Appendix H Drainage Report

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PRELIMINARY DRAINAGE REPORT

For

Lincoln at Euclid
(APN: 072-110-21, 072-110-19 & 072-110-50)

PROJECT LOCATION
Northeast corner of Lincoln Avenue and Euclid Street
Anaheim, CA

PREPARED FOR:

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12/31/20
CIVIL
STATE OF CALIFORNIA

Steven M. Cook, P.E. — 11/01/2019
Date

PREPARED: November 1, 2019

Table of Contents

Introduction 3
Purpose & Criteria 5
Existing Conditions 5
Proposed Conditions 5
Hydrologic Analysis 8
Conclusion 8

List of Technical Appendices

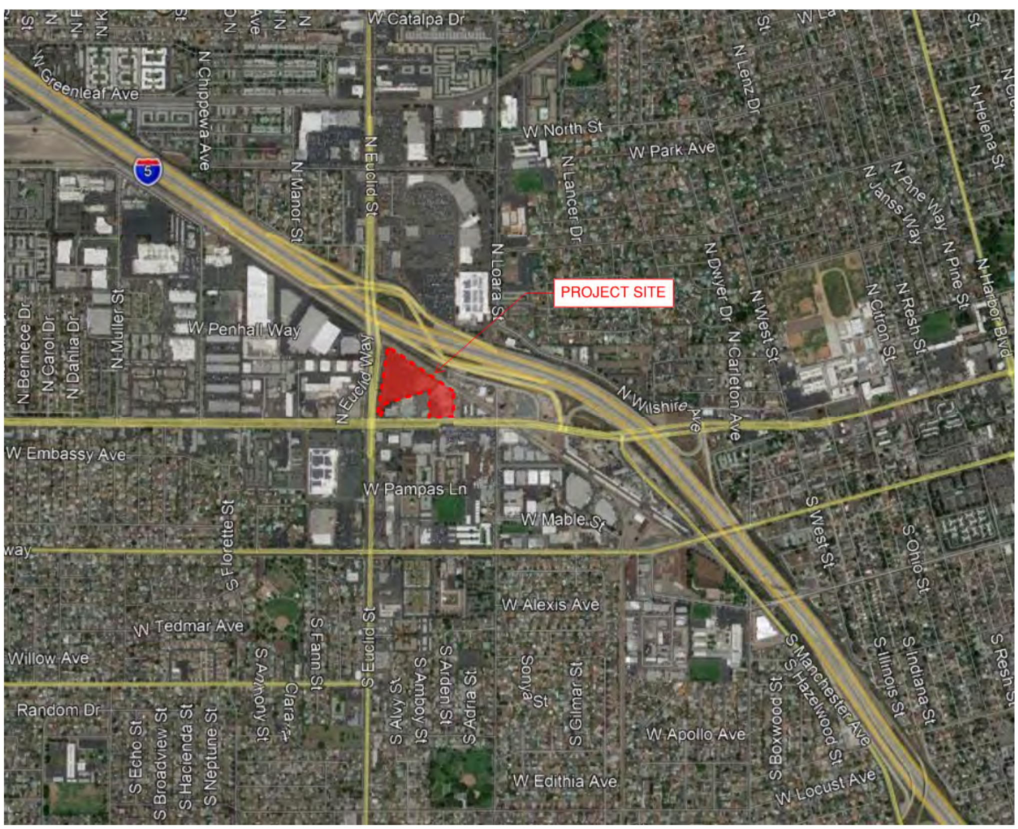
Appendix A	OC Hydrology Manual 1986 Soils Map Zoning Map Watershed Map Soils Classification Map
Appendix B	Preliminary Site Plan Preliminary Grading Plan Preliminary Utility Plan
Appendix C	Existing Hydrology Map Proposed Hydrology Map Conceptual Cross Sections
Appendix D	Existing Hydrology Calculations Proposed Hydrology Calculations
Appendix E	OC Hydrology Procedures Existing Hydrograph Calculations Proposed Hydrograph Calculations & Flood Routing Analysis

Introduction

This report has been prepared for APNs 072-110-021, 072-110-19 and 072-110-50, in the City of Anaheim, in the County of Orange, California (See Location Map below). The project proposes a new multi-family residential development consisting of a total of 101 dwelling units. The proposed Project would develop 7.64 acres of land into townhomes, private alleys, common area landscape, and common area amenities. Private alleys, common area landscape, and common area amenities are to be maintained by the homeowners association (HOA). See Appendix B for the Preliminary Site Plan, Grading, and Utility Plans.

The Project site is bordered by Euclid Street to the west, existing industrial properties and Lincoln Avenue to the south, existing industrial properties to the east, and Southern Pacific Railroad to the north. The existing properties comprising the project site are currently an industrial development (APN 072-110-21), a commercial development (APN 072-110-19) and a vacant lot (APN 072-110-50). Per the City of Anaheim Zoning Title 18 the Project Site is designated as Transitional (APN 072-110-50), General Commercial (APN 072-110-19) and Industrial (APN 072-110-21); Surrounding properties are zoned as Commercial (See Appendix A for the Zoning Map).

Location Map



Per the City of Anaheim Master Plan of Drainage, the Project site is located within the upper reaches of Drainage Basin 8 of the Carbon Creek Watershed, and is tributary to the Broadway Storm Drain, Carbon Creek Channel, Coyote Creek Channel, San Gabriel River, and the Pacific Ocean.

The City of Anaheim completed a Master Plan of Storm Drainage for Carbon Creek Channel Tributary Area in September 2010 to identify existing storm drain infrastructure deficiencies and recommend proposed upgrades and improvements. Analysis of the watershed incorporated land use information from the City of Anaheim General Plan. The report noted infrastructure deficiencies throughout Drainage Basin 8 but did not recommend improvements near the area of the Project Site. The nearest recommended improvement is approximately ¾ of a mile west down Lincoln Avenue at the Lincoln Avenue/Empire Street intersection.

Purpose & Criteria

The purpose of this report is to determine the existing and proposed storm water runoff rates from the Project site and to provide analysis of the impacts to adjacent and downstream properties and facilities. Design criteria listed in the City of Anaheim Storm Drainage Manual, dated August 2005 will be utilized in the analysis of this report.

Existing Conditions

In existing condition, the Project Site consists of an industrial parcel, General Commercial parcel and a vacant parcel. The industrial parcel (APN 072-110-50) is 100% impervious, and is entirely covered by an existing building and an existing parking area; the general commercial parcel (APN 072-110-19) is 100% impervious, and covered by an existing building, asphalt parking and a berm of soil; the vacant parcel (APN 072-110-21) is undeveloped and 100% pervious.

The existing on-site drainage pattern generally directs runoff south toward Lincoln Avenue via sheet flow. Runoff from the industrial parcel flows due south, over the right of way of Lincoln Avenue. Once in Lincoln Avenue the runoff confluences with off-site street flows and continues west toward the intersection of Lincoln Avenue and Euclid Street.

The existing grade of the vacant parcel is irregular, with several high and low points. There is no offsite run-on to the Project Site. Off-site flows from the existing hillside adjacent to Euclid Street sheet flow on-site. In smaller storm events, rainfall may pond within low points on-site. To the north, runoff from I-5 is captured and conveyed by a separate Caltrans drainage conveyance system. Together, topographic depressions along the railroad tracks and a berm along the northern boundary of the Project create pools that slowly infiltrate the native soils.

In larger storm events, runoff will flow southwest into the right of way at the intersection Lincoln Avenue and Euclid Street where it confluences with runoff from the industrial parcel, General Commercial parcel, as well as, off-site drainage. Off-site flows located north of the site adjacent to the Southern California Raiload drain away from the site.

All drainage (on-site and off-site) are captured in existing catch basins at the intersection of Lincoln Avenue and Euclid Street and conveyed west in an existing 30" RCP (maintained by the City of Anaheim).

See Appendix C for the Existing Hydrology Map and Appendix D for the Existing Hydrology calculations.

Proposed Conditions

Proposed grading and drainage for the Project site intend to maintain the existing drainage pattern to the maximum extent feasible. Runoff from the Project will exit the site at the Lincoln Avenue/Euclid Street intersection and confluence with existing off-site drainage.

Proposed site improvements include townhomes, private alleys, common area landscape, and common area amenities, which will result in an impervious percentage of approximately 70%. Ultimate site improvements will also include drainage inlets and on-site private storm drain. Off-site flows from the existing hillside adjacent to Euclid Street are captured and treated by the proposed on-site BMPs.

A description of the proposed drainage infrastructure is provided per Drainage Area.

Drainage Management Area A

All tributary drainage runoff drains to the proposed Underground Chamber #A (120" CMP Pipe) of total storage capacity 36,759 CF. The Underground Chamber #A serves multiple purposes:

1. Retention of the 2-year 24-hour volume from the proposed condition (0.53 AF)
2. Retention of the DCV from the proposed condition (0.245 AF)
3. Pre-treatment, of equivalent performance to City standards, upstream of drywells
4. Mitigation of proposed 10-yr, 25-yr, and 100-yr Q below the respective existing Qs

Items (1) and (2) - Retention of volumes up to the 2-year 24-hour volume is made feasible due to the presence of two (2) drywells (see attached calculations from Torrent Resources). The invert of the overflow weir located in the overflow manhole is set at 5.2 feet (storage of 0.53 AF) above the invert of underground chamber A. See Section C-C on Proposed Hydrology Exhibit. The drywell infiltration rate is 0.0381 cfs per drywell.

*Drawdown time [DCV] = 10,679 [CF] / (0.0381 [CFS] * 2 [# WELLS]) /3,600 [SEC/HR] = 38.9 HRS < 48 HRS*

*Drawdown time [2-YR] = 23,087 [CF] / (0.0381 [CFS] * 2 [# WELLS]) /3,600 [SEC/HR] = 84.2 HRS < 96 HRS*

The achieved drawdown times for the DCV and the 2-year event meet the requirements set forth by the Orange County Technical Guidance Document (OC TGD) (48 hours) and the Orange County Mosquito and Vector Control District (96 hours), respectively.

During a 100-year event, the drawdown time between the peak (16. 22 HR) and the full release of the detained volume (24.75 HR) is of 8.5 hours.

*Drawdown time [100-YR] = 8.53 HRS + 23,087 [CF] / (0.0381 [CFS] * 2 [# WELLS]) /3,600 [SEC/HR] = 92.7 HRS < 96 HRS*

Item (3) – Per the OC TGD, pre-treatment is required upstream of infiltration-based BMPs. Redundancy in the pre-treatment train is preferred. It is our understanding that a draft version of Pre-Treatment Guidelines is being reviewed by the City prior to being released for implementation on City projects. Our concept to achieve pre-treatment is two-fold:

1. To achieve redundancy in the treatment train, curb inlet baskets will be implemented at all curb inlets to remove larger trash, debris, and other gross solids.

2. The Underground Chamber #A will serve as the settling basin to achieve a minimum 50% removal rate of TSS, as requested by April McMillian during the October 16, 2019 meeting.

A low flow weir vault (See Section D-D on Proposed Hydrology Exhibit) is proposed downstream of Underground Chamber #A and upstream of the two drywells. The height of the weir (2.42 feet) is set at the DCV (0.245 feet) to create a backwater effect in the chamber, reducing velocities. A small orifice allows low flows to eventually drain to the drywells for infiltration.

A minimum 50% removal of TSS is achieved, as follows:

a. Per the Geotechnical Report prepared by LGC Valley (dated April 5, 2019), all test pit logs indicate that the upper approx. 3' are made of undocumented artificial fill on top of young alluvial fan deposits. The Undocumented Artificial Fill is principally made of silty sandy GRAVEL and gravelly silty SAND. Below, the young alluvial fan deposits are made of silty fine SAND. No cohesiveness is assumed in this analysis. To be conservative, the finest sediment that may be found locally was determined to be Silty Fine Sand. (See geotechnical report)
b. The typical Grain Size Distribution for Silty Fine Sand is obtained from the NRCS (NEH Part 654). For base soil, D15 and D50 are of 0.11 mm and 0.265 mm, respectively. (See annotated GSD from NRCS).
c. As the rock base surrounding the CMP of Underground Chamber A starts filling up during a water quality event, we anticipate that velocities will be negligible. Settling during dynamic conditions is not considered in this analysis. Settling during quiescent conditions is to be calculated using Stokes Law.
d. Using standard parameters in Stokes Law, the anticipated settling time for D15 and D50 are of 17.5 minutes and 1.1 minutes, respectively. (See Stokes Law spreadsheet)

As conceptually designed, the pre-treatment system achieves a minimum of 50% removal of TSS.

<u>Item (4) –</u> During storms larger than the 2-year frequency event, excessive runoff is detained within Underground Chamber #A and slowly released through an overflow pipe system that runs through Drainage Management Area B then resurfaces at a curb inlet located at the southwest corner of the entrance to site. Curb flows are released to Lincoln Avenue. The following hydraulic structures are included:

a. Overflow weir vault (See Section C-C of Proposed Hydrology Exhibit) located past the high point separating DMA and DMA B. The overflow weir vault includes a weir orifice set at the elevation (5.2 feet) of the retained 2-year volume. During a 100-year event, the maximum water height in the chamber is 7.89 feet, which is also the top of internal weir for emergency overflow, should the orifice be clogged.
b. A 24-inch PVC pipe for high flows

c. A standard 14-foot long curb inlet vault that allows the release of flows as gutter flows to Lincoln Avenue. The length of the curb inlet was determined to allow for full release of the unmitigated Q100 for emergency purposes.

Drainage Management Area B

All tributary drainage runoff drains to the proposed Underground Chamber #B (72" CMP Pipe) of total storage capacity 5,351 CF. The Underground Chamber #B serves multiple purposes:

1. Retention of the DCV from the proposed condition (0.120 AF)
2. Pre-treatment, of equivalent performance to City standards, upstream of drywells

Item (1) - Retention of the DCV is made feasible due to the presence of one (1) drywells (see attached calculations from Torrent Resources). The drywell infiltration rate is 0.0381 cfs per drywell.

*Drawdown time [DCV] = 5,351 [CF] / (0.0381 [CFS] * 1 [# WELLS]) /3,600 [SEC/HR] = 39.0 HRS < 48 HRS*

The achieved drawdown times for the 85th percentile event meets the requirements set forth by the Orange County Technical Guidance Document (OC TGD) (48 hours).

Note that during events of lower frequency than the 85th percentile event, flows will flow through Underground Chamber B and fill the vault located at the southwest corner of the entrance way along Lincoln Avenue. Excessive flows will resurface and be released through the curb inlet and drain westbound along Lincoln Avenue.

Item (2) – Same concept as for DMA A

See WQMP report for storm water treatment information, Appendix C for Proposed Hydrology Map/Conceptual Sections and Appendix D for the Proposed Hydrology calculations.

Hydrologic Analysis

Onsite hydrologic analyses have been prepared using the rational method in accordance with the Orange County Hydrology Manual and the Advanced Engineering Software (AES) computer program.

The 1-hour precipitation rate for the 2-, 10-, 25-, and 100-year frequency events and slope of intensity duration curves were taken from the County's Hydrology Manual. Rainfall intensities were derived by AES based on the rainfall intensity curve and the expected time of concentration. Calculations and tabulations can be found in Appendix D.

Conclusion

The existing hydrology in this report was completed using the current on-site development (industrial, commercial and a vacant lot) while the Master Plan of Storm Drainage for Carbon Creek Channel Tributary Area was completed using General Plan Zoning Land Use. The Master

Plan of Storm Drainage assumed the Project Site to be Transitional, General Commercial and Industrial uses. The proposed condition runoff contribution from the Project Site is greater than the existing condition, thus, the project is proposed not to create any additional deficiencies in the existing storm drain infrastructure. With the proposed Underground Chambers, peak discharges are mitigated for all frequency events.

At the point of compliance, all peak discharges, including the 2-year event (HCOC), are mitigated to below existing levels from both DMA A and DMA B combined.

Table 1 ***Summary of Mitigated Runoff***

At Node 106	**Condition**		
Frequency	Existing	Proposed	Delta
100-year Q (cfs)	19.41	18.31	-5.67%
25-year Q (cfs)	14.72	12.71	-13.65%
10-year Q (cfs)	11.95	9.00	-24.69%
2-year Q (cfs)	5.88	3.24	-44.90%

Table 1 demonstrates that the proposed 100 year peak flows in the proposed condition for Drainage Areas A and B will be mitigated on site through underground retention chambers (Refer to Appendix E for Flood Routing Analysis). The underground retention chambers are sized for storm water storage, flood control and hydromodification. Drywells are sized for storm water infiltration, treatment and hydromodification. For hydromodification results refer to the WQMP report. Inclusion of retention chambers and drywells to meet hydromodification, flood control and LID treatment requirements will further reduce the proposed runoff to the existing storm drain system. The system has been sized and designed to mitigate proposed 100-year flow rates to existing condition. It is anticipated that the chambers and drywells will fill to capacity in large storm events and overflow through grated rims in the drywells. Overflow drainage will sheet flow toward Lincoln Avenue in a runoff pattern similar to existing conditions.

Analysis of the ultimate storm drain design, including final hydrology, pipe and inlet hydraulics, outflow structure and street flow calculations will be included in the Final Project Drainage Report.

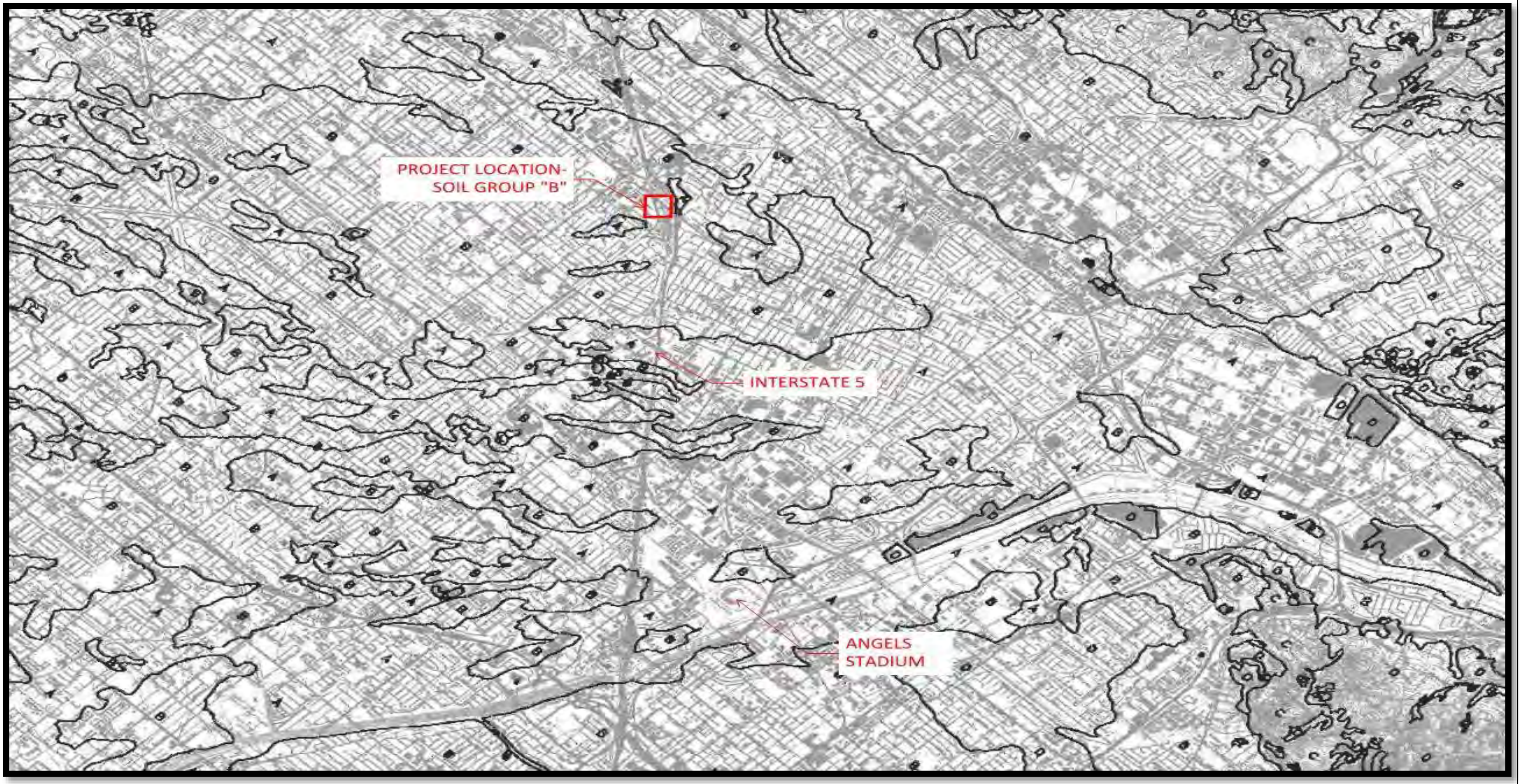
Appendix A

OC Hydrology Manual 1986 Soils Map

Zoning Map

Master Plan of Drainage Exhibit

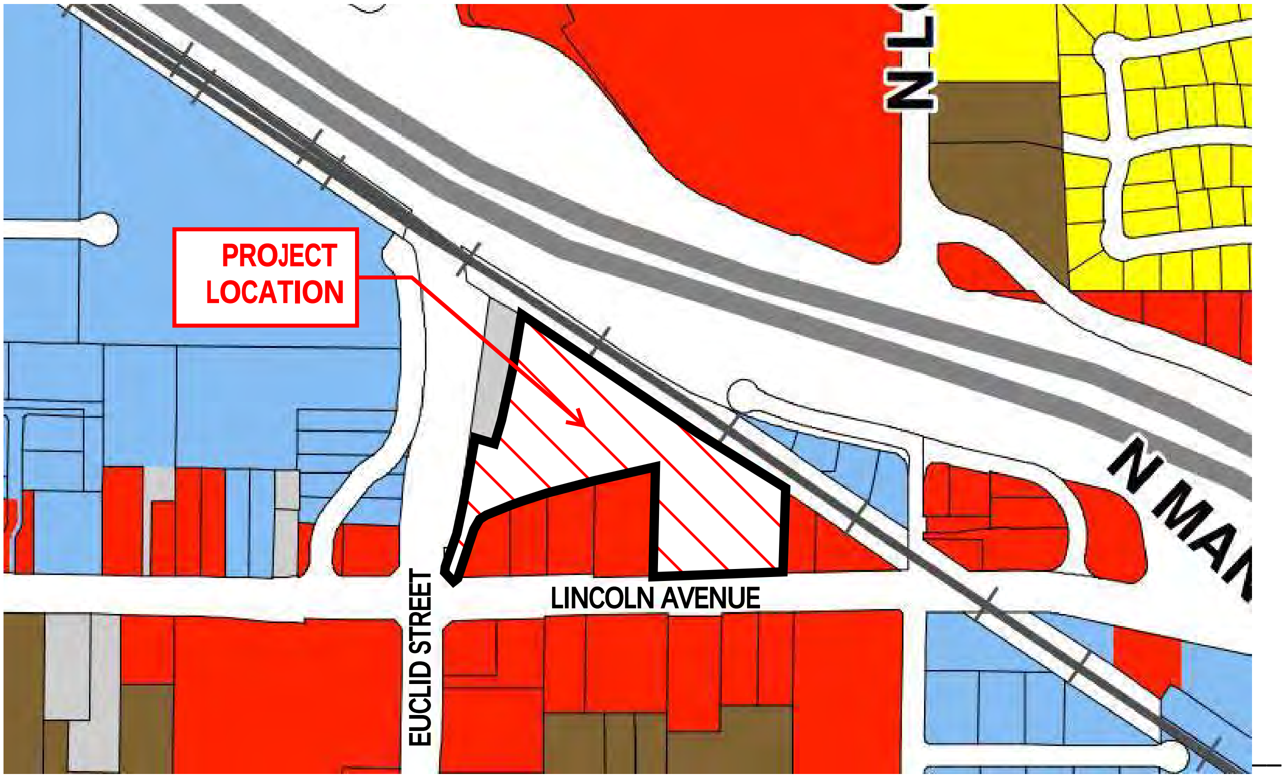
Soils Classification Map



SOURCES:
BASE MAP - ORANGE COUNTY/RESOURCES & DEVELOPMENT MANAGEMENT DEPT GEOMATICS AND LAND INFORMATION SYSTEMS DIVISION
SOIL GROUPS - SOIL SURVEY OF ORANGE COUNTY AND WESTERN PART OF RIVERSIDE COUNTY, CALIFORNIA, USDA, SOIL CONSERVATION SERVICE, 1978.

HYDROLOGIC CLASSIFICATION OF SOILS
ORANGE COUNTY, CALIFORNIA
PLATE A

**NOTE: THIS EXHIBIT WAS CREATED FROM THE "ORANGE COUNTY HYDROLOGY MANUAL 1986 SOILS MAP" PDF PUBISHED ON THE ORANGE COUNTY PUBLIC WORKS WEBSITE: HTTP://WWW.OCFLOOD.COM/CIVICAX/FILEBANK/BLOBDLOAD.ASPX?BLOBID=8337



Designation	Description
C-G	General Commercial. The intent of the "C-G" Zone is to allow a variety of land uses, including some identified for the Neighborhood Center Commercial zone described below. Areas designated as "C-G" General Commercial do not necessarily serve the adjacent neighborhood or surrounding clusters of neighborhoods. In addition to some of the uses described in the commercial centers zones, they typically include highway-serving uses such as fast food restaurants, auto-oriented uses such as tire stores and auto parts stores, and stand-alone retail uses. This zone implements the General Commercial land use designation in the General Plan.

Industrial

Designation	Description
I	Industrial. The intent of the "I" Zone is to provide for and encourage the development of industrial uses and their related facilities, recognize the unique and valuable existing industrial land resources, and encourage industrial employment opportunities within the City. Targeted industries include research and development, repair services, wholesale activities, distribution centers, and manufacturing and fabrication. In some situations, other types of uses are allowed with a conditional use permit. This zone implements the Industrial land use designation in the General Plan.

Public and Special Purpose

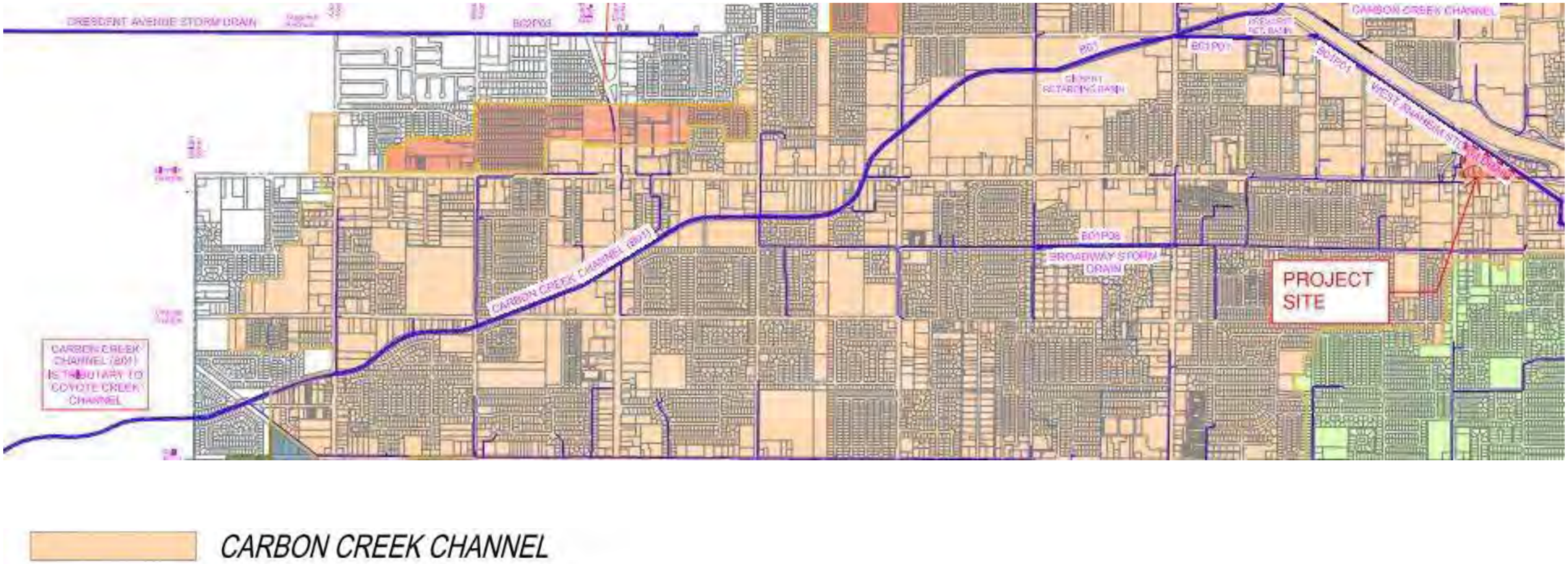
Designation	Description
T	Transitional. The intent of the "T" Zone is to provide for a zone to include land that is used for agricultural uses, in a transitory or interim use, restricted to limited uses because of special conditions, or not zoned to one of the zoning districts in this title for whatever reason, including recent annexation.

Adopted: June 8, 2004, City Council Ordinance No. 5920 as amended thereafter
Latest Revision Date: January 17, 2019, City Council Ordinance No. 6454

This map may not represent the most current information available and may be revised without prior notice to the user. The Planning Services Division staff of the Planning Department should be consulted for the most current information.

City of Anaheim, California
ZONING
Title 18

**NOTE: THIS EXHIBIT WAS CREATED FROM THE "1092_ZONING_24x55" PDF PUBISHED ON THE CITY OF ANAHEIM WEBSTITE: https://www.anaheim.net/DocumentCenter/View/1871/Zoning-Map?bidId=



City of Anaheim
Drainage Watersheds

July 2015

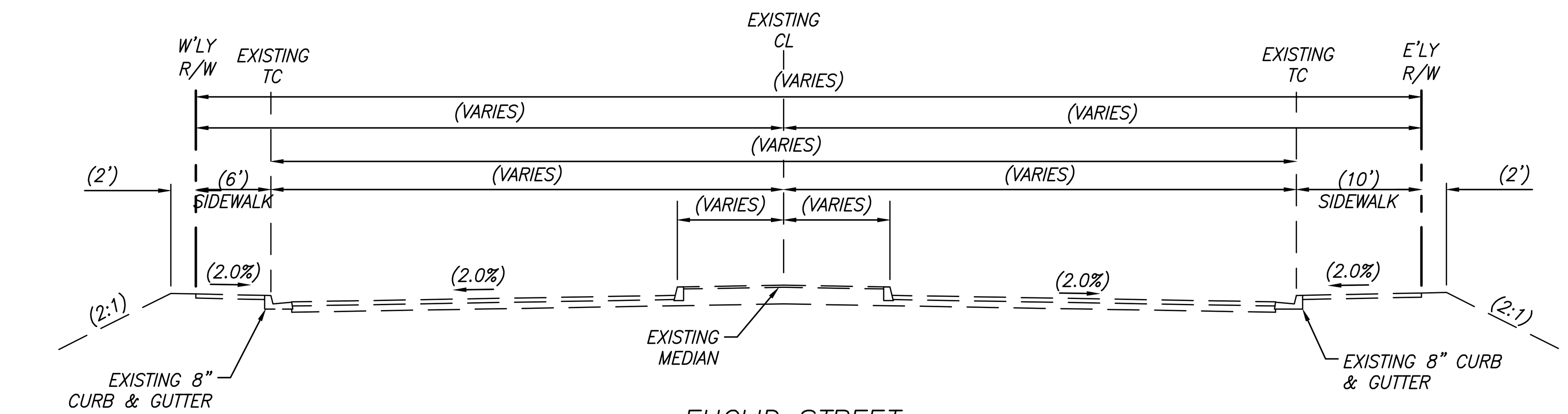
**NOTE: THIS EXHIBIT WAS CREATED FROM THE “DRAINAGE WATERSHEDS EXHIBIT MODEL(1)” PDF PUBISHED ON THE CITY OF ANAHEIM WEBSTITE: https://ca-anaheim.civicplus.com/DocumentCenter/View/13842/Storm-Drainage-Master-Plan-Watershed-Areas?bidId=

Appendix B

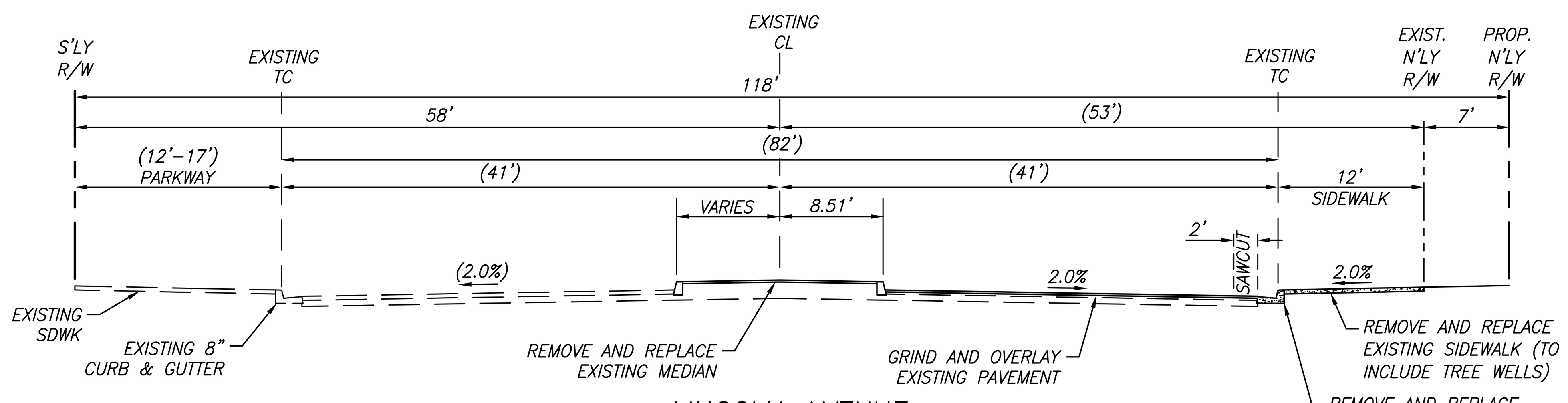
Preliminary Site Plan

Preliminary Grading Plan

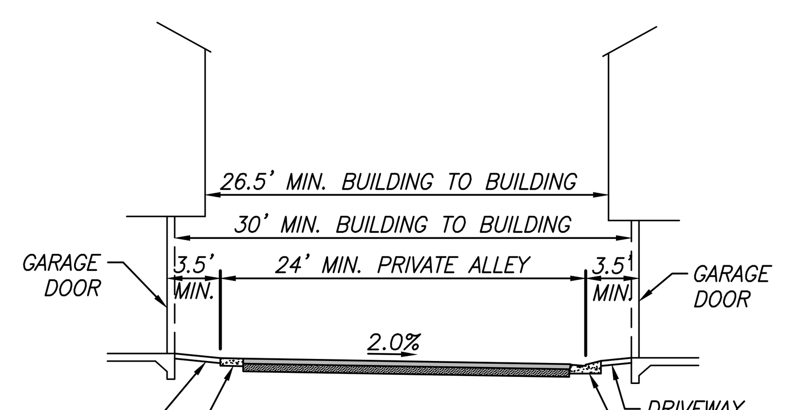
Preliminary Utility Plan



EUCLID STREET
PUBLIC STREET
(PRIMARY ARTERIAL)
SCALE: 1"=10'



LINCOLN AVENUE
PUBLIC STREET
(PRIMARY ARTERIAL)
SCALE: 1"=10'



PRIVATE ALLEY
(NO PARKING)
SCALE: 1"=10'

LEGAL DESCRIPTION

PARCEL 4 (APN: 072-110-21):

PARCEL 4A: THE WESTERLY 203.17 FEET OF THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 9, TOWNSHIP 4 SOUTH, RANGE 10 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE RANCHO SAN JUAN CAJON DE SANTA ANA, CITY OF ANAHEIM, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 51, PAGE 10 OF MISCELLANEOUS MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, LYING SOUTHWESTERLY OF THE SOUTHWESTERLY LINE OF THE LAND DESCRIBED IN THE DEED RECORDED JUNE 12, 1876, IN BOOK 44, PAGE 496 OF DEEDS, IN THE OFFICE OF THE COUNTY RECORDER OF LOS ANGELES COUNTY, CALIFORNIA.EXCEPT THAT PORTION DESCRIBED IN THE DEED TO THE STATE OF CALIFORNIA, RECORDED JANUARY 10, 1956, IN BOOK 3347, PAGE 394 OF OFFICIAL RECORDS.

PARCEL 4B: THE EAST 40.00 FEET OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 9, TOWNSHIP 4 SOUTH, RANGE 10 WEST, IN THE RANCHO SAN JUAN CAJON DE SANTA ANA, CITY OF ANAHEIM, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 51, PAGE 10 OF MISCELLANEOUS MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, LYING SOUTHWESTERLY OF THE SOUTHWESTERLY LINE OF THE LAND DESCRIBED IN THE DEED RECORDED JUNE 12, 1876, IN BOOK 44, PAGE 496 OF DEEDS, IN THE OFFICE OF THE COUNTY RECORDER OF LOS ANGELES COUNTY, CALIFORNIA. EXCEPT THAT PORTION DESCRIBED IN THE DEED TO THE STATE OF CALIFORNIA, RECORDED JANUARY 10, 1956, IN BOOK 3347, PAGE 394 OF OFFICIAL RECORDS.

PARCEL 3 APN: 072-110-19):

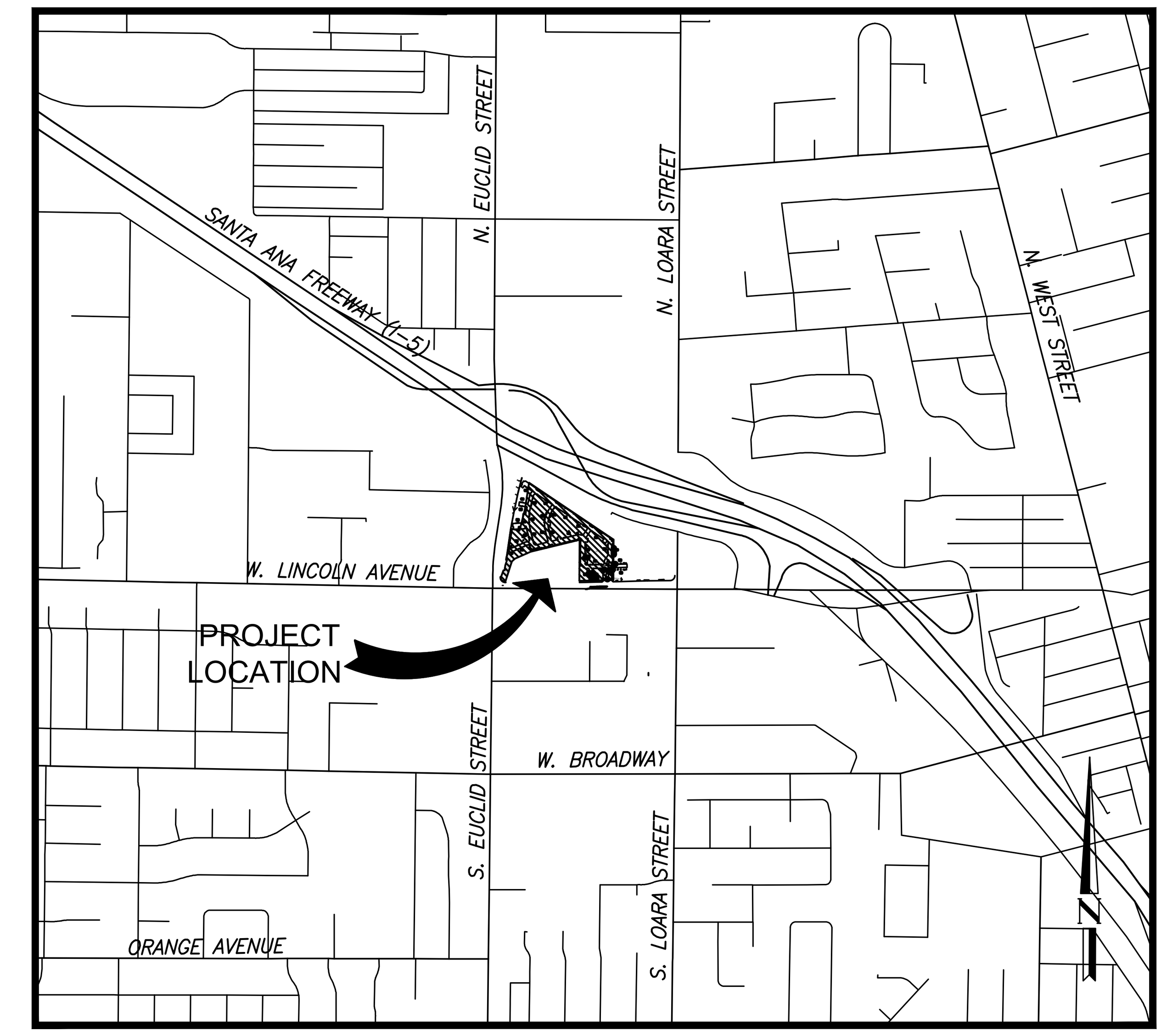
BEGINNING AT A POINT ON THE WESTERLY LINE OF THE LAND CONVEYED TO ANASTASI DEVELOPMENT LC BY THAT CERTAIN DIRECTOR'S DEED RECORDED SEPTEMBER 25, 2006 AS INSTRUMENT NO. 2006000634744 OF OFFICIAL RECORDS, AT THE EASTERLY TERMINUS OF THAT CERTAIN COURSE DESCRIBED AS SOUTH 89°37'57"EAST AND HAVING A DISTANCE OF 26.00 FEET; THENCE ALONG SAID WESTERLY LINE NORTH 08°11'00"EAST TO THE INTERSECTION OF THE EASTERLY LINE OF THE LAND RELINQUISHED TO THE CITY OF ANAHEIM, DESCRIBED AS PARCEL 8 OF THAT CERTAIN RELINQUISHMENT NO. 307, RECORDED DECEMBER 03, 1964 IN BOOK 7329, PAGE 848 OF OFFICIAL RECORDS, BEING A POINT IN THE COURSE DESCRIBED IN SAID PARCEL 8 AS SOUTH 18°48'25" WEST 142.84 FEET; THENCE SOUTH 18°48'25"WEST ALONG SAID PARCEL 8 TO THE INTERSECTION WITH SAID WESTERLY LINE AT A POINT ON THE COURSE DESCRIBED AS SOUTH 89°37'57"EAST AND HAVING A DISTANCE OF 26.00 FEET; THENCE SOUTH 89°37'57" EAST ALONG SAID WESTERLY LINE TO THE POINT OF BEGINNING.

PARCEL A (LEGAL DESCRIPTION NEEDS TO BE VERIFIED):

THAT PORTION OF PARCEL 8 OF RELINQUISHMENT NO. 307, RECORDED DECEMBER 03, 1964 IN BOOK 7329, PAGE 848 OF OFFICIAL RECORDS, BEING THAT PORTION LYING WITHIN THE WEST HALF OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 9, TOWNSHIP 4 SOUTH, RANGE 10 WEST, RANCHO SAN JUAN CAJON DE SANTA ANA, IN THE CITY OF ANAHEIM, COUNTY OF ORANGE, STATE OF CALIFORNIA. EXCEPT THEREFROM ANY PORTION LYING WITHIN EUCLID STREET. ALSO EXCEPTING THEREFROM PORTIONS OF SAID LAND, ANY AND ALL OIL, GAS, MINERALS, AND OTHER HYDROCARBON SUBSTANCES, WITHOUT THE RIGHT OF SURFACE ENTRY, AS MORE PARTICULARLY SET FORTH AND PROVIDED IN THOSE CERTAIN DOCUMENTS RECORDED JUNE 25, 1942 IN BOOK 1153, PAGE 114, AND JUNE 09, 1954 IN BOOK 2742, PAGE 526, BOTH OF OFFICIAL RECORDS.

PARCEL 9 (APN: 072-110-50):

THAT PORTION OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 9, TOWNSHIP 4 SOUTH, RANGE 10 WEST, IN THE RANCHO SAN JUAN CAJON DE SANTA ANA, IN THE CITY OF ANAHEIM, COUNTY OF ORANGE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS: COMMENCING AT THE INTERSECTION OF THE WEST LINE OF SAID SECTION 9 WITH THE SOUTHWESTERLY SIDE LINE OF THE SOUTHERN PACIFIC RAILROAD COMPANY'S 100-FOOT WIDE RIGHT OF WAY AS DESCRIBED IN THE DEED TO WESTERN DEVELOPMENT COMPANY, RECORDED IN BOOK 44, PAGE 496 OF DEEDS, IN THE OFFICE OF THE COUNTY RECORDER OF LOS ANGELES COUNTY, CALIFORNIA; HENCE ALONG SAID SOUTHWESTERLY SIDE LINE, SOUTH 56°07'55" EAST, 212.48 FEET TO THE POINT OF BEGINNING OF THIS DESCRIPTION; THENCE CONTINUING ALONG SAID SOUTHWESTERLY SIDE LINE SOUTH 56°07'55" EAST, 667.52 FEET TO THE MOST EASTERLY CORNER OF PARCEL 2 OF STATE PARCEL 1318 AS DESCRIBED IN THE GRANT DEED RECORDED JANUARY 10, 1956, IN BOOK 3347, PAGE 394 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID ORANGE COUNTY; THENCE ALONG THE SOUTHEASTERLY LINE OF SAID STATE PARCEL, SOUTH 33°52'01" WEST, 87.98 FEET TO THE SOUTHERLY LINE OF SAID STATE PARCEL; THENCE ALONG SAID SOUTHERLY LINE AND THE SOUTHERLY LINE OF PARCEL 3-A OF STATE PARCEL 1317 AS DESCRIBED IN THE FINAL ORDER OF CONDEMNATION RECORDED FEBRUARY 18, 1957, IN BOOK 3809, PAGE 61, AND THE SOUTHERLY LINE OF PARCEL 1 OF STATE PARCEL 1316 AS DESCRIBED IN THE GRANT DEED RECORDED FEBRUARY 28, 1956, IN BOOK 3414, PAGE 69, BOTH OF OFFICIAL RECORDS OF SAID ORANGE COUNTY, THE FOLLOWING 3 (THREE) COURSES: SOUTH 76°26'08" WEST, 427.84 FEET; SOUTH 66°18'37" WEST, 122.66 FEET AND SOUTH 47°17'05" WEST, 30.74 FEET TO A POINT IN THAT CERTAIN COURSE DESCRIBED AS HAVING A LENGTH OF 216.89 FEET IN THE EASTERLY LINE OF PARCEL 2 OF STATE PARCEL 1081 AS DESCRIBED IN THE GRANT DEED RECORDED JULY 23, 1954, IN BOOK 2776, PAGE 288 OF SAID OFFICIAL RECORDS OF ORANGE COUNTY; THENCE ALONG SAID EASTERLY LINE, SOUTH 17°48'44" WEST, 157.64 FEET TO THE NORTHERLY LINE OF PARCEL 2 OF SAID STATE PARCEL 1316; THENCE LEAVING SAID STATE PARCEL LINES AND ALONG THE FOLLOWING 5 (FIVE) COURSES; 1) SOUTH 88°41'19" WEST, 4.56 FEET TO THE BEGINNING OF A CURVE CONCAVE NORTHEASTERLY AND HAVING A RADIUS OF 25.00 FEET; THENCE 2) WESTERLY, NORTHWESTERLY AND NORTHERLY ALONG SAID CURVE AN ARC DISTANCE OF 40.00 FEET THROUGH A CENTRAL ANGLE OF 91°40'44"; THENCE 3) NORTH 00°22'03" EAST, 62.47 FEET; THENCE 4) SOUTH 89°37'57" EAST, 26.00 FEET AND THENCE 5) NORTH 08°11'00" EAST, 685.25 FEET TO THE POINT OF BEGINNING. EXCEPTING THEREFROM ALL THAT PORTION OF SAID LAND LYING WESTERLY OF THE EASTERLY LINE OF THE LAND RELINQUISHED TO THE CITY OF ANAHEIM AS DESCRIBED IN PARCEL 8 OF STATE RELINQUISHMENT REL-307, RECORDED DECEMBER 3, 1964, IN BOOK 7329, PAGE 848 OF OFFICIAL RECORDS OF SAID COUNTY.



VICINITY MAP
SCALE: NOT TO SCALE

PARKING NOTES:

- ALL PARALLEL PARKING STALLS ARE TO BE 8'x22' MINIMUM.
- ALL STANDARD HEAD-ON PARKING STALLS ARE TO BE 9'x18' MINIMUM.
- ALL ACCESSIBLE PARKING STALLS ARE TO BE 9'X18' MINIMUM.
- ALL PARKING STALLS ARE TO BE DOUBLE STRIPED PER CITY OF ANAHEIM ENGINEERING STANDARD DETAIL 470.
- ALL ACCESSIBLE PARKING STALL SIGNS SHALL CONFORM TO CAMUTCD SIGN R99(CA), R99B, AND R7-8B.

LEGEND

- RIGHT OF WAY
- PROPERTY LINE
- STREET CENTERLINE
- EXISTING EASEMENT
- ADA PATH OF TRAVEL

EXISTING EASEMENTS

(A) INGRESS, EGRESS, PUBLIC UTILITY EASEMENT TO PACIFIC BELL. (TO BE VACATED).

(B) PUBLIC UTILITY EASEMENT TO SOUTHERN CALIFORNIA EDISON COMPANY (TO BE VACATED).

PROPOSED EASEMENTS

(1) EASEMENT FOR EMERGENCY VEHICLE ACCESS PURPOSES TO THE CITY OF ANAHEIM.

(2) EASEMENT FOR DOMESTIC WATERLINE ACCESS AND MAINTENANCE PURPOSES TO THE CITY OF ANAHEIM.

(3) EASEMENT FOR SLOPE ACCESS AND MAINTENANCE PURPOSES TO THE CITY OF ANAHEIM.

LINCOLN AT EUCLID

ANAHEIM, CA

SEPTEMBER 16, 2019

R:\R309453.01 - Shopoff Anaheim\10 CADD & BIM\10.13 Civil\Production\CUP\C-1 Preliminary Site Plan.dwg Sep 16 2019 8:26am

PRELIMINARY SITE PLAN

SHOPOFF REALTY INVESTMENTS

JZMK PARTNERS

studio PAD

HUITT-ZOLLARS

C-1.1

		CUT	FILL	NET
RAW EARTHWORK (INCLUDES STREET AND ALLEY UNDERCUT)		4,458	3,760	698 EXPORT
ADJUSTMENTS	REMIEDIAL/OVEREX (4' OVER SITE)	46,255	46,255	
	DEMOLITION (4" OVER SITE)	3,855	3,855	
	TRENCHING/UTILITIES	-	-	
	SUBTOTAL	54,568	53,870	
SHRINKAGE (15%)			8,081	
TOTAL		**59,026**	**65,711**	**-6,685 IMPORT**

PRELIMINARY GRADING PLAN

LINCOLN AT EUCLID

ANAHEIM, CA

SEPTEMBER 16, 2019

R:\R309453.01 – Shopoff Anaheim\10 CADD & BIM\10.13 Civil\Production\CUP\C-2 Preliminary Grading Plan.dwg Sep 16 2019 8:26am

SHOPOFF REALTY INVESTMENTS

JZMK PARTNERS

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HUITT-ZOLLARS

C-2.0

PRELIMINARY UTILITY PLAN

LINCOLN AT EUCLID

ANAHEIM, CA

SEPTEMBER 16, 2019

R:\R309453.01 - Shopoff Anaheim\10 CADD & BIM\10.13 Civil\Production\CUP\C-3 Preliminary Utility Plan.dwg Sep 16 2019 8:26am

SHOPOFF REALTY INVESTMENTS

JZMK PARTNERS

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HUITT-ZOLLARS

C-3.0

Appendix C

Existing Hydrology Map

Proposed Hydrology Map

Conceptual Cross Sections

LINCOLN AT EUCLID
ANAHEIM, CA

EXISTING HYDROLOGY EXHIBIT

PREPARED BY:
HUITT-ZOLLARS

PREPARED FOR:
SHOPOFF REALTY INVESTMENTS

DATE : 08/05/2019

At Node 106	Condition		
Frequency	Existing	Proposed	Delta
100-year Q (cfs)	19.41	18.31	-5.67%
25-year Q (cfs)	14.72	12.71	-13.65%
10-year Q (cfs)	11.95	9.00	-24.69%
2-year Q (cfs)	5.88	3.24	-44.90%

LINCOLN AT EUCLID

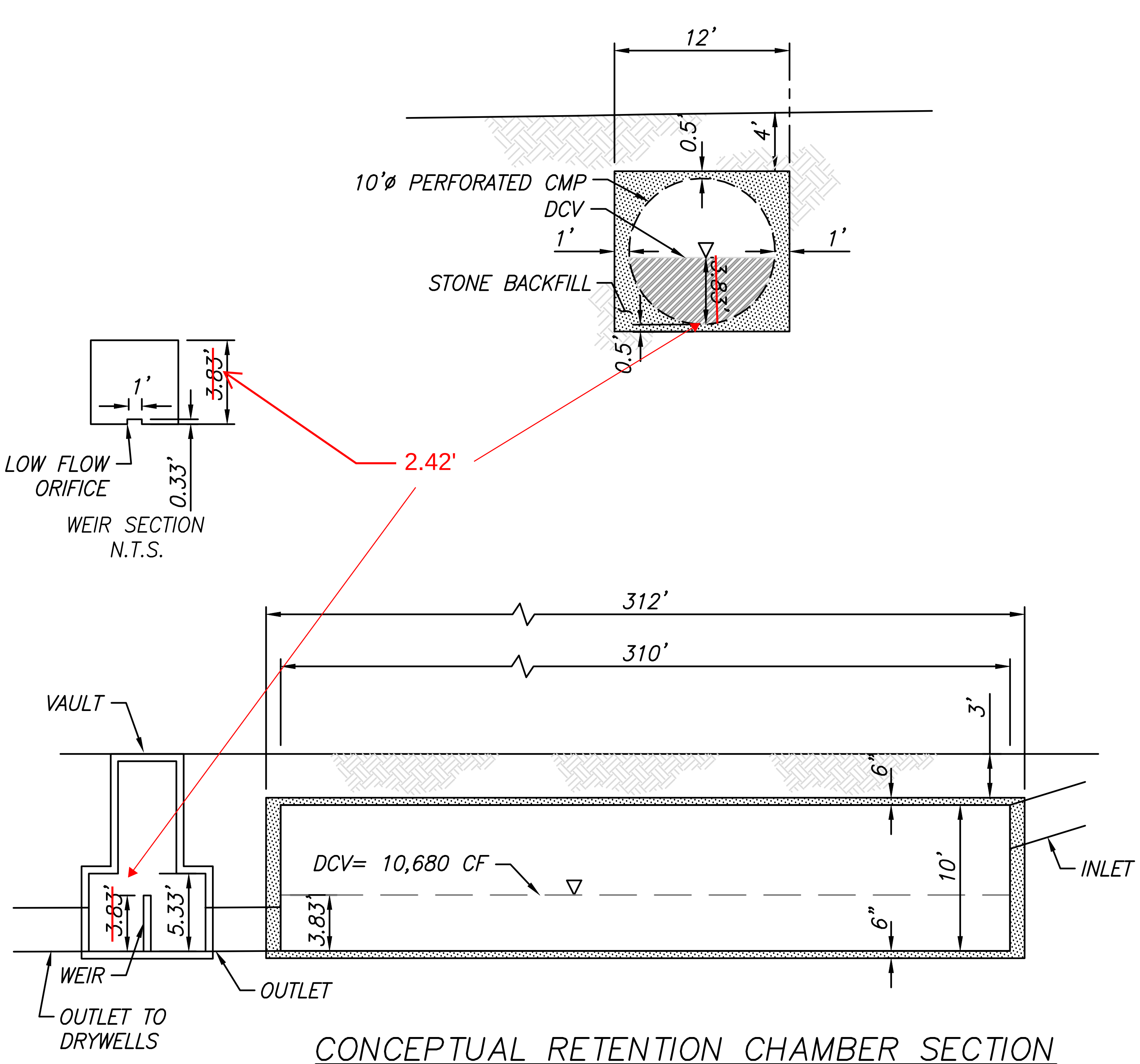
ANAHEIM, CA

PROPOSED HYDROLOGY EXHIBIT

PREPARED BY: HUITT-ZOLLARS

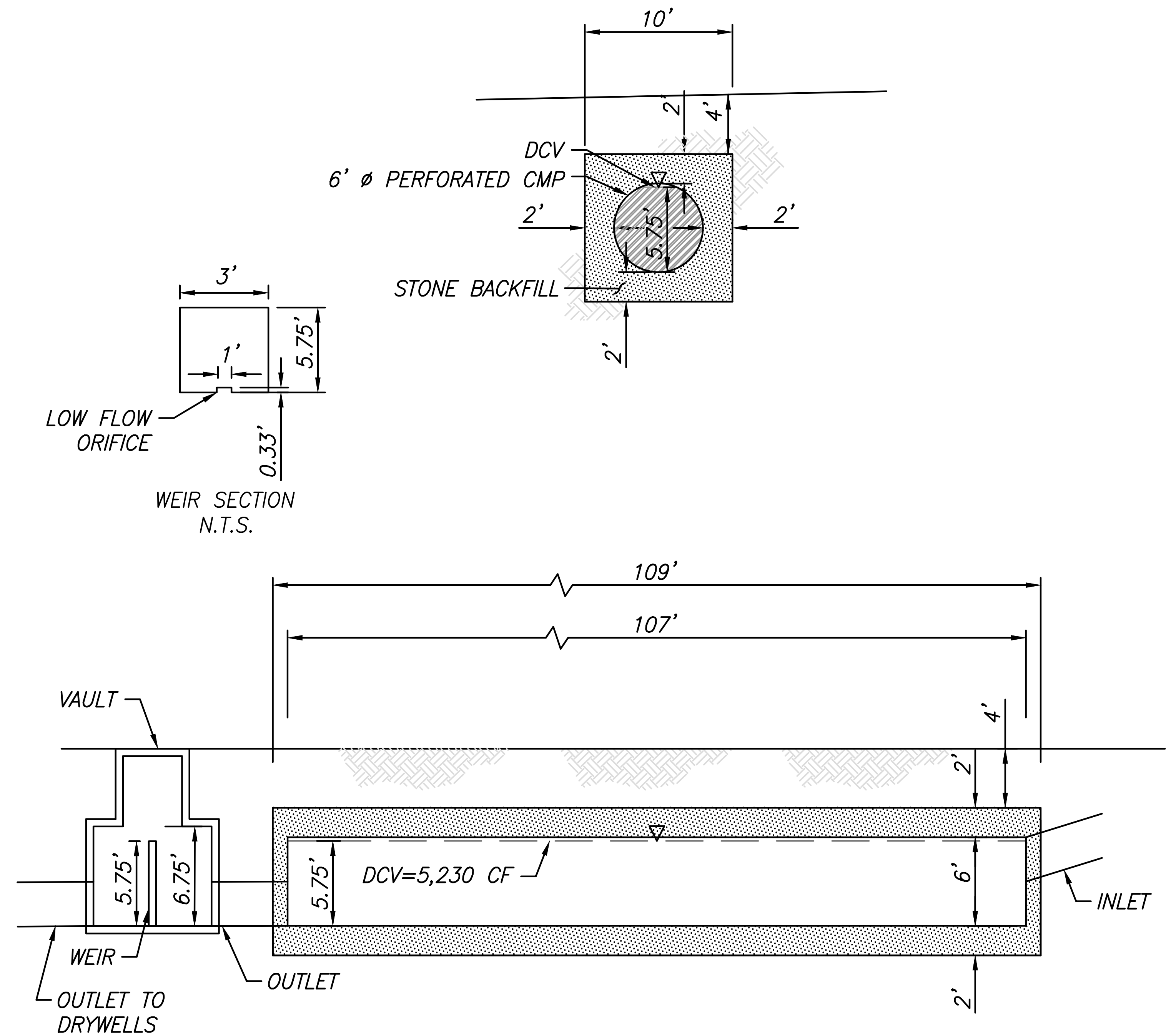
PREPARED FOR: SHOPOFF REALTY INVESTMENTS

DATE : 08/05/2019



CONCEPTUAL RETENTION CHAMBER SECTION
CHAMBER A – DMA A

SCALE: 1"=10'



CONCEPTUAL RETENTION CHAMBER
CHAMBER B– DMA B

SCALE: 1"=10'

SCALE: AS NOTED
DATE:9/9/2019

Appendix D

Existing Hydrology Calculations

Proposed Hydrology Calculations

```
****************************************************************************
         RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
         (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
       (c) Copyright 1983-2014 Advanced Engineering Software (aes)
         Ver. 21.0  Release Date: 06/01/2014  License ID 1202

                    Analysis prepared by:

                     Huitt-Zollars, Inc.
                   2603 Main Street, Irvine CA.
                         Suite 400
                       (949)-988-5815

 ************************** DESCRIPTION OF STUDY **************************
* EX 100 DMA A                                     *
* RATIONAL METHOD - EXISTING CONDITION                                 *
* 100YR AMC III RC 10/22/2019                               *
 **************************************************************************

  FILE NAME: ANAEX00A.DAT
  TIME/DATE OF STUDY: 18:53 10/22/2019
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
               --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  24.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *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    0.020/0.020/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   197.00
  ELEVATION DATA: UPSTREAM(FEET) =    135.30  DOWNSTREAM(FEET) =    133.60

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.240
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.890
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS   Tc
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
```

```
 "BARREN"              B      0.68     0.30    1.000   97   11.24
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =      2.20
 TOTAL AREA(ACRES) =      0.68   PEAK FLOW RATE(CFS) =      2.20

****************************************************************************
 FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  56
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    133.60  DOWNSTREAM(FEET) =    130.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   691.00   CHANNEL SLOPE =  0.0052
 GIVEN CHANNEL BASE(FEET) =    5.00   CHANNEL FREEBOARD(FEET) =  1.0
 "Z" FACTOR =  10.000   MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) =   1.51
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.946
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "BARREN"              B      4.24     0.30    1.000   97
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       7.31
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.64
 AVERAGE FLOW DEPTH(FEET) =   0.46   TRAVEL TIME(MIN.) =   7.01
 Tc(MIN.) =   18.25
 SUBAREA AREA(ACRES) =     4.24       SUBAREA RUNOFF(CFS) =   10.10
 EFFECTIVE AREA(ACRES) =      4.92     AREA-AVERAGED Fm(INCH/HR) =   0.30
 AREA-AVERAGED Fp(INCH/HR) =   0.30  AREA-AVERAGED Ap =   1.00
 TOTAL AREA(ACRES) =        4.9        PEAK FLOW RATE(CFS) =       11.72
 GIVEN CHANNEL BASE(FEET) =    5.00   CHANNEL FREEBOARD(FEET) =  1.0
 "Z" FACTOR =  10.000   MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) =   1.58

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.58   FLOW VELOCITY(FEET/SEC.) =   1.86
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     888.00 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =       4.9  TC(MIN.) =     18.25
 EFFECTIVE AREA(ACRES) =      4.92  AREA-AVERAGED Fm(INCH/HR)=  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS)   =      11.72
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
****************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
         (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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          Ver. 21.0  Release Date: 06/01/2014  License ID 1202

                      Analysis prepared by:

                       Huitt-Zollars, Inc.
                    2603 Main Street, Irvine CA.
                            Suite 400
                          (949)-988-5815

 ************************** DESCRIPTION OF STUDY **************************
* SHOPOFF ANAHEIM                                                          *
* RATIONAL METHOD - EXISTING CONDITION DMA B                               *
* 100YR AMC III RC 10/22/2019                                              *
 **************************************************************************

  FILE NAME: ANAEX00B.DAT
  TIME/DATE OF STUDY: 18:55 10/22/2019
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
               --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  24.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *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    0.020/0.020/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   202.00
  ELEVATION DATA: UPSTREAM(FEET) =    135.90  DOWNSTREAM(FEET) =    131.90

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.568
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.818
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL  AREA      Fp        Ap     SCS   Tc
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL               B       0.95      0.30     0.100    76    5.57
```

```
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 SUBAREA RUNOFF(CFS) =      4.95
 TOTAL AREA(ACRES) =      0.95   PEAK FLOW RATE(CFS) =      4.95

****************************************************************************
 FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    131.90  DOWNSTREAM(FEET) =    131.40
 CHANNEL LENGTH THRU SUBAREA(FEET) =   196.00   CHANNEL SLOPE =  0.0026
 CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  99.900
 MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   0.50
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.620
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 COMMERCIAL                 B       0.88      0.30     0.100    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       6.78
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.18
 AVERAGE FLOW DEPTH(FEET) =   0.24   TRAVEL TIME(MIN.) =   2.76
 Tc(MIN.) =    8.32
 SUBAREA AREA(ACRES) =     0.88       SUBAREA RUNOFF(CFS) =    3.64
 EFFECTIVE AREA(ACRES) =      1.83     AREA-AVERAGED Fm(INCH/HR) =   0.03
 AREA-AVERAGED Fp(INCH/HR) =   0.30  AREA-AVERAGED Ap =   0.10
 TOTAL AREA(ACRES) =        1.8        PEAK FLOW RATE(CFS) =       7.56

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.25   FLOW VELOCITY(FEET/SEC.) =   1.24
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    202.00 =     398.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    202.00 TO NODE    202.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    210.00 TO NODE    211.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   261.00
 ELEVATION DATA: UPSTREAM(FEET) =    132.90  DOWNSTREAM(FEET) =    132.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.111
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.283
 SUBAREA Tc AND LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS   Tc
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "BARREN"                   B       0.63      0.30     1.000    97   15.11
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =      1.69
 TOTAL AREA(ACRES) =      0.63   PEAK FLOW RATE(CFS) =      1.69

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

```
 FLOW PROCESS FROM NODE    211.00 TO NODE    203.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    132.00  DOWNSTREAM(FEET) =    130.90
 CHANNEL LENGTH THRU SUBAREA(FEET) =   250.00   CHANNEL SLOPE =  0.0044
 CHANNEL BASE(FEET) =   26.00   "Z" FACTOR =  10.000
 MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   0.50
 CHANNEL FLOW THRU SUBAREA(CFS) =       1.69
 FLOW VELOCITY(FEET/SEC.) =   0.99   FLOW DEPTH(FEET) =   0.06
 TRAVEL TIME(MIN.) =   4.19   Tc(MIN.) =   19.30
 LONGEST FLOWPATH FROM NODE    210.00 TO NODE    203.00 =     511.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    203.00 TO NODE    203.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
==============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
     1       1.69   19.30    2.853  0.30( 0.30) 1.00       0.6     210.00
 LONGEST FLOWPATH FROM NODE    210.00 TO NODE    203.00 =     511.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM      Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
     1       7.56    8.32    4.620  0.30( 0.03) 0.10       1.8     200.00
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    203.00 =     398.00 FEET.

 ** PEAK FLOW RATE TABLE **
  STREAM      Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
     1       8.79    8.32    4.620  0.30( 0.06) 0.22       2.1     200.00
     2       6.34   19.30    2.853  0.30( 0.10) 0.33       2.5     210.00
   TOTAL AREA(ACRES) =         2.5

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =        8.79  Tc(MIN.) =    8.324
 EFFECTIVE AREA(ACRES) =       2.10  AREA-AVERAGED Fm(INCH/HR) =  0.06
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.33
 TOTAL AREA(ACRES) =         2.5
 LONGEST FLOWPATH FROM NODE    210.00 TO NODE    203.00 =     511.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    203.00 TO NODE    106.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    130.90  DOWNSTREAM(FEET) =    128.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   568.00   CHANNEL SLOPE =  0.0051
 CHANNEL BASE(FEET) =   26.00   "Z" FACTOR =  10.000
 MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   0.50
 CHANNEL FLOW THRU SUBAREA(CFS) =       8.79
 FLOW VELOCITY(FEET/SEC.) =   2.03   FLOW DEPTH(FEET) =   0.16
 TRAVEL TIME(MIN.) =   4.67   Tc(MIN.) =   13.00
 LONGEST FLOWPATH FROM NODE    210.00 TO NODE    106.00 =    1079.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  12
----------------------------------------------------------------------------
```

```
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
==============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
==============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
==============================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN.) =   18.25   RAINFALL INTENSITY(INCH/HR) =  2.95
  EFFECTIVE AREA(ACRES) =      4.92
  TOTAL AREA(ACRES) =      4.92       PEAK FLOW RATE(CFS) =      11.72
  AREA-AVERAGED Fm(INCH/HR) =   0.30  AREA-AVERAGED Fp(INCH/HR) =   0.30
  AREA-AVERAGED Ap =  1.00
  NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
        CONFLUENCE ANALYSES.

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
==============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
   STREAM      Q      Tc  Intensity  Fp(Fm)    Ap    Ae     HEADWATER
   NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1      11.72   18.25    2.946  0.30( 0.30) 1.00      4.9     210.00
  LONGEST FLOWPATH FROM NODE    210.00 TO NODE    106.00 =    1079.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
   STREAM      Q      Tc  Intensity  Fp(Fm)    Ap    Ae     HEADWATER
   NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1       8.79   13.00    3.579  0.30( 0.06) 0.22      2.1     200.00
     2       6.34   24.71    2.477  0.30( 0.10) 0.33      2.5     210.00
  LONGEST FLOWPATH FROM NODE    210.00 TO NODE    106.00 =    1079.00 FEET.

  ** PEAK FLOW RATE TABLE **
   STREAM      Q      Tc  Intensity  Fp(Fm)    Ap    Ae     HEADWATER
   NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1      19.14   13.00    3.579  0.30( 0.21) 0.71      5.6     200.00
     2      19.41   18.25    2.946  0.30( 0.23) 0.77      7.2     210.00
     3      15.98   24.71    2.477  0.30( 0.23) 0.78      7.4     210.00
    TOTAL AREA(ACRES) =        7.4

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       19.41  Tc(MIN.) =   18.250
  EFFECTIVE AREA(ACRES) =       7.18  AREA-AVERAGED Fm(INCH/HR) =  0.23
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.71
  TOTAL AREA(ACRES) =        7.4
  LONGEST FLOWPATH FROM NODE    210.00 TO NODE    106.00 =    1079.00 FEET.
==============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)      =        7.4  TC(MIN.) =      18.25
  EFFECTIVE AREA(ACRES) =       7.18  AREA-AVERAGED Fm(INCH/HR)=  0.23
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 0.769
  PEAK FLOW RATE(CFS)   =      19.41

  ** PEAK FLOW RATE TABLE **
```

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	19.14	13.00	3.579	0.30(0.21)	0.71	5.6	200.00
2	19.41	18.25	2.946	0.30(0.23)	0.77	7.2	210.00
3	15.98	24.71	2.477	0.30(0.23)	0.78	7.4	210.00

==
==

END OF RATIONAL METHOD ANALYSIS

```
____________________________________________________________________________
****************************************************************************
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                 Analysis prepared by:

                  Huitt-Zollars, Inc.
               2603 Main Street, Irvine CA.
                      Suite 400
                    (949)-988-5815

 ************************** DESCRIPTION OF STUDY **************************
* SHOPOFF ANAHEIM                                          *
* RATIONAL METHOD - EXISTING CONDITION DMA A                            *
* 25YR AMC II RC 10/22/2019                                 *
 **************************************************************************

  FILE NAME: ANAEX25A.DAT
  TIME/DATE OF STUDY: 18:37 10/22/2019
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
           --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  24.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *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   0.020/0.020/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   197.00
  ELEVATION DATA: UPSTREAM(FEET) =    135.30  DOWNSTREAM(FEET) =    133.60

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.240
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.050
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL  AREA     Fp       Ap     SCS   Tc
      LAND USE          GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
```

```
 "BARREN"              B       0.68     0.30     1.000    86   11.24
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =      1.68
 TOTAL AREA(ACRES) =      0.68   PEAK FLOW RATE(CFS) =      1.68

****************************************************************************
 FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  56
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    133.60  DOWNSTREAM(FEET) =    130.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   691.00   CHANNEL SLOPE =  0.0052
 GIVEN CHANNEL BASE(FEET) =    5.00   CHANNEL FREEBOARD(FEET) =  1.0
 "Z" FACTOR =  10.000   MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) =   1.45
 *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.279
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "BARREN"              B       4.24     0.30     1.000    86
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.51
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.52
 AVERAGE FLOW DEPTH(FEET) =   0.40   TRAVEL TIME(MIN.) =   7.56
 Tc(MIN.) =   18.80
 SUBAREA AREA(ACRES) =     4.24       SUBAREA RUNOFF(CFS) =    7.55
 EFFECTIVE AREA(ACRES) =      4.92     AREA-AVERAGED Fm(INCH/HR) =   0.30
 AREA-AVERAGED Fp(INCH/HR) =   0.30  AREA-AVERAGED Ap =   1.00
 TOTAL AREA(ACRES) =        4.9         PEAK FLOW RATE(CFS) =        8.76
 GIVEN CHANNEL BASE(FEET) =    5.00   CHANNEL FREEBOARD(FEET) =  1.0
 "Z" FACTOR =  10.000   MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) =   1.51

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.51   FLOW VELOCITY(FEET/SEC.) =   1.72
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =    888.00 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        4.9  TC(MIN.) =     18.80
 EFFECTIVE AREA(ACRES) =      4.92  AREA-AVERAGED Fm(INCH/HR)=  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS)   =       8.76
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
****************************************************************************
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                        Analysis prepared by:

                          Huitt-Zollars, Inc.
                        2603 Main Street, Irvine CA.
                               Suite 400
                             (949)-988-5815

 ************************** DESCRIPTION OF STUDY **************************
 * SHOPOFF ANAHEIM                                                        *
 * RATIONAL METHOD - EXISTING CONDITION DMA B                             *
 * 25YR AMC II RC 10/22/2019                                              *
 **************************************************************************

  FILE NAME: ANAEX25B.DAT
  TIME/DATE OF STUDY: 18:39 10/22/2019
==============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==============================================================================
               --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  24.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *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    0.020/0.020/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   202.00
  ELEVATION DATA: UPSTREAM(FEET) =    135.90  DOWNSTREAM(FEET) =    131.90

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.568
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  4.539
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS   Tc
       LAND USE          GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                B       0.95      0.30     0.100    56    5.57
```

```
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 SUBAREA RUNOFF(CFS) =      3.86
 TOTAL AREA(ACRES) =      0.95   PEAK FLOW RATE(CFS) =      3.86

****************************************************************************
 FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    131.90  DOWNSTREAM(FEET) =    131.40
 CHANNEL LENGTH THRU SUBAREA(FEET) =   196.00   CHANNEL SLOPE =  0.0026
 CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  99.900
 MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   0.50
 *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.578
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 COMMERCIAL                B        0.88      0.30     0.100    56
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.26
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.12
 AVERAGE FLOW DEPTH(FEET) =   0.22   TRAVEL TIME(MIN.) =   2.91
 Tc(MIN.) =    8.48
 SUBAREA AREA(ACRES) =     0.88       SUBAREA RUNOFF(CFS) =    2.81
 EFFECTIVE AREA(ACRES) =      1.83     AREA-AVERAGED Fm(INCH/HR) =   0.03
 AREA-AVERAGED Fp(INCH/HR) =   0.30  AREA-AVERAGED Ap =   0.10
 TOTAL AREA(ACRES) =        1.8        PEAK FLOW RATE(CFS) =       5.84

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.22   FLOW VELOCITY(FEET/SEC.) =   1.16
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    202.00 =     398.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    202.00 TO NODE    202.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    210.00 TO NODE    211.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   261.00
 ELEVATION DATA: UPSTREAM(FEET) =    132.90  DOWNSTREAM(FEET) =    132.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.111
 *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  2.579
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS   Tc
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "BARREN"                  B        0.63      0.30     1.000    86   15.11
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =      1.29
 TOTAL AREA(ACRES) =      0.63   PEAK FLOW RATE(CFS) =      1.29

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

```
 FLOW PROCESS FROM NODE    211.00 TO NODE    203.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    132.00  DOWNSTREAM(FEET) =    130.90
 CHANNEL LENGTH THRU SUBAREA(FEET) =   250.00   CHANNEL SLOPE =  0.0044
 CHANNEL BASE(FEET) =   26.00   "Z" FACTOR =  10.000
 MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   0.50
 CHANNEL FLOW THRU SUBAREA(CFS) =       1.29
 FLOW VELOCITY(FEET/SEC.) =   0.96   FLOW DEPTH(FEET) =   0.05
 TRAVEL TIME(MIN.) =   4.32   Tc(MIN.) =   19.43
 LONGEST FLOWPATH FROM NODE    210.00 TO NODE    203.00 =     511.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    203.00 TO NODE    203.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
==============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
  STREAM       Q      Tc   Intensity  Fp(Fm)    Ap    Ae    HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1       1.29   19.43    2.237  0.30( 0.30) 1.00       0.6     210.00
 LONGEST FLOWPATH FROM NODE    210.00 TO NODE    203.00 =     511.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM       Q      Tc   Intensity  Fp(Fm)    Ap    Ae    HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1       5.84    8.48    3.578  0.30( 0.03) 0.10       1.8     200.00
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    203.00 =     398.00 FEET.

 ** PEAK FLOW RATE TABLE **
  STREAM       Q      Tc   Intensity  Fp(Fm)    Ap    Ae    HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)        (ACRES)    NODE
     1       6.80    8.48    3.578  0.30( 0.07) 0.22       2.1     200.00
     2       4.93   19.43    2.237  0.30( 0.10) 0.33       2.5     210.00
   TOTAL AREA(ACRES) =          2.5

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =        6.80  Tc(MIN.) =    8.475
 EFFECTIVE AREA(ACRES) =       2.10  AREA-AVERAGED Fm(INCH/HR) =  0.07
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.33
 TOTAL AREA(ACRES) =         2.5
 LONGEST FLOWPATH FROM NODE    210.00 TO NODE    203.00 =     511.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    203.00 TO NODE    106.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    130.90  DOWNSTREAM(FEET) =    128.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   568.00   CHANNEL SLOPE =  0.0051
 CHANNEL BASE(FEET) =   26.00   "Z" FACTOR =  10.000
 MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   0.50
 CHANNEL FLOW THRU SUBAREA(CFS) =       6.80
 FLOW VELOCITY(FEET/SEC.) =   1.85   FLOW DEPTH(FEET) =   0.13
 TRAVEL TIME(MIN.) =   5.12   Tc(MIN.) =   13.60
 LONGEST FLOWPATH FROM NODE    210.00 TO NODE    106.00 =    1079.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  12
----------------------------------------------------------------------------
```

```
  >>>>>CLEAR MEMORY BANK # 1 <<<<<
==============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
==============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =   7
----------------------------------------------------------------------------
  >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
==============================================================================
  USER-SPECIFIED VALUES ARE AS FOLLOWS:
  TC(MIN.) =   18.80   RAINFALL INTENSITY(INCH/HR) =  2.28
  EFFECTIVE AREA(ACRES) =     4.92
  TOTAL AREA(ACRES) =     4.92       PEAK FLOW RATE(CFS) =      8.76
  AREA-AVERAGED Fm(INCH/HR) =   0.30  AREA-AVERAGED Fp(INCH/HR) =   0.30
  AREA-AVERAGED Ap =  1.00
  NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
        CONFLUENCE ANALYSES.

****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
==============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
     1      8.76   18.80    2.279  0.30( 0.30) 1.00       4.9     210.00
  LONGEST FLOWPATH FROM NODE    210.00 TO NODE    106.00 =    1079.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
     1      6.80   13.60    2.738  0.30( 0.07) 0.22       2.1     200.00
     2      4.93   25.24    1.929  0.30( 0.10) 0.33       2.5     210.00
  LONGEST FLOWPATH FROM NODE    210.00 TO NODE    106.00 =    1079.00 FEET.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
     1     14.60   13.60    2.738  0.30( 0.21) 0.71       5.7     200.00
     2     14.72   18.80    2.279  0.30( 0.23) 0.77       7.2     210.00
     3     12.14   25.24    1.929  0.30( 0.23) 0.78       7.4     210.00
   TOTAL AREA(ACRES) =         7.4

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       14.72  Tc(MIN.) =   18.800
  EFFECTIVE AREA(ACRES) =       7.18  AREA-AVERAGED Fm(INCH/HR) =  0.23
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.71
  TOTAL AREA(ACRES) =         7.4
  LONGEST FLOWPATH FROM NODE    210.00 TO NODE    106.00 =    1079.00 FEET.
==============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        7.4  TC(MIN.) =     18.80
  EFFECTIVE AREA(ACRES) =       7.18  AREA-AVERAGED Fm(INCH/HR)=  0.23
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 0.769
  PEAK FLOW RATE(CFS)   =      14.72

  ** PEAK FLOW RATE TABLE **
```

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	14.60	13.60	2.738	0.30(0.21)	0.71	5.7	200.00
2	14.72	18.80	2.279	0.30(0.23)	0.77	7.2	210.00
3	12.14	25.24	1.929	0.30(0.23)	0.78	7.4	210.00

==
==

END OF RATIONAL METHOD ANALYSIS

```
****************************************************************************
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                    Analysis prepared by:

                     Huitt-Zollars, Inc.
                  2603 Main Street, Irvine CA.
                         Suite 400
                       (949)-988-5815

 ************************** DESCRIPTION OF STUDY **************************
* SHOPOFF ANAHEIM                                                          *
* RATIONAL METHOD - EXISTING CONDITION DMA A                               *
* 10YR AMC II RC 10/22/2019                                                *
 **************************************************************************

  FILE NAME: ANAEX10A.DAT
  TIME/DATE OF STUDY: 18:31 10/22/2019
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
               --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  24.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *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    0.020/0.020/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
   1. Relative Flow-Depth =  0.00 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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   197.00
  ELEVATION DATA: UPSTREAM(FEET) =    135.30  DOWNSTREAM(FEET) =    133.60

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.240
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.552
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/     SCS SOIL   AREA      Fp        Ap     SCS   Tc
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
```

```
 "BARREN"               B       0.68     0.30     1.000    86   11.24
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =      1.38
 TOTAL AREA(ACRES) =      0.68   PEAK FLOW RATE(CFS) =      1.38

****************************************************************************
 FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  56
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
==============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    133.60  DOWNSTREAM(FEET) =    130.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   691.00   CHANNEL SLOPE =  0.0052
 GIVEN CHANNEL BASE(FEET) =    5.00   CHANNEL FREEBOARD(FEET) =  1.0
 "Z" FACTOR =  10.000   MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) =   1.41
 *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.871
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "BARREN"               B       4.24     0.30     1.000    86
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.44
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.43
 AVERAGE FLOW DEPTH(FEET) =   0.36   TRAVEL TIME(MIN.) =   8.08
 Tc(MIN.) =   19.32
 SUBAREA AREA(ACRES) =     4.24       SUBAREA RUNOFF(CFS) =    6.00
 EFFECTIVE AREA(ACRES) =      4.92     AREA-AVERAGED Fm(INCH/HR) =   0.30
 AREA-AVERAGED Fp(INCH/HR) =   0.30  AREA-AVERAGED Ap =   1.00
 TOTAL AREA(ACRES) =        4.9         PEAK FLOW RATE(CFS) =        6.96
 GIVEN CHANNEL BASE(FEET) =    5.00   CHANNEL FREEBOARD(FEET) =  1.0
 "Z" FACTOR =  10.000   MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) =   1.45

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.45   FLOW VELOCITY(FEET/SEC.) =   1.61
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     888.00 FEET.
==============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        4.9  TC(MIN.) =     19.32
 EFFECTIVE AREA(ACRES) =      4.92  AREA-AVERAGED Fm(INCH/HR)=  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS)   =       6.96
==============================================================================
==============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
****************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
         (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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          Ver. 21.0  Release Date: 06/01/2014  License ID 1202

                    Analysis prepared by:

                     Huitt-Zollars, Inc.
                  2603 Main Street, Irvine CA.
                         Suite 400
                       (949)-988-5815

 ************************** DESCRIPTION OF STUDY **************************
* SHOPOFF ANAHEIM                                                          *
* RATIONAL METHOD - EXISTING CONDITION DMA B                               *
* 10YR AMC II RC 10/22/2019                                                *
 **************************************************************************

  FILE NAME: ANAEX10B.DAT
  TIME/DATE OF STUDY: 18:34 10/22/2019
==============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==============================================================================
              --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  24.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *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    0.020/0.020/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   202.00
  ELEVATION DATA: UPSTREAM(FEET) =    135.90  DOWNSTREAM(FEET) =    131.90

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.568
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.817
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS   Tc
       LAND USE          GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                B       0.95      0.30     0.100    56    5.57
```

```
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 SUBAREA RUNOFF(CFS) =      3.24
 TOTAL AREA(ACRES) =      0.95   PEAK FLOW RATE(CFS) =      3.24

****************************************************************************
 FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    131.90  DOWNSTREAM(FEET) =    131.40
 CHANNEL LENGTH THRU SUBAREA(FEET) =   196.00   CHANNEL SLOPE =  0.0026
 CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  99.900
 MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   0.50
 *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.982
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 COMMERCIAL                B       0.88      0.30     0.100    56
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       4.41
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.09
 AVERAGE FLOW DEPTH(FEET) =   0.20   TRAVEL TIME(MIN.) =   3.00
 Tc(MIN.) =    8.57
 SUBAREA AREA(ACRES) =     0.88       SUBAREA RUNOFF(CFS) =    2.34
 EFFECTIVE AREA(ACRES) =       1.83     AREA-AVERAGED Fm(INCH/HR) =   0.03
 AREA-AVERAGED Fp(INCH/HR) =   0.30  AREA-AVERAGED Ap =   0.10
 TOTAL AREA(ACRES) =        1.8        PEAK FLOW RATE(CFS) =       4.86

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.21   FLOW VELOCITY(FEET/SEC.) =   1.12
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    202.00 =     398.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    202.00 TO NODE    202.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    210.00 TO NODE    211.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   261.00
 ELEVATION DATA: UPSTREAM(FEET) =    132.90  DOWNSTREAM(FEET) =    132.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.111
 *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.154
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS   Tc
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "BARREN"                  B       0.63      0.30     1.000    86   15.11
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =      1.05
 TOTAL AREA(ACRES) =      0.63   PEAK FLOW RATE(CFS) =      1.05

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

```
  FLOW PROCESS FROM NODE    211.00 TO NODE    203.00 IS CODE =  51
 ----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
 ==============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    132.00  DOWNSTREAM(FEET) =    130.90
  CHANNEL LENGTH THRU SUBAREA(FEET) =   250.00   CHANNEL SLOPE =  0.0044
  CHANNEL BASE(FEET) =   26.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   0.50
  CHANNEL FLOW THRU SUBAREA(CFS) =       1.05
  FLOW VELOCITY(FEET/SEC.) =   0.82   FLOW DEPTH(FEET) =   0.05
  TRAVEL TIME(MIN.) =   5.11   Tc(MIN.) =   20.22
  LONGEST FLOWPATH FROM NODE    210.00 TO NODE    203.00 =     511.00 FEET.

 ****************************************************************************
  FLOW PROCESS FROM NODE    203.00 TO NODE    203.00 IS CODE =  11
 ----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
 ==============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
   STREAM      Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
     1       1.05   20.22    1.823  0.30( 0.30) 1.00       0.6     210.00
  LONGEST FLOWPATH FROM NODE    210.00 TO NODE    203.00 =     511.00 FEET.

  ** MEMORY BANK #  1 CONFLUENCE DATA **
   STREAM      Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
     1       4.86    8.57    2.982  0.30( 0.03) 0.10       1.8     200.00
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    203.00 =     398.00 FEET.

  ** PEAK FLOW RATE TABLE **
   STREAM      Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER    (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
     1       5.65    8.57    2.982  0.30( 0.06) 0.21       2.1     200.00
     2       4.00   20.22    1.823  0.30( 0.10) 0.33       2.5     210.00
   TOTAL AREA(ACRES) =         2.5

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =        5.65  Tc(MIN.) =    8.567
  EFFECTIVE AREA(ACRES) =       2.10  AREA-AVERAGED Fm(INCH/HR) =  0.06
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.33
  TOTAL AREA(ACRES) =         2.5
  LONGEST FLOWPATH FROM NODE    210.00 TO NODE    203.00 =     511.00 FEET.

 ****************************************************************************
  FLOW PROCESS FROM NODE    203.00 TO NODE    106.00 IS CODE =  51
 ----------------------------------------------------------------------------
  >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
  >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
 ==============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    130.90  DOWNSTREAM(FEET) =    128.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   568.00   CHANNEL SLOPE =  0.0051
  CHANNEL BASE(FEET) =   26.00   "Z" FACTOR =  10.000
  MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   0.50
  CHANNEL FLOW THRU SUBAREA(CFS) =       5.65
  FLOW VELOCITY(FEET/SEC.) =   1.66   FLOW DEPTH(FEET) =   0.12
  TRAVEL TIME(MIN.) =   5.71   Tc(MIN.) =   14.27
  LONGEST FLOWPATH FROM NODE    210.00 TO NODE    106.00 =    1079.00 FEET.

 ****************************************************************************
  FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  12
 ----------------------------------------------------------------------------
```

```
 >>>>>CLEAR MEMORY BANK # 1 <<<<<
==============================================================================

******************************************************************************
 FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  10
------------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
==============================================================================

******************************************************************************
 FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =   7
------------------------------------------------------------------------------
 >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
==============================================================================
 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN.) =   19.32   RAINFALL INTENSITY(INCH/HR) =  1.87
 EFFECTIVE AREA(ACRES) =     4.92
 TOTAL AREA(ACRES) =      4.92       PEAK FLOW RATE(CFS) =      6.96
 AREA-AVERAGED Fm(INCH/HR) =   0.30  AREA-AVERAGED Fp(INCH/HR) =   0.30
 AREA-AVERAGED Ap =  1.00
 NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
       CONFLUENCE ANALYSES.

******************************************************************************
 FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  11
------------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
==============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
  STREAM       Q      Tc  Intensity  Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
     1       6.96   19.32    1.871  0.30( 0.30) 1.00       4.9     210.00
 LONGEST FLOWPATH FROM NODE    210.00 TO NODE    106.00 =    1079.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM       Q      Tc  Intensity  Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
     1       5.65   14.27    2.225  0.30( 0.06) 0.21       2.1     200.00
     2       4.00   26.74    1.553  0.30( 0.10) 0.33       2.5     210.00
 LONGEST FLOWPATH FROM NODE    210.00 TO NODE    106.00 =    1079.00 FEET.

 ** PEAK FLOW RATE TABLE **
  STREAM       Q      Tc  Intensity  Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
     1      11.95   14.27    2.225  0.30( 0.21) 0.71       5.7     200.00
     2      11.94   19.32    1.871  0.30( 0.23) 0.77       7.2     210.00
     3       9.56   26.74    1.553  0.30( 0.23) 0.78       7.4     210.00
   TOTAL AREA(ACRES) =        7.4

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =       11.95  Tc(MIN.) =   14.275
 EFFECTIVE AREA(ACRES) =      5.73  AREA-AVERAGED Fm(INCH/HR) =  0.21
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.77
 TOTAL AREA(ACRES) =        7.4
 LONGEST FLOWPATH FROM NODE    210.00 TO NODE    106.00 =    1079.00 FEET.
==============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        7.4  TC(MIN.) =     14.27
 EFFECTIVE AREA(ACRES) =      5.73  AREA-AVERAGED Fm(INCH/HR)=  0.21
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 0.713
 PEAK FLOW RATE(CFS)   =      11.95

 ** PEAK FLOW RATE TABLE **
```

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	11.95	14.27	2.225	0.30(0.21)	0.71	5.7	200.00
2	11.94	19.32	1.871	0.30(0.23)	0.77	7.2	210.00
3	9.56	26.74	1.553	0.30(0.23)	0.78	7.4	210.00

==
==

END OF RATIONAL METHOD ANALYSIS

```
****************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
          (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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          Ver. 21.0  Release Date: 06/01/2014  License ID 1202

                    Analysis prepared by:

                     Huitt-Zollars, Inc.
                   2603 Main Street, Irvine CA.
                         Suite 400
                       (949)-988-5815

 ************************** DESCRIPTION OF STUDY **************************
 * SHOPOFF ANAHEIM                                                         *
 * RATIONAL METHOD - EXISTING CONDITION DMA A                              *
 * 2YR AMC I RC 10/22/2019                                                 *
 **************************************************************************

  FILE NAME: ANAEX2DA.DAT
  TIME/DATE OF STUDY: 18:23 10/22/2019
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
               --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  24.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *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    0.020/0.020/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   197.00
  ELEVATION DATA: UPSTREAM(FEET) =    135.30  DOWNSTREAM(FEET) =    133.60

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.240
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.422
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS   Tc
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
```

```
 "BARREN"              B      0.68     0.30    1.000   72   11.24
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =      0.69
 TOTAL AREA(ACRES) =      0.68   PEAK FLOW RATE(CFS) =      0.69

****************************************************************************
 FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  56
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    133.60  DOWNSTREAM(FEET) =    130.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   691.00   CHANNEL SLOPE =  0.0052
 GIVEN CHANNEL BASE(FEET) =    5.00   CHANNEL FREEBOARD(FEET) =  1.0
 "Z" FACTOR =  10.000   MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) =   1.29
 *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  0.985
 SUBAREA LOSS RATE DATA(AMC  I ):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 NATURAL POOR COVER
 "BARREN"              B      4.24     0.30    1.000   72
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.04
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   1.14
 AVERAGE FLOW DEPTH(FEET) =   0.24   TRAVEL TIME(MIN.) =  10.08
 Tc(MIN.) =   21.32
 SUBAREA AREA(ACRES) =     4.24       SUBAREA RUNOFF(CFS) =    2.61
 EFFECTIVE AREA(ACRES) =      4.92     AREA-AVERAGED Fm(INCH/HR) =   0.30
 AREA-AVERAGED Fp(INCH/HR) =   0.30  AREA-AVERAGED Ap =   1.00
 TOTAL AREA(ACRES) =        4.9        PEAK FLOW RATE(CFS) =       3.03
 GIVEN CHANNEL BASE(FEET) =    5.00   CHANNEL FREEBOARD(FEET) =  1.0
 "Z" FACTOR =  10.000   MANNING'S FACTOR = 0.030
 *ESTIMATED CHANNEL HEIGHT(FEET) =   1.29

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.29   FLOW VELOCITY(FEET/SEC.) =   1.29
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     888.00 FEET.
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        4.9  TC(MIN.) =     21.32
 EFFECTIVE AREA(ACRES) =      4.92  AREA-AVERAGED Fm(INCH/HR)=  0.30
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 1.000
 PEAK FLOW RATE(CFS)   =       3.03
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
****************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
          (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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                    Analysis prepared by:

                     Huitt-Zollars, Inc.
                   2603 Main Street, Irvine CA.
                          Suite 400
                        (949)-988-5815

 ************************** DESCRIPTION OF STUDY **************************
 * SHOPOFF ANAHEIM                                                         *
 * RATIONAL METHOD - EXISTING CONDITION DMA B                              *
 * 2YR AMC I RC 10/22/2019                                                 *
 **************************************************************************

  FILE NAME: ANAEX2DB.DAT
  TIME/DATE OF STUDY: 18:27 10/22/2019
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
              --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  24.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *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    0.020/0.020/0.020   0.67    2.00  0.0312  0.167  0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   202.00
  ELEVATION DATA: UPSTREAM(FEET) =    135.90  DOWNSTREAM(FEET) =    131.90

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.568
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  2.128
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/     SCS SOIL   AREA      Fp        Ap     SCS   Tc
      LAND USE          GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL               B       0.95      0.30     0.100    36    5.57
```

```
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 SUBAREA RUNOFF(CFS) =      1.79
 TOTAL AREA(ACRES) =      0.95   PEAK FLOW RATE(CFS) =      1.79

****************************************************************************
 FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    131.90  DOWNSTREAM(FEET) =    131.40
 CHANNEL LENGTH THRU SUBAREA(FEET) =   196.00   CHANNEL SLOPE =  0.0026
 CHANNEL BASE(FEET) =    0.00   "Z" FACTOR =  99.900
 MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   0.50
 *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.600
 SUBAREA LOSS RATE DATA(AMC  I ):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 COMMERCIAL                B        0.88      0.30     0.100    36
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
 TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       2.42
 TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =   0.91
 AVERAGE FLOW DEPTH(FEET) =   0.16   TRAVEL TIME(MIN.) =   3.58
 Tc(MIN.) =    9.15
 SUBAREA AREA(ACRES) =     0.88       SUBAREA RUNOFF(CFS) =    1.24
 EFFECTIVE AREA(ACRES) =      1.83     AREA-AVERAGED Fm(INCH/HR) =   0.03
 AREA-AVERAGED Fp(INCH/HR) =   0.30  AREA-AVERAGED Ap =   0.10
 TOTAL AREA(ACRES) =        1.8        PEAK FLOW RATE(CFS) =       2.59

 END OF SUBAREA CHANNEL FLOW HYDRAULICS:
 DEPTH(FEET) =  0.16   FLOW VELOCITY(FEET/SEC.) =   0.95
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    202.00 =     398.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    202.00 TO NODE    202.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    210.00 TO NODE    211.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   261.00
 ELEVATION DATA: UPSTREAM(FEET) =    132.90  DOWNSTREAM(FEET) =    132.00

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   15.111
 *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.200
 SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS   Tc
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 NATURAL POOR COVER
 "BARREN"                B        0.63      0.30     1.000    72   15.11
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA RUNOFF(CFS) =      0.51
 TOTAL AREA(ACRES) =      0.63   PEAK FLOW RATE(CFS) =      0.51

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

```
 FLOW PROCESS FROM NODE    211.00 TO NODE    203.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    132.00  DOWNSTREAM(FEET) =    130.90
 CHANNEL LENGTH THRU SUBAREA(FEET) =   250.00   CHANNEL SLOPE =  0.0044
 CHANNEL BASE(FEET) =   26.00   "Z" FACTOR =  10.000
 MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   0.50
 CHANNEL FLOW THRU SUBAREA(CFS) =       0.51
 FLOW VELOCITY(FEET/SEC.) =   0.70   FLOW DEPTH(FEET) =   0.03
 TRAVEL TIME(MIN.) =   5.94   Tc(MIN.) =   21.05
 LONGEST FLOWPATH FROM NODE    210.00 TO NODE    203.00 =     511.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    203.00 TO NODE    203.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
==============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
  STREAM       Q      Tc  Intensity  Fp(Fm)    Ap    Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
     1        0.51   21.05    0.992  0.30( 0.30) 1.00       0.6     210.00
 LONGEST FLOWPATH FROM NODE    210.00 TO NODE    203.00 =     511.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM       Q      Tc  Intensity  Fp(Fm)    Ap    Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
     1        2.59    9.15    1.600  0.30( 0.03) 0.10       1.8     200.00
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    203.00 =     398.00 FEET.

 ** PEAK FLOW RATE TABLE **
  STREAM       Q      Tc  Intensity  Fp(Fm)    Ap    Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
     1        3.00    9.15    1.600  0.30( 0.07) 0.22       2.1     200.00
     2        2.09   21.05    0.992  0.30( 0.10) 0.33       2.5     210.00
   TOTAL AREA(ACRES) =         2.5

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =        3.00  Tc(MIN.) =    9.148
 EFFECTIVE AREA(ACRES) =       2.10  AREA-AVERAGED Fm(INCH/HR) =  0.07
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.33
 TOTAL AREA(ACRES) =         2.5
 LONGEST FLOWPATH FROM NODE    210.00 TO NODE    203.00 =     511.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    203.00 TO NODE    106.00 IS CODE =  51
----------------------------------------------------------------------------
 >>>>>COMPUTE TRAPEZOIDAL CHANNEL FLOW<<<<<
 >>>>>TRAVELTIME THRU SUBAREA (EXISTING ELEMENT)<<<<<
==============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    130.90  DOWNSTREAM(FEET) =    128.00
 CHANNEL LENGTH THRU SUBAREA(FEET) =   568.00   CHANNEL SLOPE =  0.0051
 CHANNEL BASE(FEET) =   26.00   "Z" FACTOR =  10.000
 MANNING'S FACTOR = 0.015   MAXIMUM DEPTH(FEET) =   0.50
 CHANNEL FLOW THRU SUBAREA(CFS) =       3.00
 FLOW VELOCITY(FEET/SEC.) =   1.29   FLOW DEPTH(FEET) =   0.09
 TRAVEL TIME(MIN.) =   7.35   Tc(MIN.) =   16.50
 LONGEST FLOWPATH FROM NODE    210.00 TO NODE    106.00 =    1079.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  12
----------------------------------------------------------------------------
```

```
>>>>>CLEAR MEMORY BANK # 1 <<<<<
================================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  10
----------------------------------------------------------------------------
 >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
================================================================================

****************************************************************************
 FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =   7
----------------------------------------------------------------------------
 >>>>>USER SPECIFIED HYDROLOGY INFORMATION AT NODE<<<<<
================================================================================
 USER-SPECIFIED VALUES ARE AS FOLLOWS:
 TC(MIN.) =   21.32   RAINFALL INTENSITY(INCH/HR) =  0.98
 EFFECTIVE AREA(ACRES) =     4.92
 TOTAL AREA(ACRES) =      4.92       PEAK FLOW RATE(CFS) =       3.03
 AREA-AVERAGED Fm(INCH/HR) =   0.30  AREA-AVERAGED Fp(INCH/HR) =   0.30
 AREA-AVERAGED Ap =  1.00
 NOTE: EFFECTIVE AREA IS USED AS THE TOTAL CONTRIBUTING AREA FOR ALL
       CONFLUENCE ANALYSES.

****************************************************************************
 FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
================================================================================

 ** MAIN STREAM CONFLUENCE DATA **
  STREAM       Q      Tc  Intensity  Fp(Fm)     Ap    Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1        3.03   21.32    0.985  0.30( 0.30) 1.00       4.9     210.00
 LONGEST FLOWPATH FROM NODE     210.00 TO NODE     106.00 =    1079.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM       Q      Tc  Intensity  Fp(Fm)     Ap    Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1        3.00   16.50    1.141  0.30( 0.07) 0.22       2.1     200.00
    2        2.09   28.97    0.826  0.30( 0.10) 0.33       2.5     210.00
 LONGEST FLOWPATH FROM NODE     210.00 TO NODE     106.00 =    1079.00 FEET.

 ** PEAK FLOW RATE TABLE **
  STREAM       Q      Tc  Intensity  Fp(Fm)     Ap    Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1        5.88   16.50    1.141  0.30( 0.22) 0.72       5.9     200.00
    2        5.68   21.32    0.985  0.30( 0.23) 0.77       7.2     210.00
    3        4.42   28.97    0.826  0.30( 0.23) 0.78       7.4     210.00
   TOTAL AREA(ACRES) =         7.4

 COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
 PEAK FLOW RATE(CFS) =         5.88  Tc(MIN.) =   16.499
 EFFECTIVE AREA(ACRES) =       5.91  AREA-AVERAGED Fm(INCH/HR) =  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.77
 TOTAL AREA(ACRES) =         7.4
 LONGEST FLOWPATH FROM NODE     210.00 TO NODE     106.00 =    1079.00 FEET.
================================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)      =        7.4  TC(MIN.) =      16.50
 EFFECTIVE AREA(ACRES) =       5.91  AREA-AVERAGED Fm(INCH/HR)=  0.22
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 0.721
 PEAK FLOW RATE(CFS)   =       5.88

 ** PEAK FLOW RATE TABLE **
```

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	5.88	16.50	1.141	0.30(0.22)	0.72	5.9	200.00
2	5.68	21.32	0.985	0.30(0.23)	0.77	7.2	210.00
3	4.42	28.97	0.826	0.30(0.23)	0.78	7.4	210.00

==
==

END OF RATIONAL METHOD ANALYSIS

```
****************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
         (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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                    Analysis prepared by:

 ************************** DESCRIPTION OF STUDY **************************
* SHOPOFF ANAHEIM                                   *
* RATIONAL METHOD - PROPOSED CONDITION DMA A                              *
* 100 YR AMC III V.AGUIRRE 07/24/2019 REV. 10/18/2019                  *
 **************************************************************************

  FILE NAME: PRA100P.DAT
  TIME/DATE OF STUDY: 15:27 10/18/2019
==============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==============================================================================
              --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  24.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *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   24.0     19.0    0.020/0.020/ ---    0.50    1.50 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   216.00
  ELEVATION DATA: UPSTREAM(FEET) =    135.40  DOWNSTREAM(FEET) =    132.70

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.683
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.240
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       B       0.42      0.30     0.200    76    6.68
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      1.96
  TOTAL AREA(ACRES) =      0.42   PEAK FLOW RATE(CFS) =      1.96
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   128.20  DOWNSTREAM(FEET) =   126.70
 FLOW LENGTH(FEET) =   284.00   MANNING'S N =  0.013
 ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 24.000
 DEPTH OF FLOW IN  24.0 INCH PIPE IS   5.7 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   3.40
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       1.96
 PIPE TRAVEL TIME(MIN.) =   1.39    Tc(MIN.) =    8.08
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     500.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN.) =    8.08
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.701
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/     SCS SOIL   AREA      Fp        Ap     SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"      B       3.91      0.30     0.200    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
 SUBAREA AREA(ACRES) =    3.91      SUBAREA RUNOFF(CFS) =   16.33
 EFFECTIVE AREA(ACRES) =      4.33   AREA-AVERAGED Fm(INCH/HR) =  0.06
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.20
 TOTAL AREA(ACRES) =        4.3       PEAK FLOW RATE(CFS) =      18.09

****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN.) =    8.08
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.701
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/     SCS SOIL   AREA      Fp        Ap     SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 MOBILE HOME PARK          B       0.20      0.30     0.250    76
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
 SUBAREA AREA(ACRES) =    0.20      SUBAREA RUNOFF(CFS) =    0.83
 EFFECTIVE AREA(ACRES) =      4.53   AREA-AVERAGED Fm(INCH/HR) =  0.06
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.20
 TOTAL AREA(ACRES) =        4.5       PEAK FLOW RATE(CFS) =      18.92

****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN.) =    8.08
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.701
 SUBAREA LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/     SCS SOIL   AREA      Fp        Ap     SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
```

```
 NATURAL POOR COVER
 "BARREN"              B       0.59      0.30     1.000    97
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    0.59      SUBAREA RUNOFF(CFS) =    2.34
 EFFECTIVE AREA(ACRES) =      5.12   AREA-AVERAGED Fm(INCH/HR) =  0.09
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.29
 TOTAL AREA(ACRES) =        5.1       PEAK FLOW RATE(CFS) =      21.26
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        5.1  TC(MIN.) =      8.08
 EFFECTIVE AREA(ACRES) =      5.12  AREA-AVERAGED Fm(INCH/HR)=  0.09
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 0.294
 PEAK FLOW RATE(CFS)   =      21.26
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
____________________________________________________________________________
****************************************************************************
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          Ver. 21.0  Release Date: 06/01/2014  License ID 1202

                    Analysis prepared by:

 ************************** DESCRIPTION OF STUDY **************************
* SHOPOFF ANAHEIM                                                          *
* RATIONAL METHOD - PROPOSED CONDITION DMA B                               *
* 100 YR AMC III V.AGUIRRE 08/02/2019 REV. 09/13/2019                      *
 **************************************************************************

  FILE NAME: ANAPRB.DAT
  TIME/DATE OF STUDY: 09:08 09/13/2019
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
              --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  24.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *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   24.0     19.0    0.020/0.020/ ---    0.50    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   336.00
  ELEVATION DATA: UPSTREAM(FEET) =    134.80  DOWNSTREAM(FEET) =    132.20

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.777
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.482
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       B       1.43      0.30      0.200    76    8.78
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      5.69
  TOTAL AREA(ACRES) =      1.43   PEAK FLOW RATE(CFS) =      5.69
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   132.20  DOWNSTREAM(FEET) =   127.70
  FLOW LENGTH(FEET) =    35.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 24.000
  DEPTH OF FLOW IN  24.0 INCH PIPE IS   4.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.34
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.69
  PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =    8.82
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    202.00 =     371.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    202.00 TO NODE    202.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =    8.82
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.470
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       B        1.08      0.30     0.200    76
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA AREA(ACRES) =     1.08      SUBAREA RUNOFF(CFS) =     4.29
  EFFECTIVE AREA(ACRES) =       2.51   AREA-AVERAGED Fm(INCH/HR) =  0.06
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.20
  TOTAL AREA(ACRES) =         2.5       PEAK FLOW RATE(CFS) =        9.96

****************************************************************************
  FLOW PROCESS FROM NODE    202.00 TO NODE    203.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   127.50  DOWNSTREAM(FEET) =   126.80
  FLOW LENGTH(FEET) =   130.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 24.000
  DEPTH OF FLOW IN  24.0 INCH PIPE IS  13.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.30
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       9.96
  PIPE TRAVEL TIME(MIN.) =   0.41    Tc(MIN.) =    9.23
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    203.00 =     501.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        2.5  TC(MIN.) =      9.23
  EFFECTIVE AREA(ACRES) =       2.51  AREA-AVERAGED Fm(INCH/HR)=  0.06
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 0.200
  PEAK FLOW RATE(CFS)   =       9.96
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

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____________________________________________________________________________
****************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
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           Ver. 21.0  Release Date: 06/01/2014  License ID 1202

                      Analysis prepared by:

 ************************** DESCRIPTION OF STUDY **************************
 * SHOPOFF ANAHEIM                                                        *
 * RATIONAL METHOD - PROPOSED CONDITION DMA A                             *
 * 25 YR AMC II V.AGUIRRE 07/24/2019 REV. 10/18/2019                      *
 **************************************************************************

  FILE NAME: PRA25P.DAT
  TIME/DATE OF STUDY: 15:30 10/18/2019
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
              --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  24.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *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   24.0     19.0    0.020/0.020/ ---    0.50    1.50 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   216.00
  ELEVATION DATA: UPSTREAM(FEET) =    135.40  DOWNSTREAM(FEET) =    132.70

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.683
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  4.093
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       B       0.42      0.30     0.200    56   6.68
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      1.52
  TOTAL AREA(ACRES) =      0.42   PEAK FLOW RATE(CFS) =      1.52
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   128.20  DOWNSTREAM(FEET) =   126.70
 FLOW LENGTH(FEET) =   284.00   MANNING'S N =  0.013
 ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 24.000
 DEPTH OF FLOW IN  24.0 INCH PIPE IS   5.1 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   3.15
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       1.52
 PIPE TRAVEL TIME(MIN.) =   1.50    Tc(MIN.) =    8.18
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     500.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==============================================================================
 MAINLINE Tc(MIN.) =    8.18
 *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.650
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/     SCS SOIL   AREA      Fp        Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"      B       3.91      0.30     0.200    56
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
 SUBAREA AREA(ACRES) =    3.91      SUBAREA RUNOFF(CFS) =   12.63
 EFFECTIVE AREA(ACRES) =      4.33   AREA-AVERAGED Fm(INCH/HR) =  0.06
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.20
 TOTAL AREA(ACRES) =        4.3       PEAK FLOW RATE(CFS) =       13.99

****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==============================================================================
 MAINLINE Tc(MIN.) =    8.18
 *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.650
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/     SCS SOIL   AREA      Fp        Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 MOBILE HOME PARK          B       0.20      0.30     0.250    56
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
 SUBAREA AREA(ACRES) =    0.20      SUBAREA RUNOFF(CFS) =    0.64
 EFFECTIVE AREA(ACRES) =      4.53   AREA-AVERAGED Fm(INCH/HR) =  0.06
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.20
 TOTAL AREA(ACRES) =        4.5       PEAK FLOW RATE(CFS) =       14.63

****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==============================================================================
 MAINLINE Tc(MIN.) =    8.18
 *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.650
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/     SCS SOIL   AREA      Fp        Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
```

```
 NATURAL POOR COVER
 "BARREN"              B      0.59     0.30    1.000   86
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    0.59      SUBAREA RUNOFF(CFS) =    1.78
 EFFECTIVE AREA(ACRES) =      5.12   AREA-AVERAGED Fm(INCH/HR) =  0.09
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.29
 TOTAL AREA(ACRES) =        5.1       PEAK FLOW RATE(CFS) =      16.41
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        5.1  TC(MIN.) =      8.18
 EFFECTIVE AREA(ACRES) =      5.12  AREA-AVERAGED Fm(INCH/HR)=  0.09
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 0.294
 PEAK FLOW RATE(CFS)   =      16.41
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
****************************************************************************
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                    Analysis prepared by:

 ************************** DESCRIPTION OF STUDY **************************
* SHOPOFF ANAHEIM                                          *
* RATIONAL METHOD - PROPOSED CONDITION DMA B                              *
* 25 YR AMC II V. AGUIRRE 08/02/2019 REV. 09/13/2019                *
 **************************************************************************

  FILE NAME: ANAPRB.DAT
  TIME/DATE OF STUDY: 10:11 09/13/2019
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
               --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   25.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  24.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *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   24.0     19.0    0.020/0.020/ ---    0.50    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   336.00
  ELEVATION DATA: UPSTREAM(FEET) =    134.80  DOWNSTREAM(FEET) =    132.20

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.777
  *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.508
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS   Tc
       LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       B       1.43      0.30     0.200    56    8.78
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      4.44
  TOTAL AREA(ACRES) =      1.43   PEAK FLOW RATE(CFS) =      4.44
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   132.20  DOWNSTREAM(FEET) =   127.70
 FLOW LENGTH(FEET) =    35.00   MANNING'S N =  0.013
 ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 24.000
 DEPTH OF FLOW IN  24.0 INCH PIPE IS   3.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  13.33
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       4.44
 PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =    8.82
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    202.00 =     371.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    202.00 TO NODE    202.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==============================================================================
 MAINLINE Tc(MIN.) =    8.82
 *  25 YEAR RAINFALL INTENSITY(INCH/HR) =  3.498
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"       B       1.08      0.30     0.200    56
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
 SUBAREA AREA(ACRES) =    1.08      SUBAREA RUNOFF(CFS) =     3.34
 EFFECTIVE AREA(ACRES) =       2.51   AREA-AVERAGED Fm(INCH/HR) =  0.06
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.20
 TOTAL AREA(ACRES) =        2.5       PEAK FLOW RATE(CFS) =       7.77

****************************************************************************
 FLOW PROCESS FROM NODE    202.00 TO NODE    203.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   127.50  DOWNSTREAM(FEET) =   126.80
 FLOW LENGTH(FEET) =   130.00   MANNING'S N =  0.013
 ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 24.000
 DEPTH OF FLOW IN  24.0 INCH PIPE IS  11.9 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   5.00
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       7.77
 PIPE TRAVEL TIME(MIN.) =   0.43    Tc(MIN.) =    9.25
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    203.00 =     501.00 FEET.
==============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        2.5  TC(MIN.) =      9.25
 EFFECTIVE AREA(ACRES) =       2.51  AREA-AVERAGED Fm(INCH/HR)=  0.06
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 0.200
 PEAK FLOW RATE(CFS)   =       7.77
==============================================================================
==============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

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____________________________________________________________________________
****************************************************************************
          RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
         (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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                    Analysis prepared by:

 ************************** DESCRIPTION OF STUDY **************************
 * SHOPOFF ANAHEIM                                                          *
 * RATIONAL METHOD - PROPOSED CONDITION DMA A                               *
 * 10 YR AMC II V.AGUIRRE 07/24/2019 REV. 10/18/2019                        *
 **************************************************************************

  FILE NAME: PRA10P.DAT
  TIME/DATE OF STUDY: 15:33 10/18/2019
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
               --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  24.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *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   24.0     19.0    0.020/0.020/ ---    0.50    1.50 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   216.00
  ELEVATION DATA: UPSTREAM(FEET) =    135.40  DOWNSTREAM(FEET) =    132.70

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.683
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.438
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       B       0.42      0.30     0.200    56   6.68
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      1.28
  TOTAL AREA(ACRES) =      0.42   PEAK FLOW RATE(CFS) =      1.28
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   128.20  DOWNSTREAM(FEET) =   126.70
 FLOW LENGTH(FEET) =   284.00   MANNING'S N =  0.013
 ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 24.000
 DEPTH OF FLOW IN  24.0 INCH PIPE IS   4.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   2.99
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       1.28
 PIPE TRAVEL TIME(MIN.) =   1.58    Tc(MIN.) =    8.26
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     500.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN.) =    8.26
 *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.044
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"      B       3.91      0.30     0.200    56
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
 SUBAREA AREA(ACRES) =    3.91      SUBAREA RUNOFF(CFS) =   10.50
 EFFECTIVE AREA(ACRES) =      4.33   AREA-AVERAGED Fm(INCH/HR) =  0.06
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.20
 TOTAL AREA(ACRES) =        4.3       PEAK FLOW RATE(CFS) =      11.63

****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN.) =    8.26
 *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.044
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 MOBILE HOME PARK          B       0.20      0.30     0.250    56
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
 SUBAREA AREA(ACRES) =    0.20      SUBAREA RUNOFF(CFS) =    0.53
 EFFECTIVE AREA(ACRES) =      4.53   AREA-AVERAGED Fm(INCH/HR) =  0.06
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.20
 TOTAL AREA(ACRES) =        4.5       PEAK FLOW RATE(CFS) =      12.16

****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN.) =    8.26
 *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  3.044
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
```

```
 NATURAL POOR COVER
 "BARREN"              B      0.59     0.30    1.000   86
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    0.59      SUBAREA RUNOFF(CFS) =    1.46
 EFFECTIVE AREA(ACRES) =      5.12   AREA-AVERAGED Fm(INCH/HR) =  0.09
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.29
 TOTAL AREA(ACRES) =        5.1       PEAK FLOW RATE(CFS) =      13.62
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        5.1  TC(MIN.) =      8.26
 EFFECTIVE AREA(ACRES) =      5.12  AREA-AVERAGED Fm(INCH/HR)=  0.09
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 0.294
 PEAK FLOW RATE(CFS)   =      13.62
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
____________________________________________________________________________
****************************************************************************
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       Ver. 21.0  Release Date: 06/01/2014  License ID 1202

                 Analysis prepared by:

 ************************** DESCRIPTION OF STUDY **************************
* SHOPOFF ANAHEIM                                                          *
* RATIONAL METHOD - PROPOSED CONDITION DMA B                               *
* 10 YR AMC II V.AGUIRRE 08/02/2019 REV. 09/13/2019                        *
 **************************************************************************

  FILE NAME: ANAPRB.DAT
  TIME/DATE OF STUDY: 10:15 09/13/2019
==============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==============================================================================
            --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  24.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *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   24.0    19.0    0.020/0.020/ ---    0.50    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   336.00
  ELEVATION DATA: UPSTREAM(FEET) =    134.80  DOWNSTREAM(FEET) =    132.20

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.777
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.941
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       B       1.43      0.30     0.200    56    8.78
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      3.71
  TOTAL AREA(ACRES) =      1.43   PEAK FLOW RATE(CFS) =      3.71
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   132.20  DOWNSTREAM(FEET) =   127.70
 FLOW LENGTH(FEET) =    35.00   MANNING'S N =  0.013
 ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 24.000
 DEPTH OF FLOW IN  24.0 INCH PIPE IS   3.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  12.61
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       3.71
 PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =    8.82
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    202.00 =     371.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    202.00 TO NODE    202.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
==============================================================================
 MAINLINE Tc(MIN.) =    8.82
 *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.932
 SUBAREA LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"       B        1.08      0.30     0.200    56
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
 SUBAREA AREA(ACRES) =     1.08      SUBAREA RUNOFF(CFS) =     2.79
 EFFECTIVE AREA(ACRES) =       2.51   AREA-AVERAGED Fm(INCH/HR) =  0.06
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.20
 TOTAL AREA(ACRES) =         2.5       PEAK FLOW RATE(CFS) =       6.49

****************************************************************************
 FLOW PROCESS FROM NODE    202.00 TO NODE    203.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   127.50  DOWNSTREAM(FEET) =   126.80
 FLOW LENGTH(FEET) =   130.00   MANNING'S N =  0.013
 ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 24.000
 DEPTH OF FLOW IN  24.0 INCH PIPE IS  10.7 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   4.77
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       6.49
 PIPE TRAVEL TIME(MIN.) =   0.45    Tc(MIN.) =    9.28
 LONGEST FLOWPATH FROM NODE    200.00 TO NODE    203.00 =     501.00 FEET.
==============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =         2.5  TC(MIN.) =      9.28
 EFFECTIVE AREA(ACRES) =       2.51  AREA-AVERAGED Fm(INCH/HR)=  0.06
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 0.200
 PEAK FLOW RATE(CFS)   =       6.49
==============================================================================
==============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
____________________________________________________________________________
****************************************************************************
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                     Analysis prepared by:

 ************************** DESCRIPTION OF STUDY **************************
* SHOPOFF ANAHEIM                                                          *
* RATIONAL METHOD - PROPOSED CONDITION DMA A                               *
* 2 YR AMC I V.AGUIRRE 07/24/2019 REV. 10/18/2019                          *
 **************************************************************************

  FILE NAME: PRA2P.DAT
  TIME/DATE OF STUDY: 15:36 10/18/2019
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
              --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  24.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *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   24.0     19.0    0.020/0.020/ ---    0.50    1.50 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   216.00
  ELEVATION DATA: UPSTREAM(FEET) =    135.40  DOWNSTREAM(FEET) =    132.70

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.683
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.917
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp        Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       B       0.42      0.30     0.200    36    6.68
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      0.70
  TOTAL AREA(ACRES) =      0.42   PEAK FLOW RATE(CFS) =      0.70
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    101.00 TO NODE    102.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =   128.20  DOWNSTREAM(FEET) =   126.70
 FLOW LENGTH(FEET) =   284.00   MANNING'S N =  0.013
 ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 24.000
 DEPTH OF FLOW IN  24.0 INCH PIPE IS   3.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   2.50
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       0.70
 PIPE TRAVEL TIME(MIN.) =   1.89    Tc(MIN.) =    8.58
 LONGEST FLOWPATH FROM NODE    100.00 TO NODE    102.00 =     500.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN.) =    8.58
 *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.661
 SUBAREA LOSS RATE DATA(AMC  I ):
  DEVELOPMENT TYPE/     SCS SOIL   AREA      Fp        Ap     SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 RESIDENTIAL
 "11+ DWELLINGS/ACRE"       B       3.91      0.30     0.200    36
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
 SUBAREA AREA(ACRES) =    3.91      SUBAREA RUNOFF(CFS) =     5.63
 EFFECTIVE AREA(ACRES) =      4.33   AREA-AVERAGED Fm(INCH/HR) =  0.06
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.20
 TOTAL AREA(ACRES) =        4.3       PEAK FLOW RATE(CFS) =       6.24

****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN.) =    8.58
 *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.661
 SUBAREA LOSS RATE DATA(AMC  I ):
  DEVELOPMENT TYPE/     SCS SOIL   AREA      Fp        Ap     SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
 MOBILE HOME PARK           B       0.20      0.30     0.250    36
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.250
 SUBAREA AREA(ACRES) =    0.20      SUBAREA RUNOFF(CFS) =     0.29
 EFFECTIVE AREA(ACRES) =      4.53   AREA-AVERAGED Fm(INCH/HR) =  0.06
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.20
 TOTAL AREA(ACRES) =        4.5       PEAK FLOW RATE(CFS) =       6.52

****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    102.00 IS CODE =  81
----------------------------------------------------------------------------
 >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
 MAINLINE Tc(MIN.) =    8.58
 *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.661
 SUBAREA LOSS RATE DATA(AMC  I ):
  DEVELOPMENT TYPE/     SCS SOIL   AREA      Fp        Ap     SCS
      LAND USE           GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
```

```
 NATURAL POOR COVER
 "BARREN"                B      0.59     0.30    1.000    72
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
 SUBAREA AREA(ACRES) =    0.59      SUBAREA RUNOFF(CFS) =    0.72
 EFFECTIVE AREA(ACRES) =      5.12   AREA-AVERAGED Fm(INCH/HR) =  0.09
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.29
 TOTAL AREA(ACRES) =        5.1       PEAK FLOW RATE(CFS) =       7.25
============================================================================
 END OF STUDY SUMMARY:
 TOTAL AREA(ACRES)     =        5.1  TC(MIN.) =      8.58
 EFFECTIVE AREA(ACRES) =      5.12  AREA-AVERAGED Fm(INCH/HR)=  0.09
 AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 0.294
 PEAK FLOW RATE(CFS)   =      7.25
============================================================================
============================================================================
 END OF RATIONAL METHOD ANALYSIS
```

```
____________________________________________________________________________
****************************************************************************
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                   Analysis prepared by:

 ************************** DESCRIPTION OF STUDY **************************
 * SHOPOFF ANAHEIM                                  *
 * RATIONAL METHOD - PROPOSED CONDITION DMA B                         *
 * 2 YR AMC I V.AGUIRRE 08/02/2019 REV. 09/13/2019                 *
 **************************************************************************

  FILE NAME: ANAPRB.DAT
  TIME/DATE OF STUDY: 10:17 09/13/2019
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
           --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  24.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.90
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *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   24.0     19.0    0.020/0.020/ ---    0.50    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 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.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   336.00
  ELEVATION DATA: UPSTREAM(FEET) =    134.80  DOWNSTREAM(FEET) =    132.20

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.777
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.639
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA       Fp        Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       B       1.43      0.30     0.200    36    8.78
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA RUNOFF(CFS) =      2.03
  TOTAL AREA(ACRES) =      1.43   PEAK FLOW RATE(CFS) =      2.03
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   132.20  DOWNSTREAM(FEET) =   127.70
  FLOW LENGTH(FEET) =    35.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 24.000
  DEPTH OF FLOW IN  24.0 INCH PIPE IS   2.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =  10.54
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.03
  PIPE TRAVEL TIME(MIN.) =   0.06    Tc(MIN.) =    8.83
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    202.00 =     371.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    202.00 TO NODE    202.00 IS CODE =  81
----------------------------------------------------------------------------
  >>>>>ADDITION OF SUBAREA TO MAINLINE PEAK FLOW<<<<<
============================================================================
  MAINLINE Tc(MIN.) =    8.83
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.633
  SUBAREA LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "11+ DWELLINGS/ACRE"       B        1.08      0.30      0.200    36
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.200
  SUBAREA AREA(ACRES) =     1.08      SUBAREA RUNOFF(CFS) =     1.53
  EFFECTIVE AREA(ACRES) =       2.51   AREA-AVERAGED Fm(INCH/HR) =  0.06
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  0.20
  TOTAL AREA(ACRES) =         2.5       PEAK FLOW RATE(CFS) =       3.55

****************************************************************************
  FLOW PROCESS FROM NODE    202.00 TO NODE    203.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   127.50  DOWNSTREAM(FEET) =   126.80
  FLOW LENGTH(FEET) =   130.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 24.000
  DEPTH OF FLOW IN  24.0 INCH PIPE IS   7.7 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.05
  ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.55
  PIPE TRAVEL TIME(MIN.) =   0.53    Tc(MIN.) =    9.37
  LONGEST FLOWPATH FROM NODE    200.00 TO NODE    203.00 =     501.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        2.5  TC(MIN.) =      9.37
  EFFECTIVE AREA(ACRES) =       2.51  AREA-AVERAGED Fm(INCH/HR)=  0.06
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 0.200
  PEAK FLOW RATE(CFS)   =       3.55
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

Appendix E

OC Hydrology Procedures

Existing Hydrograph Calculations

Proposed Hydrograph Calculations & Flood Routing Analysis

Existing Conditions

Frequency	DMA	Area (ac)	Rain (in)	Tc (min)	Ap	Fm (in/hr)	Ybar (in/hr)
2-year	A	5.17	2.05	18.1	1	0.3	1
	B	2.46		9.15	0.1	0.03	0.199
10-year	A	5.17	3.68	16.14	1	0.3	0.879
	B	2.46		8.57	0.1	0.03	0.145
25-year	A	5.17	4.49	15.74	1	0.3	0.824
	B	2.46		8.48	0.1	0.03	0.13
100-year	A	5.17	5.63	15.24	1	0.3	0.456
	B	2.46		8.32	0.1	0.03	0.084

Proposed Conditions

Frequency	DMA	Area (ac)	Rain (in)	Tc (min)	Ap	Fm (in/hr)	Ybar (in/hr)
2-year	A	5.12	2.05	8.58	0.294	0.088	0.372
	B	2.51		9.37	0.2	0.06	0.288
10-year	A	5.12	3.68	8.26	0.294	0.088	0.303
	B	2.51		9.28	0.2	0.06	0.227
25-year	A	5.12	4.49	8.18	0.294	0.088	0.279
	B	2.51		9.25	0.2	0.06	0.207
100-year	A	5.12	5.63	8.08	0.294	0.088	0.164
	B	2.51		9.23	0.2	0.06	0.125

At Node 106	Condition		
Frequency	Existing	Proposed	Delta
100-year Q (cfs)	19.41	18.31	-5.67%
25-year Q (cfs)	14.72	12.71	-13.65%
10-year Q (cfs)	11.95	9.00	-24.69%
2-year Q (cfs)	5.88	3.24	-44.90%

CMP Infiltration Gallery Sizing DMA A By: V.Aguirre date: 10/22/2019

diameter (in)	**120**			cover over rock (ft)	3	ft
Length (ft)	**367**			depth to invert	**13.5**	**ft**
base above (in)	**6**			depth to bottom of rock	**14**	**ft**
base below (in)	**6**			area of chamber (sf)	78.50	sf
base at sides (in)	**12**			total width (ft)	12	ft
base at ends (in)	**12**			total depth (ft)	11	ft
porosity	40%			total length (ft)	369	ft
				total volume for rock and chamber	48,708	sf
volume of chamber (CF)	28,810				1,804	cy
volume of rock (CF)	7,959					
total storage (CF)	**36,769**					

CMP Infiltration Gallery Sizing DMA B date: 10/22/2019

diameter (in)	**72**			cover over rock (ft)	4	ft
Length (ft)	**108**			depth to invert	**12**	**ft**
base above (in)	**24**			depth to bottom of rock	**14**	**ft**
base below (in)	**24**			area of chamber (sf)	28.26	sf
base at sides (in)	**12**			total width (ft)	8	ft
base at ends (in)	**12**			total depth (ft)	10	ft
porosity	40%			total length (ft)	110	ft
				total volume for rock and chamber	8,800	sf
volume of chamber (CF)	3,052				326	cy
volume of rock (CF)	2,299					
total storage (CF)	**5,351**					

Proposed Detention Basin -DMA A 120 CMP

Stage-Storage-Discharge Table

Stage (ft)	Surface Area (SQFT)	Storage (AF)	Multiple Outlet Discharge (cfs)
0	4428.00	0.000	0.04
2	4428.00	0.203	0.04
2.42	4428.00	0.246	0.04
5.2	4428.00	0.529	0.04
7	4428.00	0.712	5.11
10	4428.00	1.017	23.64

0.245 DCV (AF)

0.530 2-YR Prop Volume (AF)

36769 CHAMBER VOLUME (CF)

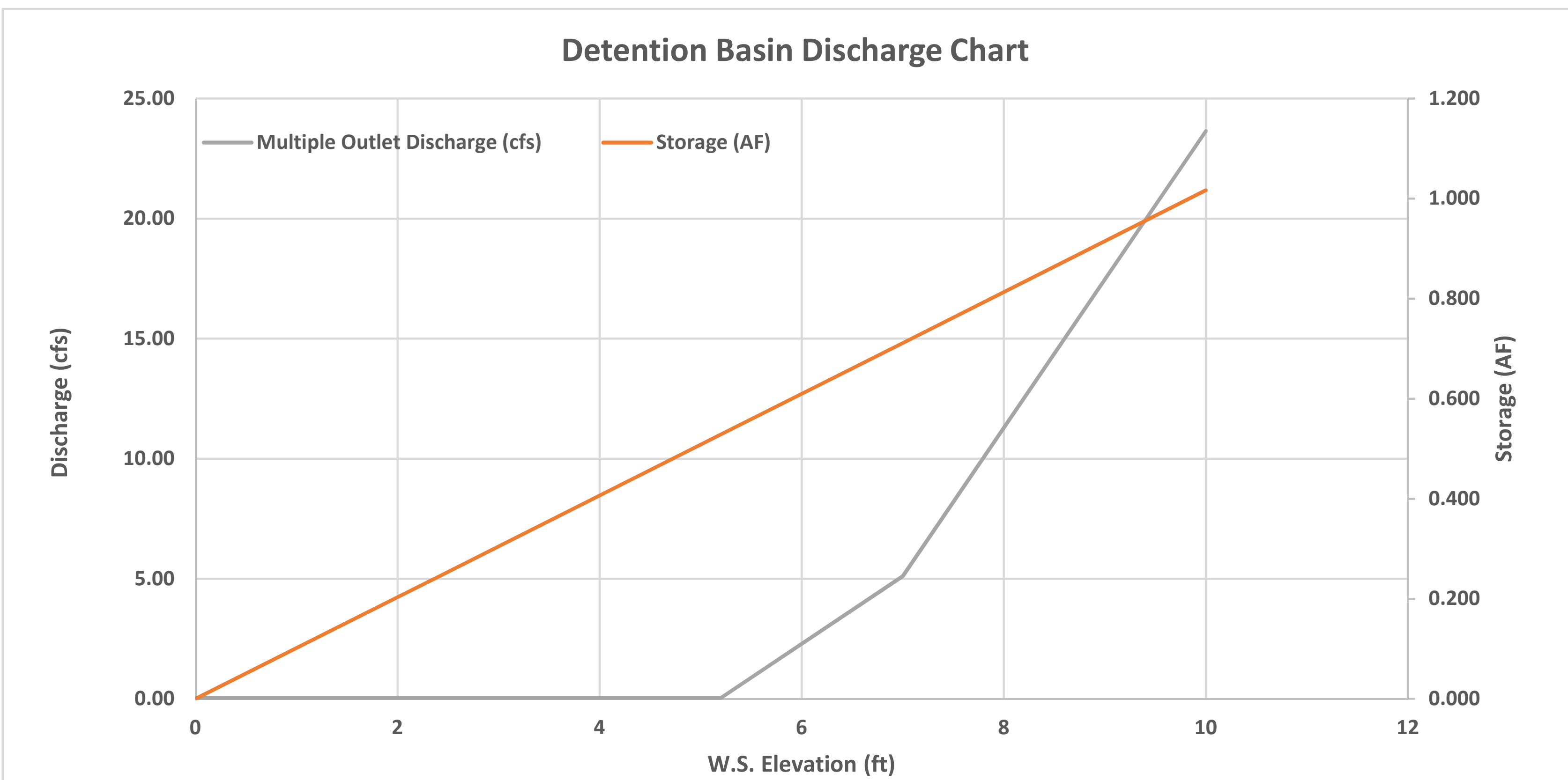
*Area of chamber only

Upper Basin Parameters

Low Flow Orifice	
Circular Orifice Invert	0
Orifice diameter (in)	0
Coefficient C	0.6
Number orifices	0

Low Flow Orifice #2	
Circular Orifice Invert	5.2
Orifice diameter (in)	12
Coefficient C	0.6
Number orifices	1

Vertical Rectangular Opening	
Invert	8
Width (ft)	1.50
Height (ft)	1.50
Coefficient C	0.6



Proposed Detention Basin - DMA B 72 CMP

Stage-Storage-Discharge Table

Stage (ft)	Surface Area (SQFT)	Storage (AF)	Multiple Outlet Discharge (cfs)
0	880.00	0.000	0.0377
2	880.00	0.040	0.0377
3	880.00	0.061	0.0377
5	880.00	0.101	0.04
6	880.00	0.121	0.04
6.25	880.00	0.126	25.32

*Area of chamber only

0.1200 DCV (AF)

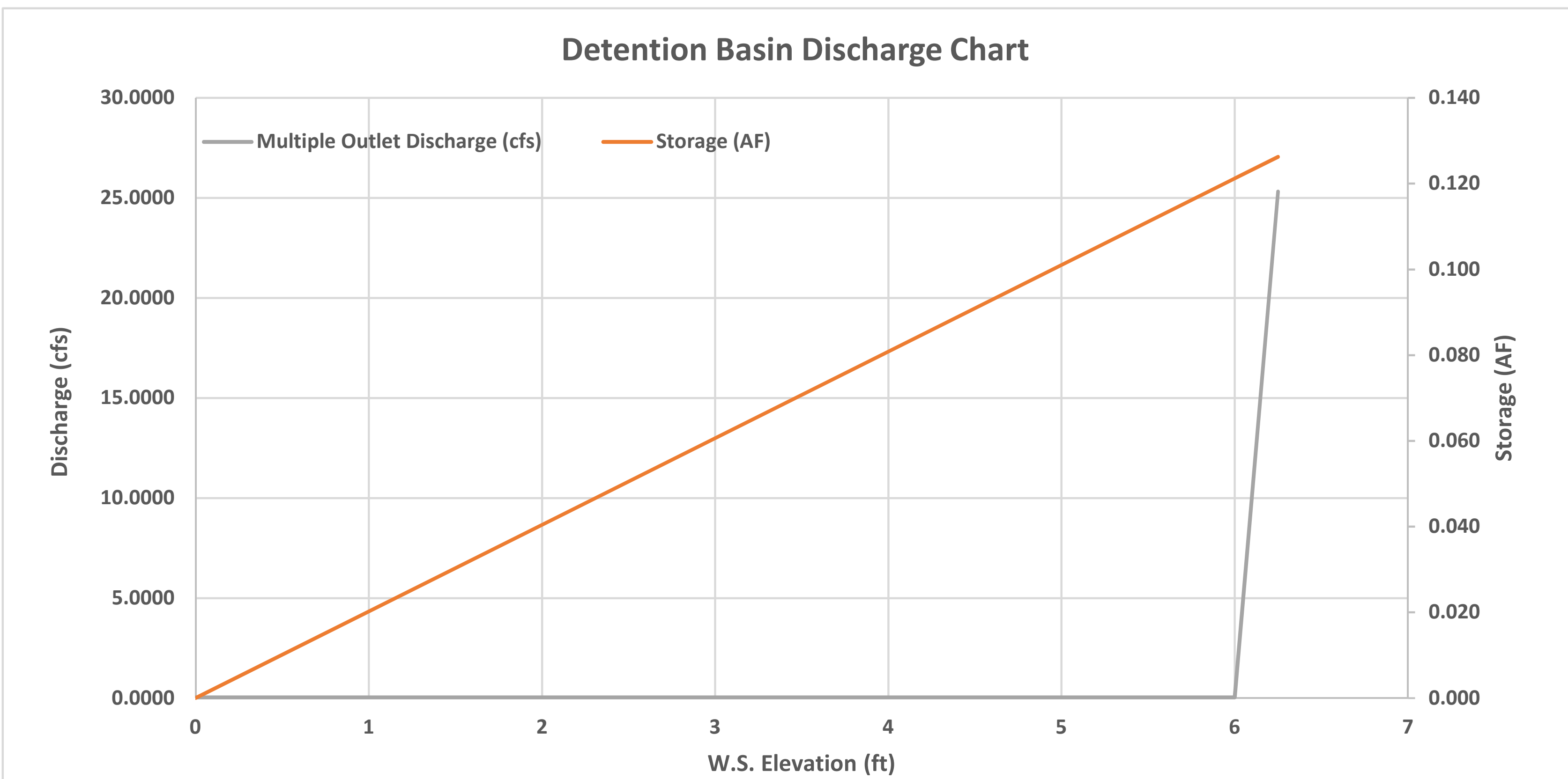
5351 Total Volume (CF)

Upper Basin Parameters

Low Flow Orifice	
Circular Orifice Invert	0
Orifice diameter (in)	0
Coefficient C	0.6
Number orifices	0

Low Flow Orifice #2	
Circular Orifice Invert	0
Orifice diameter (in)	0
Coefficient C	0.6
Number orifices	0

Vertical Rectangular Opening	
Invert	6
Width (ft)	14.00
Height (ft)	0.75
Coefficient C	0.6



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F L O O D   R O U T I N G   A N A L Y S I S
USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)

Ver. 21.0 Release Date: 06/01/2014 License ID 1202

Analysis prepared by:

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************************** DESCRIPTION OF STUDY **************************
* SHOPOFF ANAHEIM *
* HYDROGRAPHS & FLOOD ROUTING ANALYSIS - PROPOSED CONDITION DMA A&B *
* 100YR AMCIII RC 10/22/2019 *
****

FILE NAME: SHOP00AB.DAT
TIME/DATE OF STUDY: 14:12 10/23/2019

The Small Area Unit Hydrograph Procedures in Section J
of the Hydrology Manual provides estimates of runoff
hydrograph and runoff volume for watersheds whose time of
concentration is less than 25 minutes. The PROGRAM User
should check the applicability of using the small area unit
hydrograph procedures, and follow the guidelines in
Sections J and K.5 in complex watershed modeling.

```
****************************************************************************
  FLOW PROCESS FROM NODE     100.00 TO NODE     102.00 IS CODE = 1.2
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (SMALL AREA UNIT-HYDROGRAPH ANALYSIS) <<<<<
============================================================================

  (SMALL AREA UNIT-HYDROGRAPH ADDED TO STREAM #1)

   RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
   TOTAL CATCHMENT AREA(ACRES) =     5.12
   SOIL-LOSS RATE, Fm,(INCH/HR) =  0.088
   LOW LOSS FRACTION = 0.164
   TIME OF CONCENTRATION(MIN.) =  8.08
   SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
   ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED:
   RETURN FREQUENCY(YEARS) = 100
     5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.52
    30-MINUTE POINT RAINFALL VALUE(INCHES) =  1.09
     1-HOUR   POINT RAINFALL VALUE(INCHES) =  1.45
     3-HOUR   POINT RAINFALL VALUE(INCHES) =  2.43
     6-HOUR   POINT RAINFALL VALUE(INCHES) =  3.36
    24-HOUR   POINT RAINFALL VALUE(INCHES) =  5.63

----------------------------------------------------------------------------
   TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =      1.86
   TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =      0.55

----------------------------------------------------------------------------
```

```
==============================================================================

             2 4 - H O U R   S T O R M
           R U N O F F   H Y D R O G R A P H

==============================================================================
         HYDROGRAPH IN  ONE-MINUTE UNIT INTERVALS(CFS)
     (Notes: Time indicated is at END of Each Unit Intervals.
          Peak 5-minute rainfall intensity is modeled as
          a constant value for entire 5-minute period.)
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.      5.3     10.6      16.0     21.3
----------------------------------------------------------------------------
  14.000    0.6680    1.42  . Q      .  V    .       .        .
  14.017    0.6699    1.43  . Q      .  V    .       .        .
  14.033    0.6719    1.43  . Q      .  V    .       .        .
  14.050    0.6739    1.43  . Q      .  V    .       .        .
  14.067    0.6758    1.44  . Q      .  V    .       .        .
  14.083    0.6778    1.44  . Q      .  V    .       .        .
  14.100    0.6798    1.45  . Q      .  V    .       .        .
  14.117    0.6818    1.45  . Q      .  V    .       .        .
  14.133    0.6838    1.46  . Q      .  V    .       .        .
  14.150    0.6859    1.47  . Q      .  V    .       .        .
  14.167    0.6879    1.48  . Q      .  V    .       .        .
  14.183    0.6899    1.49  . Q      .  V    .       .        .
  14.200    0.6920    1.50  . Q      .  V    .       .        .
  14.217    0.6941    1.51  . Q      .  V    .       .        .
  14.233    0.6962    1.52  . Q      .   V   .       .        .
  14.250    0.6983    1.53  . Q      .   V   .       .        .
  14.267    0.7004    1.54  . Q      .   V   .       .        .
  14.283    0.7025    1.54  . Q      .   V   .       .        .
  14.300    0.7047    1.55  . Q      .   V   .       .        .
  14.317    0.7068    1.55  . Q      .   V   .       .        .
  14.333    0.7089    1.56  . Q      .   V   .       .        .
  14.350    0.7111    1.56  . Q      .   V   .       .        .
  14.367    0.7132    1.57  . Q      .   V   .       .        .
  14.383    0.7154    1.57  . Q      .   V   .       .        .
  14.400    0.7176    1.58  . Q      .   V   .       .        .
  14.417    0.7198    1.59  . Q      .   V   .       .        .
  14.433    0.7220    1.60  .  Q     .   V   .       .        .
  14.450    0.7242    1.61  .  Q     .   V   .       .        .
  14.467    0.7264    1.63  .  Q     .   V   .       .        .
  14.483    0.7287    1.64  .  Q     .   V   .       .        .
  14.500    0.7310    1.65  .  Q     .   V   .       .        .
  14.517    0.7332    1.66  .  Q     .   V   .       .        .
  14.533    0.7355    1.67  .  Q     .   V   .       .        .
  14.550    0.7379    1.68  .  Q     .   V   .       .        .
  14.567    0.7402    1.68  .  Q     .   V   .       .        .
  14.583    0.7425    1.69  .  Q     .    V  .       .        .
  14.600    0.7448    1.70  .  Q     .    V  .       .        .
  14.617    0.7472    1.70  .  Q     .    V  .       .        .
  14.633    0.7495    1.71  .  Q     .    V  .       .        .
  14.650    0.7519    1.72  .  Q     .    V  .       .        .
  14.667    0.7543    1.72  .  Q     .    V  .       .        .
  14.683    0.7567    1.74  .  Q     .    V  .       .        .
  14.700    0.7591    1.75  .  Q     .    V  .       .        .
  14.717    0.7615    1.77  .  Q     .    V  .       .        .
  14.733    0.7640    1.78  .  Q     .    V  .       .        .
  14.750    0.7665    1.80  .  Q     .    V  .       .        .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.        5.3       10.6       16.0       21.3
----------------------------------------------------------------------------
  14.767    0.7690    1.81 . Q     .     V  .        .        .
  14.783    0.7715    1.83 . Q     .     V  .        .        .
  14.800    0.7740    1.84 . Q     .     V  .        .        .
  14.817    0.7766    1.85 . Q     .     V  .        .        .
  14.833    0.7791    1.86 . Q     .     V  .        .        .
  14.850    0.7817    1.87 . Q     .     V  .        .        .
  14.867    0.7843    1.88 . Q     .     V  .        .        .
  14.883    0.7869    1.89 . Q     .     V  .        .        .
  14.900    0.7895    1.90 . Q     .      V .        .        .
  14.917    0.7921    1.91 . Q     .      V .        .        .
  14.933    0.7948    1.92 . Q     .      V .        .        .
  14.950    0.7974    1.94 . Q     .      V .        .        .
  14.967    0.8001    1.96 . Q     .      V .        .        .
  14.983    0.8029    1.98 . Q     .      V .        .        .
  15.000    0.8056    2.00 . Q     .      V .        .        .
  15.017    0.8084    2.02 . Q     .      V .        .        .
  15.033    0.8112    2.04 . Q     .      V .        .        .
  15.050    0.8141    2.07 . Q     .      V .        .        .
  15.067    0.8169    2.09 . Q     .      V .        .        .
  15.083    0.8198    2.10 . Q     .      V .        .        .
  15.100    0.8227    2.12 . Q     .      V .        .        .
  15.117    0.8257    2.13 .  Q    .      V .        .        .
  15.133    0.8286    2.15 .  Q    .      V .        .        .
  15.150    0.8316    2.16 .  Q    .      V .        .        .
  15.167    0.8346    2.18 .  Q    .      V .        .        .
  15.183    0.8376    2.19 .  Q    .       V.        .        .
  15.200    0.8407    2.21 .  Q    .       V.        .        .
  15.217    0.8438    2.25 .  Q    .       V.        .        .
  15.233    0.8469    2.28 .  Q    .       V.        .        .
  15.250    0.8501    2.32 .  Q    .       V.        .        .
  15.267    0.8534    2.36 .  Q    .       V.        .        .
  15.283    0.8567    2.40 .  Q    .       V.        .        .
  15.300    0.8600    2.44 .  Q    .       V.        .        .
  15.317    0.8635    2.48 .  Q    .       V.        .        .
  15.333    0.8669    2.51 .  Q    .       V.        .        .
  15.350    0.8704    2.52 .  Q    .       V.        .        .
  15.367    0.8739    2.53 .  Q    .       V.        .        .
  15.383    0.8774    2.53 .  Q    .       V.        .        .
  15.400    0.8809    2.54 .  Q    .       V.        .        .
  15.417    0.8844    2.54 .  Q    .        V.       .        .
  15.433    0.8879    2.54 .  Q    .        V.       .        .
  15.450    0.8914    2.55 .  Q    .        V.       .        .
  15.467    0.8949    2.55 .  Q    .        V.       .        .
  15.483    0.8985    2.59 .  Q    .        V.       .        .
  15.500    0.9021    2.63 .  Q    .        V.       .        .
  15.517    0.9057    2.67 .   Q   .        V.       .        .
  15.533    0.9095    2.71 .   Q   .        V.       .        .
  15.550    0.9133    2.75 .   Q   .        V.       .        .
  15.567    0.9171    2.79 .   Q   .        V.       .        .
  15.583    0.9210    2.83 .   Q   .        V.       .        .
```

```
--------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.       5.3      10.6      16.0      21.3
--------------------------------------------------------------------------
  15.600    0.9250     2.87 .   Q   .       V.        .        .
  15.617    0.9290     2.92 .   Q   .        V        .        .
  15.633    0.9331     2.97 .   Q   .        V        .        .
  15.650    0.9372     3.02 .   Q   .        V        .        .
  15.667    0.9415     3.07 .   Q   .        V        .        .
  15.683    0.9458     3.12 .   Q   .        V        .        .
  15.700    0.9501     3.18 .   Q   .        V        .        .
  15.717    0.9546     3.23 .    Q  .        V        .        .
  15.733    0.9591     3.28 .    Q  .        V        .        .
  15.750    0.9638     3.42 .    Q  .        V        .        .
  15.767    0.9688     3.62 .    Q  .        V        .        .
  15.783    0.9741     3.81 .     Q .        V        .        .
  15.800    0.9796     4.00 .     Q .        .V       .        .
  15.817    0.9854     4.20 .     Q .        .V       .        .
  15.833    0.9914     4.39 .      Q .       .V       .        .
  15.850    0.9977     4.59 .      Q .       .V       .        .
  15.867    1.0043     4.78 .      Q .       .V       .        .
  15.883    1.0112     5.00 .       Q.       .V       .        .
  15.900    1.0184     5.24 .       Q.       .V       .        .
  15.917    1.0259     5.48 .        Q       . V      .        .
  15.933    1.0338     5.71 .        Q       . V      .        .
  15.950    1.0420     5.95 .        .Q      . V      .        .
  15.967    1.0505     6.19 .        .Q      . V      .        .
  15.983    1.0594     6.43 .        . Q     . V      .        .
  16.000    1.0686     6.67 .        . Q     .  V     .        .
  16.017    1.0792     7.68 .        .   Q   .  V     .        .
  16.033    1.0922     9.48 .        .     Q .  V     .        .
  16.050    1.1077    11.27 .        .       .Q V     .        .
  16.067    1.1258    13.07 .        .       .  Q     .        .
  16.083    1.1462    14.86 .        .       .  V Q   .        .
  16.100    1.1692    16.66 .        .       .   V   .Q        .
  16.117    1.1946    18.45 .        .       .   V   .   Q     .
  16.133    1.2225    20.25 .        .       .    V  .       Q .
  16.150    1.2518    21.29 .        .       .    V  .         Q
  16.167    1.2769    18.23 .        .       .     V .   Q     .
  16.183    1.2991    16.08 .        .       .      V Q        .
  16.200    1.3183    13.93 .        .       .    Q V .        .
  16.217    1.3345    11.78 .        .       . Q     V .       .
  16.233    1.3477     9.62 .        .     Q .       V.        .
  16.250    1.3580     7.47 .        .  Q    .       V.        .
  16.267    1.3654     5.32 .      Q.        .       V.        .
  16.283    1.3707     3.87 .     Q  .       .       V.        .
  16.300    1.3758     3.68 .    Q   .       .       V.        .
  16.317    1.3806     3.52 .    Q   .       .       V.        .
  16.333    1.3852     3.35 .    Q   .       .       V.        .
  16.350    1.3896     3.19 .   Q    .       .       V.        .
  16.367    1.3938     3.02 .   Q    .       .        V        .
  16.383    1.3977     2.86 .   Q    .       .        V        .
  16.400    1.4014     2.69 .   Q    .       .        V        .
  16.417    1.4049     2.57 .  Q     .       .        V        .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.       5.3      10.6      16.0      21.3
----------------------------------------------------------------------------
  16.433    1.4084    2.54 .   Q     .       .       V      .
  16.450    1.4119    2.51 .   Q     .       .       V      .
  16.467    1.4153    2.48 .   Q     .       .       V      .
  16.483    1.4187    2.46 .   Q     .       .       V      .
  16.500    1.4221    2.43 .   Q     .       .       V      .
  16.517    1.4254    2.40 .   Q     .       .       V      .
  16.533    1.4286    2.37 .   Q     .       .       V      .
  16.550    1.4319    2.34 .   Q     .       .       V      .
  16.567    1.4350    2.30 .   Q     .       .       V      .
  16.583    1.4381    2.25 .   Q     .       .       .V     .
  16.600    1.4412    2.21 .   Q     .       .       .V     .
  16.617    1.4442    2.17 .   Q     .       .       .V     .
  16.633    1.4471    2.12 .  Q      .       .       .V     .
  16.650    1.4499    2.08 .  Q      .       .       .V     .
  16.667    1.4527    2.03 .  Q      .       .       .V     .
  16.683    1.4555    1.99 .  Q      .       .       .V     .
  16.700    1.4582    1.96 .  Q      .       .       .V     .
  16.717    1.4609    1.94 .  Q      .       .       .V     .
  16.733    1.4635    1.91 .  Q      .       .       .V     .
  16.750    1.4661    1.88 .  Q      .       .       .V     .
  16.767    1.4686    1.86 .  Q      .       .       .V     .
  16.783    1.4712    1.83 .  Q      .       .       .V     .
  16.800    1.4736    1.80 .  Q      .       .       .V     .
  16.817    1.4761    1.78 .  Q      .       .       .V     .
  16.833    1.4785    1.76 .  Q      .       .       .V     .
  16.850    1.4809    1.74 .  Q      .       .       .V     .
  16.867    1.4833    1.72 .  Q      .       .       .V     .
  16.883    1.4856    1.70 .  Q      .       .       . V    .
  16.900    1.4879    1.68 .  Q      .       .       . V    .
  16.917    1.4902    1.66 .  Q      .       .       . V    .
  16.933    1.4925    1.64 .  Q      .       .       . V    .
  16.950    1.4947    1.62 .  Q      .       .       . V    .
  16.967    1.4969    1.60 .  Q      .       .       . V    .
  16.983    1.4991    1.59 . Q       .       .       . V    .
  17.000    1.5013    1.57 . Q       .       .       . V    .
  17.017    1.5034    1.56 . Q       .       .       . V    .
  17.033    1.5055    1.54 . Q       .       .       . V    .
  17.050    1.5076    1.53 . Q       .       .       . V    .
  17.067    1.5097    1.51 . Q       .       .       . V    .
  17.083    1.5118    1.50 . Q       .       .       . V    .
  17.100    1.5138    1.48 . Q       .       .       . V    .
  17.117    1.5158    1.47 . Q       .       .       . V    .
  17.133    1.5179    1.46 . Q       .       .       . V    .
  17.150    1.5198    1.44 . Q       .       .       . V    .
  17.167    1.5218    1.43 . Q       .       .       . V    .
  17.183    1.5238    1.42 . Q       .       .       . V    .
  17.200    1.5257    1.40 . Q       .       .       . V    .
  17.217    1.5276    1.39 . Q       .       .       . V    .
  17.233    1.5295    1.38 . Q       .       .       . V    .
  17.250    1.5314    1.37 . Q       .       .       .  V   .
```

```
---------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.       5.3      10.6      16.0      21.3
---------------------------------------------------------------------------
  17.267     1.5333     1.36  . Q       .        .       . V      .
  17.283     1.5351     1.35  . Q       .        .       . V      .
  17.300     1.5370     1.34  . Q       .        .       . V      .
  17.317     1.5388     1.33  . Q       .        .       . V      .
  17.333     1.5406     1.32  . Q       .        .       . V      .
  17.350     1.5424     1.31  . Q       .        .       . V      .
  17.367     1.5442     1.30  . Q       .        .       . V      .
  17.383     1.5460     1.29  . Q       .        .       . V      .
  17.400     1.5477     1.28  . Q       .        .       . V      .
  17.417     1.5495     1.27  . Q       .        .       . V      .
  17.433     1.5512     1.26  . Q       .        .       . V      .
  17.450     1.5530     1.25  . Q       .        .       . V      .
  17.467     1.5547     1.25  . Q       .        .       . V      .
  17.483     1.5564     1.24  . Q       .        .       . V      .
  17.500     1.5581     1.23  . Q       .        .       . V      .
  17.517     1.5598     1.22  . Q       .        .       . V      .
  17.533     1.5614     1.21  . Q       .        .       . V      .
  17.550     1.5631     1.21  . Q       .        .       . V      .
  17.567     1.5647     1.20  . Q       .        .       . V      .
  17.583     1.5664     1.19  . Q       .        .       . V      .
  17.600     1.5680     1.18  . Q       .        .       . V      .
  17.617     1.5696     1.18  . Q       .        .       . V      .
  17.633     1.5712     1.17  . Q       .        .       . V      .
  17.650     1.5729     1.16  . Q       .        .       . V      .
  17.667     1.5744     1.16  . Q       .        .       . V      .
  17.683     1.5760     1.15  . Q       .        .       . V      .
  17.700     1.5776     1.14  . Q       .        .       .  V     .
  17.717     1.5792     1.14  . Q       .        .       .  V     .
  17.733     1.5807     1.13  . Q       .        .       .  V     .
  17.750     1.5823     1.13  . Q       .        .       .  V     .
  17.767     1.5838     1.12  . Q       .        .       .  V     .
  17.783     1.5854     1.11  . Q       .        .       .  V     .
  17.800     1.5869     1.11  . Q       .        .       .  V     .
  17.817     1.5884     1.10  . Q       .        .       .  V     .
  17.833     1.5899     1.10  . Q       .        .       .  V     .
  17.850     1.5914     1.09  . Q       .        .       .  V     .
  17.867     1.5929     1.08  . Q       .        .       .  V     .
  17.883     1.5944     1.08  . Q       .        .       .  V     .
  17.900     1.5959     1.07  . Q       .        .       .  V     .
  17.917     1.5973     1.07  . Q       .        .       .  V     .
  17.933     1.5988     1.06  .Q        .        .       .  V     .
  17.950     1.6003     1.06  .Q        .        .       .  V     .
  17.967     1.6017     1.05  .Q        .        .       .  V     .
  17.983     1.6032     1.05  .Q        .        .       .  V     .
  18.000     1.6046     1.04  .Q        .        .       .  V     .
----------------------------------------------------------------------------
   TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
   (Note: 100% of Peak Flow Rate estimate assumed to have
   an instantaneous time duration)

   Percentile of Estimated             Duration
     Peak Flow Rate                   (minutes)
   =======================          =========
          0%                     1081.0
         10%                      455.0
         20%                      135.0
         30%                       85.0
         40%                       65.0
         50%                       55.0
         60%                       45.0
         70%                       30.0
```

80%	20.0
90%	10.0

```
****************************************************************************
  FLOW PROCESS FROM NODE     102.00 TO NODE     103.00 IS CODE = 3.2
----------------------------------------------------------------------------
  >>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #1<<<<<
============================================================================

              INFLOW
             (STREAM 1)
                 |
                 |
                 V                __effective depth
             -----------          |   (and volume)
            |           |    |    |
            |           |    |....V........
            | detention |<-->|           outflow
            |   basin   |    |.........________
             -----------     |    ^    |  \
                 |           |  dead   |   basin outlet
                 V           | storage |
              OUTFLOW         ---------
             (STREAM 1)
```

ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 1
THROUGH A FLOW-THROUGH DETENTION BASIN
SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
 DEAD STORAGE(AF) = 0.000
 SPECIFIED DEAD STORAGE(AF) FILLED = 0.000
 SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET = 0.000
 DETENTION BASIN CONSTANT LOSS RATE(CFS) = 0.04

BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

INTERVAL NUMBER	DEPTH (FT)	OUTFLOW (CFS)	STORAGE (AF)
1	0.00	0.00	0.000
2	2.00	0.01	0.203
3	2.42	0.02	0.246
4	5.20	0.03	0.529
5	7.00	5.11	0.712
6	10.00	23.64	1.017

==

MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
14.017	0.000	1.43	0.04	5.57	1.1	0.566
14.033	0.000	1.43	0.04	5.57	1.1	0.567
14.050	0.000	1.43	0.04	5.58	1.1	0.567
14.067	0.000	1.44	0.04	5.58	1.1	0.568
14.083	0.000	1.44	0.04	5.59	1.1	0.568
14.100	0.000	1.45	0.04	5.59	1.1	0.569
14.117	0.000	1.45	0.04	5.59	1.1	0.569
14.133	0.000	1.46	0.04	5.60	1.1	0.569
14.150	0.000	1.47	0.04	5.60	1.2	0.570
14.167	0.000	1.48	0.04	5.60	1.2	0.570
14.183	0.000	1.49	0.04	5.61	1.2	0.570
14.200	0.000	1.50	0.04	5.61	1.2	0.571
14.217	0.000	1.51	0.04	5.61	1.2	0.571
14.233	0.000	1.52	0.04	5.62	1.2	0.572
14.250	0.000	1.53	0.04	5.62	1.2	0.572
14.267	0.000	1.54	0.04	5.63	1.2	0.572
14.283	0.000	1.54	0.04	5.63	1.2	0.573
14.300	0.000	1.55	0.04	5.63	1.2	0.573
14.317	0.000	1.55	0.04	5.64	1.3	0.573
14.333	0.000	1.56	0.04	5.64	1.3	0.574
14.350	0.000	1.56	0.04	5.64	1.3	0.574
14.367	0.000	1.57	0.04	5.65	1.3	0.574
14.383	0.000	1.57	0.04	5.65	1.3	0.575
14.400	0.000	1.58	0.04	5.65	1.3	0.575
14.417	0.000	1.59	0.04	5.66	1.3	0.575
14.433	0.000	1.60	0.04	5.66	1.3	0.576
14.450	0.000	1.61	0.04	5.66	1.3	0.576
14.467	0.000	1.63	0.04	5.67	1.3	0.576
14.483	0.000	1.64	0.04	5.67	1.4	0.577
14.500	0.000	1.65	0.04	5.67	1.4	0.577
14.517	0.000	1.66	0.04	5.68	1.4	0.577
14.533	0.000	1.67	0.04	5.68	1.4	0.578
14.550	0.000	1.68	0.04	5.68	1.4	0.578
14.567	0.000	1.68	0.04	5.69	1.4	0.578
14.583	0.000	1.69	0.04	5.69	1.4	0.579
14.600	0.000	1.70	0.04	5.69	1.4	0.579
14.617	0.000	1.70	0.04	5.70	1.4	0.579
14.633	0.000	1.71	0.04	5.70	1.4	0.580
14.650	0.000	1.72	0.04	5.70	1.4	0.580
14.667	0.000	1.72	0.04	5.70	1.5	0.580
14.683	0.000	1.74	0.04	5.71	1.5	0.581
14.700	0.000	1.75	0.04	5.71	1.5	0.581
14.717	0.000	1.77	0.04	5.71	1.5	0.581
14.733	0.000	1.78	0.04	5.72	1.5	0.582
14.750	0.000	1.80	0.04	5.72	1.5	0.582
14.767	0.000	1.81	0.04	5.73	1.5	0.582
14.783	0.000	1.83	0.04	5.73	1.5	0.583
14.800	0.000	1.84	0.04	5.73	1.5	0.583
14.817	0.000	1.85	0.04	5.74	1.5	0.584
14.833	0.000	1.86	0.04	5.74	1.6	0.584

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
14.850	0.000	1.87	0.04	5.74	1.6	0.584
14.867	0.000	1.88	0.04	5.75	1.6	0.585
14.883	0.000	1.89	0.04	5.75	1.6	0.585
14.900	0.000	1.90	0.04	5.75	1.6	0.585
14.917	0.000	1.91	0.04	5.76	1.6	0.586
14.933	0.000	1.92	0.04	5.76	1.6	0.586
14.950	0.000	1.94	0.04	5.77	1.6	0.586
14.967	0.000	1.96	0.04	5.77	1.6	0.587
14.983	0.000	1.98	0.04	5.77	1.6	0.587
15.000	0.000	2.00	0.04	5.78	1.7	0.588
15.017	0.000	2.02	0.04	5.78	1.7	0.588
15.033	0.000	2.04	0.04	5.79	1.7	0.589
15.050	0.000	2.07	0.04	5.79	1.7	0.589
15.067	0.000	2.09	0.04	5.80	1.7	0.590
15.083	0.000	2.10	0.04	5.80	1.7	0.590
15.100	0.000	2.12	0.04	5.80	1.7	0.590
15.117	0.000	2.13	0.04	5.81	1.7	0.591
15.133	0.000	2.15	0.04	5.81	1.8	0.591
15.150	0.000	2.16	0.04	5.82	1.8	0.592
15.167	0.000	2.18	0.04	5.82	1.8	0.592
15.183	0.000	2.19	0.04	5.83	1.8	0.593
15.200	0.000	2.21	0.04	5.83	1.8	0.593
15.217	0.000	2.25	0.04	5.84	1.8	0.594
15.233	0.000	2.28	0.04	5.84	1.8	0.594
15.250	0.000	2.32	0.04	5.85	1.9	0.595
15.267	0.000	2.36	0.04	5.86	1.9	0.596
15.283	0.000	2.40	0.04	5.86	1.9	0.596
15.300	0.000	2.44	0.04	5.87	1.9	0.597
15.317	0.000	2.48	0.04	5.88	1.9	0.598
15.333	0.000	2.51	0.04	5.88	1.9	0.598
15.350	0.000	2.52	0.04	5.89	2.0	0.599
15.367	0.000	2.53	0.04	5.90	2.0	0.600
15.383	0.000	2.53	0.04	5.90	2.0	0.600
15.400	0.000	2.54	0.04	5.91	2.0	0.601
15.417	0.000	2.54	0.04	5.92	2.0	0.602
15.433	0.000	2.54	0.04	5.92	2.1	0.602
15.450	0.000	2.55	0.04	5.93	2.1	0.603
15.467	0.000	2.55	0.04	5.93	2.1	0.604
15.483	0.000	2.59	0.04	5.94	2.1	0.604
15.500	0.000	2.63	0.04	5.95	2.1	0.605
15.517	0.000	2.67	0.04	5.95	2.1	0.605
15.533	0.000	2.71	0.04	5.96	2.2	0.606
15.550	0.000	2.75	0.04	5.97	2.2	0.607
15.567	0.000	2.79	0.04	5.97	2.2	0.608
15.583	0.000	2.83	0.04	5.98	2.2	0.608
15.600	0.000	2.87	0.04	5.99	2.2	0.609
15.617	0.000	2.92	0.04	6.00	2.3	0.610
15.633	0.000	2.97	0.04	6.01	2.3	0.611
15.650	0.000	3.02	0.04	6.01	2.3	0.612
15.667	0.000	3.07	0.04	6.02	2.3	0.613

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
15.683	0.000	3.12	0.04	6.03	2.4	0.614
15.700	0.000	3.18	0.04	6.04	2.4	0.615
15.717	0.000	3.23	0.04	6.05	2.4	0.616
15.733	0.000	3.28	0.04	6.06	2.5	0.617
15.750	0.000	3.42	0.04	6.08	2.5	0.618
15.767	0.000	3.62	0.04	6.09	2.5	0.620
15.783	0.000	3.81	0.04	6.11	2.6	0.621
15.800	0.000	4.00	0.04	6.13	2.6	0.623
15.817	0.000	4.20	0.04	6.15	2.7	0.625
15.833	0.000	4.39	0.04	6.17	2.7	0.627
15.850	0.000	4.59	0.04	6.19	2.8	0.630
15.867	0.000	4.78	0.04	6.22	2.9	0.632
15.883	0.000	5.00	0.04	6.24	2.9	0.635
15.900	0.000	5.24	0.04	6.27	3.0	0.638
15.917	0.000	5.48	0.04	6.31	3.1	0.641
15.933	0.000	5.71	0.04	6.34	3.2	0.645
15.950	0.000	5.95	0.04	6.37	3.3	0.648
15.967	0.000	6.19	0.04	6.41	3.4	0.652
15.983	0.000	6.43	0.04	6.45	3.5	0.656
16.000	0.000	6.67	0.04	6.49	3.6	0.660
16.017	0.000	7.68	0.04	6.54	3.7	0.666
16.033	0.000	9.48	0.04	6.62	3.9	0.673
16.050	0.000	11.27	0.04	6.71	4.2	0.683
16.067	0.000	13.07	0.04	6.83	4.5	0.695
16.083	0.000	14.86	0.04	6.97	4.8	0.709
16.100	0.000	16.66	0.04	7.12	5.4	0.724
16.117	0.000	18.45	0.04	7.28	6.3	0.741
16.133	0.000	20.25	0.04	7.45	7.4	0.758
16.150	0.000	21.29	0.04	7.63	8.5	0.776
16.167	0.000	18.23	0.04	7.75	9.4	0.788
16.183	0.000	16.08	0.04	7.83	10.0	0.796
16.200	0.000	13.93	0.04	7.88	10.4	0.801
16.217	0.000	11.78	0.04	7.89	10.6	0.803
16.233	0.000	9.62	0.04	7.88	10.6	0.801
16.250	0.000	7.47	0.04	7.84	10.4	0.797
16.267	0.000	5.32	0.04	7.77	10.1	0.791
16.283	0.000	3.87	0.04	7.70	9.6	0.783
16.300	0.000	3.68	0.04	7.62	9.2	0.775
16.317	0.000	3.52	0.04	7.55	8.7	0.768
16.333	0.000	3.35	0.04	7.48	8.3	0.761
16.350	0.000	3.19	0.04	7.42	7.9	0.754
16.367	0.000	3.02	0.04	7.36	7.5	0.748
16.383	0.000	2.86	0.04	7.30	7.1	0.742
16.400	0.000	2.69	0.04	7.24	6.8	0.737
16.417	0.000	2.57	0.04	7.19	6.4	0.731
16.433	0.000	2.54	0.04	7.14	6.1	0.726
16.450	0.000	2.51	0.04	7.09	5.8	0.722
16.467	0.000	2.48	0.04	7.05	5.6	0.717
16.483	0.000	2.46	0.04	7.01	5.3	0.713
16.500	0.000	2.43	0.04	6.98	5.1	0.710

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
16.517	0.000	2.40	0.04	6.94	5.0	0.706
16.533	0.000	2.37	0.04	6.91	4.9	0.702
16.550	0.000	2.34	0.04	6.87	4.8	0.699
16.567	0.000	2.30	0.04	6.84	4.7	0.696
16.583	0.000	2.25	0.04	6.81	4.6	0.692
16.600	0.000	2.21	0.04	6.77	4.5	0.689
16.617	0.000	2.17	0.04	6.74	4.4	0.686
16.633	0.000	2.12	0.04	6.71	4.3	0.683
16.650	0.000	2.08	0.04	6.68	4.3	0.680
16.667	0.000	2.03	0.04	6.65	4.2	0.677
16.683	0.000	1.99	0.04	6.62	4.1	0.674
16.700	0.000	1.96	0.04	6.60	4.0	0.671
16.717	0.000	1.94	0.04	6.57	3.9	0.668
16.733	0.000	1.91	0.04	6.54	3.9	0.665
16.750	0.000	1.88	0.04	6.52	3.8	0.663
16.767	0.000	1.86	0.04	6.49	3.7	0.660
16.783	0.000	1.83	0.04	6.46	3.6	0.658
16.800	0.000	1.80	0.04	6.44	3.6	0.655
16.817	0.000	1.78	0.04	6.42	3.5	0.653
16.833	0.000	1.76	0.04	6.39	3.4	0.650
16.850	0.000	1.74	0.04	6.37	3.4	0.648
16.867	0.000	1.72	0.04	6.35	3.3	0.646
16.883	0.000	1.70	0.04	6.33	3.2	0.644
16.900	0.000	1.68	0.04	6.31	3.2	0.641
16.917	0.000	1.66	0.04	6.29	3.1	0.639
16.933	0.000	1.64	0.04	6.27	3.1	0.637
16.950	0.000	1.62	0.04	6.25	3.0	0.635
16.967	0.000	1.60	0.04	6.23	3.0	0.633
16.983	0.000	1.59	0.04	6.21	2.9	0.632
17.000	0.000	1.57	0.04	6.19	2.9	0.630
17.017	0.000	1.56	0.04	6.17	2.8	0.628
17.033	0.000	1.54	0.04	6.16	2.8	0.626
17.050	0.000	1.53	0.04	6.14	2.7	0.625
17.067	0.000	1.51	0.04	6.12	2.7	0.623
17.083	0.000	1.50	0.04	6.11	2.6	0.621
17.100	0.000	1.48	0.04	6.09	2.6	0.620
17.117	0.000	1.47	0.04	6.08	2.5	0.618
17.133	0.000	1.46	0.04	6.06	2.5	0.617
17.150	0.000	1.44	0.04	6.05	2.4	0.615
17.167	0.000	1.43	0.04	6.04	2.4	0.614
17.183	0.000	1.42	0.04	6.02	2.4	0.613
17.200	0.000	1.40	0.04	6.01	2.3	0.611
17.217	0.000	1.39	0.04	6.00	2.3	0.610
17.233	0.000	1.38	0.04	5.98	2.3	0.609
17.250	0.000	1.37	0.04	5.97	2.2	0.607
17.267	0.000	1.36	0.04	5.96	2.2	0.606
17.283	0.000	1.35	0.04	5.95	2.2	0.605
17.300	0.000	1.34	0.04	5.94	2.1	0.604
17.317	0.000	1.33	0.04	5.93	2.1	0.603
17.333	0.000	1.32	0.04	5.92	2.1	0.602

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
17.350	0.000	1.31	0.04	5.90	2.0	0.601
17.367	0.000	1.30	0.04	5.89	2.0	0.600
17.383	0.000	1.29	0.04	5.88	2.0	0.599
17.400	0.000	1.28	0.04	5.88	2.0	0.598
17.417	0.000	1.27	0.04	5.87	1.9	0.597
17.433	0.000	1.26	0.04	5.86	1.9	0.596
17.450	0.000	1.25	0.04	5.85	1.9	0.595
17.467	0.000	1.25	0.04	5.84	1.8	0.594
17.483	0.000	1.24	0.04	5.83	1.8	0.593
17.500	0.000	1.23	0.04	5.82	1.8	0.592
17.517	0.000	1.22	0.04	5.81	1.8	0.591
17.533	0.000	1.21	0.04	5.81	1.8	0.591
17.550	0.000	1.21	0.04	5.80	1.7	0.590
17.567	0.000	1.20	0.04	5.79	1.7	0.589
17.583	0.000	1.19	0.04	5.78	1.7	0.588
17.600	0.000	1.18	0.04	5.78	1.7	0.588
17.617	0.000	1.18	0.04	5.77	1.7	0.587
17.633	0.000	1.17	0.04	5.76	1.6	0.586
17.650	0.000	1.16	0.04	5.76	1.6	0.586
17.667	0.000	1.16	0.04	5.75	1.6	0.585
17.683	0.000	1.15	0.04	5.74	1.6	0.584
17.700	0.000	1.14	0.04	5.74	1.6	0.584
17.717	0.000	1.14	0.04	5.73	1.5	0.583
17.733	0.000	1.13	0.04	5.73	1.5	0.582
17.750	0.000	1.13	0.04	5.72	1.5	0.582
17.767	0.000	1.12	0.04	5.71	1.5	0.581
17.783	0.000	1.11	0.04	5.71	1.5	0.581
17.800	0.000	1.11	0.04	5.70	1.5	0.580
17.817	0.000	1.10	0.04	5.70	1.4	0.580
17.833	0.000	1.10	0.04	5.69	1.4	0.579
17.850	0.000	1.09	0.04	5.69	1.4	0.579
17.867	0.000	1.08	0.04	5.68	1.4	0.578
17.883	0.000	1.08	0.04	5.68	1.4	0.578
17.900	0.000	1.07	0.04	5.67	1.4	0.577
17.917	0.000	1.07	0.04	5.67	1.4	0.577
17.933	0.000	1.06	0.04	5.67	1.4	0.576
17.950	0.000	1.06	0.04	5.66	1.3	0.576
17.967	0.000	1.05	0.04	5.66	1.3	0.575
17.983	0.000	1.05	0.04	5.65	1.3	0.575
18.000	0.000	1.04	0.04	5.65	1.3	0.575

PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 1.856 AF
BASIN STORAGE = 0.000 AF (WITH 0.000 AF INITIALLY FILLED)
OUTFLOW VOLUME = 1.396 AF
LOSS VOLUME = 0.460 AF

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 FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =   4
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 >>>>>MODEL PIPEFLOW ROUTING OF STREAM #1<<<<<
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MODEL PIPEFLOW ROUTING OF STREAM 1 WHERE
STORAGE EFFECTS ARE NEGLECTED WITHIN THE PIPE, FLOW
VELOCITIES ARE ESTIMATED BY ASSUMING STEADY FLOW FOR
EACH UNIT INTERVAL(NORMAL DEPTH, Dn), AND FLOWS IN EXCESS
OF (.82)(DIAMETER) ARE PONDED AT THE UPSTREAM INLET:
UNIT INTERVAL FLOW VELOCITY COMPUTED USING Dn UP TO
(0.938)(DIAMETER):

PIPELENGTH(FT) = 468.00 MANNINGS FACTOR = 0.013
UPSTREAM ELEVATION(FT) = 130.00
DOWNSTREAM ELEVATION(FT) = 127.60
PIPE DIAMETER(FT) = 2.00

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
14.000	1.05	2.85	1.03	0.000
14.017	1.07	2.86	1.04	0.000
14.033	1.08	2.87	1.05	0.000
14.050	1.09	2.88	1.07	0.000
14.067	1.10	2.89	1.08	0.000
14.083	1.11	2.89	1.09	0.000
14.100	1.12	2.90	1.10	0.000
14.117	1.14	2.91	1.11	0.000
14.133	1.15	2.92	1.12	0.000
14.150	1.16	2.92	1.14	0.000
14.167	1.17	2.93	1.15	0.000
14.183	1.18	2.94	1.16	0.000
14.200	1.19	2.95	1.17	0.000
14.217	1.20	2.95	1.18	0.000
14.233	1.21	2.96	1.19	0.000
14.250	1.22	2.97	1.20	0.000
14.267	1.23	2.97	1.21	0.000
14.283	1.24	2.98	1.22	0.000
14.300	1.25	2.99	1.23	0.000
14.317	1.26	3.00	1.24	0.000
14.333	1.27	3.00	1.25	0.000
14.350	1.28	3.01	1.26	0.000
14.367	1.29	3.02	1.27	0.000
14.383	1.30	3.02	1.28	0.000
14.400	1.30	3.03	1.29	0.000
14.417	1.31	3.03	1.30	0.000
14.433	1.32	3.04	1.31	0.000
14.450	1.33	3.05	1.32	0.000
14.467	1.34	3.05	1.32	0.000
14.483	1.35	3.06	1.33	0.000

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
14.500	1.36	3.07	1.34	0.000
14.517	1.37	3.07	1.35	0.000
14.533	1.38	3.08	1.36	0.000
14.550	1.39	3.09	1.37	0.000
14.567	1.40	3.09	1.38	0.000
14.583	1.41	3.10	1.39	0.000
14.600	1.42	3.11	1.40	0.000
14.617	1.43	3.11	1.41	0.000
14.633	1.43	3.12	1.42	0.000
14.650	1.44	3.13	1.43	0.000
14.667	1.45	3.13	1.44	0.000
14.683	1.46	3.14	1.45	0.000
14.700	1.47	3.14	1.46	0.000
14.717	1.48	3.15	1.46	0.000
14.733	1.49	3.16	1.47	0.000
14.750	1.50	3.16	1.48	0.000
14.767	1.51	3.17	1.49	0.000
14.783	1.52	3.18	1.50	0.000
14.800	1.53	3.19	1.51	0.000
14.817	1.54	3.19	1.52	0.000
14.833	1.55	3.20	1.53	0.000
14.850	1.56	3.21	1.54	0.000
14.867	1.57	3.21	1.55	0.000
14.883	1.58	3.22	1.57	0.000
14.900	1.59	3.23	1.58	0.000
14.917	1.60	3.24	1.59	0.000
14.933	1.61	3.24	1.60	0.000
14.950	1.62	3.25	1.61	0.000
14.967	1.63	3.26	1.62	0.000
14.983	1.64	3.26	1.63	0.000
15.000	1.66	3.27	1.64	0.000
15.017	1.67	3.27	1.65	0.000
15.033	1.68	3.28	1.66	0.000
15.050	1.69	3.29	1.67	0.000
15.067	1.71	3.29	1.68	0.000
15.083	1.72	3.30	1.70	0.000
15.100	1.73	3.31	1.71	0.000
15.117	1.74	3.32	1.72	0.000
15.133	1.76	3.32	1.74	0.000
15.150	1.77	3.33	1.75	0.000
15.167	1.78	3.34	1.76	0.000
15.183	1.80	3.35	1.78	0.000
15.200	1.81	3.35	1.79	0.000
15.217	1.83	3.36	1.80	0.000
15.233	1.84	3.37	1.82	0.000
15.250	1.86	3.38	1.83	0.000
15.267	1.87	3.39	1.85	0.000
15.283	1.89	3.40	1.86	0.000
15.300	1.91	3.41	1.88	0.000
15.317	1.93	3.42	1.90	0.000

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
15.333	1.95	3.43	1.92	0.000
15.350	1.97	3.44	1.94	0.000
15.367	1.99	3.45	1.96	0.000
15.383	2.01	3.46	1.98	0.000
15.400	2.02	3.47	2.00	0.000
15.417	2.04	3.48	2.01	0.000
15.433	2.06	3.49	2.03	0.000
15.450	2.08	3.50	2.05	0.000
15.467	2.09	3.50	2.07	0.000
15.483	2.11	3.51	2.08	0.000
15.500	2.13	3.52	2.10	0.000
15.517	2.14	3.53	2.12	0.000
15.533	2.16	3.54	2.13	0.000
15.550	2.18	3.55	2.15	0.000
15.567	2.20	3.56	2.17	0.000
15.583	2.22	3.58	2.19	0.000
15.600	2.25	3.59	2.21	0.000
15.617	2.27	3.60	2.24	0.000
15.633	2.29	3.61	2.26	0.000
15.650	2.32	3.63	2.28	0.000
15.667	2.34	3.64	2.31	0.000
15.683	2.37	3.65	2.33	0.000
15.700	2.40	3.67	2.36	0.000
15.717	2.43	3.69	2.39	0.000
15.733	2.46	3.70	2.42	0.000
15.750	2.49	3.71	2.45	0.000
15.767	2.53	3.73	2.47	0.000
15.783	2.57	3.74	2.50	0.000
15.800	2.62	3.76	2.54	0.000
15.817	2.67	3.79	2.59	0.000
15.833	2.73	3.81	2.64	0.000
15.850	2.80	3.84	2.70	0.000
15.867	2.86	3.87	2.76	0.000
15.883	2.94	3.90	2.83	0.000
15.900	3.02	3.93	2.91	0.000
15.917	3.11	3.97	3.03	0.000
15.933	3.20	4.00	3.08	0.000
15.950	3.29	4.04	3.17	0.000
15.967	3.40	4.07	3.26	0.000
15.983	3.51	4.11	3.36	0.000
16.000	3.62	4.15	3.46	0.000
16.017	3.75	4.19	3.58	0.000
16.033	3.93	4.25	3.71	0.000
16.050	4.17	4.33	3.88	0.000
16.067	4.47	4.42	4.10	0.000
16.083	4.82	4.53	4.39	0.000
16.100	5.42	4.65	4.76	0.000
16.117	6.34	4.84	5.24	0.000
16.133	7.38	5.02	6.14	0.000
16.150	8.45	5.21	7.16	0.000

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
16.167	9.36	5.34	8.35	0.000
16.183	9.98	5.41	9.25	0.000
16.200	10.38	5.45	9.89	0.000
16.217	10.58	5.47	10.31	0.000
16.233	10.58	5.47	10.55	0.000
16.250	10.42	5.46	10.58	0.000
16.267	10.09	5.42	10.44	0.000
16.283	9.65	5.38	10.15	0.000
16.300	9.17	5.32	9.73	0.000
16.317	8.72	5.26	9.23	0.000
16.333	8.29	5.19	8.78	0.000
16.350	7.89	5.12	8.34	0.000
16.367	7.50	5.04	7.93	0.000
16.383	7.13	4.98	7.53	0.000
16.400	6.78	4.92	7.19	0.000
16.417	6.44	4.86	6.86	0.000
16.433	6.13	4.80	6.52	0.000
16.450	5.83	4.74	6.18	0.000
16.467	5.56	4.68	5.89	0.000
16.483	5.31	4.63	5.63	0.000
16.500	5.12	4.59	5.38	0.000
16.517	4.99	4.56	5.17	0.000
16.533	4.89	4.54	5.03	0.000
16.550	4.80	4.52	4.93	0.000
16.567	4.70	4.49	4.82	0.000
16.583	4.61	4.46	4.72	0.000
16.600	4.52	4.43	4.63	0.000
16.617	4.43	4.41	4.54	0.000
16.633	4.34	4.38	4.45	0.000
16.650	4.26	4.35	4.36	0.000
16.667	4.17	4.33	4.28	0.000
16.683	4.09	4.30	4.19	0.000
16.700	4.01	4.28	4.11	0.000
16.717	3.93	4.25	4.03	0.000
16.733	3.85	4.23	3.95	0.000
16.750	3.78	4.20	3.88	0.000
16.767	3.71	4.18	3.80	0.000
16.783	3.63	4.15	3.73	0.000
16.800	3.57	4.13	3.66	0.000
16.817	3.50	4.11	3.59	0.000
16.833	3.43	4.09	3.52	0.000
16.850	3.37	4.06	3.46	0.000
16.867	3.30	4.04	3.39	0.000
16.883	3.24	4.02	3.33	0.000
16.900	3.18	4.00	3.27	0.000
16.917	3.12	3.97	3.20	0.000
16.933	3.07	3.95	3.14	0.000
16.950	3.01	3.93	3.09	0.000
16.967	2.96	3.91	3.03	0.000
16.983	2.91	3.88	2.98	0.000

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
17.000	2.85	3.86	2.95	0.000
17.017	2.80	3.84	2.88	0.000
17.033	2.76	3.82	2.82	0.000
17.050	2.71	3.80	2.77	0.000
17.067	2.66	3.78	2.73	0.000
17.083	2.62	3.76	2.68	0.000
17.100	2.57	3.75	2.64	0.000
17.117	2.53	3.73	2.59	0.000
17.133	2.49	3.71	2.55	0.000
17.150	2.45	3.69	2.51	0.000
17.167	2.41	3.68	2.47	0.000
17.183	2.37	3.66	2.43	0.000
17.200	2.33	3.63	2.39	0.000
17.217	2.30	3.61	2.35	0.000
17.233	2.26	3.60	2.31	0.000
17.250	2.23	3.58	2.28	0.000
17.267	2.19	3.56	2.24	0.000
17.283	2.16	3.54	2.21	0.000
17.300	2.13	3.52	2.17	0.000
17.317	2.10	3.51	2.14	0.000
17.333	2.07	3.49	2.11	0.000
17.350	2.04	3.47	2.08	0.000
17.367	2.01	3.46	2.05	0.000
17.383	1.98	3.44	2.02	0.000
17.400	1.95	3.43	1.99	0.000
17.417	1.92	3.41	1.97	0.000
17.433	1.90	3.40	1.94	0.000
17.450	1.87	3.39	1.91	0.000
17.467	1.85	3.37	1.89	0.000
17.483	1.82	3.36	1.86	0.000
17.500	1.80	3.35	1.84	0.000
17.517	1.78	3.33	1.81	0.000
17.533	1.75	3.32	1.79	0.000
17.550	1.73	3.31	1.77	0.000
17.567	1.71	3.30	1.75	0.000
17.583	1.69	3.29	1.73	0.000
17.600	1.67	3.28	1.70	0.000
17.617	1.65	3.27	1.68	0.000
17.633	1.63	3.25	1.66	0.000
17.650	1.61	3.24	1.64	0.000
17.667	1.59	3.23	1.63	0.000
17.683	1.58	3.22	1.61	0.000
17.700	1.56	3.21	1.59	0.000
17.717	1.54	3.19	1.57	0.000
17.733	1.52	3.18	1.55	0.000
17.750	1.51	3.17	1.53	0.000
17.767	1.49	3.16	1.52	0.000
17.783	1.48	3.15	1.50	0.000
17.800	1.46	3.14	1.49	0.000
17.817	1.45	3.13	1.47	0.000

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
17.833	1.43	3.12	1.46	0.000
17.850	1.42	3.11	1.44	0.000
17.867	1.40	3.10	1.43	0.000
17.883	1.39	3.09	1.41	0.000
17.900	1.38	3.08	1.40	0.000
17.917	1.36	3.07	1.39	0.000
17.933	1.35	3.06	1.37	0.000
17.950	1.34	3.05	1.36	0.000
17.967	1.33	3.04	1.35	0.000
17.983	1.31	3.04	1.34	0.000
18.000	1.30	3.03	1.32	0.000

```
****************************************************************************
 FLOW PROCESS FROM NODE    200.00 TO NODE    202.00 IS CODE = 1.2
----------------------------------------------------------------------------
 >>>>>SUBAREA RUNOFF (SMALL AREA UNIT-HYDROGRAPH ANALYSIS) <<<<<
============================================================================

 (SMALL AREA UNIT-HYDROGRAPH ADDED TO STREAM #2)

  RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
  TOTAL CATCHMENT AREA(ACRES) =    2.51
  SOIL-LOSS RATE, Fm,(INCH/HR) =  0.060
  LOW LOSS FRACTION = 0.125
  TIME OF CONCENTRATION(MIN.) =  9.23
  SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
  ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED:
  RETURN FREQUENCY(YEARS) = 100
     5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.52
    30-MINUTE POINT RAINFALL VALUE(INCHES) =  1.09
     1-HOUR   POINT RAINFALL VALUE(INCHES) =  1.45
     3-HOUR   POINT RAINFALL VALUE(INCHES) =  2.43
     6-HOUR   POINT RAINFALL VALUE(INCHES) =  3.36
    24-HOUR   POINT RAINFALL VALUE(INCHES) =  5.63

----------------------------------------------------------------------------
  TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     0.94
  TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.23

----------------------------------------------------------------------------
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============================================================================

            2 4 - H O U R   S T O R M
          R U N O F F   H Y D R O G R A P H

============================================================================
        HYDROGRAPH IN  ONE-MINUTE UNIT INTERVALS(CFS)
    (Notes: Time indicated is at END of Each Unit Intervals.
        Peak 5-minute rainfall intensity is modeled as
        a constant value for entire 5-minute period.)
----------------------------------------------------------------------------
TIME(HRS) VOLUME(AF)  Q(CFS) 0.      2.4      4.9      7.3      9.7
----------------------------------------------------------------------------
 14.000    0.3419    0.73 .Q       . V      .        .        .
 14.017    0.3429    0.73 . Q      . V      .        .        .
 14.033    0.3439    0.73 . Q      . V      .        .        .
 14.050    0.3449    0.73 . Q      . V      .        .        .
 14.067    0.3459    0.74 . Q      . V      .        .        .
 14.083    0.3470    0.74 . Q      . V      .        .        .
 14.100    0.3480    0.74 . Q      . V      .        .        .
 14.117    0.3490    0.74 . Q      . V      .        .        .
 14.133    0.3500    0.75 . Q      . V      .        .        .
 14.150    0.3511    0.75 . Q      . V      .        .        .
 14.167    0.3521    0.75 . Q      . V      .        .        .
 14.183    0.3531    0.76 . Q      . V      .        .        .
 14.200    0.3542    0.76 . Q      . V      .        .        .
 14.217    0.3552    0.77 . Q      .  V     .        .        .
 14.233    0.3563    0.77 . Q      .  V     .        .        .
 14.250    0.3574    0.78 . Q      .  V     .        .        .
 14.267    0.3585    0.78 . Q      .  V     .        .        .
 14.283    0.3595    0.79 . Q      .  V     .        .        .
 14.300    0.3606    0.79 . Q      .  V     .        .        .
 14.317    0.3617    0.80 . Q      .  V     .        .        .
 14.333    0.3628    0.80 . Q      .  V     .        .        .
 14.350    0.3639    0.80 . Q      .  V     .        .        .
 14.367    0.3650    0.81 . Q      .  V     .        .        .
 14.383    0.3662    0.81 . Q      .  V     .        .        .
 14.400    0.3673    0.81 . Q      .  V     .        .        .
 14.417    0.3684    0.81 . Q      .  V     .        .        .
 14.433    0.3695    0.82 . Q      .  V     .        .        .
 14.450    0.3707    0.82 . Q      .  V     .        .        .
 14.467    0.3718    0.82 . Q      .  V     .        .        .
 14.483    0.3729    0.83 . Q      .  V     .        .        .
 14.500    0.3741    0.83 . Q      .  V     .        .        .
 14.517    0.3752    0.84 . Q      .  V     .        .        .
 14.533    0.3764    0.85 . Q      .  V     .        .        .
 14.550    0.3776    0.85 . Q      .  V     .        .        .
 14.567    0.3788    0.86 . Q      .   V    .        .        .
 14.583    0.3799    0.87 . Q      .   V    .        .        .
 14.600    0.3811    0.87 . Q      .   V    .        .        .
 14.617    0.3824    0.88 . Q      .   V    .        .        .
 14.633    0.3836    0.88 . Q      .   V    .        .        .
 14.650    0.3848    0.89 . Q      .   V    .        .        .
 14.667    0.3860    0.89 . Q      .   V    .        .        .
 14.683    0.3872    0.89 . Q      .   V    .        .        .
 14.700    0.3885    0.90 . Q      .   V    .        .        .
 14.717    0.3897    0.90 . Q      .   V    .        .        .
 14.733    0.3910    0.90 . Q      .   V    .        .        .
 14.750    0.3922    0.91 . Q      .   V    .        .        .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.       2.4      4.9       7.3       9.7
----------------------------------------------------------------------------
  14.767    0.3935    0.91  . Q      .      V  .        .        .
  14.783    0.3947    0.92  . Q      .      V  .        .        .
  14.800    0.3960    0.93  . Q      .      V  .        .        .
  14.817    0.3973    0.94  . Q      .      V  .        .        .
  14.833    0.3986    0.95  . Q      .      V  .        .        .
  14.850    0.3999    0.96  . Q      .      V  .        .        .
  14.867    0.4013    0.97  . Q      .      V  .        .        .
  14.883    0.4026    0.97  .  Q     .       V .        .        .
  14.900    0.4040    0.98  .  Q     .       V .        .        .
  14.917    0.4053    0.99  .  Q     .       V .        .        .
  14.933    0.4067    1.00  .  Q     .       V .        .        .
  14.950    0.4081    1.01  .  Q     .       V .        .        .
  14.967    0.4095    1.02  .  Q     .       V .        .        .
  14.983    0.4109    1.02  .  Q     .       V .        .        .
  15.000    0.4123    1.03  .  Q     .       V .        .        .
  15.017    0.4137    1.03  .  Q     .       V .        .        .
  15.033    0.4152    1.04  .  Q     .       V .        .        .
  15.050    0.4166    1.05  .  Q     .       V .        .        .
  15.067    0.4181    1.05  .  Q     .       V .        .        .
  15.083    0.4195    1.06  .  Q     .       V .        .        .
  15.100    0.4210    1.07  .  Q     .       V .        .        .
  15.117    0.4225    1.09  .  Q     .       V .        .        .
  15.133    0.4240    1.10  .  Q     .       V .        .        .
  15.150    0.4256    1.12  .  Q     .        V.        .        .
  15.167    0.4271    1.13  .  Q     .        V.        .        .
  15.183    0.4287    1.15  .  Q     .        V.        .        .
  15.200    0.4303    1.16  .  Q     .        V.        .        .
  15.217    0.4319    1.18  .  Q     .        V.        .        .
  15.233    0.4336    1.20  .  Q     .        V.        .        .
  15.250    0.4352    1.21  .  Q     .        V.        .        .
  15.267    0.4369    1.22  .   Q    .        V.        .        .
  15.283    0.4386    1.23  .   Q    .        V.        .        .
  15.300    0.4403    1.24  .   Q    .        V.        .        .
  15.317    0.4420    1.25  .   Q    .        V.        .        .
  15.333    0.4438    1.26  .   Q    .        V.        .        .
  15.350    0.4455    1.27  .   Q    .        V.        .        .
  15.367    0.4473    1.28  .   Q    .        V.        .        .
  15.383    0.4490    1.29  .   Q    .         V.       .        .
  15.400    0.4508    1.30  .   Q    .         V.       .        .
  15.417    0.4526    1.30  .   Q    .         V.       .        .
  15.433    0.4544    1.31  .   Q    .         V.       .        .
  15.450    0.4562    1.32  .   Q    .         V.       .        .
  15.467    0.4580    1.32  .   Q    .         V.       .        .
  15.483    0.4599    1.33  .   Q    .         V.       .        .
  15.500    0.4617    1.34  .   Q    .         V.       .        .
  15.517    0.4636    1.34  .   Q    .         V.       .        .
  15.533    0.4654    1.35  .   Q    .         V.       .        .
  15.550    0.4673    1.36  .   Q    .         V.       .        .
  15.567    0.4692    1.38  .   Q    .         V.       .        .
  15.583    0.4711    1.40  .   Q    .         V.       .        .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.       2.4       4.9       7.3       9.7
----------------------------------------------------------------------------
  15.600    0.4731    1.42 .   Q   .         V         .         .
  15.617    0.4751    1.44 .   Q   .         V         .         .
  15.633    0.4771    1.46 .    Q  .         V         .         .
  15.650    0.4791    1.48 .    Q  .         V         .         .
  15.667    0.4812    1.50 .    Q  .         V         .         .
  15.683    0.4833    1.52 .    Q  .         V         .         .
  15.700    0.4854    1.55 .    Q  .         V         .         .
  15.717    0.4876    1.62 .    Q  .         V         .         .
  15.733    0.4900    1.69 .    Q  .         V         .         .
  15.750    0.4924    1.77 .     Q .         V         .         .
  15.767    0.4949    1.85 .     Q .         V         .         .
  15.783    0.4976    1.92 .     Q .         .V        .         .
  15.800    0.5003    2.00 .      Q.         .V        .         .
  15.817    0.5032    2.08 .      Q.         .V        .         .
  15.833    0.5062    2.15 .      Q.         .V        .         .
  15.850    0.5093    2.23 .       Q.        .V        .         .
  15.867    0.5125    2.32 .       Q.        .V        .         .
  15.883    0.5158    2.42 .       Q.        .V        .         .
  15.900    0.5192    2.51 .        Q        .V        .         .
  15.917    0.5228    2.61 .        Q        . V       .         .
  15.933    0.5265    2.70 .        .Q       . V       .         .
  15.950    0.5304    2.79 .        .Q       . V       .         .
  15.967    0.5344    2.89 .        .Q       . V       .         .
  15.983    0.5385    2.98 .        . Q      . V       .         .
  16.000    0.5427    3.08 .        . Q      . V       .         .
  16.017    0.5475    3.48 .        .  Q     .  V      .         .
  16.033    0.5533    4.19 .        .     Q  .  V      .         .
  16.050    0.5601    4.91 .        .        Q  V      .         .
  16.067    0.5678    5.62 .        .        .  QV     .         .
  16.083    0.5765    6.33 .        .        .   V Q   .         .
  16.100    0.5862    7.04 .        .        .   V    Q.         .
  16.117    0.5969    7.76 .        .        .    V    .Q        .
  16.133    0.6086    8.47 .        .        .    V    .   Q     .
  16.150    0.6212    9.18 .        .        .     V   .      Q  .
  16.167    0.6346    9.70 .        .        .     V   .         Q
  16.183    0.6464    8.62 .        .        .      V  .    Q    .
  16.200    0.6571    7.76 .        .        .      V  . Q       .
  16.217    0.6666    6.91 .        .        .       Q .         .
  16.233    0.6750    6.05 .        .        .   Q    V .        .
  16.250    0.6821    5.20 .        .        .Q       V .        .
  16.267    0.6881    4.34 .        .     Q  .         V.        .
  16.283    0.6929    3.49 .        .  Q     .         V.        .
  16.300    0.6965    2.63 .        Q        .         V.        .
  16.317    0.6992    1.90 .     Q  .        .         V.        .
  16.333    0.7016    1.76 .     Q  .        .         V.        .
  16.350    0.7039    1.70 .     Q  .        .         V.        .
  16.367    0.7062    1.65 .    Q   .        .         V.        .
  16.383    0.7084    1.59 .    Q   .        .          V        .
  16.400    0.7105    1.54 .    Q   .        .          V        .
  16.417    0.7126    1.48 .    Q   .        .          V        .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.      2.4      4.9      7.3      9.7
----------------------------------------------------------------------------
  16.433    0.7145    1.43 .    Q    .       .       V       .
  16.450    0.7164    1.37 .    Q    .       .       V       .
  16.467    0.7182    1.32 .    Q    .       .       V       .
  16.483    0.7200    1.29 .    Q    .       .       V       .
  16.500    0.7218    1.27 .    Q    .       .       V       .
  16.517    0.7235    1.25 .    Q    .       .       V       .
  16.533    0.7252    1.23 .    Q    .       .       V       .
  16.550    0.7269    1.21 .    Q    .       .       V       .
  16.567    0.7285    1.19 .   Q     .       .       V       .
  16.583    0.7301    1.17 .   Q     .       .       V       .
  16.600    0.7317    1.15 .   Q     .       .       V       .
  16.617    0.7333    1.13 .   Q     .       .       .V      .
  16.633    0.7348    1.11 .   Q     .       .       .V      .
  16.650    0.7363    1.09 .   Q     .       .       .V      .
  16.667    0.7378    1.08 .   Q     .       .       .V      .
  16.683    0.7392    1.06 .   Q     .       .       .V      .
  16.700    0.7407    1.04 .   Q     .       .       .V      .
  16.717    0.7421    1.02 .   Q     .       .       .V      .
  16.733    0.7435    1.00 .   Q     .       .       .V      .
  16.750    0.7448    0.98 .   Q     .       .       .V      .
  16.767    0.7461    0.97 .  Q      .       .       .V      .
  16.783    0.7475    0.95 .  Q      .       .       .V      .
  16.800    0.7487    0.94 .  Q      .       .       .V      .
  16.817    0.7500    0.93 .  Q      .       .       .V      .
  16.833    0.7513    0.92 .  Q      .       .       .V      .
  16.850    0.7525    0.90 .  Q      .       .       .V      .
  16.867    0.7538    0.89 .  Q      .       .       .V      .
  16.883    0.7550    0.88 .  Q      .       .       .V      .
  16.900    0.7562    0.87 .  Q      .       .       . V     .
  16.917    0.7574    0.86 .  Q      .       .       . V     .
  16.933    0.7585    0.85 .  Q      .       .       . V     .
  16.950    0.7597    0.84 .  Q      .       .       . V     .
  16.967    0.7608    0.83 .  Q      .       .       . V     .
  16.983    0.7620    0.82 .  Q      .       .       . V     .
  17.000    0.7631    0.82 .  Q      .       .       . V     .
  17.017    0.7642    0.81 .  Q      .       .       . V     .
  17.033    0.7653    0.80 .  Q      .       .       . V     .
  17.050    0.7664    0.79 .  Q      .       .       . V     .
  17.067    0.7675    0.78 .  Q      .       .       . V     .
  17.083    0.7685    0.77 .  Q      .       .       . V     .
  17.100    0.7696    0.77 .  Q      .       .       . V     .
  17.117    0.7707    0.76 .  Q      .       .       . V     .
  17.133    0.7717    0.75 .  Q      .       .       . V     .
  17.150    0.7727    0.75 .  Q      .       .       . V     .
  17.167    0.7737    0.74 .  Q      .       .       . V     .
  17.183    0.7747    0.73 .  Q      .       .       . V     .
  17.200    0.7758    0.73 . Q       .       .       . V     .
  17.217    0.7767    0.72 . Q       .       .       . V     .
  17.233    0.7777    0.71 . Q       .       .       . V     .
  17.250    0.7787    0.71 . Q       .       .       . V     .
```

```
---------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.      2.4     4.9     7.3     9.7
---------------------------------------------------------------------------
  17.267    0.7797    0.70  . Q      .       .      . V     .
  17.283    0.7806    0.70  . Q      .       .      . V     .
  17.300    0.7816    0.69  . Q      .       .      . V     .
  17.317    0.7825    0.69  . Q      .       .      . V     .
  17.333    0.7835    0.68  . Q      .       .      . V     .
  17.350    0.7844    0.68  . Q      .       .      . V     .
  17.367    0.7853    0.67  . Q      .       .      . V     .
  17.383    0.7862    0.67  . Q      .       .      . V     .
  17.400    0.7871    0.66  . Q      .       .      . V     .
  17.417    0.7881    0.66  . Q      .       .      . V     .
  17.433    0.7889    0.65  . Q      .       .      . V     .
  17.450    0.7898    0.65  . Q      .       .      . V     .
  17.467    0.7907    0.64  . Q      .       .      . V     .
  17.483    0.7916    0.64  . Q      .       .      . V     .
  17.500    0.7925    0.64  . Q      .       .      . V     .
  17.517    0.7934    0.63  . Q      .       .      . V     .
  17.533    0.7942    0.63  . Q      .       .      . V     .
  17.550    0.7951    0.62  . Q      .       .      . V     .
  17.567    0.7959    0.62  . Q      .       .      . V     .
  17.583    0.7968    0.62  . Q      .       .      . V     .
  17.600    0.7976    0.61  . Q      .       .      . V     .
  17.617    0.7985    0.61  . Q      .       .      . V     .
  17.633    0.7993    0.60  . Q      .       .      . V     .
  17.650    0.8001    0.60  . Q      .       .      . V     .
  17.667    0.8009    0.60  . Q      .       .      . V     .
  17.683    0.8018    0.59  . Q      .       .      . V     .
  17.700    0.8026    0.59  . Q      .       .      . V     .
  17.717    0.8034    0.59  . Q      .       .      .  V    .
  17.733    0.8042    0.58  . Q      .       .      .  V    .
  17.750    0.8050    0.58  . Q      .       .      .  V    .
  17.767    0.8058    0.58  . Q      .       .      .  V    .
  17.783    0.8066    0.57  . Q      .       .      .  V    .
  17.800    0.8074    0.57  . Q      .       .      .  V    .
  17.817    0.8081    0.57  . Q      .       .      .  V    .
  17.833    0.8089    0.57  . Q      .       .      .  V    .
  17.850    0.8097    0.56  . Q      .       .      .  V    .
  17.867    0.8105    0.56  . Q      .       .      .  V    .
  17.883    0.8112    0.56  . Q      .       .      .  V    .
  17.900    0.8120    0.55  . Q      .       .      .  V    .
  17.917    0.8127    0.55  . Q      .       .      .  V    .
  17.933    0.8135    0.55  . Q      .       .      .  V    .
  17.950    0.8143    0.55  . Q      .       .      .  V    .
  17.967    0.8150    0.54  . Q      .       .      .  V    .
  17.983    0.8157    0.54  . Q      .       .      .  V    .
  18.000    0.8165    0.54  . Q      .       .      .  V    .
------------------------------------------------------------------------------
   TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
   (Note: 100% of Peak Flow Rate estimate assumed to have
   an instantaneous time duration)

   Percentile of Estimated            Duration
     Peak Flow Rate                  (minutes)
   =======================          =========
          0%                  1081.0
         10%                   565.0
         20%                   155.0
         30%                    95.0
         40%                    75.0
         50%                    65.0
         60%                    50.0
         70%                    40.0
```

80%	25.0
90%	10.0

```
****************************************************************************
  FLOW PROCESS FROM NODE     203.00 TO NODE     203.00 IS CODE = 3.2
----------------------------------------------------------------------------
  >>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #2<<<<<
============================================================================

               INFLOW
              (STREAM 2)
                  |
                  |
                  V              __effective depth
              -----------         |   (and volume)
             |           |    |    |
             |           |    |....V........
             | detention |<-->|          outflow
             |   basin   |    |.........________
              -----------     |    ^    |  \
                  |           |  dead   |   basin outlet
                  V           | storage |
               OUTFLOW         ---------
              (STREAM 2)


     ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 2
     THROUGH A FLOW-THROUGH DETENTION BASIN
     SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
       DEAD STORAGE(AF) =       0.000
       SPECIFIED DEAD STORAGE(AF) FILLED =       0.000
       SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET =       0.000
       DETENTION BASIN CONSTANT LOSS RATE(CFS) =     0.04


     BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

      INTERVAL    DEPTH      OUTFLOW     STORAGE
       NUMBER      (FT)       (CFS)        (AF)
          1        0.00        0.00       0.000
          2        2.00        0.01       0.040
          3        3.00        0.02       0.061
          4        5.00        0.04       0.101
          5        6.25       25.32       0.126
```

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
14.017	0.000	0.73	0.04	5.03	0.7	0.102
14.033	0.000	0.73	0.04	5.03	0.7	0.102
14.050	0.000	0.73	0.04	5.03	0.7	0.102
14.067	0.000	0.74	0.04	5.03	0.7	0.102
14.083	0.000	0.74	0.04	5.03	0.7	0.102
14.100	0.000	0.74	0.04	5.03	0.7	0.102
14.117	0.000	0.74	0.04	5.03	0.7	0.102
14.133	0.000	0.75	0.04	5.03	0.7	0.102
14.150	0.000	0.75	0.04	5.03	0.7	0.102
14.167	0.000	0.75	0.04	5.03	0.7	0.102
14.183	0.000	0.76	0.04	5.03	0.7	0.102
14.200	0.000	0.76	0.04	5.03	0.7	0.102
14.217	0.000	0.77	0.04	5.03	0.7	0.102
14.233	0.000	0.77	0.04	5.03	0.7	0.102
14.250	0.000	0.78	0.04	5.03	0.7	0.102
14.267	0.000	0.78	0.04	5.03	0.7	0.102
14.283	0.000	0.79	0.04	5.03	0.7	0.102
14.300	0.000	0.79	0.04	5.04	0.7	0.102
14.317	0.000	0.80	0.04	5.04	0.8	0.102
14.333	0.000	0.80	0.04	5.04	0.8	0.102
14.350	0.000	0.80	0.04	5.04	0.8	0.102
14.367	0.000	0.81	0.04	5.04	0.8	0.102
14.383	0.000	0.81	0.04	5.04	0.8	0.102
14.400	0.000	0.81	0.04	5.04	0.8	0.102
14.417	0.000	0.81	0.04	5.04	0.8	0.102
14.433	0.000	0.82	0.04	5.04	0.8	0.102
14.450	0.000	0.82	0.04	5.04	0.8	0.102
14.467	0.000	0.82	0.04	5.04	0.8	0.102
14.483	0.000	0.83	0.04	5.04	0.8	0.102
14.500	0.000	0.83	0.04	5.04	0.8	0.102
14.517	0.000	0.84	0.04	5.04	0.8	0.102
14.533	0.000	0.85	0.04	5.04	0.8	0.102
14.550	0.000	0.85	0.04	5.04	0.8	0.102
14.567	0.000	0.86	0.04	5.04	0.8	0.102
14.583	0.000	0.87	0.04	5.04	0.8	0.102
14.600	0.000	0.87	0.04	5.04	0.8	0.102
14.617	0.000	0.88	0.04	5.04	0.8	0.102
14.633	0.000	0.88	0.04	5.04	0.8	0.102
14.650	0.000	0.89	0.04	5.04	0.8	0.102
14.667	0.000	0.89	0.04	5.04	0.8	0.102
14.683	0.000	0.89	0.04	5.04	0.9	0.102
14.700	0.000	0.90	0.04	5.04	0.9	0.102
14.717	0.000	0.90	0.04	5.04	0.9	0.102
14.733	0.000	0.90	0.04	5.04	0.9	0.102
14.750	0.000	0.91	0.04	5.04	0.9	0.102
14.767	0.000	0.91	0.04	5.04	0.9	0.102
14.783	0.000	0.92	0.04	5.04	0.9	0.102
14.800	0.000	0.93	0.04	5.04	0.9	0.102
14.817	0.000	0.94	0.04	5.04	0.9	0.102
14.833	0.000	0.95	0.04	5.04	0.9	0.102

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
14.850	0.000	0.96	0.04	5.04	0.9	0.102
14.867	0.000	0.97	0.04	5.04	0.9	0.102
14.883	0.000	0.97	0.04	5.04	0.9	0.102
14.900	0.000	0.98	0.04	5.04	0.9	0.102
14.917	0.000	0.99	0.04	5.05	0.9	0.102
14.933	0.000	1.00	0.04	5.05	1.0	0.102
14.950	0.000	1.01	0.04	5.05	1.0	0.102
14.967	0.000	1.02	0.04	5.05	1.0	0.102
14.983	0.000	1.02	0.04	5.05	1.0	0.102
15.000	0.000	1.03	0.04	5.05	1.0	0.102
15.017	0.000	1.03	0.04	5.05	1.0	0.102
15.033	0.000	1.04	0.04	5.05	1.0	0.102
15.050	0.000	1.05	0.04	5.05	1.0	0.102
15.067	0.000	1.05	0.04	5.05	1.0	0.102
15.083	0.000	1.06	0.04	5.05	1.0	0.102
15.100	0.000	1.07	0.04	5.05	1.0	0.102
15.117	0.000	1.09	0.04	5.05	1.0	0.102
15.133	0.000	1.10	0.04	5.05	1.1	0.102
15.150	0.000	1.12	0.04	5.05	1.1	0.102
15.167	0.000	1.13	0.04	5.05	1.1	0.102
15.183	0.000	1.15	0.04	5.05	1.1	0.102
15.200	0.000	1.16	0.04	5.05	1.1	0.102
15.217	0.000	1.18	0.04	5.05	1.1	0.102
15.233	0.000	1.20	0.04	5.05	1.1	0.102
15.250	0.000	1.21	0.04	5.06	1.2	0.102
15.267	0.000	1.22	0.04	5.06	1.2	0.102
15.283	0.000	1.23	0.04	5.06	1.2	0.102
15.300	0.000	1.24	0.04	5.06	1.2	0.102
15.317	0.000	1.25	0.04	5.06	1.2	0.102
15.333	0.000	1.26	0.04	5.06	1.2	0.102
15.350	0.000	1.27	0.04	5.06	1.2	0.102
15.367	0.000	1.28	0.04	5.06	1.2	0.102
15.383	0.000	1.29	0.04	5.06	1.2	0.102
15.400	0.000	1.30	0.04	5.06	1.2	0.102
15.417	0.000	1.30	0.04	5.06	1.3	0.102
15.433	0.000	1.31	0.04	5.06	1.3	0.102
15.450	0.000	1.32	0.04	5.06	1.3	0.102
15.467	0.000	1.32	0.04	5.06	1.3	0.102
15.483	0.000	1.33	0.04	5.06	1.3	0.102
15.500	0.000	1.34	0.04	5.06	1.3	0.102
15.517	0.000	1.34	0.04	5.06	1.3	0.102
15.533	0.000	1.35	0.04	5.06	1.3	0.102
15.550	0.000	1.36	0.04	5.06	1.3	0.102
15.567	0.000	1.38	0.04	5.06	1.3	0.102
15.583	0.000	1.40	0.04	5.07	1.3	0.102
15.600	0.000	1.42	0.04	5.07	1.4	0.102
15.617	0.000	1.44	0.04	5.07	1.4	0.102
15.633	0.000	1.46	0.04	5.07	1.4	0.102
15.650	0.000	1.48	0.04	5.07	1.4	0.102
15.667	0.000	1.50	0.04	5.07	1.4	0.102

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
15.683	0.000	1.52	0.04	5.07	1.5	0.102
15.700	0.000	1.55	0.04	5.07	1.5	0.102
15.717	0.000	1.62	0.04	5.08	1.5	0.103
15.733	0.000	1.69	0.04	5.08	1.6	0.103
15.750	0.000	1.77	0.04	5.08	1.7	0.103
15.767	0.000	1.85	0.04	5.09	1.8	0.103
15.783	0.000	1.92	0.04	5.09	1.8	0.103
15.800	0.000	2.00	0.04	5.09	1.9	0.103
15.817	0.000	2.08	0.04	5.10	2.0	0.103
15.833	0.000	2.15	0.04	5.10	2.1	0.103
15.850	0.000	2.23	0.04	5.11	2.1	0.103
15.867	0.000	2.32	0.04	5.11	2.2	0.103
15.883	0.000	2.42	0.04	5.11	2.3	0.103
15.900	0.000	2.51	0.04	5.12	2.4	0.103
15.917	0.000	2.61	0.04	5.12	2.5	0.103
15.933	0.000	2.70	0.04	5.13	2.6	0.104
15.950	0.000	2.79	0.04	5.13	2.7	0.104
15.967	0.000	2.89	0.04	5.14	2.8	0.104
15.983	0.000	2.98	0.04	5.14	2.9	0.104
16.000	0.000	3.08	0.04	5.15	3.0	0.104
16.017	0.000	3.48	0.04	5.16	3.2	0.104
16.033	0.000	4.19	0.04	5.20	3.7	0.105
16.050	0.000	4.91	0.04	5.23	4.4	0.106
16.067	0.000	5.62	0.04	5.27	5.1	0.106
16.083	0.000	6.33	0.04	5.30	5.8	0.107
16.100	0.000	7.04	0.04	5.34	6.5	0.108
16.117	0.000	7.76	0.04	5.37	7.2	0.108
16.133	0.000	8.47	0.04	5.41	7.9	0.109
16.150	0.000	9.18	0.04	5.44	8.6	0.110
16.167	0.000	9.70	0.04	5.47	9.3	0.110
16.183	0.000	8.62	0.04	5.43	9.1	0.110
16.200	0.000	7.76	0.04	5.39	8.3	0.109
16.217	0.000	6.91	0.04	5.35	7.5	0.108
16.233	0.000	6.05	0.04	5.30	6.6	0.107
16.250	0.000	5.20	0.04	5.26	5.8	0.106
16.267	0.000	4.34	0.04	5.22	4.9	0.105
16.283	0.000	3.49	0.04	5.18	4.1	0.105
16.300	0.000	2.63	0.04	5.14	3.2	0.104
16.317	0.000	1.90	0.04	5.10	2.4	0.103
16.333	0.000	1.76	0.04	5.09	1.9	0.103
16.350	0.000	1.70	0.04	5.08	1.7	0.103
16.367	0.000	1.65	0.04	5.08	1.7	0.103
16.383	0.000	1.59	0.04	5.08	1.6	0.103
16.400	0.000	1.54	0.04	5.07	1.5	0.102
16.417	0.000	1.48	0.04	5.07	1.5	0.102
16.433	0.000	1.43	0.04	5.07	1.4	0.102
16.450	0.000	1.37	0.04	5.06	1.4	0.102
16.467	0.000	1.32	0.04	5.06	1.3	0.102
16.483	0.000	1.29	0.04	5.06	1.3	0.102
16.500	0.000	1.27	0.04	5.06	1.2	0.102

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
16.517	0.000	1.25	0.04	5.06	1.2	0.102
16.533	0.000	1.23	0.04	5.06	1.2	0.102
16.550	0.000	1.21	0.04	5.06	1.2	0.102
16.567	0.000	1.19	0.04	5.06	1.2	0.102
16.583	0.000	1.17	0.04	5.05	1.1	0.102
16.600	0.000	1.15	0.04	5.05	1.1	0.102
16.617	0.000	1.13	0.04	5.05	1.1	0.102
16.633	0.000	1.11	0.04	5.05	1.1	0.102
16.650	0.000	1.09	0.04	5.05	1.1	0.102
16.667	0.000	1.08	0.04	5.05	1.0	0.102
16.683	0.000	1.06	0.04	5.05	1.0	0.102
16.700	0.000	1.04	0.04	5.05	1.0	0.102
16.717	0.000	1.02	0.04	5.05	1.0	0.102
16.733	0.000	1.00	0.04	5.05	1.0	0.102
16.750	0.000	0.98	0.04	5.04	1.0	0.102
16.767	0.000	0.97	0.04	5.04	0.9	0.102
16.783	0.000	0.95	0.04	5.04	0.9	0.102
16.800	0.000	0.94	0.04	5.04	0.9	0.102
16.817	0.000	0.93	0.04	5.04	0.9	0.102
16.833	0.000	0.92	0.04	5.04	0.9	0.102
16.850	0.000	0.90	0.04	5.04	0.9	0.102
16.867	0.000	0.89	0.04	5.04	0.9	0.102
16.883	0.000	0.88	0.04	5.04	0.9	0.102
16.900	0.000	0.87	0.04	5.04	0.8	0.102
16.917	0.000	0.86	0.04	5.04	0.8	0.102
16.933	0.000	0.85	0.04	5.04	0.8	0.102
16.950	0.000	0.84	0.04	5.04	0.8	0.102
16.967	0.000	0.83	0.04	5.04	0.8	0.102
16.983	0.000	0.82	0.04	5.04	0.8	0.102
17.000	0.000	0.82	0.04	5.04	0.8	0.102
17.017	0.000	0.81	0.04	5.04	0.8	0.102
17.033	0.000	0.80	0.04	5.04	0.8	0.102
17.050	0.000	0.79	0.04	5.04	0.8	0.102
17.067	0.000	0.78	0.04	5.03	0.7	0.102
17.083	0.000	0.77	0.04	5.03	0.7	0.102
17.100	0.000	0.77	0.04	5.03	0.7	0.102
17.117	0.000	0.76	0.04	5.03	0.7	0.102
17.133	0.000	0.75	0.04	5.03	0.7	0.102
17.150	0.000	0.75	0.04	5.03	0.7	0.102
17.167	0.000	0.74	0.04	5.03	0.7	0.102
17.183	0.000	0.73	0.04	5.03	0.7	0.102
17.200	0.000	0.73	0.04	5.03	0.7	0.102
17.217	0.000	0.72	0.04	5.03	0.7	0.102
17.233	0.000	0.71	0.04	5.03	0.7	0.102
17.250	0.000	0.71	0.04	5.03	0.7	0.102
17.267	0.000	0.70	0.04	5.03	0.7	0.102
17.283	0.000	0.70	0.04	5.03	0.7	0.102
17.300	0.000	0.69	0.04	5.03	0.7	0.102
17.317	0.000	0.69	0.04	5.03	0.7	0.102
17.333	0.000	0.68	0.04	5.03	0.6	0.102

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
17.350	0.000	0.68	0.04	5.03	0.6	0.102
17.367	0.000	0.67	0.04	5.03	0.6	0.102
17.383	0.000	0.67	0.04	5.03	0.6	0.102
17.400	0.000	0.66	0.04	5.03	0.6	0.102
17.417	0.000	0.66	0.04	5.03	0.6	0.102
17.433	0.000	0.65	0.04	5.03	0.6	0.102
17.450	0.000	0.65	0.04	5.03	0.6	0.102
17.467	0.000	0.64	0.04	5.03	0.6	0.102
17.483	0.000	0.64	0.04	5.03	0.6	0.102
17.500	0.000	0.64	0.04	5.03	0.6	0.102
17.517	0.000	0.63	0.04	5.03	0.6	0.102
17.533	0.000	0.63	0.04	5.03	0.6	0.102
17.550	0.000	0.62	0.04	5.03	0.6	0.102
17.567	0.000	0.62	0.04	5.03	0.6	0.102
17.583	0.000	0.62	0.04	5.03	0.6	0.102
17.600	0.000	0.61	0.04	5.03	0.6	0.102
17.617	0.000	0.61	0.04	5.03	0.6	0.102
17.633	0.000	0.60	0.04	5.03	0.6	0.102
17.650	0.000	0.60	0.04	5.03	0.6	0.102
17.667	0.000	0.60	0.04	5.03	0.6	0.102
17.683	0.000	0.59	0.04	5.03	0.6	0.102
17.700	0.000	0.59	0.04	5.03	0.6	0.102
17.717	0.000	0.59	0.04	5.03	0.5	0.102
17.733	0.000	0.58	0.04	5.02	0.5	0.101
17.750	0.000	0.58	0.04	5.02	0.5	0.101
17.767	0.000	0.58	0.04	5.02	0.5	0.101
17.783	0.000	0.57	0.04	5.02	0.5	0.101
17.800	0.000	0.57	0.04	5.02	0.5	0.101
17.817	0.000	0.57	0.04	5.02	0.5	0.101
17.833	0.000	0.57	0.04	5.02	0.5	0.101
17.850	0.000	0.56	0.04	5.02	0.5	0.101
17.867	0.000	0.56	0.04	5.02	0.5	0.101
17.883	0.000	0.56	0.04	5.02	0.5	0.101
17.900	0.000	0.55	0.04	5.02	0.5	0.101
17.917	0.000	0.55	0.04	5.02	0.5	0.101
17.933	0.000	0.55	0.04	5.02	0.5	0.101
17.950	0.000	0.55	0.04	5.02	0.5	0.101
17.967	0.000	0.54	0.04	5.02	0.5	0.101
17.983	0.000	0.54	0.04	5.02	0.5	0.101
18.000	0.000	0.54	0.04	5.02	0.5	0.101

PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 0.945 AF
BASIN STORAGE = 0.000 AF (WITH 0.000 AF INITIALLY FILLED)
OUTFLOW VOLUME = 0.792 AF
LOSS VOLUME = 0.153 AF

```
****************************************************************************
 FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =  7
----------------------------------------------------------------------------
 >>>>>STREAM NUMBER 2 ADDED TO STREAM NUMBER 1<<<<<
============================================================================
```

```
****************************************************************************
 FLOW PROCESS FROM NODE    104.00 TO NODE    106.00 IS CODE = 5.1
----------------------------------------------------------------------------
 >>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
============================================================================

      THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
      AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.

      ASSUMED REGULAR CHANNEL INFORMATION:
        BASEWIDTH(FT) =   26.00    CHANNEL Z = 10.00
        UPSTREAM ELEVATION(FT) =     131.70
        DOWNSTREAM ELEVATION(FT) =     128.00
        CHANNEL LENGTH(FT) =     755.00    MANNING'S FACTOR = 0.015
        CONSTANT LOSS RATE(CFS) =    0.00

      MEAN-FLOW RATE NORMAL-DEPTH FLOW VELOCITIES(FPS) ARE AS FOLLOWS:
                   (FLOW RATE (CFS)) [FLOW VELOCITY (FPS)]
        AVERAGED PEAK  5-MINUTE: (      17.8).......[  2.48]
        AVERAGED PEAK 15-MINUTE: (      14.9).......[  2.39]
        AVERAGED PEAK 30-MINUTE: (      11.6).......[  2.18]
        AVERAGED PEAK  1-HOUR:   (       8.5).......[  1.92]
        AVERAGED PEAK  3-HOUR:   (       4.9).......[  1.57]
        AVERAGED PEAK  6-HOUR:   (       3.2).......[  1.42]
        AVERAGED PEAK 24-HOUR:   (       1.0).......[  1.02]
      USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =   3.540
      HYDROGRAPH TRANSLATION TIME
      = (CHANNEL LENGTH)/(AVERAGE FLOW  VELOCITY)
      = (    755.00)/(  3.540) =   0.059 HRS

      TRANSLATION METHOD CHANNEL ROUTING RESULTS:
                              OUTFLOW LESS
       MODEL      INFLOW    ROUTED     LOSS
        TIME    (STREAM 1)   FLOW    (STREAM 1)
       (HRS)      (CFS)     (CFS)     (CFS)
       14.000      1.71      1.65      1.65
       14.017      1.73      1.67      1.67
       14.033      1.74      1.69      1.69
       14.050      1.76      1.70      1.70
       14.067      1.77      1.72      1.72
       14.083      1.79      1.74      1.74
       14.100      1.80      1.75      1.75
       14.117      1.82      1.77      1.77
       14.133      1.83      1.78      1.78
       14.150      1.84      1.79      1.79
       14.167      1.86      1.81      1.81
       14.183      1.87      1.82      1.82
       14.200      1.89      1.84      1.84
       14.217      1.90      1.85      1.85
       14.233      1.92      1.86      1.86
```

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	OUTFLOW LESS ROUTED FLOW (CFS)	LOSS (STREAM 1) (CFS)
14.250	1.93	1.88	1.88
14.267	1.95	1.89	1.89
14.283	1.96	1.91	1.91
14.300	1.98	1.92	1.92
14.317	1.99	1.94	1.94
14.333	2.01	1.95	1.95
14.350	2.02	1.97	1.97
14.367	2.03	1.99	1.99
14.383	2.04	2.00	2.00
14.400	2.06	2.01	2.01
14.417	2.07	2.03	2.03
14.433	2.08	2.04	2.04
14.450	2.09	2.05	2.05
14.467	2.10	2.06	2.06
14.483	2.12	2.07	2.07
14.500	2.13	2.09	2.09
14.517	2.15	2.10	2.10
14.533	2.16	2.11	2.11
14.550	2.18	2.12	2.12
14.567	2.20	2.14	2.14
14.583	2.21	2.16	2.16
14.600	2.23	2.17	2.17
14.617	2.24	2.19	2.19
14.633	2.26	2.20	2.20
14.650	2.27	2.22	2.22
14.667	2.28	2.23	2.23
14.683	2.30	2.25	2.25
14.700	2.31	2.26	2.26
14.717	2.32	2.28	2.28
14.733	2.34	2.29	2.29
14.750	2.35	2.30	2.30
14.767	2.36	2.32	2.32
14.783	2.38	2.33	2.33
14.800	2.39	2.34	2.34
14.817	2.41	2.35	2.35
14.833	2.43	2.37	2.37
14.850	2.45	2.38	2.38
14.867	2.47	2.40	2.40
14.883	2.49	2.42	2.42
14.900	2.51	2.44	2.44
14.917	2.53	2.46	2.46
14.933	2.55	2.48	2.48
14.950	2.57	2.50	2.50
14.967	2.59	2.52	2.52
14.983	2.60	2.54	2.54
15.000	2.62	2.56	2.56
15.017	2.64	2.58	2.58
15.033	2.65	2.59	2.59
15.050	2.67	2.61	2.61
15.067	2.69	2.63	2.63

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	OUTFLOW LESS ROUTED FLOW (CFS)	LOSS (STREAM 1) (CFS)
15.083	2.71	2.64	2.64
15.100	2.73	2.66	2.66
15.117	2.76	2.68	2.68
15.133	2.79	2.70	2.70
15.150	2.82	2.72	2.72
15.167	2.84	2.74	2.74
15.183	2.87	2.77	2.77
15.200	2.90	2.80	2.80
15.217	2.93	2.83	2.83
15.233	2.96	2.86	2.86
15.250	2.99	2.89	2.89
15.267	3.02	2.92	2.92
15.283	3.04	2.94	2.94
15.300	3.07	2.97	2.97
15.317	3.10	3.00	3.00
15.333	3.13	3.03	3.03
15.350	3.16	3.05	3.05
15.367	3.19	3.08	3.08
15.383	3.22	3.11	3.11
15.400	3.24	3.14	3.14
15.417	3.27	3.17	3.17
15.433	3.30	3.20	3.20
15.450	3.32	3.23	3.23
15.467	3.34	3.26	3.26
15.483	3.37	3.28	3.28
15.500	3.39	3.31	3.31
15.517	3.41	3.33	3.33
15.533	3.44	3.36	3.36
15.550	3.47	3.38	3.38
15.567	3.50	3.40	3.40
15.583	3.54	3.43	3.43
15.600	3.58	3.45	3.45
15.617	3.62	3.48	3.48
15.633	3.66	3.52	3.52
15.650	3.71	3.56	3.56
15.667	3.75	3.60	3.60
15.683	3.80	3.64	3.64
15.700	3.85	3.68	3.68
15.717	3.92	3.73	3.73
15.733	4.02	3.77	3.77
15.750	4.12	3.82	3.82
15.767	4.22	3.88	3.88
15.783	4.33	3.96	3.96
15.800	4.45	4.06	4.06
15.817	4.57	4.17	4.17
15.833	4.70	4.27	4.27
15.850	4.84	4.38	4.38
15.867	4.98	4.50	4.50
15.883	5.14	4.63	4.63
15.900	5.31	4.76	4.76

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	OUTFLOW ROUTED FLOW (CFS)	LESS LOSS (STREAM 1) (CFS)
15.917	5.53	4.90	4.90
15.933	5.67	5.05	5.05
15.950	5.85	5.22	5.22
15.967	6.04	5.41	5.41
15.983	6.23	5.59	5.59
16.000	6.43	5.75	5.75
16.017	6.77	5.94	5.94
16.033	7.40	6.13	6.13
16.050	8.24	6.32	6.32
16.067	9.17	6.58	6.58
16.083	10.17	7.05	7.05
16.100	11.25	7.77	7.77
16.117	12.45	8.66	8.66
16.133	14.06	9.62	9.62
16.150	15.79	10.65	10.65
16.167	17.61	11.78	11.78
16.183	18.39	13.16	13.16
16.200	18.21	14.83	14.83
16.217	17.79	16.60	16.60
16.233	17.18	17.96	17.96
16.250	16.36	18.31	18.31
16.267	15.36	18.03	18.03
16.283	14.21	17.52	17.52
16.300	12.93	16.81	16.81
16.317	11.64	15.91	15.91
16.333	10.67	14.85	14.85
16.350	10.07	13.64	13.64
16.367	9.58	12.36	12.36
16.383	9.13	11.21	11.21
16.400	8.72	10.40	10.40
16.417	8.34	9.85	9.85
16.433	7.95	9.38	9.38
16.450	7.55	8.95	8.95
16.467	7.21	8.55	8.55
16.483	6.90	8.17	8.17
16.500	6.63	7.77	7.77
16.517	6.40	7.40	7.40
16.533	6.24	7.07	7.07
16.550	6.11	6.78	6.78
16.567	5.98	6.53	6.53
16.583	5.86	6.33	6.33
16.600	5.75	6.18	6.18
16.617	5.64	6.06	6.06
16.633	5.54	5.93	5.93
16.650	5.43	5.82	5.82
16.667	5.33	5.70	5.70
16.683	5.23	5.60	5.60
16.700	5.13	5.49	5.49
16.717	5.03	5.38	5.38
16.733	4.93	5.28	5.28

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	OUTFLOW LESS ROUTED FLOW (CFS)	LOSS (STREAM 1) (CFS)
16.750	4.83	5.18	5.18
16.767	4.74	5.08	5.08
16.783	4.65	4.98	4.98
16.800	4.56	4.89	4.89
16.817	4.48	4.79	4.79
16.833	4.41	4.70	4.70
16.850	4.33	4.61	4.61
16.867	4.25	4.53	4.53
16.883	4.18	4.45	4.45
16.900	4.11	4.37	4.37
16.917	4.03	4.29	4.29
16.933	3.96	4.22	4.22
16.950	3.89	4.15	4.15
16.967	3.83	4.07	4.07
16.983	3.77	4.00	4.00
17.000	3.73	3.93	3.93
17.017	3.65	3.86	3.86
17.033	3.59	3.80	3.80
17.050	3.53	3.75	3.75
17.067	3.48	3.70	3.70
17.083	3.42	3.63	3.63
17.100	3.37	3.56	3.56
17.117	3.32	3.51	3.51
17.133	3.27	3.45	3.45
17.150	3.22	3.40	3.40
17.167	3.17	3.35	3.35
17.183	3.13	3.30	3.30
17.200	3.08	3.25	3.25
17.217	3.03	3.20	3.20
17.233	2.99	3.15	3.15
17.250	2.95	3.11	3.11
17.267	2.91	3.06	3.06
17.283	2.87	3.01	3.01
17.300	2.83	2.97	2.97
17.317	2.79	2.93	2.93
17.333	2.76	2.89	2.89
17.350	2.72	2.85	2.85
17.367	2.69	2.81	2.81
17.383	2.65	2.78	2.78
17.400	2.62	2.74	2.74
17.417	2.59	2.70	2.70
17.433	2.55	2.67	2.67
17.450	2.52	2.64	2.64
17.467	2.49	2.60	2.60
17.483	2.47	2.57	2.57
17.500	2.44	2.54	2.54
17.517	2.41	2.51	2.51
17.533	2.38	2.48	2.48
17.550	2.35	2.45	2.45
17.567	2.33	2.42	2.42

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	OUTFLOW LESS ROUTED FLOW (CFS)	LOSS (STREAM 1) (CFS)
17.583	2.30	2.40	2.40
17.600	2.28	2.37	2.37
17.617	2.26	2.34	2.34
17.633	2.23	2.32	2.32
17.650	2.21	2.29	2.29
17.667	2.19	2.27	2.27
17.683	2.16	2.24	2.24
17.700	2.14	2.22	2.22
17.717	2.12	2.20	2.20
17.733	2.10	2.18	2.18
17.750	2.08	2.15	2.15
17.767	2.06	2.13	2.13
17.783	2.04	2.11	2.11
17.800	2.02	2.09	2.09
17.817	2.00	2.07	2.07
17.833	1.98	2.05	2.05
17.850	1.97	2.03	2.03
17.867	1.95	2.01	2.01
17.883	1.93	1.99	1.99
17.900	1.92	1.98	1.98
17.917	1.90	1.96	1.96
17.933	1.88	1.94	1.94
17.950	1.87	1.92	1.92
17.967	1.85	1.91	1.91
17.983	1.84	1.89	1.89
18.000	1.82	1.88	1.88

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PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 2.187 AF
OUTFLOW VOLUME = 2.187 AF
LOSS VOLUME = 0.000 AF

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****************************************************************************
 FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE = 11
----------------------------------------------------------------------------
 >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
============================================================================

       STREAM HYDROGRAPH IN  ONE-MINUTE UNIT INTERVALS(CFS)
     (Notes: Time indicated is at END of Each Unit Intervals.
          Peak 5-minute rainfall intensity is modeled as
          a constant value for entire 5-minute period.)
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.      5.0     10.0     15.0     20.0
----------------------------------------------------------------------------
  14.000    0.2375    1.65  . QV     .       .       .       .
  14.017    0.2398    1.67  . QV     .       .       .       .
  14.033    0.2421    1.69  . QV     .       .       .       .
  14.050    0.2444    1.70  . QV     .       .       .       .
  14.067    0.2468    1.72  . QV     .       .       .       .
  14.083    0.2492    1.74  . QV     .       .       .       .
  14.100    0.2516    1.75  . QV     .       .       .       .
  14.117    0.2540    1.77  . QV     .       .       .       .
  14.133    0.2565    1.78  . QV     .       .       .       .
  14.150    0.2590    1.79  . QV     .       .       .       .
  14.167    0.2614    1.81  . QV     .       .       .       .
  14.183    0.2640    1.82  . QV     .       .       .       .
  14.200    0.2665    1.84  . QV     .       .       .       .
  14.217    0.2690    1.85  . QV     .       .       .       .
  14.233    0.2716    1.86  . QV     .       .       .       .
  14.250    0.2742    1.88  . Q V    .       .       .       .
  14.267    0.2768    1.89  . Q V    .       .       .       .
  14.283    0.2794    1.91  . Q V    .       .       .       .
  14.300    0.2821    1.92  . Q V    .       .       .       .
  14.317    0.2847    1.94  . Q V    .       .       .       .
  14.333    0.2874    1.95  . Q V    .       .       .       .
  14.350    0.2901    1.97  . Q V    .       .       .       .
  14.367    0.2929    1.99  . Q V    .       .       .       .
  14.383    0.2956    2.00  . Q V    .       .       .       .
  14.400    0.2984    2.01  .  QV    .       .       .       .
  14.417    0.3012    2.03  .  QV    .       .       .       .
  14.433    0.3040    2.04  .  QV    .       .       .       .
  14.450    0.3068    2.05  .  QV    .       .       .       .
  14.467    0.3097    2.06  .  QV    .       .       .       .
  14.483    0.3125    2.07  .  QV    .       .       .       .
  14.500    0.3154    2.09  .  QV    .       .       .       .
  14.517    0.3183    2.10  .  QV    .       .       .       .
  14.533    0.3212    2.11  .  QV    .       .       .       .
  14.550    0.3241    2.12  .  QV    .       .       .       .
  14.567    0.3271    2.14  .  QV    .       .       .       .
  14.583    0.3300    2.16  .  Q V   .       .       .       .
  14.600    0.3330    2.17  .  Q V   .       .       .       .
  14.617    0.3360    2.19  .  Q V   .       .       .       .
  14.633    0.3391    2.20  .  Q V   .       .       .       .
  14.650    0.3421    2.22  .  Q V   .       .       .       .
  14.667    0.3452    2.23  .  Q V   .       .       .       .
  14.683    0.3483    2.25  .  Q V   .       .       .       .
  14.700    0.3514    2.26  .  Q V   .       .       .       .
  14.717    0.3546    2.28  .  Q V   .       .       .       .
  14.733    0.3577    2.29  .  Q V   .       .       .       .
  14.750    0.3609    2.30  .  Q V   .       .       .       .
```

```
-----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.      5.0     10.0     15.0     20.0
-----------------------------------------------------------------------------
  14.767    0.3641    2.32 .  Q V  .        .        .        .
  14.783    0.3673    2.33 .  Q V  .        .        .        .
  14.800    0.3705    2.34 .  Q V  .        .        .        .
  14.817    0.3738    2.35 .  Q V  .        .        .        .
  14.833    0.3770    2.37 .  Q V  .        .        .        .
  14.850    0.3803    2.38 .  Q V  .        .        .        .
  14.867    0.3836    2.40 .  Q  V .        .        .        .
  14.883    0.3869    2.42 .  Q  V .        .        .        .
  14.900    0.3903    2.44 .  Q  V .        .        .        .
  14.917    0.3937    2.46 .  Q  V .        .        .        .
  14.933    0.3971    2.48 .  Q  V .        .        .        .
  14.950    0.4006    2.50 .   Q V .        .        .        .
  14.967    0.4040    2.52 .   Q V .        .        .        .
  14.983    0.4075    2.54 .   Q V .        .        .        .
  15.000    0.4111    2.56 .   Q V .        .        .        .
  15.017    0.4146    2.58 .   Q V .        .        .        .
  15.033    0.4182    2.59 .   Q V .        .        .        .
  15.050    0.4218    2.61 .   Q V .        .        .        .
  15.067    0.4254    2.63 .   Q V .        .        .        .
  15.083    0.4290    2.64 .   Q V .        .        .        .
  15.100    0.4327    2.66 .   Q V .        .        .        .
  15.117    0.4364    2.68 .   Q V .        .        .        .
  15.133    0.4401    2.70 .   Q  V.        .        .        .
  15.150    0.4439    2.72 .   Q  V.        .        .        .
  15.167    0.4477    2.74 .   Q  V.        .        .        .
  15.183    0.4515    2.77 .   Q  V.        .        .        .
  15.200    0.4553    2.80 .   Q  V.        .        .        .
  15.217    0.4592    2.83 .   Q  V.        .        .        .
  15.233    0.4632    2.86 .   Q  V.        .        .        .
  15.250    0.4671    2.89 .   Q  V.        .        .        .
  15.267    0.4712    2.92 .   Q  V.        .        .        .
  15.283    0.4752    2.94 .   Q  V.        .        .        .
  15.300    0.4793    2.97 .   Q  V.        .        .        .
  15.317    0.4834    3.00 .    Q V.        .        .        .
  15.333    0.4876    3.03 .    Q V.        .        .        .
  15.350    0.4918    3.05 .    Q V.        .        .        .
  15.367    0.4961    3.08 .    Q  V.       .        .        .
  15.383    0.5003    3.11 .    Q  V.       .        .        .
  15.400    0.5047    3.14 .    Q  V.       .        .        .
  15.417    0.5090    3.17 .    Q  V.       .        .        .
  15.433    0.5134    3.20 .    Q  V.       .        .        .
  15.450    0.5179    3.23 .    Q  V.       .        .        .
  15.467    0.5224    3.26 .    Q  V.       .        .        .
  15.483    0.5269    3.28 .    Q  V.       .        .        .
  15.500    0.5315    3.31 .    Q  V.       .        .        .
  15.517    0.5360    3.33 .    Q  V.       .        .        .
  15.533    0.5407    3.36 .    Q  V.       .        .        .
  15.550    0.5453    3.38 .    Q  V.       .        .        .
  15.567    0.5500    3.40 .    Q   V       .        .        .
  15.583    0.5547    3.43 .    Q   V       .        .        .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.        5.0      10.0       15.0      20.0
----------------------------------------------------------------------------
  15.600    0.5595     3.45  .   Q   V        .        .        .
  15.617    0.5643     3.48  .   Q   V        .        .        .
  15.633    0.5691     3.52  .    Q  V        .        .        .
  15.650    0.5740     3.56  .    Q  V        .        .        .
  15.667    0.5790     3.60  .    Q  V        .        .        .
  15.683    0.5840     3.64  .    Q  V        .        .        .
  15.700    0.5891     3.68  .    Q  V        .        .        .
  15.717    0.5942     3.73  .    Q  V        .        .        .
  15.733    0.5994     3.77  .    Q  V        .        .        .
  15.750    0.6046     3.82  .    Q  .V       .        .        .
  15.767    0.6100     3.88  .    Q  .V       .        .        .
  15.783    0.6155     3.96  .    Q  .V       .        .        .
  15.800    0.6210     4.06  .     Q .V       .        .        .
  15.817    0.6268     4.17  .     Q .V       .        .        .
  15.833    0.6327     4.27  .     Q .V       .        .        .
  15.850    0.6387     4.38  .     Q .V       .        .        .
  15.867    0.6449     4.50  .      Q.V       .        .        .
  15.883    0.6513     4.63  .      Q.V       .        .        .
  15.900    0.6578     4.76  .      Q. V      .        .        .
  15.917    0.6646     4.90  .      Q. V      .        .        .
  15.933    0.6716     5.05  .       Q V      .        .        .
  15.950    0.6787     5.22  .       Q V      .        .        .
  15.967    0.6862     5.41  .       Q V      .        .        .
  15.983    0.6939     5.59  .       .QV      .        .        .
  16.000    0.7018     5.75  .       .QV      .        .        .
  16.017    0.7100     5.94  .       .QV      .        .        .
  16.033    0.7184     6.13  .       . QV     .        .        .
  16.050    0.7271     6.32  .       . QV     .        .        .
  16.067    0.7362     6.58  .       .  Q    .        .        .
  16.083    0.7459     7.05  .       .  VQ    .        .        .
  16.100    0.7566     7.77  .       .  V Q   .        .        .
  16.117    0.7686     8.66  .       .   V  Q .        .        .
  16.133    0.7818     9.62  .       .   V    Q.       .        .
  16.150    0.7965    10.65  .       .   V    .Q       .        .
  16.167    0.8127    11.78  .       .   V    .  Q     .        .
  16.183    0.8308    13.16  .       .    V   .     Q  .        .
  16.200    0.8513    14.83  .       .    V   .        Q.       .
  16.217    0.8741    16.60  .       .    V   .        . Q      .
  16.233    0.8989    17.96  .       .     V  .        .   Q    .
  16.250    0.9241    18.31  .       .     V  .        .    Q   .
  16.267    0.9489    18.03  .       .      V .        .    Q   .
  16.283    0.9731    17.52  .       .      V .        .   Q    .
  16.300    0.9962    16.81  .       .       V.        . Q      .
  16.317    1.0181    15.91  .       .       V.        .Q       .
  16.333    1.0386    14.85  .       .       V.       Q.        .
  16.350    1.0574    13.64  .       .        V.     Q .        .
  16.367    1.0744    12.36  .       .        V.  Q    .        .
  16.383    1.0898    11.21  .       .        V. Q     .        .
  16.400    1.1041    10.40  .       .         Q       .        .
  16.417    1.1177     9.85  .       .       QV        .        .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.        5.0       10.0      15.0      20.0
----------------------------------------------------------------------------
  16.433    1.1306    9.38  .        .      Q V        .        .
  16.450    1.1430    8.95  .        .     Q  V        .        .
  16.467    1.1547    8.55  .        .     Q  .V       .        .
  16.483    1.1660    8.17  .        .    Q   .V       .        .
  16.500    1.1767    7.77  .        .   Q    .V       .        .
  16.517    1.1869    7.40  .        .  Q     .V       .        .
  16.533    1.1966    7.07  .        .  Q     .V       .        .
  16.550    1.2060    6.78  .        . Q      . V      .        .
  16.567    1.2150    6.53  .        . Q      . V      .        .
  16.583    1.2237    6.33  .        . Q      . V      .        .
  16.600    1.2322    6.18  .        . Q      . V      .        .
  16.617    1.2405    6.06  .        . Q      . V      .        .
  16.633    1.2487    5.93  .        .Q       . V      .        .
  16.650    1.2567    5.82  .        .Q       . V      .        .
  16.667    1.2646    5.70  .        .Q       .  V     .        .
  16.683    1.2723    5.60  .        .Q       .  V     .        .
  16.700    1.2798    5.49  .        Q        .  V     .        .
  16.717    1.2873    5.38  .        Q        .  V     .        .
  16.733    1.2945    5.28  .        Q        .  V     .        .
  16.750    1.3017    5.18  .        Q        .  V     .        .
  16.767    1.3087    5.08  .        Q        .  V     .        .
  16.783    1.3155    4.98  .       Q.        .   V    .        .
  16.800    1.3223    4.89  .       Q.        .   V    .        .
  16.817    1.3289    4.79  .       Q.        .   V    .        .
  16.833    1.3353    4.70  .       Q.        .   V    .        .
  16.850    1.3417    4.61  .       Q.        .   V    .        .
  16.867    1.3479    4.53  .       Q.        .   V    .        .
  16.883    1.3540    4.45  .      Q .        .   V    .        .
  16.900    1.3601    4.37  .      Q .        .   V    .        .
  16.917    1.3660    4.29  .      Q .        .   V    .        .
  16.933    1.3718    4.22  .      Q .        .    V   .        .
  16.950    1.3775    4.15  .      Q .        .    V   .        .
  16.967    1.3831    4.07  .      Q .        .    V   .        .
  16.983    1.3886    4.00  .     Q  .        .    V   .        .
  17.000    1.3940    3.93  .     Q  .        .    V   .        .
  17.017    1.3994    3.86  .     Q  .        .    V   .        .
  17.033    1.4046    3.80  .     Q  .        .    V   .        .
  17.050    1.4098    3.75  .     Q  .        .    V   .        .
  17.067    1.4149    3.70  .     Q  .        .    V   .        .
  17.083    1.4198    3.63  .     Q  .        .    V   .        .
  17.100    1.4248    3.56  .     Q  .        .     V  .        .
  17.117    1.4296    3.51  .     Q  .        .     V  .        .
  17.133    1.4343    3.45  .    Q   .        .     V  .        .
  17.150    1.4390    3.40  .    Q   .        .     V  .        .
  17.167    1.4436    3.35  .    Q   .        .     V  .        .
  17.183    1.4482    3.30  .    Q   .        .     V  .        .
  17.200    1.4527    3.25  .    Q   .        .     V  .        .
  17.217    1.4571    3.20  .    Q   .        .     V  .        .
  17.233    1.4614    3.15  .    Q   .        .     V  .        .
  17.250    1.4657    3.11  .    Q   .        .     V  .        .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.       5.0     10.0      15.0      20.0
----------------------------------------------------------------------------
  17.267     1.4699     3.06 .   Q  .      .  V  .       .
  17.283     1.4740     3.01 .   Q  .      .  V  .       .
  17.300     1.4781     2.97 .  Q   .      .   V .       .
  17.317     1.4822     2.93 .  Q   .      .   V .       .
  17.333     1.4861     2.89 .  Q   .      .   V .       .
  17.350     1.4901     2.85 .  Q   .      .   V .       .
  17.367     1.4940     2.81 .  Q   .      .   V .       .
  17.383     1.4978     2.78 .  Q   .      .   V .       .
  17.400     1.5015     2.74 .  Q   .      .   V .       .
  17.417     1.5053     2.70 .  Q   .      .   V .       .
  17.433     1.5090     2.67 .  Q   .      .   V .       .
  17.450     1.5126     2.64 .  Q   .      .   V .       .
  17.467     1.5162     2.60 .  Q   .      .   V .       .
  17.483     1.5197     2.57 .  Q   .      .   V .       .
  17.500     1.5232     2.54 .  Q   .      .   V .       .
  17.517     1.5267     2.51 .  Q   .      .   V .       .
  17.533     1.5301     2.48 . Q    .      .   V .       .
  17.550     1.5335     2.45 . Q    .      .    V.       .
  17.567     1.5368     2.42 . Q    .      .    V.       .
  17.583     1.5401     2.40 . Q    .      .    V.       .
  17.600     1.5434     2.37 . Q    .      .    V.       .
  17.617     1.5466     2.34 . Q    .      .    V.       .
  17.633     1.5498     2.32 . Q    .      .    V.       .
  17.650     1.5530     2.29 . Q    .      .    V.       .
  17.667     1.5561     2.27 . Q    .      .    V.       .
  17.683     1.5592     2.24 . Q    .      .    V.       .
  17.700     1.5622     2.22 . Q    .      .    V.       .
  17.717     1.5653     2.20 . Q    .      .    V.       .
  17.733     1.5683     2.18 . Q    .      .    V.       .
  17.750     1.5712     2.15 . Q    .      .    V.       .
  17.767     1.5741     2.13 . Q    .      .    V.       .
  17.783     1.5771     2.11 . Q    .      .    V.       .
  17.800     1.5799     2.09 . Q    .      .    V.       .
  17.817     1.5828     2.07 . Q    .      .    V.       .
  17.833     1.5856     2.05 . Q    .      .    V.       .
  17.850     1.5884     2.03 . Q    .      .     V.      .
  17.867     1.5912     2.01 . Q    .      .     V.      .
  17.883     1.5939     1.99 .Q     .      .     V.      .
  17.900     1.5966     1.98 .Q     .      .     V.      .
  17.917     1.5993     1.96 .Q     .      .     V.      .
  17.933     1.6020     1.94 .Q     .      .     V.      .
  17.950     1.6047     1.92 .Q     .      .     V.      .
  17.967     1.6073     1.91 .Q     .      .     V.      .
  17.983     1.6099     1.89 .Q     .      .     V.      .
  18.000     1.6125     1.88 .Q     .      .     V.      .
----------------------------------------------------------------------------
   TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
   (Note: 100% of Peak Flow Rate estimate assumed to have
   an instantaneous time duration)

   Percentile of Estimated          Duration
     Peak Flow Rate                (minutes)
   =======================          =========
          0%                     1081.0
         10%                     1081.0
         20%                      415.0
         30%                      215.0
         40%                      130.0
         50%                       95.0
         60%                       70.0
         70%                       55.0
```

80%	45.0
90%	30.0

==

END OF FLOODSCx ROUTING ANALYSIS

****

F L O O D   R O U T I N G   A N A L Y S I S
USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)

Ver. 21.0 Release Date: 06/01/2014 License ID 1202

Analysis prepared by:

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************************** DESCRIPTION OF STUDY **************************
* SHOPOFF ANAHEIM *
* HYDROGRAPHS & FLOOD ROUTING ANALYSIS - PROPOSED CONDITION DMA A&B *
* 25YR AMCII RC 10/22/2019 *
****

FILE NAME: SHOP25AB.DAT
TIME/DATE OF STUDY: 14:11 10/23/2019

The Small Area Unit Hydrograph Procedures in Section J
of the Hydrology Manual provides estimates of runoff
hydrograph and runoff volume for watersheds whose time of
concentration is less than 25 minutes. The PROGRAM User
should check the applicability of using the small area unit
hydrograph procedures, and follow the guidelines in
Sections J and K.5 in complex watershed modeling.

```
****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    102.00 IS CODE = 1.2
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (SMALL AREA UNIT-HYDROGRAPH ANALYSIS) <<<<<
============================================================================

  (SMALL AREA UNIT-HYDROGRAPH ADDED TO STREAM #1)

   RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
   TOTAL CATCHMENT AREA(ACRES) =    5.12
   SOIL-LOSS RATE, Fm,(INCH/HR) =  0.088
   LOW LOSS FRACTION = 0.279
   TIME OF CONCENTRATION(MIN.) =  8.18
   SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
   ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED:
   RETURN FREQUENCY(YEARS) =  25
     5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.40
    30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.87
     1-HOUR   POINT RAINFALL VALUE(INCHES) =  1.15
     3-HOUR   POINT RAINFALL VALUE(INCHES) =  1.94
     6-HOUR   POINT RAINFALL VALUE(INCHES) =  2.71
    24-HOUR   POINT RAINFALL VALUE(INCHES) =  4.49

----------------------------------------------------------------------------
   TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     1.34
   TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.58

----------------------------------------------------------------------------
```

```
================================================================================

              2 4 - H O U R   S T O R M
            R U N O F F   H Y D R O G R A P H

================================================================================
        HYDROGRAPH IN  ONE-MINUTE UNIT INTERVALS(CFS)
    (Notes: Time indicated is at END of Each Unit Intervals.
         Peak 5-minute rainfall intensity is modeled as
         a constant value for entire 5-minute period.)
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.      4.1      8.2      12.2      16.3
----------------------------------------------------------------------------
  14.000    0.4576    1.01  . Q      . V      .      .      .
  14.017    0.4590    1.01  . Q      . V      .      .      .
  14.033    0.4604    1.01  . Q      . V      .      .      .
  14.050    0.4618    1.02  . Q      . V      .      .      .
  14.067    0.4632    1.02  . Q      . V      .      .      .
  14.083    0.4646    1.02  . Q      . V      .      .      .
  14.100    0.4661    1.02  . Q      . V      .      .      .
  14.117    0.4675    1.03  . Q      . V      .      .      .
  14.133    0.4689    1.03  . Q      .  V     .      .      .
  14.150    0.4703    1.04  . Q      .  V     .      .      .
  14.167    0.4718    1.05  . Q      .  V     .      .      .
  14.183    0.4732    1.05  . Q      .  V     .      .      .
  14.200    0.4747    1.06  . Q      .  V     .      .      .
  14.217    0.4761    1.06  . Q      .  V     .      .      .
  14.233    0.4776    1.07  . Q      .  V     .      .      .
  14.250    0.4791    1.07  . Q      .  V     .      .      .
  14.267    0.4806    1.08  . Q      .  V     .      .      .
  14.283    0.4820    1.08  . Q      .  V     .      .      .
  14.300    0.4835    1.08  . Q      .  V     .      .      .
  14.317    0.4850    1.09  . Q      .  V     .      .      .
  14.333    0.4865    1.09  . Q      .  V     .      .      .
  14.350    0.4881    1.10  . Q      .  V     .      .      .
  14.367    0.4896    1.10  . Q      .  V     .      .      .
  14.383    0.4911    1.11  . Q      .  V     .      .      .
  14.400    0.4927    1.12  . Q      .  V     .      .      .
  14.417    0.4942    1.13  . Q      .  V     .      .      .
  14.433    0.4958    1.15  . Q      .  V     .      .      .
  14.450    0.4974    1.16  . Q      .  V     .      .      .
  14.467    0.4990    1.17  . Q      .  V     .      .      .
  14.483    0.5006    1.18  . Q      .  V     .      .      .
  14.500    0.5023    1.19  . Q      .  V     .      .      .
  14.517    0.5039    1.20  . Q      .   V    .      .      .
  14.533    0.5056    1.20  . Q      .   V    .      .      .
  14.550    0.5072    1.21  . Q      .   V    .      .      .
  14.567    0.5089    1.22  . Q      .   V    .      .      .
  14.583    0.5106    1.22  . Q      .   V    .      .      .
  14.600    0.5123    1.23  .  Q     .   V    .      .      .
  14.617    0.5140    1.23  .  Q     .   V    .      .      .
  14.633    0.5157    1.24  .  Q     .   V    .      .      .
  14.650    0.5174    1.25  .  Q     .   V    .      .      .
  14.667    0.5191    1.26  .  Q     .   V    .      .      .
  14.683    0.5209    1.28  .  Q     .   V    .      .      .
  14.700    0.5227    1.29  .  Q     .   V    .      .      .
  14.717    0.5245    1.30  .  Q     .   V    .      .      .
  14.733    0.5263    1.32  .  Q     .   V    .      .      .
  14.750    0.5281    1.33  .  Q     .   V    .      .      .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.        4.1       8.2       12.2      16.3
----------------------------------------------------------------------------
  14.767     0.5300      1.35  . Q        .  V    .         .         .
  14.783     0.5319      1.36  . Q        .  V    .         .         .
  14.800     0.5337      1.37  . Q        .  V    .         .         .
  14.817     0.5356      1.38  . Q        .  V    .         .         .
  14.833     0.5375      1.39  . Q        .   V   .         .         .
  14.850     0.5395      1.39  . Q        .   V   .         .         .
  14.867     0.5414      1.40  . Q        .   V   .         .         .
  14.883     0.5433      1.41  . Q        .   V   .         .         .
  14.900     0.5453      1.42  . Q        .   V   .         .         .
  14.917     0.5473      1.43  . Q        .   V   .         .         .
  14.933     0.5493      1.45  . Q        .   V   .         .         .
  14.950     0.5513      1.47  . Q        .   V   .         .         .
  14.967     0.5533      1.48  . Q        .   V   .         .         .
  14.983     0.5554      1.50  . Q        .   V   .         .         .
  15.000     0.5575      1.52  . Q        .   V   .         .         .
  15.017     0.5596      1.54  . Q        .   V   .         .         .
  15.033     0.5618      1.56  . Q        .   V   .         .         .
  15.050     0.5639      1.58  . Q        .   V   .         .         .
  15.067     0.5661      1.60  . Q        .   V   .         .         .
  15.083     0.5684      1.61  . Q        .   V   .         .         .
  15.100     0.5706      1.62  . Q        .    V  .         .         .
  15.117     0.5728      1.63  . Q        .    V  .         .         .
  15.133     0.5751      1.64  .  Q       .    V  .         .         .
  15.150     0.5774      1.66  .  Q       .    V  .         .         .
  15.167     0.5797      1.67  .  Q       .    V  .         .         .
  15.183     0.5820      1.68  .  Q       .    V  .         .         .
  15.200     0.5843      1.70  .  Q       .    V  .         .         .
  15.217     0.5867      1.73  .  Q       .    V  .         .         .
  15.233     0.5892      1.76  .  Q       .    V  .         .         .
  15.250     0.5916      1.79  .  Q       .    V  .         .         .
  15.267     0.5941      1.82  .  Q       .    V  .         .         .
  15.283     0.5967      1.85  .  Q       .    V  .         .         .
  15.300     0.5993      1.88  .  Q       .    V  .         .         .
  15.317     0.6019      1.91  .  Q       .    V  .         .         .
  15.333     0.6046      1.93  .  Q       .     V .         .         .
  15.350     0.6072      1.94  .  Q       .     V .         .         .
  15.367     0.6099      1.94  .  Q       .     V .         .         .
  15.383     0.6126      1.94  .  Q       .     V .         .         .
  15.400     0.6153      1.95  .  Q       .     V .         .         .
  15.417     0.6180      1.95  .  Q       .     V .         .         .
  15.433     0.6206      1.95  .  Q       .     V .         .         .
  15.450     0.6233      1.96  .  Q       .     V .         .         .
  15.467     0.6260      1.96  .  Q       .     V .         .         .
  15.483     0.6288      1.98  .  Q       .     V .         .         .
  15.500     0.6315      2.01  .  Q       .     V .         .         .
  15.517     0.6343      2.03  .  Q       .     V .         .         .
  15.533     0.6372      2.05  .   Q      .      V.         .         .
  15.550     0.6400      2.07  .   Q      .      V.         .         .
  15.567     0.6429      2.09  .   Q      .      V.         .         .
  15.583     0.6458      2.11  .   Q      .      V.         .         .
```

```
---------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.       4.1       8.2       12.2      16.3
---------------------------------------------------------------------------
  15.600    0.6487    2.13 .     Q     .         V.         .          .
  15.617    0.6517    2.17 .     Q     .         V.         .          .
  15.633    0.6548    2.21 .     Q     .         V.         .          .
  15.650    0.6579    2.25 .     Q     .         V.         .          .
  15.667    0.6610    2.29 .     Q     .         V.         .          .
  15.683    0.6642    2.33 .     Q     .         V.         .          .
  15.700    0.6675    2.37 .     Q     .         V.         .          .
  15.717    0.6708    2.41 .     Q     .          V         .          .
  15.733    0.6742    2.46 .      Q    .          V         .          .
  15.750    0.6778    2.61 .      Q    .          V         .          .
  15.767    0.6817    2.79 .      Q    .          V         .          .
  15.783    0.6858    2.98 .       Q   .          V         .          .
  15.800    0.6901    3.16 .       Q   .          V         .          .
  15.817    0.6947    3.34 .        Q  .          V         .          .
  15.833    0.6996    3.52 .        Q  .          V         .          .
  15.850    0.7047    3.70 .          Q.         .V         .          .
  15.867    0.7100    3.88 .          Q.         .V         .          .
  15.883    0.7156    4.07 .          Q.         .V         .          .
  15.900    0.7215    4.25 .           Q         .V         .          .
  15.917    0.7276    4.44 .           Q         .V         .          .
  15.933    0.7339    4.63 .           .Q        .V         .          .
  15.950    0.7406    4.81 .           .Q        . V        .          .
  15.967    0.7475    5.00 .           . Q       . V        .          .
  15.983    0.7546    5.18 .           . Q       . V        .          .
  16.000    0.7620    5.37 .           .  Q      . V        .          .
  16.017    0.7704    6.13 .           .    Q    .  V       .          .
  16.033    0.7807    7.46 .           .       Q . V        .          .
  16.050    0.7928    8.79 .           .         .Q V       .          .
  16.067    0.8067   10.11 .           .         .  Q       .          .
  16.083    0.8225   11.44 .           .         .  V    Q .           .
  16.100    0.8401   12.77 .           .         .   V     .Q          .
  16.117    0.8595   14.10 .           .         .   V     .   Q      .
  16.133    0.8808   15.43 .           .         .    V    .      Q   .
  16.150    0.9033   16.33 .           .         .    V    .          Q
  16.167    0.9228   14.20 .           .         .     V  .   Q       .
  16.183    0.9401   12.58 .           .         .      V Q          .
  16.200    0.9552   10.96 .           .         .    Q V .           .
  16.217    0.9681    9.34 .           .        . Q     V .          .
  16.233    0.9787    7.72 .           .      Q .        V.          .
  16.250    0.9871    6.10 .           .  Q      .       V.          .
  16.267    0.9933    4.49 .          Q          .       V.          .
  16.283    0.9977    3.17 .       Q   .         .       V.          .
  16.300    1.0017    2.93 .       Q   .         .       V.          .
  16.317    1.0055    2.78 .      Q    .         .        V          .
  16.333    1.0092    2.63 .      Q    .         .        V          .
  16.350    1.0126    2.48 .      Q    .         .        V          .
  16.367    1.0158    2.34 .     Q     .         .        V          .
  16.383    1.0188    2.19 .     Q     .         .        V          .
  16.400    1.0216    2.04 .     Q     .         .        V          .
  16.417    1.0243    1.91 .    Q      .         .        V          .
```

```
--------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.      4.1      8.2      12.2      16.3
--------------------------------------------------------------------------
 16.433    1.0269    1.88  .  Q     .       .       V        .
 16.450    1.0294    1.87  .  Q     .       .       V        .
 16.467    1.0320    1.86  .  Q     .       .       V        .
 16.483    1.0345    1.85  .  Q     .       .       V        .
 16.500    1.0370    1.83  .  Q     .       .       V        .
 16.517    1.0396    1.82  .  Q     .       .       .V       .
 16.533    1.0421    1.81  .  Q     .       .       .V       .
 16.550    1.0445    1.80  .  Q     .       .       .V       .
 16.567    1.0470    1.77  .  Q     .       .       .V       .
 16.583    1.0494    1.73  .  Q     .       .       .V       .
 16.600    1.0517    1.70  .  Q     .       .       .V       .
 16.617    1.0540    1.66  .  Q     .       .       .V       .
 16.633    1.0562    1.63  . Q      .       .       .V       .
 16.650    1.0584    1.59  . Q      .       .       .V       .
 16.667    1.0606    1.55  . Q      .       .       .V       .
 16.683    1.0626    1.52  . Q      .       .       .V       .
 16.700    1.0647    1.49  . Q      .       .       .V       .
 16.717    1.0667    1.46  . Q      .       .       .V       .
 16.733    1.0687    1.44  . Q      .       .       .V       .
 16.750    1.0706    1.41  . Q      .       .       .V       .
 16.767    1.0725    1.39  . Q      .       .       . V      .
 16.783    1.0744    1.36  . Q      .       .       . V      .
 16.800    1.0763    1.34  . Q      .       .       . V      .
 16.817    1.0781    1.31  . Q      .       .       . V      .
 16.833    1.0799    1.29  . Q      .       .       . V      .
 16.850    1.0816    1.27  . Q      .       .       . V      .
 16.867    1.0833    1.25  . Q      .       .       . V      .
 16.883    1.0850    1.24  . Q      .       .       . V      .
 16.900    1.0867    1.22  .Q       .       .       . V      .
 16.917    1.0884    1.20  .Q       .       .       . V      .
 16.933    1.0900    1.18  .Q       .       .       . V      .
 16.950    1.0916    1.16  .Q       .       .       . V      .
 16.967    1.0932    1.14  .Q       .       .       . V      .
 16.983    1.0947    1.13  .Q       .       .       . V      .
 17.000    1.0963    1.12  .Q       .       .       . V      .
 17.017    1.0978    1.10  .Q       .       .       . V      .
 17.033    1.0993    1.09  .Q       .       .       . V      .
 17.050    1.1008    1.08  .Q       .       .       . V      .
 17.067    1.1022    1.06  .Q       .       .       . V      .
 17.083    1.1037    1.05  .Q       .       .       . V      .
 17.100    1.1051    1.04  .Q       .       .       . V      .
 17.117    1.1065    1.03  .Q       .       .       .  V     .
 17.133    1.1079    1.02  .Q       .       .       .  V     .
 17.150    1.1093    1.01  .Q       .       .       .  V     .
 17.167    1.1107    1.01  .Q       .       .       .  V     .
 17.183    1.1121    1.00  .Q       .       .       .  V     .
 17.200    1.1135    0.99  .Q       .       .       .  V     .
 17.217    1.1148    0.99  .Q       .       .       .  V     .
 17.233    1.1162    0.98  .Q       .       .       .  V     .
 17.250    1.1175    0.97  .Q       .       .       .  V     .
```

```
---------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.       4.1       8.2      12.2      16.3
---------------------------------------------------------------------------
  17.267    1.1188    0.97  . Q      .      .      . V      .
  17.283    1.1202    0.96  . Q      .      .      . V      .
  17.300    1.1215    0.95  . Q      .      .      . V      .
  17.317    1.1228    0.95  . Q      .      .      . V      .
  17.333    1.1241    0.94  . Q      .      .      . V      .
  17.350    1.1254    0.93  . Q      .      .      . V      .
  17.367    1.1266    0.93  . Q      .      .      . V      .
  17.383    1.1279    0.92  . Q      .      .      . V      .
  17.400    1.1292    0.91  . Q      .      .      . V      .
  17.417    1.1304    0.91  . Q      .      .      . V      .
  17.433    1.1316    0.90  . Q      .      .      . V      .
  17.450    1.1329    0.90  . Q      .      .      . V      .
  17.467    1.1341    0.89  . Q      .      .      . V      .
  17.483    1.1353    0.88  . Q      .      .      . V      .
  17.500    1.1365    0.88  . Q      .      .      . V      .
  17.517    1.1377    0.87  . Q      .      .      . V      .
  17.533    1.1389    0.87  . Q      .      .      .  V     .
  17.550    1.1401    0.86  . Q      .      .      .  V     .
  17.567    1.1413    0.86  . Q      .      .      .  V     .
  17.583    1.1425    0.85  . Q      .      .      .  V     .
  17.600    1.1436    0.85  . Q      .      .      .  V     .
  17.617    1.1448    0.84  . Q      .      .      .  V     .
  17.633    1.1459    0.84  . Q      .      .      .  V     .
  17.650    1.1471    0.83  . Q      .      .      .  V     .
  17.667    1.1482    0.83  . Q      .      .      .  V     .
  17.683    1.1494    0.82  . Q      .      .      .  V     .
  17.700    1.1505    0.82  . Q      .      .      .  V     .
  17.717    1.1516    0.81  .Q       .      .      .  V     .
  17.733    1.1527    0.81  .Q       .      .      .  V     .
  17.750    1.1538    0.81  .Q       .      .      .  V     .
  17.767    1.1549    0.80  .Q       .      .      .  V     .
  17.783    1.1560    0.80  .Q       .      .      .  V     .
  17.800    1.1571    0.79  .Q       .      .      .  V     .
  17.817    1.1582    0.79  .Q       .      .      .  V     .
  17.833    1.1593    0.78  .Q       .      .      .  V     .
  17.850    1.1604    0.78  .Q       .      .      .  V     .
  17.867    1.1614    0.78  .Q       .      .      .  V     .
  17.883    1.1625    0.77  .Q       .      .      .  V     .
  17.900    1.1636    0.77  .Q       .      .      .  V     .
  17.917    1.1646    0.77  .Q       .      .      .  V     .
  17.933    1.1657    0.76  .Q       .      .      .  V     .
  17.950    1.1667    0.76  .Q       .      .      .  V     .
  17.967    1.1678    0.75  .Q       .      .      .  V     .
  17.983    1.1688    0.75  .Q       .      .      .  V     .
  18.000    1.1698    0.75  .Q       .      .      .  V     .
----------------------------------------------------------------------------
```

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1081.0
10%	450.0
20%	140.0
30%	90.0
40%	65.0
50%	55.0
60%	45.0
70%	35.0

80%	20.0
90%	10.0

```
****************************************************************************
  FLOW PROCESS FROM NODE     102.00 TO NODE     103.00 IS CODE = 3.2
----------------------------------------------------------------------------
  >>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #1<<<<<
============================================================================

              INFLOW
             (STREAM 1)
                 |
                 |
                 V              __effective depth
              -----------        |  (and volume)
             |           |    |    |
             |           |    |....V........
             | detention |<-->|          outflow
             |   basin   |    |.........________
              -----------     |    ^    |  \
                 |           |  dead    |   basin outlet
                 V            | storage |
              OUTFLOW          ---------
             (STREAM 1)


     ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 1
     THROUGH A FLOW-THROUGH DETENTION BASIN
     SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
       DEAD STORAGE(AF) =       0.000
       SPECIFIED DEAD STORAGE(AF) FILLED =       0.000
       SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET =       0.000
       DETENTION BASIN CONSTANT LOSS RATE(CFS) =     0.04


     BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:
```

INTERVAL NUMBER	DEPTH (FT)	OUTFLOW (CFS)	STORAGE (AF)
1	0.00	0.00	0.000
2	2.00	0.01	0.203
3	2.42	0.02	0.246
4	5.20	0.03	0.529
5	7.00	5.11	0.712
6	10.00	23.64	1.017

==

MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
14.017	0.000	1.01	0.04	3.95	0.0	0.401
14.033	0.000	1.01	0.04	3.96	0.0	0.403
14.050	0.000	1.02	0.04	3.97	0.0	0.404
14.067	0.000	1.02	0.04	3.98	0.0	0.405
14.083	0.000	1.02	0.04	4.00	0.0	0.407
14.100	0.000	1.02	0.04	4.01	0.0	0.408
14.117	0.000	1.03	0.04	4.02	0.0	0.409
14.133	0.000	1.03	0.04	4.04	0.0	0.411
14.150	0.000	1.04	0.04	4.05	0.0	0.412
14.167	0.000	1.05	0.04	4.06	0.0	0.413
14.183	0.000	1.05	0.04	4.08	0.0	0.415
14.200	0.000	1.06	0.04	4.09	0.0	0.416
14.217	0.000	1.06	0.04	4.10	0.0	0.417
14.233	0.000	1.07	0.04	4.12	0.0	0.419
14.250	0.000	1.07	0.04	4.13	0.0	0.420
14.267	0.000	1.08	0.04	4.14	0.0	0.421
14.283	0.000	1.08	0.04	4.16	0.0	0.423
14.300	0.000	1.08	0.04	4.17	0.0	0.424
14.317	0.000	1.09	0.04	4.18	0.0	0.426
14.333	0.000	1.09	0.04	4.20	0.0	0.427
14.350	0.000	1.10	0.04	4.21	0.0	0.428
14.367	0.000	1.10	0.04	4.23	0.0	0.430
14.383	0.000	1.11	0.04	4.24	0.0	0.431
14.400	0.000	1.12	0.04	4.25	0.0	0.433
14.417	0.000	1.13	0.04	4.27	0.0	0.434
14.433	0.000	1.15	0.04	4.28	0.0	0.436
14.450	0.000	1.16	0.04	4.30	0.0	0.437
14.467	0.000	1.17	0.04	4.31	0.0	0.439
14.483	0.000	1.18	0.04	4.33	0.0	0.440
14.500	0.000	1.19	0.04	4.34	0.0	0.442
14.517	0.000	1.20	0.04	4.36	0.0	0.443
14.533	0.000	1.20	0.04	4.37	0.0	0.445
14.550	0.000	1.21	0.04	4.39	0.0	0.446
14.567	0.000	1.22	0.04	4.40	0.0	0.448
14.583	0.000	1.22	0.04	4.42	0.0	0.450
14.600	0.000	1.23	0.04	4.44	0.0	0.451
14.617	0.000	1.23	0.04	4.45	0.0	0.453
14.633	0.000	1.24	0.04	4.47	0.0	0.454
14.650	0.000	1.25	0.04	4.48	0.0	0.456
14.667	0.000	1.26	0.04	4.50	0.0	0.458
14.683	0.000	1.28	0.04	4.52	0.0	0.459
14.700	0.000	1.29	0.04	4.53	0.0	0.461
14.717	0.000	1.30	0.04	4.55	0.0	0.463
14.733	0.000	1.32	0.04	4.57	0.0	0.464
14.750	0.000	1.33	0.04	4.58	0.0	0.466
14.767	0.000	1.35	0.04	4.60	0.0	0.468
14.783	0.000	1.36	0.04	4.62	0.0	0.470
14.800	0.000	1.37	0.04	4.64	0.0	0.472
14.817	0.000	1.38	0.04	4.65	0.0	0.473
14.833	0.000	1.39	0.04	4.67	0.0	0.475

==
MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
14.850	0.000	1.39	0.04	4.69	0.0	0.477
14.867	0.000	1.40	0.04	4.71	0.0	0.479
14.883	0.000	1.41	0.04	4.73	0.0	0.481
14.900	0.000	1.42	0.04	4.74	0.0	0.483
14.917	0.000	1.43	0.04	4.76	0.0	0.484
14.933	0.000	1.45	0.04	4.78	0.0	0.486
14.950	0.000	1.47	0.04	4.80	0.0	0.488
14.967	0.000	1.48	0.04	4.82	0.0	0.490
14.983	0.000	1.50	0.04	4.84	0.0	0.492
15.000	0.000	1.52	0.04	4.86	0.0	0.494
15.017	0.000	1.54	0.04	4.88	0.0	0.496
15.033	0.000	1.56	0.04	4.90	0.0	0.498
15.050	0.000	1.58	0.04	4.92	0.0	0.500
15.067	0.000	1.60	0.04	4.94	0.0	0.502
15.083	0.000	1.61	0.04	4.96	0.0	0.504
15.100	0.000	1.62	0.04	4.98	0.0	0.507
15.117	0.000	1.63	0.04	5.00	0.0	0.509
15.133	0.000	1.64	0.04	5.02	0.0	0.511
15.150	0.000	1.66	0.04	5.04	0.0	0.513
15.167	0.000	1.67	0.04	5.07	0.0	0.515
15.183	0.000	1.68	0.04	5.09	0.0	0.518
15.200	0.000	1.70	0.04	5.11	0.0	0.520
15.217	0.000	1.73	0.04	5.13	0.0	0.522
15.233	0.000	1.76	0.04	5.15	0.0	0.524
15.250	0.000	1.79	0.04	5.18	0.0	0.527
15.267	0.000	1.82	0.04	5.20	0.0	0.529
15.283	0.000	1.85	0.04	5.23	0.1	0.532
15.300	0.000	1.88	0.04	5.25	0.1	0.534
15.317	0.000	1.91	0.04	5.27	0.2	0.536
15.333	0.000	1.93	0.04	5.29	0.3	0.538
15.350	0.000	1.94	0.04	5.31	0.3	0.541
15.367	0.000	1.94	0.04	5.33	0.4	0.543
15.383	0.000	1.94	0.04	5.35	0.4	0.545
15.400	0.000	1.95	0.04	5.37	0.5	0.547
15.417	0.000	1.95	0.04	5.39	0.5	0.549
15.433	0.000	1.95	0.04	5.41	0.6	0.550
15.450	0.000	1.96	0.04	5.43	0.6	0.552
15.467	0.000	1.96	0.04	5.44	0.7	0.554
15.483	0.000	1.98	0.04	5.46	0.7	0.555
15.500	0.000	2.01	0.04	5.48	0.8	0.557
15.517	0.000	2.03	0.04	5.49	0.8	0.559
15.533	0.000	2.05	0.04	5.51	0.9	0.560
15.550	0.000	2.07	0.04	5.52	0.9	0.562
15.567	0.000	2.09	0.04	5.54	1.0	0.563
15.583	0.000	2.11	0.04	5.55	1.0	0.565
15.600	0.000	2.13	0.04	5.57	1.0	0.566
15.617	0.000	2.17	0.04	5.58	1.1	0.568
15.633	0.000	2.21	0.04	5.59	1.1	0.569
15.650	0.000	2.25	0.04	5.61	1.2	0.570
15.667	0.000	2.29	0.04	5.62	1.2	0.572

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
15.683	0.000	2.33	0.04	5.64	1.2	0.573
15.700	0.000	2.37	0.04	5.65	1.3	0.575
15.717	0.000	2.41	0.04	5.66	1.3	0.576
15.733	0.000	2.46	0.04	5.68	1.4	0.578
15.750	0.000	2.61	0.04	5.69	1.4	0.579
15.767	0.000	2.79	0.04	5.71	1.5	0.581
15.783	0.000	2.98	0.04	5.73	1.5	0.583
15.800	0.000	3.16	0.04	5.75	1.6	0.585
15.817	0.000	3.34	0.04	5.78	1.6	0.588
15.833	0.000	3.52	0.04	5.80	1.7	0.590
15.850	0.000	3.70	0.04	5.83	1.8	0.593
15.867	0.000	3.88	0.04	5.85	1.8	0.595
15.883	0.000	4.07	0.04	5.88	1.9	0.598
15.900	0.000	4.25	0.04	5.91	2.0	0.601
15.917	0.000	4.44	0.04	5.94	2.1	0.605
15.933	0.000	4.63	0.04	5.98	2.2	0.608
15.950	0.000	4.81	0.04	6.01	2.3	0.611
15.967	0.000	5.00	0.04	6.04	2.4	0.615
15.983	0.000	5.18	0.04	6.08	2.5	0.619
16.000	0.000	5.37	0.04	6.12	2.6	0.622
16.017	0.000	6.13	0.04	6.16	2.7	0.627
16.033	0.000	7.46	0.04	6.23	2.8	0.633
16.050	0.000	8.79	0.04	6.30	3.0	0.641
16.067	0.000	10.11	0.04	6.40	3.3	0.651
16.083	0.000	11.44	0.04	6.50	3.6	0.661
16.100	0.000	12.77	0.04	6.62	3.9	0.674
16.117	0.000	14.10	0.04	6.76	4.2	0.687
16.133	0.000	15.43	0.04	6.90	4.6	0.702
16.150	0.000	16.33	0.04	7.05	5.1	0.717
16.167	0.000	14.20	0.04	7.17	5.8	0.729
16.183	0.000	12.58	0.04	7.25	6.4	0.737
16.200	0.000	10.96	0.04	7.30	6.8	0.743
16.217	0.000	9.34	0.04	7.33	7.1	0.746
16.233	0.000	7.72	0.04	7.34	7.2	0.747
16.250	0.000	6.10	0.04	7.33	7.2	0.745
16.267	0.000	4.49	0.04	7.29	7.0	0.742
16.283	0.000	3.17	0.04	7.24	6.8	0.737
16.300	0.000	2.93	0.04	7.19	6.5	0.732
16.317	0.000	2.78	0.04	7.15	6.2	0.727
16.333	0.000	2.63	0.04	7.10	5.9	0.722
16.350	0.000	2.48	0.04	7.06	5.6	0.718
16.367	0.000	2.34	0.04	7.02	5.4	0.714
16.383	0.000	2.19	0.04	6.98	5.1	0.710
16.400	0.000	2.04	0.04	6.94	5.0	0.706
16.417	0.000	1.91	0.04	6.90	4.9	0.702
16.433	0.000	1.88	0.04	6.86	4.8	0.697
16.450	0.000	1.87	0.04	6.82	4.7	0.694
16.467	0.000	1.86	0.04	6.78	4.5	0.690
16.483	0.000	1.85	0.04	6.75	4.4	0.686
16.500	0.000	1.83	0.04	6.71	4.3	0.683

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
16.517	0.000	1.82	0.04	6.68	4.2	0.679
16.533	0.000	1.81	0.04	6.65	4.2	0.676
16.550	0.000	1.80	0.04	6.61	4.1	0.673
16.567	0.000	1.77	0.04	6.58	4.0	0.670
16.583	0.000	1.73	0.04	6.55	3.9	0.667
16.600	0.000	1.70	0.04	6.53	3.8	0.664
16.617	0.000	1.66	0.04	6.50	3.7	0.661
16.633	0.000	1.63	0.04	6.47	3.7	0.658
16.650	0.000	1.59	0.04	6.44	3.6	0.655
16.667	0.000	1.55	0.04	6.41	3.5	0.652
16.683	0.000	1.52	0.04	6.39	3.4	0.650
16.700	0.000	1.49	0.04	6.36	3.3	0.647
16.717	0.000	1.46	0.04	6.34	3.3	0.645
16.733	0.000	1.44	0.04	6.31	3.2	0.642
16.750	0.000	1.41	0.04	6.29	3.1	0.640
16.767	0.000	1.39	0.04	6.27	3.1	0.637
16.783	0.000	1.36	0.04	6.24	3.0	0.635
16.800	0.000	1.34	0.04	6.22	2.9	0.633
16.817	0.000	1.31	0.04	6.20	2.9	0.631
16.833	0.000	1.29	0.04	6.18	2.8	0.628
16.850	0.000	1.27	0.04	6.16	2.8	0.626
16.867	0.000	1.25	0.04	6.14	2.7	0.624
16.883	0.000	1.24	0.04	6.12	2.6	0.622
16.900	0.000	1.22	0.04	6.10	2.6	0.620
16.917	0.000	1.20	0.04	6.08	2.5	0.618
16.933	0.000	1.18	0.04	6.06	2.5	0.617
16.950	0.000	1.16	0.04	6.04	2.4	0.615
16.967	0.000	1.14	0.04	6.03	2.4	0.613
16.983	0.000	1.13	0.04	6.01	2.3	0.611
17.000	0.000	1.12	0.04	5.99	2.3	0.610
17.017	0.000	1.10	0.04	5.98	2.2	0.608
17.033	0.000	1.09	0.04	5.96	2.2	0.606
17.050	0.000	1.08	0.04	5.95	2.2	0.605
17.067	0.000	1.06	0.04	5.93	2.1	0.603
17.083	0.000	1.05	0.04	5.92	2.1	0.602
17.100	0.000	1.04	0.04	5.90	2.0	0.600
17.117	0.000	1.03	0.04	5.89	2.0	0.599
17.133	0.000	1.02	0.04	5.88	2.0	0.598
17.150	0.000	1.01	0.04	5.86	1.9	0.596
17.167	0.000	1.01	0.04	5.85	1.9	0.595
17.183	0.000	1.00	0.04	5.84	1.8	0.594
17.200	0.000	0.99	0.04	5.83	1.8	0.593
17.217	0.000	0.99	0.04	5.82	1.8	0.592
17.233	0.000	0.98	0.04	5.80	1.8	0.590
17.250	0.000	0.97	0.04	5.79	1.7	0.589
17.267	0.000	0.97	0.04	5.78	1.7	0.588
17.283	0.000	0.96	0.04	5.77	1.7	0.587
17.300	0.000	0.95	0.04	5.76	1.6	0.586
17.317	0.000	0.95	0.04	5.75	1.6	0.585
17.333	0.000	0.94	0.04	5.74	1.6	0.584

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
17.350	0.000	0.93	0.04	5.74	1.6	0.583
17.367	0.000	0.93	0.04	5.73	1.5	0.583
17.383	0.000	0.92	0.04	5.72	1.5	0.582
17.400	0.000	0.91	0.04	5.71	1.5	0.581
17.417	0.000	0.91	0.04	5.70	1.5	0.580
17.433	0.000	0.90	0.04	5.69	1.4	0.579
17.450	0.000	0.90	0.04	5.69	1.4	0.578
17.467	0.000	0.89	0.04	5.68	1.4	0.578
17.483	0.000	0.88	0.04	5.67	1.4	0.577
17.500	0.000	0.88	0.04	5.66	1.4	0.576
17.517	0.000	0.87	0.04	5.66	1.3	0.576
17.533	0.000	0.87	0.04	5.65	1.3	0.575
17.550	0.000	0.86	0.04	5.65	1.3	0.574
17.567	0.000	0.86	0.04	5.64	1.3	0.574
17.583	0.000	0.85	0.04	5.63	1.3	0.573
17.600	0.000	0.85	0.04	5.63	1.2	0.572
17.617	0.000	0.84	0.04	5.62	1.2	0.572
17.633	0.000	0.84	0.04	5.62	1.2	0.571
17.650	0.000	0.83	0.04	5.61	1.2	0.571
17.667	0.000	0.83	0.04	5.60	1.2	0.570
17.683	0.000	0.82	0.04	5.60	1.2	0.570
17.700	0.000	0.82	0.04	5.59	1.2	0.569
17.717	0.000	0.81	0.04	5.59	1.1	0.569
17.733	0.000	0.81	0.04	5.58	1.1	0.568
17.750	0.000	0.81	0.04	5.58	1.1	0.568
17.767	0.000	0.80	0.04	5.58	1.1	0.567
17.783	0.000	0.80	0.04	5.57	1.1	0.567
17.800	0.000	0.79	0.04	5.57	1.1	0.566
17.817	0.000	0.79	0.04	5.56	1.1	0.566
17.833	0.000	0.78	0.04	5.56	1.0	0.565
17.850	0.000	0.78	0.04	5.55	1.0	0.565
17.867	0.000	0.78	0.04	5.55	1.0	0.565
17.883	0.000	0.77	0.04	5.55	1.0	0.564
17.900	0.000	0.77	0.04	5.54	1.0	0.564
17.917	0.000	0.77	0.04	5.54	1.0	0.563
17.933	0.000	0.76	0.04	5.54	1.0	0.563
17.950	0.000	0.76	0.04	5.53	1.0	0.563
17.967	0.000	0.75	0.04	5.53	1.0	0.562
17.983	0.000	0.75	0.04	5.53	1.0	0.562
18.000	0.000	0.75	0.04	5.52	0.9	0.562

PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 1.340 AF
BASIN STORAGE = 0.000 AF (WITH 0.000 AF INITIALLY FILLED)
OUTFLOW VOLUME = 0.880 AF
LOSS VOLUME = 0.459 AF

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 FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =   4
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 >>>>>MODEL PIPEFLOW ROUTING OF STREAM #1<<<<<
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     MODEL PIPEFLOW ROUTING OF STREAM 1 WHERE
     STORAGE EFFECTS ARE NEGLECTED WITHIN THE PIPE, FLOW
     VELOCITIES ARE ESTIMATED BY ASSUMING STEADY FLOW FOR
     EACH UNIT INTERVAL(NORMAL DEPTH, Dn), AND FLOWS IN EXCESS
     OF (.82)(DIAMETER) ARE PONDED AT THE UPSTREAM INLET:
     UNIT INTERVAL FLOW VELOCITY COMPUTED USING Dn UP TO
     (0.938)(DIAMETER):

     PIPELENGTH(FT) =     468.00     MANNINGS FACTOR = 0.013
     UPSTREAM ELEVATION(FT) =     130.00
     DOWNSTREAM ELEVATION(FT) =     127.60
     PIPE DIAMETER(FT) =   2.00

     NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

      TIME     INFLOW   VELOCITY  OUTFLOW    UPSTREAM
      (HRS)     (CFS)    (FPS)     (CFS)   PONDING(AF)
      14.000    0.03     0.50     0.03       0.000
      14.017    0.03     0.50     0.03       0.000
      14.033    0.03     0.50     0.03       0.000
      14.050    0.03     0.50     0.03       0.000
      14.067    0.03     0.50     0.03       0.000
      14.083    0.03     0.50     0.03       0.000
      14.100    0.03     0.50     0.03       0.000
      14.117    0.03     0.50     0.03       0.000
      14.133    0.03     0.50     0.03       0.000
      14.150    0.03     0.50     0.03       0.000
      14.167    0.03     0.50     0.03       0.000
      14.183    0.03     0.50     0.03       0.000
      14.200    0.03     0.50     0.03       0.000
      14.217    0.03     0.50     0.03       0.000
      14.233    0.03     0.50     0.03       0.000
      14.250    0.03     0.50     0.03       0.000
      14.267    0.03     0.50     0.03       0.000
      14.283    0.03     0.50     0.03       0.000
      14.300    0.03     0.50     0.03       0.000
      14.317    0.03     0.50     0.03       0.000
      14.333    0.03     0.50     0.03       0.000
      14.350    0.03     0.50     0.03       0.000
      14.367    0.03     0.50     0.03       0.000
      14.383    0.03     0.50     0.03       0.000
      14.400    0.03     0.50     0.03       0.000
      14.417    0.03     0.50     0.03       0.000
      14.433    0.03     0.50     0.03       0.000
      14.450    0.03     0.50     0.03       0.000
      14.467    0.03     0.50     0.03       0.000
      14.483    0.03     0.50     0.03       0.000
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NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
14.500	0.03	0.50	0.03	0.000
14.517	0.03	0.50	0.03	0.000
14.533	0.03	0.50	0.03	0.000
14.550	0.03	0.50	0.03	0.000
14.567	0.03	0.50	0.03	0.000
14.583	0.03	0.50	0.03	0.000
14.600	0.03	0.50	0.03	0.000
14.617	0.03	0.50	0.03	0.000
14.633	0.03	0.50	0.03	0.000
14.650	0.03	0.50	0.03	0.000
14.667	0.03	0.50	0.03	0.000
14.683	0.03	0.50	0.03	0.000
14.700	0.03	0.50	0.03	0.000
14.717	0.03	0.50	0.03	0.000
14.733	0.03	0.50	0.03	0.000
14.750	0.03	0.50	0.03	0.000
14.767	0.03	0.50	0.03	0.000
14.783	0.03	0.50	0.03	0.000
14.800	0.03	0.50	0.03	0.000
14.817	0.03	0.50	0.03	0.000
14.833	0.03	0.50	0.03	0.000
14.850	0.03	0.50	0.03	0.000
14.867	0.03	0.50	0.03	0.000
14.883	0.03	0.50	0.03	0.000
14.900	0.03	0.50	0.03	0.000
14.917	0.03	0.50	0.03	0.000
14.933	0.03	0.50	0.03	0.000
14.950	0.03	0.50	0.03	0.000
14.967	0.03	0.50	0.03	0.000
14.983	0.03	0.50	0.03	0.000
15.000	0.03	0.50	0.03	0.000
15.017	0.03	0.50	0.03	0.000
15.033	0.03	0.50	0.03	0.000
15.050	0.03	0.50	0.03	0.000
15.067	0.03	0.50	0.03	0.000
15.083	0.03	0.50	0.03	0.000
15.100	0.03	0.50	0.03	0.000
15.117	0.03	0.50	0.03	0.000
15.133	0.03	0.50	0.03	0.000
15.150	0.03	0.50	0.03	0.000
15.167	0.03	0.50	0.03	0.000
15.183	0.03	0.50	0.03	0.000
15.200	0.03	0.50	0.03	0.000
15.217	0.03	0.50	0.03	0.000
15.233	0.03	0.50	0.03	0.000
15.250	0.03	0.50	0.03	0.000
15.267	0.04	0.50	0.03	0.000
15.283	0.07	0.50	0.03	0.000
15.300	0.14	0.50	0.03	0.000
15.317	0.20	0.67	0.03	0.000

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
15.333	0.26	0.87	0.03	0.000
15.350	0.33	1.08	0.03	0.000
15.367	0.38	1.27	0.03	0.000
15.383	0.44	1.46	0.03	0.000
15.400	0.50	1.64	0.03	0.000
15.417	0.55	1.82	0.03	0.000
15.433	0.60	1.99	0.03	0.000
15.450	0.65	2.15	0.03	0.000
15.467	0.70	2.31	1.05	0.000
15.483	0.74	2.46	1.36	0.000
15.500	0.79	2.61	1.05	0.000
15.517	0.83	2.70	1.02	0.000
15.533	0.88	2.73	0.94	0.000
15.550	0.92	2.76	1.09	0.000
15.567	0.96	2.79	0.95	0.000
15.583	1.00	2.82	0.91	0.000
15.600	1.04	2.84	0.96	0.000
15.617	1.08	2.87	1.00	0.000
15.633	1.12	2.90	1.04	0.000
15.650	1.16	2.93	1.08	0.000
15.667	1.20	2.96	1.12	0.000
15.683	1.24	2.99	1.17	0.000
15.700	1.28	3.01	1.21	0.000
15.717	1.32	3.04	1.25	0.000
15.733	1.36	3.07	1.29	0.000
15.750	1.41	3.10	1.33	0.000
15.767	1.45	3.13	1.37	0.000
15.783	1.51	3.17	1.42	0.000
15.800	1.56	3.21	1.47	0.000
15.817	1.62	3.25	1.52	0.000
15.833	1.69	3.29	1.58	0.000
15.850	1.76	3.33	1.65	0.000
15.867	1.84	3.37	1.71	0.000
15.883	1.91	3.41	1.78	0.000
15.900	2.00	3.45	1.86	0.000
15.917	2.08	3.50	1.94	0.000
15.933	2.17	3.55	2.03	0.000
15.950	2.27	3.60	2.12	0.000
15.967	2.37	3.65	2.22	0.000
15.983	2.47	3.70	2.32	0.000
16.000	2.57	3.74	2.42	0.000
16.017	2.69	3.79	2.52	0.000
16.033	2.84	3.86	2.62	0.000
16.050	3.04	3.94	2.75	0.000
16.067	3.28	4.03	2.99	0.000
16.083	3.56	4.13	3.26	0.000
16.100	3.87	4.23	3.45	0.000
16.117	4.23	4.35	3.77	0.000
16.133	4.62	4.47	4.13	0.000
16.150	5.13	4.59	4.54	0.000

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
16.167	5.78	4.73	5.00	0.000
16.183	6.39	4.85	5.60	0.000
16.200	6.82	4.93	6.27	0.000
16.217	7.08	4.97	6.72	0.000
16.233	7.20	4.99	7.02	0.000
16.250	7.17	4.98	7.17	0.000
16.267	7.02	4.96	7.18	0.000
16.283	6.76	4.92	7.05	0.000
16.300	6.46	4.87	6.82	0.000
16.317	6.16	4.81	6.53	0.000
16.333	5.88	4.75	6.21	0.000
16.350	5.61	4.69	5.94	0.000
16.367	5.35	4.64	5.67	0.000
16.383	5.14	4.59	5.42	0.000
16.400	4.99	4.56	5.20	0.000
16.417	4.88	4.54	5.04	0.000
16.433	4.76	4.51	4.91	0.000
16.450	4.65	4.47	4.78	0.000
16.467	4.55	4.44	4.67	0.000
16.483	4.44	4.41	4.57	0.000
16.500	4.35	4.38	4.47	0.000
16.517	4.25	4.35	4.37	0.000
16.533	4.16	4.32	4.27	0.000
16.550	4.07	4.30	4.18	0.000
16.567	3.98	4.27	4.09	0.000
16.583	3.89	4.24	4.00	0.000
16.600	3.81	4.21	3.92	0.000
16.617	3.73	4.18	3.84	0.000
16.633	3.65	4.16	3.75	0.000
16.650	3.57	4.13	3.68	0.000
16.667	3.50	4.11	3.60	0.000
16.683	3.42	4.08	3.52	0.000
16.700	3.35	4.06	3.45	0.000
16.717	3.28	4.03	3.38	0.000
16.733	3.21	4.01	3.30	0.000
16.750	3.14	3.98	3.23	0.000
16.767	3.07	3.95	3.16	0.000
16.783	3.01	3.93	3.09	0.000
16.800	2.94	3.90	3.03	0.000
16.817	2.88	3.87	2.97	0.000
16.833	2.82	3.85	2.94	0.000
16.850	2.76	3.82	2.84	0.000
16.867	2.70	3.80	2.78	0.000
16.883	2.65	3.78	2.73	0.000
16.900	2.59	3.75	2.67	0.000
16.917	2.54	3.73	2.62	0.000
16.933	2.49	3.71	2.56	0.000
16.950	2.44	3.69	2.51	0.000
16.967	2.39	3.66	2.46	0.000
16.983	2.34	3.64	2.41	0.000

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
17.000	2.29	3.61	2.36	0.000
17.017	2.24	3.59	2.31	0.000
17.033	2.20	3.56	2.26	0.000
17.050	2.16	3.54	2.22	0.000
17.067	2.11	3.52	2.18	0.000
17.083	2.07	3.49	2.13	0.000
17.100	2.03	3.47	2.09	0.000
17.117	1.99	3.45	2.05	0.000
17.133	1.96	3.43	2.01	0.000
17.150	1.92	3.41	1.98	0.000
17.167	1.88	3.39	1.94	0.000
17.183	1.85	3.37	1.90	0.000
17.200	1.82	3.35	1.87	0.000
17.217	1.78	3.34	1.84	0.000
17.233	1.75	3.32	1.80	0.000
17.250	1.72	3.30	1.77	0.000
17.267	1.69	3.29	1.74	0.000
17.283	1.66	3.27	1.71	0.000
17.300	1.64	3.26	1.68	0.000
17.317	1.61	3.24	1.66	0.000
17.333	1.58	3.22	1.63	0.000
17.350	1.56	3.20	1.60	0.000
17.367	1.53	3.19	1.57	0.000
17.383	1.51	3.17	1.55	0.000
17.400	1.48	3.15	1.52	0.000
17.417	1.46	3.14	1.50	0.000
17.433	1.44	3.12	1.47	0.000
17.450	1.42	3.11	1.45	0.000
17.467	1.39	3.09	1.43	0.000
17.483	1.37	3.08	1.41	0.000
17.500	1.35	3.06	1.39	0.000
17.517	1.33	3.05	1.37	0.000
17.533	1.32	3.04	1.35	0.000
17.550	1.30	3.02	1.33	0.000
17.567	1.28	3.01	1.31	0.000
17.583	1.26	3.00	1.29	0.000
17.600	1.25	2.99	1.28	0.000
17.617	1.23	2.97	1.26	0.000
17.633	1.21	2.96	1.24	0.000
17.650	1.20	2.95	1.23	0.000
17.667	1.18	2.94	1.21	0.000
17.683	1.17	2.93	1.19	0.000
17.700	1.15	2.92	1.18	0.000
17.717	1.14	2.91	1.17	0.000
17.733	1.12	2.90	1.15	0.000
17.750	1.11	2.89	1.14	0.000
17.767	1.10	2.88	1.12	0.000
17.783	1.09	2.87	1.11	0.000
17.800	1.07	2.87	1.10	0.000
17.817	1.06	2.86	1.09	0.000

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
17.833	1.05	2.85	1.07	0.000
17.850	1.04	2.84	1.06	0.000
17.867	1.03	2.83	1.05	0.000
17.883	1.02	2.83	1.04	0.000
17.900	1.00	2.82	1.03	0.000
17.917	0.99	2.81	1.02	0.000
17.933	0.98	2.80	1.01	0.000
17.950	0.97	2.80	1.00	0.000
17.967	0.96	2.79	0.99	0.000
17.983	0.96	2.78	0.98	0.000
18.000	0.95	2.78	0.97	0.000

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****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    202.00 IS CODE = 1.2
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (SMALL AREA UNIT-HYDROGRAPH ANALYSIS) <<<<<
============================================================================

  (SMALL AREA UNIT-HYDROGRAPH ADDED TO STREAM #2)

   RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
   TOTAL CATCHMENT AREA(ACRES) =    2.51
   SOIL-LOSS RATE, Fm,(INCH/HR) =  0.060
   LOW LOSS FRACTION = 0.207
   TIME OF CONCENTRATION(MIN.) =  9.25
   SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
   ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED:
   RETURN FREQUENCY(YEARS) =  25
     5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.40
    30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.87
     1-HOUR   POINT RAINFALL VALUE(INCHES) =  1.15
     3-HOUR   POINT RAINFALL VALUE(INCHES) =  1.94
     6-HOUR   POINT RAINFALL VALUE(INCHES) =  2.71
    24-HOUR   POINT RAINFALL VALUE(INCHES) =  4.49

----------------------------------------------------------------------------
   TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     0.71
   TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.23

----------------------------------------------------------------------------
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================================================================================

            2 4 - H O U R   S T O R M
          R U N O F F   H Y D R O G R A P H

================================================================================
        HYDROGRAPH IN  ONE-MINUTE UNIT INTERVALS(CFS)
    (Notes: Time indicated is at END of Each Unit Intervals.
        Peak 5-minute rainfall intensity is modeled as
        a constant value for entire 5-minute period.)
-----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.       1.9       3.8       5.6       7.5
-----------------------------------------------------------------------------
  14.000    0.2470    0.55 .Q        . V       .         .         .
  14.017    0.2477    0.55 .Q        .  V      .         .         .
  14.033    0.2485    0.55 .Q        .  V      .         .         .
  14.050    0.2493    0.55 .Q        .  V      .         .         .
  14.067    0.2500    0.56 .Q        .  V      .         .         .
  14.083    0.2508    0.56 .Q        .  V      .         .         .
  14.100    0.2516    0.56 .Q        .  V      .         .         .
  14.117    0.2523    0.56 .Q        .  V      .         .         .
  14.133    0.2531    0.56 .Q        .  V      .         .         .
  14.150    0.2539    0.56 .Q        .  V      .         .         .
  14.167    0.2547    0.57 . Q       .  V      .         .         .
  14.183    0.2555    0.57 . Q       .  V      .         .         .
  14.200    0.2562    0.57 . Q       .  V      .         .         .
  14.217    0.2570    0.58 . Q       .  V      .         .         .
  14.233    0.2578    0.58 . Q       .  V      .         .         .
  14.250    0.2586    0.59 . Q       .  V      .         .         .
  14.267    0.2595    0.59 . Q       .  V      .         .         .
  14.283    0.2603    0.59 . Q       .  V      .         .         .
  14.300    0.2611    0.60 . Q       .  V      .         .         .
  14.317    0.2619    0.60 . Q       .  V      .         .         .
  14.333    0.2628    0.60 . Q       .  V      .         .         .
  14.350    0.2636    0.61 . Q       .  V      .         .         .
  14.367    0.2644    0.61 . Q       .  V      .         .         .
  14.383    0.2653    0.61 . Q       .   V     .         .         .
  14.400    0.2661    0.61 . Q       .   V     .         .         .
  14.417    0.2670    0.62 . Q       .   V     .         .         .
  14.433    0.2678    0.62 . Q       .   V     .         .         .
  14.450    0.2687    0.62 . Q       .   V     .         .         .
  14.467    0.2695    0.62 . Q       .   V     .         .         .
  14.483    0.2704    0.63 . Q       .   V     .         .         .
  14.500    0.2713    0.63 . Q       .   V     .         .         .
  14.517    0.2721    0.64 . Q       .   V     .         .         .
  14.533    0.2730    0.65 . Q       .   V     .         .         .
  14.550    0.2739    0.65 . Q       .   V     .         .         .
  14.567    0.2748    0.66 . Q       .   V     .         .         .
  14.583    0.2757    0.66 . Q       .   V     .         .         .
  14.600    0.2767    0.67 . Q       .   V     .         .         .
  14.617    0.2776    0.67 . Q       .   V     .         .         .
  14.633    0.2785    0.68 . Q       .   V     .         .         .
  14.650    0.2795    0.68 . Q       .   V     .         .         .
  14.667    0.2804    0.69 . Q       .   V     .         .         .
  14.683    0.2814    0.69 . Q       .   V     .         .         .
  14.700    0.2823    0.69 . Q       .   V     .         .         .
  14.717    0.2833    0.70 . Q       .    V    .         .         .
  14.733    0.2842    0.70 . Q       .    V    .         .         .
  14.750    0.2852    0.70 . Q       .    V    .         .         .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.      1.9      3.8      5.6      7.5
----------------------------------------------------------------------------
 14.767    0.2862    0.71 . Q     .     V  .        .        .
 14.783    0.2872    0.71 . Q     .     V  .        .        .
 14.800    0.2881    0.72 . Q     .     V  .        .        .
 14.817    0.2891    0.73 . Q     .     V  .        .        .
 14.833    0.2902    0.73 . Q     .     V  .        .        .
 14.850    0.2912    0.74 . Q     .     V  .        .        .
 14.867    0.2922    0.75 . Q     .     V  .        .        .
 14.883    0.2933    0.76 .  Q    .     V  .        .        .
 14.900    0.2943    0.77 .  Q    .     V  .        .        .
 14.917    0.2954    0.77 .  Q    .     V  .        .        .
 14.933    0.2965    0.78 .  Q    .     V  .        .        .
 14.950    0.2975    0.79 .  Q    .     V  .        .        .
 14.967    0.2986    0.79 .  Q    .     V  .        .        .
 14.983    0.2997    0.80 .  Q    .     V  .        .        .
 15.000    0.3008    0.80 .  Q    .      V .        .        .
 15.017    0.3019    0.81 .  Q    .      V .        .        .
 15.033    0.3031    0.81 .  Q    .      V .        .        .
 15.050    0.3042    0.82 .  Q    .      V .        .        .
 15.067    0.3053    0.82 .  Q    .      V .        .        .
 15.083    0.3064    0.83 .  Q    .      V .        .        .
 15.100    0.3076    0.84 .  Q    .      V .        .        .
 15.117    0.3088    0.85 .  Q    .      V .        .        .
 15.133    0.3100    0.86 .  Q    .      V .        .        .
 15.150    0.3112    0.87 .  Q    .      V .        .        .
 15.167    0.3124    0.89 .  Q    .      V .        .        .
 15.183    0.3136    0.90 .  Q    .      V .        .        .
 15.200    0.3149    0.91 .  Q    .      V .        .        .
 15.217    0.3161    0.92 .  Q    .      V .        .        .
 15.233    0.3174    0.93 .  Q    .      V .        .        .
 15.250    0.3187    0.94 .   Q   .       V.        .        .
 15.267    0.3200    0.95 .   Q   .       V.        .        .
 15.283    0.3214    0.96 .   Q   .       V.        .        .
 15.300    0.3227    0.97 .   Q   .       V.        .        .
 15.317    0.3240    0.98 .   Q   .       V.        .        .
 15.333    0.3254    0.98 .   Q   .       V.        .        .
 15.350    0.3268    0.99 .   Q   .       V.        .        .
 15.367    0.3281    1.00 .   Q   .       V.        .        .
 15.383    0.3295    1.01 .   Q   .       V.        .        .
 15.400    0.3309    1.01 .   Q   .       V.        .        .
 15.417    0.3323    1.01 .   Q   .       V.        .        .
 15.433    0.3337    1.01 .   Q   .       V.        .        .
 15.450    0.3351    1.01 .   Q   .       V.        .        .
 15.467    0.3365    1.02 .   Q   .        V.       .        .
 15.483    0.3379    1.02 .   Q   .        V.       .        .
 15.500    0.3393    1.02 .   Q   .        V.       .        .
 15.517    0.3407    1.02 .   Q   .        V.       .        .
 15.533    0.3421    1.02 .   Q   .        V.       .        .
 15.550    0.3435    1.02 .   Q   .        V.       .        .
 15.567    0.3450    1.04 .   Q   .        V.       .        .
 15.583    0.3464    1.06 .   Q   .        V.       .        .
```

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---------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.        1.9       3.8       5.6       7.5
---------------------------------------------------------------------------
  15.600    0.3479    1.07 .   Q    .        V.        .         .
  15.617    0.3494    1.09 .   Q    .        V.        .         .
  15.633    0.3509    1.10 .   Q    .        V.        .         .
  15.650    0.3525    1.12 .   Q    .        V.        .         .
  15.667    0.3540    1.14 .    Q   .         V        .         .
  15.683    0.3556    1.15 .    Q   .         V        .         .
  15.700    0.3572    1.18 .    Q   .         V        .         .
  15.717    0.3589    1.24 .    Q   .         V        .         .
  15.733    0.3608    1.32 .     Q  .         V        .         .
  15.750    0.3627    1.39 .     Q  .         V        .         .
  15.767    0.3647    1.46 .     Q  .         V        .         .
  15.783    0.3668    1.54 .      Q .         V        .         .
  15.800    0.3690    1.61 .      Q .         V        .         .
  15.817    0.3713    1.69 .      Q .         .V       .         .
  15.833    0.3738    1.76 .       Q.         .V       .         .
  15.850    0.3763    1.83 .       Q.         .V       .         .
  15.867    0.3789    1.91 .        Q         .V       .         .
  15.883    0.3817    1.98 .        Q         .V       .         .
  15.900    0.3845    2.06 .        Q         .V       .         .
  15.917    0.3874    2.13 .        .Q        .V       .         .
  15.933    0.3905    2.21 .        .Q        . V      .         .
  15.950    0.3936    2.28 .        . Q       . V      .         .
  15.967    0.3969    2.36 .        . Q       . V      .         .
  15.983    0.4002    2.44 .        . Q       . V      .         .
  16.000    0.4037    2.51 .        .  Q      . V      .         .
  16.017    0.4076    2.82 .        .   Q     .  V     .         .
  16.033    0.4122    3.35 .        .      Q  .  V     .         .
  16.050    0.4175    3.89 .        .         Q  V     .         .
  16.067    0.4236    4.43 .        .         .  Q     .         .
  16.083    0.4305    4.97 .        .         .  V Q   .         .
  16.100    0.4381    5.50 .        .         .  V    Q.         .
  16.117    0.4464    6.04 .        .         .   V    . Q       .
  16.133    0.4554    6.58 .        .         .   V    .   Q     .
  16.150    0.4652    7.11 .        .         .    V   .      Q  .
  16.167    0.4756    7.52 .        .         .    V   .         Q
  16.183    0.4848    6.69 .        .         .     V .     Q    .
  16.200    0.4931    6.03 .        .         .     V . Q        .
  16.217    0.5005    5.37 .        .         .      Q .         .
  16.233    0.5070    4.71 .        .         .   Q  V .         .
  16.250    0.5126    4.05 .        .         .Q       V.        .
  16.267    0.5173    3.39 .        .       Q .        V.        .
  16.283    0.5210    2.73 .        .   Q     .        V.        .
  16.300    0.5239    2.07 .        .Q        .        V.        .
  16.317    0.5259    1.49 .     Q  .         .        V.        .
  16.333    0.5278    1.37 .     Q  .         .        V.        .
  16.350    0.5296    1.32 .     Q  .         .        V.        .
  16.367    0.5314    1.28 .    Q   .         .         V        .
  16.383    0.5331    1.24 .    Q   .         .         V        .
  16.400    0.5347    1.19 .    Q   .         .         V        .
  16.417    0.5363    1.15 .    Q   .         .         V        .
```

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----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.       1.9       3.8       5.6       7.5
----------------------------------------------------------------------------
  16.433    0.5379    1.11 .    Q    .         .         V         .
  16.450    0.5393    1.06 .    Q    .         .         V         .
  16.467    0.5407    1.02 .    Q    .         .         V         .
  16.483    0.5421    1.00 .    Q    .         .         V         .
  16.500    0.5434    0.98 .    Q    .         .         V         .
  16.517    0.5448    0.97 .    Q    .         .         V         .
  16.533    0.5461    0.95 .    Q    .         .         V         .
  16.550    0.5474    0.94 .    Q    .         .         V         .
  16.567    0.5487    0.93 .   Q     .         .         .V        .
  16.583    0.5499    0.91 .   Q     .         .         .V        .
  16.600    0.5512    0.90 .   Q     .         .         .V        .
  16.617    0.5524    0.88 .   Q     .         .         .V        .
  16.633    0.5536    0.87 .   Q     .         .         .V        .
  16.650    0.5548    0.86 .   Q     .         .         .V        .
  16.667    0.5559    0.84 .   Q     .         .         .V        .
  16.683    0.5571    0.83 .   Q     .         .         .V        .
  16.700    0.5582    0.81 .   Q     .         .         .V        .
  16.717    0.5593    0.80 .   Q     .         .         .V        .
  16.733    0.5603    0.78 .   Q     .         .         .V        .
  16.750    0.5614    0.77 .   Q     .         .         .V        .
  16.767    0.5624    0.75 .   Q     .         .         .V        .
  16.783    0.5635    0.74 .  Q      .         .         .V        .
  16.800    0.5645    0.73 .  Q      .         .         .V        .
  16.817    0.5654    0.72 .  Q      .         .         .V        .
  16.833    0.5664    0.71 .  Q      .         .         . V       .
  16.850    0.5674    0.70 .  Q      .         .         . V       .
  16.867    0.5683    0.69 .  Q      .         .         . V       .
  16.883    0.5693    0.68 .  Q      .         .         . V       .
  16.900    0.5702    0.67 .  Q      .         .         . V       .
  16.917    0.5711    0.66 .  Q      .         .         . V       .
  16.933    0.5720    0.65 .  Q      .         .         . V       .
  16.950    0.5729    0.64 .  Q      .         .         . V       .
  16.967    0.5737    0.63 .  Q      .         .         . V       .
  16.983    0.5746    0.63 .  Q      .         .         . V       .
  17.000    0.5755    0.62 .  Q      .         .         . V       .
  17.017    0.5763    0.61 .  Q      .         .         . V       .
  17.033    0.5771    0.60 .  Q      .         .         . V       .
  17.050    0.5779    0.60 .  Q      .         .         . V       .
  17.067    0.5788    0.59 .  Q      .         .         . V       .
  17.083    0.5796    0.58 .  Q      .         .         . V       .
  17.100    0.5803    0.57 .  Q      .         .         . V       .
  17.117    0.5811    0.57 .  Q      .         .         . V       .
  17.133    0.5819    0.57 .  Q      .         .         . V       .
  17.150    0.5827    0.56 . Q       .         .         . V       .
  17.167    0.5834    0.56 . Q       .         .         .  V      .
  17.183    0.5842    0.55 . Q       .         .         .  V      .
  17.200    0.5850    0.55 . Q       .         .         .  V      .
  17.217    0.5857    0.54 . Q       .         .         .  V      .
  17.233    0.5864    0.54 . Q       .         .         .  V      .
  17.250    0.5872    0.53 . Q       .         .         .  V      .
```

```
-----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.       1.9       3.8       5.6       7.5
-----------------------------------------------------------------------------
  17.267    0.5879     0.53  . Q      .        .       . V      .
  17.283    0.5886     0.52  . Q      .        .       . V      .
  17.300    0.5893     0.52  . Q      .        .       . V      .
  17.317    0.5900     0.52  . Q      .        .       . V      .
  17.333    0.5907     0.51  . Q      .        .       . V      .
  17.350    0.5914     0.51  . Q      .        .       . V      .
  17.367    0.5921     0.50  . Q      .        .       . V      .
  17.383    0.5928     0.50  . Q      .        .       . V      .
  17.400    0.5935     0.50  . Q      .        .       . V      .
  17.417    0.5942     0.49  . Q      .        .       . V      .
  17.433    0.5949     0.49  . Q      .        .       . V      .
  17.450    0.5955     0.49  . Q      .        .       . V      .
  17.467    0.5962     0.48  . Q      .        .       . V      .
  17.483    0.5969     0.48  . Q      .        .       . V      .
  17.500    0.5975     0.48  . Q      .        .       . V      .
  17.517    0.5982     0.47  . Q      .        .       . V      .
  17.533    0.5988     0.47  . Q      .        .       . V      .
  17.550    0.5995     0.47  . Q      .        .       . V      .
  17.567    0.6001     0.46  . Q      .        .       . V      .
  17.583    0.6007     0.46  . Q      .        .       . V      .
  17.600    0.6014     0.46  . Q      .        .       .  V     .
  17.617    0.6020     0.46  . Q      .        .       .  V     .
  17.633    0.6026     0.45  . Q      .        .       .  V     .
  17.650    0.6032     0.45  . Q      .        .       .  V     .
  17.667    0.6039     0.45  . Q      .        .       .  V     .
  17.683    0.6045     0.45  . Q      .        .       .  V     .
  17.700    0.6051     0.44  . Q      .        .       .  V     .
  17.717    0.6057     0.44  . Q      .        .       .  V     .
  17.733    0.6063     0.44  . Q      .        .       .  V     .
  17.750    0.6069     0.44  . Q      .        .       .  V     .
  17.767    0.6075     0.43  . Q      .        .       .  V     .
  17.783    0.6081     0.43  . Q      .        .       .  V     .
  17.800    0.6087     0.43  . Q      .        .       .  V     .
  17.817    0.6093     0.43  . Q      .        .       .  V     .
  17.833    0.6099     0.43  . Q      .        .       .  V     .
  17.850    0.6104     0.42  . Q      .        .       .  V     .
  17.867    0.6110     0.42  . Q      .        .       .  V     .
  17.883    0.6116     0.42  . Q      .        .       .  V     .
  17.900    0.6122     0.42  . Q      .        .       .  V     .
  17.917    0.6127     0.41  . Q      .        .       .  V     .
  17.933    0.6133     0.41  . Q      .        .       .  V     .
  17.950    0.6139     0.41  . Q      .        .       .  V     .
  17.967    0.6144     0.41  . Q      .        .       .  V     .
  17.983    0.6150     0.41  . Q      .        .       .  V     .
  18.000    0.6156     0.40  . Q      .        .       .  V     .
-------------------------------------------------------------------------------
```

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1081.0
10%	570.0
20%	160.0
30%	105.0
40%	75.0
50%	65.0
60%	50.0
70%	40.0

80%	30.0
90%	10.0

```
****************************************************************************
  FLOW PROCESS FROM NODE    203.00 TO NODE    203.00 IS CODE = 3.2
----------------------------------------------------------------------------
  >>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #2<<<<<
============================================================================
```

```
             INFLOW
            (STREAM 2)
               |
               |
               V            __effective depth
           -----------       |  (and volume)
          |           |    |    |
          |           |    |....V........
          | detention |<-->|          outflow
          |   basin   |    |.........________
           -----------     |    ^    | \
               |           |  dead   |  basin outlet
               V           | storage |
             OUTFLOW        ---------
            (STREAM 2)
```

ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 2
THROUGH A FLOW-THROUGH DETENTION BASIN
SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
DEAD STORAGE(AF) = 0.000
SPECIFIED DEAD STORAGE(AF) FILLED = 0.000
SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET = 0.000
DETENTION BASIN CONSTANT LOSS RATE(CFS) = 0.04

BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

INTERVAL NUMBER	DEPTH (FT)	OUTFLOW (CFS)	STORAGE (AF)
1	0.00	0.00	0.000
2	2.00	0.01	0.040
3	3.00	0.02	0.061
4	5.00	0.04	0.101
5	6.25	25.32	0.126

==
MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
14.017	0.000	0.55	0.04	5.02	0.5	0.101
14.033	0.000	0.55	0.04	5.02	0.5	0.101
14.050	0.000	0.55	0.04	5.02	0.5	0.101
14.067	0.000	0.56	0.04	5.02	0.5	0.101
14.083	0.000	0.56	0.04	5.02	0.5	0.101
14.100	0.000	0.56	0.04	5.02	0.5	0.101
14.117	0.000	0.56	0.04	5.02	0.5	0.101
14.133	0.000	0.56	0.04	5.02	0.5	0.101
14.150	0.000	0.56	0.04	5.02	0.5	0.101
14.167	0.000	0.57	0.04	5.02	0.5	0.101
14.183	0.000	0.57	0.04	5.02	0.5	0.101
14.200	0.000	0.57	0.04	5.02	0.5	0.101
14.217	0.000	0.58	0.04	5.02	0.5	0.101
14.233	0.000	0.58	0.04	5.02	0.5	0.101
14.250	0.000	0.59	0.04	5.02	0.5	0.101
14.267	0.000	0.59	0.04	5.03	0.5	0.102
14.283	0.000	0.59	0.04	5.03	0.6	0.102
14.300	0.000	0.60	0.04	5.03	0.6	0.102
14.317	0.000	0.60	0.04	5.03	0.6	0.102
14.333	0.000	0.60	0.04	5.03	0.6	0.102
14.350	0.000	0.61	0.04	5.03	0.6	0.102
14.367	0.000	0.61	0.04	5.03	0.6	0.102
14.383	0.000	0.61	0.04	5.03	0.6	0.102
14.400	0.000	0.61	0.04	5.03	0.6	0.102
14.417	0.000	0.62	0.04	5.03	0.6	0.102
14.433	0.000	0.62	0.04	5.03	0.6	0.102
14.450	0.000	0.62	0.04	5.03	0.6	0.102
14.467	0.000	0.62	0.04	5.03	0.6	0.102
14.483	0.000	0.63	0.04	5.03	0.6	0.102
14.500	0.000	0.63	0.04	5.03	0.6	0.102
14.517	0.000	0.64	0.04	5.03	0.6	0.102
14.533	0.000	0.65	0.04	5.03	0.6	0.102
14.550	0.000	0.65	0.04	5.03	0.6	0.102
14.567	0.000	0.66	0.04	5.03	0.6	0.102
14.583	0.000	0.66	0.04	5.03	0.6	0.102
14.600	0.000	0.67	0.04	5.03	0.6	0.102
14.617	0.000	0.67	0.04	5.03	0.6	0.102
14.633	0.000	0.68	0.04	5.03	0.6	0.102
14.650	0.000	0.68	0.04	5.03	0.6	0.102
14.667	0.000	0.69	0.04	5.03	0.6	0.102
14.683	0.000	0.69	0.04	5.03	0.6	0.102
14.700	0.000	0.69	0.04	5.03	0.6	0.102
14.717	0.000	0.70	0.04	5.03	0.7	0.102
14.733	0.000	0.70	0.04	5.03	0.7	0.102
14.750	0.000	0.70	0.04	5.03	0.7	0.102
14.767	0.000	0.71	0.04	5.03	0.7	0.102
14.783	0.000	0.71	0.04	5.03	0.7	0.102
14.800	0.000	0.72	0.04	5.03	0.7	0.102
14.817	0.000	0.73	0.04	5.03	0.7	0.102
14.833	0.000	0.73	0.04	5.03	0.7	0.102

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
14.850	0.000	0.74	0.04	5.03	0.7	0.102
14.867	0.000	0.75	0.04	5.03	0.7	0.102
14.883	0.000	0.76	0.04	5.03	0.7	0.102
14.900	0.000	0.77	0.04	5.03	0.7	0.102
14.917	0.000	0.77	0.04	5.03	0.7	0.102
14.933	0.000	0.78	0.04	5.03	0.7	0.102
14.950	0.000	0.79	0.04	5.03	0.7	0.102
14.967	0.000	0.79	0.04	5.04	0.7	0.102
14.983	0.000	0.80	0.04	5.04	0.8	0.102
15.000	0.000	0.80	0.04	5.04	0.8	0.102
15.017	0.000	0.81	0.04	5.04	0.8	0.102
15.033	0.000	0.81	0.04	5.04	0.8	0.102
15.050	0.000	0.82	0.04	5.04	0.8	0.102
15.067	0.000	0.82	0.04	5.04	0.8	0.102
15.083	0.000	0.83	0.04	5.04	0.8	0.102
15.100	0.000	0.84	0.04	5.04	0.8	0.102
15.117	0.000	0.85	0.04	5.04	0.8	0.102
15.133	0.000	0.86	0.04	5.04	0.8	0.102
15.150	0.000	0.87	0.04	5.04	0.8	0.102
15.167	0.000	0.89	0.04	5.04	0.8	0.102
15.183	0.000	0.90	0.04	5.04	0.8	0.102
15.200	0.000	0.91	0.04	5.04	0.9	0.102
15.217	0.000	0.92	0.04	5.04	0.9	0.102
15.233	0.000	0.93	0.04	5.04	0.9	0.102
15.250	0.000	0.94	0.04	5.04	0.9	0.102
15.267	0.000	0.95	0.04	5.04	0.9	0.102
15.283	0.000	0.96	0.04	5.04	0.9	0.102
15.300	0.000	0.97	0.04	5.04	0.9	0.102
15.317	0.000	0.98	0.04	5.04	0.9	0.102
15.333	0.000	0.98	0.04	5.04	0.9	0.102
15.350	0.000	0.99	0.04	5.04	0.9	0.102
15.367	0.000	1.00	0.04	5.05	1.0	0.102
15.383	0.000	1.01	0.04	5.05	1.0	0.102
15.400	0.000	1.01	0.04	5.05	1.0	0.102
15.417	0.000	1.01	0.04	5.05	1.0	0.102
15.433	0.000	1.01	0.04	5.05	1.0	0.102
15.450	0.000	1.01	0.04	5.05	1.0	0.102
15.467	0.000	1.02	0.04	5.05	1.0	0.102
15.483	0.000	1.02	0.04	5.05	1.0	0.102
15.500	0.000	1.02	0.04	5.05	1.0	0.102
15.517	0.000	1.02	0.04	5.05	1.0	0.102
15.533	0.000	1.02	0.04	5.05	1.0	0.102
15.550	0.000	1.02	0.04	5.05	1.0	0.102
15.567	0.000	1.04	0.04	5.05	1.0	0.102
15.583	0.000	1.06	0.04	5.05	1.0	0.102
15.600	0.000	1.07	0.04	5.05	1.0	0.102
15.617	0.000	1.09	0.04	5.05	1.0	0.102
15.633	0.000	1.10	0.04	5.05	1.1	0.102
15.650	0.000	1.12	0.04	5.05	1.1	0.102
15.667	0.000	1.14	0.04	5.05	1.1	0.102

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
15.683	0.000	1.15	0.04	5.05	1.1	0.102
15.700	0.000	1.18	0.04	5.05	1.1	0.102
15.717	0.000	1.24	0.04	5.06	1.2	0.102
15.733	0.000	1.32	0.04	5.06	1.2	0.102
15.750	0.000	1.39	0.04	5.06	1.3	0.102
15.767	0.000	1.46	0.04	5.07	1.4	0.102
15.783	0.000	1.54	0.04	5.07	1.4	0.102
15.800	0.000	1.61	0.04	5.07	1.5	0.102
15.817	0.000	1.69	0.04	5.08	1.6	0.103
15.833	0.000	1.76	0.04	5.08	1.7	0.103
15.850	0.000	1.83	0.04	5.09	1.7	0.103
15.867	0.000	1.91	0.04	5.09	1.8	0.103
15.883	0.000	1.98	0.04	5.09	1.9	0.103
15.900	0.000	2.06	0.04	5.10	2.0	0.103
15.917	0.000	2.13	0.04	5.10	2.0	0.103
15.933	0.000	2.21	0.04	5.10	2.1	0.103
15.950	0.000	2.28	0.04	5.11	2.2	0.103
15.967	0.000	2.36	0.04	5.11	2.3	0.103
15.983	0.000	2.44	0.04	5.12	2.3	0.103
16.000	0.000	2.51	0.04	5.12	2.4	0.103
16.017	0.000	2.82	0.04	5.13	2.6	0.104
16.033	0.000	3.35	0.04	5.16	3.0	0.104
16.050	0.000	3.89	0.04	5.18	3.5	0.105
16.067	0.000	4.43	0.04	5.21	4.0	0.105
16.083	0.000	4.97	0.04	5.24	4.5	0.106
16.100	0.000	5.50	0.04	5.26	5.1	0.106
16.117	0.000	6.04	0.04	5.29	5.6	0.107
16.133	0.000	6.58	0.04	5.32	6.2	0.107
16.150	0.000	7.11	0.04	5.34	6.7	0.108
16.167	0.000	7.52	0.04	5.36	7.2	0.108
16.183	0.000	6.69	0.04	5.33	7.1	0.108
16.200	0.000	6.03	0.04	5.30	6.5	0.107
16.217	0.000	5.37	0.04	5.27	5.8	0.106
16.233	0.000	4.71	0.04	5.24	5.1	0.106
16.250	0.000	4.05	0.04	5.20	4.5	0.105
16.267	0.000	3.39	0.04	5.17	3.8	0.104
16.283	0.000	2.73	0.04	5.14	3.2	0.104
16.300	0.000	2.07	0.04	5.11	2.5	0.103
16.317	0.000	1.49	0.04	5.08	1.9	0.103
16.333	0.000	1.37	0.04	5.07	1.5	0.102
16.350	0.000	1.32	0.04	5.06	1.3	0.102
16.367	0.000	1.28	0.04	5.06	1.3	0.102
16.383	0.000	1.24	0.04	5.06	1.2	0.102
16.400	0.000	1.19	0.04	5.06	1.2	0.102
16.417	0.000	1.15	0.04	5.05	1.1	0.102
16.433	0.000	1.11	0.04	5.05	1.1	0.102
16.450	0.000	1.06	0.04	5.05	1.1	0.102
16.467	0.000	1.02	0.04	5.05	1.0	0.102
16.483	0.000	1.00	0.04	5.05	1.0	0.102
16.500	0.000	0.98	0.04	5.04	1.0	0.102

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
16.517	0.000	0.97	0.04	5.04	0.9	0.102
16.533	0.000	0.95	0.04	5.04	0.9	0.102
16.550	0.000	0.94	0.04	5.04	0.9	0.102
16.567	0.000	0.93	0.04	5.04	0.9	0.102
16.583	0.000	0.91	0.04	5.04	0.9	0.102
16.600	0.000	0.90	0.04	5.04	0.9	0.102
16.617	0.000	0.88	0.04	5.04	0.9	0.102
16.633	0.000	0.87	0.04	5.04	0.8	0.102
16.650	0.000	0.86	0.04	5.04	0.8	0.102
16.667	0.000	0.84	0.04	5.04	0.8	0.102
16.683	0.000	0.83	0.04	5.04	0.8	0.102
16.700	0.000	0.81	0.04	5.04	0.8	0.102
16.717	0.000	0.80	0.04	5.04	0.8	0.102
16.733	0.000	0.78	0.04	5.03	0.8	0.102
16.750	0.000	0.77	0.04	5.03	0.7	0.102
16.767	0.000	0.75	0.04	5.03	0.7	0.102
16.783	0.000	0.74	0.04	5.03	0.7	0.102
16.800	0.000	0.73	0.04	5.03	0.7	0.102
16.817	0.000	0.72	0.04	5.03	0.7	0.102
16.833	0.000	0.71	0.04	5.03	0.7	0.102
16.850	0.000	0.70	0.04	5.03	0.7	0.102
16.867	0.000	0.69	0.04	5.03	0.7	0.102
16.883	0.000	0.68	0.04	5.03	0.6	0.102
16.900	0.000	0.67	0.04	5.03	0.6	0.102
16.917	0.000	0.66	0.04	5.03	0.6	0.102
16.933	0.000	0.65	0.04	5.03	0.6	0.102
16.950	0.000	0.64	0.04	5.03	0.6	0.102
16.967	0.000	0.63	0.04	5.03	0.6	0.102
16.983	0.000	0.63	0.04	5.03	0.6	0.102
17.000	0.000	0.62	0.04	5.03	0.6	0.102
17.017	0.000	0.61	0.04	5.03	0.6	0.102
17.033	0.000	0.60	0.04	5.03	0.6	0.102
17.050	0.000	0.60	0.04	5.03	0.6	0.102
17.067	0.000	0.59	0.04	5.03	0.6	0.102
17.083	0.000	0.58	0.04	5.02	0.5	0.101
17.100	0.000	0.57	0.04	5.02	0.5	0.101
17.117	0.000	0.57	0.04	5.02	0.5	0.101
17.133	0.000	0.57	0.04	5.02	0.5	0.101
17.150	0.000	0.56	0.04	5.02	0.5	0.101
17.167	0.000	0.56	0.04	5.02	0.5	0.101
17.183	0.000	0.55	0.04	5.02	0.5	0.101
17.200	0.000	0.55	0.04	5.02	0.5	0.101
17.217	0.000	0.54	0.04	5.02	0.5	0.101
17.233	0.000	0.54	0.04	5.02	0.5	0.101
17.250	0.000	0.53	0.04	5.02	0.5	0.101
17.267	0.000	0.53	0.04	5.02	0.5	0.101
17.283	0.000	0.52	0.04	5.02	0.5	0.101
17.300	0.000	0.52	0.04	5.02	0.5	0.101
17.317	0.000	0.52	0.04	5.02	0.5	0.101
17.333	0.000	0.51	0.04	5.02	0.5	0.101

==
MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
17.350	0.000	0.51	0.04	5.02	0.5	0.101
17.367	0.000	0.50	0.04	5.02	0.5	0.101
17.383	0.000	0.50	0.04	5.02	0.5	0.101
17.400	0.000	0.50	0.04	5.02	0.5	0.101
17.417	0.000	0.49	0.04	5.02	0.5	0.101
17.433	0.000	0.49	0.04	5.02	0.5	0.101
17.450	0.000	0.49	0.04	5.02	0.4	0.101
17.467	0.000	0.48	0.04	5.02	0.4	0.101
17.483	0.000	0.48	0.04	5.02	0.4	0.101
17.500	0.000	0.48	0.04	5.02	0.4	0.101
17.517	0.000	0.47	0.04	5.02	0.4	0.101
17.533	0.000	0.47	0.04	5.02	0.4	0.101
17.550	0.000	0.47	0.04	5.02	0.4	0.101
17.567	0.000	0.46	0.04	5.02	0.4	0.101
17.583	0.000	0.46	0.04	5.02	0.4	0.101
17.600	0.000	0.46	0.04	5.02	0.4	0.101
17.617	0.000	0.46	0.04	5.02	0.4	0.101
17.633	0.000	0.45	0.04	5.02	0.4	0.101
17.650	0.000	0.45	0.04	5.02	0.4	0.101
17.667	0.000	0.45	0.04	5.02	0.4	0.101
17.683	0.000	0.45	0.04	5.02	0.4	0.101
17.700	0.000	0.44	0.04	5.02	0.4	0.101
17.717	0.000	0.44	0.04	5.02	0.4	0.101
17.733	0.000	0.44	0.04	5.02	0.4	0.101
17.750	0.000	0.44	0.04	5.02	0.4	0.101
17.767	0.000	0.43	0.04	5.02	0.4	0.101
17.783	0.000	0.43	0.04	5.02	0.4	0.101
17.800	0.000	0.43	0.04	5.02	0.4	0.101
17.817	0.000	0.43	0.04	5.02	0.4	0.101
17.833	0.000	0.43	0.04	5.02	0.4	0.101
17.850	0.000	0.42	0.04	5.02	0.4	0.101
17.867	0.000	0.42	0.04	5.02	0.4	0.101
17.883	0.000	0.42	0.04	5.02	0.4	0.101
17.900	0.000	0.42	0.04	5.02	0.4	0.101
17.917	0.000	0.41	0.04	5.02	0.4	0.101
17.933	0.000	0.41	0.04	5.02	0.4	0.101
17.950	0.000	0.41	0.04	5.02	0.4	0.101
17.967	0.000	0.41	0.04	5.02	0.4	0.101
17.983	0.000	0.41	0.04	5.02	0.4	0.101
18.000	0.000	0.40	0.04	5.02	0.4	0.101

PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 0.707 AF
BASIN STORAGE = 0.000 AF (WITH 0.000 AF INITIALLY FILLED)
OUTFLOW VOLUME = 0.554 AF
LOSS VOLUME = 0.153 AF

```
****************************************************************************
 FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =   7
----------------------------------------------------------------------------
 >>>>>STREAM NUMBER 2 ADDED TO STREAM NUMBER 1<<<<<
============================================================================
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****************************************************************************
 FLOW PROCESS FROM NODE    104.00 TO NODE    106.00 IS CODE = 5.1
----------------------------------------------------------------------------
 >>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
============================================================================

    THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
    AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.

    ASSUMED REGULAR CHANNEL INFORMATION:
     BASEWIDTH(FT) =   26.00     CHANNEL Z = 10.00
     UPSTREAM ELEVATION(FT) =     131.70
     DOWNSTREAM ELEVATION(FT) =     128.00
     CHANNEL LENGTH(FT) =     755.00     MANNING'S FACTOR = 0.015
     CONSTANT LOSS RATE(CFS) =    0.00

    MEAN-FLOW RATE NORMAL-DEPTH FLOW VELOCITIES(FPS) ARE AS FOLLOWS:
                  (FLOW RATE (CFS)) [FLOW VELOCITY (FPS)]
     AVERAGED PEAK  5-MINUTE: (      12.5).......[  2.34]
     AVERAGED PEAK 15-MINUTE: (      10.7).......[  2.19]
     AVERAGED PEAK 30-MINUTE: (       8.5).......[  1.91]
     AVERAGED PEAK  1-HOUR:   (       6.4).......[  1.80]
     AVERAGED PEAK  3-HOUR:   (       3.4).......[  1.27]
     AVERAGED PEAK  6-HOUR:   (       2.0).......[  1.12]
     AVERAGED PEAK 24-HOUR:   (       0.6).......[  0.64]
    USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =   3.540
    HYDROGRAPH TRANSLATION TIME
    = (CHANNEL LENGTH)/(AVERAGE FLOW  VELOCITY)
    = (    755.00)/(  3.540) =   0.059 HRS

    TRANSLATION METHOD CHANNEL ROUTING RESULTS:
```

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	ROUTED FLOW (CFS)	OUTFLOW LESS LOSS (STREAM 1) (CFS)
14.000	0.53	0.52	0.52
14.017	0.54	0.53	0.53
14.033	0.54	0.53	0.53
14.050	0.54	0.53	0.53
14.067	0.54	0.54	0.54
14.083	0.54	0.54	0.54
14.100	0.55	0.54	0.54
14.117	0.55	0.54	0.54
14.133	0.55	0.54	0.54
14.150	0.55	0.54	0.54
14.167	0.55	0.55	0.55
14.183	0.55	0.55	0.55
14.200	0.56	0.55	0.55
14.217	0.56	0.55	0.55
14.233	0.57	0.55	0.55

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	OUTFLOW LESS ROUTED FLOW (CFS)	LOSS (STREAM 1) (CFS)
14.250	0.57	0.56	0.56
14.267	0.57	0.56	0.56
14.283	0.58	0.56	0.56
14.300	0.58	0.57	0.57
14.317	0.59	0.57	0.57
14.333	0.59	0.58	0.58
14.350	0.59	0.58	0.58
14.367	0.59	0.58	0.58
14.383	0.60	0.59	0.59
14.400	0.60	0.59	0.59
14.417	0.60	0.59	0.59
14.433	0.60	0.60	0.60
14.450	0.61	0.60	0.60
14.467	0.61	0.60	0.60
14.483	0.61	0.60	0.60
14.500	0.62	0.61	0.61
14.517	0.62	0.61	0.61
14.533	0.63	0.61	0.61
14.550	0.64	0.62	0.62
14.567	0.64	0.62	0.62
14.583	0.65	0.63	0.63
14.600	0.65	0.63	0.63
14.617	0.66	0.64	0.64
14.633	0.66	0.64	0.64
14.650	0.67	0.65	0.65
14.667	0.67	0.66	0.66
14.683	0.68	0.66	0.66
14.700	0.68	0.67	0.67
14.717	0.68	0.67	0.67
14.733	0.69	0.67	0.67
14.750	0.69	0.68	0.68
14.767	0.69	0.68	0.68
14.783	0.70	0.68	0.68
14.800	0.70	0.69	0.69
14.817	0.71	0.69	0.69
14.833	0.72	0.69	0.69
14.850	0.73	0.70	0.70
14.867	0.73	0.71	0.71
14.883	0.74	0.71	0.71
14.900	0.75	0.72	0.72
14.917	0.76	0.73	0.73
14.933	0.77	0.74	0.74
14.950	0.77	0.75	0.75
14.967	0.78	0.75	0.75
14.983	0.78	0.76	0.76
15.000	0.79	0.77	0.77
15.017	0.79	0.78	0.78
15.033	0.80	0.78	0.78
15.050	0.80	0.79	0.79
15.067	0.81	0.79	0.79

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	OUTFLOW LESS ROUTED FLOW (CFS)	LOSS (STREAM 1) (CFS)
15.083	0.81	0.80	0.80
15.100	0.82	0.80	0.80
15.117	0.83	0.81	0.81
15.133	0.84	0.81	0.81
15.150	0.86	0.82	0.82
15.167	0.87	0.83	0.83
15.183	0.88	0.84	0.84
15.200	0.89	0.85	0.85
15.217	0.91	0.86	0.86
15.233	0.92	0.87	0.87
15.250	0.93	0.89	0.89
15.267	0.94	0.90	0.90
15.283	0.95	0.91	0.91
15.300	0.95	0.92	0.92
15.317	0.96	0.93	0.93
15.333	0.97	0.94	0.94
15.350	0.98	0.95	0.95
15.367	0.99	0.96	0.96
15.383	0.99	0.97	0.97
15.400	1.00	0.97	0.97
15.417	1.00	0.98	0.98
15.433	1.01	0.99	0.99
15.450	1.01	1.00	1.00
15.467	2.02	1.00	1.00
15.483	2.33	1.00	1.00
15.500	2.03	1.01	1.01
15.517	1.99	1.46	1.46
15.533	1.92	2.16	2.16
15.550	2.07	2.20	2.20
15.567	1.94	2.01	2.01
15.583	1.92	1.96	1.96
15.600	1.98	1.99	1.99
15.617	2.04	2.01	2.01
15.633	2.09	1.93	1.93
15.650	2.15	1.94	1.94
15.667	2.21	2.00	2.00
15.683	2.27	2.06	2.06
15.700	2.33	2.12	2.12
15.717	2.41	2.18	2.18
15.733	2.52	2.23	2.23
15.750	2.63	2.29	2.29
15.767	2.74	2.36	2.36
15.783	2.86	2.46	2.46
15.800	2.99	2.57	2.57
15.817	3.12	2.68	2.68
15.833	3.25	2.80	2.80
15.850	3.39	2.92	2.92
15.867	3.52	3.04	3.04
15.883	3.67	3.18	3.18
15.900	3.83	3.31	3.31

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	OUTFLOW LESS ROUTED FLOW (CFS)	LOSS (STREAM 1) (CFS)
15.917	3.98	3.45	3.45
15.933	4.15	3.59	3.59
15.950	4.31	3.74	3.74
15.967	4.49	3.90	3.90
15.983	4.66	4.06	4.06
16.000	4.84	4.22	4.22
16.017	5.11	4.39	4.39
16.033	5.58	4.56	4.56
16.050	6.22	4.74	4.74
16.067	6.99	4.96	4.96
16.083	7.80	5.32	5.32
16.100	8.53	5.87	5.87
16.117	9.39	6.56	6.56
16.133	10.29	7.35	7.35
16.150	11.22	8.12	8.12
16.167	12.17	8.91	8.91
16.183	12.69	9.79	9.79
16.200	12.73	10.70	10.70
16.217	12.53	11.65	11.65
16.233	12.17	12.40	12.40
16.250	11.66	12.71	12.71
16.267	11.00	12.64	12.64
16.283	10.21	12.37	12.37
16.300	9.32	11.94	11.94
16.317	8.41	11.37	11.37
16.333	7.69	10.65	10.65
16.350	7.27	9.82	9.82
16.367	6.95	8.91	8.91
16.383	6.65	8.09	8.09
16.400	6.38	7.50	7.50
16.417	6.18	7.13	7.13
16.433	6.01	6.82	6.82
16.450	5.84	6.53	6.53
16.467	5.68	6.29	6.29
16.483	5.54	6.10	6.10
16.500	5.42	5.93	5.93
16.517	5.31	5.77	5.77
16.533	5.20	5.62	5.62
16.550	5.09	5.49	5.49
16.567	4.99	5.37	5.37
16.583	4.89	5.26	5.26
16.600	4.79	5.15	5.15
16.617	4.69	5.05	5.05
16.633	4.60	4.94	4.94
16.650	4.50	4.84	4.84
16.667	4.41	4.74	4.74
16.683	4.32	4.65	4.65
16.700	4.23	4.55	4.55
16.717	4.14	4.46	4.46
16.733	4.06	4.37	4.37

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	OUTFLOW LESS ROUTED FLOW (CFS)	LOSS (STREAM 1) (CFS)
16.750	3.97	4.28	4.28
16.767	3.88	4.19	4.19
16.783	3.80	4.10	4.10
16.800	3.72	4.02	4.02
16.817	3.65	3.93	3.93
16.833	3.62	3.85	3.85
16.850	3.51	3.77	3.77
16.867	3.44	3.69	3.69
16.883	3.37	3.64	3.64
16.900	3.31	3.57	3.57
16.917	3.24	3.48	3.48
16.933	3.18	3.41	3.41
16.950	3.12	3.34	3.34
16.967	3.06	3.28	3.28
16.983	3.00	3.21	3.21
17.000	2.94	3.15	3.15
17.017	2.88	3.09	3.09
17.033	2.83	3.03	3.03
17.050	2.78	2.97	2.97
17.067	2.73	2.91	2.91
17.083	2.68	2.86	2.86
17.100	2.63	2.81	2.81
17.117	2.59	2.76	2.76
17.133	2.54	2.71	2.71
17.150	2.50	2.66	2.66
17.167	2.46	2.61	2.61
17.183	2.42	2.57	2.57
17.200	2.38	2.52	2.52
17.217	2.34	2.48	2.48
17.233	2.30	2.44	2.44
17.250	2.27	2.40	2.40
17.267	2.23	2.36	2.36
17.283	2.20	2.32	2.32
17.300	2.17	2.29	2.29
17.317	2.13	2.25	2.25
17.333	2.10	2.22	2.22
17.350	2.07	2.18	2.18
17.367	2.04	2.15	2.15
17.383	2.01	2.12	2.12
17.400	1.98	2.09	2.09
17.417	1.95	2.05	2.05
17.433	1.93	2.02	2.02
17.450	1.90	1.99	1.99
17.467	1.88	1.97	1.97
17.483	1.85	1.94	1.94
17.500	1.83	1.91	1.91
17.517	1.80	1.89	1.89
17.533	1.78	1.86	1.86
17.550	1.76	1.84	1.84
17.567	1.74	1.82	1.82

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	OUTFLOW LESS ROUTED FLOW (CFS)	LOSS (STREAM 1) (CFS)
17.583	1.72	1.79	1.79
17.600	1.70	1.77	1.77
17.617	1.68	1.75	1.75
17.633	1.66	1.73	1.73
17.650	1.64	1.71	1.71
17.667	1.62	1.69	1.69
17.683	1.60	1.67	1.67
17.700	1.59	1.65	1.65
17.717	1.57	1.63	1.63
17.733	1.55	1.61	1.61
17.750	1.54	1.59	1.59
17.767	1.52	1.58	1.58
17.783	1.50	1.56	1.56
17.800	1.49	1.54	1.54
17.817	1.47	1.53	1.53
17.833	1.46	1.51	1.51
17.850	1.45	1.50	1.50
17.867	1.43	1.48	1.48
17.883	1.42	1.47	1.47
17.900	1.41	1.45	1.45
17.917	1.39	1.44	1.44
17.933	1.38	1.43	1.43
17.950	1.37	1.41	1.41
17.967	1.36	1.40	1.40
17.983	1.34	1.39	1.39
18.000	1.33	1.37	1.37

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PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 1.434 AF
OUTFLOW VOLUME = 1.434 AF
LOSS VOLUME = 0.000 AF

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****************************************************************************
 FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
============================================================================

        STREAM HYDROGRAPH IN  ONE-MINUTE UNIT INTERVALS(CFS)
      (Notes: Time indicated is at END of Each Unit Intervals.
             Peak 5-minute rainfall intensity is modeled as
             a constant value for entire 5-minute period.)
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.       5.0      10.0      15.0      20.0
----------------------------------------------------------------------------
  14.000    0.1075     0.52  .QV       .        .         .         .
  14.017    0.1082     0.53  .Q V      .        .         .         .
  14.033    0.1090     0.53  .Q V      .        .         .         .
  14.050    0.1097     0.53  .Q V      .        .         .         .
  14.067    0.1104     0.54  .Q V      .        .         .         .
  14.083    0.1112     0.54  .Q V      .        .         .         .
  14.100    0.1119     0.54  .Q V      .        .         .         .
  14.117    0.1127     0.54  .Q V      .        .         .         .
  14.133    0.1134     0.54  .Q V      .        .         .         .
  14.150    0.1142     0.54  .Q V      .        .         .         .
  14.167    0.1149     0.55  .Q V      .        .         .         .
  14.183    0.1157     0.55  .Q V      .        .         .         .
  14.200    0.1164     0.55  .Q V      .        .         .         .
  14.217    0.1172     0.55  .Q V      .        .         .         .
  14.233    0.1179     0.55  .Q V      .        .         .         .
  14.250    0.1187     0.56  .Q V      .        .         .         .
  14.267    0.1195     0.56  .Q V      .        .         .         .
  14.283    0.1203     0.56  .Q V      .        .         .         .
  14.300    0.1210     0.57  .Q V      .        .         .         .
  14.317    0.1218     0.57  .Q V      .        .         .         .
  14.333    0.1226     0.58  .Q V      .        .         .         .
  14.350    0.1234     0.58  .Q V      .        .         .         .
  14.367    0.1242     0.58  .Q V      .        .         .         .
  14.383    0.1250     0.59  .Q V      .        .         .         .
  14.400    0.1259     0.59  .Q V      .        .         .         .
  14.417    0.1267     0.59  .Q V      .        .         .         .
  14.433    0.1275     0.60  .Q V      .        .         .         .
  14.450    0.1283     0.60  .Q V      .        .         .         .
  14.467    0.1291     0.60  .Q V      .        .         .         .
  14.483    0.1300     0.60  .Q V      .        .         .         .
  14.500    0.1308     0.61  .Q V      .        .         .         .
  14.517    0.1316     0.61  .Q V      .        .         .         .
  14.533    0.1325     0.61  .Q V      .        .         .         .
  14.550    0.1333     0.62  .Q V      .        .         .         .
  14.567    0.1342     0.62  .Q V      .        .         .         .
  14.583    0.1351     0.63  .Q V      .        .         .         .
  14.600    0.1359     0.63  .Q V      .        .         .         .
  14.617    0.1368     0.64  .Q V      .        .         .         .
  14.633    0.1377     0.64  .Q V      .        .         .         .
  14.650    0.1386     0.65  .Q V      .        .         .         .
  14.667    0.1395     0.66  .Q V      .        .         .         .
  14.683    0.1404     0.66  .Q V      .        .         .         .
  14.700    0.1413     0.67  .Q V      .        .         .         .
  14.717    0.1422     0.67  .Q V      .        .         .         .
  14.733    0.1432     0.67  .Q V      .        .         .         .
  14.750    0.1441     0.68  .Q  V     .        .         .         .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.      5.0     10.0     15.0     20.0
----------------------------------------------------------------------------
  14.767    0.1450    0.68  .Q  V    .       .       .       .
  14.783    0.1460    0.68  .Q  V    .       .       .       .
  14.800    0.1469    0.69  .Q  V    .       .       .       .
  14.817    0.1479    0.69  .Q  V    .       .       .       .
  14.833    0.1488    0.69  .Q  V    .       .       .       .
  14.850    0.1498    0.70  .Q  V    .       .       .       .
  14.867    0.1508    0.71  .Q  V    .       .       .       .
  14.883    0.1518    0.71  .Q  V    .       .       .       .
  14.900    0.1528    0.72  .Q  V    .       .       .       .
  14.917    0.1538    0.73  .Q  V    .       .       .       .
  14.933    0.1548    0.74  .Q  V    .       .       .       .
  14.950    0.1558    0.75  .Q  V    .       .       .       .
  14.967    0.1568    0.75  .Q  V    .       .       .       .
  14.983    0.1579    0.76  .Q  V    .       .       .       .
  15.000    0.1590    0.77  .Q  V    .       .       .       .
  15.017    0.1600    0.78  .Q  V    .       .       .       .
  15.033    0.1611    0.78  .Q  V    .       .       .       .
  15.050    0.1622    0.79  .Q  V    .       .       .       .
  15.067    0.1633    0.79  .Q  V    .       .       .       .
  15.083    0.1644    0.80  .Q  V    .       .       .       .
  15.100    0.1655    0.80  .Q  V    .       .       .       .
  15.117    0.1666    0.81  .Q  V    .       .       .       .
  15.133    0.1677    0.81  .Q  V    .       .       .       .
  15.150    0.1688    0.82  .Q  V    .       .       .       .
  15.167    0.1700    0.83  .Q  V    .       .       .       .
  15.183    0.1711    0.84  .Q  V    .       .       .       .
  15.200    0.1723    0.85  .Q  V    .       .       .       .
  15.217    0.1735    0.86  .Q  V    .       .       .       .
  15.233    0.1747    0.87  .Q  V    .       .       .       .
  15.250    0.1759    0.89  .Q  V    .       .       .       .
  15.267    0.1771    0.90  .Q  V    .       .       .       .
  15.283    0.1784    0.91  .Q  V    .       .       .       .
  15.300    0.1797    0.92  .Q   V   .       .       .       .
  15.317    0.1809    0.93  .Q   V   .       .       .       .
  15.333    0.1822    0.94  .Q   V   .       .       .       .
  15.350    0.1835    0.95  .Q   V   .       .       .       .
  15.367    0.1849    0.96  .Q   V   .       .       .       .
  15.383    0.1862    0.97  .Q   V   .       .       .       .
  15.400    0.1875    0.97  .Q   V   .       .       .       .
  15.417    0.1889    0.98  .Q   V   .       .       .       .
  15.433    0.1902    0.99  .Q   V   .       .       .       .
  15.450    0.1916    1.00  .Q   V   .       .       .       .
  15.467    0.1930    1.00  . Q  V   .       .       .       .
  15.483    0.1944    1.00  . Q  V   .       .       .       .
  15.500    0.1958    1.01  . Q  V   .       .       .       .
  15.517    0.1978    1.46  . Q  V   .       .       .       .
  15.533    0.2008    2.16  .   QV   .       .       .       .
  15.550    0.2038    2.20  .   QV   .       .       .       .
  15.567    0.2066    2.01  .   QV   .       .       .       .
  15.583    0.2093    1.96  .  Q V   .       .       .       .
```

```
---------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.       5.0      10.0      15.0      20.0
---------------------------------------------------------------------------
  15.600    0.2120     1.99  . Q V     .         .         .         .
  15.617    0.2148     2.01  .  QV     .         .         .         .
  15.633    0.2174     1.93  . Q  V    .         .         .         .
  15.650    0.2201     1.94  . Q  V    .         .         .         .
  15.667    0.2229     2.00  .  Q V    .         .         .         .
  15.683    0.2257     2.06  .  Q V    .         .         .         .
  15.700    0.2286     2.12  .  Q V    .         .         .         .
  15.717    0.2316     2.18  .  Q V    .         .         .         .
  15.733    0.2347     2.23  .  Q V    .         .         .         .
  15.750    0.2379     2.29  .  Q V    .         .         .         .
  15.767    0.2411     2.36  .  Q V    .         .         .         .
  15.783    0.2445     2.46  .  Q V    .         .         .         .
  15.800    0.2480     2.57  .   QV    .         .         .         .
  15.817    0.2517     2.68  .   Q V   .         .         .         .
  15.833    0.2556     2.80  .   Q V   .         .         .         .
  15.850    0.2596     2.92  .   Q V   .         .         .         .
  15.867    0.2638     3.04  .    QV   .         .         .         .
  15.883    0.2682     3.18  .    QV   .         .         .         .
  15.900    0.2727     3.31  .    QV   .         .         .         .
  15.917    0.2775     3.45  .    QV   .         .         .         .
  15.933    0.2824     3.59  .     Q   .         .         .         .
  15.950    0.2876     3.74  .     QV  .         .         .         .
  15.967    0.2929     3.90  .     QV  .         .         .         .
  15.983    0.2985     4.06  .      Q  .         .         .         .
  16.000    0.3043     4.22  .      Q  .         .         .         .
  16.017    0.3104     4.39  .      Q  .         .         .         .
  16.033    0.3167     4.56  .      VQ.          .         .         .
  16.050    0.3232     4.74  .       Q.          .         .         .
  16.067    0.3300     4.96  .       Q.          .         .         .
  16.083    0.3374     5.32  .       VQ          .         .         .
  16.100    0.3454     5.87  .       V.Q         .         .         .
  16.117    0.3545     6.56  .       V.  Q       .         .         .
  16.133    0.3646     7.35  .        V   Q      .         .         .
  16.150    0.3758     8.12  .        V     Q   .         .         .
  16.167    0.3881     8.91  .        V      Q  .         .         .
  16.183    0.4016     9.79  .        .V       Q.         .         .
  16.200    0.4163    10.70  .        .V        .Q        .         .
  16.217    0.4323    11.65  .        . V       .  Q      .         .
  16.233    0.4494    12.40  .        . V       .   Q     .         .
  16.250    0.4669    12.71  .        .  V      .    Q    .         .
  16.267    0.4843    12.64  .        .  V      .    Q    .         .
  16.283    0.5014    12.37  .        .  V      .   Q     .         .
  16.300    0.5178    11.94  .        .   V     .  Q      .         .
  16.317    0.5335    11.37  .        .   V     . Q       .         .
  16.333    0.5481    10.65  .        .    V    .Q        .         .
  16.350    0.5617     9.82  .        .    V  Q.          .         .
  16.367    0.5739     8.91  .        .     VQ .         .         .
  16.383    0.5851     8.09  .        .     Q  .         .         .
  16.400    0.5954     7.50  .        .    QV  .         .         .
  16.417    0.6052     7.13  .        .   Q V  .         .         .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.      5.0      10.0      15.0      20.0
----------------------------------------------------------------------------
  16.433    0.6146    6.82 .       . Q  V .       .        .
  16.450    0.6236    6.53 .       . Q  V .       .        .
  16.467    0.6323    6.29 .       . Q  V .       .        .
  16.483    0.6407    6.10 .       . Q  V .       .        .
  16.500    0.6489    5.93 .       .Q    V .      .        .
  16.517    0.6568    5.77 .       .Q    V .      .        .
  16.533    0.6646    5.62 .       .Q    V .      .        .
  16.550    0.6721    5.49 .       Q     V .      .        .
  16.567    0.6795    5.37 .       Q     V .      .        .
  16.583    0.6868    5.26 .       Q      V.      .        .
  16.600    0.6939    5.15 .       Q      V.      .        .
  16.617    0.7008    5.05 .       Q      V.      .        .
  16.633    0.7076    4.94 .      Q.      V.      .        .
  16.650    0.7143    4.84 .      Q.      V.      .        .
  16.667    0.7208    4.74 .      Q.       V      .        .
  16.683    0.7272    4.65 .      Q.       V      .        .
  16.700    0.7335    4.55 .      Q.       V      .        .
  16.717    0.7396    4.46 .     Q .       V      .        .
  16.733    0.7457    4.37 .     Q .       V      .        .
  16.750    0.7516    4.28 .     Q .       V      .        .
  16.767    0.7573    4.19 .     Q .       .V     .        .
  16.783    0.7630    4.10 .     Q .       .V     .        .
  16.800    0.7685    4.02 .     Q .       .V     .        .
  16.817    0.7739    3.93 .    Q  .       .V     .        .
  16.833    0.7792    3.85 .    Q  .       .V     .        .
  16.850    0.7844    3.77 .    Q  .       .V     .        .
  16.867    0.7895    3.69 .    Q  .       . V    .        .
  16.883    0.7945    3.64 .    Q  .       . V    .        .
  16.900    0.7994    3.57 .    Q  .       . V    .        .
  16.917    0.8042    3.48 .   Q   .       . V    .        .
  16.933    0.8089    3.41 .   Q   .       . V    .        .
  16.950    0.8135    3.34 .   Q   .       . V    .        .
  16.967    0.8180    3.28 .   Q   .       . V    .        .
  16.983    0.8225    3.21 .   Q   .       . V    .        .
  17.000    0.8268    3.15 .   Q   .       .  V   .        .
  17.017    0.8311    3.09 .   Q   .       .  V   .        .
  17.033    0.8352    3.03 .   Q   .       .  V   .        .
  17.050    0.8393    2.97 .  Q    .       .  V   .        .
  17.067    0.8433    2.91 .  Q    .       .  V   .        .
  17.083    0.8473    2.86 .  Q    .       .  V   .        .
  17.100    0.8511    2.81 .  Q    .       .  V   .        .
  17.117    0.8549    2.76 .  Q    .       .  V   .        .
  17.133    0.8587    2.71 .  Q    .       .  V   .        .
  17.150    0.8623    2.66 .  Q    .       .   V  .        .
  17.167    0.8659    2.61 .  Q    .       .   V  .        .
  17.183    0.8695    2.57 .  Q    .       .   V  .        .
  17.200    0.8729    2.52 .  Q    .       .   V  .        .
  17.217    0.8764    2.48 . Q     .       .   V  .        .
  17.233    0.8797    2.44 . Q     .       .   V  .        .
  17.250    0.8830    2.40 . Q     .       .   V  .        .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.      5.0     10.0     15.0     20.0
----------------------------------------------------------------------------
  17.267    0.8863    2.36  .   Q     .       .  V      .       .
  17.283    0.8895    2.32  .   Q     .       .  V      .       .
  17.300    0.8926    2.29  .   Q     .       .  V      .       .
  17.317    0.8957    2.25  .   Q     .       .  V      .       .
  17.333    0.8988    2.22  .   Q     .       .   V     .       .
  17.350    0.9018    2.18  .   Q     .       .   V     .       .
  17.367    0.9048    2.15  .   Q     .       .   V     .       .
  17.383    0.9077    2.12  .   Q     .       .   V     .       .
  17.400    0.9106    2.09  .   Q     .       .   V     .       .
  17.417    0.9134    2.05  .   Q     .       .   V     .       .
  17.433    0.9162    2.02  .   Q     .       .   V     .       .
  17.450    0.9189    1.99  .  Q      .       .   V     .       .
  17.467    0.9216    1.97  .  Q      .       .   V     .       .
  17.483    0.9243    1.94  .  Q      .       .   V     .       .
  17.500    0.9269    1.91  .  Q      .       .   V     .       .
  17.517    0.9295    1.89  .  Q      .       .   V     .       .
  17.533    0.9321    1.86  .  Q      .       .   V     .       .
  17.550    0.9346    1.84  .  Q      .       .    V    .       .
  17.567    0.9371    1.82  .  Q      .       .    V    .       .
  17.583    0.9396    1.79  .  Q      .       .    V    .       .
  17.600    0.9421    1.77  .  Q      .       .    V    .       .
  17.617    0.9445    1.75  .  Q      .       .    V    .       .
  17.633    0.9469    1.73  .  Q      .       .    V    .       .
  17.650    0.9492    1.71  .  Q      .       .    V    .       .
  17.667    0.9515    1.69  .  Q      .       .    V    .       .
  17.683    0.9538    1.67  .  Q      .       .    V    .       .
  17.700    0.9561    1.65  .  Q      .       .    V    .       .
  17.717    0.9583    1.63  .  Q      .       .    V    .       .
  17.733    0.9606    1.61  .  Q      .       .    V    .       .
  17.750    0.9628    1.59  .  Q      .       .    V    .       .
  17.767    0.9649    1.58  .  Q      .       .    V    .       .
  17.783    0.9671    1.56  .  Q      .       .    V    .       .
  17.800    0.9692    1.54  .  Q      .       .     V   .       .
  17.817    0.9713    1.53  .  Q      .       .     V   .       .
  17.833    0.9734    1.51  .  Q      .       .     V   .       .
  17.850    0.9755    1.50  . Q       .       .     V   .       .
  17.867    0.9775    1.48  . Q       .       .     V   .       .
  17.883    0.9795    1.47  . Q       .       .     V   .       .
  17.900    0.9815    1.45  . Q       .       .     V   .       .
  17.917    0.9835    1.44  . Q       .       .     V   .       .
  17.933    0.9855    1.43  . Q       .       .     V   .       .
  17.950    0.9874    1.41  . Q       .       .     V   .       .
  17.967    0.9894    1.40  . Q       .       .     V   .       .
  17.983    0.9913    1.39  . Q       .       .     V   .       .
  18.000    0.9932    1.37  . Q       .       .     V   .       .
-------------------------------------------------------------------------------
```

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1081.0
10%	785.0
20%	420.0
30%	265.0
40%	160.0
50%	105.0
60%	75.0
70%	65.0

80%	45.0
90%	30.0

==

END OF FLOODSCx ROUTING ANALYSIS

****

F L O O D   R O U T I N G   A N A L Y S I S
USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)

Ver. 21.0 Release Date: 06/01/2014 License ID 1202

Analysis prepared by:

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Suite 400
(949)-988-5815

************************** DESCRIPTION OF STUDY **************************
* SHOPOFF ANAHEIM *
* HYDROGRAPHS & FLOOD ROUTING ANALYSIS - PROPOSED CONDITION DMA A&B *
* 10YR AMCII RC 10/22/2019 *
****

FILE NAME: SHOP10AB.DAT
TIME/DATE OF STUDY: 14:15 10/23/2019

The Small Area Unit Hydrograph Procedures in Section J
of the Hydrology Manual provides estimates of runoff
hydrograph and runoff volume for watersheds whose time of
concentration is less than 25 minutes. The PROGRAM User
should check the applicability of using the small area unit
hydrograph procedures, and follow the guidelines in
Sections J and K.5 in complex watershed modeling.

```
****************************************************************************
  FLOW PROCESS FROM NODE     100.00 TO NODE     102.00 IS CODE = 1.2
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (SMALL AREA UNIT-HYDROGRAPH ANALYSIS) <<<<<
============================================================================

  (SMALL AREA UNIT-HYDROGRAPH ADDED TO STREAM #1)

   RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
   TOTAL CATCHMENT AREA(ACRES) =     5.12
   SOIL-LOSS RATE, Fm,(INCH/HR) =  0.088
   LOW LOSS FRACTION = 0.303
   TIME OF CONCENTRATION(MIN.) =  8.26
   SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
   ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED:
   RETURN FREQUENCY(YEARS) =  10
     5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.34
    30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.72
     1-HOUR   POINT RAINFALL VALUE(INCHES) =  0.95
     3-HOUR   POINT RAINFALL VALUE(INCHES) =  1.59
     6-HOUR   POINT RAINFALL VALUE(INCHES) =  2.20
    24-HOUR   POINT RAINFALL VALUE(INCHES) =  3.68

----------------------------------------------------------------------------
   TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     1.06
   TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.51

----------------------------------------------------------------------------
```

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

              2 4 - H O U R   S T O R M
            R U N O F F   H Y D R O G R A P H

****************************************************************************
         HYDROGRAPH IN  ONE-MINUTE UNIT INTERVALS(CFS)
     (Notes: Time indicated is at END of Each Unit Intervals.
          Peak 5-minute rainfall intensity is modeled as
          a constant value for entire 5-minute period.)
-----------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.      3.4      6.8      10.2     13.6
-----------------------------------------------------------------------
  14.000    0.3625    0.77  .Q      . V     .       .       .
  14.017    0.3636    0.78  .Q      . V     .       .       .
  14.033    0.3646    0.78  .Q      . V     .       .       .
  14.050    0.3657    0.78  .Q      . V     .       .       .
  14.067    0.3668    0.78  .Q      . V     .       .       .
  14.083    0.3679    0.78  .Q      . V     .       .       .
  14.100    0.3689    0.79  .Q      . V     .       .       .
  14.117    0.3700    0.79  .Q      . V     .       .       .
  14.133    0.3711    0.80  .Q      . V     .       .       .
  14.150    0.3723    0.80  .Q      . V     .       .       .
  14.167    0.3734    0.81  .Q      .  V    .       .       .
  14.183    0.3745    0.81  .Q      .  V    .       .       .
  14.200    0.3756    0.82  .Q      .  V    .       .       .
  14.217    0.3768    0.82  .Q      .  V    .       .       .
  14.233    0.3779    0.83  .Q      .  V    .       .       .
  14.250    0.3790    0.83  .Q      .  V    .       .       .
  14.267    0.3802    0.83  .Q      .  V    .       .       .
  14.283    0.3813    0.83  .Q      .  V    .       .       .
  14.300    0.3825    0.84  .Q      .  V    .       .       .
  14.317    0.3836    0.84  .Q      .  V    .       .       .
  14.333    0.3848    0.84  .Q      .  V    .       .       .
  14.350    0.3860    0.85  .Q      .  V    .       .       .
  14.367    0.3871    0.85  .Q      .  V    .       .       .
  14.383    0.3883    0.86  .Q      .  V    .       .       .
  14.400    0.3895    0.86  .Q      .  V    .       .       .
  14.417    0.3907    0.87  .Q      .  V    .       .       .
  14.433    0.3919    0.87  .Q      .  V    .       .       .
  14.450    0.3931    0.88  .Q      .  V    .       .       .
  14.467    0.3943    0.89  .Q      .  V    .       .       .
  14.483    0.3956    0.89  .Q      .  V    .       .       .
  14.500    0.3968    0.90  .Q      .  V    .       .       .
  14.517    0.3980    0.90  .Q      .  V    .       .       .
  14.533    0.3993    0.90  .Q      .   V   .       .       .
  14.550    0.4005    0.91  .Q      .   V   .       .       .
  14.567    0.4018    0.91  .Q      .   V   .       .       .
  14.583    0.4031    0.92  .Q      .   V   .       .       .
  14.600    0.4043    0.92  .Q      .   V   .       .       .
  14.617    0.4056    0.92  .Q      .   V   .       .       .
  14.633    0.4069    0.93  .Q      .   V   .       .       .
  14.650    0.4082    0.94  .Q      .   V   .       .       .
  14.667    0.4095    0.95  .Q      .   V   .       .       .
  14.683    0.4108    0.96  .Q      .   V   .       .       .
  14.700    0.4121    0.97  .Q      .   V   .       .       .
  14.717    0.4135    0.98  .Q      .   V   .       .       .
  14.733    0.4148    0.99  .Q      .   V   .       .       .
  14.750    0.4162    1.00  .Q      .   V   .       .       .
```

```
---------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.       3.4      6.8      10.2     13.6
---------------------------------------------------------------------------
  14.767    0.4176    1.01  . Q      .   V   .        .        .
  14.783    0.4190    1.02  . Q      .   V   .        .        .
  14.800    0.4205    1.03  .  Q     .   V   .        .        .
  14.817    0.4219    1.04  .  Q     .   V   .        .        .
  14.833    0.4233    1.04  .  Q     .   V   .        .        .
  14.850    0.4248    1.05  .  Q     .   V   .        .        .
  14.867    0.4262    1.06  .  Q     .    V  .        .        .
  14.883    0.4277    1.06  .  Q     .    V  .        .        .
  14.900    0.4291    1.07  .  Q     .    V  .        .        .
  14.917    0.4306    1.08  .  Q     .    V  .        .        .
  14.933    0.4321    1.10  .  Q     .    V  .        .        .
  14.950    0.4337    1.11  .  Q     .    V  .        .        .
  14.967    0.4352    1.13  .  Q     .    V  .        .        .
  14.983    0.4368    1.14  .  Q     .    V  .        .        .
  15.000    0.4384    1.16  .  Q     .    V  .        .        .
  15.017    0.4400    1.18  .  Q     .    V  .        .        .
  15.033    0.4417    1.19  .  Q     .    V  .        .        .
  15.050    0.4433    1.21  .  Q     .    V  .        .        .
  15.067    0.4450    1.22  .  Q     .    V  .        .        .
  15.083    0.4467    1.23  .  Q     .    V  .        .        .
  15.100    0.4484    1.23  .  Q     .    V  .        .        .
  15.117    0.4501    1.24  .  Q     .    V  .        .        .
  15.133    0.4518    1.25  .  Q     .    V  .        .        .
  15.150    0.4536    1.26  .  Q     .     V .        .        .
  15.167    0.4553    1.27  .  Q     .     V .        .        .
  15.183    0.4571    1.29  .  Q     .     V .        .        .
  15.200    0.4589    1.31  .  Q     .     V .        .        .
  15.217    0.4607    1.33  .  Q     .     V .        .        .
  15.233    0.4626    1.36  .  Q     .     V .        .        .
  15.250    0.4645    1.38  .   Q    .     V .        .        .
  15.267    0.4664    1.41  .   Q    .     V .        .        .
  15.283    0.4684    1.43  .   Q    .     V .        .        .
  15.300    0.4704    1.45  .   Q    .     V .        .        .
  15.317    0.4724    1.48  .   Q    .     V .        .        .
  15.333    0.4745    1.49  .   Q    .     V .        .        .
  15.350    0.4766    1.49  .   Q    .     V .        .        .
  15.367    0.4786    1.50  .   Q    .     V .        .        .
  15.383    0.4807    1.51  .   Q    .      V.        .        .
  15.400    0.4828    1.51  .   Q    .      V.        .        .
  15.417    0.4849    1.52  .   Q    .      V.        .        .
  15.433    0.4870    1.52  .   Q    .      V.        .        .
  15.450    0.4891    1.53  .   Q    .      V.        .        .
  15.467    0.4912    1.54  .   Q    .      V.        .        .
  15.483    0.4933    1.56  .   Q    .      V.        .        .
  15.500    0.4955    1.57  .   Q    .      V.        .        .
  15.517    0.4977    1.59  .   Q    .      V.        .        .
  15.533    0.4999    1.61  .   Q    .      V.        .        .
  15.550    0.5022    1.62  .   Q    .      V.        .        .
  15.567    0.5044    1.64  .   Q    .      V.        .        .
  15.583    0.5067    1.65  .   Q    .       V.       .        .
```

```
-----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.       3.4       6.8       10.2      13.6
-----------------------------------------------------------------------------
  15.600    0.5090    1.68 .   Q     .       V.        .        .
  15.617    0.5114    1.71 .   Q     .       V.        .        .
  15.633    0.5137    1.74 .   Q     .       V.        .        .
  15.650    0.5162    1.77 .   Q     .       V.        .        .
  15.667    0.5187    1.80 .   Q     .       V.        .        .
  15.683    0.5212    1.84 .   Q     .       V.        .        .
  15.700    0.5238    1.87 .   Q     .       V.        .        .
  15.717    0.5264    1.90 .   Q     .       V.        .        .
  15.733    0.5291    1.95 .   Q     .       V.        .        .
  15.750    0.5319    2.07 .    Q    .        V        .        .
  15.767    0.5350    2.21 .    Q    .        V        .        .
  15.783    0.5382    2.35 .    Q    .        V        .        .
  15.800    0.5416    2.49 .     Q   .        V        .        .
  15.817    0.5452    2.62 .     Q   .        V        .        .
  15.833    0.5491    2.76 .      Q  .        V        .        .
  15.850    0.5530    2.90 .      Q  .        V        .        .
  15.867    0.5572    3.04 .      Q  .        V        .        .
  15.883    0.5616    3.18 .       Q.        .V        .        .
  15.900    0.5662    3.34 .       Q.        .V        .        .
  15.917    0.5710    3.49 .        Q        .V        .        .
  15.933    0.5760    3.64 .        Q        .V        .        .
  15.950    0.5812    3.79 .         .Q      .V        .        .
  15.967    0.5867    3.94 .         .Q      . V       .        .
  15.983    0.5923    4.10 .         . Q     . V       .        .
  16.000    0.5982    4.25 .         . Q     . V       .        .
  16.017    0.6049    4.89 .         .  Q    . V       .        .
  16.033    0.6132    6.02 .         .     Q . V       .        .
  16.050    0.6230    7.14 .         .       Q V       .        .
  16.067    0.6344    8.27 .         .       . VQ      .        .
  16.083    0.6474    9.40 .         .       .  V Q    .        .
  16.100    0.6619   10.53 .         .       .  V     Q         .
  16.117    0.6779   11.65 .         .       .  V    .  Q       .
  16.133    0.6955   12.78 .         .       .   V   .     Q    .
  16.150    0.7143   13.64 .         .       .   V   .          Q
  16.167    0.7308   11.95 .         .       .    V  .   Q      .
  16.183    0.7453   10.59 .         .       .     V .Q         .
  16.200    0.7581    9.23 .         .       .    QV .          .
  16.217    0.7689    7.87 .         .       . Q    V.          .
  16.233    0.7779    6.51 .         .      Q.       V.         .
  16.250    0.7849    5.15 .         .  Q    .       V.         .
  16.267    0.7902    3.79 .         .Q      .       V.         .
  16.283    0.7937    2.57 .     Q   .       .       V.         .
  16.300    0.7968    2.29 .    Q    .       .       V.         .
  16.317    0.7998    2.17 .    Q    .       .        V         .
  16.333    0.8027    2.06 .    Q    .       .        V         .
  16.350    0.8054    1.95 .   Q     .       .        V         .
  16.367    0.8079    1.84 .   Q     .       .        V         .
  16.383    0.8103    1.72 .   Q     .       .        V         .
  16.400    0.8125    1.61 .  Q      .       .        V         .
  16.417    0.8146    1.50 .  Q      .       .        V         .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.       3.4      6.8      10.2     13.6
----------------------------------------------------------------------------
  16.433     0.8166      1.46  .   Q      .        .        V        .
  16.450     0.8186      1.45  .   Q      .        .        V        .
  16.467     0.8205      1.44  .   Q      .        .        V        .
  16.483     0.8225      1.43  .   Q      .        .        V        .
  16.500     0.8245      1.41  .   Q      .        .        .V       .
  16.517     0.8264      1.40  .   Q      .        .        .V       .
  16.533     0.8283      1.39  .   Q      .        .        .V       .
  16.550     0.8302      1.38  .   Q      .        .        .V       .
  16.567     0.8321      1.36  .  Q       .        .        .V       .
  16.583     0.8339      1.33  .  Q       .        .        .V       .
  16.600     0.8357      1.30  .  Q       .        .        .V       .
  16.617     0.8375      1.27  .  Q       .        .        .V       .
  16.633     0.8392      1.24  .  Q       .        .        .V       .
  16.650     0.8408      1.21  .  Q       .        .        .V       .
  16.667     0.8425      1.19  .  Q       .        .        .V       .
  16.683     0.8441      1.16  .  Q       .        .        .V       .
  16.700     0.8456      1.13  .  Q       .        .        .V       .
  16.717     0.8472      1.11  .  Q       .        .        .V       .
  16.733     0.8487      1.09  .  Q       .        .        .V       .
  16.750     0.8501      1.07  .  Q       .        .        .V       .
  16.767     0.8516      1.05  .  Q       .        .        . V      .
  16.783     0.8530      1.03  .  Q       .        .        . V      .
  16.800     0.8544      1.01  . Q        .        .        . V      .
  16.817     0.8557      0.99  . Q        .        .        . V      .
  16.833     0.8571      0.97  . Q        .        .        . V      .
  16.850     0.8584      0.96  . Q        .        .        . V      .
  16.867     0.8597      0.94  . Q        .        .        . V      .
  16.883     0.8610      0.93  . Q        .        .        . V      .
  16.900     0.8622      0.92  . Q        .        .        . V      .
  16.917     0.8635      0.91  . Q        .        .        . V      .
  16.933     0.8647      0.90  . Q        .        .        . V      .
  16.950     0.8660      0.89  . Q        .        .        . V      .
  16.967     0.8672      0.87  . Q        .        .        . V      .
  16.983     0.8683      0.87  . Q        .        .        . V      .
  17.000     0.8695      0.86  . Q        .        .        . V      .
  17.017     0.8707      0.85  . Q        .        .        . V      .
  17.033     0.8719      0.84  . Q        .        .        . V      .
  17.050     0.8730      0.83  . Q        .        .        . V      .
  17.067     0.8741      0.82  . Q        .        .        . V      .
  17.083     0.8753      0.82  . Q        .        .        . V      .
  17.100     0.8764      0.81  . Q        .        .        . V      .
  17.117     0.8775      0.80  . Q        .        .        . V      .
  17.133     0.8786      0.79  . Q        .        .        .  V     .
  17.150     0.8797      0.79  . Q        .        .        .  V     .
  17.167     0.8807      0.78  . Q        .        .        .  V     .
  17.183     0.8818      0.77  . Q        .        .        .  V     .
  17.200     0.8829      0.77  . Q        .        .        .  V     .
  17.217     0.8839      0.76  . Q        .        .        .  V     .
  17.233     0.8850      0.75  . Q        .        .        .  V     .
  17.250     0.8860      0.75  . Q        .        .        .  V     .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.      3.4     6.8     10.2     13.6
----------------------------------------------------------------------------
  17.267    0.8870    0.74  . Q      .       .      . V     .
  17.283    0.8880    0.74  . Q      .       .      . V     .
  17.300    0.8890    0.73  . Q      .       .      . V     .
  17.317    0.8900    0.73  . Q      .       .      . V     .
  17.333    0.8910    0.72  . Q      .       .      . V     .
  17.350    0.8920    0.72  . Q      .       .      . V     .
  17.367    0.8930    0.71  . Q      .       .      . V     .
  17.383    0.8940    0.71  . Q      .       .      . V     .
  17.400    0.8949    0.70  . Q      .       .      . V     .
  17.417    0.8959    0.70  . Q      .       .      . V     .
  17.433    0.8968    0.69  . Q      .       .      . V     .
  17.450    0.8978    0.69  . Q      .       .      . V     .
  17.467    0.8987    0.68  . Q      .       .      . V     .
  17.483    0.8997    0.68  .Q       .       .      . V     .
  17.500    0.9006    0.67  .Q       .       .      . V     .
  17.517    0.9015    0.67  .Q       .       .      . V     .
  17.533    0.9024    0.66  .Q       .       .      . V     .
  17.550    0.9033    0.66  .Q       .       .      . V     .
  17.567    0.9042    0.66  .Q       .       .      .  V    .
  17.583    0.9051    0.65  .Q       .       .      .  V    .
  17.600    0.9060    0.65  .Q       .       .      .  V    .
  17.617    0.9069    0.64  .Q       .       .      .  V    .
  17.633    0.9078    0.64  .Q       .       .      .  V    .
  17.650    0.9087    0.64  .Q       .       .      .  V    .
  17.667    0.9095    0.63  .Q       .       .      .  V    .
  17.683    0.9104    0.63  .Q       .       .      .  V    .
  17.700    0.9113    0.63  .Q       .       .      .  V    .
  17.717    0.9121    0.62  .Q       .       .      .  V    .
  17.733    0.9130    0.62  .Q       .       .      .  V    .
  17.750    0.9138    0.62  .Q       .       .      .  V    .
  17.767    0.9147    0.61  .Q       .       .      .  V    .
  17.783    0.9155    0.61  .Q       .       .      .  V    .
  17.800    0.9164    0.61  .Q       .       .      .  V    .
  17.817    0.9172    0.60  .Q       .       .      .  V    .
  17.833    0.9180    0.60  .Q       .       .      .  V    .
  17.850    0.9188    0.60  .Q       .       .      .  V    .
  17.867    0.9197    0.59  .Q       .       .      .  V    .
  17.883    0.9205    0.59  .Q       .       .      .  V    .
  17.900    0.9213    0.59  .Q       .       .      .  V    .
  17.917    0.9221    0.58  .Q       .       .      .  V    .
  17.933    0.9229    0.58  .Q       .       .      .  V    .
  17.950    0.9237    0.58  .Q       .       .      .  V    .
  17.967    0.9245    0.58  .Q       .       .      .  V    .
  17.983    0.9253    0.57  .Q       .       .      .  V    .
  18.000    0.9261    0.57  .Q       .       .      .  V    .
----------------------------------------------------------------------------
   TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
   (Note: 100% of Peak Flow Rate estimate assumed to have
   an instantaneous time duration)

   Percentile of Estimated          Duration
     Peak Flow Rate                (minutes)
   =======================        =========
          0%                    1081.0
         10%                     395.0
         20%                     135.0
         30%                      85.0
         40%                      65.0
         50%                      55.0
         60%                      45.0
         70%                      30.0
```

80%	20.0
90%	10.0

```
****************************************************************************
  FLOW PROCESS FROM NODE     102.00 TO NODE     103.00 IS CODE = 3.2
----------------------------------------------------------------------------
  >>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #1<<<<<
============================================================================

             INFLOW
            (STREAM 1)
               |
               |
               V              __effective depth
             -----------       |   (and volume)
            |           |    |     |
            |           |    |....V........
            | detention |<-->|            outflow
            |   basin   |    |.........________
             -----------     |    ^    |  \
               |             |  dead   |   basin outlet
               V             | storage |
             OUTFLOW          ---------
            (STREAM 1)


      ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 1
      THROUGH A FLOW-THROUGH DETENTION BASIN
      SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
        DEAD STORAGE(AF) =       0.000
        SPECIFIED DEAD STORAGE(AF) FILLED =       0.000
        SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET =       0.000
        DETENTION BASIN CONSTANT LOSS RATE(CFS) =     0.04


      BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

       INTERVAL    DEPTH      OUTFLOW     STORAGE
        NUMBER      (FT)       (CFS)        (AF)
           1        0.00        0.00       0.000
           2        2.00        0.01       0.203
           3        2.42        0.02       0.246
           4        5.20        0.03       0.529
           5        7.00        5.11       0.712
           6       10.00       23.64       1.017
```

==
MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
14.017	0.000	0.78	0.04	3.04	0.0	0.309
14.033	0.000	0.78	0.04	3.05	0.0	0.310
14.050	0.000	0.78	0.04	3.06	0.0	0.311
14.067	0.000	0.78	0.04	3.07	0.0	0.312
14.083	0.000	0.78	0.04	3.08	0.0	0.313
14.100	0.000	0.79	0.04	3.09	0.0	0.314
14.117	0.000	0.79	0.04	3.10	0.0	0.315
14.133	0.000	0.80	0.04	3.11	0.0	0.316
14.150	0.000	0.80	0.04	3.12	0.0	0.317
14.167	0.000	0.81	0.04	3.13	0.0	0.318
14.183	0.000	0.81	0.04	3.14	0.0	0.319
14.200	0.000	0.82	0.04	3.15	0.0	0.320
14.217	0.000	0.82	0.04	3.16	0.0	0.321
14.233	0.000	0.83	0.04	3.17	0.0	0.322
14.250	0.000	0.83	0.04	3.18	0.0	0.323
14.267	0.000	0.83	0.04	3.19	0.0	0.324
14.283	0.000	0.83	0.04	3.20	0.0	0.325
14.300	0.000	0.84	0.04	3.21	0.0	0.326
14.317	0.000	0.84	0.04	3.22	0.0	0.328
14.333	0.000	0.84	0.04	3.23	0.0	0.329
14.350	0.000	0.85	0.04	3.24	0.0	0.330
14.367	0.000	0.85	0.04	3.25	0.0	0.331
14.383	0.000	0.86	0.04	3.26	0.0	0.332
14.400	0.000	0.86	0.04	3.27	0.0	0.333
14.417	0.000	0.87	0.04	3.28	0.0	0.334
14.433	0.000	0.87	0.04	3.30	0.0	0.335
14.450	0.000	0.88	0.04	3.31	0.0	0.336
14.467	0.000	0.89	0.04	3.32	0.0	0.337
14.483	0.000	0.89	0.04	3.33	0.0	0.339
14.500	0.000	0.90	0.04	3.34	0.0	0.340
14.517	0.000	0.90	0.04	3.35	0.0	0.341
14.533	0.000	0.90	0.04	3.36	0.0	0.342
14.550	0.000	0.91	0.04	3.37	0.0	0.343
14.567	0.000	0.91	0.04	3.39	0.0	0.344
14.583	0.000	0.92	0.04	3.40	0.0	0.345
14.600	0.000	0.92	0.04	3.41	0.0	0.347
14.617	0.000	0.92	0.04	3.42	0.0	0.348
14.633	0.000	0.93	0.04	3.43	0.0	0.349
14.650	0.000	0.94	0.04	3.44	0.0	0.350
14.667	0.000	0.95	0.04	3.46	0.0	0.351
14.683	0.000	0.96	0.04	3.47	0.0	0.353
14.700	0.000	0.97	0.04	3.48	0.0	0.354
14.717	0.000	0.98	0.04	3.49	0.0	0.355
14.733	0.000	0.99	0.04	3.51	0.0	0.356
14.750	0.000	1.00	0.04	3.52	0.0	0.358
14.767	0.000	1.01	0.04	3.53	0.0	0.359
14.783	0.000	1.02	0.04	3.54	0.0	0.360
14.800	0.000	1.03	0.04	3.56	0.0	0.362
14.817	0.000	1.04	0.04	3.57	0.0	0.363
14.833	0.000	1.04	0.04	3.58	0.0	0.364

==
MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
14.850	0.000	1.05	0.04	3.60	0.0	0.366
14.867	0.000	1.06	0.04	3.61	0.0	0.367
14.883	0.000	1.06	0.04	3.62	0.0	0.368
14.900	0.000	1.07	0.04	3.64	0.0	0.370
14.917	0.000	1.08	0.04	3.65	0.0	0.371
14.933	0.000	1.10	0.04	3.66	0.0	0.373
14.950	0.000	1.11	0.04	3.68	0.0	0.374
14.967	0.000	1.13	0.04	3.69	0.0	0.376
14.983	0.000	1.14	0.04	3.71	0.0	0.377
15.000	0.000	1.16	0.04	3.72	0.0	0.379
15.017	0.000	1.18	0.04	3.74	0.0	0.380
15.033	0.000	1.19	0.04	3.75	0.0	0.382
15.050	0.000	1.21	0.04	3.77	0.0	0.383
15.067	0.000	1.22	0.04	3.78	0.0	0.385
15.083	0.000	1.23	0.04	3.80	0.0	0.386
15.100	0.000	1.23	0.04	3.81	0.0	0.388
15.117	0.000	1.24	0.04	3.83	0.0	0.390
15.133	0.000	1.25	0.04	3.85	0.0	0.391
15.150	0.000	1.26	0.04	3.86	0.0	0.393
15.167	0.000	1.27	0.04	3.88	0.0	0.395
15.183	0.000	1.29	0.04	3.90	0.0	0.396
15.200	0.000	1.31	0.04	3.91	0.0	0.398
15.217	0.000	1.33	0.04	3.93	0.0	0.400
15.233	0.000	1.36	0.04	3.95	0.0	0.401
15.250	0.000	1.38	0.04	3.96	0.0	0.403
15.267	0.000	1.41	0.04	3.98	0.0	0.405
15.283	0.000	1.43	0.04	4.00	0.0	0.407
15.300	0.000	1.45	0.04	4.02	0.0	0.409
15.317	0.000	1.48	0.04	4.04	0.0	0.411
15.333	0.000	1.49	0.04	4.06	0.0	0.413
15.350	0.000	1.49	0.04	4.08	0.0	0.415
15.367	0.000	1.50	0.04	4.10	0.0	0.417
15.383	0.000	1.51	0.04	4.12	0.0	0.419
15.400	0.000	1.51	0.04	4.14	0.0	0.421
15.417	0.000	1.52	0.04	4.16	0.0	0.423
15.433	0.000	1.52	0.04	4.18	0.0	0.425
15.450	0.000	1.53	0.04	4.20	0.0	0.427
15.467	0.000	1.54	0.04	4.21	0.0	0.429
15.483	0.000	1.56	0.04	4.24	0.0	0.431
15.500	0.000	1.57	0.04	4.26	0.0	0.433
15.517	0.000	1.59	0.04	4.28	0.0	0.435
15.533	0.000	1.61	0.04	4.30	0.0	0.437
15.550	0.000	1.62	0.04	4.32	0.0	0.439
15.567	0.000	1.64	0.04	4.34	0.0	0.441
15.583	0.000	1.65	0.04	4.36	0.0	0.444
15.600	0.000	1.68	0.04	4.38	0.0	0.446
15.617	0.000	1.71	0.04	4.40	0.0	0.448
15.633	0.000	1.74	0.04	4.43	0.0	0.450
15.650	0.000	1.77	0.04	4.45	0.0	0.453
15.667	0.000	1.80	0.04	4.47	0.0	0.455

MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
15.683	0.000	1.84	0.04	4.50	0.0	0.457
15.700	0.000	1.87	0.04	4.52	0.0	0.460
15.717	0.000	1.90	0.04	4.55	0.0	0.462
15.733	0.000	1.95	0.04	4.57	0.0	0.465
15.750	0.000	2.07	0.04	4.60	0.0	0.468
15.767	0.000	2.21	0.04	4.63	0.0	0.471
15.783	0.000	2.35	0.04	4.66	0.0	0.474
15.800	0.000	2.49	0.04	4.69	0.0	0.477
15.817	0.000	2.62	0.04	4.73	0.0	0.481
15.833	0.000	2.76	0.04	4.76	0.0	0.484
15.850	0.000	2.90	0.04	4.80	0.0	0.488
15.867	0.000	3.04	0.04	4.84	0.0	0.492
15.883	0.000	3.18	0.04	4.88	0.0	0.497
15.900	0.000	3.34	0.04	4.93	0.0	0.501
15.917	0.000	3.49	0.04	4.97	0.0	0.506
15.933	0.000	3.64	0.04	5.02	0.0	0.511
15.950	0.000	3.79	0.04	5.07	0.0	0.516
15.967	0.000	3.94	0.04	5.12	0.0	0.521
15.983	0.000	4.10	0.04	5.18	0.0	0.527
16.000	0.000	4.25	0.04	5.23	0.1	0.533
16.017	0.000	4.89	0.04	5.30	0.2	0.539
16.033	0.000	6.02	0.04	5.37	0.4	0.547
16.050	0.000	7.14	0.04	5.46	0.6	0.555
16.067	0.000	8.27	0.04	5.56	0.9	0.566
16.083	0.000	9.40	0.04	5.67	1.2	0.577
16.100	0.000	10.53	0.04	5.79	1.5	0.589
16.117	0.000	11.65	0.04	5.92	1.9	0.602
16.133	0.000	12.78	0.04	6.06	2.3	0.617
16.150	0.000	13.64	0.04	6.21	2.7	0.632
16.167	0.000	11.95	0.04	6.33	3.1	0.644
16.183	0.000	10.59	0.04	6.43	3.4	0.654
16.200	0.000	9.23	0.04	6.51	3.6	0.662
16.217	0.000	7.87	0.04	6.56	3.8	0.667
16.233	0.000	6.51	0.04	6.59	3.9	0.671
16.250	0.000	5.15	0.04	6.61	4.0	0.672
16.267	0.000	3.79	0.04	6.61	4.0	0.672
16.283	0.000	2.57	0.04	6.59	4.0	0.670
16.300	0.000	2.29	0.04	6.56	3.9	0.668
16.317	0.000	2.17	0.04	6.54	3.8	0.665
16.333	0.000	2.06	0.04	6.52	3.8	0.663
16.350	0.000	1.95	0.04	6.49	3.7	0.660
16.367	0.000	1.84	0.04	6.47	3.6	0.658
16.383	0.000	1.72	0.04	6.44	3.6	0.655
16.400	0.000	1.61	0.04	6.42	3.5	0.653
16.417	0.000	1.50	0.04	6.39	3.4	0.650
16.433	0.000	1.46	0.04	6.36	3.4	0.647
16.450	0.000	1.45	0.04	6.34	3.3	0.645
16.467	0.000	1.44	0.04	6.31	3.2	0.642
16.483	0.000	1.43	0.04	6.29	3.1	0.640
16.500	0.000	1.41	0.04	6.27	3.1	0.637

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
16.517	0.000	1.40	0.04	6.24	3.0	0.635
16.533	0.000	1.39	0.04	6.22	2.9	0.633
16.550	0.000	1.38	0.04	6.20	2.9	0.631
16.567	0.000	1.36	0.04	6.18	2.8	0.629
16.583	0.000	1.33	0.04	6.16	2.8	0.627
16.600	0.000	1.30	0.04	6.14	2.7	0.625
16.617	0.000	1.27	0.04	6.12	2.7	0.623
16.633	0.000	1.24	0.04	6.10	2.6	0.621
16.650	0.000	1.21	0.04	6.08	2.6	0.619
16.667	0.000	1.19	0.04	6.07	2.5	0.617
16.683	0.000	1.16	0.04	6.05	2.5	0.615
16.700	0.000	1.13	0.04	6.03	2.4	0.613
16.717	0.000	1.11	0.04	6.01	2.4	0.612
16.733	0.000	1.09	0.04	6.00	2.3	0.610
16.750	0.000	1.07	0.04	5.98	2.3	0.608
16.767	0.000	1.05	0.04	5.96	2.2	0.607
16.783	0.000	1.03	0.04	5.95	2.2	0.605
16.800	0.000	1.01	0.04	5.93	2.1	0.603
16.817	0.000	0.99	0.04	5.92	2.1	0.602
16.833	0.000	0.97	0.04	5.90	2.0	0.600
16.850	0.000	0.96	0.04	5.89	2.0	0.599
16.867	0.000	0.94	0.04	5.87	2.0	0.597
16.883	0.000	0.93	0.04	5.86	1.9	0.596
16.900	0.000	0.92	0.04	5.85	1.9	0.595
16.917	0.000	0.91	0.04	5.83	1.8	0.593
16.933	0.000	0.90	0.04	5.82	1.8	0.592
16.950	0.000	0.89	0.04	5.81	1.8	0.591
16.967	0.000	0.87	0.04	5.80	1.7	0.589
16.983	0.000	0.87	0.04	5.78	1.7	0.588
17.000	0.000	0.86	0.04	5.77	1.7	0.587
17.017	0.000	0.85	0.04	5.76	1.6	0.586
17.033	0.000	0.84	0.04	5.75	1.6	0.585
17.050	0.000	0.83	0.04	5.74	1.6	0.584
17.067	0.000	0.82	0.04	5.73	1.5	0.583
17.083	0.000	0.82	0.04	5.72	1.5	0.582
17.100	0.000	0.81	0.04	5.71	1.5	0.581
17.117	0.000	0.80	0.04	5.70	1.5	0.580
17.133	0.000	0.79	0.04	5.69	1.4	0.579
17.150	0.000	0.79	0.04	5.68	1.4	0.578
17.167	0.000	0.78	0.04	5.67	1.4	0.577
17.183	0.000	0.77	0.04	5.66	1.4	0.576
17.200	0.000	0.77	0.04	5.66	1.3	0.575
17.217	0.000	0.76	0.04	5.65	1.3	0.575
17.233	0.000	0.75	0.04	5.64	1.3	0.574
17.250	0.000	0.75	0.04	5.63	1.3	0.573
17.267	0.000	0.74	0.04	5.63	1.2	0.572
17.283	0.000	0.74	0.04	5.62	1.2	0.572
17.300	0.000	0.73	0.04	5.61	1.2	0.571
17.317	0.000	0.73	0.04	5.61	1.2	0.570
17.333	0.000	0.72	0.04	5.60	1.2	0.570

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
17.350	0.000	0.72	0.04	5.59	1.1	0.569
17.367	0.000	0.71	0.04	5.59	1.1	0.568
17.383	0.000	0.71	0.04	5.58	1.1	0.568
17.400	0.000	0.70	0.04	5.57	1.1	0.567
17.417	0.000	0.70	0.04	5.57	1.1	0.566
17.433	0.000	0.69	0.04	5.56	1.1	0.566
17.450	0.000	0.69	0.04	5.56	1.0	0.565
17.467	0.000	0.68	0.04	5.55	1.0	0.565
17.483	0.000	0.68	0.04	5.55	1.0	0.564
17.500	0.000	0.67	0.04	5.54	1.0	0.564
17.517	0.000	0.67	0.04	5.54	1.0	0.563
17.533	0.000	0.66	0.04	5.53	1.0	0.563
17.550	0.000	0.66	0.04	5.53	1.0	0.562
17.567	0.000	0.66	0.04	5.52	1.0	0.562
17.583	0.000	0.65	0.04	5.52	0.9	0.561
17.600	0.000	0.65	0.04	5.51	0.9	0.561
17.617	0.000	0.64	0.04	5.51	0.9	0.561
17.633	0.000	0.64	0.04	5.51	0.9	0.560
17.650	0.000	0.64	0.04	5.50	0.9	0.560
17.667	0.000	0.63	0.04	5.50	0.9	0.559
17.683	0.000	0.63	0.04	5.49	0.9	0.559
17.700	0.000	0.63	0.04	5.49	0.9	0.559
17.717	0.000	0.62	0.04	5.49	0.8	0.558
17.733	0.000	0.62	0.04	5.48	0.8	0.558
17.750	0.000	0.62	0.04	5.48	0.8	0.557
17.767	0.000	0.61	0.04	5.48	0.8	0.557
17.783	0.000	0.61	0.04	5.47	0.8	0.557
17.800	0.000	0.61	0.04	5.47	0.8	0.556
17.817	0.000	0.60	0.04	5.47	0.8	0.556
17.833	0.000	0.60	0.04	5.46	0.8	0.556
17.850	0.000	0.60	0.04	5.46	0.8	0.556
17.867	0.000	0.59	0.04	5.46	0.8	0.555
17.883	0.000	0.59	0.04	5.46	0.8	0.555
17.900	0.000	0.59	0.04	5.45	0.8	0.555
17.917	0.000	0.58	0.04	5.45	0.7	0.554
17.933	0.000	0.58	0.04	5.45	0.7	0.554
17.950	0.000	0.58	0.04	5.45	0.7	0.554
17.967	0.000	0.58	0.04	5.44	0.7	0.554
17.983	0.000	0.57	0.04	5.44	0.7	0.553
18.000	0.000	0.57	0.04	5.44	0.7	0.553

PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 1.064 AF
BASIN STORAGE = 0.000 AF (WITH 0.000 AF INITIALLY FILLED)
OUTFLOW VOLUME = 0.605 AF
LOSS VOLUME = 0.459 AF

****
FLOW PROCESS FROM NODE 103.00 TO NODE 104.00 IS CODE = 4

>>>>>MODEL PIPEFLOW ROUTING OF STREAM #1<<<<<
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MODEL PIPEFLOW ROUTING OF STREAM 1 WHERE
STORAGE EFFECTS ARE NEGLECTED WITHIN THE PIPE, FLOW
VELOCITIES ARE ESTIMATED BY ASSUMING STEADY FLOW FOR
EACH UNIT INTERVAL(NORMAL DEPTH, Dn), AND FLOWS IN EXCESS
OF (.82)(DIAMETER) ARE PONDED AT THE UPSTREAM INLET:
UNIT INTERVAL FLOW VELOCITY COMPUTED USING Dn UP TO
(0.938)(DIAMETER):

PIPELENGTH(FT) = 468.00 MANNINGS FACTOR = 0.013
UPSTREAM ELEVATION(FT) = 130.00
DOWNSTREAM ELEVATION(FT) = 127.60
PIPE DIAMETER(FT) = 2.00

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
14.000	0.02	0.50	0.02	0.000
14.017	0.02	0.50	0.02	0.000
14.033	0.02	0.50	0.02	0.000
14.050	0.02	0.50	0.02	0.000
14.067	0.02	0.50	0.02	0.000
14.083	0.02	0.50	0.02	0.000
14.100	0.02	0.50	0.02	0.000
14.117	0.02	0.50	0.02	0.000
14.133	0.02	0.50	0.02	0.000
14.150	0.02	0.50	0.02	0.000
14.167	0.02	0.50	0.02	0.000
14.183	0.02	0.50	0.02	0.000
14.200	0.02	0.50	0.02	0.000
14.217	0.02	0.50	0.02	0.000
14.233	0.02	0.50	0.02	0.000
14.250	0.02	0.50	0.02	0.000
14.267	0.03	0.50	0.02	0.000
14.283	0.03	0.50	0.02	0.000
14.300	0.03	0.50	0.02	0.000
14.317	0.03	0.50	0.02	0.000
14.333	0.03	0.50	0.02	0.000
14.350	0.03	0.50	0.02	0.000
14.367	0.03	0.50	0.02	0.000
14.383	0.03	0.50	0.02	0.000
14.400	0.03	0.50	0.02	0.000
14.417	0.03	0.50	0.02	0.000
14.433	0.03	0.50	0.02	0.000
14.450	0.03	0.50	0.02	0.000
14.467	0.03	0.50	0.02	0.000
14.483	0.03	0.50	0.02	0.000

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
14.500	0.03	0.50	0.02	0.000
14.517	0.03	0.50	0.02	0.000
14.533	0.03	0.50	0.03	0.000
14.550	0.03	0.50	0.03	0.000
14.567	0.03	0.50	0.03	0.000
14.583	0.03	0.50	0.03	0.000
14.600	0.03	0.50	0.03	0.000
14.617	0.03	0.50	0.03	0.000
14.633	0.03	0.50	0.03	0.000
14.650	0.03	0.50	0.03	0.000
14.667	0.03	0.50	0.03	0.000
14.683	0.03	0.50	0.03	0.000
14.700	0.03	0.50	0.03	0.000
14.717	0.03	0.50	0.03	0.000
14.733	0.03	0.50	0.03	0.000
14.750	0.03	0.50	0.03	0.000
14.767	0.03	0.50	0.03	0.000
14.783	0.03	0.50	0.03	0.000
14.800	0.03	0.50	0.03	0.000
14.817	0.03	0.50	0.03	0.000
14.833	0.03	0.50	0.03	0.000
14.850	0.03	0.50	0.03	0.000
14.867	0.03	0.50	0.03	0.000
14.883	0.03	0.50	0.03	0.000
14.900	0.03	0.50	0.03	0.000
14.917	0.03	0.50	0.03	0.000
14.933	0.03	0.50	0.03	0.000
14.950	0.03	0.50	0.03	0.000
14.967	0.03	0.50	0.03	0.000
14.983	0.03	0.50	0.03	0.000
15.000	0.03	0.50	0.03	0.000
15.017	0.03	0.50	0.03	0.000
15.033	0.03	0.50	0.03	0.000
15.050	0.03	0.50	0.03	0.000
15.067	0.03	0.50	0.03	0.000
15.083	0.03	0.50	0.03	0.000
15.100	0.03	0.50	0.03	0.000
15.117	0.03	0.50	0.03	0.000
15.133	0.03	0.50	0.03	0.000
15.150	0.03	0.50	0.03	0.000
15.167	0.03	0.50	0.03	0.000
15.183	0.03	0.50	0.03	0.000
15.200	0.03	0.50	0.03	0.000
15.217	0.03	0.50	0.03	0.000
15.233	0.03	0.50	0.03	0.000
15.250	0.03	0.50	0.03	0.000
15.267	0.03	0.50	0.03	0.000
15.283	0.03	0.50	0.03	0.000
15.300	0.03	0.50	0.03	0.000
15.317	0.03	0.50	0.03	0.000

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
15.333	0.03	0.50	0.03	0.000
15.350	0.03	0.50	0.03	0.000
15.367	0.03	0.50	0.03	0.000
15.383	0.03	0.50	0.03	0.000
15.400	0.03	0.50	0.03	0.000
15.417	0.03	0.50	0.03	0.000
15.433	0.03	0.50	0.03	0.000
15.450	0.03	0.50	0.03	0.000
15.467	0.03	0.50	0.03	0.000
15.483	0.03	0.50	0.03	0.000
15.500	0.03	0.50	0.03	0.000
15.517	0.03	0.50	0.03	0.000
15.533	0.03	0.50	0.03	0.000
15.550	0.03	0.50	0.03	0.000
15.567	0.03	0.50	0.03	0.000
15.583	0.03	0.50	0.03	0.000
15.600	0.03	0.50	0.03	0.000
15.617	0.03	0.50	0.03	0.000
15.633	0.03	0.50	0.03	0.000
15.650	0.03	0.50	0.03	0.000
15.667	0.03	0.50	0.03	0.000
15.683	0.03	0.50	0.03	0.000
15.700	0.03	0.50	0.03	0.000
15.717	0.03	0.50	0.03	0.000
15.733	0.03	0.50	0.03	0.000
15.750	0.03	0.50	0.03	0.000
15.767	0.03	0.50	0.03	0.000
15.783	0.03	0.50	0.03	0.000
15.800	0.03	0.50	0.03	0.000
15.817	0.03	0.50	0.03	0.000
15.833	0.03	0.50	0.03	0.000
15.850	0.03	0.50	0.03	0.000
15.867	0.03	0.50	0.03	0.000
15.883	0.03	0.50	0.03	0.000
15.900	0.03	0.50	0.03	0.000
15.917	0.03	0.50	0.03	0.000
15.933	0.03	0.50	0.03	0.000
15.950	0.03	0.50	0.03	0.000
15.967	0.03	0.50	0.03	0.000
15.983	0.03	0.50	0.03	0.000
16.000	0.08	0.50	0.03	0.000
16.017	0.22	0.72	0.03	0.000
16.033	0.41	1.37	0.03	0.000
16.050	0.64	2.13	0.03	0.000
16.067	0.91	2.75	0.03	0.000
16.083	1.20	2.96	0.03	0.000
16.100	1.53	3.19	0.40	0.000
16.117	1.89	3.39	1.78	0.000
16.133	2.27	3.60	1.93	0.000
16.150	2.68	3.79	2.04	0.000

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
16.167	3.06	3.95	2.49	0.000
16.183	3.36	4.06	3.06	0.000
16.200	3.61	4.14	3.61	0.000
16.217	3.79	4.21	3.55	0.000
16.233	3.92	4.25	3.77	0.000
16.250	3.99	4.27	3.93	0.000
16.267	4.00	4.28	4.02	0.000
16.283	3.97	4.26	4.00	0.000
16.300	3.91	4.24	3.98	0.000
16.317	3.85	4.22	3.93	0.000
16.333	3.78	4.20	3.87	0.000
16.350	3.71	4.18	3.80	0.000
16.367	3.64	4.16	3.73	0.000
16.383	3.57	4.13	3.67	0.000
16.400	3.50	4.11	3.60	0.000
16.417	3.43	4.08	3.53	0.000
16.433	3.35	4.06	3.45	0.000
16.450	3.28	4.03	3.38	0.000
16.467	3.21	4.01	3.31	0.000
16.483	3.14	3.98	3.23	0.000
16.500	3.07	3.95	3.16	0.000
16.517	3.01	3.93	3.10	0.000
16.533	2.95	3.90	3.03	0.000
16.550	2.89	3.88	2.97	0.000
16.567	2.83	3.85	2.95	0.000
16.583	2.77	3.83	2.85	0.000
16.600	2.72	3.81	2.79	0.000
16.617	2.66	3.78	2.74	0.000
16.633	2.61	3.76	2.68	0.000
16.650	2.55	3.74	2.63	0.000
16.667	2.50	3.72	2.58	0.000
16.683	2.45	3.70	2.53	0.000
16.700	2.40	3.67	2.48	0.000
16.717	2.35	3.64	2.43	0.000
16.733	2.30	3.62	2.37	0.000
16.750	2.25	3.59	2.32	0.000
16.767	2.21	3.57	2.27	0.000
16.783	2.16	3.54	2.23	0.000
16.800	2.12	3.52	2.18	0.000
16.817	2.07	3.49	2.14	0.000
16.833	2.03	3.47	2.10	0.000
16.850	1.99	3.45	2.05	0.000
16.867	1.95	3.43	2.01	0.000
16.883	1.91	3.41	1.97	0.000
16.900	1.87	3.39	1.93	0.000
16.917	1.83	3.37	1.89	0.000
16.933	1.80	3.35	1.86	0.000
16.950	1.76	3.33	1.82	0.000
16.967	1.73	3.31	1.79	0.000
16.983	1.69	3.29	1.75	0.000

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
17.000	1.66	3.27	1.72	0.000
17.017	1.63	3.25	1.68	0.000
17.033	1.60	3.23	1.65	0.000
17.050	1.57	3.21	1.62	0.000
17.067	1.54	3.19	1.59	0.000
17.083	1.51	3.17	1.56	0.000
17.100	1.48	3.15	1.53	0.000
17.117	1.46	3.13	1.50	0.000
17.133	1.43	3.12	1.47	0.000
17.150	1.40	3.10	1.45	0.000
17.167	1.38	3.08	1.42	0.000
17.183	1.36	3.06	1.40	0.000
17.200	1.33	3.05	1.37	0.000
17.217	1.31	3.03	1.35	0.000
17.233	1.29	3.02	1.33	0.000
17.250	1.27	3.00	1.30	0.000
17.267	1.25	2.99	1.28	0.000
17.283	1.22	2.97	1.26	0.000
17.300	1.20	2.96	1.24	0.000
17.317	1.19	2.94	1.22	0.000
17.333	1.17	2.93	1.20	0.000
17.350	1.15	2.92	1.18	0.000
17.367	1.13	2.91	1.17	0.000
17.383	1.11	2.89	1.15	0.000
17.400	1.10	2.88	1.13	0.000
17.417	1.08	2.87	1.11	0.000
17.433	1.06	2.86	1.10	0.000
17.450	1.05	2.85	1.08	0.000
17.467	1.03	2.84	1.06	0.000
17.483	1.02	2.83	1.05	0.000
17.500	1.00	2.82	1.03	0.000
17.517	0.99	2.81	1.02	0.000
17.533	0.98	2.80	1.01	0.000
17.550	0.96	2.79	0.99	0.000
17.567	0.95	2.78	0.98	0.000
17.583	0.94	2.77	0.96	0.000
17.600	0.93	2.76	0.95	0.000
17.617	0.91	2.75	0.94	0.000
17.633	0.90	2.75	0.93	0.000
17.650	0.89	2.74	0.92	0.000
17.667	0.88	2.73	0.90	0.000
17.683	0.87	2.72	0.89	0.000
17.700	0.86	2.72	0.88	0.000
17.717	0.85	2.71	0.87	0.000
17.733	0.84	2.70	0.86	0.000
17.750	0.83	2.69	0.85	0.000
17.767	0.82	2.69	0.84	0.000
17.783	0.81	2.68	0.83	0.000
17.800	0.80	2.65	0.82	0.000
17.817	0.79	2.62	0.81	0.000

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
17.833	0.78	2.59	0.78	0.000
17.850	0.77	2.56	0.77	0.000
17.867	0.77	2.54	0.77	0.000
17.883	0.76	2.51	0.77	0.000
17.900	0.75	2.48	0.75	0.000
17.917	0.74	2.46	0.74	0.000
17.933	0.74	2.43	0.73	0.000
17.950	0.73	2.41	0.73	0.000
17.967	0.72	2.39	0.72	0.000
17.983	0.71	2.36	0.71	0.000
18.000	0.71	2.34	0.71	0.000

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****************************************************************************
 FLOW PROCESS FROM NODE    200.00 TO NODE    202.00 IS CODE = 1.2
----------------------------------------------------------------------------
 >>>>>SUBAREA RUNOFF (SMALL AREA UNIT-HYDROGRAPH ANALYSIS) <<<<<
============================================================================

 (SMALL AREA UNIT-HYDROGRAPH ADDED TO STREAM #2)

  RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
  TOTAL CATCHMENT AREA(ACRES) =    2.51
  SOIL-LOSS RATE, Fm,(INCH/HR) =  0.060
  LOW LOSS FRACTION = 0.227
  TIME OF CONCENTRATION(MIN.) =  9.28
  SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
  ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED:
  RETURN FREQUENCY(YEARS) =  10
    5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.34
   30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.72
    1-HOUR   POINT RAINFALL VALUE(INCHES) =  0.95
    3-HOUR   POINT RAINFALL VALUE(INCHES) =  1.59
    6-HOUR   POINT RAINFALL VALUE(INCHES) =  2.20
   24-HOUR   POINT RAINFALL VALUE(INCHES) =  3.68

----------------------------------------------------------------------------
  TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     0.57
  TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.20

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            2 4 - H O U R   S T O R M
          R U N O F F   H Y D R O G R A P H

==============================================================================
       HYDROGRAPH IN  ONE-MINUTE UNIT INTERVALS(CFS)
   (Notes: Time indicated is at END of Each Unit Intervals.
       Peak 5-minute rainfall intensity is modeled as
       a constant value for entire 5-minute period.)
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.       1.6      3.1      4.7      6.3
----------------------------------------------------------------------------
 14.000   0.1975   0.42  . Q      . V     .       .       .
 14.017   0.1981   0.42  . Q      .  V    .       .       .
 14.033   0.1987   0.42  . Q      .  V    .       .       .
 14.050   0.1993   0.42  . Q      .  V    .       .       .
 14.067   0.1999   0.43  . Q      .  V    .       .       .
 14.083   0.2005   0.43  . Q      .  V    .       .       .
 14.100   0.2011   0.43  . Q      .  V    .       .       .
 14.117   0.2017   0.43  . Q      .  V    .       .       .
 14.133   0.2023   0.43  . Q      .  V    .       .       .
 14.150   0.2028   0.43  . Q      .  V    .       .       .
 14.167   0.2034   0.43  . Q      .  V    .       .       .
 14.183   0.2040   0.44  . Q      .  V    .       .       .
 14.200   0.2047   0.44  . Q      .  V    .       .       .
 14.217   0.2053   0.44  . Q      .  V    .       .       .
 14.233   0.2059   0.45  . Q      .  V    .       .       .
 14.250   0.2065   0.45  . Q      .  V    .       .       .
 14.267   0.2071   0.45  . Q      .  V    .       .       .
 14.283   0.2077   0.45  . Q      .  V    .       .       .
 14.300   0.2084   0.46  . Q      .  V    .       .       .
 14.317   0.2090   0.46  . Q      .  V    .       .       .
 14.333   0.2096   0.46  . Q      .  V    .       .       .
 14.350   0.2103   0.46  . Q      .  V    .       .       .
 14.367   0.2109   0.47  . Q      .  V    .       .       .
 14.383   0.2116   0.47  . Q      .  V    .       .       .
 14.400   0.2122   0.47  . Q      .   V   .       .       .
 14.417   0.2129   0.47  . Q      .   V   .       .       .
 14.433   0.2135   0.47  .  Q     .   V   .       .       .
 14.450   0.2142   0.47  .  Q     .   V   .       .       .
 14.467   0.2148   0.48  .  Q     .   V   .       .       .
 14.483   0.2155   0.48  .  Q     .   V   .       .       .
 14.500   0.2162   0.49  .  Q     .   V   .       .       .
 14.517   0.2168   0.49  .  Q     .   V   .       .       .
 14.533   0.2175   0.50  .  Q     .   V   .       .       .
 14.550   0.2182   0.50  .  Q     .   V   .       .       .
 14.567   0.2189   0.51  .  Q     .   V   .       .       .
 14.583   0.2196   0.51  .  Q     .   V   .       .       .
 14.600   0.2203   0.52  .  Q     .   V   .       .       .
 14.617   0.2210   0.52  .  Q     .   V   .       .       .
 14.633   0.2218   0.52  .  Q     .   V   .       .       .
 14.650   0.2225   0.53  .  Q     .   V   .       .       .
 14.667   0.2232   0.53  .  Q     .   V   .       .       .
 14.683   0.2239   0.53  .  Q     .   V   .       .       .
 14.700   0.2247   0.53  .  Q     .   V   .       .       .
 14.717   0.2254   0.54  .  Q     .   V   .       .       .
 14.733   0.2262   0.54  .  Q     .   V   .       .       .
 14.750   0.2269   0.54  .  Q     .    V  .       .       .
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----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.        1.6       3.1       4.7       6.3
----------------------------------------------------------------------------
  14.767     0.2276     0.54  . Q        .    V  .        .        .
  14.783     0.2284     0.55  . Q        .    V  .        .        .
  14.800     0.2292     0.56  . Q        .    V  .        .        .
  14.817     0.2299     0.56  . Q        .    V  .        .        .
  14.833     0.2307     0.57  . Q        .    V  .        .        .
  14.850     0.2315     0.58  . Q        .    V  .        .        .
  14.867     0.2323     0.58  . Q        .    V  .        .        .
  14.883     0.2331     0.59  . Q        .    V  .        .        .
  14.900     0.2340     0.60  . Q        .    V  .        .        .
  14.917     0.2348     0.60  . Q        .    V  .        .        .
  14.933     0.2356     0.61  . Q        .    V  .        .        .
  14.950     0.2365     0.61  . Q        .    V  .        .        .
  14.967     0.2373     0.62  . Q        .    V  .        .        .
  14.983     0.2382     0.62  . Q        .    V  .        .        .
  15.000     0.2390     0.62  . Q        .    V  .        .        .
  15.017     0.2399     0.63  . Q        .    V  .        .        .
  15.033     0.2408     0.63  .  Q       .     V .        .        .
  15.050     0.2416     0.64  .  Q       .     V .        .        .
  15.067     0.2425     0.64  .  Q       .     V .        .        .
  15.083     0.2434     0.64  .  Q       .     V .        .        .
  15.100     0.2443     0.65  .  Q       .     V .        .        .
  15.117     0.2452     0.66  .  Q       .     V .        .        .
  15.133     0.2461     0.67  .  Q       .     V .        .        .
  15.150     0.2471     0.68  .  Q       .     V .        .        .
  15.167     0.2480     0.69  .  Q       .     V .        .        .
  15.183     0.2490     0.70  .  Q       .     V .        .        .
  15.200     0.2500     0.71  .  Q       .     V .        .        .
  15.217     0.2510     0.72  .  Q       .     V .        .        .
  15.233     0.2520     0.73  .  Q       .     V .        .        .
  15.250     0.2530     0.74  .  Q       .     V .        .        .
  15.267     0.2541     0.75  .  Q       .     V .        .        .
  15.283     0.2551     0.75  .  Q       .      V.        .        .
  15.300     0.2561     0.76  .  Q       .      V.        .        .
  15.317     0.2572     0.77  .  Q       .      V.        .        .
  15.333     0.2583     0.77  .  Q       .      V.        .        .
  15.350     0.2593     0.78  .  Q       .      V.        .        .
  15.367     0.2604     0.79  .  Q       .      V.        .        .
  15.383     0.2615     0.79  .   Q      .      V.        .        .
  15.400     0.2626     0.80  .   Q      .      V.        .        .
  15.417     0.2637     0.80  .   Q      .      V.        .        .
  15.433     0.2648     0.80  .   Q      .      V.        .        .
  15.450     0.2659     0.80  .   Q      .      V.        .        .
  15.467     0.2670     0.80  .   Q      .      V.        .        .
  15.483     0.2681     0.80  .   Q      .      V.        .        .
  15.500     0.2692     0.81  .   Q      .       V.       .        .
  15.517     0.2703     0.81  .   Q      .       V.       .        .
  15.533     0.2715     0.81  .   Q      .       V.       .        .
  15.550     0.2726     0.82  .   Q      .       V.       .        .
  15.567     0.2737     0.83  .   Q      .       V.       .        .
  15.583     0.2749     0.84  .   Q      .       V.       .        .
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 ----------------------------------------------------------------------------
  TIME(HRS) VOLUME(AF)   Q(CFS) 0.        1.6       3.1       4.7       6.3
 ----------------------------------------------------------------------------
   15.600    0.2761    0.86 .   Q    .      V.      .       .
   15.617    0.2773    0.87 .   Q    .      V.      .       .
   15.633    0.2785    0.88 .   Q    .      V.      .       .
   15.650    0.2797    0.89 .   Q    .      V.      .       .
   15.667    0.2810    0.91 .   Q    .      V.      .       .
   15.683    0.2822    0.92 .   Q    .      V.      .       .
   15.700    0.2835    0.94 .   Q    .       V      .       .
   15.717    0.2849    0.99 .    Q   .       V      .       .
   15.733    0.2863    1.05 .    Q   .       V      .       .
   15.750    0.2879    1.11 .     Q  .       V      .       .
   15.767    0.2895    1.16 .     Q  .       V      .       .
   15.783    0.2911    1.22 .     Q  .       V      .       .
   15.800    0.2929    1.27 .      Q .       V      .       .
   15.817    0.2947    1.33 .      Q .       V      .       .
   15.833    0.2966    1.39 .      Q .       V      .       .
   15.850    0.2986    1.44 .       Q.      .V      .       .
   15.867    0.3007    1.50 .       Q.      .V      .       .
   15.883    0.3029    1.57 .       Q.      .V      .       .
   15.900    0.3051    1.63 .        Q      .V      .       .
   15.917    0.3074    1.69 .        Q      .V      .       .
   15.933    0.3098    1.75 .       .Q      .V      .       .
   15.950    0.3123    1.81 .       .Q      . V     .       .
   15.967    0.3149    1.88 .       .Q      . V     .       .
   15.983    0.3176    1.94 .       . Q     . V     .       .
   16.000    0.3203    2.00 .       . Q     . V     .       .
   16.017    0.3235    2.26 .       .  Q    . V     .       .
   16.033    0.3272    2.72 .       .    Q  .  V    .       .
   16.050    0.3316    3.18 .       .      Q   V    .       .
   16.067    0.3366    3.64 .       .      .  Q    .       .
   16.083    0.3423    4.10 .       .      .  V  Q  .       .
   16.100    0.3485    4.56 .       .      .  V   Q .       .
   16.117    0.3555    5.02 .       .      .   V   .Q       .
   16.133    0.3630    5.48 .       .      .   V   .   Q    .
   16.150    0.3712    5.94 .       .      .    V  .     Q  .
   16.167    0.3799    6.30 .       .      .    V  .       Q
   16.183    0.3876    5.62 .       .      .     V .    Q   .
   16.200    0.3946    5.06 .       .      .     V . Q      .
   16.217    0.4008    4.50 .       .      .      Q.       .
   16.233    0.4062    3.94 .       .      .   Q   V.       .
   16.250    0.4109    3.39 .       .      .Q      V.       .
   16.267    0.4148    2.83 .       .    Q  .      V.       .
   16.283    0.4179    2.27 .       .  Q    .      V.       .
   16.300    0.4203    1.71 .        Q      .      V.       .
   16.317    0.4219    1.21 .     Q  .      .      V.       .
   16.333    0.4234    1.09 .    Q   .      .      V.       .
   16.350    0.4249    1.06 .    Q   .      .       V       .
   16.367    0.4263    1.02 .    Q   .      .       V       .
   16.383    0.4276    0.99 .    Q   .      .       V       .
   16.400    0.4289    0.95 .    Q   .      .       V       .
   16.417    0.4302    0.92 .   Q    .      .       V       .
```

```
--------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.       1.6       3.1       4.7       6.3
--------------------------------------------------------------------------
  16.433    0.4314    0.88  .    Q    .       .       V       .
  16.450    0.4326    0.85  .    Q    .       .       V       .
  16.467    0.4337    0.81  .    Q    .       .       V       .
  16.483    0.4348    0.79  .    Q    .       .       V       .
  16.500    0.4359    0.78  .   Q     .       .       V       .
  16.517    0.4369    0.77  .   Q     .       .       V       .
  16.533    0.4380    0.75  .   Q     .       .       V       .
  16.550    0.4390    0.74  .   Q     .       .       .V      .
  16.567    0.4400    0.73  .   Q     .       .       .V      .
  16.583    0.4410    0.72  .   Q     .       .       .V      .
  16.600    0.4419    0.70  .   Q     .       .       .V      .
  16.617    0.4429    0.69  .   Q     .       .       .V      .
  16.633    0.4438    0.68  .   Q     .       .       .V      .
  16.650    0.4448    0.67  .   Q     .       .       .V      .
  16.667    0.4457    0.66  .   Q     .       .       .V      .
  16.683    0.4466    0.64  .   Q     .       .       .V      .
  16.700    0.4474    0.63  .   Q     .       .       .V      .
  16.717    0.4483    0.62  .  Q      .       .       .V      .
  16.733    0.4491    0.61  .  Q      .       .       .V      .
  16.750    0.4499    0.60  .  Q      .       .       .V      .
  16.767    0.4507    0.58  .  Q      .       .       .V      .
  16.783    0.4515    0.57  .  Q      .       .       .V      .
  16.800    0.4523    0.56  .  Q      .       .       .V      .
  16.817    0.4531    0.56  .  Q      .       .       . V     .
  16.833    0.4538    0.55  .  Q      .       .       . V     .
  16.850    0.4546    0.54  .  Q      .       .       . V     .
  16.867    0.4553    0.53  .  Q      .       .       . V     .
  16.883    0.4560    0.52  .  Q      .       .       . V     .
  16.900    0.4567    0.51  .  Q      .       .       . V     .
  16.917    0.4574    0.51  .  Q      .       .       . V     .
  16.933    0.4581    0.50  .  Q      .       .       . V     .
  16.950    0.4588    0.49  .  Q      .       .       . V     .
  16.967    0.4595    0.49  .  Q      .       .       . V     .
  16.983    0.4601    0.48  .  Q      .       .       . V     .
  17.000    0.4608    0.48  .  Q      .       .       . V     .
  17.017    0.4614    0.47  . Q       .       .       . V     .
  17.033    0.4621    0.46  . Q       .       .       . V     .
  17.050    0.4627    0.46  . Q       .       .       . V     .
  17.067    0.4633    0.45  . Q       .       .       . V     .
  17.083    0.4639    0.45  . Q       .       .       . V     .
  17.100    0.4646    0.44  . Q       .       .       . V     .
  17.117    0.4652    0.44  . Q       .       .       . V     .
  17.133    0.4658    0.44  . Q       .       .       . V     .
  17.150    0.4664    0.43  . Q       .       .       . V     .
  17.167    0.4669    0.43  . Q       .       .       .  V    .
  17.183    0.4675    0.42  . Q       .       .       .  V    .
  17.200    0.4681    0.42  . Q       .       .       .  V    .
  17.217    0.4687    0.42  . Q       .       .       .  V    .
  17.233    0.4692    0.41  . Q       .       .       .  V    .
  17.250    0.4698    0.41  . Q       .       .       .  V    .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.      1.6      3.1      4.7      6.3
----------------------------------------------------------------------------
  17.267    0.4704    0.41  . Q      .       .      . V     .
  17.283    0.4709    0.40  . Q      .       .      . V     .
  17.300    0.4715    0.40  . Q      .       .      . V     .
  17.317    0.4720    0.40  . Q      .       .      . V     .
  17.333    0.4726    0.39  . Q      .       .      . V     .
  17.350    0.4731    0.39  . Q      .       .      . V     .
  17.367    0.4736    0.39  . Q      .       .      . V     .
  17.383    0.4742    0.39  . Q      .       .      . V     .
  17.400    0.4747    0.38  . Q      .       .      . V     .
  17.417    0.4752    0.38  . Q      .       .      . V     .
  17.433    0.4758    0.38  . Q      .       .      . V     .
  17.450    0.4763    0.38  . Q      .       .      . V     .
  17.467    0.4768    0.37  . Q      .       .      . V     .
  17.483    0.4773    0.37  . Q      .       .      . V     .
  17.500    0.4778    0.37  . Q      .       .      . V     .
  17.517    0.4783    0.37  . Q      .       .      . V     .
  17.533    0.4788    0.36  . Q      .       .      . V     .
  17.550    0.4793    0.36  . Q      .       .      . V     .
  17.567    0.4798    0.36  . Q      .       .      . V     .
  17.583    0.4803    0.36  . Q      .       .      . V     .
  17.600    0.4808    0.35  . Q      .       .      . V     .
  17.617    0.4813    0.35  . Q      .       .      .  V    .
  17.633    0.4817    0.35  . Q      .       .      .  V    .
  17.650    0.4822    0.35  . Q      .       .      .  V    .
  17.667    0.4827    0.35  . Q      .       .      .  V    .
  17.683    0.4832    0.34  . Q      .       .      .  V    .
  17.700    0.4836    0.34  . Q      .       .      .  V    .
  17.717    0.4841    0.34  . Q      .       .      .  V    .
  17.733    0.4846    0.34  . Q      .       .      .  V    .
  17.750    0.4850    0.34  . Q      .       .      .  V    .
  17.767    0.4855    0.33  . Q      .       .      .  V    .
  17.783    0.4860    0.33  . Q      .       .      .  V    .
  17.800    0.4864    0.33  . Q      .       .      .  V    .
  17.817    0.4869    0.33  . Q      .       .      .  V    .
  17.833    0.4873    0.33  . Q      .       .      .  V    .
  17.850    0.4878    0.33  . Q      .       .      .  V    .
  17.867    0.4882    0.32  . Q      .       .      .  V    .
  17.883    0.4887    0.32  . Q      .       .      .  V    .
  17.900    0.4891    0.32  . Q      .       .      .  V    .
  17.917    0.4895    0.32  . Q      .       .      .  V    .
  17.933    0.4900    0.32  . Q      .       .      .  V    .
  17.950    0.4904    0.32  . Q      .       .      .  V    .
  17.967    0.4909    0.31  .Q       .       .      .  V    .
  17.983    0.4913    0.31  .Q       .       .      .  V    .
  18.000    0.4917    0.31  .Q       .       .      .  V    .
-------------------------------------------------------------------------------
   TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
   (Note: 100% of Peak Flow Rate estimate assumed to have
   an instantaneous time duration)

   Percentile of Estimated          Duration
      Peak Flow Rate               (minutes)
   =======================          =========
         0%                   1081.0
        10%                    505.0
        20%                    155.0
        30%                     95.0
        40%                     75.0
        50%                     65.0
        60%                     50.0
        70%                     40.0
```

80%	25.0
90%	10.0

```
****************************************************************************
  FLOW PROCESS FROM NODE    203.00 TO NODE    203.00 IS CODE = 3.2
----------------------------------------------------------------------------
  >>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #2<<<<<
============================================================================

                 INFLOW
               (STREAM 2)
                    |
                    |
                    V                __effective depth
               -----------          |   (and volume)
              |           |    |    |
              |           |    |....V........
              | detention |<-->|          outflow
              |   basin   |    |.........________
               -----------     |    ^    | \
                    |          |  dead   |   basin outlet
                    V          | storage |
                 OUTFLOW        ---------
               (STREAM 2)
```

ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 2
THROUGH A FLOW-THROUGH DETENTION BASIN
SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
DEAD STORAGE(AF) = 0.000
SPECIFIED DEAD STORAGE(AF) FILLED = 0.000
SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET = 0.000
DETENTION BASIN CONSTANT LOSS RATE(CFS) = 0.04

BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

INTERVAL NUMBER	DEPTH (FT)	OUTFLOW (CFS)	STORAGE (AF)
1	0.00	0.00	0.000
2	2.00	0.01	0.040
3	3.00	0.02	0.061
4	5.00	0.04	0.101
5	6.25	25.32	0.126

==

MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
14.017	0.000	0.42	0.04	5.02	0.4	0.101
14.033	0.000	0.42	0.04	5.02	0.4	0.101
14.050	0.000	0.42	0.04	5.02	0.4	0.101
14.067	0.000	0.43	0.04	5.02	0.4	0.101
14.083	0.000	0.43	0.04	5.02	0.4	0.101
14.100	0.000	0.43	0.04	5.02	0.4	0.101
14.117	0.000	0.43	0.04	5.02	0.4	0.101
14.133	0.000	0.43	0.04	5.02	0.4	0.101
14.150	0.000	0.43	0.04	5.02	0.4	0.101
14.167	0.000	0.43	0.04	5.02	0.4	0.101
14.183	0.000	0.44	0.04	5.02	0.4	0.101
14.200	0.000	0.44	0.04	5.02	0.4	0.101
14.217	0.000	0.44	0.04	5.02	0.4	0.101
14.233	0.000	0.45	0.04	5.02	0.4	0.101
14.250	0.000	0.45	0.04	5.02	0.4	0.101
14.267	0.000	0.45	0.04	5.02	0.4	0.101
14.283	0.000	0.45	0.04	5.02	0.4	0.101
14.300	0.000	0.46	0.04	5.02	0.4	0.101
14.317	0.000	0.46	0.04	5.02	0.4	0.101
14.333	0.000	0.46	0.04	5.02	0.4	0.101
14.350	0.000	0.46	0.04	5.02	0.4	0.101
14.367	0.000	0.47	0.04	5.02	0.4	0.101
14.383	0.000	0.47	0.04	5.02	0.4	0.101
14.400	0.000	0.47	0.04	5.02	0.4	0.101
14.417	0.000	0.47	0.04	5.02	0.4	0.101
14.433	0.000	0.47	0.04	5.02	0.4	0.101
14.450	0.000	0.47	0.04	5.02	0.4	0.101
14.467	0.000	0.48	0.04	5.02	0.4	0.101
14.483	0.000	0.48	0.04	5.02	0.4	0.101
14.500	0.000	0.49	0.04	5.02	0.4	0.101
14.517	0.000	0.49	0.04	5.02	0.4	0.101
14.533	0.000	0.50	0.04	5.02	0.5	0.101
14.550	0.000	0.50	0.04	5.02	0.5	0.101
14.567	0.000	0.51	0.04	5.02	0.5	0.101
14.583	0.000	0.51	0.04	5.02	0.5	0.101
14.600	0.000	0.52	0.04	5.02	0.5	0.101
14.617	0.000	0.52	0.04	5.02	0.5	0.101
14.633	0.000	0.52	0.04	5.02	0.5	0.101
14.650	0.000	0.53	0.04	5.02	0.5	0.101
14.667	0.000	0.53	0.04	5.02	0.5	0.101
14.683	0.000	0.53	0.04	5.02	0.5	0.101
14.700	0.000	0.53	0.04	5.02	0.5	0.101
14.717	0.000	0.54	0.04	5.02	0.5	0.101
14.733	0.000	0.54	0.04	5.02	0.5	0.101
14.750	0.000	0.54	0.04	5.02	0.5	0.101
14.767	0.000	0.54	0.04	5.02	0.5	0.101
14.783	0.000	0.55	0.04	5.02	0.5	0.101
14.800	0.000	0.56	0.04	5.02	0.5	0.101
14.817	0.000	0.56	0.04	5.02	0.5	0.101
14.833	0.000	0.57	0.04	5.02	0.5	0.101

==
MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
14.850	0.000	0.58	0.04	5.02	0.5	0.101
14.867	0.000	0.58	0.04	5.02	0.5	0.101
14.883	0.000	0.59	0.04	5.03	0.5	0.102
14.900	0.000	0.60	0.04	5.03	0.6	0.102
14.917	0.000	0.60	0.04	5.03	0.6	0.102
14.933	0.000	0.61	0.04	5.03	0.6	0.102
14.950	0.000	0.61	0.04	5.03	0.6	0.102
14.967	0.000	0.62	0.04	5.03	0.6	0.102
14.983	0.000	0.62	0.04	5.03	0.6	0.102
15.000	0.000	0.62	0.04	5.03	0.6	0.102
15.017	0.000	0.63	0.04	5.03	0.6	0.102
15.033	0.000	0.63	0.04	5.03	0.6	0.102
15.050	0.000	0.64	0.04	5.03	0.6	0.102
15.067	0.000	0.64	0.04	5.03	0.6	0.102
15.083	0.000	0.64	0.04	5.03	0.6	0.102
15.100	0.000	0.65	0.04	5.03	0.6	0.102
15.117	0.000	0.66	0.04	5.03	0.6	0.102
15.133	0.000	0.67	0.04	5.03	0.6	0.102
15.150	0.000	0.68	0.04	5.03	0.6	0.102
15.167	0.000	0.69	0.04	5.03	0.6	0.102
15.183	0.000	0.70	0.04	5.03	0.7	0.102
15.200	0.000	0.71	0.04	5.03	0.7	0.102
15.217	0.000	0.72	0.04	5.03	0.7	0.102
15.233	0.000	0.73	0.04	5.03	0.7	0.102
15.250	0.000	0.74	0.04	5.03	0.7	0.102
15.267	0.000	0.75	0.04	5.03	0.7	0.102
15.283	0.000	0.75	0.04	5.03	0.7	0.102
15.300	0.000	0.76	0.04	5.03	0.7	0.102
15.317	0.000	0.77	0.04	5.03	0.7	0.102
15.333	0.000	0.77	0.04	5.03	0.7	0.102
15.350	0.000	0.78	0.04	5.03	0.7	0.102
15.367	0.000	0.79	0.04	5.03	0.7	0.102
15.383	0.000	0.79	0.04	5.04	0.7	0.102
15.400	0.000	0.80	0.04	5.04	0.8	0.102
15.417	0.000	0.80	0.04	5.04	0.8	0.102
15.433	0.000	0.80	0.04	5.04	0.8	0.102
15.450	0.000	0.80	0.04	5.04	0.8	0.102
15.467	0.000	0.80	0.04	5.04	0.8	0.102
15.483	0.000	0.80	0.04	5.04	0.8	0.102
15.500	0.000	0.81	0.04	5.04	0.8	0.102
15.517	0.000	0.81	0.04	5.04	0.8	0.102
15.533	0.000	0.81	0.04	5.04	0.8	0.102
15.550	0.000	0.82	0.04	5.04	0.8	0.102
15.567	0.000	0.83	0.04	5.04	0.8	0.102
15.583	0.000	0.84	0.04	5.04	0.8	0.102
15.600	0.000	0.86	0.04	5.04	0.8	0.102
15.617	0.000	0.87	0.04	5.04	0.8	0.102
15.633	0.000	0.88	0.04	5.04	0.8	0.102
15.650	0.000	0.89	0.04	5.04	0.8	0.102
15.667	0.000	0.91	0.04	5.04	0.9	0.102

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
15.683	0.000	0.92	0.04	5.04	0.9	0.102
15.700	0.000	0.94	0.04	5.04	0.9	0.102
15.717	0.000	0.99	0.04	5.04	0.9	0.102
15.733	0.000	1.05	0.04	5.05	1.0	0.102
15.750	0.000	1.11	0.04	5.05	1.0	0.102
15.767	0.000	1.16	0.04	5.05	1.1	0.102
15.783	0.000	1.22	0.04	5.06	1.1	0.102
15.800	0.000	1.27	0.04	5.06	1.2	0.102
15.817	0.000	1.33	0.04	5.06	1.3	0.102
15.833	0.000	1.39	0.04	5.06	1.3	0.102
15.850	0.000	1.44	0.04	5.07	1.4	0.102
15.867	0.000	1.50	0.04	5.07	1.4	0.102
15.883	0.000	1.57	0.04	5.07	1.5	0.102
15.900	0.000	1.63	0.04	5.08	1.5	0.103
15.917	0.000	1.69	0.04	5.08	1.6	0.103
15.933	0.000	1.75	0.04	5.08	1.7	0.103
15.950	0.000	1.81	0.04	5.09	1.7	0.103
15.967	0.000	1.88	0.04	5.09	1.8	0.103
15.983	0.000	1.94	0.04	5.09	1.9	0.103
16.000	0.000	2.00	0.04	5.09	1.9	0.103
16.017	0.000	2.26	0.04	5.11	2.1	0.103
16.033	0.000	2.72	0.04	5.13	2.4	0.104
16.050	0.000	3.18	0.04	5.15	2.8	0.104
16.067	0.000	3.64	0.04	5.17	3.3	0.104
16.083	0.000	4.10	0.04	5.19	3.7	0.105
16.100	0.000	4.56	0.04	5.22	4.2	0.105
16.117	0.000	5.02	0.04	5.24	4.6	0.106
16.133	0.000	5.48	0.04	5.26	5.1	0.106
16.150	0.000	5.94	0.04	5.28	5.6	0.107
16.167	0.000	6.30	0.04	5.30	6.0	0.107
16.183	0.000	5.62	0.04	5.28	5.9	0.107
16.200	0.000	5.06	0.04	5.25	5.4	0.106
16.217	0.000	4.50	0.04	5.22	4.9	0.105
16.233	0.000	3.94	0.04	5.20	4.3	0.105
16.250	0.000	3.39	0.04	5.17	3.7	0.104
16.267	0.000	2.83	0.04	5.14	3.2	0.104
16.283	0.000	2.27	0.04	5.11	2.6	0.103
16.300	0.000	1.71	0.04	5.09	2.1	0.103
16.317	0.000	1.21	0.04	5.06	1.5	0.102
16.333	0.000	1.09	0.04	5.05	1.2	0.102
16.350	0.000	1.06	0.04	5.05	1.1	0.102
16.367	0.000	1.02	0.04	5.05	1.0	0.102
16.383	0.000	0.99	0.04	5.05	1.0	0.102
16.400	0.000	0.95	0.04	5.04	0.9	0.102
16.417	0.000	0.92	0.04	5.04	0.9	0.102
16.433	0.000	0.88	0.04	5.04	0.9	0.102
16.450	0.000	0.85	0.04	5.04	0.8	0.102
16.467	0.000	0.81	0.04	5.04	0.8	0.102
16.483	0.000	0.79	0.04	5.04	0.8	0.102
16.500	0.000	0.78	0.04	5.03	0.7	0.102

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
16.517	0.000	0.77	0.04	5.03	0.7	0.102
16.533	0.000	0.75	0.04	5.03	0.7	0.102
16.550	0.000	0.74	0.04	5.03	0.7	0.102
16.567	0.000	0.73	0.04	5.03	0.7	0.102
16.583	0.000	0.72	0.04	5.03	0.7	0.102
16.600	0.000	0.70	0.04	5.03	0.7	0.102
16.617	0.000	0.69	0.04	5.03	0.7	0.102
16.633	0.000	0.68	0.04	5.03	0.6	0.102
16.650	0.000	0.67	0.04	5.03	0.6	0.102
16.667	0.000	0.66	0.04	5.03	0.6	0.102
16.683	0.000	0.64	0.04	5.03	0.6	0.102
16.700	0.000	0.63	0.04	5.03	0.6	0.102
16.717	0.000	0.62	0.04	5.03	0.6	0.102
16.733	0.000	0.61	0.04	5.03	0.6	0.102
16.750	0.000	0.60	0.04	5.03	0.6	0.102
16.767	0.000	0.58	0.04	5.03	0.6	0.102
16.783	0.000	0.57	0.04	5.02	0.5	0.101
16.800	0.000	0.56	0.04	5.02	0.5	0.101
16.817	0.000	0.56	0.04	5.02	0.5	0.101
16.833	0.000	0.55	0.04	5.02	0.5	0.101
16.850	0.000	0.54	0.04	5.02	0.5	0.101
16.867	0.000	0.53	0.04	5.02	0.5	0.101
16.883	0.000	0.52	0.04	5.02	0.5	0.101
16.900	0.000	0.51	0.04	5.02	0.5	0.101
16.917	0.000	0.51	0.04	5.02	0.5	0.101
16.933	0.000	0.50	0.04	5.02	0.5	0.101
16.950	0.000	0.49	0.04	5.02	0.5	0.101
16.967	0.000	0.49	0.04	5.02	0.5	0.101
16.983	0.000	0.48	0.04	5.02	0.4	0.101
17.000	0.000	0.48	0.04	5.02	0.4	0.101
17.017	0.000	0.47	0.04	5.02	0.4	0.101
17.033	0.000	0.46	0.04	5.02	0.4	0.101
17.050	0.000	0.46	0.04	5.02	0.4	0.101
17.067	0.000	0.45	0.04	5.02	0.4	0.101
17.083	0.000	0.45	0.04	5.02	0.4	0.101
17.100	0.000	0.44	0.04	5.02	0.4	0.101
17.117	0.000	0.44	0.04	5.02	0.4	0.101
17.133	0.000	0.44	0.04	5.02	0.4	0.101
17.150	0.000	0.43	0.04	5.02	0.4	0.101
17.167	0.000	0.43	0.04	5.02	0.4	0.101
17.183	0.000	0.42	0.04	5.02	0.4	0.101
17.200	0.000	0.42	0.04	5.02	0.4	0.101
17.217	0.000	0.42	0.04	5.02	0.4	0.101
17.233	0.000	0.41	0.04	5.02	0.4	0.101
17.250	0.000	0.41	0.04	5.02	0.4	0.101
17.267	0.000	0.41	0.04	5.02	0.4	0.101
17.283	0.000	0.40	0.04	5.02	0.4	0.101
17.300	0.000	0.40	0.04	5.02	0.4	0.101
17.317	0.000	0.40	0.04	5.02	0.4	0.101
17.333	0.000	0.39	0.04	5.02	0.4	0.101

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
17.350	0.000	0.39	0.04	5.02	0.4	0.101
17.367	0.000	0.39	0.04	5.02	0.4	0.101
17.383	0.000	0.39	0.04	5.02	0.3	0.101
17.400	0.000	0.38	0.04	5.02	0.3	0.101
17.417	0.000	0.38	0.04	5.01	0.3	0.101
17.433	0.000	0.38	0.04	5.01	0.3	0.101
17.450	0.000	0.38	0.04	5.01	0.3	0.101
17.467	0.000	0.37	0.04	5.01	0.3	0.101
17.483	0.000	0.37	0.04	5.01	0.3	0.101
17.500	0.000	0.37	0.04	5.01	0.3	0.101
17.517	0.000	0.37	0.04	5.01	0.3	0.101
17.533	0.000	0.36	0.04	5.01	0.3	0.101
17.550	0.000	0.36	0.04	5.01	0.3	0.101
17.567	0.000	0.36	0.04	5.01	0.3	0.101
17.583	0.000	0.36	0.04	5.01	0.3	0.101
17.600	0.000	0.35	0.04	5.01	0.3	0.101
17.617	0.000	0.35	0.04	5.01	0.3	0.101
17.633	0.000	0.35	0.04	5.01	0.3	0.101
17.650	0.000	0.35	0.04	5.01	0.3	0.101
17.667	0.000	0.35	0.04	5.01	0.3	0.101
17.683	0.000	0.34	0.04	5.01	0.3	0.101
17.700	0.000	0.34	0.04	5.01	0.3	0.101
17.717	0.000	0.34	0.04	5.01	0.3	0.101
17.733	0.000	0.34	0.04	5.01	0.3	0.101
17.750	0.000	0.34	0.04	5.01	0.3	0.101
17.767	0.000	0.33	0.04	5.01	0.3	0.101
17.783	0.000	0.33	0.04	5.01	0.3	0.101
17.800	0.000	0.33	0.04	5.01	0.3	0.101
17.817	0.000	0.33	0.04	5.01	0.3	0.101
17.833	0.000	0.33	0.04	5.01	0.3	0.101
17.850	0.000	0.33	0.04	5.01	0.3	0.101
17.867	0.000	0.32	0.04	5.01	0.3	0.101
17.883	0.000	0.32	0.04	5.01	0.3	0.101
17.900	0.000	0.32	0.04	5.01	0.3	0.101
17.917	0.000	0.32	0.04	5.01	0.3	0.101
17.933	0.000	0.32	0.04	5.01	0.3	0.101
17.950	0.000	0.32	0.04	5.01	0.3	0.101
17.967	0.000	0.31	0.04	5.01	0.3	0.101
17.983	0.000	0.31	0.04	5.01	0.3	0.101
18.000	0.000	0.31	0.04	5.01	0.3	0.101

PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 0.566 AF
BASIN STORAGE = 0.000 AF (WITH 0.000 AF INITIALLY FILLED)
OUTFLOW VOLUME = 0.413 AF
LOSS VOLUME = 0.153 AF

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****************************************************************************
 FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =   7
----------------------------------------------------------------------------
 >>>>>STREAM NUMBER 2 ADDED TO STREAM NUMBER 1<<<<<
============================================================================
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****************************************************************************
 FLOW PROCESS FROM NODE    104.00 TO NODE    106.00 IS CODE = 5.1
----------------------------------------------------------------------------
 >>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
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      THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
      AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.

      ASSUMED REGULAR CHANNEL INFORMATION:
        BASEWIDTH(FT) =   26.00     CHANNEL Z = 10.00
        UPSTREAM ELEVATION(FT) =     131.70
        DOWNSTREAM ELEVATION(FT) =     128.00
        CHANNEL LENGTH(FT) =     755.00     MANNING'S FACTOR = 0.015
        CONSTANT LOSS RATE(CFS) =    0.00

      MEAN-FLOW RATE NORMAL-DEPTH FLOW VELOCITIES(FPS) ARE AS FOLLOWS:
                    (FLOW RATE (CFS)) [FLOW VELOCITY (FPS)]
       AVERAGED PEAK  5-MINUTE: (       8.6).......[  1.94]
       AVERAGED PEAK 15-MINUTE: (       7.1).......[  1.79]
       AVERAGED PEAK 30-MINUTE: (       5.6).......[  1.59]
       AVERAGED PEAK  1-HOUR:   (       4.2).......[  1.57]
       AVERAGED PEAK  3-HOUR:   (       2.2).......[  1.21]
       AVERAGED PEAK  6-HOUR:   (       1.4).......[  0.97]
       AVERAGED PEAK 24-HOUR:   (       0.4).......[  0.73]
      USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =   3.540
      HYDROGRAPH TRANSLATION TIME
      = (CHANNEL LENGTH)/(AVERAGE FLOW  VELOCITY)
      = (    755.00)/(  3.540) =   0.059 HRS

      TRANSLATION METHOD CHANNEL ROUTING RESULTS:
                        OUTFLOW LESS
       MODEL      INFLOW    ROUTED     LOSS
        TIME    (STREAM 1)   FLOW    (STREAM 1)
       (HRS)      (CFS)     (CFS)     (CFS)
       14.000      0.40      0.40      0.40
       14.017      0.41      0.40      0.40
       14.033      0.41      0.40      0.40
       14.050      0.41      0.40      0.40
       14.067      0.41      0.40      0.40
       14.083      0.41      0.41      0.41
       14.100      0.41      0.41      0.41
       14.117      0.41      0.41      0.41
       14.133      0.41      0.41      0.41
       14.150      0.42      0.41      0.41
       14.167      0.42      0.41      0.41
       14.183      0.42      0.41      0.41
       14.200      0.42      0.41      0.41
       14.217      0.43      0.42      0.42
       14.233      0.43      0.42      0.42
```

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	ROUTED FLOW (CFS)	OUTFLOW LESS LOSS (STREAM 1) (CFS)
14.250	0.43	0.42	0.42
14.267	0.43	0.42	0.42
14.283	0.44	0.43	0.43
14.300	0.44	0.43	0.43
14.317	0.44	0.43	0.43
14.333	0.44	0.44	0.44
14.350	0.45	0.44	0.44
14.367	0.45	0.44	0.44
14.383	0.45	0.44	0.44
14.400	0.45	0.45	0.45
14.417	0.45	0.45	0.45
14.433	0.46	0.45	0.45
14.450	0.46	0.45	0.45
14.467	0.46	0.45	0.45
14.483	0.46	0.46	0.46
14.500	0.47	0.46	0.46
14.517	0.47	0.46	0.46
14.533	0.48	0.46	0.46
14.550	0.48	0.47	0.47
14.567	0.49	0.47	0.47
14.583	0.49	0.48	0.48
14.600	0.50	0.48	0.48
14.617	0.50	0.48	0.48
14.633	0.51	0.49	0.49
14.650	0.51	0.49	0.49
14.667	0.51	0.50	0.50
14.683	0.51	0.50	0.50
14.700	0.52	0.51	0.51
14.717	0.52	0.51	0.51
14.733	0.52	0.51	0.51
14.750	0.53	0.52	0.52
14.767	0.53	0.52	0.52
14.783	0.53	0.52	0.52
14.800	0.54	0.52	0.52
14.817	0.54	0.53	0.53
14.833	0.55	0.53	0.53
14.850	0.56	0.53	0.53
14.867	0.56	0.54	0.54
14.883	0.57	0.55	0.55
14.900	0.58	0.55	0.55
14.917	0.58	0.56	0.56
14.933	0.59	0.57	0.57
14.950	0.59	0.57	0.57
14.967	0.60	0.58	0.58
14.983	0.60	0.59	0.59
15.000	0.61	0.59	0.59
15.017	0.61	0.60	0.60
15.033	0.61	0.60	0.60
15.050	0.62	0.60	0.60
15.067	0.62	0.61	0.61

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	OUTFLOW LESS ROUTED FLOW (CFS)	LOSS (STREAM 1) (CFS)
15.083	0.63	0.61	0.61
15.100	0.63	0.62	0.62
15.117	0.64	0.62	0.62
15.133	0.65	0.62	0.62
15.150	0.66	0.63	0.63
15.167	0.67	0.64	0.64
15.183	0.68	0.65	0.65
15.200	0.69	0.66	0.66
15.217	0.70	0.67	0.67
15.233	0.71	0.68	0.68
15.250	0.72	0.69	0.69
15.267	0.73	0.70	0.70
15.283	0.74	0.71	0.71
15.300	0.74	0.72	0.72
15.317	0.75	0.73	0.73
15.333	0.76	0.73	0.73
15.350	0.76	0.74	0.74
15.367	0.77	0.75	0.75
15.383	0.78	0.75	0.75
15.400	0.78	0.76	0.76
15.417	0.78	0.77	0.77
15.433	0.79	0.77	0.77
15.450	0.79	0.78	0.78
15.467	0.79	0.78	0.78
15.483	0.79	0.78	0.78
15.500	0.79	0.79	0.79
15.517	0.80	0.79	0.79
15.533	0.80	0.79	0.79
15.550	0.80	0.79	0.79
15.567	0.81	0.79	0.79
15.583	0.82	0.80	0.80
15.600	0.83	0.80	0.80
15.617	0.85	0.80	0.80
15.633	0.86	0.81	0.81
15.650	0.87	0.83	0.83
15.667	0.89	0.84	0.84
15.683	0.90	0.85	0.85
15.700	0.92	0.87	0.87
15.717	0.95	0.88	0.88
15.733	1.00	0.89	0.89
15.750	1.05	0.91	0.91
15.767	1.11	0.93	0.93
15.783	1.17	0.97	0.97
15.800	1.22	1.02	1.02
15.817	1.28	1.08	1.08
15.833	1.34	1.14	1.14
15.850	1.39	1.19	1.19
15.867	1.45	1.25	1.25
15.883	1.51	1.31	1.31
15.900	1.57	1.36	1.36

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	OUTFLOW LESS ROUTED FLOW (CFS)	LOSS (STREAM 1) (CFS)
15.917	1.64	1.42	1.42
15.933	1.70	1.48	1.48
15.950	1.76	1.54	1.54
15.967	1.82	1.60	1.60
15.983	1.88	1.66	1.66
16.000	1.95	1.73	1.73
16.017	2.09	1.79	1.79
16.033	2.41	1.85	1.85
16.050	2.85	1.91	1.91
16.067	3.30	2.01	2.01
16.083	3.76	2.23	2.23
16.100	4.59	2.61	2.61
16.117	6.43	3.05	3.05
16.133	7.04	3.51	3.51
16.150	7.61	4.13	4.13
16.167	8.48	5.41	5.41
16.183	8.99	6.70	6.70
16.200	9.02	7.29	7.29
16.217	8.41	8.00	8.00
16.233	8.07	8.71	8.71
16.250	7.68	9.00	9.00
16.267	7.21	8.75	8.75
16.283	6.63	8.26	8.26
16.300	6.06	7.90	7.90
16.317	5.47	7.47	7.47
16.333	5.05	6.95	6.95
16.350	4.86	6.38	6.38
16.367	4.74	5.79	5.79
16.383	4.64	5.28	5.28
16.400	4.53	4.97	4.97
16.417	4.43	4.81	4.81
16.433	4.32	4.70	4.70
16.450	4.21	4.59	4.59
16.467	4.10	4.49	4.49
16.483	4.00	4.38	4.38
16.500	3.91	4.27	4.27
16.517	3.83	4.16	4.16
16.533	3.76	4.06	4.06
16.550	3.68	3.96	3.96
16.567	3.64	3.87	3.87
16.583	3.54	3.80	3.80
16.600	3.47	3.72	3.72
16.617	3.40	3.66	3.66
16.633	3.33	3.60	3.60
16.650	3.27	3.51	3.51
16.667	3.20	3.44	3.44
16.683	3.14	3.37	3.37
16.700	3.08	3.30	3.30
16.717	3.01	3.24	3.24
16.733	2.95	3.17	3.17

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	OUTFLOW LESS ROUTED FLOW (CFS)	LOSS (STREAM 1) (CFS)
16.750	2.88	3.11	3.11
16.767	2.83	3.05	3.05
16.783	2.77	2.99	2.99
16.800	2.71	2.92	2.92
16.817	2.66	2.86	2.86
16.833	2.61	2.80	2.80
16.850	2.56	2.74	2.74
16.867	2.51	2.69	2.69
16.883	2.46	2.64	2.64
16.900	2.41	2.59	2.59
16.917	2.37	2.54	2.54
16.933	2.32	2.49	2.49
16.950	2.28	2.44	2.44
16.967	2.24	2.39	2.39
16.983	2.20	2.35	2.35
17.000	2.16	2.30	2.30
17.017	2.12	2.26	2.26
17.033	2.08	2.22	2.22
17.050	2.04	2.18	2.18
17.067	2.00	2.14	2.14
17.083	1.97	2.10	2.10
17.100	1.93	2.06	2.06
17.117	1.90	2.03	2.03
17.133	1.87	1.99	1.99
17.150	1.84	1.95	1.95
17.167	1.81	1.92	1.92
17.183	1.78	1.89	1.89
17.200	1.76	1.86	1.86
17.217	1.73	1.83	1.83
17.233	1.70	1.80	1.80
17.250	1.68	1.77	1.77
17.267	1.65	1.74	1.74
17.283	1.63	1.72	1.72
17.300	1.60	1.69	1.69
17.317	1.58	1.67	1.67
17.333	1.56	1.64	1.64
17.350	1.54	1.62	1.62
17.367	1.52	1.59	1.59
17.383	1.50	1.57	1.57
17.400	1.47	1.55	1.55
17.417	1.45	1.53	1.53
17.433	1.44	1.51	1.51
17.450	1.42	1.49	1.49
17.467	1.40	1.47	1.47
17.483	1.38	1.45	1.45
17.500	1.36	1.43	1.43
17.517	1.35	1.41	1.41
17.533	1.33	1.39	1.39
17.550	1.31	1.37	1.37
17.567	1.30	1.36	1.36

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	OUTFLOW LESS ROUTED FLOW (CFS)	LOSS (STREAM 1) (CFS)
17.583	1.28	1.34	1.34
17.600	1.27	1.32	1.32
17.617	1.25	1.31	1.31
17.633	1.24	1.29	1.29
17.650	1.23	1.28	1.28
17.667	1.21	1.26	1.26
17.683	1.20	1.25	1.25
17.700	1.19	1.23	1.23
17.717	1.17	1.22	1.22
17.733	1.16	1.21	1.21
17.750	1.15	1.19	1.19
17.767	1.14	1.18	1.18
17.783	1.12	1.17	1.17
17.800	1.11	1.15	1.15
17.817	1.10	1.14	1.14
17.833	1.07	1.13	1.13
17.850	1.06	1.12	1.12
17.867	1.06	1.11	1.11
17.883	1.06	1.09	1.09
17.900	1.03	1.07	1.07
17.917	1.02	1.06	1.06
17.933	1.01	1.06	1.06
17.950	1.00	1.05	1.05
17.967	1.00	1.03	1.03
17.983	0.99	1.02	1.02
18.000	0.98	1.01	1.01

==

PROCESS SUMMARY OF STORAGE:

INFLOW VOLUME = 1.018 AF
OUTFLOW VOLUME = 1.018 AF
LOSS VOLUME = 0.000 AF

```
****************************************************************************
 FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
============================================================================

         STREAM HYDROGRAPH IN  ONE-MINUTE UNIT INTERVALS(CFS)
      (Notes: Time indicated is at END of Each Unit Intervals.
              Peak 5-minute rainfall intensity is modeled as
              a constant value for entire 5-minute period.)
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.      2.5      5.0      7.5      10.0
----------------------------------------------------------------------------
  14.000    0.0558    0.40  .QV     .        .        .        .
  14.017    0.0563    0.40  .QV     .        .        .        .
  14.033    0.0569    0.40  .QV     .        .        .        .
  14.050    0.0574    0.40  .QV     .        .        .        .
  14.067    0.0580    0.40  .QV     .        .        .        .
  14.083    0.0586    0.41  .QV     .        .        .        .
  14.100    0.0591    0.41  .QV     .        .        .        .
  14.117    0.0597    0.41  .QV     .        .        .        .
  14.133    0.0602    0.41  .QV     .        .        .        .
  14.150    0.0608    0.41  .QV     .        .        .        .
  14.167    0.0614    0.41  .QV     .        .        .        .
  14.183    0.0619    0.41  .QV     .        .        .        .
  14.200    0.0625    0.41  .QV     .        .        .        .
  14.217    0.0631    0.42  .QV     .        .        .        .
  14.233    0.0637    0.42  .QV     .        .        .        .
  14.250    0.0643    0.42  .QV     .        .        .        .
  14.267    0.0648    0.42  .QV     .        .        .        .
  14.283    0.0654    0.43  .QV     .        .        .        .
  14.300    0.0660    0.43  .QV     .        .        .        .
  14.317    0.0666    0.43  .QV     .        .        .        .
  14.333    0.0672    0.44  .QV     .        .        .        .
  14.350    0.0678    0.44  .QV     .        .        .        .
  14.367    0.0684    0.44  .QV     .        .        .        .
  14.383    0.0690    0.44  .QV     .        .        .        .
  14.400    0.0696    0.45  .QV     .        .        .        .
  14.417    0.0703    0.45  .QV     .        .        .        .
  14.433    0.0709    0.45  .QV     .        .        .        .
  14.450    0.0715    0.45  .QV     .        .        .        .
  14.467    0.0721    0.45  .QV     .        .        .        .
  14.483    0.0728    0.46  .QV     .        .        .        .
  14.500    0.0734    0.46  .QV     .        .        .        .
  14.517    0.0740    0.46  .QV     .        .        .        .
  14.533    0.0747    0.46  .QV     .        .        .        .
  14.550    0.0753    0.47  .QV     .        .        .        .
  14.567    0.0759    0.47  .QV     .        .        .        .
  14.583    0.0766    0.48  .Q V    .        .        .        .
  14.600    0.0773    0.48  .Q V    .        .        .        .
  14.617    0.0779    0.48  .Q V    .        .        .        .
  14.633    0.0786    0.49  .Q V    .        .        .        .
  14.650    0.0793    0.49  .Q V    .        .        .        .
  14.667    0.0800    0.50  .Q V    .        .        .        .
  14.683    0.0807    0.50  . QV    .        .        .        .
  14.700    0.0814    0.51  . QV    .        .        .        .
  14.717    0.0821    0.51  . QV    .        .        .        .
  14.733    0.0828    0.51  . QV    .        .        .        .
  14.750    0.0835    0.52  . QV    .        .        .        .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.      2.5      5.0      7.5      10.0
----------------------------------------------------------------------------
  14.767    0.0842    0.52  . QV      .        .        .        .
  14.783    0.0849    0.52  . QV      .        .        .        .
  14.800    0.0856    0.52  . QV      .        .        .        .
  14.817    0.0864    0.53  . QV      .        .        .        .
  14.833    0.0871    0.53  . QV      .        .        .        .
  14.850    0.0878    0.53  . QV      .        .        .        .
  14.867    0.0886    0.54  . QV      .        .        .        .
  14.883    0.0893    0.55  . QV      .        .        .        .
  14.900    0.0901    0.55  . QV      .        .        .        .
  14.917    0.0909    0.56  . QV      .        .        .        .
  14.933    0.0916    0.57  . QV      .        .        .        .
  14.950    0.0924    0.57  . QV      .        .        .        .
  14.967    0.0932    0.58  . QV      .        .        .        .
  14.983    0.0940    0.59  . QV      .        .        .        .
  15.000    0.0948    0.59  . QV      .        .        .        .
  15.017    0.0957    0.60  . QV      .        .        .        .
  15.033    0.0965    0.60  . QV      .        .        .        .
  15.050    0.0973    0.60  . QV      .        .        .        .
  15.067    0.0982    0.61  . QV      .        .        .        .
  15.083    0.0990    0.61  . QV      .        .        .        .
  15.100    0.0999    0.62  . QV      .        .        .        .
  15.117    0.1007    0.62  . QV      .        .        .        .
  15.133    0.1016    0.62  . QV      .        .        .        .
  15.150    0.1024    0.63  . Q V     .        .        .        .
  15.167    0.1033    0.64  . Q V     .        .        .        .
  15.183    0.1042    0.65  . Q V     .        .        .        .
  15.200    0.1051    0.66  . Q V     .        .        .        .
  15.217    0.1060    0.67  . Q V     .        .        .        .
  15.233    0.1070    0.68  . Q V     .        .        .        .
  15.250    0.1079    0.69  . Q V     .        .        .        .
  15.267    0.1089    0.70  . Q V     .        .        .        .
  15.283    0.1099    0.71  . Q V     .        .        .        .
  15.300    0.1108    0.72  . Q V     .        .        .        .
  15.317    0.1118    0.73  . Q V     .        .        .        .
  15.333    0.1129    0.73  . Q V     .        .        .        .
  15.350    0.1139    0.74  . Q V     .        .        .        .
  15.367    0.1149    0.75  . Q V     .        .        .        .
  15.383    0.1159    0.75  .  QV     .        .        .        .
  15.400    0.1170    0.76  .  QV     .        .        .        .
  15.417    0.1180    0.77  .  QV     .        .        .        .
  15.433    0.1191    0.77  .  QV     .        .        .        .
  15.450    0.1202    0.78  .  QV     .        .        .        .
  15.467    0.1212    0.78  .  QV     .        .        .        .
  15.483    0.1223    0.78  .  QV     .        .        .        .
  15.500    0.1234    0.79  .  QV     .        .        .        .
  15.517    0.1245    0.79  .  QV     .        .        .        .
  15.533    0.1256    0.79  .  QV     .        .        .        .
  15.550    0.1267    0.79  .  QV     .        .        .        .
  15.567    0.1278    0.79  .  Q V    .        .        .        .
  15.583    0.1289    0.80  .  Q V    .        .        .        .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.       2.5       5.0       7.5       10.0
----------------------------------------------------------------------------
  15.600    0.1300    0.80  . Q V   .       .       .       .
  15.617    0.1311    0.80  . Q V   .       .       .       .
  15.633    0.1322    0.81  . Q V   .       .       .       .
  15.650    0.1333    0.83  . Q V   .       .       .       .
  15.667    0.1345    0.84  . Q V   .       .       .       .
  15.683    0.1357    0.85  . Q V   .       .       .       .
  15.700    0.1369    0.87  . Q V   .       .       .       .
  15.717    0.1381    0.88  . Q V   .       .       .       .
  15.733    0.1393    0.89  . Q V   .       .       .       .
  15.750    0.1406    0.91  . Q V   .       .       .       .
  15.767    0.1418    0.93  . Q V   .       .       .       .
  15.783    0.1432    0.97  . Q V   .       .       .       .
  15.800    0.1446    1.02  .  QV   .       .       .       .
  15.817    0.1461    1.08  .  QV   .       .       .       .
  15.833    0.1476    1.14  .  QV   .       .       .       .
  15.850    0.1493    1.19  .  QV   .       .       .       .
  15.867    0.1510    1.25  .  QV   .       .       .       .
  15.883    0.1528    1.31  .   QV  .       .       .       .
  15.900    0.1547    1.36  .   QV  .       .       .       .
  15.917    0.1566    1.42  .   QV  .       .       .       .
  15.933    0.1587    1.48  .   QV  .       .       .       .
  15.950    0.1608    1.54  .    Q  .       .       .       .
  15.967    0.1630    1.60  .    Q  .       .       .       .
  15.983    0.1653    1.66  .    Q  .       .       .       .
  16.000    0.1677    1.73  .    Q  .       .       .       .
  16.017    0.1701    1.79  .   VQ  .       .       .       .
  16.033    0.1727    1.85  .   VQ  .       .       .       .
  16.050    0.1753    1.91  .   VQ  .       .       .       .
  16.067    0.1781    2.01  .   V Q .       .       .       .
  16.083    0.1811    2.23  .    VQ .       .       .       .
  16.100    0.1847    2.61  .    V  Q       .       .       .
  16.117    0.1889    3.05  .    V  . Q     .       .       .
  16.133    0.1938    3.51  .    V  .   Q   .       .       .
  16.150    0.1995    4.13  .    V  .     Q .       .       .
  16.167    0.2069    5.41  .     V .       .Q      .       .
  16.183    0.2161    6.70  .     V .       .    Q  .       .
  16.200    0.2262    7.29  .     V .       .      Q.       .
  16.217    0.2372    8.00  .      V.       .       .Q      .
  16.233    0.2492    8.71  .      V.       .       .  Q    .
  16.250    0.2616    9.00  .       V       .       .    Q  .
  16.267    0.2736    8.75  .       V       .       .   Q   .
  16.283    0.2850    8.26  .       .V      .       . Q     .
  16.300    0.2959    7.90  .       .V      .       .Q      .
  16.317    0.3062    7.47  .       . V     .      Q.       .
  16.333    0.3158    6.95  .       . V     .     Q .       .
  16.350    0.3245    6.38  .       . V     .   Q   .       .
  16.367    0.3325    5.79  .       .  V    . Q     .       .
  16.383    0.3398    5.28  .       .  V    .Q      .       .
  16.400    0.3466    4.97  .       .  V   Q.       .       .
  16.417    0.3533    4.81  .       .  V   Q.       .       .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.      2.5      5.0      7.5      10.0
----------------------------------------------------------------------------
  16.433    0.3597    4.70  .       .  V   Q .       .       .
  16.450    0.3661    4.59  .       .  V   Q .       .       .
  16.467    0.3722    4.49  .       .  V  Q  .       .       .
  16.483    0.3783    4.38  .       .  V  Q  .       .       .
  16.500    0.3841    4.27  .       .   V Q  .       .       .
  16.517    0.3899    4.16  .       .   VQ   .       .       .
  16.533    0.3955    4.06  .       .   VQ   .       .       .
  16.550    0.4009    3.96  .       .   Q    .       .       .
  16.567    0.4063    3.87  .       .   Q    .       .       .
  16.583    0.4115    3.80  .       .   QV   .       .       .
  16.600    0.4166    3.72  .       .  Q V   .       .       .
  16.617    0.4217    3.66  .       .  Q V   .       .       .
  16.633    0.4266    3.60  .       .  Q V   .       .       .
  16.650    0.4315    3.51  .       .  Q V   .       .       .
  16.667    0.4362    3.44  .       . Q   V .       .       .
  16.683    0.4408    3.37  .       . Q   V .       .       .
  16.700    0.4454    3.30  .       . Q   V .       .       .
  16.717    0.4498    3.24  .       .Q    V .       .       .
  16.733    0.4542    3.17  .       .Q    V .       .       .
  16.750    0.4585    3.11  .       .Q     V.       .       .
  16.767    0.4627    3.05  .       .Q     V.       .       .
  16.783    0.4668    2.99  .       .Q     V.       .       .
  16.800    0.4708    2.92  .       .Q     V.       .       .
  16.817    0.4748    2.86  .       .Q     V.       .       .
  16.833    0.4786    2.80  .       .Q     V.       .       .
  16.850    0.4824    2.74  .       Q      V.       .       .
  16.867    0.4861    2.69  .       Q       V.      .       .
  16.883    0.4898    2.64  .       Q       V.      .       .
  16.900    0.4933    2.59  .       Q       V.      .       .
  16.917    0.4968    2.54  .       Q       V.      .       .
  16.933    0.5002    2.49  .      Q.       V.      .       .
  16.950    0.5036    2.44  .      Q.       V.      .       .
  16.967    0.5069    2.39  .      Q.       V.      .       .
  16.983    0.5101    2.35  .      Q.        V      .       .
  17.000    0.5133    2.30  .      Q.        V      .       .
  17.017    0.5164    2.26  .      Q.        V      .       .
  17.033    0.5195    2.22  .     Q .        V      .       .
  17.050    0.5225    2.18  .     Q .        V      .       .
  17.067    0.5254    2.14  .     Q .        V      .       .
  17.083    0.5283    2.10  .     Q .        V      .       .
  17.100    0.5311    2.06  .     Q .        V      .       .
  17.117    0.5339    2.03  .     Q .        V      .       .
  17.133    0.5367    1.99  .    Q  .        .V     .       .
  17.150    0.5394    1.95  .    Q  .        .V     .       .
  17.167    0.5420    1.92  .    Q  .        .V     .       .
  17.183    0.5446    1.89  .    Q  .        .V     .       .
  17.200    0.5472    1.86  .    Q  .        .V     .       .
  17.217    0.5497    1.83  .    Q  .        .V     .       .
  17.233    0.5522    1.80  .    Q  .        .V     .       .
  17.250    0.5546    1.77  .    Q  .        .V     .       .
```

```
 ----------------------------------------------------------------------------
  TIME(HRS) VOLUME(AF)   Q(CFS) 0.       2.5      5.0      7.5      10.0
 ----------------------------------------------------------------------------
   17.267     0.5570     1.74 .    Q  .       .V       .       .
   17.283     0.5594     1.72 .    Q  .       .V       .       .
   17.300     0.5617     1.69 .    Q  .       . V      .       .
   17.317     0.5640     1.67 .    Q  .       . V      .       .
   17.333     0.5663     1.64 .    Q  .       . V      .       .
   17.350     0.5685     1.62 .    Q  .       . V      .       .
   17.367     0.5707     1.59 .    Q  .       . V      .       .
   17.383     0.5729     1.57 .    Q  .       . V      .       .
   17.400     0.5750     1.55 .    Q  .       . V      .       .
   17.417     0.5771     1.53 .    Q  .       . V      .       .
   17.433     0.5792     1.51 .    Q  .       . V      .       .
   17.450     0.5812     1.49 .   Q   .       . V      .       .
   17.467     0.5832     1.47 .   Q   .       . V      .       .
   17.483     0.5852     1.45 .   Q   .       .  V     .       .
   17.500     0.5872     1.43 .   Q   .       .  V     .       .
   17.517     0.5891     1.41 .   Q   .       .  V     .       .
   17.533     0.5911     1.39 .   Q   .       .  V     .       .
   17.550     0.5930     1.37 .   Q   .       .  V     .       .
   17.567     0.5948     1.36 .   Q   .       .  V     .       .
   17.583     0.5967     1.34 .   Q   .       .  V     .       .
   17.600     0.5985     1.32 .   Q   .       .  V     .       .
   17.617     0.6003     1.31 .   Q   .       .  V     .       .
   17.633     0.6021     1.29 .   Q   .       .  V     .       .
   17.650     0.6038     1.28 .   Q   .       .  V     .       .
   17.667     0.6056     1.26 .   Q   .       .  V     .       .
   17.683     0.6073     1.25 .  Q    .       .  V     .       .
   17.700     0.6090     1.23 .  Q    .       .  V     .       .
   17.717     0.6107     1.22 .  Q    .       .   V    .       .
   17.733     0.6123     1.21 .  Q    .       .   V    .       .
   17.750     0.6140     1.19 .  Q    .       .   V    .       .
   17.767     0.6156     1.18 .  Q    .       .   V    .       .
   17.783     0.6172     1.17 .  Q    .       .   V    .       .
   17.800     0.6188     1.15 .  Q    .       .   V    .       .
   17.817     0.6204     1.14 .  Q    .       .   V    .       .
   17.833     0.6219     1.13 .  Q    .       .   V    .       .
   17.850     0.6235     1.12 .  Q    .       .   V    .       .
   17.867     0.6250     1.11 .  Q    .       .   V    .       .
   17.883     0.6265     1.09 .  Q    .       .   V    .       .
   17.900     0.6280     1.07 .  Q    .       .   V    .       .
   17.917     0.6294     1.06 .  Q    .       .   V    .       .
   17.933     0.6309     1.06 .  Q    .       .   V    .       .
   17.950     0.6323     1.05 .  Q    .       .   V    .       .
   17.967     0.6337     1.03 .  Q    .       .   V    .       .
   17.983     0.6351     1.02 .  Q    .       .   V    .       .
   18.000     0.6365     1.01 .  Q    .       .    V   .       .
-------------------------------------------------------------------------------
```

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1081.0
10%	725.0
20%	360.0
30%	225.0
40%	145.0
50%	90.0
60%	65.0
70%	55.0

80%	40.0
90%	20.0

==

END OF FLOODSCx ROUTING ANALYSIS

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

           F L O O D   R O U T I N G   A N A L Y S I S
           USING COUNTY HYDROLOGY MANUAL OF ORANGE(1986)
       (c) Copyright 1989-2014 Advanced Engineering Software (aes)
          Ver. 21.0  Release Date: 06/01/2014  License ID 1202

                    Analysis prepared by:

                     Huitt-Zollars, Inc.
                   2603 Main Street, Irvine CA.
                          Suite 400
                        (949)-988-5815

 ************************** DESCRIPTION OF STUDY **************************
* SHOPOFF ANAHEIM                                                          *
* HYDROGRAPHS & FLOOD ROUTING ANALYSIS - PROPOSED CONDITION DMA A&B        *
* 2YR AMC I RC 10/22/2019                                                  *
 **************************************************************************

  FILE NAME: SHOP2AB.DAT
  TIME/DATE OF STUDY: 14:17 10/23/2019

   The Small Area Unit Hydrograph Procedures in Section J
   of the Hydrology Manual provides estimates of runoff
   hydrograph and runoff volume for watersheds whose time of
   concentration is less than 25 minutes. The PROGRAM User
   should check the applicability of using the small area unit
   hydrograph procedures, and follow the guidelines in
   Sections J and K.5 in complex watershed modeling.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE     100.00 TO NODE     102.00 IS CODE = 1.2
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (SMALL AREA UNIT-HYDROGRAPH ANALYSIS) <<<<<
============================================================================

  (SMALL AREA UNIT-HYDROGRAPH ADDED TO STREAM #1)

    RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
    TOTAL CATCHMENT AREA(ACRES) =     5.12
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.088
    LOW LOSS FRACTION = 0.372
    TIME OF CONCENTRATION(MIN.) =  8.58
    SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
    ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED:
    RETURN FREQUENCY(YEARS) =   2
       5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.19
      30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.40
       1-HOUR   POINT RAINFALL VALUE(INCHES) =  0.53
       3-HOUR   POINT RAINFALL VALUE(INCHES) =  0.89
       6-HOUR   POINT RAINFALL VALUE(INCHES) =  1.22
      24-HOUR   POINT RAINFALL VALUE(INCHES) =  2.05

----------------------------------------------------------------------------
    TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     0.53
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.34

----------------------------------------------------------------------------
```

```
============================================================================

            2 4 - H O U R   S T O R M
          R U N O F F   H Y D R O G R A P H

============================================================================
        HYDROGRAPH IN  ONE-MINUTE UNIT INTERVALS(CFS)
    (Notes: Time indicated is at END of Each Unit Intervals.
        Peak 5-minute rainfall intensity is modeled as
        a constant value for entire 5-minute period.)
-----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.     1.8     3.6     5.4     7.3
-----------------------------------------------------------------------------
  14.000    0.1818    0.38  . Q      . V     .       .       .
  14.017    0.1823    0.38  . Q      . V     .       .       .
  14.033    0.1828    0.38  . Q      . V     .       .       .
  14.050    0.1834    0.39  . Q      . V     .       .       .
  14.067    0.1839    0.39  . Q      . V     .       .       .
  14.083    0.1844    0.39  . Q      . V     .       .       .
  14.100    0.1850    0.40  . Q      . V     .       .       .
  14.117    0.1855    0.40  . Q      . V     .       .       .
  14.133    0.1861    0.41  . Q      . V     .       .       .
  14.150    0.1867    0.41  . Q      .  V    .       .       .
  14.167    0.1872    0.41  . Q      .  V    .       .       .
  14.183    0.1878    0.41  . Q      .  V    .       .       .
  14.200    0.1884    0.41  . Q      .  V    .       .       .
  14.217    0.1889    0.42  . Q      .  V    .       .       .
  14.233    0.1895    0.42  . Q      .  V    .       .       .
  14.250    0.1901    0.42  . Q      .  V    .       .       .
  14.267    0.1907    0.42  . Q      .  V    .       .       .
  14.283    0.1913    0.42  . Q      .  V    .       .       .
  14.300    0.1918    0.42  . Q      .  V    .       .       .
  14.317    0.1924    0.43  . Q      .  V    .       .       .
  14.333    0.1930    0.43  . Q      .  V    .       .       .
  14.350    0.1936    0.43  . Q      .  V    .       .       .
  14.367    0.1942    0.43  . Q      .  V    .       .       .
  14.383    0.1948    0.44  . Q      .  V    .       .       .
  14.400    0.1954    0.44  . Q      .  V    .       .       .
  14.417    0.1960    0.44  . Q      .  V    .       .       .
  14.433    0.1966    0.45  . Q      .  V    .       .       .
  14.450    0.1972    0.45  . Q      .  V    .       .       .
  14.467    0.1979    0.45  . Q      .  V    .       .       .
  14.483    0.1985    0.45  . Q      .  V    .       .       .
  14.500    0.1991    0.45  . Q      .  V    .       .       .
  14.517    0.1997    0.45  . Q      .   V   .       .       .
  14.533    0.2004    0.46  . Q      .   V   .       .       .
  14.550    0.2010    0.46  . Q      .   V   .       .       .
  14.567    0.2016    0.46  . Q      .   V   .       .       .
  14.583    0.2023    0.46  . Q      .   V   .       .       .
  14.600    0.2029    0.46  . Q      .   V   .       .       .
  14.617    0.2035    0.47  . Q      .   V   .       .       .
  14.633    0.2042    0.47  . Q      .   V   .       .       .
  14.650    0.2049    0.48  . Q      .   V   .       .       .
  14.667    0.2055    0.48  . Q      .   V   .       .       .
  14.683    0.2062    0.48  . Q      .   V   .       .       .
  14.700    0.2069    0.49  . Q      .   V   .       .       .
  14.717    0.2075    0.49  . Q      .   V   .       .       .
  14.733    0.2082    0.49  . Q      .   V   .       .       .
  14.750    0.2089    0.50  . Q      .   V   .       .       .
```

```
---------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.      1.8       3.6       5.4       7.3
---------------------------------------------------------------------------
  14.767    0.2096    0.50 . Q      .   V  .        .        .
  14.783    0.2103    0.50 . Q      .   V  .        .        .
  14.800    0.2110    0.50 . Q      .   V  .        .        .
  14.817    0.2117    0.51 . Q      .   V  .        .        .
  14.833    0.2124    0.51 . Q      .   V  .        .        .
  14.850    0.2131    0.51 . Q      .    V .        .        .
  14.867    0.2138    0.51 . Q      .    V .        .        .
  14.883    0.2145    0.52 . Q      .    V .        .        .
  14.900    0.2152    0.52 . Q      .    V .        .        .
  14.917    0.2159    0.53 . Q      .    V .        .        .
  14.933    0.2167    0.53 . Q      .    V .        .        .
  14.950    0.2174    0.54 . Q      .    V .        .        .
  14.967    0.2181    0.54 . Q      .    V .        .        .
  14.983    0.2189    0.55 .  Q     .    V .        .        .
  15.000    0.2197    0.55 .  Q     .    V .        .        .
  15.017    0.2204    0.56 .  Q     .    V .        .        .
  15.033    0.2212    0.56 .  Q     .    V .        .        .
  15.050    0.2220    0.56 .  Q     .    V .        .        .
  15.067    0.2228    0.57 .  Q     .    V .        .        .
  15.083    0.2236    0.57 .  Q     .    V .        .        .
  15.100    0.2243    0.57 .  Q     .    V .        .        .
  15.117    0.2251    0.58 .  Q     .    V .        .        .
  15.133    0.2259    0.58 .  Q     .    V .        .        .
  15.150    0.2267    0.58 .  Q     .     V.        .        .
  15.167    0.2276    0.59 .  Q     .     V.        .        .
  15.183    0.2284    0.60 .  Q     .     V.        .        .
  15.200    0.2292    0.61 .  Q     .     V.        .        .
  15.217    0.2301    0.62 .  Q     .     V.        .        .
  15.233    0.2309    0.62 .  Q     .     V.        .        .
  15.250    0.2318    0.63 .  Q     .     V.        .        .
  15.267    0.2327    0.64 .  Q     .     V.        .        .
  15.283    0.2336    0.65 .  Q     .     V.        .        .
  15.300    0.2345    0.66 .  Q     .     V.        .        .
  15.317    0.2354    0.66 .  Q     .     V.        .        .
  15.333    0.2363    0.67 .  Q     .     V.        .        .
  15.350    0.2372    0.67 .  Q     .     V.        .        .
  15.367    0.2382    0.68 .  Q     .     V.        .        .
  15.383    0.2391    0.69 .  Q     .     V.        .        .
  15.400    0.2401    0.69 .  Q     .      V.       .        .
  15.417    0.2410    0.70 .  Q     .      V.       .        .
  15.433    0.2420    0.70 .  Q     .      V.       .        .
  15.450    0.2430    0.71 .  Q     .      V.       .        .
  15.467    0.2440    0.71 .  Q     .      V.       .        .
  15.483    0.2450    0.72 .  Q     .      V.       .        .
  15.500    0.2459    0.72 .  Q     .      V.       .        .
  15.517    0.2469    0.72 .  Q     .      V.       .        .
  15.533    0.2479    0.73 .   Q    .      V.       .        .
  15.550    0.2490    0.73 .   Q    .      V.       .        .
  15.567    0.2500    0.74 .   Q    .      V.       .        .
  15.583    0.2510    0.74 .   Q    .      V.       .        .
```

```
 ----------------------------------------------------------------------------
  TIME(HRS) VOLUME(AF)   Q(CFS) 0.       1.8       3.6       5.4       7.3
 ----------------------------------------------------------------------------
  15.600    0.2520    0.76 .  Q     .       V .       .         .
  15.617    0.2531    0.78 .  Q     .        V.       .         .
  15.633    0.2542    0.79 .  Q     .        V.       .         .
  15.650    0.2553    0.81 .  Q     .        V.       .         .
  15.667    0.2565    0.83 .  Q     .        V.       .         .
  15.683    0.2576    0.85 .  Q     .        V.       .         .
  15.700    0.2588    0.86 .  Q     .        V.       .         .
  15.717    0.2600    0.88 .  Q     .        V.       .         .
  15.733    0.2613    0.93 .   Q    .        V.       .         .
  15.750    0.2627    1.00 .   Q    .        V.       .         .
  15.767    0.2642    1.07 .   Q    .        V.       .         .
  15.783    0.2657    1.13 .    Q   .        V.       .         .
  15.800    0.2674    1.20 .    Q   .         V       .         .
  15.817    0.2691    1.27 .     Q  .         V       .         .
  15.833    0.2710    1.34 .     Q  .         V       .         .
  15.850    0.2729    1.41 .     Q  .         V       .         .
  15.867    0.2749    1.48 .      Q .         V       .         .
  15.883    0.2771    1.56 .      Q .         V       .         .
  15.900    0.2793    1.64 .       Q.         V       .         .
  15.917    0.2817    1.71 .       Q.         .V      .         .
  15.933    0.2842    1.79 .       Q.         .V      .         .
  15.950    0.2868    1.87 .        Q         .V      .         .
  15.967    0.2894    1.95 .        Q         .V      .         .
  15.983    0.2922    2.03 .        .Q        .V      .         .
  16.000    0.2952    2.11 .        .Q        . V     .         .
  16.017    0.2985    2.45 .        .  Q      . V     .         .
  16.033    0.3027    3.04 .        .     Q   . V     .         .
  16.050    0.3077    3.64 .        .        Q V      .         .
  16.067    0.3136    4.23 .        .        . Q      .         .
  16.083    0.3202    4.83 .        .        .  V Q   .         .
  16.100    0.3277    5.42 .        .        .  V    Q.         .
  16.117    0.3360    6.02 .        .        .   V    . Q       .
  16.133    0.3451    6.61 .        .        .   V    .     Q   .
  16.150    0.3551    7.26 .        .        .    V   .         Q
  16.167    0.3642    6.60 .        .        .     V  .     Q   .
  16.183    0.3723    5.88 .        .        .     V  . Q       .
  16.200    0.3794    5.17 .        .        .      Q .         .
  16.217    0.3855    4.45 .        .        .  Q    V.         .
  16.233    0.3907    3.73 .        .        Q        V.        .
  16.250    0.3948    3.02 .        .     Q  .        V.        .
  16.267    0.3980    2.30 .        . Q      .        V.        .
  16.283    0.4002    1.59 .      Q .        .         V        .
  16.300    0.4017    1.10 .    Q   .        .         V        .
  16.317    0.4031    1.04 .   Q    .        .         V        .
  16.333    0.4045    0.99 .   Q    .        .         V        .
  16.350    0.4058    0.93 .   Q    .        .         V        .
  16.367    0.4070    0.88 .  Q     .        .         V        .
  16.383    0.4081    0.83 .  Q     .        .         V        .
  16.400    0.4092    0.77 .  Q     .        .         V        .
  16.417    0.4102    0.72 . Q      .        .         V        .
```

```
-----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.        1.8       3.6       5.4       7.3
-----------------------------------------------------------------------------
  16.433    0.4111    0.67  . Q        .         .        V         .
  16.450    0.4120    0.65  . Q        .         .        V         .
  16.467    0.4129    0.64  . Q        .         .        .V        .
  16.483    0.4138    0.64  . Q        .         .        .V        .
  16.500    0.4146    0.64  . Q        .         .        .V        .
  16.517    0.4155    0.63  . Q        .         .        .V        .
  16.533    0.4164    0.63  . Q        .         .        .V        .
  16.550    0.4172    0.62  . Q        .         .        .V        .
  16.567    0.4181    0.62  . Q        .         .        .V        .
  16.583    0.4189    0.61  . Q        .         .        .V        .
  16.600    0.4198    0.60  . Q        .         .        .V        .
  16.617    0.4206    0.59  . Q        .         .        .V        .
  16.633    0.4214    0.58  . Q        .         .        .V        .
  16.650    0.4222    0.58  . Q        .         .        .V        .
  16.667    0.4230    0.57  . Q        .         .        .V        .
  16.683    0.4237    0.56  . Q        .         .        .V        .
  16.700    0.4245    0.55  . Q        .         .        .V        .
  16.717    0.4252    0.54  .Q         .         .        .V        .
  16.733    0.4259    0.53  .Q         .         .        .V        .
  16.750    0.4267    0.52  .Q         .         .        . V       .
  16.767    0.4274    0.52  .Q         .         .        . V       .
  16.783    0.4281    0.51  .Q         .         .        . V       .
  16.800    0.4288    0.50  .Q         .         .        . V       .
  16.817    0.4294    0.50  .Q         .         .        . V       .
  16.833    0.4301    0.49  .Q         .         .        . V       .
  16.850    0.4308    0.48  .Q         .         .        . V       .
  16.867    0.4314    0.48  .Q         .         .        . V       .
  16.883    0.4321    0.47  .Q         .         .        . V       .
  16.900    0.4327    0.47  .Q         .         .        . V       .
  16.917    0.4334    0.46  .Q         .         .        . V       .
  16.933    0.4340    0.46  .Q         .         .        . V       .
  16.950    0.4346    0.45  .Q         .         .        . V       .
  16.967    0.4352    0.45  .Q         .         .        . V       .
  16.983    0.4358    0.44  .Q         .         .        . V       .
  17.000    0.4364    0.44  .Q         .         .        . V       .
  17.017    0.4370    0.43  .Q         .         .        . V       .
  17.033    0.4376    0.42  .Q         .         .        . V       .
  17.050    0.4382    0.42  .Q         .         .        . V       .
  17.067    0.4387    0.41  .Q         .         .        . V       .
  17.083    0.4393    0.41  .Q         .         .        . V       .
  17.100    0.4399    0.40  .Q         .         .        .  V      .
  17.117    0.4404    0.40  .Q         .         .        .  V      .
  17.133    0.4410    0.39  .Q         .         .        .  V      .
  17.150    0.4415    0.39  .Q         .         .        .  V      .
  17.167    0.4420    0.38  .Q         .         .        .  V      .
  17.183    0.4425    0.38  .Q         .         .        .  V      .
  17.200    0.4431    0.38  .Q         .         .        .  V      .
  17.217    0.4436    0.37  .Q         .         .        .  V      .
  17.233    0.4441    0.37  .Q         .         .        .  V      .
  17.250    0.4446    0.37  .Q         .         .        .  V      .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.       1.8      3.6      5.4      7.3
----------------------------------------------------------------------------
  17.267    0.4451    0.36  . Q      .        .       . V      .
  17.283    0.4456    0.36  .Q       .        .       . V      .
  17.300    0.4461    0.36  .Q       .        .       . V      .
  17.317    0.4466    0.36  .Q       .        .       . V      .
  17.333    0.4471    0.35  .Q       .        .       . V      .
  17.350    0.4475    0.35  .Q       .        .       . V      .
  17.367    0.4480    0.35  .Q       .        .       . V      .
  17.383    0.4485    0.35  .Q       .        .       . V      .
  17.400    0.4490    0.34  .Q       .        .       . V      .
  17.417    0.4494    0.34  .Q       .        .       . V      .
  17.433    0.4499    0.34  .Q       .        .       . V      .
  17.450    0.4504    0.34  .Q       .        .       . V      .
  17.467    0.4508    0.33  .Q       .        .       . V      .
  17.483    0.4513    0.33  .Q       .        .       . V      .
  17.500    0.4517    0.33  .Q       .        .       . V      .
  17.517    0.4522    0.33  .Q       .        .       . V      .
  17.533    0.4526    0.32  .Q       .        .       . V      .
  17.550    0.4531    0.32  .Q       .        .       .  V     .
  17.567    0.4535    0.32  .Q       .        .       .  V     .
  17.583    0.4540    0.32  .Q       .        .       .  V     .
  17.600    0.4544    0.32  .Q       .        .       .  V     .
  17.617    0.4548    0.31  .Q       .        .       .  V     .
  17.633    0.4553    0.31  .Q       .        .       .  V     .
  17.650    0.4557    0.31  .Q       .        .       .  V     .
  17.667    0.4561    0.31  .Q       .        .       .  V     .
  17.683    0.4565    0.31  .Q       .        .       .  V     .
  17.700    0.4569    0.31  .Q       .        .       .  V     .
  17.717    0.4574    0.30  .Q       .        .       .  V     .
  17.733    0.4578    0.30  .Q       .        .       .  V     .
  17.750    0.4582    0.30  .Q       .        .       .  V     .
  17.767    0.4586    0.30  .Q       .        .       .  V     .
  17.783    0.4590    0.30  .Q       .        .       .  V     .
  17.800    0.4594    0.30  .Q       .        .       .  V     .
  17.817    0.4598    0.29  .Q       .        .       .  V     .
  17.833    0.4602    0.29  .Q       .        .       .  V     .
  17.850    0.4606    0.29  .Q       .        .       .  V     .
  17.867    0.4610    0.29  .Q       .        .       .  V     .
  17.883    0.4614    0.29  .Q       .        .       .  V     .
  17.900    0.4618    0.29  .Q       .        .       .  V     .
  17.917    0.4622    0.28  .Q       .        .       .  V     .
  17.933    0.4626    0.28  .Q       .        .       .  V     .
  17.950    0.4630    0.28  .Q       .        .       .  V     .
  17.967    0.4634    0.28  .Q       .        .       .  V     .
  17.983    0.4638    0.28  .Q       .        .       .  V     .
  18.000    0.4641    0.28  .Q       .        .       .  V     .
----------------------------------------------------------------------------
   TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
   (Note: 100% of Peak Flow Rate estimate assumed to have
   an instantaneous time duration)

   Percentile of Estimated          Duration
     Peak Flow Rate                (minutes)
   =======================         =========
          0%                    1081.0
         10%                     265.0
         20%                     130.0
         30%                      80.0
         40%                      70.0
         50%                      60.0
         60%                      45.0
         70%                      35.0
```

80%	25.0
90%	15.0

```
****************************************************************************
 FLOW PROCESS FROM NODE    102.00 TO NODE    103.00 IS CODE = 3.2
----------------------------------------------------------------------------
 >>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #1<<<<<
============================================================================

              INFLOW
             (STREAM 1)
                |
                |
                V              __effective depth
            -----------        |  (and volume)
           |           |    |    |
           |           |    |....V........
           | detention |<-->|          outflow
           |   basin   |    |.........________
            -----------     |    ^    |  \
                |           |  dead   |   basin outlet
                V           | storage |
              OUTFLOW        ---------
             (STREAM 1)
```

ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 1
THROUGH A FLOW-THROUGH DETENTION BASIN
SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
DEAD STORAGE(AF) = 0.000
SPECIFIED DEAD STORAGE(AF) FILLED = 0.000
SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET = 0.000
DETENTION BASIN CONSTANT LOSS RATE(CFS) = 0.04

BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

INTERVAL NUMBER	DEPTH (FT)	OUTFLOW (CFS)	STORAGE (AF)
1	0.00	0.00	0.000
2	2.00	0.01	0.203
3	2.42	0.02	0.246
4	5.20	0.03	0.529
5	7.00	5.11	0.712
6	10.00	23.64	1.017

==
MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
14.017	0.000	0.38	0.04	1.31	0.0	0.133
14.033	0.000	0.38	0.04	1.32	0.0	0.134
14.050	0.000	0.39	0.04	1.32	0.0	0.134
14.067	0.000	0.39	0.04	1.33	0.0	0.135
14.083	0.000	0.39	0.04	1.33	0.0	0.135
14.100	0.000	0.40	0.04	1.34	0.0	0.136
14.117	0.000	0.40	0.04	1.34	0.0	0.136
14.133	0.000	0.41	0.04	1.34	0.0	0.136
14.150	0.000	0.41	0.04	1.35	0.0	0.137
14.167	0.000	0.41	0.04	1.35	0.0	0.137
14.183	0.000	0.41	0.04	1.36	0.0	0.138
14.200	0.000	0.41	0.04	1.36	0.0	0.139
14.217	0.000	0.42	0.04	1.37	0.0	0.139
14.233	0.000	0.42	0.04	1.37	0.0	0.140
14.250	0.000	0.42	0.04	1.38	0.0	0.140
14.267	0.000	0.42	0.04	1.38	0.0	0.141
14.283	0.000	0.42	0.04	1.39	0.0	0.141
14.300	0.000	0.42	0.04	1.39	0.0	0.142
14.317	0.000	0.43	0.04	1.40	0.0	0.142
14.333	0.000	0.43	0.04	1.41	0.0	0.143
14.350	0.000	0.43	0.04	1.41	0.0	0.143
14.367	0.000	0.43	0.04	1.42	0.0	0.144
14.383	0.000	0.44	0.04	1.42	0.0	0.144
14.400	0.000	0.44	0.04	1.43	0.0	0.145
14.417	0.000	0.44	0.04	1.43	0.0	0.145
14.433	0.000	0.45	0.04	1.44	0.0	0.146
14.450	0.000	0.45	0.04	1.44	0.0	0.146
14.467	0.000	0.45	0.04	1.45	0.0	0.147
14.483	0.000	0.45	0.04	1.45	0.0	0.147
14.500	0.000	0.45	0.04	1.46	0.0	0.148
14.517	0.000	0.45	0.04	1.46	0.0	0.149
14.533	0.000	0.46	0.04	1.47	0.0	0.149
14.550	0.000	0.46	0.04	1.48	0.0	0.150
14.567	0.000	0.46	0.04	1.48	0.0	0.150
14.583	0.000	0.46	0.04	1.49	0.0	0.151
14.600	0.000	0.46	0.04	1.49	0.0	0.151
14.617	0.000	0.47	0.04	1.50	0.0	0.152
14.633	0.000	0.47	0.04	1.50	0.0	0.153
14.650	0.000	0.48	0.04	1.51	0.0	0.153
14.667	0.000	0.48	0.04	1.52	0.0	0.154
14.683	0.000	0.48	0.04	1.52	0.0	0.154
14.700	0.000	0.49	0.04	1.53	0.0	0.155
14.717	0.000	0.49	0.04	1.53	0.0	0.156
14.733	0.000	0.49	0.04	1.54	0.0	0.156
14.750	0.000	0.50	0.04	1.55	0.0	0.157
14.767	0.000	0.50	0.04	1.55	0.0	0.157
14.783	0.000	0.50	0.04	1.56	0.0	0.158
14.800	0.000	0.50	0.04	1.56	0.0	0.159
14.817	0.000	0.51	0.04	1.57	0.0	0.159
14.833	0.000	0.51	0.04	1.58	0.0	0.160

MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
14.850	0.000	0.51	0.04	1.58	0.0	0.161
14.867	0.000	0.51	0.04	1.59	0.0	0.161
14.883	0.000	0.52	0.04	1.59	0.0	0.162
14.900	0.000	0.52	0.04	1.60	0.0	0.163
14.917	0.000	0.53	0.04	1.61	0.0	0.163
14.933	0.000	0.53	0.04	1.61	0.0	0.164
14.950	0.000	0.54	0.04	1.62	0.0	0.165
14.967	0.000	0.54	0.04	1.63	0.0	0.165
14.983	0.000	0.55	0.04	1.63	0.0	0.166
15.000	0.000	0.55	0.04	1.64	0.0	0.167
15.017	0.000	0.56	0.04	1.65	0.0	0.167
15.033	0.000	0.56	0.04	1.66	0.0	0.168
15.050	0.000	0.56	0.04	1.66	0.0	0.169
15.067	0.000	0.57	0.04	1.67	0.0	0.169
15.083	0.000	0.57	0.04	1.68	0.0	0.170
15.100	0.000	0.57	0.04	1.68	0.0	0.171
15.117	0.000	0.58	0.04	1.69	0.0	0.172
15.133	0.000	0.58	0.04	1.70	0.0	0.172
15.150	0.000	0.58	0.04	1.71	0.0	0.173
15.167	0.000	0.59	0.04	1.71	0.0	0.174
15.183	0.000	0.60	0.04	1.72	0.0	0.175
15.200	0.000	0.61	0.04	1.73	0.0	0.175
15.217	0.000	0.62	0.04	1.74	0.0	0.176
15.233	0.000	0.62	0.04	1.74	0.0	0.177
15.250	0.000	0.63	0.04	1.75	0.0	0.178
15.267	0.000	0.64	0.04	1.76	0.0	0.179
15.283	0.000	0.65	0.04	1.77	0.0	0.179
15.300	0.000	0.66	0.04	1.78	0.0	0.180
15.317	0.000	0.66	0.04	1.78	0.0	0.181
15.333	0.000	0.67	0.04	1.79	0.0	0.182
15.350	0.000	0.67	0.04	1.80	0.0	0.183
15.367	0.000	0.68	0.04	1.81	0.0	0.184
15.383	0.000	0.69	0.04	1.82	0.0	0.184
15.400	0.000	0.69	0.04	1.83	0.0	0.185
15.417	0.000	0.70	0.04	1.84	0.0	0.186
15.433	0.000	0.70	0.04	1.84	0.0	0.187
15.450	0.000	0.71	0.04	1.85	0.0	0.188
15.467	0.000	0.71	0.04	1.86	0.0	0.189
15.483	0.000	0.72	0.04	1.87	0.0	0.190
15.500	0.000	0.72	0.04	1.88	0.0	0.191
15.517	0.000	0.72	0.04	1.89	0.0	0.192
15.533	0.000	0.73	0.04	1.90	0.0	0.193
15.550	0.000	0.73	0.04	1.91	0.0	0.194
15.567	0.000	0.74	0.04	1.92	0.0	0.195
15.583	0.000	0.74	0.04	1.93	0.0	0.196
15.600	0.000	0.76	0.04	1.94	0.0	0.197
15.617	0.000	0.78	0.04	1.95	0.0	0.198
15.633	0.000	0.79	0.04	1.96	0.0	0.199
15.650	0.000	0.81	0.04	1.97	0.0	0.200
15.667	0.000	0.83	0.04	1.98	0.0	0.201

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
15.683	0.000	0.85	0.04	1.99	0.0	0.202
15.700	0.000	0.86	0.04	2.00	0.0	0.203
15.717	0.000	0.88	0.04	2.01	0.0	0.204
15.733	0.000	0.93	0.04	2.02	0.0	0.205
15.750	0.000	1.00	0.04	2.03	0.0	0.207
15.767	0.000	1.07	0.04	2.05	0.0	0.208
15.783	0.000	1.13	0.04	2.06	0.0	0.209
15.800	0.000	1.20	0.04	2.08	0.0	0.211
15.817	0.000	1.27	0.04	2.09	0.0	0.213
15.833	0.000	1.34	0.04	2.11	0.0	0.214
15.850	0.000	1.41	0.04	2.13	0.0	0.216
15.867	0.000	1.48	0.04	2.15	0.0	0.218
15.883	0.000	1.56	0.04	2.17	0.0	0.220
15.900	0.000	1.64	0.04	2.19	0.0	0.223
15.917	0.000	1.71	0.04	2.21	0.0	0.225
15.933	0.000	1.79	0.04	2.24	0.0	0.227
15.950	0.000	1.87	0.04	2.26	0.0	0.230
15.967	0.000	1.95	0.04	2.29	0.0	0.232
15.983	0.000	2.03	0.04	2.31	0.0	0.235
16.000	0.000	2.11	0.04	2.34	0.0	0.238
16.017	0.000	2.45	0.04	2.37	0.0	0.241
16.033	0.000	3.04	0.04	2.41	0.0	0.245
16.050	0.000	3.64	0.04	2.46	0.0	0.250
16.067	0.000	4.23	0.04	2.52	0.0	0.256
16.083	0.000	4.83	0.04	2.58	0.0	0.262
16.100	0.000	5.42	0.04	2.65	0.0	0.270
16.117	0.000	6.02	0.04	2.74	0.0	0.278
16.133	0.000	6.61	0.04	2.82	0.0	0.287
16.150	0.000	7.26	0.04	2.92	0.0	0.297
16.167	0.000	6.60	0.04	3.01	0.0	0.306
16.183	0.000	5.88	0.04	3.09	0.0	0.314
16.200	0.000	5.17	0.04	3.16	0.0	0.321
16.217	0.000	4.45	0.04	3.22	0.0	0.327
16.233	0.000	3.73	0.04	3.27	0.0	0.332
16.250	0.000	3.02	0.04	3.31	0.0	0.336
16.267	0.000	2.30	0.04	3.34	0.0	0.339
16.283	0.000	1.59	0.04	3.36	0.0	0.341
16.300	0.000	1.10	0.04	3.37	0.0	0.343
16.317	0.000	1.04	0.04	3.38	0.0	0.344
16.333	0.000	0.99	0.04	3.40	0.0	0.345
16.350	0.000	0.93	0.04	3.41	0.0	0.347
16.367	0.000	0.88	0.04	3.42	0.0	0.348
16.383	0.000	0.83	0.04	3.43	0.0	0.349
16.400	0.000	0.77	0.04	3.44	0.0	0.350
16.417	0.000	0.72	0.04	3.45	0.0	0.351
16.433	0.000	0.67	0.04	3.46	0.0	0.351
16.450	0.000	0.65	0.04	3.46	0.0	0.352
16.467	0.000	0.64	0.04	3.47	0.0	0.353
16.483	0.000	0.64	0.04	3.48	0.0	0.354
16.500	0.000	0.64	0.04	3.49	0.0	0.355

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
16.517	0.000	0.63	0.04	3.49	0.0	0.355
16.533	0.000	0.63	0.04	3.50	0.0	0.356
16.550	0.000	0.62	0.04	3.51	0.0	0.357
16.567	0.000	0.62	0.04	3.52	0.0	0.358
16.583	0.000	0.61	0.04	3.52	0.0	0.358
16.600	0.000	0.60	0.04	3.53	0.0	0.359
16.617	0.000	0.59	0.04	3.54	0.0	0.360
16.633	0.000	0.58	0.04	3.55	0.0	0.361
16.650	0.000	0.58	0.04	3.55	0.0	0.361
16.667	0.000	0.57	0.04	3.56	0.0	0.362
16.683	0.000	0.56	0.04	3.57	0.0	0.363
16.700	0.000	0.55	0.04	3.57	0.0	0.363
16.717	0.000	0.54	0.04	3.58	0.0	0.364
16.733	0.000	0.53	0.04	3.59	0.0	0.365
16.750	0.000	0.52	0.04	3.59	0.0	0.365
16.767	0.000	0.52	0.04	3.60	0.0	0.366
16.783	0.000	0.51	0.04	3.60	0.0	0.367
16.800	0.000	0.50	0.04	3.61	0.0	0.367
16.817	0.000	0.50	0.04	3.62	0.0	0.368
16.833	0.000	0.49	0.04	3.62	0.0	0.368
16.850	0.000	0.48	0.04	3.63	0.0	0.369
16.867	0.000	0.48	0.04	3.63	0.0	0.369
16.883	0.000	0.47	0.04	3.64	0.0	0.370
16.900	0.000	0.47	0.04	3.64	0.0	0.371
16.917	0.000	0.46	0.04	3.65	0.0	0.371
16.933	0.000	0.46	0.04	3.65	0.0	0.372
16.950	0.000	0.45	0.04	3.66	0.0	0.372
16.967	0.000	0.45	0.04	3.66	0.0	0.373
16.983	0.000	0.44	0.04	3.67	0.0	0.373
17.000	0.000	0.44	0.04	3.67	0.0	0.374
17.017	0.000	0.43	0.04	3.68	0.0	0.374
17.033	0.000	0.42	0.04	3.68	0.0	0.375
17.050	0.000	0.42	0.04	3.69	0.0	0.375
17.067	0.000	0.41	0.04	3.69	0.0	0.376
17.083	0.000	0.41	0.04	3.70	0.0	0.376
17.100	0.000	0.40	0.04	3.70	0.0	0.377
17.117	0.000	0.40	0.04	3.71	0.0	0.377
17.133	0.000	0.39	0.04	3.71	0.0	0.377
17.150	0.000	0.39	0.04	3.72	0.0	0.378
17.167	0.000	0.38	0.04	3.72	0.0	0.378
17.183	0.000	0.38	0.04	3.72	0.0	0.379
17.200	0.000	0.38	0.04	3.73	0.0	0.379
17.217	0.000	0.37	0.04	3.73	0.0	0.380
17.233	0.000	0.37	0.04	3.74	0.0	0.380
17.250	0.000	0.37	0.04	3.74	0.0	0.380
17.267	0.000	0.36	0.04	3.74	0.0	0.381
17.283	0.000	0.36	0.04	3.75	0.0	0.381
17.300	0.000	0.36	0.04	3.75	0.0	0.382
17.317	0.000	0.36	0.04	3.76	0.0	0.382
17.333	0.000	0.35	0.04	3.76	0.0	0.382

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
17.350	0.000	0.35	0.04	3.76	0.0	0.383
17.367	0.000	0.35	0.04	3.77	0.0	0.383
17.383	0.000	0.35	0.04	3.77	0.0	0.384
17.400	0.000	0.34	0.04	3.78	0.0	0.384
17.417	0.000	0.34	0.04	3.78	0.0	0.384
17.433	0.000	0.34	0.04	3.78	0.0	0.385
17.450	0.000	0.34	0.04	3.79	0.0	0.385
17.467	0.000	0.33	0.04	3.79	0.0	0.385
17.483	0.000	0.33	0.04	3.79	0.0	0.386
17.500	0.000	0.33	0.04	3.80	0.0	0.386
17.517	0.000	0.33	0.04	3.80	0.0	0.387
17.533	0.000	0.32	0.04	3.80	0.0	0.387
17.550	0.000	0.32	0.04	3.81	0.0	0.387
17.567	0.000	0.32	0.04	3.81	0.0	0.388
17.583	0.000	0.32	0.04	3.81	0.0	0.388
17.600	0.000	0.32	0.04	3.82	0.0	0.388
17.617	0.000	0.31	0.04	3.82	0.0	0.389
17.633	0.000	0.31	0.04	3.82	0.0	0.389
17.650	0.000	0.31	0.04	3.83	0.0	0.389
17.667	0.000	0.31	0.04	3.83	0.0	0.390
17.683	0.000	0.31	0.04	3.83	0.0	0.390
17.700	0.000	0.31	0.04	3.84	0.0	0.390
17.717	0.000	0.30	0.04	3.84	0.0	0.391
17.733	0.000	0.30	0.04	3.84	0.0	0.391
17.750	0.000	0.30	0.04	3.85	0.0	0.391
17.767	0.000	0.30	0.04	3.85	0.0	0.392
17.783	0.000	0.30	0.04	3.85	0.0	0.392
17.800	0.000	0.30	0.04	3.86	0.0	0.392
17.817	0.000	0.29	0.04	3.86	0.0	0.393
17.833	0.000	0.29	0.04	3.86	0.0	0.393
17.850	0.000	0.29	0.04	3.87	0.0	0.393
17.867	0.000	0.29	0.04	3.87	0.0	0.393
17.883	0.000	0.29	0.04	3.87	0.0	0.394
17.900	0.000	0.29	0.04	3.87	0.0	0.394
17.917	0.000	0.28	0.04	3.88	0.0	0.394
17.933	0.000	0.28	0.04	3.88	0.0	0.395
17.950	0.000	0.28	0.04	3.88	0.0	0.395
17.967	0.000	0.28	0.04	3.89	0.0	0.395
17.983	0.000	0.28	0.04	3.89	0.0	0.396
18.000	0.000	0.28	0.04	3.89	0.0	0.396

PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 0.533 AF
BASIN STORAGE = 0.000 AF (WITH 0.000 AF INITIALLY FILLED)
OUTFLOW VOLUME = 0.131 AF
LOSS VOLUME = 0.402 AF

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 FLOW PROCESS FROM NODE    103.00 TO NODE    104.00 IS CODE =   4
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 >>>>>MODEL PIPEFLOW ROUTING OF STREAM #1<<<<<
============================================================================

      MODEL PIPEFLOW ROUTING OF STREAM 1 WHERE
      STORAGE EFFECTS ARE NEGLECTED WITHIN THE PIPE, FLOW
      VELOCITIES ARE ESTIMATED BY ASSUMING STEADY FLOW FOR
      EACH UNIT INTERVAL(NORMAL DEPTH, Dn), AND FLOWS IN EXCESS
      OF (.82)(DIAMETER) ARE PONDED AT THE UPSTREAM INLET:
      UNIT INTERVAL FLOW VELOCITY COMPUTED USING Dn UP TO
      (0.938)(DIAMETER):

      PIPELENGTH(FT) =    468.00    MANNINGS FACTOR = 0.013
      UPSTREAM ELEVATION(FT) =     130.00
      DOWNSTREAM ELEVATION(FT) =     127.60
      PIPE DIAMETER(FT) =   2.00

      NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:
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TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
14.000	0.01	0.50	0.01	0.000
14.017	0.01	0.50	0.01	0.000
14.033	0.01	0.50	0.01	0.000
14.050	0.01	0.50	0.01	0.000
14.067	0.01	0.50	0.01	0.000
14.083	0.01	0.50	0.01	0.000
14.100	0.01	0.50	0.01	0.000
14.117	0.01	0.50	0.01	0.000
14.133	0.01	0.50	0.01	0.000
14.150	0.01	0.50	0.01	0.000
14.167	0.01	0.50	0.01	0.000
14.183	0.01	0.50	0.01	0.000
14.200	0.01	0.50	0.01	0.000
14.217	0.01	0.50	0.01	0.000
14.233	0.01	0.50	0.01	0.000
14.250	0.01	0.50	0.01	0.000
14.267	0.01	0.50	0.01	0.000
14.283	0.01	0.50	0.01	0.000
14.300	0.01	0.50	0.01	0.000
14.317	0.01	0.50	0.01	0.000
14.333	0.01	0.50	0.01	0.000
14.350	0.01	0.50	0.01	0.000
14.367	0.01	0.50	0.01	0.000
14.383	0.01	0.50	0.01	0.000
14.400	0.01	0.50	0.01	0.000
14.417	0.01	0.50	0.01	0.000
14.433	0.01	0.50	0.01	0.000
14.450	0.01	0.50	0.01	0.000
14.467	0.01	0.50	0.01	0.000
14.483	0.01	0.50	0.01	0.000

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
14.500	0.01	0.50	0.01	0.000
14.517	0.01	0.50	0.01	0.000
14.533	0.01	0.50	0.01	0.000
14.550	0.01	0.50	0.01	0.000
14.567	0.01	0.50	0.01	0.000
14.583	0.01	0.50	0.01	0.000
14.600	0.01	0.50	0.01	0.000
14.617	0.01	0.50	0.01	0.000
14.633	0.01	0.50	0.01	0.000
14.650	0.01	0.50	0.01	0.000
14.667	0.01	0.50	0.01	0.000
14.683	0.01	0.50	0.01	0.000
14.700	0.01	0.50	0.01	0.000
14.717	0.01	0.50	0.01	0.000
14.733	0.01	0.50	0.01	0.000
14.750	0.01	0.50	0.01	0.000
14.767	0.01	0.50	0.01	0.000
14.783	0.01	0.50	0.01	0.000
14.800	0.01	0.50	0.01	0.000
14.817	0.01	0.50	0.01	0.000
14.833	0.01	0.50	0.01	0.000
14.850	0.01	0.50	0.01	0.000
14.867	0.01	0.50	0.01	0.000
14.883	0.01	0.50	0.01	0.000
14.900	0.01	0.50	0.01	0.000
14.917	0.01	0.50	0.01	0.000
14.933	0.01	0.50	0.01	0.000
14.950	0.01	0.50	0.01	0.000
14.967	0.01	0.50	0.01	0.000
14.983	0.01	0.50	0.01	0.000
15.000	0.01	0.50	0.01	0.000
15.017	0.01	0.50	0.01	0.000
15.033	0.01	0.50	0.01	0.000
15.050	0.01	0.50	0.01	0.000
15.067	0.01	0.50	0.01	0.000
15.083	0.01	0.50	0.01	0.000
15.100	0.01	0.50	0.01	0.000
15.117	0.01	0.50	0.01	0.000
15.133	0.01	0.50	0.01	0.000
15.150	0.01	0.50	0.01	0.000
15.167	0.01	0.50	0.01	0.000
15.183	0.01	0.50	0.01	0.000
15.200	0.01	0.50	0.01	0.000
15.217	0.01	0.50	0.01	0.000
15.233	0.01	0.50	0.01	0.000
15.250	0.01	0.50	0.01	0.000
15.267	0.01	0.50	0.01	0.000
15.283	0.01	0.50	0.01	0.000
15.300	0.01	0.50	0.01	0.000
15.317	0.01	0.50	0.01	0.000

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
15.333	0.01	0.50	0.01	0.000
15.350	0.01	0.50	0.01	0.000
15.367	0.01	0.50	0.01	0.000
15.383	0.01	0.50	0.01	0.000
15.400	0.01	0.50	0.01	0.000
15.417	0.01	0.50	0.01	0.000
15.433	0.01	0.50	0.01	0.000
15.450	0.01	0.50	0.01	0.000
15.467	0.01	0.50	0.01	0.000
15.483	0.01	0.50	0.01	0.000
15.500	0.01	0.50	0.01	0.000
15.517	0.01	0.50	0.01	0.000
15.533	0.01	0.50	0.01	0.000
15.550	0.01	0.50	0.01	0.000
15.567	0.01	0.50	0.01	0.000
15.583	0.01	0.50	0.01	0.000
15.600	0.01	0.50	0.01	0.000
15.617	0.01	0.50	0.01	0.000
15.633	0.01	0.50	0.01	0.000
15.650	0.01	0.50	0.01	0.000
15.667	0.01	0.50	0.01	0.000
15.683	0.01	0.50	0.01	0.000
15.700	0.01	0.50	0.01	0.000
15.717	0.01	0.50	0.01	0.000
15.733	0.01	0.50	0.01	0.000
15.750	0.01	0.50	0.01	0.000
15.767	0.01	0.50	0.01	0.000
15.783	0.01	0.50	0.01	0.000
15.800	0.01	0.50	0.01	0.000
15.817	0.01	0.50	0.01	0.000
15.833	0.01	0.50	0.01	0.000
15.850	0.01	0.50	0.01	0.000
15.867	0.01	0.50	0.01	0.000
15.883	0.02	0.50	0.01	0.000
15.900	0.02	0.50	0.01	0.000
15.917	0.02	0.50	0.01	0.000
15.933	0.02	0.50	0.01	0.000
15.950	0.02	0.50	0.01	0.000
15.967	0.02	0.50	0.01	0.000
15.983	0.02	0.50	0.01	0.000
16.000	0.02	0.50	0.01	0.000
16.017	0.02	0.50	0.01	0.000
16.033	0.02	0.50	0.01	0.000
16.050	0.02	0.50	0.01	0.000
16.067	0.02	0.50	0.01	0.000
16.083	0.02	0.50	0.01	0.000
16.100	0.02	0.50	0.01	0.000
16.117	0.02	0.50	0.01	0.000
16.133	0.02	0.50	0.01	0.000
16.150	0.02	0.50	0.02	0.000

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
16.167	0.02	0.50	0.02	0.000
16.183	0.02	0.50	0.02	0.000
16.200	0.02	0.50	0.02	0.000
16.217	0.03	0.50	0.02	0.000
16.233	0.03	0.50	0.02	0.000
16.250	0.03	0.50	0.02	0.000
16.267	0.03	0.50	0.02	0.000
16.283	0.03	0.50	0.02	0.000
16.300	0.03	0.50	0.02	0.000
16.317	0.03	0.50	0.02	0.000
16.333	0.03	0.50	0.02	0.000
16.350	0.03	0.50	0.02	0.000
16.367	0.03	0.50	0.02	0.000
16.383	0.03	0.50	0.02	0.000
16.400	0.03	0.50	0.02	0.000
16.417	0.03	0.50	0.02	0.000
16.433	0.03	0.50	0.02	0.000
16.450	0.03	0.50	0.02	0.000
16.467	0.03	0.50	0.02	0.000
16.483	0.03	0.50	0.03	0.000
16.500	0.03	0.50	0.03	0.000
16.517	0.03	0.50	0.03	0.000
16.533	0.03	0.50	0.03	0.000
16.550	0.03	0.50	0.03	0.000
16.567	0.03	0.50	0.03	0.000
16.583	0.03	0.50	0.03	0.000
16.600	0.03	0.50	0.03	0.000
16.617	0.03	0.50	0.03	0.000
16.633	0.03	0.50	0.03	0.000
16.650	0.03	0.50	0.03	0.000
16.667	0.03	0.50	0.03	0.000
16.683	0.03	0.50	0.03	0.000
16.700	0.03	0.50	0.03	0.000
16.717	0.03	0.50	0.03	0.000
16.733	0.03	0.50	0.03	0.000
16.750	0.03	0.50	0.03	0.000
16.767	0.03	0.50	0.03	0.000
16.783	0.03	0.50	0.03	0.000
16.800	0.03	0.50	0.03	0.000
16.817	0.03	0.50	0.03	0.000
16.833	0.03	0.50	0.03	0.000
16.850	0.03	0.50	0.03	0.000
16.867	0.03	0.50	0.03	0.000
16.883	0.03	0.50	0.03	0.000
16.900	0.03	0.50	0.03	0.000
16.917	0.03	0.50	0.03	0.000
16.933	0.03	0.50	0.03	0.000
16.950	0.03	0.50	0.03	0.000
16.967	0.03	0.50	0.03	0.000
16.983	0.03	0.50	0.03	0.000

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
17.000	0.03	0.50	0.03	0.000
17.017	0.03	0.50	0.03	0.000
17.033	0.03	0.50	0.03	0.000
17.050	0.03	0.50	0.03	0.000
17.067	0.03	0.50	0.03	0.000
17.083	0.03	0.50	0.03	0.000
17.100	0.03	0.50	0.03	0.000
17.117	0.03	0.50	0.03	0.000
17.133	0.03	0.50	0.03	0.000
17.150	0.03	0.50	0.03	0.000
17.167	0.03	0.50	0.03	0.000
17.183	0.03	0.50	0.03	0.000
17.200	0.03	0.50	0.03	0.000
17.217	0.03	0.50	0.03	0.000
17.233	0.03	0.50	0.03	0.000
17.250	0.03	0.50	0.03	0.000
17.267	0.03	0.50	0.03	0.000
17.283	0.03	0.50	0.03	0.000
17.300	0.03	0.50	0.03	0.000
17.317	0.03	0.50	0.03	0.000
17.333	0.03	0.50	0.03	0.000
17.350	0.03	0.50	0.03	0.000
17.367	0.03	0.50	0.03	0.000
17.383	0.03	0.50	0.03	0.000
17.400	0.03	0.50	0.03	0.000
17.417	0.03	0.50	0.03	0.000
17.433	0.03	0.50	0.03	0.000
17.450	0.03	0.50	0.03	0.000
17.467	0.03	0.50	0.03	0.000
17.483	0.03	0.50	0.03	0.000
17.500	0.03	0.50	0.03	0.000
17.517	0.03	0.50	0.03	0.000
17.533	0.03	0.50	0.03	0.000
17.550	0.03	0.50	0.03	0.000
17.567	0.03	0.50	0.03	0.000
17.583	0.03	0.50	0.03	0.000
17.600	0.03	0.50	0.03	0.000
17.617	0.03	0.50	0.03	0.000
17.633	0.03	0.50	0.03	0.000
17.650	0.03	0.50	0.03	0.000
17.667	0.03	0.50	0.03	0.000
17.683	0.03	0.50	0.03	0.000
17.700	0.03	0.50	0.03	0.000
17.717	0.03	0.50	0.03	0.000
17.733	0.03	0.50	0.03	0.000
17.750	0.03	0.50	0.03	0.000
17.767	0.03	0.50	0.03	0.000
17.783	0.03	0.50	0.03	0.000
17.800	0.03	0.50	0.03	0.000
17.817	0.03	0.50	0.03	0.000

NORMAL DEPTH VELOCITY PIPE ROUTING RESULTS:

TIME (HRS)	INFLOW (CFS)	VELOCITY (FPS)	OUTFLOW (CFS)	UPSTREAM PONDING(AF)
17.833	0.03	0.50	0.03	0.000
17.850	0.03	0.50	0.03	0.000
17.867	0.03	0.50	0.03	0.000
17.883	0.03	0.50	0.03	0.000
17.900	0.03	0.50	0.03	0.000
17.917	0.03	0.50	0.03	0.000
17.933	0.03	0.50	0.03	0.000
17.950	0.03	0.50	0.03	0.000
17.967	0.03	0.50	0.03	0.000
17.983	0.03	0.50	0.03	0.000
18.000	0.03	0.50	0.03	0.000

```
****************************************************************************
 FLOW PROCESS FROM NODE    200.00 TO NODE    202.00 IS CODE = 1.2
----------------------------------------------------------------------------
 >>>>>SUBAREA RUNOFF (SMALL AREA UNIT-HYDROGRAPH ANALYSIS) <<<<<
============================================================================

 (SMALL AREA UNIT-HYDROGRAPH ADDED TO STREAM #2)

   RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
   TOTAL CATCHMENT AREA(ACRES) =    2.51
   SOIL-LOSS RATE, Fm,(INCH/HR) =  0.060
   LOW LOSS FRACTION = 0.288
   TIME OF CONCENTRATION(MIN.) =  9.37
   SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
   ORANGE COUNTY "VALLEY" RAINFALL VALUES ARE USED:
   RETURN FREQUENCY(YEARS) =   2
     5-MINUTE POINT RAINFALL VALUE(INCHES) =  0.19
    30-MINUTE POINT RAINFALL VALUE(INCHES) =  0.40
     1-HOUR   POINT RAINFALL VALUE(INCHES) =  0.53
     3-HOUR   POINT RAINFALL VALUE(INCHES) =  0.89
     6-HOUR   POINT RAINFALL VALUE(INCHES) =  1.22
    24-HOUR   POINT RAINFALL VALUE(INCHES) =  2.05

----------------------------------------------------------------------------
   TOTAL CATCHMENT   RUNOFF  VOLUME(ACRE-FEET) =     0.29
   TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.14

----------------------------------------------------------------------------
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============================================================================

              2 4 - H O U R   S T O R M
            R U N O F F   H Y D R O G R A P H

============================================================================
       HYDROGRAPH IN  ONE-MINUTE UNIT INTERVALS(CFS)
   (Notes: Time indicated is at END of Each Unit Intervals.
       Peak 5-minute rainfall intensity is modeled as
       a constant value for entire 5-minute period.)
-----------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.      0.9      1.7      2.6      3.4
-----------------------------------------------------------------------
  14.000    0.1005    0.21  . Q     . V      .        .        .
  14.017    0.1008    0.21  . Q     . V      .        .        .
  14.033    0.1011    0.21  . Q     . V      .        .        .
  14.050    0.1014    0.21  . Q     . V      .        .        .
  14.067    0.1017    0.21  . Q     . V      .        .        .
  14.083    0.1020    0.21  . Q     .  V     .        .        .
  14.100    0.1022    0.22  . Q     .  V     .        .        .
  14.117    0.1025    0.22  . Q     .  V     .        .        .
  14.133    0.1028    0.22  . Q     .  V     .        .        .
  14.150    0.1031    0.22  . Q     .  V     .        .        .
  14.167    0.1035    0.22  . Q     .  V     .        .        .
  14.183    0.1038    0.22  . Q     .  V     .        .        .
  14.200    0.1041    0.23  . Q     .  V     .        .        .
  14.217    0.1044    0.23  . Q     .  V     .        .        .
  14.233    0.1047    0.23  . Q     .  V     .        .        .
  14.250    0.1050    0.23  . Q     .  V     .        .        .
  14.267    0.1053    0.23  . Q     .  V     .        .        .
  14.283    0.1057    0.24  . Q     .  V     .        .        .
  14.300    0.1060    0.24  . Q     .  V     .        .        .
  14.317    0.1063    0.24  . Q     .  V     .        .        .
  14.333    0.1066    0.24  . Q     .  V     .        .        .
  14.350    0.1070    0.24  . Q     .  V     .        .        .
  14.367    0.1073    0.24  . Q     .  V     .        .        .
  14.383    0.1076    0.24  . Q     .  V     .        .        .
  14.400    0.1080    0.24  . Q     .  V     .        .        .
  14.417    0.1083    0.24  . Q     .  V     .        .        .
  14.433    0.1086    0.24  . Q     .  V     .        .        .
  14.450    0.1090    0.24  . Q     .   V    .        .        .
  14.467    0.1093    0.25  . Q     .   V    .        .        .
  14.483    0.1097    0.25  . Q     .   V    .        .        .
  14.500    0.1100    0.25  . Q     .   V    .        .        .
  14.517    0.1103    0.25  . Q     .   V    .        .        .
  14.533    0.1107    0.25  . Q     .   V    .        .        .
  14.550    0.1110    0.26  . Q     .   V    .        .        .
  14.567    0.1114    0.26  . Q     .   V    .        .        .
  14.583    0.1118    0.26  .  Q    .   V    .        .        .
  14.600    0.1121    0.26  .  Q    .   V    .        .        .
  14.617    0.1125    0.26  .  Q    .   V    .        .        .
  14.633    0.1128    0.26  .  Q    .   V    .        .        .
  14.650    0.1132    0.26  .  Q    .   V    .        .        .
  14.667    0.1136    0.27  .  Q    .   V    .        .        .
  14.683    0.1139    0.27  .  Q    .   V    .        .        .
  14.700    0.1143    0.27  .  Q    .   V    .        .        .
  14.717    0.1147    0.27  .  Q    .   V    .        .        .
  14.733    0.1151    0.27  .  Q    .   V    .        .        .
  14.750    0.1154    0.27  .  Q    .   V    .        .        .
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-----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.       0.9      1.7      2.6      3.4
-----------------------------------------------------------------------------
  14.767    0.1158    0.27 . Q     .   V   .       .       .
  14.783    0.1162    0.28 . Q     .   V   .       .       .
  14.800    0.1166    0.28 . Q     .    V  .       .       .
  14.817    0.1169    0.28 . Q     .    V  .       .       .
  14.833    0.1173    0.28 . Q     .    V  .       .       .
  14.850    0.1177    0.29 . Q     .    V  .       .       .
  14.867    0.1181    0.29 . Q     .    V  .       .       .
  14.883    0.1185    0.29 . Q     .    V  .       .       .
  14.900    0.1189    0.29 . Q     .    V  .       .       .
  14.917    0.1193    0.30 . Q     .    V  .       .       .
  14.933    0.1197    0.30 . Q     .    V  .       .       .
  14.950    0.1202    0.30 . Q     .    V  .       .       .
  14.967    0.1206    0.30 . Q     .    V  .       .       .
  14.983    0.1210    0.30 . Q     .    V  .       .       .
  15.000    0.1214    0.30 . Q     .    V  .       .       .
  15.017    0.1218    0.30 . Q     .    V  .       .       .
  15.033    0.1222    0.31 . Q     .    V  .       .       .
  15.050    0.1227    0.31 . Q     .    V  .       .       .
  15.067    0.1231    0.31 . Q     .    V  .       .       .
  15.083    0.1235    0.31 . Q     .     V .       .       .
  15.100    0.1240    0.32 . Q     .     V .       .       .
  15.117    0.1244    0.32 . Q     .     V .       .       .
  15.133    0.1249    0.33 . Q     .     V .       .       .
  15.150    0.1253    0.33 . Q     .     V .       .       .
  15.167    0.1258    0.34 . Q     .     V .       .       .
  15.183    0.1262    0.34 . Q     .     V .       .       .
  15.200    0.1267    0.34 .  Q    .     V .       .       .
  15.217    0.1272    0.35 .  Q    .     V .       .       .
  15.233    0.1277    0.35 .  Q    .     V .       .       .
  15.250    0.1282    0.36 .  Q    .     V .       .       .
  15.267    0.1287    0.36 .  Q    .     V .       .       .
  15.283    0.1292    0.36 .  Q    .     V .       .       .
  15.300    0.1297    0.37 .  Q    .     V .       .       .
  15.317    0.1302    0.37 .  Q    .     V .       .       .
  15.333    0.1307    0.37 .  Q    .     V .       .       .
  15.350    0.1312    0.38 .  Q    .      V.       .       .
  15.367    0.1317    0.38 .  Q    .      V.       .       .
  15.383    0.1323    0.38 .  Q    .      V.       .       .
  15.400    0.1328    0.39 .  Q    .      V.       .       .
  15.417    0.1333    0.39 .  Q    .      V.       .       .
  15.433    0.1339    0.39 .  Q    .      V.       .       .
  15.450    0.1344    0.39 .  Q    .      V.       .       .
  15.467    0.1349    0.39 .  Q    .      V.       .       .
  15.483    0.1355    0.39 .  Q    .      V.       .       .
  15.500    0.1360    0.39 .  Q    .      V.       .       .
  15.517    0.1366    0.40 .  Q    .      V.       .       .
  15.533    0.1371    0.40 .  Q    .      V.       .       .
  15.550    0.1377    0.40 .  Q    .      V.       .       .
  15.567    0.1382    0.41 .  Q    .       V.      .       .
  15.583    0.1388    0.42 .  Q    .       V.      .       .
```

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----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.        0.9       1.7       2.6       3.4
----------------------------------------------------------------------------
 15.600     0.1394     0.42  .  Q    .        V.        .         .
 15.617     0.1400     0.43  .   Q   .        V.        .         .
 15.633     0.1406     0.44  .   Q   .        V.        .         .
 15.650     0.1412     0.45  .   Q   .        V.        .         .
 15.667     0.1418     0.45  .   Q   .        V.        .         .
 15.683     0.1425     0.46  .   Q   .        V.        .         .
 15.700     0.1431     0.47  .   Q   .        V.        .         .
 15.717     0.1438     0.50  .   Q   .        V.        .         .
 15.733     0.1445     0.53  .    Q  .        V.        .         .
 15.750     0.1453     0.56  .    Q  .         V        .         .
 15.767     0.1461     0.59  .    Q  .         V        .         .
 15.783     0.1470     0.62  .     Q .         V        .         .
 15.800     0.1478     0.65  .     Q .         V        .         .
 15.817     0.1488     0.68  .     Q .         V        .         .
 15.833     0.1497     0.70  .      Q.         V        .         .
 15.850     0.1508     0.73  .      Q.         V        .         .
 15.867     0.1518     0.77  .      Q.         V        .         .
 15.883     0.1529     0.80  .       Q.        .V       .         .
 15.900     0.1541     0.83  .       Q.        .V       .         .
 15.917     0.1553     0.87  .        Q        .V       .         .
 15.933     0.1565     0.90  .        Q        .V       .         .
 15.950     0.1578     0.94  .        Q        .V       .         .
 15.967     0.1591     0.97  .        .Q       .V       .         .
 15.983     0.1605     1.00  .        .Q       . V      .         .
 16.000     0.1619     1.04  .        . Q      . V      .         .
 16.017     0.1636     1.18  .        .  Q     . V      .         .
 16.033     0.1656     1.44  .        .     Q  . V      .         .
 16.050     0.1679     1.69  .        .        Q.  V    .         .
 16.067     0.1706     1.94  .        .        . QV     .         .
 16.083     0.1736     2.20  .        .        .  V Q   .         .
 16.100     0.1770     2.45  .        .        .   V   Q.         .
 16.117     0.1807     2.70  .        .        .   V    .Q        .
 16.133     0.1848     2.96  .        .        .    V   .   Q     .
 16.150     0.1892     3.21  .        .        .     V  .      Q  .
 16.167     0.1939     3.43  .        .        .     V  .         Q
 16.183     0.1982     3.09  .        .        .      V .    Q    .
 16.200     0.2020     2.78  .        .        .      V . Q       .
 16.217     0.2054     2.47  .        .        .       Q.         .
 16.233     0.2084     2.17  .        .        .    Q  V.         .
 16.250     0.2110     1.86  .        .        .Q       V.        .
 16.267     0.2131     1.56  .        .      Q .        V.        .
 16.283     0.2148     1.25  .        .  Q     .        V.        .
 16.300     0.2161     0.95  .        .Q       .        V.        .
 16.317     0.2170     0.65  .     Q  .        .        V.        .
 16.333     0.2178     0.55  .    Q   .        .        V.        .
 16.350     0.2185     0.53  .    Q   .        .         V        .
 16.367     0.2192     0.52  .    Q   .        .         V        .
 16.383     0.2199     0.50  .   Q    .        .         V        .
 16.400     0.2206     0.48  .   Q    .        .         V        .
 16.417     0.2212     0.46  .   Q    .        .         V        .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.       0.9       1.7       2.6       3.4
----------------------------------------------------------------------------
  16.433    0.2218    0.44 .    Q    .        .       V         .
  16.450    0.2224    0.42 .   Q     .        .       V         .
  16.467    0.2230    0.40 .   Q     .        .       V         .
  16.483    0.2235    0.39 .   Q     .        .       V         .
  16.500    0.2240    0.38 .   Q     .        .       V         .
  16.517    0.2245    0.38 .   Q     .        .       V         .
  16.533    0.2250    0.37 .   Q     .        .       V         .
  16.550    0.2255    0.36 .   Q     .        .       .V        .
  16.567    0.2260    0.36 .   Q     .        .       .V        .
  16.583    0.2265    0.35 .   Q     .        .       .V        .
  16.600    0.2270    0.34 .  Q      .        .       .V        .
  16.617    0.2274    0.33 .  Q      .        .       .V        .
  16.633    0.2279    0.33 .  Q      .        .       .V        .
  16.650    0.2283    0.32 .  Q      .        .       .V        .
  16.667    0.2288    0.32 .  Q      .        .       .V        .
  16.683    0.2292    0.31 .  Q      .        .       .V        .
  16.700    0.2296    0.31 .  Q      .        .       .V        .
  16.717    0.2300    0.30 .  Q      .        .       .V        .
  16.733    0.2305    0.30 .  Q      .        .       .V        .
  16.750    0.2309    0.29 .  Q      .        .       .V        .
  16.767    0.2313    0.29 .  Q      .        .       .V        .
  16.783    0.2316    0.28 .  Q      .        .       .V        .
  16.800    0.2320    0.28 .  Q      .        .       .V        .
  16.817    0.2324    0.28 .  Q      .        .       .V        .
  16.833    0.2328    0.27 .  Q      .        .       . V       .
  16.850    0.2332    0.27 .  Q      .        .       . V       .
  16.867    0.2335    0.27 .  Q      .        .       . V       .
  16.883    0.2339    0.26 .  Q      .        .       . V       .
  16.900    0.2343    0.26 .  Q      .        .       . V       .
  16.917    0.2346    0.26 .  Q      .        .       . V       .
  16.933    0.2350    0.25 . Q       .        .       . V       .
  16.950    0.2353    0.25 . Q       .        .       . V       .
  16.967    0.2357    0.25 . Q       .        .       . V       .
  16.983    0.2360    0.25 . Q       .        .       . V       .
  17.000    0.2363    0.24 . Q       .        .       . V       .
  17.017    0.2367    0.24 . Q       .        .       . V       .
  17.033    0.2370    0.24 . Q       .        .       . V       .
  17.050    0.2373    0.24 . Q       .        .       . V       .
  17.067    0.2376    0.23 . Q       .        .       . V       .
  17.083    0.2380    0.23 . Q       .        .       . V       .
  17.100    0.2383    0.23 . Q       .        .       . V       .
  17.117    0.2386    0.23 . Q       .        .       . V       .
  17.133    0.2389    0.22 . Q       .        .       . V       .
  17.150    0.2392    0.22 . Q       .        .       . V       .
  17.167    0.2395    0.22 . Q       .        .       . V       .
  17.183    0.2398    0.22 . Q       .        .       .  V      .
  17.200    0.2401    0.21 . Q       .        .       .  V      .
  17.217    0.2404    0.21 . Q       .        .       .  V      .
  17.233    0.2407    0.21 . Q       .        .       .  V      .
  17.250    0.2410    0.21 . Q       .        .       .  V      .
```

```
-----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.        0.9       1.7       2.6       3.4
-----------------------------------------------------------------------------
  17.267    0.2412    0.20  . Q        .        .        . V      .
  17.283    0.2415    0.20  . Q        .        .        . V      .
  17.300    0.2418    0.20  . Q        .        .        . V      .
  17.317    0.2421    0.20  . Q        .        .        . V      .
  17.333    0.2423    0.20  . Q        .        .        . V      .
  17.350    0.2426    0.20  . Q        .        .        . V      .
  17.367    0.2429    0.19  . Q        .        .        . V      .
  17.383    0.2431    0.19  . Q        .        .        . V      .
  17.400    0.2434    0.19  . Q        .        .        . V      .
  17.417    0.2437    0.19  . Q        .        .        . V      .
  17.433    0.2439    0.19  . Q        .        .        . V      .
  17.450    0.2442    0.19  . Q        .        .        . V      .
  17.467    0.2444    0.19  . Q        .        .        . V      .
  17.483    0.2447    0.19  . Q        .        .        . V      .
  17.500    0.2450    0.18  . Q        .        .        . V      .
  17.517    0.2452    0.18  . Q        .        .        . V      .
  17.533    0.2455    0.18  . Q        .        .        . V      .
  17.550    0.2457    0.18  . Q        .        .        . V      .
  17.567    0.2459    0.18  . Q        .        .        . V      .
  17.583    0.2462    0.18  . Q        .        .        . V      .
  17.600    0.2464    0.18  . Q        .        .        . V      .
  17.617    0.2467    0.18  . Q        .        .        . V      .
  17.633    0.2469    0.17  . Q        .        .        . V      .
  17.650    0.2472    0.17  . Q        .        .        .  V     .
  17.667    0.2474    0.17  . Q        .        .        .  V     .
  17.683    0.2476    0.17  .Q         .        .        .  V     .
  17.700    0.2479    0.17  .Q         .        .        .  V     .
  17.717    0.2481    0.17  .Q         .        .        .  V     .
  17.733    0.2483    0.17  .Q         .        .        .  V     .
  17.750    0.2486    0.17  .Q         .        .        .  V     .
  17.767    0.2488    0.17  .Q         .        .        .  V     .
  17.783    0.2490    0.17  .Q         .        .        .  V     .
  17.800    0.2492    0.16  .Q         .        .        .  V     .
  17.817    0.2495    0.16  .Q         .        .        .  V     .
  17.833    0.2497    0.16  .Q         .        .        .  V     .
  17.850    0.2499    0.16  .Q         .        .        .  V     .
  17.867    0.2501    0.16  .Q         .        .        .  V     .
  17.883    0.2504    0.16  .Q         .        .        .  V     .
  17.900    0.2506    0.16  .Q         .        .        .  V     .
  17.917    0.2508    0.16  .Q         .        .        .  V     .
  17.933    0.2510    0.16  .Q         .        .        .  V     .
  17.950    0.2512    0.16  .Q         .        .        .  V     .
  17.967    0.2515    0.16  .Q         .        .        .  V     .
  17.983    0.2517    0.16  .Q         .        .        .  V     .
  18.000    0.2519    0.15  .Q         .        .        .  V     .
-------------------------------------------------------------------------------
```

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

```
 Percentile of Estimated          Duration
   Peak Flow Rate                (minutes)
=======================          =========
        0%                        1081.0
       10%                         420.0
       20%                         145.0
       30%                          90.0
       40%                          75.0
       50%                          60.0
       60%                          50.0
       70%                          40.0
```

80%	25.0
90%	10.0

```
****************************************************************************
 FLOW PROCESS FROM NODE    203.00 TO NODE    203.00 IS CODE = 3.2
----------------------------------------------------------------------------
 >>>>>FLOW-THROUGH DETENTION BASIN ROUTING MODEL APPLIED TO STREAM #2<<<<<
============================================================================

             INFLOW
            (STREAM 2)
               |
               |
               V             __effective depth
            -----------       |  (and volume)
           |           |    |    |
           |           |    |....V........
           | detention |<-->|          outflow
           |   basin   |    |.........________
            -----------     |    ^    |  \
               |            |  dead   |   basin outlet
               V            | storage |
             OUTFLOW         ---------
            (STREAM 2)
```

ROUTE RUNOFF HYDROGRAPH FROM STREAM NUMBER 2
THROUGH A FLOW-THROUGH DETENTION BASIN
SPECIFIED BASIN CONDITIONS ARE AS FOLLOWS:
 DEAD STORAGE(AF) = 0.000
 SPECIFIED DEAD STORAGE(AF) FILLED = 0.000
 SPECIFIED EFFECTIVE VOLUME(AF) FILLED ABOVE OUTLET = 0.000
 DETENTION BASIN CONSTANT LOSS RATE(CFS) = 0.04

BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

INTERVAL NUMBER	DEPTH (FT)	OUTFLOW (CFS)	STORAGE (AF)
1	0.00	0.00	0.000
2	2.00	0.01	0.040
3	3.00	0.02	0.061
4	5.00	0.04	0.101
5	6.25	25.32	0.126

==
MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
14.017	0.000	0.21	0.04	2.48	0.0	0.050
14.033	0.000	0.21	0.04	2.49	0.0	0.050
14.050	0.000	0.21	0.04	2.50	0.0	0.051
14.067	0.000	0.21	0.04	2.51	0.0	0.051
14.083	0.000	0.21	0.04	2.52	0.0	0.051
14.100	0.000	0.22	0.04	2.53	0.0	0.051
14.117	0.000	0.22	0.04	2.54	0.0	0.051
14.133	0.000	0.22	0.04	2.55	0.0	0.052
14.150	0.000	0.22	0.04	2.56	0.0	0.052
14.167	0.000	0.22	0.04	2.57	0.0	0.052
14.183	0.000	0.22	0.04	2.59	0.0	0.052
14.200	0.000	0.23	0.04	2.60	0.0	0.053
14.217	0.000	0.23	0.04	2.61	0.0	0.053
14.233	0.000	0.23	0.04	2.62	0.0	0.053
14.250	0.000	0.23	0.04	2.63	0.0	0.053
14.267	0.000	0.23	0.04	2.64	0.0	0.053
14.283	0.000	0.24	0.04	2.65	0.0	0.054
14.300	0.000	0.24	0.04	2.67	0.0	0.054
14.317	0.000	0.24	0.04	2.68	0.0	0.054
14.333	0.000	0.24	0.04	2.69	0.0	0.054
14.350	0.000	0.24	0.04	2.70	0.0	0.055
14.367	0.000	0.24	0.04	2.71	0.0	0.055
14.383	0.000	0.24	0.04	2.72	0.0	0.055
14.400	0.000	0.24	0.04	2.74	0.0	0.055
14.417	0.000	0.24	0.04	2.75	0.0	0.056
14.433	0.000	0.24	0.04	2.76	0.0	0.056
14.450	0.000	0.24	0.04	2.77	0.0	0.056
14.467	0.000	0.25	0.04	2.79	0.0	0.056
14.483	0.000	0.25	0.04	2.80	0.0	0.057
14.500	0.000	0.25	0.04	2.81	0.0	0.057
14.517	0.000	0.25	0.04	2.82	0.0	0.057
14.533	0.000	0.25	0.04	2.84	0.0	0.058
14.550	0.000	0.26	0.04	2.85	0.0	0.058
14.567	0.000	0.26	0.04	2.86	0.0	0.058
14.583	0.000	0.26	0.04	2.87	0.0	0.058
14.600	0.000	0.26	0.04	2.89	0.0	0.059
14.617	0.000	0.26	0.04	2.90	0.0	0.059
14.633	0.000	0.26	0.04	2.91	0.0	0.059
14.650	0.000	0.26	0.04	2.93	0.0	0.059
14.667	0.000	0.27	0.04	2.94	0.0	0.060
14.683	0.000	0.27	0.04	2.95	0.0	0.060
14.700	0.000	0.27	0.04	2.97	0.0	0.060
14.717	0.000	0.27	0.04	2.98	0.0	0.061
14.733	0.000	0.27	0.04	2.99	0.0	0.061
14.750	0.000	0.27	0.04	3.01	0.0	0.061
14.767	0.000	0.27	0.04	3.02	0.0	0.061
14.783	0.000	0.28	0.04	3.04	0.0	0.062
14.800	0.000	0.28	0.04	3.05	0.0	0.062
14.817	0.000	0.28	0.04	3.07	0.0	0.062
14.833	0.000	0.28	0.04	3.08	0.0	0.063

==
MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
14.850	0.000	0.29	0.04	3.10	0.0	0.063
14.867	0.000	0.29	0.04	3.11	0.0	0.063
14.883	0.000	0.29	0.04	3.13	0.0	0.064
14.900	0.000	0.29	0.04	3.14	0.0	0.064
14.917	0.000	0.30	0.04	3.16	0.0	0.064
14.933	0.000	0.30	0.04	3.18	0.0	0.065
14.950	0.000	0.30	0.04	3.19	0.0	0.065
14.967	0.000	0.30	0.04	3.21	0.0	0.065
14.983	0.000	0.30	0.04	3.23	0.0	0.066
15.000	0.000	0.30	0.04	3.24	0.0	0.066
15.017	0.000	0.30	0.04	3.26	0.0	0.066
15.033	0.000	0.31	0.04	3.28	0.0	0.067
15.050	0.000	0.31	0.04	3.29	0.0	0.067
15.067	0.000	0.31	0.04	3.31	0.0	0.067
15.083	0.000	0.31	0.04	3.33	0.0	0.068
15.100	0.000	0.32	0.04	3.34	0.0	0.068
15.117	0.000	0.32	0.04	3.36	0.0	0.068
15.133	0.000	0.33	0.04	3.38	0.0	0.069
15.150	0.000	0.33	0.04	3.40	0.0	0.069
15.167	0.000	0.34	0.04	3.42	0.0	0.069
15.183	0.000	0.34	0.04	3.43	0.0	0.070
15.200	0.000	0.34	0.04	3.45	0.0	0.070
15.217	0.000	0.35	0.04	3.47	0.0	0.070
15.233	0.000	0.35	0.04	3.49	0.0	0.071
15.250	0.000	0.36	0.04	3.51	0.0	0.071
15.267	0.000	0.36	0.04	3.53	0.0	0.072
15.283	0.000	0.36	0.04	3.55	0.0	0.072
15.300	0.000	0.37	0.04	3.57	0.0	0.072
15.317	0.000	0.37	0.04	3.60	0.0	0.073
15.333	0.000	0.37	0.04	3.62	0.0	0.073
15.350	0.000	0.38	0.04	3.64	0.0	0.074
15.367	0.000	0.38	0.04	3.66	0.0	0.074
15.383	0.000	0.38	0.04	3.68	0.0	0.075
15.400	0.000	0.39	0.04	3.70	0.0	0.075
15.417	0.000	0.39	0.04	3.72	0.0	0.075
15.433	0.000	0.39	0.04	3.75	0.0	0.076
15.450	0.000	0.39	0.04	3.77	0.0	0.076
15.467	0.000	0.39	0.04	3.79	0.0	0.077
15.483	0.000	0.39	0.04	3.81	0.0	0.077
15.500	0.000	0.39	0.04	3.84	0.0	0.078
15.517	0.000	0.40	0.04	3.86	0.0	0.078
15.533	0.000	0.40	0.04	3.88	0.0	0.079
15.550	0.000	0.40	0.04	3.90	0.0	0.079
15.567	0.000	0.41	0.04	3.93	0.0	0.080
15.583	0.000	0.42	0.04	3.95	0.0	0.080
15.600	0.000	0.42	0.04	3.97	0.0	0.080
15.617	0.000	0.43	0.04	4.00	0.0	0.081
15.633	0.000	0.44	0.04	4.02	0.0	0.081
15.650	0.000	0.45	0.04	4.05	0.0	0.082
15.667	0.000	0.45	0.04	4.08	0.0	0.083

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	LOSS (CFS)	EFFECTIVE DEPTH(FT)	MEAN OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
15.683	0.000	0.46	0.04	4.10	0.0	0.083
15.700	0.000	0.47	0.04	4.13	0.0	0.084
15.717	0.000	0.50	0.04	4.16	0.0	0.084
15.733	0.000	0.53	0.04	4.19	0.0	0.085
15.750	0.000	0.56	0.04	4.23	0.0	0.086
15.767	0.000	0.59	0.04	4.26	0.0	0.086
15.783	0.000	0.62	0.04	4.30	0.0	0.087
15.800	0.000	0.65	0.04	4.34	0.0	0.088
15.817	0.000	0.68	0.04	4.38	0.0	0.089
15.833	0.000	0.70	0.04	4.42	0.0	0.089
15.850	0.000	0.73	0.04	4.47	0.0	0.090
15.867	0.000	0.77	0.04	4.52	0.0	0.091
15.883	0.000	0.80	0.04	4.57	0.0	0.092
15.900	0.000	0.83	0.04	4.62	0.0	0.093
15.917	0.000	0.87	0.04	4.67	0.0	0.094
15.933	0.000	0.90	0.04	4.73	0.0	0.096
15.950	0.000	0.94	0.04	4.79	0.0	0.097
15.967	0.000	0.97	0.04	4.85	0.0	0.098
15.983	0.000	1.00	0.04	4.91	0.0	0.099
16.000	0.000	1.04	0.04	4.98	0.0	0.101
16.017	0.000	1.18	0.04	5.03	0.4	0.102
16.033	0.000	1.44	0.04	5.06	1.0	0.102
16.050	0.000	1.69	0.04	5.08	1.4	0.103
16.067	0.000	1.94	0.04	5.09	1.7	0.103
16.083	0.000	2.20	0.04	5.10	2.0	0.103
16.100	0.000	2.45	0.04	5.11	2.2	0.103
16.117	0.000	2.70	0.04	5.13	2.5	0.104
16.133	0.000	2.96	0.04	5.14	2.7	0.104
16.150	0.000	3.21	0.04	5.15	3.0	0.104
16.167	0.000	3.43	0.04	5.16	3.2	0.104
16.183	0.000	3.09	0.04	5.15	3.2	0.104
16.200	0.000	2.78	0.04	5.14	3.0	0.104
16.217	0.000	2.47	0.04	5.12	2.7	0.103
16.233	0.000	2.17	0.04	5.11	2.3	0.103
16.250	0.000	1.86	0.04	5.09	2.0	0.103
16.267	0.000	1.56	0.04	5.08	1.7	0.103
16.283	0.000	1.25	0.04	5.06	1.4	0.102
16.300	0.000	0.95	0.04	5.05	1.1	0.102
16.317	0.000	0.65	0.04	5.03	0.8	0.102
16.333	0.000	0.55	0.04	5.02	0.6	0.101
16.350	0.000	0.53	0.04	5.02	0.5	0.101
16.367	0.000	0.52	0.04	5.02	0.5	0.101
16.383	0.000	0.50	0.04	5.02	0.5	0.101
16.400	0.000	0.48	0.04	5.02	0.5	0.101
16.417	0.000	0.46	0.04	5.02	0.4	0.101
16.433	0.000	0.44	0.04	5.02	0.4	0.101
16.450	0.000	0.42	0.04	5.02	0.4	0.101
16.467	0.000	0.40	0.04	5.02	0.4	0.101
16.483	0.000	0.39	0.04	5.02	0.4	0.101
16.500	0.000	0.38	0.04	5.02	0.3	0.101

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
16.517	0.000	0.38	0.04	5.01	0.3	0.101
16.533	0.000	0.37	0.04	5.01	0.3	0.101
16.550	0.000	0.36	0.04	5.01	0.3	0.101
16.567	0.000	0.36	0.04	5.01	0.3	0.101
16.583	0.000	0.35	0.04	5.01	0.3	0.101
16.600	0.000	0.34	0.04	5.01	0.3	0.101
16.617	0.000	0.33	0.04	5.01	0.3	0.101
16.633	0.000	0.33	0.04	5.01	0.3	0.101
16.650	0.000	0.32	0.04	5.01	0.3	0.101
16.667	0.000	0.32	0.04	5.01	0.3	0.101
16.683	0.000	0.31	0.04	5.01	0.3	0.101
16.700	0.000	0.31	0.04	5.01	0.3	0.101
16.717	0.000	0.30	0.04	5.01	0.3	0.101
16.733	0.000	0.30	0.04	5.01	0.3	0.101
16.750	0.000	0.29	0.04	5.01	0.3	0.101
16.767	0.000	0.29	0.04	5.01	0.3	0.101
16.783	0.000	0.28	0.04	5.01	0.2	0.101
16.800	0.000	0.28	0.04	5.01	0.2	0.101
16.817	0.000	0.28	0.04	5.01	0.2	0.101
16.833	0.000	0.27	0.04	5.01	0.2	0.101
16.850	0.000	0.27	0.04	5.01	0.2	0.101
16.867	0.000	0.27	0.04	5.01	0.2	0.101
16.883	0.000	0.26	0.04	5.01	0.2	0.101
16.900	0.000	0.26	0.04	5.01	0.2	0.101
16.917	0.000	0.26	0.04	5.01	0.2	0.101
16.933	0.000	0.25	0.04	5.01	0.2	0.101
16.950	0.000	0.25	0.04	5.01	0.2	0.101
16.967	0.000	0.25	0.04	5.01	0.2	0.101
16.983	0.000	0.25	0.04	5.01	0.2	0.101
17.000	0.000	0.24	0.04	5.01	0.2	0.101
17.017	0.000	0.24	0.04	5.01	0.2	0.101
17.033	0.000	0.24	0.04	5.01	0.2	0.101
17.050	0.000	0.24	0.04	5.01	0.2	0.101
17.067	0.000	0.23	0.04	5.01	0.2	0.101
17.083	0.000	0.23	0.04	5.01	0.2	0.101
17.100	0.000	0.23	0.04	5.01	0.2	0.101
17.117	0.000	0.23	0.04	5.01	0.2	0.101
17.133	0.000	0.22	0.04	5.01	0.2	0.101
17.150	0.000	0.22	0.04	5.01	0.2	0.101
17.167	0.000	0.22	0.04	5.01	0.2	0.101
17.183	0.000	0.22	0.04	5.01	0.2	0.101
17.200	0.000	0.21	0.04	5.01	0.2	0.101
17.217	0.000	0.21	0.04	5.01	0.2	0.101
17.233	0.000	0.21	0.04	5.01	0.2	0.101
17.250	0.000	0.21	0.04	5.01	0.2	0.101
17.267	0.000	0.20	0.04	5.01	0.2	0.101
17.283	0.000	0.20	0.04	5.01	0.2	0.101
17.300	0.000	0.20	0.04	5.01	0.2	0.101
17.317	0.000	0.20	0.04	5.01	0.2	0.101
17.333	0.000	0.20	0.04	5.01	0.2	0.101

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MODIFIED-PULS BASIN ROUTING MODEL RESULTS(1-MINUTE COMPUTATION INTERVALS):
(Note: Computed EFFECTIVE DEPTH and VOLUME are estimated at the clock time;
MEAN OUTFLOW is the average value during the unit interval.)

CLOCK TIME (HRS)	DEAD-STORAGE FILLED(AF)	INFLOW (CFS)	MEAN LOSS (CFS)	EFFECTIVE DEPTH(FT)	OUTFLOW (CFS)	EFFECTIVE VOLUME(AF)
17.350	0.000	0.20	0.04	5.01	0.2	0.101
17.367	0.000	0.19	0.04	5.01	0.2	0.101
17.383	0.000	0.19	0.04	5.01	0.2	0.101
17.400	0.000	0.19	0.04	5.01	0.2	0.101
17.417	0.000	0.19	0.04	5.01	0.2	0.101
17.433	0.000	0.19	0.04	5.01	0.1	0.101
17.450	0.000	0.19	0.04	5.01	0.1	0.101
17.467	0.000	0.19	0.04	5.01	0.1	0.101
17.483	0.000	0.19	0.04	5.01	0.1	0.101
17.500	0.000	0.18	0.04	5.01	0.1	0.101
17.517	0.000	0.18	0.04	5.01	0.1	0.101
17.533	0.000	0.18	0.04	5.01	0.1	0.101
17.550	0.000	0.18	0.04	5.00	0.1	0.101
17.567	0.000	0.18	0.04	5.00	0.1	0.101
17.583	0.000	0.18	0.04	5.00	0.1	0.101
17.600	0.000	0.18	0.04	5.00	0.1	0.101
17.617	0.000	0.18	0.04	5.00	0.1	0.101
17.633	0.000	0.17	0.04	5.00	0.1	0.101
17.650	0.000	0.17	0.04	5.00	0.1	0.101
17.667	0.000	0.17	0.04	5.00	0.1	0.101
17.683	0.000	0.17	0.04	5.00	0.1	0.101
17.700	0.000	0.17	0.04	5.00	0.1	0.101
17.717	0.000	0.17	0.04	5.00	0.1	0.101
17.733	0.000	0.17	0.04	5.00	0.1	0.101
17.750	0.000	0.17	0.04	5.00	0.1	0.101
17.767	0.000	0.17	0.04	5.00	0.1	0.101
17.783	0.000	0.17	0.04	5.00	0.1	0.101
17.800	0.000	0.16	0.04	5.00	0.1	0.101
17.817	0.000	0.16	0.04	5.00	0.1	0.101
17.833	0.000	0.16	0.04	5.00	0.1	0.101
17.850	0.000	0.16	0.04	5.00	0.1	0.101
17.867	0.000	0.16	0.04	5.00	0.1	0.101
17.883	0.000	0.16	0.04	5.00	0.1	0.101
17.900	0.000	0.16	0.04	5.00	0.1	0.101
17.917	0.000	0.16	0.04	5.00	0.1	0.101
17.933	0.000	0.16	0.04	5.00	0.1	0.101
17.950	0.000	0.16	0.04	5.00	0.1	0.101
17.967	0.000	0.16	0.04	5.00	0.1	0.101
17.983	0.000	0.16	0.04	5.00	0.1	0.101
18.000	0.000	0.15	0.04	5.00	0.1	0.101

PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 0.291 AF
BASIN STORAGE = 0.000 AF (WITH 0.000 AF INITIALLY FILLED)
OUTFLOW VOLUME = 0.141 AF
LOSS VOLUME = 0.150 AF

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****************************************************************************
 FLOW PROCESS FROM NODE    104.00 TO NODE    104.00 IS CODE =  7
----------------------------------------------------------------------------
 >>>>>STREAM NUMBER 2 ADDED TO STREAM NUMBER 1<<<<<
============================================================================
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****************************************************************************
 FLOW PROCESS FROM NODE    104.00 TO NODE    106.00 IS CODE = 5.1
----------------------------------------------------------------------------
 >>>>>MODEL CHANNEL ROUTING OF STREAM #1 BY THE TRANSLATION METHOD<<<<<
============================================================================

      THE TRANSLATION MODEL NEGLECTS ALL STORAGE ATTENUATION EFFECTS,
      AND MOVES THE STREAM 1 RUNOFF HYDROGRAPH FORWARD IN TIME.

      ASSUMED REGULAR CHANNEL INFORMATION:
        BASEWIDTH(FT) =   26.00     CHANNEL Z = 10.00
        UPSTREAM ELEVATION(FT) =     131.70
        DOWNSTREAM ELEVATION(FT) =     128.00
        CHANNEL LENGTH(FT) =     755.00     MANNING'S FACTOR = 0.015
        CONSTANT LOSS RATE(CFS) =    0.00

      MEAN-FLOW RATE NORMAL-DEPTH FLOW VELOCITIES(FPS) ARE AS FOLLOWS:
                    (FLOW RATE (CFS)) [FLOW VELOCITY (FPS)]
        AVERAGED PEAK  5-MINUTE: (       3.0).......[  1.35]
        AVERAGED PEAK 15-MINUTE: (       2.4).......[  1.29]
        AVERAGED PEAK 30-MINUTE: (       1.5).......[  1.03]
        AVERAGED PEAK  1-HOUR:   (       0.9).......[  0.87]
        AVERAGED PEAK  3-HOUR:   (       0.4).......[  0.64]
        AVERAGED PEAK  6-HOUR:   (       0.2).......[  0.38]
        AVERAGED PEAK 24-HOUR:   (       0.1).......[  0.47]
      USER-SPECIFIED CHANNEL AVERAGE FLOW VELOCITY(FPS) =   3.540
      HYDROGRAPH TRANSLATION TIME
      = (CHANNEL LENGTH)/(AVERAGE FLOW  VELOCITY)
      = (    755.00)/(  3.540) =   0.059 HRS

      TRANSLATION METHOD CHANNEL ROUTING RESULTS:
                          OUTFLOW LESS
       MODEL       INFLOW     ROUTED      LOSS
        TIME     (STREAM 1)    FLOW    (STREAM 1)
       (HRS)        (CFS)      (CFS)     (CFS)
       14.000        0.02       0.02      0.02
       14.017        0.02       0.02      0.02
       14.033        0.02       0.02      0.02
       14.050        0.02       0.02      0.02
       14.067        0.02       0.02      0.02
       14.083        0.02       0.02      0.02
       14.100        0.02       0.02      0.02
       14.117        0.02       0.02      0.02
       14.133        0.02       0.02      0.02
       14.150        0.02       0.02      0.02
       14.167        0.02       0.02      0.02
       14.183        0.02       0.02      0.02
       14.200        0.02       0.02      0.02
       14.217        0.02       0.02      0.02
       14.233        0.02       0.02      0.02
```

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	OUTFLOW LESS ROUTED FLOW (CFS)	LOSS (STREAM 1) (CFS)
14.250	0.03	0.02	0.02
14.267	0.03	0.02	0.02
14.283	0.03	0.02	0.02
14.300	0.03	0.02	0.02
14.317	0.03	0.03	0.03
14.333	0.03	0.03	0.03
14.350	0.03	0.03	0.03
14.367	0.03	0.03	0.03
14.383	0.03	0.03	0.03
14.400	0.03	0.03	0.03
14.417	0.03	0.03	0.03
14.433	0.03	0.03	0.03
14.450	0.03	0.03	0.03
14.467	0.03	0.03	0.03
14.483	0.03	0.03	0.03
14.500	0.03	0.03	0.03
14.517	0.03	0.03	0.03
14.533	0.03	0.03	0.03
14.550	0.03	0.03	0.03
14.567	0.03	0.03	0.03
14.583	0.03	0.03	0.03
14.600	0.03	0.03	0.03
14.617	0.03	0.03	0.03
14.633	0.03	0.03	0.03
14.650	0.03	0.03	0.03
14.667	0.03	0.03	0.03
14.683	0.03	0.03	0.03
14.700	0.03	0.03	0.03
14.717	0.03	0.03	0.03
14.733	0.03	0.03	0.03
14.750	0.03	0.03	0.03
14.767	0.03	0.03	0.03
14.783	0.03	0.03	0.03
14.800	0.03	0.03	0.03
14.817	0.03	0.03	0.03
14.833	0.03	0.03	0.03
14.850	0.03	0.03	0.03
14.867	0.03	0.03	0.03
14.883	0.03	0.03	0.03
14.900	0.03	0.03	0.03
14.917	0.03	0.03	0.03
14.933	0.03	0.03	0.03
14.950	0.03	0.03	0.03
14.967	0.03	0.03	0.03
14.983	0.03	0.03	0.03
15.000	0.03	0.03	0.03
15.017	0.03	0.03	0.03
15.033	0.03	0.03	0.03
15.050	0.03	0.03	0.03
15.067	0.03	0.03	0.03

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	OUTFLOW LESS ROUTED FLOW (CFS)	LOSS (STREAM 1) (CFS)
15.083	0.03	0.03	0.03
15.100	0.03	0.03	0.03
15.117	0.03	0.03	0.03
15.133	0.03	0.03	0.03
15.150	0.03	0.03	0.03
15.167	0.03	0.03	0.03
15.183	0.03	0.03	0.03
15.200	0.03	0.03	0.03
15.217	0.04	0.03	0.03
15.233	0.04	0.03	0.03
15.250	0.04	0.03	0.03
15.267	0.04	0.03	0.03
15.283	0.04	0.04	0.04
15.300	0.04	0.04	0.04
15.317	0.04	0.04	0.04
15.333	0.04	0.04	0.04
15.350	0.04	0.04	0.04
15.367	0.04	0.04	0.04
15.383	0.04	0.04	0.04
15.400	0.04	0.04	0.04
15.417	0.04	0.04	0.04
15.433	0.04	0.04	0.04
15.450	0.04	0.04	0.04
15.467	0.04	0.04	0.04
15.483	0.04	0.04	0.04
15.500	0.04	0.04	0.04
15.517	0.04	0.04	0.04
15.533	0.04	0.04	0.04
15.550	0.04	0.04	0.04
15.567	0.04	0.04	0.04
15.583	0.04	0.04	0.04
15.600	0.04	0.04	0.04
15.617	0.04	0.04	0.04
15.633	0.04	0.04	0.04
15.650	0.04	0.04	0.04
15.667	0.04	0.04	0.04
15.683	0.04	0.04	0.04
15.700	0.04	0.04	0.04
15.717	0.04	0.04	0.04
15.733	0.04	0.04	0.04
15.750	0.04	0.04	0.04
15.767	0.04	0.04	0.04
15.783	0.04	0.04	0.04
15.800	0.04	0.04	0.04
15.817	0.04	0.04	0.04
15.833	0.05	0.04	0.04
15.850	0.05	0.04	0.04
15.867	0.05	0.04	0.04
15.883	0.05	0.04	0.04
15.900	0.05	0.05	0.05

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	OUTFLOW LESS ROUTED FLOW (CFS)	LOSS (STREAM 1) (CFS)
15.917	0.05	0.05	0.05
15.933	0.05	0.05	0.05
15.950	0.05	0.05	0.05
15.967	0.05	0.05	0.05
15.983	0.05	0.05	0.05
16.000	0.05	0.05	0.05
16.017	0.38	0.05	0.05
16.033	1.00	0.05	0.05
16.050	1.44	0.05	0.05
16.067	1.73	0.20	0.20
16.083	1.99	0.66	0.66
16.100	2.24	1.20	1.20
16.117	2.50	1.57	1.57
16.133	2.75	1.84	1.84
16.150	3.00	2.10	2.10
16.167	3.25	2.36	2.36
16.183	3.24	2.61	2.61
16.200	2.97	2.86	2.86
16.217	2.67	3.11	3.11
16.233	2.37	3.24	3.24
16.250	2.06	3.12	3.12
16.267	1.76	2.84	2.84
16.283	1.45	2.54	2.54
16.300	1.15	2.23	2.23
16.317	0.85	1.93	1.93
16.333	0.63	1.62	1.62
16.350	0.54	1.32	1.32
16.367	0.51	1.01	1.01
16.383	0.49	0.75	0.75
16.400	0.48	0.59	0.59
16.417	0.46	0.53	0.53
16.433	0.44	0.50	0.50
16.450	0.42	0.49	0.49
16.467	0.40	0.47	0.47
16.483	0.39	0.45	0.45
16.500	0.37	0.43	0.43
16.517	0.37	0.41	0.41
16.533	0.36	0.40	0.40
16.550	0.35	0.38	0.38
16.567	0.35	0.37	0.37
16.583	0.34	0.36	0.36
16.600	0.33	0.36	0.36
16.617	0.32	0.35	0.35
16.633	0.32	0.34	0.34
16.650	0.31	0.34	0.34
16.667	0.31	0.33	0.33
16.683	0.30	0.32	0.32
16.700	0.30	0.32	0.32
16.717	0.29	0.31	0.31
16.733	0.29	0.30	0.30

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	OUTFLOW LESS ROUTED FLOW (CFS)	LOSS (STREAM 1) (CFS)
16.750	0.28	0.30	0.30
16.767	0.28	0.30	0.30
16.783	0.27	0.29	0.29
16.800	0.27	0.29	0.29
16.817	0.27	0.28	0.28
16.833	0.26	0.28	0.28
16.850	0.26	0.27	0.27
16.867	0.26	0.27	0.27
16.883	0.25	0.26	0.26
16.900	0.25	0.26	0.26
16.917	0.25	0.26	0.26
16.933	0.24	0.25	0.25
16.950	0.24	0.25	0.25
16.967	0.24	0.25	0.25
16.983	0.24	0.25	0.25
17.000	0.23	0.24	0.24
17.017	0.23	0.24	0.24
17.033	0.23	0.24	0.24
17.050	0.23	0.23	0.23
17.067	0.22	0.23	0.23
17.083	0.22	0.23	0.23
17.100	0.22	0.23	0.23
17.117	0.22	0.22	0.22
17.133	0.21	0.22	0.22
17.150	0.21	0.22	0.22
17.167	0.21	0.22	0.22
17.183	0.21	0.21	0.21
17.200	0.20	0.21	0.21
17.217	0.20	0.21	0.21
17.233	0.20	0.21	0.21
17.250	0.19	0.20	0.20
17.267	0.19	0.20	0.20
17.283	0.19	0.20	0.20
17.300	0.19	0.20	0.20
17.317	0.19	0.19	0.19
17.333	0.19	0.19	0.19
17.350	0.18	0.19	0.19
17.367	0.18	0.19	0.19
17.383	0.18	0.19	0.19
17.400	0.18	0.18	0.18
17.417	0.18	0.18	0.18
17.433	0.18	0.18	0.18
17.450	0.18	0.18	0.18
17.467	0.17	0.18	0.18
17.483	0.17	0.18	0.18
17.500	0.17	0.18	0.18
17.517	0.17	0.17	0.17
17.533	0.17	0.17	0.17
17.550	0.17	0.17	0.17
17.567	0.17	0.17	0.17

MODEL TIME (HRS)	INFLOW (STREAM 1) (CFS)	OUTFLOW LESS ROUTED FLOW (CFS)	LOSS (STREAM 1) (CFS)
17.583	0.17	0.17	0.17
17.600	0.16	0.17	0.17
17.617	0.16	0.17	0.17
17.633	0.16	0.17	0.17
17.650	0.16	0.17	0.17
17.667	0.16	0.16	0.16
17.683	0.16	0.16	0.16
17.700	0.16	0.16	0.16
17.717	0.16	0.16	0.16
17.733	0.16	0.16	0.16
17.750	0.16	0.16	0.16
17.767	0.15	0.16	0.16
17.783	0.15	0.16	0.16
17.800	0.15	0.16	0.16
17.817	0.15	0.16	0.16
17.833	0.15	0.15	0.15
17.850	0.15	0.15	0.15
17.867	0.15	0.15	0.15
17.883	0.15	0.15	0.15
17.900	0.15	0.15	0.15
17.917	0.15	0.15	0.15
17.933	0.15	0.15	0.15
17.950	0.15	0.15	0.15
17.967	0.14	0.15	0.15
17.983	0.14	0.15	0.15
18.000	0.14	0.15	0.15

==

PROCESS SUMMARY OF STORAGE:
INFLOW VOLUME = 0.272 AF
OUTFLOW VOLUME = 0.272 AF
LOSS VOLUME = 0.000 AF

```
****************************************************************************
 FLOW PROCESS FROM NODE    106.00 TO NODE    106.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>VIEW STREAM NUMBER 1 HYDROGRAPH<<<<<
==========================================================================================

         STREAM HYDROGRAPH IN  ONE-MINUTE UNIT INTERVALS(CFS)
      (Notes: Time indicated is at END of Each Unit Intervals.
            Peak 5-minute rainfall intensity is modeled as
            a constant value for entire 5-minute period.)
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.      2.5      5.0      7.5      10.0
----------------------------------------------------------------------------
  14.000    0.0074    0.02  QV      .       .       .       .
  14.017    0.0074    0.02  QV      .       .       .       .
  14.033    0.0074    0.02  QV      .       .       .       .
  14.050    0.0075    0.02  QV      .       .       .       .
  14.067    0.0075    0.02  QV      .       .       .       .
  14.083    0.0075    0.02  QV      .       .       .       .
  14.100    0.0076    0.02  QV      .       .       .       .
  14.117    0.0076    0.02  QV      .       .       .       .
  14.133    0.0076    0.02  QV      .       .       .       .
  14.150    0.0077    0.02  QV      .       .       .       .
  14.167    0.0077    0.02  QV      .       .       .       .
  14.183    0.0077    0.02  QV      .       .       .       .
  14.200    0.0078    0.02  QV      .       .       .       .
  14.217    0.0078    0.02  QV      .       .       .       .
  14.233    0.0078    0.02  QV      .       .       .       .
  14.250    0.0079    0.02  QV      .       .       .       .
  14.267    0.0079    0.02  QV      .       .       .       .
  14.283    0.0079    0.02  QV      .       .       .       .
  14.300    0.0080    0.02  QV      .       .       .       .
  14.317    0.0080    0.03  QV      .       .       .       .
  14.333    0.0080    0.03  QV      .       .       .       .
  14.350    0.0081    0.03  QV      .       .       .       .
  14.367    0.0081    0.03  QV      .       .       .       .
  14.383    0.0081    0.03  QV      .       .       .       .
  14.400    0.0082    0.03  QV      .       .       .       .
  14.417    0.0082    0.03  QV      .       .       .       .
  14.433    0.0083    0.03  QV      .       .       .       .
  14.450    0.0083    0.03  QV      .       .       .       .
  14.467    0.0083    0.03  QV      .       .       .       .
  14.483    0.0084    0.03  QV      .       .       .       .
  14.500    0.0084    0.03  QV      .       .       .       .
  14.517    0.0084    0.03  QV      .       .       .       .
  14.533    0.0085    0.03  QV      .       .       .       .
  14.550    0.0085    0.03  QV      .       .       .       .
  14.567    0.0086    0.03  QV      .       .       .       .
  14.583    0.0086    0.03  QV      .       .       .       .
  14.600    0.0086    0.03  QV      .       .       .       .
  14.617    0.0087    0.03  QV      .       .       .       .
  14.633    0.0087    0.03  QV      .       .       .       .
  14.650    0.0087    0.03  QV      .       .       .       .
  14.667    0.0088    0.03  QV      .       .       .       .
  14.683    0.0088    0.03  QV      .       .       .       .
  14.700    0.0089    0.03  QV      .       .       .       .
  14.717    0.0089    0.03  QV      .       .       .       .
  14.733    0.0089    0.03  QV      .       .       .       .
  14.750    0.0090    0.03  QV      .       .       .       .
```

TIME(HRS)	VOLUME(AF)	Q(CFS)	0.	2.5	5.0	7.5	10.0
14.767	0.0090	0.03	QV	.	.	.	.
14.783	0.0091	0.03	QV	.	.	.	.
14.800	0.0091	0.03	QV	.	.	.	.
14.817	0.0091	0.03	QV	.	.	.	.
14.833	0.0092	0.03	QV	.	.	.	.
14.850	0.0092	0.03	QV	.	.	.	.
14.867	0.0093	0.03	QV	.	.	.	.
14.883	0.0093	0.03	QV	.	.	.	.
14.900	0.0094	0.03	QV	.	.	.	.
14.917	0.0094	0.03	QV	.	.	.	.
14.933	0.0094	0.03	QV	.	.	.	.
14.950	0.0095	0.03	QV	.	.	.	.
14.967	0.0095	0.03	QV	.	.	.	.
14.983	0.0096	0.03	QV	.	.	.	.
15.000	0.0096	0.03	QV	.	.	.	.
15.017	0.0097	0.03	QV	.	.	.	.
15.033	0.0097	0.03	QV	.	.	.	.
15.050	0.0098	0.03	QV	.	.	.	.
15.067	0.0098	0.03	QV	.	.	.	.
15.083	0.0098	0.03	QV	.	.	.	.
15.100	0.0099	0.03	QV	.	.	.	.
15.117	0.0099	0.03	QV	.	.	.	.
15.133	0.0100	0.03	QV	.	.	.	.
15.150	0.0100	0.03	QV	.	.	.	.
15.167	0.0101	0.03	QV	.	.	.	.
15.183	0.0101	0.03	QV	.	.	.	.
15.200	0.0102	0.03	QV	.	.	.	.
15.217	0.0102	0.03	QV	.	.	.	.
15.233	0.0103	0.03	QV	.	.	.	.
15.250	0.0103	0.03	QV	.	.	.	.
15.267	0.0104	0.03	QV	.	.	.	.
15.283	0.0104	0.04	QV	.	.	.	.
15.300	0.0105	0.04	QV	.	.	.	.
15.317	0.0105	0.04	QV	.	.	.	.
15.333	0.0106	0.04	QV	.	.	.	.
15.350	0.0106	0.04	QV	.	.	.	.
15.367	0.0107	0.04	QV	.	.	.	.
15.383	0.0107	0.04	QV	.	.	.	.
15.400	0.0108	0.04	QV	.	.	.	.
15.417	0.0108	0.04	QV	.	.	.	.
15.433	0.0109	0.04	QV	.	.	.	.
15.450	0.0109	0.04	QV	.	.	.	.
15.467	0.0110	0.04	QV	.	.	.	.
15.483	0.0110	0.04	QV	.	.	.	.
15.500	0.0111	0.04	QV	.	.	.	.
15.517	0.0111	0.04	QV	.	.	.	.
15.533	0.0112	0.04	QV	.	.	.	.
15.550	0.0112	0.04	QV	.	.	.	.
15.567	0.0113	0.04	QV	.	.	.	.
15.583	0.0113	0.04	QV	.	.	.	.

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)  Q(CFS) 0.      2.5      5.0      7.5     10.0
----------------------------------------------------------------------------
  15.600    0.0114    0.04  QV       .        .        .        .
  15.617    0.0114    0.04  QV       .        .        .        .
  15.633    0.0115    0.04  QV       .        .        .        .
  15.650    0.0116    0.04  QV       .        .        .        .
  15.667    0.0116    0.04  QV       .        .        .        .
  15.683    0.0117    0.04  QV       .        .        .        .
  15.700    0.0117    0.04  QV       .        .        .        .
  15.717    0.0118    0.04  QV       .        .        .        .
  15.733    0.0118    0.04  QV       .        .        .        .
  15.750    0.0119    0.04  QV       .        .        .        .
  15.767    0.0120    0.04  QV       .        .        .        .
  15.783    0.0120    0.04  QV       .        .        .        .
  15.800    0.0121    0.04  QV       .        .        .        .
  15.817    0.0121    0.04  QV       .        .        .        .
  15.833    0.0122    0.04  QV       .        .        .        .
  15.850    0.0122    0.04  QV       .        .        .        .
  15.867    0.0123    0.04  QV       .        .        .        .
  15.883    0.0124    0.04  QV       .        .        .        .
  15.900    0.0124    0.05  QV       .        .        .        .
  15.917    0.0125    0.05  QV       .        .        .        .
  15.933    0.0126    0.05  QV       .        .        .        .
  15.950    0.0126    0.05  QV       .        .        .        .
  15.967    0.0127    0.05  QV       .        .        .        .
  15.983    0.0128    0.05  QV       .        .        .        .
  16.000    0.0128    0.05  QV       .        .        .        .
  16.017    0.0129    0.05  QV       .        .        .        .
  16.033    0.0130    0.05  QV       .        .        .        .
  16.050    0.0130    0.05  QV       .        .        .        .
  16.067    0.0133    0.20  QV       .        .        .        .
  16.083    0.0142    0.66  . Q      .        .        .        .
  16.100    0.0159    1.20  . V Q    .        .        .        .
  16.117    0.0180    1.57  . V  Q   .        .        .        .
  16.133    0.0206    1.84  . V   Q  .        .        .        .
  16.150    0.0234    2.10  . V    Q .        .        .        .
  16.167    0.0267    2.36  . V     Q.        .        .        .
  16.183    0.0303    2.61  .  V     Q        .        .        .
  16.200    0.0342    2.86  .  V     .Q       .        .        .
  16.217    0.0385    3.11  .  V     . Q      .        .        .
  16.233    0.0430    3.24  .   V    . Q      .        .        .
  16.250    0.0473    3.12  .   V    . Q      .        .        .
  16.267    0.0512    2.84  .    V   .Q       .        .        .
  16.283    0.0547    2.54  .     V Q         .        .        .
  16.300    0.0578    2.23  .      Q .        .        .        .
  16.317    0.0604    1.93  .     QV .        .        .        .
  16.333    0.0626    1.62  .    Q  V.        .        .        .
  16.350    0.0644    1.32  .   Q   V.        .        .        .
  16.367    0.0658    1.01  .  Q    V.        .        .        .
  16.383    0.0669    0.75  . Q     V.        .        .        .
  16.400    0.0677    0.59  . Q     V.        .        .        .
  16.417    0.0684    0.53  . Q      V        .        .        .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.      2.5      5.0      7.5      10.0
----------------------------------------------------------------------------
  16.433    0.0691    0.50  . Q       V       .       .       .
  16.450    0.0698    0.49  .Q        V       .       .       .
  16.467    0.0704    0.47  .Q        V       .       .       .
  16.483    0.0710    0.45  .Q        V       .       .       .
  16.500    0.0716    0.43  .Q        V       .       .       .
  16.517    0.0722    0.41  .Q        V       .       .       .
  16.533    0.0728    0.40  .Q        V       .       .       .
  16.550    0.0733    0.38  .Q        V       .       .       .
  16.567    0.0738    0.37  .Q        V       .       .       .
  16.583    0.0743    0.36  .Q        V       .       .       .
  16.600    0.0748    0.36  .Q        .V      .       .       .
  16.617    0.0753    0.35  .Q        .V      .       .       .
  16.633    0.0757    0.34  .Q        .V      .       .       .
  16.650    0.0762    0.34  .Q        .V      .       .       .
  16.667    0.0767    0.33  .Q        .V      .       .       .
  16.683    0.0771    0.32  .Q        .V      .       .       .
  16.700    0.0775    0.32  .Q        .V      .       .       .
  16.717    0.0780    0.31  .Q        .V      .       .       .
  16.733    0.0784    0.30  .Q        .V      .       .       .
  16.750    0.0788    0.30  .Q        .V      .       .       .
  16.767    0.0792    0.30  .Q        .V      .       .       .
  16.783    0.0796    0.29  .Q        .V      .       .       .
  16.800    0.0800    0.29  .Q        .V      .       .       .
  16.817    0.0804    0.28  .Q        .V      .       .       .
  16.833    0.0808    0.28  .Q        .V      .       .       .
  16.850    0.0811    0.27  .Q        .V      .       .       .
  16.867    0.0815    0.27  .Q        . V     .       .       .
  16.883    0.0819    0.26  .Q        . V     .       .       .
  16.900    0.0822    0.26  .Q        . V     .       .       .
  16.917    0.0826    0.26  .Q        . V     .       .       .
  16.933    0.0829    0.25  .Q        . V     .       .       .
  16.950    0.0833    0.25  .Q        . V     .       .       .
  16.967    0.0836    0.25  Q         . V     .       .       .
  16.983    0.0840    0.25  Q         . V     .       .       .
  17.000    0.0843    0.24  Q         . V     .       .       .
  17.017    0.0846    0.24  Q         . V     .       .       .
  17.033    0.0849    0.24  Q         . V     .       .       .
  17.050    0.0853    0.23  Q         . V     .       .       .
  17.067    0.0856    0.23  Q         . V     .       .       .
  17.083    0.0859    0.23  Q         . V     .       .       .
  17.100    0.0862    0.23  Q         . V     .       .       .
  17.117    0.0865    0.22  Q         . V     .       .       .
  17.133    0.0868    0.22  Q         . V     .       .       .
  17.150    0.0871    0.22  Q         . V     .       .       .
  17.167    0.0874    0.22  Q         . V     .       .       .
  17.183    0.0877    0.21  Q         . V     .       .       .
  17.200    0.0880    0.21  Q         . V     .       .       .
  17.217    0.0883    0.21  Q         .  V    .       .       .
  17.233    0.0886    0.21  Q         .  V    .       .       .
  17.250    0.0889    0.20  Q         .  V    .       .       .
```

```
----------------------------------------------------------------------------
 TIME(HRS) VOLUME(AF)   Q(CFS) 0.      2.5      5.0      7.5      10.0
----------------------------------------------------------------------------
  17.267    0.0892    0.20  Q       . V      .        .        .
  17.283    0.0894    0.20  Q       . V      .        .        .
  17.300    0.0897    0.20  Q       . V      .        .        .
  17.317    0.0900    0.19  Q       . V      .        .        .
  17.333    0.0902    0.19  Q       . V      .        .        .
  17.350    0.0905    0.19  Q       . V      .        .        .
  17.367    0.0907    0.19  Q       . V      .        .        .
  17.383    0.0910    0.19  Q       . V      .        .        .
  17.400    0.0913    0.18  Q       . V      .        .        .
  17.417    0.0915    0.18  Q       . V      .        .        .
  17.433    0.0918    0.18  Q       . V      .        .        .
  17.450    0.0920    0.18  Q       . V      .        .        .
  17.467    0.0923    0.18  Q       . V      .        .        .
  17.483    0.0925    0.18  Q       . V      .        .        .
  17.500    0.0927    0.18  Q       . V      .        .        .
  17.517    0.0930    0.17  Q       . V      .        .        .
  17.533    0.0932    0.17  Q       . V      .        .        .
  17.550    0.0935    0.17  Q       . V      .        .        .
  17.567    0.0937    0.17  Q       . V      .        .        .
  17.583    0.0939    0.17  Q       . V      .        .        .
  17.600    0.0942    0.17  Q       . V      .        .        .
  17.617    0.0944    0.17  Q       . V      .        .        .
  17.633    0.0946    0.17  Q       . V      .        .        .
  17.650    0.0949    0.17  Q       . V      .        .        .
  17.667    0.0951    0.16  Q       .  V     .        .        .
  17.683    0.0953    0.16  Q       .  V     .        .        .
  17.700    0.0955    0.16  Q       .  V     .        .        .
  17.717    0.0957    0.16  Q       .  V     .        .        .
  17.733    0.0960    0.16  Q       .  V     .        .        .
  17.750    0.0962    0.16  Q       .  V     .        .        .
  17.767    0.0964    0.16  Q       .  V     .        .        .
  17.783    0.0966    0.16  Q       .  V     .        .        .
  17.800    0.0968    0.16  Q       .  V     .        .        .
  17.817    0.0970    0.16  Q       .  V     .        .        .
  17.833    0.0973    0.15  Q       .  V     .        .        .
  17.850    0.0975    0.15  Q       .  V     .        .        .
  17.867    0.0977    0.15  Q       .  V     .        .        .
  17.883    0.0979    0.15  Q       .  V     .        .        .
  17.900    0.0981    0.15  Q       .  V     .        .        .
  17.917    0.0983    0.15  Q       .  V     .        .        .
  17.933    0.0985    0.15  Q       .  V     .        .        .
  17.950    0.0987    0.15  Q       .  V     .        .        .
  17.967    0.0989    0.15  Q       .  V     .        .        .
  17.983    0.0991    0.15  Q       .  V     .        .        .
  18.000    0.0993    0.15  Q       .  V     .        .        .
------------------------------------------------------------------------------
   TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
   (Note: 100% of Peak Flow Rate estimate assumed to have
   an instantaneous time duration)

   Percentile of Estimated          Duration
     Peak Flow Rate                 (minutes)
   =======================          =========
          0%                         1081.0
         10%                          180.0
         20%                           95.0
         30%                           85.0
         40%                           75.0
         50%                           60.0
         60%                           50.0
         70%                           40.0
```

80%	30.0
90%	15.0

==

END OF FLOODSCx ROUTING ANALYSIS