

Exhibit G

Atlas View LLC Atlas View II Vineyard Hydrology Analysis

Prepared by Napa Valley Vineyard Engineering, Inc
December 6, 2018
Revised October 17, 2019

INTRODUCTION

This project is the development of approximately 20.1 gross acres of new vineyard within APN 032-120-015 located at 4300 Atlas Peak Road, Napa.

This hydrology study is to determine the anticipated affect the proposed vineyard development project will have on local hydrology and runoff patterns. Hydrologic modeling of existing and proposed conditions was performed using HydroCad software with the CA-1 rainfall distribution curve. Following is a summary of the data used to complete the hydrologic analysis and the results of this analysis.

RAINFALL DATA

Rainfall depths for the project site were obtained from the National Oceanic and Atmospheric Administration (NOAA) Atlas 14, Volume 6, Version 2, Precipitation Frequency Data for California, which uses the latitude and longitude of a site to determine rainfall depths. The latitude and longitude of this project are estimated to be 38.4354° N, 122.2373° W, based on information obtained from All Topo V7 USGS mapping software.

The following rainfall data from the NOAA website was used in the analysis:

2 year, 24 hour	4.50 inches
5 year, 24 hour	5.79 inches
10 year, 24 hour	6.84 inches
25 year, 24 hour	8.41 inches
50 year, 24 hour	9.60 inches
100 year, 24 hour	10.90 inches

WATERSHED AREAS

The project site is located within seven watersheds as shown on the Drainage Area Maps in the Appendix. The watersheds are modeled separately, except for Watershed 3, which is broken into two subareas, both draining to a common point of interest (POI). The POIs all occur on the subject property except that the POI for Watershed 5 is approximately 600 ft. downstream from the property line. The location of POI 5 was selected in order to encompass the proposed development area within the watershed. There are three existing roadway culverts within the watersheds, and pre and post

project modeling was performed at each one. The watershed above each POI was determined based on Napa County contour mapping (2002).

PRE-PROJECT WATERSHED CONDITIONS

Soil Types

The United States Department of Agriculture Soil Conservation Service Soils Map for Napa County, August 1978, maps the following soil types within the watersheds:

SCS #100/102, Aiken loam (Hydrologic Soil Group(HSG) C)

SCS #139/140, Forward gravelly loam (HSG C)

Land Use

Land use within each watershed was analyzed based on the 2011 aerial photograph obtained from the Napa County GIS website. All watersheds are composed largely of tree canopy with pockets of brush and open grassland. There is existing vineyard in Watersheds 1 and 2, which is assumed to be tilled and sprayed, and is considered a “fair” hydrologic condition. A large part of the watersheds used in this analysis were burned in the October 2017 fires. The current ground cover in the grassland and brush areas is approximately 75 to 80%, which is considered a “good” hydrologic condition. Because of the impact of the fire, the tree canopy is considered a “fair” hydrologic condition. A detailed breakdown of land uses by area and hydrologic soil group is included in the HydroCad reports in the Appendix, and is shown on the Drainage Area Maps.

Time of Concentration

The time of concentration represents the time it takes for rainfall in the most hydraulically remote portion of the watershed to reach the POI. The time of concentration is estimated assuming sheet flow up to 100 feet in the uppermost reaches of each watershed. A shallow concentrated flow regime is used to model the runoff down to a channel if one exists, or to the POI. Channel flow data was determined using a typical cross section of each channel. A detailed breakdown of the time of concentration parameters is included in the HydroCad reports, and is shown on the Drainage Area Maps.

POST-PROJECT WATERSHED CONDITIONS

Soil Types

Land preparation for the proposed vineyard development does not alter the permeability of the mapped soil types. The post-project HSG remains the same as pre-project HSG.

Land Use

The proposed project area coverts 20.1 acres of open grassland with small pockets of brush or tree canopy, to vineyard. All other areas within the subject watersheds remain unchanged. The project proposes a no-till cover crop with spot spray or mechanical cultivation around the base of each vine only, which is considered a "good" hydrologic condition. Vineyard avenues/turnspaces will be maintained in no-till cover and are modeled as part of the vineyard. Access drives are existing. A detailed breakdown of land uses by area and hydrologic soil group is included in the Appendix.

Time of Concentration

Vineyard development will not alter the flow paths used in this analysis, except in Watersheds 1b and 3 where attenuation basins are proposed. Time of concentration under post-project conditions are considered the same as pre-project conditions in all other watersheds. A detailed breakdown of time of concentration parameters is included in the Appendix.

CALCULATED RUNOFF RATE

Using the rainfall data, watershed area, land use and time of concentration parameters described above and included in the Appendix, the following runoff rates were calculated:

HydroCad Calculated Peak Runoff Rate (cfs)

24 hr. storm event	2 yr.		5 yr.		10 yr.		25 yr.		50 yr.		100 yr.	
Project Condition	pre	post	pre	post	pre	post	pre	post	pre	post	pre	post
Watershed 1a	3.09	3.09	4.77	4.75	6.18	6.17	8.34	8.33	10.00	9.98	11.82	11.79
Watershed 1b	16.89	16.83	25.77	25.73	33.27	33.21	44.70	44.58	53.44	53.26	63.01	62.76
Watershed 2	6.73	6.73	10.37	10.37	13.46	13.46	18.17	18.17	21.78	21.78	25.75	25.75
Watershed 3	1.75	1.61	2.70	2.51	3.50	3.22	4.73	4.28	5.67	5.08	6.69	5.95
Watershed 4	10.19	10.19	15.69	15.69	20.36	20.36	27.49	27.49	32.95	32.95	38.94	38.94
Watershed 5	1.97	1.97	3.04	3.04	3.94	3.94	5.32	5.32	6.38	6.38	7.53	7.53
Watershed 6	1.07	1.07	1.67	1.67	2.18	2.18	2.96	2.96	3.56	3.56	4.21	4.21
Culvert 1b	12.89	12.89	19.68	19.68	25.40	25.40	34.14	34.13	40.80	40.80	48.11	48.11
Culvert 2	1.39	1.39	2.14	2.14	2.77	2.77	3.74	3.74	4.49	4.49	5.30	5.30
Culvert 4	4.26	4.26	6.56	6.56	8.51	8.51	11.49	11.49	13.77	13.77	16.28	16.28

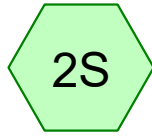
CONCLUSION

The hydrologic analysis presented above, and supporting information in the Appendix, demonstrate that the proposed vineyard development with the construction of basins in Watershed 1b and 3 will not increase the peak runoff rate in the affected watersheds.

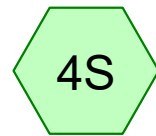
HydroCad REPORTS & MAP APPENDIX



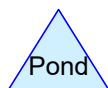
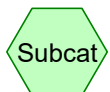
WS 1a pre



WS 1b pre



culvert1b-pre



Routing Diagram for WS 1 preR2

Prepared by Napa Valley Vineyard Engineering, Printed 10/17/2019
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WS 1 preR2

Prepared by Napa Valley Vineyard Engineering
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CA-1 2 yr Rainfall=4.50"

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Summary for Subcatchment 1S: WS 1a pre

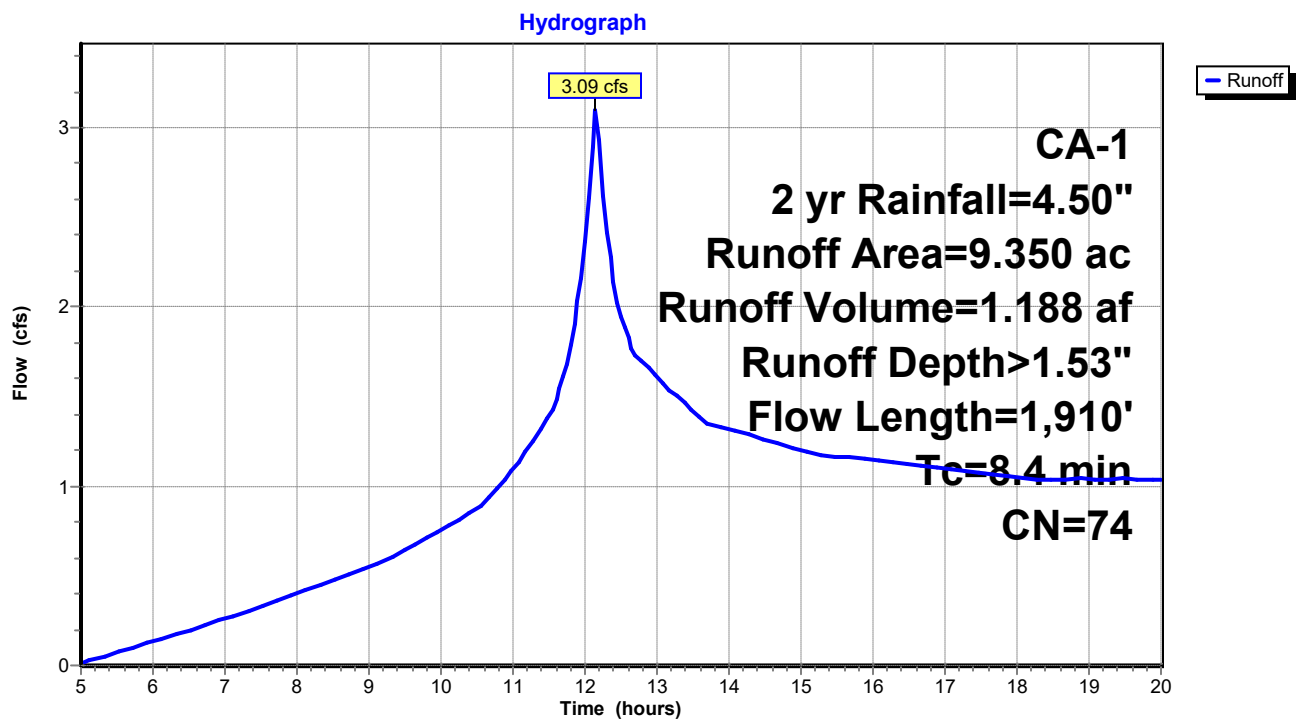
Runoff = 3.09 cfs @ 12.15 hrs, Volume= 1.188 af, Depth> 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG B
0.160	89	Gravel roads, HSG C
2.860	74	Pasture/grassland/range, Good, HSG C
* 0.260	75	Brush, Good, HSG C
5.940	73	Woods, Fair, HSG C
9.350	74	Weighted Average
9.220		98.61% Pervious Area
0.130		1.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	100	0.2100	0.35		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.6	368	0.3500	9.52		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	913	0.1600	6.44		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.7	529	0.1600	12.25	110.21	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
8.4	1,910	Total			

Subcatchment 1S: WS 1a pre



WS 1 preR2

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CA-1 2 yr Rainfall=4.50"

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Summary for Subcatchment 2S: WS 1b pre

Runoff = 16.89 cfs @ 12.34 hrs, Volume= 7.539 af, Depth> 1.57"

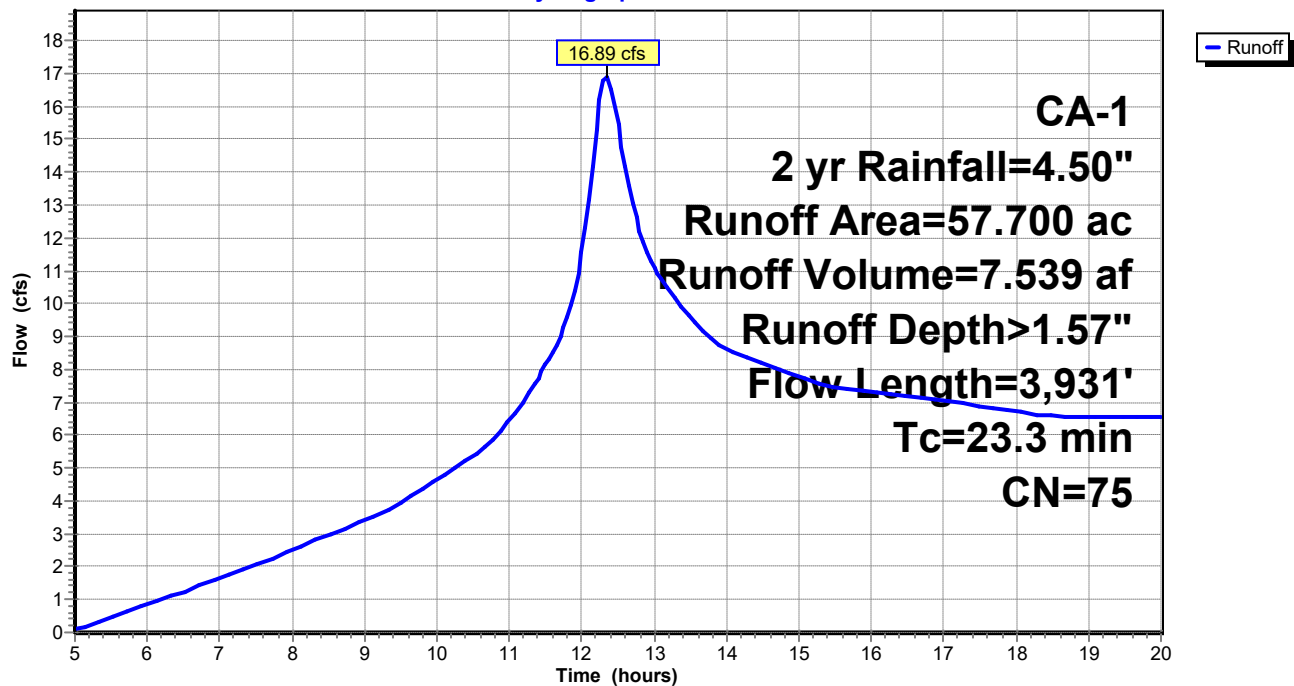
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
1.250	98	Paved parking, HSG C
0.280	89	Gravel roads, HSG C
* 12.680	79	Vineyard, Fair, HSG C
14.880	74	Pasture/grassland/range, Good, HSG C
* 0.670	75	Brush, Good, HSG C
27.940	73	Woods, Fair, HSG C
57.700	75	Weighted Average
56.450		97.83% Pervious Area
1.250		2.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.2	158	0.1700	11.64	128.07	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Winding stream, pools & shoals
0.0	20	0.1500	11.97	21.16	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
2.0	1,342	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Winding stream, pools & shoals
23.3	3,931	Total			

Subcatchment 2S: WS 1b pre

Hydrograph



WS 1 preR2

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CA-1 2 yr Rainfall=4.50"

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Summary for Subcatchment 4S: culvert1b-pre

Runoff = 12.89 cfs @ 12.34 hrs, Volume= 5.752 af, Depth> 1.57"

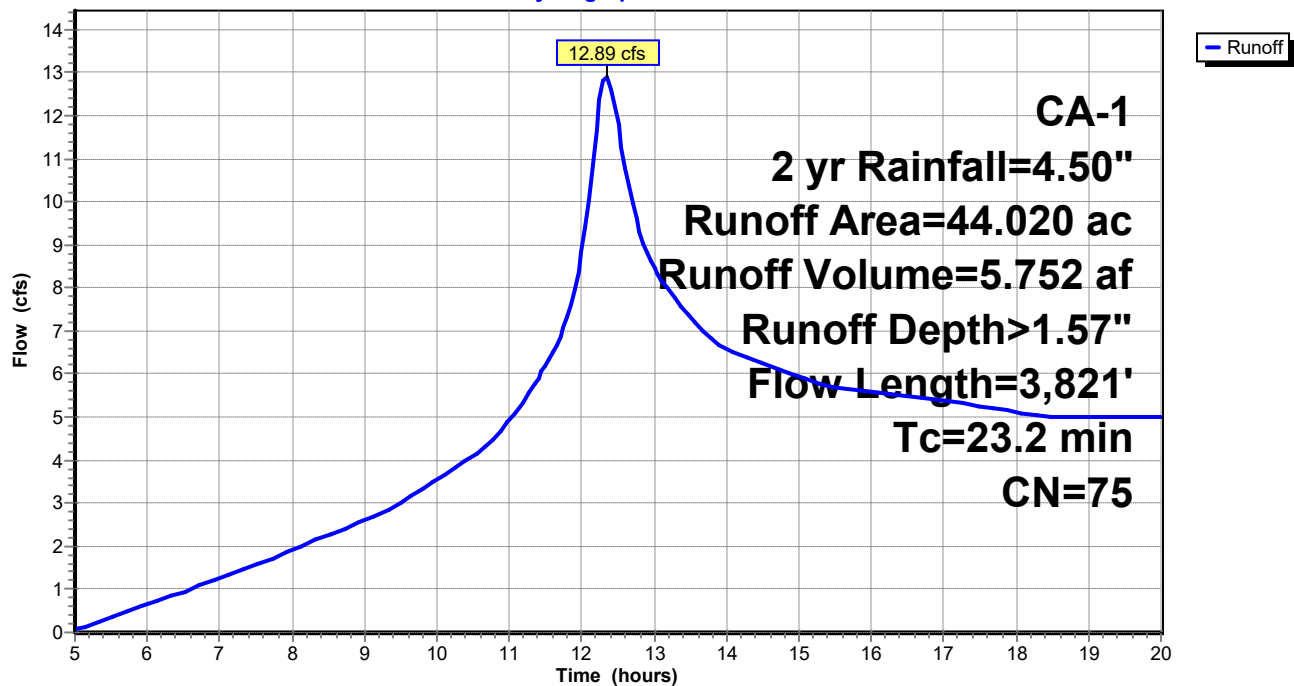
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
0.940	98	Paved parking, HSG C
0.200	89	Gravel roads, HSG C
* 10.750	79	Vineyard, Fair, HSG C
5.620	74	Pasture/grassland/range, Good, HSG C
* 0.330	75	Brush, Good, HSG C
26.180	73	Woods, Fair, HSG C
44.020	75	Weighted Average
43.080		97.86% Pervious Area
0.940		2.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	1,410	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Mountain streams
23.2	3,821	Total			

Subcatchment 4S: culvert1b-pre

Hydrograph



WS 1 preR2

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CA-1 5 yr Rainfall=5.79"

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Summary for Subcatchment 1S: WS 1a pre

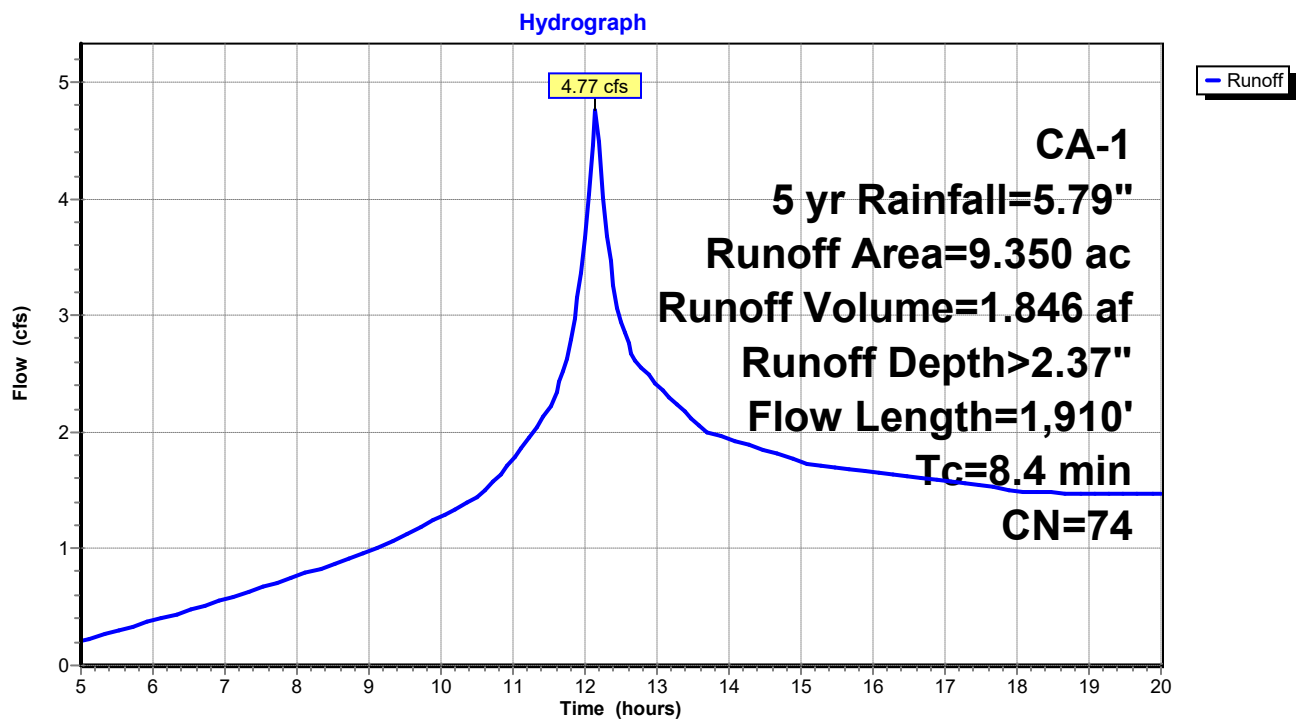
Runoff = 4.77 cfs @ 12.15 hrs, Volume= 1.846 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG B
0.160	89	Gravel roads, HSG C
2.860	74	Pasture/grassland/range, Good, HSG C
* 0.260	75	Brush, Good, HSG C
5.940	73	Woods, Fair, HSG C
9.350	74	Weighted Average
9.220		98.61% Pervious Area
0.130		1.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	100	0.2100	0.35		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.6	368	0.3500	9.52		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	913	0.1600	6.44		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.7	529	0.1600	12.25	110.21	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
8.4	1,910	Total			

Subcatchment 1S: WS 1a pre



WS 1 preR2

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CA-1 5 yr Rainfall=5.79"

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Summary for Subcatchment 2S: WS 1b pre

Runoff = 25.77 cfs @ 12.34 hrs, Volume= 11.627 af, Depth> 2.42"

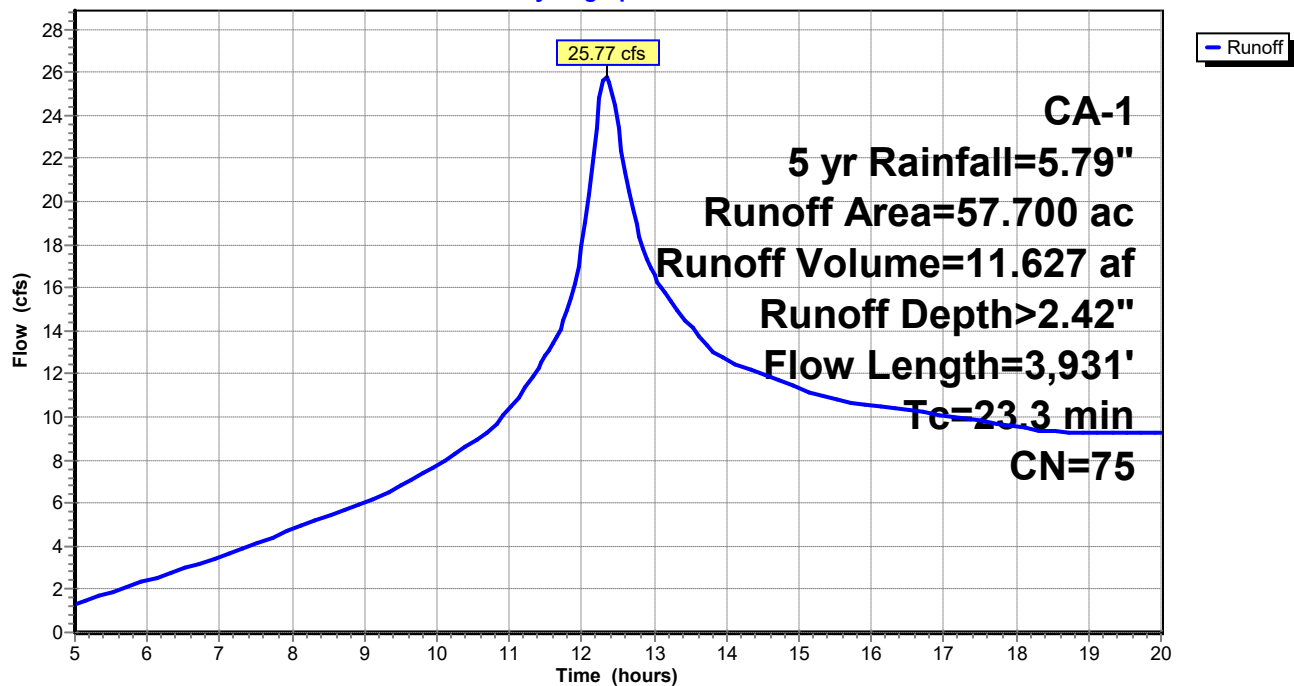
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
1.250	98	Paved parking, HSG C
0.280	89	Gravel roads, HSG C
* 12.680	79	Vineyard, Fair, HSG C
14.880	74	Pasture/grassland/range, Good, HSG C
* 0.670	75	Brush, Good, HSG C
27.940	73	Woods, Fair, HSG C
57.700	75	Weighted Average
56.450		97.83% Pervious Area
1.250		2.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.2	158	0.1700	11.64	128.07	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Winding stream, pools & shoals
0.0	20	0.1500	11.97	21.16	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
2.0	1,342	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Winding stream, pools & shoals
23.3	3,931	Total			

Subcatchment 2S: WS 1b pre

Hydrograph



WS 1 preR2

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CA-1 5 yr Rainfall=5.79"

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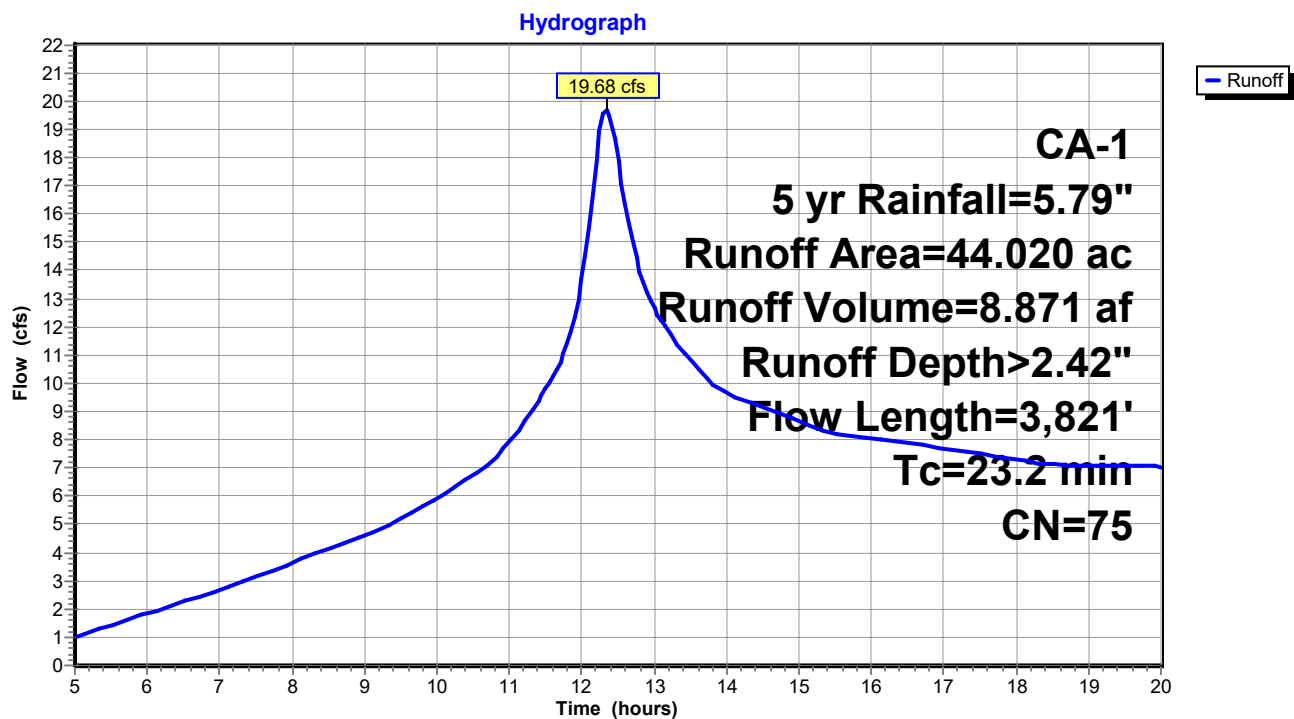
Summary for Subcatchment 4S: culvert1b-pre

Runoff = 19.68 cfs @ 12.33 hrs, Volume= 8.871 af, Depth> 2.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
0.940	98	Paved parking, HSG C
0.200	89	Gravel roads, HSG C
* 10.750	79	Vineyard, Fair, HSG C
5.620	74	Pasture/grassland/range, Good, HSG C
* 0.330	75	Brush, Good, HSG C
26.180	73	Woods, Fair, HSG C
44.020	75	Weighted Average
43.080		97.86% Pervious Area
0.940		2.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	1,410	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Mountain streams
23.2	3,821	Total			

Subcatchment 4S: culvert1b-pre

WS 1 preR2

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CA-1 10 yr Rainfall=6.84"

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Summary for Subcatchment 1S: WS 1a pre

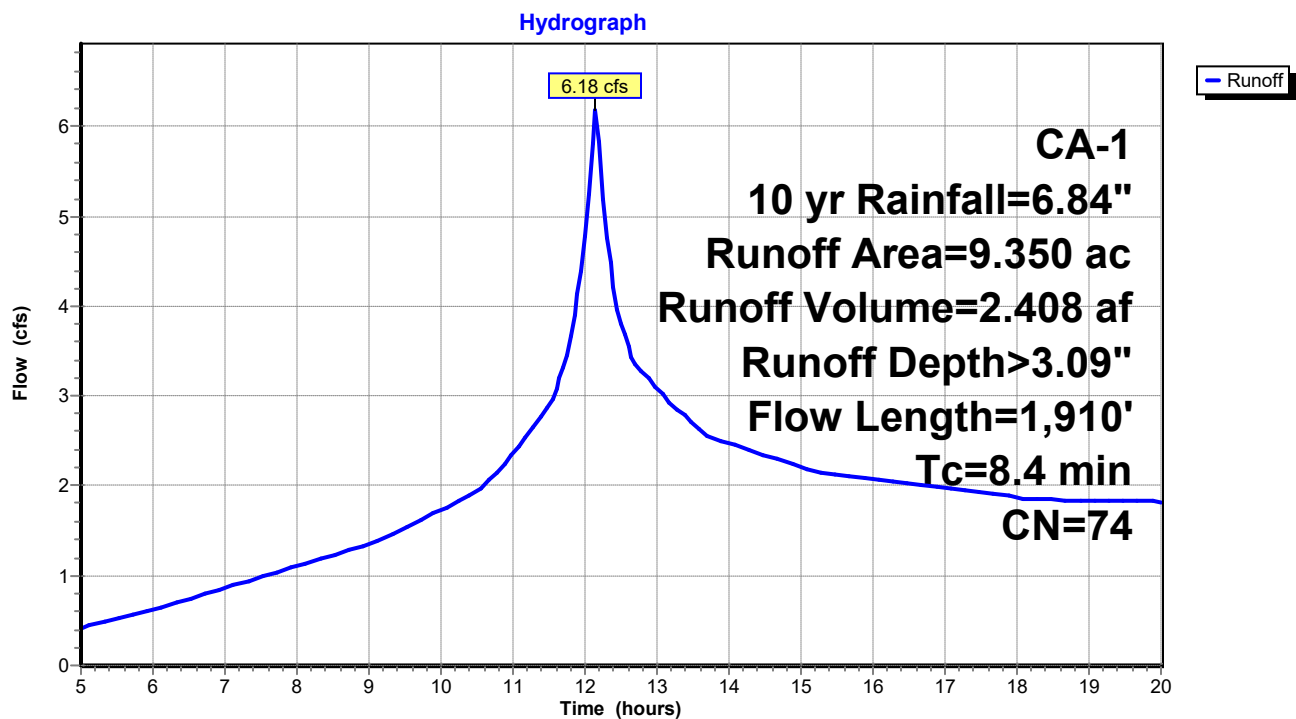
Runoff = 6.18 cfs @ 12.15 hrs, Volume= 2.408 af, Depth> 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG B
0.160	89	Gravel roads, HSG C
2.860	74	Pasture/grassland/range, Good, HSG C
* 0.260	75	Brush, Good, HSG C
5.940	73	Woods, Fair, HSG C
9.350	74	Weighted Average
9.220		98.61% Pervious Area
0.130		1.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	100	0.2100	0.35		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.6	368	0.3500	9.52		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	913	0.1600	6.44		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
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Subcatchment 1S: WS 1a pre



WS 1 preR2

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CA-1 10 yr Rainfall=6.84"

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Summary for Subcatchment 2S: WS 1b pre

Runoff = 33.27 cfs @ 12.33 hrs, Volume= 15.115 af, Depth> 3.14"

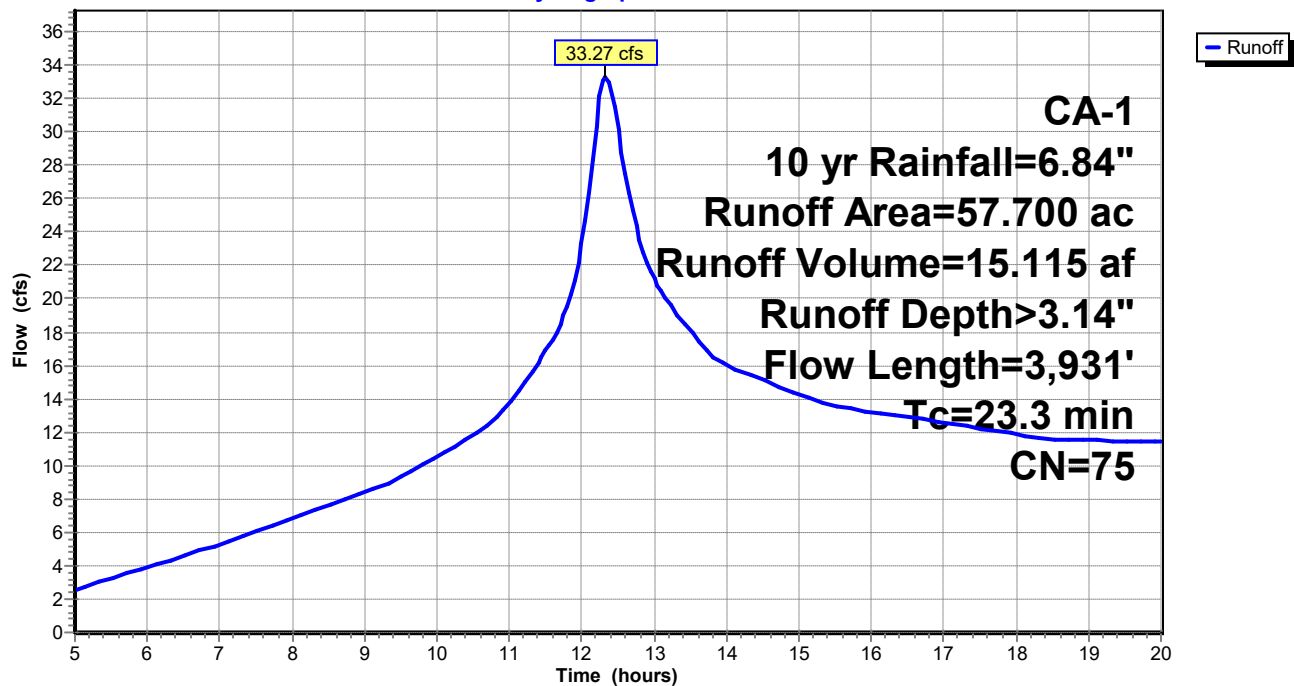
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0.0	20	0.1500	11.97	21.16	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
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Subcatchment 2S: WS 1b pre

Hydrograph



WS 1 preR2

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CA-1 10 yr Rainfall=6.84"

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Summary for Subcatchment 4S: culvert1b-pre

Runoff = 25.40 cfs @ 12.33 hrs, Volume= 11.532 af, Depth> 3.14"

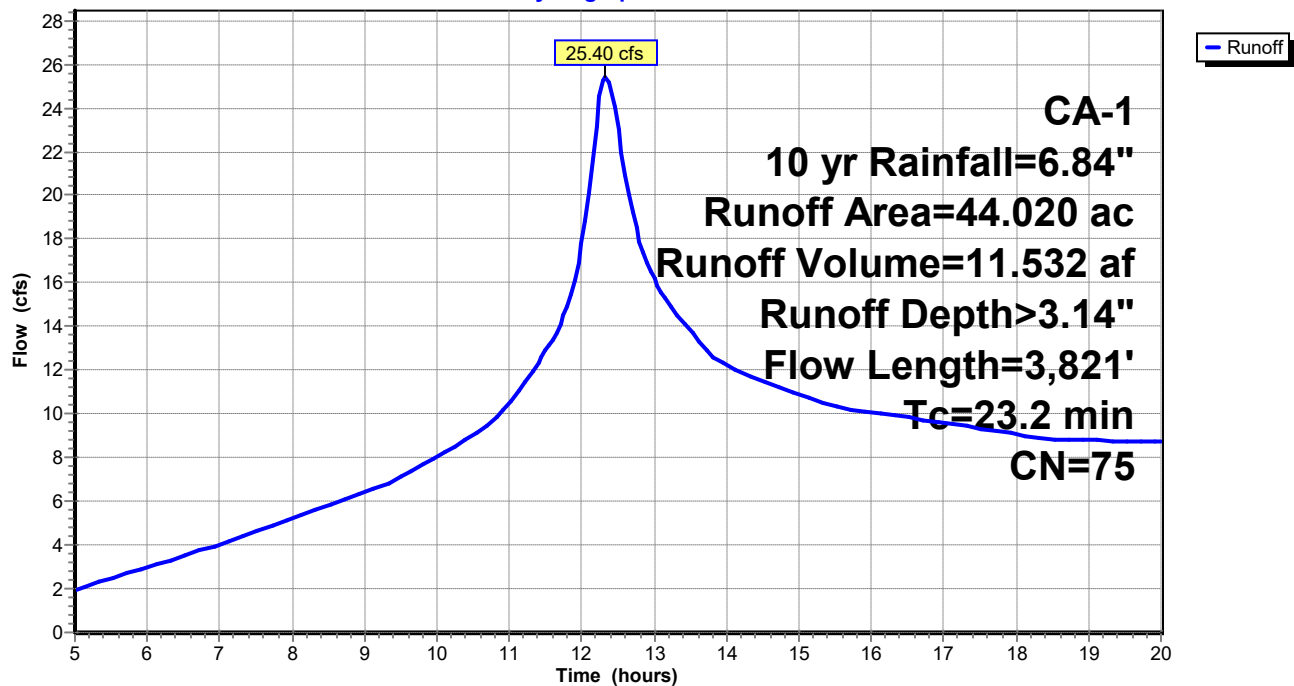
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* 0.330	75	Brush, Good, HSG C
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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	1,410	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Mountain streams
23.2	3,821	Total			

Subcatchment 4S: culvert1b-pre

Hydrograph



WS 1 preR2

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CA-1 25 yr Rainfall=8.41"

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Summary for Subcatchment 1S: WS 1a pre

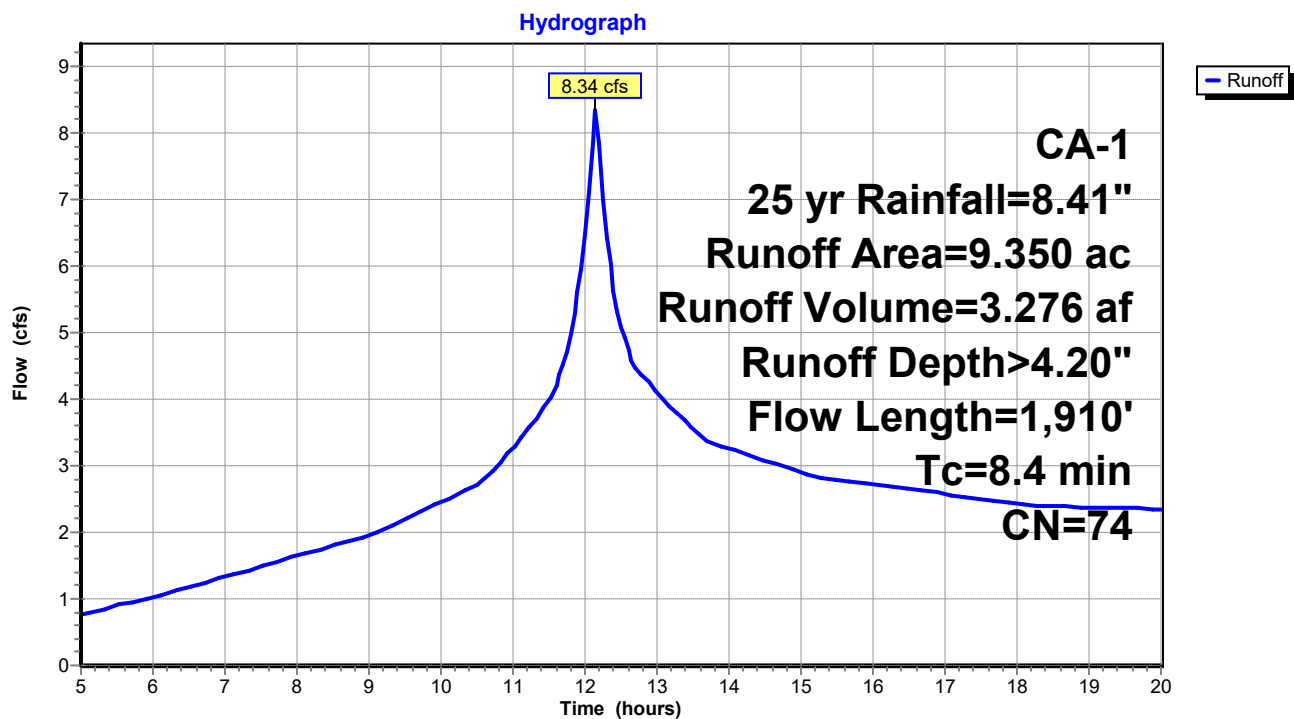
Runoff = 8.34 cfs @ 12.15 hrs, Volume= 3.276 af, Depth> 4.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG B
0.160	89	Gravel roads, HSG C
2.860	74	Pasture/grassland/range, Good, HSG C
* 0.260	75	Brush, Good, HSG C
5.940	73	Woods, Fair, HSG C
9.350	74	Weighted Average
9.220		98.61% Pervious Area
0.130		1.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	100	0.2100	0.35		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.6	368	0.3500	9.52		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	913	0.1600	6.44		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.7	529	0.1600	12.25	110.21	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
8.4	1,910	Total			

Subcatchment 1S: WS 1a pre



WS 1 preR2

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CA-1 25 yr Rainfall=8.41"

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Summary for Subcatchment 2S: WS 1b pre

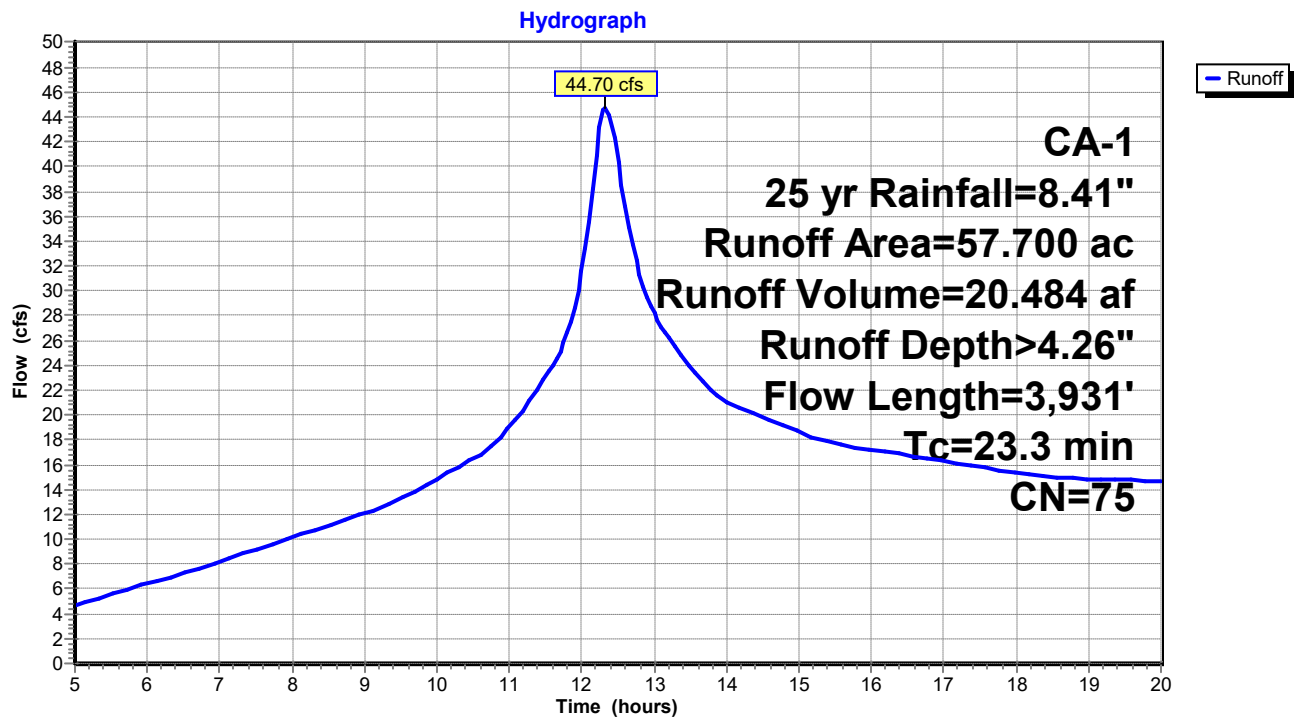
Runoff = 44.70 cfs @ 12.33 hrs, Volume= 20.484 af, Depth> 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
1.250	98	Paved parking, HSG C
0.280	89	Gravel roads, HSG C
* 12.680	79	Vineyard, Fair, HSG C
14.880	74	Pasture/grassland/range, Good, HSG C
* 0.670	75	Brush, Good, HSG C
27.940	73	Woods, Fair, HSG C
57.700	75	Weighted Average
56.450		97.83% Pervious Area
1.250		2.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.2	158	0.1700	11.64	128.07	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Winding stream, pools & shoals
0.0	20	0.1500	11.97	21.16	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
2.0	1,342	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Winding stream, pools & shoals
23.3	3,931	Total			

Subcatchment 2S: WS 1b pre



WS 1 preR2

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CA-1 25 yr Rainfall=8.41"

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Summary for Subcatchment 4S: culvert1b-pre

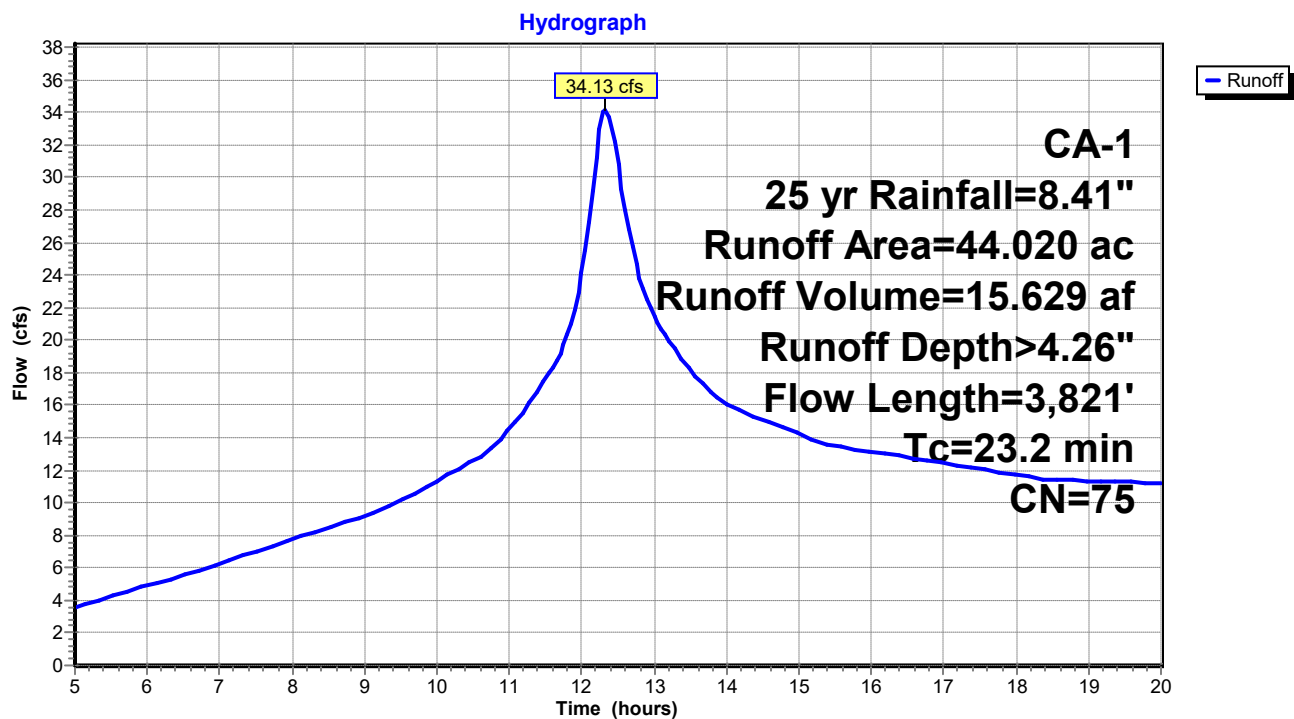
Runoff = 34.13 cfs @ 12.33 hrs, Volume= 15.629 af, Depth> 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
0.940	98	Paved parking, HSG C
0.200	89	Gravel roads, HSG C
* 10.750	79	Vineyard, Fair, HSG C
5.620	74	Pasture/grassland/range, Good, HSG C
* 0.330	75	Brush, Good, HSG C
26.180	73	Woods, Fair, HSG C
44.020	75	Weighted Average
43.080		97.86% Pervious Area
0.940		2.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	1,410	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Mountain streams
23.2	3,821	Total			

Subcatchment 4S: culvert1b-pre



WS 1 preR2

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 1S: WS 1a pre

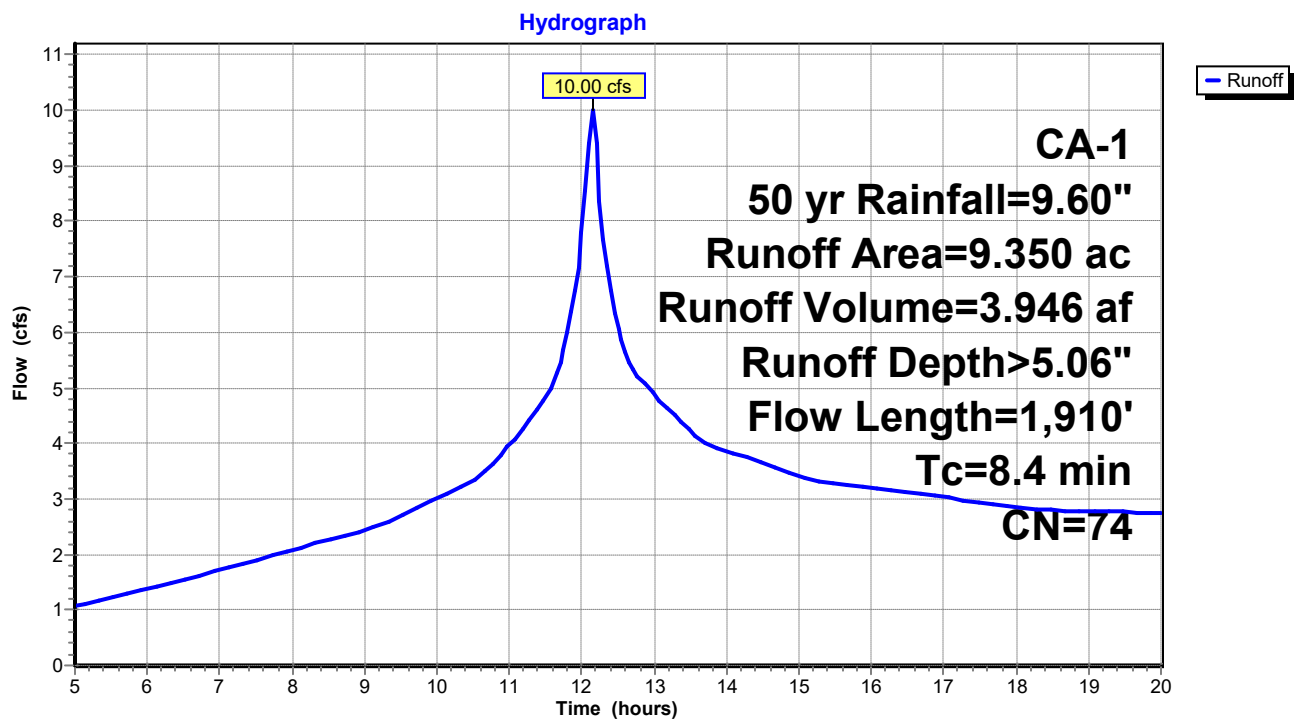
Runoff = 10.00 cfs @ 12.15 hrs, Volume= 3.946 af, Depth> 5.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG B
0.160	89	Gravel roads, HSG C
2.860	74	Pasture/grassland/range, Good, HSG C
* 0.260	75	Brush, Good, HSG C
5.940	73	Woods, Fair, HSG C
9.350	74	Weighted Average
9.220		98.61% Pervious Area
0.130		1.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	100	0.2100	0.35		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.6	368	0.3500	9.52		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	913	0.1600	6.44		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.7	529	0.1600	12.25	110.21	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
8.4	1,910	Total			

Subcatchment 1S: WS 1a pre



WS 1 preR2

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 2S: WS 1b pre

Runoff = 53.44 cfs @ 12.33 hrs, Volume= 24.628 af, Depth> 5.12"

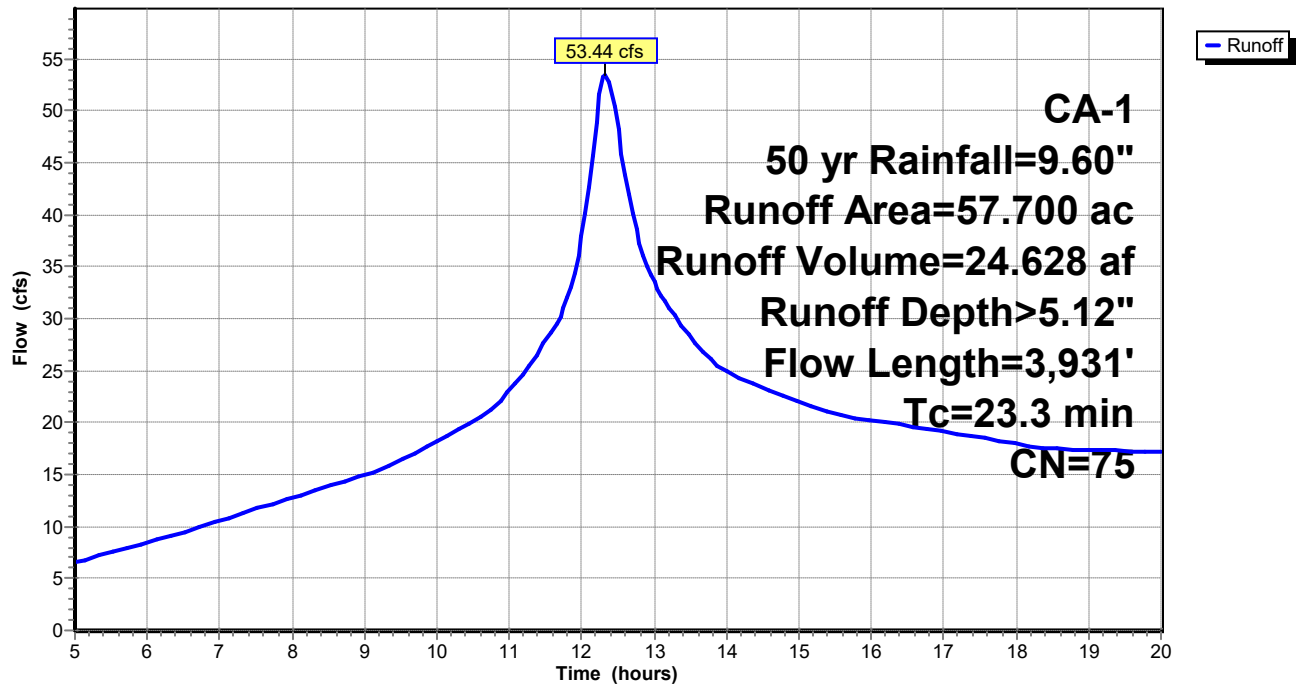
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
1.250	98	Paved parking, HSG C
0.280	89	Gravel roads, HSG C
* 12.680	79	Vineyard, Fair, HSG C
14.880	74	Pasture/grassland/range, Good, HSG C
* 0.670	75	Brush, Good, HSG C
27.940	73	Woods, Fair, HSG C
57.700	75	Weighted Average
56.450		97.83% Pervious Area
1.250		2.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.2	158	0.1700	11.64	128.07	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Winding stream, pools & shoals
0.0	20	0.1500	11.97	21.16	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
2.0	1,342	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Winding stream, pools & shoals
23.3	3,931	Total			

Subcatchment 2S: WS 1b pre

Hydrograph



WS 1 preR2

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 4S: culvert1b-pre

Runoff = 40.80 cfs @ 12.33 hrs, Volume= 18.790 af, Depth> 5.12"

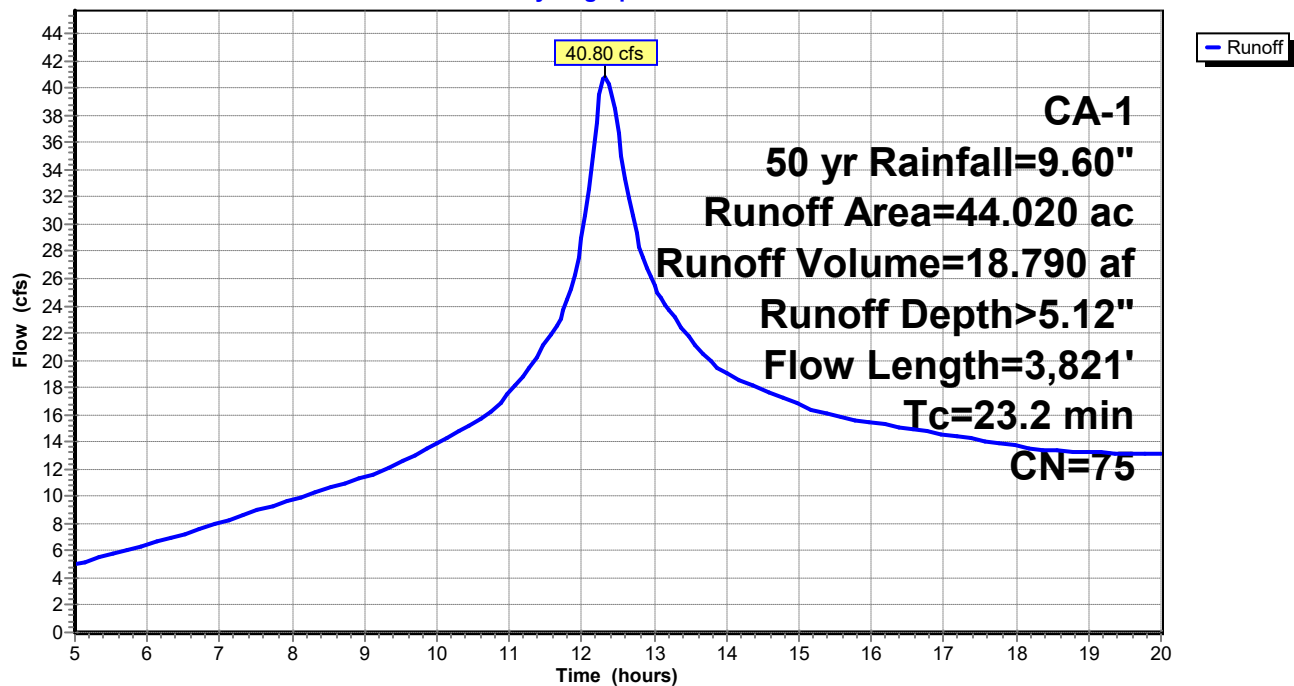
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
0.940	98	Paved parking, HSG C
0.200	89	Gravel roads, HSG C
* 10.750	79	Vineyard, Fair, HSG C
5.620	74	Pasture/grassland/range, Good, HSG C
* 0.330	75	Brush, Good, HSG C
26.180	73	Woods, Fair, HSG C
44.020	75	Weighted Average
43.080		97.86% Pervious Area
0.940		2.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	1,410	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Mountain streams
23.2	3,821	Total			

Subcatchment 4S: culvert1b-pre

Hydrograph



WS 1 preR2

CA-1 100 yr Rainfall=10.90"

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Summary for Subcatchment 1S: WS 1a pre

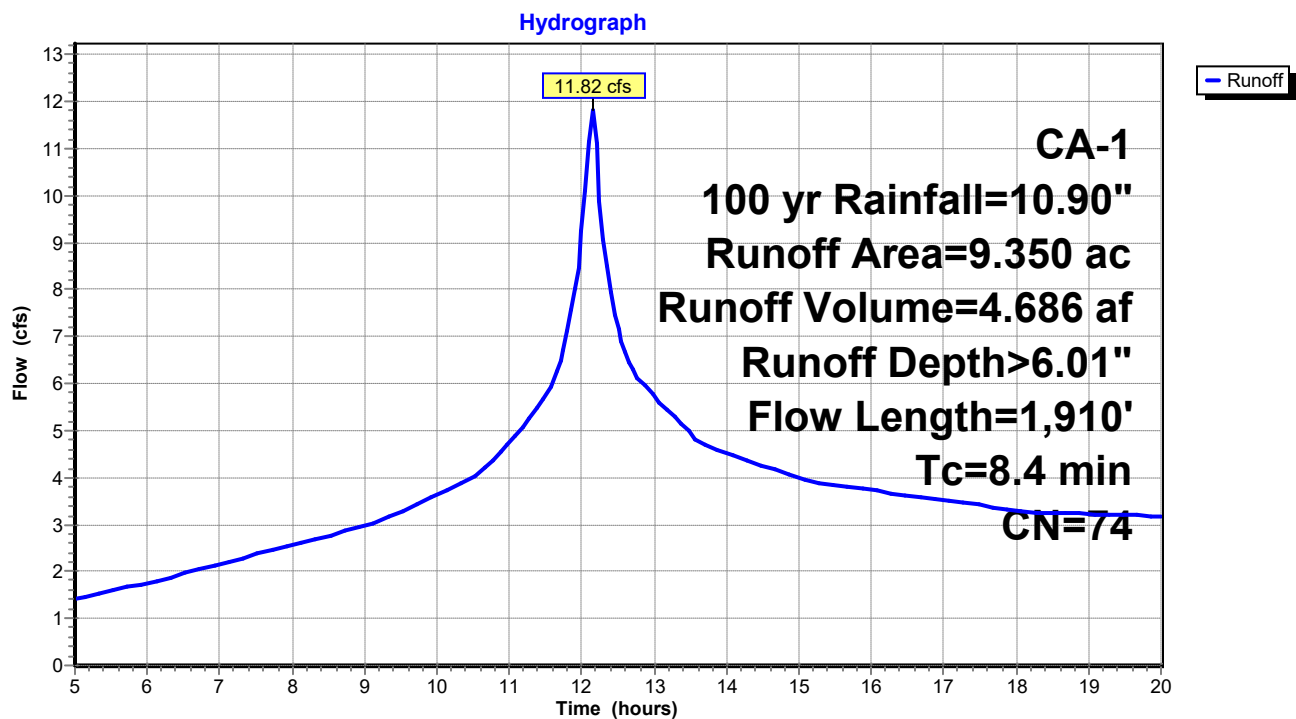
Runoff = 11.82 cfs @ 12.15 hrs, Volume= 4.686 af, Depth> 6.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 100 yr Rainfall=10.90"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG B
0.160	89	Gravel roads, HSG C
2.860	74	Pasture/grassland/range, Good, HSG C
* 0.260	75	Brush, Good, HSG C
5.940	73	Woods, Fair, HSG C
9.350	74	Weighted Average
9.220		98.61% Pervious Area
0.130		1.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	100	0.2100	0.35		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.6	368	0.3500	9.52		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	913	0.1600	6.44		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.7	529	0.1600	12.25	110.21	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
8.4	1,910	Total			

Subcatchment 1S: WS 1a pre



WS 1 preR2

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CA-1 100 yr Rainfall=10.90"

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Summary for Subcatchment 2S: WS 1b pre

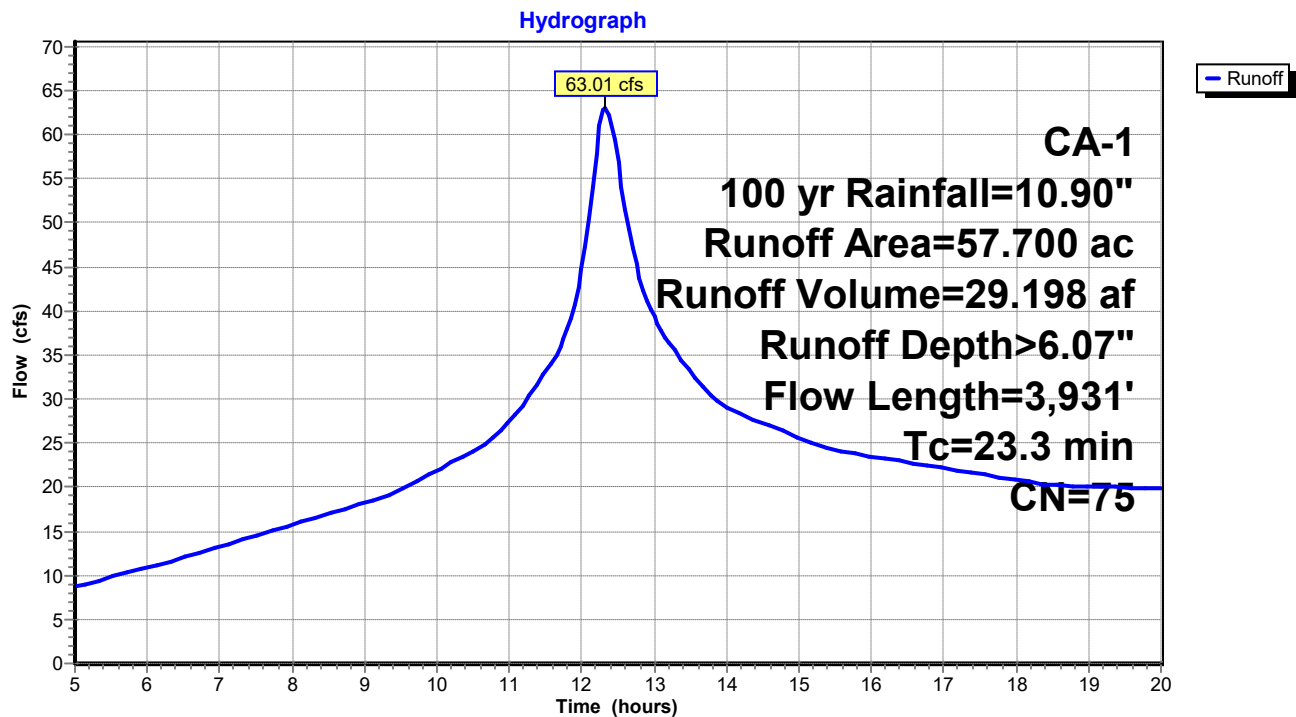
Runoff = 63.01 cfs @ 12.33 hrs, Volume= 29.198 af, Depth> 6.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 100 yr Rainfall=10.90"

Area (ac)	CN	Description
1.250	98	Paved parking, HSG C
0.280	89	Gravel roads, HSG C
* 12.680	79	Vineyard, Fair, HSG C
14.880	74	Pasture/grassland/range, Good, HSG C
* 0.670	75	Brush, Good, HSG C
27.940	73	Woods, Fair, HSG C
57.700	75	Weighted Average
56.450		97.83% Pervious Area
1.250		2.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.2	158	0.1700	11.64	128.07	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Winding stream, pools & shoals
0.0	20	0.1500	11.97	21.16	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
2.0	1,342	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Winding stream, pools & shoals
23.3	3,931	Total			

Subcatchment 2S: WS 1b pre



Summary for Subcatchment 4S: culvert1b-pre

Runoff = 48.11 cfs @ 12.33 hrs, Volume= 22.276 af, Depth> 6.07"

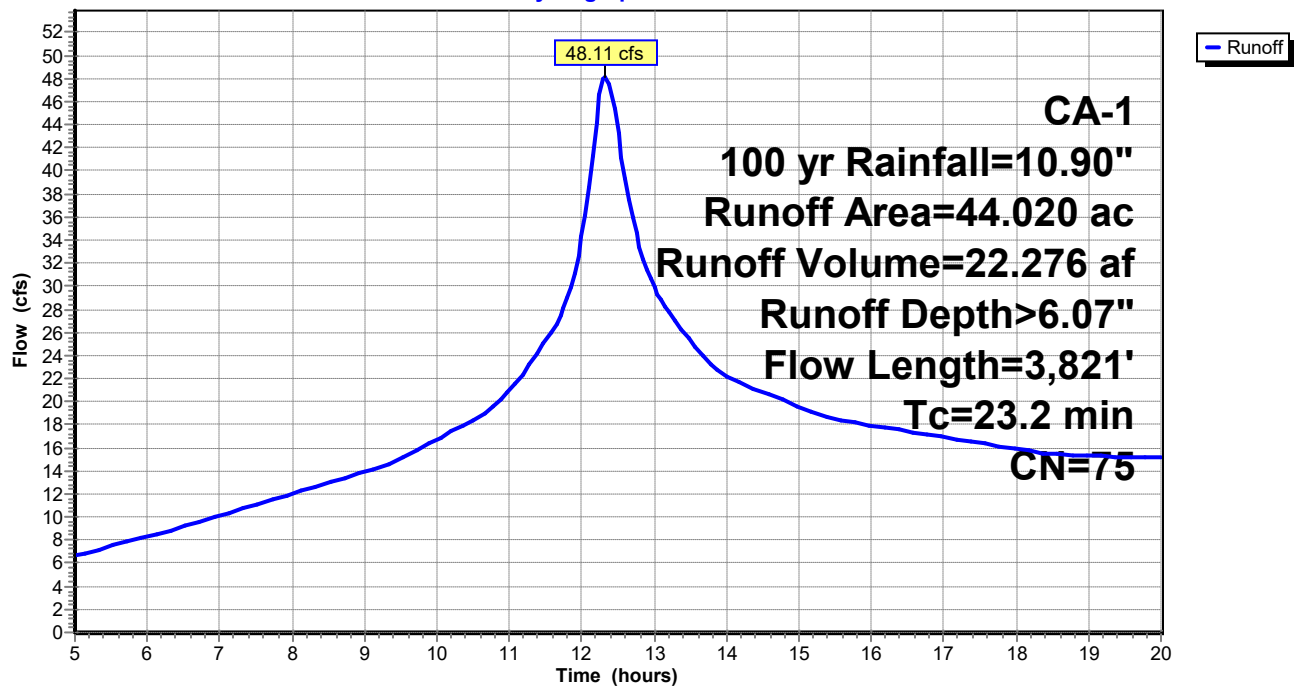
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 100 yr Rainfall=10.90"

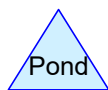
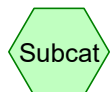
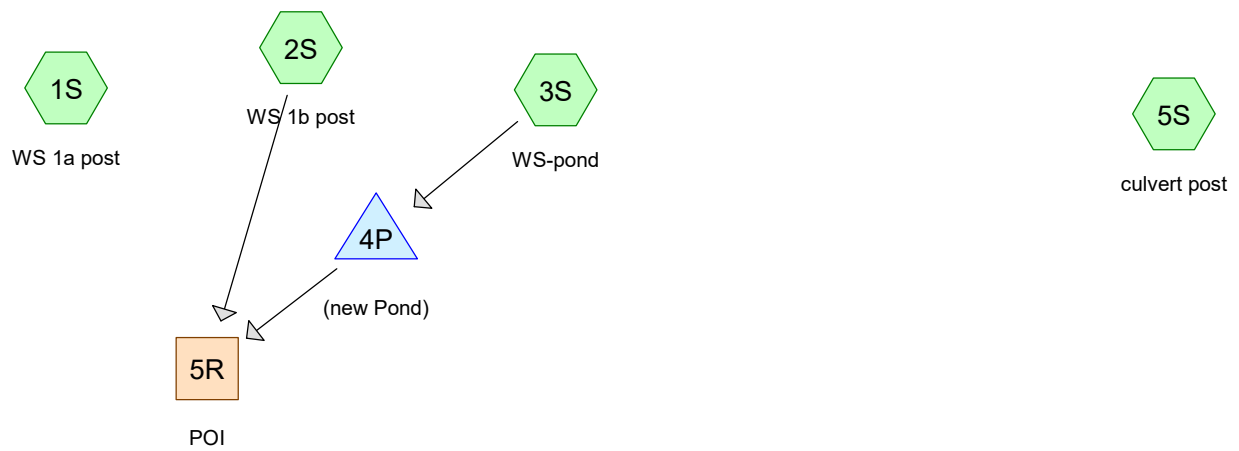
Area (ac)	CN	Description
0.940	98	Paved parking, HSG C
0.200	89	Gravel roads, HSG C
* 10.750	79	Vineyard, Fair, HSG C
5.620	74	Pasture/grassland/range, Good, HSG C
* 0.330	75	Brush, Good, HSG C
26.180	73	Woods, Fair, HSG C
44.020	75	Weighted Average
43.080		97.86% Pervious Area
0.940		2.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	1,410	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Mountain streams
23.2	3,821	Total			

Subcatchment 4S: culvert1b-pre

Hydrograph





Routing Diagram for WS 1 postR1

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WS 1 postR1

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CA-1 2 yr Rainfall=4.50"

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Summary for Subcatchment 1S: WS 1a post

Runoff = 3.09 cfs @ 12.15 hrs, Volume= 1.188 af, Depth> 1.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG C
0.160	89	Gravel roads, HSG C
* 0.390	75	Vineyard, Good, HSG C
2.550	74	Pasture/grassland/range, Good, HSG C
* 0.220	75	Brush, Good, HSG C
5.900	73	Woods, Fair, HSG C
9.350	74	Weighted Average
9.220		98.61% Pervious Area
0.130		1.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	100	0.2100	0.35		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.6	368	0.3500	9.52		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	913	0.1600	6.44		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.8	529	0.1600	10.71	96.43	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
8.5	1,910	Total			

WS 1 postR1

Prepared by Napa Valley Vineyard Engineering

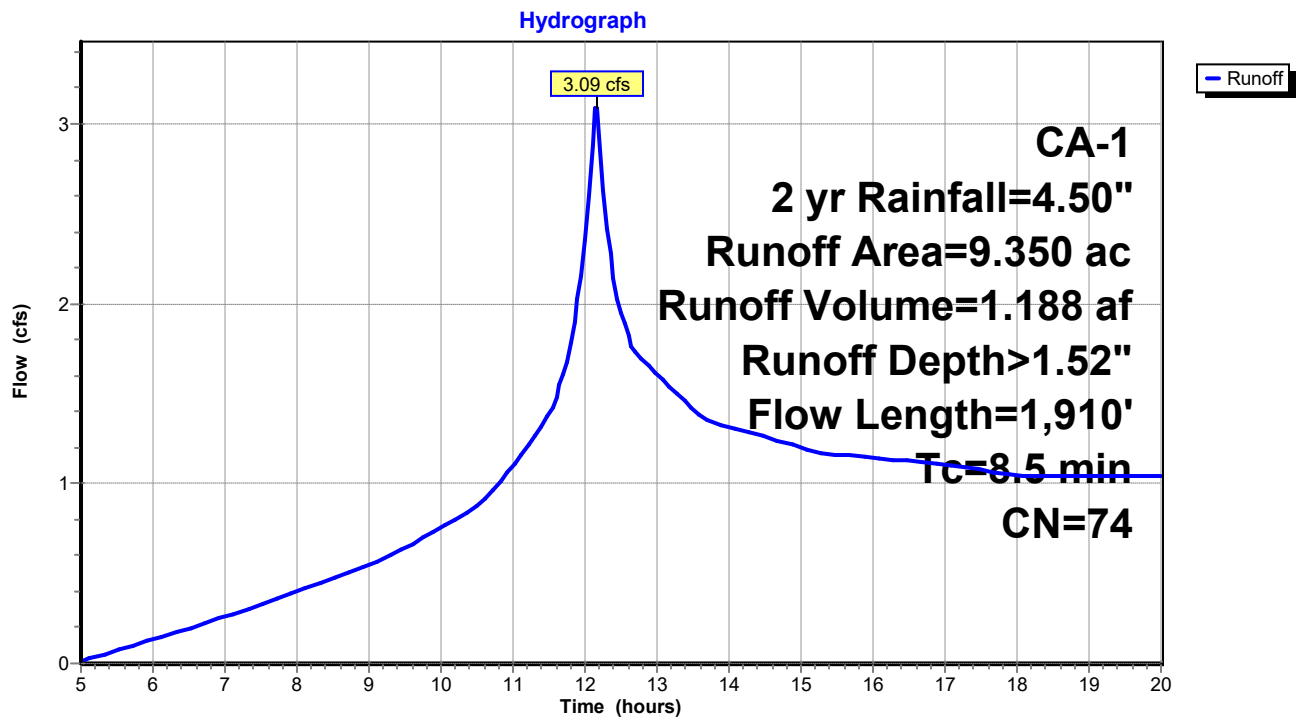
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CA-1 2 yr Rainfall=4.50"

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Subcatchment 1S: WS 1a post



WS 1 postR1

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CA-1 2 yr Rainfall=4.50"

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Page 4

Summary for Subcatchment 2S: WS 1b post

Runoff = 16.53 cfs @ 12.34 hrs, Volume= 7.369 af, Depth> 1.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
1.250	98	Paved parking, HSG C
0.280	89	Gravel roads, HSG C
* 5.260	75	Vineyard, Good, HSG C
* 12.680	79	Vineyard, Fair, HSG C
11.230	74	Pasture/grassland/range, Good, HSG C
* 0.150	75	Brush, Good, HSG C
25.540	73	Woods, Fair, HSG C
56.390	75	Weighted Average
55.140		97.78% Pervious Area
1.250		2.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.0	1,342	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Winding stream, pools & shoals
23.1	3,753	Total			

WS 1 postR1

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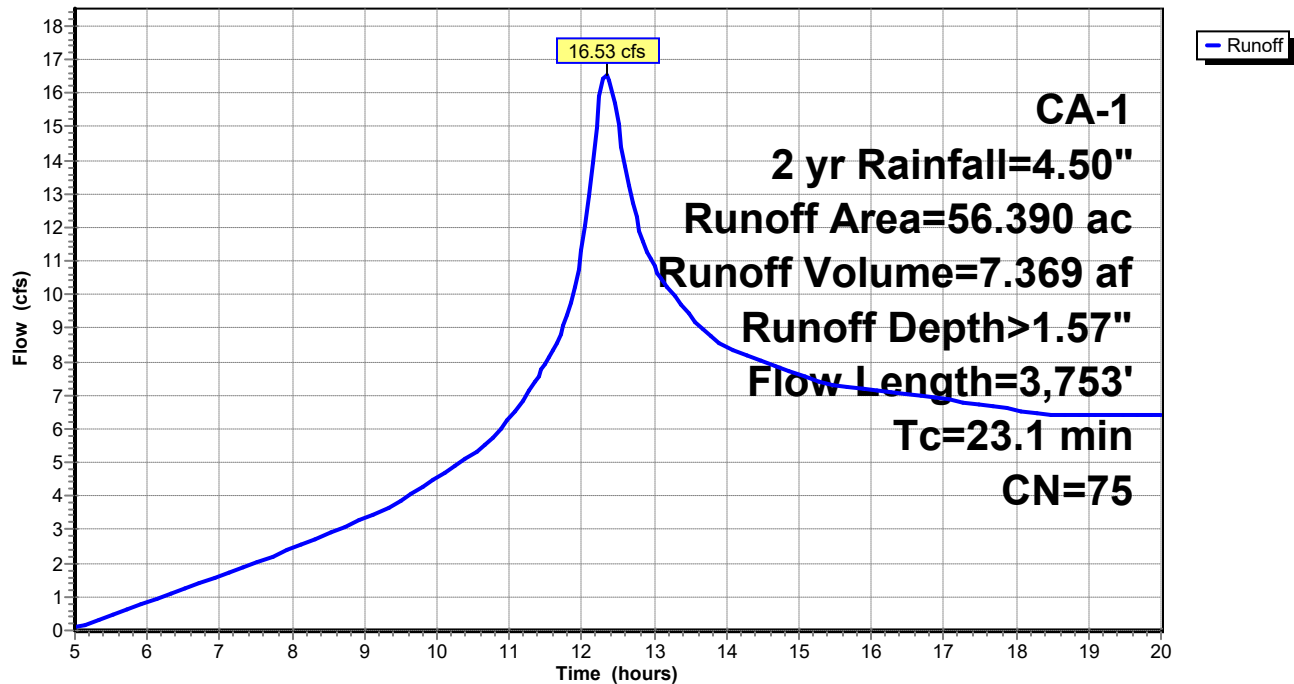
CA-1 2 yr Rainfall=4.50"

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Subcatchment 2S: WS 1b post

Hydrograph



WS 1 postR1

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CA-1 2 yr Rainfall=4.50"

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Summary for Subcatchment 3S: WS-pond

Runoff = 0.47 cfs @ 12.13 hrs, Volume= 0.174 af, Depth> 1.60"

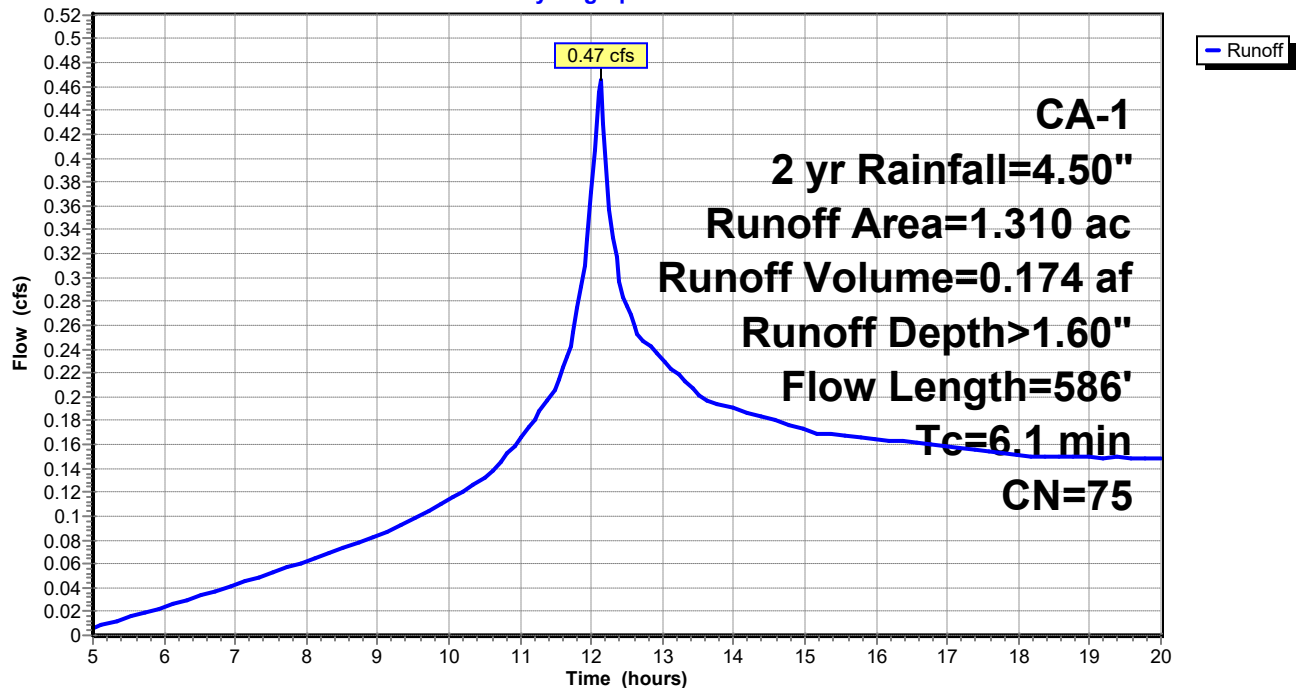
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
* 1.230	75	vineyard, good, HSG C
0.080	76	Woods/grass comb., Fair, HSG C
1.310	75	Weighted Average
1.310		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	100	0.2000	0.35		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
1.3	486	0.1500	6.24		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
6.1	586	Total			

Subcatchment 3S: WS-pond

Hydrograph



WS 1 postR1

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CA-1 2 yr Rainfall=4.50"

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Summary for Subcatchment 5S: culvert post

Runoff = 12.89 cfs @ 12.34 hrs, Volume= 5.752 af, Depth> 1.57"

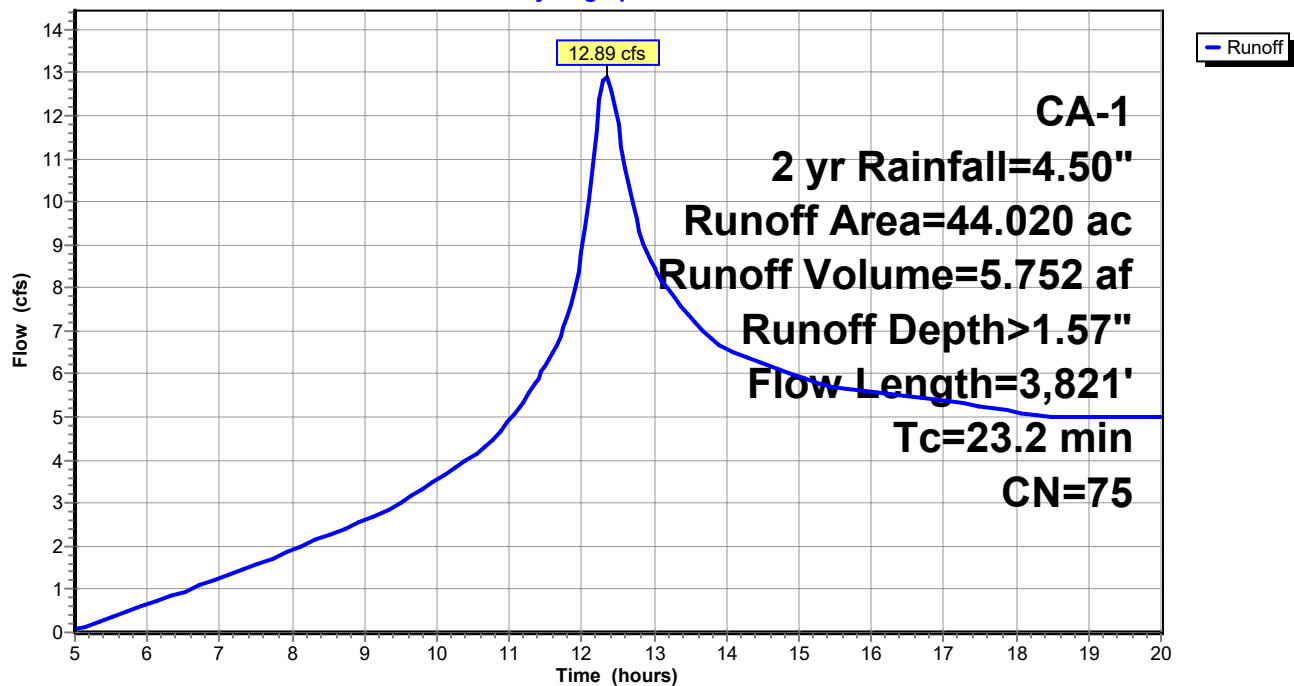
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
0.940	98	Paved parking, HSG C
0.200	89	Gravel roads, HSG C
* 2.000	75	Vineyard, Good, HSG C
* 10.750	79	Vineyard, Fair, HSG C
4.290	74	Pasture/grassland/range, Good, HSG C
* 0.130	75	Brush, Good, HSG C
25.710	73	Woods, Fair, HSG C
44.020	75	Weighted Average
43.080		97.86% Pervious Area
0.940		2.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	1,410	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Mountain streams
23.2	3,821	Total			

Subcatchment 5S: culvert post

Hydrograph



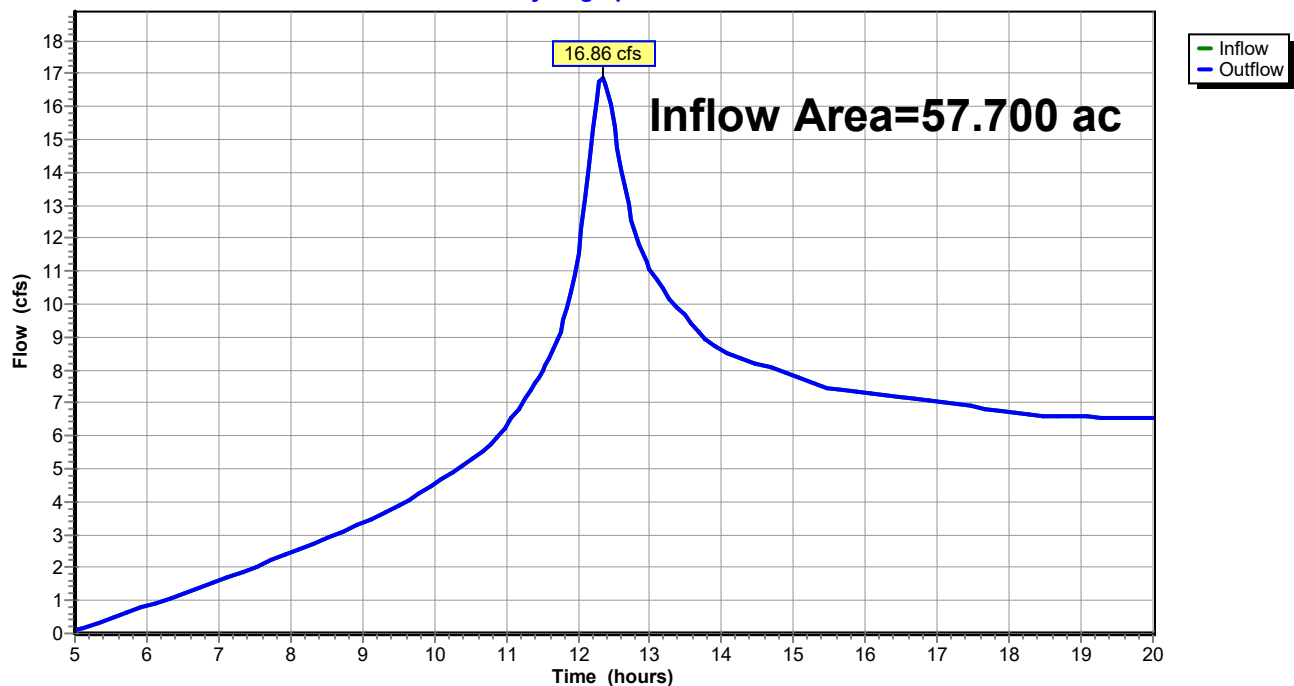
Summary for Reach 5R: POI

Inflow Area = 57.700 ac, 2.17% Impervious, Inflow Depth > 1.56" for 2 yr event
 Inflow = 16.86 cfs @ 12.34 hrs, Volume= 7.497 af
 Outflow = 16.86 cfs @ 12.34 hrs, Volume= 7.497 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 5R: POI

Hydrograph



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CA-1 2 yr Rainfall=4.50"

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Summary for Pond 4P: (new Pond)

Inflow Area = 1.310 ac, 0.00% Impervious, Inflow Depth > 1.60" for 2 yr event
 Inflow = 0.47 cfs @ 12.13 hrs, Volume= 0.174 af
 Outflow = 0.33 cfs @ 12.31 hrs, Volume= 0.128 af, Atten= 29%, Lag= 11.0 min
 Primary = 0.33 cfs @ 12.31 hrs, Volume= 0.128 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,683.87' @ 12.31 hrs Surf.Area= 1,467 sf Storage= 2,229 cf

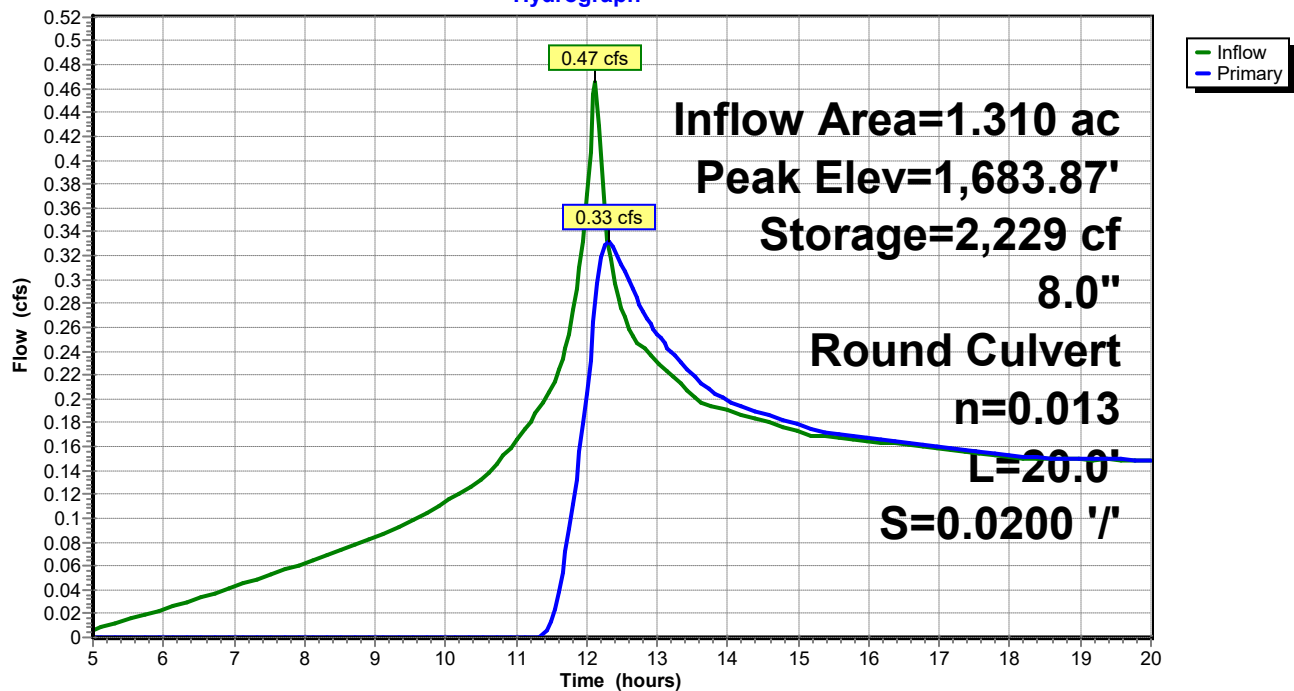
Plug-Flow detention time= 188.9 min calculated for 0.128 af (73% of inflow)
 Center-of-Mass det. time= 94.2 min (924.1 - 829.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,682.00'	4,086 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,682.00	924	0	0
1,683.00	1,202	1,063	1,063
1,684.00	1,505	1,354	2,417
1,685.00	1,834	1,670	4,086

Device	Routing	Invert	Outlet Devices
#1	Primary	1,683.50'	8.0" Round Culvert L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,683.50' / 1,683.10' S= 0.0200 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.33 cfs @ 12.31 hrs HW=1,683.87' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 0.33 cfs @ 1.64 fps)

Pond 4P: (new Pond)**Hydrograph**

WS 1 postR1

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CA-1 5 yr Rainfall=5.79"

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Summary for Subcatchment 1S: WS 1a post

Runoff = 4.75 cfs @ 12.15 hrs, Volume= 1.846 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG C
0.160	89	Gravel roads, HSG C
* 0.390	75	Vineyard, Good, HSG C
2.550	74	Pasture/grassland/range, Good, HSG C
* 0.220	75	Brush, Good, HSG C
5.900	73	Woods, Fair, HSG C
9.350	74	Weighted Average
9.220		98.61% Pervious Area
0.130		1.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	100	0.2100	0.35		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.6	368	0.3500	9.52		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	913	0.1600	6.44		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.8	529	0.1600	10.71	96.43	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
8.5	1,910	Total			

WS 1 postR1

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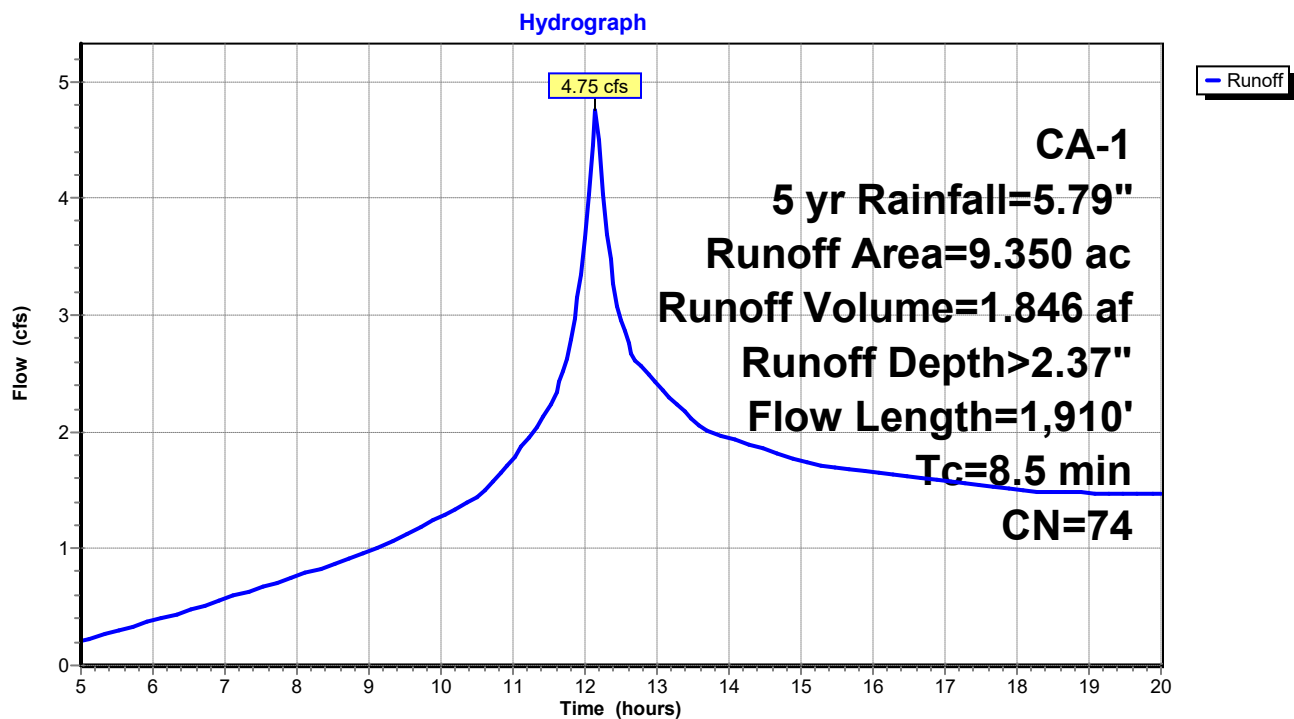
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CA-1 5 yr Rainfall=5.79"

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Subcatchment 1S: WS 1a post



WS 1 postR1

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CA-1 5 yr Rainfall=5.79"

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Summary for Subcatchment 2S: WS 1b post

Runoff = 25.23 cfs @ 12.33 hrs, Volume= 11.365 af, Depth> 2.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
1.250	98	Paved parking, HSG C
0.280	89	Gravel roads, HSG C
* 5.260	75	Vineyard, Good, HSG C
* 12.680	79	Vineyard, Fair, HSG C
11.230	74	Pasture/grassland/range, Good, HSG C
* 0.150	75	Brush, Good, HSG C
25.540	73	Woods, Fair, HSG C
56.390	75	Weighted Average
55.140		97.78% Pervious Area
1.250		2.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.0	1,342	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Winding stream, pools & shoals
23.1	3,753	Total			

WS 1 postR1

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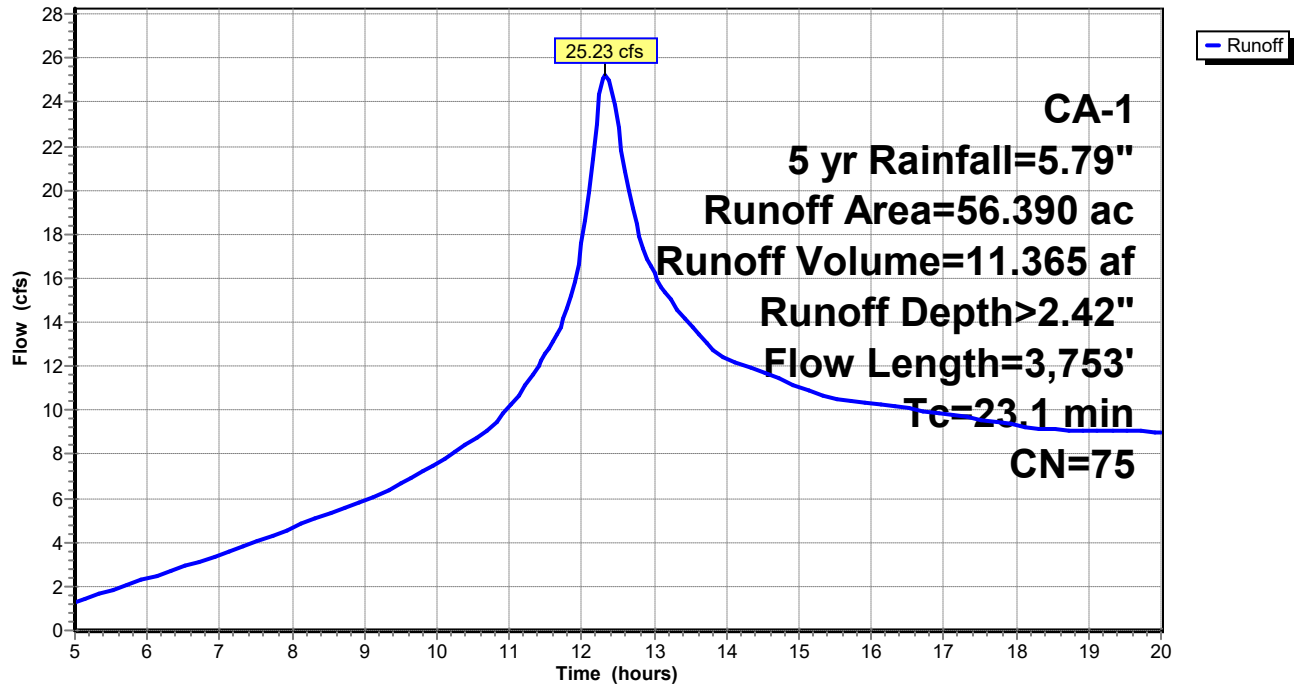
CA-1 5 yr Rainfall=5.79"

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Subcatchment 2S: WS 1b post

Hydrograph



WS 1 postR1

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CA-1 5 yr Rainfall=5.79"

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Summary for Subcatchment 3S: WS-pond

Runoff = 0.71 cfs @ 12.13 hrs, Volume= 0.268 af, Depth> 2.45"

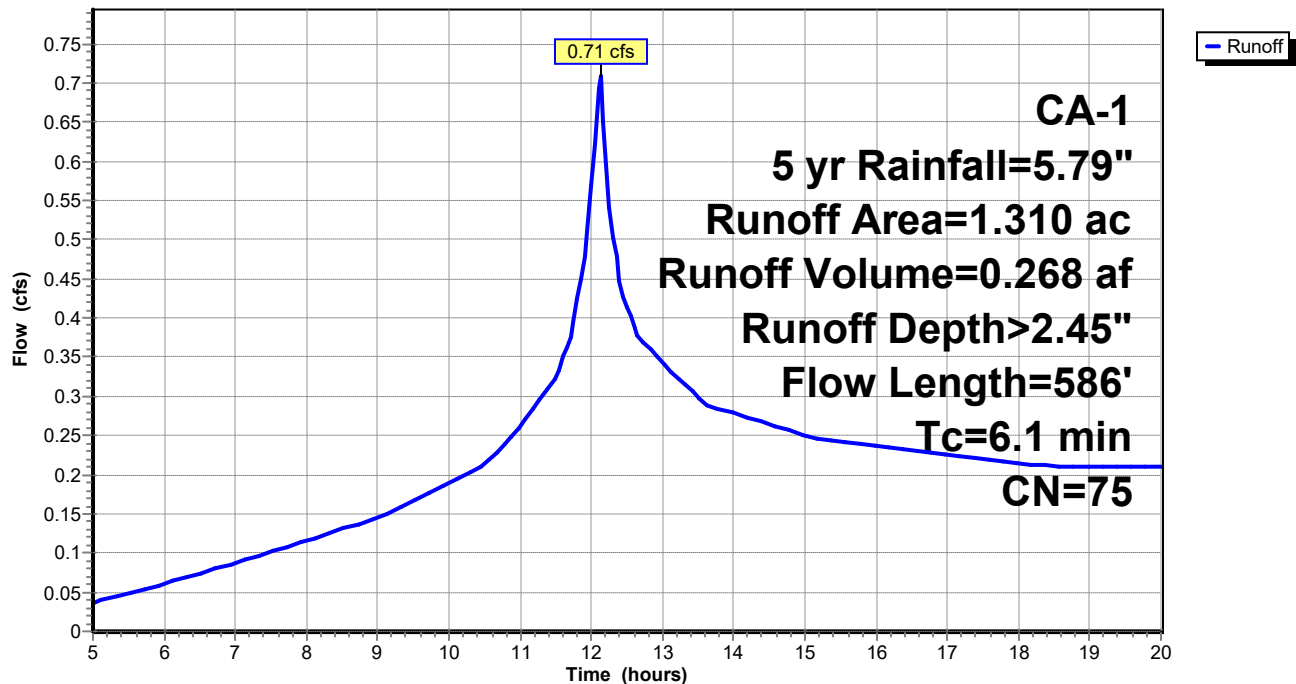
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
* 1.230	75	vineyard, good, HSG C
0.080	76	Woods/grass comb., Fair, HSG C
1.310	75	Weighted Average
1.310		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	100	0.2000	0.35		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
1.3	486	0.1500	6.24		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
6.1	586	Total			

Subcatchment 3S: WS-pond

Hydrograph



WS 1 postR1

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CA-1 5 yr Rainfall=5.79"

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Summary for Subcatchment 5S: culvert post

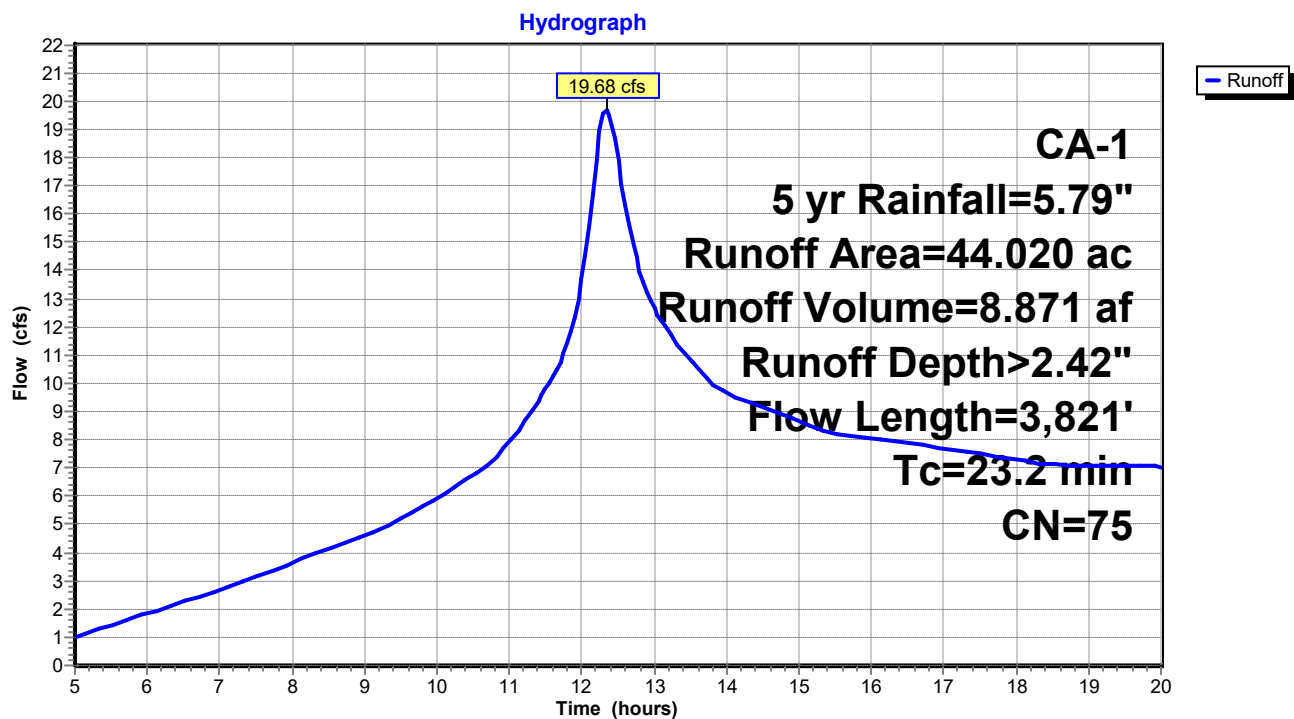
Runoff = 19.68 cfs @ 12.33 hrs, Volume= 8.871 af, Depth> 2.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
0.940	98	Paved parking, HSG C
0.200	89	Gravel roads, HSG C
* 2.000	75	Vineyard, Good, HSG C
* 10.750	79	Vineyard, Fair, HSG C
4.290	74	Pasture/grassland/range, Good, HSG C
* 0.130	75	Brush, Good, HSG C
25.710	73	Woods, Fair, HSG C
44.020	75	Weighted Average
43.080		97.86% Pervious Area
0.940		2.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	1,410	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Mountain streams
23.2	3,821	Total			

Subcatchment 5S: culvert post



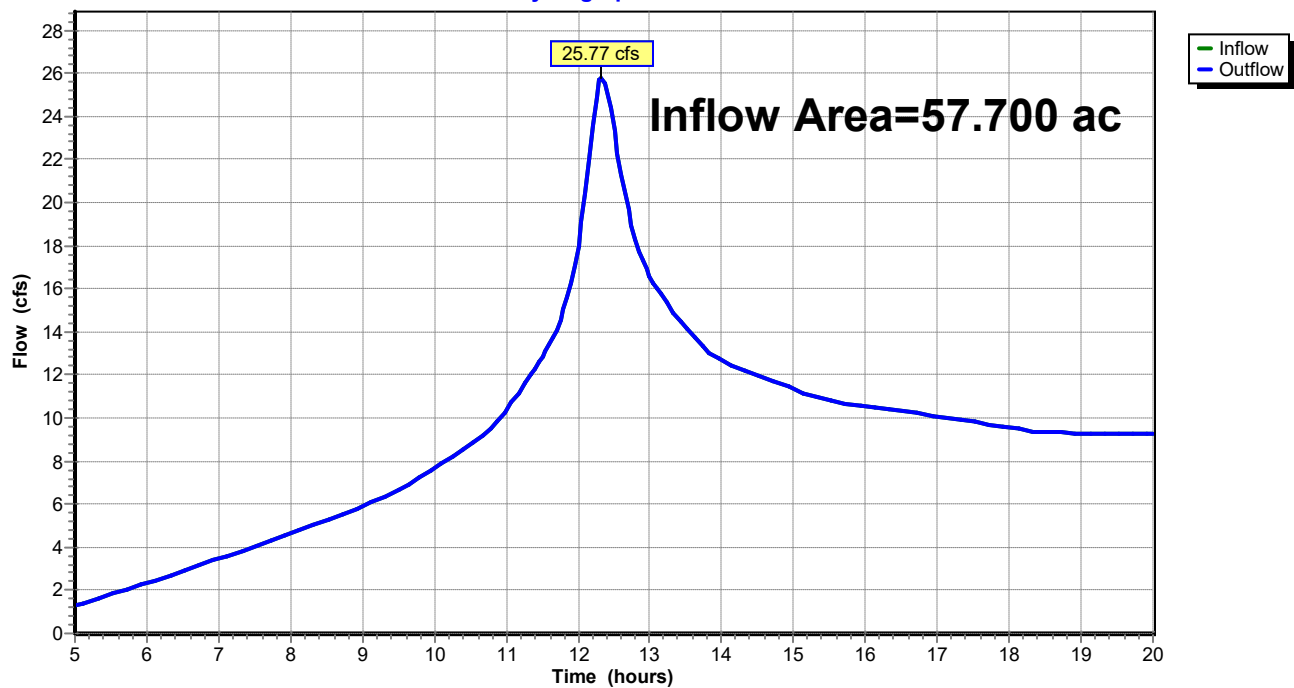
Summary for Reach 5R: POI

Inflow Area = 57.700 ac, 2.17% Impervious, Inflow Depth > 2.41" for 5 yr event
Inflow = 25.77 cfs @ 12.33 hrs, Volume= 11.585 af
Outflow = 25.77 cfs @ 12.33 hrs, Volume= 11.585 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 5R: POI

Hydrograph



WS 1 postR1

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CA-1 5 yr Rainfall=5.79"

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Summary for Pond 4P: (new Pond)

Inflow Area = 1.310 ac, 0.00% Impervious, Inflow Depth > 2.45" for 5 yr event
 Inflow = 0.71 cfs @ 12.13 hrs, Volume= 0.268 af
 Outflow = 0.55 cfs @ 12.25 hrs, Volume= 0.220 af, Atten= 22%, Lag= 7.1 min
 Primary = 0.55 cfs @ 12.25 hrs, Volume= 0.220 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,684.01' @ 12.25 hrs Surf.Area= 1,509 sf Storage= 2,435 cf

Plug-Flow detention time= 140.2 min calculated for 0.219 af (82% of inflow)
 Center-of-Mass det. time= 72.3 min (882.4 - 810.1)

Volume	Invert	Avail.Storage	Storage Description
#1	1,682.00'	4,086 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

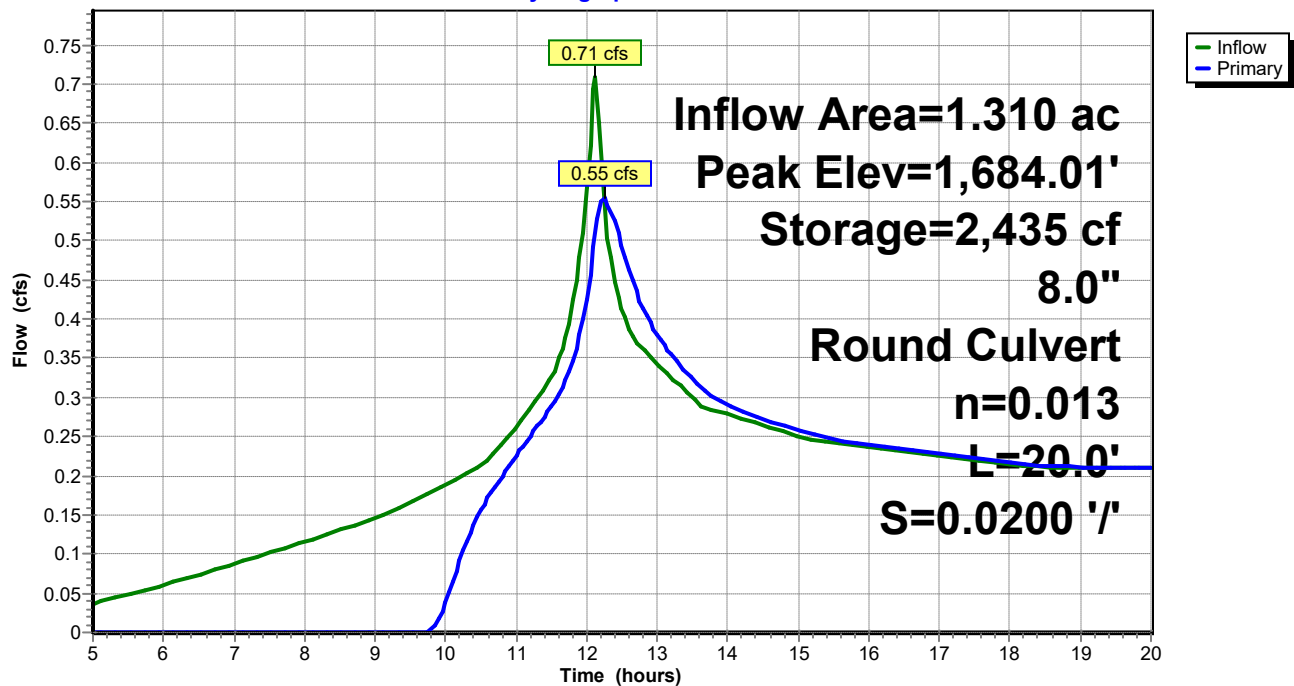
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,682.00	924	0	0
1,683.00	1,202	1,063	1,063
1,684.00	1,505	1,354	2,417
1,685.00	1,834	1,670	4,086

Device	Routing	Invert	Outlet Devices
#1	Primary	1,683.50'	8.0" Round Culvert L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,683.50' / 1,683.10' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.55 cfs @ 12.25 hrs HW=1,684.01' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 0.55 cfs @ 1.92 fps)

Pond 4P: (new Pond)

Hydrograph



WS 1 postR1

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CA-1 10 yr Rainfall=6.84"

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Summary for Subcatchment 1S: WS 1a post

Runoff = 6.17 cfs @ 12.15 hrs, Volume= 2.408 af, Depth> 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG C
0.160	89	Gravel roads, HSG C
* 0.390	75	Vineyard, Good, HSG C
2.550	74	Pasture/grassland/range, Good, HSG C
* 0.220	75	Brush, Good, HSG C
5.900	73	Woods, Fair, HSG C
9.350	74	Weighted Average
9.220		98.61% Pervious Area
0.130		1.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	100	0.2100	0.35		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.6	368	0.3500	9.52		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	913	0.1600	6.44		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.8	529	0.1600	10.71	96.43	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
8.5	1,910	Total			

WS 1 postR1

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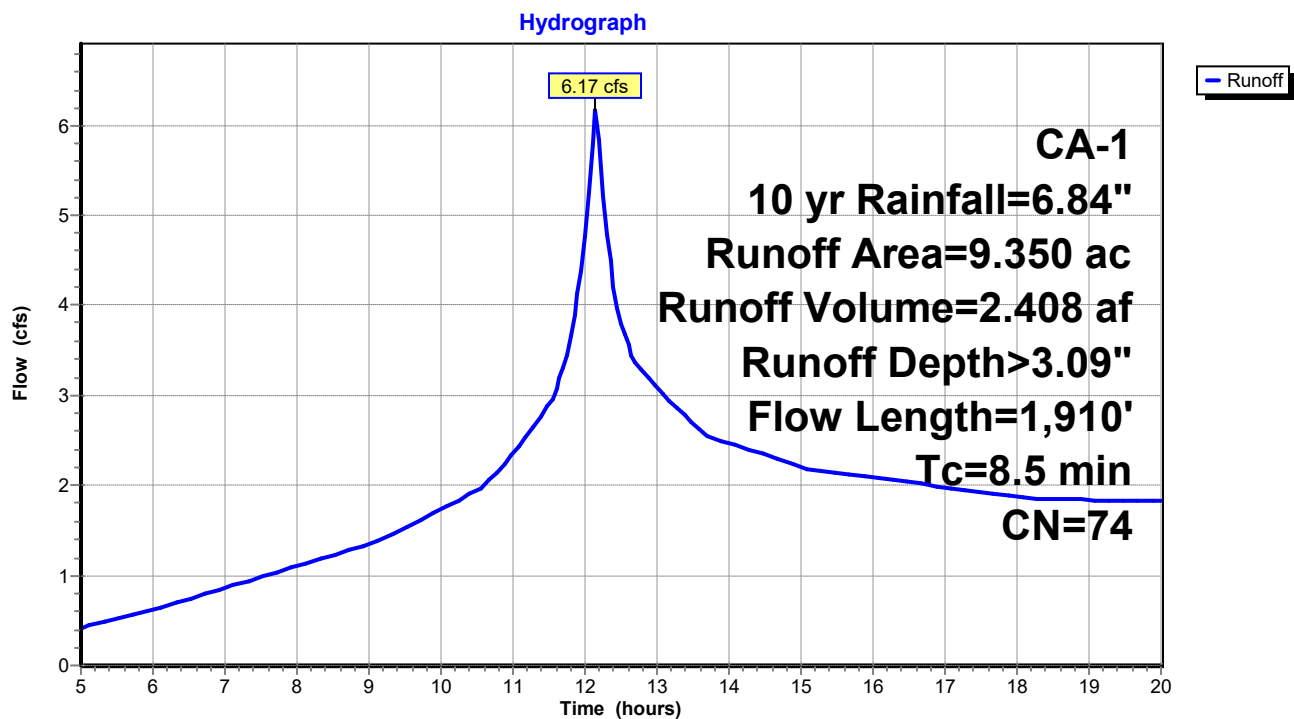
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CA-1 10 yr Rainfall=6.84"

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Subcatchment 1S: WS 1a post



WS 1 postR1

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CA-1 10 yr Rainfall=6.84"

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Summary for Subcatchment 2S: WS 1b post

Runoff = 32.57 cfs @ 12.33 hrs, Volume= 14.774 af, Depth> 3.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
1.250	98	Paved parking, HSG C
0.280	89	Gravel roads, HSG C
* 5.260	75	Vineyard, Good, HSG C
* 12.680	79	Vineyard, Fair, HSG C
11.230	74	Pasture/grassland/range, Good, HSG C
* 0.150	75	Brush, Good, HSG C
25.540	73	Woods, Fair, HSG C
56.390	75	Weighted Average
55.140		97.78% Pervious Area
1.250		2.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.0	1,342	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Winding stream, pools & shoals
23.1	3,753	Total			

WS 1 postR1

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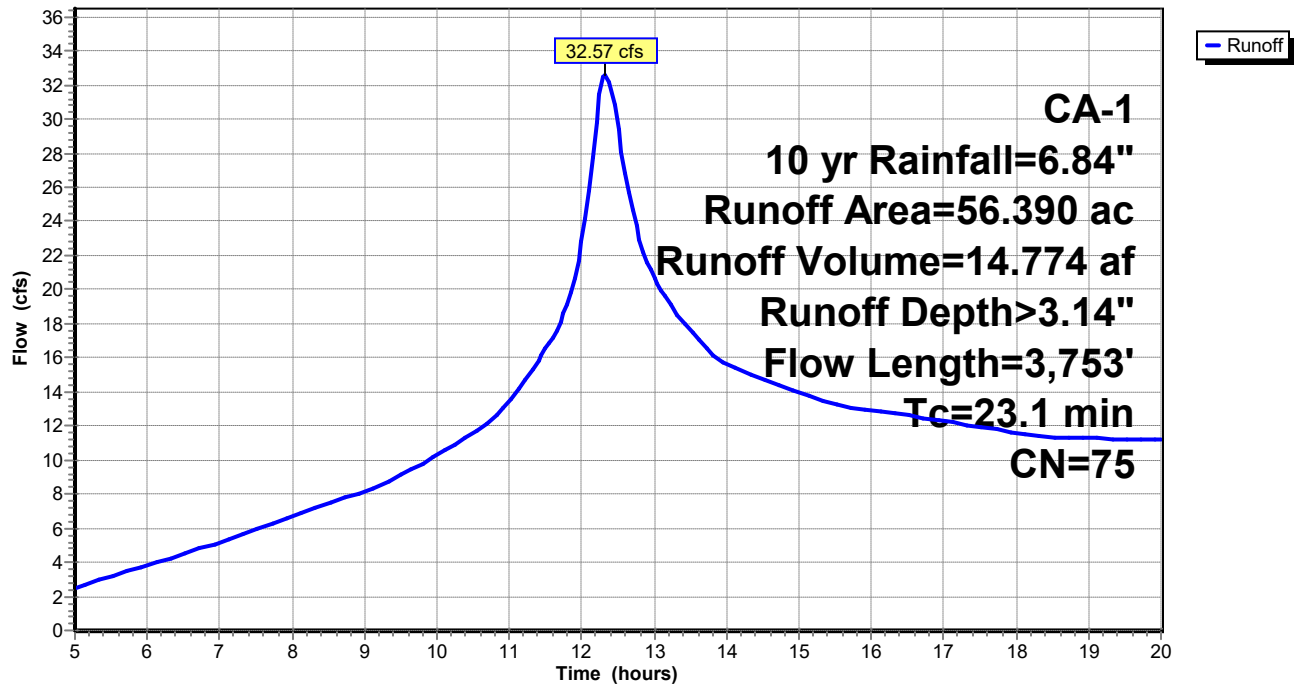
CA-1 10 yr Rainfall=6.84"

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Subcatchment 2S: WS 1b post

Hydrograph



WS 1 postR1

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CA-1 10 yr Rainfall=6.84"

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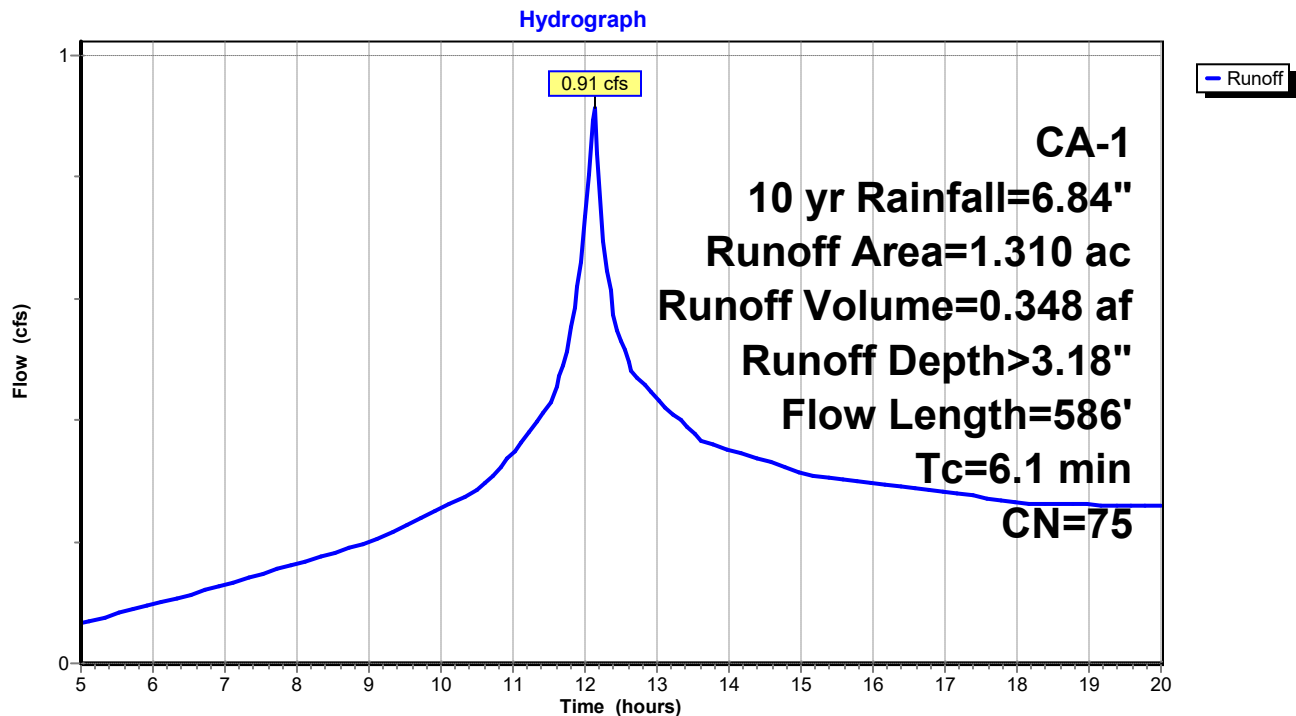
Summary for Subcatchment 3S: WS-pond

Runoff = 0.91 cfs @ 12.13 hrs, Volume= 0.348 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
* 1.230	75	vineyard, good, HSG C
0.080	76	Woods/grass comb., Fair, HSG C
1.310	75	Weighted Average
1.310		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	100	0.2000	0.35		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
1.3	486	0.1500	6.24		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
6.1	586	Total			

Subcatchment 3S: WS-pond

WS 1 postR1

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CA-1 10 yr Rainfall=6.84"

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Summary for Subcatchment 5S: culvert post

Runoff = 25.40 cfs @ 12.33 hrs, Volume= 11.532 af, Depth> 3.14"

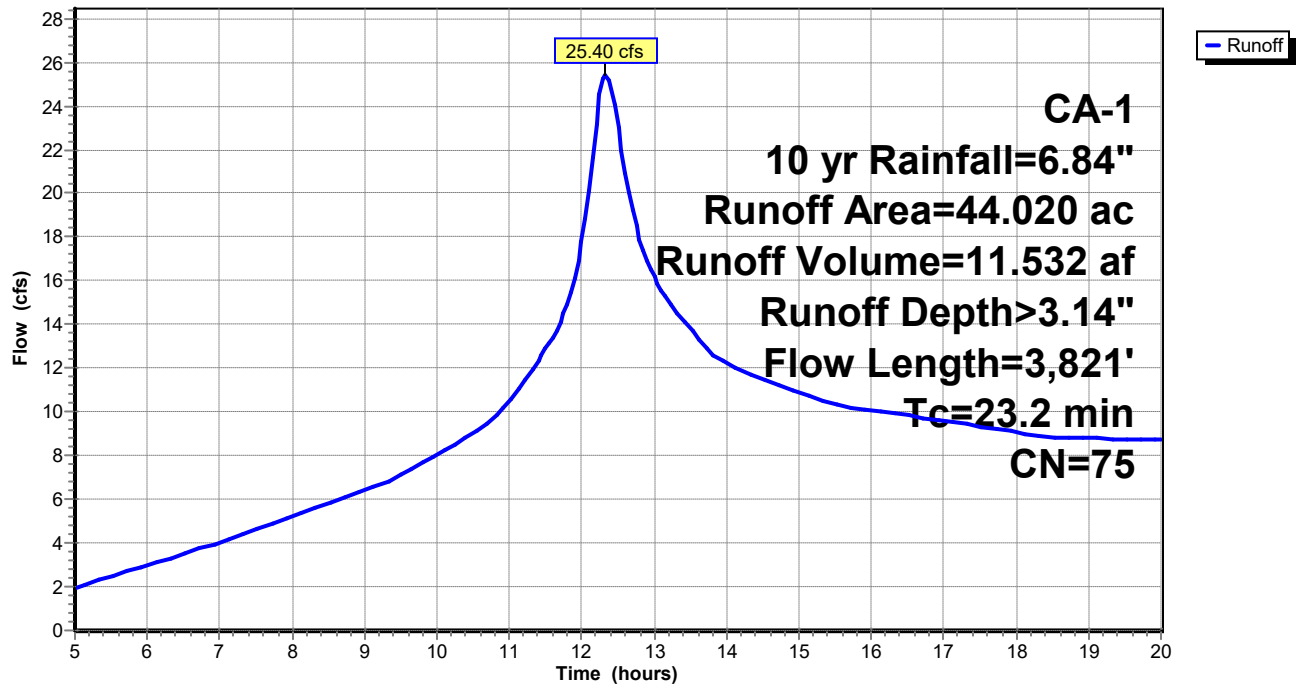
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
0.940	98	Paved parking, HSG C
0.200	89	Gravel roads, HSG C
* 2.000	75	Vineyard, Good, HSG C
* 10.750	79	Vineyard, Fair, HSG C
4.290	74	Pasture/grassland/range, Good, HSG C
* 0.130	75	Brush, Good, HSG C
25.710	73	Woods, Fair, HSG C
44.020	75	Weighted Average
43.080		97.86% Pervious Area
0.940		2.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	1,410	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Mountain streams
23.2	3,821	Total			

Subcatchment 5S: culvert post

Hydrograph



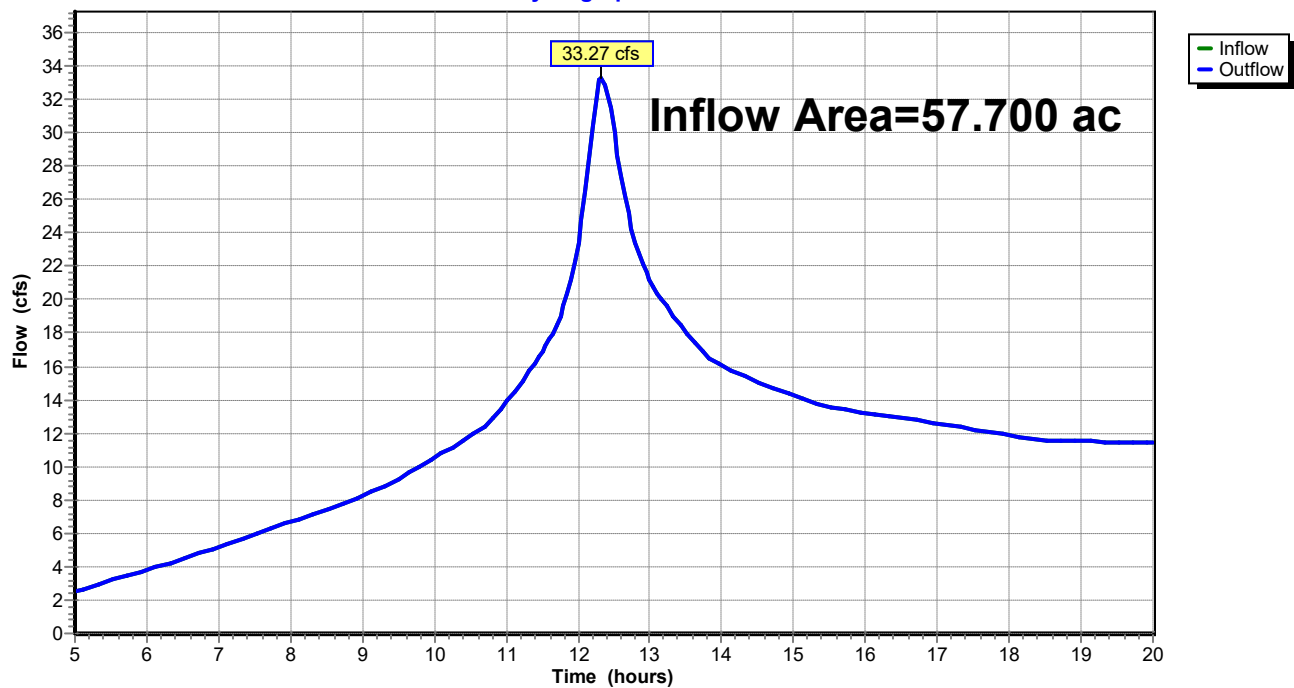
Summary for Reach 5R: POI

Inflow Area = 57.700 ac, 2.17% Impervious, Inflow Depth > 3.13" for 10 yr event
Inflow = 33.27 cfs @ 12.33 hrs, Volume= 15.072 af
Outflow = 33.27 cfs @ 12.33 hrs, Volume= 15.072 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 5R: POI

Hydrograph



WS 1 postR1

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CA-1 10 yr Rainfall=6.84"

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Summary for Pond 4P: (new Pond)

Inflow Area = 1.310 ac, 0.00% Impervious, Inflow Depth > 3.18" for 10 yr event
 Inflow = 0.91 cfs @ 12.13 hrs, Volume= 0.348 af
 Outflow = 0.71 cfs @ 12.25 hrs, Volume= 0.298 af, Atten= 23%, Lag= 7.3 min
 Primary = 0.71 cfs @ 12.25 hrs, Volume= 0.298 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,684.11' @ 12.25 hrs Surf.Area= 1,542 sf Storage= 2,589 cf

Plug-Flow detention time= 116.5 min calculated for 0.297 af (85% of inflow)
 Center-of-Mass det. time= 60.9 min (860.6 - 799.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,682.00'	4,086 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

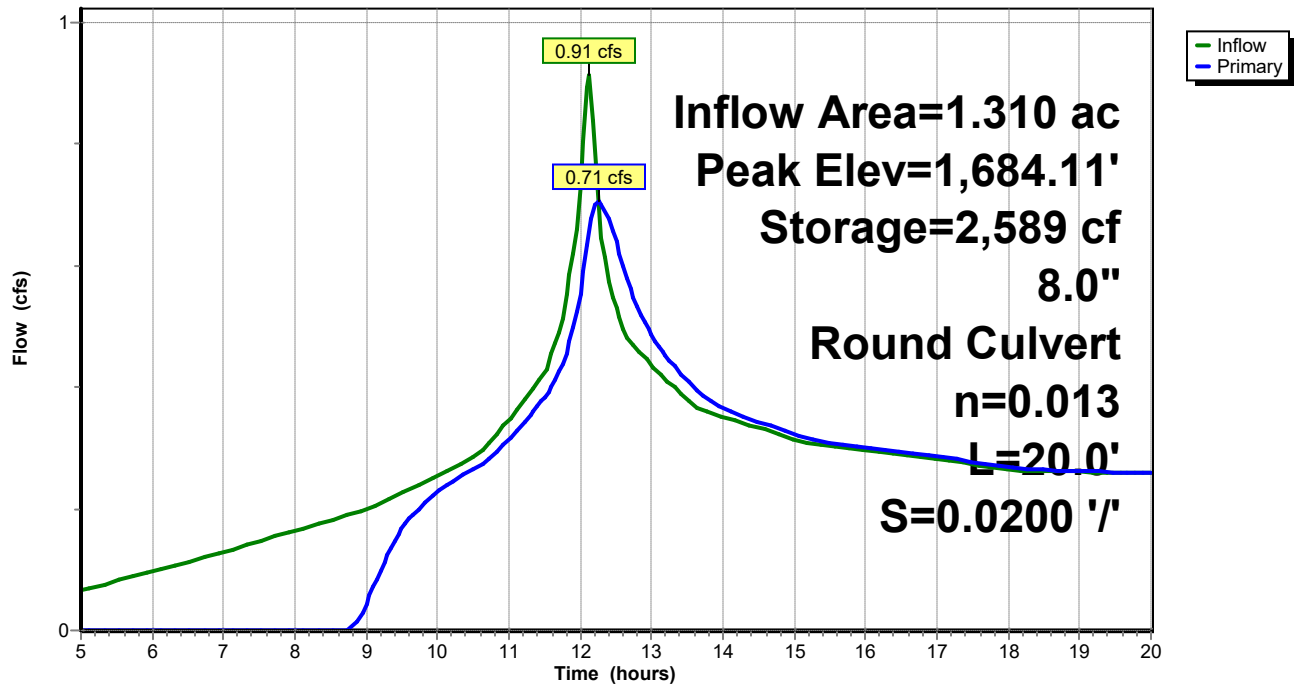
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,682.00	924	0	0
1,683.00	1,202	1,063	1,063
1,684.00	1,505	1,354	2,417
1,685.00	1,834	1,670	4,086

Device	Routing	Invert	Outlet Devices
#1	Primary	1,683.50'	8.0" Round Culvert L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,683.50' / 1,683.10' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.71 cfs @ 12.25 hrs HW=1,684.11' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 0.71 cfs @ 2.11 fps)

Pond 4P: (new Pond)

Hydrograph



WS 1 postR1

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CA-1 25 yr Rainfall=8.41"

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Summary for Subcatchment 1S: WS 1a post

Runoff = 8.33 cfs @ 12.15 hrs, Volume= 3.276 af, Depth> 4.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG C
0.160	89	Gravel roads, HSG C
* 0.390	75	Vineyard, Good, HSG C
2.550	74	Pasture/grassland/range, Good, HSG C
* 0.220	75	Brush, Good, HSG C
5.900	73	Woods, Fair, HSG C
9.350	74	Weighted Average
9.220		98.61% Pervious Area
0.130		1.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	100	0.2100	0.35		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.6	368	0.3500	9.52		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	913	0.1600	6.44		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.8	529	0.1600	10.71	96.43	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
8.5	1,910	Total			

WS 1 postR1

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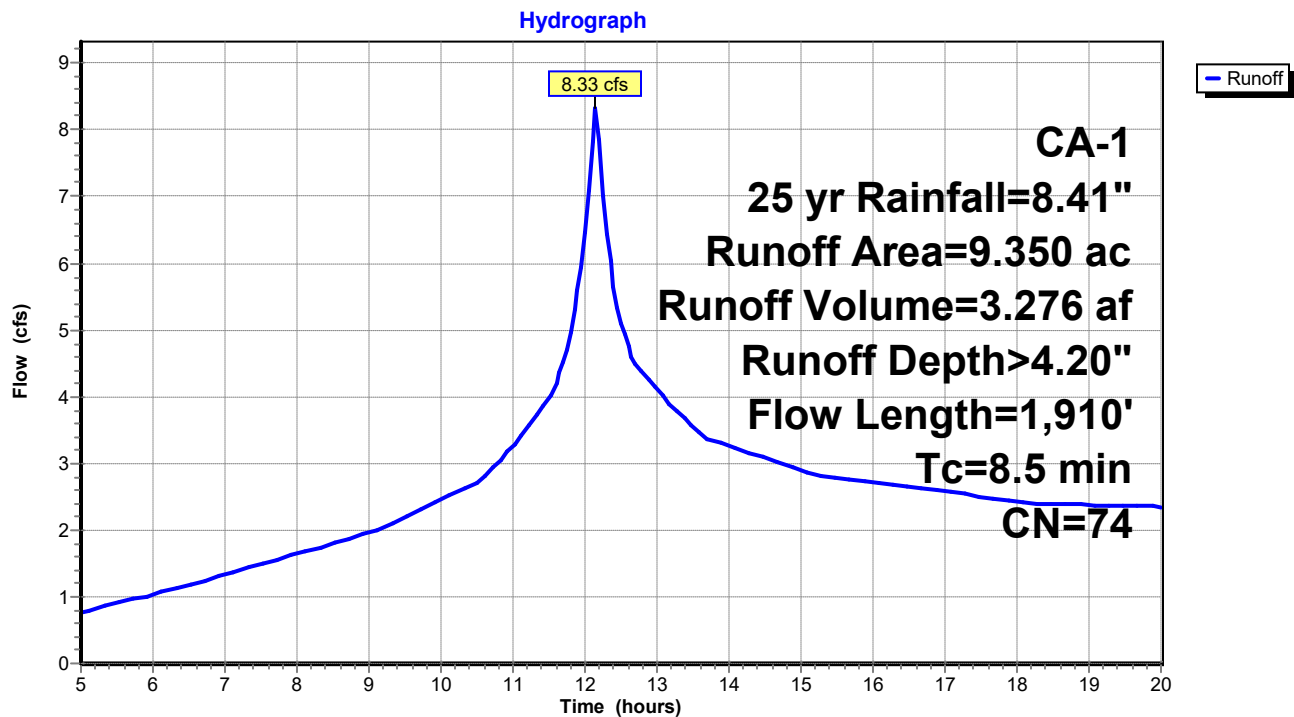
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CA-1 25 yr Rainfall=8.41"

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Subcatchment 1S: WS 1a post



WS 1 postR1

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CA-1 25 yr Rainfall=8.41"

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Summary for Subcatchment 2S: WS 1b post

Runoff = 43.76 cfs @ 12.33 hrs, Volume= 20.022 af, Depth> 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
1.250	98	Paved parking, HSG C
0.280	89	Gravel roads, HSG C
* 5.260	75	Vineyard, Good, HSG C
* 12.680	79	Vineyard, Fair, HSG C
11.230	74	Pasture/grassland/range, Good, HSG C
* 0.150	75	Brush, Good, HSG C
25.540	73	Woods, Fair, HSG C
56.390	75	Weighted Average
55.140		97.78% Pervious Area
1.250		2.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.0	1,342	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Winding stream, pools & shoals
23.1	3,753	Total			

WS 1 postR1

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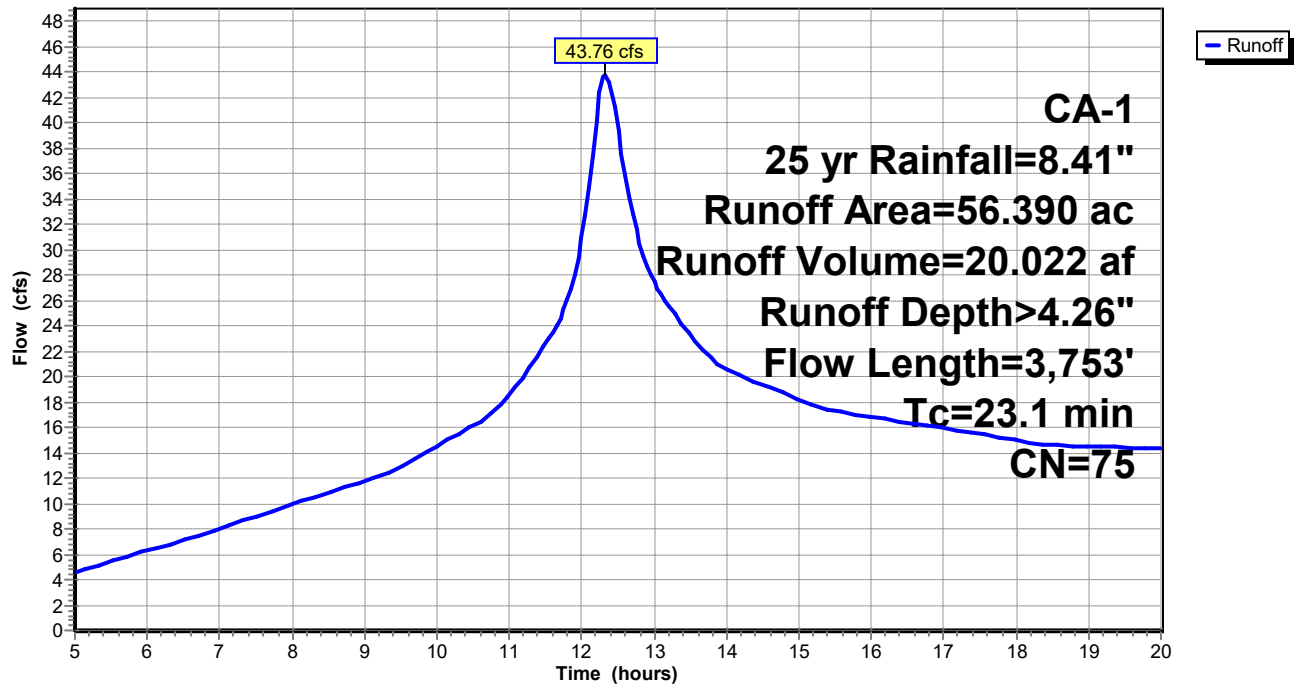
CA-1 25 yr Rainfall=8.41"

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Subcatchment 2S: WS 1b post

Hydrograph



WS 1 postR1

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CA-1 25 yr Rainfall=8.41"

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Summary for Subcatchment 3S: WS-pond

Runoff = 1.23 cfs @ 12.13 hrs, Volume= 0.470 af, Depth> 4.31"

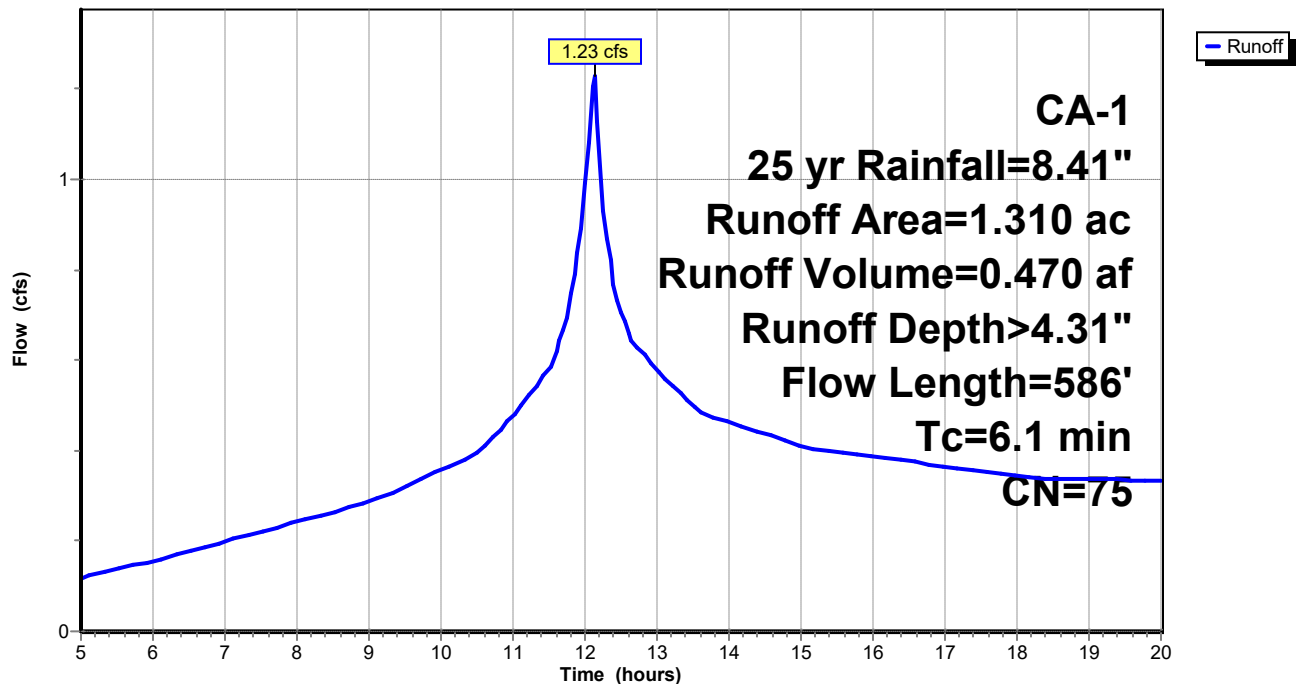
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
* 1.230	75	vineyard, good, HSG C
0.080	76	Woods/grass comb., Fair, HSG C
1.310	75	Weighted Average
1.310		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	100	0.2000	0.35		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
1.3	486	0.1500	6.24		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
6.1	586	Total			

Subcatchment 3S: WS-pond

Hydrograph



WS 1 postR1

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CA-1 25 yr Rainfall=8.41"

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Summary for Subcatchment 5S: culvert post

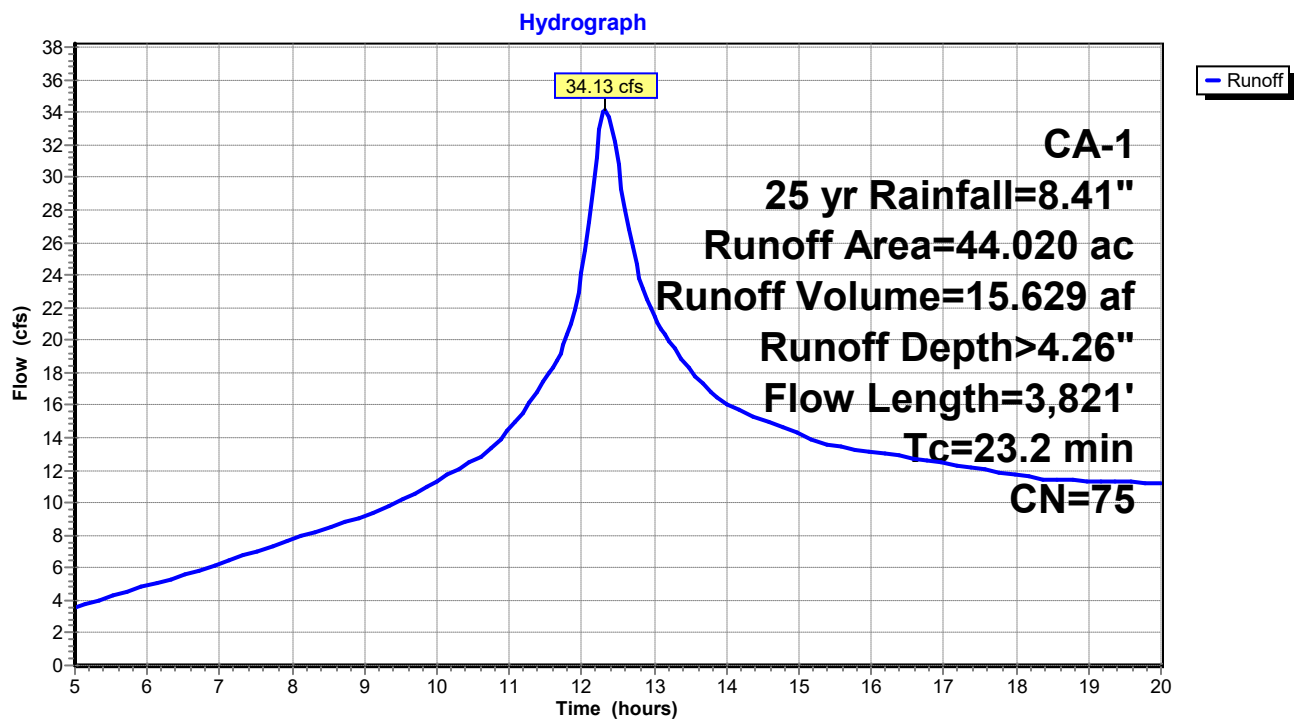
Runoff = 34.13 cfs @ 12.33 hrs, Volume= 15.629 af, Depth> 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
0.940	98	Paved parking, HSG C
0.200	89	Gravel roads, HSG C
* 2.000	75	Vineyard, Good, HSG C
* 10.750	79	Vineyard, Fair, HSG C
4.290	74	Pasture/grassland/range, Good, HSG C
* 0.130	75	Brush, Good, HSG C
25.710	73	Woods, Fair, HSG C
44.020	75	Weighted Average
43.080		97.86% Pervious Area
0.940		2.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	1,410	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Mountain streams
23.2	3,821	Total			

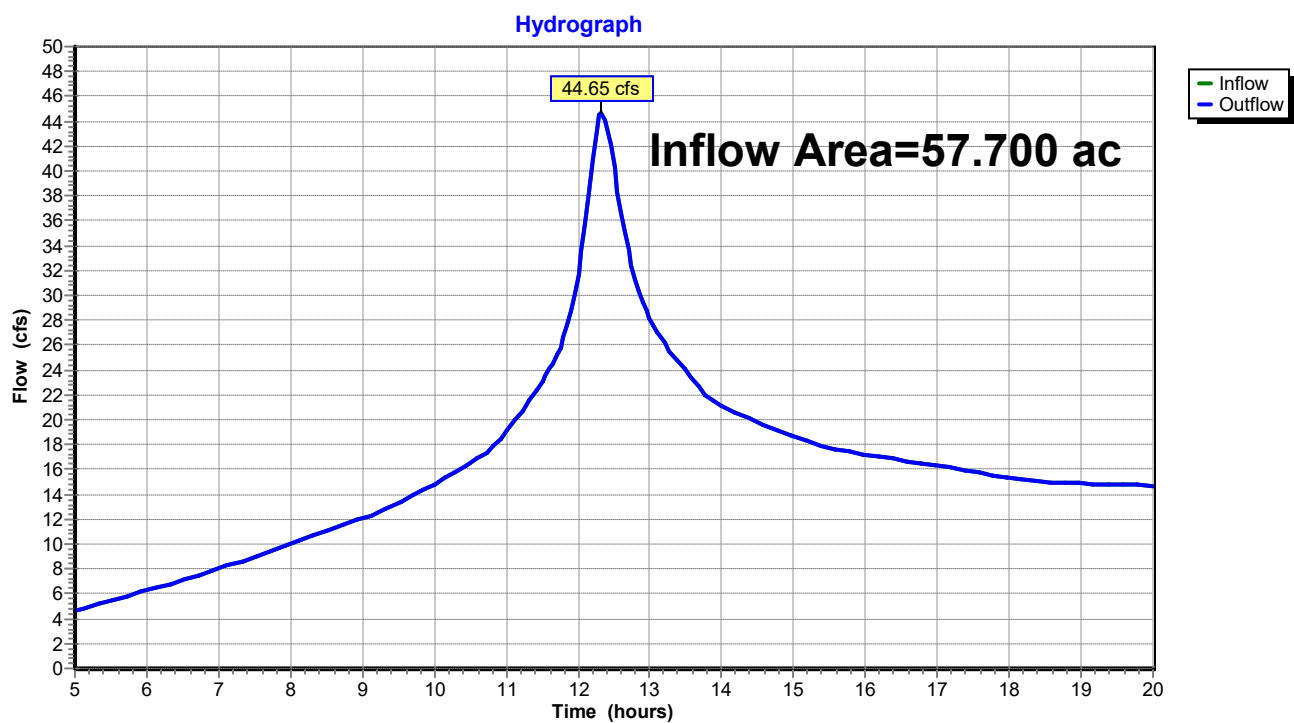
Subcatchment 5S: culvert post



Summary for Reach 5R: POI

Inflow Area = 57.700 ac, 2.17% Impervious, Inflow Depth > 4.25" for 25 yr event
Inflow = 44.65 cfs @ 12.33 hrs, Volume= 20.441 af
Outflow = 44.65 cfs @ 12.33 hrs, Volume= 20.441 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 5R: POI

WS 1 postR1

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CA-1 25 yr Rainfall=8.41"

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Summary for Pond 4P: (new Pond)

Inflow Area = 1.310 ac, 0.00% Impervious, Inflow Depth > 4.31" for 25 yr event
 Inflow = 1.23 cfs @ 12.13 hrs, Volume= 0.470 af
 Outflow = 0.90 cfs @ 12.28 hrs, Volume= 0.419 af, Atten= 27%, Lag= 9.0 min
 Primary = 0.90 cfs @ 12.28 hrs, Volume= 0.419 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,684.29' @ 12.28 hrs Surf.Area= 1,600 sf Storage= 2,867 cf

Plug-Flow detention time= 93.7 min calculated for 0.419 af (89% of inflow)
 Center-of-Mass det. time= 49.6 min (838.3 - 788.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,682.00'	4,086 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

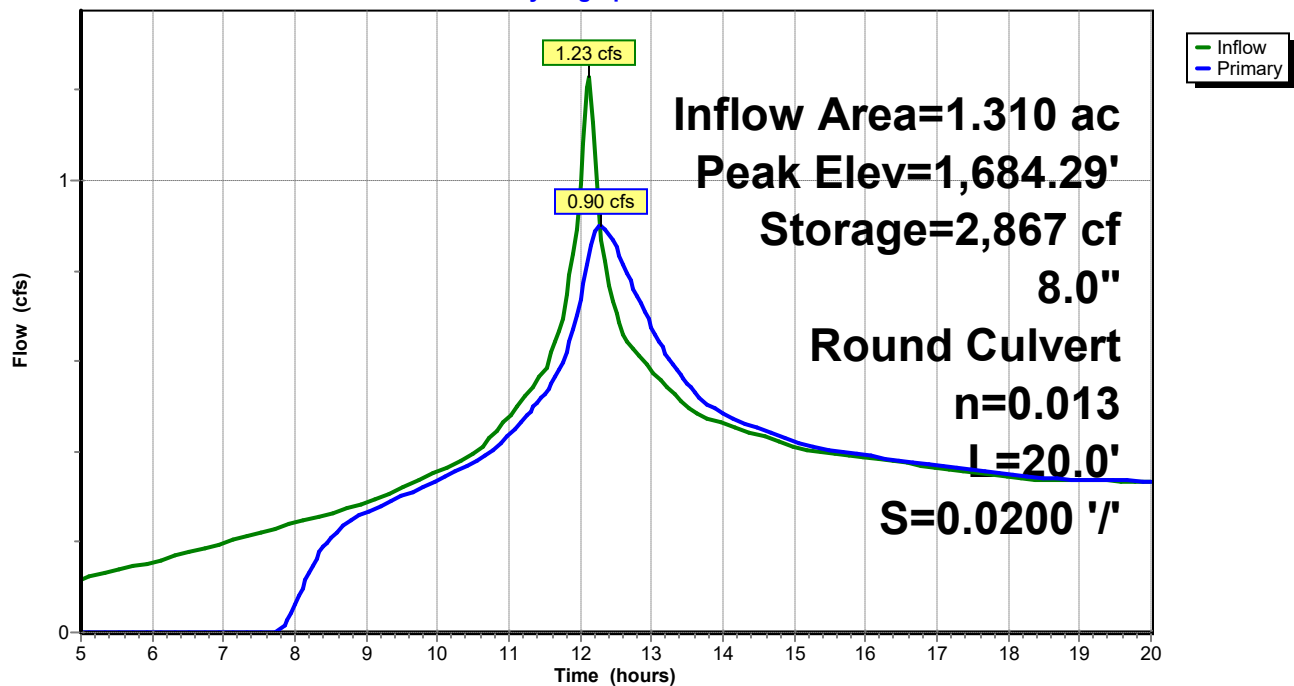
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,682.00	924	0	0
1,683.00	1,202	1,063	1,063
1,684.00	1,505	1,354	2,417
1,685.00	1,834	1,670	4,086

Device	Routing	Invert	Outlet Devices
#1	Primary	1,683.50'	8.0" Round Culvert L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,683.50' / 1,683.10' S= 0.0200 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.90 cfs @ 12.28 hrs HW=1,684.29' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 0.90 cfs @ 2.57 fps)

Pond 4P: (new Pond)

Hydrograph



WS 1 postR1

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 1S: WS 1a post

Runoff = 9.98 cfs @ 12.15 hrs, Volume= 3.946 af, Depth> 5.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG C
0.160	89	Gravel roads, HSG C
* 0.390	75	Vineyard, Good, HSG C
2.550	74	Pasture/grassland/range, Good, HSG C
* 0.220	75	Brush, Good, HSG C
5.900	73	Woods, Fair, HSG C
9.350	74	Weighted Average
9.220		98.61% Pervious Area
0.130		1.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	100	0.2100	0.35		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.6	368	0.3500	9.52		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	913	0.1600	6.44		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.8	529	0.1600	10.71	96.43	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
8.5	1,910	Total			

WS 1 postR1

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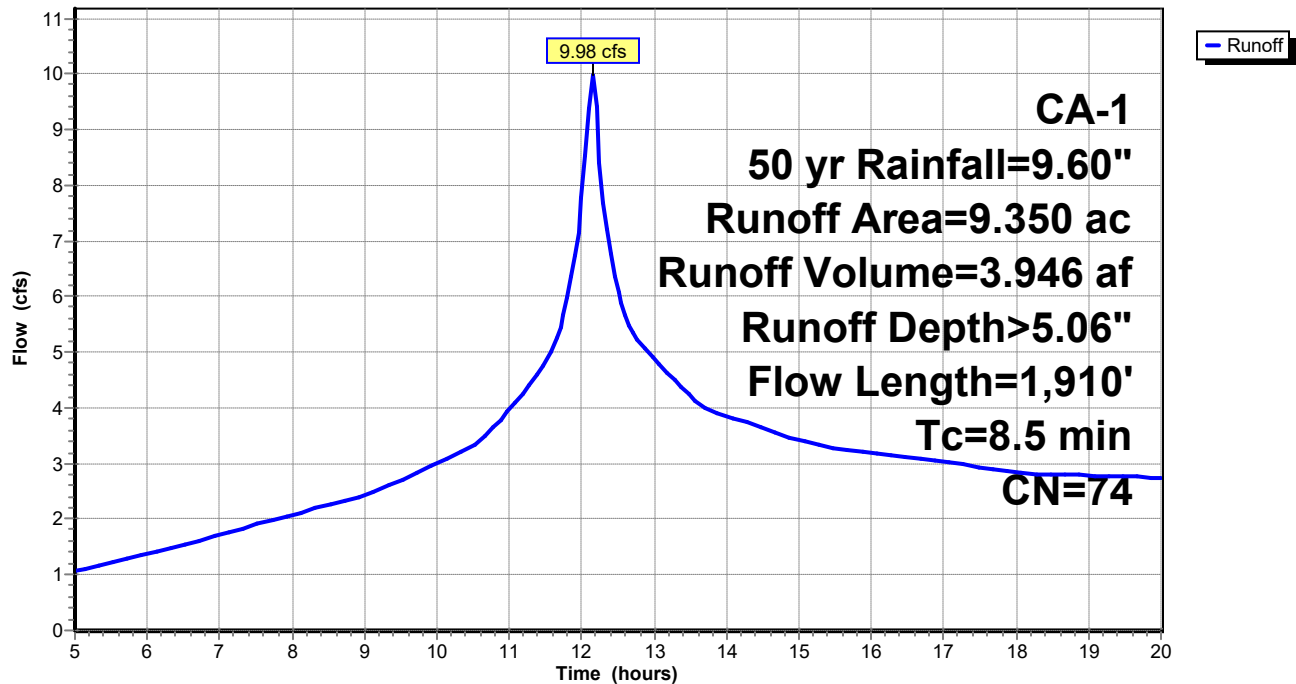
CA-1 50 yr Rainfall=9.60"

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Subcatchment 1S: WS 1a post

Hydrograph



WS 1 postR1

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 2S: WS 1b post

Runoff = 52.31 cfs @ 12.33 hrs, Volume= 24.072 af, Depth> 5.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
1.250	98	Paved parking, HSG C
0.280	89	Gravel roads, HSG C
* 5.260	75	Vineyard, Good, HSG C
* 12.680	79	Vineyard, Fair, HSG C
11.230	74	Pasture/grassland/range, Good, HSG C
* 0.150	75	Brush, Good, HSG C
25.540	73	Woods, Fair, HSG C
56.390	75	Weighted Average
55.140		97.78% Pervious Area
1.250		2.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.0	1,342	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Winding stream, pools & shoals
23.1	3,753	Total			

WS 1 postR1

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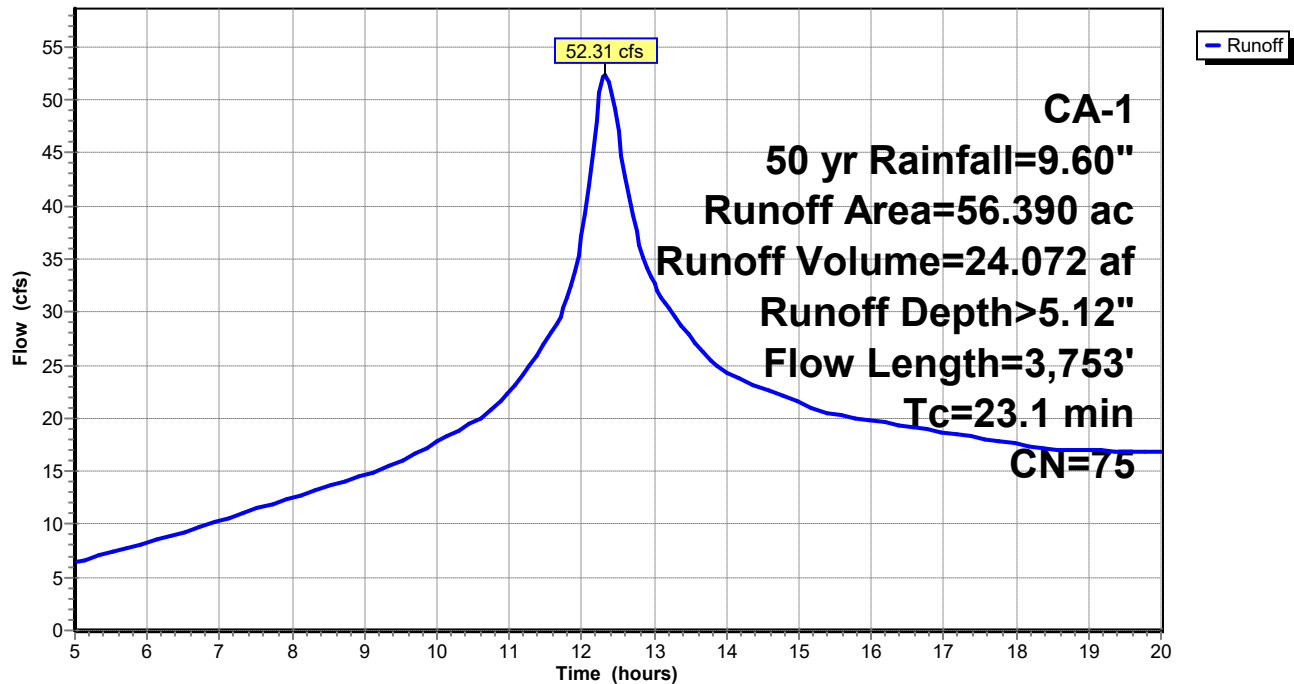
CA-1 50 yr Rainfall=9.60"

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Subcatchment 2S: WS 1b post

Hydrograph



WS 1 postR1

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 3S: WS-pond

Runoff = 1.47 cfs @ 12.13 hrs, Volume= 0.564 af, Depth> 5.17"

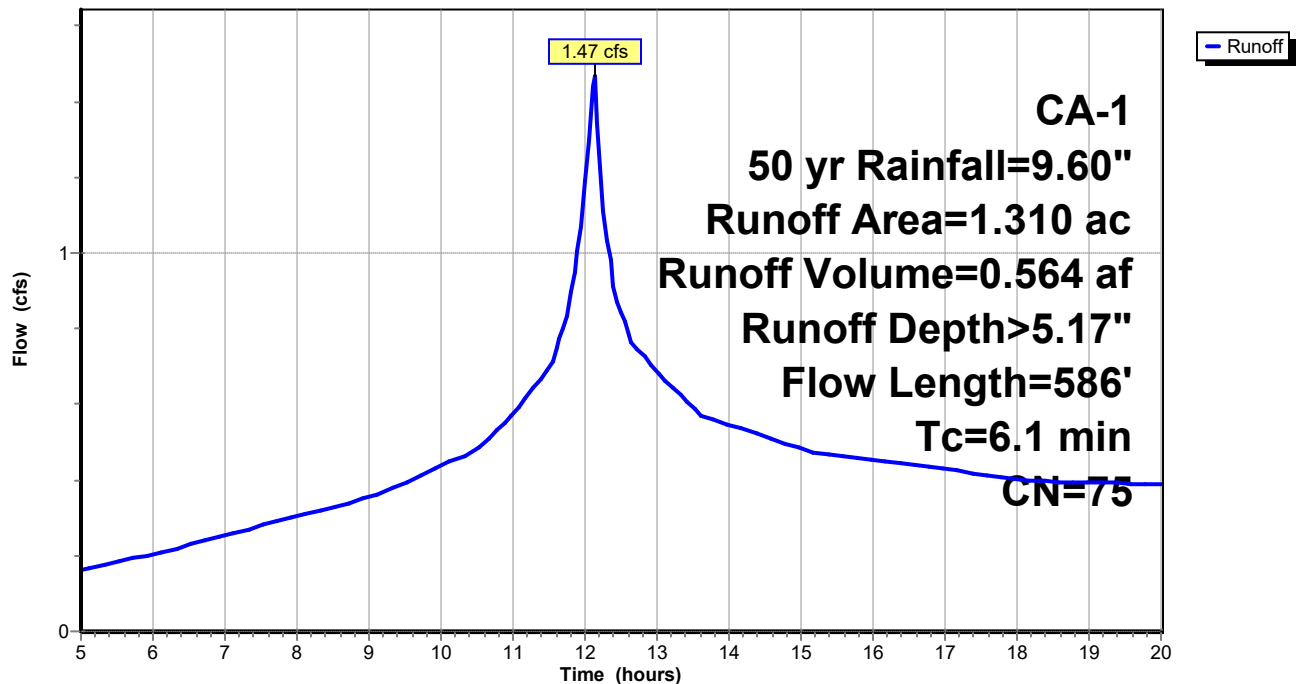
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
* 1.230	75	vineyard, good, HSG C
0.080	76	Woods/grass comb., Fair, HSG C
1.310	75	Weighted Average
1.310		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	100	0.2000	0.35		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
1.3	486	0.1500	6.24		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
6.1	586	Total			

Subcatchment 3S: WS-pond

Hydrograph



WS 1 postR1

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 5S: culvert post

Runoff = 40.80 cfs @ 12.33 hrs, Volume= 18.790 af, Depth> 5.12"

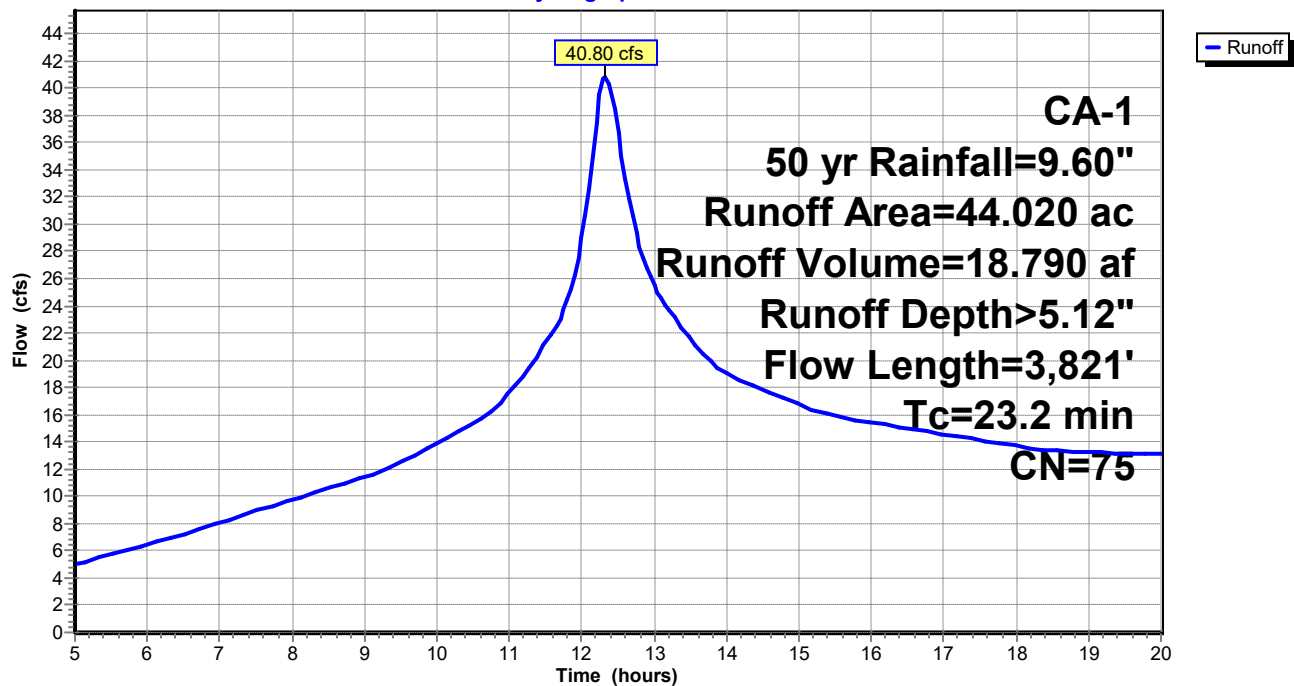
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
0.940	98	Paved parking, HSG C
0.200	89	Gravel roads, HSG C
* 2.000	75	Vineyard, Good, HSG C
* 10.750	79	Vineyard, Fair, HSG C
4.290	74	Pasture/grassland/range, Good, HSG C
* 0.130	75	Brush, Good, HSG C
25.710	73	Woods, Fair, HSG C
44.020	75	Weighted Average
43.080		97.86% Pervious Area
0.940		2.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	1,410	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Mountain streams
23.2	3,821	Total			

Subcatchment 5S: culvert post

Hydrograph



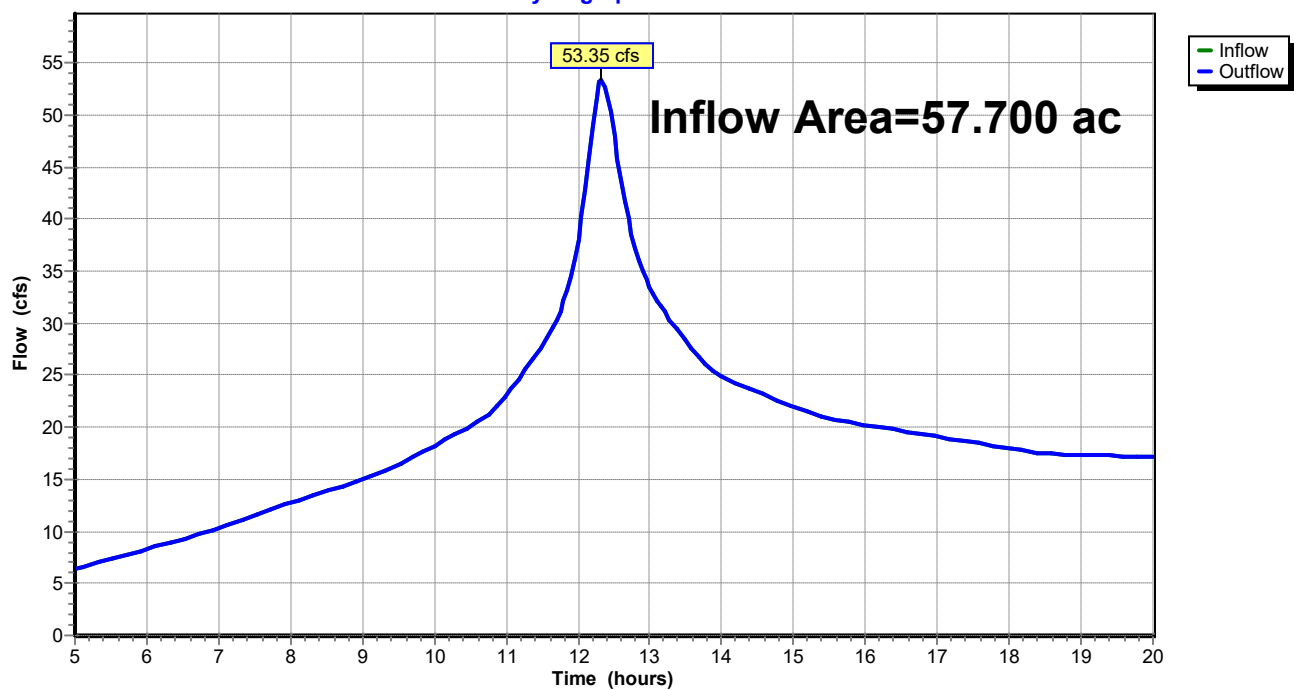
Summary for Reach 5R: POI

Inflow Area = 57.700 ac, 2.17% Impervious, Inflow Depth > 5.11" for 50 yr event
Inflow = 53.35 cfs @ 12.33 hrs, Volume= 24.584 af
Outflow = 53.35 cfs @ 12.33 hrs, Volume= 24.584 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 5R: POI

Hydrograph



WS 1 postR1

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CA-1 50 yr Rainfall=9.60"

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Summary for Pond 4P: (new Pond)

Inflow Area = 1.310 ac, 0.00% Impervious, Inflow Depth > 5.17" for 50 yr event
 Inflow = 1.47 cfs @ 12.13 hrs, Volume= 0.564 af
 Outflow = 1.04 cfs @ 12.30 hrs, Volume= 0.512 af, Atten= 29%, Lag= 10.6 min
 Primary = 1.04 cfs @ 12.30 hrs, Volume= 0.512 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,684.44' @ 12.30 hrs Surf.Area= 1,651 sf Storage= 3,115 cf

Plug-Flow detention time= 82.2 min calculated for 0.510 af (90% of inflow)
 Center-of-Mass det. time= 43.9 min (826.6 - 782.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,682.00'	4,086 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

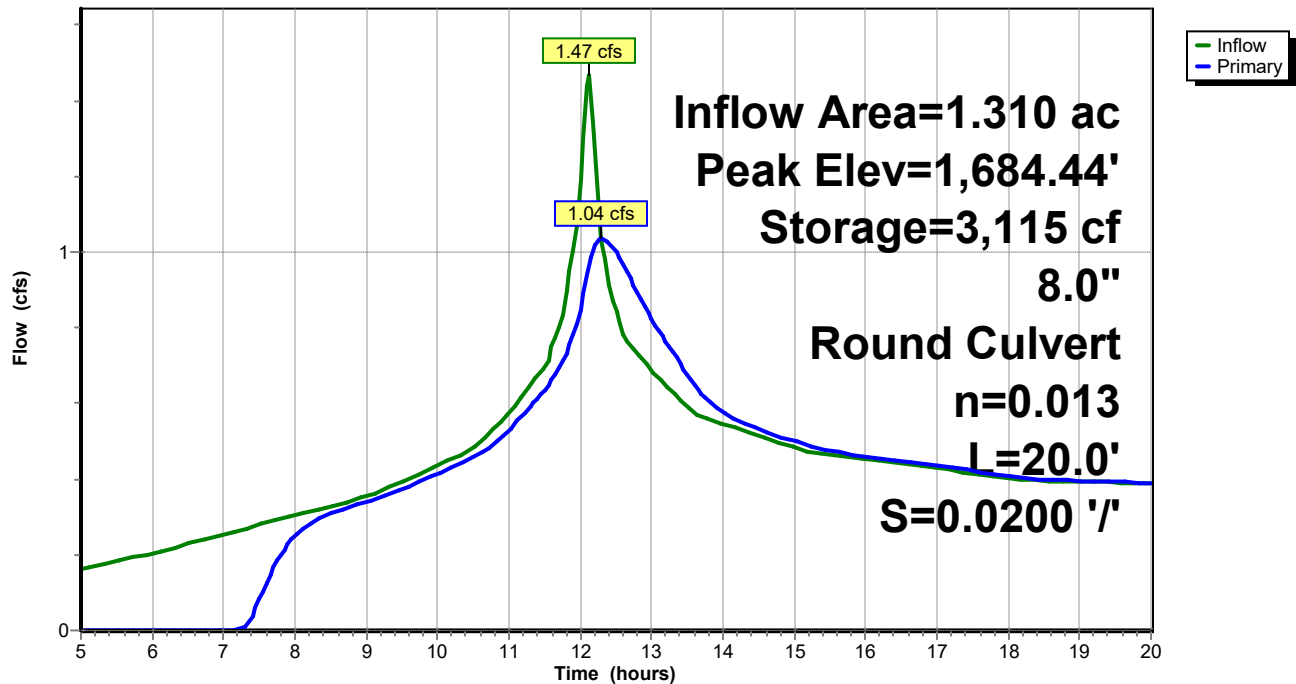
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,682.00	924	0	0
1,683.00	1,202	1,063	1,063
1,684.00	1,505	1,354	2,417
1,685.00	1,834	1,670	4,086

Device	Routing	Invert	Outlet Devices
#1	Primary	1,683.50'	8.0" Round Culvert L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,683.50' / 1,683.10' S= 0.0200 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=1.04 cfs @ 12.30 hrs HW=1,684.44' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 1.04 cfs @ 2.97 fps)

Pond 4P: (new Pond)

Hydrograph



WS 1 postR1

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CA-1 100 yr Rainfall=10.90"

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Summary for Subcatchment 1S: WS 1a post

Runoff = 11.79 cfs @ 12.15 hrs, Volume= 4.686 af, Depth> 6.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 100 yr Rainfall=10.90"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG C
0.160	89	Gravel roads, HSG C
* 0.390	75	Vineyard, Good, HSG C
2.550	74	Pasture/grassland/range, Good, HSG C
* 0.220	75	Brush, Good, HSG C
5.900	73	Woods, Fair, HSG C
9.350	74	Weighted Average
9.220		98.61% Pervious Area
0.130		1.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	100	0.2100	0.35		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.6	368	0.3500	9.52		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	913	0.1600	6.44		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.8	529	0.1600	10.71	96.43	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
8.5	1,910	Total			

WS 1 postR1

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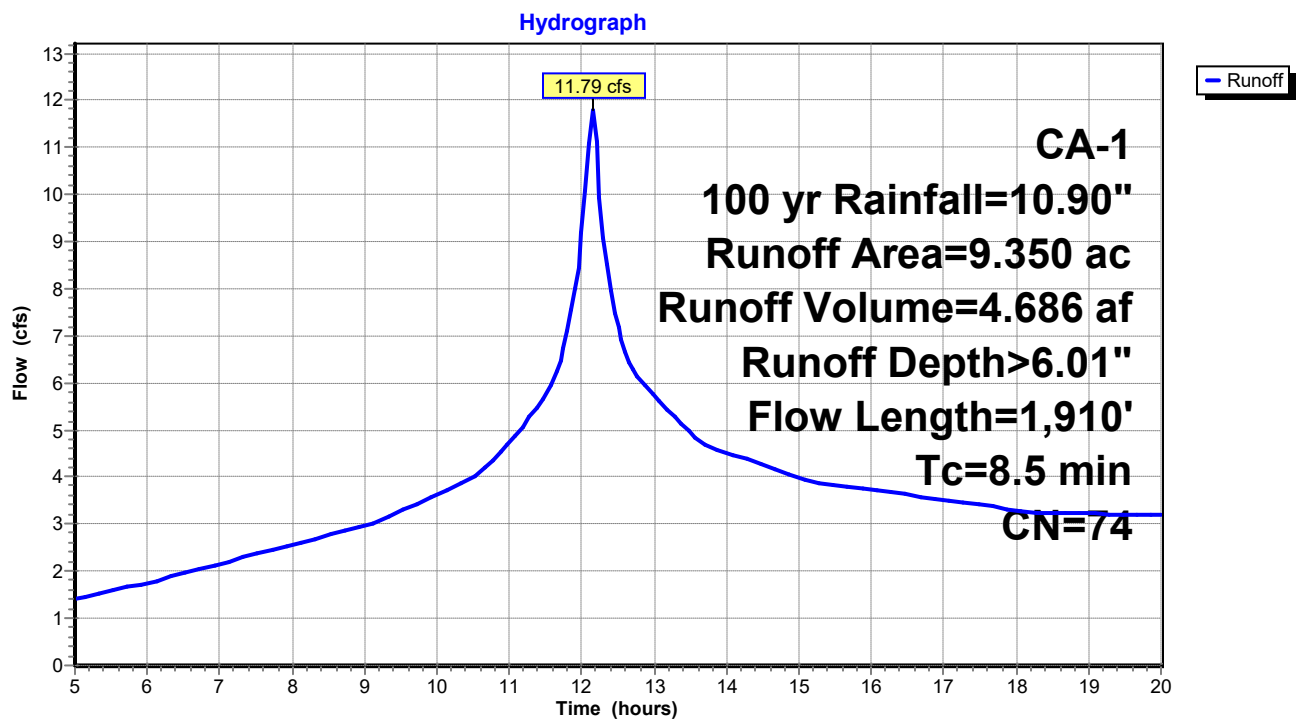
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CA-1 100 yr Rainfall=10.90"

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Subcatchment 1S: WS 1a post



WS 1 postR1

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CA-1 100 yr Rainfall=10.90"

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Summary for Subcatchment 2S: WS 1b post

Runoff = 61.68 cfs @ 12.33 hrs, Volume= 28.538 af, Depth> 6.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 100 yr Rainfall=10.90"

Area (ac)	CN	Description
1.250	98	Paved parking, HSG C
0.280	89	Gravel roads, HSG C
* 5.260	75	Vineyard, Good, HSG C
* 12.680	79	Vineyard, Fair, HSG C
11.230	74	Pasture/grassland/range, Good, HSG C
* 0.150	75	Brush, Good, HSG C
25.540	73	Woods, Fair, HSG C
56.390	75	Weighted Average
55.140		97.78% Pervious Area
1.250		2.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.0	1,342	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Winding stream, pools & shoals
23.1	3,753	Total			

WS 1 postR1

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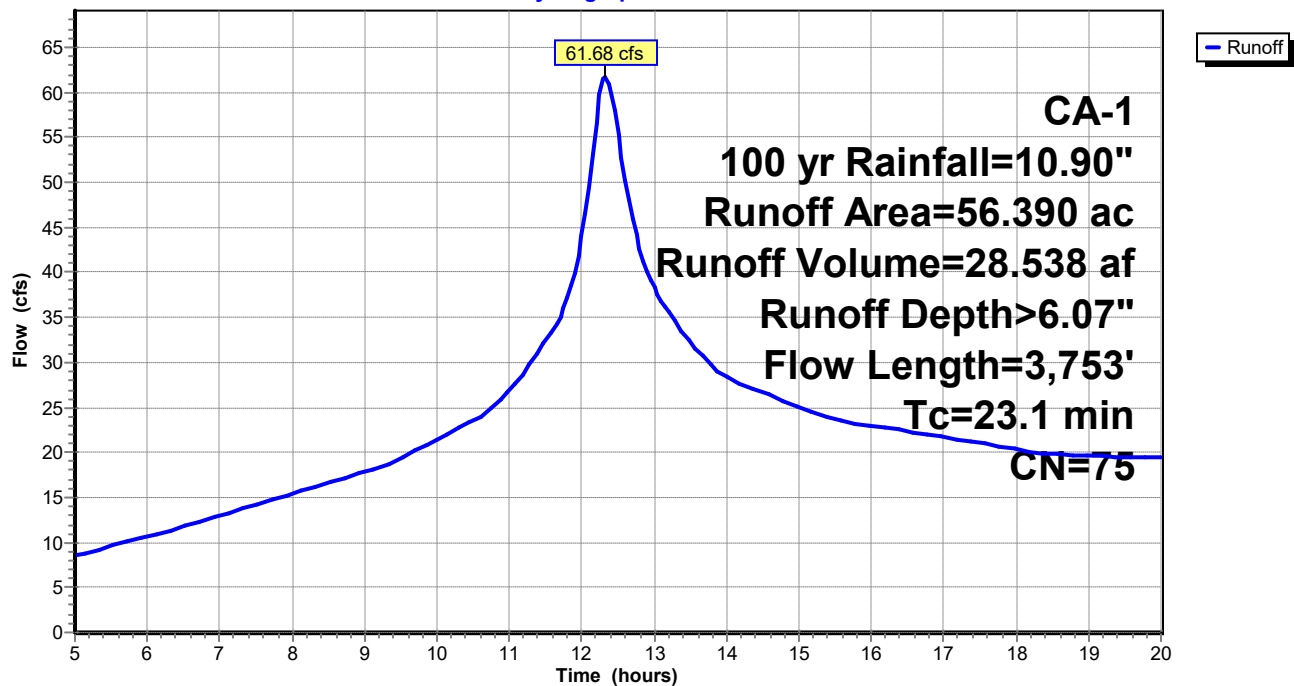
CA-1 100 yr Rainfall=10.90"

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Subcatchment 2S: WS 1b post

Hydrograph



WS 1 postR1

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CA-1 100 yr Rainfall=10.90"

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Summary for Subcatchment 3S: WS-pond

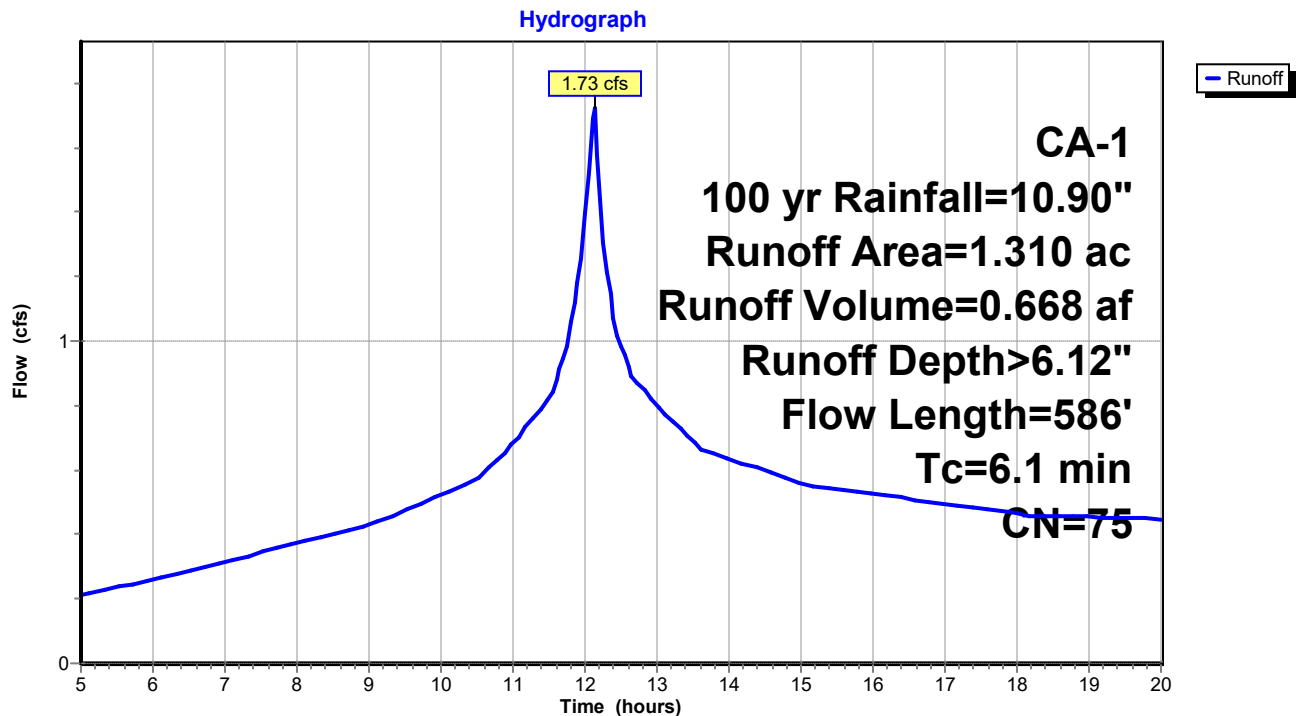
Runoff = 1.73 cfs @ 12.13 hrs, Volume= 0.668 af, Depth> 6.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 100 yr Rainfall=10.90"

Area (ac)	CN	Description
* 1.230	75	vineyard, good, HSG C
0.080	76	Woods/grass comb., Fair, HSG C
1.310	75	Weighted Average
1.310		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	100	0.2000	0.35		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
1.3	486	0.1500	6.24		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
6.1	586	Total			

Subcatchment 3S: WS-pond



WS 1 postR1

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CA-1 100 yr Rainfall=10.90"

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Summary for Subcatchment 5S: culvert post

Runoff = 48.11 cfs @ 12.33 hrs, Volume= 22.276 af, Depth> 6.07"

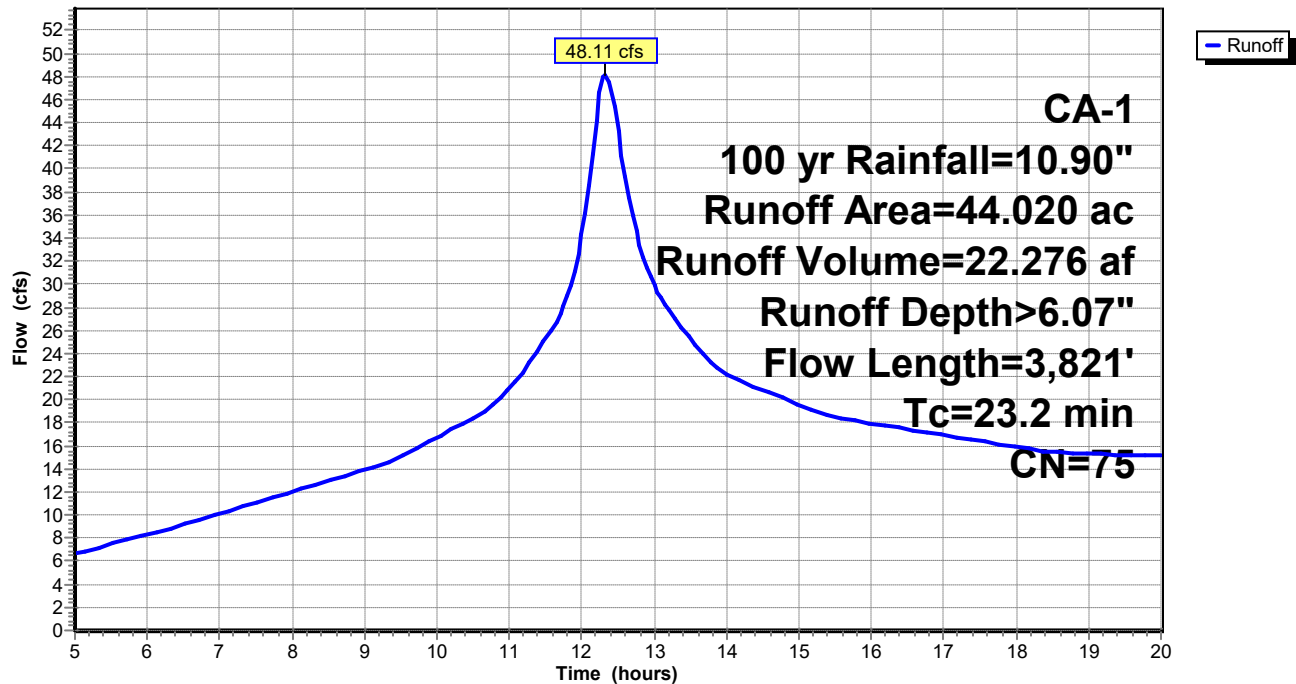
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 100 yr Rainfall=10.90"

Area (ac)	CN	Description
0.940	98	Paved parking, HSG C
0.200	89	Gravel roads, HSG C
* 2.000	75	Vineyard, Good, HSG C
* 10.750	79	Vineyard, Fair, HSG C
4.290	74	Pasture/grassland/range, Good, HSG C
* 0.130	75	Brush, Good, HSG C
25.710	73	Woods, Fair, HSG C
44.020	75	Weighted Average
43.080		97.86% Pervious Area
0.940		2.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0500	0.13		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
6.1	1,327	0.0500	3.60		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.4	984	0.1800	6.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	1,410	0.1600	11.29	124.24	Channel Flow, Area= 11.0 sf Perim= 16.6' r= 0.66' n= 0.040 Mountain streams
23.2	3,821	Total			

Subcatchment 5S: culvert post

Hydrograph



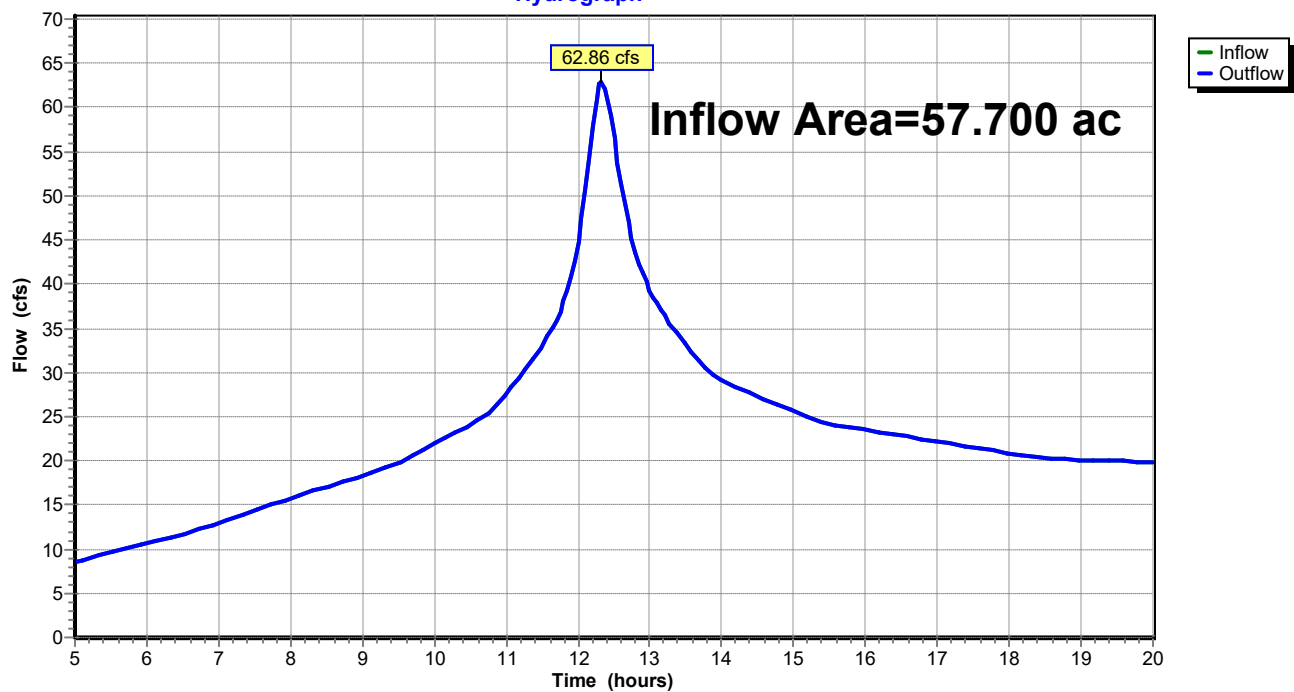
Summary for Reach 5R: POI

Inflow Area = 57.700 ac, 2.17% Impervious, Inflow Depth > 6.06" for 100 yr event
Inflow = 62.86 cfs @ 12.33 hrs, Volume= 29.152 af
Outflow = 62.86 cfs @ 12.33 hrs, Volume= 29.152 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 5R: POI

Hydrograph



WS 1 postR1

CA-1 100 yr Rainfall=10.90"

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Summary for Pond 4P: (new Pond)

Inflow Area = 1.310 ac, 0.00% Impervious, Inflow Depth > 6.12" for 100 yr event
 Inflow = 1.73 cfs @ 12.13 hrs, Volume= 0.668 af
 Outflow = 1.18 cfs @ 12.33 hrs, Volume= 0.615 af, Atten= 32%, Lag= 12.0 min
 Primary = 1.18 cfs @ 12.33 hrs, Volume= 0.615 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,684.63' @ 12.33 hrs Surf.Area= 1,711 sf Storage= 3,424 cf

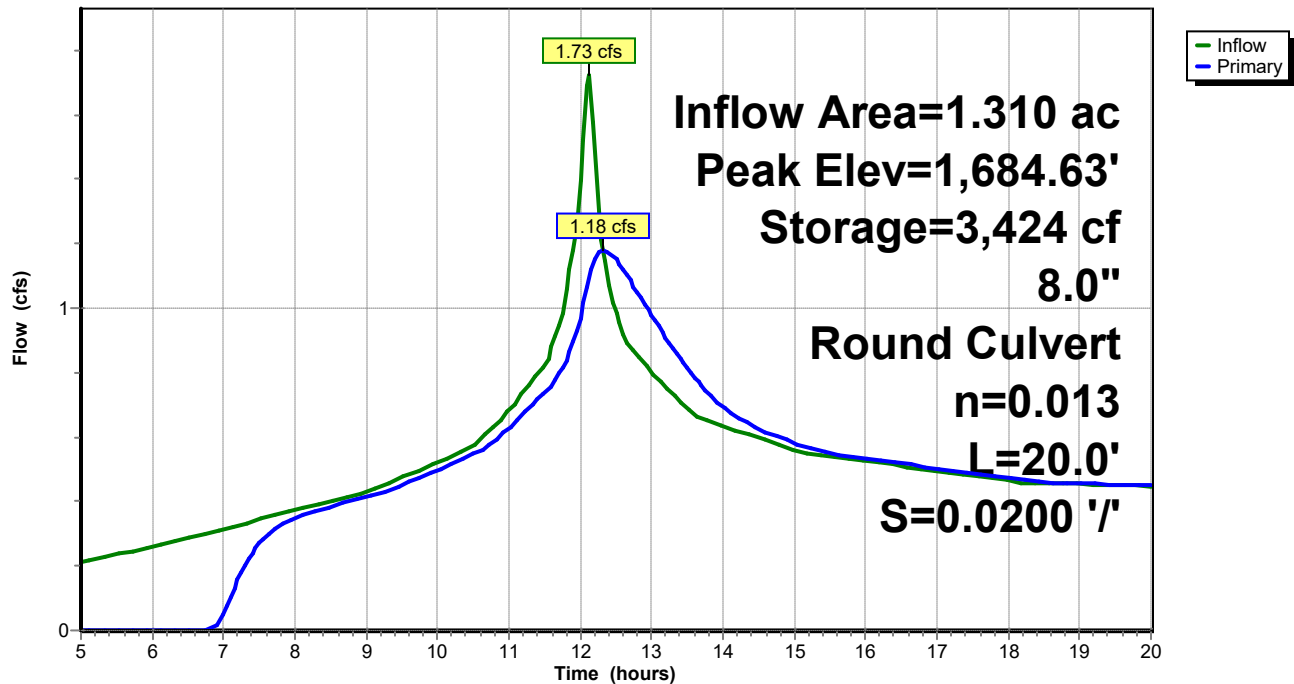
Plug-Flow detention time= 73.3 min calculated for 0.614 af (92% of inflow)
 Center-of-Mass det. time= 39.5 min (817.0 - 777.6)

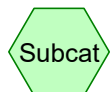
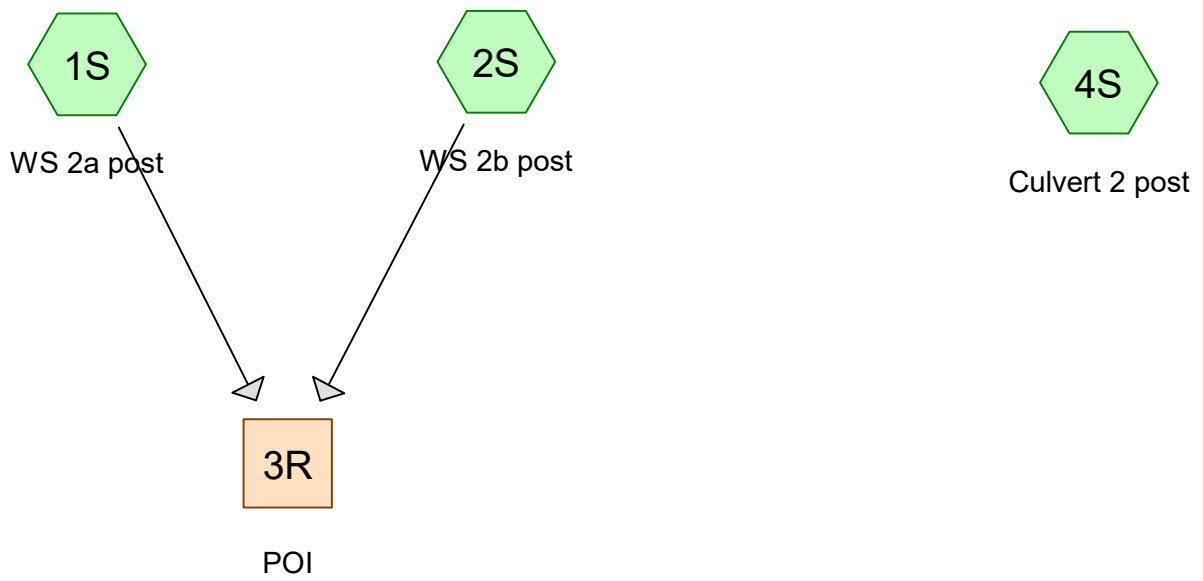
Volume	Invert	Avail.Storage	Storage Description
#1	1,682.00'	4,086 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,682.00	924	0	0
1,683.00	1,202	1,063	1,063
1,684.00	1,505	1,354	2,417
1,685.00	1,834	1,670	4,086

Device	Routing	Invert	Outlet Devices
#1	Primary	1,683.50'	8.0" Round Culvert L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,683.50' / 1,683.10' S= 0.0200 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=1.18 cfs @ 12.33 hrs HW=1,684.63' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 1.18 cfs @ 3.38 fps)

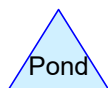
Pond 4P: (new Pond)**Hydrograph**



Subcat



Reach



Pond



Link

Routing Diagram for WS 2 postR1

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WS 2 postR1

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CA-1 2 yr Rainfall=4.50"

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Summary for Subcatchment 1S: WS 2a post

Runoff = 4.54 cfs @ 12.20 hrs, Volume= 1.834 af, Depth> 1.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
0.100	89	Gravel roads, HSG C
0.100	87	Dirt roads, HSG C
* 2.740	75	Vineyard, Good, HSG C
* 0.560	79	Vineyard, Fair, HSG C
1.290	74	Pasture/grassland/range, Good, HSG C
* 0.080	75	Brush, Good, HSG C
9.620	73	Woods, Fair, HSG C
14.490	74	Weighted Average
14.490		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
0.0	20	0.1300	11.14	19.69	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.9	1,210	0.1500	10.37	93.37	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
12.3	2,300	Total			

WS 2 postR1

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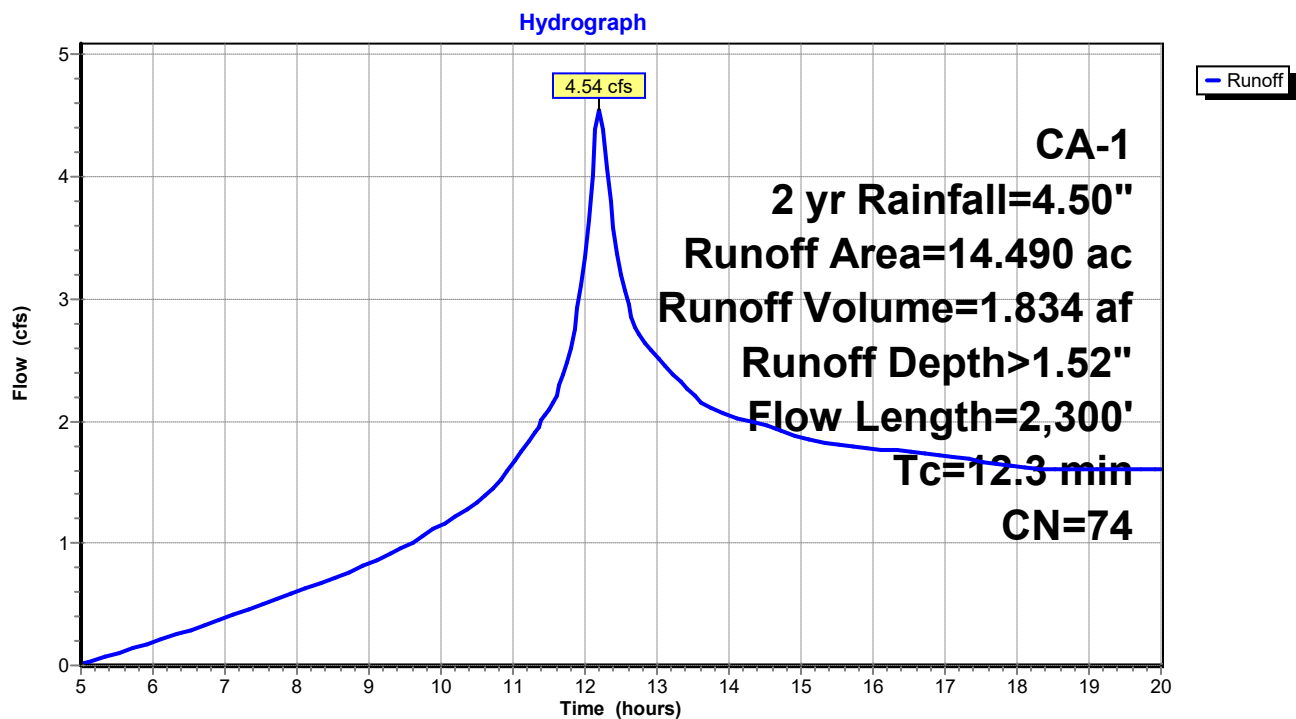
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CA-1 2 yr Rainfall=4.50"

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Subcatchment 1S: WS 2a post



WS 2 postR1

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CA-1 2 yr Rainfall=4.50"

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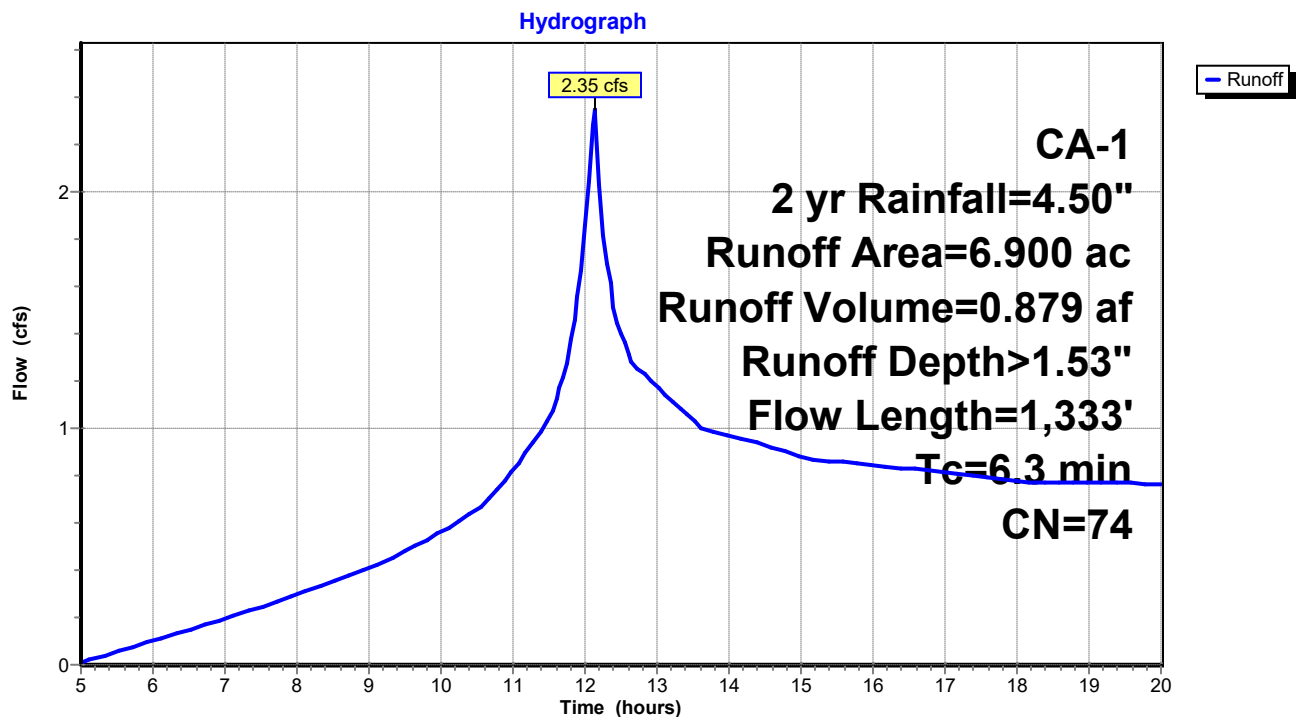
Summary for Subcatchment 2S: WS 2b post

Runoff = 2.35 cfs @ 12.13 hrs, Volume= 0.879 af, Depth> 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
0.070	87	Dirt roads, HSG C
* 1.660	75	Vineyard. Good, HSG B
0.950	74	Pasture/grassland/range, Good, HSG C
4.220	73	Woods, Fair, HSG C
6.900	74	Weighted Average
6.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	100	0.1400	0.44		Sheet Flow, Grass: Short n= 0.150 P2= 4.50"
1.3	522	0.1700	6.64		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	711	0.1300	9.66	86.92	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Winding stream, pools & shoals
6.3	1,333	Total			

Subcatchment 2S: WS 2b post

WS 2 postR1

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CA-1 2 yr Rainfall=4.50"

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Summary for Subcatchment 4S: Culvert 2 post

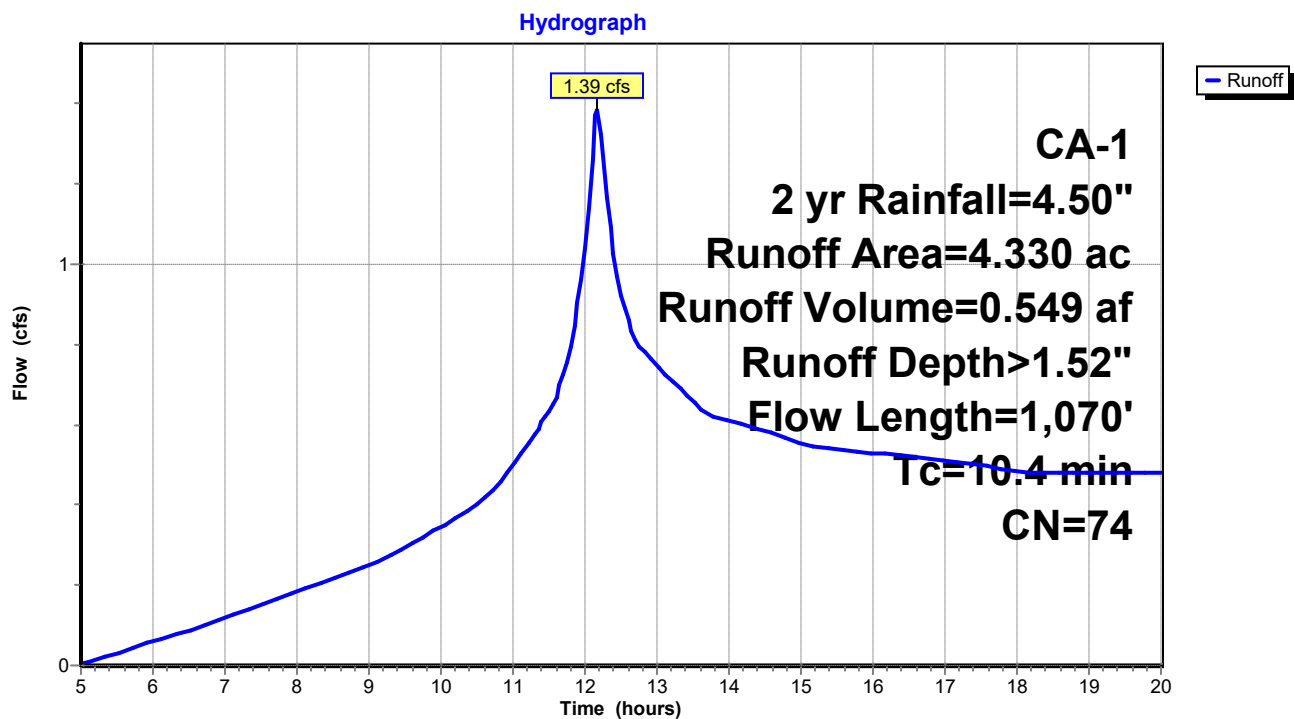
Runoff = 1.39 cfs @ 12.18 hrs, Volume= 0.549 af, Depth> 1.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
0.060	87	Dirt roads, HSG C
* 1.420	75	Vineyard, Good, HSG C
* 0.560	79	Vineyard, Fair, HSG C
0.780	74	Pasture/grassland/range, Good, HSG C
* 0.080	75	Brush, Good, HSG C
1.430	70	Woods, Good, HSG C
4.330	74	Weighted Average
4.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
10.4	1,070	Total			

Subcatchment 4S: Culvert 2 post



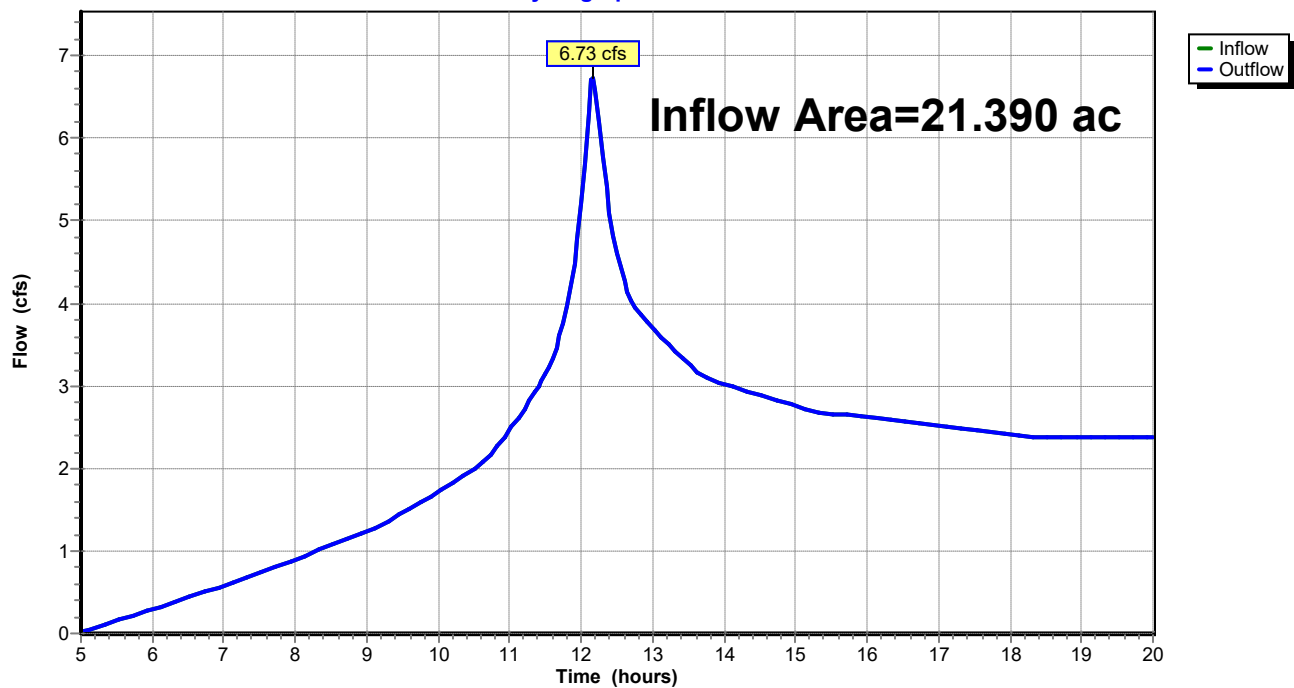
Summary for Reach 3R: POI

Inflow Area = 21.390 ac, 0.00% Impervious, Inflow Depth > 1.52" for 2 yr event
Inflow = 6.73 cfs @ 12.16 hrs, Volume= 2.713 af
Outflow = 6.73 cfs @ 12.16 hrs, Volume= 2.713 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: POI

Hydrograph



WS 2 postR1

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CA-1 5 yr Rainfall=5.79"

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Summary for Subcatchment 1S: WS 2a post

Runoff = 7.00 cfs @ 12.20 hrs, Volume= 2.851 af, Depth> 2.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
0.100	89	Gravel roads, HSG C
0.100	87	Dirt roads, HSG C
* 2.740	75	Vineyard, Good, HSG C
* 0.560	79	Vineyard, Fair, HSG C
1.290	74	Pasture/grassland/range, Good, HSG C
* 0.080	75	Brush, Good, HSG C
9.620	73	Woods, Fair, HSG C
14.490	74	Weighted Average
14.490		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
0.0	20	0.1300	11.14	19.69	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.9	1,210	0.1500	10.37	93.37	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
12.3	2,300	Total			

WS 2 postR1

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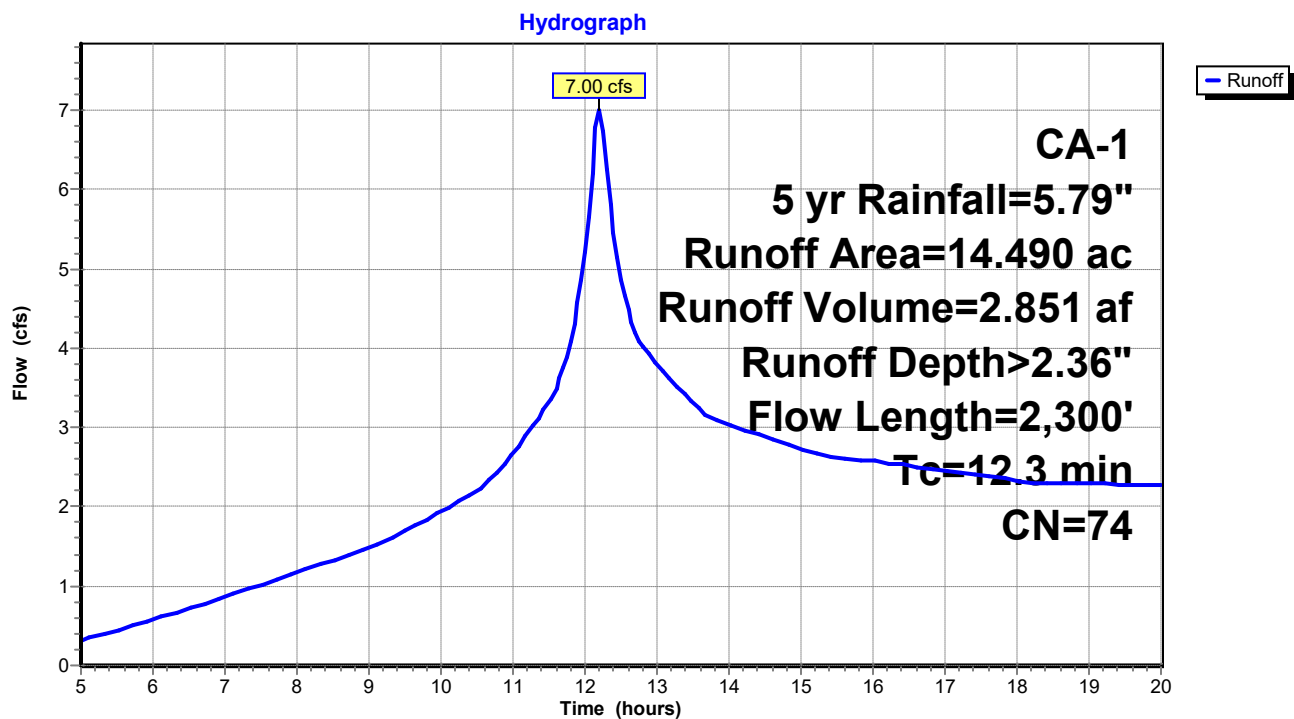
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CA-1 5 yr Rainfall=5.79"

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Subcatchment 1S: WS 2a post



WS 2 postR1

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CA-1 5 yr Rainfall=5.79"

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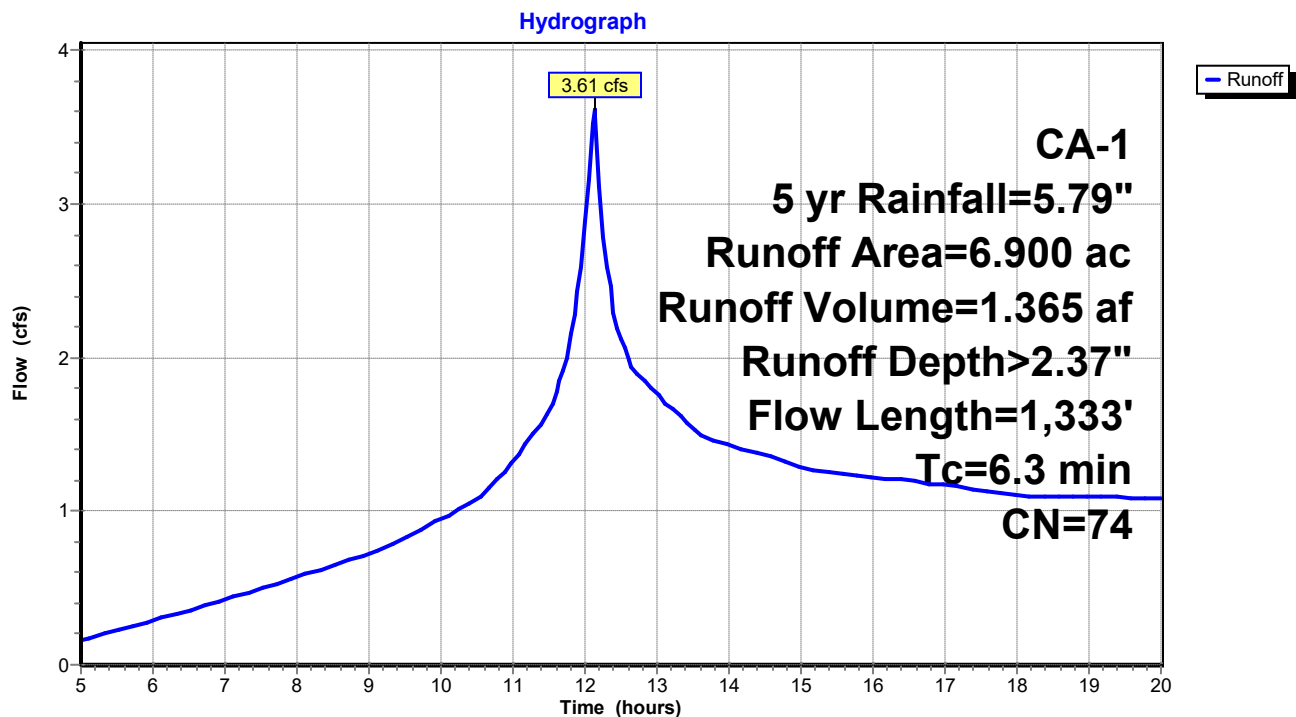
Summary for Subcatchment 2S: WS 2b post

Runoff = 3.61 cfs @ 12.13 hrs, Volume= 1.365 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
0.070	87	Dirt roads, HSG C
* 1.660	75	Vineyard. Good, HSG B
0.950	74	Pasture/grassland/range, Good, HSG C
4.220	73	Woods, Fair, HSG C
6.900	74	Weighted Average
6.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	100	0.1400	0.44		Sheet Flow, Grass: Short n= 0.150 P2= 4.50"
1.3	522	0.1700	6.64		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	711	0.1300	9.66	86.92	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Winding stream, pools & shoals
6.3	1,333	Total			

Subcatchment 2S: WS 2b post

WS 2 postR1

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CA-1 5 yr Rainfall=5.79"

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Summary for Subcatchment 4S: Culvert 2 post

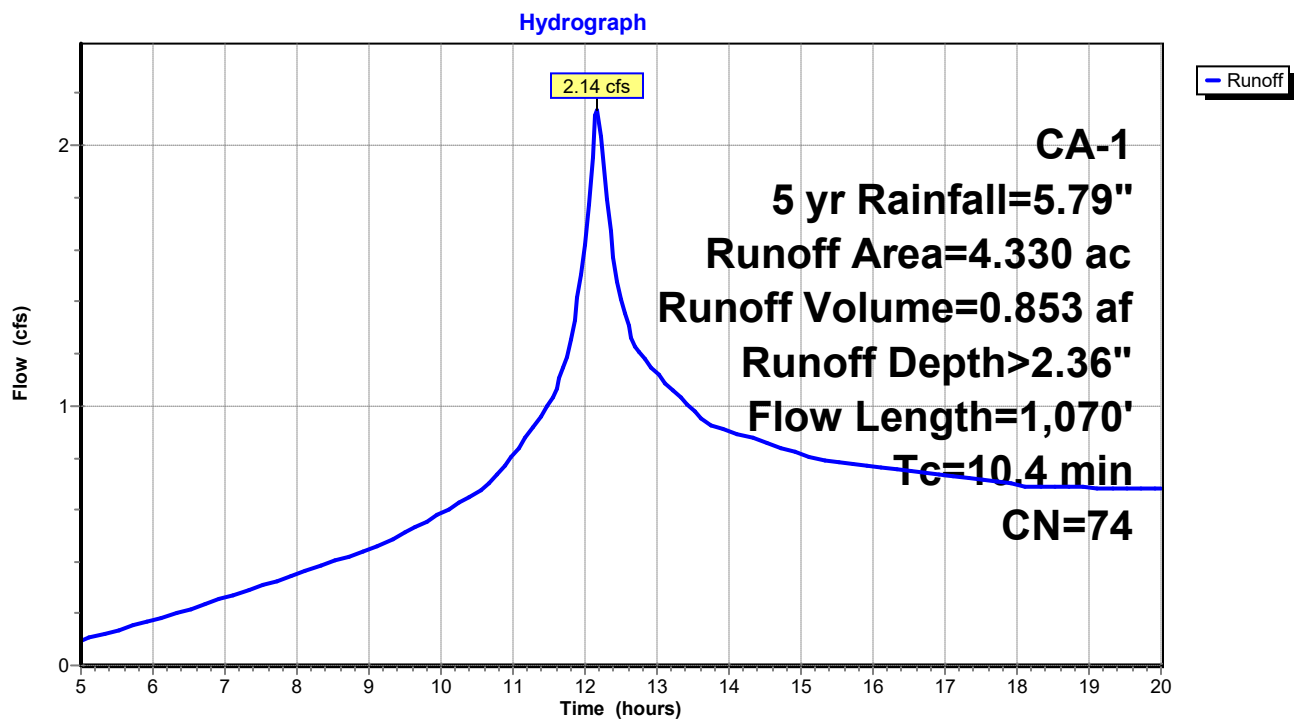
Runoff = 2.14 cfs @ 12.17 hrs, Volume= 0.853 af, Depth> 2.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
0.060	87	Dirt roads, HSG C
* 1.420	75	Vineyard, Good, HSG C
* 0.560	79	Vineyard, Fair, HSG C
0.780	74	Pasture/grassland/range, Good, HSG C
* 0.080	75	Brush, Good, HSG C
1.430	70	Woods, Good, HSG C
4.330	74	Weighted Average
4.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
10.4	1,070	Total			

Subcatchment 4S: Culvert 2 post



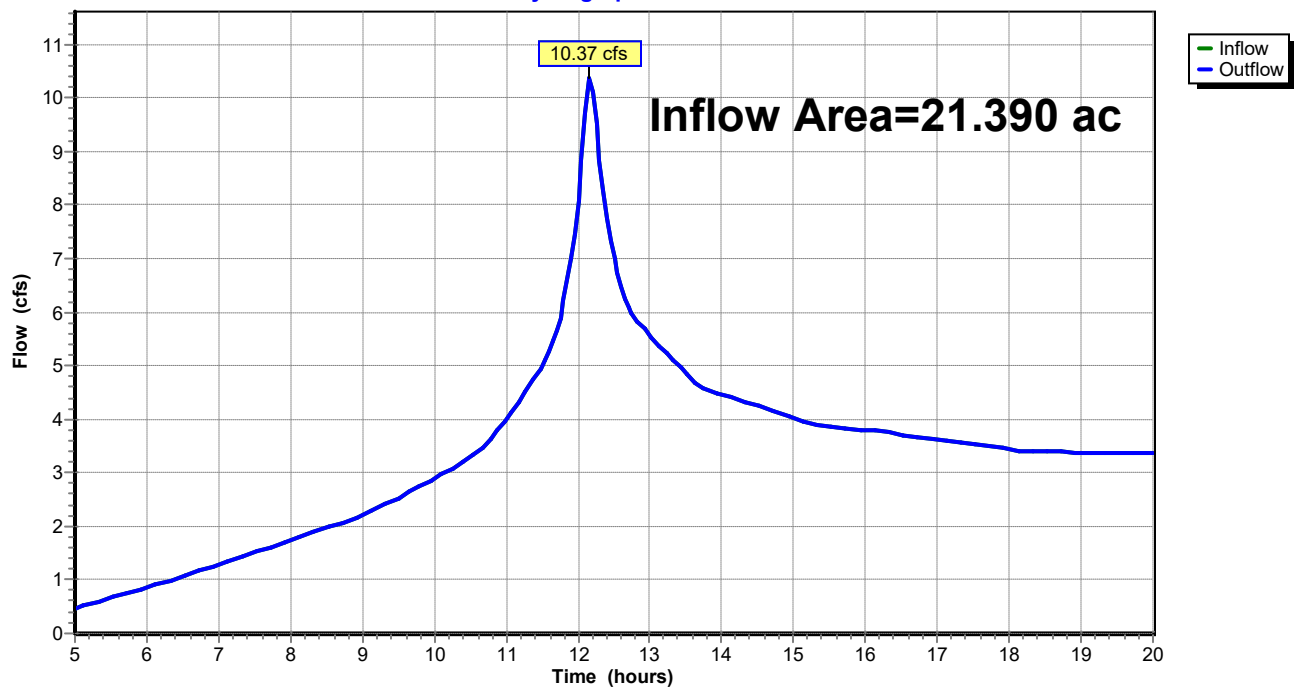
Summary for Reach 3R: POI

Inflow Area = 21.390 ac, 0.00% Impervious, Inflow Depth > 2.37" for 5 yr event
Inflow = 10.37 cfs @ 12.16 hrs, Volume= 4.216 af
Outflow = 10.37 cfs @ 12.16 hrs, Volume= 4.216 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: POI

Hydrograph



WS 2 postR1

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CA-1 10 yr Rainfall=6.84"

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Summary for Subcatchment 1S: WS 2a post

Runoff = 9.09 cfs @ 12.20 hrs, Volume= 3.721 af, Depth> 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
0.100	89	Gravel roads, HSG C
0.100	87	Dirt roads, HSG C
* 2.740	75	Vineyard, Good, HSG C
* 0.560	79	Vineyard, Fair, HSG C
1.290	74	Pasture/grassland/range, Good, HSG C
* 0.080	75	Brush, Good, HSG C
9.620	73	Woods, Fair, HSG C
14.490	74	Weighted Average
14.490		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
0.0	20	0.1300	11.14	19.69	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.9	1,210	0.1500	10.37	93.37	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
12.3	2,300	Total			

WS 2 postR1

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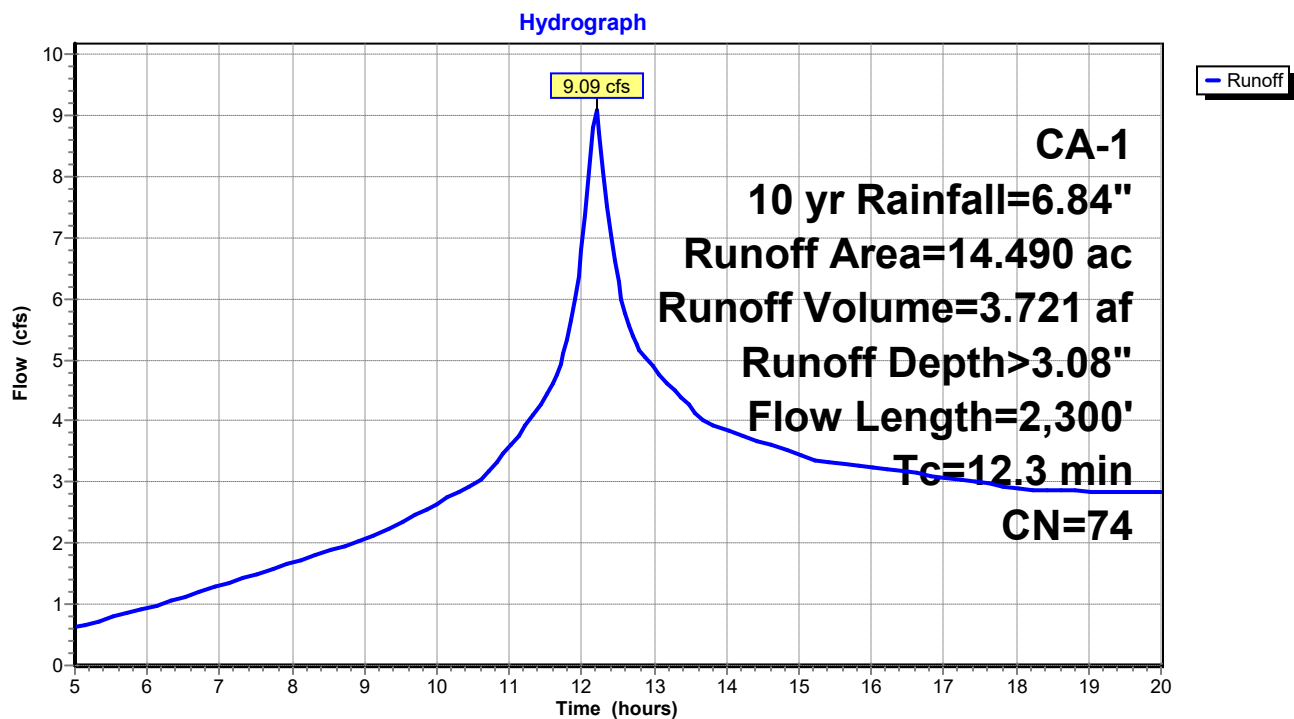
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CA-1 10 yr Rainfall=6.84"

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Subcatchment 1S: WS 2a post



WS 2 postR1

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CA-1 10 yr Rainfall=6.84"

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Summary for Subcatchment 2S: WS 2b post

Runoff = 4.68 cfs @ 12.13 hrs, Volume= 1.780 af, Depth> 3.10"

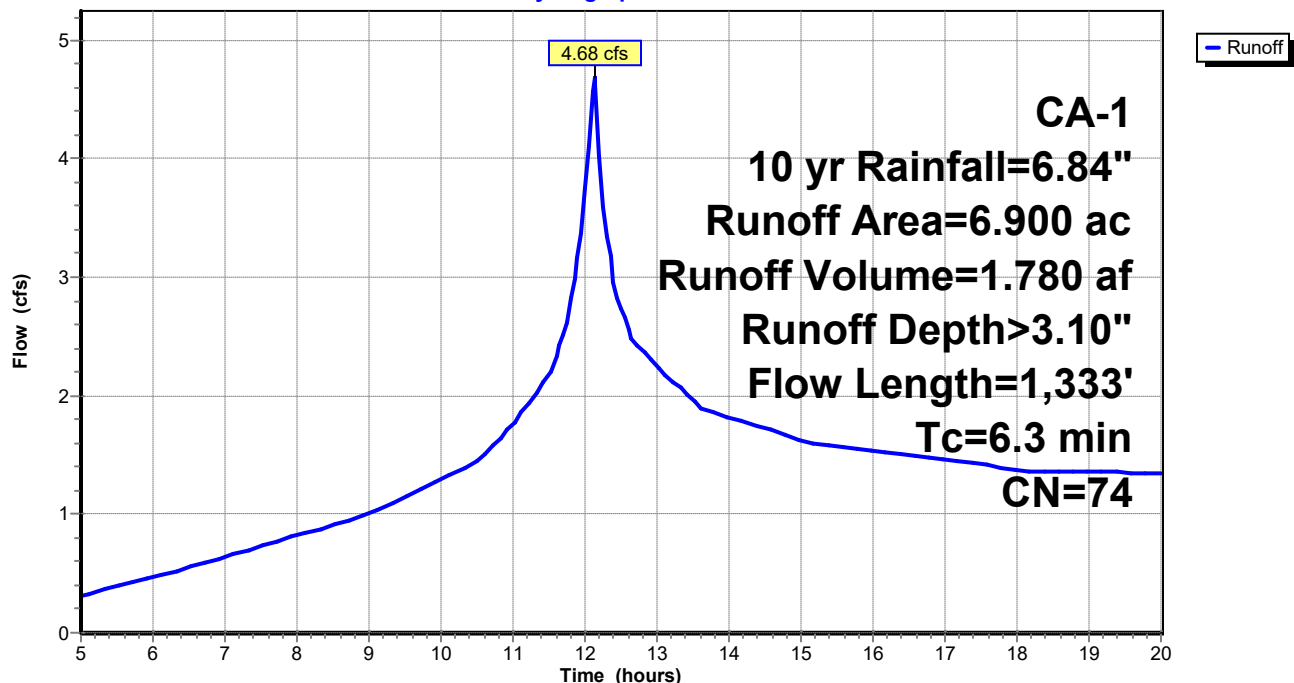
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
0.070	87	Dirt roads, HSG C
* 1.660	75	Vineyard. Good, HSG B
0.950	74	Pasture/grassland/range, Good, HSG C
4.220	73	Woods, Fair, HSG C
6.900	74	Weighted Average
6.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	100	0.1400	0.44		Sheet Flow, Grass: Short n= 0.150 P2= 4.50"
1.3	522	0.1700	6.64		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	711	0.1300	9.66	86.92	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Winding stream, pools & shoals
6.3	1,333	Total			

Subcatchment 2S: WS 2b post

Hydrograph



WS 2 postR1

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CA-1 10 yr Rainfall=6.84"

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Summary for Subcatchment 4S: Culvert 2 post

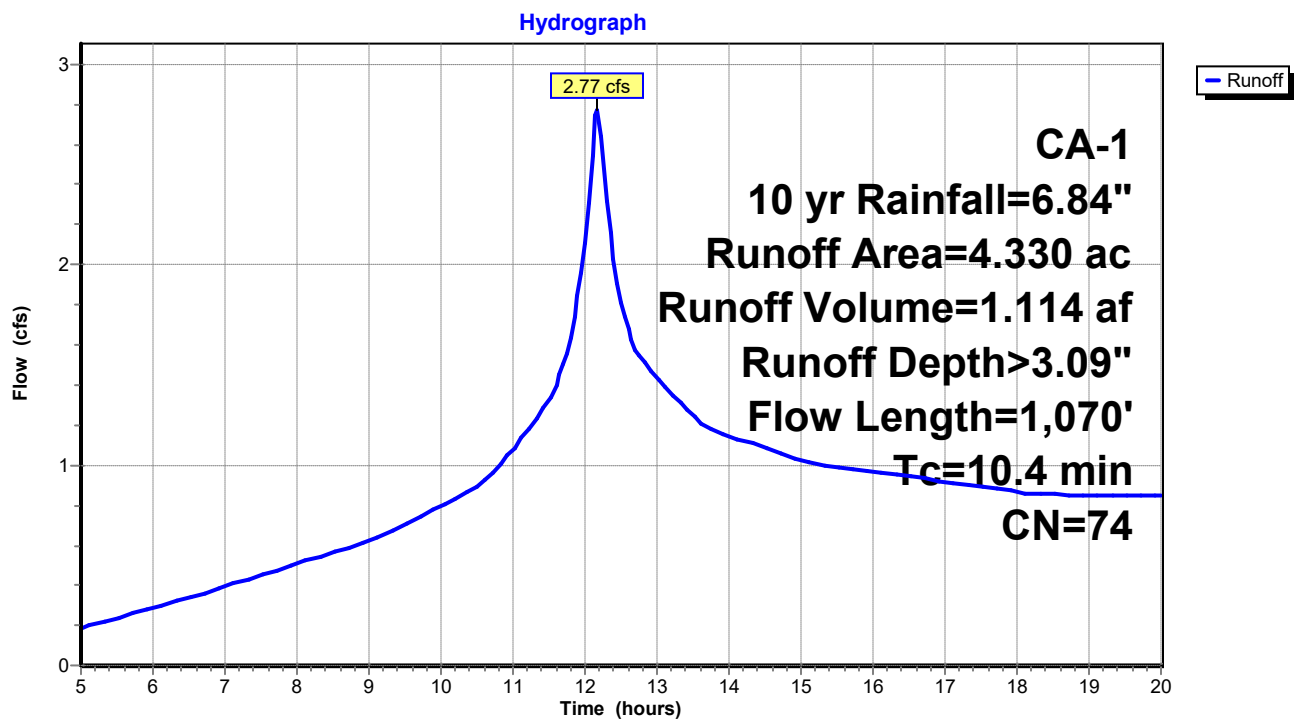
Runoff = 2.77 cfs @ 12.17 hrs, Volume= 1.114 af, Depth> 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
0.060	87	Dirt roads, HSG C
* 1.420	75	Vineyard, Good, HSG C
* 0.560	79	Vineyard, Fair, HSG C
0.780	74	Pasture/grassland/range, Good, HSG C
* 0.080	75	Brush, Good, HSG C
1.430	70	Woods, Good, HSG C
4.330	74	Weighted Average
4.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
10.4	1,070	Total			

Subcatchment 4S: Culvert 2 post



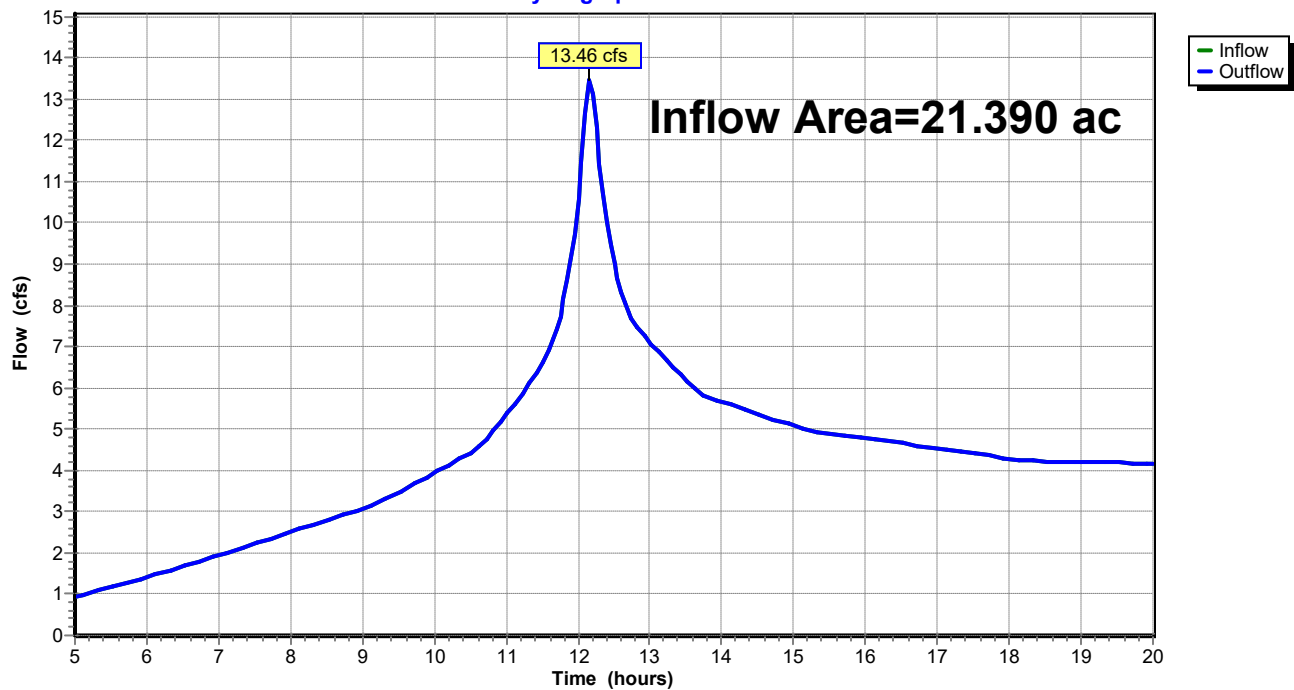
Summary for Reach 3R: POI

Inflow Area = 21.390 ac, 0.00% Impervious, Inflow Depth > 3.09" for 10 yr event
Inflow = 13.46 cfs @ 12.16 hrs, Volume= 5.501 af
Outflow = 13.46 cfs @ 12.16 hrs, Volume= 5.501 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: POI

Hydrograph



WS 2 postR1

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CA-1 25 yr Rainfall=8.41"

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Summary for Subcatchment 1S: WS 2a post

Runoff = 12.27 cfs @ 12.20 hrs, Volume= 5.064 af, Depth> 4.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
0.100	89	Gravel roads, HSG C
0.100	87	Dirt roads, HSG C
* 2.740	75	Vineyard, Good, HSG C
* 0.560	79	Vineyard, Fair, HSG C
1.290	74	Pasture/grassland/range, Good, HSG C
* 0.080	75	Brush, Good, HSG C
9.620	73	Woods, Fair, HSG C
14.490	74	Weighted Average
14.490		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
0.0	20	0.1300	11.14	19.69	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.9	1,210	0.1500	10.37	93.37	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
12.3	2,300	Total			

WS 2 postR1

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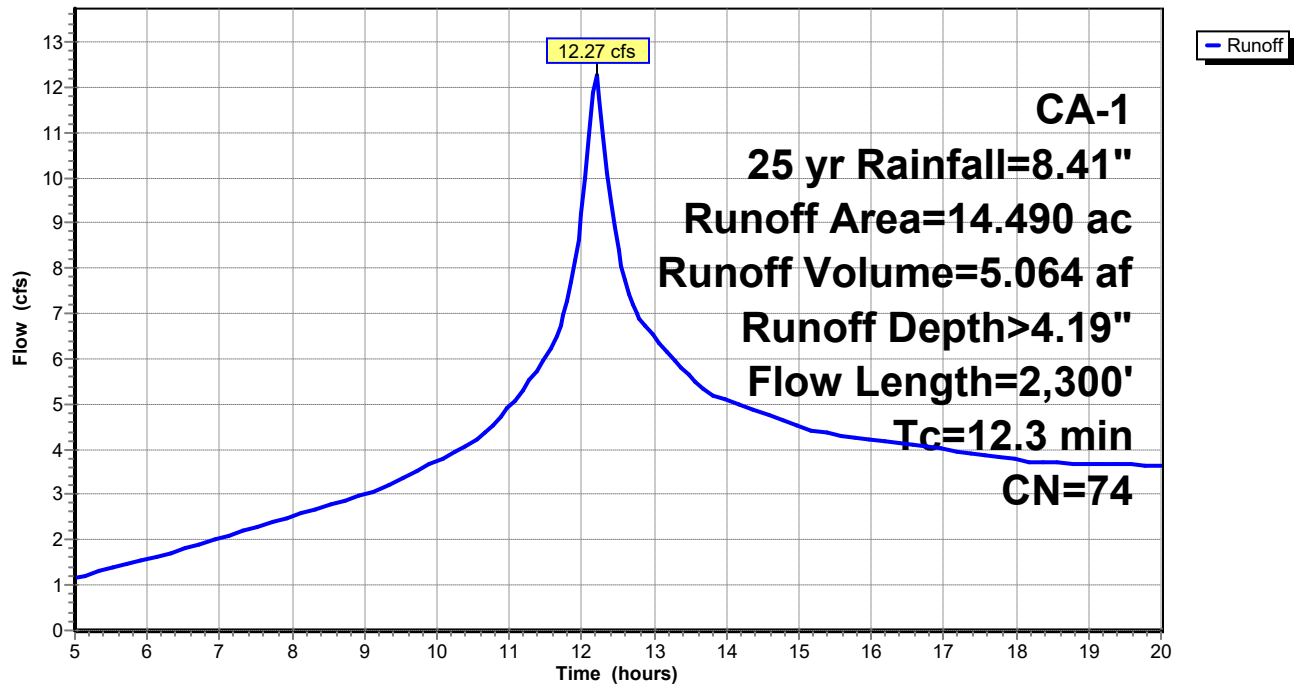
CA-1 25 yr Rainfall=8.41"

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Subcatchment 1S: WS 2a post

Hydrograph



WS 2 postR1

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CA-1 25 yr Rainfall=8.41"

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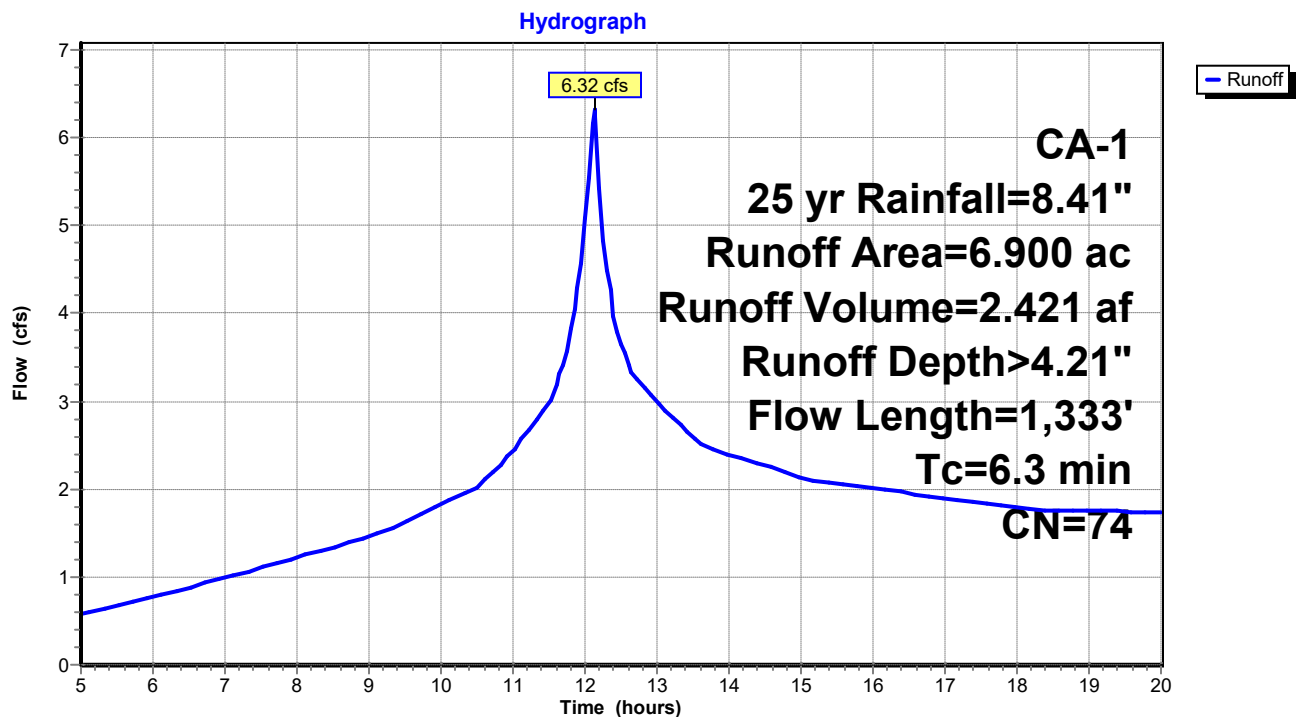
Summary for Subcatchment 2S: WS 2b post

Runoff = 6.32 cfs @ 12.13 hrs, Volume= 2.421 af, Depth> 4.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
0.070	87	Dirt roads, HSG C
* 1.660	75	Vineyard. Good, HSG B
0.950	74	Pasture/grassland/range, Good, HSG C
4.220	73	Woods, Fair, HSG C
6.900	74	Weighted Average
6.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	100	0.1400	0.44		Sheet Flow, Grass: Short n= 0.150 P2= 4.50"
1.3	522	0.1700	6.64		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	711	0.1300	9.66	86.92	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Winding stream, pools & shoals
6.3	1,333	Total			

Subcatchment 2S: WS 2b post

WS 2 postR1

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CA-1 25 yr Rainfall=8.41"

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Summary for Subcatchment 4S: Culvert 2 post

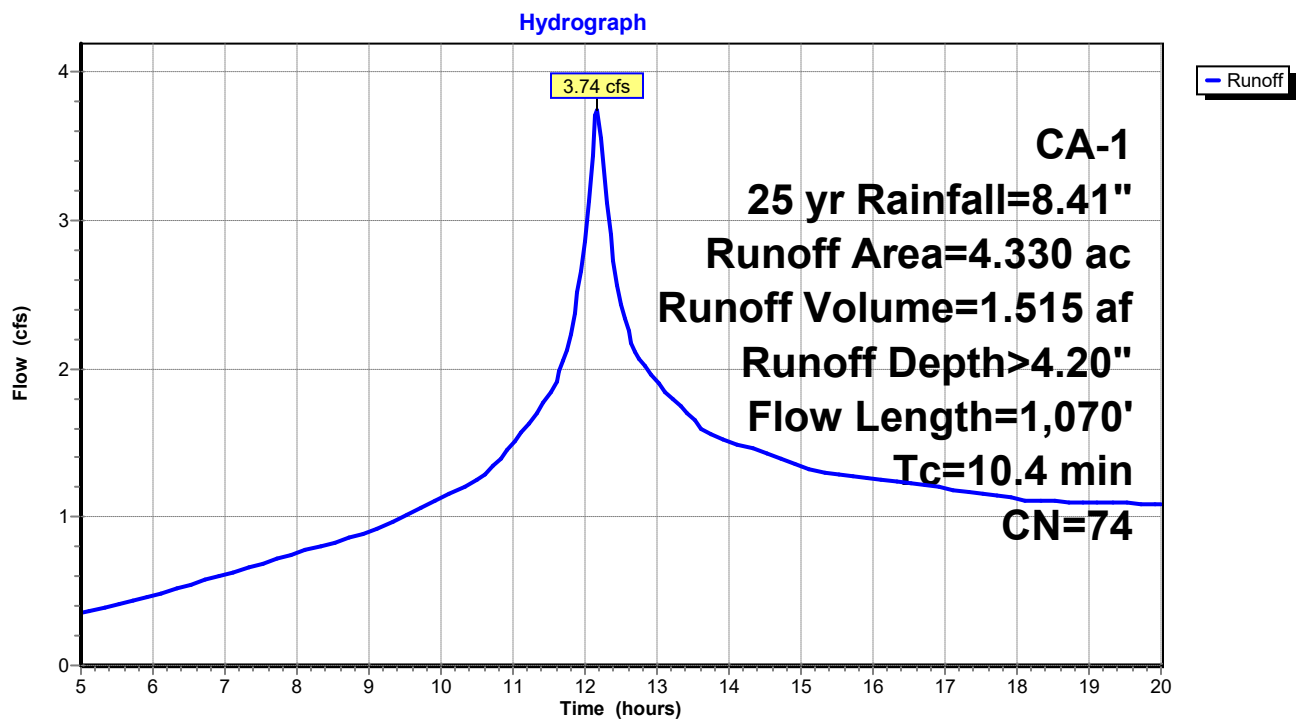
Runoff = 3.74 cfs @ 12.17 hrs, Volume= 1.515 af, Depth> 4.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
0.060	87	Dirt roads, HSG C
* 1.420	75	Vineyard, Good, HSG C
* 0.560	79	Vineyard, Fair, HSG C
0.780	74	Pasture/grassland/range, Good, HSG C
* 0.080	75	Brush, Good, HSG C
1.430	70	Woods, Good, HSG C
4.330	74	Weighted Average
4.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
10.4	1,070	Total			

Subcatchment 4S: Culvert 2 post



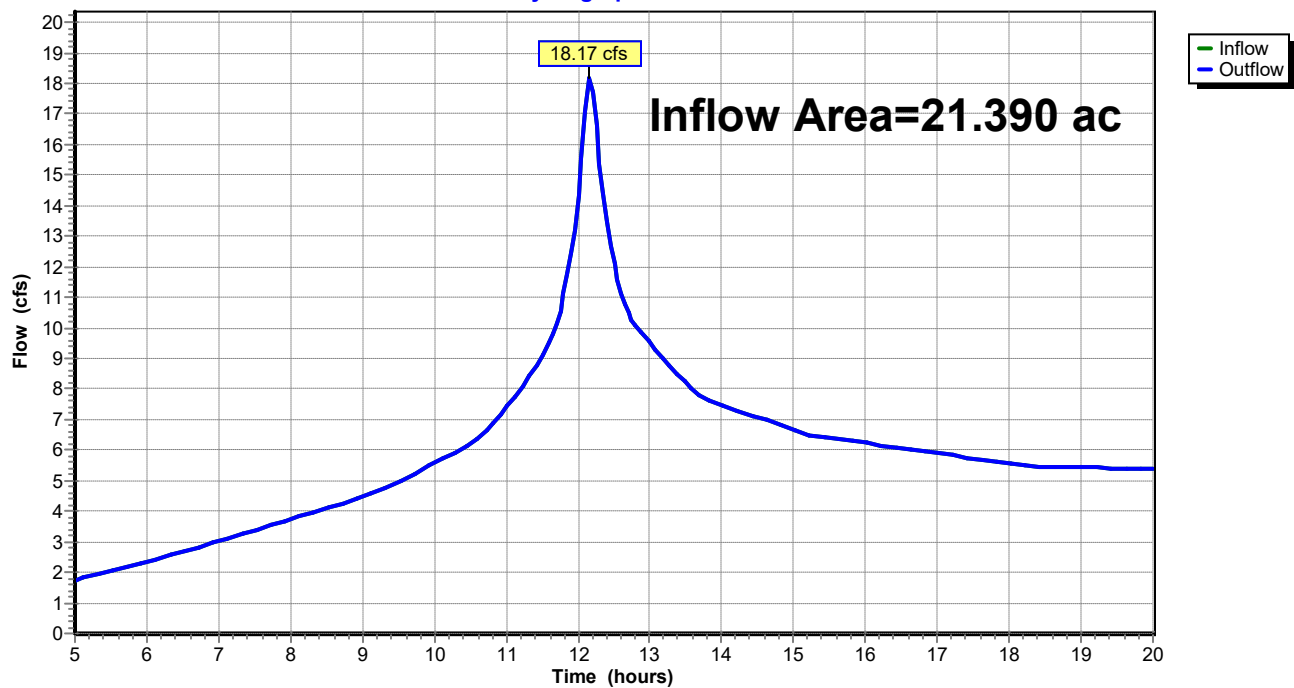
Summary for Reach 3R: POI

Inflow Area = 21.390 ac, 0.00% Impervious, Inflow Depth > 4.20" for 25 yr event
Inflow = 18.17 cfs @ 12.16 hrs, Volume= 7.485 af
Outflow = 18.17 cfs @ 12.16 hrs, Volume= 7.485 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: POI

Hydrograph



WS 2 postR1

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 1S: WS 2a post

Runoff = 14.71 cfs @ 12.20 hrs, Volume= 6.102 af, Depth> 5.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
0.100	89	Gravel roads, HSG C
0.100	87	Dirt roads, HSG C
* 2.740	75	Vineyard, Good, HSG C
* 0.560	79	Vineyard, Fair, HSG C
1.290	74	Pasture/grassland/range, Good, HSG C
* 0.080	75	Brush, Good, HSG C
9.620	73	Woods, Fair, HSG C
14.490	74	Weighted Average
14.490		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
0.0	20	0.1300	11.14	19.69	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.9	1,210	0.1500	10.37	93.37	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
12.3	2,300	Total			

WS 2 postR1

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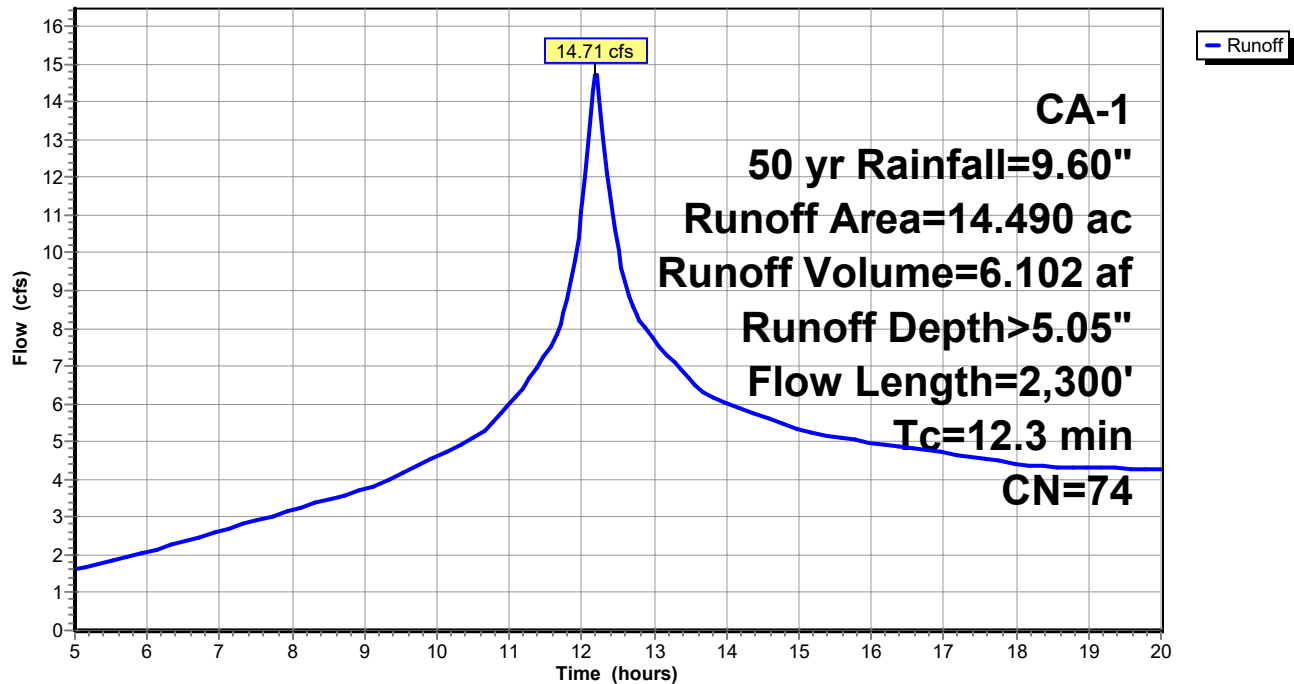
CA-1 50 yr Rainfall=9.60"

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Subcatchment 1S: WS 2a post

Hydrograph



WS 2 postR1

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 2S: WS 2b post

Runoff = 7.57 cfs @ 12.13 hrs, Volume= 2.916 af, Depth> 5.07"

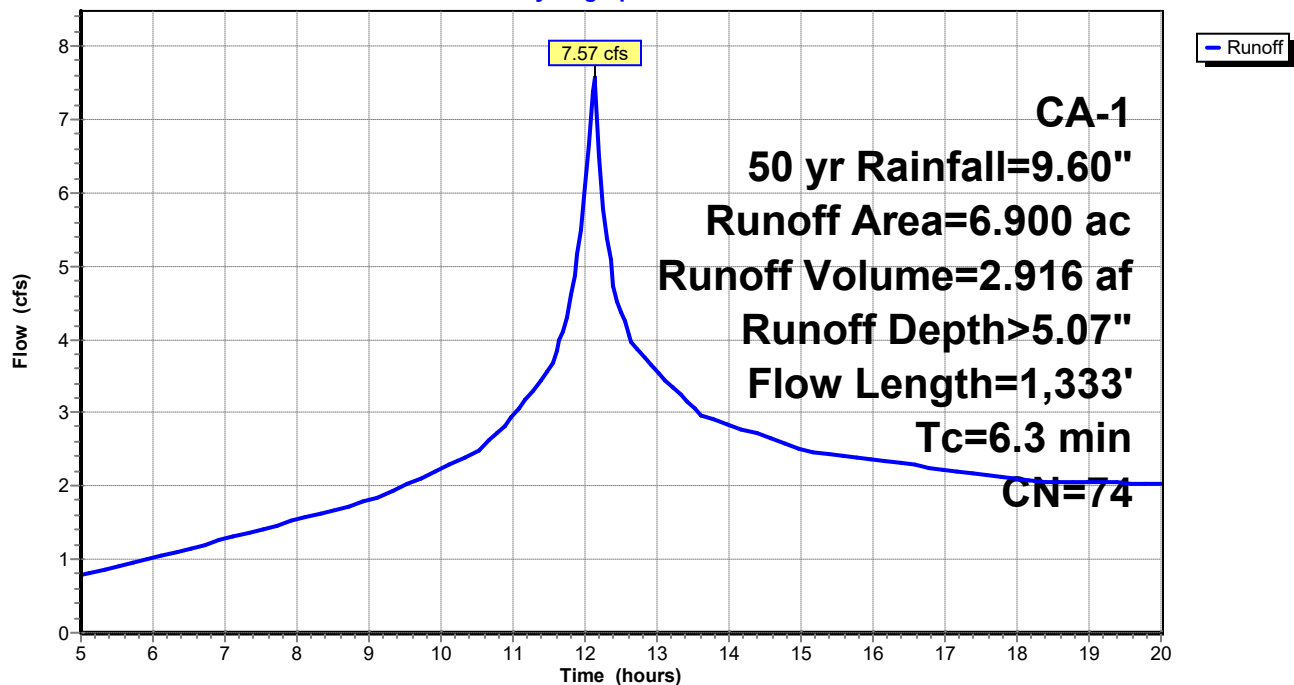
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
0.070	87	Dirt roads, HSG C
* 1.660	75	Vineyard. Good, HSG B
0.950	74	Pasture/grassland/range, Good, HSG C
4.220	73	Woods, Fair, HSG C
6.900	74	Weighted Average
6.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	100	0.1400	0.44		Sheet Flow, Grass: Short n= 0.150 P2= 4.50"
1.3	522	0.1700	6.64		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	711	0.1300	9.66	86.92	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Winding stream, pools & shoals
6.3	1,333	Total			

Subcatchment 2S: WS 2b post

Hydrograph



WS 2 postR1

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 4S: Culvert 2 post

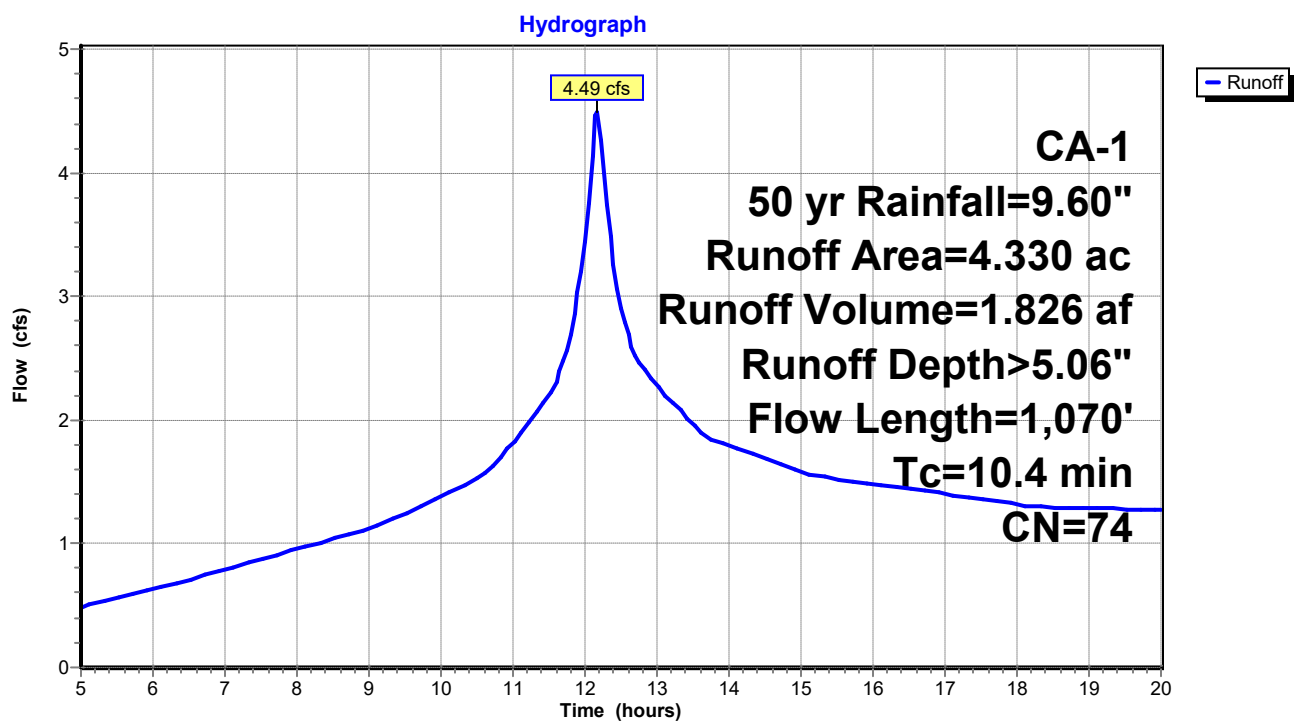
Runoff = 4.49 cfs @ 12.17 hrs, Volume= 1.826 af, Depth> 5.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
0.060	87	Dirt roads, HSG C
* 1.420	75	Vineyard, Good, HSG C
* 0.560	79	Vineyard, Fair, HSG C
0.780	74	Pasture/grassland/range, Good, HSG C
* 0.080	75	Brush, Good, HSG C
1.430	70	Woods, Good, HSG C
4.330	74	Weighted Average
4.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
10.4	1,070	Total			

Subcatchment 4S: Culvert 2 post



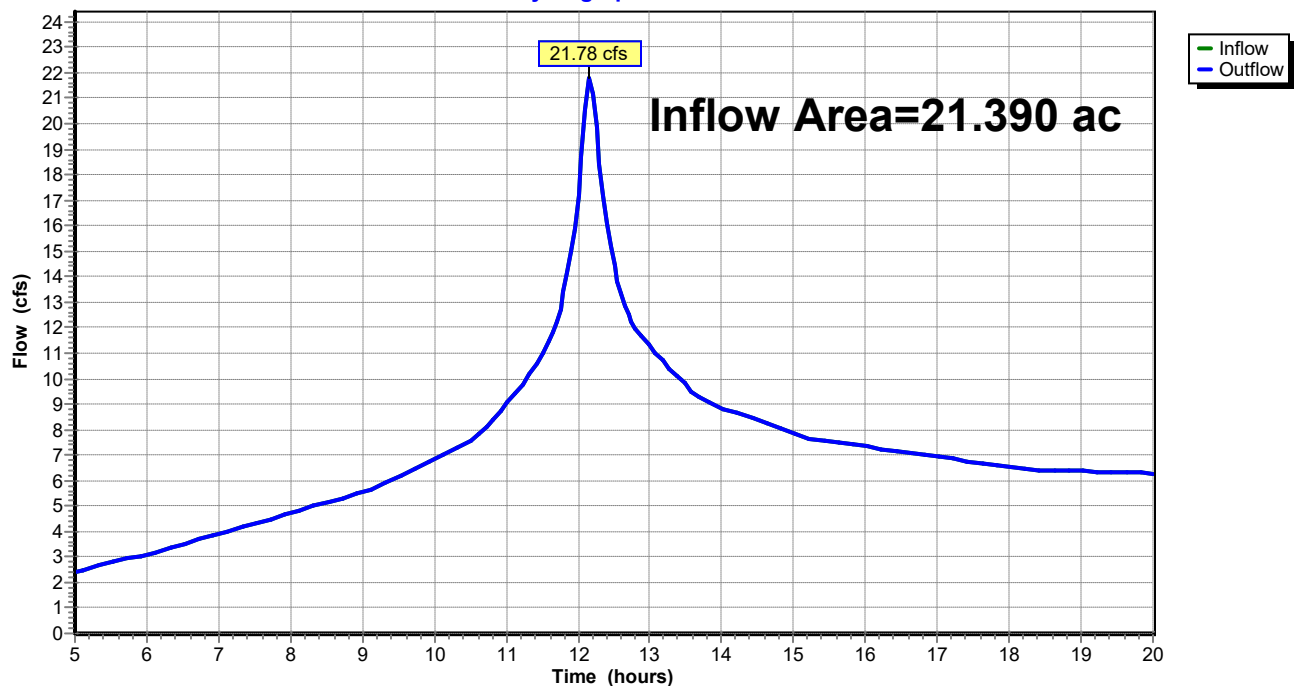
Summary for Reach 3R: POI

Inflow Area = 21.390 ac, 0.00% Impervious, Inflow Depth > 5.06" for 50 yr event
Inflow = 21.78 cfs @ 12.16 hrs, Volume= 9.018 af
Outflow = 21.78 cfs @ 12.16 hrs, Volume= 9.018 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: POI

Hydrograph



WS 2 postR1

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CA-1 100 yr Rainfall=10.90"

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Summary for Subcatchment 1S: WS 2a post

Runoff = 17.38 cfs @ 12.20 hrs, Volume= 7.248 af, Depth> 6.00"

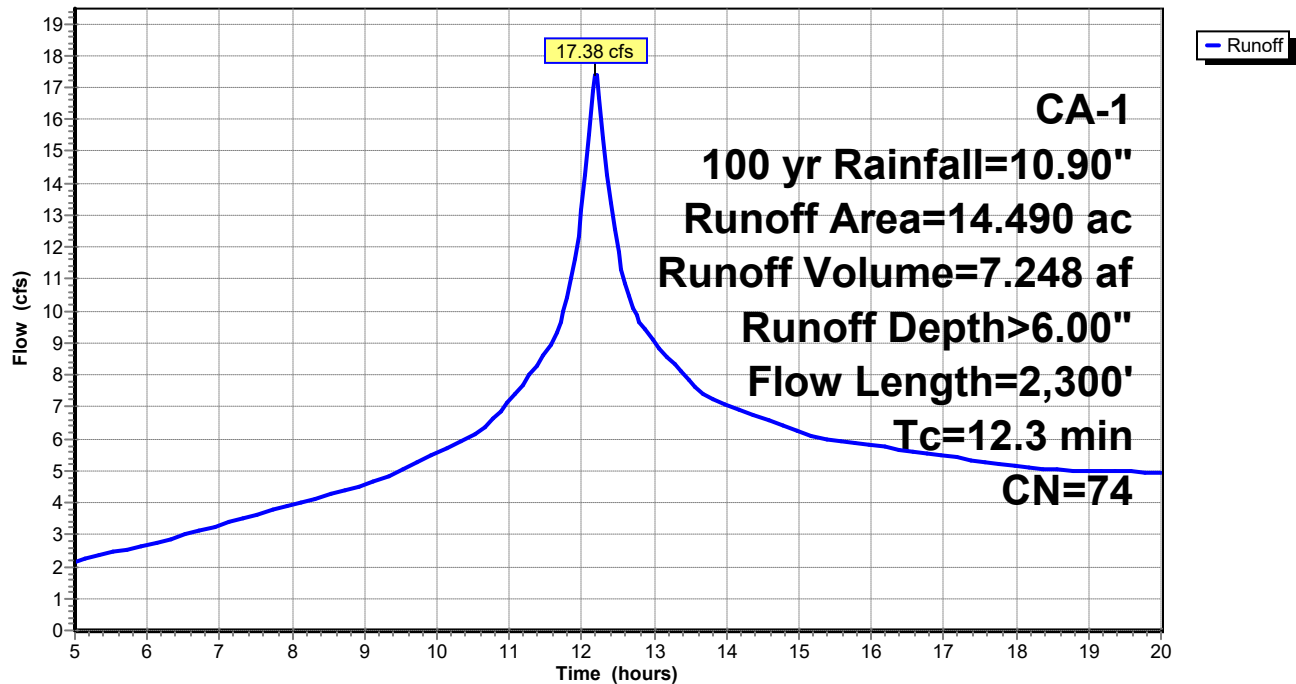
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 100 yr Rainfall=10.90"

Area (ac)	CN	Description
0.100	89	Gravel roads, HSG C
0.100	87	Dirt roads, HSG C
* 2.740	75	Vineyard, Good, HSG C
* 0.560	79	Vineyard, Fair, HSG C
1.290	74	Pasture/grassland/range, Good, HSG C
* 0.080	75	Brush, Good, HSG C
9.620	73	Woods, Fair, HSG C
14.490	74	Weighted Average
14.490		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
0.0	20	0.1300	11.14	19.69	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.9	1,210	0.1500	10.37	93.37	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
12.3	2,300	Total			

Subcatchment 1S: WS 2a post

Hydrograph



WS 2 postR1

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CA-1 100 yr Rainfall=10.90"

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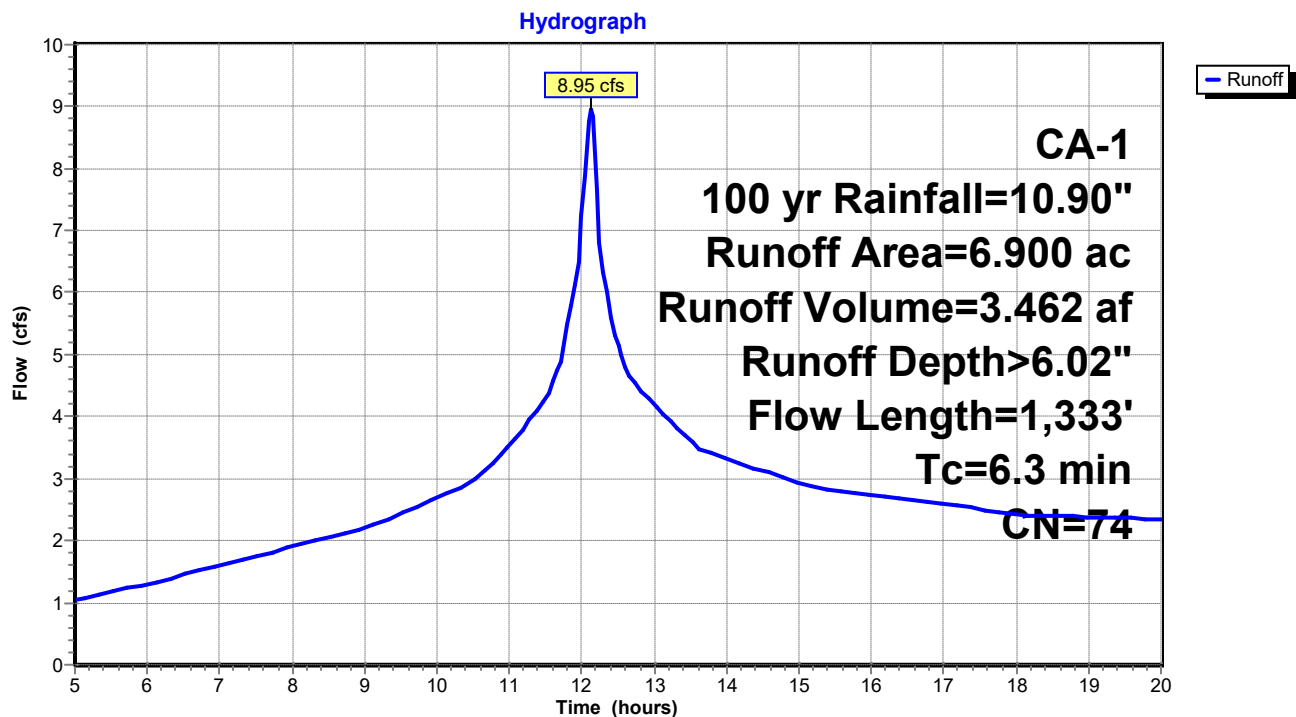
Summary for Subcatchment 2S: WS 2b post

Runoff = 8.95 cfs @ 12.13 hrs, Volume= 3.462 af, Depth> 6.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 100 yr Rainfall=10.90"

Area (ac)	CN	Description
0.070	87	Dirt roads, HSG C
* 1.660	75	Vineyard. Good, HSG B
0.950	74	Pasture/grassland/range, Good, HSG C
4.220	73	Woods, Fair, HSG C
6.900	74	Weighted Average
6.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	100	0.1400	0.44		Sheet Flow, Grass: Short n= 0.150 P2= 4.50"
1.3	522	0.1700	6.64		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	711	0.1300	9.66	86.92	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Winding stream, pools & shoals
6.3	1,333	Total			

Subcatchment 2S: WS 2b post

WS 2 postR1

CA-1 100 yr Rainfall=10.90"

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Summary for Subcatchment 4S: Culvert 2 post

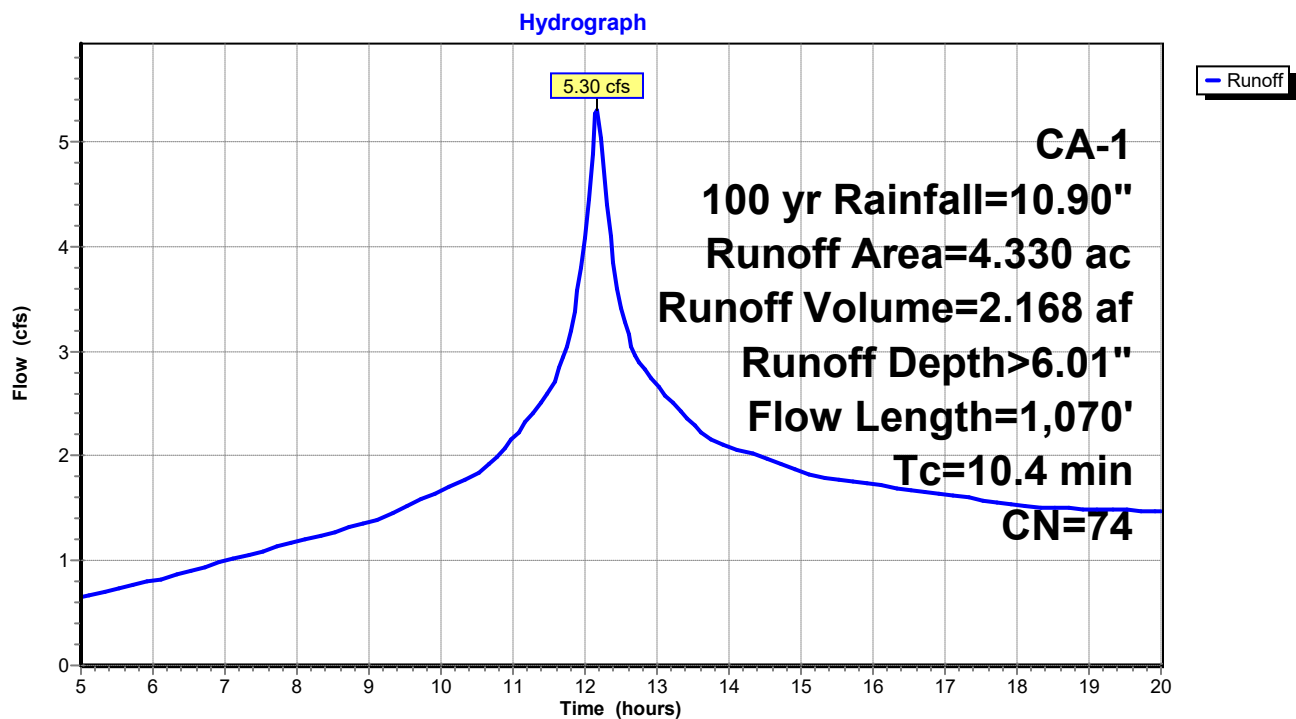
Runoff = 5.30 cfs @ 12.17 hrs, Volume= 2.168 af, Depth> 6.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 100 yr Rainfall=10.90"

Area (ac)	CN	Description
0.060	87	Dirt roads, HSG C
* 1.420	75	Vineyard, Good, HSG C
* 0.560	79	Vineyard, Fair, HSG C
0.780	74	Pasture/grassland/range, Good, HSG C
* 0.080	75	Brush, Good, HSG C
1.430	70	Woods, Good, HSG C
4.330	74	Weighted Average
4.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
10.4	1,070	Total			

Subcatchment 4S: Culvert 2 post



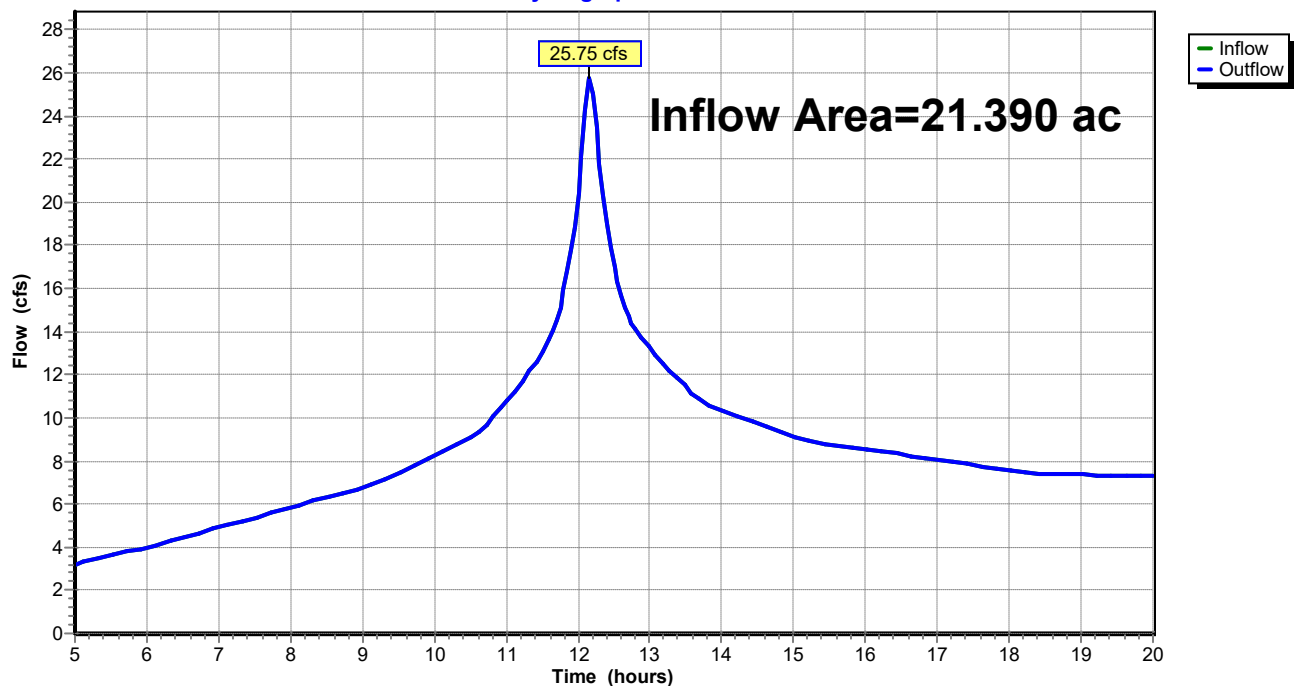
Summary for Reach 3R: POI

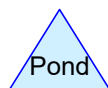
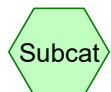
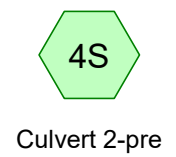
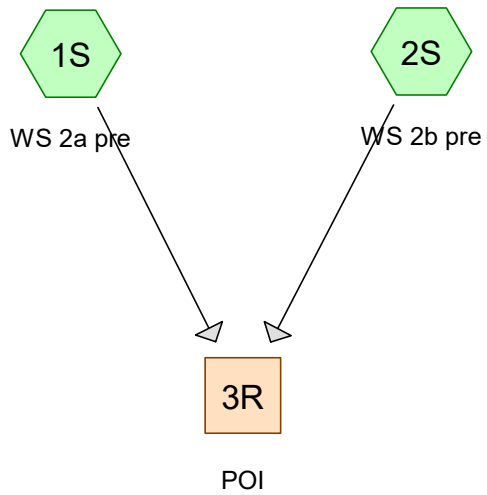
Inflow Area = 21.390 ac, 0.00% Impervious, Inflow Depth > 6.01" for 100 yr event
Inflow = 25.75 cfs @ 12.16 hrs, Volume= 10.710 af
Outflow = 25.75 cfs @ 12.16 hrs, Volume= 10.710 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: POI

Hydrograph





Routing Diagram for WS 2 preR1

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WS 2 preR1

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CA-1 2 yr Rainfall=4.50"

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Summary for Subcatchment 1S: WS 2a pre

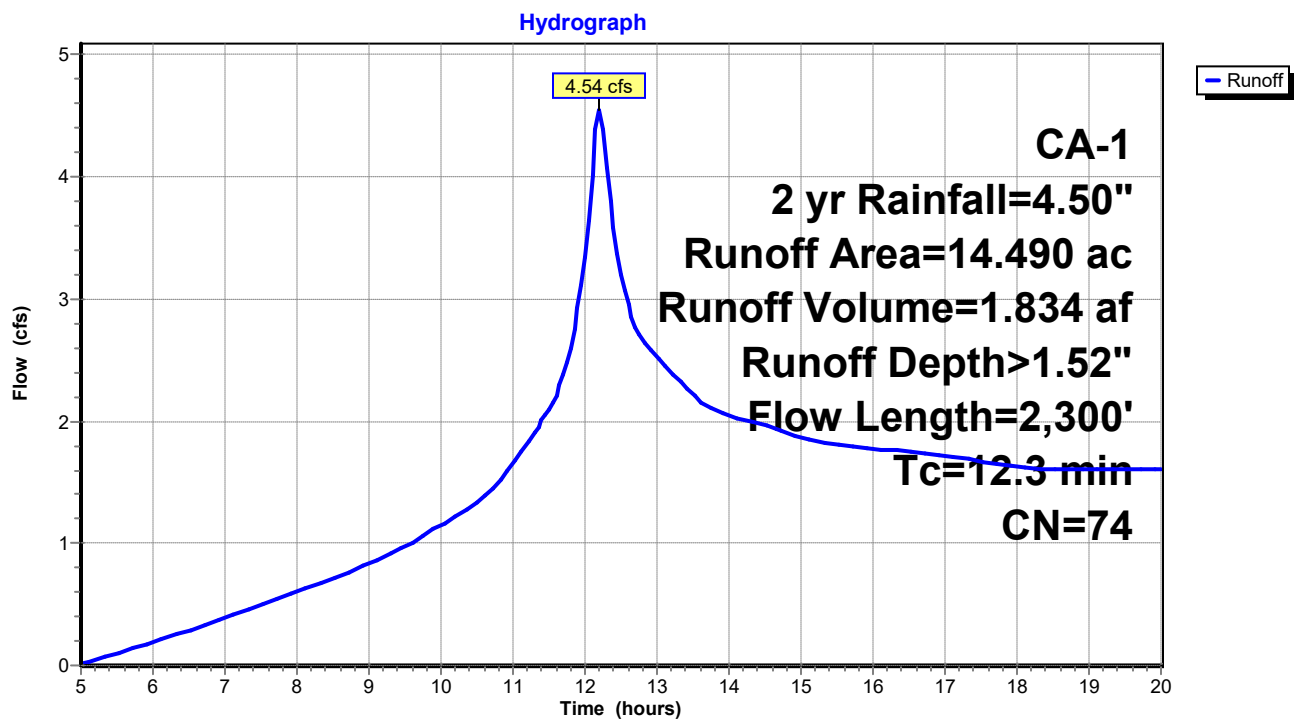
Runoff = 4.54 cfs @ 12.20 hrs, Volume= 1.834 af, Depth> 1.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
0.100	89	Gravel roads, HSG C
0.120	87	Dirt roads, HSG C
* 0.560	79	Vineyard, Fair, HSG C
3.610	74	Pasture/grassland/range, Good, HSG C
* 0.390	75	Brush, Good, HSG C
9.710	73	Woods, Fair, HSG C
14.490	74	Weighted Average
14.490		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
0.0	20	0.1300	11.14	19.69	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.9	1,210	0.1500	10.37	93.37	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Winding stream, pools & shoals
12.3	2,300	Total			

Subcatchment 1S: WS 2a pre



WS 2 preR1

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CA-1 2 yr Rainfall=4.50"

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Summary for Subcatchment 2S: WS 2b pre

Runoff = 2.35 cfs @ 12.13 hrs, Volume= 0.879 af, Depth> 1.53"

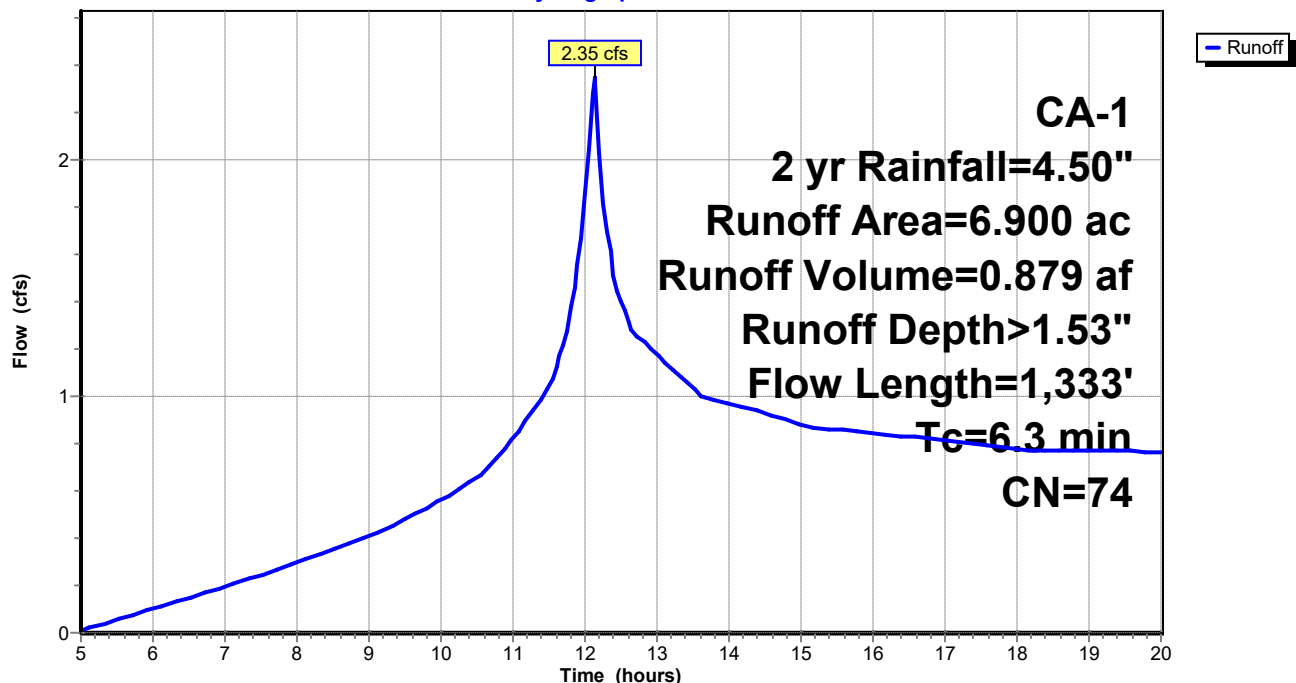
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
0.150	87	Dirt roads, HSG C
2.430	74	Pasture/grassland/range, Good, HSG C
* 0.030	75	Brush, Good, HSG C
4.290	73	Woods, Fair, HSG C
6.900	74	Weighted Average
6.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	100	0.1400	0.44		Sheet Flow, Grass: Short n= 0.150 P2= 4.50"
1.3	522	0.1700	6.64		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	711	0.1300	9.66	86.92	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Winding stream, pools & shoals
6.3	1,333	Total			

Subcatchment 2S: WS 2b pre

Hydrograph



WS 2 preR1

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CA-1 2 yr Rainfall=4.50"

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Summary for Subcatchment 4S: Culvert 2-pre

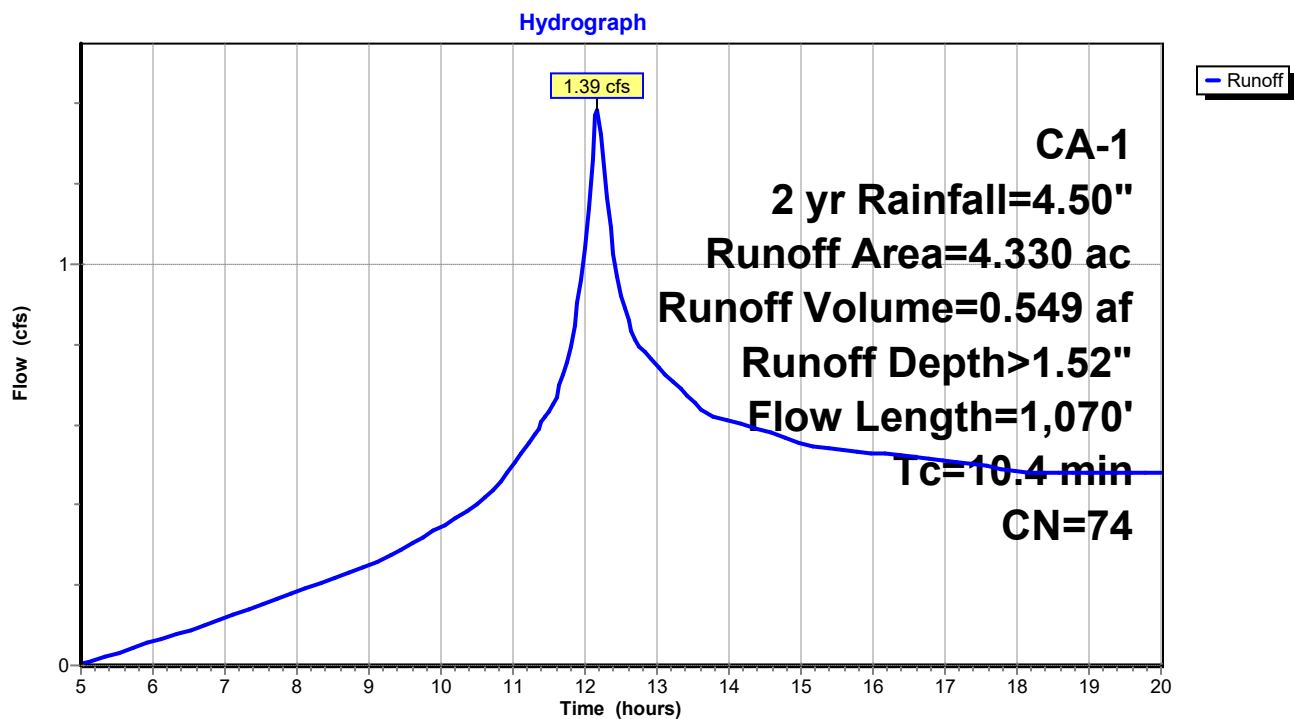
Runoff = 1.39 cfs @ 12.18 hrs, Volume= 0.549 af, Depth> 1.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
0.080	87	Dirt roads, HSG C
* 0.560	79	Vineyard, Fair, HSG C
1.860	74	Pasture/grassland/range, Good, HSG C
* 0.390	75	Brush, Good, HSG C
1.440	70	Woods, Good, HSG C
4.330	74	Weighted Average
4.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
10.4	1,070	Total			

Subcatchment 4S: Culvert 2-pre



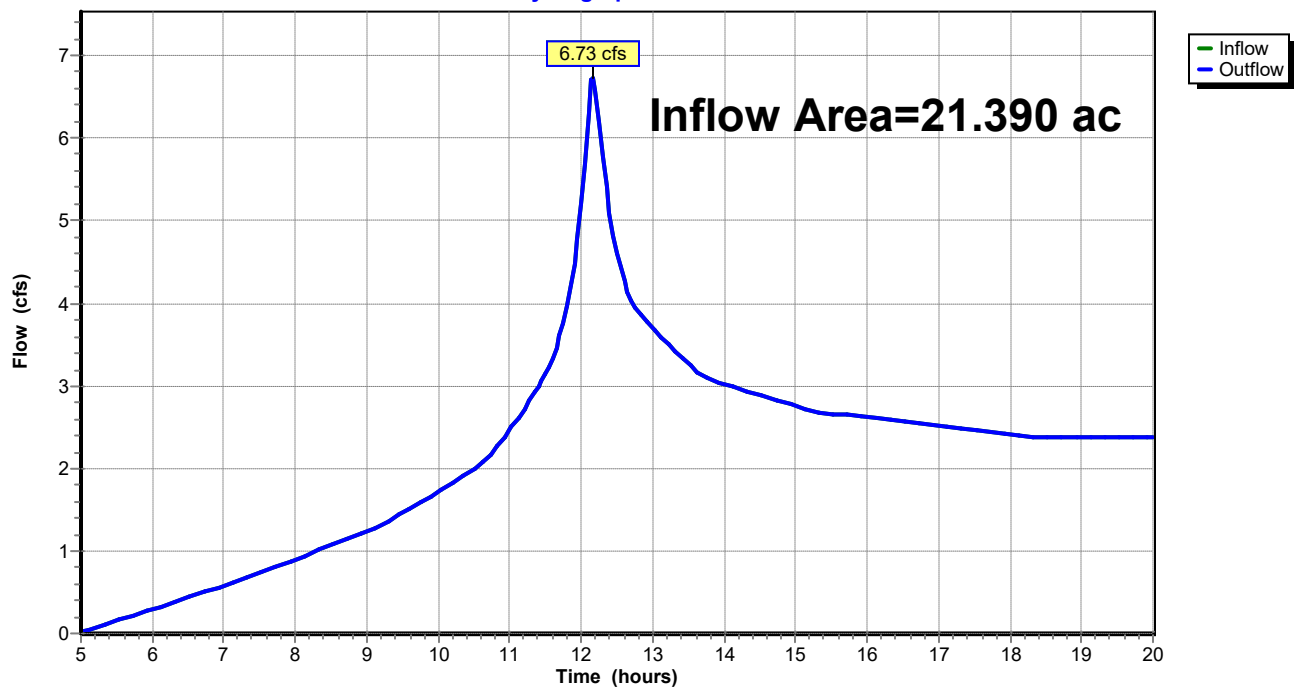
Summary for Reach 3R: POI

Inflow Area = 21.390 ac, 0.00% Impervious, Inflow Depth > 1.52" for 2 yr event
Inflow = 6.73 cfs @ 12.16 hrs, Volume= 2.713 af
Outflow = 6.73 cfs @ 12.16 hrs, Volume= 2.713 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: POI

Hydrograph



WS 2 preR1

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CA-1 5 yr Rainfall=5.79"

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Summary for Subcatchment 1S: WS 2a pre

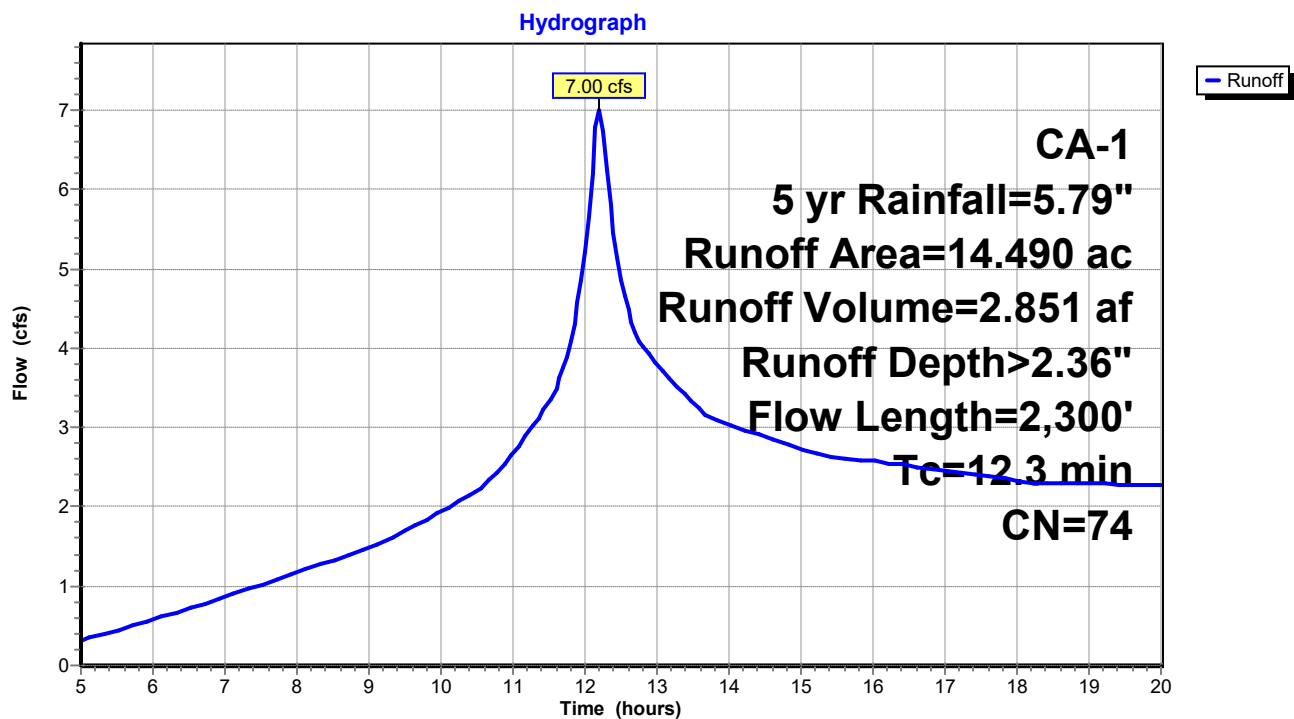
Runoff = 7.00 cfs @ 12.20 hrs, Volume= 2.851 af, Depth> 2.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
0.100	89	Gravel roads, HSG C
0.120	87	Dirt roads, HSG C
* 0.560	79	Vineyard, Fair, HSG C
3.610	74	Pasture/grassland/range, Good, HSG C
* 0.390	75	Brush, Good, HSG C
9.710	73	Woods, Fair, HSG C
14.490	74	Weighted Average
14.490		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
0.0	20	0.1300	11.14	19.69	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.9	1,210	0.1500	10.37	93.37	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Winding stream, pools & shoals
12.3	2,300	Total			

Subcatchment 1S: WS 2a pre



WS 2 preR1

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CA-1 5 yr Rainfall=5.79"

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Summary for Subcatchment 2S: WS 2b pre

Runoff = 3.61 cfs @ 12.13 hrs, Volume= 1.365 af, Depth> 2.37"

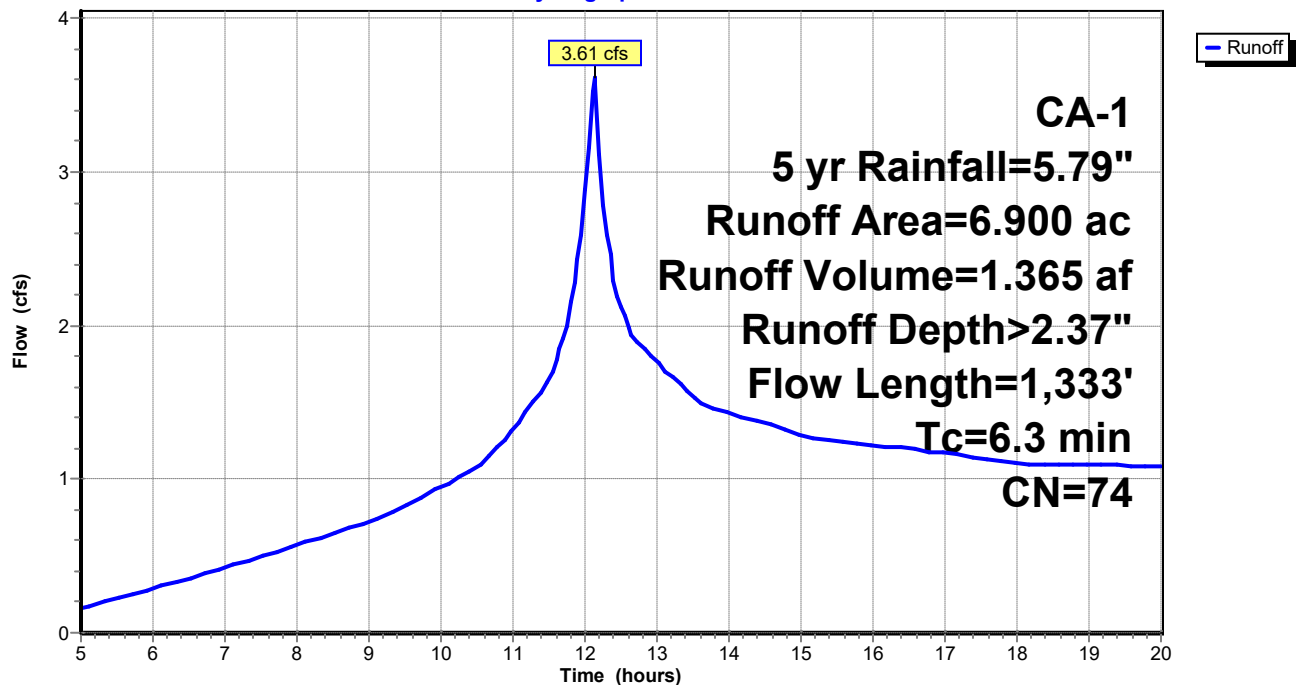
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
0.150	87	Dirt roads, HSG C
2.430	74	Pasture/grassland/range, Good, HSG C
* 0.030	75	Brush, Good, HSG C
4.290	73	Woods, Fair, HSG C
6.900	74	Weighted Average
6.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	100	0.1400	0.44		Sheet Flow, Grass: Short n= 0.150 P2= 4.50"
1.3	522	0.1700	6.64		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	711	0.1300	9.66	86.92	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Winding stream, pools & shoals
6.3	1,333	Total			

Subcatchment 2S: WS 2b pre

Hydrograph



WS 2 preR1

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CA-1 5 yr Rainfall=5.79"

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Summary for Subcatchment 4S: Culvert 2-pre

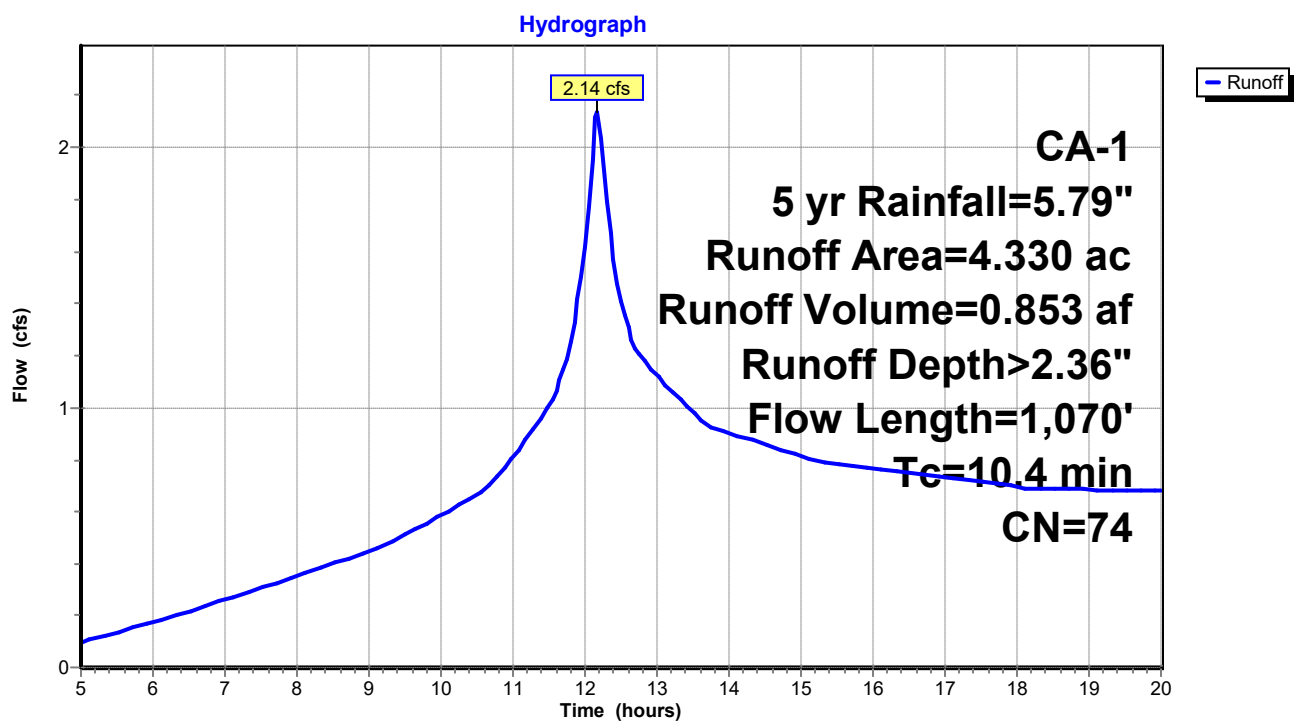
Runoff = 2.14 cfs @ 12.17 hrs, Volume= 0.853 af, Depth> 2.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
0.080	87	Dirt roads, HSG C
* 0.560	79	Vineyard, Fair, HSG C
1.860	74	Pasture/grassland/range, Good, HSG C
* 0.390	75	Brush, Good, HSG C
1.440	70	Woods, Good, HSG C
4.330	74	Weighted Average
4.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
10.4	1,070	Total			

Subcatchment 4S: Culvert 2-pre



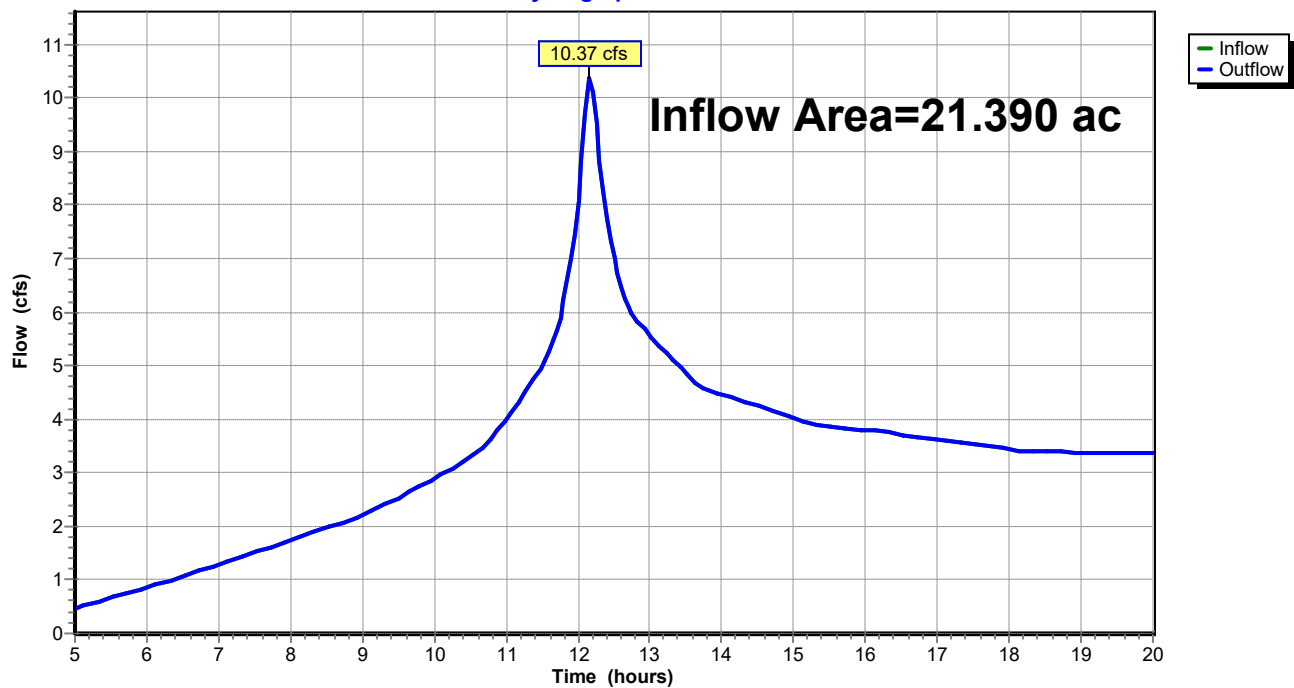
Summary for Reach 3R: POI

Inflow Area = 21.390 ac, 0.00% Impervious, Inflow Depth > 2.37" for 5 yr event
Inflow = 10.37 cfs @ 12.16 hrs, Volume= 4.216 af
Outflow = 10.37 cfs @ 12.16 hrs, Volume= 4.216 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: POI

Hydrograph



WS 2 preR1

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CA-1 10 yr Rainfall=6.84"

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Summary for Subcatchment 1S: WS 2a pre

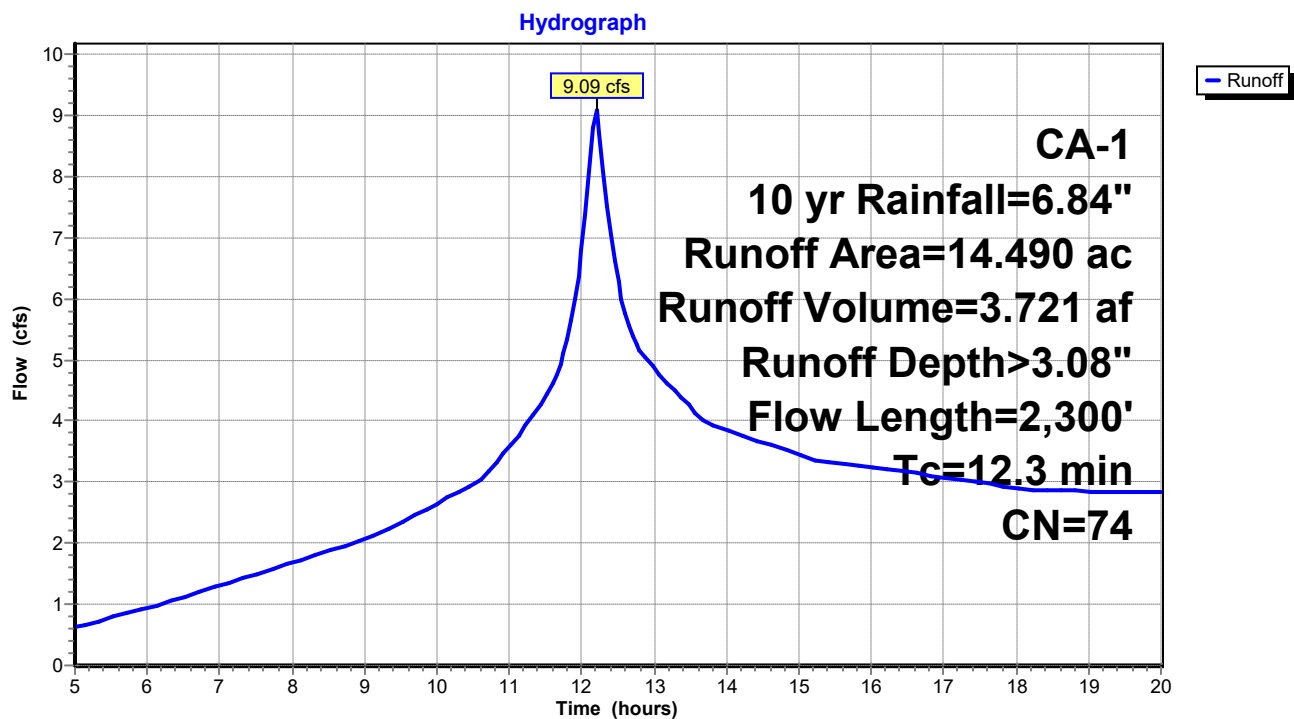
Runoff = 9.09 cfs @ 12.20 hrs, Volume= 3.721 af, Depth> 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
0.100	89	Gravel roads, HSG C
0.120	87	Dirt roads, HSG C
* 0.560	79	Vineyard, Fair, HSG C
3.610	74	Pasture/grassland/range, Good, HSG C
* 0.390	75	Brush, Good, HSG C
9.710	73	Woods, Fair, HSG C
14.490	74	Weighted Average
14.490		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
0.0	20	0.1300	11.14	19.69	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.9	1,210	0.1500	10.37	93.37	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Winding stream, pools & shoals
12.3	2,300	Total			

Subcatchment 1S: WS 2a pre



WS 2 preR1

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CA-1 10 yr Rainfall=6.84"

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Summary for Subcatchment 2S: WS 2b pre

Runoff = 4.68 cfs @ 12.13 hrs, Volume= 1.780 af, Depth> 3.10"

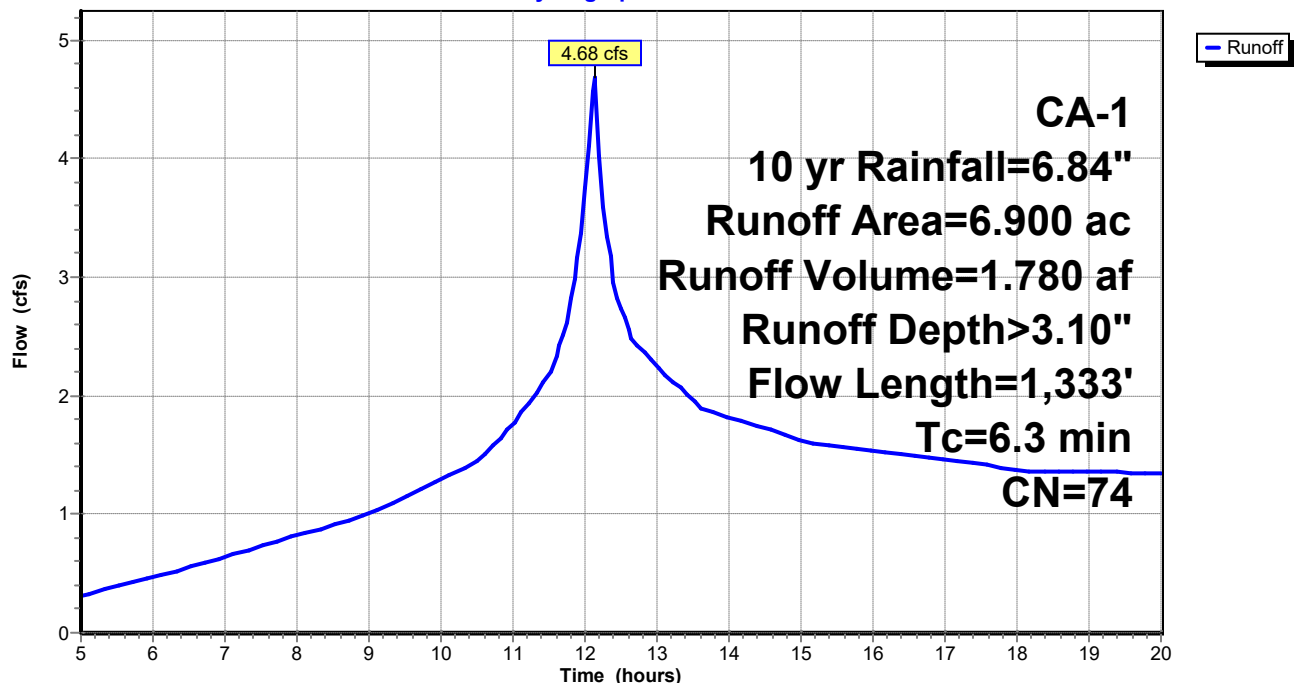
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
0.150	87	Dirt roads, HSG C
2.430	74	Pasture/grassland/range, Good, HSG C
* 0.030	75	Brush, Good, HSG C
4.290	73	Woods, Fair, HSG C
6.900	74	Weighted Average
6.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	100	0.1400	0.44		Sheet Flow, Grass: Short n= 0.150 P2= 4.50"
1.3	522	0.1700	6.64		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	711	0.1300	9.66	86.92	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Winding stream, pools & shoals
6.3	1,333	Total			

Subcatchment 2S: WS 2b pre

Hydrograph



WS 2 preR1

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CA-1 10 yr Rainfall=6.84"

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Summary for Subcatchment 4S: Culvert 2-pre

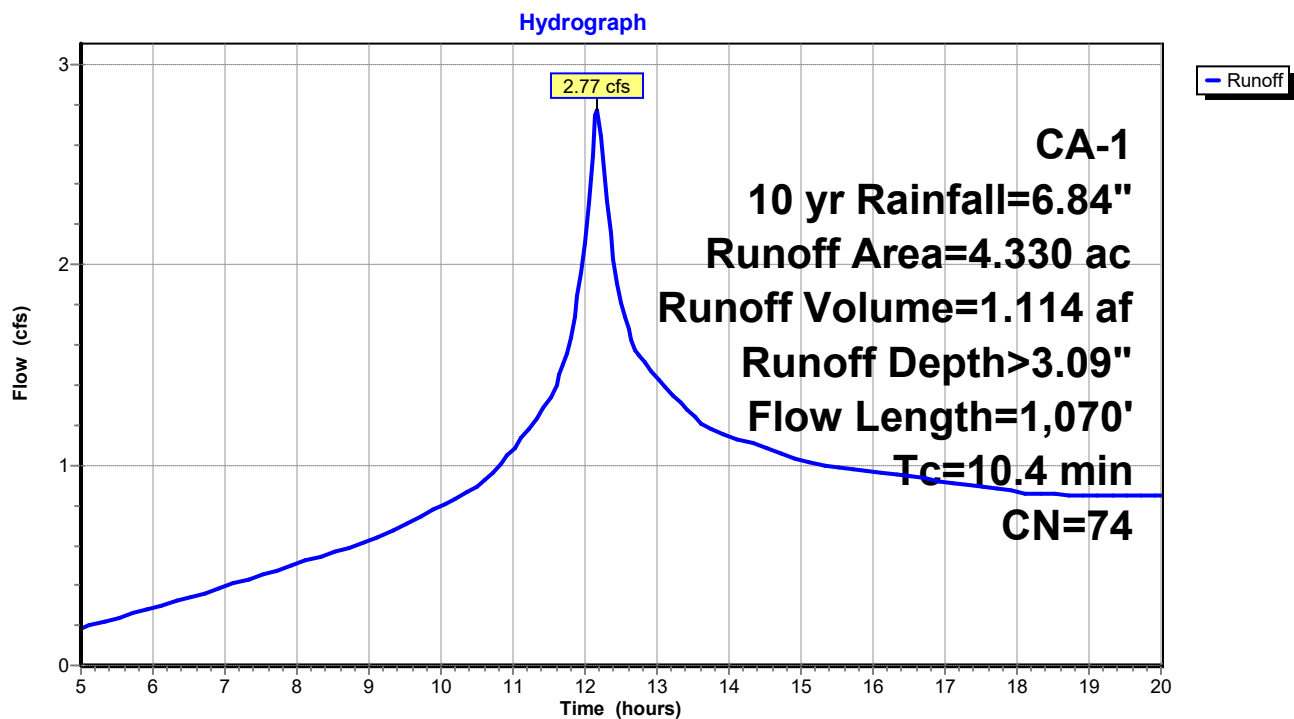
Runoff = 2.77 cfs @ 12.17 hrs, Volume= 1.114 af, Depth> 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
0.080	87	Dirt roads, HSG C
* 0.560	79	Vineyard, Fair, HSG C
1.860	74	Pasture/grassland/range, Good, HSG C
* 0.390	75	Brush, Good, HSG C
1.440	70	Woods, Good, HSG C
4.330	74	Weighted Average
4.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
10.4	1,070	Total			

Subcatchment 4S: Culvert 2-pre



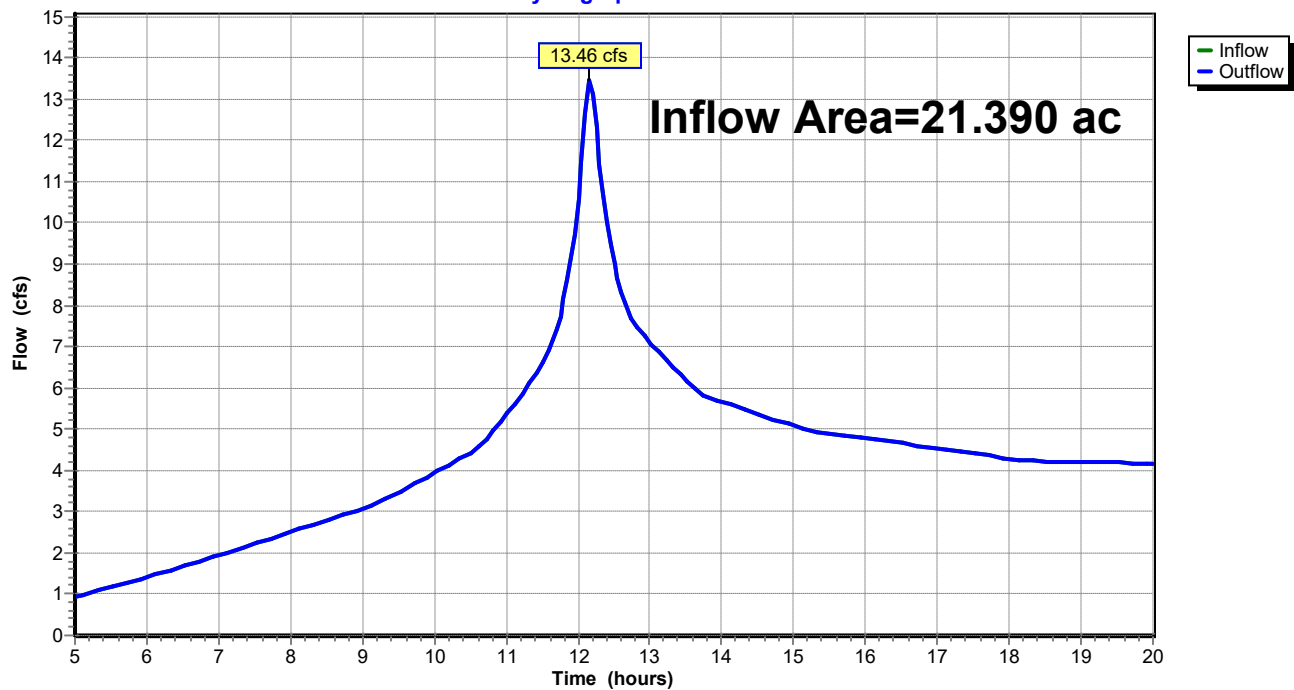
Summary for Reach 3R: POI

Inflow Area = 21.390 ac, 0.00% Impervious, Inflow Depth > 3.09" for 10 yr event
Inflow = 13.46 cfs @ 12.16 hrs, Volume= 5.501 af
Outflow = 13.46 cfs @ 12.16 hrs, Volume= 5.501 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: POI

Hydrograph



WS 2 preR1

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CA-1 25 yr Rainfall=8.41"

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Summary for Subcatchment 1S: WS 2a pre

Runoff = 12.27 cfs @ 12.20 hrs, Volume= 5.064 af, Depth> 4.19"

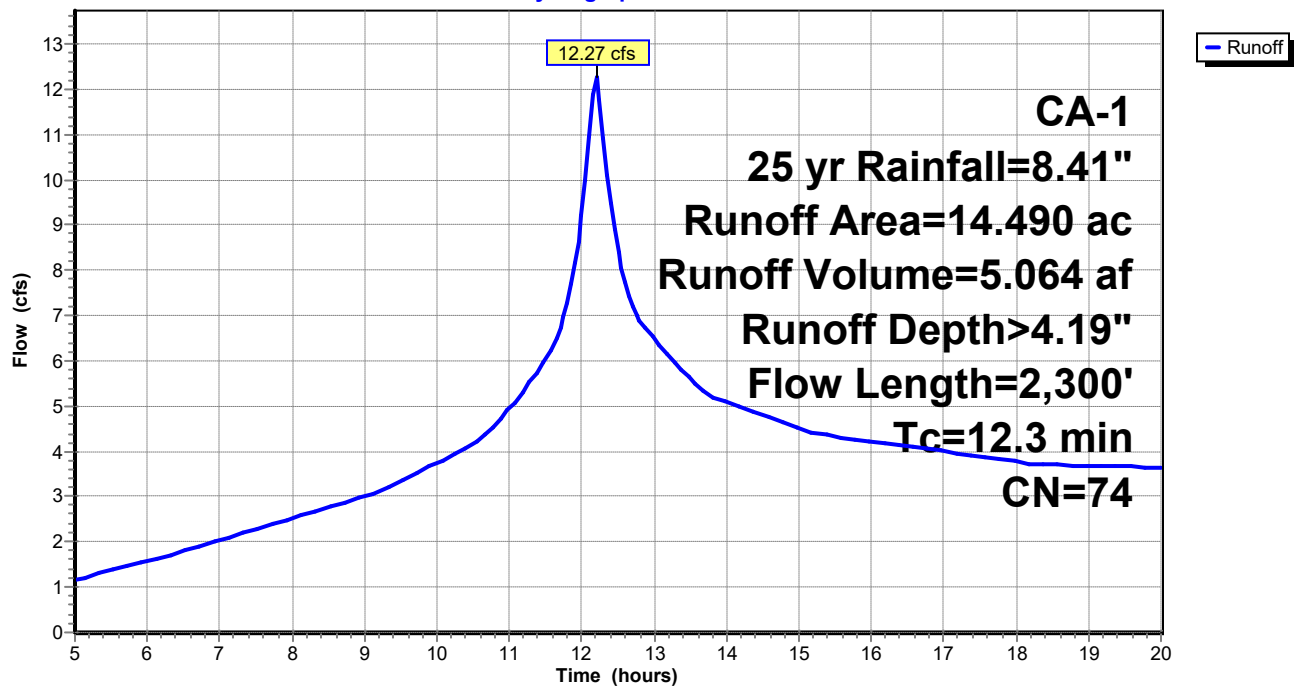
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
0.100	89	Gravel roads, HSG C
0.120	87	Dirt roads, HSG C
* 0.560	79	Vineyard, Fair, HSG C
3.610	74	Pasture/grassland/range, Good, HSG C
* 0.390	75	Brush, Good, HSG C
9.710	73	Woods, Fair, HSG C
14.490	74	Weighted Average
14.490		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
0.0	20	0.1300	11.14	19.69	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.9	1,210	0.1500	10.37	93.37	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Winding stream, pools & shoals
12.3	2,300	Total			

Subcatchment 1S: WS 2a pre

Hydrograph



WS 2 preR1

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CA-1 25 yr Rainfall=8.41"

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Summary for Subcatchment 2S: WS 2b pre

Runoff = 6.32 cfs @ 12.13 hrs, Volume= 2.421 af, Depth> 4.21"

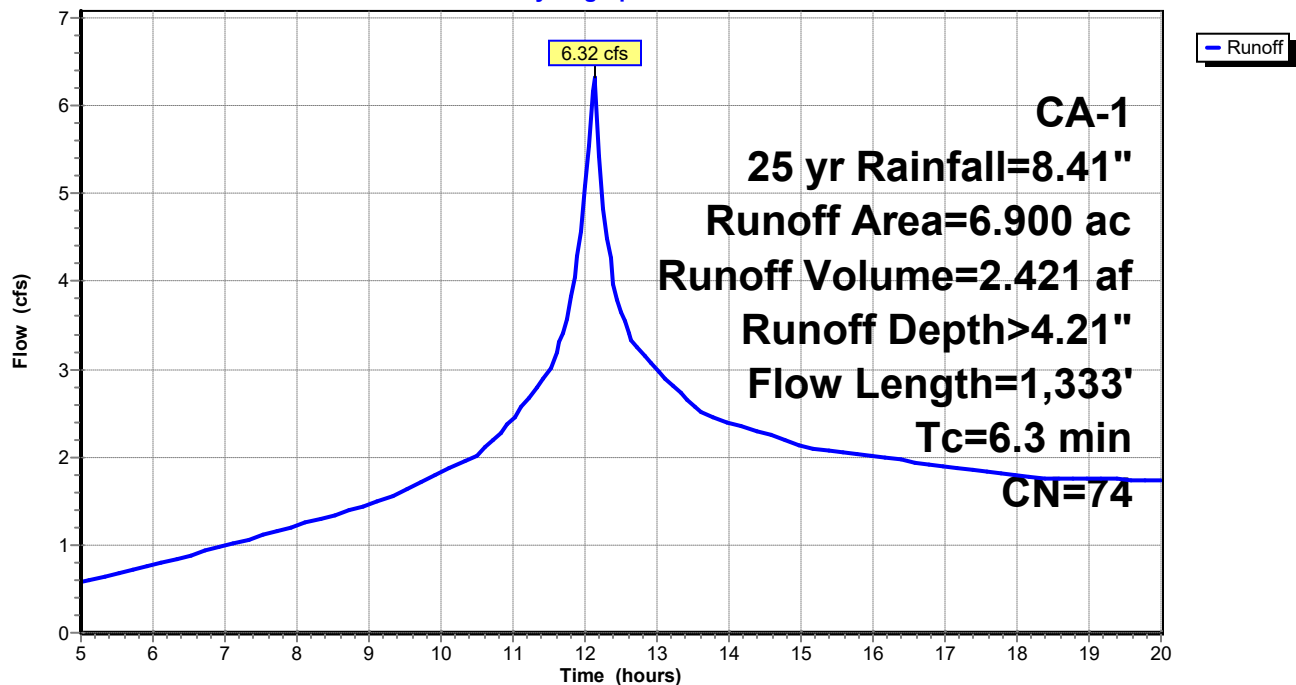
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
0.150	87	Dirt roads, HSG C
2.430	74	Pasture/grassland/range, Good, HSG C
* 0.030	75	Brush, Good, HSG C
4.290	73	Woods, Fair, HSG C
6.900	74	Weighted Average
6.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	100	0.1400	0.44		Sheet Flow, Grass: Short n= 0.150 P2= 4.50"
1.3	522	0.1700	6.64		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	711	0.1300	9.66	86.92	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Winding stream, pools & shoals
6.3	1,333	Total			

Subcatchment 2S: WS 2b pre

Hydrograph



WS 2 preR1

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CA-1 25 yr Rainfall=8.41"

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Summary for Subcatchment 4S: Culvert 2-pre

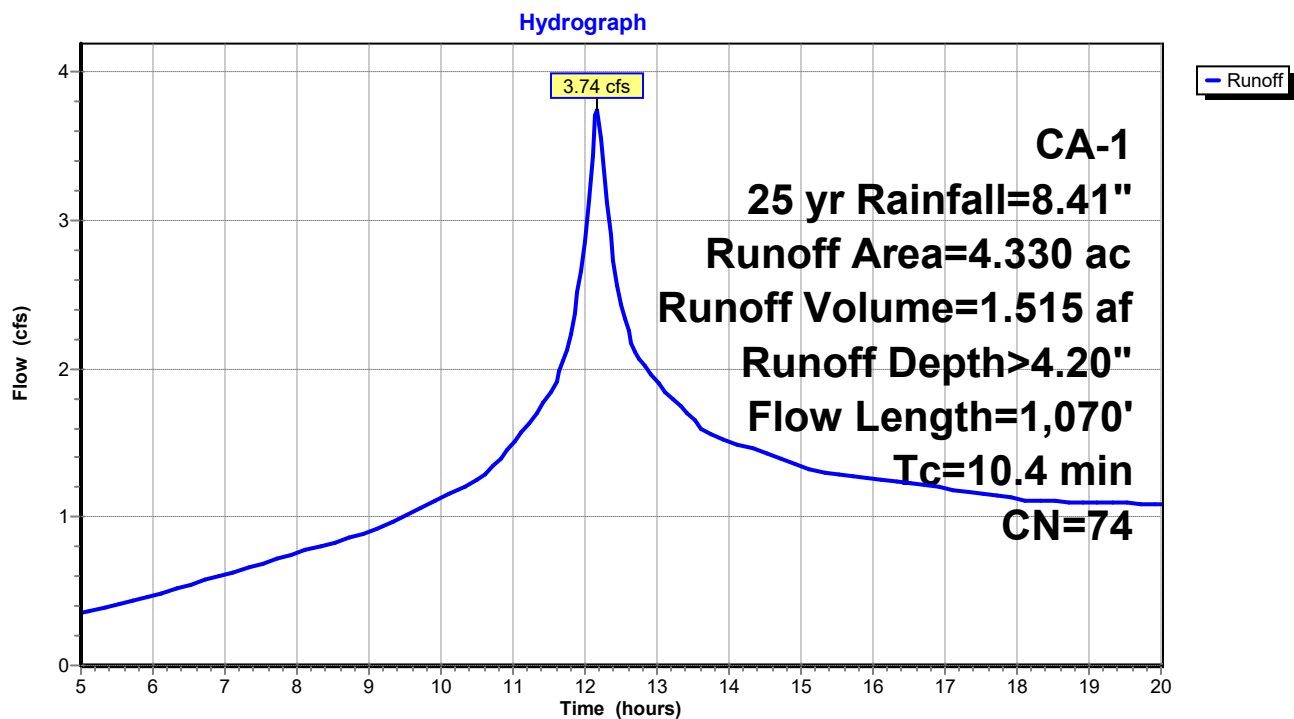
Runoff = 3.74 cfs @ 12.17 hrs, Volume= 1.515 af, Depth> 4.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
0.080	87	Dirt roads, HSG C
* 0.560	79	Vineyard, Fair, HSG C
1.860	74	Pasture/grassland/range, Good, HSG C
* 0.390	75	Brush, Good, HSG C
1.440	70	Woods, Good, HSG C
4.330	74	Weighted Average
4.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
10.4	1,070	Total			

Subcatchment 4S: Culvert 2-pre



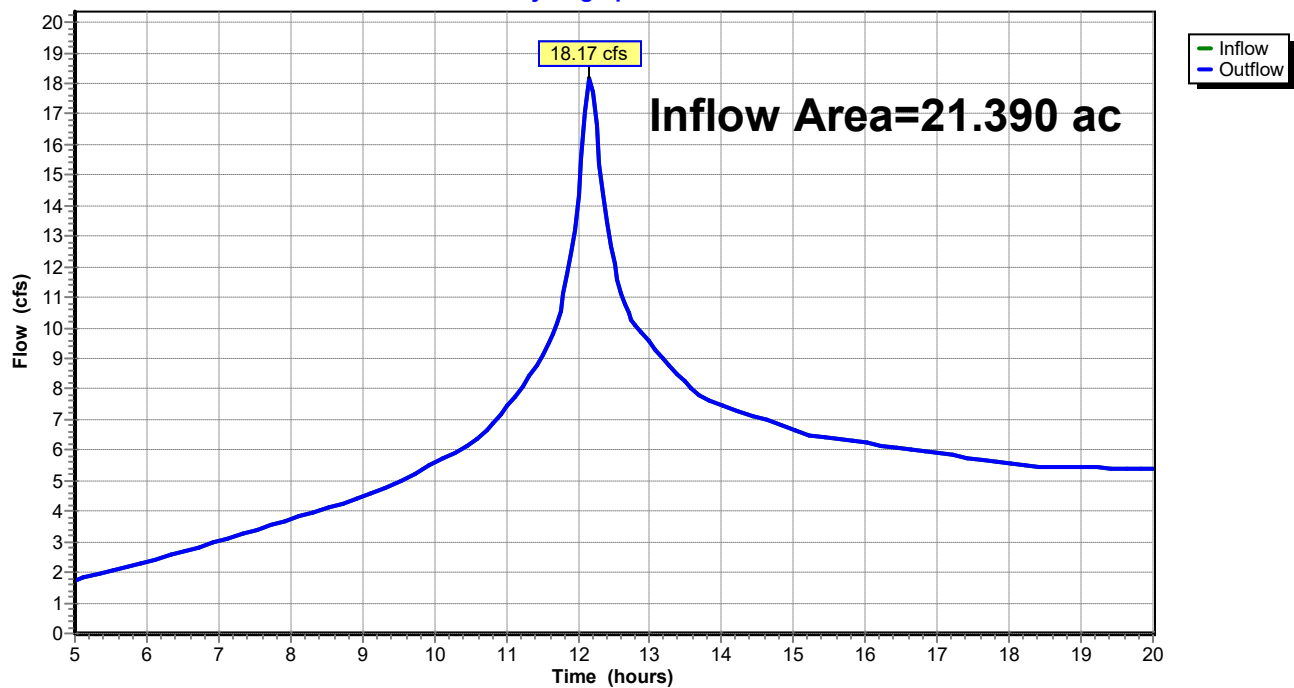
Summary for Reach 3R: POI

Inflow Area = 21.390 ac, 0.00% Impervious, Inflow Depth > 4.20" for 25 yr event
Inflow = 18.17 cfs @ 12.16 hrs, Volume= 7.485 af
Outflow = 18.17 cfs @ 12.16 hrs, Volume= 7.485 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: POI

Hydrograph



WS 2 preR1

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 1S: WS 2a pre

Runoff = 14.71 cfs @ 12.20 hrs, Volume= 6.102 af, Depth> 5.05"

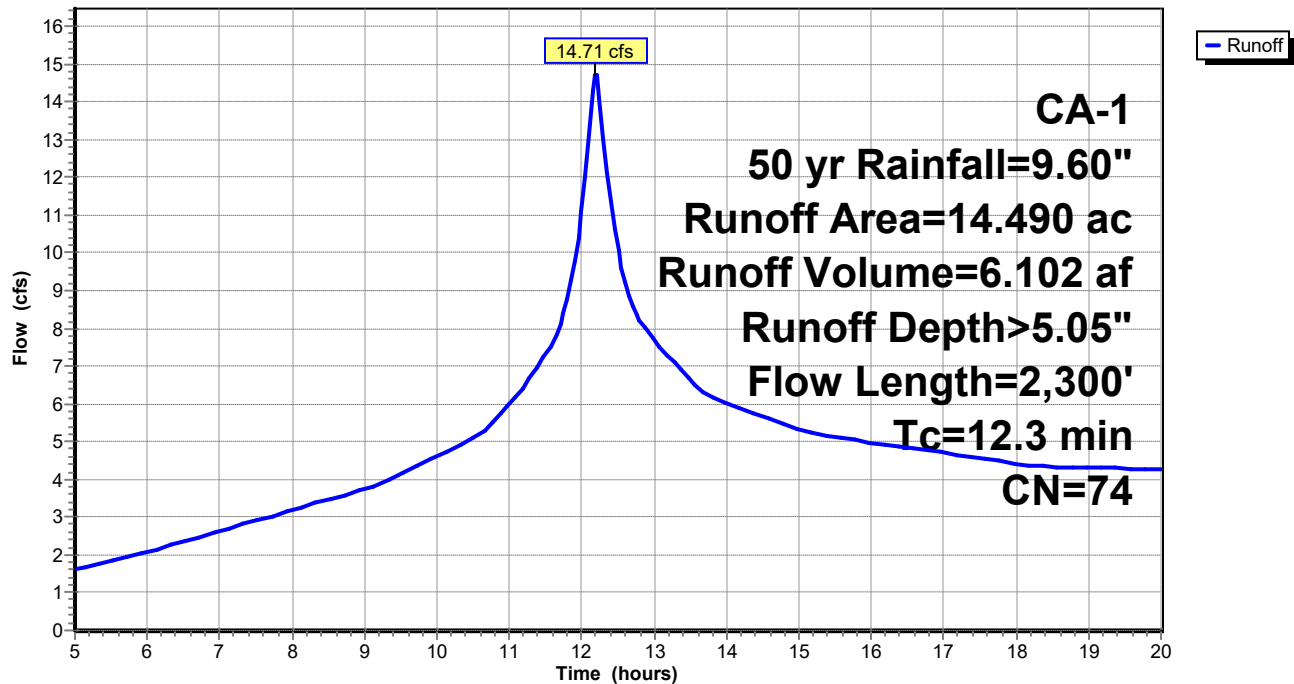
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
0.100	89	Gravel roads, HSG C
0.120	87	Dirt roads, HSG C
* 0.560	79	Vineyard, Fair, HSG C
3.610	74	Pasture/grassland/range, Good, HSG C
* 0.390	75	Brush, Good, HSG C
9.710	73	Woods, Fair, HSG C
14.490	74	Weighted Average
14.490		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
0.0	20	0.1300	11.14	19.69	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.9	1,210	0.1500	10.37	93.37	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Winding stream, pools & shoals
12.3	2,300	Total			

Subcatchment 1S: WS 2a pre

Hydrograph



WS 2 preR1

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 2S: WS 2b pre

Runoff = 7.57 cfs @ 12.13 hrs, Volume= 2.916 af, Depth> 5.07"

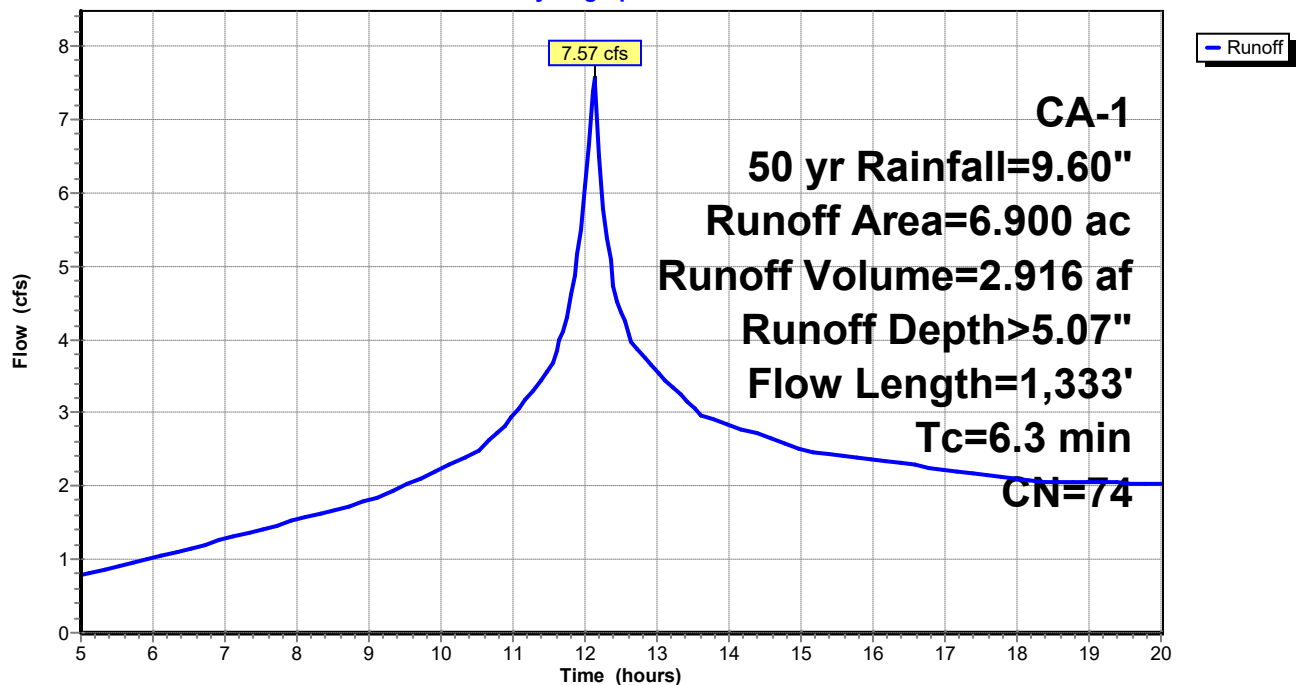
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
0.150	87	Dirt roads, HSG C
2.430	74	Pasture/grassland/range, Good, HSG C
* 0.030	75	Brush, Good, HSG C
4.290	73	Woods, Fair, HSG C
6.900	74	Weighted Average
6.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	100	0.1400	0.44		Sheet Flow, Grass: Short n= 0.150 P2= 4.50"
1.3	522	0.1700	6.64		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	711	0.1300	9.66	86.92	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Winding stream, pools & shoals
6.3	1,333	Total			

Subcatchment 2S: WS 2b pre

Hydrograph



WS 2 preR1

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 4S: Culvert 2-pre

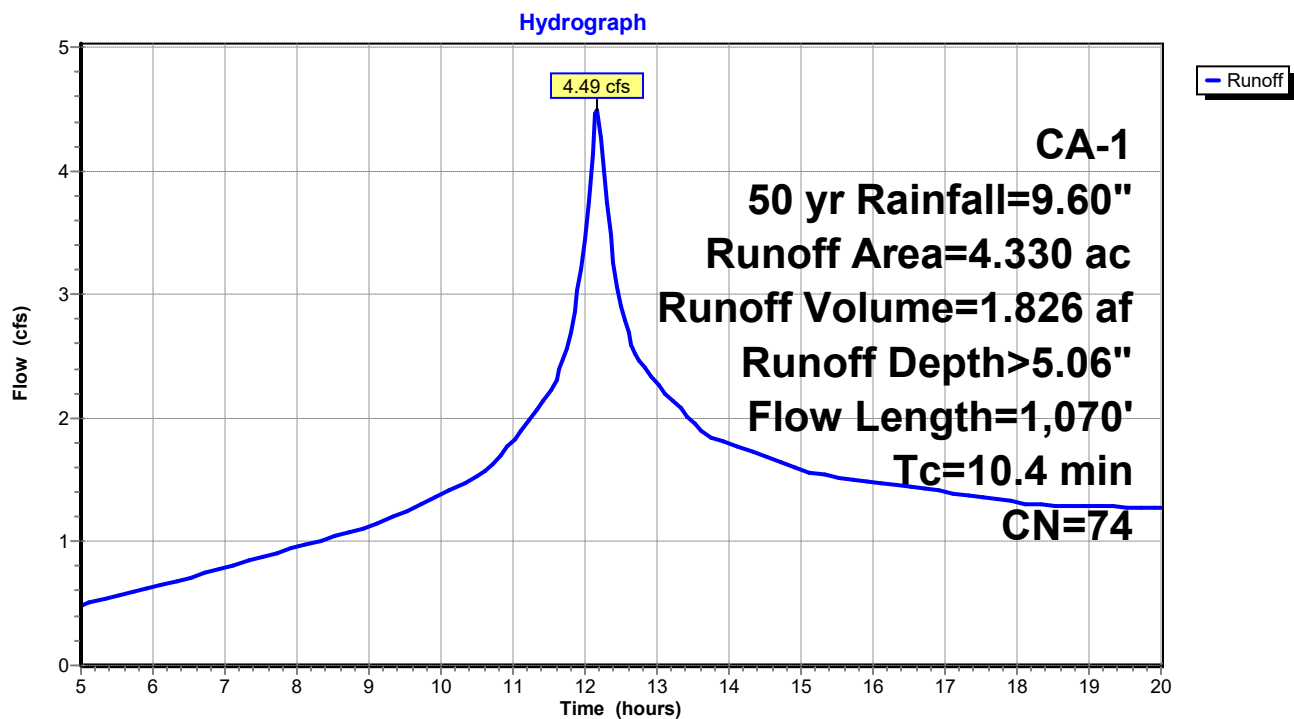
Runoff = 4.49 cfs @ 12.17 hrs, Volume= 1.826 af, Depth> 5.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
0.080	87	Dirt roads, HSG C
* 0.560	79	Vineyard, Fair, HSG C
1.860	74	Pasture/grassland/range, Good, HSG C
* 0.390	75	Brush, Good, HSG C
1.440	70	Woods, Good, HSG C
4.330	74	Weighted Average
4.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
10.4	1,070	Total			

Subcatchment 4S: Culvert 2-pre



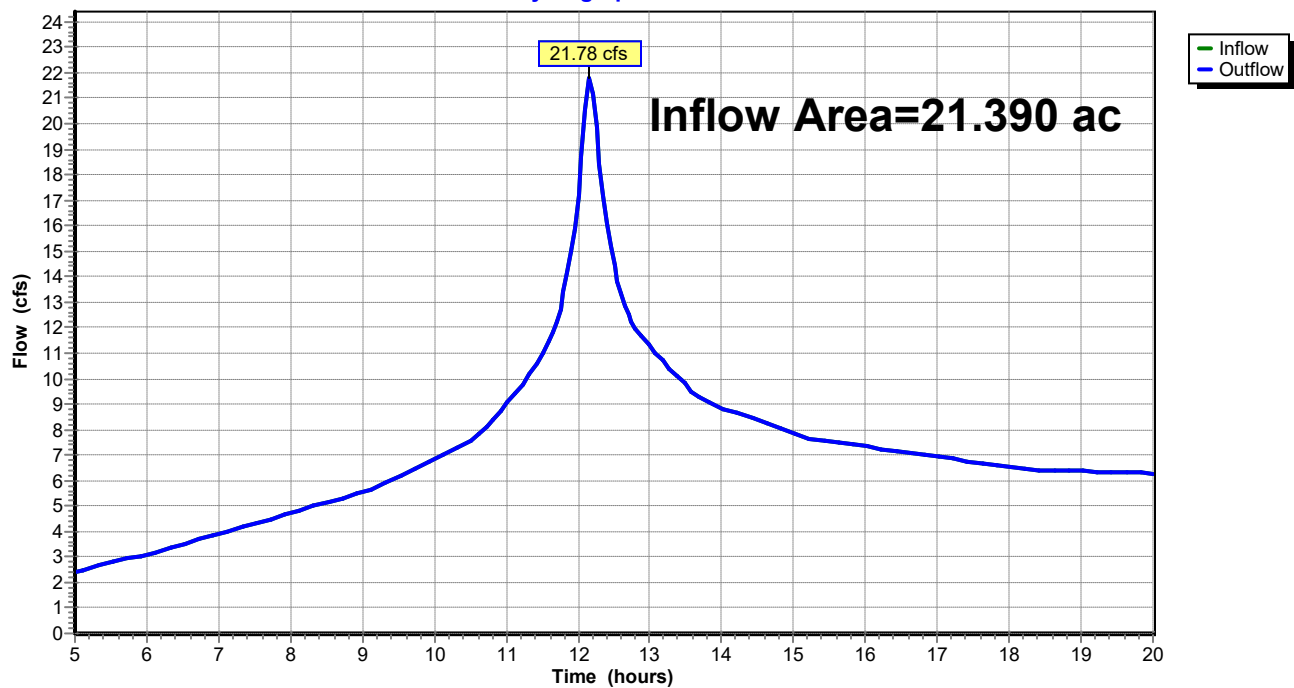
Summary for Reach 3R: POI

Inflow Area = 21.390 ac, 0.00% Impervious, Inflow Depth > 5.06" for 50 yr event
Inflow = 21.78 cfs @ 12.16 hrs, Volume= 9.018 af
Outflow = 21.78 cfs @ 12.16 hrs, Volume= 9.018 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: POI

Hydrograph



WS 2 preR1

CA-1 100 yr Rainfall=10.90"

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Summary for Subcatchment 1S: WS 2a pre

Runoff = 17.38 cfs @ 12.20 hrs, Volume= 7.248 af, Depth> 6.00"

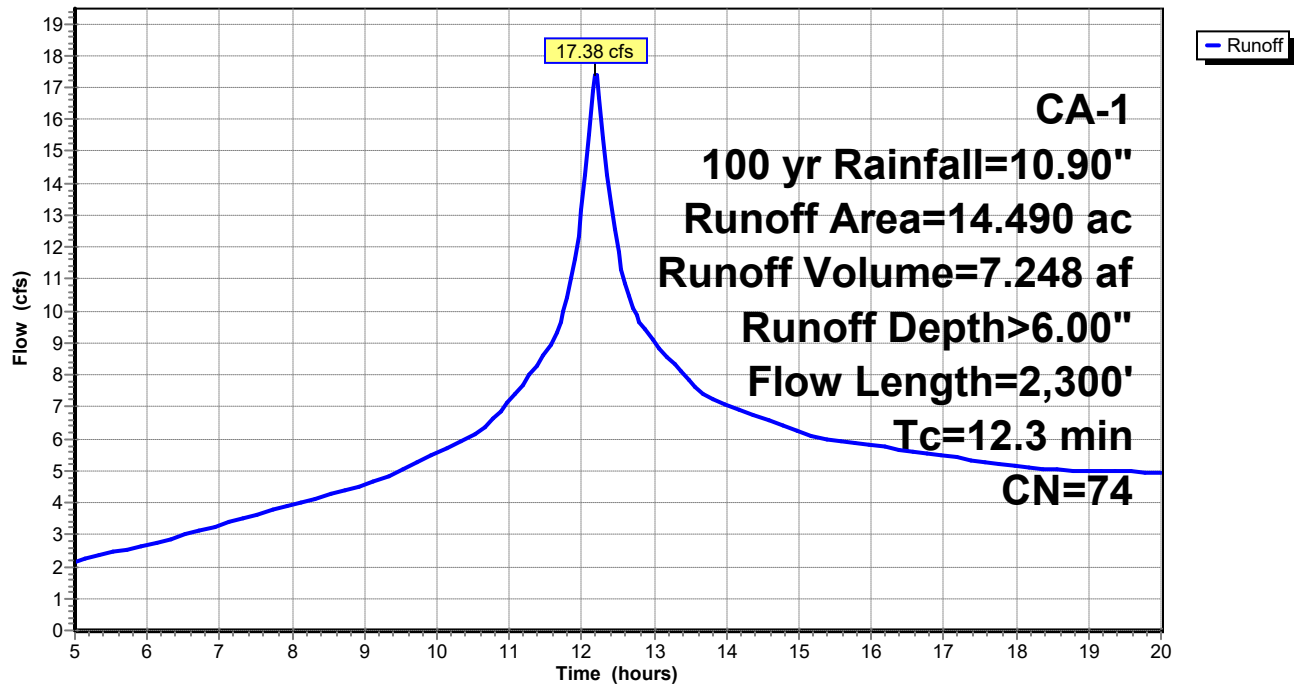
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 100 yr Rainfall=10.90"

Area (ac)	CN	Description
0.100	89	Gravel roads, HSG C
0.120	87	Dirt roads, HSG C
* 0.560	79	Vineyard, Fair, HSG C
3.610	74	Pasture/grassland/range, Good, HSG C
* 0.390	75	Brush, Good, HSG C
9.710	73	Woods, Fair, HSG C
14.490	74	Weighted Average
14.490		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
0.0	20	0.1300	11.14	19.69	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.9	1,210	0.1500	10.37	93.37	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Winding stream, pools & shoals
12.3	2,300	Total			

Subcatchment 1S: WS 2a pre

Hydrograph



WS 2 preR1

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CA-1 100 yr Rainfall=10.90"

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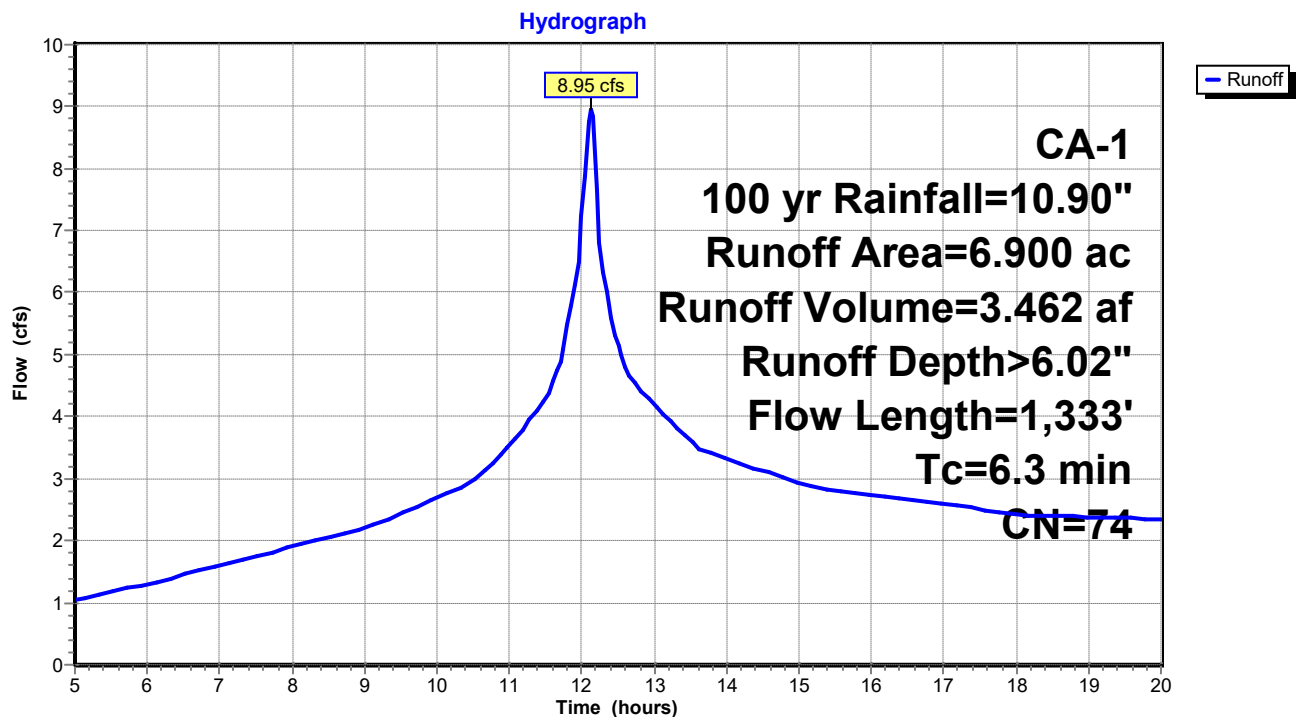
Summary for Subcatchment 2S: WS 2b pre

Runoff = 8.95 cfs @ 12.13 hrs, Volume= 3.462 af, Depth> 6.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 100 yr Rainfall=10.90"

Area (ac)	CN	Description
0.150	87	Dirt roads, HSG C
2.430	74	Pasture/grassland/range, Good, HSG C
* 0.030	75	Brush, Good, HSG C
4.290	73	Woods, Fair, HSG C
6.900	74	Weighted Average
6.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	100	0.1400	0.44		Sheet Flow, Grass: Short n= 0.150 P2= 4.50"
1.3	522	0.1700	6.64		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	711	0.1300	9.66	86.92	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Winding stream, pools & shoals
6.3	1,333	Total			

Subcatchment 2S: WS 2b pre

WS 2 preR1

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CA-1 100 yr Rainfall=10.90"

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Summary for Subcatchment 4S: Culvert 2-pre

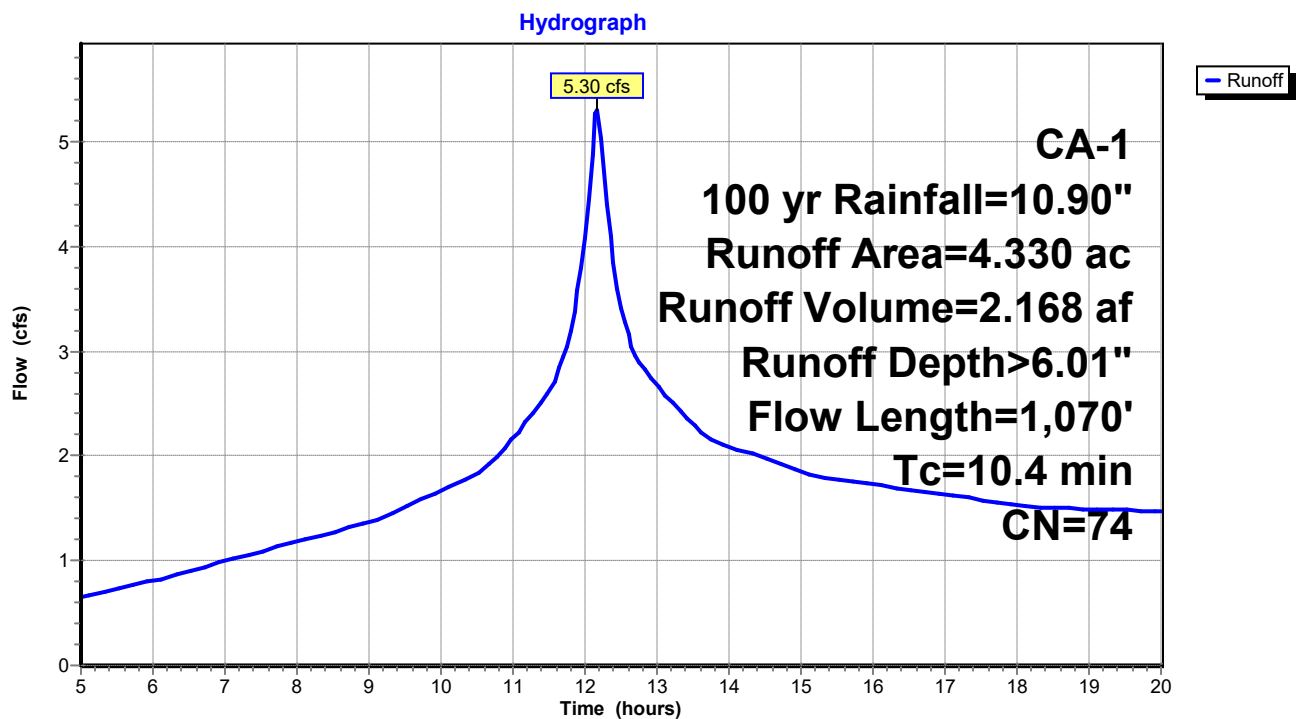
Runoff = 5.30 cfs @ 12.17 hrs, Volume= 2.168 af, Depth> 6.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 100 yr Rainfall=10.90"

Area (ac)	CN	Description
0.080	87	Dirt roads, HSG C
* 0.560	79	Vineyard, Fair, HSG C
1.860	74	Pasture/grassland/range, Good, HSG C
* 0.390	75	Brush, Good, HSG C
1.440	70	Woods, Good, HSG C
4.330	74	Weighted Average
4.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.1500	0.21		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
1.0	494	0.2600	8.21		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.2	393	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	83	0.1400	11.45	103.09	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.035 Earth, dense weeds
10.4	1,070	Total			

Subcatchment 4S: Culvert 2-pre



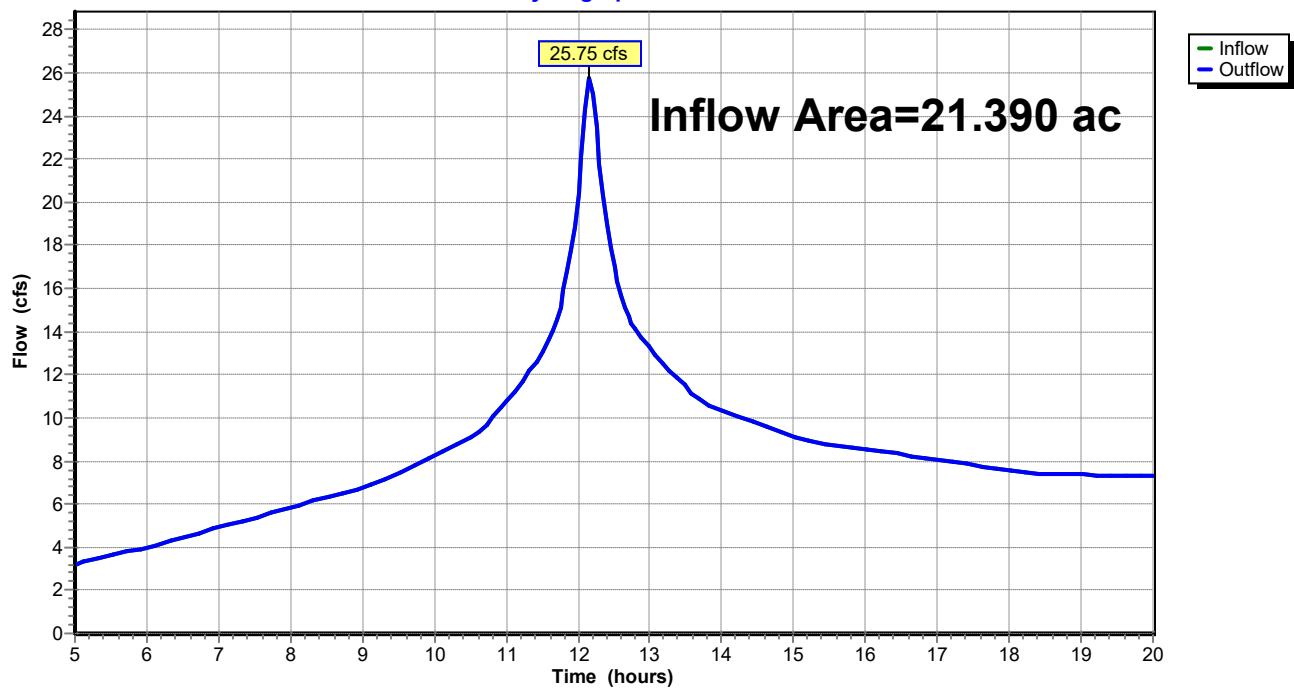
Summary for Reach 3R: POI

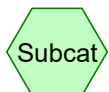
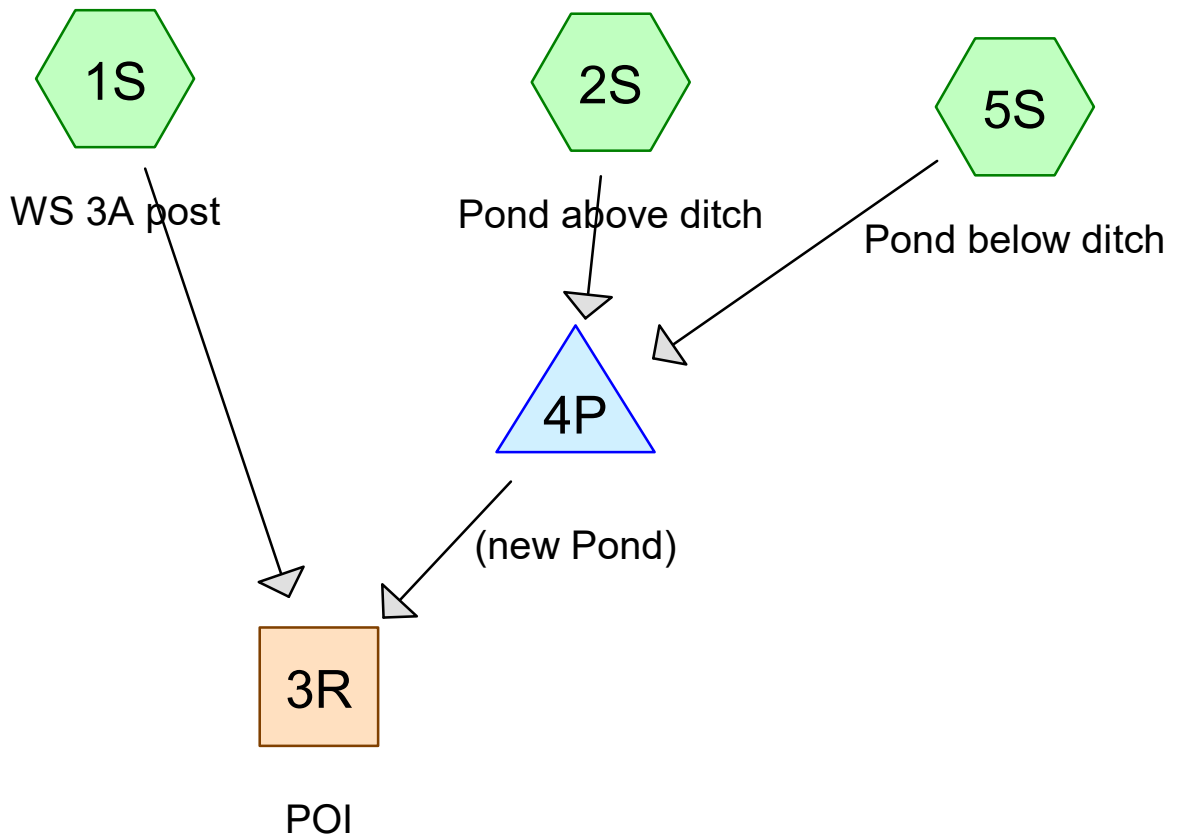
Inflow Area = 21.390 ac, 0.00% Impervious, Inflow Depth > 6.01" for 100 yr event
Inflow = 25.75 cfs @ 12.16 hrs, Volume= 10.710 af
Outflow = 25.75 cfs @ 12.16 hrs, Volume= 10.710 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: POI

Hydrograph

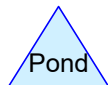




Subcat



Reach



Pond



Link

Routing Diagram for WS 3 postR1

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WS 3 postR1

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CA-1 2 yr Rainfall=4.50"

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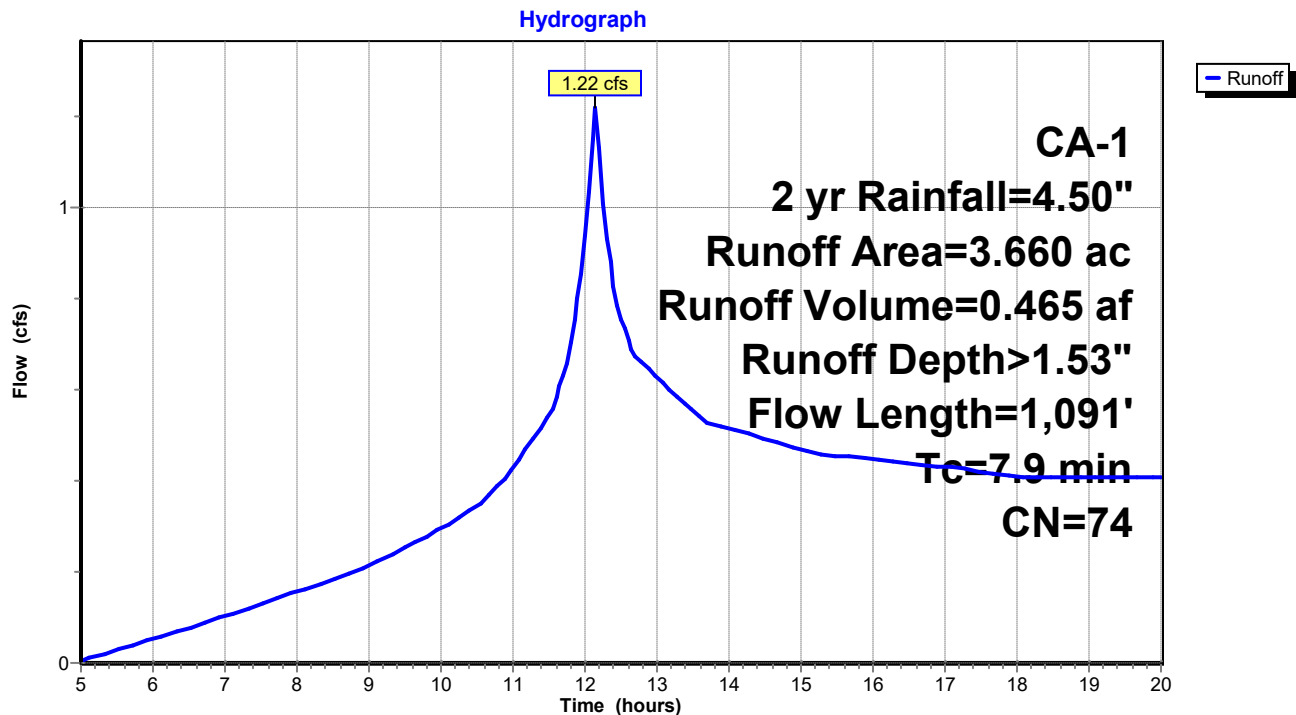
Summary for Subcatchment 1S: WS 3A post

Runoff = 1.22 cfs @ 12.15 hrs, Volume= 0.465 af, Depth> 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
* 1.950	75	Vineyard, Good, HSG C
0.150	74	Pasture/grassland/range, Good, HSG C
1.560	73	Woods, Fair, HSG C
3.660	74	Weighted Average
3.660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.1700	0.33		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.5	210	0.2100	7.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.3	781	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.9	1,091	Total			

Subcatchment 1S: WS 3A post

WS 3 postR1

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CA-1 2 yr Rainfall=4.50"

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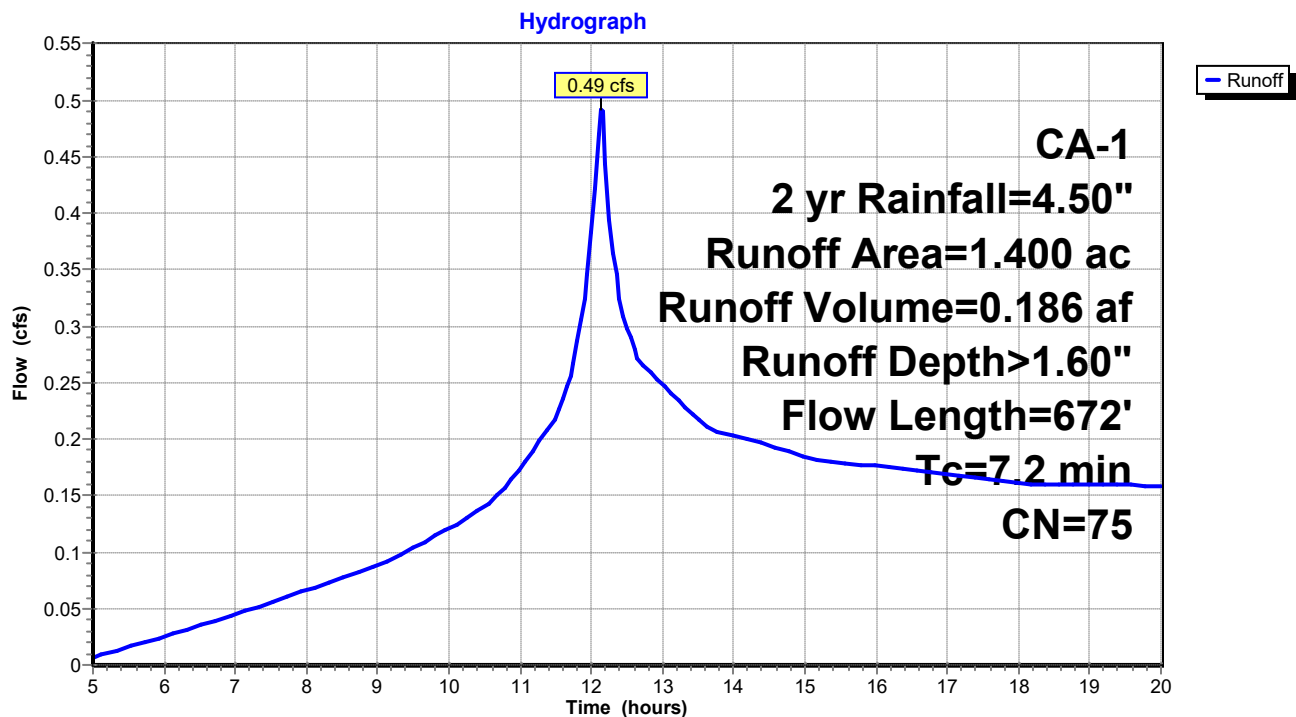
Summary for Subcatchment 2S: Pond above ditch

Runoff = 0.49 cfs @ 12.14 hrs, Volume= 0.186 af, Depth> 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
* 1.400	75	vineyard, good, HSG C
1.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.1400	0.30		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.9	337	0.1400	6.02		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.7	135	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	100	0.1800	19.25	15.12	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
7.2	672	Total			

Subcatchment 2S: Pond above ditch

WS 3 postR1

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CA-1 2 yr Rainfall=4.50"

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Summary for Subcatchment 5S: Pond below ditch

Runoff = 0.07 cfs @ 12.11 hrs, Volume= 0.027 af, Depth> 1.60"

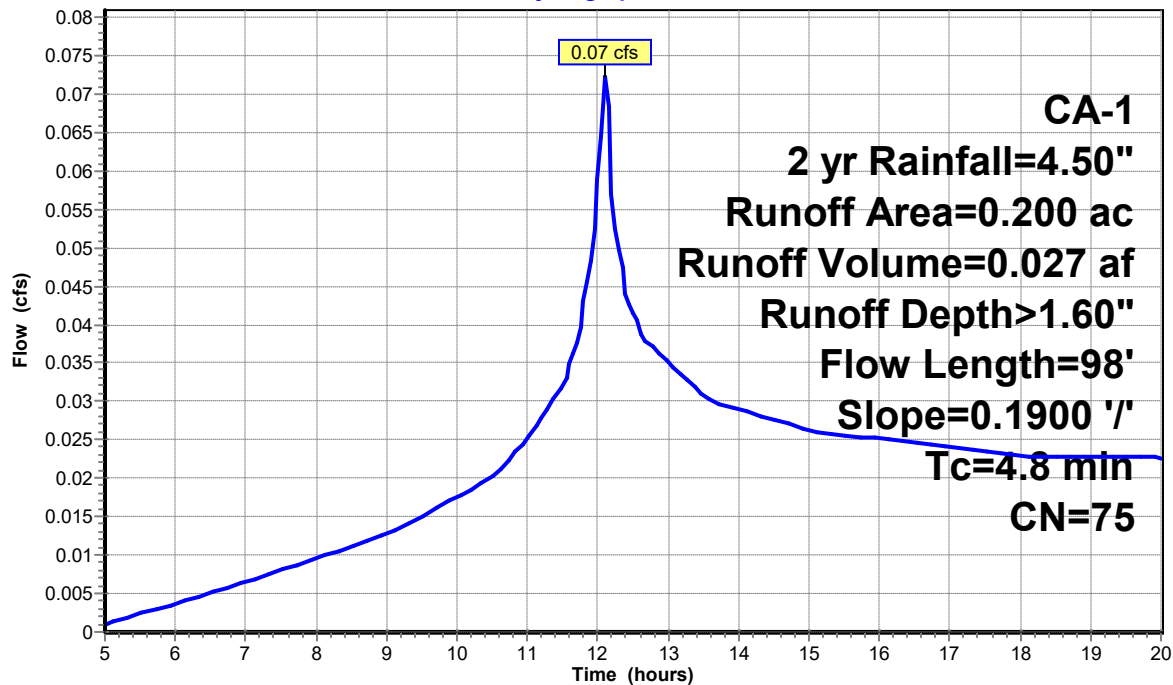
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
* 0.200	75	vineyard, good, HSG C
0.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	98	0.1900	0.34		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"

Subcatchment 5S: Pond below ditch

Hydrograph



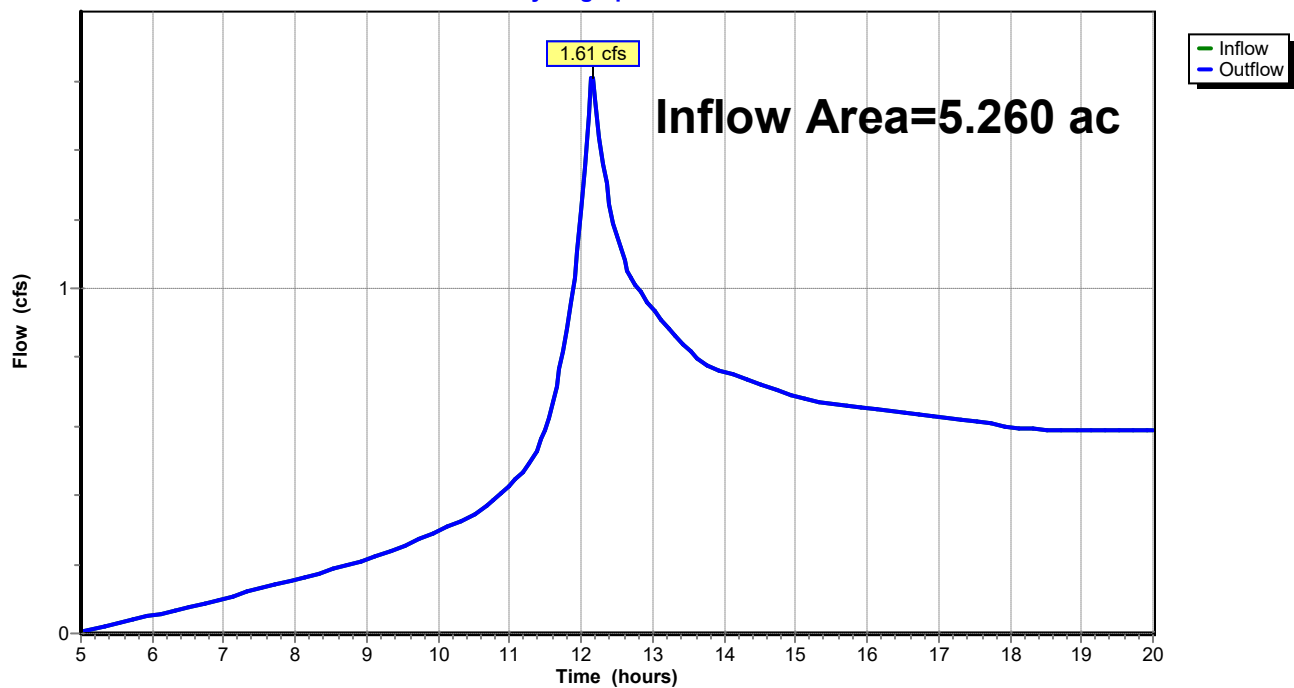
Summary for Reach 3R: POI

Inflow Area = 5.260 ac, 0.00% Impervious, Inflow Depth > 1.42" for 2 yr event
Inflow = 1.61 cfs @ 12.16 hrs, Volume= 0.624 af
Outflow = 1.61 cfs @ 12.16 hrs, Volume= 0.624 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: POI

Hydrograph



WS 3 postR1

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CA-1 2 yr Rainfall=4.50"

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Summary for Pond 4P: (new Pond)

Inflow Area = 1.600 ac, 0.00% Impervious, Inflow Depth > 1.60" for 2 yr event
 Inflow = 0.56 cfs @ 12.14 hrs, Volume= 0.213 af
 Outflow = 0.42 cfs @ 12.29 hrs, Volume= 0.158 af, Atten= 25%, Lag= 9.3 min
 Primary = 0.42 cfs @ 12.29 hrs, Volume= 0.158 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,671.43' @ 12.29 hrs Surf.Area= 1,446 sf Storage= 2,600 cf

Plug-Flow detention time= 180.4 min calculated for 0.158 af (74% of inflow)
 Center-of-Mass det. time= 90.2 min (920.5 - 830.3)

Volume	Invert	Avail.Storage	Storage Description
#1	1,669.00'	5,287 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,669.00	714	0	0
1,670.00	997	856	856
1,671.00	1,303	1,150	2,006
1,672.00	1,634	1,469	3,474
1,673.00	1,992	1,813	5,287

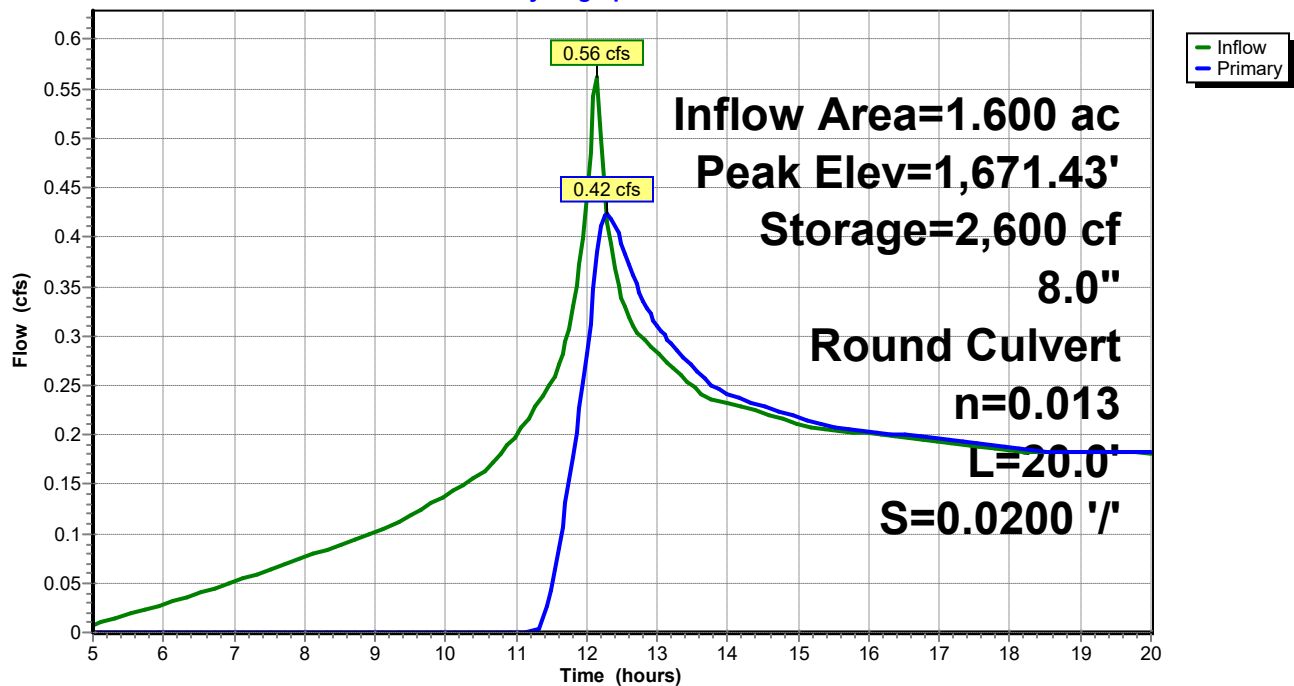
Device	Routing	Invert	Outlet Devices
#1	Primary	1,671.00'	8.0" Round Culvert L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,671.00' / 1,670.60' S= 0.0200 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.42 cfs @ 12.29 hrs HW=1,671.43' (Free Discharge)

↑ **1=Culvert** (Inlet Controls 0.42 cfs @ 1.77 fps)

Pond 4P: (new Pond)

Hydrograph



WS 3 postR1

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CA-1 5 yr Rainfall=5.79"

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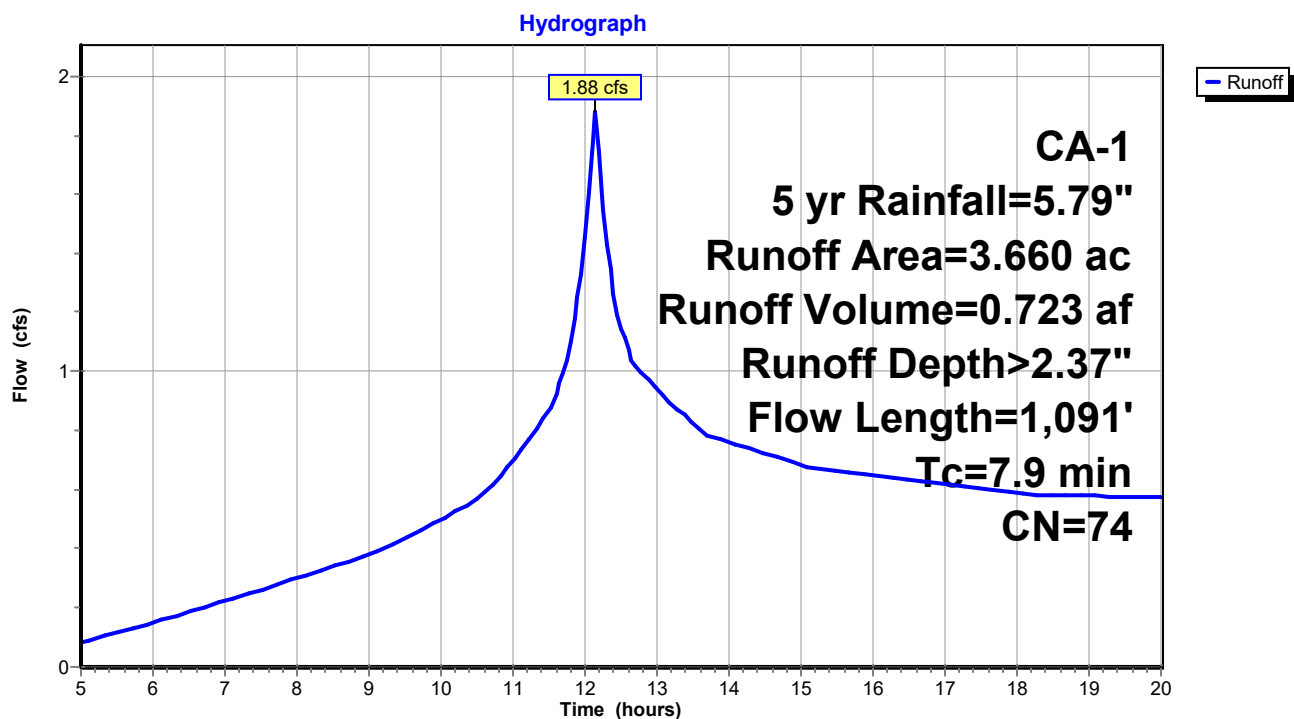
Summary for Subcatchment 1S: WS 3A post

Runoff = 1.88 cfs @ 12.15 hrs, Volume= 0.723 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
* 1.950	75	Vineyard, Good, HSG C
0.150	74	Pasture/grassland/range, Good, HSG C
1.560	73	Woods, Fair, HSG C
3.660	74	Weighted Average
3.660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.1700	0.33		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.5	210	0.2100	7.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.3	781	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.9	1,091	Total			

Subcatchment 1S: WS 3A post

WS 3 postR1

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CA-1 5 yr Rainfall=5.79"

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Summary for Subcatchment 2S: Pond above ditch

Runoff = 0.75 cfs @ 12.14 hrs, Volume= 0.286 af, Depth> 2.45"

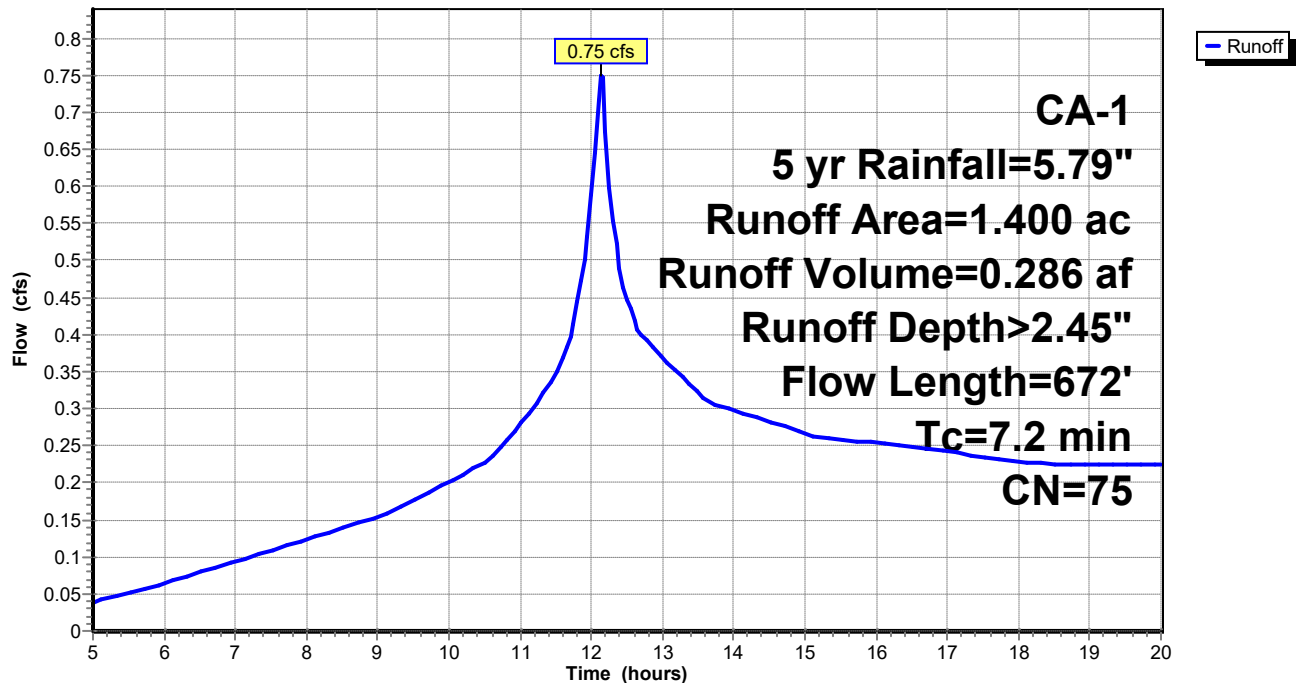
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
* 1.400	75	vineyard, good, HSG C
1.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.1400	0.30		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.9	337	0.1400	6.02		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.7	135	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	100	0.1800	19.25	15.12	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
7.2	672	Total			

Subcatchment 2S: Pond above ditch

Hydrograph



WS 3 postR1

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CA-1 5 yr Rainfall=5.79"

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Summary for Subcatchment 5S: Pond below ditch

Runoff = 0.11 cfs @ 12.11 hrs, Volume= 0.041 af, Depth> 2.46"

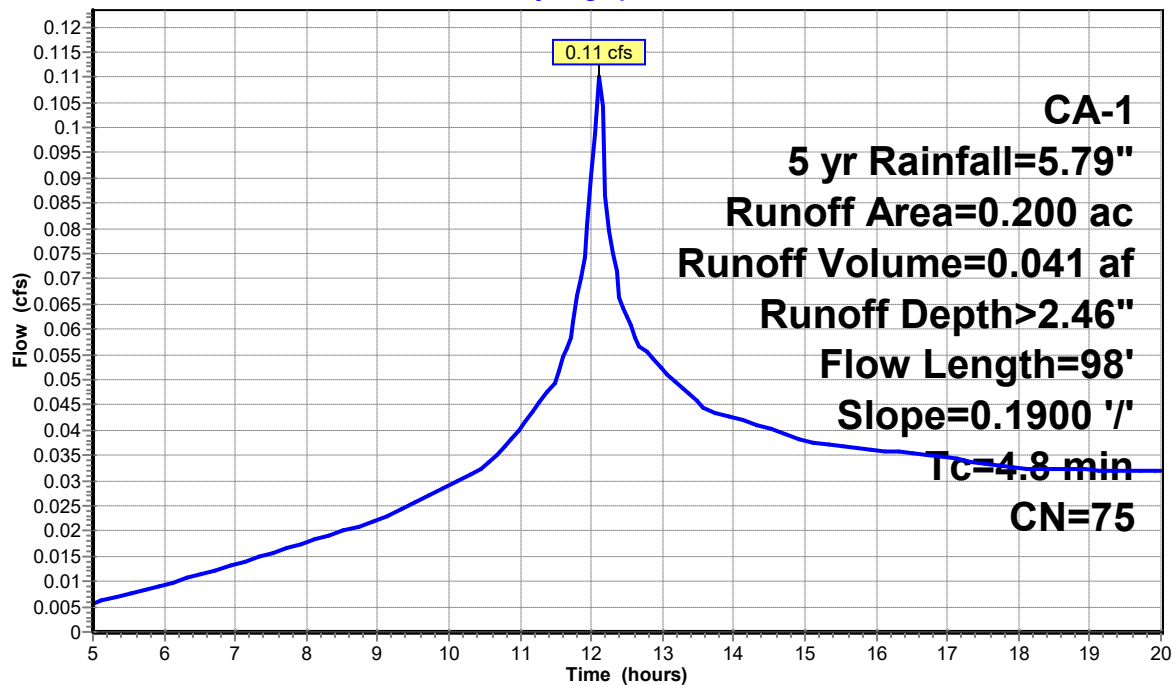
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
* 0.200	75	vineyard, good, HSG C
0.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	98	0.1900	0.34		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"

Subcatchment 5S: Pond below ditch

Hydrograph



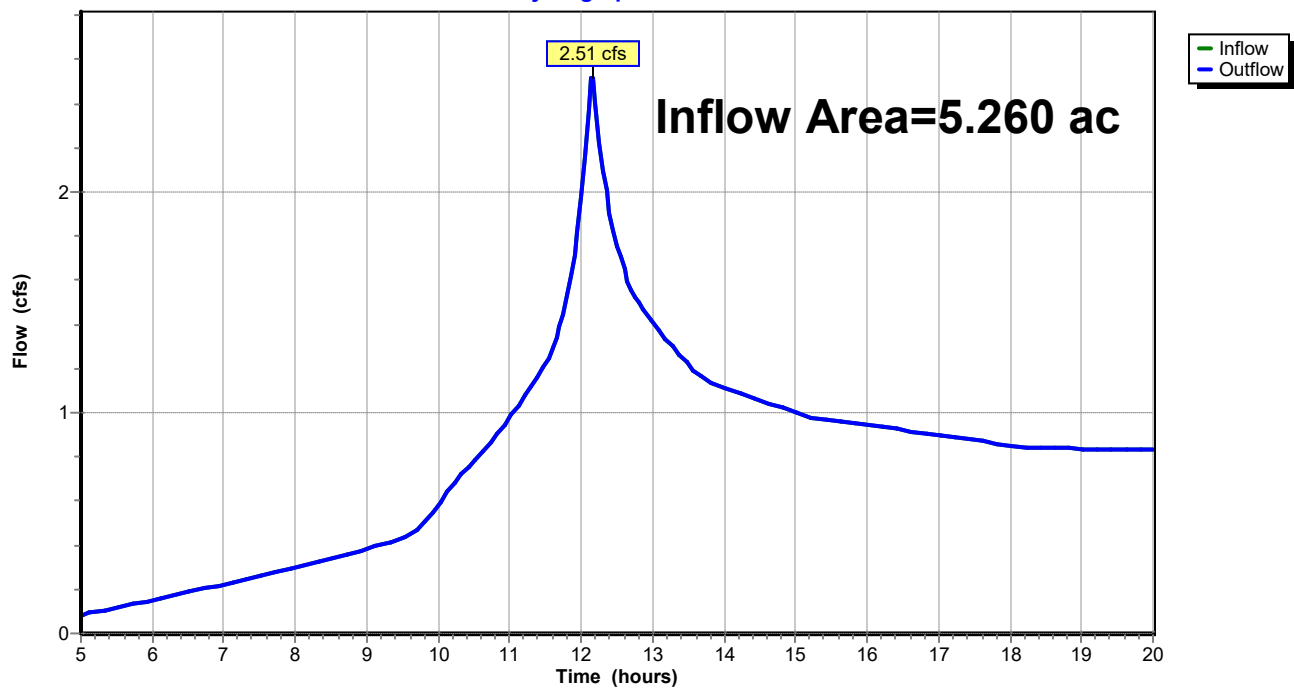
Summary for Reach 3R: POI

Inflow Area = 5.260 ac, 0.00% Impervious, Inflow Depth > 2.27" for 5 yr event
Inflow = 2.51 cfs @ 12.15 hrs, Volume= 0.994 af
Outflow = 2.51 cfs @ 12.15 hrs, Volume= 0.994 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: POI

Hydrograph



WS 3 postR1

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CA-1 5 yr Rainfall=5.79"

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Summary for Pond 4P: (new Pond)

Inflow Area = 1.600 ac, 0.00% Impervious, Inflow Depth > 2.45" for 5 yr event
 Inflow = 0.86 cfs @ 12.14 hrs, Volume= 0.327 af
 Outflow = 0.67 cfs @ 12.26 hrs, Volume= 0.271 af, Atten= 21%, Lag= 7.6 min
 Primary = 0.67 cfs @ 12.26 hrs, Volume= 0.271 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,671.59' @ 12.26 hrs Surf.Area= 1,498 sf Storage= 2,831 cf

Plug-Flow detention time= 133.9 min calculated for 0.270 af (83% of inflow)
 Center-of-Mass det. time= 69.2 min (879.7 - 810.5)

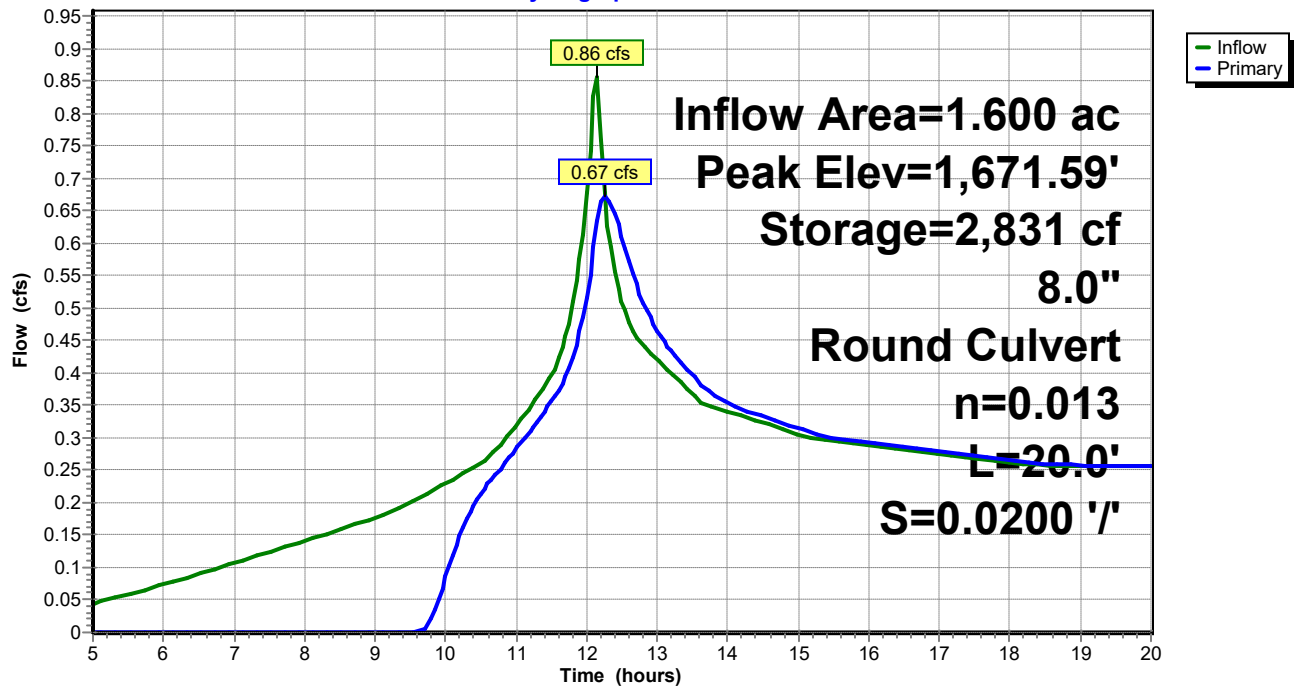
Volume	Invert	Avail.Storage	Storage Description
#1	1,669.00'	5,287 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,669.00	714	0	0
1,670.00	997	856	856
1,671.00	1,303	1,150	2,006
1,672.00	1,634	1,469	3,474
1,673.00	1,992	1,813	5,287

Device	Routing	Invert	Outlet Devices
#1	Primary	1,671.00'	8.0" Round Culvert L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,671.00' / 1,670.60' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.67 cfs @ 12.26 hrs HW=1,671.59' (Free Discharge)

↑**1=Culvert** (Inlet Controls 0.67 cfs @ 2.06 fps)

Pond 4P: (new Pond)**Hydrograph**

WS 3 postR1

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CA-1 10 yr Rainfall=6.84"

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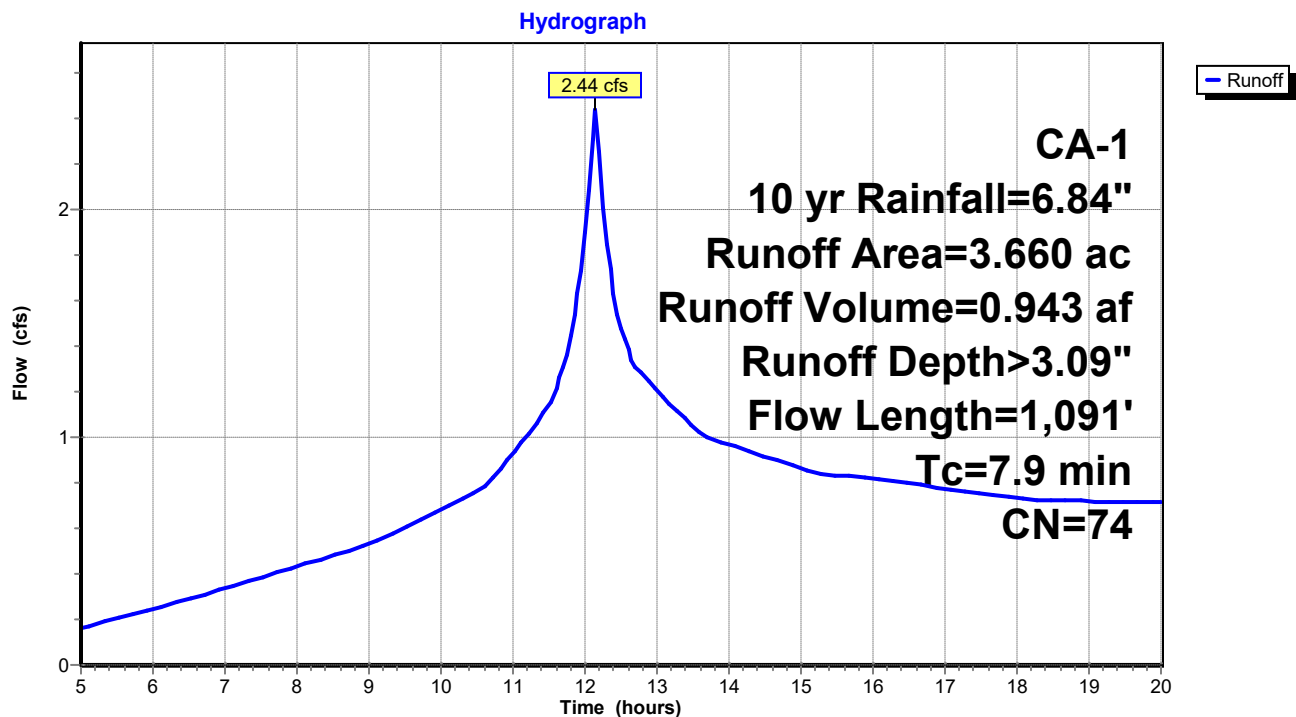
Summary for Subcatchment 1S: WS 3A post

Runoff = 2.44 cfs @ 12.15 hrs, Volume= 0.943 af, Depth> 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
* 1.950	75	Vineyard, Good, HSG C
0.150	74	Pasture/grassland/range, Good, HSG C
1.560	73	Woods, Fair, HSG C
3.660	74	Weighted Average
3.660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.1700	0.33		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.5	210	0.2100	7.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.3	781	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.9	1,091	Total			

Subcatchment 1S: WS 3A post

WS 3 postR1

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CA-1 10 yr Rainfall=6.84"

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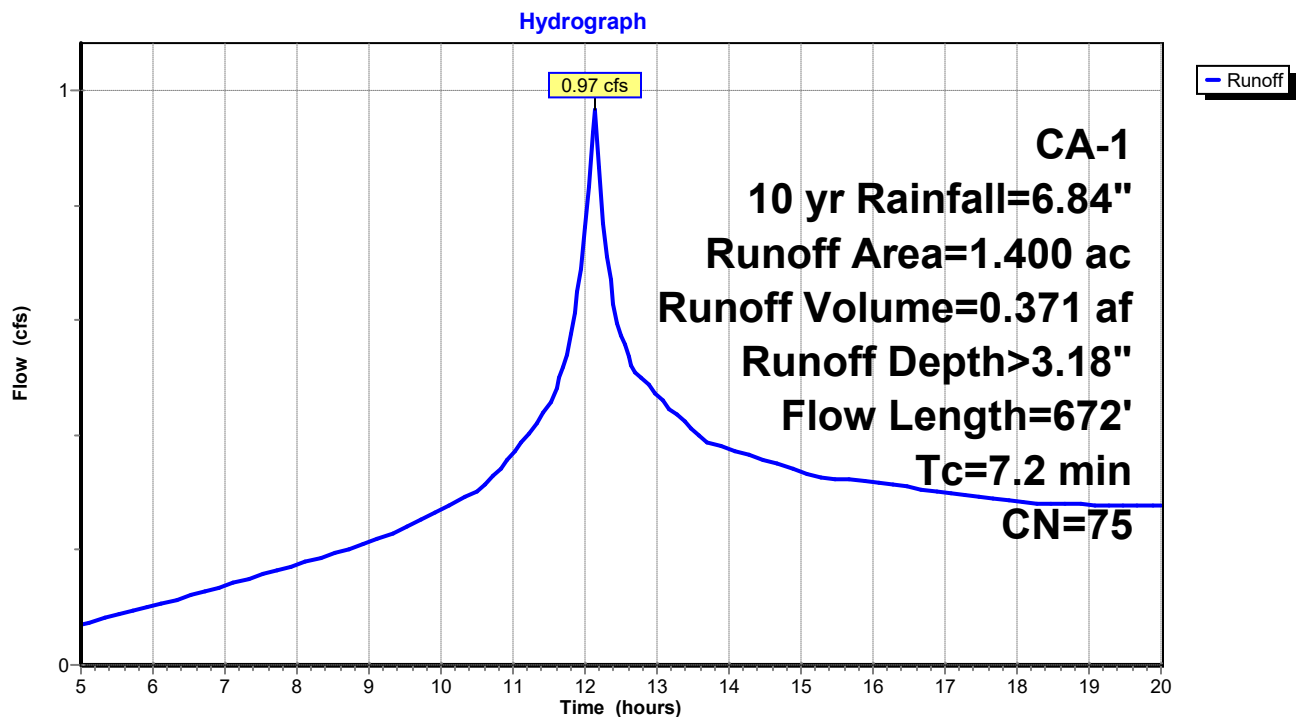
Summary for Subcatchment 2S: Pond above ditch

Runoff = 0.97 cfs @ 12.14 hrs, Volume= 0.371 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
* 1.400	75	vineyard, good, HSG C
1.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.1400	0.30		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.9	337	0.1400	6.02		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.7	135	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	100	0.1800	19.25	15.12	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
7.2	672	Total			

Subcatchment 2S: Pond above ditch

WS 3 postR1

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CA-1 10 yr Rainfall=6.84"

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Summary for Subcatchment 5S: Pond below ditch

Runoff = 0.14 cfs @ 12.11 hrs, Volume= 0.053 af, Depth> 3.19"

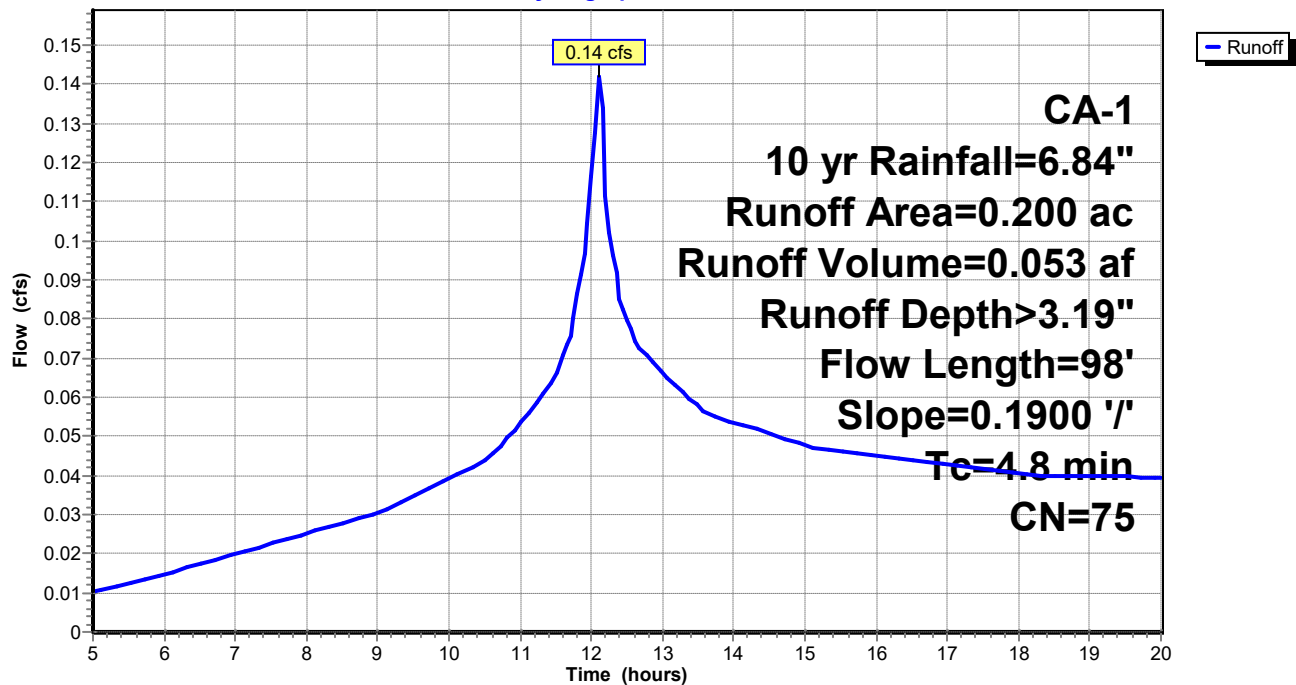
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
* 0.200	75	vineyard, good, HSG C
0.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	98	0.1900	0.34		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"

Subcatchment 5S: Pond below ditch

Hydrograph



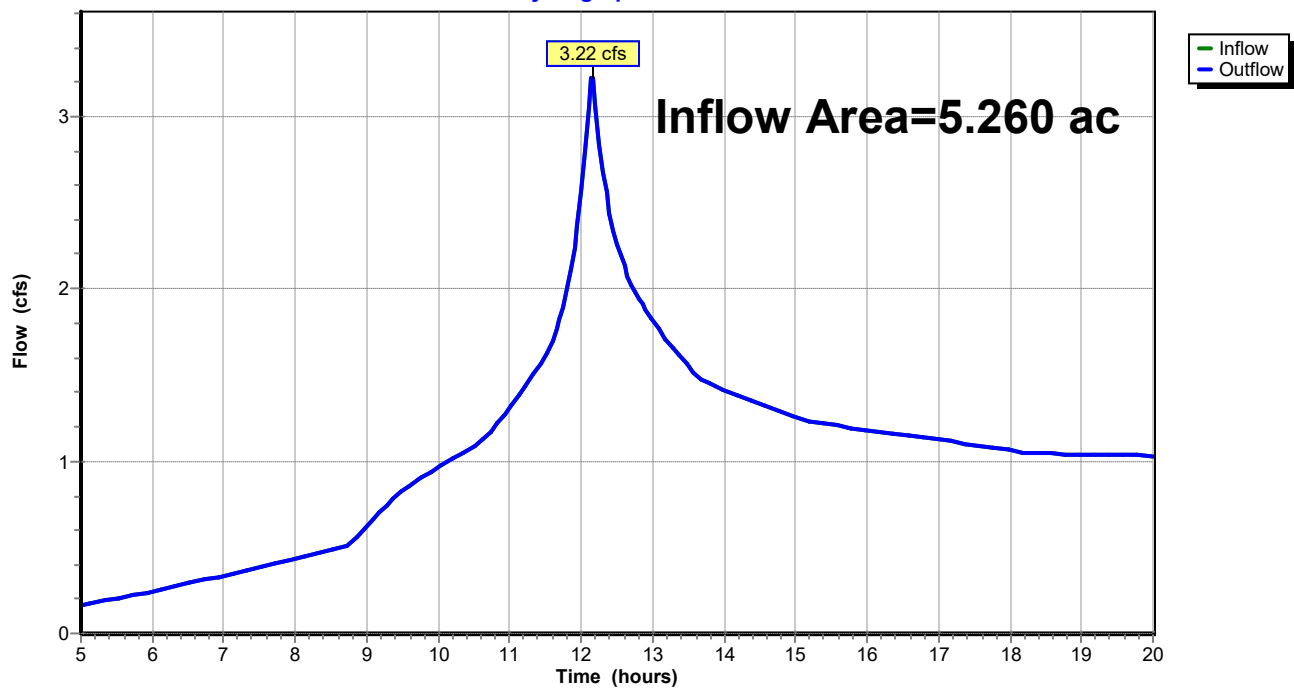
Summary for Reach 3R: POI

Inflow Area = 5.260 ac, 0.00% Impervious, Inflow Depth > 2.99" for 10 yr event
Inflow = 3.22 cfs @ 12.15 hrs, Volume= 1.310 af
Outflow = 3.22 cfs @ 12.15 hrs, Volume= 1.310 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: POI

Hydrograph



WS 3 postR1

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CA-1 10 yr Rainfall=6.84"

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Summary for Pond 4P: (new Pond)

Inflow Area = 1.600 ac, 0.00% Impervious, Inflow Depth > 3.18" for 10 yr event
 Inflow = 1.10 cfs @ 12.14 hrs, Volume= 0.424 af
 Outflow = 0.83 cfs @ 12.28 hrs, Volume= 0.367 af, Atten= 25%, Lag= 8.9 min
 Primary = 0.83 cfs @ 12.28 hrs, Volume= 0.367 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,671.73' @ 12.28 hrs Surf.Area= 1,543 sf Storage= 3,037 cf

Plug-Flow detention time= 111.2 min calculated for 0.367 af (86% of inflow)
 Center-of-Mass det. time= 58.3 min (858.3 - 800.0)

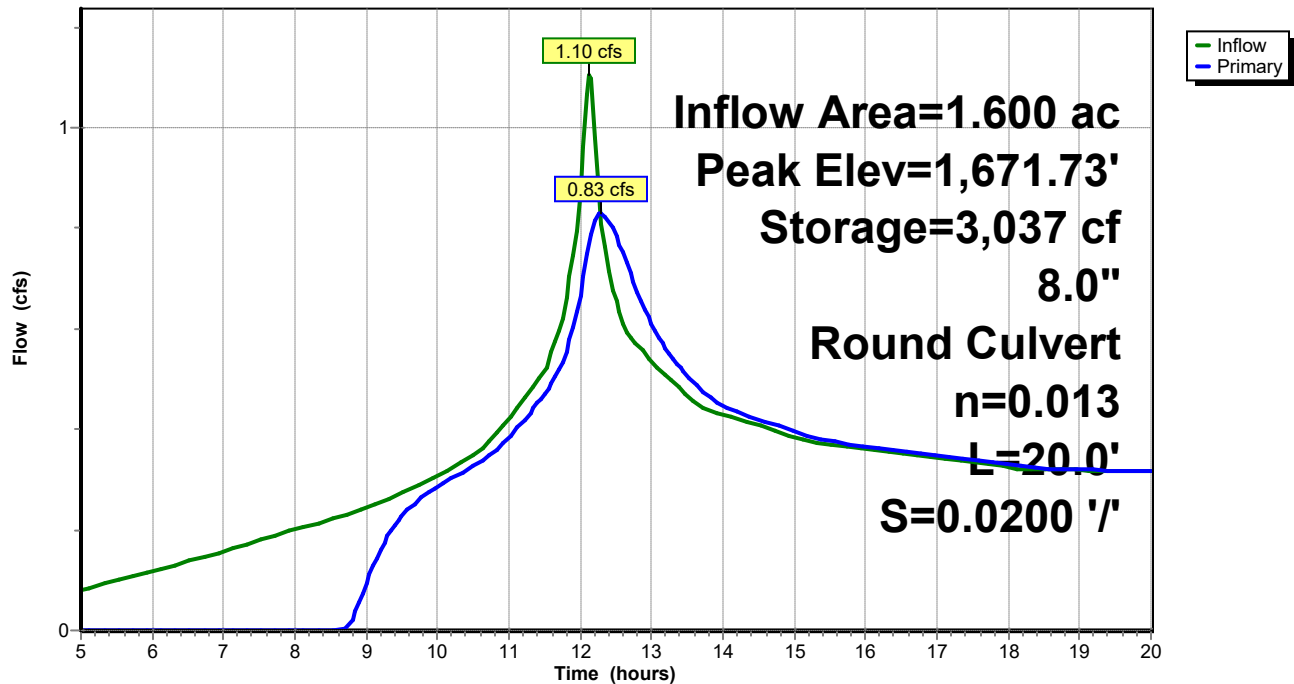
Volume	Invert	Avail.Storage	Storage Description
#1	1,669.00'	5,287 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,669.00	714	0	0
1,670.00	997	856	856
1,671.00	1,303	1,150	2,006
1,672.00	1,634	1,469	3,474
1,673.00	1,992	1,813	5,287

Device	Routing	Invert	Outlet Devices
#1	Primary	1,671.00'	8.0" Round Culvert L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,671.00' / 1,670.60' S= 0.0200 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.83 cfs @ 12.28 hrs HW=1,671.72' (Free Discharge)

↑ **1=Culvert** (Inlet Controls 0.83 cfs @ 2.38 fps)

Pond 4P: (new Pond)**Hydrograph**

WS 3 postR1

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CA-1 25 yr Rainfall=8.41"

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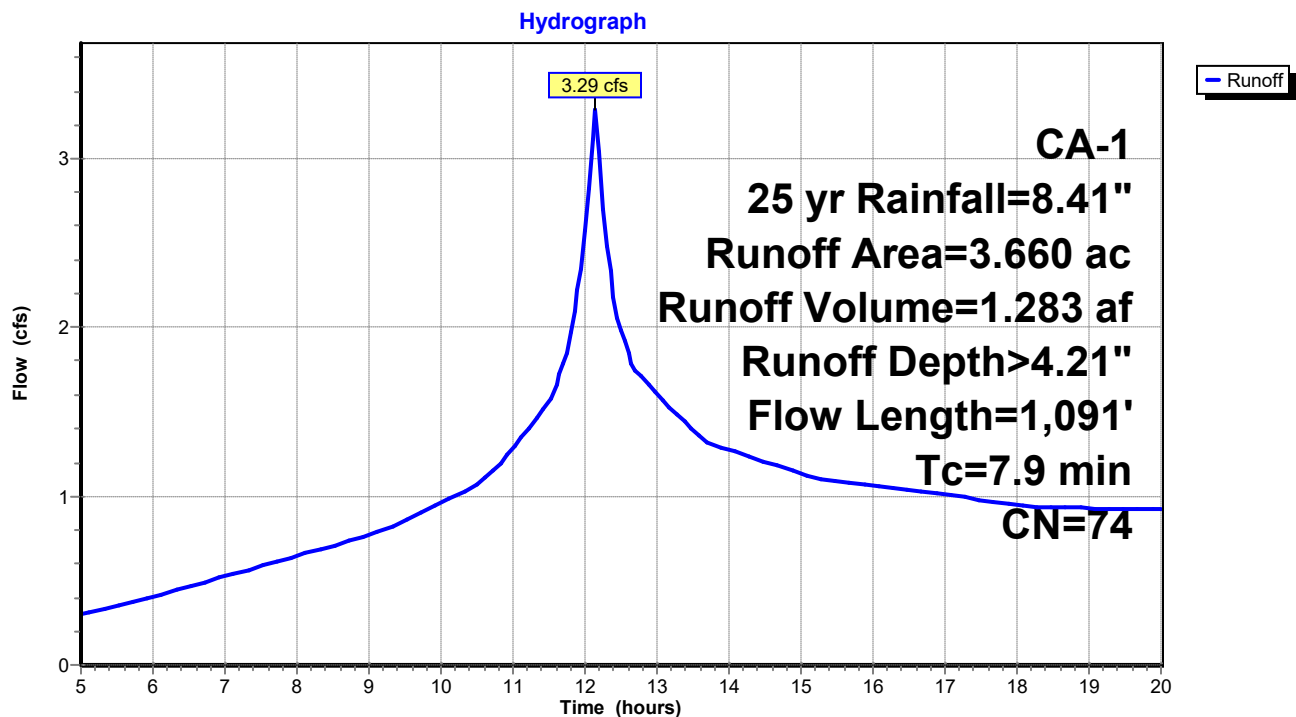
Summary for Subcatchment 1S: WS 3A post

Runoff = 3.29 cfs @ 12.15 hrs, Volume= 1.283 af, Depth> 4.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
* 1.950	75	Vineyard, Good, HSG C
0.150	74	Pasture/grassland/range, Good, HSG C
1.560	73	Woods, Fair, HSG C
3.660	74	Weighted Average
3.660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.1700	0.33		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.5	210	0.2100	7.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.3	781	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.9	1,091	Total			

Subcatchment 1S: WS 3A post

WS 3 postR1

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CA-1 25 yr Rainfall=8.41"

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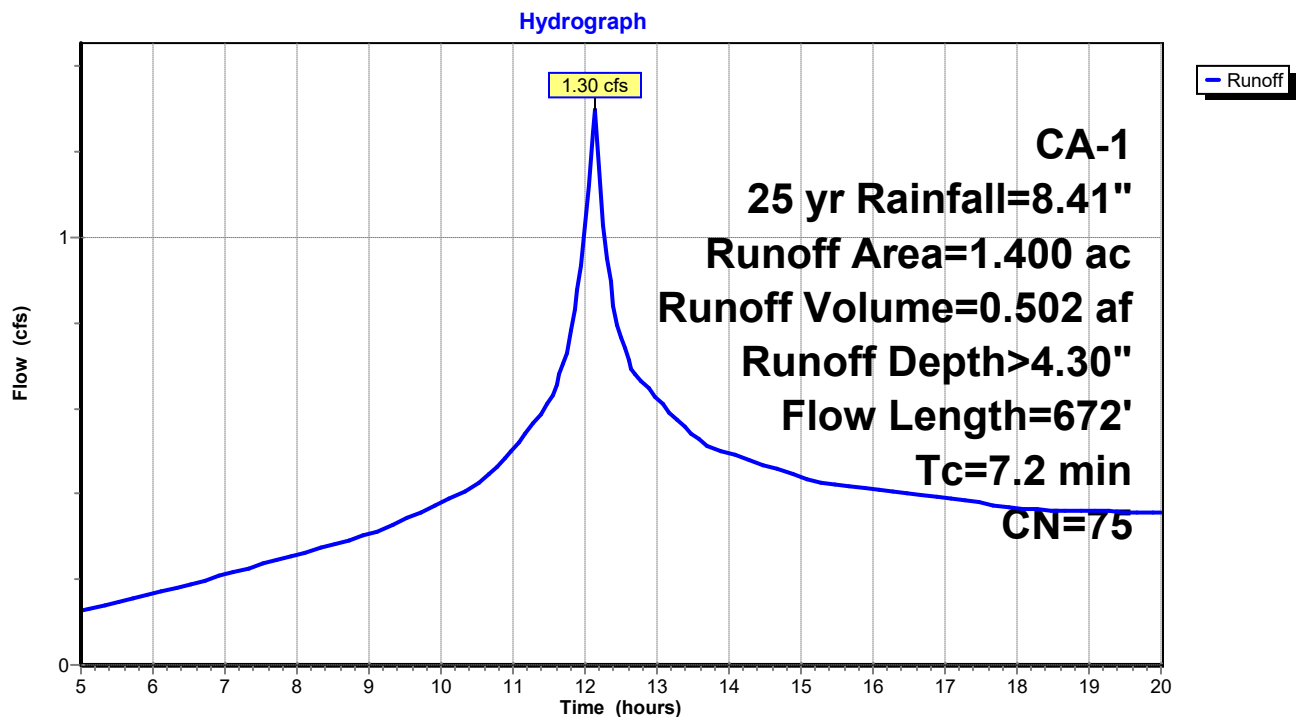
Summary for Subcatchment 2S: Pond above ditch

Runoff = 1.30 cfs @ 12.14 hrs, Volume= 0.502 af, Depth> 4.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
* 1.400	75	vineyard, good, HSG C
1.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.1400	0.30		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.9	337	0.1400	6.02		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.7	135	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	100	0.1800	19.25	15.12	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
7.2	672	Total			

Subcatchment 2S: Pond above ditch

WS 3 postR1

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CA-1 25 yr Rainfall=8.41"

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Summary for Subcatchment 5S: Pond below ditch

Runoff = 0.19 cfs @ 12.11 hrs, Volume= 0.072 af, Depth> 4.31"

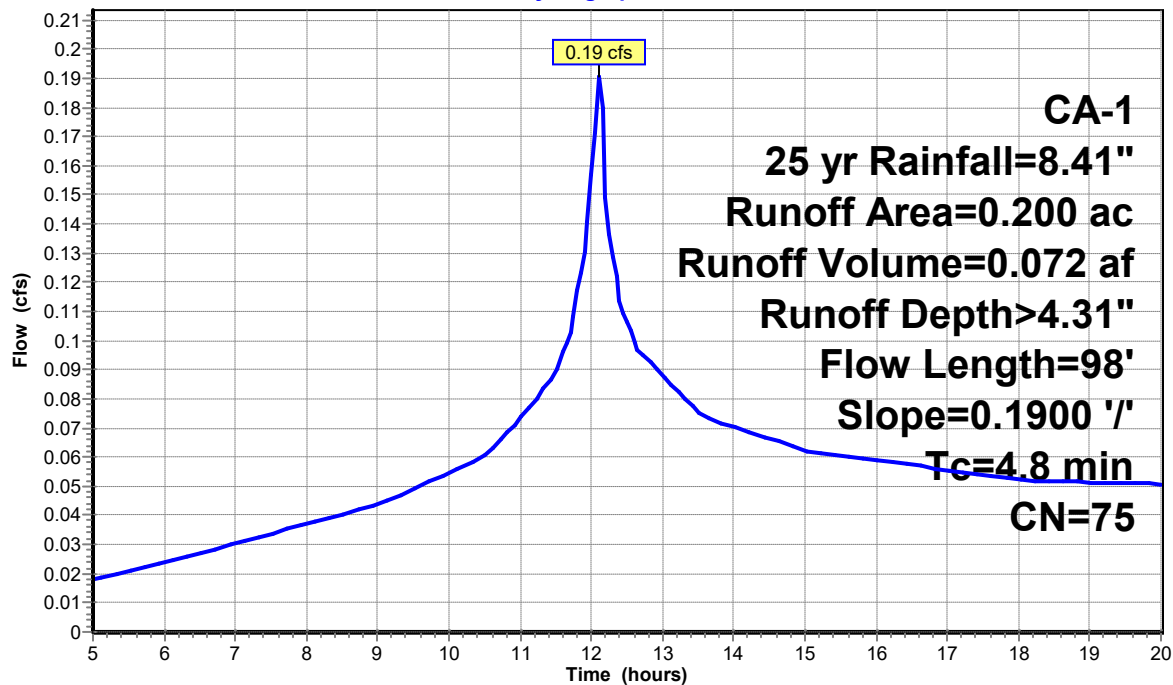
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
* 0.200	75	vineyard, good, HSG C
0.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	98	0.1900	0.34		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"

Subcatchment 5S: Pond below ditch

Hydrograph



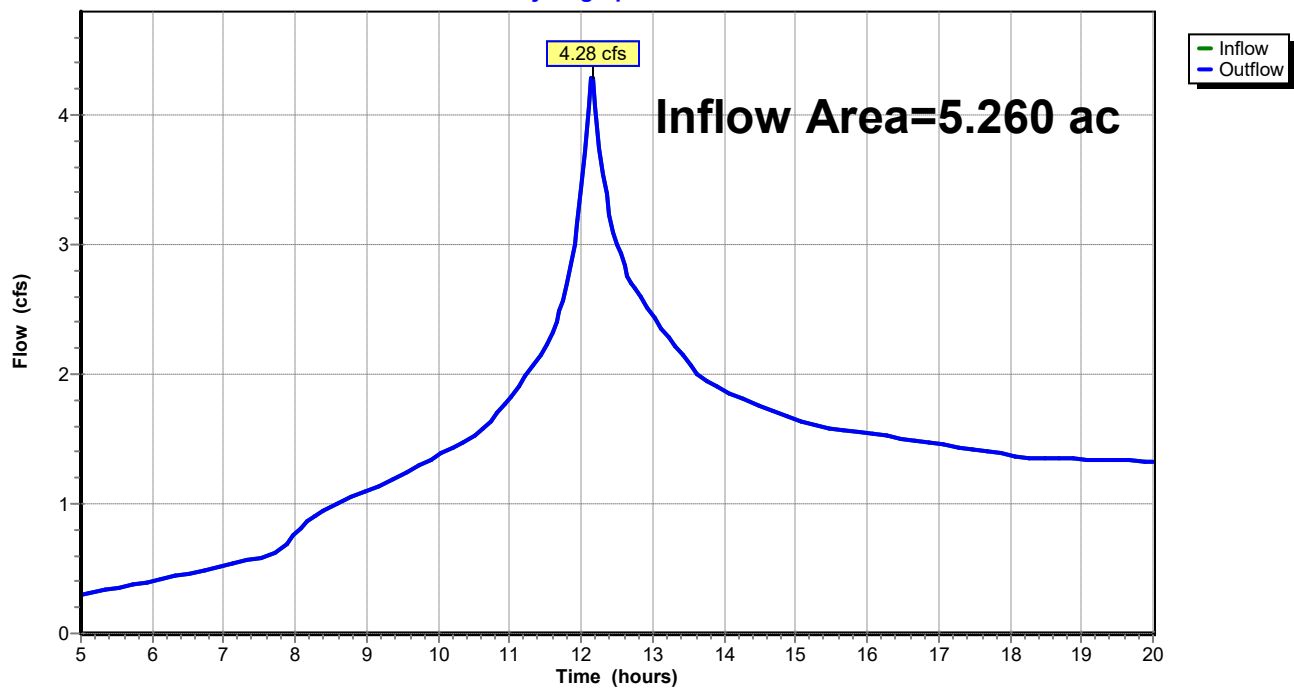
Summary for Reach 3R: POI

Inflow Area = 5.260 ac, 0.00% Impervious, Inflow Depth > 4.10" for 25 yr event
Inflow = 4.28 cfs @ 12.15 hrs, Volume= 1.797 af
Outflow = 4.28 cfs @ 12.15 hrs, Volume= 1.797 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: POI

Hydrograph



WS 3 postR1

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CA-1 25 yr Rainfall=8.41"

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Summary for Pond 4P: (new Pond)

Inflow Area = 1.600 ac, 0.00% Impervious, Inflow Depth > 4.30" for 25 yr event
 Inflow = 1.48 cfs @ 12.13 hrs, Volume= 0.574 af
 Outflow = 1.06 cfs @ 12.32 hrs, Volume= 0.514 af, Atten= 29%, Lag= 11.2 min
 Primary = 1.06 cfs @ 12.32 hrs, Volume= 0.514 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,671.97' @ 12.32 hrs Surf.Area= 1,623 sf Storage= 3,420 cf

Plug-Flow detention time= 89.6 min calculated for 0.512 af (89% of inflow)
 Center-of-Mass det. time= 47.7 min (836.8 - 789.1)

Volume	Invert	Avail.Storage	Storage Description
#1	1,669.00'	5,287 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,669.00	714	0	0
1,670.00	997	856	856
1,671.00	1,303	1,150	2,006
1,672.00	1,634	1,469	3,474
1,673.00	1,992	1,813	5,287

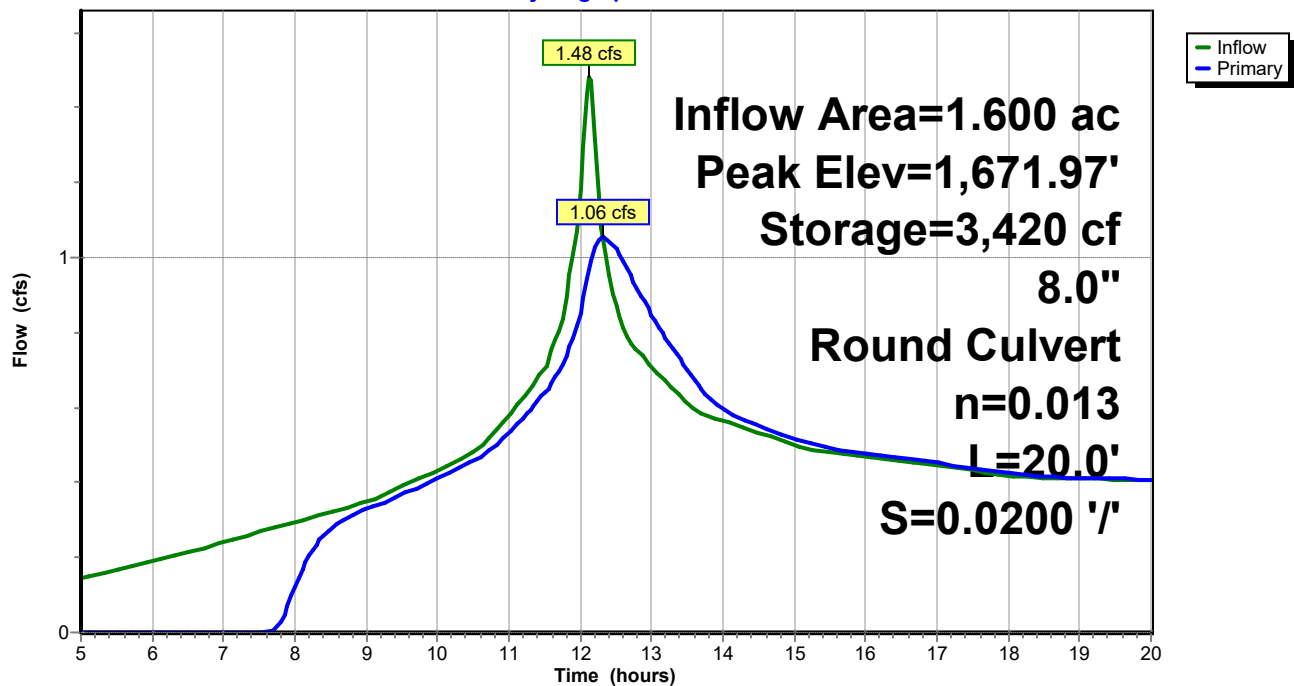
Device	Routing	Invert	Outlet Devices
#1	Primary	1,671.00'	8.0" Round Culvert L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,671.00' / 1,670.60' S= 0.0200 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=1.06 cfs @ 12.32 hrs HW=1,671.97' (Free Discharge)

↑ **1=Culvert** (Inlet Controls 1.06 cfs @ 3.02 fps)

Pond 4P: (new Pond)

Hydrograph



WS 3 postR1

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CA-1 50 yr Rainfall=9.60"

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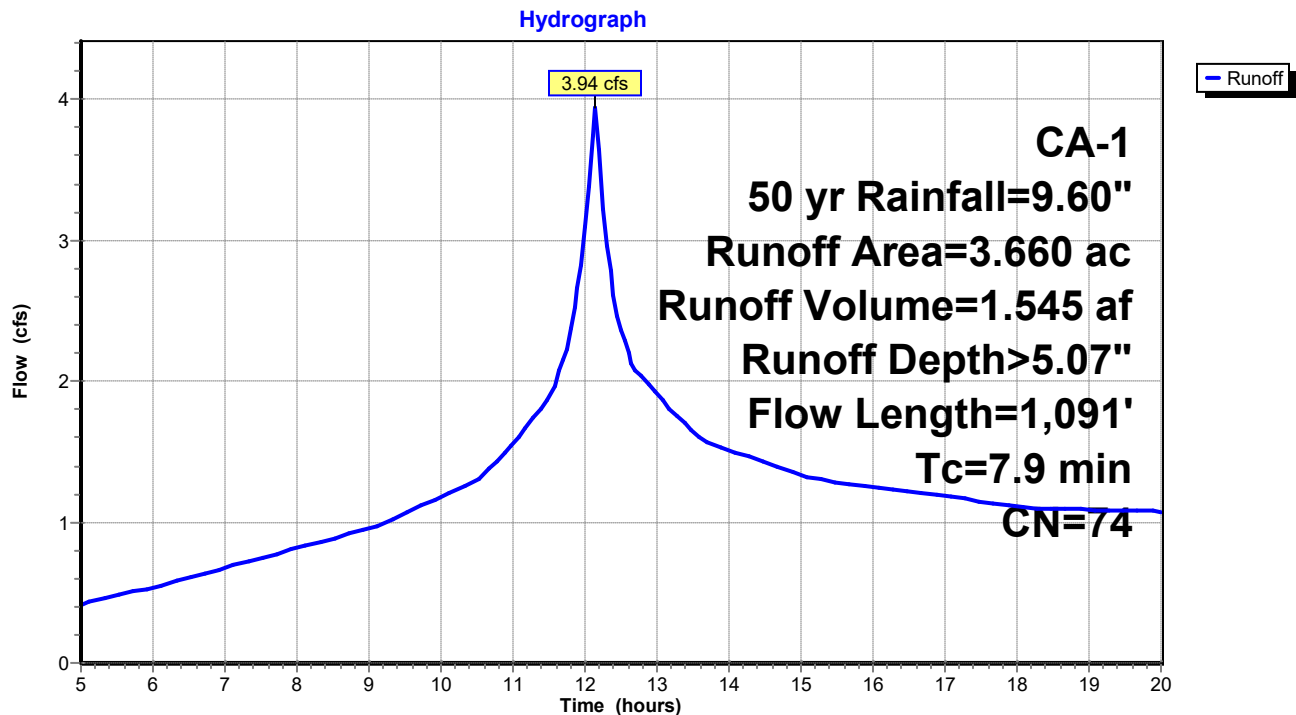
Summary for Subcatchment 1S: WS 3A post

Runoff = 3.94 cfs @ 12.15 hrs, Volume= 1.545 af, Depth> 5.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
* 1.950	75	Vineyard, Good, HSG C
0.150	74	Pasture/grassland/range, Good, HSG C
1.560	73	Woods, Fair, HSG C
3.660	74	Weighted Average
3.660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.1700	0.33		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.5	210	0.2100	7.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.3	781	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.9	1,091	Total			

Subcatchment 1S: WS 3A post

WS 3 postR1

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CA-1 50 yr Rainfall=9.60"

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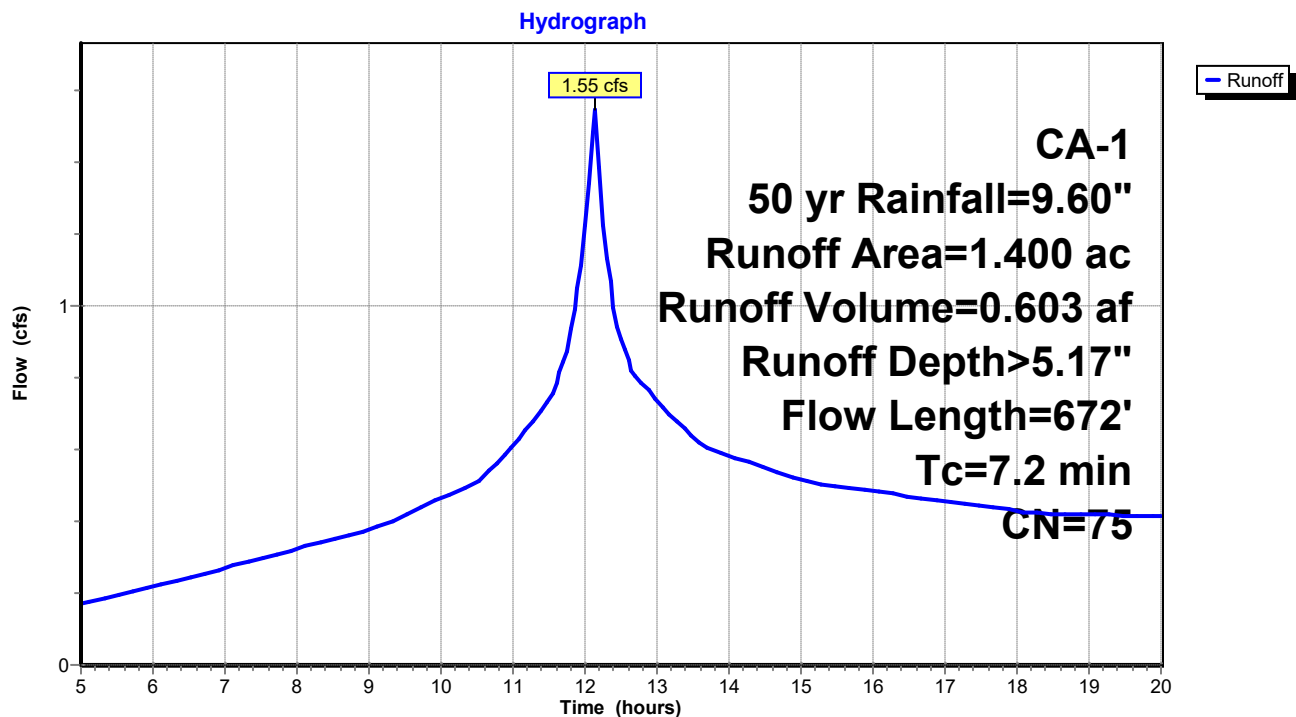
Summary for Subcatchment 2S: Pond above ditch

Runoff = 1.55 cfs @ 12.14 hrs, Volume= 0.603 af, Depth> 5.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
* 1.400	75	vineyard, good, HSG C
1.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.1400	0.30		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.9	337	0.1400	6.02		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.7	135	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	100	0.1800	19.25	15.12	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
7.2	672	Total			

Subcatchment 2S: Pond above ditch

WS 3 postR1

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 5S: Pond below ditch

Runoff = 0.23 cfs @ 12.11 hrs, Volume= 0.086 af, Depth> 5.17"

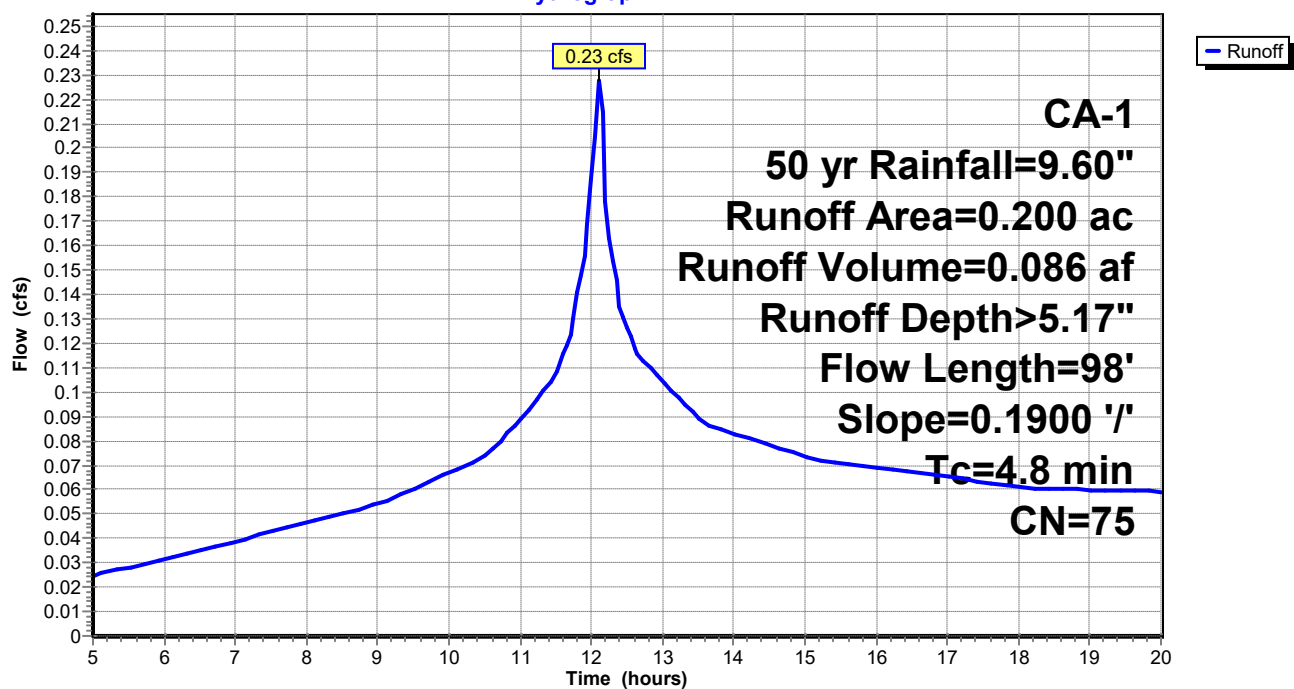
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
* 0.200	75	vineyard, good, HSG C
0.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	98	0.1900	0.34		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"

Subcatchment 5S: Pond below ditch

Hydrograph



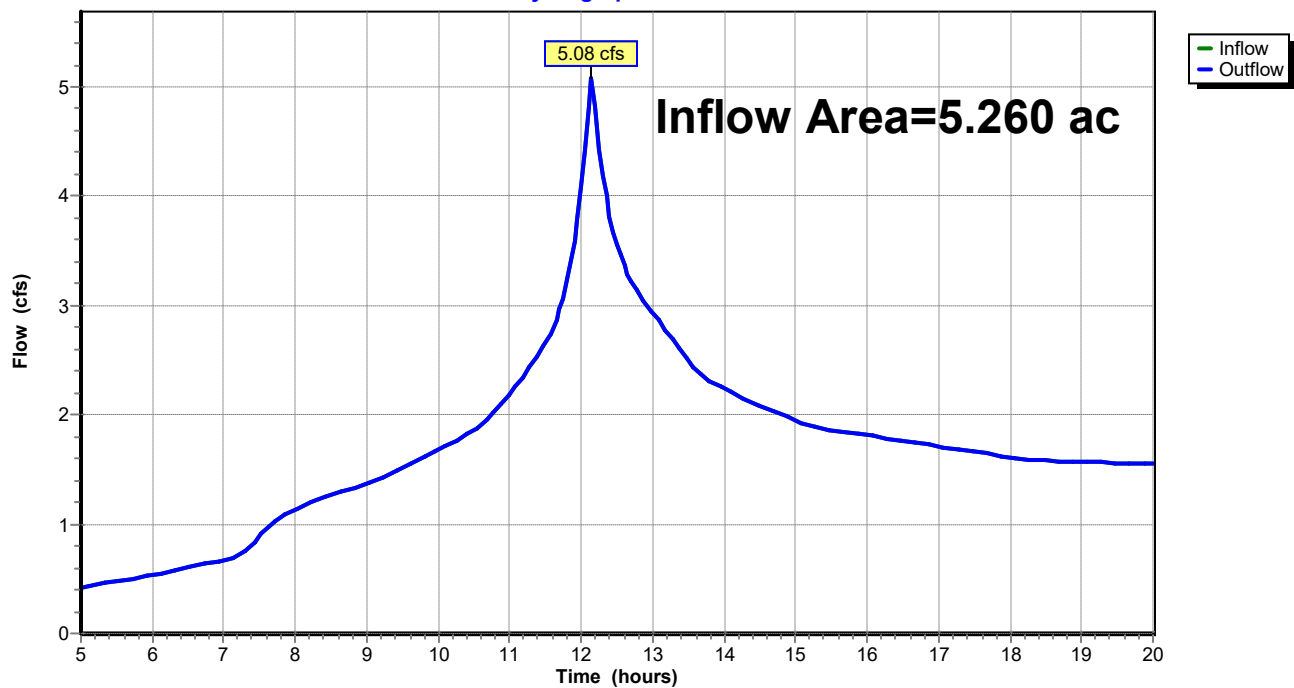
Summary for Reach 3R: POI

Inflow Area = 5.260 ac, 0.00% Impervious, Inflow Depth > 4.96" for 50 yr event
Inflow = 5.08 cfs @ 12.15 hrs, Volume= 2.173 af
Outflow = 5.08 cfs @ 12.15 hrs, Volume= 2.173 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: POI

Hydrograph



WS 3 postR1

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CA-1 50 yr Rainfall=9.60"

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Summary for Pond 4P: (new Pond)

Inflow Area = 1.600 ac, 0.00% Impervious, Inflow Depth > 5.17" for 50 yr event
 Inflow = 1.77 cfs @ 12.13 hrs, Volume= 0.689 af
 Outflow = 1.22 cfs @ 12.35 hrs, Volume= 0.628 af, Atten= 31%, Lag= 12.8 min
 Primary = 1.22 cfs @ 12.35 hrs, Volume= 0.628 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,672.17' @ 12.35 hrs Surf.Area= 1,697 sf Storage= 3,765 cf

Plug-Flow detention time= 79.0 min calculated for 0.626 af (91% of inflow)
 Center-of-Mass det. time= 42.5 min (825.6 - 783.0)

Volume	Invert	Avail.Storage	Storage Description
#1	1,669.00'	5,287 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,669.00	714	0	0
1,670.00	997	856	856
1,671.00	1,303	1,150	2,006
1,672.00	1,634	1,469	3,474
1,673.00	1,992	1,813	5,287

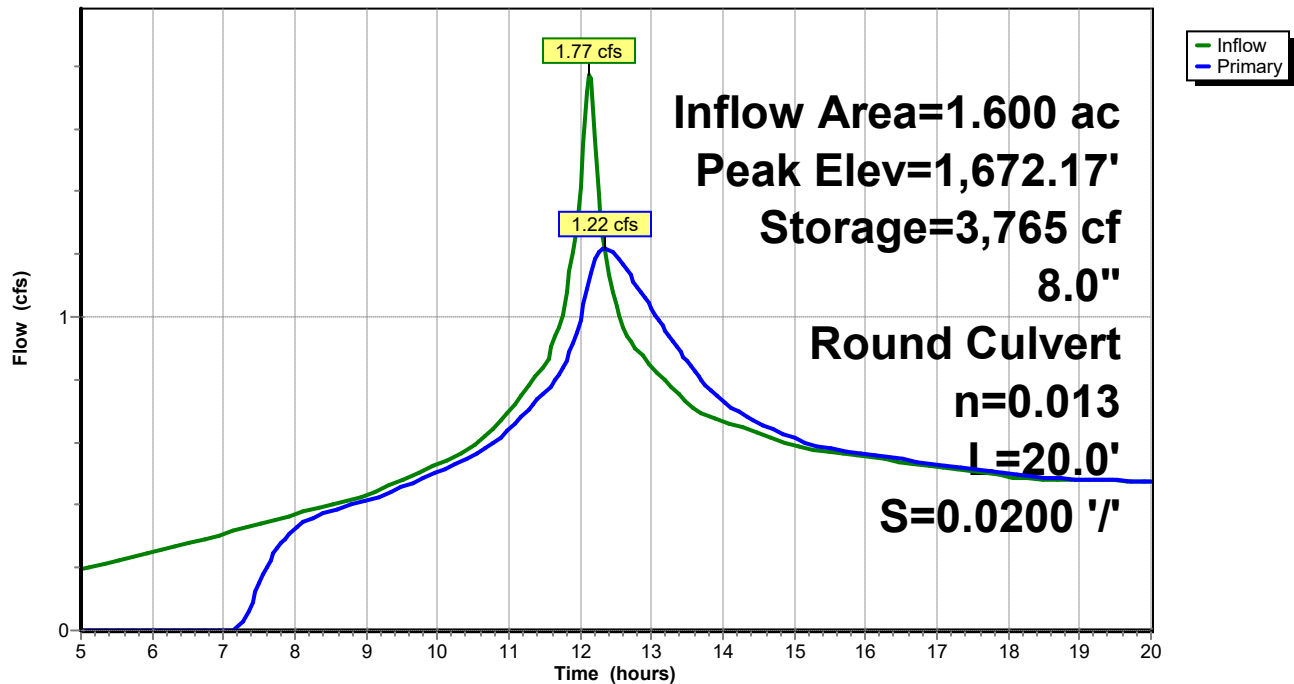
Device	Routing	Invert	Outlet Devices
#1	Primary	1,671.00'	8.0" Round Culvert L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,671.00' / 1,670.60' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=1.22 cfs @ 12.35 hrs HW=1,672.17' (Free Discharge)

↑ **1=Culvert** (Inlet Controls 1.22 cfs @ 3.49 fps)

Pond 4P: (new Pond)

Hydrograph



WS 3 postR1

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CA-1 100 yr Rainfall=10.90"

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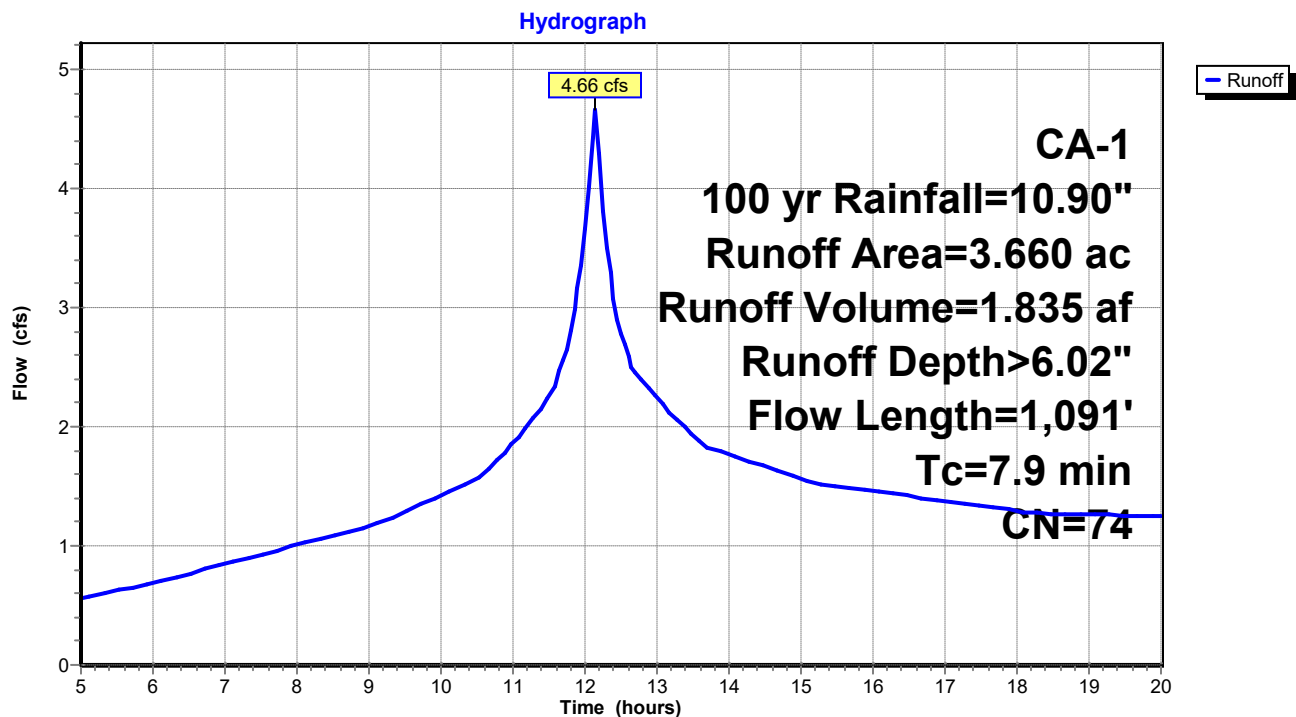
Summary for Subcatchment 1S: WS 3A post

Runoff = 4.66 cfs @ 12.14 hrs, Volume= 1.835 af, Depth> 6.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 100 yr Rainfall=10.90"

Area (ac)	CN	Description
* 1.950	75	Vineyard, Good, HSG C
0.150	74	Pasture/grassland/range, Good, HSG C
1.560	73	Woods, Fair, HSG C
3.660	74	Weighted Average
3.660		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.1700	0.33		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.5	210	0.2100	7.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.3	781	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.9	1,091	Total			

Subcatchment 1S: WS 3A post

WS 3 postR1

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CA-1 100 yr Rainfall=10.90"

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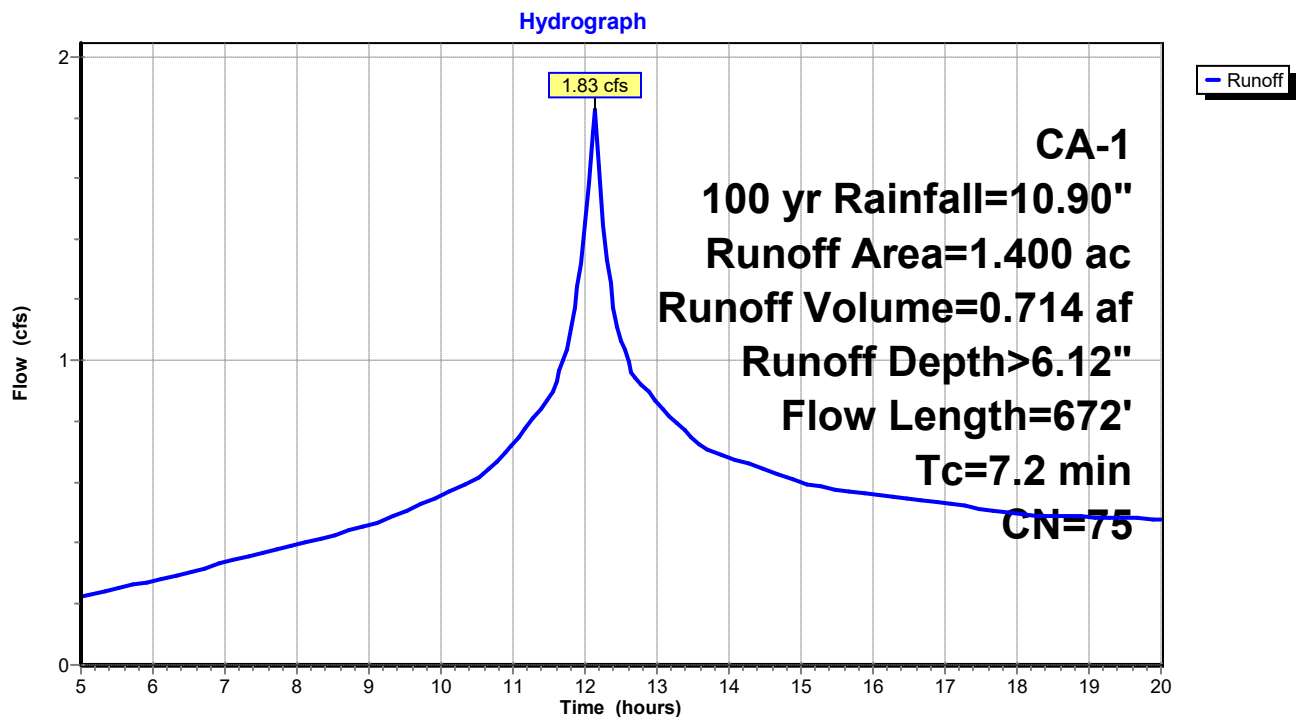
Summary for Subcatchment 2S: Pond above ditch

Runoff = 1.83 cfs @ 12.14 hrs, Volume= 0.714 af, Depth> 6.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 100 yr Rainfall=10.90"

Area (ac)	CN	Description
* 1.400	75	vineyard, good, HSG C
1.400		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.1400	0.30		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.9	337	0.1400	6.02		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.7	135	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.1	100	0.1800	19.25	15.12	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
7.2	672	Total			

Subcatchment 2S: Pond above ditch

WS 3 postR1

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CA-1 100 yr Rainfall=10.90"

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Summary for Subcatchment 5S: Pond below ditch

Runoff = 0.27 cfs @ 12.11 hrs, Volume= 0.102 af, Depth> 6.13"

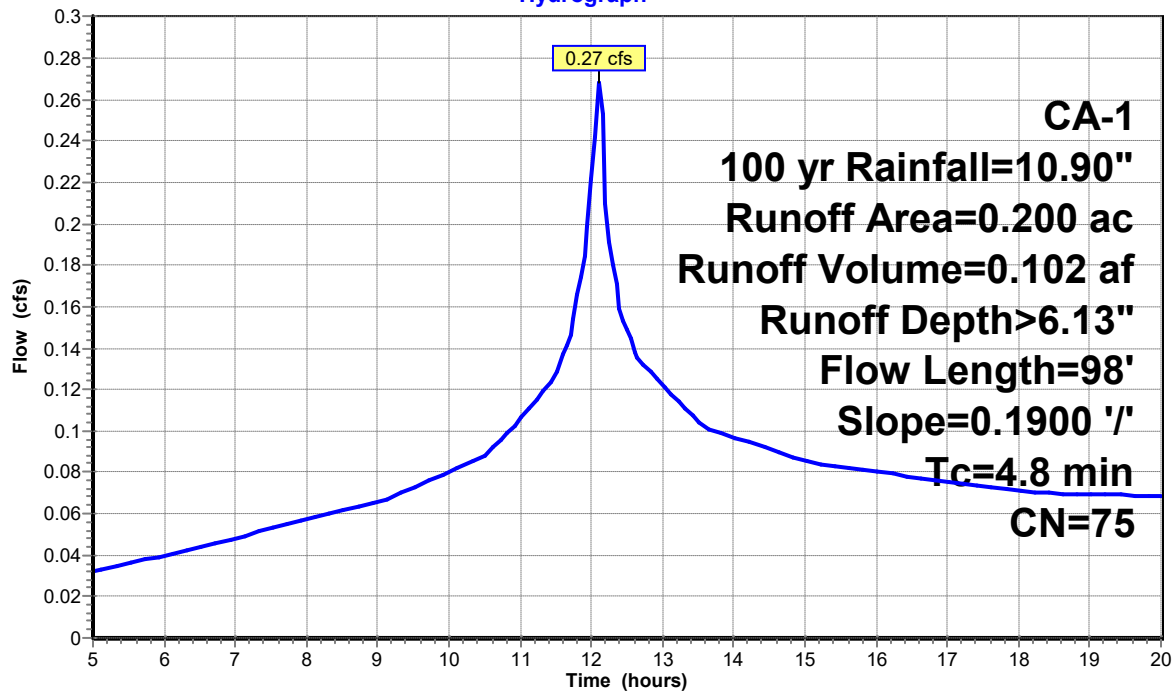
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 100 yr Rainfall=10.90"

Area (ac)	CN	Description
* 0.200	75	vineyard, good, HSG C
0.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	98	0.1900	0.34		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"

Subcatchment 5S: Pond below ditch

Hydrograph



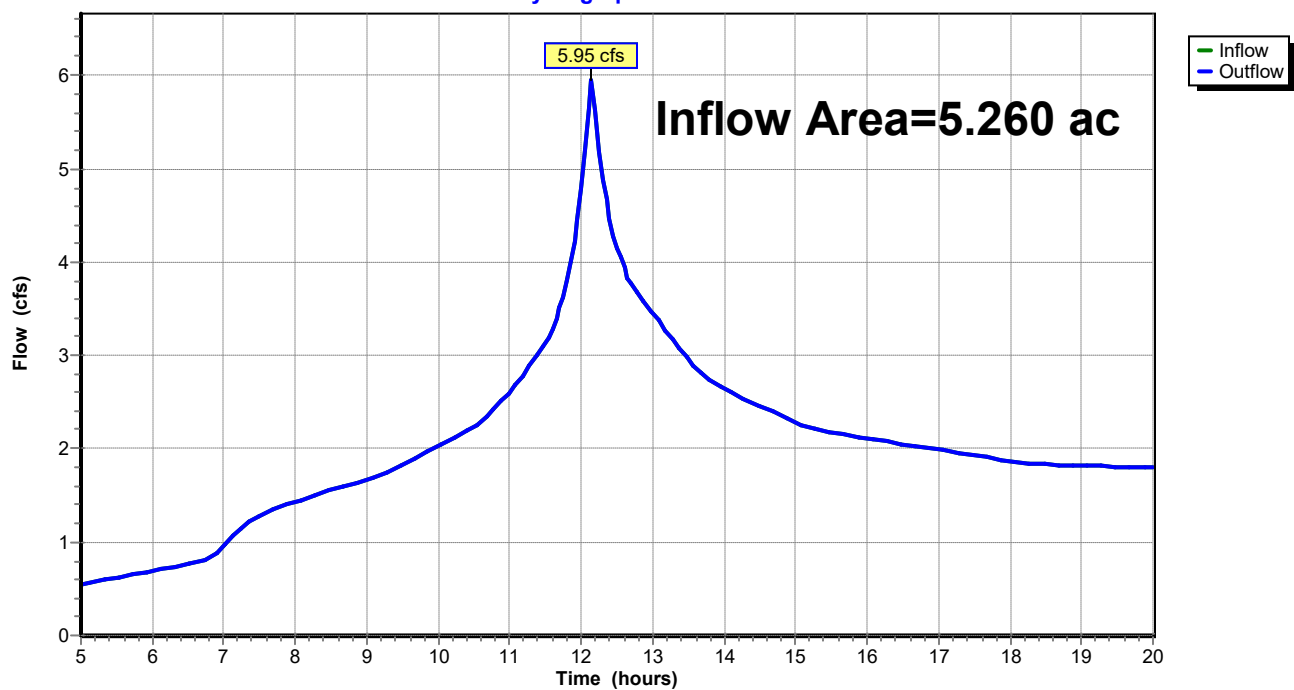
Summary for Reach 3R: POI

Inflow Area = 5.260 ac, 0.00% Impervious, Inflow Depth > 5.91" for 100 yr event
Inflow = 5.95 cfs @ 12.15 hrs, Volume= 2.589 af
Outflow = 5.95 cfs @ 12.15 hrs, Volume= 2.589 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: POI

Hydrograph



WS 3 postR1

CA-1 100 yr Rainfall=10.90"

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Summary for Pond 4P: (new Pond)

Inflow Area = 1.600 ac, 0.00% Impervious, Inflow Depth > 6.12" for 100 yr event
 Inflow = 2.09 cfs @ 12.13 hrs, Volume= 0.816 af
 Outflow = 1.38 cfs @ 12.37 hrs, Volume= 0.754 af, Atten= 34%, Lag= 14.3 min
 Primary = 1.38 cfs @ 12.37 hrs, Volume= 0.754 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,672.42' @ 12.37 hrs Surf.Area= 1,785 sf Storage= 4,196 cf

Plug-Flow detention time= 70.8 min calculated for 0.753 af (92% of inflow)
 Center-of-Mass det. time= 38.7 min (816.5 - 777.9)

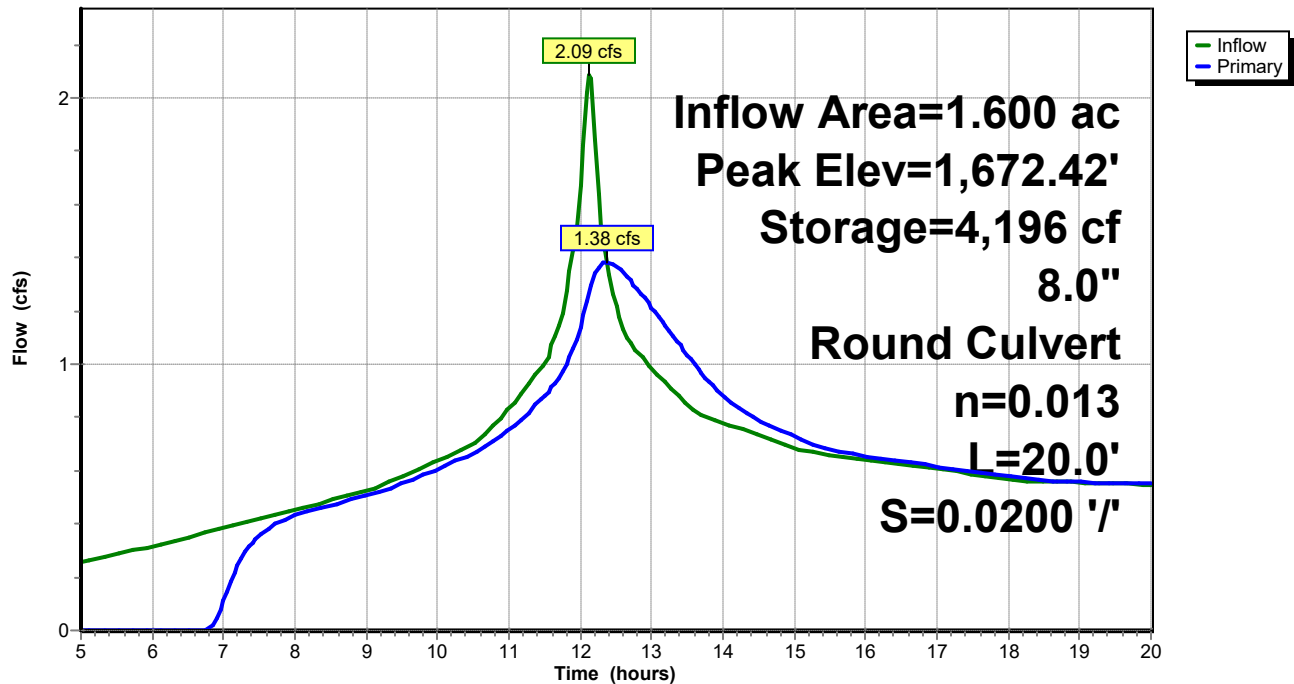
Volume	Invert	Avail.Storage	Storage Description
#1	1,669.00'	5,287 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

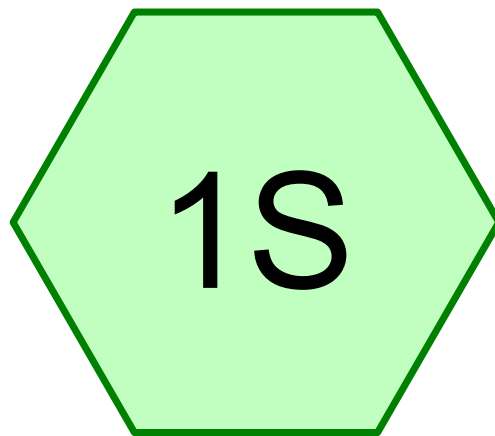
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,669.00	714	0	0
1,670.00	997	856	856
1,671.00	1,303	1,150	2,006
1,672.00	1,634	1,469	3,474
1,673.00	1,992	1,813	5,287

Device	Routing	Invert	Outlet Devices
#1	Primary	1,671.00'	8.0" Round Culvert L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,671.00' / 1,670.60' S= 0.0200 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf

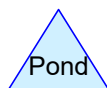
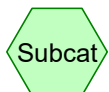
Primary OutFlow Max=1.38 cfs @ 12.37 hrs HW=1,672.42' (Free Discharge)

↑ **1=Culvert** (Inlet Controls 1.38 cfs @ 3.96 fps)

Pond 4P: (new Pond)**Hydrograph**



WS 3 pre



Routing Diagram for WS 3 preR1

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WS 3 preR1

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CA-1 2 yr Rainfall=4.50"

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Summary for Subcatchment 1S: WS 3 pre

Runoff = 1.75 cfs @ 12.15 hrs, Volume= 0.669 af, Depth> 1.53"

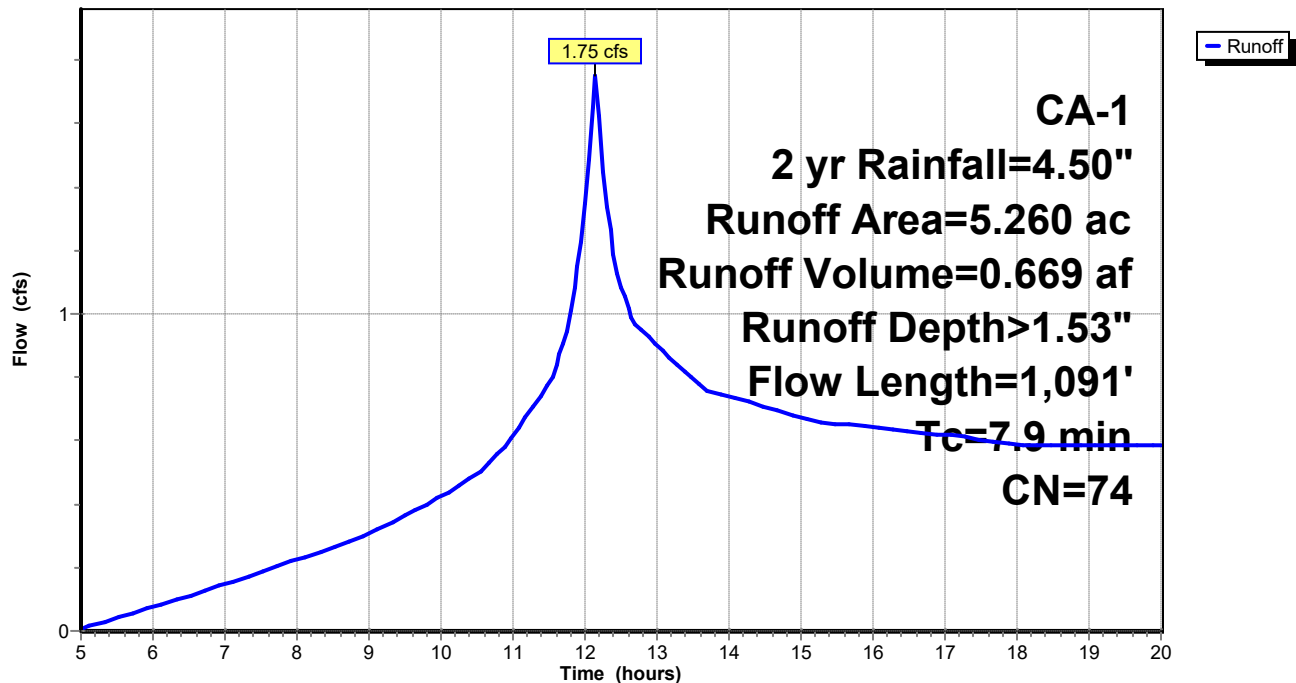
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
3.440	74	Pasture/grassland/range, Good, HSG C
* 0.260	75	Brush, Good, HSG C
1.560	73	Woods, Fair, HSG C
5.260	74	Weighted Average
5.260		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.1700	0.33		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.5	210	0.2100	7.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.3	781	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.9	1,091	Total			

Subcatchment 1S: WS 3 pre

Hydrograph



WS 3 preR1

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CA-1 5 yr Rainfall=5.79"

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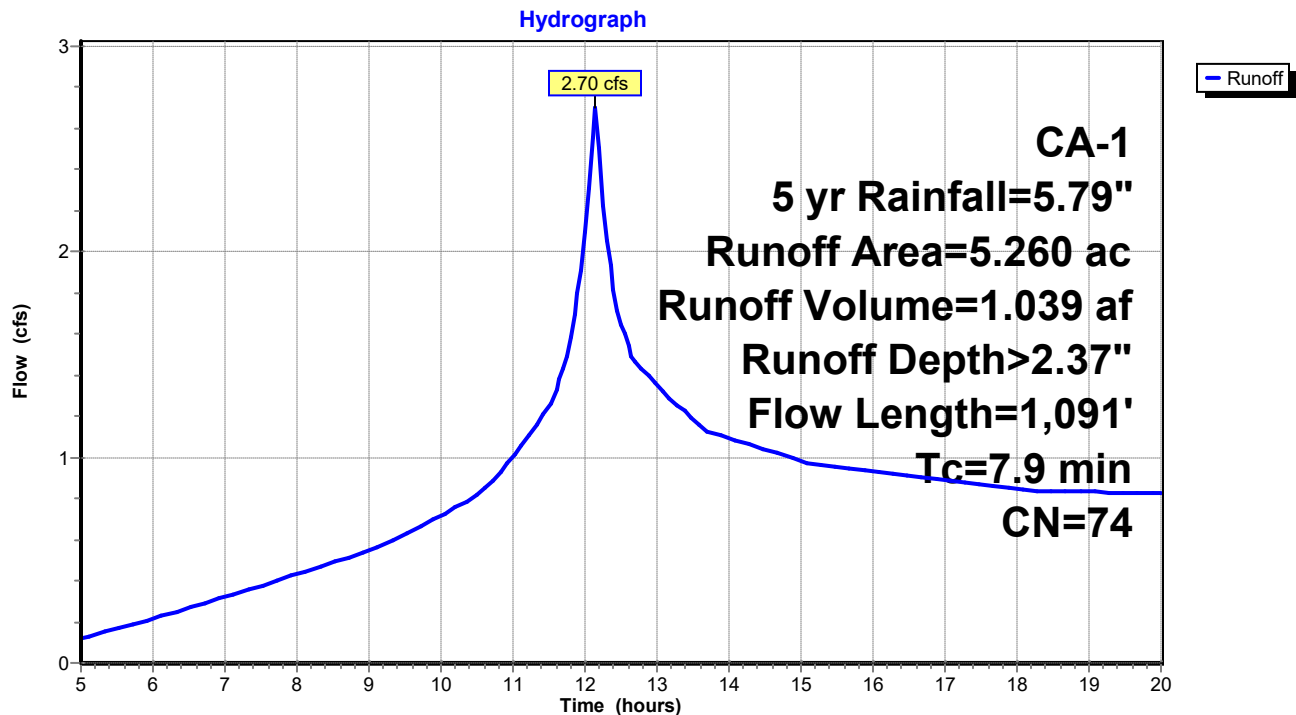
Summary for Subcatchment 1S: WS 3 pre

Runoff = 2.70 cfs @ 12.15 hrs, Volume= 1.039 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
3.440	74	Pasture/grassland/range, Good, HSG C
* 0.260	75	Brush, Good, HSG C
1.560	73	Woods, Fair, HSG C
5.260	74	Weighted Average
5.260		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.1700	0.33		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.5	210	0.2100	7.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.3	781	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.9	1,091	Total			

Subcatchment 1S: WS 3 pre

WS 3 preR1

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CA-1 10 yr Rainfall=6.84"

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Summary for Subcatchment 1S: WS 3 pre

Runoff = 3.50 cfs @ 12.15 hrs, Volume= 1.355 af, Depth> 3.09"

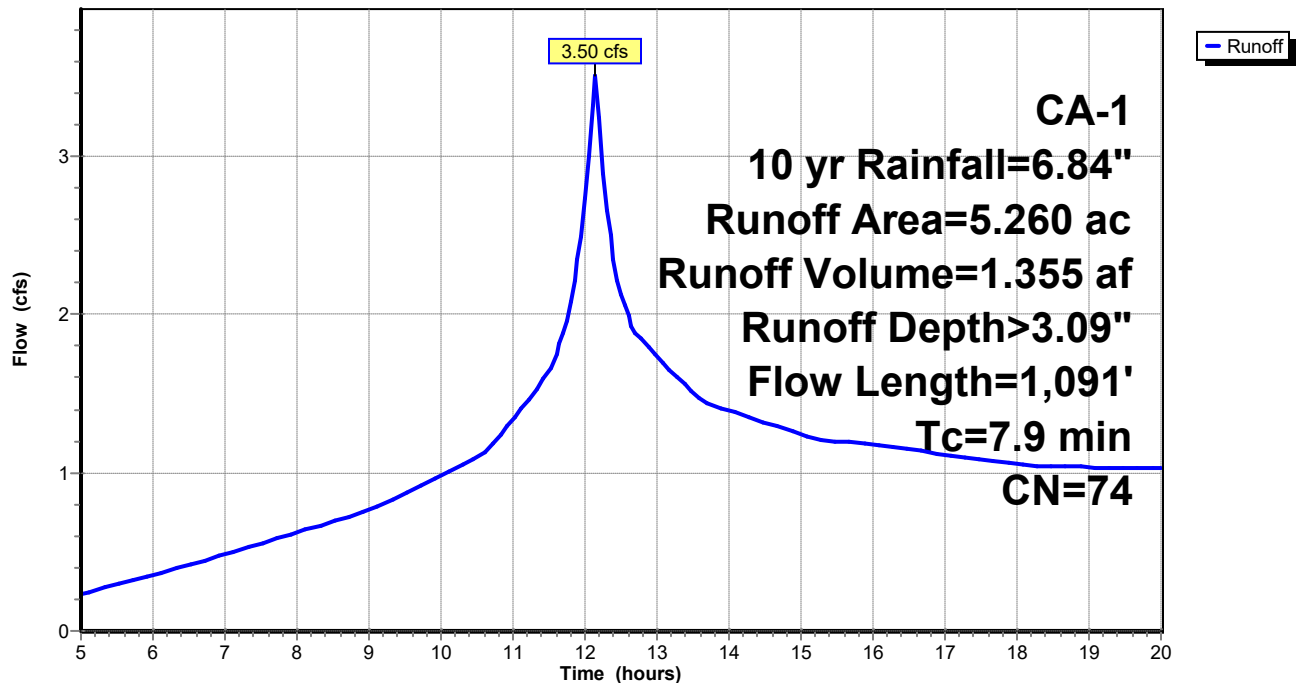
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
3.440	74	Pasture/grassland/range, Good, HSG C
* 0.260	75	Brush, Good, HSG C
1.560	73	Woods, Fair, HSG C
5.260	74	Weighted Average
5.260		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.1700	0.33		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.5	210	0.2100	7.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.3	781	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.9	1,091	Total			

Subcatchment 1S: WS 3 pre

Hydrograph



WS 3 preR1

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CA-1 25 yr Rainfall=8.41"

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Summary for Subcatchment 1S: WS 3 pre

Runoff = 4.73 cfs @ 12.15 hrs, Volume= 1.843 af, Depth> 4.21"

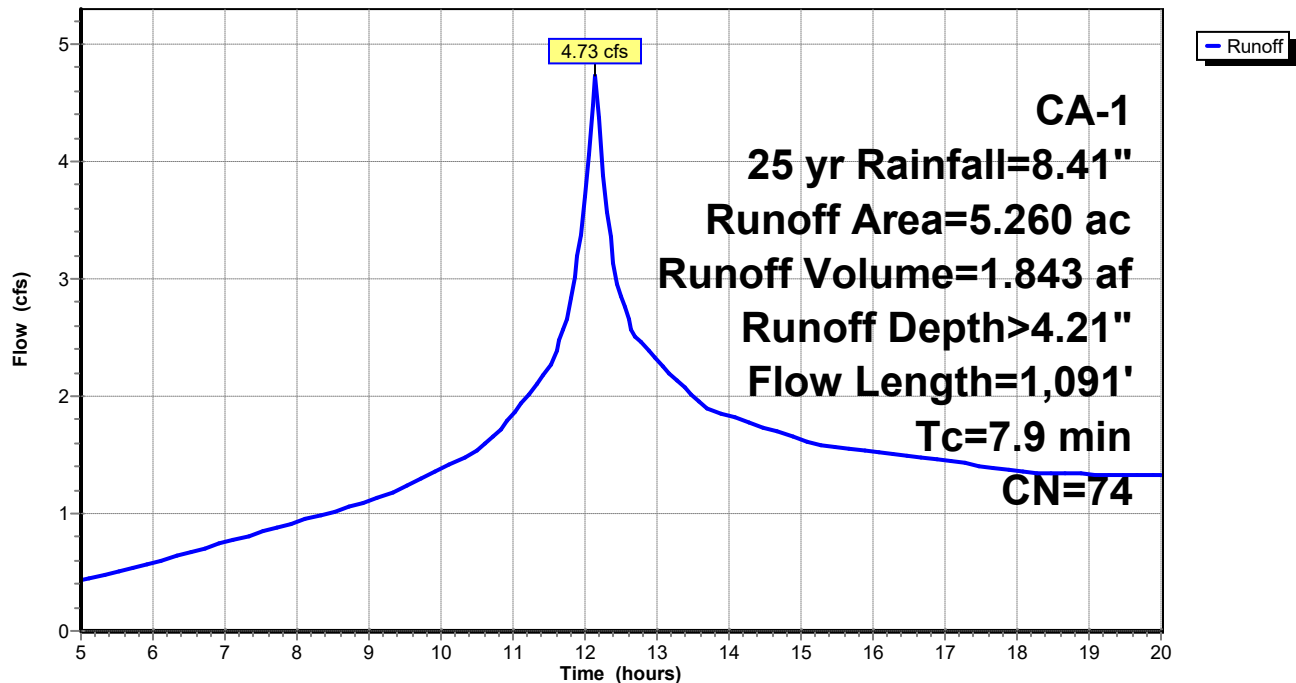
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
3.440	74	Pasture/grassland/range, Good, HSG C
* 0.260	75	Brush, Good, HSG C
1.560	73	Woods, Fair, HSG C
5.260	74	Weighted Average
5.260		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.1700	0.33		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.5	210	0.2100	7.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.3	781	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.9	1,091	Total			

Subcatchment 1S: WS 3 pre

Hydrograph



WS 3 preR1

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 1S: WS 3 pre

Runoff = 5.67 cfs @ 12.15 hrs, Volume= 2.221 af, Depth> 5.07"

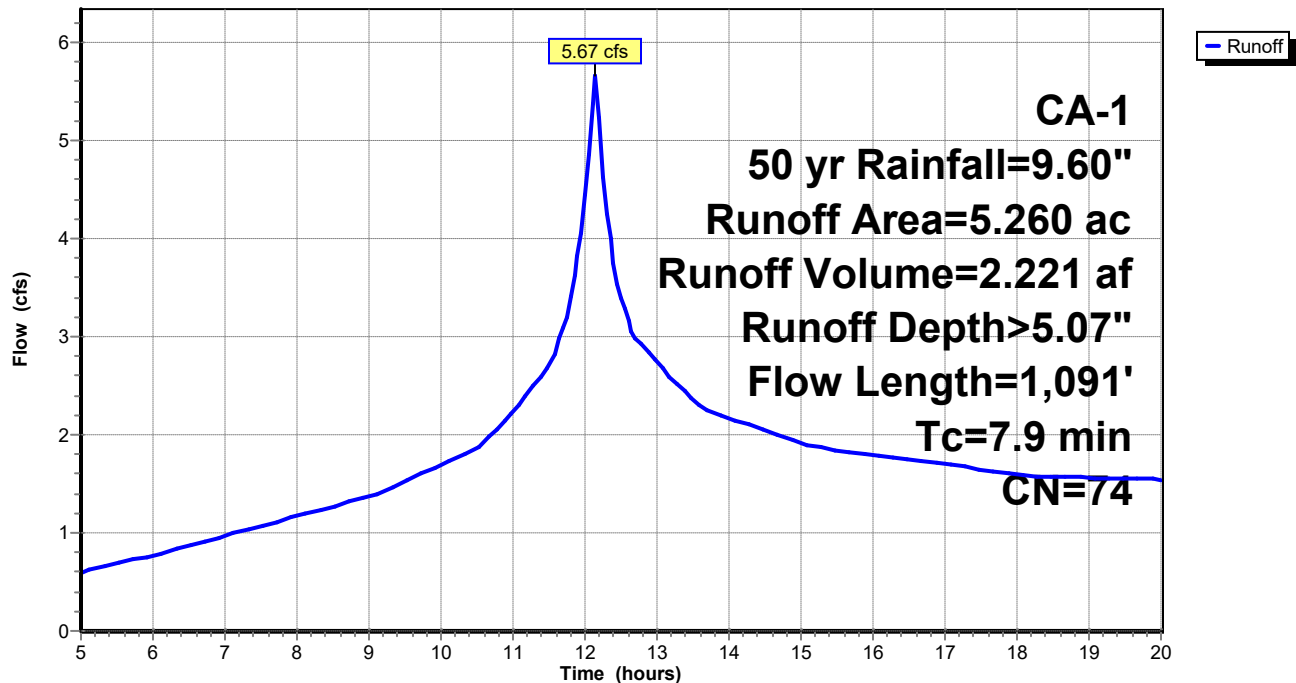
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
3.440	74	Pasture/grassland/range, Good, HSG C
* 0.260	75	Brush, Good, HSG C
1.560	73	Woods, Fair, HSG C
5.260	74	Weighted Average
5.260		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.1700	0.33		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.5	210	0.2100	7.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.3	781	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.9	1,091	Total			

Subcatchment 1S: WS 3 pre

Hydrograph



WS 3 preR1

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CA-1 100 yr Rainfall=10.90"

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Summary for Subcatchment 1S: WS 3 pre

Runoff = 6.69 cfs @ 12.14 hrs, Volume= 2.637 af, Depth> 6.02"

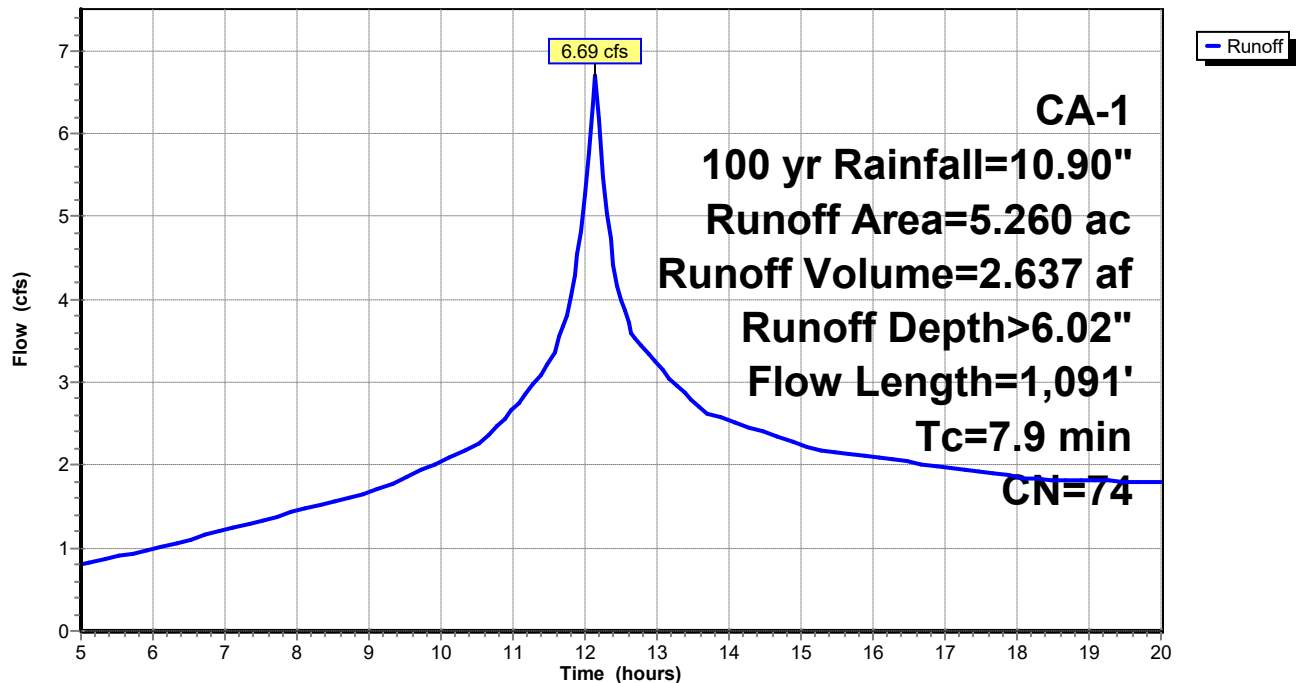
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 100 yr Rainfall=10.90"

Area (ac)	CN	Description
3.440	74	Pasture/grassland/range, Good, HSG C
* 0.260	75	Brush, Good, HSG C
1.560	73	Woods, Fair, HSG C
5.260	74	Weighted Average
5.260		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	100	0.1700	0.33		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.5	210	0.2100	7.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.3	781	0.1200	5.58		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.9	1,091	Total			

Subcatchment 1S: WS 3 pre

Hydrograph

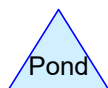
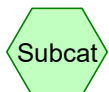




WS 4 post



WS 4 post



Routing Diagram for WS 4 postR1

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WS 4 postR1

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CA-1 2 yr Rainfall=4.50"

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Summary for Subcatchment 1S: WS 4 post

Runoff = 10.19 cfs @ 12.19 hrs, Volume= 4.061 af, Depth> 1.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.220	89	Gravel roads, HSG C
0.150	87	Dirt roads, HSG C
* 4.010	75	Vineyard, Good, HSG C
7.980	74	Pasture/grassland/range, Good, HSG C
19.450	73	Woods, Fair, HSG C
32.050	74	Weighted Average
31.810		99.25% Pervious Area
0.240		0.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.0	20	0.1800	13.11	23.17	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.5	1,000	0.1700	11.04	99.40	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
11.2	2,627	Total			

WS 4 postR1

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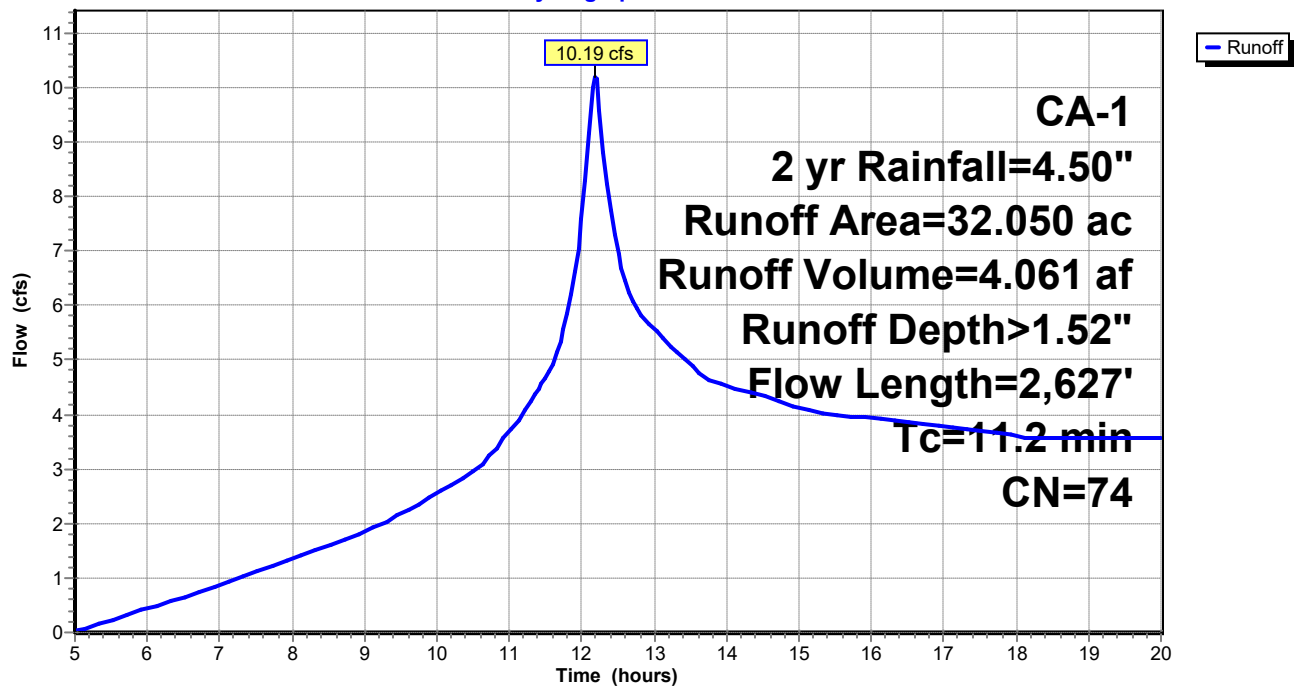
CA-1 2 yr Rainfall=4.50"

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Subcatchment 1S: WS 4 post

Hydrograph



WS 4 postR1

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CA-1 2 yr Rainfall=4.50"

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Summary for Subcatchment 2S: WS 4 post

Runoff = 4.26 cfs @ 12.17 hrs, Volume= 1.669 af, Depth> 1.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.150	87	Dirt roads, HSG C
* 2.540	75	Vineyard, Good, HSG C
3.910	74	Pasture/grassland/range, Good, HSG C
6.310	73	Woods, Fair, HSG C
13.150	74	Weighted Average
12.910		98.17% Pervious Area
0.240		1.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
9.7	1,607	Total			

WS 4 postR1

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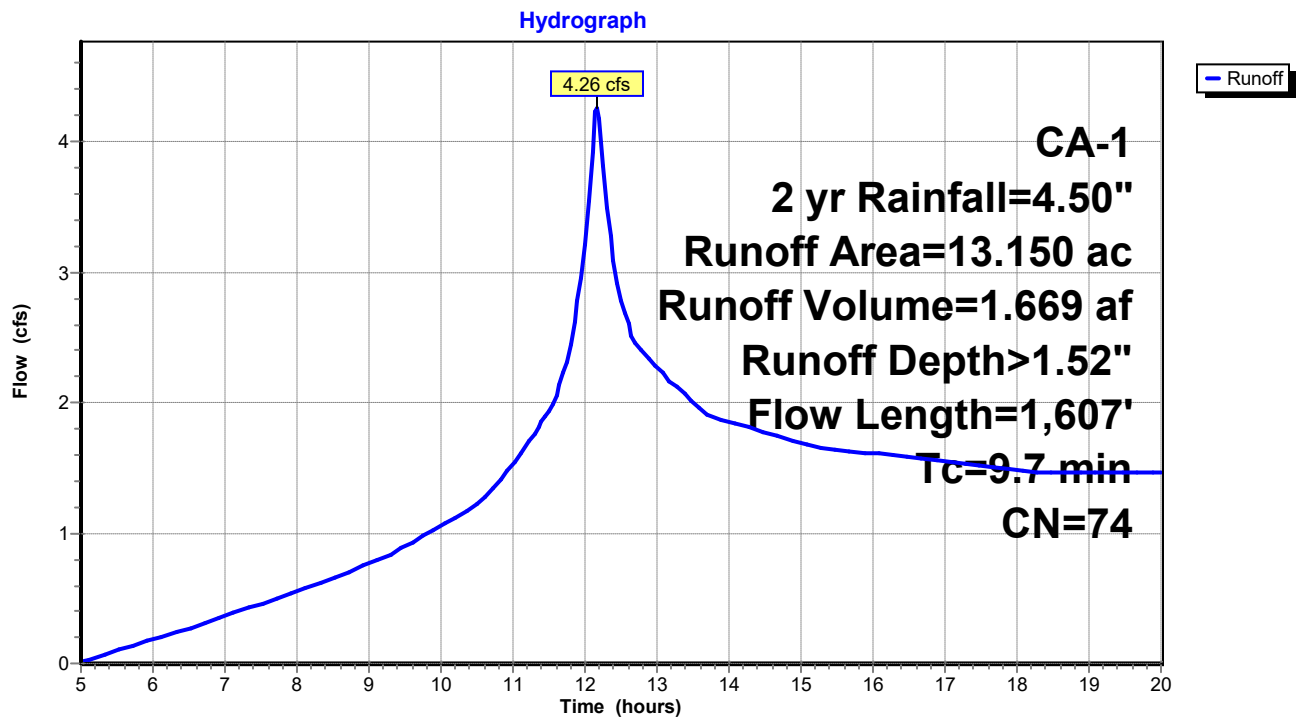
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CA-1 2 yr Rainfall=4.50"

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Subcatchment 2S: WS 4 post



WS 4 postR1

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CA-1 5 yr Rainfall=5.79"

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Summary for Subcatchment 1S: WS 4 post

Runoff = 15.69 cfs @ 12.19 hrs, Volume= 6.312 af, Depth> 2.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.220	89	Gravel roads, HSG C
0.150	87	Dirt roads, HSG C
* 4.010	75	Vineyard, Good, HSG C
7.980	74	Pasture/grassland/range, Good, HSG C
19.450	73	Woods, Fair, HSG C
32.050	74	Weighted Average
31.810		99.25% Pervious Area
0.240		0.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.0	20	0.1800	13.11	23.17	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.5	1,000	0.1700	11.04	99.40	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
11.2	2,627	Total			

WS 4 postR1

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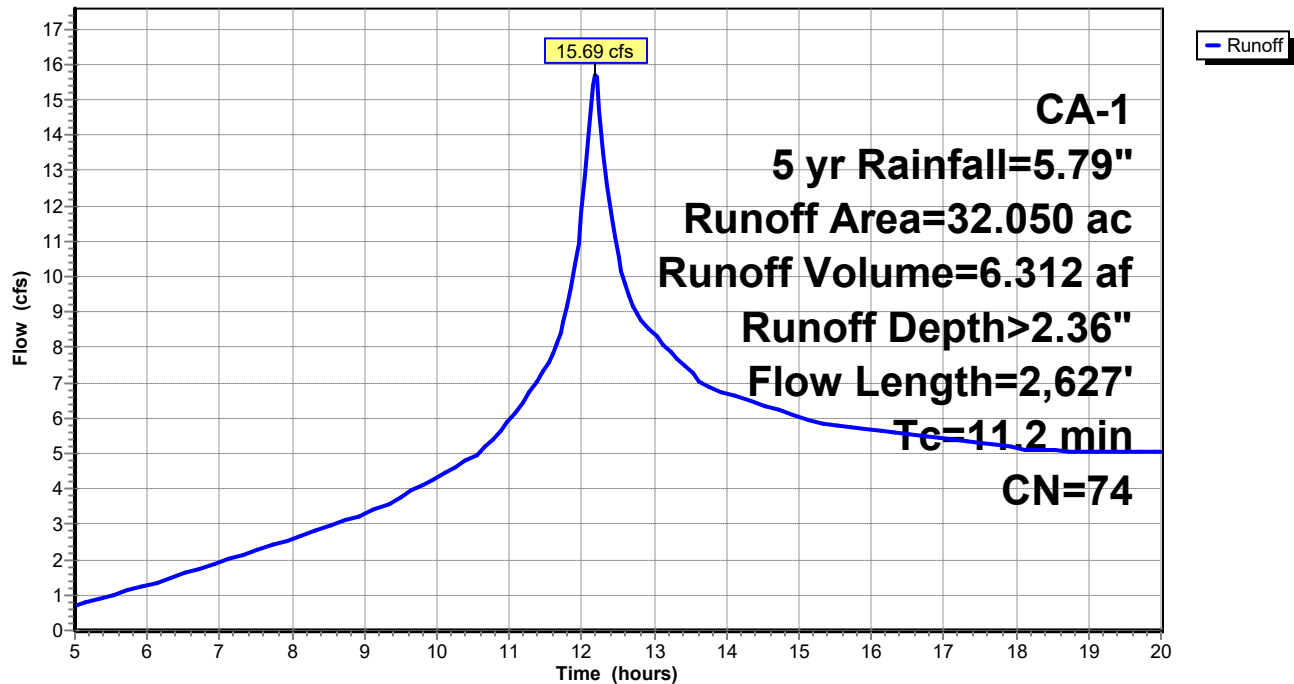
CA-1 5 yr Rainfall=5.79"

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Subcatchment 1S: WS 4 post

Hydrograph



WS 4 postR1

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CA-1 5 yr Rainfall=5.79"

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Summary for Subcatchment 2S: WS 4 post

Runoff = 6.56 cfs @ 12.17 hrs, Volume= 2.593 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.150	87	Dirt roads, HSG C
* 2.540	75	Vineyard, Good, HSG C
3.910	74	Pasture/grassland/range, Good, HSG C
6.310	73	Woods, Fair, HSG C
13.150	74	Weighted Average
12.910		98.17% Pervious Area
0.240		1.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
9.7	1,607	Total			

WS 4 postR1

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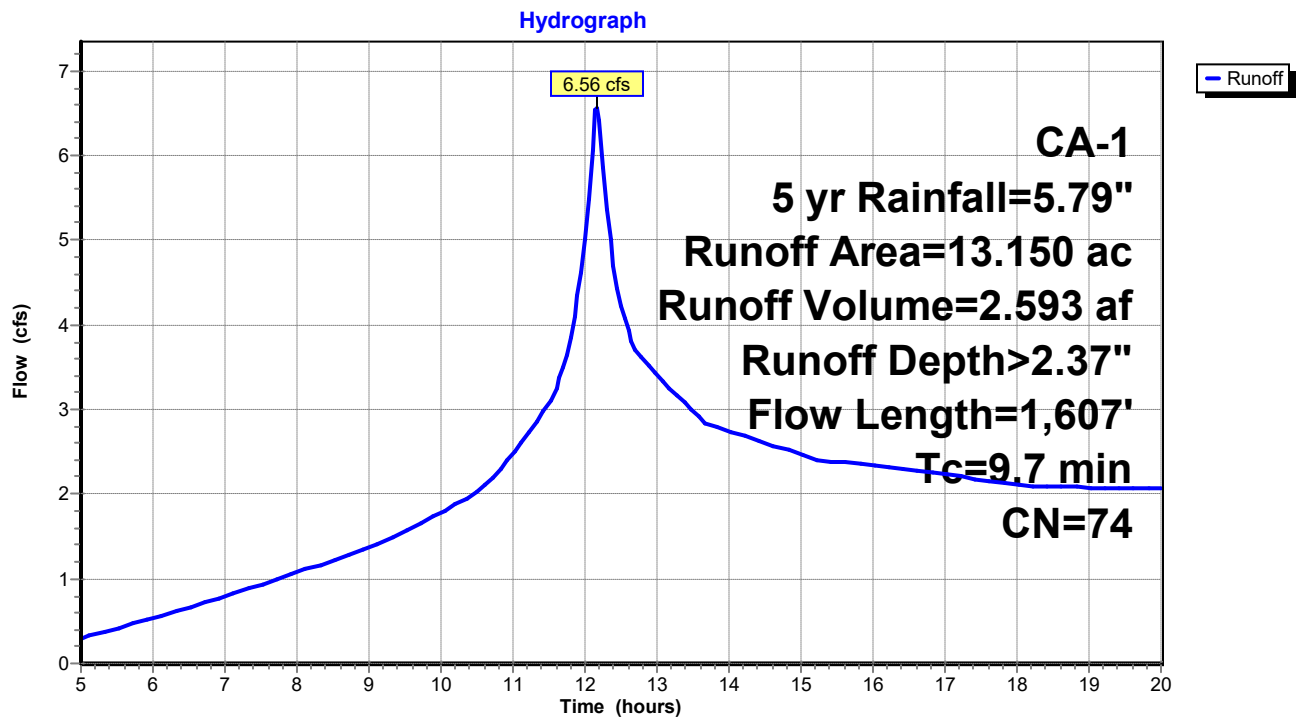
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CA-1 5 yr Rainfall=5.79"

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Subcatchment 2S: WS 4 post



WS 4 postR1

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CA-1 10 yr Rainfall=6.84"

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Summary for Subcatchment 1S: WS 4 post

Runoff = 20.36 cfs @ 12.18 hrs, Volume= 8.238 af, Depth> 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.220	89	Gravel roads, HSG C
0.150	87	Dirt roads, HSG C
* 4.010	75	Vineyard, Good, HSG C
7.980	74	Pasture/grassland/range, Good, HSG C
19.450	73	Woods, Fair, HSG C
32.050	74	Weighted Average
31.810		99.25% Pervious Area
0.240		0.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.0	20	0.1800	13.11	23.17	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.5	1,000	0.1700	11.04	99.40	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
11.2	2,627	Total			

WS 4 postR1

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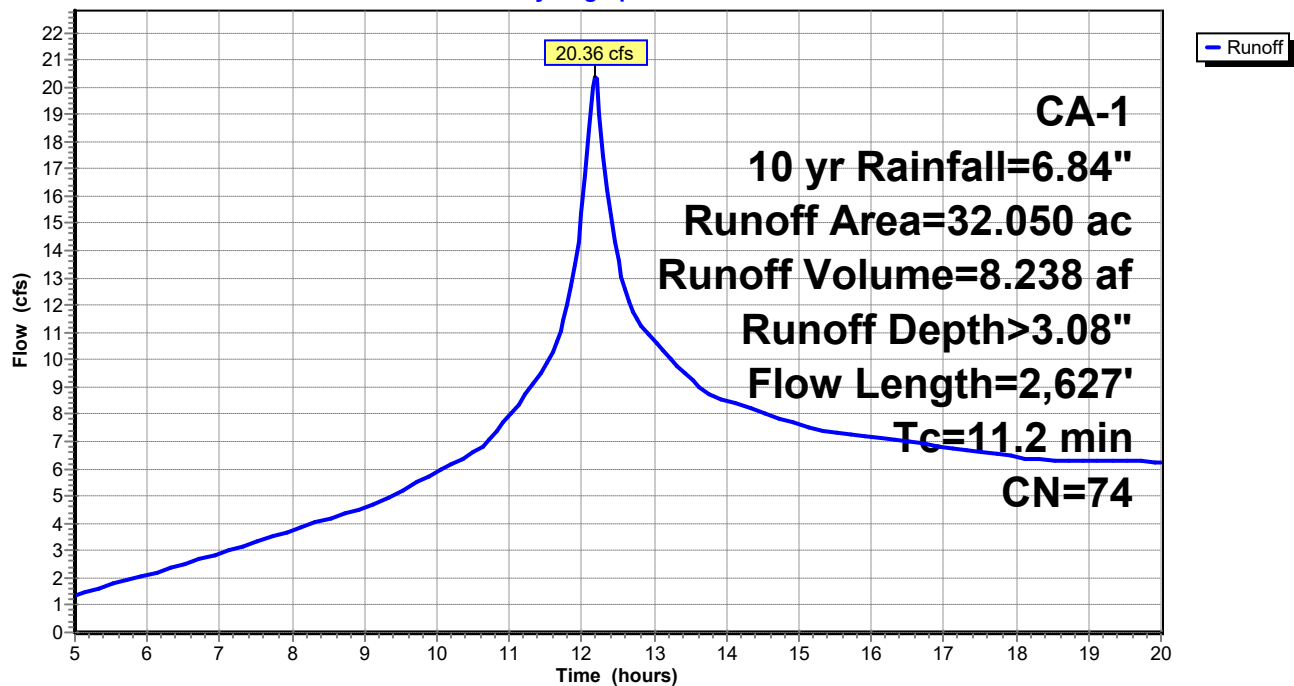
CA-1 10 yr Rainfall=6.84"

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Subcatchment 1S: WS 4 post

Hydrograph



WS 4 postR1

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CA-1 10 yr Rainfall=6.84"

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Summary for Subcatchment 2S: WS 4 post

Runoff = 8.51 cfs @ 12.16 hrs, Volume= 3.384 af, Depth> 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.150	87	Dirt roads, HSG C
* 2.540	75	Vineyard, Good, HSG C
3.910	74	Pasture/grassland/range, Good, HSG C
6.310	73	Woods, Fair, HSG C
13.150	74	Weighted Average
12.910		98.17% Pervious Area
0.240		1.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
9.7	1,607	Total			

WS 4 postR1

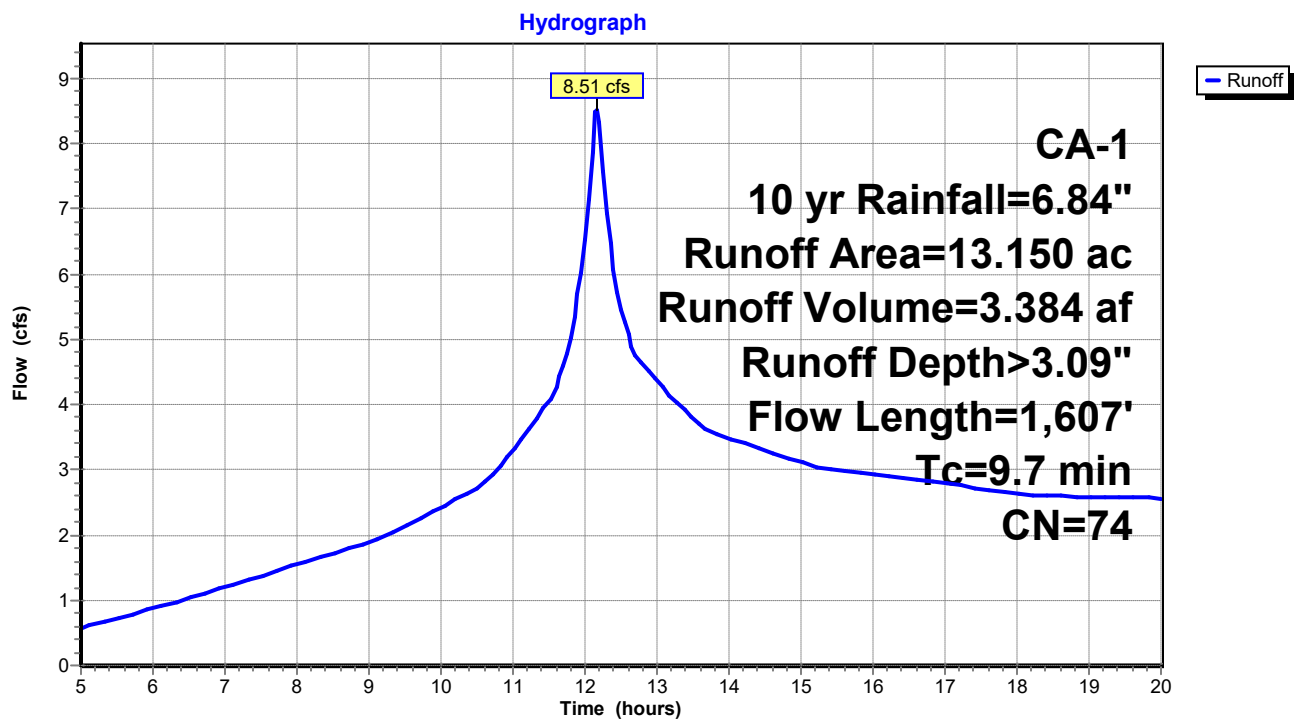
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CA-1 10 yr Rainfall=6.84"

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Subcatchment 2S: WS 4 post



WS 4 postR1

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CA-1 25 yr Rainfall=8.41"

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Summary for Subcatchment 1S: WS 4 post

Runoff = 27.49 cfs @ 12.18 hrs, Volume= 11.209 af, Depth> 4.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.220	89	Gravel roads, HSG C
0.150	87	Dirt roads, HSG C
* 4.010	75	Vineyard, Good, HSG C
7.980	74	Pasture/grassland/range, Good, HSG C
19.450	73	Woods, Fair, HSG C
32.050	74	Weighted Average
31.810		99.25% Pervious Area
0.240		0.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.0	20	0.1800	13.11	23.17	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.5	1,000	0.1700	11.04	99.40	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
11.2	2,627	Total			

WS 4 postR1

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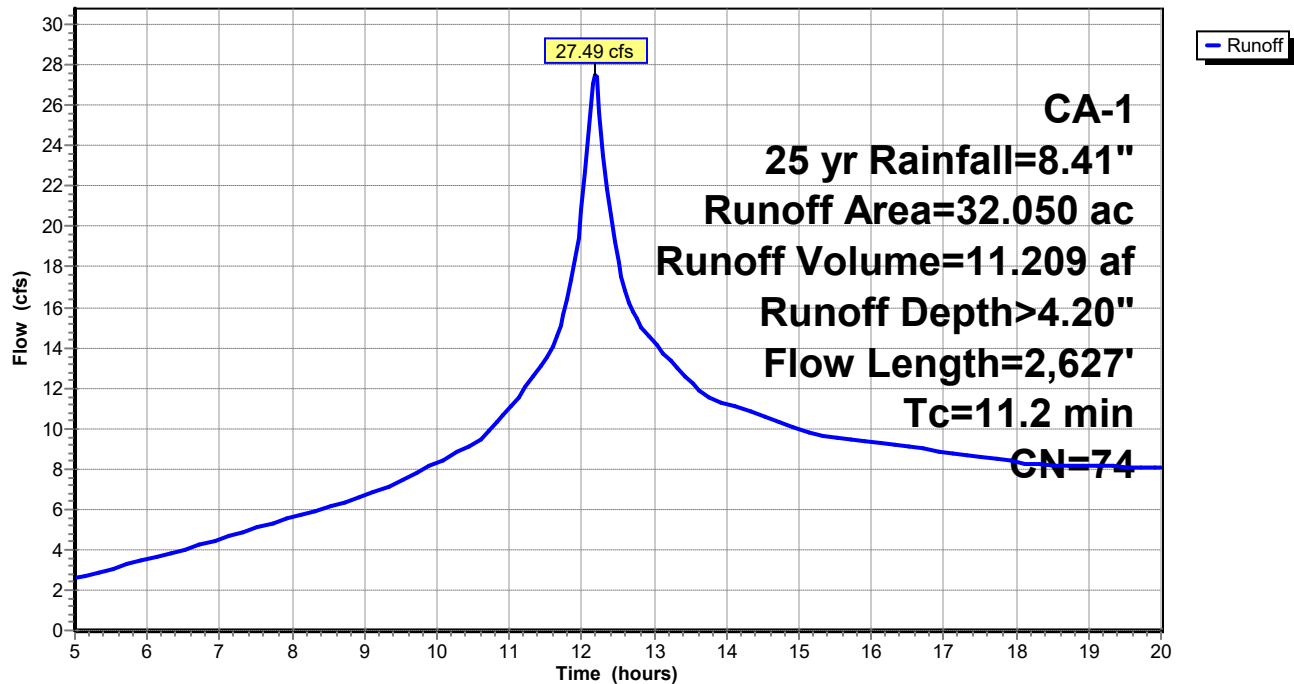
CA-1 25 yr Rainfall=8.41"

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Subcatchment 1S: WS 4 post

Hydrograph



WS 4 postR1

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CA-1 25 yr Rainfall=8.41"

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Summary for Subcatchment 2S: WS 4 post

Runoff = 11.49 cfs @ 12.16 hrs, Volume= 4.604 af, Depth> 4.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.150	87	Dirt roads, HSG C
* 2.540	75	Vineyard, Good, HSG C
3.910	74	Pasture/grassland/range, Good, HSG C
6.310	73	Woods, Fair, HSG C
13.150	74	Weighted Average
12.910		98.17% Pervious Area
0.240		1.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
9.7	1,607	Total			

WS 4 postR1

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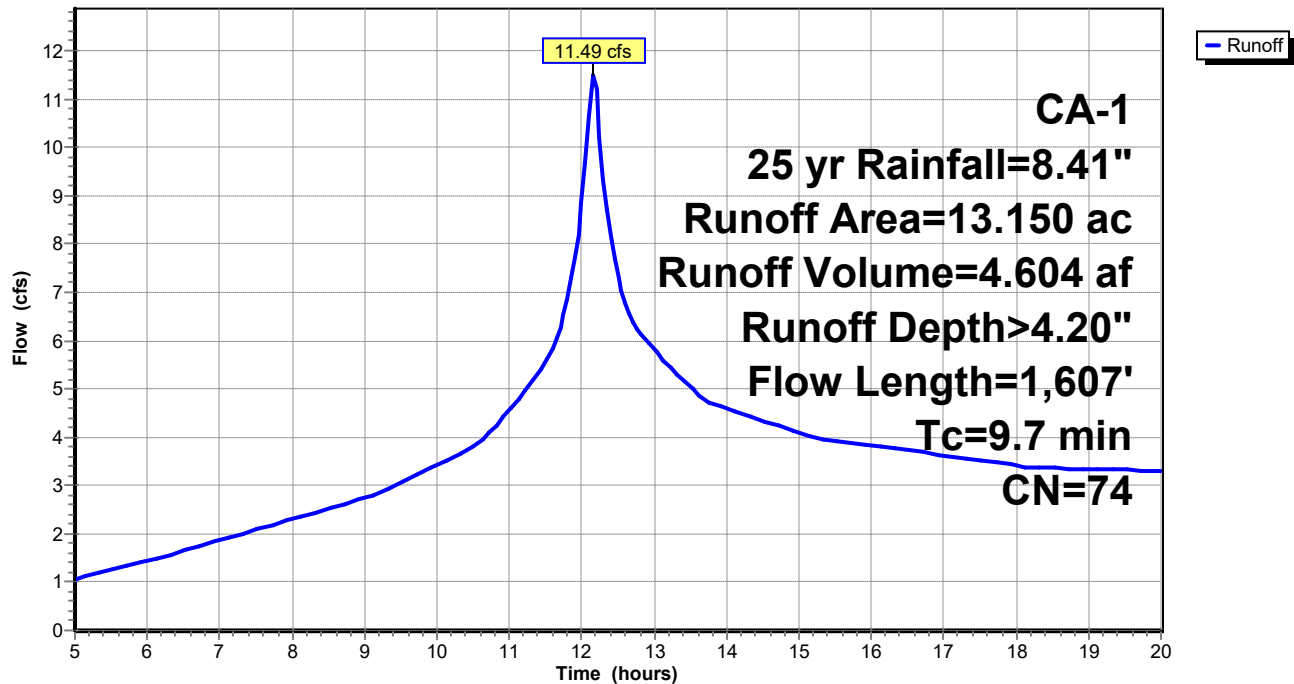
CA-1 25 yr Rainfall=8.41"

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Subcatchment 2S: WS 4 post

Hydrograph



WS 4 postR1

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 1S: WS 4 post

Runoff = 32.95 cfs @ 12.18 hrs, Volume= 13.506 af, Depth> 5.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.220	89	Gravel roads, HSG C
0.150	87	Dirt roads, HSG C
* 4.010	75	Vineyard, Good, HSG C
7.980	74	Pasture/grassland/range, Good, HSG C
19.450	73	Woods, Fair, HSG C
32.050	74	Weighted Average
31.810		99.25% Pervious Area
0.240		0.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.0	20	0.1800	13.11	23.17	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.5	1,000	0.1700	11.04	99.40	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
11.2	2,627	Total			

WS 4 postR1

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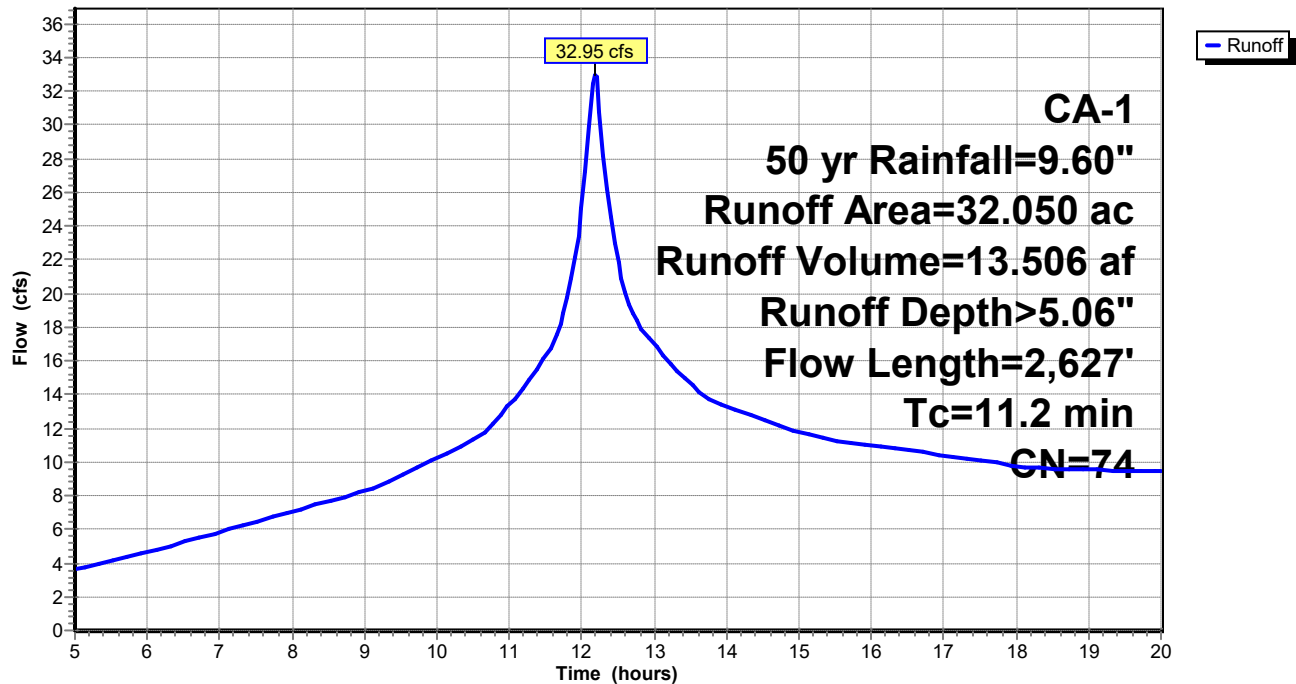
CA-1 50 yr Rainfall=9.60"

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Subcatchment 1S: WS 4 post

Hydrograph



WS 4 postR1

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 2S: WS 4 post

Runoff = 13.77 cfs @ 12.16 hrs, Volume= 5.546 af, Depth> 5.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.150	87	Dirt roads, HSG C
* 2.540	75	Vineyard, Good, HSG C
3.910	74	Pasture/grassland/range, Good, HSG C
6.310	73	Woods, Fair, HSG C
13.150	74	Weighted Average
12.910		98.17% Pervious Area
0.240		1.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
9.7	1,607	Total			

WS 4 postR1

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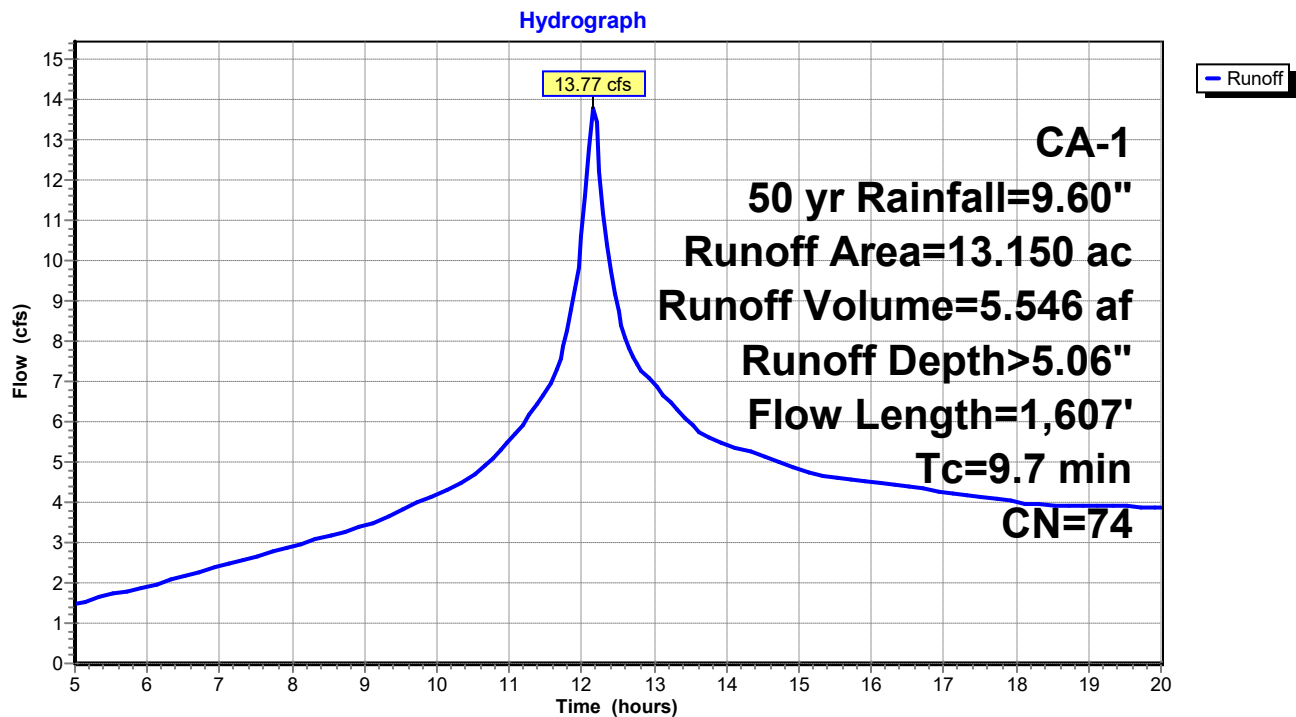
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CA-1 50 yr Rainfall=9.60"

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Subcatchment 2S: WS 4 post



WS 4 postR1

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CA-1 100 yr Rainfall=10.90"

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Summary for Subcatchment 1S: WS 4 post

Runoff = 38.94 cfs @ 12.18 hrs, Volume= 16.041 af, Depth> 6.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 100 yr Rainfall=10.90"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.220	89	Gravel roads, HSG C
0.150	87	Dirt roads, HSG C
* 4.010	75	Vineyard, Good, HSG C
7.980	74	Pasture/grassland/range, Good, HSG C
19.450	73	Woods, Fair, HSG C
32.050	74	Weighted Average
31.810		99.25% Pervious Area
0.240		0.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.0	20	0.1800	13.11	23.17	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.5	1,000	0.1700	11.04	99.40	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
11.2	2,627	Total			

WS 4 postR1

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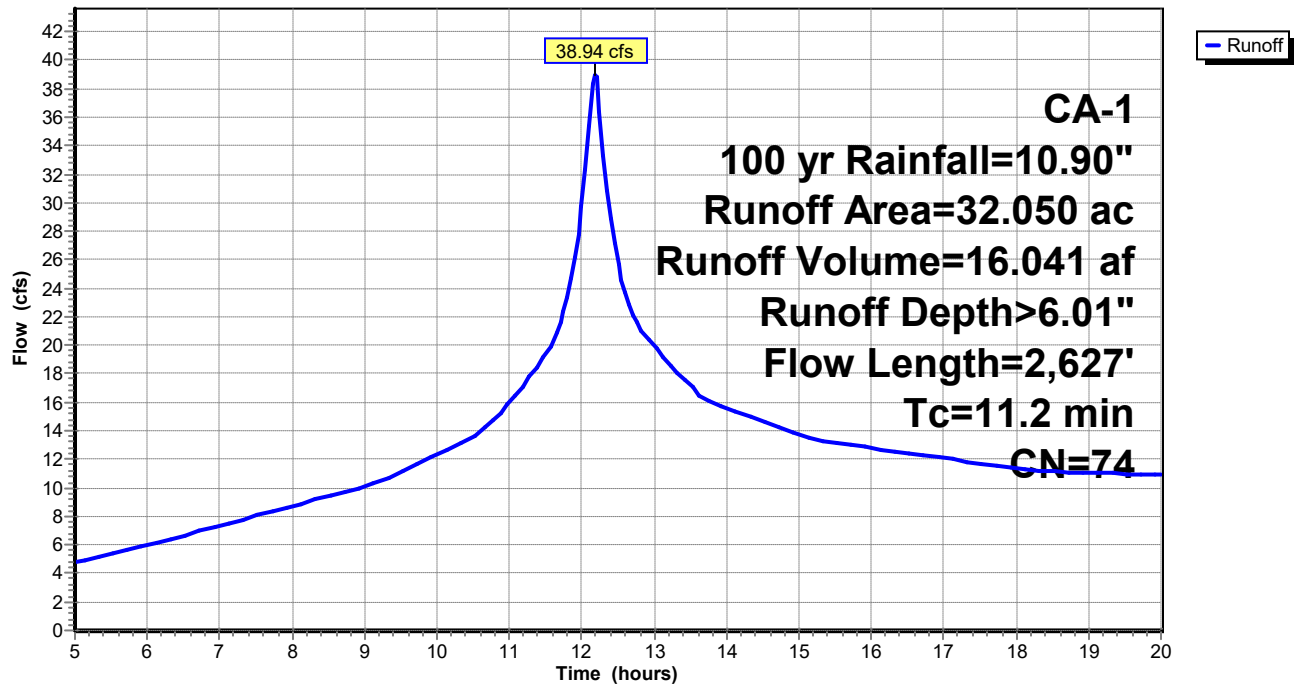
CA-1 100 yr Rainfall=10.90"

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Subcatchment 1S: WS 4 post

Hydrograph



WS 4 postR1

CA-1 100 yr Rainfall=10.90"

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Summary for Subcatchment 2S: WS 4 post

Runoff = 16.28 cfs @ 12.16 hrs, Volume= 6.586 af, Depth> 6.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 100 yr Rainfall=10.90"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.150	87	Dirt roads, HSG C
* 2.540	75	Vineyard, Good, HSG C
3.910	74	Pasture/grassland/range, Good, HSG C
6.310	73	Woods, Fair, HSG C
13.150	74	Weighted Average
12.910		98.17% Pervious Area
0.240		1.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
9.7	1,607	Total			

WS 4 postR1

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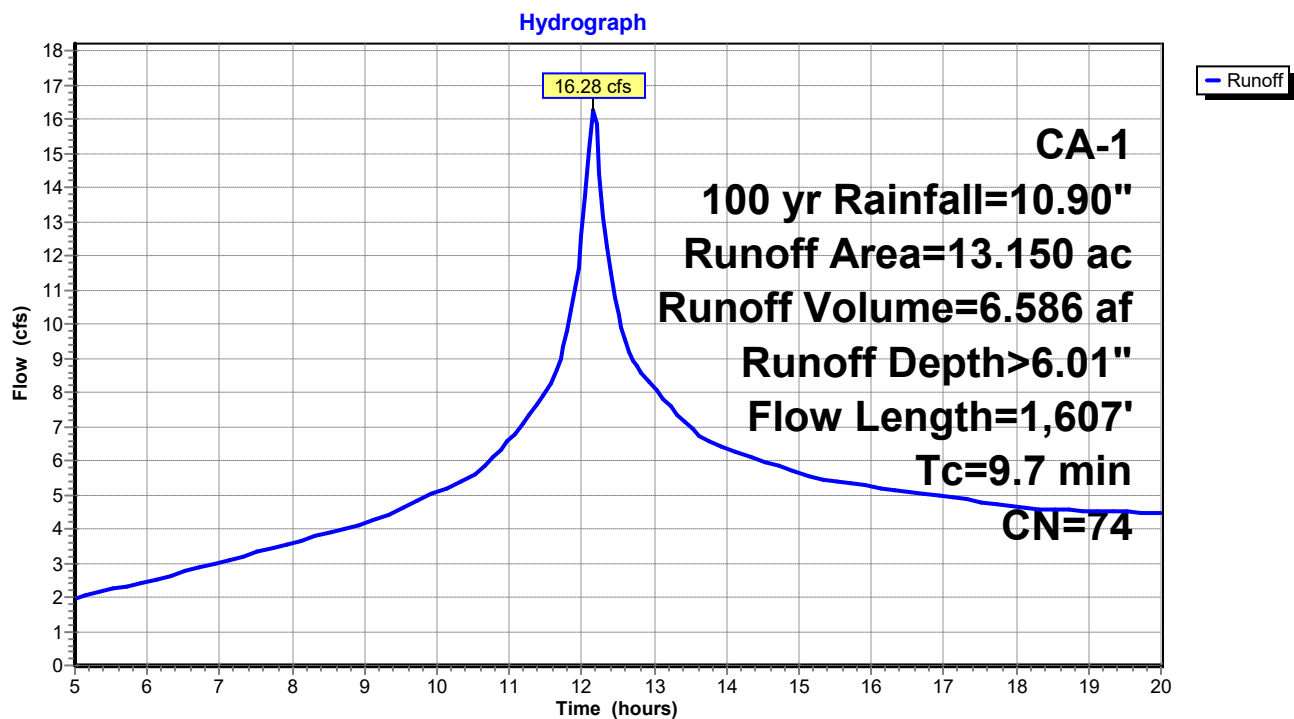
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CA-1 100 yr Rainfall=10.90"

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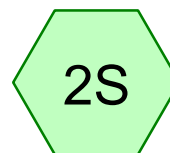
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Subcatchment 2S: WS 4 post

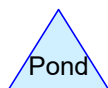
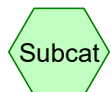




WS 4 pre



Culvert 4



Routing Diagram for WS 4 preR1

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WS 4 preR1

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CA-1 2 yr Rainfall=4.50"

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Page 2

Summary for Subcatchment 1S: WS 4 pre

Runoff = 10.19 cfs @ 12.19 hrs, Volume= 4.061 af, Depth> 1.52"

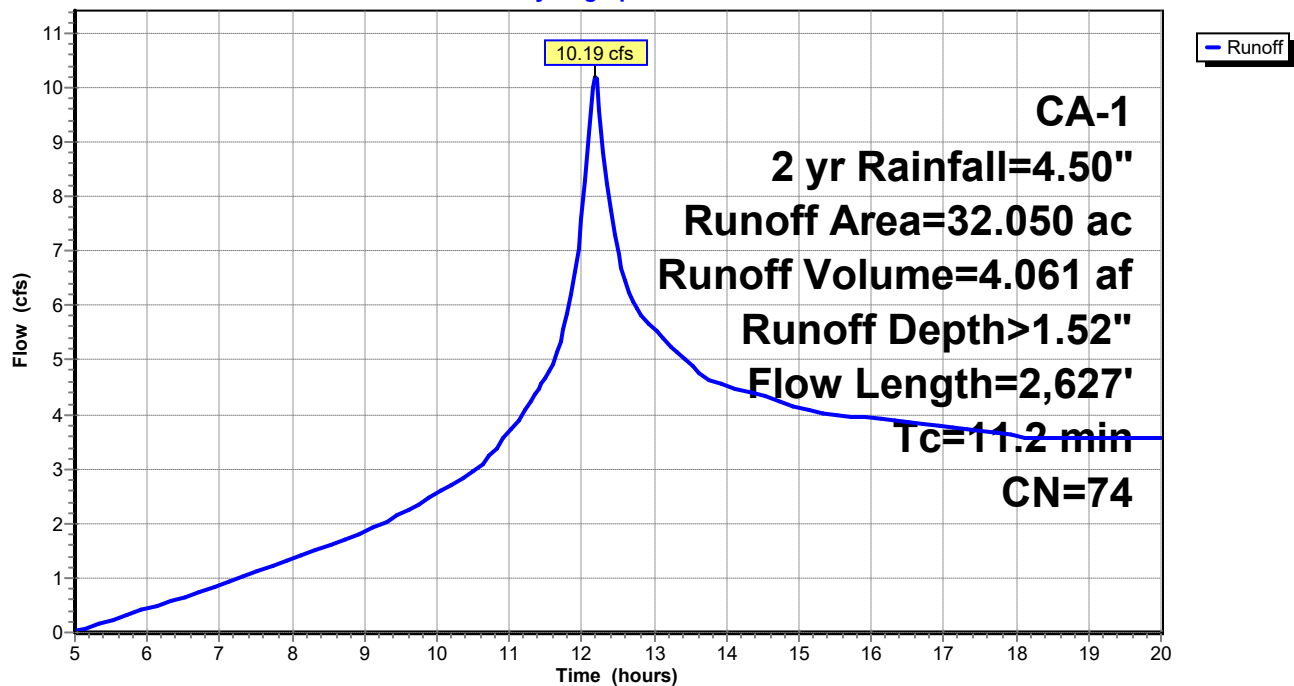
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.220	89	Gravel roads, HSG C
0.260	87	Dirt roads, HSG C
11.880	74	Pasture/grassland/range, Good, HSG C
19.450	73	Woods, Fair, HSG C
32.050	74	Weighted Average
31.810		99.25% Pervious Area
0.240		0.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.0	20	0.1800	13.11	23.17	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.5	1,000	0.1700	11.04	99.40	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
11.2	2,627	Total			

Subcatchment 1S: WS 4 pre

Hydrograph



WS 4 preR1

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CA-1 2 yr Rainfall=4.50"

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Summary for Subcatchment 2S: Culvert 4

Runoff = 4.26 cfs @ 12.17 hrs, Volume= 1.669 af, Depth> 1.52"

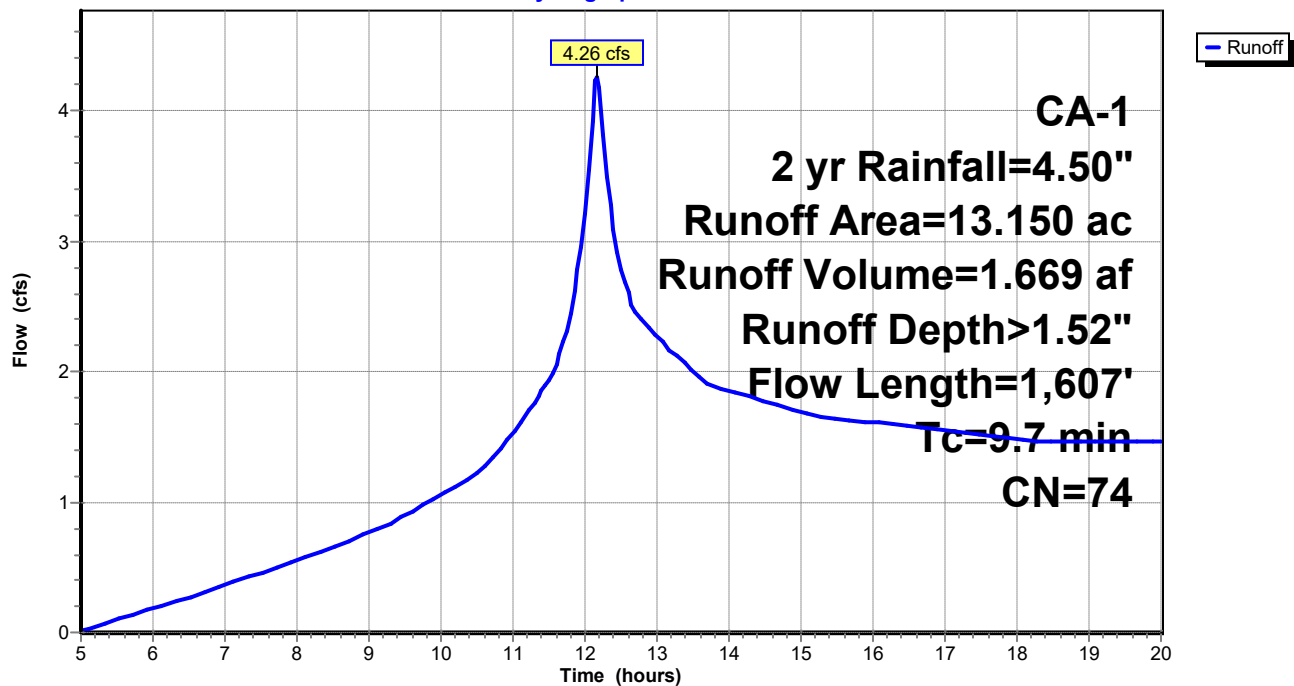
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.260	87	Dirt roads, HSG C
6.340	74	Pasture/grassland/range, Good, HSG C
6.310	73	Woods, Fair, HSG C
13.150	74	Weighted Average
12.910		98.17% Pervious Area
0.240		1.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
9.7	1,607	Total			

Subcatchment 2S: Culvert 4

Hydrograph



WS 4 preR1

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CA-1 5 yr Rainfall=5.79"

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Summary for Subcatchment 1S: WS 4 pre

Runoff = 15.69 cfs @ 12.19 hrs, Volume= 6.312 af, Depth> 2.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.220	89	Gravel roads, HSG C
0.260	87	Dirt roads, HSG C
11.880	74	Pasture/grassland/range, Good, HSG C
19.450	73	Woods, Fair, HSG C
32.050	74	Weighted Average
31.810		99.25% Pervious Area
0.240		0.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.0	20	0.1800	13.11	23.17	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.5	1,000	0.1700	11.04	99.40	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
11.2	2,627	Total			

WS 4 preR1

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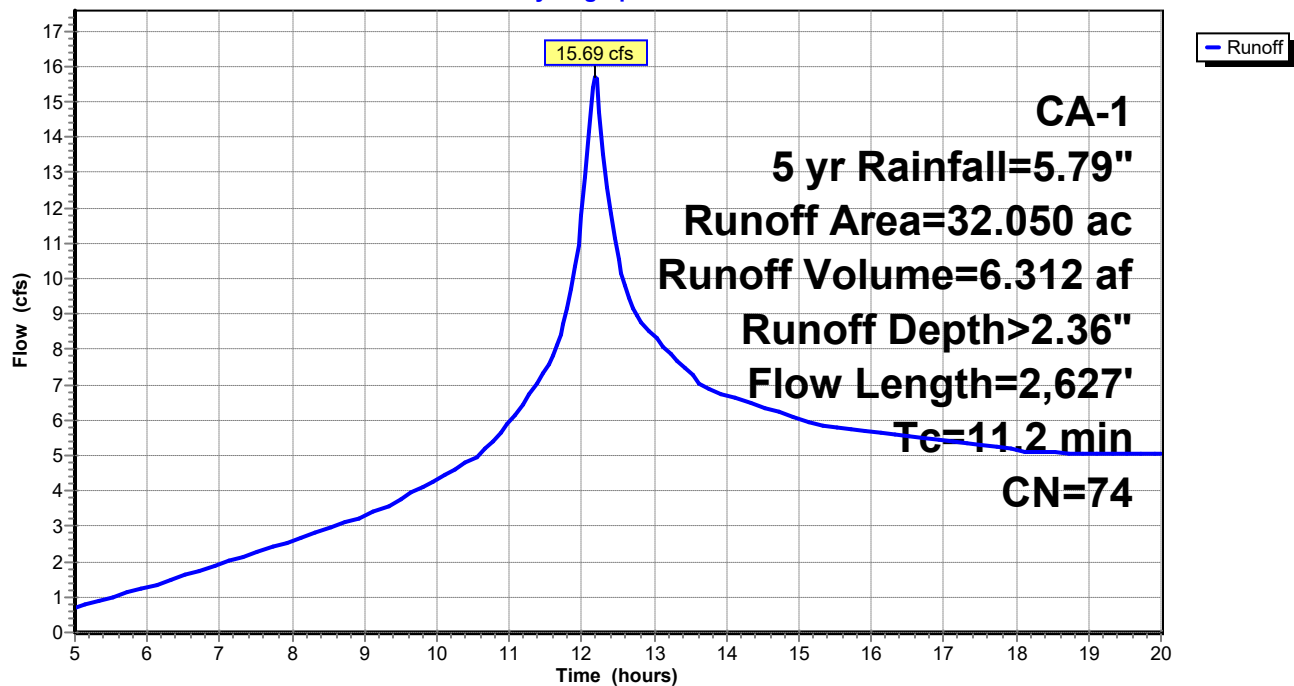
CA-1 5 yr Rainfall=5.79"

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Subcatchment 1S: WS 4 pre

Hydrograph



WS 4 preR1

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CA-1 5 yr Rainfall=5.79"

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Summary for Subcatchment 2S: Culvert 4

Runoff = 6.56 cfs @ 12.17 hrs, Volume= 2.593 af, Depth> 2.37"

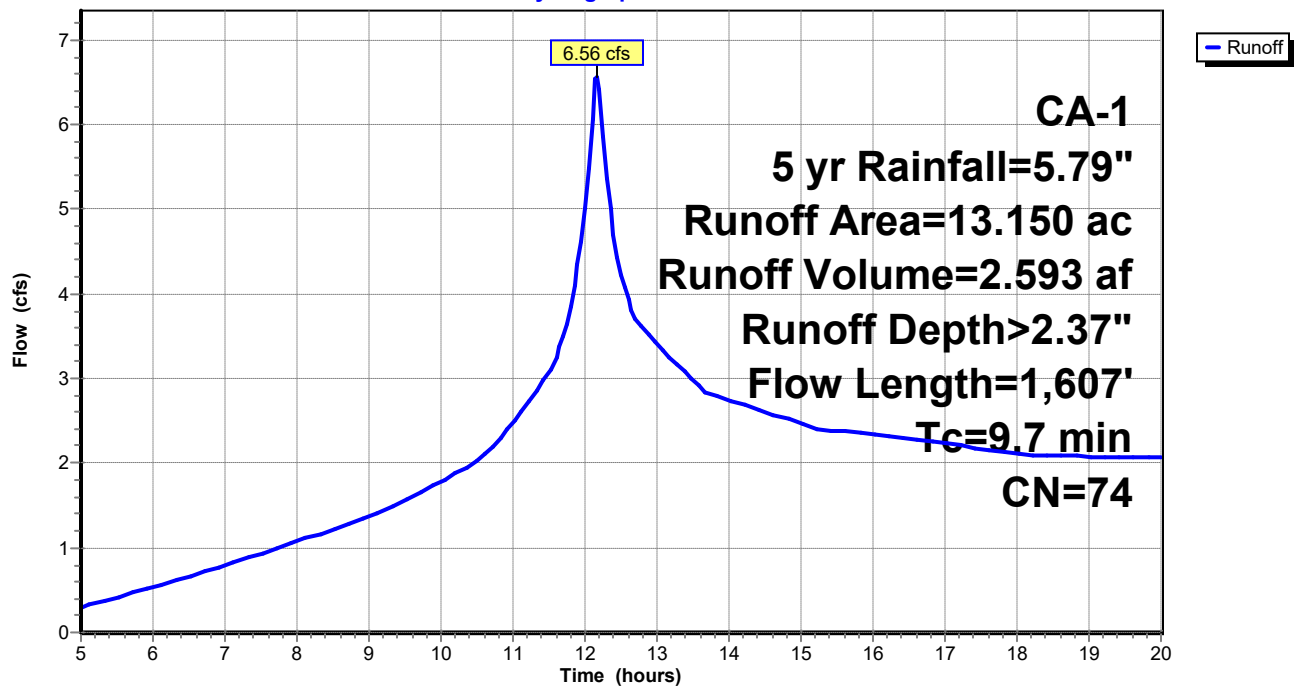
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.260	87	Dirt roads, HSG C
6.340	74	Pasture/grassland/range, Good, HSG C
6.310	73	Woods, Fair, HSG C
13.150	74	Weighted Average
12.910		98.17% Pervious Area
0.240		1.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
9.7	1,607	Total			

Subcatchment 2S: Culvert 4

Hydrograph



WS 4 preR1

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CA-1 10 yr Rainfall=6.84"

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Summary for Subcatchment 1S: WS 4 pre

Runoff = 20.36 cfs @ 12.18 hrs, Volume= 8.238 af, Depth> 3.08"

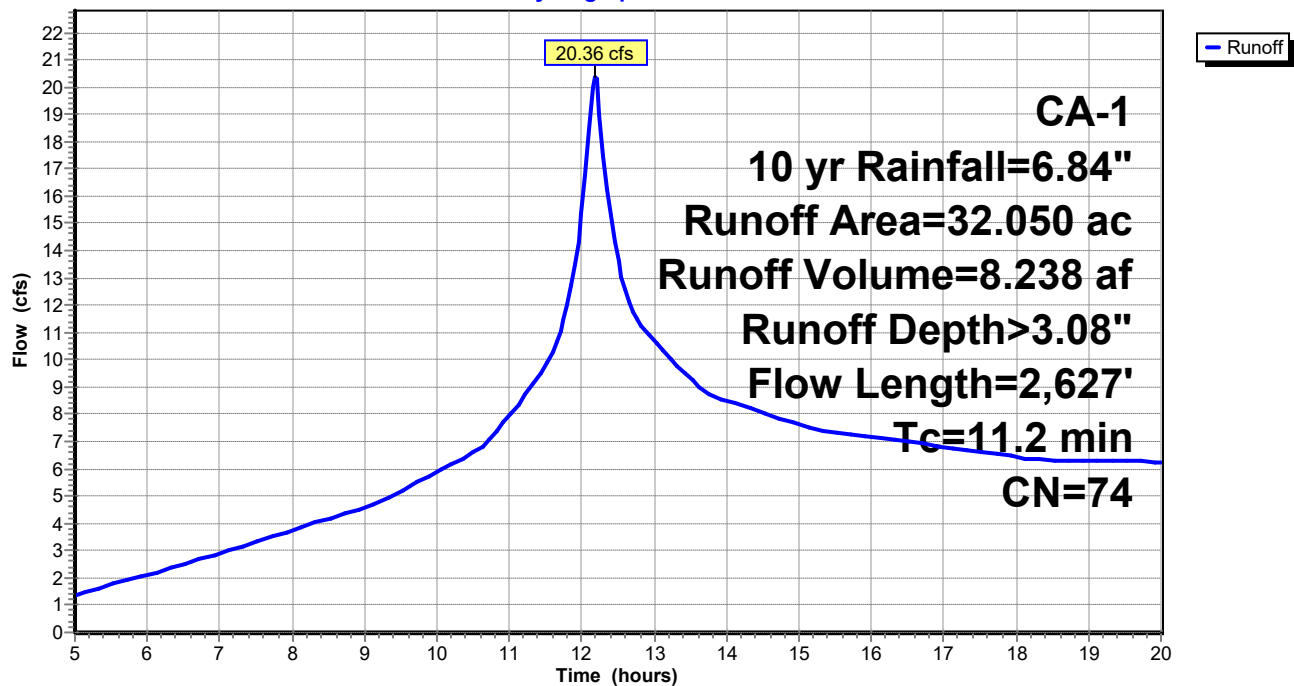
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.220	89	Gravel roads, HSG C
0.260	87	Dirt roads, HSG C
11.880	74	Pasture/grassland/range, Good, HSG C
19.450	73	Woods, Fair, HSG C
32.050	74	Weighted Average
31.810		99.25% Pervious Area
0.240		0.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.0	20	0.1800	13.11	23.17	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.5	1,000	0.1700	11.04	99.40	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
11.2	2,627	Total			

Subcatchment 1S: WS 4 pre

Hydrograph



WS 4 preR1

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CA-1 10 yr Rainfall=6.84"

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Summary for Subcatchment 2S: Culvert 4

Runoff = 8.51 cfs @ 12.16 hrs, Volume= 3.384 af, Depth> 3.09"

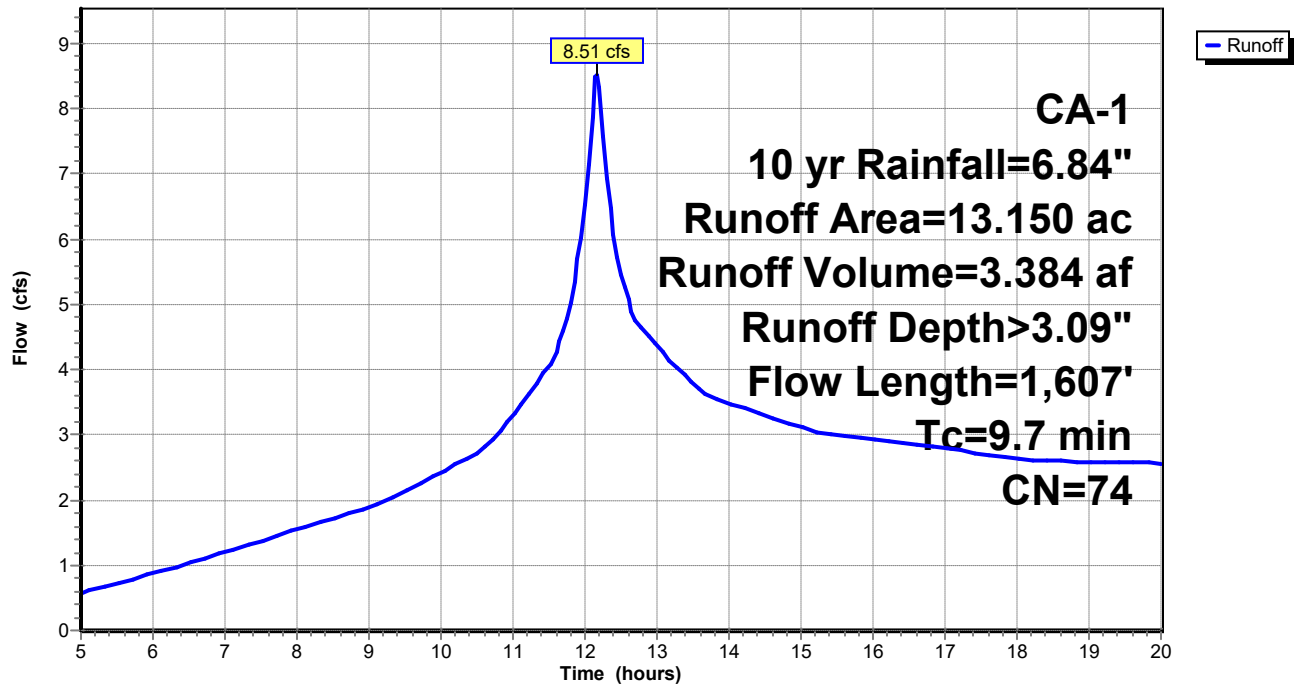
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.260	87	Dirt roads, HSG C
6.340	74	Pasture/grassland/range, Good, HSG C
6.310	73	Woods, Fair, HSG C
13.150	74	Weighted Average
12.910		98.17% Pervious Area
0.240		1.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
9.7	1,607	Total			

Subcatchment 2S: Culvert 4

Hydrograph



WS 4 preR1

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CA-1 25 yr Rainfall=8.41"

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Summary for Subcatchment 1S: WS 4 pre

Runoff = 27.49 cfs @ 12.18 hrs, Volume= 11.209 af, Depth> 4.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.220	89	Gravel roads, HSG C
0.260	87	Dirt roads, HSG C
11.880	74	Pasture/grassland/range, Good, HSG C
19.450	73	Woods, Fair, HSG C
32.050	74	Weighted Average
31.810		99.25% Pervious Area
0.240		0.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.0	20	0.1800	13.11	23.17	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.5	1,000	0.1700	11.04	99.40	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
11.2	2,627	Total			

WS 4 preR1

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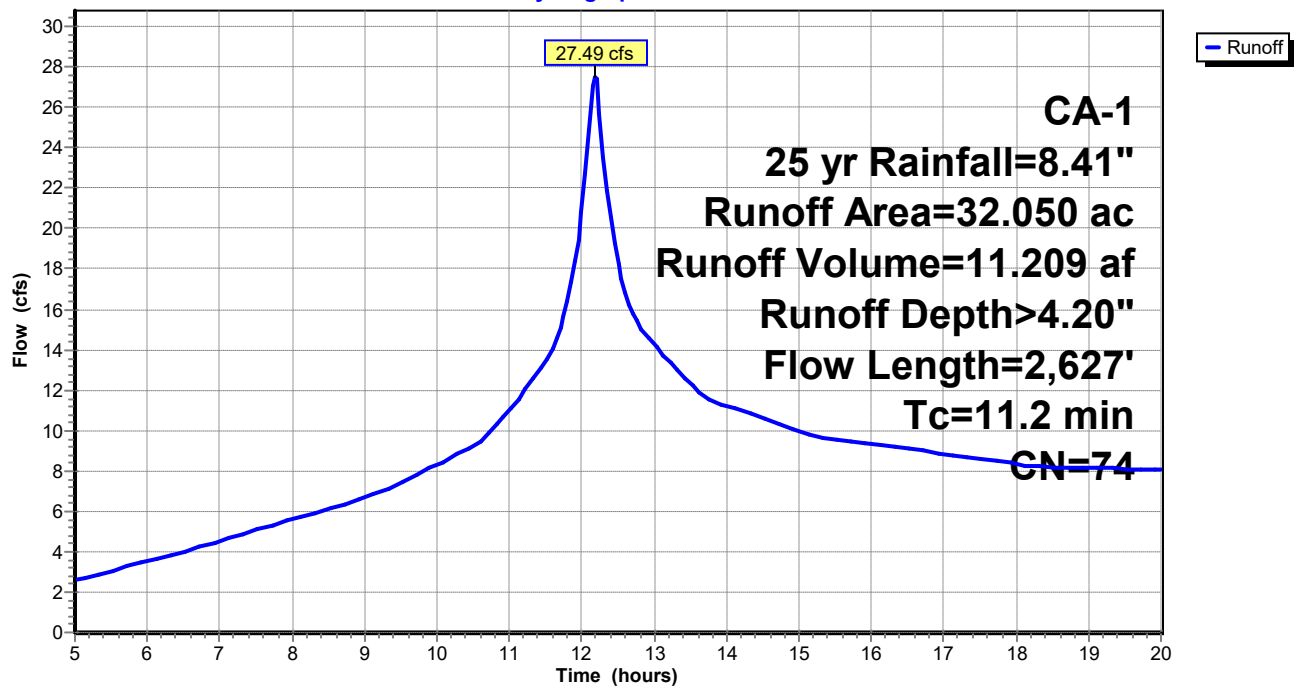
CA-1 25 yr Rainfall=8.41"

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Subcatchment 1S: WS 4 pre

Hydrograph



WS 4 preR1

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CA-1 25 yr Rainfall=8.41"

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Summary for Subcatchment 2S: Culvert 4

Runoff = 11.49 cfs @ 12.16 hrs, Volume= 4.604 af, Depth> 4.20"

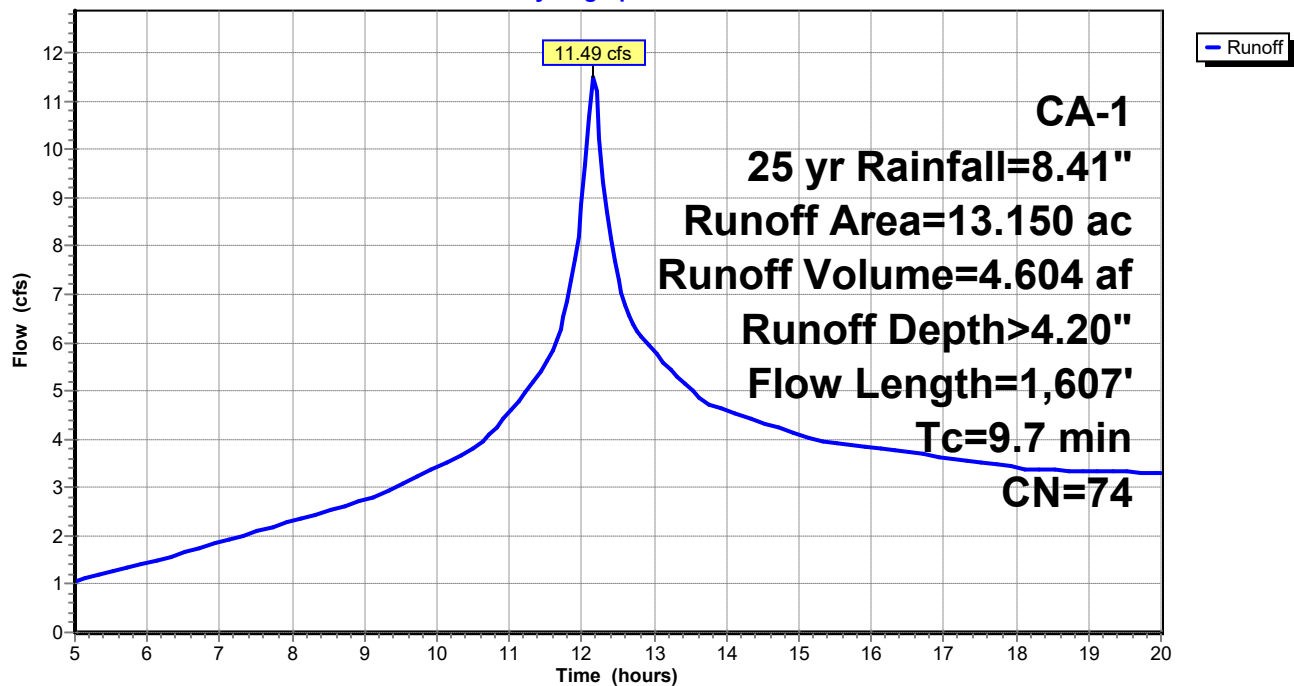
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.260	87	Dirt roads, HSG C
6.340	74	Pasture/grassland/range, Good, HSG C
6.310	73	Woods, Fair, HSG C
13.150	74	Weighted Average
12.910		98.17% Pervious Area
0.240		1.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
9.7	1,607	Total			

Subcatchment 2S: Culvert 4

Hydrograph



WS 4 preR1

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 1S: WS 4 pre

Runoff = 32.95 cfs @ 12.18 hrs, Volume= 13.506 af, Depth> 5.06"

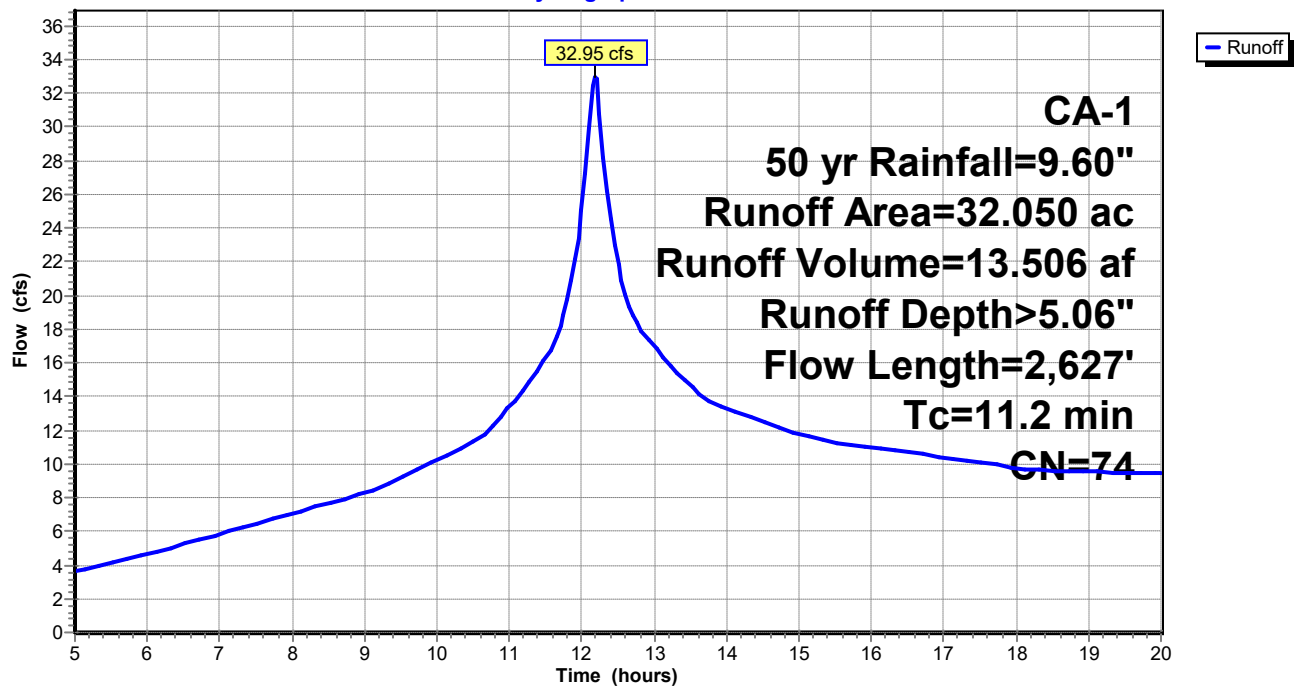
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.220	89	Gravel roads, HSG C
0.260	87	Dirt roads, HSG C
11.880	74	Pasture/grassland/range, Good, HSG C
19.450	73	Woods, Fair, HSG C
32.050	74	Weighted Average
31.810		99.25% Pervious Area
0.240		0.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.0	20	0.1800	13.11	23.17	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.5	1,000	0.1700	11.04	99.40	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
11.2	2,627	Total			

Subcatchment 1S: WS 4 pre

Hydrograph



WS 4 preR1

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 2S: Culvert 4

Runoff = 13.77 cfs @ 12.16 hrs, Volume= 5.546 af, Depth> 5.06"

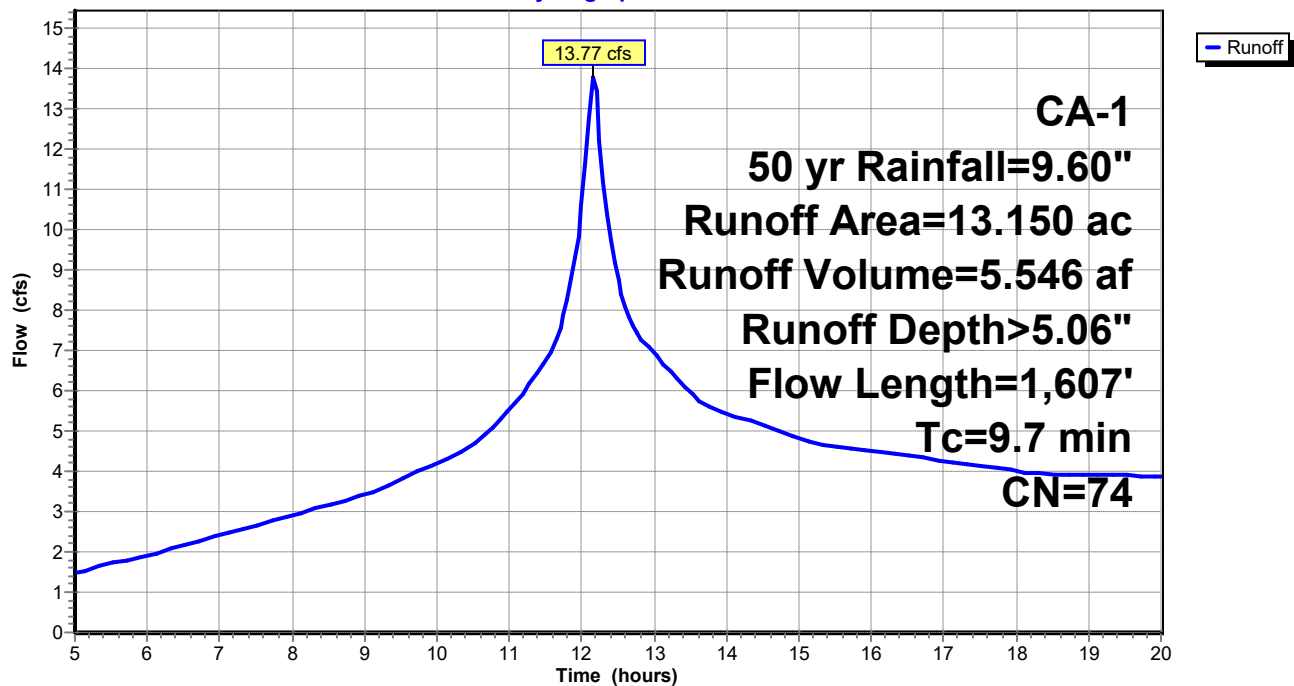
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.260	87	Dirt roads, HSG C
6.340	74	Pasture/grassland/range, Good, HSG C
6.310	73	Woods, Fair, HSG C
13.150	74	Weighted Average
12.910		98.17% Pervious Area
0.240		1.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
9.7	1,607	Total			

Subcatchment 2S: Culvert 4

Hydrograph



WS 4 preR1

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CA-1 100 yr Rainfall=10.90"

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Summary for Subcatchment 1S: WS 4 pre

Runoff = 38.94 cfs @ 12.18 hrs, Volume= 16.041 af, Depth> 6.01"

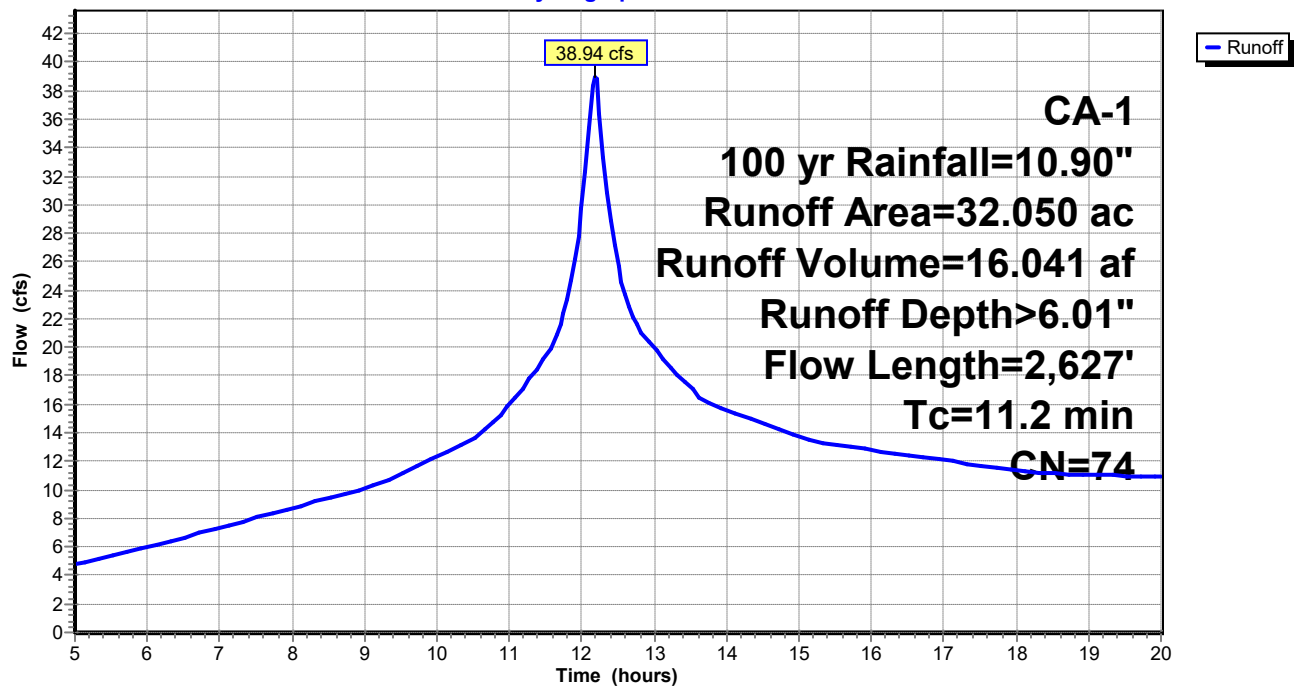
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 100 yr Rainfall=10.90"

Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.220	89	Gravel roads, HSG C
0.260	87	Dirt roads, HSG C
11.880	74	Pasture/grassland/range, Good, HSG C
19.450	73	Woods, Fair, HSG C
32.050	74	Weighted Average
31.810		99.25% Pervious Area
0.240		0.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.0	20	0.1800	13.11	23.17	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
1.5	1,000	0.1700	11.04	99.40	Channel Flow, Area= 9.0 sf Perim= 14.7' r= 0.61' n= 0.040 Mountain streams
11.2	2,627	Total			

Subcatchment 1S: WS 4 pre

Hydrograph



WS 4 preR1

CA-1 100 yr Rainfall=10.90"

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Summary for Subcatchment 2S: Culvert 4

Runoff = 16.28 cfs @ 12.16 hrs, Volume= 6.586 af, Depth> 6.01"

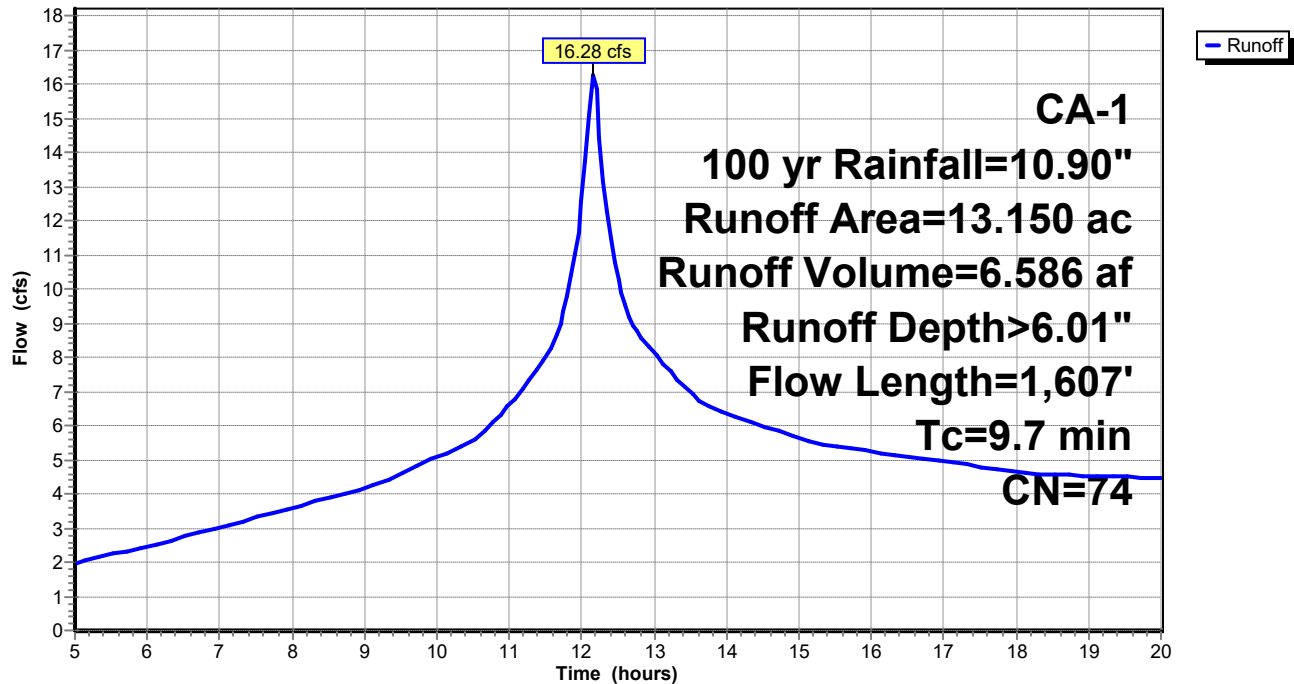
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 100 yr Rainfall=10.90"

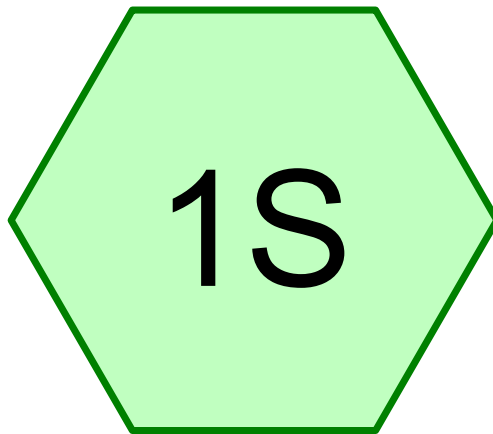
Area (ac)	CN	Description
0.240	98	Paved roads w/curbs & sewers, HSG C
0.260	87	Dirt roads, HSG C
6.340	74	Pasture/grassland/range, Good, HSG C
6.310	73	Woods, Fair, HSG C
13.150	74	Weighted Average
12.910		98.17% Pervious Area
0.240		1.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1300	0.29		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.8	534	0.5000	11.38		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
2.1	408	0.0400	3.22		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.1	565	0.3100	8.96		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
9.7	1,607	Total			

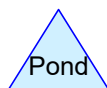
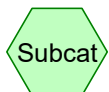
Subcatchment 2S: Culvert 4

Hydrograph





WS 5 post



Routing Diagram for WS 5 postR1

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WS 5 postR1

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CA-1 2 yr Rainfall=4.50"

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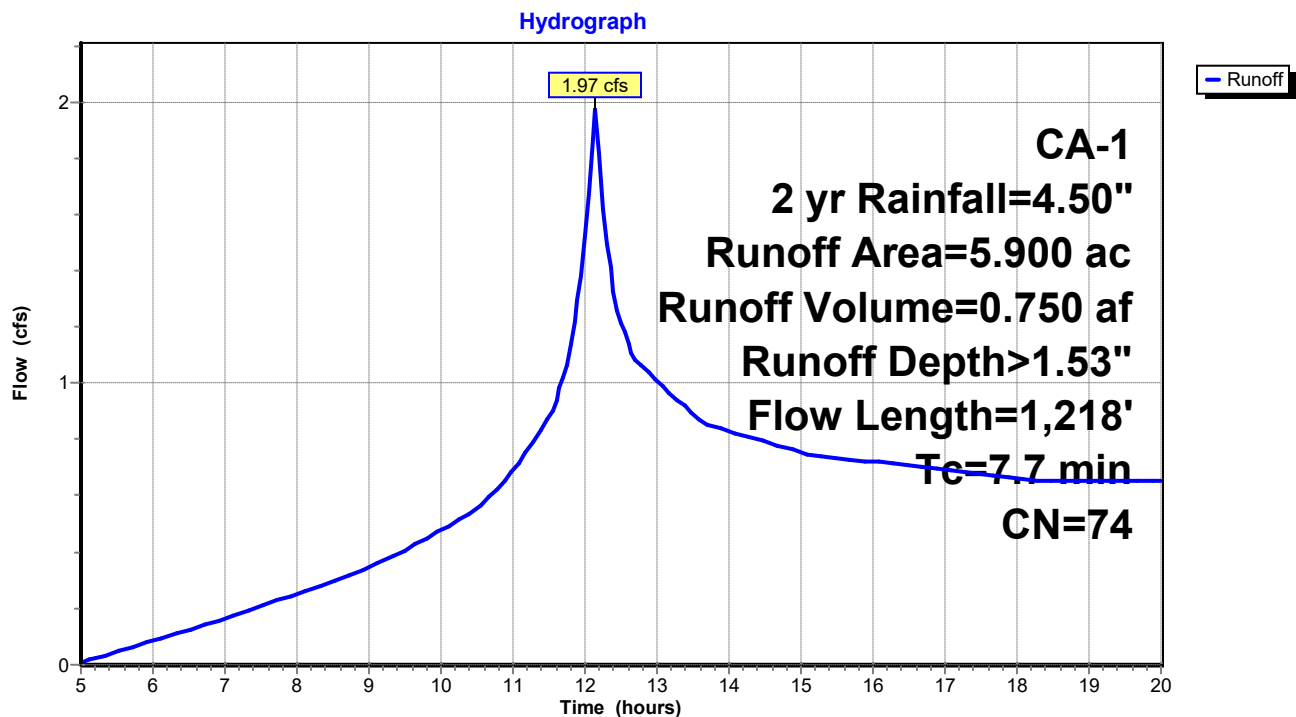
Summary for Subcatchment 1S: WS 5 post

Runoff = 1.97 cfs @ 12.15 hrs, Volume= 0.750 af, Depth> 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG C
* 1.580	75	Vineyard, Good, HSG C
0.520	74	Pasture/grassland/range, Good, HSG C
3.670	73	Woods, Fair, HSG C
5.900	74	Weighted Average
5.770		97.80% Pervious Area
0.130		2.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	100	0.1500	0.31		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.9	337	0.1400	6.02		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.4	781	0.3200	9.11		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.7	1,218	Total			

Subcatchment 1S: WS 5 post

WS 5 postR1

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CA-1 5 yr Rainfall=5.79"

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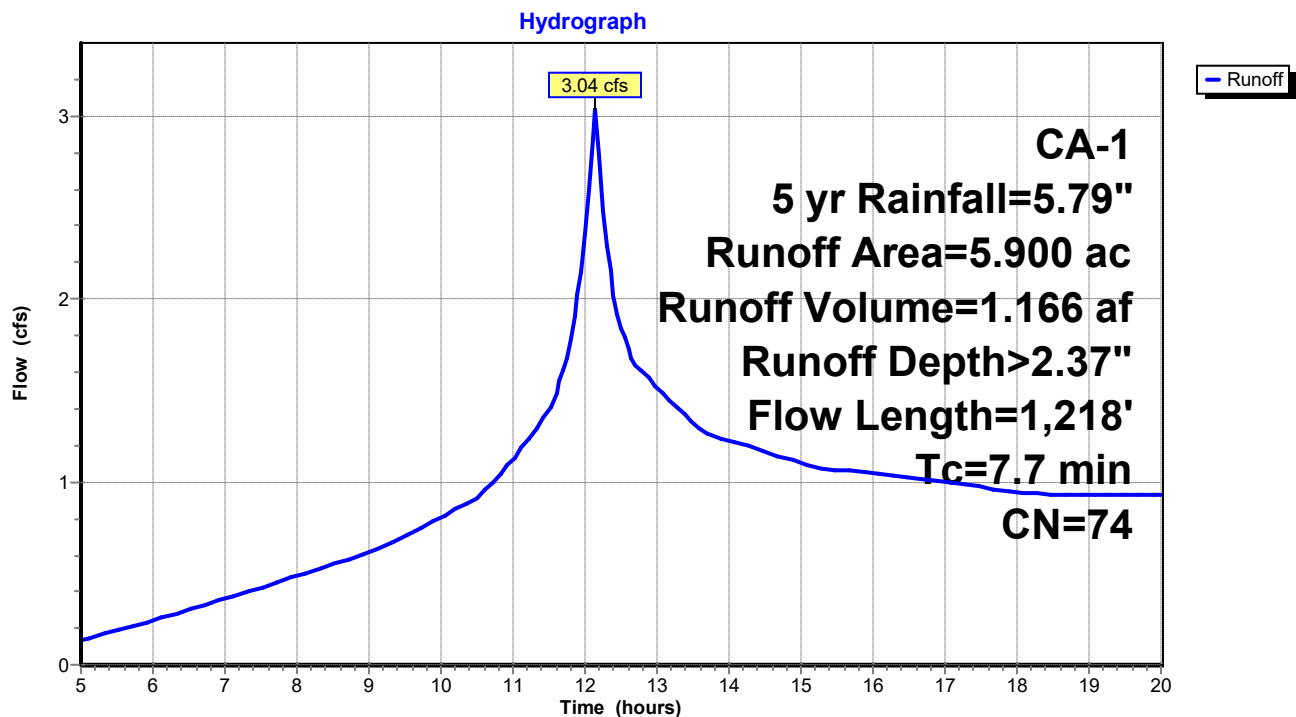
Summary for Subcatchment 1S: WS 5 post

Runoff = 3.04 cfs @ 12.14 hrs, Volume= 1.166 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG C
* 1.580	75	Vineyard, Good, HSG C
0.520	74	Pasture/grassland/range, Good, HSG C
3.670	73	Woods, Fair, HSG C
5.900	74	Weighted Average
5.770		97.80% Pervious Area
0.130		2.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	100	0.1500	0.31		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.9	337	0.1400	6.02		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.4	781	0.3200	9.11		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.7	1,218	Total			

Subcatchment 1S: WS 5 post

WS 5 postR1

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CA-1 10 yr Rainfall=6.84"

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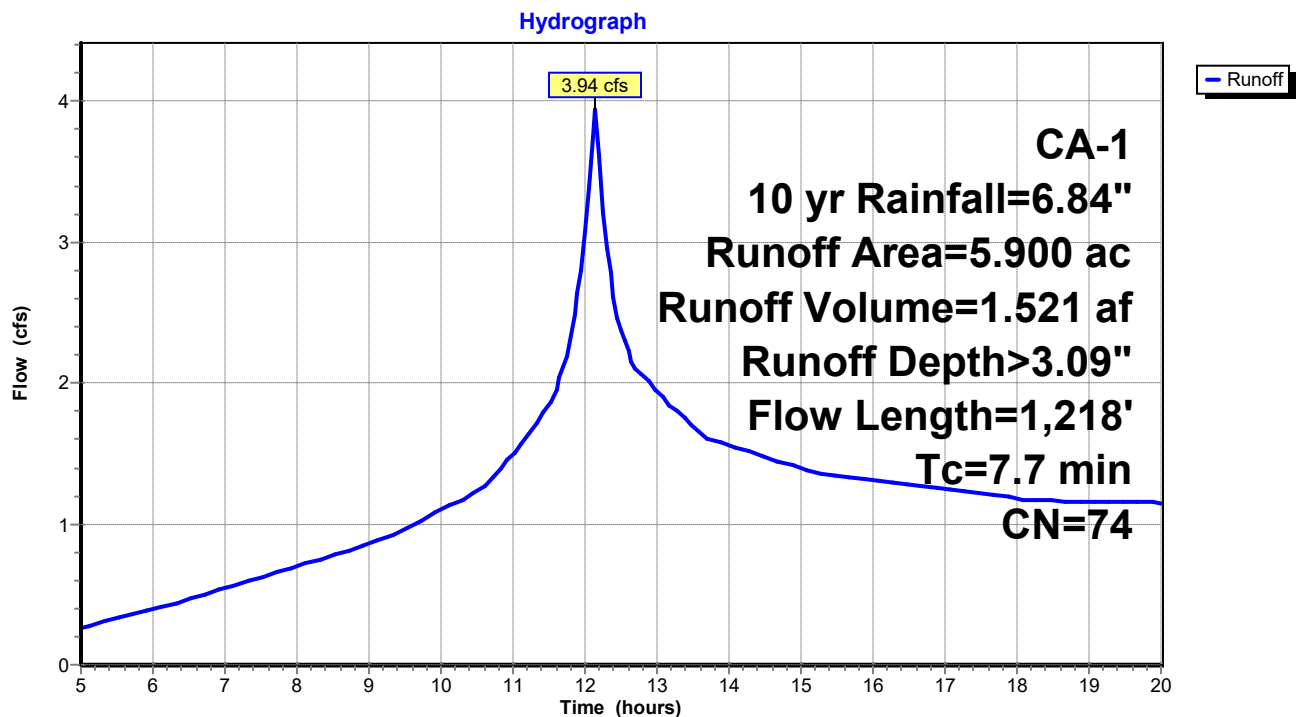
Summary for Subcatchment 1S: WS 5 post

Runoff = 3.94 cfs @ 12.14 hrs, Volume= 1.521 af, Depth> 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG C
* 1.580	75	Vineyard, Good, HSG C
0.520	74	Pasture/grassland/range, Good, HSG C
3.670	73	Woods, Fair, HSG C
5.900	74	Weighted Average
5.770		97.80% Pervious Area
0.130		2.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	100	0.1500	0.31		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.9	337	0.1400	6.02		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.4	781	0.3200	9.11		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.7	1,218	Total			

Subcatchment 1S: WS 5 post

WS 5 postR1

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CA-1 25 yr Rainfall=8.41"

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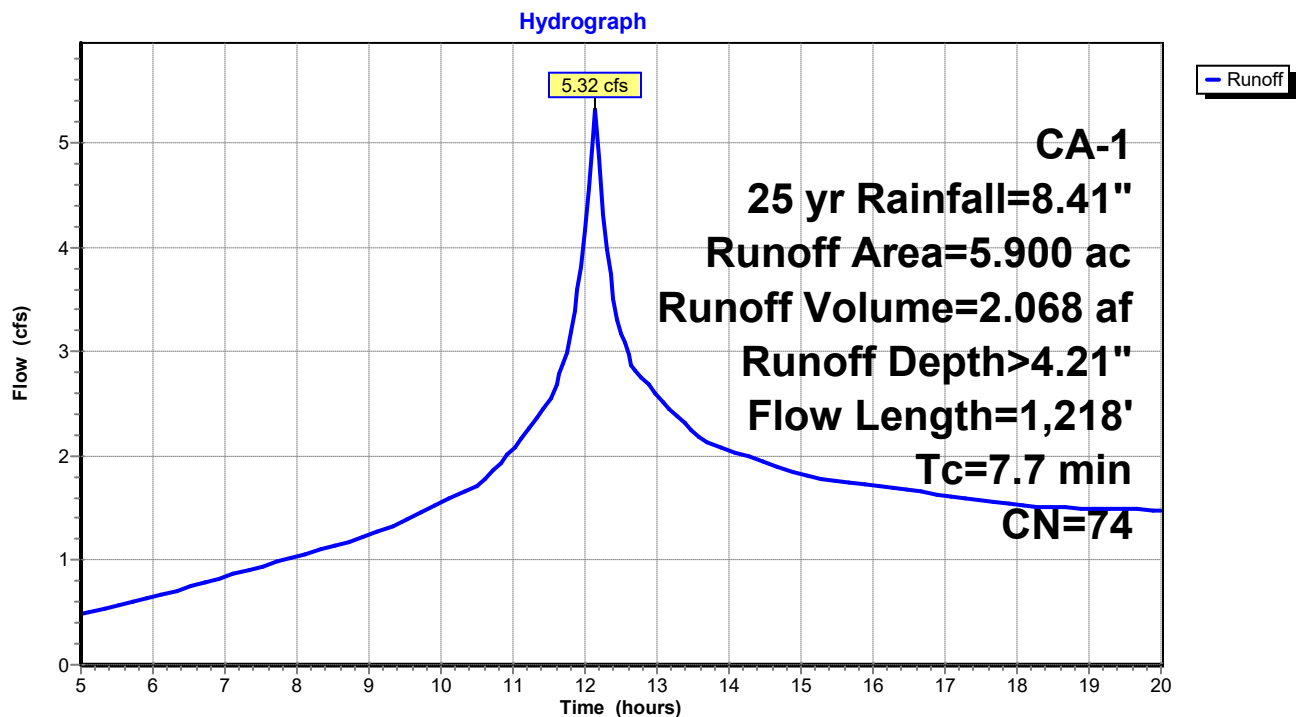
Summary for Subcatchment 1S: WS 5 post

Runoff = 5.32 cfs @ 12.14 hrs, Volume= 2.068 af, Depth> 4.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG C
* 1.580	75	Vineyard, Good, HSG C
0.520	74	Pasture/grassland/range, Good, HSG C
3.670	73	Woods, Fair, HSG C
5.900	74	Weighted Average
5.770		97.80% Pervious Area
0.130		2.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	100	0.1500	0.31		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.9	337	0.1400	6.02		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.4	781	0.3200	9.11		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.7	1,218	Total			

Subcatchment 1S: WS 5 post

WS 5 postR1

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CA-1 50 yr Rainfall=9.60"

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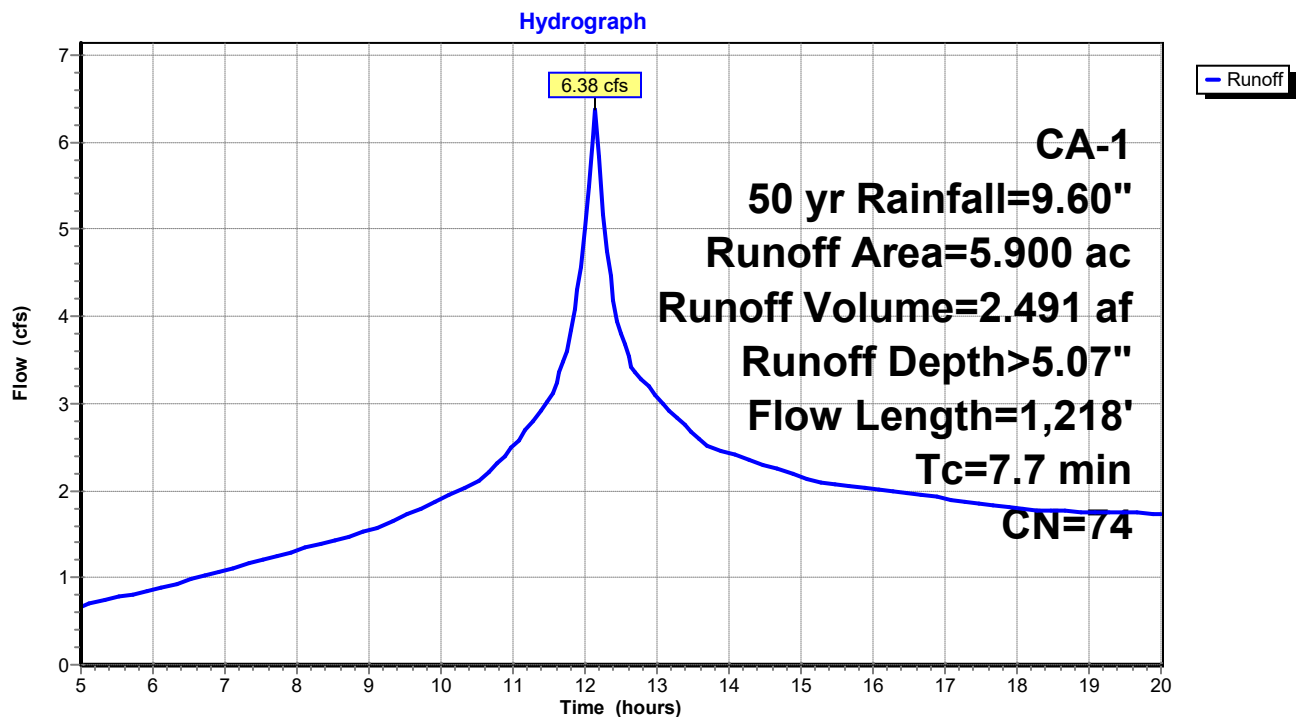
Summary for Subcatchment 1S: WS 5 post

Runoff = 6.38 cfs @ 12.14 hrs, Volume= 2.491 af, Depth> 5.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG C
* 1.580	75	Vineyard, Good, HSG C
0.520	74	Pasture/grassland/range, Good, HSG C
3.670	73	Woods, Fair, HSG C
5.900	74	Weighted Average
5.770		97.80% Pervious Area
0.130		2.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	100	0.1500	0.31		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.9	337	0.1400	6.02		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.4	781	0.3200	9.11		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.7	1,218	Total			

Subcatchment 1S: WS 5 post

WS 5 postR1

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CA-1 100 yr Rainfall=10.90"

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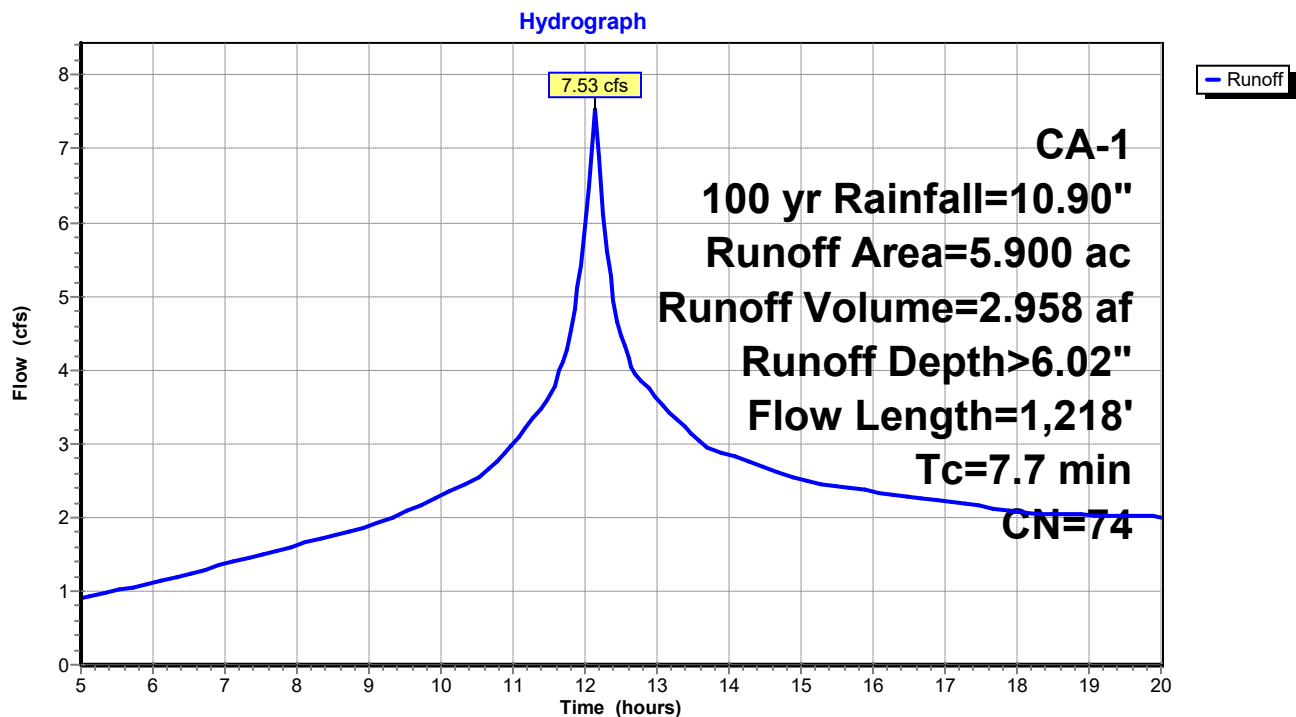
Summary for Subcatchment 1S: WS 5 post

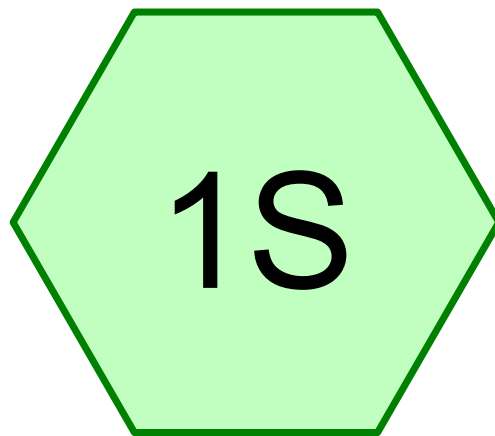
Runoff = 7.53 cfs @ 12.14 hrs, Volume= 2.958 af, Depth> 6.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 100 yr Rainfall=10.90"

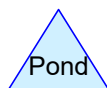
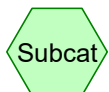
Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG C
* 1.580	75	Vineyard, Good, HSG C
0.520	74	Pasture/grassland/range, Good, HSG C
3.670	73	Woods, Fair, HSG C
5.900	74	Weighted Average
5.770		97.80% Pervious Area
0.130		2.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	100	0.1500	0.31		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.9	337	0.1400	6.02		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.4	781	0.3200	9.11		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.7	1,218	Total			

Subcatchment 1S: WS 5 post



WS 5 pre



Routing Diagram for WS 5 preR1

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WS 5 preR1

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CA-1 2 yr Rainfall=4.50"

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Summary for Subcatchment 1S: WS 5 pre

Runoff = 1.97 cfs @ 12.15 hrs, Volume= 0.750 af, Depth> 1.53"

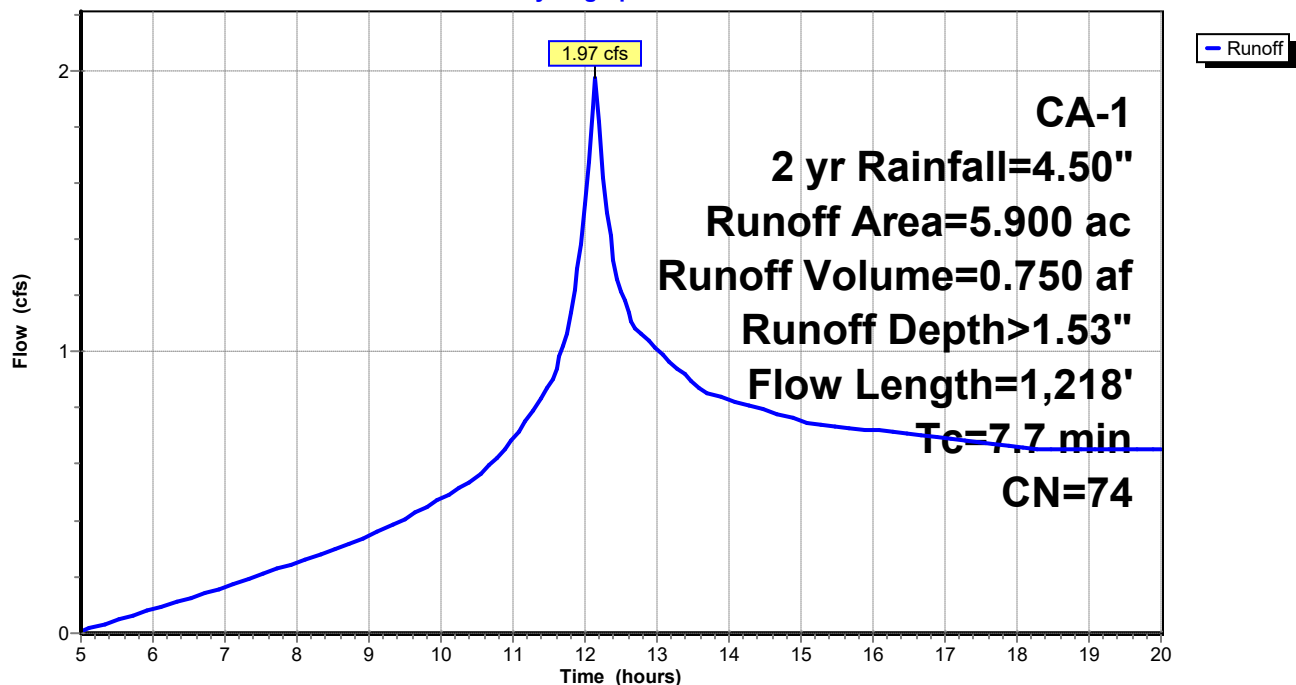
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG C
2.090	74	Pasture/grassland/range, Good, HSG C
3.680	73	Woods, Fair, HSG C
5.900	74	Weighted Average
5.770		97.80% Pervious Area
0.130		2.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	100	0.1500	0.31		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.9	337	0.1400	6.02		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.4	781	0.3200	9.11		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.7	1,218	Total			

Subcatchment 1S: WS 5 pre

Hydrograph



WS 5 preR1

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CA-1 5 yr Rainfall=5.79"

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Summary for Subcatchment 1S: WS 5 pre

Runoff = 3.04 cfs @ 12.14 hrs, Volume= 1.166 af, Depth> 2.37"

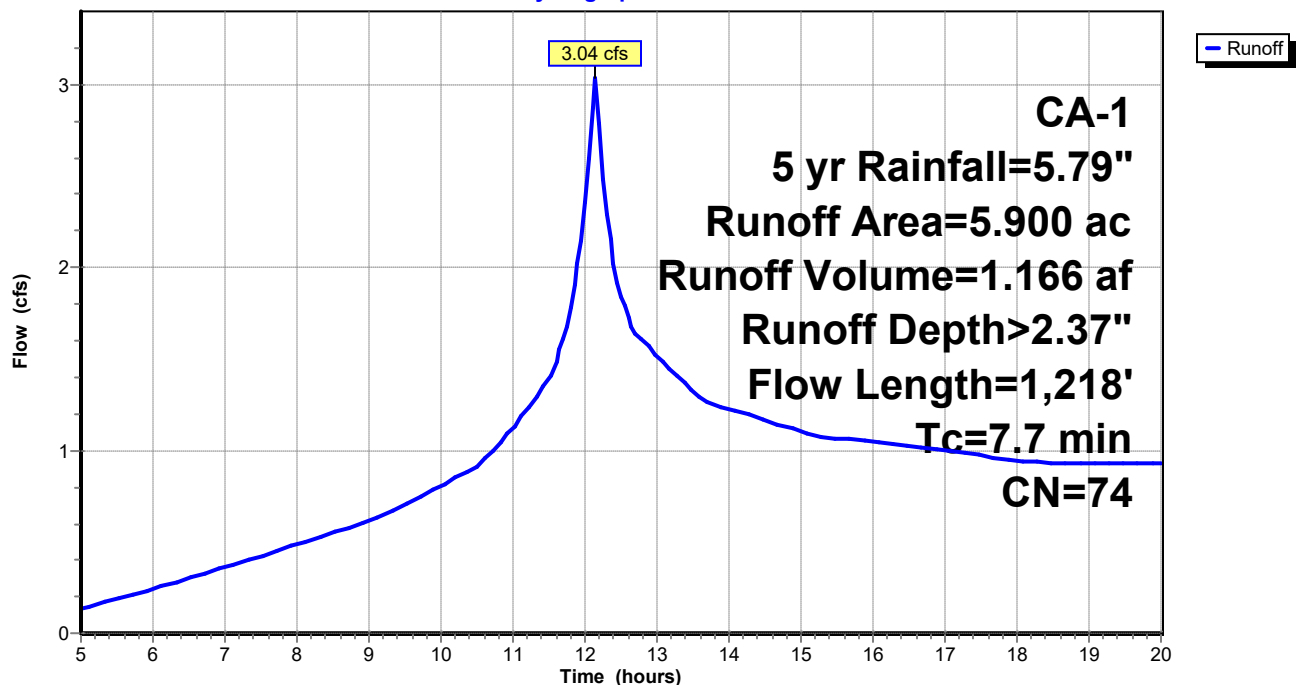
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG C
2.090	74	Pasture/grassland/range, Good, HSG C
3.680	73	Woods, Fair, HSG C
5.900	74	Weighted Average
5.770		97.80% Pervious Area
0.130		2.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	100	0.1500	0.31		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.9	337	0.1400	6.02		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.4	781	0.3200	9.11		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.7	1,218	Total			

Subcatchment 1S: WS 5 pre

Hydrograph



WS 5 preR1

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CA-1 10 yr Rainfall=6.84"

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Summary for Subcatchment 1S: WS 5 pre

Runoff = 3.94 cfs @ 12.14 hrs, Volume= 1.521 af, Depth> 3.09"

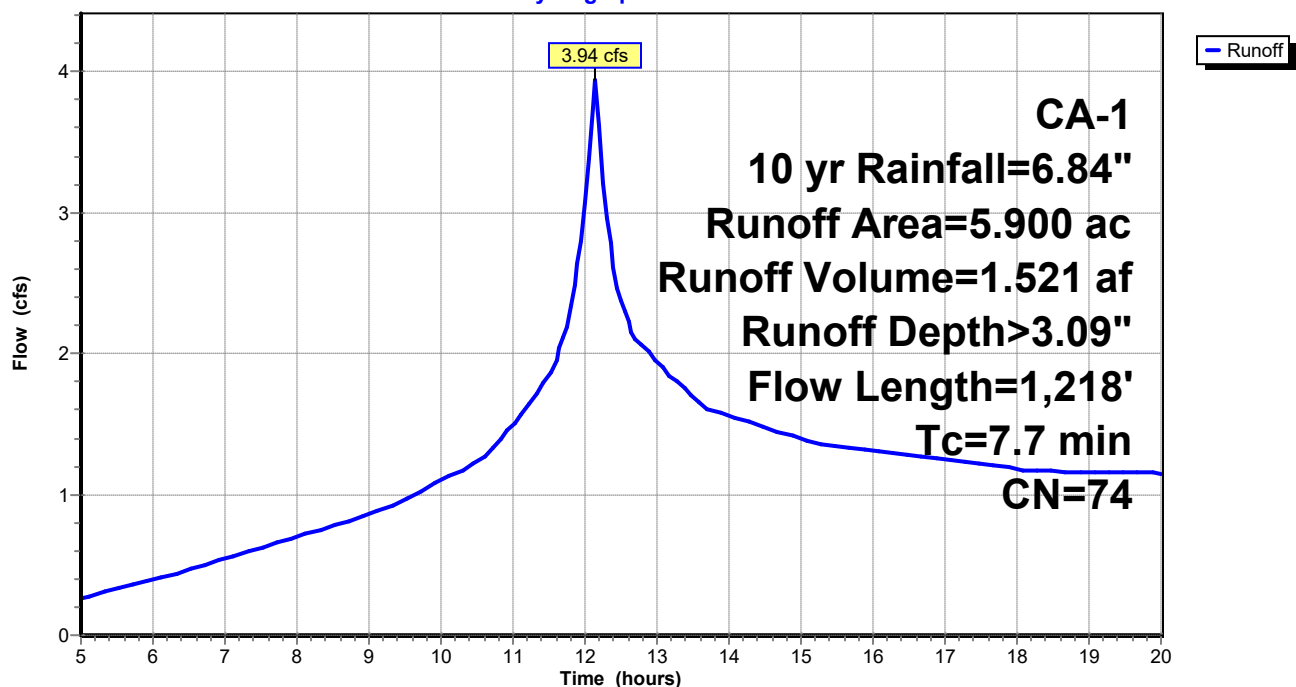
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG C
2.090	74	Pasture/grassland/range, Good, HSG C
3.680	73	Woods, Fair, HSG C
5.900	74	Weighted Average
5.770		97.80% Pervious Area
0.130		2.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	100	0.1500	0.31		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.9	337	0.1400	6.02		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.4	781	0.3200	9.11		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.7	1,218	Total			

Subcatchment 1S: WS 5 pre

Hydrograph



WS 5 preR1

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CA-1 25 yr Rainfall=8.41"

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Summary for Subcatchment 1S: WS 5 pre

Runoff = 5.32 cfs @ 12.14 hrs, Volume= 2.068 af, Depth> 4.21"

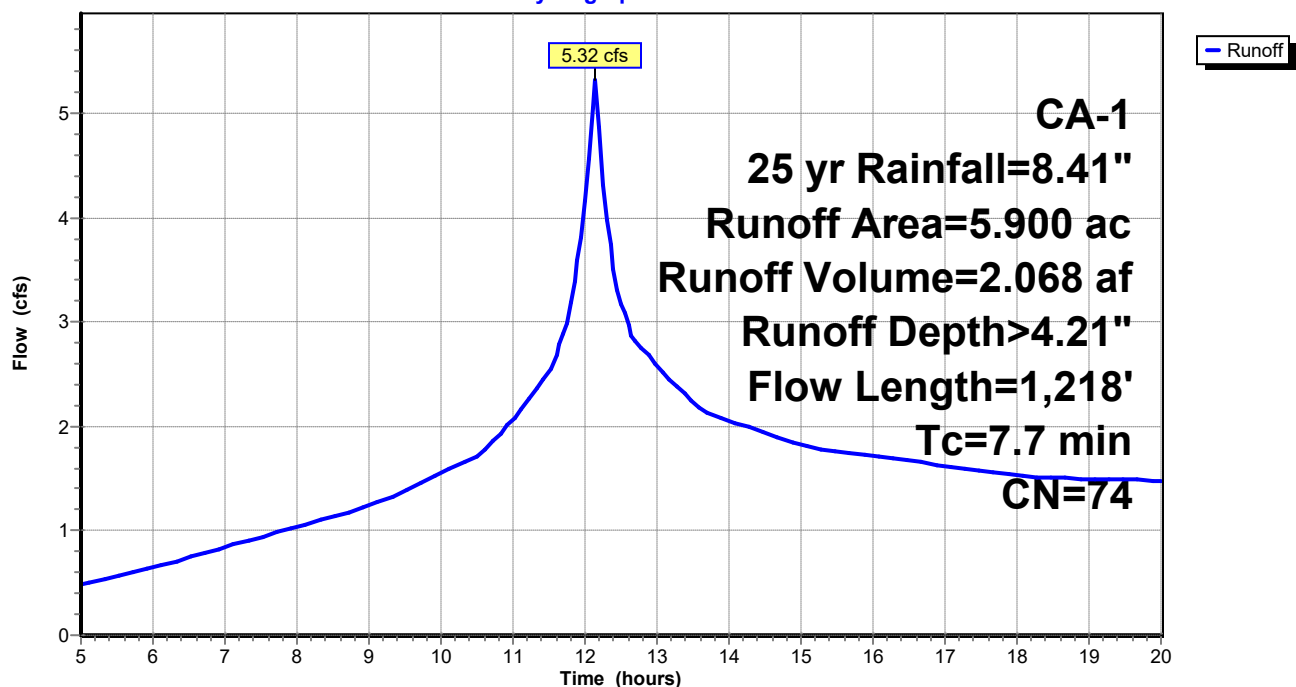
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG C
2.090	74	Pasture/grassland/range, Good, HSG C
3.680	73	Woods, Fair, HSG C
5.900	74	Weighted Average
5.770		97.80% Pervious Area
0.130		2.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	100	0.1500	0.31		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.9	337	0.1400	6.02		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.4	781	0.3200	9.11		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.7	1,218	Total			

Subcatchment 1S: WS 5 pre

Hydrograph



WS 5 preR1

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 1S: WS 5 pre

Runoff = 6.38 cfs @ 12.14 hrs, Volume= 2.491 af, Depth> 5.07"

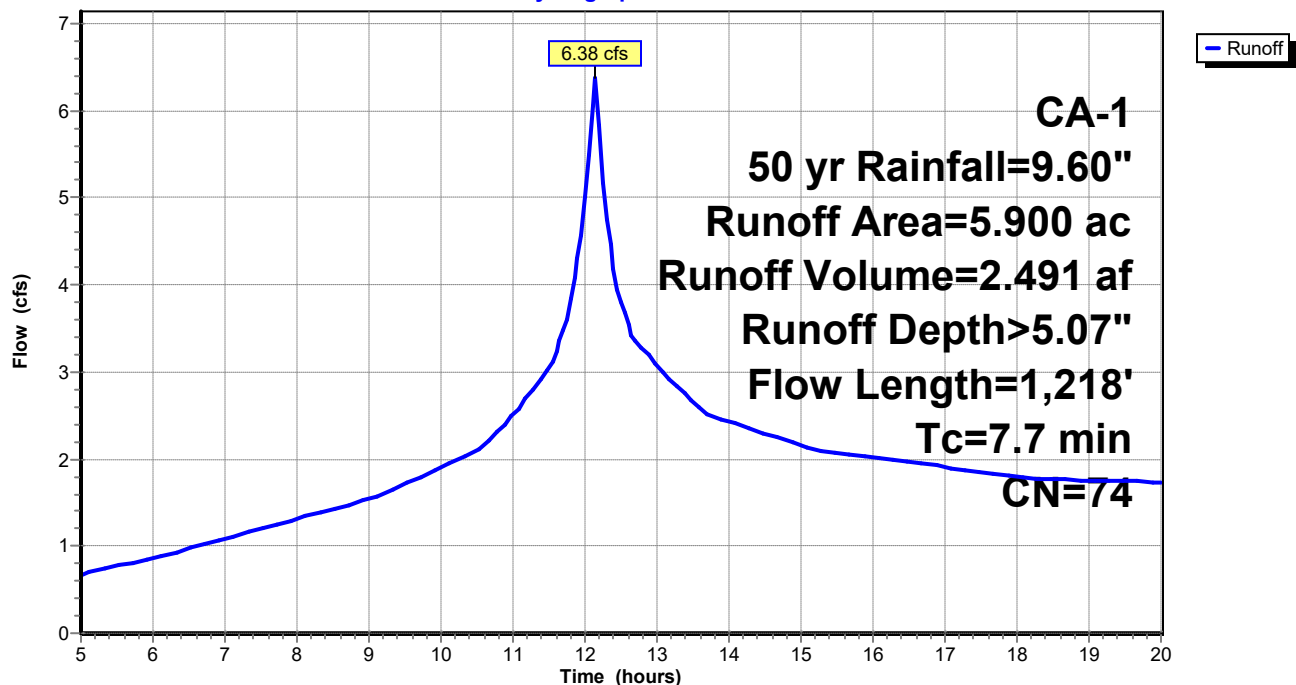
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG C
2.090	74	Pasture/grassland/range, Good, HSG C
3.680	73	Woods, Fair, HSG C
5.900	74	Weighted Average
5.770		97.80% Pervious Area
0.130		2.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	100	0.1500	0.31		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.9	337	0.1400	6.02		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.4	781	0.3200	9.11		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.7	1,218	Total			

Subcatchment 1S: WS 5 pre

Hydrograph



WS 5 preR1

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CA-1 100 yr Rainfall=10.90"

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Summary for Subcatchment 1S: WS 5 pre

Runoff = 7.53 cfs @ 12.14 hrs, Volume= 2.958 af, Depth> 6.02"

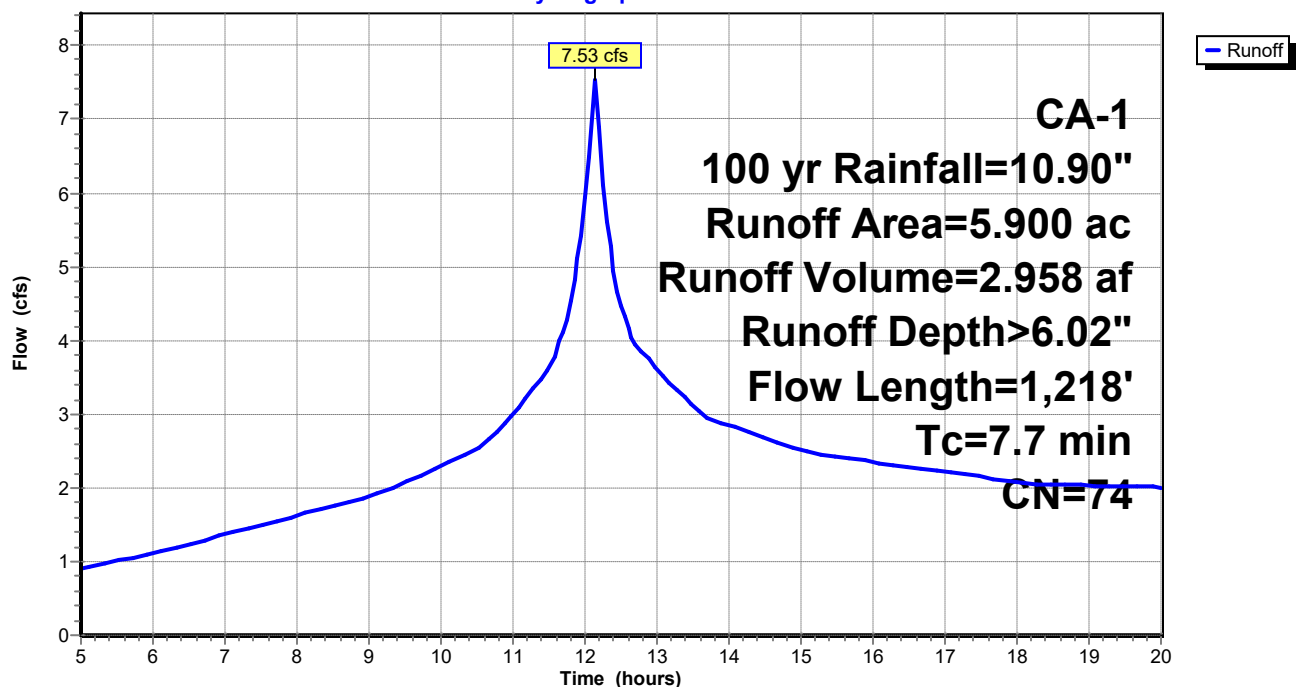
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 100 yr Rainfall=10.90"

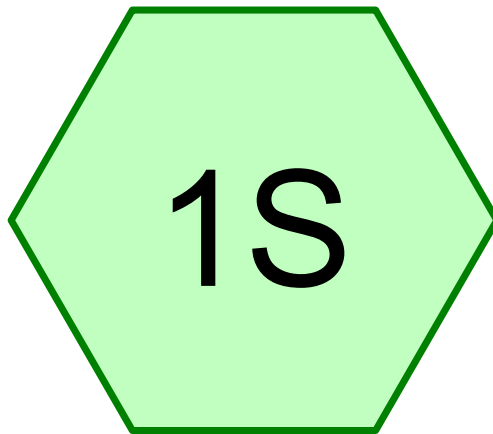
Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers, HSG C
2.090	74	Pasture/grassland/range, Good, HSG C
3.680	73	Woods, Fair, HSG C
5.900	74	Weighted Average
5.770		97.80% Pervious Area
0.130		2.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	100	0.1500	0.31		Sheet Flow, Grass: Dense n= 0.240 P2= 4.50"
0.9	337	0.1400	6.02		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
1.4	781	0.3200	9.11		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
7.7	1,218	Total			

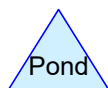
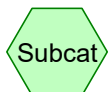
Subcatchment 1S: WS 5 pre

Hydrograph





WS 6 post



Routing Diagram for WS 6 post

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WS 6 post

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CA-1 2 yr Rainfall=4.50"

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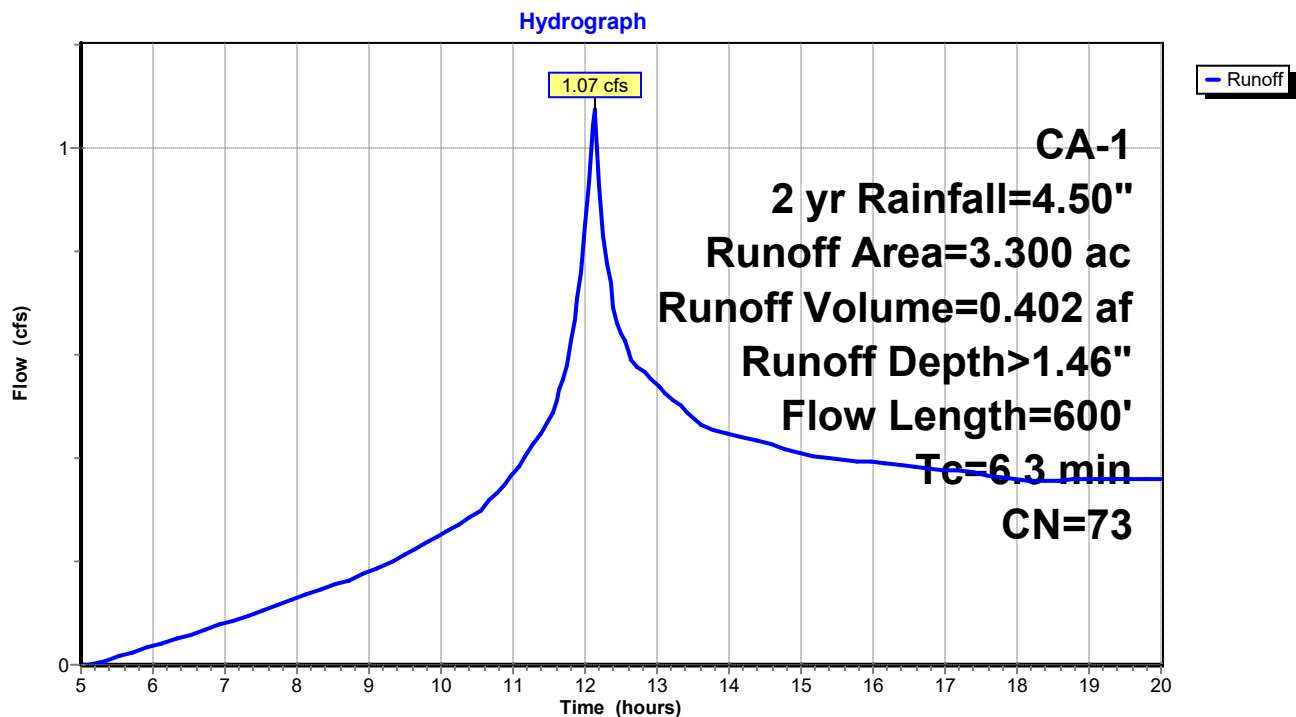
Summary for Subcatchment 1S: WS 6 post

Runoff = 1.07 cfs @ 12.13 hrs, Volume= 0.402 af, Depth> 1.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
* 0.120	75	Vineyard, Good, HSG C
0.150	74	Pasture/grassland/range, Good, HSG C
3.030	73	Woods, Fair, HSG C
3.300	73	Weighted Average
3.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	100	0.4500	0.32		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
0.2	127	0.4100	10.31		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.6	160	0.0900	4.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.3	213	0.4000	10.18		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
6.3	600	Total			

Subcatchment 1S: WS 6 post

WS 6 post

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CA-1 5 yr Rainfall=5.79"

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Summary for Subcatchment 1S: WS 6 post

Runoff = 1.67 cfs @ 12.13 hrs, Volume= 0.631 af, Depth> 2.29"

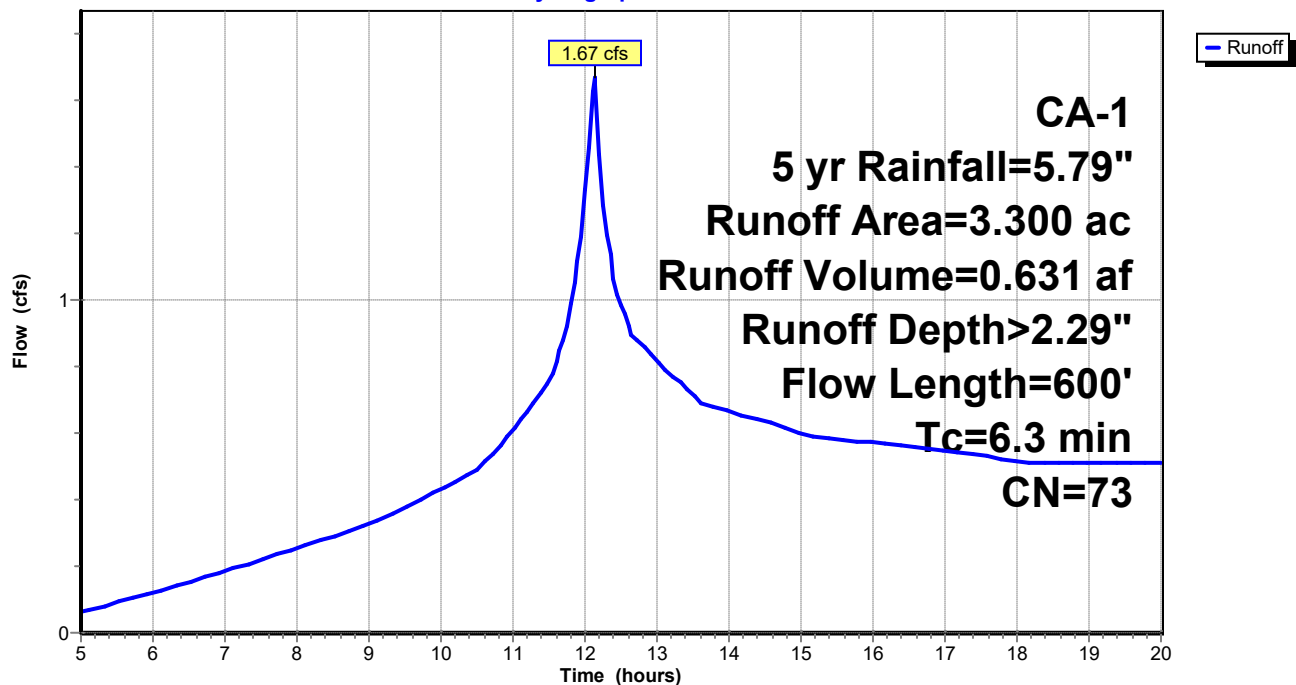
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
* 0.120	75	Vineyard, Good, HSG C
0.150	74	Pasture/grassland/range, Good, HSG C
3.030	73	Woods, Fair, HSG C
3.300	73	Weighted Average
3.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	100	0.4500	0.32		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
0.2	127	0.4100	10.31		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.6	160	0.0900	4.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.3	213	0.4000	10.18		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
6.3	600	Total			

Subcatchment 1S: WS 6 post

Hydrograph



WS 6 post

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CA-1 10 yr Rainfall=6.84"

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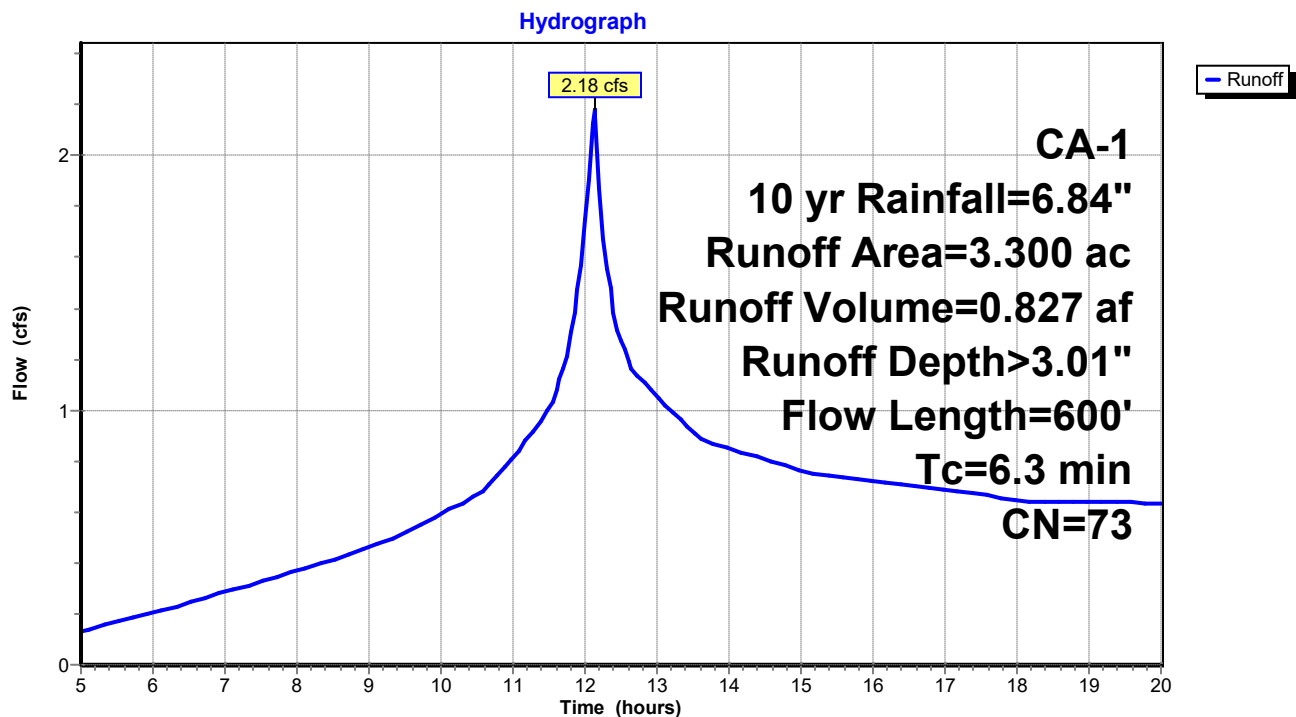
Summary for Subcatchment 1S: WS 6 post

Runoff = 2.18 cfs @ 12.13 hrs, Volume= 0.827 af, Depth> 3.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
* 0.120	75	Vineyard, Good, HSG C
0.150	74	Pasture/grassland/range, Good, HSG C
3.030	73	Woods, Fair, HSG C
3.300	73	Weighted Average
3.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	100	0.4500	0.32		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
0.2	127	0.4100	10.31		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.6	160	0.0900	4.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.3	213	0.4000	10.18		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
6.3	600	Total			

Subcatchment 1S: WS 6 post

WS 6 post

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CA-1 25 yr Rainfall=8.41"

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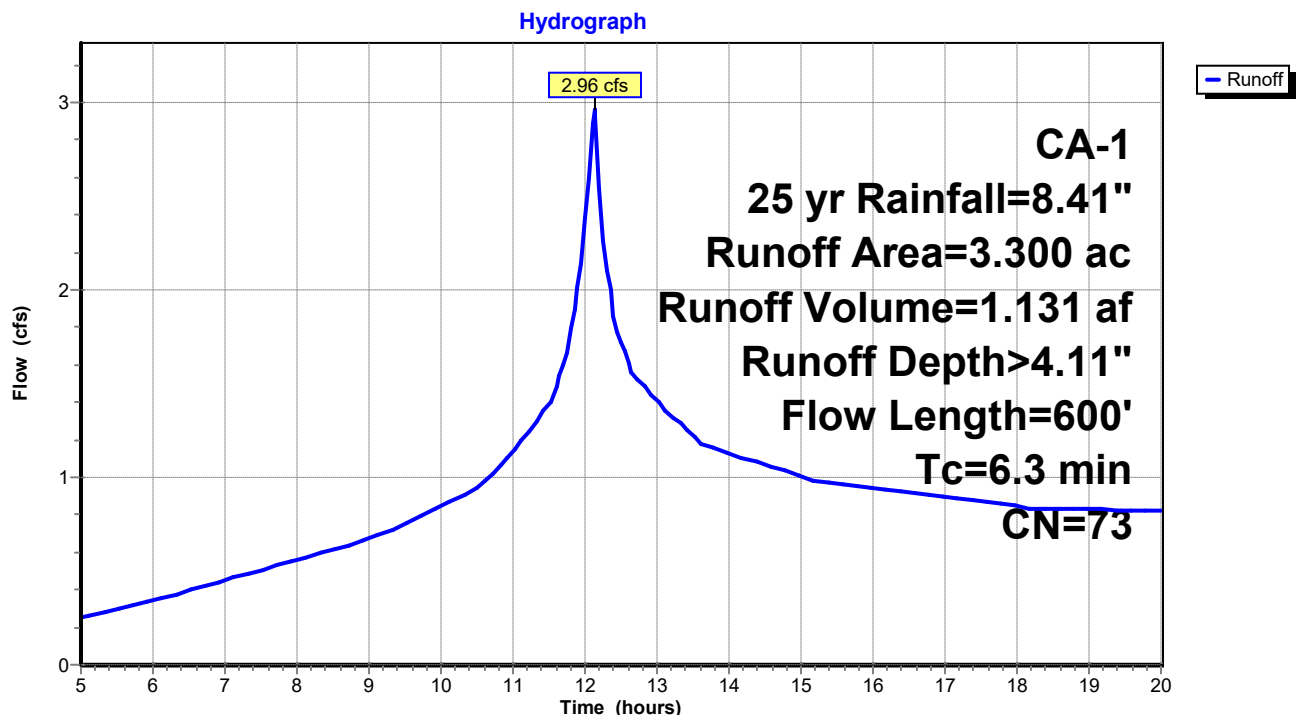
Summary for Subcatchment 1S: WS 6 post

Runoff = 2.96 cfs @ 12.13 hrs, Volume= 1.131 af, Depth> 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
* 0.120	75	Vineyard, Good, HSG C
0.150	74	Pasture/grassland/range, Good, HSG C
3.030	73	Woods, Fair, HSG C
3.300	73	Weighted Average
3.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	100	0.4500	0.32		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
0.2	127	0.4100	10.31		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.6	160	0.0900	4.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.3	213	0.4000	10.18		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
6.3	600	Total			

Subcatchment 1S: WS 6 post

WS 6 post

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CA-1 50 yr Rainfall=9.60"

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Summary for Subcatchment 1S: WS 6 post

Runoff = 3.56 cfs @ 12.13 hrs, Volume= 1.367 af, Depth> 4.97"

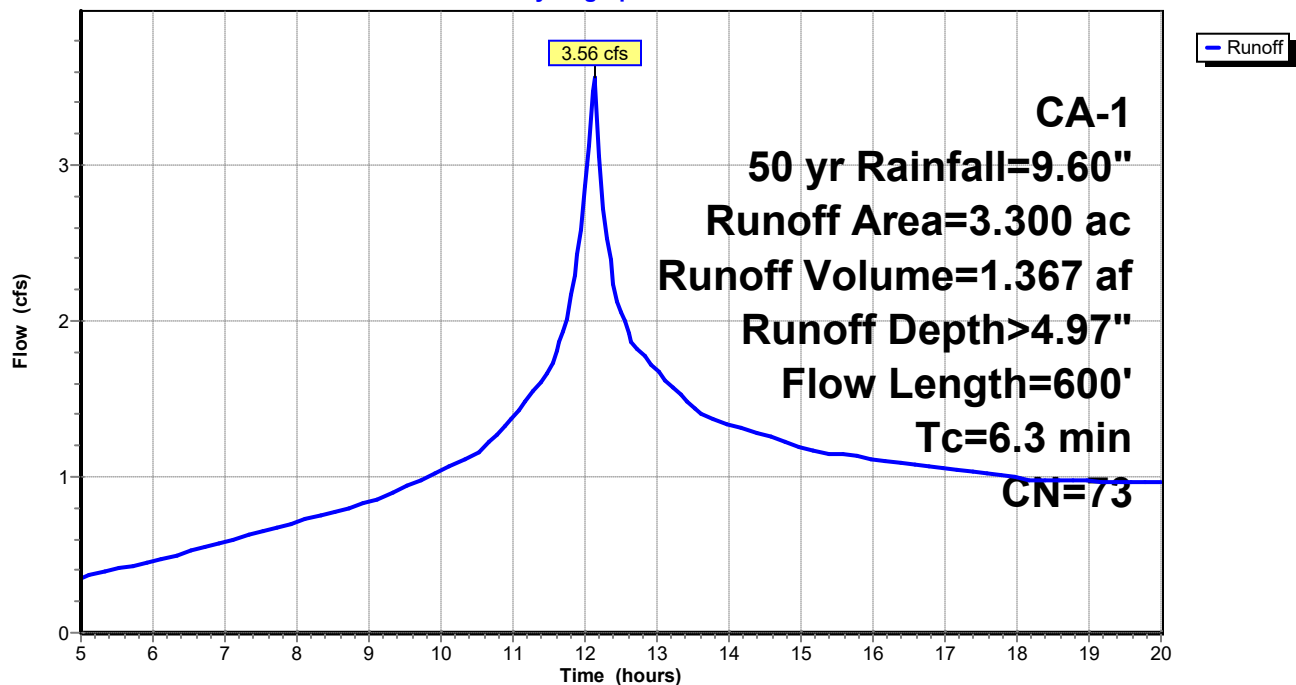
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
* 0.120	75	Vineyard, Good, HSG C
0.150	74	Pasture/grassland/range, Good, HSG C
3.030	73	Woods, Fair, HSG C
3.300	73	Weighted Average
3.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	100	0.4500	0.32		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
0.2	127	0.4100	10.31		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.6	160	0.0900	4.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.3	213	0.4000	10.18		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
6.3	600	Total			

Subcatchment 1S: WS 6 post

Hydrograph



WS 6 post

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CA-1 100 yr Rainfall=10.90"

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Summary for Subcatchment 1S: WS 6 post

Runoff = 4.21 cfs @ 12.13 hrs, Volume= 1.627 af, Depth> 5.92"

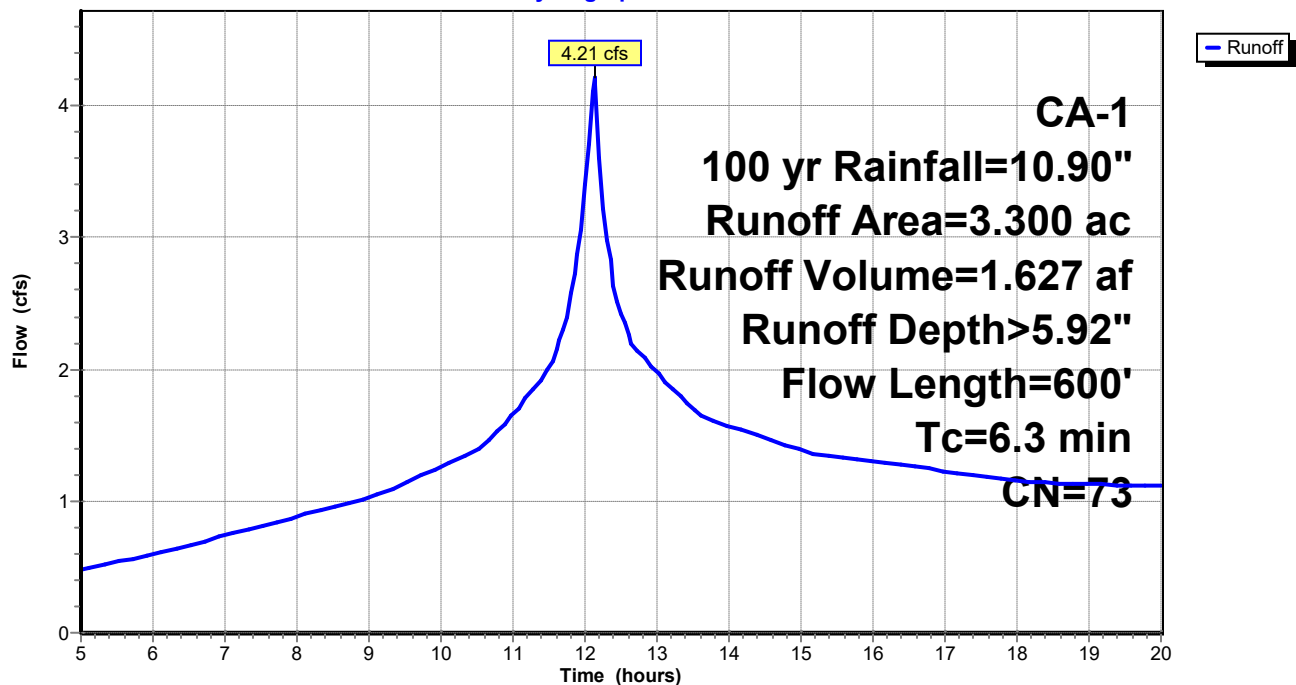
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 100 yr Rainfall=10.90"

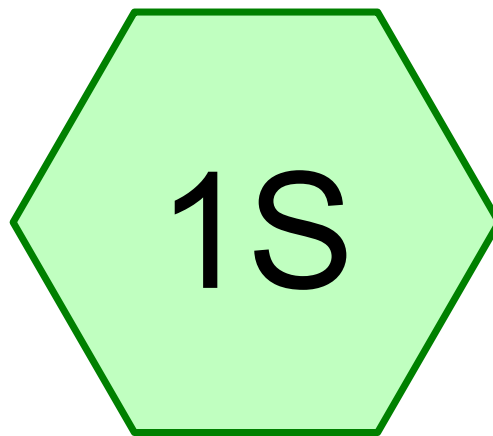
Area (ac)	CN	Description
* 0.120	75	Vineyard, Good, HSG C
0.150	74	Pasture/grassland/range, Good, HSG C
3.030	73	Woods, Fair, HSG C
3.300	73	Weighted Average
3.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	100	0.4500	0.32		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
0.2	127	0.4100	10.31		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.6	160	0.0900	4.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.3	213	0.4000	10.18		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
6.3	600	Total			

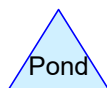
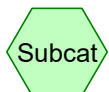
Subcatchment 1S: WS 6 post

Hydrograph





WS 6 pre



Routing Diagram for WS 6 pre

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WS 6 pre

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CA-1 2 yr Rainfall=4.50"

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Summary for Subcatchment 1S: WS 6 pre

Runoff = 1.07 cfs @ 12.13 hrs, Volume= 0.402 af, Depth> 1.46"

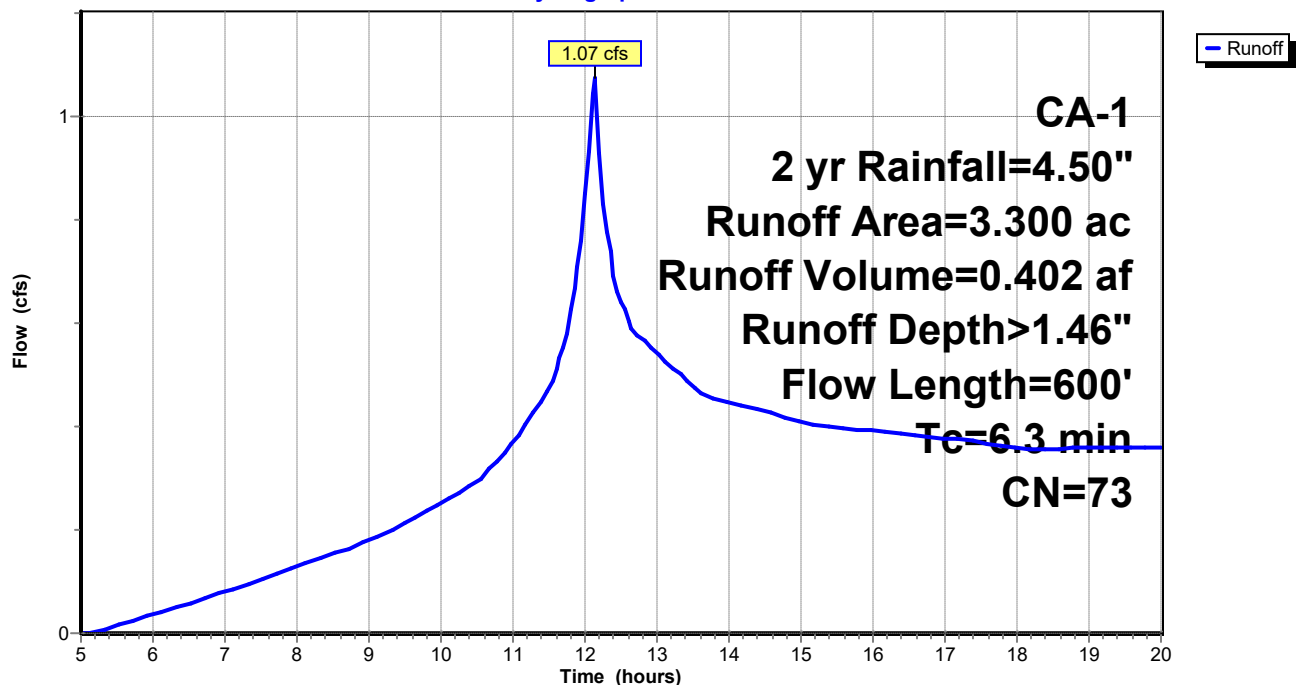
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 2 yr Rainfall=4.50"

Area (ac)	CN	Description
0.270	74	Pasture/grassland/range, Good, HSG C
3.030	73	Woods, Fair, HSG C
3.300	73	Weighted Average
3.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	100	0.4500	0.32		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
0.2	127	0.4100	10.31		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.6	160	0.0900	4.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.3	213	0.4000	10.18		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
6.3	600	Total			

Subcatchment 1S: WS 6 pre

Hydrograph



WS 6 pre

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CA-1 5 yr Rainfall=5.79"

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Summary for Subcatchment 1S: WS 6 pre

Runoff = 1.67 cfs @ 12.13 hrs, Volume= 0.631 af, Depth> 2.29"

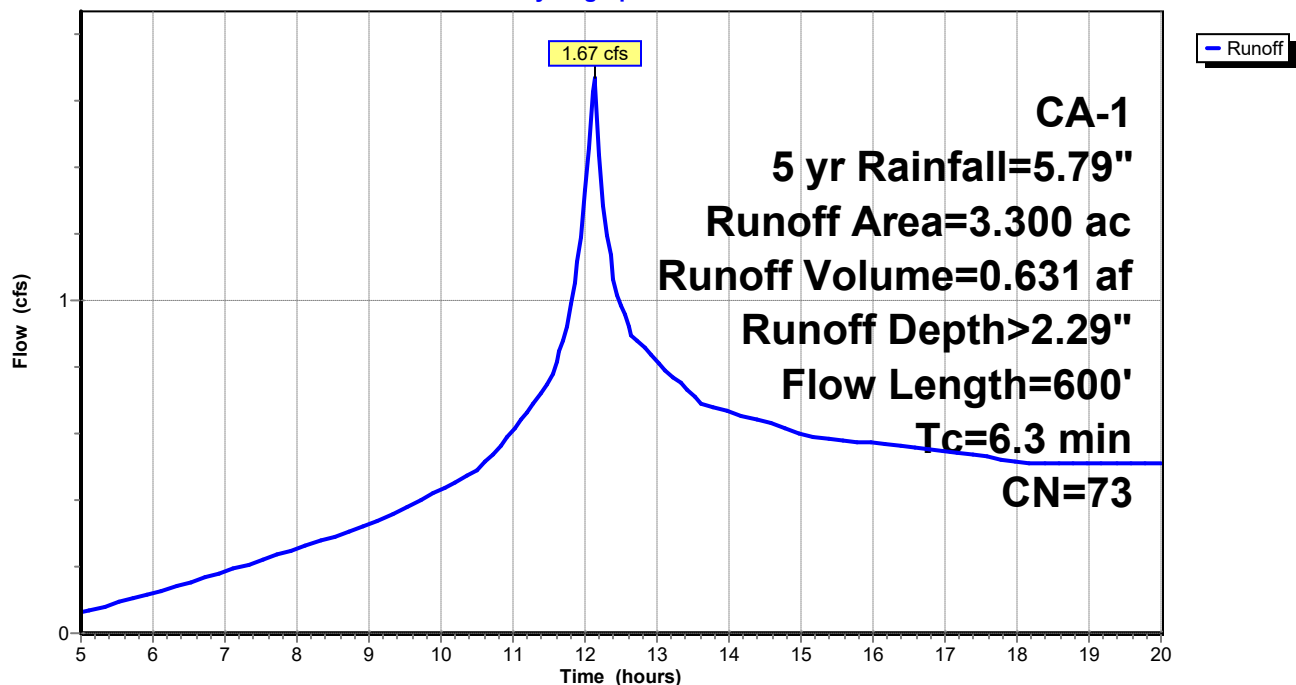
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 5 yr Rainfall=5.79"

Area (ac)	CN	Description
0.270	74	Pasture/grassland/range, Good, HSG C
3.030	73	Woods, Fair, HSG C
3.300	73	Weighted Average
3.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	100	0.4500	0.32		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
0.2	127	0.4100	10.31		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.6	160	0.0900	4.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.3	213	0.4000	10.18		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
6.3	600	Total			

Subcatchment 1S: WS 6 pre

Hydrograph



WS 6 pre

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CA-1 10 yr Rainfall=6.84"

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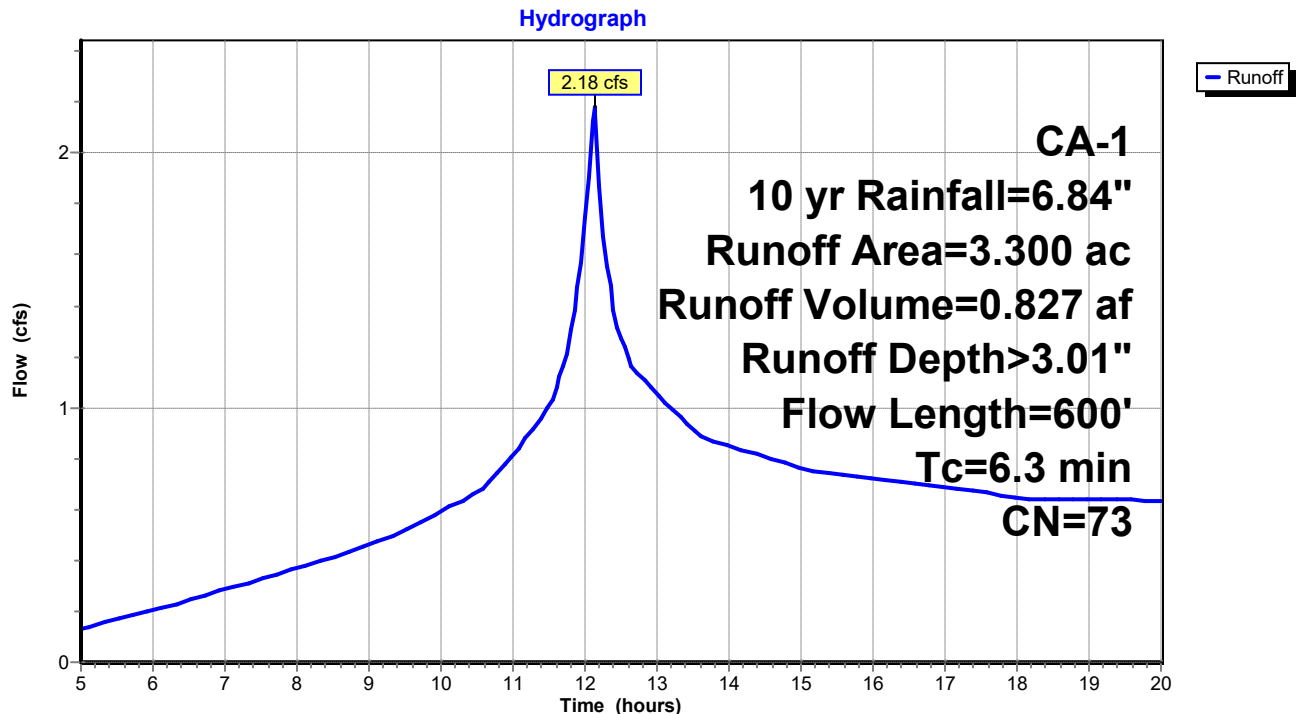
Summary for Subcatchment 1S: WS 6 pre

Runoff = 2.18 cfs @ 12.13 hrs, Volume= 0.827 af, Depth> 3.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 10 yr Rainfall=6.84"

Area (ac)	CN	Description
0.270	74	Pasture/grassland/range, Good, HSG C
3.030	73	Woods, Fair, HSG C
3.300	73	Weighted Average
3.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	100	0.4500	0.32		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
0.2	127	0.4100	10.31		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.6	160	0.0900	4.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.3	213	0.4000	10.18		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
6.3	600	Total			

Subcatchment 1S: WS 6 pre

WS 6 pre

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CA-1 25 yr Rainfall=8.41"

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Summary for Subcatchment 1S: WS 6 pre

Runoff = 2.96 cfs @ 12.13 hrs, Volume= 1.131 af, Depth> 4.11"

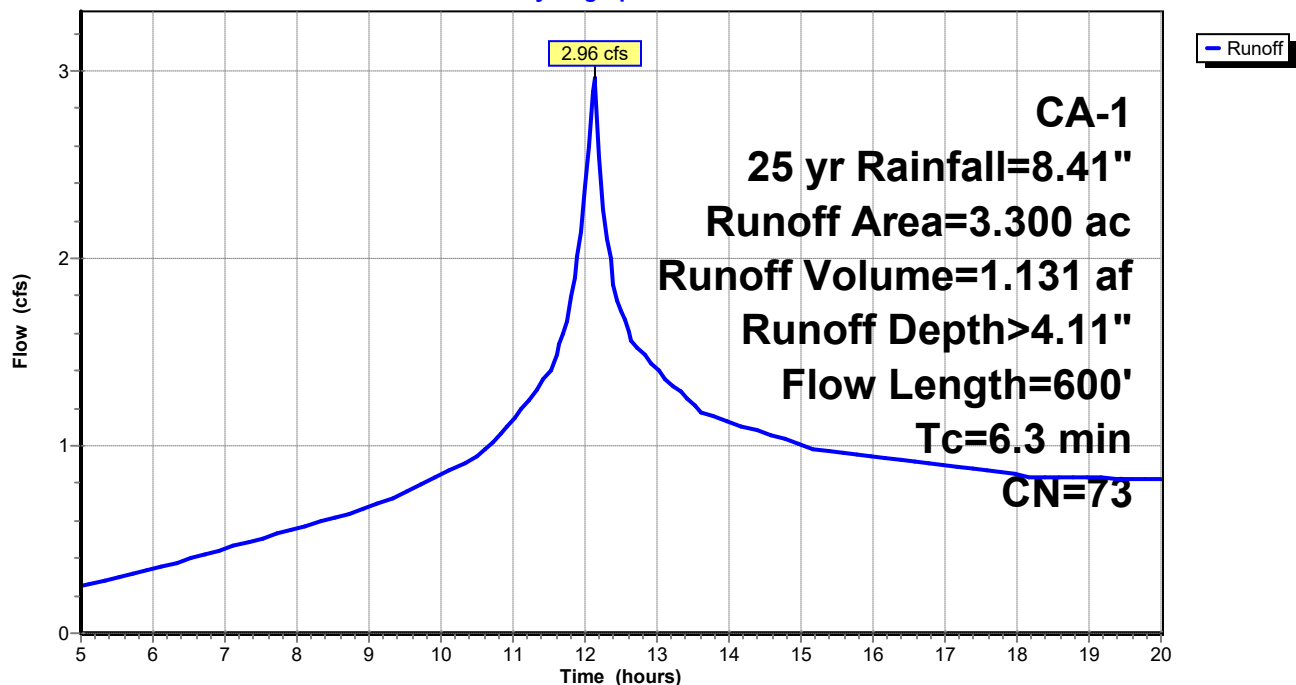
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 25 yr Rainfall=8.41"

Area (ac)	CN	Description
0.270	74	Pasture/grassland/range, Good, HSG C
3.030	73	Woods, Fair, HSG C
3.300	73	Weighted Average
3.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	100	0.4500	0.32		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
0.2	127	0.4100	10.31		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.6	160	0.0900	4.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.3	213	0.4000	10.18		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
6.3	600	Total			

Subcatchment 1S: WS 6 pre

Hydrograph



WS 6 pre

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CA-1 50 yr Rainfall=9.60"

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Page 6

Summary for Subcatchment 1S: WS 6 pre

Runoff = 3.56 cfs @ 12.13 hrs, Volume= 1.367 af, Depth> 4.97"

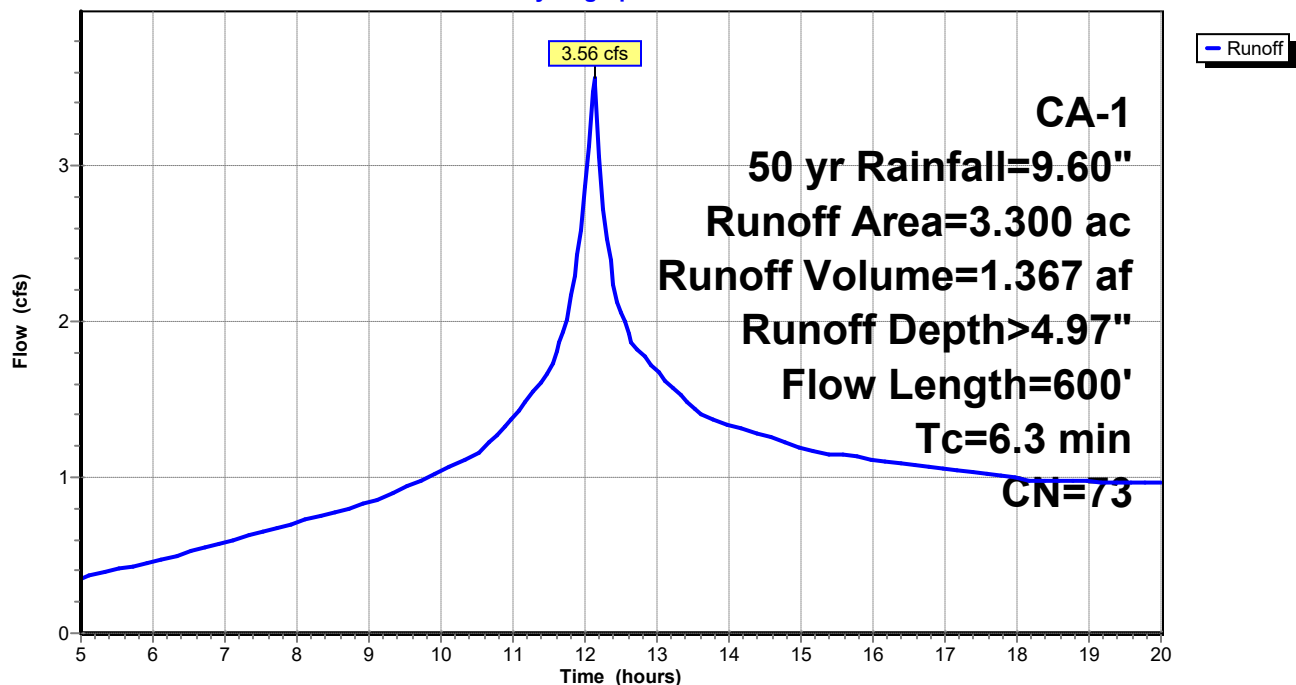
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 50 yr Rainfall=9.60"

Area (ac)	CN	Description
0.270	74	Pasture/grassland/range, Good, HSG C
3.030	73	Woods, Fair, HSG C
3.300	73	Weighted Average
3.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	100	0.4500	0.32		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
0.2	127	0.4100	10.31		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.6	160	0.0900	4.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.3	213	0.4000	10.18		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
6.3	600	Total			

Subcatchment 1S: WS 6 pre

Hydrograph



WS 6 pre

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CA-1 100 yr Rainfall=10.90"

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Summary for Subcatchment 1S: WS 6 pre

Runoff = 4.21 cfs @ 12.13 hrs, Volume= 1.627 af, Depth> 5.92"

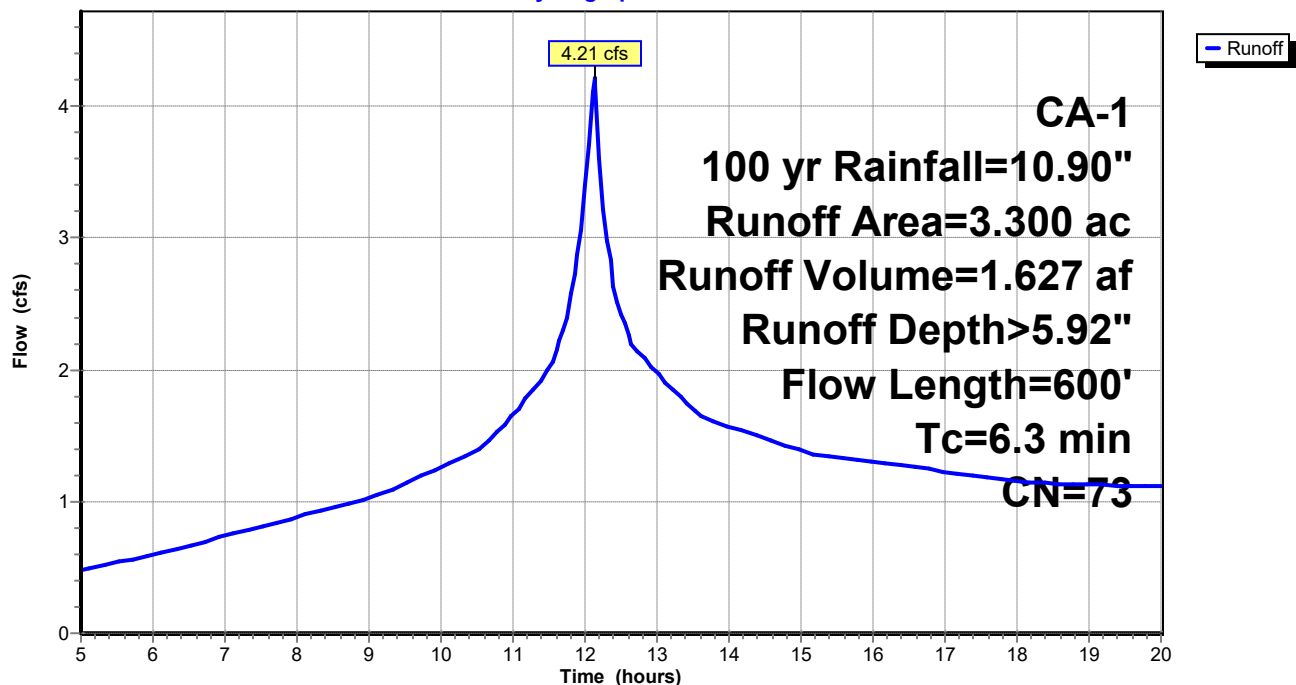
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
CA-1 100 yr Rainfall=10.90"

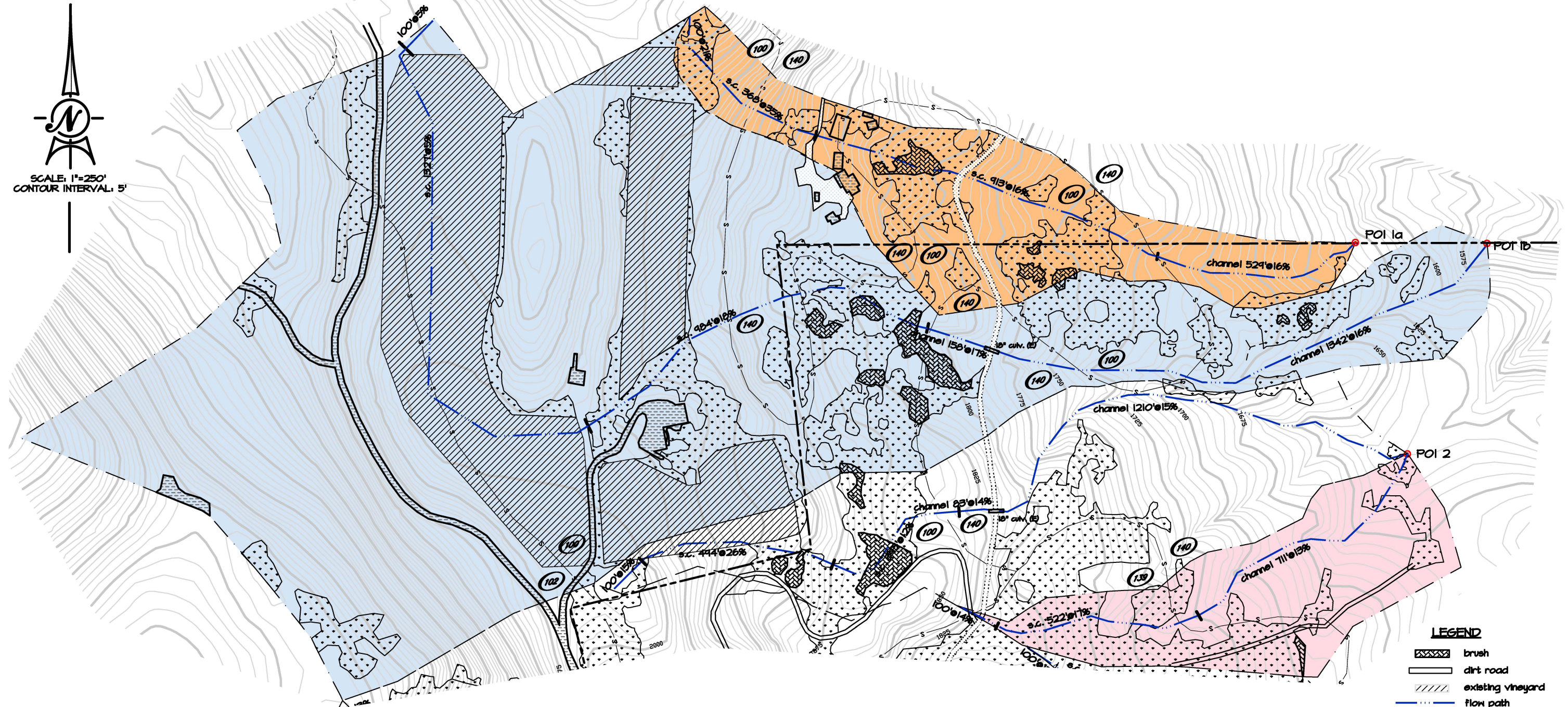
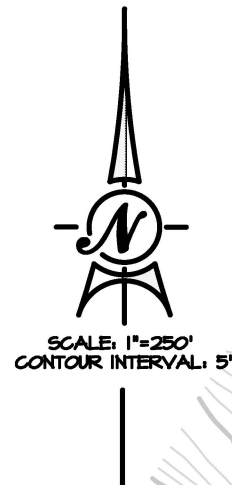
Area (ac)	CN	Description
0.270	74	Pasture/grassland/range, Good, HSG C
3.030	73	Woods, Fair, HSG C
3.300	73	Weighted Average
3.300		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	100	0.4500	0.32		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 4.50"
0.2	127	0.4100	10.31		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.6	160	0.0900	4.83		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
0.3	213	0.4000	10.18		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
6.3	600	Total			

Subcatchment 1S: WS 6 pre

Hydrograph





WS 1a = 9.35 ac

PRE-PROJECT

LAND USE:

Impervious - 0.13 ac
Gravel Road (HSG C) - 0.16 ac
Grassland (HSG C, good) - 2.86 ac
Brush (HSG C, good) - 0.26 ac
Trees (HSG C, fair) - 5.94 ac

TC:

sheet flow 100' @ 21%
shallow concentrated - 368' @ 35%
shallow concentrated - 913' @ 16%
channel - 524' @ 16%

WS 1b = 57.10 ac

PRE-PROJECT

LAND USE:

Impervious - 1.25 ac
Gravel Road (HSG C) - 0.28 ac
Vineyard (HSG C, fair) - 12.68 ac
Grassland (HSG C, good) - 14.88 ac
Brush (HSG C, good) - 0.67 ac
Trees (HSG C, fair) - 27.94 ac

TC:

sheet flow 100' @ 5%
shallow concentrated - 1327' @ 5%
shallow concentrated - 984' @ 18%
channel - 158' @ 16%
culvert - 20' @ 15%
channel - 1342' @ 16%

WS 2a = 14.49 ac

PRE-PROJECT

LAND USE:

Gravel Road (HSG C, fair) - 0.10 ac
Dirt Road (HSG C, fair) - 0.12 ac
Vineyard (HSG C, fair) - 0.56 ac
Grassland (HSG C, good) - 3.61 ac
Brush (HSG C, good) - 0.34 ac
Trees (HSG C, fair) - 9.71 ac

TC:

sheet flow 100' @ 15%
shallow concentrated - 444' @ 26%
shallow concentrated - 393' @ 12%
channel - 83' @ 14%
culvert - 20' @ 13%
channel - 1210' @ 15%

WS 2b = 6.90 ac

PRE-PROJECT

LAND USE:

Dirt Road (HSG C) - 0.15 ac
Grassland (HSG C, good) - 2.43 ac
Brush (HSG C, good) - 0.03 ac
Trees (HSG C, fair) - 4.29 ac

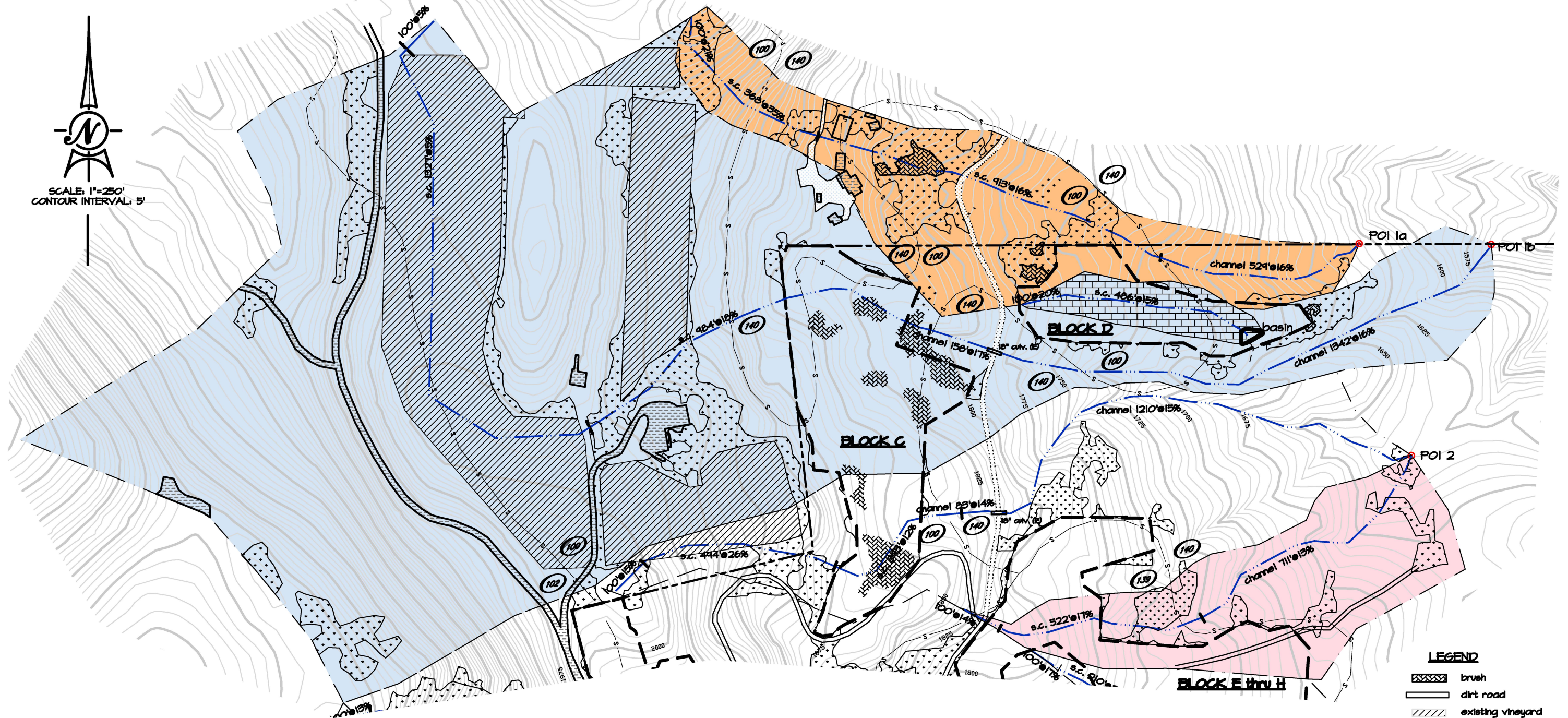
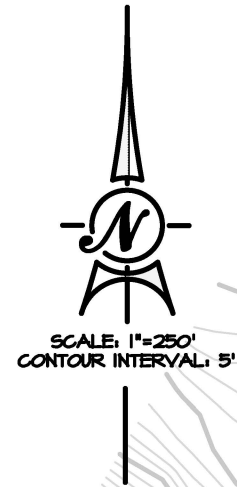
TC:

sheet flow 100' @ 14%
shallow concentrated - 522' @ 17%
channel - 711' @ 13%

LEGEND

- brush
- dirt road
- existing vineyard
- flow path
- grassland
- gravel
- impervious
- point of interest
- project boundary
- watershed boundary

Pires-Atlas Peak II Vineyard
Hydrological Analysis
Drainage & Land Use Map
Watersheds 1 & 2 - Pre Project
NYVE, October 17, 2019



WS 1a = 9.35 ac

POST PROJECT

LAND USE:
Impervious - 0.13 ac
Gravel Road (HSG C) - 0.16 ac
Vineyard (HSG C, good) - 0.34 ac
Grassland (HSG C, good) - 2.55 ac
Brush (HSG C, good) - 0.22 ac
Trees (HSG C, fair) - 5.90 ac
TC:
sheet flow 100' @ 21%
shallow concentrated - 368' @ 35%
shallow concentrated - 913' @ 16%
channel - 529' @ 16%

WS 1b = 56.39 ac

POST PROJECT

LAND USE:
Impervious - 1.25 ac
Gravel Road (HSG C) - 0.28 ac
Vineyard (HSG C, good) - 5.26 ac
Vineyard (HSG C, fair) - 12.68 ac
Grassland (HSG C, good) - 11.23 ac
Brush (HSG C, good) - 0.15 ac
Trees (HSG C, fair) - 25.54 ac
TC:
sheet flow 100' @ 5%
shallow concentrated - 1327' @ 5%
shallow concentrated - 984' @ 18%
channel - 158' @ 16%
culvert - 20' @ 15%
channel - 1342' @ 16%

WS 1b (pond) = 1.31 ac

POST PROJECT

LAND USE:
Vineyard (HSG C, good) - 1.23 ac
Trees (HSG C, fair) - 0.08 ac
TC:
sheet flow 100' @ 20%
shallow concentrated - 486' @ 15%

WS 2a = 14.49 ac

POST PROJECT

LAND USE:
Gravel Road (HSG C, fair) - 0.10 ac
Dirt Road (HSG C, fair) - 0.10 ac
Vineyard (HSG C, good) - 2.74 ac
Vineyard (HSG C, fair) - 0.56 ac
Grassland (HSG C, good) - 1.24 ac
Brush (HSG C, good) - 0.08 ac
Trees (HSG C, fair) - 9.62 ac
TC:
sheet flow 100' @ 15%
shallow concentrated - 444' @ 26%
shallow concentrated - 393' @ 12%
channel - 83' @ 14%
culvert - 20' @ 13%
channel - 1210' @ 15%

WS 2b = 6.90 ac

POST PROJECT

LAND USE:
Dirt Road (HSG C, fair) - 0.07 ac
Vineyard (HSG C, good) - 1.66 ac
Grassland (HSG C, good) - 0.95 ac
Trees (HSG C, fair) - 4.22 ac
TC:
sheet flow 100' @ 14%
shallow concentrated - 522' @ 17%
channel - 711' @ 13%

LEGEND

- brush
- dirt road
- existing vineyard
- flow path
- grassland
- gravel
- impervious
- point of interest
- project boundary
- watershed boundary

Pires-Atlas Peak II Vineyard
Hydrological Analysis
Drainage & Land Use Map
Watersheds 1 & 2 - Post Project
NYVE, October 17, 2019

WS 4 = 32.05 ac

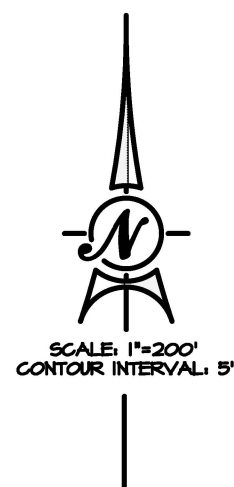
PRE-PROJECT

LAND USE:

Impervious - 0.24 ac
Gravel Road (HSG C, fair) - 0.22 ac
Dirt Road (HSG C, fair) - 0.26 ac
Grassland (HSG C, good) - 11.88 ac
Trees (HSG C, fair) - 19.45 ac

TC:

sheet flow 100' @ 13%
shallow concentrated - 534' @ 50%
shallow concentrated - 408' @ 4%
shallow concentrated - 565' @ 31%
pipe - 20' @ 18%
channel - 1000' @ 17%



WS 5 = 5.90 ac

PRE-PROJECT

LAND USE:

Impervious - 0.13 ac
Grassland (HSG C, good) - 2.04 ac
Trees (HSG C, fair) - 3.68 ac

TC:

sheet flow 100' @ 15%
shallow concentrated - 337' @ 14%
shallow concentrated - 781' @ 32%

WS 6 = 3.30 ac

PRE-PROJECT

LAND USE:

Grassland (HSG C, good) - 0.27 ac
Trees (HSG C, fair) - 3.03 ac

TC:

sheet flow 100' @ 45%
shallow concentrated - 127' @ 41%
shallow concentrated - 160' @ 9%
shallow concentrated - 213' @ 40%

WS 3 = 5.26 ac

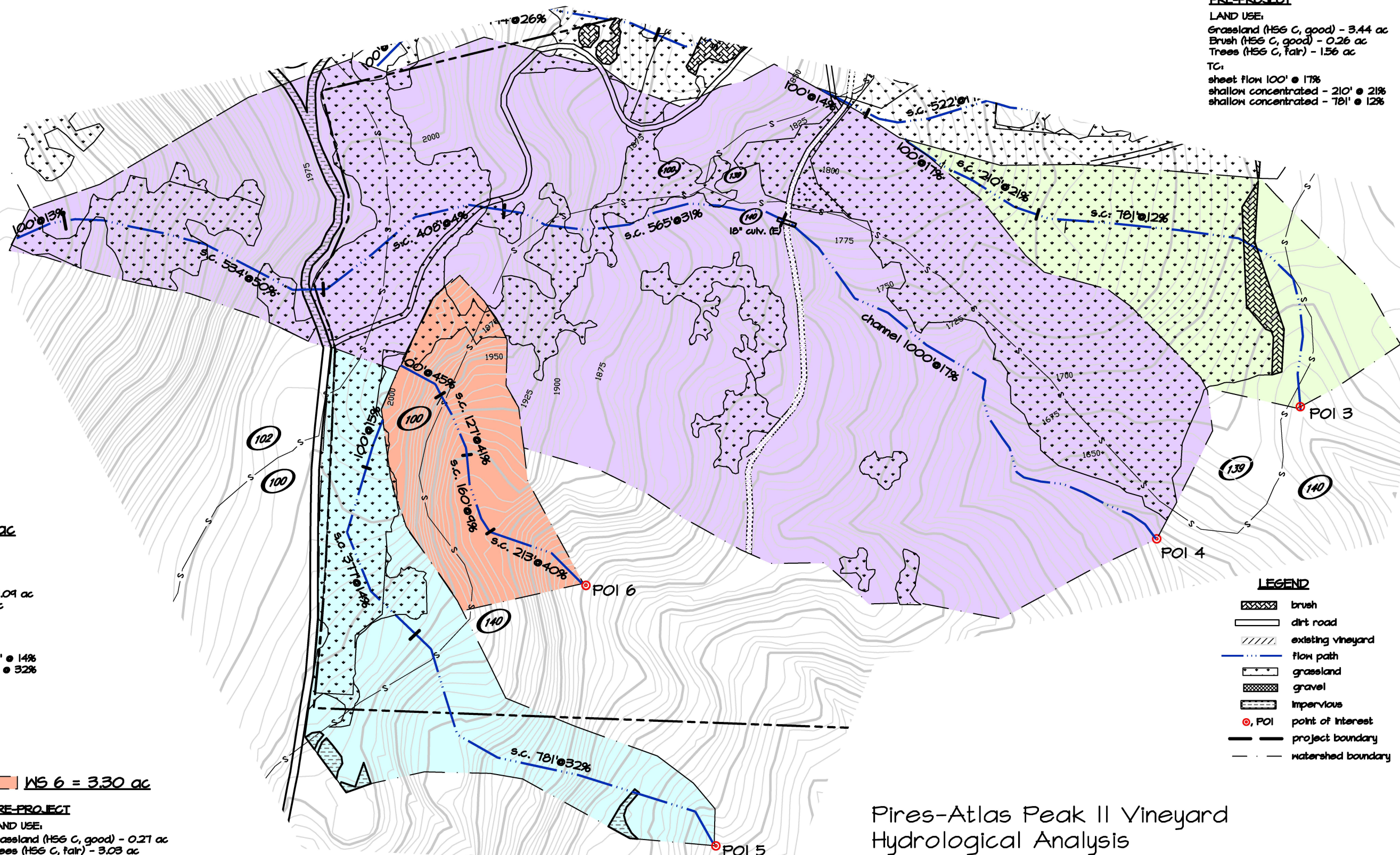
PRE-PROJECT

LAND USE:

Grassland (HSG C, good) - 3.44 ac
Brush (HSG C, good) - 0.26 ac
Trees (HSG C, fair) - 1.56 ac

TC:

sheet flow 100' @ 17%
shallow concentrated - 210' @ 21%
shallow concentrated - 781' @ 12%



Pires-Atlas Peak II Vineyard
Hydrological Analysis
Drainage & Land Use Map
Watersheds 3 thru 6 - Pre Project
NVVE, September 10, 2019

WS 4 = 32.05 ac

POST PROJECT

LAND USE:

Impervious - 0.24 ac
Gravel Road (HSG B, fair) - 0.22 ac
Dirt Road (HSG C, fair) - 0.15 ac

Grassland (HSG C, good) - 7.18 ac
Trees (HSG C, fair) - 19.45 ac

TC:
sheet flow 100' @ 13%
shallow concentrated - 534' @ 50%
shallow concentrated - 408' @ 4%
shallow concentrated - 565' @ 31%
pipe - 20' @ 18%
channel - 1000' @ 17%

WS 3 = 3.66 ac

POST PROJECT

LAND USE:

Vineyard (HSG C, good) - 1.45 ac
Grassland (HSG C, good) - 0.15 ac
Trees (HSG C, fair) - 1.56 ac

TC:
sheet flow 100' @ 17%
shallow concentrated - 210' @ 21%
shallow concentrated - 781' @ 12%

WS 3 (pond-upper) = 1.40 ac

POST PROJECT

LAND USE:

Vineyard (HSG C, good) - 1.40 ac

TC:
sheet flow 100' @ 14%
shallow concentrated - 337' @ 14%
shallow concentrated - 135' @ 4%
pipe - 100' @ 18%

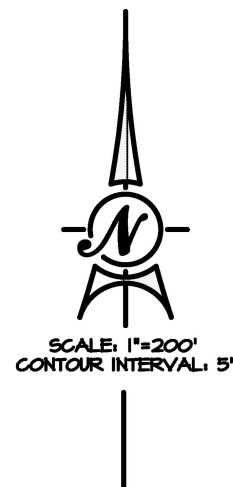
WS 3 (pond-lower) = 0.20 ac

POST PROJECT

LAND USE:

Vineyard (HSG C, good) - 0.2 ac

TC:
sheet flow 98' @ 19%



SCALE: 1"=200'
CONTOUR INTERVAL: 5'

WS 5 = 5.90 ac

POST PROJECT

LAND USE:

Impervious - 0.13 ac
Vineyard (HSG C, good) - 1.58 ac
Grassland (HSG C, good) - 0.52 ac
Trees (HSG C, fair) - 3.67 ac

TC:
sheet flow 100' @ 15%
shallow concentrated - 337' @ 14%
shallow concentrated - 781' @ 32%

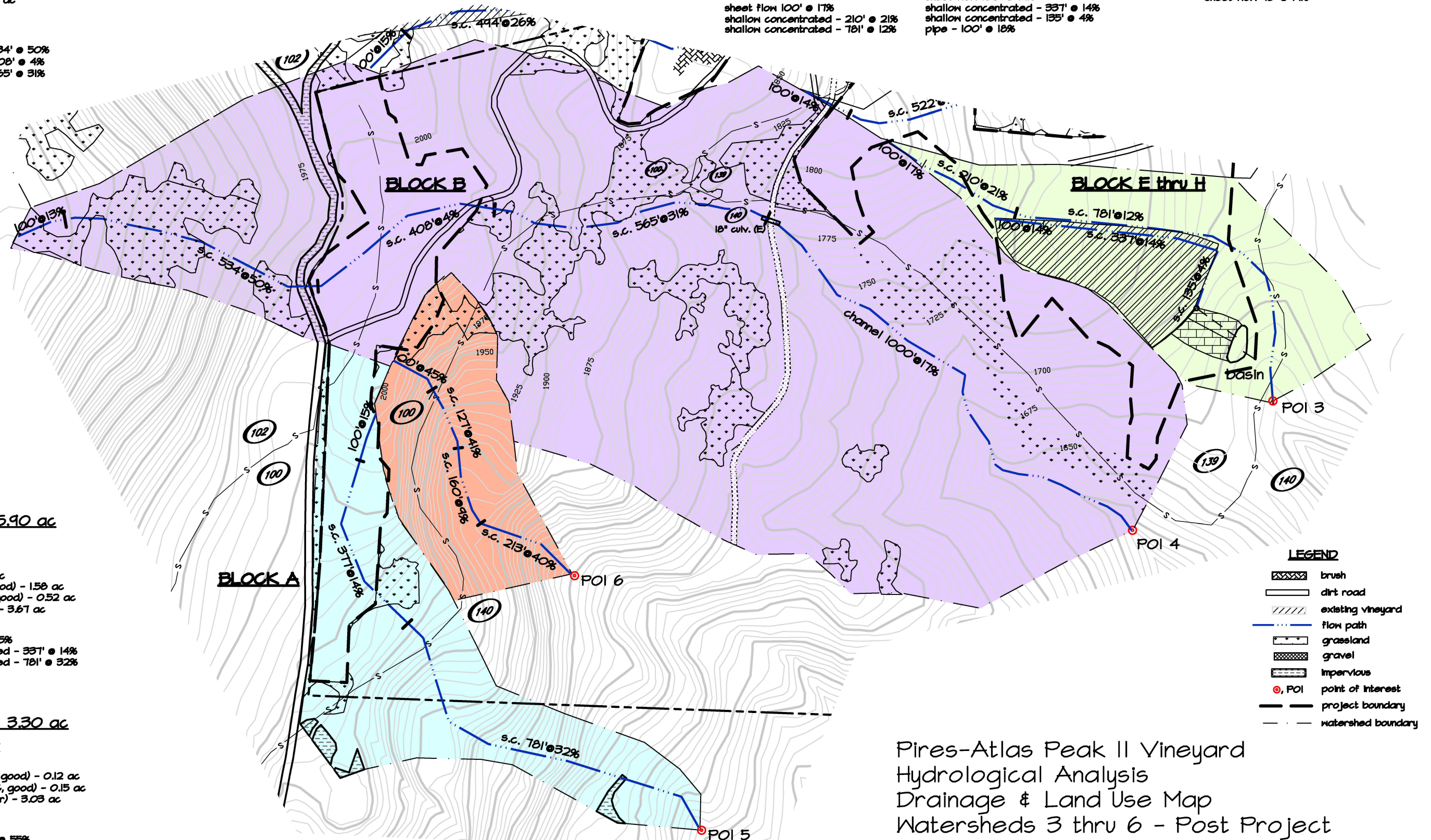
WS 6 = 3.30 ac

POST PROJECT

LAND USE:

Vineyard (HSG C, good) - 0.12 ac
Grassland (HSG C, good) - 0.15 ac
Trees (HSG C, fair) - 3.03 ac

TC:
sheet flow 100' @ 55%
shallow concentrated - 127' @ 41%
shallow concentrated - 213' @ 40%



Pires-Atlas Peak II Vineyard
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