714.00
  FLOW LENGTH(FEET) =   578.00   MANNING'S N =  0.013
  ASSUME FULL-FLOWING PIPELINE
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.76
  (PIPE FLOW VELOCITY CORRESPONDING TO FULL PIPE CAPACITY FLOW)
  GIVEN PIPE DIAMETER(INCH) =  48.00    NUMBER OF PIPES =   2
  PIPE-FLOW(CFS) =     634.77
  PIPE TRAVEL TIME(MIN.) =   0.76    Tc(MIN.) =   17.98
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1170.00 =    9180.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1165.00 TO NODE   1170.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
```

```
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.652
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6390
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.4067
 SUBAREA AREA(ACRES) =   22.20   SUBAREA RUNOFF(CFS) =   37.62
 TOTAL AREA(ACRES) =      567.0   TOTAL RUNOFF(CFS) =     634.77
 TC(MIN.) =   17.98
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE   2000.00 TO NODE   2001.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =    94.00
 UPSTREAM ELEVATION(FEET) =   1274.00
 DOWNSTREAM ELEVATION(FEET) =   1233.00
 ELEVATION DIFFERENCE(FEET) =     41.00
 URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.076
 WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.182
 SUBAREA RUNOFF(CFS) =      0.18
 TOTAL AREA(ACRES) =      0.12   TOTAL RUNOFF(CFS) =      0.18

****************************************************************************
 FLOW PROCESS FROM NODE   2001.00 TO NODE   2002.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   1233.00  DOWNSTREAM(FEET) =    867.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1422.00   CHANNEL SLOPE =  0.2574
 CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   3.000
 MANNING'S FACTOR = 0.055   MAXIMUM DEPTH(FEET) =  10.00
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.812
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .5420
 S.C.S. CURVE NUMBER (AMC II) =   0
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     163.54
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  13.21
 AVERAGE FLOW DEPTH(FEET) =   1.59   TRAVEL TIME(MIN.) =   1.79
 Tc(MIN.) =    7.87
 SUBAREA AREA(ACRES) =   159.31       SUBAREA RUNOFF(CFS) =  329.17
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.542
 TOTAL AREA(ACRES) =      159.4         PEAK FLOW RATE(CFS) =     329.33

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  2.18   FLOW VELOCITY(FEET/SEC.) =  15.85
 LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2002.00 =    1516.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2002.00 TO NODE   2004.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   867.00  DOWNSTREAM(FEET) =   849.50
 FLOW LENGTH(FEET) =   272.00   MANNING'S N =  0.024
```

```
 DEPTH OF FLOW IN  60.0 INCH PIPE IS  47.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  19.70
 ESTIMATED PIPE DIAMETER(INCH) =  60.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =     329.33
 PIPE TRAVEL TIME(MIN.) =   0.23    Tc(MIN.) =    8.10
 LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2004.00 =    1788.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2004.00 TO NODE   2008.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    849.50  DOWNSTREAM(FEET) =    771.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1704.00   CHANNEL SLOPE =  0.0461
 CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   4.000
 MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     329.33
 FLOW VELOCITY(FEET/SEC.) =   9.09   FLOW DEPTH(FEET) =   2.66
 TRAVEL TIME(MIN.) =   3.12   Tc(MIN.) =   11.22
 LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2008.00 =    3492.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2008.00 TO NODE   2010.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   771.00  DOWNSTREAM(FEET) =   768.00
 FLOW LENGTH(FEET) =   202.00   MANNING'S N =  0.024
 DEPTH OF FLOW IN  81.0 INCH PIPE IS  60.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  11.49
 ESTIMATED PIPE DIAMETER(INCH) =  81.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =     329.33
 PIPE TRAVEL TIME(MIN.) =   0.29    Tc(MIN.) =   11.52
 LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2010.00 =    3694.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2010.00 TO NODE   2020.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    768.00  DOWNSTREAM(FEET) =    753.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   795.00   CHANNEL SLOPE =  0.0189
 CHANNEL BASE(FEET) =   20.00   "Z" FACTOR =  10.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.999
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .3010
 S.C.S. CURVE NUMBER (AMC II) =   0
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     334.29
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.55
 AVERAGE FLOW DEPTH(FEET) =   1.65   TRAVEL TIME(MIN.) =   2.39
 Tc(MIN.) =   13.91
 SUBAREA AREA(ACRES) =    10.97       SUBAREA RUNOFF(CFS) =    9.90
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.526
 TOTAL AREA(ACRES) =      170.4         PEAK FLOW RATE(CFS) =     329.33

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  1.64   FLOW VELOCITY(FEET/SEC.) =   5.53
 LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2020.00 =    4489.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   2015.00 TO NODE   2020.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.999
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4090
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5252
  SUBAREA AREA(ACRES) =    1.66   SUBAREA RUNOFF(CFS) =    2.04
  TOTAL AREA(ACRES) =      172.1   TOTAL RUNOFF(CFS) =     329.33
  TC(MIN.) =   13.91
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   2020.00 TO NODE   2030.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    753.00  DOWNSTREAM(FEET) =    744.22
  CHANNEL LENGTH THRU SUBAREA(FEET) =   200.00   CHANNEL SLOPE =  0.0439
  CHANNEL BASE(FEET) =    8.00   "Z" FACTOR =   6.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     329.33
  FLOW VELOCITY(FEET/SEC.) =   8.79   FLOW DEPTH(FEET) =   1.92
  TRAVEL TIME(MIN.) =   0.38   Tc(MIN.) =   14.28
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2030.00 =    4689.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2030.00 TO NODE   2040.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   743.93  DOWNSTREAM(FEET) =   743.74
  FLOW LENGTH(FEET) =    17.00   MANNING'S N =  0.013
  ASSUME FULL-FLOWING PIPELINE
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.48
  (PIPE FLOW VELOCITY CORRESPONDING TO FULL PIPE CAPACITY FLOW)
  GIVEN PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   2
  PIPE-FLOW(CFS) =     329.33
  PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =   14.31
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2040.00 =    4706.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2035.00 TO NODE   2040.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.959
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7100
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5277
  SUBAREA AREA(ACRES) =    2.30   SUBAREA RUNOFF(CFS) =    4.83
  TOTAL AREA(ACRES) =      174.4   TOTAL RUNOFF(CFS) =     329.33
  TC(MIN.) =   14.31
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   2040.00 TO NODE   2050.00 IS CODE =  41
```

```
------------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
==============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   743.74  DOWNSTREAM(FEET) =   740.50
  FLOW LENGTH(FEET) =    80.00   MANNING'S N =  0.013
  ASSUME FULL-FLOWING PIPELINE
  PIPE-FLOW VELOCITY(FEET/SEC.) =  18.01
  (PIPE FLOW VELOCITY CORRESPONDING TO FULL PIPE CAPACITY FLOW)
  GIVEN PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   2
  PIPE-FLOW(CFS) =     329.33
  PIPE TRAVEL TIME(MIN.) =   0.07    Tc(MIN.) =   14.39
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2050.00 =    4786.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2045.00 TO NODE   2050.00 IS CODE =  81
------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.951
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .9500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5292
  SUBAREA AREA(ACRES) =    0.63   SUBAREA RUNOFF(CFS) =    1.77
  TOTAL AREA(ACRES) =      175.0   TOTAL RUNOFF(CFS) =     329.33
  TC(MIN.) =   14.39
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   2050.00 TO NODE   2060.00 IS CODE =  41
------------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
==============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   740.50  DOWNSTREAM(FEET) =   740.02
  FLOW LENGTH(FEET) =    21.00   MANNING'S N =  0.013
  ASSUME FULL-FLOWING PIPELINE
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.56
  (PIPE FLOW VELOCITY CORRESPONDING TO FULL PIPE CAPACITY FLOW)
  GIVEN PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   2
  PIPE-FLOW(CFS) =     329.33
  PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =   14.41
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2060.00 =    4807.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2055.00 TO NODE   2060.00 IS CODE =  81
------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.949
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7060
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5975
  SUBAREA AREA(ACRES) =  110.27   SUBAREA RUNOFF(CFS) =  229.55
  TOTAL AREA(ACRES) =      285.3   TOTAL RUNOFF(CFS) =     502.58
  TC(MIN.) =   14.41

****************************************************************************
  FLOW PROCESS FROM NODE   2060.00 TO NODE   2070.00 IS CODE =  51
------------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
```

```
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    740.02  DOWNSTREAM(FEET) =    735.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =   674.00   CHANNEL SLOPE =  0.0067
  CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   2.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.769
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .2790
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     508.95
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.63
  AVERAGE FLOW DEPTH(FEET) =   5.39   TRAVEL TIME(MIN.) =   2.00
  Tc(MIN.) =   16.41
  SUBAREA AREA(ACRES) =    16.46       SUBAREA RUNOFF(CFS) =   12.72
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.580
  TOTAL AREA(ACRES) =      301.7         PEAK FLOW RATE(CFS) =     502.58

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  5.36   FLOW VELOCITY(FEET/SEC.) =   5.61
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2070.00 =    5481.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2065.00 TO NODE   2070.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.769
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .5790
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5801
  SUBAREA AREA(ACRES) =   24.39   SUBAREA RUNOFF(CFS) =   39.11
  TOTAL AREA(ACRES) =      326.1   TOTAL RUNOFF(CFS) =     523.84
  TC(MIN.) =   16.41

****************************************************************************
  FLOW PROCESS FROM NODE   2070.00 TO NODE   2080.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    735.50  DOWNSTREAM(FEET) =    728.53
  CHANNEL LENGTH THRU SUBAREA(FEET) =   252.00   CHANNEL SLOPE =  0.0277
  CHANNEL BASE(FEET) =    7.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     523.84
  FLOW VELOCITY(FEET/SEC.) =   8.37   FLOW DEPTH(FEET) =   3.18
  TRAVEL TIME(MIN.) =   0.50   Tc(MIN.) =   16.91
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2080.00 =    5733.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2080.00 TO NODE   2090.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   728.53  DOWNSTREAM(FEET) =   727.50
  FLOW LENGTH(FEET) =   120.00   MANNING'S N =  0.024
  ASSUME FULL-FLOWING PIPELINE
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.49
  (PIPE FLOW VELOCITY CORRESPONDING TO FULL PIPE CAPACITY FLOW)
  GIVEN PIPE DIAMETER(INCH) =  36.00    NUMBER OF PIPES =   3
```

```
  PIPE-FLOW(CFS) =     523.84
  PIPE TRAVEL TIME(MIN.) =   0.45    Tc(MIN.) =   17.36
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2090.00 =    5853.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2090.00 TO NODE   2110.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    727.50  DOWNSTREAM(FEET) =    726.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =   122.00   CHANNEL SLOPE =  0.0082
  CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.671
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .2860
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     532.76
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.70
  AVERAGE FLOW DEPTH(FEET) =   4.67   TRAVEL TIME(MIN.) =   0.36
  Tc(MIN.) =   17.71
  SUBAREA AREA(ACRES) =    23.35       SUBAREA RUNOFF(CFS) =   17.84
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.560
  TOTAL AREA(ACRES) =      349.5         PEAK FLOW RATE(CFS) =     523.84

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  4.64   FLOW VELOCITY(FEET/SEC.) =   5.68
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2110.00 =    5975.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2095.00 TO NODE   2110.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.671
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4600
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5597
  SUBAREA AREA(ACRES) =    2.36   SUBAREA RUNOFF(CFS) =    2.90
  TOTAL AREA(ACRES) =      351.8   TOTAL RUNOFF(CFS) =     526.08
  TC(MIN.) =   17.71

****************************************************************************
  FLOW PROCESS FROM NODE   2105.00 TO NODE   2110.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.671
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4470
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5593
  SUBAREA AREA(ACRES) =    1.37   SUBAREA RUNOFF(CFS) =    1.64
  TOTAL AREA(ACRES) =      353.2   TOTAL RUNOFF(CFS) =     527.72
  TC(MIN.) =   17.71

****************************************************************************
  FLOW PROCESS FROM NODE   2110.00 TO NODE   2120.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
```

```
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    726.50  DOWNSTREAM(FEET) =    726.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   225.00   CHANNEL SLOPE =  0.0022
  CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =   4.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     527.72
  FLOW VELOCITY(FEET/SEC.) =   3.28   FLOW DEPTH(FEET) =   5.63
  TRAVEL TIME(MIN.) =   1.14   Tc(MIN.) =   18.86
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2120.00 =    6200.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2115.00 TO NODE   2120.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.590
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6390
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5616
  SUBAREA AREA(ACRES) =   10.70   SUBAREA RUNOFF(CFS) =   17.71
  TOTAL AREA(ACRES) =      363.9   TOTAL RUNOFF(CFS) =     529.35
  TC(MIN.) =   18.86

****************************************************************************
  FLOW PROCESS FROM NODE   2120.00 TO NODE   2130.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    726.00  DOWNSTREAM(FEET) =    725.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   375.00   CHANNEL SLOPE =  0.0027
  CHANNEL BASE(FEET) =    4.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     529.35
  FLOW VELOCITY(FEET/SEC.) =   4.09   FLOW DEPTH(FEET) =   5.93
  TRAVEL TIME(MIN.) =   1.53   Tc(MIN.) =   20.38
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2130.00 =    6575.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2125.00 TO NODE   2130.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.489
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .5630
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5618
  SUBAREA AREA(ACRES) =   36.32   SUBAREA RUNOFF(CFS) =   50.89
  TOTAL AREA(ACRES) =      400.2   TOTAL RUNOFF(CFS) =     559.57
  TC(MIN.) =   20.38

****************************************************************************
  FLOW PROCESS FROM NODE   2130.00 TO NODE   2140.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    725.00  DOWNSTREAM(FEET) =    713.20
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1323.00   CHANNEL SLOPE =  0.0089
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.025   MAXIMUM DEPTH(FEET) =  10.00
```

```
 CHANNEL FLOW THRU SUBAREA(CFS) =     559.57
 FLOW VELOCITY(FEET/SEC.) =  10.55   FLOW DEPTH(FEET) =   7.28
 TRAVEL TIME(MIN.) =   2.09   Tc(MIN.) =   22.47
 LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2140.00 =    7898.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2140.00 TO NODE   2180.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   713.20  DOWNSTREAM(FEET) =   713.00
 FLOW LENGTH(FEET) =    22.00   MANNING'S N =  0.014
 ASSUME FULL-FLOWING PIPELINE
 PIPE-FLOW VELOCITY(FEET/SEC.) =   2.12
 (PIPE FLOW VELOCITY CORRESPONDING TO FULL PIPE CAPACITY FLOW)
 GIVEN PIPE DIAMETER(INCH) =   5.00    NUMBER OF PIPES =   2
 PIPE-FLOW(CFS) =     559.57
 PIPE TRAVEL TIME(MIN.) =   0.17    Tc(MIN.) =   22.65
 LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2180.00 =    7920.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2180.00 TO NODE   2180.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =   22.65
 RAINFALL INTENSITY(INCH/HR) =   2.36
 TOTAL STREAM AREA(ACRES) =   400.21
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    559.57

****************************************************************************
 FLOW PROCESS FROM NODE   2150.00 TO NODE   2151.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =    85.00
 UPSTREAM ELEVATION(FEET) =    777.00
 DOWNSTREAM ELEVATION(FEET) =    771.00
 ELEVATION DIFFERENCE(FEET) =      6.00
 URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.489
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.083
 SUBAREA RUNOFF(CFS) =      0.11
 TOTAL AREA(ACRES) =      0.08   TOTAL RUNOFF(CFS) =      0.11

****************************************************************************
 FLOW PROCESS FROM NODE   2151.00 TO NODE   2160.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    771.00  DOWNSTREAM(FEET) =    746.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   778.00   CHANNEL SLOPE =  0.0321
 CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =  10.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.204
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .2580
```

```
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       6.11
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.40
  AVERAGE FLOW DEPTH(FEET) =   0.29   TRAVEL TIME(MIN.) =   5.40
  Tc(MIN.) =   11.89
  SUBAREA AREA(ACRES) =    14.10       SUBAREA RUNOFF(CFS) =   11.66
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.259
  TOTAL AREA(ACRES) =       14.2         PEAK FLOW RATE(CFS) =      11.75

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.40   FLOW VELOCITY(FEET/SEC.) =   2.92
  LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2160.00 =     863.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2155.00 TO NODE   2160.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.204
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6690
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.4446
  SUBAREA AREA(ACRES) =   11.76   SUBAREA RUNOFF(CFS) =   25.21
  TOTAL AREA(ACRES) =       25.9   TOTAL RUNOFF(CFS) =      36.96
  TC(MIN.) =   11.89

****************************************************************************
  FLOW PROCESS FROM NODE   2160.00 TO NODE   2164.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    746.00  DOWNSTREAM(FEET) =    716.12
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1236.00   CHANNEL SLOPE =  0.0242
  CHANNEL BASE(FEET) =    6.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      36.96
  FLOW VELOCITY(FEET/SEC.) =   3.57   FLOW DEPTH(FEET) =   0.76
  TRAVEL TIME(MIN.) =   5.76   Tc(MIN.) =   17.65
  LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2164.00 =    2099.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2164.00 TO NODE   2170.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   716.12  DOWNSTREAM(FEET) =   714.75
  FLOW LENGTH(FEET) =    66.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  48.0 INCH PIPE IS  14.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  11.99
  GIVEN PIPE DIAMETER(INCH) =  48.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      36.96
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =   17.74
  LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2170.00 =    2165.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2165.00 TO NODE   2170.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.669
```

```
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6320
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.5582
 SUBAREA AREA(ACRES) =   39.95   SUBAREA RUNOFF(CFS) =   67.39
 TOTAL AREA(ACRES) =       65.9   TOTAL RUNOFF(CFS) =      98.18
 TC(MIN.) =   17.74

****************************************************************************
 FLOW PROCESS FROM NODE   2170.00 TO NODE   2180.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   714.75  DOWNSTREAM(FEET) =   713.00
 FLOW LENGTH(FEET) =   135.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  54.0 INCH PIPE IS  25.8 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  13.09
 GIVEN PIPE DIAMETER(INCH) =  54.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      98.18
 PIPE TRAVEL TIME(MIN.) =   0.17    Tc(MIN.) =   17.92
 LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2180.00 =    2300.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2180.00 TO NODE   2180.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =   17.92
 RAINFALL INTENSITY(INCH/HR) =   2.66
 TOTAL STREAM AREA(ACRES) =    65.89
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     98.18

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1      559.57    22.65        2.364        400.21
     2       98.18    17.92        2.656         65.89

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF      Tc      INTENSITY
 NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
     1      540.88    17.92       2.656
     2      646.96    22.65       2.364

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =     646.96   Tc(MIN.) =   22.65
 TOTAL AREA(ACRES) =      466.1
 LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2180.00 =    7920.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2180.00 TO NODE   2190.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   713.00  DOWNSTREAM(FEET) =   712.00
```

```
  FLOW LENGTH(FEET) =   135.00   MANNING'S N =  0.014
  ASSUME FULL-FLOWING PIPELINE
  PIPE-FLOW VELOCITY(FEET/SEC.) =   1.92
  (PIPE FLOW VELOCITY CORRESPONDING TO FULL PIPE CAPACITY FLOW)
  GIVEN PIPE DIAMETER(INCH) =   5.00    NUMBER OF PIPES =   2
  PIPE-FLOW(CFS) =     646.96
  PIPE TRAVEL TIME(MIN.) =   1.17    Tc(MIN.) =   23.82
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2190.00 =    8055.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2185.00 TO NODE   2190.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.300
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7290
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5636
  SUBAREA AREA(ACRES) =     6.46   SUBAREA RUNOFF(CFS) =   10.83
  TOTAL AREA(ACRES) =      472.6   TOTAL RUNOFF(CFS) =     646.96
  TC(MIN.) =   23.82
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   3000.00 TO NODE   3001.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4900
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    92.00
  UPSTREAM ELEVATION(FEET) =    764.00
  DOWNSTREAM ELEVATION(FEET) =    754.00
  ELEVATION DIFFERENCE(FEET) =     10.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.889
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.420
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.39
  TOTAL AREA(ACRES) =      0.18   TOTAL RUNOFF(CFS) =      0.39

****************************************************************************
  FLOW PROCESS FROM NODE   3001.00 TO NODE   3005.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    754.00  DOWNSTREAM(FEET) =    736.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   251.00   CHANNEL SLOPE =  0.0717
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.004
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6220
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.84
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   2.17
  AVERAGE FLOW DEPTH(FEET) =   0.12   TRAVEL TIME(MIN.) =   1.93
  Tc(MIN.) =    6.82
  SUBAREA AREA(ACRES) =     1.98       SUBAREA RUNOFF(CFS) =    4.93
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.611
```

```
  TOTAL AREA(ACRES) =        2.2         PEAK FLOW RATE(CFS) =       5.28

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.16   FLOW VELOCITY(FEET/SEC.) =   2.75
  LONGEST FLOWPATH FROM NODE   3000.00 TO NODE   3005.00 =     343.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3005.00 TO NODE   3010.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  736.00  DOWNSTREAM ELEVATION(FEET) =  726.00
  STREET LENGTH(FEET) =   301.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.30
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.34
    HALFSTREET FLOOD WIDTH(FEET) =   11.65
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.67
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.24
  STREET FLOW TRAVEL TIME(MIN.) =   1.37   Tc(MIN.) =    8.18
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.755
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6220
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.611
  SUBAREA AREA(ACRES) =    0.01      SUBAREA RUNOFF(CFS) =    0.02
  TOTAL AREA(ACRES) =        2.2        PEAK FLOW RATE(CFS) =       5.28

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.34   HALFSTREET FLOOD WIDTH(FEET) =  11.65
  FLOW VELOCITY(FEET/SEC.) =  3.66   DEPTH*VELOCITY(FT*FT/SEC.) =   1.24
  LONGEST FLOWPATH FROM NODE   3000.00 TO NODE   3010.00 =     644.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   4000.00 TO NODE   4001.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4690
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    88.00
  UPSTREAM ELEVATION(FEET) =    880.00
  DOWNSTREAM ELEVATION(FEET) =    868.00
  ELEVATION DIFFERENCE(FEET) =     12.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.946
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.420
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.35
  TOTAL AREA(ACRES) =      0.17   TOTAL RUNOFF(CFS) =      0.35
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   4001.00 TO NODE   4010.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  868.00  DOWNSTREAM ELEVATION(FEET) =  746.00
  STREET LENGTH(FEET) =  1460.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.67
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.29
    HALFSTREET FLOOD WIDTH(FEET) =    9.31
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.07
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.48
  STREET FLOW TRAVEL TIME(MIN.) =   4.79   Tc(MIN.) =    9.74
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.489
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4520
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.452
  SUBAREA AREA(ACRES) =   11.66      SUBAREA RUNOFF(CFS) =   18.39
  TOTAL AREA(ACRES) =       11.8        PEAK FLOW RATE(CFS) =      18.67

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.35   HALFSTREET FLOOD WIDTH(FEET) =  12.18
  FLOW VELOCITY(FEET/SEC.) =  5.95   DEPTH*VELOCITY(FT*FT/SEC.) =   2.07
  LONGEST FLOWPATH FROM NODE   4000.00 TO NODE   4010.00 =    1548.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   4010.00 TO NODE   4020.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    746.00  DOWNSTREAM(FEET) =    732.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   562.00   CHANNEL SLOPE =  0.0249
  CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =   1.000
  MANNING'S FACTOR = 0.025   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.312
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .2750
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      24.56
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.11
  AVERAGE FLOW DEPTH(FEET) =   1.86   TRAVEL TIME(MIN.) =   1.32
  Tc(MIN.) =   11.06
  SUBAREA AREA(ACRES) =    12.91       SUBAREA RUNOFF(CFS) =   11.76
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.360
  TOTAL AREA(ACRES) =       24.7         PEAK FLOW RATE(CFS) =      29.48

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
```

```
 DEPTH(FEET) =  1.99   FLOW VELOCITY(FEET/SEC.) =   7.41
 LONGEST FLOWPATH FROM NODE   4000.00 TO NODE   4020.00 =    2110.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   4015.00 TO NODE   4020.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.312
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6010
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.4385
 SUBAREA AREA(ACRES) =   12.00   SUBAREA RUNOFF(CFS) =   23.89
 TOTAL AREA(ACRES) =       36.7   TOTAL RUNOFF(CFS) =      53.37
 TC(MIN.) =   11.06

****************************************************************************
 FLOW PROCESS FROM NODE   5000.00 TO NODE   5001.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .2730
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =    93.00
 UPSTREAM ELEVATION(FEET) =    752.00
 DOWNSTREAM ELEVATION(FEET) =    744.00
 ELEVATION DIFFERENCE(FEET) =      8.00
 URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    7.007
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.959
 SUBAREA RUNOFF(CFS) =      0.23
 TOTAL AREA(ACRES) =      0.21   TOTAL RUNOFF(CFS) =      0.23

****************************************************************************
 FLOW PROCESS FROM NODE   5001.00 TO NODE   5010.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    744.00  DOWNSTREAM(FEET) =    732.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   399.00   CHANNEL SLOPE =  0.0301
 CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  10.000
 MANNING'S FACTOR = 0.040   MAXIMUM DEPTH(FEET) =  10.00
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.195
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .2830
 S.C.S. CURVE NUMBER (AMC II) =   0
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.54
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.34
 AVERAGE FLOW DEPTH(FEET) =   0.10   TRAVEL TIME(MIN.) =   4.95
 Tc(MIN.) =   11.96
 SUBAREA AREA(ACRES) =     2.87       SUBAREA RUNOFF(CFS) =    2.60
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.282
 TOTAL AREA(ACRES) =        3.1         PEAK FLOW RATE(CFS) =       2.78

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.15   FLOW VELOCITY(FEET/SEC.) =   1.64
 LONGEST FLOWPATH FROM NODE   5000.00 TO NODE   5010.00 =     492.00 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        3.1  TC(MIN.) =     11.96
 PEAK FLOW RATE(CFS)   =       2.78
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END OF RATIONAL METHOD ANALYSIS

♀

APPENDIX A2

Proposed Condition AES Output
[50-Year & 100-Year]

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RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
2003,1985,1981 HYDROLOGY MANUAL

Ver. 19.0 Release Date: 06/01/2012 License ID 1261

Analysis prepared by:

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5620 Friars Road
San Diego, CA. 92110
Ph 619-291-0707 Fx 619-291-4165

FILE NAME: ECC100PR.DAT
TIME/DATE OF STUDY: 16:02 02/23/2017

USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:

USER SPECIFIED STORM EVENT(YEAR) = 100.00
SPECIFIED MINIMUM PIPE SIZE(INCH) = 18.00
SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
RAINFALL-INTENSITY ADJUSTMENT FACTOR = 1.000
*USER SPECIFIED:
NUMBER OF [TIME,INTENSITY] DATA PAIRS = 19
1) 5.000; 4.420
2) 6.000; 4.200
3) 7.000; 3.960
4) 8.000; 3.790
5) 9.000; 3.600
6) 10.000; 3.450
7) 12.000; 3.190
8) 14.000; 2.990
9) 15.000; 2.890
10) 16.000; 2.800
11) 18.000; 2.650
12) 20.000; 2.510
13) 22.000; 2.400
14) 24.000; 2.290
15) 26.000; 2.190
16) 28.000; 2.100
17) 30.000; 2.000
18) 60.000; 1.310
19) 600.000; 0.317
SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
NOTE: ONLY PEAK CONFLUENCE VALUES CONSIDERED
USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL

NO.	HALF-WIDTH (FT)	CROWN TO CROSSFALL (FT)	STREET-CROSSFALL: IN- / OUT-/PARK- SIDE / SIDE/ WAY	CURB HEIGHT (FT)	GUTTER-GEOMETRIES: WIDTH (FT)	LIP (FT)	HIKE (FT)	MANNING FACTOR (n)
1	30.0	20.0	0.018/0.018/0.020	0.67	2.00	0.0312	0.167	0.0150
2	20.0	15.0	0.020/0.020/0.020	0.50	1.50	0.0100	0.125	0.0180

GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
1. Relative Flow-Depth = 0.50 FEET
as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
2. (Depth)*(Velocity) Constraint = 6.0 (FT*FT/S)
*SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*

```
****************************************************************************
  FLOW PROCESS FROM NODE   1000.00 TO NODE   1001.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7770
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    90.00
  UPSTREAM ELEVATION(FEET) =   1501.00
  DOWNSTREAM ELEVATION(FEET) =   1470.00
  ELEVATION DIFFERENCE(FEET) =     31.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.560
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.420
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.24
  TOTAL AREA(ACRES) =      0.07   TOTAL RUNOFF(CFS) =      0.24

****************************************************************************
  FLOW PROCESS FROM NODE   1001.00 TO NODE   1050.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1470.00  DOWNSTREAM(FEET) =    774.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  6476.00   CHANNEL SLOPE =  0.1075
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   2.500
  MANNING'S FACTOR = 0.055   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.117
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3770
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     225.12
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  10.61
  AVERAGE FLOW DEPTH(FEET) =   2.08   TRAVEL TIME(MIN.) =  10.17
  Tc(MIN.) =   12.73
  SUBAREA AREA(ACRES) =   351.50       SUBAREA RUNOFF(CFS) =  413.03
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.377
  TOTAL AREA(ACRES) =      351.6         PEAK FLOW RATE(CFS) =     413.20

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  2.78   FLOW VELOCITY(FEET/SEC.) =  12.44
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1050.00 =    6566.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1050.00 TO NODE   1060.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    774.00  DOWNSTREAM(FEET) =    755.80
  CHANNEL LENGTH THRU SUBAREA(FEET) =   459.00   CHANNEL SLOPE =  0.0397
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   2.500
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.016
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3910
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     415.85
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.59
  AVERAGE FLOW DEPTH(FEET) =   2.56   TRAVEL TIME(MIN.) =   1.01
```

```
  Tc(MIN.) =   13.74
  SUBAREA AREA(ACRES) =     4.50       SUBAREA RUNOFF(CFS) =    5.31
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.377
  TOTAL AREA(ACRES) =      356.1         PEAK FLOW RATE(CFS) =     413.20

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  2.55   FLOW VELOCITY(FEET/SEC.) =   7.57
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1060.00 =    7025.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1055.00 TO NODE   1060.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.016
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6850
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3816
  SUBAREA AREA(ACRES) =    5.04   SUBAREA RUNOFF(CFS) =   10.41
  TOTAL AREA(ACRES) =      361.1   TOTAL RUNOFF(CFS) =     415.55
  TC(MIN.) =   13.74

****************************************************************************
  FLOW PROCESS FROM NODE   1060.00 TO NODE   1062.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    755.80  DOWNSTREAM(FEET) =    752.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   187.00   CHANNEL SLOPE =  0.0203
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   2.500
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     415.55
  FLOW VELOCITY(FEET/SEC.) =   5.98   FLOW DEPTH(FEET) =   3.06
  TRAVEL TIME(MIN.) =   0.52   Tc(MIN.) =   14.26
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1062.00 =    7212.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1061.00 TO NODE   1062.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.964
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6550
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3827
  SUBAREA AREA(ACRES) =    1.59   SUBAREA RUNOFF(CFS) =    3.09
  TOTAL AREA(ACRES) =      362.7   TOTAL RUNOFF(CFS) =     415.55
  TC(MIN.) =   14.26
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   1062.00 TO NODE   1070.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    752.00  DOWNSTREAM(FEET) =    744.70
  CHANNEL LENGTH THRU SUBAREA(FEET) =   424.00   CHANNEL SLOPE =  0.0172
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   2.500
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
```

```
 CHANNEL FLOW THRU SUBAREA(CFS) =     415.55
 FLOW VELOCITY(FEET/SEC.) =   5.64   FLOW DEPTH(FEET) =   3.20
 TRAVEL TIME(MIN.) =   1.25   Tc(MIN.) =   15.51
 LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1070.00 =    7636.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1065.00 TO NODE   1070.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.844
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6740
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.3908
 SUBAREA AREA(ACRES) =   10.27   SUBAREA RUNOFF(CFS) =   19.68
 TOTAL AREA(ACRES) =      373.0   TOTAL RUNOFF(CFS) =     415.55
 TC(MIN.) =   15.51
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE   1070.00 TO NODE   1071.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    744.70  DOWNSTREAM(FEET) =    734.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   456.00   CHANNEL SLOPE =  0.0235
 CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   2.500
 MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     415.55
 FLOW VELOCITY(FEET/SEC.) =   6.30   FLOW DEPTH(FEET) =   2.95
 TRAVEL TIME(MIN.) =   1.21   Tc(MIN.) =   16.72
 LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1071.00 =    8092.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1071.00 TO NODE   1076.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   734.00  DOWNSTREAM(FEET) =   728.30
 FLOW LENGTH(FEET) =   278.00   MANNING'S N =  0.014
 DEPTH OF FLOW IN  66.0 INCH PIPE IS  53.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  20.32
 ESTIMATED PIPE DIAMETER(INCH) =  66.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =     415.55
 PIPE TRAVEL TIME(MIN.) =   0.23    Tc(MIN.) =   16.95
 LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1076.00 =    8370.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1076.00 TO NODE   1076.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =   16.95
 RAINFALL INTENSITY(INCH/HR) =   2.73
 TOTAL STREAM AREA(ACRES) =   372.97
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    415.55

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

```
 FLOW PROCESS FROM NODE   1072.00 TO NODE   1072.10 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6860
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =    90.00
 UPSTREAM ELEVATION(FEET) =    792.00
 DOWNSTREAM ELEVATION(FEET) =    786.00
 ELEVATION DIFFERENCE(FEET) =      6.00
 URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.757
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.420
 NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
 SUBAREA RUNOFF(CFS) =      0.55
 TOTAL AREA(ACRES) =      0.18   TOTAL RUNOFF(CFS) =      0.55

****************************************************************************
 FLOW PROCESS FROM NODE   1072.10 TO NODE   1072.30 IS CODE =  62
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  786.00  DOWNSTREAM ELEVATION(FEET) =  768.00
 STREET LENGTH(FEET) =   553.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 20.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.11
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.32
   HALFSTREET FLOOD WIDTH(FEET) =   10.54
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.44
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.09
 STREET FLOW TRAVEL TIME(MIN.) =   2.68   Tc(MIN.) =    6.44
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.095
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6990
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.698
 SUBAREA AREA(ACRES) =    2.49      SUBAREA RUNOFF(CFS) =    7.13
 TOTAL AREA(ACRES) =        2.7        PEAK FLOW RATE(CFS) =       7.63

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.38   HALFSTREET FLOOD WIDTH(FEET) =  13.53
 FLOW VELOCITY(FEET/SEC.) =  3.98   DEPTH*VELOCITY(FT*FT/SEC.) =   1.50
 LONGEST FLOWPATH FROM NODE   1072.00 TO NODE   1072.30 =     643.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1072.30 TO NODE   1072.50 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   763.00  DOWNSTREAM(FEET) =   759.00
```

```
 FLOW LENGTH(FEET) =   456.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS  12.4 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   5.89
 ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       7.63
 PIPE TRAVEL TIME(MIN.) =   1.29    Tc(MIN.) =    7.73
 LONGEST FLOWPATH FROM NODE   1072.00 TO NODE   1072.50 =    1099.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1072.40 TO NODE   1072.50 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.836
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6940
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.6956
 SUBAREA AREA(ACRES) =    4.15   SUBAREA RUNOFF(CFS) =   11.05
 TOTAL AREA(ACRES) =        6.8   TOTAL RUNOFF(CFS) =      18.20
 TC(MIN.) =    7.73

****************************************************************************
 FLOW PROCESS FROM NODE   1072.50 TO NODE   1072.70 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   759.00  DOWNSTREAM(FEET) =   758.00
 FLOW LENGTH(FEET) =    68.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  21.0 INCH PIPE IS  17.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   8.67
 ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      18.20
 PIPE TRAVEL TIME(MIN.) =   0.13    Tc(MIN.) =    7.86
 LONGEST FLOWPATH FROM NODE   1072.00 TO NODE   1072.70 =    1167.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1072.60 TO NODE   1072.70 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.814
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6890
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.6936
 SUBAREA AREA(ACRES) =    2.89   SUBAREA RUNOFF(CFS) =    7.59
 TOTAL AREA(ACRES) =        9.7   TOTAL RUNOFF(CFS) =      25.69
 TC(MIN.) =    7.86

****************************************************************************
 FLOW PROCESS FROM NODE   1072.70 TO NODE   1072.90 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   758.00  DOWNSTREAM(FEET) =   755.00
 FLOW LENGTH(FEET) =   240.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  27.0 INCH PIPE IS  17.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   9.17
 ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      25.69
```

```
 PIPE TRAVEL TIME(MIN.) =   0.44    Tc(MIN.) =    8.29
 LONGEST FLOWPATH FROM NODE   1072.00 TO NODE   1072.90 =    1407.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1072.80 TO NODE   1072.90 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.734
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .7000
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.6949
 SUBAREA AREA(ACRES) =    2.37   SUBAREA RUNOFF(CFS) =    6.19
 TOTAL AREA(ACRES) =       12.1   TOTAL RUNOFF(CFS) =      31.34
 TC(MIN.) =    8.29

****************************************************************************
 FLOW PROCESS FROM NODE   1072.90 TO NODE   1073.10 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   755.00  DOWNSTREAM(FEET) =   735.00
 FLOW LENGTH(FEET) =   577.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  24.0 INCH PIPE IS  16.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  14.08
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      31.34
 PIPE TRAVEL TIME(MIN.) =   0.68    Tc(MIN.) =    8.98
 LONGEST FLOWPATH FROM NODE   1072.00 TO NODE   1073.10 =    1984.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1073.00 TO NODE   1073.10 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.604
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .7000
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.6967
 SUBAREA AREA(ACRES) =    6.84   SUBAREA RUNOFF(CFS) =   17.26
 TOTAL AREA(ACRES) =       18.9   TOTAL RUNOFF(CFS) =      47.51
 TC(MIN.) =    8.98

****************************************************************************
 FLOW PROCESS FROM NODE   1073.10 TO NODE   1074.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   735.00  DOWNSTREAM(FEET) =   730.70
 FLOW LENGTH(FEET) =    58.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  24.0 INCH PIPE IS  16.4 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  20.78
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      47.51
 PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =    9.02
 LONGEST FLOWPATH FROM NODE   1072.00 TO NODE   1074.00 =    2042.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1074.00 TO NODE   1075.00 IS CODE =  51
```

```
------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    730.70  DOWNSTREAM(FEET) =    729.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   157.00   CHANNEL SLOPE =  0.0108
  CHANNEL BASE(FEET) =  100.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.315
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      48.49
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.30
  AVERAGE FLOW DEPTH(FEET) =   0.37   TRAVEL TIME(MIN.) =   2.01
  Tc(MIN.) =   11.04
  SUBAREA AREA(ACRES) =     1.68       SUBAREA RUNOFF(CFS) =    1.95
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.668
  TOTAL AREA(ACRES) =       20.6         PEAK FLOW RATE(CFS) =      47.51

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.36   FLOW VELOCITY(FEET/SEC.) =   1.30
  LONGEST FLOWPATH FROM NODE   1072.00 TO NODE   1075.00 =    2199.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1075.00 TO NODE   1076.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   729.00  DOWNSTREAM(FEET) =   728.30
  FLOW LENGTH(FEET) =    66.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  24.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.90
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      47.51
  PIPE TRAVEL TIME(MIN.) =   0.11    Tc(MIN.) =   11.15
  LONGEST FLOWPATH FROM NODE   1072.00 TO NODE   1076.00 =    2265.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1076.00 TO NODE   1076.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   11.15
  RAINFALL INTENSITY(INCH/HR) =   3.30
  TOTAL STREAM AREA(ACRES) =    20.60
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     47.51

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      415.55    16.95        2.729        372.97
      2       47.51    11.15        3.301         20.60

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
```

```
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      320.88    11.15       3.301
      2      454.83    16.95       2.729

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     454.83   Tc(MIN.) =   16.95
  TOTAL AREA(ACRES) =      393.6
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1076.00 =    8370.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1076.00 TO NODE   1150.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   728.30  DOWNSTREAM(FEET) =   724.00
  FLOW LENGTH(FEET) =   187.00   MANNING'S N =  0.014
  DEPTH OF FLOW IN  69.0 INCH PIPE IS  51.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  22.01
  ESTIMATED PIPE DIAMETER(INCH) =  69.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     454.83
  PIPE TRAVEL TIME(MIN.) =   0.14    Tc(MIN.) =   17.09
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1150.00 =    8557.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1150.00 TO NODE   1150.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   17.09
  RAINFALL INTENSITY(INCH/HR) =   2.72
  TOTAL STREAM AREA(ACRES) =   393.57
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    454.83

****************************************************************************
  FLOW PROCESS FROM NODE   1080.00 TO NODE   1081.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    94.00
  UPSTREAM ELEVATION(FEET) =   1379.00
  DOWNSTREAM ELEVATION(FEET) =   1363.00
  ELEVATION DIFFERENCE(FEET) =     16.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.076
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.182
  SUBAREA RUNOFF(CFS) =      0.15
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.15

****************************************************************************
  FLOW PROCESS FROM NODE   1081.00 TO NODE   1120.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1363.00  DOWNSTREAM(FEET) =    822.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  3281.00   CHANNEL SLOPE =  0.1649
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   2.000
```

```
 MANNING'S FACTOR = 0.050   MAXIMUM DEPTH(FEET) =  10.00
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.246
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .4310
 S.C.S. CURVE NUMBER (AMC II) =   0
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     103.29
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   9.95
 AVERAGE FLOW DEPTH(FEET) =   0.88   TRAVEL TIME(MIN.) =   5.49
 Tc(MIN.) =   11.57
 SUBAREA AREA(ACRES) =   147.04       SUBAREA RUNOFF(CFS) =  205.71
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.431
 TOTAL AREA(ACRES) =      147.1         PEAK FLOW RATE(CFS) =     205.82

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  1.32   FLOW VELOCITY(FEET/SEC.) =  12.39
 LONGEST FLOWPATH FROM NODE   1080.00 TO NODE   1120.00 =    3375.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1120.00 TO NODE   1130.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   822.00  DOWNSTREAM(FEET) =   790.00
 FLOW LENGTH(FEET) =   852.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  48.0 INCH PIPE IS  20.8 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  19.76
 GIVEN PIPE DIAMETER(INCH) =  48.00    NUMBER OF PIPES =   2
 PIPE-FLOW(CFS) =     205.82
 PIPE TRAVEL TIME(MIN.) =   0.72    Tc(MIN.) =   12.29
 LONGEST FLOWPATH FROM NODE   1080.00 TO NODE   1130.00 =    4227.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1130.00 TO NODE   1140.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    790.00  DOWNSTREAM(FEET) =    737.50
 CHANNEL LENGTH THRU SUBAREA(FEET) =  1221.00   CHANNEL SLOPE =  0.0430
 CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   2.500
 MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.859
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .3730
 S.C.S. CURVE NUMBER (AMC II) =   0
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     207.68
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.67
 AVERAGE FLOW DEPTH(FEET) =   2.06   TRAVEL TIME(MIN.) =   3.05
 Tc(MIN.) =   15.34
 SUBAREA AREA(ACRES) =     3.48       SUBAREA RUNOFF(CFS) =    3.71
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.430
 TOTAL AREA(ACRES) =      150.6         PEAK FLOW RATE(CFS) =     205.82

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  2.05   FLOW VELOCITY(FEET/SEC.) =   6.65
 LONGEST FLOWPATH FROM NODE   1080.00 TO NODE   1140.00 =    5448.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1135.00 TO NODE   1140.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
```

```
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.859
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6700
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.4470
 SUBAREA AREA(ACRES) =   11.76   SUBAREA RUNOFF(CFS) =   22.53
 TOTAL AREA(ACRES) =      162.4   TOTAL RUNOFF(CFS) =     207.55
 TC(MIN.) =   15.34

****************************************************************************
 FLOW PROCESS FROM NODE   1140.00 TO NODE   1145.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    737.50  DOWNSTREAM(FEET) =    737.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =    66.00   CHANNEL SLOPE =  0.0076
 CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   2.500
 MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     207.55
 FLOW VELOCITY(FEET/SEC.) =   3.57   FLOW DEPTH(FEET) =   3.22
 TRAVEL TIME(MIN.) =   0.31   Tc(MIN.) =   15.65
 LONGEST FLOWPATH FROM NODE   1080.00 TO NODE   1145.00 =    5514.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1145.00 TO NODE   1150.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   737.00  DOWNSTREAM(FEET) =   724.00
 FLOW LENGTH(FEET) =   749.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  51.0 INCH PIPE IS  40.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  17.02
 ESTIMATED PIPE DIAMETER(INCH) =  51.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =     207.55
 PIPE TRAVEL TIME(MIN.) =   0.73    Tc(MIN.) =   16.38
 LONGEST FLOWPATH FROM NODE   1080.00 TO NODE   1150.00 =    6263.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1150.00 TO NODE   1150.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =   16.38
 RAINFALL INTENSITY(INCH/HR) =   2.77
 TOTAL STREAM AREA(ACRES) =   162.38
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    207.55

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1      454.83    17.09        2.718        393.57
     2      207.55    16.38        2.771        162.38

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF       Tc      INTENSITY
```

```
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      653.68    16.38       2.771
      2      658.41    17.09       2.718

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     658.41   Tc(MIN.) =   17.09
  TOTAL AREA(ACRES) =      556.0
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1150.00 =    8557.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1150.00 TO NODE   1152.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   724.00  DOWNSTREAM(FEET) =   715.70
  FLOW LENGTH(FEET) =   366.00   MANNING'S N =  0.014
  DEPTH OF FLOW IN  78.0 INCH PIPE IS  60.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  23.84
  ESTIMATED PIPE DIAMETER(INCH) =  78.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     658.41
  PIPE TRAVEL TIME(MIN.) =   0.26    Tc(MIN.) =   17.35
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1152.00 =    8923.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1152.00 TO NODE   1152.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   17.35
  RAINFALL INTENSITY(INCH/HR) =   2.70
  TOTAL STREAM AREA(ACRES) =   555.95
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    658.41

****************************************************************************
  FLOW PROCESS FROM NODE   1151.00 TO NODE   1151.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7000
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    60.00
  UPSTREAM ELEVATION(FEET) =    728.00
  DOWNSTREAM ELEVATION(FEET) =    726.80
  ELEVATION DIFFERENCE(FEET) =      1.20
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.427
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.420
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.71
  TOTAL AREA(ACRES) =      0.23   TOTAL RUNOFF(CFS) =      0.71

****************************************************************************
  FLOW PROCESS FROM NODE   1151.10 TO NODE   1151.20 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    726.80  DOWNSTREAM(FEET) =    724.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =   137.00   CHANNEL SLOPE =  0.0168
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  10.000
```

```
 MANNING'S FACTOR = 0.035   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =       0.71
 FLOW VELOCITY(FEET/SEC.) =   0.90   FLOW DEPTH(FEET) =   0.07
 TRAVEL TIME(MIN.) =   2.53   Tc(MIN.) =    6.96
 LONGEST FLOWPATH FROM NODE   1151.00 TO NODE   1151.20 =     197.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1151.20 TO NODE   1151.30 IS CODE =  62
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  724.50  DOWNSTREAM ELEVATION(FEET) =  722.00
 STREET LENGTH(FEET) =   325.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 20.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.93
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.38
   HALFSTREET FLOOD WIDTH(FEET) =   13.88
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.95
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.75
 STREET FLOW TRAVEL TIME(MIN.) =   2.77   Tc(MIN.) =    9.73
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.490
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6860
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.687
 SUBAREA AREA(ACRES) =    2.67      SUBAREA RUNOFF(CFS) =    6.39
 TOTAL AREA(ACRES) =        2.9        PEAK FLOW RATE(CFS) =       6.96

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.45   HALFSTREET FLOOD WIDTH(FEET) =  17.33
 FLOW VELOCITY(FEET/SEC.) =  2.25   DEPTH*VELOCITY(FT*FT/SEC.) =   1.02
 LONGEST FLOWPATH FROM NODE   1151.00 TO NODE   1151.30 =     522.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1151.30 TO NODE   1151.40 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   717.00  DOWNSTREAM(FEET) =   716.70
 FLOW LENGTH(FEET) =    26.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS  10.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   6.46
 ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       6.96
 PIPE TRAVEL TIME(MIN.) =   0.07    Tc(MIN.) =    9.80
 LONGEST FLOWPATH FROM NODE   1151.00 TO NODE   1151.40 =     548.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1151.40 TO NODE   1151.50 IS CODE =  51
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    716.70  DOWNSTREAM(FEET) =    716.20
  CHANNEL LENGTH THRU SUBAREA(FEET) =   102.00   CHANNEL SLOPE =  0.0049
  CHANNEL BASE(FEET) =   80.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.087
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3630
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       7.22
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   0.53
  AVERAGE FLOW DEPTH(FEET) =   0.17   TRAVEL TIME(MIN.) =   3.23
  Tc(MIN.) =   13.03
  SUBAREA AREA(ACRES) =     0.48       SUBAREA RUNOFF(CFS) =    0.54
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.641
  TOTAL AREA(ACRES) =        3.4         PEAK FLOW RATE(CFS) =       6.96

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.16   FLOW VELOCITY(FEET/SEC.) =   0.52
  LONGEST FLOWPATH FROM NODE   1151.00 TO NODE   1151.50 =     650.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1151.50 TO NODE   1152.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   716.20  DOWNSTREAM(FEET) =   715.70
  FLOW LENGTH(FEET) =    49.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.16
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       6.96
  PIPE TRAVEL TIME(MIN.) =   0.13    Tc(MIN.) =   13.16
  LONGEST FLOWPATH FROM NODE   1151.00 TO NODE   1152.00 =     699.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1152.00 TO NODE   1152.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   13.16
  RAINFALL INTENSITY(INCH/HR) =   3.07
  TOTAL STREAM AREA(ACRES) =     3.38
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      6.96

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      658.41    17.35        2.699        555.95
      2        6.96    13.16        3.074          3.38

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
```

```
     1      585.13    13.16       3.074
     2      664.52    17.35       2.699

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     664.52   Tc(MIN.) =   17.35
  TOTAL AREA(ACRES) =      559.3
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1152.00 =    8923.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1152.00 TO NODE   1154.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   715.70  DOWNSTREAM(FEET) =   714.30
  FLOW LENGTH(FEET) =   195.00   MANNING'S N =  0.014
  DEPTH OF FLOW IN  96.0 INCH PIPE IS  76.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.44
  ESTIMATED PIPE DIAMETER(INCH) =  96.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     664.52
  PIPE TRAVEL TIME(MIN.) =   0.21    Tc(MIN.) =   17.56
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1154.00 =    9118.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1154.00 TO NODE   1154.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   17.56
  RAINFALL INTENSITY(INCH/HR) =   2.68
  TOTAL STREAM AREA(ACRES) =   559.33
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    664.52

****************************************************************************
  FLOW PROCESS FROM NODE   1153.00 TO NODE   1153.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7010
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    60.00
  UPSTREAM ELEVATION(FEET) =    728.00
  DOWNSTREAM ELEVATION(FEET) =    727.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.692
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.420
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.71
  TOTAL AREA(ACRES) =      0.23   TOTAL RUNOFF(CFS) =      0.71

****************************************************************************
  FLOW PROCESS FROM NODE   1153.10 TO NODE   1153.20 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    727.00  DOWNSTREAM(FEET) =    726.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    92.00   CHANNEL SLOPE =  0.0109
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.035   MAXIMUM DEPTH(FEET) =  10.00
```

```
 CHANNEL FLOW THRU SUBAREA(CFS) =       0.71
 FLOW VELOCITY(FEET/SEC.) =   0.81   FLOW DEPTH(FEET) =   0.08
 TRAVEL TIME(MIN.) =   1.89   Tc(MIN.) =    6.58
 LONGEST FLOWPATH FROM NODE   1153.00 TO NODE   1153.20 =     152.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1153.20 TO NODE   1153.30 IS CODE =  62
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  726.00  DOWNSTREAM ELEVATION(FEET) =  721.00
 STREET LENGTH(FEET) =   159.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 20.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.06
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.26
   HALFSTREET FLOOD WIDTH(FEET) =    7.96
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.86
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.75
 STREET FLOW TRAVEL TIME(MIN.) =   0.93   Tc(MIN.) =    7.51
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.874
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .7000
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.700
 SUBAREA AREA(ACRES) =    0.99      SUBAREA RUNOFF(CFS) =    2.68
 TOTAL AREA(ACRES) =        1.2        PEAK FLOW RATE(CFS) =       3.31

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.30   HALFSTREET FLOOD WIDTH(FEET) =   9.72
 FLOW VELOCITY(FEET/SEC.) =  3.21   DEPTH*VELOCITY(FT*FT/SEC.) =   0.96
 LONGEST FLOWPATH FROM NODE   1153.00 TO NODE   1153.30 =     311.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1153.30 TO NODE   1153.40 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   715.20  DOWNSTREAM(FEET) =   714.90
 FLOW LENGTH(FEET) =    33.00   MANNING'S N =  0.013
 ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
 DEPTH OF FLOW IN  18.0 INCH PIPE IS   7.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   4.91
 ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       3.31
 PIPE TRAVEL TIME(MIN.) =   0.11    Tc(MIN.) =    7.62
 LONGEST FLOWPATH FROM NODE   1153.00 TO NODE   1153.40 =     344.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1153.40 TO NODE   1153.50 IS CODE =  51
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    714.90  DOWNSTREAM(FEET) =    714.60
  CHANNEL LENGTH THRU SUBAREA(FEET) =    52.40   CHANNEL SLOPE =  0.0057
  CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.605
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4010
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.45
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   0.64
  AVERAGE FLOW DEPTH(FEET) =   0.21   TRAVEL TIME(MIN.) =   1.36
  Tc(MIN.) =    8.97
  SUBAREA AREA(ACRES) =     0.19       SUBAREA RUNOFF(CFS) =    0.27
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.660
  TOTAL AREA(ACRES) =        1.4         PEAK FLOW RATE(CFS) =       3.35

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.20   FLOW VELOCITY(FEET/SEC.) =   0.64
  LONGEST FLOWPATH FROM NODE   1153.00 TO NODE   1153.50 =     396.40 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1153.50 TO NODE   1154.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   714.60  DOWNSTREAM(FEET) =   714.30
  FLOW LENGTH(FEET) =    35.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   7.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.82
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.35
  PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =    9.09
  LONGEST FLOWPATH FROM NODE   1153.00 TO NODE   1154.00 =     431.40 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1154.00 TO NODE   1154.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.09
  RAINFALL INTENSITY(INCH/HR) =   3.59
  TOTAL STREAM AREA(ACRES) =     1.41
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.35

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      664.52    17.56        2.683        559.33
      2        3.35     9.09        3.586          1.41

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF       Tc      INTENSITY
```

```
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      500.61     9.09       3.586
      2      667.03    17.56       2.683

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     667.03   Tc(MIN.) =   17.56
  TOTAL AREA(ACRES) =      560.7
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1154.00 =    9118.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1154.00 TO NODE   1160.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   714.30  DOWNSTREAM(FEET) =   714.20
  FLOW LENGTH(FEET) =    36.00   MANNING'S N =  0.014
  DEPTH OF FLOW IN 114.0 INCH PIPE IS  93.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.77
  ESTIMATED PIPE DIAMETER(INCH) = 114.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     667.03
  PIPE TRAVEL TIME(MIN.) =   0.06    Tc(MIN.) =   17.61
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1160.00 =    9154.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1160.00 TO NODE   1160.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   17.61
  RAINFALL INTENSITY(INCH/HR) =   2.68
  TOTAL STREAM AREA(ACRES) =   560.74
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    667.03

****************************************************************************
  FLOW PROCESS FROM NODE   1155.00 TO NODE   1155.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7000
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    70.00
  UPSTREAM ELEVATION(FEET) =    736.00
  DOWNSTREAM ELEVATION(FEET) =    734.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.245
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.420
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.31
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.31

****************************************************************************
  FLOW PROCESS FROM NODE   1155.10 TO NODE   1155.20 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  734.00  DOWNSTREAM ELEVATION(FEET) =  726.00
  STREET LENGTH(FEET) =   274.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00
```

```
  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.83
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.26
    HALFSTREET FLOOD WIDTH(FEET) =    7.67
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.71
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.70
  STREET FLOW TRAVEL TIME(MIN.) =   1.68   Tc(MIN.) =    5.93
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.216
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6990
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.699
  SUBAREA AREA(ACRES) =    1.03      SUBAREA RUNOFF(CFS) =    3.04
  TOTAL AREA(ACRES) =        1.1        PEAK FLOW RATE(CFS) =       3.33

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.30   HALFSTREET FLOOD WIDTH(FEET) =   9.89
  FLOW VELOCITY(FEET/SEC.) =  3.13   DEPTH*VELOCITY(FT*FT/SEC.) =   0.95
  LONGEST FLOWPATH FROM NODE   1155.00 TO NODE   1155.20 =     344.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1155.20 TO NODE   1155.30 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   720.00  DOWNSTREAM(FEET) =   717.10
  FLOW LENGTH(FEET) =    90.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   5.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.77
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.33
  PIPE TRAVEL TIME(MIN.) =   0.19    Tc(MIN.) =    6.12
  LONGEST FLOWPATH FROM NODE   1155.00 TO NODE   1155.30 =     434.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1155.30 TO NODE   1155.40 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   7717.10  DOWNSTREAM(FEET) =    716.40
  CHANNEL LENGTH THRU SUBAREA(FEET) =   139.00   CHANNEL SLOPE = 50.3647
  CHANNEL BASE(FEET) =   50.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.091
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3520
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.68
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.00
  AVERAGE FLOW DEPTH(FEET) =   0.01   TRAVEL TIME(MIN.) =   0.33
```

```
  Tc(MIN.) =    6.45
  SUBAREA AREA(ACRES) =     0.48       SUBAREA RUNOFF(CFS) =    0.69
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.596
  TOTAL AREA(ACRES) =        1.6         PEAK FLOW RATE(CFS) =       3.92

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.01   FLOW VELOCITY(FEET/SEC.) =   7.48
  LONGEST FLOWPATH FROM NODE   1155.00 TO NODE   1155.40 =     573.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1155.40 TO NODE   1160.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   716.40  DOWNSTREAM(FEET) =   714.20
  FLOW LENGTH(FEET) =   223.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   7.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.29
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.92
  PIPE TRAVEL TIME(MIN.) =   0.70    Tc(MIN.) =    7.15
  LONGEST FLOWPATH FROM NODE   1155.00 TO NODE   1160.00 =     796.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1160.00 TO NODE   1160.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.15
  RAINFALL INTENSITY(INCH/HR) =   3.93
  TOTAL STREAM AREA(ACRES) =     1.61
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.92

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      667.03    17.61        2.679        560.74
      2        3.92     7.15        3.934          1.61

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF       Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      458.22     7.15       3.934
      2      669.70    17.61       2.679

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     669.70   Tc(MIN.) =   17.61
  TOTAL AREA(ACRES) =      562.3
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1160.00 =    9154.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1160.00 TO NODE   1170.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
```

```
  ELEVATION DATA: UPSTREAM(FEET) =   714.20  DOWNSTREAM(FEET) =   714.00
  FLOW LENGTH(FEET) =    35.00   MANNING'S N =  0.014
  DEPTH OF FLOW IN 102.0 INCH PIPE IS  78.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.30
  ESTIMATED PIPE DIAMETER(INCH) = 102.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     669.70
  PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =   17.65
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1170.00 =    9189.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1165.00 TO NODE   1170.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.676
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6290
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.4263
  SUBAREA AREA(ACRES) =   17.53   SUBAREA RUNOFF(CFS) =   29.51
  TOTAL AREA(ACRES) =      579.9   TOTAL RUNOFF(CFS) =     669.70
  TC(MIN.) =   17.65
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   2000.00 TO NODE   2001.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    94.00
  UPSTREAM ELEVATION(FEET) =   1274.00
  DOWNSTREAM ELEVATION(FEET) =   1233.00
  ELEVATION DIFFERENCE(FEET) =     41.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.076
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.182
  SUBAREA RUNOFF(CFS) =      0.18
  TOTAL AREA(ACRES) =      0.12   TOTAL RUNOFF(CFS) =      0.18

****************************************************************************
  FLOW PROCESS FROM NODE   2001.00 TO NODE   2002.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1233.00  DOWNSTREAM(FEET) =    867.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1422.00   CHANNEL SLOPE =  0.2574
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.055   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.812
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .5420
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     163.54
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  13.21
  AVERAGE FLOW DEPTH(FEET) =   1.59   TRAVEL TIME(MIN.) =   1.79
  Tc(MIN.) =    7.87
  SUBAREA AREA(ACRES) =   159.31       SUBAREA RUNOFF(CFS) =  329.17
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.542
```

```
  TOTAL AREA(ACRES) =      159.4          PEAK FLOW RATE(CFS) =     329.33

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  2.18   FLOW VELOCITY(FEET/SEC.) =  15.85
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2002.00 =    1516.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2002.00 TO NODE   2004.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   867.00  DOWNSTREAM(FEET) =   849.50
  FLOW LENGTH(FEET) =   272.00   MANNING'S N =  0.024
  DEPTH OF FLOW IN  60.0 INCH PIPE IS  47.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.70
  ESTIMATED PIPE DIAMETER(INCH) =  60.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     329.33
  PIPE TRAVEL TIME(MIN.) =   0.23    Tc(MIN.) =    8.10
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2004.00 =    1788.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2004.00 TO NODE   2008.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    849.50  DOWNSTREAM(FEET) =    771.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1704.00   CHANNEL SLOPE =  0.0461
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     329.33
  FLOW VELOCITY(FEET/SEC.) =   9.68   FLOW DEPTH(FEET) =   2.90
  TRAVEL TIME(MIN.) =   2.93   Tc(MIN.) =   11.03
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2008.00 =    3492.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2008.00 TO NODE   2010.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   771.00  DOWNSTREAM(FEET) =   759.00
  FLOW LENGTH(FEET) =   242.00   MANNING'S N =  0.014
  DEPTH OF FLOW IN  51.0 INCH PIPE IS  41.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  26.62
  ESTIMATED PIPE DIAMETER(INCH) =  51.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     329.33
  PIPE TRAVEL TIME(MIN.) =   0.15    Tc(MIN.) =   11.18
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2010.00 =    3734.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2010.00 TO NODE   2020.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    759.00  DOWNSTREAM(FEET) =    743.40
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1003.00   CHANNEL SLOPE =  0.0156
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.944
  *USER SPECIFIED(SUBAREA):
```

```
  USER-SPECIFIED RUNOFF COEFFICIENT = .3990
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     332.06
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.09
  AVERAGE FLOW DEPTH(FEET) =   3.28   TRAVEL TIME(MIN.) =   3.28
  Tc(MIN.) =   14.46
  SUBAREA AREA(ACRES) =     4.65       SUBAREA RUNOFF(CFS) =    5.46
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.538
  TOTAL AREA(ACRES) =      164.1         PEAK FLOW RATE(CFS) =     329.33

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  3.27   FLOW VELOCITY(FEET/SEC.) =   5.08
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2020.00 =    4737.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2015.00 TO NODE   2020.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.944
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .5800
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5389
  SUBAREA AREA(ACRES) =    4.28   SUBAREA RUNOFF(CFS) =    7.31
  TOTAL AREA(ACRES) =      168.4   TOTAL RUNOFF(CFS) =     329.33
  TC(MIN.) =   14.46
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   2020.00 TO NODE   2030.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    743.40  DOWNSTREAM(FEET) =    743.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    43.00   CHANNEL SLOPE =  0.0093
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     329.33
  FLOW VELOCITY(FEET/SEC.) =   4.21   FLOW DEPTH(FEET) =   3.71
  TRAVEL TIME(MIN.) =   0.17   Tc(MIN.) =   14.64
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2030.00 =    4780.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2030.00 TO NODE   2060.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   743.00  DOWNSTREAM(FEET) =   741.00
  FLOW LENGTH(FEET) =   186.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  66.0 INCH PIPE IS  53.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.91
  ESTIMATED PIPE DIAMETER(INCH) =  66.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     329.33
  PIPE TRAVEL TIME(MIN.) =   0.19    Tc(MIN.) =   14.83
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2060.00 =    4966.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2035.00 TO NODE   2060.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
```

```
==========================================================================
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.907
*USER SPECIFIED(SUBAREA):
USER-SPECIFIED RUNOFF COEFFICIENT = .7140
S.C.S. CURVE NUMBER (AMC II) =   0
AREA-AVERAGE RUNOFF COEFFICIENT = 0.5412
SUBAREA AREA(ACRES) =    2.30   SUBAREA RUNOFF(CFS) =    4.77
TOTAL AREA(ACRES) =      170.7   TOTAL RUNOFF(CFS) =     329.33
TC(MIN.) =   14.83
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

**************************************************************************
FLOW PROCESS FROM NODE   2045.00 TO NODE   2060.00 IS CODE =  81
--------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.907
*USER SPECIFIED(SUBAREA):
USER-SPECIFIED RUNOFF COEFFICIENT = .9500
S.C.S. CURVE NUMBER (AMC II) =   0
AREA-AVERAGE RUNOFF COEFFICIENT = 0.5427
SUBAREA AREA(ACRES) =    0.63   SUBAREA RUNOFF(CFS) =    1.74
TOTAL AREA(ACRES) =      171.3   TOTAL RUNOFF(CFS) =     329.33
TC(MIN.) =   14.83
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

**************************************************************************
FLOW PROCESS FROM NODE   2055.00 TO NODE   2060.00 IS CODE =  81
--------------------------------------------------------------------------
>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.907
*USER SPECIFIED(SUBAREA):
USER-SPECIFIED RUNOFF COEFFICIENT = .7060
S.C.S. CURVE NUMBER (AMC II) =   0
AREA-AVERAGE RUNOFF COEFFICIENT = 0.6067
SUBAREA AREA(ACRES) =  110.27   SUBAREA RUNOFF(CFS) =  226.31
TOTAL AREA(ACRES) =      281.6   TOTAL RUNOFF(CFS) =     496.56
TC(MIN.) =   14.83

**************************************************************************
FLOW PROCESS FROM NODE   2060.00 TO NODE   2080.00 IS CODE =  51
--------------------------------------------------------------------------
>>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==========================================================================
ELEVATION DATA: UPSTREAM(FEET) =    741.00  DOWNSTREAM(FEET) =    727.00
CHANNEL LENGTH THRU SUBAREA(FEET) =   865.00   CHANNEL SLOPE =  0.0162
CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   3.000
MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.696
*USER SPECIFIED(SUBAREA):
USER-SPECIFIED RUNOFF COEFFICIENT = .4070
S.C.S. CURVE NUMBER (AMC II) =   0
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     498.17
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.64
AVERAGE FLOW DEPTH(FEET) =   3.48   TRAVEL TIME(MIN.) =   2.56
Tc(MIN.) =   17.39
SUBAREA AREA(ACRES) =     2.93       SUBAREA RUNOFF(CFS) =    3.21
AREA-AVERAGE RUNOFF COEFFICIENT =  0.605
TOTAL AREA(ACRES) =      284.5         PEAK FLOW RATE(CFS) =     496.56

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
```

```
 DEPTH(FEET) =  3.47   FLOW VELOCITY(FEET/SEC.) =   5.62
 LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2080.00 =    5831.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2080.00 TO NODE   2080.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE   2061.00 TO NODE   2061.10 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6990
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =    60.00
 UPSTREAM ELEVATION(FEET) =    750.00
 DOWNSTREAM ELEVATION(FEET) =    749.00
 ELEVATION DIFFERENCE(FEET) =      1.00
 URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.716
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.420
 NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
 SUBAREA RUNOFF(CFS) =      1.11
 TOTAL AREA(ACRES) =      0.36   TOTAL RUNOFF(CFS) =      1.11

****************************************************************************
 FLOW PROCESS FROM NODE   2061.10 TO NODE   2062.20 IS CODE =  62
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  749.00  DOWNSTREAM ELEVATION(FEET) =  745.00
 STREET LENGTH(FEET) =   632.39   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 20.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       6.49
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.46
   HALFSTREET FLOOD WIDTH(FEET) =   17.51
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.06
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.94
 STREET FLOW TRAVEL TIME(MIN.) =   5.12   Tc(MIN.) =    9.84
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.475
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6980
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.698
 SUBAREA AREA(ACRES) =    4.39      SUBAREA RUNOFF(CFS) =   10.65
 TOTAL AREA(ACRES) =        4.8        PEAK FLOW RATE(CFS) =      11.52

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.51   HALFSTREET FLOOD WIDTH(FEET) =  20.25
```

```
 FLOW VELOCITY(FEET/SEC.) =  2.24   DEPTH*VELOCITY(FT*FT/SEC.) =   1.13
 *NOTE: INITIAL SUBAREA NOMOGRAPH WITH SUBAREA PARAMETERS,
        AND L =  632.4 FT WITH ELEVATION-DROP =   4.0 FT, IS   12.7 CFS,
        WHICH EXCEEDS THE TOP-OF-CURB STREET CAPACITY AT NODE   2062.20
 LONGEST FLOWPATH FROM NODE   2061.00 TO NODE   2062.20 =     692.39 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2061.20 TO NODE   2061.40 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   740.00  DOWNSTREAM(FEET) =   736.00
 FLOW LENGTH(FEET) =   356.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  21.0 INCH PIPE IS  13.2 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   7.24
 ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      11.52
 PIPE TRAVEL TIME(MIN.) =   0.82    Tc(MIN.) =   10.66
 LONGEST FLOWPATH FROM NODE   2061.00 TO NODE   2061.40 =    1048.39 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2061.30 TO NODE   2061.40 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.365
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6970
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.6977
 SUBAREA AREA(ACRES) =    2.48   SUBAREA RUNOFF(CFS) =    5.82
 TOTAL AREA(ACRES) =        7.2   TOTAL RUNOFF(CFS) =     16.97
 TC(MIN.) =   10.66

****************************************************************************
 FLOW PROCESS FROM NODE   2061.40 TO NODE   2061.50 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   736.00  DOWNSTREAM(FEET) =   735.00
 FLOW LENGTH(FEET) =   129.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  24.0 INCH PIPE IS  17.7 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   6.83
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      16.97
 PIPE TRAVEL TIME(MIN.) =   0.31    Tc(MIN.) =   10.97
 LONGEST FLOWPATH FROM NODE   2061.00 TO NODE   2061.50 =    1177.39 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2061.50 TO NODE   2061.60 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    735.00  DOWNSTREAM(FEET) =    734.50
 CHANNEL LENGTH THRU SUBAREA(FEET) =   111.00   CHANNEL SLOPE =  0.0045
 CHANNEL BASE(FEET) =   30.00   "Z" FACTOR =   3.000
 MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.116
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
```

```
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      17.29
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.05
  AVERAGE FLOW DEPTH(FEET) =   0.52   TRAVEL TIME(MIN.) =   1.77
  Tc(MIN.) =   12.74
  SUBAREA AREA(ACRES) =     0.58       SUBAREA RUNOFF(CFS) =    0.63
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.672
  TOTAL AREA(ACRES) =        7.8         PEAK FLOW RATE(CFS) =      16.97

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.52   FLOW VELOCITY(FEET/SEC.) =   1.03
  LONGEST FLOWPATH FROM NODE   2061.00 TO NODE   2061.60 =    1288.39 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2061.60 TO NODE   2063.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    732.00  DOWNSTREAM(FEET) =    731.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =   170.00   CHANNEL SLOPE =  0.0029
  CHANNEL BASE(FEET) =   70.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      16.97
  FLOW VELOCITY(FEET/SEC.) =   0.67   FLOW DEPTH(FEET) =   0.36
  TRAVEL TIME(MIN.) =   4.22   Tc(MIN.) =   16.96
  LONGEST FLOWPATH FROM NODE   2061.00 TO NODE   2063.00 =    1458.39 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2063.00 TO NODE   2063.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   16.96
  RAINFALL INTENSITY(INCH/HR) =   2.73
  TOTAL STREAM AREA(ACRES) =     7.81
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     16.97

****************************************************************************
  FLOW PROCESS FROM NODE   2062.00 TO NODE   2062.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7000
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    84.00
  UPSTREAM ELEVATION(FEET) =    774.00
  DOWNSTREAM ELEVATION(FEET) =    766.00
  ELEVATION DIFFERENCE(FEET) =      8.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.113
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.420
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.53
  TOTAL AREA(ACRES) =      0.17   TOTAL RUNOFF(CFS) =      0.53

****************************************************************************
  FLOW PROCESS FROM NODE   2062.10 TO NODE   2062.20 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
```

```
  ELEVATION DATA: UPSTREAM(FEET) =    766.00  DOWNSTREAM(FEET) =    750.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   441.00   CHANNEL SLOPE =  0.0363
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.035   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =       0.53
  FLOW VELOCITY(FEET/SEC.) =   1.03   FLOW DEPTH(FEET) =   0.05
  TRAVEL TIME(MIN.) =   7.13   Tc(MIN.) =   10.24
  LONGEST FLOWPATH FROM NODE   2062.00 TO NODE   2062.20 =     525.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2062.20 TO NODE   2062.30 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  750.00  DOWNSTREAM ELEVATION(FEET) =  739.00
  STREET LENGTH(FEET) =   385.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.46
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.35
    HALFSTREET FLOOD WIDTH(FEET) =   12.18
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.48
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.21
  STREET FLOW TRAVEL TIME(MIN.) =   1.84   Tc(MIN.) =   12.08
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.182
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6910
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.691
  SUBAREA AREA(ACRES) =    4.47      SUBAREA RUNOFF(CFS) =    9.83
  TOTAL AREA(ACRES) =        4.6        PEAK FLOW RATE(CFS) =      10.21

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.42   HALFSTREET FLOOD WIDTH(FEET) =  15.58
  FLOW VELOCITY(FEET/SEC.) =  4.06   DEPTH*VELOCITY(FT*FT/SEC.) =   1.69
  LONGEST FLOWPATH FROM NODE   2062.00 TO NODE   2062.30 =     910.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2063.30 TO NODE   2062.40 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   734.00  DOWNSTREAM(FEET) =   732.00
  FLOW LENGTH(FEET) =    82.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  10.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.40
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      10.21
  PIPE TRAVEL TIME(MIN.) =   0.15    Tc(MIN.) =   12.23
  LONGEST FLOWPATH FROM NODE   2062.00 TO NODE   2062.40 =     992.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   2062.40 TO NODE   2063.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    732.00  DOWNSTREAM(FEET) =    731.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =    68.00   CHANNEL SLOPE =  0.0074
  CHANNEL BASE(FEET) =   70.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      10.21
  FLOW VELOCITY(FEET/SEC.) =   0.72   FLOW DEPTH(FEET) =   0.20
  TRAVEL TIME(MIN.) =   1.58   Tc(MIN.) =   13.81
  LONGEST FLOWPATH FROM NODE   2062.00 TO NODE   2063.00 =    1060.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2063.00 TO NODE   2063.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   13.81
  RAINFALL INTENSITY(INCH/HR) =   3.01
  TOTAL STREAM AREA(ACRES) =     4.64
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     10.21

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       16.97    16.96        2.728          7.81
      2       10.21    13.81        3.009          4.64

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF       Tc      INTENSITY
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)
      1       24.02    13.81        3.009
      2       26.22    16.96        2.728

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      26.22   Tc(MIN.) =   16.96
  TOTAL AREA(ACRES) =       12.4
  LONGEST FLOWPATH FROM NODE   2061.00 TO NODE   2063.00 =    1458.39 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2063.00 TO NODE   2064.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    731.50  DOWNSTREAM(FEET) =    731.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   118.00   CHANNEL SLOPE =  0.0042
  CHANNEL BASE(FEET) =   70.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.568
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3950
  S.C.S. CURVE NUMBER (AMC II) =   0
```

```
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      26.84
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   0.89
  AVERAGE FLOW DEPTH(FEET) =   0.42   TRAVEL TIME(MIN.) =   2.21
  Tc(MIN.) =   19.17
  SUBAREA AREA(ACRES) =     1.21       SUBAREA RUNOFF(CFS) =    1.23
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.654
  TOTAL AREA(ACRES) =       13.7         PEAK FLOW RATE(CFS) =      26.22

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.41   FLOW VELOCITY(FEET/SEC.) =   0.89
  LONGEST FLOWPATH FROM NODE   2061.00 TO NODE   2064.00 =    1576.39 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2064.00 TO NODE   2080.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   731.00  DOWNSTREAM(FEET) =   727.40
  FLOW LENGTH(FEET) =    83.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  14.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.62
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      26.22
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =   19.26
  LONGEST FLOWPATH FROM NODE   2061.00 TO NODE   2080.00 =    1659.39 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2065.00 TO NODE   2080.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.562
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .5830
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6085
  SUBAREA AREA(ACRES) =   24.32   SUBAREA RUNOFF(CFS) =   36.32
  TOTAL AREA(ACRES) =       38.0   TOTAL RUNOFF(CFS) =      59.21
  TC(MIN.) =   19.26

****************************************************************************
  FLOW PROCESS FROM NODE   2080.00 TO NODE   2080.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       59.21    19.26       2.562       37.98
  LONGEST FLOWPATH FROM NODE   2061.00 TO NODE   2080.00 =    1659.39 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM     RUNOFF      Tc      INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      496.56    17.39       2.696      284.49
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2080.00 =    5831.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc      INTENSITY
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     550.01      17.39        2.696
```

```
     2     531.06      19.26        2.562

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     550.01   Tc(MIN.) =   17.39
  TOTAL AREA(ACRES) =      322.5

****************************************************************************
  FLOW PROCESS FROM NODE   2080.00 TO NODE   2080.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   2080.00 TO NODE   2086.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   727.00  DOWNSTREAM(FEET) =   724.40
  FLOW LENGTH(FEET) =   221.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  81.0 INCH PIPE IS  61.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  18.98
  ESTIMATED PIPE DIAMETER(INCH) =  81.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     550.01
  PIPE TRAVEL TIME(MIN.) =   0.19    Tc(MIN.) =   17.58
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2086.00 =    6052.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2085.00 TO NODE   2086.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.681
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7840
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6102
  SUBAREA AREA(ACRES) =    9.41   SUBAREA RUNOFF(CFS) =   19.78
  TOTAL AREA(ACRES) =      331.9   TOTAL RUNOFF(CFS) =     550.01
  TC(MIN.) =   17.58
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   2086.00 TO NODE   2090.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   724.40  DOWNSTREAM(FEET) =   723.00
  FLOW LENGTH(FEET) =   115.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  78.0 INCH PIPE IS  63.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  18.92
  ESTIMATED PIPE DIAMETER(INCH) =  78.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     550.01
  PIPE TRAVEL TIME(MIN.) =   0.10    Tc(MIN.) =   17.68
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2090.00 =    6167.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2090.00 TO NODE   2110.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
```

```
  ELEVATION DATA: UPSTREAM(FEET) =    723.00  DOWNSTREAM(FEET) =    722.90
  CHANNEL LENGTH THRU SUBAREA(FEET) =    30.00   CHANNEL SLOPE =  0.0033
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     550.01
  FLOW VELOCITY(FEET/SEC.) =   3.25   FLOW DEPTH(FEET) =   5.41
  TRAVEL TIME(MIN.) =   0.15   Tc(MIN.) =   17.84
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2110.00 =    6197.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2110.00 TO NODE   2110.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   17.84
  RAINFALL INTENSITY(INCH/HR) =   2.66
  TOTAL STREAM AREA(ACRES) =   331.88
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    550.01

****************************************************************************
  FLOW PROCESS FROM NODE   2091.00 TO NODE   2091.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7230
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    88.00
  UPSTREAM ELEVATION(FEET) =    798.00
  DOWNSTREAM ELEVATION(FEET) =    778.00
  ELEVATION DIFFERENCE(FEET) =     20.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.955
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.420
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.64
  TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      0.64

****************************************************************************
  FLOW PROCESS FROM NODE   2091.10 TO NODE   2091.20 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  778.00  DOWNSTREAM ELEVATION(FEET) =  769.50
  STREET LENGTH(FEET) =   221.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.44
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.29
    HALFSTREET FLOOD WIDTH(FEET) =    9.48
```

```
  AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.49
  PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.03
 STREET FLOW TRAVEL TIME(MIN.) =   1.05   Tc(MIN.) =    4.01
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.420
 NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .7050
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.707
 SUBAREA AREA(ACRES) =    1.80      SUBAREA RUNOFF(CFS) =    5.61
 TOTAL AREA(ACRES) =        2.0        PEAK FLOW RATE(CFS) =       6.25

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.35   HALFSTREET FLOOD WIDTH(FEET) =  12.12
 FLOW VELOCITY(FEET/SEC.) =  4.02   DEPTH*VELOCITY(FT*FT/SEC.) =   1.40
 LONGEST FLOWPATH FROM NODE   2091.00 TO NODE   2091.20 =     309.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2091.20 TO NODE   2091.40 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   764.50  DOWNSTREAM(FEET) =   749.00
 FLOW LENGTH(FEET) =   533.00   MANNING'S N =  0.013
 ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
 DEPTH OF FLOW IN  18.0 INCH PIPE IS   7.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   8.91
 ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       6.25
 PIPE TRAVEL TIME(MIN.) =   1.00    Tc(MIN.) =    5.01
 LONGEST FLOWPATH FROM NODE   2091.00 TO NODE   2091.40 =     842.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2091.30 TO NODE   2091.40 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.419
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .7020
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.7044
 SUBAREA AREA(ACRES) =    1.95   SUBAREA RUNOFF(CFS) =    6.05
 TOTAL AREA(ACRES) =        4.0   TOTAL RUNOFF(CFS) =      12.29
 TC(MIN.) =    5.01

****************************************************************************
 FLOW PROCESS FROM NODE   2091.40 TO NODE   2091.50 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   749.00  DOWNSTREAM(FEET) =   735.00
 FLOW LENGTH(FEET) =  1009.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  21.0 INCH PIPE IS  12.8 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   7.97
 ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      12.29
 PIPE TRAVEL TIME(MIN.) =   2.11    Tc(MIN.) =    7.12
 LONGEST FLOWPATH FROM NODE   2091.00 TO NODE   2091.50 =    1851.00 FEET.

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

```
  FLOW PROCESS FROM NODE   2091.50 TO NODE   2093.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    735.00  DOWNSTREAM(FEET) =    734.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =   122.00   CHANNEL SLOPE =  0.0041
  CHANNEL BASE(FEET) =   55.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.466
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      13.25
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   0.73
  AVERAGE FLOW DEPTH(FEET) =   0.32   TRAVEL TIME(MIN.) =   2.78
  Tc(MIN.) =    9.89
  SUBAREA AREA(ACRES) =     1.57       SUBAREA RUNOFF(CFS) =    1.90
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.604
  TOTAL AREA(ACRES) =        5.5         PEAK FLOW RATE(CFS) =      12.29

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.31   FLOW VELOCITY(FEET/SEC.) =   0.71
  LONGEST FLOWPATH FROM NODE   2091.00 TO NODE   2093.00 =    1973.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2092.10 TO NODE   2093.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.466
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6650
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6261
  SUBAREA AREA(ACRES) =    3.19   SUBAREA RUNOFF(CFS) =    7.35
  TOTAL AREA(ACRES) =        8.7   TOTAL RUNOFF(CFS) =      18.90
  TC(MIN.) =    9.89

****************************************************************************
  FLOW PROCESS FROM NODE   2092.20 TO NODE   2093.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.466
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6970
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6403
  SUBAREA AREA(ACRES) =    2.19   SUBAREA RUNOFF(CFS) =    5.29
  TOTAL AREA(ACRES) =       10.9   TOTAL RUNOFF(CFS) =      24.19
  TC(MIN.) =    9.89

****************************************************************************
  FLOW PROCESS FROM NODE   2093.00 TO NODE   2096.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   734.50  DOWNSTREAM(FEET) =   733.60
  FLOW LENGTH(FEET) =    43.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.96
```

```
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      24.19
 PIPE TRAVEL TIME(MIN.) =   0.07    Tc(MIN.) =    9.96
 LONGEST FLOWPATH FROM NODE   2091.00 TO NODE   2096.00 =    2016.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2095.00 TO NODE   2096.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.456
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .4940
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.6144
 SUBAREA AREA(ACRES) =    2.35   SUBAREA RUNOFF(CFS) =    4.01
 TOTAL AREA(ACRES) =       13.2   TOTAL RUNOFF(CFS) =      28.14
 TC(MIN.) =    9.96

****************************************************************************
 FLOW PROCESS FROM NODE   2096.00 TO NODE   2106.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   733.60  DOWNSTREAM(FEET) =   726.20
 FLOW LENGTH(FEET) =   359.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  24.0 INCH PIPE IS  18.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  11.15
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      28.14
 PIPE TRAVEL TIME(MIN.) =   0.54    Tc(MIN.) =   10.49
 LONGEST FLOWPATH FROM NODE   2091.00 TO NODE   2106.00 =    2375.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2105.00 TO NODE   2106.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.386
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .5190
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.6033
 SUBAREA AREA(ACRES) =    1.75   SUBAREA RUNOFF(CFS) =    3.08
 TOTAL AREA(ACRES) =       15.0   TOTAL RUNOFF(CFS) =      30.64
 TC(MIN.) =   10.49

****************************************************************************
 FLOW PROCESS FROM NODE   2110.00 TO NODE   2110.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =   10.49
 RAINFALL INTENSITY(INCH/HR) =   3.39
 TOTAL STREAM AREA(ACRES) =    15.00
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     30.64

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
```

NUMBER	(CFS)	(MIN.)	(INCH/HOUR)	(ACRE)
1	550.01	17.84	2.662	331.88
2	30.64	10.49	3.386	15.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	RUNOFF (CFS)	Tc (MIN.)	INTENSITY (INCH/HOUR)
1	354.20	10.49	3.386
2	574.10	17.84	2.662

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 574.10 Tc(MIN.) = 17.84
TOTAL AREA(ACRES) = 346.9
LONGEST FLOWPATH FROM NODE 2000.00 TO NODE 2110.00 = 6197.00 FEET.

****
FLOW PROCESS FROM NODE 2110.00 TO NODE 2130.00 IS CODE = 51

>>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==
ELEVATION DATA: UPSTREAM(FEET) = 722.90 DOWNSTREAM(FEET) = 720.60
CHANNEL LENGTH THRU SUBAREA(FEET) = 342.00 CHANNEL SLOPE = 0.0067
CHANNEL BASE(FEET) = 15.00 "Z" FACTOR = 3.000
MANNING'S FACTOR = 0.060 MAXIMUM DEPTH(FEET) = 10.00
100 YEAR RAINFALL INTENSITY(INCH/HOUR) = 2.568
*USER SPECIFIED(SUBAREA):
USER-SPECIFIED RUNOFF COEFFICIENT = .4030
S.C.S. CURVE NUMBER (AMC II) = 0
TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) = 577.00
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) = 4.26
AVERAGE FLOW DEPTH(FEET) = 4.67 TRAVEL TIME(MIN.) = 1.34
Tc(MIN.) = 19.17
SUBAREA AREA(ACRES) = 5.60 SUBAREA RUNOFF(CFS) = 5.80
AREA-AVERAGE RUNOFF COEFFICIENT = 0.607
TOTAL AREA(ACRES) = 352.5 PEAK FLOW RATE(CFS) = 574.10

END OF SUBAREA CHANNEL FLOW HYDRAULICS:
DEPTH(FEET) = 4.66 FLOW VELOCITY(FEET/SEC.) = 4.26
LONGEST FLOWPATH FROM NODE 2000.00 TO NODE 2130.00 = 6539.00 FEET.

****
FLOW PROCESS FROM NODE 2125.00 TO NODE 2130.00 IS CODE = 81

>>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==
100 YEAR RAINFALL INTENSITY(INCH/HOUR) = 2.568
*USER SPECIFIED(SUBAREA):
USER-SPECIFIED RUNOFF COEFFICIENT = .5630
S.C.S. CURVE NUMBER (AMC II) = 0
AREA-AVERAGE RUNOFF COEFFICIENT = 0.6025
SUBAREA AREA(ACRES) = 36.49 SUBAREA RUNOFF(CFS) = 52.75
TOTAL AREA(ACRES) = 389.0 TOTAL RUNOFF(CFS) = 601.77
TC(MIN.) = 19.17

****
FLOW PROCESS FROM NODE 2130.00 TO NODE 2139.00 IS CODE = 51

>>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<

```
  ELEVATION DATA: UPSTREAM(FEET) =    720.60  DOWNSTREAM(FEET) =    716.30
  CHANNEL LENGTH THRU SUBAREA(FEET) =   690.00   CHANNEL SLOPE =  0.0062
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     601.77
  FLOW VELOCITY(FEET/SEC.) =   4.19   FLOW DEPTH(FEET) =   4.86
  TRAVEL TIME(MIN.) =   2.74   Tc(MIN.) =   21.92
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2139.00 =    7229.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2139.00 TO NODE   2139.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   21.92
  RAINFALL INTENSITY(INCH/HR) =   2.40
  TOTAL STREAM AREA(ACRES) =   388.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    601.77

****************************************************************************
  FLOW PROCESS FROM NODE   2131.00 TO NODE   2131.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7000
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    88.00
  UPSTREAM ELEVATION(FEET) =    755.00
  DOWNSTREAM ELEVATION(FEET) =    747.00
  ELEVATION DIFFERENCE(FEET) =      8.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.236
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.420
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.62
  TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      0.62

****************************************************************************
  FLOW PROCESS FROM NODE   2131.10 TO NODE   2131.20 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  747.00  DOWNSTREAM ELEVATION(FEET) =  733.00
  STREET LENGTH(FEET) =   714.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.33
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.34
    HALFSTREET FLOOD WIDTH(FEET) =   11.94
```

```
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.86
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.98
  STREET FLOW TRAVEL TIME(MIN.) =   4.16   Tc(MIN.) =    7.39
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.893
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6850
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.686
  SUBAREA AREA(ACRES) =    2.77      SUBAREA RUNOFF(CFS) =    7.39
  TOTAL AREA(ACRES) =        3.0        PEAK FLOW RATE(CFS) =       7.93

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.41   HALFSTREET FLOOD WIDTH(FEET) =  15.22
  FLOW VELOCITY(FEET/SEC.) =  3.30   DEPTH*VELOCITY(FT*FT/SEC.) =   1.35
  LONGEST FLOWPATH FROM NODE   2131.00 TO NODE   2131.20 =     802.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2131.20 TO NODE   2131.40 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   728.00  DOWNSTREAM(FEET) =   724.00
  FLOW LENGTH(FEET) =   426.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  12.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.10
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       7.93
  PIPE TRAVEL TIME(MIN.) =   1.16    Tc(MIN.) =    8.56
  LONGEST FLOWPATH FROM NODE   2131.00 TO NODE   2131.40 =    1228.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2131.30 TO NODE   2131.40 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.684
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6930
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6905
  SUBAREA AREA(ACRES) =    5.22   SUBAREA RUNOFF(CFS) =   13.33
  TOTAL AREA(ACRES) =        8.2   TOTAL RUNOFF(CFS) =      20.83
  TC(MIN.) =    8.56

****************************************************************************
  FLOW PROCESS FROM NODE   2131.40 TO NODE   2132.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   724.00  DOWNSTREAM(FEET) =   722.00
  FLOW LENGTH(FEET) =   108.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.10
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      20.83
  PIPE TRAVEL TIME(MIN.) =   0.18    Tc(MIN.) =    8.74
  LONGEST FLOWPATH FROM NODE   2131.00 TO NODE   2132.00 =    1336.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2132.00 TO NODE   2133.00 IS CODE =  51
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    722.00  DOWNSTREAM(FEET) =    720.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   230.00   CHANNEL SLOPE =  0.0087
  CHANNEL BASE(FEET) =   40.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.218
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      21.55
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.26
  AVERAGE FLOW DEPTH(FEET) =   0.41   TRAVEL TIME(MIN.) =   3.04
  Tc(MIN.) =   11.78
  SUBAREA AREA(ACRES) =     1.27       SUBAREA RUNOFF(CFS) =    1.43
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.645
  TOTAL AREA(ACRES) =        9.5         PEAK FLOW RATE(CFS) =      20.83

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.41   FLOW VELOCITY(FEET/SEC.) =   1.24
  LONGEST FLOWPATH FROM NODE   2131.00 TO NODE   2133.00 =    1566.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2133.00 TO NODE   2139.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   720.00  DOWNSTREAM(FEET) =   716.30
  FLOW LENGTH(FEET) =    52.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  12.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  16.70
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      20.83
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =   11.83
  LONGEST FLOWPATH FROM NODE   2131.00 TO NODE   2139.00 =    1618.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2139.00 TO NODE   2139.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   11.83
  RAINFALL INTENSITY(INCH/HR) =   3.21
  TOTAL STREAM AREA(ACRES) =     9.46
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     20.83

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      601.77    21.92        2.405        388.97
      2       20.83    11.83        3.212          9.46

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
```

```
     1      471.36    11.83       3.212
     2      617.36    21.92       2.405

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     617.36   Tc(MIN.) =   21.92
  TOTAL AREA(ACRES) =      398.4
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2139.00 =    7229.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2139.00 TO NODE   2140.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    716.30  DOWNSTREAM(FEET) =    714.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   378.00   CHANNEL SLOPE =  0.0061
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     617.36
  FLOW VELOCITY(FEET/SEC.) =   4.18   FLOW DEPTH(FEET) =   4.95
  TRAVEL TIME(MIN.) =   1.51   Tc(MIN.) =   23.42
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2140.00 =    7607.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2140.00 TO NODE   2180.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   714.00  DOWNSTREAM(FEET) =   713.00
  FLOW LENGTH(FEET) =   120.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  90.0 INCH PIPE IS  68.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  17.15
  ESTIMATED PIPE DIAMETER(INCH) =  90.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     617.36
  PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =   23.54
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2180.00 =    7727.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2180.00 TO NODE   2180.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   23.54
  RAINFALL INTENSITY(INCH/HR) =   2.32
  TOTAL STREAM AREA(ACRES) =   398.43
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    617.36

****************************************************************************
  FLOW PROCESS FROM NODE   2150.00 TO NODE   2151.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7000
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    70.00
  UPSTREAM ELEVATION(FEET) =    746.00
  DOWNSTREAM ELEVATION(FEET) =    744.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.245
```

```
 100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.420
NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
SUBAREA RUNOFF(CFS) =      0.62
TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      0.62

****************************************************************************
 FLOW PROCESS FROM NODE   2151.00 TO NODE   2151.10 IS CODE =  62
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  744.00  DOWNSTREAM ELEVATION(FEET) =  736.00
 STREET LENGTH(FEET) =   325.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 20.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.58
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.36
   HALFSTREET FLOOD WIDTH(FEET) =   12.65
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.31
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.18
 STREET FLOW TRAVEL TIME(MIN.) =   1.64   Tc(MIN.) =    5.88
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.226
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6980
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.698
 SUBAREA AREA(ACRES) =    3.36      SUBAREA RUNOFF(CFS) =    9.91
 TOTAL AREA(ACRES) =        3.6        PEAK FLOW RATE(CFS) =      10.50

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.43   HALFSTREET FLOOD WIDTH(FEET) =  16.22
 FLOW VELOCITY(FEET/SEC.) =  3.86   DEPTH*VELOCITY(FT*FT/SEC.) =   1.66
 LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2151.10 =     395.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2151.10 TO NODE   2151.30 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   731.00  DOWNSTREAM(FEET) =   729.00
 FLOW LENGTH(FEET) =   406.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  21.0 INCH PIPE IS  17.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   5.02
 ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      10.50
 PIPE TRAVEL TIME(MIN.) =   1.35    Tc(MIN.) =    7.23
 LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2151.30 =     801.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2151.20 TO NODE   2151.30 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
```

```
==========================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.921
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6970
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6976
  SUBAREA AREA(ACRES) =    3.34   SUBAREA RUNOFF(CFS) =    9.13
  TOTAL AREA(ACRES) =        6.9   TOTAL RUNOFF(CFS) =      18.87
  TC(MIN.) =    7.23

**************************************************************************
  FLOW PROCESS FROM NODE   2151.30 TO NODE   2151.50 IS CODE =  31
--------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   729.00  DOWNSTREAM(FEET) =   721.00
  FLOW LENGTH(FEET) =   533.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.13
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      18.87
  PIPE TRAVEL TIME(MIN.) =   0.97    Tc(MIN.) =    8.20
  LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2151.50 =    1334.00 FEET.

**************************************************************************
  FLOW PROCESS FROM NODE   2151.40 TO NODE   2151.50 IS CODE =  81
--------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==========================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.751
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6980
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6977
  SUBAREA AREA(ACRES) =    4.09   SUBAREA RUNOFF(CFS) =   10.71
  TOTAL AREA(ACRES) =       11.0   TOTAL RUNOFF(CFS) =      28.76
  TC(MIN.) =    8.20

**************************************************************************
  FLOW PROCESS FROM NODE   2151.50 TO NODE   2151.60 IS CODE =  31
--------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   721.00  DOWNSTREAM(FEET) =   718.00
  FLOW LENGTH(FEET) =    40.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  12.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  18.56
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      28.76
  PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =    8.24
  LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2151.60 =    1374.00 FEET.

**************************************************************************
  FLOW PROCESS FROM NODE   2151.60 TO NODE   2164.00 IS CODE =  51
--------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    717.20  DOWNSTREAM(FEET) =    716.30
  CHANNEL LENGTH THRU SUBAREA(FEET) =    90.00   CHANNEL SLOPE =  0.0100
  CHANNEL BASE(FEET) =   80.00   "Z" FACTOR =   3.000
```

```
 MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.517
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .3710
 S.C.S. CURVE NUMBER (AMC II) =   0
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      29.98
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.15
 AVERAGE FLOW DEPTH(FEET) =   0.32   TRAVEL TIME(MIN.) =   1.31
 Tc(MIN.) =    9.55
 SUBAREA AREA(ACRES) =     1.86       SUBAREA RUNOFF(CFS) =    2.43
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.650
 TOTAL AREA(ACRES) =       12.8         PEAK FLOW RATE(CFS) =      29.40

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.32   FLOW VELOCITY(FEET/SEC.) =   1.14
 LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2164.00 =    1464.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2152.00 TO NODE   2164.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.517
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .7060
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.6591
 SUBAREA AREA(ACRES) =    2.36   SUBAREA RUNOFF(CFS) =    5.86
 TOTAL AREA(ACRES) =       15.2   TOTAL RUNOFF(CFS) =      35.26
 TC(MIN.) =    9.55

****************************************************************************
 FLOW PROCESS FROM NODE   2164.00 TO NODE   2170.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   716.30  DOWNSTREAM(FEET) =   714.80
 FLOW LENGTH(FEET) =    89.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  27.0 INCH PIPE IS  20.4 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  10.92
 ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      35.26
 PIPE TRAVEL TIME(MIN.) =   0.14    Tc(MIN.) =    9.69
 LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2170.00 =    1553.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2165.00 TO NODE   2170.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.497
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6320
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.6395
 SUBAREA AREA(ACRES) =   39.95   SUBAREA RUNOFF(CFS) =   88.30
 TOTAL AREA(ACRES) =       55.2   TOTAL RUNOFF(CFS) =     123.35
 TC(MIN.) =    9.69

****************************************************************************
 FLOW PROCESS FROM NODE   2170.00 TO NODE   2180.00 IS CODE =  31
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   714.80  DOWNSTREAM(FEET) =   713.00
  FLOW LENGTH(FEET) =   131.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  45.0 INCH PIPE IS  33.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.85
  ESTIMATED PIPE DIAMETER(INCH) =  45.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     123.35
  PIPE TRAVEL TIME(MIN.) =   0.16    Tc(MIN.) =    9.84
  LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2180.00 =    1684.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2180.00 TO NODE   2180.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.84
  RAINFALL INTENSITY(INCH/HR) =   3.47
  TOTAL STREAM AREA(ACRES) =    55.16
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    123.35

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      617.36    23.54        2.315        398.43
      2      123.35     9.84        3.473         55.16

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      534.87     9.84       3.473
      2      699.58    23.54       2.315

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     699.58   Tc(MIN.) =   23.54
  TOTAL AREA(ACRES) =      453.6
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2180.00 =    7727.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2180.00 TO NODE   2190.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   713.00  DOWNSTREAM(FEET) =   712.00
  FLOW LENGTH(FEET) =   152.00   MANNING'S N =  0.014
  ASSUME FULL-FLOWING PIPELINE
  PIPE-FLOW VELOCITY(FEET/SEC.) =   1.81
  (PIPE FLOW VELOCITY CORRESPONDING TO FULL PIPE CAPACITY FLOW)
  GIVEN PIPE DIAMETER(INCH) =   5.00    NUMBER OF PIPES =   2
  PIPE-FLOW(CFS) =     699.58
  PIPE TRAVEL TIME(MIN.) =   1.40    Tc(MIN.) =   24.94
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2190.00 =    7879.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2185.00 TO NODE   2190.00 IS CODE =  81
```

```
--------------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.243
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7330
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6095
  SUBAREA AREA(ACRES) =    6.07   SUBAREA RUNOFF(CFS) =    9.98
  TOTAL AREA(ACRES) =      459.7   TOTAL RUNOFF(CFS) =     699.58
  TC(MIN.) =   24.94
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   3000.00 TO NODE   3001.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6800
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    60.00
  UPSTREAM ELEVATION(FEET) =    768.00
  DOWNSTREAM ELEVATION(FEET) =    767.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.939
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.420
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.30
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.30

****************************************************************************
  FLOW PROCESS FROM NODE   3001.00 TO NODE   3005.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    767.00  DOWNSTREAM(FEET) =    745.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   122.00   CHANNEL SLOPE =  0.1803
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.035   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =       0.30
  FLOW VELOCITY(FEET/SEC.) =   1.47   FLOW DEPTH(FEET) =   0.02
  TRAVEL TIME(MIN.) =   1.38   Tc(MIN.) =    6.32
  LONGEST FLOWPATH FROM NODE   3000.00 TO NODE   3005.00 =     182.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3005.00 TO NODE   3010.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  745.00  DOWNSTREAM ELEVATION(FEET) =  726.00
  STREET LENGTH(FEET) =   659.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
```

```
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.49
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.31
    HALFSTREET FLOOD WIDTH(FEET) =   10.13
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.14
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.97
  STREET FLOW TRAVEL TIME(MIN.) =   3.50   Tc(MIN.) =    9.82
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.477
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7010
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.700
  SUBAREA AREA(ACRES) =    2.60      SUBAREA RUNOFF(CFS) =    6.34
  TOTAL AREA(ACRES) =        2.7        PEAK FLOW RATE(CFS) =       6.57

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.37   HALFSTREET FLOOD WIDTH(FEET) =  13.06
  FLOW VELOCITY(FEET/SEC.) =  3.67   DEPTH*VELOCITY(FT*FT/SEC.) =   1.34
  LONGEST FLOWPATH FROM NODE   3000.00 TO NODE   3010.00 =     841.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   4000.00 TO NODE   4001.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4690
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    88.00
  UPSTREAM ELEVATION(FEET) =    880.00
  DOWNSTREAM ELEVATION(FEET) =    868.00
  ELEVATION DIFFERENCE(FEET) =     12.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.946
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.420
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.35
  TOTAL AREA(ACRES) =      0.17   TOTAL RUNOFF(CFS) =      0.35

****************************************************************************
  FLOW PROCESS FROM NODE   4001.00 TO NODE   4010.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  868.00  DOWNSTREAM ELEVATION(FEET) =  746.00
  STREET LENGTH(FEET) =  1460.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.96
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.35
```

```
    HALFSTREET FLOOD WIDTH(FEET) =   12.47
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    6.07
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.15
  STREET FLOW TRAVEL TIME(MIN.) =   4.01   Tc(MIN.) =    8.96
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.608
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4520
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.452
  SUBAREA AREA(ACRES) =   11.66      SUBAREA RUNOFF(CFS) =   19.02
  TOTAL AREA(ACRES) =       11.8        PEAK FLOW RATE(CFS) =      19.31

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.43   HALFSTREET FLOOD WIDTH(FEET) =  16.22
  FLOW VELOCITY(FEET/SEC.) =  7.10   DEPTH*VELOCITY(FT*FT/SEC.) =   3.05
  LONGEST FLOWPATH FROM NODE   4000.00 TO NODE   4010.00 =    1548.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   4010.00 TO NODE   4016.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   746.00  DOWNSTREAM(FEET) =   745.00
  FLOW LENGTH(FEET) =    80.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  16.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.52
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      19.31
  PIPE TRAVEL TIME(MIN.) =   0.16    Tc(MIN.) =    9.11
  LONGEST FLOWPATH FROM NODE   4000.00 TO NODE   4016.00 =    1628.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   4015.00 TO NODE   4016.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.583
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6010
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5272
  SUBAREA AREA(ACRES) =   12.00   SUBAREA RUNOFF(CFS) =   25.84
  TOTAL AREA(ACRES) =       23.8   TOTAL RUNOFF(CFS) =      45.01
  TC(MIN.) =    9.11

****************************************************************************
  FLOW PROCESS FROM NODE   4016.00 TO NODE   4019.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   745.00  DOWNSTREAM(FEET) =   723.60
  FLOW LENGTH(FEET) =   542.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  17.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  16.25
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      45.01
  PIPE TRAVEL TIME(MIN.) =   0.56    Tc(MIN.) =    9.67
  LONGEST FLOWPATH FROM NODE   4000.00 TO NODE   4019.00 =    2170.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   4019.00 TO NODE   4019.00 IS CODE =   1
```

```
------------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
==============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.67
  RAINFALL INTENSITY(INCH/HR) =   3.50
  TOTAL STREAM AREA(ACRES) =    23.83
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     45.01

****************************************************************************
  FLOW PROCESS FROM NODE   4017.10 TO NODE   4017.20 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6950
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    70.00
  UPSTREAM ELEVATION(FEET) =    747.00
  DOWNSTREAM ELEVATION(FEET) =    745.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.298
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.420
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =     27.92
  TOTAL AREA(ACRES) =      9.09   TOTAL RUNOFF(CFS) =     27.92

****************************************************************************
  FLOW PROCESS FROM NODE   4017.20 TO NODE   4017.30 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
==============================================================================
  UPSTREAM ELEVATION(FEET) =  745.00  DOWNSTREAM ELEVATION(FEET) =  739.50
  STREET LENGTH(FEET) =   608.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      27.94
    ***STREET FLOWING FULL***
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.54
    HALFSTREET FLOOD WIDTH(FEET) =   21.87
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.93
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.57
  STREET FLOW TRAVEL TIME(MIN.) =   3.46   Tc(MIN.) =    7.76
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.831
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6950
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.695
  SUBAREA AREA(ACRES) =    0.01      SUBAREA RUNOFF(CFS) =    0.03
  TOTAL AREA(ACRES) =        9.1        PEAK FLOW RATE(CFS) =      27.92
```

```
 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.54   HALFSTREET FLOOD WIDTH(FEET) =  21.87
 FLOW VELOCITY(FEET/SEC.) =  2.93   DEPTH*VELOCITY(FT*FT/SEC.) =   1.57
 LONGEST FLOWPATH FROM NODE   4017.10 TO NODE   4017.30 =     678.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   4017.30 TO NODE   4017.40 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   734.50  DOWNSTREAM(FEET) =   725.00
 FLOW LENGTH(FEET) =   355.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  24.0 INCH PIPE IS  16.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  12.44
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      27.92
 PIPE TRAVEL TIME(MIN.) =   0.48    Tc(MIN.) =    8.23
 LONGEST FLOWPATH FROM NODE   4017.10 TO NODE   4017.40 =    1033.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   4017.40 TO NODE   4018.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    725.00  DOWNSTREAM(FEET) =    724.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   224.00   CHANNEL SLOPE =  0.0045
 CHANNEL BASE(FEET) =   60.00   "Z" FACTOR =   3.000
 MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
  100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.190
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .3970
 S.C.S. CURVE NUMBER (AMC II) =   0
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      28.96
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   0.99
 AVERAGE FLOW DEPTH(FEET) =   0.48   TRAVEL TIME(MIN.) =   3.77
 Tc(MIN.) =   12.00
 SUBAREA AREA(ACRES) =     1.64       SUBAREA RUNOFF(CFS) =    2.08
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.649
 TOTAL AREA(ACRES) =       10.7         PEAK FLOW RATE(CFS) =      27.92

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.46   FLOW VELOCITY(FEET/SEC.) =   0.98
 LONGEST FLOWPATH FROM NODE   4017.10 TO NODE   4018.00 =    1257.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   4018.00 TO NODE   4019.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   724.00  DOWNSTREAM(FEET) =   723.60
 FLOW LENGTH(FEET) =    41.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  27.0 INCH PIPE IS  21.2 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   8.34
 ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      27.92
 PIPE TRAVEL TIME(MIN.) =   0.08    Tc(MIN.) =   12.08
 LONGEST FLOWPATH FROM NODE   4017.10 TO NODE   4019.00 =    1298.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   4019.00 TO NODE   4019.00 IS CODE =   1
```

```
------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
========================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   12.08
  RAINFALL INTENSITY(INCH/HR) =   3.18
  TOTAL STREAM AREA(ACRES) =    10.74
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     27.92

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1       45.01     9.67        3.500         23.83
      2       27.92    12.08        3.182         10.74

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF       Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1       67.36     9.67       3.500
      2       68.84    12.08       3.182

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      68.84   Tc(MIN.) =   12.08
  TOTAL AREA(ACRES) =       34.6
  LONGEST FLOWPATH FROM NODE   4000.00 TO NODE   4019.00 =    2170.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   4019.00 TO NODE   4020.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   723.60  DOWNSTREAM(FEET) =   723.00
  FLOW LENGTH(FEET) =    59.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  39.0 INCH PIPE IS  28.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.76
  ESTIMATED PIPE DIAMETER(INCH) =  39.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      68.84
  PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =   12.17
  LONGEST FLOWPATH FROM NODE   4000.00 TO NODE   4020.00 =    2229.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   5000.00 TO NODE   5001.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6770
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    60.00
  UPSTREAM ELEVATION(FEET) =    746.00
  DOWNSTREAM ELEVATION(FEET) =    745.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.974
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.420
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.57
  TOTAL AREA(ACRES) =      0.19   TOTAL RUNOFF(CFS) =      0.57
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   5001.00 TO NODE   5002.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  745.00  DOWNSTREAM ELEVATION(FEET) =  739.00
  STREET LENGTH(FEET) =   477.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.82
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.38
    HALFSTREET FLOOD WIDTH(FEET) =   13.64
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.48
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.94
  STREET FLOW TRAVEL TIME(MIN.) =   3.21   Tc(MIN.) =    8.19
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.755
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6960
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.695
  SUBAREA AREA(ACRES) =    3.24      SUBAREA RUNOFF(CFS) =    8.47
  TOTAL AREA(ACRES) =        3.4        PEAK FLOW RATE(CFS) =       8.95

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.45   HALFSTREET FLOOD WIDTH(FEET) =  17.39
  FLOW VELOCITY(FEET/SEC.) =  2.88   DEPTH*VELOCITY(FT*FT/SEC.) =   1.30
  LONGEST FLOWPATH FROM NODE   5000.00 TO NODE   5002.00 =     537.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   5002.00 TO NODE   5003.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   734.00  DOWNSTREAM(FEET) =   732.00
  FLOW LENGTH(FEET) =   119.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.91
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       8.95
  PIPE TRAVEL TIME(MIN.) =   0.25    Tc(MIN.) =    8.44
  LONGEST FLOWPATH FROM NODE   5000.00 TO NODE   5003.00 =     656.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   5003.00 TO NODE   5004.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    732.00  DOWNSTREAM(FEET) =    731.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    72.00   CHANNEL SLOPE =  0.0139
```

```
  CHANNEL BASE(FEET) =   50.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
   100 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.504
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4070
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.87
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.00
  AVERAGE FLOW DEPTH(FEET) =   0.20   TRAVEL TIME(MIN.) =   1.20
  Tc(MIN.) =    9.64
  SUBAREA AREA(ACRES) =     1.29       SUBAREA RUNOFF(CFS) =    1.84
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.616
  TOTAL AREA(ACRES) =        4.7         PEAK FLOW RATE(CFS) =      10.19

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.20   FLOW VELOCITY(FEET/SEC.) =   1.00
  LONGEST FLOWPATH FROM NODE   5000.00 TO NODE   5004.00 =     728.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   5004.00 TO NODE   5010.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   731.00  DOWNSTREAM(FEET) =   730.50
  FLOW LENGTH(FEET) =    46.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  14.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.72
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      10.19
  PIPE TRAVEL TIME(MIN.) =   0.11    Tc(MIN.) =    9.75
  LONGEST FLOWPATH FROM NODE   5000.00 TO NODE   5010.00 =     774.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        4.7  TC(MIN.) =      9.75
  PEAK FLOW RATE(CFS)   =      10.19
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

♀

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

            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
            Reference: SAN DIEGO COUNTY FLOOD CONTROL DISTRICT
                         2003,1985,1981 HYDROLOGY MANUAL
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                              Analysis prepared by:

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                               San Diego, CA. 92110
                          Ph 619-291-0707 Fx 619-291-4165

--------------------------------------------------------------------------
  FILE NAME: ECC050PR.DAT
  TIME/DATE OF STUDY: 15:47 02/23/2017
--------------------------------------------------------------------------
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
--------------------------------------------------------------------------
  USER SPECIFIED STORM EVENT(YEAR) =  50.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  RAINFALL-INTENSITY ADJUSTMENT FACTOR = 1.000
  *USER SPECIFIED:
  NUMBER OF [TIME,INTENSITY] DATA PAIRS = 19
   1)   5.000;  4.190
   2)   6.000;  3.910
   3)   7.000;  3.720
   4)   8.000;  3.520
   5)   9.000;  3.390
   6)  10.000;  3.220
   7)  12.000;  3.000
   8)  14.000;  2.800
   9)  15.000;  2.710
  10)  16.000;  2.630
  11)  18.000;  2.490
  12)  20.000;  2.360
  13)  22.000;  2.240
  14)  24.000;  2.130
  15)  26.000;  2.050
  16)  28.000;  1.960
  17)  30.000;  1.880
  18)  60.000;  1.230
  19) 600.000;  0.297
  SAN DIEGO HYDROLOGY MANUAL "C"-VALUES USED FOR RATIONAL METHOD
  NOTE: ONLY PEAK CONFLUENCE VALUES CONSIDERED
  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150
  2   20.0     15.0    0.020/0.020/0.020   0.50    1.50 0.0100 0.125 0.0180

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.50 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   1000.00 TO NODE   1001.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7770
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    90.00
  UPSTREAM ELEVATION(FEET) =   1501.00
  DOWNSTREAM ELEVATION(FEET) =   1470.00
  ELEVATION DIFFERENCE(FEET) =     31.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.560
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.190
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.23
  TOTAL AREA(ACRES) =      0.07   TOTAL RUNOFF(CFS) =      0.23

****************************************************************************
  FLOW PROCESS FROM NODE   1001.00 TO NODE   1050.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1470.00  DOWNSTREAM(FEET) =    774.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  6476.00   CHANNEL SLOPE =  0.1075
  CHANNEL BASE(FEET) =    5.00   "Z" FACTOR =   2.500
  MANNING'S FACTOR = 0.055   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.907
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3770
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     209.70
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  10.41
  AVERAGE FLOW DEPTH(FEET) =   2.01   TRAVEL TIME(MIN.) =  10.37
  Tc(MIN.) =   12.93
  SUBAREA AREA(ACRES) =   351.50       SUBAREA RUNOFF(CFS) =  385.26
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.377
  TOTAL AREA(ACRES) =      351.6         PEAK FLOW RATE(CFS) =     385.42

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  2.69   FLOW VELOCITY(FEET/SEC.) =  12.22
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1050.00 =    6566.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1050.00 TO NODE   1060.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    774.00  DOWNSTREAM(FEET) =    755.80
  CHANNEL LENGTH THRU SUBAREA(FEET) =   459.00   CHANNEL SLOPE =  0.0397
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   2.500
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.804
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3910
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     387.89
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   7.43
  AVERAGE FLOW DEPTH(FEET) =   2.47   TRAVEL TIME(MIN.) =   1.03
```

```
  Tc(MIN.) =   13.96
  SUBAREA AREA(ACRES) =     4.50       SUBAREA RUNOFF(CFS) =    4.93
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.377
  TOTAL AREA(ACRES) =      356.1         PEAK FLOW RATE(CFS) =     385.42

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  2.46   FLOW VELOCITY(FEET/SEC.) =   7.41
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1060.00 =    7025.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1055.00 TO NODE   1060.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.804
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6850
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3816
  SUBAREA AREA(ACRES) =    5.04   SUBAREA RUNOFF(CFS) =    9.68
  TOTAL AREA(ACRES) =      361.1   TOTAL RUNOFF(CFS) =     386.38
  TC(MIN.) =   13.96

****************************************************************************
  FLOW PROCESS FROM NODE   1060.00 TO NODE   1062.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    755.80  DOWNSTREAM(FEET) =    752.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   187.00   CHANNEL SLOPE =  0.0203
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   2.500
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     386.38
  FLOW VELOCITY(FEET/SEC.) =   5.85   FLOW DEPTH(FEET) =   2.95
  TRAVEL TIME(MIN.) =   0.53   Tc(MIN.) =   14.49
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1062.00 =    7212.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1061.00 TO NODE   1062.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.756
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6550
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.3827
  SUBAREA AREA(ACRES) =    1.59   SUBAREA RUNOFF(CFS) =    2.87
  TOTAL AREA(ACRES) =      362.7   TOTAL RUNOFF(CFS) =     386.38
  TC(MIN.) =   14.49
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   1062.00 TO NODE   1070.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    752.00  DOWNSTREAM(FEET) =    744.70
  CHANNEL LENGTH THRU SUBAREA(FEET) =   424.00   CHANNEL SLOPE =  0.0172
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   2.500
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
```

```
 CHANNEL FLOW THRU SUBAREA(CFS) =     386.38
 FLOW VELOCITY(FEET/SEC.) =   5.53   FLOW DEPTH(FEET) =   3.08
 TRAVEL TIME(MIN.) =   1.28   Tc(MIN.) =   15.77
 LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1070.00 =    7636.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1065.00 TO NODE   1070.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.649
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6740
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.3908
 SUBAREA AREA(ACRES) =   10.27   SUBAREA RUNOFF(CFS) =   18.33
 TOTAL AREA(ACRES) =      373.0   TOTAL RUNOFF(CFS) =     386.38
 TC(MIN.) =   15.77
 NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
 FLOW PROCESS FROM NODE   1070.00 TO NODE   1071.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    744.70  DOWNSTREAM(FEET) =    734.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   456.00   CHANNEL SLOPE =  0.0235
 CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   2.500
 MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     386.38
 FLOW VELOCITY(FEET/SEC.) =   6.17   FLOW DEPTH(FEET) =   2.84
 TRAVEL TIME(MIN.) =   1.23   Tc(MIN.) =   17.00
 LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1071.00 =    8092.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1071.00 TO NODE   1076.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   734.00  DOWNSTREAM(FEET) =   728.30
 FLOW LENGTH(FEET) =   278.00   MANNING'S N =  0.014
 DEPTH OF FLOW IN  66.0 INCH PIPE IS  49.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  20.21
 ESTIMATED PIPE DIAMETER(INCH) =  66.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =     386.38
 PIPE TRAVEL TIME(MIN.) =   0.23    Tc(MIN.) =   17.23
 LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1076.00 =    8370.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1076.00 TO NODE   1076.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =   17.23
 RAINFALL INTENSITY(INCH/HR) =   2.54
 TOTAL STREAM AREA(ACRES) =   372.97
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    386.38

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

```
 FLOW PROCESS FROM NODE   1072.00 TO NODE   1072.10 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6860
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =    90.00
 UPSTREAM ELEVATION(FEET) =    792.00
 DOWNSTREAM ELEVATION(FEET) =    786.00
 ELEVATION DIFFERENCE(FEET) =      6.00
 URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.757
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.190
 NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
 SUBAREA RUNOFF(CFS) =      0.52
 TOTAL AREA(ACRES) =      0.18   TOTAL RUNOFF(CFS) =      0.52

****************************************************************************
 FLOW PROCESS FROM NODE   1072.10 TO NODE   1072.30 IS CODE =  62
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  786.00  DOWNSTREAM ELEVATION(FEET) =  768.00
 STREET LENGTH(FEET) =   553.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 20.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.85
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.31
   HALFSTREET FLOOD WIDTH(FEET) =   10.24
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.39
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.05
 STREET FLOW TRAVEL TIME(MIN.) =   2.72   Tc(MIN.) =    6.48
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.819
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6990
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.698
 SUBAREA AREA(ACRES) =    2.49      SUBAREA RUNOFF(CFS) =    6.65
 TOTAL AREA(ACRES) =        2.7        PEAK FLOW RATE(CFS) =       7.12

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.37   HALFSTREET FLOOD WIDTH(FEET) =  13.17
 FLOW VELOCITY(FEET/SEC.) =  3.91   DEPTH*VELOCITY(FT*FT/SEC.) =   1.44
 LONGEST FLOWPATH FROM NODE   1072.00 TO NODE   1072.30 =     643.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1072.30 TO NODE   1072.50 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   763.00  DOWNSTREAM(FEET) =   759.00
```

```
  FLOW LENGTH(FEET) =   456.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.81
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       7.12
  PIPE TRAVEL TIME(MIN.) =   1.31    Tc(MIN.) =    7.79
  LONGEST FLOWPATH FROM NODE   1072.00 TO NODE   1072.50 =    1099.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1072.40 TO NODE   1072.50 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.563
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6940
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6956
  SUBAREA AREA(ACRES) =    4.15   SUBAREA RUNOFF(CFS) =   10.26
  TOTAL AREA(ACRES) =        6.8   TOTAL RUNOFF(CFS) =      16.90
  TC(MIN.) =    7.79

****************************************************************************
  FLOW PROCESS FROM NODE   1072.50 TO NODE   1072.70 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   759.00  DOWNSTREAM(FEET) =   758.00
  FLOW LENGTH(FEET) =    68.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  15.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.63
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      16.90
  PIPE TRAVEL TIME(MIN.) =   0.13    Tc(MIN.) =    7.92
  LONGEST FLOWPATH FROM NODE   1072.00 TO NODE   1072.70 =    1167.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1072.60 TO NODE   1072.70 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.537
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6890
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6936
  SUBAREA AREA(ACRES) =    2.89   SUBAREA RUNOFF(CFS) =    7.04
  TOTAL AREA(ACRES) =        9.7   TOTAL RUNOFF(CFS) =      23.82
  TC(MIN.) =    7.92

****************************************************************************
  FLOW PROCESS FROM NODE   1072.70 TO NODE   1072.90 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   758.00  DOWNSTREAM(FEET) =   755.00
  FLOW LENGTH(FEET) =   240.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  19.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.74
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      23.82
```

```
  PIPE TRAVEL TIME(MIN.) =   0.46    Tc(MIN.) =    8.37
  LONGEST FLOWPATH FROM NODE   1072.00 TO NODE   1072.90 =    1407.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1072.80 TO NODE   1072.90 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.471
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7000
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6949
  SUBAREA AREA(ACRES) =    2.37   SUBAREA RUNOFF(CFS) =    5.76
  TOTAL AREA(ACRES) =       12.1   TOTAL RUNOFF(CFS) =      29.14
  TC(MIN.) =    8.37

****************************************************************************
  FLOW PROCESS FROM NODE   1072.90 TO NODE   1073.10 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   755.00  DOWNSTREAM(FEET) =   735.00
  FLOW LENGTH(FEET) =   577.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  13.88
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      29.14
  PIPE TRAVEL TIME(MIN.) =   0.69    Tc(MIN.) =    9.07
  LONGEST FLOWPATH FROM NODE   1072.00 TO NODE   1073.10 =    1984.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1073.00 TO NODE   1073.10 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.378
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7000
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6967
  SUBAREA AREA(ACRES) =    6.84   SUBAREA RUNOFF(CFS) =   16.18
  TOTAL AREA(ACRES) =       18.9   TOTAL RUNOFF(CFS) =      44.54
  TC(MIN.) =    9.07

****************************************************************************
  FLOW PROCESS FROM NODE   1073.10 TO NODE   1074.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   735.00  DOWNSTREAM(FEET) =   730.70
  FLOW LENGTH(FEET) =    58.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  20.54
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      44.54
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =    9.11
  LONGEST FLOWPATH FROM NODE   1072.00 TO NODE   1074.00 =    2042.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1074.00 TO NODE   1075.00 IS CODE =  51
```

```
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    730.70  DOWNSTREAM(FEET) =    729.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   157.00   CHANNEL SLOPE =  0.0108
  CHANNEL BASE(FEET) =  100.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.091
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      45.45
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.27
  AVERAGE FLOW DEPTH(FEET) =   0.35   TRAVEL TIME(MIN.) =   2.06
  Tc(MIN.) =   11.17
  SUBAREA AREA(ACRES) =     1.68       SUBAREA RUNOFF(CFS) =    1.82
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.668
  TOTAL AREA(ACRES) =       20.6         PEAK FLOW RATE(CFS) =      44.54

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.35   FLOW VELOCITY(FEET/SEC.) =   1.27
  LONGEST FLOWPATH FROM NODE   1072.00 TO NODE   1075.00 =    2199.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1075.00 TO NODE   1076.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   729.00  DOWNSTREAM(FEET) =   728.30
  FLOW LENGTH(FEET) =    66.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  33.0 INCH PIPE IS  23.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.82
  ESTIMATED PIPE DIAMETER(INCH) =  33.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      44.54
  PIPE TRAVEL TIME(MIN.) =   0.11    Tc(MIN.) =   11.29
  LONGEST FLOWPATH FROM NODE   1072.00 TO NODE   1076.00 =    2265.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1076.00 TO NODE   1076.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   11.29
  RAINFALL INTENSITY(INCH/HR) =   3.08
  TOTAL STREAM AREA(ACRES) =    20.60
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     44.54

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      386.38    17.23        2.544        372.97
      2       44.54    11.29        3.079         20.60

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF      Tc      INTENSITY
```

NUMBER	(CFS)	(MIN.)	(INCH/HOUR)
1	297.64	11.29	3.079
2	423.19	17.23	2.544

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 423.19 Tc(MIN.) = 17.23
TOTAL AREA(ACRES) = 393.6
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1076.00 = 8370.00 FEET.

****
FLOW PROCESS FROM NODE 1076.00 TO NODE 1150.00 IS CODE = 31

>>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==
ELEVATION DATA: UPSTREAM(FEET) = 728.30 DOWNSTREAM(FEET) = 724.00
FLOW LENGTH(FEET) = 187.00 MANNING'S N = 0.014
DEPTH OF FLOW IN 66.0 INCH PIPE IS 51.0 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 21.47
ESTIMATED PIPE DIAMETER(INCH) = 66.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 423.19
PIPE TRAVEL TIME(MIN.) = 0.15 Tc(MIN.) = 17.37
LONGEST FLOWPATH FROM NODE 1000.00 TO NODE 1150.00 = 8557.00 FEET.

****
FLOW PROCESS FROM NODE 1150.00 TO NODE 1150.00 IS CODE = 1

>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
==
TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 1 ARE:
TIME OF CONCENTRATION(MIN.) = 17.37
RAINFALL INTENSITY(INCH/HR) = 2.53
TOTAL STREAM AREA(ACRES) = 393.57
PEAK FLOW RATE(CFS) AT CONFLUENCE = 423.19

****
FLOW PROCESS FROM NODE 1080.00 TO NODE 1081.00 IS CODE = 21

>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==
*USER SPECIFIED(SUBAREA):
USER-SPECIFIED RUNOFF COEFFICIENT = .3500
S.C.S. CURVE NUMBER (AMC II) = 0
INITIAL SUBAREA FLOW-LENGTH(FEET) = 94.00
UPSTREAM ELEVATION(FEET) = 1379.00
DOWNSTREAM ELEVATION(FEET) = 1363.00
ELEVATION DIFFERENCE(FEET) = 16.00
URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) = 6.076
WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
50 YEAR RAINFALL INTENSITY(INCH/HOUR) = 3.896
SUBAREA RUNOFF(CFS) = 0.14
TOTAL AREA(ACRES) = 0.10 TOTAL RUNOFF(CFS) = 0.14

****
FLOW PROCESS FROM NODE 1081.00 TO NODE 1120.00 IS CODE = 51

>>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
>>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==
ELEVATION DATA: UPSTREAM(FEET) = 1363.00 DOWNSTREAM(FEET) = 822.00
CHANNEL LENGTH THRU SUBAREA(FEET) = 3281.00 CHANNEL SLOPE = 0.1649
CHANNEL BASE(FEET) = 10.00 "Z" FACTOR = 2.000

```
  MANNING'S FACTOR = 0.050   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.031
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4310
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      96.39
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   9.70
  AVERAGE FLOW DEPTH(FEET) =   0.85   TRAVEL TIME(MIN.) =   5.64
  Tc(MIN.) =   11.72
  SUBAREA AREA(ACRES) =   147.04       SUBAREA RUNOFF(CFS) =  192.10
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.431
  TOTAL AREA(ACRES) =      147.1         PEAK FLOW RATE(CFS) =     192.21

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  1.26   FLOW VELOCITY(FEET/SEC.) =  12.16
  LONGEST FLOWPATH FROM NODE   1080.00 TO NODE   1120.00 =    3375.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1120.00 TO NODE   1130.00 IS CODE =  41
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   822.00  DOWNSTREAM(FEET) =   790.00
  FLOW LENGTH(FEET) =   852.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  48.0 INCH PIPE IS  20.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.40
  GIVEN PIPE DIAMETER(INCH) =  48.00    NUMBER OF PIPES =   2
  PIPE-FLOW(CFS) =     192.21
  PIPE TRAVEL TIME(MIN.) =   0.73    Tc(MIN.) =   12.45
  LONGEST FLOWPATH FROM NODE   1080.00 TO NODE   1130.00 =    4227.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1130.00 TO NODE   1140.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    790.00  DOWNSTREAM(FEET) =    737.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1221.00   CHANNEL SLOPE =  0.0430
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   2.500
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.665
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3730
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     193.94
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.52
  AVERAGE FLOW DEPTH(FEET) =   1.99   TRAVEL TIME(MIN.) =   3.12
  Tc(MIN.) =   15.57
  SUBAREA AREA(ACRES) =     3.48       SUBAREA RUNOFF(CFS) =    3.46
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.430
  TOTAL AREA(ACRES) =      150.6         PEAK FLOW RATE(CFS) =     192.21

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  1.97   FLOW VELOCITY(FEET/SEC.) =   6.52
  LONGEST FLOWPATH FROM NODE   1080.00 TO NODE   1140.00 =    5448.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1135.00 TO NODE   1140.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
```

```
  50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.665
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6700
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.4470
 SUBAREA AREA(ACRES) =   11.76   SUBAREA RUNOFF(CFS) =   21.00
 TOTAL AREA(ACRES) =      162.4   TOTAL RUNOFF(CFS) =     193.42
 TC(MIN.) =   15.57

****************************************************************************
 FLOW PROCESS FROM NODE   1140.00 TO NODE   1145.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    737.50  DOWNSTREAM(FEET) =    737.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =    66.00   CHANNEL SLOPE =  0.0076
 CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   2.500
 MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =     193.42
 FLOW VELOCITY(FEET/SEC.) =   3.50   FLOW DEPTH(FEET) =   3.11
 TRAVEL TIME(MIN.) =   0.31   Tc(MIN.) =   15.88
 LONGEST FLOWPATH FROM NODE   1080.00 TO NODE   1145.00 =    5514.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1145.00 TO NODE   1150.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   737.00  DOWNSTREAM(FEET) =   724.00
 FLOW LENGTH(FEET) =   749.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  51.0 INCH PIPE IS  38.3 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  16.92
 ESTIMATED PIPE DIAMETER(INCH) =  51.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =     193.42
 PIPE TRAVEL TIME(MIN.) =   0.74    Tc(MIN.) =   16.62
 LONGEST FLOWPATH FROM NODE   1080.00 TO NODE   1150.00 =    6263.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1150.00 TO NODE   1150.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =   16.62
 RAINFALL INTENSITY(INCH/HR) =   2.59
 TOTAL STREAM AREA(ACRES) =   162.38
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    193.42

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1      423.19    17.37        2.534        393.57
     2      193.42    16.62        2.587        162.38

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF       Tc      INTENSITY
```

```
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      607.96    16.62       2.587
      2      612.65    17.37       2.534

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     612.65   Tc(MIN.) =   17.37
  TOTAL AREA(ACRES) =      556.0
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1150.00 =    8557.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1150.00 TO NODE   1152.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   724.00  DOWNSTREAM(FEET) =   715.70
  FLOW LENGTH(FEET) =   366.00   MANNING'S N =  0.014
  DEPTH OF FLOW IN  75.0 INCH PIPE IS  60.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  23.27
  ESTIMATED PIPE DIAMETER(INCH) =  75.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     612.65
  PIPE TRAVEL TIME(MIN.) =   0.26    Tc(MIN.) =   17.64
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1152.00 =    8923.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1152.00 TO NODE   1152.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   17.64
  RAINFALL INTENSITY(INCH/HR) =   2.52
  TOTAL STREAM AREA(ACRES) =   555.95
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    612.65

****************************************************************************
  FLOW PROCESS FROM NODE   1151.00 TO NODE   1151.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7000
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    60.00
  UPSTREAM ELEVATION(FEET) =    728.00
  DOWNSTREAM ELEVATION(FEET) =    726.80
  ELEVATION DIFFERENCE(FEET) =      1.20
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.427
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.190
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.67
  TOTAL AREA(ACRES) =      0.23   TOTAL RUNOFF(CFS) =      0.67

****************************************************************************
  FLOW PROCESS FROM NODE   1151.10 TO NODE   1151.20 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    726.80  DOWNSTREAM(FEET) =    724.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =   137.00   CHANNEL SLOPE =  0.0168
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  10.000
```

```
 MANNING'S FACTOR = 0.035   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =       0.67
 FLOW VELOCITY(FEET/SEC.) =   0.88   FLOW DEPTH(FEET) =   0.07
 TRAVEL TIME(MIN.) =   2.59   Tc(MIN.) =    7.02
 LONGEST FLOWPATH FROM NODE   1151.00 TO NODE   1151.20 =     197.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1151.20 TO NODE   1151.30 IS CODE =  62
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  724.50  DOWNSTREAM ELEVATION(FEET) =  722.00
 STREET LENGTH(FEET) =   325.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 20.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.67
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.37
   HALFSTREET FLOOD WIDTH(FEET) =   13.47
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    1.93
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.72
 STREET FLOW TRAVEL TIME(MIN.) =   2.80   Tc(MIN.) =    9.82
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.250
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6860
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.687
 SUBAREA AREA(ACRES) =    2.67      SUBAREA RUNOFF(CFS) =    5.95
 TOTAL AREA(ACRES) =        2.9        PEAK FLOW RATE(CFS) =       6.48

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.44   HALFSTREET FLOOD WIDTH(FEET) =  16.87
 FLOW VELOCITY(FEET/SEC.) =  2.21   DEPTH*VELOCITY(FT*FT/SEC.) =   0.98
 LONGEST FLOWPATH FROM NODE   1151.00 TO NODE   1151.30 =     522.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1151.30 TO NODE   1151.40 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   717.00  DOWNSTREAM(FEET) =   716.70
 FLOW LENGTH(FEET) =    26.00   MANNING'S N =  0.013
 ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
 DEPTH OF FLOW IN  18.0 INCH PIPE IS  10.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   6.36
 ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       6.48
 PIPE TRAVEL TIME(MIN.) =   0.07    Tc(MIN.) =    9.89
 LONGEST FLOWPATH FROM NODE   1151.00 TO NODE   1151.40 =     548.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1151.40 TO NODE   1151.50 IS CODE =  51
```

```
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    716.70  DOWNSTREAM(FEET) =    716.20
  CHANNEL LENGTH THRU SUBAREA(FEET) =   102.00   CHANNEL SLOPE =  0.0049
  CHANNEL BASE(FEET) =   80.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.879
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3630
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       6.73
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   0.51
  AVERAGE FLOW DEPTH(FEET) =   0.16   TRAVEL TIME(MIN.) =   3.32
  Tc(MIN.) =   13.21
  SUBAREA AREA(ACRES) =     0.48       SUBAREA RUNOFF(CFS) =    0.50
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.641
  TOTAL AREA(ACRES) =        3.4         PEAK FLOW RATE(CFS) =       6.48

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.16   FLOW VELOCITY(FEET/SEC.) =   0.51
  LONGEST FLOWPATH FROM NODE   1151.00 TO NODE   1151.50 =     650.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1151.50 TO NODE   1152.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   716.20  DOWNSTREAM(FEET) =   715.70
  FLOW LENGTH(FEET) =    49.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  10.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.07
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       6.48
  PIPE TRAVEL TIME(MIN.) =   0.13    Tc(MIN.) =   13.34
  LONGEST FLOWPATH FROM NODE   1151.00 TO NODE   1152.00 =     699.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1152.00 TO NODE   1152.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   13.34
  RAINFALL INTENSITY(INCH/HR) =   2.87
  TOTAL STREAM AREA(ACRES) =     3.38
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      6.48

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      612.65    17.64        2.515        555.95
      2        6.48    13.34        2.866          3.38

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF       Tc      INTENSITY
```

```
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      544.26    13.34       2.866
      2      618.34    17.64       2.515

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     618.34   Tc(MIN.) =   17.64
  TOTAL AREA(ACRES) =      559.3
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1152.00 =    8923.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1152.00 TO NODE   1154.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   715.70  DOWNSTREAM(FEET) =   714.30
  FLOW LENGTH(FEET) =   195.00   MANNING'S N =  0.014
  DEPTH OF FLOW IN  93.0 INCH PIPE IS  75.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.12
  ESTIMATED PIPE DIAMETER(INCH) =  93.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     618.34
  PIPE TRAVEL TIME(MIN.) =   0.21    Tc(MIN.) =   17.85
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1154.00 =    9118.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1154.00 TO NODE   1154.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   17.85
  RAINFALL INTENSITY(INCH/HR) =   2.50
  TOTAL STREAM AREA(ACRES) =   559.33
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    618.34

****************************************************************************
  FLOW PROCESS FROM NODE   1153.00 TO NODE   1153.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7010
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    60.00
  UPSTREAM ELEVATION(FEET) =    728.00
  DOWNSTREAM ELEVATION(FEET) =    727.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.692
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.190
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.68
  TOTAL AREA(ACRES) =      0.23   TOTAL RUNOFF(CFS) =      0.68

****************************************************************************
  FLOW PROCESS FROM NODE   1153.10 TO NODE   1153.20 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    727.00  DOWNSTREAM(FEET) =    726.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    92.00   CHANNEL SLOPE =  0.0109
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  10.000
```

```
 MANNING'S FACTOR = 0.035   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =       0.68
 FLOW VELOCITY(FEET/SEC.) =   0.79   FLOW DEPTH(FEET) =   0.08
 TRAVEL TIME(MIN.) =   1.94   Tc(MIN.) =    6.63
 LONGEST FLOWPATH FROM NODE   1153.00 TO NODE   1153.20 =     152.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1153.20 TO NODE   1153.30 IS CODE =  62
----------------------------------------------------------------------------
 >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
 UPSTREAM ELEVATION(FEET) =  726.00  DOWNSTREAM ELEVATION(FEET) =  721.00
 STREET LENGTH(FEET) =   159.00   CURB HEIGHT(INCHES) =  6.0
 STREET HALFWIDTH(FEET) = 20.00

 DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
 INSIDE STREET CROSSFALL(DECIMAL) =  0.020
 OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

 SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
 STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
 Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
 Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

   **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.93
   STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
   STREET FLOW DEPTH(FEET) =  0.26
   HALFSTREET FLOOD WIDTH(FEET) =    7.72
   AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.82
   PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.73
 STREET FLOW TRAVEL TIME(MIN.) =   0.94   Tc(MIN.) =    7.57
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.606
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .7000
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.700
 SUBAREA AREA(ACRES) =    0.99      SUBAREA RUNOFF(CFS) =    2.50
 TOTAL AREA(ACRES) =        1.2        PEAK FLOW RATE(CFS) =       3.08

 END OF SUBAREA STREET FLOW HYDRAULICS:
 DEPTH(FEET) = 0.29   HALFSTREET FLOOD WIDTH(FEET) =   9.42
 FLOW VELOCITY(FEET/SEC.) =  3.16   DEPTH*VELOCITY(FT*FT/SEC.) =   0.93
 LONGEST FLOWPATH FROM NODE   1153.00 TO NODE   1153.30 =     311.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1153.30 TO NODE   1153.40 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   715.20  DOWNSTREAM(FEET) =   714.90
 FLOW LENGTH(FEET) =    33.00   MANNING'S N =  0.013
 ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
 DEPTH OF FLOW IN  18.0 INCH PIPE IS   7.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   4.81
 ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       3.08
 PIPE TRAVEL TIME(MIN.) =   0.11    Tc(MIN.) =    7.68
 LONGEST FLOWPATH FROM NODE   1153.00 TO NODE   1153.40 =     344.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   1153.40 TO NODE   1153.50 IS CODE =  51
```

```
------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    714.90  DOWNSTREAM(FEET) =    714.60
  CHANNEL LENGTH THRU SUBAREA(FEET) =    52.40   CHANNEL SLOPE =  0.0057
  CHANNEL BASE(FEET) =   25.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.375
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4010
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.21
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   0.62
  AVERAGE FLOW DEPTH(FEET) =   0.20   TRAVEL TIME(MIN.) =   1.40
  Tc(MIN.) =    9.09
  SUBAREA AREA(ACRES) =     0.19       SUBAREA RUNOFF(CFS) =    0.26
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.660
  TOTAL AREA(ACRES) =        1.4         PEAK FLOW RATE(CFS) =       3.14

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.20   FLOW VELOCITY(FEET/SEC.) =   0.63
  LONGEST FLOWPATH FROM NODE   1153.00 TO NODE   1153.50 =     396.40 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1153.50 TO NODE   1154.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   714.60  DOWNSTREAM(FEET) =   714.30
  FLOW LENGTH(FEET) =    35.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   7.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.74
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.14
  PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =    9.21
  LONGEST FLOWPATH FROM NODE   1153.00 TO NODE   1154.00 =     431.40 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1154.00 TO NODE   1154.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.21
  RAINFALL INTENSITY(INCH/HR) =   3.35
  TOTAL STREAM AREA(ACRES) =     1.41
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.14

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      618.34    17.85        2.500        559.33
      2        3.14     9.21        3.354          1.41

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
```

```
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      464.08     9.21       3.354
      2      620.68    17.85       2.500

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     620.68   Tc(MIN.) =   17.85
  TOTAL AREA(ACRES) =      560.7
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1154.00 =    9118.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1154.00 TO NODE   1160.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   714.30  DOWNSTREAM(FEET) =   714.20
  FLOW LENGTH(FEET) =    36.00   MANNING'S N =  0.014
  DEPTH OF FLOW IN 114.0 INCH PIPE IS  86.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.73
  ESTIMATED PIPE DIAMETER(INCH) = 114.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     620.68
  PIPE TRAVEL TIME(MIN.) =   0.06    Tc(MIN.) =   17.91
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1160.00 =    9154.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1160.00 TO NODE   1160.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   17.91
  RAINFALL INTENSITY(INCH/HR) =   2.50
  TOTAL STREAM AREA(ACRES) =   560.74
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    620.68

****************************************************************************
  FLOW PROCESS FROM NODE   1155.00 TO NODE   1155.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7000
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    70.00
  UPSTREAM ELEVATION(FEET) =    736.00
  DOWNSTREAM ELEVATION(FEET) =    734.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.245
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.190
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.29
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.29

****************************************************************************
  FLOW PROCESS FROM NODE   1155.10 TO NODE   1155.20 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  734.00  DOWNSTREAM ELEVATION(FEET) =  726.00
  STREET LENGTH(FEET) =   274.00   CURB HEIGHT(INCHES) =  6.0
```

```
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       1.71
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.25
    HALFSTREET FLOOD WIDTH(FEET) =    7.43
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.67
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.68
  STREET FLOW TRAVEL TIME(MIN.) =   1.71   Tc(MIN.) =    5.95
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.923
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6990
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.699
  SUBAREA AREA(ACRES) =    1.03      SUBAREA RUNOFF(CFS) =    2.82
  TOTAL AREA(ACRES) =        1.1        PEAK FLOW RATE(CFS) =       3.10

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.30   HALFSTREET FLOOD WIDTH(FEET) =   9.60
  FLOW VELOCITY(FEET/SEC.) =  3.08   DEPTH*VELOCITY(FT*FT/SEC.) =   0.91
  LONGEST FLOWPATH FROM NODE   1155.00 TO NODE   1155.20 =     344.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1155.20 TO NODE   1155.30 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   720.00  DOWNSTREAM(FEET) =   717.10
  FLOW LENGTH(FEET) =    90.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   5.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.61
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.10
  PIPE TRAVEL TIME(MIN.) =   0.20    Tc(MIN.) =    6.15
  LONGEST FLOWPATH FROM NODE   1155.00 TO NODE   1155.30 =     434.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1155.30 TO NODE   1155.40 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   7717.10  DOWNSTREAM(FEET) =    716.40
  CHANNEL LENGTH THRU SUBAREA(FEET) =   139.00   CHANNEL SLOPE = 50.3647
  CHANNEL BASE(FEET) =   50.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.814
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3520
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.42
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   6.52
```

```
  AVERAGE FLOW DEPTH(FEET) =   0.01   TRAVEL TIME(MIN.) =   0.36
  Tc(MIN.) =    6.51
  SUBAREA AREA(ACRES) =     0.48       SUBAREA RUNOFF(CFS) =    0.64
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.596
  TOTAL AREA(ACRES) =        1.6         PEAK FLOW RATE(CFS) =       3.66

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.01   FLOW VELOCITY(FEET/SEC.) =   6.97
  LONGEST FLOWPATH FROM NODE   1155.00 TO NODE   1155.40 =     573.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1155.40 TO NODE   1160.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   716.40  DOWNSTREAM(FEET) =   714.20
  FLOW LENGTH(FEET) =   223.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   7.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.20
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.66
  PIPE TRAVEL TIME(MIN.) =   0.72    Tc(MIN.) =    7.22
  LONGEST FLOWPATH FROM NODE   1155.00 TO NODE   1160.00 =     796.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1160.00 TO NODE   1160.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.22
  RAINFALL INTENSITY(INCH/HR) =   3.68
  TOTAL STREAM AREA(ACRES) =     1.61
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      3.66

  ** CONFLUENCE DATA **
  STREAM     RUNOFF       Tc      INTENSITY      AREA
  NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
      1      620.68    17.91        2.497        560.74
      2        3.66     7.22        3.676          1.61

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
  STREAM     RUNOFF       Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      425.20     7.22       3.676
      2      623.16    17.91       2.497

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     623.16   Tc(MIN.) =   17.91
  TOTAL AREA(ACRES) =      562.3
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1160.00 =    9154.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1160.00 TO NODE   1170.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
```

```
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   714.20  DOWNSTREAM(FEET) =   714.00
  FLOW LENGTH(FEET) =    35.00   MANNING'S N =  0.014
  DEPTH OF FLOW IN 102.0 INCH PIPE IS  73.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.18
  ESTIMATED PIPE DIAMETER(INCH) = 102.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     623.16
  PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =   17.95
  LONGEST FLOWPATH FROM NODE   1000.00 TO NODE   1170.00 =    9189.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   1165.00 TO NODE   1170.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.494
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6290
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.4263
  SUBAREA AREA(ACRES) =   17.53   SUBAREA RUNOFF(CFS) =   27.50
  TOTAL AREA(ACRES) =      579.9   TOTAL RUNOFF(CFS) =     623.16
  TC(MIN.) =   17.95
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   2000.00 TO NODE   2001.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    94.00
  UPSTREAM ELEVATION(FEET) =   1274.00
  DOWNSTREAM ELEVATION(FEET) =   1233.00
  ELEVATION DIFFERENCE(FEET) =     41.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    6.076
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.896
  SUBAREA RUNOFF(CFS) =      0.16
  TOTAL AREA(ACRES) =      0.12   TOTAL RUNOFF(CFS) =      0.16

****************************************************************************
  FLOW PROCESS FROM NODE   2001.00 TO NODE   2002.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   1233.00  DOWNSTREAM(FEET) =    867.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1422.00   CHANNEL SLOPE =  0.2574
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.055   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.539
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .5420
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     151.74
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  12.95
  AVERAGE FLOW DEPTH(FEET) =   1.54   TRAVEL TIME(MIN.) =   1.83
  Tc(MIN.) =    7.91
  SUBAREA AREA(ACRES) =   159.31       SUBAREA RUNOFF(CFS) =  305.57
```

```
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.542
  TOTAL AREA(ACRES) =      159.4         PEAK FLOW RATE(CFS) =     305.72

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  2.11   FLOW VELOCITY(FEET/SEC.) =  15.52
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2002.00 =    1516.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2002.00 TO NODE   2004.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   867.00  DOWNSTREAM(FEET) =   849.50
  FLOW LENGTH(FEET) =   272.00   MANNING'S N =  0.024
  DEPTH OF FLOW IN  60.0 INCH PIPE IS  44.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  19.57
  ESTIMATED PIPE DIAMETER(INCH) =  60.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     305.72
  PIPE TRAVEL TIME(MIN.) =   0.23    Tc(MIN.) =    8.14
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2004.00 =    1788.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2004.00 TO NODE   2008.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    849.50  DOWNSTREAM(FEET) =    771.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1704.00   CHANNEL SLOPE =  0.0461
  CHANNEL BASE(FEET) =    3.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.045   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     305.72
  FLOW VELOCITY(FEET/SEC.) =   9.50   FLOW DEPTH(FEET) =   2.81
  TRAVEL TIME(MIN.) =   2.99   Tc(MIN.) =   11.13
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2008.00 =    3492.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2008.00 TO NODE   2010.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   771.00  DOWNSTREAM(FEET) =   759.00
  FLOW LENGTH(FEET) =   242.00   MANNING'S N =  0.014
  DEPTH OF FLOW IN  51.0 INCH PIPE IS  38.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  26.50
  ESTIMATED PIPE DIAMETER(INCH) =  51.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     305.72
  PIPE TRAVEL TIME(MIN.) =   0.15    Tc(MIN.) =   11.28
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2010.00 =    3734.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2010.00 TO NODE   2020.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    759.00  DOWNSTREAM(FEET) =    743.40
  CHANNEL LENGTH THRU SUBAREA(FEET) =  1003.00   CHANNEL SLOPE =  0.0156
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.744
```

```
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3990
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     308.27
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.00
  AVERAGE FLOW DEPTH(FEET) =   3.16   TRAVEL TIME(MIN.) =   3.34
  Tc(MIN.) =   14.62
  SUBAREA AREA(ACRES) =     4.65       SUBAREA RUNOFF(CFS) =    5.09
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.538
  TOTAL AREA(ACRES) =      164.1         PEAK FLOW RATE(CFS) =     305.72

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  3.15   FLOW VELOCITY(FEET/SEC.) =   4.98
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2020.00 =    4737.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2015.00 TO NODE   2020.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.744
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .5800
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5389
  SUBAREA AREA(ACRES) =    4.28   SUBAREA RUNOFF(CFS) =    6.81
  TOTAL AREA(ACRES) =      168.4   TOTAL RUNOFF(CFS) =     305.72
  TC(MIN.) =   14.62
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   2020.00 TO NODE   2030.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    743.40  DOWNSTREAM(FEET) =    743.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    43.00   CHANNEL SLOPE =  0.0093
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     305.72
  FLOW VELOCITY(FEET/SEC.) =   4.13   FLOW DEPTH(FEET) =   3.57
  TRAVEL TIME(MIN.) =   0.17   Tc(MIN.) =   14.79
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2030.00 =    4780.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2030.00 TO NODE   2060.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   743.00  DOWNSTREAM(FEET) =   741.00
  FLOW LENGTH(FEET) =   186.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  66.0 INCH PIPE IS  50.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.84
  ESTIMATED PIPE DIAMETER(INCH) =  66.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     305.72
  PIPE TRAVEL TIME(MIN.) =   0.20    Tc(MIN.) =   14.99
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2060.00 =    4966.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2035.00 TO NODE   2060.00 IS CODE =  81
----------------------------------------------------------------------------
```

```
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.711
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7140
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5412
  SUBAREA AREA(ACRES) =    2.30   SUBAREA RUNOFF(CFS) =    4.45
  TOTAL AREA(ACRES) =      170.7   TOTAL RUNOFF(CFS) =     305.72
  TC(MIN.) =   14.99
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   2045.00 TO NODE   2060.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.711
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .9500
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5427
  SUBAREA AREA(ACRES) =    0.63   SUBAREA RUNOFF(CFS) =    1.62
  TOTAL AREA(ACRES) =      171.3   TOTAL RUNOFF(CFS) =     305.72
  TC(MIN.) =   14.99
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   2055.00 TO NODE   2060.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
================================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.711
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7060
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6067
  SUBAREA AREA(ACRES) =  110.27   SUBAREA RUNOFF(CFS) =  211.05
  TOTAL AREA(ACRES) =      281.6   TOTAL RUNOFF(CFS) =     463.07
  TC(MIN.) =   14.99

****************************************************************************
  FLOW PROCESS FROM NODE   2060.00 TO NODE   2080.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    741.00  DOWNSTREAM(FEET) =    727.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   865.00   CHANNEL SLOPE =  0.0162
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.518
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4070
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     464.57
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   5.53
  AVERAGE FLOW DEPTH(FEET) =   3.35   TRAVEL TIME(MIN.) =   2.61
  Tc(MIN.) =   17.60
  SUBAREA AREA(ACRES) =     2.93       SUBAREA RUNOFF(CFS) =    3.00
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.605
  TOTAL AREA(ACRES) =      284.5         PEAK FLOW RATE(CFS) =     463.07
```

```
  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  3.35   FLOW VELOCITY(FEET/SEC.) =   5.51
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2080.00 =    5831.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2080.00 TO NODE   2080.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   2061.00 TO NODE   2061.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6990
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    60.00
  UPSTREAM ELEVATION(FEET) =    750.00
  DOWNSTREAM ELEVATION(FEET) =    749.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.716
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.190
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      1.05
  TOTAL AREA(ACRES) =      0.36   TOTAL RUNOFF(CFS) =      1.05

****************************************************************************
  FLOW PROCESS FROM NODE   2061.10 TO NODE   2062.20 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  749.00  DOWNSTREAM ELEVATION(FEET) =  745.00
  STREET LENGTH(FEET) =   632.39   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       6.08
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.45
    HALFSTREET FLOOD WIDTH(FEET) =   17.10
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.02
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.90
  STREET FLOW TRAVEL TIME(MIN.) =   5.22   Tc(MIN.) =    9.94
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.231
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6980
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.698
  SUBAREA AREA(ACRES) =    4.39      SUBAREA RUNOFF(CFS) =    9.90
  TOTAL AREA(ACRES) =        4.8        PEAK FLOW RATE(CFS) =      10.71

  END OF SUBAREA STREET FLOW HYDRAULICS:
```

```
 DEPTH(FEET) = 0.51   HALFSTREET FLOOD WIDTH(FEET) =  20.25
 FLOW VELOCITY(FEET/SEC.) =  2.24   DEPTH*VELOCITY(FT*FT/SEC.) =   1.13
 *NOTE: INITIAL SUBAREA NOMOGRAPH WITH SUBAREA PARAMETERS,
        AND L =  632.4 FT WITH ELEVATION-DROP =   4.0 FT, IS   11.9 CFS,
        WHICH EXCEEDS THE TOP-OF-CURB STREET CAPACITY AT NODE   2062.20
 LONGEST FLOWPATH FROM NODE   2061.00 TO NODE   2062.20 =     692.39 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2061.20 TO NODE   2061.40 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   740.00  DOWNSTREAM(FEET) =   736.00
 FLOW LENGTH(FEET) =   356.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  21.0 INCH PIPE IS  12.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   7.12
 ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      10.71
 PIPE TRAVEL TIME(MIN.) =   0.83    Tc(MIN.) =   10.77
 LONGEST FLOWPATH FROM NODE   2061.00 TO NODE   2061.40 =    1048.39 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2061.30 TO NODE   2061.40 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.135
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6970
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.6977
 SUBAREA AREA(ACRES) =    2.48   SUBAREA RUNOFF(CFS) =    5.42
 TOTAL AREA(ACRES) =        7.2   TOTAL RUNOFF(CFS) =     15.82
 TC(MIN.) =   10.77

****************************************************************************
 FLOW PROCESS FROM NODE   2061.40 TO NODE   2061.50 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   736.00  DOWNSTREAM(FEET) =   735.00
 FLOW LENGTH(FEET) =   129.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  24.0 INCH PIPE IS  16.8 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   6.75
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      15.82
 PIPE TRAVEL TIME(MIN.) =   0.32    Tc(MIN.) =   11.09
 LONGEST FLOWPATH FROM NODE   2061.00 TO NODE   2061.50 =    1177.39 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2061.50 TO NODE   2061.60 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    735.00  DOWNSTREAM(FEET) =    734.50
 CHANNEL LENGTH THRU SUBAREA(FEET) =   111.00   CHANNEL SLOPE =  0.0045
 CHANNEL BASE(FEET) =   30.00   "Z" FACTOR =   3.000
 MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.910
 *USER SPECIFIED(SUBAREA):
```

```
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      16.11
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.02
  AVERAGE FLOW DEPTH(FEET) =   0.50   TRAVEL TIME(MIN.) =   1.81
  Tc(MIN.) =   12.90
  SUBAREA AREA(ACRES) =     0.58       SUBAREA RUNOFF(CFS) =    0.59
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.672
  TOTAL AREA(ACRES) =        7.8         PEAK FLOW RATE(CFS) =      15.82

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.50   FLOW VELOCITY(FEET/SEC.) =   1.01
  LONGEST FLOWPATH FROM NODE   2061.00 TO NODE   2061.60 =    1288.39 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2061.60 TO NODE   2063.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    732.00  DOWNSTREAM(FEET) =    731.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =   170.00   CHANNEL SLOPE =  0.0029
  CHANNEL BASE(FEET) =   70.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =      15.82
  FLOW VELOCITY(FEET/SEC.) =   0.65   FLOW DEPTH(FEET) =   0.34
  TRAVEL TIME(MIN.) =   4.33   Tc(MIN.) =   17.23
  LONGEST FLOWPATH FROM NODE   2061.00 TO NODE   2063.00 =    1458.39 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2063.00 TO NODE   2063.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   17.23
  RAINFALL INTENSITY(INCH/HR) =   2.54
  TOTAL STREAM AREA(ACRES) =     7.81
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     15.82

****************************************************************************
  FLOW PROCESS FROM NODE   2062.00 TO NODE   2062.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7000
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    84.00
  UPSTREAM ELEVATION(FEET) =    774.00
  DOWNSTREAM ELEVATION(FEET) =    766.00
  ELEVATION DIFFERENCE(FEET) =      8.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.113
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.190
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.50
  TOTAL AREA(ACRES) =      0.17   TOTAL RUNOFF(CFS) =      0.50

****************************************************************************
  FLOW PROCESS FROM NODE   2062.10 TO NODE   2062.20 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
```

```
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    766.00  DOWNSTREAM(FEET) =    750.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   441.00   CHANNEL SLOPE =  0.0363
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.035   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =       0.50
  FLOW VELOCITY(FEET/SEC.) =   0.98   FLOW DEPTH(FEET) =   0.05
  TRAVEL TIME(MIN.) =   7.52   Tc(MIN.) =   10.63
  LONGEST FLOWPATH FROM NODE   2062.00 TO NODE   2062.20 =     525.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2062.20 TO NODE   2062.30 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
================================================================================
  UPSTREAM ELEVATION(FEET) =  750.00  DOWNSTREAM ELEVATION(FEET) =  739.00
  STREET LENGTH(FEET) =   385.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.08
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.34
    HALFSTREET FLOOD WIDTH(FEET) =   11.83
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.42
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.17
  STREET FLOW TRAVEL TIME(MIN.) =   1.88   Tc(MIN.) =   12.51
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.949
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6910
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.691
  SUBAREA AREA(ACRES) =    4.47      SUBAREA RUNOFF(CFS) =    9.11
  TOTAL AREA(ACRES) =        4.6        PEAK FLOW RATE(CFS) =       9.46

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.41   HALFSTREET FLOOD WIDTH(FEET) =  15.11
  FLOW VELOCITY(FEET/SEC.) =  3.99   DEPTH*VELOCITY(FT*FT/SEC.) =   1.63
  LONGEST FLOWPATH FROM NODE   2062.00 TO NODE   2062.30 =     910.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2063.30 TO NODE   2062.40 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   734.00  DOWNSTREAM(FEET) =   732.00
  FLOW LENGTH(FEET) =    82.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  10.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.23
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       9.46
```

```
 PIPE TRAVEL TIME(MIN.) =   0.15    Tc(MIN.) =   12.66
 LONGEST FLOWPATH FROM NODE   2062.00 TO NODE   2062.40 =     992.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2062.40 TO NODE   2063.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    732.00  DOWNSTREAM(FEET) =    731.50
 CHANNEL LENGTH THRU SUBAREA(FEET) =    68.00   CHANNEL SLOPE =  0.0074
 CHANNEL BASE(FEET) =   70.00   "Z" FACTOR =   3.000
 MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
 CHANNEL FLOW THRU SUBAREA(CFS) =       9.46
 FLOW VELOCITY(FEET/SEC.) =   0.69   FLOW DEPTH(FEET) =   0.19
 TRAVEL TIME(MIN.) =   1.64   Tc(MIN.) =   14.29
 LONGEST FLOWPATH FROM NODE   2062.00 TO NODE   2063.00 =    1060.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2063.00 TO NODE   2063.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =   14.29
 RAINFALL INTENSITY(INCH/HR) =   2.77
 TOTAL STREAM AREA(ACRES) =     4.64
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      9.46

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1       15.82    17.23        2.544          7.81
     2        9.46    14.29        2.774          4.64

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF      Tc      INTENSITY
 NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
     1       22.58    14.29       2.774
     2       24.49    17.23       2.544

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      24.49   Tc(MIN.) =   17.23
 TOTAL AREA(ACRES) =       12.4
 LONGEST FLOWPATH FROM NODE   2061.00 TO NODE   2063.00 =    1458.39 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2063.00 TO NODE   2064.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    731.50  DOWNSTREAM(FEET) =    731.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   118.00   CHANNEL SLOPE =  0.0042
 CHANNEL BASE(FEET) =   70.00   "Z" FACTOR =   3.000
 MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.394
 *USER SPECIFIED(SUBAREA):
```

```
  USER-SPECIFIED RUNOFF COEFFICIENT = .3950
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      25.06
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   0.88
  AVERAGE FLOW DEPTH(FEET) =   0.40   TRAVEL TIME(MIN.) =   2.24
  Tc(MIN.) =   19.47
  SUBAREA AREA(ACRES) =     1.21       SUBAREA RUNOFF(CFS) =    1.14
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.654
  TOTAL AREA(ACRES) =       13.7         PEAK FLOW RATE(CFS) =      24.49

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.40   FLOW VELOCITY(FEET/SEC.) =   0.86
  LONGEST FLOWPATH FROM NODE   2061.00 TO NODE   2064.00 =    1576.39 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2064.00 TO NODE   2080.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   731.00  DOWNSTREAM(FEET) =   727.40
  FLOW LENGTH(FEET) =    83.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  13.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.44
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      24.49
  PIPE TRAVEL TIME(MIN.) =   0.10    Tc(MIN.) =   19.57
  LONGEST FLOWPATH FROM NODE   2061.00 TO NODE   2080.00 =    1659.39 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2065.00 TO NODE   2080.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.388
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .5830
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6085
  SUBAREA AREA(ACRES) =   24.32   SUBAREA RUNOFF(CFS) =   33.86
  TOTAL AREA(ACRES) =       38.0   TOTAL RUNOFF(CFS) =      55.19
  TC(MIN.) =   19.57

****************************************************************************
  FLOW PROCESS FROM NODE   2080.00 TO NODE   2080.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
  STREAM     RUNOFF       Tc       INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1       55.19    19.57        2.388       37.98
  LONGEST FLOWPATH FROM NODE   2061.00 TO NODE   2080.00 =    1659.39 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM     RUNOFF       Tc       INTENSITY     AREA
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)   (ACRE)
      1      463.07    17.60        2.518      284.49
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2080.00 =    5831.00 FEET.

  ** PEAK FLOW RATE TABLE **
  STREAM    RUNOFF       Tc       INTENSITY
```

```
  NUMBER     (CFS)     (MIN.)   (INCH/HOUR)
      1     512.70      17.60        2.518
      2     494.32      19.57        2.388

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     512.70   Tc(MIN.) =   17.60
  TOTAL AREA(ACRES) =      322.5

****************************************************************************
  FLOW PROCESS FROM NODE   2080.00 TO NODE   2080.00 IS CODE =  12
----------------------------------------------------------------------------
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE   2080.00 TO NODE   2086.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   727.00  DOWNSTREAM(FEET) =   724.40
  FLOW LENGTH(FEET) =   221.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  78.0 INCH PIPE IS  60.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  18.56
  ESTIMATED PIPE DIAMETER(INCH) =  78.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     512.70
  PIPE TRAVEL TIME(MIN.) =   0.20    Tc(MIN.) =   17.80
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2086.00 =    6052.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2085.00 TO NODE   2086.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.504
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7840
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6102
  SUBAREA AREA(ACRES) =    9.41   SUBAREA RUNOFF(CFS) =   18.47
  TOTAL AREA(ACRES) =      331.9   TOTAL RUNOFF(CFS) =     512.70
  TC(MIN.) =   17.80
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   2086.00 TO NODE   2090.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   724.40  DOWNSTREAM(FEET) =   723.00
  FLOW LENGTH(FEET) =   115.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  78.0 INCH PIPE IS  59.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  18.85
  ESTIMATED PIPE DIAMETER(INCH) =  78.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     512.70
  PIPE TRAVEL TIME(MIN.) =   0.10    Tc(MIN.) =   17.90
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2090.00 =    6167.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2090.00 TO NODE   2110.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
```

```
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    723.00  DOWNSTREAM(FEET) =    722.90
  CHANNEL LENGTH THRU SUBAREA(FEET) =    30.00   CHANNEL SLOPE =  0.0033
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     512.70
  FLOW VELOCITY(FEET/SEC.) =   3.19   FLOW DEPTH(FEET) =   5.23
  TRAVEL TIME(MIN.) =   0.16   Tc(MIN.) =   18.06
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2110.00 =    6197.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2110.00 TO NODE   2110.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   18.06
  RAINFALL INTENSITY(INCH/HR) =   2.49
  TOTAL STREAM AREA(ACRES) =   331.88
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    512.70

****************************************************************************
  FLOW PROCESS FROM NODE   2091.00 TO NODE   2091.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7230
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    88.00
  UPSTREAM ELEVATION(FEET) =    798.00
  DOWNSTREAM ELEVATION(FEET) =    778.00
  ELEVATION DIFFERENCE(FEET) =     20.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    2.955
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.190
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.61
  TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      0.61

****************************************************************************
  FLOW PROCESS FROM NODE   2091.10 TO NODE   2091.20 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  778.00  DOWNSTREAM ELEVATION(FEET) =  769.50
  STREET LENGTH(FEET) =   221.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.26
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
```

```
    STREET FLOW DEPTH(FEET) =  0.29
    HALFSTREET FLOOD WIDTH(FEET) =    9.25
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.47
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.01
  STREET FLOW TRAVEL TIME(MIN.) =   1.06   Tc(MIN.) =    4.02
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.190
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7050
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.707
  SUBAREA AREA(ACRES) =    1.80      SUBAREA RUNOFF(CFS) =    5.32
  TOTAL AREA(ACRES) =        2.0        PEAK FLOW RATE(CFS) =       5.92

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.34   HALFSTREET FLOOD WIDTH(FEET) =  11.83
  FLOW VELOCITY(FEET/SEC.) =  3.99   DEPTH*VELOCITY(FT*FT/SEC.) =   1.36
  LONGEST FLOWPATH FROM NODE   2091.00 TO NODE   2091.20 =     309.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2091.20 TO NODE   2091.40 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   764.50  DOWNSTREAM(FEET) =   749.00
  FLOW LENGTH(FEET) =   533.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 18.000
  DEPTH OF FLOW IN  18.0 INCH PIPE IS   7.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.78
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.92
  PIPE TRAVEL TIME(MIN.) =   1.01    Tc(MIN.) =    5.03
  LONGEST FLOWPATH FROM NODE   2091.00 TO NODE   2091.40 =     842.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2091.30 TO NODE   2091.40 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.182
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7020
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.7044
  SUBAREA AREA(ACRES) =    1.95   SUBAREA RUNOFF(CFS) =    5.72
  TOTAL AREA(ACRES) =        4.0   TOTAL RUNOFF(CFS) =      11.64
  TC(MIN.) =    5.03

****************************************************************************
  FLOW PROCESS FROM NODE   2091.40 TO NODE   2091.50 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   749.00  DOWNSTREAM(FEET) =   735.00
  FLOW LENGTH(FEET) =  1009.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  14.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.60
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      11.64
  PIPE TRAVEL TIME(MIN.) =   2.21    Tc(MIN.) =    7.24
  LONGEST FLOWPATH FROM NODE   2091.00 TO NODE   2091.50 =    1851.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   2091.50 TO NODE   2093.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    735.00  DOWNSTREAM(FEET) =    734.50
  CHANNEL LENGTH THRU SUBAREA(FEET) =   122.00   CHANNEL SLOPE =  0.0041
  CHANNEL BASE(FEET) =   55.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.214
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3500
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      12.52
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   0.72
  AVERAGE FLOW DEPTH(FEET) =   0.31   TRAVEL TIME(MIN.) =   2.81
  Tc(MIN.) =   10.06
  SUBAREA AREA(ACRES) =     1.57       SUBAREA RUNOFF(CFS) =    1.77
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.604
  TOTAL AREA(ACRES) =        5.5         PEAK FLOW RATE(CFS) =      11.64

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.30   FLOW VELOCITY(FEET/SEC.) =   0.69
  LONGEST FLOWPATH FROM NODE   2091.00 TO NODE   2093.00 =    1973.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2092.10 TO NODE   2093.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.214
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6650
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6261
  SUBAREA AREA(ACRES) =    3.19   SUBAREA RUNOFF(CFS) =    6.82
  TOTAL AREA(ACRES) =        8.7   TOTAL RUNOFF(CFS) =      17.53
  TC(MIN.) =   10.06

****************************************************************************
  FLOW PROCESS FROM NODE   2092.20 TO NODE   2093.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.214
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6970
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6403
  SUBAREA AREA(ACRES) =    2.19   SUBAREA RUNOFF(CFS) =    4.91
  TOTAL AREA(ACRES) =       10.9   TOTAL RUNOFF(CFS) =      22.43
  TC(MIN.) =   10.06

****************************************************************************
  FLOW PROCESS FROM NODE   2093.00 TO NODE   2096.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   734.50  DOWNSTREAM(FEET) =   733.60
  FLOW LENGTH(FEET) =    43.00   MANNING'S N =  0.013
```

```
 DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  10.79
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      22.43
 PIPE TRAVEL TIME(MIN.) =   0.07    Tc(MIN.) =   10.12
 LONGEST FLOWPATH FROM NODE   2091.00 TO NODE   2096.00 =    2016.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2095.00 TO NODE   2096.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.206
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .4940
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.6144
 SUBAREA AREA(ACRES) =    2.35   SUBAREA RUNOFF(CFS) =    3.72
 TOTAL AREA(ACRES) =       13.2   TOTAL RUNOFF(CFS) =      26.10
 TC(MIN.) =   10.12

****************************************************************************
 FLOW PROCESS FROM NODE   2096.00 TO NODE   2106.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   733.60  DOWNSTREAM(FEET) =   726.20
 FLOW LENGTH(FEET) =   359.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  24.0 INCH PIPE IS  16.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  11.04
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      26.10
 PIPE TRAVEL TIME(MIN.) =   0.54    Tc(MIN.) =   10.67
 LONGEST FLOWPATH FROM NODE   2091.00 TO NODE   2106.00 =    2375.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2105.00 TO NODE   2106.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.147
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .5190
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.6033
 SUBAREA AREA(ACRES) =    1.75   SUBAREA RUNOFF(CFS) =    2.86
 TOTAL AREA(ACRES) =       15.0   TOTAL RUNOFF(CFS) =      28.48
 TC(MIN.) =   10.67

****************************************************************************
 FLOW PROCESS FROM NODE   2110.00 TO NODE   2110.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =   10.67
 RAINFALL INTENSITY(INCH/HR) =   3.15
 TOTAL STREAM AREA(ACRES) =    15.00
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     28.48
```

```
 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1      512.70    18.06        2.486        331.88
     2       28.48    10.67        3.147         15.00

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF      Tc      INTENSITY
 NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
     1      331.33    10.67       3.147
     2      535.20    18.06       2.486

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =     535.20   Tc(MIN.) =   18.06
 TOTAL AREA(ACRES) =      346.9
 LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2110.00 =    6197.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2110.00 TO NODE   2130.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    722.90  DOWNSTREAM(FEET) =    720.60
 CHANNEL LENGTH THRU SUBAREA(FEET) =   342.00   CHANNEL SLOPE =  0.0067
 CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   3.000
 MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.398
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .4030
 S.C.S. CURVE NUMBER (AMC II) =   0
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     537.90
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   4.19
 AVERAGE FLOW DEPTH(FEET) =   4.51   TRAVEL TIME(MIN.) =   1.36
 Tc(MIN.) =   19.42
 SUBAREA AREA(ACRES) =     5.60       SUBAREA RUNOFF(CFS) =    5.41
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.607
 TOTAL AREA(ACRES) =      352.5         PEAK FLOW RATE(CFS) =     535.20

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  4.50   FLOW VELOCITY(FEET/SEC.) =   4.18
 LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2130.00 =    6539.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2125.00 TO NODE   2130.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.398
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .5630
 S.C.S. CURVE NUMBER (AMC II) =   0
 AREA-AVERAGE RUNOFF COEFFICIENT = 0.6025
 SUBAREA AREA(ACRES) =   36.49   SUBAREA RUNOFF(CFS) =   49.26
 TOTAL AREA(ACRES) =      389.0   TOTAL RUNOFF(CFS) =     561.94
 TC(MIN.) =   19.42

****************************************************************************
 FLOW PROCESS FROM NODE   2130.00 TO NODE   2139.00 IS CODE =  51
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    720.60  DOWNSTREAM(FEET) =    716.30
  CHANNEL LENGTH THRU SUBAREA(FEET) =   690.00   CHANNEL SLOPE =  0.0062
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     561.94
  FLOW VELOCITY(FEET/SEC.) =   4.12   FLOW DEPTH(FEET) =   4.69
  TRAVEL TIME(MIN.) =   2.79   Tc(MIN.) =   22.21
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2139.00 =    7229.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2139.00 TO NODE   2139.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   22.21
  RAINFALL INTENSITY(INCH/HR) =   2.23
  TOTAL STREAM AREA(ACRES) =   388.97
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    561.94

****************************************************************************
  FLOW PROCESS FROM NODE   2131.00 TO NODE   2131.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7000
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    88.00
  UPSTREAM ELEVATION(FEET) =    755.00
  DOWNSTREAM ELEVATION(FEET) =    747.00
  ELEVATION DIFFERENCE(FEET) =      8.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    3.236
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.190
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.59
  TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      0.59

****************************************************************************
  FLOW PROCESS FROM NODE   2131.10 TO NODE   2131.20 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  747.00  DOWNSTREAM ELEVATION(FEET) =  733.00
  STREET LENGTH(FEET) =   714.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.05
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
```

```
    STREET FLOW DEPTH(FEET) =  0.34
    HALFSTREET FLOOD WIDTH(FEET) =   11.65
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.81
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.95
  STREET FLOW TRAVEL TIME(MIN.) =   4.24   Tc(MIN.) =    7.47
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.625
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6850
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.686
  SUBAREA AREA(ACRES) =    2.77      SUBAREA RUNOFF(CFS) =    6.88
  TOTAL AREA(ACRES) =        3.0        PEAK FLOW RATE(CFS) =       7.39

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.40   HALFSTREET FLOOD WIDTH(FEET) =  14.76
  FLOW VELOCITY(FEET/SEC.) =  3.26   DEPTH*VELOCITY(FT*FT/SEC.) =   1.31
  LONGEST FLOWPATH FROM NODE   2131.00 TO NODE   2131.20 =     802.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2131.20 TO NODE   2131.40 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   728.00  DOWNSTREAM(FEET) =   724.00
  FLOW LENGTH(FEET) =   426.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.8 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.02
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       7.39
  PIPE TRAVEL TIME(MIN.) =   1.18    Tc(MIN.) =    8.65
  LONGEST FLOWPATH FROM NODE   2131.00 TO NODE   2131.40 =    1228.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2131.30 TO NODE   2131.40 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.435
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6930
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6905
  SUBAREA AREA(ACRES) =    5.22   SUBAREA RUNOFF(CFS) =   12.43
  TOTAL AREA(ACRES) =        8.2   TOTAL RUNOFF(CFS) =      19.42
  TC(MIN.) =    8.65

****************************************************************************
  FLOW PROCESS FROM NODE   2131.40 TO NODE   2132.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   724.00  DOWNSTREAM(FEET) =   722.00
  FLOW LENGTH(FEET) =   108.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  16.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.68
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      19.42
  PIPE TRAVEL TIME(MIN.) =   0.19    Tc(MIN.) =    8.84
  LONGEST FLOWPATH FROM NODE   2131.00 TO NODE   2132.00 =    1336.00 FEET.

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

```
 FLOW PROCESS FROM NODE   2132.00 TO NODE   2133.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    722.00  DOWNSTREAM(FEET) =    720.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   230.00   CHANNEL SLOPE =  0.0087
 CHANNEL BASE(FEET) =   40.00   "Z" FACTOR =   3.000
 MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.002
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .3500
 S.C.S. CURVE NUMBER (AMC II) =   0
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      20.09
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.22
 AVERAGE FLOW DEPTH(FEET) =   0.40   TRAVEL TIME(MIN.) =   3.14
 Tc(MIN.) =   11.98
 SUBAREA AREA(ACRES) =     1.27       SUBAREA RUNOFF(CFS) =    1.33
 AREA-AVERAGE RUNOFF COEFFICIENT =  0.645
 TOTAL AREA(ACRES) =        9.5         PEAK FLOW RATE(CFS) =      19.42

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.39   FLOW VELOCITY(FEET/SEC.) =   1.20
 LONGEST FLOWPATH FROM NODE   2131.00 TO NODE   2133.00 =    1566.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2133.00 TO NODE   2139.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   720.00  DOWNSTREAM(FEET) =   716.30
 FLOW LENGTH(FEET) =    52.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.4 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  16.47
 ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      19.42
 PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =   12.03
 LONGEST FLOWPATH FROM NODE   2131.00 TO NODE   2139.00 =    1618.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2139.00 TO NODE   2139.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =   12.03
 RAINFALL INTENSITY(INCH/HR) =   3.00
 TOTAL STREAM AREA(ACRES) =     9.46
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     19.42

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1      561.94    22.21        2.228        388.97
     2       19.42    12.03        2.997          9.46

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
```

```
  STREAM     RUNOFF      Tc      INTENSITY
  NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
      1      437.29    12.03       2.997
      2      576.39    22.21       2.228

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =     576.39   Tc(MIN.) =   22.21
  TOTAL AREA(ACRES) =      398.4
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2139.00 =    7229.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2139.00 TO NODE   2140.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    716.30  DOWNSTREAM(FEET) =    714.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   378.00   CHANNEL SLOPE =  0.0061
  CHANNEL BASE(FEET) =   15.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =     576.39
  FLOW VELOCITY(FEET/SEC.) =   4.11   FLOW DEPTH(FEET) =   4.78
  TRAVEL TIME(MIN.) =   1.53   Tc(MIN.) =   23.74
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2140.00 =    7607.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2140.00 TO NODE   2180.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   714.00  DOWNSTREAM(FEET) =   713.00
  FLOW LENGTH(FEET) =   120.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  87.0 INCH PIPE IS  67.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  16.80
  ESTIMATED PIPE DIAMETER(INCH) =  87.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =     576.39
  PIPE TRAVEL TIME(MIN.) =   0.12    Tc(MIN.) =   23.86
  LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2180.00 =    7727.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2180.00 TO NODE   2180.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   23.86
  RAINFALL INTENSITY(INCH/HR) =   2.14
  TOTAL STREAM AREA(ACRES) =   398.43
  PEAK FLOW RATE(CFS) AT CONFLUENCE =    576.39

****************************************************************************
  FLOW PROCESS FROM NODE   2150.00 TO NODE   2151.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7000
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    70.00
  UPSTREAM ELEVATION(FEET) =    746.00
  DOWNSTREAM ELEVATION(FEET) =    744.00
```

```
  ELEVATION DIFFERENCE(FEET) =      2.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.245
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.190
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.59
  TOTAL AREA(ACRES) =      0.20   TOTAL RUNOFF(CFS) =      0.59

****************************************************************************
  FLOW PROCESS FROM NODE   2151.00 TO NODE   2151.10 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  744.00  DOWNSTREAM ELEVATION(FEET) =  736.00
  STREET LENGTH(FEET) =   325.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.21
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.35
    HALFSTREET FLOOD WIDTH(FEET) =   12.29
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.26
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.14
  STREET FLOW TRAVEL TIME(MIN.) =   1.66   Tc(MIN.) =    5.91
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.936
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6980
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.698
  SUBAREA AREA(ACRES) =    3.36      SUBAREA RUNOFF(CFS) =    9.23
  TOTAL AREA(ACRES) =        3.6        PEAK FLOW RATE(CFS) =       9.78

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.42   HALFSTREET FLOOD WIDTH(FEET) =  15.75
  FLOW VELOCITY(FEET/SEC.) =  3.81   DEPTH*VELOCITY(FT*FT/SEC.) =   1.60
  LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2151.10 =     395.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2151.10 TO NODE   2151.30 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   731.00  DOWNSTREAM(FEET) =   729.00
  FLOW LENGTH(FEET) =   406.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  15.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.00
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       9.78
  PIPE TRAVEL TIME(MIN.) =   1.35    Tc(MIN.) =    7.26
  LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2151.30 =     801.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2151.20 TO NODE   2151.30 IS CODE =  81
```

```
------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
========================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.668
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6970
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6976
  SUBAREA AREA(ACRES) =    3.34   SUBAREA RUNOFF(CFS) =    8.54
  TOTAL AREA(ACRES) =        6.9   TOTAL RUNOFF(CFS) =      17.65
  TC(MIN.) =    7.26

************************************************************************
  FLOW PROCESS FROM NODE   2151.30 TO NODE   2151.50 IS CODE =  31
------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   729.00  DOWNSTREAM(FEET) =   721.00
  FLOW LENGTH(FEET) =   533.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  16.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.75
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      17.65
  PIPE TRAVEL TIME(MIN.) =   1.02    Tc(MIN.) =    8.28
  LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2151.50 =    1334.00 FEET.

************************************************************************
  FLOW PROCESS FROM NODE   2151.40 TO NODE   2151.50 IS CODE =  81
------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
========================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.484
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6980
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6977
  SUBAREA AREA(ACRES) =    4.09   SUBAREA RUNOFF(CFS) =    9.95
  TOTAL AREA(ACRES) =       11.0   TOTAL RUNOFF(CFS) =      26.72
  TC(MIN.) =    8.28

************************************************************************
  FLOW PROCESS FROM NODE   2151.50 TO NODE   2151.60 IS CODE =  31
------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   721.00  DOWNSTREAM(FEET) =   718.00
  FLOW LENGTH(FEET) =    40.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  14.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  17.66
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      26.72
  PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =    8.31
  LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2151.60 =    1374.00 FEET.

************************************************************************
  FLOW PROCESS FROM NODE   2151.60 TO NODE   2164.00 IS CODE =  51
------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
========================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    717.20  DOWNSTREAM(FEET) =    716.30
```

```
  CHANNEL LENGTH THRU SUBAREA(FEET) =    90.00   CHANNEL SLOPE =  0.0100
  CHANNEL BASE(FEET) =   80.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.278
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3710
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      27.85
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.12
  AVERAGE FLOW DEPTH(FEET) =   0.31   TRAVEL TIME(MIN.) =   1.34
  Tc(MIN.) =    9.66
  SUBAREA AREA(ACRES) =     1.86       SUBAREA RUNOFF(CFS) =    2.26
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.650
  TOTAL AREA(ACRES) =       12.8         PEAK FLOW RATE(CFS) =      27.40

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.30   FLOW VELOCITY(FEET/SEC.) =   1.12
  LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2164.00 =    1464.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2152.00 TO NODE   2164.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.278
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7060
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6591
  SUBAREA AREA(ACRES) =    2.36   SUBAREA RUNOFF(CFS) =    5.46
  TOTAL AREA(ACRES) =       15.2   TOTAL RUNOFF(CFS) =      32.86
  TC(MIN.) =    9.66

****************************************************************************
  FLOW PROCESS FROM NODE   2164.00 TO NODE   2170.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   716.30  DOWNSTREAM(FEET) =   714.80
  FLOW LENGTH(FEET) =    89.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  19.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.82
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      32.86
  PIPE TRAVEL TIME(MIN.) =   0.14    Tc(MIN.) =    9.79
  LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2170.00 =    1553.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   2165.00 TO NODE   2170.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.255
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6320
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6395
  SUBAREA AREA(ACRES) =   39.95   SUBAREA RUNOFF(CFS) =   82.18
  TOTAL AREA(ACRES) =       55.2   TOTAL RUNOFF(CFS) =     114.81
  TC(MIN.) =    9.79

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

```
 FLOW PROCESS FROM NODE   2170.00 TO NODE   2180.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   714.80  DOWNSTREAM(FEET) =   713.00
 FLOW LENGTH(FEET) =   131.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  45.0 INCH PIPE IS  31.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  13.72
 ESTIMATED PIPE DIAMETER(INCH) =  45.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =     114.81
 PIPE TRAVEL TIME(MIN.) =   0.16    Tc(MIN.) =    9.95
 LONGEST FLOWPATH FROM NODE   2150.00 TO NODE   2180.00 =    1684.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2180.00 TO NODE   2180.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =    9.95
 RAINFALL INTENSITY(INCH/HR) =   3.23
 TOTAL STREAM AREA(ACRES) =    55.16
 PEAK FLOW RATE(CFS) AT CONFLUENCE =    114.81

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1      576.39    23.86        2.137        398.43
     2      114.81     9.95        3.228         55.16

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF      Tc      INTENSITY
 NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
     1      496.49     9.95       3.228
     2      652.42    23.86       2.137

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =     652.42   Tc(MIN.) =   23.86
 TOTAL AREA(ACRES) =      453.6
 LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2180.00 =    7727.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE   2180.00 TO NODE   2190.00 IS CODE =  41
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING USER-SPECIFIED PIPESIZE (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   713.00  DOWNSTREAM(FEET) =   712.00
 FLOW LENGTH(FEET) =   152.00   MANNING'S N =  0.014
 ASSUME FULL-FLOWING PIPELINE
 PIPE-FLOW VELOCITY(FEET/SEC.) =   1.81
 (PIPE FLOW VELOCITY CORRESPONDING TO FULL PIPE CAPACITY FLOW)
 GIVEN PIPE DIAMETER(INCH) =   5.00    NUMBER OF PIPES =   2
 PIPE-FLOW(CFS) =     652.42
 PIPE TRAVEL TIME(MIN.) =   1.40    Tc(MIN.) =   25.27
 LONGEST FLOWPATH FROM NODE   2000.00 TO NODE   2190.00 =    7879.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE   2185.00 TO NODE   2190.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.079
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7330
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.6095
  SUBAREA AREA(ACRES) =    6.07   SUBAREA RUNOFF(CFS) =    9.25
  TOTAL AREA(ACRES) =      459.7   TOTAL RUNOFF(CFS) =     652.42
  TC(MIN.) =   25.27
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

****************************************************************************
  FLOW PROCESS FROM NODE   3000.00 TO NODE   3001.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6800
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    60.00
  UPSTREAM ELEVATION(FEET) =    768.00
  DOWNSTREAM ELEVATION(FEET) =    767.00
  ELEVATION DIFFERENCE(FEET) =      1.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.939
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.190
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.28
  TOTAL AREA(ACRES) =      0.10   TOTAL RUNOFF(CFS) =      0.28

****************************************************************************
  FLOW PROCESS FROM NODE   3001.00 TO NODE   3005.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    767.00  DOWNSTREAM(FEET) =    745.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   122.00   CHANNEL SLOPE =  0.1803
  CHANNEL BASE(FEET) =   10.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.035   MAXIMUM DEPTH(FEET) =  10.00
  CHANNEL FLOW THRU SUBAREA(CFS) =       0.28
  FLOW VELOCITY(FEET/SEC.) =   1.39   FLOW DEPTH(FEET) =   0.02
  TRAVEL TIME(MIN.) =   1.46   Tc(MIN.) =    6.40
  LONGEST FLOWPATH FROM NODE   3000.00 TO NODE   3005.00 =     182.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   3005.00 TO NODE   3010.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  745.00  DOWNSTREAM ELEVATION(FEET) =  726.00
  STREET LENGTH(FEET) =   659.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
```

```
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.25
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.30
    HALFSTREET FLOOD WIDTH(FEET) =    9.83
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.09
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.93
  STREET FLOW TRAVEL TIME(MIN.) =   3.56   Tc(MIN.) =    9.96
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.228
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .7010
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.700
  SUBAREA AREA(ACRES) =    2.60      SUBAREA RUNOFF(CFS) =    5.88
  TOTAL AREA(ACRES) =        2.7        PEAK FLOW RATE(CFS) =       6.10

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.36   HALFSTREET FLOOD WIDTH(FEET) =  12.71
  FLOW VELOCITY(FEET/SEC.) =  3.59   DEPTH*VELOCITY(FT*FT/SEC.) =   1.29
  LONGEST FLOWPATH FROM NODE   3000.00 TO NODE   3010.00 =     841.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   4000.00 TO NODE   4001.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
============================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4690
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    88.00
  UPSTREAM ELEVATION(FEET) =    880.00
  DOWNSTREAM ELEVATION(FEET) =    868.00
  ELEVATION DIFFERENCE(FEET) =     12.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.946
  WARNING: THE MAXIMUM OVERLAND FLOW SLOPE, 10.%, IS USED IN Tc CALCULATION!
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.190
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =      0.33
  TOTAL AREA(ACRES) =      0.17   TOTAL RUNOFF(CFS) =      0.33

****************************************************************************
  FLOW PROCESS FROM NODE   4001.00 TO NODE   4010.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  868.00  DOWNSTREAM ELEVATION(FEET) =  746.00
  STREET LENGTH(FEET) =  1460.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.34
```

```
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.35
    HALFSTREET FLOOD WIDTH(FEET) =   12.18
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.95
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.07
  STREET FLOW TRAVEL TIME(MIN.) =   4.09   Tc(MIN.) =    9.04
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.384
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4520
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.452
  SUBAREA AREA(ACRES) =   11.66      SUBAREA RUNOFF(CFS) =   17.83
  TOTAL AREA(ACRES) =       11.8        PEAK FLOW RATE(CFS) =      18.10

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.42   HALFSTREET FLOOD WIDTH(FEET) =  15.81
  FLOW VELOCITY(FEET/SEC.) =  7.00   DEPTH*VELOCITY(FT*FT/SEC.) =   2.95
  LONGEST FLOWPATH FROM NODE   4000.00 TO NODE   4010.00 =    1548.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   4010.00 TO NODE   4016.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   746.00  DOWNSTREAM(FEET) =   745.00
  FLOW LENGTH(FEET) =    80.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.42
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      18.10
  PIPE TRAVEL TIME(MIN.) =   0.16    Tc(MIN.) =    9.19
  LONGEST FLOWPATH FROM NODE   4000.00 TO NODE   4016.00 =    1628.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   4015.00 TO NODE   4016.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.357
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6010
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT = 0.5272
  SUBAREA AREA(ACRES) =   12.00   SUBAREA RUNOFF(CFS) =   24.21
  TOTAL AREA(ACRES) =       23.8   TOTAL RUNOFF(CFS) =      42.17
  TC(MIN.) =    9.19

****************************************************************************
  FLOW PROCESS FROM NODE   4016.00 TO NODE   4019.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   745.00  DOWNSTREAM(FEET) =   723.60
  FLOW LENGTH(FEET) =   542.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  19.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  15.53
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      42.17
  PIPE TRAVEL TIME(MIN.) =   0.58    Tc(MIN.) =    9.78
  LONGEST FLOWPATH FROM NODE   4000.00 TO NODE   4019.00 =    2170.00 FEET.
```

```
**************************************************************************
  FLOW PROCESS FROM NODE   4019.00 TO NODE   4019.00 IS CODE =   1
--------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
==========================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.78
  RAINFALL INTENSITY(INCH/HR) =   3.26
  TOTAL STREAM AREA(ACRES) =    23.83
  PEAK FLOW RATE(CFS) AT CONFLUENCE =     42.17

**************************************************************************
  FLOW PROCESS FROM NODE   4017.10 TO NODE   4017.20 IS CODE =  21
--------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6950
  S.C.S. CURVE NUMBER (AMC II) =   0
  INITIAL SUBAREA FLOW-LENGTH(FEET) =    70.00
  UPSTREAM ELEVATION(FEET) =    747.00
  DOWNSTREAM ELEVATION(FEET) =    745.00
  ELEVATION DIFFERENCE(FEET) =      2.00
  URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.298
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.190
  NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
  SUBAREA RUNOFF(CFS) =     26.47
  TOTAL AREA(ACRES) =      9.09   TOTAL RUNOFF(CFS) =     26.47

**************************************************************************
  FLOW PROCESS FROM NODE   4017.20 TO NODE   4017.30 IS CODE =  62
--------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
==========================================================================
  UPSTREAM ELEVATION(FEET) =  745.00  DOWNSTREAM ELEVATION(FEET) =  739.50
  STREET LENGTH(FEET) =   608.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      26.48
    ***STREET FLOWING FULL***
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.53
    HALFSTREET FLOOD WIDTH(FEET) =   21.50
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.87
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.52
  STREET FLOW TRAVEL TIME(MIN.) =   3.53   Tc(MIN.) =    7.83
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.555
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6950
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.695
  SUBAREA AREA(ACRES) =    0.01      SUBAREA RUNOFF(CFS) =    0.02
```

```
  TOTAL AREA(ACRES) =        9.1        PEAK FLOW RATE(CFS) =      26.47

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.53   HALFSTREET FLOOD WIDTH(FEET) =  21.50
  FLOW VELOCITY(FEET/SEC.) =  2.87   DEPTH*VELOCITY(FT*FT/SEC.) =   1.52
  LONGEST FLOWPATH FROM NODE   4017.10 TO NODE   4017.30 =     678.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   4017.30 TO NODE   4017.40 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   734.50  DOWNSTREAM(FEET) =   725.00
  FLOW LENGTH(FEET) =   355.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  15.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  12.31
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      26.47
  PIPE TRAVEL TIME(MIN.) =   0.48    Tc(MIN.) =    8.31
  LONGEST FLOWPATH FROM NODE   4017.10 TO NODE   4017.40 =    1033.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   4017.40 TO NODE   4018.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    725.00  DOWNSTREAM(FEET) =    724.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   224.00   CHANNEL SLOPE =  0.0045
  CHANNEL BASE(FEET) =   60.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  2.985
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .3970
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      27.44
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   0.97
  AVERAGE FLOW DEPTH(FEET) =   0.46   TRAVEL TIME(MIN.) =   3.85
  Tc(MIN.) =   12.15
  SUBAREA AREA(ACRES) =     1.64       SUBAREA RUNOFF(CFS) =    1.94
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.649
  TOTAL AREA(ACRES) =       10.7         PEAK FLOW RATE(CFS) =      26.47

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.45   FLOW VELOCITY(FEET/SEC.) =   0.95
  LONGEST FLOWPATH FROM NODE   4017.10 TO NODE   4018.00 =    1257.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   4018.00 TO NODE   4019.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   724.00  DOWNSTREAM(FEET) =   723.60
  FLOW LENGTH(FEET) =    41.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  27.0 INCH PIPE IS  20.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.30
  ESTIMATED PIPE DIAMETER(INCH) =  27.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =      26.47
  PIPE TRAVEL TIME(MIN.) =   0.08    Tc(MIN.) =   12.23
  LONGEST FLOWPATH FROM NODE   4017.10 TO NODE   4019.00 =    1298.00 FEET.
```

```
**************************************************************************
 FLOW PROCESS FROM NODE   4019.00 TO NODE   4019.00 IS CODE =   1
--------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
==========================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
 TIME OF CONCENTRATION(MIN.) =   12.23
 RAINFALL INTENSITY(INCH/HR) =   2.98
 TOTAL STREAM AREA(ACRES) =    10.74
 PEAK FLOW RATE(CFS) AT CONFLUENCE =     26.47

 ** CONFLUENCE DATA **
 STREAM     RUNOFF       Tc      INTENSITY      AREA
 NUMBER      (CFS)     (MIN.)   (INCH/HOUR)    (ACRE)
     1       42.17     9.78        3.258         23.83
     2       26.47    12.23        2.977         10.74

 RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
 CONFLUENCE FORMULA USED FOR  2 STREAMS.

 ** PEAK FLOW RATE TABLE **
 STREAM     RUNOFF       Tc      INTENSITY
 NUMBER      (CFS)    (MIN.)   (INCH/HOUR)
     1       63.32     9.78       3.258
     2       65.00    12.23       2.977

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =      65.00   Tc(MIN.) =   12.23
 TOTAL AREA(ACRES) =       34.6
 LONGEST FLOWPATH FROM NODE   4000.00 TO NODE   4019.00 =    2170.00 FEET.

**************************************************************************
 FLOW PROCESS FROM NODE   4019.00 TO NODE   4020.00 IS CODE =  31
--------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==========================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   723.60  DOWNSTREAM(FEET) =   723.00
 FLOW LENGTH(FEET) =    59.00   MANNING'S N =  0.013
 DEPTH OF FLOW IN  39.0 INCH PIPE IS  26.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  10.66
 ESTIMATED PIPE DIAMETER(INCH) =  39.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      65.00
 PIPE TRAVEL TIME(MIN.) =   0.09    Tc(MIN.) =   12.33
 LONGEST FLOWPATH FROM NODE   4000.00 TO NODE   4020.00 =    2229.00 FEET.

**************************************************************************
 FLOW PROCESS FROM NODE   5000.00 TO NODE   5001.00 IS CODE =  21
--------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
==========================================================================
 *USER SPECIFIED(SUBAREA):
 USER-SPECIFIED RUNOFF COEFFICIENT = .6770
 S.C.S. CURVE NUMBER (AMC II) =   0
 INITIAL SUBAREA FLOW-LENGTH(FEET) =    60.00
 UPSTREAM ELEVATION(FEET) =    746.00
 DOWNSTREAM ELEVATION(FEET) =    745.00
 ELEVATION DIFFERENCE(FEET) =      1.00
 URBAN SUBAREA OVERLAND TIME OF FLOW(MIN.) =    4.974
   50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  4.190
 NOTE: RAINFALL INTENSITY IS BASED ON Tc = 5-MINUTE.
```

```
  SUBAREA RUNOFF(CFS) =      0.54
  TOTAL AREA(ACRES) =      0.19   TOTAL RUNOFF(CFS) =      0.54

****************************************************************************
  FLOW PROCESS FROM NODE   5001.00 TO NODE   5002.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  2 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  745.00  DOWNSTREAM ELEVATION(FEET) =  739.00
  STREET LENGTH(FEET) =   477.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 20.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  15.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0180
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.49
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.37
    HALFSTREET FLOOD WIDTH(FEET) =   13.23
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.44
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.90
  STREET FLOW TRAVEL TIME(MIN.) =   3.25   Tc(MIN.) =    8.23
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.490
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .6960
  S.C.S. CURVE NUMBER (AMC II) =   0
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.695
  SUBAREA AREA(ACRES) =    3.24      SUBAREA RUNOFF(CFS) =    7.87
  TOTAL AREA(ACRES) =        3.4        PEAK FLOW RATE(CFS) =       8.32

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.44   HALFSTREET FLOOD WIDTH(FEET) =  16.87
  FLOW VELOCITY(FEET/SEC.) =  2.84   DEPTH*VELOCITY(FT*FT/SEC.) =   1.26
  LONGEST FLOWPATH FROM NODE   5000.00 TO NODE   5002.00 =     537.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   5002.00 TO NODE   5003.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   734.00  DOWNSTREAM(FEET) =   732.00
  FLOW LENGTH(FEET) =   119.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  10.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.79
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       8.32
  PIPE TRAVEL TIME(MIN.) =   0.25    Tc(MIN.) =    8.48
  LONGEST FLOWPATH FROM NODE   5000.00 TO NODE   5003.00 =     656.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   5003.00 TO NODE   5004.00 IS CODE =  51
----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
```

```
  ELEVATION DATA: UPSTREAM(FEET) =    732.00  DOWNSTREAM(FEET) =    731.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =    72.00   CHANNEL SLOPE =  0.0139
  CHANNEL BASE(FEET) =   50.00   "Z" FACTOR =   3.000
  MANNING'S FACTOR = 0.060   MAXIMUM DEPTH(FEET) =  10.00
    50 YEAR RAINFALL INTENSITY(INCH/HOUR) =  3.267
  *USER SPECIFIED(SUBAREA):
  USER-SPECIFIED RUNOFF COEFFICIENT = .4070
  S.C.S. CURVE NUMBER (AMC II) =   0
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       9.18
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   0.97
  AVERAGE FLOW DEPTH(FEET) =   0.19   TRAVEL TIME(MIN.) =   1.24
  Tc(MIN.) =    9.73
  SUBAREA AREA(ACRES) =     1.29       SUBAREA RUNOFF(CFS) =    1.72
  AREA-AVERAGE RUNOFF COEFFICIENT =  0.616
  TOTAL AREA(ACRES) =        4.7         PEAK FLOW RATE(CFS) =       9.50

  END OF SUBAREA CHANNEL FLOW HYDRAULICS:
  DEPTH(FEET) =  0.19   FLOW VELOCITY(FEET/SEC.) =   0.97
  LONGEST FLOWPATH FROM NODE   5000.00 TO NODE   5004.00 =     728.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE   5004.00 TO NODE   5010.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   731.00  DOWNSTREAM(FEET) =   730.50
  FLOW LENGTH(FEET) =    46.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  13.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.68
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       9.50
  PIPE TRAVEL TIME(MIN.) =   0.11    Tc(MIN.) =    9.84
  LONGEST FLOWPATH FROM NODE   5000.00 TO NODE   5010.00 =     774.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        4.7  TC(MIN.) =      9.84
  PEAK FLOW RATE(CFS)   =       9.50
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

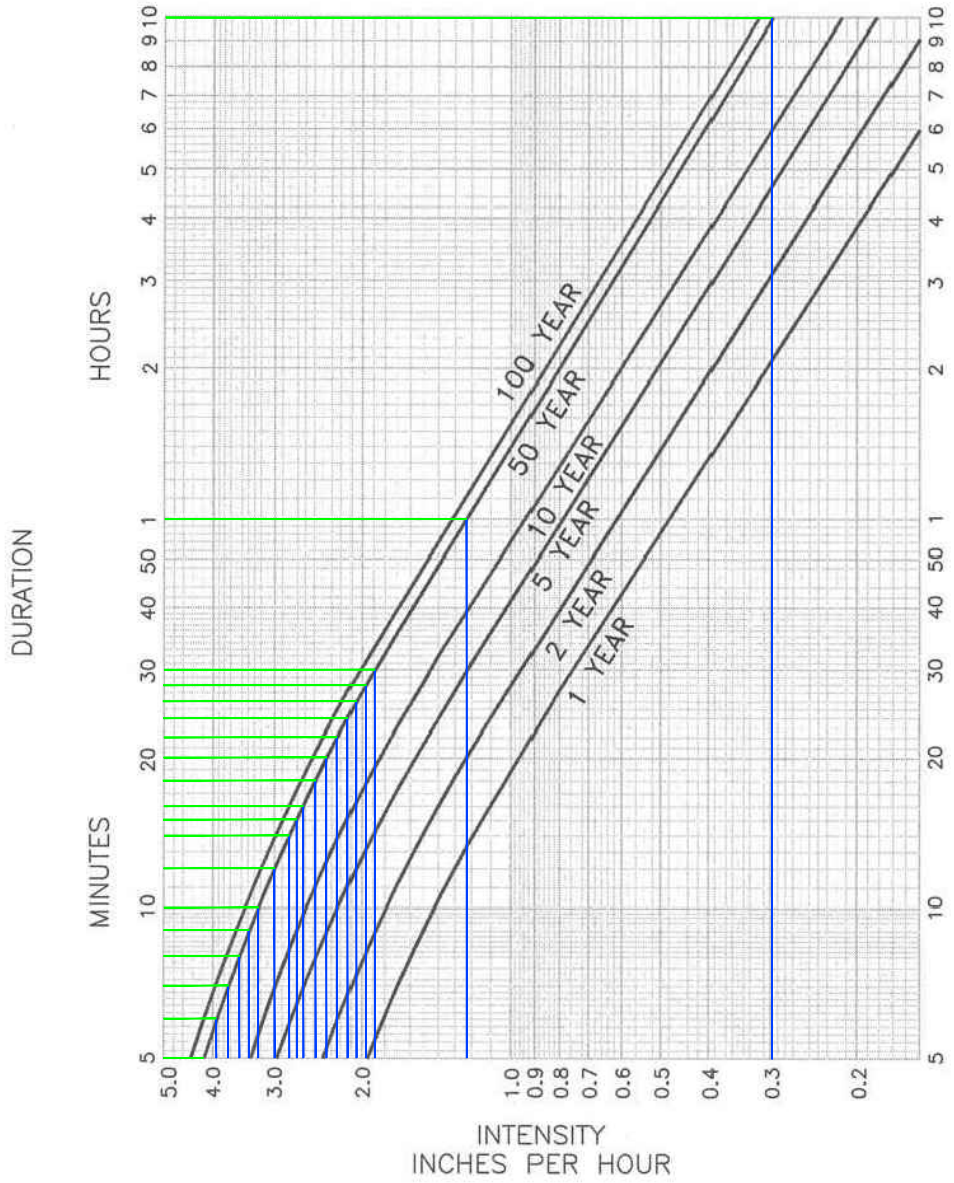
♀

APPENDIX A3

AES Analysis Back-Up

17762 - Escondido Country Club 02-23-2016

50-Year Storm Event Intensity vs Tc



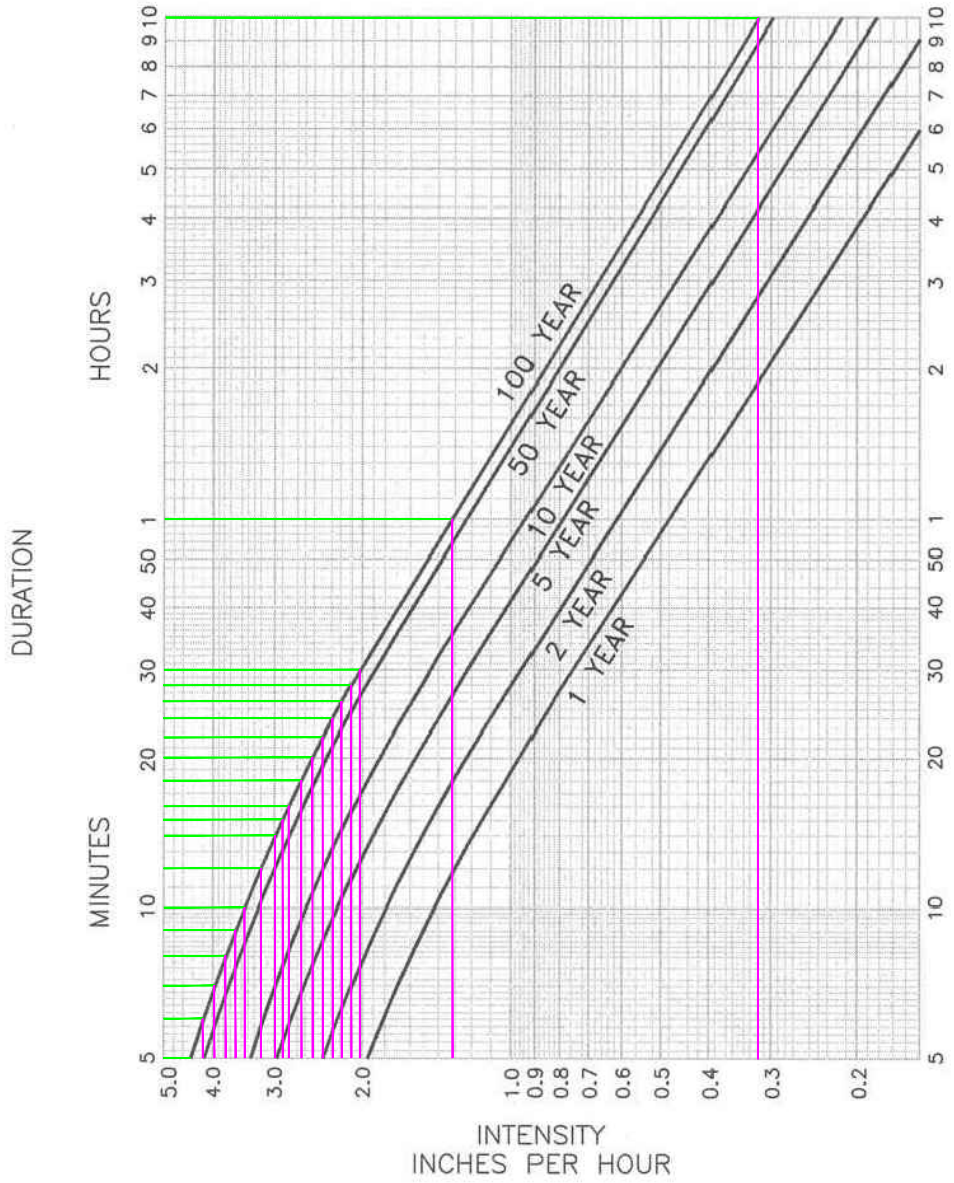
ESCONDIDO RUNOFF COEFFICIENTS

PARKS, GOLF COURSES, CEMETERIES	0.25
UNDEVELOPED LAND, OPEN SPACE	0.35
RURAL – OVER 1/2 ACRE LOTS	0.45
SINGLE FAMILY	0.55
MOBILE HOME	0.65
MULTIPLE UNITS	0.70
COMMERCIAL	0.85
INDUSTRIAL	0.95

APPROVED: DATE: 04-02-2014 P. W. DIRECTOR/CITY ENGINEER		CITY OF ESCONDIDO DEPARTMENT OF PUBLIC WORKS	SCALE: NOT TO SCALE
REVISED	APPROVED	RUN-OFF INTENSITY DURATION CURVE	FIGURE NO. 1

17762 - Escondido Country Club 02-23-2016

100-Year Storm Event Intensity vs Tc



ESCONDIDO RUNOFF COEFFICIENTS

PARKS, GOLF COURSES, CEMETERIES	0.25
UNDEVELOPED LAND, OPEN SPACE	0.35
RURAL – OVER 1/2 ACRE LOTS	0.45
SINGLE FAMILY	0.55
MOBILE HOME	0.65
MULTIPLE UNITS	0.70
COMMERCIAL	0.85
INDUSTRIAL	0.95

APPROVED: DATE: 04-02-2014 P. W. DIRECTOR/CITY ENGINEER	CITY OF ESCONDIDO DEPARTMENT OF PUBLIC WORKS	SCALE: NOT TO SCALE
REVISED / APPROVED	RUN-OFF INTENSITY DURATION CURVE	FIGURE NO. 1

NOAA Atlas 14, Volume 6, Version 2
Location name: Escondido, California, USA*
Latitude: 33.1639°, Longitude: -117.1176°
Elevation: 854.02 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**1.45** (1.22-1.74)	**1.84** (1.55-2.20)	**2.34** (1.97-2.82)	**2.77** (2.30-3.37)	**3.37** (2.70-4.25)	**3.85** (3.02-4.96)	**4.34** (3.32-5.75)	**4.87** (3.61-6.64)	**5.62** (3.98-7.99)	**6.20** (4.24-9.17)
10-min	**1.04** (0.876-1.25)	**1.31** (1.10-1.58)	**1.68** (1.41-2.02)	**1.99** (1.65-2.41)	**2.42** (1.94-3.04)	**2.76** (2.17-3.55)	**3.11** (2.38-4.12)	**3.49** (2.59-4.76)	**4.02** (2.85-5.73)	**4.45** (3.04-6.57)
15-min	**0.840** (0.708-1.01)	**1.06** (0.892-1.27)	**1.36** (1.14-1.63)	**1.60** (1.33-1.95)	**1.95** (1.56-2.45)	**2.22** (1.74-2.86)	**2.51** (1.92-3.32)	**2.82** (2.09-3.84)	**3.24** (2.30-4.62)	**3.58** (2.45-5.30)
30-min	**0.594** (0.500-0.712)	**0.748** (0.630-0.898)	**0.958** (0.804-1.15)	**1.13** (0.942-1.38)	**1.38** (1.10-1.73)	**1.57** (1.23-2.02)	**1.77** (1.36-2.35)	**1.99** (1.47-2.71)	**2.29** (1.62-3.26)	**2.53** (1.73-3.74)
60-min	**0.453** (0.382-0.543)	**0.571** (0.481-0.686)	**0.730** (0.613-0.879)	**0.864** (0.718-1.05)	**1.05** (0.843-1.32)	**1.20** (0.940-1.54)	**1.35** (1.03-1.79)	**1.52** (1.13-2.07)	**1.75** (1.24-2.49)	**1.93** (1.32-2.85)
2-hr	**0.323** (0.272-0.388)	**0.404** (0.340-0.485)	**0.515** (0.432-0.620)	**0.610** (0.507-0.740)	**0.744** (0.597-0.936)	**0.852** (0.668-1.10)	**0.968** (0.739-1.28)	**1.09** (0.808-1.49)	**1.27** (0.898-1.80)	**1.41** (0.964-2.08)
3-hr	**0.261** (0.220-0.314)	**0.326** (0.274-0.392)	**0.415** (0.349-0.500)	**0.492** (0.409-0.597)	**0.601** (0.483-0.757)	**0.690** (0.541-0.889)	**0.785** (0.600-1.04)	**0.888** (0.658-1.21)	**1.03** (0.734-1.48)	**1.16** (0.791-1.71)
6-hr	**0.181** (0.152-0.217)	**0.226** (0.190-0.271)	**0.287** (0.241-0.346)	**0.340** (0.283-0.413)	**0.417** (0.334-0.525)	**0.479** (0.375-0.616)	**0.545** (0.416-0.720)	**0.616** (0.457-0.840)	**0.719** (0.510-1.02)	**0.804** (0.550-1.19)
12-hr	**0.122** (0.103-0.147)	**0.154** (0.129-0.184)	**0.196** (0.165-0.236)	**0.232** (0.193-0.282)	**0.283** (0.227-0.357)	**0.324** (0.254-0.418)	**0.368** (0.281-0.486)	**0.414** (0.307-0.564)	**0.480** (0.340-0.683)	**0.533** (0.364-0.788)
24-hr	**0.077** (0.068-0.089)	**0.098** (0.086-0.113)	**0.125** (0.110-0.146)	**0.149** (0.130-0.174)	**0.181** (0.153-0.219)	**0.207** (0.172-0.255)	**0.234** (0.190-0.295)	**0.262** (0.207-0.339)	**0.302** (0.229-0.407)	**0.334** (0.246-0.465)
2-day	**0.048** (0.042-0.055)	**0.061** (0.054-0.071)	**0.079** (0.069-0.092)	**0.094** (0.082-0.110)	**0.115** (0.097-0.139)	**0.132** (0.110-0.163)	**0.150** (0.121-0.189)	**0.169** (0.133-0.218)	**0.195** (0.148-0.262)	**0.216** (0.159-0.300)
3-day	**0.036** (0.031-0.041)	**0.046** (0.040-0.053)	**0.060** (0.053-0.069)	**0.072** (0.062-0.084)	**0.088** (0.075-0.106)	**0.101** (0.084-0.125)	**0.115** (0.094-0.145)	**0.130** (0.103-0.168)	**0.151** (0.115-0.203)	**0.168** (0.123-0.233)
4-day	**0.029** (0.026-0.034)	**0.038** (0.033-0.044)	**0.050** (0.044-0.058)	**0.060** (0.052-0.070)	**0.074** (0.062-0.089)	**0.085** (0.070-0.105)	**0.097** (0.078-0.122)	**0.109** (0.086-0.141)	**0.127** (0.096-0.171)	**0.142** (0.104-0.197)
7-day	**0.019** (0.017-0.022)	**0.025** (0.022-0.029)	**0.034** (0.029-0.039)	**0.040** (0.035-0.047)	**0.050** (0.042-0.060)	**0.058** (0.048-0.071)	**0.066** (0.053-0.083)	**0.074** (0.058-0.096)	**0.086** (0.065-0.116)	**0.096** (0.070-0.133)
10-day	**0.015** (0.013-0.017)	**0.020** (0.017-0.023)	**0.026** (0.023-0.030)	**0.031** (0.027-0.037)	**0.039** (0.033-0.047)	**0.045** (0.037-0.055)	**0.051** (0.042-0.065)	**0.058** (0.046-0.075)	**0.067** (0.051-0.091)	**0.075** (0.055-0.104)
20-day	**0.009** (0.008-0.011)	**0.012** (0.011-0.014)	**0.016** (0.014-0.019)	**0.020** (0.017-0.023)	**0.025** (0.021-0.030)	**0.028** (0.024-0.035)	**0.033** (0.026-0.041)	**0.037** (0.029-0.048)	**0.043** (0.033-0.058)	**0.048** (0.035-0.067)
30-day	**0.007** (0.006-0.008)	**0.010** (0.009-0.011)	**0.013** (0.012-0.015)	**0.016** (0.014-0.019)	**0.020** (0.017-0.024)	**0.023** (0.019-0.029)	**0.027** (0.022-0.033)	**0.030** (0.024-0.039)	**0.035** (0.027-0.048)	**0.040** (0.029-0.055)
45-day	**0.006** (0.005-0.007)	**0.008** (0.007-0.009)	**0.010** (0.009-0.012)	**0.013** (0.011-0.015)	**0.016** (0.013-0.019)	**0.019** (0.015-0.023)	**0.021** (0.017-0.027)	**0.024** (0.019-0.031)	**0.029** (0.022-0.038)	**0.032** (0.024-0.045)
60-day	**0.005** (0.004-0.006)	**0.007** (0.006-0.008)	**0.009** (0.008-0.010)	**0.011** (0.010-0.013)	**0.014** (0.012-0.017)	**0.016** (0.013-0.020)	**0.019** (0.015-0.024)	**0.021** (0.017-0.028)	**0.025** (0.019-0.034)	**0.029** (0.021-0.040)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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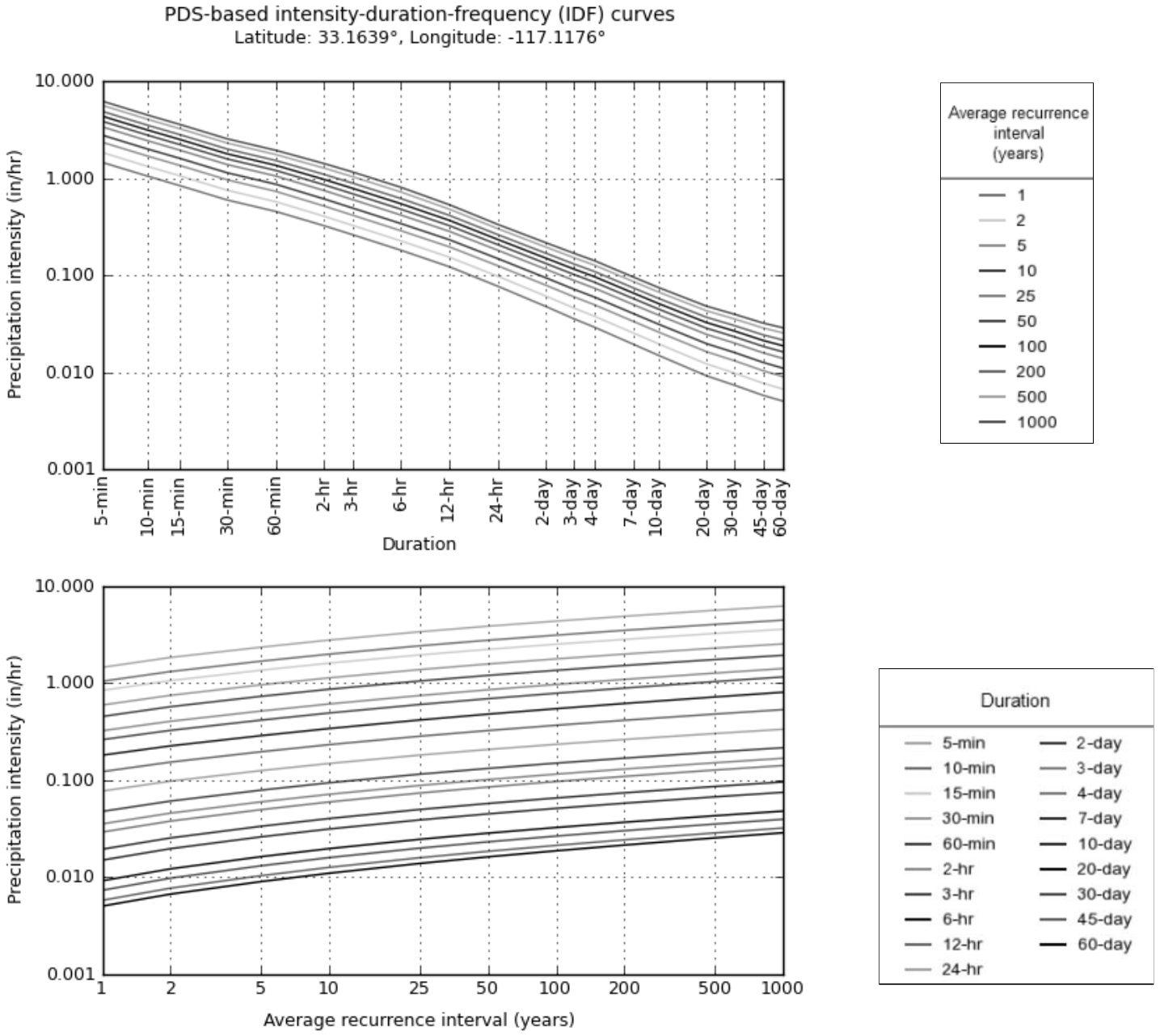
PF graphical



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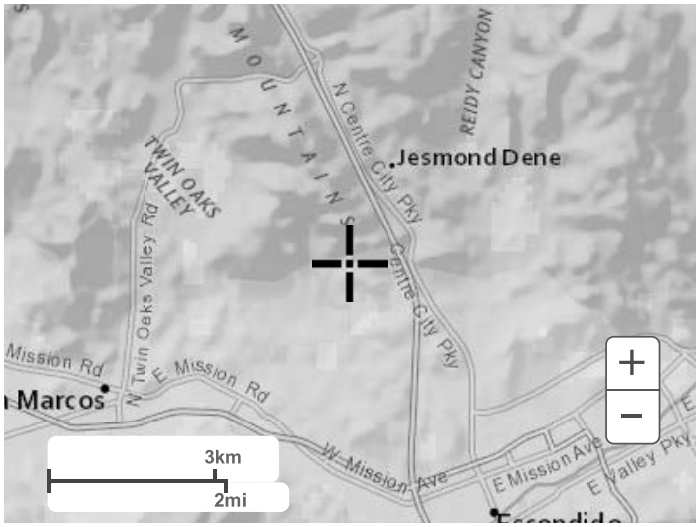
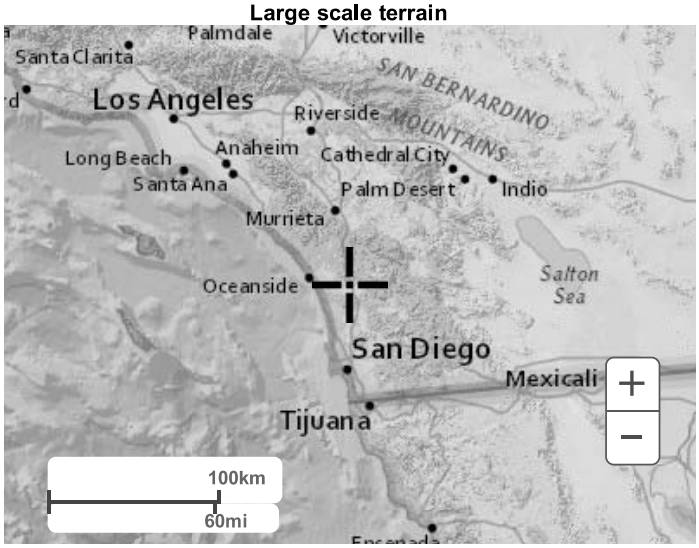
Maps & aerials

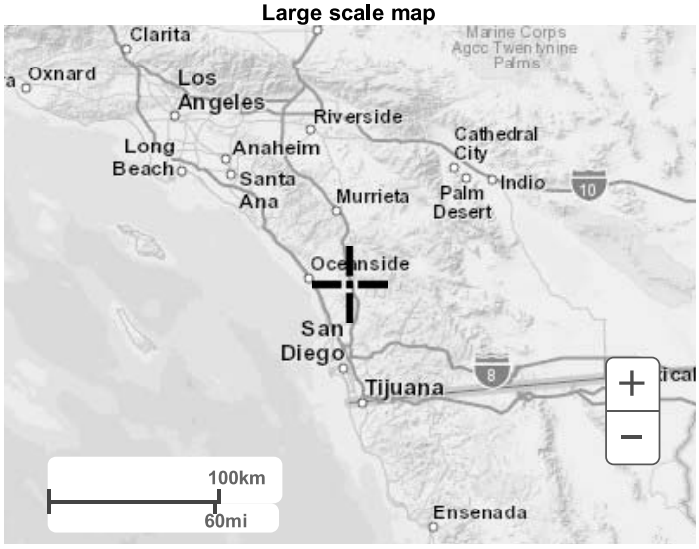
Small scale terrain



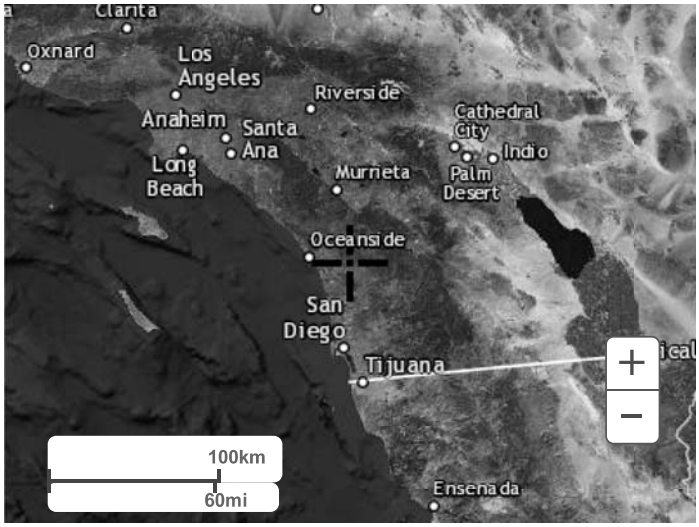
Large scale terrain



Large scale map



Large scale aerial



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National Weather Service
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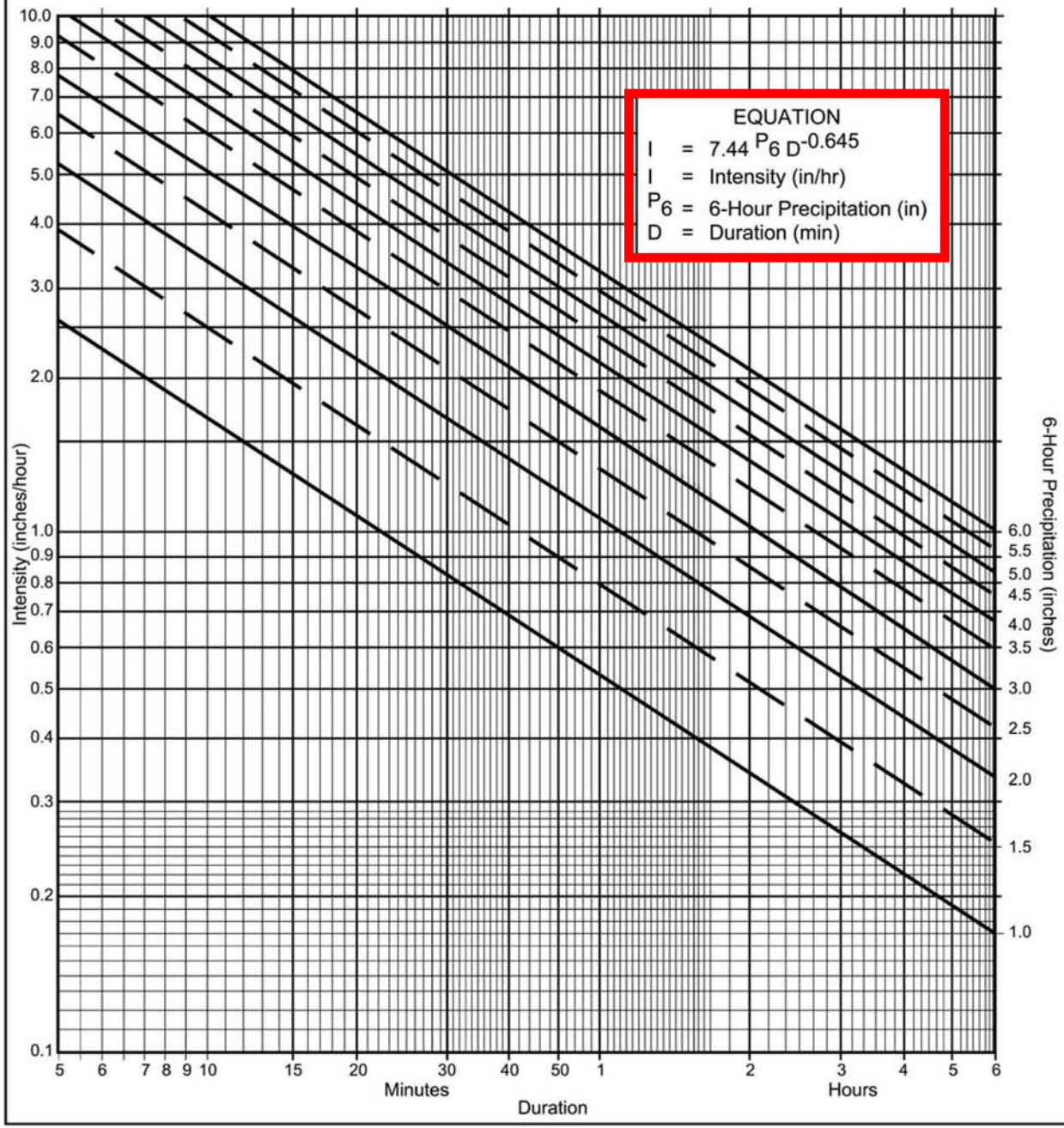
Disclaimer

San Diego County Hydrology Manual

Prepared by the County of San Diego
Department of Public Works
Flood Control Section

June 2003



Directions for Application:

(1) From precipitation maps determine 6 hr and 24 hr amounts for the selected frequency. These maps are included in the County Hydrology Manual (10, 50, and 100 yr maps included in the Design and Procedure Manual).

(2) Adjust 6 hr precipitation (if necessary) so that it is within the range of 45% to 65% of the 24 hr precipitation (not applicaple to Desert).

(3) Plot 6 hr precipitation on the right side of the chart.

(4) Draw a line through the point parallel to the plotted lines.

(5) This line is the intensity-duration curve for the location being analyzed.

Application Form:

(a) Selected frequency _____ year

(b) P_6 = _____ in., P_{24} = _____, $\frac{P_6}{P_{24}}$ = _____ %(2)

(c) Adjusted P_6(2) = _____ in.

(d) t_x = _____ min.

(e) I = _____ in./hr.

Note: This chart replaces the Intensity-Duration-Frequency curves used since 1965.

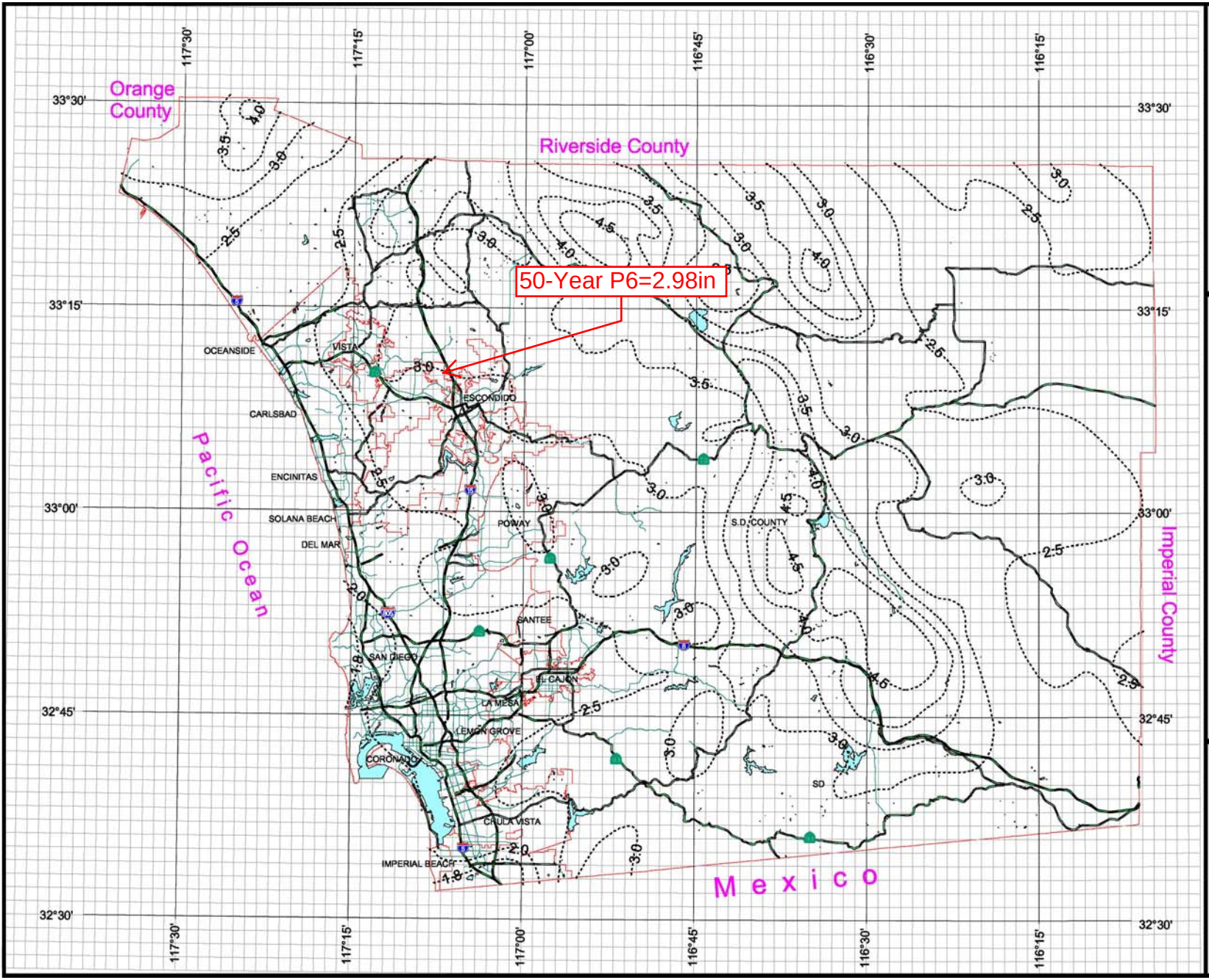
P6	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Duration	I	I	I	I	I	I	I	I	I	I	I
5	2.63	3.95	5.27	6.59	7.90	9.22	10.54	11.86	13.17	14.49	15.81
7	2.12	3.18	4.24	5.30	6.36	7.42	8.48	9.54	10.60	11.66	12.72
10	1.68	2.53	3.37	4.21	5.05	5.90	6.74	7.58	8.42	9.27	10.11
15	1.30	1.95	2.59	3.24	3.89	4.54	5.19	5.84	6.49	7.13	7.78
20	1.08	1.62	2.15	2.69	3.23	3.77	4.31	4.85	5.39	5.93	6.46
25	0.93	1.40	1.87	2.33	2.80	3.27	3.73	4.20	4.67	5.13	5.60
30	0.83	1.24	1.66	2.07	2.49	2.90	3.32	3.73	4.15	4.56	4.98
40	0.69	1.03	1.38	1.72	2.07	2.41	2.76	3.10	3.45	3.79	4.13
50	0.60	0.90	1.19	1.49	1.79	2.09	2.39	2.69	2.98	3.28	3.58
60	0.53	0.80	1.06	1.33	1.59	1.86	2.12	2.39	2.65	2.92	3.18
90	0.41	0.61	0.82	1.02	1.23	1.43	1.63	1.84	2.04	2.25	2.45
120	0.34	0.51	0.68	0.85	1.02	1.19	1.36	1.53	1.70	1.87	2.04
150	0.29	0.44	0.59	0.73	0.88	1.03	1.18	1.32	1.47	1.62	1.76
180	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.18	1.31	1.44	1.57
240	0.22	0.33	0.43	0.54	0.65	0.76	0.87	0.98	1.08	1.19	1.30
300	0.19	0.28	0.38	0.47	0.56	0.66	0.75	0.85	0.94	1.03	1.13
360	0.17	0.25	0.33	0.42	0.50	0.58	0.67	0.75	0.84	0.92	1.00

Intensity-Duration Design Chart - Template

FIGURE 3-1

County of San Diego Hydrology Manual

Rainfall Isopluvials



50 Year Rainfall Event - 6 Hours

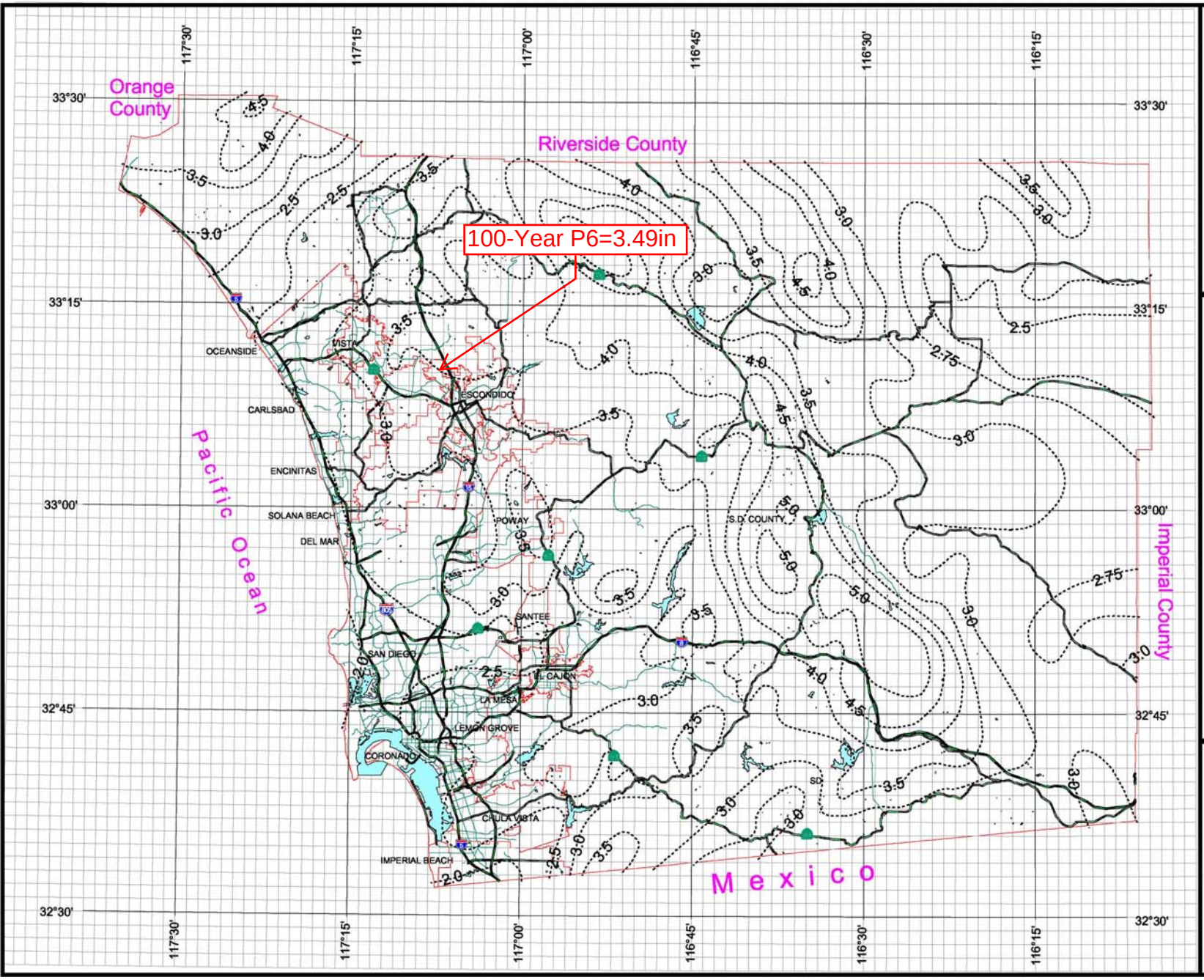
Isopluvial (inches)

DPW GIS
Department of Public Works Geographic Information Services

SanGIS
We Have San Diego Covered!

N W E S

3 0 3 Miles



County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 6 Hours

Isopluvial (inches)

DPW GIS
Department of Public Works Geographic Information Services

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3 0 3 Miles

Appendix B

Preliminary Storm Drain Sizing Calculations

Escondido Country Club
J-17762-A
3/7/2017

Preliminary Storm Drain Size

The purpose of this table is to provide an estimated pipe size to convey the 100-year flow rates with a sizing factor.

Manning's n: 0.013

Sizing Factor (%): 30

Slope at:		0.5%		1.0%		1.5%		2.0%	
Q_{100} (cfs[1])	Q_{100} with Sizing Factor (cfs[1])	Minimum Pipe Size[2] (feet)	Recommended Pipe Size (inches)	Minimum Pipe Size[2] (feet)	Recommended Pipe Size (inches)	Minimum Pipe Size[2] (feet)	Recommended Pipe Size (inches)	Minimum Pipe Size[2] (feet)	Recommended Pipe Size (inches)
2.0	2.6	1.01	12"	0.89	12"	0.82	10"	0.78	10"
5.0	6.5	1.43	18"	1.25	18"	1.16	18"	1.10	18"
7.5	9.8	1.66	24"	1.46	18"	1.35	18"	1.28	18"
10.0	13.0	1.85	24"	1.62	24"	1.50	18"	1.43	18"
15.0	19.5	2.15	30"	1.89	24"	1.75	24"	1.66	24"
20.0	26.0	2.40	30"	2.11	30"	1.95	24"	1.85	24"
25.0	32.5	2.61	36"	2.29	30"	2.12	30"	2.01	24"
30.0	39.0	2.79	36"	2.45	30"	2.27	30"	2.15	30"
35.0	45.5	2.96	36"	2.60	36"	2.41	30"	2.28	30"
40.0	52.0	3.11	42"	2.73	36"	2.53	36"	2.40	30"
50.0	65.0	3.38	42"	2.97	36"	2.75	36"	2.61	36"
60.0	78.0	3.62	48"	3.18	42"	2.95	36"	2.79	36"
70.0	91.0	3.83	48"	3.37	42"	3.12	42"	2.96	36"
80.0	104.0	4.03	54"	3.54	48"	3.28	42"	3.11	42"
90.0	117.0	4.21	54"	3.70	48"	3.43	42"	3.25	42"
110.0	143.0	4.54	60"	3.99	48"	3.70	48"	3.50	42"
145.0	188.5	5.04	72"	4.42	54"	4.10	54"	3.89	48"
170.0	221.0	5.35	72"	4.70	60"	4.35	54"	4.12	54"
240.0	312.0	6.09	84"	5.35	72"	4.95	60"	4.69	60"
350.0	455.0	7.01	96"	6.16	84"	5.71	72"	5.41	72"

Note:

1. "cfs" = cubic feet per second.
2. Minimum pipe sizes are calculated using the Manning's equation and are based on the flow rates with 30% factor.

Appendix C

Creek Hydraulics

Appendix C1

Proposed Condition HEC-RAS Output

HEC-RAS Plan: PR_n=0.06

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-3	1000.74	50-Year	576.39	714.00	718.76	717.42	719.34	0.008833	6.58	103.26	30.61	0.53
Reach-3	1000.74	100-Year	617.36	714.00	719.06	717.56	719.63	0.008004	6.53	112.76	32.77	0.51
Reach-3	1100	50-Year	576.39	714.62	719.69		719.95	0.004100	4.68	153.37	45.45	0.37
Reach-3	1100	100-Year	617.36	714.62	719.94		720.19	0.003883	4.70	164.57	46.91	0.36
Reach-3	1200	50-Year	576.39	715.24	720.11		720.41	0.004816	4.94	144.56	44.27	0.39
Reach-3	1200	100-Year	617.36	715.24	720.33		720.63	0.004615	4.98	154.43	45.59	0.39
Reach-3	1300	50-Year	576.39	715.85	720.61		720.92	0.005354	5.12	139.04	43.51	0.41
Reach-3	1300	100-Year	617.36	715.85	720.81		721.12	0.005196	5.19	147.83	44.70	0.41
Reach-3	1400	50-Year	576.39	716.47	721.15	719.49	721.48	0.005709	5.23	135.87	43.10	0.43
Reach-3	1400	100-Year	617.36	716.47	721.33	719.61	721.67	0.005600	5.32	143.88	44.20	0.43
Reach-3	1500	50-Year	576.39	717.09	721.72		722.06	0.005895	5.29	134.98	43.63	0.43
Reach-3	1500	100-Year	617.36	717.09	721.90		722.24	0.005821	5.38	142.63	44.72	0.43
Reach-3	1600	50-Year	576.39	717.71	722.32	720.73	722.66	0.006084	5.35	132.73	42.64	0.44
Reach-3	1600	100-Year	617.36	717.71	722.48	720.85	722.84	0.006045	5.46	139.89	43.64	0.44
Reach-3	1700	50-Year	576.39	718.33	722.92	721.34	723.27	0.006127	5.36	132.44	42.62	0.44
Reach-3	1700	100-Year	617.36	718.33	723.09	721.46	723.44	0.006105	5.47	139.44	43.60	0.44
Reach-3	1800	50-Year	576.39	718.94	723.54		723.88	0.006142	5.36	132.26	42.59	0.44
Reach-3	1800	100-Year	617.36	718.94	723.70		724.06	0.006132	5.48	139.15	43.55	0.44
Reach-3	1900	50-Year	576.39	719.56	724.15		724.50	0.006167	5.37	132.04	42.52	0.44
Reach-3	1900	100-Year	617.36	719.56	724.31		724.67	0.006161	5.49	138.88	43.47	0.44
Reach-3	2000	50-Year	576.39	720.18	724.77		725.12	0.006177	5.37	131.99	42.53	0.44
Reach-3	2000	100-Year	617.36	720.18	724.93		725.29	0.006174	5.50	138.80	43.48	0.44
Reach-3	2100	50-Year	576.39	720.80	725.39		725.73	0.006188	5.38	131.91	42.52	0.44
Reach-3	2100	100-Year	617.36	720.80	725.54		725.91	0.006186	5.50	138.72	43.47	0.45
Reach-3	2200	50-Year	576.39	721.42	726.00		726.36	0.006232	5.40	131.35	42.30	0.44
Reach-3	2200	100-Year	617.36	721.42	726.16		726.53	0.006233	5.52	138.11	43.24	0.45
Reach-3	2300	50-Year	576.39	722.03	726.63		726.98	0.006180	5.38	131.74	42.35	0.44
Reach-3	2300	100-Year	617.36	722.03	726.79		727.15	0.006181	5.51	138.50	43.29	0.45
Reach-3	2372.71	50-Year	576.39	722.48	727.08		727.43	0.006171	5.38	131.89	42.45	0.44
Reach-3	2372.71	100-Year	617.36	722.48	727.24		727.60	0.006171	5.50	138.68	43.40	0.44
Reach-3	2435.49	50-Year	576.39	722.50	727.51	725.37	727.76	0.003846	4.50	154.36	44.09	0.35
Reach-3	2435.49	100-Year	617.36	722.50	727.67	725.47	727.94	0.003890	4.62	161.57	44.95	0.36
Reach-3	2700.00		Culvert									
Reach-3	2788.25	50-Year	512.70	727.00	732.55	729.22	732.64	0.001182	2.67	228.43	62.51	0.20
Reach-3	2788.25	100-Year	550.01	727.00	732.89	729.31	732.98	0.001078	2.65	248.33	71.52	0.19
Reach-3	2900	50-Year	512.70	728.08	732.69	730.36	732.85	0.002674	3.55	169.57	50.65	0.29
Reach-3	2900	100-Year	550.01	728.08	733.01	730.48	733.17	0.002367	3.49	186.21	52.59	0.28
Reach-3	2979.86	50-Year	512.70	728.88	732.91	731.33	733.19	0.005453	4.63	129.81	44.31	0.41
Reach-3	2979.86	100-Year	550.01	728.88	733.20	731.44	733.46	0.004783	4.54	143.00	46.42	0.39
Reach-3	3056.27	50-Year	512.70	729.64	733.34	732.27	733.76	0.009328	5.72	105.74	44.00	0.52
Reach-3	3056.27	100-Year	550.01	729.64	733.58	732.38	733.98	0.008472	5.67	115.08	46.09	0.50
Reach-3	3106.3	50-Year	512.70	730.14	733.79	733.08	734.38	0.013806	6.89	90.00	37.84	0.64
Reach-3	3106.3	100-Year	550.01	730.14	733.97	733.19	734.56	0.013086	6.93	96.56	39.48	0.62
Reach-3	3126.3	50-Year	512.70	730.34	732.86	733.77	735.67	0.110391	15.19	41.15	23.93	1.69
Reach-3	3126.3	100-Year	550.01	730.34	732.97	733.89	735.82	0.106064	15.34	43.95	24.62	1.67
Reach-3	3141.91	50-Year	512.70	733.60	735.85	735.85	736.80	0.037041	8.18	68.61	37.25	0.96
Reach-3	3141.91	100-Year	550.01	733.60	735.95	735.95	736.93	0.036945	8.39	72.00	37.79	0.97
Reach-3	3151.91	50-Year	512.70	733.70	736.50	735.98	737.08	0.017227	6.45	88.67	40.16	0.68
Reach-3	3151.91	100-Year	550.01	733.70	736.61	736.08	737.21	0.017212	6.62	93.07	41.14	0.68
Reach-3	3201.92	50-Year	512.70	734.20	737.34	736.55	737.81	0.012216	5.87	98.97	42.29	0.58
Reach-3	3201.92	100-Year	550.01	734.20	737.46	736.65	737.95	0.012288	6.02	103.71	43.33	0.59
Reach-3	3306.37	50-Year	512.70	735.25	738.62	737.87	739.15	0.013122	6.37	93.77	37.95	0.61

HEC-RAS Plan: PR_n=0.06 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-3	3306.37	100-Year	550.01	735.25	738.74	737.97	739.29	0.013151	6.53	98.49	38.69	0.62
Reach-3	3356.37	50-Year	512.70	735.75	739.26	738.64	739.89	0.015411	7.10	86.70	35.25	0.67
Reach-3	3356.37	100-Year	550.01	735.75	739.38	738.76	740.04	0.015487	7.28	91.05	35.98	0.67
Reach-3	3376.37	50-Year	512.70	735.95	738.37	739.20	740.96	0.103165	14.32	42.65	24.90	1.62
Reach-3	3376.37	100-Year	550.01	735.95	738.48	739.32	741.11	0.099345	14.49	45.47	25.56	1.61
Reach-3	3388.12	50-Year	512.70	738.56	740.86	740.86	741.80	0.036431	8.21	68.60	36.82	0.96
Reach-3	3388.12	100-Year	550.01	738.56	740.96	740.96	741.94	0.035808	8.38	72.36	37.43	0.96
Reach-3	3398.12	50-Year	512.70	738.66	741.48	741.00	742.08	0.018064	6.64	86.58	39.20	0.70
Reach-3	3398.12	100-Year	550.01	738.66	741.59	741.10	742.22	0.018150	6.81	90.72	39.82	0.70
Reach-3	3448.13	50-Year	512.70	739.17	742.36	741.52	742.81	0.011629	5.79	100.53	41.07	0.57
Reach-3	3448.13	100-Year	550.01	739.17	742.48	741.62	742.95	0.011687	5.95	105.38	41.78	0.58
Reach-3	3525.8	50-Year	512.70	739.94	743.25	742.27	743.65	0.009934	5.48	106.41	42.10	0.53
Reach-3	3525.8	100-Year	550.01	739.94	743.37	742.37	743.80	0.009955	5.62	111.67	42.84	0.54
Reach-3	3600	50-Year	512.70	740.69	743.99	743.02	744.40	0.010137	5.52	105.60	41.91	0.54
Reach-3	3600	100-Year	550.01	740.69	744.11	743.13	744.54	0.010141	5.66	110.88	42.66	0.54
Reach-4	1005.47	50-Year	386.38	734.07	738.14	736.51	738.40	0.005042	4.48	102.57	35.09	0.39
Reach-4	1005.47	100-Year	415.55	734.07	738.37	736.61	738.62	0.004707	4.49	110.77	36.23	0.38
Reach-4	1048.03	50-Year	386.38	734.68	738.35	737.02	738.66	0.006769	4.85	93.13	34.49	0.45
Reach-4	1048.03	100-Year	415.55	734.68	738.56	737.13	738.87	0.006299	4.86	100.60	35.55	0.43
Reach-4	1068.03	50-Year	386.38	734.97	738.46	737.32	738.83	0.008613	5.29	84.48	32.48	0.50
Reach-4	1068.03	100-Year	415.55	734.97	738.66	737.43	739.03	0.008037	5.30	91.16	33.49	0.49
Reach-4	1077.79	50-Year	386.38	737.07	739.00	739.00	739.85	0.039793	7.67	54.16	32.85	0.97
Reach-4	1077.79	100-Year	415.55	737.07	739.09	739.09	739.98	0.039361	7.85	57.03	33.28	0.97
Reach-4	1087.79	50-Year	386.38	737.16	739.54	739.23	740.18	0.023488	6.74	62.91	32.45	0.77
Reach-4	1087.79	100-Year	415.55	737.16	739.62	739.32	740.30	0.024094	6.98	65.51	32.85	0.79
Reach-4	1118.22	50-Year	386.38	737.47	740.23		740.80	0.017674	6.47	67.27	31.26	0.69
Reach-4	1118.22	100-Year	415.55	737.47	740.33		740.93	0.017818	6.66	70.54	31.77	0.69
Reach-4	1148.66	50-Year	386.38	737.77	740.78	740.11	741.29	0.014500	6.20	71.27	31.22	0.63
Reach-4	1148.66	100-Year	415.55	737.77	740.89	740.22	741.43	0.014607	6.38	74.79	31.77	0.64
Reach-4	1168.66	50-Year	386.38	737.97	739.64	740.40	742.11	0.144953	13.21	31.95	23.26	1.81
Reach-4	1168.66	100-Year	415.55	737.97	739.73	740.52	742.24	0.137603	13.35	34.15	23.73	1.78
Reach-4	1175.59	50-Year	386.38	740.03	741.92	741.92	742.75	0.040353	7.58	54.50	33.66	0.97
Reach-4	1175.59	100-Year	415.55	740.03	742.00	742.00	742.87	0.039773	7.76	57.44	34.10	0.97
Reach-4	1185.59	50-Year	386.38	740.13	742.53	742.06	743.04	0.018295	6.00	70.15	35.26	0.68
Reach-4	1185.59	100-Year	415.55	740.13	742.63	742.15	743.17	0.018414	6.18	73.50	35.74	0.69
Reach-4	1217.15	50-Year	386.38	740.44	743.09		743.59	0.016144	6.01	71.31	33.65	0.65
Reach-4	1217.15	100-Year	415.55	740.44	743.18		743.72	0.016319	6.19	74.67	34.14	0.66
Reach-4	1248.7	50-Year	386.38	740.76	743.57	743.04	744.14	0.017330	6.48	67.52	31.12	0.68
Reach-4	1248.7	100-Year	415.55	740.76	743.67	743.15	744.27	0.017528	6.67	70.74	31.64	0.69
Reach-4	1268.7	50-Year	386.38	740.96	742.64	743.40	745.09	0.142089	13.18	32.12	23.34	1.79
Reach-4	1268.7	100-Year	415.55	740.96	742.73	743.51	745.23	0.135001	13.32	34.33	23.82	1.76
Reach-4	1275.78	50-Year	386.38	743.02	744.91	744.91	745.74	0.040364	7.58	54.51	33.68	0.97
Reach-4	1275.78	100-Year	415.55	743.02	745.00	745.00	745.87	0.039821	7.76	57.44	34.12	0.98
Reach-4	1285.78	50-Year	386.38	743.12	745.54		746.03	0.017442	5.88	71.54	35.71	0.67
Reach-4	1285.78	100-Year	415.55	743.12	745.64		746.15	0.017523	6.05	75.00	36.20	0.67
Reach-4	1317.06	50-Year	386.38	743.44	746.06		746.59	0.017462	6.21	69.09	33.00	0.68
Reach-4	1317.06	100-Year	415.55	743.44	746.15		746.72	0.017655	6.40	72.34	33.49	0.69
Reach-4	1348.34	50-Year	386.38	743.75	746.57	746.08	747.17	0.018197	6.67	65.91	30.43	0.70
Reach-4	1348.34	100-Year	415.55	743.75	746.67	746.19	747.31	0.018422	6.87	69.04	30.94	0.71
Reach-4	1368.34	50-Year	386.38	743.95	745.70	746.45	748.12	0.131866	13.04	32.41	22.64	1.74
Reach-4	1368.34	100-Year	415.55	743.95	745.79	746.56	748.25	0.125078	13.17	34.66	23.13	1.71
Reach-4	1376.11	50-Year	386.38	746.02	747.95	747.95	748.79	0.039894	7.66	54.15	32.88	0.97

HEC-RAS Plan: PR_n=0.06 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-4	1376.11	100-Year	415.55	746.02	748.03	748.03	748.92	0.039460	7.84	57.01	33.31	0.97
Reach-4	1386.11	50-Year	386.38	746.12	748.58		749.08	0.017464	5.96	70.84	34.93	0.67
Reach-4	1386.11	100-Year	415.55	746.12	748.68		749.21	0.017522	6.13	74.31	35.42	0.68
Reach-4	1417.88	50-Year	386.38	746.43	749.11		749.62	0.016278	6.08	70.69	33.15	0.66
Reach-4	1417.88	100-Year	415.55	746.43	749.21		749.75	0.016433	6.26	74.05	33.65	0.66
Reach-4	1449.63	50-Year	386.38	746.75	749.60		750.12	0.015332	6.17	70.82	31.98	0.64
Reach-4	1449.63	100-Year	415.55	746.75	749.71		750.26	0.015482	6.35	74.24	32.51	0.65
Reach-4	1469.63	50-Year	386.38	746.95	749.86	749.39	750.49	0.018470	6.86	64.80	29.55	0.71
Reach-4	1469.63	100-Year	415.55	746.95	749.97	749.50	750.63	0.018670	7.07	67.94	30.08	0.72
Reach-4	1476.02	50-Year	386.38	748.00	750.11	750.11	751.02	0.038482	7.98	52.85	30.36	0.97
Reach-4	1476.02	100-Year	415.55	748.00	750.21	750.21	751.15	0.038002	8.17	55.73	30.83	0.97
Reach-4	1486.02	50-Year	386.38	748.10	750.76		751.30	0.017166	6.22	69.18	32.71	0.67
Reach-4	1486.02	100-Year	415.55	748.10	750.87		751.43	0.017216	6.40	72.64	33.23	0.68
Reach-4	1516.13	50-Year	386.38	748.40	751.24		751.88	0.019288	6.89	64.17	29.74	0.72
Reach-4	1516.13	100-Year	415.55	748.40	751.34		752.01	0.019490	7.09	67.27	30.26	0.73
Reach-4	1546.24	50-Year	386.38	748.70	751.86		752.37	0.013702	6.23	71.67	30.30	0.62
Reach-4	1546.24	100-Year	415.55	748.70	751.98		752.52	0.013803	6.41	75.24	30.86	0.62
Reach-4	1566.24	50-Year	386.38	748.90	752.14	751.36	752.64	0.012731	6.12	73.10	30.15	0.60
Reach-4	1566.24	100-Year	415.55	748.90	752.26	751.47	752.79	0.012826	6.29	76.75	30.70	0.61
Reach-4	1577.42	50-Year	386.38	750.00	752.28	752.28	753.22	0.037144	8.24	52.05	28.61	0.96
Reach-4	1577.42	100-Year	415.55	750.00	752.38	752.38	753.36	0.036607	8.42	54.97	29.11	0.96
Reach-4	1587.42	50-Year	386.38	750.11	752.91	752.43	753.51	0.018397	6.67	65.78	30.51	0.70
Reach-4	1587.42	100-Year	415.55	750.11	753.02	752.54	753.65	0.018463	6.85	69.11	31.05	0.71
Reach-4	1637.42	50-Year	386.38	750.61	753.80		754.26	0.012041	5.89	75.81	31.73	0.58
Reach-4	1637.42	100-Year	415.55	750.61	753.92		754.40	0.012110	6.05	79.64	32.33	0.59
Reach-4	1699.7	50-Year	386.38	751.23	754.54		754.99	0.011244	5.84	77.22	31.60	0.57
Reach-4	1699.7	100-Year	415.55	751.23	754.67		755.13	0.011285	5.99	81.20	32.22	0.57
Reach-4	1749.84	50-Year	386.38	751.71	755.11		755.53	0.010294	5.67	79.54	31.84	0.54
Reach-4	1749.84	100-Year	415.55	751.71	755.24		755.68	0.010325	5.82	83.66	32.47	0.55
Reach-4	1769.87	50-Year	386.38	751.92	755.39	754.20	755.72	0.007844	5.02	88.94	34.27	0.48
Reach-4	1769.87	100-Year	415.55	751.92	755.52	754.31	755.87	0.007859	5.15	93.56	34.93	0.48
Reach-4	1781.23	50-Year	386.38	753.02	755.28	755.28	756.22	0.037294	8.23	52.13	28.81	0.97
Reach-4	1781.23	100-Year	415.55	753.02	755.38	755.38	756.36	0.036667	8.40	55.10	29.32	0.96
Reach-4	1791.23	50-Year	386.38	753.12	755.77	755.54	756.55	0.025684	7.59	57.95	28.58	0.82
Reach-4	1791.23	100-Year	415.55	753.12	755.86	755.65	756.68	0.026315	7.85	60.45	29.01	0.84
Reach-4	1841.3	50-Year	386.38	753.61	756.95		757.39	0.011045	5.80	77.64	31.60	0.56
Reach-4	1841.3	100-Year	415.55	753.61	757.08		757.54	0.011050	5.95	81.73	32.24	0.56
Reach-4	1900.13	50-Year	386.38	754.20	757.61		757.96	0.008224	5.08	87.64	34.25	0.49
Reach-4	1900.13	100-Year	415.55	754.20	757.75		758.11	0.008222	5.21	92.25	34.91	0.49
Reach-4	1950.13	50-Year	386.38	754.70	758.02		758.44	0.010398	5.62	79.85	32.38	0.54
Reach-4	1950.13	100-Year	415.55	754.70	758.16		758.59	0.010375	5.76	84.13	33.04	0.55
Reach-4	1970.13	50-Year	386.38	754.90	758.22	757.35	758.67	0.011396	5.87	76.64	31.38	0.57
Reach-4	1970.13	100-Year	415.55	754.90	758.35	757.46	758.82	0.011377	6.02	80.74	32.02	0.57
Reach-4	1984.43	50-Year	386.38	757.02	758.97	758.97	759.82	0.039782	7.66	54.17	32.86	0.97
Reach-4	1984.43	100-Year	415.55	757.02	759.05	759.05	759.94	0.039417	7.85	57.01	33.29	0.97
Reach-4	1994.43	50-Year	386.38	757.12	759.56	759.13	760.12	0.019473	6.26	67.64	33.80	0.71
Reach-4	1994.43	100-Year	415.55	757.12	759.66	759.22	760.24	0.019592	6.45	70.89	34.28	0.71
Reach-4	2023.2	50-Year	386.38	757.40	760.06		760.77	0.023128	7.24	60.50	29.37	0.78
Reach-4	2023.2	100-Year	415.55	757.40	760.16		760.91	0.023495	7.46	63.29	29.85	0.79
Reach-4	2052.01	50-Year	386.38	757.68	760.78		761.32	0.015053	6.44	69.51	30.20	0.65
Reach-4	2052.01	100-Year	415.55	757.68	760.89		761.47	0.015130	6.62	73.04	30.78	0.65
Reach-4	2072.01	50-Year	386.38	757.88	761.13	760.33	761.60	0.012285	6.01	74.95	31.29	0.59

HEC-RAS Plan: PR_n=0.06 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-4	2072.01	100-Year	415.55	757.88	761.25	760.44	761.75	0.012313	6.17	78.85	31.91	0.59
Reach-4	2086.39	50-Year	386.38	759.01	761.36	761.36	762.32	0.036688	8.35	51.75	28.01	0.96
Reach-4	2086.39	100-Year	415.55	759.01	761.46	761.46	762.46	0.035974	8.52	54.78	28.55	0.96
Reach-4	2096.39	50-Year	386.38	759.10	761.95	761.55	762.62	0.020309	7.06	62.75	29.27	0.74
Reach-4	2096.39	100-Year	415.55	759.10	762.05	761.66	762.76	0.020480	7.27	65.84	29.79	0.75
Reach-4	2147.7	50-Year	386.38	759.58	762.94		763.37	0.010910	5.78	77.99	31.68	0.56
Reach-4	2147.7	100-Year	415.55	759.58	763.06		763.52	0.010966	5.94	81.98	32.31	0.56
Reach-4	2206.81	50-Year	386.38	760.16	763.58	762.61	763.99	0.009940	5.61	80.62	32.08	0.53
Reach-4	2206.81	100-Year	415.55	760.16	763.71	762.72	764.14	0.009969	5.76	84.81	32.73	0.54
Reach-4	2256.81	50-Year	386.38	760.67	764.08	763.12	764.49	0.010063	5.63	80.27	32.04	0.54
Reach-4	2256.81	100-Year	415.55	760.67	764.21	763.22	764.64	0.010074	5.78	84.50	32.69	0.54
Reach-4	2276.81	50-Year	386.38	760.88	764.31	763.39	764.70	0.010738	5.36	80.30	33.44	0.54
Reach-4	2276.81	100-Year	415.55	760.88	764.44	763.50	764.85	0.010622	5.48	84.77	34.10	0.54
Reach-4	2294.64	50-Year	386.38	763.03	765.01	765.01	765.87	0.039851	7.73	53.79	32.32	0.97
Reach-4	2294.64	100-Year	415.55	763.03	765.10	765.10	765.99	0.039167	7.90	56.76	32.77	0.97
Reach-4	2304.65	50-Year	386.38	763.13	765.44	765.29	766.22	0.029800	7.43	57.21	30.59	0.87
Reach-4	2304.65	100-Year	415.55	763.13	765.49	765.38	766.34	0.031610	7.78	58.90	30.86	0.89
Reach-5	1011.79	50-Year	193.42	737.37	742.91	738.83	742.93	0.000291	1.32	177.44	45.98	0.10
Reach-5	1011.79	100-Year	207.55	737.37	743.16	738.89	743.18	0.000281	1.34	189.09	47.22	0.10
Reach-5	1049.38	50-Year	193.42	737.76	742.91		742.95	0.000548	1.73	138.49	39.76	0.13
Reach-5	1049.38	100-Year	207.55	737.76	743.16		743.20	0.000521	1.74	148.57	41.00	0.13
Reach-5	1069.38	50-Year	193.42	737.96	742.92		742.97	0.000946	2.21	111.93	34.92	0.18
Reach-5	1069.38	100-Year	207.55	737.96	743.16		743.22	0.000887	2.21	120.80	36.16	0.17
Reach-5	1085.11	50-Year	193.42	741.10	742.79		743.08	0.015850	4.43	46.57	31.77	0.60
Reach-5	1085.11	100-Year	207.55	741.10	743.08		743.31	0.010584	4.01	55.69	33.18	0.50
Reach-5	1095.11	50-Year	193.42	741.20	742.97		743.23	0.013722	4.24	48.75	32.01	0.56
Reach-5	1095.11	100-Year	207.55	741.20	743.18		743.41	0.010575	4.01	55.63	33.07	0.50
Reach-5	1122.16	50-Year	193.42	741.47	743.33		743.60	0.013454	4.34	48.02	30.51	0.56
Reach-5	1122.16	100-Year	207.55	741.47	743.46		743.73	0.012078	4.31	52.15	31.18	0.54
Reach-5	1149.21	50-Year	193.42	741.74	743.68	743.25	744.04	0.017638	5.10	41.64	26.38	0.65
Reach-5	1149.21	100-Year	207.55	741.74	743.77	743.32	744.15	0.017081	5.19	44.15	26.85	0.64
Reach-5	1169.21	50-Year	193.42	741.94	743.02	743.69	745.30	0.232975	12.56	16.55	18.06	2.13
Reach-5	1169.21	100-Year	207.55	741.94	743.08	743.77	745.41	0.224118	12.74	17.57	18.34	2.11
Reach-5	1184.85	50-Year	193.42	745.09	746.32	746.32	746.89	0.047396	6.20	32.72	29.61	0.98
Reach-5	1184.85	100-Year	207.55	745.09	746.38	746.38	746.97	0.046567	6.34	34.43	29.90	0.98
Reach-5	1194.85	50-Year	193.42	745.19	746.87		747.20	0.019182	4.84	42.80	29.74	0.66
Reach-5	1194.85	100-Year	207.55	745.19	746.93		747.29	0.019412	4.99	44.65	30.05	0.67
Reach-5	1211.93	50-Year	193.42	745.36	747.16	746.86	747.59	0.022662	5.51	38.34	25.83	0.72
Reach-5	1211.93	100-Year	207.55	745.36	747.22	746.93	747.68	0.023044	5.69	39.97	26.15	0.74
Reach-5	1231.93	50-Year	193.42	745.56	746.70	747.43	749.19	0.239808	13.25	15.92	16.82	2.19
Reach-5	1231.93	100-Year	207.55	745.56	746.76	747.51	749.30	0.228587	13.39	16.96	17.13	2.15
Reach-5	1244.53	50-Year	193.42	748.68	749.94	749.94	750.52	0.046805	6.27	32.47	28.83	0.98
Reach-5	1244.53	100-Year	207.55	748.68	750.01	750.01	750.61	0.045752	6.39	34.23	29.14	0.98
Reach-5	1254.53	50-Year	193.42	748.78	750.48		750.84	0.020247	5.02	41.44	28.64	0.68
Reach-5	1254.53	100-Year	207.55	748.78	750.54		750.93	0.020581	5.18	43.19	28.94	0.69
Reach-5	1302.85	50-Year	193.42	749.26	751.35		751.71	0.016037	5.12	42.13	25.40	0.63
Reach-5	1302.85	100-Year	207.55	749.26	751.42		751.80	0.016203	5.27	44.06	25.77	0.63
Reach-5	1348.37	50-Year	193.42	749.72	752.06	751.62	752.50	0.017738	5.81	38.77	22.43	0.67
Reach-5	1348.37	100-Year	207.55	749.72	752.14	751.70	752.61	0.017923	5.98	40.61	22.84	0.68
Reach-5	1368.37	50-Year	193.42	749.92	751.19	751.86	753.39	0.186957	12.54	17.01	16.51	1.96
Reach-5	1368.37	100-Year	207.55	749.92	751.25	751.94	753.50	0.179748	12.71	18.08	16.83	1.94
Reach-5	1383.76	50-Year	193.42	753.06	754.30	754.30	754.86	0.046917	6.18	32.85	29.69	0.98

HEC-RAS Plan: PR_n=0.06 (Continued)

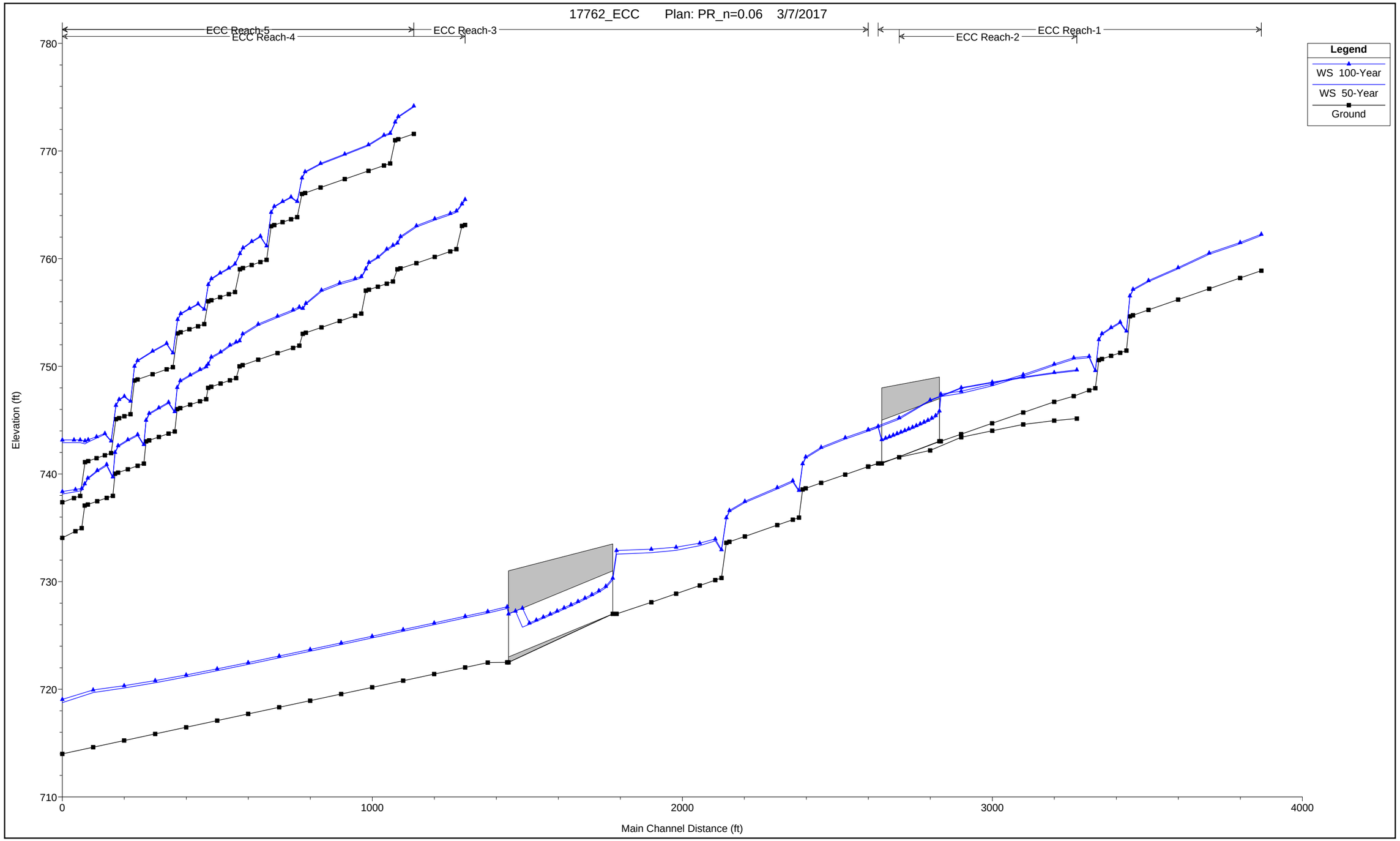
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-5	1383.76	100-Year	207.55	753.06	754.35	754.35	754.94	0.046191	6.32	34.54	29.97	0.98
Reach-5	1393.76	50-Year	193.42	753.16	754.84		755.16	0.017755	4.67	44.28	30.53	0.63
Reach-5	1393.76	100-Year	207.55	753.16	754.91		755.24	0.017935	4.81	46.22	30.85	0.64
Reach-5	1421.76	50-Year	193.42	753.44	755.31		755.63	0.015892	4.74	44.32	28.38	0.61
Reach-5	1421.76	100-Year	207.55	753.44	755.38		755.72	0.016082	4.88	46.28	28.73	0.62
Reach-5	1449.76	50-Year	193.42	753.72	755.74	755.29	756.11	0.017311	5.20	41.29	25.53	0.65
Reach-5	1449.76	100-Year	207.55	753.72	755.81	755.36	756.21	0.017522	5.36	43.14	25.89	0.65
Reach-5	1469.76	50-Year	193.42	753.92	755.25	755.83	757.11	0.147873	11.53	18.56	17.28	1.76
Reach-5	1469.76	100-Year	207.55	753.92	755.32	755.91	757.22	0.143194	11.71	19.69	17.60	1.75
Reach-5	1482.69	50-Year	193.42	756.04	757.53	757.53	758.18	0.043535	6.74	30.92	24.46	0.97
Reach-5	1482.69	100-Year	207.55	756.04	757.60	757.60	758.28	0.042512	6.87	32.66	24.81	0.97
Reach-5	1492.69	50-Year	193.42	756.14	758.08		758.49	0.019622	5.40	39.61	25.26	0.68
Reach-5	1492.69	100-Year	207.55	756.14	758.15		758.58	0.019886	5.56	41.36	25.60	0.69
Reach-5	1520.7	50-Year	193.42	756.42	758.60		759.00	0.016640	5.38	40.74	24.10	0.64
Reach-5	1520.7	100-Year	207.55	756.42	758.68		759.09	0.016813	5.53	42.63	24.49	0.65
Reach-5	1548.71	50-Year	193.42	756.70	759.05		759.48	0.017276	5.75	39.15	22.52	0.66
Reach-5	1548.71	100-Year	207.55	756.70	759.13		759.59	0.017450	5.92	41.01	22.93	0.67
Reach-5	1568.71	50-Year	193.42	756.90	759.43	758.81	759.79	0.013313	5.30	42.88	23.26	0.59
Reach-5	1568.71	100-Year	207.55	756.90	759.52	758.89	759.90	0.013405	5.45	44.98	23.71	0.59
Reach-5	1584.4	50-Year	193.42	759.02	760.42	760.42	761.05	0.044909	6.55	31.47	26.04	0.98
Reach-5	1584.4	100-Year	207.55	759.02	760.49	760.49	761.14	0.044108	6.69	33.15	26.36	0.98
Reach-5	1594.4	50-Year	193.42	759.13	760.95	760.64	761.37	0.022373	5.51	38.39	25.68	0.72
Reach-5	1594.4	100-Year	207.55	759.13	761.01	760.71	761.46	0.022748	5.69	40.03	25.99	0.73
Reach-5	1622.61	50-Year	193.42	759.41	761.53		761.94	0.017908	5.47	39.85	24.08	0.66
Reach-5	1622.61	100-Year	207.55	759.41	761.61		762.04	0.018106	5.63	41.69	24.46	0.67
Reach-5	1650.82	50-Year	193.42	759.69	762.01	761.55	762.44	0.016943	5.66	39.61	22.85	0.65
Reach-5	1650.82	100-Year	207.55	759.69	762.09	761.63	762.54	0.017122	5.82	41.48	23.25	0.66
Reach-5	1670.82	50-Year	193.42	759.89	761.12	761.81	763.39	0.198612	12.70	16.78	16.73	2.02
Reach-5	1670.82	100-Year	207.55	759.89	761.19	761.89	763.49	0.189638	12.84	17.88	17.06	1.99
Reach-5	1685.38	50-Year	193.42	763.02	764.25	764.25	764.81	0.047610	6.17	32.84	29.96	0.98
Reach-5	1685.38	100-Year	207.55	763.02	764.31	764.31	764.89	0.046685	6.30	34.58	30.25	0.98
Reach-5	1695.38	50-Year	193.42	763.12	764.80		765.12	0.018049	4.68	44.11	30.61	0.64
Reach-5	1695.38	100-Year	207.55	763.12	764.86		765.20	0.018271	4.83	46.01	30.92	0.65
Reach-5	1722.37	50-Year	193.42	763.39	765.26		765.58	0.016162	4.76	44.12	28.41	0.62
Reach-5	1722.37	100-Year	207.55	763.39	765.32		765.67	0.016365	4.90	46.06	28.75	0.62
Reach-5	1749.37	50-Year	193.42	763.66	765.66	765.33	766.12	0.021343	5.74	37.73	23.91	0.72
Reach-5	1749.37	100-Year	207.55	763.66	765.73	765.41	766.21	0.021661	5.91	39.41	24.26	0.73
Reach-5	1769.37	50-Year	193.42	763.86	765.26	765.76	766.88	0.123658	10.84	19.84	17.81	1.62
Reach-5	1769.37	100-Year	207.55	763.86	765.32	765.84	767.00	0.120147	11.02	21.02	18.14	1.61
Reach-5	1784.8	50-Year	193.42	766.01	767.43	767.43	768.06	0.044164	6.59	31.39	25.59	0.97
Reach-5	1784.8	100-Year	207.55	766.01	767.50	767.50	768.15	0.043381	6.73	33.07	25.92	0.97
Reach-5	1794.81	50-Year	193.42	766.10	768.01		768.35	0.016557	4.89	43.17	27.45	0.63
Reach-5	1794.81	100-Year	207.55	766.10	768.08		768.44	0.016677	5.03	45.15	27.81	0.63
Reach-5	1844.83	50-Year	193.42	766.61	768.76		769.04	0.011658	4.46	48.02	27.67	0.54
Reach-5	1844.83	100-Year	207.55	766.61	768.85		769.14	0.011702	4.58	50.32	28.08	0.54
Reach-5	1923.02	50-Year	193.42	767.39	769.63		769.88	0.009893	4.22	50.88	28.30	0.50
Reach-5	1923.02	100-Year	207.55	767.39	769.72		769.98	0.009879	4.33	53.41	28.74	0.50
Reach-5	1999.43	50-Year	193.42	768.15	770.50		770.99	0.019600	6.13	37.06	21.61	0.70
Reach-5	1999.43	100-Year	207.55	768.15	770.58		771.09	0.019751	6.29	38.87	22.01	0.71
Reach-5	2049.43	50-Year	193.42	768.65	771.38		771.66	0.009342	4.67	48.70	24.42	0.50
Reach-5	2049.43	100-Year	207.55	768.65	771.48		771.77	0.009381	4.80	51.13	24.88	0.50
Reach-5	2069.43	50-Year	193.42	768.85	771.56	770.76	771.87	0.010256	4.87	46.80	23.97	0.52

HEC-RAS Plan: PR_n=0.06 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-5	2069.43	100-Year	207.55	768.85	771.66	770.84	771.98	0.010279	5.00	49.19	24.46	0.53
Reach-5	2085.59	50-Year	193.42	771.00	772.63	772.63	773.32	0.042192	7.00	30.17	22.59	0.97
Reach-5	2085.59	100-Year	207.55	771.00	772.70	772.70	773.42	0.041433	7.14	31.82	22.94	0.97
Reach-5	2095.59	50-Year	193.42	771.10	773.13	772.88	773.66	0.024702	6.22	35.17	22.45	0.77
Reach-5	2095.59	100-Year	207.55	771.10	773.20	772.96	773.76	0.025076	6.41	36.74	22.80	0.78
Reach-5	2145.59	50-Year	193.42	771.59	774.09	773.12	774.29	0.007092	3.83	56.71	29.00	0.43
Reach-5	2145.59	100-Year	207.55	771.59	774.19	773.18	774.40	0.007098	3.93	59.51	29.48	0.43
Reach-2	3700	50-Year	211.05	741.56	745.09	743.74	745.27	0.005734	3.37	66.15	38.56	0.37
Reach-2	3700	100-Year	226.31	741.56	745.22	743.81	745.40	0.005474	3.41	71.33	40.88	0.37
Reach-2	3800	50-Year	211.05	742.19	746.81	746.81	747.18	0.017816	5.43	55.77	77.92	0.58
Reach-2	3800	100-Year	226.31	742.19	746.86	746.86	747.23	0.017856	5.51	59.89	80.43	0.58
Reach-2	3900	50-Year	211.05	743.41	747.96		748.07	0.005099	3.23	95.88	86.64	0.34
Reach-2	3900	100-Year	226.31	743.41	748.02		748.13	0.005146	3.29	100.65	86.85	0.34
Reach-2	4000	50-Year	211.05	744.01	748.47		748.58	0.004995	3.11	90.02	65.27	0.34
Reach-2	4000	100-Year	226.31	744.01	748.53		748.64	0.005083	3.19	93.90	65.49	0.34
Reach-2	4100	50-Year	211.05	744.60	748.93		749.05	0.004474	3.23	82.58	46.34	0.33
Reach-2	4100	100-Year	226.31	744.60	749.00		749.13	0.004602	3.33	85.78	46.58	0.33
Reach-2	4200	50-Year	211.05	744.95	749.35		749.47	0.003880	3.19	78.53	35.50	0.31
Reach-2	4200	100-Year	226.31	744.95	749.43		749.56	0.004013	3.30	81.41	35.77	0.32
Reach-2	4272.92	50-Year	211.05	745.15	749.58	747.33	749.66	0.001683	2.39	95.41	81.81	0.22
Reach-2	4272.92	100-Year	226.31	745.15	749.67	747.43	749.76	0.001771	2.49	98.20	82.24	0.22
Reach-1	3632.14	50-Year	512.70	740.98	744.31	743.35	744.72	0.010110	5.54	105.56	41.80	0.54
Reach-1	3632.14	100-Year	550.01	740.98	744.44	743.46	744.87	0.010117	5.68	110.84	42.56	0.54
Reach-1	3800.00		Culvert									
Reach-1	3834.17	50-Year	305.72	743.04	747.19	745.54	747.39	0.004335	4.21	92.71	34.70	0.36
Reach-1	3834.17	100-Year	329.33	743.04	747.42	745.64	747.62	0.004022	4.20	100.73	36.05	0.35
Reach-1	3900	50-Year	305.72	743.70	747.49	746.20	747.75	0.006343	4.79	80.69	32.70	0.43
Reach-1	3900	100-Year	329.33	743.70	747.69	746.30	747.95	0.005923	4.79	87.43	33.91	0.42
Reach-1	4000	50-Year	305.72	744.71	748.18		748.52	0.008845	5.34	71.65	31.24	0.51
Reach-1	4000	100-Year	329.33	744.71	748.34		748.68	0.008537	5.41	76.68	32.21	0.50
Reach-1	4100	50-Year	305.72	745.71	749.10		749.46	0.009875	5.55	68.74	30.60	0.53
Reach-1	4100	100-Year	329.33	745.71	749.23		749.60	0.009764	5.66	72.91	31.42	0.53
Reach-1	4200	50-Year	305.72	746.70	750.08		750.44	0.009738	5.50	69.52	31.17	0.53
Reach-1	4200	100-Year	329.33	746.70	750.21		750.58	0.009720	5.63	73.48	31.95	0.53
Reach-1	4262.91	50-Year	305.72	747.23	750.66		750.82	0.003699	3.40	103.52	40.81	0.33
Reach-1	4262.91	100-Year	329.33	747.23	750.80		750.96	0.003706	3.50	109.03	41.64	0.33
Reach-1	4312.96	50-Year	305.72	747.77	750.81	749.95	751.17	0.010467	5.31	67.31	30.41	0.54
Reach-1	4312.96	100-Year	329.33	747.77	750.93	750.04	751.32	0.010353	5.43	71.25	31.12	0.54
Reach-1	4332.96	50-Year	305.72	747.97	749.52	750.35	752.15	0.171786	13.74	24.65	19.79	1.95
Reach-1	4332.96	100-Year	329.33	747.97	749.61	750.45	752.29	0.163822	13.90	26.36	20.27	1.92
Reach-1	4344.2	50-Year	305.72	750.58	752.40	752.40	753.16	0.039656	7.35	45.43	30.34	0.96
Reach-1	4344.2	100-Year	329.33	750.58	752.48	752.48	753.28	0.039322	7.53	47.90	30.81	0.96
Reach-1	4354.2	50-Year	305.72	750.68	752.95	752.58	753.46	0.020495	6.12	55.99	31.48	0.72
Reach-1	4354.2	100-Year	329.33	750.68	753.04	752.68	753.58	0.020653	6.31	58.77	32.01	0.72
Reach-1	4383.56	50-Year	305.72	750.97	753.52	753.09	754.05	0.018819	6.33	55.46	28.78	0.70
Reach-1	4383.56	100-Year	329.33	750.97	753.61	753.19	754.17	0.019080	6.53	58.14	29.28	0.71
Reach-1	4412.91	50-Year	305.72	751.26	754.02	753.69	754.68	0.021626	7.16	50.28	25.10	0.76
Reach-1	4412.91	100-Year	329.33	751.26	754.11	753.80	754.81	0.021984	7.39	52.72	25.59	0.77
Reach-1	4432.91	50-Year	305.72	751.46	753.18	754.10	756.16	0.176352	14.91	23.40	17.79	2.01
Reach-1	4432.91	100-Year	329.33	751.46	753.27	754.21	756.29	0.166989	15.04	25.13	18.31	1.97
Reach-1	4444.33	50-Year	305.72	754.64	756.46	756.46	757.23	0.039542	7.35	45.51	30.45	0.96
Reach-1	4444.33	100-Year	329.33	754.64	756.54	756.54	757.34	0.039314	7.54	47.94	30.93	0.96

HEC-RAS Plan: PR_n=0.06 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	4454.33	50-Year	305.72	754.74	757.07	756.59	757.51	0.016938	5.66	60.38	32.93	0.65
Reach-1	4454.33	100-Year	329.33	754.74	757.16	756.67	757.62	0.016963	5.82	63.52	33.50	0.66
Reach-1	4504.33	50-Year	305.72	755.24	757.86	757.14	758.22	0.011828	5.12	67.76	33.69	0.56
Reach-1	4504.33	100-Year	329.33	755.24	757.97	757.23	758.34	0.011903	5.27	71.20	34.30	0.56
Reach-1	4600	50-Year	305.72	756.20	759.06	758.52	759.55	0.015465	6.21	58.85	29.14	0.65
Reach-1	4600	100-Year	329.33	756.20	759.17	758.62	759.68	0.015583	6.39	61.92	29.77	0.65
Reach-1	4700	50-Year	305.72	757.20	760.41		760.74	0.009246	5.17	71.17	31.84	0.51
Reach-1	4700	100-Year	329.33	757.20	760.53		760.88	0.009235	5.30	75.13	32.58	0.51
Reach-1	4800	50-Year	305.72	758.21	761.38		761.78	0.011291	5.68	65.65	30.22	0.56
Reach-1	4800	100-Year	329.33	758.21	761.50		761.91	0.011280	5.82	69.33	30.94	0.57
Reach-1	4868.36	50-Year	305.72	758.88	762.15	761.29	762.53	0.010586	5.60	67.08	30.31	0.55
Reach-1	4868.36	100-Year	329.33	758.88	762.27	761.39	762.66	0.010604	5.74	70.78	31.03	0.55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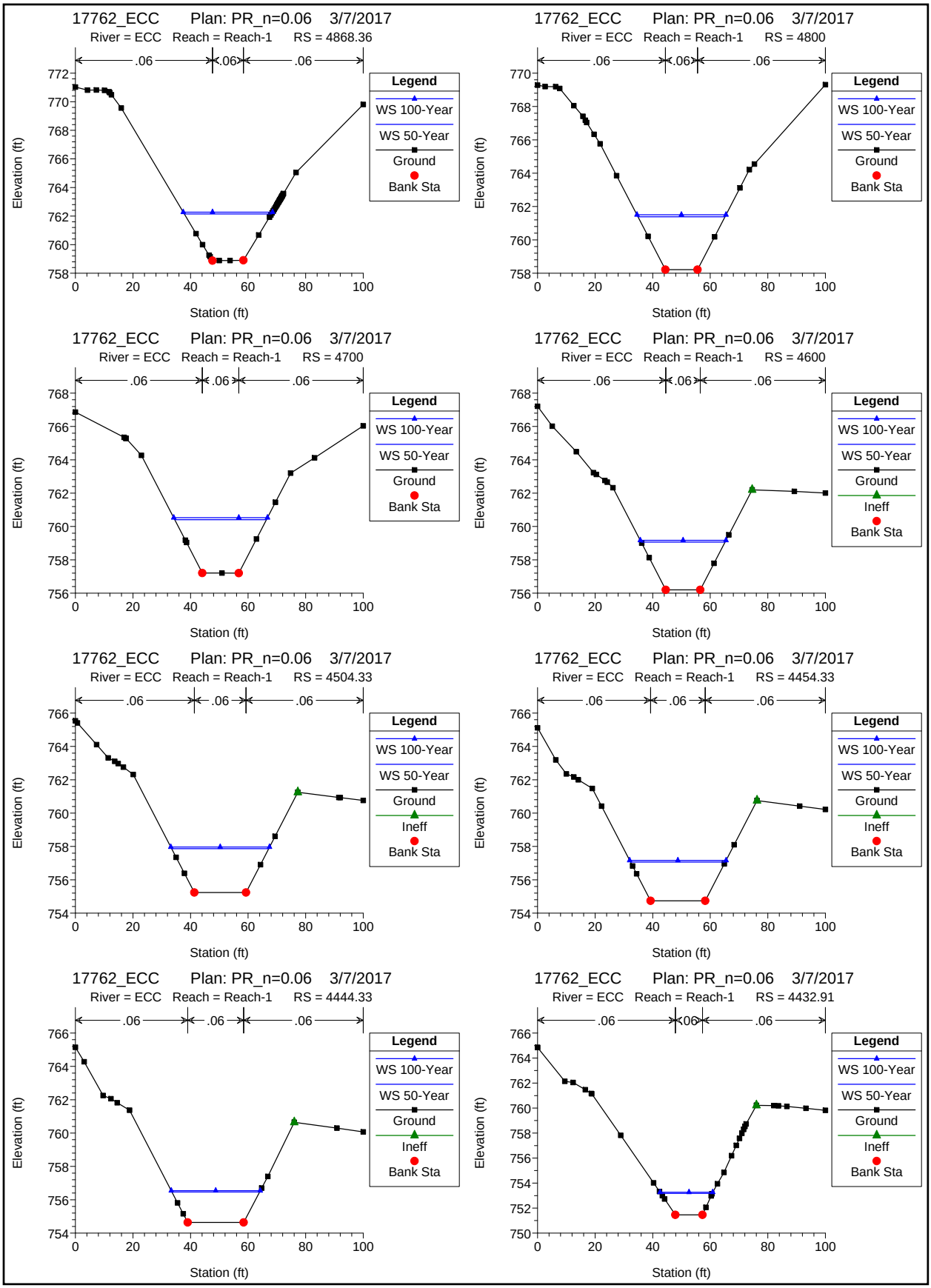
ECC Reach-5
ECC Reach-4
ECC Reach-3
ECC Reach-2
ECC Reach-1
Legend
WS 100-Year
WS 50-Year
Ground
Elevation (ft)
780
770
760
750
740
730
720
710
0
1000
2000
3000
4000
Main Channel Distance (ft)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River = ECC Reach = Reach-1 RS = 4800
17762_ECC Plan: PR_n=0.06 3/7/2017
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17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-1 RS = 4600
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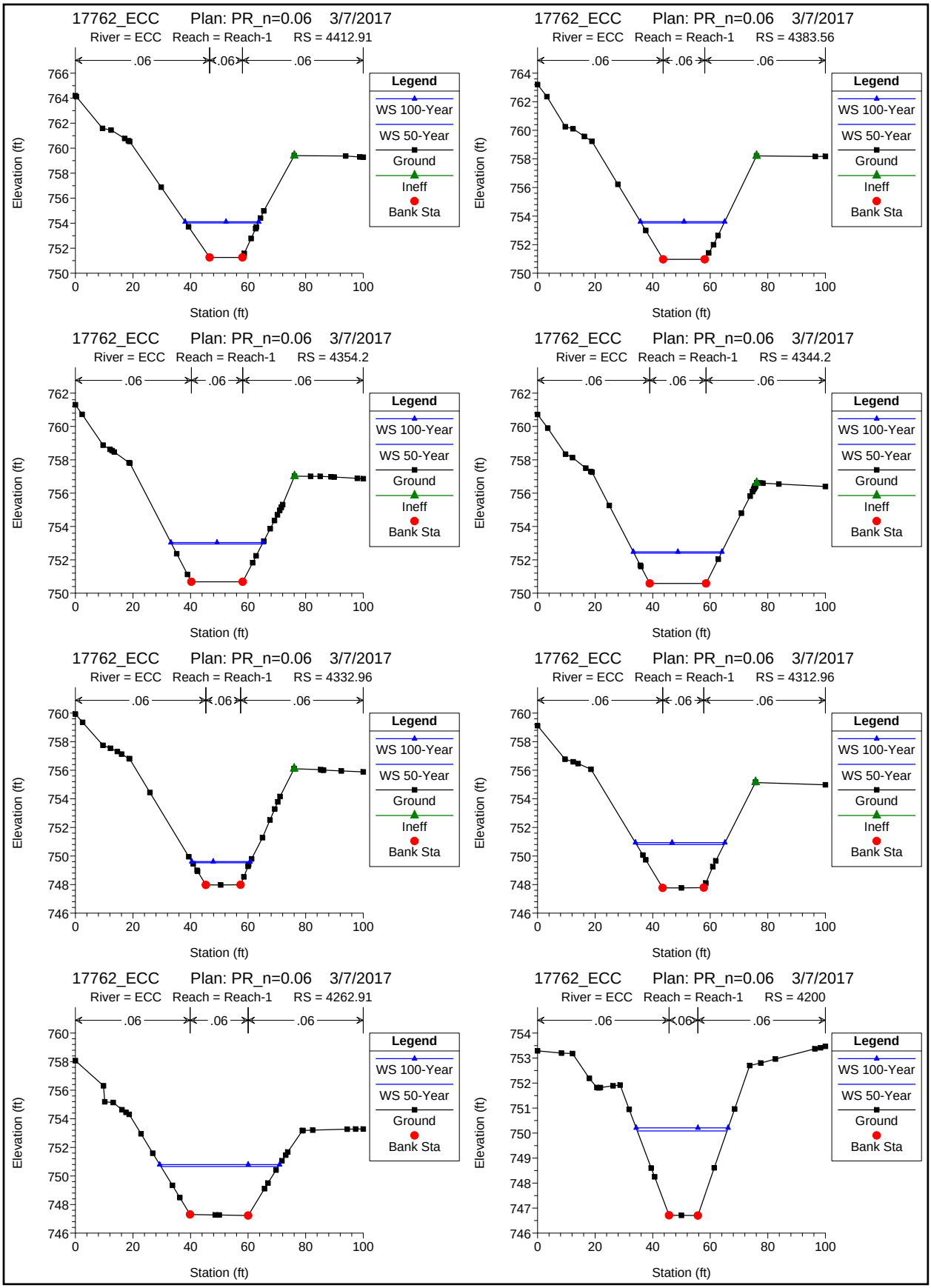
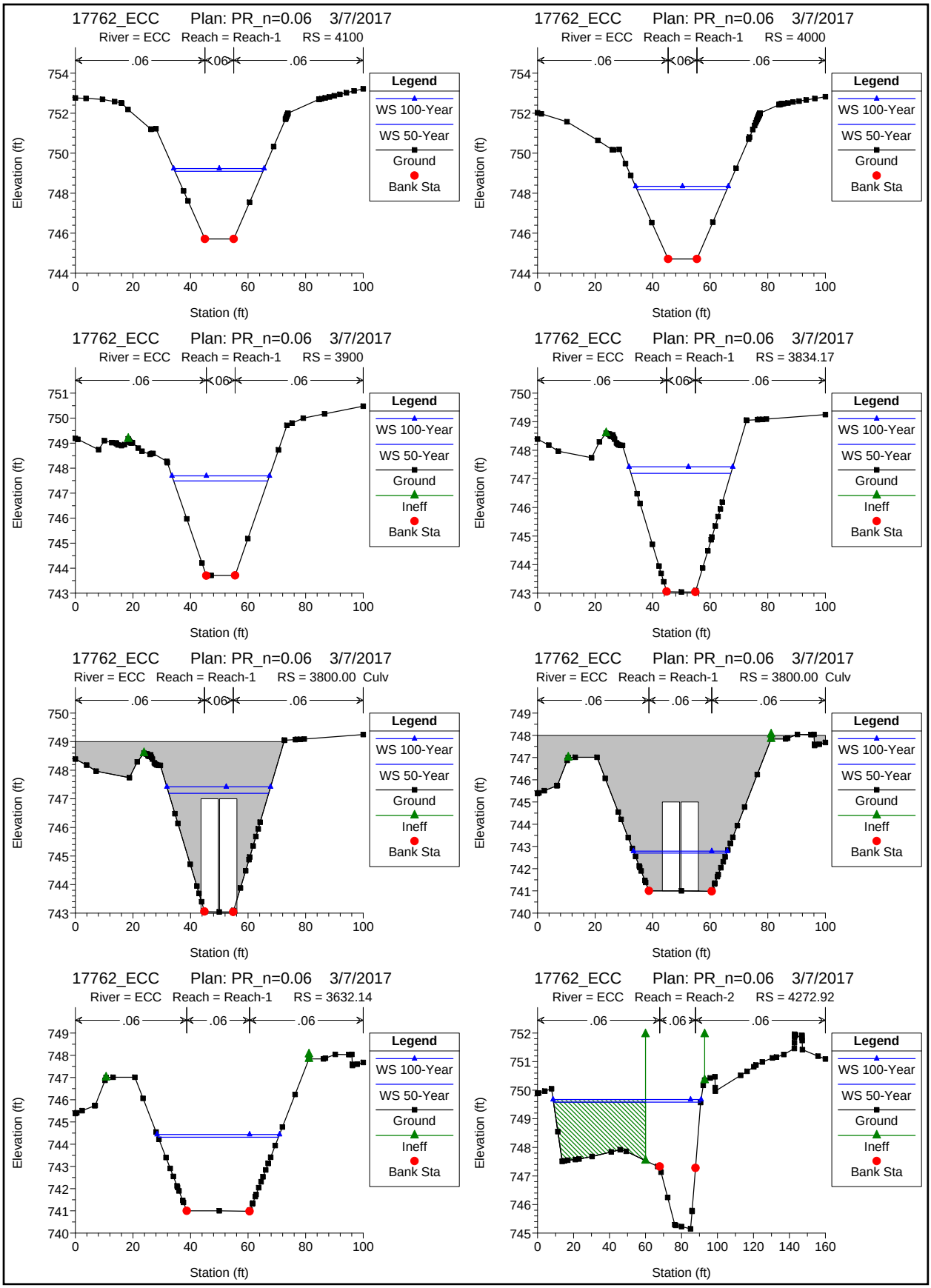
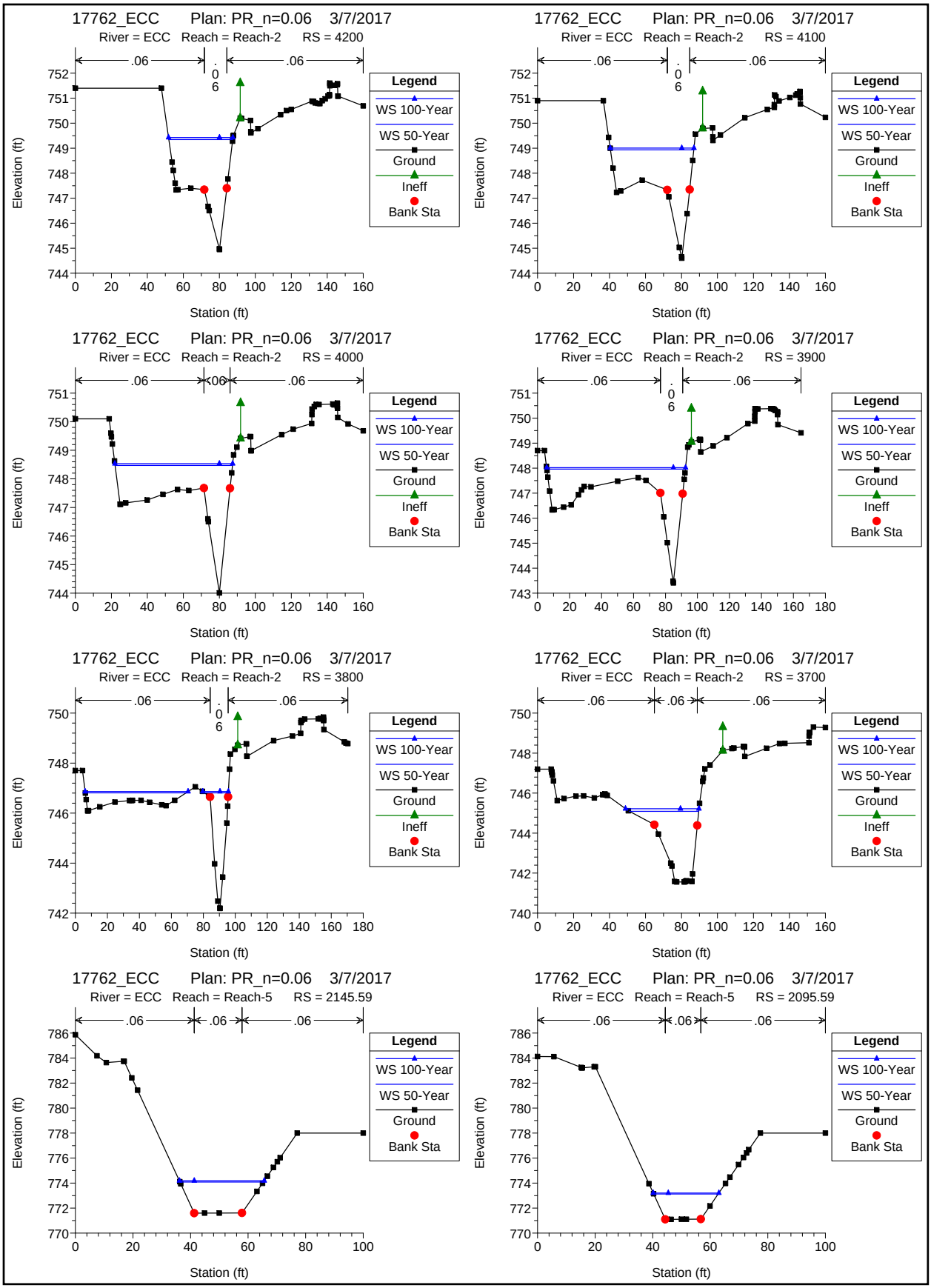
River = ECC Reach = Reach-1 RS = 4504.33
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-1 RS = 4454.33
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-1 RS = 4444.33
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-1 RS = 4432.91
.06
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-1 RS = 4412.91
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-1 RS = 4383.56
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-1 RS = 4354.2
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-1 RS = 4344.2
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-1 RS = 4332.96
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-1 RS = 4312.96
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-1 RS = 4262.91
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-1 RS = 4200
.06
Elevation (ft)
Station (ft)
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta


17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-1 RS = 4100
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-1 RS = 4000
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-1 RS = 3900
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-1 RS = 3834.17
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-1 RS = 3800.00 Culv
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-1 RS = 3800.00 Culv
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-1 RS = 3632.14
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-2 RS = 4272.92
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-2 RS = 4200
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River = ECC Reach = Reach-2 RS = 4100
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-2 RS = 4000
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-2 RS = 3900
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-2 RS = 3800
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-2 RS = 3700
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 2145.59
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 2095.59
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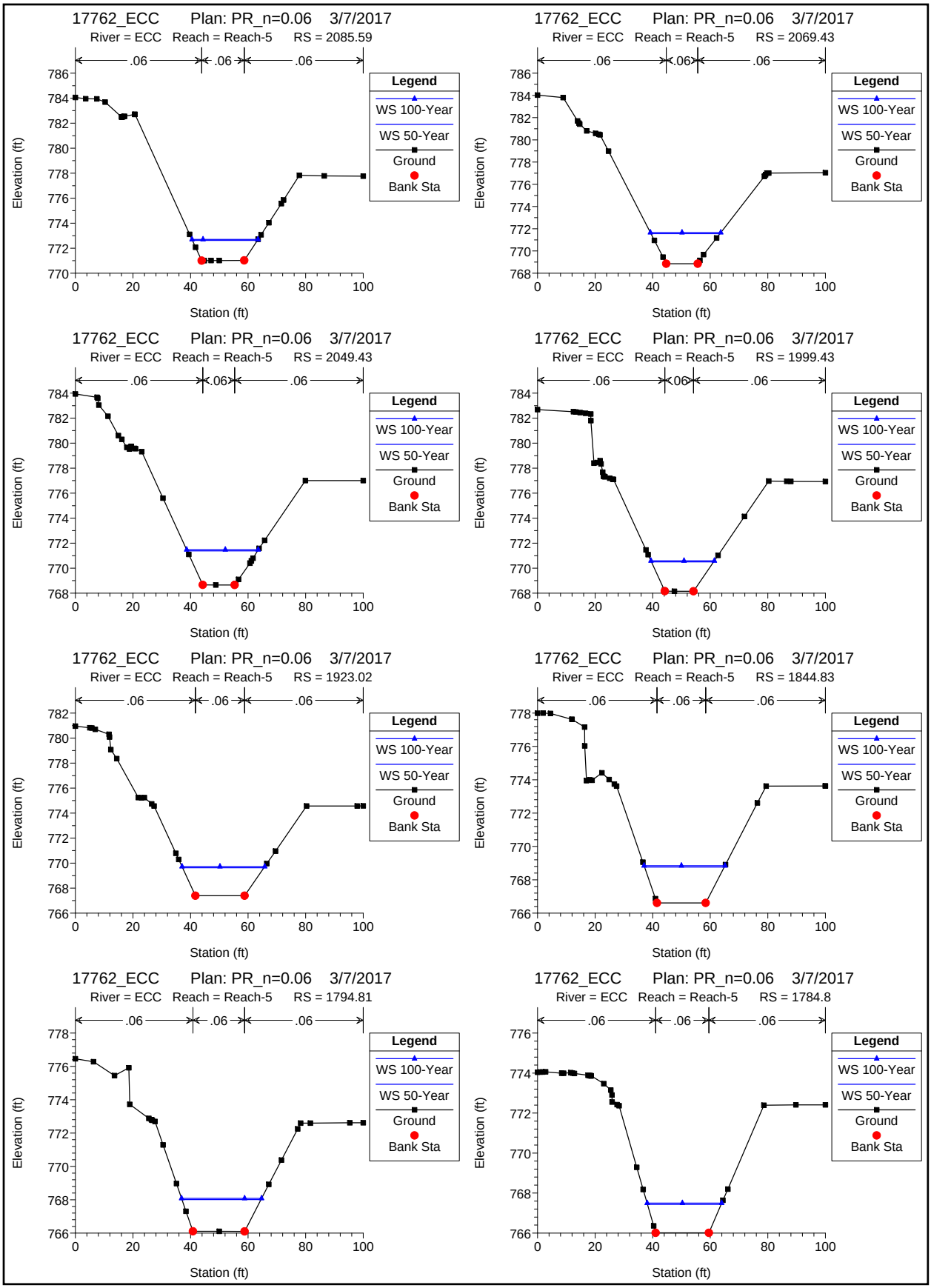
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 2085.59
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 2069.43
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 2049.43
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1999.43
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1923.02
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1844.83
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1794.81
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1784.8
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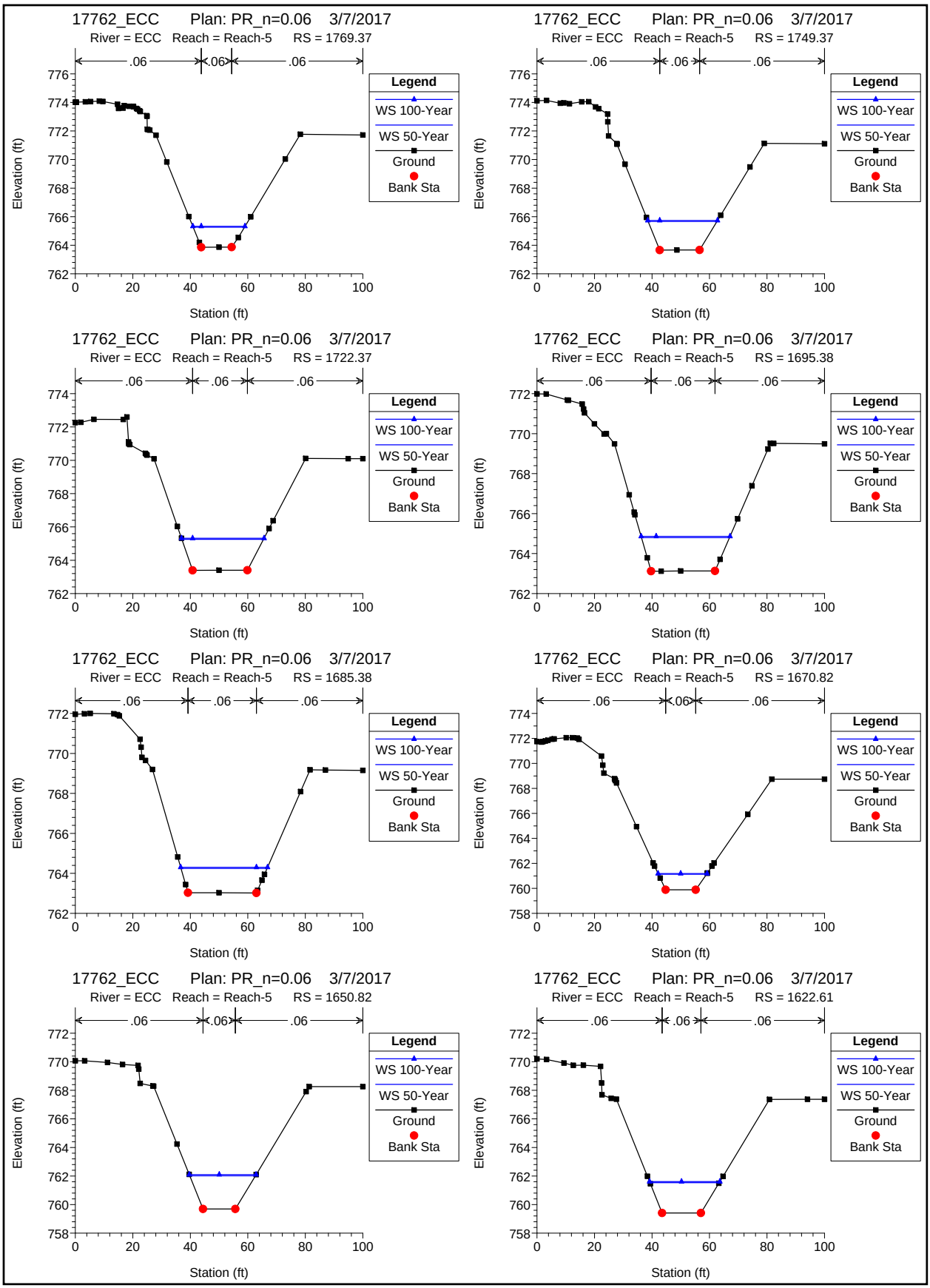
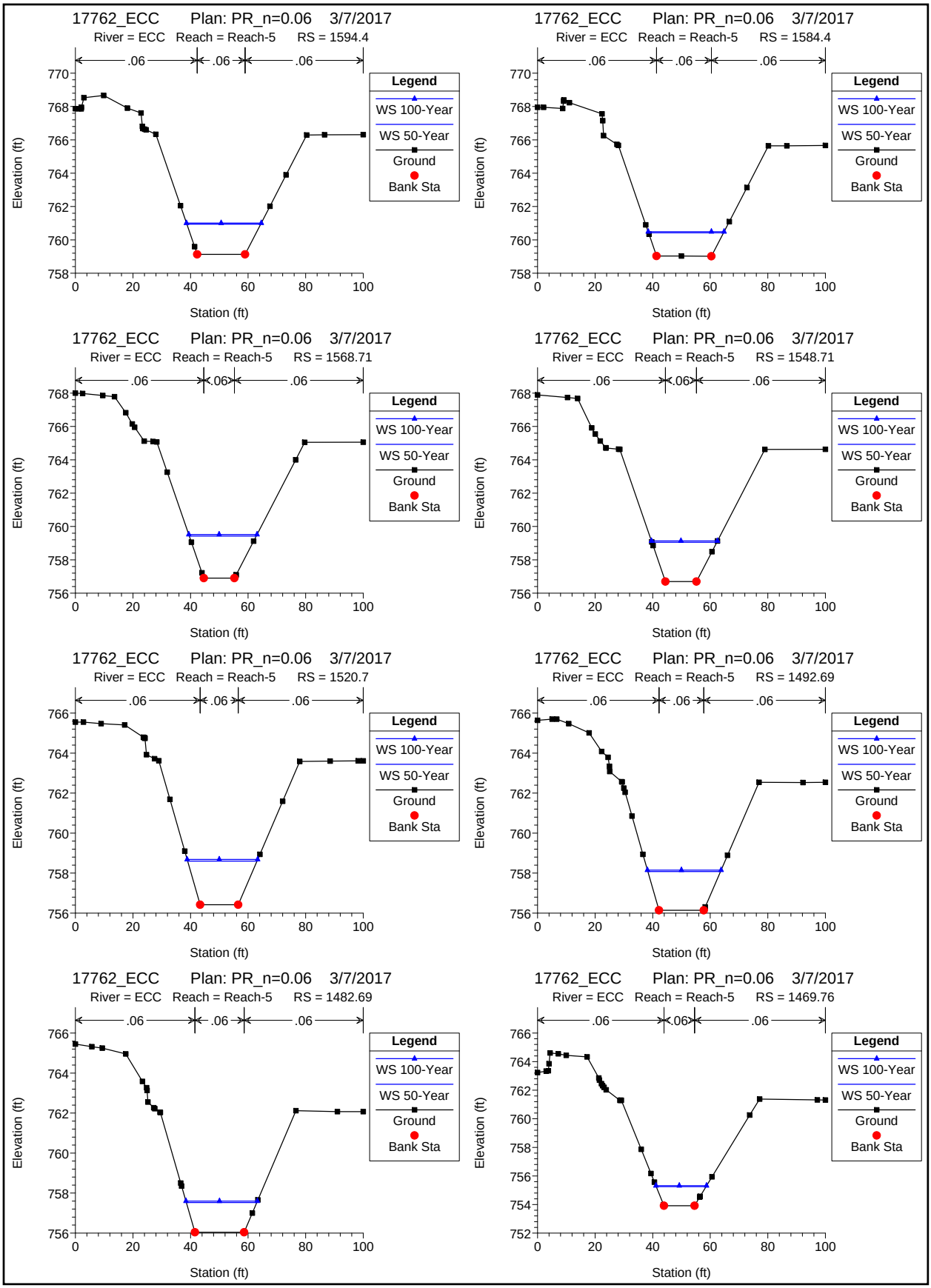
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)


17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1769.37
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1749.37
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1722.37
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1695.38
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1685.38
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1670.82
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1650.82
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1622.61
.06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)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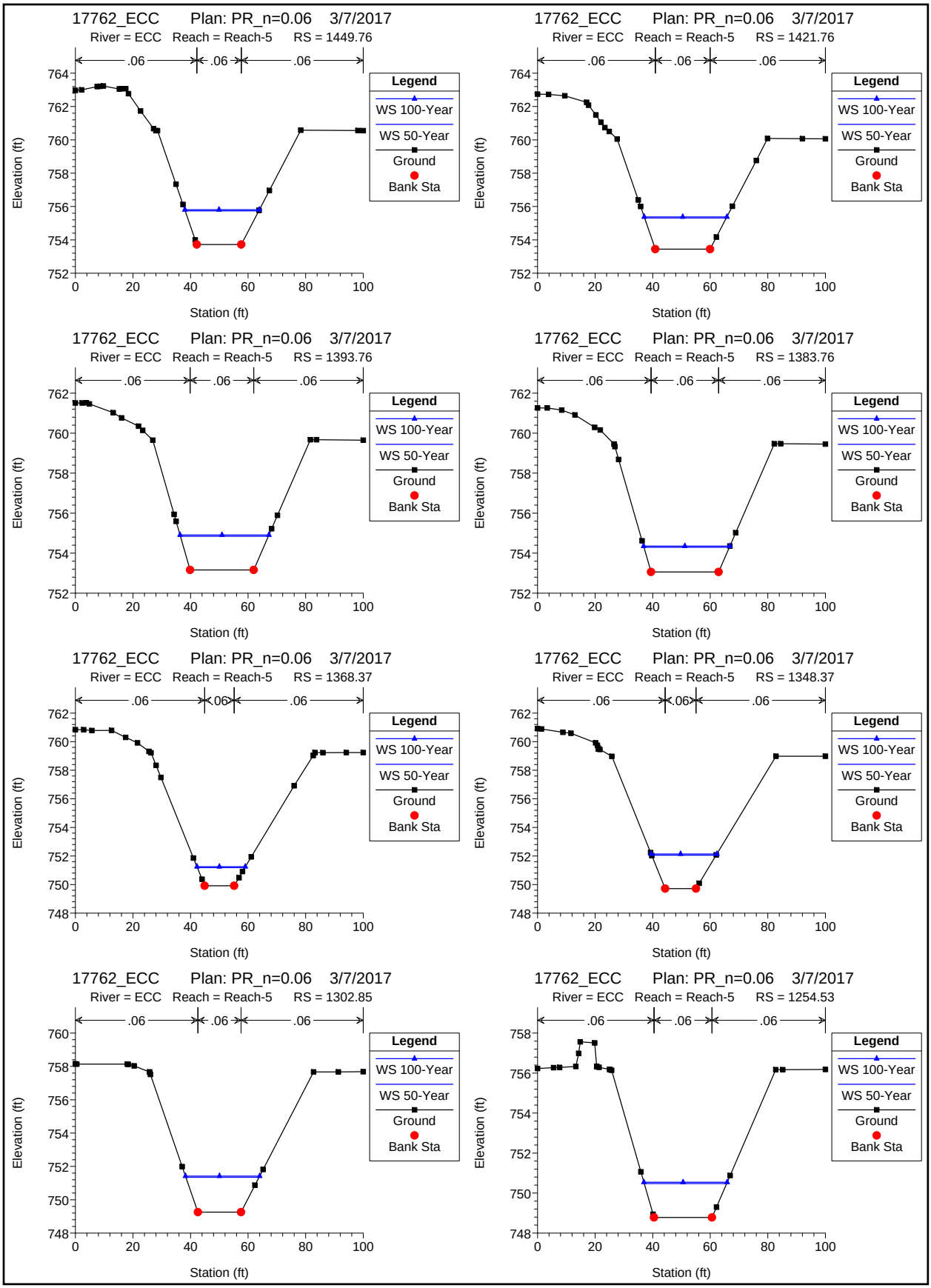
River = ECC Reach = Reach-5 RS = 1594.4
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1584.4
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1568.71
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1548.71
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1520.7
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1492.69
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1482.69
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1469.76
.06
.06
.06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)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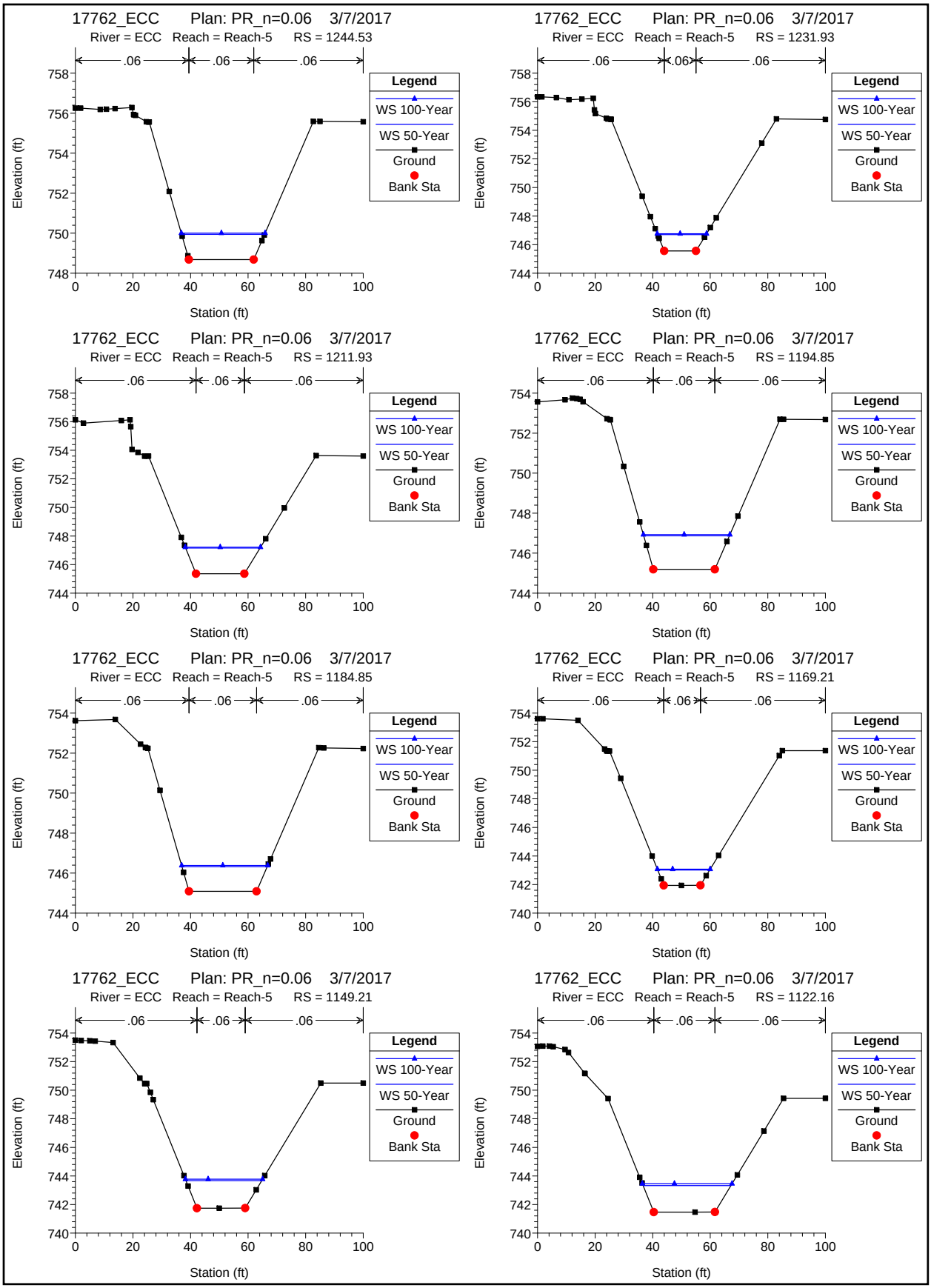
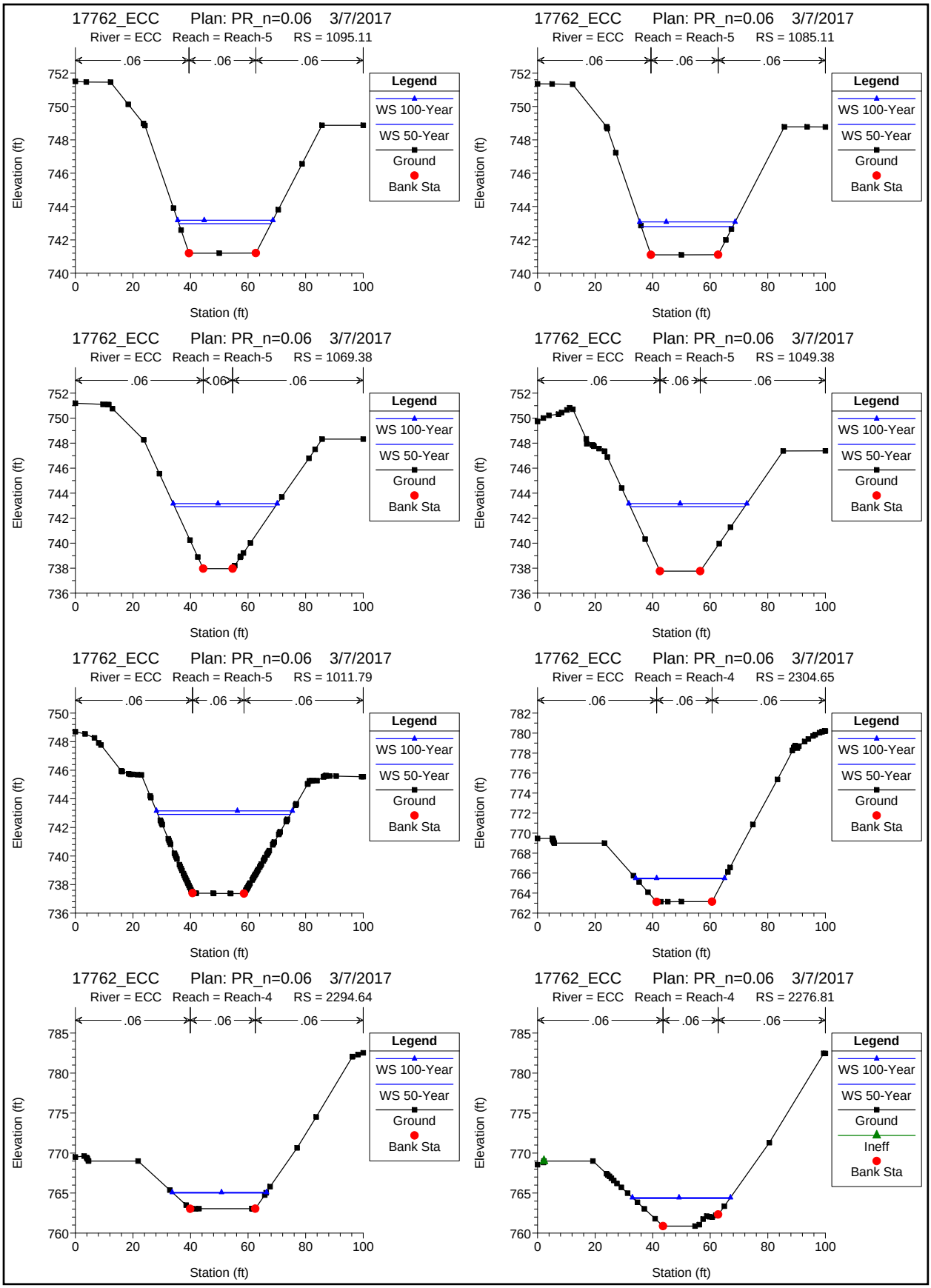
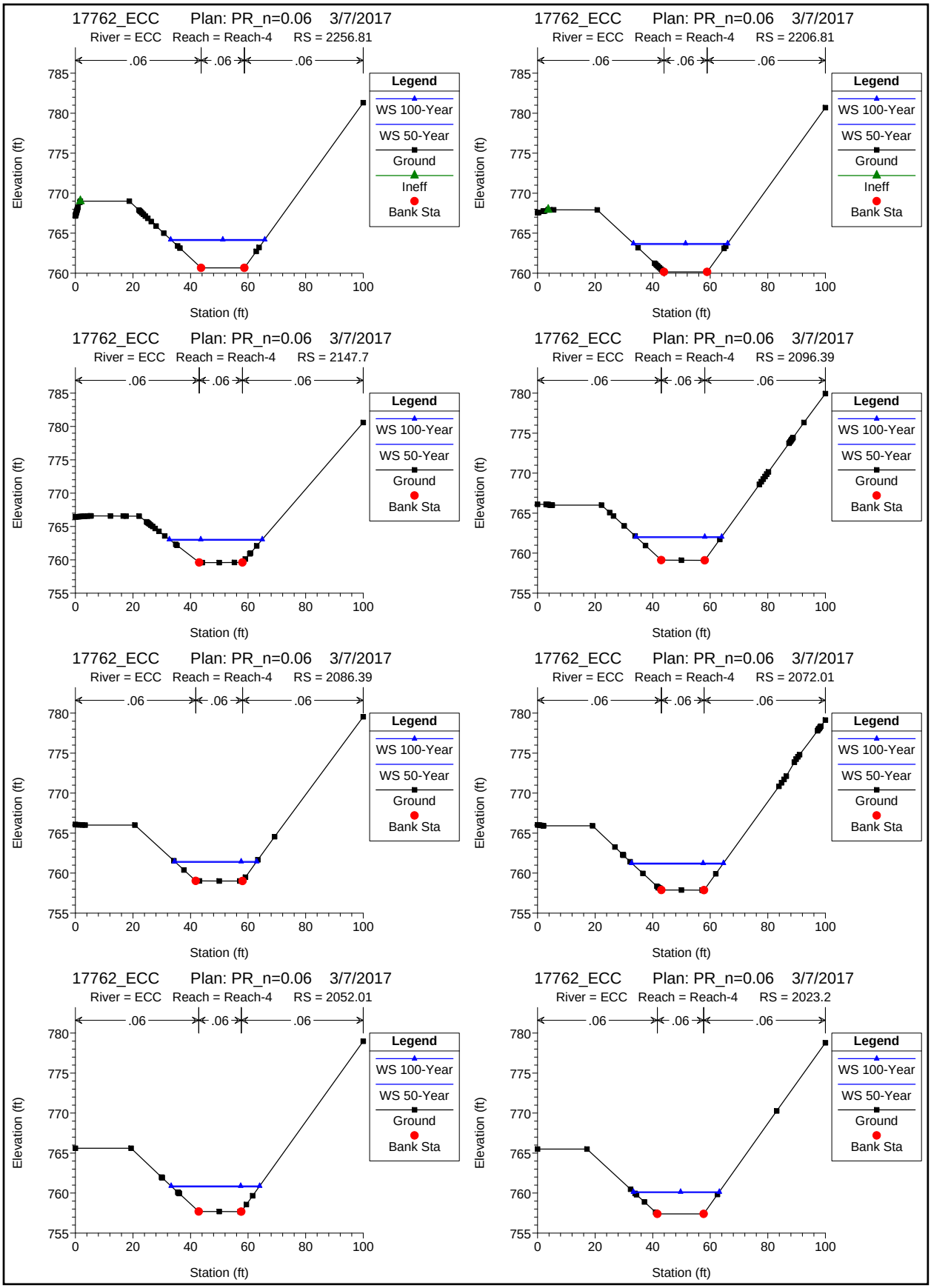
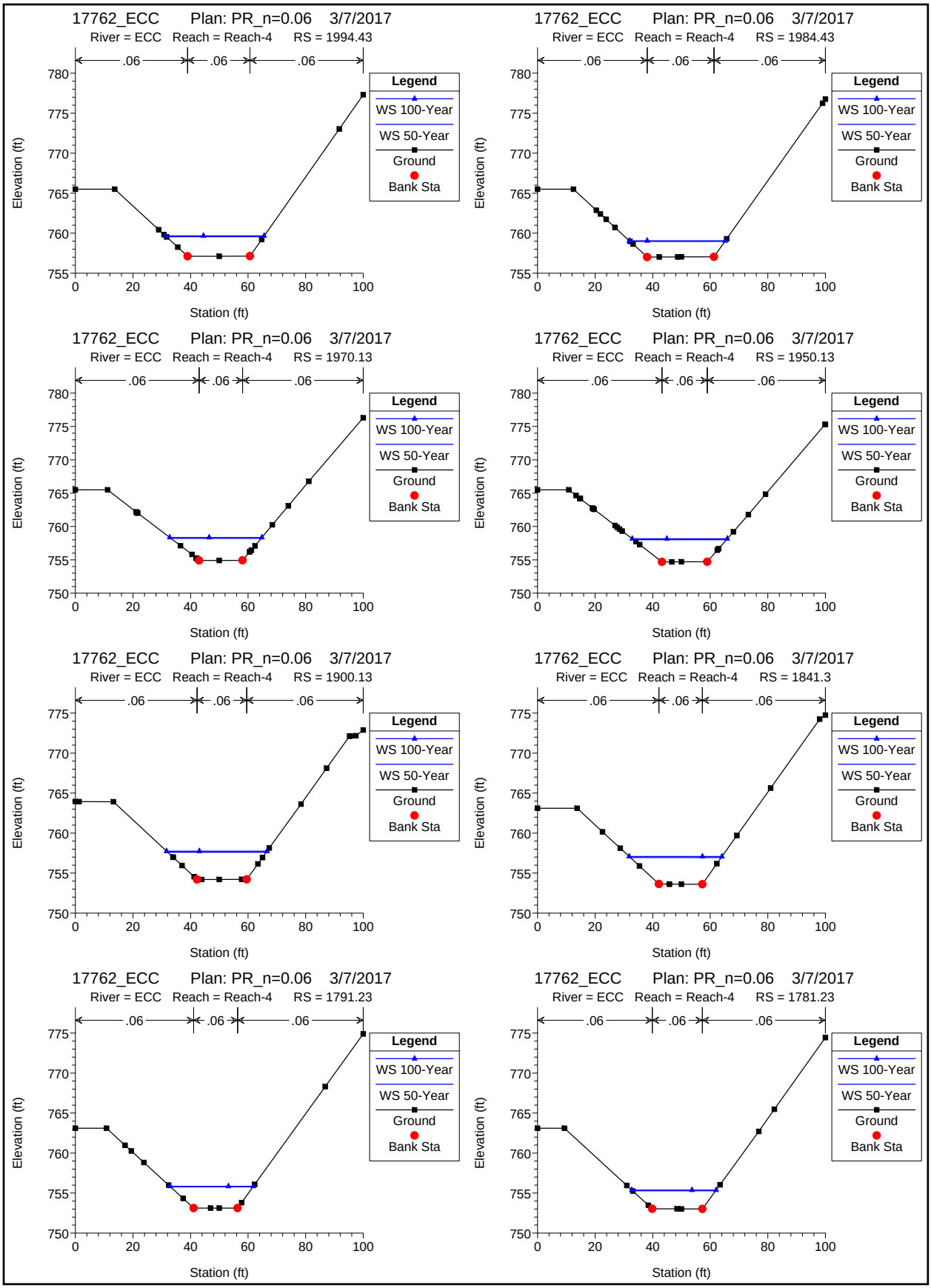
River = ECC Reach = Reach-5 RS = 1449.76
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1421.76
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1393.76
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1383.76
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1368.37
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1348.37
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1302.85
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1254.53
.06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)


17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1244.53
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1231.93
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1211.93
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1194.85
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1184.85
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1169.21
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1149.21
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1122.16
.06
.06
.06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)


17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1095.11
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1085.11
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1069.38
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1049.38
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-5 RS = 1011.79
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 2304.65
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 2294.64
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 2276.81
.06
.06
.06
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 2256.81
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 2206.81
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 2147.7
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 2096.39
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 2086.39
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 2072.01
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 2052.01
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 2023.2
.06
.06
.06
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1994.43
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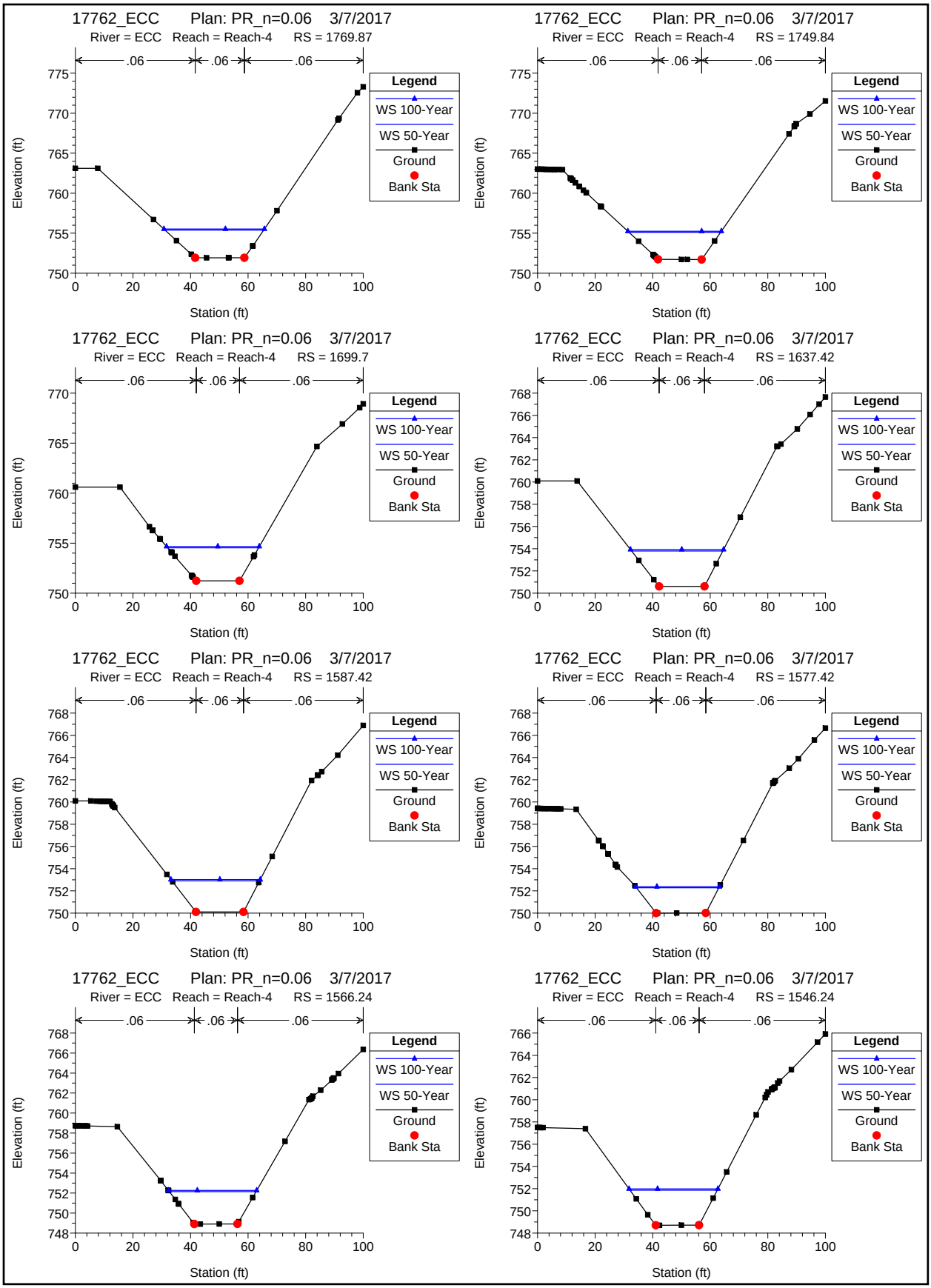
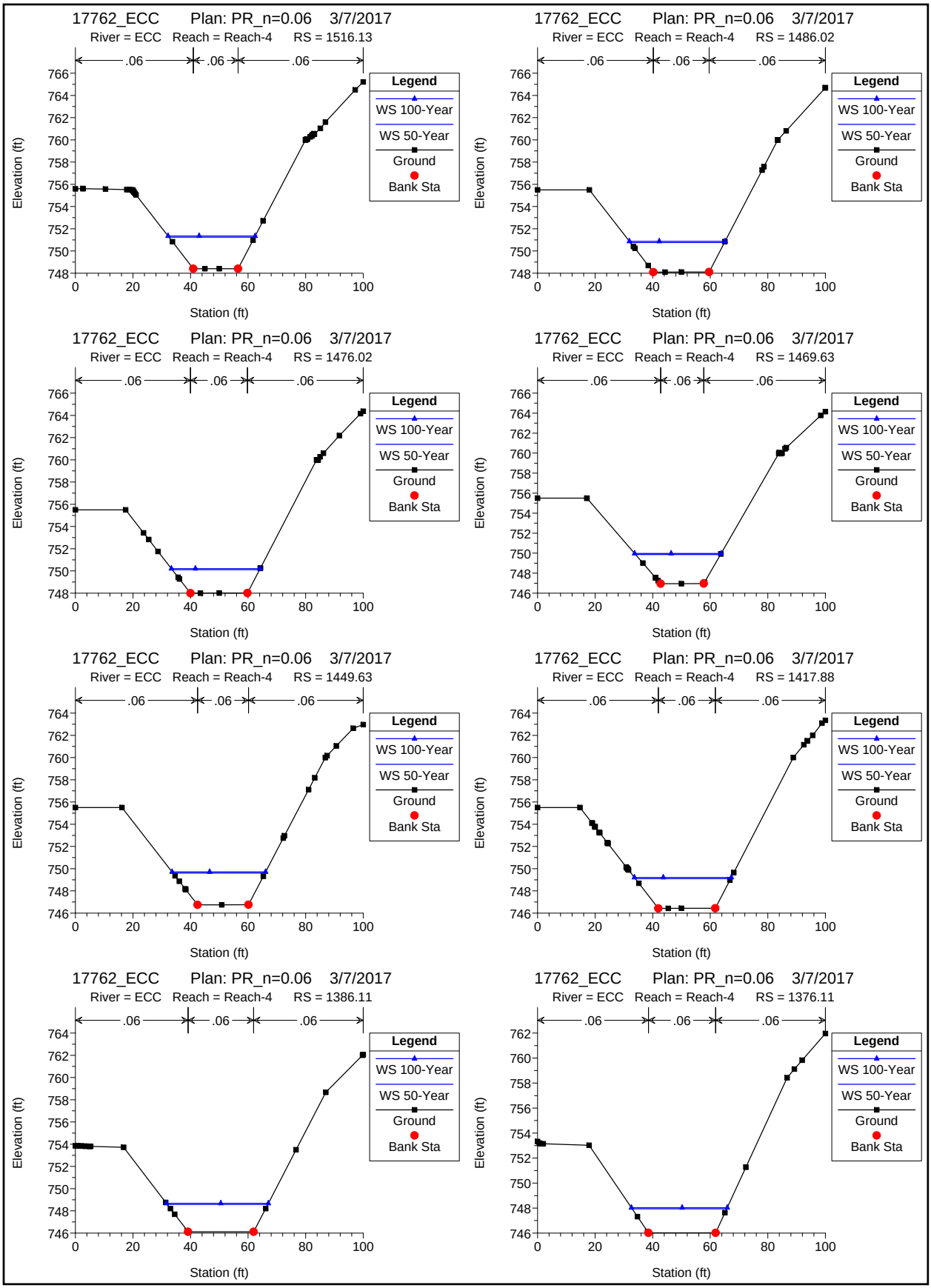
River = ECC Reach = Reach-4 RS = 1984.43
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1970.13
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1950.13
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1900.13
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1841.3
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1791.23
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1781.23
.06
.06
.06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)


17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1769.87
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1749.84
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1699.7
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1637.42
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1587.42
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1577.42
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1566.24
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1546.24
.06
.06
.06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)


17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1516.13
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River = ECC Reach = Reach-4 RS = 1486.02
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1476.02
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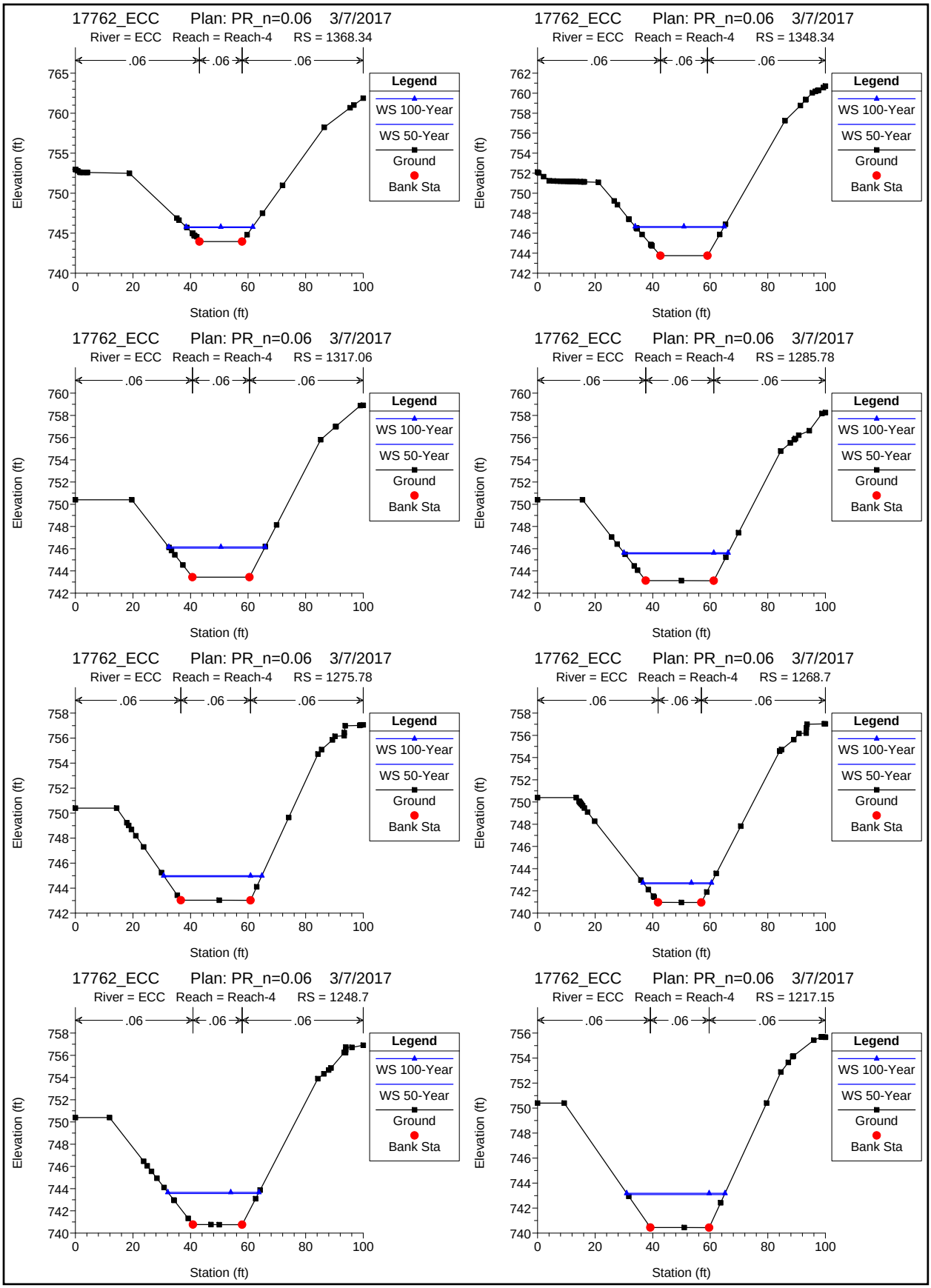
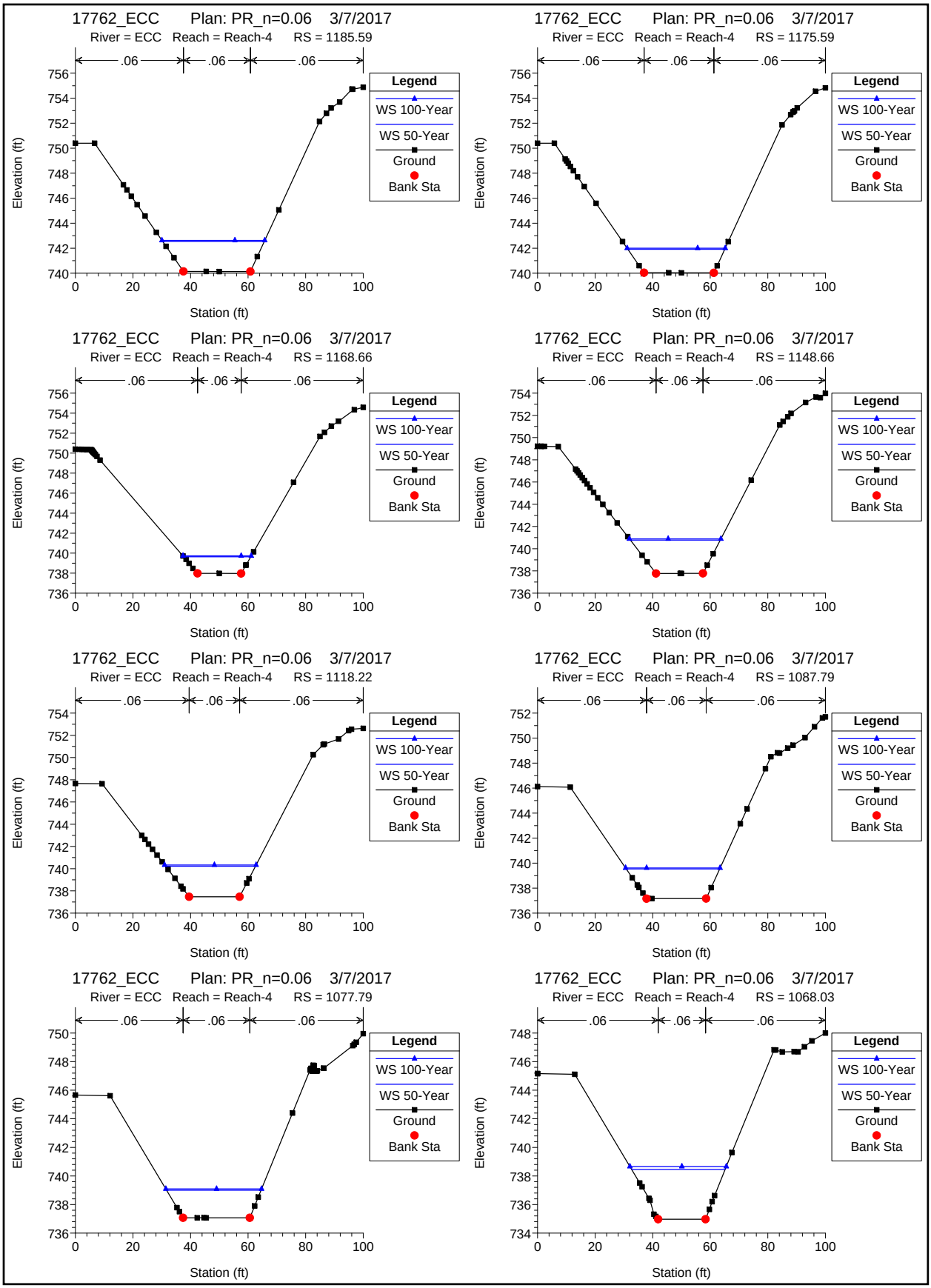
River = ECC Reach = Reach-4 RS = 1469.63
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1449.63
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1417.88
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1386.11
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1376.11
.06
.06
.06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)


17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1368.34
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1348.34
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1317.06
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1285.78
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1275.78
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1268.7
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1248.7
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1217.15
.06
.06
.06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)


17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1185.59
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River = ECC Reach = Reach-4 RS = 1175.59
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1168.66
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1148.66
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River = ECC Reach = Reach-4 RS = 1118.22
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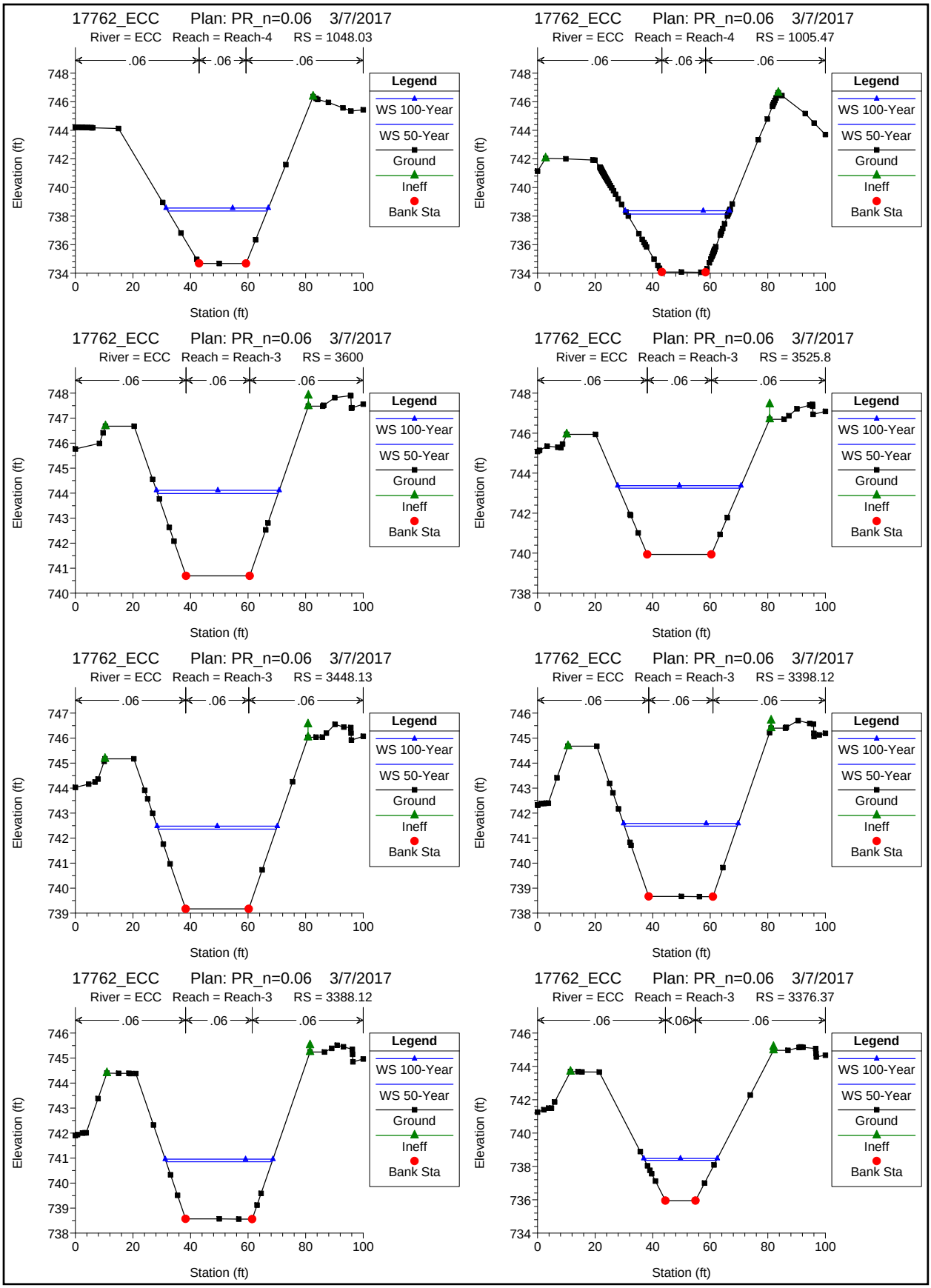
River = ECC Reach = Reach-4 RS = 1087.79
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1077.79
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1068.03
.06
.06
.06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)


17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-4 RS = 1048.03
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River = ECC Reach = Reach-4 RS = 1005.47
17762_ECC Plan: PR_n=0.06 3/7/2017
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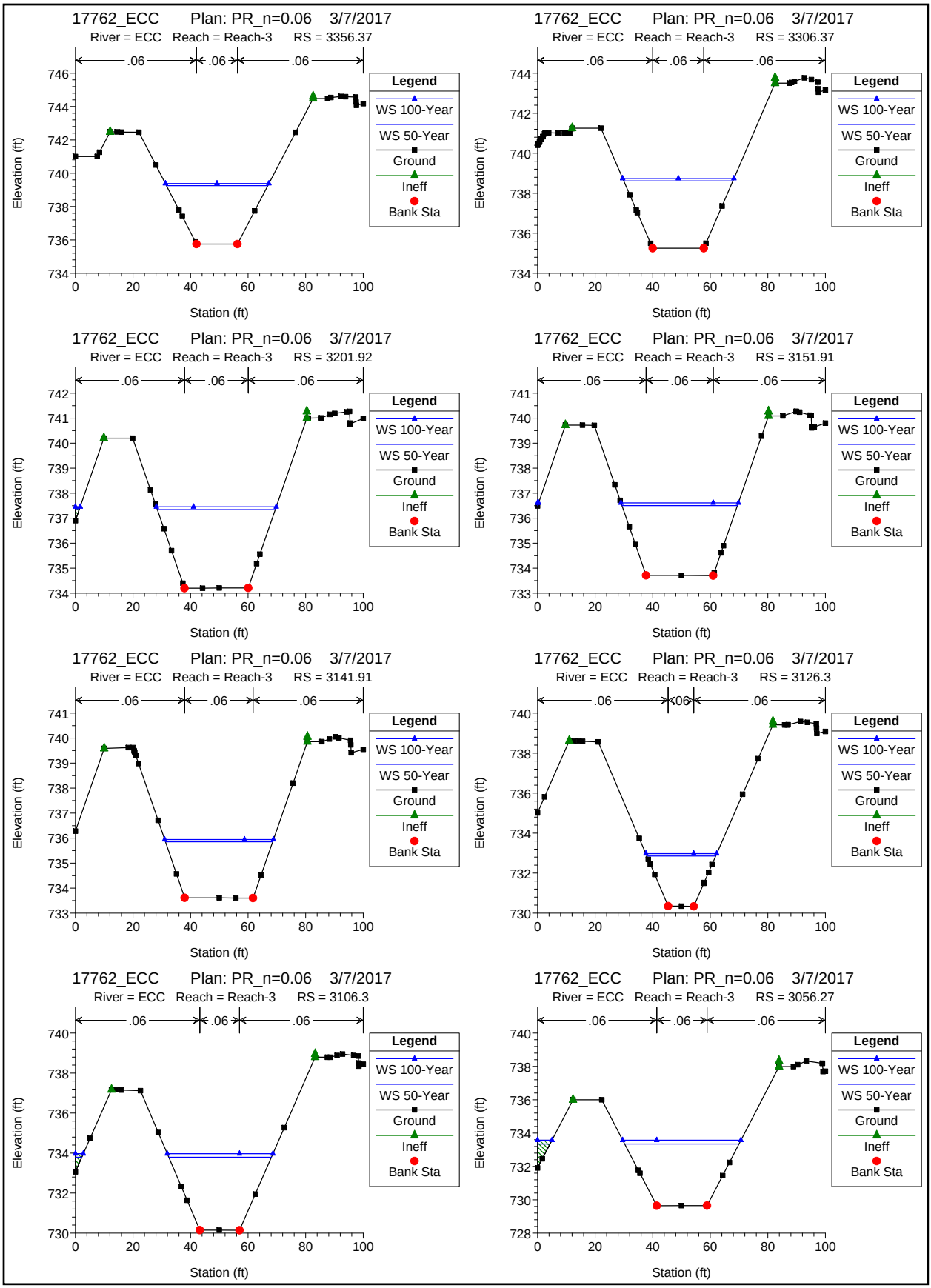
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 3525.8
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 3448.13
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 3398.12
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 3388.12
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 3376.37
.06
.06
.06
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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River = ECC Reach = Reach-3 RS = 3056.27
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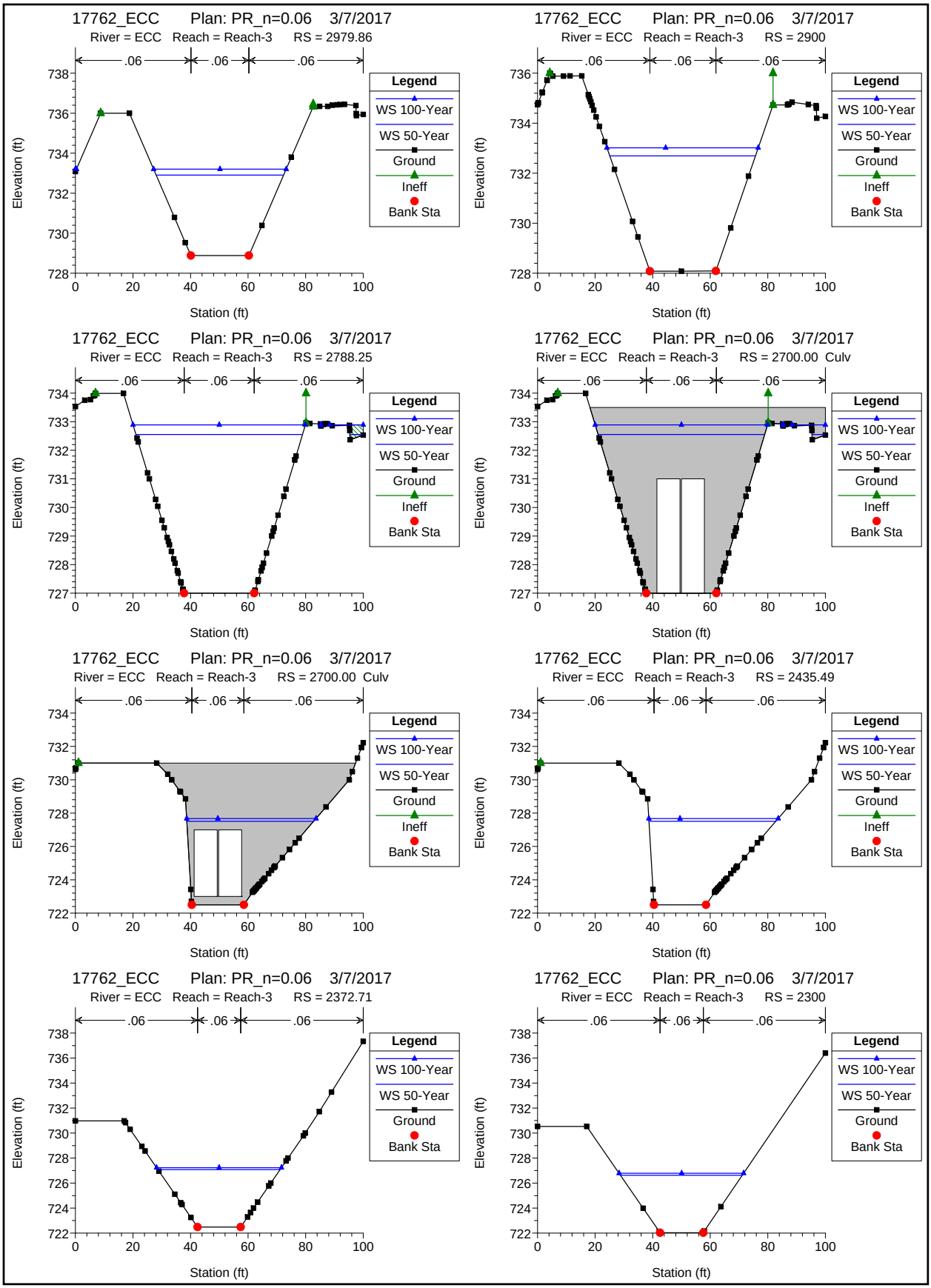
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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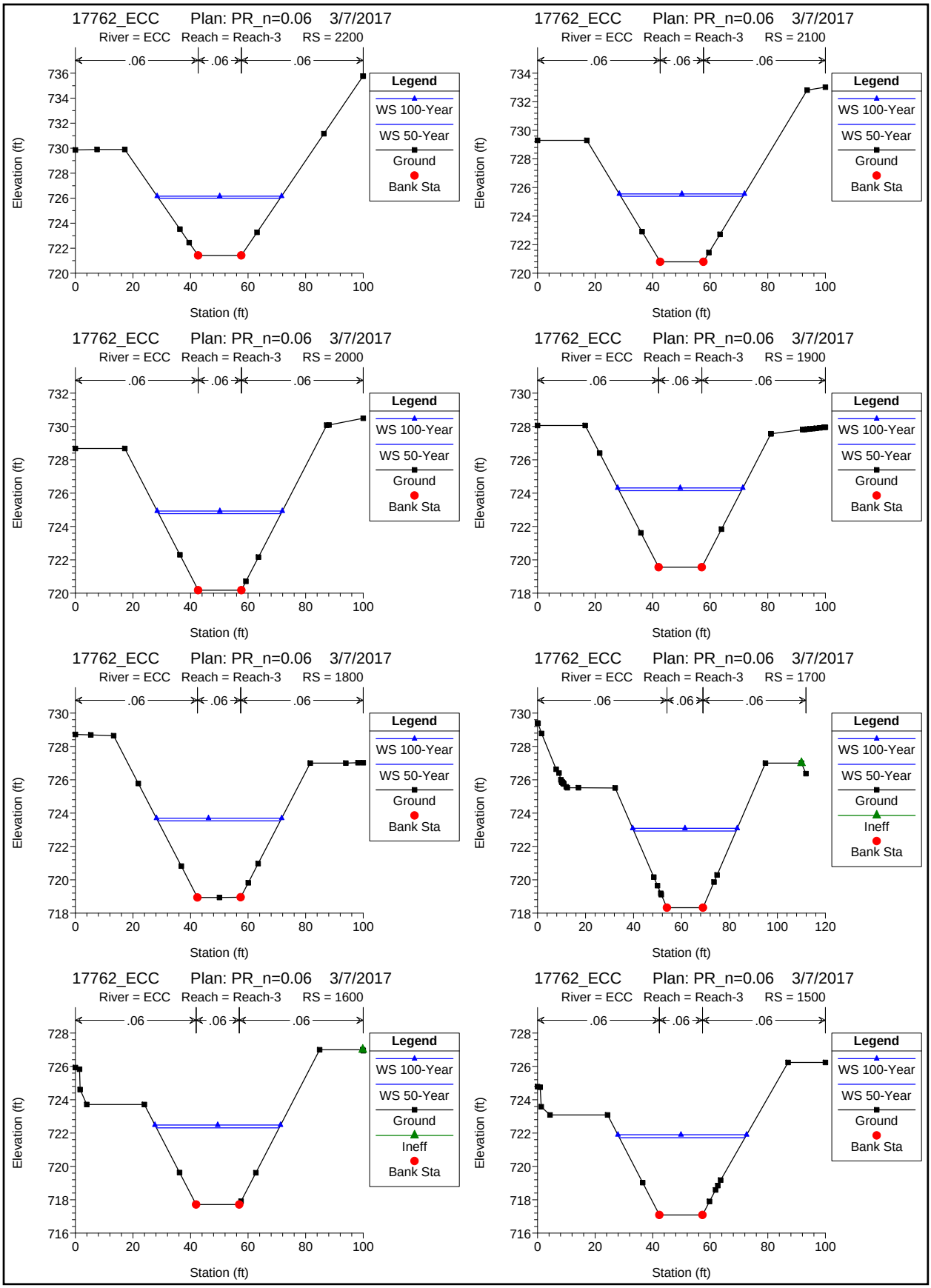
River = ECC Reach = Reach-3 RS = 2900
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 2788.25
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 2700.00 Culv
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 2700.00 Culv
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 2435.49
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 2372.71
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 2300
.06
.06
.06
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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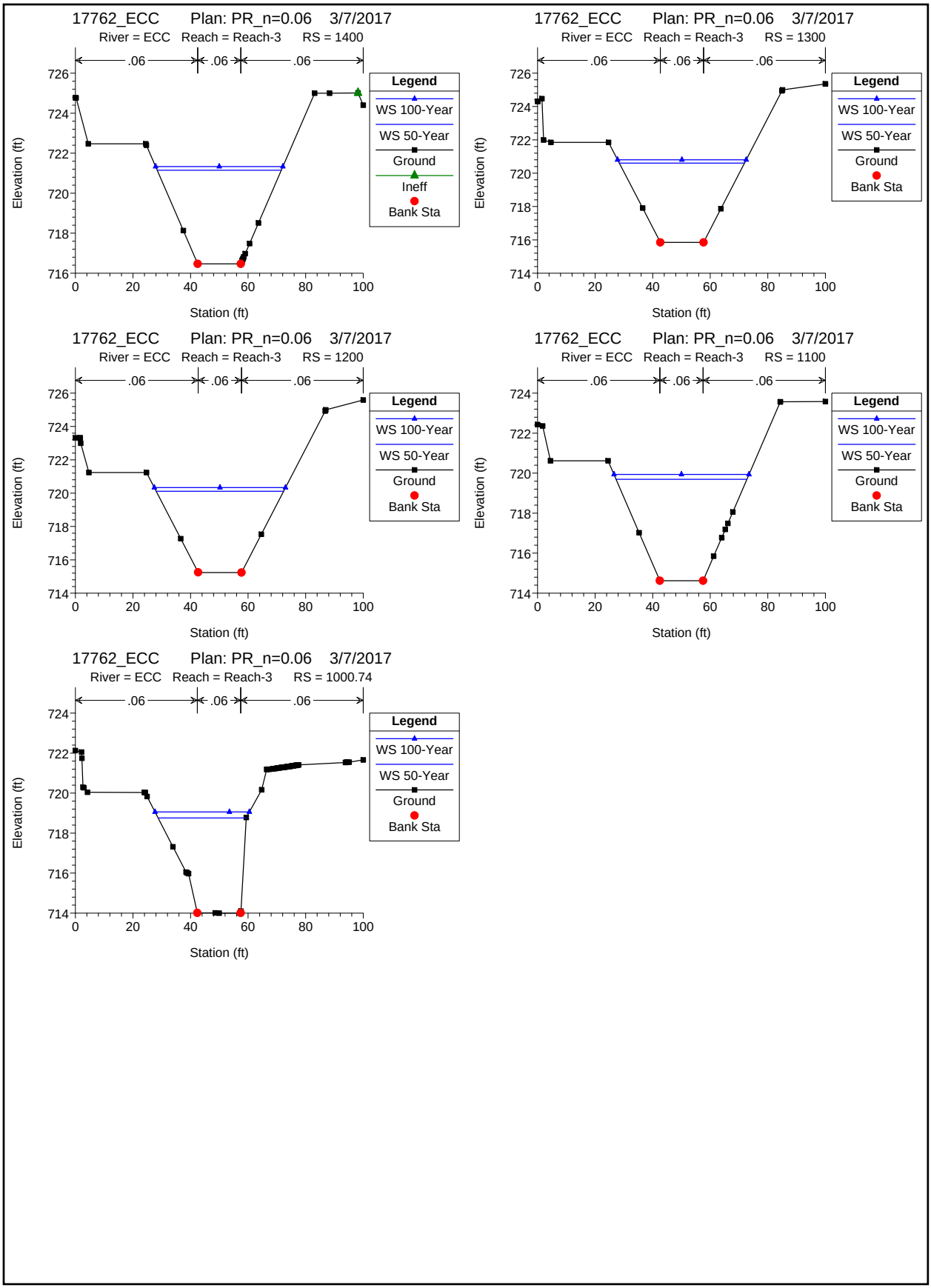
River = ECC Reach = Reach-3 RS = 2200
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 2100
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 2000
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 1900
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 1800
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 1700
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 1600
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 1500
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = ECC Reach = Reach-3 RS = 1400
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 1300
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 1200
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 1100
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.06 3/7/2017
River = ECC Reach = Reach-3 RS = 1000.74
.06 .06 .06
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)

HEC-RAS Plan: PR_n=0.15

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-3	1000.74	50-Year	576.39	714.00	718.76	717.42	719.34	0.055205	6.58	103.26	30.61	0.53
Reach-3	1000.74	100-Year	617.36	714.00	719.06	717.56	719.63	0.050027	6.53	112.76	32.77	0.51
Reach-3	1100	50-Year	576.39	714.62	721.16		721.29	0.009617	3.40	237.11	73.48	0.23
Reach-3	1100	100-Year	617.36	714.62	721.36		721.49	0.009419	3.43	251.95	74.40	0.23
Reach-3	1200	50-Year	576.39	715.24	722.05		722.15	0.007786	3.14	257.02	74.77	0.21
Reach-3	1200	100-Year	617.36	715.24	722.24		722.34	0.007751	3.19	271.17	75.64	0.21
Reach-3	1300	50-Year	576.39	715.85	722.80		722.89	0.007028	3.02	268.66	76.57	0.20
Reach-3	1300	100-Year	617.36	715.85	722.98		723.08	0.007015	3.07	282.95	77.17	0.20
Reach-3	1400	50-Year	576.39	716.47	723.48	719.49	723.58	0.006682	2.97	272.58	75.95	0.20
Reach-3	1400	100-Year	617.36	716.47	723.67	719.61	723.76	0.006695	3.02	286.76	76.85	0.20
Reach-3	1500	50-Year	576.39	717.09	724.14		724.23	0.006377	2.91	280.62	78.97	0.19
Reach-3	1500	100-Year	617.36	717.09	724.33		724.42	0.006370	2.96	295.42	79.65	0.19
Reach-3	1600	50-Year	576.39	717.71	724.78	720.73	724.87	0.006422	2.92	277.00	76.55	0.19
Reach-3	1600	100-Year	617.36	717.71	724.96	720.85	725.06	0.006428	2.98	291.33	77.14	0.19
Reach-3	1700	50-Year	576.39	718.33	725.41	721.34	725.51	0.006345	2.91	257.10	57.57	0.19
Reach-3	1700	100-Year	617.36	718.33	725.64	721.46	725.75	0.007397	3.21	272.87	79.32	0.21
Reach-3	1800	50-Year	576.39	718.94	726.04		726.14	0.006289	2.90	257.89	57.65	0.19
Reach-3	1800	100-Year	617.36	718.94	726.33		726.42	0.006100	2.93	274.55	59.36	0.19
Reach-3	1900	50-Year	576.39	719.56	726.67		726.76	0.006263	2.90	258.20	57.63	0.19
Reach-3	1900	100-Year	617.36	719.56	726.94		727.03	0.006133	2.94	273.91	59.25	0.19
Reach-3	2000	50-Year	576.39	720.18	727.30		727.39	0.006237	2.89	258.64	57.69	0.19
Reach-3	2000	100-Year	617.36	720.18	727.55		727.65	0.006150	2.94	273.66	59.23	0.19
Reach-3	2100	50-Year	576.39	720.80	727.92		728.01	0.006224	2.89	258.86	57.72	0.19
Reach-3	2100	100-Year	617.36	720.80	728.17		728.26	0.006166	2.95	273.41	59.21	0.19
Reach-3	2200	50-Year	576.39	721.42	728.54		728.63	0.006260	2.90	257.87	57.40	0.19
Reach-3	2200	100-Year	617.36	721.42	728.79		728.88	0.006222	2.96	272.02	58.85	0.19
Reach-3	2300	50-Year	576.39	722.03	729.17		729.26	0.006219	2.90	258.47	57.46	0.19
Reach-3	2300	100-Year	617.36	722.03	729.41		729.50	0.006193	2.95	272.46	58.90	0.19
Reach-3	2372.71	50-Year	576.39	722.48	729.62		729.71	0.006197	2.89	259.04	57.65	0.19
Reach-3	2372.71	100-Year	617.36	722.48	729.86		729.95	0.006177	2.95	272.98	59.09	0.19
Reach-3	2435.49	50-Year	576.39	722.50	729.99	725.37	730.07	0.004714	2.60	282.29	61.55	0.17
Reach-3	2435.49	100-Year	617.36	722.50	730.22	725.47	730.31	0.004700	2.65	297.17	63.11	0.17
Reach-3	2700.00		Culvert									
Reach-3	2788.25	50-Year	512.70	727.00	732.39	729.22	732.49	0.008302	2.77	219.11	57.44	0.21
Reach-3	2788.25	100-Year	550.01	727.00	733.02	729.31	733.10	0.006166	2.57	256.23	80.37	0.18
Reach-3	2900	50-Year	512.70	728.08	733.38	730.36	733.49	0.009722	2.97	205.79	54.79	0.23
Reach-3	2900	100-Year	550.01	728.08	733.80	730.48	733.90	0.008275	2.88	229.39	57.32	0.21
Reach-3	2979.86	50-Year	512.70	728.88	734.21	731.33	734.34	0.011377	3.22	192.44	55.49	0.25
Reach-3	2979.86	100-Year	550.01	728.88	734.52	731.44	734.65	0.010396	3.20	209.22	58.34	0.24
Reach-3	3056.27	50-Year	512.70	729.64	735.11	732.27	735.25	0.012397	3.42	184.99	59.87	0.26
Reach-3	3056.27	100-Year	550.01	729.64	735.36	732.38	735.50	0.011856	3.45	197.95	62.16	0.25
Reach-3	3106.3	50-Year	512.70	730.14	735.76	733.08	735.93	0.014711	3.80	172.08	55.72	0.28
Reach-3	3106.3	100-Year	550.01	730.14	735.99	733.19	736.16	0.014320	3.85	183.09	57.79	0.28
Reach-3	3126.3	50-Year	512.70	730.34	736.08	733.77	736.30	0.021289	4.63	149.35	46.50	0.34
Reach-3	3126.3	100-Year	550.01	730.34	736.30	733.89	736.52	0.020750	4.69	158.98	48.48	0.34
Reach-3	3141.91	50-Year	512.70	733.60	736.49	735.85	737.01	0.093147	6.12	93.47	41.69	0.64
Reach-3	3141.91	100-Year	550.01	733.60	736.69	735.95	737.19	0.083715	6.07	101.76	43.48	0.61
Reach-3	3151.91	50-Year	512.70	733.70	737.32	735.98	737.62	0.041283	4.74	123.52	47.54	0.44
Reach-3	3151.91	100-Year	550.01	733.70	737.47	736.08	737.78	0.040996	4.85	130.06	48.84	0.44
Reach-3	3201.92	50-Year	512.70	734.20	738.78	736.55	738.95	0.018188	3.68	163.90	55.20	0.30
Reach-3	3201.92	100-Year	550.01	734.20	738.93	736.65	739.11	0.018413	3.78	171.56	56.58	0.31
Reach-3	3306.37	50-Year	512.70	735.25	740.48	737.87	740.64	0.014445	3.59	175.05	49.51	0.28

HEC-RAS Plan: PR_n=0.15 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-3	3306.37	100-Year	550.01	735.25	740.66	737.97	740.82	0.014574	3.68	183.66	51.32	0.28
Reach-3	3356.37	50-Year	512.70	735.75	741.23	738.64	741.40	0.015792	3.87	167.79	55.33	0.29
Reach-3	3356.37	100-Year	550.01	735.75	741.41	738.76	741.59	0.015894	3.96	176.31	56.95	0.29
Reach-3	3376.37	50-Year	512.70	735.95	741.56	739.20	741.77	0.020119	4.43	152.52	49.04	0.33
Reach-3	3376.37	100-Year	550.01	735.95	741.74	739.32	741.96	0.020186	4.54	160.55	50.66	0.33
Reach-3	3388.12	50-Year	512.70	738.56	741.81	740.86	742.21	0.062867	5.44	106.54	42.56	0.53
Reach-3	3388.12	100-Year	550.01	738.56	741.99	740.96	742.39	0.059278	5.48	114.17	45.74	0.52
Reach-3	3398.12	50-Year	512.70	738.66	742.42	741.00	742.71	0.038330	4.68	126.01	48.61	0.43
Reach-3	3398.12	100-Year	550.01	738.66	742.57	741.10	742.87	0.037902	4.78	132.92	49.99	0.43
Reach-3	3448.13	50-Year	512.70	739.17	743.80	741.52	743.97	0.017567	3.65	165.78	49.70	0.30
Reach-3	3448.13	100-Year	550.01	739.17	743.96	741.62	744.14	0.017747	3.75	173.68	50.64	0.30
Reach-3	3525.8	50-Year	512.70	739.94	744.98	742.27	745.11	0.012351	3.24	188.27	52.48	0.25
Reach-3	3525.8	100-Year	550.01	739.94	745.15	742.37	745.29	0.012477	3.33	197.29	54.32	0.26
Reach-3	3600	50-Year	512.70	740.69	745.86	743.02	745.99	0.011237	3.14	194.72	56.67	0.24
Reach-3	3600	100-Year	550.01	740.69	746.04	743.13	746.17	0.011315	3.22	204.31	62.76	0.25
Reach-4	1005.47	50-Year	386.38	734.07	738.14	736.51	738.40	0.031513	4.48	102.57	35.09	0.39
Reach-4	1005.47	100-Year	415.55	734.07	738.37	736.61	738.62	0.029420	4.49	110.77	36.23	0.38
Reach-4	1048.03	50-Year	386.38	734.68	739.24	737.02	739.41	0.018276	3.68	125.66	38.89	0.30
Reach-4	1048.03	100-Year	415.55	734.68	739.42	737.13	739.60	0.018088	3.76	132.92	39.80	0.30
Reach-4	1068.03	50-Year	386.38	734.97	739.60		739.77	0.018082	3.70	124.80	38.15	0.30
Reach-4	1068.03	100-Year	415.55	734.97	739.78		739.96	0.017992	3.79	131.79	39.06	0.30
Reach-4	1077.79	50-Year	386.38	737.07	739.77		740.16	0.075299	5.27	80.67	36.66	0.57
Reach-4	1077.79	100-Year	415.55	737.07	739.94		740.33	0.069029	5.26	87.27	37.54	0.55
Reach-4	1087.79	50-Year	386.38	737.16	740.44		740.74	0.044590	4.61	94.44	36.95	0.45
Reach-4	1087.79	100-Year	415.55	737.16	740.58		740.88	0.044278	4.72	99.56	37.63	0.45
Reach-4	1118.22	50-Year	386.38	737.47	741.54		741.75	0.025368	4.02	112.60	37.78	0.35
Reach-4	1118.22	100-Year	415.55	737.47	741.68		741.90	0.025735	4.14	117.97	38.48	0.36
Reach-4	1148.66	50-Year	386.38	737.77	742.25		742.43	0.019549	3.76	122.70	38.54	0.31
Reach-4	1148.66	100-Year	415.55	737.77	742.40		742.59	0.019823	3.87	128.65	39.30	0.32
Reach-4	1168.66	50-Year	386.38	737.97	742.64		742.81	0.018577	3.77	124.24	38.28	0.31
Reach-4	1168.66	100-Year	415.55	737.97	742.79		742.98	0.018816	3.88	130.37	39.08	0.31
Reach-4	1175.59	50-Year	386.38	740.03	742.73		743.09	0.069739	5.07	83.54	37.73	0.54
Reach-4	1175.59	100-Year	415.55	740.03	742.89		743.26	0.065461	5.10	89.64	38.54	0.53
Reach-4	1185.59	50-Year	386.38	740.13	743.37		743.62	0.038651	4.26	101.26	39.44	0.42
Reach-4	1185.59	100-Year	415.55	740.13	743.50		743.76	0.038430	4.36	106.65	40.12	0.42
Reach-4	1217.15	50-Year	386.38	740.44	744.37		744.55	0.023133	3.75	118.59	40.08	0.33
Reach-4	1217.15	100-Year	415.55	740.44	744.51		744.70	0.023445	3.86	124.22	40.77	0.34
Reach-4	1248.7	50-Year	386.38	740.76	745.07		745.25	0.021185	3.81	119.90	38.64	0.32
Reach-4	1248.7	100-Year	415.55	740.76	745.22		745.41	0.021466	3.93	125.72	39.39	0.33
Reach-4	1268.7	50-Year	386.38	740.96	745.48		745.68	0.021051	3.93	118.81	37.62	0.33
Reach-4	1268.7	100-Year	415.55	740.96	745.64		745.84	0.021311	4.04	124.69	38.40	0.33
Reach-4	1275.78	50-Year	386.38	743.02	745.60		746.00	0.082751	5.35	78.91	37.14	0.59
Reach-4	1275.78	100-Year	415.55	743.02	745.75		746.16	0.077364	5.38	84.76	37.93	0.57
Reach-4	1285.78	50-Year	386.38	743.12	746.32		746.57	0.039325	4.26	100.98	39.65	0.42
Reach-4	1285.78	100-Year	415.55	743.12	746.45		746.71	0.039291	4.37	106.16	40.30	0.42
Reach-4	1317.06	50-Year	386.38	743.44	747.34		747.54	0.024605	3.85	115.67	39.45	0.34
Reach-4	1317.06	100-Year	415.55	743.44	747.48		747.69	0.024885	3.97	121.26	40.15	0.35
Reach-4	1348.34	50-Year	386.38	743.75	748.07		748.27	0.022173	3.92	117.28	37.76	0.33
Reach-4	1348.34	100-Year	415.55	743.75	748.22		748.43	0.022455	4.03	122.99	38.47	0.34
Reach-4	1368.34	50-Year	386.38	743.95	748.51		748.71	0.022006	4.04	115.65	36.55	0.33
Reach-4	1368.34	100-Year	415.55	743.95	748.66		748.88	0.022284	4.16	121.38	37.32	0.34
Reach-4	1376.11	50-Year	386.38	746.02	748.66		749.07	0.080138	5.36	79.01	36.43	0.58

HEC-RAS Plan: PR_n=0.15 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-4	1376.11	100-Year	415.55	746.02	748.82		749.23	0.075275	5.40	84.76	37.20	0.57
Reach-4	1386.11	50-Year	386.38	746.12	749.37		749.63	0.039277	4.31	100.18	38.87	0.42
Reach-4	1386.11	100-Year	415.55	746.12	749.50		749.77	0.039228	4.42	105.35	39.52	0.42
Reach-4	1417.88	50-Year	386.38	746.43	750.39		750.58	0.023492	3.80	117.45	39.59	0.34
Reach-4	1417.88	100-Year	415.55	746.43	750.54		750.74	0.023746	3.91	123.15	40.30	0.34
Reach-4	1449.63	50-Year	386.38	746.75	751.09		751.26	0.019526	3.68	123.86	39.43	0.31
Reach-4	1449.63	100-Year	415.55	746.75	751.24		751.43	0.019767	3.79	129.90	40.19	0.32
Reach-4	1469.63	50-Year	386.38	746.95	751.48		751.67	0.020900	3.92	119.13	37.63	0.32
Reach-4	1469.63	100-Year	415.55	746.95	751.64		751.84	0.021134	4.03	125.07	38.42	0.33
Reach-4	1476.02	50-Year	386.38	748.00	751.61		751.85	0.033275	4.25	104.00	37.88	0.39
Reach-4	1476.02	100-Year	415.55	748.00	751.77		752.02	0.032785	4.34	110.00	38.66	0.39
Reach-4	1486.02	50-Year	386.38	748.10	751.95		752.16	0.027133	4.00	111.39	38.63	0.36
Reach-4	1486.02	100-Year	415.55	748.10	752.10		752.32	0.027039	4.10	117.38	39.40	0.36
Reach-4	1516.13	50-Year	386.38	748.40	752.72		752.93	0.024043	4.07	113.64	37.16	0.35
Reach-4	1516.13	100-Year	415.55	748.40	752.87		753.09	0.024223	4.18	119.43	37.93	0.35
Reach-4	1546.24	50-Year	386.38	748.70	753.39		753.56	0.018590	3.78	123.53	37.62	0.31
Reach-4	1546.24	100-Year	415.55	748.70	753.55		753.74	0.018802	3.89	129.67	38.40	0.31
Reach-4	1566.24	50-Year	386.38	748.90	753.75		753.92	0.016735	3.67	127.58	37.72	0.29
Reach-4	1566.24	100-Year	415.55	748.90	753.92		754.09	0.016938	3.78	133.91	38.51	0.30
Reach-4	1577.42	50-Year	386.38	750.00	753.95		754.18	0.029306	4.23	107.56	37.89	0.38
Reach-4	1577.42	100-Year	415.55	750.00	754.12		754.36	0.028860	4.32	113.96	38.83	0.38
Reach-4	1587.42	50-Year	386.38	750.11	754.24		754.46	0.026069	4.12	110.93	37.17	0.36
Reach-4	1587.42	100-Year	415.55	750.11	754.41		754.63	0.025948	4.22	117.05	37.98	0.36
Reach-4	1637.42	50-Year	386.38	750.61	755.33		755.49	0.016519	3.58	130.19	39.38	0.29
Reach-4	1637.42	100-Year	415.55	750.61	755.50		755.66	0.016655	3.68	136.82	40.22	0.29
Reach-4	1699.7	50-Year	386.38	751.23	756.28		756.42	0.013482	3.39	139.70	40.29	0.27
Reach-4	1699.7	100-Year	415.55	751.23	756.46		756.60	0.013594	3.48	146.85	41.14	0.27
Reach-4	1749.84	50-Year	386.38	751.71	756.93		757.06	0.011944	3.25	145.68	40.83	0.25
Reach-4	1749.84	100-Year	415.55	751.71	757.11		757.25	0.012040	3.34	153.17	41.73	0.25
Reach-4	1769.87	50-Year	386.38	751.92	757.17		757.28	0.009806	2.96	157.89	43.07	0.23
Reach-4	1769.87	100-Year	415.55	751.92	757.35		757.47	0.009891	3.04	165.91	43.98	0.23
Reach-4	1781.23	50-Year	386.38	753.02	757.27		757.46	0.021562	3.82	119.52	38.85	0.33
Reach-4	1781.23	100-Year	415.55	753.02	757.46		757.65	0.021167	3.89	126.73	39.78	0.33
Reach-4	1791.23	50-Year	386.38	753.12	757.49		757.69	0.023554	4.06	114.41	37.24	0.34
Reach-4	1791.23	100-Year	415.55	753.12	757.66		757.88	0.023243	4.14	121.16	38.14	0.34
Reach-4	1841.3	50-Year	386.38	753.61	758.49		758.65	0.015596	3.56	132.35	39.28	0.28
Reach-4	1841.3	100-Year	415.55	753.61	758.67		758.83	0.015662	3.65	139.32	40.16	0.29
Reach-4	1900.13	50-Year	386.38	754.20	759.30		759.41	0.010895	3.06	152.27	42.64	0.24
Reach-4	1900.13	100-Year	415.55	754.20	759.48		759.60	0.010970	3.14	160.09	43.55	0.24
Reach-4	1950.13	50-Year	386.38	754.70	759.85		759.98	0.011717	3.20	147.50	41.56	0.25
Reach-4	1950.13	100-Year	415.55	754.70	760.04		760.17	0.011769	3.28	155.27	42.48	0.25
Reach-4	1970.13	50-Year	386.38	754.90	760.09		760.22	0.012292	3.29	144.09	40.64	0.25
Reach-4	1970.13	100-Year	415.55	754.90	760.28		760.41	0.012344	3.37	151.72	41.56	0.26
Reach-4	1984.43	50-Year	386.38	757.02	760.30		760.54	0.037555	4.22	102.20	39.49	0.41
Reach-4	1984.43	100-Year	415.55	757.02	760.48		760.73	0.035519	4.26	109.50	40.40	0.40
Reach-4	1994.43	50-Year	386.38	757.12	760.66		760.89	0.031013	4.05	107.86	39.27	0.38
Reach-4	1994.43	100-Year	415.55	757.12	760.83		761.06	0.030262	4.13	114.41	40.09	0.38
Reach-4	2023.2	50-Year	386.38	757.40	761.50		761.73	0.027854	4.24	108.05	36.58	0.37
Reach-4	2023.2	100-Year	415.55	757.40	761.66		761.90	0.027928	4.35	113.72	37.34	0.37
Reach-4	2052.01	50-Year	386.38	757.68	762.24		762.43	0.020836	3.93	119.10	37.50	0.32
Reach-4	2052.01	100-Year	415.55	757.68	762.40		762.60	0.021029	4.04	125.12	38.28	0.33
Reach-4	2072.01	50-Year	386.38	757.88	762.65		762.81	0.017172	3.67	128.03	38.73	0.30

HEC-RAS Plan: PR_n=0.15 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-4	2072.01	100-Year	415.55	757.88	762.81		762.98	0.017353	3.78	134.44	39.53	0.30
Reach-4	2086.39	50-Year	386.38	759.01	762.92		763.18	0.033242	4.47	101.68	35.89	0.40
Reach-4	2086.39	100-Year	415.55	759.01	763.08		763.35	0.032789	4.57	107.63	36.72	0.40
Reach-4	2096.39	50-Year	386.38	759.10	763.25		763.49	0.029651	4.39	105.12	35.80	0.38
Reach-4	2096.39	100-Year	415.55	759.10	763.41		763.66	0.029548	4.50	110.91	36.61	0.38
Reach-4	2147.7	50-Year	386.38	759.58	764.43		764.59	0.016185	3.60	130.67	39.13	0.29
Reach-4	2147.7	100-Year	415.55	759.58	764.59		764.76	0.016353	3.70	137.26	39.97	0.29
Reach-4	2206.81	50-Year	386.38	760.16	765.30	762.61	765.43	0.012636	3.32	142.96	40.65	0.26
Reach-4	2206.81	100-Year	415.55	760.16	765.48	762.72	765.62	0.012760	3.41	150.22	41.53	0.26
Reach-4	2256.81	50-Year	386.38	760.67	765.91	763.12	766.04	0.011633	3.22	147.37	41.21	0.25
Reach-4	2256.81	100-Year	415.55	760.67	766.10	763.22	766.23	0.011722	3.31	154.98	42.12	0.25
Reach-4	2276.81	50-Year	386.38	760.88	766.15	763.39	766.27	0.011293	3.01	150.52	42.64	0.24
Reach-4	2276.81	100-Year	415.55	760.88	766.34	763.50	766.46	0.011319	3.09	158.46	43.55	0.24
Reach-4	2294.64	50-Year	386.38	763.03	766.40		766.64	0.035569	4.18	103.53	39.14	0.40
Reach-4	2294.64	100-Year	415.55	763.03	766.58		766.82	0.033897	4.23	110.67	40.03	0.40
Reach-4	2304.65	50-Year	386.38	763.13	766.74	765.29	767.00	0.035408	4.37	101.16	36.98	0.41
Reach-4	2304.65	100-Year	415.55	763.13	766.91	765.38	767.17	0.034582	4.45	107.33	37.80	0.40
Reach-5	1011.79	50-Year	193.42	737.37	742.91	738.83	742.93	0.001821	1.32	177.44	45.98	0.10
Reach-5	1011.79	100-Year	207.55	737.37	743.16	738.89	743.18	0.001759	1.34	189.09	47.22	0.10
Reach-5	1049.38	50-Year	193.42	737.76	742.99		743.03	0.003226	1.70	141.54	40.14	0.13
Reach-5	1049.38	100-Year	207.55	737.76	743.24		743.27	0.003080	1.71	151.59	41.37	0.13
Reach-5	1069.38	50-Year	193.42	737.96	743.06		743.11	0.005236	2.12	117.07	35.64	0.17
Reach-5	1069.38	100-Year	207.55	737.96	743.30		743.35	0.004960	2.13	125.88	36.85	0.16
Reach-5	1085.11	50-Year	193.42	741.10	743.16		743.34	0.049475	3.56	58.52	33.60	0.44
Reach-5	1085.11	100-Year	207.55	741.10	743.40		743.56	0.038530	3.38	66.64	34.79	0.39
Reach-5	1095.11	50-Year	193.42	741.20	743.59		743.72	0.029094	3.02	69.73	35.14	0.34
Reach-5	1095.11	100-Year	207.55	741.20	743.76		743.88	0.026468	3.01	75.47	35.95	0.33
Reach-5	1122.16	50-Year	193.42	741.47	744.26		744.36	0.019383	2.73	78.59	35.17	0.29
Reach-5	1122.16	100-Year	207.55	741.47	744.38		744.49	0.019057	2.79	82.94	35.78	0.29
Reach-5	1149.21	50-Year	193.42	741.74	744.79		744.91	0.020565	2.99	74.10	31.95	0.30
Reach-5	1149.21	100-Year	207.55	741.74	744.91		745.03	0.020550	3.06	77.86	32.53	0.30
Reach-5	1169.21	50-Year	193.42	741.94	745.21	743.69	745.36	0.023667	3.36	68.32	29.10	0.33
Reach-5	1169.21	100-Year	207.55	741.94	745.33	743.77	745.48	0.023770	3.45	71.75	29.69	0.33
Reach-5	1184.85	50-Year	193.42	745.09	746.32	746.32	746.89	0.296224	6.20	32.72	29.61	0.98
Reach-5	1184.85	100-Year	207.55	745.09	746.38	746.38	746.97	0.291043	6.34	34.43	29.90	0.98
Reach-5	1194.85	50-Year	193.42	745.19	747.56		747.71	0.034754	3.28	64.59	33.21	0.38
Reach-5	1194.85	100-Year	207.55	745.19	747.64		747.80	0.035432	3.39	67.29	33.62	0.38
Reach-5	1211.93	50-Year	193.42	745.36	748.11		748.26	0.029925	3.36	65.13	30.60	0.36
Reach-5	1211.93	100-Year	207.55	745.36	748.20		748.36	0.030484	3.47	67.95	31.06	0.36
Reach-5	1231.93	50-Year	193.42	745.56	748.71	747.43	748.90	0.033108	3.88	59.92	26.92	0.38
Reach-5	1231.93	100-Year	207.55	745.56	748.82	747.51	749.01	0.033631	3.99	62.69	27.43	0.39
Reach-5	1244.53	50-Year	193.42	748.68	749.94	749.94	750.52	0.292777	6.27	32.46	28.83	0.98
Reach-5	1244.53	100-Year	207.55	748.68	750.00	750.00	750.61	0.287753	6.40	34.16	29.13	0.98
Reach-5	1254.53	50-Year	193.42	748.78	751.20		751.36	0.035550	3.37	63.34	32.23	0.38
Reach-5	1254.53	100-Year	207.55	748.78	751.28		751.45	0.036261	3.48	65.99	32.64	0.39
Reach-5	1302.85	50-Year	193.42	749.26	752.48		752.60	0.019634	3.03	74.26	31.08	0.30
Reach-5	1302.85	100-Year	207.55	749.26	752.60		752.72	0.019855	3.12	77.75	31.64	0.30
Reach-5	1348.37	50-Year	193.42	749.72	753.37		753.50	0.019458	3.27	72.42	28.98	0.30
Reach-5	1348.37	100-Year	207.55	749.72	753.49		753.63	0.019655	3.36	75.96	29.59	0.31
Reach-5	1368.37	50-Year	193.42	749.92	753.74	751.86	753.87	0.017173	3.17	75.52	29.27	0.29
Reach-5	1368.37	100-Year	207.55	749.92	753.87	751.94	754.00	0.017350	3.26	79.22	29.90	0.29
Reach-5	1383.76	50-Year	193.42	753.06	754.30	754.30	754.86	0.293533	6.18	32.84	29.68	0.98

HEC-RAS Plan: PR_n=0.15 (Continued)

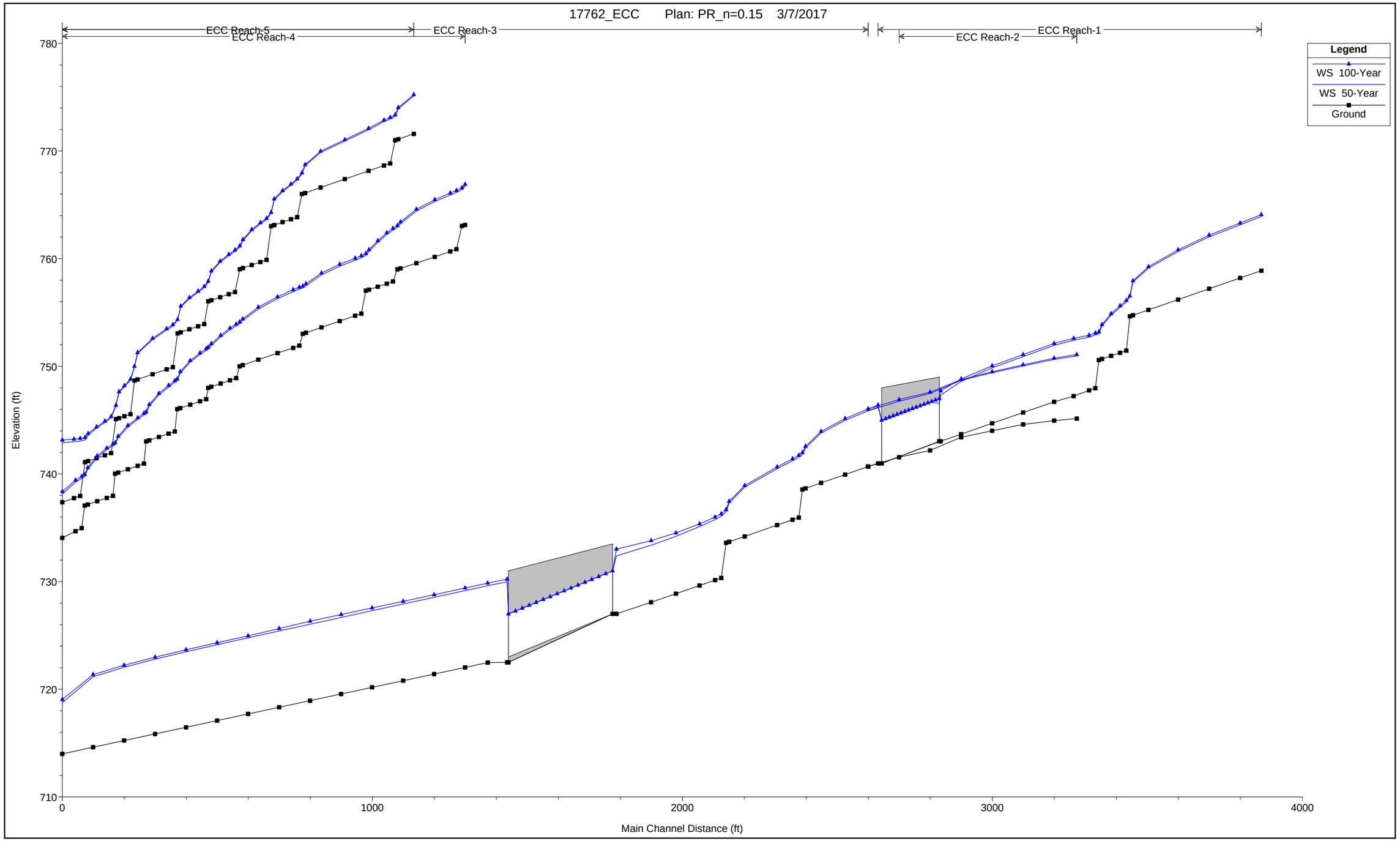
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-5	1383.76	100-Year	207.55	753.06	754.35	754.35	754.94	0.288552	6.31	34.55	29.97	0.98
Reach-5	1393.76	50-Year	193.42	753.16	755.51		755.66	0.033540	3.21	65.84	33.89	0.37
Reach-5	1393.76	100-Year	207.55	753.16	755.59		755.75	0.034180	3.31	68.60	34.30	0.37
Reach-5	1421.76	50-Year	193.42	753.44	756.29		756.40	0.021488	2.92	74.45	33.29	0.30
Reach-5	1421.76	100-Year	207.55	753.44	756.38		756.51	0.021858	3.01	77.70	33.78	0.31
Reach-5	1449.76	50-Year	193.42	753.72	756.87		756.99	0.020455	3.05	73.50	31.23	0.30
Reach-5	1449.76	100-Year	207.55	753.72	756.98		757.11	0.020757	3.14	76.85	31.76	0.31
Reach-5	1469.76	50-Year	193.42	753.92	757.31		757.47	0.026496	3.64	64.73	27.63	0.35
Reach-5	1469.76	100-Year	207.55	753.92	757.42		757.59	0.026808	3.74	67.85	28.19	0.35
Reach-5	1482.69	50-Year	193.42	756.04	757.80		758.24	0.150737	5.60	37.63	25.79	0.74
Reach-5	1482.69	100-Year	207.55	756.04	757.90		758.35	0.140037	5.61	40.44	26.32	0.72
Reach-5	1492.69	50-Year	193.42	756.14	758.77		758.96	0.039873	3.77	58.24	28.71	0.41
Reach-5	1492.69	100-Year	207.55	756.14	758.86		759.06	0.040675	3.89	60.75	29.14	0.42
Reach-5	1520.7	50-Year	193.42	756.42	759.66		759.80	0.023170	3.30	69.07	29.38	0.32
Reach-5	1520.7	100-Year	207.55	756.42	759.77		759.92	0.023541	3.40	72.22	29.91	0.33
Reach-5	1548.71	50-Year	193.42	756.70	760.28		760.42	0.020815	3.35	70.67	28.68	0.31
Reach-5	1548.71	100-Year	207.55	756.70	760.40		760.54	0.021089	3.44	74.04	29.26	0.32
Reach-5	1568.71	50-Year	193.42	756.90	760.68		760.80	0.017128	3.14	75.81	29.50	0.29
Reach-5	1568.71	100-Year	207.55	756.90	760.80		760.93	0.017344	3.23	79.46	30.11	0.29
Reach-5	1584.4	50-Year	193.42	759.02	761.07		761.33	0.071990	4.28	49.39	29.28	0.53
Reach-5	1584.4	100-Year	207.55	759.02	761.19		761.45	0.067535	4.30	52.91	29.87	0.52
Reach-5	1594.4	50-Year	193.42	759.13	761.68		761.87	0.040436	3.72	58.55	29.33	0.41
Reach-5	1594.4	100-Year	207.55	759.13	761.78		761.97	0.040525	3.81	61.42	29.82	0.41
Reach-5	1622.61	50-Year	193.42	759.41	762.59		762.74	0.024086	3.33	68.29	29.40	0.33
Reach-5	1622.61	100-Year	207.55	759.41	762.70		762.85	0.024423	3.43	71.45	29.93	0.33
Reach-5	1650.82	50-Year	193.42	759.69	763.23		763.37	0.020582	3.30	71.14	28.93	0.31
Reach-5	1650.82	100-Year	207.55	759.69	763.35		763.49	0.020846	3.40	74.53	29.51	0.31
Reach-5	1670.82	50-Year	193.42	759.89	763.63	761.81	763.75	0.018129	3.21	74.23	29.19	0.29
Reach-5	1670.82	100-Year	207.55	759.89	763.75	761.89	763.88	0.018348	3.30	77.81	29.80	0.30
Reach-5	1685.38	50-Year	193.42	763.02	764.25	764.25	764.81	0.299274	6.18	32.78	29.95	0.99
Reach-5	1685.38	100-Year	207.55	763.02	764.31	764.31	764.89	0.291251	6.30	34.60	30.26	0.98
Reach-5	1695.38	50-Year	193.42	763.12	765.47		765.62	0.033635	3.21	65.87	33.99	0.37
Reach-5	1695.38	100-Year	207.55	763.12	765.55		765.71	0.034350	3.31	68.58	34.39	0.38
Reach-5	1722.37	50-Year	193.42	763.39	766.23		766.34	0.021879	2.93	74.05	33.27	0.31
Reach-5	1722.37	100-Year	207.55	763.39	766.32		766.44	0.022350	3.03	77.16	33.73	0.31
Reach-5	1749.37	50-Year	193.42	763.66	766.83		766.97	0.023750	3.29	68.90	29.74	0.33
Reach-5	1749.37	100-Year	207.55	763.66	766.93		767.08	0.024134	3.39	72.03	30.26	0.33
Reach-5	1769.37	50-Year	193.42	763.86	767.30		767.46	0.024563	3.53	66.68	27.99	0.34
Reach-5	1769.37	100-Year	207.55	763.86	767.41		767.57	0.024902	3.64	69.83	28.55	0.34
Reach-5	1784.8	50-Year	193.42	766.01	767.87		768.21	0.106656	4.89	43.00	27.77	0.63
Reach-5	1784.8	100-Year	207.55	766.01	767.98		768.32	0.100335	4.93	46.02	28.31	0.62
Reach-5	1794.81	50-Year	193.42	766.10	768.64		768.81	0.036470	3.51	61.46	30.60	0.39
Reach-5	1794.81	100-Year	207.55	766.10	768.73		768.91	0.036886	3.62	64.26	31.05	0.39
Reach-5	1844.83	50-Year	193.42	766.61	769.86		769.96	0.015779	2.73	81.42	33.16	0.27
Reach-5	1844.83	100-Year	207.55	766.61	769.97		770.08	0.016004	2.81	85.12	33.71	0.27
Reach-5	1923.02	50-Year	193.42	767.39	770.92		771.00	0.011323	2.45	91.62	34.78	0.23
Reach-5	1923.02	100-Year	207.55	767.39	771.05		771.13	0.011427	2.51	95.99	35.40	0.23
Reach-5	1999.43	50-Year	193.42	768.15	771.97		772.09	0.017994	3.25	74.10	28.87	0.29
Reach-5	1999.43	100-Year	207.55	768.15	772.10		772.23	0.018063	3.33	77.92	29.52	0.30
Reach-5	2049.43	50-Year	193.42	768.65	772.73		772.83	0.011991	2.77	86.24	31.09	0.24
Reach-5	2049.43	100-Year	207.55	768.65	772.87		772.97	0.012090	2.84	90.54	31.77	0.24
Reach-5	2069.43	50-Year	193.42	768.85	772.97		773.07	0.012087	2.80	85.73	31.02	0.24

HEC-RAS Plan: PR_n=0.15 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-5	2069.43	100-Year	207.55	768.85	773.11		773.21	0.012165	2.87	90.08	31.71	0.25
Reach-5	2085.59	50-Year	193.42	771.00	773.22		773.55	0.083757	4.87	44.51	25.46	0.58
Reach-5	2085.59	100-Year	207.55	771.00	773.36		773.68	0.077364	4.87	48.01	26.11	0.56
Reach-5	2095.59	50-Year	193.42	771.10	773.93		774.15	0.043868	4.14	54.67	26.43	0.43
Reach-5	2095.59	100-Year	207.55	771.10	774.03		774.27	0.044009	4.25	57.42	26.95	0.44
Reach-5	2145.59	50-Year	193.42	771.59	775.12	773.12	775.20	0.012070	2.52	89.23	34.14	0.24
Reach-5	2145.59	100-Year	207.55	771.59	775.24	773.18	775.33	0.012227	2.59	93.36	34.74	0.24
Reach-2	3700	50-Year	211.05	741.56	746.75		746.78	0.003981	1.57	174.93	83.55	0.13
Reach-2	3700	100-Year	226.31	741.56	746.92		746.95	0.003729	1.56	189.05	84.23	0.13
Reach-2	3800	50-Year	211.05	742.19	747.48		747.55	0.020770	2.72	115.26	91.34	0.26
Reach-2	3800	100-Year	226.31	742.19	747.60		747.66	0.018737	2.64	125.58	91.65	0.25
Reach-2	3900	50-Year	211.05	743.41	748.70		748.73	0.007587	1.84	160.91	95.32	0.17
Reach-2	3900	100-Year	226.31	743.41	748.77		748.81	0.007707	1.88	167.69	97.81	0.18
Reach-2	4000	50-Year	211.05	744.01	749.40		749.44	0.006485	1.73	153.20	84.39	0.16
Reach-2	4000	100-Year	226.31	744.01	749.49		749.52	0.006629	1.78	159.33	92.78	0.16
Reach-2	4100	50-Year	211.05	744.60	750.04		750.08	0.006366	1.90	137.03	73.32	0.17
Reach-2	4100	100-Year	226.31	744.60	750.14		750.18	0.006534	1.96	142.43	75.51	0.17
Reach-2	4200	50-Year	211.05	744.95	750.64		750.69	0.005792	1.95	129.51	73.80	0.16
Reach-2	4200	100-Year	226.31	744.95	750.76		750.81	0.005964	2.02	134.49	80.55	0.17
Reach-2	4272.92	50-Year	211.05	745.15	750.96	747.33	751.00	0.003257	1.63	139.72	123.98	0.13
Reach-2	4272.92	100-Year	226.31	745.15	751.09	747.43	751.13	0.003409	1.70	143.97	128.95	0.13
Reach-1	3632.14	50-Year	512.70	740.98	746.22	743.35	746.34	0.010969	3.12	196.29	61.59	0.24
Reach-1	3632.14	100-Year	550.01	740.98	746.40	743.46	746.53	0.011036	3.21	206.03	63.22	0.24
Reach-1	3800.00		Culvert									
Reach-1	3834.17	50-Year	305.72	743.04	747.32	745.54	747.51	0.023794	4.03	97.29	35.48	0.34
Reach-1	3834.17	100-Year	329.33	743.04	747.73	745.64	747.89	0.018877	3.81	112.05	37.87	0.31
Reach-1	3900	50-Year	305.72	743.70	748.59	746.20	748.72	0.014591	3.44	121.09	45.14	0.27
Reach-1	3900	100-Year	329.33	743.70	748.82	746.30	748.95	0.013927	3.47	132.04	51.16	0.27
Reach-1	4000	50-Year	305.72	744.71	749.86		749.96	0.010543	3.03	132.48	41.45	0.24
Reach-1	4000	100-Year	329.33	744.71	750.05		750.15	0.010428	3.09	140.62	42.63	0.24
Reach-1	4100	50-Year	305.72	745.71	750.90		751.00	0.010239	3.00	133.83	41.59	0.23
Reach-1	4100	100-Year	329.33	745.71	751.08		751.19	0.010200	3.07	141.69	42.73	0.23
Reach-1	4200	50-Year	305.72	746.70	751.95		752.05	0.010688	3.09	139.12	51.69	0.24
Reach-1	4200	100-Year	329.33	746.70	752.12		752.23	0.010536	3.14	148.48	53.51	0.24
Reach-1	4262.91	50-Year	305.72	747.23	752.42		752.47	0.004568	2.00	184.98	51.91	0.16
Reach-1	4262.91	100-Year	329.33	747.23	752.60		752.65	0.004628	2.06	194.35	53.05	0.16
Reach-1	4312.96	50-Year	305.72	747.77	752.71	749.95	752.80	0.009502	2.80	135.27	40.93	0.22
Reach-1	4312.96	100-Year	329.33	747.77	752.89	750.04	752.99	0.009526	2.87	142.74	41.93	0.22
Reach-1	4332.96	50-Year	305.72	747.97	752.91	750.35	753.02	0.011881	3.13	123.10	37.94	0.25
Reach-1	4332.96	100-Year	329.33	747.97	753.09	750.45	753.21	0.011884	3.21	130.02	38.87	0.25
Reach-1	4344.2	50-Year	305.72	750.58	753.01	752.40	753.39	0.085988	5.25	65.07	33.95	0.59
Reach-1	4344.2	100-Year	329.33	750.58	753.19	752.48	753.56	0.076335	5.19	71.35	35.02	0.57
Reach-1	4354.2	50-Year	305.72	750.68	753.74	752.58	753.98	0.041506	4.26	82.86	36.24	0.43
Reach-1	4354.2	100-Year	329.33	750.68	753.87	752.68	754.12	0.041208	4.36	87.53	37.01	0.43
Reach-1	4383.56	50-Year	305.72	750.97	754.75	753.09	754.93	0.025689	3.85	95.04	35.43	0.35
Reach-1	4383.56	100-Year	329.33	750.97	754.88	753.19	755.08	0.025989	3.97	99.84	36.16	0.35
Reach-1	4412.91	50-Year	305.72	751.26	755.48	753.69	755.68	0.025104	4.10	92.52	32.63	0.35
Reach-1	4412.91	100-Year	329.33	751.26	755.63	753.80	755.84	0.025454	4.22	97.24	33.40	0.36
Reach-1	4432.91	50-Year	305.72	751.46	755.98	754.10	756.17	0.023647	4.16	94.31	32.54	0.35
Reach-1	4432.91	100-Year	329.33	751.46	756.13	754.21	756.33	0.023899	4.28	99.26	33.29	0.35
Reach-1	4444.33	50-Year	305.72	754.64	756.46	756.46	757.23	0.247137	7.35	45.51	30.45	0.96
Reach-1	4444.33	100-Year	329.33	754.64	756.54	756.54	757.34	0.245714	7.54	47.94	30.93	0.96

HEC-RAS Plan: PR_n=0.15 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	4454.33	50-Year	305.72	754.74	757.83	756.59	758.05	0.036464	4.02	87.38	37.52	0.40
Reach-1	4454.33	100-Year	329.33	754.74	757.95	756.67	758.17	0.036948	4.14	91.63	38.19	0.41
Reach-1	4504.33	50-Year	305.72	755.24	759.11	757.14	759.24	0.016676	3.16	114.53	41.18	0.28
Reach-1	4504.33	100-Year	329.33	755.24	759.25	757.23	759.38	0.016922	3.25	120.16	41.99	0.29
Reach-1	4600	50-Year	305.72	756.20	760.67	758.52	760.80	0.015987	3.40	113.41	38.78	0.28
Reach-1	4600	100-Year	329.33	756.20	760.82	758.62	760.96	0.016119	3.49	119.45	39.70	0.29
Reach-1	4700	50-Year	305.72	757.20	762.02		762.12	0.011000	2.96	130.46	41.54	0.24
Reach-1	4700	100-Year	329.33	757.20	762.19		762.29	0.011083	3.04	137.44	42.54	0.24
Reach-1	4800	50-Year	305.72	758.21	763.14		763.24	0.011479	3.07	128.03	40.76	0.24
Reach-1	4800	100-Year	329.33	758.21	763.31		763.42	0.011522	3.15	135.12	41.79	0.25
Reach-1	4868.36	50-Year	305.72	758.88	763.91	761.29	764.02	0.011017	3.05	129.74	40.68	0.24
Reach-1	4868.36	100-Year	329.33	758.88	764.09	761.39	764.20	0.011058	3.13	136.92	41.71	0.24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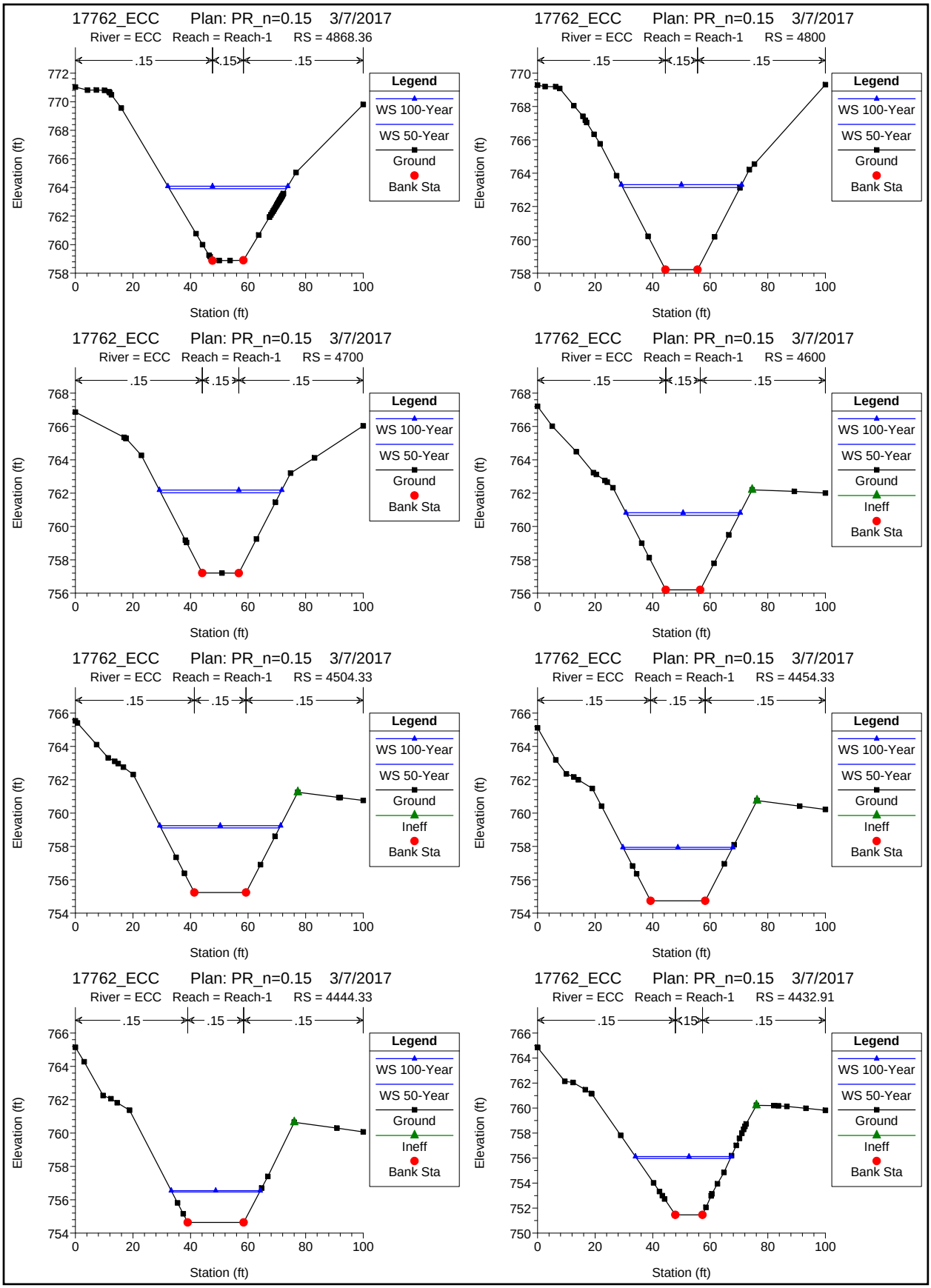
ECC Reach-5
ECC Reach-4
ECC Reach-3
ECC Reach-2
ECC Reach-1
Legend
WS 100-Year
WS 50-Year
Ground
Elevation (ft)
780
770
760
750
740
730
720
710
0
1000
2000
3000
4000
Main Channel Distance (ft)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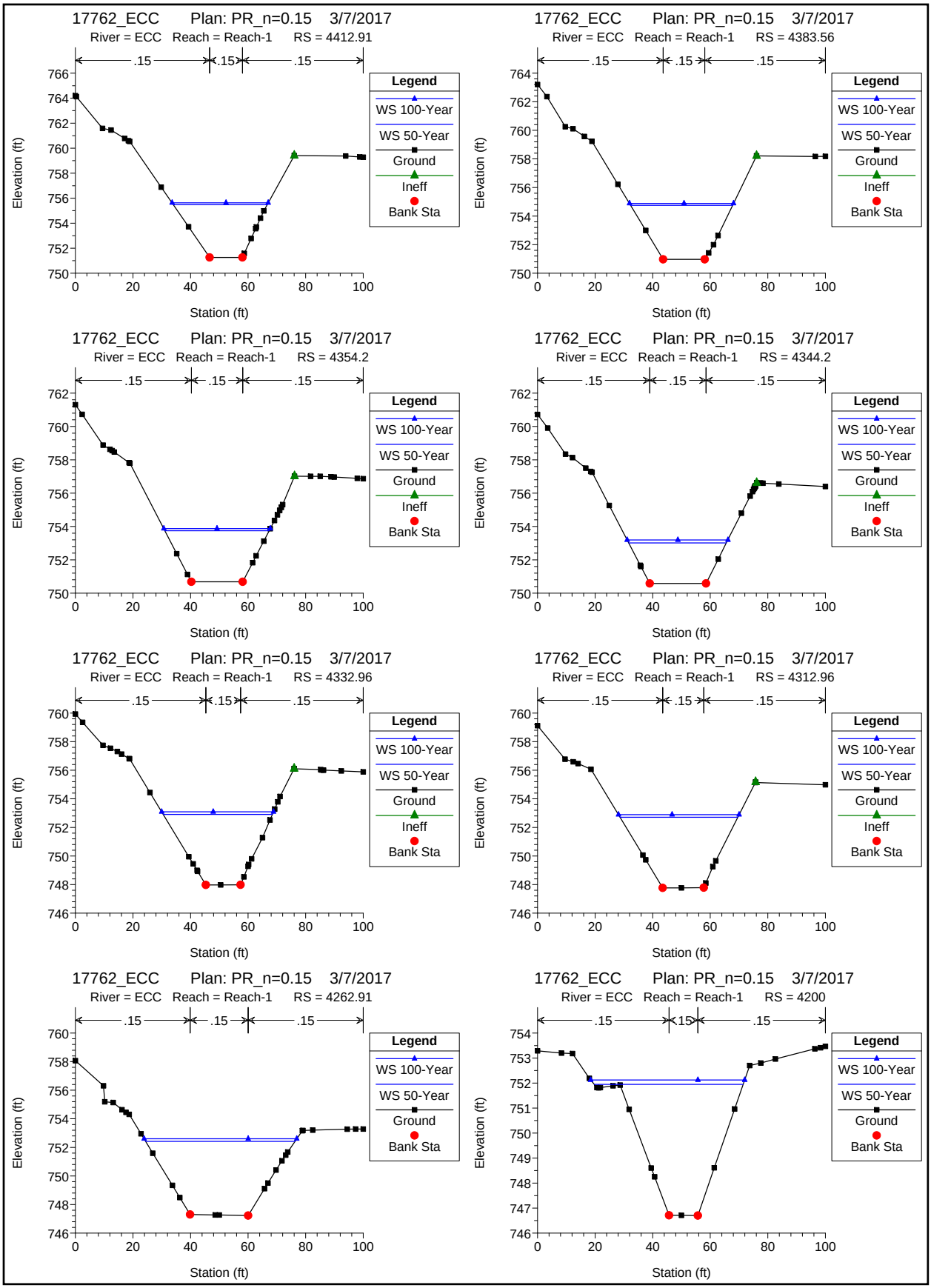
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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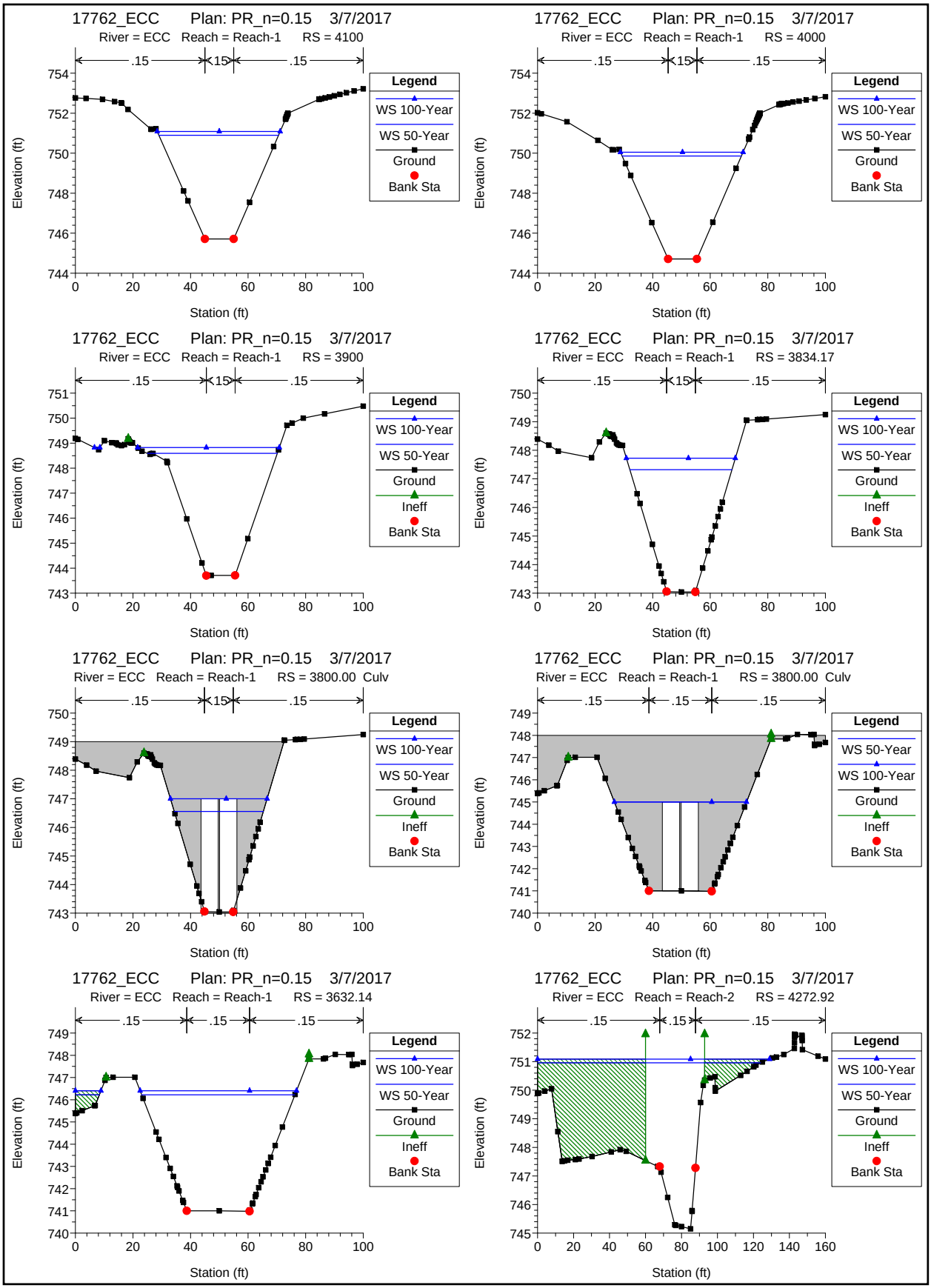
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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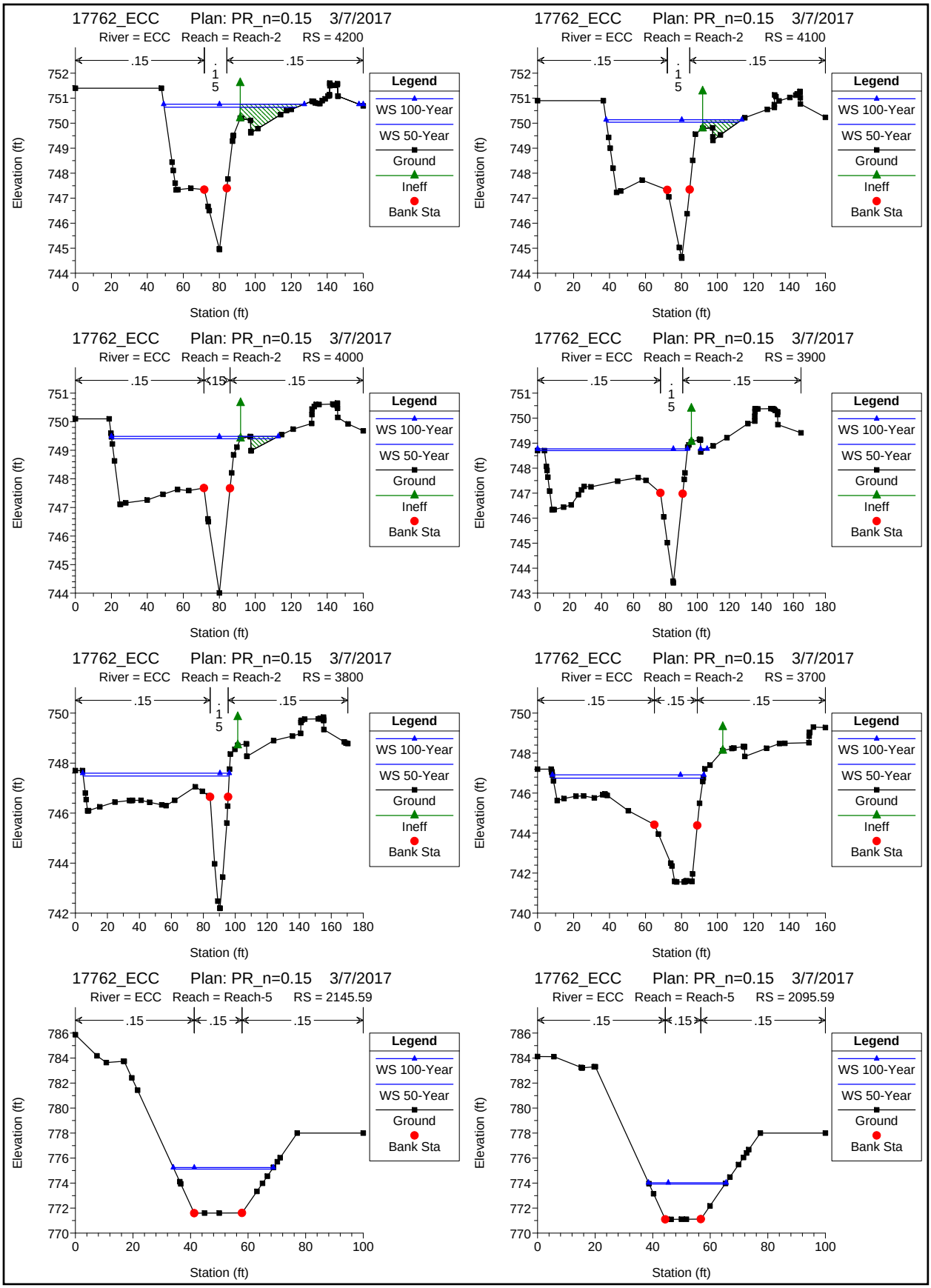
.15
.15
.15
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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17762_ECC Plan: PR_n=0.15 3/7/2017
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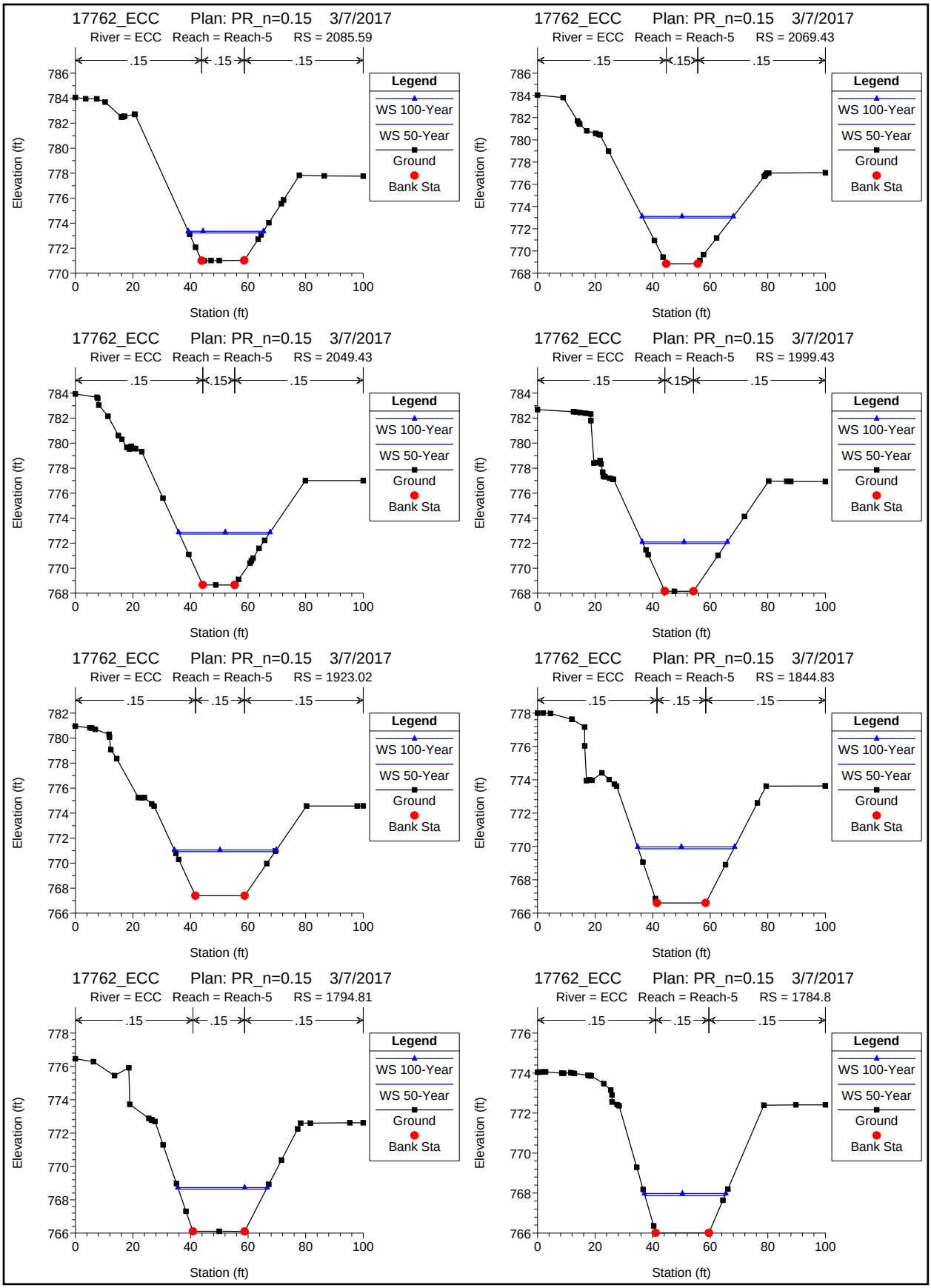
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
.15
.1
5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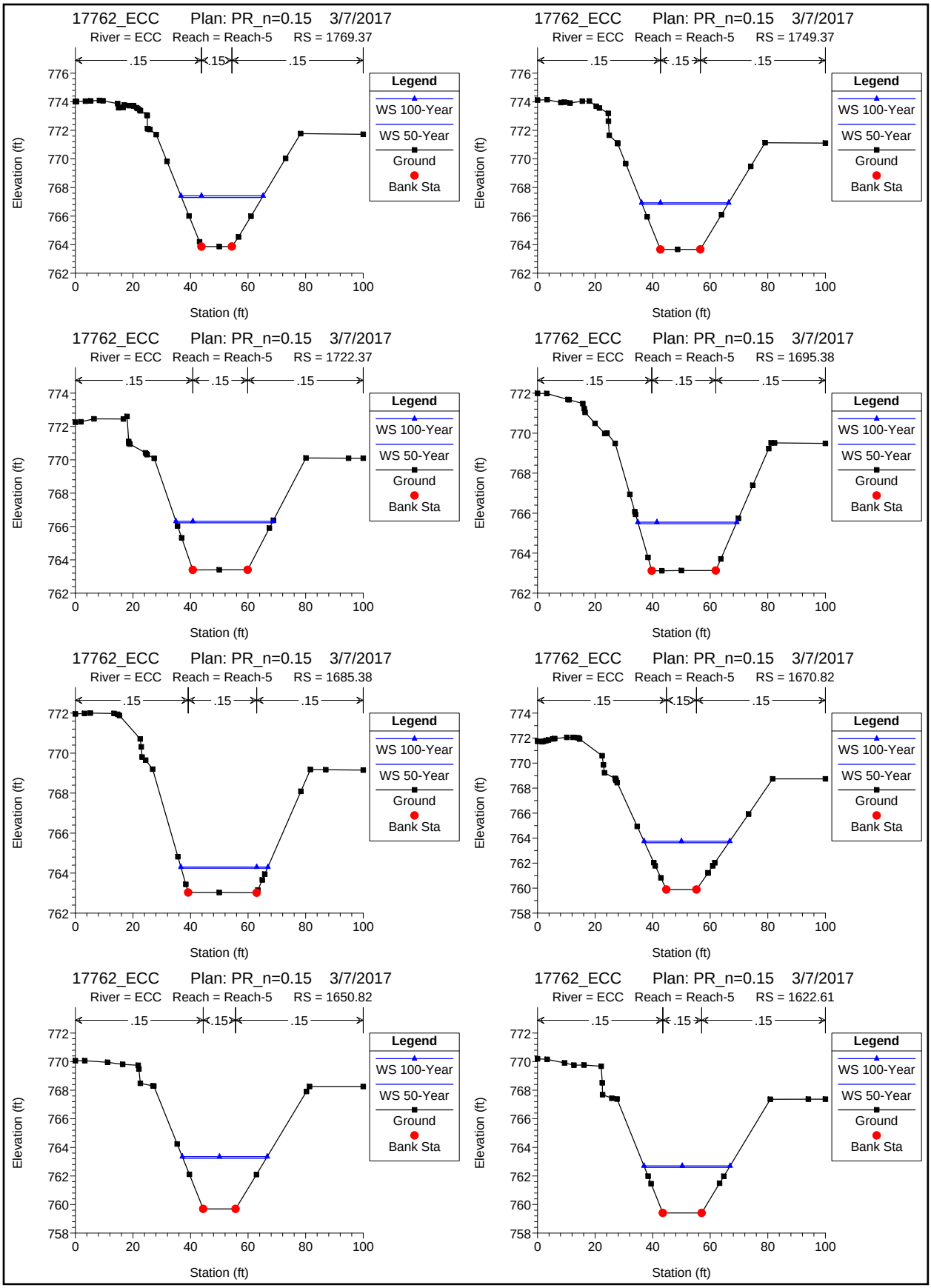
.15
.15
.15
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)


17762_ECC Plan: PR_n=0.15 3/7/2017
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River = ECC Reach = Reach-5 RS = 1749.37
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-5 RS = 1722.37
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-5 RS = 1695.38
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-5 RS = 1685.38
17762_ECC Plan: PR_n=0.15 3/7/2017
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17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-5 RS = 1650.82
17762_ECC Plan: PR_n=0.15 3/7/2017
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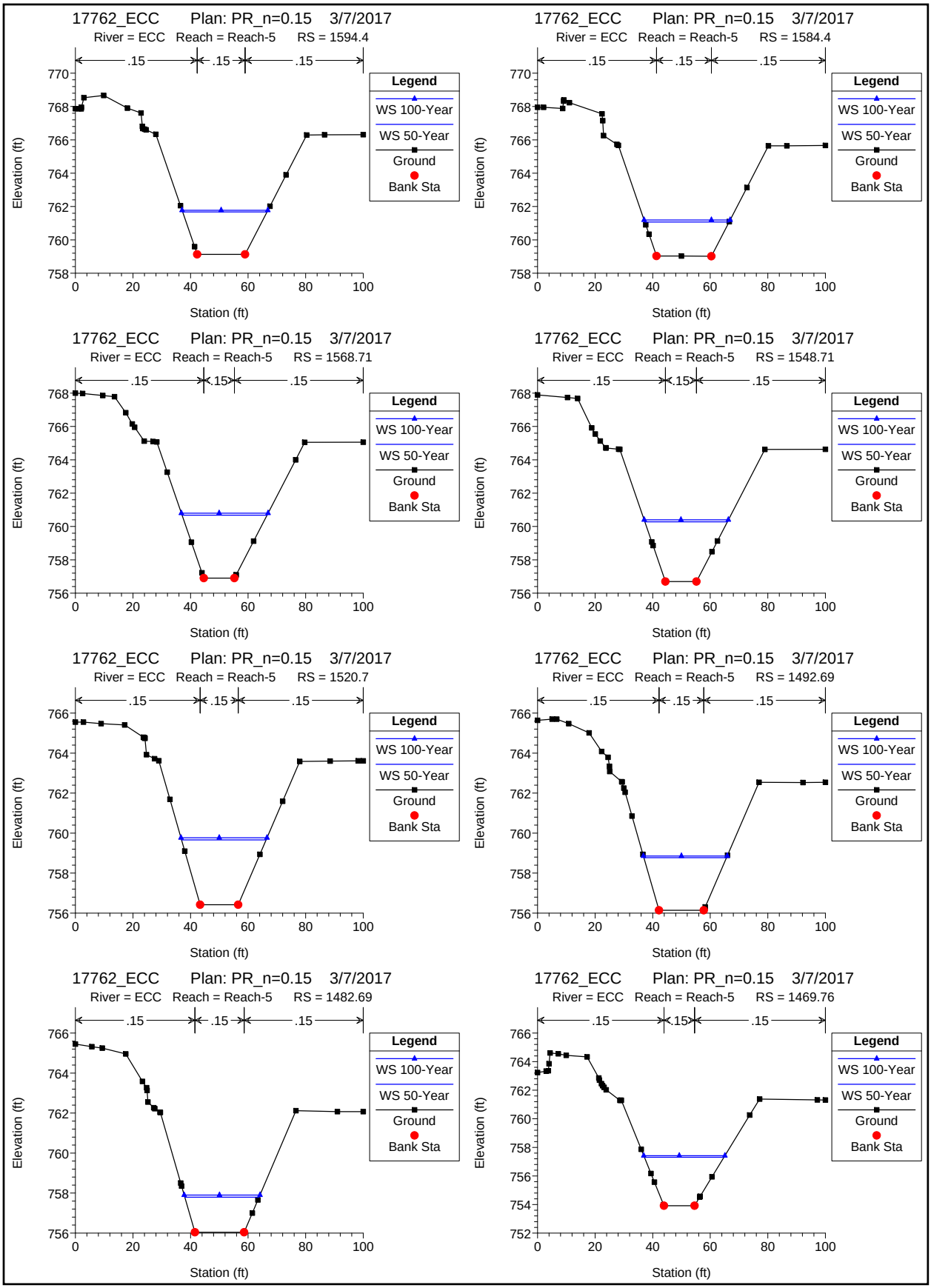
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)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17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-5 RS = 1548.71
17762_ECC Plan: PR_n=0.15 3/7/2017
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17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-5 RS = 1482.69
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-5 RS = 1469.76
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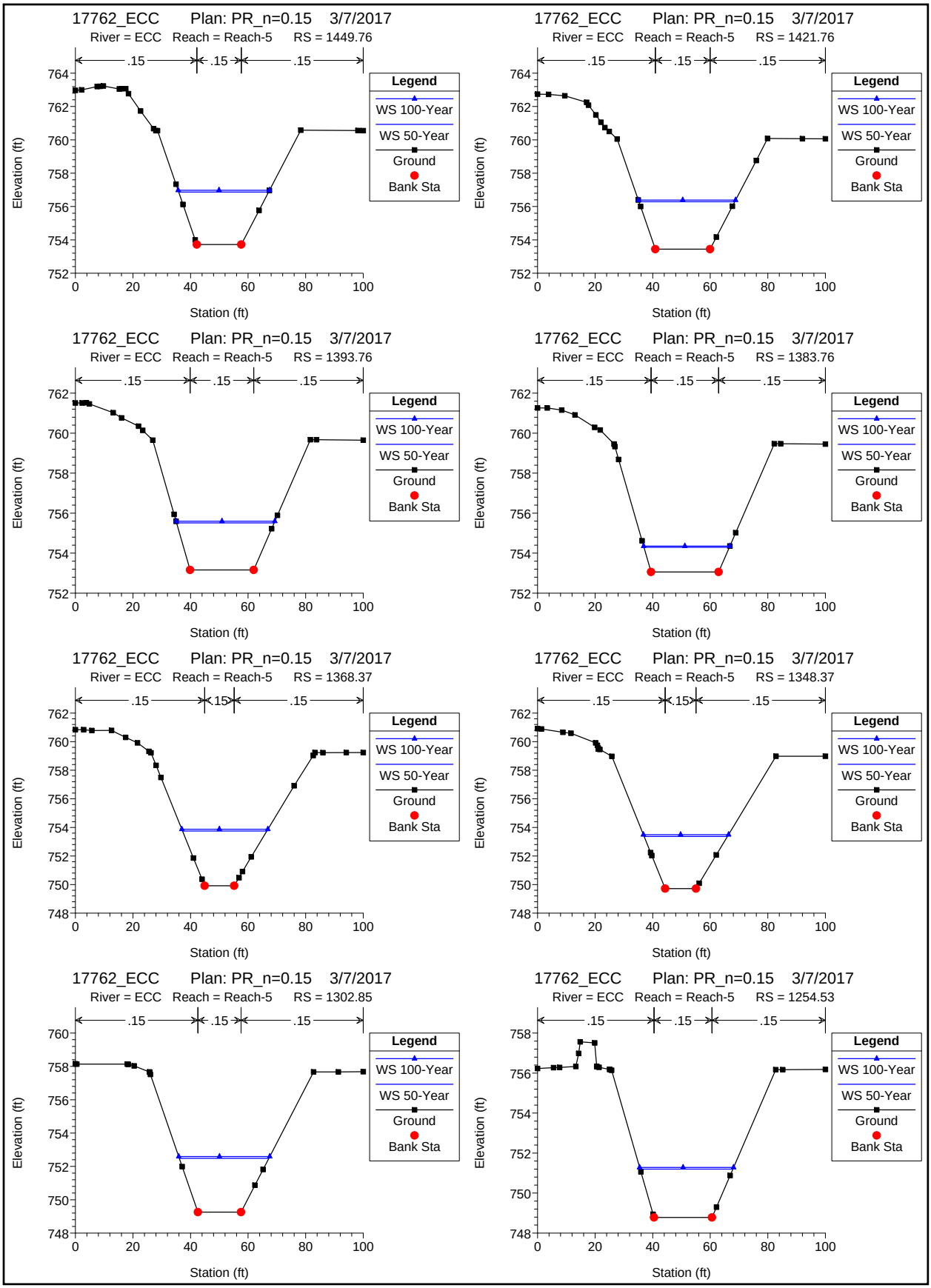
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)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17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-5 RS = 1393.76
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River = ECC Reach = Reach-5 RS = 1383.76
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-5 RS = 1368.37
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River = ECC Reach = Reach-5 RS = 1348.37
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-5 RS = 1302.85
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River = ECC Reach = Reach-5 RS = 1254.53
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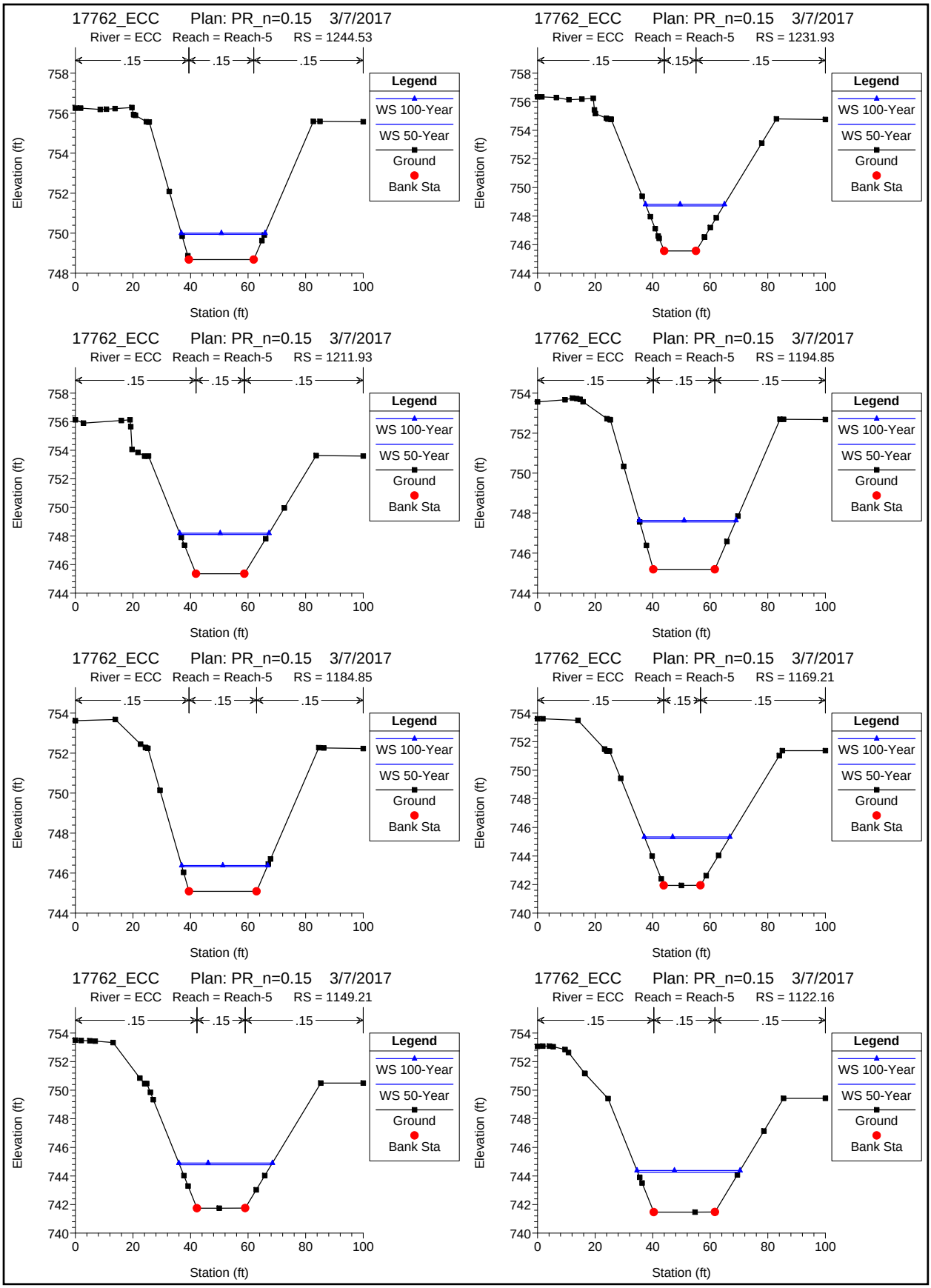
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = ECC Reach = Reach-5 RS = 1211.93
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River = ECC Reach = Reach-5 RS = 1194.85
17762_ECC Plan: PR_n=0.15 3/7/2017
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River = ECC Reach = Reach-5 RS = 1149.21
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River = ECC Reach = Reach-5 RS = 1122.16
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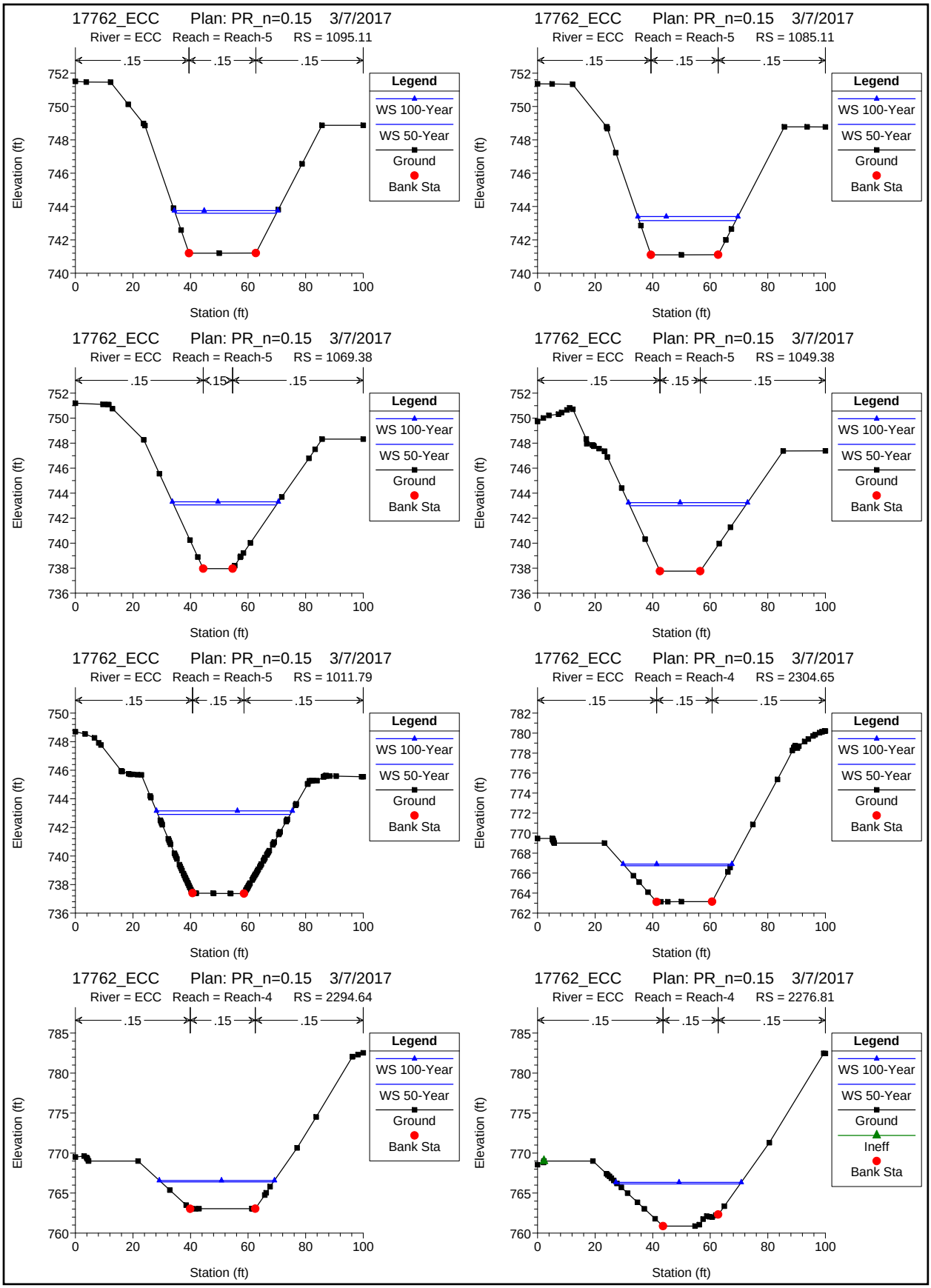
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)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17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-5 RS = 1085.11
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-5 RS = 1069.38
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-5 RS = 1049.38
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-5 RS = 1011.79
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 2304.65
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 2294.64
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River = ECC Reach = Reach-4 RS = 2276.81
.15
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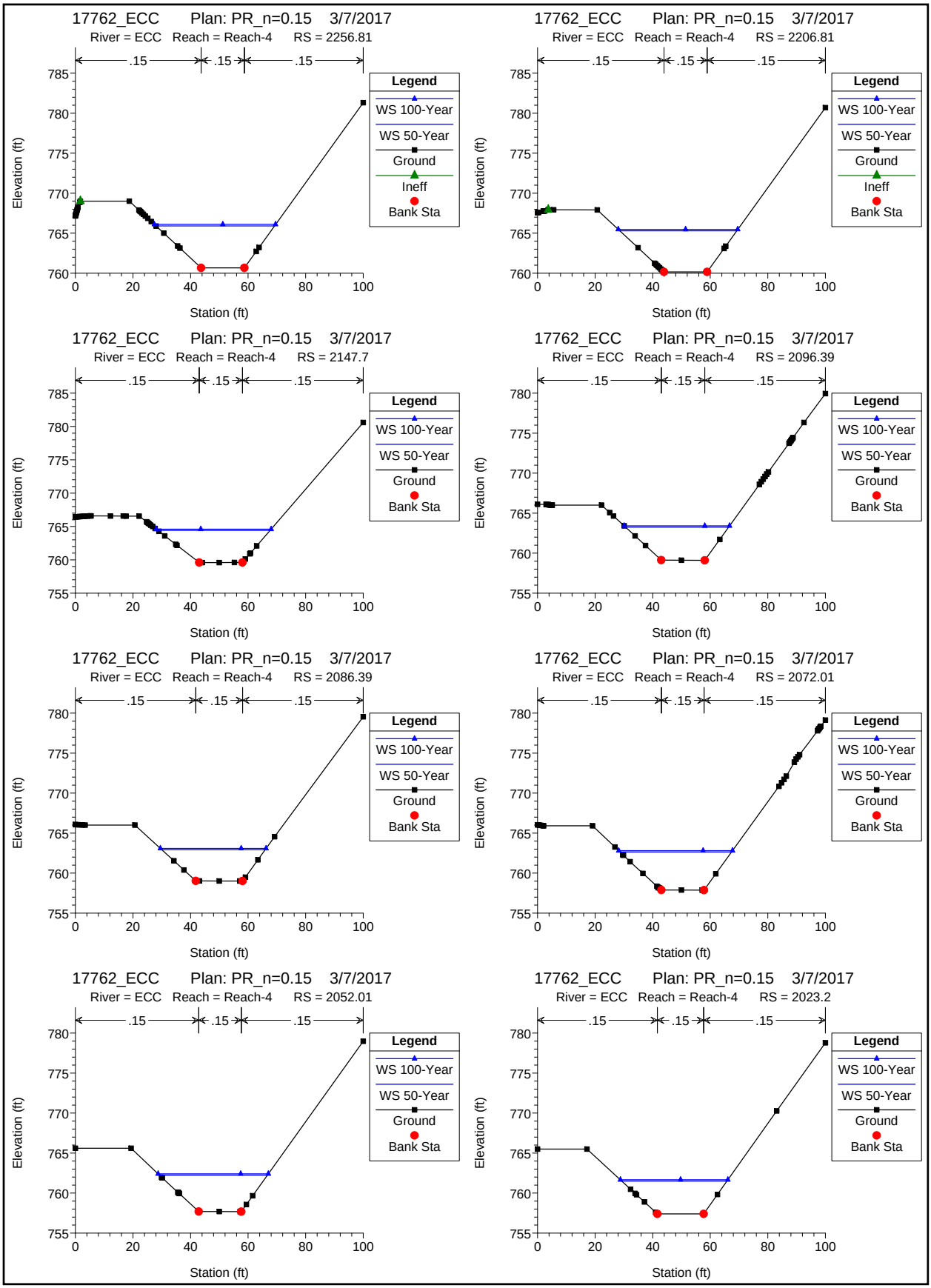
.15
Elevation (ft)
Station (ft)
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta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River = ECC Reach = Reach-4 RS = 2206.81
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 2147.7
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 2096.39
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River = ECC Reach = Reach-4 RS = 2086.39
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 2072.01
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 2052.01
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River = ECC Reach = Reach-4 RS = 2023.2
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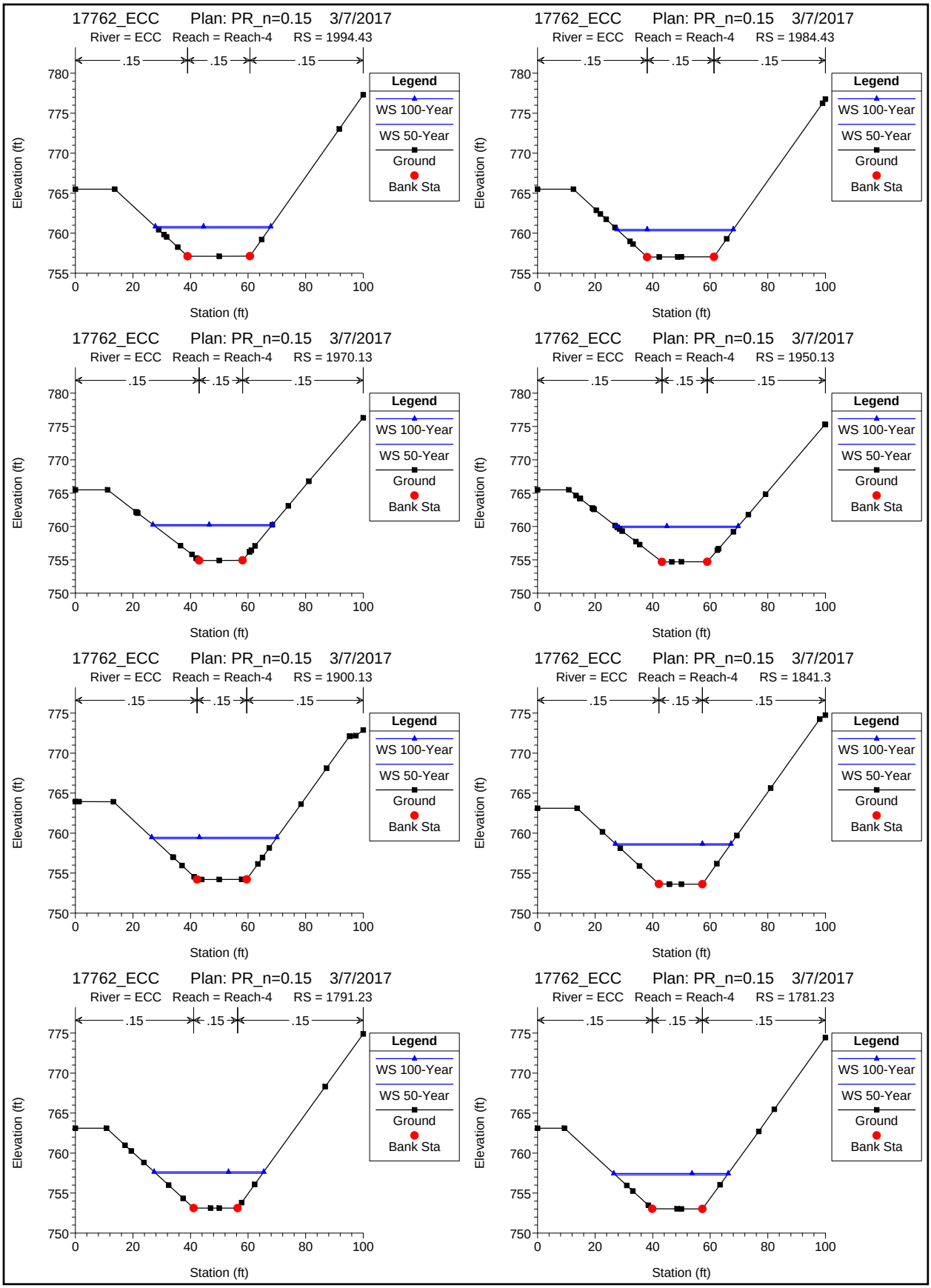
.15
.15
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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River = ECC Reach = Reach-4 RS = 1984.43
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1970.13
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1950.13
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1900.13
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1841.3
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1791.23
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1781.23
.15
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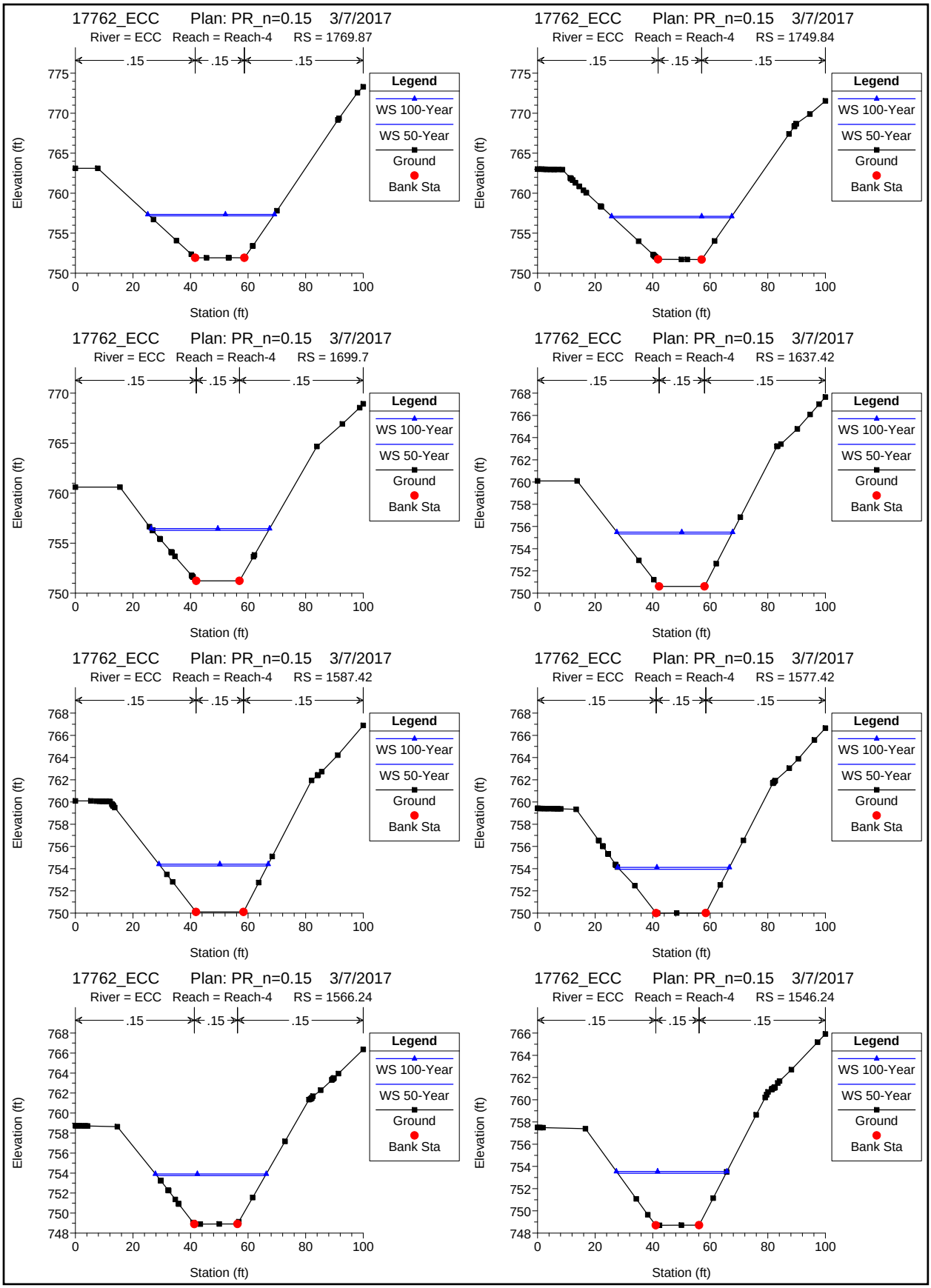
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = ECC Reach = Reach-4 RS = 1749.84
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1699.7
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1637.42
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1587.42
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1577.42
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1566.24
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1546.24
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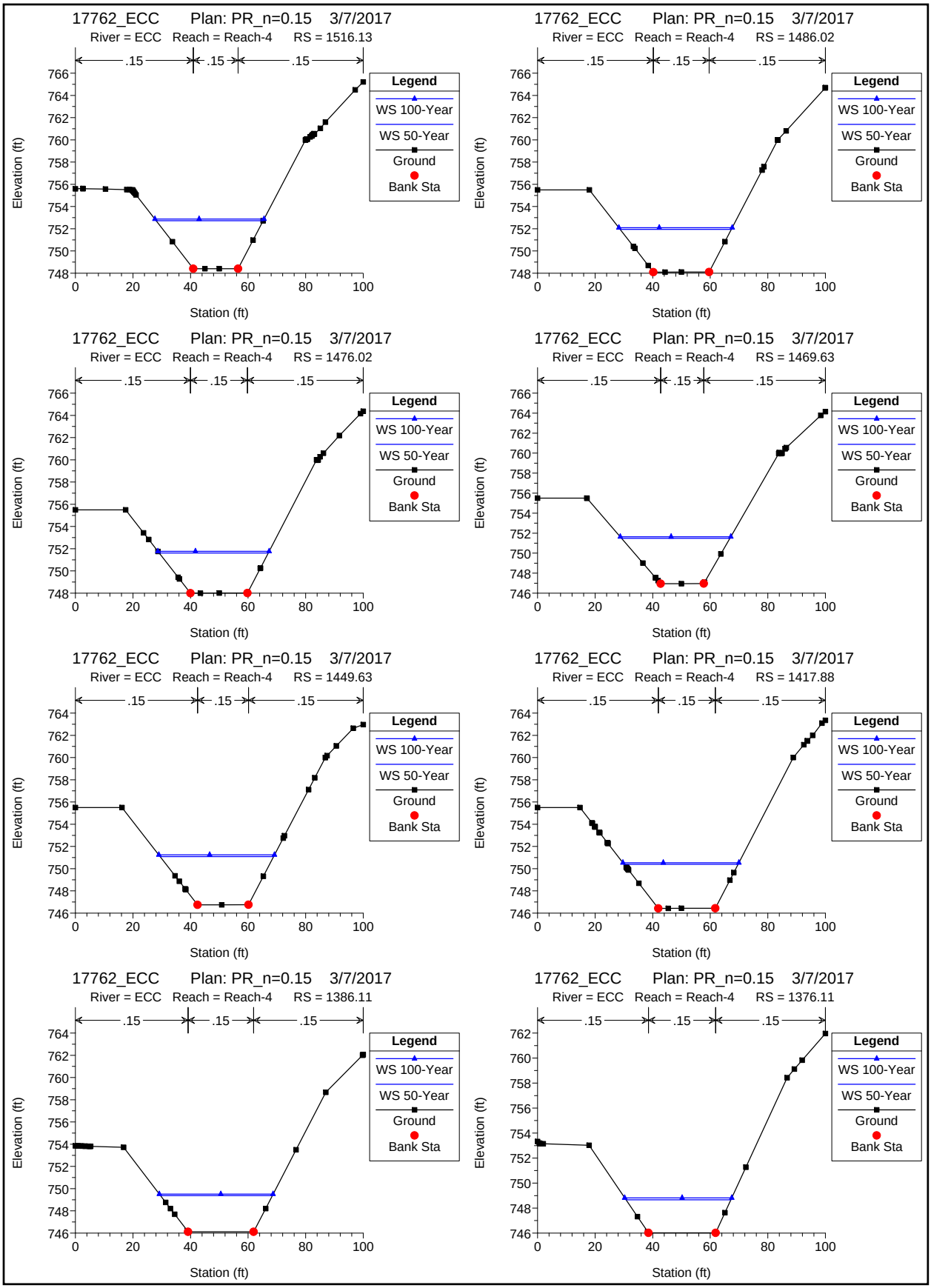
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)


17762_ECC Plan: PR_n=0.15 3/7/2017
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17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1476.02
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1469.63
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1449.63
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1417.88
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River = ECC Reach = Reach-4 RS = 1386.11
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1376.11
.15
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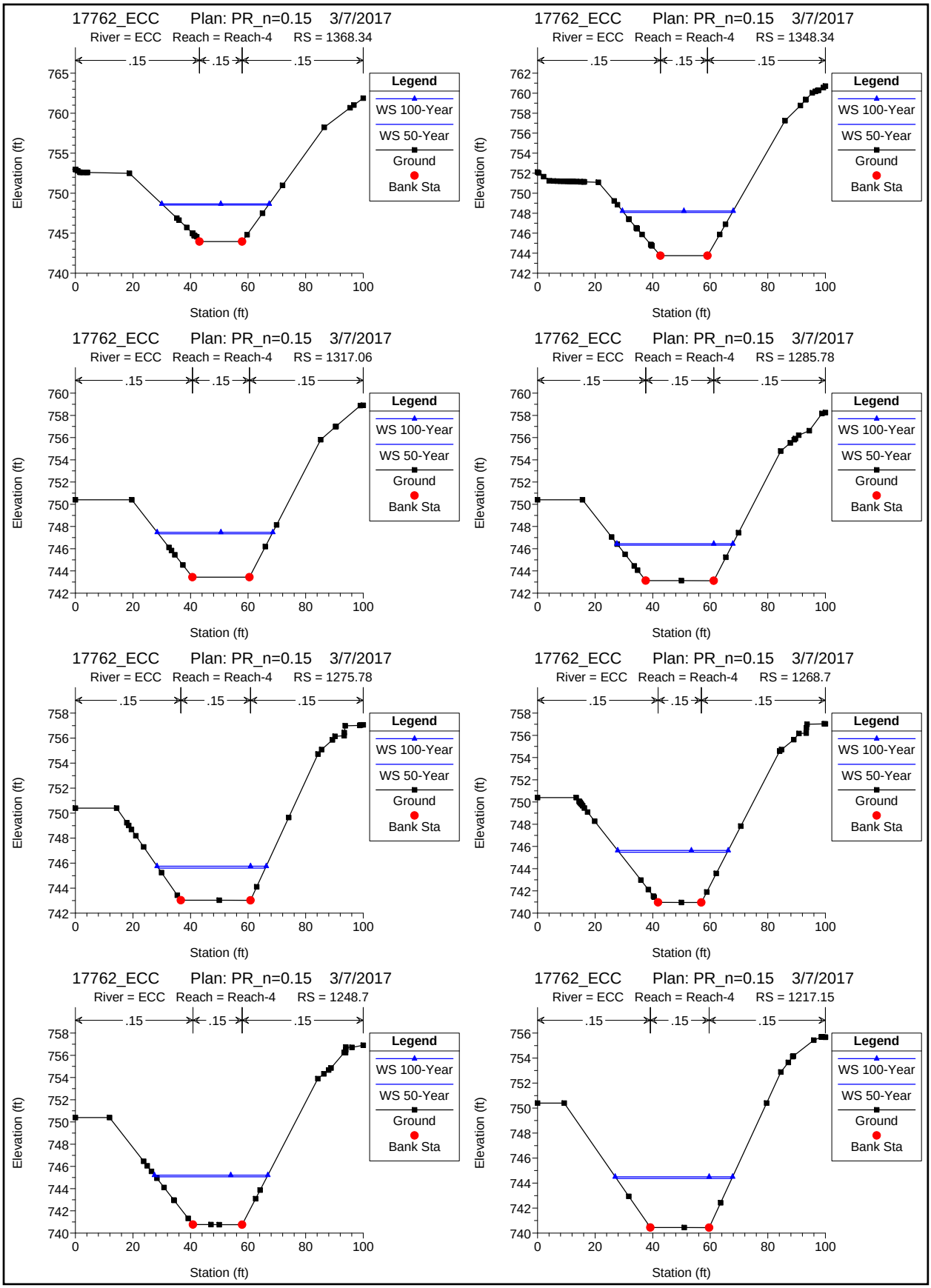
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)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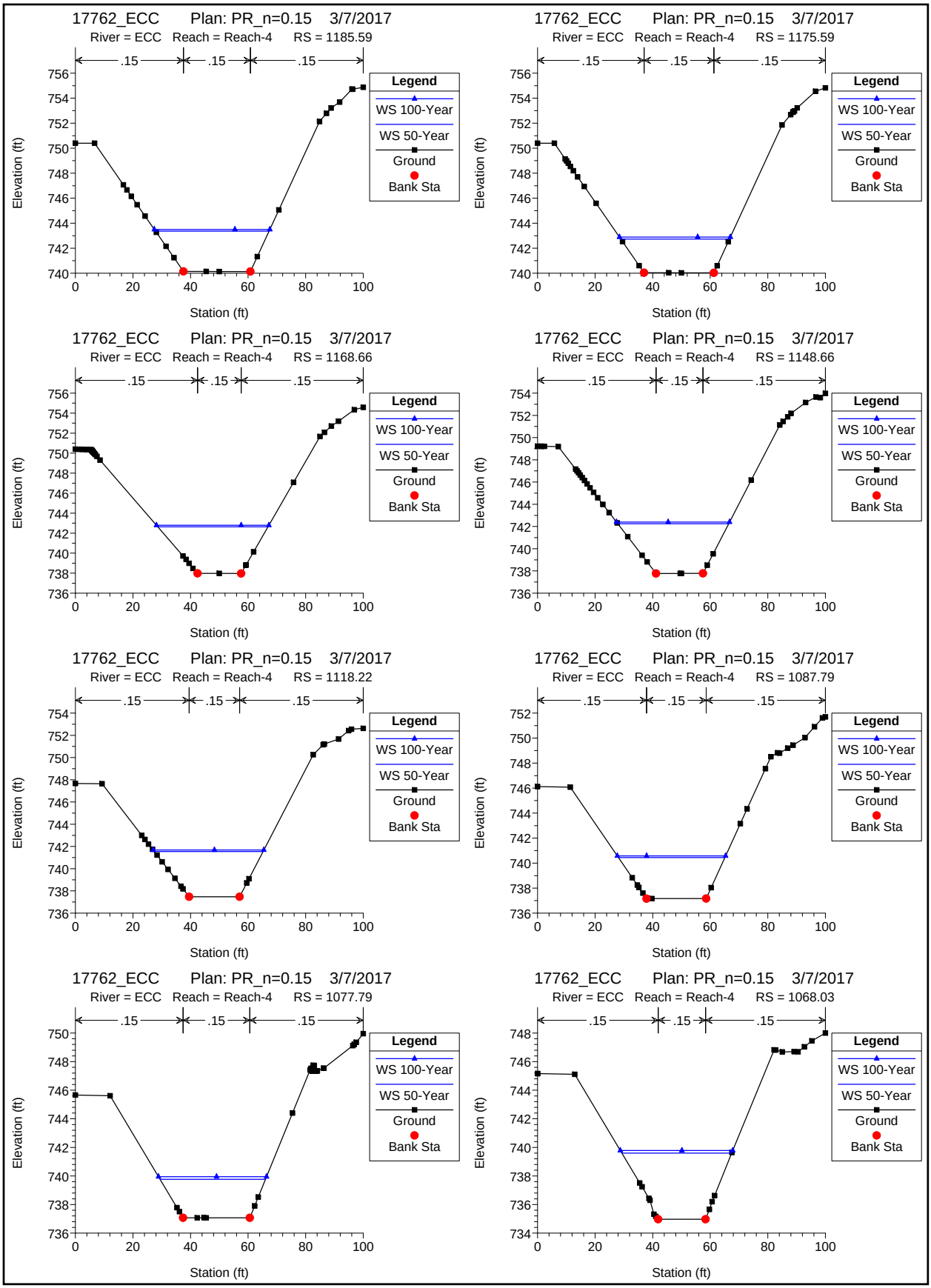
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1348.34
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1317.06
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1285.78
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1275.78
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1268.7
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1248.7
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1217.15
.15 .15 .15
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = ECC Reach = Reach-4 RS = 1175.59
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1168.66
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1148.66
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1118.22
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1087.79
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1077.79
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-4 RS = 1068.03
.15
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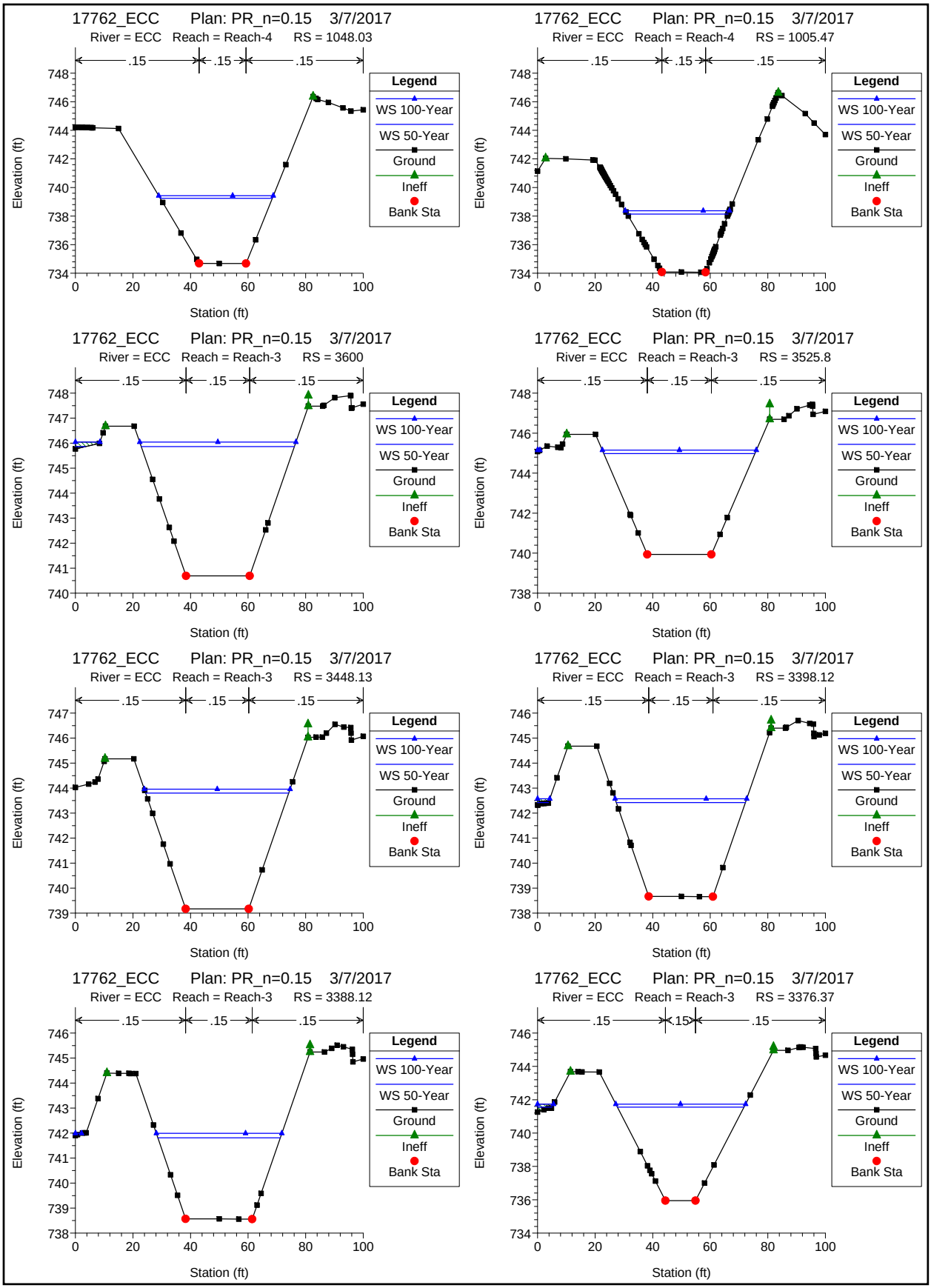
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = ECC Reach = Reach-3 RS = 3600
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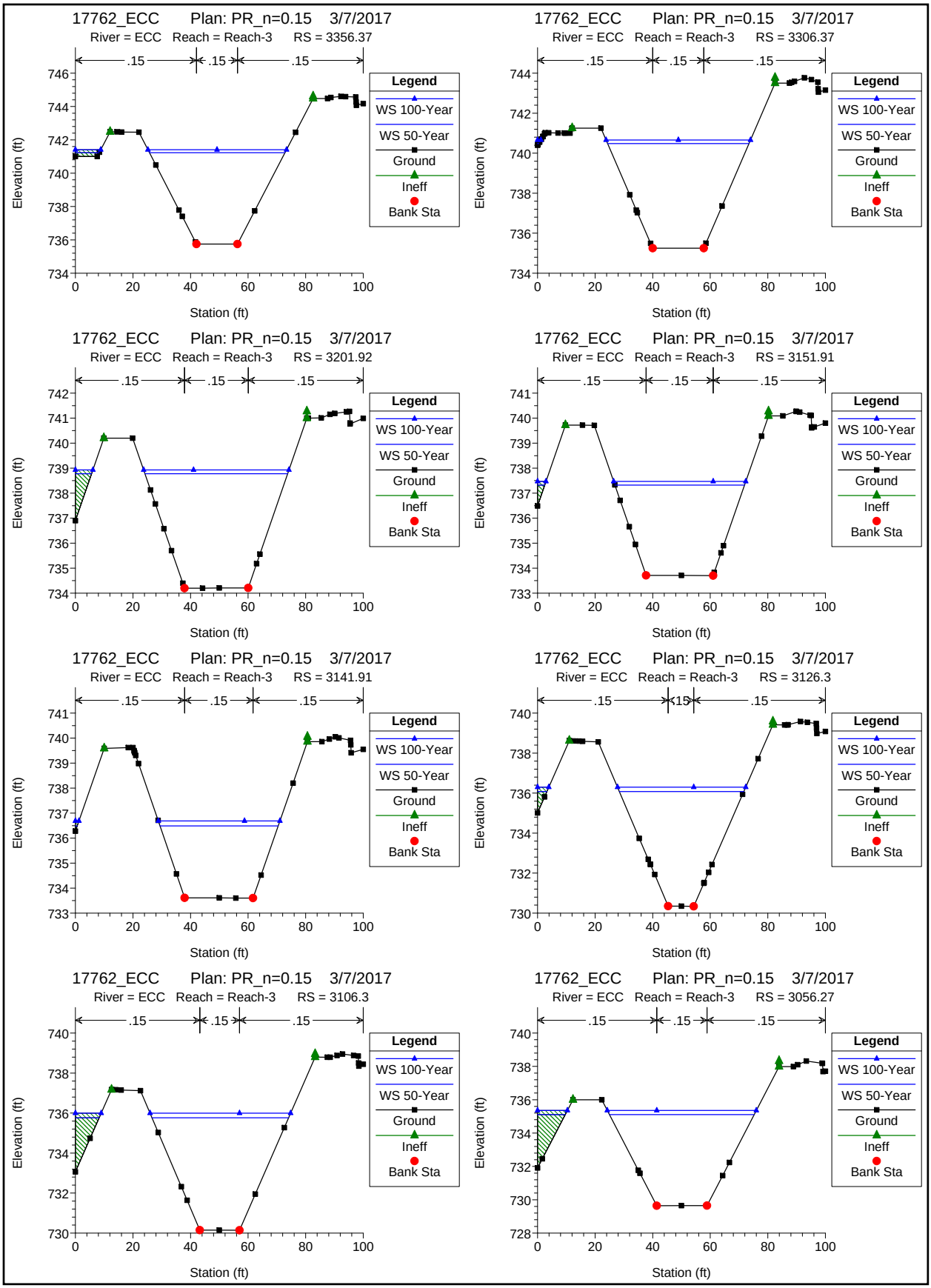
River = ECC Reach = Reach-3 RS = 3525.8
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 3448.13
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 3398.12
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 3388.12
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 3376.37
.15
.15
.15
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


17762_ECC Plan: PR_n=0.15 3/7/2017
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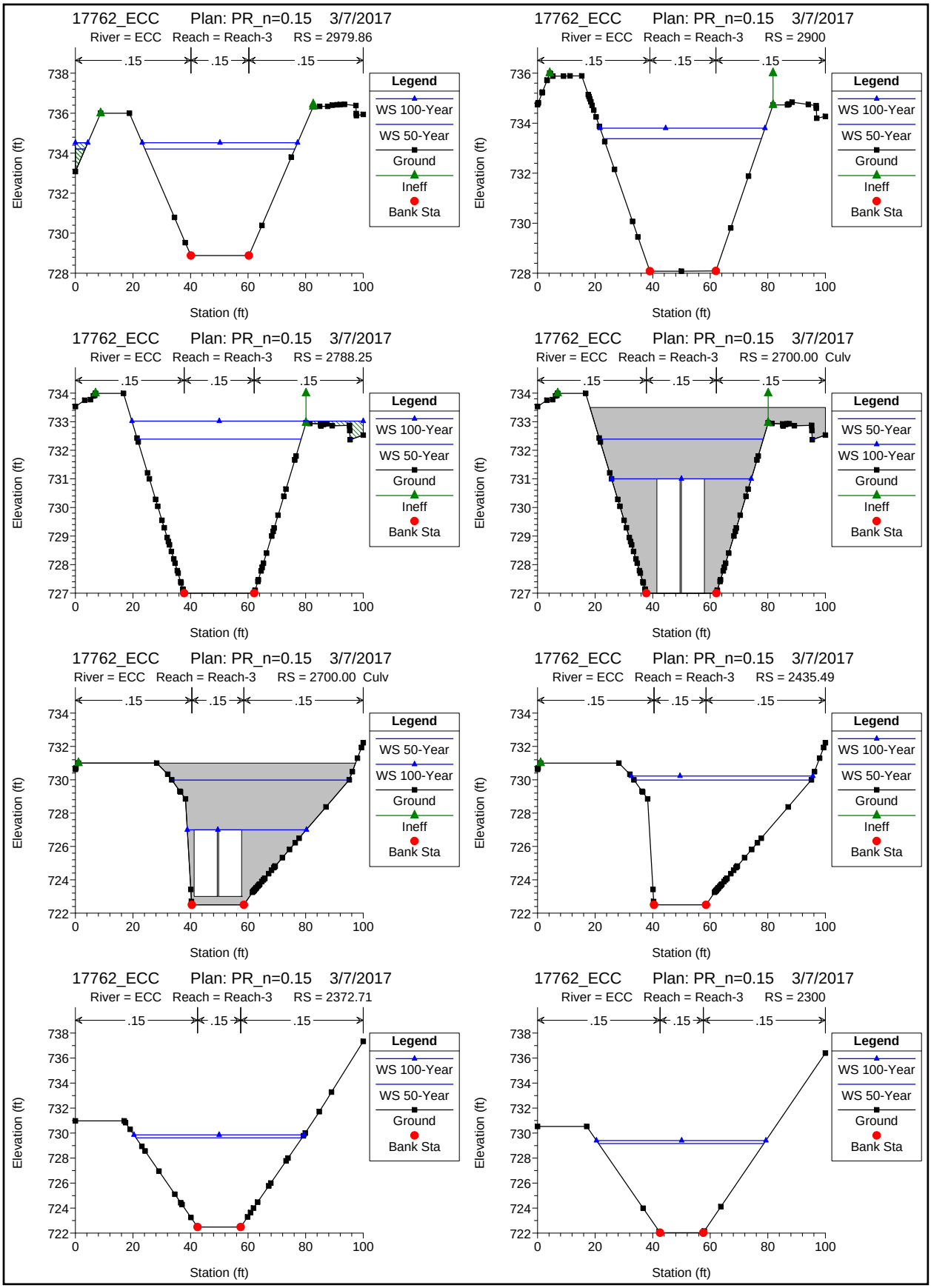
River = ECC Reach = Reach-3 RS = 3306.37
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 3201.92
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 3151.91
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 3141.91
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 3126.3
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 3106.3
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 3056.27
.15
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 2979.86
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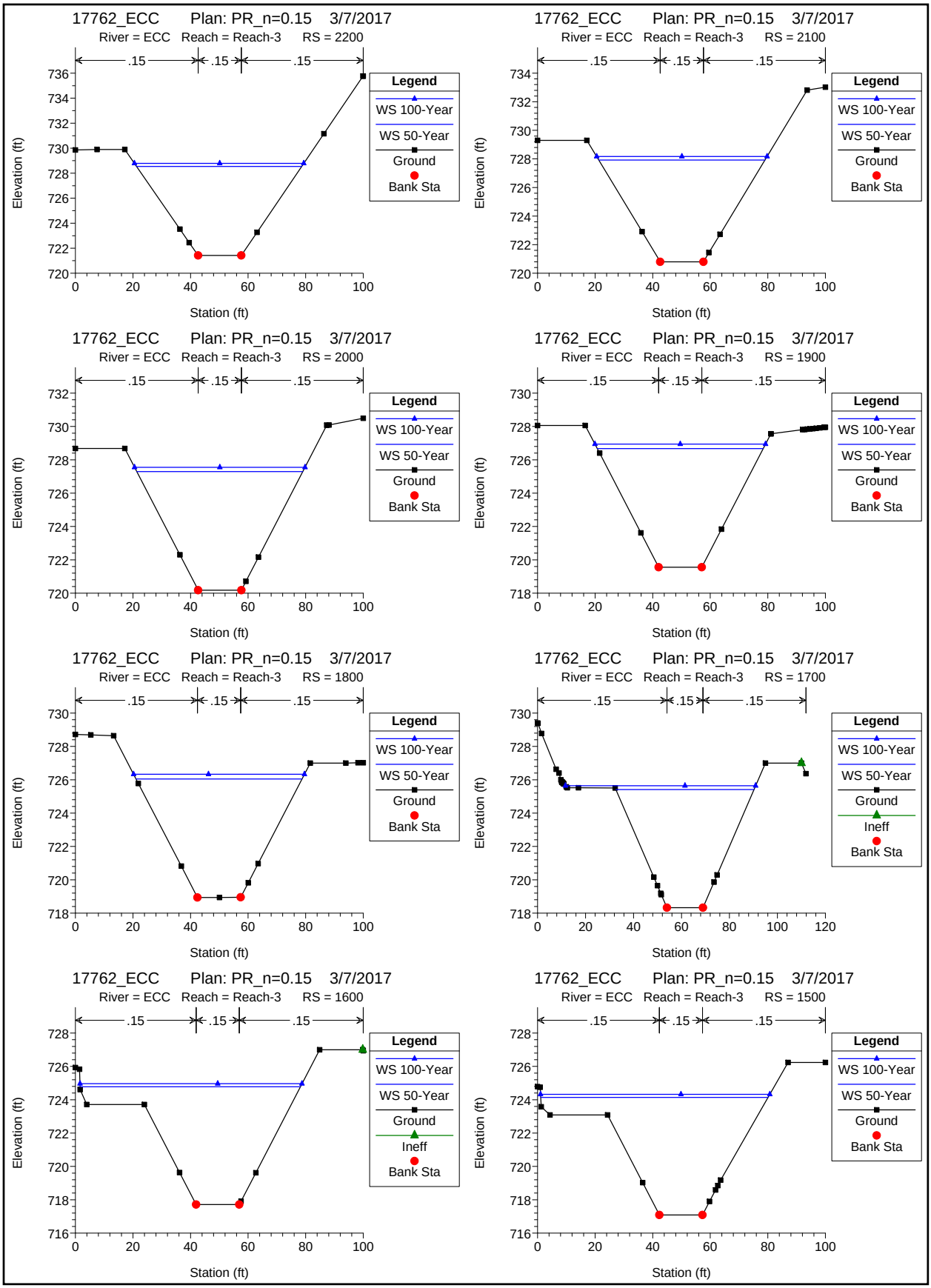
River = ECC Reach = Reach-3 RS = 2900
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 2788.25
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 2700.00 Culv
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 2700.00 Culv
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 2435.49
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 2372.71
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 2300
.15
.15
.15
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 2200
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 2100
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 2000
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 1900
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 1800
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River = ECC Reach = Reach-3 RS = 1700
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 1600
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 1500
.15
.15
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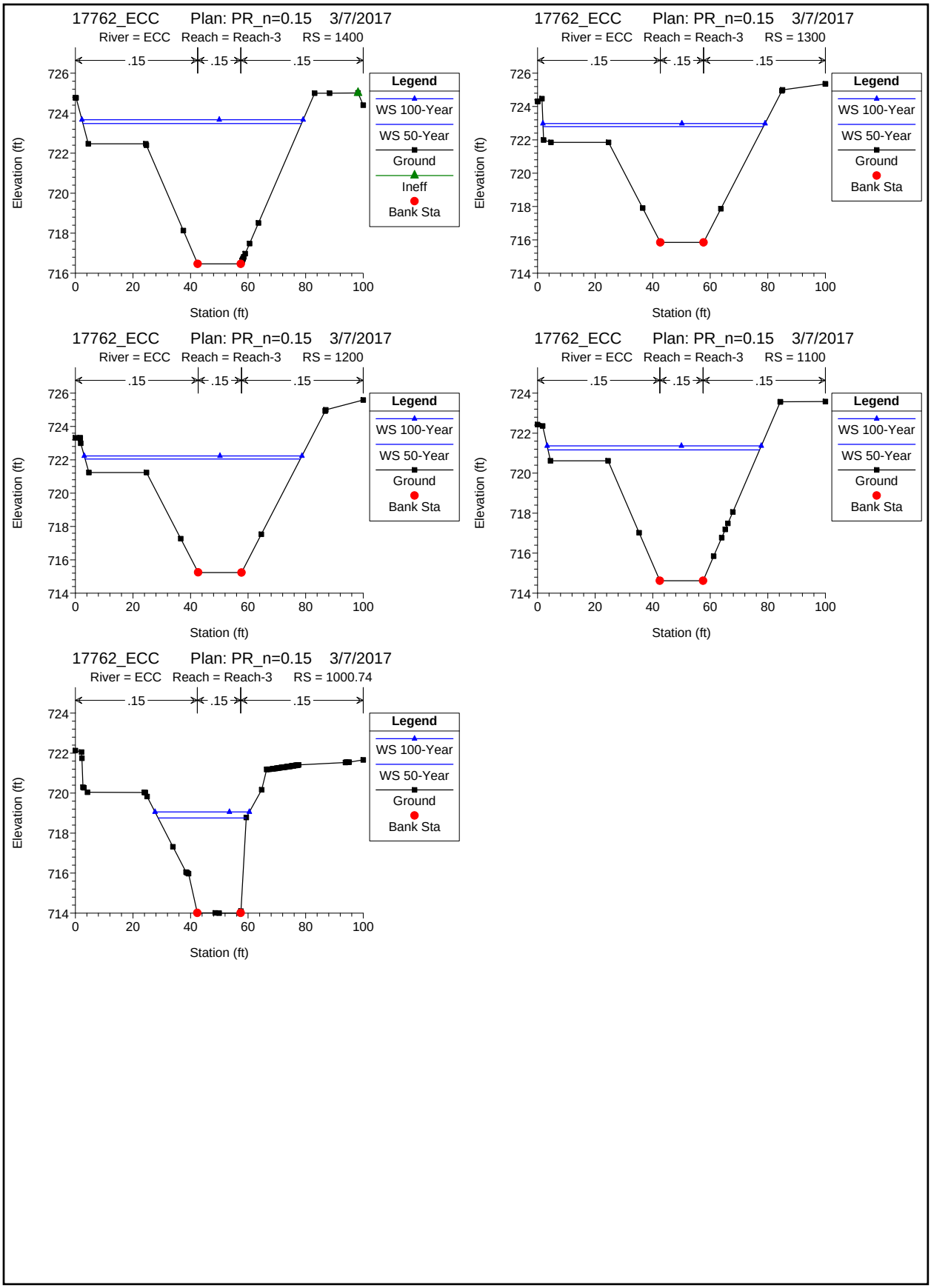
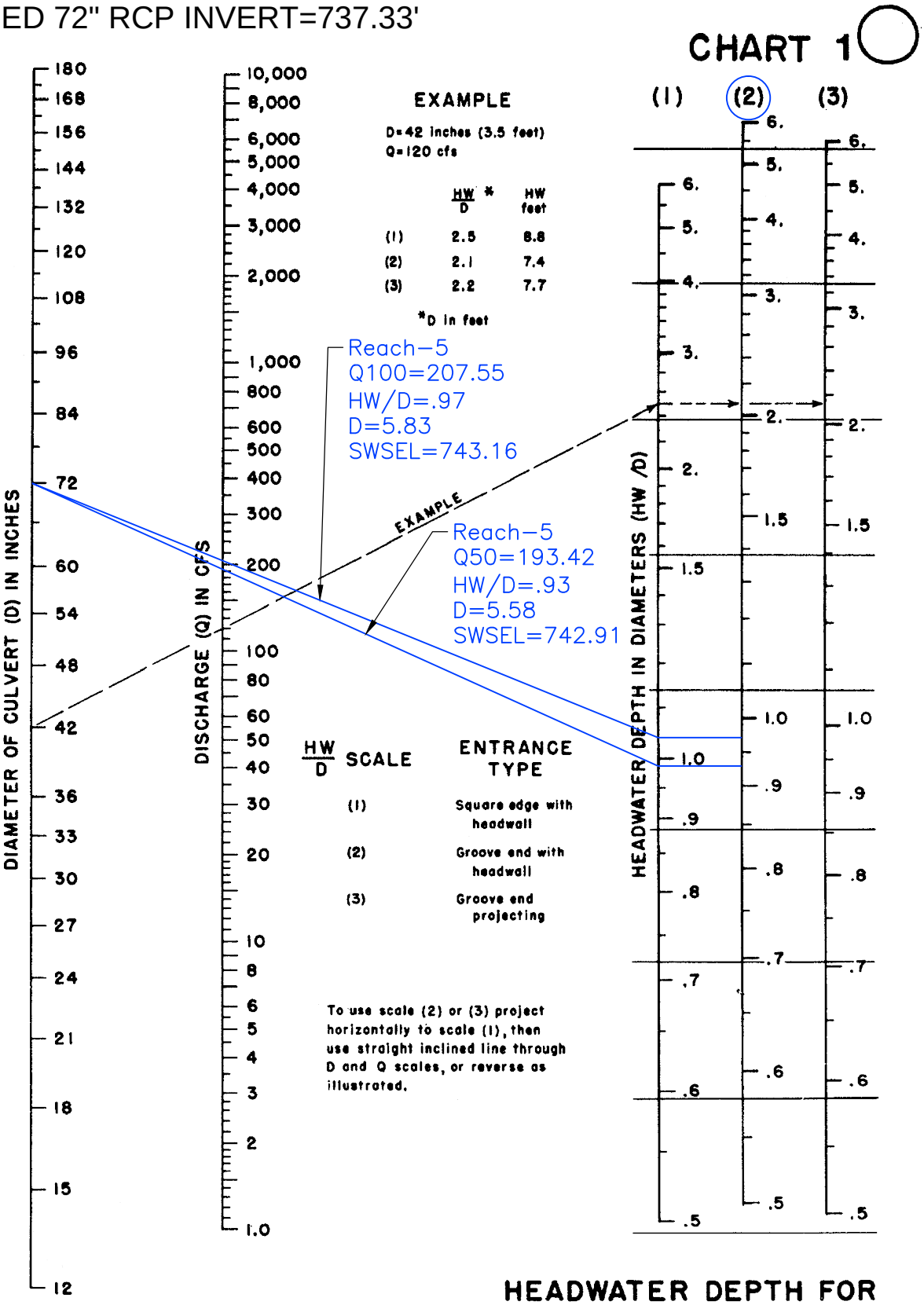
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)


17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 1400
.15 .15 .15
Legend
WS 100-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 1300
.15 .15 .15
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 1200
.15 .15 .15
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 1100
.15 .15 .15
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
17762_ECC Plan: PR_n=0.15 3/7/2017
River = ECC Reach = Reach-3 RS = 1000.74
.15 .15 .15
Legend
WS 100-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)

Appendix C2

HEC-RAS Analysis Backup

REACH-5 STARTING WATER SURFACE ELEVATION
PROPOSED 72" RCP INVERT=737.33'



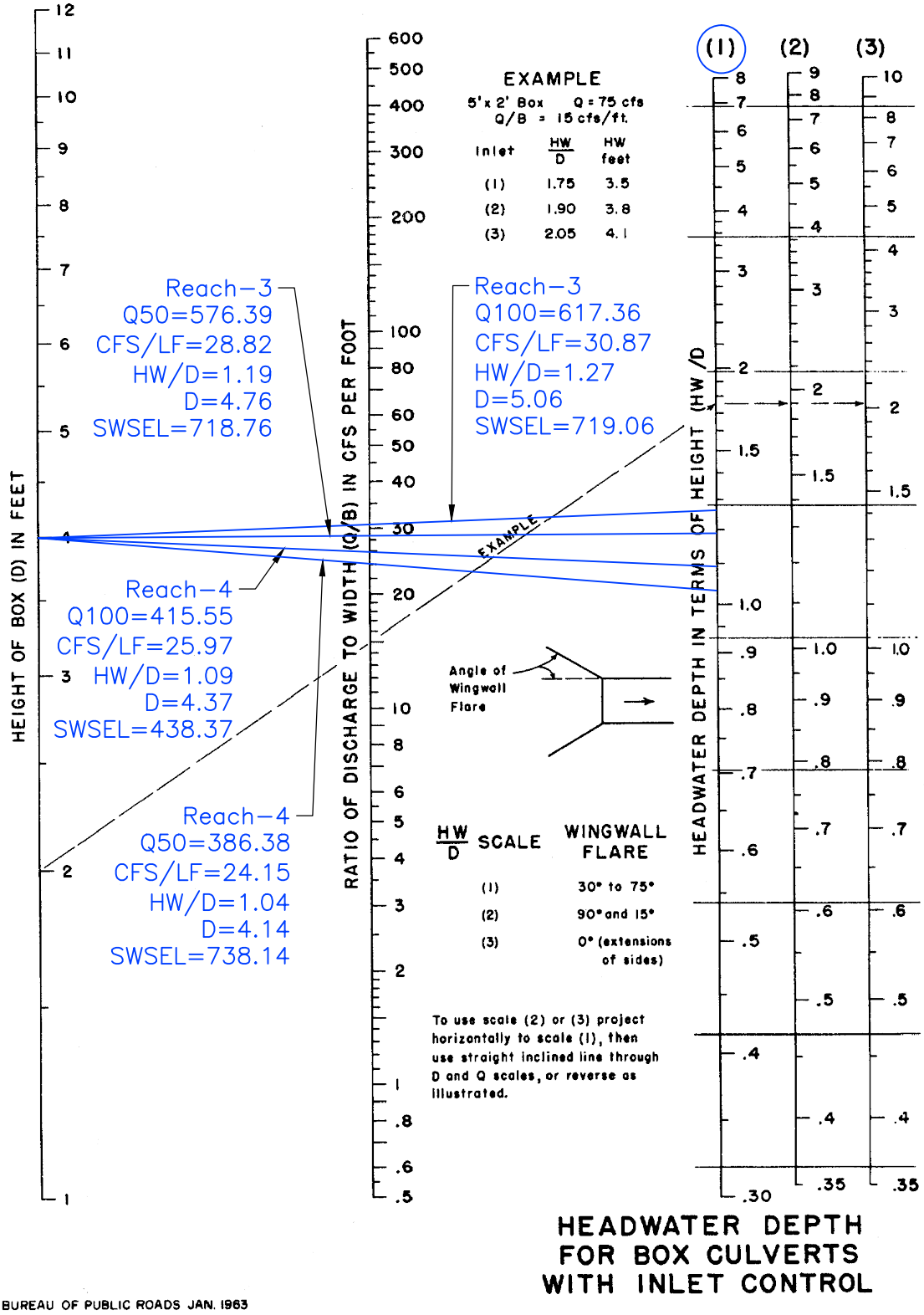
HEADWATER DEPTH FOR CONCRETE PIPE CULVERTS WITH INLET CONTROL

HEADWATER SCALES 2&3
REVISED MAY 1964

BUREAU OF PUBLIC ROADS JAN. 1963

REACH-3 AND -4 STARTING WATER SURFACE ELEVATION
REACH 3 - PROPOSED 2-10'Wx4'T OPENING RCB INVERT=714'
REACH 4 - PROPOSED 2-8'Wx4'T RCB INVERT=734'

CHART 8



HEADWATER DEPTH FOR BOX CULVERTS WITH INLET CONTROL

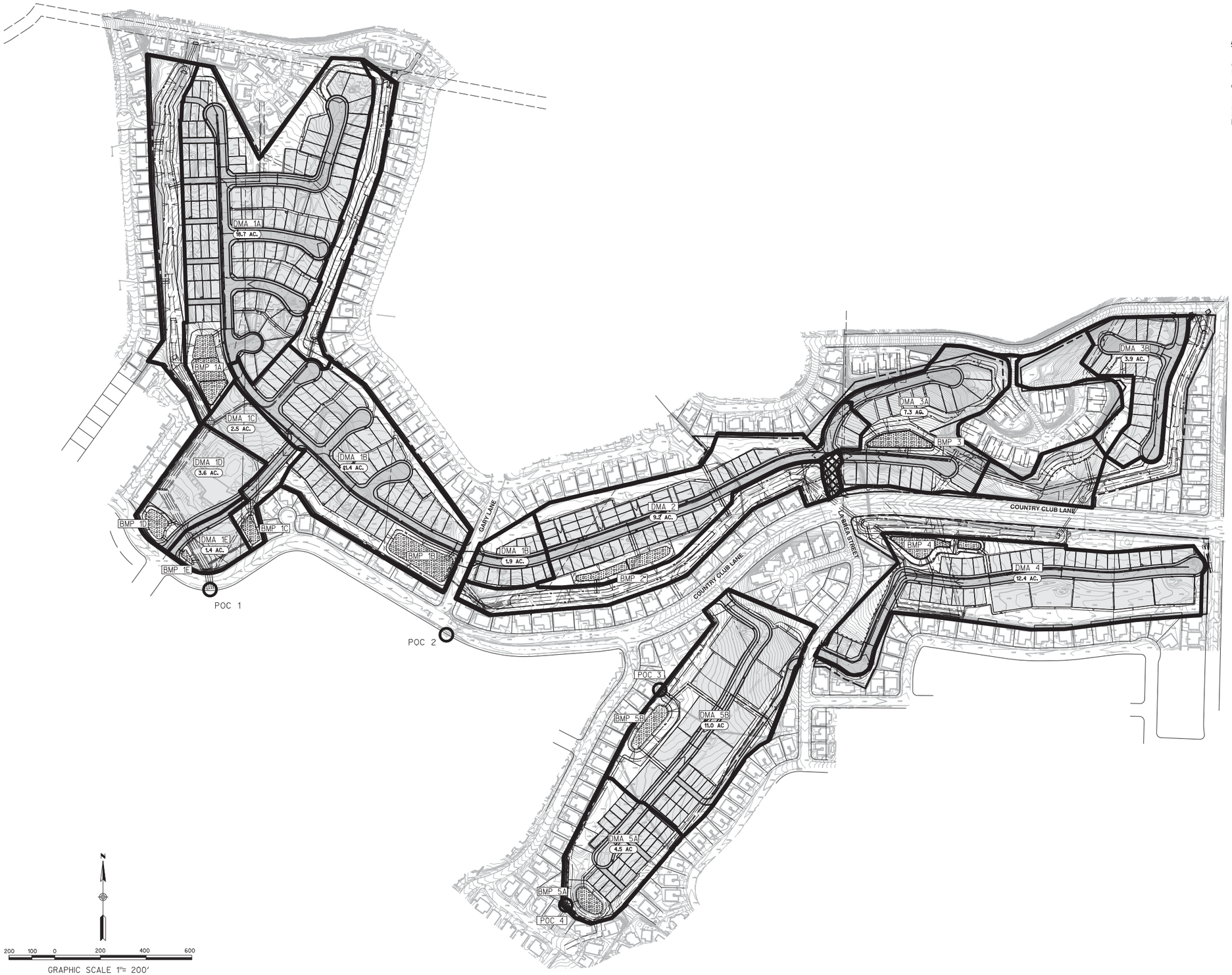
BUREAU OF PUBLIC ROADS JAN. 1963

Appendix D

Detention Analysis

NOTES:

1. PER THE PROJECT'S GEOTECHINCAL REPORT, THE DEPTH TO GROUNDWATER VARIED FROM A DEPTH OF 4.5 FEET TO 24 FEET.
2. INFILTRATION BMPS ARE NOT BEING RECOMMENDED BASED ON RECOMMENDATIONS FROM THE GEOTECHNICAL ENGINEER (I.E., DUE TO POOR PERCOLATION CHARACTERISTICS)
3. THE IDENTIFIED "SITE CONSTRAINT" AREA CANNOT FEASIBLY BE TREATED WITHIN PROPOSED BIOFILTRATION BMPS; THEREFORE, MODULAR WETLAND SYSTEMS ARE BEING PROPOSED TO PROVIDE STORMWATER TREATMENT.



LEGEND:

- DMA BOUNDARY
- DMA 1 — DMA ID
- 12.4 AC. — DMA AREA
- BMP 1 — BMP ID
- BIOFILTRATION BMP
- POINT OF COMPLIANCE (POC)
- SITE CONSTRAINT

200 100 0 200 400 600

GRAPHIC SCALE 1"= 200'

PDP SWQMP & HMP EXHIBIT FOR ESCONDIDO COUNTRY CLUB

J-7762-A Date: March 7, 2017

RICK ENGINEERING COMPANY
San Diego
5620 FRIARS ROAD
SAN DIEGO, CA 92110
619-291-0707
(FAX) 619-291-4165
rickengineering.com
Riverside · Orange · Sacramento · San Luis Obispo · Phoenix · Tucson · Denver

J-17762-A

NOT FOR CONSTRUCTION - EXHIBIT FOR PDP SWQMP ONLY

```
KK ECC-BMP1A.OUT
KM RATIONAL METHOD HYDROGRAPH PROGRAM
KM COPYRIGHT 1992, RICK ENGINEERING COMPANY
KM 6HR RAINFALL IS  3.49  INCHES
KM RATIONAL METHOD RUNOFF COEFFICIENT IS  .65
KM RATIONAL METHOD TIME OF CONCENTRATION IS  11  MIN.
KM FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO YOUR HEC-1
KM IT 2 01JAN90 1200 200
BA .0322
IN 11 01JAN90  1148
QI 0  0  2.8  2.9  3  3.2  3.3  3.5  3.7  4
QI 4.3  4.7  5.2  5.8  6.6  7.9  10  14.7  47.5  47.2
QI 11.8  8.8  7.2  6.2  5.4  4.9  4.5  4.1  3.9  3.6
QI 3.4  3.3  3.1  3  2.8  0  0  0  0  0
QI 0  0  0  0  0
```

```
*FREE
*DIAGRAM
ID ESCONDIDO COUNTRY CLUB, J-17762-A BMP 1A
ID 100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
ID March 3, 2017 - FILE NAME: ECC_BMP1A.HC1
IT 2 01JAN90 1200 500
IO 5 0
*
KK ECC-BMP1A.OUT
KM RATIONAL METHOD HYDROGRAPH PROGRAM
KM COPYRIGHT 1992, RICK ENGINEERING COMPANY
KM 6HR RAINFALL IS  3.49  INCHES
KM RATIONAL METHOD RUNOFF COEFFICIENT IS  .65
KM RATIONAL METHOD TIME OF CONCENTRATION IS  11  MIN.
KM FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO
YOUR HEC-1
KM IT 2 01JAN90 1200 200
BA .0322
IN 11 01JAN90  1148
QI 0  0  2.8  2.9  3  3.2  3.3  3.5  3.7  4
QI 4.3  4.7  5.2  5.8  6.6  7.9  10  14.7  47.5  47.2
QI 11.8  8.8  7.2  6.2  5.4  4.9  4.5  4.1  3.9  3.6
QI 3.4  3.3  3.1  3  2.8  0  0  0  0  0
QI 0  0  0  0  0
*
KK DET1
KM DETAIN BASIN 1A
KO 2 2 0 0 21
RS 1 STOR -1
SV 0 .45 1.1 2.1
SQ 0 .15 8.8 17.1
SE 100 101 102 103
*
KO 2 2 0 0 21
ZZ
```

```
1****************************************
****************************************
 *                                      *                                                    *
*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS
*
 *               JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING CENTER
*
 *            VERSION 4.1               *                                                    *          609 SECOND STREET
*
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616
*
 *  RUN DATE   06MAR17  TIME  12:21:53  *                                                    *           (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
```

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

 *** FREE ***
                        *DIAGRAM
             1          ID   ESCONDIDO COUNTRY CLUB, J-17762-A BMP 1A
             2          ID   100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
             3          ID   March 3, 2017 - FILE NAME: ECC_BMP1A.HC1
             4          IT       2 01JAN90    1200     500
             5          IO       5       0
                        *

             6          KKECC-BMP1A.OUT
             7          KM   RATIONAL METHOD HYDROGRAPH PROGRAM
             8          KM   COPYRIGHT 1992, RICK ENGINEERING COMPANY
             9          KM   6HR RAINFALL IS  3.49  INCHES
            10          KM   RATIONAL METHOD RUNOFF COEFFICIENT IS  .65
            11          KM   RATIONAL METHOD TIME OF CONCENTRATION IS  11  MIN.
            12          KM   FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO YOUR HEC-1
            13          KM   IT 2 01JAN90 1200 200
            14          BA   .0322
            15          IN      11 01JAN90    1148
            16          QI       0       0     2.8     2.9       3     3.2     3.3     3.5     3.7       4
            17          QI     4.3     4.7     5.2     5.8     6.6     7.9      10    14.7    47.5    47.2
            18          QI    11.8     8.8     7.2     6.2     5.4     4.9     4.5     4.1     3.9     3.6
            19          QI     3.4     3.3     3.1       3     2.8       0       0       0       0       0
            20          QI       0       0       0       0       0
                        *

            21          KK    DET1
            22          KM   DETAIN BASIN 1A
            23          KO       2       2       0       0      21
            24          RS       1    STOR      -1
            25          SV       0     .45     1.1     2.1
            26          SQ       0     .15     8.8    17.1
            27          SE     100     101     102     103
                        *
            28          KO       2       2       0       0      21
            29          ZZ
```

1 SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

     6    ECC-BMP1
               V
               V
    21        DET1
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
****************************************
 *                                      *                                                    *
```

```
*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                                   *    U.S. ARMY CORPS OF ENGINEERS
*
 *               JUN   1998              *                                                   *    HYDROLOGIC ENGINEERING CENTER
*
 *            VERSION 4.1                *                                                   *          609 SECOND STREET
*
 *                                       *                                                   *       DAVIS, CALIFORNIA 95616
*
 *  RUN DATE   06MAR17  TIME  12:21:53   *                                                   *           (916) 756-1104
*
 *                                       *                                                   *
*
 *****************************************
***************************************



                            ESCONDIDO COUNTRY CLUB, J-17762-A BMP 1A
                            100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
                            March 3, 2017 - FILE NAME: ECC_BMP1A.HC1

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

      IT          HYDROGRAPH TIME DATA
                         NMIN           2  MINUTES IN COMPUTATION INTERVAL
                        IDATE      1JAN90  STARTING DATE
                        ITIME        1200  STARTING TIME
                           NQ         500  NUMBER OF HYDROGRAPH ORDINATES
                       NDDATE      2JAN90  ENDING DATE
                       NDTIME        0438  ENDING TIME
                       ICENT           19  CENTURY MARK

                    COMPUTATION INTERVAL     .03 HOURS
                         TOTAL TIME BASE   16.63 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


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


             **************
             *            *
   21 KK     *      DET1  *
             *            *
             **************

   23 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           2  PRINT CONTROL
                        IPLOT           2  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                         IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2         500  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT        .033  TIME INTERVAL IN HOURS


   28 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           2  PRINT CONTROL
                        IPLOT           2  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                         IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2         500  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT        .033  TIME INTERVAL IN HOURS


                HYDROGRAPH ROUTING DATA

   24 RS          STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        STOR  TYPE OF INITIAL CONDITION
                       RSVRIC       -1.00  INITIAL CONDITION
                            X         .00 WORKING R AND D COEFFICIENT

   25 SV            STORAGE          .0        .4       1.1       2.1

   26 SQ          DISCHARGE          0.        0.        9.       17.

   27 SE          ELEVATION      100.00    101.00    102.00    103.00
                                                                 ***
```

HYDROGRAPH AT STATION DET1

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	JAN	1200	1	0.	.5	101.0	1	JAN	1734	168	7.	.9	101.8	1	JAN	2308	335	0.	.4	101.0
1	JAN	1202	2	0.	.5	101.0	1	JAN	1736	169	7.	.9	101.8	1	JAN	2310	336	0.	.4	101.0
1	JAN	1204	3	0.	.5	101.0	1	JAN	1738	170	7.	.9	101.7	1	JAN	2312	337	0.	.4	100.9
1	JAN	1206	4	0.	.5	101.0	1	JAN	1740	171	6.	.9	101.7	1	JAN	2314	338	0.	.4	100.9
1	JAN	1208	5	0.	.5	101.0	1	JAN	1742	172	6.	.9	101.7	1	JAN	2316	339	0.	.4	100.9
1	JAN	1210	6	0.	.5	101.0	1	JAN	1744	173	6.	.9	101.7	1	JAN	2318	340	0.	.4	100.9
1	JAN	1212	7	1.	.5	101.0	1	JAN	1746	174	6.	.9	101.7	1	JAN	2320	341	0.	.4	100.9
1	JAN	1214	8	1.	.5	101.1	1	JAN	1748	175	6.	.9	101.7	1	JAN	2322	342	0.	.4	100.9
1	JAN	1216	9	1.	.5	101.1	1	JAN	1750	176	6.	.9	101.7	1	JAN	2324	343	0.	.4	100.9
1	JAN	1218	10	1.	.5	101.1	1	JAN	1752	177	6.	.9	101.6	1	JAN	2326	344	0.	.4	100.9
1	JAN	1220	11	1.	.5	101.1	1	JAN	1754	178	6.	.9	101.6	1	JAN	2328	345	0.	.4	100.9
1	JAN	1222	12	1.	.5	101.1	1	JAN	1756	179	6.	.9	101.6	1	JAN	2330	346	0.	.4	100.9
1	JAN	1224	13	1.	.5	101.1	1	JAN	1758	180	5.	.8	101.6	1	JAN	2332	347	0.	.4	100.9
1	JAN	1226	14	1.	.5	101.1	1	JAN	1800	181	5.	.8	101.6	1	JAN	2334	348	0.	.4	100.9
1	JAN	1228	15	1.	.5	101.1	1	JAN	1802	182	5.	.8	101.6	1	JAN	2336	349	0.	.4	100.9
1	JAN	1230	16	1.	.5	101.1	1	JAN	1804	183	5.	.8	101.6	1	JAN	2338	350	0.	.4	100.9
1	JAN	1232	17	1.	.5	101.1	1	JAN	1806	184	5.	.8	101.6	1	JAN	2340	351	0.	.4	100.9
1	JAN	1234	18	1.	.5	101.1	1	JAN	1808	185	5.	.8	101.6	1	JAN	2342	352	0.	.4	100.9
1	JAN	1236	19	1.	.5	101.1	1	JAN	1810	186	5.	.8	101.5	1	JAN	2344	353	0.	.4	100.9
1	JAN	1238	20	1.	.5	101.2	1	JAN	1812	187	5.	.8	101.5	1	JAN	2346	354	0.	.4	100.9
1	JAN	1240	21	2.	.6	101.2	1	JAN	1814	188	4.	.8	101.5	1	JAN	2348	355	0.	.4	100.9
1	JAN	1242	22	2.	.6	101.2	1	JAN	1816	189	4.	.8	101.5	1	JAN	2350	356	0.	.4	100.9
1	JAN	1244	23	2.	.6	101.2	1	JAN	1818	190	4.	.8	101.5	1	JAN	2352	357	0.	.4	100.9
1	JAN	1246	24	2.	.6	101.2	1	JAN	1820	191	4.	.7	101.4	1	JAN	2354	358	0.	.4	100.9
1	JAN	1248	25	2.	.6	101.2	1	JAN	1822	192	4.	.7	101.4	1	JAN	2356	359	0.	.4	100.9
1	JAN	1250	26	2.	.6	101.2	1	JAN	1824	193	4.	.7	101.4	1	JAN	2358	360	0.	.4	100.9
1	JAN	1252	27	2.	.6	101.2	1	JAN	1826	194	4.	.7	101.4	2	JAN	0000	361	0.	.4	100.9
1	JAN	1254	28	2.	.6	101.2	1	JAN	1828	195	3.	.7	101.4	2	JAN	0002	362	0.	.4	100.9
1	JAN	1256	29	2.	.6	101.2	1	JAN	1830	196	3.	.7	101.4	2	JAN	0004	363	0.	.4	100.9
1	JAN	1258	30	2.	.6	101.2	1	JAN	1832	197	3.	.7	101.4	2	JAN	0006	364	0.	.4	100.9
1	JAN	1300	31	2.	.6	101.2	1	JAN	1834	198	3.	.7	101.3	2	JAN	0008	365	0.	.4	100.9
1	JAN	1302	32	2.	.6	101.2	1	JAN	1836	199	3.	.7	101.3	2	JAN	0010	366	0.	.4	100.9
1	JAN	1304	33	2.	.6	101.2	1	JAN	1838	200	3.	.7	101.3	2	JAN	0012	367	0.	.4	100.9
1	JAN	1306	34	2.	.6	101.2	1	JAN	1840	201	3.	.6	101.3	2	JAN	0014	368	0.	.4	100.9
1	JAN	1308	35	2.	.6	101.2	1	JAN	1842	202	3.	.6	101.3	2	JAN	0016	369	0.	.4	100.9
1	JAN	1310	36	2.	.6	101.2	1	JAN	1844	203	3.	.6	101.3	2	JAN	0018	370	0.	.4	100.9
1	JAN	1312	37	2.	.6	101.3	1	JAN	1846	204	2.	.6	101.3	2	JAN	0020	371	0.	.4	100.9
1	JAN	1314	38	2.	.6	101.3	1	JAN	1848	205	2.	.6	101.3	2	JAN	0022	372	0.	.4	100.9
1	JAN	1316	39	2.	.6	101.3	1	JAN	1850	206	2.	.6	101.2	2	JAN	0024	373	0.	.4	100.9
1	JAN	1318	40	2.	.6	101.3	1	JAN	1852	207	2.	.6	101.2	2	JAN	0026	374	0.	.4	100.9
1	JAN	1320	41	3.	.6	101.3	1	JAN	1854	208	2.	.6	101.2	2	JAN	0028	375	0.	.4	100.9
1	JAN	1322	42	3.	.6	101.3	1	JAN	1856	209	2.	.6	101.2	2	JAN	0030	376	0.	.4	100.9
1	JAN	1324	43	3.	.6	101.3	1	JAN	1858	210	2.	.6	101.2	2	JAN	0032	377	0.	.4	100.9
1	JAN	1326	44	3.	.6	101.3	1	JAN	1900	211	2.	.6	101.2	2	JAN	0034	378	0.	.4	100.9
1	JAN	1328	45	3.	.6	101.3	1	JAN	1902	212	2.	.6	101.2	2	JAN	0036	379	0.	.4	100.9
1	JAN	1330	46	3.	.6	101.3	1	JAN	1904	213	2.	.6	101.2	2	JAN	0038	380	0.	.4	100.9
1	JAN	1332	47	3.	.7	101.3	1	JAN	1906	214	2.	.6	101.2	2	JAN	0040	381	0.	.4	100.9
1	JAN	1334	48	3.	.7	101.3	1	JAN	1908	215	2.	.6	101.2	2	JAN	0042	382	0.	.4	100.9
1	JAN	1336	49	3.	.7	101.3	1	JAN	1910	216	2.	.6	101.2	2	JAN	0044	383	0.	.4	100.9
1	JAN	1338	50	3.	.7	101.3	1	JAN	1912	217	2.	.6	101.2	2	JAN	0046	384	0.	.4	100.9
1	JAN	1340	51	3.	.7	101.3	1	JAN	1914	218	1.	.6	101.2	2	JAN	0048	385	0.	.4	100.9
1	JAN	1342	52	3.	.7	101.3	1	JAN	1916	219	1.	.5	101.1	2	JAN	0050	386	0.	.4	100.9
1	JAN	1344	53	3.	.7	101.3	1	JAN	1918	220	1.	.5	101.1	2	JAN	0052	387	0.	.4	100.9
1	JAN	1346	54	3.	.7	101.3	1	JAN	1920	221	1.	.5	101.1	2	JAN	0054	388	0.	.4	100.9
1	JAN	1348	55	3.	.7	101.4	1	JAN	1922	222	1.	.5	101.1	2	JAN	0056	389	0.	.4	100.9
1	JAN	1350	56	3.	.7	101.4	1	JAN	1924	223	1.	.5	101.1	2	JAN	0058	390	0.	.4	100.9
1	JAN	1352	57	3.	.7	101.4	1	JAN	1926	224	1.	.5	101.1	2	JAN	0100	391	0.	.4	100.9
1	JAN	1354	58	3.	.7	101.4	1	JAN	1928	225	1.	.5	101.1	2	JAN	0102	392	0.	.4	100.9
1	JAN	1356	59	3.	.7	101.4	1	JAN	1930	226	1.	.5	101.1	2	JAN	0104	393	0.	.4	100.9
1	JAN	1358	60	4.	.7	101.4	1	JAN	1932	227	1.	.5	101.1	2	JAN	0106	394	0.	.4	100.9
1	JAN	1400	61	4.	.7	101.4	1	JAN	1934	228	1.	.5	101.1	2	JAN	0108	395	0.	.4	100.9
1	JAN	1402	62	4.	.7	101.4	1	JAN	1936	229	1.	.5	101.1	2	JAN	0110	396	0.	.4	100.9
1	JAN	1404	63	4.	.7	101.4	1	JAN	1938	230	1.	.5	101.1	2	JAN	0112	397	0.	.4	100.9
1	JAN	1406	64	4.	.7	101.4	1	JAN	1940	231	1.	.5	101.1	2	JAN	0114	398	0.	.4	100.9
1	JAN	1408	65	4.	.7	101.4	1	JAN	1942	232	1.	.5	101.1	2	JAN	0116	399	0.	.4	100.9
1	JAN	1410	66	4.	.7	101.4	1	JAN	1944	233	1.	.5	101.1	2	JAN	0118	400	0.	.4	100.9
1	JAN	1412	67	4.	.7	101.4	1	JAN	1946	234	1.	.5	101.1	2	JAN	0120	401	0.	.4	100.9
1	JAN	1414	68	4.	.7	101.4	1	JAN	1948	235	1.	.5	101.1	2	JAN	0122	402	0.	.4	100.9
1	JAN	1416	69	4.	.7	101.5	1	JAN	1950	236	1.	.5	101.1	2	JAN	0124	403	0.	.4	100.9
1	JAN	1418	70	4.	.8	101.5	1	JAN	1952	237	1.	.5	101.1	2	JAN	0126	404	0.	.4	100.9
1	JAN	1420	71	4.	.8	101.5	1	JAN	1954	238	1.	.5	101.1	2	JAN	0128	405	0.	.4	100.9
1	JAN	1422	72	4.	.8	101.5	1	JAN	1956	239	1.	.5	101.1	2	JAN	0130	406	0.	.4	100.9
1	JAN	1424	73	4.	.8	101.5	1	JAN	1958	240	1.	.5	101.1	2	JAN	0132	407	0.	.4	100.9
1	JAN	1426	74	5.	.8	101.5	1	JAN	2000	241	1.	.5	101.1	2	JAN	0134	408	0.	.4	100.9
1	JAN	1428	75	5.	.8	101.5	1	JAN	2002	242	1.	.5	101.1	2	JAN	0136	409	0.	.4	100.9
1	JAN	1430	76	5.	.8	101.5	1	JAN	2004	243	1.	.5	101.1	2	JAN	0138	410	0.	.4	100.9
1	JAN	1432	77	5.	.8	101.5	1	JAN	2006	244	1.	.5	101.0	2	JAN	0140	411	0.	.4	100.9
1	JAN	1434	78	5.	.8	101.6	1	JAN	2008	245	1.	.5	101.0	2	JAN	0142	412	0.	.4	100.9
1	JAN	1436	79	5.	.8	101.6	1	JAN	2010	246	1.	.5	101.0	2	JAN	0144	413	0.	.4	100.9
1	JAN	1438	80	5.	.8	101.6	1	JAN	2012	247	1.	.5	101.0	2	JAN	0146	414	0.	.4	100.9
1	JAN	1440	81	5.	.8	101.6	1	JAN	2014	248	0.	.5	101.0	2	JAN	0148	415	0.	.4	100.9
1	JAN	1442	82	5.	.8	101.6	1	JAN	2016	249	0.	.5	101.0	2	JAN	0150	416	0.	.4	100.9
1	JAN	1444	83	6.	.9	101.6	1	JAN	2018	250	0.	.5	101.0	2	JAN	0152	417	0.	.4	100.9
1	JAN	1446	84	6.	.9	101.7	1	JAN	2020	251	0.	.5	101.0	2	JAN	0154	418	0.	.4	100.9
1	JAN	1448	85	6.	.9	101.7	1	JAN	2022	252	0.	.5	101.0	2	JAN	0156	419	0.	.4	100.9
1	JAN	1450	86	6.	.9	101.7	1	JAN	2024	253	0.	.5	101.0	2	JAN	0158	420	0.	.4	100.9
1	JAN	1452	87	6.	.9	101.7	1	JAN	2026	254	0.	.5	101.0	2	JAN	0200	421	0.	.4	100.9
1	JAN	1454	88	7.	.9	101.8	1	JAN	2028	255	0.	.5	101.0	2	JAN	0202	422	0.	.4	100.9

1	JAN	1456	89	7.	1.0	101.8	*	1	JAN	2030	256	0.	.5	101.0	*	2	JAN	0204	423	0.	.4	100.9
1	JAN	1458	90	8.	1.0	101.9	*	1	JAN	2032	257	0.	.5	101.0	*	2	JAN	0206	424	0.	.4	100.9
1	JAN	1500	91	8.	1.1	101.9	*	1	JAN	2034	258	0.	.5	101.0	*	2	JAN	0208	425	0.	.4	100.9
1	JAN	1502	92	9.	1.1	102.0	*	1	JAN	2036	259	0.	.5	101.0	*	2	JAN	0210	426	0.	.4	100.9
1	JAN	1504	93	10.	1.2	102.1	*	1	JAN	2038	260	0.	.5	101.0	*	2	JAN	0212	427	0.	.4	100.9
1	JAN	1506	94	10.	1.3	102.2	*	1	JAN	2040	261	0.	.5	101.0	*	2	JAN	0214	428	0.	.4	100.9
1	JAN	1508	95	11.	1.4	102.3	*	1	JAN	2042	262	0.	.5	101.0	*	2	JAN	0216	429	0.	.4	100.9
1	JAN	1510	96	12.	1.5	102.4	*	1	JAN	2044	263	0.	.5	101.0	*	2	JAN	0218	430	0.	.4	100.9
1	JAN	1512	97	13.	1.6	102.5	*	1	JAN	2046	264	0.	.5	101.0	*	2	JAN	0220	431	0.	.4	100.9
1	JAN	1514	98	14.	1.7	102.6	*	1	JAN	2048	265	0.	.5	101.0	*	2	JAN	0222	432	0.	.4	100.9
1	JAN	1516	99	14.	1.8	102.7	*	1	JAN	2050	266	0.	.5	101.0	*	2	JAN	0224	433	0.	.4	100.9
1	JAN	1518	100	15.	1.9	102.8	*	1	JAN	2052	267	0.	.5	101.0	*	2	JAN	0226	434	0.	.4	100.9
1	JAN	1520	101	16.	1.9	102.8	*	1	JAN	2054	268	0.	.5	101.0	*	2	JAN	0228	435	0.	.4	100.9
1	JAN	1522	102	16.	2.0	102.9	*	1	JAN	2056	269	0.	.5	101.0	*	2	JAN	0230	436	0.	.4	100.9
1	JAN	1524	103	16.	2.0	102.9	*	1	JAN	2058	270	0.	.5	101.0	*	2	JAN	0232	437	0.	.4	100.9
1	JAN	1526	104	17.	2.0	102.9	*	1	JAN	2100	271	0.	.5	101.0	*	2	JAN	0234	438	0.	.4	100.9
1	JAN	1528	105	16.	2.0	102.9	*	1	JAN	2102	272	0.	.5	101.0	*	2	JAN	0236	439	0.	.4	100.9
1	JAN	1530	106	16.	2.0	102.9	*	1	JAN	2104	273	0.	.5	101.0	*	2	JAN	0238	440	0.	.4	100.9
1	JAN	1532	107	16.	2.0	102.9	*	1	JAN	2106	274	0.	.5	101.0	*	2	JAN	0240	441	0.	.4	100.9
1	JAN	1534	108	16.	2.0	102.9	*	1	JAN	2108	275	0.	.5	101.0	*	2	JAN	0242	442	0.	.4	100.9
1	JAN	1536	109	16.	2.0	102.9	*	1	JAN	2110	276	0.	.5	101.0	*	2	JAN	0244	443	0.	.4	100.9
1	JAN	1538	110	16.	1.9	102.8	*	1	JAN	2112	277	0.	.5	101.0	*	2	JAN	0246	444	0.	.4	100.9
1	JAN	1540	111	16.	1.9	102.8	*	1	JAN	2114	278	0.	.5	101.0	*	2	JAN	0248	445	0.	.4	100.9
1	JAN	1542	112	16.	1.9	102.8	*	1	JAN	2116	279	0.	.5	101.0	*	2	JAN	0250	446	0.	.4	100.9
1	JAN	1544	113	15.	1.9	102.8	*	1	JAN	2118	280	0.	.5	101.0	*	2	JAN	0252	447	0.	.4	100.9
1	JAN	1546	114	15.	1.9	102.8	*	1	JAN	2120	281	0.	.4	101.0	*	2	JAN	0254	448	0.	.4	100.9
1	JAN	1548	115	15.	1.8	102.7	*	1	JAN	2122	282	0.	.4	101.0	*	2	JAN	0256	449	0.	.4	100.9
1	JAN	1550	116	15.	1.8	102.7	*	1	JAN	2124	283	0.	.4	101.0	*	2	JAN	0258	450	0.	.4	100.9
1	JAN	1552	117	15.	1.8	102.7	*	1	JAN	2126	284	0.	.4	101.0	*	2	JAN	0300	451	0.	.4	100.9
1	JAN	1554	118	14.	1.8	102.7	*	1	JAN	2128	285	0.	.4	101.0	*	2	JAN	0302	452	0.	.4	100.9
1	JAN	1556	119	14.	1.8	102.7	*	1	JAN	2130	286	0.	.4	101.0	*	2	JAN	0304	453	0.	.4	100.9
1	JAN	1558	120	14.	1.7	102.6	*	1	JAN	2132	287	0.	.4	101.0	*	2	JAN	0306	454	0.	.4	100.9
1	JAN	1600	121	14.	1.7	102.6	*	1	JAN	2134	288	0.	.4	101.0	*	2	JAN	0308	455	0.	.4	100.9
1	JAN	1602	122	14.	1.7	102.6	*	1	JAN	2136	289	0.	.4	101.0	*	2	JAN	0310	456	0.	.4	100.9
1	JAN	1604	123	14.	1.7	102.6	*	1	JAN	2138	290	0.	.4	101.0	*	2	JAN	0312	457	0.	.4	100.9
1	JAN	1606	124	13.	1.7	102.6	*	1	JAN	2140	291	0.	.4	101.0	*	2	JAN	0314	458	0.	.4	100.8
1	JAN	1608	125	13.	1.6	102.5	*	1	JAN	2142	292	0.	.4	101.0	*	2	JAN	0316	459	0.	.4	100.8
1	JAN	1610	126	13.	1.6	102.5	*	1	JAN	2144	293	0.	.4	101.0	*	2	JAN	0318	460	0.	.4	100.8
1	JAN	1612	127	13.	1.6	102.5	*	1	JAN	2146	294	0.	.4	101.0	*	2	JAN	0320	461	0.	.4	100.8
1	JAN	1614	128	13.	1.6	102.5	*	1	JAN	2148	295	0.	.4	101.0	*	2	JAN	0322	462	0.	.4	100.8
1	JAN	1616	129	13.	1.6	102.5	*	1	JAN	2150	296	0.	.4	101.0	*	2	JAN	0324	463	0.	.4	100.8
1	JAN	1618	130	12.	1.5	102.4	*	1	JAN	2152	297	0.	.4	101.0	*	2	JAN	0326	464	0.	.4	100.8
1	JAN	1620	131	12.	1.5	102.4	*	1	JAN	2154	298	0.	.4	101.0	*	2	JAN	0328	465	0.	.4	100.8
1	JAN	1622	132	12.	1.5	102.4	*	1	JAN	2156	299	0.	.4	101.0	*	2	JAN	0330	466	0.	.4	100.8
1	JAN	1624	133	12.	1.5	102.4	*	1	JAN	2158	300	0.	.4	101.0	*	2	JAN	0332	467	0.	.4	100.8
1	JAN	1626	134	12.	1.5	102.4	*	1	JAN	2200	301	0.	.4	101.0	*	2	JAN	0334	468	0.	.4	100.8
1	JAN	1628	135	12.	1.4	102.3	*	1	JAN	2202	302	0.	.4	101.0	*	2	JAN	0336	469	0.	.4	100.8
1	JAN	1630	136	11.	1.4	102.3	*	1	JAN	2204	303	0.	.4	101.0	*	2	JAN	0338	470	0.	.4	100.8
1	JAN	1632	137	11.	1.4	102.3	*	1	JAN	2206	304	0.	.4	101.0	*	2	JAN	0340	471	0.	.4	100.8
1	JAN	1634	138	11.	1.4	102.3	*	1	JAN	2208	305	0.	.4	101.0	*	2	JAN	0342	472	0.	.4	100.8
1	JAN	1636	139	11.	1.4	102.3	*	1	JAN	2210	306	0.	.4	101.0	*	2	JAN	0344	473	0.	.4	100.8
1	JAN	1638	140	11.	1.3	102.2	*	1	JAN	2212	307	0.	.4	101.0	*	2	JAN	0346	474	0.	.4	100.8
1	JAN	1640	141	11.	1.3	102.2	*	1	JAN	2214	308	0.	.4	101.0	*	2	JAN	0348	475	0.	.4	100.8
1	JAN	1642	142	11.	1.3	102.2	*	1	JAN	2216	309	0.	.4	101.0	*	2	JAN	0350	476	0.	.4	100.8
1	JAN	1644	143	10.	1.3	102.2	*	1	JAN	2218	310	0.	.4	101.0	*	2	JAN	0352	477	0.	.4	100.8
1	JAN	1646	144	10.	1.3	102.2	*	1	JAN	2220	311	0.	.4	101.0	*	2	JAN	0354	478	0.	.4	100.8
1	JAN	1648	145	10.	1.3	102.2	*	1	JAN	2222	312	0.	.4	101.0	*	2	JAN	0356	479	0.	.4	100.8
1	JAN	1650	146	10.	1.2	102.1	*	1	JAN	2224	313	0.	.4	101.0	*	2	JAN	0358	480	0.	.4	100.8
1	JAN	1652	147	10.	1.2	102.1	*	1	JAN	2226	314	0.	.4	101.0	*	2	JAN	0400	481	0.	.4	100.8
1	JAN	1654	148	10.	1.2	102.1	*	1	JAN	2228	315	0.	.4	101.0	*	2	JAN	0402	482	0.	.4	100.8
1	JAN	1656	149	10.	1.2	102.1	*	1	JAN	2230	316	0.	.4	101.0	*	2	JAN	0404	483	0.	.4	100.8
1	JAN	1658	150	9.	1.2	102.1	*	1	JAN	2232	317	0.	.4	101.0	*	2	JAN	0406	484	0.	.4	100.8
1	JAN	1700	151	9.	1.2	102.1	*	1	JAN	2234	318	0.	.4	101.0	*	2	JAN	0408	485	0.	.4	100.8
1	JAN	1702	152	9.	1.1	102.0	*	1	JAN	2236	319	0.	.4	101.0	*	2	JAN	0410	486	0.	.4	100.8
1	JAN	1704	153	9.	1.1	102.0	*	1	JAN	2238	320	0.	.4	101.0	*	2	JAN	0412	487	0.	.4	100.8
1	JAN	1706	154	9.	1.1	102.0	*	1	JAN	2240	321	0.	.4	101.0	*	2	JAN	0414	488	0.	.4	100.8
1	JAN	1708	155	9.	1.1	102.0	*	1	JAN	2242	322	0.	.4	101.0	*	2	JAN	0416	489	0.	.4	100.8
1	JAN	1710	156	9.	1.1	102.0	*	1	JAN	2244	323	0.	.4	101.0	*	2	JAN	0418	490	0.	.4	100.8
1	JAN	1712	157	8.	1.1	102.0	*	1	JAN	2246	324	0.	.4	101.0	*	2	JAN	0420	491	0.	.4	100.8
1	JAN	1714	158	8.	1.1	101.9	*	1	JAN	2248	325	0.	.4	101.0	*	2	JAN	0422	492	0.	.4	100.8
1	JAN	1716	159	8.	1.0	101.9	*	1	JAN	2250	326	0.	.4	101.0	*	2	JAN	0424	493	0.	.4	100.8
1	JAN	1718	160	8.	1.0	101.9	*	1	JAN	2252	327	0.	.4	101.0	*	2	JAN	0426	494	0.	.4	100.8
1	JAN	1720	161	8.	1.0	101.9	*	1	JAN	2254	328	0.	.4	101.0	*	2	JAN	0428	495	0.	.4	100.8
1	JAN	1722	162	8.	1.0	101.9	*	1	JAN	2256	329	0.	.4	101.0	*	2	JAN	0430	496	0.	.4	100.8
1	JAN	1724	163	7.	1.0	101.8	*	1	JAN	2258	330	0.	.4	101.0	*	2	JAN	0432	497	0.	.4	100.8
1	JAN	1726	164	7.	1.0	101.8	*	1	JAN	2300	331	0.	.4	101.0	*	2	JAN	0434	498	0.	.4	100.8
1	JAN	1728	165	7.	1.0	101.8	*	1	JAN	2302	332	0.	.4	101.0	*	2	JAN	0436	499	0.	.4	100.8
1	JAN	1730	166	7.	1.0	101.8	*	1	JAN	2304	333	0.	.4	101.0	*	2	JAN	0438	500	0.	.4	100.8
1	JAN	1732	167	7.	1.0	101.8	*	1	JAN	2306	334	0.	.4	101.0	*							
							*								*							

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	16.63-HR
+ (CFS)	(HR)					
		(CFS)				
+ 17.	3.43		7.	3.	3.	3.
		(INCHES)	2.132	2.314	2.314	2.314
		(AC-FT)	4.	4.	4.	4.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	16.63-HR
+ (AC-FT)	(HR)				
2.	3.43	1.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	16.63-HR
+ (FEET)	(HR)				

102.93 3.43 101.84 101.28 101.28 101.28

CUMULATIVE AREA = .03 SQ MI

1 STATION DET1

(I) INFLOW, (O) OUTFLOW

0. 10. 20. 30. 40. 50. 0. 0. 0. 0. 0. 0. 0.

(S) STORAGE

.0 .0 .0 .0 .0 .0 .0 .5 1.0 1.5 2.0 2.5 .0

DAHRMN PER

11200

1I---------.---------.---------.---------.---------.---------.--------S.---------.---------.---------.---------.---------.

11202 2OI . . . . . S. . . . .

11204 3OI . . . . . S. . . . .

11206 4O I . . . . . S. . . . .

11208 5O I . . . . . S. . . . .

11210 6O I . . . . . S. . . . .

11212 7.O I . . . . . S . . . .

11214 8.O I . . . . . S . . . .

11216 9.O I . . . . . S . . . .

11218 10.O I . . . . . S . . . .

11220 11.O.I. . . . . S . . . . . .

11222 12.O I . . . . . S . . . .

11224 13.O I . . . . . S . . . .

11226 14.O I . . . . . S . . . .

11228 15.O I . . . . . .S . . . .

11230 16.O I . . . . . .S . . . .

11232 17.O I . . . . . .S . . . .

11234 18.O I . . . . . .S . . . .

11236 19.O I . . . . . .S . . . .

11238 20.O I . . . . . .S . . . .

11240 21. OI. . . . . .S. . . . . .

11242 22. OI . . . . . .S . . . .

11244 23. OI . . . . . .S . . . .

11246 24. OI . . . . . .S . . . .

11248 25. OI . . . . . .S . . . .

11250 26. OI . . . . . .S . . . .

11252 27. OI . . . . . . S . . . .

11254 28. OI . . . . . . S . . . .

11256 29. OI . . . . . . S . . . .

11258 30. OI . . . . . . S . . . .

11300 31. OI. . . . . S . . . . . .

11302 32. OI . . . . . . S . . . .

11304 33. OI . . . . . . S . . . .

11306 34. O I . . . . . . S . . . .

11308 35. O I . . . . . . S . . . .

11310 36. O I . . . . . . S . . . .

11312 37. O I . . . . . . S . . . .

11314 38. O I . . . . . . S . . . .

11316 39. O I . . . . . . S . . . .

11318 40. O I . . . . . . S . . . .

11320 41. .OI . . . . . .S. . . . . .

11322 42. OI . . . . . . S . . . .

11324 43. OI . . . . . . S . . . .

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  11326  44.  OI     .         .         .         .         .         .         .  S      .         .         .         .
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  11328  45.  OI     .         .         .         .         .         .         .  S      .         .         .         .
.
  11330  46.  OI     .         .         .         .         .         .         .  S      .         .         .         .
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  11332  47.  OI     .         .         .         .         .         .         .  S      .         .         .         .
.
  11334  48.  OI     .         .         .         .         .         .         .  S      .         .         .         .
.
  11336  49.  OI     .         .         .         .         .         .         .  S      .         .         .         .
.
  11338  50.  OI     .         .         .         .         .         .         .  S      .         .         .         .
.
  11340  51. .OI . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . .
.
  11342  52.  OI     .         .         .         .         .         .         .  S      .         .         .         .
.
  11344  53.  O I    .         .         .         .         .         .         .  S      .         .         .         .
.
  11346  54.  O I    .         .         .         .         .         .         .   S     .         .         .         .
.
  11348  55.  O I    .         .         .         .         .         .         .   S     .         .         .         .
.
  11350  56.  O I    .         .         .         .         .         .         .   S     .         .         .         .
.
  11352  57.  O I    .         .         .         .         .         .         .   S     .         .         .         .
.
  11354  58.  O I    .         .         .         .         .         .         .   S     .         .         .         .
.
  11356  59.  O I    .         .         .         .         .         .         .   S     .         .         .         .
.
  11358  60.   OI    .         .         .         .         .         .         .   S     .         .         .         .
.
  11400  61. . OI. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . .
.
  11402  62.   OI    .         .         .         .         .         .         .   S     .         .         .         .
.
  11404  63.   OI    .         .         .         .         .         .         .   S     .         .         .         .
.
  11406  64.   O I   .         .         .         .         .         .         .   S     .         .         .         .
.
  11408  65.   O I   .         .         .         .         .         .         .    S    .         .         .         .
.
  11410  66.   O I   .         .         .         .         .         .         .    S    .         .         .         .
.
  11412  67.   O I   .         .         .         .         .         .         .    S    .         .         .         .
.
  11414  68.   O I   .         .         .         .         .         .         .    S    .         .         .         .
.
  11416  69.   O I   .         .         .         .         .         .         .    S    .         .         .         .
.
  11418  70.   O I   .         .         .         .         .         .         .    S    .         .         .         .
.
  11420  71. . O I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . .
.
  11422  72.   O  I  .         .         .         .         .         .         .    S    .         .         .         .
.
  11424  73.   O  I  .         .         .         .         .         .         .    S    .         .         .         .
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  11426  74.    O I  .         .         .         .         .         .         .     S   .         .         .         .
.
  11428  75.    O I  .         .         .         .         .         .         .     S   .         .         .         .
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  11430  76.    O  I .         .         .         .         .         .         .     S   .         .         .         .
.
  11432  77.    O  I .         .         .         .         .         .         .     S   .         .         .         .
.
  11434  78.    O  I .         .         .         .         .         .         .     S   .         .         .         .
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  11436  79.    O  I .         .         .         .         .         .         .     S   .         .         .         .
.
  11438  80.    O   I.         .         .         .         .         .         .      S  .         .         .         .
.
  11440  81. . .O. .I. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . .
.
  11442  82.    O    I         .         .         .         .         .         .      S  .         .         .         .
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  11444  83.     O   I         .         .         .         .         .         .      S  .         .         .         .
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  11446  84.     O   .I        .         .         .         .         .         .      S  .         .         .         .
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  11448  85.     O   . I       .         .         .         .         .         .       S .         .         .         .
.
  11450  86.     O   .  I      .         .         .         .         .         .       S .         .         .         .
.
  11452  87.     O   .  I      .         .         .         .         .         .       S .         .         .         .
.
  11454  88.      O  .   I     .         .         .         .         .         .        S.         .         .         .
.
  11456  89.      O  .       I .         .         .         .         .         .        S.         .         .         .
.
  11458  90.       O .         .   I     .         .         .         .         .         S         .         .         .
.
  11500  91. . . . O . . . . . . . . . . I . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . .
.
  11502  92.        O.         .         .     I   .         .         .         .         . S       .         .         .
.
  11504  93.         O         .         .         . I       .         .         .         .   S     .         .         .
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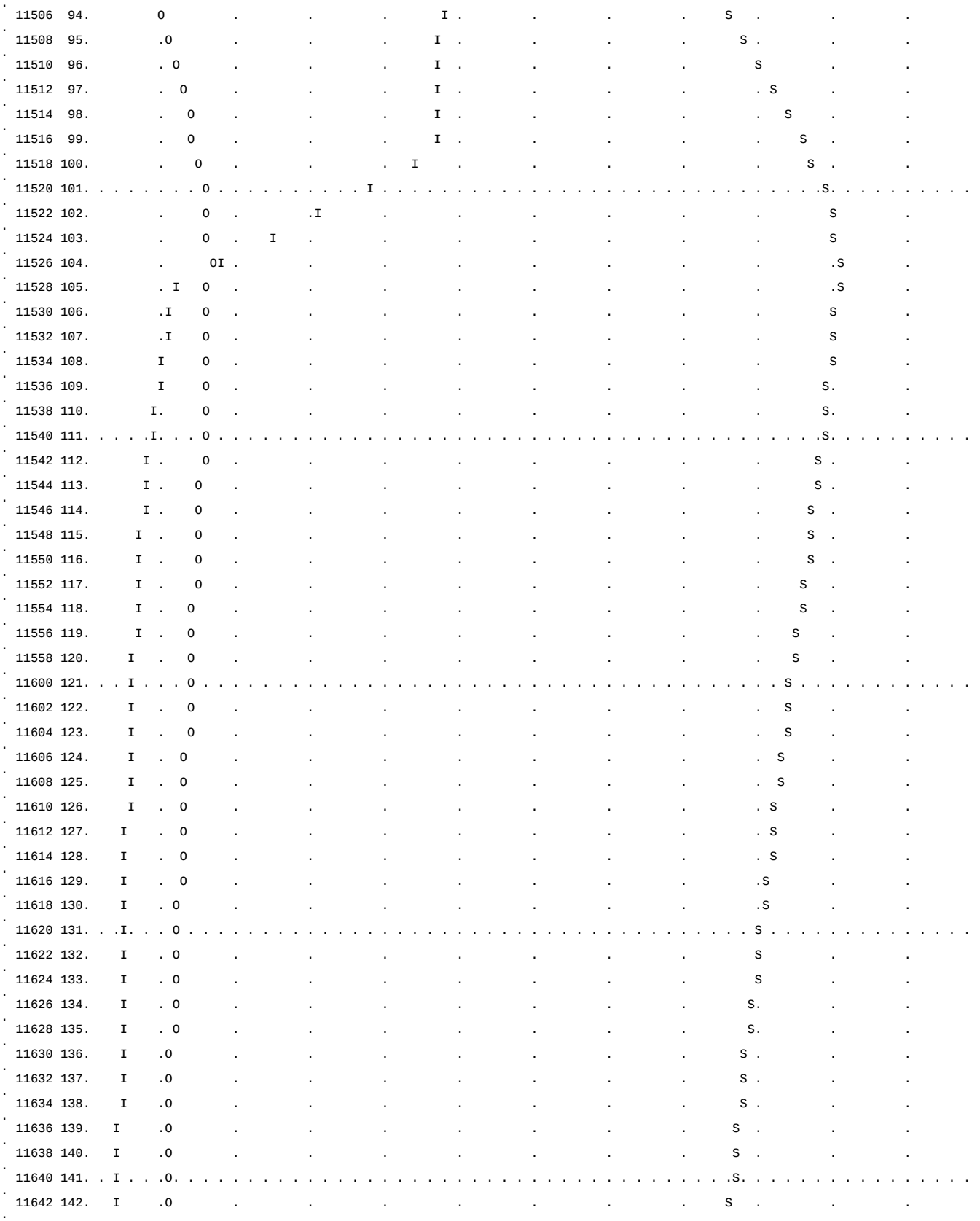
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11508 95.
11510 96.
11512 97.
11514 98.
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11518 100.
11520 101.
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11524 103.
11526 104.
11528 105.
11530 106.
11532 107.
11534 108.
11536 109.
11538 110.
11540 111.
11542 112.
11544 113.
11546 114.
11548 115.
11550 116.
11552 117.
11554 118.
11556 119.
11558 120.
11600 121.
11602 122.
11604 123.
11606 124.
11608 125.
11610 126.
11612 127.
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11616 129.
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11620 131.
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11628 135.
11630 136.
11632 137.
11634 138.
11636 139.
11638 140.
11640 141.
11642 142.

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11644 143.   I     O        .        .        .        .        .        .        .    S   .        .        .
11646 144.   I     O        .        .        .        .        .        .        .     S  .        .        .
11648 145.   I     O        .        .        .        .        .        .        .   S    .        .        .
11650 146.   I     O        .        .        .        .        .        .        .   S    .        .        .
11652 147.   I     O        .        .        .        .        .        .        .   S    .        .        .
11654 148.   I     O        .        .        .        .        .        .        .  S     .        .        .
11656 149.   I     O        .        .        .        .        .        .        .  S     .        .        .
11658 150.   I    O.        .        .        .        .        .        .        .  S     .        .        .
11700 151. . I . .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . .
11702 152.   I    O.        .        .        .        .        .        .        . S      .        .        .
11704 153.   I    O.        .        .        .        .        .        .        . S      .        .        .
11706 154.   I    O.        .        .        .        .        .        .        .S       .        .        .
11708 155.   I    O.        .        .        .        .        .        .        .S       .        .        .
11710 156.   I    O.        .        .        .        .        .        .        .S       .        .        .
11712 157.   I   O .        .        .        .        .        .        .        .S       .        .        .
11714 158.  I    O .        .        .        .        .        .        .        .S       .        .        .
11716 159.  I    O .        .        .        .        .        .        .        .S       .        .        .
11718 160.  I    O .        .        .        .        .        .        .        .S       .        .        .
11720 161. .I. . O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . .
11722 162.  I    O .        .        .        .        .        .        .        S        .        .        .
11724 163.  I   O  .        .        .        .        .        .        .        S        .        .        .
11726 164.  I   O  .        .        .        .        .        .        .        S        .        .        .
11728 165.  I   O  .        .        .        .        .        .        .        S        .        .        .
11730 166.  I   O  .        .        .        .        .        .        .       S.        .        .        .
11732 167.  I   O  .        .        .        .        .        .        .       S.        .        .        .
11734 168.  I   O  .        .        .        .        .        .        .       S.        .        .        .
11736 169.  I   O  .        .        .        .        .        .        .       S.        .        .        .
11738 170.  I   O  .        .        .        .        .        .        .       S.        .        .        .
11740 171. .I. O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . .
11742 172.  I  O   .        .        .        .        .        .        .      S .        .        .        .
11744 173.  I  O   .        .        .        .        .        .        .      S .        .        .        .
11746 174.  I  O   .        .        .        .        .        .        .      S .        .        .        .
11748 175.  I  O   .        .        .        .        .        .        .      S .        .        .        .
11750 176.  I  O   .        .        .        .        .        .        .      S .        .        .        .
11752 177.  I  O   .        .        .        .        .        .        .     S  .        .        .        .
11754 178.  I  O   .        .        .        .        .        .        .     S  .        .        .        .
11756 179.  I  O   .        .        .        .        .        .        .     S  .        .        .        .
11758 180.  I O    .        .        .        .        .        .        .     S  .        .        .        .
11800 181. .I.O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . .
11802 182.  I O    .        .        .        .        .        .        .     S  .        .        .        .
11804 183. I  O    .        .        .        .        .        .        .     S  .        .        .        .
11806 184. I  O    .        .        .        .        .        .        .    S   .        .        .        .
11808 185.I   O    .        .        .        .        .        .        .    S   .        .        .        .
11810 186.I   O    .        .        .        .        .        .        .    S   .        .        .        .
11812 187I    O    .        .        .        .        .        .        .    S   .        .        .        .
11814 188I   O     .        .        .        .        .        .        .   S    .        .        .        .
11816 189I   O     .        .        .        .        .        .        .   S    .        .        .        .
11818 190I   O     .        .        .        .        .        .        .   S    .        .        .        .
11820 191I . O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . .
11822 192I   O     .        .        .        .        .        .        .   S    .        .        .        .
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11824 193I   O     .       .       .       .       .       .       .   S     .       .       .       .
11826 194I   O     .       .       .       .       .       .       .   S     .       .       .       .
11828 195I  O      .       .       .       .       .       .       .   S     .       .       .       .
11830 196I  O      .       .       .       .       .       .       .   S     .       .       .       .
11832 197I  O      .       .       .       .       .       .       .   S     .       .       .       .
11834 198I  O      .       .       .       .       .       .       . S       .       .       .       .
11836 199I  O      .       .       .       .       .       .       . S       .       .       .       .
11838 200I  O      .       .       .       .       .       .       . S       .       .       .       .
11840 201I .O. . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
11842 202I  O      .       .       .       .       .       .       . S       .       .       .       .
11844 203I  O      .       .       .       .       .       .       . S       .       .       .       .
11846 204I O       .       .       .       .       .       .       . S       .       .       .       .
11848 205I O       .       .       .       .       .       .       . S       .       .       .       .
11850 206I O       .       .       .       .       .       .       . S       .       .       .       .
11852 207I O       .       .       .       .       .       .       . S       .       .       .       .
11854 208I O       .       .       .       .       .       .       . S       .       .       .       .
11856 209I O       .       .       .       .       .       .       . S       .       .       .       .
11858 210I O       .       .       .       .       .       .       . S       .       .       .       .
11900 211I O . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
11902 212I O       .       .       .       .       .       .       . S       .       .       .       .
11904 213I O       .       .       .       .       .       .       .S       .       .       .       .
11906 214I O       .       .       .       .       .       .       .S       .       .       .       .
11908 215I O       .       .       .       .       .       .       .S       .       .       .       .
11910 216I O       .       .       .       .       .       .       .S       .       .       .       .
11912 217I O       .       .       .       .       .       .       .S       .       .       .       .
11914 218IO        .       .       .       .       .       .       .S       .       .       .       .
11916 219IO        .       .       .       .       .       .       .S       .       .       .       .
11918 220IO        .       .       .       .       .       .       .S       .       .       .       .
11920 221IO. . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
11922 222IO        .       .       .       .       .       .       .S       .       .       .       .
11924 223IO        .       .       .       .       .       .       .S       .       .       .       .
11926 224IO        .       .       .       .       .       .       .S       .       .       .       .
11928 225IO        .       .       .       .       .       .       .S       .       .       .       .
11930 226IO        .       .       .       .       .       .       S        .       .       .       .
11932 227IO        .       .       .       .       .       .       S        .       .       .       .
11934 228IO        .       .       .       .       .       .       S        .       .       .       .
11936 229IO        .       .       .       .       .       .       S        .       .       .       .
11938 230IO        .       .       .       .       .       .       S        .       .       .       .
11940 231IO. . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
11942 232IO        .       .       .       .       .       .       S        .       .       .       .
11944 233IO        .       .       .       .       .       .       S        .       .       .       .
11946 234IO        .       .       .       .       .       .       S        .       .       .       .
11948 235IO        .       .       .       .       .       .       S        .       .       .       .
11950 236IO        .       .       .       .       .       .       S        .       .       .       .
11952 237IO        .       .       .       .       .       .       S        .       .       .       .
11954 238IO        .       .       .       .       .       .       S        .       .       .       .
11956 239IO        .       .       .       .       .       .       S        .       .       .       .
11958 240IO        .       .       .       .       .       .       S        .       .       .       .
12000 241IO. . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
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12002 242IO        .         .         .         .         .         .         S         .         .         .         .
12004 243IO        .         .         .         .         .         .         S         .         .         .         .
12006 244IO        .         .         .         .         .         .         S         .         .         .         .
12008 245IO        .         .         .         .         .         .         S         .         .         .         .
12010 246IO        .         .         .         .         .         .         S         .         .         .         .
12012 247IO        .         .         .         .         .         .         S         .         .         .         .
12014 248I         .         .         .         .         .         .         S         .         .         .         .
12016 249I         .         .         .         .         .         .        S.         .         .         .         .
12018 250I         .         .         .         .         .         .        S.         .         .         .         .
12020 251I . . . . . .S. . . . . .
12022 252I         .         .         .         .         .         .        S.         .         .         .         .
12024 253I         .         .         .         .         .         .        S.         .         .         .         .
12026 254I         .         .         .         .         .         .        S.         .         .         .         .
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12040 261I . . . . . .S. . . . . .
12042 262I         .         .         .         .         .         .        S.         .         .         .         .
12044 263I         .         .         .         .         .         .        S.         .         .         .         .
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12048 265I         .         .         .         .         .         .        S.         .         .         .         .
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12054 268I         .         .         .         .         .         .        S.         .         .         .         .
12056 269I         .         .         .         .         .         .        S.         .         .         .         .
12058 270I         .         .         .         .         .         .        S.         .         .         .         .
12100 271I . . . . . .S. . . . . .
12102 272I         .         .         .         .         .         .        S.         .         .         .         .
12104 273I         .         .         .         .         .         .        S.         .         .         .         .
12106 274I         .         .         .         .         .         .        S.         .         .         .         .
12108 275I         .         .         .         .         .         .        S.         .         .         .         .
12110 276I         .         .         .         .         .         .        S.         .         .         .         .
12112 277I         .         .         .         .         .         .        S.         .         .         .         .
12114 278I         .         .         .         .         .         .        S.         .         .         .         .
12116 279I         .         .         .         .         .         .        S.         .         .         .         .
12118 280I         .         .         .         .         .         .        S.         .         .         .         .
12120 281I . . . . . .S. . . . . .
12122 282I         .         .         .         .         .         .        S.         .         .         .         .
12124 283I         .         .         .         .         .         .        S.         .         .         .         .
12126 284I         .         .         .         .         .         .        S.         .         .         .         .
12128 285I         .         .         .         .         .         .        S.         .         .         .         .
12130 286I         .         .         .         .         .         .        S.         .         .         .         .
12132 287I         .         .         .         .         .         .        S.         .         .         .         .
12134 288I         .         .         .         .         .         .        S.         .         .         .         .
12136 289I         .         .         .         .         .         .        S.         .         .         .         .
12138 290I         .         .         .         .         .         .        S.         .         .         .         .
12140 291I . . . . . .S. . . . . .
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12142 292I        .       .       .       .       .       .       S.      .       .       .       .
12144 293I        .       .       .       .       .       .       S.      .       .       .       .
12146 294I        .       .       .       .       .       .       S.      .       .       .       .
12148 295I        .       .       .       .       .       .       S.      .       .       .       .
12150 296I        .       .       .       .       .       .       S.      .       .       .       .
12152 297I        .       .       .       .       .       .       S.      .       .       .       .
12154 298I        .       .       .       .       .       .       S.      .       .       .       .
12156 299I        .       .       .       .       .       .       S.      .       .       .       .
12158 300I        .       .       .       .       .       .       S.      .       .       .       .
12200 301I . . . . . .S. . . . . .
12202 302I        .       .       .       .       .       .       S.      .       .       .       .
12204 303I        .       .       .       .       .       .       S.      .       .       .       .
12206 304I        .       .       .       .       .       .       S.      .       .       .       .
12208 305I        .       .       .       .       .       .       S.      .       .       .       .
12210 306I        .       .       .       .       .       .       S.      .       .       .       .
12212 307I        .       .       .       .       .       .       S.      .       .       .       .
12214 308I        .       .       .       .       .       .       S.      .       .       .       .
12216 309I        .       .       .       .       .       .       S.      .       .       .       .
12218 310I        .       .       .       .       .       .       S.      .       .       .       .
12220 311I . . . . . .S. . . . . .
12222 312I        .       .       .       .       .       .       S.      .       .       .       .
12224 313I        .       .       .       .       .       .       S.      .       .       .       .
12226 314I        .       .       .       .       .       .       S.      .       .       .       .
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12232 317I        .       .       .       .       .       .       S.      .       .       .       .
12234 318I        .       .       .       .       .       .       S.      .       .       .       .
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12242 322I        .       .       .       .       .       .       S.      .       .       .       .
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12246 324I        .       .       .       .       .       .       S.      .       .       .       .
12248 325I        .       .       .       .       .       .       S.      .       .       .       .
12250 326I        .       .       .       .       .       .       S.      .       .       .       .
12252 327I        .       .       .       .       .       .       S.      .       .       .       .
12254 328I        .       .       .       .       .       .       S.      .       .       .       .
12256 329I        .       .       .       .       .       .       S.      .       .       .       .
12258 330I        .       .       .       .       .       .       S.      .       .       .       .
12300 331I . . . . . .S. . . . . .
12302 332I        .       .       .       .       .       .       S.      .       .       .       .
12304 333I        .       .       .       .       .       .       S.      .       .       .       .
12306 334I        .       .       .       .       .       .       S.      .       .       .       .
12308 335I        .       .       .       .       .       .       S.      .       .       .       .
12310 336I        .       .       .       .       .       .       S.      .       .       .       .
12312 337I        .       .       .       .       .       .       S.      .       .       .       .
12314 338I        .       .       .       .       .       .       S.      .       .       .       .
12316 339I        .       .       .       .       .       .       S.      .       .       .       .
12318 340I        .       .       .       .       .       .       S.      .       .       .       .
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12320 341I . . . . . .S. . . . . .
12322 342I        .       .       .       .       .       .       S.      .       .       .       .
12324 343I        .       .       .       .       .       .       S       .       .       .       .
12326 344I        .       .       .       .       .       .       S       .       .       .       .
12328 345I        .       .       .       .       .       .       S       .       .       .       .
12330 346I        .       .       .       .       .       .       S       .       .       .       .
12332 347I        .       .       .       .       .       .       S       .       .       .       .
12334 348I        .       .       .       .       .       .       S       .       .       .       .
12336 349I        .       .       .       .       .       .       S       .       .       .       .
12338 350I        .       .       .       .       .       .       S       .       .       .       .
12340 351I . . . . . S . . . . . .
12342 352I        .       .       .       .       .       .       S       .       .       .       .
12344 353I        .       .       .       .       .       .       S       .       .       .       .
12346 354I        .       .       .       .       .       .       S       .       .       .       .
12348 355I        .       .       .       .       .       .       S       .       .       .       .
12350 356I        .       .       .       .       .       .       S       .       .       .       .
12352 357I        .       .       .       .       .       .       S       .       .       .       .
12354 358I        .       .       .       .       .       .       S       .       .       .       .
12356 359I        .       .       .       .       .       .       S       .       .       .       .
12358 360I        .       .       .       .       .       .       S       .       .       .       .
20000 361I . . . . . S . . . . . .
20002 362I        .       .       .       .       .       .       S       .       .       .       .
20004 363I        .       .       .       .       .       .       S       .       .       .       .
20006 364I        .       .       .       .       .       .       S       .       .       .       .
20008 365I        .       .       .       .       .       .       S       .       .       .       .
20010 366I        .       .       .       .       .       .       S       .       .       .       .
20012 367I        .       .       .       .       .       .       S       .       .       .       .
20014 368I        .       .       .       .       .       .       S       .       .       .       .
20016 369I        .       .       .       .       .       .       S       .       .       .       .
20018 370I        .       .       .       .       .       .       S       .       .       .       .
20020 371I . . . . . S . . . . . .
20022 372I        .       .       .       .       .       .       S       .       .       .       .
20024 373I        .       .       .       .       .       .       S       .       .       .       .
20026 374I        .       .       .       .       .       .       S       .       .       .       .
20028 375I        .       .       .       .       .       .       S       .       .       .       .
20030 376I        .       .       .       .       .       .       S       .       .       .       .
20032 377I        .       .       .       .       .       .       S       .       .       .       .
20034 378I        .       .       .       .       .       .       S       .       .       .       .
20036 379I        .       .       .       .       .       .       S       .       .       .       .
20038 380I        .       .       .       .       .       .       S       .       .       .       .
20040 381I . . . . . S . . . . . .
20042 382I        .       .       .       .       .       .       S       .       .       .       .
20044 383I        .       .       .       .       .       .       S       .       .       .       .
20046 384I        .       .       .       .       .       .       S       .       .       .       .
20048 385I        .       .       .       .       .       .       S       .       .       .       .
20050 386I        .       .       .       .       .       .       S       .       .       .       .
20052 387I        .       .       .       .       .       .       S       .       .       .       .
20054 388I        .       .       .       .       .       .       S       .       .       .       .
20056 389I        .       .       .       .       .       .       S       .       .       .       .
20058 390I        .       .       .       .       .       .       S       .       .       .       .
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20100 391I . . . . . S . . . . . .
20102 392I . . . . . S . . . . .
20104 393I . . . . . S . . . . .
20106 394I . . . . . S . . . . .
20108 395I . . . . . S . . . . .
20110 396I . . . . . S . . . . .
20112 397I . . . . . S . . . . .
20114 398I . . . . . S . . . . .
20116 399I . . . . . S . . . . .
20118 400I . . . . . S . . . . .
20120 401I . . . . . S . . . . . .
20122 402I . . . . . S . . . . .
20124 403I . . . . . S . . . . .
20126 404I . . . . . S . . . . .
20128 405I . . . . . S . . . . .
20130 406I . . . . . S . . . . .
20132 407I . . . . . S . . . . .
20134 408I . . . . . S . . . . .
20136 409I . . . . . S . . . . .
20138 410I . . . . . S . . . . .
20140 411I . . . . . S . . . . . .
20142 412I . . . . . S . . . . .
20144 413I . . . . . S . . . . .
20146 414I . . . . . S . . . . .
20148 415I . . . . . S . . . . .
20150 416I . . . . . S . . . . .
20152 417I . . . . . S . . . . .
20154 418I . . . . . S . . . . .
20156 419I . . . . . S . . . . .
20158 420I . . . . . S . . . . .
20200 421I . . . . . S . . . . . .
20202 422I . . . . . S . . . . .
20204 423I . . . . . S . . . . .
20206 424I . . . . . S . . . . .
20208 425I . . . . . S . . . . .
20210 426I . . . . . S . . . . .
20212 427I . . . . . S . . . . .
20214 428I . . . . . S . . . . .
20216 429I . . . . . S . . . . .
20218 430I . . . . . S . . . . .
20220 431I . . . . . S . . . . . .
20222 432I . . . . . S . . . . .
20224 433I . . . . . S . . . . .
20226 434I . . . . . S . . . . .
20228 435I . . . . . S . . . . .
20230 436I . . . . . S . . . . .
20232 437I . . . . . S . . . . .
20234 438I . . . . . S . . . . .
20236 439I . . . . . S . . . . .
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20238 440I                                                  S
20240 441I                                                  S
20242 442I                                                  S
20244 443I                                                  S
20246 444I                                                  S
20248 445I                                                  S
20250 446I                                                  S
20252 447I                                                  S
20254 448I                                                  S
20256 449I                                                  S
20258 450I                                                  S
20300 451I                                                  S
20302 452I                                                  S
20304 453I                                                  S
20306 454I                                                  S
20308 455I                                                  S
20310 456I                                                  S
20312 457I                                                  S
20314 458I                                                  S
20316 459I                                                  S
20318 460I                                                  S
20320 461I                                                  S
20322 462I                                                  S
20324 463I                                                  S
20326 464I                                                  S
20328 465I                                                  S
20330 466I                                                  S
20332 467I                                                  S
20334 468I                                                  S
20336 469I                                                  S
20338 470I                                                  S
20340 471I                                                  S
20342 472I                                                  S
20344 473I                                                  S
20346 474I                                                  S
20348 475I                                                  S
20350 476I                                                  S
20352 477I                                                  S
20354 478I                                                  S
20356 479I                                                  S
20358 480I                                                 S
20400 481I                                                 S
20402 482I                                                 S
20404 483I                                                 S
20406 484I                                                 S
20408 485I                                                 S
20410 486I                                                 S
20412 487I                                                 S
20414 488I                                                 S
20416 489I                                                 S
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.
  20418 490I         .         .         .         .         .         .     S  .         .         .         .         .
.
  20420 491I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . .
.
  20422 492I         .         .         .         .         .         .     S  .         .         .         .         .
.
  20424 493I         .         .         .         .         .         .     S  .         .         .         .         .
.
  20426 494I         .         .         .         .         .         .     S  .         .         .         .         .
.
  20428 495I         .         .         .         .         .         .     S  .         .         .         .         .
.
  20430 496I         .         .         .         .         .         .     S  .         .         .         .         .
.
  20432 497I         .         .         .         .         .         .     S  .         .         .         .         .
.
  20434 498I         .         .         .         .         .         .     S  .         .         .         .         .
.
  20436 499I         .         .         .         .         .         .     S  .         .         .         .         .
.
  20438
500I---------.---------.---------.---------.---------.---------.------S--.---------.---------.---------.---------.---------.
1
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	ECC-BMP1	48.	3.10	8.	3.	3.	.03		
ROUTED TO	DET1	17.	3.43	7.	3.	3.	.03		
								102.93	3.43

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

```
KK ECC-BMP1B.OUT
KM RATIONAL METHOD HYDROGRAPH PROGRAM
KM COPYRIGHT 1992, RICK ENGINEERING COMPANY
KM 6HR RAINFALL IS  3.49  INCHES
KM RATIONAL METHOD RUNOFF COEFFICIENT IS  .62
KM RATIONAL METHOD TIME OF CONCENTRATION IS  10  MIN.
KM FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO YOUR HEC-1
KM IT 2 01JAN90 1200 200
BA .0222
IN 10 01JAN90  1155
QI 0  0  1.9  1.9  2  2.1  2.2  2.3  2.5  2.6
QI 2.8  3  3.3  3.6  4  4.6  5.5  7  10.3  33.3
QI 32.9  8.2  6.1  5  4.3  3.8  3.4  3.1  2.9  2.7
QI 2.5  2.4  2.3  2.2  2.1  2  1.9  1.8  0  0
QI 0  0  0  0  0  0  0  0
```

```
*FREE
*DIAGRAM
ID ESCONDIDO COUNTRY CLUB, J-17762-A BMP 1B
ID 100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
ID March 3, 2017 - FILE NAME: ECC_BMP1B_00.HC1
IT 2 01JAN90 1200 500
IO 5 0
*
KK ECC-BMP1B.OUT
KM RATIONAL METHOD HYDROGRAPH PROGRAM
KM COPYRIGHT 1992, RICK ENGINEERING COMPANY
KM 6HR RAINFALL IS  3.49  INCHES
KM RATIONAL METHOD RUNOFF COEFFICIENT IS  .62
KM RATIONAL METHOD TIME OF CONCENTRATION IS  10  MIN.
KM FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO
YOUR HEC-1
KM IT 2 01JAN90 1200 200
BA .0222
IN 10 01JAN90  1155
QI 0  0  1.9  1.9  2  2.1  2.2  2.3  2.5  2.6
QI 2.8  3  3.3  3.6  4  4.6  5.5  7  10.3  33.3
QI 32.9  8.2  6.1  5  4.3  3.8  3.4  3.1  2.9  2.7
QI 2.5  2.4  2.3  2.2  2.1  2  1.9  1.8  0  0
QI 0  0  0  0  0  0  0  0
*
KK DET1
KM DETAIN BASIN 1B
KO 2 2 0 0 21
RS 1 STOR -1
SV 0 .3 .77 1.3
SQ 0 .1 6.6 12.5
SE 100 101 102 103
*
KO 2 2 0 0 21
ZZ
```

```
1****************************************
****************************************
 *                                      *                                                    *
 *                                      *                                                    *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS
 *                                      *                                                    *
 *               JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING CENTER
 *                                      *                                                    *
 *            VERSION 4.1               *                                                    *          609 SECOND STREET
 *                                      *                                                    *
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616
 *                                      *                                                    *
 *  RUN DATE   06MAR17  TIME  12:55:47  *                                                    *           (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
```

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

 *** FREE ***
                        *DIAGRAM
             1          ID   ESCONDIDO COUNTRY CLUB, J-17762-A BMP 1B
             2          ID   100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
             3          ID   March 3, 2017 - FILE NAME: ECC_BMP1B_00.HC1
             4          IT       2 01JAN90    1200     500
             5          IO       5       0
                        *

             6          KKECC-BMP1B.OUT
             7          KM   RATIONAL METHOD HYDROGRAPH PROGRAM
             8          KM   COPYRIGHT 1992, RICK ENGINEERING COMPANY
             9          KM   6HR RAINFALL IS  3.49  INCHES
            10          KM   RATIONAL METHOD RUNOFF COEFFICIENT IS  .62
            11          KM   RATIONAL METHOD TIME OF CONCENTRATION IS  10  MIN.
            12          KM   FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO YOUR HEC-1
            13          KM   IT 2 01JAN90 1200 200
            14          BA   .0222
            15          IN      10 01JAN90    1155
            16          QI       0       0     1.9     1.9       2     2.1     2.2     2.3     2.5     2.6
            17          QI     2.8       3     3.3     3.6       4     4.6     5.5       7    10.3    33.3
            18          QI    32.9     8.2     6.1       5     4.3     3.8     3.4     3.1     2.9     2.7
            19          QI     2.5     2.4     2.3     2.2     2.1       2     1.9     1.8       0       0
            20          QI       0       0       0       0       0       0       0       0
                        *

            21          KK    DET1
            22          KM   DETAIN BASIN 1B
            23          KO       2       2       0       0      21
            24          RS       1    STOR      -1
            25          SV       0      .3     .77     1.3
            26          SQ       0      .1     6.6    12.5
            27          SE     100     101     102     103
                        *
            28          KO       2       2       0       0      21
            29          ZZ
```

1 SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

     6    ECC-BMP1
               V
               V
    21        DET1
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
****************************************
 *                                      *                                                    *
```

```
*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                                    *    U.S. ARMY CORPS OF ENGINEERS
*
 *              JUN   1998               *                                                    *    HYDROLOGIC ENGINEERING CENTER
*
 *           VERSION 4.1                 *                                                    *          609 SECOND STREET
*
 *                                       *                                                    *       DAVIS, CALIFORNIA 95616
*
 *  RUN DATE   06MAR17  TIME  12:55:47   *                                                    *           (916) 756-1104
*
 *                                       *                                                    *
*
 *****************************************
***************************************




                            ESCONDIDO COUNTRY CLUB, J-17762-A BMP 1B
                            100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
                            March 3, 2017 - FILE NAME: ECC_BMP1B_00.HC1

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

      IT          HYDROGRAPH TIME DATA
                         NMIN           2  MINUTES IN COMPUTATION INTERVAL
                        IDATE      1JAN90  STARTING DATE
                        ITIME        1200  STARTING TIME
                           NQ         500  NUMBER OF HYDROGRAPH ORDINATES
                       NDDATE      2JAN90  ENDING DATE
                       NDTIME        0438  ENDING TIME
                       ICENT           19  CENTURY MARK

                    COMPUTATION INTERVAL     .03 HOURS
                         TOTAL TIME BASE   16.63 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


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


             **************
             *            *
   21 KK     *      DET1  *
             *            *
             **************

   23 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           2  PRINT CONTROL
                        IPLOT           2  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                         IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2         500  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT        .033  TIME INTERVAL IN HOURS


   28 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           2  PRINT CONTROL
                        IPLOT           2  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                         IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2         500  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT        .033  TIME INTERVAL IN HOURS


                HYDROGRAPH ROUTING DATA

   24 RS          STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        STOR  TYPE OF INITIAL CONDITION
                       RSVRIC       -1.00  INITIAL CONDITION
                            X         .00 WORKING R AND D COEFFICIENT

   25 SV            STORAGE          .0        .3        .8       1.3

   26 SQ          DISCHARGE          0.        0.        7.       13.

   27 SE          ELEVATION      100.00    101.00    102.00    103.00
                                                                ***
```

HYDROGRAPH AT STATION DET1

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	JAN	1200	1	0.	.0	100.0	1	JAN	1734	168	4.	.6	101.6	1	JAN	2308	335	0.	.3	100.9
1	JAN	1202	2	0.	.0	100.0	1	JAN	1736	169	4.	.6	101.6	1	JAN	2310	336	0.	.3	100.9
1	JAN	1204	3	0.	.0	100.0	1	JAN	1738	170	4.	.6	101.6	1	JAN	2312	337	0.	.3	100.9
1	JAN	1206	4	0.	.0	100.0	1	JAN	1740	171	4.	.6	101.5	1	JAN	2314	338	0.	.3	100.9
1	JAN	1208	5	0.	.0	100.0	1	JAN	1742	172	4.	.6	101.5	1	JAN	2316	339	0.	.3	100.9
1	JAN	1210	6	0.	.0	100.0	1	JAN	1744	173	4.	.5	101.5	1	JAN	2318	340	0.	.3	100.9
1	JAN	1212	7	0.	.0	100.0	1	JAN	1746	174	3.	.5	101.5	1	JAN	2320	341	0.	.3	100.9
1	JAN	1214	8	0.	.0	100.0	1	JAN	1748	175	3.	.5	101.5	1	JAN	2322	342	0.	.3	100.9
1	JAN	1216	9	0.	.0	100.1	1	JAN	1750	176	3.	.5	101.5	1	JAN	2324	343	0.	.3	100.9
1	JAN	1218	10	0.	.0	100.1	1	JAN	1752	177	3.	.5	101.5	1	JAN	2326	344	0.	.3	100.9
1	JAN	1220	11	0.	.0	100.1	1	JAN	1754	178	3.	.5	101.5	1	JAN	2328	345	0.	.3	100.9
1	JAN	1222	12	0.	.0	100.1	1	JAN	1756	179	3.	.5	101.5	1	JAN	2330	346	0.	.3	100.9
1	JAN	1224	13	0.	.0	100.1	1	JAN	1758	180	3.	.5	101.5	1	JAN	2332	347	0.	.3	100.9
1	JAN	1226	14	0.	.0	100.1	1	JAN	1800	181	3.	.5	101.5	1	JAN	2334	348	0.	.3	100.9
1	JAN	1228	15	0.	.0	100.2	1	JAN	1802	182	3.	.5	101.5	1	JAN	2336	349	0.	.3	100.9
1	JAN	1230	16	0.	.1	100.2	1	JAN	1804	183	3.	.5	101.4	1	JAN	2338	350	0.	.3	100.9
1	JAN	1232	17	0.	.1	100.2	1	JAN	1806	184	3.	.5	101.4	1	JAN	2340	351	0.	.3	100.9
1	JAN	1234	18	0.	.1	100.2	1	JAN	1808	185	3.	.5	101.4	1	JAN	2342	352	0.	.3	100.9
1	JAN	1236	19	0.	.1	100.2	1	JAN	1810	186	3.	.5	101.4	1	JAN	2344	353	0.	.3	100.9
1	JAN	1238	20	0.	.1	100.2	1	JAN	1812	187	3.	.5	101.4	1	JAN	2346	354	0.	.3	100.9
1	JAN	1240	21	0.	.1	100.3	1	JAN	1814	188	3.	.5	101.4	1	JAN	2348	355	0.	.3	100.9
1	JAN	1242	22	0.	.1	100.3	1	JAN	1816	189	3.	.5	101.4	1	JAN	2350	356	0.	.3	100.9
1	JAN	1244	23	0.	.1	100.3	1	JAN	1818	190	2.	.5	101.4	1	JAN	2352	357	0.	.3	100.9
1	JAN	1246	24	0.	.1	100.3	1	JAN	1820	191	2.	.5	101.4	1	JAN	2354	358	0.	.3	100.9
1	JAN	1248	25	0.	.1	100.3	1	JAN	1822	192	2.	.5	101.3	1	JAN	2356	359	0.	.3	100.9
1	JAN	1250	26	0.	.1	100.4	1	JAN	1824	193	2.	.5	101.3	1	JAN	2358	360	0.	.3	100.9
1	JAN	1252	27	0.	.1	100.4	1	JAN	1826	194	2.	.4	101.3	2	JAN	0000	361	0.	.3	100.9
1	JAN	1254	28	0.	.1	100.4	1	JAN	1828	195	2.	.4	101.3	2	JAN	0002	362	0.	.3	100.9
1	JAN	1256	29	0.	.1	100.4	1	JAN	1830	196	2.	.4	101.3	2	JAN	0004	363	0.	.3	100.9
1	JAN	1258	30	0.	.1	100.4	1	JAN	1832	197	2.	.4	101.3	2	JAN	0006	364	0.	.3	100.9
1	JAN	1300	31	0.	.1	100.5	1	JAN	1834	198	2.	.4	101.3	2	JAN	0008	365	0.	.3	100.9
1	JAN	1302	32	0.	.1	100.5	1	JAN	1836	199	2.	.4	101.3	2	JAN	0010	366	0.	.3	100.9
1	JAN	1304	33	0.	.1	100.5	1	JAN	1838	200	2.	.4	101.2	2	JAN	0012	367	0.	.3	100.9
1	JAN	1306	34	0.	.2	100.5	1	JAN	1840	201	2.	.4	101.2	2	JAN	0014	368	0.	.3	100.9
1	JAN	1308	35	0.	.2	100.5	1	JAN	1842	202	2.	.4	101.2	2	JAN	0016	369	0.	.3	100.9
1	JAN	1310	36	0.	.2	100.6	1	JAN	1844	203	2.	.4	101.2	2	JAN	0018	370	0.	.3	100.9
1	JAN	1312	37	0.	.2	100.6	1	JAN	1846	204	1.	.4	101.2	2	JAN	0020	371	0.	.3	100.9
1	JAN	1314	38	0.	.2	100.6	1	JAN	1848	205	1.	.4	101.2	2	JAN	0022	372	0.	.3	100.9
1	JAN	1316	39	0.	.2	100.6	1	JAN	1850	206	1.	.4	101.2	2	JAN	0024	373	0.	.3	100.9
1	JAN	1318	40	0.	.2	100.7	1	JAN	1852	207	1.	.4	101.2	2	JAN	0026	374	0.	.3	100.9
1	JAN	1320	41	0.	.2	100.7	1	JAN	1854	208	1.	.4	101.2	2	JAN	0028	375	0.	.3	100.9
1	JAN	1322	42	0.	.2	100.7	1	JAN	1856	209	1.	.4	101.2	2	JAN	0030	376	0.	.3	100.9
1	JAN	1324	43	0.	.2	100.7	1	JAN	1858	210	1.	.4	101.2	2	JAN	0032	377	0.	.3	100.9
1	JAN	1326	44	0.	.2	100.7	1	JAN	1900	211	1.	.4	101.2	2	JAN	0034	378	0.	.3	100.9
1	JAN	1328	45	0.	.2	100.8	1	JAN	1902	212	1.	.4	101.1	2	JAN	0036	379	0.	.3	100.9
1	JAN	1330	46	0.	.2	100.8	1	JAN	1904	213	1.	.4	101.1	2	JAN	0038	380	0.	.3	100.9
1	JAN	1332	47	0.	.2	100.8	1	JAN	1906	214	1.	.4	101.1	2	JAN	0040	381	0.	.3	100.9
1	JAN	1334	48	0.	.3	100.8	1	JAN	1908	215	1.	.4	101.1	2	JAN	0042	382	0.	.3	100.9
1	JAN	1336	49	0.	.3	100.9	1	JAN	1910	216	1.	.4	101.1	2	JAN	0044	383	0.	.3	100.9
1	JAN	1338	50	0.	.3	100.9	1	JAN	1912	217	1.	.4	101.1	2	JAN	0046	384	0.	.3	100.9
1	JAN	1340	51	0.	.3	100.9	1	JAN	1914	218	1.	.4	101.1	2	JAN	0048	385	0.	.3	100.9
1	JAN	1342	52	0.	.3	100.9	1	JAN	1916	219	1.	.4	101.1	2	JAN	0050	386	0.	.3	100.9
1	JAN	1344	53	0.	.3	101.0	1	JAN	1918	220	1.	.3	101.1	2	JAN	0052	387	0.	.3	100.9
1	JAN	1346	54	0.	.3	101.0	1	JAN	1920	221	1.	.3	101.1	2	JAN	0054	388	0.	.3	100.9
1	JAN	1348	55	0.	.3	101.0	1	JAN	1922	222	1.	.3	101.1	2	JAN	0056	389	0.	.3	100.9
1	JAN	1350	56	0.	.3	101.0	1	JAN	1924	223	1.	.3	101.1	2	JAN	0058	390	0.	.3	100.9
1	JAN	1352	57	0.	.3	101.0	1	JAN	1926	224	1.	.3	101.1	2	JAN	0100	391	0.	.3	100.9
1	JAN	1354	58	1.	.3	101.1	1	JAN	1928	225	1.	.3	101.1	2	JAN	0102	392	0.	.3	100.9
1	JAN	1356	59	1.	.3	101.1	1	JAN	1930	226	1.	.3	101.1	2	JAN	0104	393	0.	.3	100.9
1	JAN	1358	60	1.	.3	101.1	1	JAN	1932	227	1.	.3	101.1	2	JAN	0106	394	0.	.3	100.9
1	JAN	1400	61	1.	.4	101.1	1	JAN	1934	228	1.	.3	101.1	2	JAN	0108	395	0.	.3	100.9
1	JAN	1402	62	1.	.4	101.1	1	JAN	1936	229	1.	.3	101.1	2	JAN	0110	396	0.	.3	100.9
1	JAN	1404	63	1.	.4	101.1	1	JAN	1938	230	1.	.3	101.1	2	JAN	0112	397	0.	.3	100.9
1	JAN	1406	64	1.	.4	101.2	1	JAN	1940	231	1.	.3	101.1	2	JAN	0114	398	0.	.3	100.9
1	JAN	1408	65	1.	.4	101.2	1	JAN	1942	232	1.	.3	101.1	2	JAN	0116	399	0.	.3	100.9
1	JAN	1410	66	1.	.4	101.2	1	JAN	1944	233	0.	.3	101.1	2	JAN	0118	400	0.	.3	100.9
1	JAN	1412	67	1.	.4	101.2	1	JAN	1946	234	0.	.3	101.1	2	JAN	0120	401	0.	.3	100.9
1	JAN	1414	68	1.	.4	101.2	1	JAN	1948	235	0.	.3	101.1	2	JAN	0122	402	0.	.3	100.9
1	JAN	1416	69	2.	.4	101.2	1	JAN	1950	236	0.	.3	101.1	2	JAN	0124	403	0.	.3	100.9
1	JAN	1418	70	2.	.4	101.2	1	JAN	1952	237	0.	.3	101.0	2	JAN	0126	404	0.	.3	100.9
1	JAN	1420	71	2.	.4	101.3	1	JAN	1954	238	0.	.3	101.0	2	JAN	0128	405	0.	.3	100.9
1	JAN	1422	72	2.	.4	101.3	1	JAN	1956	239	0.	.3	101.0	2	JAN	0130	406	0.	.3	100.9
1	JAN	1424	73	2.	.4	101.3	1	JAN	1958	240	0.	.3	101.0	2	JAN	0132	407	0.	.3	100.9
1	JAN	1426	74	2.	.4	101.3	1	JAN	2000	241	0.	.3	101.0	2	JAN	0134	408	0.	.3	100.9
1	JAN	1428	75	2.	.4	101.3	1	JAN	2002	242	0.	.3	101.0	2	JAN	0136	409	0.	.3	100.9
1	JAN	1430	76	2.	.5	101.3	1	JAN	2004	243	0.	.3	101.0	2	JAN	0138	410	0.	.3	100.9
1	JAN	1432	77	2.	.5	101.4	1	JAN	2006	244	0.	.3	101.0	2	JAN	0140	411	0.	.3	100.9
1	JAN	1434	78	2.	.5	101.4	1	JAN	2008	245	0.	.3	101.0	2	JAN	0142	412	0.	.3	100.9
1	JAN	1436	79	3.	.5	101.4	1	JAN	2010	246	0.	.3	101.0	2	JAN	0144	413	0.	.3	100.9
1	JAN	1438	80	3.	.5	101.4	1	JAN	2012	247	0.	.3	101.0	2	JAN	0146	414	0.	.3	100.9
1	JAN	1440	81	3.	.5	101.4	1	JAN	2014	248	0.	.3	101.0	2	JAN	0148	415	0.	.3	100.9
1	JAN	1442	82	3.	.5	101.4	1	JAN	2016	249	0.	.3	101.0	2	JAN	0150	416	0.	.3	100.9
1	JAN	1444	83	3.	.5	101.5	1	JAN	2018	250	0.	.3	101.0	2	JAN	0152	417	0.	.3	100.9
1	JAN	1446	84	3.	.5	101.5	1	JAN	2020	251	0.	.3	101.0	2	JAN	0154	418	0.	.3	100.9
1	JAN	1448	85	3.	.5	101.5	1	JAN	2022	252	0.	.3	101.0	2	JAN	0156	419	0.	.3	100.9
1	JAN	1450	86	4.	.6	101.5	1	JAN	2024	253	0.	.3	101.0	2	JAN	0158	420	0.	.3	100.9
1	JAN	1452	87	4.	.6	101.6	1	JAN	2026	254	0.	.3	101.0	2	JAN	0200	421	0.	.3	100.9
1	JAN	1454	88	4.	.6	101.6	1	JAN	2028	255	0.	.3	101.0	2	JAN	0202	422	0.	.3	100.9

1	JAN	1456	89	4.	.6	101.6	*	1	JAN	2030	256	0.	.3	101.0	*	2	JAN	0204	423	0.	.3	100.9
1	JAN	1458	90	5.	.6	101.7	*	1	JAN	2032	257	0.	.3	101.0	*	2	JAN	0206	424	0.	.3	100.9
1	JAN	1500	91	5.	.7	101.8	*	1	JAN	2034	258	0.	.3	101.0	*	2	JAN	0208	425	0.	.3	100.9
1	JAN	1502	92	6.	.7	101.9	*	1	JAN	2036	259	0.	.3	101.0	*	2	JAN	0210	426	0.	.3	100.9
1	JAN	1504	93	7.	.8	102.0	*	1	JAN	2038	260	0.	.3	101.0	*	2	JAN	0212	427	0.	.3	100.9
1	JAN	1506	94	8.	.9	102.2	*	1	JAN	2040	261	0.	.3	101.0	*	2	JAN	0214	428	0.	.3	100.9
1	JAN	1508	95	8.	.9	102.3	*	1	JAN	2042	262	0.	.3	101.0	*	2	JAN	0216	429	0.	.3	100.9
1	JAN	1510	96	9.	1.0	102.4	*	1	JAN	2044	263	0.	.3	101.0	*	2	JAN	0218	430	0.	.3	100.9
1	JAN	1512	97	10.	1.1	102.5	*	1	JAN	2046	264	0.	.3	101.0	*	2	JAN	0220	431	0.	.3	100.9
1	JAN	1514	98	10.	1.1	102.7	*	1	JAN	2048	265	0.	.3	101.0	*	2	JAN	0222	432	0.	.3	100.9
1	JAN	1516	99	11.	1.2	102.8	*	1	JAN	2050	266	0.	.3	101.0	*	2	JAN	0224	433	0.	.3	100.9
1	JAN	1518	100	12.	1.2	102.9	*	1	JAN	2052	267	0.	.3	101.0	*	2	JAN	0226	434	0.	.3	100.9
1	JAN	1520	101	12.	1.3	102.9	*	1	JAN	2054	268	0.	.3	101.0	*	2	JAN	0228	435	0.	.3	100.9
1	JAN	1522	102	12.	1.3	102.9	*	1	JAN	2056	269	0.	.3	101.0	*	2	JAN	0230	436	0.	.3	100.9
1	JAN	1524	103	12.	1.3	102.9	*	1	JAN	2058	270	0.	.3	101.0	*	2	JAN	0232	437	0.	.3	100.9
1	JAN	1526	104	12.	1.3	102.9	*	1	JAN	2100	271	0.	.3	101.0	*	2	JAN	0234	438	0.	.3	100.9
1	JAN	1528	105	12.	1.3	102.9	*	1	JAN	2102	272	0.	.3	101.0	*	2	JAN	0236	439	0.	.3	100.9
1	JAN	1530	106	12.	1.2	102.9	*	1	JAN	2104	273	0.	.3	101.0	*	2	JAN	0238	440	0.	.3	100.9
1	JAN	1532	107	12.	1.2	102.9	*	1	JAN	2106	274	0.	.3	101.0	*	2	JAN	0240	441	0.	.3	100.9
1	JAN	1534	108	12.	1.2	102.8	*	1	JAN	2108	275	0.	.3	101.0	*	2	JAN	0242	442	0.	.3	100.9
1	JAN	1536	109	11.	1.2	102.8	*	1	JAN	2110	276	0.	.3	101.0	*	2	JAN	0244	443	0.	.3	100.9
1	JAN	1538	110	11.	1.2	102.8	*	1	JAN	2112	277	0.	.3	101.0	*	2	JAN	0246	444	0.	.3	100.9
1	JAN	1540	111	11.	1.2	102.8	*	1	JAN	2114	278	0.	.3	101.0	*	2	JAN	0248	445	0.	.3	100.9
1	JAN	1542	112	11.	1.2	102.7	*	1	JAN	2116	279	0.	.3	101.0	*	2	JAN	0250	446	0.	.3	100.9
1	JAN	1544	113	11.	1.1	102.7	*	1	JAN	2118	280	0.	.3	101.0	*	2	JAN	0252	447	0.	.3	100.9
1	JAN	1546	114	11.	1.1	102.7	*	1	JAN	2120	281	0.	.3	101.0	*	2	JAN	0254	448	0.	.3	100.9
1	JAN	1548	115	10.	1.1	102.6	*	1	JAN	2122	282	0.	.3	101.0	*	2	JAN	0256	449	0.	.3	100.9
1	JAN	1550	116	10.	1.1	102.6	*	1	JAN	2124	283	0.	.3	101.0	*	2	JAN	0258	450	0.	.3	100.9
1	JAN	1552	117	10.	1.1	102.6	*	1	JAN	2126	284	0.	.3	101.0	*	2	JAN	0300	451	0.	.3	100.9
1	JAN	1554	118	10.	1.1	102.6	*	1	JAN	2128	285	0.	.3	101.0	*	2	JAN	0302	452	0.	.3	100.8
1	JAN	1556	119	10.	1.0	102.5	*	1	JAN	2130	286	0.	.3	101.0	*	2	JAN	0304	453	0.	.3	100.8
1	JAN	1558	120	10.	1.0	102.5	*	1	JAN	2132	287	0.	.3	101.0	*	2	JAN	0306	454	0.	.3	100.8
1	JAN	1600	121	9.	1.0	102.5	*	1	JAN	2134	288	0.	.3	101.0	*	2	JAN	0308	455	0.	.3	100.8
1	JAN	1602	122	9.	1.0	102.4	*	1	JAN	2136	289	0.	.3	101.0	*	2	JAN	0310	456	0.	.3	100.8
1	JAN	1604	123	9.	1.0	102.4	*	1	JAN	2138	290	0.	.3	101.0	*	2	JAN	0312	457	0.	.3	100.8
1	JAN	1606	124	9.	1.0	102.4	*	1	JAN	2140	291	0.	.3	101.0	*	2	JAN	0314	458	0.	.3	100.8
1	JAN	1608	125	9.	1.0	102.4	*	1	JAN	2142	292	0.	.3	101.0	*	2	JAN	0316	459	0.	.3	100.8
1	JAN	1610	126	9.	.9	102.3	*	1	JAN	2144	293	0.	.3	101.0	*	2	JAN	0318	460	0.	.3	100.8
1	JAN	1612	127	8.	.9	102.3	*	1	JAN	2146	294	0.	.3	101.0	*	2	JAN	0320	461	0.	.3	100.8
1	JAN	1614	128	8.	.9	102.3	*	1	JAN	2148	295	0.	.3	101.0	*	2	JAN	0322	462	0.	.3	100.8
1	JAN	1616	129	8.	.9	102.3	*	1	JAN	2150	296	0.	.3	101.0	*	2	JAN	0324	463	0.	.3	100.8
1	JAN	1618	130	8.	.9	102.2	*	1	JAN	2152	297	0.	.3	101.0	*	2	JAN	0326	464	0.	.3	100.8
1	JAN	1620	131	8.	.9	102.2	*	1	JAN	2154	298	0.	.3	101.0	*	2	JAN	0328	465	0.	.3	100.8
1	JAN	1622	132	8.	.9	102.2	*	1	JAN	2156	299	0.	.3	101.0	*	2	JAN	0330	466	0.	.3	100.8
1	JAN	1624	133	8.	.9	102.2	*	1	JAN	2158	300	0.	.3	101.0	*	2	JAN	0332	467	0.	.3	100.8
1	JAN	1626	134	7.	.8	102.1	*	1	JAN	2200	301	0.	.3	101.0	*	2	JAN	0334	468	0.	.3	100.8
1	JAN	1628	135	7.	.8	102.1	*	1	JAN	2202	302	0.	.3	101.0	*	2	JAN	0336	469	0.	.3	100.8
1	JAN	1630	136	7.	.8	102.1	*	1	JAN	2204	303	0.	.3	101.0	*	2	JAN	0338	470	0.	.3	100.8
1	JAN	1632	137	7.	.8	102.1	*	1	JAN	2206	304	0.	.3	101.0	*	2	JAN	0340	471	0.	.3	100.8
1	JAN	1634	138	7.	.8	102.1	*	1	JAN	2208	305	0.	.3	101.0	*	2	JAN	0342	472	0.	.3	100.8
1	JAN	1636	139	7.	.8	102.0	*	1	JAN	2210	306	0.	.3	101.0	*	2	JAN	0344	473	0.	.2	100.8
1	JAN	1638	140	7.	.8	102.0	*	1	JAN	2212	307	0.	.3	101.0	*	2	JAN	0346	474	0.	.2	100.8
1	JAN	1640	141	7.	.8	102.0	*	1	JAN	2214	308	0.	.3	101.0	*	2	JAN	0348	475	0.	.2	100.8
1	JAN	1642	142	6.	.8	102.0	*	1	JAN	2216	309	0.	.3	101.0	*	2	JAN	0350	476	0.	.2	100.8
1	JAN	1644	143	6.	.7	101.9	*	1	JAN	2218	310	0.	.3	101.0	*	2	JAN	0352	477	0.	.2	100.8
1	JAN	1646	144	6.	.7	101.9	*	1	JAN	2220	311	0.	.3	101.0	*	2	JAN	0354	478	0.	.2	100.8
1	JAN	1648	145	6.	.7	101.9	*	1	JAN	2222	312	0.	.3	101.0	*	2	JAN	0356	479	0.	.2	100.8
1	JAN	1650	146	6.	.7	101.9	*	1	JAN	2224	313	0.	.3	101.0	*	2	JAN	0358	480	0.	.2	100.8
1	JAN	1652	147	6.	.7	101.9	*	1	JAN	2226	314	0.	.3	101.0	*	2	JAN	0400	481	0.	.2	100.8
1	JAN	1654	148	6.	.7	101.9	*	1	JAN	2228	315	0.	.3	101.0	*	2	JAN	0402	482	0.	.2	100.8
1	JAN	1656	149	6.	.7	101.8	*	1	JAN	2230	316	0.	.3	101.0	*	2	JAN	0404	483	0.	.2	100.8
1	JAN	1658	150	5.	.7	101.8	*	1	JAN	2232	317	0.	.3	101.0	*	2	JAN	0406	484	0.	.2	100.8
1	JAN	1700	151	5.	.7	101.8	*	1	JAN	2234	318	0.	.3	101.0	*	2	JAN	0408	485	0.	.2	100.8
1	JAN	1702	152	5.	.7	101.8	*	1	JAN	2236	319	0.	.3	101.0	*	2	JAN	0410	486	0.	.2	100.8
1	JAN	1704	153	5.	.7	101.8	*	1	JAN	2238	320	0.	.3	101.0	*	2	JAN	0412	487	0.	.2	100.8
1	JAN	1706	154	5.	.7	101.8	*	1	JAN	2240	321	0.	.3	101.0	*	2	JAN	0414	488	0.	.2	100.8
1	JAN	1708	155	5.	.6	101.7	*	1	JAN	2242	322	0.	.3	101.0	*	2	JAN	0416	489	0.	.2	100.8
1	JAN	1710	156	5.	.6	101.7	*	1	JAN	2244	323	0.	.3	101.0	*	2	JAN	0418	490	0.	.2	100.8
1	JAN	1712	157	5.	.6	101.7	*	1	JAN	2246	324	0.	.3	101.0	*	2	JAN	0420	491	0.	.2	100.8
1	JAN	1714	158	5.	.6	101.7	*	1	JAN	2248	325	0.	.3	101.0	*	2	JAN	0422	492	0.	.2	100.8
1	JAN	1716	159	5.	.6	101.7	*	1	JAN	2250	326	0.	.3	101.0	*	2	JAN	0424	493	0.	.2	100.8
1	JAN	1718	160	4.	.6	101.7	*	1	JAN	2252	327	0.	.3	101.0	*	2	JAN	0426	494	0.	.2	100.8
1	JAN	1720	161	4.	.6	101.7	*	1	JAN	2254	328	0.	.3	101.0	*	2	JAN	0428	495	0.	.2	100.8
1	JAN	1722	162	4.	.6	101.6	*	1	JAN	2256	329	0.	.3	101.0	*	2	JAN	0430	496	0.	.2	100.8
1	JAN	1724	163	4.	.6	101.6	*	1	JAN	2258	330	0.	.3	101.0	*	2	JAN	0432	497	0.	.2	100.8
1	JAN	1726	164	4.	.6	101.6	*	1	JAN	2300	331	0.	.3	100.9	*	2	JAN	0434	498	0.	.2	100.8
1	JAN	1728	165	4.	.6	101.6	*	1	JAN	2302	332	0.	.3	100.9	*	2	JAN	0436	499	0.	.2	100.8
1	JAN	1730	166	4.	.6	101.6	*	1	JAN	2304	333	0.	.3	100.9	*	2	JAN	0438	500	0.	.2	100.8
1	JAN	1732	167	4.	.6	101.6	*	1	JAN	2306	334	0.	.3	100.9	*							
							*								*							

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	16.63-HR
+ (CFS)	(HR)					
		(CFS)				
+ 12.	3.40		4.	2.	2.	2.
		(INCHES)	1.867	1.940	1.940	1.940
		(AC-FT)	2.	2.	2.	2.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	16.63-HR
+ (AC-FT)	(HR)					
1.	3.40		1.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	16.63-HR
+ (FEET)	(HR)					

102.95 3.40 101.68 101.14 101.14 101.14

CUMULATIVE AREA = .02 SQ MI

1 STATION DET1

(I) INFLOW, (O) OUTFLOW

0. 4. 8. 12. 16. 20. 24. 28. 32. 36. 0. 0.
0.

(S) STORAGE

.0 .0 .0 .0 .0 .0 .0 .4 .8 1.2 1.6 .0
.0

DAHRMN PER

11200 1I---------.---------.---------.---------.---------.---------S---------.---------.---------.---------.---------.---------.

11202 2I . . . . . S . . . . . .

11204 3I . . . . . S . . . . . .

11206 4I . . . . . S . . . . . .

11208 5OI . . . . . S . . . . . .

11210 6O I . . . . . S . . . . . .

11212 7O I . . . . . S . . . . . .

11214 8O I . . . . . S . . . . . .

11216 9O I . . . . . S . . . . . .

11218 10O I . . . . . .S . . . . . .

11220 11O . .I. . . . . .S. . . . . .

11222 12O I . . . . . .S . . . . . .

11224 13O I . . . . . .S . . . . . .

11226 14O I . . . . . .S . . . . . .

11228 15O I . . . . . .S . . . . . .

11230 16O I . . . . . .S . . . . . .

11232 17O I . . . . . .S . . . . . .

11234 18O I . . . . . . S . . . . . .

11236 19O I . . . . . . S . . . . . .

11238 20O I . . . . . . S . . . . . .

11240 21O . .I. . . . . . S . . . . . .

11242 22O I . . . . . . S . . . . . .

11244 23O I . . . . . . S . . . . . .

11246 24O I . . . . . . S . . . . . .

11248 25O I . . . . . . S . . . . . .

11250 26O I . . . . . . S . . . . . .

11252 27O I . . . . . . S . . . . . .

11254 28O I . . . . . . S . . . . . .

11256 29O I . . . . . . S . . . . . .

11258 30O I . . . . . . S . . . . . .

11300 31O . . I . . . . . .S. . . . . .

11302 32O I . . . . . . S . . . . . .

11304 33O I . . . . . . S . . . . . .

11306 34O I . . . . . . S . . . . . .

11308 35O I . . . . . . S . . . . . .

11310 36O I . . . . . . S . . . . . .

11312 37O I . . . . . . S . . . . . .

11314 38O I . . . . . . S . . . . . .

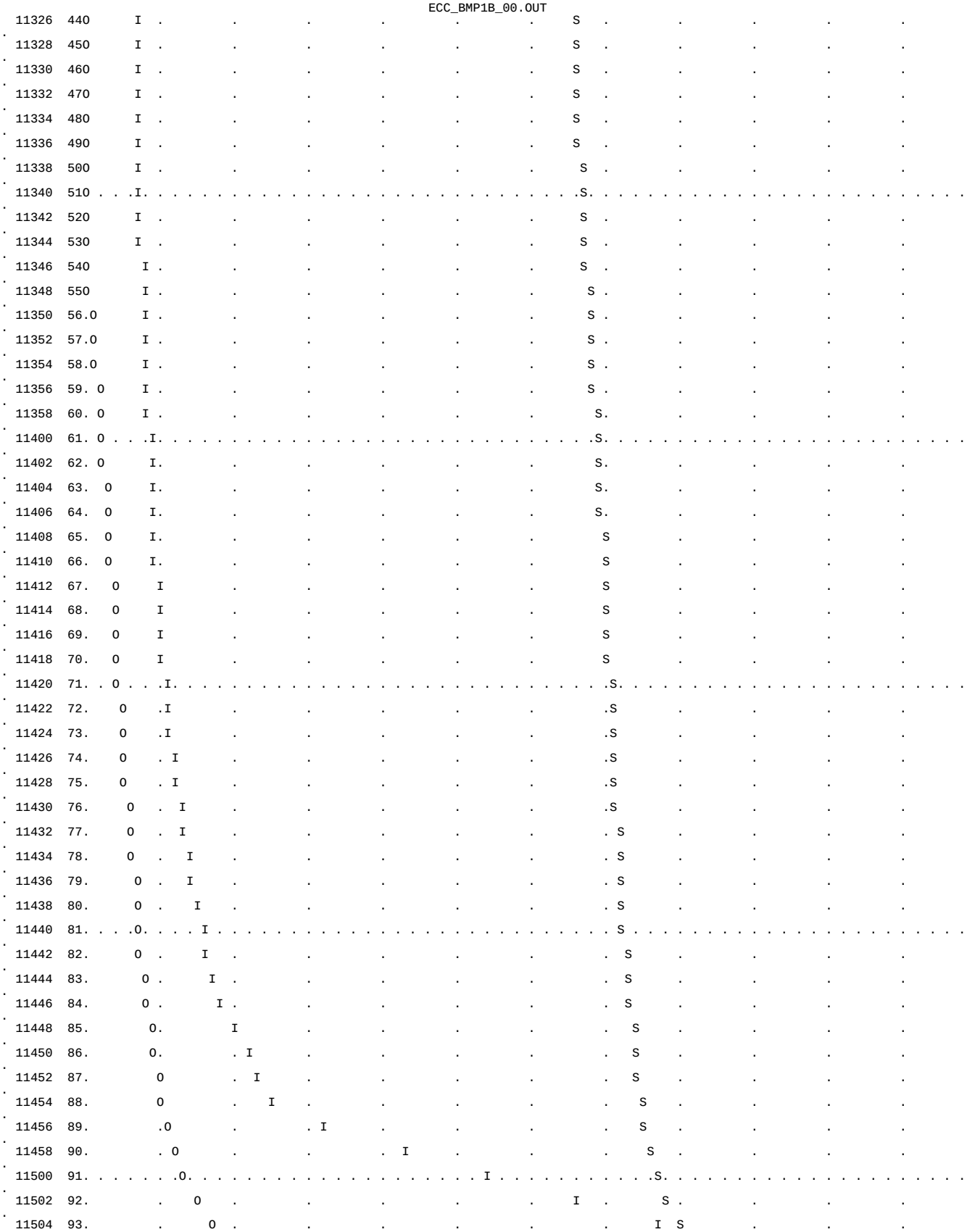
11316 39O I . . . . . . S . . . . . .

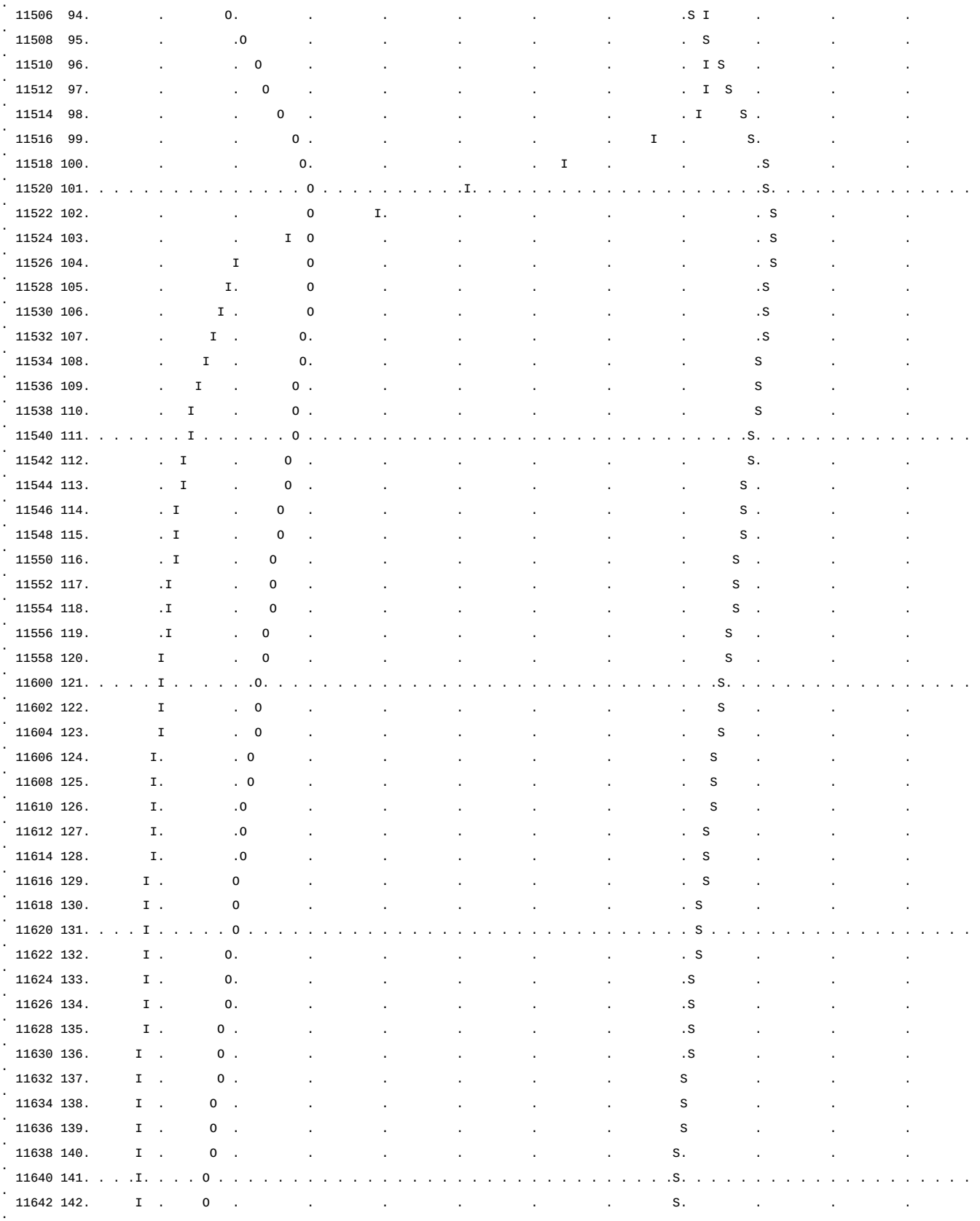
11318 40O I . . . . . . S . . . . . .

11320 41O . . I . . . . . .S. . . . . .

11322 42O I . . . . . . S . . . . . .

11324 43O I . . . . . . S . . . . . .


11326 440
11328 450
11330 460
11332 470
11334 480
11336 490
11338 500
11340 510
11342 520
11344 530
11346 540
11348 550
11350 56.0
11352 57.0
11354 58.0
11356 59. 0
11358 60. 0
11400 61. 0
11402 62. 0
11404 63. 0
11406 64. 0
11408 65. 0
11410 66. 0
11412 67. 0
11414 68. 0
11416 69. 0
11418 70. 0
11420 71. 0
11422 72. 0
11424 73. 0
11426 74. 0
11428 75. 0
11430 76. 0
11432 77. 0
11434 78. 0
11436 79. 0
11438 80. 0
11440 81. 0
11442 82. 0
11444 83. 0
11446 84. 0
11448 85. 0.
11450 86. 0.
11452 87. 0
11454 88. 0
11456 89. .0
11458 90. . 0
11500 91. .0.
11502 92. . 0
11504 93. . 0



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11644 143.      I  .     O   .         .         .         .         .         .        S.         .         .         .
11646 144.      I  .    O    .         .         .         .         .         .       S .         .         .         .
11648 145.      I  .    O    .         .         .         .         .         .       S .         .         .         .
11650 146.     I   .    O    .         .         .         .         .         .       S .         .         .         .
11652 147.     I   .   O     .         .         .         .         .         .       S .         .         .         .
11654 148.     I   .   O     .         .         .         .         .         .      S  .         .         .         .
11656 149.     I   .   O     .         .         .         .         .         .      S  .         .         .         .
11658 150.     I   .   O     .         .         .         .         .         .      S  .         .         .         .
11700 151. . . I . . .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . .
11702 152.     I   .  O      .         .         .         .         .         .      S  .         .         .         .
11704 153.     I   .  O      .         .         .         .         .         .      S  .         .         .         .
11706 154.     I   . O       .         .         .         .         .         .     S   .         .         .         .
11708 155.     I   . O       .         .         .         .         .         .     S   .         .         .         .
11710 156.     I   . O       .         .         .         .         .         .     S   .         .         .         .
11712 157.     I   . O       .         .         .         .         .         .     S   .         .         .         .
11714 158.     I   . O       .         .         .         .         .         .     S   .         .         .         .
11716 159.     I   .O        .         .         .         .         .         .    S    .         .         .         .
11718 160.     I   .O        .         .         .         .         .         .    S    .         .         .         .
11720 161. . . I . .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . .
11722 162.     I   .O        .         .         .         .         .         .    S    .         .         .         .
11724 163.     I   .O        .         .         .         .         .         .    S    .         .         .         .
11726 164.    I    O         .         .         .         .         .         .    S    .         .         .         .
11728 165.    I    O         .         .         .         .         .         .    S    .         .         .         .
11730 166.    I    O         .         .         .         .         .         .    S    .         .         .         .
11732 167.    I    O         .         .         .         .         .         .   S     .         .         .         .
11734 168.    I    O         .         .         .         .         .         .   S     .         .         .         .
11736 169.    I   O.         .         .         .         .         .         .   S     .         .         .         .
11738 170.    I   O.         .         .         .         .         .         .   S     .         .         .         .
11740 171. . .I. .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . .
11742 172.    I   O.         .         .         .         .         .         .   S     .         .         .         .
11744 173.    I   O.         .         .         .         .         .         .   S     .         .         .         .
11746 174.    I   O.         .         .         .         .         .         .   S     .         .         .         .
11748 175.    I   O.         .         .         .         .         .         .   S     .         .         .         .
11750 176.    I  O .         .         .         .         .         .         .  S      .         .         .         .
11752 177.    I  O .         .         .         .         .         .         .  S      .         .         .         .
11754 178.    I  O .         .         .         .         .         .         .  S      .         .         .         .
11756 179.    I  O .         .         .         .         .         .         .  S      .         .         .         .
11758 180.    I  O .         .         .         .         .         .         .  S      .         .         .         .
11800 181. . .I. O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . .
11802 182.    I  O .         .         .         .         .         .         .  S      .         .         .         .
11804 183.    I  O .         .         .         .         .         .         .  S      .         .         .         .
11806 184.   I  O  .         .         .         .         .         .         .  S      .         .         .         .
11808 185.  I   O  .         .         .         .         .         .         .  S      .         .         .         .
11810 186. I    O  .         .         .         .         .         .         . S       .         .         .         .
11812 187.I     O  .         .         .         .         .         .         . S       .         .         .         .
11814 188I      O  .         .         .         .         .         .         . S       .         .         .         .
11816 189I     O   .         .         .         .         .         .         . S       .         .         .         .
11818 190I     O   .         .         .         .         .         .         . S       .         .         .         .
11820 191I . . O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . .
11822 192I     O   .         .         .         .         .         .         .S       .         .         .         .
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  11824 193I     O   .         .         .         .         .         .         .S        .         .         .         .
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  11826 194I    O    .         .         .         .         .         .         .S        .         .         .         .
.
  11828 195I    O    .         .         .         .         .         .         .S        .         .         .         .
.
  11830 196I    O    .         .         .         .         .         .         .S        .         .         .         .
.
  11832 197I    O    .         .         .         .         .         .         .S        .         .         .         .
.
  11834 198I    O    .         .         .         .         .         .         .S        .         .         .         .
.
  11836 199I   O     .         .         .         .         .         .         .S        .         .         .         .
.
  11838 200I   O     .         .         .         .         .         .         S         .         .         .         .
.
  11840 201I . O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
.
  11842 202I   O     .         .         .         .         .         .         S         .         .         .         .
.
  11844 203I   O     .         .         .         .         .         .         S         .         .         .         .
.
  11846 204I   O     .         .         .         .         .         .         S         .         .         .         .
.
  11848 205I   O     .         .         .         .         .         .         S         .         .         .         .
.
  11850 206I  O      .         .         .         .         .         .         S         .         .         .         .
.
  11852 207I  O      .         .         .         .         .         .         S         .         .         .         .
.
  11854 208I  O      .         .         .         .         .         .         S         .         .         .         .
.
  11856 209I  O      .         .         .         .         .         .        S.         .         .         .         .
.
  11858 210I  O      .         .         .         .         .         .        S.         .         .         .         .
.
  11900 211I .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
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  11902 212I  O      .         .         .         .         .         .        S.         .         .         .         .
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  11904 213I  O      .         .         .         .         .         .        S.         .         .         .         .
.
  11906 214I O       .         .         .         .         .         .        S.         .         .         .         .
.
  11908 215I O       .         .         .         .         .         .        S.         .         .         .         .
.
  11910 216I O       .         .         .         .         .         .        S.         .         .         .         .
.
  11912 217I O       .         .         .         .         .         .        S.         .         .         .         .
.
  11914 218I O       .         .         .         .         .         .        S.         .         .         .         .
.
  11916 219I O       .         .         .         .         .         .        S.         .         .         .         .
.
  11918 220I O       .         .         .         .         .         .        S.         .         .         .         .
.
  11920 221I O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
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  11922 222I O       .         .         .         .         .         .        S.         .         .         .         .
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  11924 223I O       .         .         .         .         .         .        S.         .         .         .         .
.
  11926 224I O       .         .         .         .         .         .        S.         .         .         .         .
.
  11928 225I O       .         .         .         .         .         .        S.         .         .         .         .
.
  11930 226I O       .         .         .         .         .         .       S .         .         .         .         .
.
  11932 227I O       .         .         .         .         .         .       S .         .         .         .         .
.
  11934 228IO        .         .         .         .         .         .       S .         .         .         .         .
.
  11936 229IO        .         .         .         .         .         .       S .         .         .         .         .
.
  11938 230IO        .         .         .         .         .         .       S .         .         .         .         .
.
  11940 231IO. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . .
.
  11942 232IO        .         .         .         .         .         .       S .         .         .         .         .
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  11944 233IO        .         .         .         .         .         .       S .         .         .         .         .
.
  11946 234IO        .         .         .         .         .         .       S .         .         .         .         .
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  11948 235IO        .         .         .         .         .         .       S .         .         .         .         .
.
  11950 236IO        .         .         .         .         .         .       S .         .         .         .         .
.
  11952 237IO        .         .         .         .         .         .       S .         .         .         .         .
.
  11954 238IO        .         .         .         .         .         .       S .         .         .         .         .
.
  11956 239IO        .         .         .         .         .         .       S .         .         .         .         .
.
  11958 240IO        .         .         .         .         .         .       S .         .         .         .         .
.
  12000 241IO. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . .
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12002 242IO        .         .         .         .         .         .      S .         .         .         .         .
12004 243IO        .         .         .         .         .         .      S .         .         .         .         .
12006 244IO        .         .         .         .         .         .      S .         .         .         .         .
12008 245IO        .         .         .         .         .         .      S .         .         .         .         .
12010 246IO        .         .         .         .         .         .      S .         .         .         .         .
12012 247IO        .         .         .         .         .         .      S .         .         .         .         .
12014 248IO        .         .         .         .         .         .      S .         .         .         .         .
12016 249IO        .         .         .         .         .         .      S .         .         .         .         .
12018 250IO        .         .         .         .         .         .      S .         .         .         .         .
12020 251IO. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
12022 252IO        .         .         .         .         .         .      S .         .         .         .         .
12024 253IO        .         .         .         .         .         .      S .         .         .         .         .
12026 254IO        .         .         .         .         .         .      S .         .         .         .         .
12028 255IO        .         .         .         .         .         .      S .         .         .         .         .
12030 256IO        .         .         .         .         .         .      S .         .         .         .         .
12032 257I         .         .         .         .         .         .      S .         .         .         .         .
12034 258I         .         .         .         .         .         .      S .         .         .         .         .
12036 259I         .         .         .         .         .         .      S .         .         .         .         .
12038 260I         .         .         .         .         .         .      S .         .         .         .         .
12040 261I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
12042 262I         .         .         .         .         .         .      S .         .         .         .         .
12044 263I         .         .         .         .         .         .      S .         .         .         .         .
12046 264I         .         .         .         .         .         .      S .         .         .         .         .
12048 265I         .         .         .         .         .         .      S .         .         .         .         .
12050 266I         .         .         .         .         .         .      S .         .         .         .         .
12052 267I         .         .         .         .         .         .      S .         .         .         .         .
12054 268I         .         .         .         .         .         .      S .         .         .         .         .
12056 269I         .         .         .         .         .         .      S .         .         .         .         .
12058 270I         .         .         .         .         .         .      S .         .         .         .         .
12100 271I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
12102 272I         .         .         .         .         .         .      S .         .         .         .         .
12104 273I         .         .         .         .         .         .      S .         .         .         .         .
12106 274I         .         .         .         .         .         .      S .         .         .         .         .
12108 275I         .         .         .         .         .         .     S  .         .         .         .         .
12110 276I         .         .         .         .         .         .     S  .         .         .         .         .
12112 277I         .         .         .         .         .         .     S  .         .         .         .         .
12114 278I         .         .         .         .         .         .     S  .         .         .         .         .
12116 279I         .         .         .         .         .         .     S  .         .         .         .         .
12118 280I         .         .         .         .         .         .     S  .         .         .         .         .
12120 281I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . . .
12122 282I         .         .         .         .         .         .     S  .         .         .         .         .
12124 283I         .         .         .         .         .         .     S  .         .         .         .         .
12126 284I         .         .         .         .         .         .     S  .         .         .         .         .
12128 285I         .         .         .         .         .         .     S  .         .         .         .         .
12130 286I         .         .         .         .         .         .     S  .         .         .         .         .
12132 287I         .         .         .         .         .         .     S  .         .         .         .         .
12134 288I         .         .         .         .         .         .     S  .         .         .         .         .
12136 289I         .         .         .         .         .         .     S  .         .         .         .         .
12138 290I         .         .         .         .         .         .     S  .         .         .         .         .
12140 291I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . . .
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12142 292I        .       .       .       .       .       .       S .       .       .       .       .
12144 293I        .       .       .       .       .       .       S .       .       .       .       .
12146 294I        .       .       .       .       .       .       S .       .       .       .       .
12148 295I        .       .       .       .       .       .       S .       .       .       .       .
12150 296I        .       .       .       .       .       .       S .       .       .       .       .
12152 297I        .       .       .       .       .       .       S .       .       .       .       .
12154 298I        .       .       .       .       .       .       S .       .       .       .       .
12156 299I        .       .       .       .       .       .       S .       .       .       .       .
12158 300I        .       .       .       .       .       .       S .       .       .       .       .
12200 301I . . . . . .S. . . . . .
12202 302I        .       .       .       .       .       .       S .       .       .       .       .
12204 303I        .       .       .       .       .       .       S .       .       .       .       .
12206 304I        .       .       .       .       .       .       S .       .       .       .       .
12208 305I        .       .       .       .       .       .       S .       .       .       .       .
12210 306I        .       .       .       .       .       .       S .       .       .       .       .
12212 307I        .       .       .       .       .       .       S .       .       .       .       .
12214 308I        .       .       .       .       .       .       S .       .       .       .       .
12216 309I        .       .       .       .       .       .       S .       .       .       .       .
12218 310I        .       .       .       .       .       .       S .       .       .       .       .
12220 311I . . . . . .S. . . . . .
12222 312I        .       .       .       .       .       .       S .       .       .       .       .
12224 313I        .       .       .       .       .       .       S .       .       .       .       .
12226 314I        .       .       .       .       .       .       S .       .       .       .       .
12228 315I        .       .       .       .       .       .       S .       .       .       .       .
12230 316I        .       .       .       .       .       .       S .       .       .       .       .
12232 317I        .       .       .       .       .       .       S .       .       .       .       .
12234 318I        .       .       .       .       .       .       S .       .       .       .       .
12236 319I        .       .       .       .       .       .       S .       .       .       .       .
12238 320I        .       .       .       .       .       .       S .       .       .       .       .
12240 321I . . . . . .S. . . . . .
12242 322I        .       .       .       .       .       .       S .       .       .       .       .
12244 323I        .       .       .       .       .       .       S .       .       .       .       .
12246 324I        .       .       .       .       .       .       S .       .       .       .       .
12248 325I        .       .       .       .       .       .       S .       .       .       .       .
12250 326I        .       .       .       .       .       .       S .       .       .       .       .
12252 327I        .       .       .       .       .       .       S .       .       .       .       .
12254 328I        .       .       .       .       .       .       S .       .       .       .       .
12256 329I        .       .       .       .       .       .       S .       .       .       .       .
12258 330I        .       .       .       .       .       .       S .       .       .       .       .
12300 331I . . . . . .S. . . . . .
12302 332I        .       .       .       .       .       .       S .       .       .       .       .
12304 333I        .       .       .       .       .       .       S .       .       .       .       .
12306 334I        .       .       .       .       .       .       S .       .       .       .       .
12308 335I        .       .       .       .       .       .       S .       .       .       .       .
12310 336I        .       .       .       .       .       .       S .       .       .       .       .
12312 337I        .       .       .       .       .       .       S .       .       .       .       .
12314 338I        .       .       .       .       .       .       S .       .       .       .       .
12316 339I        .       .       .       .       .       .       S .       .       .       .       .
12318 340I        .       .       .       .       .       .       S .       .       .       .       .
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12320 341I . . . . . S. . . . . .
12322 342I        .       .       .       .       .       .       S       .       .       .       .       .
12324 343I        .       .       .       .       .       .       S       .       .       .       .       .
12326 344I        .       .       .       .       .       .       S       .       .       .       .       .
12328 345I        .       .       .       .       .       .       S       .       .       .       .       .
12330 346I        .       .       .       .       .       .       S       .       .       .       .       .
12332 347I        .       .       .       .       .       .       S       .       .       .       .       .
12334 348I        .       .       .       .       .       .       S       .       .       .       .       .
12336 349I        .       .       .       .       .       .       S       .       .       .       .       .
12338 350I        .       .       .       .       .       .       S       .       .       .       .       .
12340 351I . . . . . S. . . . . .
12342 352I        .       .       .       .       .       .       S       .       .       .       .       .
12344 353I        .       .       .       .       .       .       S       .       .       .       .       .
12346 354I        .       .       .       .       .       .       S       .       .       .       .       .
12348 355I        .       .       .       .       .       .       S       .       .       .       .       .
12350 356I        .       .       .       .       .       .       S       .       .       .       .       .
12352 357I        .       .       .       .       .       .       S       .       .       .       .       .
12354 358I        .       .       .       .       .       .       S       .       .       .       .       .
12356 359I        .       .       .       .       .       .       S       .       .       .       .       .
12358 360I        .       .       .       .       .       .       S       .       .       .       .       .
20000 361I . . . . . S. . . . . .
20002 362I        .       .       .       .       .       .       S       .       .       .       .       .
20004 363I        .       .       .       .       .       .       S       .       .       .       .       .
20006 364I        .       .       .       .       .       .       S       .       .       .       .       .
20008 365I        .       .       .       .       .       .       S       .       .       .       .       .
20010 366I        .       .       .       .       .       .       S       .       .       .       .       .
20012 367I        .       .       .       .       .       .       S       .       .       .       .       .
20014 368I        .       .       .       .       .       .       S       .       .       .       .       .
20016 369I        .       .       .       .       .       .       S       .       .       .       .       .
20018 370I        .       .       .       .       .       .       S       .       .       .       .       .
20020 371I . . . . . S. . . . . .
20022 372I        .       .       .       .       .       .       S       .       .       .       .       .
20024 373I        .       .       .       .       .       .       S       .       .       .       .       .
20026 374I        .       .       .       .       .       .       S       .       .       .       .       .
20028 375I        .       .       .       .       .       .       S       .       .       .       .       .
20030 376I        .       .       .       .       .       .       S       .       .       .       .       .
20032 377I        .       .       .       .       .       .       S       .       .       .       .       .
20034 378I        .       .       .       .       .       .       S       .       .       .       .       .
20036 379I        .       .       .       .       .       .       S       .       .       .       .       .
20038 380I        .       .       .       .       .       .       S       .       .       .       .       .
20040 381I . . . . . S. . . . . .
20042 382I        .       .       .       .       .       .       S       .       .       .       .       .
20044 383I        .       .       .       .       .       .       S       .       .       .       .       .
20046 384I        .       .       .       .       .       .       S       .       .       .       .       .
20048 385I        .       .       .       .       .       .       S       .       .       .       .       .
20050 386I        .       .       .       .       .       .       S       .       .       .       .       .
20052 387I        .       .       .       .       .       .       S       .       .       .       .       .
20054 388I        .       .       .       .       .       .       S       .       .       .       .       .
20056 389I        .       .       .       .       .       .       S       .       .       .       .       .
20058 390I        .       .       .       .       .       .       S       .       .       .       .       .
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20100 391I . . . . . S. . . . . .
20102 392I . . . . . S . . . . . .
20104 393I . . . . . S . . . . . .
20106 394I . . . . . S . . . . . .
20108 395I . . . . . S . . . . . .
20110 396I . . . . . S . . . . . .
20112 397I . . . . . S . . . . . .
20114 398I . . . . . S . . . . . .
20116 399I . . . . . S . . . . . .
20118 400I . . . . . S . . . . . .
20120 401I . . . . . S. . . . . .
20122 402I . . . . . S . . . . . .
20124 403I . . . . . S . . . . . .
20126 404I . . . . . S . . . . . .
20128 405I . . . . . S . . . . . .
20130 406I . . . . . S . . . . . .
20132 407I . . . . . S . . . . . .
20134 408I . . . . . S . . . . . .
20136 409I . . . . . S . . . . . .
20138 410I . . . . . S . . . . . .
20140 411I . . . . . S. . . . . .
20142 412I . . . . . S . . . . . .
20144 413I . . . . . S . . . . . .
20146 414I . . . . . S . . . . . .
20148 415I . . . . . S . . . . . .
20150 416I . . . . . S . . . . . .
20152 417I . . . . . S . . . . . .
20154 418I . . . . . S . . . . . .
20156 419I . . . . . S . . . . . .
20158 420I . . . . . S . . . . . .
20200 421I . . . . . S. . . . . .
20202 422I . . . . . S . . . . . .
20204 423I . . . . . S . . . . . .
20206 424I . . . . . S . . . . . .
20208 425I . . . . . S . . . . . .
20210 426I . . . . . S . . . . . .
20212 427I . . . . . S . . . . . .
20214 428I . . . . . S . . . . . .
20216 429I . . . . . S . . . . . .
20218 430I . . . . . S . . . . . .
20220 431I . . . . . S . . . . . .
20222 432I . . . . . S . . . . . .
20224 433I . . . . . S . . . . . .
20226 434I . . . . . S . . . . . .
20228 435I . . . . . S . . . . . .
20230 436I . . . . . S . . . . . .
20232 437I . . . . . S . . . . . .
20234 438I . . . . . S . . . . . .
20236 439I . . . . . S . . . . . .
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20238 440I        .       .       .       .       .       .       S   .       .       .       .       .
20240 441I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20242 442I        .       .       .       .       .       .       S   .       .       .       .       .
20244 443I        .       .       .       .       .       .       S   .       .       .       .       .
20246 444I        .       .       .       .       .       .       S   .       .       .       .       .
20248 445I        .       .       .       .       .       .       S   .       .       .       .       .
20250 446I        .       .       .       .       .       .       S   .       .       .       .       .
20252 447I        .       .       .       .       .       .       S   .       .       .       .       .
20254 448I        .       .       .       .       .       .       S   .       .       .       .       .
20256 449I        .       .       .       .       .       .       S   .       .       .       .       .
20258 450I        .       .       .       .       .       .       S   .       .       .       .       .
20300 451I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20302 452I        .       .       .       .       .       .       S   .       .       .       .       .
20304 453I        .       .       .       .       .       .       S   .       .       .       .       .
20306 454I        .       .       .       .       .       .       S   .       .       .       .       .
20308 455I        .       .       .       .       .       .       S   .       .       .       .       .
20310 456I        .       .       .       .       .       .       S   .       .       .       .       .
20312 457I        .       .       .       .       .       .       S   .       .       .       .       .
20314 458I        .       .       .       .       .       .       S   .       .       .       .       .
20316 459I        .       .       .       .       .       .       S   .       .       .       .       .
20318 460I        .       .       .       .       .       .       S   .       .       .       .       .
20320 461I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20322 462I        .       .       .       .       .       .       S   .       .       .       .       .
20324 463I        .       .       .       .       .       .       S   .       .       .       .       .
20326 464I        .       .       .       .       .       .       S   .       .       .       .       .
20328 465I        .       .       .       .       .       .       S   .       .       .       .       .
20330 466I        .       .       .       .       .       .       S   .       .       .       .       .
20332 467I        .       .       .       .       .       .       S   .       .       .       .       .
20334 468I        .       .       .       .       .       .       S   .       .       .       .       .
20336 469I        .       .       .       .       .       .       S   .       .       .       .       .
20338 470I        .       .       .       .       .       .       S   .       .       .       .       .
20340 471I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20342 472I        .       .       .       .       .       .       S   .       .       .       .       .
20344 473I        .       .       .       .       .       .       S   .       .       .       .       .
20346 474I        .       .       .       .       .       .       S   .       .       .       .       .
20348 475I        .       .       .       .       .       .       S   .       .       .       .       .
20350 476I        .       .       .       .       .       .       S   .       .       .       .       .
20352 477I        .       .       .       .       .       .       S   .       .       .       .       .
20354 478I        .       .       .       .       .       .       S   .       .       .       .       .
20356 479I        .       .       .       .       .       .       S   .       .       .       .       .
20358 480I        .       .       .       .       .       .       S   .       .       .       .       .
20400 481I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20402 482I        .       .       .       .       .       .       S   .       .       .       .       .
20404 483I        .       .       .       .       .       .       S   .       .       .       .       .
20406 484I        .       .       .       .       .       .       S   .       .       .       .       .
20408 485I        .       .       .       .       .       .       S   .       .       .       .       .
20410 486I        .       .       .       .       .       .       S   .       .       .       .       .
20412 487I        .       .       .       .       .       .       S   .       .       .       .       .
20414 488I        .       .       .       .       .       .       S   .       .       .       .       .
20416 489I        .       .       .       .       .       .       S   .       .       .       .       .
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.
  20418 490I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20420 491I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
.
  20422 492I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20424 493I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20426 494I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20428 495I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20430 496I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20432 497I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20434 498I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20436 499I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20438
500I---------.---------.---------.---------.---------.---------.-----S---.---------.---------.---------.---------.---------.
1
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	ECC-BMP1	33.	3.10	5.	2.	2.	.02		
+	ROUTED TO	DET1	12.	3.40	4.	2.	2.	.02		
+									102.95	3.40

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

```
KK ECC-BMP1C.OUT
KM RATIONAL METHOD HYDROGRAPH PROGRAM
KM COPYRIGHT 1992, RICK ENGINEERING COMPANY
KM 6HR RAINFALL IS  3.49  INCHES
KM RATIONAL METHOD RUNOFF COEFFICIENT IS  .55
KM RATIONAL METHOD TIME OF CONCENTRATION IS  7  MIN.
KM FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO YOUR HEC-1
KM IT 2 01JAN90 1200 200
BA .0041
IN 7 01JAN90  1155
QI 0  0  .3  .3  .3  .3  .3  .3  .4  .4
QI .4  .4  .4  .4  .5  .5  .5  .5  .6  .6
QI .7  .7  .8  .9  1.1  1.4  2.1  6.9  6.6  1.7
QI 1.3  1  .9  .8  .7  .6  .6  .6  .5  .5
QI .5  .4  .4  .4  .4  .4  .4  .4  .3  .3
QI .3  .3  .3  0  0  0  0  0  0  0
QI 0  0  0
```

```
*FREE
*DIAGRAM
ID ESCONDIDO COUNTRY CLUB, J-17762-A BMP 1C
ID 100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
ID March 3, 2017 - FILE NAME: ECC_BMP1C.HC1
IT 2 01JAN90 1200 500
IO 5 0
*
KK ECC-BMP1C.OUT
KM RATIONAL METHOD HYDROGRAPH PROGRAM
KM COPYRIGHT 1992, RICK ENGINEERING COMPANY
KM 6HR RAINFALL IS  3.49  INCHES
KM RATIONAL METHOD RUNOFF COEFFICIENT IS  .55
KM RATIONAL METHOD TIME OF CONCENTRATION IS  7  MIN.
KM FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO
YOUR HEC-1
KM IT 2 01JAN90 1200 200
BA .0041
IN 7 01JAN90  1155
QI 0  0  .3  .3  .3  .3  .3  .3  .4  .4
QI .4  .4  .4  .4  .5  .5  .5  .5  .6  .6
QI .7  .7  .8  .9  1.1  1.4  2.1  6.9  6.6  1.7
QI 1.3  1  .9  .8  .7  .6  .6  .6  .5  .5
QI .5  .4  .4  .4  .4  .4  .4  .4  .3  .3
QI .3  .3  .3  0  0  0  0  0  0  0
QI 0  0  0
*
KK DET1
KM DETAIN BASIN 1C
KO 2 2 0 0 21
RS 1 STOR -1
SV 0 .06 .1 .15
SQ 0 .02 1.7 4.8
SE 100 101 102 103
*
KO 2 2 0 0 21
ZZ
```

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1****************************************
****************************************
 *                                      *                                                *
*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                *    U.S. ARMY CORPS OF ENGINEERS
*
 *               JUN   1998             *                                                *    HYDROLOGIC ENGINEERING CENTER
*
 *            VERSION 4.1               *                                                *         609 SECOND STREET
*
 *                                      *                                                *       DAVIS, CALIFORNIA 95616
*
 *  RUN DATE   06MAR17  TIME  12:30:33  *                                                *          (916) 756-1104
*
 *                                      *                                                *
*
 ****************************************
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X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
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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

 *** FREE ***
                        *DIAGRAM
             1          ID   ESCONDIDO COUNTRY CLUB, J-17762-A BMP 1C
             2          ID   100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
             3          ID   March 3, 2017 - FILE NAME: ECC_BMP1C.HC1
             4          IT       2 01JAN90    1200     500
             5          IO       5       0
                        *

             6          KKECC-BMP1C.OUT
             7          KM   RATIONAL METHOD HYDROGRAPH PROGRAM
             8          KM   COPYRIGHT 1992, RICK ENGINEERING COMPANY
             9          KM   6HR RAINFALL IS  3.49  INCHES
            10          KM   RATIONAL METHOD RUNOFF COEFFICIENT IS  .55
            11          KM   RATIONAL METHOD TIME OF CONCENTRATION IS  7  MIN.
            12          KM   FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO YOUR HEC-1
            13          KM   IT 2 01JAN90 1200 200
            14          BA   .0041
            15          IN       7 01JAN90    1155
            16          QI       0       0      .3      .3      .3      .3      .3      .3      .4      .4
            17          QI      .4      .4      .4      .4      .5      .5      .5      .5      .6      .6
            18          QI      .7      .7      .8      .9     1.1     1.4     2.1     6.9     6.6     1.7
            19          QI     1.3       1      .9      .8      .7      .6      .6      .6      .5      .5
            20          QI      .5      .4      .4      .4      .4      .4      .4      .4      .3      .3
            21          QI      .3      .3      .3       0       0       0       0       0       0       0
            22          QI       0       0       0
                        *

            23          KK    DET1
            24          KM   DETAIN BASIN 1C
            25          KO       2       2       0       0      21
            26          RS       1    STOR      -1
            27          SV       0     .06      .1     .15
            28          SQ       0     .02     1.7     4.8
            29          SE     100     101     102     103
                        *
            30          KO       2       2       0       0      21
            31          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

     6    ECC-BMP1
               V
               V
    23        DET1
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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1****************************************
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***************************************
 *                                       *                                                    *
*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                                    *    U.S. ARMY CORPS OF ENGINEERS
*
 *              JUN   1998               *                                                    *    HYDROLOGIC ENGINEERING CENTER
*
 *           VERSION 4.1                 *                                                    *          609 SECOND STREET
*
 *                                       *                                                    *       DAVIS, CALIFORNIA 95616
*
 *  RUN DATE   06MAR17  TIME  12:30:33   *                                                    *           (916) 756-1104
*
 *                                       *                                                    *
*
 ******************************************
***************************************




                            ESCONDIDO COUNTRY CLUB, J-17762-A BMP 1C
                            100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
                            March 3, 2017 - FILE NAME: ECC_BMP1C.HC1

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

      IT         HYDROGRAPH TIME DATA
                        NMIN           2  MINUTES IN COMPUTATION INTERVAL
                       IDATE      1JAN90  STARTING DATE
                       ITIME        1200  STARTING TIME
                          NQ         500  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      2JAN90  ENDING DATE
                      NDTIME        0438  ENDING TIME
                      ICENT           19  CENTURY MARK

                   COMPUTATION INTERVAL     .03 HOURS
                        TOTAL TIME BASE   16.63 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


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


             **************
             *            *
   23 KK     *      DET1  *
             *            *
             **************

   25 KO         OUTPUT CONTROL VARIABLES
                       IPRNT           2  PRINT CONTROL
                       IPLOT           2  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         500  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .033  TIME INTERVAL IN HOURS


   30 KO         OUTPUT CONTROL VARIABLES
                       IPRNT           2  PRINT CONTROL
                       IPLOT           2  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         500  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .033  TIME INTERVAL IN HOURS


               HYDROGRAPH ROUTING DATA

   26 RS         STORAGE ROUTING
                       NSTPS           1  NUMBER OF SUBREACHES
                        ITYP        STOR  TYPE OF INITIAL CONDITION
                      RSVRIC       -1.00  INITIAL CONDITION
                           X         .00 WORKING R AND D COEFFICIENT

   27 SV           STORAGE          .0        .1        .1        .2

   28 SQ         DISCHARGE          0.        0.        2.        5.

   29 SE         ELEVATION      100.00    101.00    102.00    103.00
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HYDROGRAPH AT STATION DET1

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	JAN	1200	1	0.	.0	100.0	1	JAN	1734	168	0.	.1	101.2	1	JAN	2308	335	0.	.1	100.9
1	JAN	1202	2	0.	.0	100.0	1	JAN	1736	169	0.	.1	101.2	1	JAN	2310	336	0.	.1	100.9
1	JAN	1204	3	0.	.0	100.0	1	JAN	1738	170	0.	.1	101.2	1	JAN	2312	337	0.	.1	100.9
1	JAN	1206	4	0.	.0	100.0	1	JAN	1740	171	0.	.1	101.2	1	JAN	2314	338	0.	.1	100.9
1	JAN	1208	5	0.	.0	100.0	1	JAN	1742	172	0.	.1	101.2	1	JAN	2316	339	0.	.1	100.9
1	JAN	1210	6	0.	.0	100.0	1	JAN	1744	173	0.	.1	101.2	1	JAN	2318	340	0.	.1	100.9
1	JAN	1212	7	0.	.0	100.0	1	JAN	1746	174	0.	.1	101.2	1	JAN	2320	341	0.	.1	100.9
1	JAN	1214	8	0.	.0	100.1	1	JAN	1748	175	0.	.1	101.2	1	JAN	2322	342	0.	.1	100.9
1	JAN	1216	9	0.	.0	100.1	1	JAN	1750	176	0.	.1	101.2	1	JAN	2324	343	0.	.1	100.9
1	JAN	1218	10	0.	.0	100.1	1	JAN	1752	177	0.	.1	101.2	1	JAN	2326	344	0.	.1	100.9
1	JAN	1220	11	0.	.0	100.1	1	JAN	1754	178	0.	.1	101.2	1	JAN	2328	345	0.	.1	100.9
1	JAN	1222	12	0.	.0	100.1	1	JAN	1756	179	0.	.1	101.2	1	JAN	2330	346	0.	.1	100.9
1	JAN	1224	13	0.	.0	100.1	1	JAN	1758	180	0.	.1	101.2	1	JAN	2332	347	0.	.1	100.9
1	JAN	1226	14	0.	.0	100.1	1	JAN	1800	181	0.	.1	101.2	1	JAN	2334	348	0.	.1	100.9
1	JAN	1228	15	0.	.0	100.2	1	JAN	1802	182	0.	.1	101.2	1	JAN	2336	349	0.	.1	100.9
1	JAN	1230	16	0.	.0	100.2	1	JAN	1804	183	0.	.1	101.2	1	JAN	2338	350	0.	.1	100.9
1	JAN	1232	17	0.	.0	100.2	1	JAN	1806	184	0.	.1	101.1	1	JAN	2340	351	0.	.1	100.9
1	JAN	1234	18	0.	.0	100.2	1	JAN	1808	185	0.	.1	101.1	1	JAN	2342	352	0.	.1	100.9
1	JAN	1236	19	0.	.0	100.2	1	JAN	1810	186	0.	.1	101.1	1	JAN	2344	353	0.	.1	100.9
1	JAN	1238	20	0.	.0	100.2	1	JAN	1812	187	0.	.1	101.1	1	JAN	2346	354	0.	.1	100.9
1	JAN	1240	21	0.	.0	100.2	1	JAN	1814	188	0.	.1	101.1	1	JAN	2348	355	0.	.1	100.9
1	JAN	1242	22	0.	.0	100.2	1	JAN	1816	189	0.	.1	101.1	1	JAN	2350	356	0.	.1	100.9
1	JAN	1244	23	0.	.0	100.3	1	JAN	1818	190	0.	.1	101.1	1	JAN	2352	357	0.	.1	100.9
1	JAN	1246	24	0.	.0	100.3	1	JAN	1820	191	0.	.1	101.1	1	JAN	2354	358	0.	.1	100.9
1	JAN	1248	25	0.	.0	100.3	1	JAN	1822	192	0.	.1	101.0	1	JAN	2356	359	0.	.1	100.9
1	JAN	1250	26	0.	.0	100.3	1	JAN	1824	193	0.	.1	101.0	1	JAN	2358	360	0.	.1	100.9
1	JAN	1252	27	0.	.0	100.3	1	JAN	1826	194	0.	.1	101.0	2	JAN	0000	361	0.	.1	100.9
1	JAN	1254	28	0.	.0	100.3	1	JAN	1828	195	0.	.1	101.0	2	JAN	0002	362	0.	.1	100.9
1	JAN	1256	29	0.	.0	100.4	1	JAN	1830	196	0.	.1	101.0	2	JAN	0004	363	0.	.1	100.9
1	JAN	1258	30	0.	.0	100.4	1	JAN	1832	197	0.	.1	101.0	2	JAN	0006	364	0.	.1	100.9
1	JAN	1300	31	0.	.0	100.4	1	JAN	1834	198	0.	.1	101.0	2	JAN	0008	365	0.	.1	100.9
1	JAN	1302	32	0.	.0	100.4	1	JAN	1836	199	0.	.1	101.0	2	JAN	0010	366	0.	.1	100.9
1	JAN	1304	33	0.	.0	100.4	1	JAN	1838	200	0.	.1	101.0	2	JAN	0012	367	0.	.1	100.9
1	JAN	1306	34	0.	.0	100.5	1	JAN	1840	201	0.	.1	101.0	2	JAN	0014	368	0.	.1	100.9
1	JAN	1308	35	0.	.0	100.5	1	JAN	1842	202	0.	.1	101.0	2	JAN	0016	369	0.	.1	100.9
1	JAN	1310	36	0.	.0	100.5	1	JAN	1844	203	0.	.1	101.0	2	JAN	0018	370	0.	.1	100.9
1	JAN	1312	37	0.	.0	100.5	1	JAN	1846	204	0.	.1	101.0	2	JAN	0020	371	0.	.1	100.9
1	JAN	1314	38	0.	.0	100.5	1	JAN	1848	205	0.	.1	101.0	2	JAN	0022	372	0.	.1	100.9
1	JAN	1316	39	0.	.0	100.5	1	JAN	1850	206	0.	.1	101.0	2	JAN	0024	373	0.	.1	100.9
1	JAN	1318	40	0.	.0	100.6	1	JAN	1852	207	0.	.1	101.0	2	JAN	0026	374	0.	.1	100.9
1	JAN	1320	41	0.	.0	100.6	1	JAN	1854	208	0.	.1	101.0	2	JAN	0028	375	0.	.1	100.9
1	JAN	1322	42	0.	.0	100.6	1	JAN	1856	209	0.	.1	101.0	2	JAN	0030	376	0.	.1	100.9
1	JAN	1324	43	0.	.0	100.6	1	JAN	1858	210	0.	.1	101.0	2	JAN	0032	377	0.	.1	100.9
1	JAN	1326	44	0.	.0	100.6	1	JAN	1900	211	0.	.1	101.0	2	JAN	0034	378	0.	.1	100.9
1	JAN	1328	45	0.	.0	100.6	1	JAN	1902	212	0.	.1	101.0	2	JAN	0036	379	0.	.1	100.9
1	JAN	1330	46	0.	.0	100.7	1	JAN	1904	213	0.	.1	101.0	2	JAN	0038	380	0.	.1	100.9
1	JAN	1332	47	0.	.0	100.7	1	JAN	1906	214	0.	.1	101.0	2	JAN	0040	381	0.	.1	100.9
1	JAN	1334	48	0.	.0	100.7	1	JAN	1908	215	0.	.1	101.0	2	JAN	0042	382	0.	.1	100.9
1	JAN	1336	49	0.	.0	100.7	1	JAN	1910	216	0.	.1	101.0	2	JAN	0044	383	0.	.1	100.9
1	JAN	1338	50	0.	.0	100.8	1	JAN	1912	217	0.	.1	101.0	2	JAN	0046	384	0.	.1	100.8
1	JAN	1340	51	0.	.0	100.8	1	JAN	1914	218	0.	.1	101.0	2	JAN	0048	385	0.	.1	100.8
1	JAN	1342	52	0.	.0	100.8	1	JAN	1916	219	0.	.1	101.0	2	JAN	0050	386	0.	.1	100.8
1	JAN	1344	53	0.	.0	100.8	1	JAN	1918	220	0.	.1	101.0	2	JAN	0052	387	0.	.1	100.8
1	JAN	1346	54	0.	.1	100.8	1	JAN	1920	221	0.	.1	101.0	2	JAN	0054	388	0.	.1	100.8
1	JAN	1348	55	0.	.1	100.9	1	JAN	1922	222	0.	.1	101.0	2	JAN	0056	389	0.	.1	100.8
1	JAN	1350	56	0.	.1	100.9	1	JAN	1924	223	0.	.1	101.0	2	JAN	0058	390	0.	.1	100.8
1	JAN	1352	57	0.	.1	100.9	1	JAN	1926	224	0.	.1	101.0	2	JAN	0100	391	0.	.1	100.8
1	JAN	1354	58	0.	.1	100.9	1	JAN	1928	225	0.	.1	101.0	2	JAN	0102	392	0.	.1	100.8
1	JAN	1356	59	0.	.1	101.0	1	JAN	1930	226	0.	.1	101.0	2	JAN	0104	393	0.	.1	100.8
1	JAN	1358	60	0.	.1	101.0	1	JAN	1932	227	0.	.1	101.0	2	JAN	0106	394	0.	.1	100.8
1	JAN	1400	61	0.	.1	101.0	1	JAN	1934	228	0.	.1	101.0	2	JAN	0108	395	0.	.1	100.8
1	JAN	1402	62	0.	.1	101.0	1	JAN	1936	229	0.	.1	101.0	2	JAN	0110	396	0.	.1	100.8
1	JAN	1404	63	0.	.1	101.1	1	JAN	1938	230	0.	.1	101.0	2	JAN	0112	397	0.	.1	100.8
1	JAN	1406	64	0.	.1	101.1	1	JAN	1940	231	0.	.1	101.0	2	JAN	0114	398	0.	.1	100.8
1	JAN	1408	65	0.	.1	101.1	1	JAN	1942	232	0.	.1	101.0	2	JAN	0116	399	0.	.1	100.8
1	JAN	1410	66	0.	.1	101.2	1	JAN	1944	233	0.	.1	101.0	2	JAN	0118	400	0.	.1	100.8
1	JAN	1412	67	0.	.1	101.2	1	JAN	1946	234	0.	.1	101.0	2	JAN	0120	401	0.	.1	100.8
1	JAN	1414	68	0.	.1	101.2	1	JAN	1948	235	0.	.1	101.0	2	JAN	0122	402	0.	.1	100.8
1	JAN	1416	69	0.	.1	101.2	1	JAN	1950	236	0.	.1	101.0	2	JAN	0124	403	0.	.1	100.8
1	JAN	1418	70	0.	.1	101.2	1	JAN	1952	237	0.	.1	101.0	2	JAN	0126	404	0.	.1	100.8
1	JAN	1420	71	0.	.1	101.3	1	JAN	1954	238	0.	.1	101.0	2	JAN	0128	405	0.	.0	100.8
1	JAN	1422	72	0.	.1	101.3	1	JAN	1956	239	0.	.1	101.0	2	JAN	0130	406	0.	.0	100.8
1	JAN	1424	73	1.	.1	101.3	1	JAN	1958	240	0.	.1	101.0	2	JAN	0132	407	0.	.0	100.8
1	JAN	1426	74	1.	.1	101.3	1	JAN	2000	241	0.	.1	101.0	2	JAN	0134	408	0.	.0	100.8
1	JAN	1428	75	1.	.1	101.3	1	JAN	2002	242	0.	.1	101.0	2	JAN	0136	409	0.	.0	100.8
1	JAN	1430	76	1.	.1	101.3	1	JAN	2004	243	0.	.1	101.0	2	JAN	0138	410	0.	.0	100.8
1	JAN	1432	77	1.	.1	101.4	1	JAN	2006	244	0.	.1	101.0	2	JAN	0140	411	0.	.0	100.8
1	JAN	1434	78	1.	.1	101.4	1	JAN	2008	245	0.	.1	101.0	2	JAN	0142	412	0.	.0	100.8
1	JAN	1436	79	1.	.1	101.4	1	JAN	2010	246	0.	.1	101.0	2	JAN	0144	413	0.	.0	100.8
1	JAN	1438	80	1.	.1	101.4	1	JAN	2012	247	0.	.1	101.0	2	JAN	0146	414	0.	.0	100.8
1	JAN	1440	81	1.	.1	101.4	1	JAN	2014	248	0.	.1	101.0	2	JAN	0148	415	0.	.0	100.8
1	JAN	1442	82	1.	.1	101.4	1	JAN	2016	249	0.	.1	101.0	2	JAN	0150	416	0.	.0	100.8
1	JAN	1444	83	1.	.1	101.5	1	JAN	2018	250	0.	.1	101.0	2	JAN	0152	417	0.	.0	100.8
1	JAN	1446	84	1.	.1	101.5	1	JAN	2020	251	0.	.1	101.0	2	JAN	0154	418	0.	.0	100.8
1	JAN	1448	85	1.	.1	101.5	1	JAN	2022	252	0.	.1	101.0	2	JAN	0156	419	0.	.0	100.8
1	JAN	1450	86	1.	.1	101.5	1	JAN	2024	253	0.	.1	101.0	2	JAN	0158	420	0.	.0	100.8

1	JAN	1452	87	1.	.1	101.6	*	1	JAN	2026	254	0.	.1	101.0	*	2	JAN	0200	421	0.	.0	100.8
1	JAN	1454	88	1.	.1	101.6	*	1	JAN	2028	255	0.	.1	101.0	*	2	JAN	0202	422	0.	.0	100.8
1	JAN	1456	89	1.	.1	101.7	*	1	JAN	2030	256	0.	.1	101.0	*	2	JAN	0204	423	0.	.0	100.8
1	JAN	1458	90	1.	.1	101.8	*	1	JAN	2032	257	0.	.1	101.0	*	2	JAN	0206	424	0.	.0	100.8
1	JAN	1500	91	2.	.1	101.9	*	1	JAN	2034	258	0.	.1	101.0	*	2	JAN	0208	425	0.	.0	100.8
1	JAN	1502	92	2.	.1	102.1	*	1	JAN	2036	259	0.	.1	101.0	*	2	JAN	0210	426	0.	.0	100.8
1	JAN	1504	93	3.	.1	102.3	*	1	JAN	2038	260	0.	.1	101.0	*	2	JAN	0212	427	0.	.0	100.8
1	JAN	1506	94	3.	.1	102.5	*	1	JAN	2040	261	0.	.1	101.0	*	2	JAN	0214	428	0.	.0	100.8
1	JAN	1508	95	4.	.1	102.7	*	1	JAN	2042	262	0.	.1	100.9	*	2	JAN	0216	429	0.	.0	100.8
1	JAN	1510	96	4.	.1	102.8	*	1	JAN	2044	263	0.	.1	100.9	*	2	JAN	0218	430	0.	.0	100.8
1	JAN	1512	97	5.	.1	102.9	*	1	JAN	2046	264	0.	.1	100.9	*	2	JAN	0220	431	0.	.0	100.8
1	JAN	1514	98	5.	.1	103.0	*	1	JAN	2048	265	0.	.1	100.9	*	2	JAN	0222	432	0.	.0	100.8
1	JAN	1516	99	5.	.1	102.9	*	1	JAN	2050	266	0.	.1	100.9	*	2	JAN	0224	433	0.	.0	100.8
1	JAN	1518	100	4.	.1	102.8	*	1	JAN	2052	267	0.	.1	100.9	*	2	JAN	0226	434	0.	.0	100.8
1	JAN	1520	101	4.	.1	102.7	*	1	JAN	2054	268	0.	.1	100.9	*	2	JAN	0228	435	0.	.0	100.8
1	JAN	1522	102	3.	.1	102.6	*	1	JAN	2056	269	0.	.1	100.9	*	2	JAN	0230	436	0.	.0	100.8
1	JAN	1524	103	3.	.1	102.5	*	1	JAN	2058	270	0.	.1	100.9	*	2	JAN	0232	437	0.	.0	100.8
1	JAN	1526	104	3.	.1	102.4	*	1	JAN	2100	271	0.	.1	100.9	*	2	JAN	0234	438	0.	.0	100.8
1	JAN	1528	105	3.	.1	102.3	*	1	JAN	2102	272	0.	.1	100.9	*	2	JAN	0236	439	0.	.0	100.8
1	JAN	1530	106	2.	.1	102.2	*	1	JAN	2104	273	0.	.1	100.9	*	2	JAN	0238	440	0.	.0	100.8
1	JAN	1532	107	2.	.1	102.1	*	1	JAN	2106	274	0.	.1	100.9	*	2	JAN	0240	441	0.	.0	100.8
1	JAN	1534	108	2.	.1	102.1	*	1	JAN	2108	275	0.	.1	100.9	*	2	JAN	0242	442	0.	.0	100.8
1	JAN	1536	109	2.	.1	102.0	*	1	JAN	2110	276	0.	.1	100.9	*	2	JAN	0244	443	0.	.0	100.8
1	JAN	1538	110	2.	.1	102.0	*	1	JAN	2112	277	0.	.1	100.9	*	2	JAN	0246	444	0.	.0	100.8
1	JAN	1540	111	2.	.1	101.9	*	1	JAN	2114	278	0.	.1	100.9	*	2	JAN	0248	445	0.	.0	100.8
1	JAN	1542	112	2.	.1	101.9	*	1	JAN	2116	279	0.	.1	100.9	*	2	JAN	0250	446	0.	.0	100.8
1	JAN	1544	113	1.	.1	101.8	*	1	JAN	2118	280	0.	.1	100.9	*	2	JAN	0252	447	0.	.0	100.8
1	JAN	1546	114	1.	.1	101.8	*	1	JAN	2120	281	0.	.1	100.9	*	2	JAN	0254	448	0.	.0	100.8
1	JAN	1548	115	1.	.1	101.8	*	1	JAN	2122	282	0.	.1	100.9	*	2	JAN	0256	449	0.	.0	100.8
1	JAN	1550	116	1.	.1	101.7	*	1	JAN	2124	283	0.	.1	100.9	*	2	JAN	0258	450	0.	.0	100.8
1	JAN	1552	117	1.	.1	101.7	*	1	JAN	2126	284	0.	.1	100.9	*	2	JAN	0300	451	0.	.0	100.8
1	JAN	1554	118	1.	.1	101.7	*	1	JAN	2128	285	0.	.1	100.9	*	2	JAN	0302	452	0.	.0	100.8
1	JAN	1556	119	1.	.1	101.6	*	1	JAN	2130	286	0.	.1	100.9	*	2	JAN	0304	453	0.	.0	100.8
1	JAN	1558	120	1.	.1	101.6	*	1	JAN	2132	287	0.	.1	100.9	*	2	JAN	0306	454	0.	.0	100.8
1	JAN	1600	121	1.	.1	101.6	*	1	JAN	2134	288	0.	.1	100.9	*	2	JAN	0308	455	0.	.0	100.8
1	JAN	1602	122	1.	.1	101.6	*	1	JAN	2136	289	0.	.1	100.9	*	2	JAN	0310	456	0.	.0	100.8
1	JAN	1604	123	1.	.1	101.5	*	1	JAN	2138	290	0.	.1	100.9	*	2	JAN	0312	457	0.	.0	100.8
1	JAN	1606	124	1.	.1	101.5	*	1	JAN	2140	291	0.	.1	100.9	*	2	JAN	0314	458	0.	.0	100.8
1	JAN	1608	125	1.	.1	101.5	*	1	JAN	2142	292	0.	.1	100.9	*	2	JAN	0316	459	0.	.0	100.8
1	JAN	1610	126	1.	.1	101.5	*	1	JAN	2144	293	0.	.1	100.9	*	2	JAN	0318	460	0.	.0	100.8
1	JAN	1612	127	1.	.1	101.5	*	1	JAN	2146	294	0.	.1	100.9	*	2	JAN	0320	461	0.	.0	100.8
1	JAN	1614	128	1.	.1	101.4	*	1	JAN	2148	295	0.	.1	100.9	*	2	JAN	0322	462	0.	.0	100.8
1	JAN	1616	129	1.	.1	101.4	*	1	JAN	2150	296	0.	.1	100.9	*	2	JAN	0324	463	0.	.0	100.8
1	JAN	1618	130	1.	.1	101.4	*	1	JAN	2152	297	0.	.1	100.9	*	2	JAN	0326	464	0.	.0	100.8
1	JAN	1620	131	1.	.1	101.4	*	1	JAN	2154	298	0.	.1	100.9	*	2	JAN	0328	465	0.	.0	100.8
1	JAN	1622	132	1.	.1	101.4	*	1	JAN	2156	299	0.	.1	100.9	*	2	JAN	0330	466	0.	.0	100.8
1	JAN	1624	133	1.	.1	101.4	*	1	JAN	2158	300	0.	.1	100.9	*	2	JAN	0332	467	0.	.0	100.8
1	JAN	1626	134	1.	.1	101.4	*	1	JAN	2200	301	0.	.1	100.9	*	2	JAN	0334	468	0.	.0	100.8
1	JAN	1628	135	1.	.1	101.4	*	1	JAN	2202	302	0.	.1	100.9	*	2	JAN	0336	469	0.	.0	100.8
1	JAN	1630	136	1.	.1	101.4	*	1	JAN	2204	303	0.	.1	100.9	*	2	JAN	0338	470	0.	.0	100.8
1	JAN	1632	137	1.	.1	101.3	*	1	JAN	2206	304	0.	.1	100.9	*	2	JAN	0340	471	0.	.0	100.8
1	JAN	1634	138	1.	.1	101.3	*	1	JAN	2208	305	0.	.1	100.9	*	2	JAN	0342	472	0.	.0	100.8
1	JAN	1636	139	1.	.1	101.3	*	1	JAN	2210	306	0.	.1	100.9	*	2	JAN	0344	473	0.	.0	100.8
1	JAN	1638	140	1.	.1	101.3	*	1	JAN	2212	307	0.	.1	100.9	*	2	JAN	0346	474	0.	.0	100.8
1	JAN	1640	141	1.	.1	101.3	*	1	JAN	2214	308	0.	.1	100.9	*	2	JAN	0348	475	0.	.0	100.8
1	JAN	1642	142	1.	.1	101.3	*	1	JAN	2216	309	0.	.1	100.9	*	2	JAN	0350	476	0.	.0	100.8
1	JAN	1644	143	1.	.1	101.3	*	1	JAN	2218	310	0.	.1	100.9	*	2	JAN	0352	477	0.	.0	100.8
1	JAN	1646	144	1.	.1	101.3	*	1	JAN	2220	311	0.	.1	100.9	*	2	JAN	0354	478	0.	.0	100.8
1	JAN	1648	145	0.	.1	101.3	*	1	JAN	2222	312	0.	.1	100.9	*	2	JAN	0356	479	0.	.0	100.8
1	JAN	1650	146	0.	.1	101.3	*	1	JAN	2224	313	0.	.1	100.9	*	2	JAN	0358	480	0.	.0	100.8
1	JAN	1652	147	0.	.1	101.3	*	1	JAN	2226	314	0.	.1	100.9	*	2	JAN	0400	481	0.	.0	100.8
1	JAN	1654	148	0.	.1	101.3	*	1	JAN	2228	315	0.	.1	100.9	*	2	JAN	0402	482	0.	.0	100.8
1	JAN	1656	149	0.	.1	101.3	*	1	JAN	2230	316	0.	.1	100.9	*	2	JAN	0404	483	0.	.0	100.8
1	JAN	1658	150	0.	.1	101.3	*	1	JAN	2232	317	0.	.1	100.9	*	2	JAN	0406	484	0.	.0	100.8
1	JAN	1700	151	0.	.1	101.3	*	1	JAN	2234	318	0.	.1	100.9	*	2	JAN	0408	485	0.	.0	100.8
1	JAN	1702	152	0.	.1	101.3	*	1	JAN	2236	319	0.	.1	100.9	*	2	JAN	0410	486	0.	.0	100.8
1	JAN	1704	153	0.	.1	101.2	*	1	JAN	2238	320	0.	.1	100.9	*	2	JAN	0412	487	0.	.0	100.8
1	JAN	1706	154	0.	.1	101.2	*	1	JAN	2240	321	0.	.1	100.9	*	2	JAN	0414	488	0.	.0	100.8
1	JAN	1708	155	0.	.1	101.2	*	1	JAN	2242	322	0.	.1	100.9	*	2	JAN	0416	489	0.	.0	100.8
1	JAN	1710	156	0.	.1	101.2	*	1	JAN	2244	323	0.	.1	100.9	*	2	JAN	0418	490	0.	.0	100.8
1	JAN	1712	157	0.	.1	101.2	*	1	JAN	2246	324	0.	.1	100.9	*	2	JAN	0420	491	0.	.0	100.8
1	JAN	1714	158	0.	.1	101.2	*	1	JAN	2248	325	0.	.1	100.9	*	2	JAN	0422	492	0.	.0	100.8
1	JAN	1716	159	0.	.1	101.2	*	1	JAN	2250	326	0.	.1	100.9	*	2	JAN	0424	493	0.	.0	100.8
1	JAN	1718	160	0.	.1	101.2	*	1	JAN	2252	327	0.	.1	100.9	*	2	JAN	0426	494	0.	.0	100.8
1	JAN	1720	161	0.	.1	101.2	*	1	JAN	2254	328	0.	.1	100.9	*	2	JAN	0428	495	0.	.0	100.8
1	JAN	1722	162	0.	.1	101.2	*	1	JAN	2256	329	0.	.1	100.9	*	2	JAN	0430	496	0.	.0	100.8
1	JAN	1724	163	0.	.1	101.2	*	1	JAN	2258	330	0.	.1	100.9	*	2	JAN	0432	497	0.	.0	100.8
1	JAN	1726	164	0.	.1	101.2	*	1	JAN	2300	331	0.	.1	100.9	*	2	JAN	0434	498	0.	.0	100.8
1	JAN	1728	165	0.	.1	101.2	*	1	JAN	2302	332	0.	.1	100.9	*	2	JAN	0436	499	0.	.0	100.8
1	JAN	1730	166	0.	.1	101.2	*	1	JAN	2304	333	0.	.1	100.9	*	2	JAN	0438	500	0.	.0	100.8
1	JAN	1732	167	0.	.1	101.2	*	1	JAN	2306	334	0.	.1	100.9	*							

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PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	16.63-HR
+ (CFS)	(HR)				
		(CFS)			
+ 5.	3.23	1.	0.	0.	0.
		(INCHES) 1.606	1.668	1.668	1.668
		(AC-FT) 0.	0.	0.	0.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	16.63-HR
+ (AC-FT)	(HR)				
0.	3.23	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE

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                                        6-HR       24-HR       72-HR     16.63-HR
+   (FEET)      (HR)
    102.97      3.23              101.36      100.99      100.99       100.99

                       CUMULATIVE AREA =     .00 SQ MI

1                                                      STATION     DET1

                          (I) INFLOW,   (O) OUTFLOW
         0.        1.        2.        3.        4.        5.        6.        7.        0.        0.        0.        0.
0.
                                                                                  (S) STORAGE
        .00       .00       .00       .00       .00       .00       .00       .04       .08       .12       .16       .00
.00
 DAHRMN PER
  11200
1I---------.---------.---------.---------.---------.---------S---------.---------.---------.---------.---------.---------.
  11202   2I        .         .         .         .         .         S         .         .         .         .         .
.
  11204   3OI       .         .         .         .         .         S         .         .         .         .         .
.
  11206   4O I      .         .         .         .         .         S         .         .         .         .         .
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  11208   5O  I     .         .         .         .         .         S         .         .         .         .         .
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  11210   6O  I     .         .         .         .         .         S         .         .         .         .         .
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  11212   7O  I     .         .         .         .         .        .S         .         .         .         .         .
.
  11214   8O  I     .         .         .         .         .        .S         .         .         .         .         .
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  11216   9O  I     .         .         .         .         .        .S         .         .         .         .         .
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  11218  10O  I     .         .         .         .         .        .S         .         .         .         .         .
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  11220  11O .I. . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . . . . .
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  11222  12O  I     .         .         .         .         .        . S        .         .         .         .         .
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  11224  13O  I     .         .         .         .         .        . S        .         .         .         .         .
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  11226  14O  I     .         .         .         .         .        . S        .         .         .         .         .
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  11228  15O  I     .         .         .         .         .        . S        .         .         .         .         .
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  11230  16O  I     .         .         .         .         .        .  S       .         .         .         .         .
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  11232  17O  I     .         .         .         .         .        .  S       .         .         .         .         .
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  11234  18O  I     .         .         .         .         .        .  S       .         .         .         .         .
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  11236  19O  I     .         .         .         .         .        .  S       .         .         .         .         .
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  11238  20O  I     .         .         .         .         .        .  S       .         .         .         .         .
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  11240  21O .I. . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
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  11242  22O  I     .         .         .         .         .        .   S      .         .         .         .         .
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  11244  23O  I     .         .         .         .         .        .   S      .         .         .         .         .
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  11246  24O  I     .         .         .         .         .        .   S      .         .         .         .         .
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  11248  25O   I    .         .         .         .         .        .   S      .         .         .         .         .
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  11250  26O   I    .         .         .         .         .        .    S     .         .         .         .         .
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  11252  27O   I    .         .         .         .         .        .    S     .         .         .         .         .
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  11254  28O   I    .         .         .         .         .        .    S     .         .         .         .         .
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  11256  29O   I    .         .         .         .         .        .    S     .         .         .         .         .
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  11258  30O   I    .         .         .         .         .        .     S    .         .         .         .         .
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  11300  31O . I . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
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  11302  32O   I    .         .         .         .         .        .     S    .         .         .         .         .
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  11304  33O   I    .         .         .         .         .        .      S   .         .         .         .         .
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  11306  34O   I    .         .         .         .         .        .      S   .         .         .         .         .
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  11308  35O   I    .         .         .         .         .        .      S   .         .         .         .         .
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  11310  36O   I    .         .         .         .         .        .      S   .         .         .         .         .
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  11312  37O   I    .         .         .         .         .        .       S  .         .         .         .         .
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  11314  38O   I    .         .         .         .         .        .       S  .         .         .         .         .
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  11316  39O   I    .         .         .         .         .        .       S  .         .         .         .         .
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  11318  40O   I    .         .         .         .         .        .       S  .         .         .         .         .
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  11320  41O . I . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . . . .
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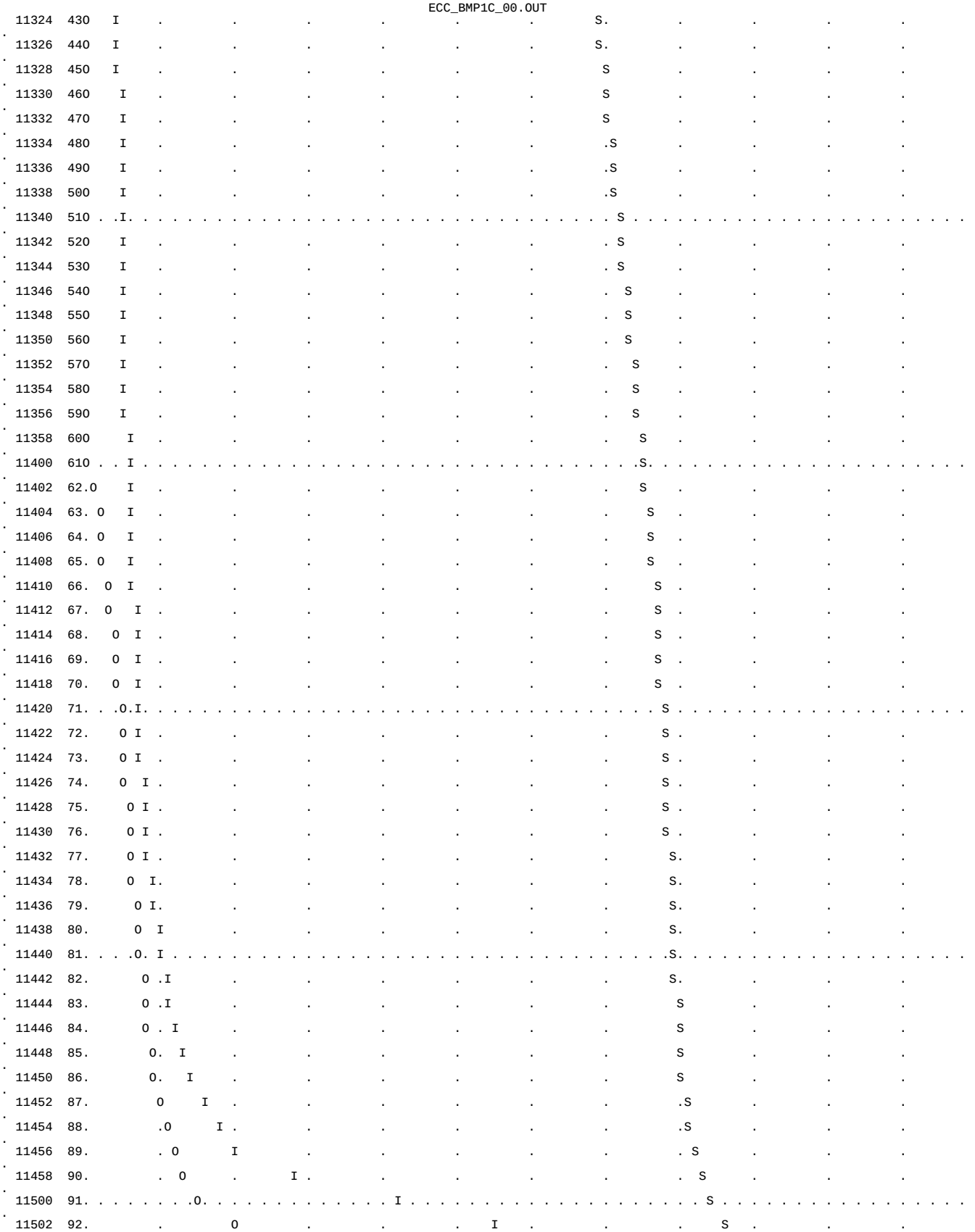
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11404 63. O I . S
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11412 67. O I . S
11414 68. O I . S
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11418 70. O I . S
11420 71. O.I S
11422 72. O I . S
11424 73. O I . S
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11438 80. O I S.
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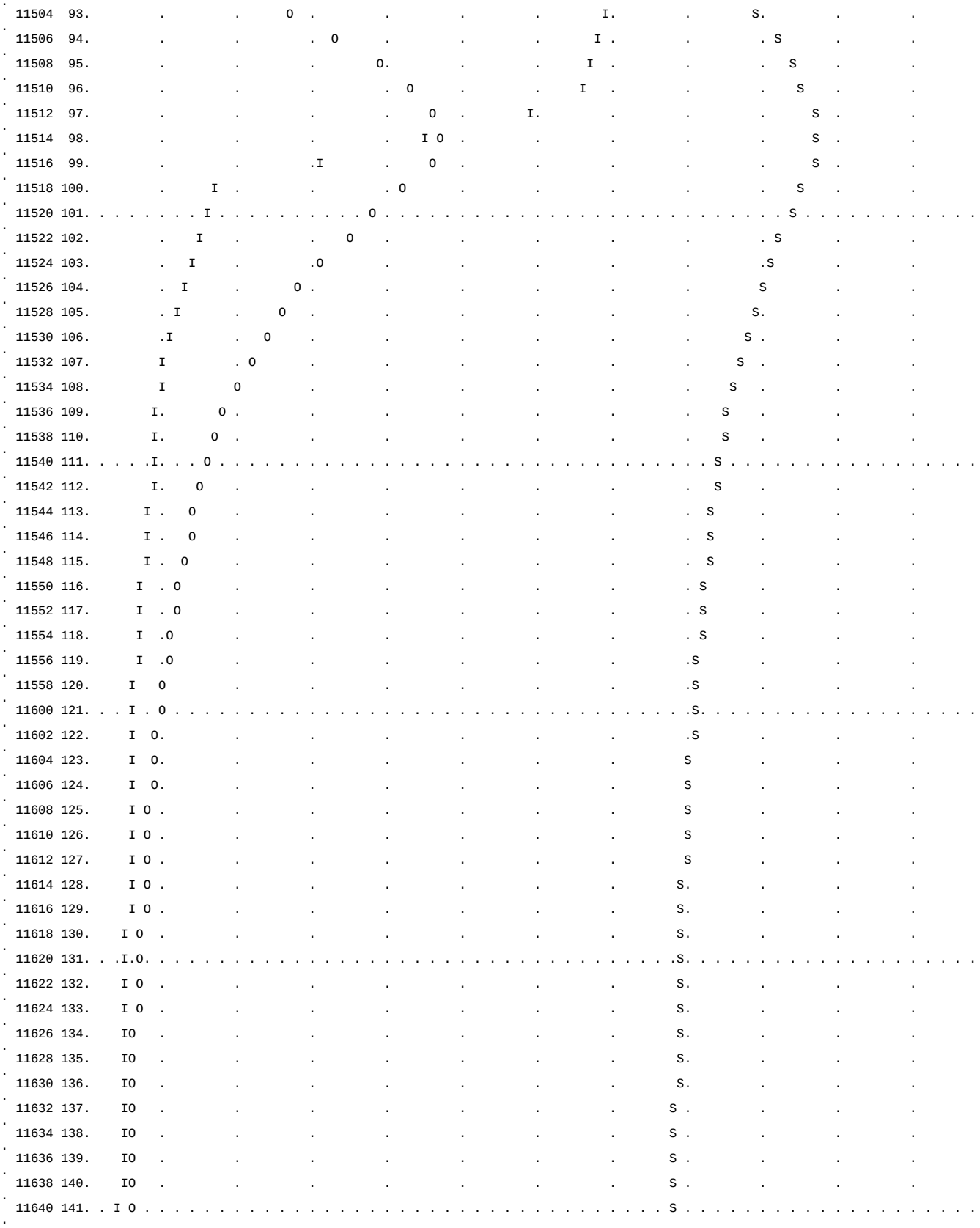

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  11738 170.  IO     .         .         .         .         .         .         .      S  .         .         .         .
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  11740 171. .IO . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . .
.
  11742 172.  I      .         .         .         .         .         .         .      S  .         .         .         .
.
  11744 173.  I      .         .         .         .         .         .         .      S  .         .         .         .
.
  11746 174.  I      .         .         .         .         .         .         .      S  .         .         .         .
.
  11748 175.  I      .         .         .         .         .         .         .      S  .         .         .         .
.
  11750 176.  I      .         .         .         .         .         .         .      S  .         .         .         .
.
  11752 177.  I      .         .         .         .         .         .         .      S  .         .         .         .
.
  11754 178.  I      .         .         .         .         .         .         .      S  .         .         .         .
.
  11756 179.  I      .         .         .         .         .         .         .      S  .         .         .         .
.
  11758 180.  I      .         .         .         .         .         .         .      S  .         .         .         .
.
  11800 181. .I. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . .
.
  11802 182. IO      .         .         .         .         .         .         .      S  .         .         .         .
.
  11804 183.I O      .         .         .         .         .         .         .      S  .         .         .         .
.
  11806 184I  O      .         .         .         .         .         .         .     S   .         .         .         .
.
  11808 185I O       .         .         .         .         .         .         .     S   .         .         .         .
.
  11810 186I O       .         .         .         .         .         .         .     S   .         .         .         .
.
  11812 187I O       .         .         .         .         .         .         .     S   .         .         .         .
.
  11814 188I O       .         .         .         .         .         .         .     S   .         .         .         .
.
  11816 189IO        .         .         .         .         .         .         .     S   .         .         .         .
.
  11818 190IO        .         .         .         .         .         .         .     S   .         .         .         .
.
  11820 191IO. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . .
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11822 192IO        .         .         .         .         .         .         .    S    .         .         .         .
11824 193IO        .         .         .         .         .         .         .    S    .         .         .         .
11826 194IO        .         .         .         .         .         .         .    S    .         .         .         .
11828 195IO        .         .         .         .         .         .         .    S    .         .         .         .
11830 196IO        .         .         .         .         .         .         .    S    .         .         .         .
11832 197IO        .         .         .         .         .         .         .    S    .         .         .         .
11834 198IO        .         .         .         .         .         .         .    S    .         .         .         .
11836 199I         .         .         .         .         .         .         .    S    .         .         .         .
11838 200I         .         .         .         .         .         .         .    S    .         .         .         .
11840 201I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
11842 202I         .         .         .         .         .         .         .    S    .         .         .         .
11844 203I         .         .         .         .         .         .         .    S    .         .         .         .
11846 204I         .         .         .         .         .         .         .    S    .         .         .         .
11848 205I         .         .         .         .         .         .         .    S    .         .         .         .
11850 206I         .         .         .         .         .         .         .    S    .         .         .         .
11852 207I         .         .         .         .         .         .         .    S    .         .         .         .
11854 208I         .         .         .         .         .         .         .    S    .         .         .         .
11856 209I         .         .         .         .         .         .         .    S    .         .         .         .
11858 210I         .         .         .         .         .         .         .    S    .         .         .         .
11900 211I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
11902 212I         .         .         .         .         .         .         .    S    .         .         .         .
11904 213I         .         .         .         .         .         .         .    S    .         .         .         .
11906 214I         .         .         .         .         .         .         .    S    .         .         .         .
11908 215I         .         .         .         .         .         .         .    S    .         .         .         .
11910 216I         .         .         .         .         .         .         .    S    .         .         .         .
11912 217I         .         .         .         .         .         .         .    S    .         .         .         .
11914 218I         .         .         .         .         .         .         .    S    .         .         .         .
11916 219I         .         .         .         .         .         .         .    S    .         .         .         .
11918 220I         .         .         .         .         .         .         .    S    .         .         .         .
11920 221I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
11922 222I         .         .         .         .         .         .         .    S    .         .         .         .
11924 223I         .         .         .         .         .         .         .    S    .         .         .         .
11926 224I         .         .         .         .         .         .         .    S    .         .         .         .
11928 225I         .         .         .         .         .         .         .    S    .         .         .         .
11930 226I         .         .         .         .         .         .         .    S    .         .         .         .
11932 227I         .         .         .         .         .         .         .    S    .         .         .         .
11934 228I         .         .         .         .         .         .         .    S    .         .         .         .
11936 229I         .         .         .         .         .         .         .    S    .         .         .         .
11938 230I         .         .         .         .         .         .         .    S    .         .         .         .
11940 231I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
11942 232I         .         .         .         .         .         .         .    S    .         .         .         .
11944 233I         .         .         .         .         .         .         .    S    .         .         .         .
11946 234I         .         .         .         .         .         .         .    S    .         .         .         .
11948 235I         .         .         .         .         .         .         .    S    .         .         .         .
11950 236I         .         .         .         .         .         .         .    S    .         .         .         .
11952 237I         .         .         .         .         .         .         .    S    .         .         .         .
11954 238I         .         .         .         .         .         .         .    S    .         .         .         .
11956 239I         .         .         .         .         .         .         .    S    .         .         .         .
11958 240I         .         .         .         .         .         .         .    S    .         .         .         .
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12000 241I . . . . . S. . . . . .
12002 242I . . . . . S . . . .
12004 243I . . . . . S . . . .
12006 244I . . . . . S . . . .
12008 245I . . . . . S . . . .
12010 246I . . . . . S . . . .
12012 247I . . . . . S . . . .
12014 248I . . . . . S . . . .
12016 249I . . . . . S . . . .
12018 250I . . . . . S . . . .
12020 251I . . . . . S . . . . . .
12022 252I . . . . . S . . . .
12024 253I . . . . . S . . . .
12026 254I . . . . . S . . . .
12028 255I . . . . . S . . . .
12030 256I . . . . . S . . . .
12032 257I . . . . . S . . . .
12034 258I . . . . . S . . . .
12036 259I . . . . . S . . . .
12038 260I . . . . . S . . . .
12040 261I . . . . . S . . . . . .
12042 262I . . . . . S . . . .
12044 263I . . . . . S . . . .
12046 264I . . . . . S . . . .
12048 265I . . . . . S . . . .
12050 266I . . . . . S . . . .
12052 267I . . . . . S . . . .
12054 268I . . . . . S . . . .
12056 269I . . . . . S . . . .
12058 270I . . . . . S . . . .
12100 271I . . . . . S . . . . . .
12102 272I . . . . . S . . . .
12104 273I . . . . . S . . . .
12106 274I . . . . . S . . . .
12108 275I . . . . . S . . . .
12110 276I . . . . . S . . . .
12112 277I . . . . . S . . . .
12114 278I . . . . . S . . . .
12116 279I . . . . . S . . . .
12118 280I . . . . . S . . . .
12120 281I . . . . . S . . . . . .
12122 282I . . . . . S . . . .
12124 283I . . . . . S . . . .
12126 284I . . . . . S . . . .
12128 285I . . . . . S . . . .
12130 286I . . . . . S . . . .
12132 287I . . . . . S . . . .
12134 288I . . . . . S . . . .
12136 289I . . . . . S . . . .
12138 290I . . . . . S . . . .
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12140 291I . . . . . S . . . . . .
12142 292I . . . . . S . . . . .
12144 293I . . . . . S . . . . .
12146 294I . . . . . S . . . . .
12148 295I . . . . . S . . . . .
12150 296I . . . . . S . . . . .
12152 297I . . . . . S . . . . .
12154 298I . . . . . S . . . . .
12156 299I . . . . . S . . . . .
12158 300I . . . . . S . . . . .
12200 301I . . . . . S . . . . . .
12202 302I . . . . . S . . . . .
12204 303I . . . . . S . . . . .
12206 304I . . . . . S . . . . .
12208 305I . . . . . S . . . . .
12210 306I . . . . . S . . . . .
12212 307I . . . . . S . . . . .
12214 308I . . . . . S . . . . .
12216 309I . . . . . S . . . . .
12218 310I . . . . . S . . . . .
12220 311I . . . . . S . . . . . .
12222 312I . . . . . S . . . . .
12224 313I . . . . . S . . . . .
12226 314I . . . . . S . . . . .
12228 315I . . . . . S . . . . .
12230 316I . . . . . S . . . . .
12232 317I . . . . . S . . . . .
12234 318I . . . . . S . . . . .
12236 319I . . . . . S . . . . .
12238 320I . . . . . S . . . . .
12240 321I . . . . . S. . . . . .
12242 322I . . . . . S . . . . .
12244 323I . . . . . S . . . . .
12246 324I . . . . . S . . . . .
12248 325I . . . . . S . . . . .
12250 326I . . . . . S . . . . .
12252 327I . . . . . S . . . . .
12254 328I . . . . . S . . . . .
12256 329I . . . . . S . . . . .
12258 330I . . . . . S . . . . .
12300 331I . . . . . S. . . . . .
12302 332I . . . . . S . . . . .
12304 333I . . . . . S . . . . .
12306 334I . . . . . S . . . . .
12308 335I . . . . . S . . . . .
12310 336I . . . . . S . . . . .
12312 337I . . . . . S . . . . .
12314 338I . . . . . S . . . . .
12316 339I . . . . . S . . . . .
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  12318 340I         .         .         .         .         .         .         .  S      .         .         .         .
.
  12320 341I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . .
.
  12322 342I         .         .         .         .         .         .         .  S      .         .         .         .
.
  12324 343I         .         .         .         .         .         .         .  S      .         .         .         .
.
  12326 344I         .         .         .         .         .         .         .  S      .         .         .         .
.
  12328 345I         .         .         .         .         .         .         .  S      .         .         .         .
.
  12330 346I         .         .         .         .         .         .         .  S      .         .         .         .
.
  12332 347I         .         .         .         .         .         .         .  S      .         .         .         .
.
  12334 348I         .         .         .         .         .         .         .  S      .         .         .         .
.
  12336 349I         .         .         .         .         .         .         .  S      .         .         .         .
.
  12338 350I         .         .         .         .         .         .         .  S      .         .         .         .
.
  12340 351I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . .
.
  12342 352I         .         .         .         .         .         .         .  S      .         .         .         .
.
  12344 353I         .         .         .         .         .         .         .  S      .         .         .         .
.
  12346 354I         .         .         .         .         .         .         .  S      .         .         .         .
.
  12348 355I         .         .         .         .         .         .         .  S      .         .         .         .
.
  12350 356I         .         .         .         .         .         .         .  S      .         .         .         .
.
  12352 357I         .         .         .         .         .         .         .  S      .         .         .         .
.
  12354 358I         .         .         .         .         .         .         .  S      .         .         .         .
.
  12356 359I         .         .         .         .         .         .         .  S      .         .         .         .
.
  12358 360I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20000 361I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . .
.
  20002 362I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20004 363I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20006 364I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20008 365I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20010 366I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20012 367I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20014 368I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20016 369I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20018 370I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20020 371I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . .
.
  20022 372I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20024 373I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20026 374I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20028 375I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20030 376I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20032 377I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20034 378I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20036 379I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20038 380I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20040 381I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . .
.
  20042 382I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20044 383I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20046 384I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20048 385I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20050 386I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20052 387I         .         .         .         .         .         .         .  S      .         .         .         .
.
  20054 388I         .         .         .         .         .         .         .  S      .         .         .         .
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  20056 389I         .         .         .         .         .         .         .  S      .         .         .         .
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20058 390I        .       .       .       .       .       .       . S     .       .       .       .
20100 391I . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
20102 392I        .       .       .       .       .       .       . S     .       .       .       .
20104 393I        .       .       .       .       .       .       . S     .       .       .       .
20106 394I        .       .       .       .       .       .       . S     .       .       .       .
20108 395I        .       .       .       .       .       .       . S     .       .       .       .
20110 396I        .       .       .       .       .       .       . S     .       .       .       .
20112 397I        .       .       .       .       .       .       . S     .       .       .       .
20114 398I        .       .       .       .       .       .       . S     .       .       .       .
20116 399I        .       .       .       .       .       .       . S     .       .       .       .
20118 400I        .       .       .       .       .       .       . S     .       .       .       .
20120 401I . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
20122 402I        .       .       .       .       .       .       . S     .       .       .       .
20124 403I        .       .       .       .       .       .       . S     .       .       .       .
20126 404I        .       .       .       .       .       .       . S     .       .       .       .
20128 405I        .       .       .       .       .       .       .S      .       .       .       .
20130 406I        .       .       .       .       .       .       .S      .       .       .       .
20132 407I        .       .       .       .       .       .       .S      .       .       .       .
20134 408I        .       .       .       .       .       .       .S      .       .       .       .
20136 409I        .       .       .       .       .       .       .S      .       .       .       .
20138 410I        .       .       .       .       .       .       .S      .       .       .       .
20140 411I . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
20142 412I        .       .       .       .       .       .       .S      .       .       .       .
20144 413I        .       .       .       .       .       .       .S      .       .       .       .
20146 414I        .       .       .       .       .       .       .S      .       .       .       .
20148 415I        .       .       .       .       .       .       .S      .       .       .       .
20150 416I        .       .       .       .       .       .       .S      .       .       .       .
20152 417I        .       .       .       .       .       .       .S      .       .       .       .
20154 418I        .       .       .       .       .       .       .S      .       .       .       .
20156 419I        .       .       .       .       .       .       .S      .       .       .       .
20158 420I        .       .       .       .       .       .       .S      .       .       .       .
20200 421I . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
20202 422I        .       .       .       .       .       .       .S      .       .       .       .
20204 423I        .       .       .       .       .       .       .S      .       .       .       .
20206 424I        .       .       .       .       .       .       .S      .       .       .       .
20208 425I        .       .       .       .       .       .       .S      .       .       .       .
20210 426I        .       .       .       .       .       .       .S      .       .       .       .
20212 427I        .       .       .       .       .       .       .S      .       .       .       .
20214 428I        .       .       .       .       .       .       .S      .       .       .       .
20216 429I        .       .       .       .       .       .       .S      .       .       .       .
20218 430I        .       .       .       .       .       .       .S      .       .       .       .
20220 431I . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
20222 432I        .       .       .       .       .       .       .S      .       .       .       .
20224 433I        .       .       .       .       .       .       .S      .       .       .       .
20226 434I        .       .       .       .       .       .       .S      .       .       .       .
20228 435I        .       .       .       .       .       .       .S      .       .       .       .
20230 436I        .       .       .       .       .       .       .S      .       .       .       .
20232 437I        .       .       .       .       .       .       .S      .       .       .       .
20234 438I        .       .       .       .       .       .       .S      .       .       .       .
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  20236 439I         .         .         .         .         .         .         . S       .         .         .         .
.
  20238 440I         .         .         .         .         .         .         . S       .         .         .         .
.
  20240 441I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . .
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  20242 442I         .         .         .         .         .         .         . S       .         .         .         .
.
  20244 443I         .         .         .         .         .         .         . S       .         .         .         .
.
  20246 444I         .         .         .         .         .         .         . S       .         .         .         .
.
  20248 445I         .         .         .         .         .         .         . S       .         .         .         .
.
  20250 446I         .         .         .         .         .         .         . S       .         .         .         .
.
  20252 447I         .         .         .         .         .         .         . S       .         .         .         .
.
  20254 448I         .         .         .         .         .         .         . S       .         .         .         .
.
  20256 449I         .         .         .         .         .         .         . S       .         .         .         .
.
  20258 450I         .         .         .         .         .         .         . S       .         .         .         .
.
  20300 451I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . .
.
  20302 452I         .         .         .         .         .         .         . S       .         .         .         .
.
  20304 453I         .         .         .         .         .         .         . S       .         .         .         .
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  20306 454I         .         .         .         .         .         .         . S       .         .         .         .
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  20308 455I         .         .         .         .         .         .         . S       .         .         .         .
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  20310 456I         .         .         .         .         .         .         . S       .         .         .         .
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  20312 457I         .         .         .         .         .         .         . S       .         .         .         .
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  20314 458I         .         .         .         .         .         .         . S       .         .         .         .
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  20316 459I         .         .         .         .         .         .         . S       .         .         .         .
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  20318 460I         .         .         .         .         .         .         . S       .         .         .         .
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  20320 461I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . .
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  20322 462I         .         .         .         .         .         .         . S       .         .         .         .
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  20324 463I         .         .         .         .         .         .         . S       .         .         .         .
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  20326 464I         .         .         .         .         .         .         . S       .         .         .         .
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  20328 465I         .         .         .         .         .         .         . S       .         .         .         .
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  20330 466I         .         .         .         .         .         .         . S       .         .         .         .
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  20332 467I         .         .         .         .         .         .         . S       .         .         .         .
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  20334 468I         .         .         .         .         .         .         . S       .         .         .         .
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  20336 469I         .         .         .         .         .         .         . S       .         .         .         .
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  20338 470I         .         .         .         .         .         .         . S       .         .         .         .
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  20340 471I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . .
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  20342 472I         .         .         .         .         .         .         . S       .         .         .         .
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  20344 473I         .         .         .         .         .         .         . S       .         .         .         .
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  20346 474I         .         .         .         .         .         .         . S       .         .         .         .
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  20348 475I         .         .         .         .         .         .         . S       .         .         .         .
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  20350 476I         .         .         .         .         .         .         . S       .         .         .         .
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  20352 477I         .         .         .         .         .         .         . S       .         .         .         .
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  20354 478I         .         .         .         .         .         .         . S       .         .         .         .
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  20356 479I         .         .         .         .         .         .         . S       .         .         .         .
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  20358 480I         .         .         .         .         .         .         . S       .         .         .         .
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  20400 481I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . .
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  20402 482I         .         .         .         .         .         .         . S       .         .         .         .
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  20404 483I         .         .         .         .         .         .         . S       .         .         .         .
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  20406 484I         .         .         .         .         .         .         . S       .         .         .         .
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  20408 485I         .         .         .         .         .         .         . S       .         .         .         .
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  20410 486I         .         .         .         .         .         .         . S       .         .         .         .
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  20412 487I         .         .         .         .         .         .         . S       .         .         .         .
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  20414 488I         .         .         .         .         .         .         . S       .         .         .         .
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  20416 489I         .         .         .         .         .         .         . S       .         .         .         .
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  20418 490I         .         .         .         .         .         .         . S       .         .         .         .
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  20420 491I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . .
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  20422 492I         .         .         .         .         .         .         . S       .         .         .         .
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  20424 493I         .         .         .         .         .         .         . S       .         .         .         .
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  20426 494I         .         .         .         .         .         .         . S       .         .         .         .
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  20428 495I         .         .         .         .         .         .         . S       .         .         .         .
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  20430 496I         .         .         .         .         .         .         .S        .         .         .         .
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  20432 497I         .         .         .         .         .         .         .S        .         .         .         .
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  20434 498I         .         .         .         .         .         .         .S        .         .         .         .
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  20436 499I         .         .         .         .         .         .         .S        .         .         .         .
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  20438
500I---------.---------.---------.---------.---------.---------.---------.S--------.---------.---------.---------.---------.
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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	ECC-BMP1	7.	3.07	1.	0.	0.	.00		
+	ROUTED TO	DET1	5.	3.23	1.	0.	0.	.00		
+									102.97	3.23

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

```
KK ECC-BMP2.OUT
KM RATIONAL METHOD HYDROGRAPH PROGRAM
KM COPYRIGHT 1992, RICK ENGINEERING COMPANY
KM 6HR RAINFALL IS  3.49  INCHES
KM RATIONAL METHOD RUNOFF COEFFICIENT IS  .65
KM RATIONAL METHOD TIME OF CONCENTRATION IS  12  MIN.
KM FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO YOUR HEC-1
KM IT 2 01JAN90 1200 200
BA .0148
IN 12 01JAN90  1154
QI 0  0  1.3  1.4  1.5  1.5  1.6  1.7  1.9  2
QI 2.2  2.5  2.9  3.4  4.4  6.4  20.8  20.5  5.1  3.8
QI 3.1  2.7  2.4  2.1  2  1.8  1.7  1.6  1.5  1.4
QI 1.4  1.3  0  0  0  0  0  0  0  0
QI 0  0
```

```
*FREE
*DIAGRAM
ID ESCONDIDO COUNTRY CLUB, J-17762-A BMP 2
ID 100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
ID March 3, 2017 - FILE NAME: ECC_BMP2_00.HC1
IT 2 01JAN90 1200 500
IO 5 0
*
KK ECC-BMP2.OUT
KM RATIONAL METHOD HYDROGRAPH PROGRAM
KM COPYRIGHT 1992, RICK ENGINEERING COMPANY
KM 6HR RAINFALL IS  3.49  INCHES
KM RATIONAL METHOD RUNOFF COEFFICIENT IS  .65
KM RATIONAL METHOD TIME OF CONCENTRATION IS  12  MIN.
KM FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO
YOUR HEC-1
KM IT 2 01JAN90 1200 200
BA .0148
IN 12 01JAN90  1154
QI 0  0  1.3  1.4  1.5  1.5  1.6  1.7  1.9  2
QI 2.2  2.5  2.9  3.4  4.4  6.4  20.8  20.5  5.1  3.8
QI 3.1  2.7  2.4  2.1  2  1.8  1.7  1.6  1.5  1.4
QI 1.4  1.3  0  0  0  0  0  0  0  0
QI 0  0
*
KK DET1
KM DETAIN BASIN 2
KO 2 2 0 0 21
RS 1 STOR -1
SV 0 .2 0.5 .9
SQ 0 .06 4.8 7.6
SE 100 101 102 103
*
KO 2 2 0 0 21
ZZ
```

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1****************************************
****************************************
 *                                      *                                                    *
*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS
*
 *               JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING CENTER
*
 *            VERSION 4.1               *                                                    *         609 SECOND STREET
*
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616
*
 *  RUN DATE   06MAR17  TIME  14:10:49  *                                                    *           (916) 756-1104
*
 *                                      *                                                    *
*
 ****************************************
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X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
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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

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

 *** FREE ***
                        *DIAGRAM
             1          ID   ESCONDIDO COUNTRY CLUB, J-17762-A BMP 2
             2          ID   100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
             3          ID   March 3, 2017 - FILE NAME: ECC_BMP2_00.HC1
             4          IT       2 01JAN90    1200     500
             5          IO       5       0
                        *

             6          KKECC-BMP2.OUT
             7          KM   RATIONAL METHOD HYDROGRAPH PROGRAM
             8          KM   COPYRIGHT 1992, RICK ENGINEERING COMPANY
             9          KM   6HR RAINFALL IS  3.49  INCHES
            10          KM   RATIONAL METHOD RUNOFF COEFFICIENT IS  .65
            11          KM   RATIONAL METHOD TIME OF CONCENTRATION IS  12  MIN.
            12          KM   FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO YOUR HEC-1
            13          KM   IT 2 01JAN90 1200 200
            14          BA   .0148
            15          IN      12 01JAN90    1154
            16          QI       0       0     1.3     1.4     1.5     1.5     1.6     1.7     1.9       2
            17          QI     2.2     2.5     2.9     3.4     4.4     6.4    20.8    20.5     5.1     3.8
            18          QI     3.1     2.7     2.4     2.1       2     1.8     1.7     1.6     1.5     1.4
            19          QI     1.4     1.3       0       0       0       0       0       0       0       0
            20          QI       0       0
                        *

            21          KK    DET1
            22          KM   DETAIN BASIN 2
            23          KO       2       2       0       0      21
            24          RS       1    STOR      -1
            25          SV       0      .2     0.5      .9
            26          SQ       0     .06     4.8     7.6
            27          SE     100     101     102     103
                        *
            28          KO       2       2       0       0      21
            29          ZZ
```

1 SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

     6    ECC-BMP2
               V
               V
    21        DET1
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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1****************************************
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 *                                      *                                                    *
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*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                                    *    U.S. ARMY CORPS OF ENGINEERS
*
 *               JUN   1998              *                                                    *    HYDROLOGIC ENGINEERING CENTER
*
 *            VERSION 4.1                *                                                    *          609 SECOND STREET
*
 *                                       *                                                    *       DAVIS, CALIFORNIA 95616
*
 *  RUN DATE   06MAR17  TIME  14:10:49   *                                                    *           (916) 756-1104
*
 *                                       *                                                    *
*
 ******************************************
***************************************



                            ESCONDIDO COUNTRY CLUB, J-17762-A BMP 2
                            100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
                            March 3, 2017 - FILE NAME: ECC_BMP2_00.HC1

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

      IT           HYDROGRAPH TIME DATA
                         NMIN           2  MINUTES IN COMPUTATION INTERVAL
                        IDATE      1JAN90  STARTING DATE
                        ITIME        1200  STARTING TIME
                           NQ         500  NUMBER OF HYDROGRAPH ORDINATES
                       NDDATE      2JAN90  ENDING DATE
                       NDTIME        0438  ENDING TIME
                       ICENT           19  CENTURY MARK

                    COMPUTATION INTERVAL     .03 HOURS
                         TOTAL TIME BASE   16.63 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


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


             **************
             *            *
   21 KK     *      DET1  *
             *            *
             **************

   23 KO           OUTPUT CONTROL VARIABLES
                        IPRNT           2  PRINT CONTROL
                        IPLOT           2  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                         IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2         500  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT        .033  TIME INTERVAL IN HOURS


   28 KO           OUTPUT CONTROL VARIABLES
                        IPRNT           2  PRINT CONTROL
                        IPLOT           2  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                         IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2         500  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT        .033  TIME INTERVAL IN HOURS


                HYDROGRAPH ROUTING DATA

   24 RS           STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        STOR  TYPE OF INITIAL CONDITION
                       RSVRIC       -1.00  INITIAL CONDITION
                            X         .00 WORKING R AND D COEFFICIENT

   25 SV             STORAGE          .0        .2        .5        .9

   26 SQ           DISCHARGE          0.        0.        5.        8.

   27 SE           ELEVATION      100.00    101.00    102.00    103.00
                                                                 ***
```

HYDROGRAPH AT STATION DET1

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	JAN	1200	1	0.	.0	100.0	1	JAN	1734	168	3.	.4	101.6	1	JAN	2308	335	0.	.2	100.9
1	JAN	1202	2	0.	.0	100.0	1	JAN	1736	169	3.	.4	101.6	1	JAN	2310	336	0.	.2	100.9
1	JAN	1204	3	0.	.0	100.0	1	JAN	1738	170	3.	.4	101.6	1	JAN	2312	337	0.	.2	100.9
1	JAN	1206	4	0.	.0	100.0	1	JAN	1740	171	3.	.4	101.6	1	JAN	2314	338	0.	.2	100.9
1	JAN	1208	5	0.	.0	100.0	1	JAN	1742	172	3.	.4	101.6	1	JAN	2316	339	0.	.2	100.9
1	JAN	1210	6	0.	.0	100.0	1	JAN	1744	173	3.	.4	101.5	1	JAN	2318	340	0.	.2	100.9
1	JAN	1212	7	0.	.0	100.0	1	JAN	1746	174	3.	.4	101.5	1	JAN	2320	341	0.	.2	100.9
1	JAN	1214	8	0.	.0	100.0	1	JAN	1748	175	3.	.4	101.5	1	JAN	2322	342	0.	.2	100.9
1	JAN	1216	9	0.	.0	100.0	1	JAN	1750	176	2.	.4	101.5	1	JAN	2324	343	0.	.2	100.9
1	JAN	1218	10	0.	.0	100.1	1	JAN	1752	177	2.	.3	101.5	1	JAN	2326	344	0.	.2	100.9
1	JAN	1220	11	0.	.0	100.1	1	JAN	1754	178	2.	.3	101.5	1	JAN	2328	345	0.	.2	100.9
1	JAN	1222	12	0.	.0	100.1	1	JAN	1756	179	2.	.3	101.5	1	JAN	2330	346	0.	.2	100.9
1	JAN	1224	13	0.	.0	100.1	1	JAN	1758	180	2.	.3	101.5	1	JAN	2332	347	0.	.2	100.9
1	JAN	1226	14	0.	.0	100.1	1	JAN	1800	181	2.	.3	101.5	1	JAN	2334	348	0.	.2	100.9
1	JAN	1228	15	0.	.0	100.1	1	JAN	1802	182	2.	.3	101.5	1	JAN	2336	349	0.	.2	100.9
1	JAN	1230	16	0.	.0	100.2	1	JAN	1804	183	2.	.3	101.4	1	JAN	2338	350	0.	.2	100.9
1	JAN	1232	17	0.	.0	100.2	1	JAN	1806	184	2.	.3	101.4	1	JAN	2340	351	0.	.2	100.9
1	JAN	1234	18	0.	.0	100.2	1	JAN	1808	185	2.	.3	101.4	1	JAN	2342	352	0.	.2	100.9
1	JAN	1236	19	0.	.0	100.2	1	JAN	1810	186	2.	.3	101.4	1	JAN	2344	353	0.	.2	100.9
1	JAN	1238	20	0.	.0	100.2	1	JAN	1812	187	2.	.3	101.4	1	JAN	2346	354	0.	.2	100.9
1	JAN	1240	21	0.	.1	100.3	1	JAN	1814	188	2.	.3	101.4	1	JAN	2348	355	0.	.2	100.9
1	JAN	1242	22	0.	.1	100.3	1	JAN	1816	189	2.	.3	101.4	1	JAN	2350	356	0.	.2	100.9
1	JAN	1244	23	0.	.1	100.3	1	JAN	1818	190	2.	.3	101.4	1	JAN	2352	357	0.	.2	100.9
1	JAN	1246	24	0.	.1	100.3	1	JAN	1820	191	2.	.3	101.3	1	JAN	2354	358	0.	.2	100.9
1	JAN	1248	25	0.	.1	100.3	1	JAN	1822	192	2.	.3	101.3	1	JAN	2356	359	0.	.2	100.9
1	JAN	1250	26	0.	.1	100.4	1	JAN	1824	193	2.	.3	101.3	1	JAN	2358	360	0.	.2	100.9
1	JAN	1252	27	0.	.1	100.4	1	JAN	1826	194	2.	.3	101.3	2	JAN	0000	361	0.	.2	100.9
1	JAN	1254	28	0.	.1	100.4	1	JAN	1828	195	1.	.3	101.3	2	JAN	0002	362	0.	.2	100.9
1	JAN	1256	29	0.	.1	100.4	1	JAN	1830	196	1.	.3	101.3	2	JAN	0004	363	0.	.2	100.9
1	JAN	1258	30	0.	.1	100.4	1	JAN	1832	197	1.	.3	101.3	2	JAN	0006	364	0.	.2	100.9
1	JAN	1300	31	0.	.1	100.5	1	JAN	1834	198	1.	.3	101.3	2	JAN	0008	365	0.	.2	100.9
1	JAN	1302	32	0.	.1	100.5	1	JAN	1836	199	1.	.3	101.2	2	JAN	0010	366	0.	.2	100.9
1	JAN	1304	33	0.	.1	100.5	1	JAN	1838	200	1.	.3	101.2	2	JAN	0012	367	0.	.2	100.9
1	JAN	1306	34	0.	.1	100.5	1	JAN	1840	201	1.	.3	101.2	2	JAN	0014	368	0.	.2	100.9
1	JAN	1308	35	0.	.1	100.6	1	JAN	1842	202	1.	.3	101.2	2	JAN	0016	369	0.	.2	100.9
1	JAN	1310	36	0.	.1	100.6	1	JAN	1844	203	1.	.3	101.2	2	JAN	0018	370	0.	.2	100.9
1	JAN	1312	37	0.	.1	100.6	1	JAN	1846	204	1.	.3	101.2	2	JAN	0020	371	0.	.2	100.9
1	JAN	1314	38	0.	.1	100.6	1	JAN	1848	205	1.	.3	101.2	2	JAN	0022	372	0.	.2	100.9
1	JAN	1316	39	0.	.1	100.6	1	JAN	1850	206	1.	.3	101.2	2	JAN	0024	373	0.	.2	100.9
1	JAN	1318	40	0.	.1	100.7	1	JAN	1852	207	1.	.3	101.2	2	JAN	0026	374	0.	.2	100.9
1	JAN	1320	41	0.	.1	100.7	1	JAN	1854	208	1.	.2	101.2	2	JAN	0028	375	0.	.2	100.9
1	JAN	1322	42	0.	.1	100.7	1	JAN	1856	209	1.	.2	101.2	2	JAN	0030	376	0.	.2	100.9
1	JAN	1324	43	0.	.1	100.7	1	JAN	1858	210	1.	.2	101.1	2	JAN	0032	377	0.	.2	100.9
1	JAN	1326	44	0.	.2	100.8	1	JAN	1900	211	1.	.2	101.1	2	JAN	0034	378	0.	.2	100.9
1	JAN	1328	45	0.	.2	100.8	1	JAN	1902	212	1.	.2	101.1	2	JAN	0036	379	0.	.2	100.9
1	JAN	1330	46	0.	.2	100.8	1	JAN	1904	213	1.	.2	101.1	2	JAN	0038	380	0.	.2	100.9
1	JAN	1332	47	0.	.2	100.8	1	JAN	1906	214	1.	.2	101.1	2	JAN	0040	381	0.	.2	100.9
1	JAN	1334	48	0.	.2	100.9	1	JAN	1908	215	1.	.2	101.1	2	JAN	0042	382	0.	.2	100.9
1	JAN	1336	49	0.	.2	100.9	1	JAN	1910	216	1.	.2	101.1	2	JAN	0044	383	0.	.2	100.9
1	JAN	1338	50	0.	.2	100.9	1	JAN	1912	217	1.	.2	101.1	2	JAN	0046	384	0.	.2	100.9
1	JAN	1340	51	0.	.2	100.9	1	JAN	1914	218	1.	.2	101.1	2	JAN	0048	385	0.	.2	100.9
1	JAN	1342	52	0.	.2	101.0	1	JAN	1916	219	1.	.2	101.1	2	JAN	0050	386	0.	.2	100.9
1	JAN	1344	53	0.	.2	101.0	1	JAN	1918	220	0.	.2	101.1	2	JAN	0052	387	0.	.2	100.9
1	JAN	1346	54	0.	.2	101.0	1	JAN	1920	221	0.	.2	101.1	2	JAN	0054	388	0.	.2	100.9
1	JAN	1348	55	0.	.2	101.0	1	JAN	1922	222	0.	.2	101.1	2	JAN	0056	389	0.	.2	100.9
1	JAN	1350	56	0.	.2	101.0	1	JAN	1924	223	0.	.2	101.1	2	JAN	0058	390	0.	.2	100.9
1	JAN	1352	57	0.	.2	101.1	1	JAN	1926	224	0.	.2	101.1	2	JAN	0100	391	0.	.2	100.9
1	JAN	1354	58	0.	.2	101.1	1	JAN	1928	225	0.	.2	101.1	2	JAN	0102	392	0.	.2	100.9
1	JAN	1356	59	1.	.2	101.1	1	JAN	1930	226	0.	.2	101.1	2	JAN	0104	393	0.	.2	100.9
1	JAN	1358	60	1.	.2	101.1	1	JAN	1932	227	0.	.2	101.1	2	JAN	0106	394	0.	.2	100.9
1	JAN	1400	61	1.	.2	101.1	1	JAN	1934	228	0.	.2	101.1	2	JAN	0108	395	0.	.2	100.9
1	JAN	1402	62	1.	.2	101.1	1	JAN	1936	229	0.	.2	101.1	2	JAN	0110	396	0.	.2	100.9
1	JAN	1404	63	1.	.2	101.2	1	JAN	1938	230	0.	.2	101.1	2	JAN	0112	397	0.	.2	100.9
1	JAN	1406	64	1.	.3	101.2	1	JAN	1940	231	0.	.2	101.1	2	JAN	0114	398	0.	.2	100.9
1	JAN	1408	65	1.	.3	101.2	1	JAN	1942	232	0.	.2	101.0	2	JAN	0116	399	0.	.2	100.9
1	JAN	1410	66	1.	.3	101.2	1	JAN	1944	233	0.	.2	101.0	2	JAN	0118	400	0.	.2	100.9
1	JAN	1412	67	1.	.3	101.2	1	JAN	1946	234	0.	.2	101.0	2	JAN	0120	401	0.	.2	100.9
1	JAN	1414	68	1.	.3	101.2	1	JAN	1948	235	0.	.2	101.0	2	JAN	0122	402	0.	.2	100.9
1	JAN	1416	69	1.	.3	101.2	1	JAN	1950	236	0.	.2	101.0	2	JAN	0124	403	0.	.2	100.9
1	JAN	1418	70	1.	.3	101.3	1	JAN	1952	237	0.	.2	101.0	2	JAN	0126	404	0.	.2	100.9
1	JAN	1420	71	1.	.3	101.3	1	JAN	1954	238	0.	.2	101.0	2	JAN	0128	405	0.	.2	100.9
1	JAN	1422	72	1.	.3	101.3	1	JAN	1956	239	0.	.2	101.0	2	JAN	0130	406	0.	.2	100.9
1	JAN	1424	73	2.	.3	101.3	1	JAN	1958	240	0.	.2	101.0	2	JAN	0132	407	0.	.2	100.9
1	JAN	1426	74	2.	.3	101.3	1	JAN	2000	241	0.	.2	101.0	2	JAN	0134	408	0.	.2	100.9
1	JAN	1428	75	2.	.3	101.3	1	JAN	2002	242	0.	.2	101.0	2	JAN	0136	409	0.	.2	100.9
1	JAN	1430	76	2.	.3	101.4	1	JAN	2004	243	0.	.2	101.0	2	JAN	0138	410	0.	.2	100.9
1	JAN	1432	77	2.	.3	101.4	1	JAN	2006	244	0.	.2	101.0	2	JAN	0140	411	0.	.2	100.9
1	JAN	1434	78	2.	.3	101.4	1	JAN	2008	245	0.	.2	101.0	2	JAN	0142	412	0.	.2	100.9
1	JAN	1436	79	2.	.3	101.4	1	JAN	2010	246	0.	.2	101.0	2	JAN	0144	413	0.	.2	100.9
1	JAN	1438	80	2.	.3	101.4	1	JAN	2012	247	0.	.2	101.0	2	JAN	0146	414	0.	.2	100.9
1	JAN	1440	81	2.	.3	101.4	1	JAN	2014	248	0.	.2	101.0	2	JAN	0148	415	0.	.2	100.9
1	JAN	1442	82	2.	.3	101.5	1	JAN	2016	249	0.	.2	101.0	2	JAN	0150	416	0.	.2	100.9
1	JAN	1444	83	2.	.3	101.5	1	JAN	2018	250	0.	.2	101.0	2	JAN	0152	417	0.	.2	100.9
1	JAN	1446	84	2.	.4	101.5	1	JAN	2020	251	0.	.2	101.0	2	JAN	0154	418	0.	.2	100.9
1	JAN	1448	85	3.	.4	101.5	1	JAN	2022	252	0.	.2	101.0	2	JAN	0156	419	0.	.2	100.9
1	JAN	1450	86	3.	.4	101.6	1	JAN	2024	253	0.	.2	101.0	2	JAN	0158	420	0.	.2	100.9
1	JAN	1452	87	3.	.4	101.6	1	JAN	2026	254	0.	.2	101.0	2	JAN	0200	421	0.	.2	100.9
1	JAN	1454	88	3.	.4	101.6	1	JAN	2028	255	0.	.2	101.0	2	JAN	0202	422	0.	.2	100.9

1	JAN	1456	89	3.	.4	101.7	*	1	JAN	2030	256	0.	.2	101.0	*	2	JAN	0204	423	0.	.2	100.9
1	JAN	1458	90	3.	.4	101.7	*	1	JAN	2032	257	0.	.2	101.0	*	2	JAN	0206	424	0.	.2	100.9
1	JAN	1500	91	4.	.4	101.8	*	1	JAN	2034	258	0.	.2	101.0	*	2	JAN	0208	425	0.	.2	100.9
1	JAN	1502	92	4.	.5	101.9	*	1	JAN	2036	259	0.	.2	101.0	*	2	JAN	0210	426	0.	.2	100.9
1	JAN	1504	93	5.	.5	102.0	*	1	JAN	2038	260	0.	.2	101.0	*	2	JAN	0212	427	0.	.2	100.9
1	JAN	1506	94	5.	.5	102.1	*	1	JAN	2040	261	0.	.2	101.0	*	2	JAN	0214	428	0.	.2	100.9
1	JAN	1508	95	5.	.6	102.2	*	1	JAN	2042	262	0.	.2	101.0	*	2	JAN	0216	429	0.	.2	100.9
1	JAN	1510	96	6.	.6	102.3	*	1	JAN	2044	263	0.	.2	101.0	*	2	JAN	0218	430	0.	.2	100.9
1	JAN	1512	97	6.	.7	102.4	*	1	JAN	2046	264	0.	.2	101.0	*	2	JAN	0220	431	0.	.2	100.9
1	JAN	1514	98	6.	.7	102.5	*	1	JAN	2048	265	0.	.2	101.0	*	2	JAN	0222	432	0.	.2	100.9
1	JAN	1516	99	7.	.7	102.6	*	1	JAN	2050	266	0.	.2	101.0	*	2	JAN	0224	433	0.	.2	100.9
1	JAN	1518	100	7.	.8	102.7	*	1	JAN	2052	267	0.	.2	101.0	*	2	JAN	0226	434	0.	.2	100.9
1	JAN	1520	101	7.	.8	102.8	*	1	JAN	2054	268	0.	.2	101.0	*	2	JAN	0228	435	0.	.2	100.9
1	JAN	1522	102	7.	.8	102.9	*	1	JAN	2056	269	0.	.2	101.0	*	2	JAN	0230	436	0.	.2	100.9
1	JAN	1524	103	7.	.9	102.9	*	1	JAN	2058	270	0.	.2	101.0	*	2	JAN	0232	437	0.	.2	100.9
1	JAN	1526	104	7.	.9	102.9	*	1	JAN	2100	271	0.	.2	101.0	*	2	JAN	0234	438	0.	.2	100.9
1	JAN	1528	105	7.	.9	103.0	*	1	JAN	2102	272	0.	.2	101.0	*	2	JAN	0236	439	0.	.2	100.9
1	JAN	1530	106	7.	.9	102.9	*	1	JAN	2104	273	0.	.2	101.0	*	2	JAN	0238	440	0.	.2	100.9
1	JAN	1532	107	7.	.9	102.9	*	1	JAN	2106	274	0.	.2	101.0	*	2	JAN	0240	441	0.	.2	100.9
1	JAN	1534	108	7.	.9	102.9	*	1	JAN	2108	275	0.	.2	101.0	*	2	JAN	0242	442	0.	.2	100.9
1	JAN	1536	109	7.	.9	102.9	*	1	JAN	2110	276	0.	.2	101.0	*	2	JAN	0244	443	0.	.2	100.9
1	JAN	1538	110	7.	.8	102.9	*	1	JAN	2112	277	0.	.2	101.0	*	2	JAN	0246	444	0.	.2	100.9
1	JAN	1540	111	7.	.8	102.8	*	1	JAN	2114	278	0.	.2	101.0	*	2	JAN	0248	445	0.	.2	100.9
1	JAN	1542	112	7.	.8	102.8	*	1	JAN	2116	279	0.	.2	101.0	*	2	JAN	0250	446	0.	.2	100.9
1	JAN	1544	113	7.	.8	102.8	*	1	JAN	2118	280	0.	.2	101.0	*	2	JAN	0252	447	0.	.2	100.9
1	JAN	1546	114	7.	.8	102.8	*	1	JAN	2120	281	0.	.2	101.0	*	2	JAN	0254	448	0.	.2	100.9
1	JAN	1548	115	7.	.8	102.8	*	1	JAN	2122	282	0.	.2	101.0	*	2	JAN	0256	449	0.	.2	100.9
1	JAN	1550	116	7.	.8	102.7	*	1	JAN	2124	283	0.	.2	101.0	*	2	JAN	0258	450	0.	.2	100.9
1	JAN	1552	117	7.	.8	102.7	*	1	JAN	2126	284	0.	.2	101.0	*	2	JAN	0300	451	0.	.2	100.9
1	JAN	1554	118	7.	.8	102.7	*	1	JAN	2128	285	0.	.2	101.0	*	2	JAN	0302	452	0.	.2	100.9
1	JAN	1556	119	7.	.8	102.7	*	1	JAN	2130	286	0.	.2	101.0	*	2	JAN	0304	453	0.	.2	100.9
1	JAN	1558	120	7.	.8	102.6	*	1	JAN	2132	287	0.	.2	101.0	*	2	JAN	0306	454	0.	.2	100.9
1	JAN	1600	121	7.	.7	102.6	*	1	JAN	2134	288	0.	.2	101.0	*	2	JAN	0308	455	0.	.2	100.9
1	JAN	1602	122	6.	.7	102.6	*	1	JAN	2136	289	0.	.2	101.0	*	2	JAN	0310	456	0.	.2	100.9
1	JAN	1604	123	6.	.7	102.6	*	1	JAN	2138	290	0.	.2	101.0	*	2	JAN	0312	457	0.	.2	100.9
1	JAN	1606	124	6.	.7	102.5	*	1	JAN	2140	291	0.	.2	101.0	*	2	JAN	0314	458	0.	.2	100.9
1	JAN	1608	125	6.	.7	102.5	*	1	JAN	2142	292	0.	.2	101.0	*	2	JAN	0316	459	0.	.2	100.9
1	JAN	1610	126	6.	.7	102.5	*	1	JAN	2144	293	0.	.2	101.0	*	2	JAN	0318	460	0.	.2	100.9
1	JAN	1612	127	6.	.7	102.5	*	1	JAN	2146	294	0.	.2	101.0	*	2	JAN	0320	461	0.	.2	100.9
1	JAN	1614	128	6.	.7	102.4	*	1	JAN	2148	295	0.	.2	101.0	*	2	JAN	0322	462	0.	.2	100.9
1	JAN	1616	129	6.	.7	102.4	*	1	JAN	2150	296	0.	.2	101.0	*	2	JAN	0324	463	0.	.2	100.9
1	JAN	1618	130	6.	.7	102.4	*	1	JAN	2152	297	0.	.2	101.0	*	2	JAN	0326	464	0.	.2	100.9
1	JAN	1620	131	6.	.6	102.4	*	1	JAN	2154	298	0.	.2	101.0	*	2	JAN	0328	465	0.	.2	100.8
1	JAN	1622	132	6.	.6	102.3	*	1	JAN	2156	299	0.	.2	101.0	*	2	JAN	0330	466	0.	.2	100.8
1	JAN	1624	133	6.	.6	102.3	*	1	JAN	2158	300	0.	.2	101.0	*	2	JAN	0332	467	0.	.2	100.8
1	JAN	1626	134	6.	.6	102.3	*	1	JAN	2200	301	0.	.2	101.0	*	2	JAN	0334	468	0.	.2	100.8
1	JAN	1628	135	6.	.6	102.3	*	1	JAN	2202	302	0.	.2	101.0	*	2	JAN	0336	469	0.	.2	100.8
1	JAN	1630	136	5.	.6	102.2	*	1	JAN	2204	303	0.	.2	101.0	*	2	JAN	0338	470	0.	.2	100.8
1	JAN	1632	137	5.	.6	102.2	*	1	JAN	2206	304	0.	.2	101.0	*	2	JAN	0340	471	0.	.2	100.8
1	JAN	1634	138	5.	.6	102.2	*	1	JAN	2208	305	0.	.2	101.0	*	2	JAN	0342	472	0.	.2	100.8
1	JAN	1636	139	5.	.6	102.2	*	1	JAN	2210	306	0.	.2	101.0	*	2	JAN	0344	473	0.	.2	100.8
1	JAN	1638	140	5.	.6	102.2	*	1	JAN	2212	307	0.	.2	101.0	*	2	JAN	0346	474	0.	.2	100.8
1	JAN	1640	141	5.	.6	102.1	*	1	JAN	2214	308	0.	.2	101.0	*	2	JAN	0348	475	0.	.2	100.8
1	JAN	1642	142	5.	.5	102.1	*	1	JAN	2216	309	0.	.2	101.0	*	2	JAN	0350	476	0.	.2	100.8
1	JAN	1644	143	5.	.5	102.1	*	1	JAN	2218	310	0.	.2	101.0	*	2	JAN	0352	477	0.	.2	100.8
1	JAN	1646	144	5.	.5	102.1	*	1	JAN	2220	311	0.	.2	101.0	*	2	JAN	0354	478	0.	.2	100.8
1	JAN	1648	145	5.	.5	102.0	*	1	JAN	2222	312	0.	.2	101.0	*	2	JAN	0356	479	0.	.2	100.8
1	JAN	1650	146	5.	.5	102.0	*	1	JAN	2224	313	0.	.2	101.0	*	2	JAN	0358	480	0.	.2	100.8
1	JAN	1652	147	5.	.5	102.0	*	1	JAN	2226	314	0.	.2	101.0	*	2	JAN	0400	481	0.	.2	100.8
1	JAN	1654	148	5.	.5	102.0	*	1	JAN	2228	315	0.	.2	101.0	*	2	JAN	0402	482	0.	.2	100.8
1	JAN	1656	149	5.	.5	102.0	*	1	JAN	2230	316	0.	.2	101.0	*	2	JAN	0404	483	0.	.2	100.8
1	JAN	1658	150	4.	.5	101.9	*	1	JAN	2232	317	0.	.2	101.0	*	2	JAN	0406	484	0.	.2	100.8
1	JAN	1700	151	4.	.5	101.9	*	1	JAN	2234	318	0.	.2	101.0	*	2	JAN	0408	485	0.	.2	100.8
1	JAN	1702	152	4.	.5	101.9	*	1	JAN	2236	319	0.	.2	101.0	*	2	JAN	0410	486	0.	.2	100.8
1	JAN	1704	153	4.	.5	101.9	*	1	JAN	2238	320	0.	.2	101.0	*	2	JAN	0412	487	0.	.2	100.8
1	JAN	1706	154	4.	.5	101.8	*	1	JAN	2240	321	0.	.2	101.0	*	2	JAN	0414	488	0.	.2	100.8
1	JAN	1708	155	4.	.4	101.8	*	1	JAN	2242	322	0.	.2	101.0	*	2	JAN	0416	489	0.	.2	100.8
1	JAN	1710	156	4.	.4	101.8	*	1	JAN	2244	323	0.	.2	101.0	*	2	JAN	0418	490	0.	.2	100.8
1	JAN	1712	157	4.	.4	101.8	*	1	JAN	2246	324	0.	.2	101.0	*	2	JAN	0420	491	0.	.2	100.8
1	JAN	1714	158	4.	.4	101.8	*	1	JAN	2248	325	0.	.2	101.0	*	2	JAN	0422	492	0.	.2	100.8
1	JAN	1716	159	4.	.4	101.7	*	1	JAN	2250	326	0.	.2	101.0	*	2	JAN	0424	493	0.	.2	100.8
1	JAN	1718	160	3.	.4	101.7	*	1	JAN	2252	327	0.	.2	101.0	*	2	JAN	0426	494	0.	.2	100.8
1	JAN	1720	161	3.	.4	101.7	*	1	JAN	2254	328	0.	.2	101.0	*	2	JAN	0428	495	0.	.2	100.8
1	JAN	1722	162	3.	.4	101.7	*	1	JAN	2256	329	0.	.2	101.0	*	2	JAN	0430	496	0.	.2	100.8
1	JAN	1724	163	3.	.4	101.7	*	1	JAN	2258	330	0.	.2	101.0	*	2	JAN	0432	497	0.	.2	100.8
1	JAN	1726	164	3.	.4	101.7	*	1	JAN	2300	331	0.	.2	100.9	*	2	JAN	0434	498	0.	.2	100.8
1	JAN	1728	165	3.	.4	101.6	*	1	JAN	2302	332	0.	.2	100.9	*	2	JAN	0436	499	0.	.2	100.8
1	JAN	1730	166	3.	.4	101.6	*	1	JAN	2304	333	0.	.2	100.9	*	2	JAN	0438	500	0.	.2	100.8
1	JAN	1732	167	3.	.4	101.6	*	1	JAN	2306	334	0.	.2	100.9	*							

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	16.63-HR
+ (CFS)	(HR)					
		(CFS)				
+ 7.	3.47		3.	1.	1.	1.
		(INCHES)	1.985	2.050	2.050	2.050
		(AC-FT)	2.	2.	2.	2.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	16.63-HR
+ (AC-FT)	(HR)				
1.	3.47	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	16.63-HR
+ (FEET)	(HR)				

102.95 3.47 101.72 101.16 101.16 101.16

CUMULATIVE AREA = .01 SQ MI

1 STATION DET1

(I) INFLOW, (O) OUTFLOW

0. 4. 8. 12. 16. 20. 24. 0. 0. 0. 0. 0. 0.

(S) STORAGE

.0 .0 .0 .0 .0 .0 .0 .4 .8 1.2 .0 .0 .0

DAHRMN PER

11200 1I---------.---------.---------.---------.---------.---------S---------.---------.---------.---------.---------.---------.

11202 2I . . . . . S . . . . . .

11204 3I . . . . . S . . . . . .

11206 4I . . . . . S . . . . . .

11208 5OI . . . . . S . . . . . .

11210 6OI . . . . . S . . . . . .

11212 7O I . . . . . S . . . . . .

11214 8O I . . . . . S . . . . . .

11216 9O I . . . . . S . . . . . .

11218 10O I . . . . . S . . . . . .

11220 11O .I. . . . . S . . . . . .

11222 12O I . . . . . S . . . . . .

11224 13O I . . . . . .S . . . . . .

11226 14O I . . . . . .S . . . . . .

11228 15O I . . . . . .S . . . . . .

11230 16O I . . . . . .S . . . . . .

11232 17O I . . . . . .S . . . . . .

11234 18O I . . . . . .S . . . . . .

11236 19O I . . . . . .S . . . . . .

11238 20O I . . . . . .S . . . . . .

11240 21O . I . . . . . .S. . . . . .

11242 22O I . . . . . .S . . . . . .

11244 23O I . . . . . . S . . . . . .

11246 24O I . . . . . . S . . . . . .

11248 25O I . . . . . . S . . . . . .

11250 26O I . . . . . . S . . . . . .

11252 27O I . . . . . . S . . . . . .

11254 28O I . . . . . . S . . . . . .

11256 29O I . . . . . . S . . . . . .

11258 30O I . . . . . . S . . . . . .

11300 31O . I . . . . . S . . . . . .

11302 32O I . . . . . . S . . . . . .

11304 33O I . . . . . . S . . . . . .

11306 34O I . . . . . . S . . . . . .

11308 35O I . . . . . . S . . . . . .

11310 36O I . . . . . . S . . . . . .

11312 37O I . . . . . . S . . . . . .

11314 38O I . . . . . . S . . . . . .

11316 39O I . . . . . . S . . . . . .

11318 40O I . . . . . . S . . . . . .

11320 41O . I . . . . . .S. . . . . .

11322 42O I . . . . . . S . . . . . .

11324 43O I . . . . . . S . . . . . .

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11326  440    I    .         .         .         .         .         .   S     .         .         .         .         .
11328  450    I    .         .         .         .         .         .   S     .         .         .         .         .
11330  460    I    .         .         .         .         .         .   S     .         .         .         .         .
11332  470    I    .         .         .         .         .         .   S     .         .         .         .         .
11334  480    I    .         .         .         .         .         .   S     .         .         .         .         .
11336  490    I    .         .         .         .         .         .   S     .         .         .         .         .
11338  500    I    .         .         .         .         .         .    S    .         .         .         .         .
11340  510 . .I. . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . . . .
11342  520    I    .         .         .         .         .         .    S    .         .         .         .         .
11344  530    I    .         .         .         .         .         .    S    .         .         .         .         .
11346  540    I    .         .         .         .         .         .    S    .         .         .         .         .
11348  55.O   I    .         .         .         .         .         .    S    .         .         .         .         .
11350  56.O   I    .         .         .         .         .         .    S    .         .         .         .         .
11352  57.O   I    .         .         .         .         .         .    S    .         .         .         .         .
11354  58.O    I   .         .         .         .         .         .     S   .         .         .         .         .
11356  59.O    I   .         .         .         .         .         .     S   .         .         .         .         .
11358  60.O    I   .         .         .         .         .         .     S   .         .         .         .         .
11400  61. O . I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
11402  62. O   I   .         .         .         .         .         .     S   .         .         .         .         .
11404  63. O   I   .         .         .         .         .         .     S   .         .         .         .         .
11406  64. O   I   .         .         .         .         .         .     S   .         .         .         .         .
11408  65. O   I   .         .         .         .         .         .     S   .         .         .         .         .
11410  66.  O   I  .         .         .         .         .         .      S  .         .         .         .         .
11412  67.  O   I  .         .         .         .         .         .      S  .         .         .         .         .
11414  68.  O   I  .         .         .         .         .         .      S  .         .         .         .         .
11416  69.  O   I  .         .         .         .         .         .      S  .         .         .         .         .
11418  70.  O   I  .         .         .         .         .         .      S  .         .         .         .         .
11420  71. .O. .I. . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . . .
11422  72.   O   I .         .         .         .         .         .      S  .         .         .         .         .
11424  73.   O   I .         .         .         .         .         .      S  .         .         .         .         .
11426  74.   O   I .         .         .         .         .         .      S  .         .         .         .         .
11428  75.   O   I .         .         .         .         .         .       S .         .         .         .         .
11430  76.   O    I.         .         .         .         .         .       S .         .         .         .         .
11432  77.    O   I.         .         .         .         .         .       S .         .         .         .         .
11434  78.    O   I.         .         .         .         .         .       S .         .         .         .         .
11436  79.    O    I         .         .         .         .         .       S .         .         .         .         .
11438  80.    O    I         .         .         .         .         .       S .         .         .         .         .
11440  81. . .O. . .I. . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
11442  82.     O   .I        .         .         .         .         .       S .         .         .         .         .
11444  83.     O   . I       .         .         .         .         .        S.         .         .         .         .
11446  84.     O   .  I      .         .         .         .         .        S.         .         .         .         .
11448  85.     O   .   I     .         .         .         .         .        S.         .         .         .         .
11450  86.      O  .   I     .         .         .         .         .        S.         .         .         .         .
11452  87.      O  .    I    .         .         .         .         .        S.         .         .         .         .
11454  88.      O  .     I   .         .         .         .         .         S         .         .         .         .
11456  89.       O .         . I       .         .         .         .         S         .         .         .         .
11458  90.        O.         .      I  .         .         .         .         S         .         .         .         .
11500  91. . . . . O . . . . . . . . . . . . I . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . . .
11502  92.         .O        .         .         I         .         .         . S       .         .         .         .
11504  93.         . O       .         .         .    I    .         .         .  S      .         .         .         .
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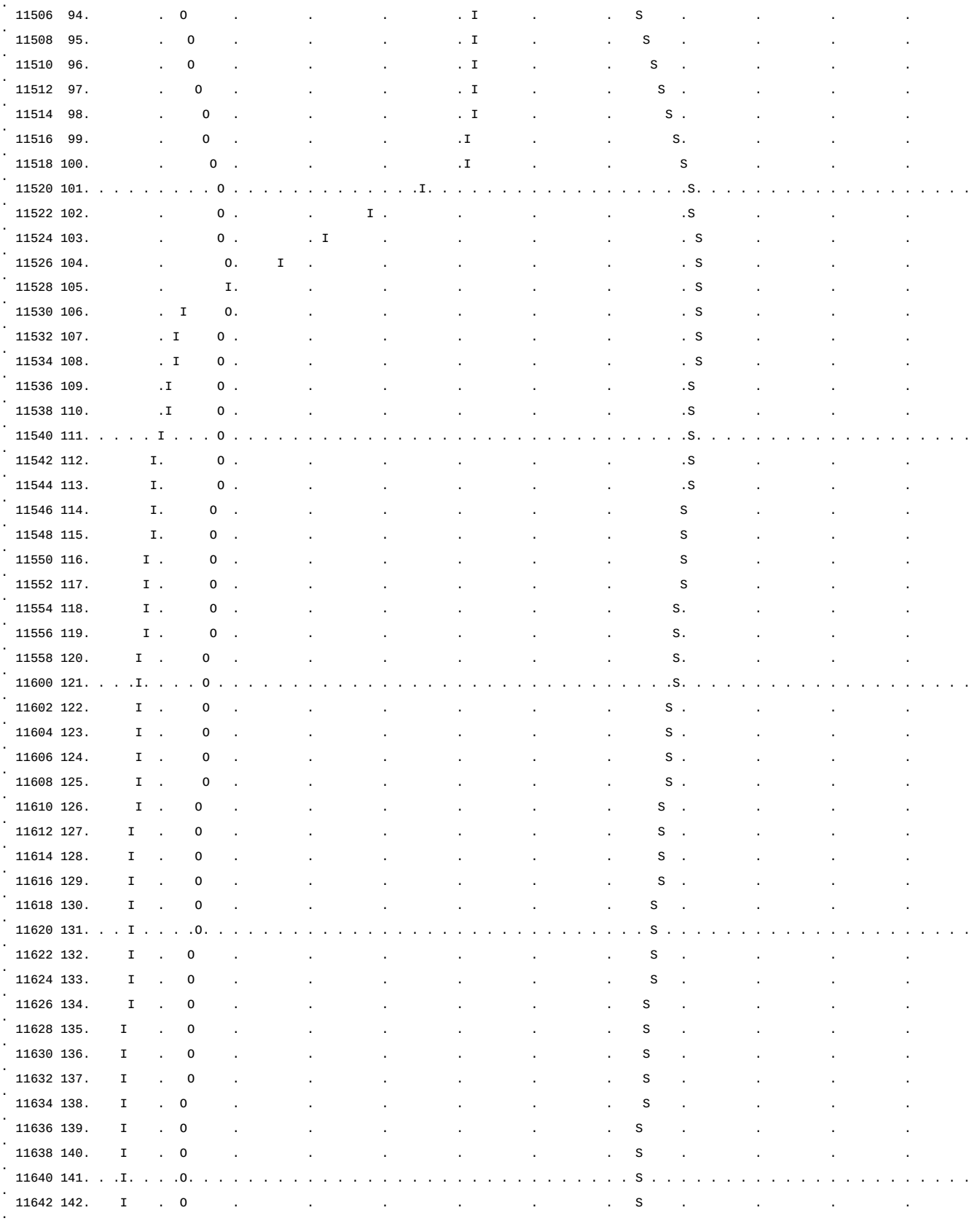
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11526 104.
11528 105.
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11532 107.
11534 108.
11536 109.
11538 110.
11540 111.
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11632 137.
11634 138.
11636 139.
11638 140.
11640 141.
11642 142.

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11644 143.    I    .  O      .         .         .         .         .         .  S      .         .         .         .
11646 144.    I    . O       .         .         .         .         .         .  S      .         .         .         .
11648 145.    I    . O       .         .         .         .         .         .  S      .         .         .         .
11650 146.    I    . O       .         .         .         .         .         .  S      .         .         .         .
11652 147.    I    . O       .         .         .         .         .         .  S      .         .         .         .
11654 148.   I     . O       .         .         .         .         .         . S       .         .         .         .
11656 149.   I     .O        .         .         .         .         .         . S       .         .         .         .
11658 150.   I     .O        .         .         .         .         .         . S       .         .         .         .
11700 151. . I . . .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . .
11702 152.   I     .O        .         .         .         .         .         . S       .         .         .         .
11704 153.   I     O         .         .         .         .         .         .S        .         .         .         .
11706 154.   I     O         .         .         .         .         .         .S        .         .         .         .
11708 155.   I     O         .         .         .         .         .         .S        .         .         .         .
11710 156.   I     O         .         .         .         .         .         .S        .         .         .         .
11712 157.   I    O.         .         .         .         .         .         .S        .         .         .         .
11714 158.   I    O.         .         .         .         .         .         .S        .         .         .         .
11716 159.   I    O.         .         .         .         .         .         .S        .         .         .         .
11718 160.   I    O.         .         .         .         .         .         S         .         .         .         .
11720 161. . I . .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . .
11722 162.   I   O .         .         .         .         .         .         S         .         .         .         .
11724 163.   I   O .         .         .         .         .         .         S         .         .         .         .
11726 164.   I   O .         .         .         .         .         .         S         .         .         .         .
11728 165.   I   O .         .         .         .         .         .         S         .         .         .         .
11730 166.   I   O .         .         .         .         .         .         S         .         .         .         .
11732 167.   I  O  .         .         .         .         .         .         S         .         .         .         .
11734 168.   I  O  .         .         .         .         .         .         S         .         .         .         .
11736 169.   I  O  .         .         .         .         .         .        S.         .         .         .         .
11738 170.   I  O  .         .         .         .         .         .        S.         .         .         .         .
11740 171. . I .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
11742 172.  I   O  .         .         .         .         .         .        S.         .         .         .         .
11744 173.  I   O  .         .         .         .         .         .        S.         .         .         .         .
11746 174.  I  O   .         .         .         .         .         .        S.         .         .         .         .
11748 175.  I  O   .         .         .         .         .         .        S.         .         .         .         .
11750 176.  I  O   .         .         .         .         .         .        S.         .         .         .         .
11752 177.  I  O   .         .         .         .         .         .        S.         .         .         .         .
11754 178.  I  O   .         .         .         .         .         .        S.         .         .         .         .
11756 179.  I  O   .         .         .         .         .         .        S.         .         .         .         .
11758 180.  I  O   .         .         .         .         .         .        S.         .         .         .         .
11800 181. .I. O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . .
11802 182.  I  O   .         .         .         .         .         .      S .         .         .         .         .
11804 183.  I O    .         .         .         .         .         .      S .         .         .         .         .
11806 184.  I O    .         .         .         .         .         .      S .         .         .         .         .
11808 185.  I O    .         .         .         .         .         .      S .         .         .         .         .
11810 186. I  O    .         .         .         .         .         .      S .         .         .         .         .
11812 187. I  O    .         .         .         .         .         .      S .         .         .         .         .
11814 188.I   O    .         .         .         .         .         .      S .         .         .         .         .
11816 189.I   O    .         .         .         .         .         .      S .         .         .         .         .
11818 190I   O     .         .         .         .         .         .      S .         .         .         .         .
11820 191I . O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . .
11822 192I   O     .         .         .         .         .         .      S .         .         .         .         .
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11824 193I   O     .        .        .        .        .        .     S  .        .        .        .        .
11826 194I   O     .        .        .        .        .        .     S  .        .        .        .        .
11828 195I   O     .        .        .        .        .        .     S  .        .        .        .        .
11830 196I  O      .        .        .        .        .        .     S  .        .        .        .        .
11832 197I  O      .        .        .        .        .        .     S  .        .        .        .        .
11834 198I  O      .        .        .        .        .        .     S  .        .        .        .        .
11836 199I  O      .        .        .        .        .        .     S  .        .        .        .        .
11838 200I  O      .        .        .        .        .        .     S  .        .        .        .        .
11840 201I .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . S. . . . . . . . . . . . . . . . . . . . . . . . . . . .
11842 202I  O      .        .        .        .        .        .     S  .        .        .        .        .
11844 203I  O      .        .        .        .        .        .     S  .        .        .        .        .
11846 204I O       .        .        .        .        .        .    S   .        .        .        .        .
11848 205I O       .        .        .        .        .        .    S   .        .        .        .        .
11850 206I O       .        .        .        .        .        .    S   .        .        .        .        .
11852 207I O       .        .        .        .        .        .    S   .        .        .        .        .
11854 208I O       .        .        .        .        .        .    S   .        .        .        .        .
11856 209I O       .        .        .        .        .        .    S   .        .        .        .        .
11858 210I O       .        .        .        .        .        .    S   .        .        .        .        .
11900 211I O . . . . . . . . . . . . . . . . . . . . . . . . . . . . S. . . . . . . . . . . . . . . . . . . . . . . . . . . .
11902 212I O       .        .        .        .        .        .    S   .        .        .        .        .
11904 213I O       .        .        .        .        .        .    S   .        .        .        .        .
11906 214I O       .        .        .        .        .        .    S   .        .        .        .        .
11908 215I O       .        .        .        .        .        .    S   .        .        .        .        .
11910 216IO        .        .        .        .        .        .    S   .        .        .        .        .
11912 217IO        .        .        .        .        .        .    S   .        .        .        .        .
11914 218IO        .        .        .        .        .        .    S   .        .        .        .        .
11916 219IO        .        .        .        .        .        .    S   .        .        .        .        .
11918 220IO        .        .        .        .        .        .    S   .        .        .        .        .
11920 221IO. . . . . . . . . . . . . . . . . . . . . . . . . . . . . S. . . . . . . . . . . . . . . . . . . . . . . . . . . .
11922 222IO        .        .        .        .        .        .    S   .        .        .        .        .
11924 223IO        .        .        .        .        .        .    S   .        .        .        .        .
11926 224IO        .        .        .        .        .        .    S   .        .        .        .        .
11928 225IO        .        .        .        .        .        .    S   .        .        .        .        .
11930 226IO        .        .        .        .        .        .  S     .        .        .        .        .
11932 227IO        .        .        .        .        .        .  S     .        .        .        .        .
11934 228IO        .        .        .        .        .        .  S     .        .        .        .        .
11936 229IO        .        .        .        .        .        .  S     .        .        .        .        .
11938 230IO        .        .        .        .        .        .  S     .        .        .        .        .
11940 231IO. . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . . . . .
11942 232IO        .        .        .        .        .        .  S     .        .        .        .        .
11944 233IO        .        .        .        .        .        .  S     .        .        .        .        .
11946 234IO        .        .        .        .        .        .  S     .        .        .        .        .
11948 235IO        .        .        .        .        .        .  S     .        .        .        .        .
11950 236IO        .        .        .        .        .        .  S     .        .        .        .        .
11952 237IO        .        .        .        .        .        .  S     .        .        .        .        .
11954 238IO        .        .        .        .        .        .  S     .        .        .        .        .
11956 239IO        .        .        .        .        .        .  S     .        .        .        .        .
11958 240IO        .        .        .        .        .        .  S     .        .        .        .        .
12000 241I . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . . . . .
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12002 242I        .       .       .       .       .       .   S   .       .       .       .       .
12004 243I        .       .       .       .       .       .   S   .       .       .       .       .
12006 244I        .       .       .       .       .       .   S   .       .       .       .       .
12008 245I        .       .       .       .       .       .   S   .       .       .       .       .
12010 246I        .       .       .       .       .       .   S   .       .       .       .       .
12012 247I        .       .       .       .       .       .   S   .       .       .       .       .
12014 248I        .       .       .       .       .       .   S   .       .       .       .       .
12016 249I        .       .       .       .       .       .   S   .       .       .       .       .
12018 250I        .       .       .       .       .       .   S   .       .       .       .       .
12020 251I . . . . . .S. . . . . .
12022 252I        .       .       .       .       .       .   S   .       .       .       .       .
12024 253I        .       .       .       .       .       .   S   .       .       .       .       .
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12028 255I        .       .       .       .       .       .   S   .       .       .       .       .
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12032 257I        .       .       .       .       .       .   S   .       .       .       .       .
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12038 260I        .       .       .       .       .       .   S   .       .       .       .       .
12040 261I . . . . . .S. . . . . .
12042 262I        .       .       .       .       .       .   S   .       .       .       .       .
12044 263I        .       .       .       .       .       .   S   .       .       .       .       .
12046 264I        .       .       .       .       .       .   S   .       .       .       .       .
12048 265I        .       .       .       .       .       .   S   .       .       .       .       .
12050 266I        .       .       .       .       .       .   S   .       .       .       .       .
12052 267I        .       .       .       .       .       .   S   .       .       .       .       .
12054 268I        .       .       .       .       .       .   S   .       .       .       .       .
12056 269I        .       .       .       .       .       .   S   .       .       .       .       .
12058 270I        .       .       .       .       .       .   S   .       .       .       .       .
12100 271I . . . . . .S. . . . . .
12102 272I        .       .       .       .       .       .   S   .       .       .       .       .
12104 273I        .       .       .       .       .       .   S   .       .       .       .       .
12106 274I        .       .       .       .       .       .   S   .       .       .       .       .
12108 275I        .       .       .       .       .       .   S   .       .       .       .       .
12110 276I        .       .       .       .       .       .   S   .       .       .       .       .
12112 277I        .       .       .       .       .       .   S   .       .       .       .       .
12114 278I        .       .       .       .       .       .   S   .       .       .       .       .
12116 279I        .       .       .       .       .       .   S   .       .       .       .       .
12118 280I        .       .       .       .       .       .   S   .       .       .       .       .
12120 281I . . . . . .S. . . . . .
12122 282I        .       .       .       .       .       .   S   .       .       .       .       .
12124 283I        .       .       .       .       .       .   S   .       .       .       .       .
12126 284I        .       .       .       .       .       .   S   .       .       .       .       .
12128 285I        .       .       .       .       .       .   S   .       .       .       .       .
12130 286I        .       .       .       .       .       .   S   .       .       .       .       .
12132 287I        .       .       .       .       .       .   S   .       .       .       .       .
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12138 290I        .       .       .       .       .       .   S   .       .       .       .       .
12140 291I . . . . . .S. . . . . .
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12142 292I        .       .       .       .       .       .   S   .       .       .       .       .
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12152 297I        .       .       .       .       .       .   S   .       .       .       .       .
12154 298I        .       .       .       .       .       .   S   .       .       .       .       .
12156 299I        .       .       .       .       .       .   S   .       .       .       .       .
12158 300I        .       .       .       .       .       .   S   .       .       .       .       .
12200 301I . . . . . . . . . . . . . . . . . . . . . . . . . . . S. . . . . . . . . . . . . . . . . . . . . . . . . . . .
12202 302I        .       .       .       .       .       .   S   .       .       .       .       .
12204 303I        .       .       .       .       .       .   S   .       .       .       .       .
12206 304I        .       .       .       .       .       .   S   .       .       .       .       .
12208 305I        .       .       .       .       .       .   S   .       .       .       .       .
12210 306I        .       .       .       .       .       .   S   .       .       .       .       .
12212 307I        .       .       .       .       .       .   S   .       .       .       .       .
12214 308I        .       .       .       .       .       .   S   .       .       .       .       .
12216 309I        .       .       .       .       .       .   S   .       .       .       .       .
12218 310I        .       .       .       .       .       .   S   .       .       .       .       .
12220 311I . . . . . . . . . . . . . . . . . . . . . . . . . . . S. . . . . . . . . . . . . . . . . . . . . . . . . . . .
12222 312I        .       .       .       .       .       .   S   .       .       .       .       .
12224 313I        .       .       .       .       .       .   S   .       .       .       .       .
12226 314I        .       .       .       .       .       .   S   .       .       .       .       .
12228 315I        .       .       .       .       .       .   S   .       .       .       .       .
12230 316I        .       .       .       .       .       .   S   .       .       .       .       .
12232 317I        .       .       .       .       .       .   S   .       .       .       .       .
12234 318I        .       .       .       .       .       .   S   .       .       .       .       .
12236 319I        .       .       .       .       .       .   S   .       .       .       .       .
12238 320I        .       .       .       .       .       .   S   .       .       .       .       .
12240 321I . . . . . . . . . . . . . . . . . . . . . . . . . . . S. . . . . . . . . . . . . . . . . . . . . . . . . . . .
12242 322I        .       .       .       .       .       .   S   .       .       .       .       .
12244 323I        .       .       .       .       .       .   S   .       .       .       .       .
12246 324I        .       .       .       .       .       .   S   .       .       .       .       .
12248 325I        .       .       .       .       .       .   S   .       .       .       .       .
12250 326I        .       .       .       .       .       .   S   .       .       .       .       .
12252 327I        .       .       .       .       .       .   S   .       .       .       .       .
12254 328I        .       .       .       .       .       .   S   .       .       .       .       .
12256 329I        .       .       .       .       .       .   S   .       .       .       .       .
12258 330I        .       .       .       .       .       .   S   .       .       .       .       .
12300 331I . . . . . . . . . . . . . . . . . . . . . . . . . . . S. . . . . . . . . . . . . . . . . . . . . . . . . . . .
12302 332I        .       .       .       .       .       .   S   .       .       .       .       .
12304 333I        .       .       .       .       .       .   S   .       .       .       .       .
12306 334I        .       .       .       .       .       .   S   .       .       .       .       .
12308 335I        .       .       .       .       .       .   S   .       .       .       .       .
12310 336I        .       .       .       .       .       .   S   .       .       .       .       .
12312 337I        .       .       .       .       .       .   S   .       .       .       .       .
12314 338I        .       .       .       .       .       .   S   .       .       .       .       .
12316 339I        .       .       .       .       .       .   S   .       .       .       .       .
12318 340I        .       .       .       .       .       .   S   .       .       .       .       .
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12320 341I . . . . . S . . . . . .
12322 342I . . . . . S . . . . . .
12324 343I . . . . . S . . . . . .
12326 344I . . . . . S . . . . . .
12328 345I . . . . . S . . . . . .
12330 346I . . . . . S . . . . . .
12332 347I . . . . . S . . . . . .
12334 348I . . . . . S . . . . . .
12336 349I . . . . . S . . . . . .
12338 350I . . . . . S . . . . . .
12340 351I . . . . . S . . . . . .
12342 352I . . . . . S . . . . . .
12344 353I . . . . . S . . . . . .
12346 354I . . . . . S . . . . . .
12348 355I . . . . . S . . . . . .
12350 356I . . . . . S . . . . . .
12352 357I . . . . . S . . . . . .
12354 358I . . . . . S . . . . . .
12356 359I . . . . . S . . . . . .
12358 360I . . . . . S . . . . . .
20000 361I . . . . . S . . . . . .
20002 362I . . . . . S . . . . . .
20004 363I . . . . . S . . . . . .
20006 364I . . . . . S . . . . . .
20008 365I . . . . . S . . . . . .
20010 366I . . . . . S . . . . . .
20012 367I . . . . . S . . . . . .
20014 368I . . . . . S . . . . . .
20016 369I . . . . . S . . . . . .
20018 370I . . . . . S . . . . . .
20020 371I . . . . . S . . . . . .
20022 372I . . . . . S . . . . . .
20024 373I . . . . . S . . . . . .
20026 374I . . . . . S . . . . . .
20028 375I . . . . . S . . . . . .
20030 376I . . . . . S . . . . . .
20032 377I . . . . . S . . . . . .
20034 378I . . . . . S . . . . . .
20036 379I . . . . . S . . . . . .
20038 380I . . . . . S . . . . . .
20040 381I . . . . . S . . . . . .
20042 382I . . . . . S . . . . . .
20044 383I . . . . . S . . . . . .
20046 384I . . . . . S . . . . . .
20048 385I . . . . . S . . . . . .
20050 386I . . . . . S . . . . . .
20052 387I . . . . . S . . . . . .
20054 388I . . . . . S . . . . . .
20056 389I . . . . . S . . . . . .
20058 390I . . . . . S . . . . . .
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20100 391I . . . . . S. . . . . .
20102 392I . . . . . S . . . . . .
20104 393I . . . . . S . . . . . .
20106 394I . . . . . S . . . . . .
20108 395I . . . . . S . . . . . .
20110 396I . . . . . S . . . . . .
20112 397I . . . . . S . . . . . .
20114 398I . . . . . S . . . . . .
20116 399I . . . . . S . . . . . .
20118 400I . . . . . S . . . . . .
20120 401I . . . . . S . . . . . .
20122 402I . . . . . S . . . . . .
20124 403I . . . . . S . . . . . .
20126 404I . . . . . S . . . . . .
20128 405I . . . . . S . . . . . .
20130 406I . . . . . S . . . . . .
20132 407I . . . . . S . . . . . .
20134 408I . . . . . S . . . . . .
20136 409I . . . . . S . . . . . .
20138 410I . . . . . S . . . . . .
20140 411I . . . . . S . . . . . .
20142 412I . . . . . S . . . . . .
20144 413I . . . . . S . . . . . .
20146 414I . . . . . S . . . . . .
20148 415I . . . . . S . . . . . .
20150 416I . . . . . S . . . . . .
20152 417I . . . . . S . . . . . .
20154 418I . . . . . S . . . . . .
20156 419I . . . . . S . . . . . .
20158 420I . . . . . S . . . . . .
20200 421I . . . . . S . . . . . .
20202 422I . . . . . S . . . . . .
20204 423I . . . . . S . . . . . .
20206 424I . . . . . S . . . . . .
20208 425I . . . . . S . . . . . .
20210 426I . . . . . S . . . . . .
20212 427I . . . . . S . . . . . .
20214 428I . . . . . S . . . . . .
20216 429I . . . . . S . . . . . .
20218 430I . . . . . S . . . . . .
20220 431I . . . . . S . . . . . .
20222 432I . . . . . S . . . . . .
20224 433I . . . . . S . . . . . .
20226 434I . . . . . S . . . . . .
20228 435I . . . . . S . . . . . .
20230 436I . . . . . S . . . . . .
20232 437I . . . . . S . . . . . .
20234 438I . . . . . S . . . . . .
20236 439I . . . . . S . . . . . .
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20238 440I        .       .       .       .       .       .   S   .       .       .       .       .
20240 441I . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20242 442I        .       .       .       .       .       .   S   .       .       .       .       .
20244 443I        .       .       .       .       .       .   S   .       .       .       .       .
20246 444I        .       .       .       .       .       .   S   .       .       .       .       .
20248 445I        .       .       .       .       .       .   S   .       .       .       .       .
20250 446I        .       .       .       .       .       .   S   .       .       .       .       .
20252 447I        .       .       .       .       .       .   S   .       .       .       .       .
20254 448I        .       .       .       .       .       .   S   .       .       .       .       .
20256 449I        .       .       .       .       .       .   S   .       .       .       .       .
20258 450I        .       .       .       .       .       .   S   .       .       .       .       .
20300 451I . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20302 452I        .       .       .       .       .       .   S   .       .       .       .       .
20304 453I        .       .       .       .       .       .   S   .       .       .       .       .
20306 454I        .       .       .       .       .       .   S   .       .       .       .       .
20308 455I        .       .       .       .       .       .   S   .       .       .       .       .
20310 456I        .       .       .       .       .       .   S   .       .       .       .       .
20312 457I        .       .       .       .       .       .   S   .       .       .       .       .
20314 458I        .       .       .       .       .       .   S   .       .       .       .       .
20316 459I        .       .       .       .       .       .   S   .       .       .       .       .
20318 460I        .       .       .       .       .       .   S   .       .       .       .       .
20320 461I . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20322 462I        .       .       .       .       .       .   S   .       .       .       .       .
20324 463I        .       .       .       .       .       .   S   .       .       .       .       .
20326 464I        .       .       .       .       .       .   S   .       .       .       .       .
20328 465I        .       .       .       .       .       .   S   .       .       .       .       .
20330 466I        .       .       .       .       .       .   S   .       .       .       .       .
20332 467I        .       .       .       .       .       .   S   .       .       .       .       .
20334 468I        .       .       .       .       .       .   S   .       .       .       .       .
20336 469I        .       .       .       .       .       .   S   .       .       .       .       .
20338 470I        .       .       .       .       .       .   S   .       .       .       .       .
20340 471I . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20342 472I        .       .       .       .       .       .   S   .       .       .       .       .
20344 473I        .       .       .       .       .       .   S   .       .       .       .       .
20346 474I        .       .       .       .       .       .   S   .       .       .       .       .
20348 475I        .       .       .       .       .       .   S   .       .       .       .       .
20350 476I        .       .       .       .       .       .   S   .       .       .       .       .
20352 477I        .       .       .       .       .       .   S   .       .       .       .       .
20354 478I        .       .       .       .       .       .   S   .       .       .       .       .
20356 479I        .       .       .       .       .       .   S   .       .       .       .       .
20358 480I        .       .       .       .       .       .   S   .       .       .       .       .
20400 481I . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20402 482I        .       .       .       .       .       .   S   .       .       .       .       .
20404 483I        .       .       .       .       .       .   S   .       .       .       .       .
20406 484I        .       .       .       .       .       .   S   .       .       .       .       .
20408 485I        .       .       .       .       .       .   S   .       .       .       .       .
20410 486I        .       .       .       .       .       .   S   .       .       .       .       .
20412 487I        .       .       .       .       .       .   S   .       .       .       .       .
20414 488I        .       .       .       .       .       .   S   .       .       .       .       .
20416 489I        .       .       .       .       .       .   S   .       .       .       .       .
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  20418 490I         .         .         .         .         .         .   S     .         .         .         .         .
.
  20420 491I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
.
  20422 492I         .         .         .         .         .         .   S     .         .         .         .         .
.
  20424 493I         .         .         .         .         .         .   S     .         .         .         .         .
.
  20426 494I         .         .         .         .         .         .   S     .         .         .         .         .
.
  20428 495I         .         .         .         .         .         .   S     .         .         .         .         .
.
  20430 496I         .         .         .         .         .         .   S     .         .         .         .         .
.
  20432 497I         .         .         .         .         .         .   S     .         .         .         .         .
.
  20434 498I         .         .         .         .         .         .   S     .         .         .         .         .
.
  20436 499I         .         .         .         .         .         .   S     .         .         .         .         .
.
  20438
500I---------.---------.---------.---------.---------.---------.---S-----.---------.---------.---------.---------.---------.
1
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	ECC-BMP2	21.	3.10	4.	1.	1.	.01		
ROUTED TO	DET1	7.	3.47	3.	1.	1.	.01	102.95	3.47

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

```
KK ECC-BMP3.OUT
KM RATIONAL METHOD HYDROGRAPH PROGRAM
KM COPYRIGHT 1992, RICK ENGINEERING COMPANY
KM 6HR RAINFALL IS  3.49  INCHES
KM RATIONAL METHOD RUNOFF COEFFICIENT IS  .59
KM RATIONAL METHOD TIME OF CONCENTRATION IS  10  MIN.
KM FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO YOUR HEC-1
KM IT 2 01JAN90 1200 200
BA .017
IN 10 01JAN90  1155
QI 0  0  1.4  1.4  1.5  1.5  1.6  1.7  1.8  1.9
QI 2  2.2  2.4  2.6  2.9  3.4  4  5.1  7.5  24.2
QI 24.2  6  4.5  3.7  3.1  2.8  2.5  2.3  2.1  2
QI 1.9  1.8  1.7  1.6  1.5  1.5  1.4  1.3  0  0
QI 0  0  0  0  0  0  0  0
```

```
*FREE
*DIAGRAM
ID ESCONDIDO COUNTRY CLUB, J-17762-A BMP 3
ID 100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
ID March 3, 2017 - FILE NAME: ECC_BMP2_00.HC1
IT 2 01JAN90 1200 500
IO 5 0
*
KK ECC-BMP3.OUT
KM RATIONAL METHOD HYDROGRAPH PROGRAM
KM COPYRIGHT 1992, RICK ENGINEERING COMPANY
KM 6HR RAINFALL IS  3.49  INCHES
KM RATIONAL METHOD RUNOFF COEFFICIENT IS  .59
KM RATIONAL METHOD TIME OF CONCENTRATION IS  10  MIN.
KM FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO
YOUR HEC-1
KM IT 2 01JAN90 1200 200
BA .017
IN 10 01JAN90  1155
QI 0  0  1.4  1.4  1.5  1.5  1.6  1.7  1.8  1.9
QI 2  2.2  2.4  2.6  2.9  3.4  4  5.1  7.5  24.2
QI 24.2  6  4.5  3.7  3.1  2.8  2.5  2.3  2.1  2
QI 1.9  1.8  1.7  1.6  1.5  1.5  1.4  1.3  0  0
QI 0  0  0  0  0  0  0  0
*
KK DET1
KM DETAIN BASIN 3
KO 2 2 0 0 21
RS 1 STOR -1
SV 0 .25 .62 .95
SQ 0 .08 5.3 9.5
SE 100 101 102 103
*
KO 2 2 0 0 21
ZZ
```

```
1****************************************
****************************************
 *                                      *                                                    *
*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS
*
 *               JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING CENTER
*
 *            VERSION 4.1               *                                                    *          609 SECOND STREET
*
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616
*
 *  RUN DATE   06MAR17  TIME  14:33:05  *                                                    *           (916) 756-1104
*
 *                                      *                                                    *
*
 ****************************************
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```

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

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

 *** FREE ***
                        *DIAGRAM
             1          ID   ESCONDIDO COUNTRY CLUB, J-17762-A BMP 3
             2          ID   100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
             3          ID   March 3, 2017 - FILE NAME: ECC_BMP2_00.HC1
             4          IT       2 01JAN90    1200     500
             5          IO       5       0
                        *

             6          KKECC-BMP3.OUT
             7          KM   RATIONAL METHOD HYDROGRAPH PROGRAM
             8          KM   COPYRIGHT 1992, RICK ENGINEERING COMPANY
             9          KM   6HR RAINFALL IS  3.49  INCHES
            10          KM   RATIONAL METHOD RUNOFF COEFFICIENT IS  .59
            11          KM   RATIONAL METHOD TIME OF CONCENTRATION IS  10  MIN.
            12          KM   FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO YOUR HEC-1
            13          KM   IT 2 01JAN90 1200 200
            14          BA    .017
            15          IN      10 01JAN90    1155
            16          QI       0       0     1.4     1.4     1.5     1.5     1.6     1.7     1.8     1.9
            17          QI       2     2.2     2.4     2.6     2.9     3.4       4     5.1     7.5    24.2
            18          QI    24.2       6     4.5     3.7     3.1     2.8     2.5     2.3     2.1       2
            19          QI     1.9     1.8     1.7     1.6     1.5     1.5     1.4     1.3       0       0
            20          QI       0       0       0       0       0       0       0       0
                        *

            21          KK    DET1
            22          KM   DETAIN BASIN 3
            23          KO       2       2       0       0      21
            24          RS       1    STOR      -1
            25          SV       0     .25     .62     .95
            26          SQ       0     .08     5.3     9.5
            27          SE     100     101     102     103
                        *
            28          KO       2       2       0       0      21
            29          ZZ
```

1 SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

     6    ECC-BMP3
               V
               V
    21        DET1
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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1****************************************
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 *                                      *                                                    *
```

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*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                                    *    U.S. ARMY CORPS OF ENGINEERS
*
 *               JUN   1998              *                                                    *    HYDROLOGIC ENGINEERING CENTER
*
 *            VERSION 4.1                *                                                    *          609 SECOND STREET
*
 *                                       *                                                    *       DAVIS, CALIFORNIA 95616
*
 *  RUN DATE   06MAR17  TIME  14:33:05   *                                                    *           (916) 756-1104
*
 *                                       *                                                    *
*
 *****************************************
***************************************



                            ESCONDIDO COUNTRY CLUB, J-17762-A BMP 3
                            100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
                            March 3, 2017 - FILE NAME: ECC_BMP2_00.HC1

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

      IT          HYDROGRAPH TIME DATA
                         NMIN           2  MINUTES IN COMPUTATION INTERVAL
                        IDATE      1JAN90  STARTING DATE
                        ITIME        1200  STARTING TIME
                           NQ         500  NUMBER OF HYDROGRAPH ORDINATES
                       NDDATE      2JAN90  ENDING DATE
                       NDTIME        0438  ENDING TIME
                       ICENT           19  CENTURY MARK

                    COMPUTATION INTERVAL     .03 HOURS
                         TOTAL TIME BASE   16.63 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


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


             **************
             *            *
   21 KK     *      DET1  *
             *            *
             **************

   23 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           2  PRINT CONTROL
                        IPLOT           2  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                         IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2         500  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT        .033  TIME INTERVAL IN HOURS


   28 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           2  PRINT CONTROL
                        IPLOT           2  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                         IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2         500  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT        .033  TIME INTERVAL IN HOURS


               HYDROGRAPH ROUTING DATA

   24 RS          STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        STOR  TYPE OF INITIAL CONDITION
                       RSVRIC       -1.00  INITIAL CONDITION
                            X         .00 WORKING R AND D COEFFICIENT

   25 SV            STORAGE          .0        .3        .6        .9

   26 SQ          DISCHARGE          0.        0.        5.       10.

   27 SE          ELEVATION      100.00    101.00    102.00    103.00
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HYDROGRAPH AT STATION DET1

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	JAN	1200	1	0.	.0	100.0	1	JAN	1734	168	3.	.4	101.5	1	JAN	2308	335	0.	.2	100.9
1	JAN	1202	2	0.	.0	100.0	1	JAN	1736	169	3.	.4	101.5	1	JAN	2310	336	0.	.2	100.9
1	JAN	1204	3	0.	.0	100.0	1	JAN	1738	170	3.	.4	101.5	1	JAN	2312	337	0.	.2	100.9
1	JAN	1206	4	0.	.0	100.0	1	JAN	1740	171	3.	.4	101.5	1	JAN	2314	338	0.	.2	100.9
1	JAN	1208	5	0.	.0	100.0	1	JAN	1742	172	3.	.4	101.5	1	JAN	2316	339	0.	.2	100.9
1	JAN	1210	6	0.	.0	100.0	1	JAN	1744	173	3.	.4	101.5	1	JAN	2318	340	0.	.2	100.9
1	JAN	1212	7	0.	.0	100.0	1	JAN	1746	174	2.	.4	101.5	1	JAN	2320	341	0.	.2	100.9
1	JAN	1214	8	0.	.0	100.0	1	JAN	1748	175	2.	.4	101.4	1	JAN	2322	342	0.	.2	100.9
1	JAN	1216	9	0.	.0	100.0	1	JAN	1750	176	2.	.4	101.4	1	JAN	2324	343	0.	.2	100.9
1	JAN	1218	10	0.	.0	100.1	1	JAN	1752	177	2.	.4	101.4	1	JAN	2326	344	0.	.2	100.9
1	JAN	1220	11	0.	.0	100.1	1	JAN	1754	178	2.	.4	101.4	1	JAN	2328	345	0.	.2	100.9
1	JAN	1222	12	0.	.0	100.1	1	JAN	1756	179	2.	.4	101.4	1	JAN	2330	346	0.	.2	100.9
1	JAN	1224	13	0.	.0	100.1	1	JAN	1758	180	2.	.4	101.4	1	JAN	2332	347	0.	.2	100.9
1	JAN	1226	14	0.	.0	100.1	1	JAN	1800	181	2.	.4	101.4	1	JAN	2334	348	0.	.2	100.9
1	JAN	1228	15	0.	.0	100.1	1	JAN	1802	182	2.	.4	101.4	1	JAN	2336	349	0.	.2	100.9
1	JAN	1230	16	0.	.0	100.2	1	JAN	1804	183	2.	.4	101.4	1	JAN	2338	350	0.	.2	100.9
1	JAN	1232	17	0.	.0	100.2	1	JAN	1806	184	2.	.4	101.4	1	JAN	2340	351	0.	.2	100.9
1	JAN	1234	18	0.	.0	100.2	1	JAN	1808	185	2.	.4	101.4	1	JAN	2342	352	0.	.2	100.9
1	JAN	1236	19	0.	.1	100.2	1	JAN	1810	186	2.	.4	101.4	1	JAN	2344	353	0.	.2	100.9
1	JAN	1238	20	0.	.1	100.2	1	JAN	1812	187	2.	.4	101.4	1	JAN	2346	354	0.	.2	100.9
1	JAN	1240	21	0.	.1	100.2	1	JAN	1814	188	2.	.4	101.3	1	JAN	2348	355	0.	.2	100.9
1	JAN	1242	22	0.	.1	100.3	1	JAN	1816	189	2.	.4	101.3	1	JAN	2350	356	0.	.2	100.9
1	JAN	1244	23	0.	.1	100.3	1	JAN	1818	190	2.	.4	101.3	1	JAN	2352	357	0.	.2	100.9
1	JAN	1246	24	0.	.1	100.3	1	JAN	1820	191	2.	.4	101.3	1	JAN	2354	358	0.	.2	100.9
1	JAN	1248	25	0.	.1	100.3	1	JAN	1822	192	2.	.4	101.3	1	JAN	2356	359	0.	.2	100.9
1	JAN	1250	26	0.	.1	100.3	1	JAN	1824	193	2.	.4	101.3	1	JAN	2358	360	0.	.2	100.9
1	JAN	1252	27	0.	.1	100.3	1	JAN	1826	194	2.	.4	101.3	2	JAN	0000	361	0.	.2	100.9
1	JAN	1254	28	0.	.1	100.4	1	JAN	1828	195	1.	.3	101.3	2	JAN	0002	362	0.	.2	100.9
1	JAN	1256	29	0.	.1	100.4	1	JAN	1830	196	1.	.3	101.3	2	JAN	0004	363	0.	.2	100.9
1	JAN	1258	30	0.	.1	100.4	1	JAN	1832	197	1.	.3	101.2	2	JAN	0006	364	0.	.2	100.9
1	JAN	1300	31	0.	.1	100.4	1	JAN	1834	198	1.	.3	101.2	2	JAN	0008	365	0.	.2	100.9
1	JAN	1302	32	0.	.1	100.4	1	JAN	1836	199	1.	.3	101.2	2	JAN	0010	366	0.	.2	100.9
1	JAN	1304	33	0.	.1	100.4	1	JAN	1838	200	1.	.3	101.2	2	JAN	0012	367	0.	.2	100.9
1	JAN	1306	34	0.	.1	100.5	1	JAN	1840	201	1.	.3	101.2	2	JAN	0014	368	0.	.2	100.9
1	JAN	1308	35	0.	.1	100.5	1	JAN	1842	202	1.	.3	101.2	2	JAN	0016	369	0.	.2	100.9
1	JAN	1310	36	0.	.1	100.5	1	JAN	1844	203	1.	.3	101.2	2	JAN	0018	370	0.	.2	100.9
1	JAN	1312	37	0.	.1	100.5	1	JAN	1846	204	1.	.3	101.2	2	JAN	0020	371	0.	.2	100.9
1	JAN	1314	38	0.	.1	100.5	1	JAN	1848	205	1.	.3	101.2	2	JAN	0022	372	0.	.2	100.9
1	JAN	1316	39	0.	.1	100.6	1	JAN	1850	206	1.	.3	101.2	2	JAN	0024	373	0.	.2	100.9
1	JAN	1318	40	0.	.1	100.6	1	JAN	1852	207	1.	.3	101.2	2	JAN	0026	374	0.	.2	100.9
1	JAN	1320	41	0.	.1	100.6	1	JAN	1854	208	1.	.3	101.2	2	JAN	0028	375	0.	.2	100.9
1	JAN	1322	42	0.	.2	100.6	1	JAN	1856	209	1.	.3	101.1	2	JAN	0030	376	0.	.2	100.9
1	JAN	1324	43	0.	.2	100.6	1	JAN	1858	210	1.	.3	101.1	2	JAN	0032	377	0.	.2	100.9
1	JAN	1326	44	0.	.2	100.7	1	JAN	1900	211	1.	.3	101.1	2	JAN	0034	378	0.	.2	100.9
1	JAN	1328	45	0.	.2	100.7	1	JAN	1902	212	1.	.3	101.1	2	JAN	0036	379	0.	.2	100.9
1	JAN	1330	46	0.	.2	100.7	1	JAN	1904	213	1.	.3	101.1	2	JAN	0038	380	0.	.2	100.9
1	JAN	1332	47	0.	.2	100.7	1	JAN	1906	214	1.	.3	101.1	2	JAN	0040	381	0.	.2	100.9
1	JAN	1334	48	0.	.2	100.7	1	JAN	1908	215	1.	.3	101.1	2	JAN	0042	382	0.	.2	100.9
1	JAN	1336	49	0.	.2	100.8	1	JAN	1910	216	1.	.3	101.1	2	JAN	0044	383	0.	.2	100.9
1	JAN	1338	50	0.	.2	100.8	1	JAN	1912	217	1.	.3	101.1	2	JAN	0046	384	0.	.2	100.9
1	JAN	1340	51	0.	.2	100.8	1	JAN	1914	218	1.	.3	101.1	2	JAN	0048	385	0.	.2	100.9
1	JAN	1342	52	0.	.2	100.8	1	JAN	1916	219	1.	.3	101.1	2	JAN	0050	386	0.	.2	100.9
1	JAN	1344	53	0.	.2	100.8	1	JAN	1918	220	1.	.3	101.1	2	JAN	0052	387	0.	.2	100.9
1	JAN	1346	54	0.	.2	100.9	1	JAN	1920	221	1.	.3	101.1	2	JAN	0054	388	0.	.2	100.9
1	JAN	1348	55	0.	.2	100.9	1	JAN	1922	222	1.	.3	101.1	2	JAN	0056	389	0.	.2	100.9
1	JAN	1350	56	0.	.2	100.9	1	JAN	1924	223	0.	.3	101.1	2	JAN	0058	390	0.	.2	100.9
1	JAN	1352	57	0.	.2	100.9	1	JAN	1926	224	0.	.3	101.1	2	JAN	0100	391	0.	.2	100.9
1	JAN	1354	58	0.	.2	101.0	1	JAN	1928	225	0.	.3	101.1	2	JAN	0102	392	0.	.2	100.9
1	JAN	1356	59	0.	.2	101.0	1	JAN	1930	226	0.	.3	101.1	2	JAN	0104	393	0.	.2	100.9
1	JAN	1358	60	0.	.3	101.0	1	JAN	1932	227	0.	.3	101.1	2	JAN	0106	394	0.	.2	100.9
1	JAN	1400	61	0.	.3	101.0	1	JAN	1934	228	0.	.3	101.1	2	JAN	0108	395	0.	.2	100.9
1	JAN	1402	62	0.	.3	101.0	1	JAN	1936	229	0.	.3	101.1	2	JAN	0110	396	0.	.2	100.9
1	JAN	1404	63	0.	.3	101.1	1	JAN	1938	230	0.	.3	101.1	2	JAN	0112	397	0.	.2	100.9
1	JAN	1406	64	0.	.3	101.1	1	JAN	1940	231	0.	.3	101.1	2	JAN	0114	398	0.	.2	100.9
1	JAN	1408	65	1.	.3	101.1	1	JAN	1942	232	0.	.3	101.1	2	JAN	0116	399	0.	.2	100.9
1	JAN	1410	66	1.	.3	101.1	1	JAN	1944	233	0.	.3	101.0	2	JAN	0118	400	0.	.2	100.9
1	JAN	1412	67	1.	.3	101.1	1	JAN	1946	234	0.	.3	101.0	2	JAN	0120	401	0.	.2	100.9
1	JAN	1414	68	1.	.3	101.1	1	JAN	1948	235	0.	.3	101.0	2	JAN	0122	402	0.	.2	100.9
1	JAN	1416	69	1.	.3	101.2	1	JAN	1950	236	0.	.3	101.0	2	JAN	0124	403	0.	.2	100.9
1	JAN	1418	70	1.	.3	101.2	1	JAN	1952	237	0.	.3	101.0	2	JAN	0126	404	0.	.2	100.9
1	JAN	1420	71	1.	.3	101.2	1	JAN	1954	238	0.	.3	101.0	2	JAN	0128	405	0.	.2	100.9
1	JAN	1422	72	1.	.3	101.2	1	JAN	1956	239	0.	.3	101.0	2	JAN	0130	406	0.	.2	100.9
1	JAN	1424	73	1.	.3	101.2	1	JAN	1958	240	0.	.3	101.0	2	JAN	0132	407	0.	.2	100.9
1	JAN	1426	74	1.	.3	101.2	1	JAN	2000	241	0.	.3	101.0	2	JAN	0134	408	0.	.2	100.9
1	JAN	1428	75	1.	.3	101.3	1	JAN	2002	242	0.	.3	101.0	2	JAN	0136	409	0.	.2	100.9
1	JAN	1430	76	1.	.3	101.3	1	JAN	2004	243	0.	.3	101.0	2	JAN	0138	410	0.	.2	100.9
1	JAN	1432	77	2.	.4	101.3	1	JAN	2006	244	0.	.3	101.0	2	JAN	0140	411	0.	.2	100.9
1	JAN	1434	78	2.	.4	101.3	1	JAN	2008	245	0.	.3	101.0	2	JAN	0142	412	0.	.2	100.9
1	JAN	1436	79	2.	.4	101.3	1	JAN	2010	246	0.	.3	101.0	2	JAN	0144	413	0.	.2	100.9
1	JAN	1438	80	2.	.4	101.3	1	JAN	2012	247	0.	.3	101.0	2	JAN	0146	414	0.	.2	100.9
1	JAN	1440	81	2.	.4	101.4	1	JAN	2014	248	0.	.3	101.0	2	JAN	0148	415	0.	.2	100.9
1	JAN	1442	82	2.	.4	101.4	1	JAN	2016	249	0.	.3	101.0	2	JAN	0150	416	0.	.2	100.9
1	JAN	1444	83	2.	.4	101.4	1	JAN	2018	250	0.	.3	101.0	2	JAN	0152	417	0.	.2	100.9
1	JAN	1446	84	2.	.4	101.4	1	JAN	2020	251	0.	.3	101.0	2	JAN	0154	418	0.	.2	100.9
1	JAN	1448	85	2.	.4	101.4	1	JAN	2022	252	0.	.3	101.0	2	JAN	0156	419	0.	.2	100.9
1	JAN	1450	86	3.	.4	101.5	1	JAN	2024	253	0.	.3	101.0	2	JAN	0158	420	0.	.2	100.9
1	JAN	1452	87	3.	.4	101.5	1	JAN	2026	254	0.	.3	101.0	2	JAN	0200	421	0.	.2	100.9
1	JAN	1454	88	3.	.4	101.5	1	JAN	2028	255	0.	.3	101.0	2	JAN	0202	422	0.	.2	100.9

1	JAN	1456	89	3.	.5	101.6	*	1	JAN	2030	256	0.	.3	101.0	*	2	JAN	0204	423	0.	.2	100.9
1	JAN	1458	90	3.	.5	101.6	*	1	JAN	2032	257	0.	.3	101.0	*	2	JAN	0206	424	0.	.2	100.9
1	JAN	1500	91	4.	.5	101.7	*	1	JAN	2034	258	0.	.3	101.0	*	2	JAN	0208	425	0.	.2	100.9
1	JAN	1502	92	4.	.5	101.8	*	1	JAN	2036	259	0.	.3	101.0	*	2	JAN	0210	426	0.	.2	100.9
1	JAN	1504	93	5.	.6	101.9	*	1	JAN	2038	260	0.	.3	101.0	*	2	JAN	0212	427	0.	.2	100.9
1	JAN	1506	94	6.	.6	102.1	*	1	JAN	2040	261	0.	.3	101.0	*	2	JAN	0214	428	0.	.2	100.9
1	JAN	1508	95	6.	.7	102.2	*	1	JAN	2042	262	0.	.3	101.0	*	2	JAN	0216	429	0.	.2	100.9
1	JAN	1510	96	7.	.7	102.4	*	1	JAN	2044	263	0.	.3	101.0	*	2	JAN	0218	430	0.	.2	100.9
1	JAN	1512	97	7.	.8	102.5	*	1	JAN	2046	264	0.	.3	101.0	*	2	JAN	0220	431	0.	.2	100.9
1	JAN	1514	98	8.	.8	102.6	*	1	JAN	2048	265	0.	.3	101.0	*	2	JAN	0222	432	0.	.2	100.9
1	JAN	1516	99	9.	.9	102.8	*	1	JAN	2050	266	0.	.3	101.0	*	2	JAN	0224	433	0.	.2	100.9
1	JAN	1518	100	9.	.9	102.9	*	1	JAN	2052	267	0.	.3	101.0	*	2	JAN	0226	434	0.	.2	100.9
1	JAN	1520	101	9.	.9	102.9	*	1	JAN	2054	268	0.	.3	101.0	*	2	JAN	0228	435	0.	.2	100.9
1	JAN	1522	102	9.	.9	103.0	*	1	JAN	2056	269	0.	.3	101.0	*	2	JAN	0230	436	0.	.2	100.9
1	JAN	1524	103	9.	.9	103.0	*	1	JAN	2058	270	0.	.2	101.0	*	2	JAN	0232	437	0.	.2	100.9
1	JAN	1526	104	9.	.9	103.0	*	1	JAN	2100	271	0.	.2	101.0	*	2	JAN	0234	438	0.	.2	100.9
1	JAN	1528	105	9.	.9	102.9	*	1	JAN	2102	272	0.	.2	101.0	*	2	JAN	0236	439	0.	.2	100.9
1	JAN	1530	106	9.	.9	102.9	*	1	JAN	2104	273	0.	.2	101.0	*	2	JAN	0238	440	0.	.2	100.9
1	JAN	1532	107	9.	.9	102.9	*	1	JAN	2106	274	0.	.2	101.0	*	2	JAN	0240	441	0.	.2	100.9
1	JAN	1534	108	9.	.9	102.8	*	1	JAN	2108	275	0.	.2	101.0	*	2	JAN	0242	442	0.	.2	100.9
1	JAN	1536	109	9.	.9	102.8	*	1	JAN	2110	276	0.	.2	101.0	*	2	JAN	0244	443	0.	.2	100.9
1	JAN	1538	110	8.	.9	102.8	*	1	JAN	2112	277	0.	.2	101.0	*	2	JAN	0246	444	0.	.2	100.9
1	JAN	1540	111	8.	.9	102.7	*	1	JAN	2114	278	0.	.2	101.0	*	2	JAN	0248	445	0.	.2	100.9
1	JAN	1542	112	8.	.8	102.7	*	1	JAN	2116	279	0.	.2	101.0	*	2	JAN	0250	446	0.	.2	100.9
1	JAN	1544	113	8.	.8	102.7	*	1	JAN	2118	280	0.	.2	101.0	*	2	JAN	0252	447	0.	.2	100.9
1	JAN	1546	114	8.	.8	102.6	*	1	JAN	2120	281	0.	.2	101.0	*	2	JAN	0254	448	0.	.2	100.9
1	JAN	1548	115	8.	.8	102.6	*	1	JAN	2122	282	0.	.2	101.0	*	2	JAN	0256	449	0.	.2	100.9
1	JAN	1550	116	8.	.8	102.5	*	1	JAN	2124	283	0.	.2	101.0	*	2	JAN	0258	450	0.	.2	100.9
1	JAN	1552	117	7.	.8	102.5	*	1	JAN	2126	284	0.	.2	101.0	*	2	JAN	0300	451	0.	.2	100.9
1	JAN	1554	118	7.	.8	102.5	*	1	JAN	2128	285	0.	.2	101.0	*	2	JAN	0302	452	0.	.2	100.9
1	JAN	1556	119	7.	.8	102.4	*	1	JAN	2130	286	0.	.2	101.0	*	2	JAN	0304	453	0.	.2	100.9
1	JAN	1558	120	7.	.8	102.4	*	1	JAN	2132	287	0.	.2	101.0	*	2	JAN	0306	454	0.	.2	100.8
1	JAN	1600	121	7.	.7	102.4	*	1	JAN	2134	288	0.	.2	101.0	*	2	JAN	0308	455	0.	.2	100.8
1	JAN	1602	122	7.	.7	102.3	*	1	JAN	2136	289	0.	.2	101.0	*	2	JAN	0310	456	0.	.2	100.8
1	JAN	1604	123	7.	.7	102.3	*	1	JAN	2138	290	0.	.2	101.0	*	2	JAN	0312	457	0.	.2	100.8
1	JAN	1606	124	6.	.7	102.3	*	1	JAN	2140	291	0.	.2	101.0	*	2	JAN	0314	458	0.	.2	100.8
1	JAN	1608	125	6.	.7	102.2	*	1	JAN	2142	292	0.	.2	101.0	*	2	JAN	0316	459	0.	.2	100.8
1	JAN	1610	126	6.	.7	102.2	*	1	JAN	2144	293	0.	.2	101.0	*	2	JAN	0318	460	0.	.2	100.8
1	JAN	1612	127	6.	.7	102.2	*	1	JAN	2146	294	0.	.2	101.0	*	2	JAN	0320	461	0.	.2	100.8
1	JAN	1614	128	6.	.7	102.2	*	1	JAN	2148	295	0.	.2	101.0	*	2	JAN	0322	462	0.	.2	100.8
1	JAN	1616	129	6.	.7	102.1	*	1	JAN	2150	296	0.	.2	101.0	*	2	JAN	0324	463	0.	.2	100.8
1	JAN	1618	130	6.	.7	102.1	*	1	JAN	2152	297	0.	.2	101.0	*	2	JAN	0326	464	0.	.2	100.8
1	JAN	1620	131	6.	.6	102.1	*	1	JAN	2154	298	0.	.2	101.0	*	2	JAN	0328	465	0.	.2	100.8
1	JAN	1622	132	6.	.6	102.0	*	1	JAN	2156	299	0.	.2	101.0	*	2	JAN	0330	466	0.	.2	100.8
1	JAN	1624	133	5.	.6	102.0	*	1	JAN	2158	300	0.	.2	101.0	*	2	JAN	0332	467	0.	.2	100.8
1	JAN	1626	134	5.	.6	102.0	*	1	JAN	2200	301	0.	.2	101.0	*	2	JAN	0334	468	0.	.2	100.8
1	JAN	1628	135	5.	.6	102.0	*	1	JAN	2202	302	0.	.2	101.0	*	2	JAN	0336	469	0.	.2	100.8
1	JAN	1630	136	5.	.6	102.0	*	1	JAN	2204	303	0.	.2	101.0	*	2	JAN	0338	470	0.	.2	100.8
1	JAN	1632	137	5.	.6	101.9	*	1	JAN	2206	304	0.	.2	101.0	*	2	JAN	0340	471	0.	.2	100.8
1	JAN	1634	138	5.	.6	101.9	*	1	JAN	2208	305	0.	.2	101.0	*	2	JAN	0342	472	0.	.2	100.8
1	JAN	1636	139	5.	.6	101.9	*	1	JAN	2210	306	0.	.2	101.0	*	2	JAN	0344	473	0.	.2	100.8
1	JAN	1638	140	5.	.6	101.9	*	1	JAN	2212	307	0.	.2	101.0	*	2	JAN	0346	474	0.	.2	100.8
1	JAN	1640	141	5.	.6	101.9	*	1	JAN	2214	308	0.	.2	101.0	*	2	JAN	0348	475	0.	.2	100.8
1	JAN	1642	142	4.	.6	101.8	*	1	JAN	2216	309	0.	.2	101.0	*	2	JAN	0350	476	0.	.2	100.8
1	JAN	1644	143	4.	.6	101.8	*	1	JAN	2218	310	0.	.2	101.0	*	2	JAN	0352	477	0.	.2	100.8
1	JAN	1646	144	4.	.5	101.8	*	1	JAN	2220	311	0.	.2	101.0	*	2	JAN	0354	478	0.	.2	100.8
1	JAN	1648	145	4.	.5	101.8	*	1	JAN	2222	312	0.	.2	101.0	*	2	JAN	0356	479	0.	.2	100.8
1	JAN	1650	146	4.	.5	101.8	*	1	JAN	2224	313	0.	.2	101.0	*	2	JAN	0358	480	0.	.2	100.8
1	JAN	1652	147	4.	.5	101.8	*	1	JAN	2226	314	0.	.2	101.0	*	2	JAN	0400	481	0.	.2	100.8
1	JAN	1654	148	4.	.5	101.7	*	1	JAN	2228	315	0.	.2	101.0	*	2	JAN	0402	482	0.	.2	100.8
1	JAN	1656	149	4.	.5	101.7	*	1	JAN	2230	316	0.	.2	101.0	*	2	JAN	0404	483	0.	.2	100.8
1	JAN	1658	150	4.	.5	101.7	*	1	JAN	2232	317	0.	.2	101.0	*	2	JAN	0406	484	0.	.2	100.8
1	JAN	1700	151	4.	.5	101.7	*	1	JAN	2234	318	0.	.2	101.0	*	2	JAN	0408	485	0.	.2	100.8
1	JAN	1702	152	4.	.5	101.7	*	1	JAN	2236	319	0.	.2	101.0	*	2	JAN	0410	486	0.	.2	100.8
1	JAN	1704	153	4.	.5	101.7	*	1	JAN	2238	320	0.	.2	101.0	*	2	JAN	0412	487	0.	.2	100.8
1	JAN	1706	154	3.	.5	101.7	*	1	JAN	2240	321	0.	.2	101.0	*	2	JAN	0414	488	0.	.2	100.8
1	JAN	1708	155	3.	.5	101.6	*	1	JAN	2242	322	0.	.2	101.0	*	2	JAN	0416	489	0.	.2	100.8
1	JAN	1710	156	3.	.5	101.6	*	1	JAN	2244	323	0.	.2	101.0	*	2	JAN	0418	490	0.	.2	100.8
1	JAN	1712	157	3.	.5	101.6	*	1	JAN	2246	324	0.	.2	101.0	*	2	JAN	0420	491	0.	.2	100.8
1	JAN	1714	158	3.	.5	101.6	*	1	JAN	2248	325	0.	.2	101.0	*	2	JAN	0422	492	0.	.2	100.8
1	JAN	1716	159	3.	.5	101.6	*	1	JAN	2250	326	0.	.2	101.0	*	2	JAN	0424	493	0.	.2	100.8
1	JAN	1718	160	3.	.5	101.6	*	1	JAN	2252	327	0.	.2	101.0	*	2	JAN	0426	494	0.	.2	100.8
1	JAN	1720	161	3.	.5	101.6	*	1	JAN	2254	328	0.	.2	100.9	*	2	JAN	0428	495	0.	.2	100.8
1	JAN	1722	162	3.	.5	101.6	*	1	JAN	2256	329	0.	.2	100.9	*	2	JAN	0430	496	0.	.2	100.8
1	JAN	1724	163	3.	.5	101.6	*	1	JAN	2258	330	0.	.2	100.9	*	2	JAN	0432	497	0.	.2	100.8
1	JAN	1726	164	3.	.5	101.5	*	1	JAN	2300	331	0.	.2	100.9	*	2	JAN	0434	498	0.	.2	100.8
1	JAN	1728	165	3.	.4	101.5	*	1	JAN	2302	332	0.	.2	100.9	*	2	JAN	0436	499	0.	.2	100.8
1	JAN	1730	166	3.	.4	101.5	*	1	JAN	2304	333	0.	.2	100.9	*	2	JAN	0438	500	0.	.2	100.8
1	JAN	1732	167	3.	.4	101.5	*	1	JAN	2306	334	0.	.2	100.9	*							

****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	16.63-HR
+ (CFS)	(HR)					
		(CFS)				
+ 9.	3.40		3.	1.	1.	1.
		(INCHES)	1.756	1.826	1.826	1.826
		(AC-FT)	2.	2.	2.	2.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	16.63-HR
+ (AC-FT)	(HR)					
1.	3.37		0.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	16.63-HR
+ (FEET)	(HR)					

```
    102.97      3.40               101.62      101.11      101.11       101.11

                       CUMULATIVE AREA =      .02 SQ MI

1                                                      STATION     DET1

                          (I) INFLOW,   (O) OUTFLOW
         0.        4.        8.       12.       16.       20.       24.       28.        0.        0.        0.        0.
0.
                                                                                    (S) STORAGE
         .0        .0        .0        .0        .0        .0        .0        .4        .8       1.2        .0        .0
.0
 DAHRMN PER
  11200
1I---------.---------.---------.---------.---------.---------S---------.---------.---------.---------.---------.---------.
  11202   2I         .         .         .         .         .         S         .         .         .         .         .
.
  11204   3I         .         .         .         .         .         S         .         .         .         .         .
.
  11206   4I         .         .         .         .         .         S         .         .         .         .         .
.
  11208   5OI        .         .         .         .         .         S         .         .         .         .         .
.
  11210   6O I       .         .         .         .         .         S         .         .         .         .         .
.
  11212   7O I       .         .         .         .         .         S         .         .         .         .         .
.
  11214   8O  I      .         .         .         .         .         S         .         .         .         .         .
.
  11216   9O  I      .         .         .         .         .         S         .         .         .         .         .
.
  11218  10O  I      .         .         .         .         .         S         .         .         .         .         .
.
  11220  11O .I. . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
.
  11222  12O  I      .         .         .         .         .        .S         .         .         .         .         .
.
  11224  13O  I      .         .         .         .         .        .S         .         .         .         .         .
.
  11226  14O   I     .         .         .         .         .        .S         .         .         .         .         .
.
  11228  15O   I     .         .         .         .         .        .S         .         .         .         .         .
.
  11230  16O   I     .         .         .         .         .        .S         .         .         .         .         .
.
  11232  17O   I     .         .         .         .         .        .S         .         .         .         .         .
.
  11234  18O   I     .         .         .         .         .        .S         .         .         .         .         .
.
  11236  19O   I     .         .         .         .         .        .S         .         .         .         .         .
.
  11238  20O   I     .         .         .         .         .        .S         .         .         .         .         .
.
  11240  21O . I . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . . . . .
.
  11242  22O   I     .         .         .         .         .        . S        .         .         .         .         .
.
  11244  23O   I     .         .         .         .         .        . S        .         .         .         .         .
.
  11246  24O   I     .         .         .         .         .        . S        .         .         .         .         .
.
  11248  25O   I     .         .         .         .         .        . S        .         .         .         .         .
.
  11250  26O   I     .         .         .         .         .        . S        .         .         .         .         .
.
  11252  27O   I     .         .         .         .         .        . S        .         .         .         .         .
.
  11254  28O   I     .         .         .         .         .        . S        .         .         .         .         .
.
  11256  29O   I     .         .         .         .         .        . S        .         .         .         .         .
.
  11258  30O   I     .         .         .         .         .        . S        .         .         .         .         .
.
  11300  31O . I . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . . . . .
.
  11302  32O   I     .         .         .         .         .        .  S       .         .         .         .         .
.
  11304  33O   I     .         .         .         .         .        .  S       .         .         .         .         .
.
  11306  34O   I     .         .         .         .         .        .  S       .         .         .         .         .
.
  11308  35O   I     .         .         .         .         .        .  S       .         .         .         .         .
.
  11310  36O   I     .         .         .         .         .        .  S       .         .         .         .         .
.
  11312  37O   I     .         .         .         .         .        .  S       .         .         .         .         .
.
  11314  38O   I     .         .         .         .         .        .  S       .         .         .         .         .
.
  11316  39O    I    .         .         .         .         .        .  S       .         .         .         .         .
.
  11318  40O    I    .         .         .         .         .        .   S      .         .         .         .         .
.
  11320  41O . .I. . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
.
  11322  42O    I    .         .         .         .         .        .   S      .         .         .         .         .
.
  11324  43O    I    .         .         .         .         .        .   S      .         .         .         .         .
.
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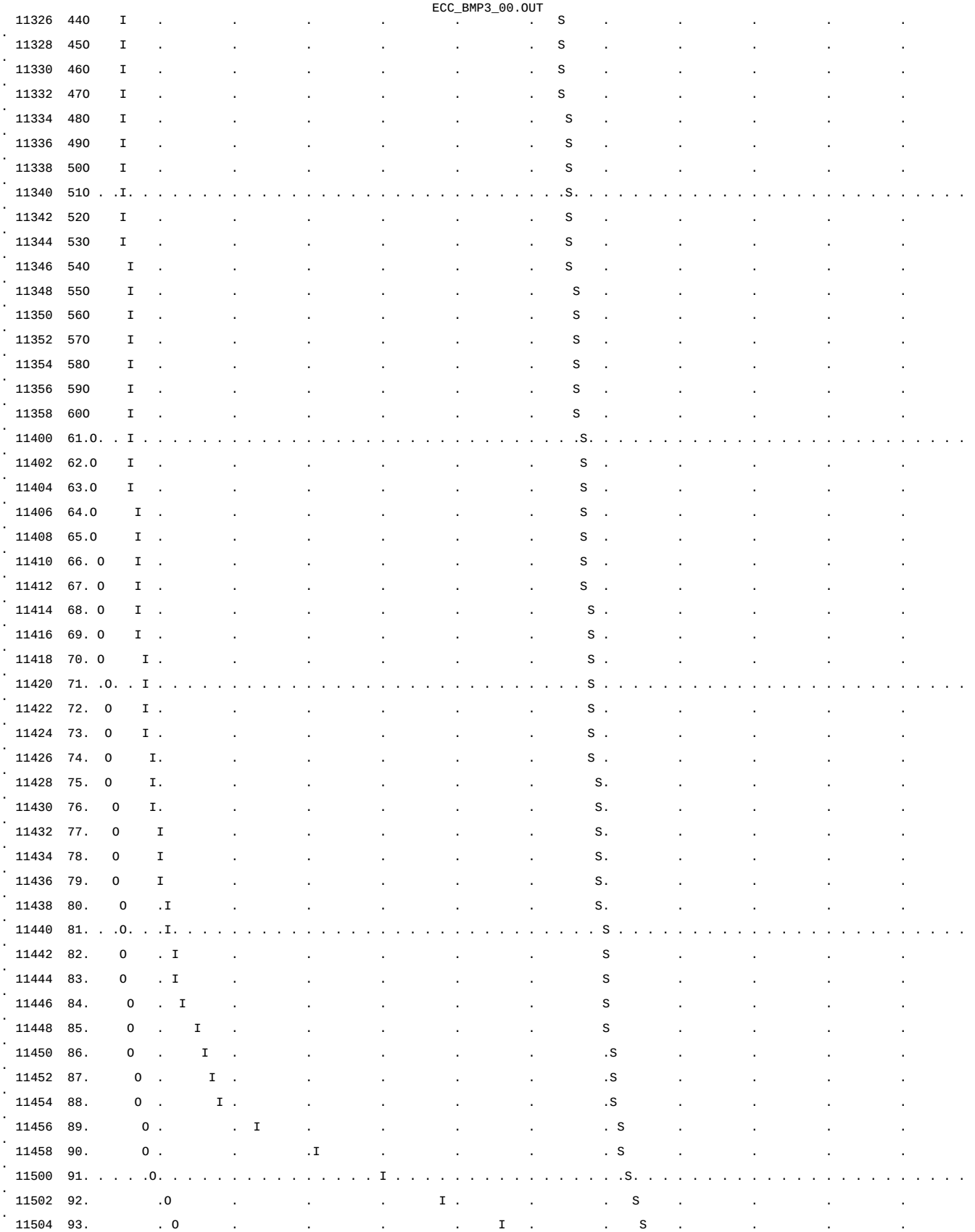
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11328 450 I S
11330 460 I S
11332 470 I S
11334 480 I S
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11340 510 I S
11342 520 I S
11344 530 I S
11346 540 I S
11348 550 I S
11350 560 I S
11352 570 I S
11354 580 I S
11356 590 I S
11358 600 I S
11400 61.0 I S
11402 62.0 I S
11404 63.0 I S
11406 64.0 I S
11408 65.0 I S
11410 66. 0 I S
11412 67. 0 I S
11414 68. 0 I S
11416 69. 0 I S
11418 70. 0 I S
11420 71. 0 I S
11422 72. 0 I S
11424 73. 0 I S
11426 74. 0 I S
11428 75. 0 I S
11430 76. 0 I S
11432 77. 0 I S
11434 78. 0 I S
11436 79. 0 I S
11438 80. 0 I S
11440 81. 0 I S
11442 82. 0 I S
11444 83. 0 I S
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11448 85. 0 I S
11450 86. 0 I S
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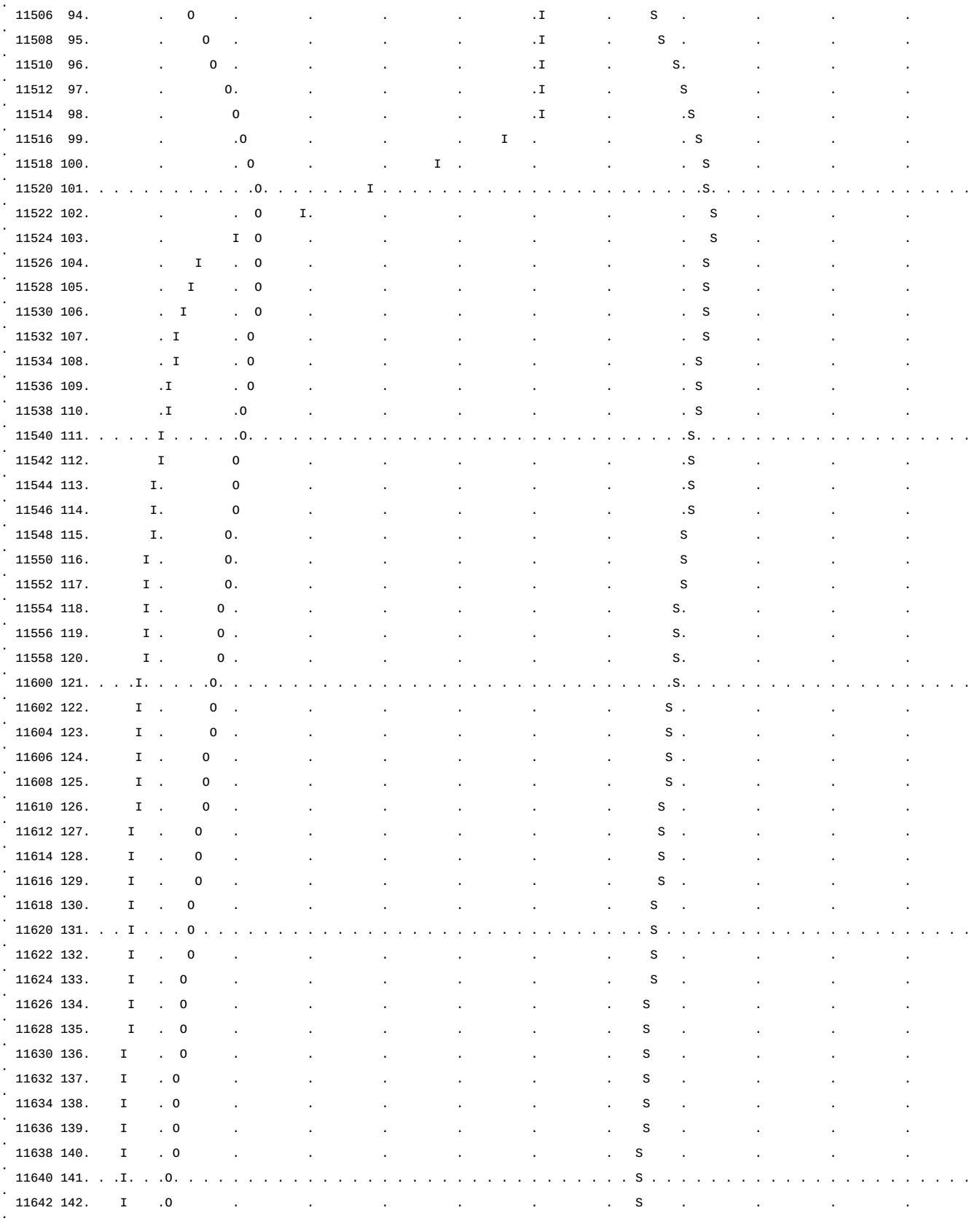
11458 90. 0 I S
11500 91. 0 I S
11502 92. 0 I S
11504 93. 0 I S


11506 94.
11508 95.
11510 96.
11512 97.
11514 98.
11516 99.
11518 100.
11520 101.
11522 102.
11524 103.
11526 104.
11528 105.
11530 106.
11532 107.
11534 108.
11536 109.
11538 110.
11540 111.
11542 112.
11544 113.
11546 114.
11548 115.
11550 116.
11552 117.
11554 118.
11556 119.
11558 120.
11600 121.
11602 122.
11604 123.
11606 124.
11608 125.
11610 126.
11612 127.
11614 128.
11616 129.
11618 130.
11620 131.
11622 132.
11624 133.
11626 134.
11628 135.
11630 136.
11632 137.
11634 138.
11636 139.
11638 140.
11640 141.
11642 142.

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11644 143.    I    .O        .         .         .         .         .         .   S     .         .         .         .
11646 144.    I    .O        .         .         .         .         .         .   S     .         .         .         .
11648 145.    I    O         .         .         .         .         .         .   S     .         .         .         .
11650 146.    I    O         .         .         .         .         .         . S       .         .         .         .
11652 147.    I    O         .         .         .         .         .         . S       .         .         .         .
11654 148.    I    O         .         .         .         .         .         . S       .         .         .         .
11656 149.    I    O         .         .         .         .         .         . S       .         .         .         .
11658 150.    I   O.         .         .         .         .         .         . S       .         .         .         .
11700 151. . .I. .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
11702 152.    I   O.         .         .         .         .         .         . S       .         .         .         .
11704 153.    I   O.         .         .         .         .         .         .S        .         .         .         .
11706 154.   I    O.         .         .         .         .         .         .S        .         .         .         .
11708 155.   I    O.         .         .         .         .         .         .S        .         .         .         .
11710 156.   I   O .         .         .         .         .         .         .S        .         .         .         .
11712 157.   I   O .         .         .         .         .         .         .S        .         .         .         .
11714 158.   I   O .         .         .         .         .         .         .S        .         .         .         .
11716 159.   I   O .         .         .         .         .         .         .S        .         .         .         .
11718 160.   I   O .         .         .         .         .         .         .S        .         .         .         .
11720 161. . I . O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S . . . . . . . . . . . . . . . . . . . . . . . .
11722 162.   I   O .         .         .         .         .         .         .S        .         .         .         .
11724 163.   I  O  .         .         .         .         .         .         .S        .         .         .         .
11726 164.   I  O  .         .         .         .         .         .         .S        .         .         .         .
11728 165.   I  O  .         .         .         .         .         .         .S        .         .         .         .
11730 166.   I  O  .         .         .         .         .         .         .S        .         .         .         .
11732 167.   I  O  .         .         .         .         .         .         .S        .         .         .         .
11734 168.   I  O  .         .         .         .         .         .         .S        .         .         .         .
11736 169.   I  O  .         .         .         .         .         .         .S        .         .         .         .
11738 170.   I  O  .         .         .         .         .         .         .S        .         .         .         .
11740 171. . I O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
11742 172.   I O   .         .         .         .         .         .         .S        .         .         .         .
11744 173.   I O   .         .         .         .         .         .         .S        .         .         .         .
11746 174.   I O   .         .         .         .         .         .         S         .         .         .         .
11748 175.   I O   .         .         .         .         .         .         S         .         .         .         .
11750 176.   I O   .         .         .         .         .         .         S         .         .         .         .
11752 177.   I O   .         .         .         .         .         .         S         .         .         .         .
11754 178.   I O   .         .         .         .         .         .         S         .         .         .         .
11756 179.  I  O   .         .         .         .         .         .         S         .         .         .         .
11758 180.  I  O   .         .         .         .         .         .         S         .         .         .         .
11800 181. .I. O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S . . . . . . . . . . . . . . . . . . . . . . . .
11802 182.  I O    .         .         .         .         .         .         S         .         .         .         .
11804 183.  I O    .         .         .         .         .         .         S         .         .         .         .
11806 184.  I O    .         .         .         .         .         .         S         .         .         .         .
11808 185. I  O    .         .         .         .         .         .         S         .         .         .         .
11810 186. I  O    .         .         .         .         .         .         S         .         .         .         .
11812 187.I   O    .         .         .         .         .         .         S         .         .         .         .
11814 188I    O    .         .         .         .         .         .        S.         .         .         .         .
11816 189I    O    .         .         .         .         .         .        S.         .         .         .         .
11818 190I   O     .         .         .         .         .         .        S.         .         .         .         .
11820 191I . O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . .
11822 192I   O     .         .         .         .         .         .        S.         .         .         .         .
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11824 193I   O     .        .        .        .        .        .       S.        .        .        .        .
11826 194I   O     .        .        .        .        .        .       S.        .        .        .        .
11828 195I   O     .        .        .        .        .        .       S.        .        .        .        .
11830 196I  O      .        .        .        .        .        .       S.        .        .        .        .
11832 197I  O      .        .        .        .        .        .      S .        .        .        .        .
11834 198I  O      .        .        .        .        .        .      S .        .        .        .        .
11836 199I  O      .        .        .        .        .        .      S .        .        .        .        .
11838 200I  O      .        .        .        .        .        .      S .        .        .        .        .
11840 201I .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
11842 202I  O      .        .        .        .        .        .      S .        .        .        .        .
11844 203I  O      .        .        .        .        .        .      S .        .        .        .        .
11846 204I  O      .        .        .        .        .        .      S .        .        .        .        .
11848 205I O       .        .        .        .        .        .      S .        .        .        .        .
11850 206I O       .        .        .        .        .        .      S .        .        .        .        .
11852 207I O       .        .        .        .        .        .      S .        .        .        .        .
11854 208I O       .        .        .        .        .        .      S .        .        .        .        .
11856 209I O       .        .        .        .        .        .      S .        .        .        .        .
11858 210I O       .        .        .        .        .        .      S .        .        .        .        .
11900 211I O . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . . .
11902 212I O       .        .        .        .        .        .       S .        .        .        .        .
11904 213I O       .        .        .        .        .        .       S .        .        .        .        .
11906 214I O       .        .        .        .        .        .       S .        .        .        .        .
11908 215I O       .        .        .        .        .        .       S .        .        .        .        .
11910 216I O       .        .        .        .        .        .       S .        .        .        .        .
11912 217I O       .        .        .        .        .        .       S .        .        .        .        .
11914 218IO        .        .        .        .        .        .       S .        .        .        .        .
11916 219IO        .        .        .        .        .        .       S .        .        .        .        .
11918 220IO        .        .        .        .        .        .       S .        .        .        .        .
11920 221IO. . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . . .
11922 222IO        .        .        .        .        .        .       S .        .        .        .        .
11924 223IO        .        .        .        .        .        .       S .        .        .        .        .
11926 224IO        .        .        .        .        .        .       S .        .        .        .        .
11928 225IO        .        .        .        .        .        .       S .        .        .        .        .
11930 226IO        .        .        .        .        .        .       S .        .        .        .        .
11932 227IO        .        .        .        .        .        .       S .        .        .        .        .
11934 228IO        .        .        .        .        .        .       S .        .        .        .        .
11936 229IO        .        .        .        .        .        .       S .        .        .        .        .
11938 230IO        .        .        .        .        .        .       S .        .        .        .        .
11940 231IO. . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . . .
11942 232IO        .        .        .        .        .        .       S .        .        .        .        .
11944 233IO        .        .        .        .        .        .       S .        .        .        .        .
11946 234IO        .        .        .        .        .        .       S .        .        .        .        .
11948 235IO        .        .        .        .        .        .       S .        .        .        .        .
11950 236IO        .        .        .        .        .        .       S .        .        .        .        .
11952 237IO        .        .        .        .        .        .       S .        .        .        .        .
11954 238IO        .        .        .        .        .        .       S .        .        .        .        .
11956 239IO        .        .        .        .        .        .       S .        .        .        .        .
11958 240IO        .        .        .        .        .        .       S .        .        .        .        .
12000 241IO. . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . . .
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12002 242IO        .         .         .         .         .         .      S  .         .         .         .         .
12004 243IO        .         .         .         .         .         .      S  .         .         .         .         .
12006 244IO        .         .         .         .         .         .      S  .         .         .         .         .
12008 245IO        .         .         .         .         .         .      S  .         .         .         .         .
12010 246I         .         .         .         .         .         .      S  .         .         .         .         .
12012 247I         .         .         .         .         .         .      S  .         .         .         .         .
12014 248I         .         .         .         .         .         .      S  .         .         .         .         .
12016 249I         .         .         .         .         .         .      S  .         .         .         .         .
12018 250I         .         .         .         .         .         .      S  .         .         .         .         .
12020 251I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
12022 252I         .         .         .         .         .         .      S  .         .         .         .         .
12024 253I         .         .         .         .         .         .      S  .         .         .         .         .
12026 254I         .         .         .         .         .         .      S  .         .         .         .         .
12028 255I         .         .         .         .         .         .      S  .         .         .         .         .
12030 256I         .         .         .         .         .         .      S  .         .         .         .         .
12032 257I         .         .         .         .         .         .      S  .         .         .         .         .
12034 258I         .         .         .         .         .         .      S  .         .         .         .         .
12036 259I         .         .         .         .         .         .      S  .         .         .         .         .
12038 260I         .         .         .         .         .         .      S  .         .         .         .         .
12040 261I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
12042 262I         .         .         .         .         .         .      S  .         .         .         .         .
12044 263I         .         .         .         .         .         .      S  .         .         .         .         .
12046 264I         .         .         .         .         .         .      S  .         .         .         .         .
12048 265I         .         .         .         .         .         .      S  .         .         .         .         .
12050 266I         .         .         .         .         .         .      S  .         .         .         .         .
12052 267I         .         .         .         .         .         .      S  .         .         .         .         .
12054 268I         .         .         .         .         .         .      S  .         .         .         .         .
12056 269I         .         .         .         .         .         .      S  .         .         .         .         .
12058 270I         .         .         .         .         .         .      S  .         .         .         .         .
12100 271I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
12102 272I         .         .         .         .         .         .      S  .         .         .         .         .
12104 273I         .         .         .         .         .         .      S  .         .         .         .         .
12106 274I         .         .         .         .         .         .      S  .         .         .         .         .
12108 275I         .         .         .         .         .         .      S  .         .         .         .         .
12110 276I         .         .         .         .         .         .      S  .         .         .         .         .
12112 277I         .         .         .         .         .         .      S  .         .         .         .         .
12114 278I         .         .         .         .         .         .      S  .         .         .         .         .
12116 279I         .         .         .         .         .         .      S  .         .         .         .         .
12118 280I         .         .         .         .         .         .      S  .         .         .         .         .
12120 281I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
12122 282I         .         .         .         .         .         .      S  .         .         .         .         .
12124 283I         .         .         .         .         .         .      S  .         .         .         .         .
12126 284I         .         .         .         .         .         .      S  .         .         .         .         .
12128 285I         .         .         .         .         .         .      S  .         .         .         .         .
12130 286I         .         .         .         .         .         .      S  .         .         .         .         .
12132 287I         .         .         .         .         .         .      S  .         .         .         .         .
12134 288I         .         .         .         .         .         .      S  .         .         .         .         .
12136 289I         .         .         .         .         .         .      S  .         .         .         .         .
12138 290I         .         .         .         .         .         .      S  .         .         .         .         .
12140 291I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
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12142 292I        .       .       .       .       .       .       S   .       .       .       .       .
12144 293I        .       .       .       .       .       .       S   .       .       .       .       .
12146 294I        .       .       .       .       .       .       S   .       .       .       .       .
12148 295I        .       .       .       .       .       .       S   .       .       .       .       .
12150 296I        .       .       .       .       .       .       S   .       .       .       .       .
12152 297I        .       .       .       .       .       .       S   .       .       .       .       .
12154 298I        .       .       .       .       .       .       S   .       .       .       .       .
12156 299I        .       .       .       .       .       .       S   .       .       .       .       .
12158 300I        .       .       .       .       .       .       S   .       .       .       .       .
12200 301I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
12202 302I        .       .       .       .       .       .       S   .       .       .       .       .
12204 303I        .       .       .       .       .       .       S   .       .       .       .       .
12206 304I        .       .       .       .       .       .       S   .       .       .       .       .
12208 305I        .       .       .       .       .       .       S   .       .       .       .       .
12210 306I        .       .       .       .       .       .       S   .       .       .       .       .
12212 307I        .       .       .       .       .       .       S   .       .       .       .       .
12214 308I        .       .       .       .       .       .       S   .       .       .       .       .
12216 309I        .       .       .       .       .       .       S   .       .       .       .       .
12218 310I        .       .       .       .       .       .       S   .       .       .       .       .
12220 311I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
12222 312I        .       .       .       .       .       .       S   .       .       .       .       .
12224 313I        .       .       .       .       .       .       S   .       .       .       .       .
12226 314I        .       .       .       .       .       .       S   .       .       .       .       .
12228 315I        .       .       .       .       .       .       S   .       .       .       .       .
12230 316I        .       .       .       .       .       .       S   .       .       .       .       .
12232 317I        .       .       .       .       .       .       S   .       .       .       .       .
12234 318I        .       .       .       .       .       .       S   .       .       .       .       .
12236 319I        .       .       .       .       .       .       S   .       .       .       .       .
12238 320I        .       .       .       .       .       .       S   .       .       .       .       .
12240 321I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
12242 322I        .       .       .       .       .       .       S   .       .       .       .       .
12244 323I        .       .       .       .       .       .       S   .       .       .       .       .
12246 324I        .       .       .       .       .       .       S   .       .       .       .       .
12248 325I        .       .       .       .       .       .       S   .       .       .       .       .
12250 326I        .       .       .       .       .       .       S   .       .       .       .       .
12252 327I        .       .       .       .       .       .       S   .       .       .       .       .
12254 328I        .       .       .       .       .       .       S   .       .       .       .       .
12256 329I        .       .       .       .       .       .       S   .       .       .       .       .
12258 330I        .       .       .       .       .       .       S   .       .       .       .       .
12300 331I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
12302 332I        .       .       .       .       .       .       S   .       .       .       .       .
12304 333I        .       .       .       .       .       .       S   .       .       .       .       .
12306 334I        .       .       .       .       .       .       S   .       .       .       .       .
12308 335I        .       .       .       .       .       .       S   .       .       .       .       .
12310 336I        .       .       .       .       .       .       S   .       .       .       .       .
12312 337I        .       .       .       .       .       .       S   .       .       .       .       .
12314 338I        .       .       .       .       .       .       S   .       .       .       .       .
12316 339I        .       .       .       .       .       .       S   .       .       .       .       .
12318 340I        .       .       .       .       .       .       S   .       .       .       .       .
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12320 341I . . . . . S . . . . . .
12322 342I       .     .     .     .     .     .   S   .     .     .     .     .
12324 343I       .     .     .     .     .     .   S   .     .     .     .     .
12326 344I       .     .     .     .     .     .   S   .     .     .     .     .
12328 345I       .     .     .     .     .     .   S   .     .     .     .     .
12330 346I       .     .     .     .     .     .   S   .     .     .     .     .
12332 347I       .     .     .     .     .     .   S   .     .     .     .     .
12334 348I       .     .     .     .     .     .   S   .     .     .     .     .
12336 349I       .     .     .     .     .     .   S   .     .     .     .     .
12338 350I       .     .     .     .     .     .   S   .     .     .     .     .
12340 351I . . . . . S . . . . . .
12342 352I       .     .     .     .     .     .   S   .     .     .     .     .
12344 353I       .     .     .     .     .     .   S   .     .     .     .     .
12346 354I       .     .     .     .     .     .   S   .     .     .     .     .
12348 355I       .     .     .     .     .     .   S   .     .     .     .     .
12350 356I       .     .     .     .     .     .   S   .     .     .     .     .
12352 357I       .     .     .     .     .     .   S   .     .     .     .     .
12354 358I       .     .     .     .     .     .   S   .     .     .     .     .
12356 359I       .     .     .     .     .     .   S   .     .     .     .     .
12358 360I       .     .     .     .     .     .   S   .     .     .     .     .
20000 361I . . . . . S . . . . . .
20002 362I       .     .     .     .     .     .   S   .     .     .     .     .
20004 363I       .     .     .     .     .     .   S   .     .     .     .     .
20006 364I       .     .     .     .     .     .   S   .     .     .     .     .
20008 365I       .     .     .     .     .     .   S   .     .     .     .     .
20010 366I       .     .     .     .     .     .   S   .     .     .     .     .
20012 367I       .     .     .     .     .     .   S   .     .     .     .     .
20014 368I       .     .     .     .     .     .   S   .     .     .     .     .
20016 369I       .     .     .     .     .     .   S   .     .     .     .     .
20018 370I       .     .     .     .     .     .   S   .     .     .     .     .
20020 371I . . . . . S . . . . . .
20022 372I       .     .     .     .     .     .   S   .     .     .     .     .
20024 373I       .     .     .     .     .     .   S   .     .     .     .     .
20026 374I       .     .     .     .     .     .   S   .     .     .     .     .
20028 375I       .     .     .     .     .     .   S   .     .     .     .     .
20030 376I       .     .     .     .     .     .   S   .     .     .     .     .
20032 377I       .     .     .     .     .     .   S   .     .     .     .     .
20034 378I       .     .     .     .     .     .   S   .     .     .     .     .
20036 379I       .     .     .     .     .     .   S   .     .     .     .     .
20038 380I       .     .     .     .     .     .   S   .     .     .     .     .
20040 381I . . . . . S . . . . . .
20042 382I       .     .     .     .     .     .   S   .     .     .     .     .
20044 383I       .     .     .     .     .     .   S   .     .     .     .     .
20046 384I       .     .     .     .     .     .   S   .     .     .     .     .
20048 385I       .     .     .     .     .     .   S   .     .     .     .     .
20050 386I       .     .     .     .     .     .   S   .     .     .     .     .
20052 387I       .     .     .     .     .     .   S   .     .     .     .     .
20054 388I       .     .     .     .     .     .   S   .     .     .     .     .
20056 389I       .     .     .     .     .     .   S   .     .     .     .     .
20058 390I       .     .     .     .     .     .   S   .     .     .     .     .
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20100 391I . . . . . S . . . . . .
20102 392I . . . . . S . . . . . .
20104 393I . . . . . S . . . . . .
20106 394I . . . . . S . . . . . .
20108 395I . . . . . S . . . . . .
20110 396I . . . . . S . . . . . .
20112 397I . . . . . S . . . . . .
20114 398I . . . . . S . . . . . .
20116 399I . . . . . S . . . . . .
20118 400I . . . . . S . . . . . .
20120 401I . . . . . S . . . . . .
20122 402I . . . . . S . . . . . .
20124 403I . . . . . S . . . . . .
20126 404I . . . . . S . . . . . .
20128 405I . . . . . S . . . . . .
20130 406I . . . . . S . . . . . .
20132 407I . . . . . S . . . . . .
20134 408I . . . . . S . . . . . .
20136 409I . . . . . S . . . . . .
20138 410I . . . . . S . . . . . .
20140 411I . . . . . S . . . . . .
20142 412I . . . . . S . . . . . .
20144 413I . . . . . S . . . . . .
20146 414I . . . . . S . . . . . .
20148 415I . . . . . S . . . . . .
20150 416I . . . . . S . . . . . .
20152 417I . . . . . S . . . . . .
20154 418I . . . . . S . . . . . .
20156 419I . . . . . S . . . . . .
20158 420I . . . . . S . . . . . .
20200 421I . . . . . S . . . . . .
20202 422I . . . . . S . . . . . .
20204 423I . . . . . S . . . . . .
20206 424I . . . . . S . . . . . .
20208 425I . . . . . S . . . . . .
20210 426I . . . . . S . . . . . .
20212 427I . . . . . S . . . . . .
20214 428I . . . . . S . . . . . .
20216 429I . . . . . S . . . . . .
20218 430I . . . . . S . . . . . .
20220 431I . . . . . S . . . . . .
20222 432I . . . . . S . . . . . .
20224 433I . . . . . S . . . . . .
20226 434I . . . . . S . . . . . .
20228 435I . . . . . S . . . . . .
20230 436I . . . . . S . . . . . .
20232 437I . . . . . S . . . . . .
20234 438I . . . . . S . . . . . .
20236 439I . . . . . S . . . . . .
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20238 440I        .       .       .       .       .       .   S   .       .       .       .       .
20240 441I . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20242 442I        .       .       .       .       .       .   S   .       .       .       .       .
20244 443I        .       .       .       .       .       .   S   .       .       .       .       .
20246 444I        .       .       .       .       .       .   S   .       .       .       .       .
20248 445I        .       .       .       .       .       .   S   .       .       .       .       .
20250 446I        .       .       .       .       .       .   S   .       .       .       .       .
20252 447I        .       .       .       .       .       .   S   .       .       .       .       .
20254 448I        .       .       .       .       .       .   S   .       .       .       .       .
20256 449I        .       .       .       .       .       .   S   .       .       .       .       .
20258 450I        .       .       .       .       .       .   S   .       .       .       .       .
20300 451I . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20302 452I        .       .       .       .       .       .   S   .       .       .       .       .
20304 453I        .       .       .       .       .       .   S   .       .       .       .       .
20306 454I        .       .       .       .       .       .   S   .       .       .       .       .
20308 455I        .       .       .       .       .       .   S   .       .       .       .       .
20310 456I        .       .       .       .       .       .   S   .       .       .       .       .
20312 457I        .       .       .       .       .       .   S   .       .       .       .       .
20314 458I        .       .       .       .       .       .   S   .       .       .       .       .
20316 459I        .       .       .       .       .       .   S   .       .       .       .       .
20318 460I        .       .       .       .       .       .   S   .       .       .       .       .
20320 461I . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20322 462I        .       .       .       .       .       .   S   .       .       .       .       .
20324 463I        .       .       .       .       .       .   S   .       .       .       .       .
20326 464I        .       .       .       .       .       .   S   .       .       .       .       .
20328 465I        .       .       .       .       .       .   S   .       .       .       .       .
20330 466I        .       .       .       .       .       .   S   .       .       .       .       .
20332 467I        .       .       .       .       .       .   S   .       .       .       .       .
20334 468I        .       .       .       .       .       .   S   .       .       .       .       .
20336 469I        .       .       .       .       .       .   S   .       .       .       .       .
20338 470I        .       .       .       .       .       .   S   .       .       .       .       .
20340 471I . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20342 472I        .       .       .       .       .       .   S   .       .       .       .       .
20344 473I        .       .       .       .       .       .   S   .       .       .       .       .
20346 474I        .       .       .       .       .       .   S   .       .       .       .       .
20348 475I        .       .       .       .       .       .   S   .       .       .       .       .
20350 476I        .       .       .       .       .       .   S   .       .       .       .       .
20352 477I        .       .       .       .       .       .   S   .       .       .       .       .
20354 478I        .       .       .       .       .       .   S   .       .       .       .       .
20356 479I        .       .       .       .       .       .   S   .       .       .       .       .
20358 480I        .       .       .       .       .       .   S   .       .       .       .       .
20400 481I . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20402 482I        .       .       .       .       .       .   S   .       .       .       .       .
20404 483I        .       .       .       .       .       .   S   .       .       .       .       .
20406 484I        .       .       .       .       .       .   S   .       .       .       .       .
20408 485I        .       .       .       .       .       .   S   .       .       .       .       .
20410 486I        .       .       .       .       .       .   S   .       .       .       .       .
20412 487I        .       .       .       .       .       .   S   .       .       .       .       .
20414 488I        .       .       .       .       .       .   S   .       .       .       .       .
20416 489I        .       .       .       .       .       .   S   .       .       .       .       .
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  20418 490I         .         .         .         .         .         .    S    .         .         .         .         .
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  20420 491I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . .
.
  20422 492I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20424 493I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20426 494I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20428 495I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20430 496I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20432 497I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20434 498I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20436 499I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20438
500I---------.---------.---------.---------.---------.---------.----S----.---------.---------.---------.---------.---------.
1
1
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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	ECC-BMP3	24.	3.10	4.	1.	1.	.02		
+	ROUTED TO	DET1	9.	3.40	3.	1.	1.	.02		
+									102.97	3.40

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

```
KK ECC-BMP4.OUT
KM RATIONAL METHOD HYDROGRAPH PROGRAM
KM COPYRIGHT 1992, RICK ENGINEERING COMPANY
KM 6HR RAINFALL IS  3.49  INCHES
KM RATIONAL METHOD RUNOFF COEFFICIENT IS  .65
KM RATIONAL METHOD TIME OF CONCENTRATION IS  20  MIN.
KM FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO YOUR HEC-1
KM IT 2 01JAN90 1200 200
BA .0214
IN 20 01JAN90  1150
QI 0  0  1.9  2.1  2.3  2.6  3  3.6  4.5  6.6
QI 26.2  16.6  5.3  4  3.2  2.8  2.5  2.2  2  1.9
QI 0  0  0  0  0  0  0  0  0  0
```

```
*FREE
*DIAGRAM
ID ESCONDIDO COUNTRY CLUB, J-17762-A BMP 4
ID 100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
ID March 3, 2017 - FILE NAME: ECC_BMP4_00.HC1
IT 2 01JAN90 1200 500
IO 5 0
*
KK ECC-BMP4.OUT
KM RATIONAL METHOD HYDROGRAPH PROGRAM
KM COPYRIGHT 1992, RICK ENGINEERING COMPANY
KM 6HR RAINFALL IS  3.49  INCHES
KM RATIONAL METHOD RUNOFF COEFFICIENT IS  .65
KM RATIONAL METHOD TIME OF CONCENTRATION IS  20  MIN.
KM FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO
YOUR HEC-1
KM IT 2 01JAN90 1200 200
BA .0214
IN 20 01JAN90  1150
QI 0  0  1.9  2.1  2.3  2.6  3  3.6  4.5  6.6
QI 26.2  16.6  5.3  4  3.2  2.8  2.5  2.2  2  1.9
QI 0  0  0  0  0  0  0  0  0  0
*
KK DET1
KM DETAIN BASIN 4
KO 2 2 0 0 21
RS 1 STOR -1
SV 0 .28 .7 1.32
SQ 0 .08 6.4 8.9
SE 100 101 102 103
*
KO 2 2 0 0 21
ZZ
```

```
1****************************************
****************************************
 *                                      *                                                    *
*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS
*
 *               JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING CENTER
*
 *            VERSION 4.1               *                                                    *          609 SECOND STREET
*
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616
*
 *  RUN DATE   06MAR17  TIME  14:39:02  *                                                    *           (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
```

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

 *** FREE ***
                        *DIAGRAM
             1          ID   ESCONDIDO COUNTRY CLUB, J-17762-A BMP 4
             2          ID   100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
             3          ID   March 3, 2017 - FILE NAME: ECC_BMP4_00.HC1
             4          IT       2 01JAN90    1200     500
             5          IO       5       0
                        *

             6          KKECC-BMP4.OUT
             7          KM   RATIONAL METHOD HYDROGRAPH PROGRAM
             8          KM   COPYRIGHT 1992, RICK ENGINEERING COMPANY
             9          KM   6HR RAINFALL IS  3.49  INCHES
            10          KM   RATIONAL METHOD RUNOFF COEFFICIENT IS  .65
            11          KM   RATIONAL METHOD TIME OF CONCENTRATION IS  20  MIN.
            12          KM   FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO YOUR HEC-1
            13          KM   IT 2 01JAN90 1200 200
            14          BA   .0214
            15          IN      20 01JAN90    1150
            16          QI       0       0     1.9     2.1     2.3     2.6       3     3.6     4.5     6.6
            17          QI    26.2    16.6     5.3       4     3.2     2.8     2.5     2.2       2     1.9
            18          QI       0       0       0       0       0       0       0       0       0       0
                        *

            19          KK    DET1
            20          KM   DETAIN BASIN 4
            21          KO       2       2       0       0      21
            22          RS       1    STOR      -1
            23          SV       0     .28      .7    1.32
            24          SQ       0     .08     6.4     8.9
            25          SE     100     101     102     103
                        *
            26          KO       2       2       0       0      21
            27          ZZ
```

1 SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

     6    ECC-BMP4
               V
               V
    19        DET1
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION


```
1****************************************
****************************************
 *                                      *                                                    *
*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS
```

```
*
 *               JUN   1998             *                                                   *    HYDROLOGIC ENGINEERING CENTER
*
 *            VERSION 4.1               *                                                   *          609 SECOND STREET
*
 *                                      *                                                   *       DAVIS, CALIFORNIA 95616
*
 *  RUN DATE   06MAR17  TIME  14:39:02   *                                                   *           (916) 756-1104
*
 *                                      *                                                   *
*
 *****************************************
***************************************



                            ESCONDIDO COUNTRY CLUB, J-17762-A BMP 4
                            100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
                            March 3, 2017 - FILE NAME: ECC_BMP4_00.HC1

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

      IT         HYDROGRAPH TIME DATA
                         NMIN           2  MINUTES IN COMPUTATION INTERVAL
                        IDATE      1JAN90  STARTING DATE
                        ITIME        1200  STARTING TIME
                           NQ         500  NUMBER OF HYDROGRAPH ORDINATES
                       NDDATE      2JAN90  ENDING DATE
                       NDTIME        0438  ENDING TIME
                       ICENT           19  CENTURY MARK

                    COMPUTATION INTERVAL     .03 HOURS
                         TOTAL TIME BASE   16.63 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


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


             **************
             *            *
   19 KK     *      DET1  *
             *            *
             **************

   21 KO         OUTPUT CONTROL VARIABLES
                        IPRNT           2  PRINT CONTROL
                        IPLOT           2  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                         IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2         500  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT        .033  TIME INTERVAL IN HOURS


   26 KO         OUTPUT CONTROL VARIABLES
                        IPRNT           2  PRINT CONTROL
                        IPLOT           2  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                         IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2         500  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT        .033  TIME INTERVAL IN HOURS


                HYDROGRAPH ROUTING DATA

   22 RS         STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        STOR  TYPE OF INITIAL CONDITION
                       RSVRIC       -1.00  INITIAL CONDITION
                            X         .00 WORKING R AND D COEFFICIENT

   23 SV           STORAGE          .0        .3        .7       1.3

   24 SQ         DISCHARGE          0.        0.        6.        9.

   25 SE         ELEVATION      100.00    101.00    102.00    103.00
                                                                 ***
```

HYDROGRAPH AT STATION DET1

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	JAN	1200	1	0.	.0	100.0	1	JAN	1734	168	6.	.7	101.9	1	JAN	2308	335	0.	.3	101.0
1	JAN	1202	2	0.	.0	100.0	1	JAN	1736	169	6.	.6	101.9	1	JAN	2310	336	0.	.3	101.0
1	JAN	1204	3	0.	.0	100.0	1	JAN	1738	170	5.	.6	101.8	1	JAN	2312	337	0.	.3	101.0
1	JAN	1206	4	0.	.0	100.0	1	JAN	1740	171	5.	.6	101.8	1	JAN	2314	338	0.	.3	101.0
1	JAN	1208	5	0.	.0	100.0	1	JAN	1742	172	5.	.6	101.8	1	JAN	2316	339	0.	.3	101.0
1	JAN	1210	6	0.	.0	100.0	1	JAN	1744	173	5.	.6	101.8	1	JAN	2318	340	0.	.3	101.0
1	JAN	1212	7	0.	.0	100.0	1	JAN	1746	174	5.	.6	101.8	1	JAN	2320	341	0.	.3	101.0
1	JAN	1214	8	0.	.0	100.0	1	JAN	1748	175	5.	.6	101.7	1	JAN	2322	342	0.	.3	101.0
1	JAN	1216	9	0.	.0	100.0	1	JAN	1750	176	5.	.6	101.7	1	JAN	2324	343	0.	.3	101.0
1	JAN	1218	10	0.	.0	100.0	1	JAN	1752	177	5.	.6	101.7	1	JAN	2326	344	0.	.3	101.0
1	JAN	1220	11	0.	.0	100.0	1	JAN	1754	178	4.	.6	101.7	1	JAN	2328	345	0.	.3	101.0
1	JAN	1222	12	0.	.0	100.0	1	JAN	1756	179	4.	.6	101.7	1	JAN	2330	346	0.	.3	101.0
1	JAN	1224	13	0.	.0	100.0	1	JAN	1758	180	4.	.6	101.7	1	JAN	2332	347	0.	.3	100.9
1	JAN	1226	14	0.	.0	100.1	1	JAN	1800	181	4.	.6	101.6	1	JAN	2334	348	0.	.3	100.9
1	JAN	1228	15	0.	.0	100.1	1	JAN	1802	182	4.	.5	101.6	1	JAN	2336	349	0.	.3	100.9
1	JAN	1230	16	0.	.0	100.1	1	JAN	1804	183	4.	.5	101.6	1	JAN	2338	350	0.	.3	100.9
1	JAN	1232	17	0.	.0	100.1	1	JAN	1806	184	4.	.5	101.6	1	JAN	2340	351	0.	.3	100.9
1	JAN	1234	18	0.	.0	100.1	1	JAN	1808	185	4.	.5	101.6	1	JAN	2342	352	0.	.3	100.9
1	JAN	1236	19	0.	.0	100.1	1	JAN	1810	186	4.	.5	101.6	1	JAN	2344	353	0.	.3	100.9
1	JAN	1238	20	0.	.0	100.2	1	JAN	1812	187	4.	.5	101.6	1	JAN	2346	354	0.	.3	100.9
1	JAN	1240	21	0.	.1	100.2	1	JAN	1814	188	4.	.5	101.6	1	JAN	2348	355	0.	.3	100.9
1	JAN	1242	22	0.	.1	100.2	1	JAN	1816	189	3.	.5	101.5	1	JAN	2350	356	0.	.3	100.9
1	JAN	1244	23	0.	.1	100.2	1	JAN	1818	190	3.	.5	101.5	1	JAN	2352	357	0.	.3	100.9
1	JAN	1246	24	0.	.1	100.2	1	JAN	1820	191	3.	.5	101.5	1	JAN	2354	358	0.	.3	100.9
1	JAN	1248	25	0.	.1	100.3	1	JAN	1822	192	3.	.5	101.5	1	JAN	2356	359	0.	.3	100.9
1	JAN	1250	26	0.	.1	100.3	1	JAN	1824	193	3.	.5	101.5	1	JAN	2358	360	0.	.3	100.9
1	JAN	1252	27	0.	.1	100.3	1	JAN	1826	194	3.	.5	101.5	2	JAN	0000	361	0.	.3	100.9
1	JAN	1254	28	0.	.1	100.3	1	JAN	1828	195	3.	.5	101.4	2	JAN	0002	362	0.	.3	100.9
1	JAN	1256	29	0.	.1	100.4	1	JAN	1830	196	3.	.5	101.4	2	JAN	0004	363	0.	.3	100.9
1	JAN	1258	30	0.	.1	100.4	1	JAN	1832	197	3.	.5	101.4	2	JAN	0006	364	0.	.3	100.9
1	JAN	1300	31	0.	.1	100.4	1	JAN	1834	198	3.	.4	101.4	2	JAN	0008	365	0.	.3	100.9
1	JAN	1302	32	0.	.1	100.4	1	JAN	1836	199	2.	.4	101.4	2	JAN	0010	366	0.	.3	100.9
1	JAN	1304	33	0.	.1	100.4	1	JAN	1838	200	2.	.4	101.4	2	JAN	0012	367	0.	.3	100.9
1	JAN	1306	34	0.	.1	100.5	1	JAN	1840	201	2.	.4	101.3	2	JAN	0014	368	0.	.3	100.9
1	JAN	1308	35	0.	.1	100.5	1	JAN	1842	202	2.	.4	101.3	2	JAN	0016	369	0.	.3	100.9
1	JAN	1310	36	0.	.1	100.5	1	JAN	1844	203	2.	.4	101.3	2	JAN	0018	370	0.	.3	100.9
1	JAN	1312	37	0.	.1	100.5	1	JAN	1846	204	2.	.4	101.3	2	JAN	0020	371	0.	.3	100.9
1	JAN	1314	38	0.	.2	100.5	1	JAN	1848	205	2.	.4	101.3	2	JAN	0022	372	0.	.3	100.9
1	JAN	1316	39	0.	.2	100.6	1	JAN	1850	206	2.	.4	101.3	2	JAN	0024	373	0.	.3	100.9
1	JAN	1318	40	0.	.2	100.6	1	JAN	1852	207	2.	.4	101.3	2	JAN	0026	374	0.	.3	100.9
1	JAN	1320	41	0.	.2	100.6	1	JAN	1854	208	2.	.4	101.3	2	JAN	0028	375	0.	.3	100.9
1	JAN	1322	42	0.	.2	100.6	1	JAN	1856	209	2.	.4	101.2	2	JAN	0030	376	0.	.3	100.9
1	JAN	1324	43	0.	.2	100.7	1	JAN	1858	210	2.	.4	101.2	2	JAN	0032	377	0.	.3	100.9
1	JAN	1326	44	0.	.2	100.7	1	JAN	1900	211	1.	.4	101.2	2	JAN	0034	378	0.	.3	100.9
1	JAN	1328	45	0.	.2	100.7	1	JAN	1902	212	1.	.4	101.2	2	JAN	0036	379	0.	.3	100.9
1	JAN	1330	46	0.	.2	100.7	1	JAN	1904	213	1.	.4	101.2	2	JAN	0038	380	0.	.3	100.9
1	JAN	1332	47	0.	.2	100.8	1	JAN	1906	214	1.	.4	101.2	2	JAN	0040	381	0.	.3	100.9
1	JAN	1334	48	0.	.2	100.8	1	JAN	1908	215	1.	.4	101.2	2	JAN	0042	382	0.	.3	100.9
1	JAN	1336	49	0.	.2	100.8	1	JAN	1910	216	1.	.4	101.2	2	JAN	0044	383	0.	.3	100.9
1	JAN	1338	50	0.	.2	100.8	1	JAN	1912	217	1.	.4	101.2	2	JAN	0046	384	0.	.3	100.9
1	JAN	1340	51	0.	.2	100.9	1	JAN	1914	218	1.	.3	101.2	2	JAN	0048	385	0.	.3	100.9
1	JAN	1342	52	0.	.3	100.9	1	JAN	1916	219	1.	.3	101.2	2	JAN	0050	386	0.	.3	100.9
1	JAN	1344	53	0.	.3	100.9	1	JAN	1918	220	1.	.3	101.1	2	JAN	0052	387	0.	.3	100.9
1	JAN	1346	54	0.	.3	100.9	1	JAN	1920	221	1.	.3	101.1	2	JAN	0054	388	0.	.3	100.9
1	JAN	1348	55	0.	.3	101.0	1	JAN	1922	222	1.	.3	101.1	2	JAN	0056	389	0.	.3	100.9
1	JAN	1350	56	0.	.3	101.0	1	JAN	1924	223	1.	.3	101.1	2	JAN	0058	390	0.	.3	100.9
1	JAN	1352	57	0.	.3	101.0	1	JAN	1926	224	1.	.3	101.1	2	JAN	0100	391	0.	.3	100.9
1	JAN	1354	58	0.	.3	101.0	1	JAN	1928	225	1.	.3	101.1	2	JAN	0102	392	0.	.3	100.9
1	JAN	1356	59	0.	.3	101.1	1	JAN	1930	226	1.	.3	101.1	2	JAN	0104	393	0.	.3	100.9
1	JAN	1358	60	1.	.3	101.1	1	JAN	1932	227	1.	.3	101.1	2	JAN	0106	394	0.	.3	100.9
1	JAN	1400	61	1.	.3	101.1	1	JAN	1934	228	1.	.3	101.1	2	JAN	0108	395	0.	.3	100.9
1	JAN	1402	62	1.	.3	101.1	1	JAN	1936	229	1.	.3	101.1	2	JAN	0110	396	0.	.3	100.9
1	JAN	1404	63	1.	.3	101.1	1	JAN	1938	230	1.	.3	101.1	2	JAN	0112	397	0.	.3	100.9
1	JAN	1406	64	1.	.3	101.1	1	JAN	1940	231	1.	.3	101.1	2	JAN	0114	398	0.	.3	100.9
1	JAN	1408	65	1.	.3	101.2	1	JAN	1942	232	1.	.3	101.1	2	JAN	0116	399	0.	.3	100.9
1	JAN	1410	66	1.	.4	101.2	1	JAN	1944	233	1.	.3	101.1	2	JAN	0118	400	0.	.3	100.9
1	JAN	1412	67	1.	.4	101.2	1	JAN	1946	234	1.	.3	101.1	2	JAN	0120	401	0.	.3	100.9
1	JAN	1414	68	1.	.4	101.2	1	JAN	1948	235	1.	.3	101.1	2	JAN	0122	402	0.	.3	100.9
1	JAN	1416	69	1.	.4	101.2	1	JAN	1950	236	1.	.3	101.1	2	JAN	0124	403	0.	.3	100.9
1	JAN	1418	70	2.	.4	101.2	1	JAN	1952	237	1.	.3	101.1	2	JAN	0126	404	0.	.3	100.9
1	JAN	1420	71	2.	.4	101.3	1	JAN	1954	238	0.	.3	101.1	2	JAN	0128	405	0.	.3	100.9
1	JAN	1422	72	2.	.4	101.3	1	JAN	1956	239	0.	.3	101.1	2	JAN	0130	406	0.	.3	100.9
1	JAN	1424	73	2.	.4	101.3	1	JAN	1958	240	0.	.3	101.1	2	JAN	0132	407	0.	.3	100.9
1	JAN	1426	74	2.	.4	101.3	1	JAN	2000	241	0.	.3	101.1	2	JAN	0134	408	0.	.3	100.9
1	JAN	1428	75	2.	.4	101.3	1	JAN	2002	242	0.	.3	101.1	2	JAN	0136	409	0.	.3	100.9
1	JAN	1430	76	2.	.4	101.3	1	JAN	2004	243	0.	.3	101.0	2	JAN	0138	410	0.	.3	100.9
1	JAN	1432	77	2.	.4	101.3	1	JAN	2006	244	0.	.3	101.0	2	JAN	0140	411	0.	.3	100.9
1	JAN	1434	78	2.	.4	101.4	1	JAN	2008	245	0.	.3	101.0	2	JAN	0142	412	0.	.3	100.9
1	JAN	1436	79	2.	.4	101.4	1	JAN	2010	246	0.	.3	101.0	2	JAN	0144	413	0.	.3	100.9
1	JAN	1438	80	3.	.4	101.4	1	JAN	2012	247	0.	.3	101.0	2	JAN	0146	414	0.	.3	100.9
1	JAN	1440	81	3.	.5	101.4	1	JAN	2014	248	0.	.3	101.0	2	JAN	0148	415	0.	.3	100.9
1	JAN	1442	82	3.	.5	101.4	1	JAN	2016	249	0.	.3	101.0	2	JAN	0150	416	0.	.3	100.9
1	JAN	1444	83	3.	.5	101.5	1	JAN	2018	250	0.	.3	101.0	2	JAN	0152	417	0.	.3	100.9
1	JAN	1446	84	3.	.5	101.5	1	JAN	2020	251	0.	.3	101.0	2	JAN	0154	418	0.	.3	100.9
1	JAN	1448	85	3.	.5	101.5	1	JAN	2022	252	0.	.3	101.0	2	JAN	0156	419	0.	.3	100.9
1	JAN	1450	86	3.	.5	101.5	1	JAN	2024	253	0.	.3	101.0	2	JAN	0158	420	0.	.3	100.9
1	JAN	1452	87	4.	.5	101.5	1	JAN	2026	254	0.	.3	101.0	2	JAN	0200	421	0.	.3	100.9
1	JAN	1454	88	4.	.5	101.6	1	JAN	2028	255	0.	.3	101.0	2	JAN	0202	422	0.	.3	100.9
1	JAN	1456	89	4.	.5	101.6	1	JAN	2030	256	0.	.3	101.0	2	JAN	0204	423	0.	.3	100.9
1	JAN	1458	90	4.	.6	101.7	1	JAN	2032	257	0.	.3	101.0	2	JAN	0206	424	0.	.3	100.9

1	JAN	1500	91	5.	.6	101.8	*	1	JAN	2034	258	0.	.3	101.0	*	2	JAN	0208	425	0.	.3	100.9
1	JAN	1502	92	5.	.6	101.8	*	1	JAN	2036	259	0.	.3	101.0	*	2	JAN	0210	426	0.	.2	100.9
1	JAN	1504	93	6.	.7	101.9	*	1	JAN	2038	260	0.	.3	101.0	*	2	JAN	0212	427	0.	.2	100.9
1	JAN	1506	94	6.	.7	102.0	*	1	JAN	2040	261	0.	.3	101.0	*	2	JAN	0214	428	0.	.2	100.9
1	JAN	1508	95	7.	.8	102.1	*	1	JAN	2042	262	0.	.3	101.0	*	2	JAN	0216	429	0.	.2	100.9
1	JAN	1510	96	7.	.8	102.2	*	1	JAN	2044	263	0.	.3	101.0	*	2	JAN	0218	430	0.	.2	100.9
1	JAN	1512	97	7.	.9	102.3	*	1	JAN	2046	264	0.	.3	101.0	*	2	JAN	0220	431	0.	.2	100.9
1	JAN	1514	98	7.	.9	102.3	*	1	JAN	2048	265	0.	.3	101.0	*	2	JAN	0222	432	0.	.2	100.9
1	JAN	1516	99	7.	1.0	102.4	*	1	JAN	2050	266	0.	.3	101.0	*	2	JAN	0224	433	0.	.2	100.9
1	JAN	1518	100	8.	1.0	102.5	*	1	JAN	2052	267	0.	.3	101.0	*	2	JAN	0226	434	0.	.2	100.9
1	JAN	1520	101	8.	1.0	102.5	*	1	JAN	2054	268	0.	.3	101.0	*	2	JAN	0228	435	0.	.2	100.9
1	JAN	1522	102	8.	1.1	102.6	*	1	JAN	2056	269	0.	.3	101.0	*	2	JAN	0230	436	0.	.2	100.9
1	JAN	1524	103	8.	1.1	102.7	*	1	JAN	2058	270	0.	.3	101.0	*	2	JAN	0232	437	0.	.2	100.9
1	JAN	1526	104	8.	1.1	102.7	*	1	JAN	2100	271	0.	.3	101.0	*	2	JAN	0234	438	0.	.2	100.9
1	JAN	1528	105	8.	1.2	102.7	*	1	JAN	2102	272	0.	.3	101.0	*	2	JAN	0236	439	0.	.2	100.9
1	JAN	1530	106	8.	1.2	102.8	*	1	JAN	2104	273	0.	.3	101.0	*	2	JAN	0238	440	0.	.2	100.9
1	JAN	1532	107	8.	1.2	102.8	*	1	JAN	2106	274	0.	.3	101.0	*	2	JAN	0240	441	0.	.2	100.9
1	JAN	1534	108	9.	1.2	102.8	*	1	JAN	2108	275	0.	.3	101.0	*	2	JAN	0242	442	0.	.2	100.9
1	JAN	1536	109	9.	1.2	102.9	*	1	JAN	2110	276	0.	.3	101.0	*	2	JAN	0244	443	0.	.2	100.9
1	JAN	1538	110	9.	1.3	102.9	*	1	JAN	2112	277	0.	.3	101.0	*	2	JAN	0246	444	0.	.2	100.9
1	JAN	1540	111	9.	1.3	102.9	*	1	JAN	2114	278	0.	.3	101.0	*	2	JAN	0248	445	0.	.2	100.9
1	JAN	1542	112	9.	1.3	102.9	*	1	JAN	2116	279	0.	.3	101.0	*	2	JAN	0250	446	0.	.2	100.9
1	JAN	1544	113	9.	1.3	102.9	*	1	JAN	2118	280	0.	.3	101.0	*	2	JAN	0252	447	0.	.2	100.9
1	JAN	1546	114	9.	1.3	102.9	*	1	JAN	2120	281	0.	.3	101.0	*	2	JAN	0254	448	0.	.2	100.9
1	JAN	1548	115	9.	1.3	102.9	*	1	JAN	2122	282	0.	.3	101.0	*	2	JAN	0256	449	0.	.2	100.9
1	JAN	1550	116	9.	1.3	102.9	*	1	JAN	2124	283	0.	.3	101.0	*	2	JAN	0258	450	0.	.2	100.9
1	JAN	1552	117	9.	1.2	102.9	*	1	JAN	2126	284	0.	.3	101.0	*	2	JAN	0300	451	0.	.2	100.9
1	JAN	1554	118	9.	1.2	102.9	*	1	JAN	2128	285	0.	.3	101.0	*	2	JAN	0302	452	0.	.2	100.9
1	JAN	1556	119	9.	1.2	102.8	*	1	JAN	2130	286	0.	.3	101.0	*	2	JAN	0304	453	0.	.2	100.9
1	JAN	1558	120	8.	1.2	102.8	*	1	JAN	2132	287	0.	.3	101.0	*	2	JAN	0306	454	0.	.2	100.9
1	JAN	1600	121	8.	1.2	102.8	*	1	JAN	2134	288	0.	.3	101.0	*	2	JAN	0308	455	0.	.2	100.9
1	JAN	1602	122	8.	1.2	102.8	*	1	JAN	2136	289	0.	.3	101.0	*	2	JAN	0310	456	0.	.2	100.9
1	JAN	1604	123	8.	1.2	102.8	*	1	JAN	2138	290	0.	.3	101.0	*	2	JAN	0312	457	0.	.2	100.9
1	JAN	1606	124	8.	1.2	102.8	*	1	JAN	2140	291	0.	.3	101.0	*	2	JAN	0314	458	0.	.2	100.9
1	JAN	1608	125	8.	1.2	102.7	*	1	JAN	2142	292	0.	.3	101.0	*	2	JAN	0316	459	0.	.2	100.9
1	JAN	1610	126	8.	1.1	102.7	*	1	JAN	2144	293	0.	.3	101.0	*	2	JAN	0318	460	0.	.2	100.9
1	JAN	1612	127	8.	1.1	102.7	*	1	JAN	2146	294	0.	.3	101.0	*	2	JAN	0320	461	0.	.2	100.9
1	JAN	1614	128	8.	1.1	102.7	*	1	JAN	2148	295	0.	.3	101.0	*	2	JAN	0322	462	0.	.2	100.9
1	JAN	1616	129	8.	1.1	102.7	*	1	JAN	2150	296	0.	.3	101.0	*	2	JAN	0324	463	0.	.2	100.9
1	JAN	1618	130	8.	1.1	102.6	*	1	JAN	2152	297	0.	.3	101.0	*	2	JAN	0326	464	0.	.2	100.9
1	JAN	1620	131	8.	1.1	102.6	*	1	JAN	2154	298	0.	.3	101.0	*	2	JAN	0328	465	0.	.2	100.9
1	JAN	1622	132	8.	1.1	102.6	*	1	JAN	2156	299	0.	.3	101.0	*	2	JAN	0330	466	0.	.2	100.9
1	JAN	1624	133	8.	1.1	102.6	*	1	JAN	2158	300	0.	.3	101.0	*	2	JAN	0332	467	0.	.2	100.9
1	JAN	1626	134	8.	1.1	102.6	*	1	JAN	2200	301	0.	.3	101.0	*	2	JAN	0334	468	0.	.2	100.9
1	JAN	1628	135	8.	1.0	102.5	*	1	JAN	2202	302	0.	.3	101.0	*	2	JAN	0336	469	0.	.2	100.9
1	JAN	1630	136	8.	1.0	102.5	*	1	JAN	2204	303	0.	.3	101.0	*	2	JAN	0338	470	0.	.2	100.9
1	JAN	1632	137	8.	1.0	102.5	*	1	JAN	2206	304	0.	.3	101.0	*	2	JAN	0340	471	0.	.2	100.9
1	JAN	1634	138	8.	1.0	102.5	*	1	JAN	2208	305	0.	.3	101.0	*	2	JAN	0342	472	0.	.2	100.9
1	JAN	1636	139	8.	1.0	102.5	*	1	JAN	2210	306	0.	.3	101.0	*	2	JAN	0344	473	0.	.2	100.9
1	JAN	1638	140	8.	1.0	102.4	*	1	JAN	2212	307	0.	.3	101.0	*	2	JAN	0346	474	0.	.2	100.9
1	JAN	1640	141	7.	1.0	102.4	*	1	JAN	2214	308	0.	.3	101.0	*	2	JAN	0348	475	0.	.2	100.9
1	JAN	1642	142	7.	1.0	102.4	*	1	JAN	2216	309	0.	.3	101.0	*	2	JAN	0350	476	0.	.2	100.9
1	JAN	1644	143	7.	.9	102.4	*	1	JAN	2218	310	0.	.3	101.0	*	2	JAN	0352	477	0.	.2	100.9
1	JAN	1646	144	7.	.9	102.4	*	1	JAN	2220	311	0.	.3	101.0	*	2	JAN	0354	478	0.	.2	100.9
1	JAN	1648	145	7.	.9	102.3	*	1	JAN	2222	312	0.	.3	101.0	*	2	JAN	0356	479	0.	.2	100.9
1	JAN	1650	146	7.	.9	102.3	*	1	JAN	2224	313	0.	.3	101.0	*	2	JAN	0358	480	0.	.2	100.9
1	JAN	1652	147	7.	.9	102.3	*	1	JAN	2226	314	0.	.3	101.0	*	2	JAN	0400	481	0.	.2	100.9
1	JAN	1654	148	7.	.9	102.3	*	1	JAN	2228	315	0.	.3	101.0	*	2	JAN	0402	482	0.	.2	100.9
1	JAN	1656	149	7.	.9	102.3	*	1	JAN	2230	316	0.	.3	101.0	*	2	JAN	0404	483	0.	.2	100.9
1	JAN	1658	150	7.	.9	102.3	*	1	JAN	2232	317	0.	.3	101.0	*	2	JAN	0406	484	0.	.2	100.9
1	JAN	1700	151	7.	.8	102.2	*	1	JAN	2234	318	0.	.3	101.0	*	2	JAN	0408	485	0.	.2	100.9
1	JAN	1702	152	7.	.8	102.2	*	1	JAN	2236	319	0.	.3	101.0	*	2	JAN	0410	486	0.	.2	100.9
1	JAN	1704	153	7.	.8	102.2	*	1	JAN	2238	320	0.	.3	101.0	*	2	JAN	0412	487	0.	.2	100.9
1	JAN	1706	154	7.	.8	102.2	*	1	JAN	2240	321	0.	.3	101.0	*	2	JAN	0414	488	0.	.2	100.8
1	JAN	1708	155	7.	.8	102.2	*	1	JAN	2242	322	0.	.3	101.0	*	2	JAN	0416	489	0.	.2	100.8
1	JAN	1710	156	7.	.8	102.1	*	1	JAN	2244	323	0.	.3	101.0	*	2	JAN	0418	490	0.	.2	100.8
1	JAN	1712	157	7.	.8	102.1	*	1	JAN	2246	324	0.	.3	101.0	*	2	JAN	0420	491	0.	.2	100.8
1	JAN	1714	158	7.	.8	102.1	*	1	JAN	2248	325	0.	.3	101.0	*	2	JAN	0422	492	0.	.2	100.8
1	JAN	1716	159	7.	.8	102.1	*	1	JAN	2250	326	0.	.3	101.0	*	2	JAN	0424	493	0.	.2	100.8
1	JAN	1718	160	7.	.7	102.1	*	1	JAN	2252	327	0.	.3	101.0	*	2	JAN	0426	494	0.	.2	100.8
1	JAN	1720	161	7.	.7	102.0	*	1	JAN	2254	328	0.	.3	101.0	*	2	JAN	0428	495	0.	.2	100.8
1	JAN	1722	162	6.	.7	102.0	*	1	JAN	2256	329	0.	.3	101.0	*	2	JAN	0430	496	0.	.2	100.8
1	JAN	1724	163	6.	.7	102.0	*	1	JAN	2258	330	0.	.3	101.0	*	2	JAN	0432	497	0.	.2	100.8
1	JAN	1726	164	6.	.7	102.0	*	1	JAN	2300	331	0.	.3	101.0	*	2	JAN	0434	498	0.	.2	100.8
1	JAN	1728	165	6.	.7	102.0	*	1	JAN	2302	332	0.	.3	101.0	*	2	JAN	0436	499	0.	.2	100.8
1	JAN	1730	166	6.	.7	101.9	*	1	JAN	2304	333	0.	.3	101.0	*	2	JAN	0438	500	0.	.2	100.8
1	JAN	1732	167	6.	.7	101.9	*	1	JAN	2306	334	0.	.3	101.0	*							
							*								*							

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	16.63-HR
+ (CFS)	(HR)					
		(CFS)				
+ 9.	3.73		5.	2.	2.	2.
		(INCHES)	1.978	2.045	2.045	2.045
		(AC-FT)	2.	2.	2.	2.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	16.63-HR
+ (AC-FT)	(HR)				
1.	3.73	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	16.63-HR
+ (FEET)	(HR)				
102.91	3.73	101.83	101.20	101.20	101.20

CUMULATIVE AREA = .02 SQ MI

1 STATION DET1

(I) INFLOW, (O) OUTFLOW

0. 4. 8. 12. 16. 20. 24. 28. 0. 0. 0. 0.

(S) STORAGE

.0 .0 .0 .0 .0 .0 .0 .4 .8 1.2 1.6 .0

.0

DAHRMN PER

11200

1I---------.---------.---------.---------.---------.---------S---------.---------.---------.---------.---------.---------.

11202 2I . . . . . S . . . . . .

11204 3I . . . . . S . . . . . .

11206 4I . . . . . S . . . . . .

11208 5I . . . . . S . . . . . .

11210 6I . . . . . S . . . . . .

11212 7I . . . . . S . . . . . .

11214 8OI . . . . . S . . . . . .

11216 9OI . . . . . S . . . . . .

11218 10O I . . . . . S . . . . . .

11220 11O I . . . . . S . . . . . .

11222 12O I . . . . . S . . . . . .

11224 13O I . . . . . S . . . . . .

11226 14O I . . . . . S . . . . . .

11228 15O I . . . . . .S . . . . . .

11230 16O I . . . . . .S . . . . . .

11232 17O I . . . . . .S . . . . . .

11234 18O I . . . . . .S . . . . . .

11236 19O I . . . . . .S . . . . . .

11238 20O I . . . . . .S . . . . . .

11240 21O . .I. . . . . .S. . . . . .

11242 22O I . . . . . .S . . . . . .

11244 23O I . . . . . . S . . . . . .

11246 24O I . . . . . . S . . . . . .

11248 25O I . . . . . . S . . . . . .

11250 26O I . . . . . . S . . . . . .

11252 27O I . . . . . . S . . . . . .

11254 28O I . . . . . . S . . . . . .

11256 29O I . . . . . . S . . . . . .

11258 30O I . . . . . . S . . . . . .

11300 31O . . I . . . . . .S. . . . . .

11302 32O I . . . . . . S . . . . . .

11304 33O I . . . . . . S . . . . . .

11306 34O I . . . . . . S . . . . . .

11308 35O I . . . . . . S . . . . . .

11310 36O I . . . . . . S . . . . . .

11312 37O I . . . . . . S . . . . . .

11314 38O I . . . . . . S . . . . . .

11316 39O I . . . . . . S . . . . . .

11318 40O I . . . . . . S . . . . . .

11320 41O . . I . . . . . .S . . . . . .

11322 42O I . . . . . . S . . . . . .

11324 43O I . . . . . . S . . . . . .

11326 44O I . . . . . . S . . . . . .

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11328  450     I   .         .         .         .         .         .    S    .         .         .         .         .
11330  460     I   .         .         .         .         .         .    S    .         .         .         .         .
11332  470      I  .         .         .         .         .         .    S    .         .         .         .         .
11334  480      I  .         .         .         .         .         .     S   .         .         .         .         .
11336  490      I  .         .         .         .         .         .     S   .         .         .         .         .
11338  500      I  .         .         .         .         .         .     S   .         .         .         .         .
11340  510 . . .I. . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
11342  520      I  .         .         .         .         .         .     S   .         .         .         .         .
11344  530      I  .         .         .         .         .         .     S   .         .         .         .         .
11346  540      I  .         .         .         .         .         .      S  .         .         .         .         .
11348  550      I  .         .         .         .         .         .      S  .         .         .         .         .
11350  560      I  .         .         .         .         .         .      S  .         .         .         .         .
11352  57.O      I .         .         .         .         .         .      S  .         .         .         .         .
11354  58.O      I .         .         .         .         .         .      S  .         .         .         .         .
11356  59.O      I .         .         .         .         .         .       S .         .         .         .         .
11358  60.O      I .         .         .         .         .         .       S .         .         .         .         .
11400  61. O . . I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
11402  62. O     I .         .         .         .         .         .       S .         .         .         .         .
11404  63. O      I.         .         .         .         .         .       S .         .         .         .         .
11406  64. O      I.         .         .         .         .         .        S.         .         .         .         .
11408  65.  O     I.         .         .         .         .         .        S.         .         .         .         .
11410  66.  O     I.         .         .         .         .         .        S.         .         .         .         .
11412  67.  O     I.         .         .         .         .         .        S.         .         .         .         .
11414  68.  O     I.         .         .         .         .         .        S.         .         .         .         .
11416  69.   O     I         .         .         .         .         .        S.         .         .         .         .
11418  70.   O     I         .         .         .         .         .         S         .         .         .         .
11420  71. . O . . I . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
11422  72.   O     I         .         .         .         .         .         S         .         .         .         .
11424  73.    O    .I        .         .         .         .         .         S         .         .         .         .
11426  74.    O    .I        .         .         .         .         .         S         .         .         .         .
11428  75.    O    .I        .         .         .         .         .         S         .         .         .         .
11430  76.    O    .I        .         .         .         .         .         S         .         .         .         .
11432  77.     O   . I       .         .         .         .         .        .S         .         .         .         .
11434  78.     O   . I       .         .         .         .         .        .S         .         .         .         .
11436  79.     O   .  I      .         .         .         .         .        .S         .         .         .         .
11438  80.     O   .  I      .         .         .         .         .        .S         .         .         .         .
11440  81. . . .O. . . I . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . . .
11442  82.      O  .   I     .         .         .         .         .        . S       .         .         .         .
11444  83.      O  .    I    .         .         .         .         .        . S       .         .         .         .
11446  84.       O .    I    .         .         .         .         .        . S       .         .         .         .
11448  85.       O .     I   .         .         .         .         .        . S       .         .         .         .
11450  86.       O .     I   .         .         .         .         .        . S       .         .         .         .
11452  87.        O.         .I        .         .         .         .        .  S      .         .         .         .
11454  88.        O.         .    I    .         .         .         .        .  S      .         .         .         .
11456  89.         O         .        .I        .         .         .        .   S     .         .         .         .
11458  90.         .O        .         .    I    .         .         .        .   S     .         .         .         .
11500  91. . . . . O . . . . . . . . . . . . . .I. . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
11502  92.         .   O     .         .         .    I    .         .         .    S    .         .         .         .
11504  93.         .    O    .         .         .         .I        .         .     S   .         .         .         .
11506  94.         .     O   .         .         .         .    I    .         .      S  .         .         .         .
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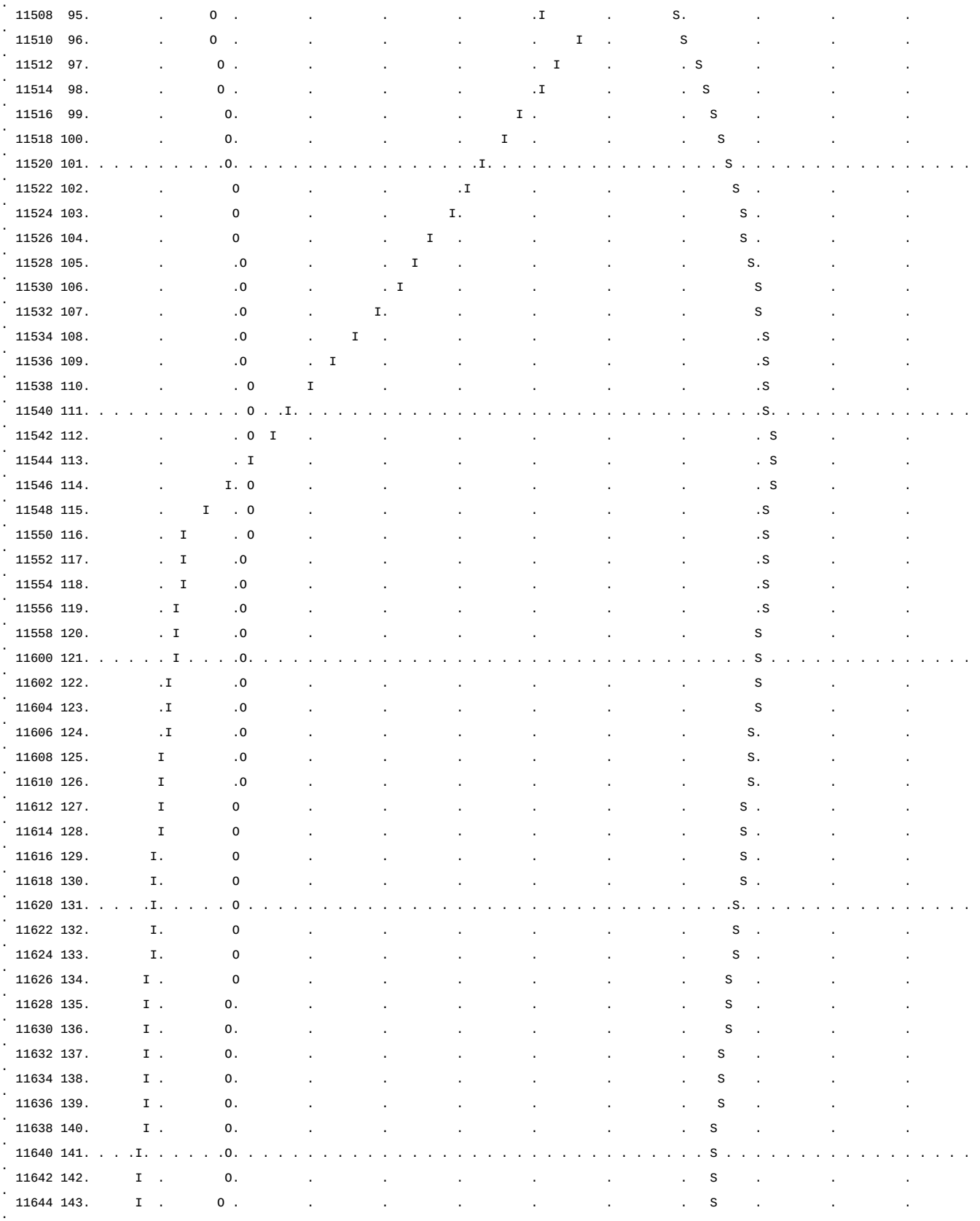
11508 95.
11510 96.
11512 97.
11514 98.
11516 99.
11518 100.
11520 101.
11522 102.
11524 103.
11526 104.
11528 105.
11530 106.
11532 107.
11534 108.
11536 109.
11538 110.
11540 111.
11542 112.
11544 113.
11546 114.
11548 115.
11550 116.
11552 117.
11554 118.
11556 119.
11558 120.
11600 121.
11602 122.
11604 123.
11606 124.
11608 125.
11610 126.
11612 127.
11614 128.
11616 129.
11618 130.
11620 131.
11622 132.
11624 133.
11626 134.
11628 135.
11630 136.
11632 137.
11634 138.
11636 139.
11638 140.
11640 141.
11642 142.
11644 143.

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11646 144.      I  .       O .         .         .         .         .         .         . S       .         .         .
11648 145.      I  .       O .         .         .         .         .         .         . S       .         .         .
11650 146.      I  .       O .         .         .         .         .         .         . S       .         .         .
11652 147.      I  .       O .         .         .         .         .         .         . S       .         .         .
11654 148.      I  .       O .         .         .         .         .         .         . S       .         .         .
11656 149.      I  .       O .         .         .         .         .         .         . S       .         .         .
11658 150.      I  .       O .         .         .         .         .         .         .S        .         .         .
11700 151. . . .I. . . . .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . .
11702 152.      I  .      O  .         .         .         .         .         .         .S        .         .         .
11704 153.     I   .      O  .         .         .         .         .         .         .S        .         .         .
11706 154.     I   .      O  .         .         .         .         .         .         S         .         .         .
11708 155.     I   .      O  .         .         .         .         .         .         S         .         .         .
11710 156.     I   .      O  .         .         .         .         .         .         S         .         .         .
11712 157.     I   .      O  .         .         .         .         .         .        S.         .         .         .
11714 158.     I   .      O  .         .         .         .         .         .        S.         .         .         .
11716 159.     I   .      O  .         .         .         .         .         .        S.         .         .         .
11718 160.     I   .     O   .         .         .         .         .         .       S .         .         .         .
11720 161. . . I . . . . O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . .
11722 162.     I   .     O   .         .         .         .         .         .       S .         .         .         .
11724 163.     I   .     O   .         .         .         .         .         .       S .         .         .         .
11726 164.     I   .     O   .         .         .         .         .         .      S  .         .         .         .
11728 165.     I   .    O    .         .         .         .         .         .      S  .         .         .         .
11730 166.     I   .    O    .         .         .         .         .         .      S  .         .         .         .
11732 167.    I    .    O    .         .         .         .         .         .      S  .         .         .         .
11734 168.    I    .   O     .         .         .         .         .         .     S   .         .         .         .
11736 169.    I    .   O     .         .         .         .         .         .     S   .         .         .         .
11738 170.    I    .  O      .         .         .         .         .         .     S   .         .         .         .
11740 171. . .I. . . .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . .
11742 172.    I    .  O      .         .         .         .         .         .    S    .         .         .         .
11744 173.    I    .  O      .         .         .         .         .         .    S    .         .         .         .
11746 174.    I    . O       .         .         .         .         .         .    S    .         .         .         .
11748 175.    I    . O       .         .         .         .         .         .    S    .         .         .         .
11750 176.    I    . O       .         .         .         .         .         .    S    .         .         .         .
11752 177.    I    .O        .         .         .         .         .         .   S     .         .         .         .
11754 178.    I    .O        .         .         .         .         .         .   S     .         .         .         .
11756 179.    I    .O        .         .         .         .         .         .   S     .         .         .         .
11758 180.    I    .O        .         .         .         .         .         .   S     .         .         .         .
11800 181. . .I. . O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . .
11802 182.    I    O         .         .         .         .         .         .   S     .         .         .         .
11804 183.    I    O         .         .         .         .         .         .  S      .         .         .         .
11806 184.    I    O         .         .         .         .         .         .  S      .         .         .         .
11808 185.    I    O         .         .         .         .         .         .  S      .         .         .         .
11810 186.    I   O.         .         .         .         .         .         .  S      .         .         .         .
11812 187.   I    O.         .         .         .         .         .         .  S      .         .         .         .
11814 188.   I    O.         .         .         .         .         .         .  S      .         .         .         .
11816 189.  I     O.         .         .         .         .         .         .  S      .         .         .         .
11818 190.  I    O .         .         .         .         .         .         .  S      .         .         .         .
11820 191. I . . O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . .
11822 192. I     O .         .         .         .         .         .         . S       .         .         .         .
11824 193.I      O .         .         .         .         .         .         . S       .         .         .         .
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11826 194.I     O  .        .        .        .        .        .        . S      .        .        .        .
11828 195I      O  .        .        .        .        .        .        . S      .        .        .        .
11830 196I      O  .        .        .        .        .        .        .S       .        .        .        .
11832 197I      O  .        .        .        .        .        .        .S       .        .        .        .
11834 198I     O   .        .        .        .        .        .        .S       .        .        .        .
11836 199I     O   .        .        .        .        .        .        .S       .        .        .        .
11838 200I     O   .        .        .        .        .        .        .S       .        .        .        .
11840 201I . . O . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
11842 202I    O    .        .        .        .        .        .        S        .        .        .        .
11844 203I    O    .        .        .        .        .        .        S        .        .        .        .
11846 204I    O    .        .        .        .        .        .        S        .        .        .        .
11848 205I    O    .        .        .        .        .        .        S        .        .        .        .
11850 206I    O    .        .        .        .        .        .        S        .        .        .        .
11852 207I   O     .        .        .        .        .        .        S        .        .        .        .
11854 208I   O     .        .        .        .        .        .        S        .        .        .        .
11856 209I   O     .        .        .        .        .        .        S        .        .        .        .
11858 210I   O     .        .        .        .        .        .       S.        .        .        .        .
11900 211I . O . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
11902 212I   O     .        .        .        .        .        .       S.        .        .        .        .
11904 213I  O      .        .        .        .        .        .       S.        .        .        .        .
11906 214I  O      .        .        .        .        .        .       S.        .        .        .        .
11908 215I  O      .        .        .        .        .        .       S.        .        .        .        .
11910 216I  O      .        .        .        .        .        .       S.        .        .        .        .
11912 217I  O      .        .        .        .        .        .       S.        .        .        .        .
11914 218I  O      .        .        .        .        .        .       S.        .        .        .        .
11916 219I  O      .        .        .        .        .        .       S.        .        .        .        .
11918 220I  O      .        .        .        .        .        .       S.        .        .        .        .
11920 221I O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
11922 222I O       .        .        .        .        .        .      S .        .        .        .        .
11924 223I O       .        .        .        .        .        .      S .        .        .        .        .
11926 224I O       .        .        .        .        .        .      S .        .        .        .        .
11928 225I O       .        .        .        .        .        .      S .        .        .        .        .
11930 226I O       .        .        .        .        .        .      S .        .        .        .        .
11932 227I O       .        .        .        .        .        .      S .        .        .        .        .
11934 228I O       .        .        .        .        .        .      S .        .        .        .        .
11936 229I O       .        .        .        .        .        .      S .        .        .        .        .
11938 230I O       .        .        .        .        .        .      S .        .        .        .        .
11940 231I O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
11942 232I O       .        .        .        .        .        .      S .        .        .        .        .
11944 233IO        .        .        .        .        .        .      S .        .        .        .        .
11946 234IO        .        .        .        .        .        .      S .        .        .        .        .
11948 235IO        .        .        .        .        .        .      S .        .        .        .        .
11950 236IO        .        .        .        .        .        .      S .        .        .        .        .
11952 237IO        .        .        .        .        .        .      S .        .        .        .        .
11954 238IO        .        .        .        .        .        .      S .        .        .        .        .
11956 239IO        .        .        .        .        .        .      S .        .        .        .        .
11958 240IO        .        .        .        .        .        .      S .        .        .        .        .
12000 241IO. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
12002 242IO        .        .        .        .        .        .      S .        .        .        .        .
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12004 243IO        .         .         .         .         .         .      S .         .         .         .         .
12006 244IO        .         .         .         .         .         .      S .         .         .         .         .
12008 245IO        .         .         .         .         .         .      S .         .         .         .         .
12010 246IO        .         .         .         .         .         .      S .         .         .         .         .
12012 247IO        .         .         .         .         .         .      S .         .         .         .         .
12014 248IO        .         .         .         .         .         .      S .         .         .         .         .
12016 249IO        .         .         .         .         .         .      S .         .         .         .         .
12018 250IO        .         .         .         .         .         .      S .         .         .         .         .
12020 251IO. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S. . . . . . . . . . . . . . . . . . . . . . . . . . . .
12022 252IO        .         .         .         .         .         .      S .         .         .         .         .
12024 253IO        .         .         .         .         .         .      S .         .         .         .         .
12026 254IO        .         .         .         .         .         .      S .         .         .         .         .
12028 255IO        .         .         .         .         .         .      S .         .         .         .         .
12030 256IO        .         .         .         .         .         .      S .         .         .         .         .
12032 257IO        .         .         .         .         .         .      S .         .         .         .         .
12034 258IO        .         .         .         .         .         .      S .         .         .         .         .
12036 259IO        .         .         .         .         .         .      S .         .         .         .         .
12038 260I         .         .         .         .         .         .      S .         .         .         .         .
12040 261I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S. . . . . . . . . . . . . . . . . . . . . . . . . . . .
12042 262I         .         .         .         .         .         .      S .         .         .         .         .
12044 263I         .         .         .         .         .         .      S .         .         .         .         .
12046 264I         .         .         .         .         .         .      S .         .         .         .         .
12048 265I         .         .         .         .         .         .      S .         .         .         .         .
12050 266I         .         .         .         .         .         .      S .         .         .         .         .
12052 267I         .         .         .         .         .         .      S .         .         .         .         .
12054 268I         .         .         .         .         .         .      S .         .         .         .         .
12056 269I         .         .         .         .         .         .      S .         .         .         .         .
12058 270I         .         .         .         .         .         .      S .         .         .         .         .
12100 271I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S. . . . . . . . . . . . . . . . . . . . . . . . . . . .
12102 272I         .         .         .         .         .         .      S .         .         .         .         .
12104 273I         .         .         .         .         .         .      S .         .         .         .         .
12106 274I         .         .         .         .         .         .      S .         .         .         .         .
12108 275I         .         .         .         .         .         .      S .         .         .         .         .
12110 276I         .         .         .         .         .         .      S .         .         .         .         .
12112 277I         .         .         .         .         .         .      S .         .         .         .         .
12114 278I         .         .         .         .         .         .      S .         .         .         .         .
12116 279I         .         .         .         .         .         .      S .         .         .         .         .
12118 280I         .         .         .         .         .         .      S .         .         .         .         .
12120 281I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S. . . . . . . . . . . . . . . . . . . . . . . . . . . .
12122 282I         .         .         .         .         .         .      S .         .         .         .         .
12124 283I         .         .         .         .         .         .      S .         .         .         .         .
12126 284I         .         .         .         .         .         .      S .         .         .         .         .
12128 285I         .         .         .         .         .         .      S .         .         .         .         .
12130 286I         .         .         .         .         .         .      S .         .         .         .         .
12132 287I         .         .         .         .         .         .      S .         .         .         .         .
12134 288I         .         .         .         .         .         .      S .         .         .         .         .
12136 289I         .         .         .         .         .         .      S .         .         .         .         .
12138 290I         .         .         .         .         .         .      S .         .         .         .         .
12140 291I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S. . . . . . . . . . . . . . . . . . . . . . . . . . . .
12142 292I         .         .         .         .         .         .      S .         .         .         .         .
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  12144 293I         .         .         .         .         .         .      S  .         .         .         .         .
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  12146 294I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12148 295I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12150 296I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12152 297I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12154 298I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12156 299I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12158 300I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12200 301I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . .
.
  12202 302I         .         .         .         .         .         .      S  .         .         .         .         .
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  12204 303I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12206 304I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12208 305I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12210 306I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12212 307I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12214 308I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12216 309I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12218 310I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12220 311I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . .
.
  12222 312I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12224 313I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12226 314I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12228 315I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12230 316I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12232 317I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12234 318I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12236 319I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12238 320I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12240 321I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . .
.
  12242 322I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12244 323I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12246 324I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12248 325I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12250 326I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12252 327I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12254 328I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12256 329I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12258 330I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12300 331I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . .
.
  12302 332I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12304 333I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12306 334I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12308 335I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12310 336I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12312 337I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12314 338I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12316 339I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12318 340I         .         .         .         .         .         .      S  .         .         .         .         .
.
  12320 341I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . .
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12322 342I        .       .       .       .       .       .     S .       .       .       .       .
12324 343I        .       .       .       .       .       .     S .       .       .       .       .
12326 344I        .       .       .       .       .       .     S .       .       .       .       .
12328 345I        .       .       .       .       .       .     S .       .       .       .       .
12330 346I        .       .       .       .       .       .     S .       .       .       .       .
12332 347I        .       .       .       .       .       .     S .       .       .       .       .
12334 348I        .       .       .       .       .       .     S .       .       .       .       .
12336 349I        .       .       .       .       .       .     S .       .       .       .       .
12338 350I        .       .       .       .       .       .     S .       .       .       .       .
12340 351I . . . . . .S. . . . . .
12342 352I        .       .       .       .       .       .     S .       .       .       .       .
12344 353I        .       .       .       .       .       .     S .       .       .       .       .
12346 354I        .       .       .       .       .       .     S .       .       .       .       .
12348 355I        .       .       .       .       .       .     S .       .       .       .       .
12350 356I        .       .       .       .       .       .     S .       .       .       .       .
12352 357I        .       .       .       .       .       .     S .       .       .       .       .
12354 358I        .       .       .       .       .       .     S .       .       .       .       .
12356 359I        .       .       .       .       .       .     S .       .       .       .       .
12358 360I        .       .       .       .       .       .     S .       .       .       .       .
20000 361I . . . . . .S. . . . . .
20002 362I        .       .       .       .       .       .     S .       .       .       .       .
20004 363I        .       .       .       .       .       .     S .       .       .       .       .
20006 364I        .       .       .       .       .       .     S .       .       .       .       .
20008 365I        .       .       .       .       .       .     S .       .       .       .       .
20010 366I        .       .       .       .       .       .     S .       .       .       .       .
20012 367I        .       .       .       .       .       .     S .       .       .       .       .
20014 368I        .       .       .       .       .       .     S .       .       .       .       .
20016 369I        .       .       .       .       .       .     S .       .       .       .       .
20018 370I        .       .       .       .       .       .     S .       .       .       .       .
20020 371I . . . . . .S. . . . . .
20022 372I        .       .       .       .       .       .     S .       .       .       .       .
20024 373I        .       .       .       .       .       .     S .       .       .       .       .
20026 374I        .       .       .       .       .       .     S .       .       .       .       .
20028 375I        .       .       .       .       .       .     S .       .       .       .       .
20030 376I        .       .       .       .       .       .   S   .       .       .       .       .
20032 377I        .       .       .       .       .       .   S   .       .       .       .       .
20034 378I        .       .       .       .       .       .   S   .       .       .       .       .
20036 379I        .       .       .       .       .       .   S   .       .       .       .       .
20038 380I        .       .       .       .       .       .   S   .       .       .       .       .
20040 381I . . . . . .S. . . . . .
20042 382I        .       .       .       .       .       .   S   .       .       .       .       .
20044 383I        .       .       .       .       .       .   S   .       .       .       .       .
20046 384I        .       .       .       .       .       .   S   .       .       .       .       .
20048 385I        .       .       .       .       .       .   S   .       .       .       .       .
20050 386I        .       .       .       .       .       .   S   .       .       .       .       .
20052 387I        .       .       .       .       .       .   S   .       .       .       .       .
20054 388I        .       .       .       .       .       .   S   .       .       .       .       .
20056 389I        .       .       .       .       .       .   S   .       .       .       .       .
20058 390I        .       .       .       .       .       .   S   .       .       .       .       .
20100 391I . . . . . .S. . . . . .
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20102 392I        .       .       .       .       .       .       S   .       .       .       .       .
20104 393I        .       .       .       .       .       .       S   .       .       .       .       .
20106 394I        .       .       .       .       .       .       S   .       .       .       .       .
20108 395I        .       .       .       .       .       .       S   .       .       .       .       .
20110 396I        .       .       .       .       .       .       S   .       .       .       .       .
20112 397I        .       .       .       .       .       .       S   .       .       .       .       .
20114 398I        .       .       .       .       .       .       S   .       .       .       .       .
20116 399I        .       .       .       .       .       .       S   .       .       .       .       .
20118 400I        .       .       .       .       .       .       S   .       .       .       .       .
20120 401I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
20122 402I        .       .       .       .       .       .       S   .       .       .       .       .
20124 403I        .       .       .       .       .       .       S   .       .       .       .       .
20126 404I        .       .       .       .       .       .       S   .       .       .       .       .
20128 405I        .       .       .       .       .       .       S   .       .       .       .       .
20130 406I        .       .       .       .       .       .       S   .       .       .       .       .
20132 407I        .       .       .       .       .       .       S   .       .       .       .       .
20134 408I        .       .       .       .       .       .       S   .       .       .       .       .
20136 409I        .       .       .       .       .       .       S   .       .       .       .       .
20138 410I        .       .       .       .       .       .       S   .       .       .       .       .
20140 411I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
20142 412I        .       .       .       .       .       .       S   .       .       .       .       .
20144 413I        .       .       .       .       .       .       S   .       .       .       .       .
20146 414I        .       .       .       .       .       .       S   .       .       .       .       .
20148 415I        .       .       .       .       .       .       S   .       .       .       .       .
20150 416I        .       .       .       .       .       .       S   .       .       .       .       .
20152 417I        .       .       .       .       .       .       S   .       .       .       .       .
20154 418I        .       .       .       .       .       .       S   .       .       .       .       .
20156 419I        .       .       .       .       .       .       S   .       .       .       .       .
20158 420I        .       .       .       .       .       .       S   .       .       .       .       .
20200 421I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
20202 422I        .       .       .       .       .       .       S   .       .       .       .       .
20204 423I        .       .       .       .       .       .       S   .       .       .       .       .
20206 424I        .       .       .       .       .       .       S   .       .       .       .       .
20208 425I        .       .       .       .       .       .       S   .       .       .       .       .
20210 426I        .       .       .       .       .       .       S   .       .       .       .       .
20212 427I        .       .       .       .       .       .       S   .       .       .       .       .
20214 428I        .       .       .       .       .       .       S   .       .       .       .       .
20216 429I        .       .       .       .       .       .       S   .       .       .       .       .
20218 430I        .       .       .       .       .       .       S   .       .       .       .       .
20220 431I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
20222 432I        .       .       .       .       .       .       S   .       .       .       .       .
20224 433I        .       .       .       .       .       .       S   .       .       .       .       .
20226 434I        .       .       .       .       .       .       S   .       .       .       .       .
20228 435I        .       .       .       .       .       .       S   .       .       .       .       .
20230 436I        .       .       .       .       .       .       S   .       .       .       .       .
20232 437I        .       .       .       .       .       .       S   .       .       .       .       .
20234 438I        .       .       .       .       .       .       S   .       .       .       .       .
20236 439I        .       .       .       .       .       .       S   .       .       .       .       .
20238 440I        .       .       .       .       .       .       S   .       .       .       .       .
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20240 441I . . . . . S . . . . . .
20242 442I       .       .       .       .       .       S   .       .       .       .       .
20244 443I       .       .       .       .       .       S   .       .       .       .       .
20246 444I       .       .       .       .       .       S   .       .       .       .       .
20248 445I       .       .       .       .       .       S   .       .       .       .       .
20250 446I       .       .       .       .       .       S   .       .       .       .       .
20252 447I       .       .       .       .       .       S   .       .       .       .       .
20254 448I       .       .       .       .       .       S   .       .       .       .       .
20256 449I       .       .       .       .       .       S   .       .       .       .       .
20258 450I       .       .       .       .       .       S   .       .       .       .       .
20300 451I . . . . . S . . . . . .
20302 452I       .       .       .       .       .       S   .       .       .       .       .
20304 453I       .       .       .       .       .       S   .       .       .       .       .
20306 454I       .       .       .       .       .       S   .       .       .       .       .
20308 455I       .       .       .       .       .       S   .       .       .       .       .
20310 456I       .       .       .       .       .       S   .       .       .       .       .
20312 457I       .       .       .       .       .       S   .       .       .       .       .
20314 458I       .       .       .       .       .       S   .       .       .       .       .
20316 459I       .       .       .       .       .       S   .       .       .       .       .
20318 460I       .       .       .       .       .       S   .       .       .       .       .
20320 461I . . . . . S . . . . . .
20322 462I       .       .       .       .       .       S   .       .       .       .       .
20324 463I       .       .       .       .       .       S   .       .       .       .       .
20326 464I       .       .       .       .       .       S   .       .       .       .       .
20328 465I       .       .       .       .       .       S   .       .       .       .       .
20330 466I       .       .       .       .       .       S   .       .       .       .       .
20332 467I       .       .       .       .       .       S   .       .       .       .       .
20334 468I       .       .       .       .       .       S   .       .       .       .       .
20336 469I       .       .       .       .       .       S   .       .       .       .       .
20338 470I       .       .       .       .       .       S   .       .       .       .       .
20340 471I . . . . . S . . . . . .
20342 472I       .       .       .       .       .       S   .       .       .       .       .
20344 473I       .       .       .       .       .       S   .       .       .       .       .
20346 474I       .       .       .       .       .       S   .       .       .       .       .
20348 475I       .       .       .       .       .       S   .       .       .       .       .
20350 476I       .       .       .       .       .       S   .       .       .       .       .
20352 477I       .       .       .       .       .       S   .       .       .       .       .
20354 478I       .       .       .       .       .       S   .       .       .       .       .
20356 479I       .       .       .       .       .       S   .       .       .       .       .
20358 480I       .       .       .       .       .       S   .       .       .       .       .
20400 481I . . . . . S . . . . . .
20402 482I       .       .       .       .       .       S   .       .       .       .       .
20404 483I       .       .       .       .       .       S   .       .       .       .       .
20406 484I       .       .       .       .       .       S   .       .       .       .       .
20408 485I       .       .       .       .       .       S   .       .       .       .       .
20410 486I       .       .       .       .       .       S   .       .       .       .       .
20412 487I       .       .       .       .       .       S   .       .       .       .       .
20414 488I       .       .       .       .       .       S   .       .       .       .       .
20416 489I       .       .       .       .       .       S   .       .       .       .       .
20418 490I       .       .       .       .       .       S   .       .       .       .       .
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  20420 491I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
.
  20422 492I         .         .         .         .         .         .    S   .         .         .         .         .
.
  20424 493I         .         .         .         .         .         .    S   .         .         .         .         .
.
  20426 494I         .         .         .         .         .         .    S   .         .         .         .         .
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  20428 495I         .         .         .         .         .         .    S   .         .         .         .         .
.
  20430 496I         .         .         .         .         .         .    S   .         .         .         .         .
.
  20432 497I         .         .         .         .         .         .    S   .         .         .         .         .
.
  20434 498I         .         .         .         .         .         .    S   .         .         .         .         .
.
  20436 499I         .         .         .         .         .         .    S   .         .         .         .         .
.
  20438
500I---------.---------.---------.---------.---------.---------.-----S---.---------.---------.---------.---------.---------.
1
1
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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	ECC-BMP4	26.	3.17	5.	2.	2.	.02		
+	ROUTED TO	DET1	9.	3.73	5.	2.	2.	.02		
+									102.91	3.73

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

```
KK ECC-BMP5.OUT
KM RATIONAL METHOD HYDROGRAPH PROGRAM
KM COPYRIGHT 1992, RICK ENGINEERING COMPANY
KM 6HR RAINFALL IS  3.49  INCHES
KM RATIONAL METHOD RUNOFF COEFFICIENT IS  .57
KM RATIONAL METHOD TIME OF CONCENTRATION IS  10  MIN.
KM FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO YOUR HEC-1
KM IT 2 01JAN90 1200 200
BA .0073
IN 10 01JAN90  1155
QI 0  0  .6  .6  .6  .6  .7  .7  .8  .8
QI .9  .9  1  1.1  1.2  1.4  1.7  2.1  3.1  10.2
QI 9.9  2.5  1.9  1.5  1.3  1.2  1  1  .9  .8
QI .8  .7  .7  .7  .6  .6  .6  .6  0  0
QI 0  0  0  0  0  0  0  0
```

```
*FREE
*DIAGRAM
ID ESCONDIDO COUNTRY CLUB, J-17762-A BMP 5A
ID 100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
ID March 3, 2017 - FILE NAME: ECC_BMP5A_00.HC1
IT 2 01JAN90 1200 500
IO 5 0
*
KK ECC-BMP5.OUT
KM RATIONAL METHOD HYDROGRAPH PROGRAM
KM COPYRIGHT 1992, RICK ENGINEERING COMPANY
KM 6HR RAINFALL IS  3.49  INCHES
KM RATIONAL METHOD RUNOFF COEFFICIENT IS  .57
KM RATIONAL METHOD TIME OF CONCENTRATION IS  10  MIN.
KM FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO
YOUR HEC-1
KM IT 2 01JAN90 1200 200
BA .0073
IN 10 01JAN90  1155
QI 0  0  .6  .6  .6  .6  .7  .7  .8  .8
QI .9  .9  1  1.1  1.2  1.4  1.7  2.1  3.1  10.2
QI 9.9  2.5  1.9  1.5  1.3  1.2  1  1  .9  .8
QI .8  .7  .7  .7  .6  .6  .6  .6  0  0
QI 0  0  0  0  0  0  0  0
*
KK DET1
KM DETAIN BASIN 5A
KO 2 2 0 0 21
RS 1 STOR -1
SV 0 .08 .22 .38
SQ 0 .03 2.8 2.8
SE 100 101 102 103
*
KO 2 2 0 0 21
ZZ
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1****************************************
****************************************
 *                                      *                                                    *
*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS
*
 *               JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING CENTER
*
 *            VERSION 4.1               *                                                    *         609 SECOND STREET
*
 *                                      *                                                    *      DAVIS, CALIFORNIA 95616
*
 *  RUN DATE   06MAR17  TIME  16:27:30  *                                                    *          (916) 756-1104
*
 *                                      *                                                    *
*
 ****************************************
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X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
```

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

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

 *** FREE ***
                        *DIAGRAM
             1          ID   ESCONDIDO COUNTRY CLUB, J-17762-A BMP 5A
             2          ID   100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
             3          ID   March 3, 2017 - FILE NAME: ECC_BMP5A_00.HC1
             4          IT       2 01JAN90    1200     500
             5          IO       5       0
                        *

             6          KKECC-BMP5.OUT
             7          KM   RATIONAL METHOD HYDROGRAPH PROGRAM
             8          KM   COPYRIGHT 1992, RICK ENGINEERING COMPANY
             9          KM   6HR RAINFALL IS  3.49  INCHES
            10          KM   RATIONAL METHOD RUNOFF COEFFICIENT IS  .57
            11          KM   RATIONAL METHOD TIME OF CONCENTRATION IS  10  MIN.
            12          KM   FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO YOUR HEC-1
            13          KM   IT 2 01JAN90 1200 200
            14          BA   .0073
            15          IN      10 01JAN90    1155
            16          QI       0       0      .6      .6      .6      .6      .7      .7      .8      .8
            17          QI      .9      .9       1     1.1     1.2     1.4     1.7     2.1     3.1    10.2
            18          QI     9.9     2.5     1.9     1.5     1.3     1.2       1       1      .9      .8
            19          QI      .8      .7      .7      .7      .6      .6      .6      .6       0       0
            20          QI       0       0       0       0       0       0       0       0
                        *

            21          KK    DET1
            22          KM   DETAIN BASIN 5A
            23          KO       2       2       0       0      21
            24          RS       1    STOR      -1
            25          SV       0     .08     .22     .38
            26          SQ       0     .03     2.8     2.8
            27          SE     100     101     102     103
                        *
            28          KO       2       2       0       0      21
            29          ZZ
```

1 SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

     6    ECC-BMP5
               V
               V
    21        DET1
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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1****************************************
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 *                                      *                                                    *
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*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                                   *    U.S. ARMY CORPS OF ENGINEERS
*
 *              JUN   1998               *                                                   *    HYDROLOGIC ENGINEERING CENTER
*
 *           VERSION 4.1                 *                                                   *          609 SECOND STREET
*
 *                                       *                                                   *       DAVIS, CALIFORNIA 95616
*
 *  RUN DATE   06MAR17  TIME  16:27:30   *                                                   *           (916) 756-1104
*
 *                                       *                                                   *
*
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                            ESCONDIDO COUNTRY CLUB, J-17762-A BMP 5A
                            100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
                            March 3, 2017 - FILE NAME: ECC_BMP5A_00.HC1

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

      IT          HYDROGRAPH TIME DATA
                         NMIN           2  MINUTES IN COMPUTATION INTERVAL
                        IDATE      1JAN90  STARTING DATE
                        ITIME        1200  STARTING TIME
                           NQ         500  NUMBER OF HYDROGRAPH ORDINATES
                       NDDATE      2JAN90  ENDING DATE
                       NDTIME        0438  ENDING TIME
                        ICENT          19  CENTURY MARK

                    COMPUTATION INTERVAL     .03 HOURS
                         TOTAL TIME BASE   16.63 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


 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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             *            *
   21 KK     *      DET1  *
             *            *
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   23 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           2  PRINT CONTROL
                        IPLOT           2  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                         IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2         500  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT        .033  TIME INTERVAL IN HOURS


   28 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           2  PRINT CONTROL
                        IPLOT           2  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                         IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2         500  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT        .033  TIME INTERVAL IN HOURS


                HYDROGRAPH ROUTING DATA

   24 RS          STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        STOR  TYPE OF INITIAL CONDITION
                       RSVRIC       -1.00  INITIAL CONDITION
                            X         .00 WORKING R AND D COEFFICIENT

   25 SV            STORAGE          .0        .1        .2        .4

   26 SQ          DISCHARGE          0.        0.        3.        3.

   27 SE          ELEVATION      100.00    101.00    102.00    103.00
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HYDROGRAPH AT STATION DET1

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	JAN	1200	1	0.	.0	100.0	1	JAN	1734	168	1.	.1	101.4	1	JAN	2308	335	0.	.1	100.9
1	JAN	1202	2	0.	.0	100.0	1	JAN	1736	169	1.	.1	101.4	1	JAN	2310	336	0.	.1	100.9
1	JAN	1204	3	0.	.0	100.0	1	JAN	1738	170	1.	.1	101.4	1	JAN	2312	337	0.	.1	100.9
1	JAN	1206	4	0.	.0	100.0	1	JAN	1740	171	1.	.1	101.4	1	JAN	2314	338	0.	.1	100.9
1	JAN	1208	5	0.	.0	100.0	1	JAN	1742	172	1.	.1	101.4	1	JAN	2316	339	0.	.1	100.9
1	JAN	1210	6	0.	.0	100.0	1	JAN	1744	173	1.	.1	101.4	1	JAN	2318	340	0.	.1	100.9
1	JAN	1212	7	0.	.0	100.0	1	JAN	1746	174	1.	.1	101.4	1	JAN	2320	341	0.	.1	100.9
1	JAN	1214	8	0.	.0	100.0	1	JAN	1748	175	1.	.1	101.3	1	JAN	2322	342	0.	.1	100.9
1	JAN	1216	9	0.	.0	100.1	1	JAN	1750	176	1.	.1	101.3	1	JAN	2324	343	0.	.1	100.9
1	JAN	1218	10	0.	.0	100.1	1	JAN	1752	177	1.	.1	101.3	1	JAN	2326	344	0.	.1	100.9
1	JAN	1220	11	0.	.0	100.1	1	JAN	1754	178	1.	.1	101.3	1	JAN	2328	345	0.	.1	100.9
1	JAN	1222	12	0.	.0	100.1	1	JAN	1756	179	1.	.1	101.3	1	JAN	2330	346	0.	.1	100.9
1	JAN	1224	13	0.	.0	100.1	1	JAN	1758	180	1.	.1	101.3	1	JAN	2332	347	0.	.1	100.9
1	JAN	1226	14	0.	.0	100.2	1	JAN	1800	181	1.	.1	101.3	1	JAN	2334	348	0.	.1	100.9
1	JAN	1228	15	0.	.0	100.2	1	JAN	1802	182	1.	.1	101.3	1	JAN	2336	349	0.	.1	100.9
1	JAN	1230	16	0.	.0	100.2	1	JAN	1804	183	1.	.1	101.3	1	JAN	2338	350	0.	.1	100.9
1	JAN	1232	17	0.	.0	100.2	1	JAN	1806	184	1.	.1	101.3	1	JAN	2340	351	0.	.1	100.9
1	JAN	1234	18	0.	.0	100.2	1	JAN	1808	185	1.	.1	101.3	1	JAN	2342	352	0.	.1	100.9
1	JAN	1236	19	0.	.0	100.3	1	JAN	1810	186	1.	.1	101.3	1	JAN	2344	353	0.	.1	100.9
1	JAN	1238	20	0.	.0	100.3	1	JAN	1812	187	1.	.1	101.3	1	JAN	2346	354	0.	.1	100.9
1	JAN	1240	21	0.	.0	100.3	1	JAN	1814	188	1.	.1	101.3	1	JAN	2348	355	0.	.1	100.9
1	JAN	1242	22	0.	.0	100.3	1	JAN	1816	189	1.	.1	101.2	1	JAN	2350	356	0.	.1	100.9
1	JAN	1244	23	0.	.0	100.3	1	JAN	1818	190	1.	.1	101.2	1	JAN	2352	357	0.	.1	100.9
1	JAN	1246	24	0.	.0	100.4	1	JAN	1820	191	1.	.1	101.2	1	JAN	2354	358	0.	.1	100.9
1	JAN	1248	25	0.	.0	100.4	1	JAN	1822	192	1.	.1	101.2	1	JAN	2356	359	0.	.1	100.9
1	JAN	1250	26	0.	.0	100.4	1	JAN	1824	193	1.	.1	101.2	1	JAN	2358	360	0.	.1	100.9
1	JAN	1252	27	0.	.0	100.4	1	JAN	1826	194	1.	.1	101.2	2	JAN	0000	361	0.	.1	100.9
1	JAN	1254	28	0.	.0	100.5	1	JAN	1828	195	1.	.1	101.2	2	JAN	0002	362	0.	.1	100.9
1	JAN	1256	29	0.	.0	100.5	1	JAN	1830	196	0.	.1	101.2	2	JAN	0004	363	0.	.1	100.9
1	JAN	1258	30	0.	.0	100.5	1	JAN	1832	197	0.	.1	101.2	2	JAN	0006	364	0.	.1	100.9
1	JAN	1300	31	0.	.0	100.5	1	JAN	1834	198	0.	.1	101.1	2	JAN	0008	365	0.	.1	100.9
1	JAN	1302	32	0.	.0	100.6	1	JAN	1836	199	0.	.1	101.1	2	JAN	0010	366	0.	.1	100.9
1	JAN	1304	33	0.	.0	100.6	1	JAN	1838	200	0.	.1	101.1	2	JAN	0012	367	0.	.1	100.9
1	JAN	1306	34	0.	.0	100.6	1	JAN	1840	201	0.	.1	101.1	2	JAN	0014	368	0.	.1	100.9
1	JAN	1308	35	0.	.0	100.6	1	JAN	1842	202	0.	.1	101.1	2	JAN	0016	369	0.	.1	100.9
1	JAN	1310	36	0.	.1	100.6	1	JAN	1844	203	0.	.1	101.1	2	JAN	0018	370	0.	.1	100.9
1	JAN	1312	37	0.	.1	100.7	1	JAN	1846	204	0.	.1	101.1	2	JAN	0020	371	0.	.1	100.9
1	JAN	1314	38	0.	.1	100.7	1	JAN	1848	205	0.	.1	101.1	2	JAN	0022	372	0.	.1	100.9
1	JAN	1316	39	0.	.1	100.7	1	JAN	1850	206	0.	.1	101.1	2	JAN	0024	373	0.	.1	100.9
1	JAN	1318	40	0.	.1	100.8	1	JAN	1852	207	0.	.1	101.1	2	JAN	0026	374	0.	.1	100.9
1	JAN	1320	41	0.	.1	100.8	1	JAN	1854	208	0.	.1	101.1	2	JAN	0028	375	0.	.1	100.9
1	JAN	1322	42	0.	.1	100.8	1	JAN	1856	209	0.	.1	101.1	2	JAN	0030	376	0.	.1	100.9
1	JAN	1324	43	0.	.1	100.8	1	JAN	1858	210	0.	.1	101.1	2	JAN	0032	377	0.	.1	100.9
1	JAN	1326	44	0.	.1	100.9	1	JAN	1900	211	0.	.1	101.1	2	JAN	0034	378	0.	.1	100.9
1	JAN	1328	45	0.	.1	100.9	1	JAN	1902	212	0.	.1	101.1	2	JAN	0036	379	0.	.1	100.9
1	JAN	1330	46	0.	.1	100.9	1	JAN	1904	213	0.	.1	101.1	2	JAN	0038	380	0.	.1	100.9
1	JAN	1332	47	0.	.1	100.9	1	JAN	1906	214	0.	.1	101.1	2	JAN	0040	381	0.	.1	100.9
1	JAN	1334	48	0.	.1	101.0	1	JAN	1908	215	0.	.1	101.0	2	JAN	0042	382	0.	.1	100.9
1	JAN	1336	49	0.	.1	101.0	1	JAN	1910	216	0.	.1	101.0	2	JAN	0044	383	0.	.1	100.9
1	JAN	1338	50	0.	.1	101.0	1	JAN	1912	217	0.	.1	101.0	2	JAN	0046	384	0.	.1	100.9
1	JAN	1340	51	0.	.1	101.0	1	JAN	1914	218	0.	.1	101.0	2	JAN	0048	385	0.	.1	100.9
1	JAN	1342	52	0.	.1	101.0	1	JAN	1916	219	0.	.1	101.0	2	JAN	0050	386	0.	.1	100.9
1	JAN	1344	53	0.	.1	101.1	1	JAN	1918	220	0.	.1	101.0	2	JAN	0052	387	0.	.1	100.9
1	JAN	1346	54	0.	.1	101.1	1	JAN	1920	221	0.	.1	101.0	2	JAN	0054	388	0.	.1	100.9
1	JAN	1348	55	0.	.1	101.1	1	JAN	1922	222	0.	.1	101.0	2	JAN	0056	389	0.	.1	100.9
1	JAN	1350	56	0.	.1	101.1	1	JAN	1924	223	0.	.1	101.0	2	JAN	0058	390	0.	.1	100.9
1	JAN	1352	57	0.	.1	101.1	1	JAN	1926	224	0.	.1	101.0	2	JAN	0100	391	0.	.1	100.9
1	JAN	1354	58	0.	.1	101.1	1	JAN	1928	225	0.	.1	101.0	2	JAN	0102	392	0.	.1	100.9
1	JAN	1356	59	0.	.1	101.1	1	JAN	1930	226	0.	.1	101.0	2	JAN	0104	393	0.	.1	100.9
1	JAN	1358	60	0.	.1	101.1	1	JAN	1932	227	0.	.1	101.0	2	JAN	0106	394	0.	.1	100.9
1	JAN	1400	61	0.	.1	101.2	1	JAN	1934	228	0.	.1	101.0	2	JAN	0108	395	0.	.1	100.9
1	JAN	1402	62	1.	.1	101.2	1	JAN	1936	229	0.	.1	101.0	2	JAN	0110	396	0.	.1	100.9
1	JAN	1404	63	1.	.1	101.2	1	JAN	1938	230	0.	.1	101.0	2	JAN	0112	397	0.	.1	100.9
1	JAN	1406	64	1.	.1	101.2	1	JAN	1940	231	0.	.1	101.0	2	JAN	0114	398	0.	.1	100.9
1	JAN	1408	65	1.	.1	101.2	1	JAN	1942	232	0.	.1	101.0	2	JAN	0116	399	0.	.1	100.9
1	JAN	1410	66	1.	.1	101.2	1	JAN	1944	233	0.	.1	101.0	2	JAN	0118	400	0.	.1	100.9
1	JAN	1412	67	1.	.1	101.2	1	JAN	1946	234	0.	.1	101.0	2	JAN	0120	401	0.	.1	100.9
1	JAN	1414	68	1.	.1	101.2	1	JAN	1948	235	0.	.1	101.0	2	JAN	0122	402	0.	.1	100.9
1	JAN	1416	69	1.	.1	101.2	1	JAN	1950	236	0.	.1	101.0	2	JAN	0124	403	0.	.1	100.9
1	JAN	1418	70	1.	.1	101.3	1	JAN	1952	237	0.	.1	101.0	2	JAN	0126	404	0.	.1	100.8
1	JAN	1420	71	1.	.1	101.3	1	JAN	1954	238	0.	.1	101.0	2	JAN	0128	405	0.	.1	100.8
1	JAN	1422	72	1.	.1	101.3	1	JAN	1956	239	0.	.1	101.0	2	JAN	0130	406	0.	.1	100.8
1	JAN	1424	73	1.	.1	101.3	1	JAN	1958	240	0.	.1	101.0	2	JAN	0132	407	0.	.1	100.8
1	JAN	1426	74	1.	.1	101.3	1	JAN	2000	241	0.	.1	101.0	2	JAN	0134	408	0.	.1	100.8
1	JAN	1428	75	1.	.1	101.3	1	JAN	2002	242	0.	.1	101.0	2	JAN	0136	409	0.	.1	100.8
1	JAN	1430	76	1.	.1	101.3	1	JAN	2004	243	0.	.1	101.0	2	JAN	0138	410	0.	.1	100.8
1	JAN	1432	77	1.	.1	101.3	1	JAN	2006	244	0.	.1	101.0	2	JAN	0140	411	0.	.1	100.8
1	JAN	1434	78	1.	.1	101.3	1	JAN	2008	245	0.	.1	101.0	2	JAN	0142	412	0.	.1	100.8
1	JAN	1436	79	1.	.1	101.4	1	JAN	2010	246	0.	.1	101.0	2	JAN	0144	413	0.	.1	100.8
1	JAN	1438	80	1.	.1	101.4	1	JAN	2012	247	0.	.1	101.0	2	JAN	0146	414	0.	.1	100.8
1	JAN	1440	81	1.	.1	101.4	1	JAN	2014	248	0.	.1	101.0	2	JAN	0148	415	0.	.1	100.8
1	JAN	1442	82	1.	.1	101.4	1	JAN	2016	249	0.	.1	101.0	2	JAN	0150	416	0.	.1	100.8
1	JAN	1444	83	1.	.1	101.4	1	JAN	2018	250	0.	.1	101.0	2	JAN	0152	417	0.	.1	100.8
1	JAN	1446	84	1.	.1	101.4	1	JAN	2020	251	0.	.1	101.0	2	JAN	0154	418	0.	.1	100.8
1	JAN	1448	85	1.	.1	101.5	1	JAN	2022	252	0.	.1	101.0	2	JAN	0156	419	0.	.1	100.8
1	JAN	1450	86	1.	.1	101.5	1	JAN	2024	253	0.	.1	101.0	2	JAN	0158	420	0.	.1	100.8
1	JAN	1452	87	1.	.2	101.5	1	JAN	2026	254	0.	.1	101.0	2	JAN	0200	421	0.	.1	100.8
1	JAN	1454	88	2.	.2	101.5	1	JAN	2028	255	0.	.1	101.0	2	JAN	0202	422	0.	.1	100.8

1	JAN	1456	89	2.	.2	101.6	*	1	JAN	2030	256	0.	.1	101.0	*	2	JAN	0204	423	0.	.1	100.8
1	JAN	1458	90	2.	.2	101.6	*	1	JAN	2032	257	0.	.1	101.0	*	2	JAN	0206	424	0.	.1	100.8
1	JAN	1500	91	2.	.2	101.7	*	1	JAN	2034	258	0.	.1	101.0	*	2	JAN	0208	425	0.	.1	100.8
1	JAN	1502	92	2.	.2	101.8	*	1	JAN	2036	259	0.	.1	101.0	*	2	JAN	0210	426	0.	.1	100.8
1	JAN	1504	93	3.	.2	101.9	*	1	JAN	2038	260	0.	.1	101.0	*	2	JAN	0212	427	0.	.1	100.8
1	JAN	1506	94	3.	.2	102.1	*	1	JAN	2040	261	0.	.1	101.0	*	2	JAN	0214	428	0.	.1	100.8
1	JAN	1508	95	3.	.3	102.2	*	1	JAN	2042	262	0.	.1	101.0	*	2	JAN	0216	429	0.	.1	100.8
1	JAN	1510	96	3.	.3	102.3	*	1	JAN	2044	263	0.	.1	101.0	*	2	JAN	0218	430	0.	.1	100.8
1	JAN	1512	97	3.	.3	102.4	*	1	JAN	2046	264	0.	.1	101.0	*	2	JAN	0220	431	0.	.1	100.8
1	JAN	1514	98	3.	.3	102.6	*	1	JAN	2048	265	0.	.1	101.0	*	2	JAN	0222	432	0.	.1	100.8
1	JAN	1516	99	3.	.3	102.7	*	1	JAN	2050	266	0.	.1	101.0	*	2	JAN	0224	433	0.	.1	100.8
1	JAN	1518	100	3.	.3	102.8	*	1	JAN	2052	267	0.	.1	101.0	*	2	JAN	0226	434	0.	.1	100.8
1	JAN	1520	101	3.	.4	102.9	*	1	JAN	2054	268	0.	.1	101.0	*	2	JAN	0228	435	0.	.1	100.8
1	JAN	1522	102	3.	.4	102.9	*	1	JAN	2056	269	0.	.1	101.0	*	2	JAN	0230	436	0.	.1	100.8
1	JAN	1524	103	3.	.4	102.9	*	1	JAN	2058	270	0.	.1	101.0	*	2	JAN	0232	437	0.	.1	100.8
1	JAN	1526	104	3.	.4	102.9	*	1	JAN	2100	271	0.	.1	101.0	*	2	JAN	0234	438	0.	.1	100.8
1	JAN	1528	105	3.	.4	102.9	*	1	JAN	2102	272	0.	.1	101.0	*	2	JAN	0236	439	0.	.1	100.8
1	JAN	1530	106	3.	.4	102.9	*	1	JAN	2104	273	0.	.1	101.0	*	2	JAN	0238	440	0.	.1	100.8
1	JAN	1532	107	3.	.4	102.9	*	1	JAN	2106	274	0.	.1	101.0	*	2	JAN	0240	441	0.	.1	100.8
1	JAN	1534	108	3.	.4	102.9	*	1	JAN	2108	275	0.	.1	101.0	*	2	JAN	0242	442	0.	.1	100.8
1	JAN	1536	109	3.	.4	102.9	*	1	JAN	2110	276	0.	.1	101.0	*	2	JAN	0244	443	0.	.1	100.8
1	JAN	1538	110	3.	.4	102.8	*	1	JAN	2112	277	0.	.1	101.0	*	2	JAN	0246	444	0.	.1	100.8
1	JAN	1540	111	3.	.4	102.8	*	1	JAN	2114	278	0.	.1	101.0	*	2	JAN	0248	445	0.	.1	100.8
1	JAN	1542	112	3.	.3	102.8	*	1	JAN	2116	279	0.	.1	101.0	*	2	JAN	0250	446	0.	.1	100.8
1	JAN	1544	113	3.	.3	102.8	*	1	JAN	2118	280	0.	.1	101.0	*	2	JAN	0252	447	0.	.1	100.8
1	JAN	1546	114	3.	.3	102.8	*	1	JAN	2120	281	0.	.1	101.0	*	2	JAN	0254	448	0.	.1	100.8
1	JAN	1548	115	3.	.3	102.7	*	1	JAN	2122	282	0.	.1	101.0	*	2	JAN	0256	449	0.	.1	100.8
1	JAN	1550	116	3.	.3	102.7	*	1	JAN	2124	283	0.	.1	101.0	*	2	JAN	0258	450	0.	.1	100.8
1	JAN	1552	117	3.	.3	102.7	*	1	JAN	2126	284	0.	.1	101.0	*	2	JAN	0300	451	0.	.1	100.8
1	JAN	1554	118	3.	.3	102.7	*	1	JAN	2128	285	0.	.1	101.0	*	2	JAN	0302	452	0.	.1	100.8
1	JAN	1556	119	3.	.3	102.6	*	1	JAN	2130	286	0.	.1	101.0	*	2	JAN	0304	453	0.	.1	100.8
1	JAN	1558	120	3.	.3	102.6	*	1	JAN	2132	287	0.	.1	101.0	*	2	JAN	0306	454	0.	.1	100.8
1	JAN	1600	121	3.	.3	102.6	*	1	JAN	2134	288	0.	.1	101.0	*	2	JAN	0308	455	0.	.1	100.8
1	JAN	1602	122	3.	.3	102.6	*	1	JAN	2136	289	0.	.1	101.0	*	2	JAN	0310	456	0.	.1	100.8
1	JAN	1604	123	3.	.3	102.5	*	1	JAN	2138	290	0.	.1	101.0	*	2	JAN	0312	457	0.	.1	100.8
1	JAN	1606	124	3.	.3	102.5	*	1	JAN	2140	291	0.	.1	101.0	*	2	JAN	0314	458	0.	.1	100.8
1	JAN	1608	125	3.	.3	102.5	*	1	JAN	2142	292	0.	.1	101.0	*	2	JAN	0316	459	0.	.1	100.8
1	JAN	1610	126	3.	.3	102.4	*	1	JAN	2144	293	0.	.1	101.0	*	2	JAN	0318	460	0.	.1	100.8
1	JAN	1612	127	3.	.3	102.4	*	1	JAN	2146	294	0.	.1	101.0	*	2	JAN	0320	461	0.	.1	100.8
1	JAN	1614	128	3.	.3	102.4	*	1	JAN	2148	295	0.	.1	101.0	*	2	JAN	0322	462	0.	.1	100.8
1	JAN	1616	129	3.	.3	102.4	*	1	JAN	2150	296	0.	.1	101.0	*	2	JAN	0324	463	0.	.1	100.8
1	JAN	1618	130	3.	.3	102.3	*	1	JAN	2152	297	0.	.1	100.9	*	2	JAN	0326	464	0.	.1	100.8
1	JAN	1620	131	3.	.3	102.3	*	1	JAN	2154	298	0.	.1	100.9	*	2	JAN	0328	465	0.	.1	100.8
1	JAN	1622	132	3.	.3	102.3	*	1	JAN	2156	299	0.	.1	100.9	*	2	JAN	0330	466	0.	.1	100.8
1	JAN	1624	133	3.	.3	102.2	*	1	JAN	2158	300	0.	.1	100.9	*	2	JAN	0332	467	0.	.1	100.8
1	JAN	1626	134	3.	.3	102.2	*	1	JAN	2200	301	0.	.1	100.9	*	2	JAN	0334	468	0.	.1	100.8
1	JAN	1628	135	3.	.2	102.2	*	1	JAN	2202	302	0.	.1	100.9	*	2	JAN	0336	469	0.	.1	100.8
1	JAN	1630	136	3.	.2	102.1	*	1	JAN	2204	303	0.	.1	100.9	*	2	JAN	0338	470	0.	.1	100.8
1	JAN	1632	137	3.	.2	102.1	*	1	JAN	2206	304	0.	.1	100.9	*	2	JAN	0340	471	0.	.1	100.8
1	JAN	1634	138	3.	.2	102.1	*	1	JAN	2208	305	0.	.1	100.9	*	2	JAN	0342	472	0.	.1	100.8
1	JAN	1636	139	3.	.2	102.0	*	1	JAN	2210	306	0.	.1	100.9	*	2	JAN	0344	473	0.	.1	100.8
1	JAN	1638	140	3.	.2	102.0	*	1	JAN	2212	307	0.	.1	100.9	*	2	JAN	0346	474	0.	.1	100.8
1	JAN	1640	141	3.	.2	102.0	*	1	JAN	2214	308	0.	.1	100.9	*	2	JAN	0348	475	0.	.1	100.8
1	JAN	1642	142	3.	.2	101.9	*	1	JAN	2216	309	0.	.1	100.9	*	2	JAN	0350	476	0.	.1	100.8
1	JAN	1644	143	3.	.2	101.9	*	1	JAN	2218	310	0.	.1	100.9	*	2	JAN	0352	477	0.	.1	100.8
1	JAN	1646	144	2.	.2	101.9	*	1	JAN	2220	311	0.	.1	100.9	*	2	JAN	0354	478	0.	.1	100.8
1	JAN	1648	145	2.	.2	101.8	*	1	JAN	2222	312	0.	.1	100.9	*	2	JAN	0356	479	0.	.1	100.8
1	JAN	1650	146	2.	.2	101.8	*	1	JAN	2224	313	0.	.1	100.9	*	2	JAN	0358	480	0.	.1	100.8
1	JAN	1652	147	2.	.2	101.8	*	1	JAN	2226	314	0.	.1	100.9	*	2	JAN	0400	481	0.	.1	100.8
1	JAN	1654	148	2.	.2	101.8	*	1	JAN	2228	315	0.	.1	100.9	*	2	JAN	0402	482	0.	.1	100.8
1	JAN	1656	149	2.	.2	101.7	*	1	JAN	2230	316	0.	.1	100.9	*	2	JAN	0404	483	0.	.1	100.8
1	JAN	1658	150	2.	.2	101.7	*	1	JAN	2232	317	0.	.1	100.9	*	2	JAN	0406	484	0.	.1	100.8
1	JAN	1700	151	2.	.2	101.7	*	1	JAN	2234	318	0.	.1	100.9	*	2	JAN	0408	485	0.	.1	100.8
1	JAN	1702	152	2.	.2	101.7	*	1	JAN	2236	319	0.	.1	100.9	*	2	JAN	0410	486	0.	.1	100.8
1	JAN	1704	153	2.	.2	101.6	*	1	JAN	2238	320	0.	.1	100.9	*	2	JAN	0412	487	0.	.1	100.8
1	JAN	1706	154	2.	.2	101.6	*	1	JAN	2240	321	0.	.1	100.9	*	2	JAN	0414	488	0.	.1	100.8
1	JAN	1708	155	2.	.2	101.6	*	1	JAN	2242	322	0.	.1	100.9	*	2	JAN	0416	489	0.	.1	100.8
1	JAN	1710	156	2.	.2	101.6	*	1	JAN	2244	323	0.	.1	100.9	*	2	JAN	0418	490	0.	.1	100.8
1	JAN	1712	157	2.	.2	101.6	*	1	JAN	2246	324	0.	.1	100.9	*	2	JAN	0420	491	0.	.1	100.8
1	JAN	1714	158	2.	.2	101.5	*	1	JAN	2248	325	0.	.1	100.9	*	2	JAN	0422	492	0.	.1	100.8
1	JAN	1716	159	1.	.2	101.5	*	1	JAN	2250	326	0.	.1	100.9	*	2	JAN	0424	493	0.	.1	100.8
1	JAN	1718	160	1.	.2	101.5	*	1	JAN	2252	327	0.	.1	100.9	*	2	JAN	0426	494	0.	.1	100.8
1	JAN	1720	161	1.	.1	101.5	*	1	JAN	2254	328	0.	.1	100.9	*	2	JAN	0428	495	0.	.1	100.8
1	JAN	1722	162	1.	.1	101.5	*	1	JAN	2256	329	0.	.1	100.9	*	2	JAN	0430	496	0.	.1	100.8
1	JAN	1724	163	1.	.1	101.5	*	1	JAN	2258	330	0.	.1	100.9	*	2	JAN	0432	497	0.	.1	100.8
1	JAN	1726	164	1.	.1	101.5	*	1	JAN	2300	331	0.	.1	100.9	*	2	JAN	0434	498	0.	.1	100.8
1	JAN	1728	165	1.	.1	101.4	*	1	JAN	2302	332	0.	.1	100.9	*	2	JAN	0436	499	0.	.1	100.8
1	JAN	1730	166	1.	.1	101.4	*	1	JAN	2304	333	0.	.1	100.9	*	2	JAN	0438	500	0.	.1	100.8
1	JAN	1732	167	1.	.1	101.4	*	1	JAN	2306	334	0.	.1	100.9	*							

****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	16.63-HR
+ (CFS)	(HR)					
		(CFS)				
+ 3.	3.10		1.	1.	1.	1.
		(INCHES)	1.776	1.834	1.834	1.834
		(AC-FT)	1.	1.	1.	1.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	16.63-HR
+ (AC-FT)	(HR)				
0.	3.40	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	16.63-HR
+ (FEET)	(HR)				

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    102.92      3.43               101.63      101.11      101.11       101.11

                       CUMULATIVE AREA =     .01 SQ MI

1                                                      STATION     DET1

                          (I) INFLOW,   (O) OUTFLOW
         0.        2.        4.        6.        8.       10.       12.        0.        0.        0.        0.        0.
0.
                                                                                          (S) STORAGE
         .0        .0        .0        .0        .0        .0        .0        .1        .2        .3        .4        .0
.0
 DAHRMN PER
  11200
1I---------.---------.---------.---------.---------.---------S---------.---------.---------.---------.---------.---------.
  11202   2I         .         .         .         .         .         S         .         .         .         .         .
.
  11204   3I         .         .         .         .         .         S         .         .         .         .         .
.
  11206   4I         .         .         .         .         .         S         .         .         .         .         .
.
  11208   5OI        .         .         .         .         .         S         .         .         .         .         .
.
  11210   6O I       .         .         .         .         .         S         .         .         .         .         .
.
  11212   7O I       .         .         .         .         .         S         .         .         .         .         .
.
  11214   8O  I      .         .         .         .         .         S         .         .         .         .         .
.
  11216   9O  I      .         .         .         .         .         S         .         .         .         .         .
.
  11218  10O  I      .         .         .         .         .        .S         .         .         .         .         .
.
  11220  11O .I. . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . . . . .
.
  11222  12O  I      .         .         .         .         .        .S         .         .         .         .         .
.
  11224  13O  I      .         .         .         .         .        .S         .         .         .         .         .
.
  11226  14O  I      .         .         .         .         .        .S         .         .         .         .         .
.
  11228  15O  I      .         .         .         .         .        .S         .         .         .         .         .
.
  11230  16O  I      .         .         .         .         .        . S        .         .         .         .         .
.
  11232  17O  I      .         .         .         .         .        . S        .         .         .         .         .
.
  11234  18O  I      .         .         .         .         .        . S        .         .         .         .         .
.
  11236  19O  I      .         .         .         .         .        . S        .         .         .         .         .
.
  11238  20O  I      .         .         .         .         .        . S        .         .         .         .         .
.
  11240  21O .I. . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
.
  11242  22O  I      .         .         .         .         .        .  S       .         .         .         .         .
.
  11244  23O  I      .         .         .         .         .        .  S       .         .         .         .         .
.
  11246  24O  I      .         .         .         .         .        .  S       .         .         .         .         .
.
  11248  25O  I      .         .         .         .         .        .  S       .         .         .         .         .
.
  11250  26O  I      .         .         .         .         .        .  S       .         .         .         .         .
.
  11252  27O  I      .         .         .         .         .        .  S       .         .         .         .         .
.
  11254  28O  I      .         .         .         .         .        .   S      .         .         .         .         .
.
  11256  29O  I      .         .         .         .         .        .   S      .         .         .         .         .
.
  11258  30O  I      .         .         .         .         .        .   S      .         .         .         .         .
.
  11300  31O .I. . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
.
  11302  32O  I      .         .         .         .         .        .   S      .         .         .         .         .
.
  11304  33O  I      .         .         .         .         .        .    S     .         .         .         .         .
.
  11306  34O   I     .         .         .         .         .        .    S     .         .         .         .         .
.
  11308  35O   I     .         .         .         .         .        .    S     .         .         .         .         .
.
  11310  36O   I     .         .         .         .         .        .    S     .         .         .         .         .
.
  11312  37O   I     .         .         .         .         .        .    S     .         .         .         .         .
.
  11314  38O   I     .         .         .         .         .        .     S    .         .         .         .         .
.
  11316  39O   I     .         .         .         .         .        .     S    .         .         .         .         .
.
  11318  40O   I     .         .         .         .         .        .     S    .         .         .         .         .
.
  11320  41O . I . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
.
  11322  42O   I     .         .         .         .         .        .     S    .         .         .         .         .
.
  11324  43O   I     .         .         .         .         .        .      S   .         .         .         .         .
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11326  440   I     .         .         .         .         .         .      S  .         .         .         .         .
11328  450   I     .         .         .         .         .         .      S  .         .         .         .         .
11330  460   I     .         .         .         .         .         .      S  .         .         .         .         .
11332  470   I     .         .         .         .         .         .       S .         .         .         .         .
11334  480   I     .         .         .         .         .         .       S .         .         .         .         .
11336  490   I     .         .         .         .         .         .       S .         .         .         .         .
11338  500   I     .         .         .         .         .         .       S .         .         .         .         .
11340  51.O. I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
11342  52.O  I     .         .         .         .         .         .       S.         .         .         .         .
11344  53.O  I     .         .         .         .         .         .       S.         .         .         .         .
11346  54.O   I    .         .         .         .         .         .       S.         .         .         .         .
11348  55.O   I    .         .         .         .         .         .       S.         .         .         .         .
11350  56. O  I    .         .         .         .         .         .       S.         .         .         .         .
11352  57. O  I    .         .         .         .         .         .        S         .         .         .         .
11354  58. O  I    .         .         .         .         .         .        S         .         .         .         .
11356  59. O  I    .         .         .         .         .         .        S         .         .         .         .
11358  60. O  I    .         .         .         .         .         .        S         .         .         .         .
11400  61. O .I. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
11402  62.  O I    .         .         .         .         .         .        S         .         .         .         .
11404  63.  O I    .         .         .         .         .         .        .S        .         .         .         .
11406  64.  O  I   .         .         .         .         .         .        .S        .         .         .         .
11408  65.  O  I   .         .         .         .         .         .        .S        .         .         .         .
11410  66.  O  I   .         .         .         .         .         .        .S        .         .         .         .
11412  67.  O  I   .         .         .         .         .         .        .S        .         .         .         .
11414  68.  O  I   .         .         .         .         .         .        .S        .         .         .         .
11416  69.   O I   .         .         .         .         .         .        .S        .         .         .         .
11418  70.   O I   .         .         .         .         .         .        . S       .         .         .         .
11420  71. . O .I. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
11422  72.   O  I  .         .         .         .         .         .        . S       .         .         .         .
11424  73.   O  I  .         .         .         .         .         .        . S       .         .         .         .
11426  74.   O  I  .         .         .         .         .         .        . S       .         .         .         .
11428  75.   O  I  .         .         .         .         .         .        . S       .         .         .         .
11430  76.    O  I .         .         .         .         .         .        .  S      .         .         .         .
11432  77.    O  I .         .         .         .         .         .        .  S      .         .         .         .
11434  78.    O  I .         .         .         .         .         .        .  S      .         .         .         .
11436  79.    O   I.         .         .         .         .         .        .  S      .         .         .         .
11438  80.    O   I.         .         .         .         .         .        .  S      .         .         .         .
11440  81. . . O .I. . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
11442  82.     O   I         .         .         .         .         .        .   S     .         .         .         .
11444  83.     O   I         .         .         .         .         .        .   S     .         .         .         .
11446  84.     O   .I        .         .         .         .         .        .   S     .         .         .         .
11448  85.      O  . I       .         .         .         .         .        .   S     .         .         .         .
11450  86.      O  .  I      .         .         .         .         .        .    S    .         .         .         .
11452  87.      O  .   I     .         .         .         .         .        .    S    .         .         .         .
11454  88.       O .    I    .         .         .         .         .        .     S   .         .         .         .
11456  89.       O .        I.         .         .         .         .        .     S   .         .         .         .
11458  90.        O.         .     I   .         .         .         .        .      S  .         .         .         .
11500  91. . . . . O . . . . . . . . . .I. . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . .
11502  92.         .O        .         .         I         .         .        .       S.        .         .         .
11504  93.         .  O      .         .         .     I   .         .        .        .S       .         .         .
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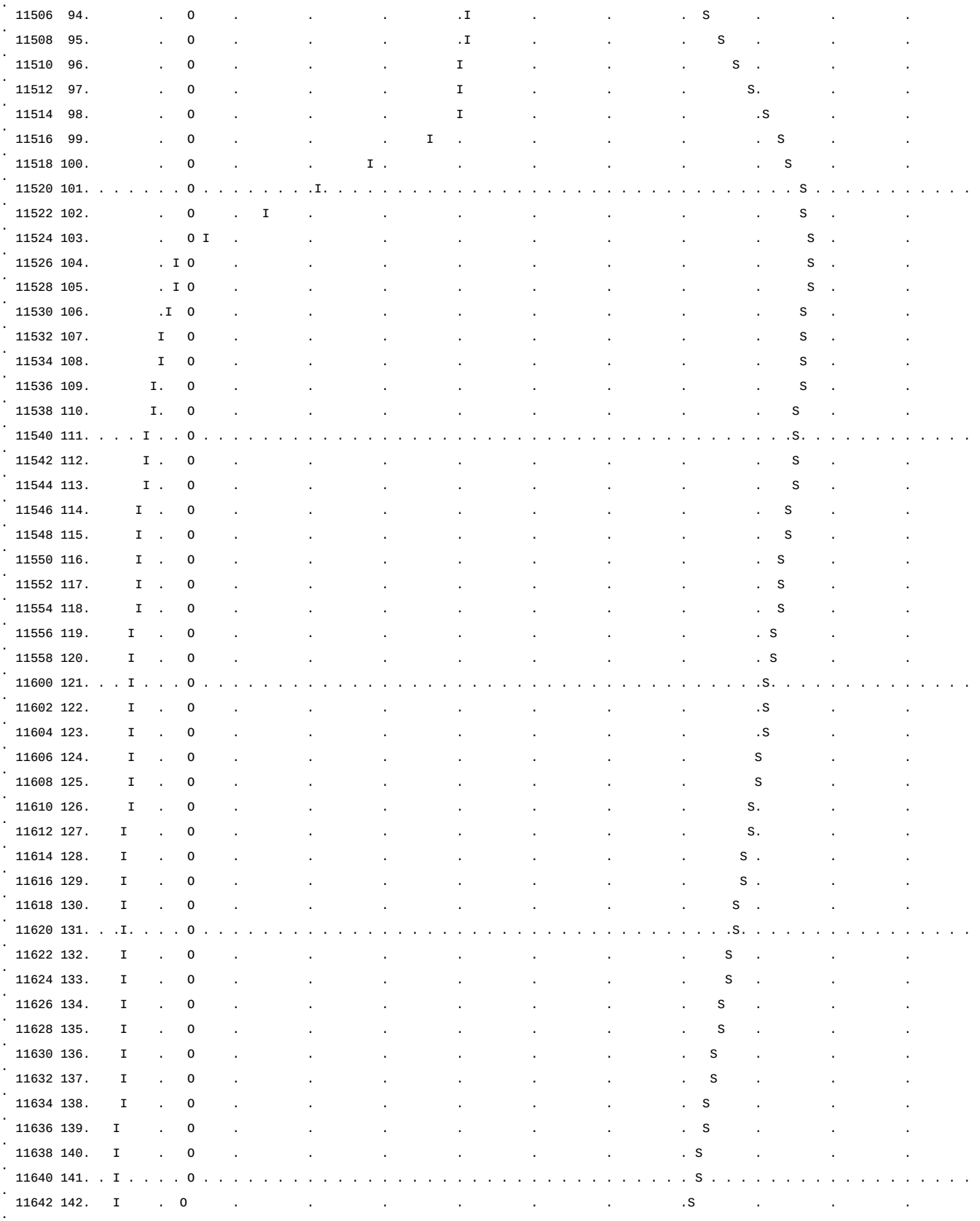

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11644 143.   I     .  O      .         .         .         .         .         .         .S        .         .         .
11646 144.   I     . O       .         .         .         .         .         .         S         .         .         .
11648 145.   I     . O       .         .         .         .         .         .         S         .         .         .
11650 146.   I     .O        .         .         .         .         .         .        S.         .         .         .
11652 147.   I     .O        .         .         .         .         .         .        S.         .         .         .
11654 148.   I     .O        .         .         .         .         .         .        S.         .         .         .
11656 149.   I     O         .         .         .         .         .         .       S .         .         .         .
11658 150.   I     O         .         .         .         .         .         .       S .         .         .         .
11700 151. . I . . O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . .
11702 152.   I    O.         .         .         .         .         .         .      S .         .         .         .
11704 153.   I    O.         .         .         .         .         .         .      S .         .         .         .
11706 154.  I     O.         .         .         .         .         .         .      S .         .         .         .
11708 155.  I    O .         .         .         .         .         .         .     S   .         .         .         .
11710 156.  I    O .         .         .         .         .         .         .     S   .         .         .         .
11712 157.  I    O .         .         .         .         .         .         .     S   .         .         .         .
11714 158.  I    O .         .         .         .         .         .         .     S   .         .         .         .
11716 159.  I   O  .         .         .         .         .         .         .    S    .         .         .         .
11718 160.  I   O  .         .         .         .         .         .         .    S    .         .         .         .
11720 161. .I. .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . .
11722 162.  I   O  .         .         .         .         .         .         .    S    .         .         .         .
11724 163.  I   O  .         .         .         .         .         .         .    S    .         .         .         .
11726 164.  I   O  .         .         .         .         .         .         .   S     .         .         .         .
11728 165.  I  O   .         .         .         .         .         .         .   S     .         .         .         .
11730 166.  I  O   .         .         .         .         .         .         .   S     .         .         .         .
11732 167.  I  O   .         .         .         .         .         .         .   S     .         .         .         .
11734 168.  I  O   .         .         .         .         .         .         .   S     .         .         .         .
11736 169.  I  O   .         .         .         .         .         .         .   S     .         .         .         .
11738 170.  I  O   .         .         .         .         .         .         .  S      .         .         .         .
11740 171. .I.O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . .
11742 172.  I O    .         .         .         .         .         .         .  S      .         .         .         .
11744 173.  I O    .         .         .         .         .         .         .  S      .         .         .         .
11746 174.  I O    .         .         .         .         .         .         .  S      .         .         .         .
11748 175.  I O    .         .         .         .         .         .         .  S      .         .         .         .
11750 176.  I O    .         .         .         .         .         .         .  S      .         .         .         .
11752 177.  I O    .         .         .         .         .         .         .  S      .         .         .         .
11754 178.  I O    .         .         .         .         .         .         .  S      .         .         .         .
11756 179.  I O    .         .         .         .         .         .         . S       .         .         .         .
11758 180.  IO     .         .         .         .         .         .         . S       .         .         .         .
11800 181. .IO . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . .
11802 182.  IO     .         .         .         .         .         .         . S       .         .         .         .
11804 183.  IO     .         .         .         .         .         .         . S       .         .         .         .
11806 184.  IO     .         .         .         .         .         .         . S       .         .         .         .
11808 185. I O     .         .         .         .         .         .         . S       .         .         .         .
11810 186. I O     .         .         .         .         .         .         . S       .         .         .         .
11812 187.I  O     .         .         .         .         .         .         . S       .         .         .         .
11814 188I   O     .         .         .         .         .         .         . S       .         .         .         .
11816 189I  O      .         .         .         .         .         .         .S        .         .         .         .
11818 190I  O      .         .         .         .         .         .         .S        .         .         .         .
11820 191I .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . .
11822 192I  O      .         .         .         .         .         .         .S        .         .         .         .
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11824 193I  O      .        .        .        .        .        .        .S       .        .        .        .
11826 194I  O      .        .        .        .        .        .        .S       .        .        .        .
11828 195I  O      .        .        .        .        .        .        S        .        .        .        .
11830 196I O       .        .        .        .        .        .        S        .        .        .        .
11832 197I O       .        .        .        .        .        .        S        .        .        .        .
11834 198I O       .        .        .        .        .        .        S        .        .        .        .
11836 199I O       .        .        .        .        .        .        S        .        .        .        .
11838 200I O       .        .        .        .        .        .        S        .        .        .        .
11840 201I O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
11842 202I O       .        .        .        .        .        .        S        .        .        .        .
11844 203I O       .        .        .        .        .        .       S.        .        .        .        .
11846 204I O       .        .        .        .        .        .       S.        .        .        .        .
11848 205IO        .        .        .        .        .        .       S.        .        .        .        .
11850 206IO        .        .        .        .        .        .       S.        .        .        .        .
11852 207IO        .        .        .        .        .        .       S.        .        .        .        .
11854 208IO        .        .        .        .        .        .       S.        .        .        .        .
11856 209IO        .        .        .        .        .        .       S.        .        .        .        .
11858 210IO        .        .        .        .        .        .       S.        .        .        .        .
11900 211IO. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . . .
11902 212IO        .        .        .        .        .        .       S.        .        .        .        .
11904 213IO        .        .        .        .        .        .       S.        .        .        .        .
11906 214IO        .        .        .        .        .        .       S.        .        .        .        .
11908 215IO        .        .        .        .        .        .       S.        .        .        .        .
11910 216IO        .        .        .        .        .        .       S.        .        .        .        .
11912 217IO        .        .        .        .        .        .       S.        .        .        .        .
11914 218IO        .        .        .        .        .        .       S.        .        .        .        .
11916 219IO        .        .        .        .        .        .       S.        .        .        .        .
11918 220IO        .        .        .        .        .        .      S .        .        .        .        .
11920 221IO. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
11922 222IO        .        .        .        .        .        .      S .        .        .        .        .
11924 223IO        .        .        .        .        .        .      S .        .        .        .        .
11926 224IO        .        .        .        .        .        .      S .        .        .        .        .
11928 225I         .        .        .        .        .        .      S .        .        .        .        .
11930 226I         .        .        .        .        .        .      S .        .        .        .        .
11932 227I         .        .        .        .        .        .      S .        .        .        .        .
11934 228I         .        .        .        .        .        .      S .        .        .        .        .
11936 229I         .        .        .        .        .        .      S .        .        .        .        .
11938 230I         .        .        .        .        .        .      S .        .        .        .        .
11940 231I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
11942 232I         .        .        .        .        .        .      S .        .        .        .        .
11944 233I         .        .        .        .        .        .      S .        .        .        .        .
11946 234I         .        .        .        .        .        .      S .        .        .        .        .
11948 235I         .        .        .        .        .        .      S .        .        .        .        .
11950 236I         .        .        .        .        .        .      S .        .        .        .        .
11952 237I         .        .        .        .        .        .      S .        .        .        .        .
11954 238I         .        .        .        .        .        .      S .        .        .        .        .
11956 239I         .        .        .        .        .        .      S .        .        .        .        .
11958 240I         .        .        .        .        .        .      S .        .        .        .        .
12000 241I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
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 12002 242I        .        .        .        .        .        .      S .        .        .        .        .
 12004 243I        .        .        .        .        .        .      S .        .        .        .        .
 12006 244I        .        .        .        .        .        .      S .        .        .        .        .
 12008 245I        .        .        .        .        .        .      S .        .        .        .        .
 12010 246I        .        .        .        .        .        .      S .        .        .        .        .
 12012 247I        .        .        .        .        .        .      S .        .        .        .        .
 12014 248I        .        .        .        .        .        .      S .        .        .        .        .
 12016 249I        .        .        .        .        .        .      S .        .        .        .        .
 12018 250I        .        .        .        .        .        .      S .        .        .        .        .
 12020 251I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
 12022 252I        .        .        .        .        .        .      S .        .        .        .        .
 12024 253I        .        .        .        .        .        .      S .        .        .        .        .
 12026 254I        .        .        .        .        .        .      S .        .        .        .        .
 12028 255I        .        .        .        .        .        .      S .        .        .        .        .
 12030 256I        .        .        .        .        .        .      S .        .        .        .        .
 12032 257I        .        .        .        .        .        .      S .        .        .        .        .
 12034 258I        .        .        .        .        .        .      S .        .        .        .        .
 12036 259I        .        .        .        .        .        .      S .        .        .        .        .
 12038 260I        .        .        .        .        .        .      S .        .        .        .        .
 12040 261I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
 12042 262I        .        .        .        .        .        .      S .        .        .        .        .
 12044 263I        .        .        .        .        .        .      S .        .        .        .        .
 12046 264I        .        .        .        .        .        .      S .        .        .        .        .
 12048 265I        .        .        .        .        .        .      S .        .        .        .        .
 12050 266I        .        .        .        .        .        .      S .        .        .        .        .
 12052 267I        .        .        .        .        .        .      S .        .        .        .        .
 12054 268I        .        .        .        .        .        .      S .        .        .        .        .
 12056 269I        .        .        .        .        .        .      S .        .        .        .        .
 12058 270I        .        .        .        .        .        .      S .        .        .        .        .
 12100 271I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
 12102 272I        .        .        .        .        .        .      S .        .        .        .        .
 12104 273I        .        .        .        .        .        .      S .        .        .        .        .
 12106 274I        .        .        .        .        .        .      S .        .        .        .        .
 12108 275I        .        .        .        .        .        .      S .        .        .        .        .
 12110 276I        .        .        .        .        .        .      S .        .        .        .        .
 12112 277I        .        .        .        .        .        .      S .        .        .        .        .
 12114 278I        .        .        .        .        .        .      S .        .        .        .        .
 12116 279I        .        .        .        .        .        .      S .        .        .        .        .
 12118 280I        .        .        .        .        .        .      S .        .        .        .        .
 12120 281I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
 12122 282I        .        .        .        .        .        .      S .        .        .        .        .
 12124 283I        .        .        .        .        .        .      S .        .        .        .        .
 12126 284I        .        .        .        .        .        .      S .        .        .        .        .
 12128 285I        .        .        .        .        .        .      S .        .        .        .        .
 12130 286I        .        .        .        .        .        .      S .        .        .        .        .
 12132 287I        .        .        .        .        .        .      S .        .        .        .        .
 12134 288I        .        .        .        .        .        .      S .        .        .        .        .
 12136 289I        .        .        .        .        .        .      S .        .        .        .        .
 12138 290I        .        .        .        .        .        .      S .        .        .        .        .
 12140 291I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . .
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12142 292I        .       .       .       .       .       .       S .       .       .       .       .
12144 293I        .       .       .       .       .       .       S .       .       .       .       .
12146 294I        .       .       .       .       .       .       S .       .       .       .       .
12148 295I        .       .       .       .       .       .       S .       .       .       .       .
12150 296I        .       .       .       .       .       .       S .       .       .       .       .
12152 297I        .       .       .       .       .       .       S .       .       .       .       .
12154 298I        .       .       .       .       .       .       S .       .       .       .       .
12156 299I        .       .       .       .       .       .       S .       .       .       .       .
12158 300I        .       .       .       .       .       .       S .       .       .       .       .
12200 301I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
12202 302I        .       .       .       .       .       .       S .       .       .       .       .
12204 303I        .       .       .       .       .       .       S .       .       .       .       .
12206 304I        .       .       .       .       .       .       S .       .       .       .       .
12208 305I        .       .       .       .       .       .       S .       .       .       .       .
12210 306I        .       .       .       .       .       .       S .       .       .       .       .
12212 307I        .       .       .       .       .       .       S .       .       .       .       .
12214 308I        .       .       .       .       .       .       S .       .       .       .       .
12216 309I        .       .       .       .       .       .       S .       .       .       .       .
12218 310I        .       .       .       .       .       .     S   .       .       .       .       .
12220 311I . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . .
12222 312I        .       .       .       .       .       .     S   .       .       .       .       .
12224 313I        .       .       .       .       .       .     S   .       .       .       .       .
12226 314I        .       .       .       .       .       .     S   .       .       .       .       .
12228 315I        .       .       .       .       .       .     S   .       .       .       .       .
12230 316I        .       .       .       .       .       .     S   .       .       .       .       .
12232 317I        .       .       .       .       .       .     S   .       .       .       .       .
12234 318I        .       .       .       .       .       .     S   .       .       .       .       .
12236 319I        .       .       .       .       .       .     S   .       .       .       .       .
12238 320I        .       .       .       .       .       .     S   .       .       .       .       .
12240 321I . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . .
12242 322I        .       .       .       .       .       .     S   .       .       .       .       .
12244 323I        .       .       .       .       .       .     S   .       .       .       .       .
12246 324I        .       .       .       .       .       .     S   .       .       .       .       .
12248 325I        .       .       .       .       .       .     S   .       .       .       .       .
12250 326I        .       .       .       .       .       .     S   .       .       .       .       .
12252 327I        .       .       .       .       .       .     S   .       .       .       .       .
12254 328I        .       .       .       .       .       .     S   .       .       .       .       .
12256 329I        .       .       .       .       .       .     S   .       .       .       .       .
12258 330I        .       .       .       .       .       .     S   .       .       .       .       .
12300 331I . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . .
12302 332I        .       .       .       .       .       .     S   .       .       .       .       .
12304 333I        .       .       .       .       .       .     S   .       .       .       .       .
12306 334I        .       .       .       .       .       .     S   .       .       .       .       .
12308 335I        .       .       .       .       .       .     S   .       .       .       .       .
12310 336I        .       .       .       .       .       .     S   .       .       .       .       .
12312 337I        .       .       .       .       .       .     S   .       .       .       .       .
12314 338I        .       .       .       .       .       .     S   .       .       .       .       .
12316 339I        .       .       .       .       .       .     S   .       .       .       .       .
12318 340I        .       .       .       .       .       .     S   .       .       .       .       .
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12320 341I . . . . . S. . . . . .
12322 342I        .        .        .        .        .        .        S .        .        .        .        .        .
12324 343I        .        .        .        .        .        .        S .        .        .        .        .        .
12326 344I        .        .        .        .        .        .        S .        .        .        .        .        .
12328 345I        .        .        .        .        .        .        S .        .        .        .        .        .
12330 346I        .        .        .        .        .        .        S .        .        .        .        .        .
12332 347I        .        .        .        .        .        .        S .        .        .        .        .        .
12334 348I        .        .        .        .        .        .        S .        .        .        .        .        .
12336 349I        .        .        .        .        .        .        S .        .        .        .        .        .
12338 350I        .        .        .        .        .        .        S .        .        .        .        .        .
12340 351I . . . . . S. . . . . .
12342 352I        .        .        .        .        .        .        S .        .        .        .        .        .
12344 353I        .        .        .        .        .        .        S .        .        .        .        .        .
12346 354I        .        .        .        .        .        .        S .        .        .        .        .        .
12348 355I        .        .        .        .        .        .        S .        .        .        .        .        .
12350 356I        .        .        .        .        .        .        S .        .        .        .        .        .
12352 357I        .        .        .        .        .        .        S .        .        .        .        .        .
12354 358I        .        .        .        .        .        .        S .        .        .        .        .        .
12356 359I        .        .        .        .        .        .        S .        .        .        .        .        .
12358 360I        .        .        .        .        .        .        S .        .        .        .        .        .
20000 361I . . . . . S. . . . . .
20002 362I        .        .        .        .        .        .        S .        .        .        .        .        .
20004 363I        .        .        .        .        .        .        S .        .        .        .        .        .
20006 364I        .        .        .        .        .        .        S .        .        .        .        .        .
20008 365I        .        .        .        .        .        .        S .        .        .        .        .        .
20010 366I        .        .        .        .        .        .        S .        .        .        .        .        .
20012 367I        .        .        .        .        .        .        S .        .        .        .        .        .
20014 368I        .        .        .        .        .        .        S .        .        .        .        .        .
20016 369I        .        .        .        .        .        .        S .        .        .        .        .        .
20018 370I        .        .        .        .        .        .        S .        .        .        .        .        .
20020 371I . . . . . S. . . . . .
20022 372I        .        .        .        .        .        .        S .        .        .        .        .        .
20024 373I        .        .        .        .        .        .        S .        .        .        .        .        .
20026 374I        .        .        .        .        .        .        S .        .        .        .        .        .
20028 375I        .        .        .        .        .        .        S .        .        .        .        .        .
20030 376I        .        .        .        .        .        .        S .        .        .        .        .        .
20032 377I        .        .        .        .        .        .        S .        .        .        .        .        .
20034 378I        .        .        .        .        .        .        S .        .        .        .        .        .
20036 379I        .        .        .        .        .        .        S .        .        .        .        .        .
20038 380I        .        .        .        .        .        .        S .        .        .        .        .        .
20040 381I . . . . . S. . . . . .
20042 382I        .        .        .        .        .        .        S .        .        .        .        .        .
20044 383I        .        .        .        .        .        .        S .        .        .        .        .        .
20046 384I        .        .        .        .        .        .        S .        .        .        .        .        .
20048 385I        .        .        .        .        .        .        S .        .        .        .        .        .
20050 386I        .        .        .        .        .        .        S .        .        .        .        .        .
20052 387I        .        .        .        .        .        .        S .        .        .        .        .        .
20054 388I        .        .        .        .        .        .        S .        .        .        .        .        .
20056 389I        .        .        .        .        .        .        S .        .        .        .        .        .
20058 390I        .        .        .        .        .        .        S .        .        .        .        .        .
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20100 391I . . . . . S. . . . . .
20102 392I        .        .        .        .        .        .        S .        .        .        .        .        .
20104 393I        .        .        .        .        .        .        S .        .        .        .        .        .
20106 394I        .        .        .        .        .        .        S .        .        .        .        .        .
20108 395I        .        .        .        .        .        .        S .        .        .        .        .        .
20110 396I        .        .        .        .        .        .        S .        .        .        .        .        .
20112 397I        .        .        .        .        .        .        S .        .        .        .        .        .
20114 398I        .        .        .        .        .        .        S .        .        .        .        .        .
20116 399I        .        .        .        .        .        .        S .        .        .        .        .        .
20118 400I        .        .        .        .        .        .        S .        .        .        .        .        .
20120 401I . . . . . S. . . . . .
20122 402I        .        .        .        .        .        .        S .        .        .        .        .        .
20124 403I        .        .        .        .        .        .        S .        .        .        .        .        .
20126 404I        .        .        .        .        .        .        S .        .        .        .        .        .
20128 405I        .        .        .        .        .        .        S .        .        .        .        .        .
20130 406I        .        .        .        .        .        .        S .        .        .        .        .        .
20132 407I        .        .        .        .        .        .        S .        .        .        .        .        .
20134 408I        .        .        .        .        .        .        S .        .        .        .        .        .
20136 409I        .        .        .        .        .        .        S .        .        .        .        .        .
20138 410I        .        .        .        .        .        .        S .        .        .        .        .        .
20140 411I . . . . . S. . . . . .
20142 412I        .        .        .        .        .        .        S .        .        .        .        .        .
20144 413I        .        .        .        .        .        .        S .        .        .        .        .        .
20146 414I        .        .        .        .        .        .        S .        .        .        .        .        .
20148 415I        .        .        .        .        .        .        S .        .        .        .        .        .
20150 416I        .        .        .        .        .        .        S .        .        .        .        .        .
20152 417I        .        .        .        .        .        .        S .        .        .        .        .        .
20154 418I        .        .        .        .        .        .        S .        .        .        .        .        .
20156 419I        .        .        .        .        .        .        S .        .        .        .        .        .
20158 420I        .        .        .        .        .        .        S .        .        .        .        .        .
20200 421I . . . . . S. . . . . .
20202 422I        .        .        .        .        .        .        S .        .        .        .        .        .
20204 423I        .        .        .        .        .        .        S .        .        .        .        .        .
20206 424I        .        .        .        .        .        .        S .        .        .        .        .        .
20208 425I        .        .        .        .        .        .        S .        .        .        .        .        .
20210 426I        .        .        .        .        .        .        S .        .        .        .        .        .
20212 427I        .        .        .        .        .        .        S .        .        .        .        .        .
20214 428I        .        .        .        .        .        .        S .        .        .        .        .        .
20216 429I        .        .        .        .        .        .        S .        .        .        .        .        .
20218 430I        .        .        .        .        .        .        S .        .        .        .        .        .
20220 431I . . . . . S. . . . . .
20222 432I        .        .        .        .        .        .        S .        .        .        .        .        .
20224 433I        .        .        .        .        .        .        S .        .        .        .        .        .
20226 434I        .        .        .        .        .        .        S .        .        .        .        .        .
20228 435I        .        .        .        .        .        .        S .        .        .        .        .        .
20230 436I        .        .        .        .        .        .        S .        .        .        .        .        .
20232 437I        .        .        .        .        .        .        S .        .        .        .        .        .
20234 438I        .        .        .        .        .        .        S .        .        .        .        .        .
20236 439I        .        .        .        .        .        .        S .        .        .        .        .        .
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20238 440I        .       .       .       .       .       .       S       .       .       .       .       .
20240 441I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
20242 442I        .       .       .       .       .       .       S       .       .       .       .       .
20244 443I        .       .       .       .       .       .       S       .       .       .       .       .
20246 444I        .       .       .       .       .       .       S       .       .       .       .       .
20248 445I        .       .       .       .       .       .       S       .       .       .       .       .
20250 446I        .       .       .       .       .       .       S       .       .       .       .       .
20252 447I        .       .       .       .       .       .       S       .       .       .       .       .
20254 448I        .       .       .       .       .       .     S         .       .       .       .       .
20256 449I        .       .       .       .       .       .     S         .       .       .       .       .
20258 450I        .       .       .       .       .       .     S         .       .       .       .       .
20300 451I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
20302 452I        .       .       .       .       .       .     S         .       .       .       .       .
20304 453I        .       .       .       .       .       .     S         .       .       .       .       .
20306 454I        .       .       .       .       .       .     S         .       .       .       .       .
20308 455I        .       .       .       .       .       .     S         .       .       .       .       .
20310 456I        .       .       .       .       .       .     S         .       .       .       .       .
20312 457I        .       .       .       .       .       .     S         .       .       .       .       .
20314 458I        .       .       .       .       .       .     S         .       .       .       .       .
20316 459I        .       .       .       .       .       .     S         .       .       .       .       .
20318 460I        .       .       .       .       .       .     S         .       .       .       .       .
20320 461I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
20322 462I        .       .       .       .       .       .     S         .       .       .       .       .
20324 463I        .       .       .       .       .       .     S         .       .       .       .       .
20326 464I        .       .       .       .       .       .     S         .       .       .       .       .
20328 465I        .       .       .       .       .       .     S         .       .       .       .       .
20330 466I        .       .       .       .       .       .     S         .       .       .       .       .
20332 467I        .       .       .       .       .       .     S         .       .       .       .       .
20334 468I        .       .       .       .       .       .     S         .       .       .       .       .
20336 469I        .       .       .       .       .       .     S         .       .       .       .       .
20338 470I        .       .       .       .       .       .     S         .       .       .       .       .
20340 471I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
20342 472I        .       .       .       .       .       .     S         .       .       .       .       .
20344 473I        .       .       .       .       .       .     S         .       .       .       .       .
20346 474I        .       .       .       .       .       .     S         .       .       .       .       .
20348 475I        .       .       .       .       .       .     S         .       .       .       .       .
20350 476I        .       .       .       .       .       .     S         .       .       .       .       .
20352 477I        .       .       .       .       .       .     S         .       .       .       .       .
20354 478I        .       .       .       .       .       .     S         .       .       .       .       .
20356 479I        .       .       .       .       .       .     S         .       .       .       .       .
20358 480I        .       .       .       .       .       .     S         .       .       .       .       .
20400 481I . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
20402 482I        .       .       .       .       .       .     S         .       .       .       .       .
20404 483I        .       .       .       .       .       .     S         .       .       .       .       .
20406 484I        .       .       .       .       .       .     S         .       .       .       .       .
20408 485I        .       .       .       .       .       .     S         .       .       .       .       .
20410 486I        .       .       .       .       .       .     S         .       .       .       .       .
20412 487I        .       .       .       .       .       .     S         .       .       .       .       .
20414 488I        .       .       .       .       .       .     S         .       .       .       .       .
20416 489I        .       .       .       .       .       .     S         .       .       .       .       .
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  20418 490I         .         .         .         .         .         .    S    .         .         .         .         .
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  20420 491I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
.
  20422 492I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20424 493I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20426 494I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20428 495I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20430 496I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20432 497I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20434 498I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20436 499I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20438
500I---------.---------.---------.---------.---------.---------.-----S---.---------.---------.---------.---------.---------.
1
1
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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	ECC-BMP5	10.	3.10	2.	1.	1.	.01		
+	ROUTED TO	DET1	3.	3.10	1.	1.	1.	.01		
+									102.92	3.43

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

```
KK ECC-BMP5B.OUT
KM RATIONAL METHOD HYDROGRAPH PROGRAM
KM COPYRIGHT 1992, RICK ENGINEERING COMPANY
KM 6HR RAINFALL IS  3.49  INCHES
KM RATIONAL METHOD RUNOFF COEFFICIENT IS  .65
KM RATIONAL METHOD TIME OF CONCENTRATION IS  12  MIN.
KM FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO YOUR HEC-1
KM IT 2 01JAN90 1200 200
BA .0172
IN 12 01JAN90  1154
QI 0  0  1.5  1.6  1.7  1.8  1.9  2  2.2  2.4
QI 2.6  2.9  3.3  4  5  7.4  28.5  19.3  5.9  4.4
QI 3.6  3.1  2.7  2.5  2.3  2.1  2  1.8  1.7  1.6
QI 1.6  1.5  0  0  0  0  0  0  0  0
QI 0  0
```

```
*FREE
*DIAGRAM
ID ESCONDIDO COUNTRY CLUB, J-17762-A BMP 5B
ID 100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
ID March 3, 2017 - FILE NAME: ECC_BMP5B_00.HC1
IT 2 01JAN90 1200 500
IO 5 0
*
KK ECC-BMP5B.OUT
KM RATIONAL METHOD HYDROGRAPH PROGRAM
KM COPYRIGHT 1992, RICK ENGINEERING COMPANY
KM 6HR RAINFALL IS  3.49  INCHES
KM RATIONAL METHOD RUNOFF COEFFICIENT IS  .65
KM RATIONAL METHOD TIME OF CONCENTRATION IS  12  MIN.
KM FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO
YOUR HEC-1
KM IT 2 01JAN90 1200 200
BA .0172
IN 12 01JAN90  1154
QI 0  0  1.5  1.6  1.7  1.8  1.9  2  2.2  2.4
QI 2.6  2.9  3.3  4  5  7.4  28.5  19.3  5.9  4.4
QI 3.6  3.1  2.7  2.5  2.3  2.1  2  1.8  1.7  1.6
QI 1.6  1.5  0  0  0  0  0  0  0  0
QI 0  0
*
KK DET1
KM DETAIN BASIN 5B
KO 2 2 0 0 21
RS 1 STOR -1
SV 0 .24 .58 .95
SQ 0 .08 5.4 13.1
SE 100 101 102 103
*
KO 2 2 0 0 21
ZZ
```

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1****************************************
****************************************
 *                                      *                                                    *
*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF ENGINEERS
*
 *               JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING CENTER
*
 *            VERSION 4.1               *                                                    *         609 SECOND STREET
*
 *                                      *                                                    *       DAVIS, CALIFORNIA 95616
*
 *  RUN DATE   06MAR17  TIME  15:23:27  *                                                    *          (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
```

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

 *** FREE ***
                        *DIAGRAM
             1          ID   ESCONDIDO COUNTRY CLUB, J-17762-A BMP 5B
             2          ID   100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
             3          ID   March 3, 2017 - FILE NAME: ECC_BMP5B_00.HC1
             4          IT       2 01JAN90    1200     500
             5          IO       5       0
                        *

             6          KKECC-BMP5B.OUT
             7          KM   RATIONAL METHOD HYDROGRAPH PROGRAM
             8          KM   COPYRIGHT 1992, RICK ENGINEERING COMPANY
             9          KM   6HR RAINFALL IS  3.49  INCHES
            10          KM   RATIONAL METHOD RUNOFF COEFFICIENT IS  .65
            11          KM   RATIONAL METHOD TIME OF CONCENTRATION IS  12  MIN.
            12          KM   FOR THIS DATA TO RUN PROPERLY THIS IT CARD MUST BE ADDED TO YOUR HEC-1
            13          KM   IT 2 01JAN90 1200 200
            14          BA   .0172
            15          IN      12 01JAN90    1154
            16          QI       0       0     1.5     1.6     1.7     1.8     1.9       2     2.2     2.4
            17          QI     2.6     2.9     3.3       4       5     7.4    28.5    19.3     5.9     4.4
            18          QI     3.6     3.1     2.7     2.5     2.3     2.1       2     1.8     1.7     1.6
            19          QI     1.6     1.5       0       0       0       0       0       0       0       0
            20          QI       0       0
                        *

            21          KK    DET1
            22          KM   DETAIN BASIN 5B
            23          KO       2       2       0       0      21
            24          RS       1    STOR      -1
            25          SV       0     .24     .58     .95
            26          SQ       0     .08     5.4    13.1
            27          SE     100     101     102     103
                        *
            28          KO       2       2       0       0      21
            29          ZZ
```

1 SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

     6    ECC-BMP5
               V
               V
    21        DET1
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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1****************************************
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 *                                      *                                                    *
```

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*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                                    *    U.S. ARMY CORPS OF ENGINEERS
*
 *               JUN   1998              *                                                    *    HYDROLOGIC ENGINEERING CENTER
*
 *            VERSION 4.1                *                                                    *          609 SECOND STREET
*
 *                                       *                                                    *       DAVIS, CALIFORNIA 95616
*
 *  RUN DATE   06MAR17  TIME  15:23:27   *                                                    *           (916) 756-1104
*
 *                                       *                                                    *
*
 *****************************************
***************************************




                             ESCONDIDO COUNTRY CLUB, J-17762-A BMP 5B
                             100-YEAR DETENTION ANALYSIS - Preliminary (100-101)
                             March 3, 2017 - FILE NAME: ECC_BMP5B_00.HC1

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

      IT          HYDROGRAPH TIME DATA
                         NMIN           2  MINUTES IN COMPUTATION INTERVAL
                        IDATE      1JAN90  STARTING DATE
                        ITIME        1200  STARTING TIME
                           NQ         500  NUMBER OF HYDROGRAPH ORDINATES
                       NDDATE      2JAN90  ENDING DATE
                       NDTIME        0438  ENDING TIME
                       ICENT           19  CENTURY MARK

                    COMPUTATION INTERVAL     .03 HOURS
                         TOTAL TIME BASE   16.63 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


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

             **************
             *            *
   21 KK     *      DET1  *
             *            *
             **************

   23 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           2  PRINT CONTROL
                        IPLOT           2  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                         IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2         500  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT        .033  TIME INTERVAL IN HOURS


   28 KO          OUTPUT CONTROL VARIABLES
                        IPRNT           2  PRINT CONTROL
                        IPLOT           2  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                         IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2         500  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT        .033  TIME INTERVAL IN HOURS


                HYDROGRAPH ROUTING DATA

   24 RS          STORAGE ROUTING
                        NSTPS           1  NUMBER OF SUBREACHES
                         ITYP        STOR  TYPE OF INITIAL CONDITION
                       RSVRIC       -1.00  INITIAL CONDITION
                            X         .00 WORKING R AND D COEFFICIENT

   25 SV            STORAGE          .0        .2        .6        .9

   26 SQ          DISCHARGE          0.        0.        5.       13.

   27 SE          ELEVATION      100.00    101.00    102.00    103.00
                                                                ***
```

HYDROGRAPH AT STATION DET1

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	JAN	1200	1	0.	.0	100.0	1	JAN	1734	168	3.	.4	101.5	1	JAN	2308	335	0.	.2	100.9
1	JAN	1202	2	0.	.0	100.0	1	JAN	1736	169	3.	.4	101.5	1	JAN	2310	336	0.	.2	100.9
1	JAN	1204	3	0.	.0	100.0	1	JAN	1738	170	3.	.4	101.5	1	JAN	2312	337	0.	.2	100.9
1	JAN	1206	4	0.	.0	100.0	1	JAN	1740	171	3.	.4	101.5	1	JAN	2314	338	0.	.2	100.9
1	JAN	1208	5	0.	.0	100.0	1	JAN	1742	172	3.	.4	101.5	1	JAN	2316	339	0.	.2	100.9
1	JAN	1210	6	0.	.0	100.0	1	JAN	1744	173	2.	.4	101.5	1	JAN	2318	340	0.	.2	100.9
1	JAN	1212	7	0.	.0	100.0	1	JAN	1746	174	2.	.4	101.4	1	JAN	2320	341	0.	.2	100.9
1	JAN	1214	8	0.	.0	100.0	1	JAN	1748	175	2.	.4	101.4	1	JAN	2322	342	0.	.2	100.9
1	JAN	1216	9	0.	.0	100.0	1	JAN	1750	176	2.	.4	101.4	1	JAN	2324	343	0.	.2	100.9
1	JAN	1218	10	0.	.0	100.1	1	JAN	1752	177	2.	.4	101.4	1	JAN	2326	344	0.	.2	100.9
1	JAN	1220	11	0.	.0	100.1	1	JAN	1754	178	2.	.4	101.4	1	JAN	2328	345	0.	.2	100.9
1	JAN	1222	12	0.	.0	100.1	1	JAN	1756	179	2.	.4	101.4	1	JAN	2330	346	0.	.2	100.9
1	JAN	1224	13	0.	.0	100.1	1	JAN	1758	180	2.	.4	101.4	1	JAN	2332	347	0.	.2	100.9
1	JAN	1226	14	0.	.0	100.1	1	JAN	1800	181	2.	.4	101.4	1	JAN	2334	348	0.	.2	100.9
1	JAN	1228	15	0.	.0	100.1	1	JAN	1802	182	2.	.4	101.4	1	JAN	2336	349	0.	.2	100.9
1	JAN	1230	16	0.	.0	100.2	1	JAN	1804	183	2.	.4	101.4	1	JAN	2338	350	0.	.2	100.9
1	JAN	1232	17	0.	.0	100.2	1	JAN	1806	184	2.	.4	101.4	1	JAN	2340	351	0.	.2	100.9
1	JAN	1234	18	0.	.0	100.2	1	JAN	1808	185	2.	.4	101.4	1	JAN	2342	352	0.	.2	100.9
1	JAN	1236	19	0.	.1	100.2	1	JAN	1810	186	2.	.4	101.4	1	JAN	2344	353	0.	.2	100.9
1	JAN	1238	20	0.	.1	100.2	1	JAN	1812	187	2.	.4	101.4	1	JAN	2346	354	0.	.2	100.9
1	JAN	1240	21	0.	.1	100.3	1	JAN	1814	188	2.	.4	101.4	1	JAN	2348	355	0.	.2	100.9
1	JAN	1242	22	0.	.1	100.3	1	JAN	1816	189	2.	.4	101.3	1	JAN	2350	356	0.	.2	100.9
1	JAN	1244	23	0.	.1	100.3	1	JAN	1818	190	2.	.4	101.3	1	JAN	2352	357	0.	.2	100.9
1	JAN	1246	24	0.	.1	100.3	1	JAN	1820	191	2.	.3	101.3	1	JAN	2354	358	0.	.2	100.9
1	JAN	1248	25	0.	.1	100.3	1	JAN	1822	192	2.	.3	101.3	1	JAN	2356	359	0.	.2	100.9
1	JAN	1250	26	0.	.1	100.3	1	JAN	1824	193	2.	.3	101.3	1	JAN	2358	360	0.	.2	100.9
1	JAN	1252	27	0.	.1	100.4	1	JAN	1826	194	2.	.3	101.3	2	JAN	0000	361	0.	.2	100.9
1	JAN	1254	28	0.	.1	100.4	1	JAN	1828	195	1.	.3	101.3	2	JAN	0002	362	0.	.2	100.9
1	JAN	1256	29	0.	.1	100.4	1	JAN	1830	196	1.	.3	101.2	2	JAN	0004	363	0.	.2	100.9
1	JAN	1258	30	0.	.1	100.4	1	JAN	1832	197	1.	.3	101.2	2	JAN	0006	364	0.	.2	100.9
1	JAN	1300	31	0.	.1	100.5	1	JAN	1834	198	1.	.3	101.2	2	JAN	0008	365	0.	.2	100.9
1	JAN	1302	32	0.	.1	100.5	1	JAN	1836	199	1.	.3	101.2	2	JAN	0010	366	0.	.2	100.9
1	JAN	1304	33	0.	.1	100.5	1	JAN	1838	200	1.	.3	101.2	2	JAN	0012	367	0.	.2	100.9
1	JAN	1306	34	0.	.1	100.5	1	JAN	1840	201	1.	.3	101.2	2	JAN	0014	368	0.	.2	100.9
1	JAN	1308	35	0.	.1	100.5	1	JAN	1842	202	1.	.3	101.2	2	JAN	0016	369	0.	.2	100.9
1	JAN	1310	36	0.	.1	100.6	1	JAN	1844	203	1.	.3	101.2	2	JAN	0018	370	0.	.2	100.9
1	JAN	1312	37	0.	.1	100.6	1	JAN	1846	204	1.	.3	101.2	2	JAN	0020	371	0.	.2	100.9
1	JAN	1314	38	0.	.1	100.6	1	JAN	1848	205	1.	.3	101.2	2	JAN	0022	372	0.	.2	100.9
1	JAN	1316	39	0.	.1	100.6	1	JAN	1850	206	1.	.3	101.2	2	JAN	0024	373	0.	.2	100.9
1	JAN	1318	40	0.	.2	100.6	1	JAN	1852	207	1.	.3	101.1	2	JAN	0026	374	0.	.2	100.9
1	JAN	1320	41	0.	.2	100.7	1	JAN	1854	208	1.	.3	101.1	2	JAN	0028	375	0.	.2	100.9
1	JAN	1322	42	0.	.2	100.7	1	JAN	1856	209	1.	.3	101.1	2	JAN	0030	376	0.	.2	100.9
1	JAN	1324	43	0.	.2	100.7	1	JAN	1858	210	1.	.3	101.1	2	JAN	0032	377	0.	.2	100.9
1	JAN	1326	44	0.	.2	100.7	1	JAN	1900	211	1.	.3	101.1	2	JAN	0034	378	0.	.2	100.9
1	JAN	1328	45	0.	.2	100.8	1	JAN	1902	212	1.	.3	101.1	2	JAN	0036	379	0.	.2	100.9
1	JAN	1330	46	0.	.2	100.8	1	JAN	1904	213	1.	.3	101.1	2	JAN	0038	380	0.	.2	100.9
1	JAN	1332	47	0.	.2	100.8	1	JAN	1906	214	1.	.3	101.1	2	JAN	0040	381	0.	.2	100.9
1	JAN	1334	48	0.	.2	100.8	1	JAN	1908	215	1.	.3	101.1	2	JAN	0042	382	0.	.2	100.9
1	JAN	1336	49	0.	.2	100.9	1	JAN	1910	216	1.	.3	101.1	2	JAN	0044	383	0.	.2	100.9
1	JAN	1338	50	0.	.2	100.9	1	JAN	1912	217	1.	.3	101.1	2	JAN	0046	384	0.	.2	100.9
1	JAN	1340	51	0.	.2	100.9	1	JAN	1914	218	1.	.3	101.1	2	JAN	0048	385	0.	.2	100.9
1	JAN	1342	52	0.	.2	100.9	1	JAN	1916	219	1.	.3	101.1	2	JAN	0050	386	0.	.2	100.9
1	JAN	1344	53	0.	.2	101.0	1	JAN	1918	220	0.	.3	101.1	2	JAN	0052	387	0.	.2	100.9
1	JAN	1346	54	0.	.2	101.0	1	JAN	1920	221	0.	.3	101.1	2	JAN	0054	388	0.	.2	100.9
1	JAN	1348	55	0.	.2	101.0	1	JAN	1922	222	0.	.3	101.1	2	JAN	0056	389	0.	.2	100.9
1	JAN	1350	56	0.	.3	101.0	1	JAN	1924	223	0.	.3	101.1	2	JAN	0058	390	0.	.2	100.9
1	JAN	1352	57	0.	.3	101.1	1	JAN	1926	224	0.	.3	101.1	2	JAN	0100	391	0.	.2	100.9
1	JAN	1354	58	0.	.3	101.1	1	JAN	1928	225	0.	.3	101.1	2	JAN	0102	392	0.	.2	100.9
1	JAN	1356	59	1.	.3	101.1	1	JAN	1930	226	0.	.3	101.1	2	JAN	0104	393	0.	.2	100.9
1	JAN	1358	60	1.	.3	101.1	1	JAN	1932	227	0.	.3	101.1	2	JAN	0106	394	0.	.2	100.9
1	JAN	1400	61	1.	.3	101.1	1	JAN	1934	228	0.	.3	101.1	2	JAN	0108	395	0.	.2	100.9
1	JAN	1402	62	1.	.3	101.1	1	JAN	1936	229	0.	.3	101.0	2	JAN	0110	396	0.	.2	100.9
1	JAN	1404	63	1.	.3	101.2	1	JAN	1938	230	0.	.3	101.0	2	JAN	0112	397	0.	.2	100.9
1	JAN	1406	64	1.	.3	101.2	1	JAN	1940	231	0.	.3	101.0	2	JAN	0114	398	0.	.2	100.9
1	JAN	1408	65	1.	.3	101.2	1	JAN	1942	232	0.	.3	101.0	2	JAN	0116	399	0.	.2	100.9
1	JAN	1410	66	1.	.3	101.2	1	JAN	1944	233	0.	.3	101.0	2	JAN	0118	400	0.	.2	100.9
1	JAN	1412	67	1.	.3	101.2	1	JAN	1946	234	0.	.3	101.0	2	JAN	0120	401	0.	.2	100.9
1	JAN	1414	68	1.	.3	101.2	1	JAN	1948	235	0.	.3	101.0	2	JAN	0122	402	0.	.2	100.9
1	JAN	1416	69	1.	.3	101.2	1	JAN	1950	236	0.	.3	101.0	2	JAN	0124	403	0.	.2	100.9
1	JAN	1418	70	1.	.3	101.3	1	JAN	1952	237	0.	.3	101.0	2	JAN	0126	404	0.	.2	100.9
1	JAN	1420	71	2.	.3	101.3	1	JAN	1954	238	0.	.2	101.0	2	JAN	0128	405	0.	.2	100.9
1	JAN	1422	72	2.	.3	101.3	1	JAN	1956	239	0.	.2	101.0	2	JAN	0130	406	0.	.2	100.9
1	JAN	1424	73	2.	.3	101.3	1	JAN	1958	240	0.	.2	101.0	2	JAN	0132	407	0.	.2	100.9
1	JAN	1426	74	2.	.3	101.3	1	JAN	2000	241	0.	.2	101.0	2	JAN	0134	408	0.	.2	100.9
1	JAN	1428	75	2.	.4	101.3	1	JAN	2002	242	0.	.2	101.0	2	JAN	0136	409	0.	.2	100.9
1	JAN	1430	76	2.	.4	101.4	1	JAN	2004	243	0.	.2	101.0	2	JAN	0138	410	0.	.2	100.9
1	JAN	1432	77	2.	.4	101.4	1	JAN	2006	244	0.	.2	101.0	2	JAN	0140	411	0.	.2	100.9
1	JAN	1434	78	2.	.4	101.4	1	JAN	2008	245	0.	.2	101.0	2	JAN	0142	412	0.	.2	100.9
1	JAN	1436	79	2.	.4	101.4	1	JAN	2010	246	0.	.2	101.0	2	JAN	0144	413	0.	.2	100.9
1	JAN	1438	80	2.	.4	101.4	1	JAN	2012	247	0.	.2	101.0	2	JAN	0146	414	0.	.2	100.9
1	JAN	1440	81	2.	.4	101.4	1	JAN	2014	248	0.	.2	101.0	2	JAN	0148	415	0.	.2	100.9
1	JAN	1442	82	3.	.4	101.5	1	JAN	2016	249	0.	.2	101.0	2	JAN	0150	416	0.	.2	100.9
1	JAN	1444	83	3.	.4	101.5	1	JAN	2018	250	0.	.2	101.0	2	JAN	0152	417	0.	.2	100.9
1	JAN	1446	84	3.	.4	101.5	1	JAN	2020	251	0.	.2	101.0	2	JAN	0154	418	0.	.2	100.9
1	JAN	1448	85	3.	.4	101.5	1	JAN	2022	252	0.	.2	101.0	2	JAN	0156	419	0.	.2	100.9
1	JAN	1450	86	3.	.4	101.6	1	JAN	2024	253	0.	.2	101.0	2	JAN	0158	420	0.	.2	100.9
1	JAN	1452	87	3.	.4	101.6	1	JAN	2026	254	0.	.2	101.0	2	JAN	0200	421	0.	.2	100.9
1	JAN	1454	88	3.	.5	101.6	1	JAN	2028	255	0.	.2	101.0	2	JAN	0202	422	0.	.2	100.9

1	JAN	1456	89	4.	.5	101.7	*	1	JAN	2030	256	0.	.2	101.0	*	2	JAN	0204	423	0.	.2	100.9
1	JAN	1458	90	4.	.5	101.7	*	1	JAN	2032	257	0.	.2	101.0	*	2	JAN	0206	424	0.	.2	100.9
1	JAN	1500	91	5.	.5	101.8	*	1	JAN	2034	258	0.	.2	101.0	*	2	JAN	0208	425	0.	.2	100.9
1	JAN	1502	92	5.	.6	102.0	*	1	JAN	2036	259	0.	.2	101.0	*	2	JAN	0210	426	0.	.2	100.9
1	JAN	1504	93	6.	.6	102.1	*	1	JAN	2038	260	0.	.2	101.0	*	2	JAN	0212	427	0.	.2	100.9
1	JAN	1506	94	7.	.7	102.2	*	1	JAN	2040	261	0.	.2	101.0	*	2	JAN	0214	428	0.	.2	100.9
1	JAN	1508	95	8.	.7	102.4	*	1	JAN	2042	262	0.	.2	101.0	*	2	JAN	0216	429	0.	.2	100.9
1	JAN	1510	96	9.	.8	102.5	*	1	JAN	2044	263	0.	.2	101.0	*	2	JAN	0218	430	0.	.2	100.9
1	JAN	1512	97	10.	.8	102.6	*	1	JAN	2046	264	0.	.2	101.0	*	2	JAN	0220	431	0.	.2	100.9
1	JAN	1514	98	11.	.8	102.7	*	1	JAN	2048	265	0.	.2	101.0	*	2	JAN	0222	432	0.	.2	100.9
1	JAN	1516	99	12.	.9	102.8	*	1	JAN	2050	266	0.	.2	101.0	*	2	JAN	0224	433	0.	.2	100.9
1	JAN	1518	100	12.	.9	102.9	*	1	JAN	2052	267	0.	.2	101.0	*	2	JAN	0226	434	0.	.2	100.9
1	JAN	1520	101	12.	.9	102.9	*	1	JAN	2054	268	0.	.2	101.0	*	2	JAN	0228	435	0.	.2	100.9
1	JAN	1522	102	13.	.9	102.9	*	1	JAN	2056	269	0.	.2	101.0	*	2	JAN	0230	436	0.	.2	100.9
1	JAN	1524	103	13.	.9	102.9	*	1	JAN	2058	270	0.	.2	101.0	*	2	JAN	0232	437	0.	.2	100.9
1	JAN	1526	104	13.	.9	102.9	*	1	JAN	2100	271	0.	.2	101.0	*	2	JAN	0234	438	0.	.2	100.9
1	JAN	1528	105	12.	.9	102.9	*	1	JAN	2102	272	0.	.2	101.0	*	2	JAN	0236	439	0.	.2	100.9
1	JAN	1530	106	12.	.9	102.9	*	1	JAN	2104	273	0.	.2	101.0	*	2	JAN	0238	440	0.	.2	100.8
1	JAN	1532	107	12.	.9	102.8	*	1	JAN	2106	274	0.	.2	101.0	*	2	JAN	0240	441	0.	.2	100.8
1	JAN	1534	108	11.	.9	102.8	*	1	JAN	2108	275	0.	.2	101.0	*	2	JAN	0242	442	0.	.2	100.8
1	JAN	1536	109	11.	.9	102.7	*	1	JAN	2110	276	0.	.2	101.0	*	2	JAN	0244	443	0.	.2	100.8
1	JAN	1538	110	11.	.8	102.7	*	1	JAN	2112	277	0.	.2	101.0	*	2	JAN	0246	444	0.	.2	100.8
1	JAN	1540	111	10.	.8	102.6	*	1	JAN	2114	278	0.	.2	101.0	*	2	JAN	0248	445	0.	.2	100.8
1	JAN	1542	112	10.	.8	102.6	*	1	JAN	2116	279	0.	.2	101.0	*	2	JAN	0250	446	0.	.2	100.8
1	JAN	1544	113	10.	.8	102.6	*	1	JAN	2118	280	0.	.2	101.0	*	2	JAN	0252	447	0.	.2	100.8
1	JAN	1546	114	9.	.8	102.5	*	1	JAN	2120	281	0.	.2	101.0	*	2	JAN	0254	448	0.	.2	100.8
1	JAN	1548	115	9.	.8	102.5	*	1	JAN	2122	282	0.	.2	101.0	*	2	JAN	0256	449	0.	.2	100.8
1	JAN	1550	116	9.	.7	102.4	*	1	JAN	2124	283	0.	.2	101.0	*	2	JAN	0258	450	0.	.2	100.8
1	JAN	1552	117	9.	.7	102.4	*	1	JAN	2126	284	0.	.2	101.0	*	2	JAN	0300	451	0.	.2	100.8
1	JAN	1554	118	8.	.7	102.4	*	1	JAN	2128	285	0.	.2	101.0	*	2	JAN	0302	452	0.	.2	100.8
1	JAN	1556	119	8.	.7	102.3	*	1	JAN	2130	286	0.	.2	101.0	*	2	JAN	0304	453	0.	.2	100.8
1	JAN	1558	120	8.	.7	102.3	*	1	JAN	2132	287	0.	.2	101.0	*	2	JAN	0306	454	0.	.2	100.8
1	JAN	1600	121	8.	.7	102.3	*	1	JAN	2134	288	0.	.2	101.0	*	2	JAN	0308	455	0.	.2	100.8
1	JAN	1602	122	7.	.7	102.2	*	1	JAN	2136	289	0.	.2	101.0	*	2	JAN	0310	456	0.	.2	100.8
1	JAN	1604	123	7.	.7	102.2	*	1	JAN	2138	290	0.	.2	101.0	*	2	JAN	0312	457	0.	.2	100.8
1	JAN	1606	124	7.	.6	102.2	*	1	JAN	2140	291	0.	.2	101.0	*	2	JAN	0314	458	0.	.2	100.8
1	JAN	1608	125	7.	.6	102.2	*	1	JAN	2142	292	0.	.2	101.0	*	2	JAN	0316	459	0.	.2	100.8
1	JAN	1610	126	6.	.6	102.1	*	1	JAN	2144	293	0.	.2	101.0	*	2	JAN	0318	460	0.	.2	100.8
1	JAN	1612	127	6.	.6	102.1	*	1	JAN	2146	294	0.	.2	101.0	*	2	JAN	0320	461	0.	.2	100.8
1	JAN	1614	128	6.	.6	102.1	*	1	JAN	2148	295	0.	.2	101.0	*	2	JAN	0322	462	0.	.2	100.8
1	JAN	1616	129	6.	.6	102.1	*	1	JAN	2150	296	0.	.2	101.0	*	2	JAN	0324	463	0.	.2	100.8
1	JAN	1618	130	6.	.6	102.0	*	1	JAN	2152	297	0.	.2	101.0	*	2	JAN	0326	464	0.	.2	100.8
1	JAN	1620	131	6.	.6	102.0	*	1	JAN	2154	298	0.	.2	101.0	*	2	JAN	0328	465	0.	.2	100.8
1	JAN	1622	132	5.	.6	102.0	*	1	JAN	2156	299	0.	.2	101.0	*	2	JAN	0330	466	0.	.2	100.8
1	JAN	1624	133	5.	.6	102.0	*	1	JAN	2158	300	0.	.2	101.0	*	2	JAN	0332	467	0.	.2	100.8
1	JAN	1626	134	5.	.6	102.0	*	1	JAN	2200	301	0.	.2	101.0	*	2	JAN	0334	468	0.	.2	100.8
1	JAN	1628	135	5.	.6	101.9	*	1	JAN	2202	302	0.	.2	101.0	*	2	JAN	0336	469	0.	.2	100.8
1	JAN	1630	136	5.	.5	101.9	*	1	JAN	2204	303	0.	.2	101.0	*	2	JAN	0338	470	0.	.2	100.8
1	JAN	1632	137	5.	.5	101.9	*	1	JAN	2206	304	0.	.2	101.0	*	2	JAN	0340	471	0.	.2	100.8
1	JAN	1634	138	5.	.5	101.9	*	1	JAN	2208	305	0.	.2	101.0	*	2	JAN	0342	472	0.	.2	100.8
1	JAN	1636	139	5.	.5	101.9	*	1	JAN	2210	306	0.	.2	101.0	*	2	JAN	0344	473	0.	.2	100.8
1	JAN	1638	140	5.	.5	101.8	*	1	JAN	2212	307	0.	.2	101.0	*	2	JAN	0346	474	0.	.2	100.8
1	JAN	1640	141	4.	.5	101.8	*	1	JAN	2214	308	0.	.2	101.0	*	2	JAN	0348	475	0.	.2	100.8
1	JAN	1642	142	4.	.5	101.8	*	1	JAN	2216	309	0.	.2	101.0	*	2	JAN	0350	476	0.	.2	100.8
1	JAN	1644	143	4.	.5	101.8	*	1	JAN	2218	310	0.	.2	101.0	*	2	JAN	0352	477	0.	.2	100.8
1	JAN	1646	144	4.	.5	101.8	*	1	JAN	2220	311	0.	.2	101.0	*	2	JAN	0354	478	0.	.2	100.8
1	JAN	1648	145	4.	.5	101.8	*	1	JAN	2222	312	0.	.2	101.0	*	2	JAN	0356	479	0.	.2	100.8
1	JAN	1650	146	4.	.5	101.7	*	1	JAN	2224	313	0.	.2	101.0	*	2	JAN	0358	480	0.	.2	100.8
1	JAN	1652	147	4.	.5	101.7	*	1	JAN	2226	314	0.	.2	101.0	*	2	JAN	0400	481	0.	.2	100.8
1	JAN	1654	148	4.	.5	101.7	*	1	JAN	2228	315	0.	.2	101.0	*	2	JAN	0402	482	0.	.2	100.8
1	JAN	1656	149	4.	.5	101.7	*	1	JAN	2230	316	0.	.2	101.0	*	2	JAN	0404	483	0.	.2	100.8
1	JAN	1658	150	4.	.5	101.7	*	1	JAN	2232	317	0.	.2	101.0	*	2	JAN	0406	484	0.	.2	100.8
1	JAN	1700	151	4.	.5	101.7	*	1	JAN	2234	318	0.	.2	101.0	*	2	JAN	0408	485	0.	.2	100.8
1	JAN	1702	152	4.	.5	101.7	*	1	JAN	2236	319	0.	.2	100.9	*	2	JAN	0410	486	0.	.2	100.8
1	JAN	1704	153	4.	.5	101.6	*	1	JAN	2238	320	0.	.2	100.9	*	2	JAN	0412	487	0.	.2	100.8
1	JAN	1706	154	3.	.5	101.6	*	1	JAN	2240	321	0.	.2	100.9	*	2	JAN	0414	488	0.	.2	100.8
1	JAN	1708	155	3.	.5	101.6	*	1	JAN	2242	322	0.	.2	100.9	*	2	JAN	0416	489	0.	.2	100.8
1	JAN	1710	156	3.	.4	101.6	*	1	JAN	2244	323	0.	.2	100.9	*	2	JAN	0418	490	0.	.2	100.8
1	JAN	1712	157	3.	.4	101.6	*	1	JAN	2246	324	0.	.2	100.9	*	2	JAN	0420	491	0.	.2	100.8
1	JAN	1714	158	3.	.4	101.6	*	1	JAN	2248	325	0.	.2	100.9	*	2	JAN	0422	492	0.	.2	100.8
1	JAN	1716	159	3.	.4	101.6	*	1	JAN	2250	326	0.	.2	100.9	*	2	JAN	0424	493	0.	.2	100.8
1	JAN	1718	160	3.	.4	101.6	*	1	JAN	2252	327	0.	.2	100.9	*	2	JAN	0426	494	0.	.2	100.8
1	JAN	1720	161	3.	.4	101.6	*	1	JAN	2254	328	0.	.2	100.9	*	2	JAN	0428	495	0.	.2	100.8
1	JAN	1722	162	3.	.4	101.5	*	1	JAN	2256	329	0.	.2	100.9	*	2	JAN	0430	496	0.	.2	100.8
1	JAN	1724	163	3.	.4	101.5	*	1	JAN	2258	330	0.	.2	100.9	*	2	JAN	0432	497	0.	.2	100.8
1	JAN	1726	164	3.	.4	101.5	*	1	JAN	2300	331	0.	.2	100.9	*	2	JAN	0434	498	0.	.2	100.8
1	JAN	1728	165	3.	.4	101.5	*	1	JAN	2302	332	0.	.2	100.9	*	2	JAN	0436	499	0.	.2	100.8
1	JAN	1730	166	3.	.4	101.5	*	1	JAN	2304	333	0.	.2	100.9	*	2	JAN	0438	500	0.	.2	100.8
1	JAN	1732	167	3.	.4	101.5	*	1	JAN	2306	334	0.	.2	100.9	*							

****

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	16.63-HR
+ (CFS)	(HR)					
		(CFS)				
+ 13.	3.40		4.	1.	1.	1.
		(INCHES)	1.971	2.040	2.040	2.040
		(AC-FT)	2.	2.	2.	2.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	16.63-HR
+ (AC-FT)	(HR)				
1.	3.40	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	16.63-HR
+ (FEET)	(HR)				

```
    102.94      3.40               101.62      101.11      101.11       101.11

                       CUMULATIVE AREA =     .02 SQ MI

1                                                      STATION     DET1

                          (I) INFLOW,   (O) OUTFLOW
         0.        4.        8.       12.       16.       20.       24.       28.       32.        0.        0.        0.
0.
                                                                                    (S) STORAGE
         .0        .0        .0        .0        .0        .0        .0        .4        .8       1.2        .0        .0
.0
 DAHRMN PER
  11200
1I---------.---------.---------.---------.---------.---------S---------.---------.---------.---------.---------.---------.
  11202   2I         .         .         .         .         .         S         .         .         .         .         .
.
  11204   3I         .         .         .         .         .         S         .         .         .         .         .
.
  11206   4I         .         .         .         .         .         S         .         .         .         .         .
.
  11208   5OI        .         .         .         .         .         S         .         .         .         .         .
.
  11210   6OI        .         .         .         .         .         S         .         .         .         .         .
.
  11212   7O I       .         .         .         .         .         S         .         .         .         .         .
.
  11214   8O I       .         .         .         .         .         S         .         .         .         .         .
.
  11216   9O  I      .         .         .         .         .         S         .         .         .         .         .
.
  11218  10O   I     .         .         .         .         .         S         .         .         .         .         .
.
  11220  11O . I . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
.
  11222  12O   I     .         .         .         .         .        .S         .         .         .         .         .
.
  11224  13O   I     .         .         .         .         .        .S         .         .         .         .         .
.
  11226  14O   I     .         .         .         .         .        .S         .         .         .         .         .
.
  11228  15O   I     .         .         .         .         .        .S         .         .         .         .         .
.
  11230  16O   I     .         .         .         .         .        .S         .         .         .         .         .
.
  11232  17O   I     .         .         .         .         .        .S         .         .         .         .         .
.
  11234  18O   I     .         .         .         .         .        .S         .         .         .         .         .
.
  11236  19O   I     .         .         .         .         .        .S         .         .         .         .         .
.
  11238  20O   I     .         .         .         .         .        .S         .         .         .         .         .
.
  11240  21O . I . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
.
  11242  22O   I     .         .         .         .         .        . S        .         .         .         .         .
.
  11244  23O   I     .         .         .         .         .        . S        .         .         .         .         .
.
  11246  24O   I     .         .         .         .         .        . S        .         .         .         .         .
.
  11248  25O   I     .         .         .         .         .        . S        .         .         .         .         .
.
  11250  26O   I     .         .         .         .         .        . S        .         .         .         .         .
.
  11252  27O   I     .         .         .         .         .        . S        .         .         .         .         .
.
  11254  28O   I     .         .         .         .         .        . S        .         .         .         .         .
.
  11256  29O    I    .         .         .         .         .        . S        .         .         .         .         .
.
  11258  30O    I    .         .         .         .         .        .  S       .         .         .         .         .
.
  11300  31O . .I. . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . . . . .
.
  11302  32O    I    .         .         .         .         .        .  S       .         .         .         .         .
.
  11304  33O    I    .         .         .         .         .        .  S       .         .         .         .         .
.
  11306  34O    I    .         .         .         .         .        .  S       .         .         .         .         .
.
  11308  35O    I    .         .         .         .         .        .  S       .         .         .         .         .
.
  11310  36O    I    .         .         .         .         .        .  S       .         .         .         .         .
.
  11312  37O    I    .         .         .         .         .        .  S       .         .         .         .         .
.
  11314  38O    I    .         .         .         .         .        .   S      .         .         .         .         .
.
  11316  39O    I    .         .         .         .         .        .   S      .         .         .         .         .
.
  11318  40O    I    .         .         .         .         .        .   S      .         .         .         .         .
.
  11320  41O . .I. . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
.
  11322  42O    I    .         .         .         .         .        .   S      .         .         .         .         .
.
  11324  43O    I    .         .         .         .         .        .   S      .         .         .         .         .
.
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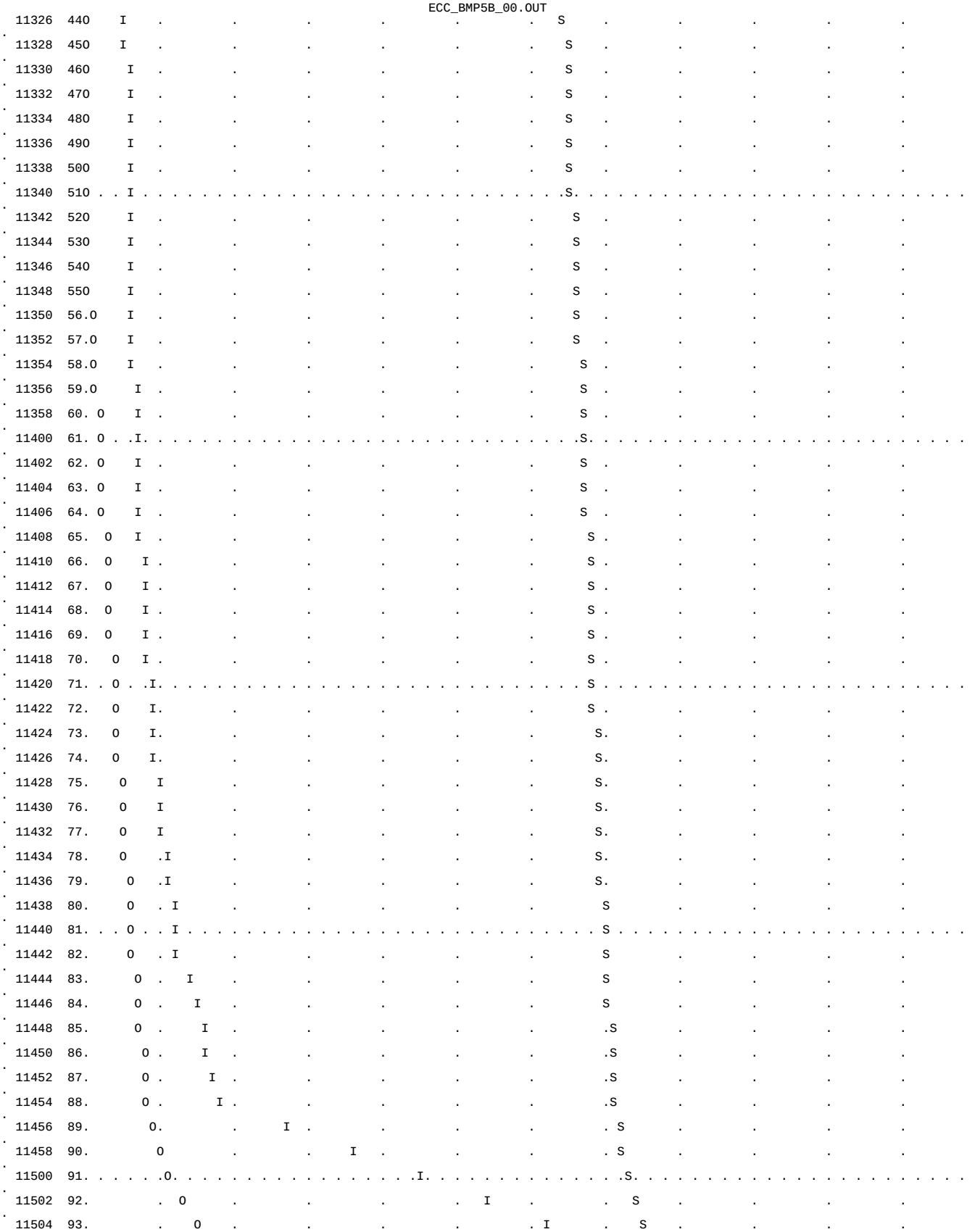
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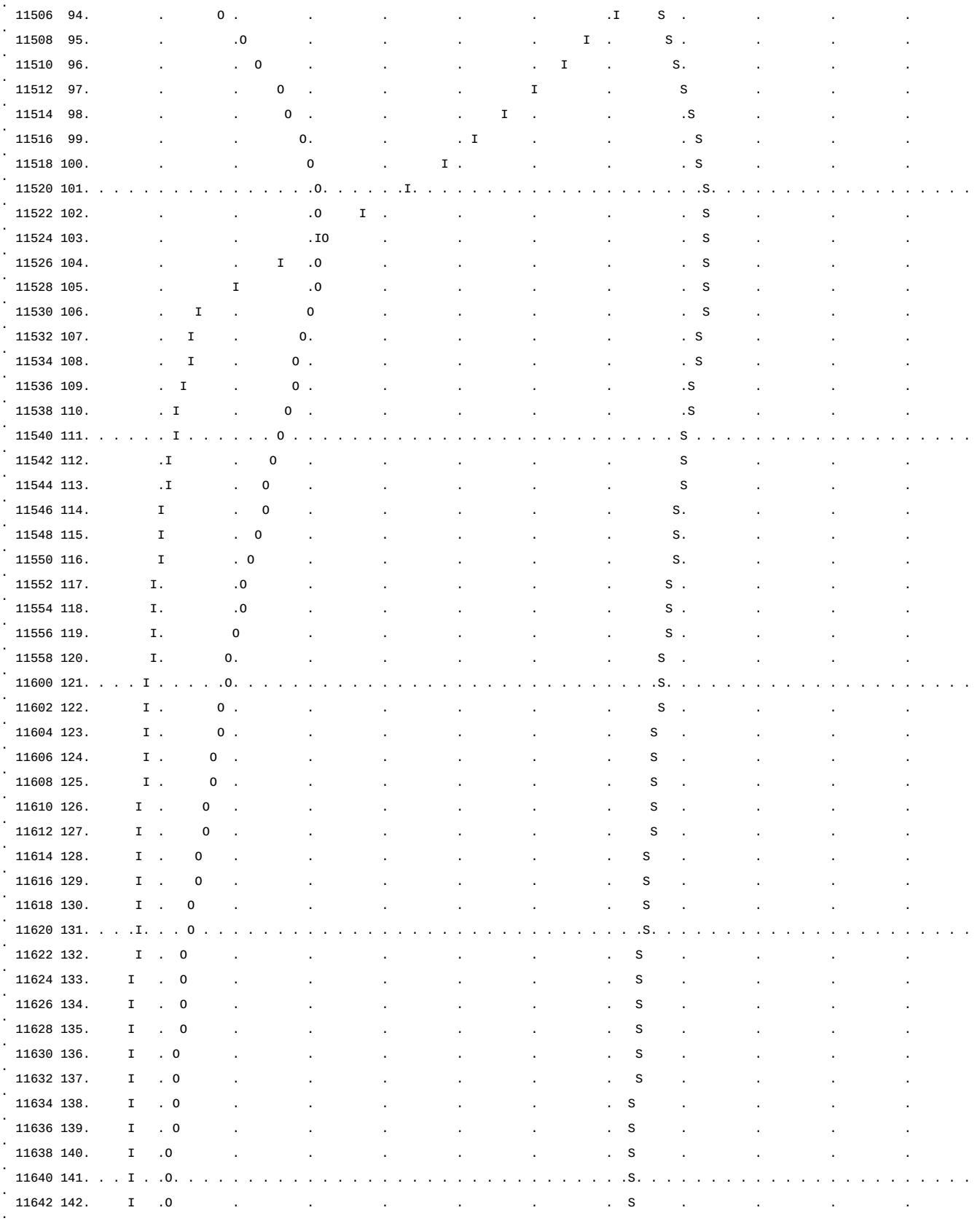

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11644 143.     I   .O        .         .         .         .         .         . S       .         .         .         .
11646 144.     I   O         .         .         .         .         .         . S       .         .         .         .
11648 145.    I    O         .         .         .         .         .         . S       .         .         .         .
11650 146.    I    O         .         .         .         .         .         . S       .         .         .         .
11652 147.    I    O         .         .         .         .         .         . S       .         .         .         .
11654 148.    I    O         .         .         .         .         .         . S       .         .         .         .
11656 149.    I   O.         .         .         .         .         .         . S       .         .         .         .
11658 150.    I   O.         .         .         .         .         .         . S       .         .         .         .
11700 151. . .I. .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
11702 152.    I   O.         .         .         .         .         .         . S       .         .         .         .
11704 153.    I   O.         .         .         .         .         .         .S        .         .         .         .
11706 154.    I   O.         .         .         .         .         .         .S        .         .         .         .
11708 155.    I  O .         .         .         .         .         .         .S        .         .         .         .
11710 156.    I  O .         .         .         .         .         .         .S        .         .         .         .
11712 157.    I  O .         .         .         .         .         .         .S        .         .         .         .
11714 158.    I  O .         .         .         .         .         .         .S        .         .         .         .
11716 159.    I  O .         .         .         .         .         .         .S        .         .         .         .
11718 160.   I   O .         .         .         .         .         .         .S        .         .         .         .
11720 161. . I . O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
11722 162.   I  O  .         .         .         .         .         .         .S        .         .         .         .
11724 163.   I  O  .         .         .         .         .         .         .S        .         .         .         .
11726 164.   I  O  .         .         .         .         .         .         S         .         .         .         .
11728 165.   I  O  .         .         .         .         .         .         S         .         .         .         .
11730 166.   I  O  .         .         .         .         .         .         S         .         .         .         .
11732 167.   I  O  .         .         .         .         .         .         S         .         .         .         .
11734 168.   I  O  .         .         .         .         .         .         S         .         .         .         .
11736 169.   I  O  .         .         .         .         .         .         S         .         .         .         .
11738 170.   I  O  .         .         .         .         .         .         S         .         .         .         .
11740 171. . I O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . .
11742 172.   I O   .         .         .         .         .         .         S         .         .         .         .
11744 173.   I O   .         .         .         .         .         .         S         .         .         .         .
11746 174.   I O   .         .         .         .         .         .         S         .         .         .         .
11748 175.   I O   .         .         .         .         .         .         S         .         .         .         .
11750 176.   I O   .         .         .         .         .         .         S         .         .         .         .
11752 177.   I O   .         .         .         .         .         .         S         .         .         .         .
11754 178.   I O   .         .         .         .         .         .         S         .         .         .         .
11756 179.   I O   .         .         .         .         .         .         S         .         .         .         .
11758 180.   I O   .         .         .         .         .         .        S.         .         .         .         .
11800 181. . I O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
11802 182.   IO    .         .         .         .         .         .        S.         .         .         .         .
11804 183.   IO    .         .         .         .         .         .        S.         .         .         .         .
11806 184.   IO    .         .         .         .         .         .        S.         .         .         .         .
11808 185.  I O    .         .         .         .         .         .        S.         .         .         .         .
11810 186. I  O    .         .         .         .         .         .        S.         .         .         .         .
11812 187. I  O    .         .         .         .         .         .        S.         .         .         .         .
11814 188.I   O    .         .         .         .         .         .        S.         .         .         .         .
11816 189.I   O    .         .         .         .         .         .        S.         .         .         .         .
11818 190I    O    .         .         .         .         .         .        S.         .         .         .         .
11820 191I . O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . .
11822 192I   O     .         .         .         .         .         .        S.         .         .         .         .
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11824 193I   O     .        .        .        .        .        .      S .        .        .        .        .
11826 194I   O     .        .        .        .        .        .      S .        .        .        .        .
11828 195I   O     .        .        .        .        .        .      S .        .        .        .        .
11830 196I   O     .        .        .        .        .        .      S .        .        .        .        .
11832 197I  O      .        .        .        .        .        .      S .        .        .        .        .
11834 198I  O      .        .        .        .        .        .      S .        .        .        .        .
11836 199I  O      .        .        .        .        .        .      S .        .        .        .        .
11838 200I  O      .        .        .        .        .        .      S .        .        .        .        .
11840 201I .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
11842 202I  O      .        .        .        .        .        .      S .        .        .        .        .
11844 203I  O      .        .        .        .        .        .      S .        .        .        .        .
11846 204I O       .        .        .        .        .        .     S  .        .        .        .        .
11848 205I O       .        .        .        .        .        .     S  .        .        .        .        .
11850 206I O       .        .        .        .        .        .     S  .        .        .        .        .
11852 207I O       .        .        .        .        .        .     S  .        .        .        .        .
11854 208I O       .        .        .        .        .        .     S  .        .        .        .        .
11856 209I O       .        .        .        .        .        .     S  .        .        .        .        .
11858 210I O       .        .        .        .        .        .     S  .        .        .        .        .
11900 211I O . . . . . . . . . . . . . . . . . . . . . . . . . . . . S. . . . . . . . . . . . . . . . . . . . . . . . . . . . .
11902 212I O       .        .        .        .        .        .     S  .        .        .        .        .
11904 213I O       .        .        .        .        .        .     S  .        .        .        .        .
11906 214I O       .        .        .        .        .        .     S  .        .        .        .        .
11908 215I O       .        .        .        .        .        .     S  .        .        .        .        .
11910 216IO        .        .        .        .        .        .     S  .        .        .        .        .
11912 217IO        .        .        .        .        .        .     S  .        .        .        .        .
11914 218IO        .        .        .        .        .        .     S  .        .        .        .        .
11916 219IO        .        .        .        .        .        .     S  .        .        .        .        .
11918 220IO        .        .        .        .        .        .     S  .        .        .        .        .
11920 221IO. . . . . . . . . . . . . . . . . . . . . . . . . . . . . S. . . . . . . . . . . . . . . . . . . . . . . . . . . . .
11922 222IO        .        .        .        .        .        .     S  .        .        .        .        .
11924 223IO        .        .        .        .        .        .     S  .        .        .        .        .
11926 224IO        .        .        .        .        .        .     S  .        .        .        .        .
11928 225IO        .        .        .        .        .        .     S  .        .        .        .        .
11930 226IO        .        .        .        .        .        .    S   .        .        .        .        .
11932 227IO        .        .        .        .        .        .    S   .        .        .        .        .
11934 228IO        .        .        .        .        .        .    S   .        .        .        .        .
11936 229IO        .        .        .        .        .        .    S   .        .        .        .        .
11938 230IO        .        .        .        .        .        .    S   .        .        .        .        .
11940 231IO. . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
11942 232IO        .        .        .        .        .        .    S   .        .        .        .        .
11944 233IO        .        .        .        .        .        .    S   .        .        .        .        .
11946 234IO        .        .        .        .        .        .    S   .        .        .        .        .
11948 235IO        .        .        .        .        .        .    S   .        .        .        .        .
11950 236IO        .        .        .        .        .        .    S   .        .        .        .        .
11952 237IO        .        .        .        .        .        .    S   .        .        .        .        .
11954 238IO        .        .        .        .        .        .    S   .        .        .        .        .
11956 239IO        .        .        .        .        .        .    S   .        .        .        .        .
11958 240IO        .        .        .        .        .        .    S   .        .        .        .        .
12000 241IO. . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
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 12002 242I        .        .        .        .        .        .    S   .        .        .        .        .
 12004 243I        .        .        .        .        .        .    S   .        .        .        .        .
 12006 244I        .        .        .        .        .        .    S   .        .        .        .        .
 12008 245I        .        .        .        .        .        .    S   .        .        .        .        .
 12010 246I        .        .        .        .        .        .    S   .        .        .        .        .
 12012 247I        .        .        .        .        .        .    S   .        .        .        .        .
 12014 248I        .        .        .        .        .        .    S   .        .        .        .        .
 12016 249I        .        .        .        .        .        .    S   .        .        .        .        .
 12018 250I        .        .        .        .        .        .    S   .        .        .        .        .
 12020 251I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
 12022 252I        .        .        .        .        .        .    S   .        .        .        .        .
 12024 253I        .        .        .        .        .        .    S   .        .        .        .        .
 12026 254I        .        .        .        .        .        .    S   .        .        .        .        .
 12028 255I        .        .        .        .        .        .    S   .        .        .        .        .
 12030 256I        .        .        .        .        .        .    S   .        .        .        .        .
 12032 257I        .        .        .        .        .        .    S   .        .        .        .        .
 12034 258I        .        .        .        .        .        .    S   .        .        .        .        .
 12036 259I        .        .        .        .        .        .    S   .        .        .        .        .
 12038 260I        .        .        .        .        .        .    S   .        .        .        .        .
 12040 261I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
 12042 262I        .        .        .        .        .        .    S   .        .        .        .        .
 12044 263I        .        .        .        .        .        .    S   .        .        .        .        .
 12046 264I        .        .        .        .        .        .    S   .        .        .        .        .
 12048 265I        .        .        .        .        .        .    S   .        .        .        .        .
 12050 266I        .        .        .        .        .        .    S   .        .        .        .        .
 12052 267I        .        .        .        .        .        .    S   .        .        .        .        .
 12054 268I        .        .        .        .        .        .    S   .        .        .        .        .
 12056 269I        .        .        .        .        .        .    S   .        .        .        .        .
 12058 270I        .        .        .        .        .        .    S   .        .        .        .        .
 12100 271I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
 12102 272I        .        .        .        .        .        .    S   .        .        .        .        .
 12104 273I        .        .        .        .        .        .    S   .        .        .        .        .
 12106 274I        .        .        .        .        .        .    S   .        .        .        .        .
 12108 275I        .        .        .        .        .        .    S   .        .        .        .        .
 12110 276I        .        .        .        .        .        .    S   .        .        .        .        .
 12112 277I        .        .        .        .        .        .    S   .        .        .        .        .
 12114 278I        .        .        .        .        .        .    S   .        .        .        .        .
 12116 279I        .        .        .        .        .        .    S   .        .        .        .        .
 12118 280I        .        .        .        .        .        .    S   .        .        .        .        .
 12120 281I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
 12122 282I        .        .        .        .        .        .    S   .        .        .        .        .
 12124 283I        .        .        .        .        .        .    S   .        .        .        .        .
 12126 284I        .        .        .        .        .        .    S   .        .        .        .        .
 12128 285I        .        .        .        .        .        .    S   .        .        .        .        .
 12130 286I        .        .        .        .        .        .    S   .        .        .        .        .
 12132 287I        .        .        .        .        .        .    S   .        .        .        .        .
 12134 288I        .        .        .        .        .        .    S   .        .        .        .        .
 12136 289I        .        .        .        .        .        .    S   .        .        .        .        .
 12138 290I        .        .        .        .        .        .    S   .        .        .        .        .
 12140 291I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
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12142 292I        .       .       .       .       .       .   S   .       .       .       .       .
12144 293I        .       .       .       .       .       .   S   .       .       .       .       .
12146 294I        .       .       .       .       .       .   S   .       .       .       .       .
12148 295I        .       .       .       .       .       .   S   .       .       .       .       .
12150 296I        .       .       .       .       .       .   S   .       .       .       .       .
12152 297I        .       .       .       .       .       .   S   .       .       .       .       .
12154 298I        .       .       .       .       .       .   S   .       .       .       .       .
12156 299I        .       .       .       .       .       .   S   .       .       .       .       .
12158 300I        .       .       .       .       .       .   S   .       .       .       .       .
12200 301I . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
12202 302I        .       .       .       .       .       .   S   .       .       .       .       .
12204 303I        .       .       .       .       .       .   S   .       .       .       .       .
12206 304I        .       .       .       .       .       .   S   .       .       .       .       .
12208 305I        .       .       .       .       .       .   S   .       .       .       .       .
12210 306I        .       .       .       .       .       .   S   .       .       .       .       .
12212 307I        .       .       .       .       .       .   S   .       .       .       .       .
12214 308I        .       .       .       .       .       .   S   .       .       .       .       .
12216 309I        .       .       .       .       .       .   S   .       .       .       .       .
12218 310I        .       .       .       .       .       .   S   .       .       .       .       .
12220 311I . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
12222 312I        .       .       .       .       .       .   S   .       .       .       .       .
12224 313I        .       .       .       .       .       .   S   .       .       .       .       .
12226 314I        .       .       .       .       .       .   S   .       .       .       .       .
12228 315I        .       .       .       .       .       .   S   .       .       .       .       .
12230 316I        .       .       .       .       .       .   S   .       .       .       .       .
12232 317I        .       .       .       .       .       .   S   .       .       .       .       .
12234 318I        .       .       .       .       .       .   S   .       .       .       .       .
12236 319I        .       .       .       .       .       .   S   .       .       .       .       .
12238 320I        .       .       .       .       .       .   S   .       .       .       .       .
12240 321I . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
12242 322I        .       .       .       .       .       .   S   .       .       .       .       .
12244 323I        .       .       .       .       .       .   S   .       .       .       .       .
12246 324I        .       .       .       .       .       .   S   .       .       .       .       .
12248 325I        .       .       .       .       .       .   S   .       .       .       .       .
12250 326I        .       .       .       .       .       .   S   .       .       .       .       .
12252 327I        .       .       .       .       .       .   S   .       .       .       .       .
12254 328I        .       .       .       .       .       .   S   .       .       .       .       .
12256 329I        .       .       .       .       .       .   S   .       .       .       .       .
12258 330I        .       .       .       .       .       .   S   .       .       .       .       .
12300 331I . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . .
12302 332I        .       .       .       .       .       .   S   .       .       .       .       .
12304 333I        .       .       .       .       .       .   S   .       .       .       .       .
12306 334I        .       .       .       .       .       .   S   .       .       .       .       .
12308 335I        .       .       .       .       .       .   S   .       .       .       .       .
12310 336I        .       .       .       .       .       .   S   .       .       .       .       .
12312 337I        .       .       .       .       .       .   S   .       .       .       .       .
12314 338I        .       .       .       .       .       .   S   .       .       .       .       .
12316 339I        .       .       .       .       .       .   S   .       .       .       .       .
12318 340I        .       .       .       .       .       .   S   .       .       .       .       .
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12320 341I . . . . . S . . . . . .
12322 342I        .     .     .     .     .     .     S     .     .     .     .     .
12324 343I        .     .     .     .     .     .     S     .     .     .     .     .
12326 344I        .     .     .     .     .     .     S     .     .     .     .     .
12328 345I        .     .     .     .     .     .     S     .     .     .     .     .
12330 346I        .     .     .     .     .     .     S     .     .     .     .     .
12332 347I        .     .     .     .     .     .     S     .     .     .     .     .
12334 348I        .     .     .     .     .     .     S     .     .     .     .     .
12336 349I        .     .     .     .     .     .     S     .     .     .     .     .
12338 350I        .     .     .     .     .     .     S     .     .     .     .     .
12340 351I . . . . . S . . . . . .
12342 352I        .     .     .     .     .     .     S     .     .     .     .     .
12344 353I        .     .     .     .     .     .     S     .     .     .     .     .
12346 354I        .     .     .     .     .     .     S     .     .     .     .     .
12348 355I        .     .     .     .     .     .     S     .     .     .     .     .
12350 356I        .     .     .     .     .     .     S     .     .     .     .     .
12352 357I        .     .     .     .     .     .     S     .     .     .     .     .
12354 358I        .     .     .     .     .     .   S     .     .     .     .     .
12356 359I        .     .     .     .     .     .   S     .     .     .     .     .
12358 360I        .     .     .     .     .     .   S     .     .     .     .     .
20000 361I . . . . . S . . . . . .
20002 362I        .     .     .     .     .     .     S     .     .     .     .     .
20004 363I        .     .     .     .     .     .     S     .     .     .     .     .
20006 364I        .     .     .     .     .     .     S     .     .     .     .     .
20008 365I        .     .     .     .     .     .     S     .     .     .     .     .
20010 366I        .     .     .     .     .     .     S     .     .     .     .     .
20012 367I        .     .     .     .     .     .     S     .     .     .     .     .
20014 368I        .     .     .     .     .     .     S     .     .     .     .     .
20016 369I        .     .     .     .     .     .     S     .     .     .     .     .
20018 370I        .     .     .     .     .     .     S     .     .     .     .     .
20020 371I . . . . . S . . . . . .
20022 372I        .     .     .     .     .     .     S     .     .     .     .     .
20024 373I        .     .     .     .     .     .     S     .     .     .     .     .
20026 374I        .     .     .     .     .     .     S     .     .     .     .     .
20028 375I        .     .     .     .     .     .     S     .     .     .     .     .
20030 376I        .     .     .     .     .     .     S     .     .     .     .     .
20032 377I        .     .     .     .     .     .     S     .     .     .     .     .
20034 378I        .     .     .     .     .     .     S     .     .     .     .     .
20036 379I        .     .     .     .     .     .     S     .     .     .     .     .
20038 380I        .     .     .     .     .     .     S     .     .     .     .     .
20040 381I . . . . . S . . . . . .
20042 382I        .     .     .     .     .     .     S     .     .     .     .     .
20044 383I        .     .     .     .     .     .     S     .     .     .     .     .
20046 384I        .     .     .     .     .     .     S     .     .     .     .     .
20048 385I        .     .     .     .     .     .     S     .     .     .     .     .
20050 386I        .     .     .     .     .     .     S     .     .     .     .     .
20052 387I        .     .     .     .     .     .     S     .     .     .     .     .
20054 388I        .     .     .     .     .     .     S     .     .     .     .     .
20056 389I        .     .     .     .     .     .     S     .     .     .     .     .
20058 390I        .     .     .     .     .     .     S     .     .     .     .     .
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20100 391I . . . . . S. . . . . .
20102 392I . . . . . S . . . . .
20104 393I . . . . . S . . . . .
20106 394I . . . . . S . . . . .
20108 395I . . . . . S . . . . .
20110 396I . . . . . S . . . . .
20112 397I . . . . . S . . . . .
20114 398I . . . . . S . . . . .
20116 399I . . . . . S . . . . .
20118 400I . . . . . S . . . . .
20120 401I . . . . . S. . . . . .
20122 402I . . . . . S . . . . .
20124 403I . . . . . S . . . . .
20126 404I . . . . . S . . . . .
20128 405I . . . . . S . . . . .
20130 406I . . . . . S . . . . .
20132 407I . . . . . S . . . . .
20134 408I . . . . . S . . . . .
20136 409I . . . . . S . . . . .
20138 410I . . . . . S . . . . .
20140 411I . . . . . S. . . . . .
20142 412I . . . . . S . . . . .
20144 413I . . . . . S . . . . .
20146 414I . . . . . S . . . . .
20148 415I . . . . . S . . . . .
20150 416I . . . . . S . . . . .
20152 417I . . . . . S . . . . .
20154 418I . . . . . S . . . . .
20156 419I . . . . . S . . . . .
20158 420I . . . . . S . . . . .
20200 421I . . . . . S. . . . . .
20202 422I . . . . . S . . . . .
20204 423I . . . . . S . . . . .
20206 424I . . . . . S . . . . .
20208 425I . . . . . S . . . . .
20210 426I . . . . . S . . . . .
20212 427I . . . . . S . . . . .
20214 428I . . . . . S . . . . .
20216 429I . . . . . S . . . . .
20218 430I . . . . . S . . . . .
20220 431I . . . . . S. . . . . .
20222 432I . . . . . S . . . . .
20224 433I . . . . . S . . . . .
20226 434I . . . . . S . . . . .
20228 435I . . . . . S . . . . .
20230 436I . . . . . S . . . . .
20232 437I . . . . . S . . . . .
20234 438I . . . . . S . . . . .
20236 439I . . . . . S . . . . .
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20238 440I        .       .       .       .       .       .   S   .       .       .       .       .
20240 441I . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20242 442I        .       .       .       .       .       .   S   .       .       .       .       .
20244 443I        .       .       .       .       .       .   S   .       .       .       .       .
20246 444I        .       .       .       .       .       .   S   .       .       .       .       .
20248 445I        .       .       .       .       .       .   S   .       .       .       .       .
20250 446I        .       .       .       .       .       .   S   .       .       .       .       .
20252 447I        .       .       .       .       .       .   S   .       .       .       .       .
20254 448I        .       .       .       .       .       .   S   .       .       .       .       .
20256 449I        .       .       .       .       .       .   S   .       .       .       .       .
20258 450I        .       .       .       .       .       .   S   .       .       .       .       .
20300 451I . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20302 452I        .       .       .       .       .       .   S   .       .       .       .       .
20304 453I        .       .       .       .       .       .   S   .       .       .       .       .
20306 454I        .       .       .       .       .       .   S   .       .       .       .       .
20308 455I        .       .       .       .       .       .   S   .       .       .       .       .
20310 456I        .       .       .       .       .       .   S   .       .       .       .       .
20312 457I        .       .       .       .       .       .   S   .       .       .       .       .
20314 458I        .       .       .       .       .       .   S   .       .       .       .       .
20316 459I        .       .       .       .       .       .   S   .       .       .       .       .
20318 460I        .       .       .       .       .       .   S   .       .       .       .       .
20320 461I . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20322 462I        .       .       .       .       .       .   S   .       .       .       .       .
20324 463I        .       .       .       .       .       .   S   .       .       .       .       .
20326 464I        .       .       .       .       .       .   S   .       .       .       .       .
20328 465I        .       .       .       .       .       .   S   .       .       .       .       .
20330 466I        .       .       .       .       .       .   S   .       .       .       .       .
20332 467I        .       .       .       .       .       .   S   .       .       .       .       .
20334 468I        .       .       .       .       .       .   S   .       .       .       .       .
20336 469I        .       .       .       .       .       .   S   .       .       .       .       .
20338 470I        .       .       .       .       .       .   S   .       .       .       .       .
20340 471I . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20342 472I        .       .       .       .       .       .   S   .       .       .       .       .
20344 473I        .       .       .       .       .       .   S   .       .       .       .       .
20346 474I        .       .       .       .       .       .   S   .       .       .       .       .
20348 475I        .       .       .       .       .       .   S   .       .       .       .       .
20350 476I        .       .       .       .       .       .   S   .       .       .       .       .
20352 477I        .       .       .       .       .       .   S   .       .       .       .       .
20354 478I        .       .       .       .       .       .   S   .       .       .       .       .
20356 479I        .       .       .       .       .       .   S   .       .       .       .       .
20358 480I        .       .       .       .       .       .   S   .       .       .       .       .
20400 481I . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20402 482I        .       .       .       .       .       .   S   .       .       .       .       .
20404 483I        .       .       .       .       .       .   S   .       .       .       .       .
20406 484I        .       .       .       .       .       .   S   .       .       .       .       .
20408 485I        .       .       .       .       .       .   S   .       .       .       .       .
20410 486I        .       .       .       .       .       .   S   .       .       .       .       .
20412 487I        .       .       .       .       .       .   S   .       .       .       .       .
20414 488I        .       .       .       .       .       .   S   .       .       .       .       .
20416 489I        .       .       .       .       .       .   S   .       .       .       .       .
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.
  20418 490I         .         .         .         .         .         .    S    .         .         .         .         .
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  20420 491I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . . . . . . . . . . .
.
  20422 492I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20424 493I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20426 494I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20428 495I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20430 496I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20432 497I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20434 498I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20436 499I         .         .         .         .         .         .    S    .         .         .         .         .
.
  20438
500I---------.---------.---------.---------.---------.---------.----S----.---------.---------.---------.---------.---------.
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1
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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	ECC-BMP5	29.	3.10	4.	2.	2.	.02		
+	ROUTED TO	DET1	13.	3.40	4.	1.	1.	.02		
+									102.94	3.40

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