Appendix G
Preliminary Hydrology Analysis

April 2015

PRELIMINARY HYDROLOGY ANALYSIS

Site Development Permit: SP12-07P
"SunPointe"
Vesting Tentative Tract Map No. 17433

City of Laguna Niguel, CA | County of Orange

Prepared For:

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WO#: 2950-5X PrelimHydAnal-SunPointe-TTM17433

PRELIMINARY
HYDROLOGY REPORT
FOR

"SunPointe"

Vesting Tentative Tract Map No. 17433

City of Laguna Niguel

County of Orange

SITE DEVELOPMENT PERMIT: SP12-07P

PREPARED BY:

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Prepared under the supervision of:

4/14/15

Mohammed Rowther, R.C.E. 37127, Exp. 06/30/16

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Exp. 6/30/16
CIVIL
STATE OF CALIFORNIA

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SECTION 1

1. INTRODUCTION

A. Project Location

This hydrology report has been prepared by Hunsaker and Associates Irvine, Inc. (H&A) for the proposed development of a TTM 17433, called "SunPointe". The site is located in the City of Laguna Niguel, County of Orange, just west of the intersection of the 5 and 73 freeways, *as shown in Exhibit 1- Vicinity Map.*

B. Study Purpose

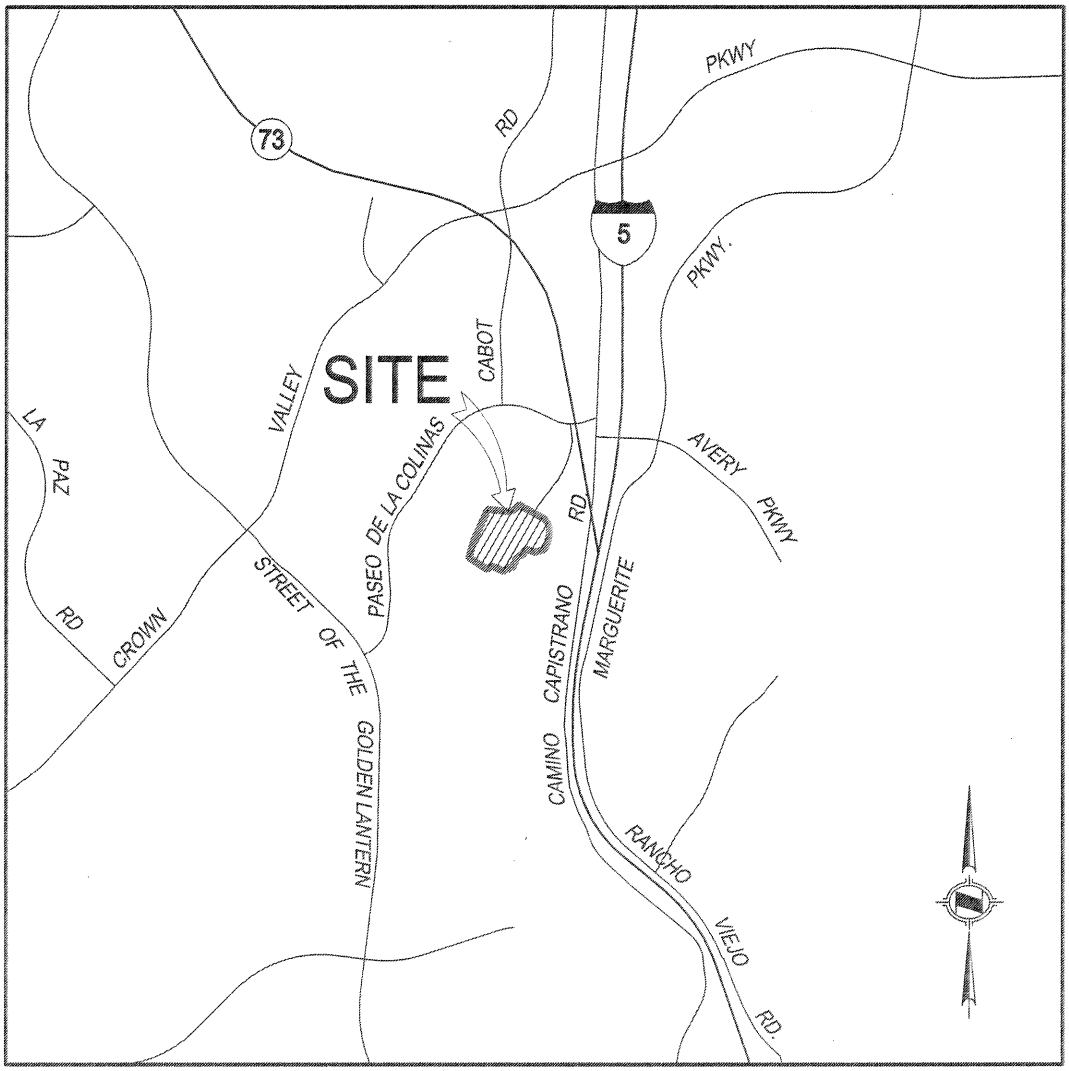
The purpose of this study is to provide an existing and developed hydrology analysis for the Project site to determine 100-year peak storm runoff discharges to be utilized as a basis of the storm drainage requirements for this project, and to determine 2-year flow discharges for Hydromodification purposes. The proposed project will include the development of 71 Single Family residential units within approximately 20 acres of land.

C. Methodology

This hydrology study was prepared in conformance with procedure and criteria outlined in the Orange County Hydrology Manual dated 1986, using Advance Engineering Software's (AES's) Version 20.0. Hydrologic soil ratings are based on a scale of A through D, where Soil Type A is the most pervious and Soil Type D is the least pervious. Based on the soils map contained in the Hydrology Manual (included herein as *Exhibit 2*, for reference), the project site is comprised of Soil Type D.

D. Existing Condition

The existing site consists of 35 rough graded single-family lots with paved streets and existing utilities constructed as part of Tract 5241. The site is located west/southwest of the intersection of Avenida Del Caballo and Charreadas. Specifically, the site is bound to the north by Mira Vista an existing residential neighborhood; to the east by existing residential/automotive dealership; to the south by Saddleback Church; and to the west by vacant land and residential homes at top of slope. For the existing drainage, the northern portion of the site and the graded lots and streets located south of Avenida Del Caballo drain southerly and northerly, respectively, to Avenida Del Caballo, and is conveyed northeasterly as gutter flow prior to discharging to an existing catch basin downstream. Runoff is



VICINITY MAP

HUNSAKER & ASSOCIATES
IRVINE, INC.
PLANNING ▪ ENGINEERING ▪ SURVEYING
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EXHIBIT 1.

SUBJECT TO FURTHER REVISION

LEGEND

City Boundaries

Hydrologic Soil Groups

- A Soils
- B Soils
- C Soils
- D Soils

Source:
Soils: Natural Resources Conservation Service (NRCS)
Soil Survey - soil_ca678, Orange County & Western Riverside
Date of publication: 2006-02-08
http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm

0 2.5 5 10 Kilometers
0 1.8 3.6 7.2 Miles

Project SITE.

P:\9526E\6-GIS\Mxds\Reports\Infiltration\Feasability_20110215\9526E_FigureXVI-2a_HydroSoils_20110215.mxd

TITLE
NRCS HYDROLOGIC SOILS GROUPS

JOB
ORANGE COUNTY INFILTRATION STUDY
ORANGE CO. CA

SCALE	1" = 1.8 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO	9526-E

PACE Advanced Water Engineering

FIGURE
XVI-2a

EXHIBIT 2.

then conveyed northeasterly in an existing 36" storm drain prior to discharging to the Oso Creek Channel (L03). (*Please see Reference section of this report for a Exhibit showing Oso Creek Channel L03 watershed*)

Runoff from the southern slopes is conveyed as sheet flow and concentrated flow downstream (southerly/southeasterly) to an existing concrete channel. Runoff is conveyed southerly and also discharges to Oso Creek Channel (L03).

The existing condition (Project area) for this site is a rough graded site with a road (Avenida Del Caballo Avenue) running down the middle of the property. Based on present topography, the site has seven drainage areas identified as Areas A, B1, C1, D1, E1, F1 and G1 in *Exhibit 3 – Existing Condition Drainage Area Map.* Some of these areas are made up of off-site areas that drain to and way from the Project site.

Area A is the largest drainage area with approximately 20.7 acres of offsite and onsite terrain. Runoff from this area is approximately 76.2 cfs (identified as Node 7 in Exhibit 3), which goes into an existing developed area.

On the south border of the property there are several smaller drainage areas, identified as B1, C1, D1, E1, F1 and G1. Most of these areas end up at the same discharge point which goes into a grass swale then into a main channel, while areas to the North of area "A" including area G1 that sheet flows to the existing trail, hence not impacted.

E. Proposed On-Site Drainage Facilities

In the proposed condition, runoff from residential units will be conveyed as sheet flow, gutter flow and area drain flow to the project's proposed main storm drain line in Avenida Del Caballo. Runoff is then conveyed along Avenida Del Caballo downstream and discharged as in pre-project conditions (to 36" storm drain line and Oso Creek). Runoff from the project streets and parking areas will be conveyed as gutter flow to project catch basins prior to discharging to the project's main storm drain system located in drainage area "A".

To satisfy the project's requirement for Low Impact Development (LID) BMP's, to address hydromodification impacts and storm water pollutants of concern, the project proposes the use of bioretention and /or biofiltration facilities at different locations around the site (See section 5 of reference section for Onsite Bio-

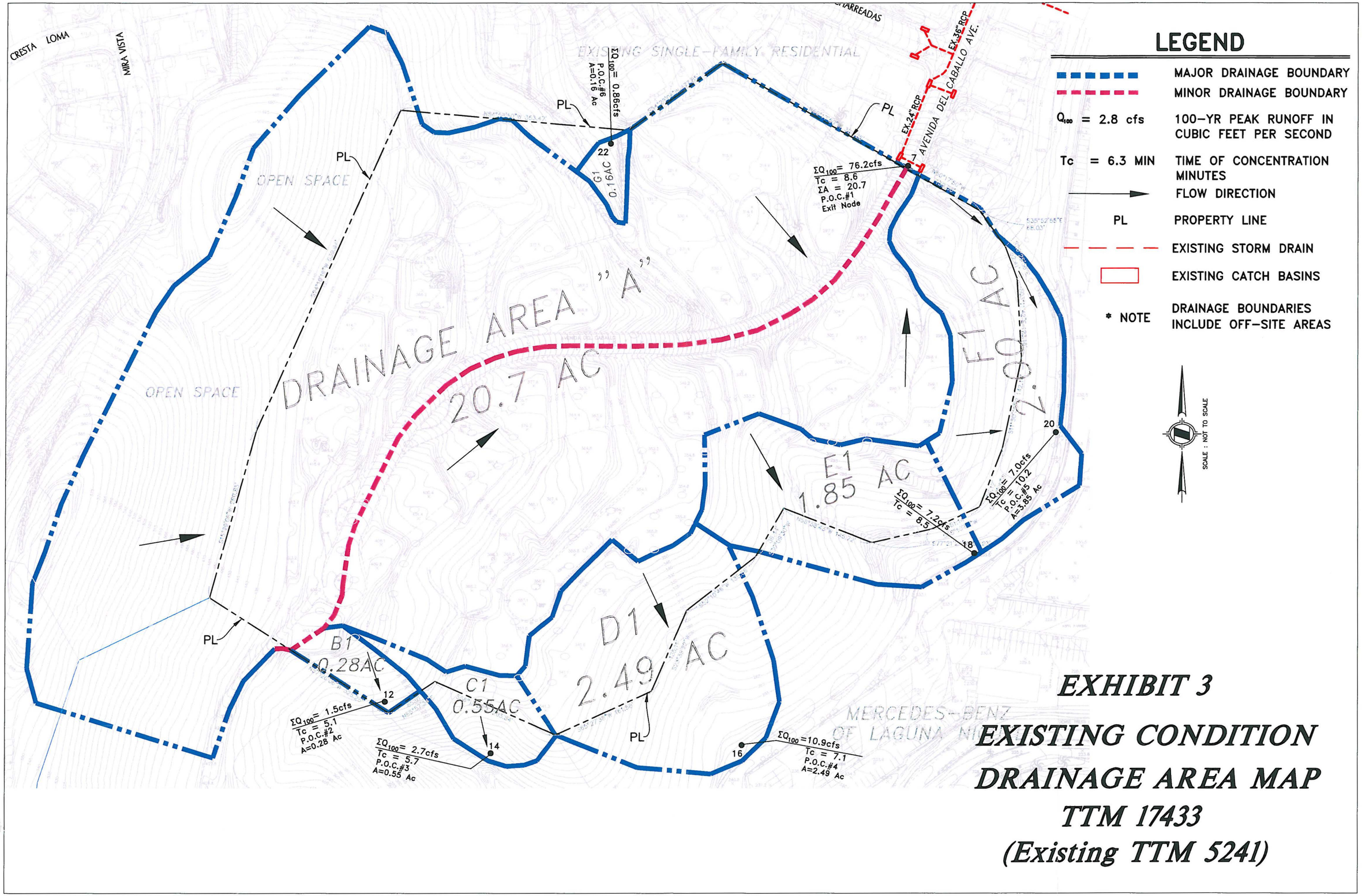

EXHIBIT 3
EXISTING CONDITION DRAINAGE AREA MAP
TTM 17433
(Existing TTM 5241)

WO: 2950-5X TTM 17433

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retention locations on Conceptual WQMP Site Plan Exhibit) and a subsurface storm water detention vault with proprietary biofiltration for the remaining portions of the site in *Exhibit 4 – Proposed Condition Drainage Area Map/ Facilities Map.* Runoff from the project's main storm drain line will be conveyed to the proposed vault.

For the proposed condition, flows from watershed area "A" of approximately 22.7 acres are picked up via storm drain system. The proposed 100-year (Q_{100}) discharge rate for the onsite and offsite (area "A") is 83.9 cfs, i.e. approximately 7.7 cfs more than the flow under existing conditions of 76.2 cfs.

Based on our unit hydrograph flow through analysis, the proposed detention/retention vault has been sized to detain runoff required to mitigate both hydromodification and Q (100) incremental flows, and to retain water quality flows *(Refer to Section 4 Unit Hydrograph Calculations, page 32).*

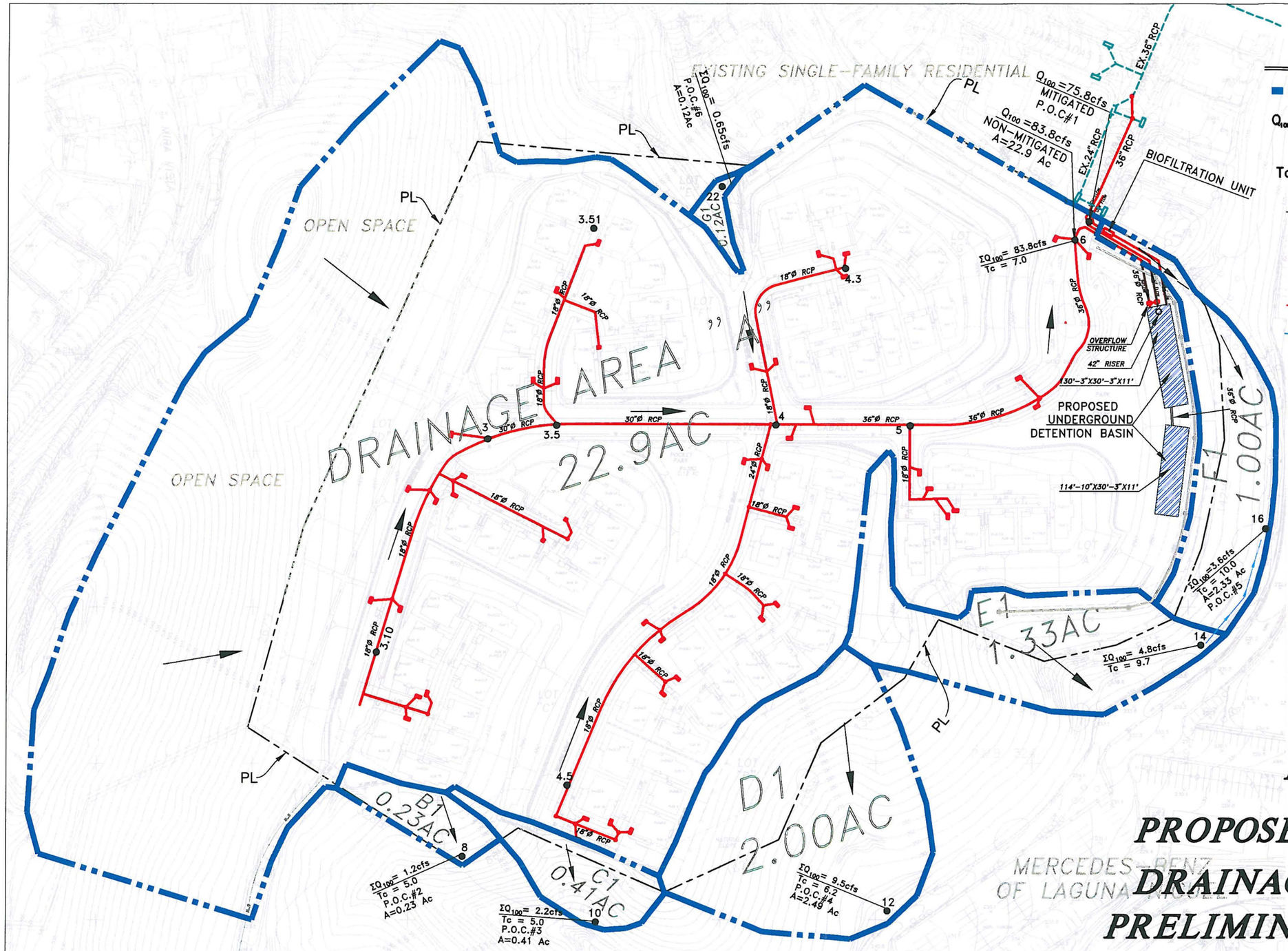
As shown in Exhibit 5, the proposed detention vault has been sized to retain 32,652 cubic feet (0.75 ac-ft) of water quality flows that will drain via 4-inch outlet pipe to the biofiltration unit at a rate of 0.19 cfs, for full drawdown in 48 hours. The bottom 4.87 high portion of the vault will retain flows for water quality treatment.

Above the water quality retention, the vault has been sized to include detention for hydromodification (0.52 acre-feet) in 3 feet of vault height. Outflows for mitigating hydromodification impacts are controlled by a 5-inch orifice and a 1.44'x1.93' notch, in a 42-inch riser.

During storm events greater than 10-year frequency the runoff will be drained in the portion of vault above the riser. Flows discharged from the vault during larger storms are controlled by the 42-inch orifice on top of the riser, in addition to the 5-inch orifice and 1.44'x1.93' notch. The detention volume needed to limit outflows to pre-project values during 2, 5, 10 and 100-year frequency storms is 0.68 acre feet, which is stored in the 4.47 feet of the vault above the on detention volume.

Also attached is Exhibit 6- plot of hydrograph showing peak inflows, outflows and storage volume.

Based on grading plans, Verdura walls, and terracing for building pad areas, the drainage pattern from existing conditions shifted to the proposed drainage



LEGEND

▬▬▬	MAJOR DRAINAGE BOUNDARY
Q_{100} = 2.8 cfs	100-YR PEAK RUNOFF IN CUBIC FEET PER SECOND
Tc = 6.3 MIN	TIME OF CONCENTRATION MINUTES
→	FLOW DIRECTION
PL	PROPERTY LINE
▬	PROPOSED CATCH BASINS
———	PROPOSED STORM DRAIN
- - - -	EXISTING STORM DRAIN
▭	EXISTING CATCH BASINS
▭	BIOFILTRATION UNIT
* NOTE	DRAINAGE BOUNDARIES INCLUDE OFF-SITE AREAS
Ø	*PIPE DIAMETER*
RCP	REINFORCED CONCRETE PIPE

SCALE : NOT TO SCALE

EXHIBIT 4

PROPOSED CONDITION DRAINAGE AREA MAP & PRELIMINARY DRAINAGE FACILITIES

TTM 17433

WO: 2950-5X TTM 17433

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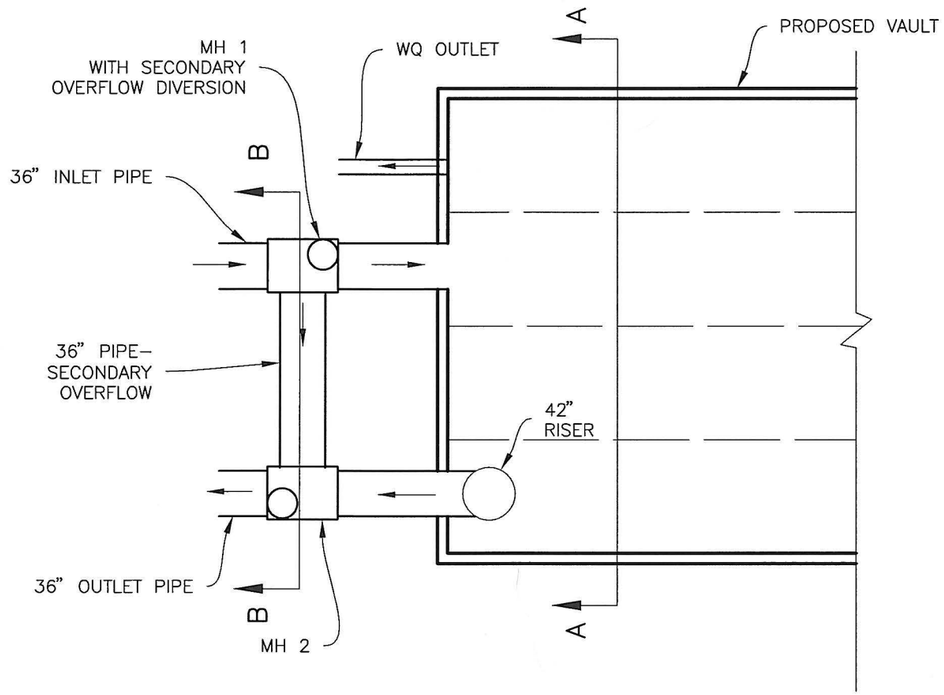
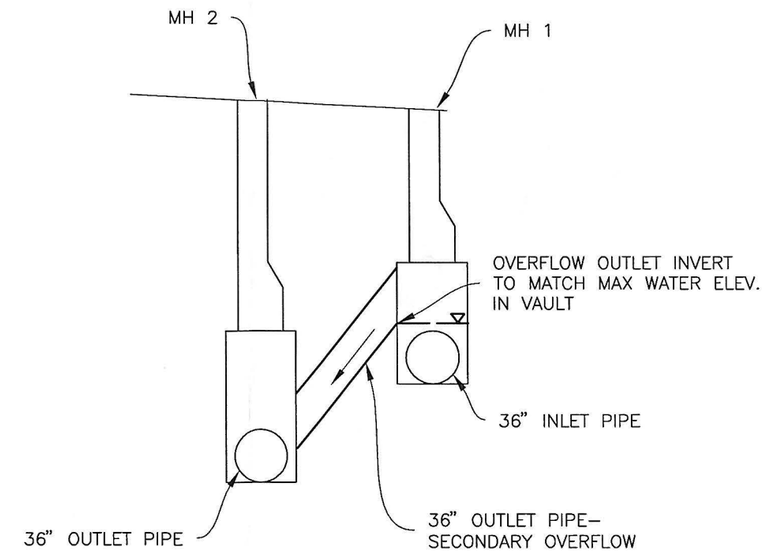


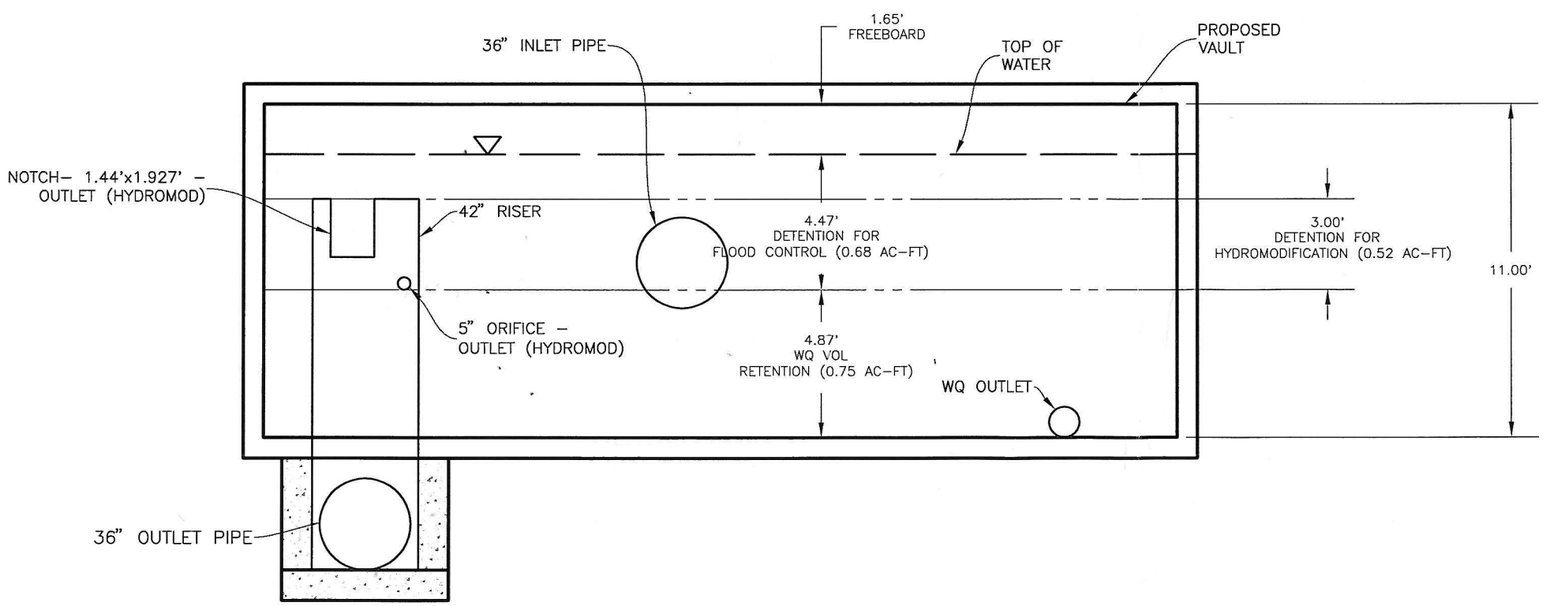
PLAN VIEW

SCALE 1:10



SECTION B–B

SCALE 1:10

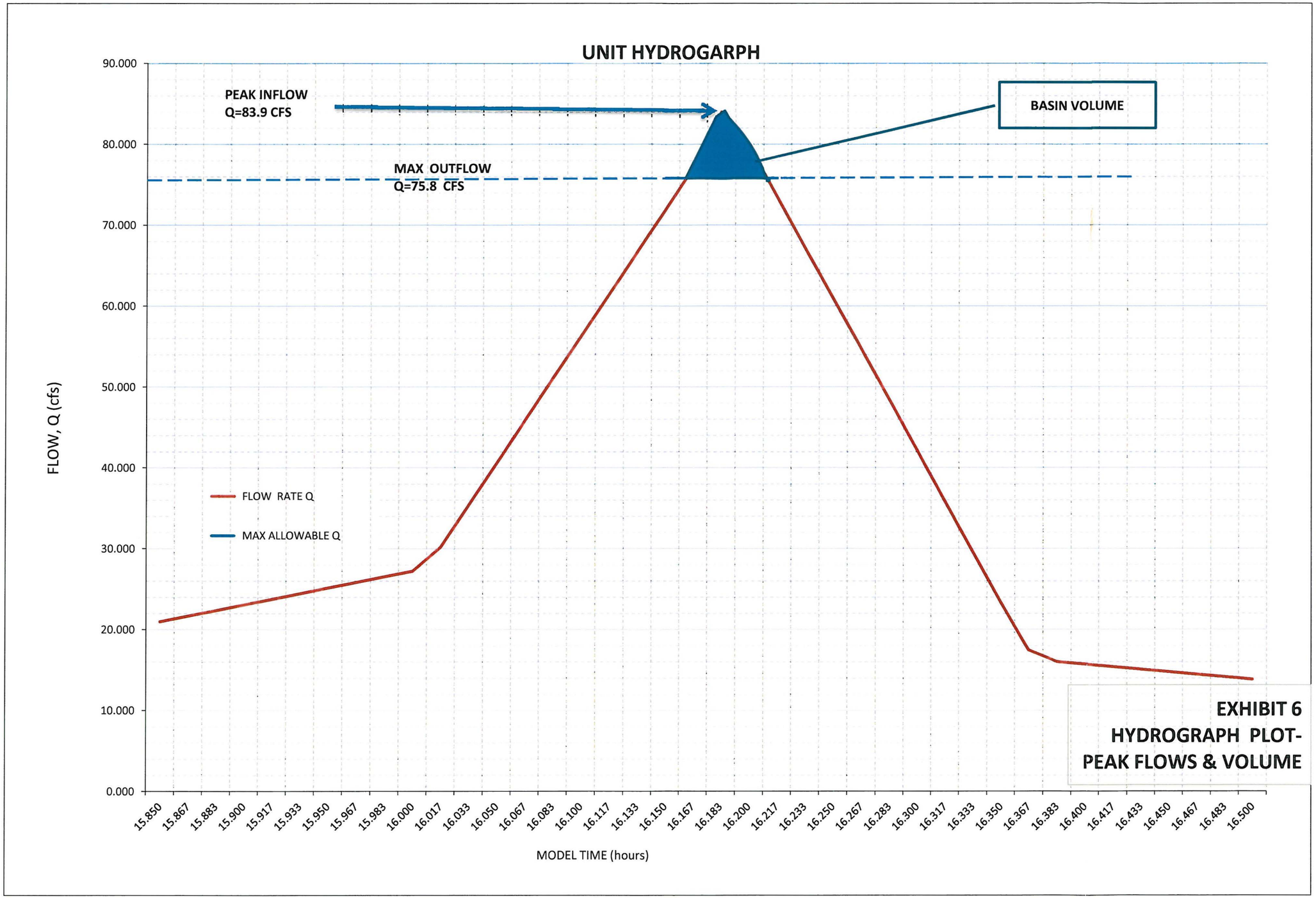


SECTION A–A

SCALE 1:5

EXHIBIT 5

VAULT OUTLET
CONFIGURATION



HYDROGRAPH PLOT SHOWING INFLOW AND BASIN VOLUME

boundary area adjustments. Exhibit 4 illustrates an increased area "A" that incorporated a greater area of existing drainage from area B1 to G1.

Flows, from areas B1, C1, D1, E1, F1 and G1 are reduced due to diversion of some area to the main drainage area "A" as illustrated in Table 1 Change in Drainage Area Acreage, hence the remaining areas will remain unchanged and left to flow to its existing natural flow.

Existing infrastructure located downstream of the northern property line can support 71 single family residential dwellings, as proposed for SunPointe.

Table 1. Changes in Drainage Area Acreage

Drainage ID	Existing Condition		Proposed Condition		Δ AREA	Findings
	Area (Ac)	Q_{100} (cfs)	Area (Ac)	Q_{100} (cfs)		
A	20.70	76.2	22.94	83.8	2.24	Area increase due to Development, Q_{100} increase
B1	0.28	1.50	0.23	1.20	- 0.05	Size will decrease, Q_{100} decreases
C1	0.55	2.70	0.41	2.20	- 0.14	Size will Decrease Q_{100} decreases
D1	2.49	10.9	2.00	9.48	- 0.49	Size will decrease, Q_{100} decreases
E1	1.85	7.20	1.33	4.82	- 0.52	Size will decrease, Q_{100} decreases
F1	2.00	7.00	1.00	3.57	- 1.00	Size will decrease, Q_{100} decreases
G1	0.16	0.86	0.12	0.65	- 0.04	Size will Decrease Q_{100} decreases
TOTAL AREA	**28.00**		**28.00**		**0.00**	

F. Conclusion

Mitigation for this project is resolved by the underground structure. This structure mitigates for detention (0.68 ac-ft), Hydromodification (0.52 ac-ft) and water quality (0.75 ac-ft). The proposed structure size is anticipated to provide approximately 1.69 ac-ft of volume space. With the structure in place, there will be no hydrological impact because pre and post discharge rates during major and minor storm events (2, 5, 10 and 100-year return frequency storms) will be maintained. There are offsite flows that are reduced have minimal impact and calculations show that the discharges were reduced due to the diversion of drainage area "A".

SECTION 2

2. EXISTING CONDITION HYDROLOGY

```
****************************************************************************
              RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
             (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
          (c) Copyright 1983-2013 Advanced Engineering Software (aes)
              Ver. 20.0  Release Date: 06/01/2013  License ID 1239

                          Analysis prepared by:

                          HUNSAKER & ASSOCIATES
                                Irvine,Inc
                     Planning * Engineering * Surveying
           Three Hughes * Irvine, California 92618 * (949)583-1010

----------------------------------------------------------------------------
 EXISTING HYDROLOGY STUDY, 100-YEAR STORM
 CITY OF LAGUNA NIGUEL, COUNTY OF ORANGE
 "SunPointe DEVELOPMENT
----------------------------------------------------------------------------
   FILE NAME: MERCEDEX.DAT
   TIME/DATE OF STUDY: 08:29 01/26/2015
 ============================================================================
   USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
 ============================================================================
                      --*TIME-OF-CONCENTRATION MODEL*--

   USER SPECIFIED STORM EVENT(YEAR) =  100.00
   SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
   SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
   *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    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

   GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
     1. Relative Flow-Depth =  0.50 FEET
        as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
     2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
   *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
    OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
   *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

 ****************************************************************************
   FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
 ----------------------------------------------------------------------------
   >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
   >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
 ============================================================================
   INITIAL SUBAREA FLOW-LENGTH(FEET) =   440.00
   ELEVATION DATA: UPSTREAM(FEET) =    550.00  DOWNSTREAM(FEET) =    415.00
   Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
   SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.589
   * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.872
   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
   "CHAPARRAL,BROADLEAF"      D        2.39      0.20     1.000    97    7.59
   SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
   SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
   SUBAREA RUNOFF(CFS) =     10.05
   TOTAL AREA(ACRES) =      2.39   PEAK FLOW RATE(CFS) =     10.05

 ****************************************************************************
   FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  62
 ----------------------------------------------------------------------------
   >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
   >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
 ============================================================================
   UPSTREAM ELEVATION(FEET) =  415.00  DOWNSTREAM ELEVATION(FEET) =  405.00
   STREET LENGTH(FEET) =   200.00   CURB HEIGHT(INCHES) =  8.0
   STREET HALFWIDTH(FEET) = 30.00

   DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
   INSIDE STREET CROSSFALL(DECIMAL) =  0.018
   OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

   SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
   STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
   Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
   Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

     **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      10.05
     STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
     STREET FLOW DEPTH(FEET) =  0.40
     HALFSTREET FLOOD WIDTH(FEET) =   13.32
     AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.65
     PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.26
   STREET FLOW TRAVEL TIME(MIN.) =   0.59   Tc(MIN.) =    8.18
   * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.667
   SUBAREA AREA(ACRES) =    0.00      SUBAREA RUNOFF(CFS) =    0.00
   EFFECTIVE AREA(ACRES) =      2.39    AREA-AVERAGED Fm(INCH/HR) =  0.20
   AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  1.00
   TOTAL AREA(ACRES) =        2.4        PEAK FLOW RATE(CFS) =      10.05
   NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

   END OF SUBAREA STREET FLOW HYDRAULICS:
   DEPTH(FEET) = 0.40   HALFSTREET FLOOD WIDTH(FEET) =  13.32
   FLOW VELOCITY(FEET/SEC.) =  5.65   DEPTH*VELOCITY(FT*FT/SEC.) =   2.26
   LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =     640.00 FEET.

 ****************************************************************************
   FLOW PROCESS FROM NODE      3.00 TO NODE      3.00 IS CODE =   1
 ----------------------------------------------------------------------------
   >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
 ============================================================================
```

```
TOTAL NUMBER OF STREAMS =  2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
TIME OF CONCENTRATION(MIN.) =    8.18
RAINFALL INTENSITY(INCH/HR) =   4.67
AREA-AVERAGED Fm(INCH/HR) =  0.20
AREA-AVERAGED Fp(INCH/HR) =  0.20
AREA-AVERAGED Ap =  1.00
EFFECTIVE STREAM AREA(ACRES) =       2.39
TOTAL STREAM AREA(ACRES) =       2.39
PEAK FLOW RATE(CFS) AT CONFLUENCE =      10.05

****************************************************************************
FLOW PROCESS FROM NODE      3.10 TO NODE      3.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =   400.00
ELEVATION DATA: UPSTREAM(FEET) =    575.00  DOWNSTREAM(FEET) =    405.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.844
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.169
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
"CHAPARRAL,BROADLEAF"       D        3.40      0.20     1.000    97    6.84
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA RUNOFF(CFS) =     15.20
TOTAL AREA(ACRES) =      3.40   PEAK FLOW RATE(CFS) =     15.20

****************************************************************************
FLOW PROCESS FROM NODE      3.00 TO NODE      3.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
>>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
TOTAL NUMBER OF STREAMS =  2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
TIME OF CONCENTRATION(MIN.) =    6.84
RAINFALL INTENSITY(INCH/HR) =   5.17
AREA-AVERAGED Fm(INCH/HR) =  0.20
AREA-AVERAGED Fp(INCH/HR) =  0.20
AREA-AVERAGED Ap =  1.00
EFFECTIVE STREAM AREA(ACRES) =       3.40
TOTAL STREAM AREA(ACRES) =       3.40
PEAK FLOW RATE(CFS) AT CONFLUENCE =      15.20

** CONFLUENCE DATA **
 STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae     HEADWATER
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
    1       10.05    8.18    4.667  0.20( 0.20) 1.00       2.4       1.00
    2       15.20    6.84    5.169  0.20( 0.20) 1.00       3.4       3.10
```

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

** PEAK FLOW RATE TABLE **
 STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae     HEADWATER
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
    1       24.56    6.84    5.169  0.20( 0.20) 1.00       5.4       3.10
    2       23.72    8.18    4.667  0.20( 0.20) 1.00       5.8       1.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) =      24.56    Tc(MIN.) =     6.84
EFFECTIVE AREA(ACRES) =       5.40   AREA-AVERAGED Fm(INCH/HR) =  0.20
AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =        5.8
LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =     640.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE      3.00 TO NODE      4.00 IS CODE =  62
----------------------------------------------------------------------------
>>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
UPSTREAM ELEVATION(FEET) =  405.00  DOWNSTREAM ELEVATION(FEET) =  375.00
STREET LENGTH(FEET) =   290.00   CURB HEIGHT(INCHES) =  8.0
STREET HALFWIDTH(FEET) = 30.00

DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
INSIDE STREET CROSSFALL(DECIMAL) =  0.018
OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

  **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      24.56
  STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
  STREET FLOW DEPTH(FEET) =  0.46
  HALFSTREET FLOOD WIDTH(FEET) =   16.60
  AVERAGE FLOW VELOCITY(FEET/SEC.) =    9.25
  PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    4.25
STREET FLOW TRAVEL TIME(MIN.) =   0.52   Tc(MIN.) =    7.37
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.955
SUBAREA AREA(ACRES) =    0.00      SUBAREA RUNOFF(CFS) =    0.00
EFFECTIVE AREA(ACRES) =      5.40    AREA-AVERAGED Fm(INCH/HR) =  0.20
AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =        5.8        PEAK FLOW RATE(CFS) =      24.56
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

END OF SUBAREA STREET FLOW HYDRAULICS:
DEPTH(FEET) = 0.46   HALFSTREET FLOOD WIDTH(FEET) =  16.60
FLOW VELOCITY(FEET/SEC.) =  9.25   DEPTH*VELOCITY(FT*FT/SEC.) =   4.25
LONGEST FLOWPATH FROM NODE      1.00 TO NODE      4.00 =     930.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =   1
```

```
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.37
  RAINFALL INTENSITY(INCH/HR) =   4.96
  AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.20
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =       5.40
  TOTAL STREAM AREA(ACRES) =       5.79
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      24.56

****************************************************************************
  FLOW PROCESS FROM NODE      4.10 TO NODE      4.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   430.00
  ELEVATION DATA: UPSTREAM(FEET) =    505.00  DOWNSTREAM(FEET) =    375.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.541
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.889
  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
  "CHAPARRAL,BROADLEAF"       D        4.00      0.20     1.000    97    7.54
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     16.88
  TOTAL AREA(ACRES) =      4.00   PEAK FLOW RATE(CFS) =     16.88

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.54
  RAINFALL INTENSITY(INCH/HR) =   4.89
  AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.20
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =       4.00
  TOTAL STREAM AREA(ACRES) =       4.00
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      16.88

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
      1       24.56    7.37    4.955  0.20( 0.20) 1.00       5.4       3.10
      1       23.72    8.71    4.503  0.20( 0.20) 1.00       5.8       1.00
      2       16.88    7.54    4.889  0.20( 0.20) 1.00       4.0       4.10

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

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
      1       41.28    7.37    4.955  0.20( 0.20) 1.00       9.3       3.10
      2       41.33    7.54    4.889  0.20( 0.20) 1.00       9.5       4.10
      3       39.21    8.71    4.503  0.20( 0.20) 1.00       9.8       1.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      41.33    Tc(MIN.) =     7.54
  EFFECTIVE AREA(ACRES) =       9.45   AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =        9.8
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      4.00 =     930.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      5.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  375.00  DOWNSTREAM ELEVATION(FEET) =  335.00
  STREET LENGTH(FEET) =   360.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      41.33
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.52
    HALFSTREET FLOOD WIDTH(FEET) =   20.27
    AVERAGE FLOW VELOCITY(FEET/SEC.) =   10.70
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    5.61
  STREET FLOW TRAVEL TIME(MIN.) =   0.56   Tc(MIN.) =    8.10
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.692
  SUBAREA AREA(ACRES) =    0.00      SUBAREA RUNOFF(CFS) =    0.00
  EFFECTIVE AREA(ACRES) =      9.45    AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =        9.8        PEAK FLOW RATE(CFS) =      41.33
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.52   HALFSTREET FLOOD WIDTH(FEET) =  20.27
```

```
  FLOW VELOCITY(FEET/SEC.) = 10.70   DEPTH*VELOCITY(FT*FT/SEC.) =   5.61
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      5.00 =    1290.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      5.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    8.10
  RAINFALL INTENSITY(INCH/HR) =   4.69
  AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.20
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =       9.45
  TOTAL STREAM AREA(ACRES) =       9.79
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      41.33

****************************************************************************
  FLOW PROCESS FROM NODE      5.10 TO NODE      5.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   460.00
  ELEVATION DATA: UPSTREAM(FEET) =    390.00  DOWNSTREAM(FEET) =    335.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.327
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.329
  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
  "CHAPARRAL,BROADLEAF"       D        1.00      0.20      1.000    97    9.33
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =       3.72
  TOTAL AREA(ACRES) =       1.00   PEAK FLOW RATE(CFS) =       3.72

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      5.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.33
  RAINFALL INTENSITY(INCH/HR) =   4.33
  AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.20
  AREA-AVERAGED Ap =  1.00
  EFFECTIVE STREAM AREA(ACRES) =       1.00
  TOTAL STREAM AREA(ACRES) =       1.00
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       3.72

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
      1       41.28    7.92    4.752  0.20( 0.20) 1.00       9.3       3.10
      1       41.33    8.10    4.692  0.20( 0.20) 1.00       9.5       4.10
      1       39.21    9.27    4.344  0.20( 0.20) 1.00       9.8       1.00
      2        3.72    9.33    4.329  0.20( 0.20) 1.00       1.0       5.10

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

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
      1       44.76    7.92    4.752  0.20( 0.20) 1.00      10.2       3.10
      2       44.84    8.10    4.692  0.20( 0.20) 1.00      10.3       4.10
      3       42.92    9.27    4.344  0.20( 0.20) 1.00      10.8       1.00
      4       42.78    9.33    4.329  0.20( 0.20) 1.00      10.8       5.10

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      44.84    Tc(MIN.) =     8.10
  EFFECTIVE AREA(ACRES) =      10.32   AREA-AVERAGED Fm(INCH/HR) =  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       10.8
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      5.00 =    1290.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      6.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  335.00  DOWNSTREAM ELEVATION(FEET) =  305.00
  STREET LENGTH(FEET) =   200.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      44.84
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.51
    HALFSTREET FLOOD WIDTH(FEET) =   19.73
    AVERAGE FLOW VELOCITY(FEET/SEC.) =   12.22
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    6.29
  STREET FLOW TRAVEL TIME(MIN.) =   0.27   Tc(MIN.) =    8.38
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.604
  SUBAREA AREA(ACRES) =    0.00      SUBAREA RUNOFF(CFS) =    0.00
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EFFECTIVE AREA(ACRES) =      10.32    AREA-AVERAGED Fm(INCH/HR) =  0.20
AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =       10.8        PEAK FLOW RATE(CFS) =      44.84
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

END OF SUBAREA STREET FLOW HYDRAULICS:
DEPTH(FEET) = 0.51   HALFSTREET FLOOD WIDTH(FEET) =  19.73
FLOW VELOCITY(FEET/SEC.) = 12.22   DEPTH*VELOCITY(FT*FT/SEC.) =   6.29
LONGEST FLOWPATH FROM NODE      1.00 TO NODE      6.00 =    1490.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE      6.00 TO NODE      6.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
TOTAL NUMBER OF STREAMS =  2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
TIME OF CONCENTRATION(MIN.) =    8.38
RAINFALL INTENSITY(INCH/HR) =   4.60
AREA-AVERAGED Fm(INCH/HR) =  0.20
AREA-AVERAGED Fp(INCH/HR) =  0.20
AREA-AVERAGED Ap =  1.00
EFFECTIVE STREAM AREA(ACRES) =      10.32
TOTAL STREAM AREA(ACRES) =      10.79
PEAK FLOW RATE(CFS) AT CONFLUENCE =      44.84

****************************************************************************
FLOW PROCESS FROM NODE      6.10 TO NODE      6.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =   600.00
ELEVATION DATA: UPSTREAM(FEET) =    390.00  DOWNSTREAM(FEET) =    305.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.027
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.153
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
"CHAPARRAL,BROADLEAF"       D       2.40      0.20     1.000    97   10.03
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA RUNOFF(CFS) =      8.54
TOTAL AREA(ACRES) =      2.40   PEAK FLOW RATE(CFS) =      8.54

****************************************************************************
FLOW PROCESS FROM NODE      6.00 TO NODE      6.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
>>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
TOTAL NUMBER OF STREAMS =  2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
TIME OF CONCENTRATION(MIN.) =   10.03
RAINFALL INTENSITY(INCH/HR) =   4.15
AREA-AVERAGED Fm(INCH/HR) =  0.20
AREA-AVERAGED Fp(INCH/HR) =  0.20
AREA-AVERAGED Ap =  1.00
EFFECTIVE STREAM AREA(ACRES) =       2.40
TOTAL STREAM AREA(ACRES) =       2.40
PEAK FLOW RATE(CFS) AT CONFLUENCE =       8.54

** CONFLUENCE DATA **
 STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae     HEADWATER
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
    1       44.76    8.20    4.662  0.20( 0.20) 1.00      10.2       3.10
    1       44.84    8.38    4.604  0.20( 0.20) 1.00      10.3       4.10
    1       42.92    9.55    4.272  0.20( 0.20) 1.00      10.8       1.00
    1       42.78    9.60    4.257  0.20( 0.20) 1.00      10.8       5.10
    2        8.54   10.03    4.153  0.20( 0.20) 1.00       2.4       6.10

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

** PEAK FLOW RATE TABLE **
 STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae     HEADWATER
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
    1       52.64    8.20    4.662  0.20( 0.20) 1.00      12.1       3.10
    2       52.79    8.38    4.604  0.20( 0.20) 1.00      12.3       4.10
    3       51.29    9.55    4.272  0.20( 0.20) 1.00      13.1       1.00
    4       51.18    9.60    4.257  0.20( 0.20) 1.00      13.1       5.10
    5       50.22   10.03    4.153  0.20( 0.20) 1.00      13.2       6.10

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) =      52.79    Tc(MIN.) =     8.38
EFFECTIVE AREA(ACRES) =      12.32   AREA-AVERAGED Fm(INCH/HR) =  0.20
AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =      13.2
LONGEST FLOWPATH FROM NODE      1.00 TO NODE      6.00 =    1490.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE      6.00 TO NODE      7.00 IS CODE =  62
----------------------------------------------------------------------------
>>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
UPSTREAM ELEVATION(FEET) =  305.00  DOWNSTREAM ELEVATION(FEET) =  275.00
STREET LENGTH(FEET) =   160.00   CURB HEIGHT(INCHES) =  8.0
STREET HALFWIDTH(FEET) = 30.00

DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
INSIDE STREET CROSSFALL(DECIMAL) =  0.018
OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200
```

```
  **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      52.79
  STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
  STREET FLOW DEPTH(FEET) =  0.52
  HALFSTREET FLOOD WIDTH(FEET) =   20.12
  AVERAGE FLOW VELOCITY(FEET/SEC.) =   13.86
  PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    7.23
STREET FLOW TRAVEL TIME(MIN.) =   0.19   Tc(MIN.) =    8.57
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.544
SUBAREA AREA(ACRES) =    0.00      SUBAREA RUNOFF(CFS) =    0.00
EFFECTIVE AREA(ACRES) =     12.32    AREA-AVERAGED Fm(INCH/HR) =  0.20
AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =       13.2        PEAK FLOW RATE(CFS) =      52.79
NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

END OF SUBAREA STREET FLOW HYDRAULICS:
DEPTH(FEET) = 0.52   HALFSTREET FLOOD WIDTH(FEET) =  20.12
FLOW VELOCITY(FEET/SEC.) = 13.86   DEPTH*VELOCITY(FT*FT/SEC.) =   7.23
LONGEST FLOWPATH FROM NODE      1.00 TO NODE      7.00 =    1650.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE      7.00 TO NODE      7.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
TOTAL NUMBER OF STREAMS =  3
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
TIME OF CONCENTRATION(MIN.) =    8.57
RAINFALL INTENSITY(INCH/HR) =   4.54
AREA-AVERAGED Fm(INCH/HR) =  0.20
AREA-AVERAGED Fp(INCH/HR) =  0.20
AREA-AVERAGED Ap =  1.00
EFFECTIVE STREAM AREA(ACRES) =      12.32
TOTAL STREAM AREA(ACRES) =      13.19
PEAK FLOW RATE(CFS) AT CONFLUENCE =      52.79

****************************************************************************
FLOW PROCESS FROM NODE      7.10 TO NODE      7.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =   360.00
ELEVATION DATA: UPSTREAM(FEET) =    320.00  DOWNSTREAM(FEET) =    275.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.381
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.602
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
"CHAPARRAL,BROADLEAF"      D        1.00      0.20     1.000    97    8.38
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA RUNOFF(CFS) =      3.96
TOTAL AREA(ACRES) =      1.00   PEAK FLOW RATE(CFS) =      3.96

****************************************************************************
FLOW PROCESS FROM NODE      7.00 TO NODE      7.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
TOTAL NUMBER OF STREAMS =  3
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
TIME OF CONCENTRATION(MIN.) =    8.38
RAINFALL INTENSITY(INCH/HR) =   4.60
AREA-AVERAGED Fm(INCH/HR) =  0.20
AREA-AVERAGED Fp(INCH/HR) =  0.20
AREA-AVERAGED Ap =  1.00
EFFECTIVE STREAM AREA(ACRES) =       1.00
TOTAL STREAM AREA(ACRES) =       1.00
PEAK FLOW RATE(CFS) AT CONFLUENCE =       3.96

****************************************************************************
FLOW PROCESS FROM NODE      8.00 TO NODE      9.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =   560.00
ELEVATION DATA: UPSTREAM(FEET) =    410.00  DOWNSTREAM(FEET) =    350.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.314
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.086
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
"CHAPARRAL,BROADLEAF"      D        4.31      0.20     1.000    97   10.31
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA RUNOFF(CFS) =     15.07
TOTAL AREA(ACRES) =      4.31   PEAK FLOW RATE(CFS) =     15.07

****************************************************************************
FLOW PROCESS FROM NODE      9.00 TO NODE     10.00 IS CODE =  62
----------------------------------------------------------------------------
>>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
UPSTREAM ELEVATION(FEET) =  350.00  DOWNSTREAM ELEVATION(FEET) =  275.00
STREET LENGTH(FEET) =   480.00   CURB HEIGHT(INCHES) =  8.0
STREET HALFWIDTH(FEET) = 30.00

DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
INSIDE STREET CROSSFALL(DECIMAL) =  0.018
OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
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Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

  **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      18.67
  STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
  STREET FLOW DEPTH(FEET) =  0.41
  HALFSTREET FLOOD WIDTH(FEET) =   13.63
  AVERAGE FLOW VELOCITY(FEET/SEC.) =   10.07
  PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    4.09
STREET FLOW TRAVEL TIME(MIN.) =   0.79   Tc(MIN.) =   11.11
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.916
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
"CHAPARRAL,BROADLEAF"       D        2.15      0.20     1.000    97
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA AREA(ACRES) =    2.15      SUBAREA RUNOFF(CFS) =    7.19
EFFECTIVE AREA(ACRES) =      6.46    AREA-AVERAGED Fm(INCH/HR) =  0.20
AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =         6.5        PEAK FLOW RATE(CFS) =      21.61

END OF SUBAREA STREET FLOW HYDRAULICS:
DEPTH(FEET) = 0.42   HALFSTREET FLOOD WIDTH(FEET) =  14.49
FLOW VELOCITY(FEET/SEC.) = 10.44   DEPTH*VELOCITY(FT*FT/SEC.) =   4.40
LONGEST FLOWPATH FROM NODE      8.00 TO NODE     10.00 =    1040.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE      7.00 TO NODE      7.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
>>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
TOTAL NUMBER OF STREAMS =  3
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
TIME OF CONCENTRATION(MIN.) =   11.11
RAINFALL INTENSITY(INCH/HR) =   3.92
AREA-AVERAGED Fm(INCH/HR) =  0.20
AREA-AVERAGED Fp(INCH/HR) =  0.20
AREA-AVERAGED Ap =  1.00
EFFECTIVE STREAM AREA(ACRES) =       6.46
TOTAL STREAM AREA(ACRES) =       6.46
PEAK FLOW RATE(CFS) AT CONFLUENCE =      21.61

** CONFLUENCE DATA **
 STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae     HEADWATER
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
    1       52.64    8.39    4.600  0.20( 0.20) 1.00      12.1       3.10
    1       52.79    8.57    4.544  0.20( 0.20) 1.00      12.3       4.10
    1       51.29    9.74    4.223  0.20( 0.20) 1.00      13.1       1.00
    1       51.18    9.80    4.209  0.20( 0.20) 1.00      13.1       5.10
    1       50.22   10.22    4.107  0.20( 0.20) 1.00      13.2       6.10
    2        3.96    8.38    4.602  0.20( 0.20) 1.00       1.0       7.10
    3       21.61   11.11    3.916  0.20( 0.20) 1.00       6.5       8.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
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CONFLUENCE FORMULA USED FOR  3 STREAMS.

** PEAK FLOW RATE TABLE **
 STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae     HEADWATER
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
    1       75.89    8.38    4.602  0.20( 0.20) 1.00      18.0       7.10
    2       75.91    8.39    4.600  0.20( 0.20) 1.00      18.0       3.10
    3       76.18    8.57    4.544  0.20( 0.20) 1.00      18.3       4.10
    4       75.41    9.74    4.223  0.20( 0.20) 1.00      19.7       1.00
    5       75.34    9.80    4.209  0.20( 0.20) 1.00      19.8       5.10
    6       74.64   10.22    4.107  0.20( 0.20) 1.00      20.1       6.10
    7       72.71   11.11    3.916  0.20( 0.20) 1.00      20.7       8.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) =      76.18    Tc(MIN.) =     8.57
EFFECTIVE AREA(ACRES) =      18.31   AREA-AVERAGED Fm(INCH/HR) =  0.20
AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =       20.7
LONGEST FLOWPATH FROM NODE      1.00 TO NODE      7.00 =    1650.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =   150.00
ELEVATION DATA: UPSTREAM(FEET) =    415.00  DOWNSTREAM(FEET) =    375.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.075
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  6.135
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
"CHAPARRAL,BROADLEAF"       D        0.28      0.20     1.000    97    5.07
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA RUNOFF(CFS) =       1.50
TOTAL AREA(ACRES) =       0.28   PEAK FLOW RATE(CFS) =       1.50

****************************************************************************
FLOW PROCESS FROM NODE     13.00 TO NODE     14.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =   250.00
ELEVATION DATA: UPSTREAM(FEET) =    400.00  DOWNSTREAM(FEET) =    300.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.740
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.717
SUBAREA Tc AND LOSS RATE DATA(AMC III):
 DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp          Ap     SCS   Tc
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     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "CHAPARRAL,BROADLEAF"      D        0.55      0.20     1.000    97    5.74
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      2.73
  TOTAL AREA(ACRES) =      0.55   PEAK FLOW RATE(CFS) =      2.73

****************************************************************************
  FLOW PROCESS FROM NODE     15.00 TO NODE     16.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   360.00
  ELEVATION DATA: UPSTREAM(FEET) =    350.00  DOWNSTREAM(FEET) =    243.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.048
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.082
  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
  "CHAPARRAL,BROADLEAF"      D        2.49      0.20     1.000    97    7.05
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     10.94
  TOTAL AREA(ACRES) =      2.49   PEAK FLOW RATE(CFS) =     10.94

****************************************************************************
  FLOW PROCESS FROM NODE     17.00 TO NODE     18.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   500.00
  ELEVATION DATA: UPSTREAM(FEET) =    345.00  DOWNSTREAM(FEET) =    235.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.536
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.554
  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
  "CHAPARRAL,BROADLEAF"      D        1.85      0.20     1.000    97    8.54
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      7.25
  TOTAL AREA(ACRES) =      1.85   PEAK FLOW RATE(CFS) =      7.25

****************************************************************************
  FLOW PROCESS FROM NODE     19.00 TO NODE     20.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   468.00
  ELEVATION DATA: UPSTREAM(FEET) =    271.30  DOWNSTREAM(FEET) =    234.50

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.213
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.109
  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
  "CHAPARRAL,BROADLEAF"      D        2.00      0.20     1.000    97   10.21
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      7.04
  TOTAL AREA(ACRES) =      2.00   PEAK FLOW RATE(CFS) =      7.04
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)      =        2.0  TC(MIN.) =     10.21
  EFFECTIVE AREA(ACRES) =      2.00  AREA-AVERAGED Fm(INCH/HR)=  0.20
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap = 1.000
  PEAK FLOW RATE(CFS)    =       7.04
============================================================================
============================================================================
  END OF RATIONAL METHOD ANALYSIS
```

EXISTING STUDY
RATIONAL METHOD SUMMARY TABLE

[ORANGE COUNTY]

FILE NAME:EX22.DAT *ENGLISH UNITS* CALCULATED BY:
TIME/DATE OF STUDY: 11:31 1/28/2015 CHECKED BY:
100.0-YEAR STORM RATIONAL METHOD STUDY (AMC III LOSSES) PAGE NUMBER 1 OF

[(c) 1983-2003 ADVANCED ENGINEERING SOFTWARE]

CONCENTRATION POINT NUMBER	AREA (ACRES) SUBAREA	SUM	SOIL TYPE	DEV. TYPE	Tt MIN.	Tc MIN.	I (in/hr)	Fm (Avg)	Q-SUM (cfs)	PATH (ft)	SLOPE ft/ft	V FPS.	HYDRAULICS AND NOTES
					..					440	.3068	..	INITIAL SUBAREA
2.00	2.4	2.4	D	Chaparral-B		7.6	4.87	0.20	0.200	10.0			
60.ft-STREET FLOW TO PT.#					0.6					200	.0500	5.7	Qest.= 10.0 D=0.40;D*V= 2.3 FLOODWIDTH=13.3
3.00	0.0	2.39				8.2	4.67	0.00	0.200	10.0			
3.00		2.4				8.2	4.67			10.0			FOR CONFLUENCE
					..					400	.4250	..	INITIAL SUBAREA
3.00	3.4	3.4	D	Chaparral-B		6.8	5.17	0.20	0.200	15.2			

CONFLUENCE ANALYSIS FOR POINT# 3.00

PEAK FLOW RATE = 24.6 (cfs)
TIME OF CONCENTRATION(MIN.) = 6.8
MEAN VALUES: Fp = 0.200 (in/hr); Ap = 1.000; Fm = 0.200 (in/hr)
EFFECTIVE AREA = 5.40 (Acres); TOTAL AREA = 5.79 (Acres)

LARGEST CONFLUENCE Q= 24.6

Q(cfs)	Tc(min)	Fp(avg)	Ap(avg)	Fm(avg)	I(in/hr)	Ae(Acres)	NODE
24.56	6.84	0.200	1.00	0.200	5.17	5.40	3.1
23.72	8.18	0.200	1.00	0.200	4.67	5.79	1.0

60.ft-STREET FLOW TO PT.#					0.5					290	.1034	9.2	Qest.= 24.6 D=0.46;D*V= 4.2 FLOODWIDTH=16.6
4.00	0.0	5.40				7.4	4.96	0.00	0.200	24.6			
4.00		5.4				7.4	4.96			24.6			FOR CONFLUENCE
					..					430	.3023	..	INITIAL SUBAREA
4.00	4.0	4.0	D	Chaparral-B		7.5	4.89	0.20	0.200	16.9			

[ORANGE COUNTY]

FILE NAME:EX22.DAT *ENGLISH UNITS* CALCULATED BY:
TIME/DATE OF STUDY: 11:31 1/28/2015 CHECKED BY:
100.0-YEAR STORM RATIONAL METHOD STUDY (AMC III LOSSES) PAGE NUMBER 2 OF

[(c) 1983-2003 ADVANCED ENGINEERING SOFTWARE]

CONCENTRATION POINT NUMBER	AREA (ACRES) SUBAREA	SUM	SOIL TYPE	DEV. TYPE	Tt MIN.	Tc MIN.	I (in/hr)	Fm (Avg)	Q-SUM (cfs)	PATH (ft)	SLOPE ft/ft	V FPS.	HYDRAULICS AND NOTES
CONFLUENCE ANALYSIS FOR POINT# 4.00	PEAK FLOW RATE = 41.3 (cfs); TIME OF CONCENTRATION(MIN.) = 7.5; MEAN VALUES: Fp = 0.200 (in/hr); Ap = 1.000; Fm = 0.200 (in/hr); EFFECTIVE AREA = 9.45 (Acres); TOTAL AREA = 9.79 (Acres)												LARGEST CONFLUENCE Q= 41.3
	Q(cfs)	Tc(min)	Fp(avg)	Ap(avg)	Fm(avg)	I(in/hr)	Ae(Acres)	NODE					
	41.28	7.37	0.200	1.00	0.200	4.96	9.31	3.1					
	41.33	7.54	0.200	1.00	0.200	4.89	9.45	4.1					
	39.21	8.71	0.200	1.00	0.200	4.50	9.79	1.0					
60.ft-STREET FLOW TO PT.# 5.00	0.0	9.45		0.6	8.1	4.69	0.00	0.200	41.3	360	.1111	10.7	Qest.= 41.3 D=0.52;D*V= 5.6 FLOODWIDTH=20.3
5.00		9.5			8.1	4.69			41.3				FOR CONFLUENCE
5.00	1.0	1.0	D Chaparral-B	..	9.3	4.33	0.20	0.200	3.7	460	.1196	..	INITIAL SUBAREA
CONFLUENCE ANALYSIS FOR POINT# 5.00	PEAK FLOW RATE = 44.8 (cfs); TIME OF CONCENTRATION(MIN.) = 8.1; MEAN VALUES: Fp = 0.200 (in/hr); Ap = 1.000; Fm = 0.200 (in/hr); EFFECTIVE AREA = 10.32 (Acres); TOTAL AREA = 10.79 (Acres)												LARGEST CONFLUENCE Q= 44.8
	Q(cfs)	Tc(min)	Fp(avg)	Ap(avg)	Fm(avg)	I(in/hr)	Ae(Acres)	NODE					
	44.76	7.92	0.200	1.00	0.200	4.75	10.16	3.1					
	44.84	8.10	0.200	1.00	0.200	4.69	10.32	4.1					
	42.92	9.27	0.200	1.00	0.200	4.34	10.78	1.0					
	42.78	9.33	0.200	1.00	0.200	4.33	10.79	5.1					
60.ft-STREET FLOW TO PT.# 6.00	0.0	10.32		0.3	8.4	4.60	0.00	0.200	44.8	200	.1500	12.2	Qest.= 44.8 D=0.51;D*V= 6.3 FLOODWIDTH=19.7
6.00		10.3			8.4	4.60			44.8				FOR CONFLUENCE

[ORANGE COUNTY]

FILE NAME:EX22.DAT *ENGLISH UNITS* CALCULATED BY:

TIME/DATE OF STUDY: 11:31 1/28/2015 CHECKED BY:

100.0-YEAR STORM RATIONAL METHOD STUDY (AMC III LOSSES) PAGE NUMBER 3 OF

[(c) 1983-2003 ADVANCED ENGINEERING SOFTWARE]

CONCENTRATION POINT NUMBER	AREA (ACRES) SUBAREA	SUM	SOIL TYPE	DEV. TYPE	Tt MIN.	Tc MIN.	I (in/hr)	Fm (in/hr)	Fm (Avg)	Q-SUM (cfs)	PATH (ft)	SLOPE ft/ft	V FPS.	HYDRAULICS AND NOTES
					..						600	.1417	..	INITIAL SUBAREA
6.00	2.4	2.4	D	Chaparral-B		10.0	4.15	0.20	0.200	8.5				
CONFLUENCE ANALYSIS FOR POINT# 6.00														LARGEST CONFLUENCE Q= 52.8

PEAK FLOW RATE = 52.8 (cfs)

TIME OF CONCENTRATION(MIN.) = 8.4

MEAN VALUES: Fp = 0.200 (in/hr); Ap = 1.000; Fm = 0.200 (in/hr)

EFFECTIVE AREA = 12.32 (Acres); TOTAL AREA = 13.19 (Acres)

Q(cfs)	Tc(min)	Fp(avg)	Ap(avg)	Fm(avg)	I(in/hr)	Ae(Acres)	NODE
52.64	8.20	0.200	1.00	0.200	4.66	12.12	3.1
52.79	8.38	0.200	1.00	0.200	4.60	12.32	4.1
51.29	9.55	0.200	1.00	0.200	4.27	13.07	1.0
51.18	9.60	0.200	1.00	0.200	4.26	13.09	5.1
50.22	10.03	0.200	1.00	0.200	4.15	13.19	6.1

											160	.1875	13.9	Qest.= 52.8
60.ft-STREET FLOW TO PT.# 7.00	0.0	12.32			0.2	8.6	4.54	0.00	0.200	52.8				D=0.52;D*V= 7.2 FLOODWIDTH=20.1
7.00		12.3				8.6	4.54			52.8				FOR CONFLUENCE
					..						360	.1250	..	INITIAL SUBAREA
7.00	1.0	1.0	D	Chaparral-B		8.4	4.60	0.20	0.200	4.0				
7.00		13.1				8.4	4.60			56.6				FOR CONFLUENCE
					..						560	.1071	..	INITIAL SUBAREA
9.00	4.3	4.3	D	Chaparral-B		10.3	4.09	0.20	0.200	15.1				
											480	.1562	10.4	Qest.= 18.7
60.ft-STREET FLOW TO PT.# 10.00	2.2	6.46	D	Chaparral-B	0.8	11.1	3.92	0.20	0.200	21.6				D=0.41;D*V= 4.2 FLOODWIDTH=13.6

[ORANGE COUNTY]

FILE NAME:EX22.DAT *ENGLISH UNITS* CALCULATED BY:

TIME/DATE OF STUDY: 11:31 1/28/2015 CHECKED BY:

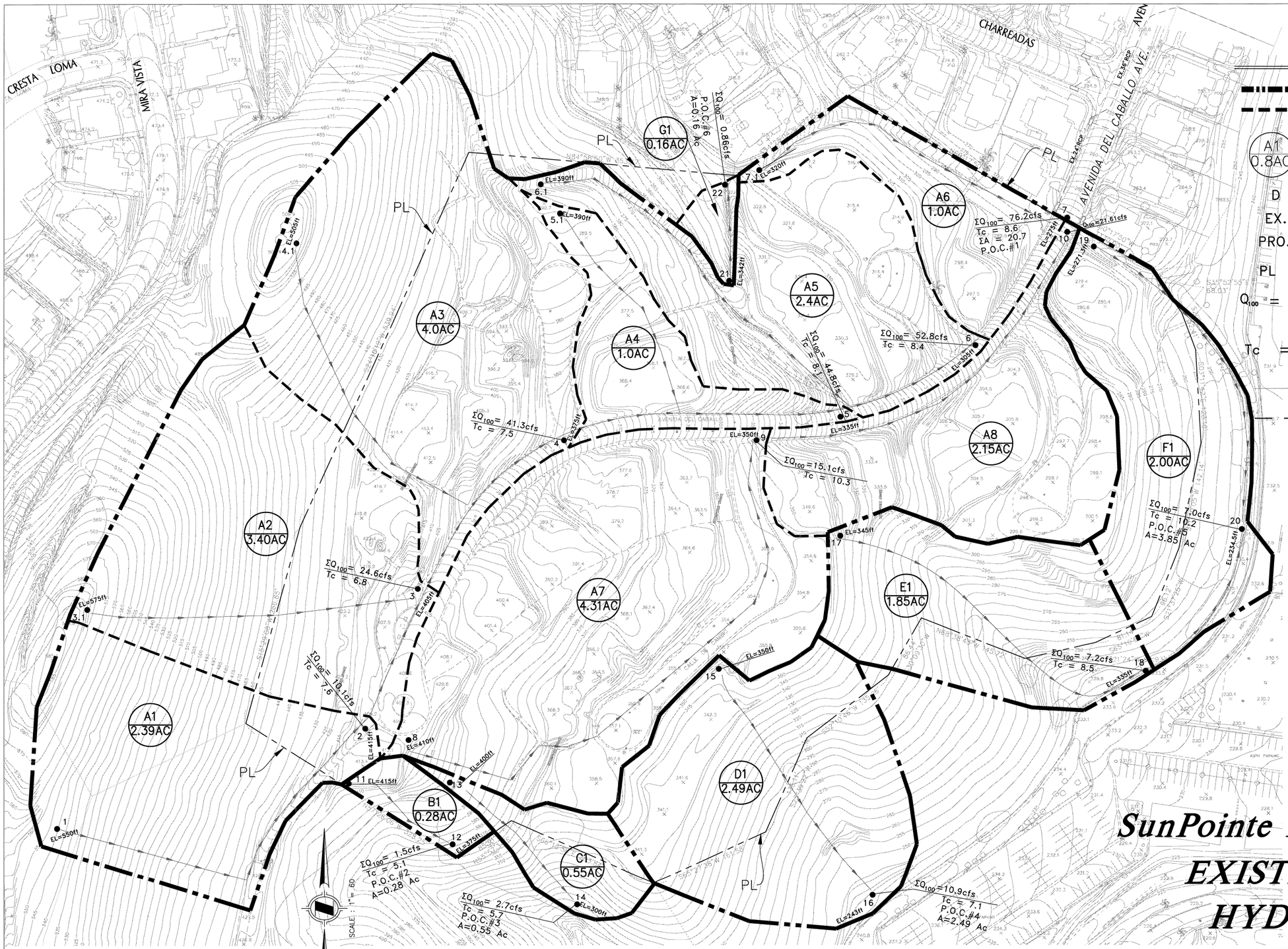
100.0-YEAR STORM RATIONAL METHOD STUDY (AMC III LOSSES) PAGE NUMBER 4 OF

[(c) 1983-2003 ADVANCED ENGINEERING SOFTWARE]

CONCENTRATION POINT NUMBER	AREA (ACRES) SUBAREA	SUM	SOIL TYPE	DEV. TYPE	Tt MIN.	Tc MIN.	I (in/hr)	Fm (Avg)	Q-SUM (cfs)	PATH (ft)	SLOPE ft/ft	V FPS.	HYDRAULICS AND NOTES
CONFLUENCE ANALYSIS FOR POINT# 7.00	PEAK FLOW RATE = 76.2 (cfs); TIME OF CONCENTRATION(MIN.) = 8.6; MEAN VALUES: Fp = 0.200 (in/hr); Ap = 1.000; Fm = 0.200 (in/hr); EFFECTIVE AREA = 18.31 (Acres); TOTAL AREA = 20.65 (Acres)												LARGEST CONFLUENCE Q= 76.2
	Q(cfs)	Tc(min)	Fp(avg)	Ap(avg)	Fm(avg)	I(in/hr)	Ae(Acres)	NODE					
	75.89	8.38	0.200	1.00	0.200	4.60	17.98	7.1					
	75.91	8.39	0.200	1.00	0.200	4.60	18.00	3.1					
	76.18	8.57	0.200	1.00	0.200	4.54	18.31	4.1					
	75.41	9.74	0.200	1.00	0.200	4.22	19.73	1.0					
	75.34	9.80	0.200	1.00	0.200	4.21	19.79	5.1					
	74.64	10.22	0.200	1.00	0.200	4.11	20.13	6.1					
	72.71	11.11	0.200	1.00	0.200	3.92	20.65	8.0					
					..					150	.2667	..	INITIAL SUBAREA
12.00	0.3	0.3	D	Chaparral-B	5.1	6.13	0.20	0.200	1.5				
					..					250	.4000	..	INITIAL SUBAREA
14.00	0.6	0.6	D	Chaparral-B	5.7	5.72	0.20	0.200	2.7				
					..					360	.2972	..	INITIAL SUBAREA
16.00	2.5	2.5	D	Chaparral-B	7.0	5.08	0.20	0.200	10.9				
					..					500	.2200	..	INITIAL SUBAREA
18.00	1.9	1.9	D	Chaparral-B	8.5	4.55	0.20	0.200	7.2				
					..					468	.0786	..	INITIAL SUBAREA
20.00	2.0	2.0	D	Chaparral-B	10.2	4.11	0.20	0.200	7.0				
20.00		2.0			10.2				7.0				STREAM SUMMARY

EFFECTIVE AREA = 2.00 Acres TOTAL AREA = 2.00 Acres PEAK FLOW RATE = 7.04 cfs

TIME OF CONCENTRATION(MIN.)= 10.21 MEAN VALUES: Fp = 0.200 (in/hr); Ap = 1.000; Fm = 0.200 (in/hr)



LEGEND

	MAJOR DRAINAGE BOUNDARY
	MINOR DRAINAGE BOUNDARY
A1	AREA DESIGNATION
0.8AC	AREA ACREAGE (IN ACRES)
D	SOIL GROUP
EX.	EXISTING STORM DRAIN
PRO.	PROPOSED STORM DRAIN
PL	PROPERTY LINE
Q_{100} = 2.8 cfs	100-YR PEAK RUNOFF IN CUBIC FEET PER SECOND
Tc = 6.3 MIN	TIME OF CONCENTRATION MINUTES
→	FLOW DIRECTION
— — —	EXISTING STORM DRAIN

PREPARED FOR:

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SunPointe DEVELOPMENT
EXISTING CONDITION HYDROLOGY MAP
TTM 17433
(Existing Tract Map 5241)

WO: 2950-5X TTM 17433

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FEB 04 2015

SECTION 3

3. PROPOSED CONDITION HYDROLOGY

```
****************************************************************************
              RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
             (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
          (c) Copyright 1983-2013 Advanced Engineering Software (aes)
              Ver. 20.0  Release Date: 06/01/2013  License ID 1239

                          Analysis prepared by:

                          HUNSAKER & ASSOCIATES
                                Irvine,Inc
                     Planning * Engineering * Surveying
           Three Hughes * Irvine, California 92618 * (949)583-1010

----------------------------------------------------------------------------
  PROPOSED HYDROLOGY STUDY,100-YEAR STORM
  CITY OF LAGUNA NIGUEL,COUNTY OF ORANGE
  SunPointe DEVELOPMENT
----------------------------------------------------------------------------
  FILE NAME: PR1.DAT
  TIME/DATE OF STUDY: 08:22 01/27/2015
============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
============================================================================
                     --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  18.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *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    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.50 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   160.00
  ELEVATION DATA: UPSTREAM(FEET) =    585.00  DOWNSTREAM(FEET) =    500.00
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.000
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  6.187
  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
  "CHAPARRAL,BROADLEAF"      D        1.62      0.20     1.000    85    5.00
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      8.73
  TOTAL AREA(ACRES) =      1.62   PEAK FLOW RATE(CFS) =      8.73

****************************************************************************
  FLOW PROCESS FROM NODE      2.00 TO NODE      3.00 IS CODE =  91
----------------------------------------------------------------------------
  >>>>>COMPUTE "V" GUTTER FLOW TRAVEL TIME THRU SUBAREA<<<<<
============================================================================
  UPSTREAM NODE ELEVATION(FEET) =    500.00
  DOWNSTREAM NODE ELEVATION(FEET) =    384.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   500.00
  "V" GUTTER WIDTH(FEET) =   5.00   GUTTER HIKE(FEET) =  0.100
  PAVEMENT LIP(FEET) =  0.200   MANNING'S N = .0050
  PAVEMENT CROSSFALL(DECIMAL NOTATION) = 0.00200
  MAXIMUM DEPTH(FEET) =   0.50
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  6.080
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  RESIDENTIAL
  "1 DWELLING/ACRE"          D        4.69      0.20     0.800    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.800
  TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =     21.22
  TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  53.94
  AVERAGE FLOW DEPTH(FEET) =   0.30   FLOOD WIDTH(FEET) =    5.00
  "V" GUTTER FLOW TRAVEL TIME(MIN.) =   0.15   Tc(MIN.) =    5.15
  SUBAREA AREA(ACRES) =    4.69       SUBAREA RUNOFF(CFS) =   24.99
  EFFECTIVE AREA(ACRES) =    6.31     AREA-AVERAGED Fm(INCH/HR) =   0.17
  AREA-AVERAGED Fp(INCH/HR) =   0.20  AREA-AVERAGED Ap =   0.85
  TOTAL AREA(ACRES) =        6.3         PEAK FLOW RATE(CFS) =      33.56

        NOTE:TRAVEL TIME ESTIMATES BASED ON NORMAL
        DEPTH EQUAL TO [GUTTER-HIKE + PAVEMENT LIP]

  END OF SUBAREA "V" GUTTER HYDRAULICS:
  DEPTH(FEET) =  0.30   FLOOD WIDTH(FEET) =    5.00
  FLOW VELOCITY(FEET/SEC.) =  53.94   DEPTH*VELOCITY(FT*FT/SEC) =  16.18
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =     660.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      3.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
```

```
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    5.15
  RAINFALL INTENSITY(INCH/HR) =   6.08
  AREA-AVERAGED Fm(INCH/HR) =  0.17
  AREA-AVERAGED Fp(INCH/HR) =  0.20
  AREA-AVERAGED Ap =  0.85
  EFFECTIVE STREAM AREA(ACRES) =       6.31
  TOTAL STREAM AREA(ACRES) =       6.31
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      33.56

****************************************************************************
  FLOW PROCESS FROM NODE      3.11 TO NODE      3.10 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   280.00
  ELEVATION DATA: UPSTREAM(FEET) =    413.00  DOWNSTREAM(FEET) =    412.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.583
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.026
  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.)
  CONDOMINIUMS               D        1.01      0.20     0.350    75   10.58
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      3.60
  TOTAL AREA(ACRES) =      1.01   PEAK FLOW RATE(CFS) =      3.60

****************************************************************************
  FLOW PROCESS FROM NODE      3.10 TO NODE      3.00 IS CODE =  63
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  412.00  DOWNSTREAM ELEVATION(FEET) =  384.00
  STREET LENGTH(FEET) =   300.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200
  MAXIMUM ALLOWABLE STREET FLOW DEPTH(FEET) =   0.57

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       5.69
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.27
    HALFSTREET FLOOD WIDTH(FEET) =    5.84
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    5.70
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.52
  STREET FLOW TRAVEL TIME(MIN.) =   0.88   Tc(MIN.) =   11.46
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.847
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  CONDOMINIUMS               D        1.23      0.20     0.350    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA AREA(ACRES) =    1.23      SUBAREA RUNOFF(CFS) =    4.18
  EFFECTIVE AREA(ACRES) =      2.24    AREA-AVERAGED Fm(INCH/HR) =  0.07
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.35
  TOTAL AREA(ACRES) =        2.2        PEAK FLOW RATE(CFS) =       7.61

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.29   HALFSTREET FLOOD WIDTH(FEET) =   7.09
  FLOW VELOCITY(FEET/SEC.) =  5.92   DEPTH*VELOCITY(FT*FT/SEC.) =   1.71
  LONGEST FLOWPATH FROM NODE      3.11 TO NODE      3.00 =     580.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      3.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   11.46
  RAINFALL INTENSITY(INCH/HR) =   3.85
  AREA-AVERAGED Fm(INCH/HR) =  0.07
  AREA-AVERAGED Fp(INCH/HR) =  0.20
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       2.24
  TOTAL STREAM AREA(ACRES) =       2.24
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       7.61

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
      1       33.56    5.15    6.080  0.20( 0.17) 0.85       6.3       1.00
      2        7.61   11.46    3.847  0.20( 0.07) 0.35       2.2       3.11

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

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
      1       39.01    5.15    6.080  0.20( 0.16) 0.78       7.3       1.00
      2       28.49   11.46    3.847  0.20( 0.14) 0.72       8.6       3.11

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      39.01    Tc(MIN.) =     5.15
  EFFECTIVE AREA(ACRES) =       7.32   AREA-AVERAGED Fm(INCH/HR) =  0.16
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.78
  TOTAL AREA(ACRES) =        8.6
```

```
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.00 =     660.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      3.00 TO NODE      3.50 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  384.00  DOWNSTREAM ELEVATION(FEET) =  375.00
  STREET LENGTH(FEET) =   120.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      39.54
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.45
    HALFSTREET FLOOD WIDTH(FEET) =   16.29
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    7.71
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    3.50
  STREET FLOW TRAVEL TIME(MIN.) =   0.26   Tc(MIN.) =    5.41
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.912
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 D        0.20      0.20     0.100    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =    0.20      SUBAREA RUNOFF(CFS) =    1.06
  EFFECTIVE AREA(ACRES) =      7.52    AREA-AVERAGED Fm(INCH/HR) =  0.15
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.76
  TOTAL AREA(ACRES) =        8.8        PEAK FLOW RATE(CFS) =      39.01
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.45   HALFSTREET FLOOD WIDTH(FEET) =  16.13
  FLOW VELOCITY(FEET/SEC.) =  7.75   DEPTH*VELOCITY(FT*FT/SEC.) =   3.49
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.50 =     780.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      3.50 TO NODE      3.50 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    5.41
  RAINFALL INTENSITY(INCH/HR) =   5.91
  AREA-AVERAGED Fm(INCH/HR) =  0.15
  AREA-AVERAGED Fp(INCH/HR) =  0.20
  AREA-AVERAGED Ap =  0.76
  EFFECTIVE STREAM AREA(ACRES) =       7.52
  TOTAL STREAM AREA(ACRES) =       8.75
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      39.01

****************************************************************************
  FLOW PROCESS FROM NODE      3.51 TO NODE      3.50 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   200.00
  ELEVATION DATA: UPSTREAM(FEET) =    378.00  DOWNSTREAM(FEET) =    375.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.942
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.127
  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.)
  CONDOMINIUMS               D        1.46      0.20     0.350    75    6.94
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      6.64
  TOTAL AREA(ACRES) =      1.46   PEAK FLOW RATE(CFS) =      6.64

****************************************************************************
  FLOW PROCESS FROM NODE      3.50 TO NODE      3.50 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    6.94
  RAINFALL INTENSITY(INCH/HR) =   5.13
  AREA-AVERAGED Fm(INCH/HR) =  0.07
  AREA-AVERAGED Fp(INCH/HR) =  0.20
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       1.46
  TOTAL STREAM AREA(ACRES) =       1.46
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       6.64

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
      1       39.01    5.41    5.912  0.20( 0.15) 0.76       7.5       1.00
      1       28.77   11.74    3.794  0.20( 0.14) 0.71       8.8       3.11
      2        6.64    6.94    5.127  0.20( 0.07) 0.35       1.5       3.51

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

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
```

```
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1       45.00    5.41    5.912  0.20( 0.14) 0.71       8.7       1.00
    2       43.18    6.94    5.127  0.20( 0.14) 0.69       9.3       3.51
    3       33.66   11.74    3.794  0.20( 0.13) 0.65      10.2       3.11

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      45.00    Tc(MIN.) =     5.41
  EFFECTIVE AREA(ACRES) =       8.66   AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.71
  TOTAL AREA(ACRES) =       10.2
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      3.50 =     780.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      3.50 TO NODE      4.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  375.00  DOWNSTREAM ELEVATION(FEET) =  338.00
  STREET LENGTH(FEET) =   400.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      46.31
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.46
    HALFSTREET FLOOD WIDTH(FEET) =   16.60
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    8.72
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    4.00
  STREET FLOW TRAVEL TIME(MIN.) =   0.76   Tc(MIN.) =    6.18
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.481
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  CONDOMINIUMS               D        0.54      0.20     0.350    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA AREA(ACRES) =    0.54      SUBAREA RUNOFF(CFS) =    2.63
  EFFECTIVE AREA(ACRES) =      9.20    AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.69
  TOTAL AREA(ACRES) =       10.8        PEAK FLOW RATE(CFS) =      45.00
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.46   HALFSTREET FLOOD WIDTH(FEET) =  16.45
  FLOW VELOCITY(FEET/SEC.) =  8.62   DEPTH*VELOCITY(FT*FT/SEC.) =   3.93
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      4.00 =    1180.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  4
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    6.18
  RAINFALL INTENSITY(INCH/HR) =   5.48
  AREA-AVERAGED Fm(INCH/HR) =  0.14
  AREA-AVERAGED Fp(INCH/HR) =  0.20
  AREA-AVERAGED Ap =  0.69
  EFFECTIVE STREAM AREA(ACRES) =       9.20
  TOTAL STREAM AREA(ACRES) =      10.75
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      45.00

****************************************************************************
  FLOW PROCESS FROM NODE      4.10 TO NODE      4.20 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
  ELEVATION DATA: UPSTREAM(FEET) =    500.00  DOWNSTREAM(FEET) =    390.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.780
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.694
  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.)
  PUBLIC PARK                D        1.61      0.20     0.850    75    5.78
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.850
  SUBAREA RUNOFF(CFS) =      8.00
  TOTAL AREA(ACRES) =      1.61   PEAK FLOW RATE(CFS) =      8.00

****************************************************************************
  FLOW PROCESS FROM NODE      4.20 TO NODE      4.30 IS CODE =  92
----------------------------------------------------------------------------
  >>>>>COMPUTE "V" GUTTER FLOW TRAVEL TIME THRU SUBAREA<<<<<
============================================================================
  UPSTREAM NODE ELEVATION(FEET) =    390.00
  DOWNSTREAM NODE ELEVATION(FEET) =    339.00
  CHANNEL LENGTH THRU SUBAREA(FEET) =   360.00
  "V" GUTTER WIDTH(FEET) =   5.00   GUTTER HIKE(FEET) =  0.050
  PAVEMENT LIP(FEET) =  0.010   MANNING'S N = .0050
  PAVEMENT CROSSFALL(DECIMAL NOTATION) = 0.00200
  MAXIMUM DEPTH(FEET) =   0.07
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.588
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 D        0.22      0.20     0.100    75
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
```

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TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      8.56
TRAVEL TIME THRU SUBAREA BASED ON VELOCITY(FEET/SEC.) =  31.12
AVERAGE FLOW DEPTH(FEET) =   0.07   FLOOD WIDTH(FEET) =   15.00
"V" GUTTER FLOW TRAVEL TIME(MIN.) =   0.19   Tc(MIN.) =    5.97
SUBAREA AREA(ACRES) =    0.22       SUBAREA RUNOFF(CFS) =    1.10
EFFECTIVE AREA(ACRES) =    1.83     AREA-AVERAGED Fm(INCH/HR) =   0.15
AREA-AVERAGED Fp(INCH/HR) =   0.20  AREA-AVERAGED Ap =   0.76
TOTAL AREA(ACRES) =        1.8         PEAK FLOW RATE(CFS) =       8.95
** PIPE SIZED TO MAXIMIZE V-GUTTER FLOW AT DOWNSTREAM NODE **
ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
DEPTH OF FLOW IN  18.0 INCH PIPE IS   4.9 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) =  20.77
PIPE-FLOW(CFS) =       8.00
PIPEFLOW TRAVEL TIME(MIN.) =   0.29    Tc(MIN.) =   6.07
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.537
SUBAREA AREA(ACRES) =    0.22      SUBAREA RUNOFF(CFS) =    1.09
EFFECTIVE AREA(ACRES) =    1.83    AREA-AVERAGED Fm(INCH/HR) =  0.15
AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.77
TOTAL AREA(ACRES) =        1.8        PEAK FLOW RATE(CFS) =       8.87
V-GUTTER HYDRAULICS BASED ON MAINLINE Tc :
V-GUTTER HYDRAULICS COMPUTED USING ESTIMATED FLOW(CFS) =    0.87

END OF SUBAREA "V" GUTTER HYDRAULICS:
DEPTH(FEET) =  0.05   FLOOD WIDTH(FEET) =    5.00
FLOW VELOCITY(FEET/SEC.) =   9.56   DEPTH*VELOCITY(FT*FT/SEC) =   0.48
LONGEST FLOWPATH FROM NODE      4.10 TO NODE      4.30 =     660.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE      4.30 TO NODE      4.00 IS CODE =  62
----------------------------------------------------------------------------
>>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
UPSTREAM ELEVATION(FEET) =  339.00  DOWNSTREAM ELEVATION(FEET) =  338.00
STREET LENGTH(FEET) =   160.00   CURB HEIGHT(INCHES) =  8.0
STREET HALFWIDTH(FEET) = 30.00

DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
INSIDE STREET CROSSFALL(DECIMAL) =  0.018
OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

  **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      12.12
  STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
  STREET FLOW DEPTH(FEET) =  0.46
  HALFSTREET FLOOD WIDTH(FEET) =   16.68
  AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.26
  PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.04
STREET FLOW TRAVEL TIME(MIN.) =   1.18   Tc(MIN.) =    7.15
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.040
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
RESIDENTIAL
"5-7 DWELLINGS/ACRE"       D        1.46      0.20     0.500    75
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
SUBAREA AREA(ACRES) =    1.46      SUBAREA RUNOFF(CFS) =    6.49
EFFECTIVE AREA(ACRES) =      3.29    AREA-AVERAGED Fm(INCH/HR) =  0.13
AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.65
TOTAL AREA(ACRES) =        3.3        PEAK FLOW RATE(CFS) =      14.54

END OF SUBAREA STREET FLOW HYDRAULICS:
DEPTH(FEET) = 0.48   HALFSTREET FLOOD WIDTH(FEET) =  17.93
FLOW VELOCITY(FEET/SEC.) =  2.37   DEPTH*VELOCITY(FT*FT/SEC.) =   1.15
LONGEST FLOWPATH FROM NODE      4.10 TO NODE      4.00 =     820.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
TOTAL NUMBER OF STREAMS =  4
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
TIME OF CONCENTRATION(MIN.) =    7.15
RAINFALL INTENSITY(INCH/HR) =   5.04
AREA-AVERAGED Fm(INCH/HR) =  0.13
AREA-AVERAGED Fp(INCH/HR) =  0.20
AREA-AVERAGED Ap =  0.65
EFFECTIVE STREAM AREA(ACRES) =       3.29
TOTAL STREAM AREA(ACRES) =       3.29
PEAK FLOW RATE(CFS) AT CONFLUENCE =      14.54

****************************************************************************
FLOW PROCESS FROM NODE      4.40 TO NODE      4.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =   310.00
ELEVATION DATA: UPSTREAM(FEET) =    379.00  DOWNSTREAM(FEET) =    338.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.181
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.028
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.)
PUBLIC PARK                D        0.37      0.20     0.850    75    7.18
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.850
SUBAREA RUNOFF(CFS) =      1.62
TOTAL AREA(ACRES) =      0.37   PEAK FLOW RATE(CFS) =      1.62

****************************************************************************
FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
```

```
==============================================================================
  TOTAL NUMBER OF STREAMS =  4
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.18
  RAINFALL INTENSITY(INCH/HR) =   5.03
  AREA-AVERAGED Fm(INCH/HR) =  0.17
  AREA-AVERAGED Fp(INCH/HR) =  0.20
  AREA-AVERAGED Ap =  0.85
  EFFECTIVE STREAM AREA(ACRES) =       0.37
  TOTAL STREAM AREA(ACRES) =       0.37
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.62

******************************************************************************
  FLOW PROCESS FROM NODE      4.50 TO NODE      4.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   550.00
  ELEVATION DATA: UPSTREAM(FEET) =    348.00  DOWNSTREAM(FEET) =    338.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.819
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.976
  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
  "5-7 DWELLINGS/ACRE"        D        3.57      0.20     0.500    75   10.82
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.500
  SUBAREA RUNOFF(CFS) =      12.45
  TOTAL AREA(ACRES) =       3.57   PEAK FLOW RATE(CFS) =     12.45

******************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      4.00 IS CODE =   1
------------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
==============================================================================
  TOTAL NUMBER OF STREAMS =  4
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  4 ARE:
  TIME OF CONCENTRATION(MIN.) =   10.82
  RAINFALL INTENSITY(INCH/HR) =   3.98
  AREA-AVERAGED Fm(INCH/HR) =  0.10
  AREA-AVERAGED Fp(INCH/HR) =  0.20
  AREA-AVERAGED Ap =  0.50
  EFFECTIVE STREAM AREA(ACRES) =       3.57
  TOTAL STREAM AREA(ACRES) =       3.57
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      12.45

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
      1       45.00    6.18    5.481  0.20( 0.14) 0.69       9.2       1.00
      1       43.18    7.71    4.826  0.20( 0.13) 0.67       9.8       3.51
      1       34.07   12.56    3.650  0.20( 0.13) 0.64      10.8       3.11
      2       14.54    7.15    5.040  0.20( 0.13) 0.65       3.3       4.10
      3        1.62    7.18    5.028  0.20( 0.17) 0.85       0.4       4.40
      4       12.45   10.82    3.976  0.20( 0.10) 0.50       3.6       4.50

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  4 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
      1       70.08    6.18    5.481  0.20( 0.13) 0.66      14.4       1.00
      2       70.50    7.15    5.040  0.20( 0.13) 0.65      15.6       4.10
      3       70.45    7.18    5.028  0.20( 0.13) 0.65      15.6       4.40
      4       69.47    7.71    4.826  0.20( 0.13) 0.64      16.0       3.51
      5       62.78   10.82    3.976  0.20( 0.12) 0.62      17.6       4.50
      6       57.06   12.56    3.650  0.20( 0.12) 0.62      18.0       3.11

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      70.50    Tc(MIN.) =     7.15
  EFFECTIVE AREA(ACRES) =      15.61   AREA-AVERAGED Fm(INCH/HR) =  0.13
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.65
  TOTAL AREA(ACRES) =       18.0
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      4.00 =    1180.00 FEET.

******************************************************************************
  FLOW PROCESS FROM NODE      4.00 TO NODE      5.00 IS CODE =  62
------------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
==============================================================================
  UPSTREAM ELEVATION(FEET) =  338.00  DOWNSTREAM ELEVATION(FEET) =  317.00
  STREET LENGTH(FEET) =   160.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      71.23
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.49
    HALFSTREET FLOOD WIDTH(FEET) =   18.48
    AVERAGE FLOW VELOCITY(FEET/SEC.) =   10.98
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    5.41
  STREET FLOW TRAVEL TIME(MIN.) =   0.24   Tc(MIN.) =    7.39
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.944
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/       SCS SOIL   AREA      Fp         Ap      SCS
       LAND USE             GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                  D        0.33      0.20     0.100    75
```

```
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =     0.33      SUBAREA RUNOFF(CFS) =     1.46
  EFFECTIVE AREA(ACRES) =      15.94    AREA-AVERAGED Fm(INCH/HR) =  0.13
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.64
  TOTAL AREA(ACRES) =        18.3        PEAK FLOW RATE(CFS) =       70.50
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.49   HALFSTREET FLOOD WIDTH(FEET) =  18.40
  FLOW VELOCITY(FEET/SEC.) = 10.96   DEPTH*VELOCITY(FT*FT/SEC.) =   5.38
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      5.00 =    1340.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      5.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.39
  RAINFALL INTENSITY(INCH/HR) =   4.94
  AREA-AVERAGED Fm(INCH/HR) =  0.13
  AREA-AVERAGED Fp(INCH/HR) =  0.20
  AREA-AVERAGED Ap =  0.64
  EFFECTIVE STREAM AREA(ACRES) =      15.94
  TOTAL STREAM AREA(ACRES) =      18.31
  PEAK FLOW RATE(CFS) AT CONFLUENCE =      70.50

****************************************************************************
  FLOW PROCESS FROM NODE      5.10 TO NODE      5.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   270.00
  ELEVATION DATA: UPSTREAM(FEET) =    318.00  DOWNSTREAM(FEET) =    317.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.354
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.077
  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.)
  CONDOMINIUMS               D       0.74      0.20     0.350    75   10.35
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      2.67
  TOTAL AREA(ACRES) =      0.74   PEAK FLOW RATE(CFS) =      2.67

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      5.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   10.35
  RAINFALL INTENSITY(INCH/HR) =   4.08
  AREA-AVERAGED Fm(INCH/HR) =  0.07
  AREA-AVERAGED Fp(INCH/HR) =  0.20
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.74
  TOTAL STREAM AREA(ACRES) =       0.74
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.67

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
      1       70.08    6.42    5.361  0.20( 0.13) 0.65      14.7       1.00
      1       70.50    7.39    4.944  0.20( 0.13) 0.64      15.9       4.10
      1       70.45    7.42    4.934  0.20( 0.13) 0.64      16.0       4.40
      1       69.47    7.96    4.742  0.20( 0.13) 0.63      16.4       3.51
      1       62.78   11.07    3.924  0.20( 0.12) 0.61      18.0       4.50
      1       57.45   12.82    3.608  0.20( 0.12) 0.61      18.3       3.11
      2        2.67   10.35    4.077  0.20( 0.07) 0.35       0.7       5.10

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

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap      Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
      1       72.27    6.42    5.361  0.20( 0.13) 0.64      15.2       1.00
      2       72.81    7.39    4.944  0.20( 0.13) 0.63      16.5       4.10
      3       72.77    7.42    4.934  0.20( 0.13) 0.63      16.5       4.40
      4       71.86    7.96    4.742  0.20( 0.12) 0.62      16.9       3.51
      5       66.98   10.35    4.077  0.20( 0.12) 0.61      18.3       5.10
      6       65.35   11.07    3.924  0.20( 0.12) 0.60      18.7       4.50
      7       59.81   12.82    3.608  0.20( 0.12) 0.60      19.0       3.11

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      72.81    Tc(MIN.) =     7.39
  EFFECTIVE AREA(ACRES) =      16.47   AREA-AVERAGED Fm(INCH/HR) =  0.13
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.63
  TOTAL AREA(ACRES) =       19.0
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      5.00 =    1340.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      5.00 TO NODE      6.00 IS CODE =  62
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STREET TABLE SECTION #  1 USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =  317.00  DOWNSTREAM ELEVATION(FEET) =  270.00
  STREET LENGTH(FEET) =   380.00   CURB HEIGHT(INCHES) =  8.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  20.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.018
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.018
```

```
SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  2
STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0150
Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

  **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      76.48
  STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
  STREET FLOW DEPTH(FEET) =  0.51
  HALFSTREET FLOOD WIDTH(FEET) =   19.18
  AVERAGE FLOW VELOCITY(FEET/SEC.) =   10.99
  PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    5.55
STREET FLOW TRAVEL TIME(MIN.) =   0.58   Tc(MIN.) =    7.97
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.736
SUBAREA LOSS RATE DATA(AMC  II):
 DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
COMMERCIAL                 D        1.73      0.20     0.100    75
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
SUBAREA AREA(ACRES) =    1.73      SUBAREA RUNOFF(CFS) =    7.34
EFFECTIVE AREA(ACRES) =     18.20    AREA-AVERAGED Fm(INCH/HR) =  0.12
AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.58
TOTAL AREA(ACRES) =       20.8        PEAK FLOW RATE(CFS) =      75.68

END OF SUBAREA STREET FLOW HYDRAULICS:
DEPTH(FEET) = 0.50   HALFSTREET FLOOD WIDTH(FEET) =  19.10
FLOW VELOCITY(FEET/SEC.) = 10.96   DEPTH*VELOCITY(FT*FT/SEC.) =   5.52

** PEAK FLOW RATE TABLE **
 STREAM       Q       Tc   Intensity   Fp(Fm)      Ap      Ae     HEADWATER
 NUMBER     (CFS)   (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
    1       75.91    7.00    5.103  0.20( 0.12) 0.58      16.9       1.00
    2       75.68    7.97    4.736  0.20( 0.12) 0.58      18.2       4.10
    3       75.63    8.00    4.727  0.20( 0.12) 0.58      18.2       4.40
    4       74.52    8.54    4.554  0.20( 0.11) 0.57      18.6       3.51
    5       69.31   10.95    3.949  0.20( 0.11) 0.56      20.1       5.10
    6       68.02   11.66    3.809  0.20( 0.11) 0.56      20.4       4.50
    7       63.63   13.42    3.514  0.20( 0.11) 0.56      20.8       3.11
NEW PEAK FLOW DATA ARE:
PEAK FLOW RATE(CFS) =      75.91  Tc(MIN.) =    7.00
AREA-AVERAGED Fm(INCH/HR) =  0.12  AREA-AVERAGED Fp(INCH/HR) =  0.20
AREA-AVERAGED Ap =  0.58  EFFECTIVE AREA(ACRES) =      16.91
LONGEST FLOWPATH FROM NODE      1.00 TO NODE      6.00 =    1720.00 FEET.

****************************************************************************
FLOW PROCESS FROM NODE      6.00 TO NODE      6.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
TOTAL NUMBER OF STREAMS =  4
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
TIME OF CONCENTRATION(MIN.) =    7.00
RAINFALL INTENSITY(INCH/HR) =   5.10
AREA-AVERAGED Fm(INCH/HR) =  0.12
AREA-AVERAGED Fp(INCH/HR) =  0.20
AREA-AVERAGED Ap =  0.58
EFFECTIVE STREAM AREA(ACRES) =      16.91
TOTAL STREAM AREA(ACRES) =      20.78
PEAK FLOW RATE(CFS) AT CONFLUENCE =      75.91

****************************************************************************
FLOW PROCESS FROM NODE      6.10 TO NODE      6.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =   480.00
ELEVATION DATA: UPSTREAM(FEET) =    320.00  DOWNSTREAM(FEET) =    270.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    8.972
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.426
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.)
PUBLIC PARK                D        0.92      0.20     0.850    75    8.97
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.850
SUBAREA RUNOFF(CFS) =      3.52
TOTAL AREA(ACRES) =      0.92   PEAK FLOW RATE(CFS) =      3.52

****************************************************************************
FLOW PROCESS FROM NODE      6.00 TO NODE      6.00 IS CODE =   1
----------------------------------------------------------------------------
>>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
TOTAL NUMBER OF STREAMS =  4
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
TIME OF CONCENTRATION(MIN.) =    8.97
RAINFALL INTENSITY(INCH/HR) =   4.43
AREA-AVERAGED Fm(INCH/HR) =  0.17
AREA-AVERAGED Fp(INCH/HR) =  0.20
AREA-AVERAGED Ap =  0.85
EFFECTIVE STREAM AREA(ACRES) =       0.92
TOTAL STREAM AREA(ACRES) =       0.92
PEAK FLOW RATE(CFS) AT CONFLUENCE =       3.52

****************************************************************************
FLOW PROCESS FROM NODE      6.20 TO NODE      6.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =   300.00
ELEVATION DATA: UPSTREAM(FEET) =    340.00  DOWNSTREAM(FEET) =    270.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.327
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.407
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.)
  PUBLIC PARK                D        0.55      0.20      0.850   75    6.33
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.850
  SUBAREA RUNOFF(CFS) =      2.59
  TOTAL AREA(ACRES) =      0.55   PEAK FLOW RATE(CFS) =      2.59

****************************************************************************
  FLOW PROCESS FROM NODE      6.00 TO NODE      6.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  4
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
  TIME OF CONCENTRATION(MIN.) =    6.33
  RAINFALL INTENSITY(INCH/HR) =   5.41
  AREA-AVERAGED Fm(INCH/HR) =  0.17
  AREA-AVERAGED Fp(INCH/HR) =  0.20
  AREA-AVERAGED Ap =  0.85
  EFFECTIVE STREAM AREA(ACRES) =       0.55
  TOTAL STREAM AREA(ACRES) =       0.55
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.59

****************************************************************************
  FLOW PROCESS FROM NODE      6.30 TO NODE      6.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   370.00
  ELEVATION DATA: UPSTREAM(FEET) =    290.00  DOWNSTREAM(FEET) =    270.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.219
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.358
  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.)
  PUBLIC PARK                D        0.68      0.20      0.850   75    9.22
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.850
  SUBAREA RUNOFF(CFS) =      2.56
  TOTAL AREA(ACRES) =      0.68   PEAK FLOW RATE(CFS) =      2.56

****************************************************************************
  FLOW PROCESS FROM NODE      6.00 TO NODE      6.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  4
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  4 ARE:
  TIME OF CONCENTRATION(MIN.) =    9.22
  RAINFALL INTENSITY(INCH/HR) =   4.36
  AREA-AVERAGED Fm(INCH/HR) =  0.17
  AREA-AVERAGED Fp(INCH/HR) =  0.20
  AREA-AVERAGED Ap =  0.85
  EFFECTIVE STREAM AREA(ACRES) =       0.68
  TOTAL STREAM AREA(ACRES) =       0.68
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.56

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
      1       75.91    7.00    5.103  0.20( 0.12) 0.58      16.9      1.00
      1       75.68    7.97    4.736  0.20( 0.12) 0.58      18.2      4.10
      1       75.63    8.00    4.727  0.20( 0.12) 0.58      18.2      4.40
      1       74.52    8.54    4.554  0.20( 0.11) 0.57      18.6      3.51
      1       69.31   10.95    3.949  0.20( 0.11) 0.56      20.1      5.10
      1       68.02   11.66    3.809  0.20( 0.11) 0.56      20.4      4.50
      1       63.63   13.42    3.514  0.20( 0.11) 0.56      20.8      3.11
      2        3.52    8.97    4.426  0.20( 0.17) 0.85       0.9      6.10
      3        2.59    6.33    5.407  0.20( 0.17) 0.85       0.6      6.20
      4        2.56    9.22    4.358  0.20( 0.17) 0.85       0.7      6.30

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  4 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)      Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)          (ACRES)    NODE
      1       80.66    6.33    5.407  0.20( 0.12) 0.61      17.0      6.20
      2       83.83    7.00    5.103  0.20( 0.12) 0.61      18.7      1.00
      3       83.71    7.97    4.736  0.20( 0.12) 0.60      20.2      4.10
      4       83.67    8.00    4.727  0.20( 0.12) 0.60      20.2      4.40
      5       82.63    8.54    4.554  0.20( 0.12) 0.60      20.7      3.51
      6       81.74    8.97    4.426  0.20( 0.12) 0.60      21.0      6.10
      7       81.16    9.22    4.358  0.20( 0.12) 0.60      21.2      6.30
      8       76.62   10.95    3.949  0.20( 0.12) 0.59      22.2      5.10
      9       75.06   11.66    3.809  0.20( 0.12) 0.59      22.6      4.50
     10       70.11   13.42    3.514  0.20( 0.12) 0.58      22.9      3.11

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      83.83    Tc(MIN.) =     7.00
  EFFECTIVE AREA(ACRES) =      18.70   AREA-AVERAGED Fm(INCH/HR) =  0.12
  AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap =  0.61
  TOTAL AREA(ACRES) =      22.9
  LONGEST FLOWPATH FROM NODE      1.00 TO NODE      6.00 =    1720.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE      7.00 TO NODE      8.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   120.00
  ELEVATION DATA: UPSTREAM(FEET) =    410.00  DOWNSTREAM(FEET) =    375.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.000
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  6.187
  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
"CHAPARRAL,BROADLEAF"       D        0.23      0.20     1.000    85    5.00
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA RUNOFF(CFS) =       1.24
TOTAL AREA(ACRES) =       0.23   PEAK FLOW RATE(CFS) =       1.24

****************************************************************************
FLOW PROCESS FROM NODE       9.00 TO NODE      10.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =   200.00
ELEVATION DATA: UPSTREAM(FEET) =    400.00  DOWNSTREAM(FEET) =    300.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.021
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  6.173
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
"CHAPARRAL,BROADLEAF"       D        0.41      0.20     1.000    85    5.02
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA RUNOFF(CFS) =       2.20
TOTAL AREA(ACRES) =       0.41   PEAK FLOW RATE(CFS) =       2.20

****************************************************************************
FLOW PROCESS FROM NODE      11.00 TO NODE      12.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =   280.00
ELEVATION DATA: UPSTREAM(FEET) =    340.00  DOWNSTREAM(FEET) =    245.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.207
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  5.466
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
"CHAPARRAL,BROADLEAF"       D        2.00      0.20     1.000    85    6.21
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA RUNOFF(CFS) =       9.48
TOTAL AREA(ACRES) =       2.00   PEAK FLOW RATE(CFS) =       9.48

****************************************************************************
FLOW PROCESS FROM NODE      13.00 TO NODE      14.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =   600.00
ELEVATION DATA: UPSTREAM(FEET) =    340.00  DOWNSTREAM(FEET) =    240.00

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.706
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.231
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
"CHAPARRAL,BROADLEAF"       D        1.33      0.20     1.000    85    9.71
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA RUNOFF(CFS) =       4.82
TOTAL AREA(ACRES) =       1.33   PEAK FLOW RATE(CFS) =       4.82

****************************************************************************
FLOW PROCESS FROM NODE      15.00 TO NODE      16.00 IS CODE =  21
----------------------------------------------------------------------------
>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
INITIAL SUBAREA FLOW-LENGTH(FEET) =   450.00
ELEVATION DATA: UPSTREAM(FEET) =    271.30  DOWNSTREAM(FEET) =    234.50

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    9.975
* 100 YEAR RAINFALL INTENSITY(INCH/HR) =  4.165
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
"CHAPARRAL,BROADLEAF"       D        1.00      0.20     1.000    85    9.98
SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.20
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
SUBAREA RUNOFF(CFS) =       3.57
TOTAL AREA(ACRES) =       1.00   PEAK FLOW RATE(CFS) =       3.57
============================================================================
END OF STUDY SUMMARY:
TOTAL AREA(ACRES)      =        1.0  TC(MIN.) =       9.98
EFFECTIVE AREA(ACRES) =       1.00  AREA-AVERAGED Fm(INCH/HR)=  0.20
AREA-AVERAGED Fp(INCH/HR) =  0.20  AREA-AVERAGED Ap = 1.000
PEAK FLOW RATE(CFS)    =       3.57
============================================================================
============================================================================
END OF RATIONAL METHOD ANALYSIS
```

RATIONAL METHOD - PROPOSED STUDY.
SUMMARY TABLE

[ORANGE COUNTY]

FILE NAME:PR1.DAT *ENGLISH UNITS* CALCULATED BY:
TIME/DATE OF STUDY: 10:54 1/28/2015 CHECKED BY:
100.0-YEAR STORM RATIONAL METHOD STUDY (AMC II LOSSES) PAGE NUMBER 1 OF

[(c) 1983-2003 ADVANCED ENGINEERING SOFTWARE]

CONCENTRATION POINT NUMBER	AREA (ACRES) SUBAREA	SUM	SOIL TYPE	DEV. TYPE	Tt MIN.	Tc MIN.	I (in/hr)	Fm	Fm (Avg)	Q-SUM (cfs)	PATH (ft)	SLOPE ft/ft	V FPS.	HYDRAULICS AND NOTES
											160	.5312	..	INITIAL SUBAREA
2.00	1.6	1.6	D	Chaparral-B		5.0	6.19	0.20	0.200	8.7				
											500	.2320	53.9	Qest.= 21.2
5.0ft-GUTTER														XFALL= 0.00200
FLOW TO PT.#					0.2									n=.0050 D= 0.30
3.00	4.7	6.31	D	1D/AC		5.2	6.08	0.16	0.170	33.6				
3.00		6.3				5.2	6.08			33.6				FOR CONFLUENCE
											280	.0036	..	INITIAL SUBAREA
3.10	1.0	1.0	D	Condo		10.6	4.03	0.07	0.070	3.6				
											300	.0933	5.9	Qest.= 5.7
60.ft-STREET														D=0.27;D*V= 1.6
FLOW TO PT.#					0.9									FLOODWIDTH= 5.8
3.00	1.2	2.24	D	Condo		11.5	3.85	0.07	0.070	7.6				

CONFLUENCE ANALYSIS FOR POINT# 3.00

PEAK FLOW RATE = 39.0 (cfs)
TIME OF CONCENTRATION(MIN.) = 5.2
MEAN VALUES: Fp = 0.200 (in/hr); Ap = 0.782; Fm = 0.156 (in/hr)
EFFECTIVE AREA = 7.32 (Acres); TOTAL AREA = 8.55 (Acres)

LARGEST CONFLUENCE Q= 39.0

Q(cfs)	Tc(min)	Fp(avg)	Ap(avg)	Fm(avg)	I(in/hr)	Ae(Acres)	NODE
39.01	5.15	0.200	0.78	0.156	6.08	7.32	1.0
28.49	11.46	0.200	0.72	0.144	3.85	8.55	3.1

											120	.0750	7.7	Qest.= 39.5
60.ft-STREET														D=0.45;D*V= 3.5
FLOW TO PT.#					0.3									FLOODWIDTH=16.3
3.50	0.2	7.52	D	Com		5.4	5.91	0.02	0.153	39.0				
3.50		7.5				5.4	5.91			39.0				FOR CONFLUENCE
											200	.0150	..	INITIAL SUBAREA
3.50	1.5	1.5	D	Condo		6.9	5.13	0.07	0.070	6.6				

[ORANGE COUNTY]

FILE NAME:PR1.DAT *ENGLISH UNITS* CALCULATED BY:

TIME/DATE OF STUDY: 10:54 1/28/2015 CHECKED BY:

100.0-YEAR STORM RATIONAL METHOD STUDY (AMC II LOSSES) PAGE NUMBER 2 OF

[(c) 1983-2003 ADVANCED ENGINEERING SOFTWARE]

CONCENTRATION POINT NUMBER	AREA (ACRES) SUBAREA	SUM	SOIL TYPE	DEV. TYPE	Tt MIN.	Tc MIN.	I (in/hr)	Fm (Avg)	Fm (cfs)	Q-SUM (cfs)	PATH (ft)	SLOPE ft/ft	V FPS.	HYDRAULICS AND NOTES
CONFLUENCE ANALYSIS FOR POINT# 3.50	PEAK FLOW RATE = 45.0 (cfs) TIME OF CONCENTRATION(MIN.) = 5.4 MEAN VALUES: Fp = 0.200 (in/hr); Ap = 0.710; Fm = 0.142 (in/hr) EFFECTIVE AREA = 8.66 (Acres); TOTAL AREA = 10.21 (Acres)													LARGEST CONFLUENCE Q= 45.0
	Q(cfs)	Tc(min)	Fp(avg)	Ap(avg)	Fm(avg)	I(in/hr)	Ae(Acres)	NODE						
	45.00	5.41	0.200	0.71	0.142	5.91	8.66	1.0						
	43.18	6.94	0.200	0.69	0.137	5.13	9.28	3.5						
	33.66	11.74	0.200	0.65	0.131	3.79	10.21	3.1						
60.ft-STREET FLOW TO PT.# 4.00	0.5	9.20	D	Condo	0.8	6.2	5.48	0.07	0.138	45.0	400	.0925	8.6	Qest.= 46.3 D=0.46;D*V= 3.9 FLOODWIDTH=16.6
4.00		9.2				6.2	5.48			45.0				FOR CONFLUENCE
4.20	1.6	1.6	D	Park	..	5.8	5.69	0.17	0.170	8.0	300	.3667	..	INITIAL SUBAREA
5.0ft-GUTTER FLOW TO PT.# 4.30	0.2	1.83	D	Com	0.3	6.0	5.54	0.02	0.152	8.9	360	.1417	9.6	Qest.= 8.6 XFALL= 0.00200 n=.0050 D= 0.07
										*Estimated 18.00" RCP				
60.ft-STREET FLOW TO PT.# 4.00	1.5	3.29	D	6D/AC	1.2	7.2	5.04	0.10	0.129	14.5	160	.0063	2.4	Qest.= 12.1 D=0.46;D*V= 1.1 FLOODWIDTH=16.7
4.00		12.9				7.2	5.04			58.4				FOR CONFLUENCE
4.00	0.4	0.4	D	Park	..	7.2	5.03	0.17	0.170	1.6	310	.1323	..	INITIAL SUBAREA
4.00		13.3				7.2	5.03			59.9				FOR CONFLUENCE

[ORANGE COUNTY]

FILE NAME:PR1.DAT *ENGLISH UNITS* CALCULATED BY:
TIME/DATE OF STUDY: 10:54 1/28/2015 CHECKED BY:
100.0-YEAR STORM RATIONAL METHOD STUDY (AMC II LOSSES) PAGE NUMBER 3 OF

[(c) 1983-2003 ADVANCED ENGINEERING SOFTWARE]

CONCENTRATION POINT NUMBER	AREA (ACRES) SUBAREA	SUM	SOIL TYPE	DEV. TYPE	Tt MIN.	Tc MIN.	I (in/hr)	Fm	Fm (Avg)	Q-SUM (cfs)	PATH (ft)	SLOPE ft/ft	V FPS.	HYDRAULICS AND NOTES
					..						550	.0182	..	INITIAL SUBAREA
4.00	3.6	3.6	D	6D/AC	----	10.8	3.98	0.10	0.100	12.5	----	----	----	

CONFLUENCE ANALYSIS FOR POINT# 4.00

PEAK FLOW RATE = 70.5 (cfs)
TIME OF CONCENTRATION(MIN.) = 7.2
MEAN VALUES: Fp = 0.200 (in/hr); Ap = 0.648; Fm = 0.129 (in/hr)
EFFECTIVE AREA = 15.61 (Acres); TOTAL AREA = 17.98 (Acres)

LARGEST CONFLUENCE Q= 70.5

Q(cfs)	Tc(min)	Fp(avg)	Ap(avg)	Fm(avg)	I(in/hr)	Ae(Acres)	NODE
70.08	6.18	0.200	0.66	0.131	5.48	14.40	1.0
70.50	7.15	0.200	0.65	0.129	5.04	15.61	4.1
70.45	7.18	0.200	0.65	0.129	5.03	15.63	4.4
69.47	7.71	0.200	0.64	0.128	4.83	16.02	3.5
62.78	10.82	0.200	0.62	0.125	3.98	17.64	4.5
57.06	12.56	0.200	0.62	0.123	3.65	17.98	3.1

60.ft-STREET FLOW TO PT.#					0.2						160	.1312	11.0	Qest.= 71.2 D=0.49;D*V= 5.4 FLOODWIDTH=18.5
5.00	0.3	15.94	D	Com	----	7.4	4.94	0.02	0.127	70.5	----	----	----	
5.00		15.9			----	7.4	4.94			70.5	----	----	----	FOR CONFLUENCE
					..						270	.0037	..	INITIAL SUBAREA
5.00	0.7	0.7	D	Condo	----	10.4	4.08	0.07	0.070	2.7	----	----	----	

[ORANGE COUNTY]

FILE NAME:PR1.DAT *ENGLISH UNITS* CALCULATED BY:
TIME/DATE OF STUDY: 10:54 1/28/2015 CHECKED BY:
100.0-YEAR STORM RATIONAL METHOD STUDY (AMC II LOSSES) PAGE NUMBER 4 OF

[(c) 1983-2003 ADVANCED ENGINEERING SOFTWARE]

CONCENTRATION POINT NUMBER	AREA (ACRES) SUBAREA	SUM	SOIL TYPE	DEV. TYPE	Tt MIN.	Tc MIN.	I (in/hr)	Fm	Fm (Avg)	Q-SUM (cfs)	PATH (ft)	SLOPE ft/ft	V FPS.	HYDRAULICS AND NOTES
CONFLUENCE ANALYSIS FOR POINT# 5.00	PEAK FLOW RATE = 72.8 (cfs) TIME OF CONCENTRATION(MIN.) = 7.4 MEAN VALUES: Fp = 0.200 (in/hr); Ap = 0.628; Fm = 0.125 (in/hr) EFFECTIVE AREA = 16.47 (Acres); TOTAL AREA = 19.05 (Acres)													LARGEST CONFLUENCE Q= 72.8
	Q(cfs)	Tc(min)	Fp(avg)	Ap(avg)	Fm(avg)	I(in/hr)	Ae(Acres)	NODE						
	72.27	6.42	0.200	0.64	0.127	5.36	15.18	1.0						
	72.81	7.39	0.200	0.63	0.125	4.94	16.47	4.1						
	72.77	7.42	0.200	0.63	0.125	4.93	16.49	4.4						
	71.86	7.96	0.200	0.62	0.124	4.74	16.92	3.5						
	66.98	10.35	0.200	0.61	0.121	4.08	18.34	5.1						
	65.35	11.07	0.200	0.60	0.121	3.92	18.71	4.5						
	59.81	12.82	0.200	0.60	0.120	3.61	19.05	3.1						
									380	.1237	11.0	Qest.= 76.5 D=0.50;D*V= 5.5 FLOODWIDTH=19.2		
60.ft-STREET FLOW TO PT.# 6.00	1.7	16.91	D	Com	0.6	7.0	3.51	0.02	0.116	75.9				
6.00		16.9				7.0	5.10			75.9				FOR CONFLUENCE
					..						480	.1042	..	INITIAL SUBAREA
6.00	0.9	0.9	D	Park		9.0	4.43	0.17	0.170	3.5				
6.00		19.8				9.0	4.43			77.1				FOR CONFLUENCE
					..						300	.2333	..	INITIAL SUBAREA
6.00	0.6	0.6	D	Park		6.3	5.41	0.17	0.170	2.6				
6.00		16.5				6.3	5.41			78.5				FOR CONFLUENCE
					..						370	.0541	..	INITIAL SUBAREA
6.00	0.7	0.7	D	Park		9.2	4.36	0.17	0.170	2.6				

[ORANGE COUNTY]

FILE NAME:PR1.DAT *ENGLISH UNITS* CALCULATED BY:

TIME/DATE OF STUDY: 10:54 1/28/2015 CHECKED BY:

100.0-YEAR STORM RATIONAL METHOD STUDY (AMC II LOSSES) PAGE NUMBER 5 OF

[(c) 1983-2003 ADVANCED ENGINEERING SOFTWARE]

CONCENTRATION POINT NUMBER	AREA (ACRES) SUBAREA	SUM	SOIL TYPE	DEV. TYPE	Tt MIN.	Tc MIN.	I (in/hr)	Fm (Avg)	Q-SUM (cfs)	PATH (ft)	SLOPE ft/ft	V FPS.	HYDRAULICS AND NOTES
CONFLUENCE ANALYSIS FOR POINT# 6.00	PEAK FLOW RATE = 83.8 (cfs); TIME OF CONCENTRATION(MIN.) = 7.0; MEAN VALUES: Fp = 0.200 (in/hr); Ap = 0.607; Fm = 0.121 (in/hr); EFFECTIVE AREA = 18.70 (Acres); TOTAL AREA = 22.93 (Acres)												LARGEST CONFLUENCE Q= 83.8
	Q(cfs)	Tc(min)	Fp(avg)	Ap(avg)	Fm(avg)	I(in/hr)	Ae(Acres)	NODE					
	80.66	6.33	0.200	0.61	0.121	5.41	16.96	6.2					
	83.83	7.00	0.200	0.61	0.121	5.10	18.70	1.0					
	83.71	7.97	0.200	0.60	0.121	4.74	20.15	4.1					
	83.67	8.00	0.200	0.60	0.121	4.73	20.18	4.4					
	82.63	8.54	0.200	0.60	0.120	4.55	20.70	3.5					
	81.74	8.97	0.200	0.60	0.120	4.43	21.04	6.1					
	81.16	9.22	0.200	0.60	0.120	4.36	21.20	6.3					
	76.62	10.95	0.200	0.59	0.118	3.95	22.22	5.1					
	75.06	11.66	0.200	0.59	0.118	3.81	22.59	4.5					
	70.11	13.42	0.200	0.58	0.117	3.51	22.93	3.1					
									120	.2917	..	INITIAL SUBAREA	
8.00	0.2	0.2	D	Chaparral-B	5.0	6.19	0.20	0.200	1.2				
									200	.5000	..	INITIAL SUBAREA	
10.00	0.4	0.4	D	Chaparral-B	5.0	6.17	0.20	0.200	2.2				
									280	.3393	..	INITIAL SUBAREA	
12.00	2.0	2.0	D	Chaparral-B	6.2	5.47	0.20	0.200	9.5				
									600	.1667	..	INITIAL SUBAREA	
14.00	1.3	1.3	D	Chaparral-B	9.7	4.23	0.20	0.200	4.8				
									450	.0818	..	INITIAL SUBAREA	
16.00	1.0	1.0	D	Chaparral-B	10.0	4.17	0.20	0.200	3.6				

[ORANGE COUNTY]

FILE NAME:PR1.DAT *ENGLISH UNITS* CALCULATED BY:

TIME/DATE OF STUDY: 10:54 1/28/2015 CHECKED BY:

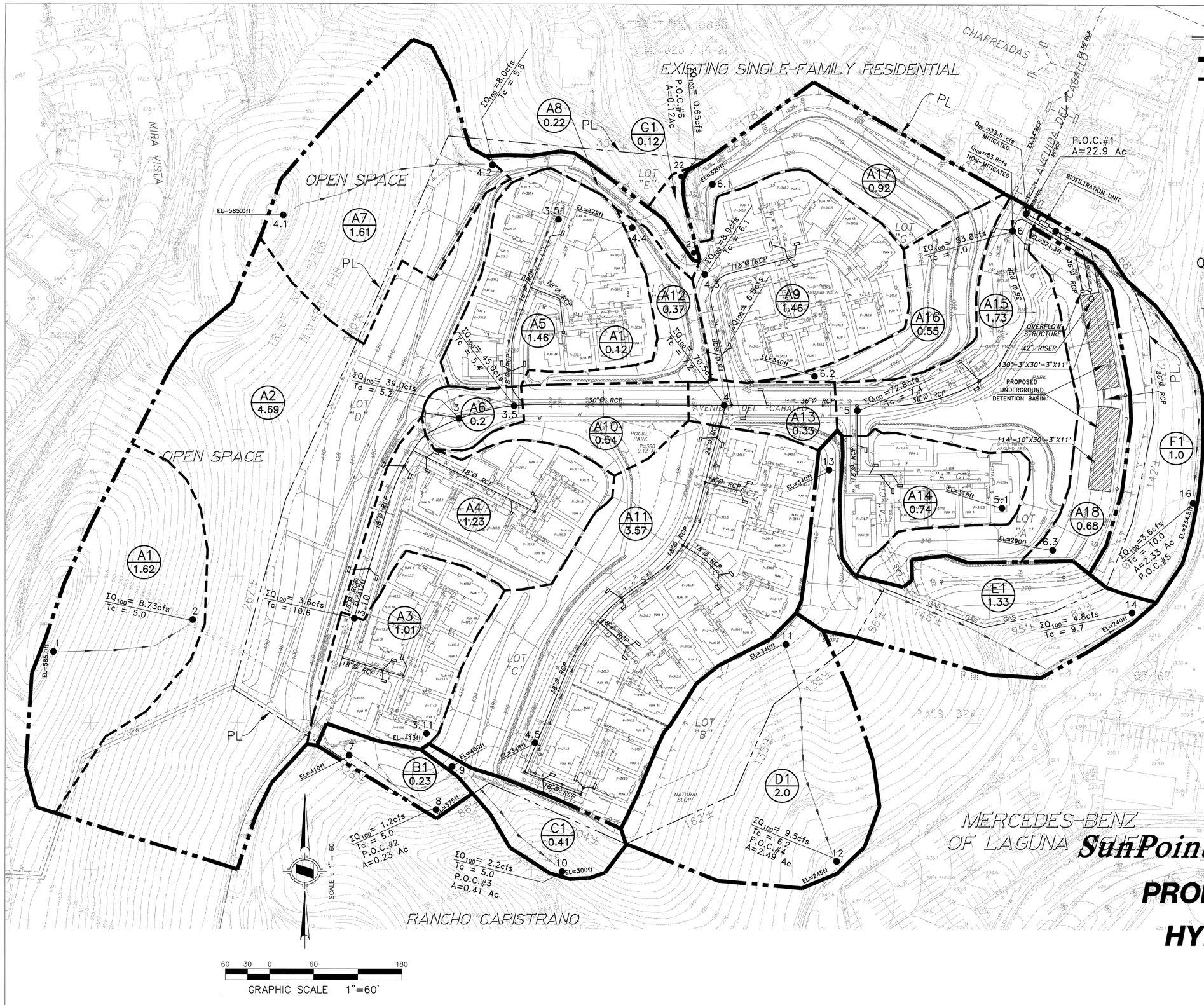
100.0-YEAR STORM RATIONAL METHOD STUDY (AMC II LOSSES) PAGE NUMBER 6 OF

[(c) 1983-2003 ADVANCED ENGINEERING SOFTWARE]

CONCENTRATION POINT NUMBER	AREA (ACRES) SUBAREA	SUM	SOIL TYPE	DEV. TYPE	Tt MIN.	Tc MIN.	I (in/hr)	Fm (Avg)	Fm (cfs)	Q-SUM (ft)	PATH ft/ft	SLOPE FPS.	V	HYDRAULICS AND NOTES
16.00		1.0			----	10.0				3.6	----	----	----	STREAM SUMMARY

EFFECTIVE AREA = 1.00 Acres TOTAL AREA = 1.00 Acres PEAK FLOW RATE = 3.57 cfs

TIME OF CONCENTRATION(MIN.)= 9.98 MEAN VALUES: Fp = 0.200 (in/hr); Ap = 1.000; Fm = 0.200 (in/hr)



LEGEND

	MAJOR DRAINAGE BOUNDARY
	MINOR DRAINAGE BOUNDARY
A1	AREA DESIGNATION
0.8AC	AREA ACREAGE (IN ACRES)
D	SOIL GROUP
EX.	EXISTING STORM DRAIN
PRO.	PROPOSED STORM DRAIN
PL	PROPERTY LINE
Q_{100} = 2.8 cfs	100-YR PEAK RUNOFF IN CUBIC FEET PER SECOND
Tc = 6.3 MIN	TIME OF CONCENTRATION MINUTES
	FLOW DIRECTION
	EXISTING STORM DRAIN
	PROPOSED STORM DRAIN
	CATCH BASINS
Ø	*PIPE DIAMETER*
RCP	REINFORCED CONCRETE PIPE

PREPARED FOR:

EULAND CAPITAL ENTERPRISES, LP

59 Honeyflower
Irvine, CA 92620-3327
Contact: David Shieh
Phone: (949) 293-2246

PREPARED BY:

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Three Hughes • Irvine, CA 92618
FX: (949) 583-0759 • Ph: (949) 583-1010

SunPointe DEVELOPMENT

PROPOSED CONDITION HYDROLOGY MAP TTM 17433

WO: 2950-5X TTM 17433

F:\0178\Planning\OA_Project\SY_Hydrology\PROPOSED Hydrology-04-03-2015.dwg

APR 14 2015

SECTION 4

4. UNIT HYDROGRAPH CALCULATIONS

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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)
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            Ver. 21.0  Release Date: 06/01/2014  License ID 1239

                        Analysis prepared by:

                        HUNSAKER & ASSOCIATES
                              Irvine,Inc
                    Planning * Engineering * Surveying
         Three Hughes * Irvine, California 92618 * (949)583-1010

----------------------------------------------------------------------------
  FILE NAME: SUN1.DAT
  TIME/DATE OF STUDY: 08:20 04/08/2015

   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      1.00 TO NODE      2.00 IS CODE = 1.2
----------------------------------------------------------------------------
  >>>>>SUBAREA RUNOFF (SMALL AREA UNIT-HYDROGRAPH ANALYSIS) <<<<<
============================================================================

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

    RATIONAL METHOD CALIBRATION COEFFICIENT = 1.03
    TOTAL CATCHMENT AREA(ACRES) =   20.65
    SOIL-LOSS RATE, Fm,(INCH/HR) =  0.020
    LOW LOSS FRACTION = 0.050
    TIME OF CONCENTRATION(MIN.) = 10.81
    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) =     9.53
    TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) =     0.16

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

24-HOUR STORM RUNOFF HYDROGRAPH

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.	21.0	42.0	63.0	84.0
0.017	0.0001	0.10	Q	.	.	.	.
0.033	0.0006	0.30	Q	.	.	.	.
0.050	0.0013	0.51	Q	.	.	.	.
0.067	0.0022	0.71	Q	.	.	.	.
0.083	0.0035	0.91	Q	.	.	.	.
0.100	0.0050	1.11	Q	.	.	.	.
0.117	0.0068	1.32	Q	.	.	.	.
0.133	0.0089	1.52	Q	.	.	.	.
0.150	0.0113	1.71	Q	.	.	.	.
0.167	0.0137	1.77	Q	.	.	.	.
0.183	0.0162	1.77	Q	.	.	.	.
0.200	0.0186	1.77	Q	.	.	.	.
0.217	0.0210	1.77	Q	.	.	.	.
0.233	0.0235	1.77	Q	.	.	.	.
0.250	0.0259	1.77	Q	.	.	.	.
0.267	0.0284	1.77	Q	.	.	.	.
0.283	0.0308	1.78	Q	.	.	.	.
0.300	0.0333	1.78	Q	.	.	.	.
0.317	0.0357	1.78	Q	.	.	.	.
0.333	0.0382	1.78	Q	.	.	.	.
0.350	0.0406	1.78	Q	.	.	.	.
0.367	0.0431	1.78	Q	.	.	.	.
0.383	0.0455	1.78	Q	.	.	.	.
0.400	0.0480	1.78	Q	.	.	.	.
0.417	0.0504	1.78	Q	.	.	.	.
0.433	0.0529	1.78	Q	.	.	.	.
0.450	0.0553	1.78	Q	.	.	.	.
0.467	0.0578	1.79	Q	.	.	.	.
0.483	0.0603	1.79	Q	.	.	.	.
0.500	0.0627	1.79	Q	.	.	.	.
0.517	0.0652	1.79	Q	.	.	.	.
0.533	0.0676	1.79	Q	.	.	.	.
0.550	0.0701	1.79	Q	.	.	.	.
0.567	0.0726	1.79	Q	.	.	.	.
0.583	0.0751	1.79	Q	.	.	.	.
0.600	0.0775	1.80	Q	.	.	.	.
0.617	0.0800	1.80	Q	.	.	.	.
0.633	0.0825	1.80	Q	.	.	.	.
0.650	0.0850	1.80	Q	.	.	.	.
0.667	0.0874	1.80	Q	.	.	.	.
0.683	0.0899	1.80	Q	.	.	.	.
0.700	0.0924	1.81	Q	.	.	.	.
0.717	0.0949	1.81	Q	.	.	.	.
0.733	0.0974	1.81	Q	.	.	.	.
0.750	0.0999	1.81	Q	.	.	.	.
0.767	0.1024	1.81	Q	.	.	.	.
0.783	0.1049	1.81	Q	.	.	.	.
0.800	0.1074	1.81	Q	.	.	.	.
0.817	0.1099	1.81	Q	.	.	.	.
0.833	0.1124	1.81	Q	.	.	.	.
0.850	0.1149	1.81	Q	.	.	.	.
0.867	0.1174	1.81	Q	.	.	.	.
0.883	0.1199	1.81	Q	.	.	.	.
0.900	0.1224	1.82	Q	.	.	.	.
0.917	0.1249	1.82	Q	.	.	.	.
0.933	0.1274	1.82	Q	.	.	.	.
0.950	0.1299	1.82	Q	.	.	.	.
0.967	0.1324	1.82	Q	.	.	.	.
0.983	0.1349	1.83	Q	.	.	.	.
1.000	0.1374	1.83	Q	.	.	.	.
1.017	0.1399	1.83	Q	.	.	.	.
1.033	0.1425	1.83	Q	.	.	.	.
1.050	0.1450	1.83	Q	.	.	.	.
1.067	0.1475	1.83	Q	.	.	.	.
1.083	0.1500	1.83	Q	.	.	.	.
1.100	0.1526	1.83	Q	.	.	.	.
1.117	0.1551	1.84	Q	.	.	.	.
1.133	0.1576	1.84	Q	.	.	.	.
1.150	0.1601	1.84	Q	.	.	.	.
1.167	0.1627	1.84	Q	.	.	.	.
1.183	0.1652	1.84	Q	.	.	.	.
1.200	0.1677	1.84	Q	.	.	.	.
1.217	0.1703	1.84	Q	.	.	.	.
1.233	0.1728	1.84	Q	.	.	.	.
1.250	0.1754	1.84	Q	.	.	.	.
1.267	0.1779	1.84	Q	.	.	.	.
1.283	0.1804	1.85	Q	.	.	.	.
1.300	0.1830	1.85	Q	.	.	.	.
1.317	0.1855	1.85	Q	.	.	.	.
1.333	0.1881	1.85	Q	.	.	.	.
1.350	0.1906	1.85	Q	.	.	.	.
1.367	0.1932	1.86	Q	.	.	.	.
1.383	0.1957	1.86	Q	.	.	.	.
1.400	0.1983	1.86	Q	.	.	.	.
1.417	0.2009	1.86	Q	.	.	.	.
1.433	0.2034	1.86	Q	.	.	.	.
1.450	0.2060	1.86	Q	.	.	.	.
1.467	0.2086	1.86	Q	.	.	.	.
1.483	0.2111	1.86	Q	.	.	.	.
1.500	0.2137	1.86	Q	.	.	.	.
1.517	0.2163	1.87	Q	.	.	.	.
1.533	0.2188	1.87	Q	.	.	.	.
1.550	0.2214	1.87	Q	.	.	.	.
1.567	0.2240	1.87	Q	.	.	.	.
1.583	0.2266	1.87	Q	.	.	.	.
1.600	0.2291	1.87	Q	.	.	.	.
1.617	0.2317	1.87	Q	.	.	.	.
1.633	0.2343	1.87	Q	.	.	.	.
1.650	0.2369	1.88	Q	.	.	.	.

1.667	0.2395	1.88	QV	.	.	.	.
1.683	0.2421	1.88	QV	.	.	.	.
1.700	0.2446	1.88	QV	.	.	.	.
1.717	0.2472	1.88	QV	.	.	.	.
1.733	0.2498	1.88	QV	.	.	.	.
1.750	0.2524	1.89	QV	.	.	.	.
1.767	0.2550	1.89	QV	.	.	.	.
1.783	0.2576	1.89	QV	.	.	.	.
1.800	0.2602	1.89	QV	.	.	.	.
1.817	0.2629	1.89	QV	.	.	.	.
1.833	0.2655	1.89	QV	.	.	.	.
1.850	0.2681	1.89	QV	.	.	.	.
1.867	0.2707	1.89	QV	.	.	.	.
1.883	0.2733	1.90	QV	.	.	.	.
1.900	0.2759	1.90	QV	.	.	.	.
1.917	0.2785	1.90	QV	.	.	.	.
1.933	0.2811	1.90	QV	.	.	.	.
1.950	0.2837	1.90	QV	.	.	.	.
1.967	0.2864	1.90	QV	.	.	.	.
1.983	0.2890	1.90	QV	.	.	.	.
2.000	0.2916	1.90	QV	.	.	.	.
2.017	0.2942	1.91	QV	.	.	.	.
2.033	0.2969	1.91	QV	.	.	.	.
2.050	0.2995	1.91	QV	.	.	.	.
2.067	0.3021	1.91	QV	.	.	.	.
2.083	0.3048	1.91	QV	.	.	.	.
2.100	0.3074	1.92	QV	.	.	.	.
2.117	0.3100	1.92	QV	.	.	.	.
2.133	0.3127	1.92	QV	.	.	.	.
2.150	0.3153	1.92	QV	.	.	.	.
2.167	0.3180	1.92	QV	.	.	.	.
2.183	0.3206	1.92	QV	.	.	.	.
2.200	0.3233	1.92	QV	.	.	.	.
2.217	0.3259	1.92	QV	.	.	.	.
2.233	0.3286	1.93	QV	.	.	.	.
2.250	0.3312	1.93	QV	.	.	.	.
2.267	0.3339	1.93	QV	.	.	.	.
2.283	0.3365	1.93	QV	.	.	.	.
2.300	0.3392	1.93	QV	.	.	.	.
2.317	0.3419	1.93	QV	.	.	.	.
2.333	0.3445	1.93	QV	.	.	.	.
2.350	0.3472	1.93	QV	.	.	.	.
2.367	0.3498	1.94	QV	.	.	.	.
2.383	0.3525	1.94	QV	.	.	.	.
2.400	0.3552	1.94	QV	.	.	.	.
2.417	0.3579	1.94	QV	.	.	.	.
2.433	0.3605	1.94	QV	.	.	.	.
2.450	0.3632	1.95	QV	.	.	.	.
2.467	0.3659	1.95	QV	.	.	.	.
2.483	0.3686	1.95	QV	.	.	.	.
2.500	0.3713	1.95	QV	.	.	.	.
2.517	0.3740	1.95	QV	.	.	.	.
2.533	0.3767	1.95	QV	.	.	.	.
2.550	0.3794	1.95	QV	.	.	.	.
2.567	0.3820	1.96	QV	.	.	.	.
2.583	0.3847	1.96	QV	.	.	.	.
2.600	0.3874	1.96	QV	.	.	.	.
2.617	0.3901	1.96	QV	.	.	.	.
2.633	0.3928	1.96	QV	.	.	.	.
2.650	0.3955	1.96	QV	.	.	.	.
2.667	0.3982	1.96	QV	.	.	.	.
2.683	0.4009	1.96	QV	.	.	.	.
2.700	0.4037	1.97	QV	.	.	.	.
2.717	0.4064	1.97	QV	.	.	.	.
2.733	0.4091	1.97	QV	.	.	.	.
2.750	0.4118	1.97	QV	.	.	.	.
2.767	0.4145	1.97	QV	.	.	.	.
2.783	0.4172	1.98	QV	.	.	.	.
2.800	0.4200	1.98	QV	.	.	.	.
2.817	0.4227	1.98	QV	.	.	.	.
2.833	0.4254	1.98	QV	.	.	.	.
2.850	0.4281	1.98	QV	.	.	.	.
2.867	0.4309	1.99	QV	.	.	.	.
2.883	0.4336	1.99	QV	.	.	.	.
2.900	0.4364	1.99	QV	.	.	.	.
2.917	0.4391	1.99	QV	.	.	.	.
2.933	0.4418	1.99	QV	.	.	.	.
2.950	0.4446	1.99	QV	.	.	.	.
2.967	0.4473	1.99	QV	.	.	.	.
2.983	0.4501	1.99	QV	.	.	.	.
3.000	0.4528	1.99	QV	.	.	.	.
3.017	0.4556	1.99	QV	.	.	.	.
3.033	0.4583	2.00	QV	.	.	.	.
3.050	0.4611	2.00	QV	.	.	.	.
3.067	0.4638	2.00	QV	.	.	.	.
3.083	0.4666	2.00	QV	.	.	.	.
3.100	0.4693	2.00	QV	.	.	.	.
3.117	0.4721	2.01	QV	.	.	.	.
3.133	0.4749	2.01	QV	.	.	.	.
3.150	0.4776	2.01	Q V	.	.	.	.
3.167	0.4804	2.01	Q V	.	.	.	.
3.183	0.4832	2.01	Q V	.	.	.	.
3.200	0.4860	2.02	Q V	.	.	.	.
3.217	0.4887	2.02	Q V	.	.	.	.
3.233	0.4915	2.02	Q V	.	.	.	.
3.250	0.4943	2.02	Q V	.	.	.	.
3.267	0.4971	2.02	Q V	.	.	.	.
3.283	0.4999	2.02	Q V	.	.	.	.
3.300	0.5027	2.02	Q V	.	.	.	.
3.317	0.5055	2.03	Q V	.	.	.	.
3.333	0.5082	2.03	Q V	.	.	.	.
3.350	0.5110	2.03	Q V	.	.	.	.
3.367	0.5138	2.03	Q V	.	.	.	.
3.383	0.5166	2.03	Q V	.	.	.	.
3.400	0.5194	2.03	Q V	.	.	.	.
3.417	0.5222	2.03	Q V	.	.	.	.
3.433	0.5250	2.04	Q V	.	.	.	.
3.450	0.5278	2.04	Q V	.	.	.	.
3.467	0.5307	2.04	Q V	.	.	.	.
3.483	0.5335	2.04	Q V	.	.	.	.
3.500	0.5363	2.05	Q V	.	.	.	.
3.517	0.5391	2.05	Q V	.	.	.	.

3.533	0.5419	2.05	Q V	.	.	.	.
3.550	0.5447	2.05	Q V	.	.	.	.
3.567	0.5476	2.05	Q V	.	.	.	.
3.583	0.5504	2.06	Q V	.	.	.	.
3.600	0.5532	2.06	Q V	.	.	.	.
3.617	0.5561	2.06	Q V	.	.	.	.
3.633	0.5589	2.06	Q V	.	.	.	.
3.650	0.5618	2.06	Q V	.	.	.	.
3.667	0.5646	2.06	Q V	.	.	.	.
3.683	0.5674	2.06	Q V	.	.	.	.
3.700	0.5703	2.06	Q V	.	.	.	.
3.717	0.5731	2.06	Q V	.	.	.	.
3.733	0.5760	2.07	Q V	.	.	.	.
3.750	0.5788	2.07	Q V	.	.	.	.
3.767	0.5817	2.07	Q V	.	.	.	.
3.783	0.5845	2.07	Q V	.	.	.	.
3.800	0.5874	2.07	Q V	.	.	.	.
3.817	0.5902	2.08	Q V	.	.	.	.
3.833	0.5931	2.08	Q V	.	.	.	.
3.850	0.5960	2.08	Q V	.	.	.	.
3.867	0.5988	2.08	Q V	.	.	.	.
3.883	0.6017	2.09	Q V	.	.	.	.
3.900	0.6046	2.09	Q V	.	.	.	.
3.917	0.6075	2.09	Q V	.	.	.	.
3.933	0.6103	2.09	Q V	.	.	.	.
3.950	0.6132	2.09	Q V	.	.	.	.
3.967	0.6161	2.10	Q V	.	.	.	.
3.983	0.6190	2.10	Q V	.	.	.	.
4.000	0.6219	2.10	Q V	.	.	.	.
4.017	0.6248	2.10	Q V	.	.	.	.
4.033	0.6277	2.10	.QV	.	.	.	.
4.050	0.6306	2.10	.QV	.	.	.	.
4.067	0.6335	2.10	.QV	.	.	.	.
4.083	0.6364	2.10	.QV	.	.	.	.
4.100	0.6393	2.11	.QV	.	.	.	.
4.117	0.6422	2.11	.QV	.	.	.	.
4.133	0.6451	2.11	.QV	.	.	.	.
4.150	0.6480	2.11	.QV	.	.	.	.
4.167	0.6509	2.11	.QV	.	.	.	.
4.183	0.6538	2.12	.QV	.	.	.	.
4.200	0.6567	2.12	.QV	.	.	.	.
4.217	0.6596	2.12	.QV	.	.	.	.
4.233	0.6626	2.12	.QV	.	.	.	.
4.250	0.6655	2.13	.QV	.	.	.	.
4.267	0.6684	2.13	.QV	.	.	.	.
4.283	0.6714	2.13	.QV	.	.	.	.
4.300	0.6743	2.13	.QV	.	.	.	.
4.317	0.6772	2.13	.QV	.	.	.	.
4.333	0.6802	2.14	.QV	.	.	.	.
4.350	0.6831	2.14	.QV	.	.	.	.
4.367	0.6861	2.14	.QV	.	.	.	.
4.383	0.6890	2.14	.QV	.	.	.	.
4.400	0.6920	2.14	.QV	.	.	.	.
4.417	0.6949	2.14	.QV	.	.	.	.
4.433	0.6979	2.14	.QV	.	.	.	.
4.450	0.7008	2.14	.QV	.	.	.	.
4.467	0.7038	2.15	.QV	.	.	.	.
4.483	0.7067	2.15	.QV	.	.	.	.
4.500	0.7097	2.15	.QV	.	.	.	.
4.517	0.7127	2.15	.QV	.	.	.	.
4.533	0.7156	2.16	.Q V	.	.	.	.
4.550	0.7186	2.16	.Q V	.	.	.	.
4.567	0.7216	2.16	.Q V	.	.	.	.
4.583	0.7246	2.16	.Q V	.	.	.	.
4.600	0.7275	2.17	.Q V	.	.	.	.
4.617	0.7305	2.17	.Q V	.	.	.	.
4.633	0.7335	2.17	.Q V	.	.	.	.
4.650	0.7365	2.17	.Q V	.	.	.	.
4.667	0.7395	2.18	.Q V	.	.	.	.
4.683	0.7425	2.18	.Q V	.	.	.	.
4.700	0.7455	2.18	.Q V	.	.	.	.
4.717	0.7485	2.18	.Q V	.	.	.	.
4.733	0.7515	2.18	.Q V	.	.	.	.
4.750	0.7545	2.18	.Q V	.	.	.	.
4.767	0.7575	2.18	.Q V	.	.	.	.
4.783	0.7605	2.18	.Q V	.	.	.	.
4.800	0.7636	2.19	.Q V	.	.	.	.
4.817	0.7666	2.19	.Q V	.	.	.	.
4.833	0.7696	2.19	.Q V	.	.	.	.
4.850	0.7726	2.19	.Q V	.	.	.	.
4.867	0.7756	2.19	.Q V	.	.	.	.
4.883	0.7787	2.20	.Q V	.	.	.	.
4.900	0.7817	2.20	.Q V	.	.	.	.
4.917	0.7847	2.20	.Q V	.	.	.	.
4.933	0.7878	2.21	.Q V	.	.	.	.
4.950	0.7908	2.21	.Q V	.	.	.	.
4.967	0.7938	2.21	.Q V	.	.	.	.
4.983	0.7969	2.21	.Q V	.	.	.	.
5.000	0.7999	2.22	.Q V	.	.	.	.
5.017	0.8030	2.22	.Q V	.	.	.	.
5.033	0.8061	2.22	.Q V	.	.	.	.
5.050	0.8091	2.22	.Q V	.	.	.	.
5.067	0.8122	2.22	.Q V	.	.	.	.
5.083	0.8152	2.22	.Q V	.	.	.	.
5.100	0.8183	2.23	.Q V	.	.	.	.
5.117	0.8214	2.23	.Q V	.	.	.	.
5.133	0.8244	2.23	.Q V	.	.	.	.
5.150	0.8275	2.23	.Q V	.	.	.	.
5.167	0.8306	2.23	.Q V	.	.	.	.
5.183	0.8337	2.23	.Q V	.	.	.	.
5.200	0.8367	2.23	.Q V	.	.	.	.
5.217	0.8398	2.24	.Q V	.	.	.	.
5.233	0.8429	2.24	.Q V	.	.	.	.
5.250	0.8460	2.24	.Q V	.	.	.	.
5.267	0.8491	2.25	.Q V	.	.	.	.
5.283	0.8522	2.25	.Q V	.	.	.	.
5.300	0.8553	2.25	.Q V	.	.	.	.
5.317	0.8584	2.25	.Q V	.	.	.	.
5.333	0.8615	2.26	.Q V	.	.	.	.
5.350	0.8646	2.26	.Q V	.	.	.	.
5.367	0.8677	2.26	.Q V	.	.	.	.
5.383	0.8709	2.27	.Q V	.	.	.	.

5.400	0.8740	2.27	.Q	V	.	.	.	.
5.417	0.8771	2.27	.Q	V	.	.	.	.
5.433	0.8802	2.27	.Q	V	.	.	.	.
5.450	0.8834	2.27	.Q	V	.	.	.	.
5.467	0.8865	2.27	.Q	V	.	.	.	.
5.483	0.8896	2.27	.Q	V	.	.	.	.
5.500	0.8928	2.28	.Q	V	.	.	.	.
5.517	0.8959	2.28	.Q	V	.	.	.	.
5.533	0.8990	2.28	.Q	V	.	.	.	.
5.550	0.9022	2.28	.Q	V	.	.	.	.
5.567	0.9053	2.28	.Q	V	.	.	.	.
5.583	0.9085	2.29	.Q	V	.	.	.	.
5.600	0.9116	2.29	.Q	V	.	.	.	.
5.617	0.9148	2.29	.Q	V	.	.	.	.
5.633	0.9179	2.29	.Q	V	.	.	.	.
5.650	0.9211	2.30	.Q	V	.	.	.	.
5.667	0.9243	2.30	.Q	V	.	.	.	.
5.683	0.9274	2.30	.Q	V	.	.	.	.
5.700	0.9306	2.31	.Q	V	.	.	.	.
5.717	0.9338	2.31	.Q	V	.	.	.	.
5.733	0.9370	2.31	.Q	V	.	.	.	.
5.750	0.9402	2.32	.Q	V	.	.	.	.
5.767	0.9434	2.32	.Q	V	.	.	.	.
5.783	0.9466	2.32	.Q	V	.	.	.	.
5.800	0.9498	2.32	.Q	V	.	.	.	.
5.817	0.9530	2.32	.Q	V	.	.	.	.
5.833	0.9562	2.32	.Q	V	.	.	.	.
5.850	0.9594	2.32	.Q	V	.	.	.	.
5.867	0.9626	2.33	.Q	V	.	.	.	.
5.883	0.9658	2.33	.Q	V	.	.	.	.
5.900	0.9690	2.33	.Q	V	.	.	.	.
5.917	0.9722	2.33	.Q	V	.	.	.	.
5.933	0.9754	2.33	.Q	V	.	.	.	.
5.950	0.9786	2.34	.Q	V	.	.	.	.
5.967	0.9819	2.34	.Q	V	.	.	.	.
5.983	0.9851	2.34	.Q	V	.	.	.	.
6.000	0.9883	2.35	.Q	V	.	.	.	.
6.017	0.9916	2.35	.Q	V	.	.	.	.
6.033	0.9948	2.35	.Q	V	.	.	.	.
6.050	0.9980	2.36	.Q	V	.	.	.	.
6.067	1.0013	2.36	.Q	V	.	.	.	.
6.083	1.0045	2.36	.Q	V	.	.	.	.
6.100	1.0078	2.37	.Q	V	.	.	.	.
6.117	1.0111	2.37	.Q	V	.	.	.	.
6.133	1.0143	2.37	.Q	V	.	.	.	.
6.150	1.0176	2.37	.Q	V	.	.	.	.
6.167	1.0209	2.37	.Q	V	.	.	.	.
6.183	1.0241	2.37	.Q	V	.	.	.	.
6.200	1.0274	2.38	.Q	V	.	.	.	.
6.217	1.0307	2.38	.Q	V	.	.	.	.
6.233	1.0340	2.38	.Q	V	.	.	.	.
6.250	1.0372	2.38	.Q	V	.	.	.	.
6.267	1.0405	2.38	.Q	V	.	.	.	.
6.283	1.0438	2.38	.Q	V	.	.	.	.
6.300	1.0471	2.39	.Q	V	.	.	.	.
6.317	1.0504	2.39	.Q	V	.	.	.	.
6.333	1.0537	2.40	.Q	V	.	.	.	.
6.350	1.0570	2.40	.Q	V	.	.	.	.
6.367	1.0603	2.40	.Q	V	.	.	.	.
6.383	1.0636	2.41	.Q	V	.	.	.	.
6.400	1.0669	2.41	.Q	V	.	.	.	.
6.417	1.0703	2.41	.Q	V	.	.	.	.
6.433	1.0736	2.42	.Q	V	.	.	.	.
6.450	1.0769	2.42	.Q	V	.	.	.	.
6.467	1.0803	2.42	.Q	V	.	.	.	.
6.483	1.0836	2.42	.Q	V	.	.	.	.
6.500	1.0869	2.43	.Q	V	.	.	.	.
6.517	1.0903	2.43	.Q	V	.	.	.	.
6.533	1.0936	2.43	.Q	V	.	.	.	.
6.550	1.0970	2.43	.Q	V	.	.	.	.
6.567	1.1003	2.43	.Q	V	.	.	.	.
6.583	1.1037	2.43	.Q	V	.	.	.	.
6.600	1.1070	2.44	.Q	V	.	.	.	.
6.617	1.1104	2.44	.Q	V	.	.	.	.
6.633	1.1137	2.44	.Q	V	.	.	.	.
6.650	1.1171	2.44	.Q	V	.	.	.	.
6.667	1.1205	2.45	.Q	V	.	.	.	.
6.683	1.1239	2.45	.Q	V	.	.	.	.
6.700	1.1272	2.45	.Q	V	.	.	.	.
6.717	1.1306	2.46	.Q	V	.	.	.	.
6.733	1.1340	2.46	.Q	V	.	.	.	.
6.750	1.1374	2.46	.Q	V	.	.	.	.
6.767	1.1408	2.47	.Q	V	.	.	.	.
6.783	1.1442	2.47	.Q	V	.	.	.	.
6.800	1.1476	2.48	.Q	V	.	.	.	.
6.817	1.1510	2.48	.Q	V	.	.	.	.
6.833	1.1544	2.48	.Q	V	.	.	.	.
6.850	1.1579	2.48	.Q	V	.	.	.	.
6.867	1.1613	2.48	.Q	V	.	.	.	.
6.883	1.1647	2.49	.Q	V	.	.	.	.
6.900	1.1681	2.49	.Q	V	.	.	.	.
6.917	1.1716	2.49	.Q	V	.	.	.	.
6.933	1.1750	2.49	.Q	V	.	.	.	.
6.950	1.1784	2.49	.Q	V	.	.	.	.
6.967	1.1819	2.50	.Q	V	.	.	.	.
6.983	1.1853	2.50	.Q	V	.	.	.	.
7.000	1.1888	2.50	.Q	V	.	.	.	.
7.017	1.1922	2.50	.Q	V	.	.	.	.
7.033	1.1957	2.51	.Q	V	.	.	.	.
7.050	1.1991	2.51	.Q	V	.	.	.	.
7.067	1.2026	2.52	.Q	V	.	.	.	.
7.083	1.2061	2.52	.Q	V	.	.	.	.
7.100	1.2095	2.52	.Q	V	.	.	.	.
7.117	1.2130	2.53	.Q	V	.	.	.	.
7.133	1.2165	2.53	.Q	V	.	.	.	.
7.150	1.2200	2.53	.Q	V	.	.	.	.
7.167	1.2235	2.54	.Q	V	.	.	.	.
7.183	1.2270	2.54	.Q	V	.	.	.	.
7.200	1.2305	2.54	.Q	V	.	.	.	.
7.217	1.2340	2.55	.Q	V	.	.	.	.
7.233	1.2375	2.55	.Q	V	.	.	.	.
7.250	1.2410	2.55	.Q	V	.	.	.	.

7.267	1.2445	2.55	.Q	V	.	.	.	.
7.283	1.2481	2.55	.Q	V	.	.	.	.
7.300	1.2516	2.56	.Q	V	.	.	.	.
7.317	1.2551	2.56	.Q	V	.	.	.	.
7.333	1.2586	2.56	.Q	V	.	.	.	.
7.350	1.2622	2.56	.Q	V	.	.	.	.
7.367	1.2657	2.56	.Q	V	.	.	.	.
7.383	1.2692	2.57	.Q	V	.	.	.	.
7.400	1.2728	2.57	.Q	V	.	.	.	.
7.417	1.2763	2.58	.Q	V	.	.	.	.
7.433	1.2799	2.58	.Q	V	.	.	.	.
7.450	1.2834	2.59	.Q	V	.	.	.	.
7.467	1.2870	2.59	.Q	V	.	.	.	.
7.483	1.2906	2.59	.Q	V	.	.	.	.
7.500	1.2942	2.60	.Q	V	.	.	.	.
7.517	1.2977	2.60	.Q	V	.	.	.	.
7.533	1.3013	2.61	.Q	V	.	.	.	.
7.550	1.3049	2.61	.Q	V	.	.	.	.
7.567	1.3085	2.61	.Q	V	.	.	.	.
7.583	1.3121	2.61	.Q	V	.	.	.	.
7.600	1.3157	2.62	.Q	V	.	.	.	.
7.617	1.3193	2.62	.Q	V	.	.	.	.
7.633	1.3229	2.62	.Q	V	.	.	.	.
7.650	1.3266	2.62	.Q	V	.	.	.	.
7.667	1.3302	2.62	.Q	V	.	.	.	.
7.683	1.3338	2.63	.Q	V	.	.	.	.
7.700	1.3374	2.63	.Q	V	.	.	.	.
7.717	1.3410	2.63	.Q	V	.	.	.	.
7.733	1.3447	2.63	.Q	V	.	.	.	.
7.750	1.3483	2.64	.Q	V	.	.	.	.
7.767	1.3519	2.64	.Q	V	.	.	.	.
7.783	1.3556	2.65	.Q	V	.	.	.	.
7.800	1.3592	2.65	.Q	V	.	.	.	.
7.817	1.3629	2.66	.Q	V	.	.	.	.
7.833	1.3666	2.66	.Q	V	.	.	.	.
7.850	1.3702	2.67	.Q	V	.	.	.	.
7.867	1.3739	2.67	.Q	V	.	.	.	.
7.883	1.3776	2.67	.Q	V	.	.	.	.
7.900	1.3813	2.68	.Q	V	.	.	.	.
7.917	1.3850	2.68	.Q	V	.	.	.	.
7.933	1.3887	2.68	.Q	V	.	.	.	.
7.950	1.3924	2.69	.Q	V	.	.	.	.
7.967	1.3961	2.69	.Q	V	.	.	.	.
7.983	1.3998	2.69	.Q	V	.	.	.	.
8.000	1.4035	2.69	.Q	V	.	.	.	.
8.017	1.4072	2.70	.Q	V	.	.	.	.
8.033	1.4109	2.70	.Q	V	.	.	.	.
8.050	1.4146	2.70	.Q	V	.	.	.	.
8.067	1.4184	2.70	.Q	V	.	.	.	.
8.083	1.4221	2.71	.Q	V	.	.	.	.
8.100	1.4258	2.71	.Q	V	.	.	.	.
8.117	1.4296	2.71	.Q	V	.	.	.	.
8.133	1.4333	2.72	.Q	V	.	.	.	.
8.150	1.4371	2.72	.Q	V	.	.	.	.
8.167	1.4408	2.73	.Q	V	.	.	.	.
8.183	1.4446	2.73	.Q	V	.	.	.	.
8.200	1.4483	2.74	.Q	V	.	.	.	.
8.217	1.4521	2.74	.Q	V	.	.	.	.
8.233	1.4559	2.75	.Q	V	.	.	.	.
8.250	1.4597	2.75	.Q	V	.	.	.	.
8.267	1.4635	2.76	.Q	V	.	.	.	.
8.283	1.4673	2.76	.Q	V	.	.	.	.
8.300	1.4711	2.76	.Q	V	.	.	.	.
8.317	1.4749	2.76	.Q	V	.	.	.	.
8.333	1.4787	2.77	.Q	V	.	.	.	.
8.350	1.4825	2.77	.Q	V	.	.	.	.
8.367	1.4864	2.77	.Q	V	.	.	.	.
8.383	1.4902	2.77	.Q	V	.	.	.	.
8.400	1.4940	2.78	.Q	V	.	.	.	.
8.417	1.4978	2.78	.Q	V	.	.	.	.
8.433	1.5017	2.78	.Q	V	.	.	.	.
8.450	1.5055	2.78	.Q	V	.	.	.	.
8.467	1.5093	2.79	.Q	V	.	.	.	.
8.483	1.5132	2.80	.Q	V	.	.	.	.
8.500	1.5170	2.80	.Q	V	.	.	.	.
8.517	1.5209	2.81	.Q	V	.	.	.	.
8.533	1.5248	2.81	.Q	V	.	.	.	.
8.550	1.5287	2.82	.Q	V	.	.	.	.
8.567	1.5325	2.82	.Q	V	.	.	.	.
8.583	1.5364	2.83	.Q	V	.	.	.	.
8.600	1.5403	2.83	.Q	V	.	.	.	.
8.617	1.5442	2.84	.Q	V	.	.	.	.
8.633	1.5482	2.84	.Q	V	.	.	.	.
8.650	1.5521	2.84	.Q	V	.	.	.	.
8.667	1.5560	2.85	.Q	V	.	.	.	.
8.683	1.5599	2.85	.Q	V	.	.	.	.
8.700	1.5638	2.85	.Q	V	.	.	.	.
8.717	1.5678	2.85	.Q	V	.	.	.	.
8.733	1.5717	2.86	.Q	V	.	.	.	.
8.750	1.5756	2.86	.Q	V	.	.	.	.
8.767	1.5796	2.86	.Q	V	.	.	.	.
8.783	1.5835	2.86	.Q	V	.	.	.	.
8.800	1.5875	2.87	.Q	V	.	.	.	.
8.817	1.5914	2.87	.Q	V	.	.	.	.
8.833	1.5954	2.88	.Q	V	.	.	.	.
8.850	1.5994	2.88	.Q	V	.	.	.	.
8.867	1.6033	2.89	.Q	V	.	.	.	.
8.883	1.6073	2.89	.Q	V	.	.	.	.
8.900	1.6113	2.90	.Q	V	.	.	.	.
8.917	1.6153	2.91	.Q	V	.	.	.	.
8.933	1.6193	2.91	.Q	V	.	.	.	.
8.950	1.6233	2.92	.Q	V	.	.	.	.
8.967	1.6274	2.92	.Q	V	.	.	.	.
8.983	1.6314	2.93	.Q	V	.	.	.	.
9.000	1.6354	2.93	.Q	V	.	.	.	.
9.017	1.6395	2.93	.Q	V	.	.	.	.
9.033	1.6435	2.94	.Q	V	.	.	.	.
9.050	1.6476	2.94	.Q	V	.	.	.	.
9.067	1.6516	2.94	.Q	V	.	.	.	.
9.083	1.6557	2.94	.Q	V	.	.	.	.
9.100	1.6597	2.95	.Q	V	.	.	.	.
9.117	1.6638	2.95	.Q	V	.	.	.	.

9.133	1.6679	2.95	.Q	V	.	.	.	.
9.150	1.6719	2.96	.Q	V	.	.	.	.
9.167	1.6760	2.96	.Q	V	.	.	.	.
9.183	1.6801	2.97	.Q	V	.	.	.	.
9.200	1.6842	2.97	.Q	V	.	.	.	.
9.217	1.6883	2.98	.Q	V	.	.	.	.
9.233	1.6924	2.98	.Q	V	.	.	.	.
9.250	1.6965	2.99	.Q	V	.	.	.	.
9.267	1.7007	3.00	.Q	V	.	.	.	.
9.283	1.7048	3.00	.Q	V	.	.	.	.
9.300	1.7089	3.01	.Q	V	.	.	.	.
9.317	1.7131	3.01	.Q	V	.	.	.	.
9.333	1.7172	3.02	.Q	V	.	.	.	.
9.350	1.7214	3.03	.Q	V	.	.	.	.
9.367	1.7256	3.03	.Q	V	.	.	.	.
9.383	1.7298	3.03	.Q	V	.	.	.	.
9.400	1.7339	3.03	.Q	V	.	.	.	.
9.417	1.7381	3.04	.Q	V	.	.	.	.
9.433	1.7423	3.04	.Q	V	.	.	.	.
9.450	1.7465	3.04	.Q	V	.	.	.	.
9.467	1.7507	3.05	.Q	V	.	.	.	.
9.483	1.7549	3.05	.Q	V	.	.	.	.
9.500	1.7591	3.05	.Q	V	.	.	.	.
9.517	1.7633	3.06	.Q	V	.	.	.	.
9.533	1.7675	3.06	.Q	V	.	.	.	.
9.550	1.7718	3.07	.Q	V	.	.	.	.
9.567	1.7760	3.08	.Q	V	.	.	.	.
9.583	1.7802	3.08	.Q	V	.	.	.	.
9.600	1.7845	3.09	.Q	V	.	.	.	.
9.617	1.7888	3.09	.Q	V	.	.	.	.
9.633	1.7930	3.10	.Q	V	.	.	.	.
9.650	1.7973	3.11	.Q	V	.	.	.	.
9.667	1.8016	3.11	.Q	V	.	.	.	.
9.683	1.8059	3.12	.Q	V	.	.	.	.
9.700	1.8102	3.13	.Q	V	.	.	.	.
9.717	1.8145	3.13	.Q	V	.	.	.	.
9.733	1.8188	3.14	.Q	V	.	.	.	.
9.750	1.8232	3.14	.Q	V	.	.	.	.
9.767	1.8275	3.14	.Q	V	.	.	.	.
9.783	1.8318	3.15	.Q	V	.	.	.	.
9.800	1.8362	3.15	.Q	V	.	.	.	.
9.817	1.8405	3.15	.Q	V	.	.	.	.
9.833	1.8449	3.16	.Q	V	.	.	.	.
9.850	1.8492	3.16	.Q	V	.	.	.	.
9.867	1.8536	3.16	.Q	V	.	.	.	.
9.883	1.8579	3.17	.Q	V	.	.	.	.
9.900	1.8623	3.17	.Q	V	.	.	.	.
9.917	1.8667	3.18	.Q	V	.	.	.	.
9.933	1.8711	3.19	.Q	V	.	.	.	.
9.950	1.8755	3.20	.Q	V	.	.	.	.
9.967	1.8799	3.20	.Q	V	.	.	.	.
9.983	1.8843	3.21	.Q	V	.	.	.	.
10.000	1.8887	3.22	.Q	V	.	.	.	.
10.017	1.8932	3.22	.Q	V	.	.	.	.
10.033	1.8976	3.23	.Q	V	.	.	.	.
10.050	1.9021	3.24	.Q	V	.	.	.	.
10.067	1.9066	3.25	.Q	V	.	.	.	.
10.083	1.9110	3.25	.Q	V	.	.	.	.
10.100	1.9155	3.25	.Q	V	.	.	.	.
10.117	1.9200	3.26	.Q	V	.	.	.	.
10.133	1.9245	3.26	.Q	V	.	.	.	.
10.150	1.9290	3.26	.Q	V	.	.	.	.
10.167	1.9335	3.27	.Q	V	.	.	.	.
10.183	1.9380	3.27	.Q	V	.	.	.	.
10.200	1.9425	3.28	.Q	V	.	.	.	.
10.217	1.9470	3.28	.Q	V	.	.	.	.
10.233	1.9516	3.28	.Q	V	.	.	.	.
10.250	1.9561	3.29	.Q	V	.	.	.	.
10.267	1.9606	3.30	.Q	V	.	.	.	.
10.283	1.9652	3.30	.Q	V	.	.	.	.
10.300	1.9697	3.31	.Q	V	.	.	.	.
10.317	1.9743	3.32	.Q	V	.	.	.	.
10.333	1.9789	3.33	.Q	V	.	.	.	.
10.350	1.9835	3.34	.Q	V	.	.	.	.
10.367	1.9881	3.34	.Q	V	.	.	.	.
10.383	1.9927	3.35	.Q	V	.	.	.	.
10.400	1.9973	3.36	.Q	V	.	.	.	.
10.417	2.0020	3.37	.Q	V	.	.	.	.
10.433	2.0066	3.37	.Q	V	.	.	.	.
10.450	2.0113	3.38	.Q	V	.	.	.	.
10.467	2.0159	3.38	.Q	V	.	.	.	.
10.483	2.0206	3.39	.Q	V	.	.	.	.
10.500	2.0253	3.39	.Q	V	.	.	.	.
10.517	2.0300	3.40	.Q	V	.	.	.	.
10.533	2.0346	3.40	.Q	V	.	.	.	.
10.550	2.0393	3.40	.Q	V	.	.	.	.
10.567	2.0440	3.41	.Q	V	.	.	.	.
10.583	2.0487	3.41	.Q	V	.	.	.	.
10.600	2.0534	3.42	.Q	V	.	.	.	.
10.617	2.0581	3.42	.Q	V	.	.	.	.
10.633	2.0629	3.43	.Q	V	.	.	.	.
10.650	2.0676	3.44	.Q	V	.	.	.	.
10.667	2.0724	3.45	.Q	V	.	.	.	.
10.683	2.0771	3.46	.Q	V	.	.	.	.
10.700	2.0819	3.47	.Q	V	.	.	.	.
10.717	2.0867	3.48	.Q	V	.	.	.	.
10.733	2.0915	3.49	.Q	V	.	.	.	.
10.750	2.0963	3.49	.Q	V	.	.	.	.
10.767	2.1011	3.50	.Q	V	.	.	.	.
10.783	2.1060	3.51	.Q	V	.	.	.	.
10.800	2.1108	3.52	.Q	V	.	.	.	.
10.817	2.1157	3.52	.Q	V	.	.	.	.
10.833	2.1205	3.53	.Q	V	.	.	.	.
10.850	2.1254	3.53	.Q	V	.	.	.	.
10.867	2.1303	3.54	.Q	V	.	.	.	.
10.883	2.1351	3.54	.Q	V	.	.	.	.
10.900	2.1400	3.54	.Q	V	.	.	.	.
10.917	2.1449	3.55	.Q	V.		.	.	.
10.933	2.1498	3.55	.Q	V.		.	.	.
10.950	2.1547	3.56	.Q	V.		.	.	.
10.967	2.1596	3.56	.Q	V.		.	.	.
10.983	2.1645	3.57	.Q	V.		.	.	.

11.000	2.1695	3.58	.Q	V.	.	.	.
11.017	2.1744	3.59	.Q	V.	.	.	.
11.033	2.1794	3.60	.Q	V.	.	.	.
11.050	2.1844	3.61	.Q	V.	.	.	.
11.067	2.1894	3.62	.Q	V.	.	.	.
11.083	2.1944	3.63	.Q	V.	.	.	.
11.100	2.1994	3.64	.Q	V.	.	.	.
11.117	2.2044	3.65	.Q	V.	.	.	.
11.133	2.2095	3.66	.Q	V.	.	.	.
11.150	2.2145	3.67	.Q	V.	.	.	.
11.167	2.2196	3.68	.Q	V.	.	.	.
11.183	2.2247	3.68	.Q	V.	.	.	.
11.200	2.2297	3.69	.Q	V.	.	.	.
11.217	2.2348	3.69	.Q	V.	.	.	.
11.233	2.2399	3.70	.Q	V.	.	.	.
11.250	2.2450	3.70	.Q	V.	.	.	.
11.267	2.2501	3.71	.Q	V.	.	.	.
11.283	2.2552	3.71	.Q	V.	.	.	.
11.300	2.2604	3.72	.Q	V.	.	.	.
11.317	2.2655	3.72	.Q	V.	.	.	.
11.333	2.2706	3.73	.Q	V.	.	.	.
11.350	2.2758	3.74	.Q	V.	.	.	.
11.367	2.2810	3.75	.Q	V.	.	.	.
11.383	2.2861	3.77	.Q	V.	.	.	.
11.400	2.2913	3.78	.Q	V.	.	.	.
11.417	2.2966	3.79	.Q	V.	.	.	.
11.433	2.3018	3.80	.Q	V.	.	.	.
11.450	2.3070	3.81	.Q	V.	.	.	.
11.467	2.3123	3.82	.Q	V.	.	.	.
11.483	2.3176	3.83	.Q	V.	.	.	.
11.500	2.3229	3.84	.Q	V.	.	.	.
11.517	2.3282	3.85	.Q	V.	.	.	.
11.533	2.3335	3.86	.Q	V.	.	.	.
11.550	2.3388	3.86	.Q	V.	.	.	.
11.567	2.3442	3.87	.Q	V.	.	.	.
11.583	2.3495	3.87	.Q	V.	.	.	.
11.600	2.3548	3.88	.Q	V.	.	.	.
11.617	2.3602	3.89	.Q	V.	.	.	.
11.633	2.3655	3.89	.Q	V.	.	.	.
11.650	2.3709	3.90	.Q	V.	.	.	.
11.667	2.3763	3.90	.Q	V.	.	.	.
11.683	2.3817	3.91	.Q	V.	.	.	.
11.700	2.3871	3.92	.Q	V	.	.	.
11.717	2.3925	3.94	.Q	V	.	.	.
11.733	2.3979	3.95	.Q	V	.	.	.
11.750	2.4034	3.96	.Q	V	.	.	.
11.767	2.4089	3.97	.Q	V	.	.	.
11.783	2.4144	3.99	.Q	V	.	.	.
11.800	2.4199	4.00	.Q	V	.	.	.
11.817	2.4254	4.01	.Q	V	.	.	.
11.833	2.4309	4.02	.Q	V	.	.	.
11.850	2.4365	4.04	.Q	V	.	.	.
11.867	2.4421	4.05	.Q	V	.	.	.
11.883	2.4477	4.06	.Q	V	.	.	.
11.900	2.4533	4.06	.Q	V	.	.	.
11.917	2.4589	4.07	.Q	V	.	.	.
11.933	2.4645	4.08	.Q	V	.	.	.
11.950	2.4701	4.08	.Q	V	.	.	.
11.967	2.4757	4.09	.Q	V	.	.	.
11.983	2.4814	4.10	.Q	V	.	.	.
12.000	2.4870	4.10	.Q	V	.	.	.
12.017	2.4927	4.11	.Q	V	.	.	.
12.033	2.4984	4.12	.Q	V	.	.	.
12.050	2.5041	4.16	.Q	V	.	.	.
12.067	2.5100	4.27	. Q	V	.	.	.
12.083	2.5160	4.39	. Q	V	.	.	.
12.100	2.5222	4.50	. Q	V	.	.	.
12.117	2.5286	4.62	. Q	V	.	.	.
12.133	2.5351	4.73	. Q	V	.	.	.
12.150	2.5418	4.84	. Q	V	.	.	.
12.167	2.5486	4.96	. Q	V	.	.	.
12.183	2.5556	5.07	. Q	V	.	.	.
12.200	2.5627	5.19	. Q	V	.	.	.
12.217	2.5700	5.30	. Q	V	.	.	.
12.233	2.5774	5.36	. Q	V	.	.	.
12.250	2.5848	5.37	. Q	V	.	.	.
12.267	2.5922	5.38	. Q	V	.	.	.
12.283	2.5996	5.39	. Q	V	.	.	.
12.300	2.6071	5.40	. Q	V	.	.	.
12.317	2.6145	5.41	. Q	V	.	.	.
12.333	2.6220	5.41	. Q	.V	.	.	.
12.350	2.6295	5.42	. Q	.V	.	.	.
12.367	2.6369	5.43	. Q	.V	.	.	.
12.383	2.6444	5.44	. Q	.V	.	.	.
12.400	2.6519	5.45	. Q	.V	.	.	.
12.417	2.6594	5.46	. Q	.V	.	.	.
12.433	2.6670	5.48	. Q	.V	.	.	.
12.450	2.6746	5.50	. Q	.V	.	.	.
12.467	2.6822	5.52	. Q	.V	.	.	.
12.483	2.6898	5.53	. Q	.V	.	.	.
12.500	2.6974	5.55	. Q	.V	.	.	.
12.517	2.7051	5.57	. Q	.V	.	.	.
12.533	2.7128	5.59	. Q	.V	.	.	.
12.550	2.7205	5.61	. Q	.V	.	.	.
12.567	2.7283	5.62	. Q	.V	.	.	.
12.583	2.7360	5.64	. Q	.V	.	.	.
12.600	2.7438	5.65	. Q	.V	.	.	.
12.617	2.7516	5.66	. Q	.V	.	.	.
12.633	2.7594	5.67	. Q	.V	.	.	.
12.650	2.7673	5.68	. Q	.V	.	.	.
12.667	2.7751	5.69	. Q	.V	.	.	.
12.683	2.7829	5.70	. Q	.V	.	.	.
12.700	2.7908	5.71	. Q	.V	.	.	.
12.717	2.7987	5.72	. Q	.V	.	.	.
12.733	2.8066	5.73	. Q	.V	.	.	.
12.750	2.8145	5.74	. Q	.V	.	.	.
12.767	2.8224	5.75	. Q	.V	.	.	.
12.783	2.8303	5.77	. Q	.V	.	.	.
12.800	2.8383	5.79	. Q	.V	.	.	.
12.817	2.8463	5.81	. Q	.V	.	.	.
12.833	2.8544	5.83	. Q	.V	.	.	.
12.850	2.8624	5.85	. Q	. V	.	.	.

12.867	2.8705	5.88	. Q	. V	.	.	.
12.883	2.8786	5.90	. Q	. V	.	.	.
12.900	2.8868	5.92	. Q	. V	.	.	.
12.917	2.8950	5.94	. Q	. V	.	.	.
12.933	2.9032	5.96	. Q	. V	.	.	.
12.950	2.9114	5.98	. Q	. V	.	.	.
12.967	2.9197	5.99	. Q	. V	.	.	.
12.983	2.9279	6.00	. Q	. V	.	.	.
13.000	2.9362	6.01	. Q	. V	.	.	.
13.017	2.9445	6.02	. Q	. V	.	.	.
13.033	2.9528	6.03	. Q	. V	.	.	.
13.050	2.9612	6.05	. Q	. V	.	.	.
13.067	2.9695	6.06	. Q	. V	.	.	.
13.083	2.9779	6.07	. Q	. V	.	.	.
13.100	2.9862	6.08	. Q	. V	.	.	.
13.117	2.9946	6.09	. Q	. V	.	.	.
13.133	3.0030	6.11	. Q	. V	.	.	.
13.150	3.0115	6.14	. Q	. V	.	.	.
13.167	3.0200	6.16	. Q	. V	.	.	.
13.183	3.0285	6.19	. Q	. V	.	.	.
13.200	3.0370	6.21	. Q	. V	.	.	.
13.217	3.0456	6.24	. Q	. V	.	.	.
13.233	3.0543	6.26	. Q	. V	.	.	.
13.250	3.0629	6.29	. Q	. V	.	.	.
13.267	3.0716	6.31	. Q	. V	.	.	.
13.283	3.0803	6.34	. Q	. V	.	.	.
13.300	3.0891	6.36	. Q	. V	.	.	.
13.317	3.0979	6.38	. Q	. V	.	.	.
13.333	3.1067	6.39	. Q	. V	.	.	.
13.350	3.1155	6.41	. Q	. V	.	.	.
13.367	3.1244	6.42	. Q	. V	.	.	.
13.383	3.1332	6.43	. Q	. V	.	.	.
13.400	3.1421	6.45	. Q	. V	.	.	.
13.417	3.1510	6.46	. Q	. V	.	.	.
13.433	3.1599	6.48	. Q	. V	.	.	.
13.450	3.1689	6.49	. Q	. V	.	.	.
13.467	3.1778	6.50	. Q	. V	.	.	.
13.483	3.1868	6.52	. Q	. V	.	.	.
13.500	3.1958	6.54	. Q	. V	.	.	.
13.517	3.2049	6.58	. Q	. V	.	.	.
13.533	3.2140	6.61	. Q	. V	.	.	.
13.550	3.2231	6.64	. Q	. V	.	.	.
13.567	3.2323	6.67	. Q	. V	.	.	.
13.583	3.2415	6.70	. Q	. V	.	.	.
13.600	3.2508	6.73	. Q	. V	.	.	.
13.617	3.2601	6.76	. Q	. V	.	.	.
13.633	3.2694	6.79	. Q	. V	.	.	.
13.650	3.2788	6.82	. Q	. V	.	.	.
13.667	3.2883	6.85	. Q	. V	.	.	.
13.683	3.2977	6.87	. Q	. V	.	.	.
13.700	3.3072	6.88	. Q	. V	.	.	.
13.717	3.3167	6.90	. Q	. V	.	.	.
13.733	3.3262	6.92	. Q	. V	.	.	.
13.750	3.3358	6.94	. Q	. V	.	.	.
13.767	3.3454	6.95	. Q	. V	.	.	.
13.783	3.3550	6.97	. Q	. V	.	.	.
13.800	3.3646	6.99	. Q	. V	.	.	.
13.817	3.3743	7.00	. Q	. V	.	.	.
13.833	3.3839	7.02	. Q	. V	.	.	.
13.850	3.3936	7.04	. Q	. V	.	.	.
13.867	3.4034	7.08	. Q	. V	.	.	.
13.883	3.4132	7.12	. Q	. V	.	.	.
13.900	3.4231	7.16	. Q	. V	.	.	.
13.917	3.4330	7.20	. Q	. V	.	.	.
13.933	3.4429	7.24	. Q	. V	.	.	.
13.950	3.4530	7.28	. Q	. V	.	.	.
13.967	3.4630	7.31	. Q	. V	.	.	.
13.983	3.4732	7.35	. Q	. V	.	.	.
14.000	3.4833	7.39	. Q	. V	.	.	.
14.017	3.4936	7.43	. Q	. V	.	.	.
14.033	3.5039	7.46	. Q	. V	.	.	.
14.050	3.5142	7.49	. Q	. V	.	.	.
14.067	3.5245	7.51	. Q	. V	.	.	.
14.083	3.5349	7.54	. Q	. V	.	.	.
14.100	3.5453	7.56	. Q	. V	.	.	.
14.117	3.5557	7.58	. Q	. V	.	.	.
14.133	3.5662	7.61	. Q	. V	.	.	.
14.150	3.5767	7.63	. Q	. V	.	.	.
14.167	3.5873	7.66	. Q	. V	.	.	.
14.183	3.5979	7.68	. Q	. V	.	.	.
14.200	3.6085	7.71	. Q	. V	.	.	.
14.217	3.6192	7.75	. Q	. V	.	.	.
14.233	3.6299	7.80	. Q	. V	.	.	.
14.250	3.6407	7.85	. Q	. V	.	.	.
14.267	3.6516	7.91	. Q	. V	.	.	.
14.283	3.6626	7.96	. Q	. V	.	.	.
14.300	3.6736	8.01	. Q	. V	.	.	.
14.317	3.6847	8.07	. Q	. V	.	.	.
14.333	3.6959	8.12	. Q	. V	.	.	.
14.350	3.7072	8.17	. Q	. V	.	.	.
14.367	3.7185	8.22	. Q	. V	.	.	.
14.383	3.7299	8.28	. Q	. V	.	.	.
14.400	3.7413	8.31	. Q	. V	.	.	.
14.417	3.7528	8.34	. Q	. V	.	.	.
14.433	3.7644	8.38	. Q	. V	.	.	.
14.450	3.7760	8.41	. Q	. V	.	.	.
14.467	3.7876	8.44	. Q	. V	.	.	.
14.483	3.7992	8.47	. Q	. V	.	.	.
14.500	3.8110	8.50	. Q	. V	.	.	.
14.517	3.8227	8.53	. Q	. V	.	.	.
14.533	3.8345	8.56	. Q	. V	.	.	.
14.550	3.8463	8.59	. Q	. V	.	.	.
14.567	3.8582	8.63	. Q	. V	.	.	.
14.583	3.8702	8.70	. Q	. V	.	.	.
14.600	3.8823	8.77	. Q	. V	.	.	.
14.617	3.8945	8.85	. Q	. V	.	.	.
14.633	3.9068	8.92	. Q	. V	.	.	.
14.650	3.9192	9.00	. Q	. V	.	.	.
14.667	3.9316	9.07	. Q	. V	.	.	.
14.683	3.9442	9.14	. Q	. V	.	.	.
14.700	3.9569	9.22	. Q	. V	.	.	.
14.717	3.9697	9.29	. Q	. V	.	.	.

14.733	3.9826	9.37	. Q . V . . .
14.750	3.9956	9.44	. Q . V . . .
14.767	4.0087	9.48	. Q . V . . .
14.783	4.0218	9.53	. Q . V . . .
14.800	4.0350	9.57	. Q . V . . .
14.817	4.0483	9.62	. Q . V . . .
14.833	4.0616	9.66	. Q . V . . .
14.850	4.0749	9.71	. Q . V . . .
14.867	4.0884	9.75	. Q . V . . .
14.883	4.1019	9.80	. Q . V . . .
14.900	4.1154	9.84	. Q . V . . .
14.917	4.1290	9.89	. Q . V . . .
14.933	4.1428	9.96	. Q . V . . .
14.950	4.1566	10.07	. Q . V . . .
14.967	4.1707	10.18	. Q . V . . .
14.983	4.1848	10.30	. Q . V . . .
15.000	4.1992	10.41	. Q . V . . .
15.017	4.2137	10.53	. Q . V . . .
15.033	4.2283	10.64	. Q . V . . .
15.050	4.2431	10.75	. Q . V . . .
15.067	4.2581	10.87	. Q . V . . .
15.083	4.2732	10.98	. Q . V . . .
15.100	4.2885	11.09	. Q . V . . .
15.117	4.3039	11.18	. Q . V . . .
15.133	4.3194	11.26	. Q . V . . .
15.150	4.3350	11.33	. Q . V . . .
15.167	4.3507	11.41	. Q . V . . .
15.183	4.3666	11.48	. Q . V . . .
15.200	4.3825	11.55	. Q . V . . .
15.217	4.3985	11.63	. Q . V . . .
15.233	4.4146	11.70	. Q . V . . .
15.250	4.4308	11.77	. Q . V . . .
15.267	4.4471	11.85	. Q . V . . .
15.283	4.4635	11.92	. Q . V . . .
15.300	4.4801	12.02	. Q . V . . .
15.317	4.4968	12.14	. Q . V . . .
15.333	4.5137	12.25	. Q . V . . .
15.350	4.5307	12.36	. Q . V. . .
15.367	4.5479	12.47	. Q . V. . .
15.383	4.5652	12.59	. Q . V. . .
15.400	4.5827	12.70	. Q . V. . .
15.417	4.6004	12.81	. Q . V. . .
15.433	4.6182	12.93	. Q . V. . .
15.450	4.6362	13.04	. Q . V. . .
15.467	4.6543	13.15	. Q . V. . .
15.483	4.6725	13.23	. Q . V. . .
15.500	4.6908	13.31	. Q . V. . .
15.517	4.7092	13.38	. Q . V. . .
15.533	4.7278	13.45	. Q . V. . .
15.550	4.7464	13.53	. Q . V. . .
15.567	4.7652	13.60	. Q . V. . .
15.583	4.7840	13.68	. Q . V . . .
15.600	4.8029	13.75	. Q . V . . .
15.617	4.8220	13.83	. Q . V . . .
15.633	4.8411	13.90	. Q . V . . .
15.650	4.8605	14.07	. Q . V . . .
15.667	4.8806	14.60	. Q . V . . .
15.683	4.9015	15.16	. Q . V . . .
15.700	4.9232	15.72	. Q . V . . .
15.717	4.9456	16.29	. Q . V . . .
15.733	4.9688	16.85	. Q . V . . .
15.750	4.9928	17.41	. Q . V . . .
15.767	5.0176	17.98	. Q . .V . . .
15.783	5.0431	18.54	. Q . .V . . .
15.800	5.0694	19.10	. Q. .V . . .
15.817	5.0965	19.66	. Q. .V . . .
15.833	5.1244	20.27	. Q. .V . . .
15.850	5.1533	20.96	. Q. .V . . .
15.867	5.1831	21.66	. Q .V . . .
15.883	5.2139	22.35	. Q .V . . .
15.900	5.2456	23.05	. Q . V . . .
15.917	5.2783	23.74	. .Q . V . . .
15.933	5.3120	24.43	. .Q . V . . .
15.950	5.3466	25.13	. .Q . V . . .
15.967	5.3822	25.82	. . Q . V . . .
15.983	5.4187	26.52	. . Q . V . . .
16.000	5.4562	27.21	. . Q . V . . .
16.017	5.4977	30.17	. . Q . V . . .
16.033	5.5465	35.39	. . Q . V . . .
16.050	5.6024	40.61	. . Q. V . . .
16.067	5.6655	45.83	. . .Q V . . .
16.083	5.7358	51.05	. . . Q . . .
16.100	5.8134	56.27	. . . V Q . . .
16.117	5.8980	61.49	. . . V Q. . .
16.133	5.9899	66.71	. . . V .Q . .
16.150	6.0890	71.93	. . . V . Q .
16.167	6.1953	77.15	. . . V . Q .
16.183	**6.3110**	**83.99**	**. . . V . Q**
16.200	6.4207	79.66	. . . V . Q .
16.217	6.5218	73.40	. . . V . Q .
16.233	6.6143	67.14	. . . V .Q .
16.250	6.6981	60.88	. . . Q . .
16.267	6.7733	54.61	. . . Q V . .
16.283	6.8399	48.35	. . . Q V . .
16.300	6.8979	42.09	. . Q V . .
16.317	6.9472	35.82	. . Q . V. .
16.333	6.9880	29.56	. . Q . V. .
16.350	7.0201	23.30	. .Q . V. .
16.367	7.0441	17.46	. Q . V. .
16.383	7.0662	16.01	. Q . V. .
16.400	7.0878	15.70	. Q . V. .
16.417	7.1090	15.39	. Q . V. .
16.433	7.1297	15.07	. Q . V. .
16.450	7.1501	14.76	. Q . V .
16.467	7.1700	14.45	. Q . V .
16.483	7.1895	14.14	. Q . V .
16.500	7.2085	13.83	. Q . V .
16.517	7.2271	13.52	. Q . V .
16.533	7.2453	13.21	. Q . V .
16.550	7.2631	12.91	. Q . V .
16.567	7.2805	12.67	. Q . V .
16.583	7.2977	12.45	. Q . V .

16.600	7.3145	12.22	.	Q	.	.	V	.	17.533	7.9656	6.47	.	Q	.	.	.	V	.
16.617	7.3311	12.00	.	Q	.	.	V	.	17.550	7.9745	6.43	.	Q	.	.	.	V	.
16.633	7.3473	11.77	.	Q	.	.	V	.	17.567	7.9833	6.39	.	Q	.	.	.	V	.
16.650	7.3632	11.55	.	Q	.	.	V	.	17.583	7.9920	6.35	.	Q	.	.	.	V	.
16.667	7.3788	11.32	.	Q	.	.	V	.	17.600	8.0007	6.30	.	Q	.	.	.	V	.
16.683	7.3941	11.10	.	Q	.	.	.V	.	17.617	8.0093	6.26	.	Q	.	.	.	V	.
16.700	7.4090	10.87	.	Q	.	.	.V	.	17.633	8.0179	6.22	.	Q	.	.	.	V	.
16.717	7.4237	10.65	.	Q	.	.	.V	.	17.650	8.0264	6.19	.	Q	.	.	.	V	.
16.733	7.4381	10.45	.	Q	.	.	.V	.	17.667	8.0349	6.15	.	Q	.	.	.	V	.
16.750	7.4523	10.31	.	Q	.	.	.V	.	17.683	8.0433	6.12	.	Q	.	.	.	V	.
16.767	7.4663	10.17	.	Q	.	.	.V	.	17.700	8.0517	6.08	.	Q	.	.	.	V	.
16.783	7.4801	10.03	.	Q	.	.	.V	.	17.717	8.0600	6.05	.	Q	.	.	.	V	.
16.800	7.4938	9.90	.	Q	.	.	.V	.	17.733	8.0683	6.02	.	Q	.	.	.	V	.
16.817	7.5072	9.76	.	Q	.	.	.V	.	17.750	8.0765	5.98	.	Q	.	.	.	V	.
16.833	7.5205	9.62	.	Q	.	.	.V	.	17.767	8.0847	5.95	.	Q	.	.	.	V	.
16.850	7.5335	9.49	.	Q	.	.	.V	.	17.783	8.0929	5.91	.	Q	.	.	.	V	.
16.867	7.5464	9.35	.	Q	.	.	.V	.	17.800	8.1010	5.88	.	Q	.	.	.	V	.
16.883	7.5591	9.21	.	Q	.	.	.V	.	17.817	8.1090	5.85	.	Q	.	.	.	V	.
16.900	7.5716	9.08	.	Q	.	.	.V	.	17.833	8.1170	5.82	.	Q	.	.	.	V	.
16.917	7.5840	8.96	.	Q	.	.	.V	.	17.850	8.1250	5.79	.	Q	.	.	.	V	.
16.933	7.5962	8.87	.	Q	.	.	.V	.	17.867	8.1329	5.76	.	Q	.	.	.	V	.
16.950	7.6083	8.77	.	Q	.	.	.V	.	17.883	8.1408	5.73	.	Q	.	.	.	V	.
16.967	7.6202	8.68	.	Q	.	.	.V	.	17.900	8.1487	5.70	.	Q	.	.	.	V	.
16.983	7.6320	8.59	.	Q	.	.	. V	.	17.917	8.1565	5.67	.	Q	.	.	.	V	.
17.000	7.6437	8.49	.	Q	.	.	. V	.	17.933	8.1643	5.64	.	Q	.	.	.	V	.
17.017	7.6553	8.40	.	Q	.	.	. V	.	17.950	8.1720	5.61	.	Q	.	.	.	V	.
17.033	7.6667	8.31	.	Q	.	.	. V	.	17.967	8.1797	5.58	.	Q	.	.	.	V	.
17.050	7.6781	8.21	.	Q	.	.	. V	.	17.983	8.1874	5.56	.	Q	.	.	.	V	.
17.067	7.6892	8.12	.	Q	.	.	. V	.	18.000	8.1949	5.49	.	Q	.	.	.	V	.
17.083	7.7003	8.02	.	Q	.	.	. V	.	18.017	8.2023	5.39	.	Q	.	.	.	V	.
17.100	7.7112	7.95	.	Q	.	.	. V	.	18.033	8.2096	5.30	.	Q	.	.	.	V	.
17.117	7.7221	7.88	.	Q	.	.	. V	.	18.050	8.2168	5.21	.	Q	.	.	.	V	.
17.133	7.7328	7.81	.	Q	.	.	. V	.	18.067	8.2239	5.11	.	Q	.	.	.	V	.
17.150	7.7435	7.74	.	Q	.	.	. V	.	18.083	8.2308	5.02	.	Q	.	.	.	V	.
17.167	7.7541	7.67	.	Q	.	.	. V	.	18.100	8.2375	4.92	.	Q	.	.	.	V	.
17.183	7.7645	7.60	.	Q	.	.	. V	.	18.117	8.2442	4.83	.	Q	.	.	.	V	.
17.200	7.7749	7.53	.	Q	.	.	. V	.	18.133	8.2507	4.73	.	Q	.	.	.	V	.
17.217	7.7852	7.46	.	Q	.	.	. V	.	18.150	8.2571	4.64	.	Q	.	.	.	V	.
17.233	7.7953	7.39	.	Q	.	.	. V	.	18.167	8.2634	4.55	.	Q	.	.	.	V	.
17.250	7.8054	7.32	.	Q	.	.	. V	.	18.183	8.2695	4.48	.	Q	.	.	.	V	.
17.267	7.8154	7.25	.	Q	.	.	. V	.	18.200	8.2756	4.43	.	Q	.	.	.	V	.
17.283	7.8253	7.19	.	Q	.	.	. V	.	18.217	8.2817	4.38	.	Q	.	.	.	V	.
17.300	7.8351	7.14	.	Q	.	.	. V	.	18.233	8.2877	4.33	.	Q	.	.	.	V	.
17.317	7.8449	7.09	.	Q	.	.	. V	.	18.250	8.2936	4.28	.	Q	.	.	.	V	.
17.333	7.8546	7.04	.	Q	.	.	. V	.	18.267	8.2994	4.23	.	Q	.	.	.	V	.
17.350	7.8642	6.99	.	Q	.	.	. V	.	18.283	8.3051	4.18	.	Q	.	.	.	V	.
17.367	7.8738	6.93	.	Q	.	.	. V	.	18.300	8.3108	4.13	.	Q	.	.	.	V	.
17.383	7.8833	6.88	.	Q	.	.	. V	.	18.317	8.3165	4.08	.	Q	.	.	.	V	.
17.400	7.8927	6.83	.	Q	.	.	. V	.	18.333	8.3220	4.03	.	Q	.	.	.	V	.
17.417	7.9020	6.78	.	Q	.	.	. V	.	18.350	8.3275	3.98	.	Q	.	.	.	V	.
17.433	7.9113	6.73	.	Q	.	.	. V	.	18.367	8.3329	3.96	.	Q	.	.	.	V	.
17.450	7.9205	6.68	.	Q	.	.	. V	.	18.383	8.3384	3.94	.	Q	.	.	.	V	.
17.467	7.9296	6.64	.	Q	.	.	. V	.	18.400	8.3438	3.92	.	Q	.	.	.	V	.
17.483	7.9387	6.59	.	Q	.	.	. V	.	18.417	8.3492	3.91	.	Q	.	.	.	V	.
17.500	7.9477	6.55	.	Q	.	.	. V	.	18.433	8.3545	3.89	.	Q	.	.	.	V	.
17.517	7.9567	6.51	.	Q	.	.	. V	.	18.450	8.3598	3.87	.	Q	.	.	.	V	.

18.467	8.3652	3.85	.Q	.	.	.	V	.
18.483	8.3704	3.84	.Q	.	.	.	V	.
18.500	8.3757	3.82	.Q	.	.	.	V	.
18.517	8.3809	3.80	.Q	.	.	.	V	.
18.533	8.3861	3.78	.Q	.	.	.	V	.
18.550	8.3913	3.77	.Q	.	.	.	V	.
18.567	8.3965	3.75	.Q	.	.	.	V	.
18.583	8.4016	3.74	.Q	.	.	.	V	.
18.600	8.4068	3.72	.Q	.	.	.	V	.
18.617	8.4119	3.70	.Q	.	.	.	V	.
18.633	8.4170	3.69	.Q	.	.	.	V	.
18.650	8.4220	3.67	.Q	.	.	.	V	.
18.667	8.4270	3.66	.Q	.	.	.	V	.
18.683	8.4321	3.64	.Q	.	.	.	V	.
18.700	8.4371	3.63	.Q	.	.	.	V	.
18.717	8.4420	3.61	.Q	.	.	.	V	.
18.733	8.4470	3.60	.Q	.	.	.	V	.
18.750	8.4519	3.58	.Q	.	.	.	V	.
18.767	8.4568	3.57	.Q	.	.	.	V	.
18.783	8.4617	3.55	.Q	.	.	.	V	.
18.800	8.4666	3.54	.Q	.	.	.	V	.
18.817	8.4715	3.53	.Q	.	.	.	V	.
18.833	8.4763	3.51	.Q	.	.	.	V	.
18.850	8.4811	3.50	.Q	.	.	.	V	.
18.867	8.4859	3.48	.Q	.	.	.	V	.
18.883	8.4907	3.47	.Q	.	.	.	V	.
18.900	8.4955	3.46	.Q	.	.	.	V	.
18.917	8.5002	3.44	.Q	.	.	.	V	.
18.933	8.5049	3.43	.Q	.	.	.	V	.
18.950	8.5096	3.42	.Q	.	.	.	V	.
18.967	8.5143	3.41	.Q	.	.	.	V	.
18.983	8.5190	3.39	.Q	.	.	.	V	.
19.000	8.5237	3.38	.Q	.	.	.	V	.
19.017	8.5283	3.37	.Q	.	.	.	V	.
19.033	8.5329	3.36	.Q	.	.	.	V	.
19.050	8.5375	3.34	.Q	.	.	.	V	.
19.067	8.5421	3.33	.Q	.	.	.	V	.
19.083	8.5467	3.32	.Q	.	.	.	V	.
19.100	8.5512	3.31	.Q	.	.	.	V	.
19.117	8.5558	3.30	.Q	.	.	.	V	.
19.133	8.5603	3.29	.Q	.	.	.	V	.
19.150	8.5648	3.27	.Q	.	.	.	V	.
19.167	8.5693	3.26	.Q	.	.	.	V	.
19.183	8.5738	3.25	.Q	.	.	.	V	.
19.200	8.5783	3.24	.Q	.	.	.	V	.
19.217	8.5827	3.23	.Q	.	.	.	V	.
19.233	8.5871	3.22	.Q	.	.	.	V	.
19.250	8.5915	3.21	.Q	.	.	.	V	.
19.267	8.5960	3.20	.Q	.	.	.	V	.
19.283	8.6003	3.18	.Q	.	.	.	V	.
19.300	8.6047	3.17	.Q	.	.	.	V	.
19.317	8.6091	3.16	.Q	.	.	.	V	.
19.333	8.6134	3.15	.Q	.	.	.	V	.
19.350	8.6177	3.14	.Q	.	.	.	V	.
19.367	8.6221	3.13	.Q	.	.	.	V	.
19.383	8.6264	3.12	.Q	.	.	.	V	.
19.400	8.6306	3.11	.Q	.	.	.	V	.
19.417	8.6349	3.10	.Q	.	.	.	V	.
19.433	8.6392	3.09	.Q	.	.	.	V	.
19.450	8.6434	3.08	.Q	.	.	.	V	.
19.467	8.6477	3.07	.Q	.	.	.	V	.
19.483	8.6519	3.06	.Q	.	.	.	V	.
19.500	8.6561	3.05	.Q	.	.	.	V	.
19.517	8.6603	3.04	.Q	.	.	.	V	.
19.533	8.6645	3.03	.Q	.	.	.	V	.
19.550	8.6686	3.03	.Q	.	.	.	V	.
19.567	8.6728	3.02	.Q	.	.	.	V	.
19.583	8.6769	3.01	.Q	.	.	.	V	.
19.600	8.6810	3.00	.Q	.	.	.	V	.
19.617	8.6852	2.99	.Q	.	.	.	V	.
19.633	8.6893	2.98	.Q	.	.	.	V	.
19.650	8.6934	2.97	.Q	.	.	.	V	.
19.667	8.6974	2.96	.Q	.	.	.	V	.
19.683	8.7015	2.95	.Q	.	.	.	V	.
19.700	8.7056	2.94	.Q	.	.	.	V	.
19.717	8.7096	2.94	.Q	.	.	.	V	.
19.733	8.7136	2.93	.Q	.	.	.	V	.
19.750	8.7177	2.92	.Q	.	.	.	V	.
19.767	8.7217	2.91	.Q	.	.	.	V	.
19.783	8.7257	2.90	.Q	.	.	.	V	.
19.800	8.7296	2.89	.Q	.	.	.	V	.
19.817	8.7336	2.88	.Q	.	.	.	V	.
19.833	8.7376	2.88	.Q	.	.	.	V	.
19.850	8.7415	2.87	.Q	.	.	.	V	.
19.867	8.7455	2.86	.Q	.	.	.	V	.
19.883	8.7494	2.85	.Q	.	.	.	V	.
19.900	8.7533	2.84	.Q	.	.	.	V	.
19.917	8.7572	2.84	.Q	.	.	.	V	.
19.933	8.7611	2.83	.Q	.	.	.	V	.
19.950	8.7650	2.82	.Q	.	.	.	V	.
19.967	8.7689	2.81	.Q	.	.	.	V	.
19.983	8.7727	2.80	.Q	.	.	.	V	.
20.000	8.7766	2.80	.Q	.	.	.	V	.
20.017	8.7804	2.79	.Q	.	.	.	V	.
20.033	8.7843	2.78	.Q	.	.	.	V	.
20.050	8.7881	2.78	.Q	.	.	.	V	.
20.067	8.7919	2.77	.Q	.	.	.	V	.
20.083	8.7957	2.76	.Q	.	.	.	V	.
20.100	8.7995	2.75	.Q	.	.	.	V	.
20.117	8.8033	2.75	.Q	.	.	.	V	.
20.133	8.8070	2.74	.Q	.	.	.	V	.
20.150	8.8108	2.73	.Q	.	.	.	V	.
20.167	8.8146	2.72	.Q	.	.	.	V	.
20.183	8.8183	2.72	.Q	.	.	.	V	.
20.200	8.8220	2.71	.Q	.	.	.	V	.
20.217	8.8258	2.70	.Q	.	.	.	V	.
20.233	8.8295	2.70	.Q	.	.	.	V	.
20.250	8.8332	2.69	.Q	.	.	.	V	.
20.267	8.8369	2.68	.Q	.	.	.	V	.
20.283	8.8406	2.68	.Q	.	.	.	V	.
20.300	8.8442	2.67	.Q	.	.	.	V	.
20.317	8.8479	2.66	.Q	.	.	.	V	.

20.333	8.8516	2.65	.Q	.	.	.	V	.
20.350	8.8552	2.65	.Q	.	.	.	V	.
20.367	8.8588	2.64	.Q	.	.	.	V	.
20.383	8.8625	2.64	.Q	.	.	.	V	.
20.400	8.8661	2.63	.Q	.	.	.	V	.
20.417	8.8697	2.62	.Q	.	.	.	V	.
20.433	8.8733	2.62	.Q	.	.	.	V	.
20.450	8.8769	2.61	.Q	.	.	.	V	.
20.467	8.8805	2.60	.Q	.	.	.	V	.
20.483	8.8841	2.60	.Q	.	.	.	V	.
20.500	8.8876	2.59	.Q	.	.	.	V	.
20.517	8.8912	2.58	.Q	.	.	.	V	.
20.533	8.8947	2.58	.Q	.	.	.	V	.
20.550	8.8983	2.57	.Q	.	.	.	V	.
20.567	8.9018	2.57	.Q	.	.	.	V	.
20.583	8.9053	2.56	.Q	.	.	.	V	.
20.600	8.9089	2.55	.Q	.	.	.	V	.
20.617	8.9124	2.55	.Q	.	.	.	V	.
20.633	8.9159	2.54	.Q	.	.	.	V	.
20.650	8.9194	2.54	.Q	.	.	.	V	.
20.667	8.9229	2.53	.Q	.	.	.	V	.
20.683	8.9263	2.52	.Q	.	.	.	V	.
20.700	8.9298	2.52	.Q	.	.	.	V	.
20.717	8.9333	2.51	.Q	.	.	.	V	.
20.733	8.9367	2.51	.Q	.	.	.	V	.
20.750	8.9402	2.50	.Q	.	.	.	V	.
20.767	8.9436	2.50	.Q	.	.	.	V	.
20.783	8.9470	2.49	.Q	.	.	.	V	.
20.800	8.9504	2.48	.Q	.	.	.	V	.
20.817	8.9539	2.48	.Q	.	.	.	V	.
20.833	8.9573	2.47	.Q	.	.	.	V	.
20.850	8.9607	2.47	.Q	.	.	.	V	.
20.867	8.9641	2.46	.Q	.	.	.	V	.
20.883	8.9674	2.46	.Q	.	.	.	V	.
20.900	8.9708	2.45	.Q	.	.	.	V	.
20.917	8.9742	2.45	.Q	.	.	.	V	.
20.933	8.9775	2.44	.Q	.	.	.	V	.
20.950	8.9809	2.44	.Q	.	.	.	V	.
20.967	8.9842	2.43	.Q	.	.	.	V	.
20.983	8.9876	2.42	.Q	.	.	.	V	.
21.000	8.9909	2.42	.Q	.	.	.	V	.
21.017	8.9942	2.41	.Q	.	.	.	V	.
21.033	8.9976	2.41	.Q	.	.	.	V	.
21.050	9.0009	2.40	.Q	.	.	.	V	.
21.067	9.0042	2.40	.Q	.	.	.	V	.
21.083	9.0075	2.39	.Q	.	.	.	V	.
21.100	9.0108	2.39	.Q	.	.	.	V	.
21.117	9.0140	2.38	.Q	.	.	.	V	.
21.133	9.0173	2.38	.Q	.	.	.	V	.
21.150	9.0206	2.37	.Q	.	.	.	V	.
21.167	9.0239	2.37	.Q	.	.	.	V	.
21.183	9.0271	2.36	.Q	.	.	.	V	.
21.200	9.0304	2.36	.Q	.	.	.	V	.
21.217	9.0336	2.35	.Q	.	.	.	V	.
21.233	9.0368	2.35	.Q	.	.	.	V	.
21.250	9.0401	2.34	.Q	.	.	.	V	.
21.267	9.0433	2.34	.Q	.	.	.	V	.
21.283	9.0465	2.33	.Q	.	.	.	V	.
21.300	9.0497	2.33	.Q	.	.	.	V	.
21.317	9.0529	2.32	.Q	.	.	.	V	.
21.333	9.0561	2.32	.Q	.	.	.	V	.
21.350	9.0593	2.32	.Q	.	.	.	V	.
21.367	9.0625	2.31	.Q	.	.	.	V	.
21.383	9.0657	2.31	.Q	.	.	.	V	.
21.400	9.0688	2.30	.Q	.	.	.	V	.
21.417	9.0720	2.30	.Q	.	.	.	V	.
21.433	9.0751	2.29	.Q	.	.	.	V	.
21.450	9.0783	2.29	.Q	.	.	.	V	.
21.467	9.0814	2.28	.Q	.	.	.	V	.
21.483	9.0846	2.28	.Q	.	.	.	V	.
21.500	9.0877	2.27	.Q	.	.	.	V	.
21.517	9.0908	2.27	.Q	.	.	.	V	.
21.533	9.0940	2.27	.Q	.	.	.	V	.
21.550	9.0971	2.26	.Q	.	.	.	V	.
21.567	9.1002	2.26	.Q	.	.	.	V	.
21.583	9.1033	2.25	.Q	.	.	.	V	.
21.600	9.1064	2.25	.Q	.	.	.	V	.
21.617	9.1095	2.24	.Q	.	.	.	V	.
21.633	9.1126	2.24	.Q	.	.	.	V	.
21.650	9.1156	2.24	.Q	.	.	.	V	.
21.667	9.1187	2.23	.Q	.	.	.	V	.
21.683	9.1218	2.23	.Q	.	.	.	V	.
21.700	9.1248	2.22	.Q	.	.	.	V	.
21.717	9.1279	2.22	.Q	.	.	.	V	.
21.733	9.1309	2.21	.Q	.	.	.	V	.
21.750	9.1340	2.21	.Q	.	.	.	V	.
21.767	9.1370	2.21	.Q	.	.	.	V	.
21.783	9.1401	2.20	.Q	.	.	.	V	.
21.800	9.1431	2.20	.Q	.	.	.	V	.
21.817	9.1461	2.19	.Q	.	.	.	V	.
21.833	9.1491	2.19	.Q	.	.	.	V	.
21.850	9.1521	2.19	.Q	.	.	.	V	.
21.867	9.1551	2.18	.Q	.	.	.	V	.
21.883	9.1581	2.18	.Q	.	.	.	V	.
21.900	9.1611	2.17	.Q	.	.	.	V	.
21.917	9.1641	2.17	.Q	.	.	.	V	.
21.933	9.1671	2.17	.Q	.	.	.	V	.
21.950	9.1701	2.16	.Q	.	.	.	V	.
21.967	9.1730	2.16	.Q	.	.	.	V	.
21.983	9.1760	2.15	.Q	.	.	.	V	.
22.000	9.1790	2.15	.Q	.	.	.	V	.
22.017	9.1819	2.15	.Q	.	.	.	V	.
22.033	9.1849	2.14	.Q	.	.	.	V	.
22.050	9.1878	2.14	.Q	.	.	.	V	.
22.067	9.1908	2.13	.Q	.	.	.	V	.
22.083	9.1937	2.13	.Q	.	.	.	V	.
22.100	9.1966	2.13	.Q	.	.	.	V	.
22.117	9.1996	2.12	.Q	.	.	.	V	.
22.133	9.2025	2.12	.Q	.	.	.	V	.
22.150	9.2054	2.12	.Q	.	.	.	V	.
22.167	9.2083	2.11	.Q	.	.	.	V	.
22.183	9.2112	2.11	.Q	.	.	.	V	.

22.200	9.2141	2.11	.Q	.	.	.	V .	23.133	9.3691	1.92	Q	.	.	.	V.
22.217	9.2170	2.10	.Q	.	.	.	V .	23.150	9.3717	1.92	Q	.	.	.	V.
22.233	9.2199	2.10	Q	.	.	.	V .	23.167	9.3744	1.92	Q	.	.	.	V.
22.250	9.2228	2.09	Q	.	.	.	V .	23.183	9.3770	1.92	Q	.	.	.	V.
22.267	9.2257	2.09	Q	.	.	.	V .	23.200	9.3797	1.91	Q	.	.	.	V.
22.283	9.2285	2.09	Q	.	.	.	V .	23.217	9.3823	1.91	Q	.	.	.	V.
22.300	9.2314	2.08	Q	.	.	.	V .	23.233	9.3849	1.91	Q	.	.	.	V.
22.317	9.2343	2.08	Q	.	.	.	V .	23.250	9.3875	1.90	Q	.	.	.	V.
22.333	9.2371	2.08	Q	.	.	.	V .	23.267	9.3901	1.90	Q	.	.	.	V.
22.350	9.2400	2.07	Q	.	.	.	V .	23.283	9.3928	1.90	Q	.	.	.	V.
22.367	9.2428	2.07	Q	.	.	.	V .	23.300	9.3954	1.90	Q	.	.	.	V.
22.383	9.2457	2.07	Q	.	.	.	V .	23.317	9.3980	1.89	Q	.	.	.	V.
22.400	9.2485	2.06	Q	.	.	.	V .	23.333	9.4006	1.89	Q	.	.	.	V.
22.417	9.2514	2.06	Q	.	.	.	V .	23.350	9.4032	1.89	Q	.	.	.	V.
22.433	9.2542	2.06	Q	.	.	.	V .	23.367	9.4058	1.88	Q	.	.	.	V.
22.450	9.2570	2.05	Q	.	.	.	V .	23.383	9.4084	1.88	Q	.	.	.	V.
22.467	9.2598	2.05	Q	.	.	.	V .	23.400	9.4110	1.88	Q	.	.	.	V.
22.483	9.2627	2.05	Q	.	.	.	V .	23.417	9.4135	1.88	Q	.	.	.	V.
22.500	9.2655	2.04	Q	.	.	.	V .	23.433	9.4161	1.87	Q	.	.	.	V.
22.517	9.2683	2.04	Q	.	.	.	V .	23.450	9.4187	1.87	Q	.	.	.	V.
22.533	9.2711	2.04	Q	.	.	.	V .	23.467	9.4213	1.87	Q	.	.	.	V.
22.550	9.2739	2.03	Q	.	.	.	V .	23.483	9.4238	1.87	Q	.	.	.	V.
22.567	9.2767	2.03	Q	.	.	.	V .	23.500	9.4264	1.86	Q	.	.	.	V.
22.583	9.2795	2.03	Q	.	.	.	V .	23.517	9.4290	1.86	Q	.	.	.	V.
22.600	9.2822	2.02	Q	.	.	.	V .	23.533	9.4315	1.86	Q	.	.	.	V.
22.617	9.2850	2.02	Q	.	.	.	V .	23.550	9.4341	1.85	Q	.	.	.	V.
22.633	9.2878	2.02	Q	.	.	.	V .	23.567	9.4366	1.85	Q	.	.	.	V.
22.650	9.2906	2.01	Q	.	.	.	V .	23.583	9.4392	1.85	Q	.	.	.	V.
22.667	9.2933	2.01	Q	.	.	.	V.	23.600	9.4417	1.85	Q	.	.	.	V.
22.683	9.2961	2.01	Q	.	.	.	V.	23.617	9.4443	1.84	Q	.	.	.	V.
22.700	9.2989	2.00	Q	.	.	.	V.	23.633	9.4468	1.84	Q	.	.	.	V.
22.717	9.3016	2.00	Q	.	.	.	V.	23.650	9.4493	1.84	Q	.	.	.	V.
22.733	9.3044	2.00	Q	.	.	.	V.	23.667	9.4519	1.84	Q	.	.	.	V.
22.750	9.3071	1.99	Q	.	.	.	V.	23.683	9.4544	1.83	Q	.	.	.	V.
22.767	9.3099	1.99	Q	.	.	.	V.	23.700	9.4569	1.83	Q	.	.	.	V.
22.783	9.3126	1.99	Q	.	.	.	V.	23.717	9.4594	1.83	Q	.	.	.	V.
22.800	9.3153	1.98	Q	.	.	.	V.	23.733	9.4620	1.83	Q	.	.	.	V.
22.817	9.3181	1.98	Q	.	.	.	V.	23.750	9.4645	1.82	Q	.	.	.	V.
22.833	9.3208	1.98	Q	.	.	.	V.	23.767	9.4670	1.82	Q	.	.	.	V.
22.850	9.3235	1.97	Q	.	.	.	V.	23.783	9.4695	1.82	Q	.	.	.	V.
22.867	9.3262	1.97	Q	.	.	.	V.	23.800	9.4720	1.82	Q	.	.	.	V.
22.883	9.3289	1.97	Q	.	.	.	V.	23.817	9.4745	1.81	Q	.	.	.	V.
22.900	9.3316	1.97	Q	.	.	.	V.	23.833	9.4770	1.81	Q	.	.	.	V.
22.917	9.3343	1.96	Q	.	.	.	V.	23.850	9.4795	1.81	Q	.	.	.	V.
22.933	9.3370	1.96	Q	.	.	.	V.	23.867	9.4820	1.81	Q	.	.	.	V.
22.950	9.3397	1.96	Q	.	.	.	V.	23.883	9.4844	1.80	Q	.	.	.	V.
22.967	9.3424	1.95	Q	.	.	.	V.	23.900	9.4869	1.80	Q	.	.	.	V.
22.983	9.3451	1.95	Q	.	.	.	V.	23.917	9.4894	1.80	Q	.	.	.	V.
23.000	9.3478	1.95	Q	.	.	.	V.	23.933	9.4919	1.80	Q	.	.	.	V.
23.017	9.3505	1.94	Q	.	.	.	V.	23.950	9.4943	1.79	Q	.	.	.	V.
23.033	9.3531	1.94	Q	.	.	.	V.	23.967	9.4968	1.79	Q	.	.	.	V.
23.050	9.3558	1.94	Q	.	.	.	V.	23.983	9.4993	1.79	Q	.	.	.	V.
23.067	9.3585	1.94	Q	.	.	.	V.	24.000	9.5017	1.79	Q	.	.	.	V.
23.083	9.3611	1.93	Q	.	.	.	V.	24.017	9.5042	1.78	Q	.	.	.	V.
23.100	9.3638	1.93	Q	.	.	.	V.	24.033	9.5067	1.78	Q	.	.	.	V.
23.117	9.3664	1.93	Q	.	.	.	V.	24.050	9.5091	1.78	Q	.	.	.	V.

```
  24.067      9.5116      1.78  Q         .         .         .        V.
  24.083      9.5140      1.78  Q         .         .         .        V.
  24.100      9.5164      1.77  Q         .         .         .        V.
  24.117      9.5189      1.75  Q         .         .         .        V.
  24.133      9.5211      1.60  Q         .         .         .        V.
  24.150      9.5230      1.43  Q         .         .         .        V.
  24.167      9.5248      1.27  Q         .         .         .        V.
  24.183      9.5263      1.11  Q         .         .         .        V.
  24.200      9.5276      0.94  Q         .         .         .        V.
  24.217      9.5287      0.78  Q         .         .         .        V.
  24.233      9.5295      0.62  Q         .         .         .        V.
  24.250      9.5302      0.45  Q         .         .         .        V.
  24.267      9.5305      0.29  Q         .         .         .        V.
  24.283      9.5307      0.12  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%                            1457.0
            10%                             775.0
            20%                             195.0
            30%                             115.0
            40%                              90.0
            50%                              75.0
            60%                              60.0
            70%                              45.0
            80%                              25.0
            90%                              15.0


 ******************************************************************************
   FLOW PROCESS FROM NODE      1.00 TO NODE      2.00 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) =     0.00


          BASIN DEPTH VERSUS OUTFLOW AND STORAGE INFORMATION:

           INTERVAL     DEPTH       OUTFLOW      STORAGE
            NUMBER      (FT)        (CFS)         (AF)
                1        0.00        0.00        0.000
                2        1.00        0.66        0.090
                3        2.00        4.37        0.260
                4        3.00       11.70        0.430
                5        4.00       47.97        0.600
                6        5.00      108.15        0.770
                7        6.00      184.29        0.940
                8        7.00      273.44        1.110
                9        8.00      373.90        1.280


 ==============================================================================
  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                                                MEAN
             TIME   DEAD-STORAGE   INFLOW    LOSS   EFFECTIVE OUTFLOW
EFFECTIVE
            (HRS)    FILLED(AF)    (CFS)    (CFS)  DEPTH(FT)  (CFS)
VOLUME(AF)
 ------------------------------------------------------------------------------
            1.017        0.000     1.83     0.00      1.09      1.0
0.105
            1.033        0.000     1.83     0.00      1.10      1.0
0.106
            1.050        0.000     1.83     0.00      1.10      1.0
0.107
            1.067        0.000     1.83     0.00      1.11      1.0
0.108
            1.083        0.000     1.83     0.00      1.11      1.1
0.109
            1.100        0.000     1.83     0.00      1.12      1.1
0.110
            1.117        0.000     1.84     0.00      1.13      1.1
0.111
            1.133        0.000     1.84     0.00      1.13      1.1
0.112
            1.150        0.000     1.84     0.00      1.14      1.2
0.113
```

	1.167	0.000	1.84	0.00	1.14	1.2
0.114						
	1.183	0.000	1.84	0.00	1.15	1.2
0.115						
	1.200	0.000	1.84	0.00	1.15	1.2
0.116						
	1.217	0.000	1.84	0.00	1.16	1.2
0.117						
	1.233	0.000	1.84	0.00	1.16	1.3
0.118						
	1.250	0.000	1.84	0.00	1.17	1.3
0.118						
	1.267	0.000	1.84	0.00	1.17	1.3
0.119						
	1.283	0.000	1.85	0.00	1.18	1.3
0.120						
	1.300	0.000	1.85	0.00	1.18	1.3
0.121						
	1.317	0.000	1.85	0.00	1.18	1.3
0.121						
	1.333	0.000	1.85	0.00	1.19	1.4
0.122						
	1.350	0.000	1.85	0.00	1.19	1.4
0.123						
	1.367	0.000	1.86	0.00	1.20	1.4
0.123						
	1.383	0.000	1.86	0.00	1.20	1.4
0.124						
	1.400	0.000	1.86	0.00	1.20	1.4
0.125						
	1.417	0.000	1.86	0.00	1.21	1.4
0.125						
	1.433	0.000	1.86	0.00	1.21	1.4
0.126						
	1.450	0.000	1.86	0.00	1.21	1.4
0.126						
	1.467	0.000	1.86	0.00	1.22	1.5
0.127						
	1.483	0.000	1.86	0.00	1.22	1.5
0.127						
	1.500	0.000	1.86	0.00	1.22	1.5
0.128						
	1.517	0.000	1.87	0.00	1.23	1.5
0.129						
	1.533	0.000	1.87	0.00	1.23	1.5
0.129						
	1.550	0.000	1.87	0.00	1.23	1.5
0.129						
	1.567	0.000	1.87	0.00	1.24	1.5
0.130						
	1.583	0.000	1.87	0.00	1.24	1.5
0.130						
	1.600	0.000	1.87	0.00	1.24	1.5
0.131						
	1.617	0.000	1.87	0.00	1.24	1.6
0.131						

	1.633	0.000	1.87	0.00	1.25	1.6
0.132						
	1.650	0.000	1.88	0.00	1.25	1.6
0.132						
	1.667	0.000	1.88	0.00	1.25	1.6
0.133						
	1.683	0.000	1.88	0.00	1.25	1.6
0.133						
	1.700	0.000	1.88	0.00	1.25	1.6
0.133						
	1.717	0.000	1.88	0.00	1.26	1.6
0.134						
	1.733	0.000	1.88	0.00	1.26	1.6
0.134						
	1.750	0.000	1.89	0.00	1.26	1.6
0.134						
	1.767	0.000	1.89	0.00	1.26	1.6
0.135						
	1.783	0.000	1.89	0.00	1.27	1.6
0.135						
	1.800	0.000	1.89	0.00	1.27	1.6
0.135						
	1.817	0.000	1.89	0.00	1.27	1.7
0.136						
	1.833	0.000	1.89	0.00	1.27	1.7
0.136						
	1.850	0.000	1.89	0.00	1.27	1.7
0.136						
	1.867	0.000	1.89	0.00	1.27	1.7
0.137						
	1.883	0.000	1.90	0.00	1.28	1.7
0.137						
	1.900	0.000	1.90	0.00	1.28	1.7
0.137						
	1.917	0.000	1.90	0.00	1.28	1.7
0.138						
	1.933	0.000	1.90	0.00	1.28	1.7
0.138						
	1.950	0.000	1.90	0.00	1.28	1.7
0.138						
	1.967	0.000	1.90	0.00	1.28	1.7
0.138						
	1.983	0.000	1.90	0.00	1.29	1.7
0.139						
	2.000	0.000	1.90	0.00	1.29	1.7
0.139						
	2.017	0.000	1.91	0.00	1.29	1.7
0.139						
	2.033	0.000	1.91	0.00	1.29	1.7
0.139						
	2.050	0.000	1.91	0.00	1.29	1.7
0.140						
	2.067	0.000	1.91	0.00	1.29	1.7
0.140						
	2.083	0.000	1.91	0.00	1.29	1.7
0.140						

	2.100	0.000	1.92	0.00	1.30	1.8
0.140						
	2.117	0.000	1.92	0.00	1.30	1.8
0.140						
	2.133	0.000	1.92	0.00	1.30	1.8
0.141						
	2.150	0.000	1.92	0.00	1.30	1.8
0.141						
	2.167	0.000	1.92	0.00	1.30	1.8
0.141						
	2.183	0.000	1.92	0.00	1.30	1.8
0.141						
	2.200	0.000	1.92	0.00	1.30	1.8
0.141						
	2.217	0.000	1.92	0.00	1.30	1.8
0.142						
	2.233	0.000	1.93	0.00	1.31	1.8
0.142						
	2.250	0.000	1.93	0.00	1.31	1.8
0.142						
	2.267	0.000	1.93	0.00	1.31	1.8
0.142						
	2.283	0.000	1.93	0.00	1.31	1.8
0.142						
	2.300	0.000	1.93	0.00	1.31	1.8
0.143						
	2.317	0.000	1.93	0.00	1.31	1.8
0.143						
	2.333	0.000	1.93	0.00	1.31	1.8
0.143						
	2.350	0.000	1.93	0.00	1.31	1.8
0.143						
	2.367	0.000	1.94	0.00	1.31	1.8
0.143						
	2.383	0.000	1.94	0.00	1.31	1.8
0.143						
	2.400	0.000	1.94	0.00	1.31	1.8
0.144						
	2.417	0.000	1.94	0.00	1.32	1.8
0.144						
	2.433	0.000	1.94	0.00	1.32	1.8
0.144						
	2.450	0.000	1.95	0.00	1.32	1.8
0.144						
	2.467	0.000	1.95	0.00	1.32	1.8
0.144						
	2.483	0.000	1.95	0.00	1.32	1.8
0.144						
	2.500	0.000	1.95	0.00	1.32	1.8
0.144						
	2.517	0.000	1.95	0.00	1.32	1.8
0.145						
	2.533	0.000	1.95	0.00	1.32	1.9
0.145						
	2.550	0.000	1.95	0.00	1.32	1.9
0.145						
	2.567	0.000	1.96	0.00	1.32	1.9
0.145						
	2.583	0.000	1.96	0.00	1.32	1.9
0.145						
	2.600	0.000	1.96	0.00	1.33	1.9
0.145						
	2.617	0.000	1.96	0.00	1.33	1.9
0.145						
	2.633	0.000	1.96	0.00	1.33	1.9
0.146						
	2.650	0.000	1.96	0.00	1.33	1.9
0.146						
	2.667	0.000	1.96	0.00	1.33	1.9
0.146						
	2.683	0.000	1.96	0.00	1.33	1.9
0.146						
	2.700	0.000	1.97	0.00	1.33	1.9
0.146						
	2.717	0.000	1.97	0.00	1.33	1.9
0.146						
	2.733	0.000	1.97	0.00	1.33	1.9
0.146						
	2.750	0.000	1.97	0.00	1.33	1.9
0.146						
	2.767	0.000	1.97	0.00	1.33	1.9
0.146						
	2.783	0.000	1.98	0.00	1.33	1.9
0.147						
	2.800	0.000	1.98	0.00	1.33	1.9
0.147						
	2.817	0.000	1.98	0.00	1.33	1.9
0.147						
	2.833	0.000	1.98	0.00	1.33	1.9
0.147						
	2.850	0.000	1.98	0.00	1.34	1.9
0.147						
	2.867	0.000	1.99	0.00	1.34	1.9
0.147						
	2.883	0.000	1.99	0.00	1.34	1.9
0.147						
	2.900	0.000	1.99	0.00	1.34	1.9
0.147						
	2.917	0.000	1.99	0.00	1.34	1.9
0.147						
	2.933	0.000	1.99	0.00	1.34	1.9
0.148						
	2.950	0.000	1.99	0.00	1.34	1.9
0.148						
	2.967	0.000	1.99	0.00	1.34	1.9
0.148						
	2.983	0.000	1.99	0.00	1.34	1.9
0.148						
	3.000	0.000	1.99	0.00	1.34	1.9
0.148						
	3.017	0.000	1.99	0.00	1.34	1.9
0.148						

3.033	0.000	2.00	0.00	1.34	1.9	0.148
3.050	0.000	2.00	0.00	1.34	1.9	0.148
3.067	0.000	2.00	0.00	1.34	1.9	0.148
3.083	0.000	2.00	0.00	1.34	1.9	0.148
3.100	0.000	2.00	0.00	1.34	1.9	0.149
3.117	0.000	2.01	0.00	1.34	1.9	0.149
3.133	0.000	2.01	0.00	1.35	1.9	0.149
3.150	0.000	2.01	0.00	1.35	1.9	0.149
3.167	0.000	2.01	0.00	1.35	1.9	0.149
3.183	0.000	2.01	0.00	1.35	1.9	0.149
3.200	0.000	2.02	0.00	1.35	1.9	0.149
3.217	0.000	2.02	0.00	1.35	2.0	0.149
3.233	0.000	2.02	0.00	1.35	2.0	0.149
3.250	0.000	2.02	0.00	1.35	2.0	0.149
3.267	0.000	2.02	0.00	1.35	2.0	0.149
3.283	0.000	2.02	0.00	1.35	2.0	0.150
3.300	0.000	2.02	0.00	1.35	2.0	0.150
3.317	0.000	2.03	0.00	1.35	2.0	0.150
3.333	0.000	2.03	0.00	1.35	2.0	0.150
3.350	0.000	2.03	0.00	1.35	2.0	0.150
3.367	0.000	2.03	0.00	1.35	2.0	0.150
3.383	0.000	2.03	0.00	1.35	2.0	0.150
3.400	0.000	2.03	0.00	1.35	2.0	0.150
3.417	0.000	2.03	0.00	1.35	2.0	0.150
3.433	0.000	2.04	0.00	1.35	2.0	0.150
3.450	0.000	2.04	0.00	1.36	2.0	0.150
3.467	0.000	2.04	0.00	1.36	2.0	0.150
3.483	0.000	2.04	0.00	1.36	2.0	0.151

3.500	0.000	2.05	0.00	1.36	2.0	0.151
3.517	0.000	2.05	0.00	1.36	2.0	0.151
3.533	0.000	2.05	0.00	1.36	2.0	0.151
3.550	0.000	2.05	0.00	1.36	2.0	0.151
3.567	0.000	2.05	0.00	1.36	2.0	0.151
3.583	0.000	2.06	0.00	1.36	2.0	0.151
3.600	0.000	2.06	0.00	1.36	2.0	0.151
3.617	0.000	2.06	0.00	1.36	2.0	0.151
3.633	0.000	2.06	0.00	1.36	2.0	0.151
3.650	0.000	2.06	0.00	1.36	2.0	0.151
3.667	0.000	2.06	0.00	1.36	2.0	0.152
3.683	0.000	2.06	0.00	1.36	2.0	0.152
3.700	0.000	2.06	0.00	1.36	2.0	0.152
3.717	0.000	2.06	0.00	1.36	2.0	0.152
3.733	0.000	2.07	0.00	1.36	2.0	0.152
3.750	0.000	2.07	0.00	1.36	2.0	0.152
3.767	0.000	2.07	0.00	1.36	2.0	0.152
3.783	0.000	2.07	0.00	1.37	2.0	0.152
3.800	0.000	2.07	0.00	1.37	2.0	0.152
3.817	0.000	2.08	0.00	1.37	2.0	0.152
3.833	0.000	2.08	0.00	1.37	2.0	0.152
3.850	0.000	2.08	0.00	1.37	2.0	0.152
3.867	0.000	2.08	0.00	1.37	2.0	0.152
3.883	0.000	2.09	0.00	1.37	2.0	0.153
3.900	0.000	2.09	0.00	1.37	2.0	0.153
3.917	0.000	2.09	0.00	1.37	2.0	0.153
3.933	0.000	2.09	0.00	1.37	2.0	0.153
3.950	0.000	2.09	0.00	1.37	2.0	0.153

0.153	3.967	0.000	2.10	0.00	1.37	2.0
0.153	3.983	0.000	2.10	0.00	1.37	2.0
0.153	4.000	0.000	2.10	0.00	1.37	2.0
0.153	4.017	0.000	2.10	0.00	1.37	2.0
0.153	4.033	0.000	2.10	0.00	1.37	2.0
0.153	4.050	0.000	2.10	0.00	1.37	2.0
0.153	4.067	0.000	2.10	0.00	1.37	2.0
0.154	4.083	0.000	2.10	0.00	1.37	2.0
0.154	4.100	0.000	2.11	0.00	1.37	2.0
0.154	4.117	0.000	2.11	0.00	1.37	2.0
0.154	4.133	0.000	2.11	0.00	1.38	2.1
0.154	4.150	0.000	2.11	0.00	1.38	2.1
0.154	4.167	0.000	2.11	0.00	1.38	2.1
0.154	4.183	0.000	2.12	0.00	1.38	2.1
0.154	4.200	0.000	2.12	0.00	1.38	2.1
0.154	4.217	0.000	2.12	0.00	1.38	2.1
0.154	4.233	0.000	2.12	0.00	1.38	2.1
0.154	4.250	0.000	2.13	0.00	1.38	2.1
0.154	4.267	0.000	2.13	0.00	1.38	2.1
0.155	4.283	0.000	2.13	0.00	1.38	2.1
0.155	4.300	0.000	2.13	0.00	1.38	2.1
0.155	4.317	0.000	2.13	0.00	1.38	2.1
0.155	4.333	0.000	2.14	0.00	1.38	2.1
0.155	4.350	0.000	2.14	0.00	1.38	2.1
0.155	4.367	0.000	2.14	0.00	1.38	2.1
0.155	4.383	0.000	2.14	0.00	1.38	2.1
0.155	4.400	0.000	2.14	0.00	1.38	2.1
0.155	4.417	0.000	2.14	0.00	1.38	2.1
0.155	4.433	0.000	2.14	0.00	1.38	2.1
0.155	4.450	0.000	2.14	0.00	1.38	2.1
0.155	4.467	0.000	2.15	0.00	1.39	2.1
0.155	4.483	0.000	2.15	0.00	1.39	2.1
0.156	4.500	0.000	2.15	0.00	1.39	2.1
0.156	4.517	0.000	2.15	0.00	1.39	2.1
0.156	4.533	0.000	2.16	0.00	1.39	2.1
0.156	4.550	0.000	2.16	0.00	1.39	2.1
0.156	4.567	0.000	2.16	0.00	1.39	2.1
0.156	4.583	0.000	2.16	0.00	1.39	2.1
0.156	4.600	0.000	2.17	0.00	1.39	2.1
0.156	4.617	0.000	2.17	0.00	1.39	2.1
0.156	4.633	0.000	2.17	0.00	1.39	2.1
0.156	4.650	0.000	2.17	0.00	1.39	2.1
0.156	4.667	0.000	2.18	0.00	1.39	2.1
0.156	4.683	0.000	2.18	0.00	1.39	2.1
0.157	4.700	0.000	2.18	0.00	1.39	2.1
0.157	4.717	0.000	2.18	0.00	1.39	2.1
0.157	4.733	0.000	2.18	0.00	1.39	2.1
0.157	4.750	0.000	2.18	0.00	1.39	2.1
0.157	4.767	0.000	2.18	0.00	1.39	2.1
0.157	4.783	0.000	2.18	0.00	1.39	2.1
0.157	4.800	0.000	2.19	0.00	1.40	2.1
0.157	4.817	0.000	2.19	0.00	1.40	2.1
0.157	4.833	0.000	2.19	0.00	1.40	2.1
0.157	4.850	0.000	2.19	0.00	1.40	2.1
0.157	4.867	0.000	2.19	0.00	1.40	2.1
0.158	4.883	0.000	2.20	0.00	1.40	2.1
0.158						

	4.900	0.000	2.20	0.00	1.40	2.1
0.158						
	4.917	0.000	2.20	0.00	1.40	2.1
0.158						
	4.933	0.000	2.21	0.00	1.40	2.1
0.158						
	4.950	0.000	2.21	0.00	1.40	2.1
0.158						
	4.967	0.000	2.21	0.00	1.40	2.1
0.158						
	4.983	0.000	2.21	0.00	1.40	2.1
0.158						
	5.000	0.000	2.22	0.00	1.40	2.1
0.158						
	5.017	0.000	2.22	0.00	1.40	2.2
0.158						
	5.033	0.000	2.22	0.00	1.40	2.2
0.158						
	5.050	0.000	2.22	0.00	1.40	2.2
0.159						
	5.067	0.000	2.22	0.00	1.40	2.2
0.159						
	5.083	0.000	2.22	0.00	1.40	2.2
0.159						
	5.100	0.000	2.23	0.00	1.40	2.2
0.159						
	5.117	0.000	2.23	0.00	1.41	2.2
0.159						
	5.133	0.000	2.23	0.00	1.41	2.2
0.159						
	5.150	0.000	2.23	0.00	1.41	2.2
0.159						
	5.167	0.000	2.23	0.00	1.41	2.2
0.159						
	5.183	0.000	2.23	0.00	1.41	2.2
0.159						
	5.200	0.000	2.23	0.00	1.41	2.2
0.159						
	5.217	0.000	2.24	0.00	1.41	2.2
0.159						
	5.233	0.000	2.24	0.00	1.41	2.2
0.159						
	5.250	0.000	2.24	0.00	1.41	2.2
0.160						
	5.267	0.000	2.25	0.00	1.41	2.2
0.160						
	5.283	0.000	2.25	0.00	1.41	2.2
0.160						
	5.300	0.000	2.25	0.00	1.41	2.2
0.160						
	5.317	0.000	2.25	0.00	1.41	2.2
0.160						
	5.333	0.000	2.26	0.00	1.41	2.2
0.160						
	5.350	0.000	2.26	0.00	1.41	2.2
0.160						
	5.367	0.000	2.26	0.00	1.41	2.2
0.160						
	5.383	0.000	2.27	0.00	1.41	2.2
0.160						
	5.400	0.000	2.27	0.00	1.41	2.2
0.160						
	5.417	0.000	2.27	0.00	1.41	2.2
0.161						
	5.433	0.000	2.27	0.00	1.42	2.2
0.161						
	5.450	0.000	2.27	0.00	1.42	2.2
0.161						
	5.467	0.000	2.27	0.00	1.42	2.2
0.161						
	5.483	0.000	2.27	0.00	1.42	2.2
0.161						
	5.500	0.000	2.28	0.00	1.42	2.2
0.161						
	5.517	0.000	2.28	0.00	1.42	2.2
0.161						
	5.533	0.000	2.28	0.00	1.42	2.2
0.161						
	5.550	0.000	2.28	0.00	1.42	2.2
0.161						
	5.567	0.000	2.28	0.00	1.42	2.2
0.161						
	5.583	0.000	2.29	0.00	1.42	2.2
0.161						
	5.600	0.000	2.29	0.00	1.42	2.2
0.162						
	5.617	0.000	2.29	0.00	1.42	2.2
0.162						
	5.633	0.000	2.29	0.00	1.42	2.2
0.162						
	5.650	0.000	2.30	0.00	1.42	2.2
0.162						
	5.667	0.000	2.30	0.00	1.42	2.2
0.162						
	5.683	0.000	2.30	0.00	1.42	2.2
0.162						
	5.700	0.000	2.31	0.00	1.42	2.2
0.162						
	5.717	0.000	2.31	0.00	1.43	2.2
0.162						
	5.733	0.000	2.31	0.00	1.43	2.2
0.162						
	5.750	0.000	2.32	0.00	1.43	2.2
0.162						
	5.767	0.000	2.32	0.00	1.43	2.2
0.163						
	5.783	0.000	2.32	0.00	1.43	2.2
0.163						
	5.800	0.000	2.32	0.00	1.43	2.2
0.163						
	5.817	0.000	2.32	0.00	1.43	2.2
0.163						

0.163	5.833	0.000	2.32	0.00	1.43	2.3
0.163	5.850	0.000	2.32	0.00	1.43	2.3
0.163	5.867	0.000	2.33	0.00	1.43	2.3
0.163	5.883	0.000	2.33	0.00	1.43	2.3
0.163	5.900	0.000	2.33	0.00	1.43	2.3
0.163	5.917	0.000	2.33	0.00	1.43	2.3
0.164	5.933	0.000	2.33	0.00	1.43	2.3
0.164	5.950	0.000	2.34	0.00	1.43	2.3
0.164	5.967	0.000	2.34	0.00	1.43	2.3
0.164	5.983	0.000	2.34	0.00	1.43	2.3
0.164	6.000	0.000	2.35	0.00	1.43	2.3
0.164	6.017	0.000	2.35	0.00	1.44	2.3
0.164	6.033	0.000	2.35	0.00	1.44	2.3
0.164	6.050	0.000	2.36	0.00	1.44	2.3
0.164	6.067	0.000	2.36	0.00	1.44	2.3
0.164	6.083	0.000	2.36	0.00	1.44	2.3
0.165	6.100	0.000	2.37	0.00	1.44	2.3
0.165	6.117	0.000	2.37	0.00	1.44	2.3
0.165	6.133	0.000	2.37	0.00	1.44	2.3
0.165	6.150	0.000	2.37	0.00	1.44	2.3
0.165	6.167	0.000	2.37	0.00	1.44	2.3
0.165	6.183	0.000	2.37	0.00	1.44	2.3
0.165	6.200	0.000	2.38	0.00	1.44	2.3
0.165	6.217	0.000	2.38	0.00	1.44	2.3
0.165	6.233	0.000	2.38	0.00	1.44	2.3
0.166	6.250	0.000	2.38	0.00	1.44	2.3
0.166	6.267	0.000	2.38	0.00	1.44	2.3
0.166	6.283	0.000	2.38	0.00	1.45	2.3
0.166	6.300	0.000	2.39	0.00	1.45	2.3
0.166	6.317	0.000	2.39	0.00	1.45	2.3
0.166	6.333	0.000	2.40	0.00	1.45	2.3
0.166	6.350	0.000	2.40	0.00	1.45	2.3
0.166	6.367	0.000	2.40	0.00	1.45	2.3
0.166	6.383	0.000	2.41	0.00	1.45	2.3
0.166	6.400	0.000	2.41	0.00	1.45	2.3
0.167	6.417	0.000	2.41	0.00	1.45	2.3
0.167	6.433	0.000	2.42	0.00	1.45	2.3
0.167	6.450	0.000	2.42	0.00	1.45	2.3
0.167	6.467	0.000	2.42	0.00	1.45	2.3
0.167	6.483	0.000	2.42	0.00	1.45	2.3
0.167	6.500	0.000	2.43	0.00	1.45	2.3
0.167	6.517	0.000	2.43	0.00	1.45	2.3
0.167	6.533	0.000	2.43	0.00	1.46	2.3
0.168	6.550	0.000	2.43	0.00	1.46	2.4
0.168	6.567	0.000	2.43	0.00	1.46	2.4
0.168	6.583	0.000	2.43	0.00	1.46	2.4
0.168	6.600	0.000	2.44	0.00	1.46	2.4
0.168	6.617	0.000	2.44	0.00	1.46	2.4
0.168	6.633	0.000	2.44	0.00	1.46	2.4
0.168	6.650	0.000	2.44	0.00	1.46	2.4
0.168	6.667	0.000	2.45	0.00	1.46	2.4
0.168	6.683	0.000	2.45	0.00	1.46	2.4
0.168	6.700	0.000	2.45	0.00	1.46	2.4
0.168	6.717	0.000	2.46	0.00	1.46	2.4
0.169	6.733	0.000	2.46	0.00	1.46	2.4
0.169	6.750	0.000	2.46	0.00	1.46	2.4
0.169						

6.767	0.000	2.47	0.00	1.46	2.4	0.169
6.783	0.000	2.47	0.00	1.47	2.4	0.169
6.800	0.000	2.48	0.00	1.47	2.4	0.169
6.817	0.000	2.48	0.00	1.47	2.4	0.169
6.833	0.000	2.48	0.00	1.47	2.4	0.169
6.850	0.000	2.48	0.00	1.47	2.4	0.170
6.867	0.000	2.48	0.00	1.47	2.4	0.170
6.883	0.000	2.49	0.00	1.47	2.4	0.170
6.900	0.000	2.49	0.00	1.47	2.4	0.170
6.917	0.000	2.49	0.00	1.47	2.4	0.170
6.933	0.000	2.49	0.00	1.47	2.4	0.170
6.950	0.000	2.49	0.00	1.47	2.4	0.170
6.967	0.000	2.50	0.00	1.47	2.4	0.170
6.983	0.000	2.50	0.00	1.47	2.4	0.170
7.000	0.000	2.50	0.00	1.47	2.4	0.171
7.017	0.000	2.50	0.00	1.47	2.4	0.171
7.033	0.000	2.51	0.00	1.48	2.4	0.171
7.050	0.000	2.51	0.00	1.48	2.4	0.171
7.067	0.000	2.52	0.00	1.48	2.4	0.171
7.083	0.000	2.52	0.00	1.48	2.4	0.171
7.100	0.000	2.52	0.00	1.48	2.4	0.171
7.117	0.000	2.53	0.00	1.48	2.4	0.171
7.133	0.000	2.53	0.00	1.48	2.4	0.172
7.150	0.000	2.53	0.00	1.48	2.4	0.172
7.167	0.000	2.54	0.00	1.48	2.4	0.172
7.183	0.000	2.54	0.00	1.48	2.4	0.172
7.200	0.000	2.54	0.00	1.48	2.5	0.172
7.217	0.000	2.55	0.00	1.48	2.5	0.172
7.233	0.000	2.55	0.00	1.48	2.5	0.172
7.250	0.000	2.55	0.00	1.49	2.5	0.172
7.267	0.000	2.55	0.00	1.49	2.5	0.173
7.283	0.000	2.55	0.00	1.49	2.5	0.173
7.300	0.000	2.56	0.00	1.49	2.5	0.173
7.317	0.000	2.56	0.00	1.49	2.5	0.173
7.333	0.000	2.56	0.00	1.49	2.5	0.173
7.350	0.000	2.56	0.00	1.49	2.5	0.173
7.367	0.000	2.56	0.00	1.49	2.5	0.173
7.383	0.000	2.57	0.00	1.49	2.5	0.173
7.400	0.000	2.57	0.00	1.49	2.5	0.174
7.417	0.000	2.58	0.00	1.49	2.5	0.174
7.433	0.000	2.58	0.00	1.49	2.5	0.174
7.450	0.000	2.59	0.00	1.49	2.5	0.174
7.467	0.000	2.59	0.00	1.49	2.5	0.174
7.483	0.000	2.59	0.00	1.50	2.5	0.174
7.500	0.000	2.60	0.00	1.50	2.5	0.174
7.517	0.000	2.60	0.00	1.50	2.5	0.175
7.533	0.000	2.61	0.00	1.50	2.5	0.175
7.550	0.000	2.61	0.00	1.50	2.5	0.175
7.567	0.000	2.61	0.00	1.50	2.5	0.175
7.583	0.000	2.61	0.00	1.50	2.5	0.175
7.600	0.000	2.62	0.00	1.50	2.5	0.175
7.617	0.000	2.62	0.00	1.50	2.5	0.175
7.633	0.000	2.62	0.00	1.50	2.5	0.175
7.650	0.000	2.62	0.00	1.50	2.5	0.176
7.667	0.000	2.62	0.00	1.50	2.5	0.176
7.683	0.000	2.63	0.00	1.50	2.5	0.176

7.700	0.000	2.63	0.00	1.51	2.5	0.176
7.717	0.000	2.63	0.00	1.51	2.5	0.176
7.733	0.000	2.63	0.00	1.51	2.5	0.176
7.750	0.000	2.64	0.00	1.51	2.5	0.176
7.767	0.000	2.64	0.00	1.51	2.5	0.177
7.783	0.000	2.65	0.00	1.51	2.5	0.177
7.800	0.000	2.65	0.00	1.51	2.6	0.177
7.817	0.000	2.66	0.00	1.51	2.6	0.177
7.833	0.000	2.66	0.00	1.51	2.6	0.177
7.850	0.000	2.67	0.00	1.51	2.6	0.177
7.867	0.000	2.67	0.00	1.51	2.6	0.177
7.883	0.000	2.67	0.00	1.51	2.6	0.177
7.900	0.000	2.68	0.00	1.52	2.6	0.178
7.917	0.000	2.68	0.00	1.52	2.6	0.178
7.933	0.000	2.68	0.00	1.52	2.6	0.178
7.950	0.000	2.69	0.00	1.52	2.6	0.178
7.967	0.000	2.69	0.00	1.52	2.6	0.178
7.983	0.000	2.69	0.00	1.52	2.6	0.178
8.000	0.000	2.69	0.00	1.52	2.6	0.179
8.017	0.000	2.70	0.00	1.52	2.6	0.179
8.033	0.000	2.70	0.00	1.52	2.6	0.179
8.050	0.000	2.70	0.00	1.52	2.6	0.179
8.067	0.000	2.70	0.00	1.52	2.6	0.179
8.083	0.000	2.71	0.00	1.52	2.6	0.179
8.100	0.000	2.71	0.00	1.53	2.6	0.179
8.117	0.000	2.71	0.00	1.53	2.6	0.179
8.133	0.000	2.72	0.00	1.53	2.6	0.180
8.150	0.000	2.72	0.00	1.53	2.6	0.180
8.167	0.000	2.73	0.00	1.53	2.6	0.180
8.183	0.000	2.73	0.00	1.53	2.6	0.180
8.200	0.000	2.74	0.00	1.53	2.6	0.180
8.217	0.000	2.74	0.00	1.53	2.6	0.180
8.233	0.000	2.75	0.00	1.53	2.6	0.181
8.250	0.000	2.75	0.00	1.53	2.6	0.181
8.267	0.000	2.76	0.00	1.53	2.6	0.181
8.283	0.000	2.76	0.00	1.54	2.6	0.181
8.300	0.000	2.76	0.00	1.54	2.6	0.181
8.317	0.000	2.76	0.00	1.54	2.7	0.181
8.333	0.000	2.77	0.00	1.54	2.7	0.181
8.350	0.000	2.77	0.00	1.54	2.7	0.182
8.367	0.000	2.77	0.00	1.54	2.7	0.182
8.383	0.000	2.77	0.00	1.54	2.7	0.182
8.400	0.000	2.78	0.00	1.54	2.7	0.182
8.417	0.000	2.78	0.00	1.54	2.7	0.182
8.433	0.000	2.78	0.00	1.54	2.7	0.182
8.450	0.000	2.78	0.00	1.54	2.7	0.183
8.467	0.000	2.79	0.00	1.55	2.7	0.183
8.483	0.000	2.80	0.00	1.55	2.7	0.183
8.500	0.000	2.80	0.00	1.55	2.7	0.183
8.517	0.000	2.81	0.00	1.55	2.7	0.183
8.533	0.000	2.81	0.00	1.55	2.7	0.183
8.550	0.000	2.82	0.00	1.55	2.7	0.183
8.567	0.000	2.82	0.00	1.55	2.7	0.184
8.583	0.000	2.83	0.00	1.55	2.7	0.184
8.600	0.000	2.83	0.00	1.55	2.7	0.184
8.617	0.000	2.84	0.00	1.55	2.7	0.184

	8.633	0.000	2.84	0.00	1.55	2.7
0.184						
	8.650	0.000	2.84	0.00	1.56	2.7
0.184						
	8.667	0.000	2.85	0.00	1.56	2.7
0.185						
	8.683	0.000	2.85	0.00	1.56	2.7
0.185						
	8.700	0.000	2.85	0.00	1.56	2.7
0.185						
	8.717	0.000	2.85	0.00	1.56	2.7
0.185						
	8.733	0.000	2.86	0.00	1.56	2.7
0.185						
	8.750	0.000	2.86	0.00	1.56	2.7
0.185						
	8.767	0.000	2.86	0.00	1.56	2.7
0.186						
	8.783	0.000	2.86	0.00	1.56	2.7
0.186						
	8.800	0.000	2.87	0.00	1.56	2.8
0.186						
	8.817	0.000	2.87	0.00	1.57	2.8
0.186						
	8.833	0.000	2.88	0.00	1.57	2.8
0.186						
	8.850	0.000	2.88	0.00	1.57	2.8
0.186						
	8.867	0.000	2.89	0.00	1.57	2.8
0.187						
	8.883	0.000	2.89	0.00	1.57	2.8
0.187						
	8.900	0.000	2.90	0.00	1.57	2.8
0.187						
	8.917	0.000	2.91	0.00	1.57	2.8
0.187						
	8.933	0.000	2.91	0.00	1.57	2.8
0.187						
	8.950	0.000	2.92	0.00	1.57	2.8
0.187						
	8.967	0.000	2.92	0.00	1.57	2.8
0.188						
	8.983	0.000	2.93	0.00	1.58	2.8
0.188						
	9.000	0.000	2.93	0.00	1.58	2.8
0.188						
	9.017	0.000	2.93	0.00	1.58	2.8
0.188						
	9.033	0.000	2.94	0.00	1.58	2.8
0.188						
	9.050	0.000	2.94	0.00	1.58	2.8
0.189						
	9.067	0.000	2.94	0.00	1.58	2.8
0.189						
	9.083	0.000	2.94	0.00	1.58	2.8
0.189						
	9.100	0.000	2.95	0.00	1.58	2.8
0.189						
	9.117	0.000	2.95	0.00	1.58	2.8
0.189						
	9.133	0.000	2.95	0.00	1.58	2.8
0.189						
	9.150	0.000	2.96	0.00	1.59	2.8
0.190						
	9.167	0.000	2.96	0.00	1.59	2.8
0.190						
	9.183	0.000	2.97	0.00	1.59	2.8
0.190						
	9.200	0.000	2.97	0.00	1.59	2.8
0.190						
	9.217	0.000	2.98	0.00	1.59	2.8
0.190						
	9.233	0.000	2.98	0.00	1.59	2.9
0.190						
	9.250	0.000	2.99	0.00	1.59	2.9
0.191						
	9.267	0.000	3.00	0.00	1.59	2.9
0.191						
	9.283	0.000	3.00	0.00	1.59	2.9
0.191						
	9.300	0.000	3.01	0.00	1.60	2.9
0.191						
	9.317	0.000	3.01	0.00	1.60	2.9
0.191						
	9.333	0.000	3.02	0.00	1.60	2.9
0.192						
	9.350	0.000	3.03	0.00	1.60	2.9
0.192						
	9.367	0.000	3.03	0.00	1.60	2.9
0.192						
	9.383	0.000	3.03	0.00	1.60	2.9
0.192						
	9.400	0.000	3.03	0.00	1.60	2.9
0.192						
	9.417	0.000	3.04	0.00	1.60	2.9
0.193						
	9.433	0.000	3.04	0.00	1.60	2.9
0.193						
	9.450	0.000	3.04	0.00	1.61	2.9
0.193						
	9.467	0.000	3.05	0.00	1.61	2.9
0.193						
	9.483	0.000	3.05	0.00	1.61	2.9
0.193						
	9.500	0.000	3.05	0.00	1.61	2.9
0.194						
	9.517	0.000	3.06	0.00	1.61	2.9
0.194						
	9.533	0.000	3.06	0.00	1.61	2.9
0.194						
	9.550	0.000	3.07	0.00	1.61	2.9
0.194						

0.194	9.567	0.000	3.08	0.00	1.61	2.9
0.195	9.583	0.000	3.08	0.00	1.61	2.9
0.195	9.600	0.000	3.09	0.00	1.62	2.9
0.195	9.617	0.000	3.09	0.00	1.62	2.9
0.195	9.633	0.000	3.10	0.00	1.62	3.0
0.195	9.650	0.000	3.11	0.00	1.62	3.0
0.196	9.667	0.000	3.11	0.00	1.62	3.0
0.196	9.683	0.000	3.12	0.00	1.62	3.0
0.196	9.700	0.000	3.13	0.00	1.62	3.0
0.196	9.717	0.000	3.13	0.00	1.62	3.0
0.196	9.733	0.000	3.14	0.00	1.63	3.0
0.197	9.750	0.000	3.14	0.00	1.63	3.0
0.197	9.767	0.000	3.14	0.00	1.63	3.0
0.197	9.783	0.000	3.15	0.00	1.63	3.0
0.197	9.800	0.000	3.15	0.00	1.63	3.0
0.197	9.817	0.000	3.15	0.00	1.63	3.0
0.198	9.833	0.000	3.16	0.00	1.63	3.0
0.198	9.850	0.000	3.16	0.00	1.63	3.0
0.198	9.867	0.000	3.16	0.00	1.64	3.0
0.198	9.883	0.000	3.17	0.00	1.64	3.0
0.198	9.900	0.000	3.17	0.00	1.64	3.0
0.199	9.917	0.000	3.18	0.00	1.64	3.0
0.199	9.933	0.000	3.19	0.00	1.64	3.0
0.199	9.950	0.000	3.20	0.00	1.64	3.0
0.199	9.967	0.000	3.20	0.00	1.64	3.0
0.200	9.983	0.000	3.21	0.00	1.64	3.0
0.200	10.000	0.000	3.22	0.00	1.65	3.1
0.200	10.017	0.000	3.22	0.00	1.65	3.1
0.200	10.033	0.000	3.23	0.00	1.65	3.1
0.200	10.050	0.000	3.24	0.00	1.65	3.1
0.201	10.067	0.000	3.25	0.00	1.65	3.1
0.201	10.083	0.000	3.25	0.00	1.65	3.1
0.201	10.100	0.000	3.25	0.00	1.65	3.1
0.201	10.117	0.000	3.26	0.00	1.66	3.1
0.202	10.133	0.000	3.26	0.00	1.66	3.1
0.202	10.150	0.000	3.26	0.00	1.66	3.1
0.202	10.167	0.000	3.27	0.00	1.66	3.1
0.202	10.183	0.000	3.27	0.00	1.66	3.1
0.203	10.200	0.000	3.28	0.00	1.66	3.1
0.203	10.217	0.000	3.28	0.00	1.66	3.1
0.203	10.233	0.000	3.28	0.00	1.66	3.1
0.203	10.250	0.000	3.29	0.00	1.67	3.1
0.203	10.267	0.000	3.30	0.00	1.67	3.1
0.204	10.283	0.000	3.30	0.00	1.67	3.1
0.204	10.300	0.000	3.31	0.00	1.67	3.1
0.204	10.317	0.000	3.32	0.00	1.67	3.1
0.204	10.333	0.000	3.33	0.00	1.67	3.2
0.205	10.350	0.000	3.34	0.00	1.67	3.2
0.205	10.367	0.000	3.34	0.00	1.68	3.2
0.205	10.383	0.000	3.35	0.00	1.68	3.2
0.205	10.400	0.000	3.36	0.00	1.68	3.2
0.206	10.417	0.000	3.37	0.00	1.68	3.2
0.206	10.433	0.000	3.37	0.00	1.68	3.2
0.206	10.450	0.000	3.38	0.00	1.68	3.2
0.206	10.467	0.000	3.38	0.00	1.68	3.2
0.207	10.483	0.000	3.39	0.00	1.69	3.2

	10.500	0.000	3.39	0.00	1.69	3.2
0.207						
	10.517	0.000	3.40	0.00	1.69	3.2
0.207						
	10.533	0.000	3.40	0.00	1.69	3.2
0.207						
	10.550	0.000	3.40	0.00	1.69	3.2
0.208						
	10.567	0.000	3.41	0.00	1.69	3.2
0.208						
	10.583	0.000	3.41	0.00	1.69	3.2
0.208						
	10.600	0.000	3.42	0.00	1.70	3.2
0.208						
	10.617	0.000	3.42	0.00	1.70	3.2
0.209						
	10.633	0.000	3.43	0.00	1.70	3.3
0.209						
	10.650	0.000	3.44	0.00	1.70	3.3
0.209						
	10.667	0.000	3.45	0.00	1.70	3.3
0.209						
	10.683	0.000	3.46	0.00	1.70	3.3
0.210						
	10.700	0.000	3.47	0.00	1.71	3.3
0.210						
	10.717	0.000	3.48	0.00	1.71	3.3
0.210						
	10.733	0.000	3.49	0.00	1.71	3.3
0.210						
	10.750	0.000	3.49	0.00	1.71	3.3
0.211						
	10.767	0.000	3.50	0.00	1.71	3.3
0.211						
	10.783	0.000	3.51	0.00	1.71	3.3
0.211						
	10.800	0.000	3.52	0.00	1.72	3.3
0.212						
	10.817	0.000	3.52	0.00	1.72	3.3
0.212						
	10.833	0.000	3.53	0.00	1.72	3.3
0.212						
	10.850	0.000	3.53	0.00	1.72	3.3
0.212						
	10.867	0.000	3.54	0.00	1.72	3.3
0.213						
	10.883	0.000	3.54	0.00	1.72	3.3
0.213						
	10.900	0.000	3.54	0.00	1.73	3.3
0.213						
	10.917	0.000	3.55	0.00	1.73	3.4
0.214						
	10.933	0.000	3.55	0.00	1.73	3.4
0.214						
	10.950	0.000	3.56	0.00	1.73	3.4
0.214						
	10.967	0.000	3.56	0.00	1.73	3.4
0.214						
	10.983	0.000	3.57	0.00	1.73	3.4
0.215						
	11.000	0.000	3.58	0.00	1.73	3.4
0.215						
	11.017	0.000	3.59	0.00	1.74	3.4
0.215						
	11.033	0.000	3.60	0.00	1.74	3.4
0.215						
	11.050	0.000	3.61	0.00	1.74	3.4
0.216						
	11.067	0.000	3.62	0.00	1.74	3.4
0.216						
	11.083	0.000	3.63	0.00	1.74	3.4
0.216						
	11.100	0.000	3.64	0.00	1.75	3.4
0.217						
	11.117	0.000	3.65	0.00	1.75	3.4
0.217						
	11.133	0.000	3.66	0.00	1.75	3.4
0.217						
	11.150	0.000	3.67	0.00	1.75	3.4
0.218						
	11.167	0.000	3.68	0.00	1.75	3.4
0.218						
	11.183	0.000	3.68	0.00	1.75	3.5
0.218						
	11.200	0.000	3.69	0.00	1.76	3.5
0.219						
	11.217	0.000	3.69	0.00	1.76	3.5
0.219						
	11.233	0.000	3.70	0.00	1.76	3.5
0.219						
	11.250	0.000	3.70	0.00	1.76	3.5
0.219						
	11.267	0.000	3.71	0.00	1.76	3.5
0.220						
	11.283	0.000	3.71	0.00	1.77	3.5
0.220						
	11.300	0.000	3.72	0.00	1.77	3.5
0.220						
	11.317	0.000	3.72	0.00	1.77	3.5
0.221						
	11.333	0.000	3.73	0.00	1.77	3.5
0.221						
	11.350	0.000	3.74	0.00	1.77	3.5
0.221						
	11.367	0.000	3.75	0.00	1.77	3.5
0.222						
	11.383	0.000	3.77	0.00	1.78	3.5
0.222						
	11.400	0.000	3.78	0.00	1.78	3.5
0.222						
	11.417	0.000	3.79	0.00	1.78	3.5
0.223						

11.433	0.000	3.80	0.00	1.78	3.6	0.223
11.450	0.000	3.81	0.00	1.78	3.6	0.223
11.467	0.000	3.82	0.00	1.79	3.6	0.224
11.483	0.000	3.83	0.00	1.79	3.6	0.224
11.500	0.000	3.84	0.00	1.79	3.6	0.224
11.517	0.000	3.85	0.00	1.79	3.6	0.225
11.533	0.000	3.86	0.00	1.79	3.6	0.225
11.550	0.000	3.86	0.00	1.80	3.6	0.225
11.567	0.000	3.87	0.00	1.80	3.6	0.226
11.583	0.000	3.87	0.00	1.80	3.6	0.226
11.600	0.000	3.88	0.00	1.80	3.6	0.226
11.617	0.000	3.89	0.00	1.80	3.6	0.227
11.633	0.000	3.89	0.00	1.81	3.6	0.227
11.650	0.000	3.90	0.00	1.81	3.7	0.227
11.667	0.000	3.90	0.00	1.81	3.7	0.228
11.683	0.000	3.91	0.00	1.81	3.7	0.228
11.700	0.000	3.92	0.00	1.81	3.7	0.228
11.717	0.000	3.94	0.00	1.82	3.7	0.229
11.733	0.000	3.95	0.00	1.82	3.7	0.229
11.750	0.000	3.96	0.00	1.82	3.7	0.229
11.767	0.000	3.97	0.00	1.82	3.7	0.230
11.783	0.000	3.99	0.00	1.82	3.7	0.230
11.800	0.000	4.00	0.00	1.83	3.7	0.231
11.817	0.000	4.01	0.00	1.83	3.7	0.231
11.833	0.000	4.02	0.00	1.83	3.7	0.231
11.850	0.000	4.04	0.00	1.83	3.7	0.232
11.867	0.000	4.05	0.00	1.84	3.8	0.232
11.883	0.000	4.06	0.00	1.84	3.8	0.233
11.900	0.000	4.06	0.00	1.84	3.8	0.233
11.917	0.000	4.07	0.00	1.84	3.8	0.233
11.933	0.000	4.08	0.00	1.85	3.8	0.234
11.950	0.000	4.08	0.00	1.85	3.8	0.234
11.967	0.000	4.09	0.00	1.85	3.8	0.234
11.983	0.000	4.10	0.00	1.85	3.8	0.235
12.000	0.000	4.10	0.00	1.85	3.8	0.235
12.017	0.000	4.11	0.00	1.86	3.8	0.236
12.033	0.000	4.12	0.00	1.86	3.8	0.236
12.050	0.000	4.16	0.00	1.86	3.9	0.236
12.067	0.000	4.27	0.00	1.86	3.9	0.237
12.083	0.000	4.39	0.00	1.87	3.9	0.238
12.100	0.000	4.50	0.00	1.87	3.9	0.239
12.117	0.000	4.62	0.00	1.88	3.9	0.240
12.133	0.000	4.73	0.00	1.89	3.9	0.241
12.150	0.000	4.84	0.00	1.89	4.0	0.242
12.167	0.000	4.96	0.00	1.90	4.0	0.243
12.183	0.000	5.07	0.00	1.91	4.0	0.245
12.200	0.000	5.19	0.00	1.92	4.1	0.246
12.217	0.000	5.30	0.00	1.93	4.1	0.248
12.233	0.000	5.36	0.00	1.94	4.1	0.250
12.250	0.000	5.37	0.00	1.95	4.2	0.251
12.267	0.000	5.38	0.00	1.96	4.2	0.253
12.283	0.000	5.39	0.00	1.97	4.2	0.254
12.300	0.000	5.40	0.00	1.98	4.3	0.256
12.317	0.000	5.41	0.00	1.99	4.3	0.258
12.333	0.000	5.41	0.00	1.99	4.3	0.259
12.350	0.000	5.42	0.00	2.00	4.4	0.260

0.262	12.367	0.000	5.43	0.00	2.01	4.4
0.263	12.383	0.000	5.44	0.00	2.02	4.5
0.264	12.400	0.000	5.45	0.00	2.03	4.5
0.266	12.417	0.000	5.46	0.00	2.03	4.6
0.267	12.433	0.000	5.48	0.00	2.04	4.6
0.268	12.450	0.000	5.50	0.00	2.05	4.7
0.269	12.467	0.000	5.52	0.00	2.05	4.7
0.270	12.483	0.000	5.53	0.00	2.06	4.8
0.271	12.500	0.000	5.55	0.00	2.06	4.8
0.272	12.517	0.000	5.57	0.00	2.07	4.9
0.273	12.533	0.000	5.59	0.00	2.08	4.9
0.274	12.550	0.000	5.61	0.00	2.08	4.9
0.275	12.567	0.000	5.62	0.00	2.09	5.0
0.276	12.583	0.000	5.64	0.00	2.09	5.0
0.276	12.600	0.000	5.65	0.00	2.10	5.1
0.277	12.617	0.000	5.66	0.00	2.10	5.1
0.278	12.633	0.000	5.67	0.00	2.11	5.1
0.279	12.650	0.000	5.68	0.00	2.11	5.2
0.279	12.667	0.000	5.69	0.00	2.11	5.2
0.280	12.683	0.000	5.70	0.00	2.12	5.2
0.281	12.700	0.000	5.71	0.00	2.12	5.2
0.281	12.717	0.000	5.72	0.00	2.12	5.3
0.282	12.733	0.000	5.73	0.00	2.13	5.3
0.282	12.750	0.000	5.74	0.00	2.13	5.3
0.283	12.767	0.000	5.75	0.00	2.14	5.3
0.284	12.783	0.000	5.77	0.00	2.14	5.4
0.284	12.800	0.000	5.79	0.00	2.14	5.4
0.285	12.817	0.000	5.81	0.00	2.14	5.4
0.285	12.833	0.000	5.83	0.00	2.15	5.4
0.286	12.850	0.000	5.85	0.00	2.15	5.5
0.286	12.867	0.000	5.88	0.00	2.15	5.5
0.287	12.883	0.000	5.90	0.00	2.16	5.5
0.287	12.900	0.000	5.92	0.00	2.16	5.5
0.288	12.917	0.000	5.94	0.00	2.16	5.6
0.288	12.933	0.000	5.96	0.00	2.17	5.6
0.289	12.950	0.000	5.98	0.00	2.17	5.6
0.289	12.967	0.000	5.99	0.00	2.17	5.6
0.290	12.983	0.000	6.00	0.00	2.18	5.6
0.290	13.000	0.000	6.01	0.00	2.18	5.7
0.291	13.017	0.000	6.02	0.00	2.18	5.7
0.291	13.033	0.000	6.03	0.00	2.18	5.7
0.292	13.050	0.000	6.05	0.00	2.19	5.7
0.292	13.067	0.000	6.06	0.00	2.19	5.7
0.293	13.083	0.000	6.07	0.00	2.19	5.8
0.293	13.100	0.000	6.08	0.00	2.19	5.8
0.293	13.117	0.000	6.09	0.00	2.20	5.8
0.294	13.133	0.000	6.11	0.00	2.20	5.8
0.294	13.150	0.000	6.14	0.00	2.20	5.8
0.295	13.167	0.000	6.16	0.00	2.20	5.9
0.295	13.183	0.000	6.19	0.00	2.21	5.9
0.295	13.200	0.000	6.21	0.00	2.21	5.9
0.296	13.217	0.000	6.24	0.00	2.21	5.9
0.296	13.233	0.000	6.26	0.00	2.21	5.9
0.297	13.250	0.000	6.29	0.00	2.22	5.9
0.297	13.267	0.000	6.31	0.00	2.22	6.0
0.298	13.283	0.000	6.34	0.00	2.22	6.0

	13.300	0.000	6.36	0.00	2.23	6.0
0.298						
	13.317	0.000	6.38	0.00	2.23	6.0
0.299						
	13.333	0.000	6.39	0.00	2.23	6.1
0.299						
	13.350	0.000	6.41	0.00	2.23	6.1
0.300						
	13.367	0.000	6.42	0.00	2.24	6.1
0.300						
	13.383	0.000	6.43	0.00	2.24	6.1
0.301						
	13.400	0.000	6.45	0.00	2.24	6.1
0.301						
	13.417	0.000	6.46	0.00	2.24	6.1
0.301						
	13.433	0.000	6.48	0.00	2.25	6.2
0.302						
	13.450	0.000	6.49	0.00	2.25	6.2
0.302						
	13.467	0.000	6.50	0.00	2.25	6.2
0.303						
	13.483	0.000	6.52	0.00	2.25	6.2
0.303						
	13.500	0.000	6.54	0.00	2.26	6.2
0.304						
	13.517	0.000	6.58	0.00	2.26	6.3
0.304						
	13.533	0.000	6.61	0.00	2.26	6.3
0.304						
	13.550	0.000	6.64	0.00	2.26	6.3
0.305						
	13.567	0.000	6.67	0.00	2.27	6.3
0.305						
	13.583	0.000	6.70	0.00	2.27	6.3
0.306						
	13.600	0.000	6.73	0.00	2.27	6.4
0.306						
	13.617	0.000	6.76	0.00	2.28	6.4
0.307						
	13.633	0.000	6.79	0.00	2.28	6.4
0.307						
	13.650	0.000	6.82	0.00	2.28	6.4
0.308						
	13.667	0.000	6.85	0.00	2.29	6.5
0.309						
	13.683	0.000	6.87	0.00	2.29	6.5
0.309						
	13.700	0.000	6.88	0.00	2.29	6.5
0.310						
	13.717	0.000	6.90	0.00	2.29	6.5
0.310						
	13.733	0.000	6.92	0.00	2.30	6.5
0.311						
	13.750	0.000	6.94	0.00	2.30	6.6
0.311						
	13.767	0.000	6.95	0.00	2.30	6.6
0.312						
	13.783	0.000	6.97	0.00	2.31	6.6
0.312						
	13.800	0.000	6.99	0.00	2.31	6.6
0.313						
	13.817	0.000	7.00	0.00	2.31	6.7
0.313						
	13.833	0.000	7.02	0.00	2.32	6.7
0.314						
	13.850	0.000	7.04	0.00	2.32	6.7
0.314						
	13.867	0.000	7.08	0.00	2.32	6.7
0.315						
	13.883	0.000	7.12	0.00	2.32	6.7
0.315						
	13.900	0.000	7.16	0.00	2.33	6.8
0.316						
	13.917	0.000	7.20	0.00	2.33	6.8
0.316						
	13.933	0.000	7.24	0.00	2.33	6.8
0.317						
	13.950	0.000	7.28	0.00	2.34	6.8
0.317						
	13.967	0.000	7.31	0.00	2.34	6.9
0.318						
	13.983	0.000	7.35	0.00	2.35	6.9
0.319						
	14.000	0.000	7.39	0.00	2.35	6.9
0.319						
	14.017	0.000	7.43	0.00	2.35	6.9
0.320						
	14.033	0.000	7.46	0.00	2.36	7.0
0.321						
	14.050	0.000	7.49	0.00	2.36	7.0
0.321						
	14.067	0.000	7.51	0.00	2.36	7.0
0.322						
	14.083	0.000	7.54	0.00	2.37	7.1
0.323						
	14.100	0.000	7.56	0.00	2.37	7.1
0.323						
	14.117	0.000	7.58	0.00	2.38	7.1
0.324						
	14.133	0.000	7.61	0.00	2.38	7.1
0.325						
	14.150	0.000	7.63	0.00	2.38	7.2
0.325						
	14.167	0.000	7.66	0.00	2.39	7.2
0.326						
	14.183	0.000	7.68	0.00	2.39	7.2
0.327						
	14.200	0.000	7.71	0.00	2.40	7.3
0.327						
	14.217	0.000	7.75	0.00	2.40	7.3
0.328						

	14.233	0.000	7.80	0.00	2.40	7.3
0.328						
	14.250	0.000	7.85	0.00	2.41	7.3
0.329						
	14.267	0.000	7.91	0.00	2.41	7.4
0.330						
	14.283	0.000	7.96	0.00	2.42	7.4
0.331						
	14.300	0.000	8.01	0.00	2.42	7.4
0.332						
	14.317	0.000	8.07	0.00	2.43	7.5
0.332						
	14.333	0.000	8.12	0.00	2.43	7.5
0.333						
	14.350	0.000	8.17	0.00	2.44	7.5
0.334						
	14.367	0.000	8.22	0.00	2.44	7.6
0.335						
	14.383	0.000	8.28	0.00	2.45	7.6
0.336						
	14.400	0.000	8.31	0.00	2.45	7.7
0.337						
	14.417	0.000	8.34	0.00	2.46	7.7
0.338						
	14.433	0.000	8.38	0.00	2.46	7.7
0.338						
	14.450	0.000	8.41	0.00	2.47	7.8
0.339						
	14.467	0.000	8.44	0.00	2.47	7.8
0.340						
	14.483	0.000	8.47	0.00	2.48	7.8
0.341						
	14.500	0.000	8.50	0.00	2.48	7.9
0.342						
	14.517	0.000	8.53	0.00	2.49	7.9
0.343						
	14.533	0.000	8.56	0.00	2.49	8.0
0.344						
	14.550	0.000	8.59	0.00	2.50	8.0
0.344						
	14.567	0.000	8.63	0.00	2.50	8.0
0.345						
	14.583	0.000	8.70	0.00	2.51	8.1
0.346						
	14.600	0.000	8.77	0.00	2.51	8.1
0.347						
	14.617	0.000	8.85	0.00	2.52	8.1
0.348						
	14.633	0.000	8.92	0.00	2.52	8.2
0.349						
	14.650	0.000	9.00	0.00	2.53	8.2
0.350						
	14.667	0.000	9.07	0.00	2.54	8.3
0.351						
	14.683	0.000	9.14	0.00	2.54	8.3
0.352						

	14.700	0.000	9.22	0.00	2.55	8.4
0.353						
	14.717	0.000	9.29	0.00	2.56	8.4
0.355						
	14.733	0.000	9.37	0.00	2.56	8.5
0.356						
	14.750	0.000	9.44	0.00	2.57	8.5
0.357						
	14.767	0.000	9.48	0.00	2.58	8.6
0.358						
	14.783	0.000	9.53	0.00	2.59	8.6
0.360						
	14.800	0.000	9.57	0.00	2.59	8.7
0.361						
	14.817	0.000	9.62	0.00	2.60	8.7
0.362						
	14.833	0.000	9.66	0.00	2.61	8.8
0.363						
	14.850	0.000	9.71	0.00	2.61	8.8
0.364						
	14.867	0.000	9.75	0.00	2.62	8.9
0.366						
	14.883	0.000	9.80	0.00	2.63	8.9
0.367						
	14.900	0.000	9.84	0.00	2.63	9.0
0.368						
	14.917	0.000	9.89	0.00	2.64	9.0
0.369						
	14.933	0.000	9.96	0.00	2.65	9.1
0.370						
	14.950	0.000	10.07	0.00	2.66	9.2
0.372						
	14.967	0.000	10.18	0.00	2.66	9.2
0.373						
	14.983	0.000	10.30	0.00	2.67	9.3
0.374						
	15.000	0.000	10.41	0.00	2.68	9.3
0.376						
	15.017	0.000	10.53	0.00	2.69	9.4
0.377						
	15.033	0.000	10.64	0.00	2.70	9.5
0.379						
	15.050	0.000	10.75	0.00	2.71	9.5
0.381						
	15.067	0.000	10.87	0.00	2.72	9.6
0.382						
	15.083	0.000	10.98	0.00	2.73	9.7
0.384						
	15.100	0.000	11.09	0.00	2.74	9.8
0.386						
	15.117	0.000	11.18	0.00	2.75	9.8
0.388						
	15.133	0.000	11.26	0.00	2.76	9.9
0.390						
	15.150	0.000	11.33	0.00	2.77	10.0
0.391						

	15.167	0.000	11.41	0.00	2.78	10.1
0.393						
	15.183	0.000	11.48	0.00	2.79	10.2
0.395						
	15.200	0.000	11.55	0.00	2.81	10.2
0.397						
	15.217	0.000	11.63	0.00	2.82	10.3
0.399						
	15.233	0.000	11.70	0.00	2.83	10.4
0.401						
	15.250	0.000	11.77	0.00	2.84	10.5
0.402						
	15.267	0.000	11.85	0.00	2.85	10.5
0.404						
	15.283	0.000	11.92	0.00	2.86	10.6
0.406						
	15.300	0.000	12.02	0.00	2.87	10.7
0.408						
	15.317	0.000	12.14	0.00	2.88	10.8
0.410						
	15.333	0.000	12.25	0.00	2.89	10.9
0.412						
	15.350	0.000	12.36	0.00	2.90	10.9
0.413						
	15.367	0.000	12.47	0.00	2.91	11.0
0.415						
	15.383	0.000	12.59	0.00	2.93	11.1
0.417						
	15.400	0.000	12.70	0.00	2.94	11.2
0.420						
	15.417	0.000	12.81	0.00	2.95	11.3
0.422						
	15.433	0.000	12.93	0.00	2.96	11.4
0.424						
	15.450	0.000	13.04	0.00	2.98	11.5
0.426						
	15.467	0.000	13.15	0.00	2.99	11.6
0.428						
	15.483	0.000	13.23	0.00	3.00	11.7
0.430						
	15.500	0.000	13.31	0.00	3.01	11.9
0.432						
	15.517	0.000	13.38	0.00	3.02	12.3
0.434						
	15.533	0.000	13.45	0.00	3.03	12.6
0.435						
	15.550	0.000	13.53	0.00	3.03	12.8
0.436						
	15.567	0.000	13.60	0.00	3.04	13.0
0.437						
	15.583	0.000	13.68	0.00	3.04	13.2
0.437						
	15.600	0.000	13.75	0.00	3.05	13.3
0.438						
	15.617	0.000	13.83	0.00	3.05	13.4
0.438						

	15.633	0.000	13.90	0.00	3.05	13.5
0.439						
	15.650	0.000	14.07	0.00	3.06	13.7
0.439						
	15.667	0.000	14.60	0.00	3.06	13.8
0.441						
	15.683	0.000	15.16	0.00	3.07	14.1
0.442						
	15.700	0.000	15.72	0.00	3.08	14.4
0.444						
	15.717	0.000	16.29	0.00	3.09	14.8
0.446						
	15.733	0.000	16.85	0.00	3.11	15.3
0.448						
	15.750	0.000	17.41	0.00	3.12	15.8
0.450						
	15.767	0.000	17.98	0.00	3.13	16.3
0.453						
	15.783	0.000	18.54	0.00	3.15	16.8
0.455						
	15.800	0.000	19.10	0.00	3.16	17.3
0.457						
	15.817	0.000	19.66	0.00	3.18	17.8
0.460						
	15.833	0.000	20.27	0.00	3.19	18.4
0.463						
	15.850	0.000	20.96	0.00	3.21	19.0
0.465						
	15.867	0.000	21.66	0.00	3.23	19.6
0.468						
	15.883	0.000	22.35	0.00	3.24	20.2
0.471						
	15.900	0.000	23.05	0.00	3.26	20.8
0.474						
	15.917	0.000	23.74	0.00	3.28	21.5
0.477						
	15.933	0.000	24.43	0.00	3.30	22.2
0.481						
	15.950	0.000	25.13	0.00	3.32	22.8
0.484						
	15.967	0.000	25.82	0.00	3.33	23.5
0.487						
	15.983	0.000	26.52	0.00	3.35	24.2
0.490						
	16.000	0.000	27.21	0.00	3.37	24.9
0.493						
	16.017	0.000	30.17	0.00	3.41	25.9
0.499						
	16.033	0.000	35.39	0.00	3.47	27.6
0.510						
	16.050	0.000	40.61	0.00	3.55	30.3
0.524						
	16.067	0.000	45.83	0.00	3.65	33.6
0.541						
	16.083	0.000	51.05	0.00	3.76	37.4
0.560						

	16.100	0.000	56.27	0.00	3.88	41.6
0.580						
	16.117	0.000	61.49	0.00	4.01	46.1
0.601						
	16.133	0.000	66.71	0.00	4.13	52.0
0.622						
	16.150	0.000	71.93	0.00	4.23	58.8
0.640						
	16.167	0.000	77.15	0.00	4.33	65.0
0.656						
	16.183	0.000	**83.99**	0.00	4.44	71.1
0.674						
	16.200	0.000	79.66	0.00	**4.47**	75.3
0.680						
	16.217	0.000	73.40	0.00	4.45	**75.8**
0.677						
	16.233	0.000	67.14	0.00	4.40	73.6
0.668						
	16.250	0.000	60.88	0.00	4.33	69.9
0.656						
	16.267	0.000	54.61	0.00	4.24	65.1
0.641						
	16.283	0.000	48.35	0.00	4.15	59.8
0.625						
	16.300	0.000	42.09	0.00	4.05	54.1
0.609						
	16.317	0.000	35.82	0.00	3.95	48.6
0.591						
	16.333	0.000	29.56	0.00	3.83	44.0
0.571						
	16.350	0.000	23.30	0.00	3.70	39.5
0.549						
	16.367	0.000	17.46	0.00	3.56	34.6
0.526						
	16.383	0.000	16.01	0.00	3.45	30.0
0.506						
	16.400	0.000	15.70	0.00	3.36	26.4
0.491						
	16.417	0.000	15.39	0.00	3.30	23.6
0.480						
	16.433	0.000	15.07	0.00	3.24	21.5
0.471						
	16.450	0.000	14.76	0.00	3.20	19.8
0.464						
	16.467	0.000	14.45	0.00	3.17	18.5
0.459						
	16.483	0.000	14.14	0.00	3.14	17.4
0.454						
	16.500	0.000	13.83	0.00	3.12	16.5
0.451						
	16.517	0.000	13.52	0.00	3.10	15.8
0.448						
	16.533	0.000	13.21	0.00	3.09	15.2
0.445						
	16.550	0.000	12.91	0.00	3.07	14.6
0.443						

	16.567	0.000	12.67	0.00	3.06	14.2
0.440						
	16.583	0.000	12.45	0.00	3.05	13.7
0.439						
	16.600	0.000	12.22	0.00	3.04	13.4
0.437						
	16.617	0.000	12.00	0.00	3.03	13.1
0.436						
	16.633	0.000	11.77	0.00	3.03	12.8
0.434						
	16.650	0.000	11.55	0.00	3.02	12.5
0.433						
	16.667	0.000	11.32	0.00	3.01	12.2
0.432						
	16.683	0.000	11.10	0.00	3.00	12.0
0.431						
	16.700	0.000	10.87	0.00	3.00	11.8
0.429						
	16.717	0.000	10.65	0.00	2.99	11.6
0.428						
	16.733	0.000	10.45	0.00	2.98	11.6
0.426						
	16.750	0.000	10.31	0.00	2.97	11.5
0.425						
	16.767	0.000	10.17	0.00	2.96	11.4
0.423						
	16.783	0.000	10.03	0.00	2.95	11.4
0.421						
	16.800	0.000	9.90	0.00	2.94	11.3
0.419						
	16.817	0.000	9.76	0.00	2.93	11.2
0.417						
	16.833	0.000	9.62	0.00	2.91	11.1
0.415						
	16.850	0.000	9.49	0.00	2.90	11.0
0.413						
	16.867	0.000	9.35	0.00	2.89	10.9
0.411						
	16.883	0.000	9.21	0.00	2.88	10.8
0.409						
	16.900	0.000	9.08	0.00	2.86	10.7
0.407						
	16.917	0.000	8.96	0.00	2.85	10.6
0.404						
	16.933	0.000	8.87	0.00	2.83	10.5
0.402						
	16.950	0.000	8.77	0.00	2.82	10.4
0.400						
	16.967	0.000	8.68	0.00	2.81	10.3
0.397						
	16.983	0.000	8.59	0.00	2.79	10.2
0.395						
	17.000	0.000	8.49	0.00	2.78	10.1
0.393						
	17.017	0.000	8.40	0.00	2.77	10.0
0.390						

17.033	0.000	8.31	0.00	2.75	9.9	0.388
17.050	0.000	8.21	0.00	2.74	9.9	0.386
17.067	0.000	8.12	0.00	2.73	9.8	0.384
17.083	0.000	8.02	0.00	2.71	9.7	0.381
17.100	0.000	7.95	0.00	2.70	9.6	0.379
17.117	0.000	7.88	0.00	2.69	9.5	0.377
17.133	0.000	7.81	0.00	2.68	9.4	0.375
17.150	0.000	7.74	0.00	2.66	9.3	0.373
17.167	0.000	7.67	0.00	2.65	9.2	0.371
17.183	0.000	7.60	0.00	2.64	9.1	0.369
17.200	0.000	7.53	0.00	2.63	9.0	0.367
17.217	0.000	7.46	0.00	2.62	8.9	0.365
17.233	0.000	7.39	0.00	2.60	8.8	0.363
17.250	0.000	7.32	0.00	2.59	8.7	0.361
17.267	0.000	7.25	0.00	2.58	8.7	0.359
17.283	0.000	7.19	0.00	2.57	8.6	0.357
17.300	0.000	7.14	0.00	2.56	8.5	0.355
17.317	0.000	7.09	0.00	2.55	8.4	0.353
17.333	0.000	7.04	0.00	2.54	8.3	0.351
17.350	0.000	6.99	0.00	2.53	8.3	0.349
17.367	0.000	6.93	0.00	2.52	8.2	0.348
17.383	0.000	6.88	0.00	2.51	8.1	0.346
17.400	0.000	6.83	0.00	2.50	8.0	0.344
17.417	0.000	6.78	0.00	2.49	8.0	0.343
17.433	0.000	6.73	0.00	2.48	7.9	0.341
17.450	0.000	6.68	0.00	2.47	7.8	0.340
17.467	0.000	6.64	0.00	2.46	7.8	0.338
17.483	0.000	6.59	0.00	2.45	7.7	0.336

17.500	0.000	6.55	0.00	2.44	7.6	0.335
17.517	0.000	6.51	0.00	2.43	7.6	0.333
17.533	0.000	6.47	0.00	2.42	7.5	0.332
17.550	0.000	6.43	0.00	2.42	7.4	0.331
17.567	0.000	6.39	0.00	2.41	7.4	0.329
17.583	0.000	6.35	0.00	2.40	7.3	0.328
17.600	0.000	6.30	0.00	2.39	7.3	0.327
17.617	0.000	6.26	0.00	2.38	7.2	0.325
17.633	0.000	6.22	0.00	2.38	7.2	0.324
17.650	0.000	6.19	0.00	2.37	7.1	0.323
17.667	0.000	6.15	0.00	2.36	7.0	0.322
17.683	0.000	6.12	0.00	2.35	7.0	0.320
17.700	0.000	6.08	0.00	2.35	6.9	0.319
17.717	0.000	6.05	0.00	2.34	6.9	0.318
17.733	0.000	6.02	0.00	2.33	6.8	0.317
17.750	0.000	5.98	0.00	2.33	6.8	0.316
17.767	0.000	5.95	0.00	2.32	6.7	0.315
17.783	0.000	5.91	0.00	2.31	6.7	0.314
17.800	0.000	5.88	0.00	2.31	6.7	0.312
17.817	0.000	5.85	0.00	2.30	6.6	0.311
17.833	0.000	5.82	0.00	2.30	6.6	0.310
17.850	0.000	5.79	0.00	2.29	6.5	0.309
17.867	0.000	5.76	0.00	2.28	6.5	0.308
17.883	0.000	5.73	0.00	2.28	6.4	0.307
17.900	0.000	5.70	0.00	2.27	6.4	0.306
17.917	0.000	5.67	0.00	2.27	6.4	0.306
17.933	0.000	5.64	0.00	2.26	6.3	0.305
17.950	0.000	5.61	0.00	2.26	6.3	0.304

```
          17.967        0.000     5.58     0.00      2.25      6.2
0.303
          17.983        0.000     5.56     0.00      2.25      6.2
0.302
          18.000        0.000     5.49     0.00      2.24      6.2
0.301
 ---------------------------------------------------------------------------
   PROCESS SUMMARY OF STORAGE:
     INFLOW  VOLUME =      9.531 AF
     BASIN  STORAGE =      0.000 AF (WITH      0.000 AF INITIALLY FILLED)
     OUTFLOW VOLUME =      9.531 AF
     LOSS    VOLUME =      0.000 AF
 ===========================================================================

   END OF FLOODSCx ROUTING ANALYSIS
```

SECTION 5

5. REFERENCE

SOHM

PROJECT REPORT

General Model Information

Project Name:	sunp1
Site Name:	
Site Address:	
City:	
Report Date:	4/8/2015
Gage:	Laguna Beach
Data Start:	10/01/1949
Data End:	09/30/2006
Timestep:	15 Minute
Precip Scale:	1.00
Version:	2013/04/29

POC Thresholds

Low Flow Threshold for POC1:	10 Percent of the 2 Year
High Flow Threshold for POC1:	10 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use	Acres
D,Open Brush,VSteep	16.92
Pervious Total	16.92
Impervious Land Use	Acres
Impervious Total	0
Basin Total	16.92

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use	Acres
D,Open Brush,Steep	7.54
D,Open Brush,Flat	1.8
Pervious Total	9.34
Impervious Land Use	Acres
Impervious,Mod(5-10)	7.59
Impervious Total	7.59
Basin Total	16.93

Element Flows To:

Surface	Interflow	Groundwater
Vault 1	Vault 1	

Routing Elements
Predeveloped Routing

Mitigated Routing

Vault 1

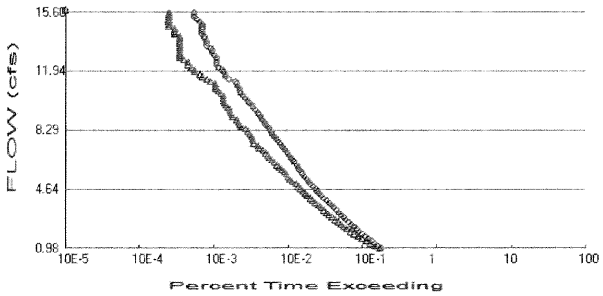
Width:	245 ft.
Length:	30 ft.
Depth:	11 ft.
Discharge Structure	
Riser Height:	3 ft.
Riser Diameter:	42 in.
Notch Type:	Rectangular
Notch Width:	1.440 ft.
Notch Height:	1.927 ft.
Orifice 1 Diameter:	5 in. Elevation:0 ft.
Element Flows To:	
Outlet 1	Outlet 2

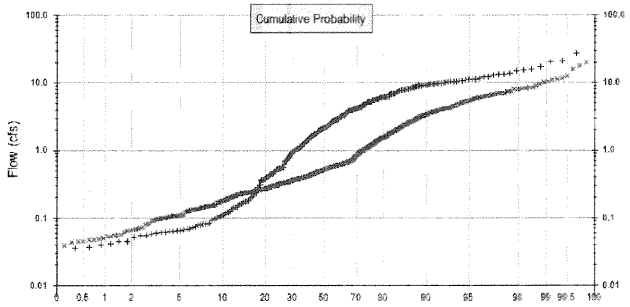
Vault Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	Infilt(cfs)
0.0000	0.168	0.000	0.000	0.000
0.1222	0.168	0.020	0.229	0.000
0.2444	0.168	0.041	0.324	0.000
0.3667	0.168	0.061	0.397	0.000
0.4889	0.168	0.082	0.459	0.000
0.6111	0.168	0.103	0.513	0.000
0.7333	0.168	0.123	0.562	0.000
0.8556	0.168	0.144	0.607	0.000
0.9778	0.168	0.165	0.649	0.000
1.1000	0.168	0.185	0.710	0.000
1.2222	0.168	0.206	1.002	0.000
1.3444	0.168	0.226	1.439	0.000
1.4667	0.168	0.247	1.979	0.000
1.5889	0.168	0.268	2.604	0.000
1.7111	0.168	0.288	3.303	0.000
1.8333	0.168	0.309	4.068	0.000
1.9556	0.168	0.330	4.894	0.000
2.0778	0.168	0.350	5.776	0.000
2.2000	0.168	0.371	6.711	0.000
2.3222	0.168	0.391	7.696	0.000
2.4444	0.168	0.412	8.728	0.000
2.5667	0.168	0.433	9.806	0.000
2.6889	0.168	0.453	10.92	0.000
2.8111	0.168	0.474	12.08	0.000
2.9333	0.168	0.494	13.29	0.000
3.0556	0.168	0.515	14.42	0.000
3.1778	0.168	0.536	16.55	0.000
3.3000	0.168	0.556	19.62	0.000
3.4222	0.168	0.577	23.39	0.000
3.5444	0.168	0.598	27.75	0.000
3.6667	0.168	0.618	32.63	0.000
3.7889	0.168	0.639	37.99	0.000
3.9111	0.168	0.659	43.77	0.000
4.0333	0.168	0.680	49.95	0.000
4.1556	0.168	0.701	56.50	0.000
4.2778	0.168	0.721	63.42	0.000
4.4000	0.168	0.742	70.66	0.000

4.5222	0.168	0.763	78.24	0.000
4.6444	0.168	0.783	86.12	0.000
4.7667	0.168	0.804	94.30	0.000
4.8889	0.168	0.824	102.7	0.000
5.0111	0.168	0.845	111.5	0.000
5.1333	0.168	0.866	120.5	0.000
5.2556	0.168	0.886	129.8	0.000
5.3778	0.168	0.907	139.3	0.000
5.5000	0.168	0.928	149.1	0.000
5.6222	0.168	0.948	159.1	0.000
5.7444	0.168	0.969	169.3	0.000
5.8667	0.168	0.989	179.8	0.000
5.9889	0.168	1.010	190.5	0.000
6.1111	0.168	1.031	201.5	0.000
6.2333	0.168	1.051	212.6	0.000
6.3556	0.168	1.072	224.0	0.000
6.4778	0.168	1.093	235.5	0.000
6.6000	0.168	1.113	247.3	0.000
6.7222	0.168	1.134	259.3	0.000
6.8444	0.168	1.154	271.4	0.000
6.9667	0.168	1.175	283.8	0.000
7.0889	0.168	1.196	296.4	0.000
7.2111	0.168	1.216	309.1	0.000
7.3333	0.168	1.237	322.0	0.000
7.4556	0.168	1.258	335.2	0.000
7.5778	0.168	1.278	348.5	0.000
7.7000	0.168	1.299	361.9	0.000
7.8222	0.168	1.319	375.6	0.000
7.9444	0.168	1.340	389.4	0.000
8.0667	0.168	1.361	403.4	0.000
8.1889	0.168	1.381	417.6	0.000
8.3111	0.168	1.402	431.9	0.000
8.4333	0.168	1.423	446.4	0.000
8.5556	0.168	1.443	461.1	0.000
8.6778	0.168	1.464	475.9	0.000
8.8000	0.168	1.484	490.9	0.000
8.9222	0.168	1.505	506.0	0.000
9.0444	0.168	1.526	521.3	0.000
9.1667	0.168	1.546	536.8	0.000
9.2889	0.168	1.567	552.4	0.000
9.4111	0.168	1.588	568.1	0.000
9.5333	0.168	1.608	584.0	0.000
9.6556	0.168	1.629	600.1	0.000
9.7778	0.168	1.649	616.3	0.000
9.9000	0.168	1.670	632.7	0.000
10.022	0.168	1.691	649.2	0.000
10.144	0.168	1.711	665.8	0.000
10.267	0.168	1.732	682.6	0.000
10.389	0.168	1.752	699.5	0.000
10.511	0.168	1.773	716.6	0.000
10.633	0.168	1.794	733.8	0.000
10.756	0.168	1.814	751.1	0.000
10.878	0.168	1.835	768.6	0.000
11.000	0.168	1.856	786.2	0.000
11.122	0.168	1.876	804.0	0.000
11.244	0.000	0.000	821.9	0.000

Analysis Results
POC 1





+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 16.92
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 9.34
Total Impervious Area: 7.59

Flow Frequency Method: Cunnane

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	9.837104
5 year	12.36614
10 year	15.596262
25 year	20.855622

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	6.457842
5 year	8.688433
10 year	11.234195
25 year	16.236644

Duration Flows
The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.9837	3616	3438	95	Pass
1.1313	3266	2962	90	Pass
1.2789	2940	2594	88	Pass
1.4265	2638	2262	85	Pass
1.5741	2394	1977	82	Pass
1.7217	2173	1745	80	Pass
1.8693	1978	1547	78	Pass
2.0169	1820	1389	76	Pass
2.1645	1683	1232	73	Pass
2.3121	1553	1108	71	Pass
2.4597	1421	1028	72	Pass
2.6073	1305	942	72	Pass
2.7549	1205	857	71	Pass
2.9025	1107	780	70	Pass
3.0501	1030	709	68	Pass
3.1977	958	657	68	Pass
3.3453	895	610	68	Pass
3.4929	826	556	67	Pass
3.6405	757	511	67	Pass
3.7881	711	463	65	Pass
3.9357	664	429	64	Pass
4.0833	602	397	65	Pass
4.2309	562	365	64	Pass
4.3785	520	338	65	Pass
4.5261	492	318	64	Pass
4.6737	466	292	62	Pass
4.8214	430	273	63	Pass
4.9690	398	254	63	Pass
5.1166	375	226	60	Pass
5.2642	355	209	58	Pass
5.4118	335	198	59	Pass
5.5594	314	191	60	Pass
5.7070	298	178	59	Pass
5.8546	282	165	58	Pass
6.0022	273	153	56	Pass
6.1498	261	143	54	Pass
6.2974	241	130	53	Pass
6.4450	227	119	52	Pass
6.5926	216	111	51	Pass
6.7402	204	108	52	Pass
6.8878	196	100	51	Pass
7.0354	183	92	50	Pass
7.1830	172	82	47	Pass
7.3306	164	79	48	Pass
7.4782	156	69	44	Pass
7.6258	146	68	46	Pass
7.7734	138	66	47	Pass
7.9210	129	65	50	Pass
8.0686	121	61	50	Pass
8.2162	118	58	49	Pass
8.3638	112	54	48	Pass
8.5114	106	47	44	Pass
8.6590	100	45	45	Pass

8.8066	96	43	44	Pass
8.9542	90	41	45	Pass
9.1018	85	36	42	Pass
9.2494	81	35	43	Pass
9.3970	79	34	43	Pass
9.5446	73	33	45	Pass
9.6922	67	31	46	Pass
9.8398	66	29	43	Pass
9.9874	60	28	46	Pass
10.1350	57	27	47	Pass
10.2826	53	27	50	Pass
10.4302	49	27	55	Pass
10.5778	46	25	54	Pass
10.7254	45	23	51	Pass
10.8730	45	21	46	Pass
11.0206	42	21	50	Pass
11.1682	41	21	51	Pass
11.3158	39	18	46	Pass
11.4634	32	16	50	Pass
11.6110	29	14	48	Pass
11.7586	29	13	44	Pass
11.9062	27	11	40	Pass
12.0538	26	11	42	Pass
12.2014	23	10	43	Pass
12.3490	22	9	40	Pass
12.4966	22	9	40	Pass
12.6442	22	8	36	Pass
12.7918	22	7	31	Pass
12.9394	20	7	35	Pass
13.0870	19	7	36	Pass
13.2346	19	7	36	Pass
13.3822	18	7	38	Pass
13.5298	16	7	43	Pass
13.6774	16	7	43	Pass
13.8250	16	7	43	Pass
13.9726	15	7	46	Pass
14.1202	15	7	46	Pass
14.2678	14	6	42	Pass
14.4154	14	6	42	Pass
14.5631	14	6	42	Pass
14.7107	14	5	35	Pass
14.8583	14	5	35	Pass
15.0059	13	5	38	Pass
15.1535	12	5	41	Pass
15.3011	11	5	45	Pass
15.4487	11	5	45	Pass
15.5963	11	5	45	Pass

Water Quality
Drawdown Time Results

Model Default Modifications

Total of 0 changes have been made.

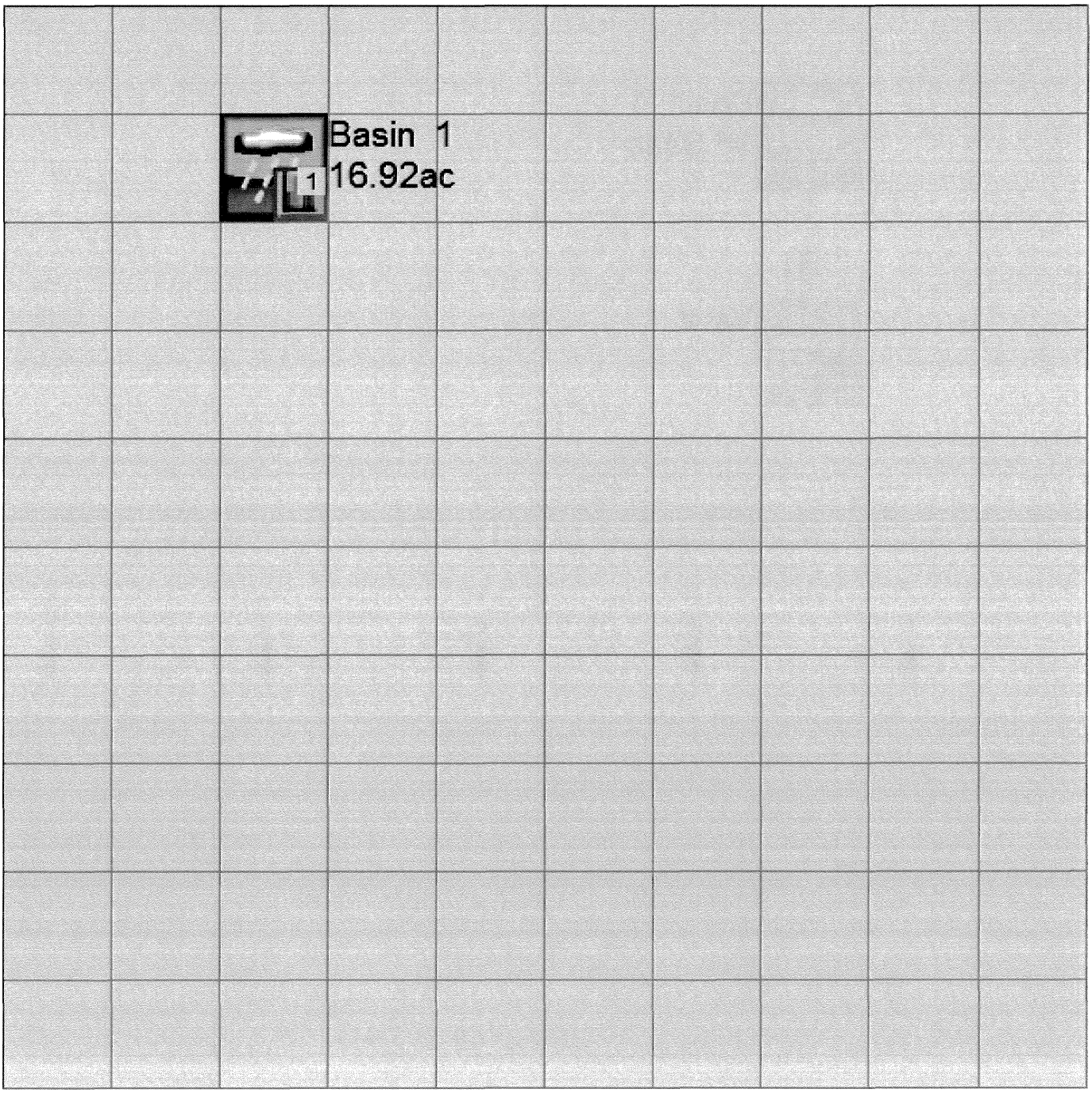
PERLND Changes

No PERLND changes have been made.

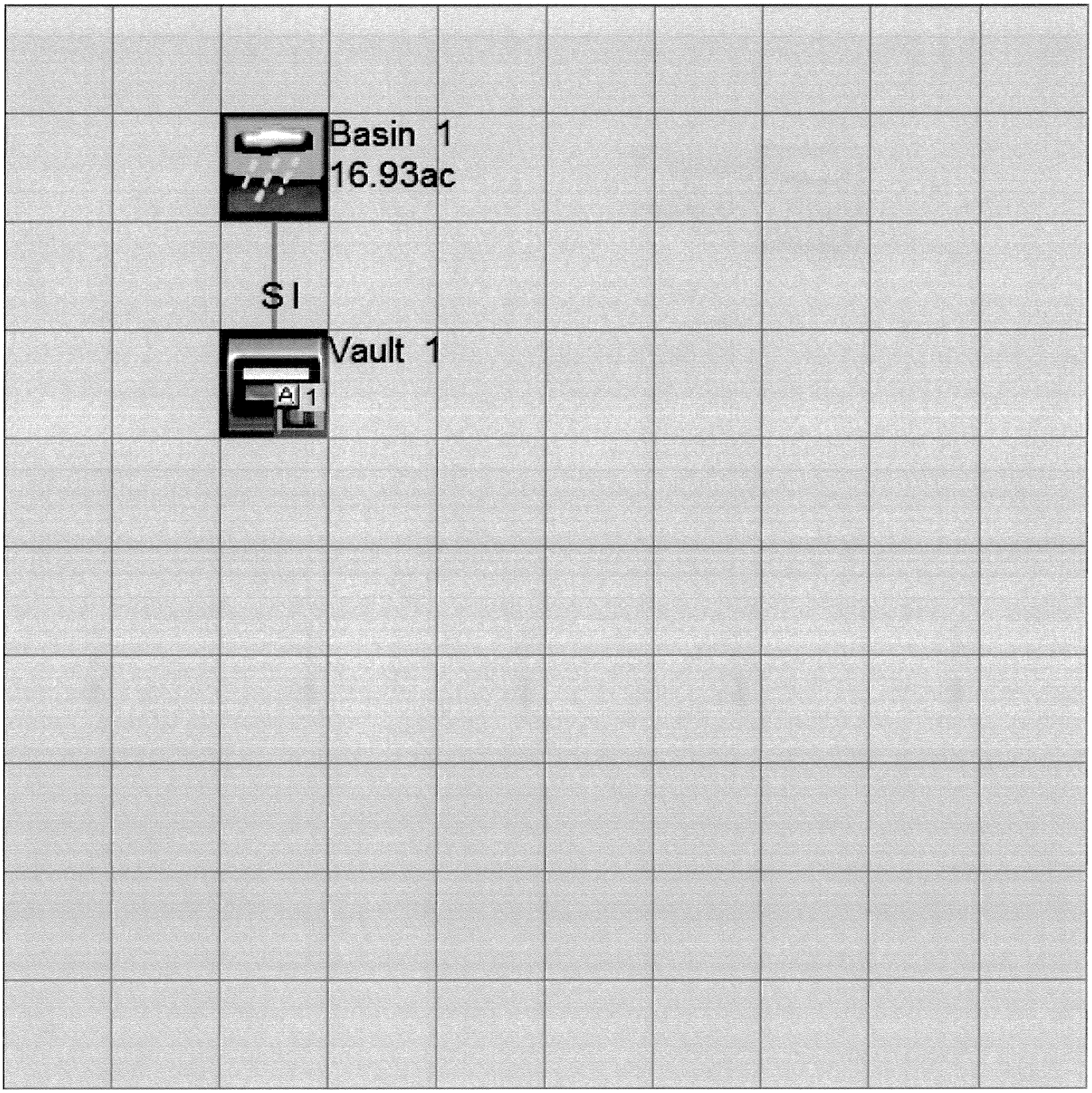
IMPLND Changes

No IMPLND changes have been made.

Appendix
Predeveloped Schematic



Mitigated Schematic



Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1949 10 01         END    2006 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                               ***
WDM        26   sunp1.wdm
MESSU      25   Mitsunp1.MES
           27   Mitsunp1.L61
           28   Mitsunp1.L62
           30   POCsunp11.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:15
      PERLND      43
      PERLND      41
      IMPLND       2
      RCHRES       1
      COPY         1
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Vault  1                   MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                           in  out           ***
   43     D,Open Brush,Steep      1    1    1    1   27    0
   41     D,Open Brush,Flat       1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   43         0    0    1    0    0    0    0    0    0    0    0    0
   41         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY
```

```
  PRINT-INFO
    <PLS > ***************** Print-flags ***************************** PIVL  PYR
    # -   # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   43         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   41         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -   # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   43         0    0    0    1    0    0    0    0    1    0    0
   41         0    0    0    1    0    0    0    0    1    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2          ***
    # -   # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   43              0         4     0.025       300      0.15       0.8     0.955
   41              0       4.6      0.04       400      0.05       0.8     0.955
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3          ***
    # -   # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   43             40        35         4         2         0      0.03         0
   41             40        35         4         2         0      0.03         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                                  ***
    # -   #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   43              0      0.45      0.25       0.6       0.4         0
   41              0       0.8      0.25         1       0.7         0
  END PWAT-PARM4
  MON-LZETPARM
    <PLS >      PWATER input info: Part 3          ***
    # -   #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   43       0.4  0.4  0.4  0.5 0.55 0.55 0.55 0.55 0.55 0.55 0.45  0.4
   41       0.4  0.4  0.4  0.5 0.55 0.55 0.55 0.55 0.55 0.55 0.45  0.4
  END MON-LZETPARM
  MON-INTERCEP
    <PLS >      PWATER input info: Part 3          ***
    # -   #  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC  ***
   43      0.12 0.12 0.12 0.12 0.12 0.12 0.12 0.12 0.12 0.12 0.12 0.12
   41      0.12 0.12 0.12 0.12 0.12 0.12 0.12 0.12 0.12 0.12 0.12 0.12
  END MON-INTERCEP

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -   # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   43              0         0     0.045         0       0.8       0.3      0.01
   41              0         0      0.08         0      0.92       0.3      0.01
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -   #                     User  t-series Engl Metr ***
                                       in  out            ***
    2     Impervious,Mod(5-10)    1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -   # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    2         0    0    1    0    0    0
  END ACTIVITY
```

```
  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -   # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    2         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -   # CSNO RTOP  VRS  VNN RTLI     ***
    2         0    0    0    0    0
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -   # ***  LSUR     SLSUR      NSUR     RETSC
    2            100       0.1       0.1      0.09
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -   # ***PETMAX    PETMIN
    2              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -   # ***  RETS      SURS
    2              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  43                        7.54     RCHRES   1      2
PERLND  43                        7.54     RCHRES   1      3
PERLND  41                         1.8     RCHRES   1      2
PERLND  41                         1.8     RCHRES   1      3
IMPLND   2                        7.59     RCHRES   1      5

******Routing******
PERLND  43                        7.54     COPY     1     12
PERLND  41                         1.8     COPY     1     12
IMPLND   2                        7.59     COPY     1     15
PERLND  43                        7.54     COPY     1     13
PERLND  41                         1.8     COPY     1     13
RCHRES   1                           1     COPY   501     16
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   48.4        DISPLY   1     INPUT  TIMSER 1


<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -   #<------------------><---> User T-series  Engl Metr LKFG          ***
                                          in  out                            ***
    1     Vault  1                1    1    1    1   28    0    1
  END GEN-INFO
```

```
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -   # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
    1         1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -   # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
    1         4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                        ***
    # -   #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
    1        0  1  0  0    4  0  0  0  0       0  0  0  0  0        2  2  2  2  2
  END HYDR-PARM1

  HYDR-PARM2
    # -   #    FTABNO       LEN      DELTH      STCOR        KS      DB50        ***
  <------><--------><--------><--------><--------><--------><-------->           ***
    1               1      0.01       0.0        0.0       0.5       0.0
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                           ***
    # -   # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft      for each possible exit        for each possible exit
  <------><-------->      <---><---><---><---><---> *** <---><---><---><---><--->
    1         0             4.0  0.0  0.0  0.0  0.0        0.0  0.0  0.0  0.0  0.0
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
  FTABLE      1
   92    4
     Depth      Area    Volume  Outflow1 Velocity  Travel Time***
      (ft)    (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.168733  0.000000  0.000000
  0.122222  0.168733  0.020623  0.229548
  0.244444  0.168733  0.041246  0.324630
  0.366667  0.168733  0.061869  0.397589
  0.488889  0.168733  0.082492  0.459097
  0.611111  0.168733  0.103114  0.513286
  0.733333  0.168733  0.123737  0.562276
  0.855556  0.168733  0.144360  0.607328
  0.977778  0.168733  0.164983  0.649261
  1.100000  0.168733  0.185606  0.709978
  1.222222  0.168733  0.206229  1.002445
  1.344444  0.168733  0.226852  1.439665
  1.466667  0.168733  0.247475  1.979805
  1.588889  0.168733  0.268098  2.604714
  1.711111  0.168733  0.288721  3.303457
  1.833333  0.168733  0.309343  4.068510
  1.955556  0.168733  0.329966  4.894284
  2.077778  0.168733  0.350589  5.776415
  2.200000  0.168733  0.371212  6.711371
  2.322222  0.168733  0.391835  7.696217
  2.444444  0.168733  0.412458  8.728465
  2.566667  0.168733  0.433081  9.805969
  2.688889  0.168733  0.453704  10.92685
  2.811111  0.168733  0.474327  12.08945
  2.933333  0.168733  0.494949  13.29230
  3.055556  0.168733  0.515572  14.42171
  3.177778  0.168733  0.536195  16.55313
```

```
  3.300000  0.168733  0.556818  19.62137
  3.422222  0.168733  0.577441  23.39405
  3.544444  0.168733  0.598064  27.75722
  3.666667  0.168733  0.618687  32.63925
  3.788889  0.168733  0.639310  37.98964
  3.911111  0.168733  0.659933  43.77032
  4.033333  0.168733  0.680556  49.95122
  4.155556  0.168733  0.701178  56.50784
  4.277778  0.168733  0.721801  63.41968
  4.400000  0.168733  0.742424  70.66927
  4.522222  0.168733  0.763047  78.24152
  4.644444  0.168733  0.783670  86.12317
  4.766667  0.168733  0.804293  94.30248
  4.888889  0.168733  0.824916  102.7690
  5.011111  0.168733  0.845539  111.5132
  5.133333  0.168733  0.866162  120.5265
  5.255556  0.168733  0.886785  129.8011
  5.377778  0.168733  0.907407  139.3299
  5.500000  0.168733  0.928030  149.1062
  5.622222  0.168733  0.948653  159.1239
  5.744444  0.168733  0.969276  169.3772
  5.866667  0.168733  0.989899  179.8609
  5.988889  0.168733  1.010522  190.5700
  6.111111  0.168733  1.031145  201.4999
  6.233333  0.168733  1.051768  212.6461
  6.355556  0.168733  1.072391  224.0046
  6.477778  0.168733  1.093013  235.5715
  6.600000  0.168733  1.113636  247.3430
  6.722222  0.168733  1.134259  259.3156
  6.844444  0.168733  1.154882  271.4860
  6.966667  0.168733  1.175505  283.8511
  7.088889  0.168733  1.196128  296.4079
  7.211111  0.168733  1.216751  309.1533
  7.333333  0.168733  1.237374  322.0848
  7.455556  0.168733  1.257997  335.1995
  7.577778  0.168733  1.278620  348.4951
  7.700000  0.168733  1.299242  361.9691
  7.822222  0.168733  1.319865  375.6192
  7.944444  0.168733  1.340488  389.4430
  8.066667  0.168733  1.361111  403.4385
  8.188889  0.168733  1.381734  417.6035
  8.311111  0.168733  1.402357  431.9361
  8.433333  0.168733  1.422980  446.4343
  8.555556  0.168733  1.443603  461.0962
  8.677778  0.168733  1.464226  475.9201
  8.800000  0.168733  1.484848  490.9041
  8.922222  0.168733  1.505471  506.0467
  9.044444  0.168733  1.526094  521.3461
  9.166667  0.168733  1.546717  536.8007
  9.288889  0.168733  1.567340  552.4090
  9.411111  0.168733  1.587963  568.1695
  9.533333  0.168733  1.608586  584.0808
  9.655556  0.168733  1.629209  600.1414
  9.777778  0.168733  1.649832  616.3500
  9.900000  0.168733  1.670455  632.7051
  10.02222  0.168733  1.691077  649.2056
  10.14444  0.168733  1.711700  665.8501
  10.26667  0.168733  1.732323  682.6374
  10.38889  0.168733  1.752946  699.5664
  10.51111  0.168733  1.773569  716.6357
  10.63333  0.168733  1.794192  733.8443
  10.75556  0.168733  1.814815  751.1911
  10.87778  0.168733  1.835438  768.6749
  11.00000  0.168733  1.856061  786.2948
  11.12222  0.168733  1.876684  804.0495
  END FTABLE  1
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
```

```
<Name>    # <Name> # tem strg<-factor->strg <Name>    #   #        <Name> # #  ***
WDM       2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM       2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM       1 EVAP     ENGL    1              PERLND   1 999 EXTNL  PETINP
WDM       1 EVAP     ENGL    1              IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>    #        <Name> # #<-factor->strg <Name>    # <Name>    tem strg strg***
RCHRES    1 HYDR   RO     1 1        1      WDM    1004 FLOW     ENGL      REPL
RCHRES    1 HYDR   STAGE  1 1        1      WDM    1005 STAG     ENGL      REPL
COPY      1 OUTPUT MEAN   1 1     48.4      WDM     701 FLOW     ENGL      REPL
COPY    501 OUTPUT MEAN   1 1     48.4      WDM     801 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>    <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>             <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK         2
PERLND      PWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK     2

  MASS-LINK         3
PERLND      PWATER IFWO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK     3

  MASS-LINK         5
IMPLND      IWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK     5

  MASS-LINK        12
PERLND      PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK    12

  MASS-LINK        13
PERLND      PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK    13

  MASS-LINK        15
IMPLND      IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK    15

  MASS-LINK        16
RCHRES      ROFLOW                          COPY           INPUT  MEAN
  END MASS-LINK    16


END MASS-LINK

END RUN
```

Disclaimer

Legal Notice

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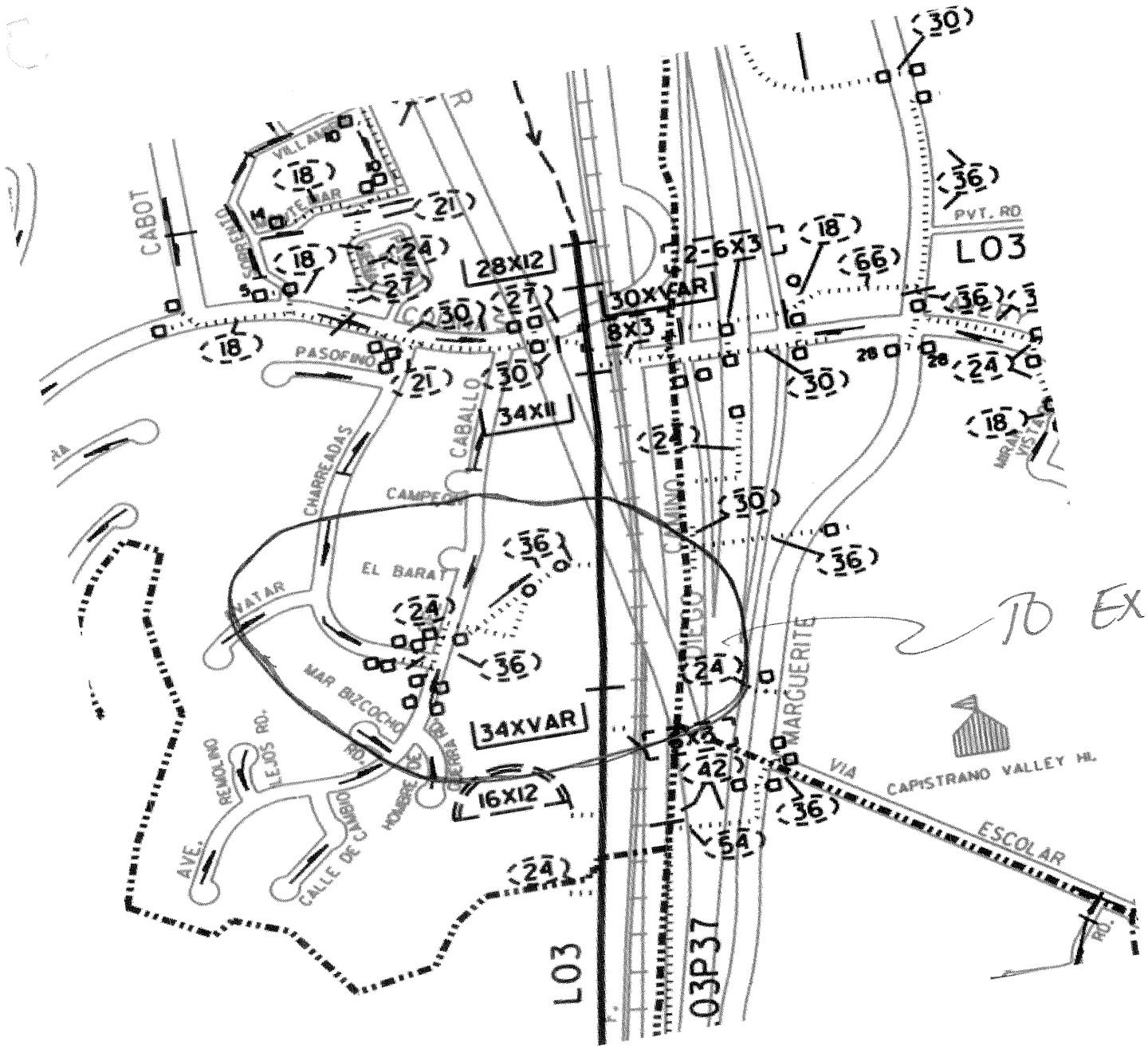
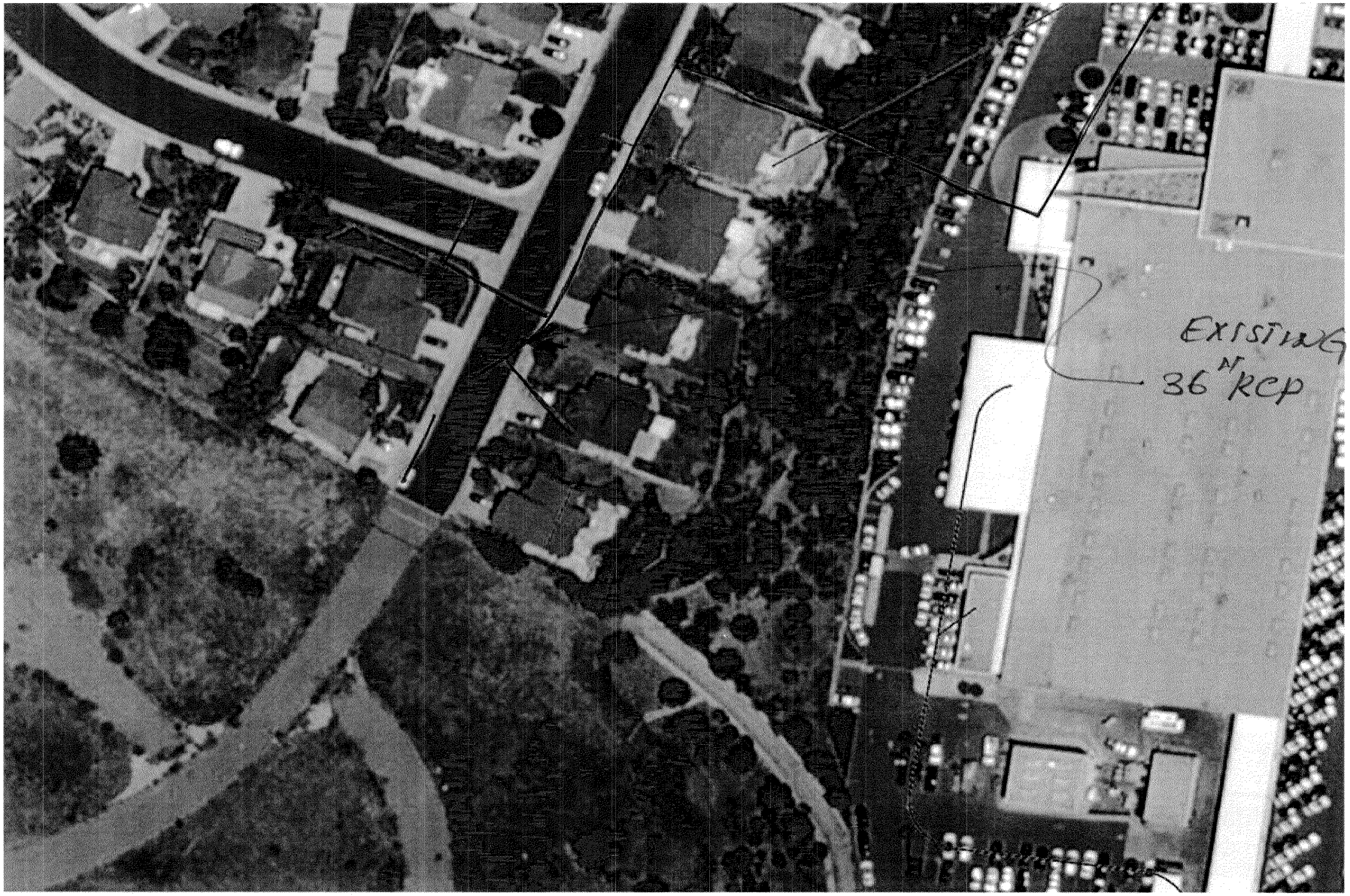
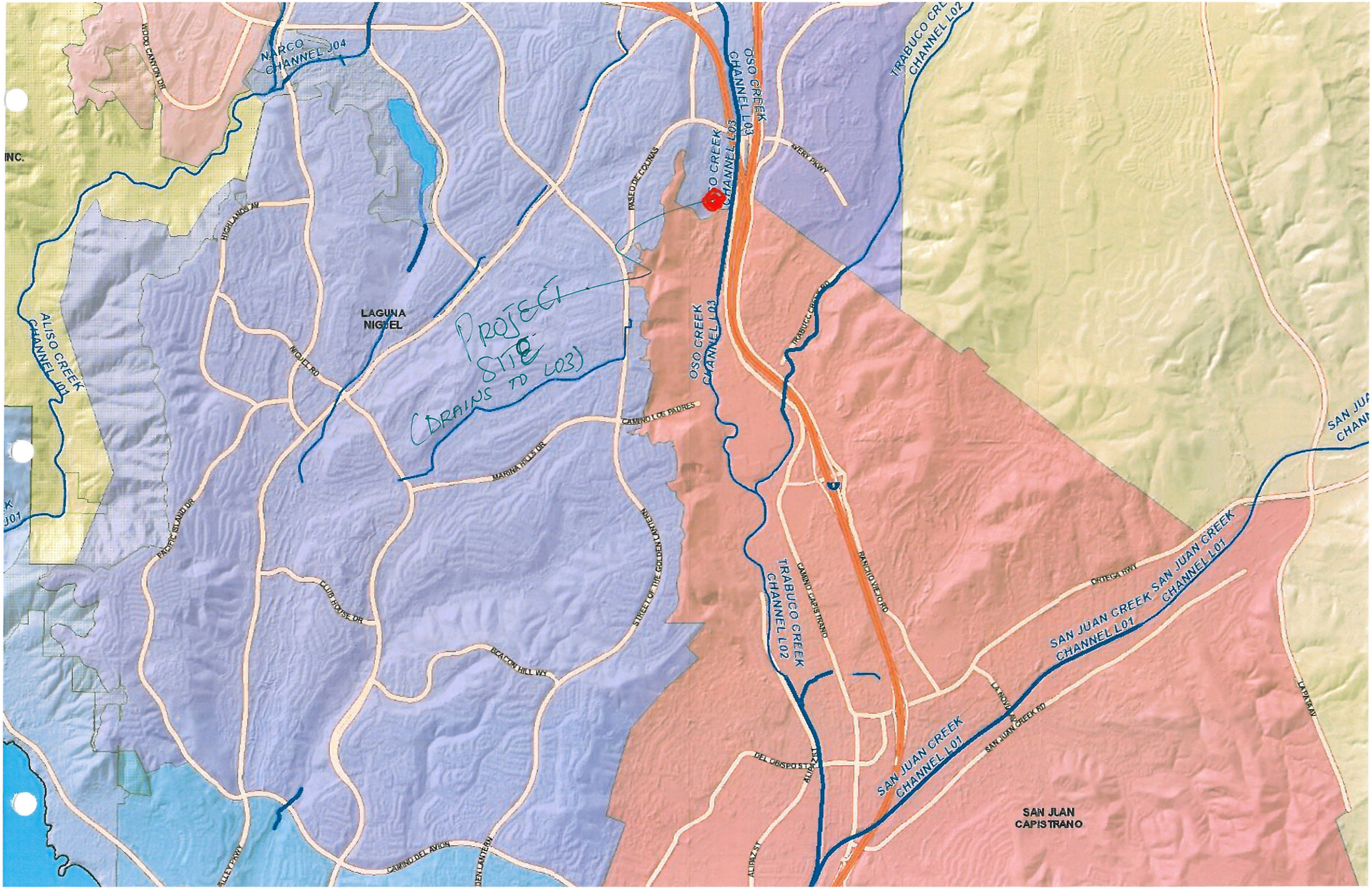

CABOT
VILLANOVA
PASOFINO
CHARREADAS
CABALLO
CAMPEAR
EL BARAT
WATAR
MAR BIZCOCHO
RENOCINO
LEJOS RD.
AVE.
CALLE DE CAMINO
HOMBRE
CAMINO
DIEGO
MARGUERITE
VIA
CAPISTRANO VALLEY HI.
ESCOLAR
PVT. RD
L03
03P37
28X12
30XVAR
2-6X3
8X3
34X11
34XVAR
16X12
TO EX. 36" RCP.

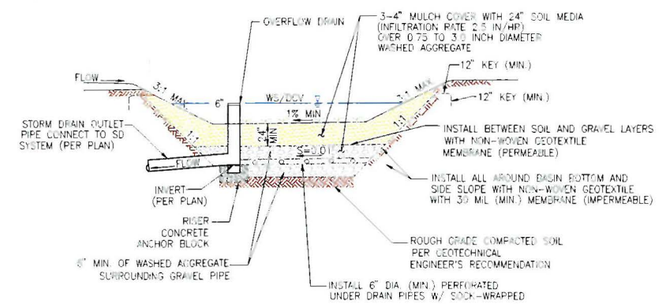

EXISTING
36" RCP


NARCO CHANNEL J04
WOOD CANYON DR
INC.
HIGHLANDS AV
LAGUNA NIGUEL
NIGUEL RD
ALISO CREEK CHANNEL J01
PROJECT SITE
(DRAINS TO L03)
OSO CREEK CHANNEL L03
OSO CREEK CHANNEL L03
PASEO DE COLINAS
VERY PKWY
TRABUCO CREEK CHANNEL L02
TRABUCO CREEK RD
CAMINO LOS PADRES
MARINA HILLS DR
PACIFIC ISLAND DR
CLUB HOUSE DR
STREET OF THE GOLDEN LANTERN
BEACON HILL WY
CAMINO DEL AVION
DEVLANTERN
TRABUCO CREEK CHANNEL L02
CAMINO CAPISTRANO
RANCHO VIEJO RD
DEL OBISPO ST
ALIPAZ ST
SAN JUAN CREEK CHANNEL L01
SAN JUAN CREEK CHANNEL L01
SAN JUAN CREEK CHANNEL L01
ORTEGA HWY
LA NOVIA
SAN JUAN CREEK RD
LA PATA AV
SAN JUAN CAPISTRANO
SAN JUA CHANN

LEGEND

- TRACT BOUNDARY
- DRAINAGE MANAGEMENT AREA (DMA) BOUNDARY
- NAP — NOT A PART
- DIRECTION OF SURFACE FLOW (ONSITE)
- DIRECTION OF SURFACE FLOW (OFFSITE)
- PROPOSED STORM DRAIN AND FLOW
- DMA/AREA (AC)
- PROPOSED CATCH BASIN WITH BMPS
  S1 STORM DRAIN SYSTEM STENCILING/SIGNAGE
- SUBSURFACE DETENTION VAULT
- LANDSCAPE AREAS (PRIVATE) WITH BMP's
  S4 SITE DESIGN & LANDSCAPE PLANNING, EFFICIENT IRRIGATION SYSTEM
- LANDSCAPE SLOPES (PRIVATE) WITH BMP's
  S4 SITE DESIGN & LANDSCAPE PLANNING, EFFICIENT IRRIGATION SYSTEM
  S5 PROTECT SLOPES
  S12 HILLSIDE LANDSCAPING
- BIO-1 BIORETENTION WITH UNDERDRAINS
  MISC-1 PLANTING/SOIL MEDIA
  MISC-2 AMENDED SOIL
- BIO-7 PROPRIETARY BIOTREATMENT
- POINT OF COMPLIANCE/DISCHARGE POINT

BIO-7 PROPRIETARY BIOTREATMENT
TYPICAL SECTION DETAIL
N.T.S.



BIO-1 BIORETENTION WITH UNDERDRAIN
TYPICAL SECTION DETAIL
N.T.S.

DRAWN BY: TIH DATE: 08/27/14 REVISED: 01/15/15 W.O. #: 2950-5	PREPARED BY: HUNSAKER & ASSOCIATES IRVINE, INC. PLANNING ▪ ENGINEERING ▪ SURVEYING Three Hughes, Irvine, CA 92618 ▪ PH: (949) 583-1010 ▪ FX: (949) 583-0759	PREPARED FOR: EULAND CAPITAL ENTERPRISES, LLC. 59 HONEYFLOWER IRVINE, CA 92620 TELEPHONE: (949) 293-2246	"SUNPOINTE" - VTTM 17433 APN 637-071-001 TO 637-071-036 LOCATED SOUTH OF AVENIDA DEL CABALLOS AND CHARREADAS CITY OF LAGUNA NIGUEL, CA	CONCEPTUAL WQMP SITE PLAN

PLOTTED By: Tommy Hsu DATE: Jan. 15, 2015 10:53:51 AM FILE: \\cshun\projects\0176\Planning\SY_WQ\WQMP\EXHIBITS\WQMP SP 17433.dwg