



Thienes Engineering, Inc

CIVIL ENGINEERING | LAND SURVEYING



**PRELIMINARY HYDROLOGY
STUDY**

FOR

SEQUOIA COMMERCE CENTER
SOUTHEAST CORNER OF 190TH STREET AND VAN NESS AVENUE
TORRANCE, CA

PREPARED FOR

RREEF AMERICA L.L.C.
13450 MAXELLA AVENUE, SUITE 220
MARINA DEL REY, CA 90292
c/o NICK ZAHAROV
Email: Nicolas.Zaharov@dws.com

MARCH 7, 2024

JOB NO. 4221

PREPARED BY

THEINES ENGINEERING
14349 FIRESTONE BLVD.
LA MIRADA, CALIFORNIA 90638
TEL. (714) 521-4811

PRELIMINARY HYDROLOGY STUDY

FOR

SEQUOIA COMMERCE CENTER

PREPARED UNDER
THE SUPERVISION OF



A handwritten signature in blue ink, appearing to read "Reinhard Stenzel", written over a horizontal line.

REINHARD STENZEL , PE
R.C.E. 56155
EXP. 12/31/24

INTRODUCTION

A: PROJECT LOCATION

The project site is located east of Van Ness Avenue between W. 190TH Street and 195th Street in the City of Torrance. See following page for vicinity map.

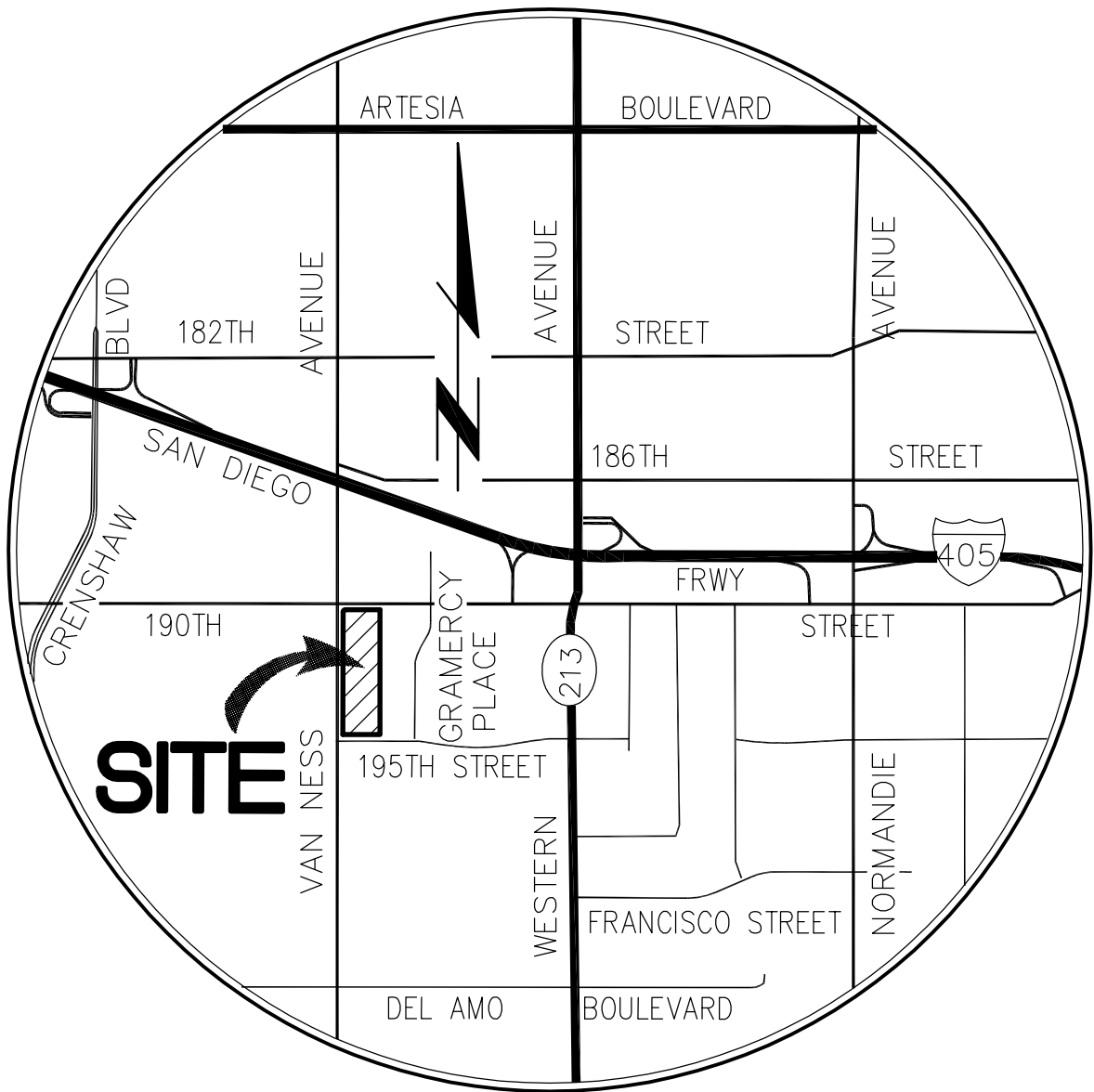
B: STUDY PURPOSE

The purpose of this study is to analyze the drainage impacts this project will have on downstream infrastructure and properties; determine the capacity of proposed and existing storm drain facilities to convey proposed condition stormwater; and to determine mitigation measures to address the impacts in conformance with requirements of the City of Torrance Master Drainage Plan.

C: PROJECT STAFF:

Thienes Engineering staff involved in this study include:

Reinhard Stenzel, PE
Eduardo Toledanes



SITE

VICINITY MAP

N.T.S.

DISCUSSION

The proposed project site encompasses a total area of approximately 14.02 acres. There will be two proposed warehouse type buildings. Building 1 and Building 2 will have a floor area of approximately 112,700 square feet and 147,500 square feet respectively. The truck yards will be located on the easterly side of the project site. Proposed driveways will be located adjacent to the streets. Vehicle parking areas will be provided on the north, south and westerly side of the site. A proposed drive aisle will be located between the two proposed buildings with additional vehicle parking spaces. There will be landscaping around the area and adjacent to Van Ness Avenue, W. 190th street and 195th Street.

Master Plan of Drainage

Per Los Angeles County Flood Control District, the site was divided to drain in three different locations where most of the site runoff area (26A, 9.15 acres) drains westerly to Van Ness Avenue and discharged to a 7'-1" x 8'-6" R.C.B.C. at Van Ness Avenue. The northeasterly portion (76k, 2.46 acres) will drain easterly to an existing catch basin along the south side of W. 190th Street. This catch basin connects to the existing 36" R.C.P. at W. 190th Street while the remaining southeasterly portion of the site (28A, 2.41 acres) will sheet flow towards 195th Street and conveyed west to an existing catch basin at Van Ness Avenue and ultimately discharged to the existing R.C.B.C. at Van Ness Avenue.

Allowable discharge was provided by the L.A.C.F.C.D. that requires area 26A (9.15 acres) to discharge 0.77 cfs per acre while 76K (2.46 acres) and 28A (2.41 acres) will have an allowable discharge of approximately 1.2 cfs per acre and 0.78 cfs per acre.

Please see Appendix "A" reference materials for portions of L.A.C.F.C.D. drainage and downstream existing storm drain plans.

Proposed Condition

The project site at proposed condition will be converted into an industrial park. Runoff from east side of Building #1 (subarea 1C) runoff will drain to catch basins in the vehicle parking. The 50-year storm event at this location is approximately 3.3 cfs undetained. Runoff from Building #1 (subareas 1A and 1B) will drain into catch basins at the easterly truck yard and conveyed south via storm drain Line C. The 50-year storm event at this location is approximately 11.7 cfs (5.8 cfs + 5.9 cfs) undetained. Site runoff will continue to drain south and will connect to a proposed storm drain system Line A downstream.

Tributary areas to Building #2 (subareas 2A-2G) will sheet flow towards the easterly truck yard and conveyed north via storm drain Line A that connects to Line C downstream. The

50-year storm event from these areas is approximately 21.0 cfs (5.2 cfs + 2.2 cfs + 2.2 cfs + 6.0 cfs + 1.0 cfs + 3.4 cfs + 1.0 cfs) undetained.

The remaining westerly and southerly landscaped areas 3B (1.1 cfs) and 3C (0.4 cfs) will drain into catch basins at Van Ness Avenue and discharged to an existing public R.C.B.C. in Van Ness Avenue. The 50-year storm event at this location is approximately 1.5 cfs undetained. The total 50-year peak flow rate tributary to the project is approximately 38.1 cfs (13.2 cfs + 21.0 cfs + 2.4 cfs + 1.5 cfs) undetained which higher than the allowable discharge condition (11.9 cfs). Therefore, temporary detention is required onsite to limit runoff outflow from the project site.

The northerly landscape area of Building #1 (subarea 3A, 0.6 cfs) will drain to an existing 36" R.C.P. at W. 190th Street. The 50-year peak flow rate at this area is approximately 0.6 cfs.

Detention

Developed condition peak flow rate discharge from Building #1 and Building #2 site will be limited to the allowable condition (11.9 cfs). Per City of Torrance, runoff volume ponding will be allowed only in the easterly truck yards with a maximum depth of approximately 6" above ground. Therefore, remaining peak flow runoff volume will be stored in underground chambers at the truck yard. The total 50-year peak flow rate discharge from Building #1 site will be limited to 3.2 cfs and 4.8 cfs for Building #2. The peak flow volume will require approximately 5,941 cubic feet and 9,345 cubic feet of storage for Building #1 and Building #2 with a maximum ponding depth of approximately 0.5' above ground at the truck yard.

Building #1 and Building #2 will temporarily store 4,060 cubic feet and 5,186 cubic feet of runoff volume above ground 3,760 cubic feet and 4,159 cubic feet of volume in the underground chambers.

To reduce the proposed condition discharge to allowable condition discharge, onsite storm drainpipe sizes will be determined by using hydraulics and utilizing existing hydraulic grade line downstream. Hydraulic calculations will be provided during the project's final design phase.

The total 50-year peak flow rate from the project site to the ex 7'1"x8'6" RCB in Van Ness Avenue is approximately 11.9 cfs. (3.2 cfs + 4.8 cfs + 2.4 cfs + 1.5cfs) at detained condition which is comparable to the allowable condition. Therefore, the project site improvements will not impose a negative impact on the existing offsite drainage facilities downstream.

See Appendix "C" for Detention Calculations.

Water Quality

Runoff from Buildings #1 and Building #2 will drain to proposed catch basins and conveyed to proposed underground chambers located at the easterly truck yard via proposed onsite storm drain system. Here, initial runoff from the project site will drain to proposed underground chambers and conveyed to proposed modular wetland for water quality purposes. Runoff volume that exceeds water quality volume will be conveyed back to the main onsite storm drain line and ultimately discharged to an existing storm drain facilities downstream.

See separate water quality report for and Best Management Practices (BMP's) used for the site and BMP calculations.

Methodology

Hydrology calculations were computed using Los Angeles County Department of Public Works Hydro-Calc Excel spreadsheet. The soil classification area is "009" and 50- year 24 hour Isohyet is "5.9" per L.A.C.D.P.W. Hydrology Manual.

See Appendix "A" for reference material from the San Bernardino County Hydrology Manual

APPENDIX

DESCRIPTION

A

REFERENCE MATERIALS

B

HYDROLOGY CALCULATIONS
PROPOSED CONDITION

C

DETENTION ANALYSIS

D

HYDROLOGY MAP

E

CONCEPTUAL STORM DRAIN PLANS

APPENDIX A

REFERENCE MATERIALS



LOS ANGELES COUNTY
PUBLIC WORKS
DESIGN DIVISION - HYDRAULIC ANALYSIS UNIT

HYDRAULIC ANALYSIS RESPONSE FORM

HAU ID: DES2024000008



REFERENCES SEARCHED: ALL PLANS, SWED, Q CALCS

RESPONSE: Q ALLOWABLE FOR SUB-SECTION 76K = 1.20 CFS/AC

Q ALLOWABLE FOR SUB-SECTION 26A = 0.77 CFS/AC

Q ALLOWABLE FOR SUB-SECTION 28A = 0.78 CFS/AC

INFORMATION PROVIDED BY: H. ARAKELIAN

DATE: 01/24/2024

INFORMATION REVIEWED BY: J. BARAHONA

DATE: 02/05/2024

If you have any questions, contact Design Division staff via email at
hydraulicinfo@dpw.lacounty.gov or at (626) - 458 - 7806

NOEBIG & NOEBIG
LOS ANGELES

PROJECT No. 587
EAST TORRANCE

SH. 1 OF 1

HYDRAULIC CALCULATION SHEET LINE G

DATE Jan. 1960

CALC. BY WL/K.

CHECKED BY J.

STA.	ELEV. INV.	D	ELEV. REL	SEC- TION	A	K	V	Q	$\frac{v^2}{2g}$	E.G.	S _f	Av. S _f	L	h _f	h _b	h _j	h _t	E
83+60			52.20	78"	33.18	5253	4.75	158	0.35	52.55								52
78+66			51.78	74"	52.5	9030	3.89	203	0.23			.0009	494	.45	.07		.02	52
75+00			51.52	74"	56.08	9826	3.9	219.9	0.24			.0005	366	.18	.05		.02	51
66+70			51.00	74"	61.36	11,045	4.1	250.1	0.26			.0005	830	.42				51
58+34			50.65	74"	67.63	12,582	4.2	282.7	0.27			.0005	836	.43				51
34+16			49.29	74"	69.51	13,043	4.2	291.2	0.27			.0005	2418	1.23	0.12			50
25+66			48.86	74"	71.40	13,495	4.2	302.9	0.27			.0005	850	.43				50
16+84			48.36		71.40	13,495	4.3					.0005	882	.45	0.05			50
			*										30	.6		.4	.30	
Below 16+84 Line is Open Channel. Downstream Control Requires Upstream Calculations																		
			ELEV. W.S.	SECTION	A		V											
2+47	39.10	6.50	45.60	8" x 25" wide	162		6.23	1010	0.60	46.20	.00050							45
2+97	39.12	6.46	45.58	8" x 25" wide	157		6.43	"	0.64	46.22	.00080	.0006	50	.03				45
3+47	39.15	6.55	45.70	8" x 25" wide	163		6.20	"	0.60	46.30	.00048	.0006	50	.03				45
5+15	39.23	6.50	45.73	"	162		6.23	"	0.60	46.33	.00050	.0005	148	.08				45
5+25	39.24	6.35	45.59	8" x 11" wide	146		6.92	"	0.74	46.33	.00078	.00075	10	.01				45
5+25	39.24	6.45	45.89	8" x 25" wide	166		6.08	"	0.57	46.46	.00046	.00075	10	.01				45
7+30	39.24	6.55	45.79	"	163		6.06	990	0.57	46.48	.00046	.00046	235	.11				45
9+20	39.25	6.50	45.75	"	162		6.10	"	0.58	46.54	.00045	.00047	200	.09				45
10+25	39.25	6.50	45.75	"	162		6.15	"	0.59	46.60	.00045	.00048	200	.09				45
10+25	39.25	6.50	45.75	"	160		6.18	"	0.59	46.60	.00045	.00050	278	.14				45

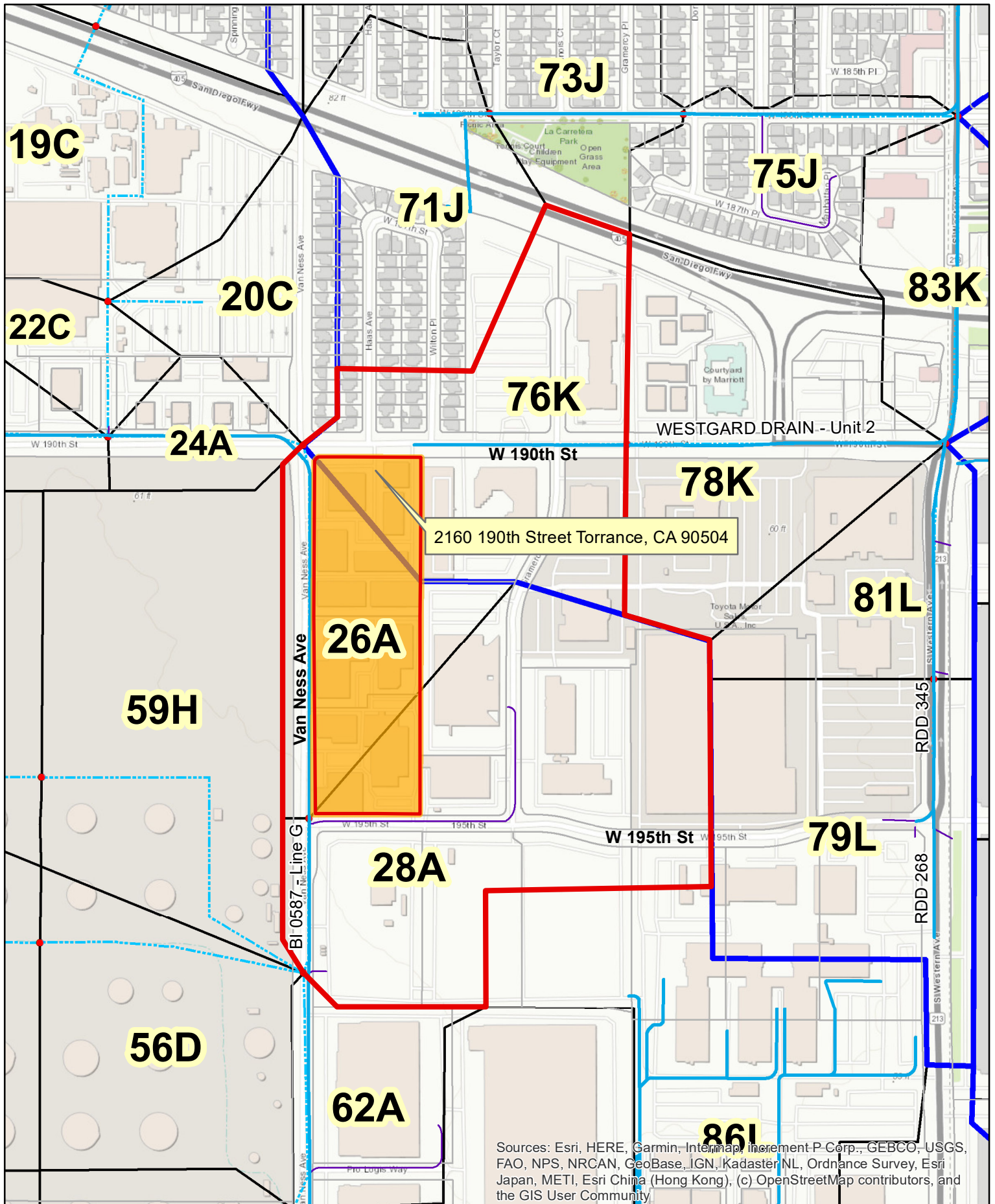
**STORMWATER ENGINEERING DIVISION
HYDROLOGY & HYDRAULICS SECTION
INFORMATION REQUEST SUMMARY**

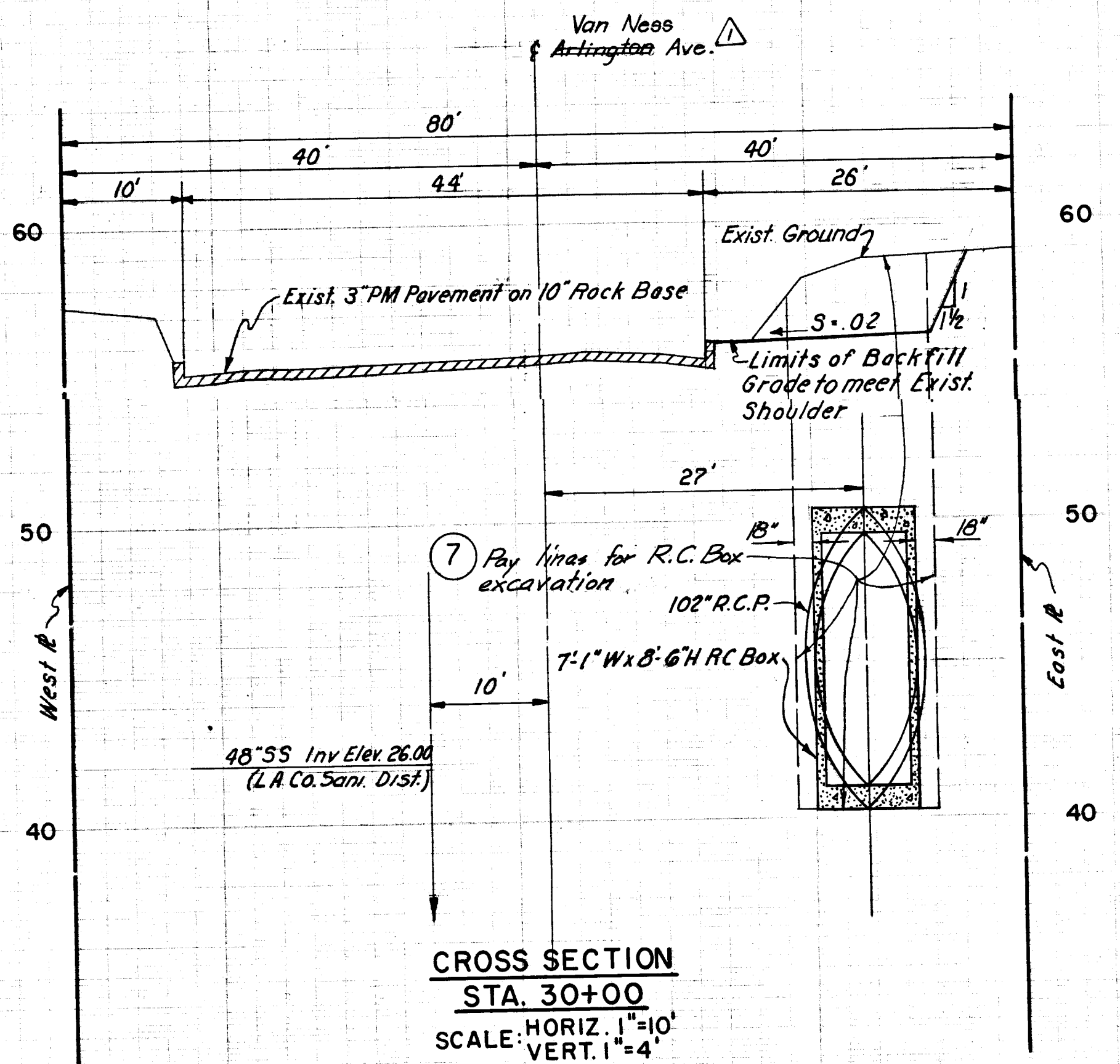
Q-2717
Date: 01/23/2024

<i>Project Name: Dominguez Channel Hydrology Study</i>																																		
Project Location: 2160 190th Street Torrance, CA 90504			T.G. Page: 763	Grid: H3																														
<i>Project Engineer: Silvia Medina</i>																																		
<i>Technical Review by: Wai Tang wt</i>																																		
<i>Information Requested: Hydrology Data</i>																																		
<i>Information Requested By: Hakob Arakelian, Design Division (Ext.4115)</i>																																		
<i>Information To Be Used: Planning purposes</i>																																		
<i>Will Information Be Used In Any Litigation?</i>			☐ Yes	☒ No																														
<i>Information Provided:</i>																																		
<table border="1" style="margin: auto; border-collapse: collapse;"><thead><tr><th>Subarea</th><th>Subarea Area (ac)</th><th>Subarea Q₅₀ (cfs)</th><th>Total Area (ac)</th><th>Total Q₅₀ (cfs)</th></tr></thead><tbody><tr><td colspan="5" style="text-align: center;">WESTGARD DRAIN</td></tr><tr><td>76K</td><td>29.2</td><td>56</td><td>-</td><td>-</td></tr><tr><td colspan="5" style="text-align: center;">BI 0587 LINE G</td></tr><tr><td>26A</td><td>15.3</td><td>27</td><td>373.4</td><td>408</td></tr><tr><td>28A</td><td>43.5</td><td>60</td><td>416.9</td><td>459</td></tr></tbody></table>					Subarea	Subarea Area (ac)	Subarea Q ₅₀ (cfs)	Total Area (ac)	Total Q ₅₀ (cfs)	WESTGARD DRAIN					76K	29.2	56	-	-	BI 0587 LINE G					26A	15.3	27	373.4	408	28A	43.5	60	416.9	459
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76K	29.2	56	-	-																														
BI 0587 LINE G																																		
26A	15.3	27	373.4	408																														
28A	43.5	60	416.9	459																														
See attached map for location.																																		
<i>Date Provided: 01/23/2024</i>																																		
<i>References: Dominguez Channel (Project 241 & Torrance Relief Drain) Hydrology Study 2017</i>																																		
<i>Calculations, Comments, Etc...</i>																																		
The information provided should be used for planning purposes only.																																		

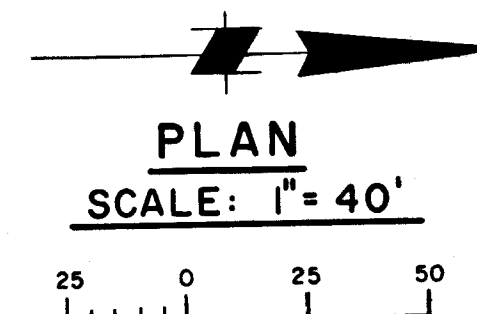
DOMINGUEZ CHANNEL HYDROLOGY STUDY

Torrance Relief Drain and Project 241

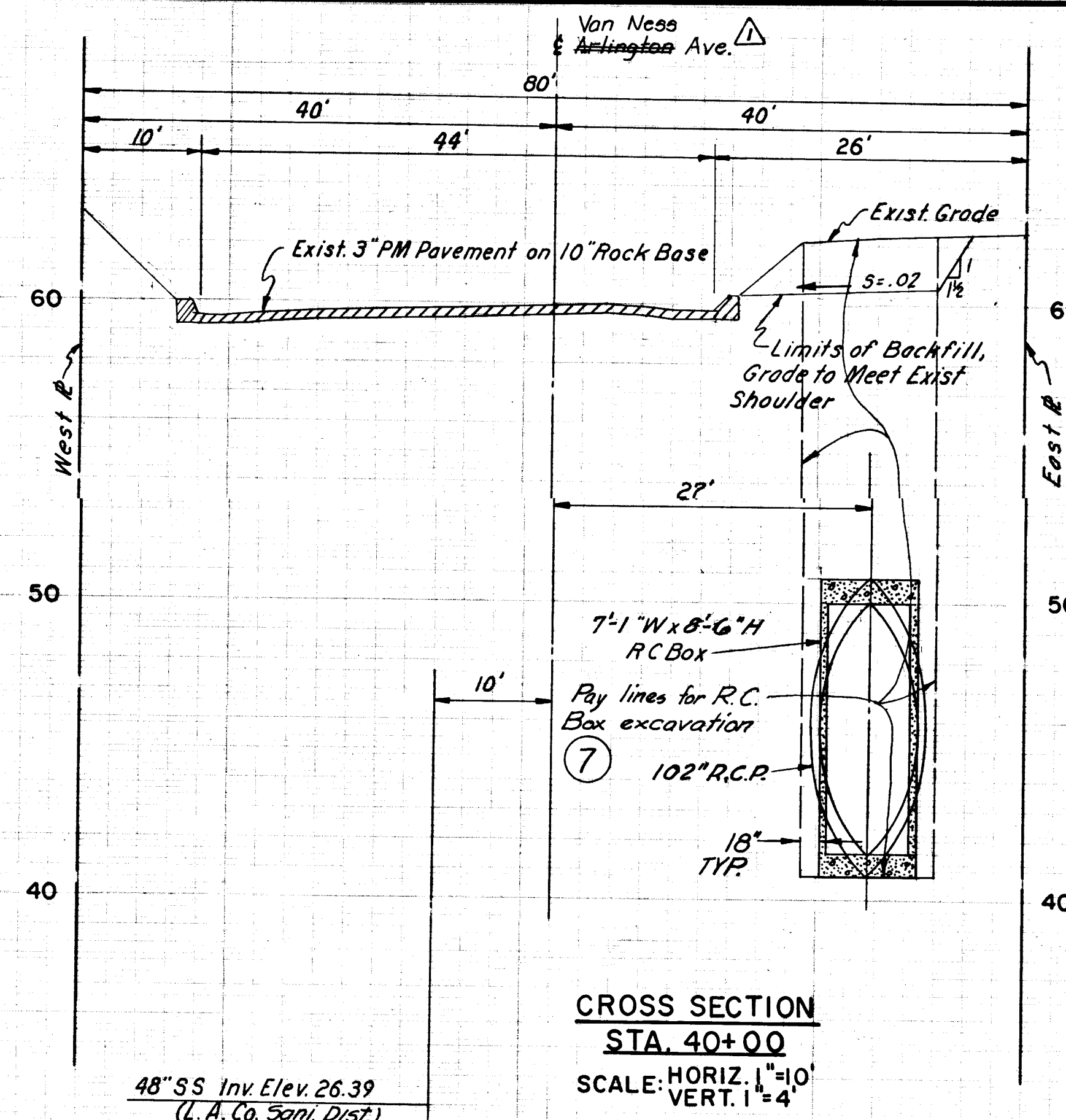
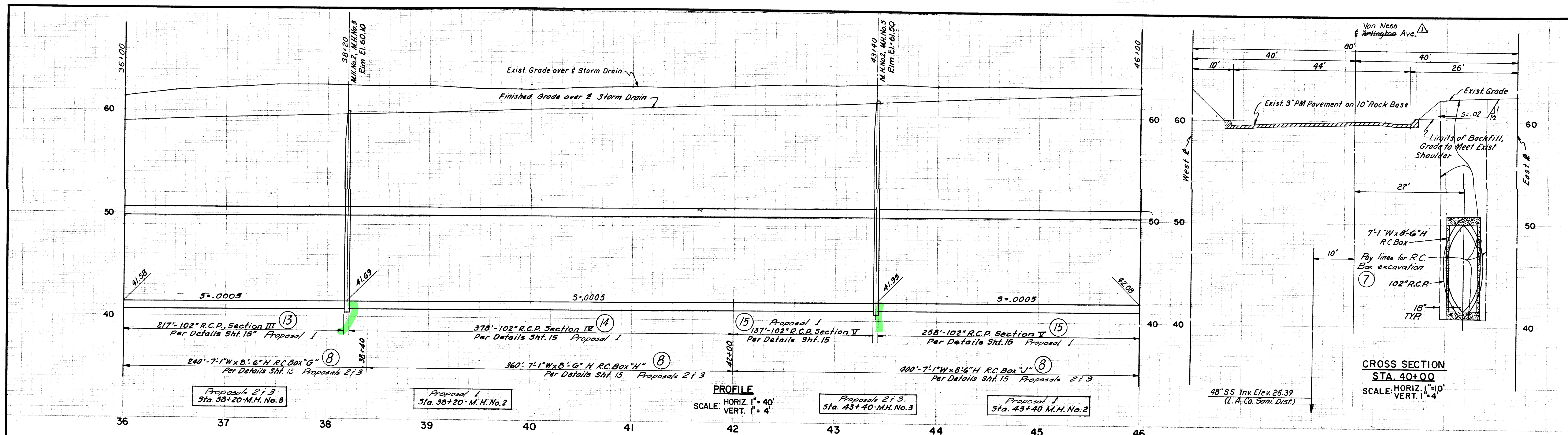




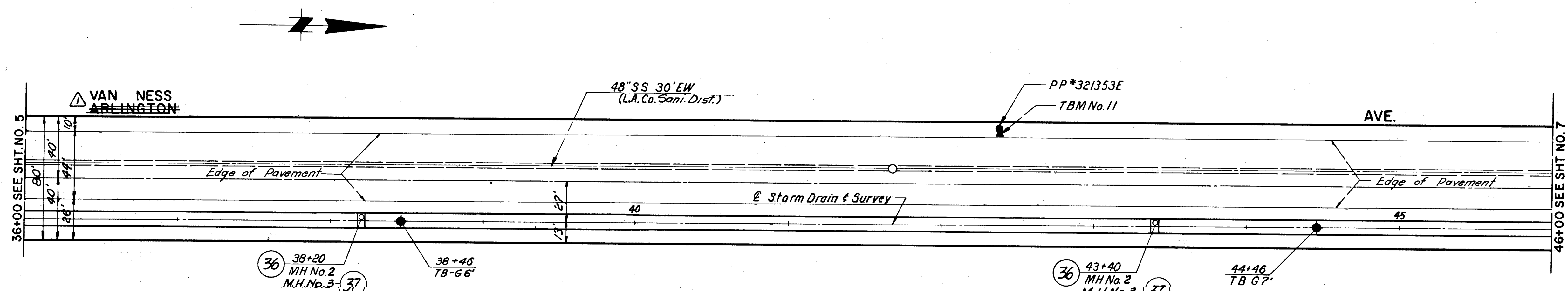
BENCH MARK 
 TBM No. 14 PP321361 E ~~Arlington Ave.~~ Van Ness Ave. 1950't
 from E 190TH St. South. Spike on
 East Side Pole 0.4 below Ground
 Elev. 55.00



CITY OF TORRANCE		1958 STORM DRAIN BOND ISSUE		LOS ANGELES COUNTY FLOOD CONTROL DISTRICT	
SUBMITTED <u>Oct 3, 1960</u>		REVISIONS		PROJECT NO 587	
KOEBIG & KOEBIG CONSULTING ENGINEERING-ARCHITECTURE LOS ANGELES, CALIFORNIA		MARK DATE DESCRIPTION 2-25-65 "As Built" 1-18-65 changed street name		EAST TORRANCE LINE "G"	
DRAWN BY TORRANCE W.M. NOLLAC R.C.NO. 30778		DESIGNED BY TORRANCE TRACKED BY TORRANCE SUBMITTED BY R.B.R. CHECKED BY DIVISION ENGINEER (Special)		CONCRETE CONDUIT STA. 26+00 TO STA. 36+00 PLAN, PROFILE & SECTION	
APPROVED <u>Nov 29, 1960</u> <u>W.M. Nollac</u> CITY ENGINEER		APPROVED BY <u>[Signature]</u> CHIEF ENGINEER		SCALE DATE AS SHOWN NOV 60	
R.E.NO. 8415				NO. 275-587-02.5 SHEET 5 OF 17	



BENCH MARK Van Ness
TBM No. 11 PP32/353E Arlington Ave. 500' from E 190TH St South. Spike on East Side pole 0.4' below Ground Elev. 61.71



PLAN
SCALE: 1" = 40'

1958 STORM DRAIN BOND ISSUE

CITY OF TORRANCE		REVISIONS		LOS ANGELES COUNTY FLOOD CONTROL DISTRICT	
SUBMITTED	Oct 3, 1960	MARK	DATE	DESCRIPTION	PROJECT NO. 587 EAST TORRANCE LINE "G"
KOEBIG & KOEBIG CONSULTING ENGINEERING-ARCHITECTURE LOS ANGELES, CALIFORNIA		1-18-65	changed street name		CONCRETE CONDUIT STA. 36+00 TO STA. 46+00 PLAN, PROFILE & SECTION
APPROVED	Nov 29, 1960	DRAWN BY	TORRANCE	DESIGNED BY	TORRANCE
W.M. WOLLAC	R.E. NO. 8415	TRACED BY	TORRANCE	SUBMITTED BY	R.B.R.
CITY ENGINEER		RECOMMENDED BY	W.M. WOLLAC	DIVISION ENGINEER (SEWER)	
		APPROVED BY	CHIEF ENGINEER		SCALE
		DATE		NOV. 60	NO. 275-587-D2.6
		AS SHOWN		NOV. 60	SHEET 6 OF 17

33° 52' 30"

INGLEWOOD 1-H1.8

-118° 22' 30"

PROJECT SITE

DPA - 6

REDONDO BEACH 1-H1.3

LONG BEACH 1-H1.5

SAN PEDRO 1-H1.2

33° 45' 00"

-118° 15' 00"



016

SOIL
CLASSIFICATION
AREA

7.2

INCHES OF
RAINFALL

DPA - 6

DEBRIS
POTENTIAL
AREA

1 0 1 2 Miles

25-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.878
 10-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.714

TORRANCE 50-YEAR 24-HOUR ISOHYET

SOIL=009
 RAINFALL=5.9

1-H1.4



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

APPENDIX B

HYDROLOGY CALCULATIONS

Peak Flow Hydrologic Analysis

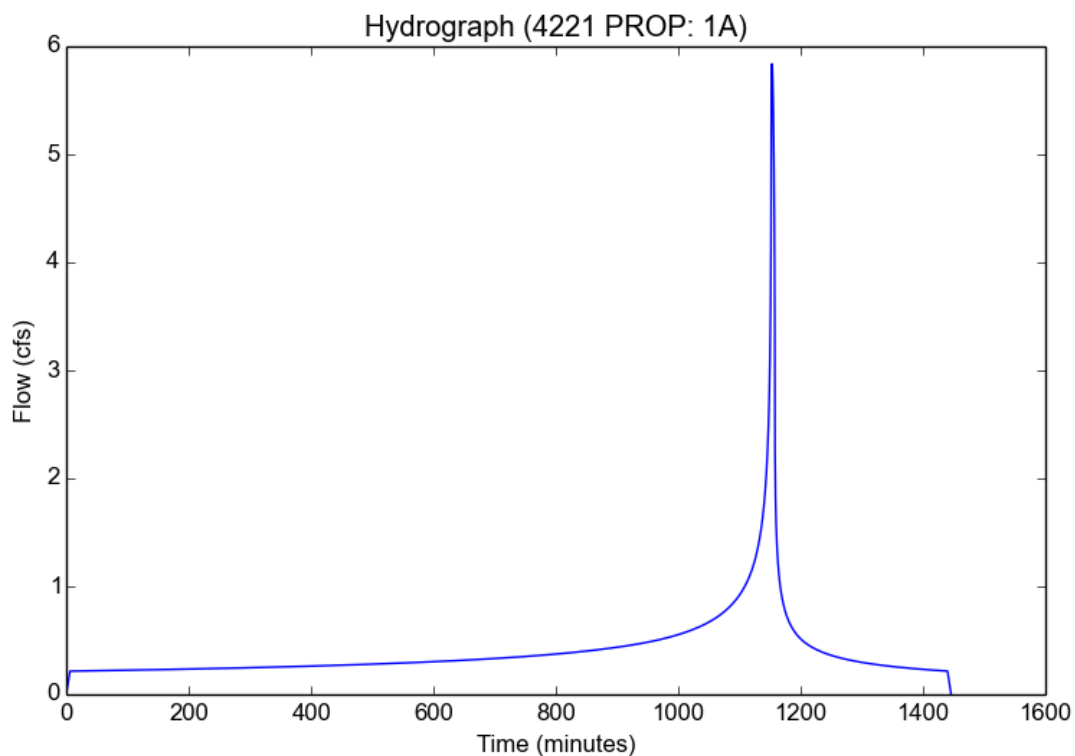
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	4221 PROP
Subarea ID	1A
Area (ac)	2.01
Flow Path Length (ft)	435.0
Flow Path Slope (vft/hft)	0.0097
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.9
Soil Type	9
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.231
Undeveloped Runoff Coefficient (Cu)	0.8904
Developed Runoff Coefficient (Cd)	0.899
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	5.8387
Burned Peak Flow Rate (cfs)	5.8387
24-Hr Clear Runoff Volume (ac-ft)	0.8144
24-Hr Clear Runoff Volume (cu-ft)	35475.8736



Peak Flow Hydrologic Analysis

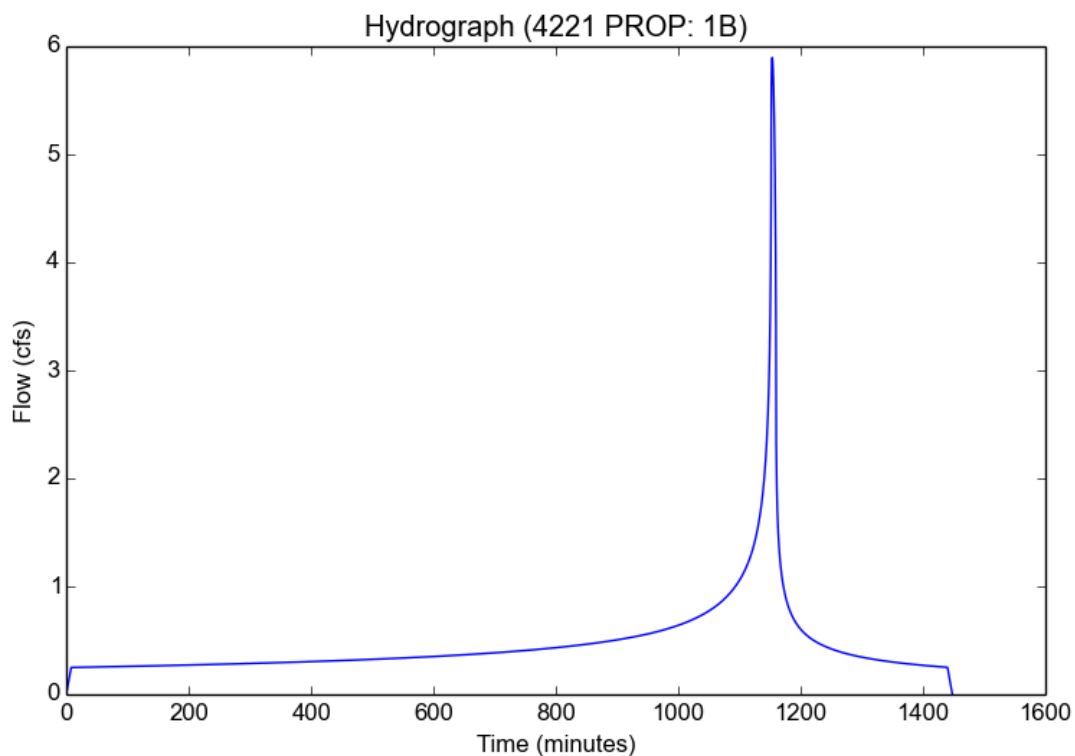
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	4221 PROP
Subarea ID	1B
Area (ac)	2.33
Flow Path Length (ft)	558.0
Flow Path Slope (vft/hft)	0.0078
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.9
Soil Type	9
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	2.8224
Undeveloped Runoff Coefficient (Cu)	0.8649
Developed Runoff Coefficient (Cd)	0.8965
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	5.8955
Burned Peak Flow Rate (cfs)	5.8955
24-Hr Clear Runoff Volume (ac-ft)	0.944
24-Hr Clear Runoff Volume (cu-ft)	41122.4583



Peak Flow Hydrologic Analysis

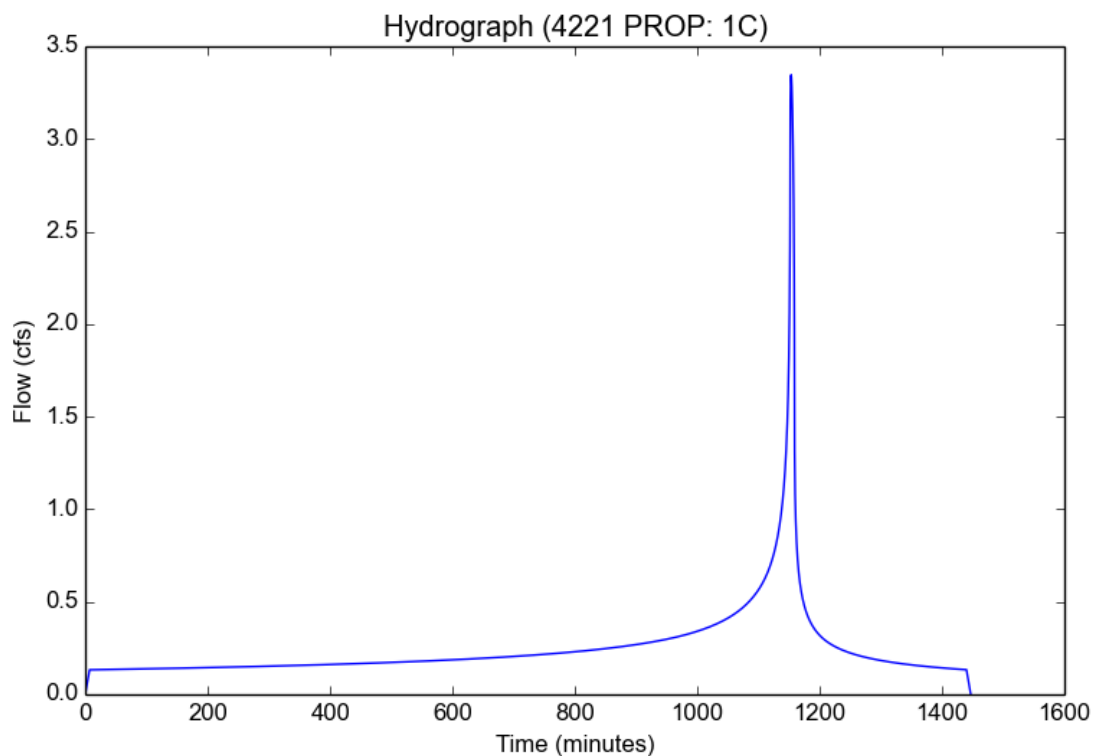
File location: O:/4200-4299/4221/HYDROLOGY/APPENDIX B RATIONAL METHOD/4221 PROP Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	4221 PROP
Subarea ID	1C
Area (ac)	1.24
Flow Path Length (ft)	456.0
Flow Path Slope (vft/hft)	0.0082
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.9
Soil Type	9
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.0052
Undeveloped Runoff Coefficient (Cu)	0.8798
Developed Runoff Coefficient (Cd)	0.898
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	3.3463
Burned Peak Flow Rate (cfs)	3.3463
24-Hr Clear Runoff Volume (ac-ft)	0.5024
24-Hr Clear Runoff Volume (cu-ft)	21885.4122



Peak Flow Hydrologic Analysis

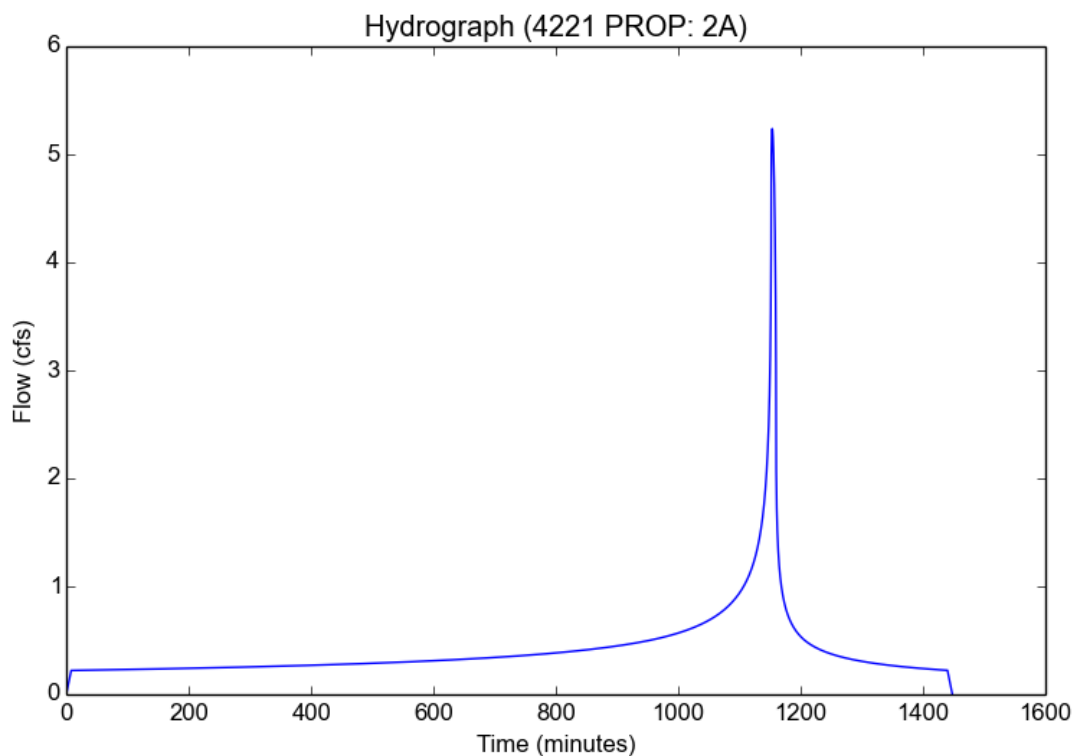
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	4221 PROP
Subarea ID	2A
Area (ac)	2.07
Flow Path Length (ft)	529.0
Flow Path Slope (vft/hft)	0.0077
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.9
Soil Type	9
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	2.8224
Undeveloped Runoff Coefficient (Cu)	0.8649
Developed Runoff Coefficient (Cd)	0.8965
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	5.2376
Burned Peak Flow Rate (cfs)	5.2376
24-Hr Clear Runoff Volume (ac-ft)	0.8387
24-Hr Clear Runoff Volume (cu-ft)	36533.6861



Peak Flow Hydrologic Analysis

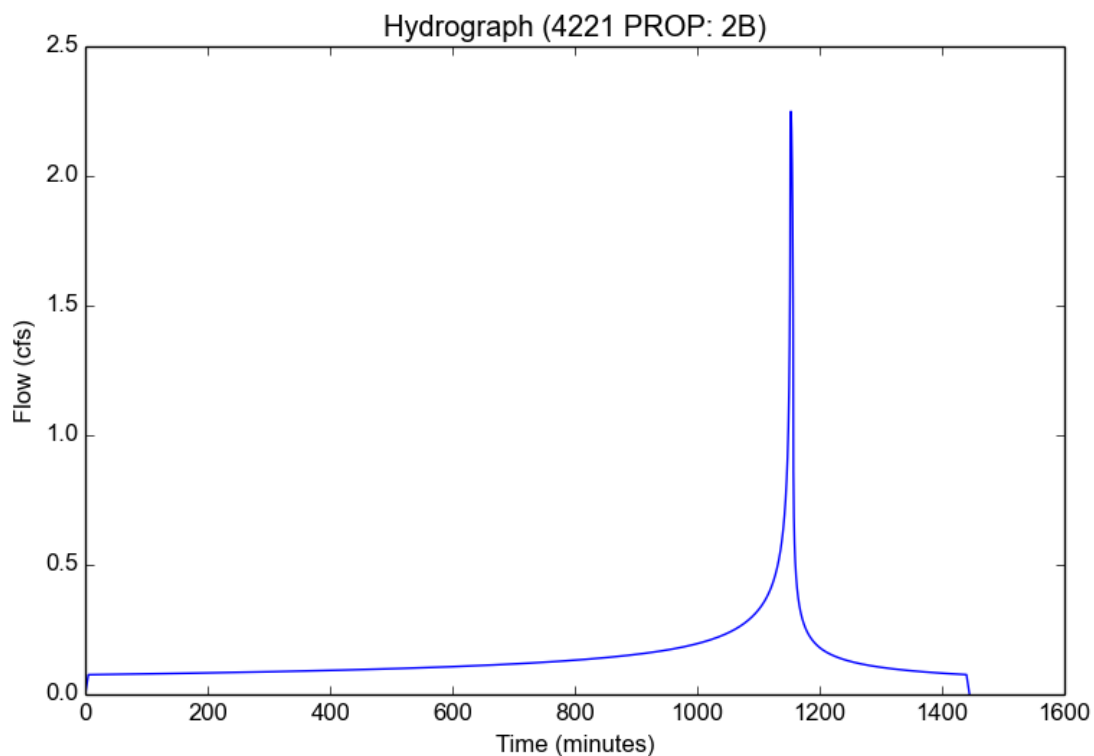
File location: O:/4200-4299/4221/HYDROLOGY/APPENDIX B RATIONAL METHOD/4221 PROP Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	4221 PROP
Subarea ID	2B
Area (ac)	0.71
Flow Path Length (ft)	92.0
Flow Path Slope (vft/hft)	0.02
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.9
Soil Type	9
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.5201
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	2.2493
Burned Peak Flow Rate (cfs)	2.2493
24-Hr Clear Runoff Volume (ac-ft)	0.2877
24-Hr Clear Runoff Volume (cu-ft)	12531.2627



Peak Flow Hydrologic Analysis

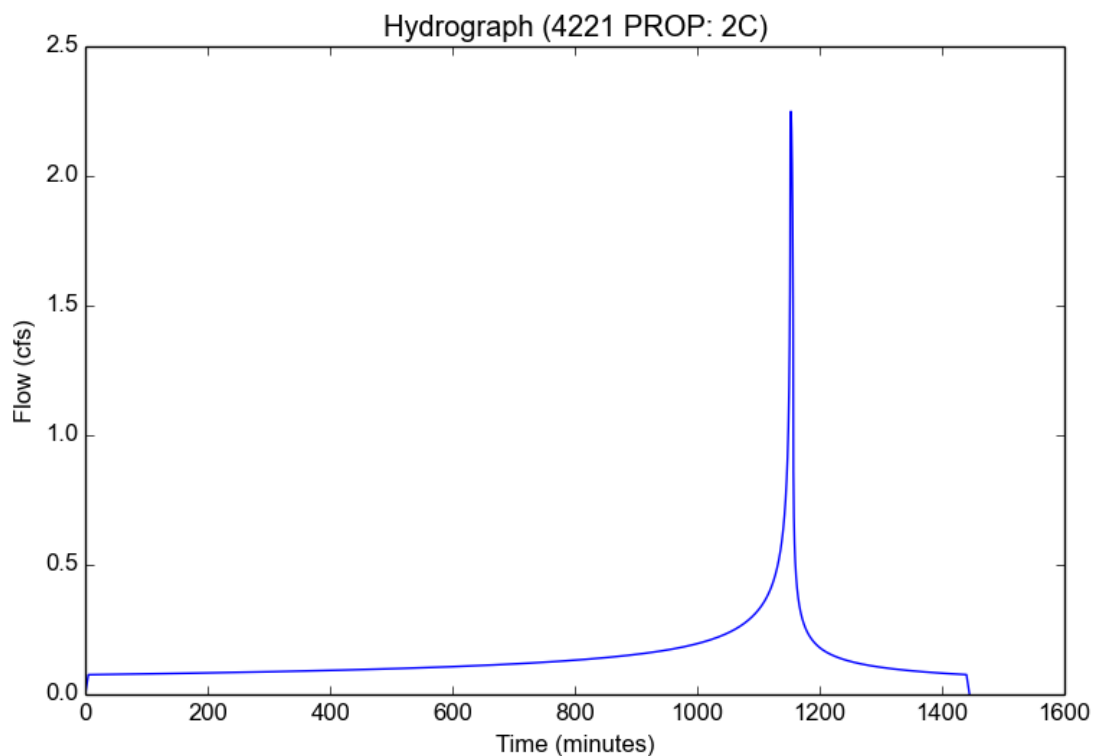
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	4221 PROP
Subarea ID	2C
Area (ac)	0.71
Flow Path Length (ft)	92.0
Flow Path Slope (vft/hft)	0.02
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.9
Soil Type	9
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.5201
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	2.2493
Burned Peak Flow Rate (cfs)	2.2493
24-Hr Clear Runoff Volume (ac-ft)	0.2877
24-Hr Clear Runoff Volume (cu-ft)	12531.2627



Peak Flow Hydrologic Analysis

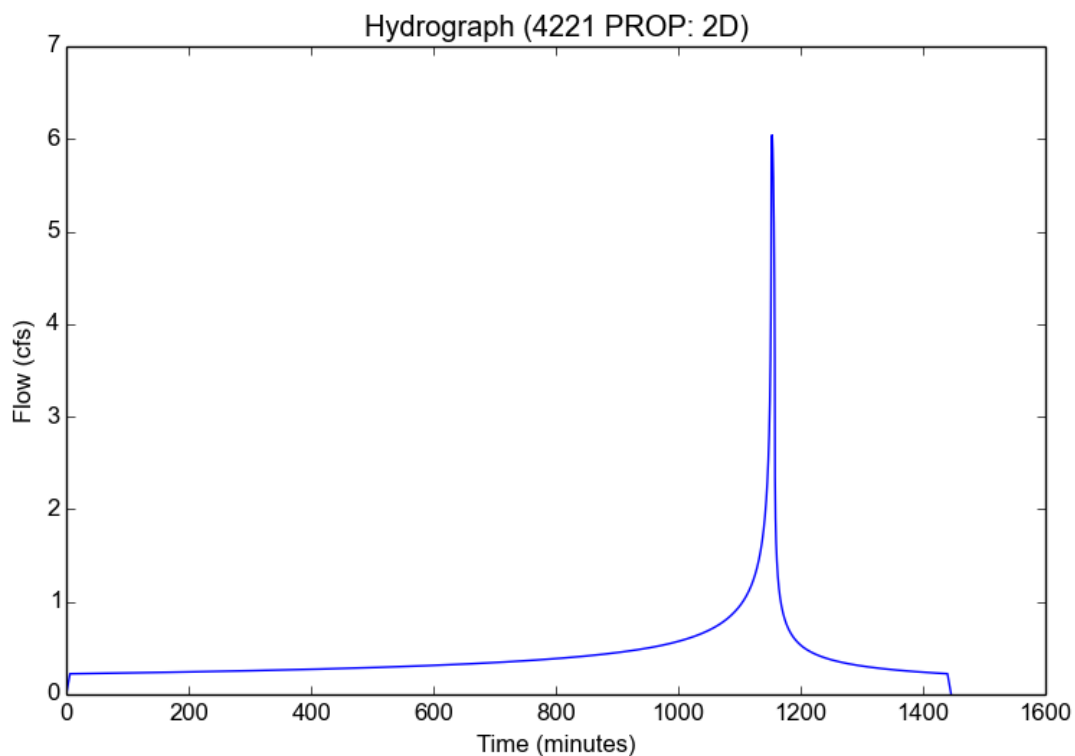
File location: O:/4200-4299/4221/HYDROLOGY/APPENDIX B RATIONAL METHOD/4221 PROP Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	4221 PROP
Subarea ID	2D
Area (ac)	2.08
Flow Path Length (ft)	416.0
Flow Path Slope (vft/hft)	0.0082
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.9
Soil Type	9
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.231
Undeveloped Runoff Coefficient (Cu)	0.8904
Developed Runoff Coefficient (Cd)	0.899
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	6.042
Burned Peak Flow Rate (cfs)	6.042
24-Hr Clear Runoff Volume (ac-ft)	0.8428
24-Hr Clear Runoff Volume (cu-ft)	36711.3517



Peak Flow Hydrologic Analysis

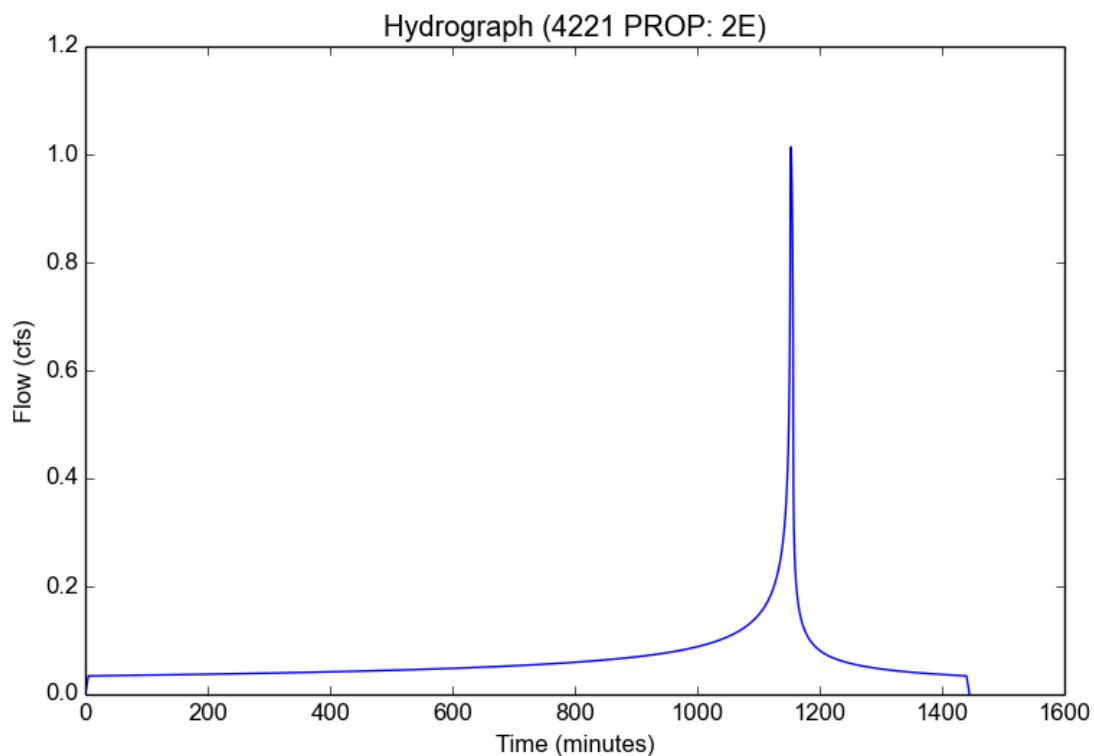
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	4221 PROP
Subarea ID	2E
Area (ac)	0.32
Flow Path Length (ft)	132.0
Flow Path Slope (vft/hft)	0.024
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.9
Soil Type	9
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.5201
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.0138
Burned Peak Flow Rate (cfs)	1.0138
24-Hr Clear Runoff Volume (ac-ft)	0.1297
24-Hr Clear Runoff Volume (cu-ft)	5647.893



Peak Flow Hydrologic Analysis

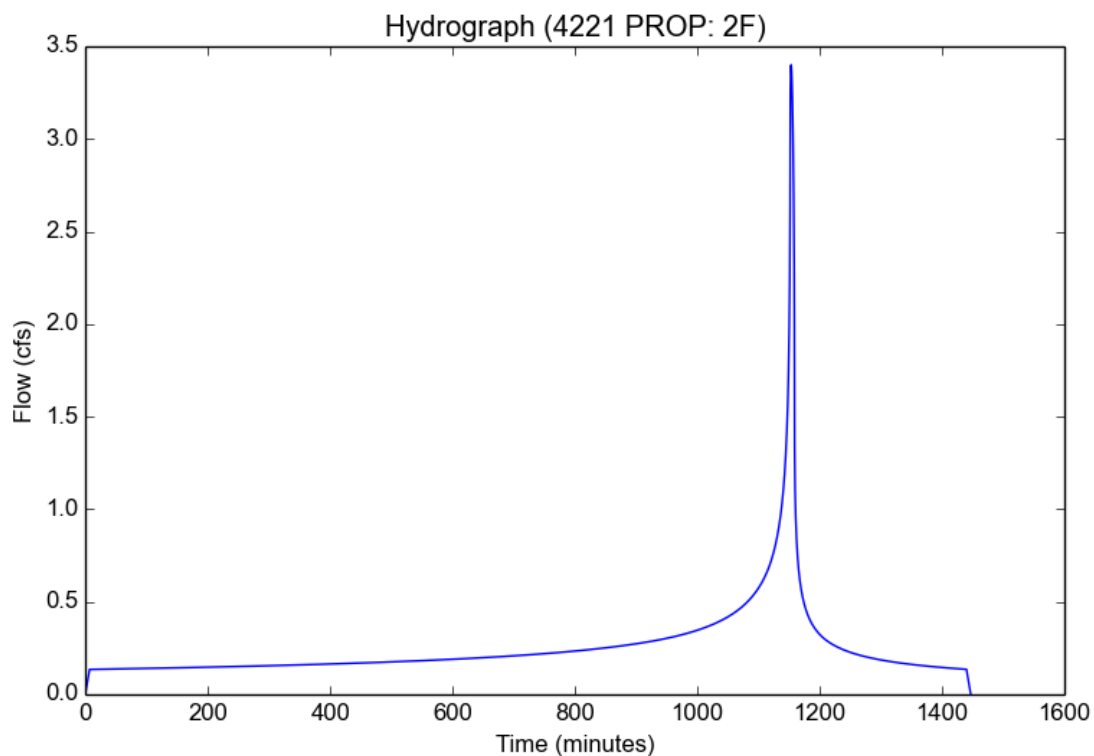
File location: O:/4200-4299/4221/HYDROLOGY/APPENDIX B RATIONAL METHOD/4221 PROP Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	4221 PROP
Subarea ID	2F
Area (ac)	1.26
Flow Path Length (ft)	424.0
Flow Path Slope (vft/hft)	0.0063
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.9
Soil Type	9
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.0052
Undeveloped Runoff Coefficient (Cu)	0.8798
Developed Runoff Coefficient (Cd)	0.898
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	3.4002
Burned Peak Flow Rate (cfs)	3.4002
24-Hr Clear Runoff Volume (ac-ft)	0.5105
24-Hr Clear Runoff Volume (cu-ft)	22238.4027



Peak Flow Hydrologic Analysis

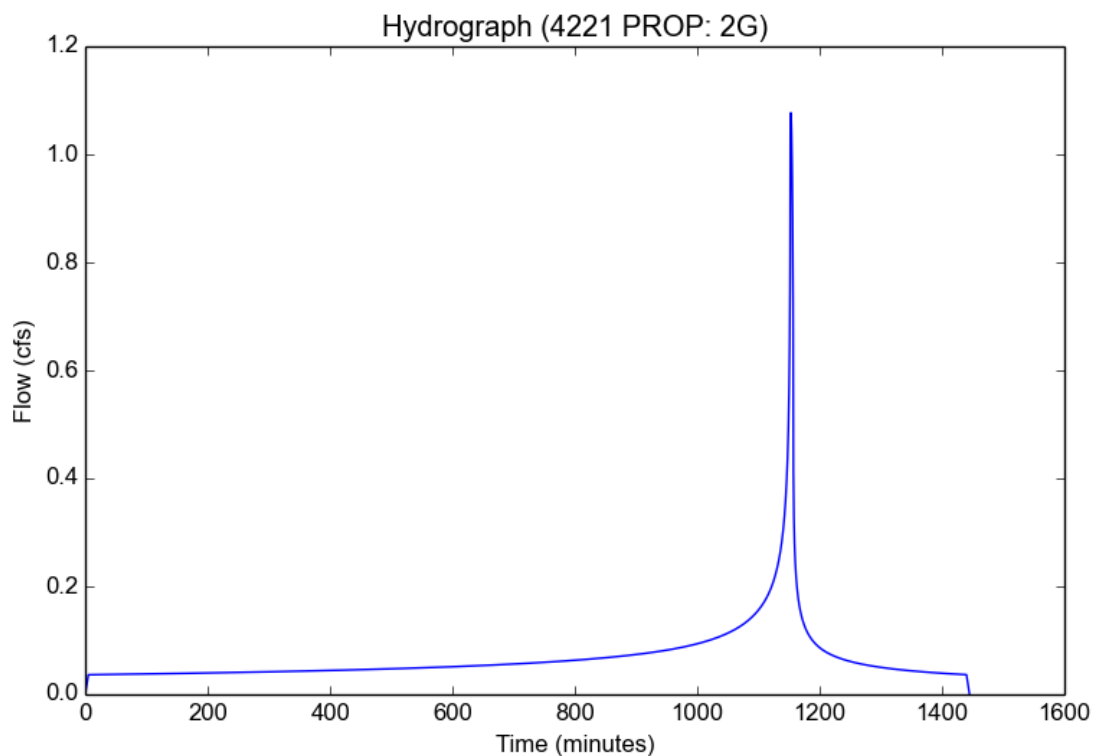
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	4221 PROP
Subarea ID	2G
Area (ac)	0.34
Flow Path Length (ft)	96.0
Flow Path Slope (vft/hft)	0.0453
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.9
Soil Type	9
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.5201
Undeveloped Runoff Coefficient (Cu)	0.9
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.0772
Burned Peak Flow Rate (cfs)	1.0772
24-Hr Clear Runoff Volume (ac-ft)	0.1378
24-Hr Clear Runoff Volume (cu-ft)	6000.8863



Peak Flow Hydrologic Analysis

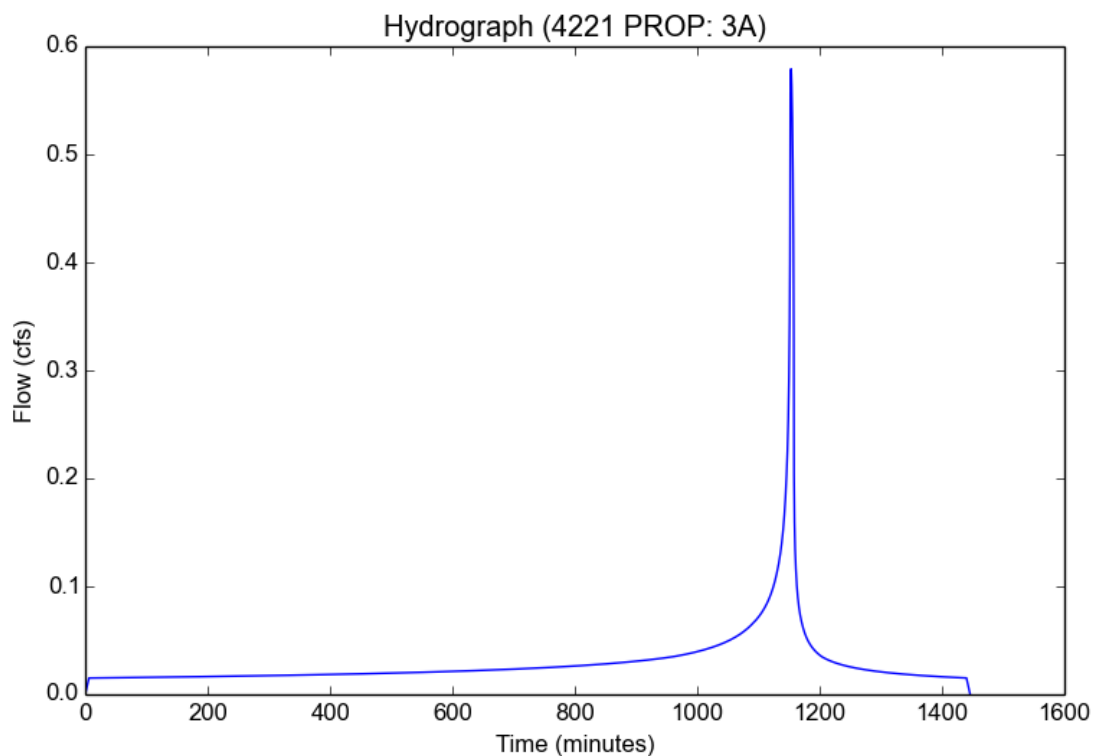
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	4221 PROP
Subarea ID	3A
Area (ac)	0.2
Flow Path Length (ft)	352.0
Flow Path Slope (vft/hft)	0.0043
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.6
Soil Type	9
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.231
Undeveloped Runoff Coefficient (Cu)	0.8904
Developed Runoff Coefficient (Cd)	0.8962
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	0.5791
Burned Peak Flow Rate (cfs)	0.5791
24-Hr Clear Runoff Volume (ac-ft)	0.0608
24-Hr Clear Runoff Volume (cu-ft)	2650.1455



Peak Flow Hydrologic Analysis

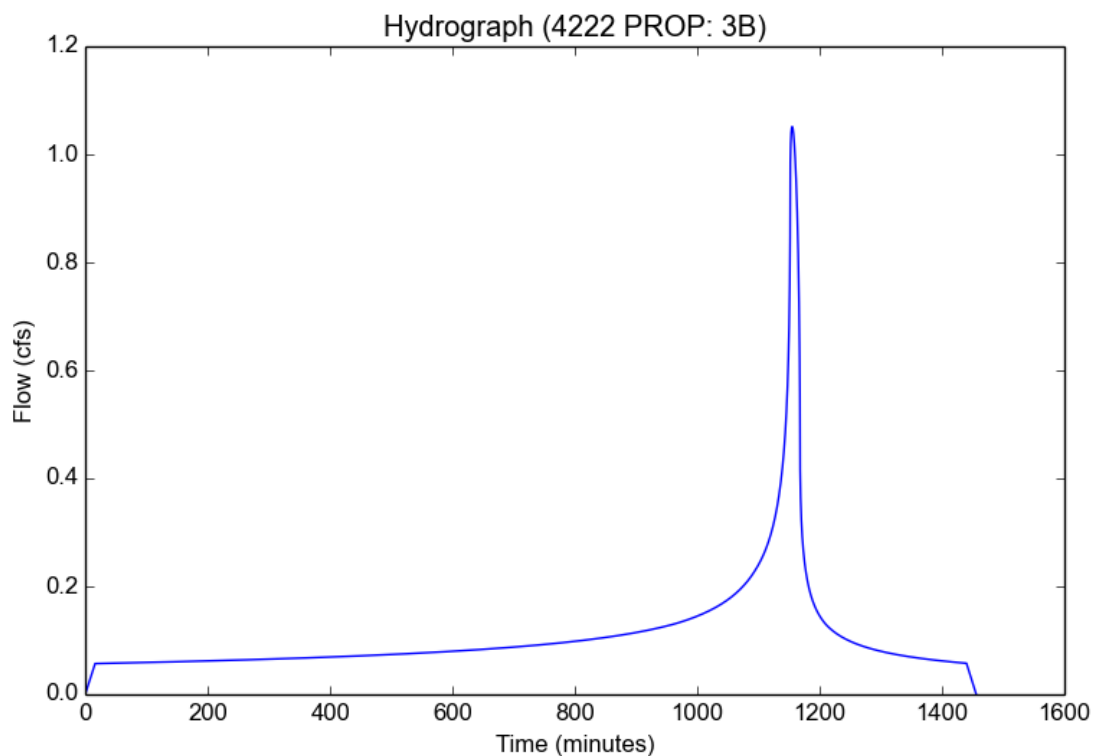
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	4222 PROP
Subarea ID	3B
Area (ac)	0.59
Flow Path Length (ft)	1464.0
Flow Path Slope (vft/hft)	0.0041
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.8
Soil Type	9
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	2.0377
Undeveloped Runoff Coefficient (Cu)	0.7725
Developed Runoff Coefficient (Cd)	0.8745
Time of Concentration (min)	16.0
Clear Peak Flow Rate (cfs)	1.0513
Burned Peak Flow Rate (cfs)	1.0513
24-Hr Clear Runoff Volume (ac-ft)	0.2191
24-Hr Clear Runoff Volume (cu-ft)	9542.3856



Peak Flow Hydrologic Analysis

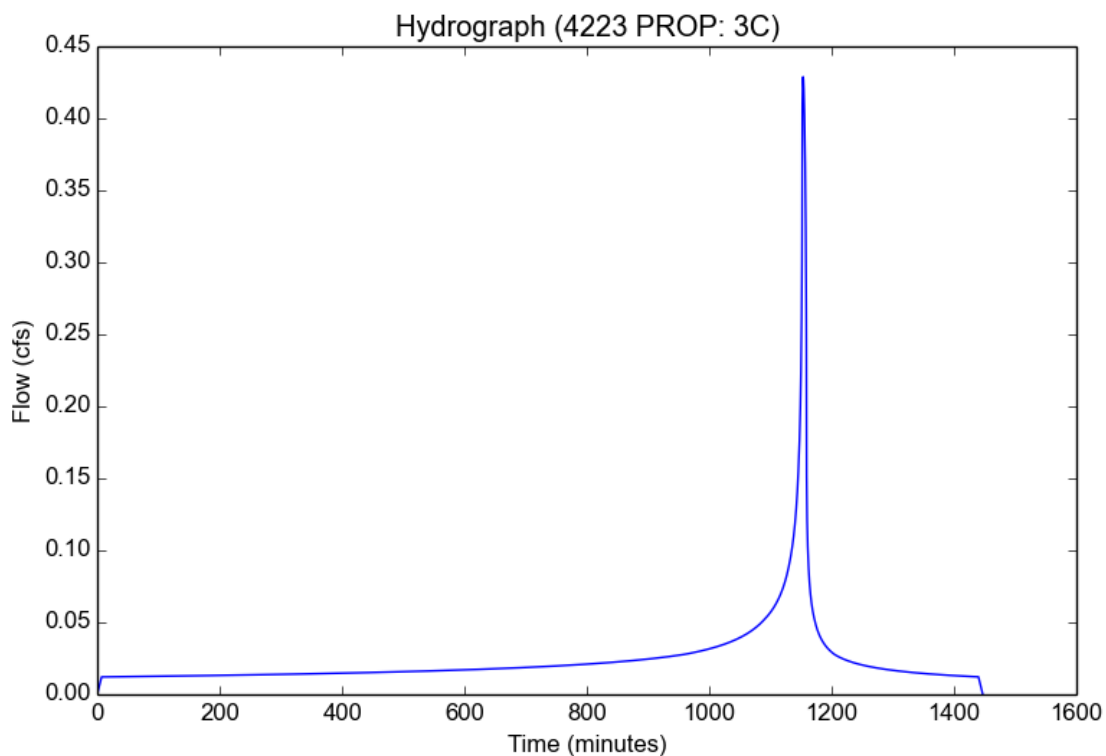
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	4223 PROP
Subarea ID	3C
Area (ac)	0.16
Flow Path Length (ft)	455.0
Flow Path Slope (vft/hft)	0.0098
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.6
Soil Type	9
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.0052
Undeveloped Runoff Coefficient (Cu)	0.8798
Developed Runoff Coefficient (Cd)	0.8919
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	0.4289
Burned Peak Flow Rate (cfs)	0.4289
24-Hr Clear Runoff Volume (ac-ft)	0.0487
24-Hr Clear Runoff Volume (cu-ft)	2120.011



APPENDIX C

DETENTION CALCULATIONS

SEQUOIA COMMERCE CENTER
PONDING AT NORTHERLY TRUCK YARD BLDG. 1

Elevation	Depth (feet)	Area (sq. ft.)	Volume (c.f.)	Σ Volume (c.f.)	Σ Volume (ac-ft)
63.95	0.00	25.2			
			760	760	0.02
64.20	0.25	6051			
			884	1,643	0.04
64.30	0.35	11625			
			1461	3,104	0.07
64.40	0.45	17585			
			956	4,060	0.09
64.45	0.50	20650			
			1106	5,165	0.12
64.50	0.55	23574			
			2588	7,754	0.18
64.60	0.65	28193			

Inputs: 4221 PROP

Subarea ID	Area (ac)	Flow Path L	Flow Path S	50-yr Rainf	Percent Imp	Soil Type	Design Stor	Fire Factor
1A-1C	5.58	558	0.0078	5.9	0.9	9 50-yr		0

Outputs: 3901 PROP

Area (ac)	Modeled (5	Time of Cor	Clear Peak	24-Hr Clear	Burned Pea	Peak Intens	Undevelop	Developed
1A-1C	5.9	8	14.11886	2.260838	14.11886	2.822402	0.864923	0.896492

Hydrograph: 3901 PROP - 1A-1C

Time (min)	Incrementa	Incrementa	Intensity (ir	Undevelop	Developed	Clear Peak	Incrementa	Cumulative
0	0	0	0	0	0	0	0	0
0.2	7.36E-05	0.000434	0	0	0	0.014928	0.089571	0.089571
0.4	0.000147	0.000869	0	0	0	0.029857	0.268712	0.358283
0.6	0.000221	0.001303	0	0	0	0.044785	0.447854	0.806137
0.8	0.000294	0.001738	0	0	0	0.059714	0.626996	1.433133
1	0.000368	0.002172	0	0	0	0.074642	0.806137	2.23927
1.2	0.000442	0.002606	0	0	0	0.089571	0.985279	3.224549
1.4	0.000515	0.003041	0	0	0	0.104499	1.164421	4.38897
1.6	0.000589	0.003476	0	0	0	0.119428	1.343562	5.732532
1.8	0.000663	0.00391	0	0	0	0.134356	1.522704	7.255236
2	0.000736	0.004345	0	0	0	0.149285	1.701846	8.957082
2.2	0.00081	0.00478	0	0	0	0.164213	1.880987	10.83807
2.4	0.000884	0.005214	0	0	0	0.179142	2.060129	12.8982
2.6	0.000957	0.005649	0	0	0	0.19407	2.23927	15.13747
2.8	0.001031	0.006084	0	0	0	0.208999	2.418412	17.55588
3	0.001105	0.006519	0	0	0	0.223927	2.597554	20.15343
3.2	0.001179	0.006953	0	0	0	0.238856	2.776695	22.93013
1118.2	0.676733	3.992726	0.650041	0.348923	0.844892	3.064616	36.7277	65264.01
1118.4	0.67712	3.99501	0.651672	0.349801	0.84498	3.072628	36.82347	65300.84
1118.6	0.677509	3.9973	0.653317	0.350686	0.845069	3.080706	36.92001	65337.76
1118.8	0.677898	3.999597	0.654975	0.351578	0.845158	3.08885	37.01734	65374.77
1119	0.678288	4.001901	0.656646	0.352477	0.845248	3.097061	37.11546	65411.89
1119.2	0.67868	4.004211	0.658331	0.353383	0.845338	3.105339	37.2144	65449.1
1119.4	0.679072	4.006527	0.660029	0.354297	0.84543	3.113686	37.31415	65486.42
1119.6	0.679466	4.00885	0.661741	0.355218	0.845522	3.122104	37.41474	65523.83
1119.8	0.679861	4.01118	0.663467	0.356147	0.845615	3.130591	37.51617	65561.35
1120	0.680257	4.013517	0.665208	0.357083	0.845708	3.139151	37.61845	65598.97
1120.2	0.680654	4.015861	0.666963	0.358028	0.845803	3.147783	37.7216	65636.69
1120.4	0.681053	4.018211	0.668732	0.35898	0.845898	3.156489	37.82563	65674.52
1120.6	0.681452	4.020569	0.670516	0.35994	0.845994	3.16527	37.93056	65712.45
1120.8	0.681853	4.022934	0.672316	0.360908	0.846091	3.174127	38.03638	65750.48
1121	0.682255	4.025305	0.67413	0.361884	0.846188	3.183061	38.14313	65788.63
1121.2	0.682658	4.027684	0.67596	0.362869	0.846287	3.192073	38.2508	65826.88
1121.4	0.683063	4.030071	0.677806	0.363862	0.846386	3.201165	38.35943	65865.24

1121.6	0.683469	4.032464	0.679667	0.364863	0.846486	3.210337	38.46901	65903.7
1121.8	0.683876	4.034865	0.681545	0.365874	0.846587	3.21959	38.57956	65942.28
1122	0.684284	4.037274	0.683439	0.366893	0.846689	3.228927	38.6911	65980.98
1122.2	0.684693	4.03969	0.68535	0.367921	0.846792	3.238348	38.80365	66019.78
1122.4	0.685104	4.042114	0.687278	0.368958	0.846896	3.247854	38.91721	66058.7
1122.6	0.685516	4.044545	0.689223	0.370004	0.847	3.257447	39.03181	66097.73
1122.8	0.68593	4.046984	0.691185	0.37106	0.847106	3.267129	39.14746	66136.88
1123	0.686344	4.049432	0.693165	0.372125	0.847213	3.276899	39.26417	66176.14
1123.2	0.68676	4.051887	0.695163	0.3732	0.84732	3.286761	39.38196	66215.52
1123.4	0.687178	4.05435	0.697179	0.374285	0.847429	3.296715	39.50086	66255.02
1123.6	0.687597	4.056821	0.699213	0.37538	0.847538	3.306763	39.62087	66294.64
1123.8	0.688017	4.0593	0.701267	0.376485	0.847648	3.316906	39.74202	66334.39
1124	0.688439	4.061788	0.703339	0.3776	0.84776	3.327146	39.86431	66374.25
1124.2	0.688862	4.064284	0.705431	0.378725	0.847873	3.337484	39.98778	66414.24
1124.4	0.689286	4.066788	0.707542	0.379861	0.847986	3.347923	40.11244	66454.35
1124.6	0.689712	4.069301	0.709674	0.381008	0.848101	3.358463	40.23831	66494.59
1124.8	0.690139	4.071823	0.711826	0.382166	0.848217	3.369106	40.36541	66534.95
1125	0.690568	4.074353	0.713998	0.383335	0.848333	3.379854	40.49376	66575.45
1125.2	0.690999	4.076892	0.716192	0.384515	0.848451	3.390709	40.62337	66616.07
1125.4	0.691431	4.079441	0.718406	0.385707	0.848571	3.401672	40.75428	66656.83
1125.6	0.691864	4.081998	0.720643	0.38691	0.848691	3.412746	40.88651	66697.71
1125.8	0.692299	4.084564	0.722901	0.388125	0.848813	3.423932	41.02006	66738.73
1126	0.692735	4.087139	0.725182	0.389352	0.848935	3.435232	41.15498	66779.89
1126.2	0.693174	4.089724	0.727486	0.390592	0.849059	3.446648	41.29128	66821.18
1126.4	0.693613	4.092318	0.729813	0.391844	0.849184	3.458182	41.42898	66862.61
1126.6	0.694055	4.094922	0.732164	0.393109	0.849311	3.469837	41.56812	66904.17
1126.8	0.694498	4.097536	0.734538	0.394386	0.849439	3.481614	41.7087	66945.88
1127	0.694942	4.100159	0.736937	0.395677	0.849568	3.493515	41.85077	66987.73
1127.2	0.695388	4.102792	0.739361	0.396981	0.849698	3.505543	41.99435	67029.73
1127.4	0.695836	4.105435	0.74181	0.398299	0.84983	3.5177	42.13946	67071.87
1127.6	0.696286	4.108088	0.744285	0.39963	0.849963	3.529989	42.28614	67114.15
1127.8	0.696738	4.110752	0.746786	0.400976	0.850098	3.542411	42.4344	67156.59
1128	0.697191	4.113426	0.749313	0.402336	0.850234	3.55497	42.58428	67199.17
1128.2	0.697646	4.11611	0.751868	0.40371	0.850371	3.567667	42.73582	67241.91
1128.4	0.698102	4.118805	0.75445	0.4051	0.85051	3.580505	42.88903	67284.8
1128.6	0.698561	4.12151	0.757061	0.406504	0.85065	3.593488	43.04396	67327.84
1128.8	0.699022	4.124227	0.7597	0.407924	0.850792	3.606617	43.20063	67371.04
1129	0.699484	4.126955	0.762369	0.40936	0.850936	3.619896	43.35908	67414.4
1129.2	0.699948	4.129693	0.765067	0.410812	0.851081	3.633327	43.51934	67457.92
1148.6	0.763507	4.504694	1.451353	0.65613	0.875613	7.091194	84.44499	73023.48
1148.8	0.764661	4.511502	1.473785	0.661789	0.876179	7.205449	85.77986	73109.26
1149	0.76585	4.518513	1.497499	0.667771	0.876777	7.326387	87.19102	73196.45
1149.2	0.767076	4.525748	1.52264	0.674113	0.877411	7.454779	88.687	73285.13
1149.4	0.768344	4.53323	1.549382	0.680858	0.878086	7.591536	90.27789	73375.41

1149.6	0.769659	4.540987	1.57793	0.68806	0.878806	7.737755	91.97574	73467.39
1149.8	0.771026	4.549055	1.608537	0.69578	0.879578	7.894771	93.79515	73561.18
1150	0.772454	4.557476	1.641512	0.704099	0.88041	8.064237	95.75405	73656.94
1150.2	0.77395	4.566303	1.677249	0.713113	0.881311	8.248234	97.87483	73754.81
1150.4	0.775526	4.575604	1.71625	0.722952	0.882295	8.449452	100.1861	73855
1150.6	0.777198	4.58547	1.759183	0.732775	0.883278	8.670465	102.7195	73957.72
1150.8	0.778987	4.596024	1.806966	0.73959	0.883959	8.912843	105.4998	74063.22
1151	0.780923	4.607443	1.860915	0.747285	0.884729	9.186937	108.5987	74171.81
1151.2	0.78305	4.619998	1.923046	0.756148	0.885615	9.503177	112.1407	74283.96
1151.4	0.785447	4.63414	1.996739	0.766659	0.886666	9.879057	116.2934	74400.25
1151.6	0.788262	4.650743	2.088535	0.779752	0.887975	10.34849	121.3653	74521.61
1151.8	0.79187	4.672036	2.215135	0.797809	0.889781	10.99809	128.0795	74649.69
1152	0.8	4.72	2.541389	0.84184	0.894184	12.68038	142.0708	74791.76
1152.2	0.804237	4.745001	2.69502	0.85446	0.895446	13.4659	156.8777	74948.64
1152.4	0.806118	4.756099	2.743974	0.858481	0.895848	13.71666	163.0954	75111.74
1152.6	0.807585	4.764753	2.774169	0.860961	0.896096	13.87144	165.5286	75277.27
1152.8	0.808835	4.772124	2.794298	0.862614	0.896261	13.97467	167.0767	75444.34
1153	0.809944	4.778668	2.80776	0.86372	0.896372	14.04373	168.1104	75612.45
1153.2	0.810953	4.78462	2.816302	0.864422	0.896442	14.08756	168.7877	75781.24
1153.4	0.811885	4.790122	2.82096	0.864804	0.89648	14.11146	169.1941	75950.44
1153.6	0.812757	4.795264	2.822402	0.864923	0.896492	14.11886	169.3819	76119.82
1153.8	0.813578	4.800112	2.821087	0.864815	0.896481	14.11211	169.3858	76289.2
1154	0.814358	4.804713	2.817342	0.864507	0.896451	14.09289	169.23	76458.43
1154.2	0.815102	4.809102	2.811405	0.864019	0.896402	14.06243	168.9319	76627.36
1154.4	0.815815	4.813307	2.803453	0.863366	0.896337	14.02164	168.5044	76795.87
1154.6	0.8165	4.817351	2.79362	0.862559	0.896256	13.9712	167.957	76963.83
1154.8	0.817161	4.821251	2.782004	0.861604	0.89616	13.91162	167.2969	77131.12
1155	0.8178	4.825022	2.768675	0.86051	0.896051	13.84328	166.5294	77297.65
1155.2	0.81842	4.828676	2.753684	0.859278	0.895928	13.76643	165.6582	77463.31
1155.4	0.819021	4.832225	2.737059	0.857913	0.895791	13.68123	164.6859	77628
1155.6	0.819606	4.835676	2.718815	0.856414	0.895641	13.58776	163.614	77791.61
1155.8	0.820176	4.839039	2.69895	0.854782	0.895478	13.48603	162.4428	77954.05
1156	0.820732	4.84232	2.677447	0.853016	0.895302	13.37595	161.1718	78115.23
1156.2	0.821275	4.845524	2.654276	0.851113	0.895111	13.25737	159.7999	78275.03
1156.4	0.821806	4.848657	2.62939	0.849069	0.894907	13.13007	158.3246	78433.35
1156.6	0.822326	4.851724	2.602726	0.846879	0.894688	12.99374	156.7429	78590.09
1156.8	0.822835	4.854729	2.574203	0.844536	0.894454	12.84798	155.0503	78745.14
1157	0.823335	4.857676	2.54372	0.842032	0.894203	12.69228	153.2416	78898.38
1157.2	0.823825	4.860568	2.51115	0.839357	0.893936	12.52602	151.3098	79049.69
1157.4	0.824306	4.863408	2.476336	0.835065	0.893507	12.34643	149.2347	79198.93
1157.6	0.824779	4.866199	2.439087	0.829752	0.892975	12.15349	146.9995	79345.93
1157.8	0.825245	4.868943	2.399161	0.824058	0.892406	11.94692	144.6024	79490.53
1158	0.825702	4.871644	2.356259	0.817938	0.891794	11.72524	142.033	79632.56
1158.2	0.826153	4.874302	2.309996	0.81134	0.891134	11.48652	139.2705	79771.83

1158.4	0.826597	4.87692	2.259874	0.804191	0.890419	11.22827	136.2887	79908.12
1158.6	0.827034	4.879501	2.205231	0.796397	0.88964	10.94719	133.0528	80041.18
1158.8	0.827465	4.882044	2.145153	0.787828	0.888783	10.63869	129.5153	80170.69
1159	0.82789	4.884553	2.078325	0.778295	0.88783	10.29621	125.6094	80296.3
1159.2	0.82831	4.887028	2.00273	0.767513	0.886751	9.909652	121.2351	80417.54
1159.4	0.828724	4.889472	1.914989	0.754998	0.8855	9.46213	116.2307	80533.77
1159.6	0.829133	4.891884	1.808557	0.739817	0.883982	8.920922	110.2983	80644.06
1159.8	0.829537	4.894267	1.666732	0.71046	0.881046	8.194048	102.6898	80746.75
1160	0.829936	4.896621	1.324655	0.62417	0.872417	6.448538	87.85551	80834.61
1160.2	0.83033	4.898947	1.154601	0.568083	0.866808	5.584563	72.19861	80906.81
1160.4	0.83072	4.901247	1.088613	0.542314	0.864231	5.249741	65.00583	80971.81
1160.6	0.831105	4.903522	1.040766	0.523629	0.862363	5.008151	61.54735	81033.36
1160.8	0.831487	4.905772	1.002355	0.508629	0.860863	4.814928	58.93847	81092.3
1161	0.831864	4.907998	0.96997	0.495983	0.859598	4.652517	56.80467	81149.11
1161.2	0.832237	4.9102	0.94185	0.485001	0.8585	4.511867	54.98631	81204.09
1161.4	0.832607	4.912381	0.916944	0.475275	0.857528	4.387581	53.39669	81257.49
1161.6	0.832973	4.914539	0.894566	0.466536	0.856654	4.276138	51.98231	81309.47
1161.8	0.833335	4.916677	0.874237	0.458598	0.85586	4.175092	50.70738	81360.18
1162	0.833694	4.918794	0.85561	0.451324	0.855132	4.082663	49.54653	81409.72
1162.2	0.834049	4.920892	0.838422	0.444612	0.854461	3.997508	48.48102	81458.21
1162.4	0.834402	4.92297	0.822469	0.438382	0.853838	3.918586	47.49656	81505.7
1162.6	0.834751	4.925029	0.807589	0.432571	0.853257	3.845071	46.58194	81552.28
1162.8	0.835097	4.927071	0.79365	0.426191	0.852619	3.775882	45.72572	81598.01
1163	0.83544	4.929094	0.780546	0.41914	0.851914	3.710464	44.91808	81642.93
1163.2	0.83578	4.931101	0.768185	0.41249	0.851249	3.648855	44.15592	81687.08
1163.4	0.836117	4.93309	0.756493	0.406199	0.85062	3.590662	43.4371	81730.52
1163.6	0.836451	4.935064	0.745404	0.400233	0.850023	3.535549	42.75726	81773.28
1163.8	0.836783	4.937021	0.734864	0.394561	0.849456	3.483229	42.11267	81815.39
1164	0.837112	4.938963	0.724823	0.389159	0.848916	3.433453	41.50009	81856.89
1164.2	0.837439	4.940889	0.715241	0.384004	0.8484	3.386005	40.91675	81897.81
1164.4	0.837763	4.942801	0.70608	0.379075	0.847907	3.340694	40.36019	81938.17
1164.6	0.838085	4.944699	0.697308	0.374355	0.847435	3.297353	39.82828	81978
1164.8	0.838404	4.946582	0.688895	0.369828	0.846983	3.255832	39.31911	82017.32
1165	0.838721	4.948451	0.680816	0.365481	0.846548	3.215999	38.83098	82056.15
1165.2	0.839035	4.950308	0.673048	0.361302	0.84613	3.177735	38.3624	82094.51
1165.4	0.839348	4.95215	0.66557	0.357278	0.845728	3.140933	37.912	82132.42
1165.6	0.839658	4.95398	0.658363	0.353401	0.84534	3.105496	37.47857	82169.9
1165.8	0.839966	4.955798	0.65141	0.349659	0.844966	3.071338	37.06101	82206.96
1166	0.840272	4.957603	0.644695	0.346047	0.844605	3.038379	36.65831	82243.62
1166.2	0.840576	4.959396	0.638205	0.342554	0.844255	3.006547	36.26956	82279.89
1166.4	0.840877	4.961177	0.631926	0.339176	0.843918	2.975775	35.89393	82315.78
1166.6	0.841177	4.962947	0.625846	0.335905	0.84359	2.946004	35.53067	82351.31
1166.8	0.841475	4.964705	0.619955	0.332735	0.843274	2.917176	35.17908	82386.49
1167	0.841772	4.966452	0.614242	0.329662	0.842966	2.889242	34.83851	82421.33

1167.2	0.842066	4.968188	0.608699	0.326679	0.842668	2.862154	34.50838	82455.84
1167.4	0.842358	4.969914	0.603316	0.323783	0.842378	2.835868	34.18813	82490.03
1167.6	0.842649	4.971629	0.598085	0.320969	0.842097	2.810344	33.87727	82523.9
1167.8	0.842938	4.973333	0.593	0.318233	0.841823	2.785543	33.57532	82557.48
1168	0.843225	4.975028	0.588053	0.315571	0.841557	2.761433	33.28186	82590.76
1168.2	0.843511	4.976712	0.583238	0.31298	0.841298	2.737978	32.99646	82623.76
1168.4	0.843794	4.978387	0.578549	0.310457	0.841046	2.71515	32.71877	82656.48
1168.6	0.844077	4.980053	0.57398	0.307999	0.8408	2.69292	32.44842	82688.92
1168.8	0.844357	4.981709	0.569526	0.305602	0.84056	2.671261	32.18508	82721.11
1169	0.844636	4.983355	0.565181	0.303265	0.840326	2.650148	31.92845	82753.04
1169.2	0.844914	4.984993	0.560943	0.300984	0.840098	2.629558	31.67824	82784.72
1169.4	0.84519	4.986621	0.556805	0.298758	0.839876	2.60947	31.43417	82816.15
1169.6	0.845465	4.988241	0.552764	0.296584	0.839658	2.589861	31.19599	82847.35
1169.8	0.845738	4.989853	0.548816	0.29446	0.839446	2.570714	30.96345	82878.31
1444.6	1	5.9	0.055528	0.1	0.82	0.254076	3.138853	98456.22
1444.8	1	5.9	0.052253	0.1	0.82	0.239091	2.959003	98459.18
1445	1	5.9	0.04898	0.1	0.82	0.224111	2.779213	98461.96
1445.2	1	5.9	0.045707	0.1	0.82	0.209136	2.599482	98464.56
1445.4	1	5.9	0.042435	0.1	0.82	0.194166	2.41981	98466.98
1445.6	1	5.9	0.039164	0.1	0.82	0.1792	2.240197	98469.22
1445.8	1	5.9	0.035895	0.1	0.82	0.16424	2.060643	98471.28
1446	1	5.9	0.032626	0.1	0.82	0.149285	1.881149	98473.16
1446.2	1	5.9	0.029359	0.1	0.82	0.134334	1.701713	98474.86
1446.4	1	5.9	0.026092	0.1	0.82	0.119389	1.522337	98476.38
1446.6	1	5.9	0.022827	0.1	0.82	0.104448	1.343019	98477.73
1446.8	1	5.9	0.019563	0.1	0.82	0.089512	1.16376	98478.89
1447	1	5.9	0.0163	0.1	0.82	0.074581	0.98456	98479.87
1447.2	1	5.9	0.013038	0.1	0.82	0.059655	0.805419	98480.68
1447.4	1	5.9	0.009777	0.1	0.82	0.044734	0.626336	98481.31
1447.6	1	5.9	0.006517	0.1	0.82	0.029818	0.447312	98481.75
1447.8	1	5.9	0.003258	0.1	0.82	0.014906	0.268346	98482.02
1448	1	5.9	0	0.1	0.82	0	0.089439	98482.11

Peak Flow Hydrologic Analysis

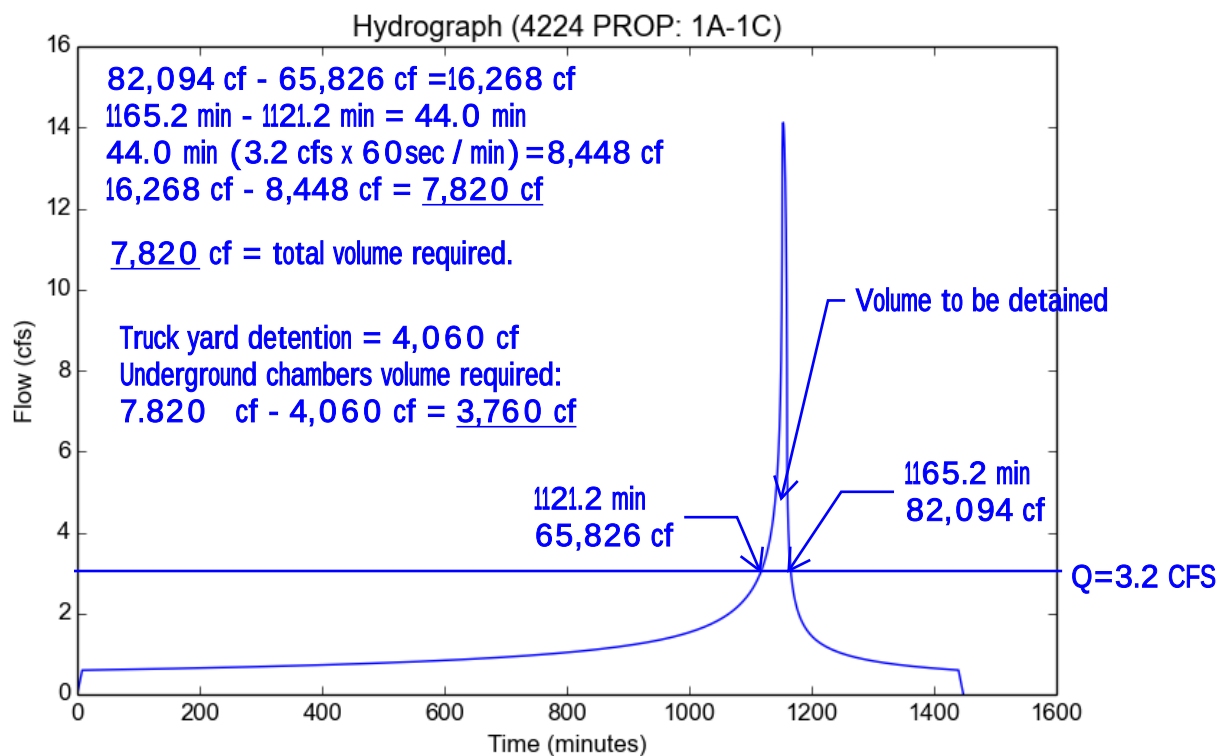
File location: O:/4200-4299/4221/HYDROLOGY/APPENDIX B RATIONAL METHOD/4221 PROP Report.pdf
Version: HydroCalc 1.0.3

Input Parameters

Project Name	4224 PROP
Subarea ID	1A-1C
Area (ac)	5.58
Flow Path Length (ft)	558.0
Flow Path Slope (vft/hft)	0.0078
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.9
Soil Type	9
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	2.8224
Undeveloped Runoff Coefficient (Cu)	0.8649
Developed Runoff Coefficient (Cd)	0.8965
Time of Concentration (min)	8.0
Clear Peak Flow Rate (cfs)	14.1189
Burned Peak Flow Rate (cfs)	14.1189
24-Hr Clear Runoff Volume (ac-ft)	2.2608
24-Hr Clear Runoff Volume (cu-ft)	98482.1104



SEQUOIA COMMERCE CENTER
PONDING AT SOUTHERLY TRUCK YARD BLDG. 2

Elevation	Depth (feet)	Area (sq. ft.)	Volume (c.f.)	Σ Volume (c.f.)	Σ Volume (ac-ft)
61.58	0.00	50.4			
			144	144	0.00
61.70	0.12	2349			
			515	659	0.02
61.80	0.22	7955			
			1203	1,862	0.04
61.90	0.32	16099			
			2016	3,878	0.09
62.00	0.42	24221			
			1308	5,186	0.12
62.05	0.47	28117			
			1498	6,684	0.15
62.10	0.52	31786			

4221 BLDG. 2 DETENTION								
T (MIN.)			In (In/HR)	Cu	Cd	Q (CFS.)	Volume (CF.)	
1126.2	0.693174	4.089724	0.738635	0.39659	0.849659	4.700631	56.31121	89968.02
1126.4	0.693613	4.092318	0.741071	0.397901	0.84979	4.716863	56.50496	90024.52
1126.6	0.694055	4.094922	0.743533	0.399226	0.849923	4.733269	56.70079	90081.22
1126.8	0.694498	4.097536	0.74602	0.400564	0.850056	4.749853	56.89873	90138.12
1127	0.694942	4.100159	0.748534	0.401917	0.850192	4.766617	57.09882	90195.22
1127.2	0.695388	4.102792	0.751075	0.403284	0.850328	4.783564	57.30109	90252.52
1127.4	0.695836	4.105435	0.753643	0.404665	0.850467	4.8007	57.50558	90310.03
1127.6	0.696286	4.108088	0.756238	0.406062	0.850606	4.818025	57.71235	90367.74
1127.8	0.696738	4.110752	0.758862	0.407474	0.850747	4.835545	57.92142	90425.66
1128	0.697191	4.113426	0.761515	0.408901	0.85089	4.853263	58.13285	90483.79
1128.2	0.697646	4.11611	0.764197	0.410344	0.851034	4.871183	58.34668	90542.14
1128.4	0.698102	4.118805	0.766909	0.411803	0.85118	4.889309	58.56295	90600.7
1128.6	0.698561	4.12151	0.769652	0.413279	0.851328	4.907644	58.78171	90659.49
1128.8	0.699022	4.124227	0.772425	0.414771	0.851477	4.926193	59.00302	90718.49
1129	0.699484	4.126955	0.775231	0.41628	0.851628	4.944959	59.22691	90777.72
1129.2	0.699948	4.129693	0.778068	0.417807	0.851781	4.963948	59.45344	90837.17
1129.4	0.700414	4.132443	0.780938	0.419351	0.851935	4.983164	59.68267	90896.85
1129.6	0.700882	4.135205	0.783842	0.420914	0.852091	5.002611	59.91465	90956.77
1129.8	0.701352	4.137978	0.78678	0.422495	0.852249	5.022294	60.14943	91016.92
1130	0.701824	4.140763	0.789753	0.424094	0.852409	5.042217	60.38707	91077.3
1130.2	0.702298	4.14356	0.792762	0.425713	0.852571	5.062387	60.62763	91137.93
1130.4	0.702774	4.146369	0.795807	0.427351	0.852735	5.082807	60.87117	91198.8
1130.6	0.703253	4.14919	0.798889	0.42901	0.852901	5.103484	61.11775	91259.92
1130.8	0.703733	4.152024	0.802009	0.430392	0.853039	5.124244	61.36637	91321.29
1131	0.704215	4.15487	0.805167	0.431625	0.853163	5.145168	61.61647	91382.9
1131.2	0.7047	4.157729	0.808365	0.432874	0.853287	5.166359	61.86916	91444.77
1131.4	0.705187	4.160601	0.811603	0.434139	0.853414	5.187823	62.12509	91506.9
1131.6	0.705676	4.163486	0.814882	0.435419	0.853542	5.209566	62.38434	91569.28
1131.8	0.706167	4.166384	0.818204	0.436716	0.853672	5.231594	62.64696	91631.93
1132	0.70666	4.169296	0.821568	0.43803	0.853803	5.253914	62.91305	91694.84
1132.2	0.707156	4.172222	0.824976	0.439361	0.853936	5.276531	63.18267	91758.02
1132.4	0.707654	4.175161	0.828429	0.440709	0.854071	5.299454	63.45591	91821.48
1132.6	0.708155	4.178115	0.831928	0.442076	0.854208	5.322688	63.73285	91885.21
1132.8	0.708658	4.181083	0.835474	0.44346	0.854346	5.346241	64.01357	91949.23
1133	0.709164	4.184066	0.839068	0.444864	0.854486	5.37012	64.29817	92013.52
1133.2	0.709672	4.187063	0.842711	0.446286	0.854629	5.394334	64.58672	92078.11
1133.4	0.710182	4.190075	0.846404	0.447729	0.854773	5.418889	64.87934	92142.99
1133.6	0.710695	4.193103	0.850149	0.449191	0.854919	5.443794	65.1761	92208.17
1133.8	0.711211	4.196146	0.853946	0.450674	0.855067	5.469058	65.47712	92273.64
1134	0.71173	4.199205	0.857797	0.452178	0.855218	5.49469	65.78249	92339.43
1134.2	0.712251	4.20228	0.861704	0.453703	0.85537	5.520698	66.09233	92405.52
1134.4	0.712775	4.205371	0.865667	0.455251	0.855525	5.547092	66.40674	92471.92
1134.6	0.713302	4.208479	0.869688	0.456821	0.855682	5.573881	66.72584	92538.65

1134.8	0.713831	4.211604	0.873768	0.458415	0.855841	5.601076	67.04974	92605.7
1135	0.714364	4.214746	0.87791	0.460032	0.856003	5.628687	67.37858	92673.08
1135.2	0.714899	4.217905	0.882114	0.461674	0.856167	5.656726	67.71248	92740.79
1135.4	0.715438	4.221082	0.886382	0.463341	0.856334	5.685202	68.05157	92808.84
1135.6	0.715979	4.224277	0.890716	0.465033	0.856503	5.714128	68.39598	92877.24
1135.8	0.716524	4.22749	0.895117	0.466752	0.856675	5.743516	68.74587	92945.99
1136	0.717072	4.230722	0.899588	0.468498	0.85685	5.773379	69.10137	93015.09
1136.2	0.717623	4.233973	0.90413	0.470271	0.857027	5.803729	69.46265	93084.55
1136.4	0.718177	4.237243	0.908745	0.472074	0.857207	5.83458	69.82986	93154.38
1136.6	0.718735	4.240534	0.913435	0.473905	0.857391	5.865947	70.20316	93224.58
1136.8	0.719296	4.243844	0.918202	0.475767	0.857577	5.897843	70.58274	93295.16
1137	0.71986	4.247175	0.923049	0.47766	0.857766	5.930285	70.96877	93366.13
1137.2	0.720428	4.250527	0.927978	0.479584	0.857958	5.963287	71.36143	93437.49
1137.4	0.721	4.2539	0.932991	0.481542	0.858154	5.996867	71.76092	93509.26
1137.6	0.721575	4.257295	0.93809	0.483533	0.858353	6.031042	72.16745	93581.42
1137.8	0.722155	4.260712	0.943278	0.485559	0.858556	6.065829	72.58122	93654
1138	0.722738	4.264152	0.948558	0.487621	0.858762	6.101248	73.00246	93727.01
1138.2	0.723325	4.267615	0.953933	0.48972	0.858972	6.137318	73.4314	93800.44
1138.4	0.723916	4.271102	0.959405	0.491857	0.859186	6.17406	73.86827	93874.31
1138.6	0.724511	4.274613	0.964978	0.494033	0.859403	6.211495	74.31333	93948.62
1138.8	0.72511	4.278148	0.970654	0.49625	0.859625	6.249645	74.76684	94023.39
1139	0.725713	4.281709	0.976437	0.498508	0.859851	6.288533	75.22907	94098.62
1139.2	0.726321	4.285296	0.982331	0.50081	0.860081	6.328185	75.70031	94174.32
1139.4	0.726934	4.288909	0.988339	0.503156	0.860316	6.368626	76.18086	94250.5
1139.6	0.727551	4.29255	0.994465	0.505548	0.860555	6.409882	76.67104	94327.17
1139.8	0.728172	4.296218	1.000713	0.507988	0.860799	6.451982	77.17118	94404.34
1140	0.728799	4.299914	1.007087	0.510477	0.861048	6.494956	77.68162	94482.02
1140.2	0.72943	4.303639	1.013592	0.513018	0.861302	6.538834	78.20273	94560.22
1140.4	0.730067	4.307395	1.020232	0.51561	0.861561	6.583649	78.7349	94638.96
1140.6	0.730709	4.31118	1.027011	0.518258	0.861826	6.629436	79.27851	94718.24
1140.8	0.731356	4.314997	1.033936	0.520962	0.862096	6.676231	79.834	94798.07
1141	0.732008	4.318847	1.041012	0.523725	0.862373	6.724072	80.40181	94878.47
1141.2	0.732666	4.322729	1.048243	0.526549	0.862655	6.772999	80.98242	94959.46
1141.4	0.73333	4.326645	1.055637	0.529437	0.862944	6.823054	81.57632	95041.03
1141.6	0.733999	4.330596	1.063199	0.53239	0.863239	6.874283	82.18402	95123.22
1141.8	0.734675	4.334584	1.070936	0.535411	0.863541	6.926733	82.8061	95206.02
1142	0.735357	4.338607	1.078856	0.538504	0.86385	6.980454	83.44313	95289.46
1142.2	0.736046	4.342669	1.086965	0.541671	0.864167	7.0355	84.09573	95373.56
1142.4	0.736741	4.346771	1.095271	0.544914	0.864491	7.091926	84.76455	95458.33
1142.6	0.737443	4.350912	1.103784	0.548239	0.864824	7.149793	85.45031	95543.78
1142.8	0.738152	4.355095	1.112511	0.551647	0.865165	7.209164	86.15374	95629.93
1143	0.738868	4.359321	1.121462	0.555142	0.865514	7.270107	86.87562	95716.8
1143.2	0.739592	4.363592	1.130648	0.55873	0.865873	7.332694	87.6168	95804.42
1143.4	0.740323	4.367908	1.140079	0.562412	0.866241	7.397002	88.37818	95892.8
1143.6	0.741063	4.372272	1.149767	0.566195	0.86662	7.463114	89.1607	95981.96
1143.8	0.741811	4.376684	1.159723	0.570084	0.867008	7.531117	89.96539	96071.93
1144	0.742567	4.381148	1.169961	0.574082	0.867408	7.601106	90.79334	96162.72

1144.2	0.743333	4.385665	1.180495	0.578195	0.86782	7.673182	91.64573	96254.37
1144.4	0.744108	4.390236	1.19134	0.58243	0.868243	7.747453	92.52381	96346.89
1144.6	0.744892	4.394864	1.202512	0.586793	0.868679	7.824037	93.42894	96440.32
1144.8	0.745687	4.399551	1.214029	0.591291	0.869129	7.903059	94.36257	96534.68
1145	0.746492	4.4043	1.225909	0.59593	0.869593	7.984655	95.32628	96630.01
1145.2	0.747307	4.409113	1.238173	0.600719	0.870072	8.068974	96.32177	96726.33
1145.4	0.748135	4.413994	1.250842	0.60555	0.870555	8.156065	97.35023	96823.68
1145.6	0.748974	4.418944	1.263942	0.608855	0.870885	8.244605	98.40402	96922.08
1145.8	0.749825	4.423967	1.277496	0.612274	0.871227	8.336292	99.48538	97021.57
1146	0.750689	4.429067	1.291535	0.615815	0.871582	8.431326	100.6057	97122.17
1146.2	0.751567	4.434248	1.306088	0.619486	0.871949	8.529923	101.7675	97223.94
1146.4	0.75246	4.439514	1.32119	0.623296	0.87233	8.632323	102.9735	97326.91
1146.6	0.753367	4.444868	1.336878	0.627253	0.872725	8.738786	104.2267	97431.14
1146.8	0.754291	4.450317	1.353193	0.631369	0.873137	8.849604	105.5303	97536.67
1147	0.755231	4.455865	1.37018	0.635654	0.873565	8.965097	106.8882	97643.56
1147.2	0.75619	4.461518	1.387891	0.640121	0.874012	9.08562	108.3043	97751.86
1147.4	0.757167	4.467283	1.40638	0.644785	0.874479	9.211571	109.7831	97861.65
1147.6	0.758164	4.473168	1.425711	0.649662	0.874966	9.343395	111.3298	97972.98
1147.8	0.759183	4.479179	1.445955	0.654768	0.875477	9.481592	112.9499	98085.93
1148	0.760225	4.485327	1.467191	0.660125	0.876013	9.626728	114.6499	98200.58
1148.2	0.761292	4.49162	1.489509	0.665755	0.876576	9.779446	116.437	98317.01
1148.4	0.762385	4.498072	1.513013	0.671684	0.877168	9.94048	118.3196	98435.33
1148.6	0.763507	4.504694	1.537821	0.677942	0.877794	10.11068	120.3069	98555.64
1148.8	0.764661	4.511502	1.56407	0.684564	0.878456	10.29102	122.4102	98678.05
1149	0.76585	4.518513	1.591922	0.691589	0.879159	10.48264	124.642	98802.69
1149.2	0.767076	4.525748	1.621563	0.699066	0.879907	10.68691	127.0173	98929.71
1149.4	0.768344	4.53323	1.653218	0.707051	0.880705	10.90542	129.554	99059.26
1149.6	0.769659	4.540987	1.687156	0.715613	0.881561	11.14011	132.2732	99191.54
1149.8	0.771026	4.549055	1.723707	0.724833	0.882483	11.39336	135.2008	99326.74
1150	0.772454	4.557476	1.763276	0.733359	0.883336	11.66616	138.3571	99465.1
1150.2	0.77395	4.566303	1.806379	0.739507	0.883951	11.95966	141.7549	99606.85
1150.4	0.775526	4.575604	1.853679	0.746253	0.884625	12.28219	145.4511	99752.3
1150.6	0.777198	4.58547	1.906057	0.753724	0.885372	12.6399	149.5325	99901.83
1150.8	0.778987	4.596024	1.964724	0.762092	0.886209	13.04127	154.087	100055.9
1151	0.780923	4.607443	2.031428	0.771606	0.887161	13.4985	159.2386	100215.2
1151.2	0.78305	4.619998	2.108843	0.782648	0.888265	14.03035	165.1731	100380.3
1151.4	0.785447	4.63414	2.201461	0.795859	0.889586	14.66833	172.1921	100552.5
1151.6	0.788262	4.650743	2.317991	0.81248	0.891248	15.47363	180.8518	100733.4
1151.8	0.79187	4.672036	2.480685	0.835686	0.893569	16.6028	192.4586	100925.8
1152	0.8	4.72	2.909326	0.872063	0.897206	19.55089	216.9221	101142.8
1152.2	0.804237	4.745001	3.107524	0.884589	0.898459	20.91195	242.777	101385.5
1152.4	0.806118	4.756099	3.165855	0.887345	0.898734	21.31102	253.3378	101638.9
1152.6	0.807585	4.764753	3.198851	0.888903	0.89889	21.53686	257.0873	101896
1152.8	0.808835	4.772124	3.218077	0.889811	0.898981	21.6685	259.2322	102155.2
1153	0.809944	4.778668	3.228036	0.890282	0.899028	21.73669	260.4311	102415.6
1153.2	0.810953	4.78462	3.231023	0.890423	0.899042	21.75715	260.963	102676.6
1153.4	0.811885	4.790122	3.228382	0.890298	0.89903	21.73907	260.9773	102937.6

1153.6	0.812757	4.795264	3.220964	0.889948	0.898995	21.68827	260.564	103198.1
1153.8	0.813578	4.800112	3.209331	0.889398	0.89894	21.60862	259.7813	103457.9
1154	0.814358	4.804713	3.193864	0.888668	0.898867	21.50273	258.6681	103716.6
1154.2	0.815102	4.809102	3.174818	0.887768	0.898777	21.37236	257.2505	103973.8
1154.4	0.815815	4.813307	3.152356	0.886707	0.898671	21.21864	255.546	104229.4
1154.6	0.8165	4.817351	3.126568	0.885489	0.898549	21.04221	253.5651	104482.9
1154.8	0.817161	4.821251	3.097485	0.884115	0.898412	20.8433	251.3131	104734.3
1155	0.8178	4.825022	3.065082	0.882585	0.898258	20.62174	248.7902	104983
1155.2	0.81842	4.828676	3.029282	0.880894	0.898089	20.37704	245.9927	105229
1155.4	0.819021	4.832225	2.989949	0.878685	0.897868	20.10751	242.9073	105471.9
1155.6	0.819606	4.835676	2.946891	0.875148	0.897515	19.81014	239.5059	105711.4
1155.8	0.820176	4.839039	2.899839	0.871283	0.897128	19.48544	235.7735	105947.2
1156	0.820732	4.84232	2.848437	0.867061	0.896706	19.13104	231.6989	106178.9
1156.2	0.821275	4.845524	2.792212	0.862443	0.896244	18.74376	227.2488	106406.2
1156.4	0.821806	4.848657	2.730533	0.857377	0.895738	18.31935	222.3787	106628.5
1156.6	0.822326	4.851724	2.662545	0.851792	0.895179	17.85208	217.0286	106845.6
1156.8	0.822835	4.854729	2.587054	0.845591	0.894559	17.3339	211.1159	107056.7
1157	0.823335	4.857676	2.502329	0.838632	0.893863	16.75318	204.5225	107261.2
1157.2	0.823825	4.860568	2.4057	0.82499	0.892499	16.08167	197.0091	107458.2
1157.4	0.824306	4.863408	2.292681	0.80887	0.890887	15.29847	188.2808	107646.5
1157.6	0.824779	4.866199	2.154558	0.789169	0.888917	14.34502	177.8609	107824.4
1157.8	0.825245	4.868943	1.969075	0.762713	0.886271	13.07106	164.4965	107988.9
1158	0.825702	4.871644	1.516436	0.672548	0.877255	9.963954	138.2101	108127.1
1158.2	0.826153	4.874302	1.293014	0.616188	0.871619	8.441348	110.4318	108237.5
1158.4	0.826597	4.87692	1.208213	0.58902	0.868902	7.863144	97.82695	108335.3
1158.6	0.827034	4.879501	1.147474	0.5653	0.86653	7.44746	91.86363	108427.2
1158.8	0.827465	4.882044	1.099198	0.546448	0.864645	7.118615	87.39645	108514.6
1159	0.82789	4.884553	1.058847	0.53069	0.863069	6.844796	83.78047	108598.4
1159.2	0.82831	4.887028	1.024079	0.517113	0.861711	6.609629	80.72655	108679.1
1159.4	0.828724	4.889472	0.993499	0.505171	0.860517	6.403375	78.07802	108757.2
1159.6	0.829133	4.891884	0.966198	0.49451	0.859451	6.219698	75.73844	108832.9
1159.8	0.829537	4.894267	0.941544	0.484882	0.858488	6.054202	73.6434	108906.6
1160	0.829936	4.896621	0.919078	0.476109	0.857611	5.9037	71.74742	108978.3
1160.2	0.83033	4.898947	0.898453	0.468054	0.856805	5.765795	70.01697	109048.3
1160.4	0.83072	4.901247	0.879401	0.460615	0.856061	5.638633	68.42657	109116.7
1160.6	0.831105	4.903522	0.861711	0.453706	0.855371	5.520749	66.95629	109183.7
1160.8	0.831487	4.905772	0.845212	0.447263	0.854726	5.410961	65.59026	109249.3
1161	0.831864	4.907998	0.829762	0.44123	0.854123	5.308303	64.31558	109313.6
1161.2	0.832237	4.9102	0.815245	0.435561	0.853556	5.211971	63.12164	109376.7
1161.4	0.832607	4.912381	0.801563	0.430218	0.853022	5.121291	61.99957	109438.7
1161.6	0.832973	4.914539	0.788632	0.423491	0.852349	5.034701	60.93595	109499.7
1161.8	0.833335	4.916677	0.776381	0.416899	0.85169	4.952657	59.92415	109559.6
1162	0.833694	4.918794	0.764748	0.41064	0.851064	4.874863	58.96512	109618.6
1162.2	0.834049	4.920892	0.753679	0.404685	0.850468	4.800944	58.05484	109676.6
1162.4	0.834402	4.92297	0.743128	0.399008	0.849901	4.73057	57.18908	109733.8
1162.6	0.834751	4.925029	0.733052	0.393586	0.849359	4.663451	56.36413	109790.2
1162.8	0.835097	4.927071	0.723414	0.388401	0.84884	4.599332	55.5767	109845.7

Peak Flow Hydrologic Analysis

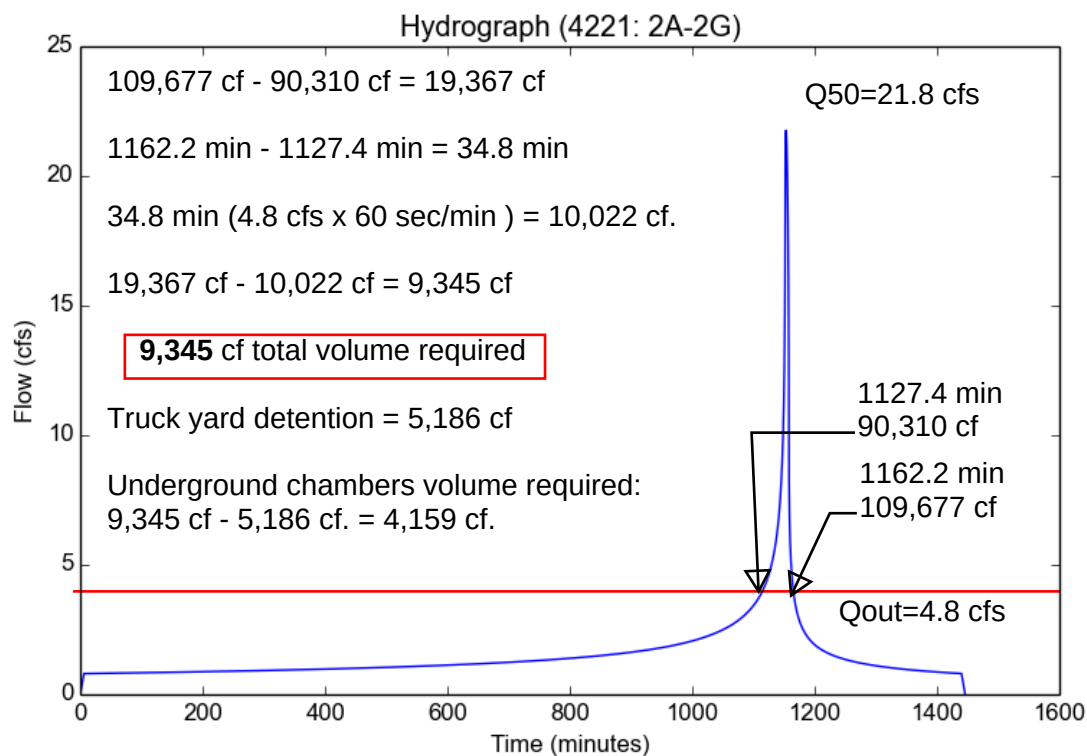
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	4221
Subarea ID	2A-2G
Area (ac)	7.49
Flow Path Length (ft)	416.0
Flow Path Slope (vft/hft)	0.0082
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.9
Soil Type	9
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

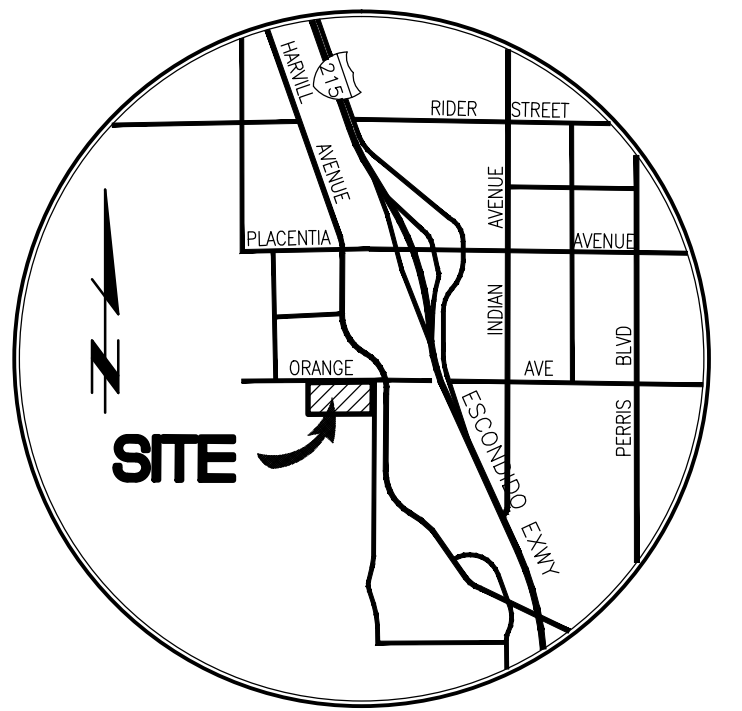
Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.231
Undeveloped Runoff Coefficient (Cu)	0.8904
Developed Runoff Coefficient (Cd)	0.899
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	21.7571
Burned Peak Flow Rate (cfs)	21.7571
24-Hr Clear Runoff Volume (ac-ft)	3.0348
24-Hr Clear Runoff Volume (cu-ft)	132196.1656

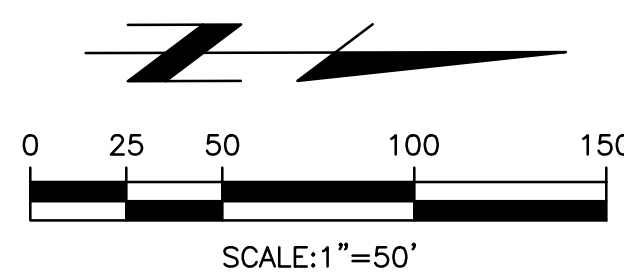
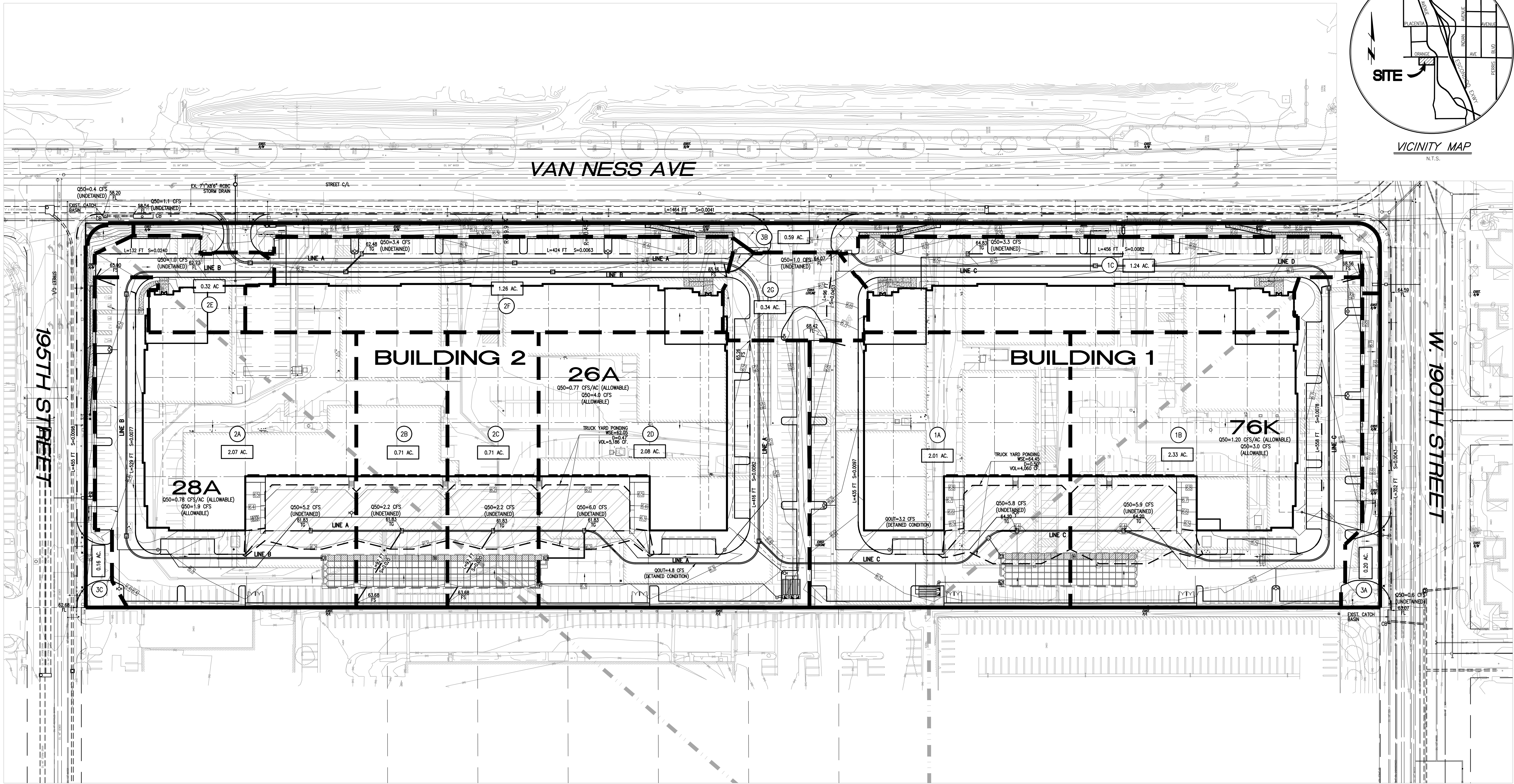


APPENDIX D

HYDROLOGY MAP



VICINITY MAP
N.T.S.



PREPARED FOR:
IPERS SEQUOIA COMMERCE CENTER INC
13450 MAXELLA AVENUE, SUITE 220
MARINA DEL REY, CA 90292
PHONE: (XXX) XXX-XXXX

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PH: (714) 821-4811 FAX: (714) 821-4173

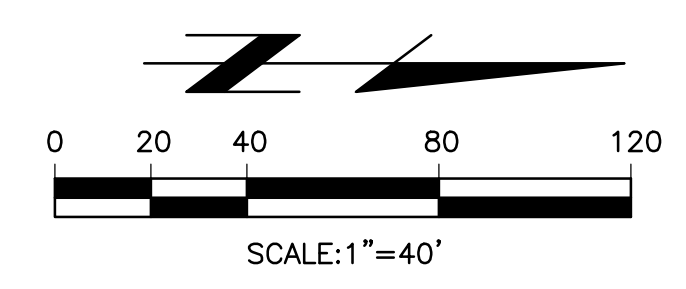
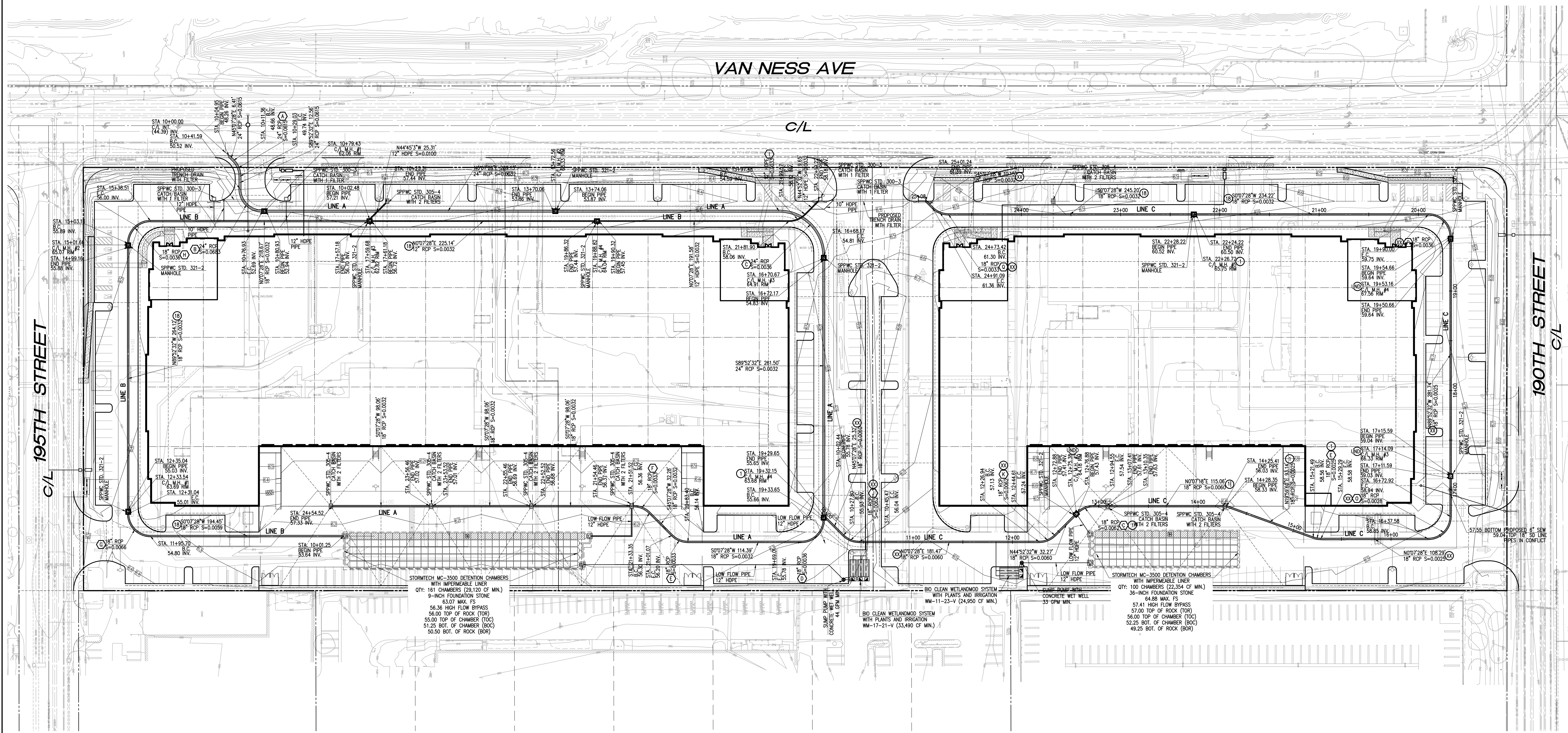
CITY OF TORRANCE			
PRELIMINARY HYDROLOGY MAP			
SEQUOIA COMMERCE CENTER NORTHEAST CORNER OF W. 190TH ST. AND VAN NESS AVE.			
Designed by _____	Approved by _____	Date _____	
Date _____			
Checked by _____			
Date _____			
Designed by _____	Public Works Director _____	R.C.E.	
Date _____			
Checked by _____			
Date _____			
Sheet 1 of 1		Sheets	

4901 / 1 OF 1 SHEETS

Last Update: 3/22/24
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APPENDIX E

CONCEPTUAL STORM DRAIN PLANS



CITY OF TORRANCE PUBLIC WORKS DEPARTMENT	
CONCEPTUAL STORM DRAIN PLAN	
SEQUOIA COMMERCE CENTER 2160 W. 190TH STREET 19250 AND 19320 VAN NESS AVENUE	
Designed by _____	Approved by _____ Date _____
Checked by _____	Public Works Director _____ R.C.E. XXXXX
Date _____	
Designed by _____	
Date _____	
Checked by _____	
Date _____	
Sheet 4 of 6	Sheets

PREPARED FOR:

RREFF AMERICA LLC.
13450 MAXELLA AVENUE
MARINA DEL REY, CA 90292
PHONE: (415) 547-9008
FAX: (XXX) XXX-XXXX

