COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION
HYDROLOGY UNIT

TO: Civil Design & Drafting, Inc.
885 Patriot Drive, Unit C
Moorpark, CA 93021

Date: 8/20/18

REVIEW OF HYDROLOGY STUDY

PD NO.	**TBD**	**DATE OF REPORT**	**May 2018**
TR NO.	**74650**	**PLAN CHECK NO.**	**4(ESTU2016000112)**

We have reviewed your Hydrology Study.

[X] The Hydrology Study has been approved.

[X] Refer to comments below:

COMMENTS:

1. Infiltration rate for the project site has been assumed but must be approved by Geotechnical and Materials Engineering Division prior to the grading plans. Any changes to the assumed infiltration rate may require a revised Hydrology Study and/or Tentative Map.

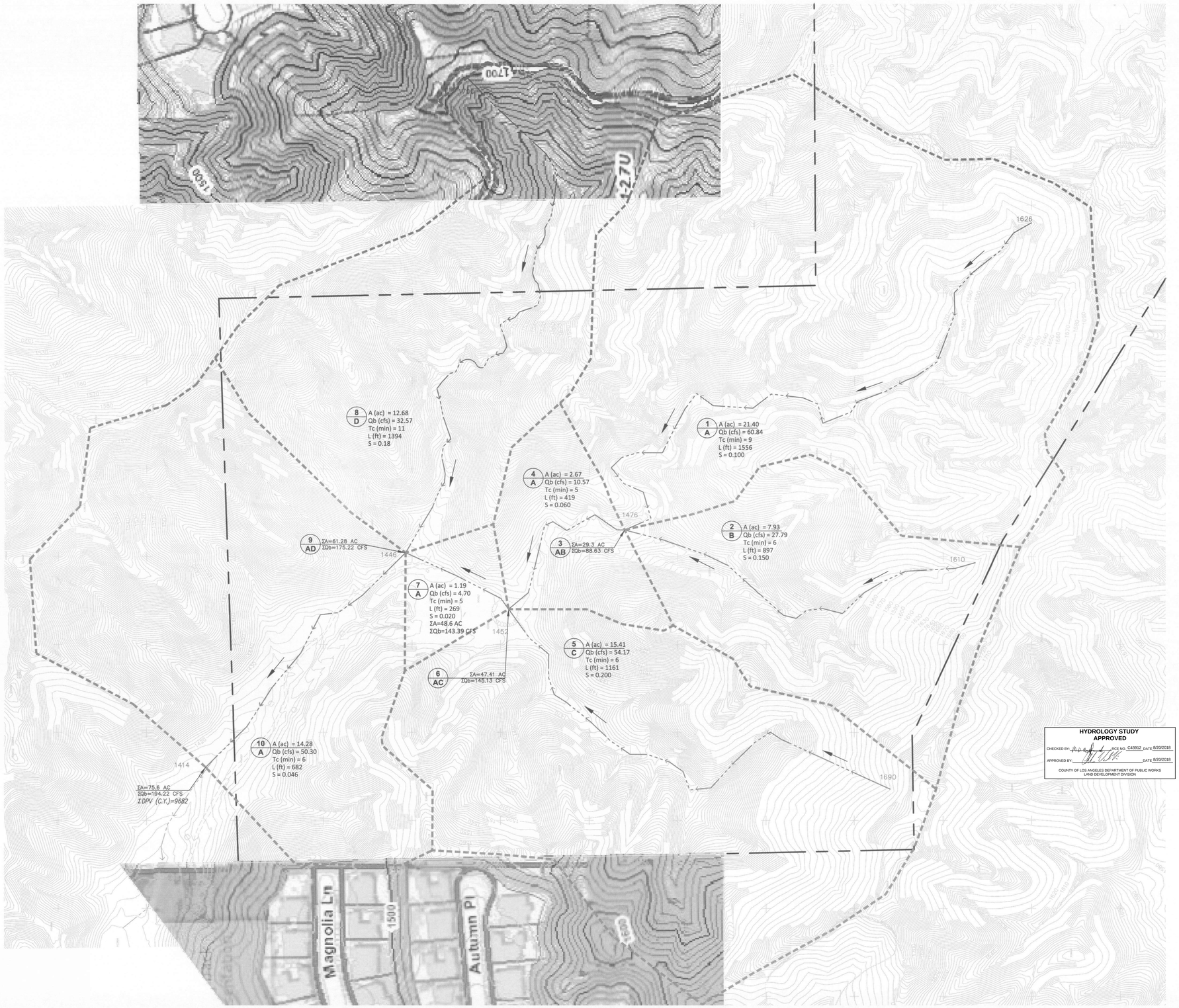
2. A Drainage Benefit Assessment Area must be established prior to the recordation of the final map. This DBAA will be to finance the future ongoing maintenance and capital replacement of all water quality devices/systems identified to be maintained by the County of Los Angeles.

REVIEWED BY M.D. Esfandi
David Esfandi (626) 458-7130

REGISTERED PROFESSIONAL ENGINEER
MANOUCHEHR DAVID ESFANDI
No. C 043912
Exp. 6/30/19
CIVIL
STATE OF CALIFORNIA

APPROVED BY:

TENTATIVE TRACT No. 74650
CANYON VIEW ESTATES
EXISTING HYDROLOGY MAP



HYDROLOGY STUDY APPROVED
CHECKED BY _____ RCE NO. C43912 DATE 8/20/2018
APPROVED BY _____ DATE 8/20/2018
COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

N

80 40 0 40 80 160
GRAPHIC SCALE
SCALE : 1"=80'

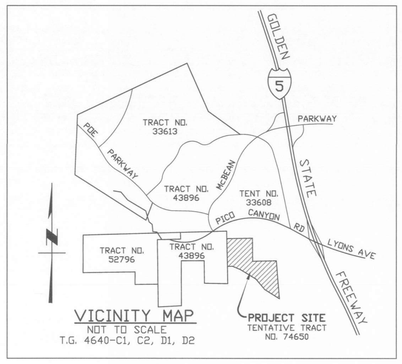
HYDROLOGY CRITERIA:

DPA ZONE = 5
BASIN NAME = SANTA CLARA
SOIL TYPE NUMBER = 097
PEAK BULKING FACTOR = 1.465 (FOR AREAS 64 AC OR UNDER)
DEBRIS PRODUCTION RATE = 128.0 CY/AC (FOR AREAS 64 AC OR UNDER)
ISOHYETS = 8.0" (50-YR, 24-HOUR)
1% IMPERVIOUSNESS FOR UNDEVELOPED/NATURAL AREAS

LEGEND:

- TRIBUTARY SUBAREA
- DIRECTION OF FLOW
- TRACT BOUNDARY
- FLOW PATH
- 14 / A — LOCATION NAMES

Qb 50-YR, BURNED DESIGN FLOW IN CUBIC FEET PER SECOND, CFS
ΣDPV DEBRIS PRODUCTION VOLUME IN CUBIC YARDS, CY



Civil Design & Drafting inc.
885 Patriot Drive, Unit C
Moorpark, CA 93021
Phone: 805-522-2622
Fax: 805-426-8016
CDD@civildesignanddrafting.com

IMAD ABOUJAWDAH R.C.E. C51299 — 05-02-2018 DATE

REGISTERED PROFESSIONAL ENGINEER — IMAD ABOUJAWDAH — No. 51299 — Exp. 6-30-20 — CIVIL — STATE OF CALIFORNIA

REV#	RECORD RCE APPR.	RECORD RCE DATE	REVISIONS DESCRIPTION	CITY PLAN CHK APPR.	CITY ENGR. APPR.	CITY ENGR. DATE

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RECORD ENGINEER _____ DATE _____
CITY STAFF _____ DATE _____
CITY ENGINEER _____ DATE _____

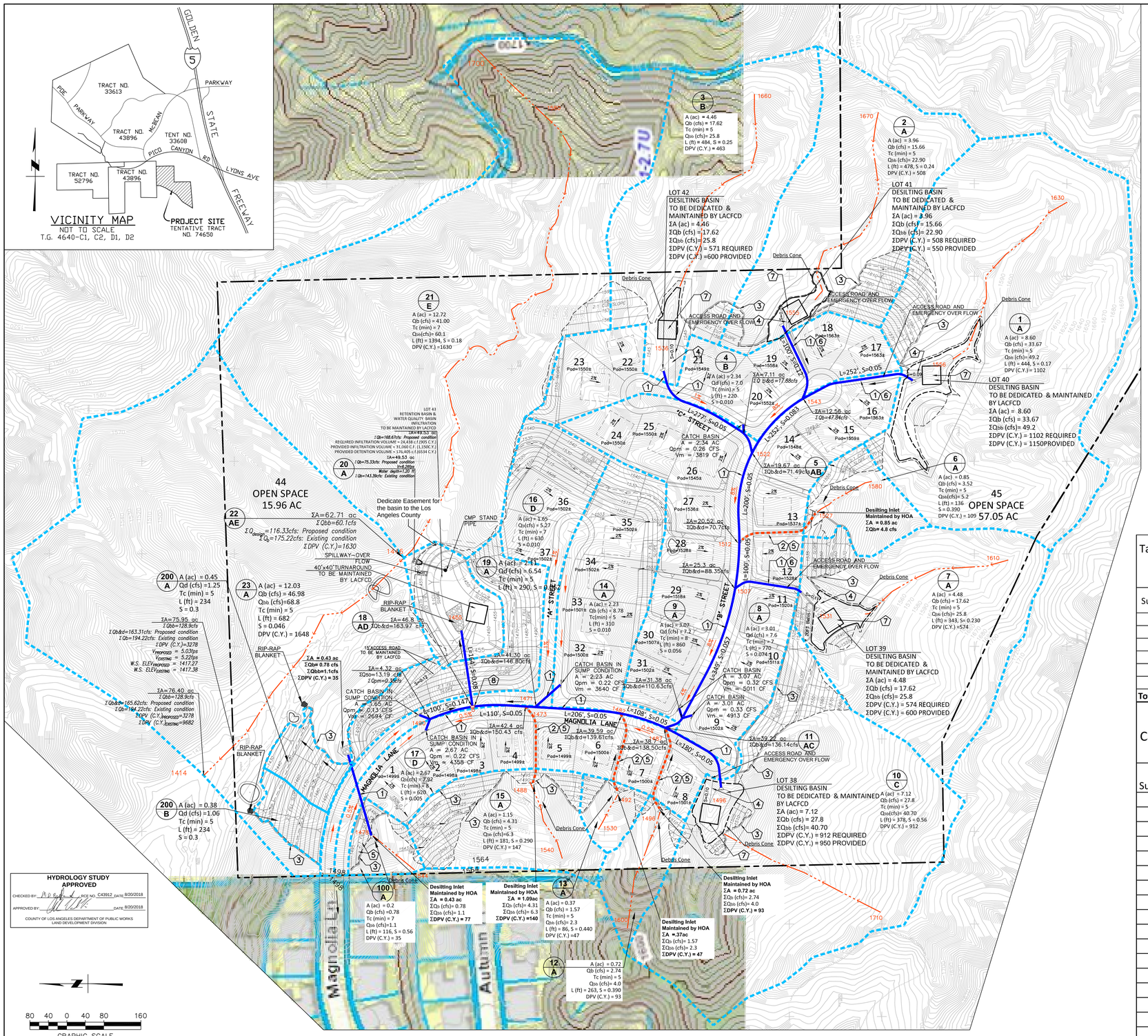
COUNTY OF LOS ANGELES
HYDROLOGY STUDY
TENTATIVE TRACT No. 74650
EXISTING CONDITIONS

PLOT DATE: 05-02-2018

SCALE: AS SHOWN
DESIGNED:
DRAWN:
CHECKED:
SHEET NO. 1 OF 1

TTM No. 74650
CANYON VIEW ESTATES
PROPOSED HYDROLOGY MAP

VICINITY MAP
NOT TO SCALE
T.G. 4640-C1, C2, D1, D2



DETETION/RETENTION BASIN #43 VOLUME CALCULATION

Elevation	Area(sq-ft)	Volume(cf)	TOTAL(C.F)	TOTAL(C.Y.)
1460	26410	25445	176405	**6534**
1459	24480	23540	150960	5591
1458	22600	21700	127420	4719
1457	20800	19925	105720	3916
1456	19050	18210	85795	3178
1455	17370	16560	67585	2503
1454	15750	14975	51025	1890
1453	14200	13455	36050	1335
1452	12710	11995	22595	837
1451	11280	10600	10600	393
1450	9920	0	0	

Tract No. 74650 - Discharge Volume for Existing and Proposed Condition

Proposed Volume At Sub-Area "20A"(HYDROCALC)				Existing Volume At Sub-Area "7A" (HYDROCALC)
Storm Drain Event	Total Proposed Volume @ "20A" (C.Y.)	Detention volume (C.Y.)	Total Volume Discharge @ Sub-Area "20A"(C.Y.)	Total Discharge Volume @ Sub-Area "7A"(C.Y.)
2-yrs	1,713	6,534	0	838
5-yr	4,511	6,534	0	2,608
10-yr	7,319	6,534	785	4,626
25-yr	12,505	6,534	5,971	8,686
50-yr	17,904	6,534	11,370	13,238

Total Provided Volume: 6,500 C.Y.

Tract No. 74650 - Discharge Flow Rate for Existing and Proposed Condition

Existing Condition @ Sub-Area 7A (LAR04)		Proposed Condition @ Sub-Area 20A (RETARD)	
Frequency	Flow Rate (cfs)	Frequency	Flow Rate (cfs)
2yrs	19.8	2yrs	12.76
5yrs	50.23	5yrs	44.32
10yrs	75.2	10yrs	66.72
25yrs	112.87	25yrs	91.86
50yrs	143.39	50yrs	109.99

Table 2: Table 2-Onsite LID Calcualtion Summary-85th Percentile, 24-hour Rainfall Event (Non-Burn)

Subarea	Area (Acres)	Tc (min)	Qpm (cfs)	Volume (cu.ft)	Volume (C.Y.)
4B	2.34	33	0.26	3819.8	141.5
8A	3.01	34	0.33	4913.6	182.0
9A	3.07	39	0.32	5011.5	185.6
14A	2.23	42	0.22	3640.3	134.8
16D	1.65	65	0.13	2693.6	99.8
17D	2.67	65	0.22	4358.7	161.4
Total		**14.97**	**1.48**	**24437.5**	**905.1**

Table 4: Onsite and Offsite LID Calculation Summary-85th Percentile, 24-hour Rainfall Event

Subarea	Area (Acres)	Tc (min)	Qpm (cfs)	Volume (cu.ft)	Volume (C.Y.)
1A	8.6	54	0.29	3477.6	128.8
2A	3.96	54	0.13	1601.3	59.3
3B	4.46	54	0.15	1803.5	66.8
4B	2.34	22	0.31	3819.8	141.5
6A	0.85	22	0.47	343.7	12.7
7A	4.48	44	0.17	1811.5	67.1
8A	3.01	34	0.33	4913.6	182.0
9A	3.07	39	0.31	5011.5	185.6
10C	7.12	40	0.28	2879.0	106.6
12A	0.72	34	0.03	291.1	10.8
13A	0.37	8	0.07	162.5	6.0
14A	2.23	28	0.27	3640.3	134.8
15A	1.15	28	0.06	465.0	17.2
16D	1.65	43	0.16	2693.5	99.8
17D	2.67	49	0.25	4358.6	161.4
19A	2.11	19	0.31	3446.0	127.6
	Total		**3.58**	**40718.4**	**1508.1**

Table 3-Preliminary BMP Calculation to Show 96 Hours Drawdown Time

Infiltration Location	Design Infiltration Rate (in/hr)	Max Water Depth(ft)	Drawdown Time (Hours)
Lot 143	0.5	3.0	72.0

WATER QUALITY BASIN # 43
REQUIRED INFILTRATION VOLUME =950 C.Y.

ELEVATION	AREA(SF)	AVG. AREA(SF)	VOLUME(CY)	Σ VOLUME(CY)
1450	0			
1451	11269	5635	209	209
1452	12697	11983	444	653
1453	14188	13443	498	1150

Tract No. 74650 - Discharge Volume Calculation

Frequency (Years)	Existing Volume (C.Y.)	Proposed Volume(C.Y.)	Difference(C.Y.)	Provided Storage (C.Y.)
2-yrs	838	1,713	874	6,534
5-yr	2,608	4,511	1,902	6,534
10-yr	4,626	7,319	2,693	6,534
25-yr	8,686	12,505	3,819	6,534
50-yr	13,238	17,904	4,666	6,534

HYDROLOGY STUDY APPROVED
CHECKED BY: _____ RCE NO. C43912 DATE 8/20/2018
APPROVED BY: _____ DATE 8/20/2018
COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

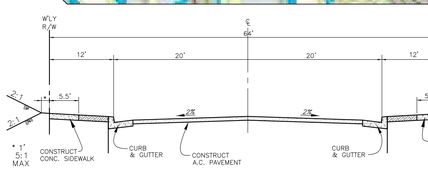
80 40 0 40 80 160
GRAPHIC SCALE
SCALE : 1"=80'

HYDROLOGY CRITERIA:

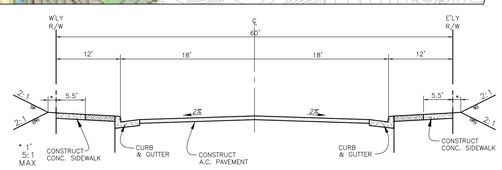
DESIGN STORM FREQUENCY:
50-YR FOR UNDEVELOPED AREAS
25-YR FOR DEVELOPED AREAS
DPA ZONE = 5
BASIN NAME = SANTA CLARA
SOIL TYPE NUMBER = 097
PEAK BULKING FACTOR = 1.465 (FOR AREAS 64 AC OR UNDER)
DEBRIS PRODUCTION RATE = 128.0 CY/AC (FOR AREAS 64 AC OR UNDER)
ISOHYETS = 8.0" (50-YR, 24-HOUR)
%IMPERVIOUSNESS:
1% FOR UNDEVELOPED/NATURAL AREAS
42% FOR STREET AREAS

NOTE:

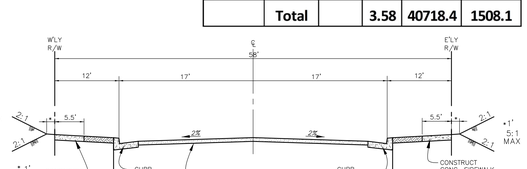
1. NOT WITHIN COUNTY ADOPTED FLOODWAY
2. NOT WITHIN "FEMA" FLOOD ZONE A



TYPICAL SECTION 64' R/W
(MAGNOLIA LANE)
NOT TO SCALE



TYPICAL SECTION 60' R/W
("A", "B" STREET)
NOT TO SCALE



TYPICAL SECTION 58' R/W
("C" STREET)
NOT TO SCALE

LEGEND:

- TRIBUTARY SUBAREA
- SD MAIN LINE (LACFCD)
- SD LATERALS (HOA) – LID
- DIRECTION OF FLOW
- TRACT BOUNDARY
- FLOW PATH
- (14 A) LOCATION NAMES

Qd 25–YR, DESIGN FLOW IN CUBIC FEET PER SECOND, CFS
Qb 50–YR, BURNED DESIGN FLOW IN CUBIC FEET PER SECOND, CFS
ΣDPV DEBRIS PRODUCTION VOLUME IN CUBIC YARDS, CY
Qpm PEAK MITIGATION FLOW IN CUBIC FEET PER SECOND, CFS
Vm MITIGATION VOLUME IN CUBIC FEET, CF

1. PROPOSED STORM DRAIN SYSTEM – TO BE MAINTAINED BY LACFCD
2. PROPOSED STORM DRAIN SYSTEM – TO BE MAINTAINED BY THE HOA
3. PROPOSED CONCRETE SWALE – DESIGN WITH SELF–CLEANING VELOCITY
4. PROPOSED ACCESS ROAD TO BE MAINTAINED BY LACFCD
5. PROPOSED 10' ACCESS ROAD EASEMENT TO THE HOA FOR SD MAINTENANCE PURPOSES
6. PROPOSED 15' ACCESS ROAD TO BE MAINTAINED BY LACFCD
7. PROPOSED 40'x40' ACCESS TURN–AROUND TO BE MAINTAINED BY LACFCD
8. SD INLINE CDS TO BE MAINTAINED BT LACFCD

civil Design & Drafting inc.
885 Patriot Drive, Unit C
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Fax: 805-426-8016
CDD@civildesignanddrafting.com
IMAD ABOUJAWDAH R.C.E. C51299 — 08–16–2018

REGISTERED PROFESSIONAL ENGINEER — IMAD ABOUJAWDAH — No. 51299 — Exp. 6–30–20 — CIVIL — STATE OF CALIFORNIA

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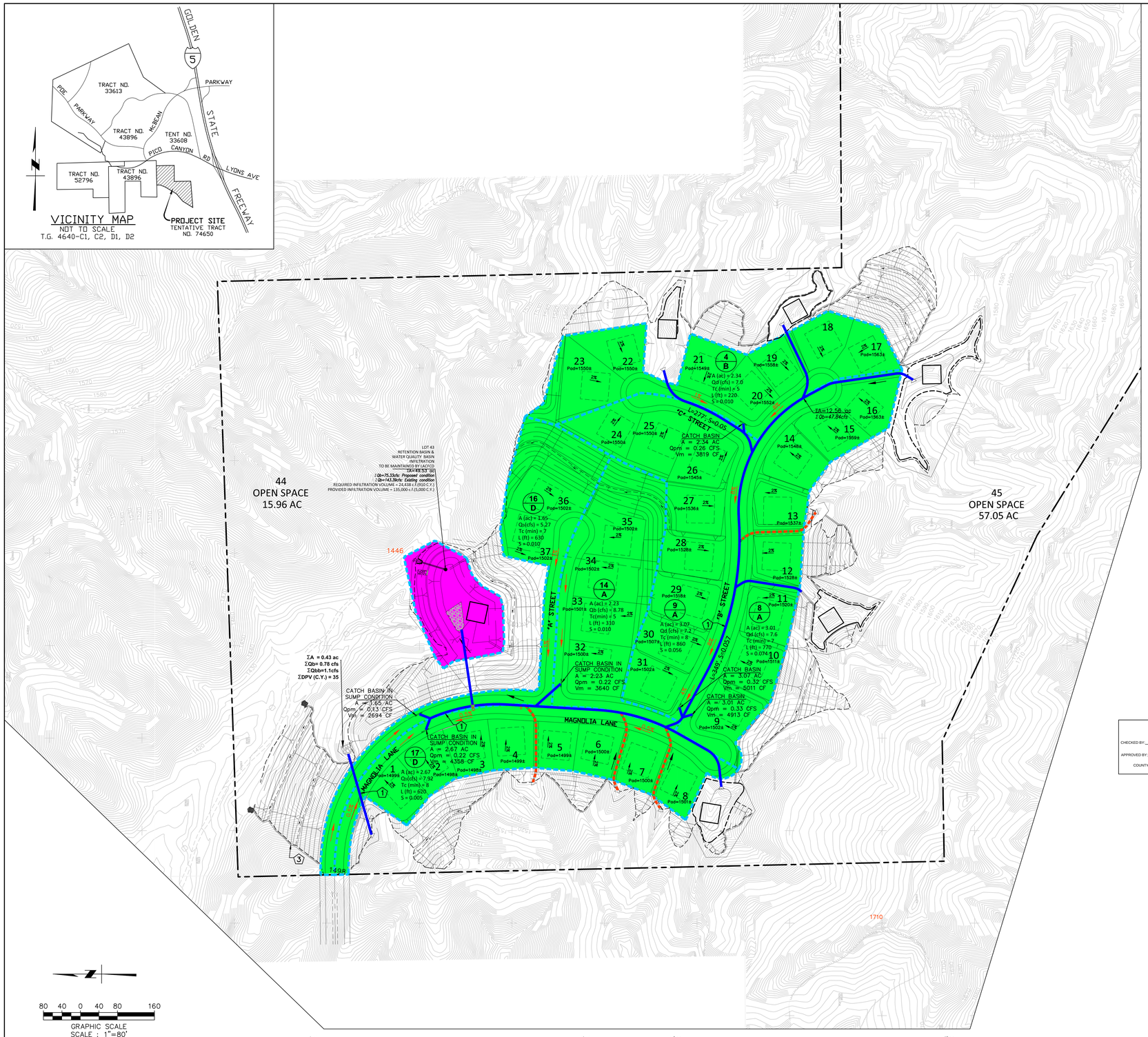
RECORD ENGINEER _____ DATE _____
CITY STAFF _____ DATE _____
CITY ENGINEER _____ DATE _____

COUNTY OF LOS ANGELES
HYDROLOGY STUDY
TTM No. 74650
PROPOSED CONDITIONS
PLOT DATE: 08–16–2018

SCALE: AS SHOWN
DESIGNED:
DRAWN:
CHECKED:
SHEET NO. 1 OF 1

TTM No. 74650
CANYON VIEW ESTATES
LID HYDROLOGY MAP

VICINITY MAP
NOT TO SCALE
T.G. 4640-C1, C2, D1, D2



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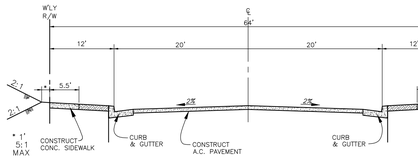

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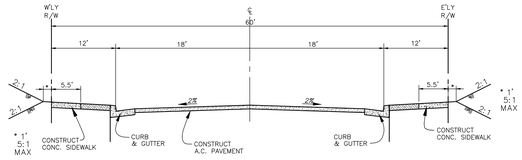

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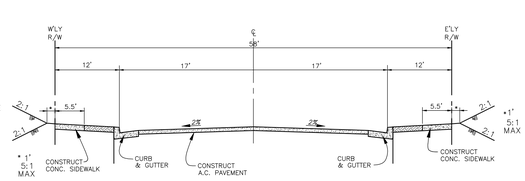

TYPICAL SECTION 58' R/W
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NOT TO SCALE

HYDROLOGY STUDY
APPROVED
CHECKED BY: MD RCE NO. C43912 DATE 8/20/2018
APPROVED BY: DATE 8/20/2018
COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

Table 1: Table 1-Onsite LID Calcualtion-85th Percentile, 24-hour Rainfall Event (Non-Burn)

Subarea	Area (Acres)	Length (ft)	Slope	Isohyet Depth (in)	% Impervio	Soil Type	Frequency	Fire	Flowrate (cfs)	Tc (min)
4B	2.34	220	0.010	1.04	0.42	97	85th	0	0.26	33
8A	3.01	770	0.074	1.04	0.42	97	85th	0	0.33	34
9A	3.07	860	0.056	1.04	0.42	97	85th	0	0.32	39
14A	2.23	310	0.010	1.04	0.42	97	85th	0	0.22	42
16D	1.65	630	0.010	1.04	0.42	97	85th	0	0.13	65
17D	2.67	620	0.005	1.04	0.42	97	85th	0	0.22	65
									1.48	

Table 2: Table 2-Onsite LID Calcualtion Summary-85th Percentile, 24-hour Rainfall Event (Non-Burn)

Subarea	Area (Acres)	Tc (min)	Qpm (cfs)	Volume (cu.ft)	Volume (C.Y.)
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Table 4: Onsite and Offsite LID Calculation Summary-85th Percentile, 24-hour Rainfall Event

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	Total		**3.58**	**40718.4**	**1508.1**

LEGEND:

- *TRIBUTARY SUBAREA*
- *SD MAIN LINE (LACFCD)*
- *SD LATERALS (HOA) – LID*
- *DIRECTION OF FLOW*
- *TRACT BOUNDARY*
- *FLOW PATH*
- 14/A *LOCATION NAMES*

Qd 25-YR, DESIGN FLOW IN CUBIC FEET PER SECOND, CFS
Qb 50-YR, BURNED DESIGN FLOW IN CUBIC FEET PER SECOND, CFS
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IMAD ABOUJAWDAH R.C.E. C51299 DATE 08-16-2018
REGISTERED PROFESSIONAL ENGINEER IMAD ABOUJAWDAH No. 51299 Exp. 6-30-20 CIVIL STATE OF CALIFORNIA

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RECORD ENGINEER DATE
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COUNTY OF LOS ANGELES
HYDROLOGY STUDY
TTM No. 74650
LOW IMPACT DEVELOPMENT(LID)
PLOT DATE: 08-16-2018

SCALE: AS SHOWN
DESIGNED:
DRAWN:
CHECKED:
SHEET NO. 1 OF 1

County of Los Angeles

California

Tentative Tract Map

74650

Hydrology Report

May 2018

HYDROLOGY STUDY
APPROVED

CHECKED BY: M.D. Eyl RCE NO. C43912 DATE 8/20/2018

APPROVED BY: _____ DATE 8/20/2018

COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

Prepared for:

Jon Friedman
1435 Reynolds Ct.
Thousand Oaks, CA 91362
(805) 373-2860

Prepared by:

Civil Design and Drafting, Inc.

Imad Aboujawdah

885 Patriot Dr., Unit C

Moorpark, CA 93021

(805) 522-2622

8/7/2018

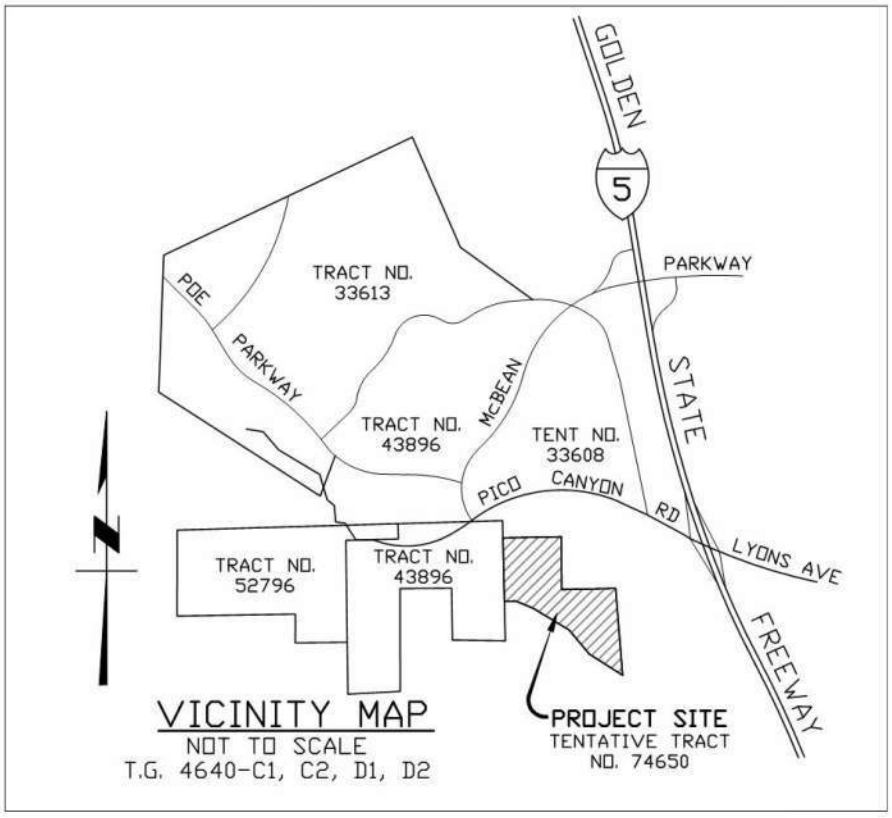
Imad Aboujawdah, P.E. Date

TABLE OF CONTENTS:

SECTIONS:

MAPS:

VICINITY MAP



INTRODUCTION

Tentative Tract Map No. 74650 is located in the County of Los Angeles, in the Stevenson Ranch area. The project site is bordered by vacant land and existing development to the north, existing development to the West and vacant land to the south. The project is located entirely within the County of Los Angeles and consists of approximately 94.38 acres. The proposed project will result in the development of 37 single family dwellings. The purpose of this report is to facilitate the planning and implementation of drainage infrastructure improvements to accommodate storm water runoff in the general vicinity of the proposed Tentative Tract Map No. 74650.

This report includes an evaluation of existing drainage patterns and proposed drainage patterns and solutions. Additionally, this report will identify LID - Low Impact Development solutions. The results of this report will be the basis for subsequent storm drainage improvements for the tract.

This report addresses the storm run-off from a 2-year, 5-year, 10-year, 25-year, and 50-year 24-hour design storm events. Its intended use is for the development of drainage infrastructure in the project. The following information is contained within this report:

1. A description of the existing drainage conditions within the study area.
2. Recommended drainage improvement options showing the conceptual locations of the primary components of the drainage infrastructures that will be needed to accommodate or alleviate storm water runoff generated by the proposed project:
    - Storm drain pipes and/or open channels
    - Desilting Basins
3. Watershed catchment boundaries and hydrologic information that support the drainage infrastructure plan. The Los Angeles County MODRAT – Modified Rational Method computer model has been used as the basis for hydrologic evaluations. Discharges expected at numerous key points of concentration have been estimated using the MODRAT computer model for the respective design storm events.

EXISTING CONDITIONS

The current storm water is sheet flowing from the southeast to the northwest portion of the property. There are currently two main drainage courses running through the property and exiting the site. Both drainage courses drain to the northwest.

PROPOSED CONDITIONS

A series of desilting basins will be constructed to capture debris and silt from various offsite drainage courses prior to entering the development area. A storm drain system will then collect the offsite storm water and discharge it through infiltration water quality basin. Onsite storm water will also be collected and discharged back to the proposed storm drain system running through the project. Per table 1 below, the proposed conditions total Q is less than the calculated Q that was accounted for in the existing storm drain system. Therefore, the project should not adversely affect the hydrologic conditions of the surrounding properties and downstream properties.

Tract No. 74650 - Discharge Flow Rate for Existing and Proposed Condition			
Existing Condition @ Sub-Area 7A (LAR04)		Proposed Condition @ Sub-Area 20A (RETARD)	
Frequency	Flow Rate (cfs)	Frequency	Flow Rate (cfs)
2yrs	19.8	2yrs	12.76
5yrs	50.23	5yrs	44.32
10yrs	75.2	10yrs	66.72
25yrs	112.87	25yrs	91.86
50yrs	143.39	50yrs	109.99

See section 3 for discharge analysis.

LOW IMPACT DEVELOPMENT(LID) COMPLIANCE

a. Calculation:

The proposed project is a "Designate Project", which has 37 single family residential lots. The project is designed to retain 100 percent of the SWQDv on site through infiltration water quality basin and drywells.

In order to comply with Los Angeles County LID requirements, the onsite storm water were calculated by using the LA County HydroCalc Version 0.3.1. Which is shown on LID Hydrology Map (See Map 4: LID Hydrology Map).

Per County of Los Angeles Department of Public Works Low Impact Development standards Manual (February 2014) the design storm, from which the SWQDv is calculated, is designed as the greater of:

- The 0.75-inch, 24-hour rain event; or
- The 85th percentile, 24-hour rain event as determined from the Los Angeles County 85th percentile precipitation isoheytal map.

The 85th percentile, 24-hour rain event as determined from the Los Angeles County 85th percentile precipitation isoheytal map(See reference section) is 1.04-inch, which is greater than 0.75inches. Therefore, the 85th percentile, 24-hour event is used to calculate the SWQDv volume. Following tables 2, 3, 4, and 5 are showing the calculation and summary of the SWQDv volume.

Table 2: Onsite LID Calcualtion-85th Percentile, 24-hour Rainfall Event (Non-Burn)

Subarea	Area (Acres)	Length (ft)	Slope	Isohyet Depth (in)	% Impervio	Soil Type	Frequency	Fire	Flowrate (cfs)	Tc (min)
4B	2.34	220	0.010	1.04	0.42	97	85th	0	0.32	22
8A	3.01	770	0.074	1.04	0.42	97	85th	0	0.33	34
9A	3.07	860	0.056	1.04	0.42	97	85th	0	0.32	39
14A	2.23	310	0.010	1.04	0.42	97	85th	0	0.26	28
16D	1.65	630	0.010	1.04	0.42	97	85th	0	0.16	43
17D	2.67	620	0.005	1.04	0.42	97	85th	0	0.24	49
	14.97								**1.63**	

Table 3: Onsite LID Calculation Summary-85th Percentile, 24-hour Rainfall Event (Non-Burn)

Subarea	Area (Acres)	Tc (min)	Qpm (cfs)	Volume (cu.ft)	Volume (C.Y.)
4B	2.34	33	0.26	3819.8	141.5
8A	3.01	34	0.33	4913.6	182.0
9A	3.07	39	0.32	5011.5	185.6
14A	2.23	42	0.22	3640.3	134.8
16D	1.65	65	0.13	2693.6	99.8
17D	2.67	65	0.22	4358.7	161.4
Total		**14.97**	**1.48**	**24437.5**	**905.1**

Table 4: WATER QUALITY BASIN # 43

REQUIRED INFILTRATION VOLUME =950 C.Y.

ELEVATION	AREA(SF)	AVG. AREA(SF)	VOLUME(C.Y)	Σ VOLUME(C.Y)
1450	0			
1451	11269	5635	209	209
1452	12697	11983	444	653
1453	14188	13443	498	1150

Per table 4 above, we provided about 1,150 C.Y. which satisfies the requirement of 905.1 C.Y on table 3.

Table 4: Onsite and Offsite LID Calcualtion-85th Percentile, 24-hour Rainfall Event										
Subarea	Area (Acres)	Length (ft)	Slope	Isohyet Depth (in)	% Impervio	Soil Type	Frequency	Fire	Flowrate (cfs)	Tc (min)
1A	8.6	444	0.17	1.04	0.01	97	85th	scr	0.29	54
2A	3.96	478	0.24	1.04	0.01	97	85th	scr	0.13	54
3B	4.46	484	0.25	1.04	0.01	97	85th	scr	0.15	54
4B	2.34	220	0.01	1.04	0.42	97	85th	0	0.31	22
6A	0.85	136	0.39	1.04	0.01	97	85th	scr	0.47	22
7A	4.48	343	0.23	1.04	0.01	97	85th	scr	0.17	44
8A	3.01	770	0.074	1.04	0.42	97	85th	0	0.33	34
9A	3.07	860	0.056	1.04	0.42	97	85th	0	0.31	39
10C	7.12	378	0.56	1.04	0.01	97	85th	scr	0.28	40
12A	0.72	263	0.39	1.04	0.01	97	85th	scr	0.03	34
13A	0.37	86	0.44	1.04	0.01	97	85th	scr	0.07	8
14A	2.23	310	0.01	1.04	0.42	97	85th	0	0.27	28
15A	1.15	181	0.29	1.04	0.01	97	85th	scr	0.06	28
16D	1.65	630	0.01	1.04	0.42	97	85th	0	0.16	43
17D	2.67	620	0.005	1.04	0.42	97	85th	0	0.25	49
19A	2.11	290	0.062	1.04	0.42	97	85th	scr	0.31	19
Total	**48.79**								**3.58**	

Table 5: Onsite and Offsite LID Calculation Summary-85th Percentile, 24-hour Rainfall Event					
Subarea	Area (Acres)	Tc (min)	Qpm (cfs)	Volume (cu.ft)	Volume (C.Y.)
1A	8.6	54	0.29	3477.6	128.8
2A	3.96	54	0.13	1601.3	59.3
3B	4.46	54	0.15	1803.5	66.8
4B	2.34	22	0.31	3819.8	141.5
6A	0.85	22	0.47	343.7	12.7
7A	4.48	44	0.17	1811.5	67.1
8A	3.01	34	0.33	4913.6	182.0
9A	3.07	39	0.31	5011.5	185.6
10C	7.12	40	0.28	2879.0	106.6
12A	0.72	34	0.03	291.1	10.8
13A	0.37	8	0.07	162.5	6.0
14A	2.23	28	0.27	3640.3	134.8
15A	1.15	28	0.06	465.0	17.2
16D	1.65	43	0.16	2693.5	99.8
17D	2.67	49	0.25	4358.6	161.4
19A	2.11	19	0.31	3446.0	127.6
	Total		**3.58**	**40718**	**1508**

Refer to Map 4 LID Hydrology Map.

Refer to Section 4 LID HydroCalc Calculation Printouts.

b. Mitigation

In order to comply with Los Angeles County LID requirements, onsite storm water will be collected through a series of catch basins and storm drain lines and will be directed to the proposed CDS unit (Please see section 9 CDS installation, inspection and maintenance procedures) for treatment before enter to the proposed infiltration water quality basin (Please see Map 4: LID Hydrology Map). The infiltration method will be used to treat the volume of water required under the LID.

Table 6-Preliminary BMP Calculation to Show 96 Hours Drawdown Time			
Infiltration Location	Design Infiltration Rate (in/hr)	Max Water Depth(ft)	Drawdown Time (Hours)
Lot 143	0.5	3	72

Drawdown Time(Hours) = $\frac{36(inch)}{0.5(\frac{in}{hr})} = 72hours$

Table 6 is showing the max water depth that can be drawn down in 96 hours.

Based on the calculation shown in table 6, the proposed project provides enough volume to hold the minimum required volume.

c. Proposed Best Management Practices (BMPs)

Per table 5-1 in County of Los Angeles Department of Public Works Low Impact Development standards Manual (February 2014), the BMPs on the following page are proposed for the project. See section 4 of this report for BMP information.

BMP No.	Objective	BMP Name	Summary
S-1	SOURCE CONTROL	STORM DRAIN MESSAGE AND SIGNAGE	INFORMS THE PUBLIC THAT DUMPING OF WASTES INTO STORM DRAIN INLETS IS PROHIBITED AND/OR THAT THE DRAIN ULTIMATELY DISCHARGES INTO RECEIVING WATERS.
S-8	SOURCE CONTROL	LANDSCAPE IRRIGATION PRACTICES	BY EFFECTIVELY IRRIGATING, LESS RUNOFF IS PRODUCED RESULTING IN LESS POTENTIAL FOR POLLUTANTS TO ENTER THE STORM DRAIN SYSTEM.
S-9	SOURCE CONTROL	BUILDING MATERIALS SELECTION	THE USE OF ALTERNATIVE BUILDING MATERIALS CAN REDUCE POLLUTANT SOURCES IN STORMWATER RUNOFF BY ELIMINATING COMPOUNDS THAT CAN LEACH INTO STORMWATER RUNOFF.

d. Post-Construction BMP Operations & Maintenance (O&M)

The BMPs known in this section will require post-construction Operations and Maintenance (O&M) to ensure their continued effectiveness throughout the life of the project. It is expected that all BMP O&M will start immediately following construction of the project.

The following party shall be responsible for the implementation and funding of all BMP O&M:

- **Party Name:** PICO CANYON., LLC
- **Primary Contact:** Jon Friedman
- **Mailing Address:** 1435 Reynolds CT
  Thousand Oaks, CA 91362
- **Phone:** (805) 373-2860

Note that the above information is subject to change prior to implementation of BMP O&M, when a homeowner association (HOA) takes over the maintenance responsibilities.

METHODOLOGY

In order to adequately evaluate and mitigate for the impacts of the proposed project, the existing and proposed drainage conditions were analyzed. The purpose of this drainage study is to document the impacts of certain rainfall events on the study area, and for the comparison

between pre-development and post-development storm events. The study will also include the required infrastructure improvements needed to mitigate for the proposed project.

This study will analyze the effects of the 2 year, 5 year, 10 year, 25 year, and 50 year 24-hour storm events within the study area.

The runoff coefficient was taken from the Los Angeles County Hydrology Manual charts, available in Appendix C.

The proportion impervious data was taken from the Los Angeles County Hydrology Manual tables, available in Appendix D.

BULKING ANALYSIS

To determine bulked flow rates, QB, use the equation listed below for the appropriate case.

$$Qb\&b = P.B.F. \times Qb$$

P.B.F. was calculated for areas under 0.1 sq. mile to be 1.465, burned flows will be multiplied by this factor to determine the burned bulked flow. (DPA-5 was used in the calculations)

Total drainage debris volume for desilting basin is described in the following table:

Tentative Tract No. 74650 - DPV & Bulking Calculation
Existing Condition, 50yr Design Frequency

Subarea	Area (acres)	DPR (cy/sqmi)	DP (cy)	P.B.F.	Qb (cfs)	Qb&b (cfs)
1A	21.41	82000	2743.16	1.465	60.84	89.1
2B	7.93	82000	1016.03	1.465	27.79	40.7
4A	2.67	82000	342.09	1.465	10.57	15.5
5C	15.41	82000	1974.41	1.465	54.17	79.4
7A	1.19	82000	152.47	1.465	4.70	6.9
8D	12.68	82000	1624.63	1.465	32.57	47.7
10A	14.28	82000	1829.63	1.465	50.30	73.7

Tentative Tract No. 74650 - DPV & Bulking Calculation
Proposed Condition, 50yr Design Frequency

Subarea	Area (acres)	DPR(cy/sqmi)	DP (cy)	P.B.F.	Qb (cfs)	Qb&b (cfs)
1A	8.60	82000	1101.88	1.465	33.7	49.4
2A	3.96	82000	507.38	1.465	15.7	22.9
3B	4.46	82000	571.44	1.465	17.6	25.8
6A	0.85	82000	108.91	1.465	3.5	5.2
7A	4.48	82000	574.00	1.465	17.6	25.8
10C	7.12	82000	912.25	1.465	27.8	40.7
12A	0.72	82000	92.25	1.465	2.7	4.0
13A	0.37	82000	47.41	1.465	1.6	2.3
15A	1.15	82000	147.34	1.465	4.3	6.3
21E	12.72	82000	1629.75	1.465	41.0	60.1
23A	12.86	82000	1647.69	1.465	47.0	68.8
100A	0.27	82000	34.59	1.465	0.8	1.1

CONCLUSION

This study consists of a series of offsite watershed and an onsite developed conditions watershed within the development envelope of the project. In order to properly mitigate for the offsite runoff, a series of desilting basins and concrete "V" swales will be constructed to intercept the flow entering the project from the south and convey it through a storm drain system within the project to discharge at the north side of the project into a infiltration water quality basin. All offsite drainage is designed to bypass the proposed project development area through a proposed storm drain system that will be constructed as a part of this project

Onsite storm water will also be collected through a series of Catch Basins, Storm Drain lines and infiltration pit for LID compliant and then directed to the proposed storm drain system throughout the site.

The project should not adversely affect the hydrologic conditions of the surrounding properties nor the properties downstream.

REFERENCES

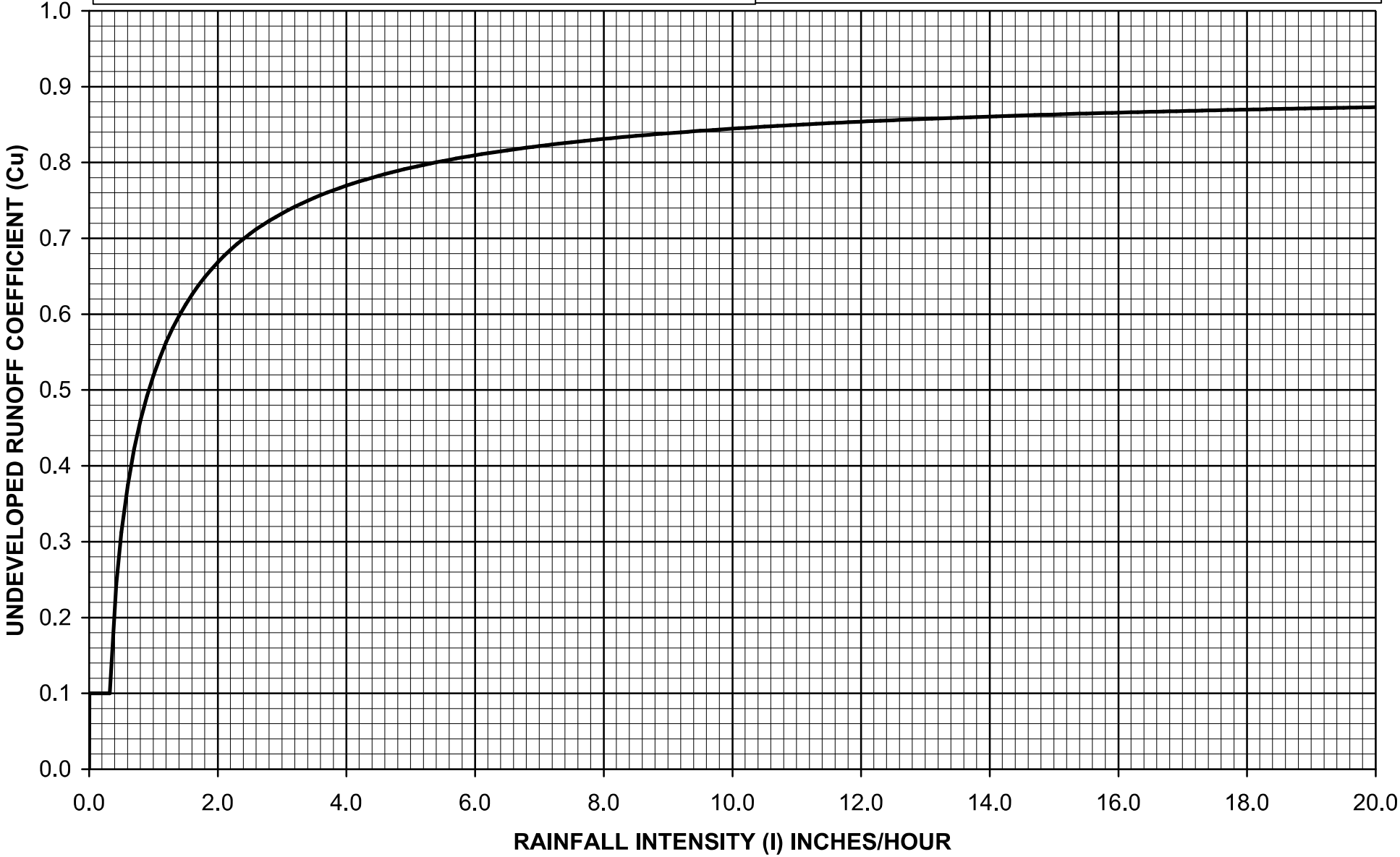
- The analysis for the storm runoff was prepared in accordance with the County of Los Angeles Flood Control District and Hydrology Manual guidelines of January 2006.
- The LID study was prepare in accordance with County of Los Angeles Department of Public Works Low Impact Development standards Manual (February 2014)
- The peak bulk flow factor and the debris volume generated from the watersheds north of the project site was calculated using the method in the Sedimentation Manual of March 2009.

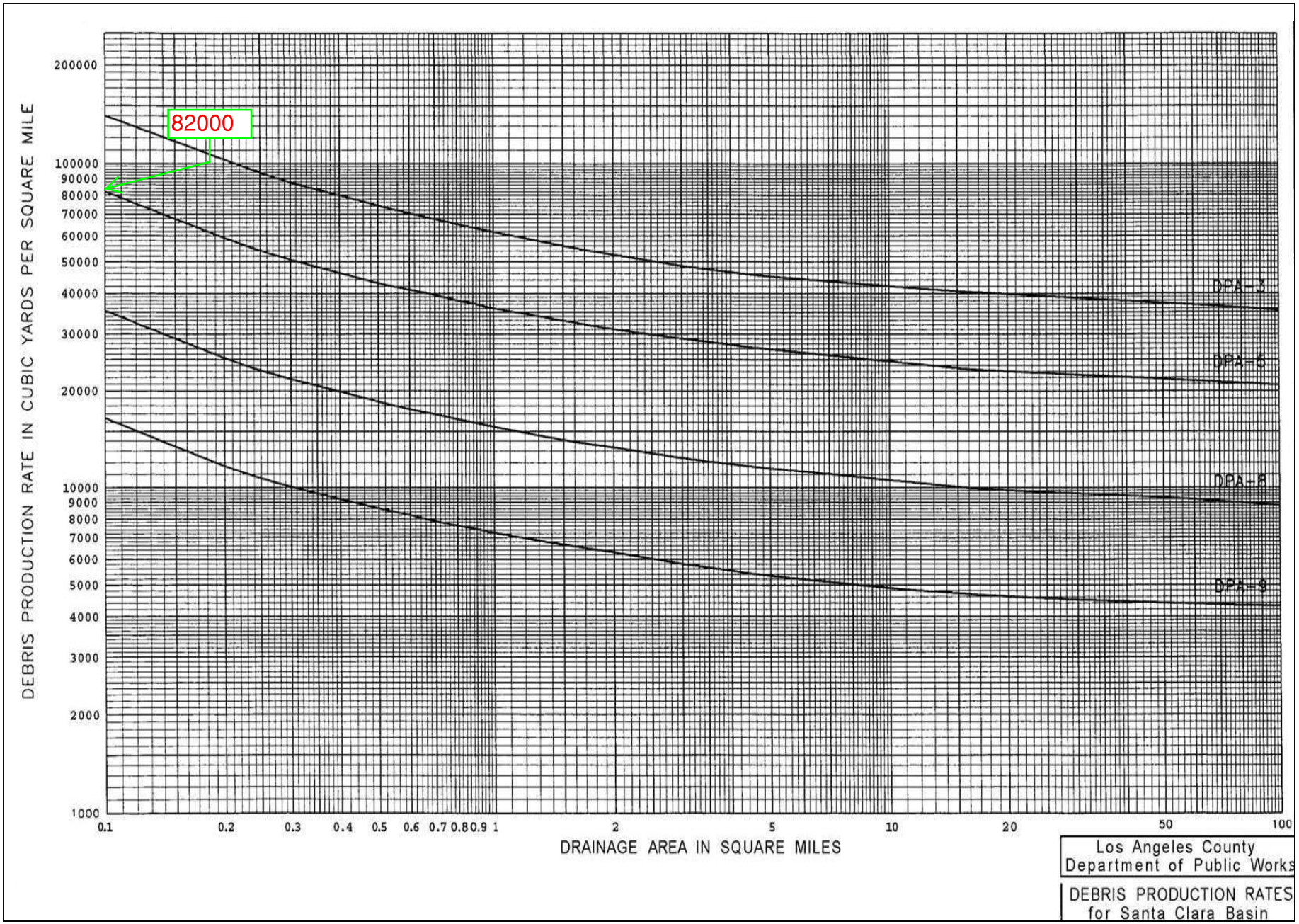
$C_D = (0.9 * IMP) + (1.0 - IMP) * C_U$

Where: C_D = Developed Runoff Coefficient
IMP = Proportion Impervious
C_U = Undeveloped runoff coefficient

Los Angeles County Department of Public Works

RUNOFF COEFFICIENT CURVE
SOIL TYPE NO. 097

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DEBRIS PRODUCTION RATE IN CUBIC YARDS PER SQUARE MILE
200000
100000
90000
80000
70000
60000
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10000
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8000
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3000
2000
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1
2
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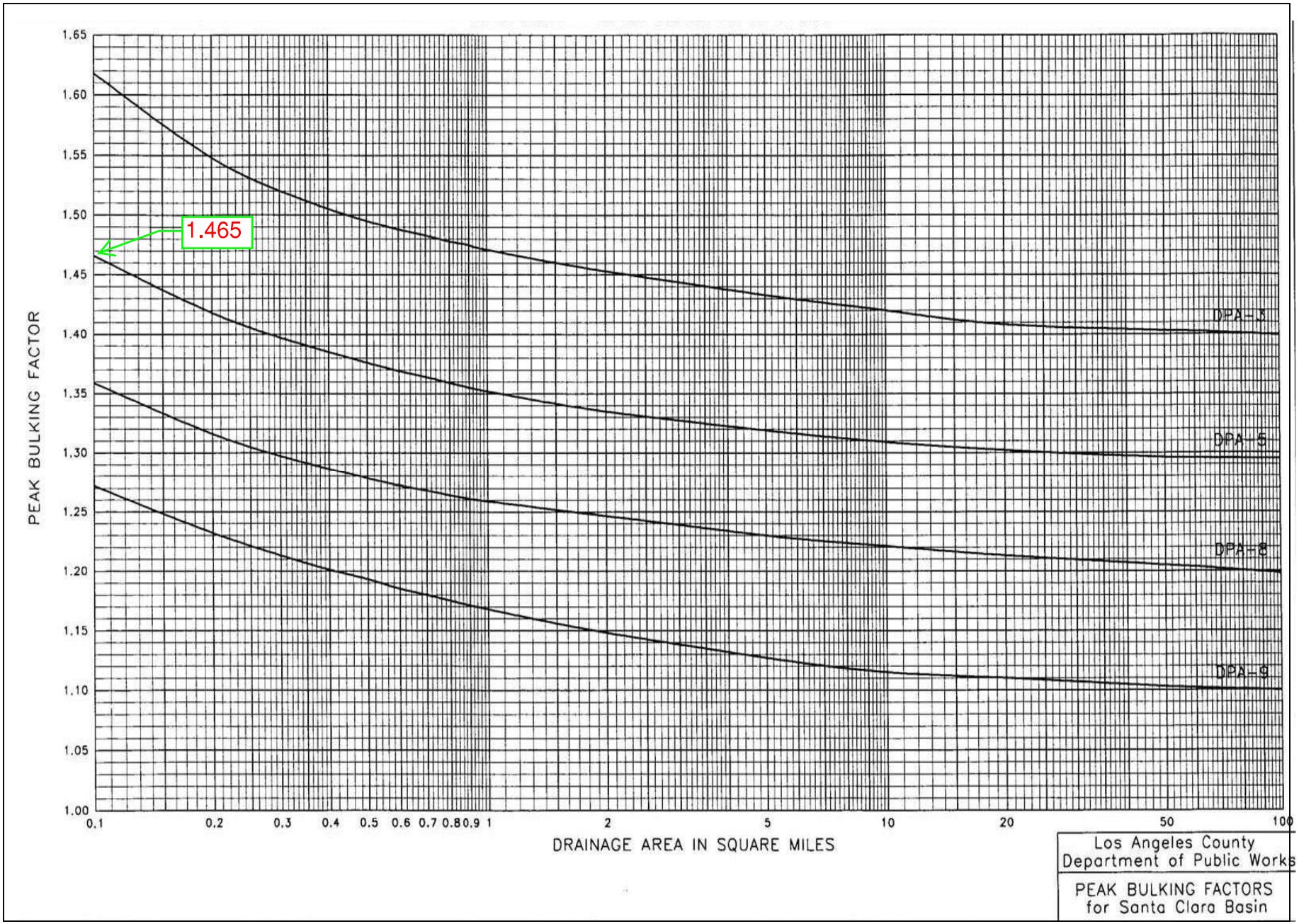
20
50
100
DRAINAGE AREA IN SQUARE MILES
DPA-3
DPA-6
DPA-8
DPA-9
Los Angeles County
Department of Public Works
DEBRIS PRODUCTION RATES
for Santa Clara Basin


PEAK BULKING FACTOR
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1.50
1.45
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DPA-5
DPA-6
DPA-8
DPA-9
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DRAINAGE AREA IN SQUARE MILES
Los Angeles County
Department of Public Works
PEAK BULKING FACTORS
for Santa Clara Basin

APPENDIX D

Proportion Impervious Data

Proportion Impervious Data

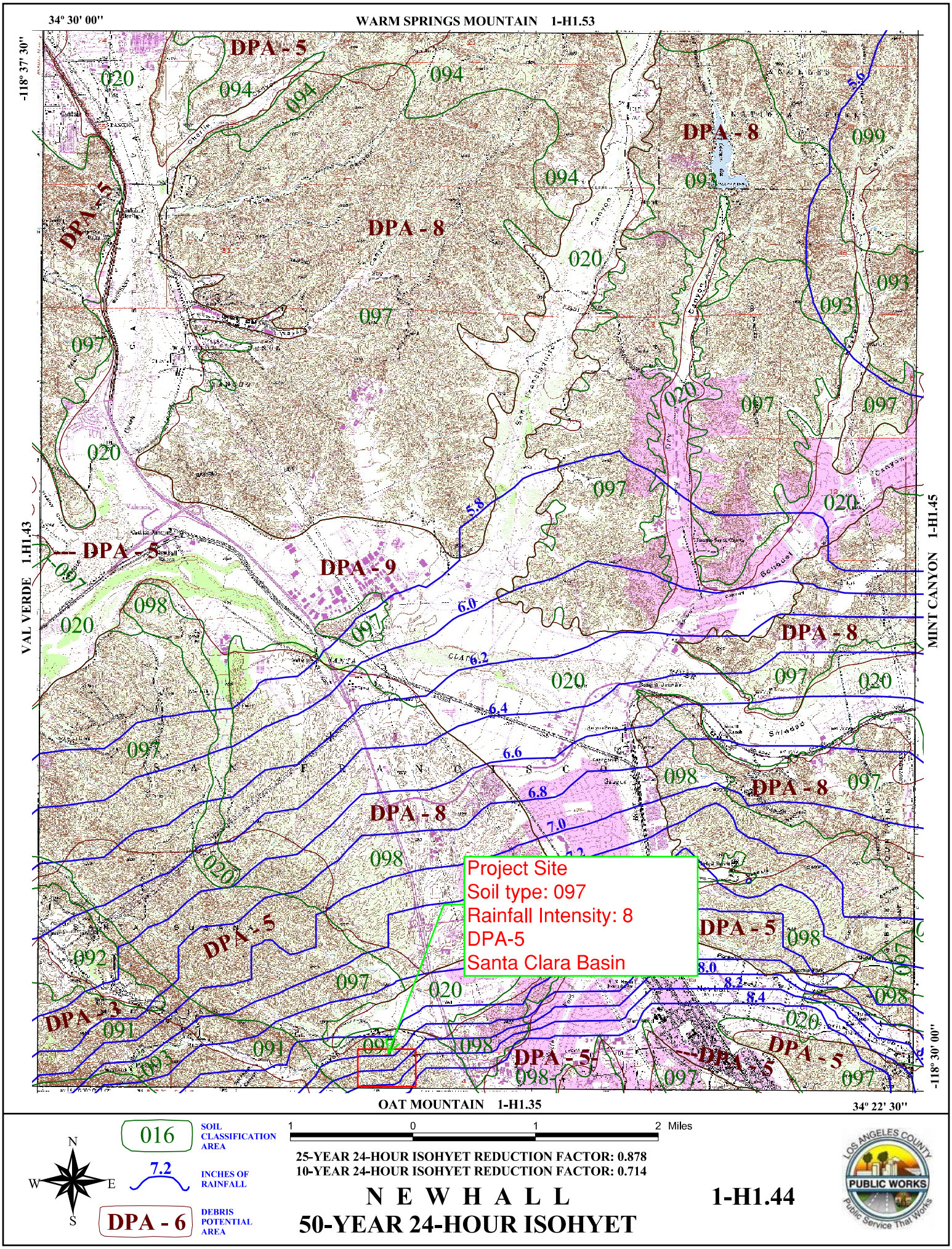
Code	Land Use Description	% Impervious
1111	High-Density Single Family Residential	42
1112	Low-Density Single Family Residential	21
1121	Mixed Multi-Family Residential	74
1122	Duplexes, Triplexes and 2-or 3-Unit Condominiums and Townhouses	55
1123	Low-Rise Apartments, Condominiums, and Townhouses	86
1124	Medium-Rise Apartments and Condominiums	86
1125	High-Rise Apartments and Condominiums	90
1131	Trailer Parks and Mobile Home Courts, High-Density	91
1132	Mobile Home Courts and Subdivisions, Low-Density	42
1140	Mixed Residential	59
1151	Rural Residential, High-Density	15
1152	Rural Residential, Low-Density	10
1211	Low- and Medium-Rise Major Office Use	91
1212	High-Rise Major Office Use	91
1213	Skyscrapers	91
1221	Regional Shopping Center	95
1222	Retail Centers (Non-Strip With Contiguous Interconnected Off-Street	96
1223	Modern Strip Development	96
1224	Older Strip Development	97
1231	Commercial Storage	90
1232	Commercial Recreation	90
1233	Hotels and Motels	96
1234	Attended Pay Public Parking Facilities	91
1241	Government Offices	91
1242	Police and Sheriff Stations	91
1243	Fire Stations	91
1244	Major Medical Health Care Facilities	74
1245	Religious Facilities	82
1246	Other Public Facilities	91
1247	Non-Attended Public Parking Facilities	91
1251	Correctional Facilities	91
1252	Special Care Facilities	74
1253	Other Special Use Facilities	86
1261	Pre-Schools/Day Care Centers	68
1262	Elementary Schools	82
1263	Junior or Intermediate High Schools	82
1264	Senior High Schools	82
1265	Colleges and Universities	47
1266	Trade Schools and Professional Training Facilities	91
1271	Base (Built-up Area)	65
1271.01	Base High-Density Single Family Residential	42
1271.02	Base Duplexes, Triplexes and 2-or 3-Unit Condominiums and T	55

Code	Land Use Description	% Impervious
1271.03	Base Government Offices	91
1271.04	Base Fire Stations	91
1271.05	Base Non-Attended Public Parking Facilities	91
1271.06	Base Air Field	45
1271.07	Base Petroleum Refining and Processing	91
1271.08	Base Mineral Extraction - Oil and Gas	10
1271.09	Base Harbor Facilities	91
1271.10	Base Navigation Aids	47
1271.11	Base Developed Local Parks and Recreation	10
1271.12	Base Vacant Undifferentiated	1
1272	Vacant Area	2
1273	Air Field	45
1274	Former Base (Built-up Area)	65
1275	Former Base Vacant Area	2
1276	Former Base Air Field	91
1311	Manufacturing, Assembly, and Industrial Services	91
1312	Motion Picture and Television Studio Lots	82
1313	Packing Houses and Grain Elevators	96
1314	Research and Development	91
1321	Manufacturing	91
1322	Petroleum Refining and Processing	91
1323	Open Storage	66
1324	Major Metal Processing	91
1325	Chemical Processing	91
1331	Mineral Extraction - Other Than Oil and Gas	10
1332	Mineral Extraction - Oil and Gas	10
1340	Wholesaling and Warehousing	91
1411	Airports	91
1411.01	Airstrip	10
1412	Railroads	15
1412.01	Railroads-Attended Pay Public Parking Facilities	91
1412.02	Railroads-Non-Attended Public Parking Facilities	91
1412.03	Railroads-Manufacturing, Assembly, and Industrial Services	91
1412.04	Railroads-Petroleum Refining and Processing	91
1412.05	Railroads-Open Storage	66
1412.06	Railroads-Truck Terminals	91
1413	Freeways and Major Roads	91
1414	Park-and-Ride Lots	91
1415	Bus Terminals and Yards	91
1416	Truck Terminals	91
1417	Harbor Facilities	91
1418	Navigation Aids	47
1420	Communication Facilities	82
1420.01	Communication Facilities-Antenna	2

Code	Land Use Description	% Impervious
1431	Electrical Power Facilities	47
1431.01	Electrical Power Facilities-Powerlines (Urban)	2
1431.02	Electrical Power Facilities-Powerlines (Rural)	1
1432	Solid Waste Disposal Facilities	15
1433	Liquid Waste Disposal Facilities	96
1434	Water Storage Facilities	91
1435	Natural Gas and Petroleum Facilities	91
1435.01	Natural Gas and Petroleum Facilities-Manufacturing, Assembly, and In	91
1435.02	Natural Gas and Petroleum Facilities-Petroleum Refining and Processing	91
1435.03	Natural Gas and Petroleum Facilities-Mineral Extraction – Oil and Gas	10
1435.04	Natural Gas and Petroleum Facilities-Vacant Undifferentiated	1
1436	Water Transfer Facilities	96
1437	Improved Flood Waterways and Structures	100
1440	Maintenance Yards	91
1450	Mixed Transportation	90
1460	Mixed Transportation and Utility	91
1460.01	Mixed Utility and Transportation-Improved Flood Waterways and Structures	100
1460.02	Mixed Utility and Transportation-Railroads	15
1460.03	Mixed Utility and Transportation-Freeways and Major Roads	91
1500	Mixed Commercial and Industrial	91
1600	Mixed Urban	89
1700	Under Construction (Use appropriate value)	91
1810	Golf Courses	3
1821	Developed Local Parks and Recreation	10
1822	Undeveloped Local Parks and Recreation	2
1831	Developed Regional Parks and Recreation	2
1832	Undeveloped Regional Parks and Recreation	1
1840	Cemeteries	10
1850	Wildlife Preserves and Sanctuaries	2
1850.01	Wildlife-Commercial Recreation	90
1850.02	Wildlife-Other Special Use Facilities	86
1850.03	Wildlife-Developed Local Parks and Recreation	10
1860	Specimen Gardens and Arboreta	15
1870	Beach Parks	10
1880	Other Open Space and Recreation	10
2110	Irrigated Cropland and Improved Pasture Land	2
2120	Non-Irrigated Cropland and Improved Pasture Land	2
2200	Orchards and Vineyards	2
2300	Nurseries	15
2400	Dairy, Intensive Livestock, and Associated Facilities	42
2500	Poultry Operations	62
2600	Other Agriculture	42
2700	Horse Ranches	42

Code	Land Use Description	% Impervious
3100	Vacant Undifferentiated	1
3200	Abandoned Orchards and Vineyards	2
3300	Vacant With Limited Improvements (Use appropriate value)	42
3400	Beaches (Vacant)	1
4100	Water, Undifferentiated	100
4200	Harbor Water Facilities	100
4300	Marina Water Facilities	100
4400	Water Within a Military Installation	100

ISOHYET MAP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-118° 37' 30"
VAL VERDE 1.H1.43
MINT CANYON 1-H1.45
-118° 30' 00"
OAT MOUNTAIN 1-H1.35
34° 22' 30"
DPA - 5
DPA - 8
DPA - 9
DPA - 3
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091
5.8
6.0
6.2
6.4
6.6
6.8
7.0
8.0
8.2
8.4
Project Site
Soil type: 097
Rainfall Intensity: 8
DPA-5
Santa Clara Basin
016
SOIL CLASSIFICATION AREA
7.2
INCHES OF RAINFALL
DPA - 6
DEBRIS POTENTIAL AREA
N
S
E
W
1 0 1 2 Miles
25-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.878
10-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.714
N E W H A L L
50-YEAR 24-HOUR ISOHYET
1-H1.44
LOS ANGELES COUNTY PUBLIC WORKS
Public Service That Works

85 TH PERCENTILE

24-hr RAINFALL

Hydrology Map

dpw.lacounty.gov/wrd/hydrologygis/

Department of Public Works
dpw.lacounty.gov

search our site..

Hydrology Map

A GIS viewer application to view the data for the hydrology manual.

LAYERS

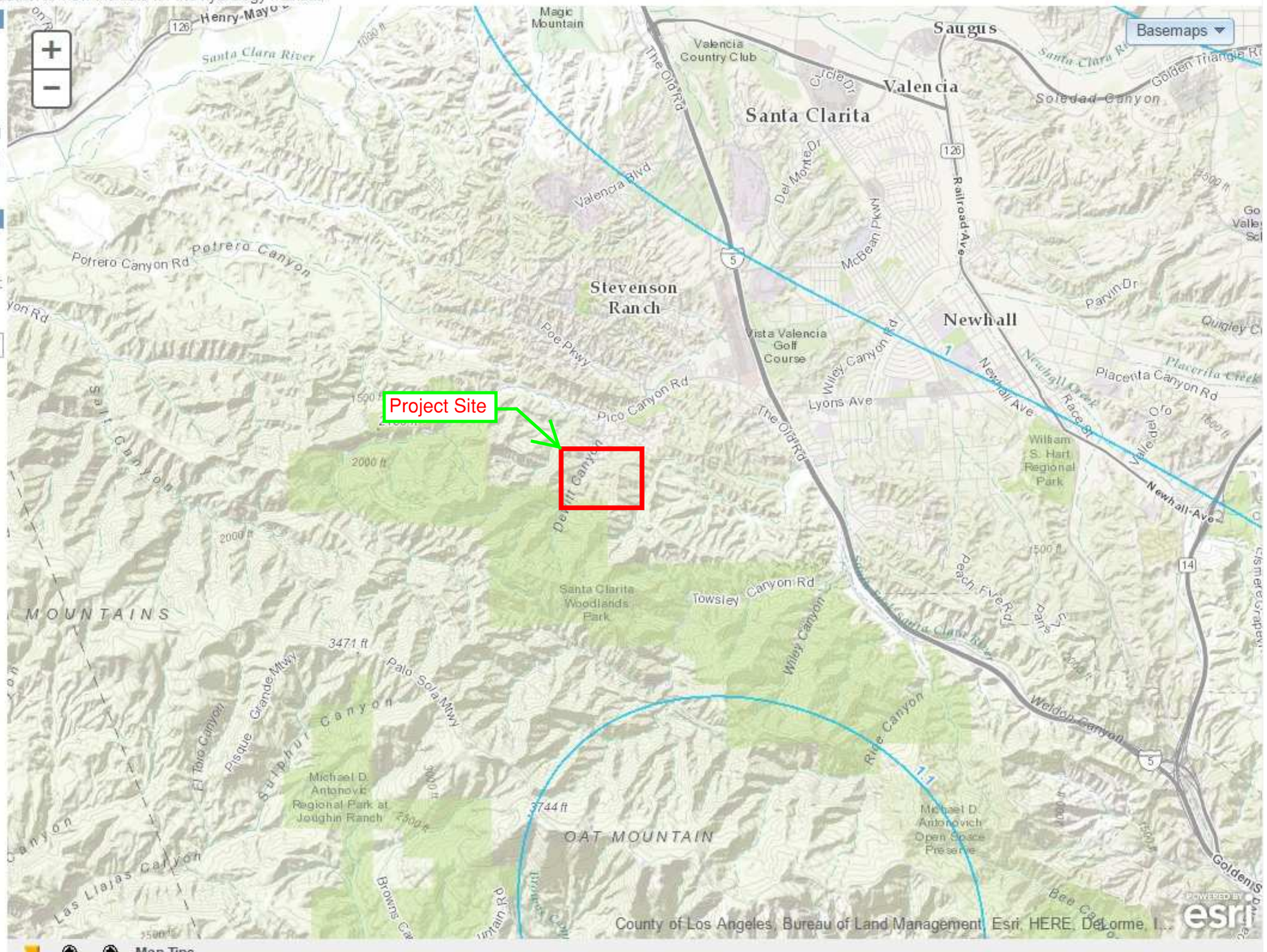
- 50yr Two Tenths (Rainfall)
- DPA Zones
- Soils 2004
- TG Page
- Final 85th Percentile, 24-hr Rainfall
- Final 95th Percentile, 24-hr Rainfall
- 1-year, 1-hour Rainfall Intensity

SEARCH

Zoom to TG Page:

Enter Address, Cross Street, or Parcel No.:
(ex: 900 S. Fremont Ave., Fremont@Valley, 5342005904)

Search



Map Tips

SECTIONS

SECTION 1

RUNOFF CALCULATIONS FOR

EXISTING CONDITIONS

LAR04 CALCULATION
INPUT DATA
EXISTING CONDITION
FOR 2-YRS, 5 YRS, 10-YRS, 25YRS, AND 50-YRS

Tract No. 74650 Existing Condition 2-yr, 5-yr, and 10-yr

Project	Subarea	Area (Acres)	Length (ft)	Slope	Isohyet Depth (in)	% Impervio	Soil Type	Frequency	Fire	Subarea Flowrate (cfs)	Tc (min)	Volume (cu.ft)	Volume (C.Y.)
TR. 74650	1A	21.40	1556	0.10	3.096	0.01	97	2-yr	scr	8.82	30	9,969	369
TR. 74650	2B	7.93	897	0.15	3.096	0.01	97	2-yr	scr	3.25	30	3,694	137
TR. 74650	4A	2.67	419	0.06	3.096	0.01	97	2-yr	scr	1.11	30	1,244	46
TR. 74650	5C	15.41	1161	0.20	3.096	0.01	97	2-yr	scr	6.34	30	7,178	266
TR. 74650	7A	1.19	296	0.02	3.096	0.01	97	2-yr	scr	0.49	30	554	21
											TOTAL	**22,639**	**838**
TR. 74650	8D	12.68	1394	0.018	3.096	0.01	97	2-yr	scr	5.23	30		
TR. 74650	10A	14.28	682	0.046	3.096	0.01	97	2-yr	scr	5.89	30		
Total		75.56							**TOTAL**	**31.13**			

Project	Subarea	Area (Acres)	Length (ft)	Slope	Isohyet Depth (in)	% Impervio	Soil Type	Frequency	Fire	Subarea Flowrate (cfs)	Tc (min)	Volume (cu.ft)	Volume (C.Y.)
TR. 74650	1A	21.40	1556	0.10	4.672	0.01	97	5-yr	scr	17.38	26	30,777	1,140
TR. 74650	2B	7.93	897	0.15	4.672	0.01	97	5-yr	scr	8.60	16	11,566	428
TR. 74650	4A	2.67	419	0.06	4.672	0.01	97	5-yr	scr	3.66	11	3,919	145
TR. 74650	5C	15.41	1161	0.20	4.672	0.01	97	5-yr	scr	15.60	18	22,413	830
TR. 74650	7A	1.19	296	0.02	4.672	0.01	97	5-yr	scr	5.77	10	1,748	65
											TOTAL	**70,423**	**2,608**
TR. 74650	8D	12.68	1394	0.018	4.672	0.01	97	5-yr	scr	9.40	30		
TR. 74650	10A	14.28	682	0.046	4.672	0.01	97	5-yr	scr	15.57	16		
Total		75.56							**TOTAL**	**75.98**			

Project	Subarea	Area (Acres)	Length (ft)	Slope	Isohyet Depth (in)	% Impervio	Soil Type	Frequency	Fire	Subarea Flowrate (cfs)	Tc (min)	Volume (cu.ft)	Volume (C.Y.)
TR. 74650	1A	21.40	1556	0.10	5.712	0.01	97	10-yr	scr	29.97	16	54,824	2,031
TR. 74650	2B	7.93	897	0.15	5.712	0.01	97	10-yr	scr	14.44	10	20,434	757
TR. 74650	4A	2.67	419	0.06	5.712	0.01	97	10-yr	scr	5.93	7	6,902	256
TR. 74650	5C	15.41	1161	0.20	5.712	0.01	97	10-yr	scr	26.61	11	39,678	1,470
TR. 74650	7A	1.19	296	0.02	5.712	0.01	97	10-yr	scr	2.63	7	3,076	114
											TOTAL	**124,914**	**4,626**
TR. 74650	8D	12.68	1394	0.018	5.712	0.01	97	10-yr	scr	15.18	21		
TR. 74650	10A	14.28	682	0.046	5.712	0.01	97	10-yr	scr	26.14	10		
Total		75.56							**TOTAL**	**120.90**			

Tract No. 74650 Existing Condition 2-yr, 5-yr, and 10-yr

Project	Subarea	Area (Acres)	Length (ft)	Slope	Isohyet Depth (in)	% Impervio	Soil Type	Frequency	Fire	Flowrate (cfs)	Tc (min)	Volume (cu.ft)	Volume (C.Y.)
TR. 74650	1A	21.40	1556	0.10	7.024	0.01	97	25-yr	scr	47.22	11	103,181	3,822
TR. 74650	2B	7.93	897	0.15	7.024	0.01	97	25-yr	scr	22.00	7	38,295	1,418
TR. 74650	4A	2.67	419	0.06	7.024	0.01	97	25-yr	scr	9.14	5	12,911	478
TR. 74650	5C	15.41	1161	0.20	7.024	0.01	97	25-yr	scr	39.98	8	74,380	2,755
TR. 74650	7A	1.19	296	0.02	7.024	0.01	97	25-yr	scr	4.06	5	5,754	213
											TOTAL	**234,521**	**8,686**
TR. 74650	8D	12.68	1394	0.018	7.024	0.01	97	25-yr	scr	24.55	14		
TR. 74650	10A	14.28	682	0.046	7.024	0.01	97	25-yr	scr	43.46	7		
Total		75.56							**TOTAL**	**190.41**			

Project	Subarea	Area (Acres)	Length (ft)	Slope	Isohyet Depth (in)	% Impervio	Soil Type	Frequency	Fire	Subarea Flowrate (cfs)	Tc (min)	Volume (cu.ft)	Volume (C.Y.)
TR. 74650	1A	21.40	1556	0.10	8.000	0.01	97	50-yr	scr	60.84	9	157,297	5,826
TR. 74650	2B	7.93	897	0.15	8.000	0.01	97	50-yr	scr	27.79	6	58,345	2,161
TR. 74650	4A	2.67	419	0.06	8.000	0.01	97	50-yr	scr	10.57	5	19,651	728
TR. 74650	5C	15.41	1161	0.20	8.000	0.01	97	50-yr	scr	54.17	6	113,380	4,199
TR. 74650	7A	1.19	296	0.02	8.000	0.01	97	50-yr	scr	4.70	5	8,758	324
											TOTAL	**357,431**	**13,238**
TR. 74650	8D	12.68	1394	0.018	8.000	0.01	97	50-yr	scr	32.57	11		
TR. 74650	10A	14.28	682	0.046	8.000	0.01	97	50-yr	scr	50.30	6		
Total		75.56							**TOTAL**	**240.94**			

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006 74650    1A 297  121.430A40                              0  G1
006 74650    2B 297  1 7.930A40                              0
006 74650    3AB297  0  .0 0A401419.0006000                  0
006 74650    4A 297  1 2.730A40                              0
006 74650    5C 297  115.430A40                              0
006 74650    6AC297  0  .0 0A401269.0002000                  0
006 74650    7A 297  1 1.230A40                              02
006 74650    8D 297  112.730A40                              0
006 74650    9AD297  0      A401682.0004600                  0 1
006 74650   10A 297  114.330A40                              0   2
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006 74650    1A 297  121.426A40                              0  G1
006 74650    2B 297  1 7.916A40                              0
006 74650    3AB297  0  .0 0A401419.0006000                  0
006 74650    4A 297  1 2.711A40                              0
006 74650    5C 297  115.418A40                              0
006 74650    6AC297  0  .0 0A401269.0002000                  0
006 74650    7A 297  1 1.210A40                              02
006 74650    8D 297  112.730A40                              0
006 74650    9AD297  0      A401682.0004600                  0 1
006 74650   10A 297  114.316A40                              0   2
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006 74650    1A 297  121.416A40                              0  G1
006 74650    2B 297  1 7.910A40                              0
006 74650    3AB297  0  .0 0A401419.0006000                  0
006 74650    4A 297  1 2.7 7A40                              0
006 74650    5C 297  115.411A40                              0
006 74650    6AC297  0  .0 0A401269.0002000                  0
006 74650    7A 297  1 1.2 7A40                              02
006 74650    8D 297  112.721A40                              0
006 74650    9AD297  0      A401682.0004600                  0 1
006 74650   10A 297  114.310A40                              0   2
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006 74650    1A 297  121.411A40                              0  G1
006 74650    2B 297  1 7.9 7A40                              0
006 74650    3AB297  0  .0 0A401419.0006000                  0
006 74650    4A 297  1 2.7 5A40                              0
006 74650    5C 297  115.4 8A40                              0
006 74650    6AC297  0  .0 0A401269.0002000                  0
006 74650    7A 297  1 1.2 5A40                              02
006 74650    8D 297  112.714A40                              0
006 74650    9AD297  0      A401682.0004600                  0 1
006 74650   10A 297  114.3 6A40                              0   2
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006 74650    1A 297  121.4 9A40                              0  G1
006 74650    2B 297  1 7.9 6A40                              0
006 74650    3AB297  0  .0 0A401419.0006000                  0
006 74650    4A 297  1 2.7 5A40                              0
006 74650    5C 297  115.4 6A40                              0
006 74650    6AC297  0  .0 0A401269.0002000                  0
006 74650    7A 297  1 1.2 5A40                              02
006 74650    8D 297  112.711A40                              0
006 74650    9AD297  0      A401682.0004600                  0 1
006 74650   10A 297  114.3 6A40                              0   2
```

LAR04 CALCULATION
OUTPUT DATA
EXISTING CONDITION
FOR 2-YRS, 5 YRS, 10-YRS, 25YRS, AND 50-YRS

Program Package Serial Number: 2175
12/18/17 FILE: 2EXCVS INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 2 SOIL DATA FILE: C:\civild\scr_soilx_34.dat
STORM DAY 4

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650	1A	21.4	8.82	21.4	8.82	0	0.	.00000	.00	.00	0.	297	30	A40	.01
4650	2B	7.9	3.25	7.9	3.25	0	0.	.00000	.00	.00	0.	297	30	A40	.01
4650	3AB	7.9	3.25	29.3	12.07	1	419.	.06000	.00	.00	0.	297	0	A40	.00
4650	4A	2.7	1.11	32.0	13.12	0	0.	.00000	.00	.00	0.	297	30	A40	.01
4650	5C	15.4	6.34	15.4	6.34	0	0.	.00000	.00	.00	0.	297	30	A40	.01
4650	6AC	15.4	6.34	47.4	19.41	1	269.	.02000	.00	.00	0.	297	0	A40	.00
4650	7A	1.2	.49	48.6	19.80	0	0.	.00000	.00	.00	0.	297	30	A40	.01
4650	8D	12.7	5.23	12.7	5.23	0	0.	.00000	.00	.00	0.	297	30	A40	.01

****
* CONFLUENCE Q'S *
* 4650 9A TA 1164 QA 19.80 QAD 24.84 QD 5.05 4650 9D TD 1158 QD 5.23 QDA 22.72 QA 17.49 *
* 4650 9AD TAD 1163 QAD 24.87 QA 19.76 QD 5.11 *
****

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650	9AD	12.7	5.23	61.3	24.87	1	682.	.04600	.00	.00	0.	297	0	A40	.00
4650	10A	14.3	5.89	75.6	29.88	0	0.	.00000	.00	.00	0.	297	30	A40	.01

Program Package Serial Number: 2175

01/09/18 FILE: 5EXCVS INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 5 SOIL DATA FILE: C:\civild\scr_soilx_34.dat

STORM DAY 4

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650	1A	21.4	17.38	21.4	17.38	0	0.	.00000	.00	.00	0.	297	26	A40	.01
4650	2B	7.9	8.60	7.9	8.60	0	0.	.00000	.00	.00	0.	297	16	A40	.01
4650	3AB	7.9	8.60	29.3	25.94	1	419.	.06000	.00	.00	0.	297	0	A40	.00
4650	4A	2.7	3.66	32.0	29.04	0	0.	.00000	.00	.00	0.	297	11	A40	.01
4650	5C	15.4	15.60	15.4	15.60	0	0.	.00000	.00	.00	0.	297	18	A40	.01
4650	6AC	15.4	15.60	47.4	44.46	1	269.	.02000	.00	.00	0.	297	0	A40	.00
4650	7A	1.2	5.77	48.6	50.23	0	0.	.00000	.00	.00	0.	297	10	A40	.01
4650	8D	12.7	9.40	12.7	9.40	0	0.	.00000	.00	.00	0.	297	30	A40	.01

****

* CONFLUENCE Q'S *

* 4650 9A TA 1159 QA 45.26 QAD 59.63 QD 9.40 4650 9D TD 1158 QD 9.40 QDA 54.13 QA 44.73 *

* 4650 9AD TAD 1159 QAD 54.66 QA 45.26 QD 9.40 *

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LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650	9AD	12.7	9.40	61.3	59.63	1	682.	.04600	.00	.00	0.	297	0	A40	.00
4650	10A	14.3	15.57	75.6	75.20	0	0.	.00000	.00	.00	0.	297	16	A40	.01

Program Package Serial Number: 2175

12/18/17 FILE: 10EXCV INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 10 SOIL DATA FILE: C:\civild\scr_soilx_34.dat

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM DAY 4 RAIN ZONE	PCT IMPV
4650	1A	21.4	29.97	21.4	29.97	0	0.	.00000	.00	.00	0.	297	16	A40	.01
4650	2B	7.9	14.44	7.9	14.44	0	0.	.00000	.00	.00	0.	297	10	A40	.01
4650	3AB	7.9	14.44	29.3	44.21	1	419.	.06000	.00	.00	0.	297	0	A40	.00
4650	4A	2.7	5.93	32.0	48.48	0	0.	.00000	.00	.00	0.	297	7	A40	.01
4650	5C	15.4	26.61	15.4	26.61	0	0.	.00000	.00	.00	0.	297	11	A40	.01
4650	6AC	15.4	26.61	47.4	74.49	1	269.	.02000	.00	.00	0.	297	0	A40	.00
4650	7A	1.2	2.63	48.6	75.20	0	0.	.00000	.00	.00	0.	297	7	A40	.01
4650	8D	12.7	15.18	12.7	15.18	0	0.	.00000	.00	.00	0.	297	21	A40	.01

****

* CONFLUENCE Q'S *

* 4650 9A TA 1157 QA 75.20 QAD 90.38 QD 15.18 4650 9D TD 1156 QD 15.18 QDA 88.21 QA 73.03 *

* 4650 9AD TAD 1157 QAD 90.38 QA 75.20 QD 15.18 *

****

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650	9AD	12.7	15.18	61.3	90.38	1	682.	.04600	.00	.00	0.	297	0	A40	.00
4650	10A	14.3	26.14	75.6	105.77	0	0.	.00000	.00	.00	0.	297	10	A40	.01

Program Package Serial Number: 2175

12/18/17 FILE: 25EXCV INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 25 SOIL DATA FILE: C:\civild\scr_soilx_34.dat

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM DAY 4 RAIN ZONE	PCT IMPV
4650	1A	21.4	47.22	21.4	47.22	0	0.	.00000	.00	.00	0.	297	11	A40	.01
4650	2B	7.9	22.00	7.9	22.00	0	0.	.00000	.00	.00	0.	297	7	A40	.01
4650	3AB	7.9	22.00	29.3	69.22	1	419.	.06000	.00	.00	0.	297	0	A40	.00
4650	4A	2.7	9.14	32.0	73.98	0	0.	.00000	.00	.00	0.	297	5	A40	.01
4650	5C	15.4	39.98	15.4	39.98	0	0.	.00000	.00	.00	0.	297	8	A40	.01
4650	6AC	15.4	39.98	47.4	113.24	1	269.	.02000	.00	.00	0.	297	0	A40	.00
4650	7A	1.2	4.06	48.6	112.87	0	0.	.00000	.00	.00	0.	297	5	A40	.01
4650	8D	12.7	24.55	12.7	24.55	0	0.	.00000	.00	.00	0.	297	14	A40	.01

****

* CONFLUENCE Q'S *

* 4650 9A TA 1157 QA 112.87 QAD 136.96 QD 24.08 4650 9D TD 1154 QD 24.55 QDA 122.79 QA 98.23 *

* 4650 9AD TAD 1156 QAD 137.22 QA 112.84 QD 24.38 *

****

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650	9AD	12.7	24.55	61.3	137.22	1	682.	.04600	.00	.00	0.	297	0	A40	.00
4650	10A	14.3	43.46	75.6	149.11	0	0.	.00000	.00	.00	0.	297	6	A40	.01

Program Package Serial Number: 2175

12/18/17 FILE: 50EXCV INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE: C:\civild\scr_soilx_34.dat

LOCATION	SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM DAY 4 RAIN ZONE	PCT IMPV
4650 1A	21.4	60.84	21.4	60.84	0	0.	.00000	.00	.00	0.	297	9	A40	.01
4650 2B	7.9	27.79	7.9	27.79	0	0.	.00000	.00	.00	0.	297	6	A40	.01
4650 3AB	7.9	27.79	29.3	88.63	1	419.	.06000	.00	.00	0.	297	0	A40	.00
4650 4A	2.7	10.57	32.0	94.40	0	0.	.00000	.00	.00	0.	297	5	A40	.01
4650 5C	15.4	54.17	15.4	54.17	0	0.	.00000	.00	.00	0.	297	6	A40	.01
4650 6AC	15.4	54.17	47.4	145.13	1	269.	.02000	.00	.00	0.	297	0	A40	.00
4650 7A	1.2	4.70	48.6	143.39	0	0.	.00000	.00	.00	0.	297	5	A40	.01
4650 8D	12.7	32.57	12.7	32.57	0	0.	.00000	.00	.00	0.	297	11	A40	.01

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* CONFLUENCE Q'S *

* 4650 9A TA 1156 QA 143.39 QAD 175.22 QD 31.83 4650 9D TD 1154 QD 32.57 QDA 162.70 QA 130.12 *

* 4650 9AD TAD 1156 QAD 175.22 QA 143.39 QD 31.83 *

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LOCATION	SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650 9AD	12.7	32.57	61.3	175.22	1	682.	.04600	.00	.00	0.	297	0	A40	.00
4650 10A	14.3	50.30	75.6	194.22	0	0.	.00000	.00	.00	0.	297	6	A40	.01

SECTION 2

RUNOFF CALCULATIONS FOR

PROPOSED CONDITIONS

LAR04 CALCULATION
INPUT DATA
PROPOSED CONDITION
FOR 2-YRS, 5 YRS, 10-YRS, 25YRS, AND 50-YRS

Tract No. 74650 Proposed Condition 2-yr

Project	Subarea	Area (Acres)	Length (ft)	Slope	Isohyet Depth (in)	% Impervio	Soil Type	Frequency	Fire	Flowrate (cfs)	Tc (min)	Volume (cu.ft)	Volume (C.Y.)
TR. 74650	1A	8.6	444	0.17	3.10	0.01	97	2-yr	scr	3.54	30	4,011	149
TR. 74650	2A	3.96	478	0.24	3.10	0.01	97	2-yr	scr	1.65	30	1,847	68
TR. 74650	3B	4.46	484	0.25	3.10	0.01	97	2-yr	scr	1.85	30	2,080	77
TR. 74650	4B	2.34	220	0.01	3.10	0.42	97	2-yr	0	1.60	19	4,429	164
TR. 74650	6A	0.85	136	0.39	3.10	0.01	97	2-yr	scr	0.81	9	442	16
TR. 74650	7A	4.48	343	0.23	3.10	0.01	97	2-yr	scr	1.85	30	2,090	77
TR. 74650	8A	3.01	770	0.074	3.10	0.42	97	2-yr	0	1.53	30	5,668	210
TR. 74650	9A	3.07	860	0.056	3.10	0.42	97	2-yr	0	1.59	30	5,781	214
TR. 74650	10C	7.12	378	0.56	3.10	0.01	97	2-yr	scr	2.92	30	3,321	123
TR. 74650	12A	0.72	263	0.39	3.10	0.01	97	2-yr	scr	0.29	30	336	12
TR. 74650	13A	0.37	86	0.44	3.10	0.01	97	2-yr	scr	0.46	6	195	7
TR. 74650	14A	2.23	310	0.01	3.10	0.42	97	2-yr	0	1.29	24	4,205	156
TR. 74650	15A	1.15	181	0.29	3.10	0.01	97	2-yr	scr	0.73	15	570	21
TR. 74650	16D	1.65	630	0.01	3.10	0.42	97	2-yr	0	0.87	30	3,107	115
TR. 74650	17D	2.67	620	0.005	3.10	0.42	97	2-yr	0	1.38	30	5,028	186
TR. 74650	19A	1.6	290	0.062	3.10	0.42	97	2-yr	scr	2.24	16	3,132	116
									Total	**24.60**	**Total**	**46,244**	**1,713**
TR. 74650	21E	12.72	1394	0.18	3.10	0.42	97	2-yr	scr	5.23	30		
TR. 74650	23A	12.03	682	0.046	3.10	0.01	97	2-yr	scr	4.94	30		
TR. 74650	100A	0.2	116	0.56	3.10	0.01	97	2-yr	scr	0.05	7		
TR. 74650	200A	0.45	234	0.3	3.10	0.01	97	2-yr	0	0.02	30		
TR. 74650	200B	0.38	234	0.3	3.10	0.01	97	2-yr	0	0.01	30		

Tract No. 74650 Proposed Condition 5-yr

Project	Subarea	Area (Acres)	Length (ft)	Slope	Isohyet Depth (in)	% Impervio	Soil Type	Frequency	Fire	Flowrate (cfs)	Tc (min)	Volume (cu.ft)	Volume (C.Y.)
TR. 74650	1A	8.6	444	0.17	4.67	0.01	97	5-yr	scr	13.00	9	12,642	468
TR. 74650	2A	3.96	478	0.24	4.67	0.01	97	5-yr	scr	6.05	9	5,821	216
TR. 74650	3B	4.46	484	0.25	4.67	0.01	97	5-yr	scr	6.80	9	6,556	243
TR. 74650	4B	2.34	220	0.01	4.67	0.42	97	5-yr	0	4.06	8	10,581	392
TR. 74650	6A	0.85	136	0.39	4.67	0.01	97	5-yr	scr	1.91	5	1,258	47
TR. 74650	7A	4.48	343	0.23	4.67	0.01	97	5-yr	scr	7.79	7	6,606	245
TR. 74650	8A	3.01	770	0.074	4.67	0.42	97	5-yr	0	4.00	13	13,597	504
TR. 74650	9A	3.07	860	0.056	4.67	0.42	97	5-yr	0	3.85	15	13,861	513
TR. 74650	10C	7.12	378	0.56	4.67	0.01	97	5-yr	scr	13.45	6	10,521	390
TR. 74650	12A	0.72	263	0.39	4.67	0.01	97	5-yr	scr	1.49	5	1,066	39
TR. 74650	13A	0.37	86	0.44	4.67	0.01	97	5-yr	scr	0.69	5	548	20
TR. 74650	14A	2.23	310	0.01	4.67	0.42	97	5-yr	0	3.39	10	10,079	373
TR. 74650	15A	1.15	181	0.29	4.67	0.01	97	5-yr	scr	2.33	5	1,702	63
TR. 74650	16D	1.65	630	0.01	4.67	0.42	97	5-yr	0	1.97	17	7,445	276
TR. 74650	17D	2.67	620	0.005	4.67	0.42	97	5-yr	0	2.94	19	12,042	446
TR. 74650	19A	2.11	290	0.062	4.67	0.42	97	5-yr	scr	2.94	7	7,464	276
									Total	**76.66**	**Total**	**121,789**	**4,511**
TR. 74650	21E	12.72	1394	0.18	4.67	0.42	97	5-yr	scr	13.31	17		
TR. 74650	23A	12.03	682	0.046	4.67	0.01	97	5-yr	scr	14.72	13		
TR. 74650	100A	0.2	116	0.56	4.67	0.01	97	5-yr	scr	0.21	5		
TR. 74650	200A	0.45	234	0.3	4.67	0.01	97	5-yr	0	0.46	5		
TR. 74650	200B	0.38	234	0.3	4.67	0.01	97	5-yr	0	0.40	5		

Tract No. 74650 Proposed Condition 10-yr

Project	Subarea	Area (Acres)	Length (ft)	Slope	Isohyet Depth (in)	% Impervio	Soil Type	Frequency	Fire	Flowrate (cfs)	Tc (min)	Volume (cu.ft)	Volume (C.Y.)
TR. 74650	1A	8.6	444	0.17	3.10	0.01	97	10-yr	scr	20.64	6	22,184	822
TR. 74650	2A	3.96	478	0.24	3.10	0.01	97	10-yr	scr	9.60	6	10,215	378
TR. 74650	3B	4.46	484	0.25	3.10	0.01	97	10-yr	scr	10.80	6	11,505	426
TR. 74650	4B	2.34	220	0.01	3.10	0.42	97	10-yr	0	5.89	6	16,315	604
TR. 74650	6A	0.85	136	0.39	3.10	0.01	97	10-yr	scr	2.41	5	2,195	81
TR. 74650	7A	4.48	343	0.23	3.10	0.01	97	10-yr	scr	12.05	5	11,567	428
TR. 74650	8A	3.01	770	0.074	3.10	0.42	97	10-yr	0	6.08	9	20,972	777
TR. 74650	9A	3.07	860	0.056	3.10	0.42	97	10-yr	0	5.68	11	21,382	792
TR. 74650	10C	7.12	378	0.56	3.10	0.01	97	10-yr	scr	19.01	5	18,384	681
TR. 74650	12A	0.72	263	0.39	3.10	0.01	97	10-yr	scr	1.87	5	1,859	69
TR. 74650	13A	0.37	86	0.44	3.10	0.01	97	10-yr	scr	1.07	5	955	35
TR. 74650	14A	2.23	310	0.01	3.10	0.42	97	10-yr	0	5.05	7	15,545	576
TR. 74650	15A	1.15	181	0.29	3.10	0.01	97	10-yr	scr	2.95	5	2,969	110
TR. 74650	16D	1.65	630	0.01	3.10	0.42	97	10-yr	0	2.97	12	11,490	426
TR. 74650	17D	2.67	620	0.005	3.10	0.42	97	10-yr	0	4.53	13	18,590	689
TR. 74650	19A	2.11	290	0.062	3.10	0.42	97	10-yr	scr	4.44	5	11,506	426
									Total	**115.04**	**Total**	**197,633**	**7,320**
TR. 74650	21E	12.72	1394	0.18	3.10	0.42	97	10-yr	scr	20.88	12		
TR. 74650	23A	12.03	682	0.046	3.10	0.01	97	10-yr	scr	23.07	9		
TR. 74650	100A	0.2	116	0.56	3.10	0.01	97	10-yr	scr	0.36	5		
TR. 74650	200A	0.45	234	0.3	3.10	0.01	97	10-yr	0	0.76	5		
TR. 74650	200B	0.38	234	0.3	3.10	0.01	97	10-yr	0	0.64	5		

Tract No. 74650 Proposed Condition 25-yr

Project	Subarea	Area (Acres)	Length (ft)	Slope	Isohyet Depth (in)	% Impervio	Soil Type	Frequency	Fire	Flowrate (cfs)	Tc (min)	Volume (cu.ft)	Volume (C.Y.)
TR. 74650	1A	8.6	444	0.17	3.10	0.01	97	25-yr	scr	29.11	5	41,547	1,539
TR. 74650	2A	3.96	478	0.24	3.10	0.01	97	25-yr	scr	13.54	5	19,131	709
TR. 74650	3B	4.46	484	0.25	3.10	0.01	97	25-yr	scr	15.23	5	21,547	798
TR. 74650	4B	2.34	220	0.01	3.10	0.42	97	25-yr	0	8.16	5	25,976	962
TR. 74650	6A	0.85	136	0.39	3.10	0.01	97	25-yr	scr	3.05	5	4,106	152
TR. 74650	7A	4.48	343	0.23	3.10	0.01	97	25-yr	scr	15.23	5	21,643	802
TR. 74650	8A	3.01	770	0.074	3.10	0.42	97	25-yr	0	8.63	7	33,402	1,237
TR. 74650	9A	3.07	860	0.056	3.10	0.42	97	25-yr	0	8.34	8	34,064	1,262
TR. 74650	10C	7.12	378	0.56	3.10	0.01	97	25-yr	scr	24.03	5	34,397	1,274
TR. 74650	12A	0.72	263	0.39	3.10	0.01	97	25-yr	scr	2.37	5	3,478	129
TR. 74650	13A	0.37	86	0.44	3.10	0.01	97	25-yr	scr	1.35	5	1,788	66
TR. 74650	14A	2.23	310	0.01	3.10	0.42	97	25-yr	0	7.63	5	24,755	917
TR. 74650	15A	1.15	181	0.29	3.10	0.01	97	25-yr	scr	3.72	5	5,556	206
TR. 74650	16D	1.65	630	0.01	3.10	0.42	97	25-yr	0	4.58	8	18,308	678
TR. 74650	17D	2.67	620	0.005	3.10	0.42	97	25-yr	0	6.88	9	29,623	1,097
TR. 74650	19A	2.11	290	0.062	3.10	0.42	97	25-yr	scr	5.55	5	18,316	678
									Total	**157.40**	**Total**	**337,637**	**12,505**
TR. 74650	21E	12.72	1394	0.18	3.10	0.42	97	25-yr	scr	32.97	8		
TR. 74650	23A	12.03	682	0.046	3.10	0.01	97	25-yr	scr	40.62	7		
TR. 74650	100A	0.2	116	0.56	3.10	0.01	97	25-yr	scr	0.58	5		
TR. 74650	200A	0.45	234	0.3	3.10	0.01	97	25-yr	0	1.25	5		
TR. 74650	200B	0.38	234	0.3	3.10	0.01	97	25-yr	0	1.06	5		

Tract No. 74650 Proposed Condition 50-yr

Project	Subarea	Area (Acres)	Length (ft)	Slope	Isohyet Depth (in)	% Impervio	Soil Type	Frequency	Fire	Flowrate (cfs)	Tc (min)	Volume (cu.ft)	Volume (C.Y.)
TR. 74650	1A	8.6	444	0.17	3.10	0.01	97	50-yr	scr	33.67	5	63,294	2,344
TR. 74650	2A	3.96	478	0.24	3.10	0.01	97	50-yr	scr	15.66	5	29,145	1,079
TR. 74650	3B	4.46	484	0.25	3.10	0.01	97	50-yr	scr	17.62	5	32,825	1,216
TR. 74650	4B	2.34	220	0.01	3.10	0.42	97	50-yr	0	9.18	5	35,208	1,304
TR. 74650	6A	0.85	136	0.39	3.10	0.01	97	50-yr	scr	3.52	5	6,256	232
TR. 74650	7A	4.48	343	0.23	3.10	0.01	97	50-yr	scr	17.62	5	32,972	1,221
TR. 74650	8A	3.01	770	0.074	3.10	0.42	97	50-yr	0	9.94	5	45,290	1,677
TR. 74650	9A	3.07	860	0.056	3.10	0.42	97	50-yr	0	11.16	6	46,188	1,711
TR. 74650	10C	7.12	378	0.56	3.10	0.01	97	50-yr	scr	27.79	5	52,402	1,941
TR. 74650	12A	0.72	263	0.39	3.10	0.01	97	50-yr	scr	2.74	5	5,299	196
TR. 74650	13A	0.37	86	0.44	3.10	0.01	97	50-yr	scr	1.57	5	2,723	101
TR. 74650	14A	2.23	310	0.01	3.10	0.42	97	50-yr	0	8.78	5	33,553	1,243
TR. 74650	15A	1.15	181	0.29	3.10	0.01	97	50-yr	scr	4.31	5	8,464	313
TR. 74650	16D	1.65	630	0.01	3.10	0.42	97	50-yr	0	5.63	7	24,822	919
TR. 74650	17D	2.67	620	0.005	3.10	0.42	97	50-yr	0	8.37	8	40,162	1,487
TR. 74650	19A	2.11	290	0.062	3.10	0.42	97	50-yr	scr	6.03	5	24,826	919
									Total	**183.59**	**Total**	**483,429**	**17,905**
TR. 74650	21E	12.72	1394	0.18	3.10	0.01	97	50-yr	scr	41	7		
TR. 74650	23A	12.03	682	0.046	3.10	0.01	97	50-yr	scr	46.98	5		
TR. 74650	100A	0.2	116	0.56	3.10	0.01	97	50-yr	scr	0.78	5		
TR. 74650	200A	0.45	234	0.3	3.10	0.01	97	50-yr	0	1.69	5		
TR. 74650	200B	0.38	234	0.3	3.10	0.01	97	50-yr	0	1.42	5		

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006 74650    1A 297  1 8.630A404252.0005000     3.50        0  G1
006 74650    2A 297  1 4.030A404252.0007100     3.50        0
006 74650    3B 297  1 4.530A404277.0005000     3.50        0
006 74650    4B 297 42 2.319A404 70.0005000     3.50        0
006 74650    5AB297  0  .0 0A404200.0005000     3.50        0 1
006 74650    6A 297  1  .9 9A404100.0005000     3.50        0
006 74650    7A 297  1 4.530A404349.0005700     3.50        0
006 74650    8A  97 42 3.030A404 20.0002000     2.00        0
006 74650    9A  97 42 3.130A404 50.0005000     3.50        0
006 74650   10C 297  1 7.130A404180.0005000     3.50        0
006 74650   11AC297  0  .0 0A404 20.0005000     3.50        0 1
006 74650   12A 297  1  .730A404108.0005000     3.50        0
006 74650   13A 297  1  .4 6A404170.0005000     3.50        0
006 74650   14A  97 42 2.224A404 36.0005000     3.50        0
006 74650   15A 297  1 1.115A404110.0005000     3.50        0
006 74650   16D  97 42 1.730A404 24.0014700     2.00        0
006 74650   17D  97 42 2.730A404166.0014700     2.00        0
006 74650   18AD297  0  .0 0A404114.0008000     3.50        0
006 74650   19A  97 42 1.6 5A40                              0
006 74650   20A  97  1  .0 5A404 63.0020000     4.00        02
006 74650   21E 297  112.730A40                             0
006 74650   22AE297         A401682.0004600                 0 1
006 74650   23A 297  112.030A40                             0   2
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006 74650    2A 297  1 4.0 9A404252.0007100     3.50        0
006 74650    3B 297  1 4.5 9A404277.0005000     3.50        0
006 74650    4B 297 42 2.3 8A404 70.0005000     3.50        0
006 74650    5AB297  0  .0 0A404200.0005000     3.50        0 1
006 74650    6A 297  1  .9 5A404100.0005000     3.50        0
006 74650    7A 297  1 4.5 7A404349.0005700     3.50        0
006 74650    8A  97 42 3.013A404 20.0002000     2.00        0
006 74650    9A  97 42 3.115A404 50.0005000     3.50        0
006 74650   10C 297  1 7.1 6A404180.0005000     3.50        0
006 74650   11AC297  0  .0 0A404 20.0005000     3.50        0 1
006 74650   12A 297  1  .7 5A404108.0005000     3.50        0
006 74650   13A 297  1  .4 5A404170.0005000     3.50        0
006 74650   14A  97 42 2.210A404 36.0005000     3.50        0
006 74650   15A 297  1 1.1 5A404110.0005000     3.50        0
006 74650   16D  97 42 1.717A404 24.0014700     2.00        0
006 74650   17D  97 42 2.719A404166.0014700     2.00        0
006 74650   18AD297  0  .0 0A404114.0008000     3.50        0
006 74650   19A  97 42 1.6 7A40                              0
006 74650   20A  97  1     5A404 63.0020000     4.00        02
006 74650   21E 297  112.717A40                             0
006 74650   22AE297         A401682.0004600                 0 1
006 74650   23A 297  112.013A40                             0   2
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006 74650    1A 297  1 8.6 6A404252.0005000     3.50        0  G1
006 74650    2A 297  1 4.0 6A404252.0007100     3.50        0
006 74650    3B 297  1 4.5 6A404277.0005000     3.50        0
006 74650    4B 297 42 2.3 6A404 70.0005000     3.50        0
006 74650    5AB297  0  .0 0A404200.0005000     3.50        0 1
006 74650    6A 297  1  .9 5A404100.0005000     3.50        0
006 74650    7A 297  1 4.5 5A404349.0005700     3.50        0
006 74650    8A  97 42 3.0 9A404 20.0002000     2.00        0
006 74650    9A  97 42 3.111A404 50.0005000     3.50        0
006 74650   10C 297  1 7.1 5A404180.0005000     3.50        0
006 74650   11AC297  0  .0 0A404 20.0005000     3.50        0 1
006 74650   12A 297  1  .7 5A404108.0005000     3.50        0
006 74650   13A 297  1  .4 5A404170.0005000     3.50        0
006 74650   14A  97 42 2.2 7A404 36.0005000     3.50        0
006 74650   15A 297  1 1.1 5A404110.0005000     3.50        0
006 74650   16D  97 42 1.712A404 24.0014700     2.00        0
006 74650   17D  97 42 2.713A404166.0014700     2.00        0
006 74650   18AD297  0  .0 0A404114.0008000     3.50        0
006 74650   19A  97 42 1.6 5A40                              0
006 74650   20A  97  1     5A404 63.0020000     4.00        02
006 74650   21E 297  112.712A40                             0
006 74650   22AE297         A401682.0004600                 0 1
006 74650   23A 297  112.0 9A40                             0   2
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006 74650    1A 297  1 8.6 5A404252.0005000     3.50        0  G1
006 74650    2A 297  1 4.0 5A404252.0007100     3.50        0
006 74650    3B 297  1 4.5 5A404277.0005000     3.50        0
006 74650    4B 297 42 2.3 5A404 70.0005000     3.50        0
006 74650    5AB297  0  .0 0A404200.0005000     3.50        0 1
006 74650    6A 297  1  .9 5A404100.0005000     3.50        0
006 74650    7A 297  1 4.5 5A404349.0005700     3.50        0
006 74650    8A  97 42 3.0 7A404 20.0002000     2.00        0
006 74650    9A  97 42 3.1 8A404 50.0005000     3.50        0
006 74650   10C 297  1 7.1 5A404180.0005000     3.50        0
006 74650   11AC297  0  .0 0A404 20.0005000     3.50        0 1
006 74650   12A 297  1  .7 5A404108.0005000     3.50        0
006 74650   13A 297  1  .4 5A404170.0005000     3.50        0
006 74650   14A  97 42 2.2 5A404 36.0005000     3.50        0
006 74650   15A 297  1 1.1 5A404110.0005000     3.50        0
006 74650   16D  97 42 1.7 8A404 24.0014700     2.00        0
006 74650   17D  97 42 2.7 9A404166.0014700     2.00        0
006 74650   18AD297  0  .0 0A404114.0008000     3.50        0
006 74650   19A  97 42 1.6 5A40                              0
006 74650   20A  97  1     5A404 63.0020000     4.00        02
006 74650   21E 297  112.7 8A40                            0
006 74650   22AE297         A401682.0004600               0 1
006 74650   23A 297  112.0 5A40                            0   2
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006 74650    1A 297  1 8.6 5A404252.0005000     3.50        0  G1
006 74650    2A 297  1 4.0 5A404252.0007100     3.50        0
006 74650    3B 297  1 4.5 5A404277.0005000     3.50        0
006 74650    4B  97 42 2.3 5A404 70.0005000     3.50        0
006 74650    5AB297  0  .0 0A404200.0005000     3.50        0 1
006 74650    6A 297  1  .9 5A404100.0005000     3.50        0
006 74650    7A 297  1 4.5 5A404349.0005700     3.50        0
006 74650    8A  97 42 3.0 7A404 20.0002000     2.00        0
006 74650    9A  97 42 3.1 6A404 50.0005000     3.50        0
006 74650   10C 297  1 7.1 5A404180.0005000     3.50        0
006 74650   11AC297  0  .0 0A404 20.0005000     3.50        0 1
006 74650   12A 297  1  .7 5A404108.0005000     3.50        0
006 74650   13A 297  1  .4 5A404170.0005000     3.50        0
006 74650   14A  97 42 2.2 5A404 36.0005000     3.50        0
006 74650   15A 297  1 1.1 5A404110.0005000     3.50        0
006 74650   16D  97 42 1.7 7A404 24.0014700     2.00        0
006 74650   17D  97 42 2.7 8A404166.0014700     2.00        0
006 74650   18AD297  0  .0 0A404114.0008000     3.50        0
006 74650   19A  97  1 1.6 5A40                              0
006 74650   20A  97  1    5A404 63.0020000     4.00        02
006 74650   21E 297  112.7 7A40                             0
006 74650   22AE297        A401682.0004600                  0 1
006 74650   23A 297  112.0 5A40                             0   2
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LAR04 CALCULATION
OUTPUT DATA
PROPOSED CONDITION
FOR 2-YRS, 5 YRS, 10-YRS, 25YRS, AND 50-YRS

Program Package Serial Number: 2175

12/18/17 FILE: 2PRCVS INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 2 SOIL DATA FILE: C:\civild\scr_soilx_34.dat

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM DAY 4 RAIN ZONE	PCT IMPV
4650	1A	8.6	3.54	8.6	3.54	4	252.	.05000	3.50	.00	0.	297	30	A40	.01
4650	2A	4.0	1.65	12.6	5.19	4	252.	.07100	3.50	.00	0.	297	30	A40	.01
4650	3B	4.5	1.85	4.5	1.85	4	277.	.05000	3.50	.00	0.	297	30	A40	.01
4650	4B	2.3	1.60	6.8	3.44	4	70.	.05000	3.50	.00	0.	297	19	A40	.42

CONFLUENCE Q'S

4650 5A TA 1160 QA 5.19 QAB 8.59 QB 3.40 4650 5B TB 1158 QB 3.44 QBA 8.61 QA 5.17

4650 5AB TAB 1159 QAB 8.61 QA 5.18 QB 3.43

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650	5AB	6.8	3.44	19.4	8.61	4	200.	.05000	3.50	.00	0.	297	0	A40	.00
4650	6A	.9	.81	20.3	9.29	4	100.	.05000	3.50	.00	0.	297	9	A40	.01
4650	7A	4.5	1.85	24.8	11.12	4	349.	.05700	3.50	.00	0.	297	30	A40	.01
4650	8A	3.0	1.53	27.8	12.64	4	20.	.02000	2.00	.00	0.	97	30	A40	.42
4650	9A	3.1	1.59	30.9	14.22	4	50.	.05000	3.50	.00	0.	97	30	A40	.42
4650	10C	7.1	2.92	7.1	2.92	4	180.	.05000	3.50	.00	0.	297	30	A40	.01

CONFLUENCE Q'S

4650 11A TA 1158 QA 14.22 QAC 17.14 QC 2.92 4650 11C TC 1159 QC 2.92 QCA 17.11 QA 14.18

4650 11AC TAC 1158 QAC 17.14 QA 14.22 QC 2.92

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650	11AC	7.1	2.92	38.0	17.14	4	20.	.05000	3.50	.00	0.	297	0	A40	.00
4650	12A	.7	.29	38.7	17.43	4	108.	.05000	3.50	.00	0.	297	30	A40	.01
4650	13A	.4	.46	39.1	17.58	4	170.	.05000	3.50	.00	0.	297	6	A40	.01
4650	14A	2.2	1.29	41.3	18.85	4	36.	.05000	3.50	.00	0.	97	24	A40	.42
4650	15A	1.1	.73	42.4	19.55	4	110.	.05000	3.50	.00	0.	297	15	A40	.01
4650	16D	1.7	.87	1.7	.87	4	24.	.14700	2.00	.00	0.	97	30	A40	.42
4650	17D	2.7	1.38	4.4	2.25	4	166.	.14700	2.00	.00	0.	97	30	A40	.42
4650	18AD	4.4	2.25	46.8	21.78	4	114.	.08000	3.50	.00	0.	297	0	A40	.00
4650	19A	1.6	2.24	48.4	22.50	0	0.	.00000	.00	.00	0.	97	5	A40	.42
4650	20A	.0	.00	48.4	22.50	4	63.	.20000	4.00	.00	0.	97	5	A40	.01
4650	21E	12.7	5.23	12.7	5.23	0	0.	.00000	.00	.00	0.	297	30	A40	.01

CONFLUENCE Q'S

4650 22A TA 1157 QA 22.50 QAE 27.72 QE 5.22 4650 22E TE 1158 QE 5.23 QEA 27.57 QA 22.34

4650 22AE TAE 1157 QAE 27.72 QA 22.50 QE 5.22

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650	22AE	12.7	5.23	61.1	27.72	1	682.	.04600	.00	.00	0.	297	0	A40	.00
4650	23A	12.0	4.94	73.1	31.89	0	0.	.00000	.00	.00	0.	297	30	A40	.01

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 Program Package Serial Number:  2175
12/18/17   FILE: 5PRCVS   INPUT DATA: English Units  RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units     PAGE     1
                                                   LOS ANGELES COUNTY FLOOD CONTROL DISTRICT                      PROG F0601M

         Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR =  5  SOIL DATA FILE: C:\civild\scr_soilx_34.dat
                                                                                                              STORM DAY 4
                          SUBAREA  SUBAREA     TOTAL   TOTAL  CONV   CONV     CONV     CONV    CONV   CONTROL SOIL      RAIN  PCT
         LOCATION         AREA(Ac) Q(CFS)    AREA(Ac)  Q(CFS) TYPE LNGTH(Ft) SLOPE   SIZE(Ft)   Z      Q(CFS) NAME  TC  ZONE  IMPV
         4650     1A        8.6     13.00       8.6    13.00   4     252.   .05000     3.50   .00        0.   297   9   A40   .01
         4650     2A        4.0      6.05      12.6    19.05   4     252.   .07100     3.50   .00        0.   297   9   A40   .01
         4650     3B        4.5      6.80       4.5     6.80   4     277.   .05000     3.50   .00        0.   297   9   A40   .01
         4650     4B        2.3      4.06       6.8    10.83   4      70.   .05000     3.50   .00        0.   297   8   A40   .42
      ***********************************************************************************************************************
      *                                                            CONFLUENCE Q'S                                            *
      *  4650     5A  TA 1155 QA    18.91 QAB    29.67 QB    10.76    4650    5B  TB 1154 QB    10.80 QBA    29.65 QA    18.85   *
      *                                  4650    5AB TAB 1155 QAB    29.67 QA    18.91 QB    10.76                           *
      ***********************************************************************************************************************
                          SUBAREA  SUBAREA     TOTAL   TOTAL  CONV   CONV     CONV     CONV    CONV   CONTROL SOIL      RAIN  PCT
         LOCATION         AREA(Ac) Q(CFS)    AREA(Ac)  Q(CFS) TYPE LNGTH(Ft) SLOPE   SIZE(Ft)   Z      Q(CFS) NAME  TC  ZONE  IMPV
         4650     5AB       6.8     10.80      19.4    29.67   4     200.   .05000     3.50   .00        0.   297   0   A40   .00
         4650     6A         .9      1.91      20.3    31.04   4     100.   .05000     3.50   .00        0.   297   5   A40   .01
         4650     7A        4.5      7.79      24.8    38.63   4     349.   .05700     3.50   .00        0.   297   7   A40   .01
         4650     8A        3.0      4.00      27.8    42.52   4      20.   .02000     2.00   .00        0.    97  13   A40   .42
         4650     9A        3.1      3.85      30.9    46.25   4      50.   .05000     3.50   .00        0.    97  15   A40   .42
         4650    10C        7.1     13.45       7.1    13.45   4     180.   .05000     3.50   .00        0.   297   6   A40   .01
      ***********************************************************************************************************************
      *                                                            CONFLUENCE Q'S                                            *
      *  4650    11A  TA 1155 QA    46.18 QAC    58.43 QC    12.25    4650   11C  TC 1154 QC    13.42 QCA    58.24 QA    44.82   *
      *                                  4650   11AC TAC 1155 QAC    58.43 QA    46.18 QC    12.25                           *
      ***********************************************************************************************************************
                          SUBAREA  SUBAREA     TOTAL   TOTAL  CONV   CONV     CONV     CONV    CONV   CONTROL SOIL      RAIN  PCT
         LOCATION         AREA(Ac) Q(CFS)    AREA(Ac)  Q(CFS) TYPE LNGTH(Ft) SLOPE   SIZE(Ft)   Z      Q(CFS) NAME  TC  ZONE  IMPV
         4650    11AC       7.1     13.42      38.0    58.43   4      20.   .05000     3.50   .00        0.   297   0   A40   .00
         4650    12A         .7      1.49      38.7    59.50   4     108.   .05000     3.50   .00        0.   297   5   A40   .01
         4650    13A         .4       .69      39.1    60.17   4     170.   .05000     3.50   .00        0.   297   7   A40   .01
         4650    14A        2.2      3.39      41.3    63.46   4      36.   .05000     3.50   .00        0.    97  10   A40   .42
         4650    15A        1.1      2.33      42.4    65.10   4     110.   .05000     3.50   .00        0.   297   5   A40   .01
         4650    16D        1.7      1.97       1.7     1.97   4      24.   .14700     2.00   .00        0.    97  17   A40   .42
         4650    17D        2.7      2.94       4.4     4.91   4     166.   .14700     2.00   .00        0.    97  19   A40   .42
         4650    18AD       4.4      4.90      46.8    69.91   4     114.   .08000     3.50   .00        0.   297   0   A40   .00
         4650    19A        1.6      2.94      48.4    72.68   0       0.   .00000      .00   .00        0.    97   7   A40   .42
         4650    20A         .0       .00      48.4    72.68   4      63.   .20000    48.00   .00        0.    97   5   A40   .01
         4650    21E       12.7     13.31      12.7    13.31   0       0.   .00000      .00   .00        0.   297  17   A40   .01
      ***********************************************************************************************************************
      *                                                            CONFLUENCE Q'S                                            *
      *  4650    22A  TA 1155 QA    72.67 QAE    85.98 QE    13.31    4650   22E  TE 1155 QE    13.31 QEA    85.98 QA    72.67   *
      *                                  4650   22AE TAE 1155 QAE    85.98 QA    72.67 QE    13.31                           *
      ***********************************************************************************************************************
                          SUBAREA  SUBAREA     TOTAL   TOTAL  CONV   CONV     CONV     CONV    CONV   CONTROL SOIL      RAIN  PCT
         LOCATION         AREA(Ac) Q(CFS)    AREA(Ac)  Q(CFS) TYPE LNGTH(Ft) SLOPE   SIZE(Ft)   Z      Q(CFS) NAME  TC  ZONE  IMPV
         4650    22AE      12.7     13.31      61.1    85.98   1     682.   .04600      .00   .00        0.   297   0   A40   .00
         4650    23A       12.0     14.72      73.1    95.39   0       0.   .00000      .00   .00        0.   297  13   A40   .01
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Program Package Serial Number: 2175
12/18/17 FILE: 10PRCV INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 10 SOIL DATA FILE: C:\civild\scr_soilx_34.dat
STORM DAY 4

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650	1A	8.6	20.64	8.6	20.64	4	252.	.05000	3.50	.00	0.	297	6	A40	.01
4650	2A	4.0	9.60	12.6	30.16	4	252.	.07100	3.50	.00	0.	297	6	A40	.01
4650	3B	4.5	10.80	4.5	10.80	4	277.	.05000	3.50	.00	0.	297	6	A40	.01
4650	4B	2.3	5.89	6.8	16.65	4	70.	.05000	3.50	.00	0.	297	6	A40	.42

CONFLUENCE Q'S

4650 5A TA 1154 QA 29.98 QAB 46.59 QB 16.61 4650 5B TB 1154 QB 16.61 QBA 46.59 QA 29.98

4650 5AB TAB 1154 QAB 46.59 QA 29.98 QB 16.61

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650	5AB	6.8	16.61	19.4	46.59	4	200.	.05000	3.50	.00	0.	297	0	A40	.00
4650	6A	.9	2.41	20.3	48.11	4	100.	.05000	3.50	.00	0.	297	5	A40	.01
4650	7A	4.5	12.05	24.8	58.30	4	349.	.05700	3.50	.00	0.	297	5	A40	.01
4650	8A	3.0	6.08	27.8	63.50	4	20.	.02000	2.00	.00	0.	97	9	A40	.42
4650	9A	3.1	5.68	30.9	69.08	4	50.	.05000	3.50	.00	0.	97	11	A40	.42
4650	10C	7.1	19.01	7.1	19.01	4	180.	.05000	3.50	.00	0.	297	5	A40	.01

CONFLUENCE Q'S

4650 11A TA 1154 QA 68.93 QAC 86.49 QC 17.56 4650 11C TC 1153 QC 18.29 QCA 81.92 QA 63.63

4650 11AC TAC 1154 QAC 86.49 QA 68.93 QC 17.56

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650	11AC	7.1	18.29	38.0	86.49	4	20.	.05000	3.50	.00	0.	297	0	A40	.00
4650	12A	.7	1.87	38.7	88.08	4	108.	.05000	3.50	.00	0.	297	5	A40	.01
4650	13A	.4	1.07	39.1	88.73	4	170.	.05000	3.50	.00	0.	297	5	A40	.01
4650	14A	2.2	5.05	41.3	93.01	4	36.	.05000	3.50	.00	0.	97	7	A40	.42
4650	15A	1.1	2.95	42.4	95.40	4	110.	.05000	3.50	.00	0.	297	5	A40	.01
4650	16D	1.7	2.97	1.7	2.97	4	24.	.14700	2.00	.00	0.	97	12	A40	.42
4650	17D	2.7	4.53	4.4	7.50	4	166.	.14700	2.00	.00	0.	97	13	A40	.42
4650	18AD	4.4	7.50	46.8	102.30	4	114.	.08000	3.50	.00	0.	297	0	A40	.00
4650	19A	1.6	4.44	48.4	105.55	0	0.	.00000	.00	.00	0.	97	5	A40	.42
4650	20A	.0	.00	48.4	105.55	4	63.	.20000	4.00	.00	0.	97	5	A40	.01
4650	21E	12.7	20.88	12.7	20.88	0	0.	.00000	.00	.00	0.	297	12	A40	.01

CONFLUENCE Q'S

4650 22A TA 1154 QA 105.36 QAE 126.24 QE 20.88 4650 22E TE 1154 QE 20.88 QEA 126.24 QA 105.36

4650 22AE TAE 1154 QAE 126.24 QA 105.36 QE 20.88

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650	22AE	12.7	20.88	61.1	126.24	1	682.	.04600	.00	.00	0.	297	0	A40	.00
4650	23A	12.0	23.07	73.1	141.21	0	0.	.00000	.00	.00	0.	297	9	A40	.01

Program Package Serial Number: 2175
12/18/17 FILE: 25PRCV INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 25 SOIL DATA FILE: C:\civild\scr_soilx_34.dat
STORM DAY 4

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650	1A	8.6	29.11	8.6	29.11	4	252.	.05000	3.50	.00	0.	297	5	A40	.01
4650	2A	4.0	13.54	12.6	41.30	4	252.	.07100	3.50	.00	0.	297	5	A40	.01
4650	3B	4.5	15.23	4.5	15.23	4	277.	.05000	3.50	.00	0.	297	5	A40	.01
4650	4B	2.3	8.16	6.8	22.45	4	70.	.05000	3.50	.00	0.	297	5	A40	.42

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*                                            CONFLUENCE Q'S                                        *
*   4650    5A  TA 1154 QA    40.03 QAB    61.80 QB    21.77    4650    5B  TB 1153 QB    22.11 QBA    61.81 QA    39.71   *
*                             4650    5AB TAB 1153 QAB    61.81 QA    39.71 QB    22.11             *
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LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650	5AB	6.8	22.11	19.4	61.81	4	200.	.05000	3.50	.00	0.	297	0	A40	.00
4650	6A	.9	3.05	20.3	64.47	4	100.	.05000	3.50	.00	0.	297	5	A40	.01
4650	7A	4.5	15.23	24.8	77.72	4	349.	.05700	3.50	.00	0.	297	5	A40	.01
4650	8A	3.0	8.63	27.8	86.21	4	20.	.02000	2.00	.00	0.	97	7	A40	.42
4650	9A	3.1	8.34	30.9	94.50	4	50.	.05000	3.50	.00	0.	97	8	A40	.42
4650	10C	7.1	24.03	7.1	24.03	4	180.	.05000	3.50	.00	0.	297	5	A40	.01

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****************************************************************************************************
*                                            CONFLUENCE Q'S                                        *
*   4650   11A  TA 1154 QA    94.36 QAC   116.59 QC    22.23    4650   11C  TC 1153 QC    23.16 QCA   111.92 QA    88.77   *
*                             4650   11AC TAC 1154 QAC   116.59 QA    94.36 QC    22.23             *
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LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650	11AC	7.1	23.16	38.0	116.59	4	20.	.05000	3.50	.00	0.	297	0	A40	.00
4650	12A	.7	2.37	38.7	118.61	4	108.	.05000	3.50	.00	0.	297	5	A40	.01
4650	13A	.4	1.35	39.1	119.53	4	170.	.05000	3.50	.00	0.	297	5	A40	.01
4650	14A	2.2	7.63	41.3	125.64	4	36.	.05000	3.50	.00	0.	97	5	A40	.42
4650	15A	1.1	3.72	42.4	128.77	4	110.	.05000	3.50	.00	0.	297	5	A40	.01
4650	16D	1.7	4.58	1.7	4.58	4	24.	.14700	2.00	.00	0.	97	8	A40	.42
4650	17D	2.7	6.88	4.4	11.45	4	166.	.14700	2.00	.00	0.	97	9	A40	.42
4650	18AD	4.4	11.45	46.8	139.77	4	114.	.08000	3.50	.00	0.	297	0	A40	.00
4650	19A	1.6	5.55	48.4	144.10	0	0.	.00000	.00	.00	0.	97	5	A40	.42
4650	20A	.0	.00	48.4	144.10	4	63.	.20000	4.00	.00	0.	97	5	A40	.01
4650	21E	12.7	32.97	12.7	32.97	0	0.	.00000	.00	.00	0.	297	8	A40	.01

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****************************************************************************************************
*                                            CONFLUENCE Q'S                                        *
*   4650   22A  TA 1154 QA   143.89 QAE   176.86 QE    32.97    4650   22E  TE 1153 QE    32.97 QEA   166.37 QA   133.40   *
*                             4650   22AE TAE 1154 QAE   176.86 QA   143.89 QE    32.97             *
****************************************************************************************************
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LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650	22AE	12.7	32.97	61.1	176.86	1	682.	.04600	.00	.00	0.	297	0	A40	.00
4650	23A	12.0	40.62	73.1	189.26	0	0.	.00000	.00	.00	0.	297	5	A40	.01

Program Package Serial Number: 2175
01/08/18 FILE: 50PRCV INPUT DATA: English Units RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units PAGE 1
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT PROG F0601M

Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50 SOIL DATA FILE: C:\civild\scr_soilx_34.dat

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	STORM DAY 4 RAIN ZONE	PCT IMPV
4650	1A	8.6	33.67	8.6	33.67	4	252.	.05000	3.50	.00	0.	297	5	A40	.01
4650	2A	4.0	15.66	12.6	47.84	4	252.	.07100	3.50	.00	0.	297	5	A40	.01
4650	3B	4.5	17.62	4.5	17.62	4	277.	.05000	3.50	.00	0.	297	5	A40	.01
4650	4B	2.3	9.18	6.8	25.79	4	70.	.05000	3.50	.00	0.	97	5	A40	.42

* CONFLUENCE Q'S *
* 4650 5A TA 1154 QA 46.31 QAB 71.22 QB 24.91 4650 5B TB 1153 QB 25.43 QBA 71.49 QA 46.06 *
* 4650 5AB TAB 1153 QAB 71.49 QA 46.06 QB 25.43 *

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650	5AB	6.8	25.43	19.4	71.49	4	200.	.05000	3.50	.00	0.	297	0	A40	.00
4650	6A	.9	3.52	20.3	74.34	4	100.	.05000	3.50	.00	0.	297	5	A40	.01
4650	7A	4.5	17.62	24.8	89.71	4	349.	.05700	3.50	.00	0.	297	5	A40	.01
4650	8A	3.0	9.94	27.8	99.55	4	20.	.02000	2.00	.00	0.	97	7	A40	.42
4650	9A	3.1	11.16	30.9	110.63	4	50.	.05000	3.50	.00	0.	97	6	A40	.42
4650	10C	7.1	27.79	7.1	27.79	4	180.	.05000	3.50	.00	0.	297	5	A40	.01

* CONFLUENCE Q'S *
* 4650 11A TA 1154 QA 110.49 QAC 136.14 QC 25.65 4650 11C TC 1153 QC 26.88 QCA 131.51 QA 104.63 *
* 4650 11AC TAC 1154 QAC 136.14 QA 110.49 QC 25.65 *

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650	11AC	7.1	26.88	38.0	136.14	4	20.	.05000	3.50	.00	0.	297	0	A40	.00
4650	12A	.7	2.74	38.7	138.50	4	108.	.05000	3.50	.00	0.	297	5	A40	.01
4650	13A	.4	1.57	39.1	139.61	4	170.	.05000	3.50	.00	0.	297	5	A40	.01
4650	14A	2.2	8.78	41.3	146.80	4	36.	.05000	3.50	.00	0.	97	5	A40	.42
4650	15A	1.1	4.31	42.4	150.43	4	110.	.05000	3.50	.00	0.	297	5	A40	.01
4650	16D	1.7	5.63	1.7	5.63	4	24.	.14700	2.00	.00	0.	97	7	A40	.42
4650	17D	2.7	8.37	4.4	14.01	4	166.	.14700	2.00	.00	0.	97	8	A40	.42
4650	18AD	4.4	14.00	46.8	163.97	4	114.	.08000	3.50	.00	0.	297	0	A40	.00
4650	19A	1.6	6.03	48.4	168.67	0	0.	.00000	.00	.00	0.	97	5	A40	.01
4650	20A	.0	.00	48.4	168.67	4	63.	.20000	4.00	.00	0.	97	5	A40	.01
4650	21E	12.7	41.00	12.7	41.00	0	0.	.00000	.00	.00	0.	297	7	A40	.01

* CONFLUENCE Q'S *
* 4650 22A TA 1154 QA 168.48 QAE 209.48 QE 41.00 4650 22E TE 1153 QE 41.00 QEA 197.84 QA 156.83 *
* 4650 22AE TAE 1154 QAE 209.48 QA 168.48 QE 41.00 *

LOCATION		SUBAREA AREA(Ac)	SUBAREA Q(CFS)	TOTAL AREA(Ac)	TOTAL Q(CFS)	CONV TYPE	CONV LNGTH(Ft)	CONV SLOPE	CONV SIZE(Ft)	CONV Z	CONTROL Q(CFS)	SOIL NAME	TC	RAIN ZONE	PCT IMPV
4650	22AE	12.7	41.00	61.1	209.48	1	682.	.04600	.00	.00	0.	297	0	A40	.00
4650	23A	12.0	46.98	73.1	225.84	0	0.	.00000	.00	.00	0.	297	5	A40	.01

SECTION 3
DISCHARGE ANALYSIS FOR 2-YRS,5-YRS,10YRS, 25-YRS, AND 50YRS_PROPOSED AND EXISTING CONDITION

COMPARISON TABLE FOR EXISTING AND PROPOSED CONDITION

Tract No. 74650 - Discharge Flow Rate for Existing and Proposed Condition

Existing Condition @ Sub-Area 7A		Proposed Condition @ Sub-Area 20A	
Frequency	Flow Rate (cfs)	Frequency	Flow Rate (cfs)
2yrs	19.8	2yrs	14.04
5yrs	50.23	5yrs	48.34
10yrs	75.2	10yrs	62.16
25yrs	112.87	25yrs	70.31
50yrs	143.39	50yrs	75.33

PROPOSED CONDITION HYDROGRAPH INPUT DATA FOR 2-yrs, 5-yrs.10-yrs, 25-yrs, and 50-yrs

HYDROGRAPH INPUT DATA FOR 2-yrs

```
7  4650   20A    48.4 431157    22.5200  4
8  5   0.       .0 100.       .5 200.       .6 300.       .6 400.       .7
8 10 500.       .9 600.      1.0 700.      1.2 800.      1.3 900.      1.6
8 151000.      2.01050.      2.51100.      3.21110.      3.51120.      3.9
8 201130.      5.11131.      5.21132.      5.41133.      5.61134.      5.8
8 251135.      6.01136.      6.21137.      6.41138.      6.71139.      7.0
8 301140.      7.21141.      7.61142.      7.91143.      8.31144.      8.7
8 351145.      9.11146.      9.71147.     10.21148.     10.81149.     11.9
8 401150.     13.41151.     15.21152.     17.31153.     19.51154.     21.0
8 451155.     22.01156.     22.41157.     22.51158.     22.31159.     22.2
8 501160.     22.01161.     21.81162.     21.61163.     21.31164.     20.9
8 551165.     20.61166.     20.21167.     19.81168.     19.41169.     19.0
8 601170.     18.51171.     18.01172.     17.51173.     16.91174.     16.3
8 651175.     15.61176.     15.01177.     14.31178.     13.61179.     12.9
8 701180.     11.91181.     10.71182.      9.51183.      8.21184.      6.9
8 751185.      5.81186.      5.11187.      4.51188.      4.01189.      3.6
8 801190.      3.41191.      3.21192.      3.11193.      3.01194.      2.9
8 851195.      2.91196.      2.81197.      2.81198.      2.71199.      2.6
8 901200.      2.61201.      2.61202.      2.51203.      2.51204.      2.4
8 951205.      2.41206.      2.41207.      2.31208.      2.31209.      2.3
81001210.      2.21211.      2.21212.      2.21213.      2.21214.      2.1
81051215.      2.11216.      2.11217.      2.11218.      2.11219.      2.0
81101220.      2.01221.      2.01222.      2.01223.      2.01224.      1.9
81151225.      1.91226.      1.91227.      1.91228.      1.91229.      1.9
81201230.      1.81231.      1.81232.      1.81233.      1.81234.      1.8
81251235.      1.81236.      1.81237.      1.71238.      1.71239.      1.6
81301240.      1.61241.      1.61242.      1.61243.      1.61244.      1.6
81351245.      1.61246.      1.61247.      1.51248.      1.51249.      1.5
81401250.      1.51251.      1.51252.      1.51253.      1.51254.      1.4
81451255.      1.41256.      1.41257.      1.41258.      1.41259.      1.4
81501260.      1.31261.      1.31262.      1.31263.      1.31264.      1.3
81551265.      1.31266.      1.31267.      1.31268.      1.31269.      1.3
81601270.      1.31271.      1.31272.      1.31273.      1.31274.      1.3
81651275.      1.21276.      1.21277.      1.21278.      1.21279.      1.2
81701280.      1.21281.      1.21282.      1.21283.      1.21284.      1.2
81751285.      1.21286.      1.21287.      1.21288.      1.21289.      1.2
81801290.      1.21291.      1.21292.      1.21293.      1.21294.      1.2
81851295.      1.21296.      1.11297.      1.11298.      1.11299.      1.1
81901300.      1.11310.      1.11320.      1.11330.      1.01340.       .9
81951350.       .91360.       .81370.       .81380.       .71390.       .6
82001400.       .61420.       .61440.       .61460.       .51500.       .5
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HYDROGRAPH INPUT DATA FOR 5-yrs

```
7  4650   20A    48.4 411155    72.6200  4
8  5   0.       .0 100.     1.2 200.     1.3 300.     1.3 400.     1.4
8 10 500.     1.6 600.     1.8 700.     2.0 800.     2.2 900.     2.5
8 151000.     3.11050.     3.81100.     5.91110.     8.31120.    10.9
8 201130.    13.61131.    13.91132.    14.31133.    14.71134.    15.2
8 251135.    15.71136.    16.21137.    16.81138.    17.51139.    18.2
8 301140.    18.91141.    19.71142.    20.61143.    21.61144.    22.7
8 351145.    24.01146.    25.51147.    27.21148.    29.11149.    32.5
8 401150.    38.31151.    46.01152.    54.61153.    63.71154.    70.4
8 451155.    72.61156.    71.01157.    66.81158.    61.21159.    54.9
8 501160.    48.11161.    41.91162.    36.21163.    31.01164.    26.6
8 551165.    22.71166.    19.51167.    17.01168.    14.91169.    13.1
8 601170.    11.81171.    10.61172.     9.71173.     8.91174.     8.2
8 651175.     7.71176.     7.21177.     6.81178.     6.41179.     6.0
8 701180.     5.81181.     5.51182.     5.21183.     5.01184.     4.7
8 751185.     4.61186.     4.41187.     4.31188.     4.11189.     4.0
8 801190.     3.91191.     3.91192.     3.81193.     3.71194.     3.7
8 851195.     3.61196.     3.61197.     3.51198.     3.51199.     3.4
8 901200.     3.41201.     3.41202.     3.31203.     3.31204.     3.3
8 951205.     3.21206.     3.21207.     3.21208.     3.11209.     3.1
81001210.     3.11211.     3.01212.     3.01213.     3.01214.     3.0
81051215.     2.91216.     2.91217.     2.91218.     2.91219.     2.9
81101220.     2.81221.     2.81222.     2.81223.     2.81224.     2.7
81151225.     2.71226.     2.71227.     2.71228.     2.71229.     2.6
81201230.     2.61231.     2.61232.     2.61233.     2.61234.     2.5
81251235.     2.51236.     2.51237.     2.51238.     2.51239.     2.5
81301240.     2.51241.     2.41242.     2.41243.     2.41244.     2.4
81351245.     2.41246.     2.41247.     2.41248.     2.41249.     2.3
81401250.     2.31251.     2.31252.     2.31253.     2.31254.     2.3
81451255.     2.31256.     2.31257.     2.21258.     2.21259.     2.2
81501260.     2.21261.     2.21262.     2.21263.     2.21264.     2.2
81551265.     2.21266.     2.11267.     2.11268.     2.11269.     2.1
81601270.     2.11271.     2.11272.     2.11273.     2.11274.     2.1
81651275.     2.11276.     2.11277.     2.11278.     2.01279.     2.0
81701280.     2.01281.     2.01282.     2.01283.     2.01284.     2.0
81751285.     2.01286.     2.01287.     2.01288.     2.01289.     2.0
81801290.     1.91291.     1.91292.     1.91293.     1.91294.     1.9
81851295.     1.91296.     1.91297.     1.91298.     1.91299.     1.9
81901300.     1.91310.     1.81320.     1.81330.     1.71340.     1.6
81951350.     1.51360.     1.51370.     1.41380.     1.31390.     1.3
82001400.     1.31420.     1.21440.     1.21460.     1.11500.     1.1
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HYDROGRAPH INPUT DATA FOR 10-yrs

```
7  4650   20A    48.4 401154   105.6200  4
8  5   0.       .0 100.      1.6 200.      1.6 300.      1.8 400.      1.9
8 10 500.      2.1 600.      2.2 700.      2.4 800.      2.7 900.      3.1
8 151000.      3.71050.      5.41100.      8.91110.     12.11120.     15.4
8 201130.     18.51131.     19.01132.     19.51133.     20.11134.     20.8
8 251135.     21.61136.     22.51137.     23.41138.     24.41139.     25.4
8 301140.     26.41141.     27.51142.     28.81143.     30.21144.     31.7
8 351145.     33.61146.     35.91147.     38.51148.     41.11149.     46.3
8 401150.     55.71151.     68.21152.     82.41153.     97.01154.    105.6
8 451155.    105.11156.     98.01157.     86.61158.     72.81159.     59.9
8 501160.     49.21161.     40.31162.     33.21163.     27.71164.     23.5
8 551165.     20.31166.     18.01167.     16.31168.     15.01169.     13.9
8 601170.     13.01171.     12.31172.     11.71173.     11.11174.     10.5
8 651175.     10.01176.      9.51177.      9.11178.      8.71179.      8.4
8 701180.      8.01181.      7.71182.      7.41183.      7.21184.      6.9
8 751185.      6.71186.      6.41187.      6.21188.      6.01189.      5.7
8 801190.      5.51191.      5.31192.      5.21193.      5.01194.      4.8
8 851195.      4.71196.      4.51197.      4.41198.      4.31199.      4.2
8 901200.      4.11201.      4.11202.      4.01203.      4.01204.      3.9
8 951205.      3.91206.      3.81207.      3.81208.      3.81209.      3.7
81001210.      3.71211.      3.71212.      3.61213.      3.61214.      3.6
81051215.      3.61216.      3.51217.      3.51218.      3.51219.      3.4
81101220.      3.41221.      3.41222.      3.41223.      3.31224.      3.3
81151225.      3.31226.      3.21227.      3.21228.      3.21229.      3.2
81201230.      3.21231.      3.11232.      3.11233.      3.11234.      3.1
81251235.      3.11236.      3.01237.      3.01238.      3.01239.      3.0
81301240.      3.01241.      3.01242.      3.01243.      2.91244.      2.9
81351245.      2.91246.      2.91247.      2.91248.      2.91249.      2.8
81401250.      2.81251.      2.81252.      2.81253.      2.81254.      2.8
81451255.      2.71256.      2.71257.      2.71258.      2.71259.      2.7
81501260.      2.71261.      2.71262.      2.71263.      2.61264.      2.6
81551265.      2.61266.      2.61267.      2.61268.      2.61269.      2.6
81601270.      2.61271.      2.61272.      2.61273.      2.51274.      2.5
81651275.      2.51276.      2.51277.      2.51278.      2.51279.      2.5
81701280.      2.51281.      2.41282.      2.41283.      2.41284.      2.4
81751285.      2.41286.      2.41287.      2.41288.      2.41289.      2.4
81801290.      2.41291.      2.41292.      2.41293.      2.41294.      2.4
81851295.      2.31296.      2.31297.      2.31298.      2.31299.      2.3
81901300.      2.31310.      2.21320.      2.21330.      2.11340.      2.0
81951350.      2.01360.      2.01370.      1.91380.      1.91390.      1.8
82001400.      1.81420.      1.71440.      1.71460.      1.51500.      1.5
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HYDROGRAPH INPUT DATA FOR 25-yrs

```
7  4650   20A    48.4 401154   144.1200  4
8  5   0.       .0 100.      2.1 200.      2.1 300.      2.3 400.      2.4
8 10 500.      2.5 600.      2.7 700.      3.0 800.      3.3 900.      3.8
8 151000.      5.41050.      8.31100.     12.81110.     16.91120.     20.8
8 201130.     24.91131.     25.61132.     26.21133.     27.01134.     28.0
8 251135.     29.21136.     30.51137.     31.91138.     33.21139.     34.5
8 301140.     35.71141.     37.21142.     38.91143.     40.81144.     42.7
8 351145.     45.21146.     48.31147.     51.71148.     55.31149.     62.9
8 401150.     76.71151.     94.51152.    114.21153.    134.11154.    144.1
8 451155.    140.01156.    126.31157.    106.81158.     85.11159.     66.0
8 501160.     51.31161.     40.51162.     33.21163.     28.81164.     25.9
8 551165.     23.61166.     21.81167.     20.31168.     19.01169.     17.9
8 601170.     16.91171.     16.11172.     15.31173.     14.61174.     13.9
8 651175.     13.41176.     12.91177.     12.41178.     12.01179.     11.6
8 701180.     11.21181.     10.91182.     10.51183.     10.21184.      9.9
8 751185.      9.61186.      9.41187.      9.11188.      8.81189.      8.5
8 801190.      8.31191.      8.11192.      7.91193.      7.61194.      7.4
8 851195.      7.31196.      7.11197.      6.91198.      6.81199.      6.6
8 901200.      6.41201.      6.31202.      6.21203.      6.01204.      5.9
8 951205.      5.81206.      5.61207.      5.51208.      5.41209.      5.2
81001210.      5.11211.      5.01212.      4.91213.      4.91214.      4.8
81051215.      4.71216.      4.61217.      4.51218.      4.41219.      4.3
81101220.      4.21221.      4.21222.      4.11223.      4.11224.      4.0
81151225.      4.01226.      4.01227.      3.91228.      3.91229.      3.9
81201230.      3.91231.      3.91232.      3.81233.      3.81234.      3.8
81251235.      3.71236.      3.71237.      3.71238.      3.71239.      3.7
81301240.      3.71241.      3.61242.      3.61243.      3.61244.      3.6
81351245.      3.61246.      3.51247.      3.51248.      3.51249.      3.5
81401250.      3.51251.      3.41252.      3.41253.      3.41254.      3.4
81451255.      3.41256.      3.31257.      3.31258.      3.31259.      3.3
81501260.      3.31261.      3.31262.      3.31263.      3.21264.      3.2
81551265.      3.21266.      3.21267.      3.21268.      3.21269.      3.2
81601270.      3.21271.      3.21272.      3.11273.      3.11274.      3.1
81651275.      3.11276.      3.11277.      3.11278.      3.01279.      3.0
81701280.      3.01281.      3.01282.      3.01283.      3.01284.      3.0
81751285.      3.01286.      3.01287.      3.01288.      2.91289.      2.9
81801290.      2.91291.      2.91292.      2.91293.      2.91294.      2.9
81851295.      2.91296.      2.91297.      2.81298.      2.81299.      2.8
81901300.      2.81310.      2.71320.      2.71330.      2.61340.      2.5
81951350.      2.51360.      2.41370.      2.31380.      2.31390.      2.2
82001400.      2.21420.      2.11440.      2.11460.      2.01500.      2.0
```

HYDROGRAPH INPUT DATA FOR 50-yrs

```
7  4650   20A    48.4 401154   168.7200  4
8  5   0.       .0 100.      2.2 200.     2.3 300.     2.5 400.     2.6
8 10 500.      2.8 600.      3.0 700.     3.2 800.     3.6 900.     4.4
8 151000.     6.91050.     10.31100.    15.41110.    20.11120.    24.7
8 201130.    29.41131.     30.31132.    31.01133.    32.01134.    33.2
8 251135.    34.71136.     36.21137.    37.81138.    39.31139.    40.8
8 301140.    42.11141.     43.71142.    45.71143.    47.91144.    50.2
8 351145.    53.21146.     57.01147.    60.91148.    65.11149.    74.2
8 401150.    90.91151.    111.91152.   134.61153.   157.71154.   168.7
8 451155.   162.91156.    145.11157.   120.71158.    94.91159.    72.3
8 501160.    55.51161.     44.21162.    37.21163.    32.91164.    29.7
8 551165.    27.41166.     25.41167.    23.71168.    22.21169.    20.9
8 601170.    19.81171.     18.91172.    18.11173.    17.31174.    16.6
8 651175.    15.91176.     15.31177.    14.91178.    14.41179.    13.9
8 701180.    13.51181.     13.11182.    12.71183.    12.31184.    12.0
8 751185.    11.71186.     11.41187.    11.11188.    10.81189.    10.4
8 801190.    10.11191.      9.91192.     9.71193.     9.41194.     9.2
8 851195.     9.01196.      8.81197.     8.61198.     8.41199.     8.2
8 901200.     8.01201.      7.91202.     7.81203.     7.61204.     7.5
8 951205.     7.41206.      7.21207.     7.01208.     6.91209.     6.7
81001210.     6.61211.      6.51212.     6.41213.     6.31214.     6.2
81051215.     6.11216.      6.01217.     5.91218.     5.81219.     5.6
81101220.     5.61221.      5.51222.     5.31223.     5.31224.     5.1
81151225.     5.01226.      4.91227.     4.81228.     4.81229.     4.7
81201230.     4.71231.      4.61232.     4.51233.     4.41234.     4.3
81251235.     4.21236.      4.21237.     4.11238.     4.11239.     4.0
81301240.     4.01241.      4.01242.     4.01243.     4.01244.     3.9
81351245.     3.91246.      3.91247.     3.81248.     3.81249.     3.8
81401250.     3.81251.      3.71252.     3.71253.     3.71254.     3.7
81451255.     3.61256.      3.61257.     3.61258.     3.61259.     3.6
81501260.     3.61261.      3.51262.     3.51263.     3.51264.     3.5
81551265.     3.51266.      3.51267.     3.51268.     3.41269.     3.4
81601270.     3.41271.      3.41272.     3.41273.     3.41274.     3.4
81651275.     3.31276.      3.31277.     3.31278.     3.31279.     3.3
81701280.     3.31281.      3.31282.     3.31283.     3.31284.     3.2
81751285.     3.21286.      3.21287.     3.21288.     3.21289.     3.2
81801290.     3.21291.      3.11292.     3.21293.     3.21294.     3.1
81851295.     3.11296.      3.11297.     3.11298.     3.11299.     3.0
81901300.     3.01310.      3.01320.     2.91330.     2.81340.     2.7
81951350.     2.71360.      2.61370.     2.51380.     2.51390.     2.4
82001400.     2.41420.      2.31440.     2.21460.     2.21500.     2.2
```

PROPOSED CONDITION
RETAR PROGRAM
OUTPUT DATA FOR
2-yrs, 5-yrs.10-yrs, 25-yrs, and 50-yrs
@ SUB-AREA "20A"

PROPOSED CONDITION
RETAR PROGRAM
OUTPUT DATA FOR
2-yrs
@ SUB-AREA "20A"

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1997-2004 Version 6.4

Study Date : 08/15/18 Input hydrograph file name : 2prcvs.hyd
Output hydrograph file name: proposed2yrhyd.hin

Program computation of outflow v. depth

****
CALCULATED OUTFLOW DATA AT DEPTH = 1.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 2.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 3.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 4.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 5.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 6.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

```
************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    7.00(Ft.)
************************************************************
Pipe length  =     1.00(Ft.)   Elevation difference =   0.10(Ft.)
Manning's N = 0.013   No. of pipes = 1
Given pipe size =     48.00(In.)
Calculated individual pipe flow  =    11.750(CFS)
Normal flow depth in pipe =    5.31(In.)
Flow top width inside pipe =   30.12(In.)
Critical depth could not be calculated.
Calculated flow rate through pipe(s) =     11.750(CFS)

Total outflow at this depth =     11.75(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    8.00(Ft.)
************************************************************
Pipe length  =     1.00(Ft.)   Elevation difference =   0.10(Ft.)
Manning's N = 0.013   No. of pipes = 1
Given pipe size =     48.00(In.)
Calculated individual pipe flow  =    44.725(CFS)
Normal flow depth in pipe =   10.17(In.)
Flow top width inside pipe =   39.23(In.)
Critical Depth =    2.00(Ft.)
Calculated flow rate through pipe(s) =     44.725(CFS)

Total outflow at this depth =     44.72(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    9.00(Ft.)
************************************************************
Pipe length  =     1.00(Ft.)   Elevation difference =   0.10(Ft.)
Manning's N = 0.013   No. of pipes = 1
Given pipe size =     48.00(In.)
Calculated individual pipe flow  =    98.088(CFS)
Normal flow depth in pipe =   15.15(In.)
Flow top width inside pipe =   44.62(In.)
Critical Depth =    3.00(Ft.)
Calculated flow rate through pipe(s) =     98.088(CFS)

Total outflow at this depth =     98.09(CFS)


************************************************************
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CALCULATED OUTFLOW DATA AT DEPTH = 10.00(Ft.)

****

Pipe length = 1.00(Ft.) Elevation difference = 0.10(Ft.)
Manning's N = 0.013 No. of pipes = 1
Given pipe size = 48.00(In.)
NOTE: Assuming free outlet flow.
NOTE: Normal flow is pressure flow.
The total friction loss through the pipe is 4.100(Ft.)
Pipe friction loss = 0.013(Ft.)
Minor friction loss = 4.084(Ft.) K-factor = 1.50
Maximum capacity of pipe(s) = 0.00(CFS)
Calculated flow rate through pipe(s) = 166.399(CFS)

Total outflow at this depth = 166.40(CFS)

Hydrograph time unit varies
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data @ 1 Min. Intervals:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.240	0.000	0.240	0.240
2.000	0.520	0.000	0.520	0.520
3.000	0.830	0.000	0.830	0.830
4.000	1.170	0.000	1.170	1.170
5.000	1.550	0.000	1.550	1.550
6.000	1.970	0.000	1.970	1.970
7.000	2.430	11.750	2.422	2.438
8.000	2.930	44.725	2.899	2.961
9.000	3.470	98.088	3.402	3.538
10.000	4.050	166.399	3.935	4.165

Hydrograph Detention Basin Routing
Hydrograph at 4650 20 A Storm Day: 4 Drainage Area = 48.40
Total flood hydrograph volume this storm day = 3.34 Ac. Ft.

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Min)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 5.6 11.3 16.9 22.5	Depth (Ft.)
0	0.0	0.0	0.000	O	0.0
100	0.5	0.0	0.035	O	0.1
200	0.6	0.0	0.111	O	0.5
300	0.6	0.0	0.193	O	0.8
400	0.7	0.0	0.283	O	1.2
500	0.9	0.0	0.393	OI	1.5
600	1.0	0.0	0.524	OI	2.0
700	1.2	0.0	0.676	OI	2.5
800	1.3	0.0	0.848	OI	3.1
900	1.6	0.0	1.048	O I	3.6
1000	2.0	0.0	1.296	O I	4.3
1050	2.5	0.0	1.451	O I	4.7
1100	3.2	0.0	1.648	O I	5.2
1110	3.5	0.0	1.695	O I	5.3
1120	3.9	0.0	1.746	O I	5.5
1130	5.1	0.0	1.809	O I	5.6
1131	5.2	0.0	1.816	O I	5.6
1132	5.4	0.0	1.823	O I	5.7
1133	5.6	0.0	1.831	O I	5.7
1134	5.8	0.0	1.839	O I	5.7
1135	6.0	0.0	1.847	O I	5.7
1136	6.2	0.0	1.856	O I	5.7
1137	6.4	0.0	1.865	O I	5.7
1138	6.7	0.0	1.874	O I	5.8
1139	7.0	0.0	1.883	O I	5.8
1140	7.2	0.0	1.893	O I	5.8
1141	7.6	0.0	1.904	O I	5.8
1142	7.9	0.0	1.915	O I	5.9
1143	8.3	0.0	1.926	O I	5.9
1144	8.7	0.0	1.938	O I	5.9
1145	9.1	0.0	1.951	O I	6.0
1146	9.7	0.0	1.964	O I	6.0
1147	10.2	0.2	1.978	O I	6.0
1148	10.8	0.6	1.992	O I	6.0
1149	11.9	1.0	2.008	O I	6.1
1150	13.4	1.4	2.024	O I	6.1
1151	15.2	1.9	2.043	O I	6.2
1152	17.3	2.4	2.064	O I	6.2
1153	19.5	3.0	2.087	O I	6.3
1154	21.0	3.6	2.112	O I	6.3
1155	22.0	4.3	2.136	O I	6.4
1156	22.4	4.9	2.161	O I	6.4
1157	22.5	5.5	2.185	O I	6.5
1158	22.3	6.1	2.208	O I	6.5
1159	22.2	6.6	2.229	O I	6.6
1160	22.0	7.2	2.250	O I	6.6

1161	21.8	7.7	2.270	|	O |	|	I|	6.7
1162	21.6	8.1	2.289	|	O |	|	I |	6.7
1163	21.3	8.6	2.307	|	O |	|	I |	6.7
1164	20.9	9.0	2.323	|	O |	|	I |	6.8
1165	20.6	9.4	2.339	|	O |	|	I |	6.8
1166	20.2	9.8	2.354	|	O |	|	I |	6.8
1167	19.8	10.1	2.367	|	O |	|	I |	6.9
1168	19.4	10.5	2.380	|	O |	|	I |	6.9
1169	19.0	10.8	2.391	|	O|	|	I |	6.9
1170	18.5	11.0	2.402	|	O|	|	I |	6.9
1171	18.0	11.3	2.411	|	O |	|	I |	7.0
1172	17.5	11.5	2.420	|	O |	|	I |	7.0
1173	16.9	11.7	2.427	|	O |	|	I |	7.0
1174	16.3	12.0	2.433	|	|O I|	|	|	7.0
1175	15.6	12.3	2.438	|	|O I |	|	|	7.0
1176	15.0	12.5	2.441	|	|O I |	|	|	7.0
1177	14.3	12.7	2.444	|	| O I |	|	|	7.0
1178	13.6	12.7	2.445	|	| OI |	|	|	7.0
1179	12.9	12.8	2.445	|	| O |	|	|	7.0
1180	11.9	12.7	2.444	|	I O |	|	|	7.0
1181	10.7	12.5	2.442	|	I|O |	|	|	7.0
1182	9.5	12.2	2.438	|	I |O |	|	|	7.0
1183	8.2	11.9	2.432	|	I O |	|	|	7.0
1184	6.9	11.6	2.426	|	|I O |	|	|	7.0
1185	5.8	11.4	2.418	|	I O |	|	|	7.0
1186	5.1	11.2	2.409	|	I| O|	|	|	7.0
1187	4.5	11.0	2.400	|	I | O|	|	|	6.9
1188	4.0	10.7	2.391	|	I | O|	|	|	6.9
1189	3.6	10.5	2.381	|	I | O |	|	|	6.9
1190	3.4	10.2	2.371	|	I | O |	|	|	6.9
1191	3.2	10.0	2.362	|	I | O |	|	|	6.9
1192	3.1	9.8	2.352	|	I | O |	|	|	6.8
1193	3.0	9.5	2.343	|	I | O |	|	|	6.8
1194	2.9	9.3	2.334	|	I | O |	|	|	6.8
1195	2.9	9.1	2.326	|	I | O |	|	|	6.8
1196	2.8	8.9	2.317	|	I | O |	|	|	6.8
1197	2.8	8.7	2.309	|	I | O |	|	|	6.7
1198	2.7	8.4	2.301	|	I | O |	|	|	6.7
1199	2.6	8.2	2.293	|	I | O |	|	|	6.7
1200	2.6	8.1	2.285	|	I | O |	|	|	6.7
1201	2.6	7.9	2.278	|	I | O |	|	|	6.7
1202	2.5	7.7	2.271	|	I | O |	|	|	6.7
1203	2.5	7.5	2.264	|	I | O |	|	|	6.6
1204	2.4	7.3	2.257	|	I | O |	|	|	6.6
1205	2.4	7.2	2.250	|	I | O |	|	|	6.6
1206	2.4	7.0	2.244	|	I |O |	|	|	6.6
1207	2.3	6.8	2.237	|	I |O |	|	|	6.6
1208	2.3	6.7	2.231	|	I |O |	|	|	6.6

1209	2.3	6.5	2.225	I	O			6.6
1210	2.2	6.4	2.219	I	O			6.5
1211	2.2	6.2	2.214	I	O			6.5
1212	2.2	6.1	2.208	I	O			6.5
1213	2.2	6.0	2.203	I	O			6.5
1214	2.1	5.8	2.198	I	O			6.5
1215	2.1	5.7	2.193	I	O			6.5
1216	2.1	5.6	2.188	I	O			6.5
1217	2.1	5.4	2.183	I	O			6.5
1218	2.1	5.3	2.179	I	O			6.5
1219	2.0	5.2	2.174	I	O			6.4
1220	2.0	5.1	2.170	I	O			6.4
1221	2.0	5.0	2.166	I	O			6.4
1222	2.0	4.9	2.162	I	O			6.4
1223	2.0	4.8	2.158	I	O			6.4
1224	1.9	4.7	2.154	I	O			6.4
1225	1.9	4.6	2.150	I	O			6.4
1226	1.9	4.5	2.146	I	O			6.4
1227	1.9	4.4	2.143	I	O			6.4
1228	1.9	4.3	2.139	I	O			6.4
1229	1.9	4.2	2.136	I	O			6.4
1230	1.8	4.2	2.133	I	O			6.4
1231	1.8	4.1	2.130	I	O			6.3
1232	1.8	4.0	2.126	I	O			6.3
1233	1.8	3.9	2.124	I	O			6.3
1234	1.8	3.8	2.121	I	O			6.3
1235	1.8	3.8	2.118	I	O			6.3
1236	1.8	3.7	2.115	I	O			6.3
1237	1.7	3.6	2.112	I	O			6.3
1238	1.7	3.6	2.110	I	O			6.3
1239	1.6	3.5	2.107	I	O			6.3
1240	1.6	3.4	2.105	I	O			6.3
1241	1.6	3.4	2.102	I	O			6.3
1242	1.6	3.3	2.100	I	O			6.3
1243	1.6	3.3	2.097	I	O			6.3
1244	1.6	3.2	2.095	I	O			6.3
1245	1.6	3.1	2.093	I	O			6.3
1246	1.6	3.1	2.091	I	O			6.3
1247	1.5	3.0	2.089	I	O			6.3
1248	1.5	3.0	2.087	I	O			6.3
1249	1.5	2.9	2.085	I	O			6.2
1250	1.5	2.9	2.083	I	O			6.2
1251	1.5	2.8	2.081	I	O			6.2
1252	1.5	2.8	2.079	I	O			6.2
1253	1.5	2.7	2.077	I	O			6.2
1254	1.4	2.7	2.076	I	O			6.2
1255	1.4	2.7	2.074	I	O			6.2
1256	1.4	2.6	2.072	I	O			6.2

1257	1.4	2.6	2.070	I O				6.2
1258	1.4	2.5	2.069	I O				6.2
1259	1.4	2.5	2.067	I O				6.2
1260	1.3	2.4	2.066	I O				6.2
1261	1.3	2.4	2.064	I O				6.2
1262	1.3	2.4	2.063	I O				6.2
1263	1.3	2.3	2.061	I O				6.2
1264	1.3	2.3	2.060	I O				6.2
1265	1.3	2.3	2.058	I O				6.2
1266	1.3	2.2	2.057	I O				6.2
1267	1.3	2.2	2.056	I O				6.2
1268	1.3	2.2	2.055	I O				6.2
1269	1.3	2.1	2.054	I O				6.2
1270	1.3	2.1	2.052	IO				6.2
1271	1.3	2.1	2.051	IO				6.2
1272	1.3	2.1	2.050	IO				6.2
1273	1.3	2.0	2.049	IO				6.2
1274	1.3	2.0	2.048	IO				6.2
1275	1.2	2.0	2.047	IO				6.2
1276	1.2	1.9	2.046	IO				6.2
1277	1.2	1.9	2.045	IO				6.2
1278	1.2	1.9	2.044	IO				6.2
1279	1.2	1.9	2.043	IO				6.2
1280	1.2	1.8	2.042	IO				6.2
1281	1.2	1.8	2.041	IO				6.2
1282	1.2	1.8	2.041	IO				6.2
1283	1.2	1.8	2.040	IO				6.2
1284	1.2	1.8	2.039	IO				6.1
1285	1.2	1.7	2.038	IO				6.1
1286	1.2	1.7	2.038	IO				6.1
1287	1.2	1.7	2.037	IO				6.1
1288	1.2	1.7	2.036	IO				6.1
1289	1.2	1.7	2.035	IO				6.1
1290	1.2	1.7	2.035	IO				6.1
1291	1.2	1.6	2.034	IO				6.1
1292	1.2	1.6	2.034	IO				6.1
1293	1.2	1.6	2.033	IO				6.1
1294	1.2	1.6	2.032	IO				6.1
1295	1.2	1.6	2.032	IO				6.1
1296	1.1	1.6	2.031	IO				6.1
1297	1.1	1.5	2.031	IO				6.1
1298	1.1	1.5	2.030	IO				6.1
1299	1.1	1.5	2.029	IO				6.1
1300	1.1	1.5	2.029	IO				6.1
1310	1.1	1.4	2.024	O				6.1
1320	1.1	1.3	2.021	O				6.1
1330	1.0	1.2	2.018	O				6.1
1340	0.9	1.1	2.015	O				6.1

1350	0.9	1.1	2.012	|O	|	|	|	6.1
1360	0.8	1.0	2.009	|O	|	|	|	6.1
1370	0.8	0.9	2.007	|O	|	|	|	6.1
1380	0.7	0.9	2.005	IO	|	|	|	6.1
1390	0.6	0.8	2.002	IO	|	|	|	6.1
1400	0.6	0.7	1.999	IO	|	|	|	6.1
1420	0.6	0.7	1.996	O	|	|	|	6.1
1440	0.6	0.6	1.995	O	|	|	|	6.1
1460	0.5	0.6	1.993	O	|	|	|	6.1
1500	0.5	0.5	1.990	O	|	|	|	6.0

Remaining water in basin = 1.99 (Ac.Ft)
Peak flow out of basin = 12.76(CFS)
Peak flow time = 1179 Min., time interval # = 65
Maximum depth in basin = 7.03(Ft.)

PROPOSED CONDITION
RETAR PROGRAM
OUTPUT DATA FOR
5-yrs
@ SUB-AREA "20A"

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1997-2004 Version 6.4

Study Date : 08/15/18 Input hydrograph file name : 5prcvs.hyd
Output hydrograph file name: proposed5yrhyd.hin

Program computation of outflow v. depth

****
CALCULATED OUTFLOW DATA AT DEPTH = 1.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 2.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 3.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 4.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 5.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 6.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

```
************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    7.00(Ft.)
************************************************************
Pipe length  =     1.00(Ft.)   Elevation difference =   0.10(Ft.)
Manning's N = 0.013   No. of pipes = 1
Given pipe size =     48.00(In.)
Calculated individual pipe flow  =    11.750(CFS)
Normal flow depth in pipe =    5.31(In.)
Flow top width inside pipe =   30.12(In.)
Critical depth could not be calculated.
Calculated flow rate through pipe(s) =     11.750(CFS)

Total outflow at this depth =     11.75(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    8.00(Ft.)
************************************************************
Pipe length  =     1.00(Ft.)   Elevation difference =   0.10(Ft.)
Manning's N = 0.013   No. of pipes = 1
Given pipe size =     48.00(In.)
Calculated individual pipe flow  =    44.725(CFS)
Normal flow depth in pipe =   10.17(In.)
Flow top width inside pipe =   39.23(In.)
Critical Depth =    2.00(Ft.)
Calculated flow rate through pipe(s) =     44.725(CFS)

Total outflow at this depth =     44.72(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    9.00(Ft.)
************************************************************
Pipe length  =     1.00(Ft.)   Elevation difference =   0.10(Ft.)
Manning's N = 0.013   No. of pipes = 1
Given pipe size =     48.00(In.)
Calculated individual pipe flow  =    98.088(CFS)
Normal flow depth in pipe =   15.15(In.)
Flow top width inside pipe =   44.62(In.)
Critical Depth =    3.00(Ft.)
Calculated flow rate through pipe(s) =     98.088(CFS)

Total outflow at this depth =     98.09(CFS)


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

CALCULATED OUTFLOW DATA AT DEPTH = 10.00(Ft.)

****

Pipe length = 1.00(Ft.) Elevation difference = 0.10(Ft.)
Manning's N = 0.013 No. of pipes = 1
Given pipe size = 48.00(In.)
NOTE: Assuming free outlet flow.
NOTE: Normal flow is pressure flow.
The total friction loss through the pipe is 4.100(Ft.)
Pipe friction loss = 0.013(Ft.)
Minor friction loss = 4.084(Ft.) K-factor = 1.50
Maximum capacity of pipe(s) = 0.00(CFS)
Calculated flow rate through pipe(s) = 166.399(CFS)

Total outflow at this depth = 166.40(CFS)

Hydrograph time unit varies
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data @ 1 Min. Intervals:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.240	0.000	0.240	0.240
2.000	0.520	0.000	0.520	0.520
3.000	0.830	0.000	0.830	0.830
4.000	1.170	0.000	1.170	1.170
5.000	1.550	0.000	1.550	1.550
6.000	1.970	0.000	1.970	1.970
7.000	2.430	11.750	2.422	2.438
8.000	2.930	44.725	2.899	2.961
9.000	3.470	98.088	3.402	3.538
10.000	4.050	166.399	3.935	4.165

Hydrograph Detention Basin Routing
Hydrograph at 4650 20 A Storm Day: 4 Drainage Area = 48.40
Total flood hydrograph volume this storm day = 5.97 Ac. Ft.

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Min)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 18.1 36.3 54.4 72.6	Depth (Ft.)
0	0.0	0.0	0.000	O	0.0
100	1.2	0.0	0.083	O	0.3
200	1.3	0.0	0.256	O	1.1
300	1.3	0.0	0.435	O	1.7
400	1.4	0.0	0.621	O	2.3
500	1.6	0.0	0.828	O	3.0
600	1.8	0.0	1.062	O	3.7
700	2.0	0.0	1.324	O	4.4
800	2.2	0.0	1.613	O	5.2
900	2.5	0.0	1.937	OI	5.9
1000	3.1	2.8	2.081	|O	6.2
1050	3.8	3.4	2.104	|O	6.3
1100	5.9	4.9	2.160	| O	6.4
1110	8.3	5.6	2.189	| OI	6.5
1120	10.9	6.8	2.238	| OI	6.6
1130	13.6	8.5	2.303	| O I	6.7
1131	13.9	8.7	2.310	| O I |	6.7
1132	14.3	8.9	2.318	| O I |	6.8
1133	14.7	9.1	2.326	| O I |	6.8
1134	15.2	9.3	2.334	| O I |	6.8
1135	15.7	9.5	2.343	| O I |	6.8
1136	16.2	9.8	2.352	| O I|	6.8
1137	16.8	10.0	2.361	| O I|	6.9
1138	17.5	10.3	2.371	| O I|	6.9
1139	18.2	10.5	2.382	| O I	6.9
1140	18.9	10.8	2.394	| O I	6.9
1141	19.7	11.1	2.406	| O I	6.9
1142	20.6	11.5	2.418	| O |I	7.0
1143	21.6	11.9	2.432	| O |I	7.0
1144	22.7	12.8	2.446	| O | I	7.0
1145	24.0	13.8	2.461	| O | I	7.1
1146	25.5	14.8	2.476	| O | I	7.1
1147	27.2	15.9	2.493	| O| I	7.1
1148	29.1	17.0	2.510	| O| I	7.2
1149	32.5	18.4	2.531	| O I |	7.2
1150	38.3	20.1	2.557	| O I	7.3
1151	46.0	22.4	2.591	| |O | I |	7.3
1152	54.6	25.2	2.633	| | O | I |	7.4
1153	63.7	28.5	2.684	| | O | | I |	7.5
1154	70.4	32.2	2.739	| | O | | I|	7.6
1155	72.6	35.7	2.793	| | O| | I	7.7
1156	71.0	38.7	2.839	| | |O | I|	7.8
1157	66.8	41.2	2.876	| | | O | I |	7.9
1158	61.2	42.9	2.903	| | | O | I |	7.9
1159	54.9	44.0	2.918	| | | O I |	8.0
1160	48.1	44.3	2.924	| | | O I |	8.0

1161	41.9	44.1	2.921	|	|	| IO	|	|	8.0
1162	36.2	43.4	2.910	|	|	I| O	|	|	8.0
1163	31.0	42.3	2.894	|	| I	| O	|	|	7.9
1164	26.6	41.0	2.873	|	| I	| O	|	|	7.9
1165	22.7	39.4	2.849	|	| I	|O	|	|	7.8
1166	19.5	37.7	2.823	|	I	O	|	|	7.8
1167	17.0	35.9	2.796	|	I|	O|	|	|	7.7
1168	14.9	34.0	2.768	|	I |	O|	|	|	7.7
1169	13.1	32.2	2.740	|	I |	O |	|	|	7.6
1170	11.8	30.4	2.713	|	I |	O |	|	|	7.6
1171	10.6	28.7	2.687	|	I |	O |	|	|	7.5
1172	9.7	27.1	2.662	|	I |	O |	|	|	7.5
1173	8.9	25.5	2.638	|	I |	O |	|	|	7.4
1174	8.2	24.0	2.616	|	I |	O |	|	|	7.4
1175	7.7	22.6	2.594	|	I |	O |	|	|	7.3
1176	7.2	21.2	2.574	|	I |	O |	|	|	7.3
1177	6.8	20.0	2.555	|	I |	O |	|	|	7.2
1178	6.4	18.8	2.537	|	I |	O |	|	|	7.2
1179	6.0	17.7	2.520	|	I |	O|	|	|	7.2
1180	5.8	16.7	2.504	|	I |	O|	|	|	7.1
1181	5.5	15.7	2.490	|	I |	O |	|	|	7.1
1182	5.2	14.8	2.476	|	I |	O |	|	|	7.1
1183	5.0	13.9	2.463	|	I |	O |	|	|	7.1
1184	4.7	13.1	2.451	|	I |	O |	|	|	7.0
1185	4.6	12.4	2.440	|	I |	O |	|	|	7.0
1186	4.4	11.7	2.429	|I	|	O |	|	|	7.0
1187	4.3	11.5	2.419	|I	|	O |	|	|	7.0
1188	4.1	11.2	2.409	|I	|	O |	|	|	7.0
1189	4.0	11.0	2.399	|I	|	O |	|	|	6.9
1190	3.9	10.7	2.390	|I	|	O |	|	|	6.9
1191	3.9	10.5	2.380	|I	|	O |	|	|	6.9
1192	3.8	10.3	2.371	|I	|	O |	|	|	6.9
1193	3.7	10.0	2.363	|I	|	O |	|	|	6.9
1194	3.7	9.8	2.354	|I	|	O |	|	|	6.8
1195	3.6	9.6	2.346	|I	|	O |	|	|	6.8
1196	3.6	9.4	2.337	|I	|	O |	|	|	6.8
1197	3.5	9.2	2.330	|I	|	O |	|	|	6.8
1198	3.5	9.0	2.322	|I	O |	|	|	|	6.8
1199	3.4	8.8	2.314	|I	O |	|	|	|	6.7
1200	3.4	8.6	2.307	|I	O |	|	|	|	6.7
1201	3.4	8.4	2.300	|I	O |	|	|	|	6.7
1202	3.3	8.2	2.293	|I	O |	|	|	|	6.7
1203	3.3	8.1	2.286	|I	O |	|	|	|	6.7
1204	3.3	7.9	2.280	|I	O |	|	|	|	6.7
1205	3.2	7.8	2.273	|I	O |	|	|	|	6.7
1206	3.2	7.6	2.267	|I	O |	|	|	|	6.6
1207	3.2	7.4	2.261	|I	O |	|	|	|	6.6
1208	3.1	7.3	2.255	|I	O |	|	|	|	6.6

1209	3.1	7.1	2.250	I O				6.6
1210	3.1	7.0	2.244	I O				6.6
1211	3.0	6.9	2.239	I O				6.6
1212	3.0	6.7	2.234	IO				6.6
1213	3.0	6.6	2.229	IO				6.6
1214	3.0	6.5	2.224	IO				6.6
1215	2.9	6.4	2.219	IO				6.5
1216	2.9	6.2	2.214	IO				6.5
1217	2.9	6.1	2.210	IO				6.5
1218	2.9	6.0	2.205	IO				6.5
1219	2.9	5.9	2.201	IO				6.5
1220	2.8	5.8	2.197	IO				6.5
1221	2.8	5.7	2.193	IO				6.5
1222	2.8	5.6	2.189	IO				6.5
1223	2.8	5.5	2.185	IO				6.5
1224	2.7	5.4	2.181	IO				6.5
1225	2.7	5.3	2.178	IO				6.5
1226	2.7	5.2	2.174	IO				6.4
1227	2.7	5.1	2.171	IO				6.4
1228	2.7	5.0	2.167	IO				6.4
1229	2.6	5.0	2.164	IO				6.4
1230	2.6	4.9	2.161	IO				6.4
1231	2.6	4.8	2.158	IO				6.4
1232	2.6	4.7	2.155	IO				6.4
1233	2.6	4.6	2.152	IO				6.4
1234	2.5	4.6	2.149	IO				6.4
1235	2.5	4.5	2.146	O				6.4
1236	2.5	4.4	2.144	O				6.4
1237	2.5	4.4	2.141	O				6.4
1238	2.5	4.3	2.138	O				6.4
1239	2.5	4.2	2.136	O				6.4
1240	2.5	4.2	2.134	O				6.4
1241	2.4	4.1	2.131	O				6.4
1242	2.4	4.1	2.129	O				6.3
1243	2.4	4.0	2.127	O				6.3
1244	2.4	3.9	2.125	O				6.3
1245	2.4	3.9	2.122	O				6.3
1246	2.4	3.8	2.120	O				6.3
1247	2.4	3.8	2.118	O				6.3
1248	2.4	3.7	2.117	O				6.3
1249	2.3	3.7	2.115	O				6.3
1250	2.3	3.6	2.113	O				6.3
1251	2.3	3.6	2.111	O				6.3
1252	2.3	3.6	2.109	O				6.3
1253	2.3	3.5	2.107	O				6.3
1254	2.3	3.5	2.106	O				6.3
1255	2.3	3.4	2.104	O				6.3
1256	2.3	3.4	2.103	O				6.3

1257	2.2	3.3	2.101	IO				6.3
1258	2.2	3.3	2.100	IO				6.3
1259	2.2	3.3	2.098	IO				6.3
1260	2.2	3.2	2.097	IO				6.3
1261	2.2	3.2	2.095	IO				6.3
1262	2.2	3.2	2.094	IO				6.3
1263	2.2	3.1	2.093	IO				6.3
1264	2.2	3.1	2.091	IO				6.3
1265	2.2	3.1	2.090	IO				6.3
1266	2.1	3.0	2.089	IO				6.3
1267	2.1	3.0	2.087	IO				6.3
1268	2.1	3.0	2.086	IO				6.3
1269	2.1	2.9	2.085	IO				6.3
1270	2.1	2.9	2.084	IO				6.2
1271	2.1	2.9	2.083	IO				6.2
1272	2.1	2.9	2.082	IO				6.2
1273	2.1	2.8	2.081	IO				6.2
1274	2.1	2.8	2.080	IO				6.2
1275	2.1	2.8	2.079	IO				6.2
1276	2.1	2.8	2.078	IO				6.2
1277	2.1	2.7	2.077	IO				6.2
1278	2.0	2.7	2.076	IO				6.2
1279	2.0	2.7	2.075	IO				6.2
1280	2.0	2.7	2.074	IO				6.2
1281	2.0	2.6	2.073	IO				6.2
1282	2.0	2.6	2.072	IO				6.2
1283	2.0	2.6	2.072	IO				6.2
1284	2.0	2.6	2.071	IO				6.2
1285	2.0	2.6	2.070	IO				6.2
1286	2.0	2.5	2.069	IO				6.2
1287	2.0	2.5	2.068	IO				6.2
1288	2.0	2.5	2.068	IO				6.2
1289	2.0	2.5	2.067	IO				6.2
1290	1.9	2.5	2.066	IO				6.2
1291	1.9	2.4	2.066	IO				6.2
1292	1.9	2.4	2.065	IO				6.2
1293	1.9	2.4	2.064	IO				6.2
1294	1.9	2.4	2.063	IO				6.2
1295	1.9	2.4	2.063	IO				6.2
1296	1.9	2.4	2.062	IO				6.2
1297	1.9	2.3	2.062	IO				6.2
1298	1.9	2.3	2.061	IO				6.2
1299	1.9	2.3	2.060	IO				6.2
1300	1.9	2.3	2.060	IO				6.2
1310	1.8	2.2	2.055	O				6.2
1320	1.8	2.1	2.050	O				6.2
1330	1.7	2.0	2.047	O				6.2
1340	1.6	1.9	2.043	O				6.2

1350	1.5	1.8	2.039	O	|	|	|	|	6.2
1360	1.5	1.7	2.036	O	|	|	|	|	6.1
1370	1.4	1.6	2.033	O	|	|	|	|	6.1
1380	1.3	1.5	2.030	O	|	|	|	|	6.1
1390	1.3	1.5	2.027	O	|	|	|	|	6.1
1400	1.3	1.4	2.025	O	|	|	|	|	6.1
1420	1.2	1.3	2.022	O	|	|	|	|	6.1
1440	1.2	1.3	2.019	O	|	|	|	|	6.1
1460	1.1	1.2	2.017	O	|	|	|	|	6.1
1500	1.1	1.1	2.013	O	|	|	|	|	6.1

Remaining water in basin = 2.01 (Ac.Ft)
Peak flow out of basin = 44.32(CFS)
Peak flow time = 1160 Min., time interval # = 46
Maximum depth in basin = 7.99(Ft.)

PROPOSED CONDITION
RETAR PROGRAM
OUTPUT DATA FOR
10-yrs
@ SUB-AREA "20A"

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1997-2004 Version 6.4

Study Date : 08/15/18 Input hydrograph file name : 10prcv.hyd
Output hydrograph file name: proposed10yrhyd.hin

Program computation of outflow v. depth

****
CALCULATED OUTFLOW DATA AT DEPTH = 1.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 2.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 3.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 4.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 5.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 6.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

```
************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    7.00(Ft.)
************************************************************
Pipe length  =     1.00(Ft.)   Elevation difference =   0.10(Ft.)
Manning's N = 0.013   No. of pipes = 1
Given pipe size =     48.00(In.)
Calculated individual pipe flow  =    11.750(CFS)
Normal flow depth in pipe =    5.31(In.)
Flow top width inside pipe =   30.12(In.)
Critical depth could not be calculated.
Calculated flow rate through pipe(s) =     11.750(CFS)

Total outflow at this depth =     11.75(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    8.00(Ft.)
************************************************************
Pipe length  =     1.00(Ft.)   Elevation difference =   0.10(Ft.)
Manning's N = 0.013   No. of pipes = 1
Given pipe size =     48.00(In.)
Calculated individual pipe flow  =    44.725(CFS)
Normal flow depth in pipe =   10.17(In.)
Flow top width inside pipe =   39.23(In.)
Critical Depth =    2.00(Ft.)
Calculated flow rate through pipe(s) =     44.725(CFS)

Total outflow at this depth =     44.72(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    9.00(Ft.)
************************************************************
Pipe length  =     1.00(Ft.)   Elevation difference =   0.10(Ft.)
Manning's N = 0.013   No. of pipes = 1
Given pipe size =     48.00(In.)
Calculated individual pipe flow  =    98.088(CFS)
Normal flow depth in pipe =   15.15(In.)
Flow top width inside pipe =   44.62(In.)
Critical Depth =    3.00(Ft.)
Calculated flow rate through pipe(s) =     98.088(CFS)

Total outflow at this depth =     98.09(CFS)


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

CALCULATED OUTFLOW DATA AT DEPTH = 10.00(Ft.)

****

Pipe length = 1.00(Ft.) Elevation difference = 0.10(Ft.)
Manning's N = 0.013 No. of pipes = 1
Given pipe size = 48.00(In.)
NOTE: Assuming free outlet flow.
NOTE: Normal flow is pressure flow.
The total friction loss through the pipe is 4.100(Ft.)
Pipe friction loss = 0.013(Ft.)
Minor friction loss = 4.084(Ft.) K-factor = 1.50
Maximum capacity of pipe(s) = 0.00(CFS)
Calculated flow rate through pipe(s) = 166.399(CFS)

Total outflow at this depth = 166.40(CFS)

Hydrograph time unit varies
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data @ 1 Min. Intervals:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.240	0.000	0.240	0.240
2.000	0.520	0.000	0.520	0.520
3.000	0.830	0.000	0.830	0.830
4.000	1.170	0.000	1.170	1.170
5.000	1.550	0.000	1.550	1.550
6.000	1.970	0.000	1.970	1.970
7.000	2.430	11.750	2.422	2.438
8.000	2.930	44.725	2.899	2.961
9.000	3.470	98.088	3.402	3.538
10.000	4.050	166.399	3.935	4.165

Hydrograph Detention Basin Routing
Hydrograph at 4650 20 A Storm Day: 4 Drainage Area = 48.40
Total flood hydrograph volume this storm day = 7.76 Ac. Ft.

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Min)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 26.4 52.8 79.2 105.6	Depth (Ft.)
0	0.0	0.0	0.000	O	0.0
100	1.6	0.0	0.111	O	0.5
200	1.6	0.0	0.332	O	1.3
300	1.8	0.0	0.566	O	2.1
400	1.9	0.0	0.821	O	3.0
500	2.1	0.0	1.096	O	3.8
600	2.2	0.0	1.393	O	4.6
700	2.4	0.0	1.710	O	5.4
800	2.7	1.6	2.031	O	6.1
900	3.1	3.0	2.086	O	6.3
1000	3.7	3.5	2.108	|O	6.3
1050	5.4	4.6	2.150	|O	6.4
1100	8.9	7.1	2.250	| O	6.6
1110	12.1	8.2	2.292	| OI	6.7
1120	15.4	9.9	2.359	| OI	6.8
1130	18.5	12.6	2.443	| O I	7.0
1131	19.0	13.1	2.451	| O I	7.0
1132	19.5	13.7	2.459	| OI	7.1
1133	20.1	14.2	2.468	| O I	7.1
1134	20.8	14.8	2.477	| O I	7.1
1135	21.6	15.4	2.485	| O I	7.1
1136	22.5	16.0	2.495	| O I	7.1
1137	23.4	16.7	2.505	| O I|	7.1
1138	24.4	17.3	2.515	| O I|	7.2
1139	25.4	18.0	2.525	| O I|	7.2
1140	26.4	18.8	2.536	| O I	7.2
1141	27.5	19.5	2.548	| O I	7.2
1142	28.8	20.3	2.560	| O I	7.3
1143	30.2	21.2	2.573	| O |I	7.3
1144	31.7	22.1	2.587	| O |I	7.3
1145	33.6	23.1	2.602	| O | I	7.3
1146	35.9	24.2	2.619	| O| I	7.4
1147	38.5	25.5	2.638	| O| I	7.4
1148	41.1	26.8	2.658	| O I	7.5
1149	46.3	28.5	2.684	| O I	7.5
1150	55.7	30.9	2.720	| |O I	7.6
1151	68.2	34.1	2.769	| | O | I	7.7
1152	82.4	38.3	2.833	| | O | I	7.8
1153	97.0	43.4	2.910	| | O | I	8.0
1154	105.6	50.7	2.991	| | O| I	8.1
1155	105.1	57.7	3.061	| | |O I|	8.2
1156	98.0	62.8	3.113	| | | O | I |	8.3
1157	86.6	65.8	3.144	| | | O | I |	8.4
1158	72.8	66.7	3.153	| | | O I |	8.4
1159	59.9	65.8	3.144	| | | IO |	8.4
1160	49.2	63.7	3.122	| | I | O |	8.4

1161	40.3	60.7	3.092	|	| I | O	|	|	8.3
1162	33.2	57.2	3.057	|	| I | O	|	|	8.2
1163	27.7	53.5	3.018	|	I O	|	|	8.2
1164	23.5	49.6	2.980	|	I | O	|	|	8.1
1165	20.3	45.9	2.942	|	I | O	|	|	8.0
1166	18.0	43.1	2.905	|	I | O	|	|	8.0
1167	16.3	40.8	2.870	|	I | O	|	|	7.9
1168	15.0	38.5	2.836	|	I | O	|	|	7.8
1169	13.9	36.4	2.804	|	I | O	|	|	7.7
1170	13.0	34.4	2.773	|	I | O	|	|	7.7
1171	12.3	32.4	2.744	|	I | O	|	|	7.6
1172	11.7	30.6	2.716	|	I | O	|	|	7.6
1173	11.1	28.9	2.691	|	I O	|	|	7.5
1174	10.5	27.3	2.666	|	I O	|	|	7.5
1175	10.0	25.8	2.644	|	I O |	|	|	7.4
1176	9.5	24.4	2.622	|	I O |	|	|	7.4
1177	9.1	23.1	2.602	|	I O |	|	|	7.3
1178	8.7	21.8	2.583	|	I O |	|	|	7.3
1179	8.4	20.7	2.565	|	I O |	|	|	7.3
1180	8.0	19.6	2.549	|	I O |	|	|	7.2
1181	7.7	18.5	2.533	|	I O |	|	|	7.2
1182	7.4	17.6	2.518	|	I O |	|	|	7.2
1183	7.2	16.7	2.505	|	I O |	|	|	7.1
1184	6.9	15.8	2.492	|	I O |	|	|	7.1
1185	6.7	15.0	2.480	|	I O |	|	|	7.1
1186	6.4	14.3	2.468	|	I O |	|	|	7.1
1187	6.2	13.6	2.458	|	I O |	|	|	7.1
1188	6.0	12.9	2.448	|	I O |	|	|	7.0
1189	5.7	12.3	2.438	|	I O |	|	|	7.0
1190	5.5	11.7	2.429	|	I O |	|	|	7.0
1191	5.3	11.5	2.421	|	I O |	|	|	7.0
1192	5.2	11.3	2.412	|	I O |	|	|	7.0
1193	5.0	11.1	2.403	|	I O |	|	|	6.9
1194	4.8	10.9	2.395	|	I O |	|	|	6.9
1195	4.7	10.6	2.387	|	I O |	|	|	6.9
1196	4.5	10.4	2.378	|	I O |	|	|	6.9
1197	4.4	10.2	2.370	|	I O |	|	|	6.9
1198	4.3	10.0	2.362	|	I O |	|	|	6.9
1199	4.2	9.8	2.354	|	IO |	|	|	6.8
1200	4.1	9.6	2.347	|	IO |	|	|	6.8
1201	4.1	9.4	2.339	|	IO |	|	|	6.8
1202	4.0	9.2	2.332	|	IO |	|	|	6.8
1203	4.0	9.1	2.325	|	IO |	|	|	6.8
1204	3.9	8.9	2.318	|	IO |	|	|	6.8
1205	3.9	8.7	2.311	|	IO |	|	|	6.7
1206	3.8	8.5	2.304	|	IO |	|	|	6.7
1207	3.8	8.4	2.298	|	IO |	|	|	6.7
1208	3.8	8.2	2.292	|	IO |	|	|	6.7

1209	3.7	8.1	2.286	|IO	|	|	|	6.7
1210	3.7	7.9	2.280	|IO	|	|	|	6.7
1211	3.7	7.8	2.274	|IO	|	|	|	6.7
1212	3.6	7.6	2.268	|IO	|	|	|	6.6
1213	3.6	7.5	2.263	|IO	|	|	|	6.6
1214	3.6	7.3	2.258	|IO	|	|	|	6.6
1215	3.6	7.2	2.253	|IO	|	|	|	6.6
1216	3.5	7.1	2.248	|IO	|	|	|	6.6
1217	3.5	7.0	2.243	|IO	|	|	|	6.6
1218	3.5	6.8	2.238	|IO	|	|	|	6.6
1219	3.4	6.7	2.233	|IO	|	|	|	6.6
1220	3.4	6.6	2.229	|IO	|	|	|	6.6
1221	3.4	6.5	2.224	|O	|	|	|	6.6
1222	3.4	6.4	2.220	|O	|	|	|	6.5
1223	3.3	6.3	2.216	|O	|	|	|	6.5
1224	3.3	6.2	2.212	|O	|	|	|	6.5
1225	3.3	6.1	2.208	|O	|	|	|	6.5
1226	3.2	6.0	2.204	IO	|	|	|	6.5
1227	3.2	5.9	2.200	IO	|	|	|	6.5
1228	3.2	5.8	2.197	IO	|	|	|	6.5
1229	3.2	5.7	2.193	IO	|	|	|	6.5
1230	3.2	5.6	2.190	IO	|	|	|	6.5
1231	3.1	5.5	2.187	IO	|	|	|	6.5
1232	3.1	5.4	2.183	IO	|	|	|	6.5
1233	3.1	5.4	2.180	IO	|	|	|	6.5
1234	3.1	5.3	2.177	IO	|	|	|	6.4
1235	3.1	5.2	2.174	IO	|	|	|	6.4
1236	3.0	5.1	2.171	IO	|	|	|	6.4
1237	3.0	5.1	2.168	IO	|	|	|	6.4
1238	3.0	5.0	2.165	IO	|	|	|	6.4
1239	3.0	4.9	2.163	IO	|	|	|	6.4
1240	3.0	4.9	2.160	IO	|	|	|	6.4
1241	3.0	4.8	2.158	IO	|	|	|	6.4
1242	3.0	4.7	2.155	IO	|	|	|	6.4
1243	2.9	4.7	2.153	IO	|	|	|	6.4
1244	2.9	4.6	2.150	IO	|	|	|	6.4
1245	2.9	4.5	2.148	IO	|	|	|	6.4
1246	2.9	4.5	2.146	IO	|	|	|	6.4
1247	2.9	4.4	2.144	IO	|	|	|	6.4
1248	2.9	4.4	2.141	IO	|	|	|	6.4
1249	2.8	4.3	2.139	IO	|	|	|	6.4
1250	2.8	4.3	2.137	IO	|	|	|	6.4
1251	2.8	4.2	2.135	IO	|	|	|	6.4
1252	2.8	4.2	2.133	IO	|	|	|	6.4
1253	2.8	4.1	2.132	IO	|	|	|	6.4
1254	2.8	4.1	2.130	IO	|	|	|	6.3
1255	2.7	4.0	2.128	IO	|	|	|	6.3
1256	2.7	4.0	2.126	IO	|	|	|	6.3

1257	2.7	3.9	2.124	IO				6.3
1258	2.7	3.9	2.123	IO				6.3
1259	2.7	3.9	2.121	IO				6.3
1260	2.7	3.8	2.119	IO				6.3
1261	2.7	3.8	2.118	IO				6.3
1262	2.7	3.7	2.116	IO				6.3
1263	2.6	3.7	2.115	IO				6.3
1264	2.6	3.7	2.113	IO				6.3
1265	2.6	3.6	2.112	IO				6.3
1266	2.6	3.6	2.111	IO				6.3
1267	2.6	3.6	2.109	IO				6.3
1268	2.6	3.5	2.108	IO				6.3
1269	2.6	3.5	2.107	IO				6.3
1270	2.6	3.5	2.105	IO				6.3
1271	2.6	3.4	2.104	IO				6.3
1272	2.6	3.4	2.103	IO				6.3
1273	2.5	3.4	2.102	IO				6.3
1274	2.5	3.3	2.101	IO				6.3
1275	2.5	3.3	2.100	IO				6.3
1276	2.5	3.3	2.099	O				6.3
1277	2.5	3.3	2.098	O				6.3
1278	2.5	3.2	2.096	O				6.3
1279	2.5	3.2	2.095	O				6.3
1280	2.5	3.2	2.095	O				6.3
1281	2.4	3.2	2.093	O				6.3
1282	2.4	3.1	2.092	O				6.3
1283	2.4	3.1	2.091	O				6.3
1284	2.4	3.1	2.091	O				6.3
1285	2.4	3.1	2.090	O				6.3
1286	2.4	3.0	2.089	O				6.3
1287	2.4	3.0	2.088	O				6.3
1288	2.4	3.0	2.087	O				6.3
1289	2.4	3.0	2.086	O				6.3
1290	2.4	2.9	2.085	O				6.3
1291	2.4	2.9	2.085	O				6.2
1292	2.4	2.9	2.084	O				6.2
1293	2.4	2.9	2.083	O				6.2
1294	2.4	2.9	2.083	O				6.2
1295	2.3	2.9	2.082	O				6.2
1296	2.3	2.8	2.081	O				6.2
1297	2.3	2.8	2.080	O				6.2
1298	2.3	2.8	2.080	O				6.2
1299	2.3	2.8	2.079	O				6.2
1300	2.3	2.8	2.078	O				6.2
1310	2.2	2.6	2.072	O				6.2
1320	2.2	2.5	2.067	O				6.2
1330	2.1	2.4	2.063	O				6.2
1340	2.0	2.3	2.059	O				6.2

1350	2.0	2.2	2.056	O	|	|	|	|	6.2
1360	2.0	2.1	2.054	O	|	|	|	|	6.2
1370	1.9	2.1	2.051	O	|	|	|	|	6.2
1380	1.9	2.0	2.049	O	|	|	|	|	6.2
1390	1.8	2.0	2.047	O	|	|	|	|	6.2
1400	1.8	1.9	2.045	O	|	|	|	|	6.2
1420	1.7	1.8	2.042	O	|	|	|	|	6.2
1440	1.7	1.8	2.039	O	|	|	|	|	6.2
1460	1.5	1.7	2.035	O	|	|	|	|	6.1
1500	1.5	1.5	2.028	O	|	|	|	|	6.1

Remaining water in basin = 2.03 (Ac.Ft)
Peak flow out of basin = 66.72(CFS)
Peak flow time = 1158 Min., time interval # = 44
Maximum depth in basin = 8.41(Ft.)

PROPOSED CONDITION
RETAR PROGRAM
OUTPUT DATA FOR
25-yrs
@ SUB-AREA "20A"

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1997-2004 Version 6.4

Study Date : 08/15/18 Input hydrograph file name : 25prcv.hyd
Output hydrograph file name: proposed25yrhyd.hin

Program computation of outflow v. depth

****
CALCULATED OUTFLOW DATA AT DEPTH = 1.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 2.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 3.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 4.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 5.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 6.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

```
************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    7.00(Ft.)
************************************************************
Pipe length  =     1.00(Ft.)   Elevation difference =   0.10(Ft.)
Manning's N = 0.013   No. of pipes = 1
Given pipe size =     48.00(In.)
Calculated individual pipe flow  =    11.750(CFS)
Normal flow depth in pipe =    5.31(In.)
Flow top width inside pipe =   30.12(In.)
Critical depth could not be calculated.
Calculated flow rate through pipe(s) =     11.750(CFS)

Total outflow at this depth =     11.75(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    8.00(Ft.)
************************************************************
Pipe length  =     1.00(Ft.)   Elevation difference =   0.10(Ft.)
Manning's N = 0.013   No. of pipes = 1
Given pipe size =     48.00(In.)
Calculated individual pipe flow  =    44.725(CFS)
Normal flow depth in pipe =   10.17(In.)
Flow top width inside pipe =   39.23(In.)
Critical Depth =    2.00(Ft.)
Calculated flow rate through pipe(s) =     44.725(CFS)

Total outflow at this depth =     44.72(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    9.00(Ft.)
************************************************************
Pipe length  =     1.00(Ft.)   Elevation difference =   0.10(Ft.)
Manning's N = 0.013   No. of pipes = 1
Given pipe size =     48.00(In.)
Calculated individual pipe flow  =    98.088(CFS)
Normal flow depth in pipe =   15.15(In.)
Flow top width inside pipe =   44.62(In.)
Critical Depth =    3.00(Ft.)
Calculated flow rate through pipe(s) =     98.088(CFS)

Total outflow at this depth =     98.09(CFS)


************************************************************
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CALCULATED OUTFLOW DATA AT DEPTH = 10.00(Ft.)

****

Pipe length = 1.00(Ft.) Elevation difference = 0.10(Ft.)
Manning's N = 0.013 No. of pipes = 1
Given pipe size = 48.00(In.)
NOTE: Assuming free outlet flow.
NOTE: Normal flow is pressure flow.
The total friction loss through the pipe is 4.100(Ft.)
Pipe friction loss = 0.013(Ft.)
Minor friction loss = 4.084(Ft.) K-factor = 1.50
Maximum capacity of pipe(s) = 0.00(CFS)
Calculated flow rate through pipe(s) = 166.399(CFS)

Total outflow at this depth = 166.40(CFS)

Hydrograph time unit varies
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data @ 1 Min. Intervals:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.240	0.000	0.240	0.240
2.000	0.520	0.000	0.520	0.520
3.000	0.830	0.000	0.830	0.830
4.000	1.170	0.000	1.170	1.170
5.000	1.550	0.000	1.550	1.550
6.000	1.970	0.000	1.970	1.970
7.000	2.430	11.750	2.422	2.438
8.000	2.930	44.725	2.899	2.961
9.000	3.470	98.088	3.402	3.538
10.000	4.050	166.399	3.935	4.165

Hydrograph Detention Basin Routing
Hydrograph at 4650 20 A Storm Day: 4 Drainage Area = 48.40
Total flood hydrograph volume this storm day = 10.16 Ac. Ft.

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Min)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 36.0 72.0 108.1 144.1	Depth (Ft.)
0	0.0	0.0	0.000	O	0.0
100	2.1	0.0	0.146	O	0.6
200	2.1	0.0	0.435	O	1.7
300	2.3	0.0	0.738	O	2.7
400	2.4	0.0	1.062	O	3.7
500	2.5	0.0	1.400	O	4.6
600	2.7	0.0	1.758	O	5.5
700	3.0	2.3	2.062	O	6.2
800	3.3	3.2	2.095	O	6.3
900	3.8	3.7	2.113	O	6.3
1000	5.4	5.0	2.164	|O	6.4
1050	8.3	6.9	2.239	|O	6.6
1100	12.8	10.5	2.380	| O	6.9
1110	16.9	12.0	2.435	| OI	7.0
1120	20.8	16.4	2.500	| OI	7.1
1130	24.9	20.6	2.563	| OI	7.3
1131	25.6	21.0	2.570	| OI	7.3
1132	26.2	21.4	2.577	| OI	7.3
1133	27.0	21.9	2.584	| OI	7.3
1134	28.0	22.5	2.592	| O I	7.3
1135	29.2	23.0	2.601	| OI	7.3
1136	30.5	23.7	2.611	| OI	7.4
1137	31.9	24.4	2.622	| O I|	7.4
1138	33.2	25.2	2.633	| O I|	7.4
1139	34.5	26.0	2.646	| O I|	7.4
1140	35.7	26.8	2.659	| O I|	7.5
1141	37.2	27.7	2.672	| O I	7.5
1142	38.9	28.7	2.687	| O I	7.5
1143	40.8	29.7	2.703	| O |I	7.5
1144	42.7	30.9	2.720	| O |I	7.6
1145	45.2	32.1	2.739	| O| I	7.6
1146	48.3	33.5	2.760	| O| I	7.7
1147	51.7	35.1	2.784	| O| I	7.7
1148	55.3	36.9	2.811	| O I	7.8
1149	62.9	39.1	2.845	| O I	7.8
1150	76.7	42.4	2.895	| |O |I	7.9
1151	94.5	47.9	2.963	| O | I	8.1
1152	114.2	56.4	3.048	| O | |I	8.2
1153	134.1	66.3	3.148	| O | I	8.4
1154	144.1	76.2	3.249	| O I	8.6
1155	140.0	84.3	3.331	| O I|	8.7
1156	126.3	89.7	3.385	| O | I	8.8
1157	106.8	91.9	3.407	| O I|	8.9
1158	85.1	91.0	3.398	| I O	8.9
1159	66.0	87.8	3.366	| I | O	8.8
1160	51.3	83.2	3.319	| I | O	8.7

1161	40.5	77.7	3.264	| I |O	|	|	8.6
1162	33.2	72.1	3.207	| I| O	|	|	8.5
1163	28.8	66.5	3.151	| I | O |	|	|	8.4
1164	25.9	61.4	3.098	| I | O |	|	|	8.3
1165	23.6	56.5	3.050	| I | O |	|	|	8.2
1166	21.8	52.1	3.005	| I | O |	|	|	8.1
1167	20.3	48.1	2.964	| I | O |	|	|	8.1
1168	19.0	44.5	2.926	| I |O |	|	|	8.0
1169	17.9	42.2	2.891	| I |O |	|	|	7.9
1170	16.9	40.0	2.858	| I O |	|	|	7.9
1171	16.1	37.9	2.826	| I O |	|	|	7.8
1172	15.3	35.9	2.797	| I O|	|	|	7.7
1173	14.6	34.1	2.769	| I O|	|	|	7.7
1174	13.9	32.3	2.742	| I O|	|	|	7.6
1175	13.4	30.7	2.717	| I O |	|	|	7.6
1176	12.9	29.1	2.694	| I O |	|	|	7.5
1177	12.4	27.7	2.672	| I O |	|	|	7.5
1178	12.0	26.3	2.651	| I O |	|	|	7.4
1179	11.6	25.0	2.632	| I O |	|	|	7.4
1180	11.2	23.8	2.613	| I O |	|	|	7.4
1181	10.9	22.7	2.596	| I O |	|	|	7.3
1182	10.5	21.7	2.580	| I O |	|	|	7.3
1183	10.2	20.7	2.565	| I O |	|	|	7.3
1184	9.9	19.7	2.551	| I O |	|	|	7.2
1185	9.6	18.8	2.538	| I O |	|	|	7.2
1186	9.4	18.0	2.525	| I O |	|	|	7.2
1187	9.1	17.2	2.513	| IO |	|	|	7.2
1188	8.8	16.5	2.502	|I O |	|	|	7.1
1189	8.5	15.8	2.492	|I O |	|	|	7.1
1190	8.3	15.2	2.482	|I O |	|	|	7.1
1191	8.1	14.6	2.472	|I O |	|	|	7.1
1192	7.9	14.0	2.464	|I O |	|	|	7.1
1193	7.6	13.4	2.455	|IO |	|	|	7.1
1194	7.4	12.9	2.447	|IO |	|	|	7.0
1195	7.3	12.4	2.440	|IO |	|	|	7.0
1196	7.1	11.9	2.433	|IO |	|	|	7.0
1197	6.9	11.7	2.426	|IO |	|	|	7.0
1198	6.8	11.5	2.420	|IO |	|	|	7.0
1199	6.6	11.3	2.413	|IO |	|	|	7.0
1200	6.4	11.1	2.406	|IO |	|	|	6.9
1201	6.3	11.0	2.400	|IO |	|	|	6.9
1202	6.2	10.8	2.393	|IO |	|	|	6.9
1203	6.0	10.6	2.387	|IO |	|	|	6.9
1204	5.9	10.5	2.380	|IO |	|	|	6.9
1205	5.8	10.3	2.374	|IO |	|	|	6.9
1206	5.6	10.2	2.368	|IO |	|	|	6.9
1207	5.5	10.0	2.361	|IO |	|	|	6.9
1208	5.4	9.8	2.355	|IO |	|	|	6.8

1209	5.2	9.7	2.349	|IO	|	|	|	6.8
1210	5.1	9.5	2.343	|IO	|	|	|	6.8
1211	5.0	9.4	2.337	|IO	|	|	|	6.8
1212	4.9	9.2	2.331	|IO	|	|	|	6.8
1213	4.9	9.1	2.325	|IO	|	|	|	6.8
1214	4.8	8.9	2.319	|O	|	|	|	6.8
1215	4.7	8.8	2.313	|O	|	|	|	6.7
1216	4.6	8.6	2.308	|O	|	|	|	6.7
1217	4.5	8.5	2.302	IO	|	|	|	6.7
1218	4.4	8.3	2.296	IO	|	|	|	6.7
1219	4.3	8.2	2.291	IO	|	|	|	6.7
1220	4.2	8.1	2.286	IO	|	|	|	6.7
1221	4.2	7.9	2.280	IO	|	|	|	6.7
1222	4.1	7.8	2.275	IO	|	|	|	6.7
1223	4.1	7.7	2.270	IO	|	|	|	6.7
1224	4.0	7.5	2.265	IO	|	|	|	6.6
1225	4.0	7.4	2.260	IO	|	|	|	6.6
1226	4.0	7.3	2.256	IO	|	|	|	6.6
1227	3.9	7.2	2.251	IO	|	|	|	6.6
1228	3.9	7.1	2.247	IO	|	|	|	6.6
1229	3.9	7.0	2.242	IO	|	|	|	6.6
1230	3.9	6.9	2.238	IO	|	|	|	6.6
1231	3.9	6.8	2.234	IO	|	|	|	6.6
1232	3.8	6.6	2.230	IO	|	|	|	6.6
1233	3.8	6.6	2.226	IO	|	|	|	6.6
1234	3.8	6.5	2.223	IO	|	|	|	6.5
1235	3.7	6.4	2.219	IO	|	|	|	6.5
1236	3.7	6.3	2.215	IO	|	|	|	6.5
1237	3.7	6.2	2.212	IO	|	|	|	6.5
1238	3.7	6.1	2.209	IO	|	|	|	6.5
1239	3.7	6.0	2.205	IO	|	|	|	6.5
1240	3.7	5.9	2.202	IO	|	|	|	6.5
1241	3.6	5.9	2.199	IO	|	|	|	6.5
1242	3.6	5.8	2.196	IO	|	|	|	6.5
1243	3.6	5.7	2.193	IO	|	|	|	6.5
1244	3.6	5.6	2.190	IO	|	|	|	6.5
1245	3.6	5.6	2.187	IO	|	|	|	6.5
1246	3.5	5.5	2.185	IO	|	|	|	6.5
1247	3.5	5.4	2.182	IO	|	|	|	6.5
1248	3.5	5.3	2.179	IO	|	|	|	6.5
1249	3.5	5.3	2.177	IO	|	|	|	6.4
1250	3.5	5.2	2.174	IO	|	|	|	6.4
1251	3.4	5.2	2.172	IO	|	|	|	6.4
1252	3.4	5.1	2.170	IO	|	|	|	6.4
1253	3.4	5.0	2.167	IO	|	|	|	6.4
1254	3.4	5.0	2.165	IO	|	|	|	6.4
1255	3.4	4.9	2.163	IO	|	|	|	6.4
1256	3.3	4.9	2.161	IO	|	|	|	6.4

1257	3.3	4.8	2.159	IO				6.4
1258	3.3	4.8	2.157	IO				6.4
1259	3.3	4.7	2.155	IO				6.4
1260	3.3	4.7	2.153	IO				6.4
1261	3.3	4.6	2.151	IO				6.4
1262	3.3	4.6	2.149	IO				6.4
1263	3.2	4.5	2.147	IO				6.4
1264	3.2	4.5	2.145	O				6.4
1265	3.2	4.4	2.144	O				6.4
1266	3.2	4.4	2.142	O				6.4
1267	3.2	4.4	2.140	O				6.4
1268	3.2	4.3	2.139	O				6.4
1269	3.2	4.3	2.137	O				6.4
1270	3.2	4.2	2.136	O				6.4
1271	3.2	4.2	2.134	O				6.4
1272	3.1	4.2	2.133	O				6.4
1273	3.1	4.1	2.132	O				6.4
1274	3.1	4.1	2.130	O				6.3
1275	3.1	4.1	2.129	O				6.3
1276	3.1	4.0	2.128	O				6.3
1277	3.1	4.0	2.126	O				6.3
1278	3.0	4.0	2.125	O				6.3
1279	3.0	3.9	2.124	O				6.3
1280	3.0	3.9	2.122	O				6.3
1281	3.0	3.9	2.121	O				6.3
1282	3.0	3.8	2.120	O				6.3
1283	3.0	3.8	2.119	O				6.3
1284	3.0	3.8	2.118	O				6.3
1285	3.0	3.7	2.117	O				6.3
1286	3.0	3.7	2.116	O				6.3
1287	3.0	3.7	2.115	O				6.3
1288	2.9	3.7	2.114	O				6.3
1289	2.9	3.6	2.113	O				6.3
1290	2.9	3.6	2.112	O				6.3
1291	2.9	3.6	2.111	O				6.3
1292	2.9	3.6	2.110	O				6.3
1293	2.9	3.5	2.109	O				6.3
1294	2.9	3.5	2.108	O				6.3
1295	2.9	3.5	2.107	O				6.3
1296	2.9	3.5	2.106	O				6.3
1297	2.8	3.5	2.105	O				6.3
1298	2.8	3.4	2.104	O				6.3
1299	2.8	3.4	2.104	O				6.3
1300	2.8	3.4	2.103	O				6.3
1310	2.7	3.2	2.095	O				6.3
1320	2.7	3.1	2.089	O				6.3
1330	2.6	2.9	2.085	O				6.2
1340	2.5	2.8	2.080	O				6.2

1350	2.5	2.7	2.077	O	|	|	|	|	6.2
1360	2.4	2.6	2.073	O	|	|	|	|	6.2
1370	2.3	2.6	2.070	O	|	|	|	|	6.2
1380	2.3	2.5	2.067	O	|	|	|	|	6.2
1390	2.2	2.4	2.064	O	|	|	|	|	6.2
1400	2.2	2.3	2.062	O	|	|	|	|	6.2
1420	2.1	2.2	2.058	O	|	|	|	|	6.2
1440	2.1	2.2	2.055	O	|	|	|	|	6.2
1460	2.0	2.1	2.052	O	|	|	|	|	6.2
1500	2.0	2.0	2.047	O	|	|	|	|	6.2

Remaining water in basin = 2.05 (Ac.Ft)
Peak flow out of basin = 91.86(CFS)
Peak flow time = 1157 Min., time interval # = 43
Maximum depth in basin = 8.88(Ft.)

PROPOSED CONDITION
RETAR PROGRAM
OUTPUT DATA FOR
50-yrs
@ SUB-AREA "20A"

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1997-2004 Version 6.4

Study Date : 08/15/18 Input hydrograph file name : 50prcv.hyd
Output hydrograph file name: proposed50yrhyd.hin

Program computation of outflow v. depth

****
CALCULATED OUTFLOW DATA AT DEPTH = 1.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 2.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 3.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 4.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 5.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

****
CALCULATED OUTFLOW DATA AT DEPTH = 6.00(Ft.)
****
Total outflow at this depth = 0.00(CFS)

```
************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    7.00(Ft.)
************************************************************
Pipe length  =     1.00(Ft.)   Elevation difference =   0.10(Ft.)
Manning's N = 0.013   No. of pipes = 1
Given pipe size =     48.00(In.)
Calculated individual pipe flow  =    11.750(CFS)
Normal flow depth in pipe =    5.31(In.)
Flow top width inside pipe =   30.12(In.)
Critical depth could not be calculated.
Calculated flow rate through pipe(s) =     11.750(CFS)

Total outflow at this depth =     11.75(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    8.00(Ft.)
************************************************************
Pipe length  =     1.00(Ft.)   Elevation difference =   0.10(Ft.)
Manning's N = 0.013   No. of pipes = 1
Given pipe size =     48.00(In.)
Calculated individual pipe flow  =    44.725(CFS)
Normal flow depth in pipe =   10.17(In.)
Flow top width inside pipe =   39.23(In.)
Critical Depth =    2.00(Ft.)
Calculated flow rate through pipe(s) =     44.725(CFS)

Total outflow at this depth =     44.72(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    9.00(Ft.)
************************************************************
Pipe length  =     1.00(Ft.)   Elevation difference =   0.10(Ft.)
Manning's N = 0.013   No. of pipes = 1
Given pipe size =     48.00(In.)
Calculated individual pipe flow  =    98.088(CFS)
Normal flow depth in pipe =   15.15(In.)
Flow top width inside pipe =   44.62(In.)
Critical Depth =    3.00(Ft.)
Calculated flow rate through pipe(s) =     98.088(CFS)

Total outflow at this depth =     98.09(CFS)


************************************************************
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CALCULATED OUTFLOW DATA AT DEPTH = 10.00(Ft.)

****

Pipe length = 1.00(Ft.) Elevation difference = 0.10(Ft.)
Manning's N = 0.013 No. of pipes = 1
Given pipe size = 48.00(In.)
NOTE: Assuming free outlet flow.
NOTE: Normal flow is pressure flow.
The total friction loss through the pipe is 4.100(Ft.)
Pipe friction loss = 0.013(Ft.)
Minor friction loss = 4.084(Ft.) K-factor = 1.50
Maximum capacity of pipe(s) = 0.00(CFS)
Calculated flow rate through pipe(s) = 166.399(CFS)

Total outflow at this depth = 166.40(CFS)

Hydrograph time unit varies
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data @ 1 Min. Intervals:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.240	0.000	0.240	0.240
2.000	0.520	0.000	0.520	0.520
3.000	0.820	0.000	0.820	0.820
4.000	1.170	0.000	1.170	1.170
5.000	1.550	0.000	1.550	1.550
6.000	1.970	0.000	1.970	1.970
7.000	2.430	11.750	2.422	2.438
8.000	2.930	44.725	2.899	2.961
9.000	3.470	98.088	3.402	3.538
10.000	4.050	166.399	3.935	4.165

Hydrograph Detention Basin Routing
Hydrograph at 4650 20 A Storm Day: 4 Drainage Area = 48.40
Total flood hydrograph volume this storm day = 11.71 Ac. Ft.

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Min)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 42.2 84.3 126.5 168.7	Depth (Ft.)
0	0.0	0.0	0.000	O	0.0
100	2.2	0.0	0.153	O	0.6
200	2.3	0.0	0.463	O	1.8
300	2.5	0.0	0.794	O	2.9
400	2.6	0.0	1.145	O	3.9
500	2.8	0.0	1.517	O	4.9
600	3.0	0.0	1.917	O	5.9
700	3.2	3.0	2.088	O	6.3
800	3.6	3.5	2.106	O	6.3
900	4.4	4.2	2.134	O	6.4
1000	6.9	6.2	2.213	|O	6.5
1050	10.3	8.6	2.307	|O	6.7
1100	15.4	13.8	2.461	| O	7.1
1110	20.1	16.5	2.502	| O	7.1
1120	24.7	20.4	2.561	| OI	7.3
1130	29.4	24.7	2.626	| OI	7.4
1131	30.3	25.2	2.634	| OI	7.4
1132	31.0	25.7	2.641	| OI	7.4
1133	32.0	26.2	2.650	| O I	7.4
1134	33.2	26.8	2.659	| OI	7.5
1135	34.7	27.5	2.669	| OI	7.5
1136	36.2	28.3	2.681	| OI	7.5
1137	37.8	29.1	2.693	| O I|	7.5
1138	39.3	30.0	2.707	| O I|	7.6
1139	40.8	30.9	2.721	| O I|	7.6
1140	42.1	31.9	2.736	| OI|	7.6
1141	43.7	32.9	2.751	| O I	7.6
1142	45.7	34.0	2.768	| O I	7.7
1143	47.9	35.2	2.786	| O |I	7.7
1144	50.2	36.5	2.806	| O |I	7.8
1145	53.2	38.0	2.828	| O| I	7.8
1146	57.0	39.6	2.853	| O| I	7.8
1147	60.9	41.5	2.881	| O| I	7.9
1148	65.1	43.5	2.912	| O I	8.0
1149	74.2	46.9	2.952	| O I	8.0
1150	90.9	52.5	3.009	| |O |I	8.1
1151	111.9	60.1	3.085	| O | I	8.3
1152	134.6	69.6	3.181	| O |I	8.5
1153	157.7	80.8	3.295	| O| I	8.7
1154	168.7	92.0	3.408	| |O I	8.9
1155	162.9	101.6	3.500	| | O I	9.1
1156	145.1	108.1	3.555	| | O I	9.1
1157	120.7	110.0	3.571	| | O I	9.2
1158	94.9	107.7	3.552	| | I O	9.1
1159	72.3	102.4	3.507	| | I O	9.1
1160	55.5	95.8	3.447	| | I O	9.0

1161	44.2	89.2	3.380	| I O |	|	|	8.8
1162	37.2	82.6	3.313	| I| O|	|	|	8.7
1163	32.9	76.2	3.249	| I | O |	|	|	8.6
1164	29.7	70.3	3.189	| I | O |	|	|	8.5
1165	27.4	64.8	3.134	| I | O |	|	|	8.4
1166	25.4	59.8	3.083	| I | O |	|	|	8.3
1167	23.7	55.2	3.036	| I | O |	|	|	8.2
1168	22.2	51.0	2.994	| I |O |	|	|	8.1
1169	20.9	47.2	2.955	| I O |	|	|	8.0
1170	19.8	44.0	2.919	| I O |	|	|	8.0
1171	18.9	41.8	2.886	| I O|	|	|	7.9
1172	18.1	39.8	2.855	| I O|	|	|	7.8
1173	17.3	37.8	2.825	| I O|	|	|	7.8
1174	16.6	36.0	2.797	| I O |	|	|	7.7
1175	15.9	34.2	2.771	| I O |	|	|	7.7
1176	15.3	32.6	2.746	| I O |	|	|	7.6
1177	14.9	31.0	2.723	| I O |	|	|	7.6
1178	14.4	29.6	2.701	| I O |	|	|	7.5
1179	13.9	28.2	2.680	| I O |	|	|	7.5
1180	13.5	27.0	2.661	| I O |	|	|	7.5
1181	13.1	25.8	2.642	| I O |	|	|	7.4
1182	12.7	24.6	2.625	| I O |	|	|	7.4
1183	12.3	23.5	2.609	| I O |	|	|	7.4
1184	12.0	22.5	2.594	| I O |	|	|	7.3
1185	11.7	21.6	2.579	| I O |	|	|	7.3
1186	11.4	20.7	2.566	| IO |	|	|	7.3
1187	11.1	19.9	2.553	| IO |	|	|	7.2
1188	10.8	19.1	2.541	| IO |	|	|	7.2
1189	10.4	18.3	2.530	|I O |	|	|	7.2
1190	10.1	17.6	2.519	|I O |	|	|	7.2
1191	9.9	16.9	2.509	|I O |	|	|	7.2
1192	9.7	16.3	2.499	|I O |	|	|	7.1
1193	9.4	15.7	2.490	|IO |	|	|	7.1
1194	9.2	15.2	2.482	|IO |	|	|	7.1
1195	9.0	14.6	2.473	|IO |	|	|	7.1
1196	8.8	14.1	2.466	|IO |	|	|	7.1
1197	8.6	13.6	2.459	|IO |	|	|	7.1
1198	8.4	13.2	2.452	|IO |	|	|	7.0
1199	8.2	12.7	2.445	|IO |	|	|	7.0
1200	8.0	12.3	2.439	|IO |	|	|	7.0
1201	7.9	11.9	2.433	|IO |	|	|	7.0
1202	7.8	11.7	2.427	|IO |	|	|	7.0
1203	7.6	11.5	2.422	|IO |	|	|	7.0
1204	7.5	11.4	2.416	|IO |	|	|	7.0
1205	7.4	11.3	2.411	|IO |	|	|	7.0
1206	7.2	11.1	2.406	|IO |	|	|	6.9
1207	7.0	11.0	2.400	|IO |	|	|	6.9
1208	6.9	10.8	2.394	|IO |	|	|	6.9

1209	6.7	10.7	2.389	|IO	|	|	|	6.9
1210	6.6	10.6	2.383	|IO	|	|	|	6.9
1211	6.5	10.4	2.378	|O	|	|	|	6.9
1212	6.4	10.3	2.372	|O	|	|	|	6.9
1213	6.3	10.1	2.367	|O	|	|	|	6.9
1214	6.2	10.0	2.362	|O	|	|	|	6.9
1215	6.1	9.9	2.356	|O	|	|	|	6.8
1216	6.0	9.7	2.351	|O	|	|	|	6.8
1217	5.9	9.6	2.346	|O	|	|	|	6.8
1218	5.8	9.5	2.341	|O	|	|	|	6.8
1219	5.6	9.3	2.336	|O	|	|	|	6.8
1220	5.6	9.2	2.330	|O	|	|	|	6.8
1221	5.5	9.1	2.325	|O	|	|	|	6.8
1222	5.3	8.9	2.320	|O	|	|	|	6.8
1223	5.3	8.8	2.315	|O	|	|	|	6.8
1224	5.1	8.7	2.310	IO	|	|	|	6.7
1225	5.0	8.6	2.305	IO	|	|	|	6.7
1226	4.9	8.4	2.300	IO	|	|	|	6.7
1227	4.8	8.3	2.295	IO	|	|	|	6.7
1228	4.8	8.2	2.291	IO	|	|	|	6.7
1229	4.7	8.1	2.286	IO	|	|	|	6.7
1230	4.7	8.0	2.281	IO	|	|	|	6.7
1231	4.6	7.8	2.277	IO	|	|	|	6.7
1232	4.5	7.7	2.272	IO	|	|	|	6.7
1233	4.4	7.6	2.268	IO	|	|	|	6.6
1234	4.3	7.5	2.263	IO	|	|	|	6.6
1235	4.2	7.4	2.259	IO	|	|	|	6.6
1236	4.2	7.3	2.255	IO	|	|	|	6.6
1237	4.1	7.2	2.250	IO	|	|	|	6.6
1238	4.1	7.1	2.246	IO	|	|	|	6.6
1239	4.0	6.9	2.242	IO	|	|	|	6.6
1240	4.0	6.8	2.238	IO	|	|	|	6.6
1241	4.0	6.7	2.234	IO	|	|	|	6.6
1242	4.0	6.7	2.230	IO	|	|	|	6.6
1243	4.0	6.6	2.227	IO	|	|	|	6.6
1244	3.9	6.5	2.223	IO	|	|	|	6.6
1245	3.9	6.4	2.220	IO	|	|	|	6.5
1246	3.9	6.3	2.216	IO	|	|	|	6.5
1247	3.8	6.2	2.213	IO	|	|	|	6.5
1248	3.8	6.1	2.210	IO	|	|	|	6.5
1249	3.8	6.0	2.207	IO	|	|	|	6.5
1250	3.8	6.0	2.204	IO	|	|	|	6.5
1251	3.7	5.9	2.201	IO	|	|	|	6.5
1252	3.7	5.8	2.198	IO	|	|	|	6.5
1253	3.7	5.7	2.195	IO	|	|	|	6.5
1254	3.7	5.7	2.192	IO	|	|	|	6.5
1255	3.6	5.6	2.189	IO	|	|	|	6.5
1256	3.6	5.5	2.186	IO	|	|	|	6.5

1257	3.6	5.5	2.184	IO				6.5
1258	3.6	5.4	2.181	IO				6.5
1259	3.6	5.3	2.179	IO				6.5
1260	3.6	5.3	2.177	IO				6.4
1261	3.5	5.2	2.174	O				6.4
1262	3.5	5.2	2.172	O				6.4
1263	3.5	5.1	2.170	O				6.4
1264	3.5	5.0	2.167	O				6.4
1265	3.5	5.0	2.165	O				6.4
1266	3.5	4.9	2.163	O				6.4
1267	3.5	4.9	2.161	O				6.4
1268	3.4	4.8	2.159	O				6.4
1269	3.4	4.8	2.157	O				6.4
1270	3.4	4.7	2.156	O				6.4
1271	3.4	4.7	2.154	O				6.4
1272	3.4	4.6	2.152	O				6.4
1273	3.4	4.6	2.150	O				6.4
1274	3.4	4.6	2.149	O				6.4
1275	3.3	4.5	2.147	O				6.4
1276	3.3	4.5	2.145	O				6.4
1277	3.3	4.4	2.144	O				6.4
1278	3.3	4.4	2.142	O				6.4
1279	3.3	4.4	2.141	O				6.4
1280	3.3	4.3	2.139	O				6.4
1281	3.3	4.3	2.138	O				6.4
1282	3.3	4.3	2.137	O				6.4
1283	3.3	4.2	2.135	O				6.4
1284	3.2	4.2	2.134	O				6.4
1285	3.2	4.2	2.133	O				6.4
1286	3.2	4.1	2.131	O				6.4
1287	3.2	4.1	2.130	O				6.3
1288	3.2	4.1	2.129	O				6.3
1289	3.2	4.0	2.128	O				6.3
1290	3.2	4.0	2.126	O				6.3
1291	3.1	4.0	2.125	O				6.3
1292	3.2	3.9	2.124	O				6.3
1293	3.2	3.9	2.123	O				6.3
1294	3.1	3.9	2.122	O				6.3
1295	3.1	3.9	2.121	O				6.3
1296	3.1	3.8	2.120	O				6.3
1297	3.1	3.8	2.119	O				6.3
1298	3.1	3.8	2.118	O				6.3
1299	3.0	3.8	2.117	O				6.3
1300	3.0	3.7	2.116	O				6.3
1310	3.0	3.5	2.108	O				6.3
1320	2.9	3.3	2.101	O				6.3
1330	2.8	3.2	2.095	O				6.3
1340	2.7	3.1	2.090	O				6.3

1350	2.7	3.0	2.086	O	|	|	|	|	6.3
1360	2.6	2.9	2.082	O	|	|	|	|	6.2
1370	2.5	2.8	2.078	O	|	|	|	|	6.2
1380	2.5	2.7	2.075	O	|	|	|	|	6.2
1390	2.4	2.6	2.072	O	|	|	|	|	6.2
1400	2.4	2.6	2.070	O	|	|	|	|	6.2
1420	2.3	2.4	2.066	O	|	|	|	|	6.2
1440	2.2	2.3	2.062	O	|	|	|	|	6.2
1460	2.2	2.3	2.059	O	|	|	|	|	6.2
1500	2.2	2.1	2.054	O	|	|	|	|	6.2

Remaining water in basin = 2.05 (Ac.Ft)
Peak flow out of basin = 109.99(CFS)
Peak flow time = 1157 Min., time interval # = 43
Maximum depth in basin = 9.17(Ft.)

SECTION 4
LID CALCULATION
ONSITE

SECTION 4
LID HYDROCALC
CALCULATIONS PRINTOUTS

ONSITE
LID HYDROCALC
CALCULATIONS PRINTOUTS

Peak Flow Hydrologic Analysis

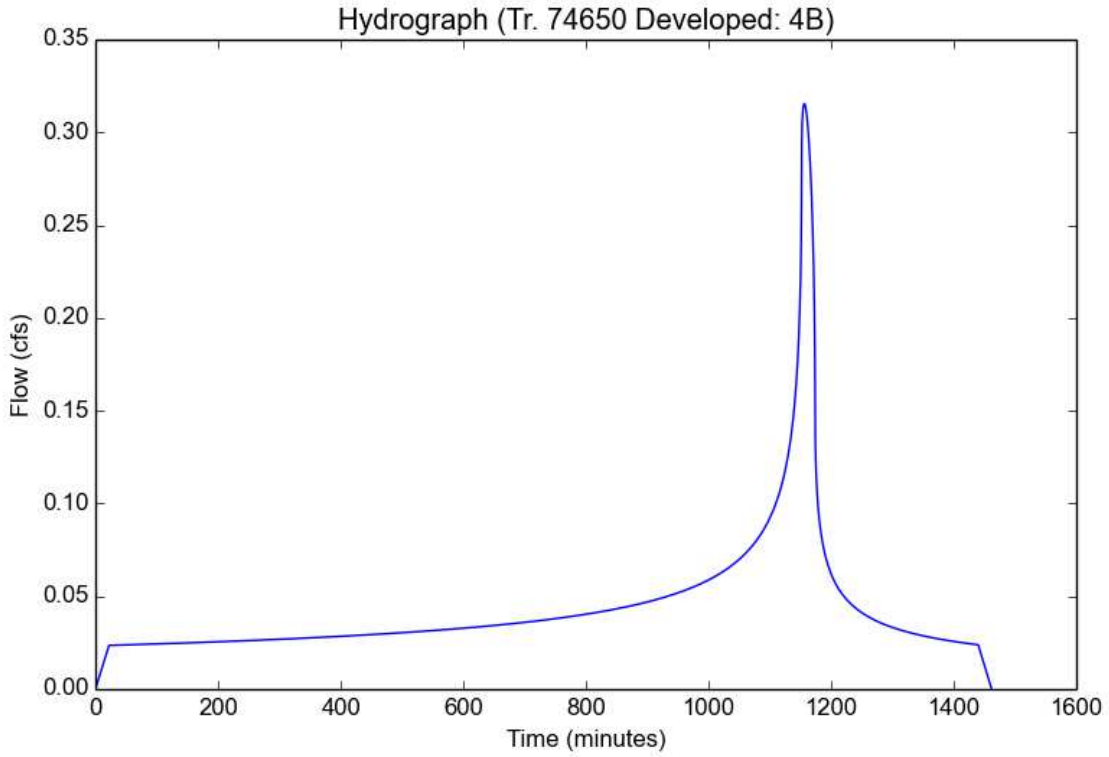
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile_Onsite .pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	4B
Area (ac)	2.34
Flow Path Length (ft)	220.0
Flow Path Slope (vft/hft)	0.01
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.3093
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	22.0
Clear Peak Flow Rate (cfs)	0.3155
Burned Peak Flow Rate (cfs)	0.3155
24-Hr Clear Runoff Volume (ac-ft)	0.0877
24-Hr Clear Runoff Volume (cu-ft)	3819.802



Peak Flow Hydrologic Analysis

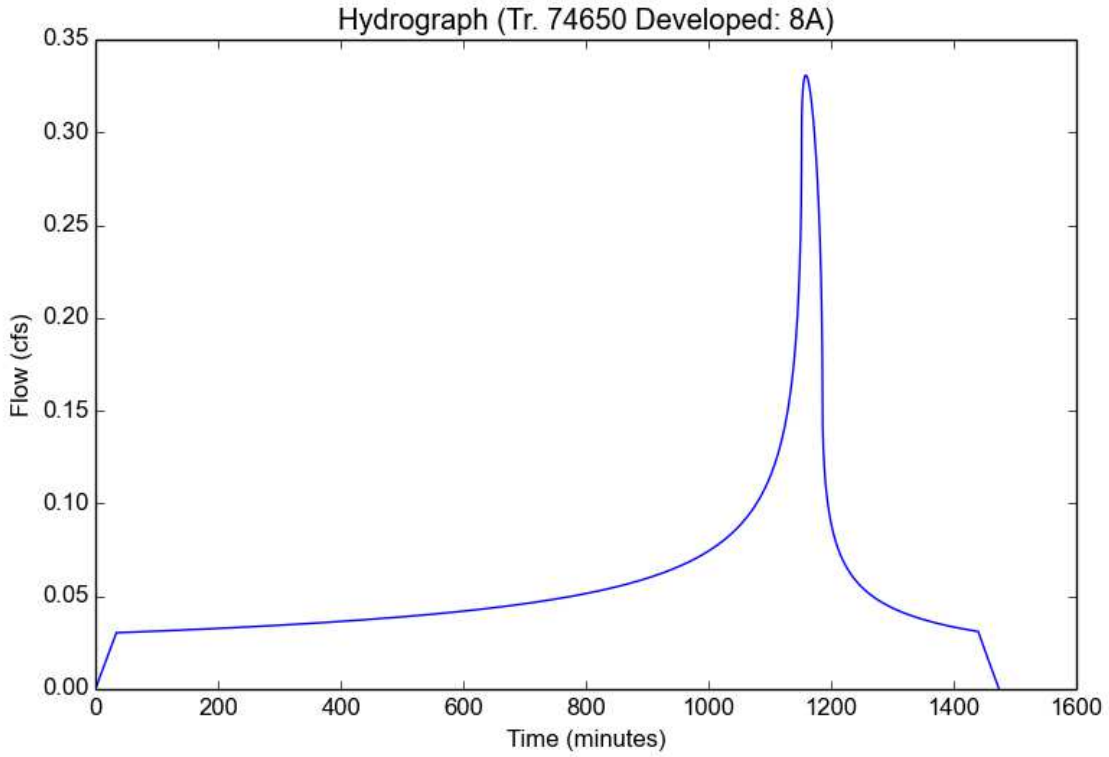
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile_Onsite .pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	8A
Area (ac)	3.01
Flow Path Length (ft)	770.0
Flow Path Slope (vft/hft)	0.074
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.252
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	34.0
Clear Peak Flow Rate (cfs)	0.3308
Burned Peak Flow Rate (cfs)	0.3308
24-Hr Clear Runoff Volume (ac-ft)	0.1128
24-Hr Clear Runoff Volume (cu-ft)	4913.5485



Peak Flow Hydrologic Analysis

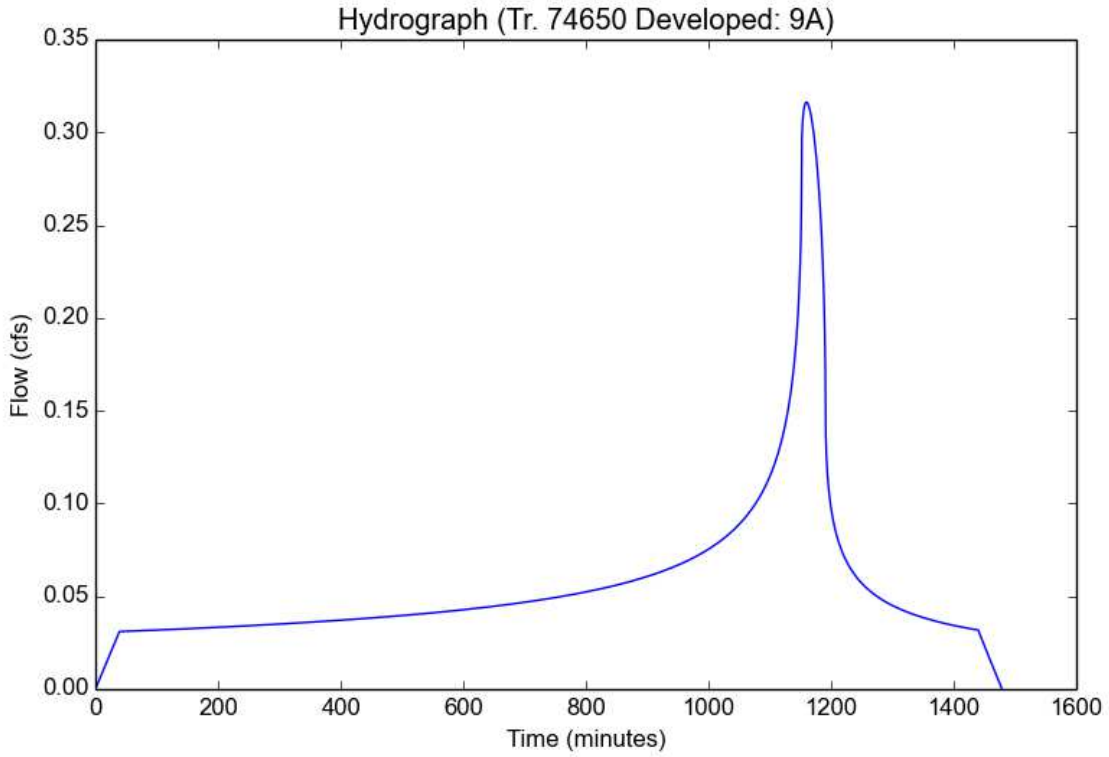
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile_Onsite .pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	9A
Area (ac)	3.07
Flow Path Length (ft)	860.0
Flow Path Slope (vft/hft)	0.056
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.2363
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	39.0
Clear Peak Flow Rate (cfs)	0.3163
Burned Peak Flow Rate (cfs)	0.3163
24-Hr Clear Runoff Volume (ac-ft)	0.115
24-Hr Clear Runoff Volume (cu-ft)	5011.5167



Peak Flow Hydrologic Analysis

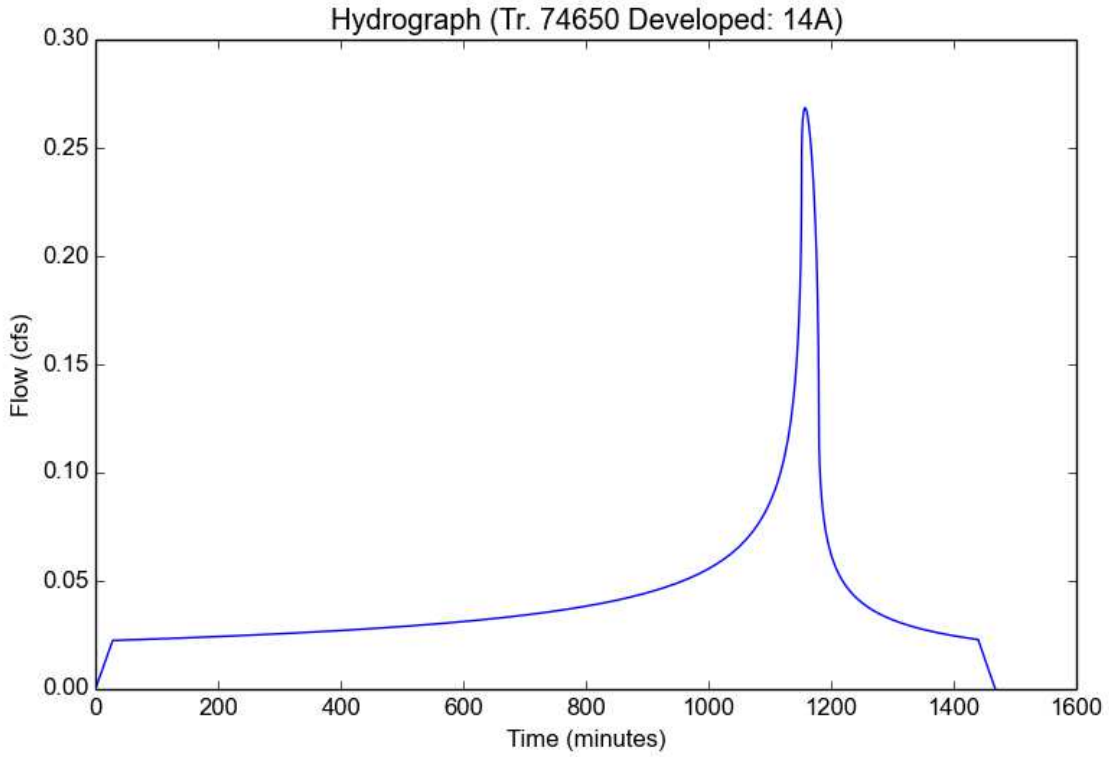
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile_Onsite .pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	14A
Area (ac)	2.23
Flow Path Length (ft)	310.0
Flow Path Slope (vft/hft)	0.01
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.2761
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	28.0
Clear Peak Flow Rate (cfs)	0.2685
Burned Peak Flow Rate (cfs)	0.2685
24-Hr Clear Runoff Volume (ac-ft)	0.0836
24-Hr Clear Runoff Volume (cu-ft)	3640.2527



Peak Flow Hydrologic Analysis

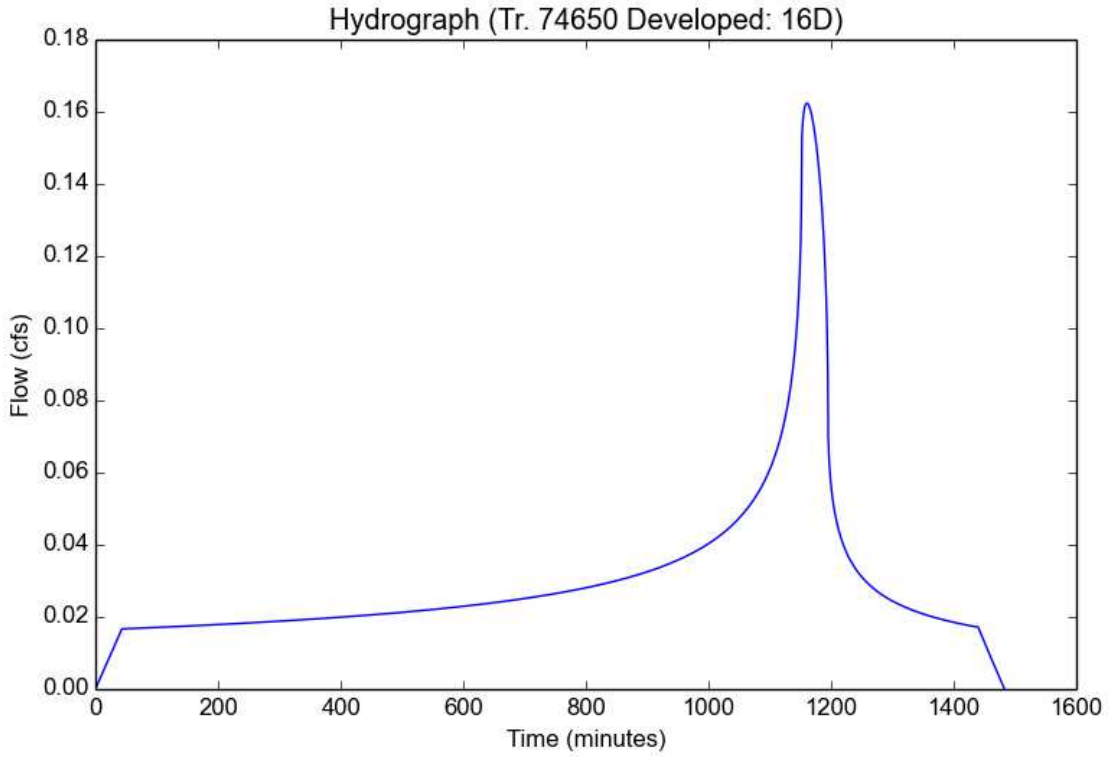
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile_Onsite .pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	16D
Area (ac)	1.65
Flow Path Length (ft)	630.0
Flow Path Slope (vft/hft)	0.01
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.2257
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	43.0
Clear Peak Flow Rate (cfs)	0.1624
Burned Peak Flow Rate (cfs)	0.1624
24-Hr Clear Runoff Volume (ac-ft)	0.0618
24-Hr Clear Runoff Volume (cu-ft)	2693.4977



Peak Flow Hydrologic Analysis

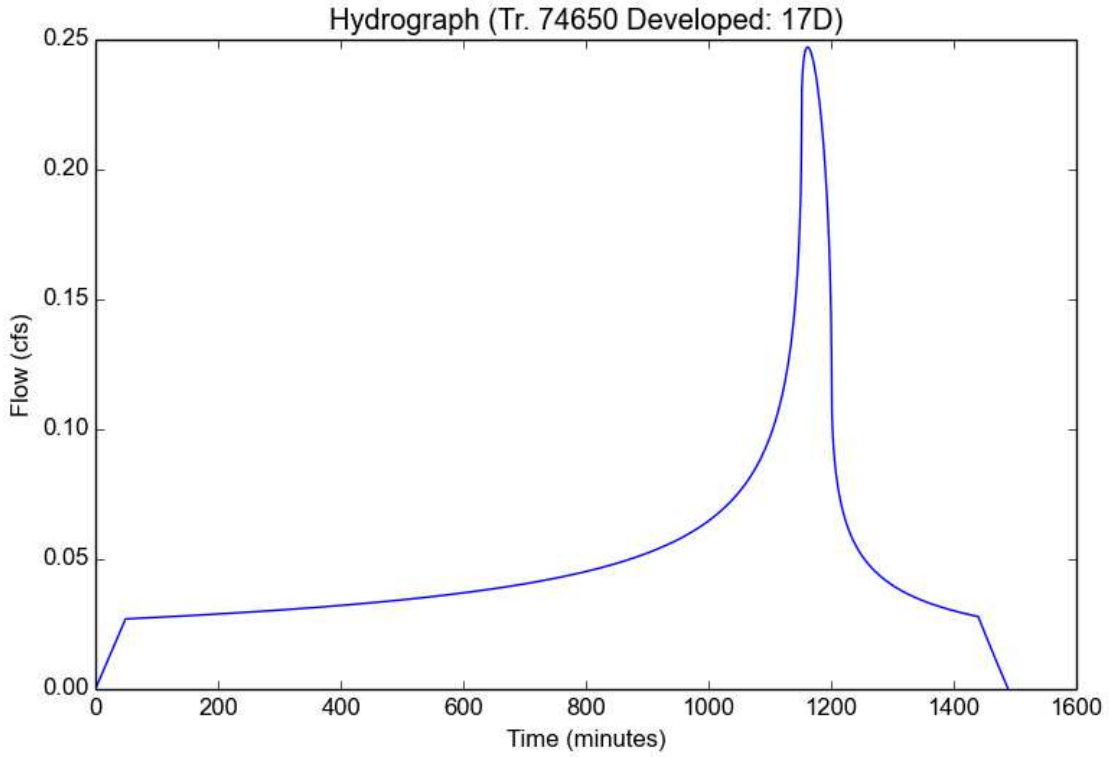
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile_Onsite .pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	17D
Area (ac)	2.67
Flow Path Length (ft)	620.0
Flow Path Slope (vft/hft)	0.005
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.2123
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	49.0
Clear Peak Flow Rate (cfs)	0.2471
Burned Peak Flow Rate (cfs)	0.2471
24-Hr Clear Runoff Volume (ac-ft)	0.1001
24-Hr Clear Runoff Volume (cu-ft)	4358.6005



ONSITE AND OFFSITE
LID HYDROCALC
CALCULATIONS PRINTOUTS

Peak Flow Hydrologic Analysis

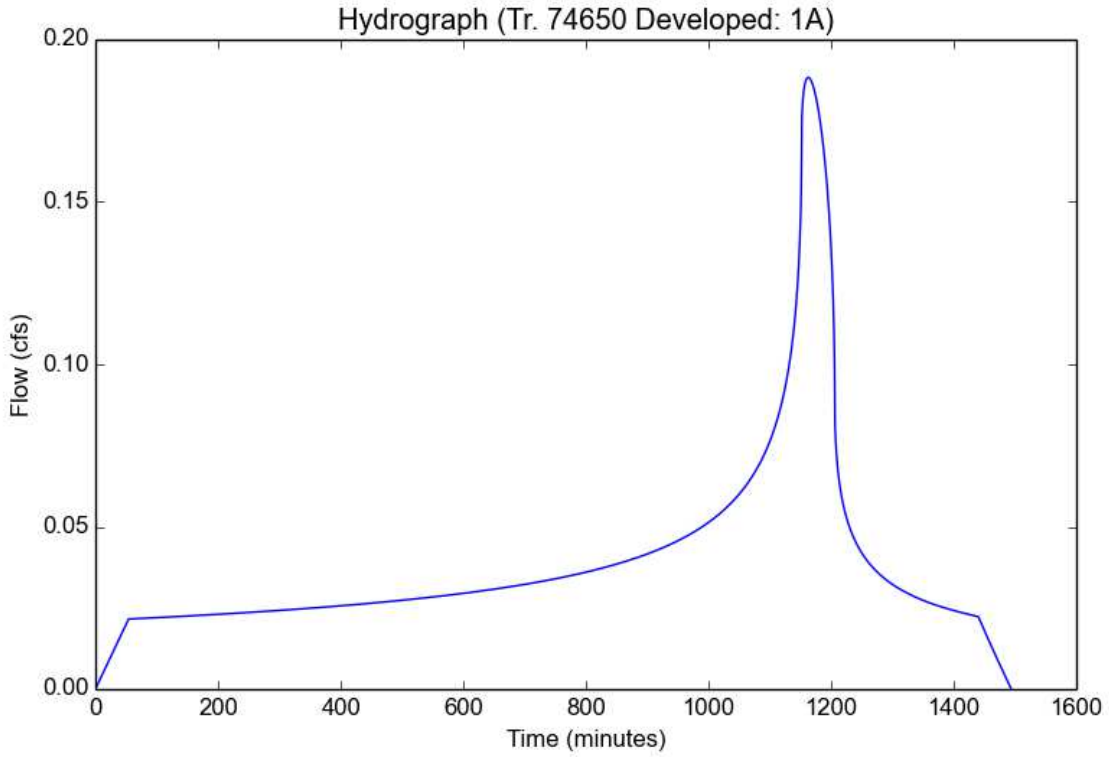
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile Onsite and Offsite.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	1A
Area (ac)	8.6
Flow Path Length (ft)	444.0
Flow Path Slope (vft/hft)	0.17
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	scr
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.2028
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	54.0
Clear Peak Flow Rate (cfs)	0.1883
Burned Peak Flow Rate (cfs)	0.2959
24-Hr Clear Runoff Volume (ac-ft)	0.0798
24-Hr Clear Runoff Volume (cu-ft)	3477.5586



Peak Flow Hydrologic Analysis

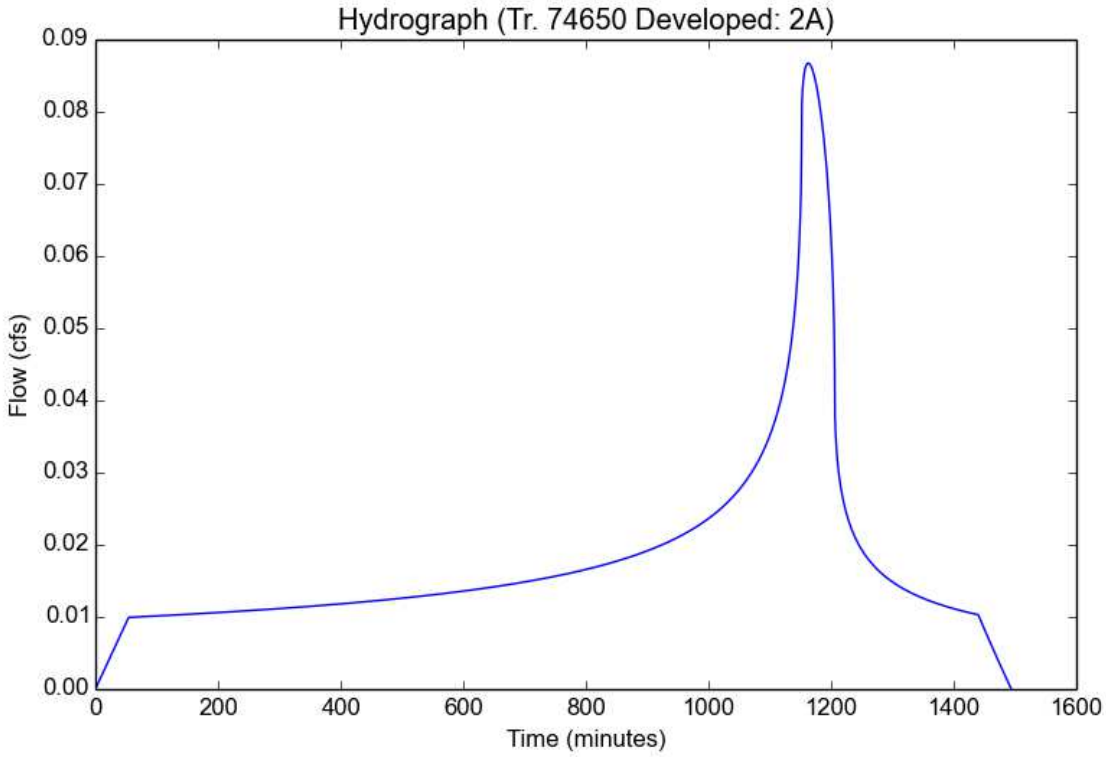
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile Onsite and Offsite.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	2A
Area (ac)	3.96
Flow Path Length (ft)	478.0
Flow Path Slope (vft/hft)	0.24
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	scr
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.2028
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	54.0
Clear Peak Flow Rate (cfs)	0.0867
Burned Peak Flow Rate (cfs)	0.1362
24-Hr Clear Runoff Volume (ac-ft)	0.0368
24-Hr Clear Runoff Volume (cu-ft)	1601.2944



Peak Flow Hydrologic Analysis

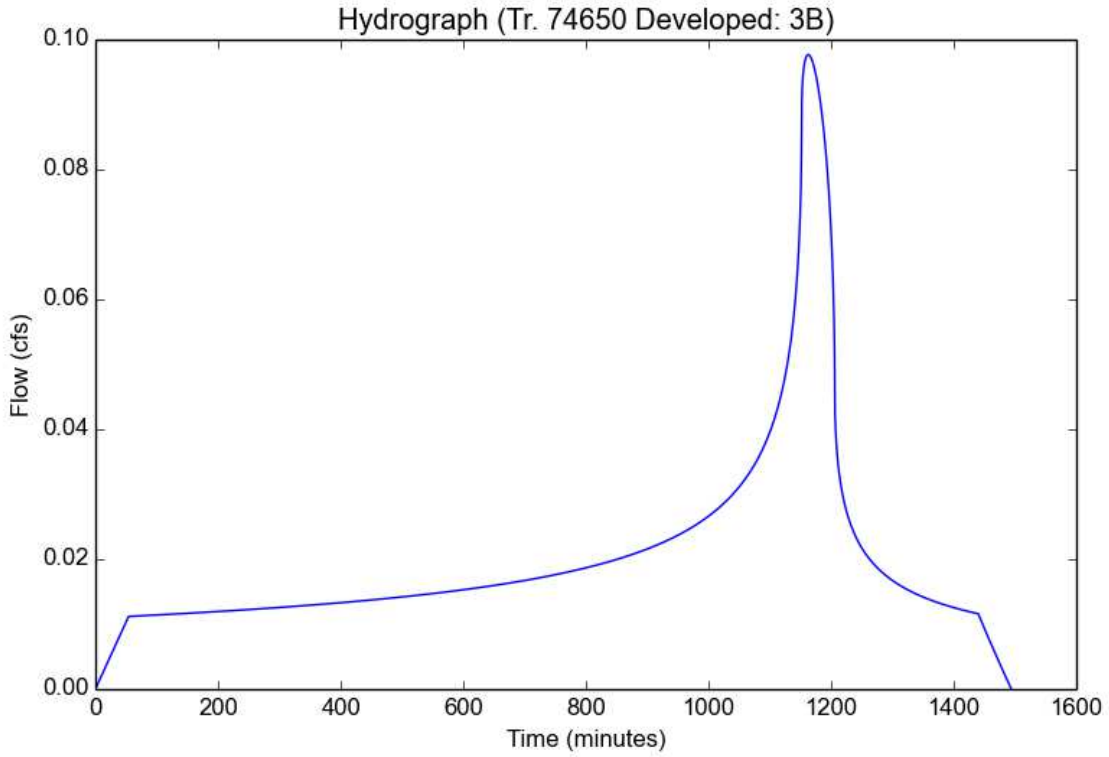
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile Onsite and Offsite.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	3B
Area (ac)	4.46
Flow Path Length (ft)	484.0
Flow Path Slope (vft/hft)	0.25
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	scr
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.2028
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	54.0
Clear Peak Flow Rate (cfs)	0.0977
Burned Peak Flow Rate (cfs)	0.1534
24-Hr Clear Runoff Volume (ac-ft)	0.0414
24-Hr Clear Runoff Volume (cu-ft)	1803.4781



Peak Flow Hydrologic Analysis

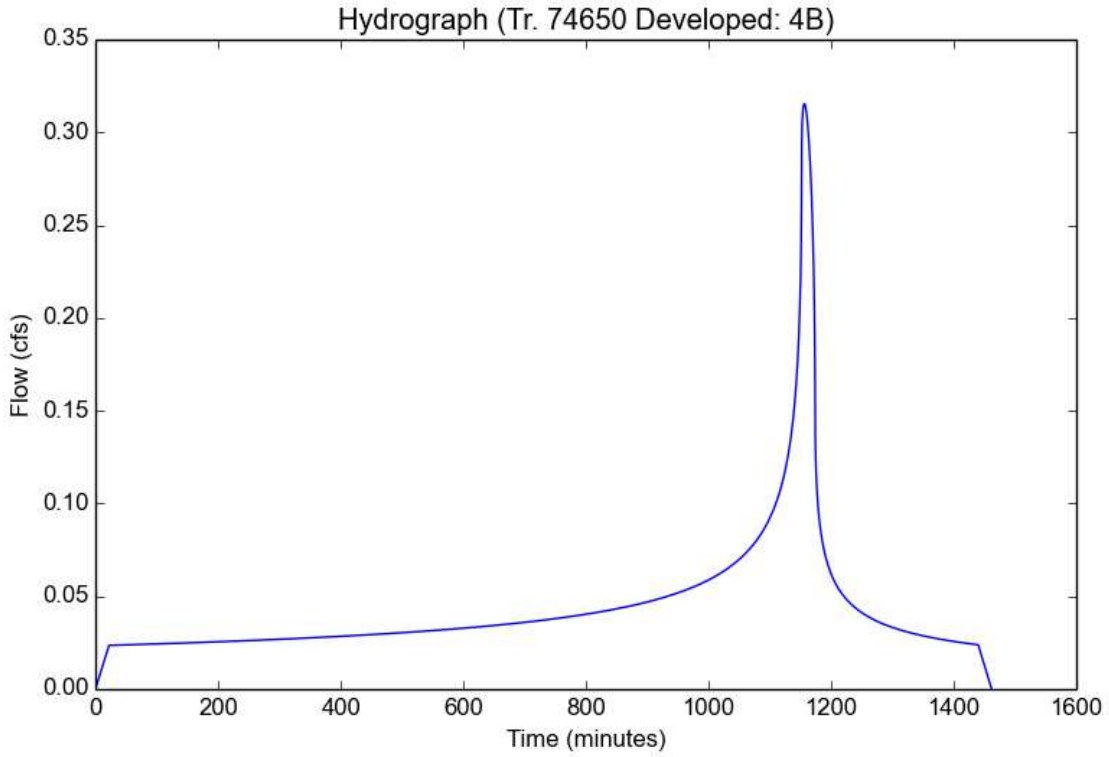
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile Onsite and Offsite.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	4B
Area (ac)	2.34
Flow Path Length (ft)	220.0
Flow Path Slope (vft/hft)	0.01
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.3093
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	22.0
Clear Peak Flow Rate (cfs)	0.3155
Burned Peak Flow Rate (cfs)	0.3155
24-Hr Clear Runoff Volume (ac-ft)	0.0877
24-Hr Clear Runoff Volume (cu-ft)	3819.802



Peak Flow Hydrologic Analysis

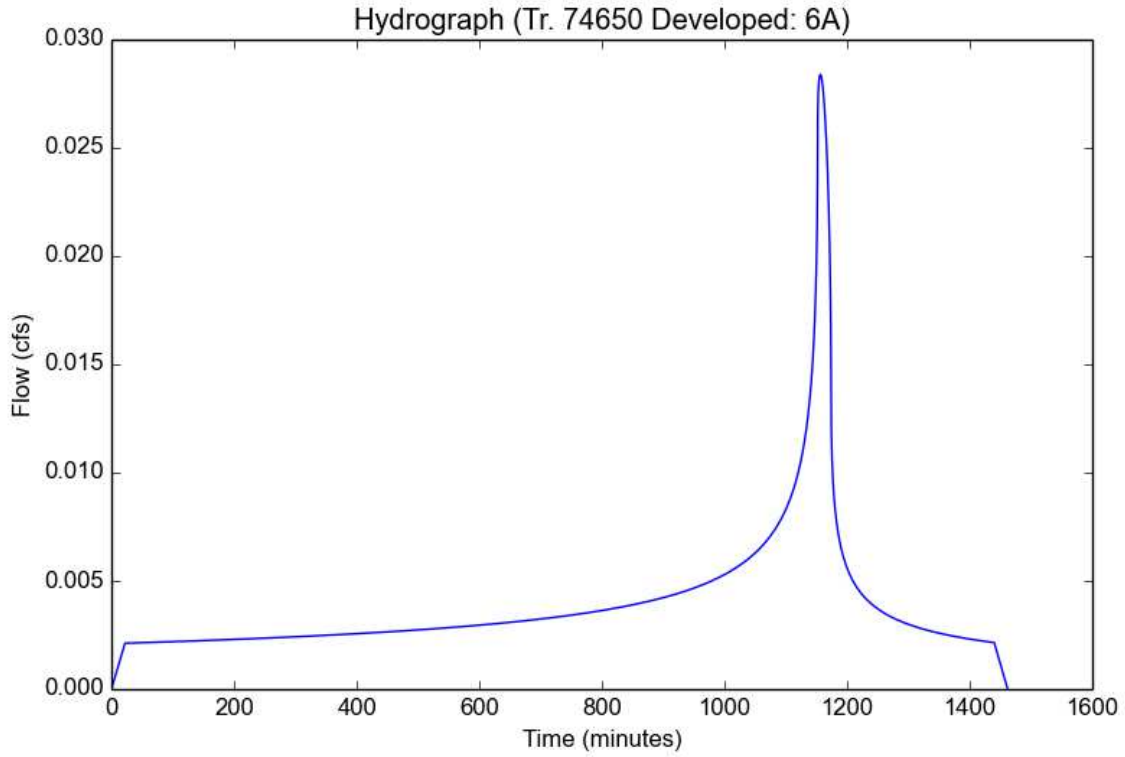
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile Onsite and Offsite.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	6A
Area (ac)	0.85
Flow Path Length (ft)	136.0
Flow Path Slope (vft/hft)	0.39
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	scr
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.3093
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	22.0
Clear Peak Flow Rate (cfs)	0.0284
Burned Peak Flow Rate (cfs)	0.0473
24-Hr Clear Runoff Volume (ac-ft)	0.0079
24-Hr Clear Runoff Volume (cu-ft)	343.7013



Peak Flow Hydrologic Analysis

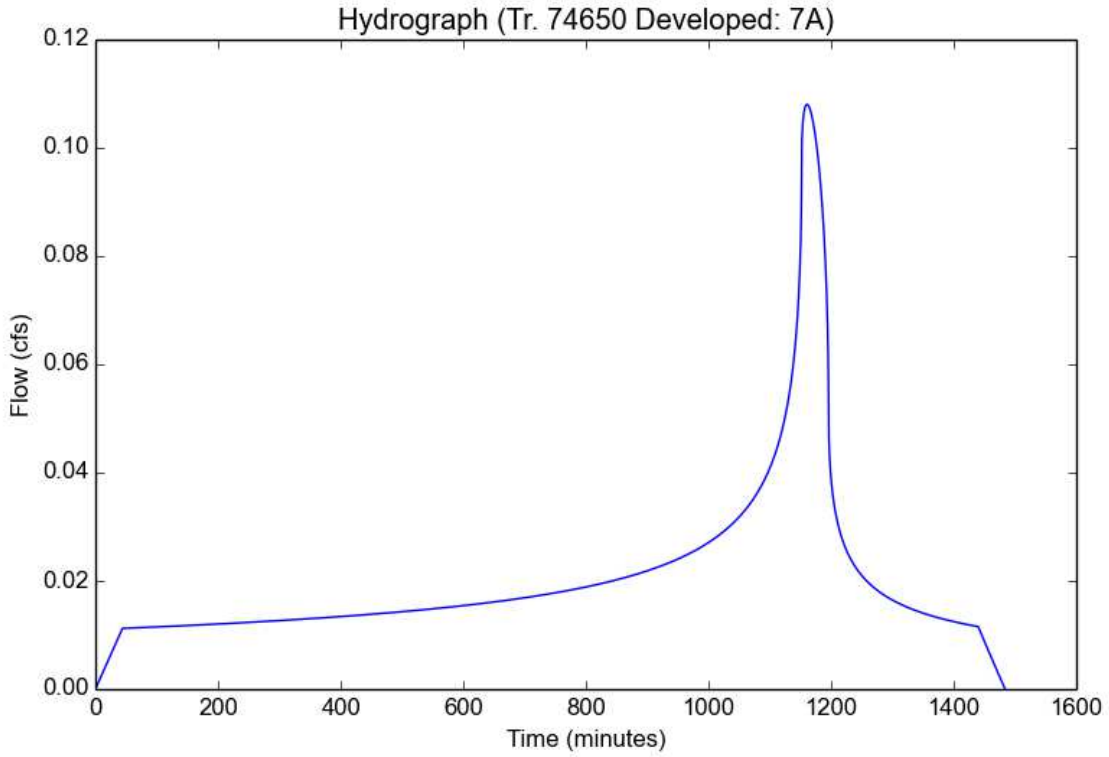
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile Onsite and Offsite.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	7A
Area (ac)	4.48
Flow Path Length (ft)	343.0
Flow Path Slope (vft/hft)	0.23
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	scr
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.2233
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	44.0
Clear Peak Flow Rate (cfs)	0.108
Burned Peak Flow Rate (cfs)	0.1721
24-Hr Clear Runoff Volume (ac-ft)	0.0416
24-Hr Clear Runoff Volume (cu-ft)	1811.5421



Peak Flow Hydrologic Analysis

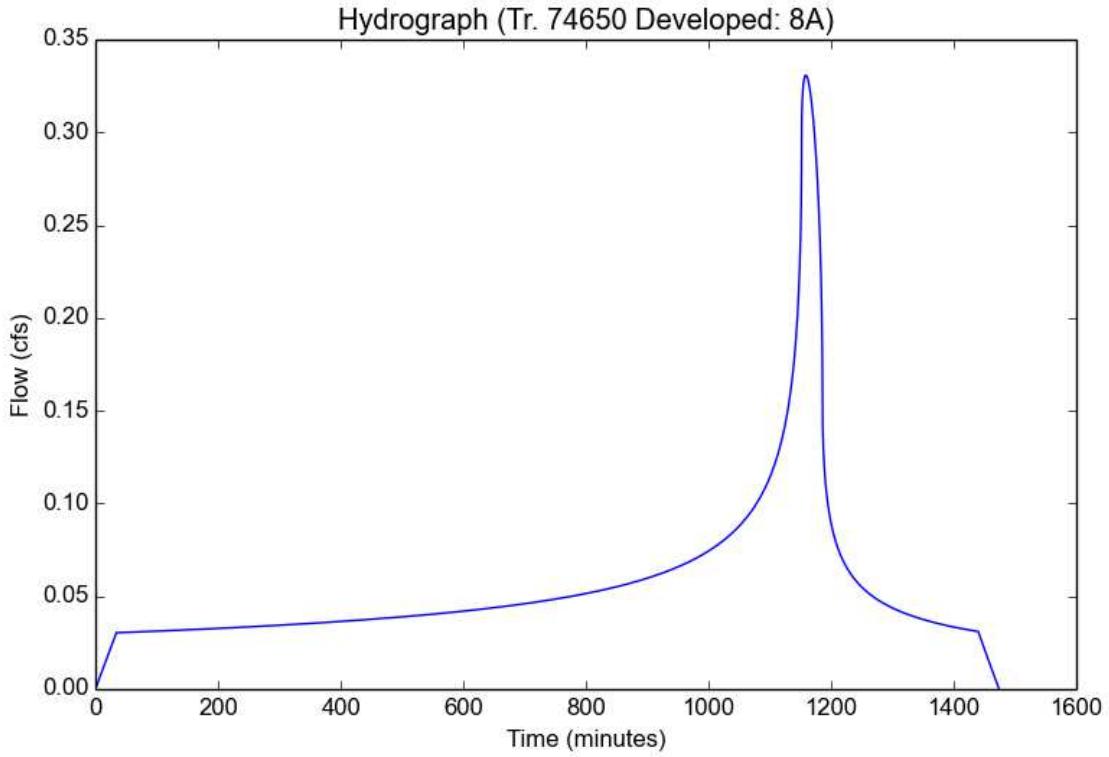
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile Onsite and Offsite.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	8A
Area (ac)	3.01
Flow Path Length (ft)	770.0
Flow Path Slope (vft/hft)	0.074
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.252
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	34.0
Clear Peak Flow Rate (cfs)	0.3308
Burned Peak Flow Rate (cfs)	0.3308
24-Hr Clear Runoff Volume (ac-ft)	0.1128
24-Hr Clear Runoff Volume (cu-ft)	4913.5485



Peak Flow Hydrologic Analysis

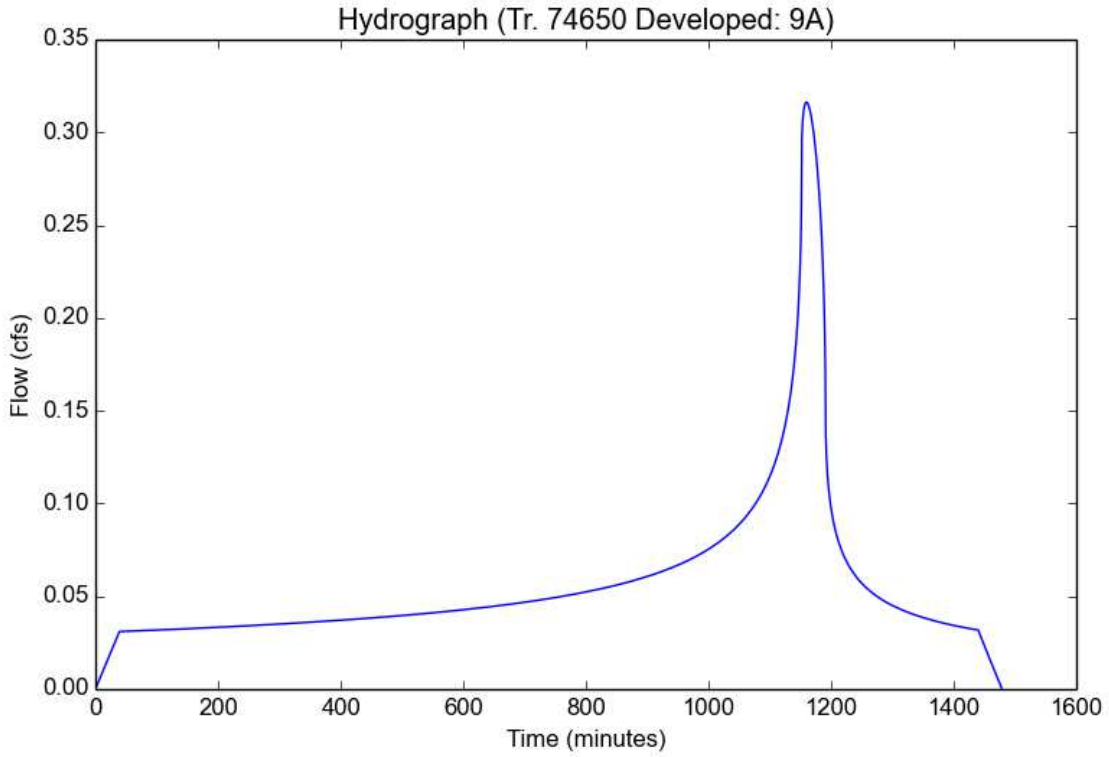
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile Onsite and Offsite.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	9A
Area (ac)	3.07
Flow Path Length (ft)	860.0
Flow Path Slope (vft/hft)	0.056
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.2363
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	39.0
Clear Peak Flow Rate (cfs)	0.3163
Burned Peak Flow Rate (cfs)	0.3163
24-Hr Clear Runoff Volume (ac-ft)	0.115
24-Hr Clear Runoff Volume (cu-ft)	5011.5167



Peak Flow Hydrologic Analysis

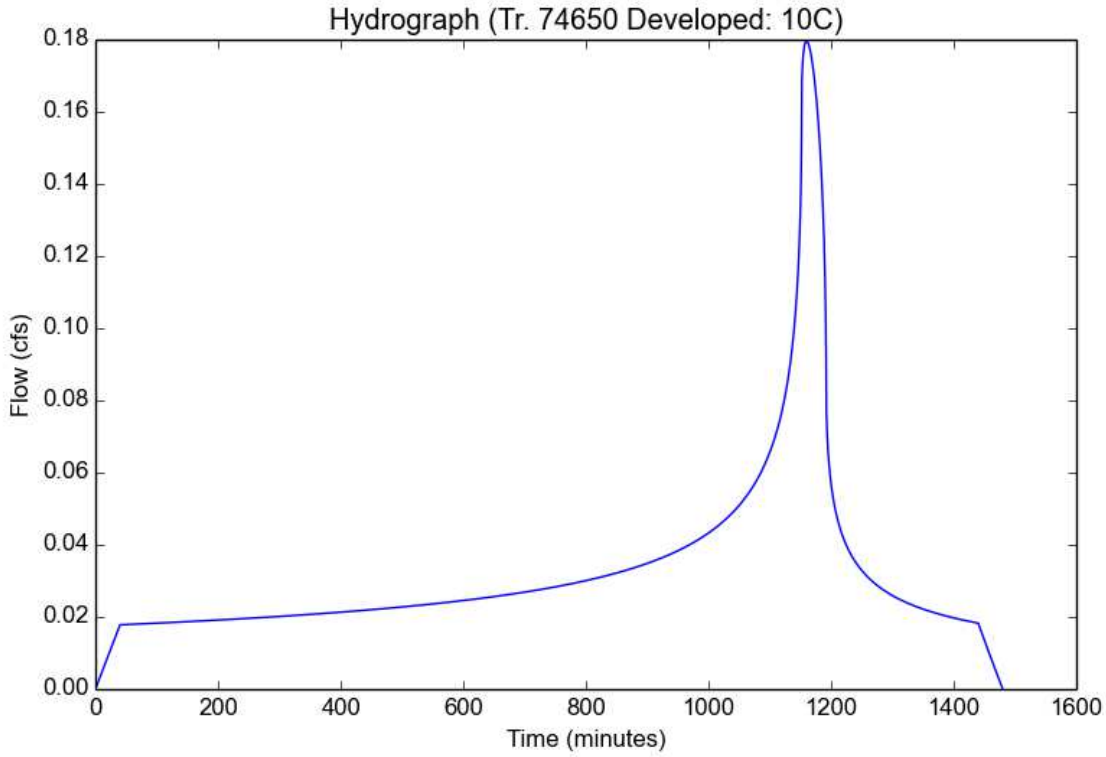
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile Onsite and Offsite.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	10C
Area (ac)	7.12
Flow Path Length (ft)	378.0
Flow Path Slope (vft/hft)	0.56
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	scr
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.2335
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	40.0
Clear Peak Flow Rate (cfs)	0.1796
Burned Peak Flow Rate (cfs)	0.2878
24-Hr Clear Runoff Volume (ac-ft)	0.0661
24-Hr Clear Runoff Volume (cu-ft)	2879.0454



Peak Flow Hydrologic Analysis

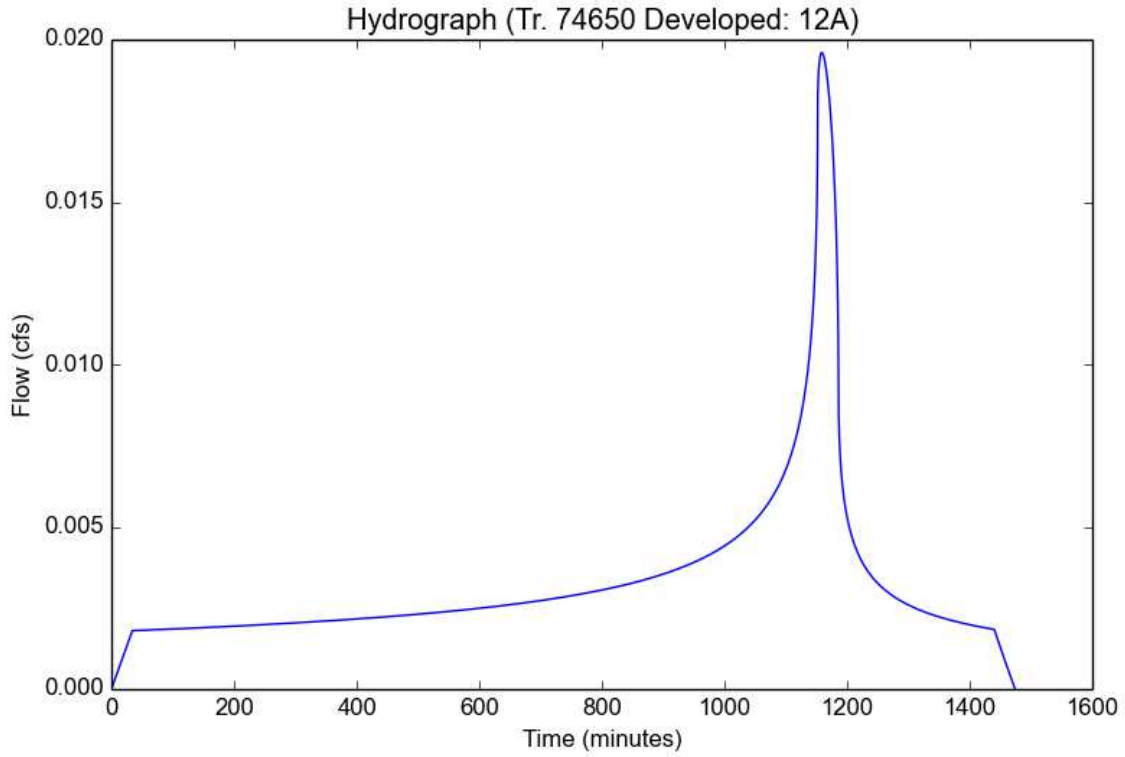
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile Onsite and Offsite.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	12A
Area (ac)	0.72
Flow Path Length (ft)	263.0
Flow Path Slope (vft/hft)	0.39
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	scr
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.252
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	34.0
Clear Peak Flow Rate (cfs)	0.0196
Burned Peak Flow Rate (cfs)	0.0318
24-Hr Clear Runoff Volume (ac-ft)	0.0067
24-Hr Clear Runoff Volume (cu-ft)	291.1377



Peak Flow Hydrologic Analysis

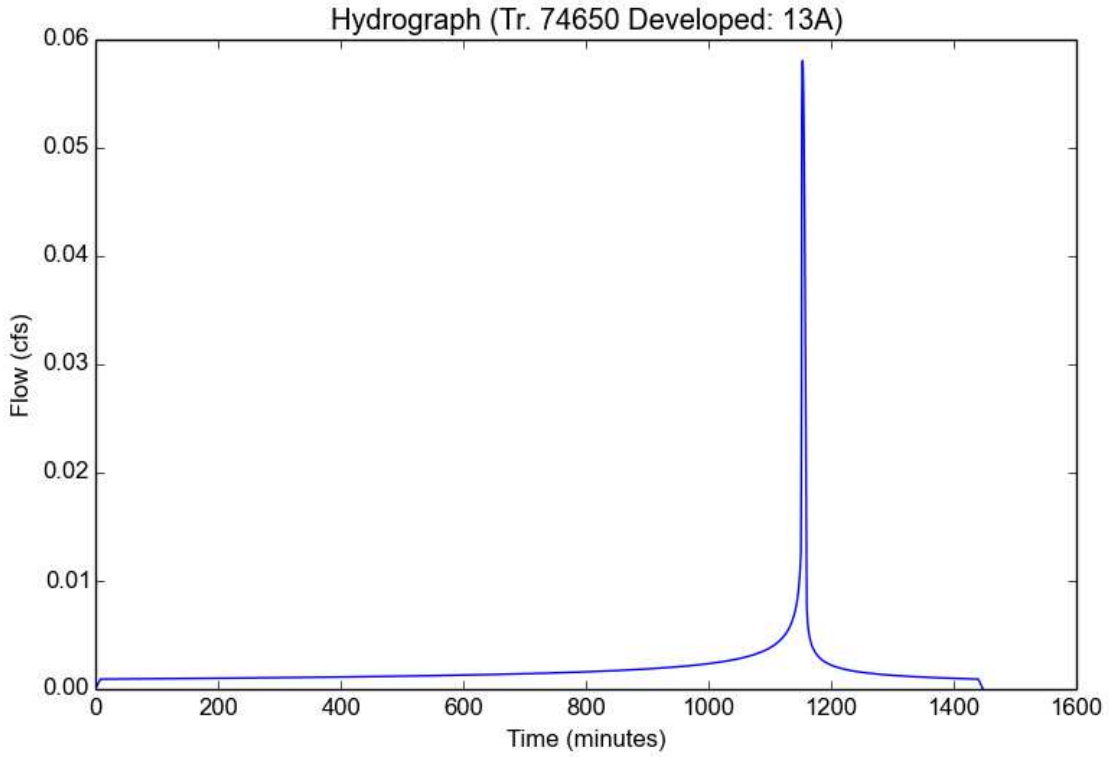
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile Onsite and Offsite.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	13A
Area (ac)	0.37
Flow Path Length (ft)	86.0
Flow Path Slope (vft/hft)	0.44
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	scr
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.4975
Undeveloped Runoff Coefficient (Cu)	0.3094
Developed Runoff Coefficient (Cd)	0.3153
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	0.058
Burned Peak Flow Rate (cfs)	0.0697
24-Hr Clear Runoff Volume (ac-ft)	0.0037
24-Hr Clear Runoff Volume (cu-ft)	162.4551



Peak Flow Hydrologic Analysis

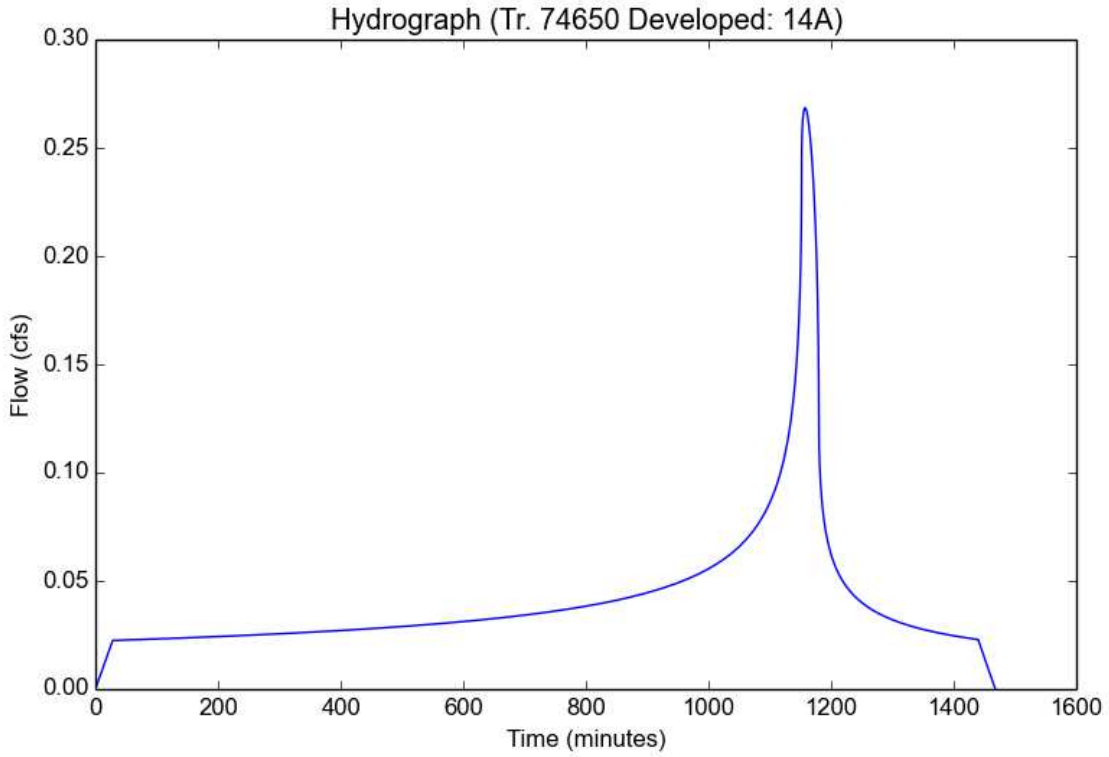
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile Onsite and Offsite.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	14A
Area (ac)	2.23
Flow Path Length (ft)	310.0
Flow Path Slope (vft/hft)	0.01
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.2761
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	28.0
Clear Peak Flow Rate (cfs)	0.2685
Burned Peak Flow Rate (cfs)	0.2685
24-Hr Clear Runoff Volume (ac-ft)	0.0836
24-Hr Clear Runoff Volume (cu-ft)	3640.2527



Peak Flow Hydrologic Analysis

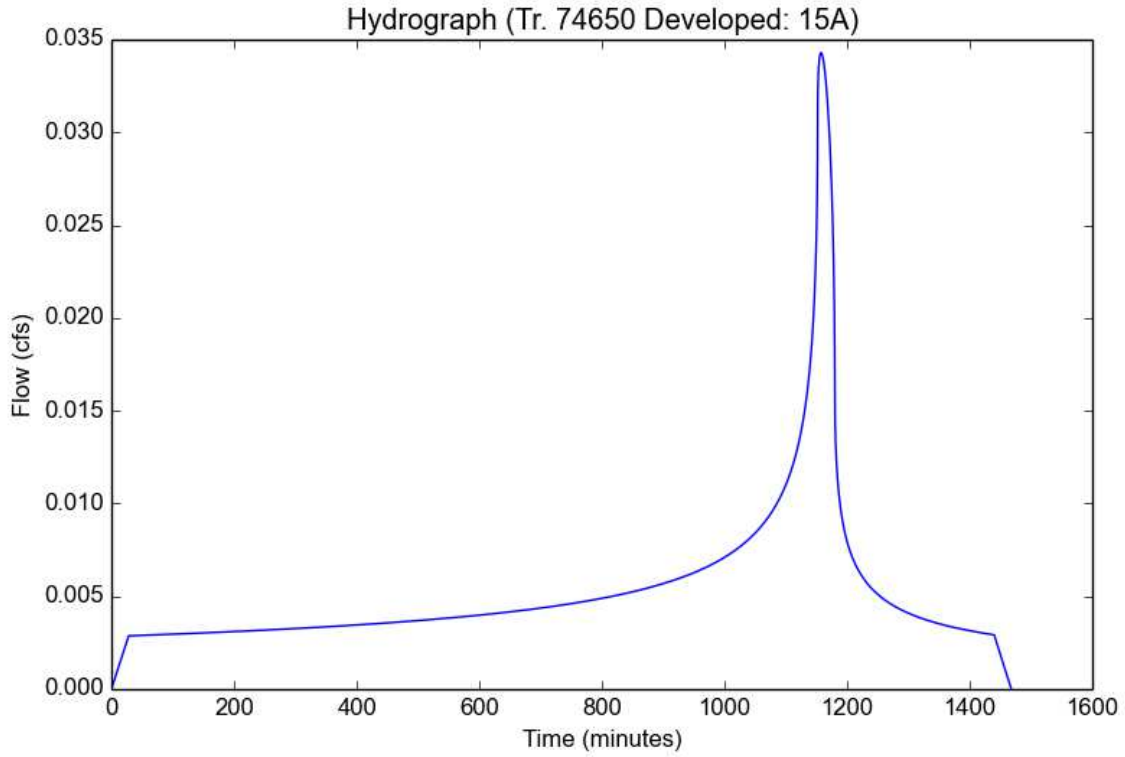
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile Onsite and Offsite.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	15A
Area (ac)	1.15
Flow Path Length (ft)	181.0
Flow Path Slope (vft/hft)	0.29
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	scr
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.2761
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	28.0
Clear Peak Flow Rate (cfs)	0.0343
Burned Peak Flow Rate (cfs)	0.0563
24-Hr Clear Runoff Volume (ac-ft)	0.0107
24-Hr Clear Runoff Volume (cu-ft)	465.0094



Peak Flow Hydrologic Analysis

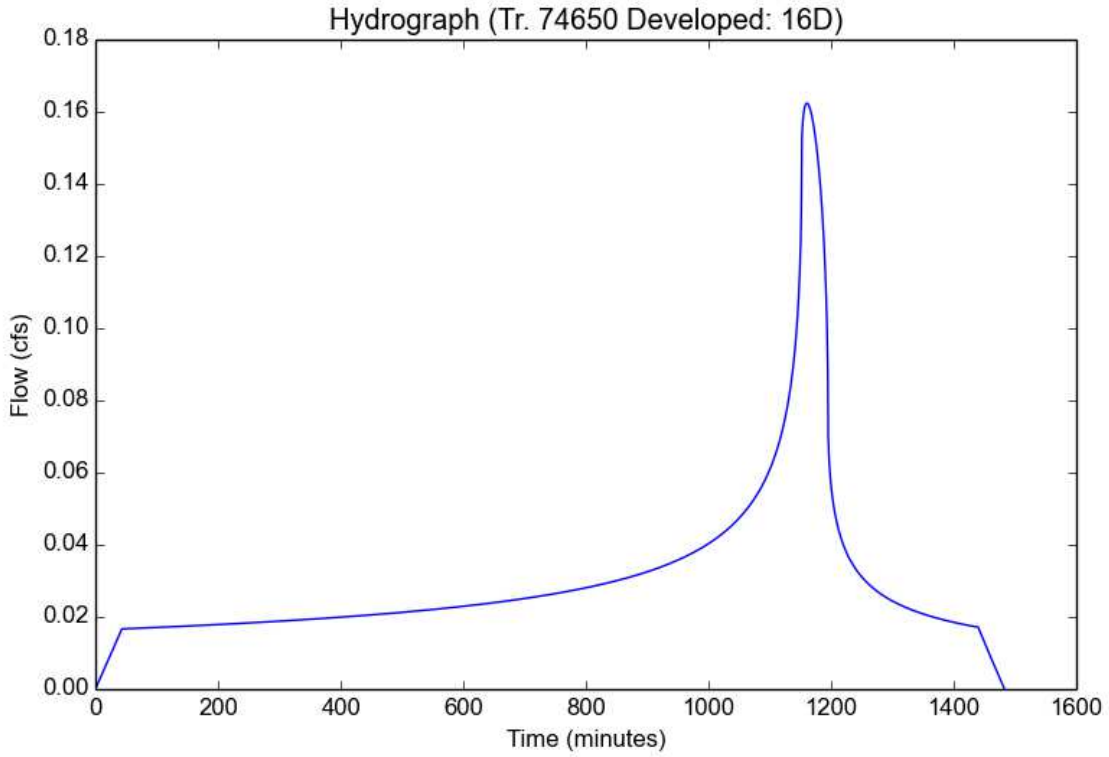
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile Onsite and Offsite.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	16D
Area (ac)	1.65
Flow Path Length (ft)	630.0
Flow Path Slope (vft/hft)	0.01
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.2257
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	43.0
Clear Peak Flow Rate (cfs)	0.1624
Burned Peak Flow Rate (cfs)	0.1624
24-Hr Clear Runoff Volume (ac-ft)	0.0618
24-Hr Clear Runoff Volume (cu-ft)	2693.4977



Peak Flow Hydrologic Analysis

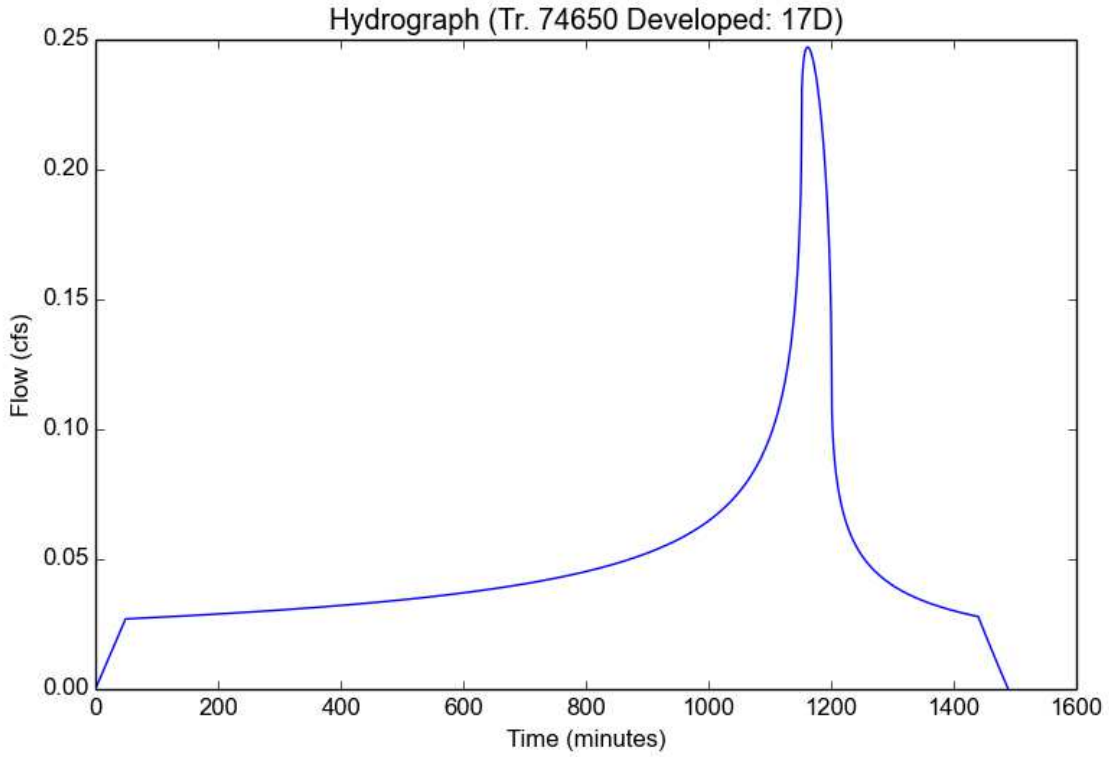
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile Onsite and Offsite.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	17D
Area (ac)	2.67
Flow Path Length (ft)	620.0
Flow Path Slope (vft/hft)	0.005
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.2123
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	49.0
Clear Peak Flow Rate (cfs)	0.2471
Burned Peak Flow Rate (cfs)	0.2471
24-Hr Clear Runoff Volume (ac-ft)	0.1001
24-Hr Clear Runoff Volume (cu-ft)	4358.6005



Peak Flow Hydrologic Analysis

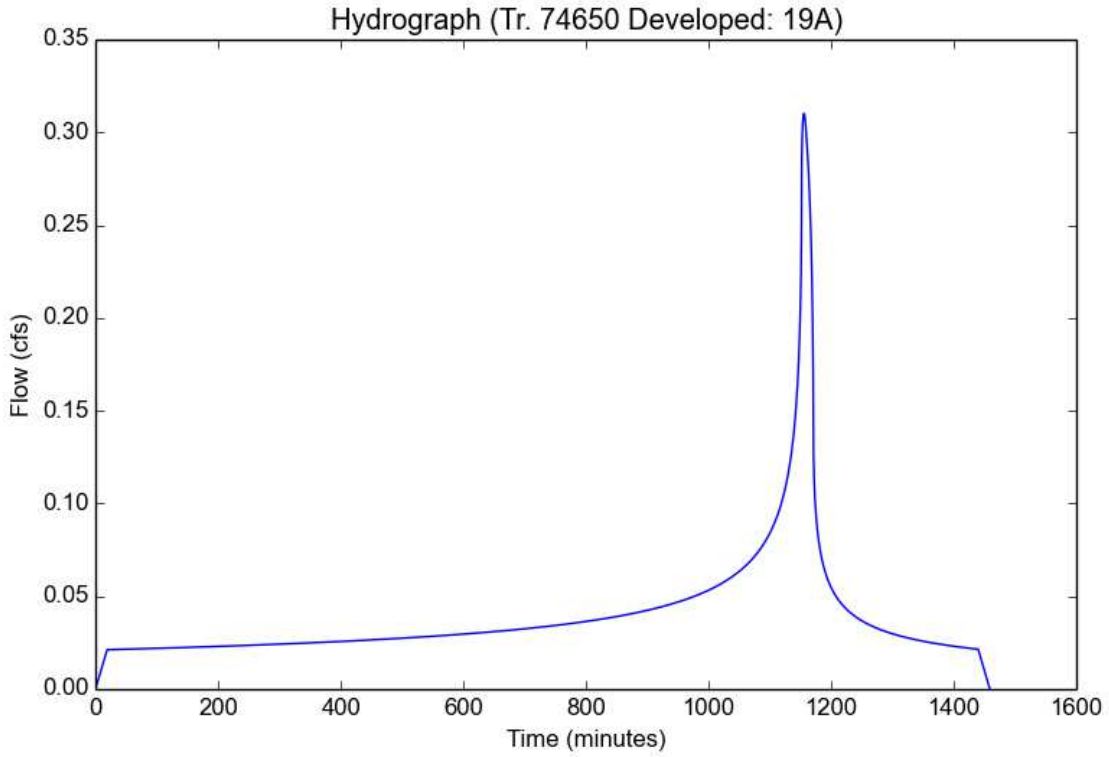
File location: H:/Oakridge/Hydrology/Analysis Data/LID/85th Percentile Onsite and Offsite.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Tr. 74650 Developed
Subarea ID	19A
Area (ac)	2.11
Flow Path Length (ft)	290.0
Flow Path Slope (vft/hft)	0.062
85th Percentile Rainfall Depth (in)	1.04
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.04
Peak Intensity (in/hr)	0.3313
Undeveloped Runoff Coefficient (Cu)	0.1133
Developed Runoff Coefficient (Cd)	0.4437
Time of Concentration (min)	19.0
Clear Peak Flow Rate (cfs)	0.3102
Burned Peak Flow Rate (cfs)	0.3102
24-Hr Clear Runoff Volume (ac-ft)	0.0791
24-Hr Clear Runoff Volume (cu-ft)	3446.0139



SECTION 5
BMP INFORMATION

S-1: Storm Drain Message and Signage

Purpose

Waste material dumped into storm drain inlets can adversely impact surface and ground waters. In fact, any material discharged into the storm drain system has the potential to significantly impact downstream receiving waters. Storm drain messages have become a popular method of alerting and reminding the public about the effects of and the prohibitions against waste disposal into the storm drain system. The signs are typically stenciled or affixed near the storm drain inlet or catch basin. The message simply informs the public that dumping of wastes into storm drain inlets is prohibited and/or that the drain ultimately discharges into receiving waters.

General Guidance

- The signs must be placed so they are easily visible to the public.
- Be aware that signs placed on sidewalk will be worn by foot traffic.

Design Specifications

- Signs with language and/or graphical icons that prohibit illegal dumping, must be posted at designated public access points along channels and streams within the project area. Consult with Los Angeles County Department of Public Works (LACDPW) staff to determine specific signage requirements for channels and streams.
- Storm drain message markers, placards, concrete stamps, or stenciled language/icons (e.g., "No Dumping – Drains to the Ocean") are required at all storm drain inlets and catch basins within the project area to discourage illegal or inadvertent dumping. Signs should be placed in clear sight facing anyone approaching the storm drain inlet or catch basin from either side (see Figure D-1 and Figure D-2). LACDPW staff should be contacted to determine specific requirements for types of signs and methods of application. A stencil can be purchased for a nominal fee from LACDPW Building and Safety Office by calling (626) 458-3171. All storm drain inlet and catch basin locations must be identified on the project site map.

Maintenance Requirements

Legibility and visibility of markers and signs should be maintained (e.g., signs should be repainted or replaced as necessary). If required by LACDPW, the owner/operator or homeowner's association shall enter into a maintenance agreement with the agency or record a deed restriction upon the property title to maintain the legibility of placards and signs.

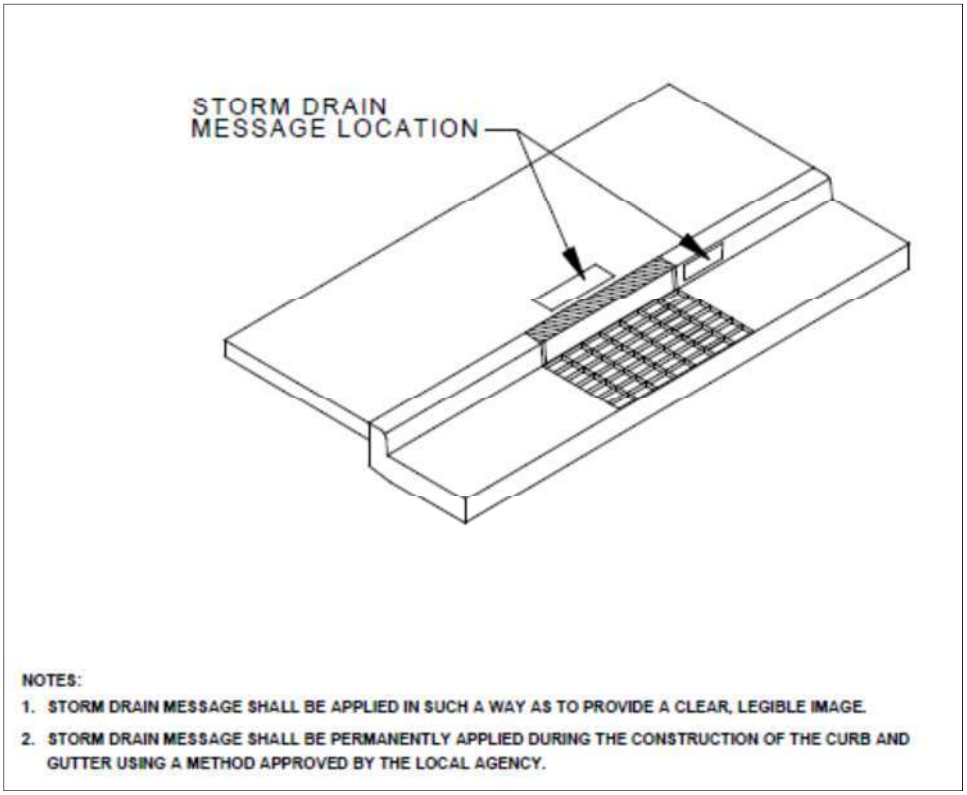


Figure D-1. Storm Drain Message Location – Curb Type Inlet

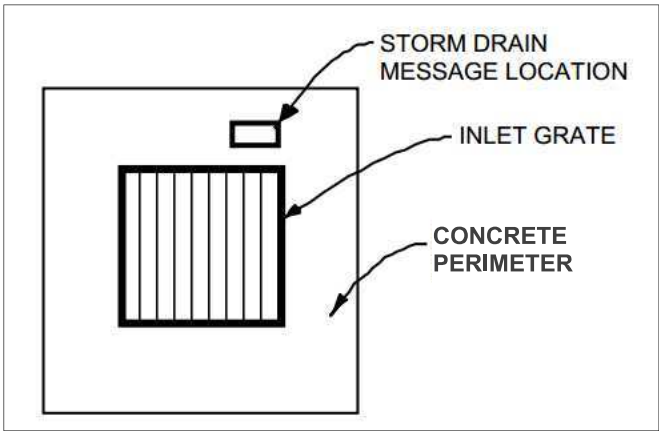


Figure D-2. Storm Drain Message Location – Catch Basin/Area Type Inlet

S-8: Landscape Irrigation Practices

Purpose

Irrigation runoff provides a pathway for pollutants (i.e., nutrients, bacteria, organics, sediment) to enter the storm drain system. By effectively irrigating, less runoff is produced resulting in less potential for pollutants to enter the storm drain system.

General Guidance

- Do not allow irrigation runoff from the landscaped area to drain directly to storm drain system.
- Minimize use of fertilizer, pesticides, and herbicides on landscaped areas.
- Plan sites with sufficient landscaped area and dispersal capacity (e.g., ability to receive irrigation water without generating runoff).
- Consult a landscape professional regarding appropriate plants, fertilizer, mulching applications, and irrigation requirements (if any) to ensure healthy vegetation growth.

Design Specifications

- Choose plants that minimize the need for fertilizer and pesticides.
- Group plants with similar water requirements and water accordingly.
- Use mulch to minimize evaporation and erosion.
- Include a vegetative boundary around project site to act as a filter.
- Design the irrigation system to only water areas that need it.
- Install an approved subsurface drip, pop-up, or other irrigation system.[1] The irrigation system should employ effective energy dissipation and uniform flow spreading methods to prevent erosion and facilitate efficient dispersion.
- Install rain sensors to shut off the irrigation system during and after storm events.
- Include pressure sensors to shut off flow-through system in case of sudden pressure drop. A sudden pressure drop may indicate a broken irrigation head or water line.
- If the hydraulic conductivity in the soil is not sufficient for the necessary water application rate, implement soil amendments to avoid potential geotechnical hazards (i.e., liquefaction, landslide, collapsible soils, and expansive soils).

[1] If alternative distribution systems (e.g., spray irrigation) are approved, the County will establish guidelines to implement these new systems.

- For sites located on or within 50 feet of a steep slope (15% or greater), do not irrigate landscape within three days of a storm event to avoid potential geotechnical instability.[2]
- Implement Integrated Pest Management practices.

For additional guidelines and requirements, refer to the Los Angeles County Department of Health Services.

Maintenance Requirements

Maintain irrigation areas to remove trash and debris and loose vegetation. Rehabilitate areas of bare soil. If a rain or pressure sensor is installed, it should be checked periodically to ensure proper function. Inspect and maintain irrigation equipment and components to ensure proper functionality. Clean equipment as necessary to prevent algae growth and vector breeding. Maintenance agreements between LACDPW and the owner/operator may be required. Failure to properly maintain building and property may subject the property owner to citation.

[2] As determined by the City of Los Angeles, Building and Safety Division

S-9: Building Materials Selection

Purpose

Building materials can potentially contribute pollutants of concern to stormwater runoff through leaching. For example, metal buildings, roofing, and fencing materials may be significant sources of metals in stormwater runoff, especially due to acidic precipitation. The use of alternative building materials can reduce pollutant sources in stormwater runoff by eliminating compounds that can leach into stormwater runoff. Alternative building materials may also reduce the need to perform maintenance activities (i.e., painting) that involve pollutants of concern, and may reduce the volume of stormwater runoff. Alternative materials are available to replace lumber and paving.

Design Specifications

Lumber

Decks and other house components constructed using pressure-treated wood that is typically treated using arsenate, copper, and chromium compounds are hazardous to the environment. Pressure-treated wood may be replaced with cement-fiber or vinyl.

Roofs, Fencing, and Metals

Minimizing the use of copper and galvanized (zinc-coated) metals on buildings and fencing can reduce leaching of these pollutants into stormwater runoff. The following building materials are conventionally made of galvanized metals:

- Metal roofs;
- Chain-link fencing and siding; and
- Metal downspouts, vents, flashing, and trim on roofs.

Architectural use of copper for roofs and gutters should be avoided. As an alternative to copper and galvanized materials, coated metal products are available for both roofing and gutter application. Vinyl-coated fencing is an alternative to traditional galvanized chain-link fences. These products eliminate contact of bare metal with precipitation or stormwater runoff, and reduce the potential for stormwater runoff contamination. Roofing materials are also made of recycled rubber and plastic.

Green roofs may be an option. Green roofs use vegetation such as grasses and other plants as an exterior surface. The plants reduce the velocity of stormwater runoff and absorb water to reduce the volume of stormwater runoff. One potential problem with using green roofs in the Los Angeles County area is the long, hot and dry summers, which may kill the plants if they are not watered. See the Green Roof Fact Sheet (RET-7) in Appendix E.

Pesticides

The use of pesticides around foundations can be reduced through the use of alternative barriers. Sand barriers can be applied around foundations to deter termites, as they cannot tunnel through sand. Metal shields also block termites from tunneling. Additionally, diatomaceous earth can be used to repel or kill a wide variety of other pests.

Maintenance Requirements

The integrity of structural elements that are subject to damage (e.g., signs) must be maintained by the owner/operator as required by local codes and ordinances. Maintenance agreements between LACDPW and the owner/operator may be required. Failure to properly maintain building and property may subject the property owner to citation.

SECTION 6
EXISTING AND PROPOSED CONDITION HYDROCALC PRINTOUTS

EXISTING CONDITION
HYDROCALC PRINTOUTS

Peak Flow Hydrologic Analysis

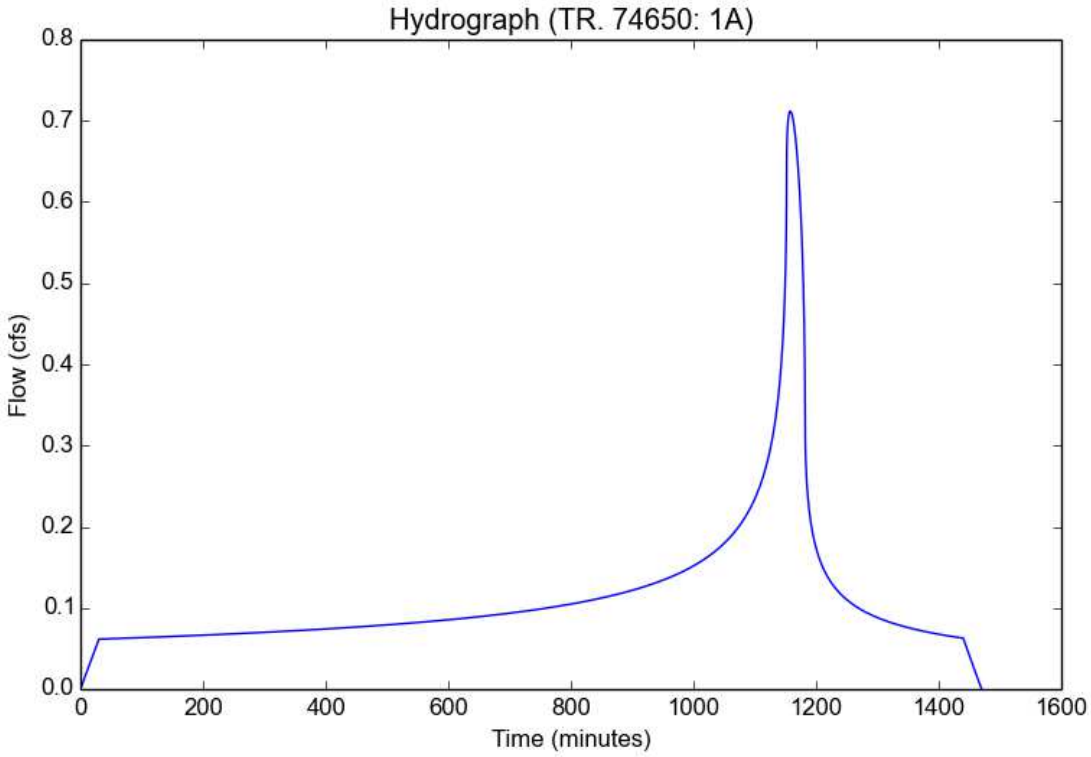
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	1A
Area (ac)	21.4
Flow Path Length (ft)	1556.0
Flow Path Slope (vft/hft)	0.1
50-yr Rainfall Depth (in)	3.096
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	scr
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1982
Peak Intensity (in/hr)	0.308
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.7117
Burned Peak Flow Rate (cfs)	1.1846
24-Hr Clear Runoff Volume (ac-ft)	0.2289
24-Hr Clear Runoff Volume (cu-ft)	9969.1225



Peak Flow Hydrologic Analysis

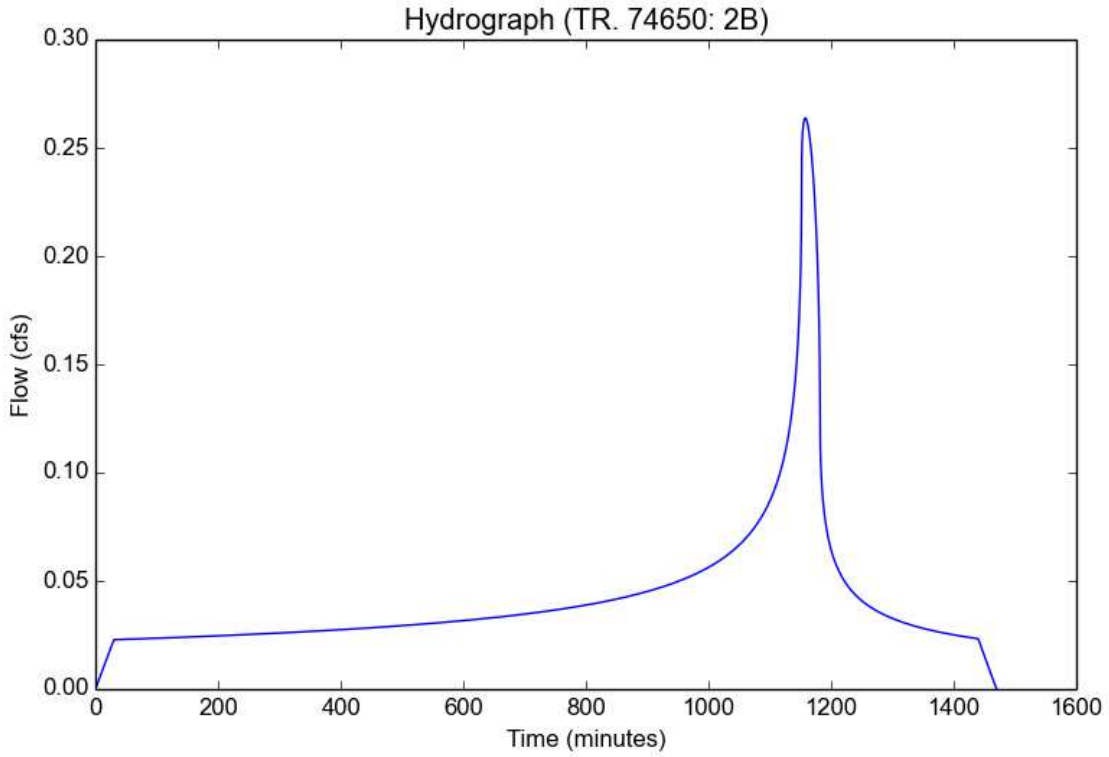
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	2B
Area (ac)	7.93
Flow Path Length (ft)	897.0
Flow Path Slope (vft/hft)	0.15
50-yr Rainfall Depth (in)	3.096
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	scr
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1982
Peak Intensity (in/hr)	0.308
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.2637
Burned Peak Flow Rate (cfs)	0.439
24-Hr Clear Runoff Volume (ac-ft)	0.0848
24-Hr Clear Runoff Volume (cu-ft)	3694.1655



Peak Flow Hydrologic Analysis

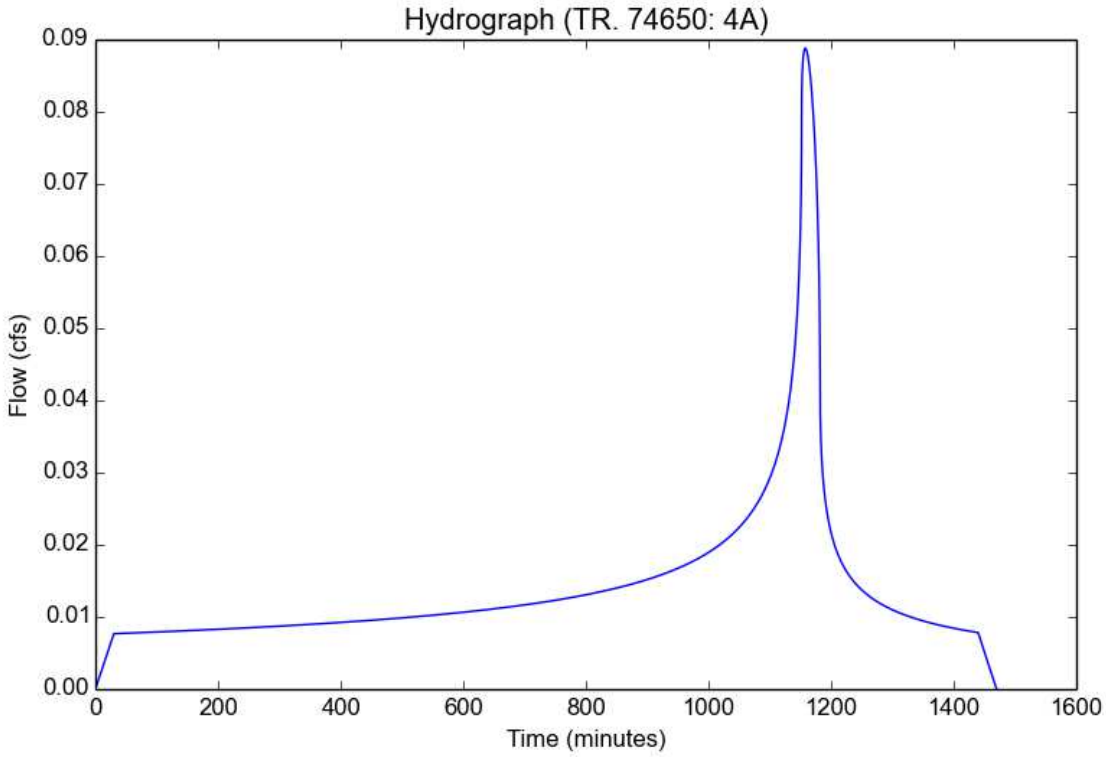
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	4A
Area (ac)	2.67
Flow Path Length (ft)	419.0
Flow Path Slope (vft/hft)	0.06
50-yr Rainfall Depth (in)	3.096
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	scr
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1982
Peak Intensity (in/hr)	0.308
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.0888
Burned Peak Flow Rate (cfs)	0.1478
24-Hr Clear Runoff Volume (ac-ft)	0.0286
24-Hr Clear Runoff Volume (cu-ft)	1243.8111



Peak Flow Hydrologic Analysis

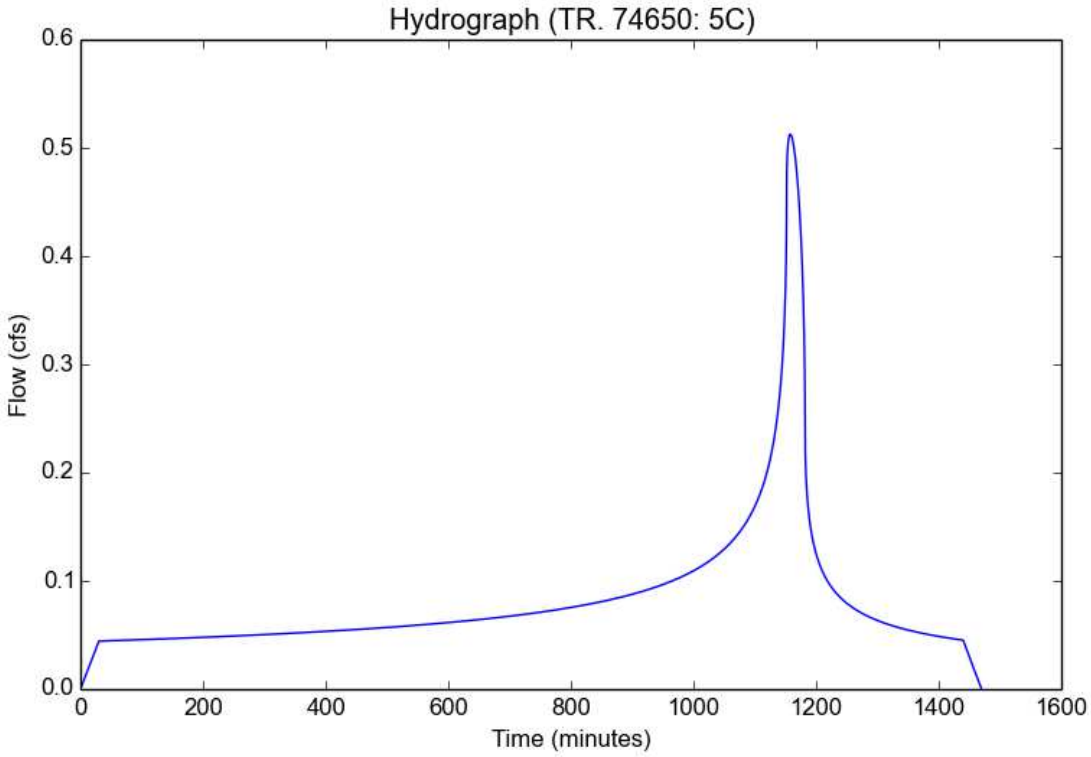
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	5C
Area (ac)	15.41
Flow Path Length (ft)	1161.0
Flow Path Slope (vft/hft)	0.2
50-yr Rainfall Depth (in)	3.096
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	scr
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1982
Peak Intensity (in/hr)	0.308
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.5125
Burned Peak Flow Rate (cfs)	0.853
24-Hr Clear Runoff Volume (ac-ft)	0.1648
24-Hr Clear Runoff Volume (cu-ft)	7178.6999



Peak Flow Hydrologic Analysis

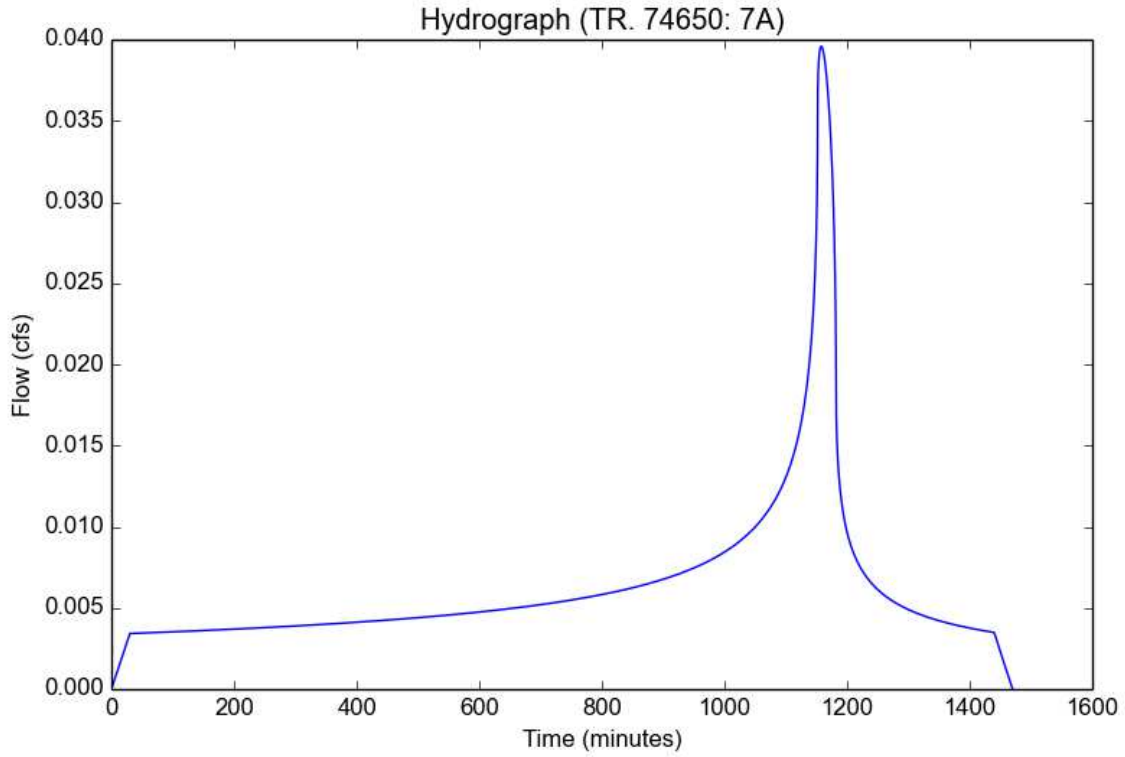
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	7A
Area (ac)	1.19
Flow Path Length (ft)	296.0
Flow Path Slope (vft/hft)	0.02
50-yr Rainfall Depth (in)	3.096
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	scr
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1982
Peak Intensity (in/hr)	0.308
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.0396
Burned Peak Flow Rate (cfs)	0.0659
24-Hr Clear Runoff Volume (ac-ft)	0.0127
24-Hr Clear Runoff Volume (cu-ft)	554.3577



Peak Flow Hydrologic Analysis

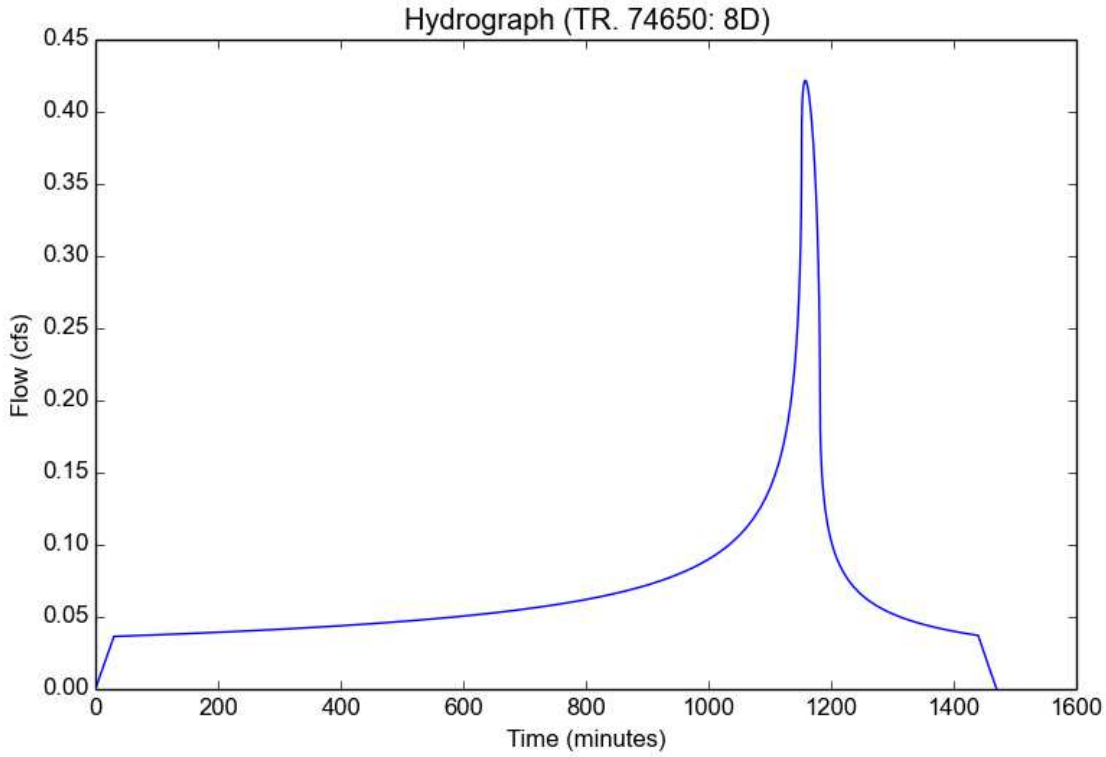
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	8D
Area (ac)	12.68
Flow Path Length (ft)	1394.0
Flow Path Slope (vft/hft)	0.018
50-yr Rainfall Depth (in)	3.096
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	scr
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1982
Peak Intensity (in/hr)	0.308
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.4217
Burned Peak Flow Rate (cfs)	0.7019
24-Hr Clear Runoff Volume (ac-ft)	0.1356
24-Hr Clear Runoff Volume (cu-ft)	5906.938



Peak Flow Hydrologic Analysis

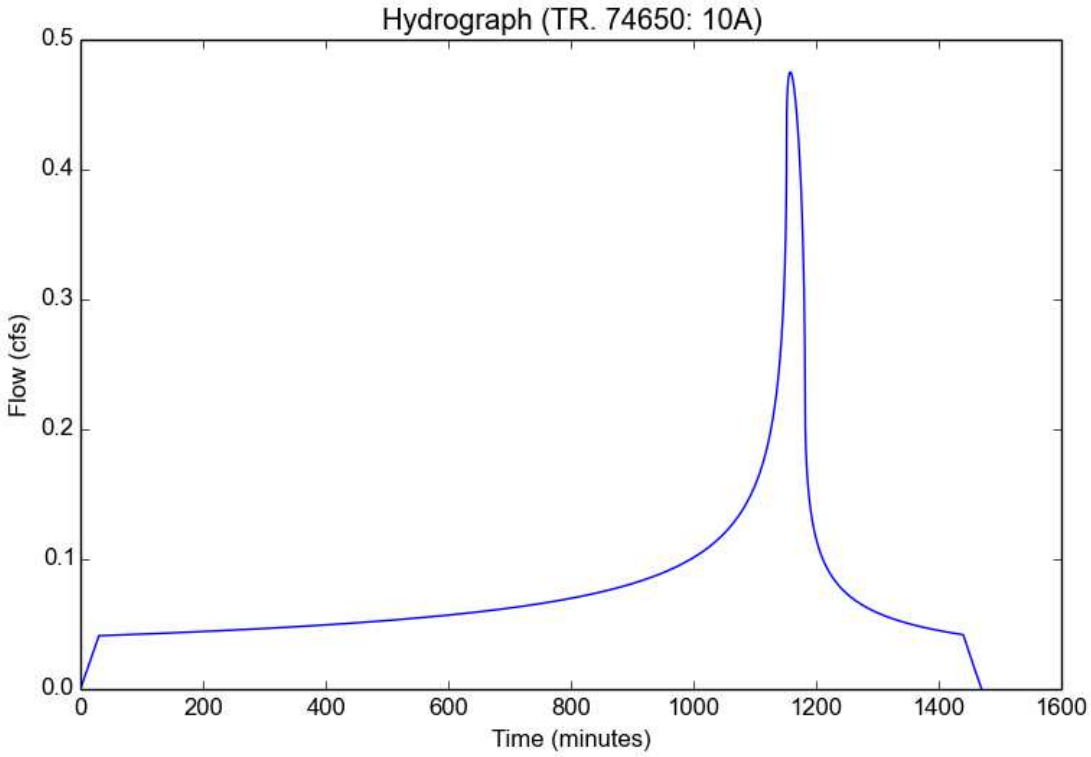
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	10A
Area (ac)	14.28
Flow Path Length (ft)	682.0
Flow Path Slope (vft/hft)	0.046
50-yr Rainfall Depth (in)	3.096
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	scr
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1982
Peak Intensity (in/hr)	0.308
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.4749
Burned Peak Flow Rate (cfs)	0.7905
24-Hr Clear Runoff Volume (ac-ft)	0.1527
24-Hr Clear Runoff Volume (cu-ft)	6652.293



Peak Flow Hydrologic Analysis

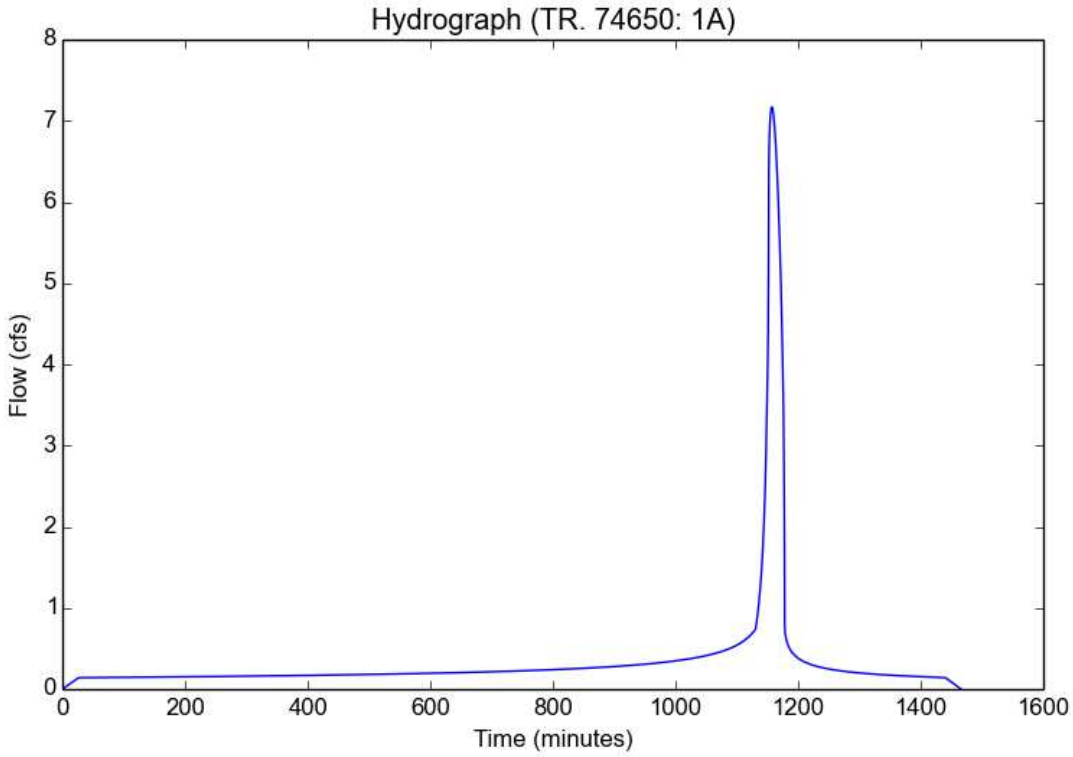
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	1A
Area (ac)	21.4
Flow Path Length (ft)	1556.0
Flow Path Slope (vft/hft)	0.1
50-yr Rainfall Depth (in)	4.672
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	scr
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7284
Peak Intensity (in/hr)	0.7501
Undeveloped Runoff Coefficient (Cu)	0.4421
Developed Runoff Coefficient (Cd)	0.4467
Time of Concentration (min)	26.0
Clear Peak Flow Rate (cfs)	7.17
Burned Peak Flow Rate (cfs)	8.0845
24-Hr Clear Runoff Volume (ac-ft)	0.7065
24-Hr Clear Runoff Volume (cu-ft)	30776.9057



Peak Flow Hydrologic Analysis

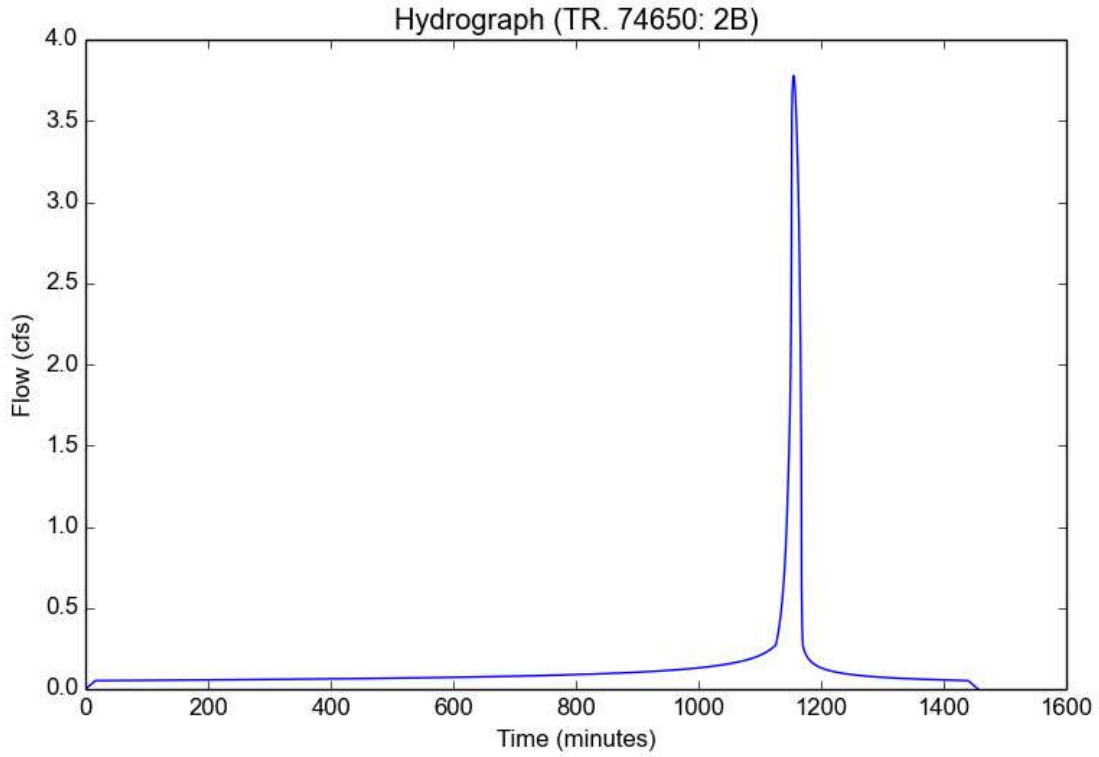
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	2B
Area (ac)	7.93
Flow Path Length (ft)	897.0
Flow Path Slope (vft/hft)	0.15
50-yr Rainfall Depth (in)	4.672
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	scr
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7284
Peak Intensity (in/hr)	0.9423
Undeveloped Runoff Coefficient (Cu)	0.5016
Developed Runoff Coefficient (Cd)	0.5056
Time of Concentration (min)	16.0
Clear Peak Flow Rate (cfs)	3.7783
Burned Peak Flow Rate (cfs)	4.1788
24-Hr Clear Runoff Volume (ac-ft)	0.2655
24-Hr Clear Runoff Volume (cu-ft)	11566.7282



Peak Flow Hydrologic Analysis

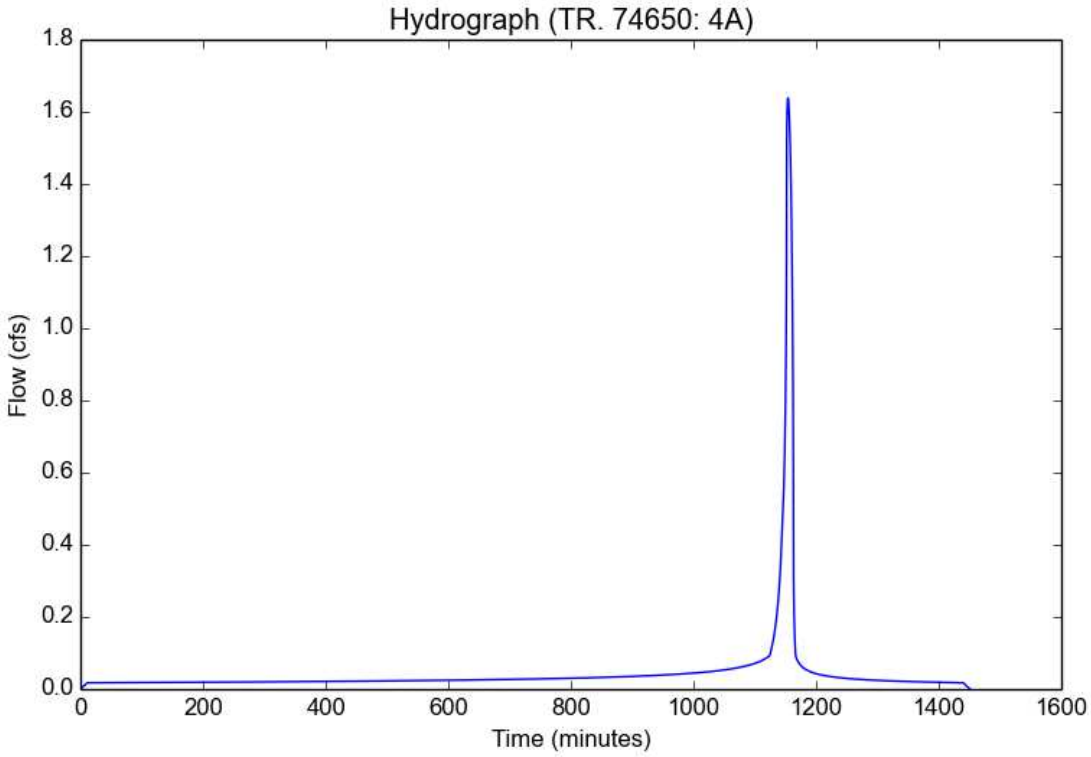
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	4A
Area (ac)	2.67
Flow Path Length (ft)	419.0
Flow Path Slope (vft/hft)	0.06
50-yr Rainfall Depth (in)	4.672
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	scr
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7284
Peak Intensity (in/hr)	1.1238
Undeveloped Runoff Coefficient (Cu)	0.5426
Developed Runoff Coefficient (Cd)	0.5462
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	1.6388
Burned Peak Flow Rate (cfs)	1.792
24-Hr Clear Runoff Volume (ac-ft)	0.09
24-Hr Clear Runoff Volume (cu-ft)	3919.2036



Peak Flow Hydrologic Analysis

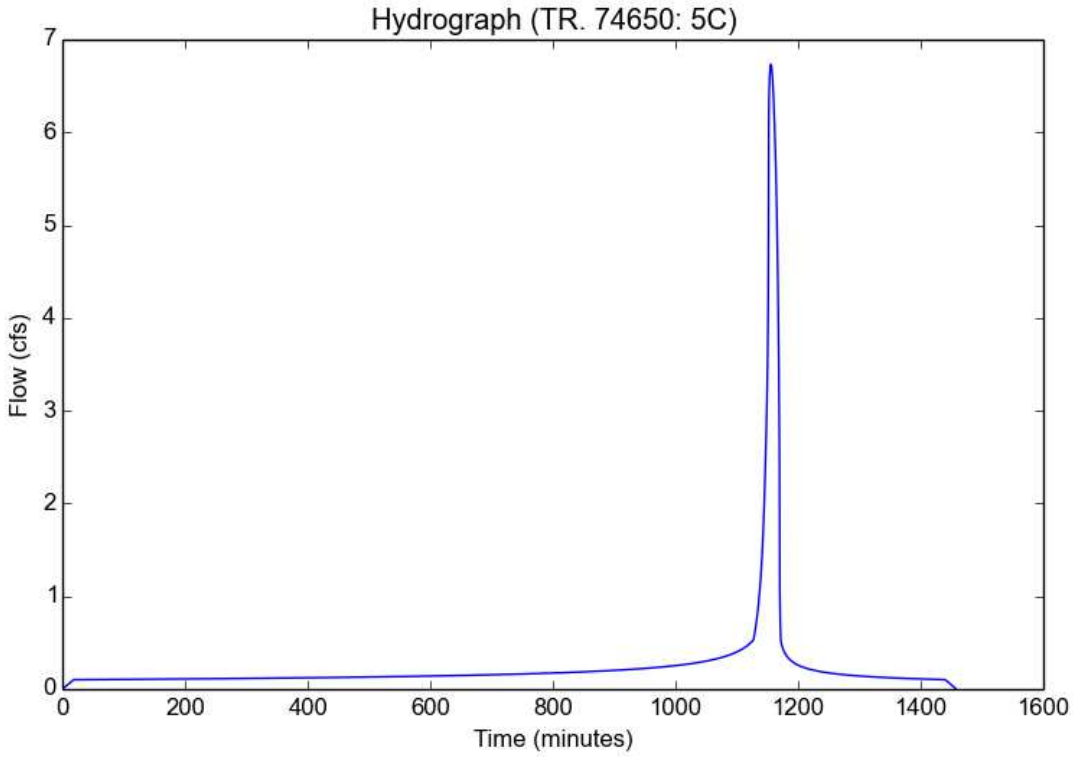
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	5C
Area (ac)	15.41
Flow Path Length (ft)	1161.0
Flow Path Slope (vft/hft)	0.2
50-yr Rainfall Depth (in)	4.672
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	scr
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7284
Peak Intensity (in/hr)	0.8916
Undeveloped Runoff Coefficient (Cu)	0.4859
Developed Runoff Coefficient (Cd)	0.4901
Time of Concentration (min)	18.0
Clear Peak Flow Rate (cfs)	6.7331
Burned Peak Flow Rate (cfs)	7.4835
24-Hr Clear Runoff Volume (ac-ft)	0.5145
24-Hr Clear Runoff Volume (cu-ft)	22413.1006



Peak Flow Hydrologic Analysis

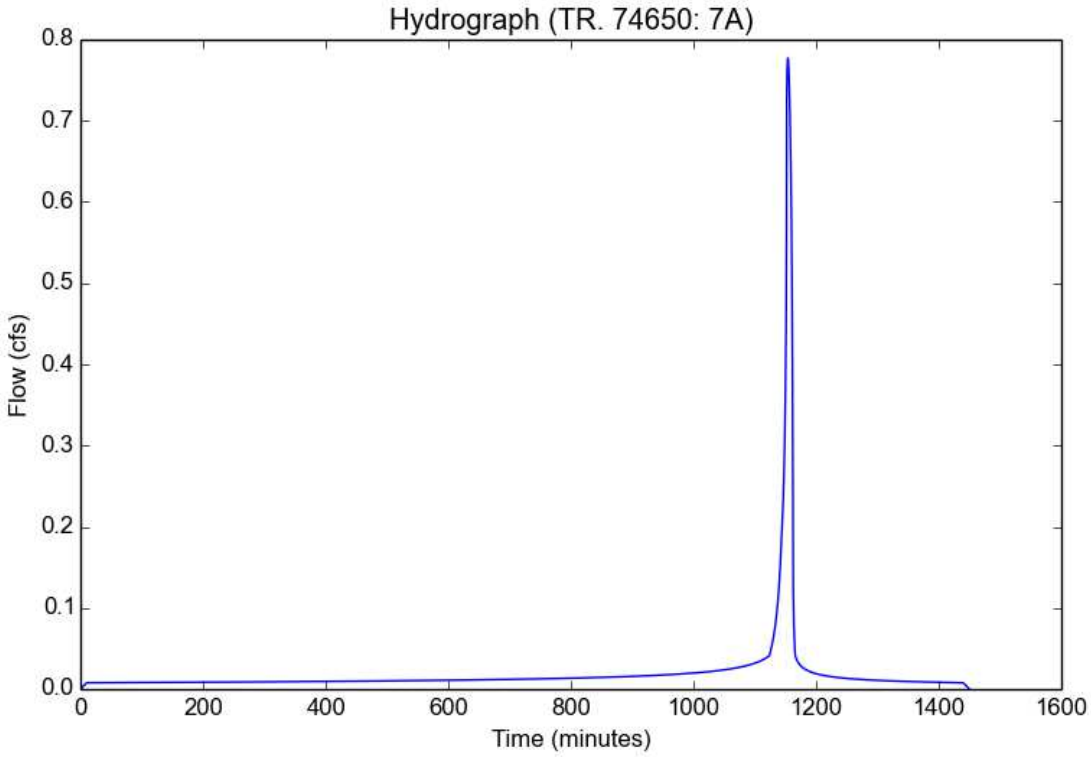
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	7A
Area (ac)	1.19
Flow Path Length (ft)	296.0
Flow Path Slope (vft/hft)	0.02
50-yr Rainfall Depth (in)	4.672
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	scr
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7284
Peak Intensity (in/hr)	1.1753
Undeveloped Runoff Coefficient (Cu)	0.5522
Developed Runoff Coefficient (Cd)	0.5557
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	0.7772
Burned Peak Flow Rate (cfs)	0.8477
24-Hr Clear Runoff Volume (ac-ft)	0.0401
24-Hr Clear Runoff Volume (cu-ft)	1748.4181



Peak Flow Hydrologic Analysis

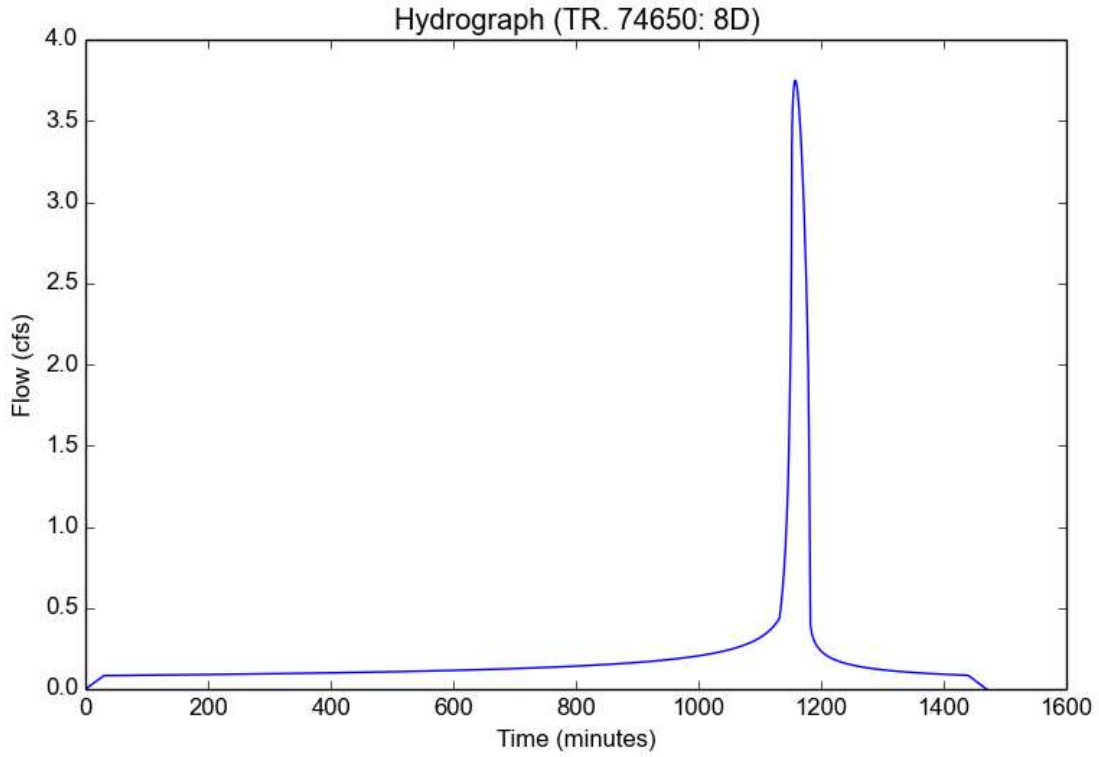
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	8D
Area (ac)	12.68
Flow Path Length (ft)	1394.0
Flow Path Slope (vft/hft)	0.018
50-yr Rainfall Depth (in)	4.672
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	scr
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7284
Peak Intensity (in/hr)	0.7013
Undeveloped Runoff Coefficient (Cu)	0.4168
Developed Runoff Coefficient (Cd)	0.4216
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	3.7492
Burned Peak Flow Rate (cfs)	4.2704
24-Hr Clear Runoff Volume (ac-ft)	0.415
24-Hr Clear Runoff Volume (cu-ft)	18078.9171



Peak Flow Hydrologic Analysis

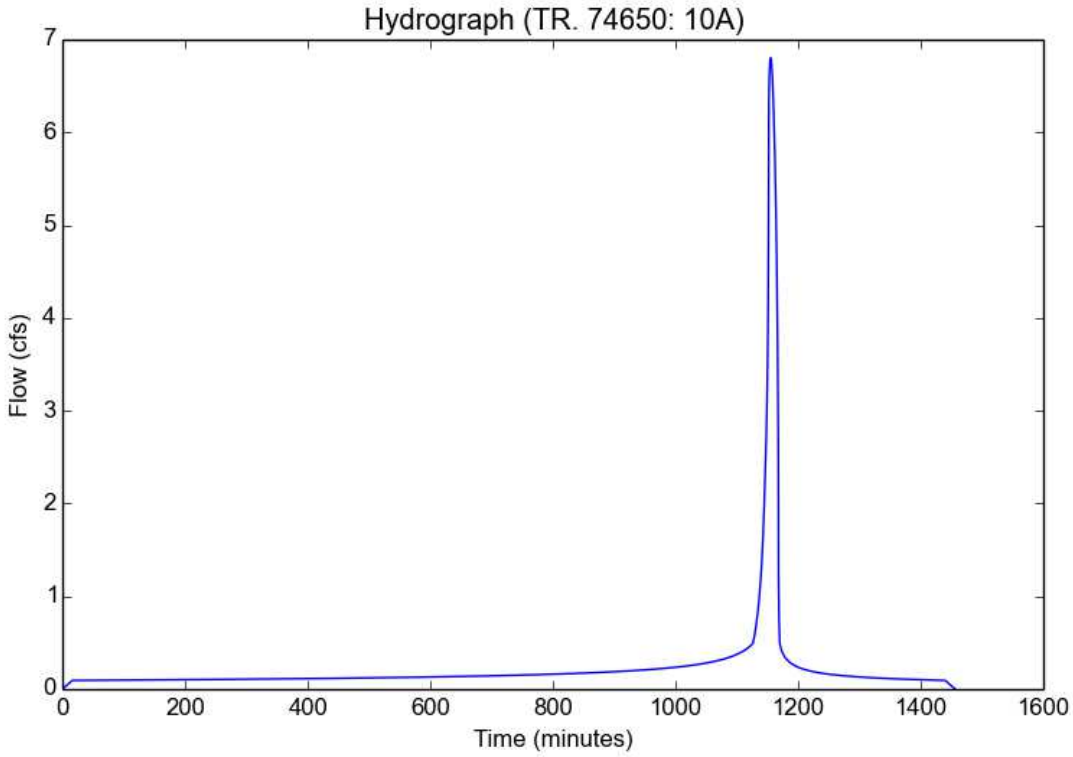
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	10A
Area (ac)	14.28
Flow Path Length (ft)	682.0
Flow Path Slope (vft/hft)	0.046
50-yr Rainfall Depth (in)	4.672
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	scr
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7284
Peak Intensity (in/hr)	0.9423
Undeveloped Runoff Coefficient (Cu)	0.5016
Developed Runoff Coefficient (Cd)	0.5056
Time of Concentration (min)	16.0
Clear Peak Flow Rate (cfs)	6.8038
Burned Peak Flow Rate (cfs)	7.525
24-Hr Clear Runoff Volume (ac-ft)	0.4782
24-Hr Clear Runoff Volume (cu-ft)	20828.8624



Peak Flow Hydrologic Analysis

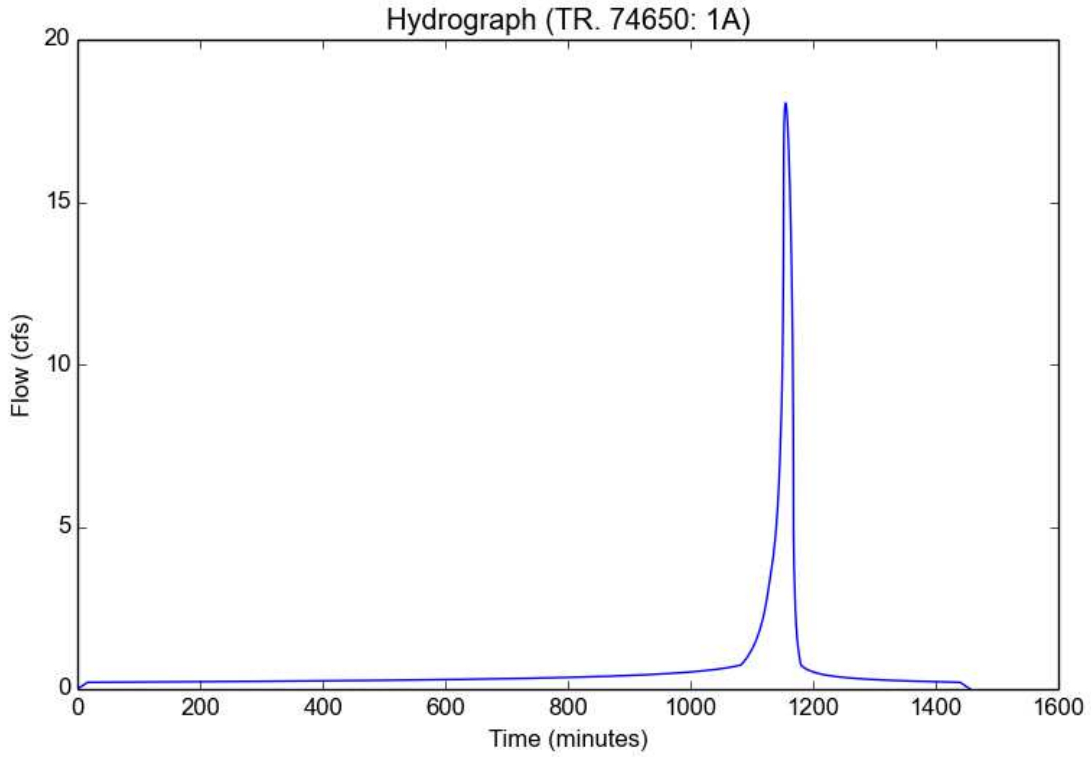
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	1A
Area (ac)	21.4
Flow Path Length (ft)	1556.0
Flow Path Slope (vft/hft)	0.1
50-yr Rainfall Depth (in)	5.712
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	scr
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0784
Peak Intensity (in/hr)	1.4085
Undeveloped Runoff Coefficient (Cu)	0.5957
Developed Runoff Coefficient (Cd)	0.5988
Time of Concentration (min)	16.0
Clear Peak Flow Rate (cfs)	18.049
Burned Peak Flow Rate (cfs)	19.4728
24-Hr Clear Runoff Volume (ac-ft)	1.2586
24-Hr Clear Runoff Volume (cu-ft)	54824.1671



Peak Flow Hydrologic Analysis

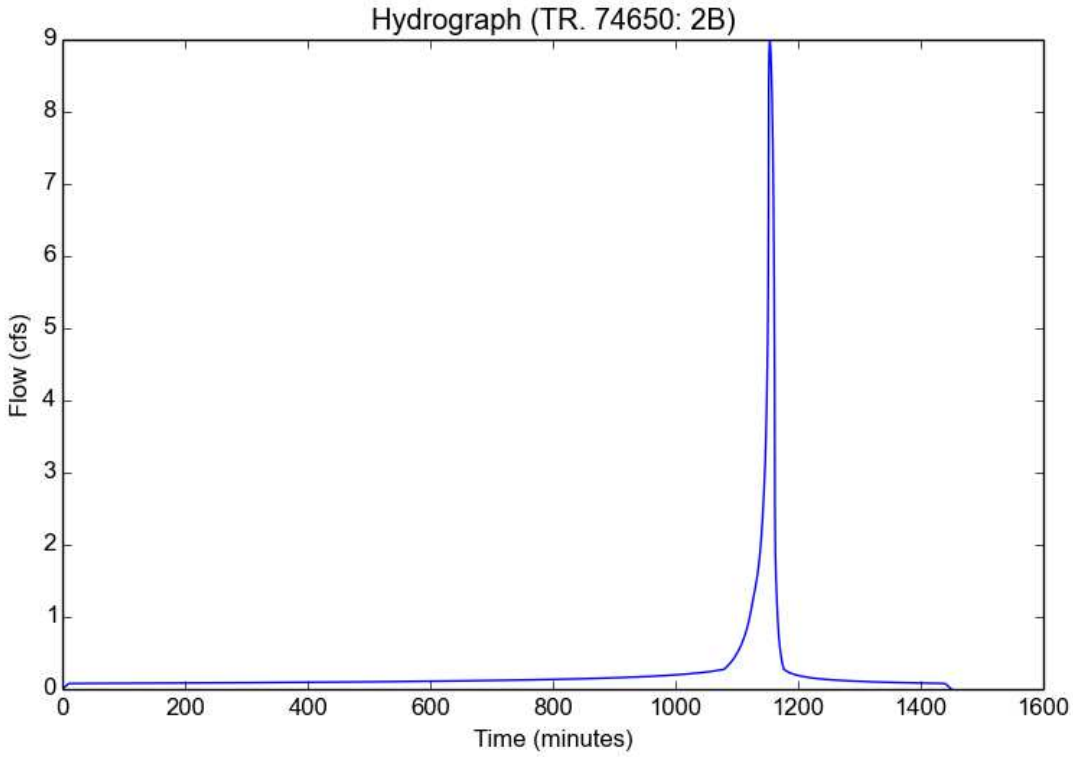
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	2B
Area (ac)	7.93
Flow Path Length (ft)	897.0
Flow Path Slope (vft/hft)	0.15
50-yr Rainfall Depth (in)	5.712
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	scr
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0784
Peak Intensity (in/hr)	1.7567
Undeveloped Runoff Coefficient (Cu)	0.6414
Developed Runoff Coefficient (Cd)	0.644
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	8.9717
Burned Peak Flow Rate (cfs)	9.5801
24-Hr Clear Runoff Volume (ac-ft)	0.4691
24-Hr Clear Runoff Volume (cu-ft)	20434.9095



Peak Flow Hydrologic Analysis

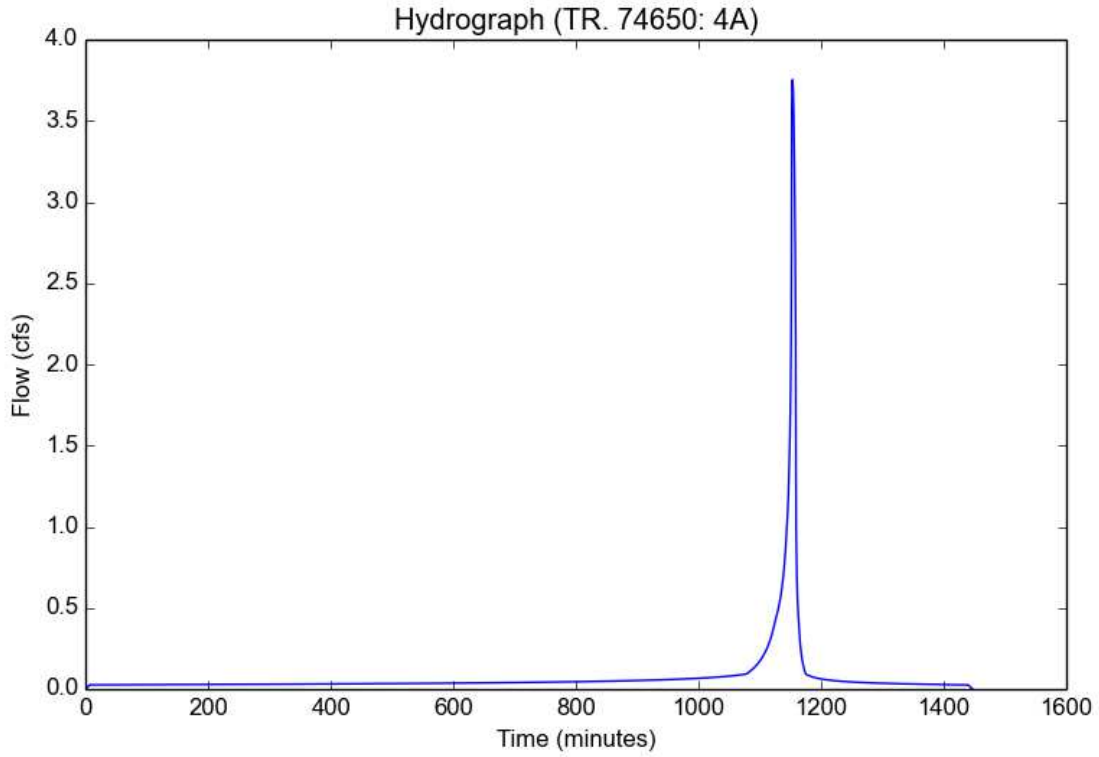
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	4A
Area (ac)	2.67
Flow Path Length (ft)	419.0
Flow Path Slope (vft/hft)	0.06
50-yr Rainfall Depth (in)	5.712
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	scr
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0784
Peak Intensity (in/hr)	2.0773
Undeveloped Runoff Coefficient (Cu)	0.6743
Developed Runoff Coefficient (Cd)	0.6766
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	3.7528
Burned Peak Flow Rate (cfs)	3.9794
24-Hr Clear Runoff Volume (ac-ft)	0.1585
24-Hr Clear Runoff Volume (cu-ft)	6902.3602



Peak Flow Hydrologic Analysis

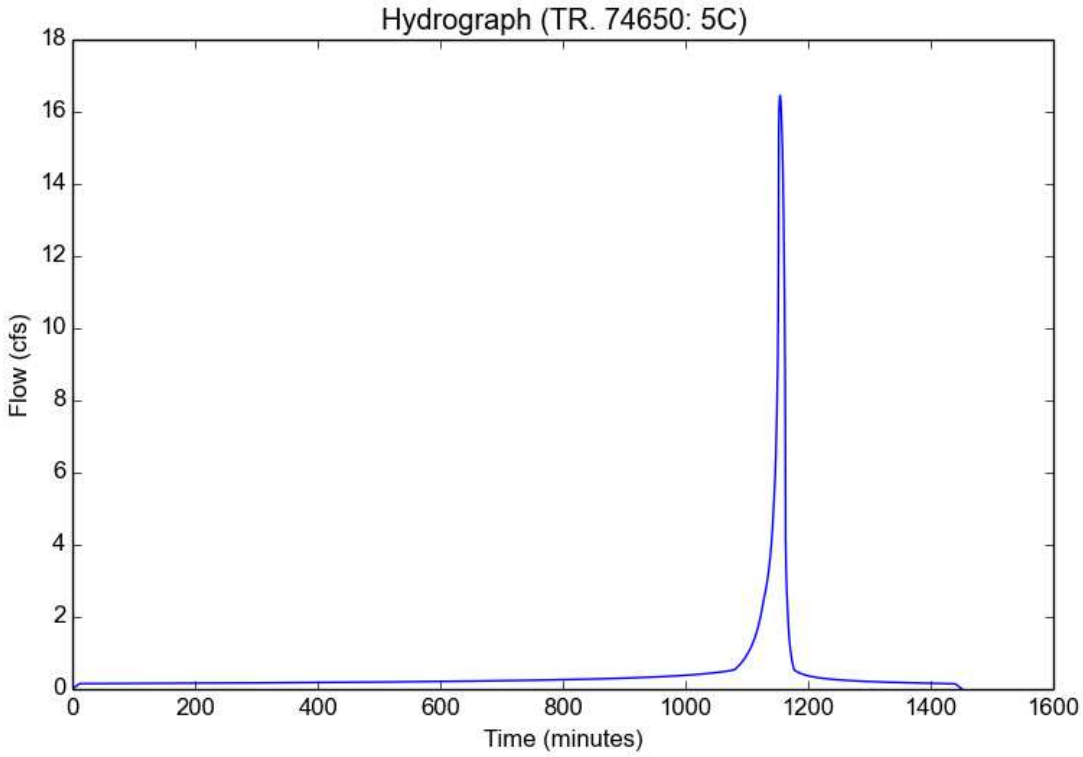
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	5C
Area (ac)	15.41
Flow Path Length (ft)	1161.0
Flow Path Slope (vft/hft)	0.2
50-yr Rainfall Depth (in)	5.712
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	scr
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0784
Peak Intensity (in/hr)	1.6798
Undeveloped Runoff Coefficient (Cu)	0.6329
Developed Runoff Coefficient (Cd)	0.6355
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	16.4508
Burned Peak Flow Rate (cfs)	17.5988
24-Hr Clear Runoff Volume (ac-ft)	0.9109
24-Hr Clear Runoff Volume (cu-ft)	39678.3389



Peak Flow Hydrologic Analysis

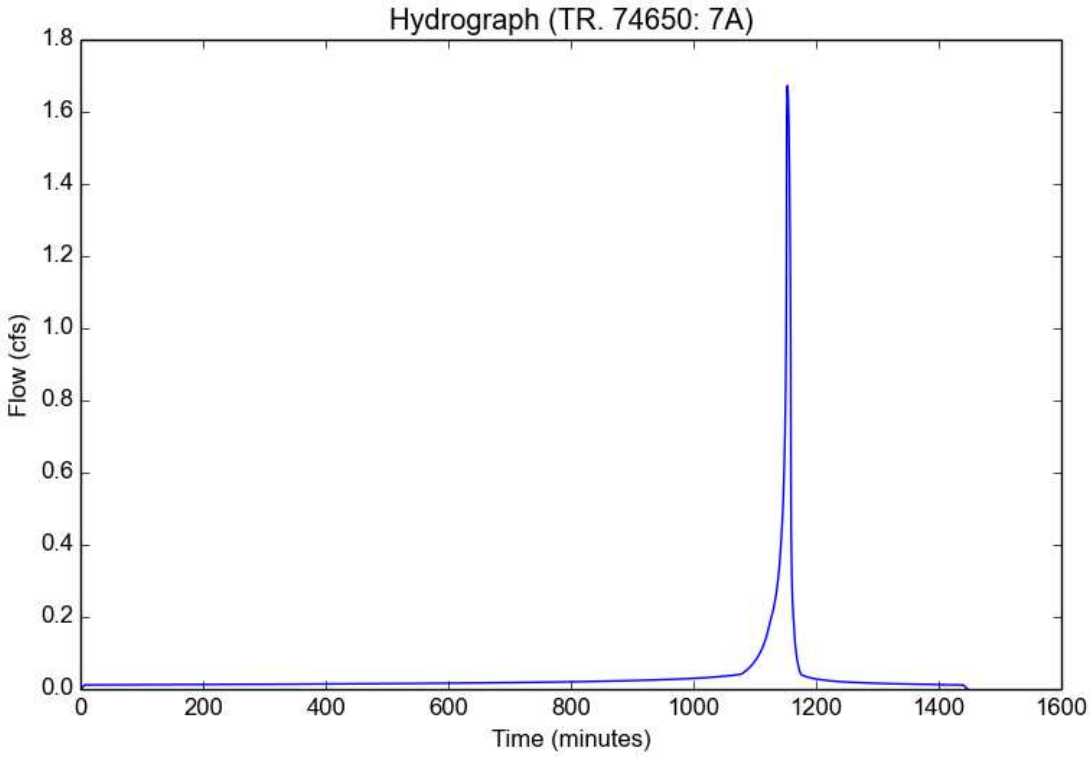
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	7A
Area (ac)	1.19
Flow Path Length (ft)	296.0
Flow Path Slope (vft/hft)	0.02
50-yr Rainfall Depth (in)	5.712
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	scr
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0784
Peak Intensity (in/hr)	2.0773
Undeveloped Runoff Coefficient (Cu)	0.6743
Developed Runoff Coefficient (Cd)	0.6766
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	1.6726
Burned Peak Flow Rate (cfs)	1.7736
24-Hr Clear Runoff Volume (ac-ft)	0.0706
24-Hr Clear Runoff Volume (cu-ft)	3076.3328



Peak Flow Hydrologic Analysis

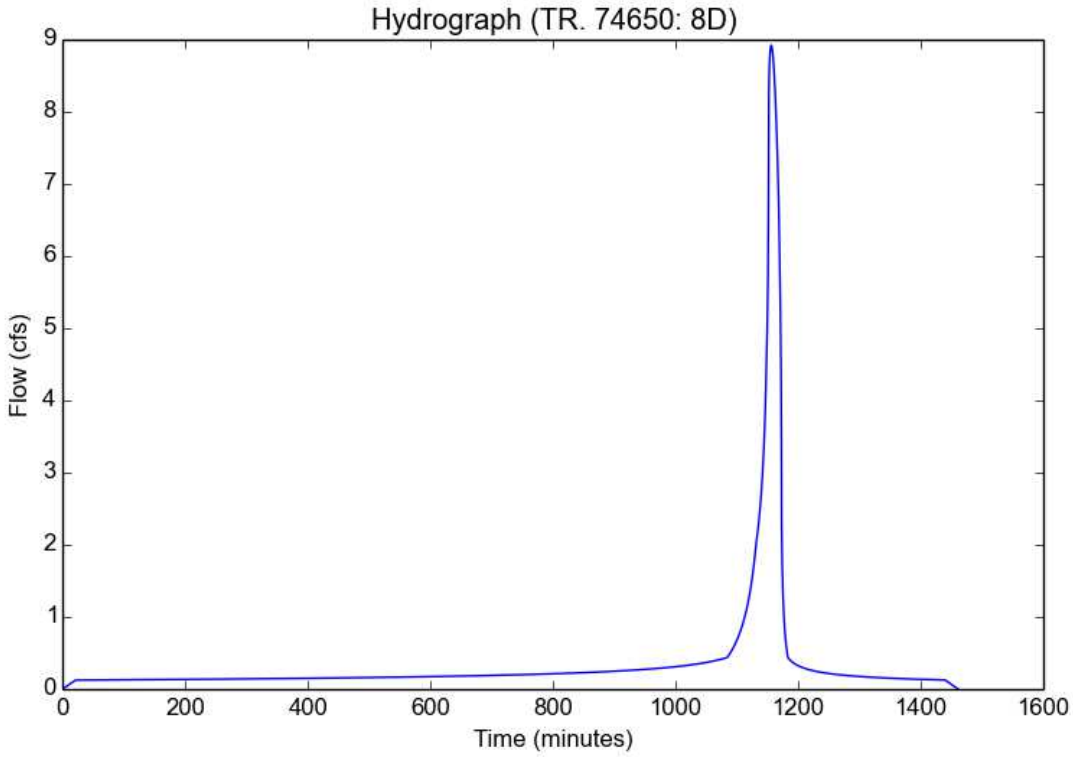
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	8D
Area (ac)	12.68
Flow Path Length (ft)	1394.0
Flow Path Slope (vft/hft)	0.018
50-yr Rainfall Depth (in)	5.712
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	scr
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0784
Peak Intensity (in/hr)	1.2395
Undeveloped Runoff Coefficient (Cu)	0.5642
Developed Runoff Coefficient (Cd)	0.5676
Time of Concentration (min)	21.0
Clear Peak Flow Rate (cfs)	8.9206
Burned Peak Flow Rate (cfs)	9.7009
24-Hr Clear Runoff Volume (ac-ft)	0.7424
24-Hr Clear Runoff Volume (cu-ft)	32340.1151



Peak Flow Hydrologic Analysis

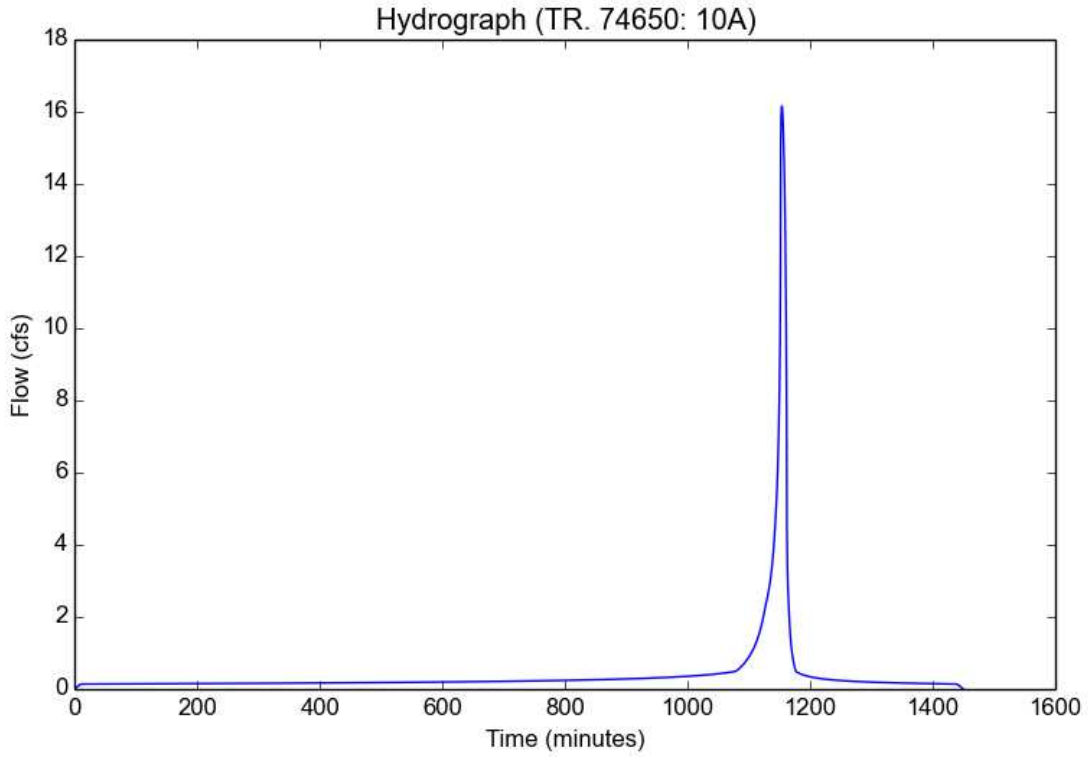
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	10A
Area (ac)	14.28
Flow Path Length (ft)	682.0
Flow Path Slope (vft/hft)	0.046
50-yr Rainfall Depth (in)	5.712
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	scr
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0784
Peak Intensity (in/hr)	1.7567
Undeveloped Runoff Coefficient (Cu)	0.6414
Developed Runoff Coefficient (Cd)	0.644
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	16.1559
Burned Peak Flow Rate (cfs)	17.2514
24-Hr Clear Runoff Volume (ac-ft)	0.8448
24-Hr Clear Runoff Volume (cu-ft)	36798.2985



Peak Flow Hydrologic Analysis

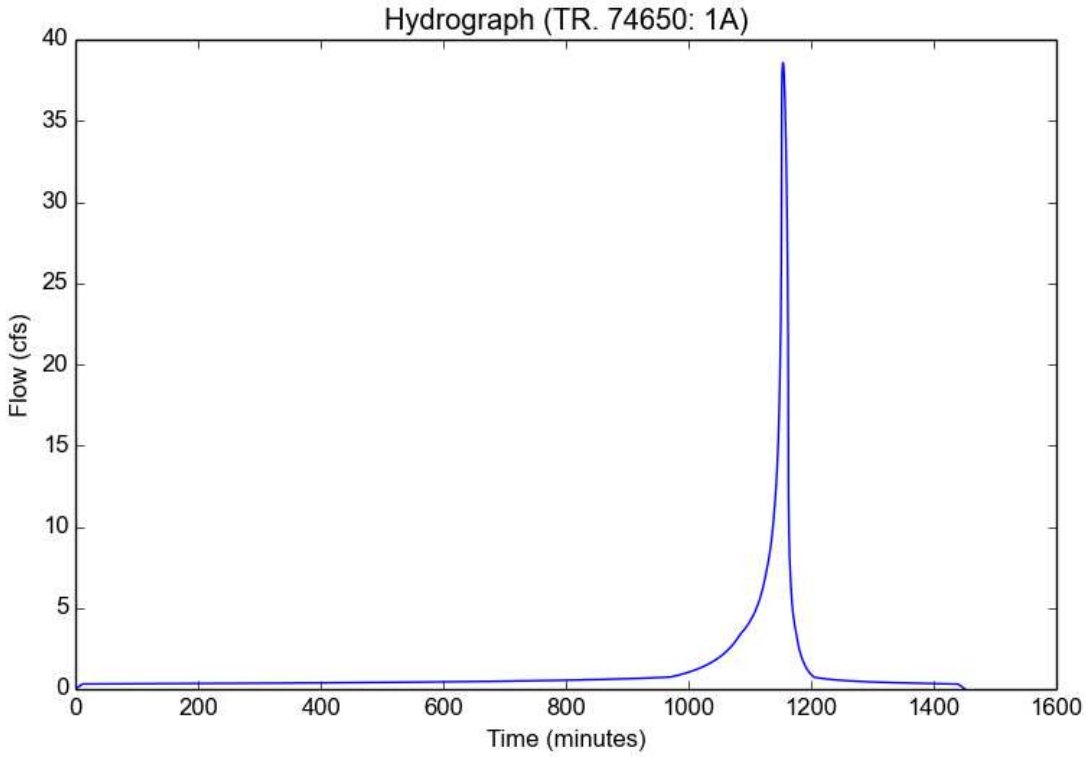
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	1A
Area (ac)	21.4
Flow Path Length (ft)	1556.0
Flow Path Slope (vft/hft)	0.1
50-yr Rainfall Depth (in)	7.024
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	scr
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1671
Peak Intensity (in/hr)	2.5401
Undeveloped Runoff Coefficient (Cu)	0.7079
Developed Runoff Coefficient (Cd)	0.7098
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	38.5848
Burned Peak Flow Rate (cfs)	40.6462
24-Hr Clear Runoff Volume (ac-ft)	2.3687
24-Hr Clear Runoff Volume (cu-ft)	103181.9821



Peak Flow Hydrologic Analysis

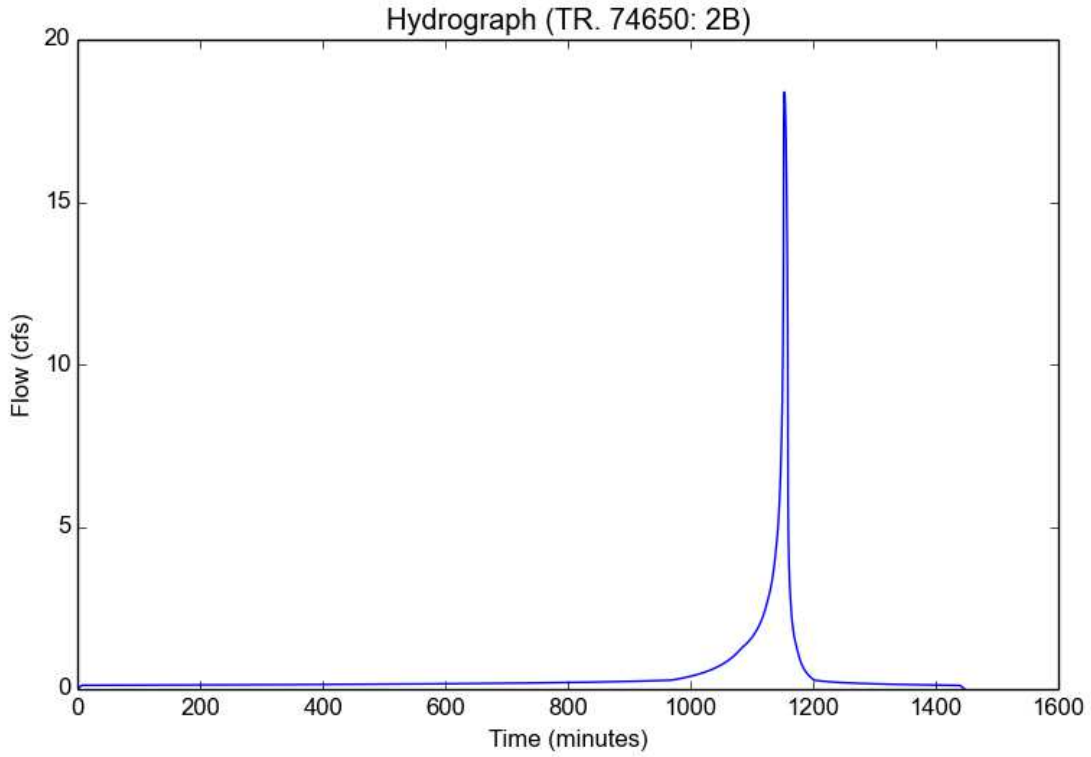
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	2B
Area (ac)	7.93
Flow Path Length (ft)	897.0
Flow Path Slope (vft/hft)	0.15
50-yr Rainfall Depth (in)	7.024
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	scr
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1671
Peak Intensity (in/hr)	3.1412
Undeveloped Runoff Coefficient (Cu)	0.7365
Developed Runoff Coefficient (Cd)	0.7381
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	18.3861
Burned Peak Flow Rate (cfs)	19.2681
24-Hr Clear Runoff Volume (ac-ft)	0.8791
24-Hr Clear Runoff Volume (cu-ft)	38294.8735



Peak Flow Hydrologic Analysis

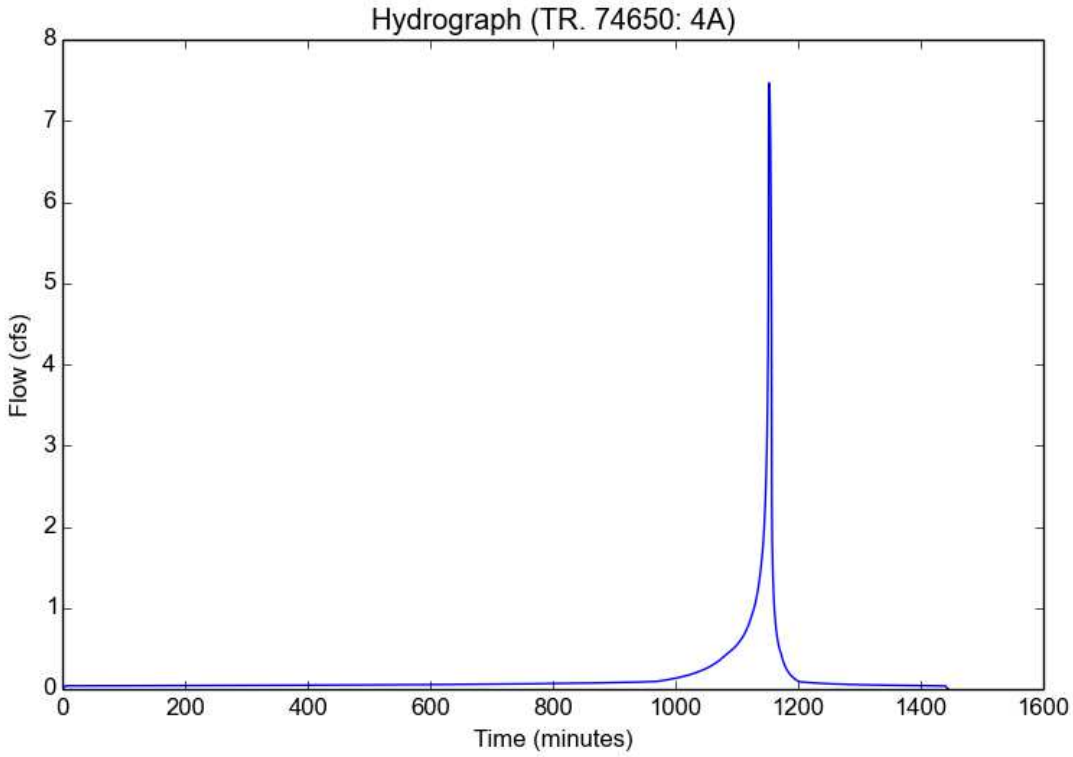
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	4A
Area (ac)	2.67
Flow Path Length (ft)	419.0
Flow Path Slope (vft/hft)	0.06
50-yr Rainfall Depth (in)	7.024
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	scr
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1671
Peak Intensity (in/hr)	3.6794
Undeveloped Runoff Coefficient (Cu)	0.7587
Developed Runoff Coefficient (Cd)	0.7601
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	7.4674
Burned Peak Flow Rate (cfs)	7.7937
24-Hr Clear Runoff Volume (ac-ft)	0.2964
24-Hr Clear Runoff Volume (cu-ft)	12910.6047



Peak Flow Hydrologic Analysis

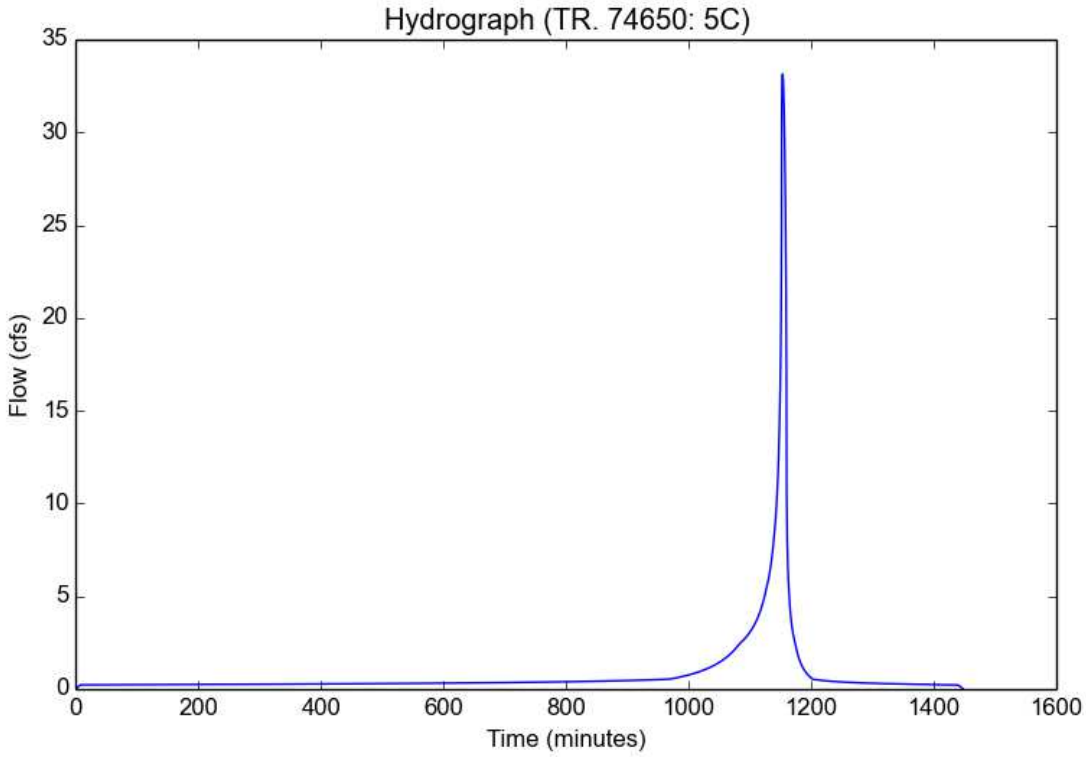
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	5C
Area (ac)	15.41
Flow Path Length (ft)	1161.0
Flow Path Slope (vft/hft)	0.2
50-yr Rainfall Depth (in)	7.024
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	scr
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1671
Peak Intensity (in/hr)	2.9502
Undeveloped Runoff Coefficient (Cu)	0.7274
Developed Runoff Coefficient (Cd)	0.7291
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	33.1471
Burned Peak Flow Rate (cfs)	34.7957
24-Hr Clear Runoff Volume (ac-ft)	1.7075
24-Hr Clear Runoff Volume (cu-ft)	74380.5233



Peak Flow Hydrologic Analysis

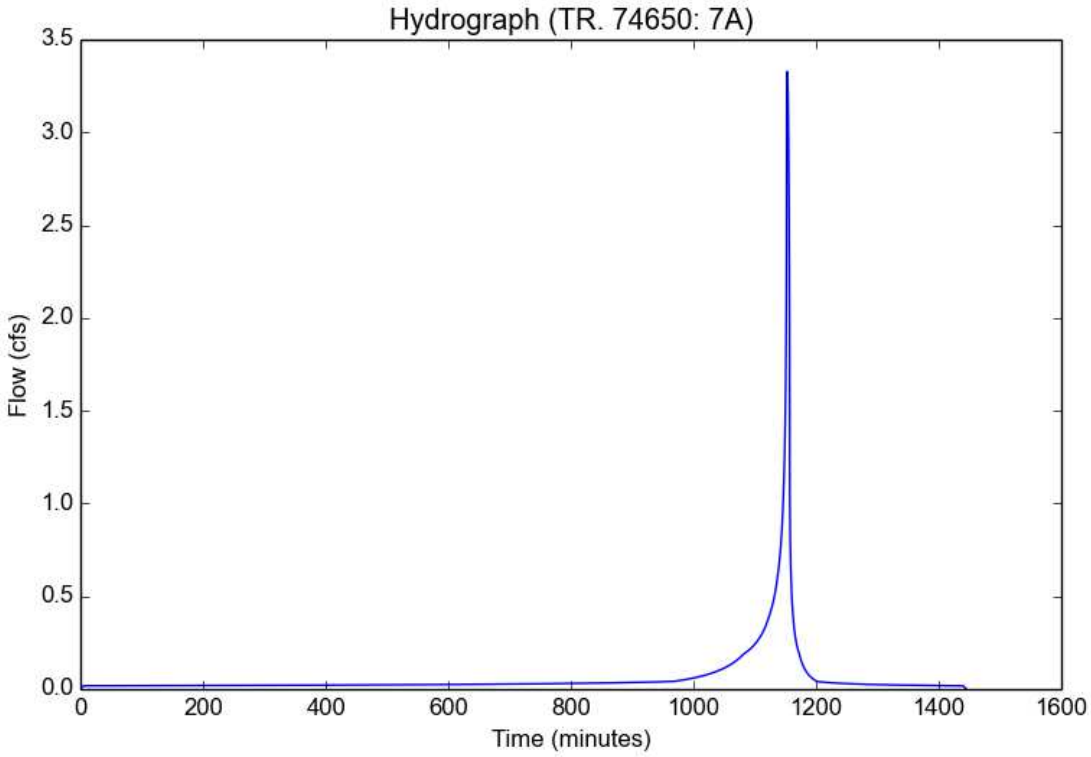
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	7A
Area (ac)	1.19
Flow Path Length (ft)	296.0
Flow Path Slope (vft/hft)	0.02
50-yr Rainfall Depth (in)	7.024
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	scr
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1671
Peak Intensity (in/hr)	3.6794
Undeveloped Runoff Coefficient (Cu)	0.7587
Developed Runoff Coefficient (Cd)	0.7601
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	3.3282
Burned Peak Flow Rate (cfs)	3.4736
24-Hr Clear Runoff Volume (ac-ft)	0.1321
24-Hr Clear Runoff Volume (cu-ft)	5754.1646



Peak Flow Hydrologic Analysis

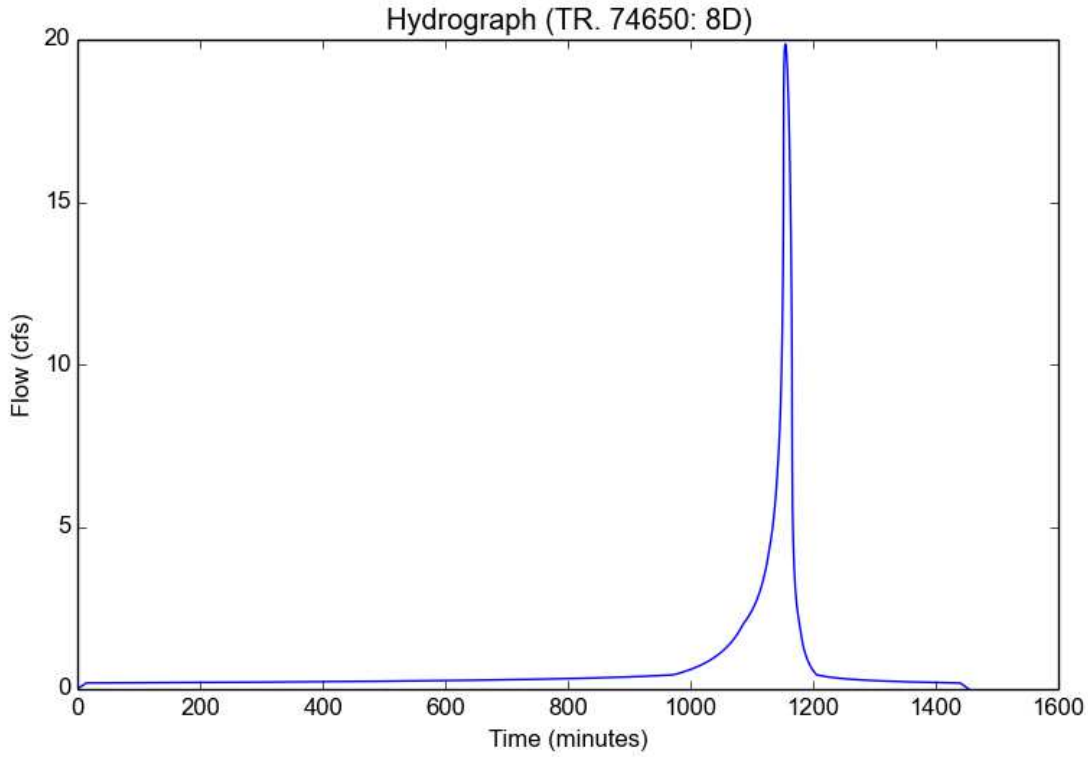
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	8D
Area (ac)	12.68
Flow Path Length (ft)	1394.0
Flow Path Slope (vft/hft)	0.018
50-yr Rainfall Depth (in)	7.024
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	scr
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1671
Peak Intensity (in/hr)	2.2679
Undeveloped Runoff Coefficient (Cu)	0.6886
Developed Runoff Coefficient (Cd)	0.6907
Time of Concentration (min)	14.0
Clear Peak Flow Rate (cfs)	19.8632
Burned Peak Flow Rate (cfs)	21.0039
24-Hr Clear Runoff Volume (ac-ft)	1.4011
24-Hr Clear Runoff Volume (cu-ft)	61032.5656



Peak Flow Hydrologic Analysis

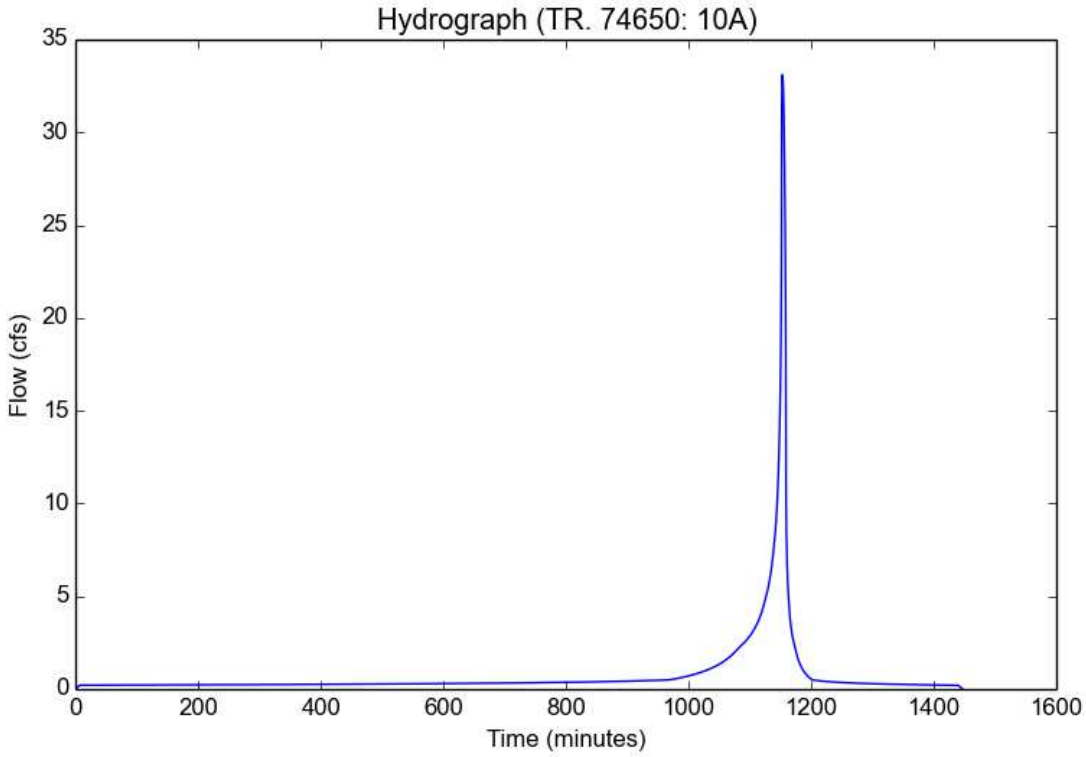
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	10A
Area (ac)	14.28
Flow Path Length (ft)	682.0
Flow Path Slope (vft/hft)	0.046
50-yr Rainfall Depth (in)	7.024
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	scr
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1671
Peak Intensity (in/hr)	3.1412
Undeveloped Runoff Coefficient (Cu)	0.7365
Developed Runoff Coefficient (Cd)	0.7381
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	33.1089
Burned Peak Flow Rate (cfs)	34.6971
24-Hr Clear Runoff Volume (ac-ft)	1.5831
24-Hr Clear Runoff Volume (cu-ft)	68959.747



Peak Flow Hydrologic Analysis

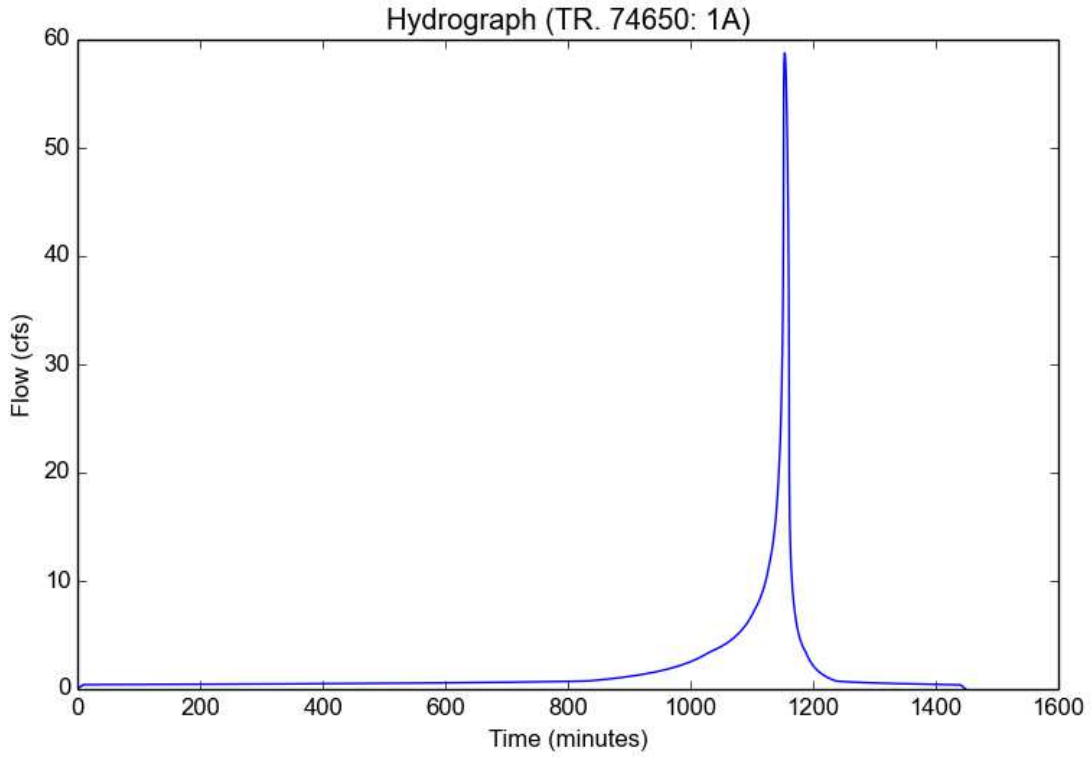
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	1A
Area (ac)	21.4
Flow Path Length (ft)	1556.0
Flow Path Slope (vft/hft)	0.1
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	scr
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	3.6209
Undeveloped Runoff Coefficient (Cu)	0.757
Developed Runoff Coefficient (Cd)	0.7584
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	58.7685
Burned Peak Flow Rate (cfs)	61.3541
24-Hr Clear Runoff Volume (ac-ft)	3.6111
24-Hr Clear Runoff Volume (cu-ft)	157297.6605



Peak Flow Hydrologic Analysis

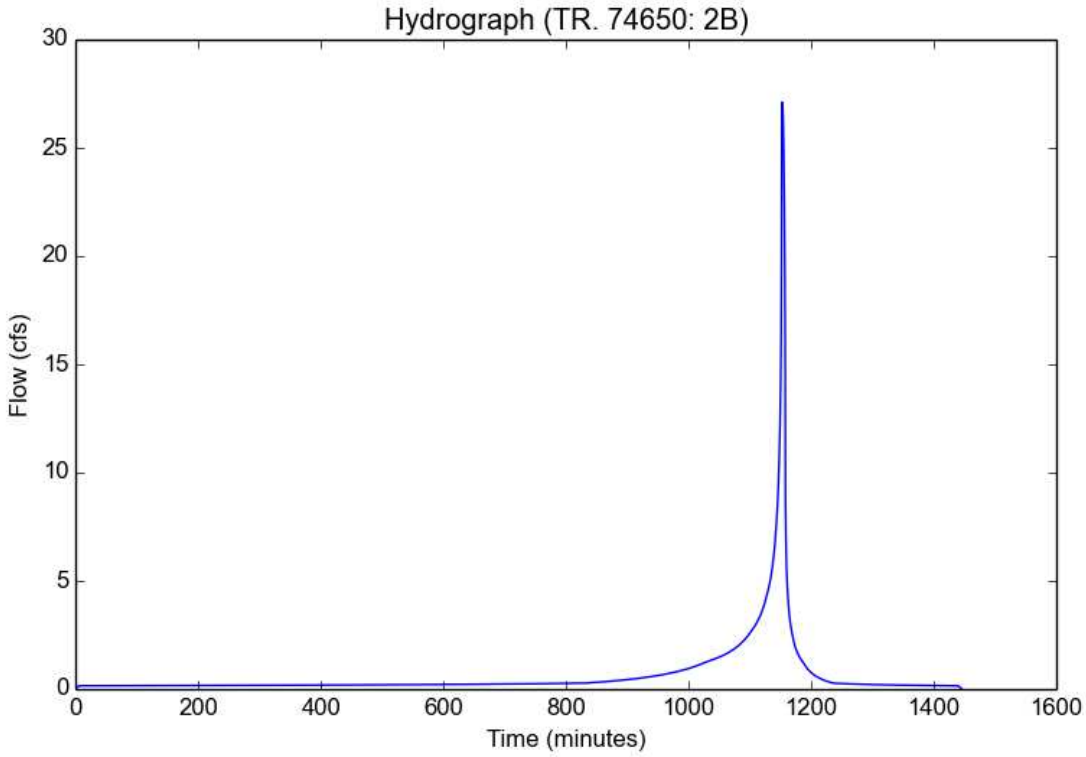
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	2B
Area (ac)	7.93
Flow Path Length (ft)	897.0
Flow Path Slope (vft/hft)	0.15
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	scr
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.381
Undeveloped Runoff Coefficient (Cu)	0.779
Developed Runoff Coefficient (Cd)	0.7802
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	27.1064
Burned Peak Flow Rate (cfs)	28.1908
24-Hr Clear Runoff Volume (ac-ft)	1.3394
24-Hr Clear Runoff Volume (cu-ft)	58345.2141



Peak Flow Hydrologic Analysis

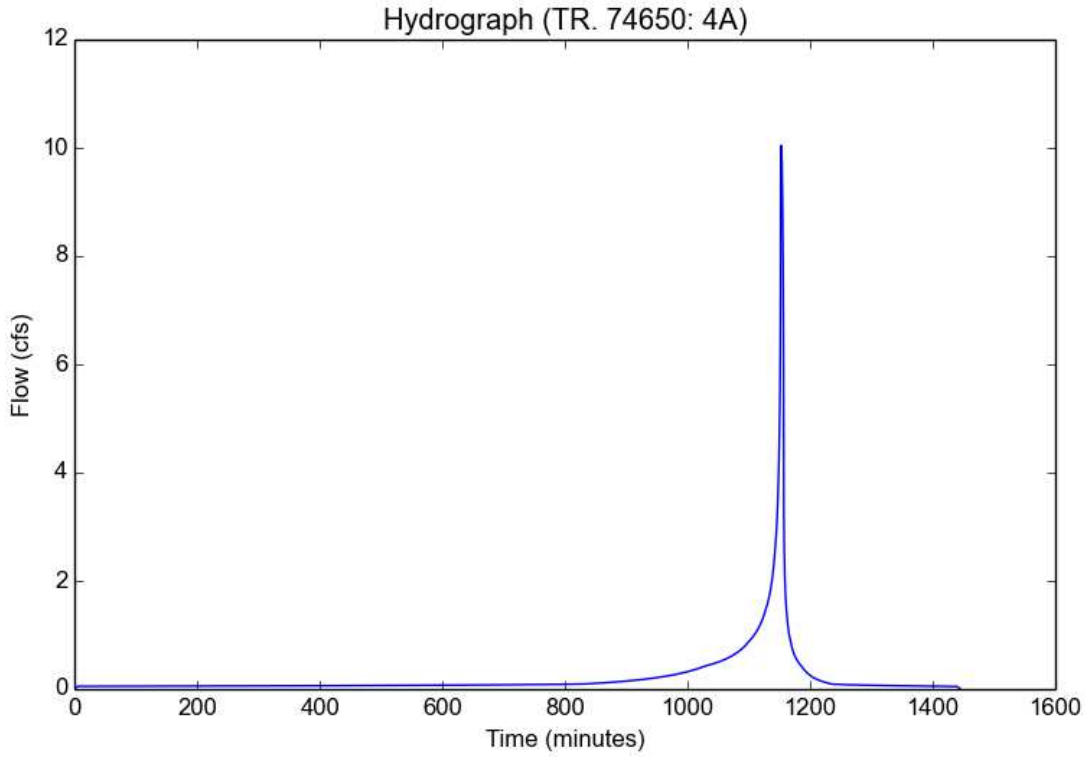
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	4A
Area (ac)	2.67
Flow Path Length (ft)	419.0
Flow Path Slope (vft/hft)	0.06
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	scr
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7868
Developed Runoff Coefficient (Cd)	0.7879
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	10.0408
Burned Peak Flow Rate (cfs)	10.4294
24-Hr Clear Runoff Volume (ac-ft)	0.4511
24-Hr Clear Runoff Volume (cu-ft)	19650.6938



Peak Flow Hydrologic Analysis

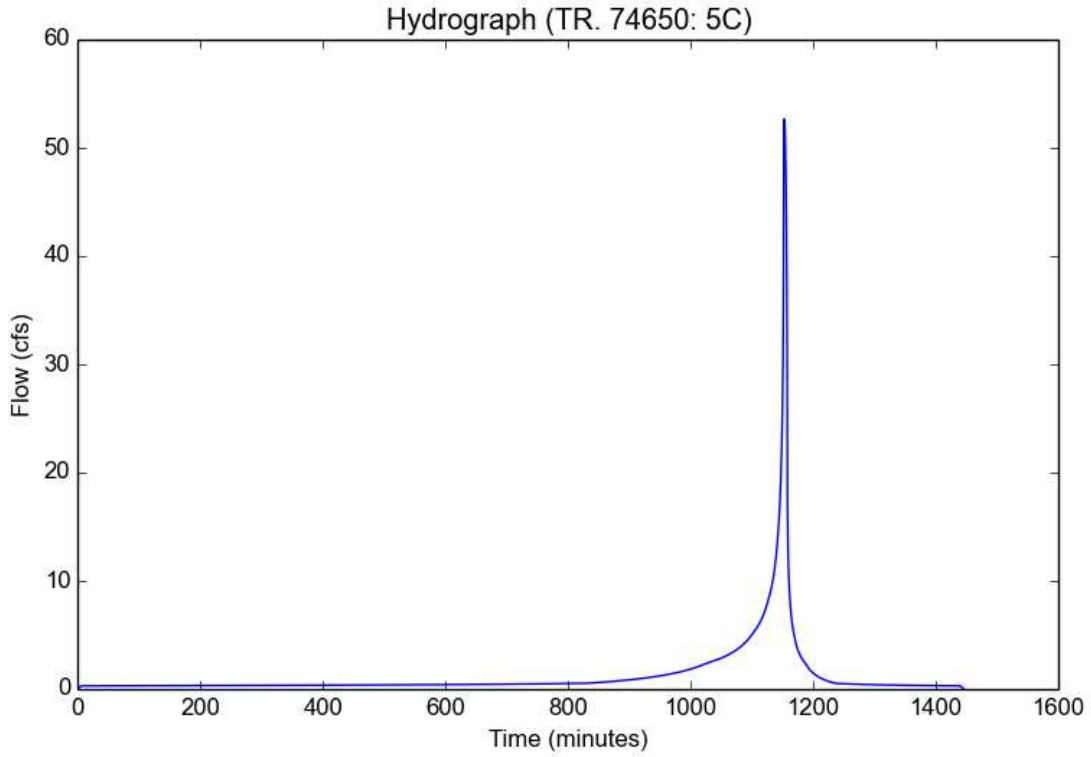
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	5C
Area (ac)	15.41
Flow Path Length (ft)	1161.0
Flow Path Slope (vft/hft)	0.2
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	scr
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.381
Undeveloped Runoff Coefficient (Cu)	0.779
Developed Runoff Coefficient (Cd)	0.7802
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	52.6746
Burned Peak Flow Rate (cfs)	54.7818
24-Hr Clear Runoff Volume (ac-ft)	2.6028
24-Hr Clear Runoff Volume (cu-ft)	113379.5396



Peak Flow Hydrologic Analysis

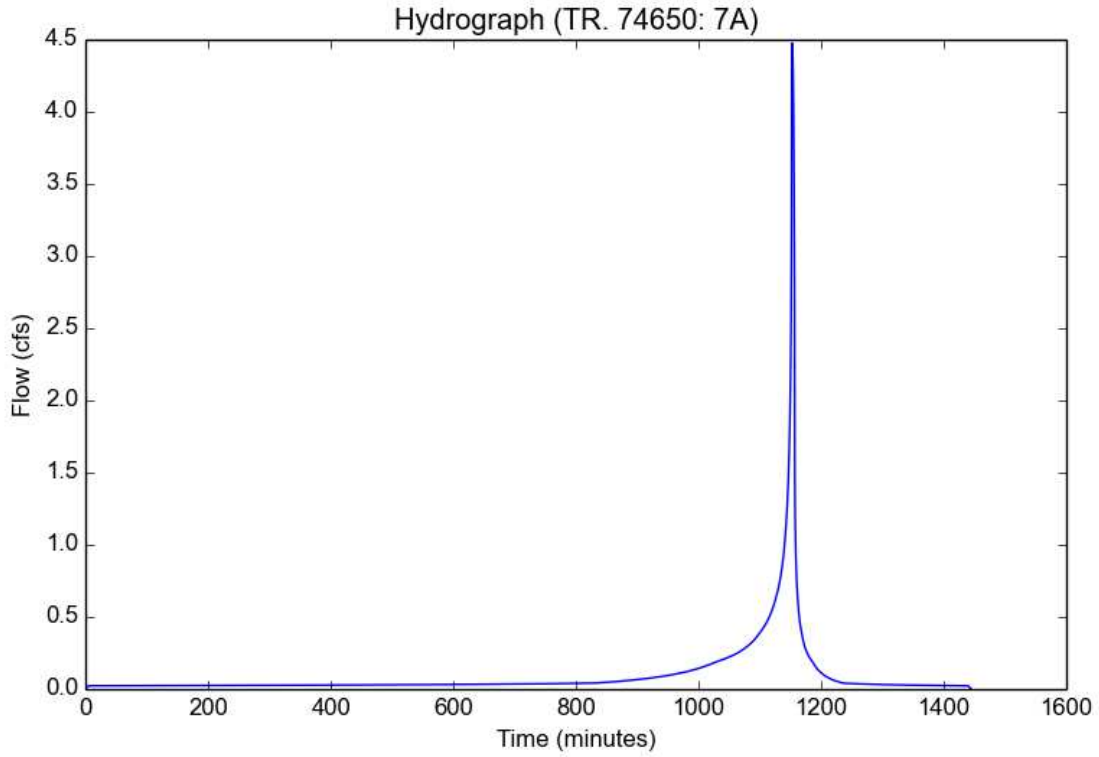
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	7A
Area (ac)	1.19
Flow Path Length (ft)	296.0
Flow Path Slope (vft/hft)	0.02
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	scr
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7868
Developed Runoff Coefficient (Cd)	0.7879
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	4.4751
Burned Peak Flow Rate (cfs)	4.6483
24-Hr Clear Runoff Volume (ac-ft)	0.2011
24-Hr Clear Runoff Volume (cu-ft)	8758.1744



Peak Flow Hydrologic Analysis

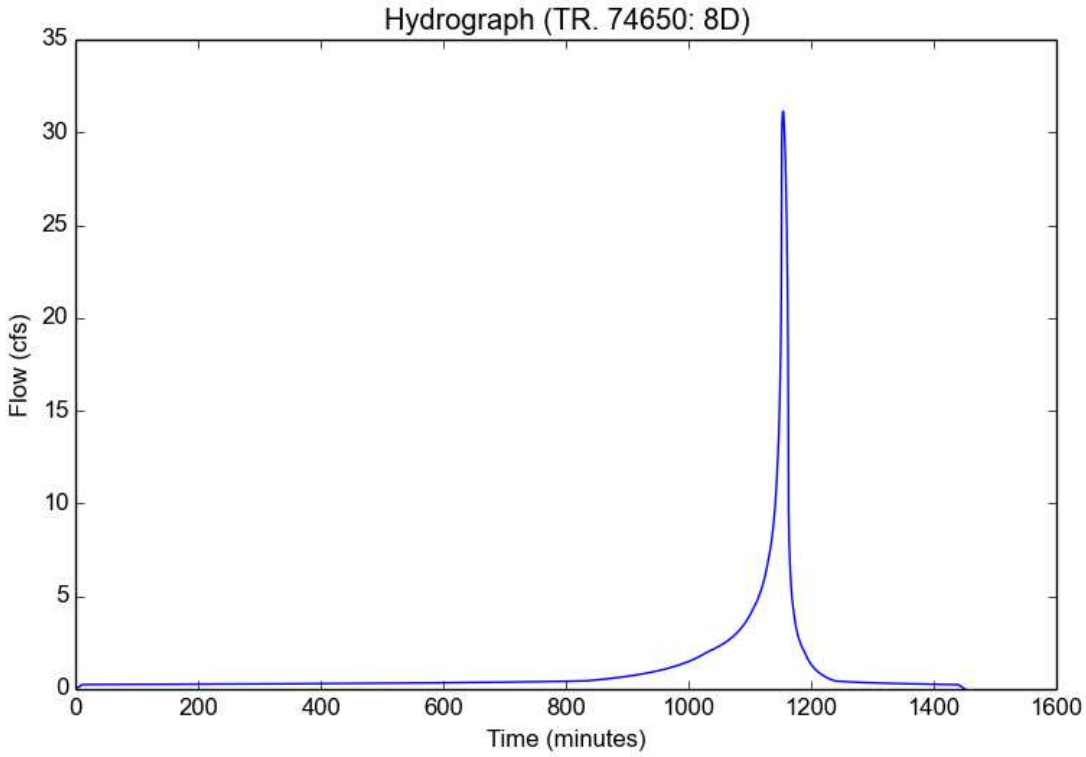
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	8D
Area (ac)	12.68
Flow Path Length (ft)	1394.0
Flow Path Slope (vft/hft)	0.018
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	scr
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	3.295
Undeveloped Runoff Coefficient (Cu)	0.7438
Developed Runoff Coefficient (Cd)	0.7453
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	31.1401
Burned Peak Flow Rate (cfs)	32.5891
24-Hr Clear Runoff Volume (ac-ft)	2.1376
24-Hr Clear Runoff Volume (cu-ft)	93115.1265



Peak Flow Hydrologic Analysis

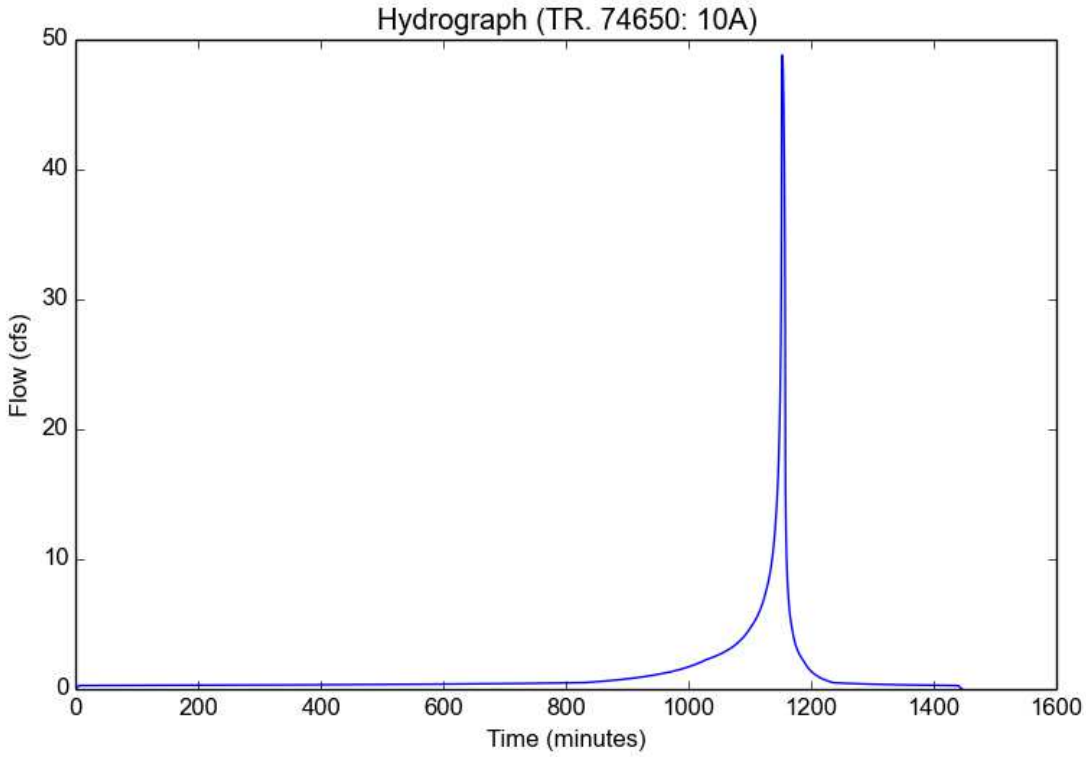
File location: H:/Oakridge/Hydrology/Analysis Data/Existing Hydrology/Existing Hydrology Data 2-50yr.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	TR. 74650
Subarea ID	10A
Area (ac)	14.28
Flow Path Length (ft)	682.0
Flow Path Slope (vft/hft)	0.046
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	scr
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.381
Undeveloped Runoff Coefficient (Cu)	0.779
Developed Runoff Coefficient (Cd)	0.7802
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	48.812
Burned Peak Flow Rate (cfs)	50.7647
24-Hr Clear Runoff Volume (ac-ft)	2.412
24-Hr Clear Runoff Volume (cu-ft)	105065.5306



PROPOSED CONDITION
HYDROCALC PRINTOUTS

Peak Flow Hydrologic Analysis

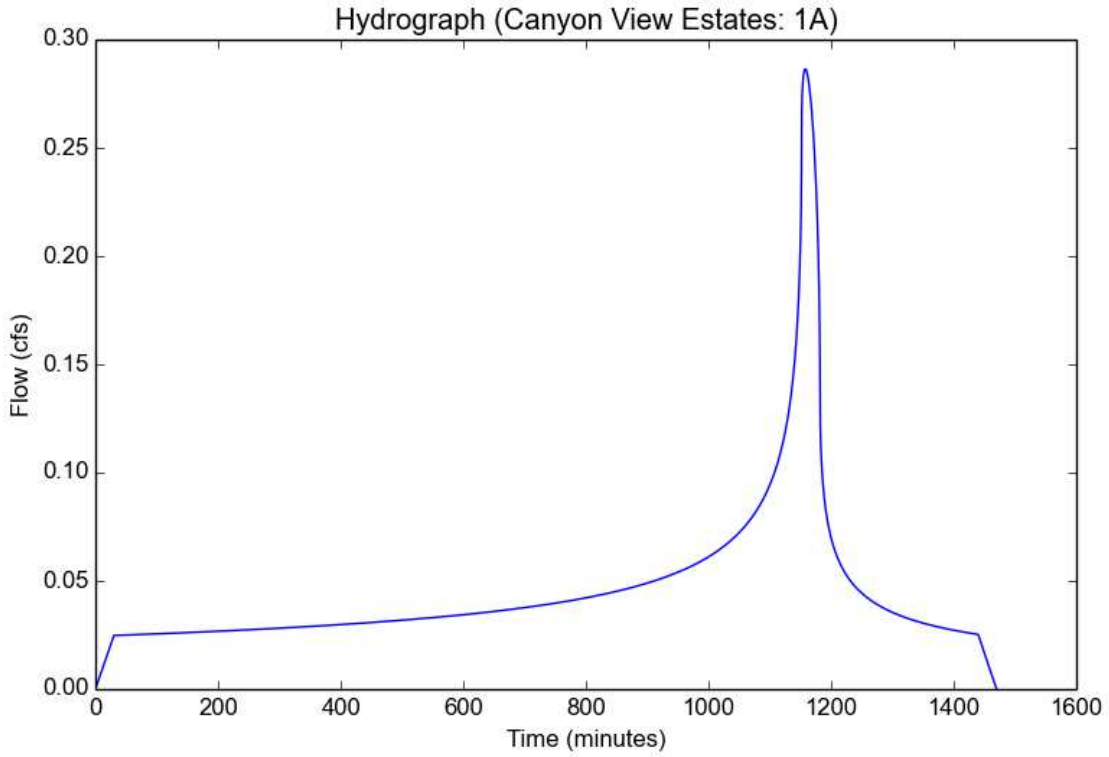
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	1A
Area (ac)	8.6
Flow Path Length (ft)	444.0
Flow Path Slope (vft/hft)	0.17
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	scr
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.3084
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.2864
Burned Peak Flow Rate (cfs)	0.4767
24-Hr Clear Runoff Volume (ac-ft)	0.0921
24-Hr Clear Runoff Volume (cu-ft)	4011.459



Peak Flow Hydrologic Analysis

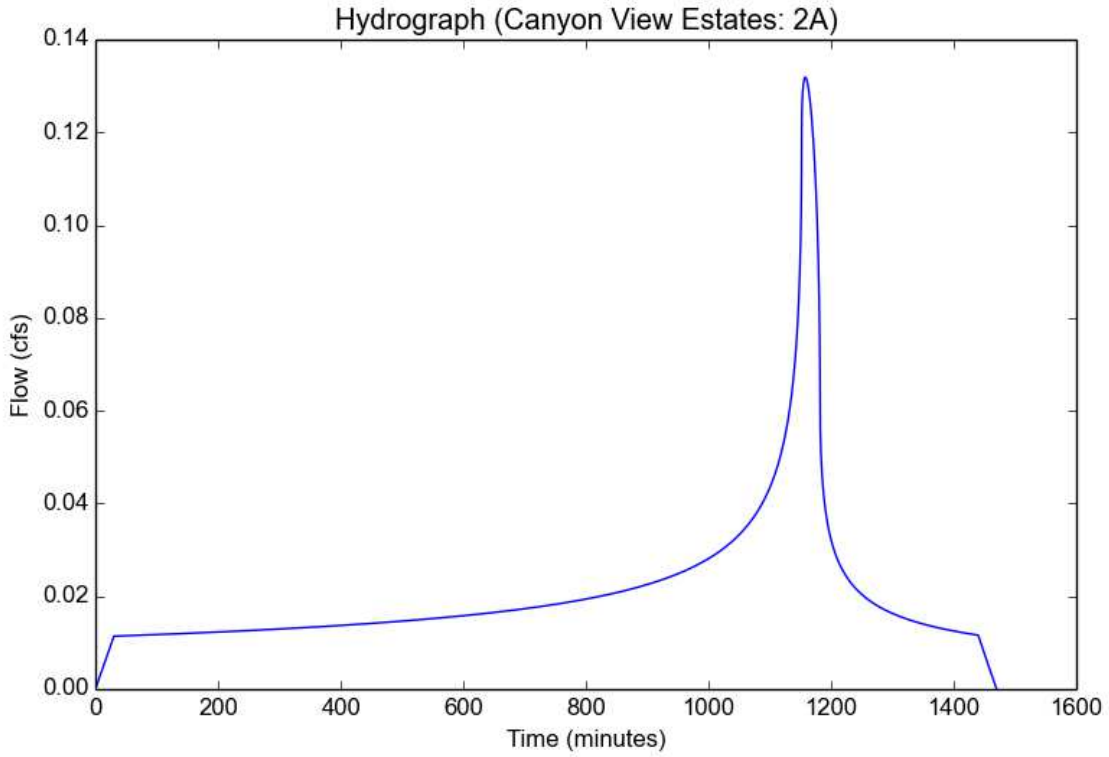
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	2A
Area (ac)	3.96
Flow Path Length (ft)	478.0
Flow Path Slope (vft/hft)	0.24
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	scr
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.3084
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.1319
Burned Peak Flow Rate (cfs)	0.2195
24-Hr Clear Runoff Volume (ac-ft)	0.0424
24-Hr Clear Runoff Volume (cu-ft)	1847.1369



Peak Flow Hydrologic Analysis

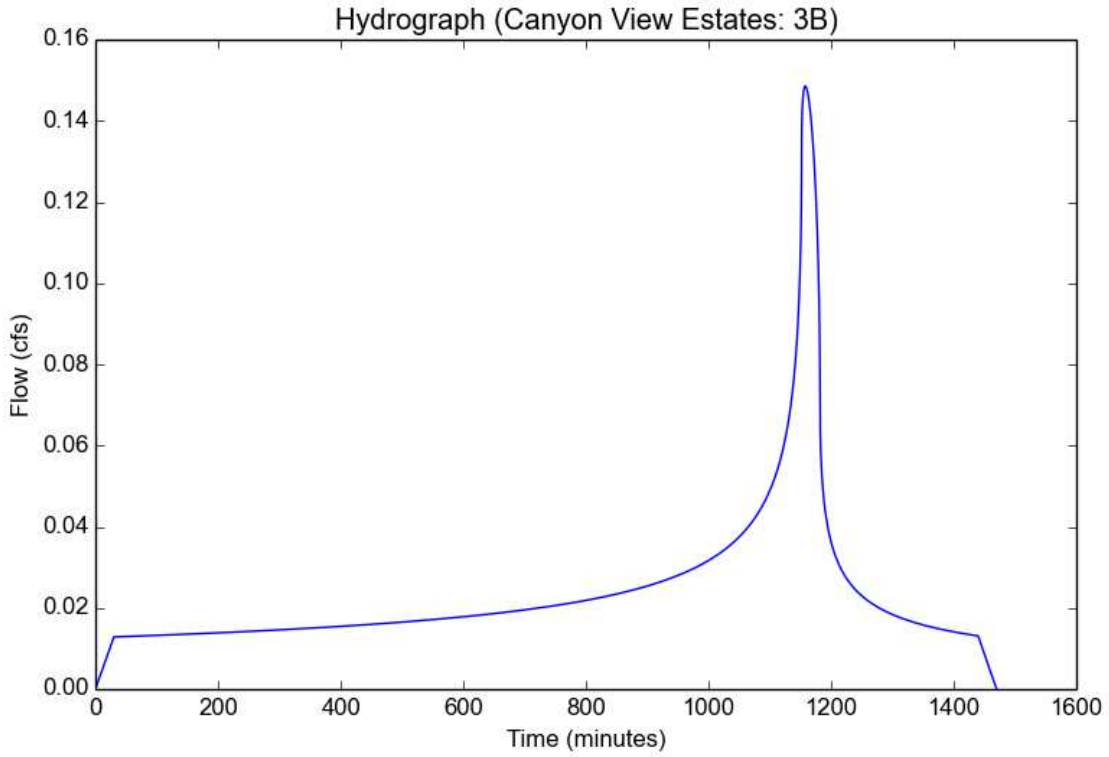
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	3B
Area (ac)	4.46
Flow Path Length (ft)	484.0
Flow Path Slope (vft/hft)	0.25
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	scr
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.3084
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.1485
Burned Peak Flow Rate (cfs)	0.2472
24-Hr Clear Runoff Volume (ac-ft)	0.0478
24-Hr Clear Runoff Volume (cu-ft)	2080.3613



Peak Flow Hydrologic Analysis

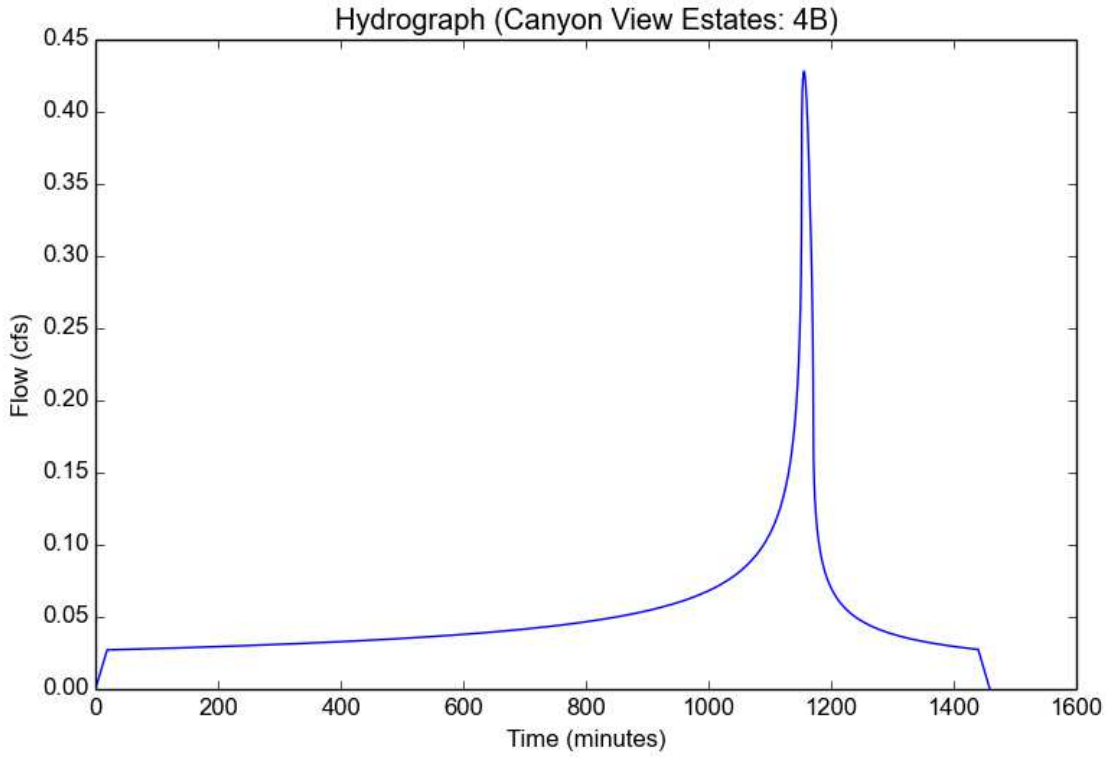
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	4B
Area (ac)	2.34
Flow Path Length (ft)	220.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	0
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.3822
Undeveloped Runoff Coefficient (Cu)	0.1734
Developed Runoff Coefficient (Cd)	0.4785
Time of Concentration (min)	19.0
Clear Peak Flow Rate (cfs)	0.428
Burned Peak Flow Rate (cfs)	0.428
24-Hr Clear Runoff Volume (ac-ft)	0.1017
24-Hr Clear Runoff Volume (cu-ft)	4429.0964



Peak Flow Hydrologic Analysis

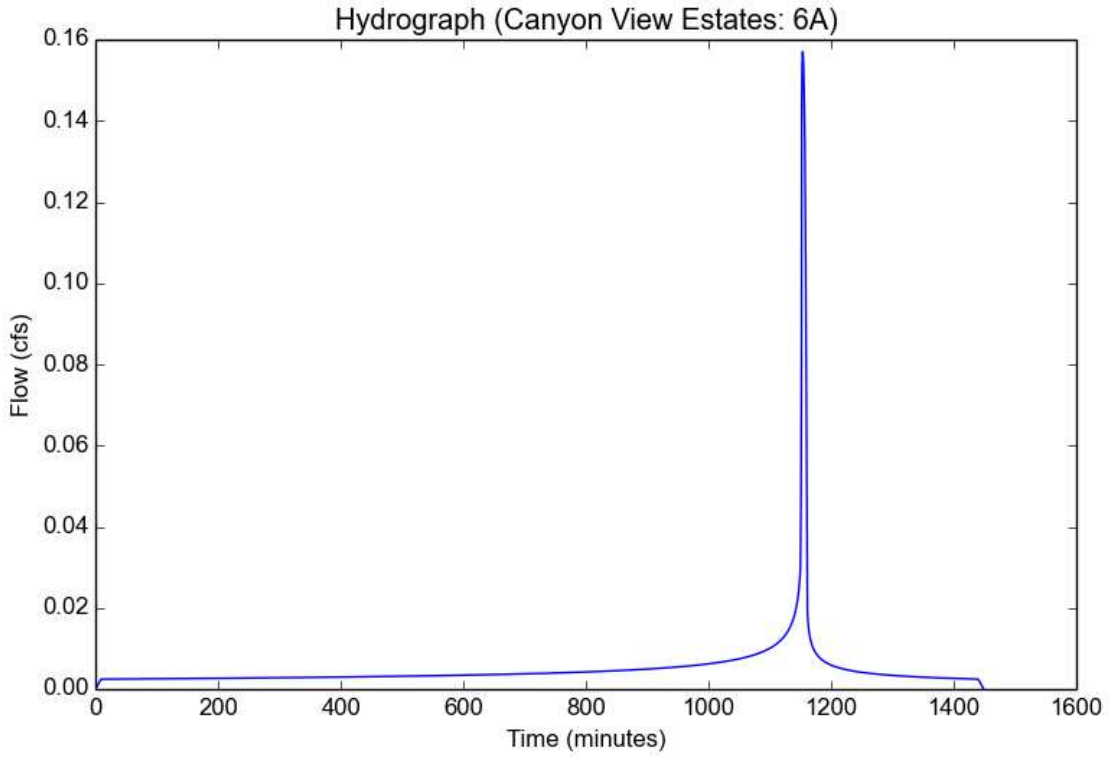
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	6A
Area (ac)	0.85
Flow Path Length (ft)	136.0
Flow Path Slope (vft/hft)	0.39
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	scr
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.543
Undeveloped Runoff Coefficient (Cu)	0.3346
Developed Runoff Coefficient (Cd)	0.3403
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	0.1571
Burned Peak Flow Rate (cfs)	0.186
24-Hr Clear Runoff Volume (ac-ft)	0.0101
24-Hr Clear Runoff Volume (cu-ft)	441.824



Peak Flow Hydrologic Analysis

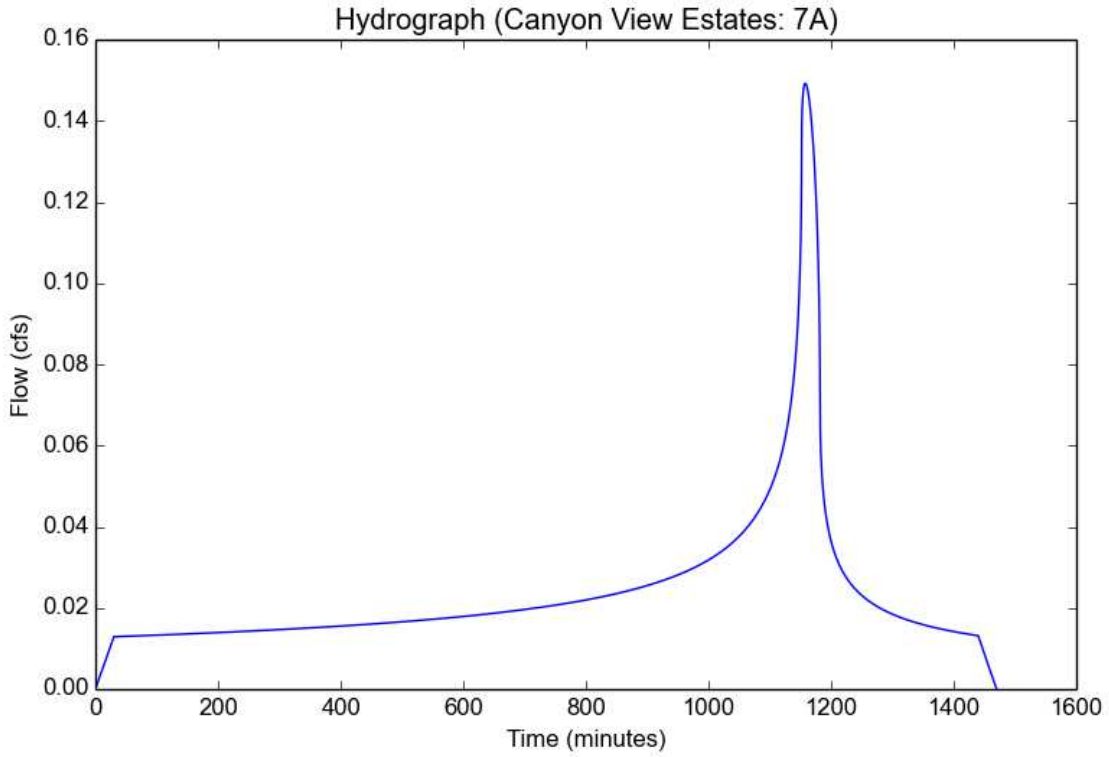
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	7A
Area (ac)	4.48
Flow Path Length (ft)	343.0
Flow Path Slope (vft/hft)	0.23
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	scr
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.3084
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.1492
Burned Peak Flow Rate (cfs)	0.2484
24-Hr Clear Runoff Volume (ac-ft)	0.048
24-Hr Clear Runoff Volume (cu-ft)	2089.6902



Peak Flow Hydrologic Analysis

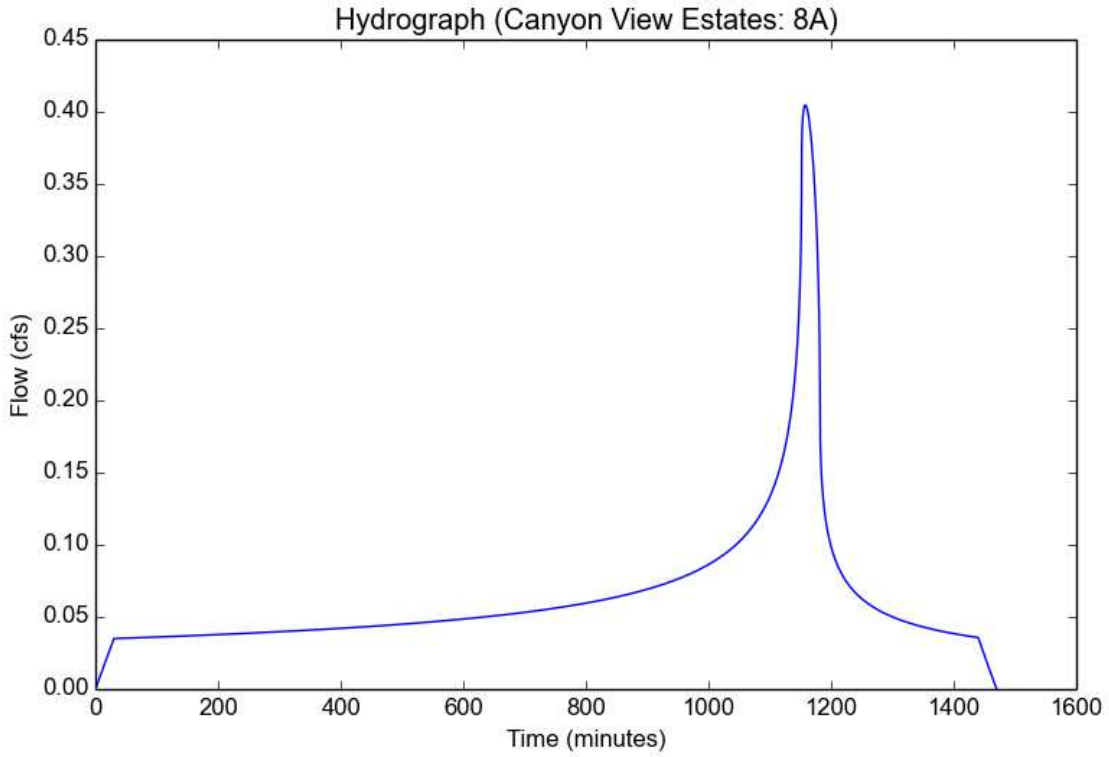
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	8A
Area (ac)	3.01
Flow Path Length (ft)	770.0
Flow Path Slope (vft/hft)	0.074
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	0
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.3084
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.4047
Burned Peak Flow Rate (cfs)	0.4047
24-Hr Clear Runoff Volume (ac-ft)	0.1301
24-Hr Clear Runoff Volume (cu-ft)	5668.0429



Peak Flow Hydrologic Analysis

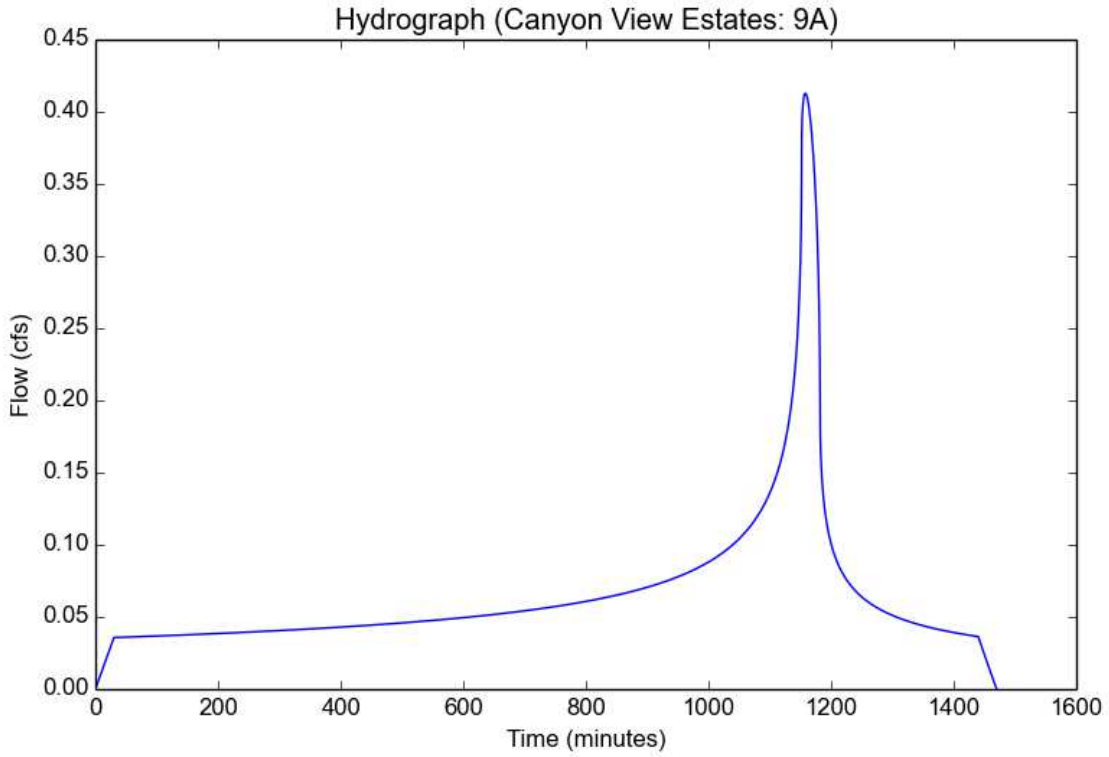
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	9A
Area (ac)	3.07
Flow Path Length (ft)	860.0
Flow Path Slope (vft/hft)	0.056
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	0
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.3084
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.4127
Burned Peak Flow Rate (cfs)	0.4127
24-Hr Clear Runoff Volume (ac-ft)	0.1327
24-Hr Clear Runoff Volume (cu-ft)	5781.0272



Peak Flow Hydrologic Analysis

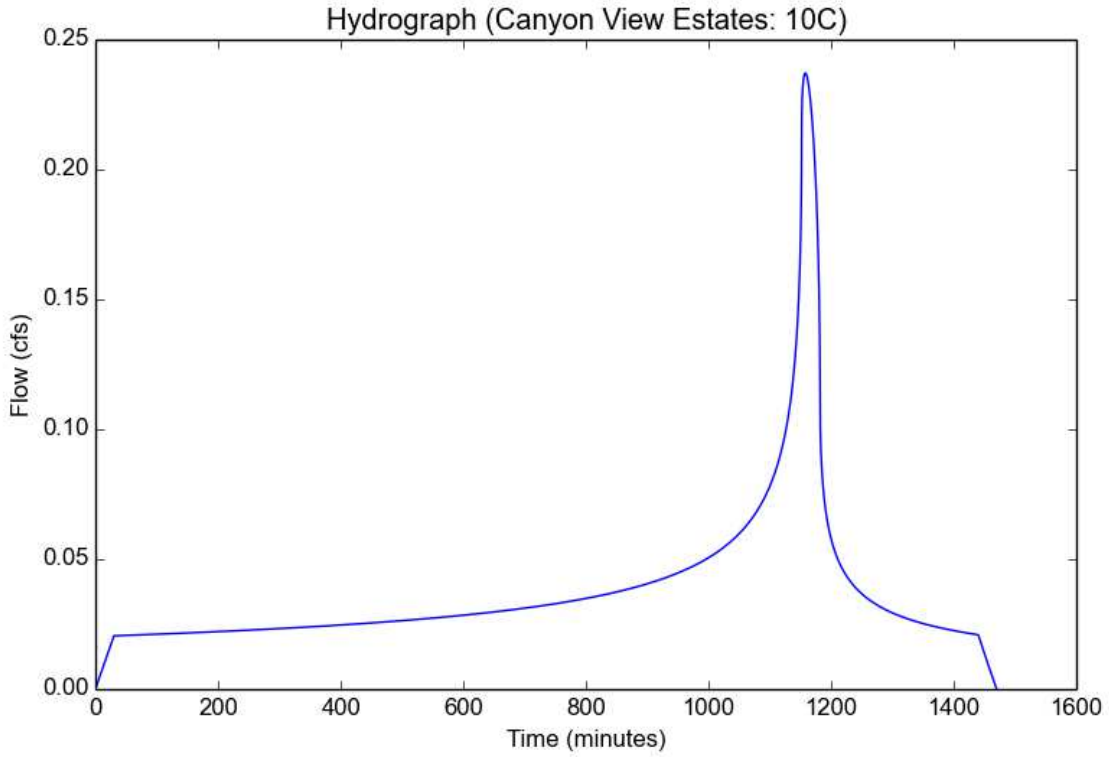
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	10C
Area (ac)	7.12
Flow Path Length (ft)	378.0
Flow Path Slope (vft/hft)	0.56
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	scr
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.3084
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.2371
Burned Peak Flow Rate (cfs)	0.3947
24-Hr Clear Runoff Volume (ac-ft)	0.0762
24-Hr Clear Runoff Volume (cu-ft)	3321.1149



Peak Flow Hydrologic Analysis

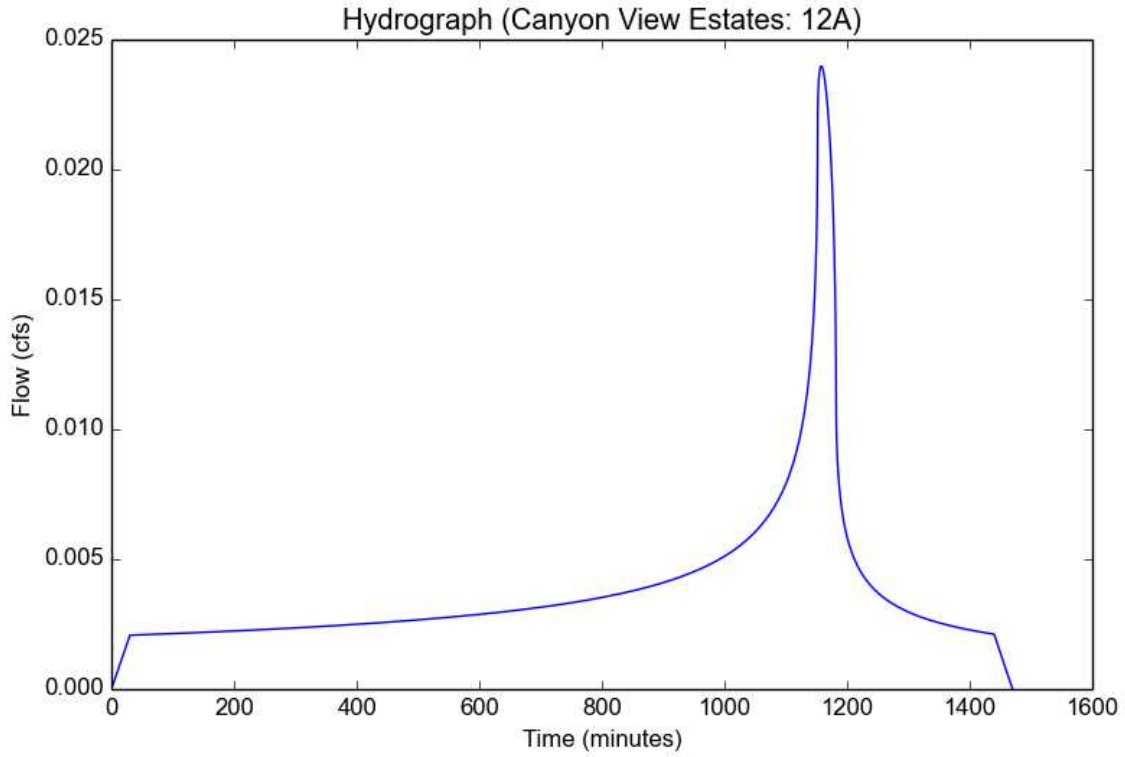
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	12A
Area (ac)	0.72
Flow Path Length (ft)	263.0
Flow Path Slope (vft/hft)	0.39
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	scr
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.3084
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.024
Burned Peak Flow Rate (cfs)	0.0399
24-Hr Clear Runoff Volume (ac-ft)	0.0077
24-Hr Clear Runoff Volume (cu-ft)	335.8431



Peak Flow Hydrologic Analysis

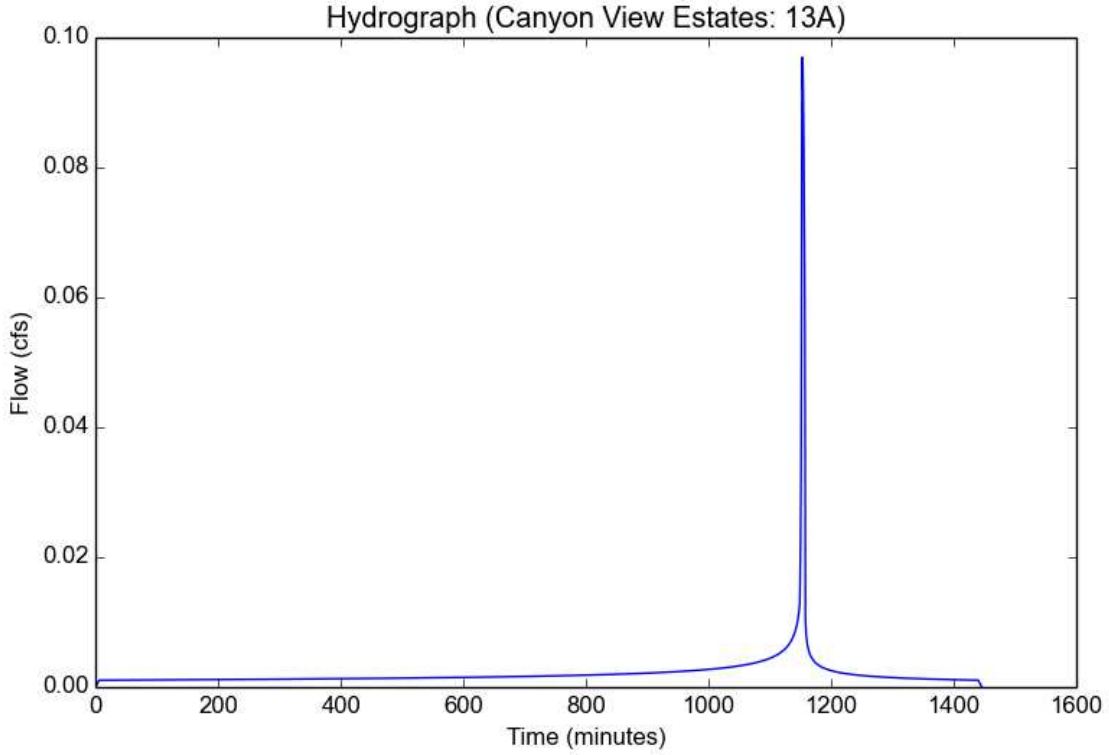
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	13A
Area (ac)	0.37
Flow Path Length (ft)	86.0
Flow Path Slope (vft/hft)	0.44
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	scr
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.657
Undeveloped Runoff Coefficient (Cu)	0.3938
Developed Runoff Coefficient (Cd)	0.3989
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	0.097
Burned Peak Flow Rate (cfs)	0.1115
24-Hr Clear Runoff Volume (ac-ft)	0.0045
24-Hr Clear Runoff Volume (cu-ft)	195.2725



Peak Flow Hydrologic Analysis

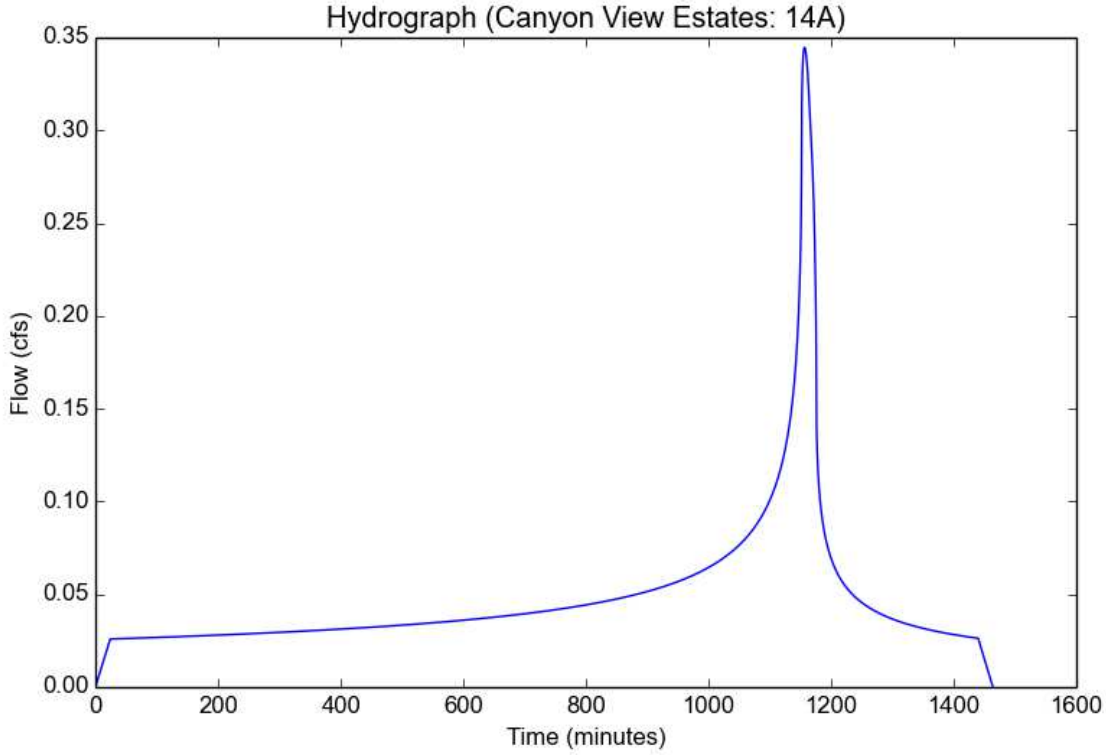
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	14A
Area (ac)	2.23
Flow Path Length (ft)	310.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	0
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.3424
Undeveloped Runoff Coefficient (Cu)	0.1265
Developed Runoff Coefficient (Cd)	0.4514
Time of Concentration (min)	24.0
Clear Peak Flow Rate (cfs)	0.3447
Burned Peak Flow Rate (cfs)	0.3447
24-Hr Clear Runoff Volume (ac-ft)	0.0965
24-Hr Clear Runoff Volume (cu-ft)	4205.3676



Peak Flow Hydrologic Analysis

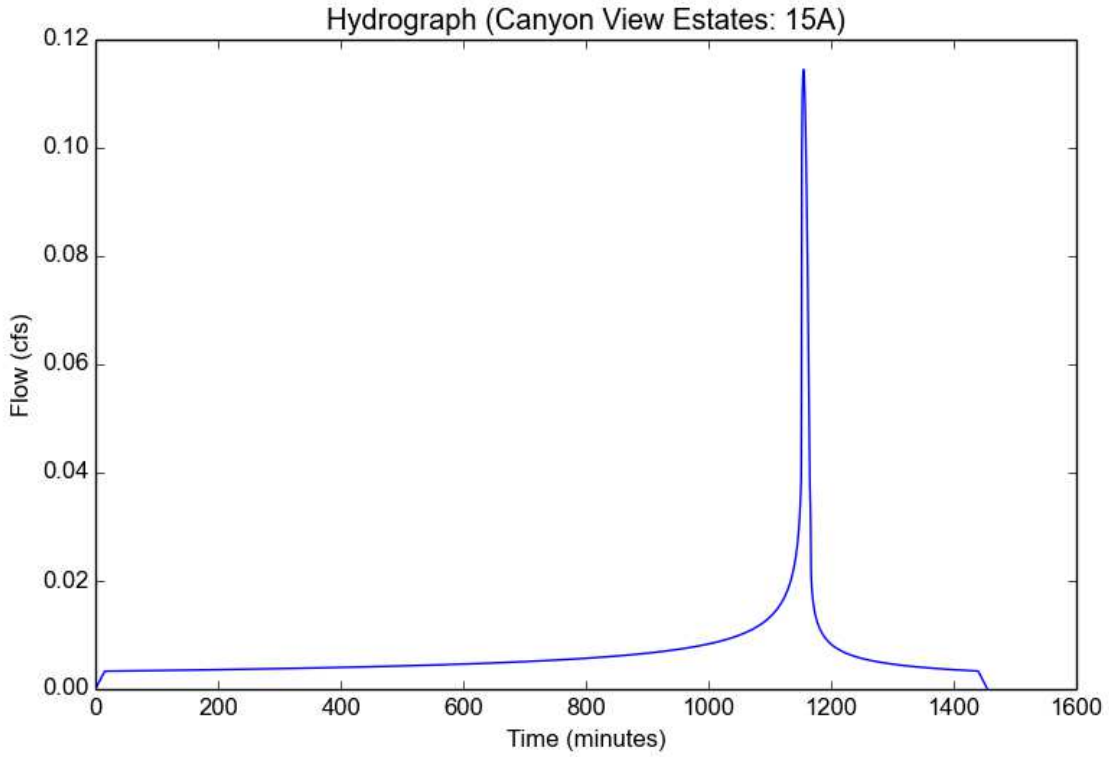
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	15A
Area (ac)	1.15
Flow Path Length (ft)	181.0
Flow Path Slope (vft/hft)	0.29
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	scr
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.4271
Undeveloped Runoff Coefficient (Cu)	0.2263
Developed Runoff Coefficient (Cd)	0.2331
Time of Concentration (min)	15.0
Clear Peak Flow Rate (cfs)	0.1145
Burned Peak Flow Rate (cfs)	0.148
24-Hr Clear Runoff Volume (ac-ft)	0.0131
24-Hr Clear Runoff Volume (cu-ft)	570.3882



Peak Flow Hydrologic Analysis

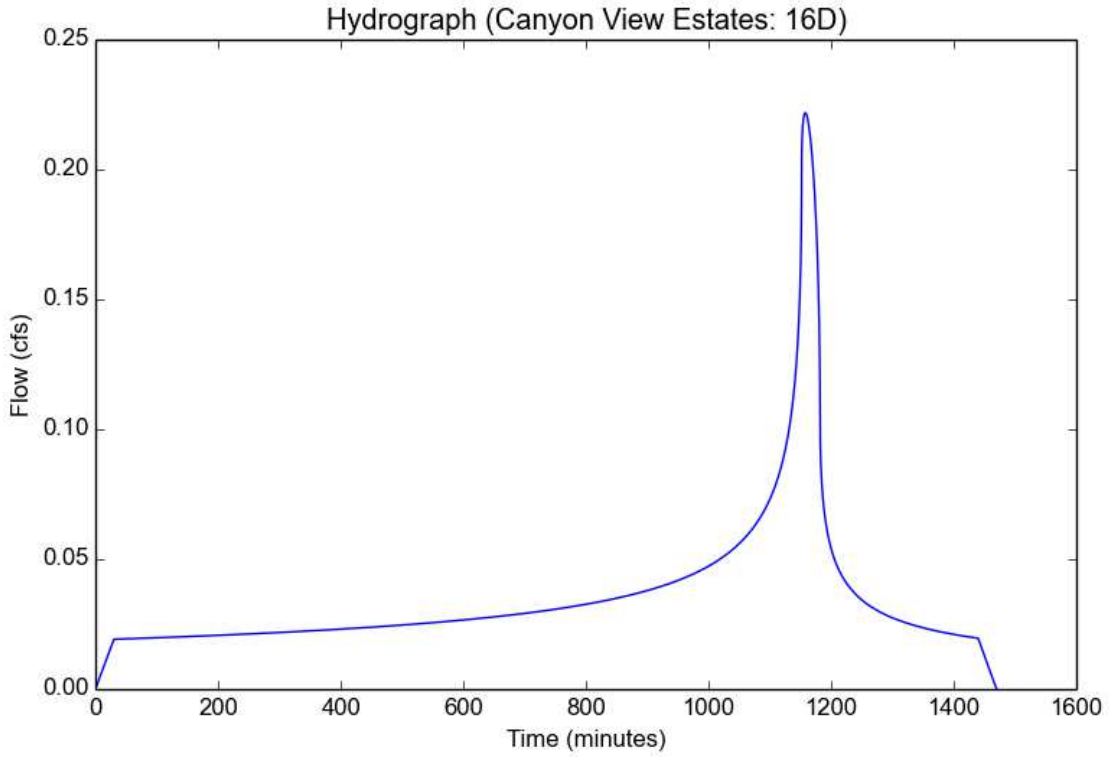
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	16D
Area (ac)	1.65
Flow Path Length (ft)	630.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	0
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.3084
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.2218
Burned Peak Flow Rate (cfs)	0.2218
24-Hr Clear Runoff Volume (ac-ft)	0.0713
24-Hr Clear Runoff Volume (cu-ft)	3107.0667



Peak Flow Hydrologic Analysis

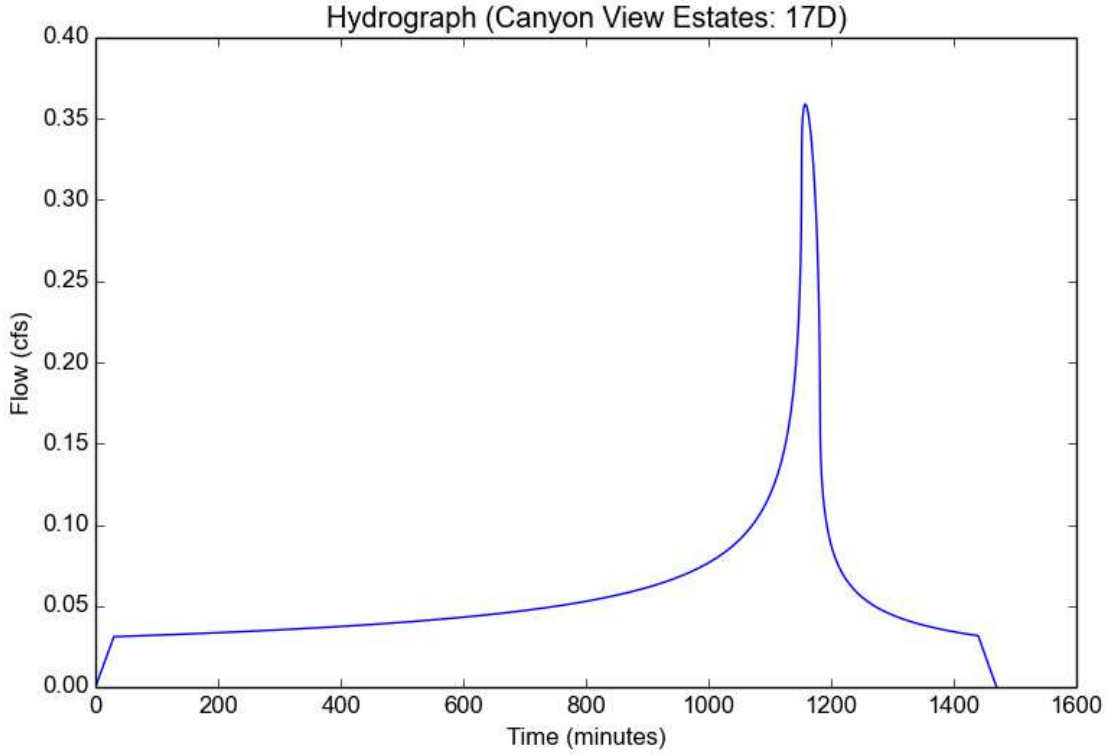
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	17D
Area (ac)	2.67
Flow Path Length (ft)	620.0
Flow Path Slope (vft/hft)	0.005
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	0
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.3084
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.436
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.359
Burned Peak Flow Rate (cfs)	0.359
24-Hr Clear Runoff Volume (ac-ft)	0.1154
24-Hr Clear Runoff Volume (cu-ft)	5027.7989



Peak Flow Hydrologic Analysis

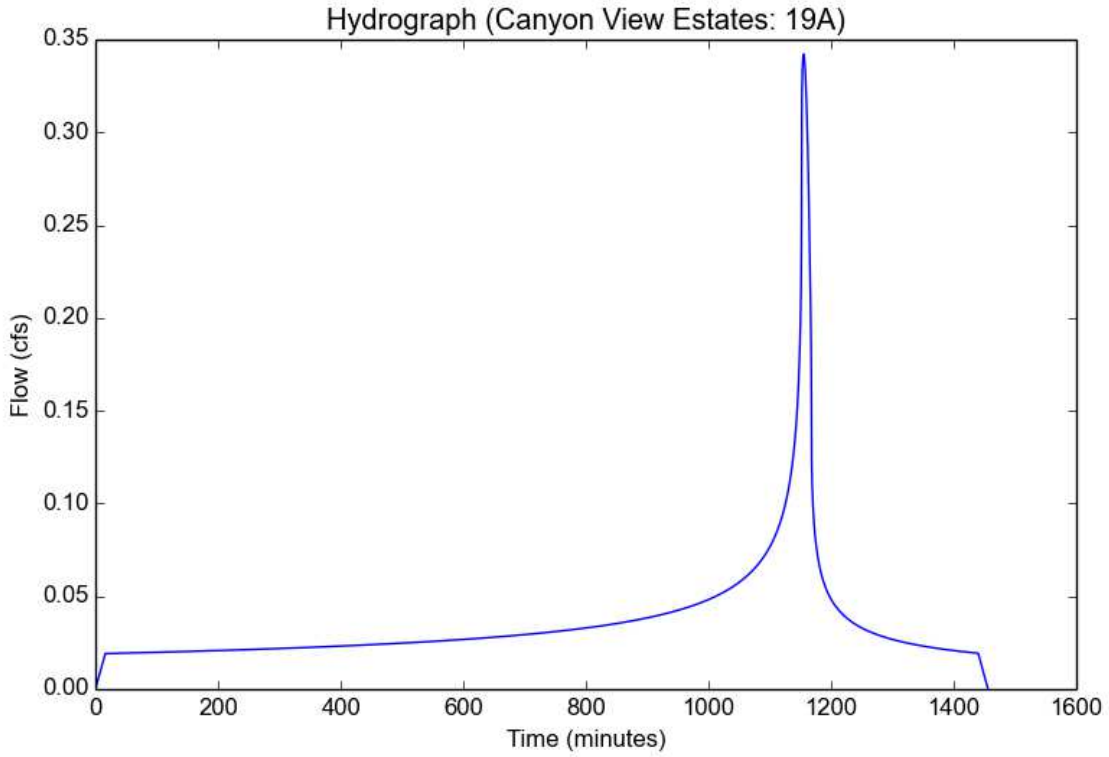
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	19A
Area (ac)	1.65
Flow Path Length (ft)	290.0
Flow Path Slope (vft/hft)	0.062
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	0
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.4143
Undeveloped Runoff Coefficient (Cu)	0.2113
Developed Runoff Coefficient (Cd)	0.5005
Time of Concentration (min)	16.0
Clear Peak Flow Rate (cfs)	0.3422
Burned Peak Flow Rate (cfs)	0.3422
24-Hr Clear Runoff Volume (ac-ft)	0.0719
24-Hr Clear Runoff Volume (cu-ft)	3132.1689



Peak Flow Hydrologic Analysis

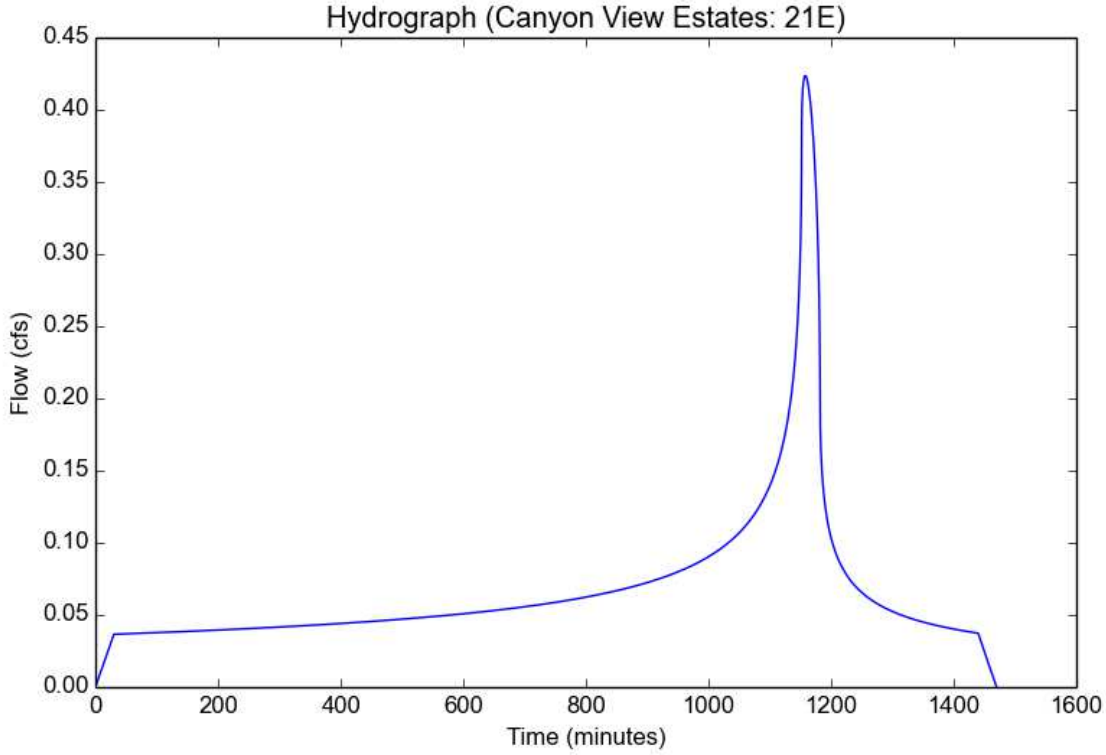
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	21E
Area (ac)	12.72
Flow Path Length (ft)	1394.0
Flow Path Slope (vft/hft)	0.18
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	scr
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.3084
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.4236
Burned Peak Flow Rate (cfs)	0.7051
24-Hr Clear Runoff Volume (ac-ft)	0.1362
24-Hr Clear Runoff Volume (cu-ft)	5933.2277



Peak Flow Hydrologic Analysis

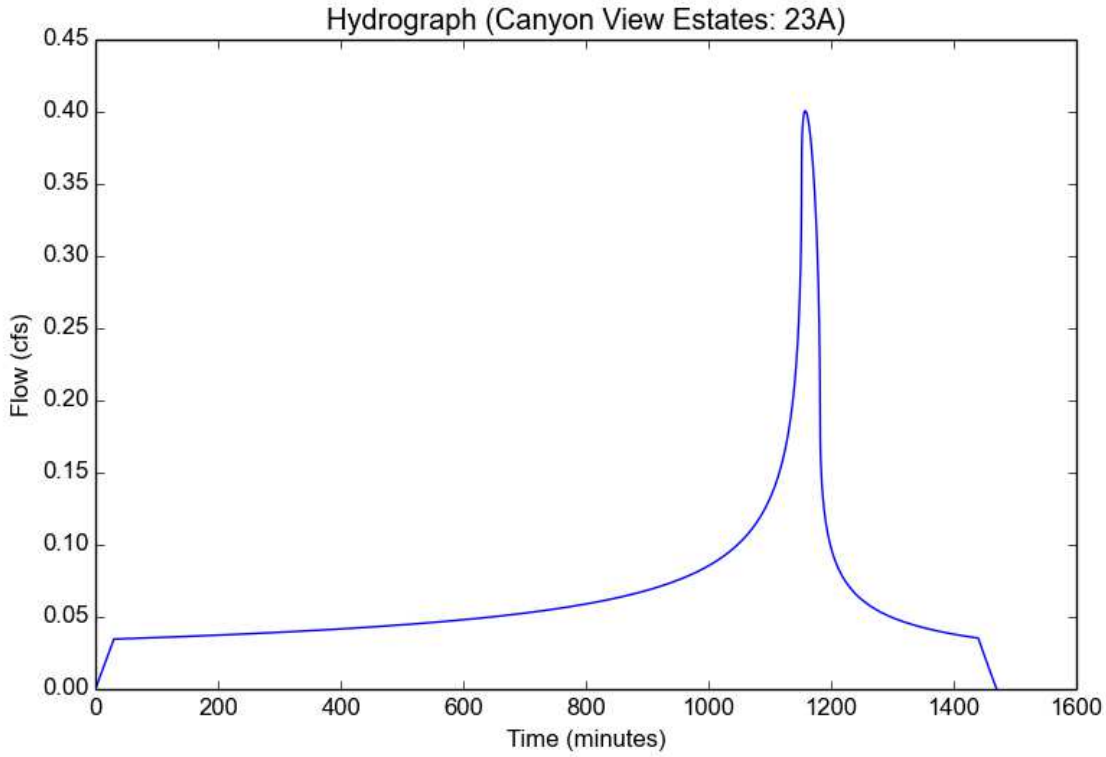
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	23A
Area (ac)	12.03
Flow Path Length (ft)	682.0
Flow Path Slope (vft/hft)	0.046
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	scr
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.3084
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.4006
Burned Peak Flow Rate (cfs)	0.6669
24-Hr Clear Runoff Volume (ac-ft)	0.1288
24-Hr Clear Runoff Volume (cu-ft)	5611.378



Peak Flow Hydrologic Analysis

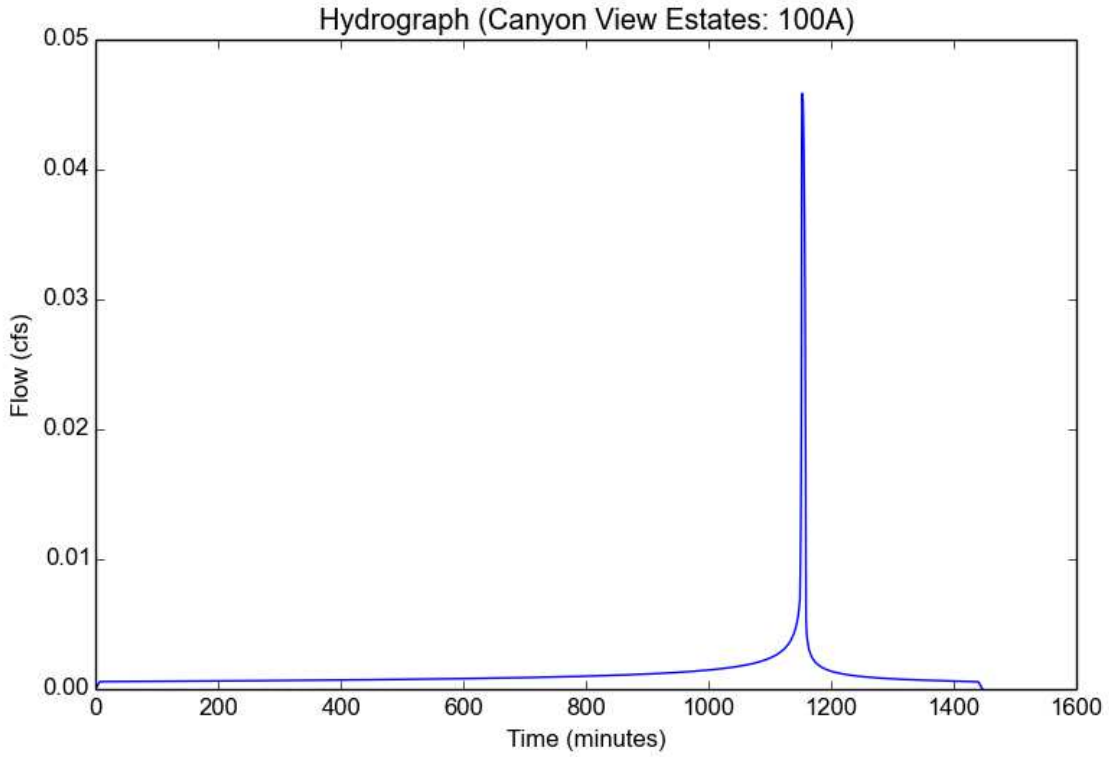
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	100A
Area (ac)	0.2
Flow Path Length (ft)	116.0
Flow Path Slope (vft/hft)	0.56
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	scr
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.6111
Undeveloped Runoff Coefficient (Cu)	0.37
Developed Runoff Coefficient (Cd)	0.3753
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	0.0459
Burned Peak Flow Rate (cfs)	0.0533
24-Hr Clear Runoff Volume (ac-ft)	0.0024
24-Hr Clear Runoff Volume (cu-ft)	105.0224



Peak Flow Hydrologic Analysis

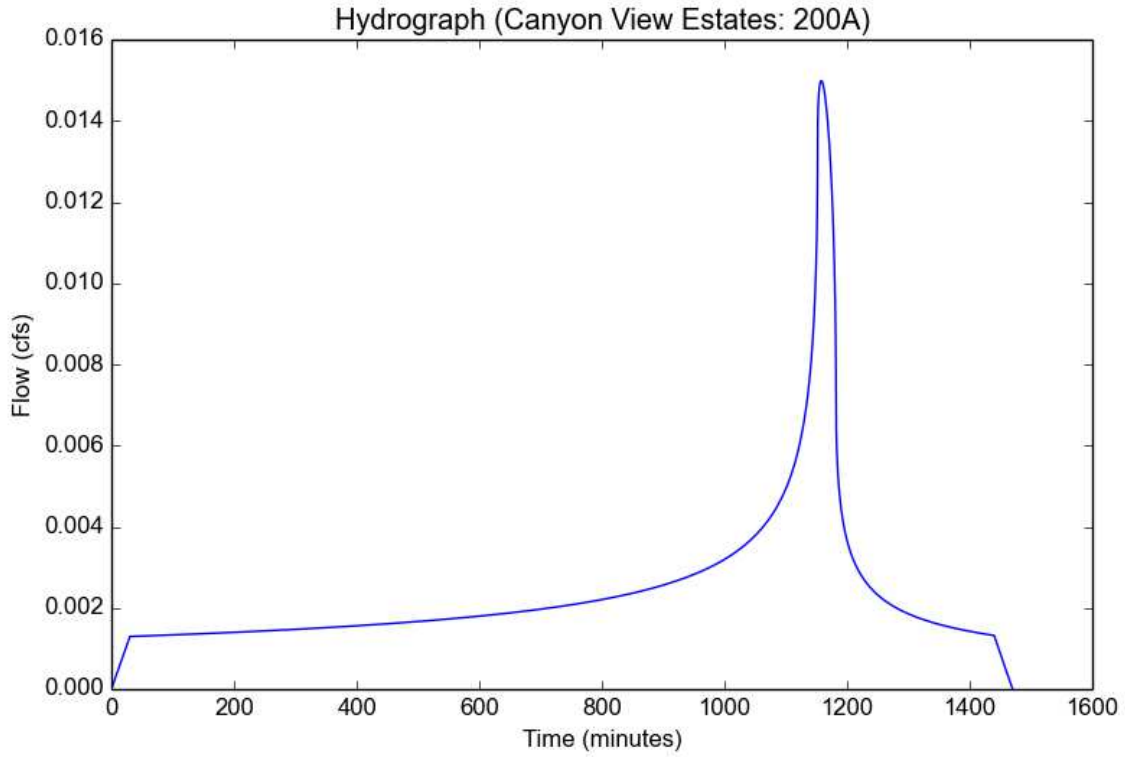
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	200A
Area (ac)	0.45
Flow Path Length (ft)	234.0
Flow Path Slope (vft/hft)	0.3
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	0
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.3084
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.015
Burned Peak Flow Rate (cfs)	0.015
24-Hr Clear Runoff Volume (ac-ft)	0.0048
24-Hr Clear Runoff Volume (cu-ft)	209.9019



Peak Flow Hydrologic Analysis

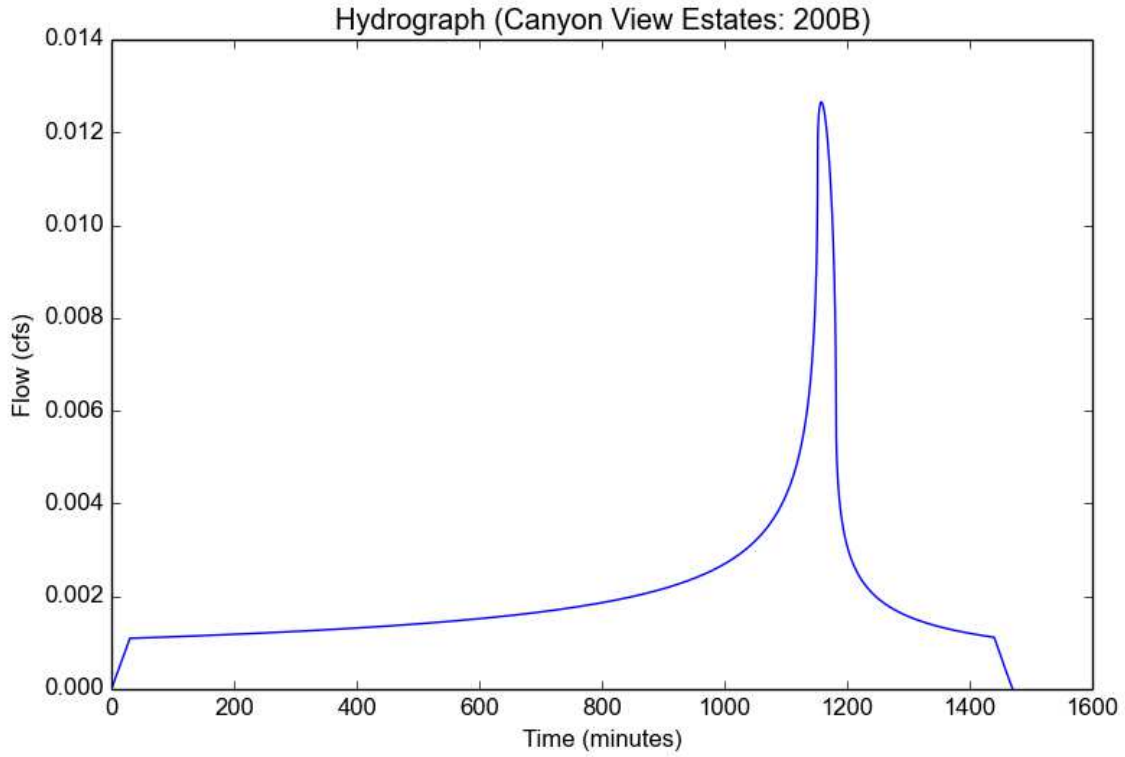
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	200B
Area (ac)	0.38
Flow Path Length (ft)	234.0
Flow Path Slope (vft/hft)	0.3
50-yr Rainfall Depth (in)	3.1
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	2-yr
Fire Factor	0
LID	False

Output Results

Modeled (2-yr) Rainfall Depth (in)	1.1997
Peak Intensity (in/hr)	0.3084
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.108
Time of Concentration (min)	30.0
Clear Peak Flow Rate (cfs)	0.0127
Burned Peak Flow Rate (cfs)	0.0127
24-Hr Clear Runoff Volume (ac-ft)	0.0041
24-Hr Clear Runoff Volume (cu-ft)	177.2505



Peak Flow Hydrologic Analysis

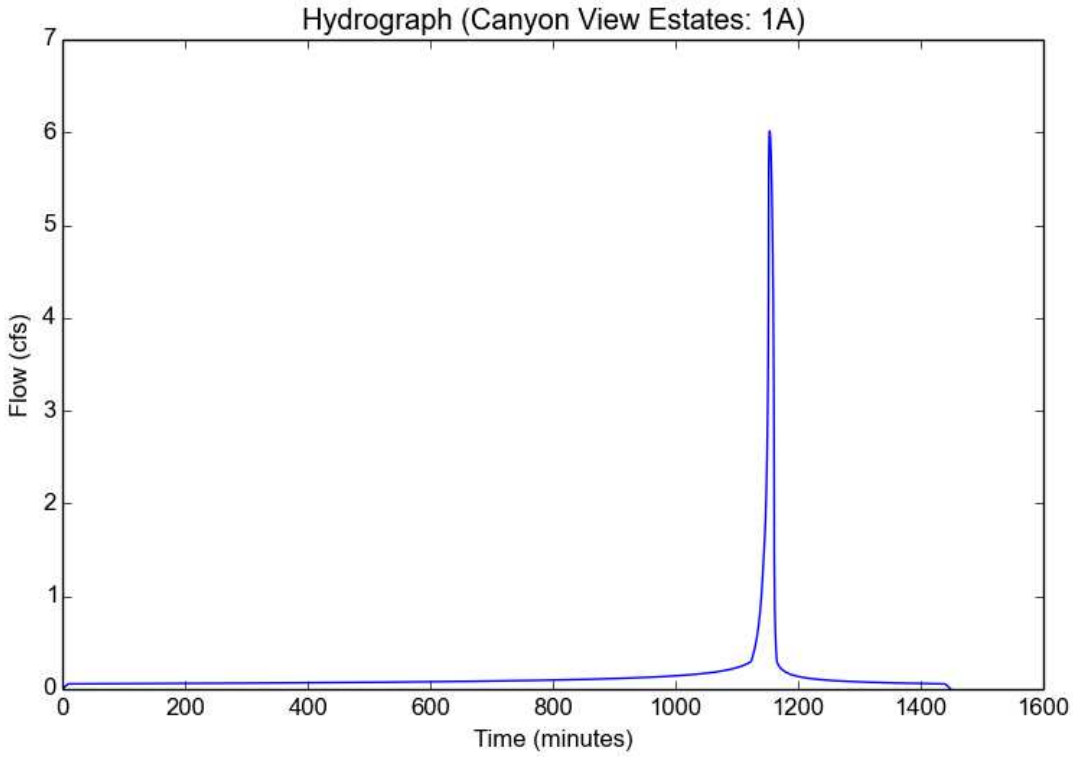
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	1A
Area (ac)	8.6
Flow Path Length (ft)	444.0
Flow Path Slope (vft/hft)	0.17
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	scr
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	1.2344
Undeveloped Runoff Coefficient (Cu)	0.5632
Developed Runoff Coefficient (Cd)	0.5666
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	6.015
Burned Peak Flow Rate (cfs)	6.5428
24-Hr Clear Runoff Volume (ac-ft)	0.2902
24-Hr Clear Runoff Volume (cu-ft)	12642.484



Peak Flow Hydrologic Analysis

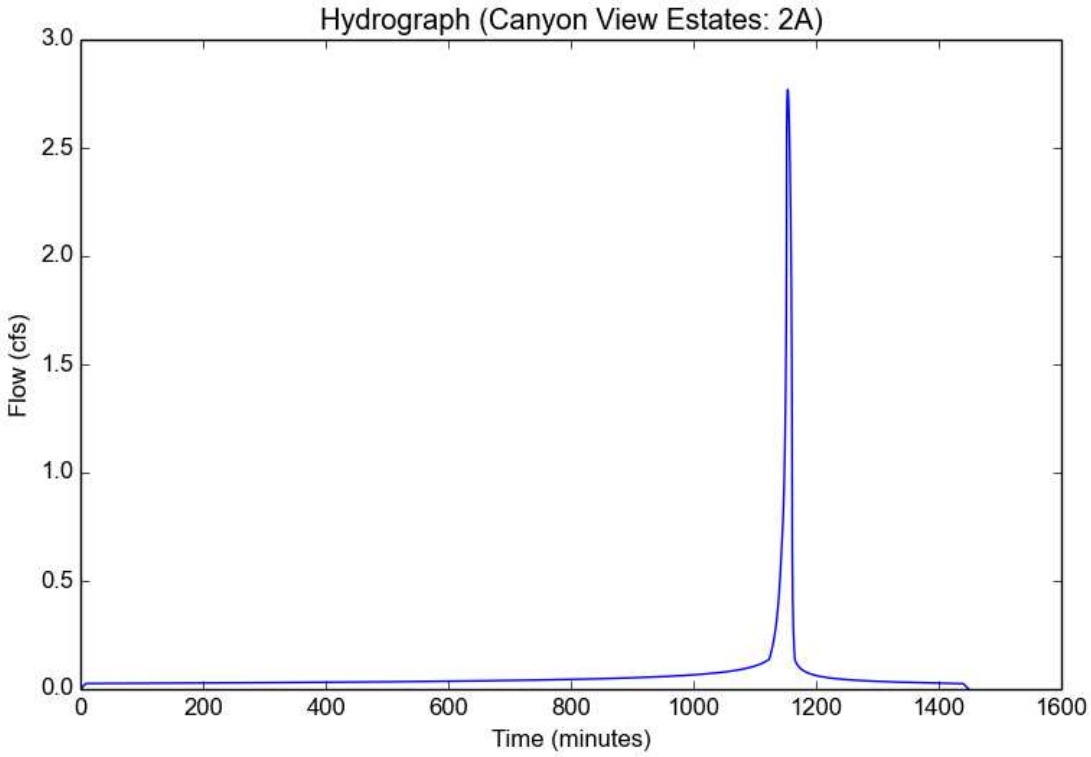
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	2A
Area (ac)	3.96
Flow Path Length (ft)	478.0
Flow Path Slope (vft/hft)	0.24
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	scr
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	1.2344
Undeveloped Runoff Coefficient (Cu)	0.5632
Developed Runoff Coefficient (Cd)	0.5666
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	2.7697
Burned Peak Flow Rate (cfs)	3.0127
24-Hr Clear Runoff Volume (ac-ft)	0.1336
24-Hr Clear Runoff Volume (cu-ft)	5821.4229



Peak Flow Hydrologic Analysis

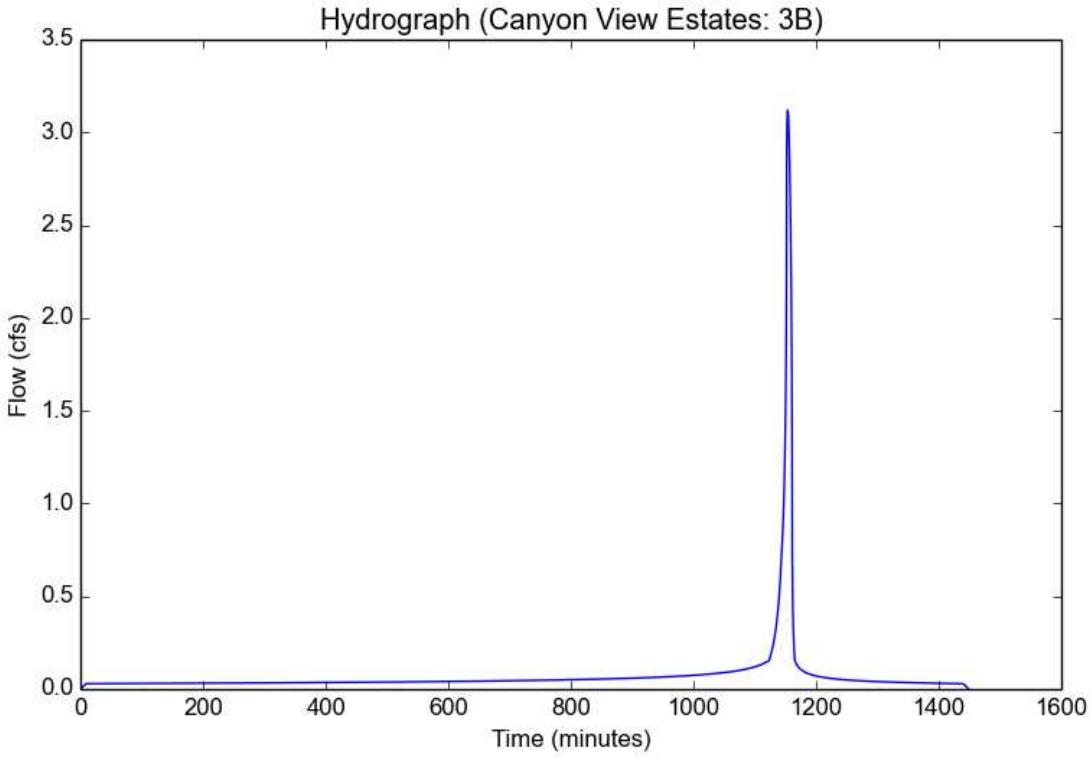
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	3B
Area (ac)	4.46
Flow Path Length (ft)	484.0
Flow Path Slope (vft/hft)	0.25
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	scr
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	1.2344
Undeveloped Runoff Coefficient (Cu)	0.5632
Developed Runoff Coefficient (Cd)	0.5666
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	3.1194
Burned Peak Flow Rate (cfs)	3.3931
24-Hr Clear Runoff Volume (ac-ft)	0.1505
24-Hr Clear Runoff Volume (cu-ft)	6556.451



Peak Flow Hydrologic Analysis

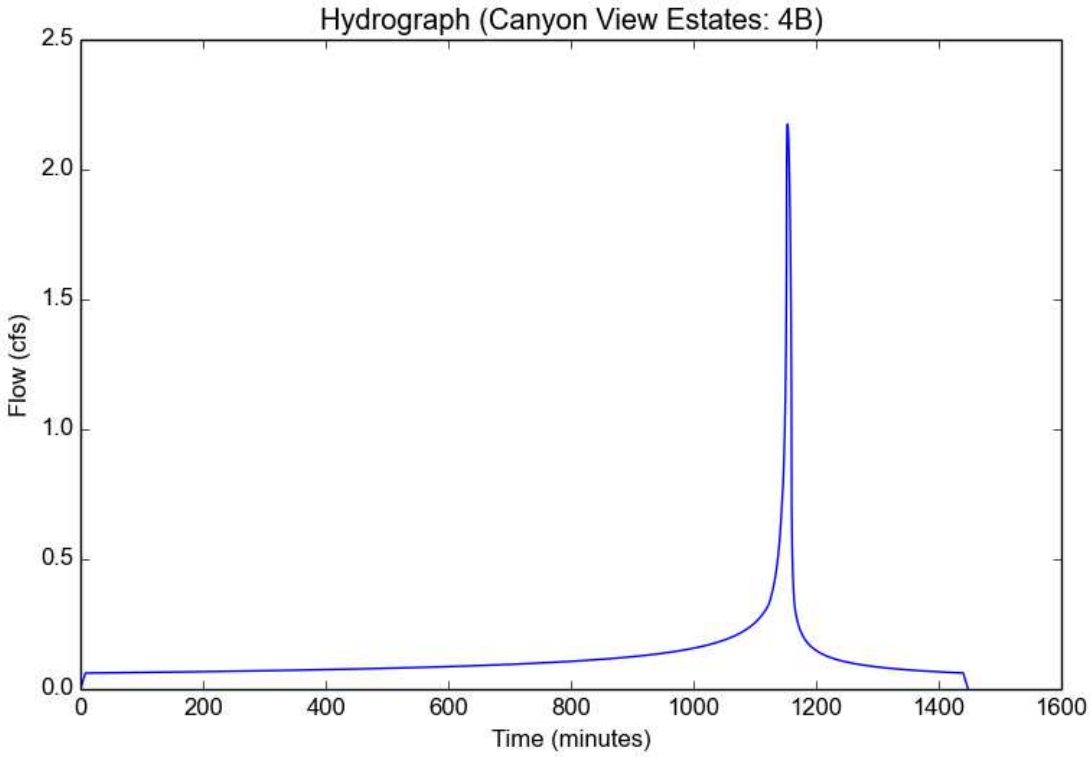
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	4B
Area (ac)	2.34
Flow Path Length (ft)	220.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	0
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	1.3047
Undeveloped Runoff Coefficient (Cu)	0.5764
Developed Runoff Coefficient (Cd)	0.7123
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	2.1745
Burned Peak Flow Rate (cfs)	2.1745
24-Hr Clear Runoff Volume (ac-ft)	0.2429
24-Hr Clear Runoff Volume (cu-ft)	10581.284



Peak Flow Hydrologic Analysis

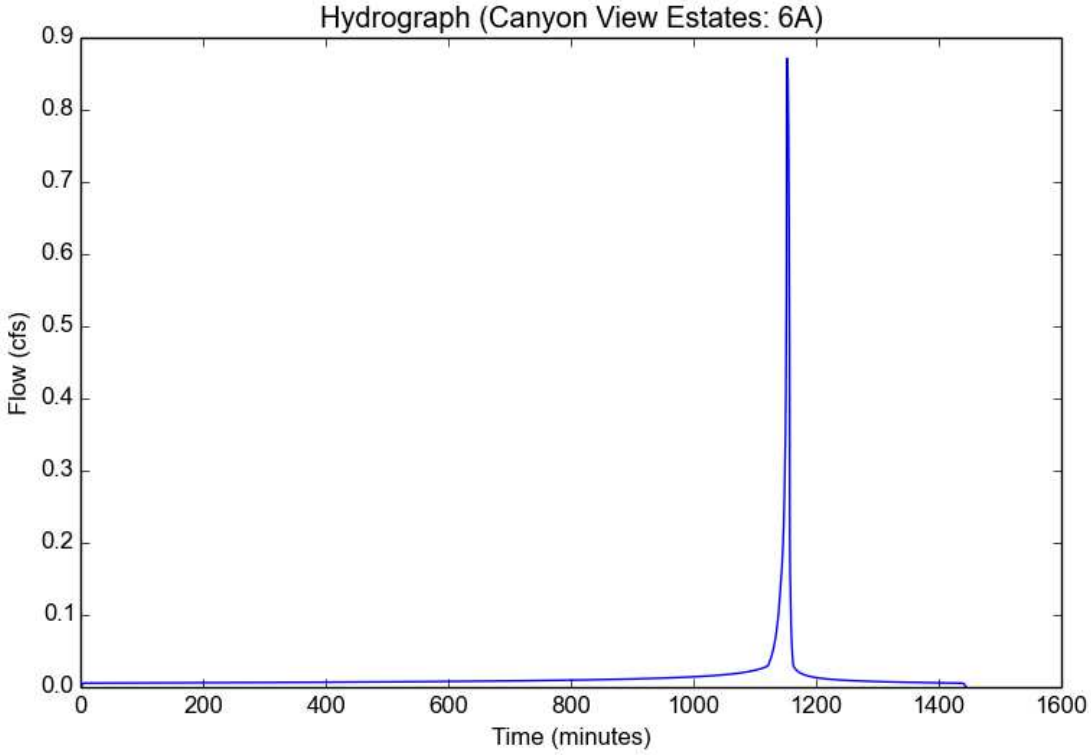
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	6A
Area (ac)	0.85
Flow Path Length (ft)	136.0
Flow Path Slope (vft/hft)	0.39
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	scr
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	1.6272
Undeveloped Runoff Coefficient (Cu)	0.627
Developed Runoff Coefficient (Cd)	0.6297
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.871
Burned Peak Flow Rate (cfs)	0.9329
24-Hr Clear Runoff Volume (ac-ft)	0.0289
24-Hr Clear Runoff Volume (cu-ft)	1257.9859



Peak Flow Hydrologic Analysis

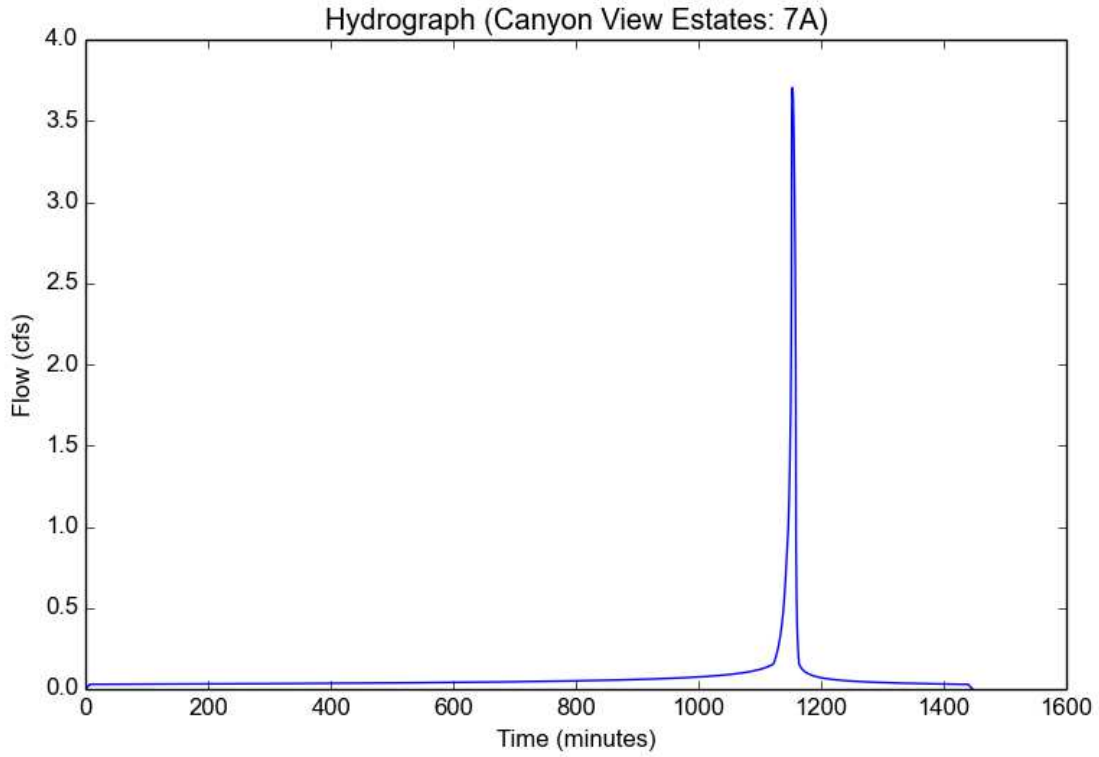
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	7A
Area (ac)	4.48
Flow Path Length (ft)	343.0
Flow Path Slope (vft/hft)	0.23
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	scr
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	1.3892
Undeveloped Runoff Coefficient (Cu)	0.5921
Developed Runoff Coefficient (Cd)	0.5952
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	3.7042
Burned Peak Flow Rate (cfs)	4.0
24-Hr Clear Runoff Volume (ac-ft)	0.1516
24-Hr Clear Runoff Volume (cu-ft)	6605.6012



Peak Flow Hydrologic Analysis

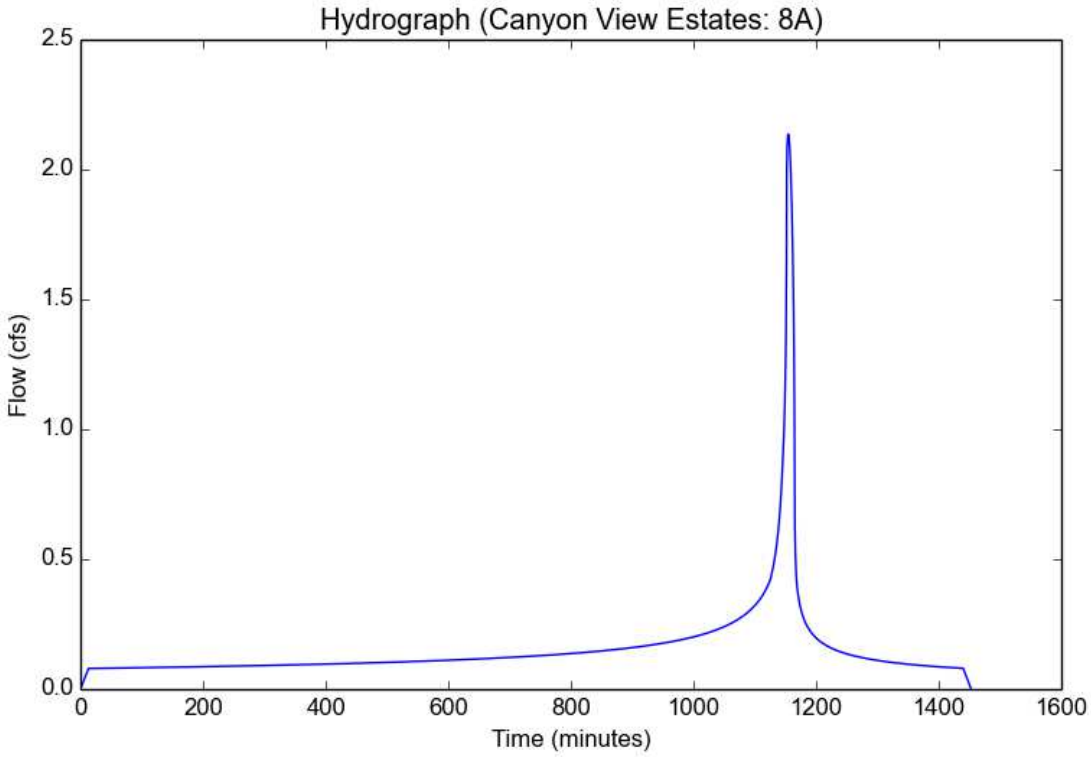
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	8A
Area (ac)	3.01
Flow Path Length (ft)	770.0
Flow Path Slope (vft/hft)	0.074
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	0
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	1.0385
Undeveloped Runoff Coefficient (Cu)	0.5267
Developed Runoff Coefficient (Cd)	0.6835
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	2.1364
Burned Peak Flow Rate (cfs)	2.1364
24-Hr Clear Runoff Volume (ac-ft)	0.3122
24-Hr Clear Runoff Volume (cu-ft)	13597.437



Peak Flow Hydrologic Analysis

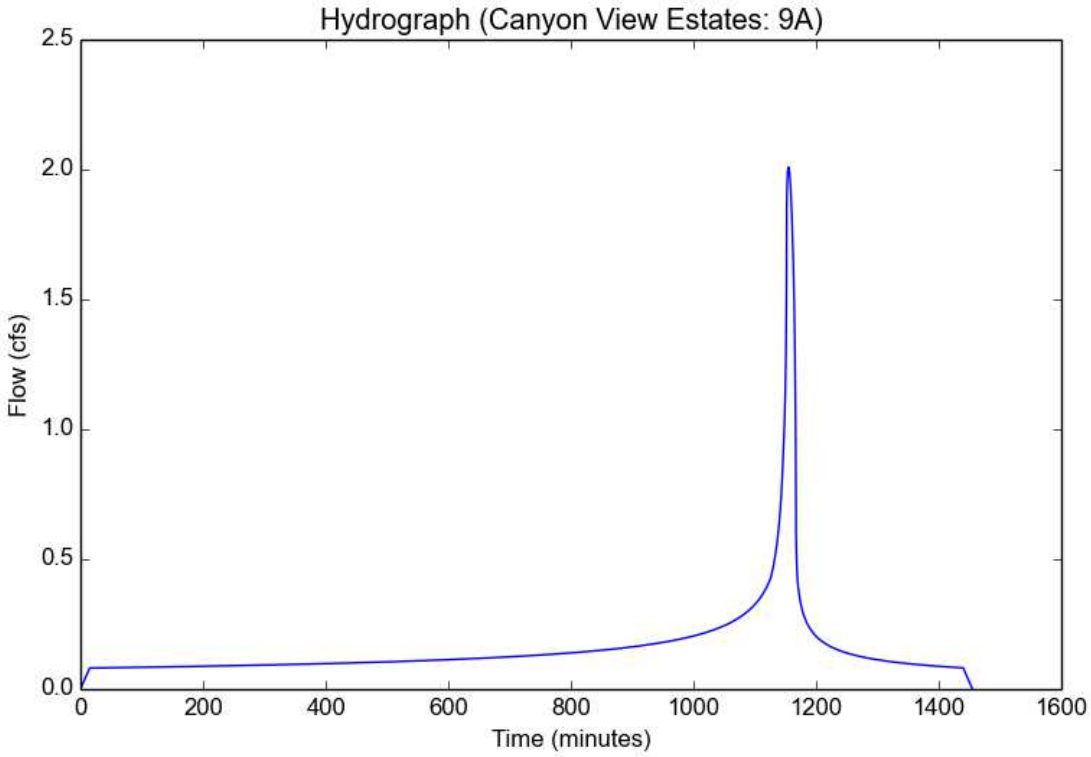
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	9A
Area (ac)	3.07
Flow Path Length (ft)	860.0
Flow Path Slope (vft/hft)	0.056
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	0
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	0.9709
Undeveloped Runoff Coefficient (Cu)	0.5105
Developed Runoff Coefficient (Cd)	0.6741
Time of Concentration (min)	15.0
Clear Peak Flow Rate (cfs)	2.0093
Burned Peak Flow Rate (cfs)	2.0093
24-Hr Clear Runoff Volume (ac-ft)	0.3182
24-Hr Clear Runoff Volume (cu-ft)	13860.7857



Peak Flow Hydrologic Analysis

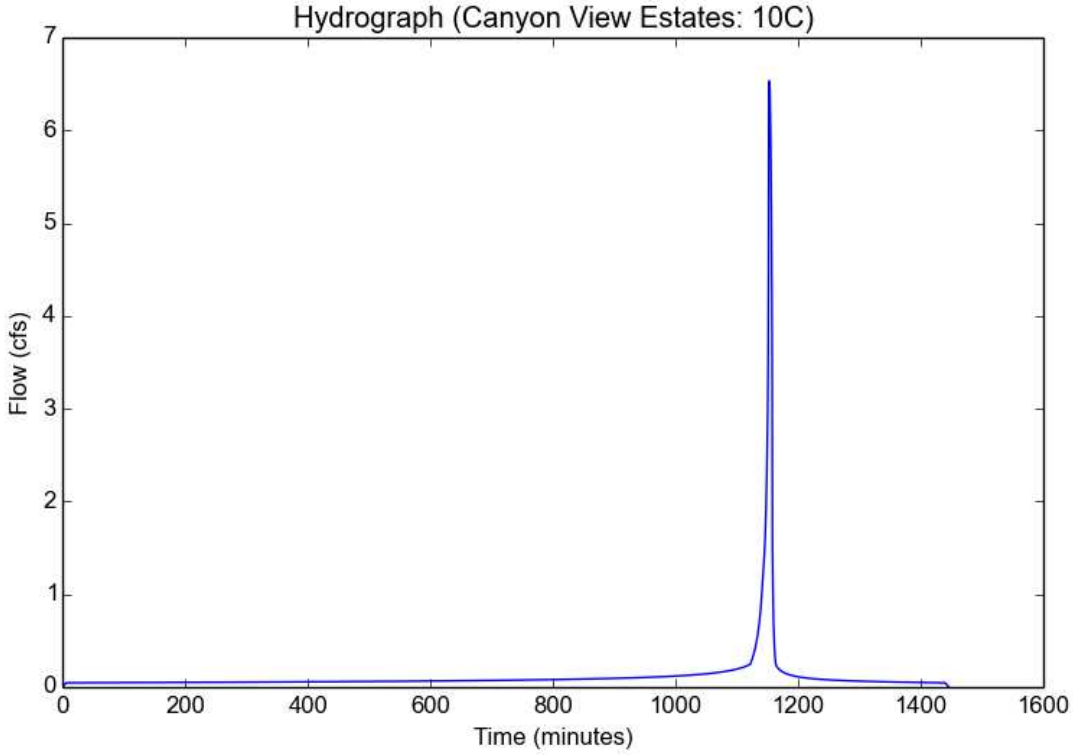
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	10C
Area (ac)	7.12
Flow Path Length (ft)	378.0
Flow Path Slope (vft/hft)	0.56
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	scr
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	1.4935
Undeveloped Runoff Coefficient (Cu)	0.6116
Developed Runoff Coefficient (Cd)	0.6145
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	6.5345
Burned Peak Flow Rate (cfs)	7.0226
24-Hr Clear Runoff Volume (ac-ft)	0.2415
24-Hr Clear Runoff Volume (cu-ft)	10520.682



Peak Flow Hydrologic Analysis

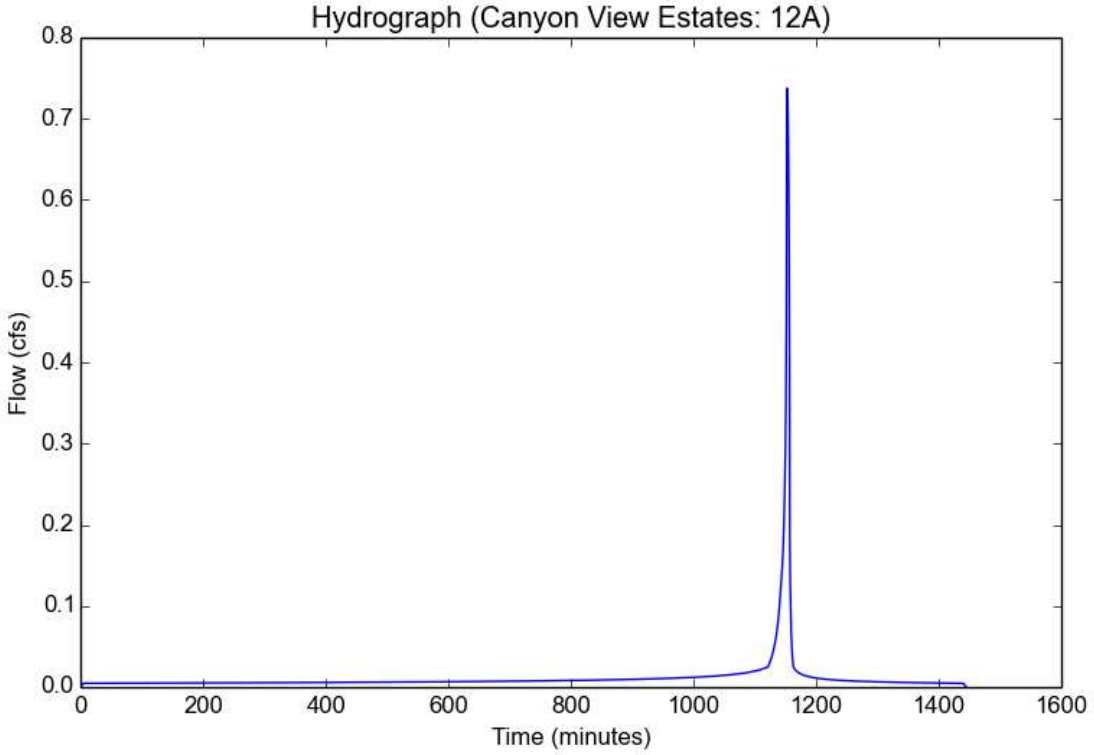
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	12A
Area (ac)	0.72
Flow Path Length (ft)	263.0
Flow Path Slope (vft/hft)	0.39
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	scr
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	1.6272
Undeveloped Runoff Coefficient (Cu)	0.627
Developed Runoff Coefficient (Cd)	0.6297
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.7378
Burned Peak Flow Rate (cfs)	0.7902
24-Hr Clear Runoff Volume (ac-ft)	0.0245
24-Hr Clear Runoff Volume (cu-ft)	1065.5881



Peak Flow Hydrologic Analysis

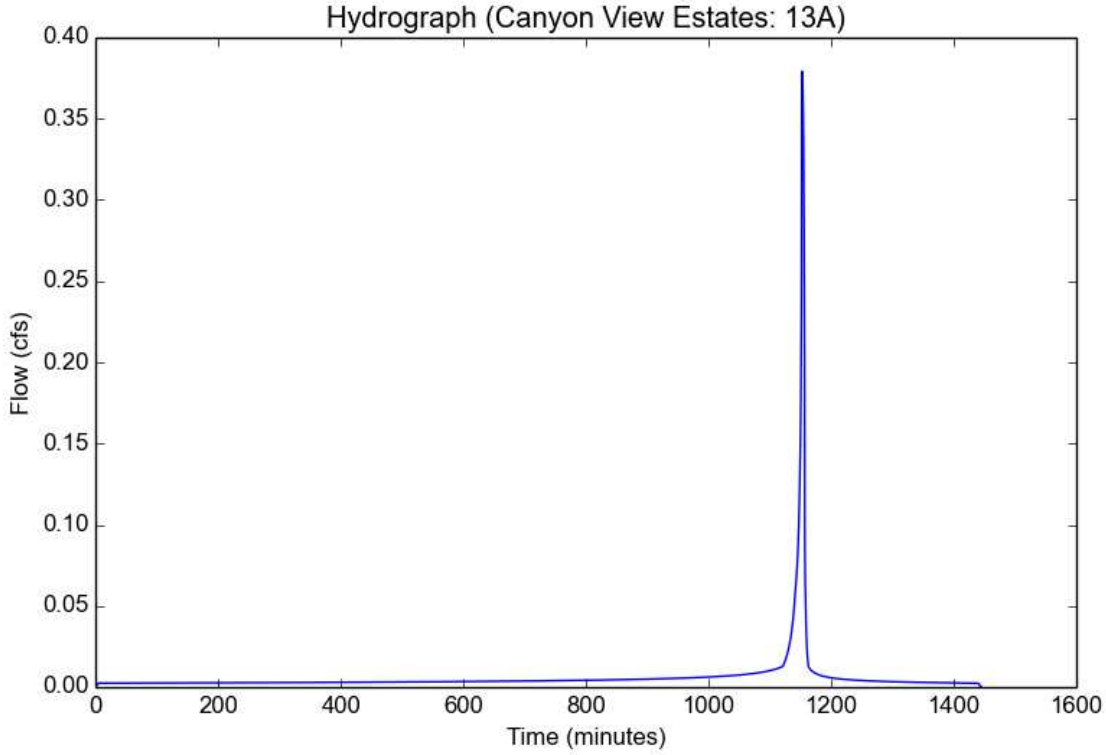
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	13A
Area (ac)	0.37
Flow Path Length (ft)	86.0
Flow Path Slope (vft/hft)	0.44
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	scr
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	1.6272
Undeveloped Runoff Coefficient (Cu)	0.627
Developed Runoff Coefficient (Cd)	0.6297
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.3791
Burned Peak Flow Rate (cfs)	0.4061
24-Hr Clear Runoff Volume (ac-ft)	0.0126
24-Hr Clear Runoff Volume (cu-ft)	547.5939



Peak Flow Hydrologic Analysis

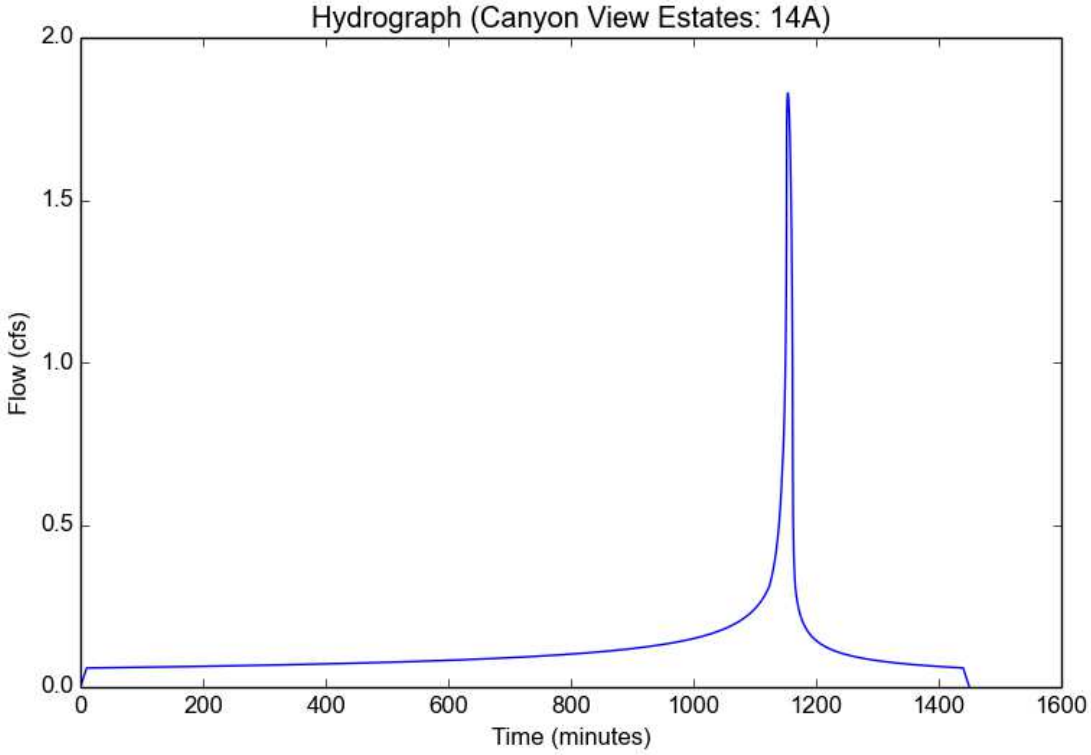
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	14A
Area (ac)	2.23
Flow Path Length (ft)	310.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	0
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	1.1748
Undeveloped Runoff Coefficient (Cu)	0.5521
Developed Runoff Coefficient (Cd)	0.6982
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	1.8291
Burned Peak Flow Rate (cfs)	1.8291
24-Hr Clear Runoff Volume (ac-ft)	0.2314
24-Hr Clear Runoff Volume (cu-ft)	10079.165



Peak Flow Hydrologic Analysis

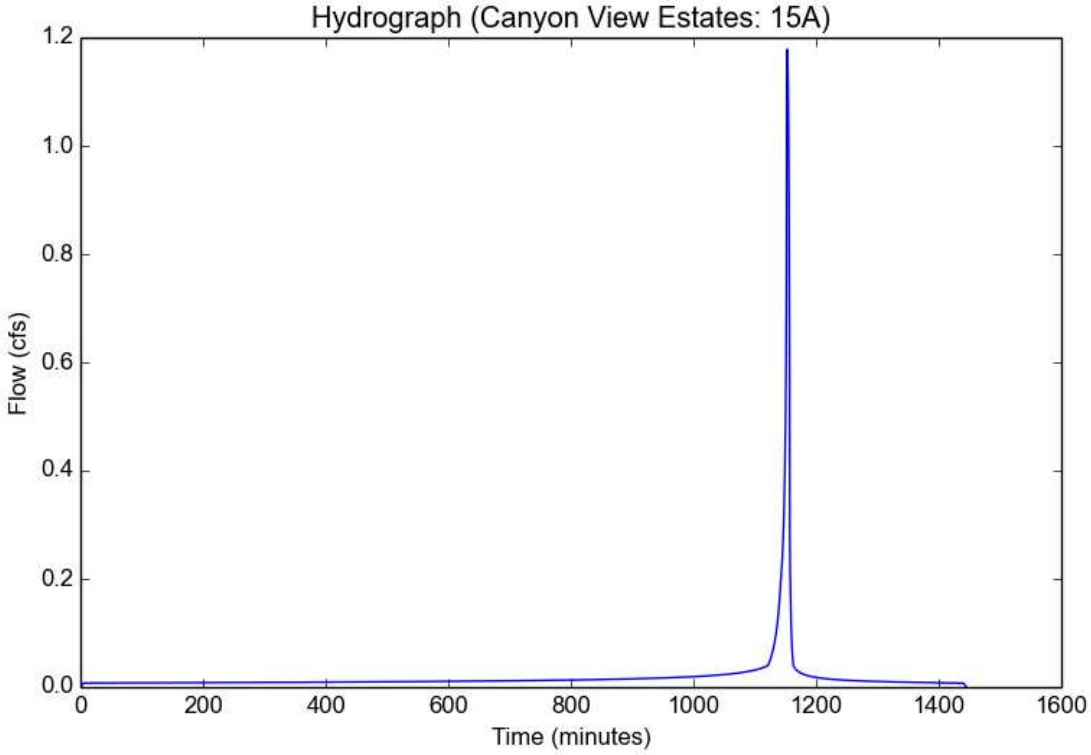
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	15A
Area (ac)	1.15
Flow Path Length (ft)	181.0
Flow Path Slope (vft/hft)	0.29
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	scr
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	1.6272
Undeveloped Runoff Coefficient (Cu)	0.627
Developed Runoff Coefficient (Cd)	0.6297
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.1784
Burned Peak Flow Rate (cfs)	1.2622
24-Hr Clear Runoff Volume (ac-ft)	0.0391
24-Hr Clear Runoff Volume (cu-ft)	1701.981



Peak Flow Hydrologic Analysis

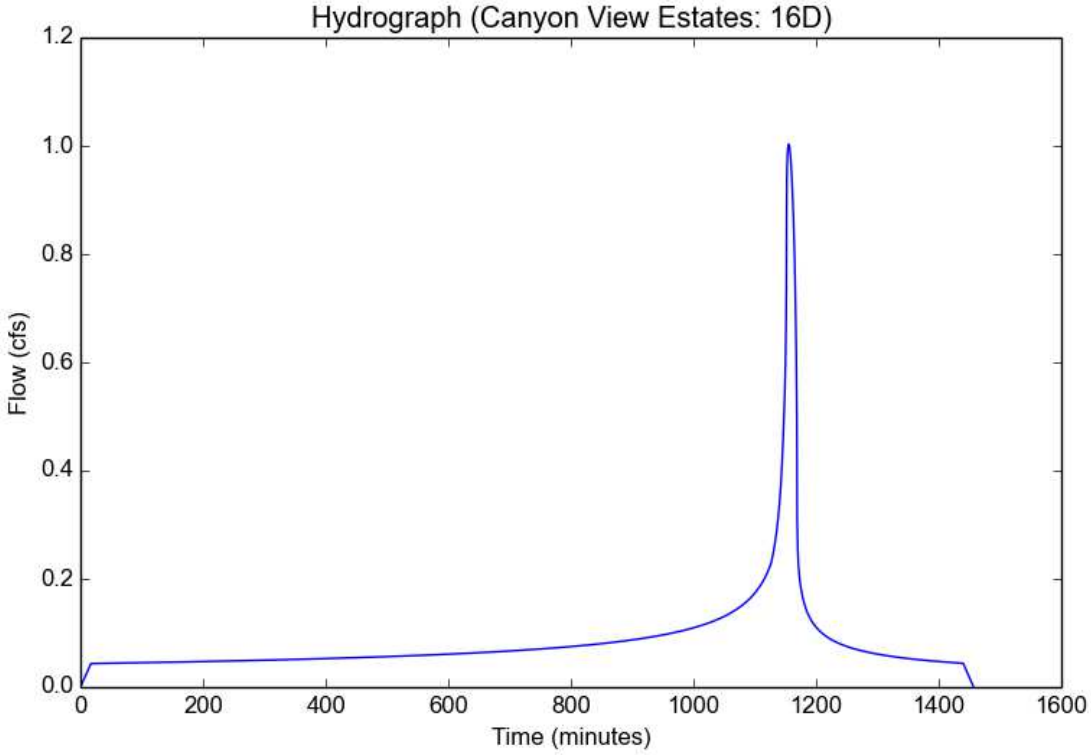
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	16D
Area (ac)	1.65
Flow Path Length (ft)	630.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	0
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	0.9155
Undeveloped Runoff Coefficient (Cu)	0.4933
Developed Runoff Coefficient (Cd)	0.6641
Time of Concentration (min)	17.0
Clear Peak Flow Rate (cfs)	1.0032
Burned Peak Flow Rate (cfs)	1.0032
24-Hr Clear Runoff Volume (ac-ft)	0.1709
24-Hr Clear Runoff Volume (cu-ft)	7445.3349



Peak Flow Hydrologic Analysis

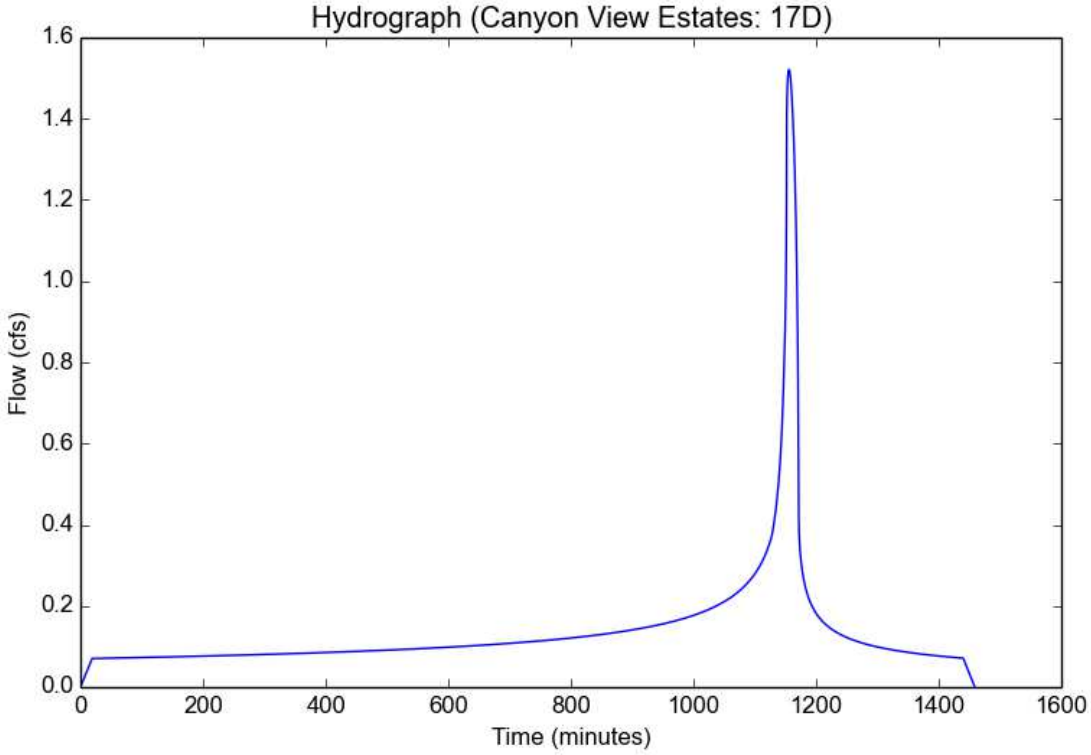
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	17D
Area (ac)	2.67
Flow Path Length (ft)	620.0
Flow Path Slope (vft/hft)	0.005
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	0
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	0.8688
Undeveloped Runoff Coefficient (Cu)	0.4789
Developed Runoff Coefficient (Cd)	0.6558
Time of Concentration (min)	19.0
Clear Peak Flow Rate (cfs)	1.5212
Burned Peak Flow Rate (cfs)	1.5212
24-Hr Clear Runoff Volume (ac-ft)	0.2764
24-Hr Clear Runoff Volume (cu-ft)	12041.7432



Peak Flow Hydrologic Analysis

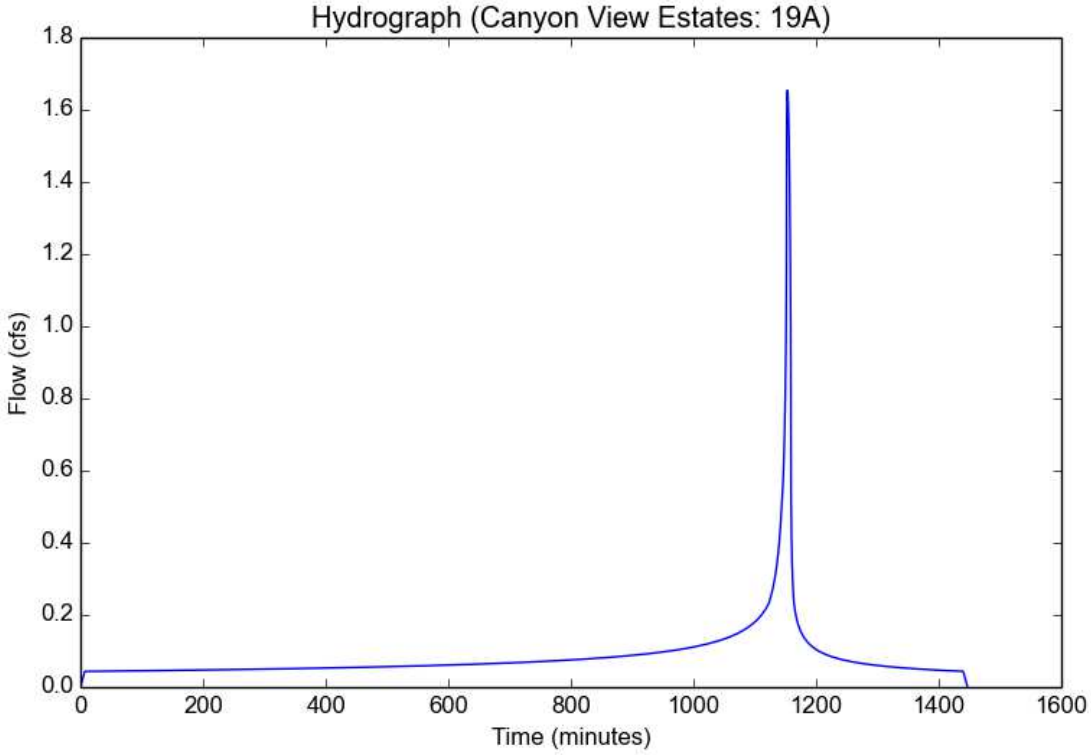
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	19A
Area (ac)	1.65
Flow Path Length (ft)	290.0
Flow Path Slope (vft/hft)	0.062
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	0
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	1.3892
Undeveloped Runoff Coefficient (Cu)	0.5921
Developed Runoff Coefficient (Cd)	0.7214
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	1.6536
Burned Peak Flow Rate (cfs)	1.6536
24-Hr Clear Runoff Volume (ac-ft)	0.1713
24-Hr Clear Runoff Volume (cu-ft)	7463.5174



Peak Flow Hydrologic Analysis

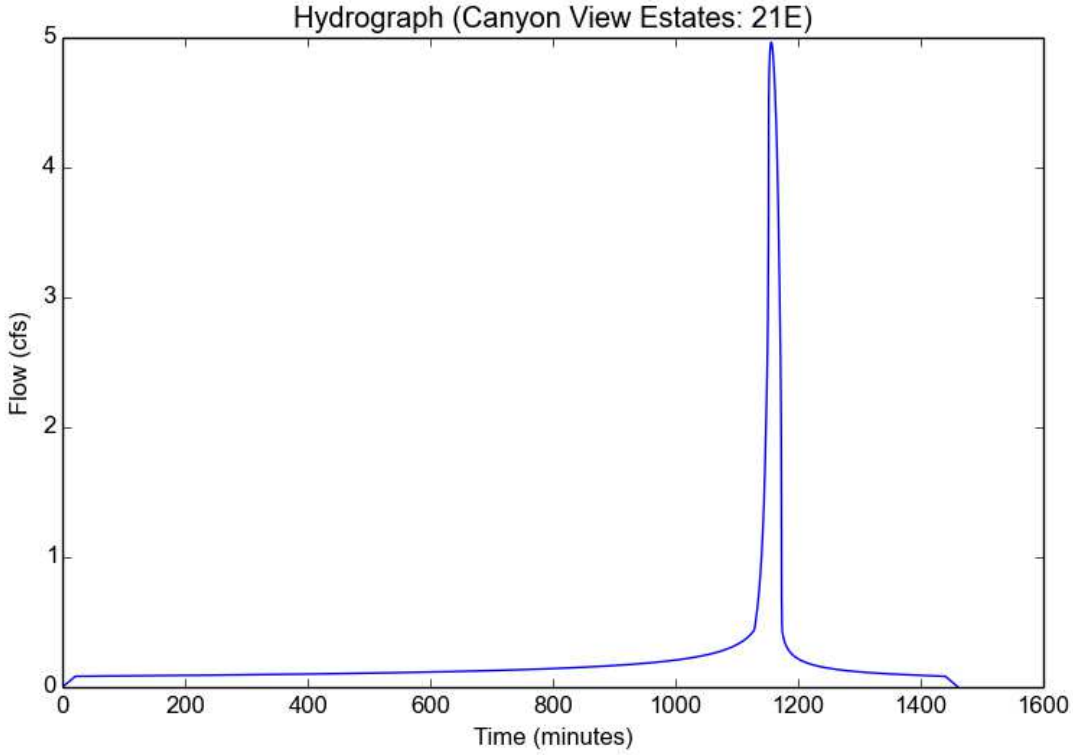
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	21E
Area (ac)	12.72
Flow Path Length (ft)	1394.0
Flow Path Slope (vft/hft)	0.18
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	scr
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	0.8289
Undeveloped Runoff Coefficient (Cu)	0.4665
Developed Runoff Coefficient (Cd)	0.4709
Time of Concentration (min)	21.0
Clear Peak Flow Rate (cfs)	4.9646
Burned Peak Flow Rate (cfs)	5.5525
24-Hr Clear Runoff Volume (ac-ft)	0.4228
24-Hr Clear Runoff Volume (cu-ft)	18418.6095



Peak Flow Hydrologic Analysis

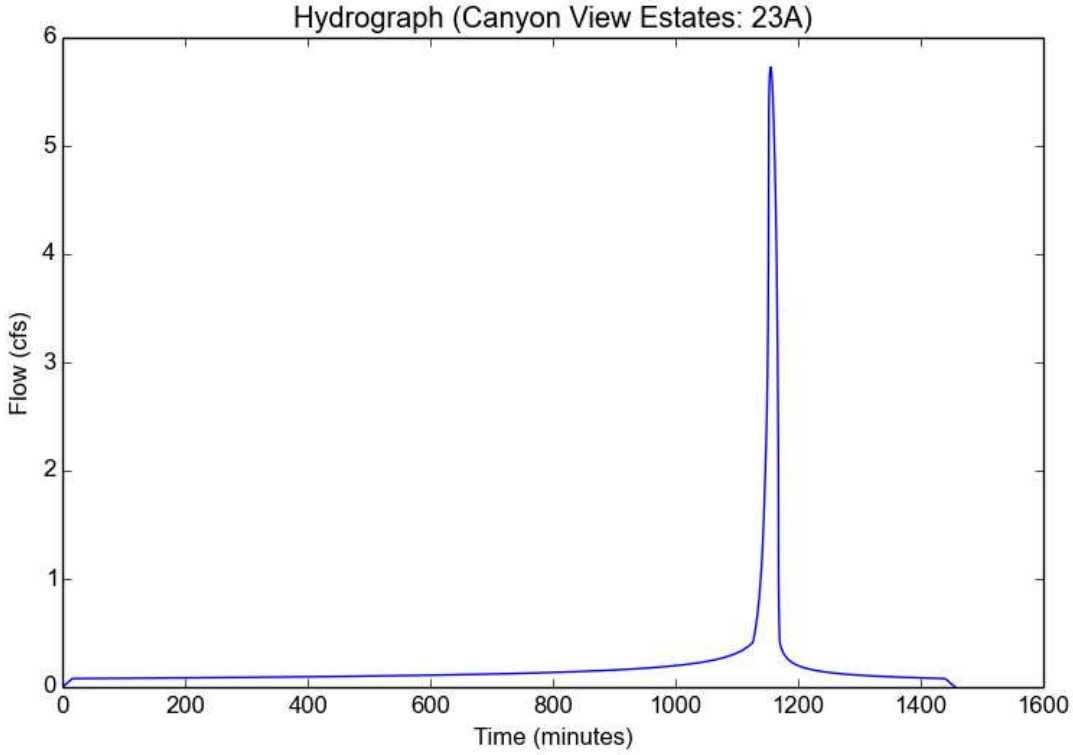
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	23A
Area (ac)	12.03
Flow Path Length (ft)	682.0
Flow Path Slope (vft/hft)	0.046
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	scr
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	0.9419
Undeveloped Runoff Coefficient (Cu)	0.5015
Developed Runoff Coefficient (Cd)	0.5055
Time of Concentration (min)	16.0
Clear Peak Flow Rate (cfs)	5.7279
Burned Peak Flow Rate (cfs)	6.3354
24-Hr Clear Runoff Volume (ac-ft)	0.4026
24-Hr Clear Runoff Volume (cu-ft)	17536.7903



Peak Flow Hydrologic Analysis

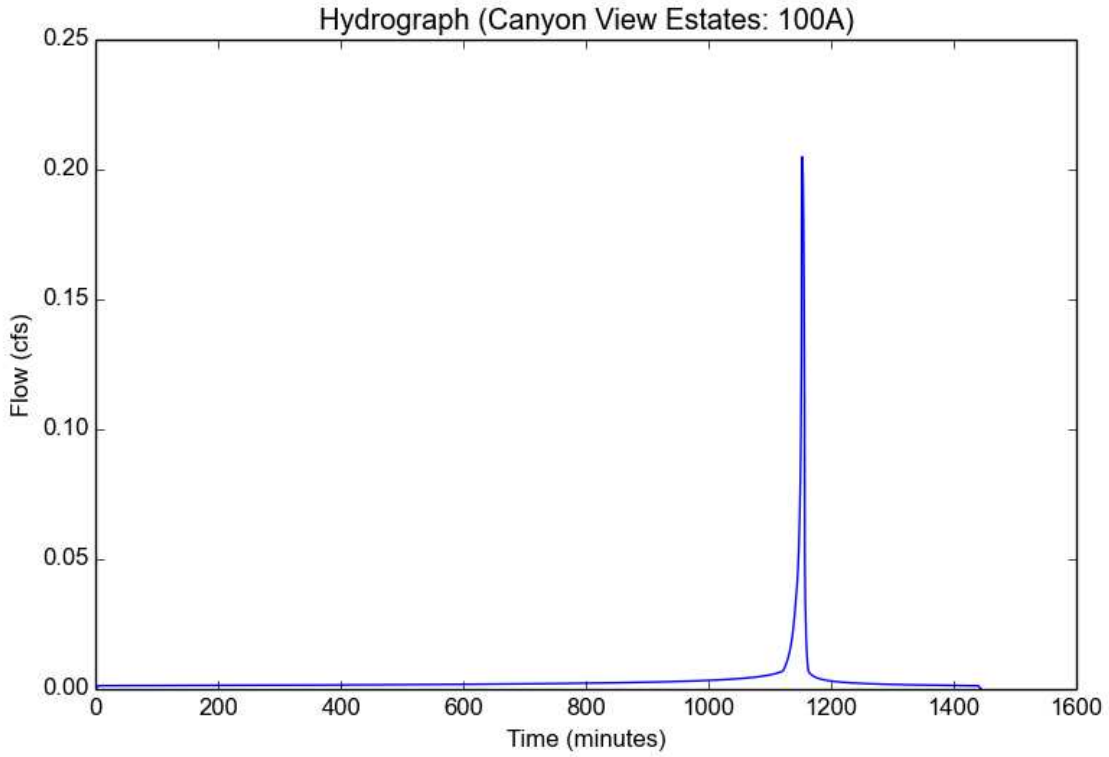
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	100A
Area (ac)	0.2
Flow Path Length (ft)	116.0
Flow Path Slope (vft/hft)	0.56
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	scr
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	1.6272
Undeveloped Runoff Coefficient (Cu)	0.627
Developed Runoff Coefficient (Cd)	0.6297
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.2049
Burned Peak Flow Rate (cfs)	0.2195
24-Hr Clear Runoff Volume (ac-ft)	0.0068
24-Hr Clear Runoff Volume (cu-ft)	295.9967



Peak Flow Hydrologic Analysis

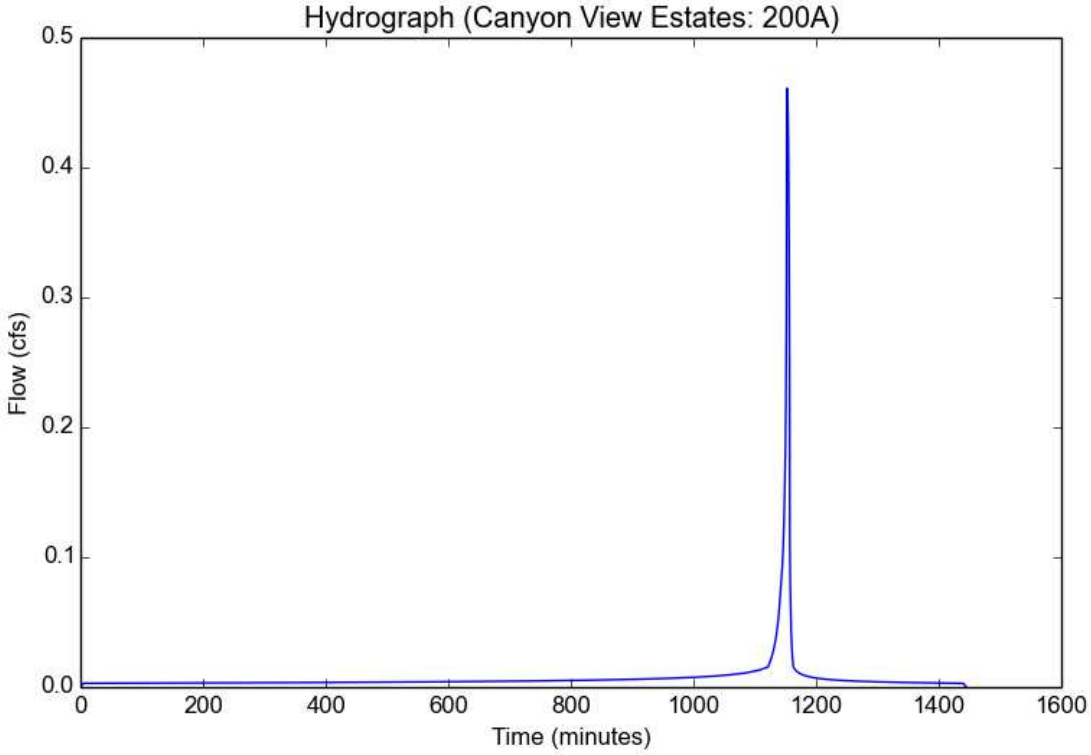
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	200A
Area (ac)	0.45
Flow Path Length (ft)	234.0
Flow Path Slope (vft/hft)	0.3
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	0
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	1.6272
Undeveloped Runoff Coefficient (Cu)	0.627
Developed Runoff Coefficient (Cd)	0.6297
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.4611
Burned Peak Flow Rate (cfs)	0.4611
24-Hr Clear Runoff Volume (ac-ft)	0.0153
24-Hr Clear Runoff Volume (cu-ft)	665.9926



Peak Flow Hydrologic Analysis

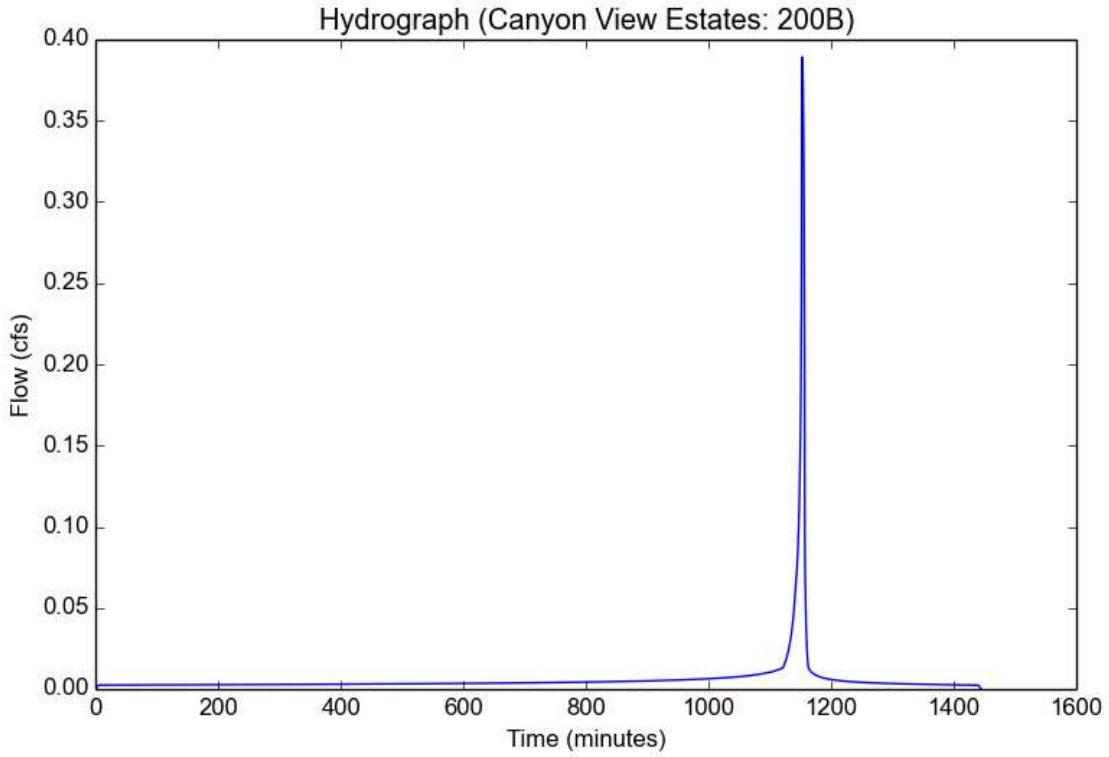
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	200B
Area (ac)	0.38
Flow Path Length (ft)	234.0
Flow Path Slope (vft/hft)	0.3
50-yr Rainfall Depth (in)	4.67
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	5-yr
Fire Factor	0
LID	False

Output Results

Modeled (5-yr) Rainfall Depth (in)	2.7273
Peak Intensity (in/hr)	1.6272
Undeveloped Runoff Coefficient (Cu)	0.627
Developed Runoff Coefficient (Cd)	0.6297
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.3894
Burned Peak Flow Rate (cfs)	0.3894
24-Hr Clear Runoff Volume (ac-ft)	0.0129
24-Hr Clear Runoff Volume (cu-ft)	562.3937



Peak Flow Hydrologic Analysis

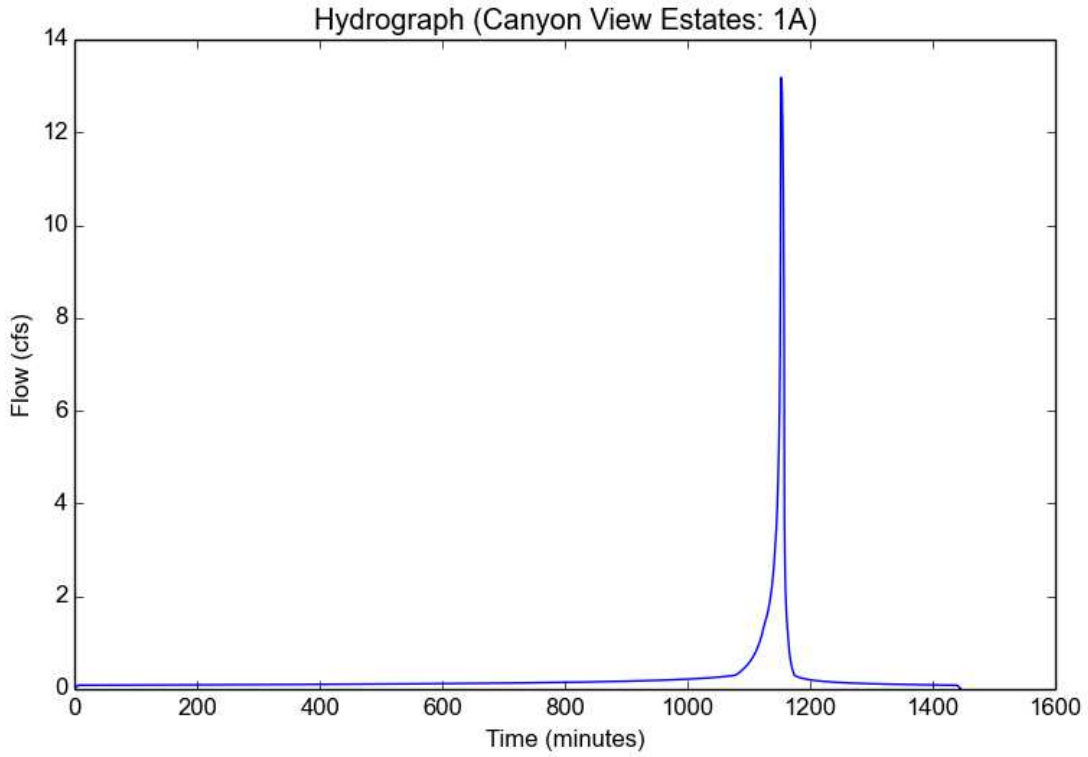
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	1A
Area (ac)	8.6
Flow Path Length (ft)	444.0
Flow Path Slope (vft/hft)	0.17
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	scr
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	2.2287
Undeveloped Runoff Coefficient (Cu)	0.6857
Developed Runoff Coefficient (Cd)	0.6878
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	13.1839
Burned Peak Flow Rate (cfs)	13.9491
24-Hr Clear Runoff Volume (ac-ft)	0.5093
24-Hr Clear Runoff Volume (cu-ft)	22183.6719



Peak Flow Hydrologic Analysis

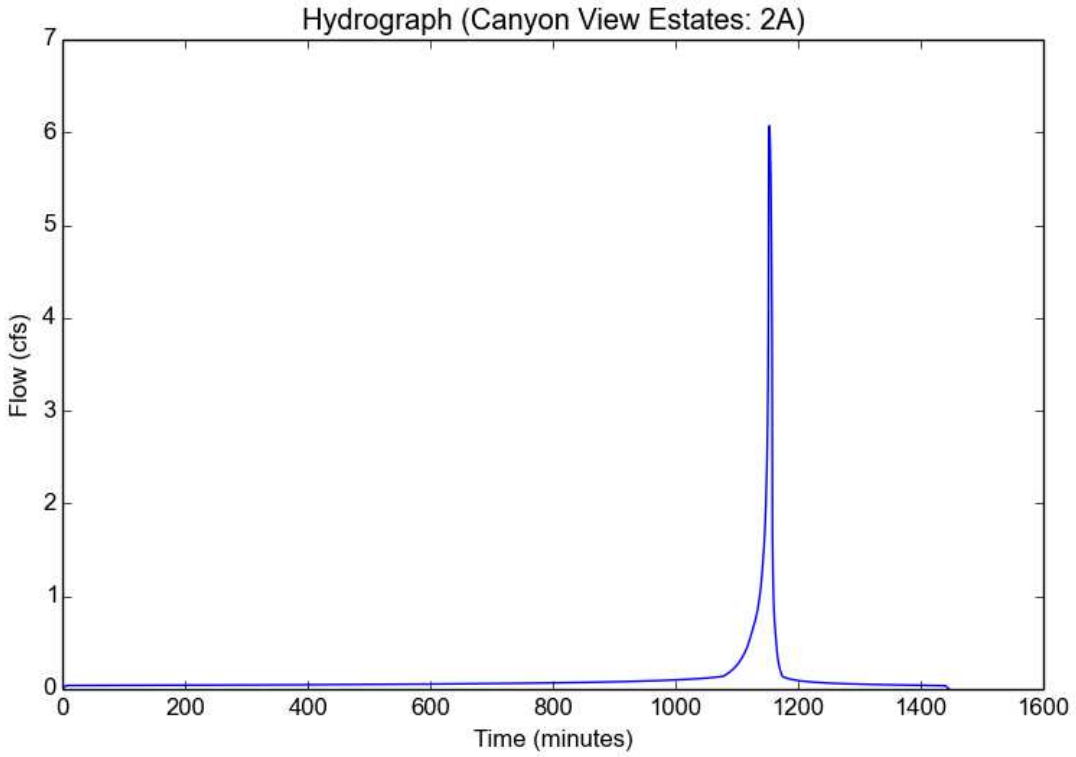
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	2A
Area (ac)	3.96
Flow Path Length (ft)	478.0
Flow Path Slope (vft/hft)	0.24
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	scr
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	2.2287
Undeveloped Runoff Coefficient (Cu)	0.6857
Developed Runoff Coefficient (Cd)	0.6878
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	6.0707
Burned Peak Flow Rate (cfs)	6.4231
24-Hr Clear Runoff Volume (ac-ft)	0.2345
24-Hr Clear Runoff Volume (cu-ft)	10214.8071



Peak Flow Hydrologic Analysis

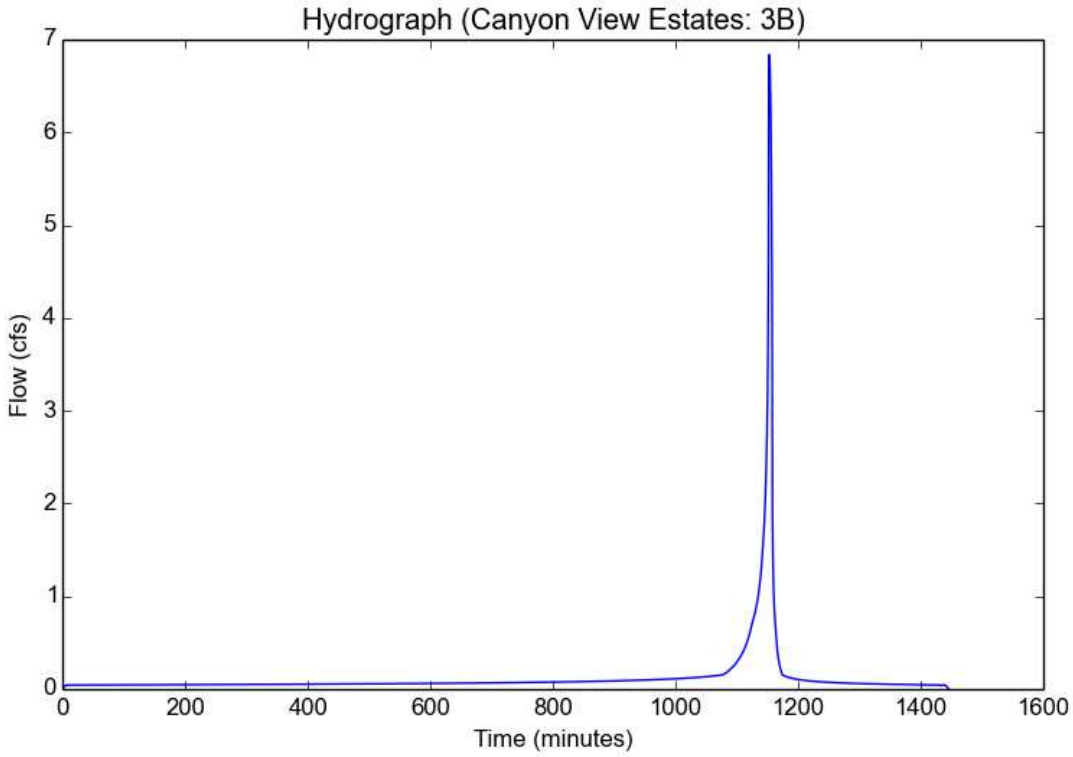
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	3B
Area (ac)	4.46
Flow Path Length (ft)	484.0
Flow Path Slope (vft/hft)	0.25
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	scr
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	2.2287
Undeveloped Runoff Coefficient (Cu)	0.6857
Developed Runoff Coefficient (Cd)	0.6878
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	6.8372
Burned Peak Flow Rate (cfs)	7.234
24-Hr Clear Runoff Volume (ac-ft)	0.2641
24-Hr Clear Runoff Volume (cu-ft)	11504.5554



Peak Flow Hydrologic Analysis

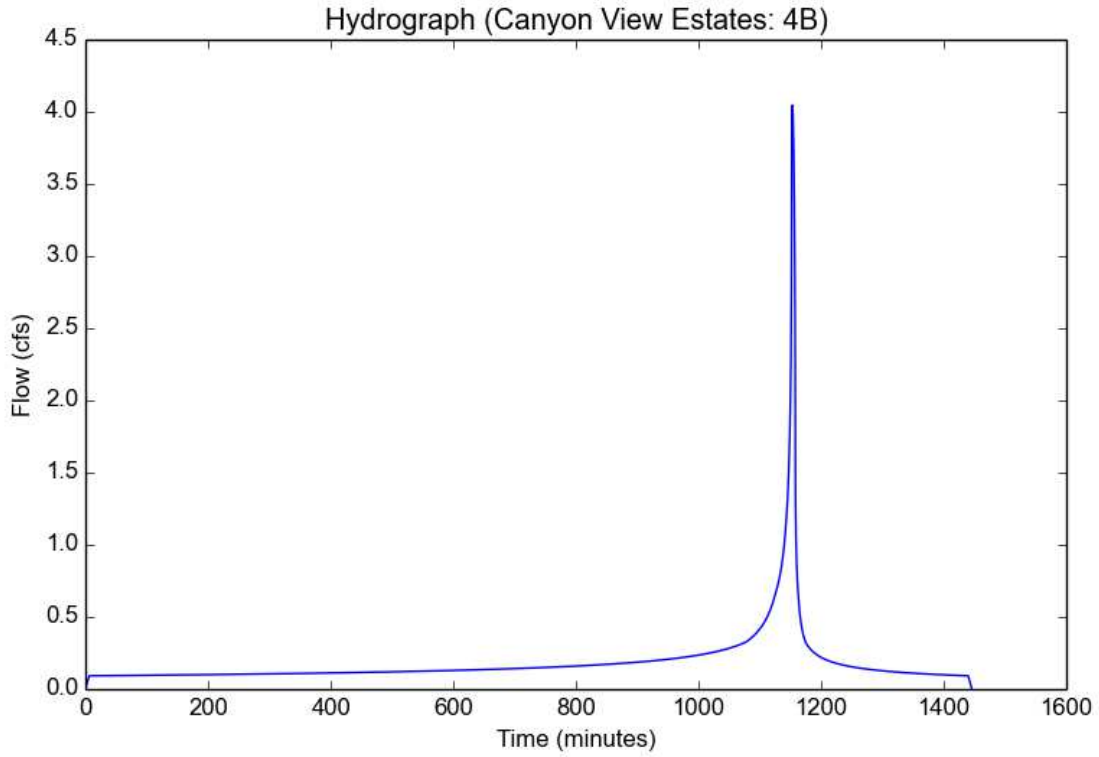
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	4B
Area (ac)	2.34
Flow Path Length (ft)	220.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	2.2287
Undeveloped Runoff Coefficient (Cu)	0.6857
Developed Runoff Coefficient (Cd)	0.7757
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	4.0455
Burned Peak Flow Rate (cfs)	4.0455
24-Hr Clear Runoff Volume (ac-ft)	0.3745
24-Hr Clear Runoff Volume (cu-ft)	16314.8413



Peak Flow Hydrologic Analysis

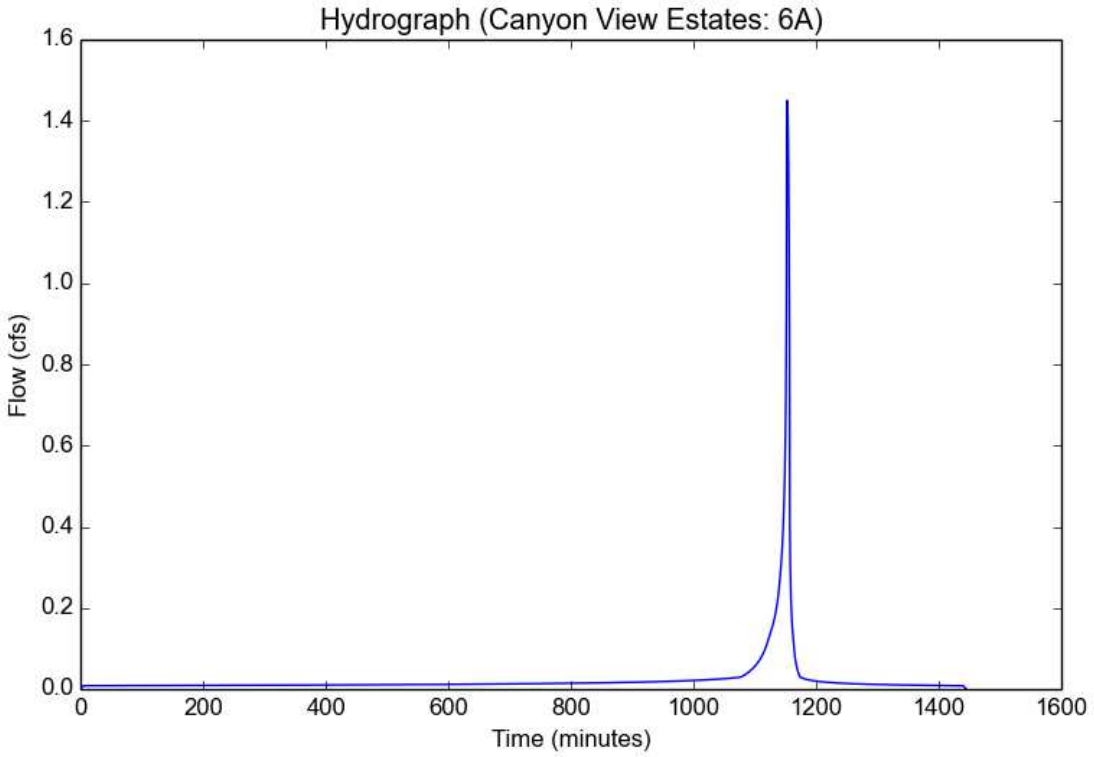
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	6A
Area (ac)	0.85
Flow Path Length (ft)	136.0
Flow Path Slope (vft/hft)	0.39
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	scr
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	2.4282
Undeveloped Runoff Coefficient (Cu)	0.7006
Developed Runoff Coefficient (Cd)	0.7026
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.4502
Burned Peak Flow Rate (cfs)	1.5298
24-Hr Clear Runoff Volume (ac-ft)	0.0504
24-Hr Clear Runoff Volume (cu-ft)	2194.7187



Peak Flow Hydrologic Analysis

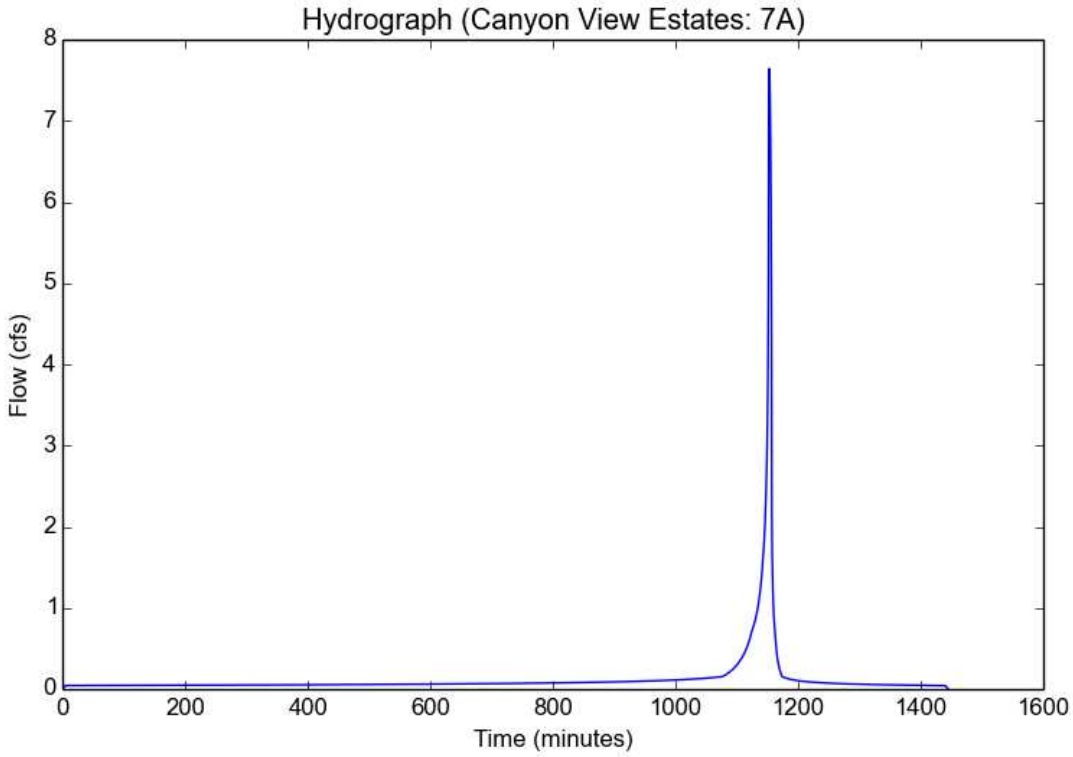
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	7A
Area (ac)	4.48
Flow Path Length (ft)	343.0
Flow Path Slope (vft/hft)	0.23
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	scr
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	2.4282
Undeveloped Runoff Coefficient (Cu)	0.7006
Developed Runoff Coefficient (Cd)	0.7026
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	7.6432
Burned Peak Flow Rate (cfs)	8.0629
24-Hr Clear Runoff Volume (ac-ft)	0.2656
24-Hr Clear Runoff Volume (cu-ft)	11567.4587



Peak Flow Hydrologic Analysis

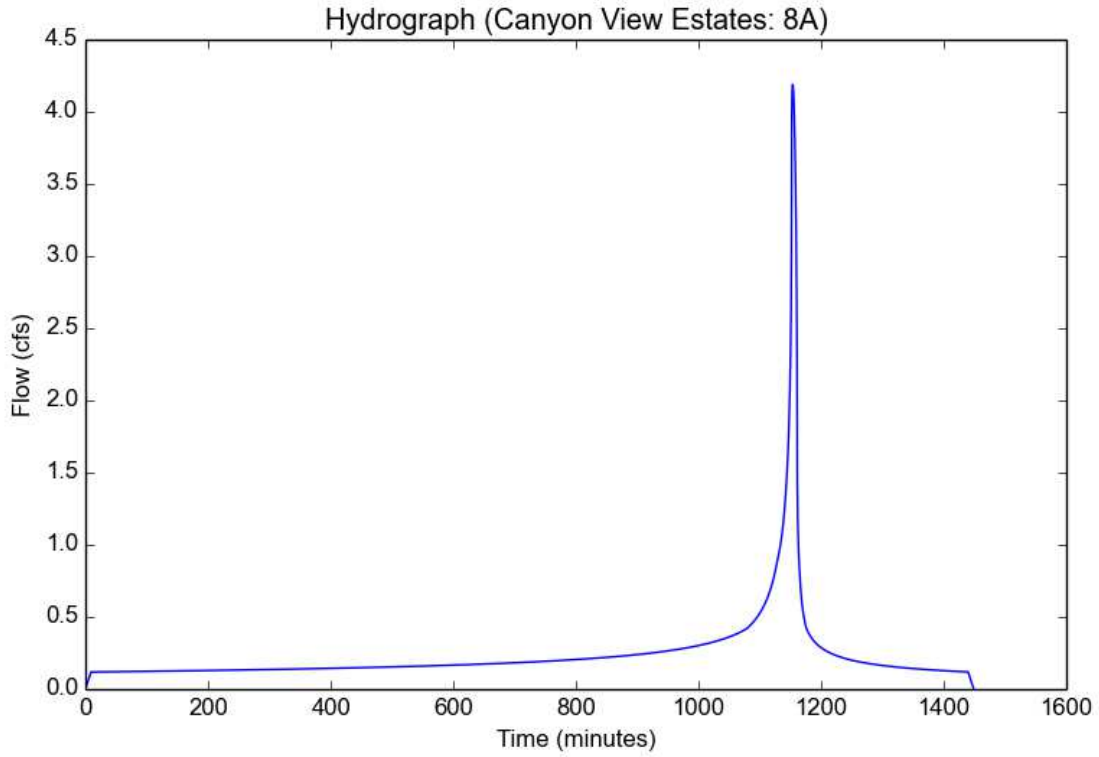
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	8A
Area (ac)	3.01
Flow Path Length (ft)	770.0
Flow Path Slope (vft/hft)	0.074
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	1.842
Undeveloped Runoff Coefficient (Cu)	0.6509
Developed Runoff Coefficient (Cd)	0.7555
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	4.1891
Burned Peak Flow Rate (cfs)	4.1891
24-Hr Clear Runoff Volume (ac-ft)	0.4815
24-Hr Clear Runoff Volume (cu-ft)	20971.9843



Peak Flow Hydrologic Analysis

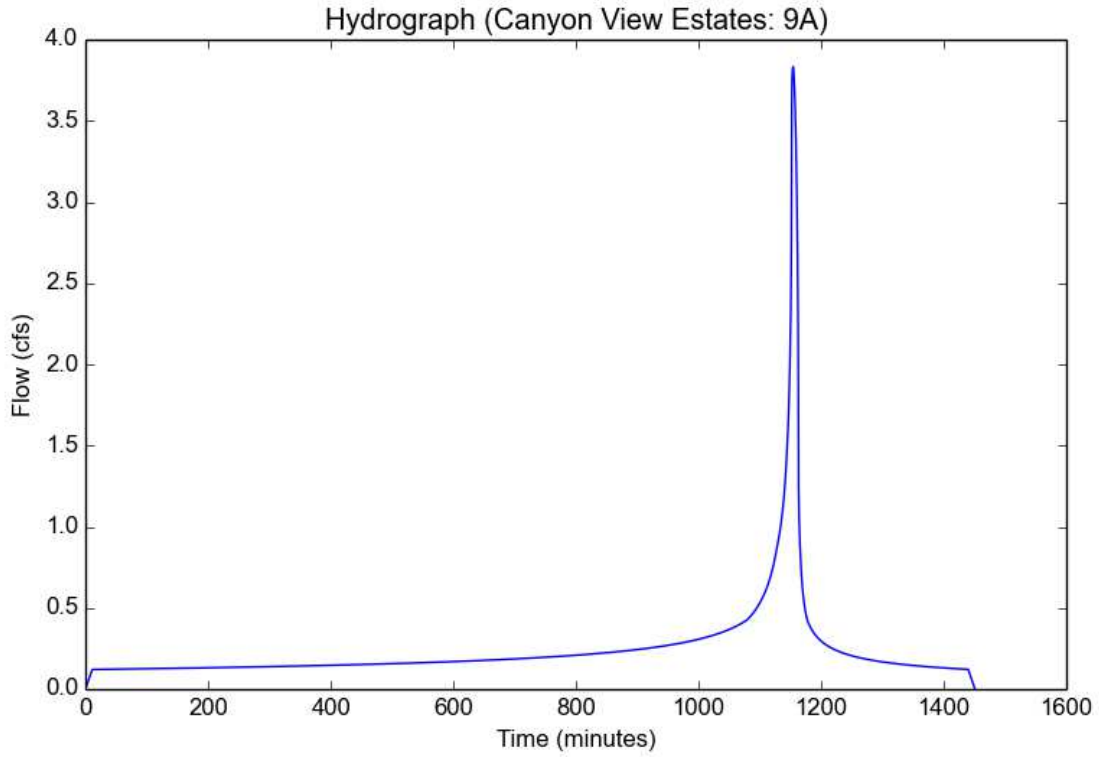
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	9A
Area (ac)	3.07
Flow Path Length (ft)	860.0
Flow Path Slope (vft/hft)	0.056
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	1.6762
Undeveloped Runoff Coefficient (Cu)	0.6325
Developed Runoff Coefficient (Cd)	0.7448
Time of Concentration (min)	11.0
Clear Peak Flow Rate (cfs)	3.8329
Burned Peak Flow Rate (cfs)	3.8329
24-Hr Clear Runoff Volume (ac-ft)	0.4909
24-Hr Clear Runoff Volume (cu-ft)	21382.0561



Peak Flow Hydrologic Analysis

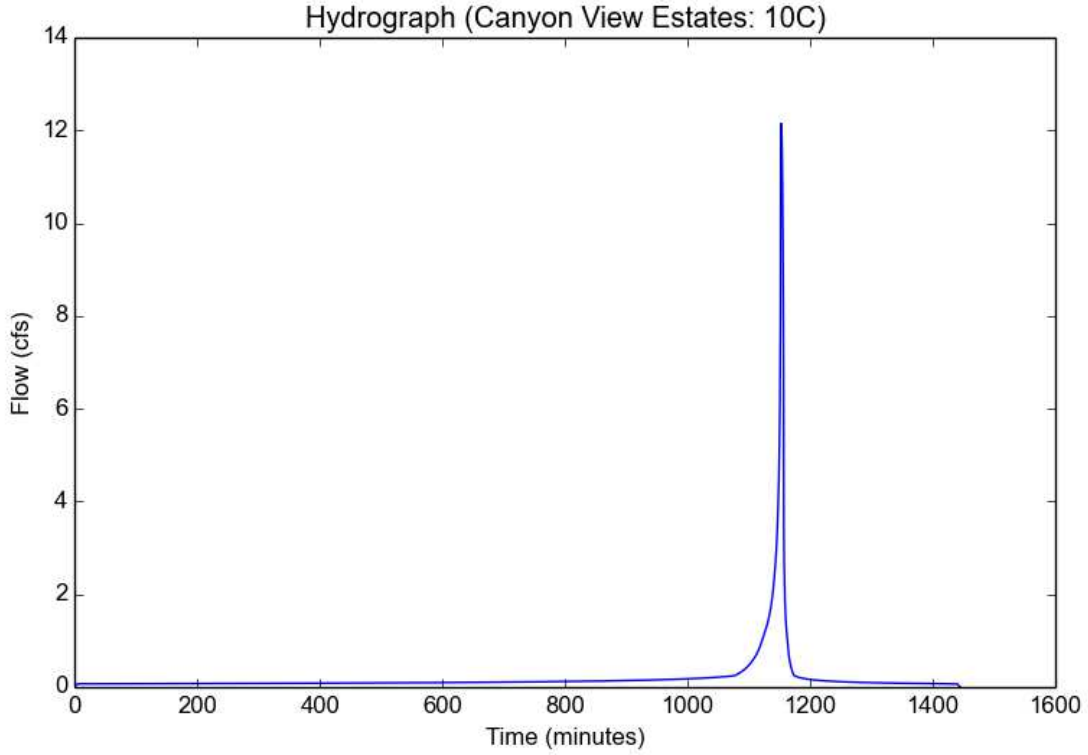
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	10C
Area (ac)	7.12
Flow Path Length (ft)	378.0
Flow Path Slope (vft/hft)	0.56
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	scr
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	2.4282
Undeveloped Runoff Coefficient (Cu)	0.7006
Developed Runoff Coefficient (Cd)	0.7026
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	12.1473
Burned Peak Flow Rate (cfs)	12.8143
24-Hr Clear Runoff Volume (ac-ft)	0.422
24-Hr Clear Runoff Volume (cu-ft)	18383.9968



Peak Flow Hydrologic Analysis

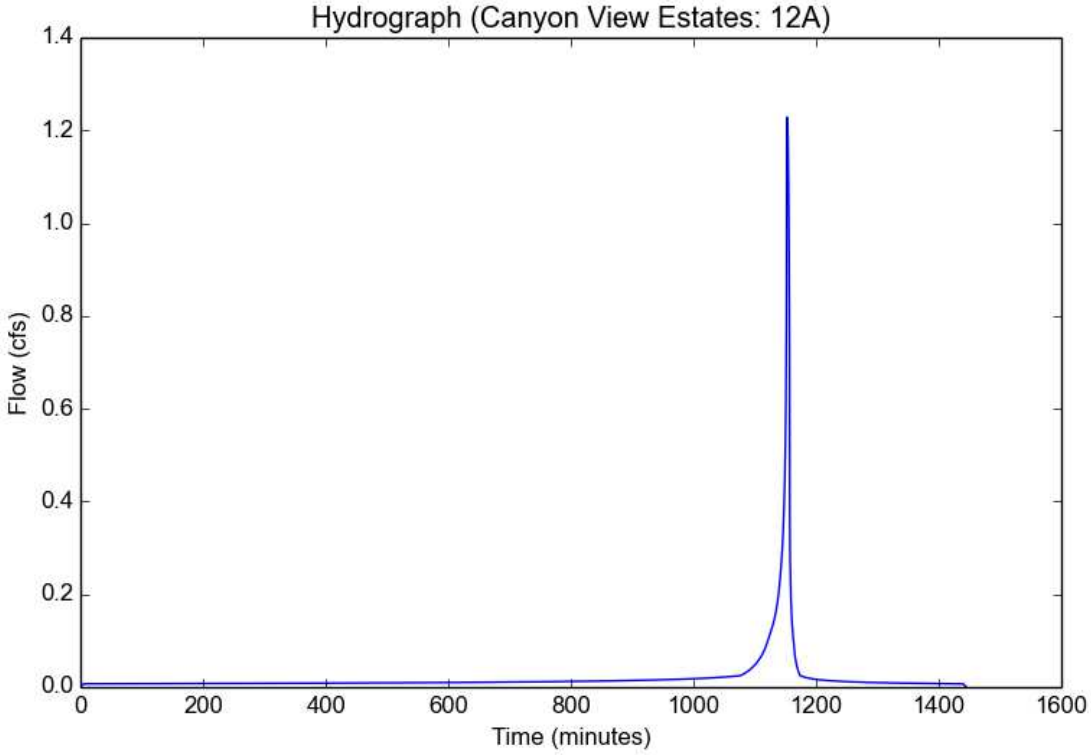
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	12A
Area (ac)	0.72
Flow Path Length (ft)	263.0
Flow Path Slope (vft/hft)	0.39
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	scr
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	2.4282
Undeveloped Runoff Coefficient (Cu)	0.7006
Developed Runoff Coefficient (Cd)	0.7026
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.2284
Burned Peak Flow Rate (cfs)	1.2958
24-Hr Clear Runoff Volume (ac-ft)	0.0427
24-Hr Clear Runoff Volume (cu-ft)	1859.0559



Peak Flow Hydrologic Analysis

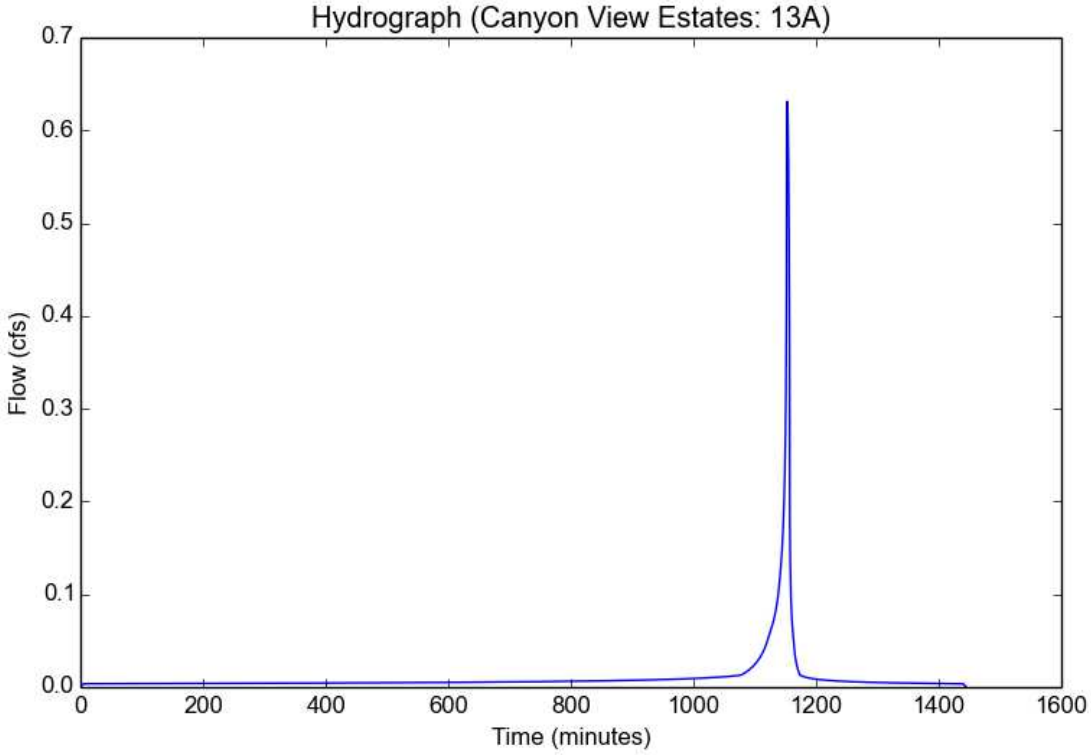
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	13A
Area (ac)	0.37
Flow Path Length (ft)	86.0
Flow Path Slope (vft/hft)	0.44
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	scr
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	2.4282
Undeveloped Runoff Coefficient (Cu)	0.7006
Developed Runoff Coefficient (Cd)	0.7026
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.6313
Burned Peak Flow Rate (cfs)	0.6659
24-Hr Clear Runoff Volume (ac-ft)	0.0219
24-Hr Clear Runoff Volume (cu-ft)	955.3481



Peak Flow Hydrologic Analysis

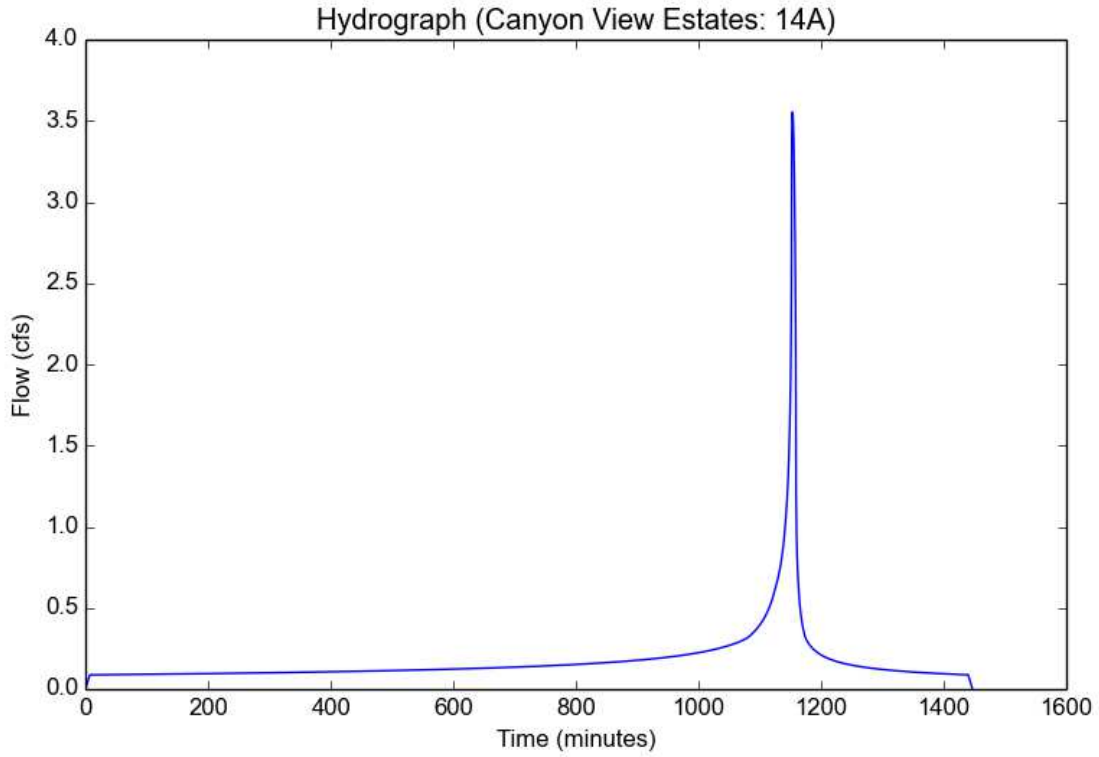
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	14A
Area (ac)	2.23
Flow Path Length (ft)	310.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	2.073
Undeveloped Runoff Coefficient (Cu)	0.674
Developed Runoff Coefficient (Cd)	0.7689
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	3.5546
Burned Peak Flow Rate (cfs)	3.5546
24-Hr Clear Runoff Volume (ac-ft)	0.3569
24-Hr Clear Runoff Volume (cu-ft)	15545.0214



Peak Flow Hydrologic Analysis

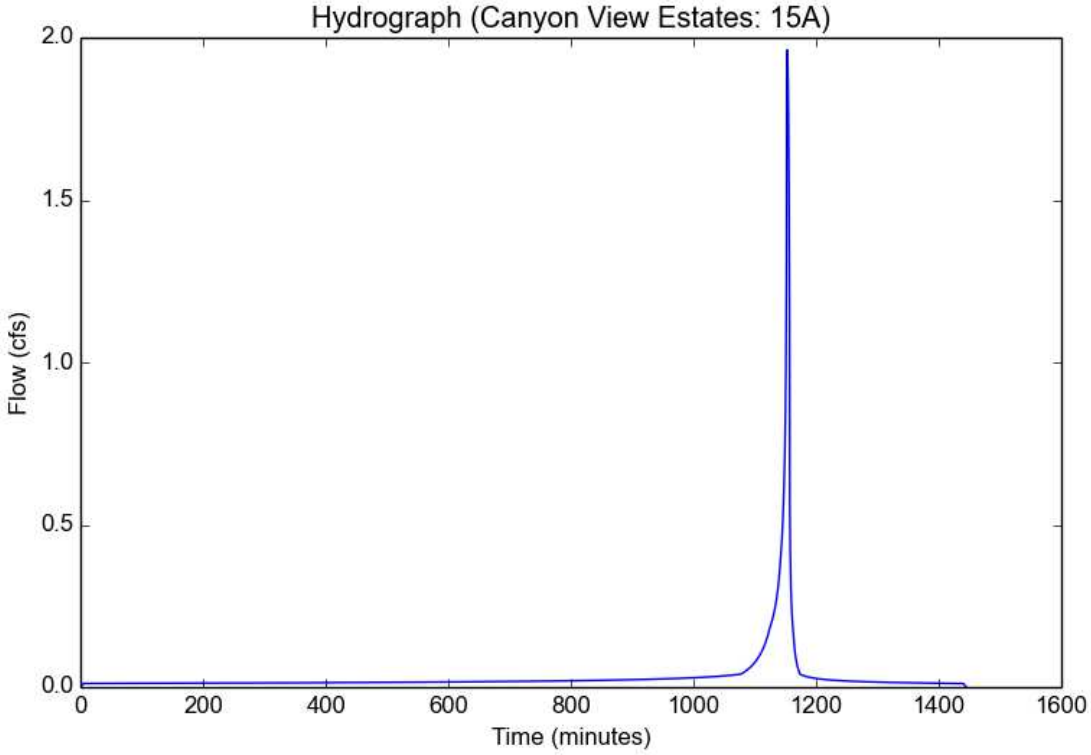
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	15A
Area (ac)	1.15
Flow Path Length (ft)	181.0
Flow Path Slope (vft/hft)	0.29
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	scr
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	2.4282
Undeveloped Runoff Coefficient (Cu)	0.7006
Developed Runoff Coefficient (Cd)	0.7026
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.962
Burned Peak Flow Rate (cfs)	2.0697
24-Hr Clear Runoff Volume (ac-ft)	0.0682
24-Hr Clear Runoff Volume (cu-ft)	2969.3253



Peak Flow Hydrologic Analysis

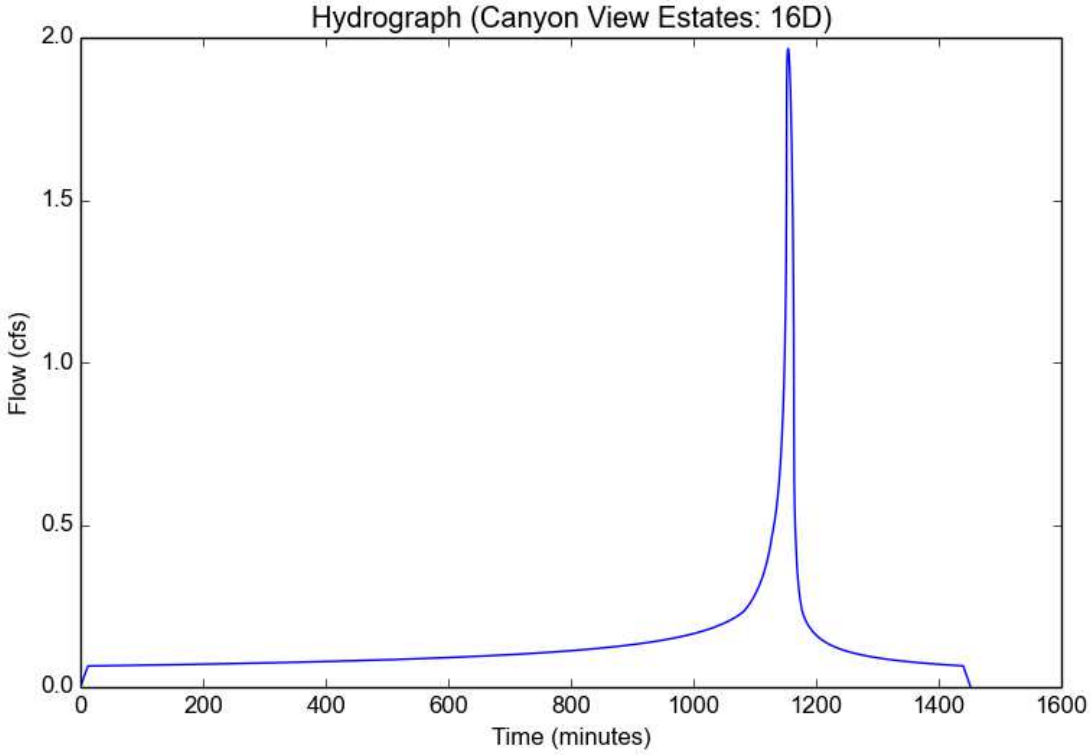
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	16D
Area (ac)	1.65
Flow Path Length (ft)	630.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	1.6091
Undeveloped Runoff Coefficient (Cu)	0.625
Developed Runoff Coefficient (Cd)	0.7405
Time of Concentration (min)	12.0
Clear Peak Flow Rate (cfs)	1.966
Burned Peak Flow Rate (cfs)	1.966
24-Hr Clear Runoff Volume (ac-ft)	0.2638
24-Hr Clear Runoff Volume (cu-ft)	11490.1237



Peak Flow Hydrologic Analysis

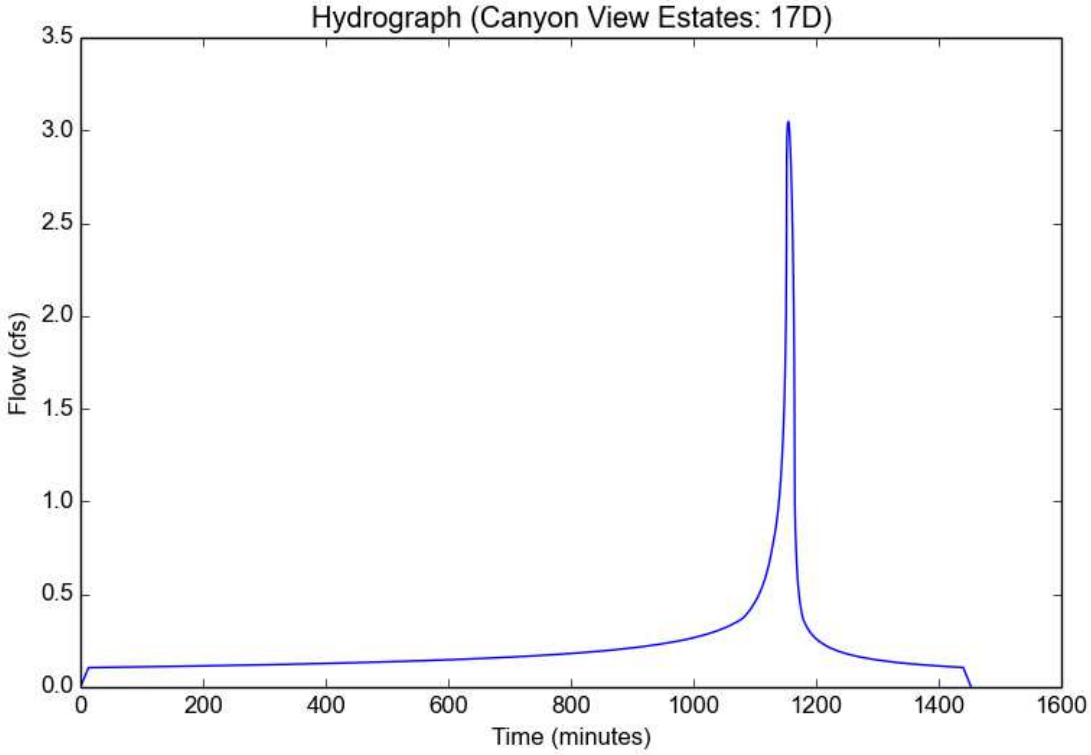
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	17D
Area (ac)	2.67
Flow Path Length (ft)	620.0
Flow Path Slope (vft/hft)	0.005
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	1.5497
Undeveloped Runoff Coefficient (Cu)	0.6183
Developed Runoff Coefficient (Cd)	0.7366
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	3.0479
Burned Peak Flow Rate (cfs)	3.0479
24-Hr Clear Runoff Volume (ac-ft)	0.4268
24-Hr Clear Runoff Volume (cu-ft)	18589.9516



Peak Flow Hydrologic Analysis

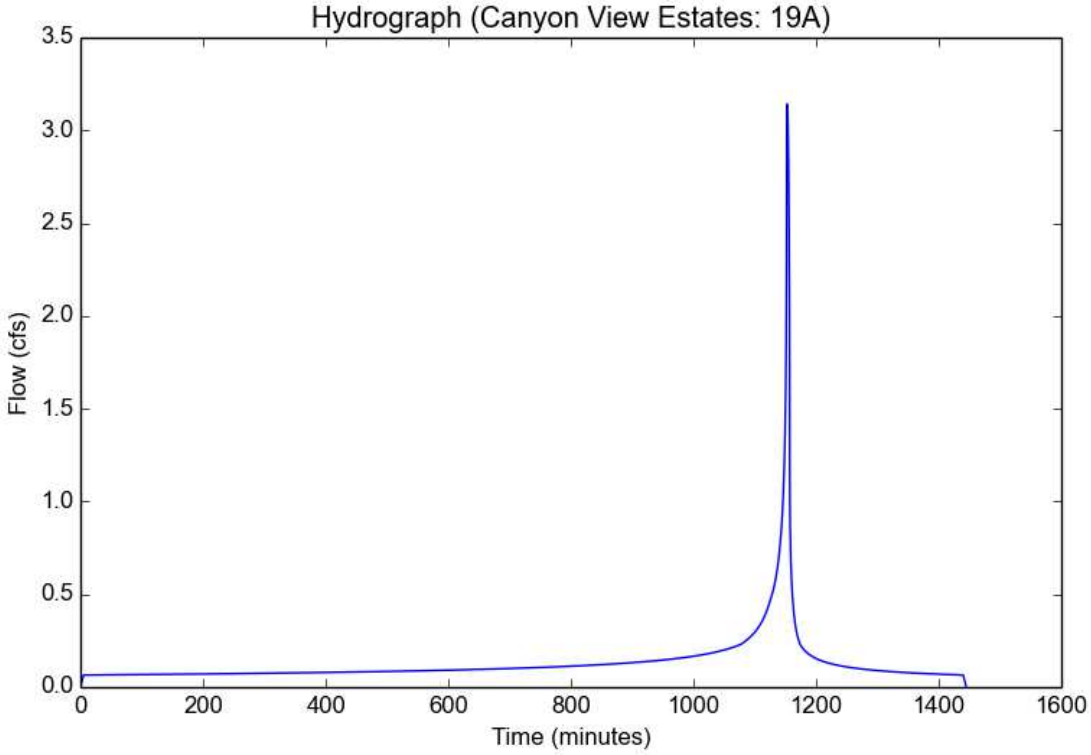
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	19A
Area (ac)	1.65
Flow Path Length (ft)	290.0
Flow Path Slope (vft/hft)	0.062
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	2.4282
Undeveloped Runoff Coefficient (Cu)	0.7006
Developed Runoff Coefficient (Cd)	0.7844
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	3.1425
Burned Peak Flow Rate (cfs)	3.1425
24-Hr Clear Runoff Volume (ac-ft)	0.2642
24-Hr Clear Runoff Volume (cu-ft)	11506.4946



Peak Flow Hydrologic Analysis

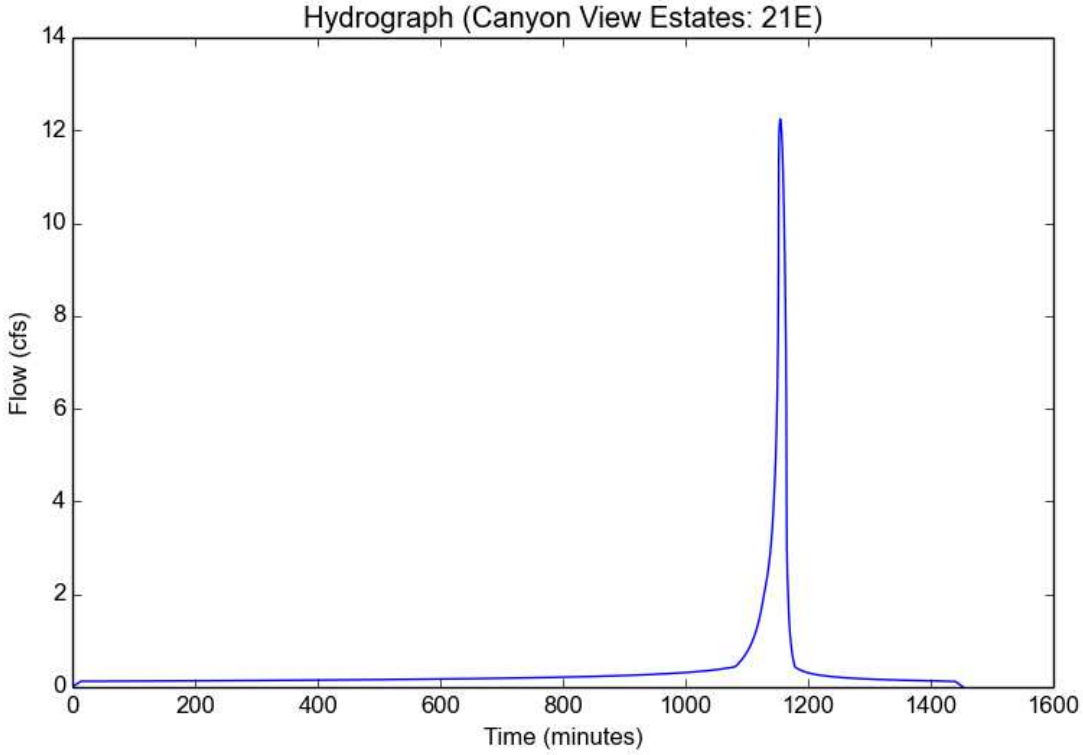
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	21E
Area (ac)	12.72
Flow Path Length (ft)	1394.0
Flow Path Slope (vft/hft)	0.18
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	scr
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	1.5497
Undeveloped Runoff Coefficient (Cu)	0.6183
Developed Runoff Coefficient (Cd)	0.6212
Time of Concentration (min)	13.0
Clear Peak Flow Rate (cfs)	12.2443
Burned Peak Flow Rate (cfs)	13.1395
24-Hr Clear Runoff Volume (ac-ft)	0.7484
24-Hr Clear Runoff Volume (cu-ft)	32602.0083



Peak Flow Hydrologic Analysis

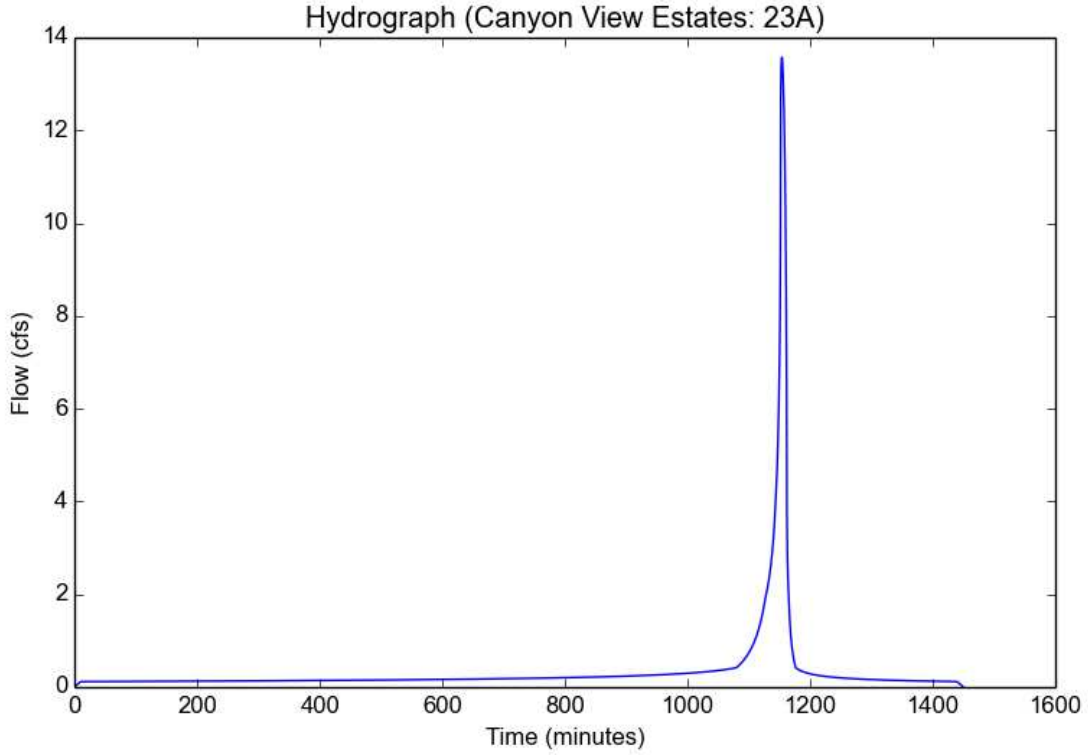
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	23A
Area (ac)	12.03
Flow Path Length (ft)	682.0
Flow Path Slope (vft/hft)	0.046
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	scr
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	1.753
Undeveloped Runoff Coefficient (Cu)	0.641
Developed Runoff Coefficient (Cd)	0.6436
Time of Concentration (min)	10.0
Clear Peak Flow Rate (cfs)	13.5732
Burned Peak Flow Rate (cfs)	14.4948
24-Hr Clear Runoff Volume (ac-ft)	0.7095
24-Hr Clear Runoff Volume (cu-ft)	30905.7183



Peak Flow Hydrologic Analysis

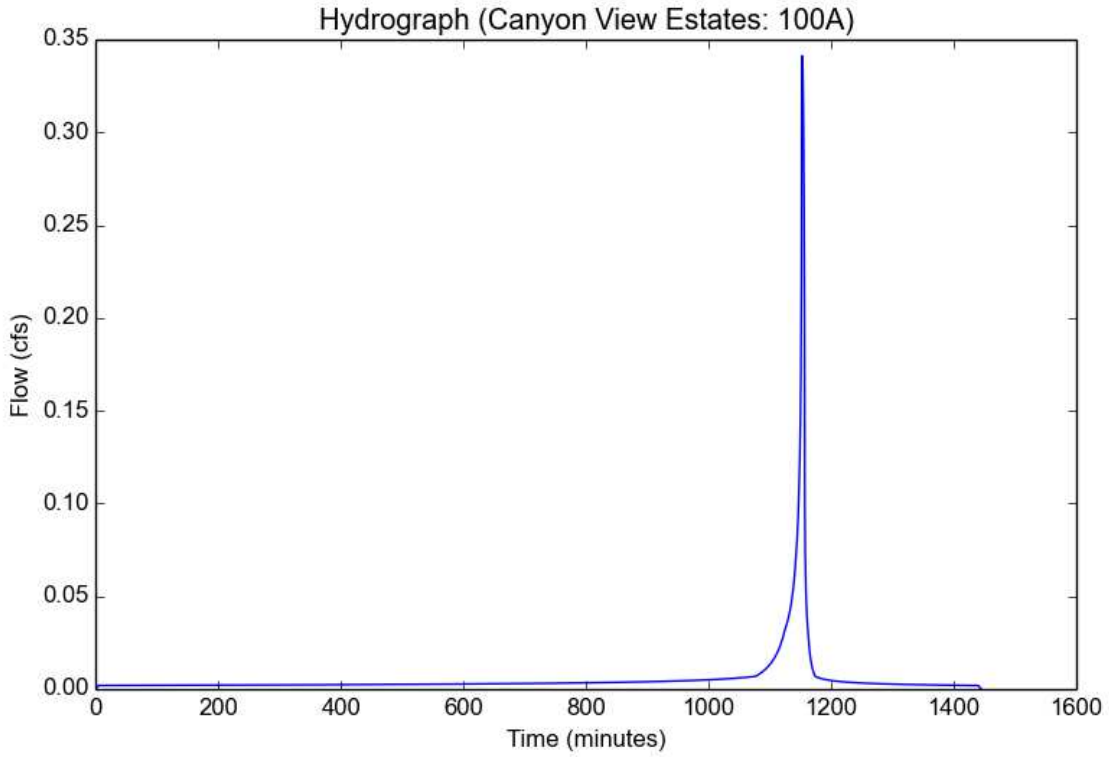
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	100A
Area (ac)	0.2
Flow Path Length (ft)	116.0
Flow Path Slope (vft/hft)	0.56
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	scr
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	2.4282
Undeveloped Runoff Coefficient (Cu)	0.7006
Developed Runoff Coefficient (Cd)	0.7026
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.3412
Burned Peak Flow Rate (cfs)	0.36
24-Hr Clear Runoff Volume (ac-ft)	0.0119
24-Hr Clear Runoff Volume (cu-ft)	516.4044



Peak Flow Hydrologic Analysis

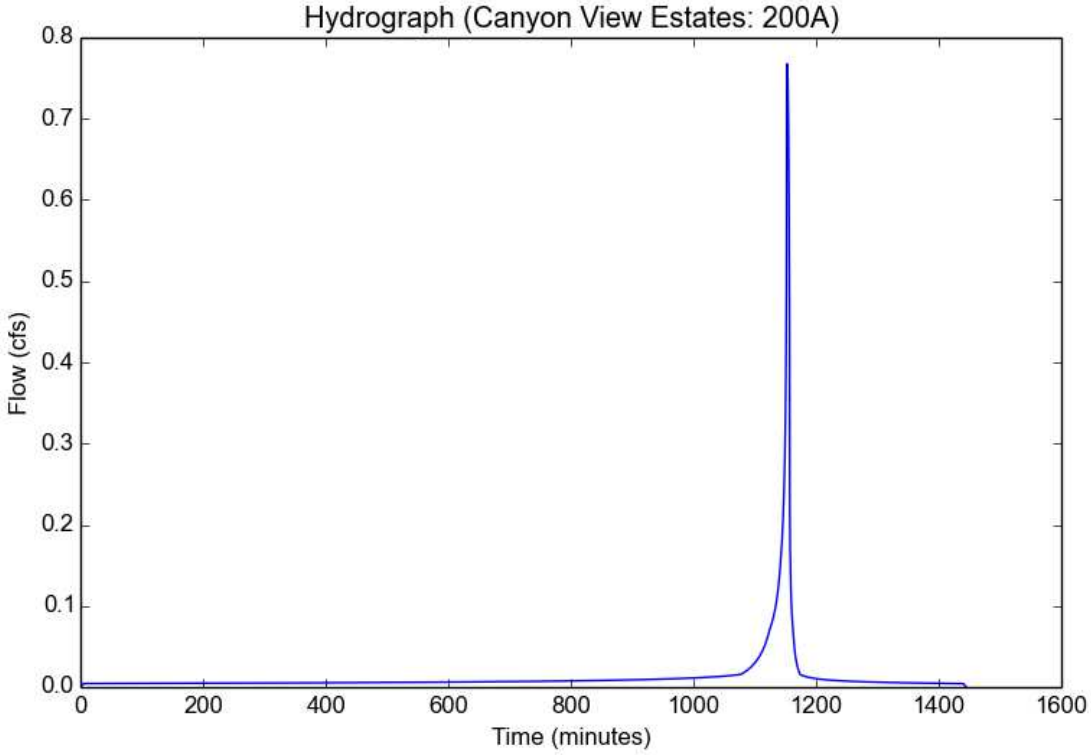
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	200A
Area (ac)	0.45
Flow Path Length (ft)	234.0
Flow Path Slope (vft/hft)	0.3
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	2.4282
Undeveloped Runoff Coefficient (Cu)	0.7006
Developed Runoff Coefficient (Cd)	0.7026
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.7677
Burned Peak Flow Rate (cfs)	0.7677
24-Hr Clear Runoff Volume (ac-ft)	0.0267
24-Hr Clear Runoff Volume (cu-ft)	1161.9099



Peak Flow Hydrologic Analysis

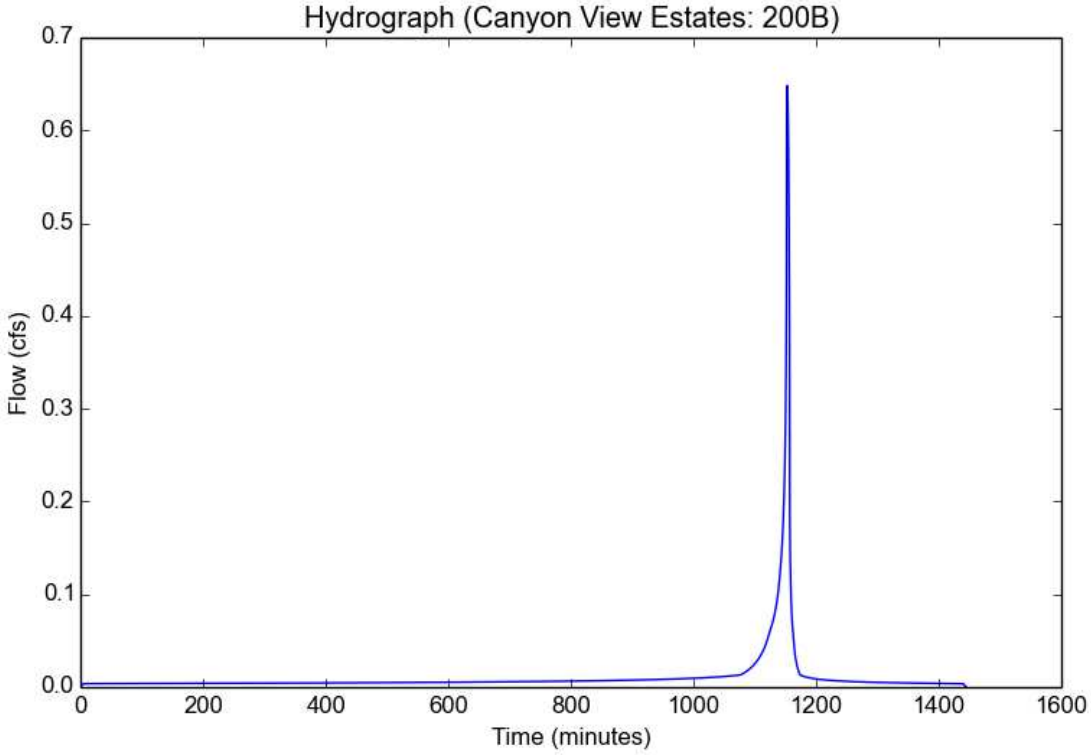
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	200B
Area (ac)	0.38
Flow Path Length (ft)	234.0
Flow Path Slope (vft/hft)	0.3
50-yr Rainfall Depth (in)	5.7
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	10-yr
Fire Factor	0
LID	False

Output Results

Modeled (10-yr) Rainfall Depth (in)	4.0698
Peak Intensity (in/hr)	2.4282
Undeveloped Runoff Coefficient (Cu)	0.7006
Developed Runoff Coefficient (Cd)	0.7026
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.6483
Burned Peak Flow Rate (cfs)	0.6483
24-Hr Clear Runoff Volume (ac-ft)	0.0225
24-Hr Clear Runoff Volume (cu-ft)	981.1684



Peak Flow Hydrologic Analysis

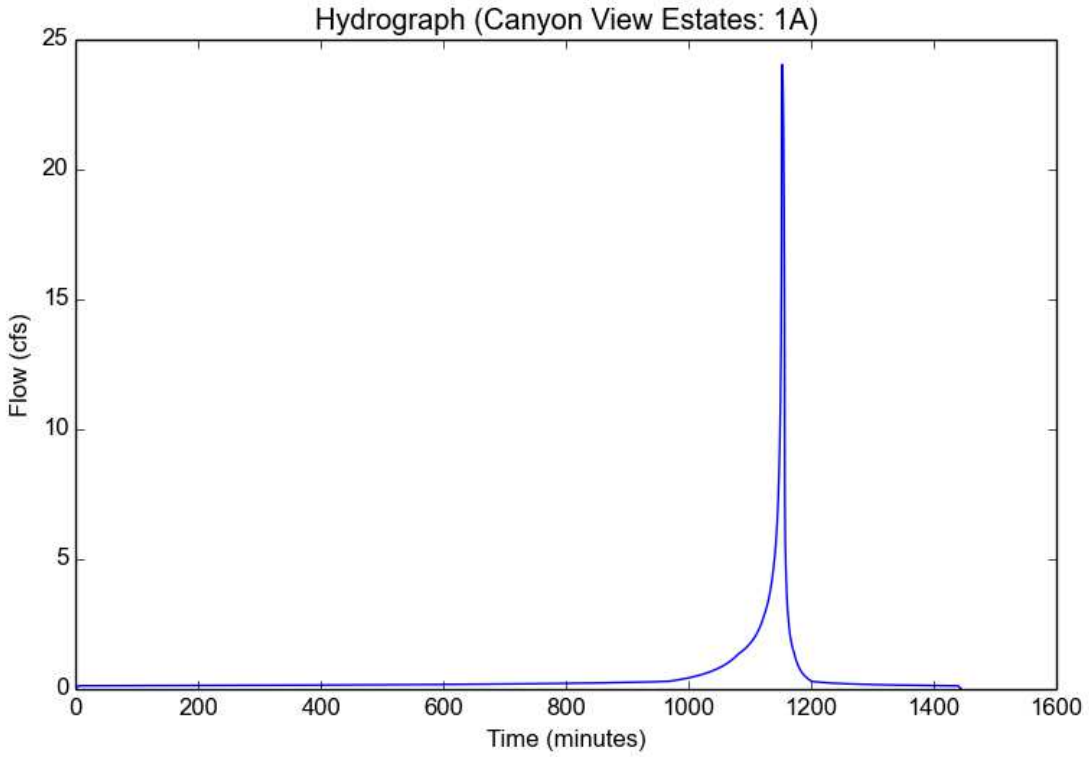
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	1A
Area (ac)	8.6
Flow Path Length (ft)	444.0
Flow Path Slope (vft/hft)	0.17
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	scr
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	3.6773
Undeveloped Runoff Coefficient (Cu)	0.7586
Developed Runoff Coefficient (Cd)	0.76
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	24.0367
Burned Peak Flow Rate (cfs)	25.0873
24-Hr Clear Runoff Volume (ac-ft)	0.9538
24-Hr Clear Runoff Volume (cu-ft)	41547.4796



Peak Flow Hydrologic Analysis

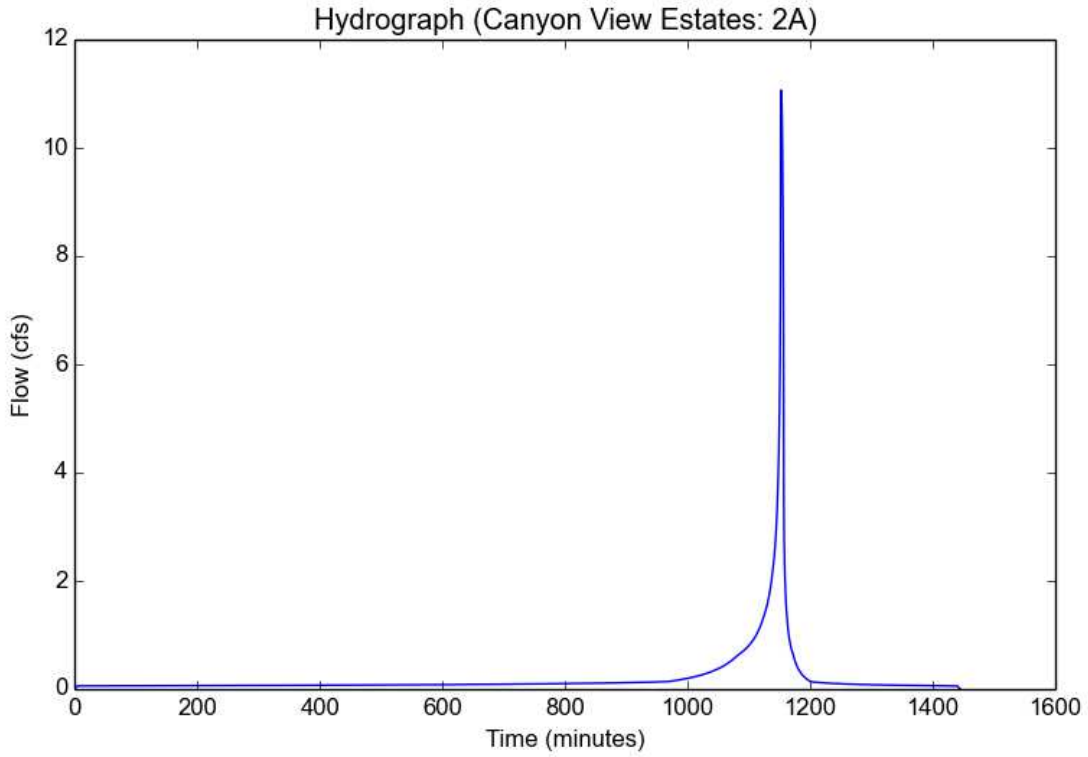
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	2A
Area (ac)	3.96
Flow Path Length (ft)	478.0
Flow Path Slope (vft/hft)	0.24
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	scr
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	3.6773
Undeveloped Runoff Coefficient (Cu)	0.7586
Developed Runoff Coefficient (Cd)	0.76
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	11.0681
Burned Peak Flow Rate (cfs)	11.5518
24-Hr Clear Runoff Volume (ac-ft)	0.4392
24-Hr Clear Runoff Volume (cu-ft)	19131.165



Peak Flow Hydrologic Analysis

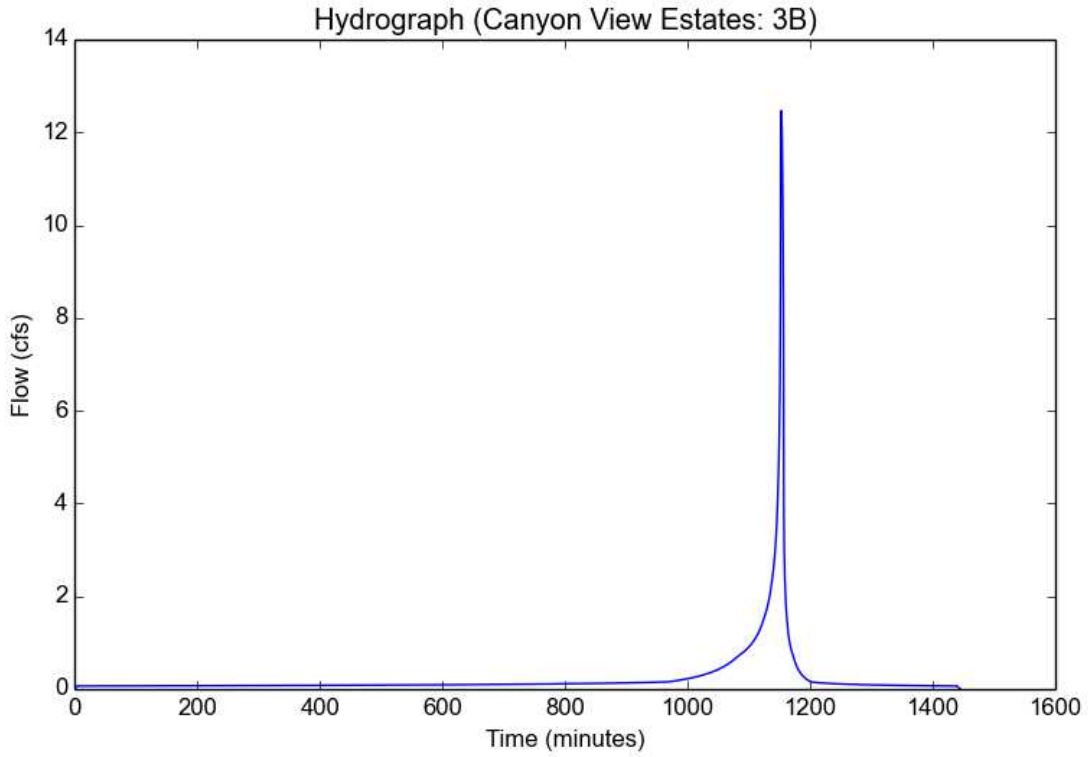
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	3B
Area (ac)	4.46
Flow Path Length (ft)	484.0
Flow Path Slope (vft/hft)	0.25
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	scr
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	3.6773
Undeveloped Runoff Coefficient (Cu)	0.7586
Developed Runoff Coefficient (Cd)	0.76
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	12.4655
Burned Peak Flow Rate (cfs)	13.0104
24-Hr Clear Runoff Volume (ac-ft)	0.4946
24-Hr Clear Runoff Volume (cu-ft)	21546.7162



Peak Flow Hydrologic Analysis

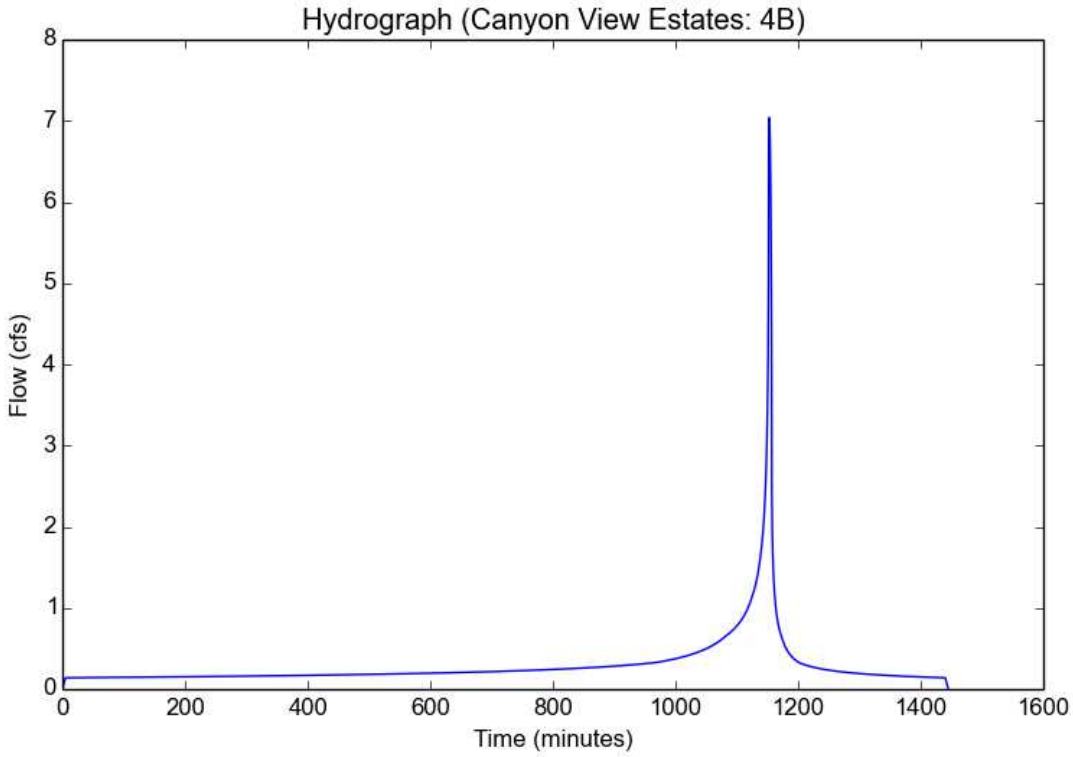
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	4B
Area (ac)	2.34
Flow Path Length (ft)	220.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	3.6773
Undeveloped Runoff Coefficient (Cu)	0.7586
Developed Runoff Coefficient (Cd)	0.818
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	7.039
Burned Peak Flow Rate (cfs)	7.039
24-Hr Clear Runoff Volume (ac-ft)	0.5963
24-Hr Clear Runoff Volume (cu-ft)	25975.69



Peak Flow Hydrologic Analysis

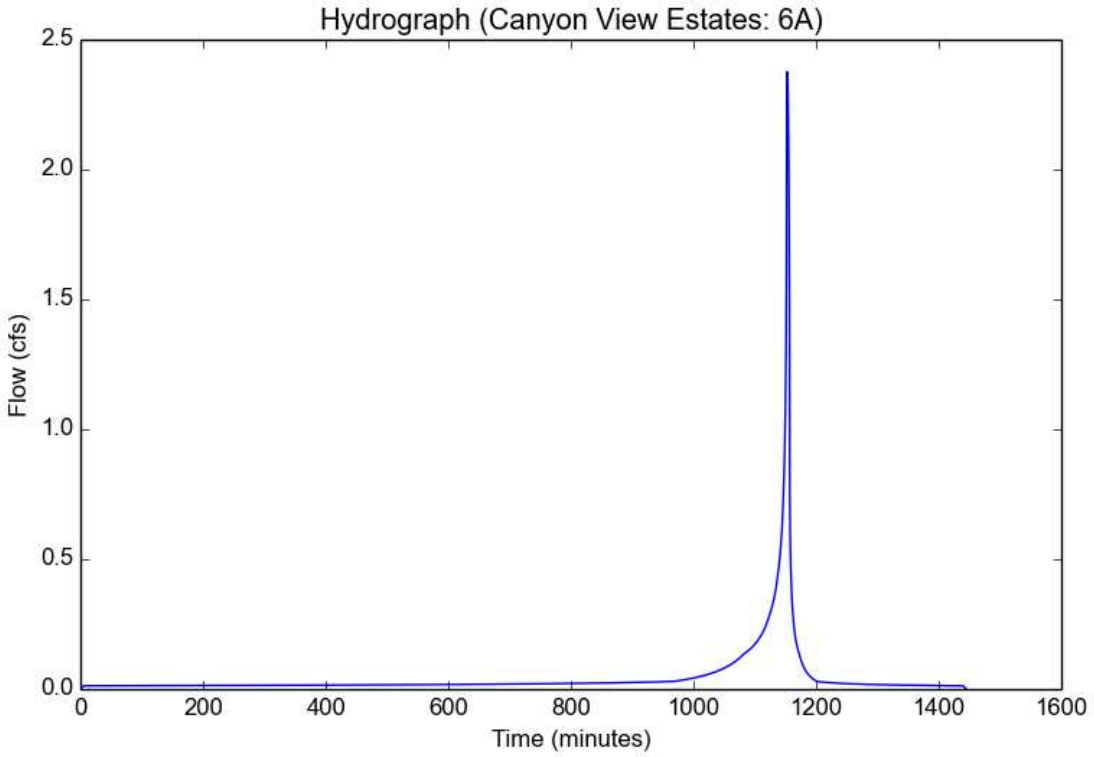
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	6A
Area (ac)	0.85
Flow Path Length (ft)	136.0
Flow Path Slope (vft/hft)	0.39
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	scr
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	3.6773
Undeveloped Runoff Coefficient (Cu)	0.7586
Developed Runoff Coefficient (Cd)	0.76
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	2.3757
Burned Peak Flow Rate (cfs)	2.4796
24-Hr Clear Runoff Volume (ac-ft)	0.0943
24-Hr Clear Runoff Volume (cu-ft)	4106.4369



Peak Flow Hydrologic Analysis

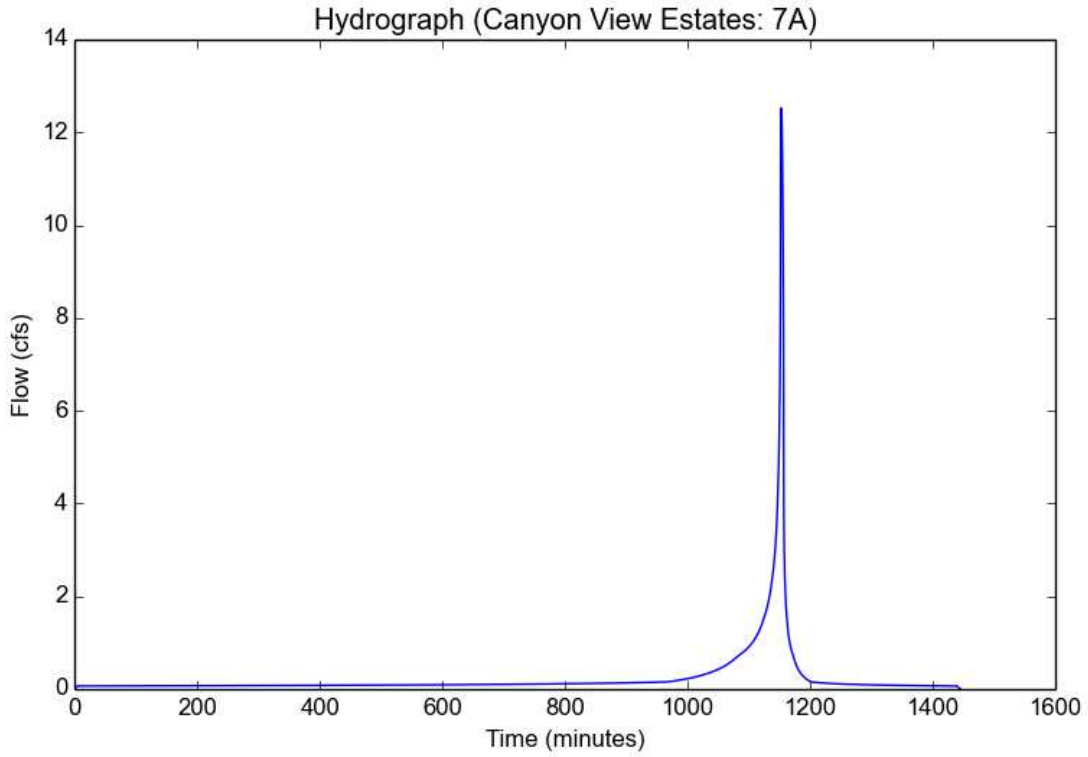
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	7A
Area (ac)	4.48
Flow Path Length (ft)	343.0
Flow Path Slope (vft/hft)	0.23
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	scr
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	3.6773
Undeveloped Runoff Coefficient (Cu)	0.7586
Developed Runoff Coefficient (Cd)	0.76
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	12.5214
Burned Peak Flow Rate (cfs)	13.0687
24-Hr Clear Runoff Volume (ac-ft)	0.4969
24-Hr Clear Runoff Volume (cu-ft)	21643.3382



Peak Flow Hydrologic Analysis

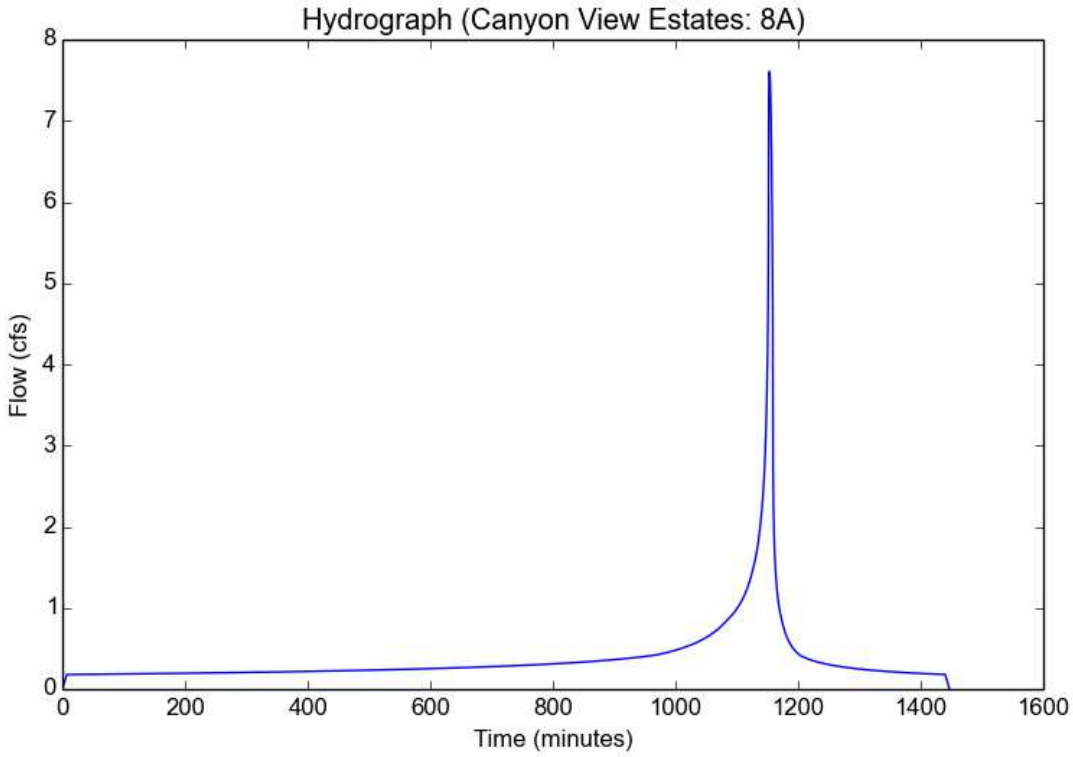
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	8A
Area (ac)	3.01
Flow Path Length (ft)	770.0
Flow Path Slope (vft/hft)	0.074
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	3.1395
Undeveloped Runoff Coefficient (Cu)	0.7364
Developed Runoff Coefficient (Cd)	0.8051
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	7.608
Burned Peak Flow Rate (cfs)	7.608
24-Hr Clear Runoff Volume (ac-ft)	0.7668
24-Hr Clear Runoff Volume (cu-ft)	33402.0327



Peak Flow Hydrologic Analysis

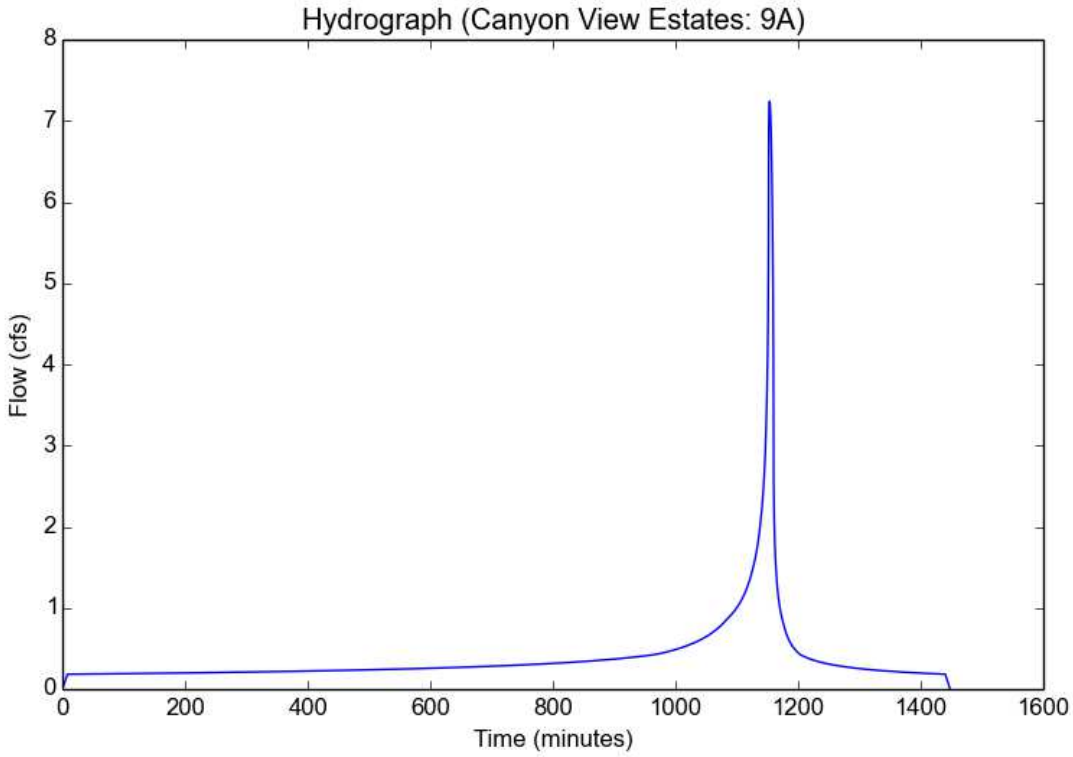
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	9A
Area (ac)	3.07
Flow Path Length (ft)	860.0
Flow Path Slope (vft/hft)	0.056
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	2.9485
Undeveloped Runoff Coefficient (Cu)	0.7273
Developed Runoff Coefficient (Cd)	0.7998
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	7.24
Burned Peak Flow Rate (cfs)	7.24
24-Hr Clear Runoff Volume (ac-ft)	0.782
24-Hr Clear Runoff Volume (cu-ft)	34063.6554



Peak Flow Hydrologic Analysis

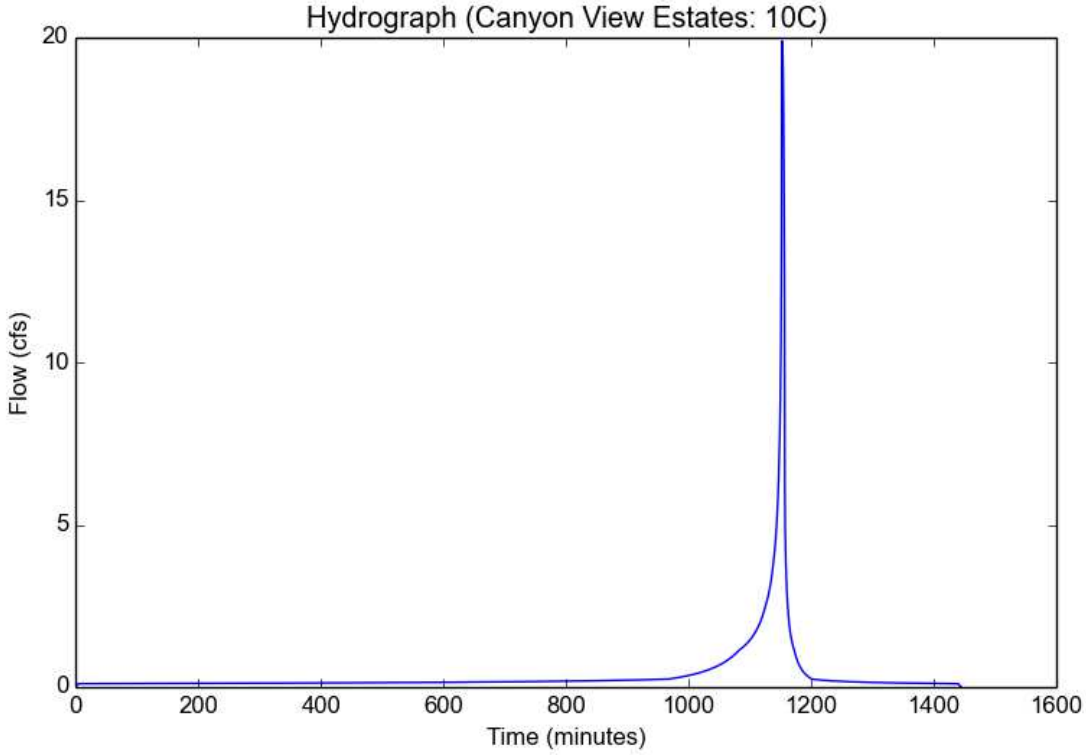
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	10C
Area (ac)	7.12
Flow Path Length (ft)	378.0
Flow Path Slope (vft/hft)	0.56
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	scr
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	3.6773
Undeveloped Runoff Coefficient (Cu)	0.7586
Developed Runoff Coefficient (Cd)	0.76
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	19.9002
Burned Peak Flow Rate (cfs)	20.77
24-Hr Clear Runoff Volume (ac-ft)	0.7897
24-Hr Clear Runoff Volume (cu-ft)	34397.4482



Peak Flow Hydrologic Analysis

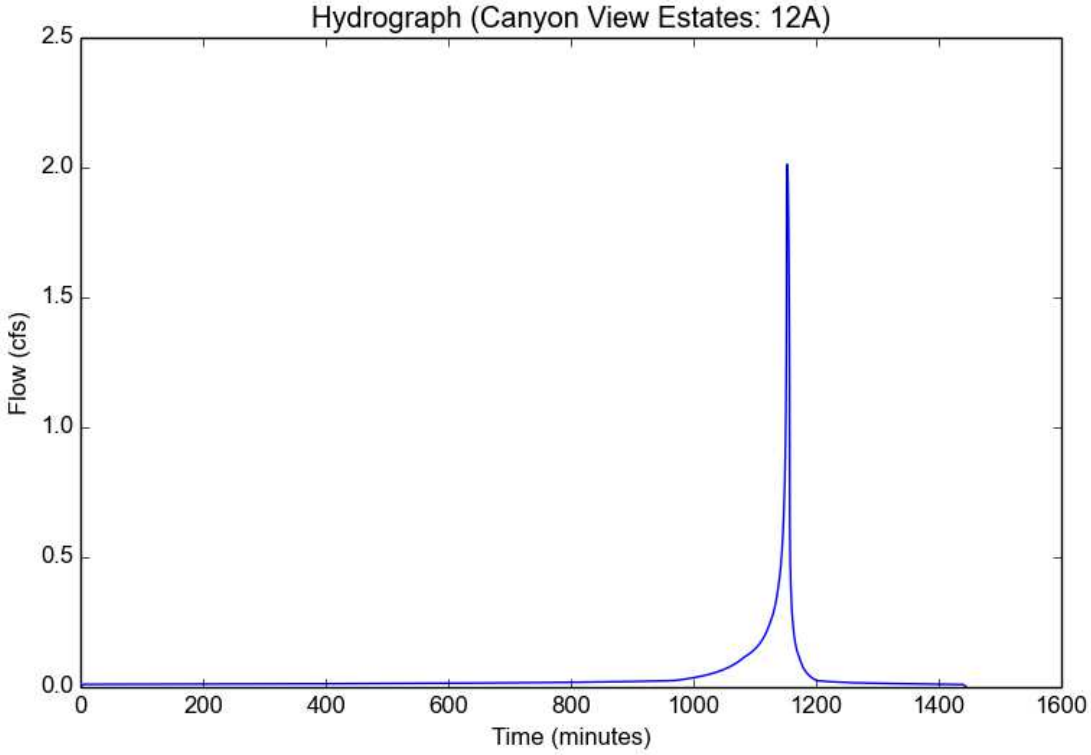
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	12A
Area (ac)	0.72
Flow Path Length (ft)	263.0
Flow Path Slope (vft/hft)	0.39
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	scr
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	3.6773
Undeveloped Runoff Coefficient (Cu)	0.7586
Developed Runoff Coefficient (Cd)	0.76
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	2.0124
Burned Peak Flow Rate (cfs)	2.1003
24-Hr Clear Runoff Volume (ac-ft)	0.0799
24-Hr Clear Runoff Volume (cu-ft)	3478.3936



Peak Flow Hydrologic Analysis

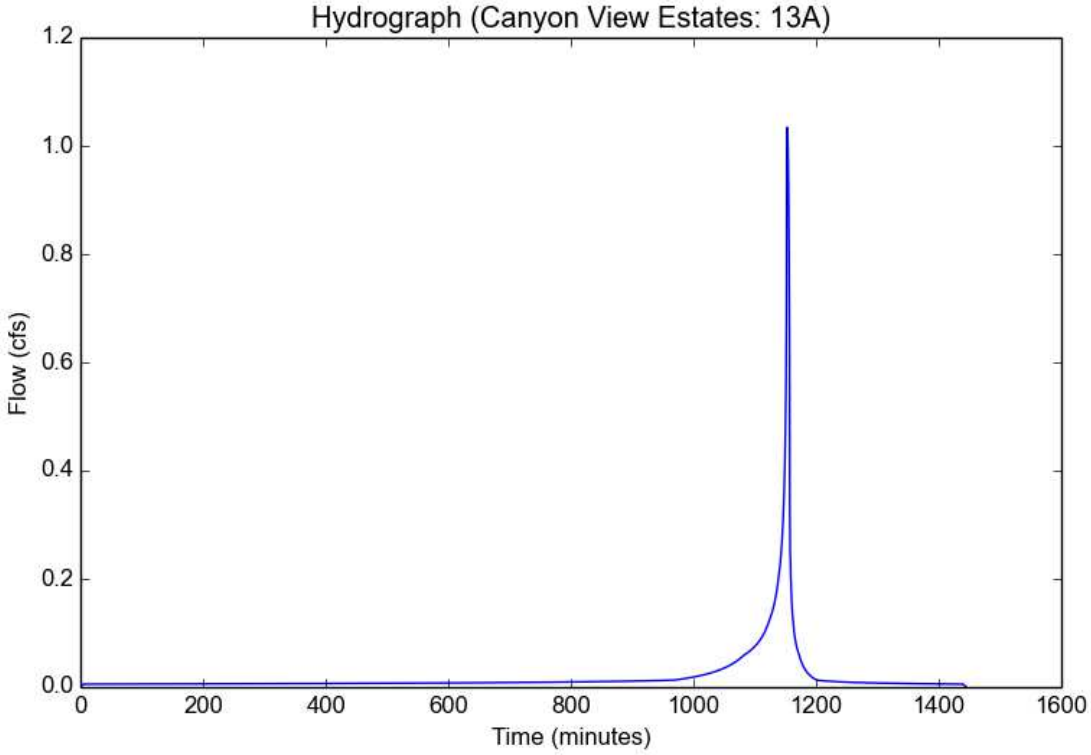
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	13A
Area (ac)	0.37
Flow Path Length (ft)	86.0
Flow Path Slope (vft/hft)	0.44
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	scr
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	3.6773
Undeveloped Runoff Coefficient (Cu)	0.7586
Developed Runoff Coefficient (Cd)	0.76
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.0341
Burned Peak Flow Rate (cfs)	1.0793
24-Hr Clear Runoff Volume (ac-ft)	0.041
24-Hr Clear Runoff Volume (cu-ft)	1787.5078



Peak Flow Hydrologic Analysis

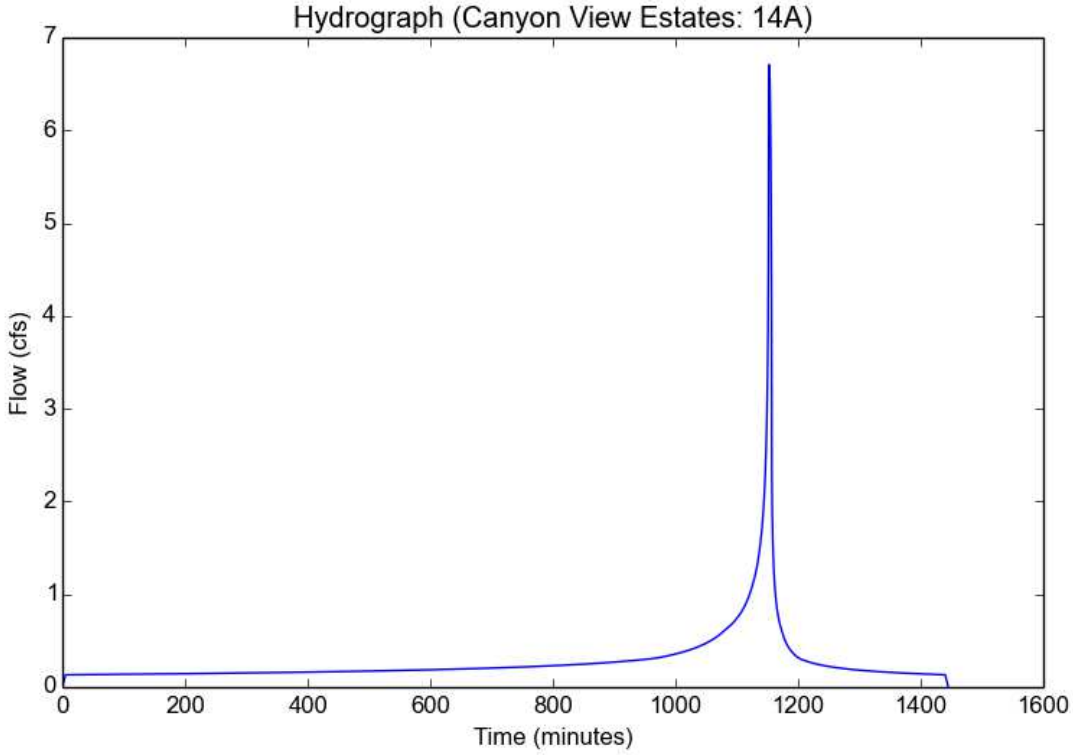
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	14A
Area (ac)	2.23
Flow Path Length (ft)	310.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	3.6773
Undeveloped Runoff Coefficient (Cu)	0.7586
Developed Runoff Coefficient (Cd)	0.818
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	6.7081
Burned Peak Flow Rate (cfs)	6.7081
24-Hr Clear Runoff Volume (ac-ft)	0.5683
24-Hr Clear Runoff Volume (cu-ft)	24754.6105



Peak Flow Hydrologic Analysis

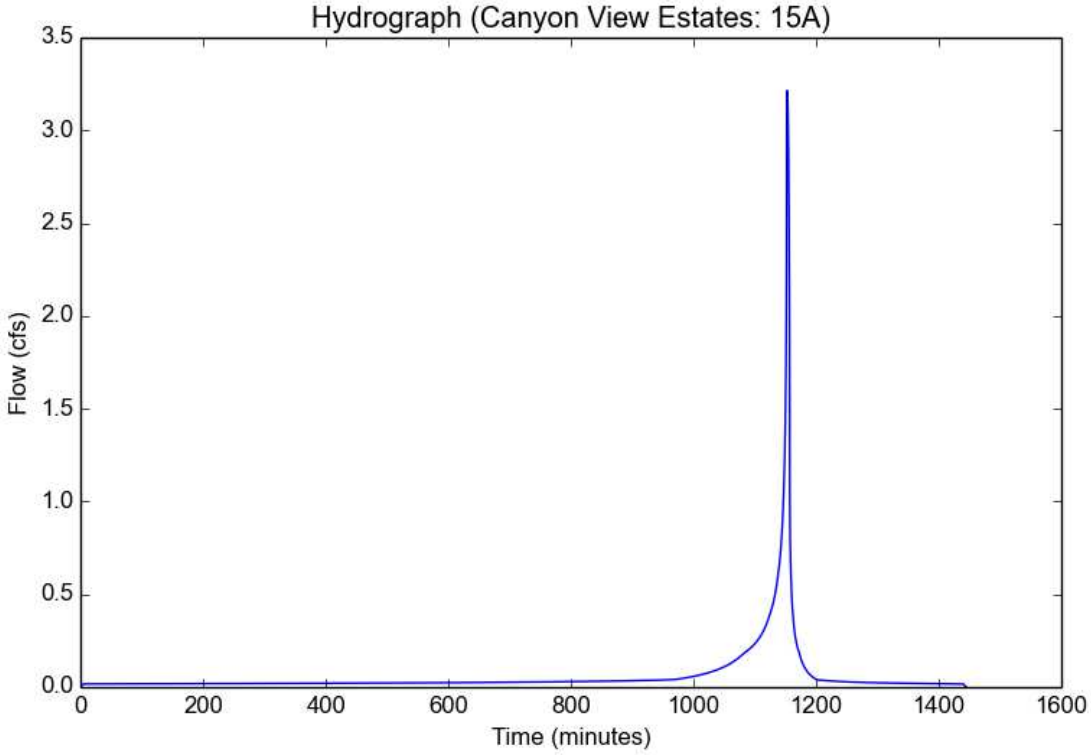
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	15A
Area (ac)	1.15
Flow Path Length (ft)	181.0
Flow Path Slope (vft/hft)	0.29
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	scr
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	3.6773
Undeveloped Runoff Coefficient (Cu)	0.7586
Developed Runoff Coefficient (Cd)	0.76
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	3.2142
Burned Peak Flow Rate (cfs)	3.3547
24-Hr Clear Runoff Volume (ac-ft)	0.1275
24-Hr Clear Runoff Volume (cu-ft)	5555.7676



Peak Flow Hydrologic Analysis

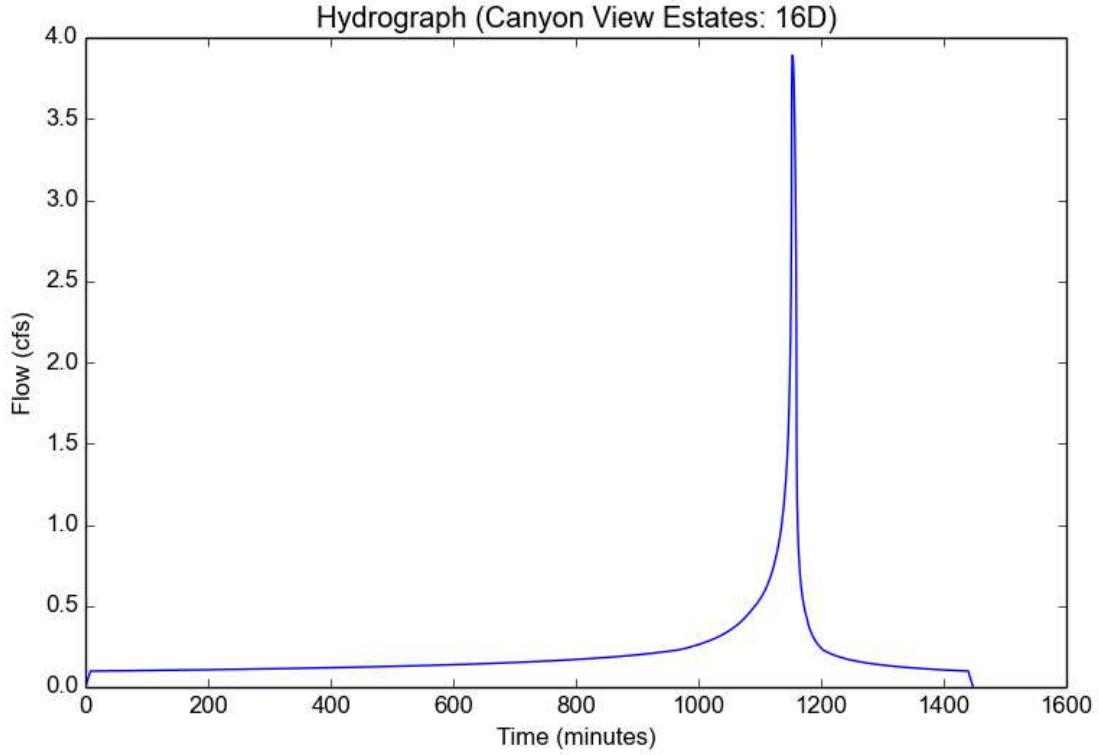
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	16D
Area (ac)	1.65
Flow Path Length (ft)	630.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	2.9485
Undeveloped Runoff Coefficient (Cu)	0.7273
Developed Runoff Coefficient (Cd)	0.7998
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	3.8912
Burned Peak Flow Rate (cfs)	3.8912
24-Hr Clear Runoff Volume (ac-ft)	0.4203
24-Hr Clear Runoff Volume (cu-ft)	18307.8278



Peak Flow Hydrologic Analysis

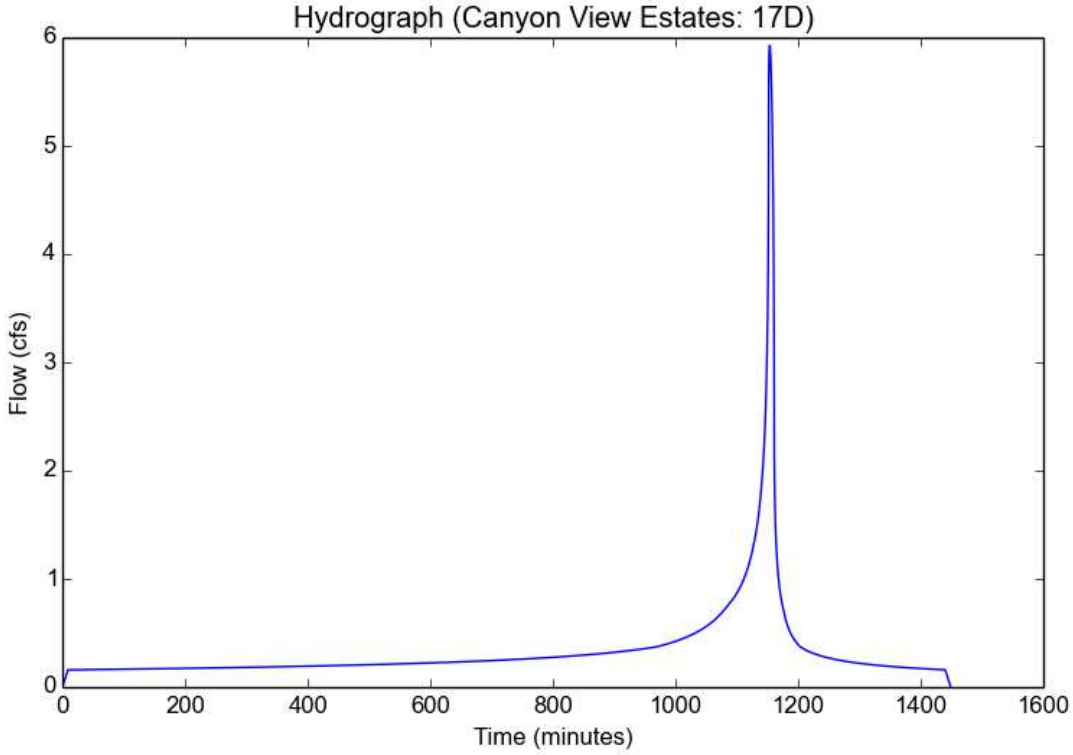
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	17D
Area (ac)	2.67
Flow Path Length (ft)	620.0
Flow Path Slope (vft/hft)	0.005
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	2.7897
Undeveloped Runoff Coefficient (Cu)	0.7198
Developed Runoff Coefficient (Cd)	0.7955
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	5.925
Burned Peak Flow Rate (cfs)	5.925
24-Hr Clear Runoff Volume (ac-ft)	0.68
24-Hr Clear Runoff Volume (cu-ft)	29622.6181



Peak Flow Hydrologic Analysis

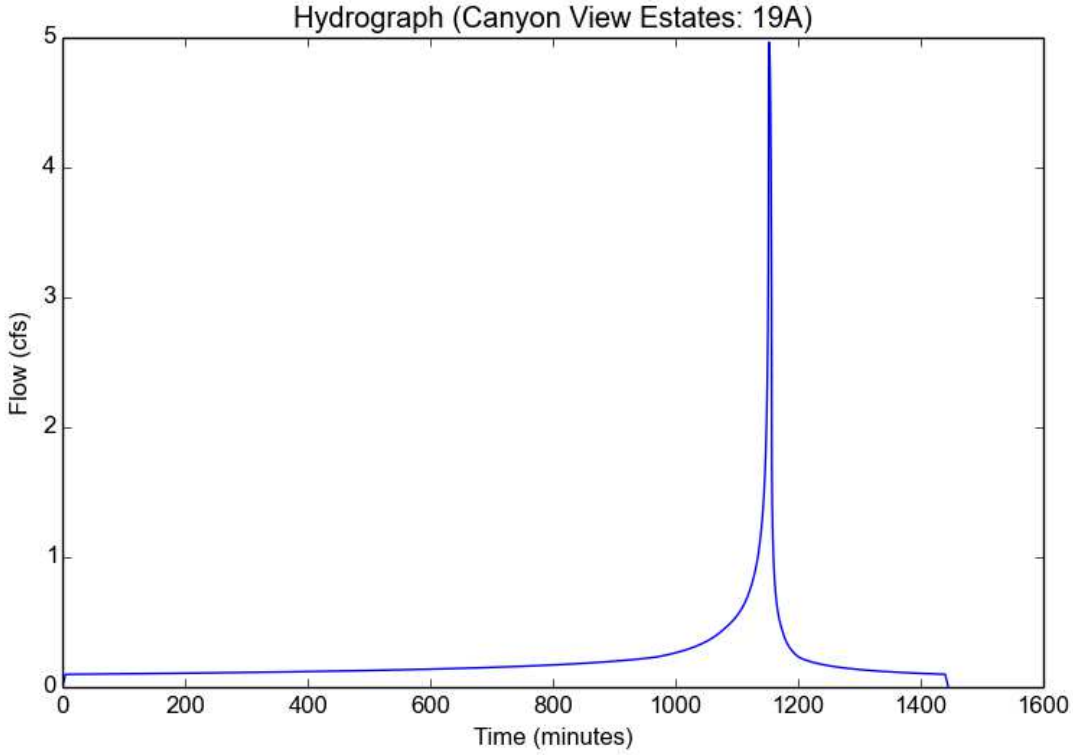
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	19A
Area (ac)	1.65
Flow Path Length (ft)	290.0
Flow Path Slope (vft/hft)	0.062
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	3.6773
Undeveloped Runoff Coefficient (Cu)	0.7586
Developed Runoff Coefficient (Cd)	0.818
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	4.9634
Burned Peak Flow Rate (cfs)	4.9634
24-Hr Clear Runoff Volume (ac-ft)	0.4205
24-Hr Clear Runoff Volume (cu-ft)	18316.1917



Peak Flow Hydrologic Analysis

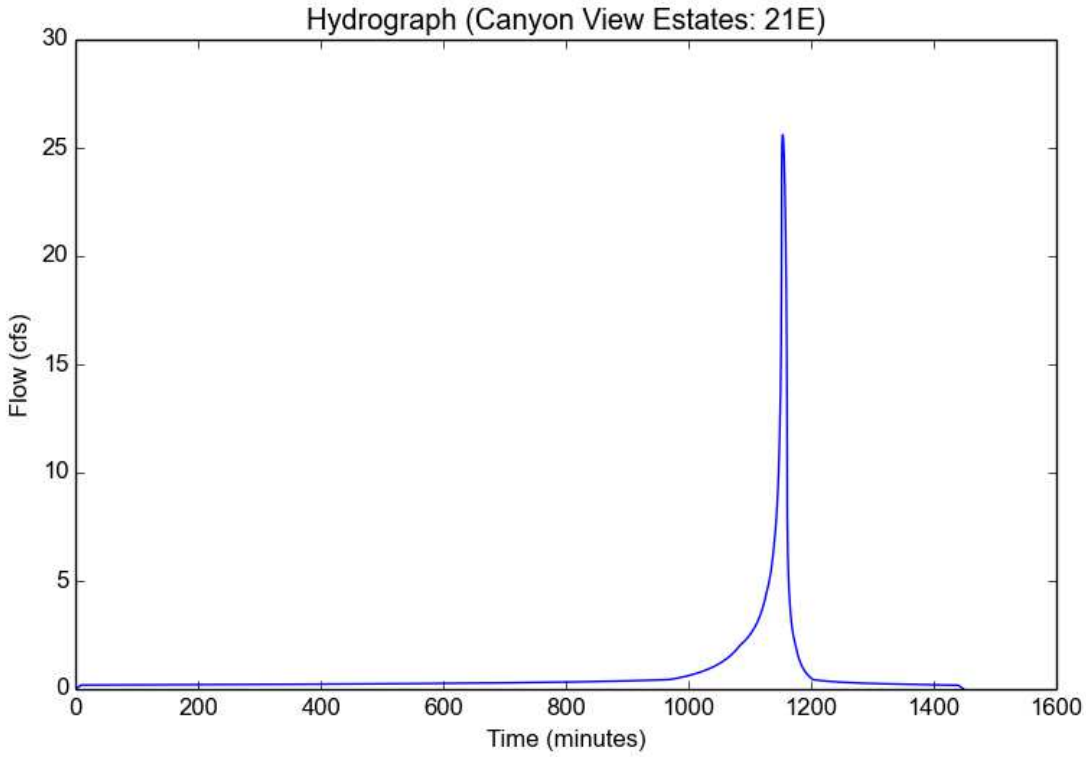
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	21E
Area (ac)	12.72
Flow Path Length (ft)	1394.0
Flow Path Slope (vft/hft)	0.18
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	scr
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	2.7897
Undeveloped Runoff Coefficient (Cu)	0.7198
Developed Runoff Coefficient (Cd)	0.7216
Time of Concentration (min)	9.0
Clear Peak Flow Rate (cfs)	25.605
Burned Peak Flow Rate (cfs)	26.9159
24-Hr Clear Runoff Volume (ac-ft)	1.4077
24-Hr Clear Runoff Volume (cu-ft)	61318.8644



Peak Flow Hydrologic Analysis

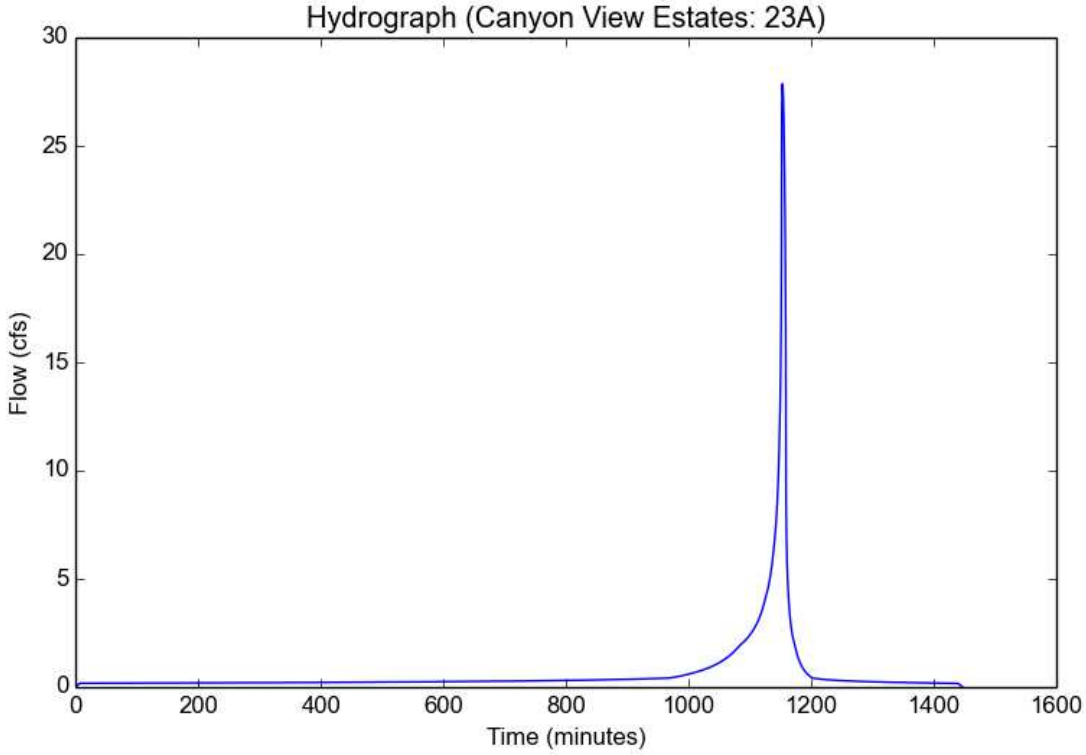
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	23A
Area (ac)	12.03
Flow Path Length (ft)	682.0
Flow Path Slope (vft/hft)	0.046
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	scr
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	3.1395
Undeveloped Runoff Coefficient (Cu)	0.7364
Developed Runoff Coefficient (Cd)	0.738
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	27.8731
Burned Peak Flow Rate (cfs)	29.2106
24-Hr Clear Runoff Volume (ac-ft)	1.3325
24-Hr Clear Runoff Volume (cu-ft)	58042.1051



Peak Flow Hydrologic Analysis

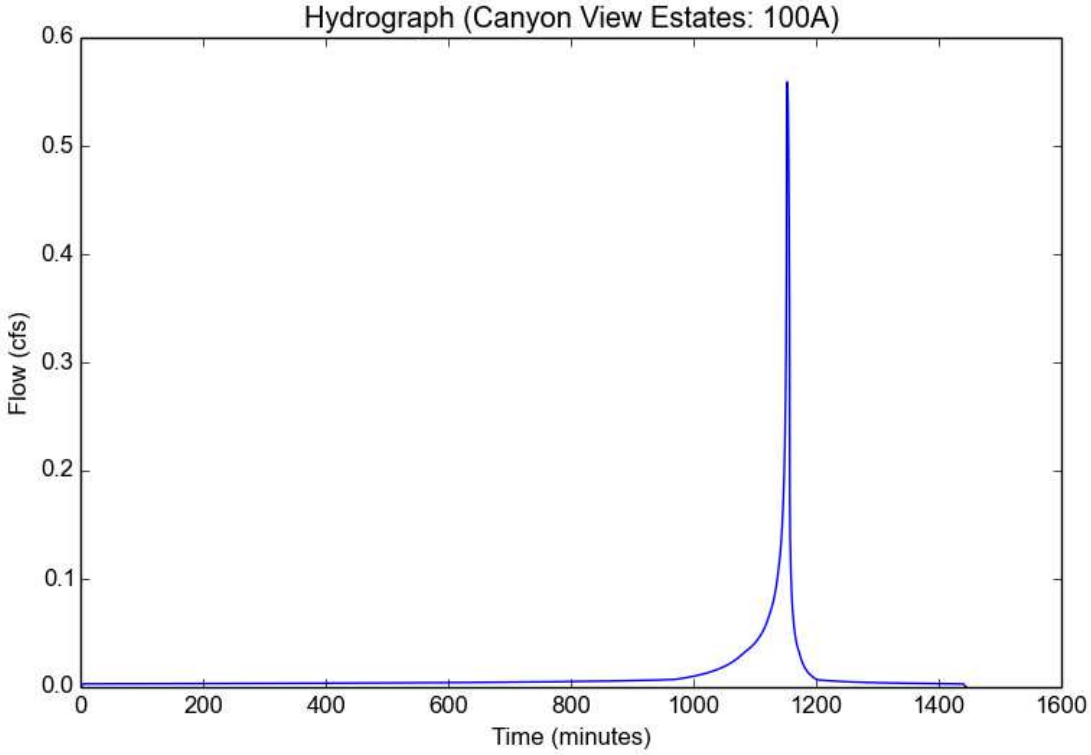
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	100A
Area (ac)	0.2
Flow Path Length (ft)	116.0
Flow Path Slope (vft/hft)	0.56
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	scr
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	3.6773
Undeveloped Runoff Coefficient (Cu)	0.7586
Developed Runoff Coefficient (Cd)	0.76
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.559
Burned Peak Flow Rate (cfs)	0.5834
24-Hr Clear Runoff Volume (ac-ft)	0.0222
24-Hr Clear Runoff Volume (cu-ft)	966.2205



Peak Flow Hydrologic Analysis

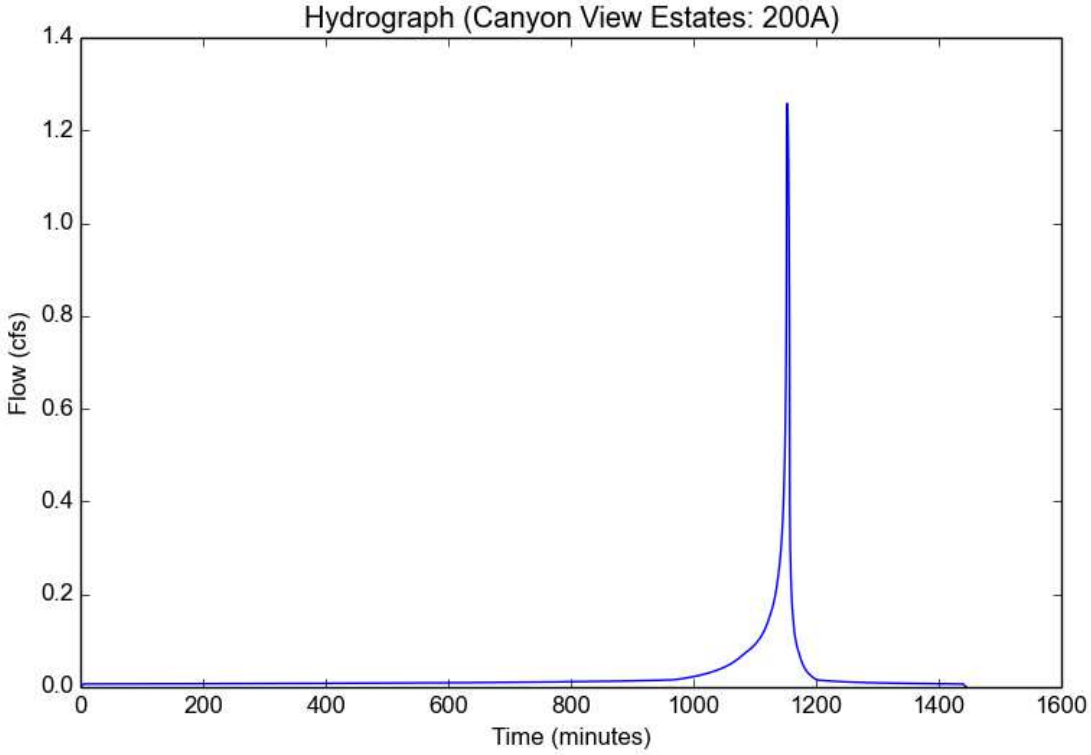
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	200A
Area (ac)	0.45
Flow Path Length (ft)	234.0
Flow Path Slope (vft/hft)	0.3
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	3.6773
Undeveloped Runoff Coefficient (Cu)	0.7586
Developed Runoff Coefficient (Cd)	0.76
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.2577
Burned Peak Flow Rate (cfs)	1.2577
24-Hr Clear Runoff Volume (ac-ft)	0.0499
24-Hr Clear Runoff Volume (cu-ft)	2173.996



Peak Flow Hydrologic Analysis

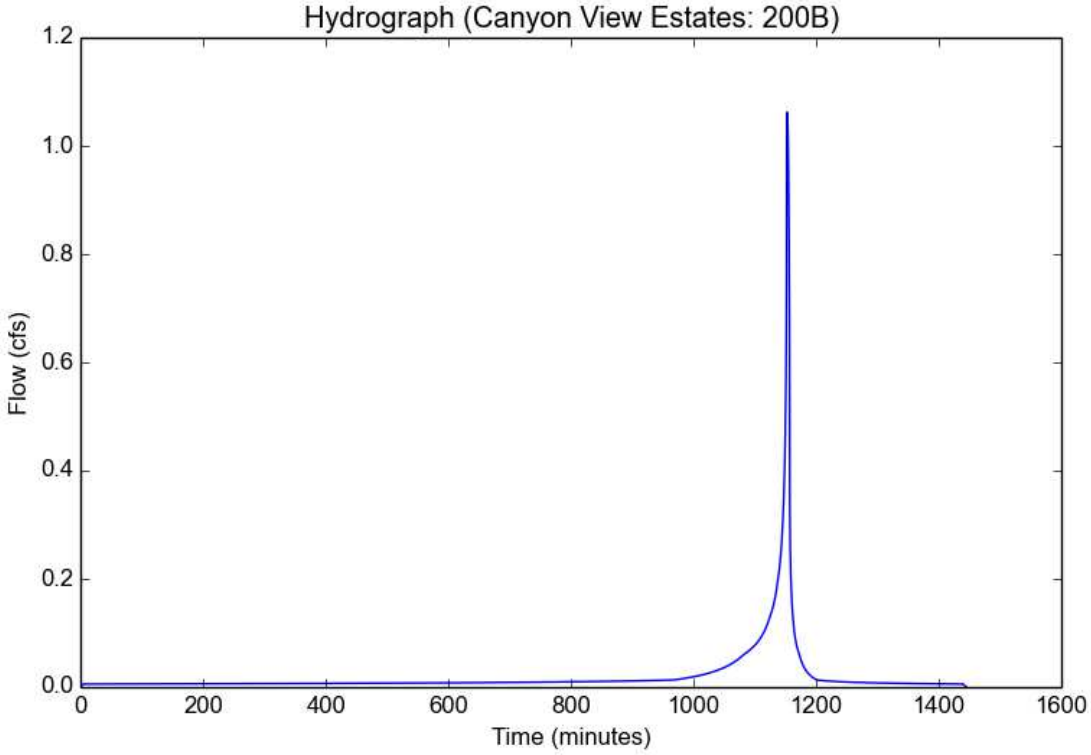
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	200B
Area (ac)	0.38
Flow Path Length (ft)	234.0
Flow Path Slope (vft/hft)	0.3
50-yr Rainfall Depth (in)	7.02
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	25-yr
Fire Factor	0
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	6.1636
Peak Intensity (in/hr)	3.6773
Undeveloped Runoff Coefficient (Cu)	0.7586
Developed Runoff Coefficient (Cd)	0.76
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.0621
Burned Peak Flow Rate (cfs)	1.0621
24-Hr Clear Runoff Volume (ac-ft)	0.0421
24-Hr Clear Runoff Volume (cu-ft)	1835.8189



Peak Flow Hydrologic Analysis

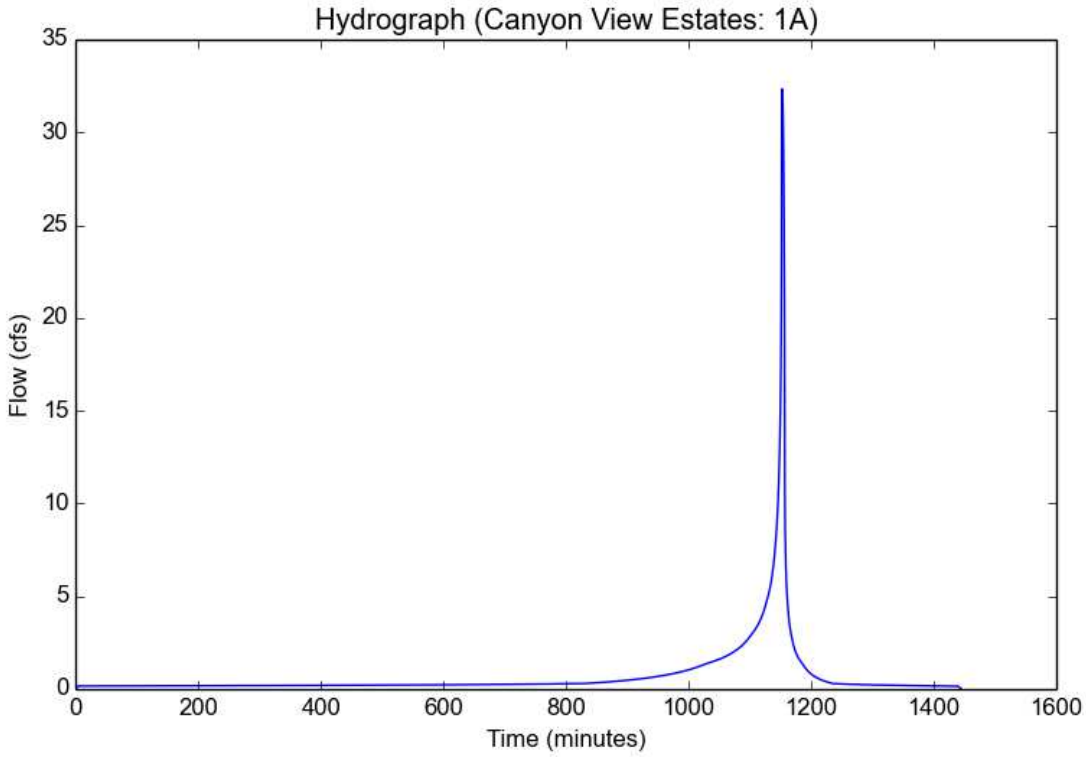
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	1A
Area (ac)	8.6
Flow Path Length (ft)	444.0
Flow Path Slope (vft/hft)	0.17
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	scr
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7868
Developed Runoff Coefficient (Cd)	0.7879
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	32.3412
Burned Peak Flow Rate (cfs)	33.5927
24-Hr Clear Runoff Volume (ac-ft)	1.453
24-Hr Clear Runoff Volume (cu-ft)	63294.3695



Peak Flow Hydrologic Analysis

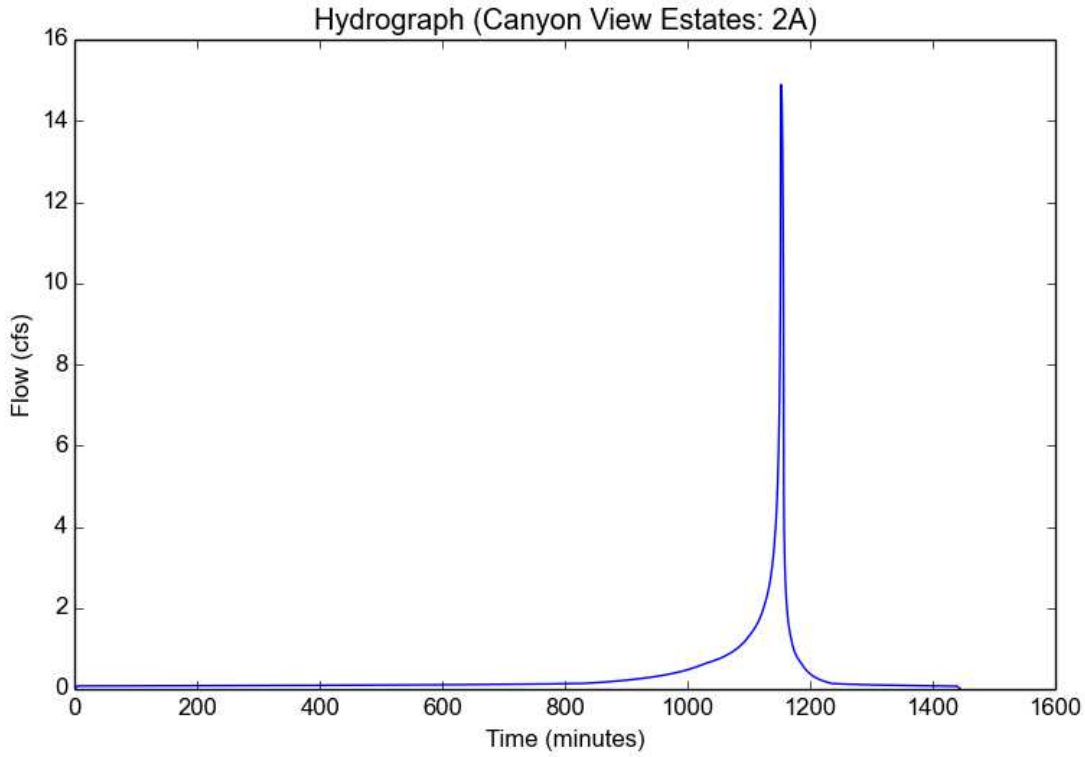
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	2A
Area (ac)	3.96
Flow Path Length (ft)	478.0
Flow Path Slope (vft/hft)	0.24
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	scr
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7868
Developed Runoff Coefficient (Cd)	0.7879
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	14.892
Burned Peak Flow Rate (cfs)	15.4683
24-Hr Clear Runoff Volume (ac-ft)	0.6691
24-Hr Clear Runoff Volume (cu-ft)	29144.8492



Peak Flow Hydrologic Analysis

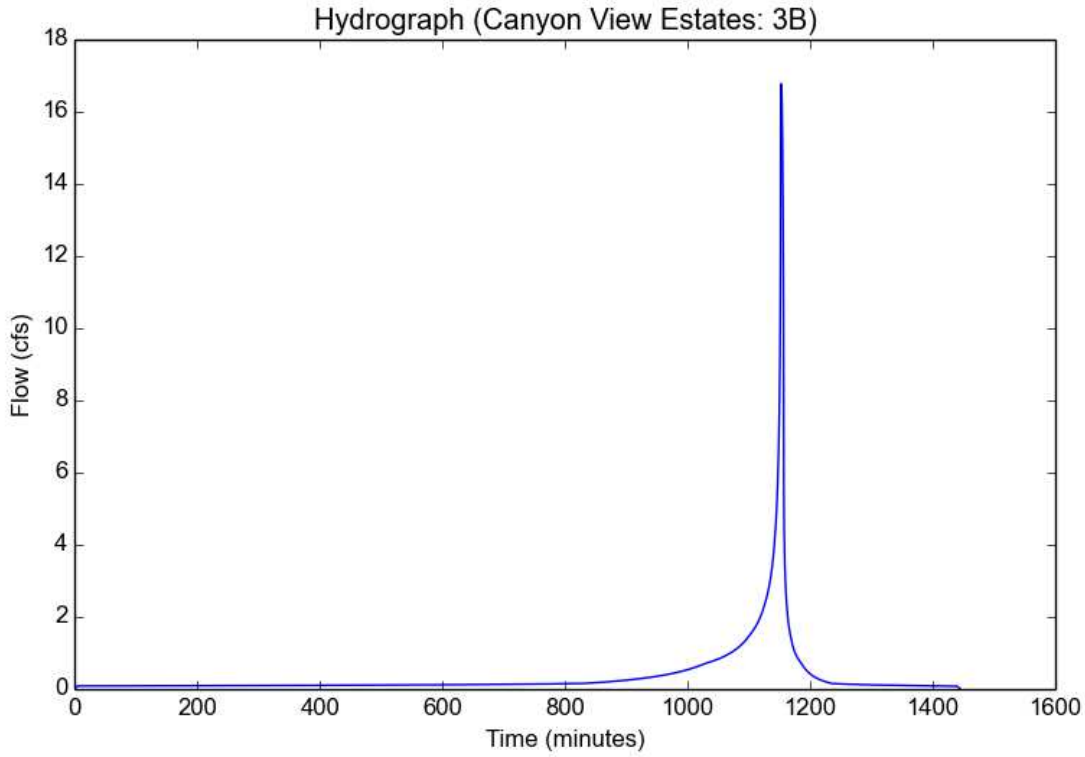
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	3B
Area (ac)	4.46
Flow Path Length (ft)	484.0
Flow Path Slope (vft/hft)	0.25
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	scr
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7868
Developed Runoff Coefficient (Cd)	0.7879
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	16.7723
Burned Peak Flow Rate (cfs)	17.4213
24-Hr Clear Runoff Volume (ac-ft)	0.7536
24-Hr Clear Runoff Volume (cu-ft)	32824.7544



Peak Flow Hydrologic Analysis

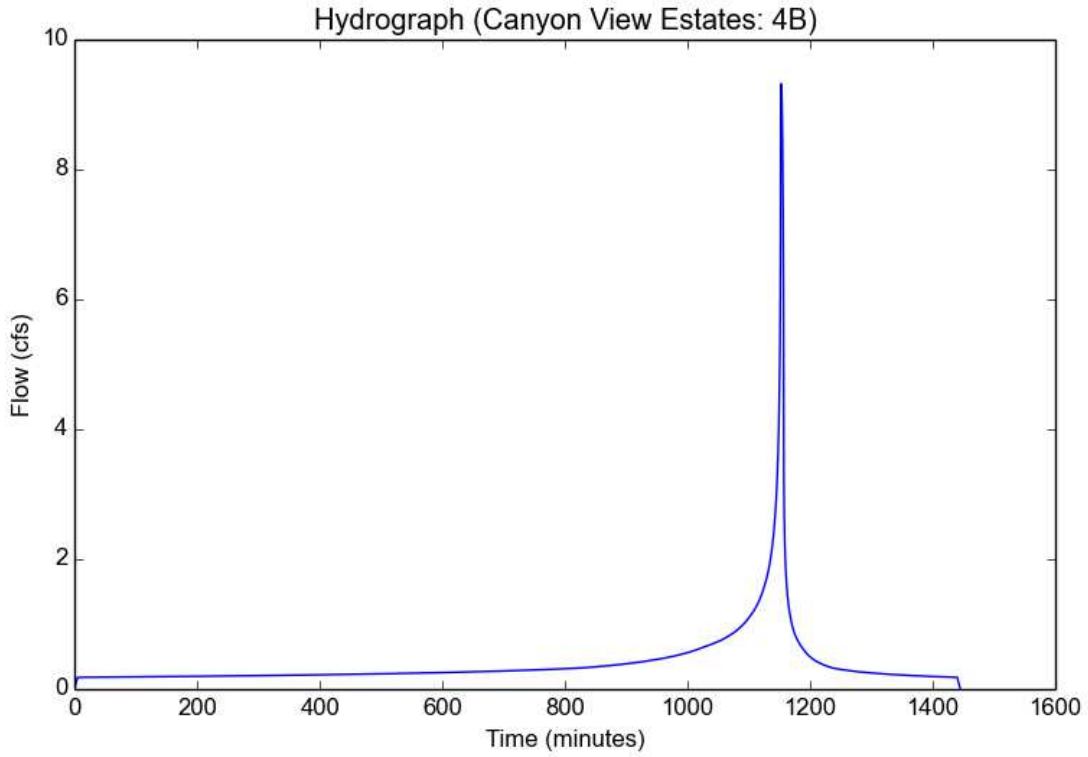
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	4B
Area (ac)	2.34
Flow Path Length (ft)	220.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7868
Developed Runoff Coefficient (Cd)	0.8343
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	9.3184
Burned Peak Flow Rate (cfs)	9.3184
24-Hr Clear Runoff Volume (ac-ft)	0.8083
24-Hr Clear Runoff Volume (cu-ft)	35208.4752



Peak Flow Hydrologic Analysis

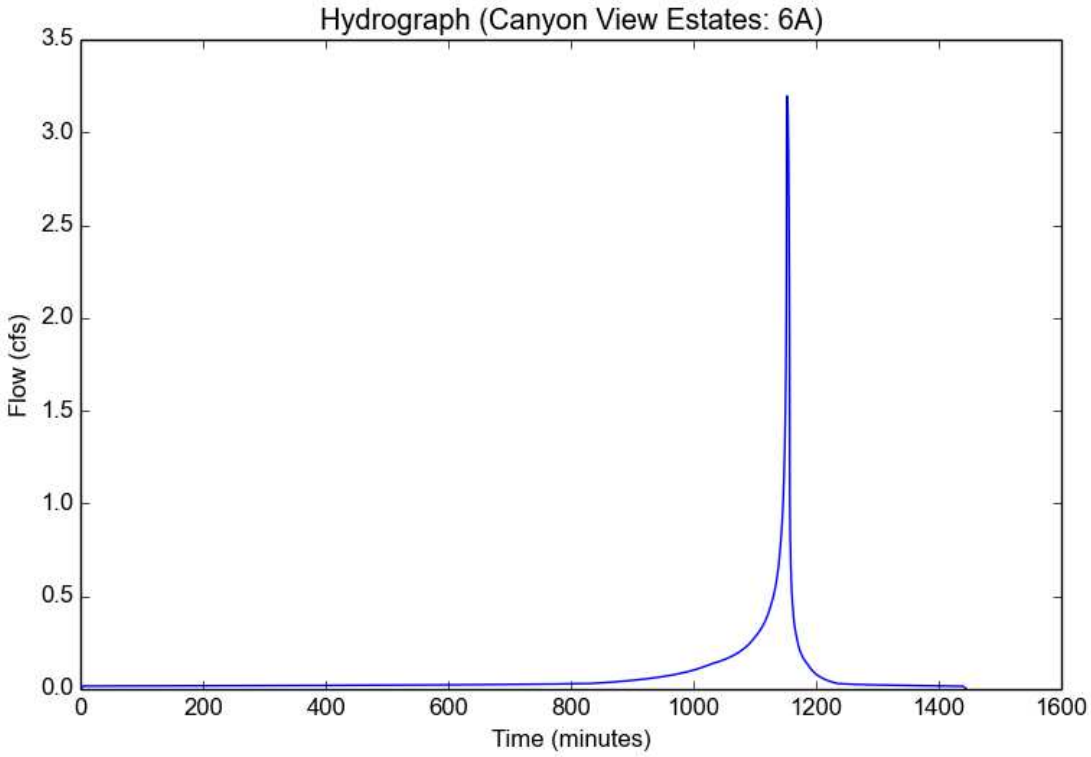
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	6A
Area (ac)	0.85
Flow Path Length (ft)	136.0
Flow Path Slope (vft/hft)	0.39
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	scr
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7868
Developed Runoff Coefficient (Cd)	0.7879
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	3.1965
Burned Peak Flow Rate (cfs)	3.3202
24-Hr Clear Runoff Volume (ac-ft)	0.1436
24-Hr Clear Runoff Volume (cu-ft)	6255.8388



Peak Flow Hydrologic Analysis

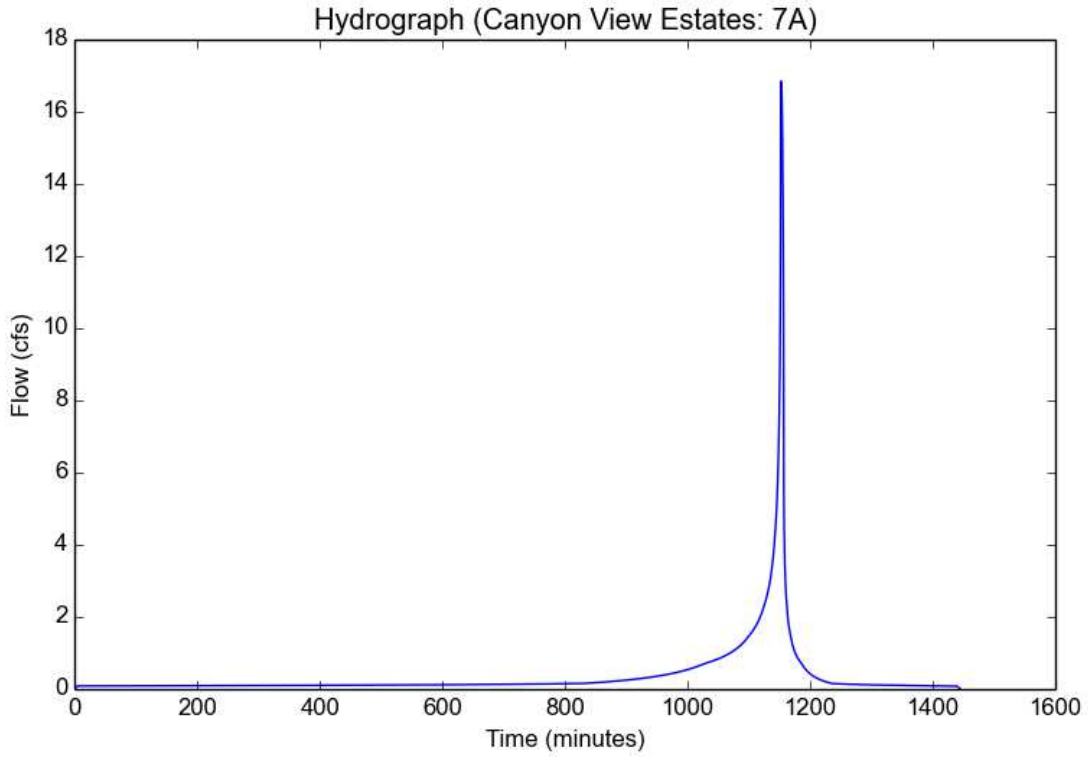
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	7A
Area (ac)	4.48
Flow Path Length (ft)	343.0
Flow Path Slope (vft/hft)	0.23
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	scr
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7868
Developed Runoff Coefficient (Cd)	0.7879
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	16.8475
Burned Peak Flow Rate (cfs)	17.4995
24-Hr Clear Runoff Volume (ac-ft)	0.7569
24-Hr Clear Runoff Volume (cu-ft)	32971.9506



Peak Flow Hydrologic Analysis

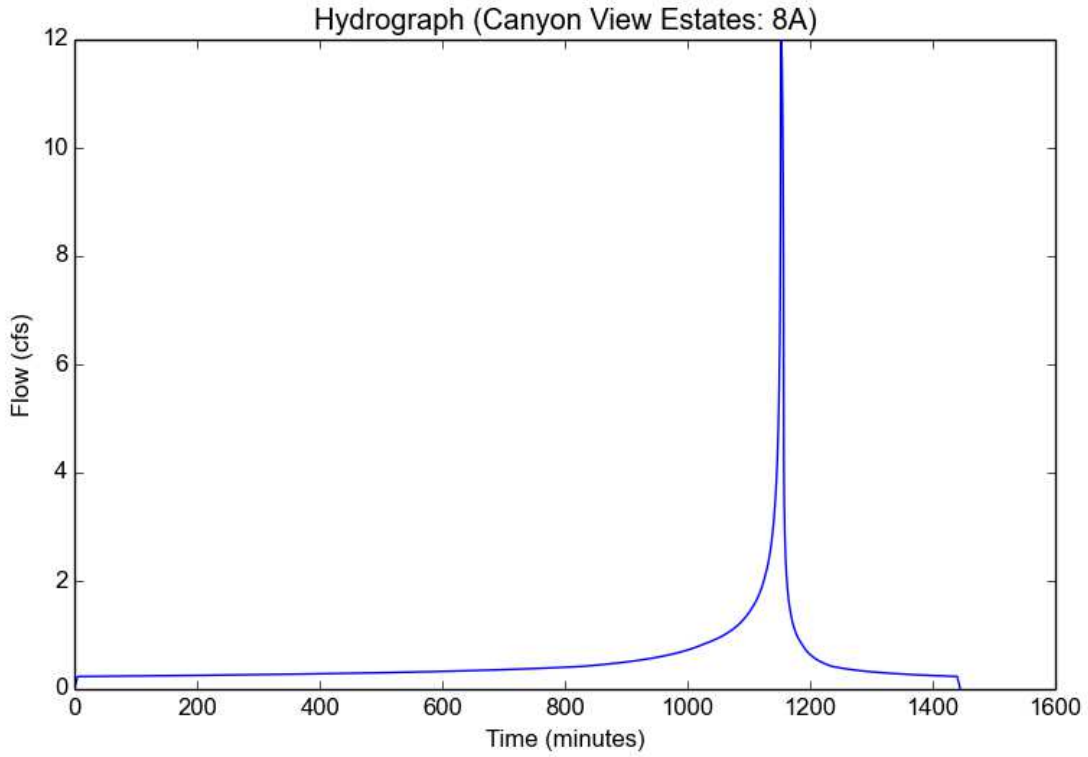
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	8A
Area (ac)	3.01
Flow Path Length (ft)	770.0
Flow Path Slope (vft/hft)	0.074
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7868
Developed Runoff Coefficient (Cd)	0.8343
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	11.9865
Burned Peak Flow Rate (cfs)	11.9865
24-Hr Clear Runoff Volume (ac-ft)	1.0397
24-Hr Clear Runoff Volume (cu-ft)	45289.5344



Peak Flow Hydrologic Analysis

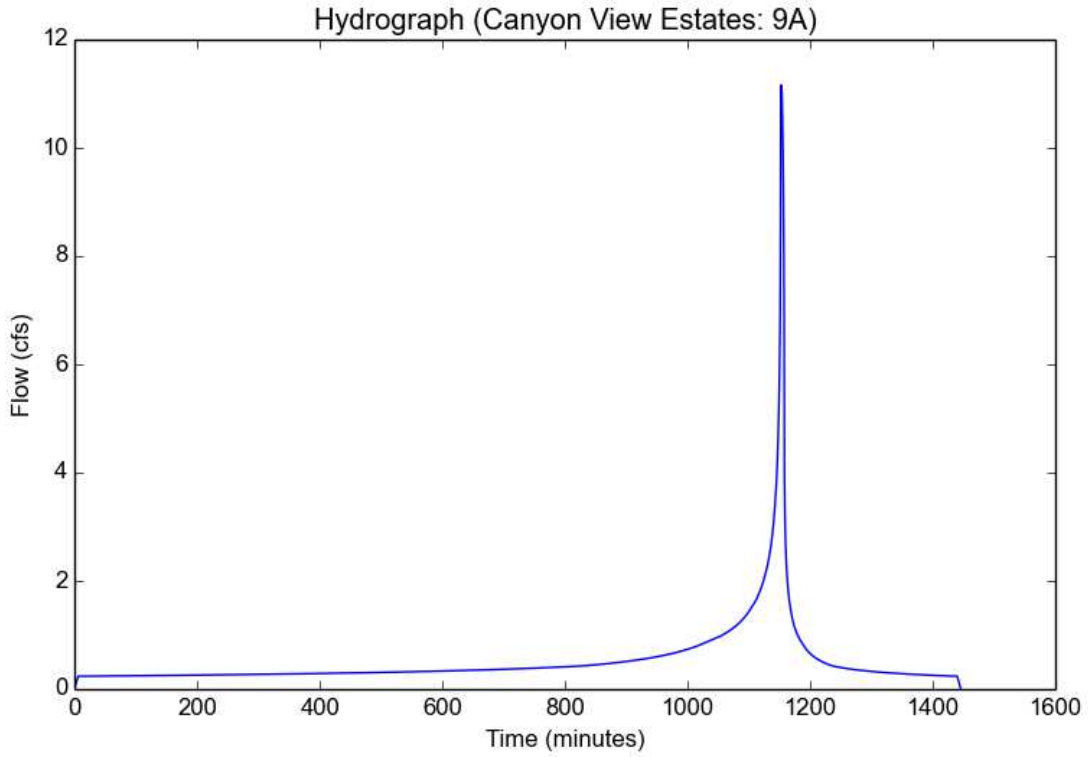
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	9A
Area (ac)	3.07
Flow Path Length (ft)	860.0
Flow Path Slope (vft/hft)	0.056
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.381
Undeveloped Runoff Coefficient (Cu)	0.779
Developed Runoff Coefficient (Cd)	0.8298
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	11.1611
Burned Peak Flow Rate (cfs)	11.1611
24-Hr Clear Runoff Volume (ac-ft)	1.0603
24-Hr Clear Runoff Volume (cu-ft)	46188.2191



Peak Flow Hydrologic Analysis

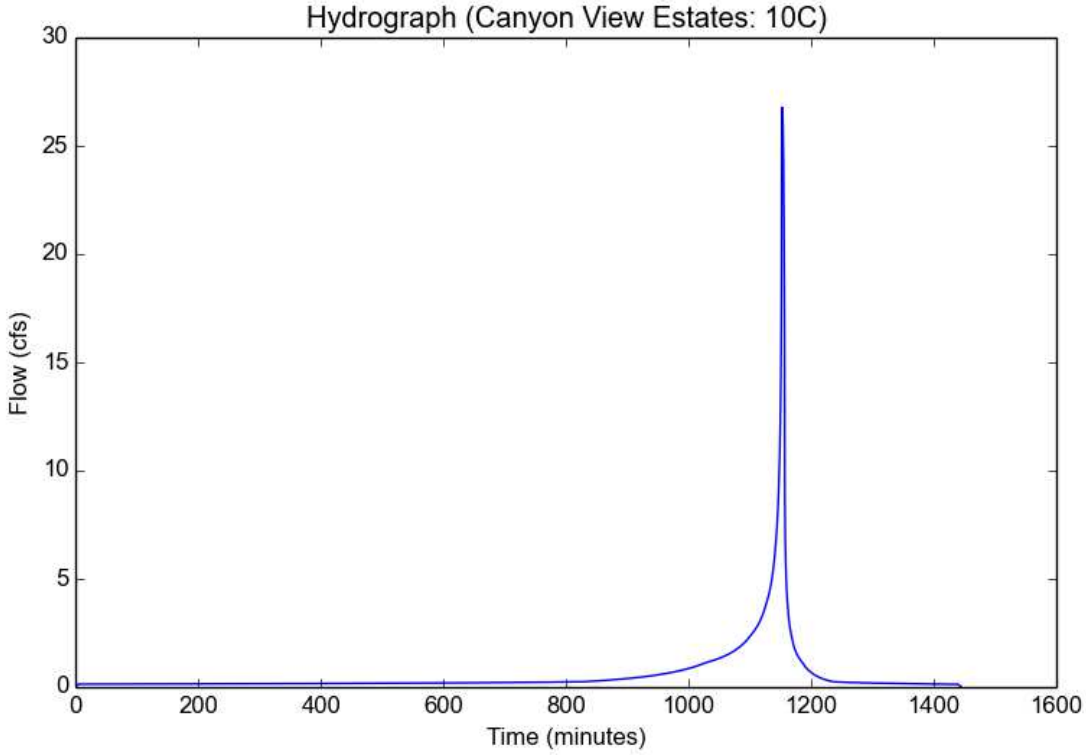
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	10C
Area (ac)	7.12
Flow Path Length (ft)	378.0
Flow Path Slope (vft/hft)	0.56
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	scr
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7868
Developed Runoff Coefficient (Cd)	0.7879
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	26.7755
Burned Peak Flow Rate (cfs)	27.8116
24-Hr Clear Runoff Volume (ac-ft)	1.203
24-Hr Clear Runoff Volume (cu-ft)	52401.8501



Peak Flow Hydrologic Analysis

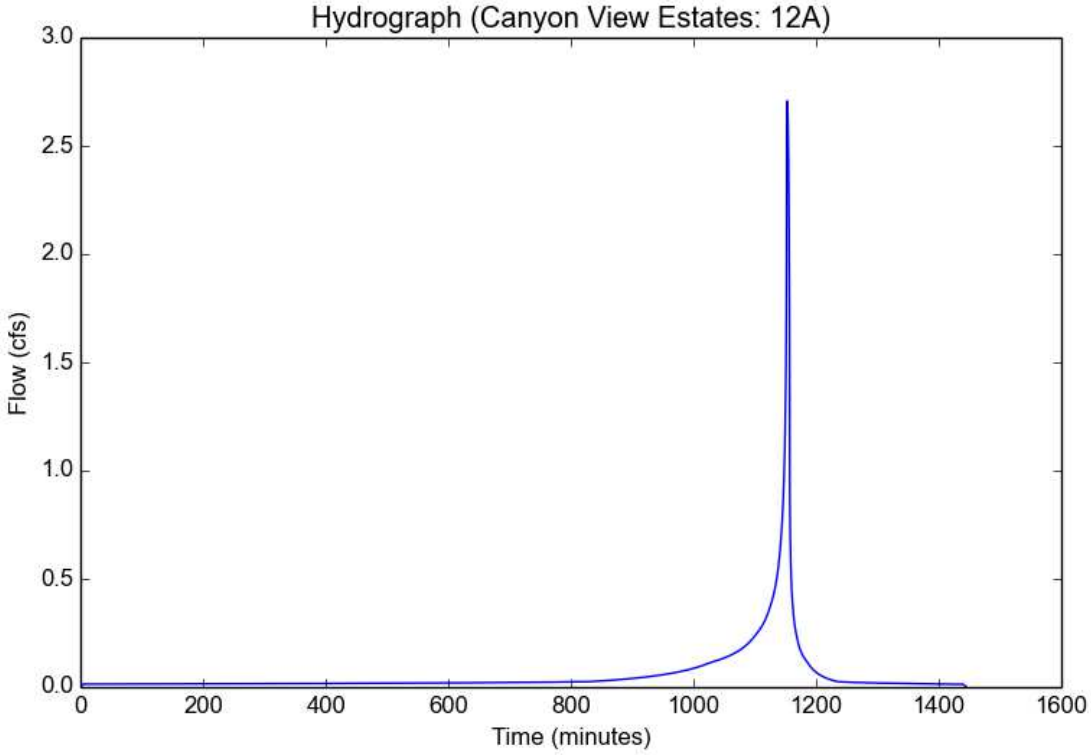
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	12A
Area (ac)	0.72
Flow Path Length (ft)	263.0
Flow Path Slope (vft/hft)	0.39
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	scr
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7868
Developed Runoff Coefficient (Cd)	0.7879
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	2.7076
Burned Peak Flow Rate (cfs)	2.8124
24-Hr Clear Runoff Volume (ac-ft)	0.1216
24-Hr Clear Runoff Volume (cu-ft)	5299.0635



Peak Flow Hydrologic Analysis

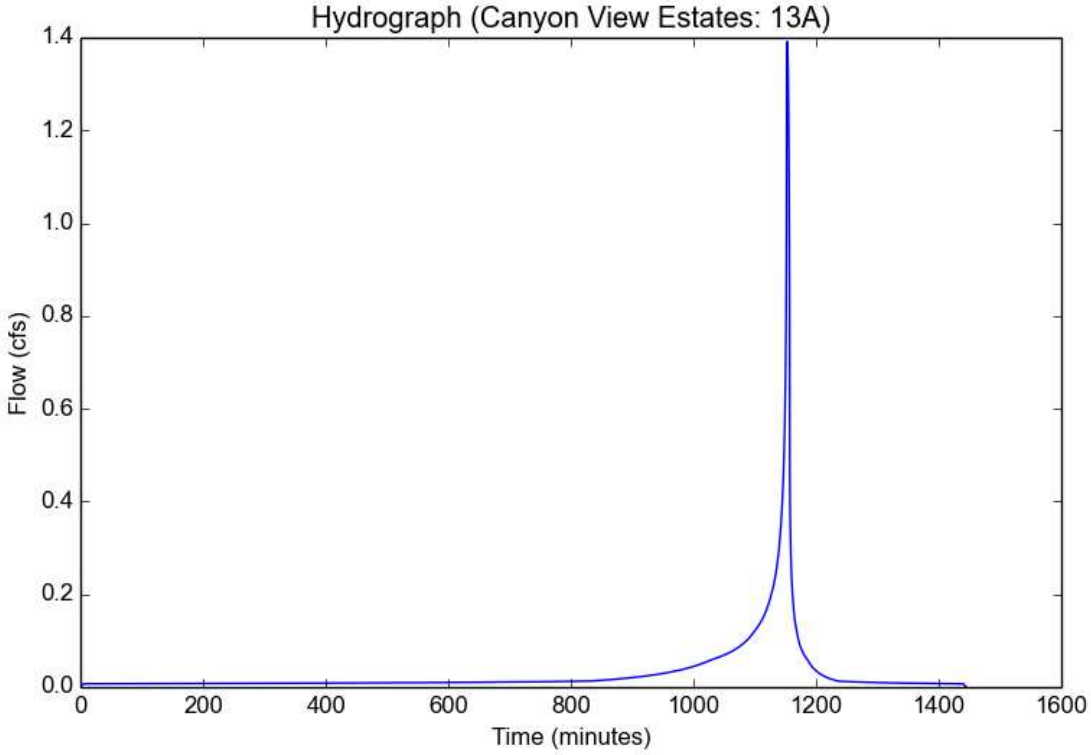
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	13A
Area (ac)	0.37
Flow Path Length (ft)	86.0
Flow Path Slope (vft/hft)	0.44
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	scr
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7868
Developed Runoff Coefficient (Cd)	0.7879
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.3914
Burned Peak Flow Rate (cfs)	1.4453
24-Hr Clear Runoff Volume (ac-ft)	0.0625
24-Hr Clear Runoff Volume (cu-ft)	2723.1298



Peak Flow Hydrologic Analysis

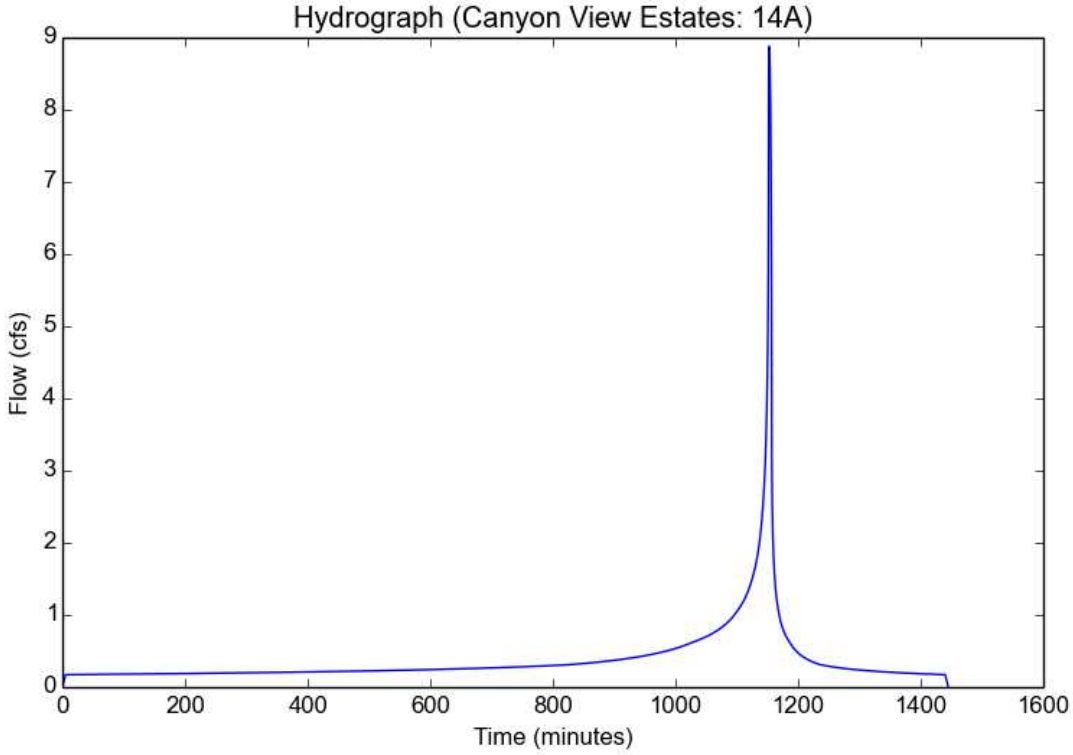
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	14A
Area (ac)	2.23
Flow Path Length (ft)	310.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7868
Developed Runoff Coefficient (Cd)	0.8343
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	8.8803
Burned Peak Flow Rate (cfs)	8.8803
24-Hr Clear Runoff Volume (ac-ft)	0.7703
24-Hr Clear Runoff Volume (cu-ft)	33553.376



Peak Flow Hydrologic Analysis

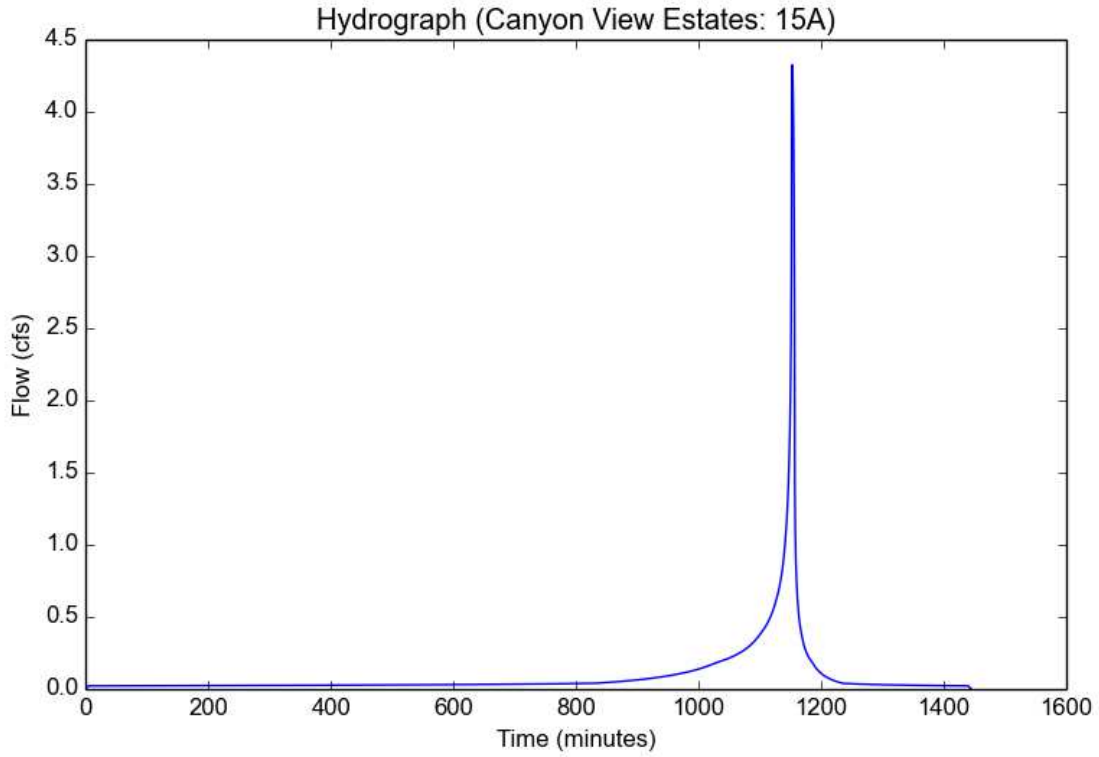
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	15A
Area (ac)	1.15
Flow Path Length (ft)	181.0
Flow Path Slope (vft/hft)	0.29
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	scr
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7868
Developed Runoff Coefficient (Cd)	0.7879
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	4.3247
Burned Peak Flow Rate (cfs)	4.492
24-Hr Clear Runoff Volume (ac-ft)	0.1943
24-Hr Clear Runoff Volume (cu-ft)	8463.782



Peak Flow Hydrologic Analysis

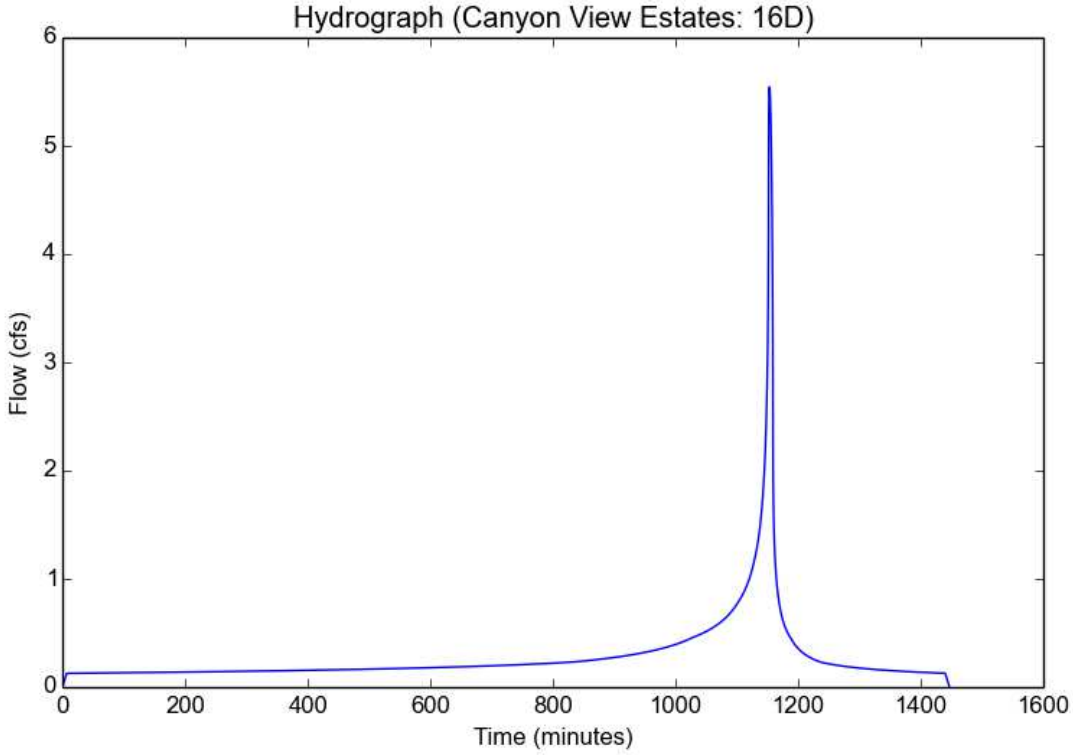
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	16D
Area (ac)	1.65
Flow Path Length (ft)	630.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.0749
Undeveloped Runoff Coefficient (Cu)	0.7701
Developed Runoff Coefficient (Cd)	0.8247
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	5.5448
Burned Peak Flow Rate (cfs)	5.5448
24-Hr Clear Runoff Volume (ac-ft)	0.5698
24-Hr Clear Runoff Volume (cu-ft)	24821.5313



Peak Flow Hydrologic Analysis

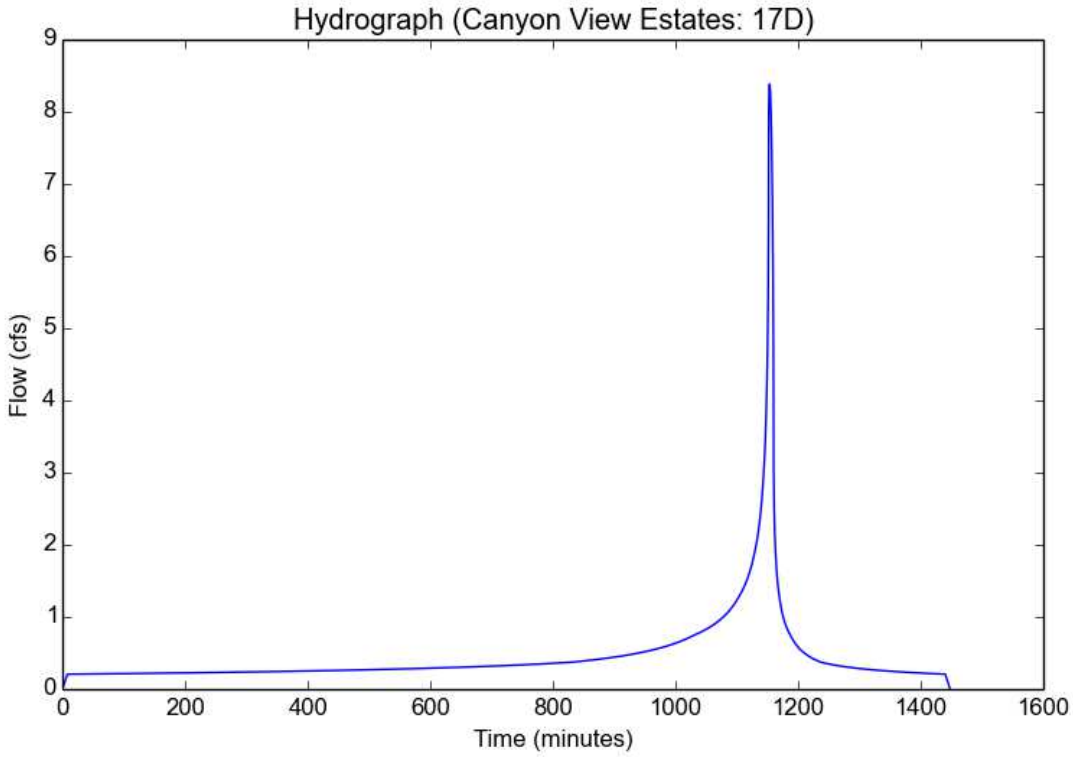
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	17D
Area (ac)	2.67
Flow Path Length (ft)	620.0
Flow Path Slope (vft/hft)	0.005
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	3.827
Undeveloped Runoff Coefficient (Cu)	0.763
Developed Runoff Coefficient (Cd)	0.8205
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	8.3841
Burned Peak Flow Rate (cfs)	8.3841
24-Hr Clear Runoff Volume (ac-ft)	0.922
24-Hr Clear Runoff Volume (cu-ft)	40162.2846



Peak Flow Hydrologic Analysis

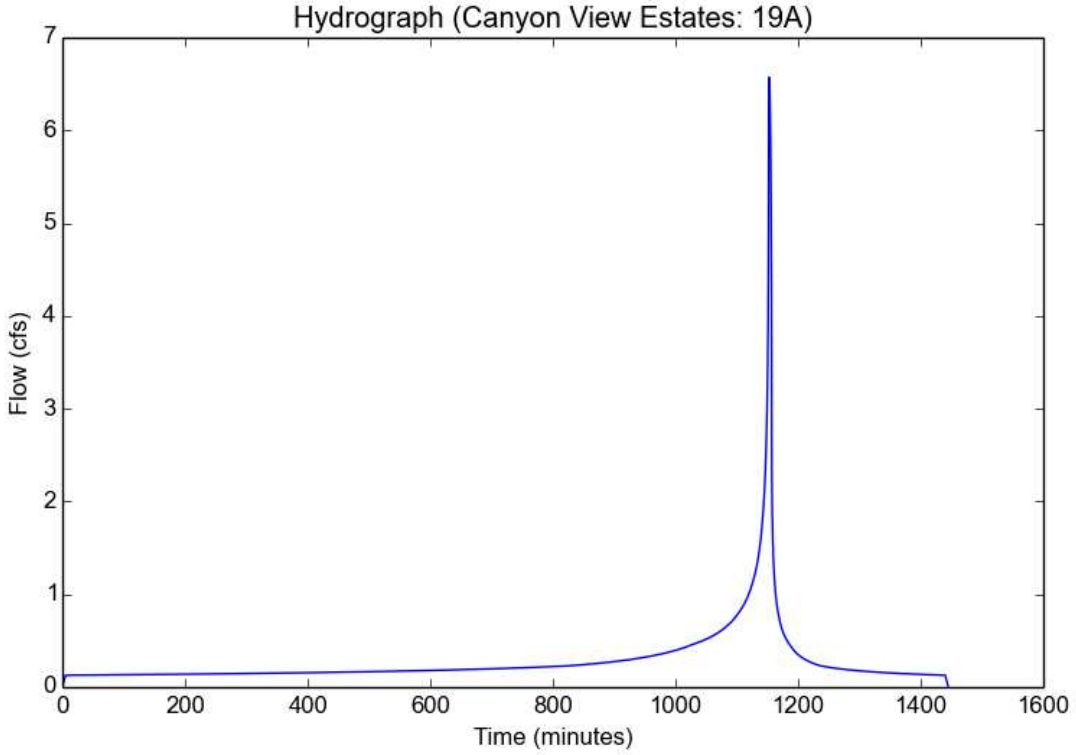
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	19A
Area (ac)	1.65
Flow Path Length (ft)	290.0
Flow Path Slope (vft/hft)	0.062
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.42
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7868
Developed Runoff Coefficient (Cd)	0.8343
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	6.5707
Burned Peak Flow Rate (cfs)	6.5707
24-Hr Clear Runoff Volume (ac-ft)	0.5699
24-Hr Clear Runoff Volume (cu-ft)	24826.4889



Peak Flow Hydrologic Analysis

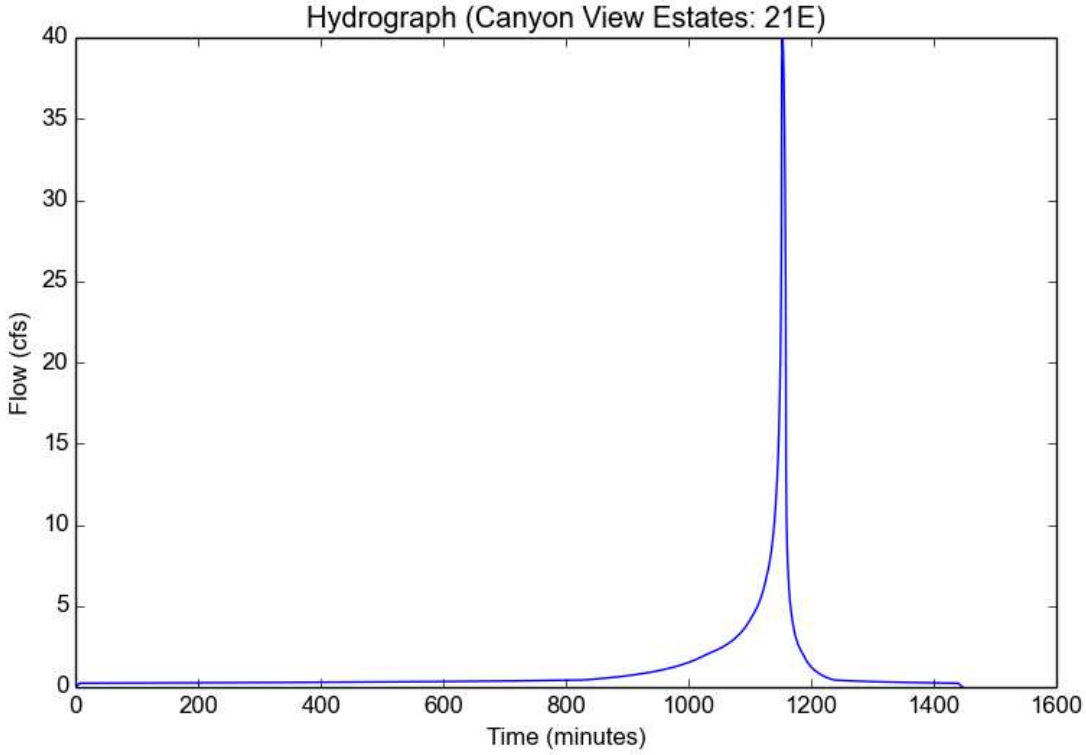
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	21E
Area (ac)	12.72
Flow Path Length (ft)	1394.0
Flow Path Slope (vft/hft)	0.18
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	scr
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.0749
Undeveloped Runoff Coefficient (Cu)	0.7701
Developed Runoff Coefficient (Cd)	0.7714
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	39.9858
Burned Peak Flow Rate (cfs)	41.6508
24-Hr Clear Runoff Volume (ac-ft)	2.1476
24-Hr Clear Runoff Volume (cu-ft)	93551.4819



Peak Flow Hydrologic Analysis

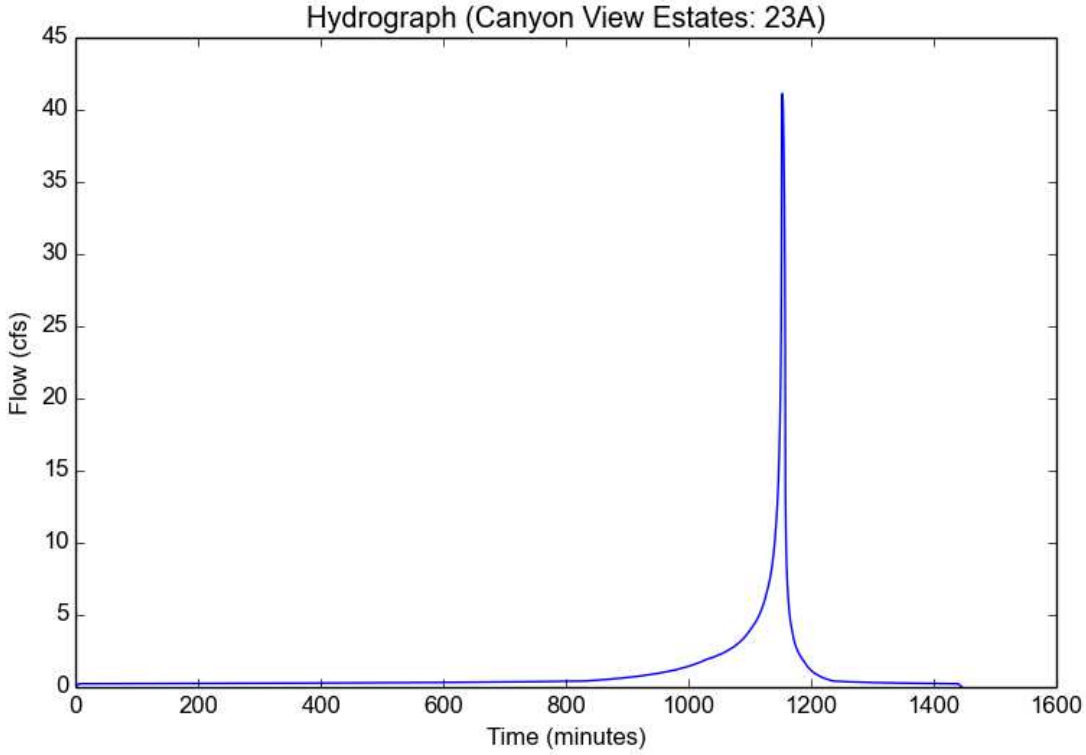
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	23A
Area (ac)	12.03
Flow Path Length (ft)	682.0
Flow Path Slope (vft/hft)	0.046
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	scr
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.381
Undeveloped Runoff Coefficient (Cu)	0.779
Developed Runoff Coefficient (Cd)	0.7802
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	41.1211
Burned Peak Flow Rate (cfs)	42.766
24-Hr Clear Runoff Volume (ac-ft)	2.0319
24-Hr Clear Runoff Volume (cu-ft)	88511.0877



Peak Flow Hydrologic Analysis

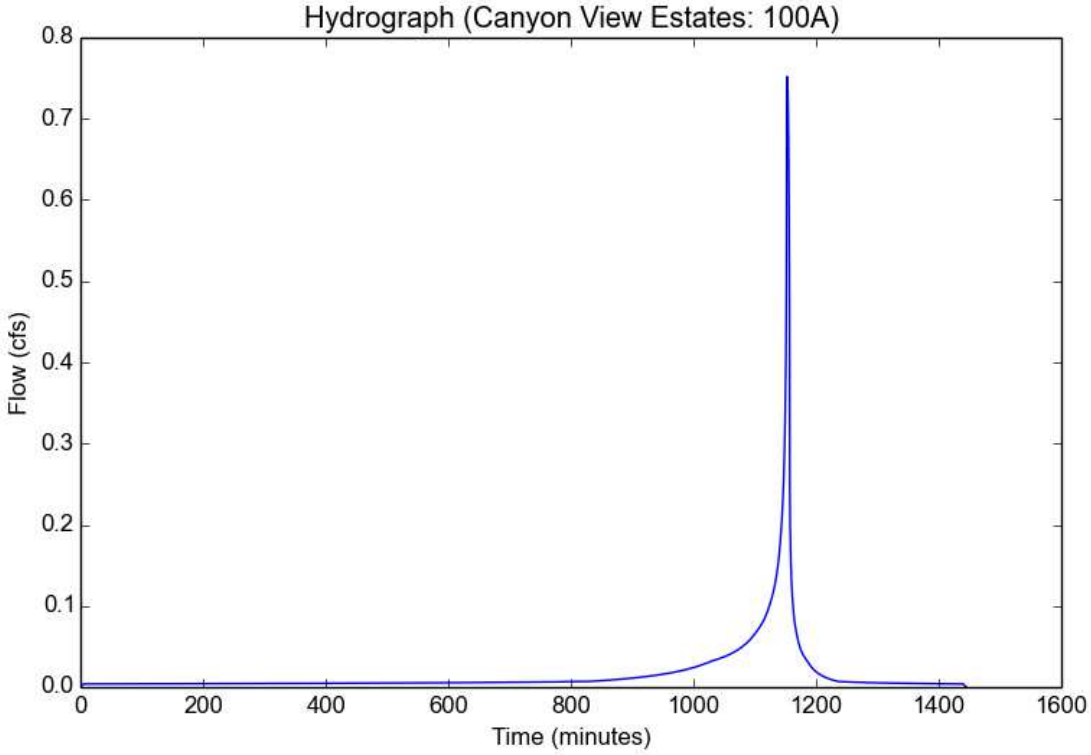
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	100A
Area (ac)	0.2
Flow Path Length (ft)	116.0
Flow Path Slope (vft/hft)	0.56
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	scr
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7868
Developed Runoff Coefficient (Cd)	0.7879
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.7521
Burned Peak Flow Rate (cfs)	0.7812
24-Hr Clear Runoff Volume (ac-ft)	0.0338
24-Hr Clear Runoff Volume (cu-ft)	1471.9621



Peak Flow Hydrologic Analysis

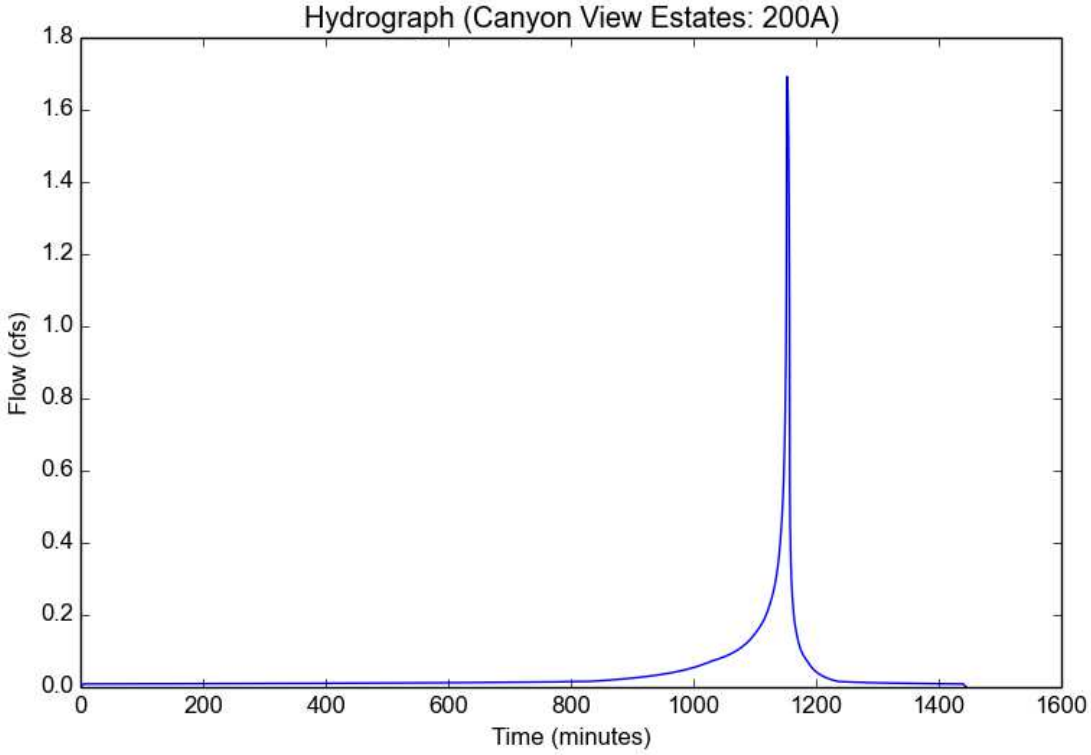
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	200A
Area (ac)	0.45
Flow Path Length (ft)	234.0
Flow Path Slope (vft/hft)	0.3
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7868
Developed Runoff Coefficient (Cd)	0.7879
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.6923
Burned Peak Flow Rate (cfs)	1.6923
24-Hr Clear Runoff Volume (ac-ft)	0.076
24-Hr Clear Runoff Volume (cu-ft)	3311.9147



Peak Flow Hydrologic Analysis

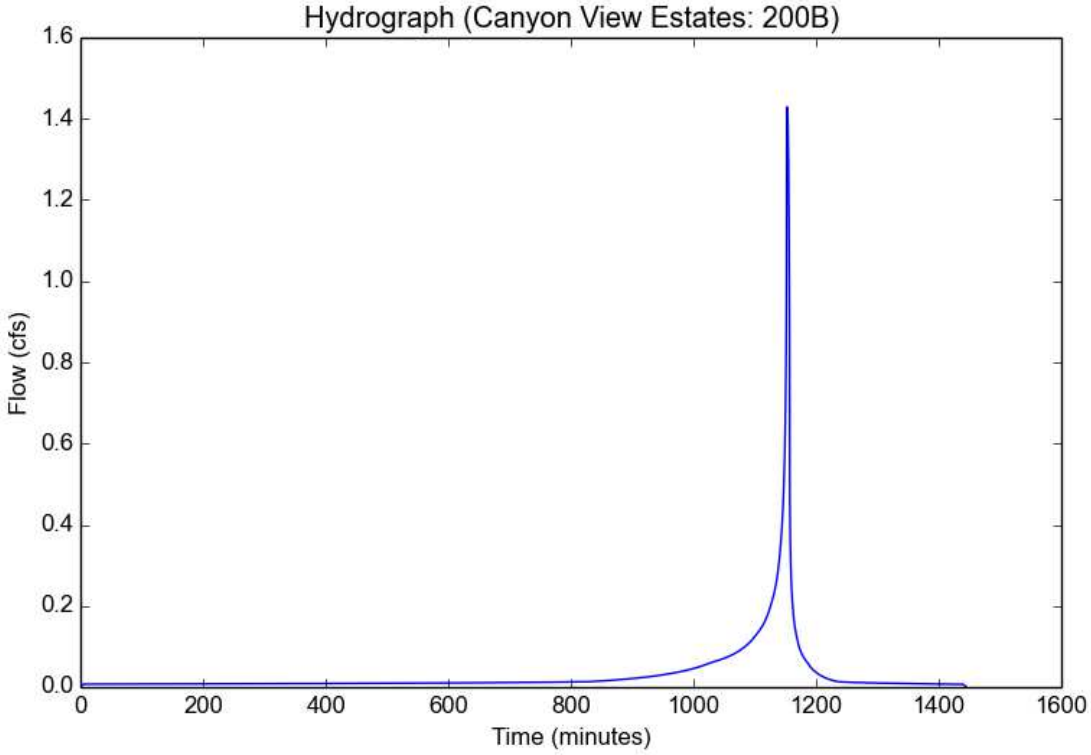
File location: H:/Oakridge/Hydrology/Analysis Data/Proposed Hydrology/Proposed 2-50yr Data.pdf
Version: HydroCalc 0.2.0-beta

Input Parameters

Project Name	Canyon View Estates
Subarea ID	200B
Area (ac)	0.38
Flow Path Length (ft)	234.0
Flow Path Slope (vft/hft)	0.3
50-yr Rainfall Depth (in)	8.0
Percent Impervious	0.01
Soil Type	97
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.0
Peak Intensity (in/hr)	4.773
Undeveloped Runoff Coefficient (Cu)	0.7868
Developed Runoff Coefficient (Cd)	0.7879
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.429
Burned Peak Flow Rate (cfs)	1.429
24-Hr Clear Runoff Volume (ac-ft)	0.0642
24-Hr Clear Runoff Volume (cu-ft)	2796.728



SECTION 7
WSPG @ RIP-RAP OUTLET
PROPOSED CONDITION

INPUT DATA

```
[REPORT]
COMPOSITE_ONLY

[NETWORK]
**TYPE           NAME
**-----          -------
Outlet           "Node10"
Reach            "RIP-RAP"
Transition       "CUVERT"
Transition       "Link7"
Headwork         "INLET"

**BRANCH DEFINITIONS

[OUTLET]
**NAME               STATION    INVERT     GROUND     CHANNEL     WATER SURFACE
**                              ELEV       ELEV       ID          ELEV (opt.)
**-------------      ---------  ---------- ---------- ----------  ----------
"Node10"             95         1445       1446       "RIP-RAP"   0

[HEADWORK]
**NAME               INVERT     GROUND     CHANNEL     FLOW       WATER SURFACE
**                   ELEV       ELEV       ID                     ELEV (opt.)
**-------------      ---------  ---------- ----------  ---------- ----------
"INLET"              1447       1450.5     "3.5ft"     75.33      0

[WALLENTRANCE]
**NAME               INVERT     GROUND     CHANNEL     LOSS
**                   ELEV       ELEV       ID          COEFFICIENT(opt.)
**-------------      ---------  ---------- ----------  --------------

[WALLEXIT]
**NAME               INVERT     GROUND     CHANNEL     LOSS
**                   ELEV       ELEV       ID          COEFFICIENT(opt.)
**-------------      ---------  ---------- ----------  --------------

[BRIDGEENTRANCE]
**NAME               INVERT     GROUND     CHANNEL     REDUCTION
**                   ELEV       ELEV       ID          FACTOR(opt.)
**-------------      ---------  ---------- ----------  --------------

[BRIDGEEXIT]
**NAME               INVERT     GROUND     CHANNEL     REDUCTION
**                   ELEV       ELEV       ID          FACTOR(opt.)
**-------------      ---------  ---------- ----------  --------------

[JOIN]
**NAME               INVERT     GROUND     CHANNEL     LENGTH     MANNINGS n NUMBER OF  CONFLUENCE
**                   ELEV       ELEV       ID                                BRANCHES   ANGLE
**-------------      ---------  ---------- ----------  ---------- ---------- ---------- ----------

[JUNCTION]
**Name               INVERT     GROUND     CHANNEL     LENGTH     MANNINGS n NUMBER OF  CONFLUENCE FLOW
**                   ELEV       ELEV       ID                                LATERALS   ANGLE
**-------------      ---------  ---------- ----------  ---------- ---------- ---------- ---------- ----------

[TRANSITION]
**NAME               INVERT     GROUND     CHANNEL     LENGTH     MANNINGS n
**                   ELEV       ELEV       ID
**-------------      ---------  ---------- ----------  ---------- ----------
"Link7"              1447       1451.5     "3.5ft"     54         0.013
"CUVERT"             1446.2     1453       "CULVERT"   10         0.015

[REACH]
**NAME               INVERT     GROUND     CHANNEL     LENGTH     MANNINGS n CURVE      ANGLE      NUMBER
**                   ELEV       ELEV       ID                                (opt)      POINT(opt) MANHOLES(opt)
**-------------      ---------  ---------- ----------  ---------- ---------- ---------- ---------- ----------
"RIP-RAP"            1446       1446.5     "RIP-RAP"   15         0.06       0          0          0
```

```
[CHANNEL]
**REGULAR TYPES 1-4
**ID      TYPE HEIGHT     WIDTH      LEFT       RIGHT      NUMBER     AVG PIER   INVERT
**                                   SLOPE      SLOPE      PIERS      WIDTH      CROSS FALL
**------  ---- ---------- ---------- ---------- ---------- ---------- ---------- ----------
"RIP-RAP"     2   0.5        10                               0          0          0
"3.5ft"       4   3.5        3.5
"CULVERT"     1   1          5          0.019      0.01       0          0          0

**IRREGULAR TYPES 5-6
**ID       TYPE NUMBER     AVG PIER   PIER1      PIER2      PIER3      PIER4      PIER5      PIER6      PIER7      PIER8      PIER9      PIER10
**              PIERS      WIDTH      ELEV       ELEV       ELEV       ELEV       ELEV       ELEV       ELEV       ELEV       ELEV       ELEV
**------   ---- ---------- ---------- ---------- ---------- ---------- ---------- ---------- ---------- ---------- ---------- ---------- ----------



[POINT]
**ID          XCOORD     YCOORD
**----------- ---------- ----------
```

OUTPUT DATA


```
Water Surface Profile Gradient (WSPG)
XP WSPG
Engine Version 1.3         06/09/2010
XP Software        www.xpsoftware.com
************************************

INPUT FILE
************************************
H:\Oakridge\Hydrology\Hydraulic Calculation\WSPG\Storm Drain WSPG Discharge Outlet from Basin.wsx
Computed  05/01/18  11:42:07

TITLE INFORMATION
************************************

WARNING SUMMARY
************************************

RESULTS
************************************

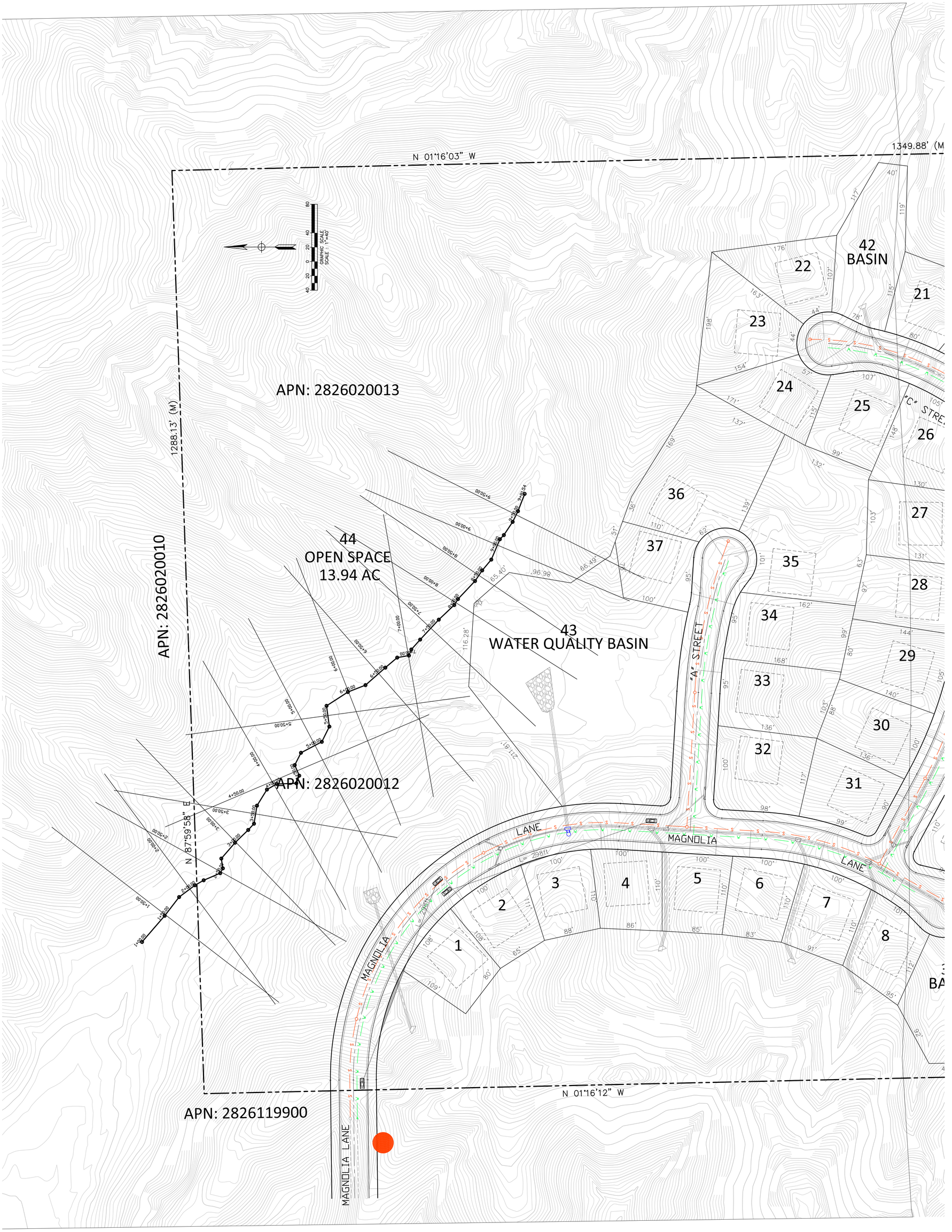

============================================================
   Main Line
============================================================

 Composite Profile:
```

ELEMENT NAME	TYPE	STATION	INVERT ELEV	GROUND ELEV	W.S. ELEV	DEPTH	Q	VELOC.	VELOC. HEAD	ENERGY GRADE LN	SUPER ELEV	CRITICAL DEPTH	FROUDE NUMBER	SLOPE	NORMAL DEPTH	CROSS SECTION
###																
"Node10"	Outlet	95.00	1445.00	1446.00	*1446.203	1.203	75.33	6.26	0.61	1446.81	0.000	1.208	0.000	0.00000	0.000	Rect.open
	"i.p."	100.05	1445.34	1446.34	*1446.539	1.203	75.33	6.26	0.61	1447.15	0.000	1.208	0.000	0.06667	1.203	Rect.open
	"i.p."	100.59	1445.37	1446.37	*1446.548	1.176	75.33	6.41	0.64	1447.19	0.000	1.208	0.000	0.06667	1.203	Rect.open
	"i.p."	101.45	1445.43	1446.43	*1446.551	1.121	75.33	6.72	0.70	1447.25	0.000	1.208	0.000	0.06667	1.203	Rect.open
	"i.p."	102.24	1445.48	1446.48	*1446.552	1.069	75.33	7.05	0.77	1447.32	0.000	1.208	0.000	0.06667	1.203	Rect.open
	"i.p."	102.98	1445.53	1446.53	*1446.551	1.019	75.33	7.39	0.85	1447.40	0.000	1.208	0.000	0.06667	1.203	Rect.open
	"i.p."	103.68	1445.58	1446.58	1446.551	0.972	75.33	7.75	0.93	1447.48	0.000	1.208	0.000	0.06667	1.203	Rect.open
	"i.p."	104.34	1445.62	1446.62	1446.550	0.927	75.33	8.13	1.03	1447.58	0.000	1.208	0.000	0.06667	1.203	Rect.open
	"i.p."	104.97	1445.66	1446.66	1446.548	0.884	75.33	8.53	1.13	1447.68	0.000	1.208	0.000	0.06667	1.203	Rect.open
	"i.p."	105.56	1445.70	1446.70	1446.547	0.842	75.33	8.94	1.24	1447.79	0.000	1.208	0.000	0.06667	1.203	Rect.open
	"i.p."	106.13	1445.74	1446.74	1446.545	0.803	75.33	9.38	1.37	1447.91	0.000	1.208	0.000	0.06667	1.203	Rect.open
	"i.p."	106.66	1445.78	1446.78	1446.543	0.766	75.33	9.84	1.50	1448.05	0.000	1.208	0.000	0.06667	1.203	Rect.open
	"i.p."	107.16	1445.81	1446.81	1446.541	0.730	75.33	10.32	1.65	1448.19	0.000	1.208	0.000	0.06667	1.203	Rect.open
	"i.p."	107.64	1445.84	1446.84	1446.539	0.696	75.33	10.82	1.82	1448.36	0.000	1.208	0.000	0.06667	1.203	Rect.open
	"i.p."	108.09	1445.87	1446.87	1446.536	0.664	75.33	11.35	2.00	1448.54	0.000	1.208	0.000	0.06667	1.203	Rect.open
	"i.p."	108.51	1445.90	1446.90	1446.534	0.633	75.33	11.90	2.20	1448.73	0.000	1.208	0.000	0.06667	1.203	Rect.open
	"i.p."	108.92	1445.93	1446.93	1446.531	0.603	75.33	12.48	2.42	1448.95	0.000	1.208	0.000	0.06667	1.203	Rect.open
	"i.p."	109.30	1445.95	1446.95	1446.529	0.575	75.33	13.09	2.66	1449.19	0.000	1.208	0.000	0.06667	1.203	Rect.open
	"i.p."	109.66	1445.98	1446.98	1446.526	0.549	75.33	13.73	2.93	1449.45	0.000	1.208	0.000	0.06667	1.203	Rect.open
"RIP-RAP"	Reach	110.00	1446.00	1446.50	*1446.523	0.523	75.33	14.40	3.22	1449.74	0.000	1.208	0.000	0.06667	1.203	Rect.open
"CUVERT"	Transition	120.00	1446.20	1453.00	1447.203	1.003	75.33	13.87	2.99	1450.19	0.000	1.160	0.000	0.02000	0.000	Trapez.open
"Link7"	Transition	174.00	1447.00	1451.50	1449.715	2.715	75.33	9.41	1.37	1451.09	0.000	2.716	1.001	0.01481	0.000	Pipe
"INLET"	Headwrk	174.00	1447.00	1451.50	1449.716	2.716	75.33	9.40	1.37	1451.09	0.000	2.716	0.000	0.00000	0.000	Pipe

```
 *) in the W.S.ELEV column indicates flooding, it is set whenever W.S.ELEV > GROUND ELEV
    i.p. = intermediate point processing results for reaches
```

SECTION 8
HEC-RAS DISCHARGE CALCULATION FOR EXISTING AND PROPOSED @ PROPERTY LINE


N 01°16'03" W
1349.88' (M
APN: 2826020013
1288.13' (M)
APN: 2826020010
N 87°59'58" E
APN: 2826020012
APN: 2826119900
N 01°16'12" W
GRAPHIC SCALE
SCALE : 1"=40'
42
BASIN
44
OPEN SPACE
13.94 AC
43
WATER QUALITY BASIN
"A" STREET
"C" STREET
MAGNOLIA
MAGNOLIA LANE
LANE
L= 298ft
1
2
3
4
5
6
7
8
21
22
23
24
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37

HEC-RAS_OUTPUT DATA FOR EXISTING AND PROPOSED

HEC-RAS Plan: Canyon2 River: Cnayon2 Reach: Alignment - (2) Profile: PF 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Alignment - (2)	950	PF 1	194.00	1455.87	1457.01	1457.01	1457.47	0.018847	5.39	35.97	40.15	1.00
Alignment - (2)	900	PF 1	194.00	1449.97	1452.37	1452.37	1453.07	0.017117	6.68	29.04	21.23	1.01
Alignment - (2)	850	PF 1	194.00	1446.00	1447.61	1447.61	1447.95	0.019672	4.73	40.98	57.69	0.99
Alignment - (2)	800	PF 1	194.00	1443.93	1445.91	1445.91	1446.43	0.017732	5.78	33.57	32.09	1.00
Alignment - (2)	750	PF 1	194.00	1441.12	1442.82	1442.82	1443.27	0.020052	5.33	36.37	42.74	1.02
Alignment - (2)	700	PF 1	194.00	1436.00	1438.27	1438.27	1438.84	0.019113	6.09	31.83	28.53	1.02
Alignment - (2)	650	PF 1	194.00	1433.28	1434.32	1434.32	1434.69	0.020306	4.86	39.92	55.36	1.01
Alignment - (2)	600	PF 1	194.00	1430.89	1431.99	1431.99	1432.34	0.020689	4.72	41.12	60.47	1.01
Alignment - (2)	550	PF 1	194.00	1428.72	1429.81	1429.81	1430.17	0.020522	4.79	40.46	57.73	1.01
Alignment - (2)	500	PF 1	194.00	1427.48	1428.59	1428.59	1428.97	0.020125	4.94	39.27	52.67	1.01
Alignment - (2)	450	PF 1	194.00	1423.44	1425.37		1425.40	0.001223	1.52	127.35	122.47	0.26
Alignment - (2)	400	PF 1	194.00	1423.82	1424.81	1424.81	1425.21	0.019741	5.05	38.43	49.26	1.01
Alignment - (2)	350	PF 1	194.00	1421.99	1423.38	1423.38	1423.80	0.019459	5.23	37.10	44.59	1.01
Alignment - (2)	300	PF 1	194.00	1420.13	1421.71	1421.71	1422.16	0.019261	5.38	36.04	41.14	1.01
Alignment - (2)	250	PF 1	194.00	1418.00	1419.64	1419.52	1419.98	0.013421	4.67	41.51	44.68	0.85
Alignment - (2)	200	PF 1	194.00	1417.90	1418.79	1418.79	1419.17	0.019915	4.92	39.40	52.78	1.00
Alignment - (2)	150	PF 1	194.00	1416.01	1417.38	1417.38	1417.80	0.019144	5.22	37.18	44.30	1.00

HEC-RAS Plan: Canyon2 River: Cnayon2 Reach: Alignment - (2) Profile: PF 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Alignment - (2)	950	PF 1	163.00	1455.87	1456.91	1456.91	1457.32	0.019698	5.14	31.69	39.28	1.01
Alignment - (2)	900	PF 1	163.00	1449.97	1452.17	1452.17	1452.83	0.017205	6.55	24.88	18.75	1.00
Alignment - (2)	850	PF 1	163.00	1446.00	1447.45	1447.45	1447.83	0.018399	4.95	32.96	41.30	0.98
Alignment - (2)	800	PF 1	163.00	1443.93	1445.76	1445.76	1446.26	0.018747	5.65	28.83	29.68	1.01
Alignment - (2)	750	PF 1	163.00	1441.12	1442.72	1442.72	1443.12	0.020692	5.09	32.00	41.30	1.02
Alignment - (2)	700	PF 1	163.00	1436.00	1438.12	1438.12	1438.66	0.019588	5.86	27.80	26.94	1.02
Alignment - (2)	650	PF 1	163.00	1433.28	1434.24	1434.24	1434.57	0.021041	4.61	35.36	54.52	1.01
Alignment - (2)	600	PF 1	163.00	1430.89	1431.90	1431.90	1432.22	0.021322	4.57	35.66	56.25	1.01
Alignment - (2)	550	PF 1	163.00	1428.72	1429.72	1429.72	1430.05	0.020832	4.58	35.59	55.03	1.00
Alignment - (2)	500	PF 1	163.00	1427.48	1428.51	1428.51	1428.85	0.020433	4.69	34.78	51.07	1.00
Alignment - (2)	450	PF 1	163.00	1423.44	1425.24		1425.27	0.001218	1.46	111.89	114.68	0.26
Alignment - (2)	400	PF 1	163.00	1423.82	1424.72	1424.72	1425.08	0.020341	4.81	33.89	47.77	1.01
Alignment - (2)	350	PF 1	163.00	1421.99	1423.27	1423.27	1423.66	0.019784	5.03	32.40	41.78	1.01
Alignment - (2)	300	PF 1	163.00	1420.13	1421.59	1421.59	1422.01	0.019614	5.17	31.52	38.73	1.01
Alignment - (2)	250	PF 1	163.00	1418.00	1419.55		1419.84	0.012512	4.35	37.49	42.67	0.82
Alignment - (2)	200	PF 1	163.00	1417.90	1418.70	1418.70	1419.04	0.020686	4.69	34.76	51.54	1.01
Alignment - (2)	150	PF 1	163.00	1416.01	1417.27	1417.27	1417.66	0.019895	5.03	32.40	41.97	1.01

SECTION 9

CDS INSTALLATION, INSPECTION AND MAINTENANCE PROCEDURES

Storm Water Treatment Device Access and Maintenance Plan

- Inspect CDS unit for standing water and excess sentiment, semi annually (see attached manual for inspection procedure)

- Maintain CDS unit prior to every rain season and after major storm events (see attached manual for inspection procedure)

CONTECH®
ENGINEERED SOLUTIONS

CDS Guide
Operation, Design, Performance and Maintenance

CDS®

Using patented continuous deflective separation technology, the CDS system screens, separates and traps debris, sediment, and oil and grease from stormwater runoff. The indirect screening capability of the system allows for 100% removal of floatables and neutrally buoyant material without blinding. Flow and screening controls physically separate captured solids, and minimize the re-suspension and release of previously trapped pollutants. Inline units can treat up to 6 cfs, and internally bypass flows in excess of 50 cfs (1416 L/s). Available precast or cast-in-place, offline units can treat flows from 1 to 300 cfs (28.3 to 8495 L/s). The pollutant removal capacity of the CDS system has been proven in lab and field testing.

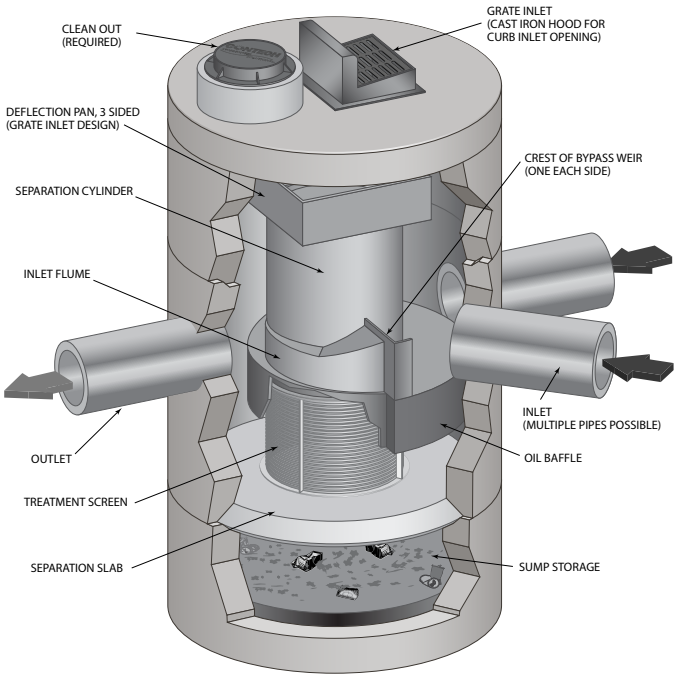
Operation Overview

Stormwater enters the diversion chamber where the diversion weir guides the flow into the unit's separation chamber and pollutants are removed from the flow. All flows up to the system's treatment design capacity enter the separation chamber and are treated.

Swirl concentration and screen deflection force floatables and solids to the center of the separation chamber where 100% of floatables and neutrally buoyant debris larger than the screen apertures are trapped.

Stormwater then moves through the separation screen, under the oil baffle and exits the system. The separation screen remains clog free due to continuous deflection.

During the flow events exceeding the treatment design capacity, the diversion weir bypasses excessive flows around the separation chamber, so captured pollutants are retained in the separation cylinder.



Design Basics

There are three primary methods of sizing a CDS system. The Water Quality Flow Rate Method determines which model size provides the desired removal efficiency at a given flow rate for a defined particle size. The Rational Rainfall Method™ or the and Probabilistic Method is used when a specific removal efficiency of the net annual sediment load is required.

Typically in the Unites States, CDS systems are designed to achieve an 80% annual solids load reduction based on lab generated performance curves for a gradation with an average particle size (d50) of 125 microns (μm). For some regulatory environments, CDS systems can also be designed to achieve an 80% annual solids load reduction based on an average particle size (d50) of 75 microns (μm) or 50 microns (μm).

Water Quality Flow Rate Method

In some cases, regulations require that a specific treatment rate, often referred to as the water quality design flow (WQQ), be treated. This WQQ represents the peak flow rate from either an event with a specific recurrence interval, e.g. the six-month storm, or a water quality depth, e.g. 1/2-inch (13 mm) of rainfall.

The CDS is designed to treat all flows up to the WQQ. At influent rates higher than the WQQ, the diversion weir will direct most flow exceeding the WQQ around the separation chamber. This allows removal efficiency to remain relatively constant in the separation chamber and eliminates the risk of washout during bypass flows regardless of influent flow rates.

Treatment flow rates are defined as the rate at which the CDS will remove a specific gradation of sediment at a specific removal efficiency. Therefore the treatment flow rate is variable, based on the gradation and removal efficiency specified by the design engineer.

Rational Rainfall Method™

Differences in local climate, topography and scale make every site hydraulically unique. It is important to take these factors into consideration when estimating the long-term performance of any stormwater treatment system. The Rational Rainfall Method combines site-specific information with laboratory generated performance data, and local historical precipitation records to estimate removal efficiencies as accurately as possible.

Short duration rain gauge records from across the United States and Canada were analyzed to determine the percent of the total annual rainfall that fell at a range of intensities. US stations' depths were totaled every 15 minutes, or hourly, and recorded in 0.01-inch increments. Depths were recorded hourly with 1-mm resolution at Canadian stations. One trend was consistent at all sites; the vast majority of precipitation fell at low intensities and high intensity storms contributed relatively little to the total annual depth.

These intensities, along with the total drainage area and runoff coefficient for each specific site, are translated into flow rates using the Rational Rainfall Method. Since most sites are relatively small and highly impervious, the Rational Rainfall Method is appropriate. Based on the runoff flow rates calculated for each intensity, operating rates within a proposed CDS system are

determined. Performance efficiency curve determined from full scale laboratory tests on defined sediment PSDs is applied to calculate solids removal efficiency. The relative removal efficiency at each operating rate is added to produce a net annual pollutant removal efficiency estimate.

Probabilistic Rational Method

The Probabilistic Rational Method is a sizing program Contech developed to estimate a net annual sediment load reduction for a particular CDS model based on site size, site runoff coefficient, regional rainfall intensity distribution, and anticipated pollutant characteristics.

The Probabilistic Method is an extension of the Rational Method used to estimate peak discharge rates generated by storm events of varying statistical return frequencies (e.g. 2-year storm event). Under the Rational Method, an adjustment factor is used to adjust the runoff coefficient estimated for the 10-year event, correlating a known hydrologic parameter with the target storm event. The rainfall intensities vary depending on the return frequency of the storm event under consideration. In general, these two frequency dependent parameters (rainfall intensity and runoff coefficient) increase as the return frequency increases while the drainage area remains constant.

These intensities, along with the total drainage area and runoff coefficient for each specific site, are translated into flow rates using the Rational Method. Since most sites are relatively small and highly impervious, the Rational Method is appropriate. Based on the runoff flow rates calculated for each intensity, operating rates within a proposed CDS are determined. Performance efficiency curve on defined sediment PSDs is applied to calculate solids removal efficiency. The relative removal efficiency at each operating rate is added to produce a net annual pollutant removal efficiency estimate.

Treatment Flow Rate

The inlet throat area is sized to ensure that the WQQ passes through the separation chamber at a water surface elevation equal to the crest of the diversion weir. The diversion weir bypasses excessive flows around the separation chamber, thus preventing re-suspension or re-entrainment of previously captured particles.

Hydraulic Capacity

The hydraulic capacity of a CDS system is determined by the length and height of the diversion weir and by the maximum allowable head in the system. Typical configurations allow hydraulic capacities of up to ten times the treatment flow rate. The crest of the diversion weir may be lowered and the inlet throat may be widened to increase the capacity of the system at a given water surface elevation. The unit is designed to meet project specific hydraulic requirements.

Performance

Full-Scale Laboratory Test Results

A full-scale CDS system (Model CDS2020-5B) was tested at the facility of University of Florida, Gainesville, FL. This CDS unit was evaluated under controlled laboratory conditions of influent flow rate and addition of sediment.

Two different gradations of silica sand material (UF Sediment & OK-110) were used in the CDS performance evaluation. The particle size distributions (PSDs) of the test materials were analyzed using standard method "Gradation ASTM D-422 "Standard Test Method for Particle-Size Analysis of Soils" by a certified laboratory.

UF Sediment is a mixture of three different products produced by the U.S. Silica Company: "Sil-Co-Sil 106", "#1 DRY" and "20/40 Oil Frac". Particle size distribution analysis shows that the UF Sediment has a very fine gradation (d50 = 20 to 30 μm) covering a wide size range (Coefficient of Uniformity, C averaged at 10.6). In comparison with the hypothetical TSS gradation specified in the NJDEP (New Jersey Department of Environmental Protection) and NJCAT (New Jersey Corporation for Advanced Technology) protocol for lab testing, the UF Sediment covers a similar range of particle size but with a finer d50 (d50 for NJDEP is approximately 50 μm) (NJDEP, 2003).

The OK-110 silica sand is a commercial product of U.S. Silica Sand. The particle size distribution analysis of this material, also included in Figure 1, shows that 99.9% of the OK-110 sand is finer than 250 microns, with a mean particle size (d50) of 106 microns. The PSDs for the test material are shown in Figure 1.

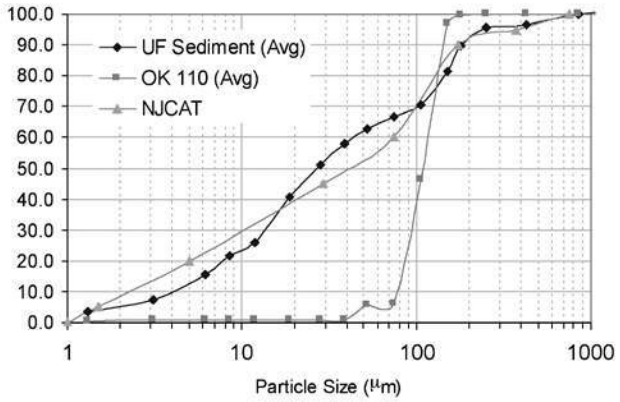


Figure 1. Particle size distributions

Tests were conducted to quantify the performance of a specific CDS unit (1.1 cfs (31.3-L/s) design capacity) at various flow rates, ranging from 1% up to 125% of the treatment design capacity of the unit, using the 2400 micron screen. All tests were conducted with controlled influent concentrations of approximately 200 mg/L. Effluent samples were taken at equal time intervals across the entire duration of each test run. These samples were then processed with a Dekaport Cone sample splitter to obtain representative sub-samples for Suspended Sediment Concentration (SSC) testing using ASTM D3977-97 "Standard Test Methods for Determining Sediment Concentration in Water Samples", and particle size distribution analysis.

Results and Modeling

Based on the data from the University of Florida, a performance model was developed for the CDS system. A regression analysis was used to develop a fitting curve representative of the scattered data points at various design flow rates. This model, which demonstrated good agreement with the laboratory data, can then be used to predict CDS system performance with respect

to SSC removal for any particle size gradation, assuming the particles are inorganic sandy-silt. Figure 2 shows CDS predictive performance for two typical particle size gradations (NJCAT gradation and OK-110 sand) as a function of operating rate.

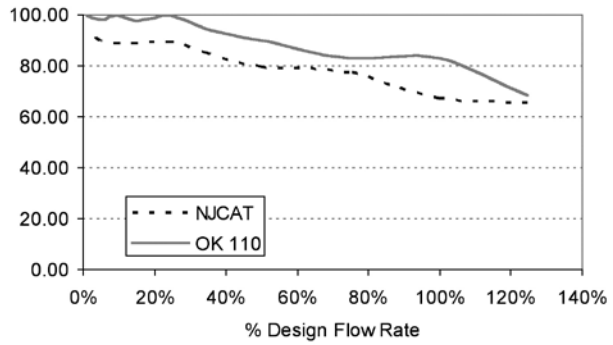


Figure 2. CDS stormwater treatment predictive performance for various particle gradations as a function of operating rate.

Many regulatory jurisdictions set a performance standard for hydrodynamic devices by stating that the devices shall be capable of achieving an 80% removal efficiency for particles having a mean particle size (d50) of 125 microns (e.g. Washington State Department of Ecology — WASDOE - 2008). The model can be used to calculate the expected performance of such a PSD (shown in Figure 3). The model indicates (Figure 4) that the CDS system with 2400 micron screen achieves approximately 80% removal at the design (100%) flow rate, for this particle size distribution (d50 = 125 μm).

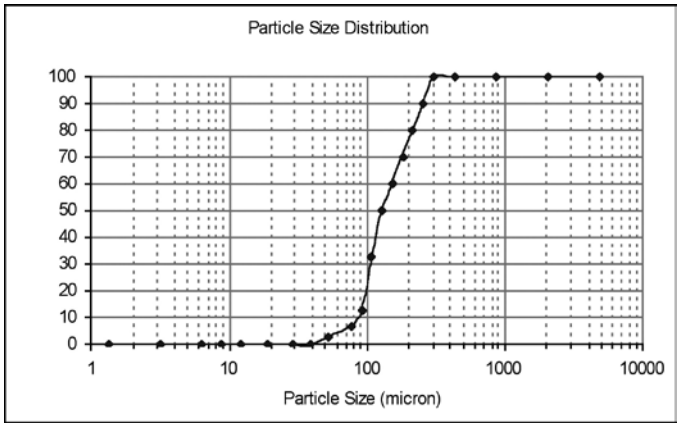


Figure 3. WASDOE PSD

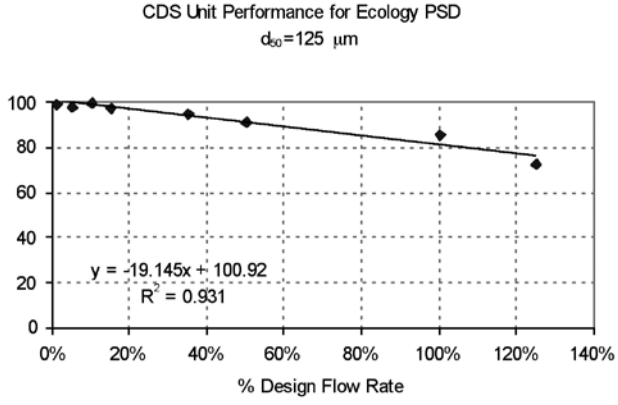


Figure 4. Modeled performance for WASDOE PSD.

Maintenance

The CDS system should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects pollutants will depend more heavily on site activities than the size of the unit. For example, unstable soils or heavy winter sanding will cause the grit chamber to fill more quickly but regular sweeping of paved surfaces will slow accumulation.

Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant transport and deposition may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. At a minimum, inspections should be performed twice per year (e.g. spring and fall) however more frequent inspections may be necessary in climates where winter sanding operations may lead to rapid accumulations, or in equipment washdown areas. Installations should also be inspected more frequently where excessive amounts of trash are expected.

The visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions in the inlet and separation screen. The inspection should also quantify the accumulation of hydrocarbons, trash, and sediment in the system. Measuring pollutant accumulation can be done with a calibrated dipstick, tape measure or other measuring instrument. If absorbent material is used for enhanced removal of hydrocarbons, the level of discoloration of the sorbent material should also be identified

during inspection. It is useful and often required as part of an operating permit to keep a record of each inspection. A simple form for doing so is provided.

Access to the CDS unit is typically achieved through two manhole access covers. One opening allows for inspection and cleanout of the separation chamber (cylinder and screen) and isolated sump. The other allows for inspection and cleanout of sediment captured and retained outside the screen. For deep units, a single manhole access point would allows both sump cleanout and access outside the screen.

The CDS system should be cleaned when the level of sediment has reached 75% of capacity in the isolated sump or when an appreciable level of hydrocarbons and trash has accumulated. If absorbent material is used, it should be replaced when significant discoloration has occurred. Performance will not be impacted until 100% of the sump capacity is exceeded however it is recommended that the system be cleaned prior to that for easier removal of sediment. The level of sediment is easily determined by measuring from finished grade down to the top of the sediment pile. To avoid underestimating the level of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Particles at the top of the pile typically offer less resistance to the end of the rod than consolidated particles toward the bottom of the pile. Once this measurement is recorded, it should be compared to the as-built drawing for the unit to determine weather the height of the sediment pile off the bottom of the sump floor exceeds 75% of the total height of isolated sump.

Cleaning

Cleaning of a CDS systems should be done during dry weather conditions when no flow is entering the system. The use of a vacuum truck is generally the most effective and convenient method of removing pollutants from the system. Simply remove the manhole covers and insert the vacuum hose into the sump. The system should be completely drained down and the sump fully evacuated of sediment. The area outside the screen should also be cleaned out if pollutant build-up exists in this area.

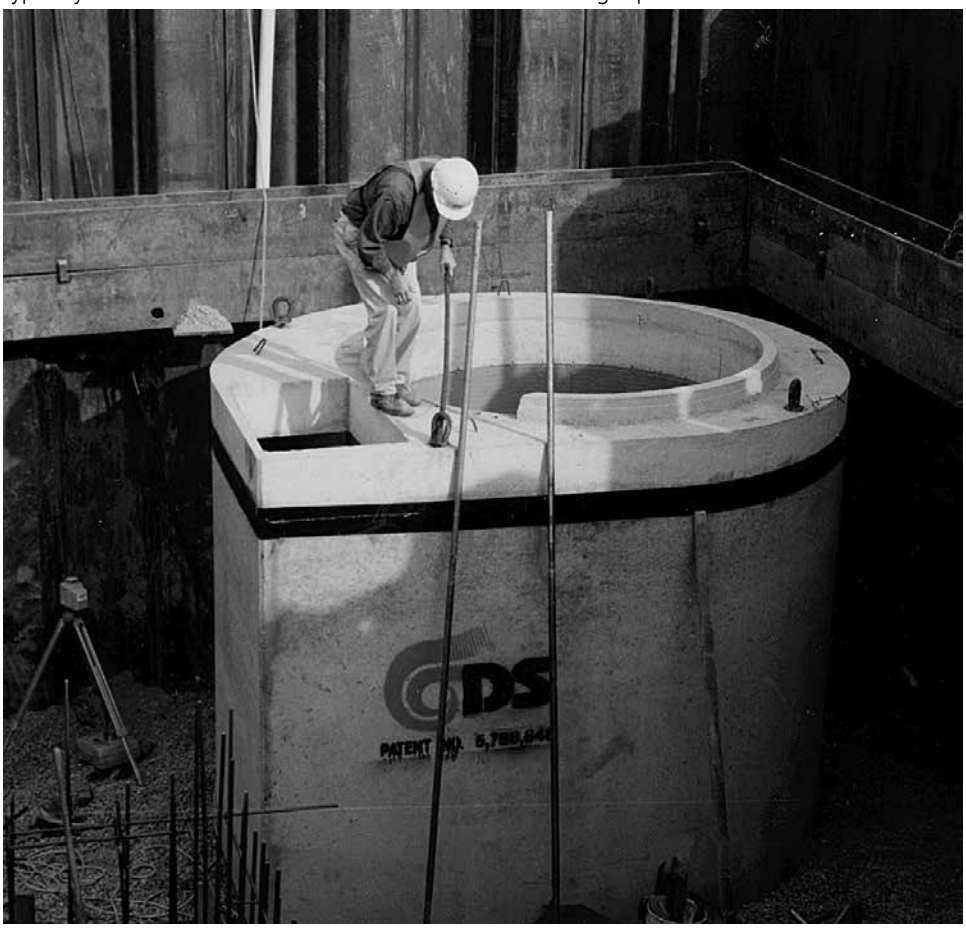
In installations where the risk of petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, the system should be cleaned out immediately in the event of an oil or gasoline spill. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use absorbent pads since they are usually less expensive to dispose than the oil/water emulsion that may be created by vacuuming the oily layer. Trash and debris can be netted out to separate it from the other pollutants. The screen should be cleaned to ensure it is free of trash and debris.

Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and also to ensure that proper safety precautions have been followed. Confined space entry procedures need to be followed if physical access is required. Disposal of all material removed from the CDS system should be done in accordance with local regulations. In many jurisdictions, disposal of the sediments may be handled in the same manner as the disposal of sediments removed from catch basins or deep sump manholes. Check your local regulations for specific requirements on disposal.

CDS Model	Diameter		Distance from Water Surface to Top of Sediment Pile		Sediment Storage Capacity	
	ft	m	ft	m	y^3	m^3
CDS1515	3	0.9	3.0	0.9	0.5	0.4
CDS2015	4	1.2	3.0	0.9	0.9	0.7
CDS2015	5	1.5	3.0	0.9	1.3	1.0
CDS2020	5	1.5	3.5	1.1	1.3	1.0
CDS2025	5	1.5	4.0	1.2	1.3	1.0
CDS3020	6	1.8	4.0	1.2	2.1	1.6
CDS3025	6	1.8	4.0	1.2	2.1	1.6
CDS3030	6	1.8	4.6	1.4	2.1	1.6
CDS3035	6	1.8	5.0	1.5	2.1	1.6
CDS4030	8	2.4	4.6	1.4	5.6	4.3
CDS4040	8	2.4	5.7	1.7	5.6	4.3
CDS4045	8	2.4	6.2	1.9	5.6	4.3
CDS5640	10	3.0	6.3	1.9	8.7	6.7
CDS5653	10	3.0	7.7	2.3	8.7	6.7
CDS5668	10	3.0	9.3	2.8	8.7	6.7
CDS5678	10	3.0	10.3	3.1	8.7	6.7

Table 1: CDS Maintenance Indicators and Sediment Storage Capacities

Note: To avoid underestimating the volume of sediment in the chamber, carefully lower the measuring device to the top of the sediment pile. Finer silty particles at the top of the pile may be more difficult to feel with a measuring stick. These finer particles typically offer less resistance to the end of the rod than larger particles toward the bottom of the pile.



CDS Inspection & Maintenance Log

CDS Model: _____ Location: _____

Date	Water depth to sediment[1]	Floatable Layer Thickness[2]	Describe Maintenance Performed	Maintenance Personnel	Comments

1. The water depth to sediment is determined by taking two measurements with a stadia rod: one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. If the difference between these measurements is less than the values listed in table 1 the system should be cleaned out. **Note: to avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile**.

2. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.

SUPPORT

- Drawings and specifications are available at www.ContechES.com.
- Site-specific design support is available from our engineers.

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www.ContechES.com

Contech Engineered Solutions provides site solutions for the civil engineering industry. Contech's portfolio includes bridges, drainage, sanitary sewer, earth stabilization and stormwater treatment products. For information on other Contech division offerings, visit www.ContechES.com or call 800.338.1122

The product(s) described may be protected by one or more of the following US patents: 5,322,629; 5,624,576; 5,707,527; 5,759,415; 5,788,848; 5,985,157; 6,027,639; 6,350,374; 6,406,218; 6,641,720; 6,511,595; 6,649,048; 6,991,114; 6,998,038; 7,186,058; 7,296,692; 7,297,266; related foreign patents or other patents pending.

MAP

VTTM 74650

EASEMENT PLOT
ORDER NO. 416240446
PROPERTY IN QUESTION

ITEM NO. 2 – INGRESS AND EGRESS
NOVEMBER 13, 1963 AS INSTRUMENT NO. 3337 O.R. TO REMAIN

ITEM NO. 3 – ROAD
MARCH 13, 1963 AS INSTRUMENT NO. 2385 O.R. TO BE ABANDONED

ITEM NO. 5 – DITCHES AND CANALS – UNLOCATABLE
BOOK 2896 PAGE 85 O.R.

ITEM NO. 7 – ROADWAYS – UNLOCATABLE
BOOK D3630 PAGE 466 O.R.

ITEM NO. 8 – INGRESS, EGRESS AND UTILITIES – UNLOCATABLE
APRIL 4, 1978 AS INSTRUMENT NO. 78-352178 AND
FEBRUARY 27, 1979 AS INSTRUMENT NO. 79-227247, BOTH OF O.R.

ITEM NO. 12 – WATER PIPE LINE
JULY 30, 1997 AS INSTRUMENT NO. 97-1153697 O.R. TO REMAIN

ITEM NO. 14 – INGRESS, EGRESS, UTILITIES AND COMMUNICATION FACILITIES – UNLOCATABLE
APRIL 8, 2008 AS INSTRUMENT NO. 2008-605413 O.R.

BENCHMARK L3026

RDBM TAG IN S CB 26' W/O BCR @ SW COR LYONS AVE & WILEY CYN RD 100' W & 40' S/O C/L INT (NR W END CB)

NEWHALL 2009 ELEV.=1265.354 (FEET)
ELE.= 385.681 (M)

LEGAL DESCRIPTION:

SEE SHEET 2 OF 2 FOR FULL LEGAL DESCRIPTION

RECORD OWNER:

PI PROPERTIES NO. 36 LLC
C/O POSITIVE INVESTMENTS, INC
610 N. SANTA ANITA AVE
ARCADIA, CA 91006

SUBDIVIDER:

PICO CANYON., LLC
1435 REYNOLDS CT.
THOUSAND OAKS, CA 91362
805-373-2860

PROJECT LOCATION:

MAGNOLIA LN & AUTUMN PL
SANTA CLARITA, CA 91381
THOMAS GUIDE PAGE NO. 4640-C-2
APN: 2826-020-012, 013 & 061

ENGINEER:

CIVIL DESIGN AND DRAFTING, INC.
IMAD ABOUJAWDAH
885 PATRIOT DR., UNIT C
MOORPARK, CA 93021
805-522-2622

NOTE:

OPEN SPACE AREAS TO BE DESIGNATED AS RESTRICTED USE AREAS ON THE FINAL MAP.

ALL EASEMENTS MARKED TO BE ABANDONED WILL TAKE EFFECT AT MAP RECORDATION.

NOTE:

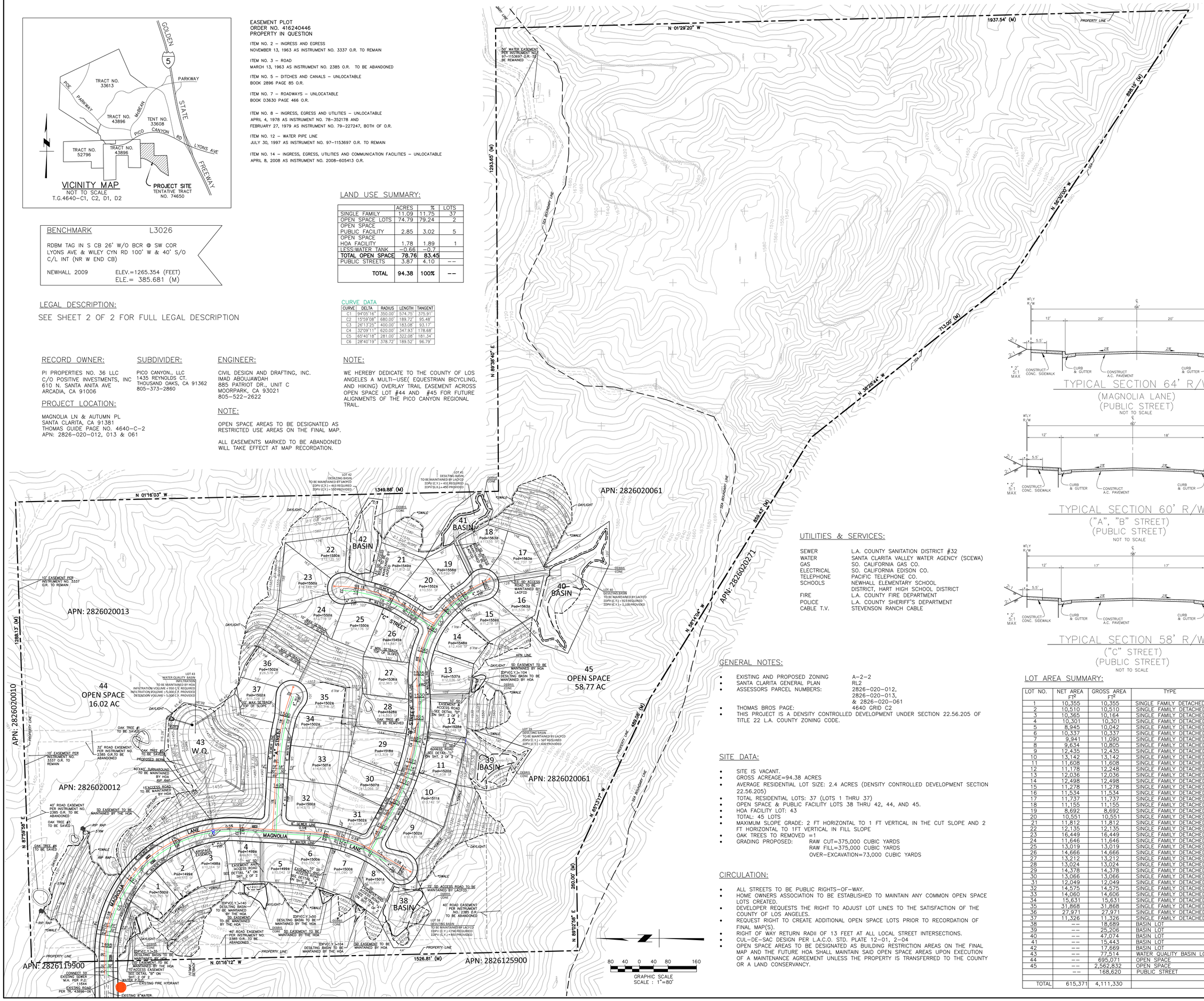
WE HEREBY DEDICATE TO THE COUNTY OF LOS ANGELES A MULTI-USE(EQUESTRIAN BICYCLING, AND HIKING) OVERLAY TRAIL EASEMENT ACROSS OPEN SPACE LOT #44 AND #45 FOR FUTURE ALIGNMENTS OF THE PICO CANYON REGIONAL TRAIL.

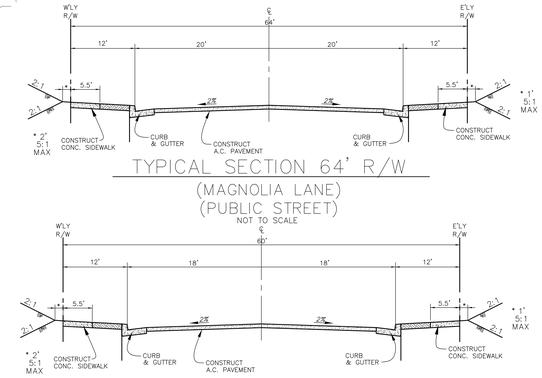
LAND USE SUMMARY:

	ACRES	%	LOTS
SINGLE FAMILY	11.09	11.75	37
OPEN SPACE LOTS	74.79	79.24	2
OPEN SPACE PUBLIC FACILITY	2.85	3.02	5
OPEN SPACE HOA FACILITY	1.78	1.89	1
LESS:WATER TANK	-0.66	-0.7	
TOTAL OPEN SPACE	78.76	83.45	
PUBLIC STREETS	3.87	4.10	--
TOTAL	94.38	100%	--

CURVE DATA

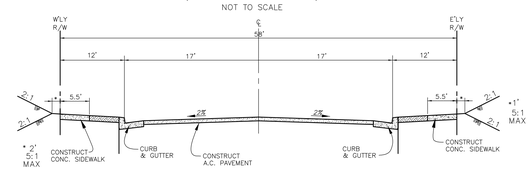
CURVE	DELTA	RADIUS	LENGTH	TANGENT
C1	94°05'16"	350.00'	574.75'	375.91'
C2	15°59'08"	680.00'	189.72'	95.48'
C3	26°13'25"	400.00'	183.08'	93.17'
C4	32°09'11"	620.00'	347.93'	178.68'
C5	65°40'18"	281.00'	322.08'	181.34'
C6	28°40'19"	378.72'	189.52'	96.79'





TYPICAL SECTION 64' R/W
(MAGNOLIA LANE)
(PUBLIC STREET)
NOT TO SCALE

TYPICAL SECTION 60' R/W
("A", "B" STREET)
(PUBLIC STREET)
NOT TO SCALE



TYPICAL SECTION 58' R/W
("C" STREET)
(PUBLIC STREET)
NOT TO SCALE

UTILITIES & SERVICES:

SEWER	L.A. COUNTY SANITATION DISTRICT #32
WATER	SANTA CLARITA VALLEY WATER AGENCY (SCEWA)
GAS	SO. CALIFORNIA GAS CO.
ELECTRICAL	SO. CALIFORNIA EDISON CO.
TELEPHONE	PACIFIC TELEPHONE CO.
SCHOOLS	NEWHALL ELEMENTARY SCHOOL DISTRICT, HART HIGH SCHOOL DISTRICT
FIRE	L.A. COUNTY FIRE DEPARTMENT
POLICE	L.A. COUNTY SHERIFF'S DEPARTMENT
CABLE T.V.	STEVENSON RANCH CABLE

GENERAL NOTES:

- EXISTING AND PROPOSED ZONING A-2-2
- SANTA CLARITA GENERAL PLAN RL2
- ASSESSORS PARCEL NUMBERS: 2826-020-012, 2826-020-013, & 2826-020-061
- THOMAS BROS PAGE: 4640 GRID C2
- THIS PROJECT IS A DENSITY CONTROLLED DEVELOPMENT UNDER SECTION 22.56.205 OF TITLE 22 L.A. COUNTY ZONING CODE.

SITE DATA:

- SITE IS VACANT.
- GROSS ACREAGE=94.38 ACRES
- AVERAGE RESIDENTIAL LOT SIZE: 2.4 ACRES (DENSITY CONTROLLED DEVELOPMENT SECTION 22.56.205)
- TOTAL RESIDENTIAL LOTS: 37 (LOTS 1 THRU 37)
- OPEN SPACE & PUBLIC FACILITY LOTS 38 THRU 42, 44, AND 45.
- HOA FACILITY LOT: 43
- TOTAL: 45 LOTS
- MAXIMUM SLOPE GRADE: 2 FT HORIZONTAL TO 1 FT VERTICAL IN THE CUT SLOPE AND 2 FT HORIZONTAL TO 1FT VERTICAL IN FILL SLOPE
- OAK TREES TO REMOVED =1
- GRADING PROPOSED: RAW CUT=375,000 CUBIC YARDS
  RAW FILL=375,000 CUBIC YARDS
  OVER-EXCAVATION=73,000 CUBIC YARDS

CIRCULATION:

- ALL STREETS TO BE PUBLIC RIGHTS-OF-WAY.
- HOME OWNERS ASSOCIATION TO BE ESTABLISHED TO MAINTAIN ANY COMMON OPEN SPACE LOTS CREATED.
- DEVELOPER REQUESTS THE RIGHT TO ADJUST LOT LINES TO THE SATISFACTION OF THE COUNTY OF LOS ANGELES.
- REQUEST RIGHT TO CREATE ADDITIONAL OPEN SPACE LOTS PRIOR TO RECORDATION OF FINAL MAP(S).
- RIGHT OF WAY RETURN RADII OF 13 FEET AT ALL LOCAL STREET INTERSECTIONS.
- CUL-DE-SAC DESIGN PER L.A.C.O. STD. PLATE 12-01, 2-04
- OPEN SPACE AREAS TO BE DESIGNATED AS BUILDING RESTRICTION AREAS ON THE FINAL MAP AND THE FUTURE HOA SHALL MAINTAIN SAID OPEN SPACE AREAS UPON EXECUTION OF A MAINTENANCE AGREEMENT UNLESS THE PROPERTY IS TRANSFERRED TO THE COUNTY OR A LAND CONSERVANCY.

80 40 0 40 80 160
GRAPHIC SCALE
SCALE : 1"=80'

LOT AREA SUMMARY:

LOT NO.	NET AREA F.F.²	GROSS AREA F.F.²	TYPE
1	10,355	10,355	SINGLE FAMILY DETACHED
2	10,510	10,510	SINGLE FAMILY DETACHED
3	10,365	10,164	SINGLE FAMILY DETACHED
4	10,301	10,301	SINGLE FAMILY DETACHED
5	8,945	10,042	SINGLE FAMILY DETACHED
6	10,337	10,337	SINGLE FAMILY DETACHED
7	9,941	11,090	SINGLE FAMILY DETACHED
8	9,634	10,805	SINGLE FAMILY DETACHED
9	12,435	12,435	SINGLE FAMILY DETACHED
10	13,142	13,142	SINGLE FAMILY DETACHED
11	11,608	11,608	SINGLE FAMILY DETACHED
12	11,178	12,248	SINGLE FAMILY DETACHED
13	12,036	12,036	SINGLE FAMILY DETACHED
14	12,498	12,498	SINGLE FAMILY DETACHED
15	11,278	11,278	SINGLE FAMILY DETACHED
16	11,534	11,534	SINGLE FAMILY DETACHED
17	11,737	11,737	SINGLE FAMILY DETACHED
18	11,155	11,155	SINGLE FAMILY DETACHED
19	8,692	8,692	SINGLE FAMILY DETACHED
20	10,551	10,551	SINGLE FAMILY DETACHED
21	11,812	11,812	SINGLE FAMILY DETACHED
22	12,135	12,135	SINGLE FAMILY DETACHED
23	16,449	16,449	SINGLE FAMILY DETACHED
24	11,646	11,646	SINGLE FAMILY DETACHED
25	13,019	13,019	SINGLE FAMILY DETACHED
26	14,666	14,666	SINGLE FAMILY DETACHED
27	13,212	13,212	SINGLE FAMILY DETACHED
28	13,024	13,024	SINGLE FAMILY DETACHED
29	14,378	14,378	SINGLE FAMILY DETACHED
30	13,066	13,066	SINGLE FAMILY DETACHED
31	12,049	12,049	SINGLE FAMILY DETACHED
32	14,575	14,575	SINGLE FAMILY DETACHED
33	14,060	14,606	SINGLE FAMILY DETACHED
34	15,631	15,631	SINGLE FAMILY DETACHED
35	31,868	31,868	SINGLE FAMILY DETACHED
36	27,971	27,971	SINGLE FAMILY DETACHED
37	11,326	11,326	SINGLE FAMILY DETACHED
38	--	18,689	BASIN LOT
39	--	25,206	BASIN LOT
40	--	47,074	BASIN LOT
41	--	15,443	BASIN LOT
42	--	17,669	BASIN LOT
43	--	77,514	WATER QUALITY BASIN LOT
44	--	695,071	OPEN SPACE
45	--	2,562,832	OPEN SPACE
	--	168,620	PUBLIC STREET
TOTAL	615,371	4,111,330	

Plot Date: Mon, April 09, 2018

UNDERGROUND SERVICE ALERT
call TOLL FREE
1-800-422-4133
CALL TWO WORKING DAYS BEFORE YOU DIG

REVISION BLOCK

REV#	APPR	DATE	REVISION DESCRIPTION

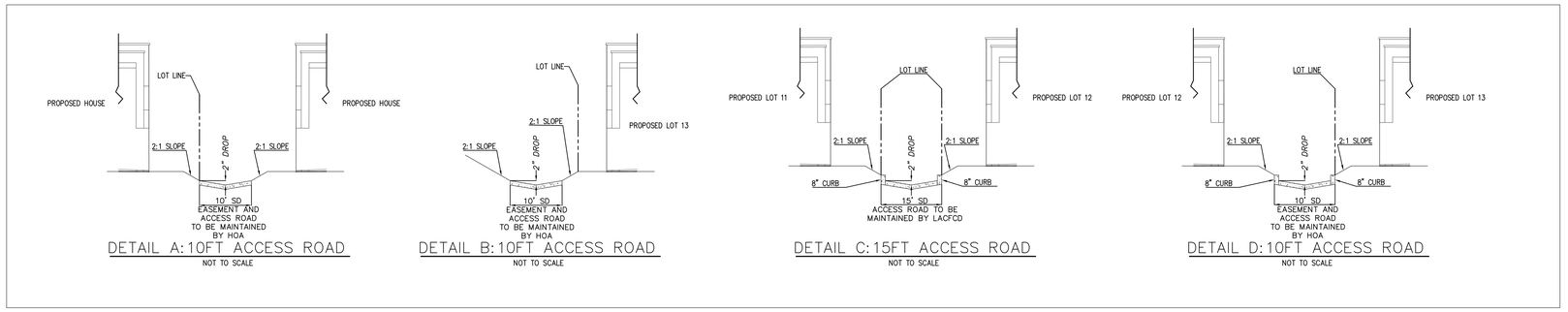
PLAN CHK	APPR	DATE
CITY ENGR	APPR	DATE

CANYON VIEW ESTATES
MAJOR LAND DIVISION
VESTING TENTATIVE TRACT NO. 74650
LOCATED IN THE UNINCORPORATED TERRITORY OF THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA
SCALE: AS NOTED

SHEET 1 OF 2 SHTS

REGISTERED PROFESSIONAL ENGINEER IMAD ABOUJAWDAH No. 51299 Exp. 12-31-18 CIVIL STATE OF CALIFORNIA

PREPARED BY:
Design & Drafting Inc.
885 Patriot Drive, Unit C
Moorpark, CA 93021
Phone: 805-522-2622
Fax: 805-426-8016
email: CDD@civildesignanddrafting.com
IMAD ABOUJAWDAH R.C.E. 51299
DATE



CURVE DATA

CURVE	DELTA	RADIUS	LENGTH	TANGENT
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C2	15°59'08"	680.00'	189.72'	95.48'
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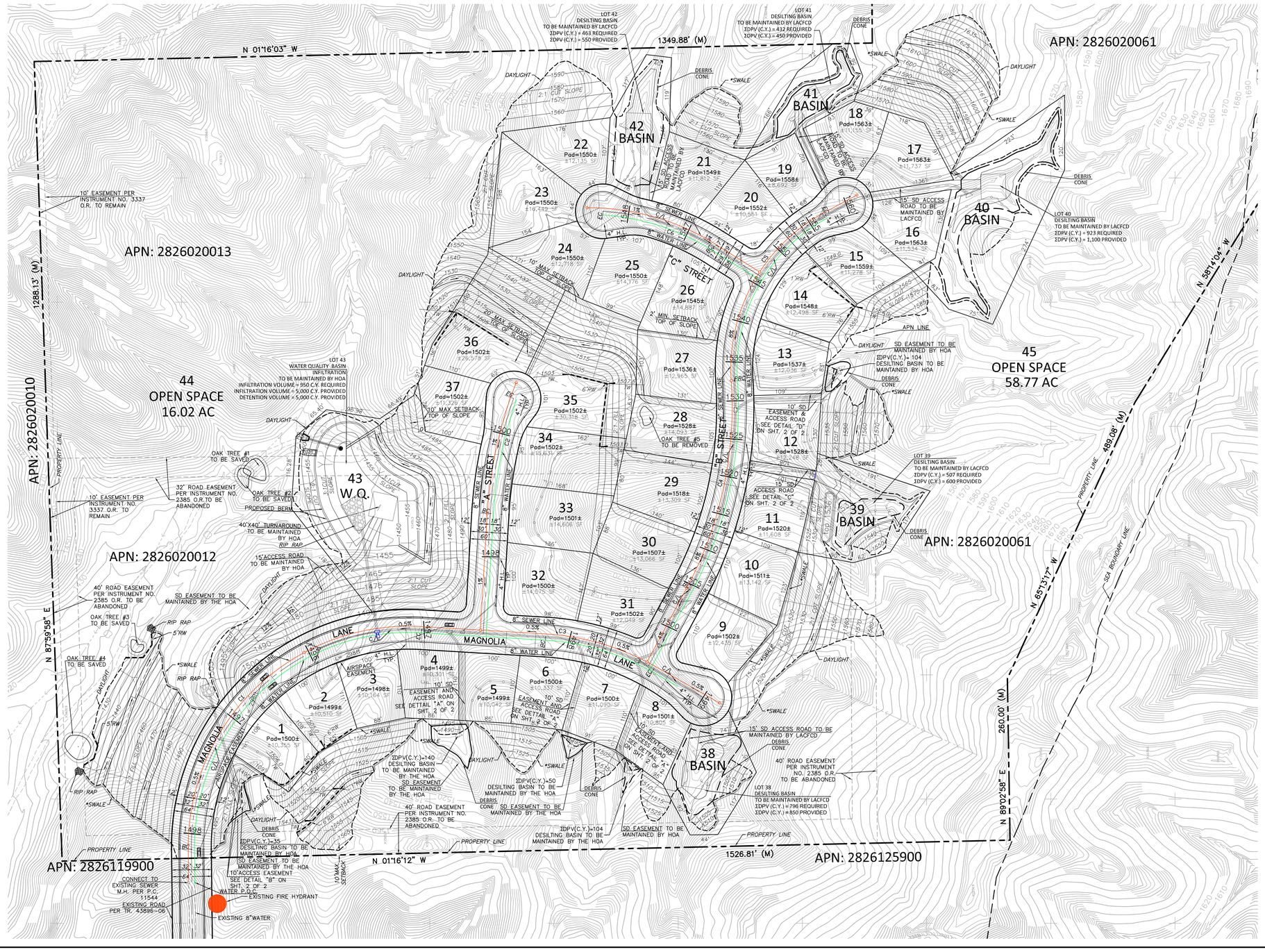
C5	65°40'18"	281.00'	322.08'	181.34'
C6	28°40'19"	378.72'	189.52'	96.79'

NOTE:

* ALL SWALES SHOULD HAVE A MINIMUM OF 5% SLOPE FOR SELF CLEANING VELOCITY

NOTE:

WE HEREBY DEDICATE TO THE COUNTY OF LOS ANGELES A MULTI–USE(EQUESTRIAN BICYCLING, AND HIKING) OVERLAY TRAIL EASEMENT ACROSS OPEN SPACE LOT #44 AND #45 FOR FUTURE ALIGNMENTS OF THE PICO CANYON REGIONAL TRAIL.



Plot Date: Mon, April 09, 2018

LEGAL DESCRIPTION:

File No: 416240446

EXHIBIT "A"

ALL THAT CERTAIN REAL PROPERTY SITUATED IN THE COUNTY OF LOS ANGELES, STATE OF California, DESCRIBED AS FOLLOWS:

PARCEL 1:

THE WEST HALF OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF FRACTIONAL SECTION 5, TOWNSHIP 3 NORTH, RANGE 16 WEST, SAN BERNARDINO MERIDIAN, IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

EXCEPT THEREFROM ALL OIL, GAS, MINERALS AND HYDROCARBON SUBSTANCES BELOW A DEPTH OF 500 FEET BUT WITHOUT THE RIGHT OF SURFACE ENTRY TO REMOVE OR RECOVER SAME, AS RESERVED BY HESTER L. WILSON A WIDOW, AND ELSIE WILSON CASAD, A MARRIED WOMAN IN DEED RECORDED JUNE 17, 1966 AS INSTRUMENT NO. 1315

PARCEL 2:

THE EAST ONE HALF OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF FRACTIONAL SECTION 5, TOWNSHIP 3 NORTH, RANGE 16 WEST, SAN BERNARDINO MERIDIAN, IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

PARCEL 3:

THAT PORTION F THE SOUTHEAST QUARTER OF SECTION 5, TOWNSHIP 3 NORTH, RANGE 16 WEST, SAN BERNARDINO MERIDIAN IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, WHICH LIES WITHIN THE FOLLOWING DESCRIBED BOUNDARIES:

BEGINNING AT THE NORTHWESTERLY CORNER OF SAID SOUTHEAST QUARTER; THENCE ALONG THE WESTERLY LINE OF SAID SOUTHEAST QUARTER SOUTH 00° 57' 02" EAST 215.00 FEET; THENCE AT RIGHT ANGLES TO SAID WESTERLY LINE NORTH 89° 02' 58" EAST 260.00 FEET; THENCE SOUTH 65° 13' 17" EAST 489.08 FEET; THENCE SOUTH 58° 14' 04" EAST 859.43 FEET; THENCE SOUTH 38° 28' 44" EAST 713.00 FEET; THENCE SOUTH 56° 48' 53" EAST 905.37 FEET TO A POINT IN THE EASTERLY LINE OF SAID SOUTHEAST QUARTER DISTANT SOUTH 01° 29' 47" EAST 1938.44 FEET FROM THE SOUTHERLY BOUNDARY OF TRACT NO. 45308 AS PER MAP FILED IN BOOK 1222 PAGES 36 TO 45 INCLUSIVE OF MAPS, RECORDS OF SAID COUNTY; THENCE ALONG SAID EASTERLY LINE NORTH 01° 29' 47" WEST 1938.44 FEET TO THE SOUTHERLY BOUNDARY SAID SOUTHERLY BOUNDARY ALSO BEING THE NORTHERLY LINE OF SAID SOUTHEAST QUARTER; THENCE ALONG THE NORTHERLY LINE OF SAID SOUTHEAST QUARTER SOUTH 89° 38' 47" WEST 2589.06 TO THE POINT OF BEGINNING, SAID LAND IS SHOWN AS PARCEL 1 OF THAT CERTAIN CERTIFICATE OF COMPLIANCE RECORDED NOVEMBER 15, 2002 AS INSTRUMENT NO. 02-2765315 OF OFFICIAL RECORDS

EXCEPT THEREFROM AN UNDIVIDED TWO PERCENT OF ALL OIL, GAS, GOLD, SILVER, AND OTHER PRECIOUS METALS, MINERALS AND MINERAL SUBSTANCES IN AND UNDER AND THAT MAY BE PRODUCED FROM SAID LAND, TOGETHER WITH THE RIGHT OF INGRESS AND EGRESS AT ALL TIMES FOR THE PURPOSES OF MINING, DRILLING AND EXPLORING SAID LANDS FOR ANY AND ALL OIL, GAS, MINERAL AND MINERALS SUBSTANCES AND REMOVING THE SAME THEREFROM; TOGETHER WITH ALL THE DIPS, SPURS AND ANGLES AND ALSO ALL THE METALS, ORES, GOLD AND SILVERBEARING QUARTZ, ROCK AND EARTH, MINERAL AND MINERAL SUBSTANCES THEREIN AND ALL RIGHTS, PRIVILEGES AND ADVANTAGES THERETO INCIDENT, APPENDANT AND APPURTENANT OR THEREWITH USUALLY HAD AND ENJOYED AS GRANTED TO R. A. GANAHL, A SINGLE MAN IN DEED RECORDED JUNE 14, 1937 IN BOOK 15045 PAGE 173 OF OFFICIAL RECORDS

CLTA Preliminary Report Form – Modified (11-17-06)

Page 3

File No: 416240446

ALSO EXCEPT THEREFROM AN UNDIVIDED ONE PERCENT OF ALL OIL, GAS AND OTHER HYDROCARBON SUBSTANCES AND MINERAL WHICH MAY LIE, IN, ON, UNDER OR BE HEREAFTER PRODUCED, SAVED OR SOLD FROM SAID LAND WITH THE RIGHT OF INGRESS AND EGRESS THERETO AS GRANTED TO JOSEPH W. AIDLIN, IN DEED RECORDED JANUARY 15, 1940 IN BOOK 17241 PAGE 29 OF OFFICIAL RECORDS

ALSO EXCEPT THEREFROM 1/4™ OF AN UNDIVIDED PERCENT OF ALL OIL, GAS AND OTHER HYDROCARBON SUBSTANCES AND MINERALS WHICH MAY LIE, IN, ON, UNDER OR BE HEREAFTER PRODUCED, SAVED OR SOLD FROM SAID LAND WITH THE RIGHT OF INGRESS AND EGRESS THERETO AS GRANTED TO JOSEPH W. AIDLIN AND MARY AIDLIN, HUSBAND AND WIFE AS JOINT TENANTS IN DEED RECORDED APRIL 6, 1948 IN BOOK 25965 PAGE 77 OF OFFICIAL RECORDS

BY AN AGREEMENT DATED OCTOBER 1, 1959 AND RECORDED DECEMBER 31, 1959 AS INSTRUMENT NO. 4607 IN BOOK M420 PAGE 171 OF OFFICIAL RECORDS. THE HOLDERS OF THE ABOVE INTEREST WAIVED AND RELINQUISHED ANY RIGHT TO ENTER UPON THE SURFACE O/L SUBSURFACE TO A DEPTH OF 500 FEET MEASURED VERTICALLY FROM THE SURFACE OF SAID LAND FOR ANY PART THEREOF, FOR THE PURPOSE OF EXERCISING ANY OF THEIR SAID RESPECTIVE RIGHTS.

PARCEL 4:

ANY AND ALL EASEMENTS, RIGHTS AND RIGHTS OF WAY, FOR ACCESS, INSTALLATION AND MAINTENANCE OF UTILITIES OR COMMUNICATION SERVICES OF RECORD, APPURTENANT OR ATTACHED TO OR UTILIZED BY ANY OF THE AFORESAID PARCELS.

APN'S: 2826-020-012, 2826-020-013 AND 2826-020-061

CLTA Preliminary Report Form – Modified (11-17-05)

Page 4

PREPARED BY:
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REVISION BLOCK

REV#	DATE	REVISION DESCRIPTION	PLAN CHK	CITY ENGR	APPR	DATE
			APPR			

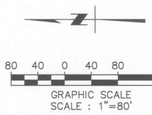
CANYON VIEW ESTATES
MAJOR LAND DIVISION
VESTING TENTATIVE TRACT NO. 74650
LOCATED IN THE UNINCORPORATED TERRITORY OF THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

SCALE: AS NOTED

SHEET 2 OF 2 SHTS

EXISTING HYDROLOGY MAP

TENTATIVE TRACT No. 74650
CANYON VIEW ESTATES
EXISTING HYDROLOGY MAP



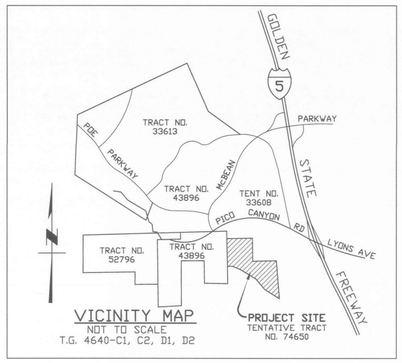
HYDROLOGY CRITERIA:

DPA ZONE = 5
BASIN NAME = SANTA CLARA
SOIL TYPE NUMBER = 097
PEAK BULKING FACTOR = 1.465 (FOR AREAS 64 AC OR UNDER)
DEBRIS PRODUCTION RATE = 128.0 CY/AC (FOR AREAS 64 AC OR UNDER)
ISOHYETS = 8.0" (50-YR, 24-HOUR)
1% IMPERVIOUSNESS FOR UNDEVELOPED/NATURAL AREAS

LEGEND:

- *TRIBUTARY SUBAREA*
- *DIRECTION OF FLOW*
- *TRACT BOUNDARY*
- *FLOW PATH*
- (14 / A) *LOCATION NAMES*

Qb 50-YR, BURNED DESIGN FLOW IN CUBIC FEET PER SECOND, CFS
ΣDPV DEBRIS PRODUCTION VOLUME IN CUBIC YARDS, CY



civil Design & Drafting inc.
885 Patriot Drive, Unit C
Moorpark, CA 93021
Phone: 805-522-2622
Fax: 805-426-8016
CDD@civildesignanddrafting.com

IMAD ABOUJAWDAH R.C.E. C51299 — DATE 05-02-2018

REGISTERED PROFESSIONAL ENGINEER — IMAD ABOUJAWDAH — No. 51299 — Exp. 6-30-20 — CIVIL — STATE OF CALIFORNIA

REV#	RECORD RCE APPR.	RECORD RCE DATE	REVISIONS DESCRIPTION	CITY PLAN CHK APPR.	CITY ENGR. APPR.	CITY ENGR. DATE

RECORD DRAWING

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RECORD ENGINEER — DATE
CITY STAFF — DATE
CITY ENGINEER — DATE

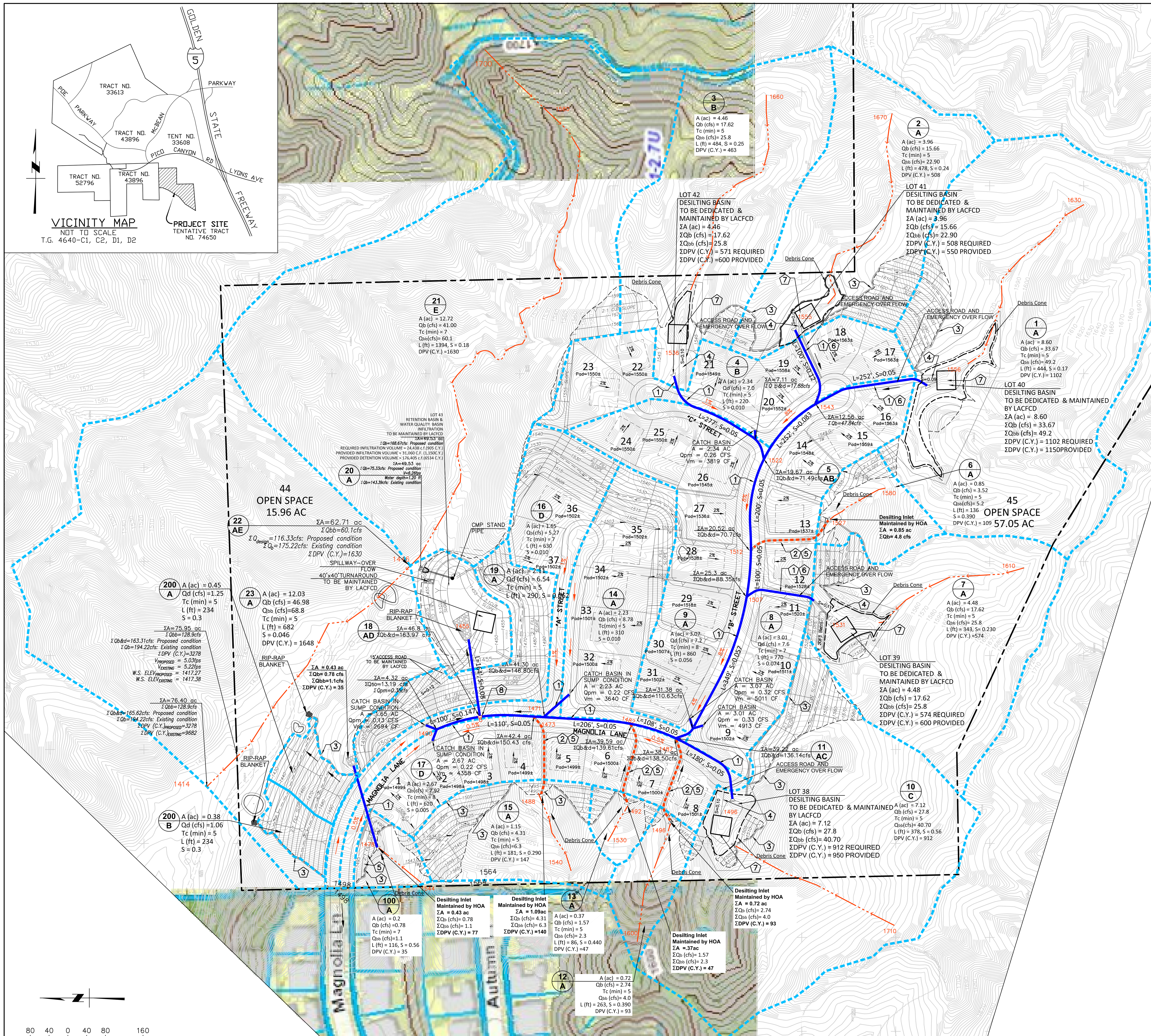
COUNTY OF LOS ANGELES
HYDROLOGY STUDY
TENTATIVE TRACT No. 74650
EXISTING CONDITIONS

PLOT DATE: 05-02-2018

SCALE: AS SHOWN
DESIGNED:
DRAWN:
CHECKED:
SHEET NO. 1 OF 1

PROPOSED HYDROLOGY MAP

TTM No. 74650
CANYON VIEW ESTATES
PROPOSED HYDROLOGY MAP



DETETION/RETENTION BASIN #43 VOLUME CALCULATION				
Elevation	Area(sq-ft)	Volume(cf)	TOTAL(C.F)	TOTAL(C.Y.)
1460	26410	25445	176405	**6534**
1459	24480	23540	150960	5591
1458	22600	21700	127420	4719
1457	20800	19925	105720	3916
1456	19050	18210	85795	3178
1455	17370	16560	67585	2503
1454	15750	14975	51025	1890
1453	14200	13455	36050	1335
1452	12710	11995	22595	837
1451	11280	10600	10600	393
1450	9920	0	0	

Tract No. 74650 - Discharge Volume for Existing and Proposed Condition				
Proposed Volume At Sub-Area "20A"(HYDROCALC)				Existing Volume At Sub-Area "7A" (HYDROCALC)
Storm Drain Event	Total Proposed Volume @ "20A" (C.Y.)	Detention volume (C.Y.)	Total Volume Discharge @ Sub-Area "20A"(C.Y.)	Total Discharge Volume @ Sub-Area "7A"(C.Y.)
2-yrs	1,713	6,534	0	838
5-yr	4,511	6,534	0	2,608
10-yr	7,319	6,534	785	4,626
25-yr	12,505	6,534	5,971	8,686
50-yr	17,904	6,534	11,370	13,238

Total Provided Volume: 6,500 C.Y.

Tract No. 74650 - Discharge Flow Rate for Existing and Proposed Condition			
Existing Condition @ Sub-Area 7A (LAR04)		Proposed Condition @ Sub-Area 20A (RETARD)	
Frequency	Flow Rate (cfs)	Frequency	Flow Rate (cfs)
2yrs	19.8	2yrs	12.76
5yrs	50.23	5yrs	44.32
10yrs	75.2	10yrs	66.72
25yrs	112.87	25yrs	91.86
50yrs	143.39	50yrs	109.99

Table 2: Table 2-Onsite LID Calcualtion Summary-85th Percentile, 24-hour Rainfall Event (Non-Burn)

Subarea	Area (Acres)	Tc (min)	Qpm (cfs)	Volume (cu.ft)	Volume (C.Y.)
4B	2.34	33	0.26	3819.8	141.5
8A	3.01	34	0.33	4913.6	182.0
9A	3.07	39	0.32	5011.5	185.6
14A	2.23	42	0.22	3640.3	134.8
16D	1.65	65	0.13	2693.6	99.8
17D	2.67	65	0.22	4358.7	161.4
Total		**14.97**	**1.48**	**24437.5**	**905.1**

Table 3-Preliminary BMP Calculation to Show 96 Hours Drawdown Time

Infiltration Location	Design Infiltration Rate (in/hr)	Max Water Depth(ft)	Drawdown Time (Hours)
Lot 143	0.5	3.0	72.0

WATER QUALITY BASIN # 43 REQUIRED INFILTRATION VOLUME =950 C.Y.				
ELEVATION	AREA(SF)	AVG. AREA(SF)	VOLUME(CY)	Σ VOLUME(CY)
1450	0			
1451	11269	5635	209	209
1452	12697	11983	444	653
1453	14188	13443	498	1150

Tract No. 74650 - Discharge Volume Calculation				
Frequency (Years)	Existing Volume (C.Y.)	Proposed Volume(C.Y.)	Difference(C.Y.)	Provided Storage (C.Y.)
2-yrs	838	1,713	874	6,534
5-yr	2,608	4,511	1,902	6,534
10-yr	4,626	7,319	2,693	6,534
25-yr	8,686	12,505	3,819	6,534
50-yr	13,238	17,904	4,666	6,534

Table 4: Onsite and Offsite LID Calculation Summary-85th Percentile, 24-hour Rainfall Event

Subarea	Area (Acres)	Tc (min)	Qpm (cfs)	Volume (cu.ft)	Volume (C.Y.)
1A	8.6	54	0.29	3477.6	128.8
2A	3.96	54	0.13	1601.3	59.3
3B	4.46	54	0.15	1803.5	66.8
4B	2.34	22	0.31	3819.8	141.5
6A	0.85	22	0.47	343.7	12.7
7A	4.48	44	0.17	1811.5	67.1
8A	3.01	34	0.33	4913.6	182.0
9A	3.07	39	0.31	5011.5	185.6
10C	7.12	40	0.28	2879.0	106.6
12A	0.72	34	0.03	291.1	10.8
13A	0.37	8	0.07	162.5	6.0
14A	2.23	28	0.27	3640.3	134.8
15A	1.15	28	0.06	465.0	17.2
16D	1.65	43	0.16	2693.5	99.8
17D	2.67	49	0.25	4358.6	161.4
19A	2.11	19	0.31	3446.0	127.6
	Total		**3.58**	**40718.4**	**1508.1**

LEGEND:

- TRIBUTARY SUBAREA
- SD MAIN LINE (LACFCD)
- SD LATERALS (HOA) – LID
- DIRECTION OF FLOW
- TRACT BOUNDARY
- FLOW PATH
- (14/A) LOCATION NAMES

Qd 25–YR, DESIGN FLOW IN CUBIC FEET PER SECOND, CFS
Qb 50–YR, BURNED DESIGN FLOW IN CUBIC FEET PER SECOND, CFS
ΣDPV DEBRIS PRODUCTION VOLUME IN CUBIC YARDS, CY
Qpm PEAK MITIGATION FLOW IN CUBIC FEET PER SECOND, CFS
Vm MITIGATION VOLUME IN CUBIC FEET, CF

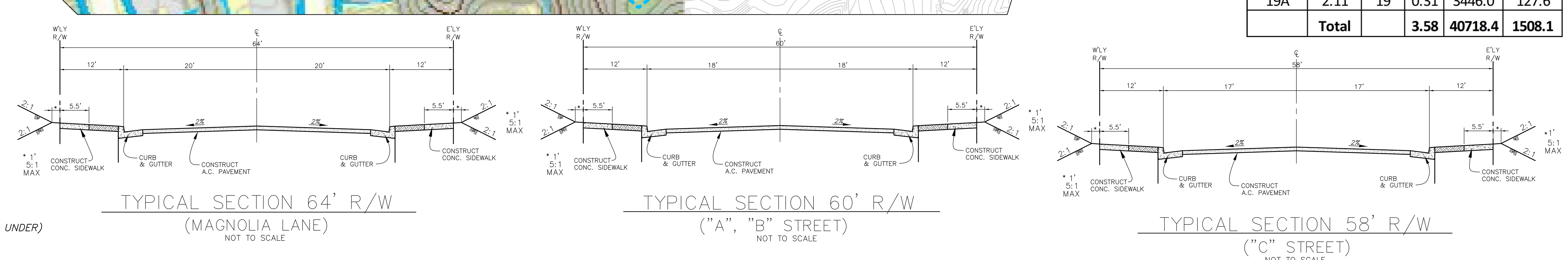
1. PROPOSED STORM DRAIN SYSTEM – TO BE MAINTAINED BY LACFCD
2. PROPOSED STORM DRAIN SYSTEM – TO BE MAINTAINED BY THE HOA
3. PROPOSED CONCRETE SWALE – DESIGN WITH SELF-CLEANING VELOCITY
4. PROPOSED ACCESS ROAD TO BE MAINTAINED BY LACFCD
5. PROPOSED 10' ACCESS ROAD EASEMENT TO THE HOA FOR SD MAINTENANCE PURPOSES
6. PROPOSED 15' ACCESS ROAD TO BE MAINTAINED BY LACFCD
7. PROPOSED 40'x40' ACCESS TURN-AROUND TO BE MAINTAINED BY LACFCD
8. SD INLINE CDS TO BE MAINTAINED BT LACFCD

HYDROLOGY CRITERIA:

DESIGN STORM FREQUENCY:
50–YR FOR UNDEVELOPED AREAS
25–YR FOR DEVELOPED AREAS
DPA ZONE = 5
BASIN NAME = SANTA CLARA
SOIL TYPE NUMBER = 097
PEAK BULKING FACTOR = 1.465 (FOR AREAS 64 AC OR UNDER)
DEBRIS PRODUCTION RATE = 128.0 CY/AC (FOR AREAS 64 AC OR UNDER)
ISOHYETS = 8.0" (50–YR, 24–HOUR)
%IMPERVIOUSNESS:
1% FOR UNDEVELOPED/NATURAL AREAS
42% FOR STREET AREAS

NOTE:

1. NOT WITHIN COUNTY ADOPTED FLOODWAY
2. NOT WITHIN "FEMA" FLOOD ZONE A



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Fax: 805-426-8016
CDD@civildesignanddrafting.com
IMAD ABOUJAWDAH R.C.E. C51299 08-16-2018 DATE
REGISTERED PROFESSIONAL ENGINEER IMAD ABOUJAWDAH No. 51299 Exp. 6-30-20 CIVIL STATE OF CALIFORNIA

REVISIONS

REV#	RECORD RCE APPR.	DATE	DESCRIPTION	CITY PLAN CKR. APPR.	CITY ENGR. APPR.	DATE

RECORD DRAWING

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RECORD ENGINEER DATE
CITY STAFF DATE
CITY ENGINEER DATE

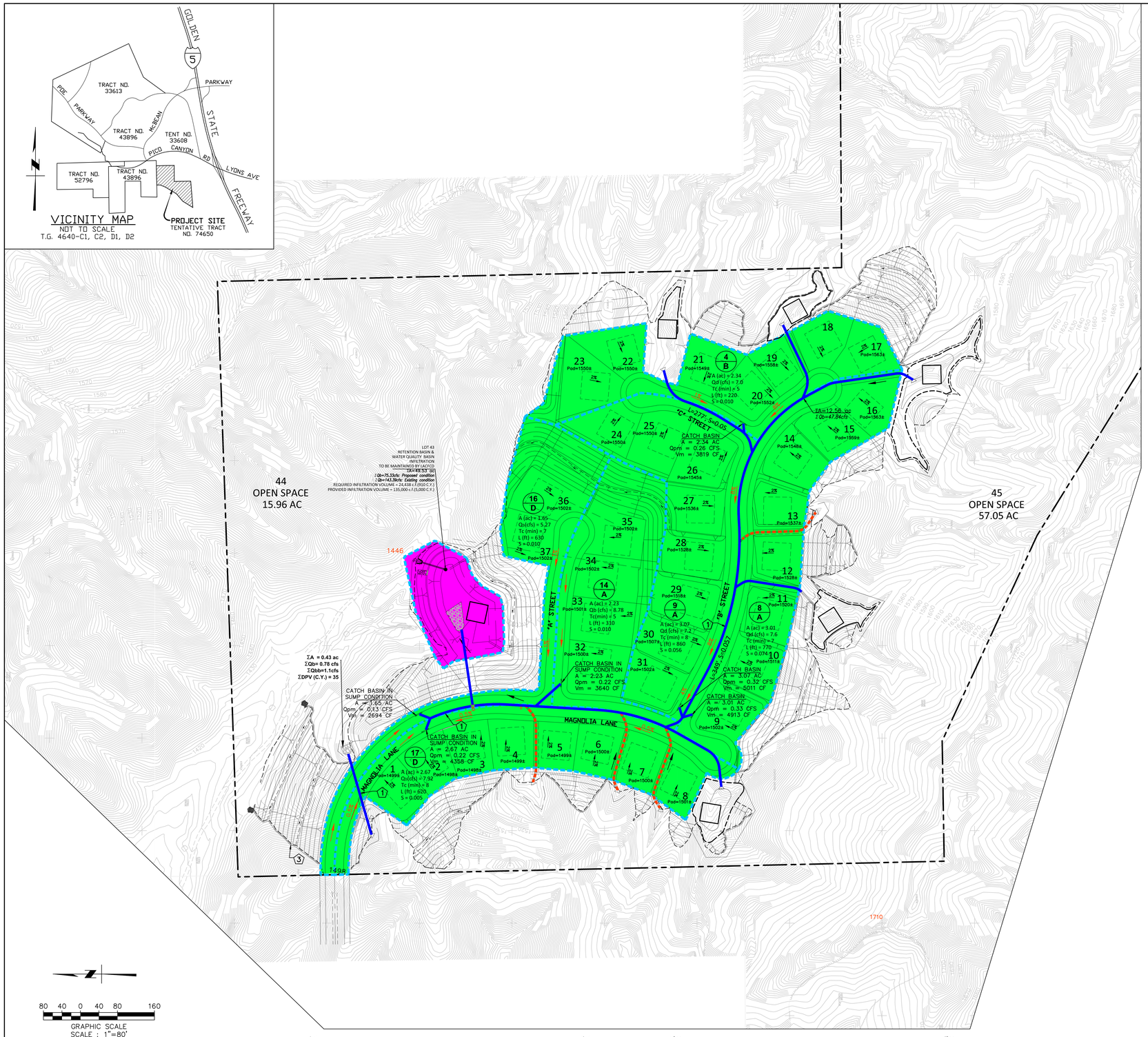
COUNTY OF LOS ANGELES
HYDROLOGY STUDY
TTM No. 74650
PROPOSED CONDITIONS

SCALE: AS SHOWN
DESIGNED:
DRAWN:
CHECKED:
SHEET NO. 1 OF 1
PLOT DATE: 08-16-2018

LID
HYDROLOGY MAPS

TTM No. 74650
CANYON VIEW ESTATES
LID HYDROLOGY MAP

VICINITY MAP
NOT TO SCALE
T.G. 4640-C1, C2, D1, D2



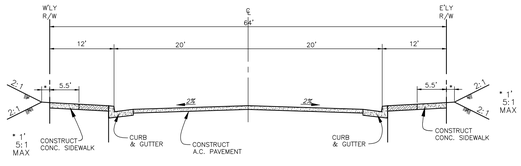
80 40 0 40 80 160
GRAPHIC SCALE
SCALE : 1"=80'

HYDROLOGY CRITERIA:

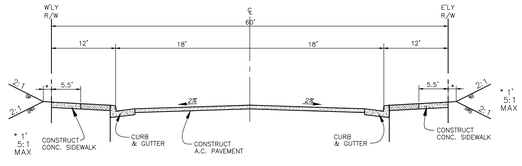
DESIGN STORM FREQUENCY:
50-YR FOR UNDEVELOPED AREAS
25-YR FOR DEVELOPED AREAS
DPA ZONE = 5
BASIN NAME = SANTA CLARA
SOIL TYPE NUMBER = 097
PEAK BULKING FACTOR = 1.465 (FOR AREAS 64 AC OR UNDER)
DEBRIS PRODUCTION RATE = 128.0 CY/AC (FOR AREAS 64 AC OR UNDER)
ISOHYETS = 8.0" (50-YR, 24-HOUR)
%IMPERVIOUSNESS:
1% FOR UNDEVELOPED/NATURAL AREAS
42% FOR STREET AREAS

NOTE:

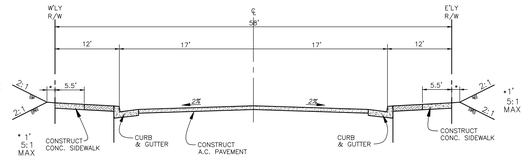
1. NOT WITHIN COUNTY ADOPTED FLOODWAY
2. NOT WITHIN "FEMA" FLOOD ZONE A



TYPICAL SECTION 64' R/W
(MAGNOLIA LANE)
NOT TO SCALE



TYPICAL SECTION 60' R/W
("A", "B" STREET)
NOT TO SCALE



TYPICAL SECTION 58' R/W
("C" STREET)
NOT TO SCALE

Table 1: Table 1-Onsite LID Calcualtion-85th Percentile, 24-hour Rainfall Event (Non-Burn)

Subarea	Area (Acres)	Length (ft)	Slope	Isohyet Depth (in)	% Impervio	Soil Type	Frequency	Fire	Flowrate (cfs)	Tc (min)
4B	2.34	220	0.010	1.04	0.42	97	85th	0	0.26	33
8A	3.01	770	0.074	1.04	0.42	97	85th	0	0.33	34
9A	3.07	860	0.056	1.04	0.42	97	85th	0	0.32	39
14A	2.23	310	0.010	1.04	0.42	97	85th	0	0.22	42
16D	1.65	630	0.010	1.04	0.42	97	85th	0	0.13	65
17D	2.67	620	0.005	1.04	0.42	97	85th	0	0.22	65
									1.48	

Table 2: Table 2-Onsite LID Calcualtion Summary-85th Percentile, 24-hour Rainfall Event (Non-Burn)

Subarea	Area (Acres)	Tc (min)	Qpm (cfs)	Volume (cu.ft)	Volume (C.Y.)
4B	2.34	33	0.26	3819.8	141.5
8A	3.01	34	0.33	4913.6	182.0
9A	3.07	39	0.32	5011.5	185.6
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Table 3-Preliminary BMP Calculation to Show 96 Hours Drawdown Time

Infiltration Location	Design Infiltration Rate (in/hr)	Max Water Depth(ft)	Drawdown Time (Hours)
Lot 143	0.5	3.0	72.0

WATER QUALITY BASIN # 43
REQUIRED INFILTRATION VOLUME =950 C.Y.

ELEVATION	AREA(SF)	AVG. AREA(SF)	VOLUME(CY)	Σ VOLUME(CY)
1450	0			
1451	11269	5635	209	209
1452	12697	11983	444	653
1453	14188	13443	498	1150

Table 4: Onsite and Offsite LID Calculation Summary-85th Percentile, 24-hour Rainfall Event

Subarea	Area (Acres)	Tc (min)	Qpm (cfs)	Volume (cu.ft)	Volume (C.Y.)
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LEGEND:

- TRIBUTARY SUBAREA
- SD MAIN LINE (LACFCD)
- SD LATERALS (HOA) – LID
- DIRECTION OF FLOW
- TRACT BOUNDARY
- FLOW PATH
- 14 / A — LOCATION NAMES

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Qb 50-YR, BURNED DESIGN FLOW IN CUBIC FEET PER SECOND, CFS
ΣDPV DEBRIS PRODUCTION VOLUME IN CUBIC YARDS, CY
Qpm PEAK MITIGATION FLOW IN CUBIC FEET PER SECOND, CFS
Vm MITIGATION VOLUME IN CUBIC FEET, CF

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IMAD ABOUJAWDAH R.C.E. C51299 — DATE 08-16-2018
REGISTERED PROFESSIONAL ENGINEER — IMAD ABOUJAWDAH — No. 51299 — Exp. 6-30-20 — CIVIL — STATE OF CALIFORNIA

REV#	RECORD RCE APPR.	DATE	REVISIONS DESCRIPTION	CITY PLAN CKR. APPR.	CITY ENGR. APPR.	DATE
△						

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RECORD ENGINEER — DATE
CITY STAFF — DATE
CITY ENGINEER — DATE

COUNTY OF LOS ANGELES
HYDROLOGY STUDY
TTM No. 74650
LOW IMPACT DEVELOPMENT(LID)

SCALE: AS SHOWN
DESIGNED:
DRAWN:
CHECKED:
SHEET NO. 1 OF 1
PLOT DATE: 08-16-2018