Moshkelani Family Vineyards, LLC
(No Number) Greenfield Road - Hydrology Study
Prepared by Napa Valley Vineyard Engineering, Inc
December 1, 2021

INTRODUCTION

Moshkelani Family Vineyards, LLC seeks approval of approximately 11.99 gross acres of vineyard. The project lies within APN 025-390-009 & 025-380-016, two parcels totaling about 36.73 acres and 11.79 acres respectively, located at 805 Greenfield Road, St. Helena.

This hydrology study is to determine the anticipated affect the proposed vineyard development project will have on local hydrology and runoff patterns in areas UA thru UB and LA thru LC. Hydrologic modeling of existing and proposed conditions was performed using HydroCad, Urban Hydrology for Small Watersheds 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 the Moshkelani Family Vineyards project are estimated to be 38.5169 N, -122.3907 W, based on information obtained from (NOAA) Atlas 14 site.

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

2 year, 24 hour	4.58 inches
100 year, 24 hour	10.50 inches

Rainfall data for the interim storm events were interpolated as:

5 year, 24 hour	5.77 inches
10 year, 24 hour	6.75 inches
25 year, 24 hour	8.22 inches
50 year, 24 hour	9.33 inches

WATERSHED AREAS

The project site drains toward unnamed streams thence Conn Creek and lies in the Lake Hennessey watershed. The points of interest for this analysis are points along unnamed streams. The watershed for Area UA is approximately 9.210 acres, Area UB is approximately 12.978 acres, Area LA is approximately 2.877 acres, Area LB is approximately 2.348 acres, and Area LC is approximately 6.741 acres and was delineated based on topographic data from the Napa County GIS Data Base website. The maps included in Appendix A, depict the watershed, the existing land uses, and the proposed vineyard project.

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 watershed as, SCS# 146 and 179.

SCS #146, Haire loam 2 to 9% slopes (Hydrologic Soil Group (HSG) D)

SCS #179, Sobrante loam 30 to 50% slopes (Hydrologic Soil Group (HSG) C)

Land Use

Land use within the subject watersheds was analyzed based on the 2018 aerial photograph obtained from Napa County. Area UA consists of 4.122 acres of tree canopy, 2.743 acres of grasslands, 0.132 acres of grasslands in “fair” condition, 0.148 acres of grasslands in “poor” condition, 0.184 acres of developed area, 0.908 acres of existing vineyard in “fair” condition, and 0.974 acres of water surface. Area UB consists of 3.697 acres of tree canopy, 0.058 acres of brush, 7.284 acres of grasslands, 0.416 acres of grasslands in “fair” condition, 0.181 acres of grassland in “poor” condition, 0.237 acres of developed area, 0.801 acres of existing vineyard in “fair” condition, and 0.305 acres of water surface. Area LA consists of 0.804 acres of tree canopy, 0.769 acres of grasslands, 0.066 acres of grasslands in “fair” condition, 0.012 acres of grasslands in “poor” condition, 0.240 acres of developed area, 0.024 acres of landscape area, 0.949 acres of existing vineyard, and 0.011 acres of water surface. Area LB consists of 1.676 acres of tree canopy, 0.144 acres of grasslands, 0.042 acres of grasslands in “fair” condition, 0.197 acres of developed area, and 0.289 acres of existing vineyard. Area LC consists of 3.622 acres of tree canopy, 1.147 acres of grasslands, 0.168 acres of grasslands in “fair” condition, 0.074 acres of grasslands in “poor” condition, 0.713 acres of developed area, 0.121 acres of landscape area, 0.896 acres of existing vineyard. Areas inside the watersheds that are considered to be in “fair” or “poor” condition are stated above, all other areas are considered to be in “good” condition. A detailed breakdown of land use by area and hydrologic soil group is included in the HydroCad Reports, Appendix A.

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 point of interest. The time of concentration was estimated assuming sheet flow for 100 feet in the uppermost reaches of the watershed. A shallow concentrated flow regime was used to model the runoff down to the point of interest as well as ditches, pipelines, streams, and ponds. Manning’s coefficients were selected to represent the respective surface conditions. A detailed breakdown of the time of concentration parameters is included in the HydroCad Reports, Appendix A and are shown on the Drainage Area Map.

POST PROJECT WATERSHED CONDITIONS

Soil Types

The proposed vineyard development occurs within the areas as:

SCS #146, Haire loam 2 to 9% slopes ((HSG) D)

SCS #179, Sobrante loam 30 to 50% slopes ((HSG) C)

Land Use

The proposed project will convert 3.308 acres of tree canopy, 5.895 acres of grasslands, 0.525 acres of grasslands in “fair” condition, 0.245 acres of grasslands in “poor” condition, 0.320 acres of existing development, and 1.741 acres of existing vineyard in “fair” condition. The project proposes a no-till cover crop with strip spray only, which is considered a “good" hydrologic condition. Vineyard avenues/turnspaces, other than the rock fill avenues, will be maintained in a no-till cover and are modeled as part of the vineyard. The existing vineyard inside the stream setback (0.04 acres) will be removed and grass will be planted. All other areas within the watershed are assumed to remain unchanged in the project area. A detailed breakdown of land uses by area and hydrologic soil group is included in the HydroCad Reports, Appendix A.

Time of Concentration

Time of concentration under post-project conditions will not increase in the watersheds. The erosion control measures provided within the project area include. The time of concentration is estimated assuming sheet flow for 100 feet in the uppermost reaches of each watershed area, shallow concentrated flows down the hillside to the point of interest as well as ditches, pipelines, streams, and ponds were used. A detailed breakdown of the time of concentration parameters is included in the HydroCad Report. Manning’s coefficients were selected to represent the respective surface conditions. A detailed breakdown of the time of concentration parameters is included in the HydroCad Reports, Appendix A and are shown on the Land Use Maps

CALCULATED RUNOFF RATE

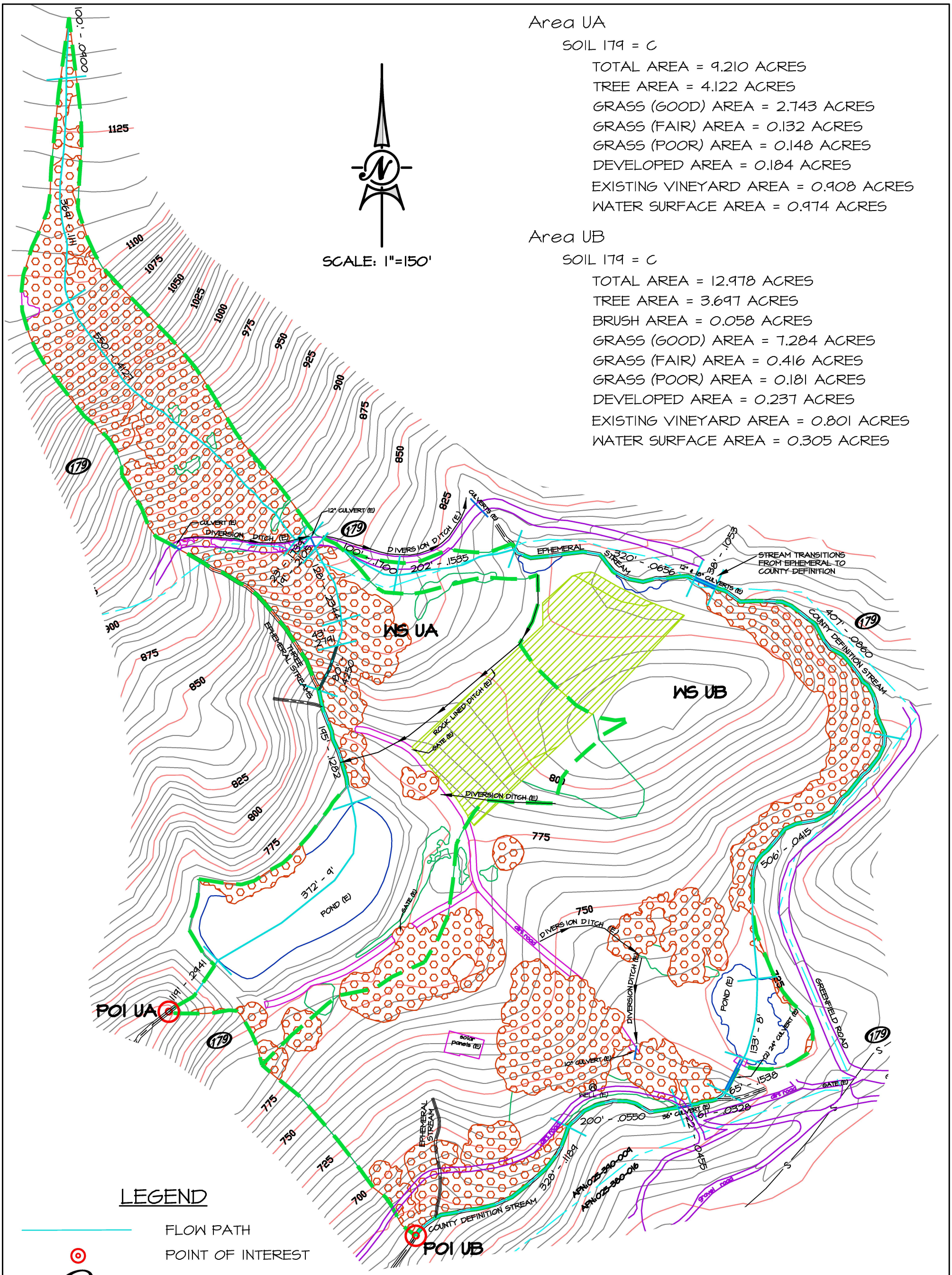
Using the rainfall data, watershed area, land use and time of concentration parameters described above and included in Appendix A, the following runoff rates were calculated:

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 UA	3.15	3.04	4.55	4.43	5.73	5.61	7.53	7.40	8.89	8.77	10.33	10.21
Watershed UB	4.72	4.72	6.93	6.93	8.82	8.82	11.69	11.69	13.88	13.88	16.20	16.20
Watershed LA	1.28	1.28	1.78	1.78	2.20	2.20	2.84	2.84	3.31	3.31	3.82	3.82
Watershed LB	0.85	0.85	1.23	1.23	1.54	1.54	2.03	2.03	2.39	2.39	2.78	2.78
Watershed LC	2.38	2.38	3.41	3.41	4.28	4.28	5.59	5.59	6.58	6.58	7.63	7.63

CONCLUSION

The hydrologic analysis presented above and supporting information in the Appendix, demonstrate that the proposed vineyard development will not increase the peak runoff rate in the affected watersheds.



Area UA

SOIL 179 = C

- TOTAL AREA = 9.210 ACRES
- TREE AREA = 4.122 ACRES
- GRASS (GOOD) AREA = 2.743 ACRES
- GRASS (FAIR) AREA = 0.132 ACRES
- GRASS (POOR) AREA = 0.148 ACRES
- DEVELOPED AREA = 0.184 ACRES
- EXISTING VINEYARD AREA = 0.908 ACRES
- WATER SURFACE AREA = 0.974 ACRES

Area UB

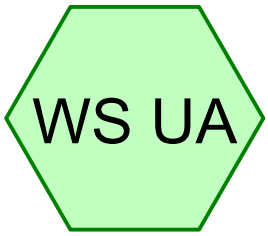
SOIL 179 = C

- TOTAL AREA = 12.978 ACRES
- TREE AREA = 3.697 ACRES
- BRUSH AREA = 0.058 ACRES
- GRASS (GOOD) AREA = 7.284 ACRES
- GRASS (FAIR) AREA = 0.416 ACRES
- GRASS (POOR) AREA = 0.181 ACRES
- DEVELOPED AREA = 0.237 ACRES
- EXISTING VINEYARD AREA = 0.801 ACRES
- WATER SURFACE AREA = 0.305 ACRES

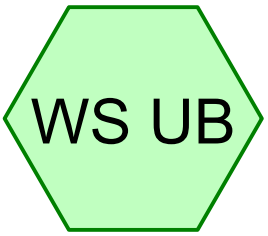
MOSHKELANI FAMILY VINEYARDS, LLC
805 GREEN FIELD ROAD
APN:025-390-009
PRE HYDROLOGY BLOCK A

NVVE 12-1-21

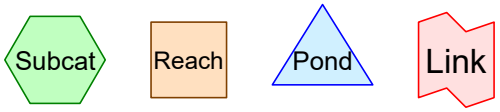
NAPA COUNTY GIS DATA BASE



PRE WS UA



PRE WS UB



Routing Diagram for 20ECP Moshkelani Block A PRE
Prepared by Napa Valley Vineyard Engineering, Printed 12/6/2021

Summary for Subcatchment WS UA: PRE WS UA

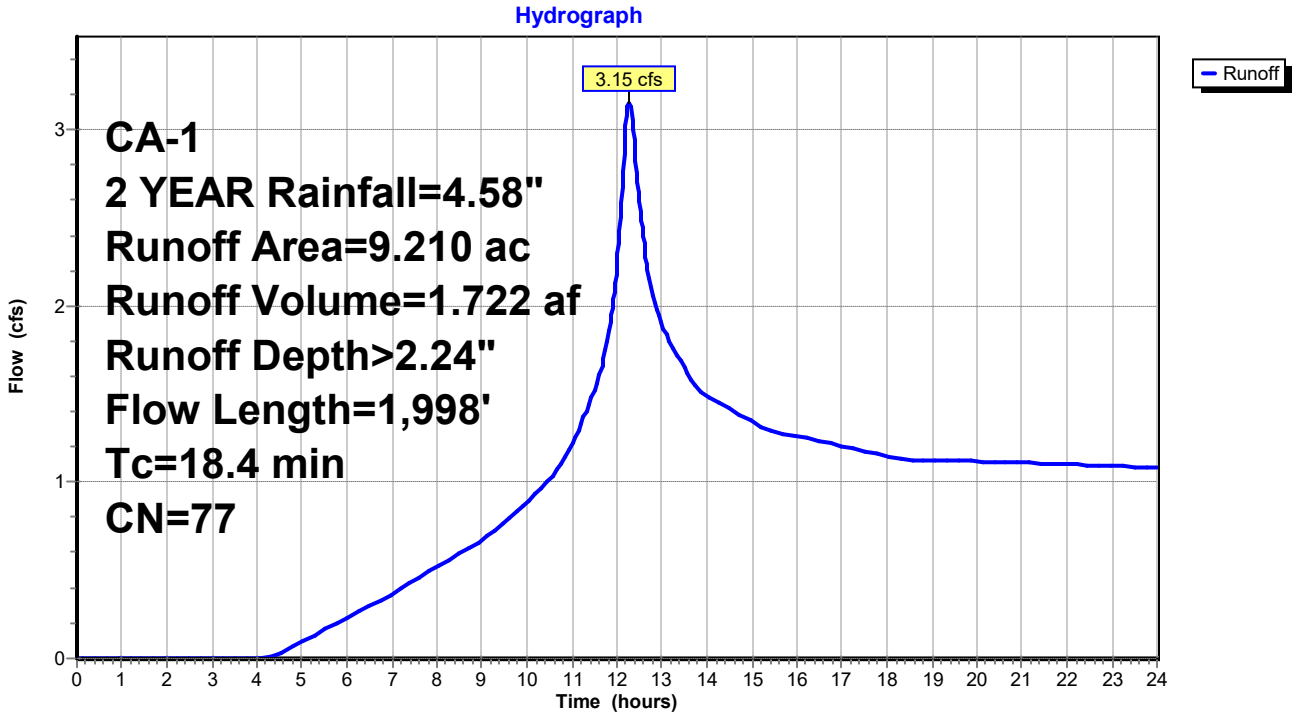
Runoff = 3.15 cfs @ 12.27 hrs, Volume= 1.722 af, Depth> 2.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 2 YEAR Rainfall=4.58"

Area (ac)	CN	Description
0.124	87	Dirt roads, HSG C
0.132	79	Pasture/grassland/range, Fair, HSG C
2.743	74	Pasture/grassland/range, Good, HSG C
0.148	86	Pasture/grassland/range, Poor, HSG C
0.045	98	Paved Road, HSG C
0.015	98	Roofs, HSG C
0.908	79	Vineyard (E), Fair, HSG C
0.974	98	Water Surface, HSG C
4.122	72	Woods/grass comb., Good, HSG C
9.210	77	Weighted Average
8.176		88.77% Pervious Area
1.034		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, PRE WS UA** Woods: Light underbrush n= 0.400 P2= 4.58"
3.7	369	0.1111	1.67		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
2.9	550	0.4127	3.21		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
0.0	23	0.1739	16.40	32.81	**Channel Flow, PRE WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.022 Earth, clean & straight
0.0	19	0.2105	13.53	10.63	**Pipe Channel, PRE WS UA** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.020 Corrugated PE, corrugated interior
0.9	128	0.2344	2.42		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
0.3	43	0.2791	2.64		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
0.1	80	0.4250	18.81	37.61	**Channel Flow, PRE WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.030 Stream, clean & straight
0.2	195	0.1282	14.60	145.96	**Channel Flow, PRE WS UA** Area= 10.0 sf Perim= 8.7' r= 1.15' n= 0.040 Mountain streams
0.4	372		17.02		**Lake or Reservoir, PRE WS UA** Mean Depth= 9.00'
0.1	119	0.2941	20.95	37.03	**Pipe Channel, PRE WS UA** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
18.4	1,998	Total			

Subcatchment WS UA: PRE WS UA



Summary for Subcatchment WS UB: PRE WS UB

Runoff = 4.72 cfs @ 12.14 hrs, Volume= 2.273 af, Depth> 2.10"

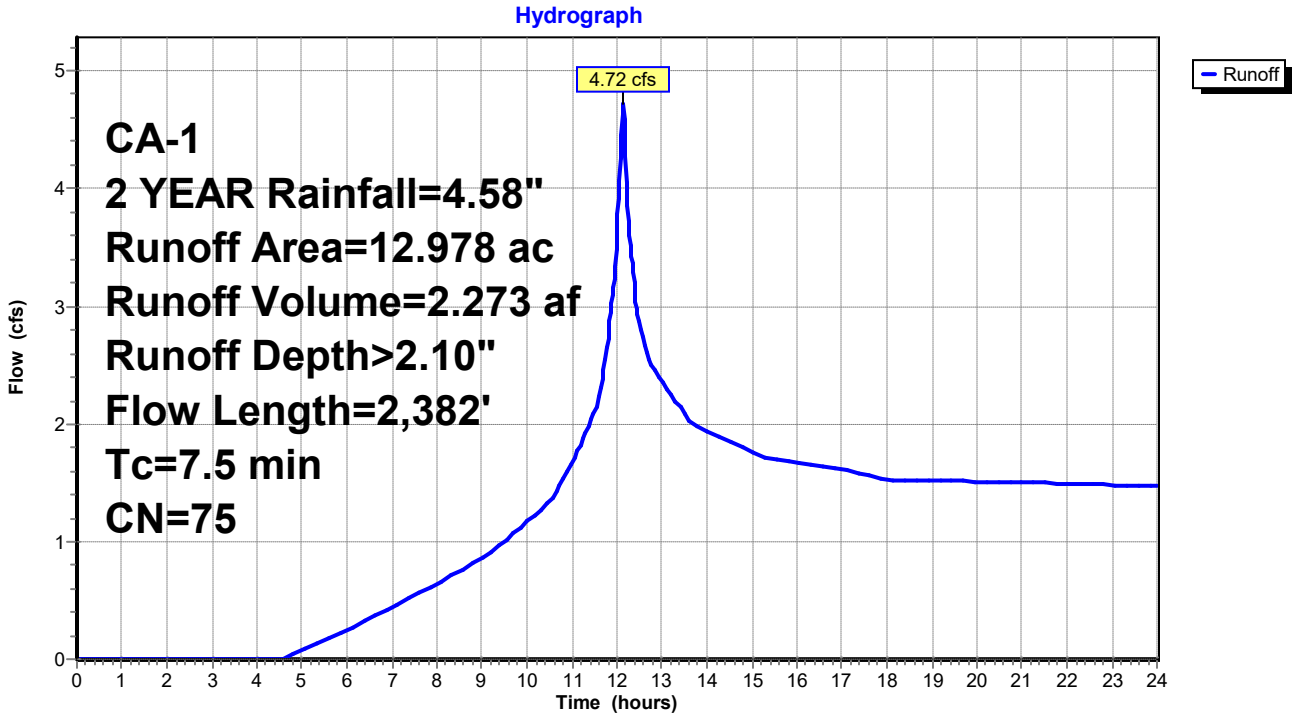
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 2 YEAR Rainfall=4.58"

Area (ac)	CN	Description
0.058	65	Brush, Good, HSG C
0.153	87	Dirt roads, HSG C
0.416	79	Pasture/grassland/range, Fair, HSG C
7.284	74	Pasture/grassland/range, Good, HSG C
0.181	86	Pasture/grassland/range, Poor, HSG C
0.033	98	Paved Road, HSG C
0.051	98	Roofs, HSG C
0.801	79	Vineyard (E), Fair, HSG C
0.305	98	Water Surface, HSG C
3.697	72	Woods/grass comb., Good, HSG C
12.978	75	Weighted Average
12.589		97.00% Pervious Area
0.389		3.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	100	0.1700	0.48		**Sheet Flow, PRE WS UB** Grass: Short n= 0.150 P2= 4.58"
1.2	202	0.1535	2.74		**Shallow Concentrated Flow, PRE WS UB** Short Grass Pasture Kv= 7.0 fps
0.5	320	0.0656	11.23	56.17	**Channel Flow, PRE WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	38	0.1053	12.54	22.16	**Pipe Channel, PRE WS UB** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
0.5	407	0.0860	12.86	64.32	**Channel Flow, PRE WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.9	506	0.0415	8.94	44.68	**Channel Flow, PRE WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	133		16.05		**Lake or Reservoir, PRE WS UB** Mean Depth= 8.00'
0.1	65	0.1538	21.30	104.56	**Pipe Channel, PRE WS UB** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.020 Corrugated PE, corrugated interior
0.1	61	0.0328	10.71	128.51	**Channel Flow, PRE WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, PRE WS UB** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.020 Corrugated PE, corrugated interior

0.2	200	0.0550	13.87	166.41	**Channel Flow, PRE WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	328	0.1189	20.39	244.68	**Channel Flow, PRE WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
7.5	2,382	Total			

Subcatchment WS UB: PRE WS UB



Summary for Subcatchment WS UA: PRE WS UA

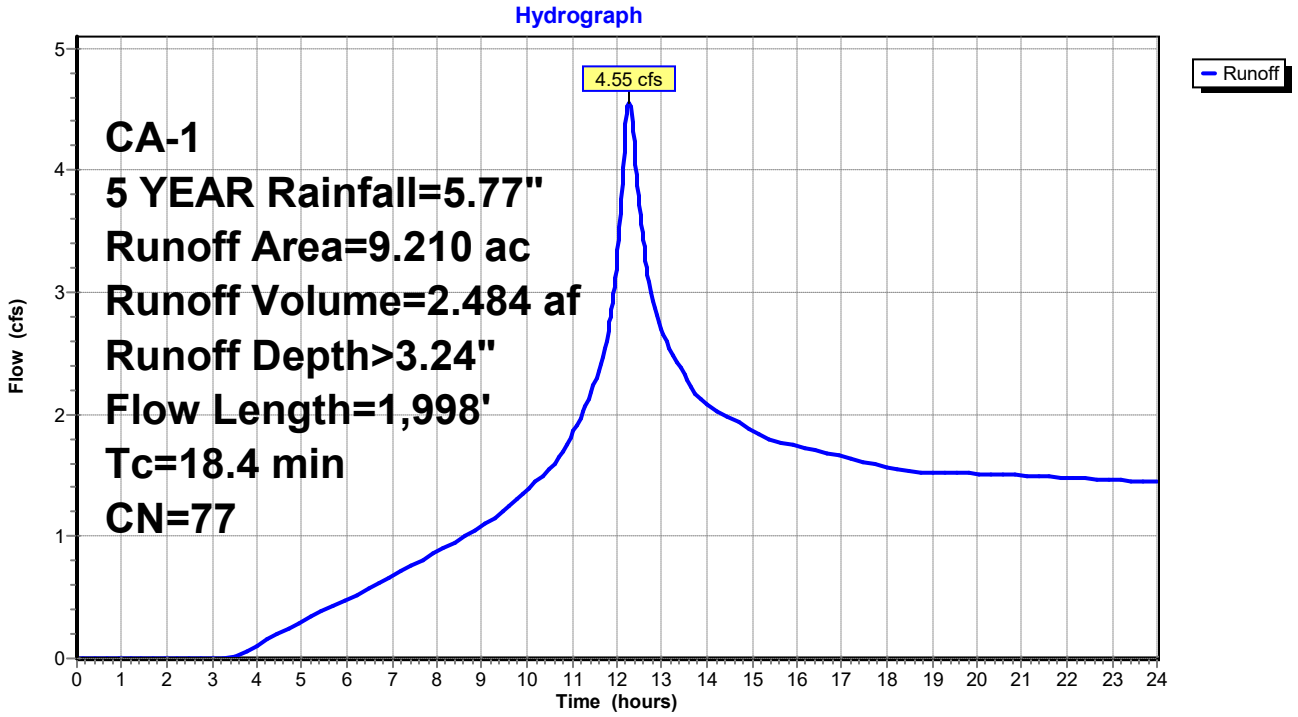
Runoff = 4.55 cfs @ 12.27 hrs, Volume= 2.484 af, Depth> 3.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 5 YEAR Rainfall=5.77"

Area (ac)	CN	Description
0.124	87	Dirt roads, HSG C
0.132	79	Pasture/grassland/range, Fair, HSG C
2.743	74	Pasture/grassland/range, Good, HSG C
0.148	86	Pasture/grassland/range, Poor, HSG C
0.045	98	Paved Road, HSG C
0.015	98	Roofs, HSG C
0.908	79	Vineyard (E), Fair, HSG C
0.974	98	Water Surface, HSG C
4.122	72	Woods/grass comb., Good, HSG C
9.210	77	Weighted Average
8.176		88.77% Pervious Area
1.034		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, PRE WS UA** Woods: Light underbrush n= 0.400 P2= 4.58"
3.7	369	0.1111	1.67		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
2.9	550	0.4127	3.21		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
0.0	23	0.1739	16.40	32.81	**Channel Flow, PRE WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.022 Earth, clean & straight
0.0	19	0.2105	13.53	10.63	**Pipe Channel, PRE WS UA** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.020 Corrugated PE, corrugated interior
0.9	128	0.2344	2.42		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
0.3	43	0.2791	2.64		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
0.1	80	0.4250	18.81	37.61	**Channel Flow, PRE WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.030 Stream, clean & straight
0.2	195	0.1282	14.60	145.96	**Channel Flow, PRE WS UA** Area= 10.0 sf Perim= 8.7' r= 1.15' n= 0.040 Mountain streams
0.4	372		17.02		**Lake or Reservoir, PRE WS UA** Mean Depth= 9.00'
0.1	119	0.2941	20.95	37.03	**Pipe Channel, PRE WS UA** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
18.4	1,998	Total			

Subcatchment WS UA: PRE WS UA



Summary for Subcatchment WS UB: PRE WS UB

Runoff = 6.93 cfs @ 12.14 hrs, Volume= 3.321 af, Depth> 3.07"

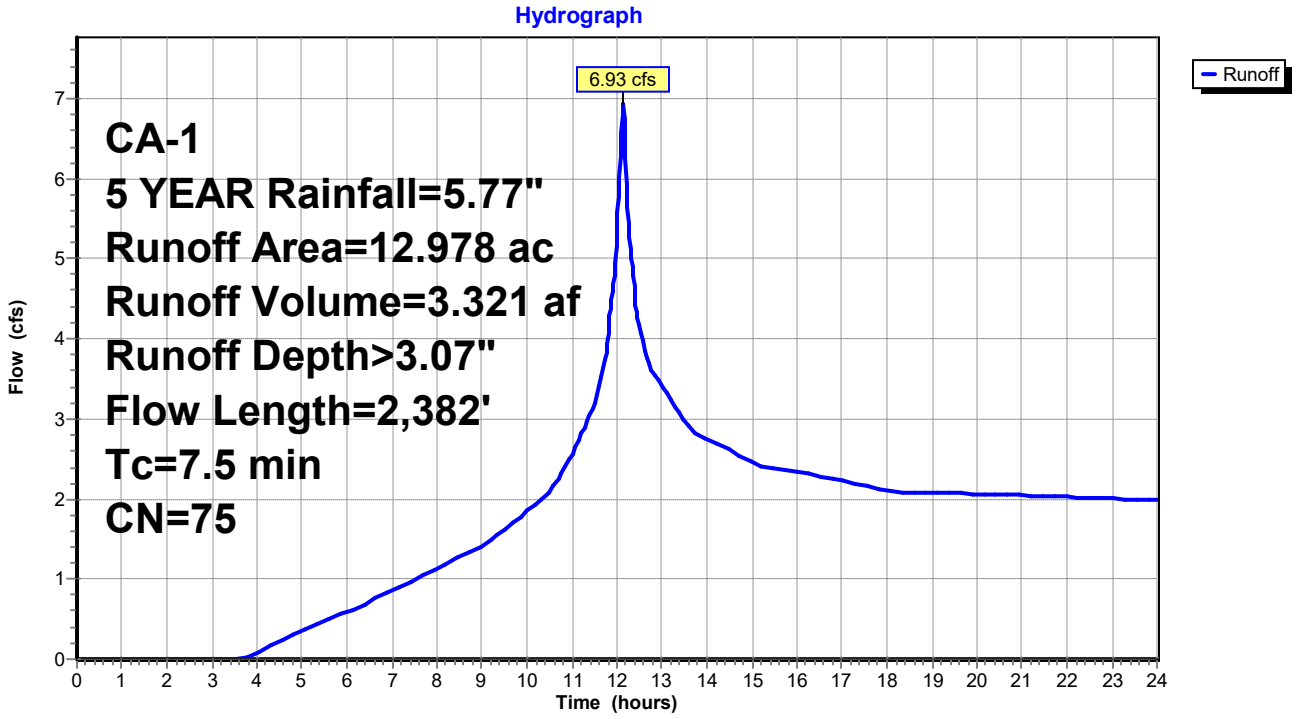
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 5 YEAR Rainfall=5.77"

Area (ac)	CN	Description
0.058	65	Brush, Good, HSG C
0.153	87	Dirt roads, HSG C
0.416	79	Pasture/grassland/range, Fair, HSG C
7.284	74	Pasture/grassland/range, Good, HSG C
0.181	86	Pasture/grassland/range, Poor, HSG C
0.033	98	Paved Road, HSG C
0.051	98	Roofs, HSG C
0.801	79	Vineyard (E), Fair, HSG C
0.305	98	Water Surface, HSG C
3.697	72	Woods/grass comb., Good, HSG C
12.978	75	Weighted Average
12.589		97.00% Pervious Area
0.389		3.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	100	0.1700	0.48		**Sheet Flow, PRE WS UB** Grass: Short n= 0.150 P2= 4.58"
1.2	202	0.1535	2.74		**Shallow Concentrated Flow, PRE WS UB** Short Grass Pasture Kv= 7.0 fps
0.5	320	0.0656	11.23	56.17	**Channel Flow, PRE WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	38	0.1053	12.54	22.16	**Pipe Channel, PRE WS UB** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
0.5	407	0.0860	12.86	64.32	**Channel Flow, PRE WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.9	506	0.0415	8.94	44.68	**Channel Flow, PRE WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	133		16.05		**Lake or Reservoir, PRE WS UB** Mean Depth= 8.00'
0.1	65	0.1538	21.30	104.56	**Pipe Channel, PRE WS UB** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.020 Corrugated PE, corrugated interior
0.1	61	0.0328	10.71	128.51	**Channel Flow, PRE WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, PRE WS UB** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.020 Corrugated PE, corrugated interior

0.2	200	0.0550	13.87	166.41	**Channel Flow, PRE WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	328	0.1189	20.39	244.68	**Channel Flow, PRE WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
7.5	2,382	Total			

Subcatchment WS UB: PRE WS UB



Summary for Subcatchment WS UA: PRE WS UA

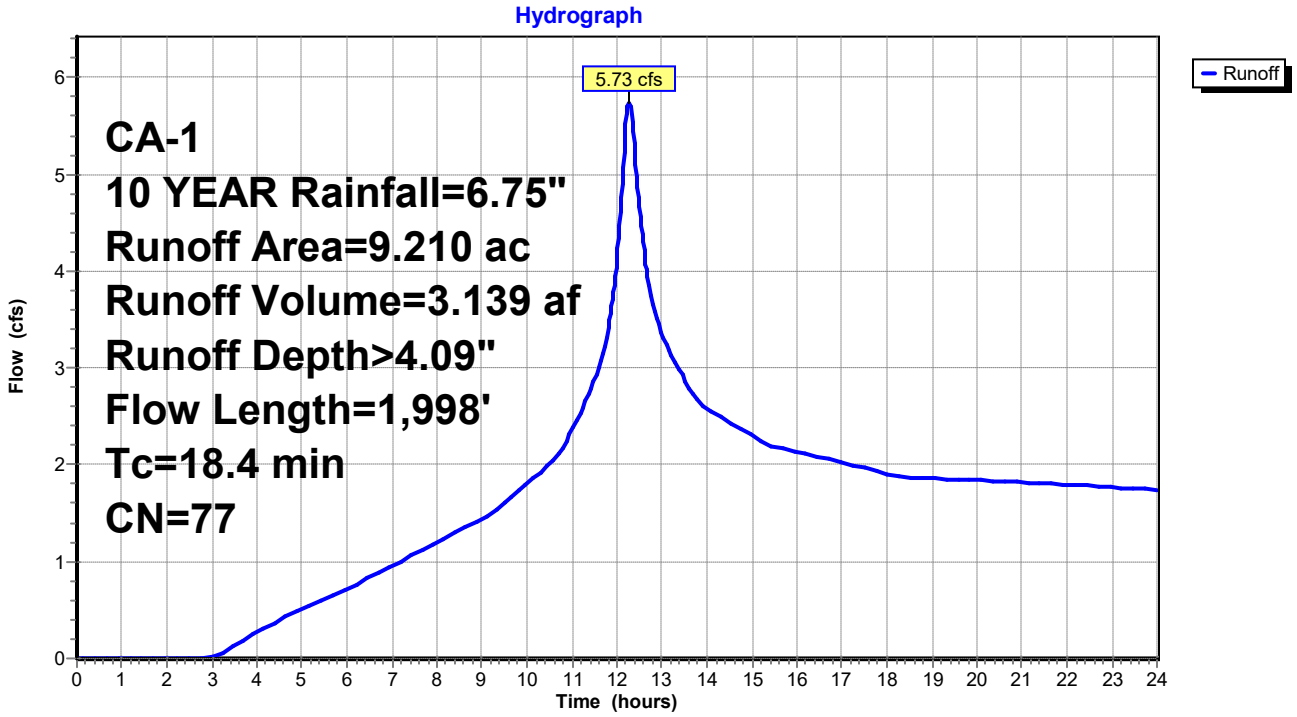
Runoff = 5.73 cfs @ 12.27 hrs, Volume= 3.139 af, Depth> 4.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 10 YEAR Rainfall=6.75"

Area (ac)	CN	Description
0.124	87	Dirt roads, HSG C
0.132	79	Pasture/grassland/range, Fair, HSG C
2.743	74	Pasture/grassland/range, Good, HSG C
0.148	86	Pasture/grassland/range, Poor, HSG C
0.045	98	Paved Road, HSG C
0.015	98	Roofs, HSG C
0.908	79	Vineyard (E), Fair, HSG C
0.974	98	Water Surface, HSG C
4.122	72	Woods/grass comb., Good, HSG C
9.210	77	Weighted Average
8.176		88.77% Pervious Area
1.034		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, PRE WS UA** Woods: Light underbrush n= 0.400 P2= 4.58"
3.7	369	0.1111	1.67		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
2.9	550	0.4127	3.21		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
0.0	23	0.1739	16.40	32.81	**Channel Flow, PRE WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.022 Earth, clean & straight
0.0	19	0.2105	13.53	10.63	**Pipe Channel, PRE WS UA** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.020 Corrugated PE, corrugated interior
0.9	128	0.2344	2.42		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
0.3	43	0.2791	2.64		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
0.1	80	0.4250	18.81	37.61	**Channel Flow, PRE WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.030 Stream, clean & straight
0.2	195	0.1282	14.60	145.96	**Channel Flow, PRE WS UA** Area= 10.0 sf Perim= 8.7' r= 1.15' n= 0.040 Mountain streams
0.4	372		17.02		**Lake or Reservoir, PRE WS UA** Mean Depth= 9.00'
0.1	119	0.2941	20.95	37.03	**Pipe Channel, PRE WS UA** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
18.4	1,998	Total			

Subcatchment WS UA: PRE WS UA



Summary for Subcatchment WS UB: PRE WS UB

Runoff = 8.82 cfs @ 12.14 hrs, Volume= 4.229 af, Depth> 3.91"

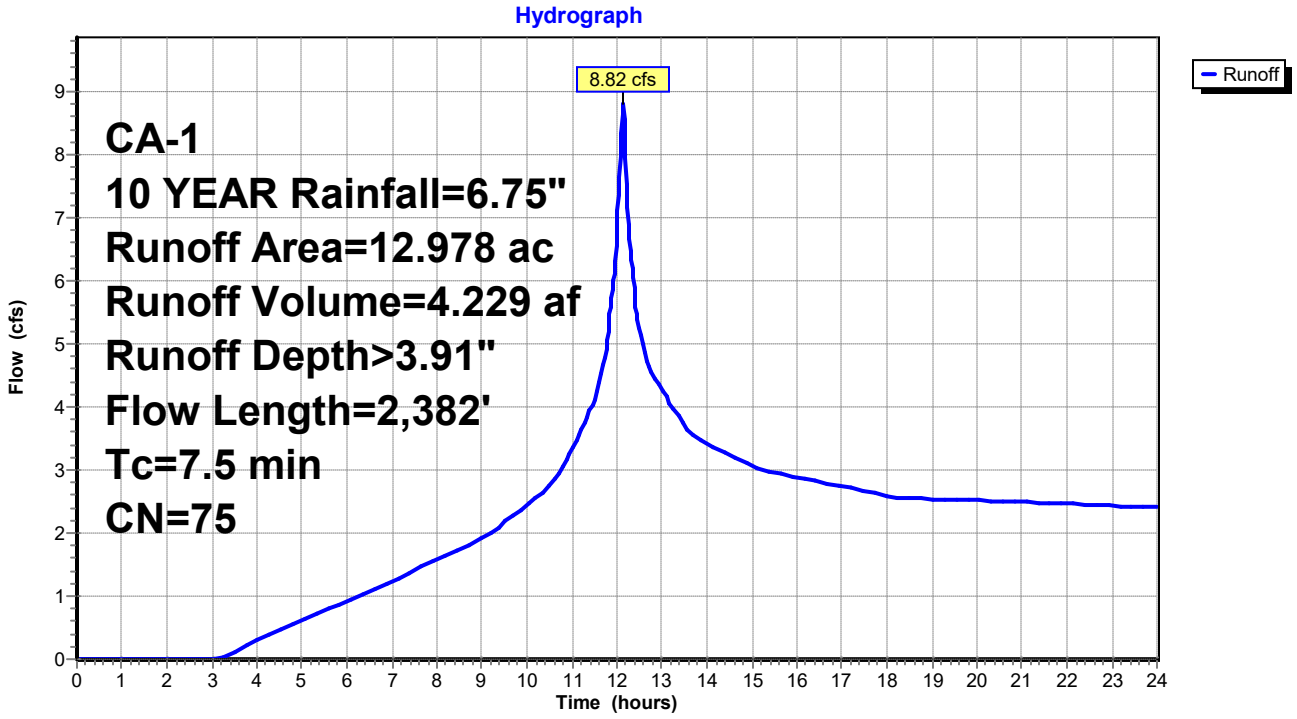
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 10 YEAR Rainfall=6.75"

Area (ac)	CN	Description
0.058	65	Brush, Good, HSG C
0.153	87	Dirt roads, HSG C
0.416	79	Pasture/grassland/range, Fair, HSG C
7.284	74	Pasture/grassland/range, Good, HSG C
0.181	86	Pasture/grassland/range, Poor, HSG C
0.033	98	Paved Road, HSG C
0.051	98	Roofs, HSG C
0.801	79	Vineyard (E), Fair, HSG C
0.305	98	Water Surface, HSG C
3.697	72	Woods/grass comb., Good, HSG C
12.978	75	Weighted Average
12.589		97.00% Pervious Area
0.389		3.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	100	0.1700	0.48		**Sheet Flow, PRE WS UB** Grass: Short n= 0.150 P2= 4.58"
1.2	202	0.1535	2.74		**Shallow Concentrated Flow, PRE WS UB** Short Grass Pasture Kv= 7.0 fps
0.5	320	0.0656	11.23	56.17	**Channel Flow, PRE WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	38	0.1053	12.54	22.16	**Pipe Channel, PRE WS UB** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
0.5	407	0.0860	12.86	64.32	**Channel Flow, PRE WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.9	506	0.0415	8.94	44.68	**Channel Flow, PRE WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	133		16.05		**Lake or Reservoir, PRE WS UB** Mean Depth= 8.00'
0.1	65	0.1538	21.30	104.56	**Pipe Channel, PRE WS UB** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.020 Corrugated PE, corrugated interior
0.1	61	0.0328	10.71	128.51	**Channel Flow, PRE WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, PRE WS UB** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.020 Corrugated PE, corrugated interior

0.2	200	0.0550	13.87	166.41	**Channel Flow, PRE WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	328	0.1189	20.39	244.68	**Channel Flow, PRE WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
7.5	2,382	Total			

Subcatchment WS UB: PRE WS UB



Summary for Subcatchment WS UA: PRE WS UA

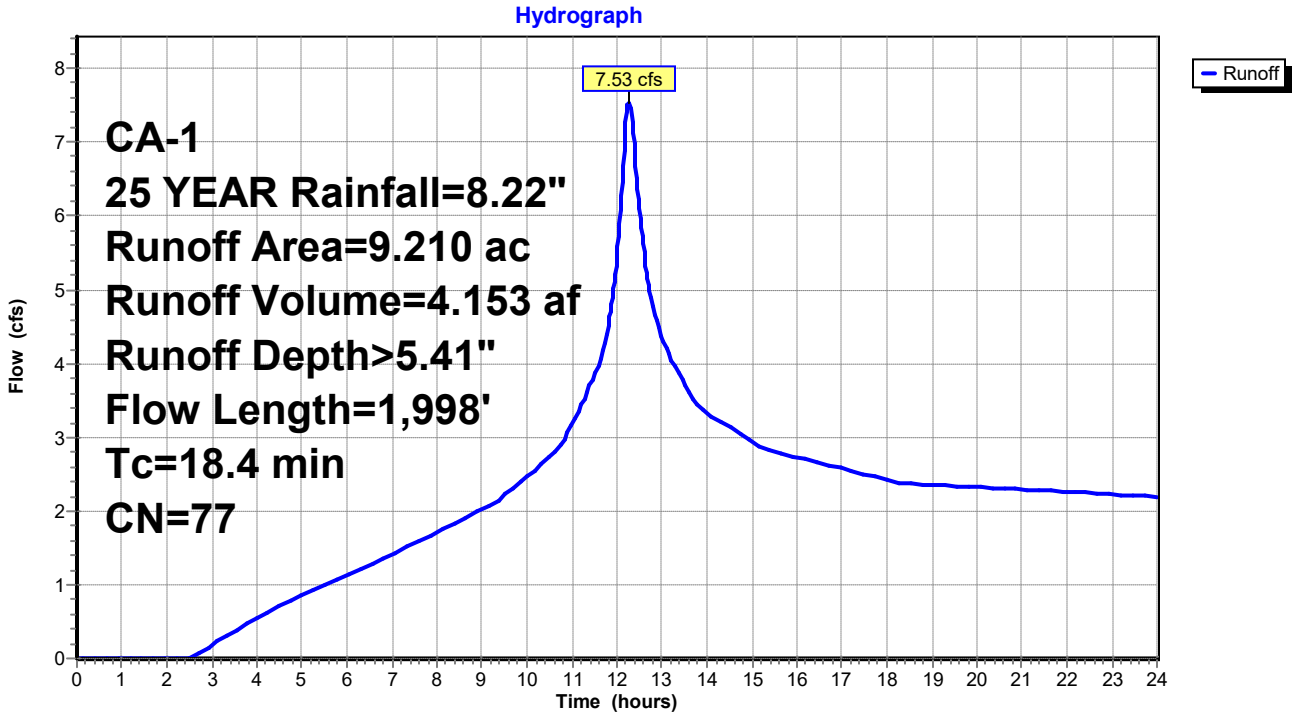
Runoff = 7.53 cfs @ 12.27 hrs, Volume= 4.153 af, Depth> 5.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 25 YEAR Rainfall=8.22"

Area (ac)	CN	Description
0.124	87	Dirt roads, HSG C
0.132	79	Pasture/grassland/range, Fair, HSG C
2.743	74	Pasture/grassland/range, Good, HSG C
0.148	86	Pasture/grassland/range, Poor, HSG C
0.045	98	Paved Road, HSG C
0.015	98	Roofs, HSG C
0.908	79	Vineyard (E), Fair, HSG C
0.974	98	Water Surface, HSG C
4.122	72	Woods/grass comb., Good, HSG C
9.210	77	Weighted Average
8.176		88.77% Pervious Area
1.034		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, PRE WS UA** Woods: Light underbrush n= 0.400 P2= 4.58"
3.7	369	0.1111	1.67		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
2.9	550	0.4127	3.21		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
0.0	23	0.1739	16.40	32.81	**Channel Flow, PRE WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.022 Earth, clean & straight
0.0	19	0.2105	13.53	10.63	**Pipe Channel, PRE WS UA** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.020 Corrugated PE, corrugated interior
0.9	128	0.2344	2.42		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
0.3	43	0.2791	2.64		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
0.1	80	0.4250	18.81	37.61	**Channel Flow, PRE WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.030 Stream, clean & straight
0.2	195	0.1282	14.60	145.96	**Channel Flow, PRE WS UA** Area= 10.0 sf Perim= 8.7' r= 1.15' n= 0.040 Mountain streams
0.4	372		17.02		**Lake or Reservoir, PRE WS UA** Mean Depth= 9.00'
0.1	119	0.2941	20.95	37.03	**Pipe Channel, PRE WS UA** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
18.4	1,998	Total			

Subcatchment WS UA: PRE WS UA



Summary for Subcatchment WS UB: PRE WS UB

Runoff = 11.69 cfs @ 12.14 hrs, Volume= 5.641 af, Depth> 5.22"

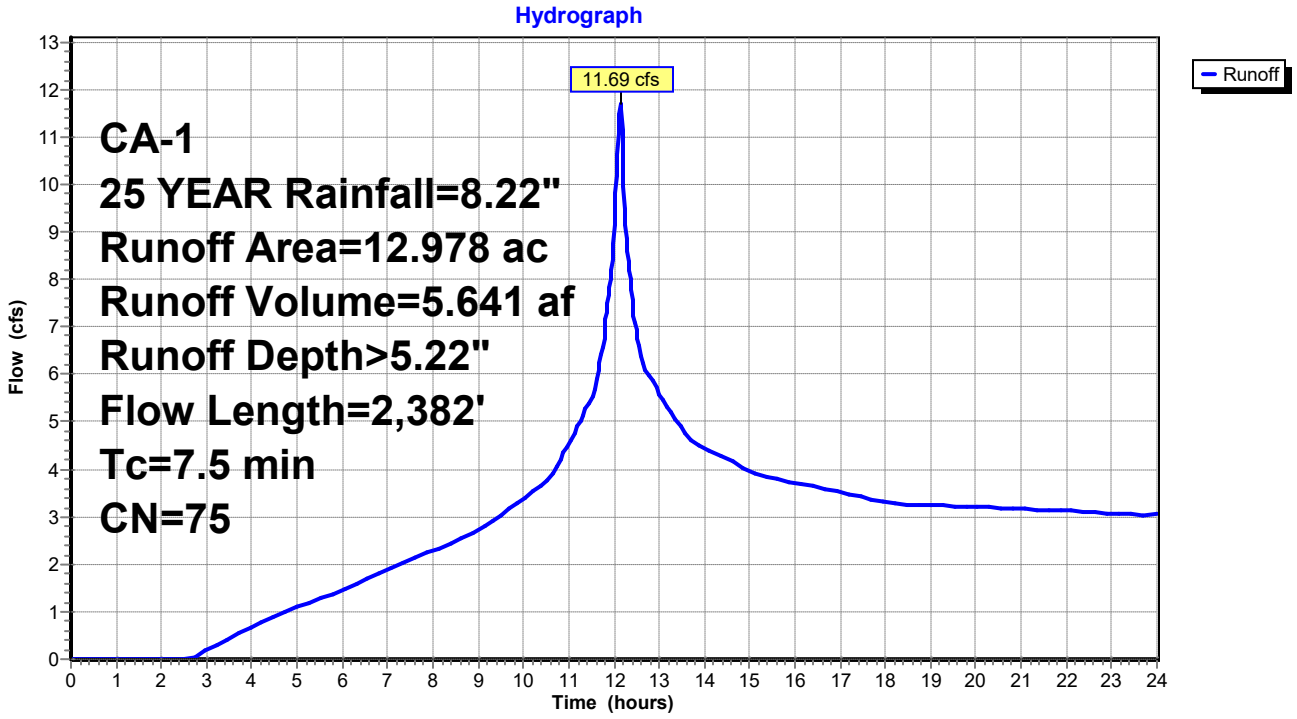
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 25 YEAR Rainfall=8.22"

Area (ac)	CN	Description
0.058	65	Brush, Good, HSG C
0.153	87	Dirt roads, HSG C
0.416	79	Pasture/grassland/range, Fair, HSG C
7.284	74	Pasture/grassland/range, Good, HSG C
0.181	86	Pasture/grassland/range, Poor, HSG C
0.033	98	Paved Road, HSG C
0.051	98	Roofs, HSG C
0.801	79	Vineyard (E), Fair, HSG C
0.305	98	Water Surface, HSG C
3.697	72	Woods/grass comb., Good, HSG C
12.978	75	Weighted Average
12.589		97.00% Pervious Area
0.389		3.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	100	0.1700	0.48		**Sheet Flow, PRE WS UB** Grass: Short n= 0.150 P2= 4.58"
1.2	202	0.1535	2.74		**Shallow Concentrated Flow, PRE WS UB** Short Grass Pasture Kv= 7.0 fps
0.5	320	0.0656	11.23	56.17	**Channel Flow, PRE WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	38	0.1053	12.54	22.16	**Pipe Channel, PRE WS UB** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
0.5	407	0.0860	12.86	64.32	**Channel Flow, PRE WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.9	506	0.0415	8.94	44.68	**Channel Flow, PRE WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	133		16.05		**Lake or Reservoir, PRE WS UB** Mean Depth= 8.00'
0.1	65	0.1538	21.30	104.56	**Pipe Channel, PRE WS UB** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.020 Corrugated PE, corrugated interior
0.1	61	0.0328	10.71	128.51	**Channel Flow, PRE WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, PRE WS UB** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.020 Corrugated PE, corrugated interior

0.2	200	0.0550	13.87	166.41	**Channel Flow, PRE WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	328	0.1189	20.39	244.68	**Channel Flow, PRE WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
7.5	2,382	Total			

Subcatchment WS UB: PRE WS UB



Summary for Subcatchment WS UA: PRE WS UA

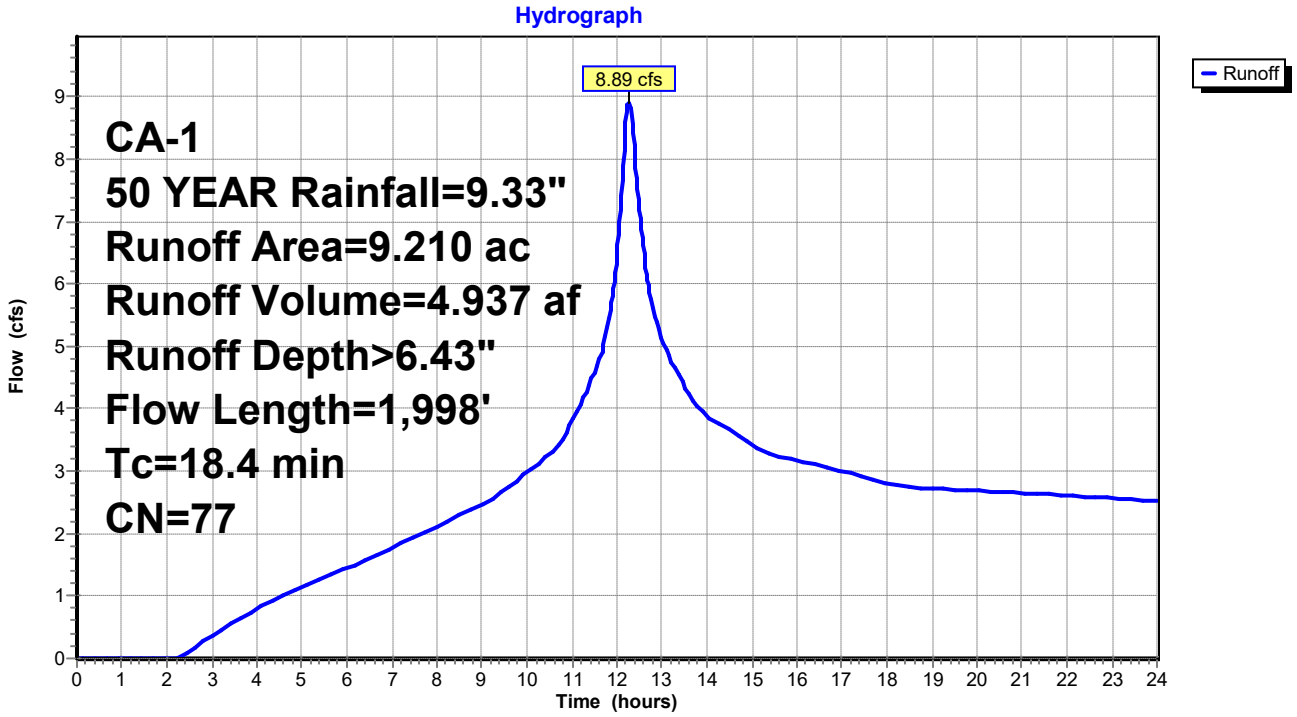
Runoff = 8.89 cfs @ 12.26 hrs, Volume= 4.937 af, Depth> 6.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 50 YEAR Rainfall=9.33"

Area (ac)	CN	Description
0.124	87	Dirt roads, HSG C
0.132	79	Pasture/grassland/range, Fair, HSG C
2.743	74	Pasture/grassland/range, Good, HSG C
0.148	86	Pasture/grassland/range, Poor, HSG C
0.045	98	Paved Road, HSG C
0.015	98	Roofs, HSG C
0.908	79	Vineyard (E), Fair, HSG C
0.974	98	Water Surface, HSG C
4.122	72	Woods/grass comb., Good, HSG C
9.210	77	Weighted Average
8.176		88.77% Pervious Area
1.034		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, PRE WS UA** Woods: Light underbrush n= 0.400 P2= 4.58"
3.7	369	0.1111	1.67		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
2.9	550	0.4127	3.21		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
0.0	23	0.1739	16.40	32.81	**Channel Flow, PRE WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.022 Earth, clean & straight
0.0	19	0.2105	13.53	10.63	**Pipe Channel, PRE WS UA** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.020 Corrugated PE, corrugated interior
0.9	128	0.2344	2.42		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
0.3	43	0.2791	2.64		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
0.1	80	0.4250	18.81	37.61	**Channel Flow, PRE WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.030 Stream, clean & straight
0.2	195	0.1282	14.60	145.96	**Channel Flow, PRE WS UA** Area= 10.0 sf Perim= 8.7' r= 1.15' n= 0.040 Mountain streams
0.4	372		17.02		**Lake or Reservoir, PRE WS UA** Mean Depth= 9.00'
0.1	119	0.2941	20.95	37.03	**Pipe Channel, PRE WS UA** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
18.4	1,998	Total			

Subcatchment WS UA: PRE WS UA



Summary for Subcatchment WS UB: PRE WS UB

Runoff = 13.88 cfs @ 12.14 hrs, Volume= 6.735 af, Depth> 6.23"

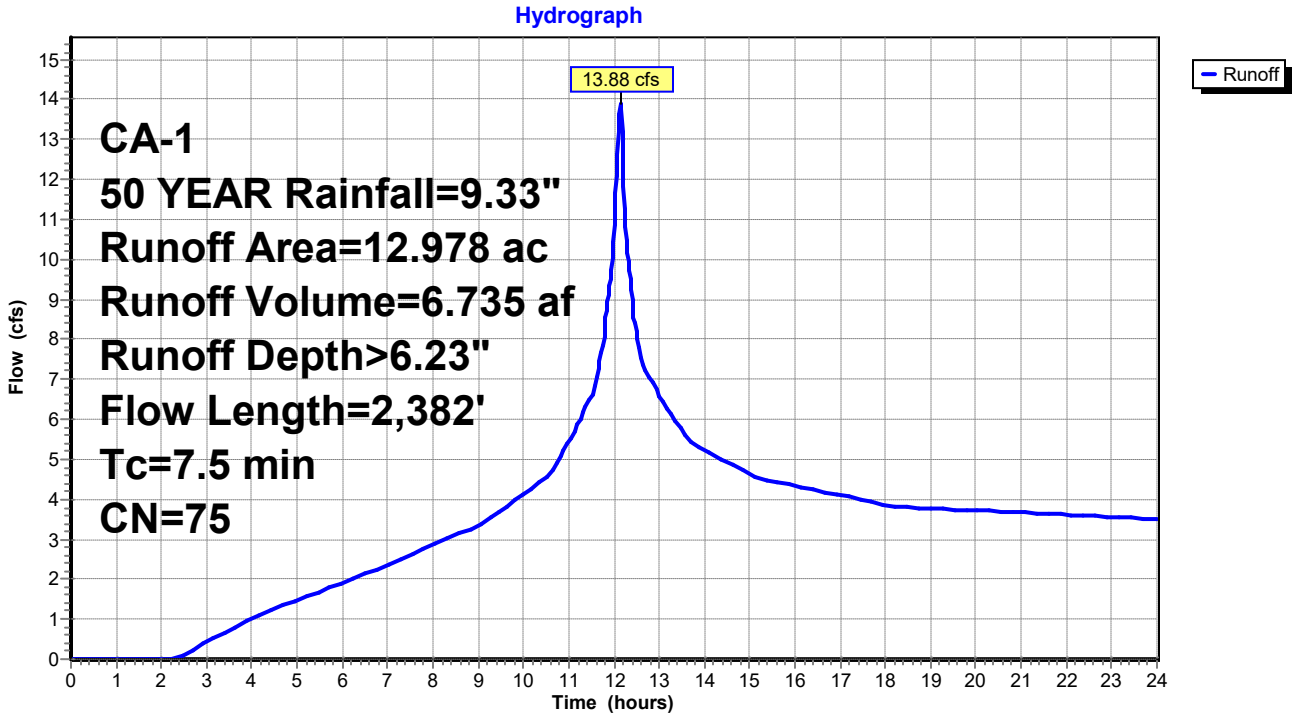
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 50 YEAR Rainfall=9.33"

Area (ac)	CN	Description
0.058	65	Brush, Good, HSG C
0.153	87	Dirt roads, HSG C
0.416	79	Pasture/grassland/range, Fair, HSG C
7.284	74	Pasture/grassland/range, Good, HSG C
0.181	86	Pasture/grassland/range, Poor, HSG C
0.033	98	Paved Road, HSG C
0.051	98	Roofs, HSG C
0.801	79	Vineyard (E), Fair, HSG C
0.305	98	Water Surface, HSG C
3.697	72	Woods/grass comb., Good, HSG C
12.978	75	Weighted Average
12.589		97.00% Pervious Area
0.389		3.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	100	0.1700	0.48		**Sheet Flow, PRE WS UB** Grass: Short n= 0.150 P2= 4.58"
1.2	202	0.1535	2.74		**Shallow Concentrated Flow, PRE WS UB** Short Grass Pasture Kv= 7.0 fps
0.5	320	0.0656	11.23	56.17	**Channel Flow, PRE WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	38	0.1053	12.54	22.16	**Pipe Channel, PRE WS UB** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
0.5	407	0.0860	12.86	64.32	**Channel Flow, PRE WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.9	506	0.0415	8.94	44.68	**Channel Flow, PRE WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	133		16.05		**Lake or Reservoir, PRE WS UB** Mean Depth= 8.00'
0.1	65	0.1538	21.30	104.56	**Pipe Channel, PRE WS UB** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.020 Corrugated PE, corrugated interior
0.1	61	0.0328	10.71	128.51	**Channel Flow, PRE WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, PRE WS UB** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.020 Corrugated PE, corrugated interior

0.2	200	0.0550	13.87	166.41	**Channel Flow, PRE WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	328	0.1189	20.39	244.68	**Channel Flow, PRE WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
7.5	2,382	Total			

Subcatchment WS UB: PRE WS UB



Summary for Subcatchment WS UA: PRE WS UA

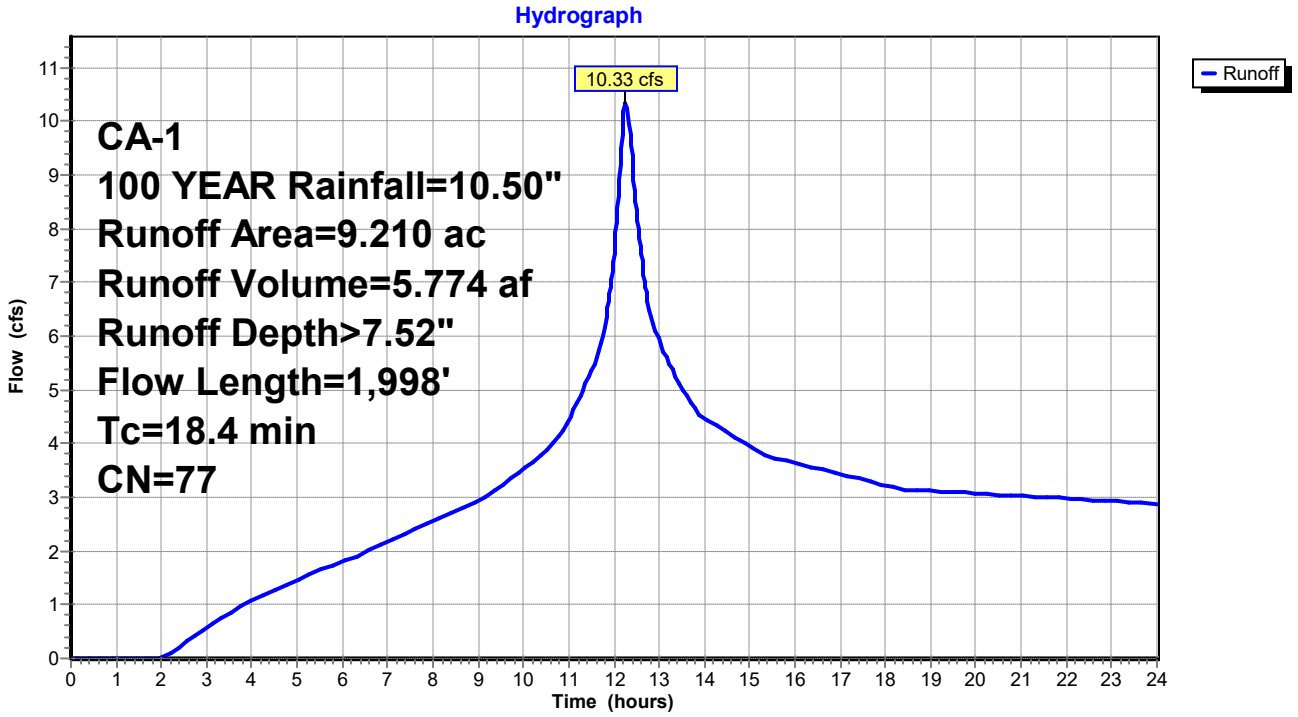
Runoff = 10.33 cfs @ 12.26 hrs, Volume= 5.774 af, Depth> 7.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 100 YEAR Rainfall=10.50"

Area (ac)	CN	Description
0.124	87	Dirt roads, HSG C
0.132	79	Pasture/grassland/range, Fair, HSG C
2.743	74	Pasture/grassland/range, Good, HSG C
0.148	86	Pasture/grassland/range, Poor, HSG C
0.045	98	Paved Road, HSG C
0.015	98	Roofs, HSG C
0.908	79	Vineyard (E), Fair, HSG C
0.974	98	Water Surface, HSG C
4.122	72	Woods/grass comb., Good, HSG C
9.210	77	Weighted Average
8.176		88.77% Pervious Area
1.034		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, PRE WS UA** Woods: Light underbrush n= 0.400 P2= 4.58"
3.7	369	0.1111	1.67		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
2.9	550	0.4127	3.21		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
0.0	23	0.1739	16.40	32.81	**Channel Flow, PRE WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.022 Earth, clean & straight
0.0	19	0.2105	13.53	10.63	**Pipe Channel, PRE WS UA** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.020 Corrugated PE, corrugated interior
0.9	128	0.2344	2.42		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
0.3	43	0.2791	2.64		**Shallow Concentrated Flow, PRE WS UA** Woodland Kv= 5.0 fps
0.1	80	0.4250	18.81	37.61	**Channel Flow, PRE WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.030 Stream, clean & straight
0.2	195	0.1282	14.60	145.96	**Channel Flow, PRE WS UA** Area= 10.0 sf Perim= 8.7' r= 1.15' n= 0.040 Mountain streams
0.4	372		17.02		**Lake or Reservoir, PRE WS UA** Mean Depth= 9.00'
0.1	119	0.2941	20.95	37.03	**Pipe Channel, PRE WS UA** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
18.4	1,998	Total			

Subcatchment WS UA: PRE WS UA



Summary for Subcatchment WS UB: PRE WS UB

Runoff = 16.20 cfs @ 12.14 hrs, Volume= 7.907 af, Depth> 7.31"

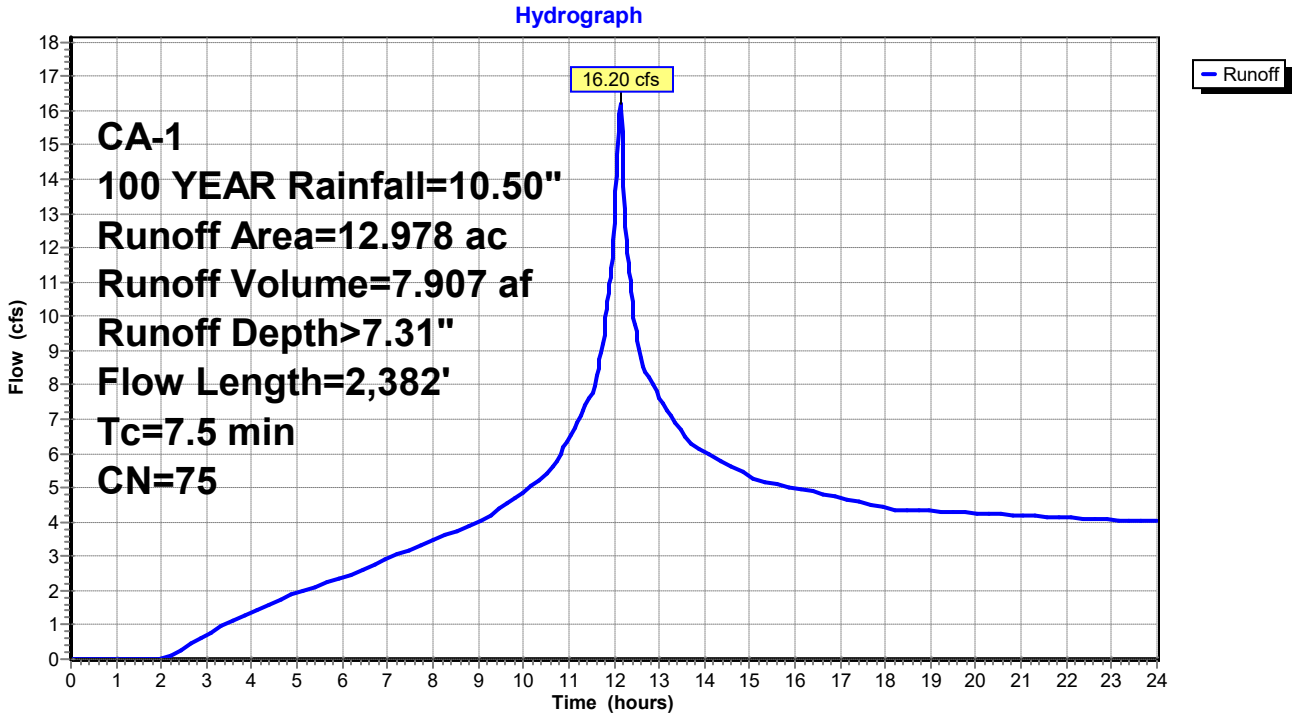
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 100 YEAR Rainfall=10.50"

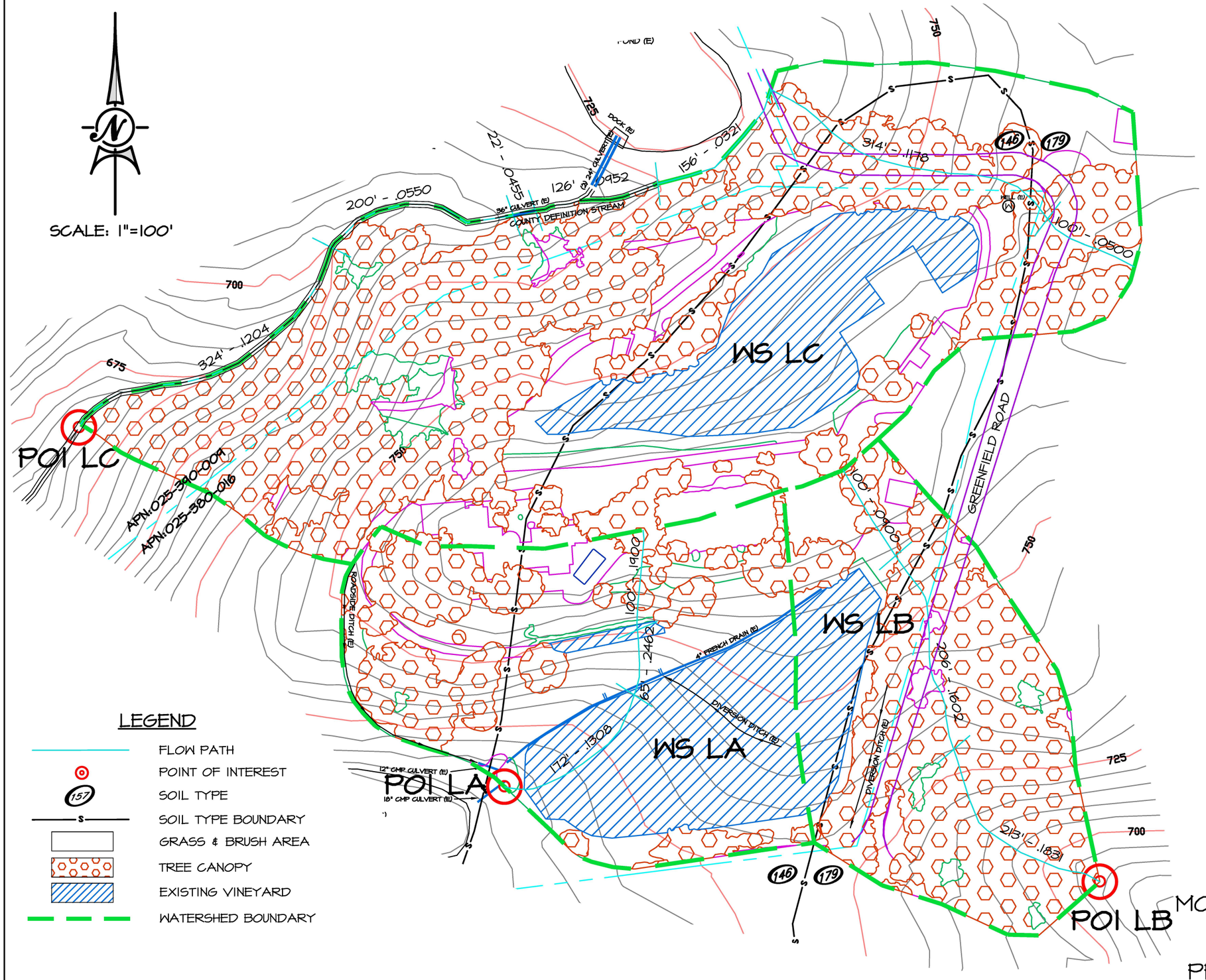
Area (ac)	CN	Description
0.058	65	Brush, Good, HSG C
0.153	87	Dirt roads, HSG C
0.416	79	Pasture/grassland/range, Fair, HSG C
7.284	74	Pasture/grassland/range, Good, HSG C
0.181	86	Pasture/grassland/range, Poor, HSG C
0.033	98	Paved Road, HSG C
0.051	98	Roofs, HSG C
0.801	79	Vineyard (E), Fair, HSG C
0.305	98	Water Surface, HSG C
3.697	72	Woods/grass comb., Good, HSG C
12.978	75	Weighted Average
12.589		97.00% Pervious Area
0.389		3.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	100	0.1700	0.48		**Sheet Flow, PRE WS UB** Grass: Short n= 0.150 P2= 4.58"
1.2	202	0.1535	2.74		**Shallow Concentrated Flow, PRE WS UB** Short Grass Pasture Kv= 7.0 fps
0.5	320	0.0656	11.23	56.17	**Channel Flow, PRE WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	38	0.1053	12.54	22.16	**Pipe Channel, PRE WS UB** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
0.5	407	0.0860	12.86	64.32	**Channel Flow, PRE WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.9	506	0.0415	8.94	44.68	**Channel Flow, PRE WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	133		16.05		**Lake or Reservoir, PRE WS UB** Mean Depth= 8.00'
0.1	65	0.1538	21.30	104.56	**Pipe Channel, PRE WS UB** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.020 Corrugated PE, corrugated interior
0.1	61	0.0328	10.71	128.51	**Channel Flow, PRE WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, PRE WS UB** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.020 Corrugated PE, corrugated interior

0.2	200	0.0550	13.87	166.41	**Channel Flow, PRE WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	328	0.1189	20.39	244.68	**Channel Flow, PRE WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
7.5	2,382	Total			

Subcatchment WS UB: PRE WS UB





LEGEND

- FLOW PATH
- POINT OF INTEREST
- 157 — SOIL TYPE
- S — SOIL TYPE BOUNDARY
- GRASS & BRUSH AREA
- TREE CANOPY
- EXISTING VINEYARD
- WATERSHED BOUNDARY

Area LA

SOIL 179 = C
- TOTAL AREA = 0.747 ACRES
- TREE AREA = 0.478 ACRES
- GRASS (GOOD) AREA = 0.157 ACRES
- GRASS (FAIR) AREA = 0.053 ACRES
- DEVELOPED AREA = 0.059 ACRES

SOIL 146 = D
- TOTAL AREA = 2.128 ACRES
- TREE AREA = 0.326 ACRES
- GRASS (GOOD) AREA = 0.612 ACRES
- GRASS (FAIR) AREA = 0.013 ACRES
- GRASS (POOR) AREA = 0.012 ACRES
- DEVELOPED AREA = 0.181 ACRES
- LANDSCAPE AREA = 0.024 ACRES
- EXISTING VINEYARD (FAIR) AREA = 0.949 ACRES
- WATER SURFACE AREA = 0.011 ACRES

Area LB

SOIL 179 = C
- TOTAL AREA = 1.672 ACRES
- TREE AREA = 1.486 ACRES
- GRASS (GOOD) AREA = 0.113 ACRES
- DEVELOPED AREA = 0.060 ACRES
- EXISTING VINEYARD (FAIR) AREA = 0.013 ACRES

SOIL 146 = D
- TOTAL AREA = 0.676 ACRES
- TREE AREA = 0.190 ACRES
- GRASS (GOOD) AREA = 0.031 ACRES
- GRASS (FAIR) AREA = 0.042 ACRES
- DEVELOPED AREA = 0.137 ACRES
- EXISTING VINEYARD (FAIR) AREA = 0.276 ACRES

Area LC

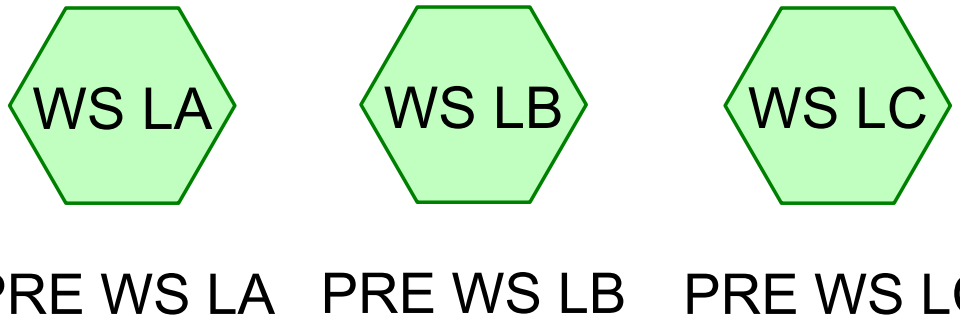
SOIL 179 = C
- TOTAL AREA = 4.047 ACRES
- TREE AREA = 2.796 ACRES
- GRASS (GOOD) AREA = 0.633 ACRES
- GRASS (FAIR) AREA = 0.168 ACRES
- GRASS (POOR) AREA = 0.055 ACRES
- DEVELOPED AREA = 0.332 ACRES
- LANDSCAPE AREA = 0.024 ACRES
- EXISTING VINEYARD (FAIR) AREA = 0.039 ACRES

SOIL 146 = D
- TOTAL AREA = 2.694 ACRES
- TREE AREA = 0.826 ACRES
- GRASS (GOOD) AREA = 0.514 ACRES
- GRASS (POOR) AREA = 0.019 ACRES
- DEVELOPED AREA = 0.381 ACRES
- LANDSCAPE AREA = 0.097 ACRES
- EXISTING VINEYARD (FAIR) AREA = 0.857 ACRES

MOSHKELANI FAMILY VINEYARDS, LLC
805 GREENFIELD ROAD
APN:025-380-016
PRE HYDROLOGY BLOCKS B, C, & D

NVVE 12-1-21

NAPA COUNTY GIS DATA BASE



Subcat Reach Pond Link

Routing Diagram for 20ECP Moshkelani Blocks B, C, D PRE
Prepared by Napa Valley Vineyard Engineering, Printed 12/6/2021

Summary for Subcatchment WS LA: PRE WS LA

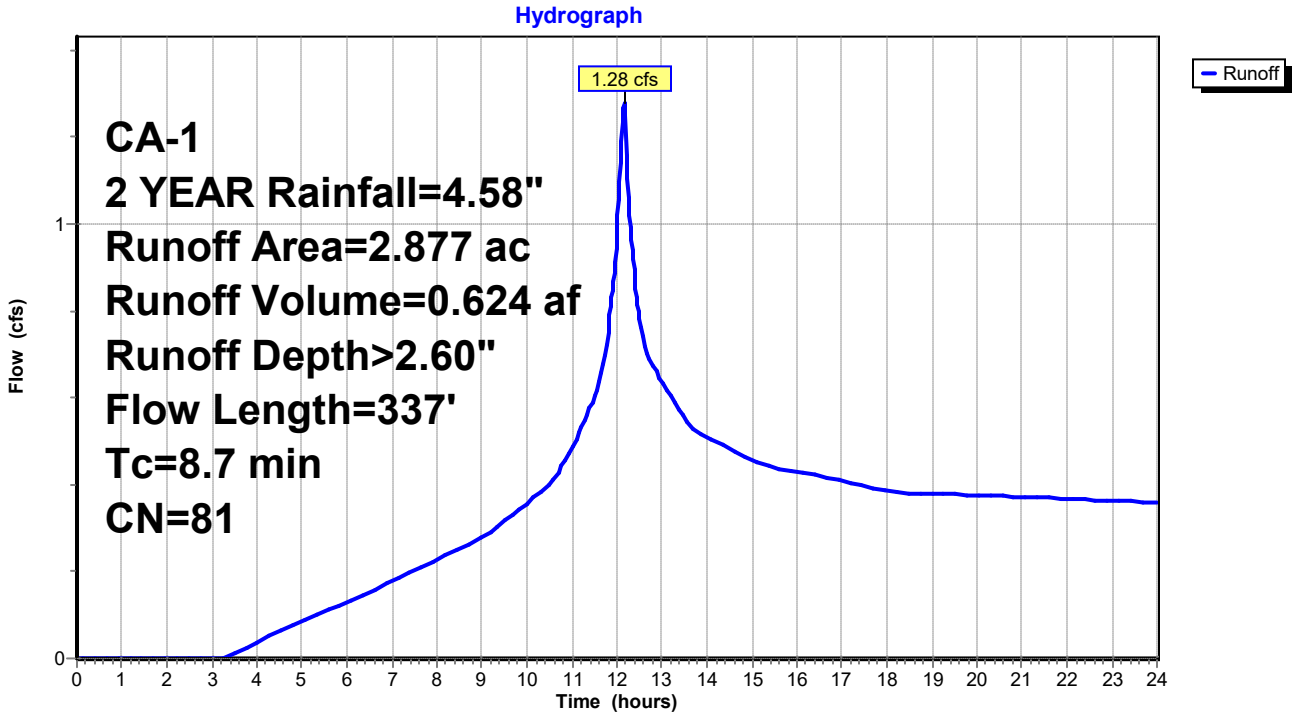
Runoff = 1.28 cfs @ 12.16 hrs, Volume= 0.624 af, Depth> 2.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 2 YEAR Rainfall=4.58"

Area (ac)	CN	Description
0.028	87	Dirt roads, HSG C
0.004	89	Dirt roads, HSG D
0.002	89	Gravel roads, HSG C
0.006	91	Gravel roads, HSG D
0.024	80	Landscape, Good, HSG D
0.053	79	Pasture/grassland/range, Fair, HSG C
0.013	84	Pasture/grassland/range, Fair, HSG D
0.157	74	Pasture/grassland/range, Good, HSG C
0.612	80	Pasture/grassland/range, Good, HSG D
0.012	89	Pasture/grassland/range, Poor, HSG D
0.005	98	Paved Road, HSG C
0.144	98	Paved Road, HSG D
0.024	98	Roofs, HSG C
0.027	98	Roofs, HSG D
0.949	84	Vineyard (E), Fair, HSG D
0.011	98	Water Surface, HSG D
0.478	72	Woods/grass comb., Good, HSG C
0.326	79	Woods/grass comb., Good, HSG D
2.877	81	Weighted Average
2.666		92.66% Pervious Area
0.211		7.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.1900	0.23		**Sheet Flow, PRE WS LA** Woods: Light underbrush n= 0.400 P2= 4.58"
0.3	65	0.2462	3.47		**Shallow Concentrated Flow, PRE WS LA** Short Grass Pasture Kv= 7.0 fps
1.1	172	0.1308	2.53		**Shallow Concentrated Flow, PRE WS LA** Short Grass Pasture Kv= 7.0 fps
8.7	337	Total			

Subcatchment WS LA: PRE WS LA



Summary for Subcatchment WS LB: PRE WS LB

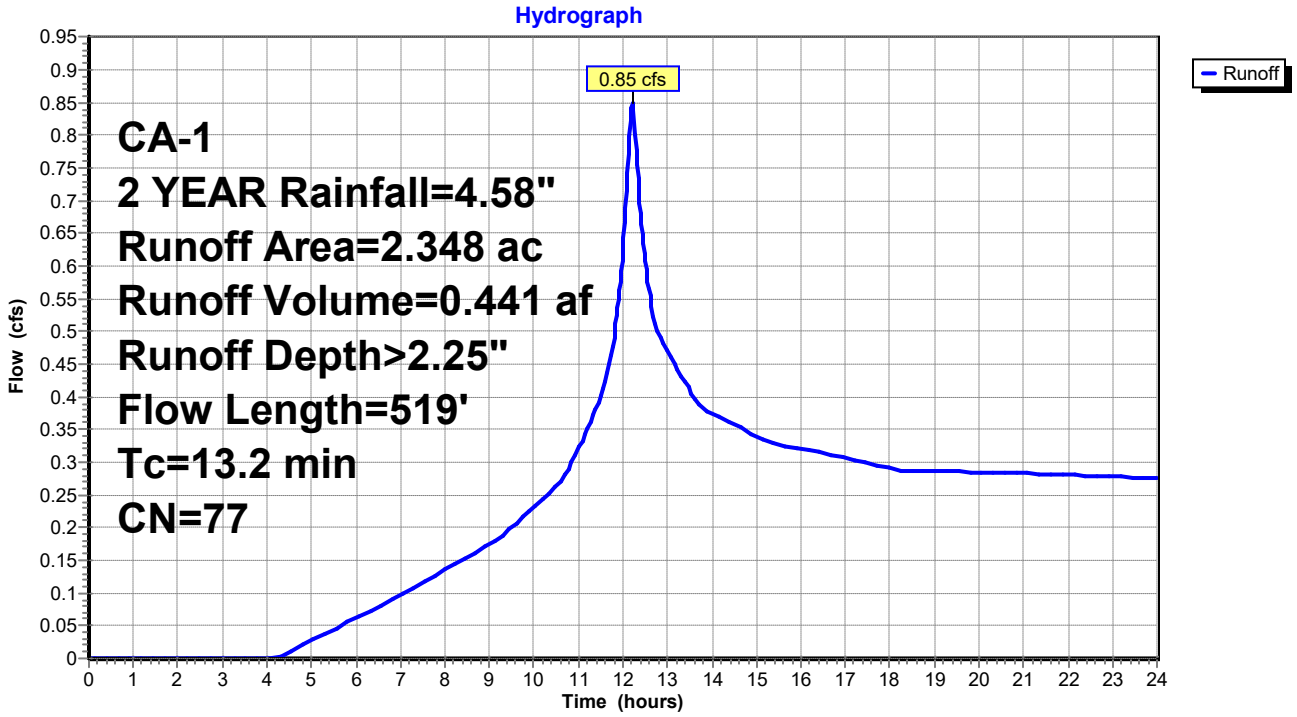
Runoff = 0.85 cfs @ 12.21 hrs, Volume= 0.441 af, Depth> 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 2 YEAR Rainfall=4.58"

Area (ac)	CN	Description
0.001	91	Gravel roads, HSG D
0.042	84	Pasture/grassland/range, Fair, HSG D
0.113	74	Pasture/grassland/range, Good, HSG C
0.031	80	Pasture/grassland/range, Good, HSG D
0.059	98	Paved Road, HSG C
0.121	98	Paved Road, HSG D
0.001	98	Roofs, HSG C
0.015	98	Roofs, HSG D
0.013	79	Vineyard (E), Fair, HSG C
0.276	84	Vineyard (E), Fair, HSG D
1.486	72	Woods/grass comb., Good, HSG C
0.190	79	Woods/grass comb., Good, HSG D
2.348	77	Weighted Average
2.152		91.66% Pervious Area
0.196		8.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, PRE WS LB** Woods: Light underbrush n= 0.400 P2= 4.58"
1.7	206	0.1602	2.00		**Shallow Concentrated Flow, PRE WS LB** Woodland Kv= 5.0 fps
1.7	213	0.1831	2.14		**Shallow Concentrated Flow, PRE WS LB** Woodland Kv= 5.0 fps
13.2	519	Total			

Subcatchment WS LB: PRE WS LB



Summary for Subcatchment WS LC: PRE WS LC

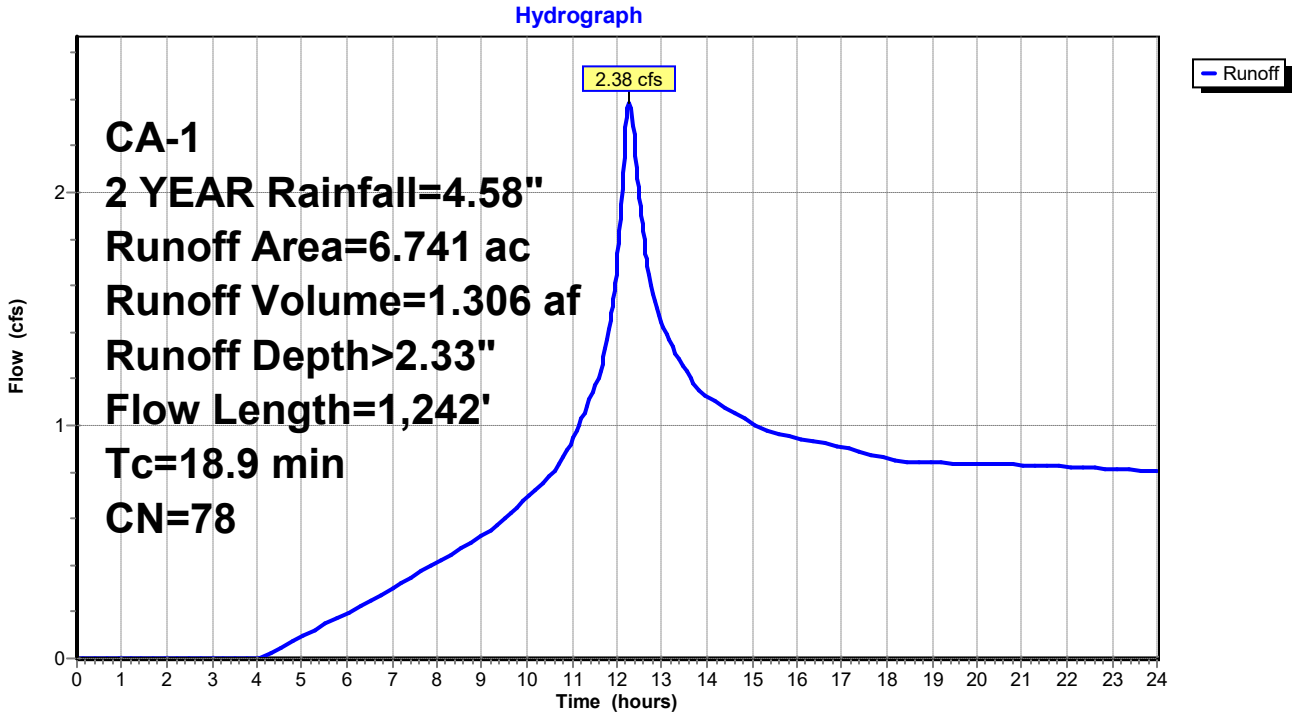
Runoff = 2.38 cfs @ 12.28 hrs, Volume= 1.306 af, Depth> 2.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 2 YEAR Rainfall=4.58"

Area (ac)	CN	Description
0.049	87	Dirt roads, HSG C
0.122	89	Gravel roads, HSG C
0.187	91	Gravel roads, HSG D
0.024	74	Landscape, Good, HSG C
0.097	80	Landscape, Good, HSG D
0.168	79	Pasture/grassland/range, Fair, HSG C
0.633	74	Pasture/grassland/range, Good, HSG C
0.514	80	Pasture/grassland/range, Good, HSG D
0.055	86	Pasture/grassland/range, Poor, HSG C
0.019	89	Pasture/grassland/range, Poor, HSG D
0.061	98	Paved Road, HSG C
0.139	98	Paved Road, HSG D
0.100	98	Roofs, HSG C
0.055	98	Roofs, HSG D
0.039	79	Vineyard (E), Fair, HSG C
0.857	84	Vineyard (E), Fair, HSG D
2.796	72	Woods/grass comb., Good, HSG C
0.826	79	Woods/grass comb., Good, HSG D
6.741	78	Weighted Average
6.386		94.73% Pervious Area
0.355		5.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0500	0.13		**Sheet Flow, PRE WS LC** Woods: Light underbrush n= 0.400 P2= 4.58"
3.0	314	0.1178	1.72		**Shallow Concentrated Flow, PRE WS LC** Woodland Kv= 5.0 fps
2.9	156	0.0321	0.90		**Shallow Concentrated Flow, PRE WS LC** Woodland Kv= 5.0 fps
0.1	126	0.0952	18.25	218.94	**Channel Flow, PRE WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, PRE WS LC** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.020 Corrugated PE, corrugated interior
0.2	200	0.0550	13.87	166.41	**Channel Flow, PRE WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	324	0.1204	20.52	246.22	**Channel Flow, PRE WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
18.9	1,242	Total			

Subcatchment WS LC: PRE WS LC



Summary for Subcatchment WS LA: PRE WS LA

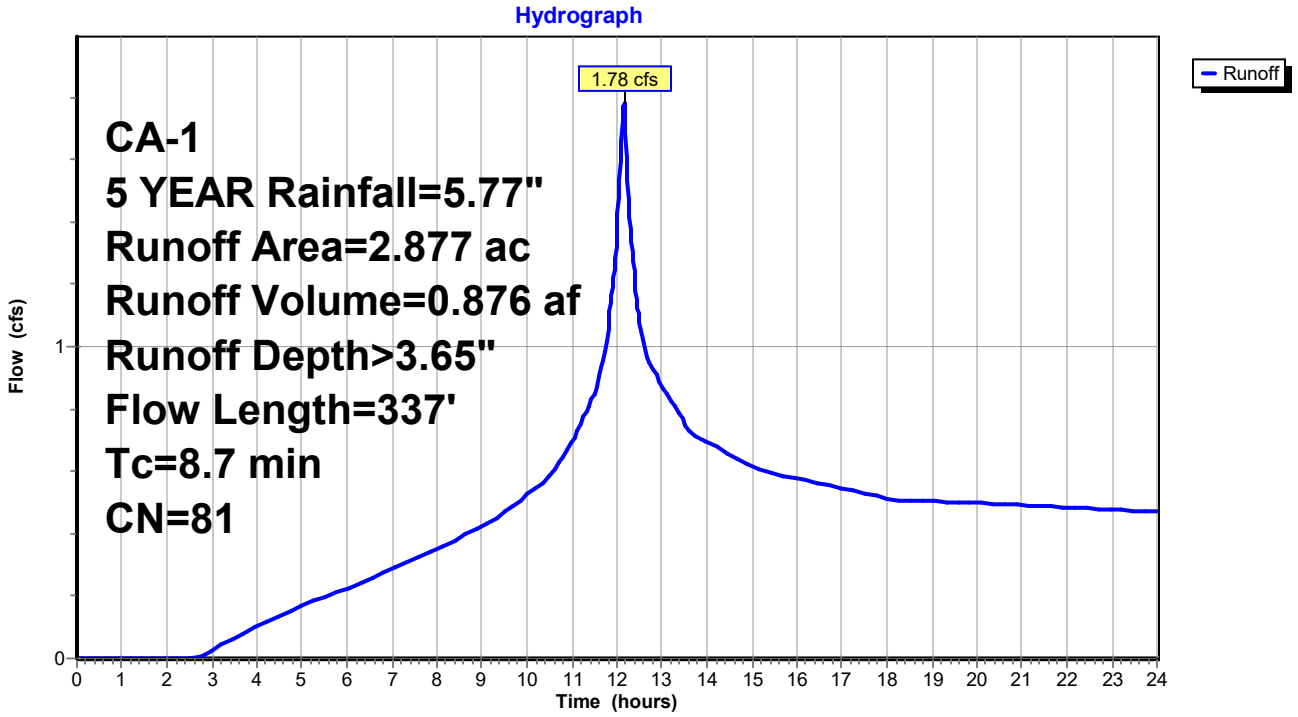
Runoff = 1.78 cfs @ 12.16 hrs, Volume= 0.876 af, Depth> 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 5 YEAR Rainfall=5.77"

Area (ac)	CN	Description
0.028	87	Dirt roads, HSG C
0.004	89	Dirt roads, HSG D
0.002	89	Gravel roads, HSG C
0.006	91	Gravel roads, HSG D
0.024	80	Landscape, Good, HSG D
0.053	79	Pasture/grassland/range, Fair, HSG C
0.013	84	Pasture/grassland/range, Fair, HSG D
0.157	74	Pasture/grassland/range, Good, HSG C
0.612	80	Pasture/grassland/range, Good, HSG D
0.012	89	Pasture/grassland/range, Poor, HSG D
0.005	98	Paved Road, HSG C
0.144	98	Paved Road, HSG D
0.024	98	Roofs, HSG C
0.027	98	Roofs, HSG D
0.949	84	Vineyard (E), Fair, HSG D
0.011	98	Water Surface, HSG D
0.478	72	Woods/grass comb., Good, HSG C
0.326	79	Woods/grass comb., Good, HSG D
2.877	81	Weighted Average
2.666		92.66% Pervious Area
0.211		7.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.1900	0.23		**Sheet Flow, PRE WS LA** Woods: Light underbrush n= 0.400 P2= 4.58"
0.3	65	0.2462	3.47		**Shallow Concentrated Flow, PRE WS LA** Short Grass Pasture Kv= 7.0 fps
1.1	172	0.1308	2.53		**Shallow Concentrated Flow, PRE WS LA** Short Grass Pasture Kv= 7.0 fps
8.7	337	Total			

Subcatchment WS LA: PRE WS LA



Summary for Subcatchment WS LB: PRE WS LB

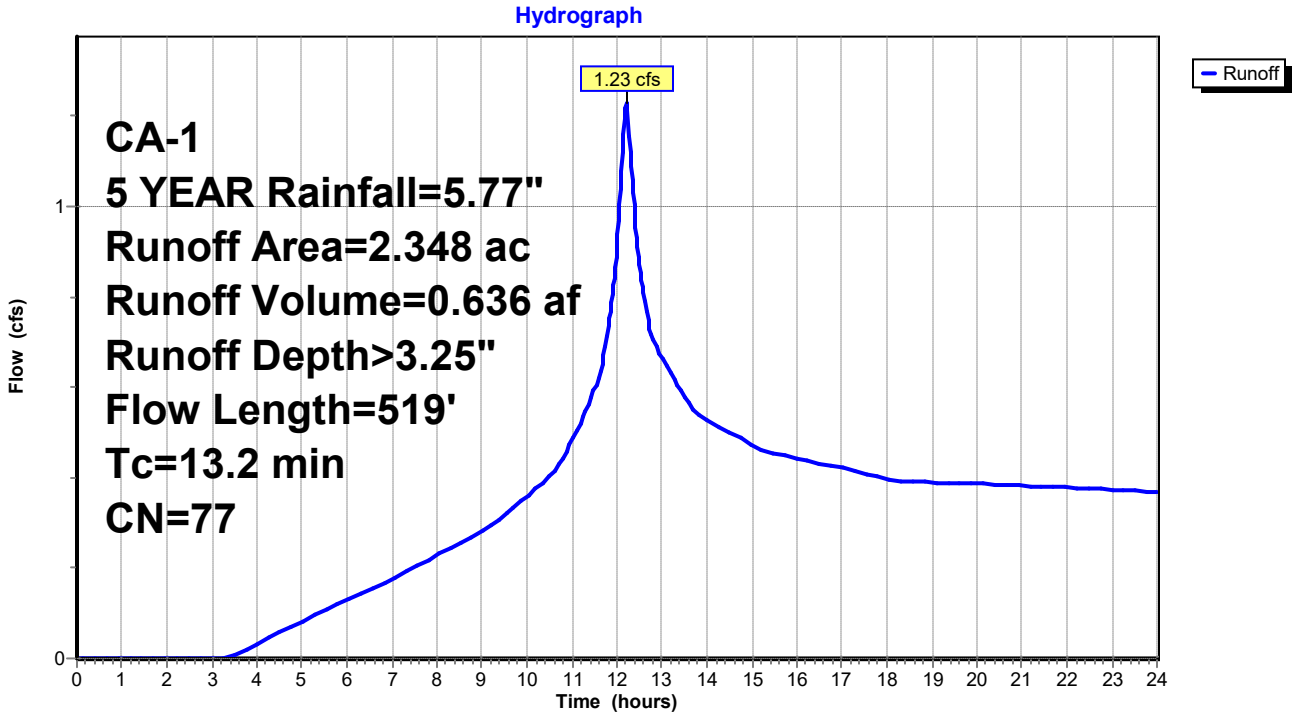
Runoff = 1.23 cfs @ 12.21 hrs, Volume= 0.636 af, Depth> 3.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 5 YEAR Rainfall=5.77"

Area (ac)	CN	Description
0.001	91	Gravel roads, HSG D
0.042	84	Pasture/grassland/range, Fair, HSG D
0.113	74	Pasture/grassland/range, Good, HSG C
0.031	80	Pasture/grassland/range, Good, HSG D
0.059	98	Paved Road, HSG C
0.121	98	Paved Road, HSG D
0.001	98	Roofs, HSG C
0.015	98	Roofs, HSG D
0.013	79	Vineyard (E), Fair, HSG C
0.276	84	Vineyard (E), Fair, HSG D
1.486	72	Woods/grass comb., Good, HSG C
0.190	79	Woods/grass comb., Good, HSG D
2.348	77	Weighted Average
2.152		91.66% Pervious Area
0.196		8.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, PRE WS LB** Woods: Light underbrush n= 0.400 P2= 4.58"
1.7	206	0.1602	2.00		**Shallow Concentrated Flow, PRE WS LB** Woodland Kv= 5.0 fps
1.7	213	0.1831	2.14		**Shallow Concentrated Flow, PRE WS LB** Woodland Kv= 5.0 fps
13.2	519	Total			

Subcatchment WS LB: PRE WS LB



Summary for Subcatchment WS LC: PRE WS LC

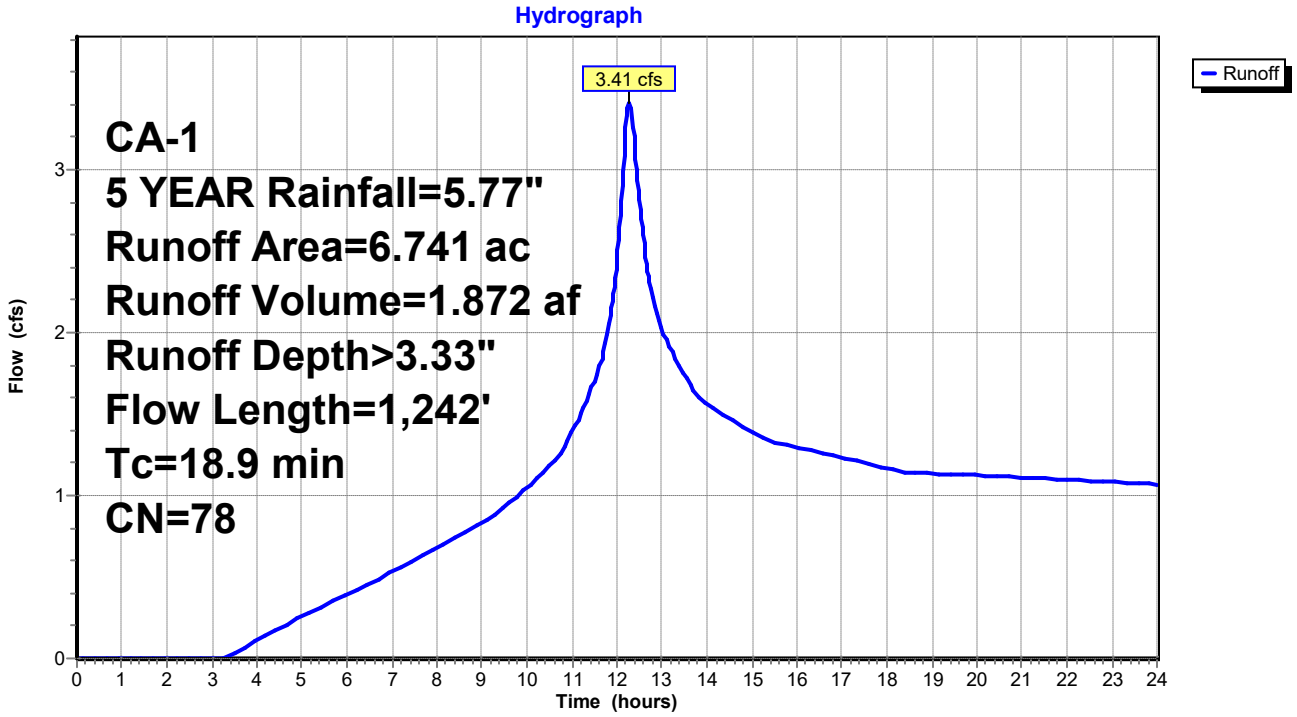
Runoff = 3.41 cfs @ 12.27 hrs, Volume= 1.872 af, Depth> 3.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 5 YEAR Rainfall=5.77"

Area (ac)	CN	Description
0.049	87	Dirt roads, HSG C
0.122	89	Gravel roads, HSG C
0.187	91	Gravel roads, HSG D
0.024	74	Landscape, Good, HSG C
0.097	80	Landscape, Good, HSG D
0.168	79	Pasture/grassland/range, Fair, HSG C
0.633	74	Pasture/grassland/range, Good, HSG C
0.514	80	Pasture/grassland/range, Good, HSG D
0.055	86	Pasture/grassland/range, Poor, HSG C
0.019	89	Pasture/grassland/range, Poor, HSG D
0.061	98	Paved Road, HSG C
0.139	98	Paved Road, HSG D
0.100	98	Roofs, HSG C
0.055	98	Roofs, HSG D
0.039	79	Vineyard (E), Fair, HSG C
0.857	84	Vineyard (E), Fair, HSG D
2.796	72	Woods/grass comb., Good, HSG C
0.826	79	Woods/grass comb., Good, HSG D
6.741	78	Weighted Average
6.386		94.73% Pervious Area
0.355		5.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0500	0.13		**Sheet Flow, PRE WS LC** Woods: Light underbrush n= 0.400 P2= 4.58"
3.0	314	0.1178	1.72		**Shallow Concentrated Flow, PRE WS LC** Woodland Kv= 5.0 fps
2.9	156	0.0321	0.90		**Shallow Concentrated Flow, PRE WS LC** Woodland Kv= 5.0 fps
0.1	126	0.0952	18.25	218.94	**Channel Flow, PRE WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, PRE WS LC** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.020 Corrugated PE, corrugated interior
0.2	200	0.0550	13.87	166.41	**Channel Flow, PRE WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	324	0.1204	20.52	246.22	**Channel Flow, PRE WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
18.9	1,242	Total			

Subcatchment WS LC: PRE WS LC



Summary for Subcatchment WS LA: PRE WS LA

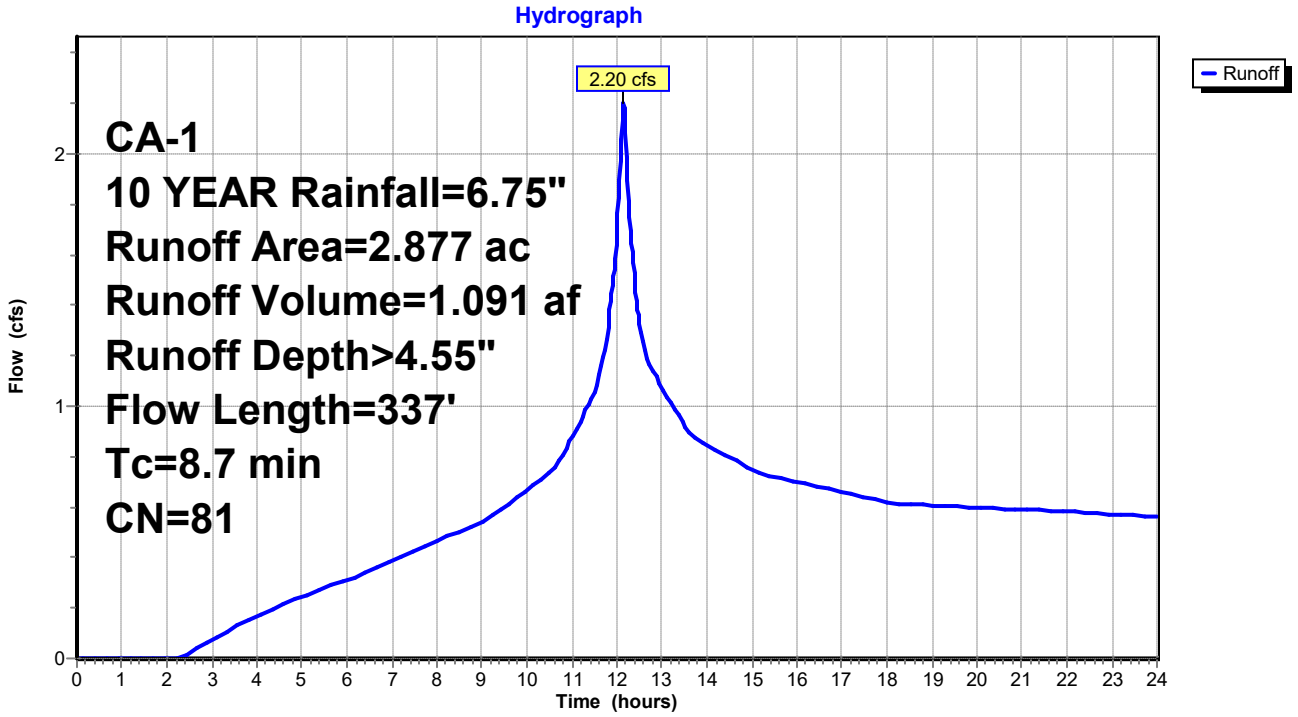
Runoff = 2.20 cfs @ 12.16 hrs, Volume= 1.091 af, Depth> 4.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 10 YEAR Rainfall=6.75"

Area (ac)	CN	Description
0.028	87	Dirt roads, HSG C
0.004	89	Dirt roads, HSG D
0.002	89	Gravel roads, HSG C
0.006	91	Gravel roads, HSG D
0.024	80	Landscape, Good, HSG D
0.053	79	Pasture/grassland/range, Fair, HSG C
0.013	84	Pasture/grassland/range, Fair, HSG D
0.157	74	Pasture/grassland/range, Good, HSG C
0.612	80	Pasture/grassland/range, Good, HSG D
0.012	89	Pasture/grassland/range, Poor, HSG D
0.005	98	Paved Road, HSG C
0.144	98	Paved Road, HSG D
0.024	98	Roofs, HSG C
0.027	98	Roofs, HSG D
0.949	84	Vineyard (E), Fair, HSG D
0.011	98	Water Surface, HSG D
0.478	72	Woods/grass comb., Good, HSG C
0.326	79	Woods/grass comb., Good, HSG D
2.877	81	Weighted Average
2.666		92.66% Pervious Area
0.211		7.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.1900	0.23		**Sheet Flow, PRE WS LA** Woods: Light underbrush n= 0.400 P2= 4.58"
0.3	65	0.2462	3.47		**Shallow Concentrated Flow, PRE WS LA** Short Grass Pasture Kv= 7.0 fps
1.1	172	0.1308	2.53		**Shallow Concentrated Flow, PRE WS LA** Short Grass Pasture Kv= 7.0 fps
8.7	337	Total			

Subcatchment WS LA: PRE WS LA



Summary for Subcatchment WS LB: PRE WS LB

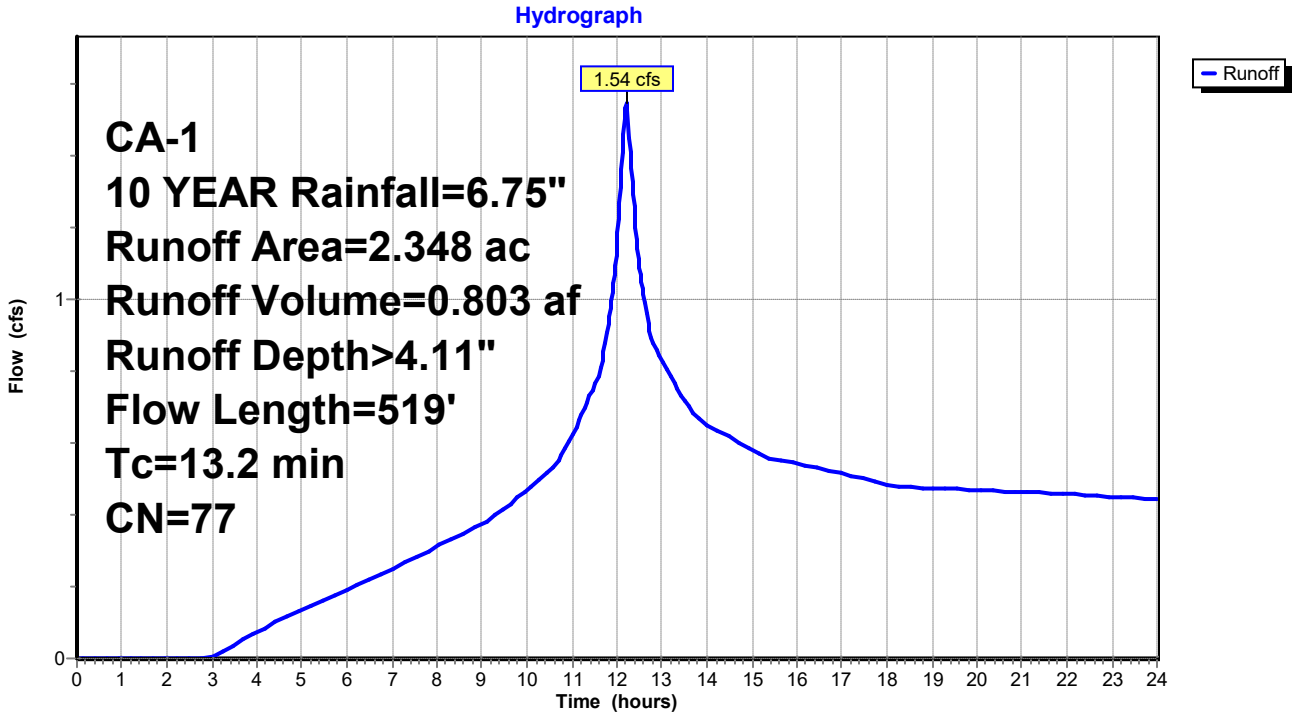
Runoff = 1.54 cfs @ 12.21 hrs, Volume= 0.803 af, Depth> 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 10 YEAR Rainfall=6.75"

Area (ac)	CN	Description
0.001	91	Gravel roads, HSG D
0.042	84	Pasture/grassland/range, Fair, HSG D
0.113	74	Pasture/grassland/range, Good, HSG C
0.031	80	Pasture/grassland/range, Good, HSG D
0.059	98	Paved Road, HSG C
0.121	98	Paved Road, HSG D
0.001	98	Roofs, HSG C
0.015	98	Roofs, HSG D
0.013	79	Vineyard (E), Fair, HSG C
0.276	84	Vineyard (E), Fair, HSG D
1.486	72	Woods/grass comb., Good, HSG C
0.190	79	Woods/grass comb., Good, HSG D
2.348	77	Weighted Average
2.152		91.66% Pervious Area
0.196		8.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, PRE WS LB** Woods: Light underbrush n= 0.400 P2= 4.58"
1.7	206	0.1602	2.00		**Shallow Concentrated Flow, PRE WS LB** Woodland Kv= 5.0 fps
1.7	213	0.1831	2.14		**Shallow Concentrated Flow, PRE WS LB** Woodland Kv= 5.0 fps
13.2	519	Total			

Subcatchment WS LB: PRE WS LB



Summary for Subcatchment WS LC: PRE WS LC

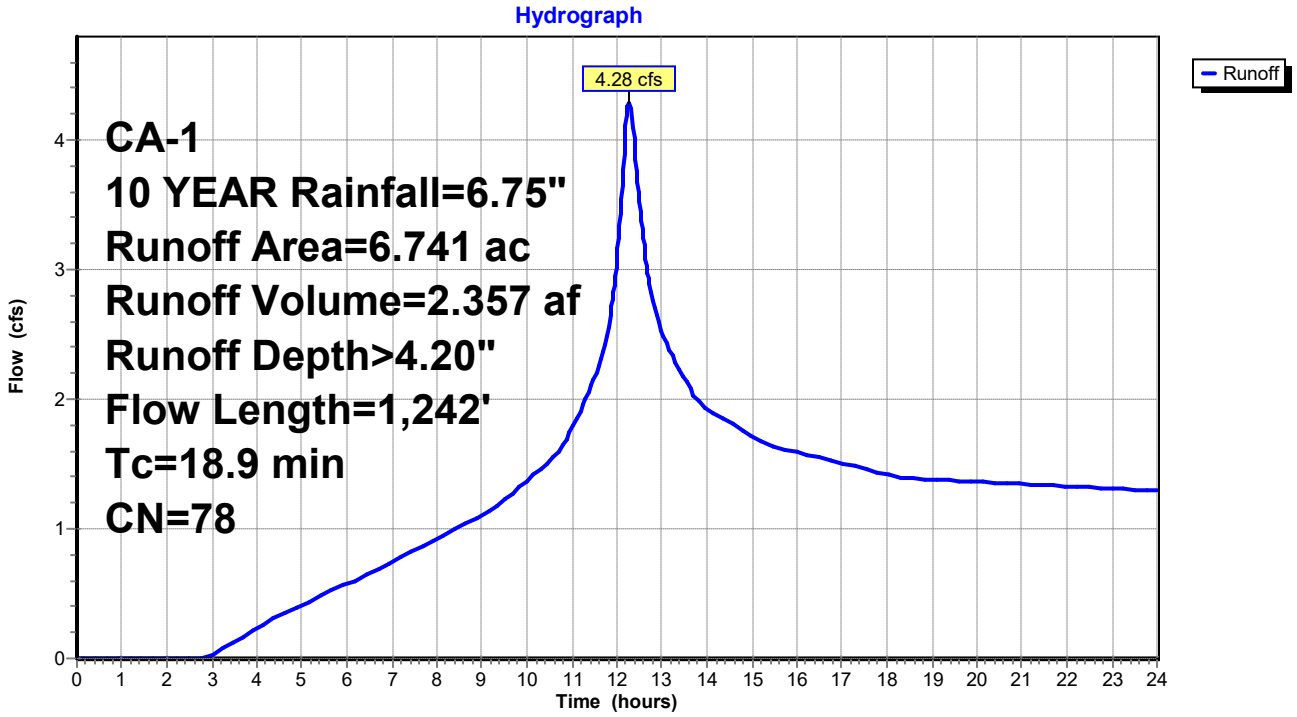
Runoff = 4.28 cfs @ 12.27 hrs, Volume= 2.357 af, Depth> 4.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 10 YEAR Rainfall=6.75"

Area (ac)	CN	Description
0.049	87	Dirt roads, HSG C
0.122	89	Gravel roads, HSG C
0.187	91	Gravel roads, HSG D
0.024	74	Landscape, Good, HSG C
0.097	80	Landscape, Good, HSG D
0.168	79	Pasture/grassland/range, Fair, HSG C
0.633	74	Pasture/grassland/range, Good, HSG C
0.514	80	Pasture/grassland/range, Good, HSG D
0.055	86	Pasture/grassland/range, Poor, HSG C
0.019	89	Pasture/grassland/range, Poor, HSG D
0.061	98	Paved Road, HSG C
0.139	98	Paved Road, HSG D
0.100	98	Roofs, HSG C
0.055	98	Roofs, HSG D
0.039	79	Vineyard (E), Fair, HSG C
0.857	84	Vineyard (E), Fair, HSG D
2.796	72	Woods/grass comb., Good, HSG C
0.826	79	Woods/grass comb., Good, HSG D
6.741	78	Weighted Average
6.386		94.73% Pervious Area
0.355		5.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0500	0.13		**Sheet Flow, PRE WS LC** Woods: Light underbrush n= 0.400 P2= 4.58"
3.0	314	0.1178	1.72		**Shallow Concentrated Flow, PRE WS LC** Woodland Kv= 5.0 fps
2.9	156	0.0321	0.90		**Shallow Concentrated Flow, PRE WS LC** Woodland Kv= 5.0 fps
0.1	126	0.0952	18.25	218.94	**Channel Flow, PRE WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, PRE WS LC** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.020 Corrugated PE, corrugated interior
0.2	200	0.0550	13.87	166.41	**Channel Flow, PRE WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	324	0.1204	20.52	246.22	**Channel Flow, PRE WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
18.9	1,242	Total			

Subcatchment WS LC: PRE WS LC



Summary for Subcatchment WS LA: PRE WS LA

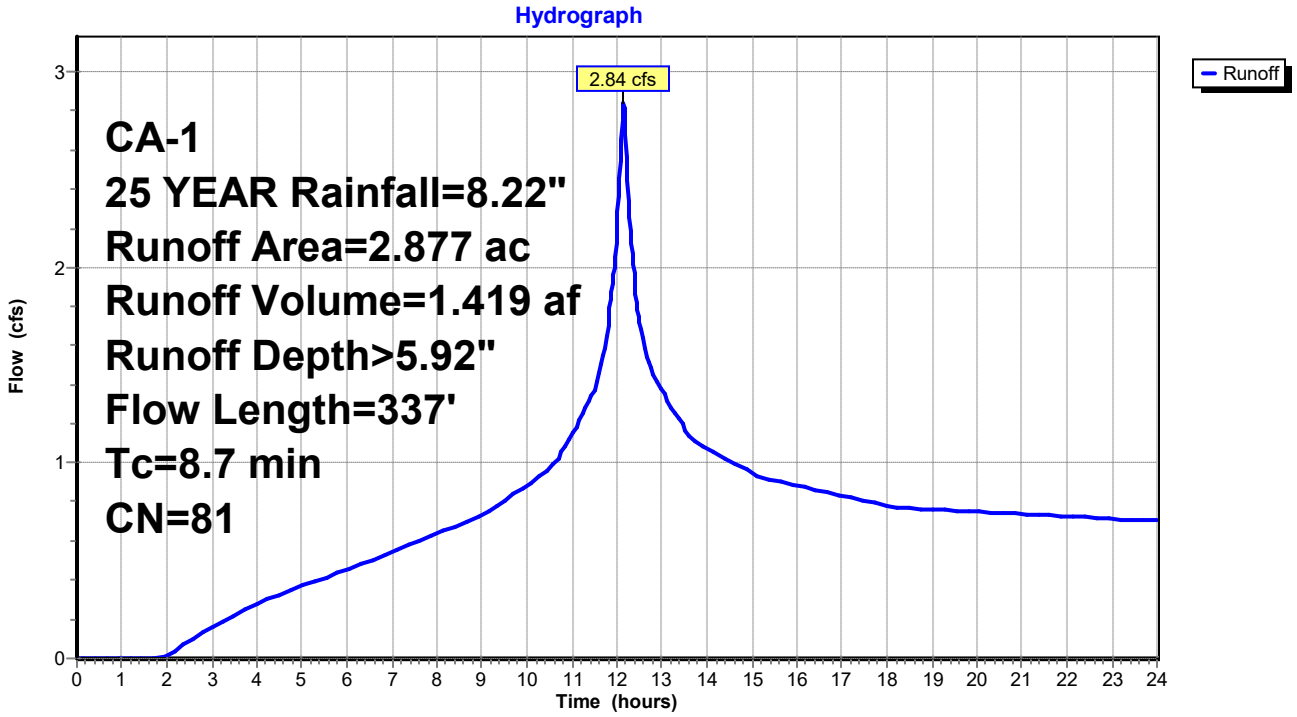
Runoff = 2.84 cfs @ 12.16 hrs, Volume= 1.419 af, Depth> 5.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 25 YEAR Rainfall=8.22"

Area (ac)	CN	Description
0.028	87	Dirt roads, HSG C
0.004	89	Dirt roads, HSG D
0.002	89	Gravel roads, HSG C
0.006	91	Gravel roads, HSG D
0.024	80	Landscape, Good, HSG D
0.053	79	Pasture/grassland/range, Fair, HSG C
0.013	84	Pasture/grassland/range, Fair, HSG D
0.157	74	Pasture/grassland/range, Good, HSG C
0.612	80	Pasture/grassland/range, Good, HSG D
0.012	89	Pasture/grassland/range, Poor, HSG D
0.005	98	Paved Road, HSG C
0.144	98	Paved Road, HSG D
0.024	98	Roofs, HSG C
0.027	98	Roofs, HSG D
0.949	84	Vineyard (E), Fair, HSG D
0.011	98	Water Surface, HSG D
0.478	72	Woods/grass comb., Good, HSG C
0.326	79	Woods/grass comb., Good, HSG D
2.877	81	Weighted Average
2.666		92.66% Pervious Area
0.211		7.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.1900	0.23		**Sheet Flow, PRE WS LA** Woods: Light underbrush n= 0.400 P2= 4.58"
0.3	65	0.2462	3.47		**Shallow Concentrated Flow, PRE WS LA** Short Grass Pasture Kv= 7.0 fps
1.1	172	0.1308	2.53		**Shallow Concentrated Flow, PRE WS LA** Short Grass Pasture Kv= 7.0 fps
8.7	337	Total			

Subcatchment WS LA: PRE WS LA



Summary for Subcatchment WS LB: PRE WS LB

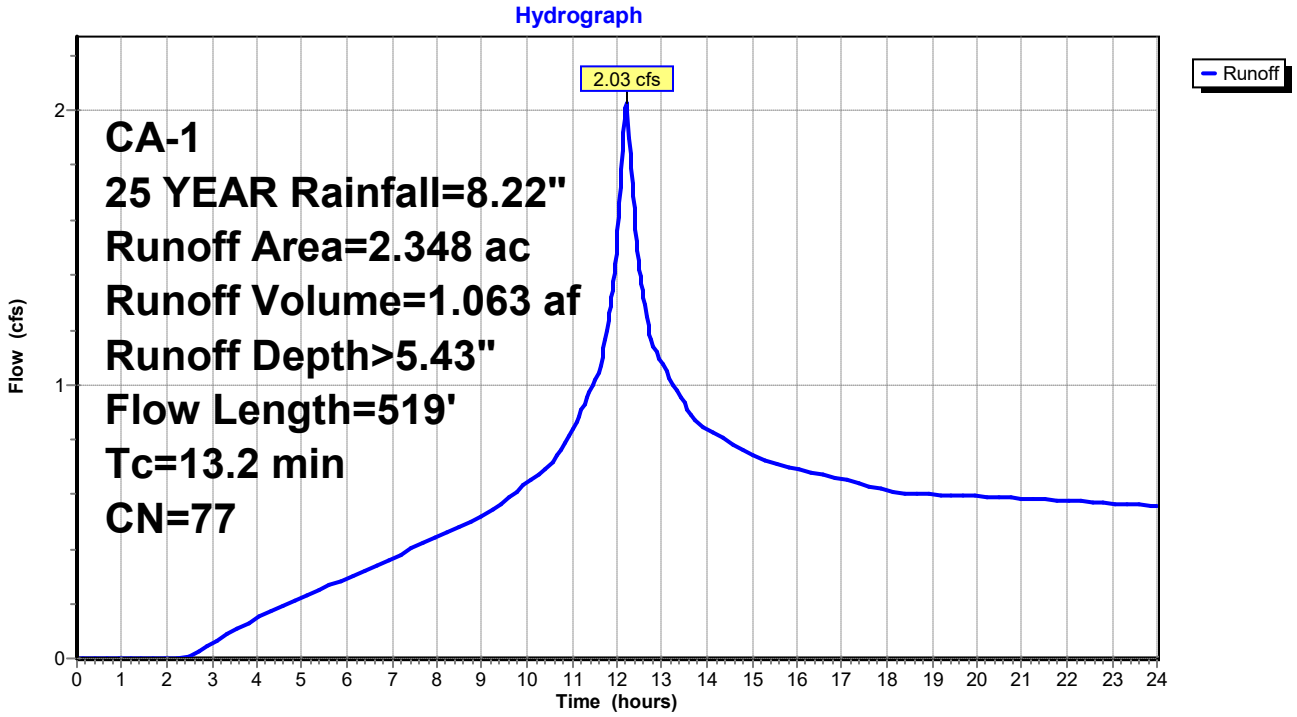
Runoff = 2.03 cfs @ 12.20 hrs, Volume= 1.063 af, Depth> 5.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 25 YEAR Rainfall=8.22"

Area (ac)	CN	Description
0.001	91	Gravel roads, HSG D
0.042	84	Pasture/grassland/range, Fair, HSG D
0.113	74	Pasture/grassland/range, Good, HSG C
0.031	80	Pasture/grassland/range, Good, HSG D
0.059	98	Paved Road, HSG C
0.121	98	Paved Road, HSG D
0.001	98	Roofs, HSG C
0.015	98	Roofs, HSG D
0.013	79	Vineyard (E), Fair, HSG C
0.276	84	Vineyard (E), Fair, HSG D
1.486	72	Woods/grass comb., Good, HSG C
0.190	79	Woods/grass comb., Good, HSG D
2.348	77	Weighted Average
2.152		91.66% Pervious Area
0.196		8.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, PRE WS LB** Woods: Light underbrush n= 0.400 P2= 4.58"
1.7	206	0.1602	2.00		**Shallow Concentrated Flow, PRE WS LB** Woodland Kv= 5.0 fps
1.7	213	0.1831	2.14		**Shallow Concentrated Flow, PRE WS LB** Woodland Kv= 5.0 fps
13.2	519	Total			

Subcatchment WS LB: PRE WS LB



Summary for Subcatchment WS LC: PRE WS LC

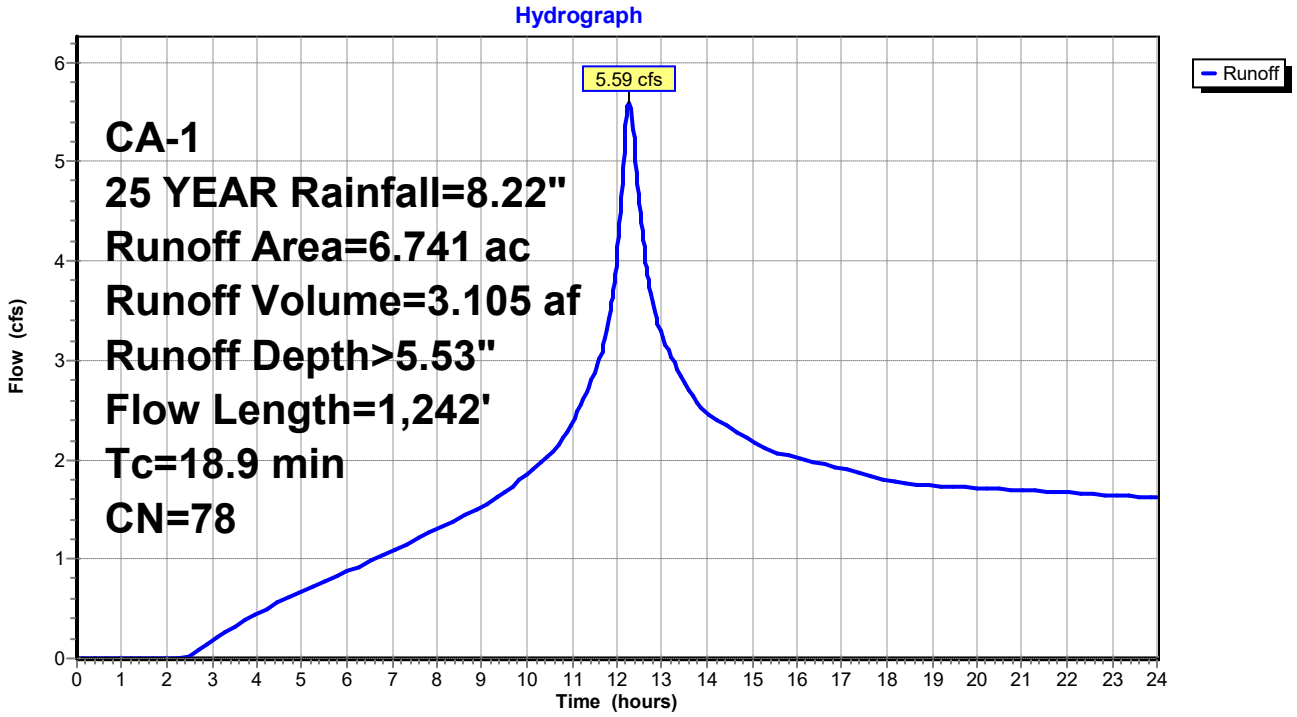
Runoff = 5.59 cfs @ 12.27 hrs, Volume= 3.105 af, Depth> 5.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 25 YEAR Rainfall=8.22"

Area (ac)	CN	Description
0.049	87	Dirt roads, HSG C
0.122	89	Gravel roads, HSG C
0.187	91	Gravel roads, HSG D
0.024	74	Landscape, Good, HSG C
0.097	80	Landscape, Good, HSG D
0.168	79	Pasture/grassland/range, Fair, HSG C
0.633	74	Pasture/grassland/range, Good, HSG C
0.514	80	Pasture/grassland/range, Good, HSG D
0.055	86	Pasture/grassland/range, Poor, HSG C
0.019	89	Pasture/grassland/range, Poor, HSG D
0.061	98	Paved Road, HSG C
0.139	98	Paved Road, HSG D
0.100	98	Roofs, HSG C
0.055	98	Roofs, HSG D
0.039	79	Vineyard (E), Fair, HSG C
0.857	84	Vineyard (E), Fair, HSG D
2.796	72	Woods/grass comb., Good, HSG C
0.826	79	Woods/grass comb., Good, HSG D
6.741	78	Weighted Average
6.386		94.73% Pervious Area
0.355		5.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0500	0.13		**Sheet Flow, PRE WS LC** Woods: Light underbrush n= 0.400 P2= 4.58"
3.0	314	0.1178	1.72		**Shallow Concentrated Flow, PRE WS LC** Woodland Kv= 5.0 fps
2.9	156	0.0321	0.90		**Shallow Concentrated Flow, PRE WS LC** Woodland Kv= 5.0 fps
0.1	126	0.0952	18.25	218.94	**Channel Flow, PRE WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, PRE WS LC** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.020 Corrugated PE, corrugated interior
0.2	200	0.0550	13.87	166.41	**Channel Flow, PRE WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	324	0.1204	20.52	246.22	**Channel Flow, PRE WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
18.9	1,242	Total			

Subcatchment WS LC: PRE WS LC



Summary for Subcatchment WS LA: PRE WS LA

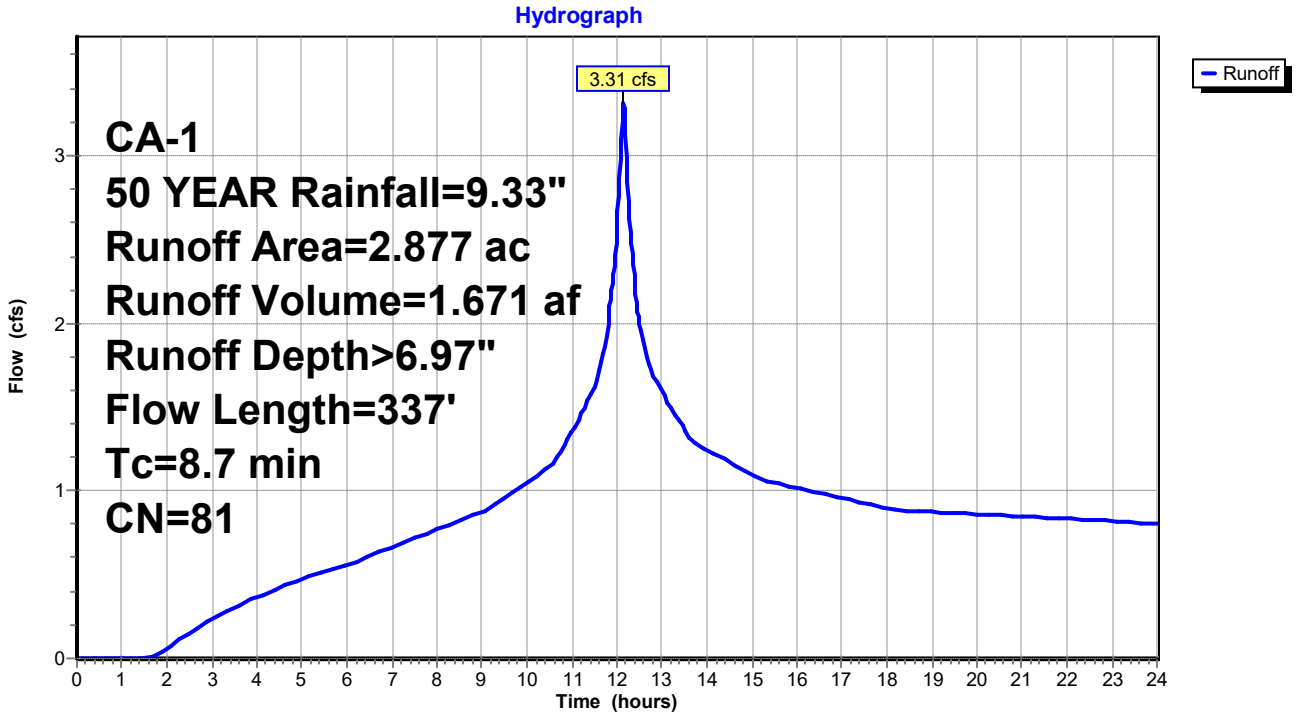
Runoff = 3.31 cfs @ 12.15 hrs, Volume= 1.671 af, Depth> 6.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 50 YEAR Rainfall=9.33"

Area (ac)	CN	Description
0.028	87	Dirt roads, HSG C
0.004	89	Dirt roads, HSG D
0.002	89	Gravel roads, HSG C
0.006	91	Gravel roads, HSG D
0.024	80	Landscape, Good, HSG D
0.053	79	Pasture/grassland/range, Fair, HSG C
0.013	84	Pasture/grassland/range, Fair, HSG D
0.157	74	Pasture/grassland/range, Good, HSG C
0.612	80	Pasture/grassland/range, Good, HSG D
0.012	89	Pasture/grassland/range, Poor, HSG D
0.005	98	Paved Road, HSG C
0.144	98	Paved Road, HSG D
0.024	98	Roofs, HSG C
0.027	98	Roofs, HSG D
0.949	84	Vineyard (E), Fair, HSG D
0.011	98	Water Surface, HSG D
0.478	72	Woods/grass comb., Good, HSG C
0.326	79	Woods/grass comb., Good, HSG D
2.877	81	Weighted Average
2.666		92.66% Pervious Area
0.211		7.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.1900	0.23		**Sheet Flow, PRE WS LA** Woods: Light underbrush n= 0.400 P2= 4.58"
0.3	65	0.2462	3.47		**Shallow Concentrated Flow, PRE WS LA** Short Grass Pasture Kv= 7.0 fps
1.1	172	0.1308	2.53		**Shallow Concentrated Flow, PRE WS LA** Short Grass Pasture Kv= 7.0 fps
8.7	337	Total			

Subcatchment WS LA: PRE WS LA



Summary for Subcatchment WS LB: PRE WS LB

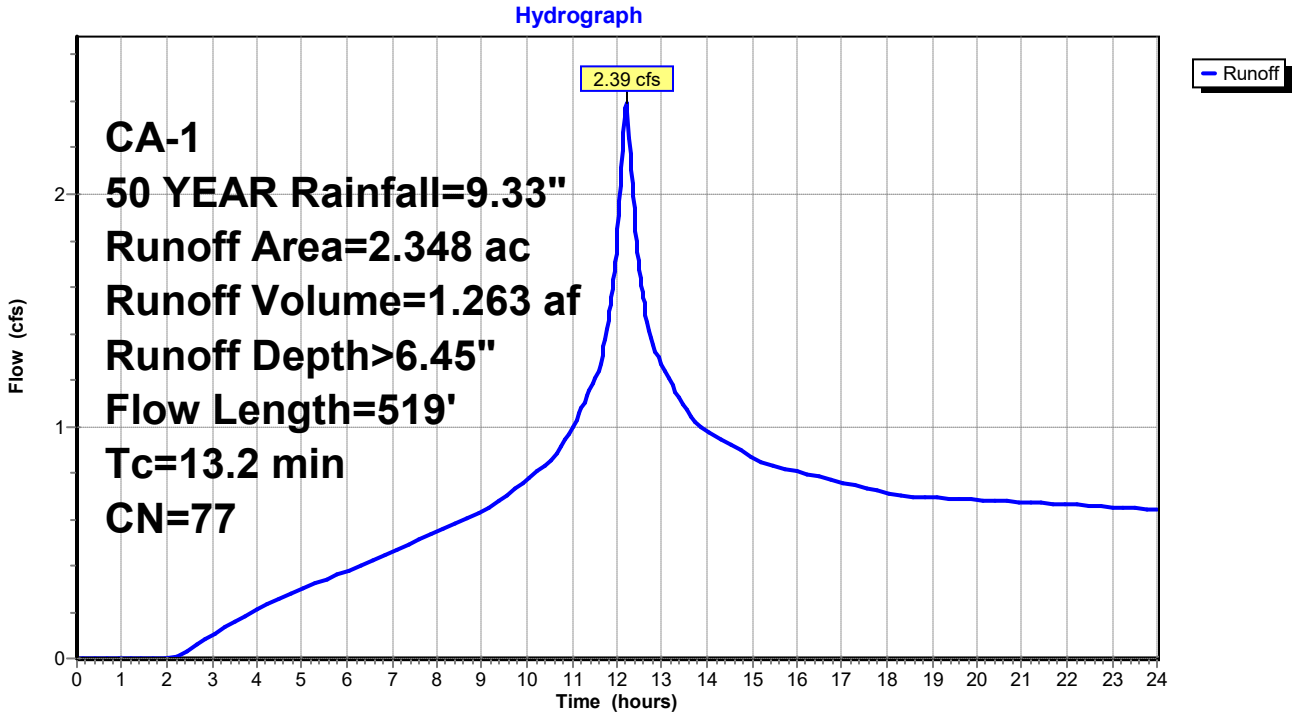
Runoff = 2.39 cfs @ 12.20 hrs, Volume= 1.263 af, Depth> 6.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 50 YEAR Rainfall=9.33"

Area (ac)	CN	Description
0.001	91	Gravel roads, HSG D
0.042	84	Pasture/grassland/range, Fair, HSG D
0.113	74	Pasture/grassland/range, Good, HSG C
0.031	80	Pasture/grassland/range, Good, HSG D
0.059	98	Paved Road, HSG C
0.121	98	Paved Road, HSG D
0.001	98	Roofs, HSG C
0.015	98	Roofs, HSG D
0.013	79	Vineyard (E), Fair, HSG C
0.276	84	Vineyard (E), Fair, HSG D
1.486	72	Woods/grass comb., Good, HSG C
0.190	79	Woods/grass comb., Good, HSG D
2.348	77	Weighted Average
2.152		91.66% Pervious Area
0.196		8.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, PRE WS LB** Woods: Light underbrush n= 0.400 P2= 4.58"
1.7	206	0.1602	2.00		**Shallow Concentrated Flow, PRE WS LB** Woodland Kv= 5.0 fps
1.7	213	0.1831	2.14		**Shallow Concentrated Flow, PRE WS LB** Woodland Kv= 5.0 fps
13.2	519	Total			

Subcatchment WS LB: PRE WS LB



Summary for Subcatchment WS LC: PRE WS LC

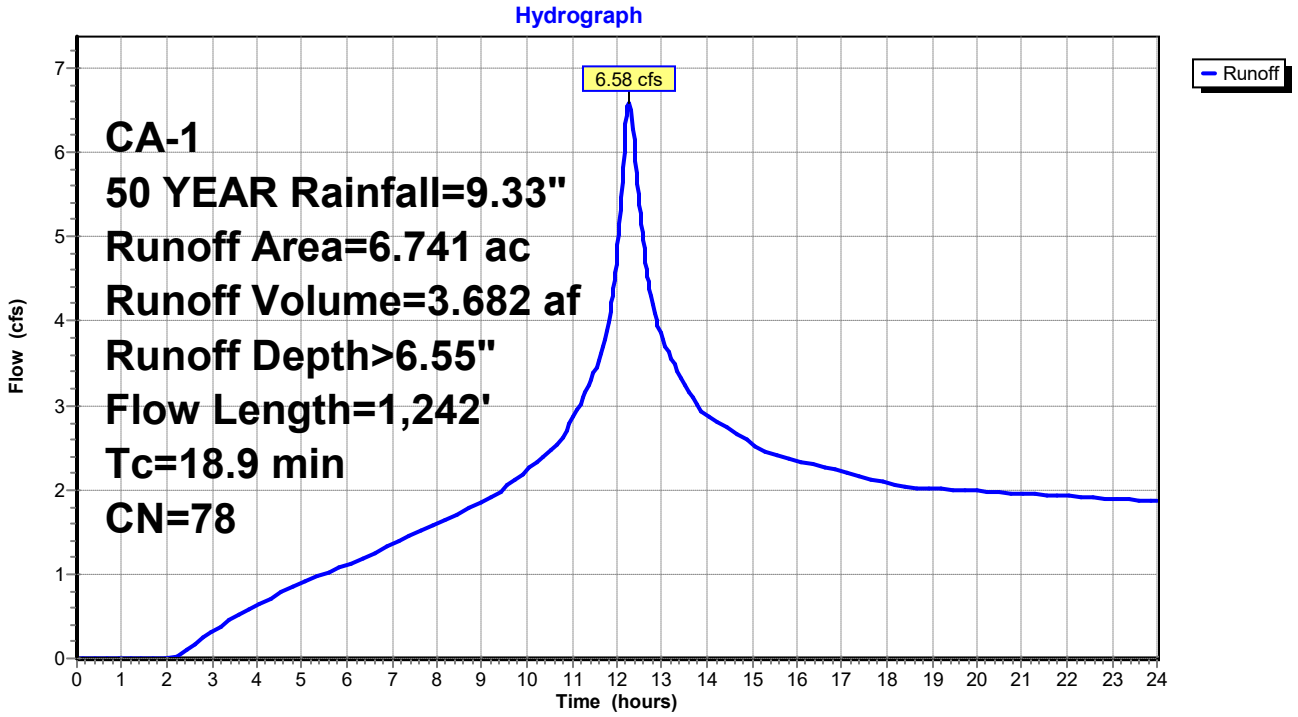
Runoff = 6.58 cfs @ 12.27 hrs, Volume= 3.682 af, Depth> 6.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 50 YEAR Rainfall=9.33"

Area (ac)	CN	Description
0.049	87	Dirt roads, HSG C
0.122	89	Gravel roads, HSG C
0.187	91	Gravel roads, HSG D
0.024	74	Landscape, Good, HSG C
0.097	80	Landscape, Good, HSG D
0.168	79	Pasture/grassland/range, Fair, HSG C
0.633	74	Pasture/grassland/range, Good, HSG C
0.514	80	Pasture/grassland/range, Good, HSG D
0.055	86	Pasture/grassland/range, Poor, HSG C
0.019	89	Pasture/grassland/range, Poor, HSG D
0.061	98	Paved Road, HSG C
0.139	98	Paved Road, HSG D
0.100	98	Roofs, HSG C
0.055	98	Roofs, HSG D
0.039	79	Vineyard (E), Fair, HSG C
0.857	84	Vineyard (E), Fair, HSG D
2.796	72	Woods/grass comb., Good, HSG C
0.826	79	Woods/grass comb., Good, HSG D
6.741	78	Weighted Average
6.386		94.73% Pervious Area
0.355		5.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0500	0.13		**Sheet Flow, PRE WS LC** Woods: Light underbrush n= 0.400 P2= 4.58"
3.0	314	0.1178	1.72		**Shallow Concentrated Flow, PRE WS LC** Woodland Kv= 5.0 fps
2.9	156	0.0321	0.90		**Shallow Concentrated Flow, PRE WS LC** Woodland Kv= 5.0 fps
0.1	126	0.0952	18.25	218.94	**Channel Flow, PRE WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, PRE WS LC** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.020 Corrugated PE, corrugated interior
0.2	200	0.0550	13.87	166.41	**Channel Flow, PRE WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	324	0.1204	20.52	246.22	**Channel Flow, PRE WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
18.9	1,242	Total			

Subcatchment WS LC: PRE WS LC



Summary for Subcatchment WS LA: PRE WS LA

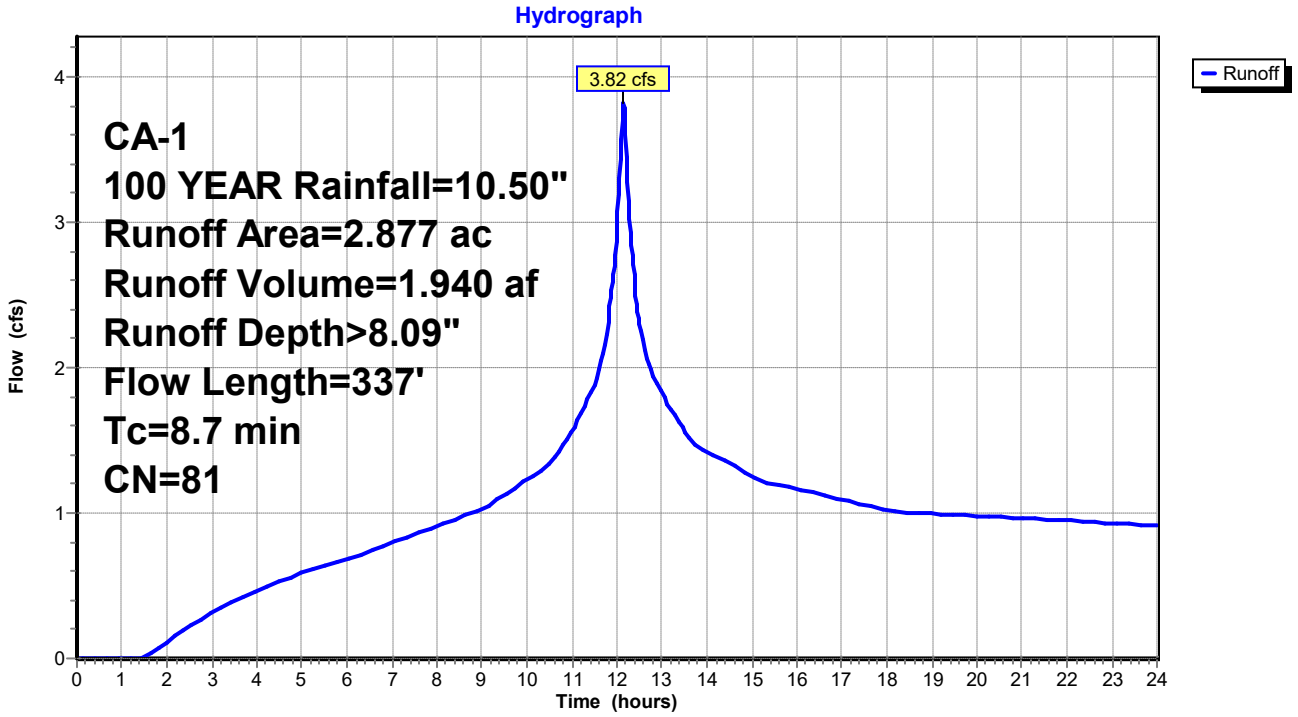
Runoff = 3.82 cfs @ 12.15 hrs, Volume= 1.940 af, Depth> 8.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 100 YEAR Rainfall=10.50"

Area (ac)	CN	Description
0.028	87	Dirt roads, HSG C
0.004	89	Dirt roads, HSG D
0.002	89	Gravel roads, HSG C
0.006	91	Gravel roads, HSG D
0.024	80	Landscape, Good, HSG D
0.053	79	Pasture/grassland/range, Fair, HSG C
0.013	84	Pasture/grassland/range, Fair, HSG D
0.157	74	Pasture/grassland/range, Good, HSG C
0.612	80	Pasture/grassland/range, Good, HSG D
0.012	89	Pasture/grassland/range, Poor, HSG D
0.005	98	Paved Road, HSG C
0.144	98	Paved Road, HSG D
0.024	98	Roofs, HSG C
0.027	98	Roofs, HSG D
0.949	84	Vineyard (E), Fair, HSG D
0.011	98	Water Surface, HSG D
0.478	72	Woods/grass comb., Good, HSG C
0.326	79	Woods/grass comb., Good, HSG D
2.877	81	Weighted Average
2.666		92.66% Pervious Area
0.211		7.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.1900	0.23		**Sheet Flow, PRE WS LA** Woods: Light underbrush n= 0.400 P2= 4.58"
0.3	65	0.2462	3.47		**Shallow Concentrated Flow, PRE WS LA** Short Grass Pasture Kv= 7.0 fps
1.1	172	0.1308	2.53		**Shallow Concentrated Flow, PRE WS LA** Short Grass Pasture Kv= 7.0 fps
8.7	337	Total			

Subcatchment WS LA: PRE WS LA



Summary for Subcatchment WS LB: PRE WS LB

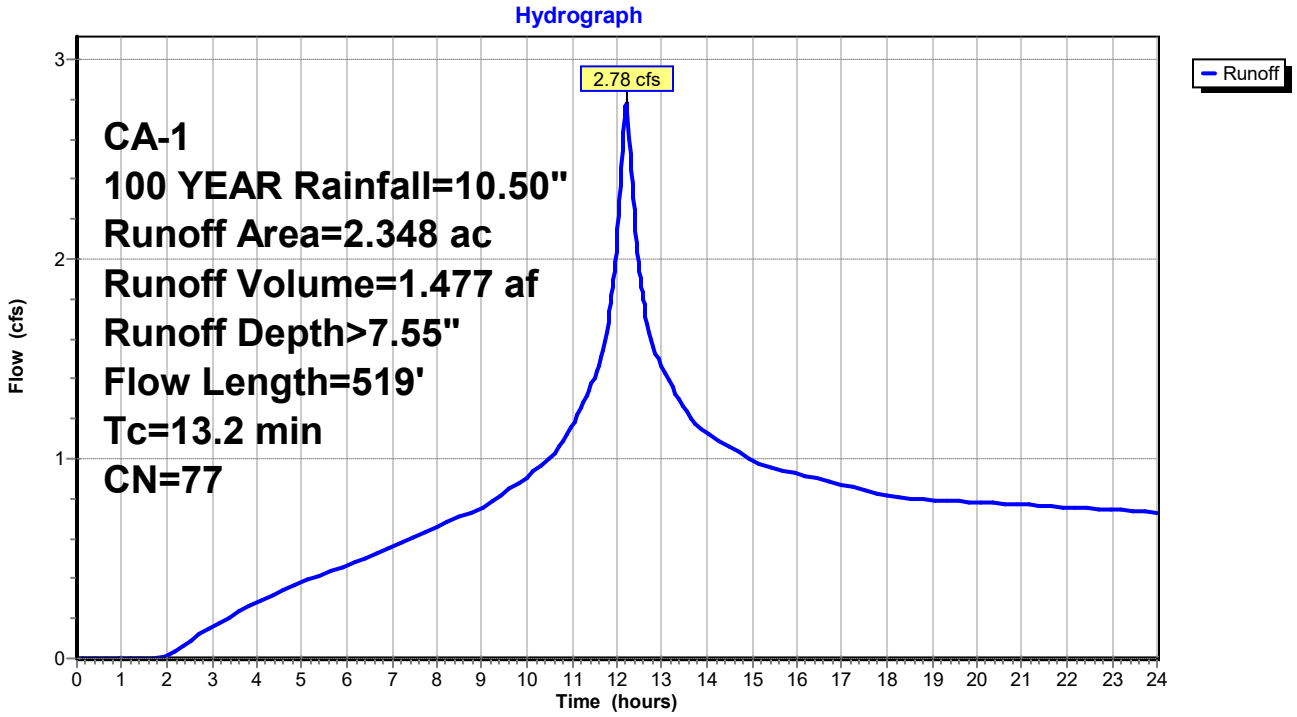
Runoff = 2.78 cfs @ 12.20 hrs, Volume= 1.477 af, Depth> 7.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 100 YEAR Rainfall=10.50"

Area (ac)	CN	Description
0.001	91	Gravel roads, HSG D
0.042	84	Pasture/grassland/range, Fair, HSG D
0.113	74	Pasture/grassland/range, Good, HSG C
0.031	80	Pasture/grassland/range, Good, HSG D
0.059	98	Paved Road, HSG C
0.121	98	Paved Road, HSG D
0.001	98	Roofs, HSG C
0.015	98	Roofs, HSG D
0.013	79	Vineyard (E), Fair, HSG C
0.276	84	Vineyard (E), Fair, HSG D
1.486	72	Woods/grass comb., Good, HSG C
0.190	79	Woods/grass comb., Good, HSG D
2.348	77	Weighted Average
2.152		91.66% Pervious Area
0.196		8.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, PRE WS LB** Woods: Light underbrush n= 0.400 P2= 4.58"
1.7	206	0.1602	2.00		**Shallow Concentrated Flow, PRE WS LB** Woodland Kv= 5.0 fps
1.7	213	0.1831	2.14		**Shallow Concentrated Flow, PRE WS LB** Woodland Kv= 5.0 fps
13.2	519	Total			

Subcatchment WS LB: PRE WS LB



Summary for Subcatchment WS LC: PRE WS LC

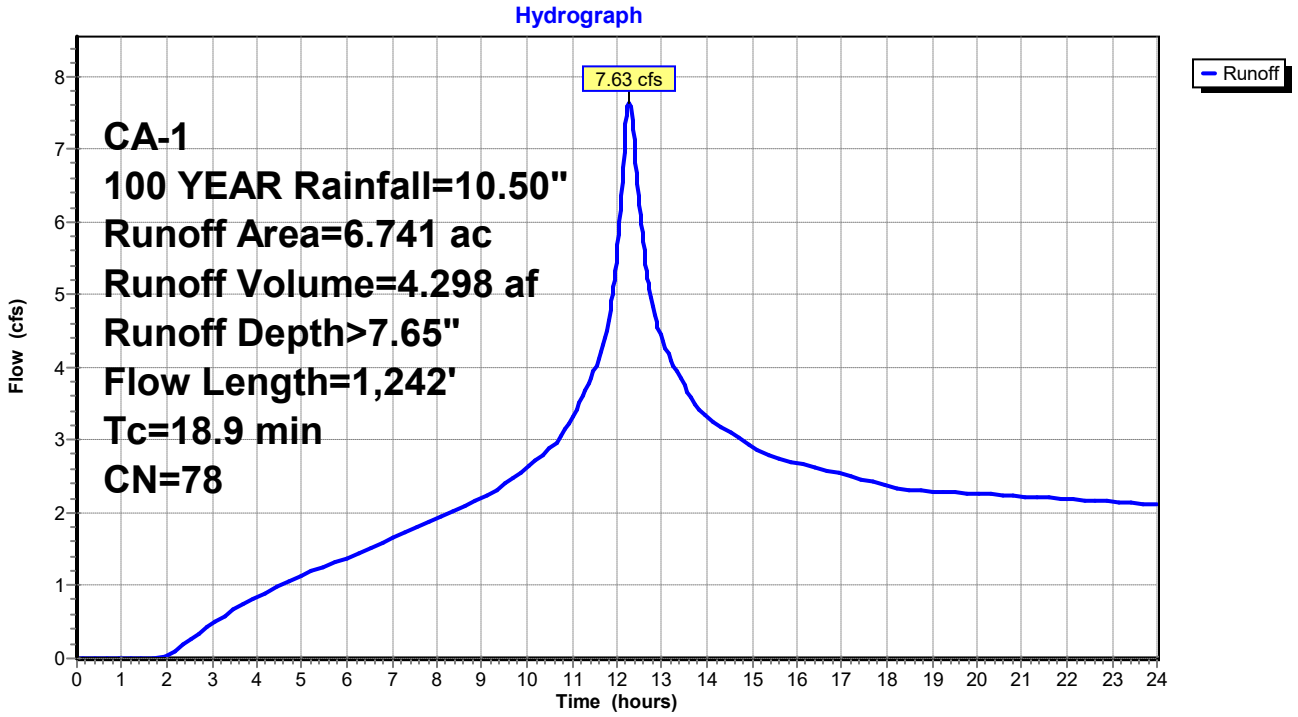
Runoff = 7.63 cfs @ 12.27 hrs, Volume= 4.298 af, Depth> 7.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 100 YEAR Rainfall=10.50"

Area (ac)	CN	Description
0.049	87	Dirt roads, HSG C
0.122	89	Gravel roads, HSG C
0.187	91	Gravel roads, HSG D
0.024	74	Landscape, Good, HSG C
0.097	80	Landscape, Good, HSG D
0.168	79	Pasture/grassland/range, Fair, HSG C
0.633	74	Pasture/grassland/range, Good, HSG C
0.514	80	Pasture/grassland/range, Good, HSG D
0.055	86	Pasture/grassland/range, Poor, HSG C
0.019	89	Pasture/grassland/range, Poor, HSG D
0.061	98	Paved Road, HSG C
0.139	98	Paved Road, HSG D
0.100	98	Roofs, HSG C
0.055	98	Roofs, HSG D
0.039	79	Vineyard (E), Fair, HSG C
0.857	84	Vineyard (E), Fair, HSG D
2.796	72	Woods/grass comb., Good, HSG C
0.826	79	Woods/grass comb., Good, HSG D
6.741	78	Weighted Average
6.386		94.73% Pervious Area
0.355		5.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0500	0.13		**Sheet Flow, PRE WS LC** Woods: Light underbrush n= 0.400 P2= 4.58"
3.0	314	0.1178	1.72		**Shallow Concentrated Flow, PRE WS LC** Woodland Kv= 5.0 fps
2.9	156	0.0321	0.90		**Shallow Concentrated Flow, PRE WS LC** Woodland Kv= 5.0 fps
0.1	126	0.0952	18.25	218.94	**Channel Flow, PRE WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, PRE WS LC** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.020 Corrugated PE, corrugated interior
0.2	200	0.0550	13.87	166.41	**Channel Flow, PRE WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	324	0.1204	20.52	246.22	**Channel Flow, PRE WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
18.9	1,242	Total			

Subcatchment WS LC: PRE WS LC



Area UA

SOIL 179 = C

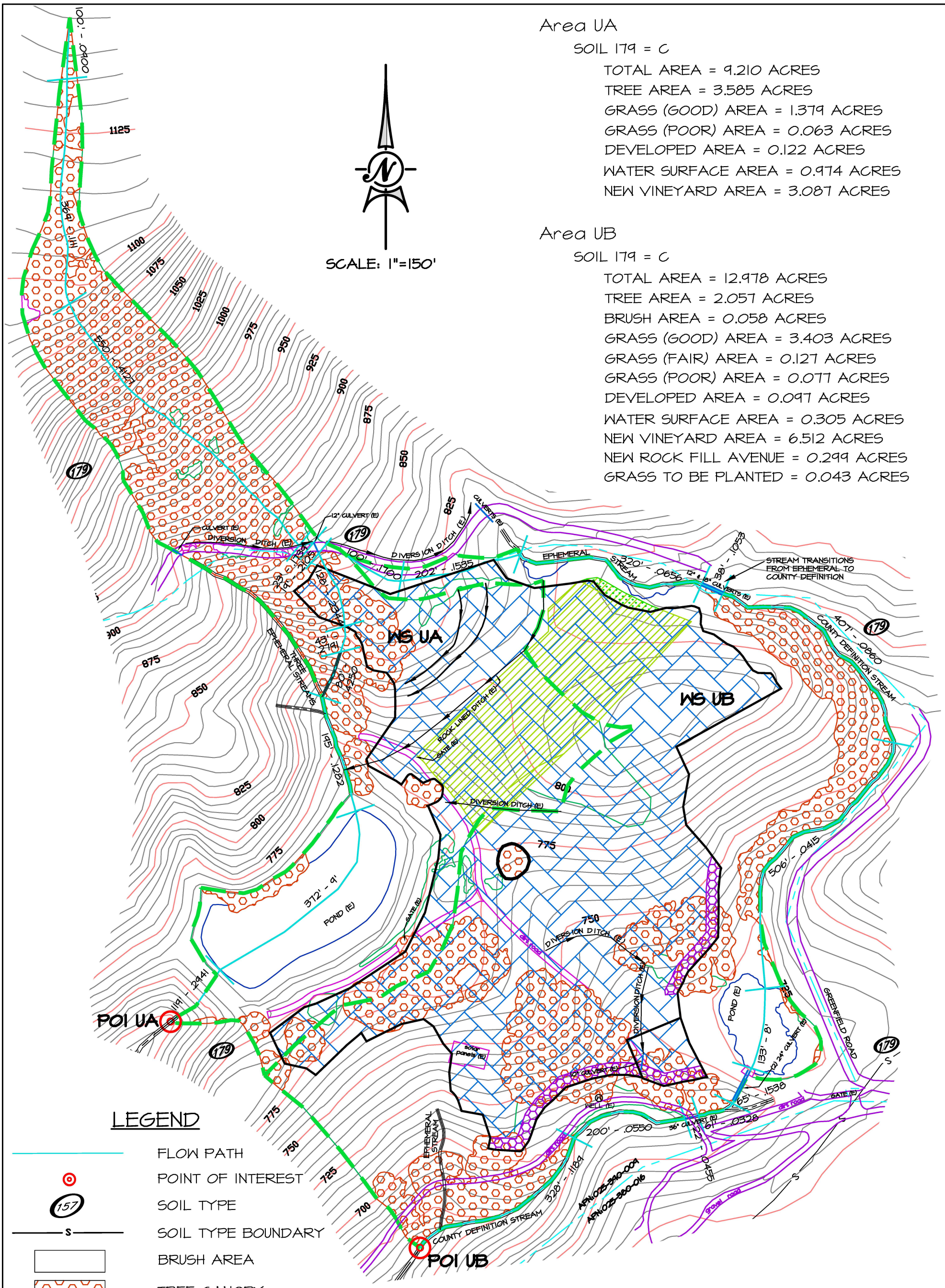
- TOTAL AREA = 9.210 ACRES
- TREE AREA = 3.585 ACRES
- GRASS (GOOD) AREA = 1.379 ACRES
- GRASS (POOR) AREA = 0.063 ACRES
- DEVELOPED AREA = 0.122 ACRES
- WATER SURFACE AREA = 0.974 ACRES
- NEW VINEYARD AREA = 3.087 ACRES

Area UB

SOIL 179 = C

- TOTAL AREA = 12.978 ACRES
- TREE AREA = 2.057 ACRES
- BRUSH AREA = 0.058 ACRES
- GRASS (GOOD) AREA = 3.403 ACRES
- GRASS (FAIR) AREA = 0.127 ACRES
- GRASS (POOR) AREA = 0.077 ACRES
- DEVELOPED AREA = 0.097 ACRES
- WATER SURFACE AREA = 0.305 ACRES
- NEW VINEYARD AREA = 6.512 ACRES
- NEW ROCK FILL AVENUE = 0.299 ACRES
- GRASS TO BE PLANTED = 0.043 ACRES

SCALE: 1"=150'



LEGEND

- FLOW PATH
- POINT OF INTEREST
- 157 — SOIL TYPE
- S — SOIL TYPE BOUNDARY
- BRUSH AREA
- TREE CANOPY
- EXISTING VINEYARD
- PROPOSED GRASS PLANTING
- PROPOSED ROCK FILL AVENUE
- PROPOSED VINEYARD
- PROPOSED VINEYARD AREA
- WATERSHED BOUNDARY

MOSHKELANI FAMILY VINEYARDS, LLC
805 GREEN FIELD ROAD
APN:025-390-009
POST HYDROLOGY BLOCK A

NVVE 12-1-21

NAPA COUNTY GIS DATA BASE

Subcat Reach Pond Link

Routing Diagram for 20ECP Moshkelani Block A POST
Prepared by Napa Valley Vineyard Engineering, Printed 12/6/2021

Summary for Subcatchment WS UA: POST WS UA

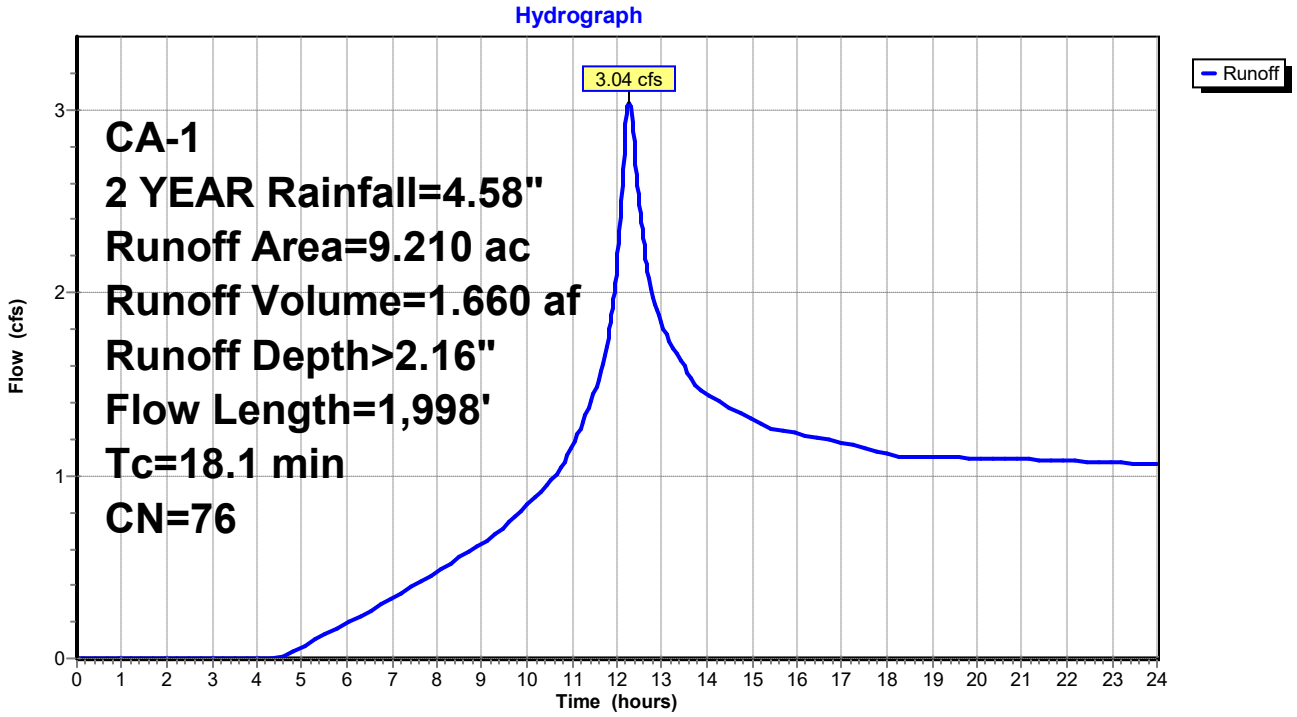
Runoff = 3.04 cfs @ 12.27 hrs, Volume= 1.660 af, Depth> 2.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 2 YEAR Rainfall=4.58"

Area (ac)	CN	Description
0.062	87	Dirt roads, HSG C
1.379	74	Pasture/grassland/range, Good, HSG C
0.063	86	Pasture/grassland/range, Poor, HSG C
0.045	98	Paved Road, HSG C
0.015	98	Roofs, HSG C
3.087	75	Vineyard (P), Good, HSG C
0.974	98	Water Surface, HSG C
3.585	72	Woods/grass comb., Good, HSG C
9.210	76	Weighted Average
8.176		88.77% Pervious Area
1.034		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, POST WS UA** Woods: Light underbrush n= 0.400 P2= 4.58"
3.7	369	0.1111	1.67		**Shallow Concentrated Flow, POST WS UA** Woodland Kv= 5.0 fps
2.9	550	0.4127	3.21		**Shallow Concentrated Flow, POST WS UA** Woodland Kv= 5.0 fps
0.0	23	0.1739	16.40	32.81	**Channel Flow, POST WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.022 Earth, clean & straight
0.0	19	0.2105	13.53	10.63	**Pipe Channel, POST WS UA** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.020 Corrugated PE, corrugated interior
0.6	128	0.2344	3.39		**Shallow Concentrated Flow, POST WS UA** Short Grass Pasture Kv= 7.0 fps
0.3	43	0.2791	2.64		**Shallow Concentrated Flow, POST WS UA** Woodland Kv= 5.0 fps
0.1	80	0.4250	18.81	37.61	**Channel Flow, POST WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.030 Stream, clean & straight
0.2	195	0.1282	14.60	145.96	**Channel Flow, POST WS UA** Area= 10.0 sf Perim= 8.7' r= 1.15' n= 0.040 Mountain streams
0.4	372		17.02		**Lake or Reservoir, POST WS UA** Mean Depth= 9.00'
0.1	119	0.2941	20.95	37.03	**Pipe Channel, POST WS UA** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
18.1	1,998	Total			

Subcatchment WS UA: POST WS UA



Summary for Subcatchment WS UB: POST WS UB

Runoff = 4.72 cfs @ 12.14 hrs, Volume= 2.273 af, Depth> 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 2 YEAR Rainfall=4.58"

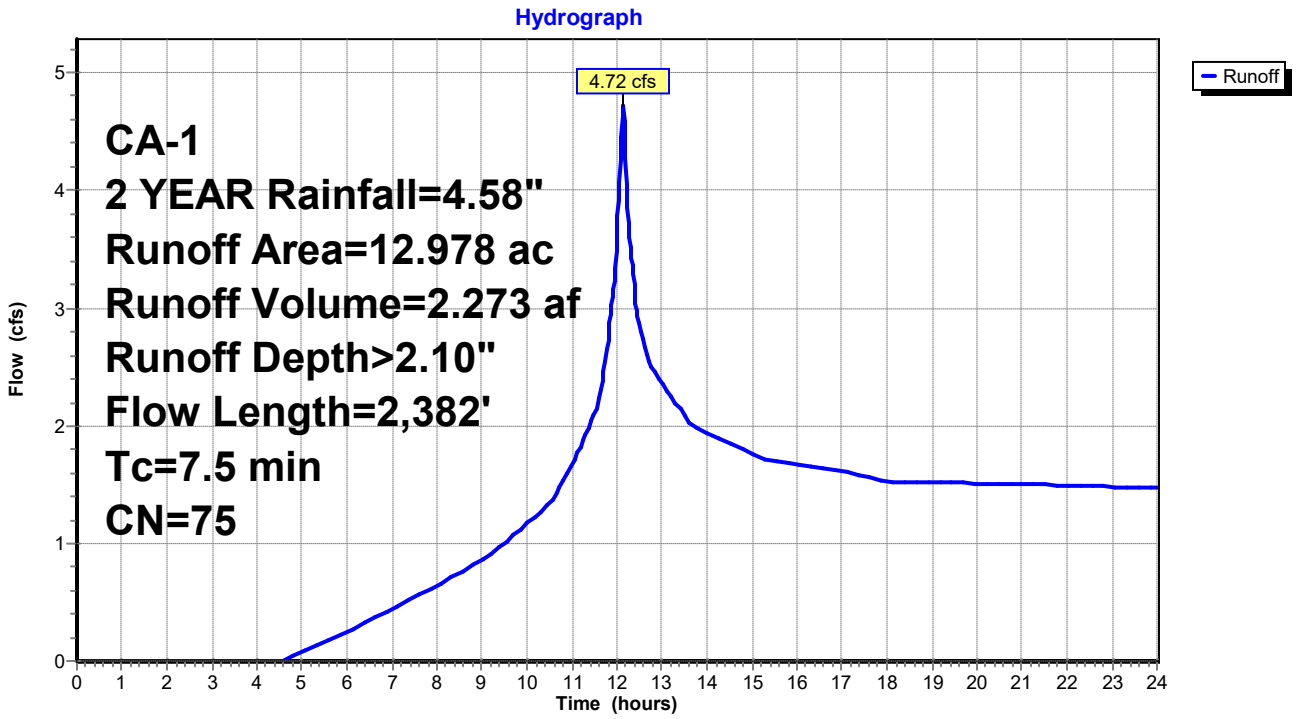
	Area (ac)	CN	Description
	0.058	65	Brush, Good, HSG C
	0.058	87	Dirt roads, HSG C
	0.127	79	Pasture/grassland/range, Fair, HSG C
	3.403	74	Pasture/grassland/range, Good, HSG C
	0.077	86	Pasture/grassland/range, Poor, HSG C
	0.033	98	Paved Road, HSG C
	0.006	98	Roofs, HSG C
*	0.043	74	Plant Grass, Good, HSG C
	6.512	75	Vineyard (P), Good, HSG C
	0.305	98	Water Surface, HSG C
	2.057	72	Woods/grass comb., Good, HSG C
*	0.299	89	Rock Disposal Avenue, HSG C
	12.978	75	Weighted Average
	12.634		97.35% Pervious Area
	0.344		2.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	100	0.1700	0.48		**Sheet Flow, POST WS UB** Grass: Short n= 0.150 P2= 4.58"
1.2	202	0.1535	2.74		**Shallow Concentrated Flow, POST WS UB** Short Grass Pasture Kv= 7.0 fps
0.5	320	0.0656	11.23	56.17	**Channel Flow, POST WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	38	0.1053	12.54	22.16	**Pipe Channel, POST WS UB** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
0.5	407	0.0860	12.86	64.32	**Channel Flow, POST WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.9	506	0.0415	8.94	44.68	**Channel Flow, POST WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	133		16.05		**Lake or Reservoir, POST WS UB** Mean Depth= 8.00'
0.1	65	0.1538	21.30	104.56	**Pipe Channel, POST WS UB** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.020 Corrugated PE, corrugated interior
0.1	61	0.0328	10.71	128.51	**Channel Flow, POST WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, POST WS UB**

36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75'
n= 0.020 Corrugated PE, corrugated interior

0.2	200	0.0550	13.87	166.41	**Channel Flow, POST WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	328	0.1189	20.39	244.68	**Channel Flow, POST WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
7.5	2,382	Total			

Subcatchment WS UB: POST WS UB



Summary for Subcatchment WS UA: POST WS UA

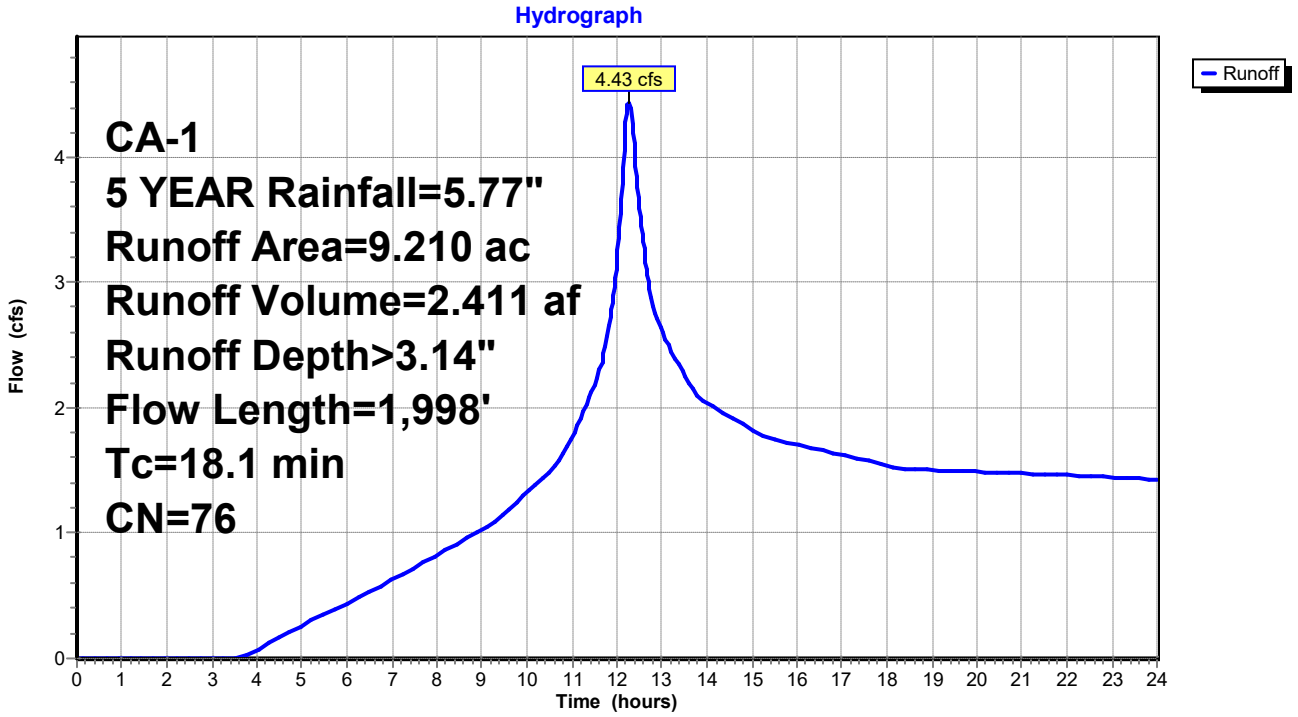
Runoff = 4.43 cfs @ 12.26 hrs, Volume= 2.411 af, Depth> 3.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 5 YEAR Rainfall=5.77"

Area (ac)	CN	Description
0.062	87	Dirt roads, HSG C
1.379	74	Pasture/grassland/range, Good, HSG C
0.063	86	Pasture/grassland/range, Poor, HSG C
0.045	98	Paved Road, HSG C
0.015	98	Roofs, HSG C
3.087	75	Vineyard (P), Good, HSG C
0.974	98	Water Surface, HSG C
3.585	72	Woods/grass comb., Good, HSG C
9.210	76	Weighted Average
8.176		88.77% Pervious Area
1.034		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, POST WS UA** Woods: Light underbrush n= 0.400 P2= 4.58"
3.7	369	0.1111	1.67		**Shallow Concentrated Flow, POST WS UA** Woodland Kv= 5.0 fps
2.9	550	0.4127	3.21		**Shallow Concentrated Flow, POST WS UA** Woodland Kv= 5.0 fps
0.0	23	0.1739	16.40	32.81	**Channel Flow, POST WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.022 Earth, clean & straight
0.0	19	0.2105	13.53	10.63	**Pipe Channel, POST WS UA** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.020 Corrugated PE, corrugated interior
0.6	128	0.2344	3.39		**Shallow Concentrated Flow, POST WS UA** Short Grass Pasture Kv= 7.0 fps
0.3	43	0.2791	2.64		**Shallow Concentrated Flow, POST WS UA** Woodland Kv= 5.0 fps
0.1	80	0.4250	18.81	37.61	**Channel Flow, POST WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.030 Stream, clean & straight
0.2	195	0.1282	14.60	145.96	**Channel Flow, POST WS UA** Area= 10.0 sf Perim= 8.7' r= 1.15' n= 0.040 Mountain streams
0.4	372		17.02		**Lake or Reservoir, POST WS UA** Mean Depth= 9.00'
0.1	119	0.2941	20.95	37.03	**Pipe Channel, POST WS UA** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
18.1	1,998	Total			

Subcatchment WS UA: POST WS UA



Summary for Subcatchment WS UB: POST WS UB

Runoff = 6.93 cfs @ 12.14 hrs, Volume= 3.321 af, Depth> 3.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 5 YEAR Rainfall=5.77"

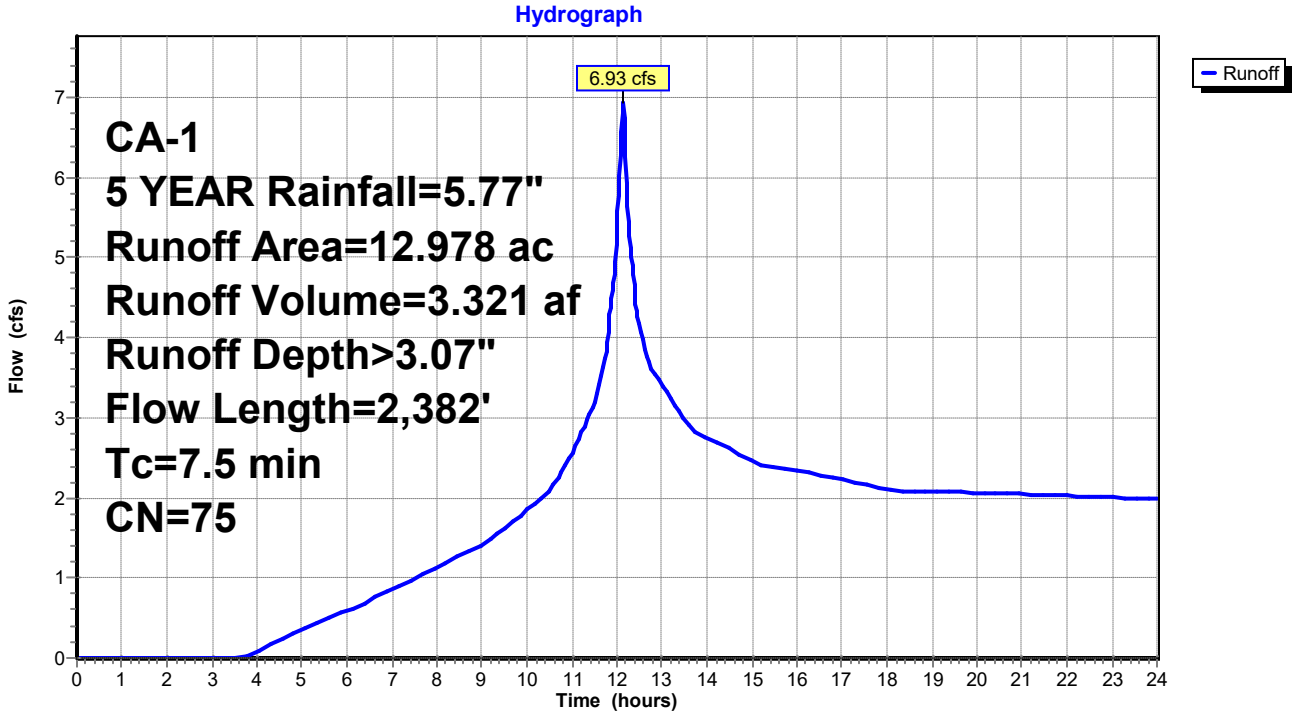
	Area (ac)	CN	Description
	0.058	65	Brush, Good, HSG C
	0.058	87	Dirt roads, HSG C
	0.127	79	Pasture/grassland/range, Fair, HSG C
	3.403	74	Pasture/grassland/range, Good, HSG C
	0.077	86	Pasture/grassland/range, Poor, HSG C
	0.033	98	Paved Road, HSG C
	0.006	98	Roofs, HSG C
*	0.043	74	Plant Grass, Good, HSG C
	6.512	75	Vineyard (P), Good, HSG C
	0.305	98	Water Surface, HSG C
	2.057	72	Woods/grass comb., Good, HSG C
*	0.299	89	Rock Disposal Avenue, HSG C
	12.978	75	Weighted Average
	12.634		97.35% Pervious Area
	0.344		2.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	100	0.1700	0.48		**Sheet Flow, POST WS UB** Grass: Short n= 0.150 P2= 4.58"
1.2	202	0.1535	2.74		**Shallow Concentrated Flow, POST WS UB** Short Grass Pasture Kv= 7.0 fps
0.5	320	0.0656	11.23	56.17	**Channel Flow, POST WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	38	0.1053	12.54	22.16	**Pipe Channel, POST WS UB** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
0.5	407	0.0860	12.86	64.32	**Channel Flow, POST WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.9	506	0.0415	8.94	44.68	**Channel Flow, POST WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	133		16.05		**Lake or Reservoir, POST WS UB** Mean Depth= 8.00'
0.1	65	0.1538	21.30	104.56	**Pipe Channel, POST WS UB** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.020 Corrugated PE, corrugated interior
0.1	61	0.0328	10.71	128.51	**Channel Flow, POST WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, POST WS UB**

36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75'
n= 0.020 Corrugated PE, corrugated interior

0.2	200	0.0550	13.87	166.41	**Channel Flow, POST WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	328	0.1189	20.39	244.68	**Channel Flow, POST WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
7.5	2,382	Total			

Subcatchment WS UB: POST WS UB



Summary for Subcatchment WS UA: POST WS UA

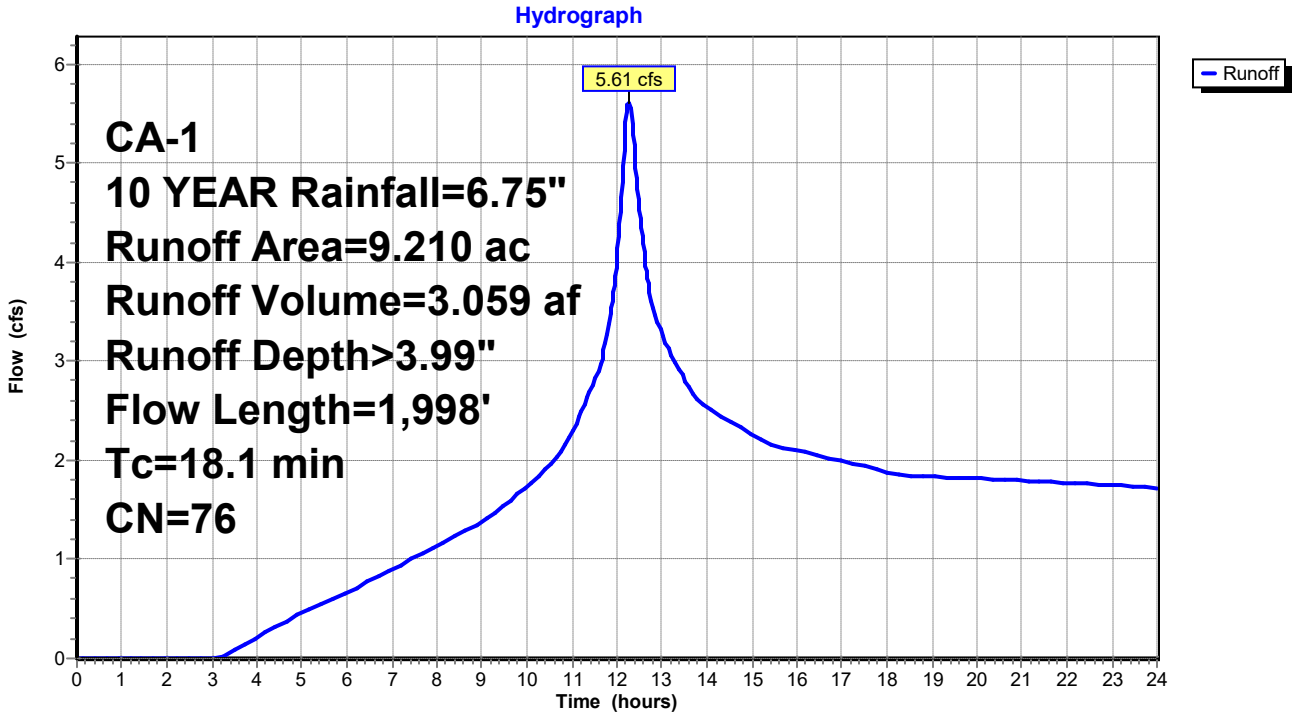
Runoff = 5.61 cfs @ 12.26 hrs, Volume= 3.059 af, Depth> 3.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 10 YEAR Rainfall=6.75"

Area (ac)	CN	Description
0.062	87	Dirt roads, HSG C
1.379	74	Pasture/grassland/range, Good, HSG C
0.063	86	Pasture/grassland/range, Poor, HSG C
0.045	98	Paved Road, HSG C
0.015	98	Roofs, HSG C
3.087	75	Vineyard (P), Good, HSG C
0.974	98	Water Surface, HSG C
3.585	72	Woods/grass comb., Good, HSG C
9.210	76	Weighted Average
8.176		88.77% Pervious Area
1.034		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, POST WS UA** Woods: Light underbrush n= 0.400 P2= 4.58"
3.7	369	0.1111	1.67		**Shallow Concentrated Flow, POST WS UA** Woodland Kv= 5.0 fps
2.9	550	0.4127	3.21		**Shallow Concentrated Flow, POST WS UA** Woodland Kv= 5.0 fps
0.0	23	0.1739	16.40	32.81	**Channel Flow, POST WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.022 Earth, clean & straight
0.0	19	0.2105	13.53	10.63	**Pipe Channel, POST WS UA** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.020 Corrugated PE, corrugated interior
0.6	128	0.2344	3.39		**Shallow Concentrated Flow, POST WS UA** Short Grass Pasture Kv= 7.0 fps
0.3	43	0.2791	2.64		**Shallow Concentrated Flow, POST WS UA** Woodland Kv= 5.0 fps
0.1	80	0.4250	18.81	37.61	**Channel Flow, POST WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.030 Stream, clean & straight
0.2	195	0.1282	14.60	145.96	**Channel Flow, POST WS UA** Area= 10.0 sf Perim= 8.7' r= 1.15' n= 0.040 Mountain streams
0.4	372		17.02		**Lake or Reservoir, POST WS UA** Mean Depth= 9.00'
0.1	119	0.2941	20.95	37.03	**Pipe Channel, POST WS UA** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
18.1	1,998	Total			

Subcatchment WS UA: POST WS UA



Summary for Subcatchment WS UB: POST WS UB

Runoff = 8.82 cfs @ 12.14 hrs, Volume= 4.229 af, Depth> 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 10 YEAR Rainfall=6.75"

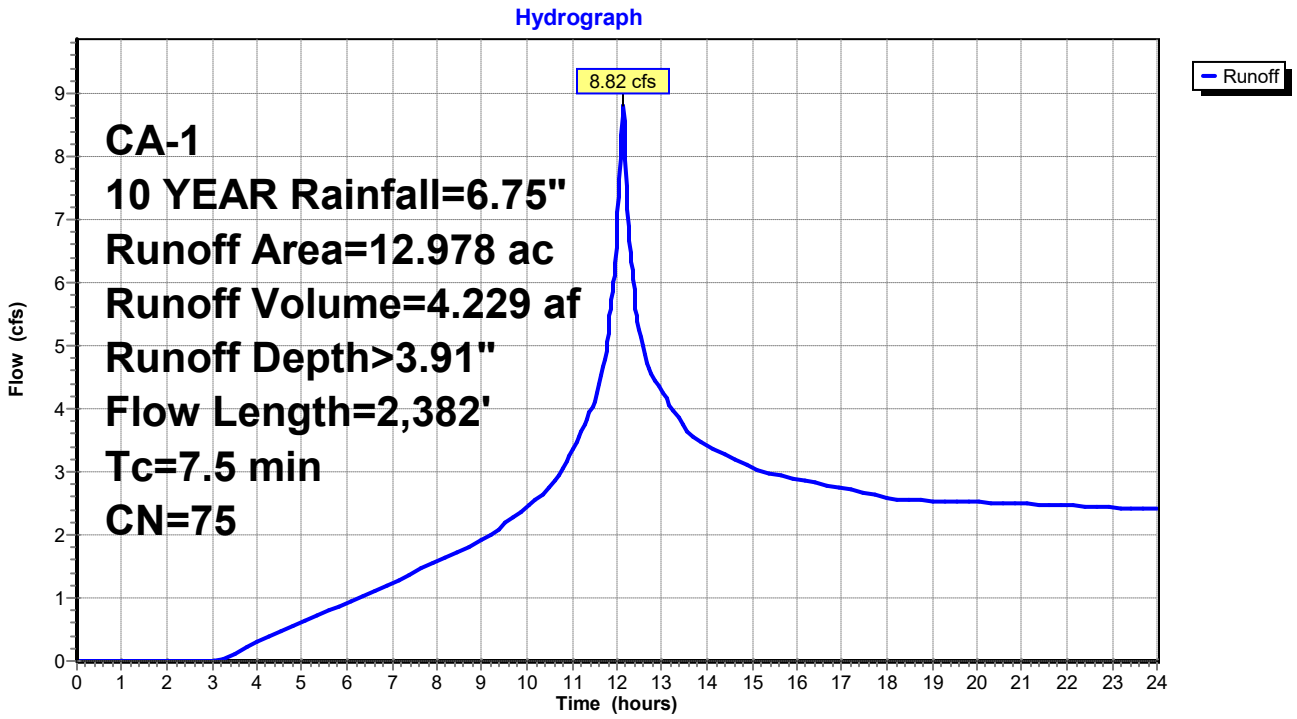
	Area (ac)	CN	Description
	0.058	65	Brush, Good, HSG C
	0.058	87	Dirt roads, HSG C
	0.127	79	Pasture/grassland/range, Fair, HSG C
	3.403	74	Pasture/grassland/range, Good, HSG C
	0.077	86	Pasture/grassland/range, Poor, HSG C
	0.033	98	Paved Road, HSG C
	0.006	98	Roofs, HSG C
*	0.043	74	Plant Grass, Good, HSG C
	6.512	75	Vineyard (P), Good, HSG C
	0.305	98	Water Surface, HSG C
	2.057	72	Woods/grass comb., Good, HSG C
*	0.299	89	Rock Disposal Avenue, HSG C
	12.978	75	Weighted Average
	12.634		97.35% Pervious Area
	0.344		2.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	100	0.1700	0.48		**Sheet Flow, POST WS UB** Grass: Short n= 0.150 P2= 4.58"
1.2	202	0.1535	2.74		**Shallow Concentrated Flow, POST WS UB** Short Grass Pasture Kv= 7.0 fps
0.5	320	0.0656	11.23	56.17	**Channel Flow, POST WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	38	0.1053	12.54	22.16	**Pipe Channel, POST WS UB** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
0.5	407	0.0860	12.86	64.32	**Channel Flow, POST WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.9	506	0.0415	8.94	44.68	**Channel Flow, POST WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	133		16.05		**Lake or Reservoir, POST WS UB** Mean Depth= 8.00'
0.1	65	0.1538	21.30	104.56	**Pipe Channel, POST WS UB** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.020 Corrugated PE, corrugated interior
0.1	61	0.0328	10.71	128.51	**Channel Flow, POST WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, POST WS UB**

36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75'
n= 0.020 Corrugated PE, corrugated interior

0.2	200	0.0550	13.87	166.41	**Channel Flow, POST WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	328	0.1189	20.39	244.68	**Channel Flow, POST WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
7.5	2,382	Total			

Subcatchment WS UB: POST WS UB



Summary for Subcatchment WS UA: POST WS UA

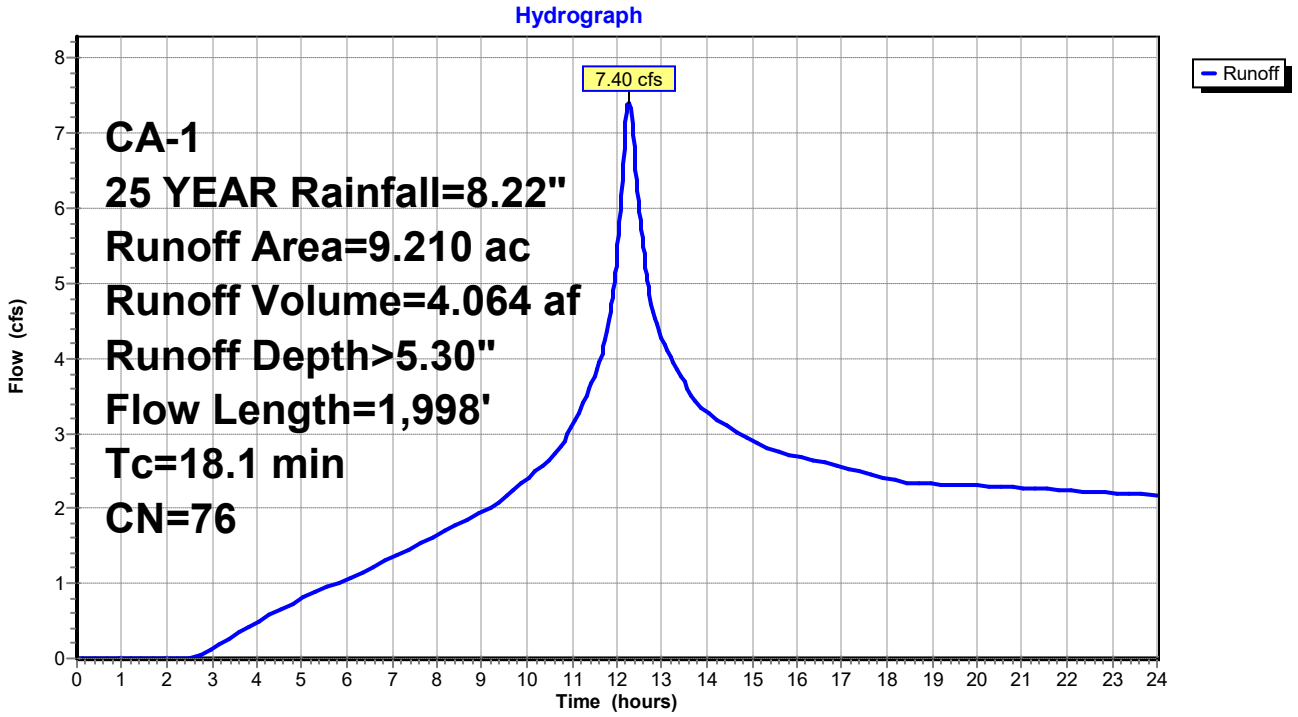
Runoff = 7.40 cfs @ 12.26 hrs, Volume= 4.064 af, Depth> 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 25 YEAR Rainfall=8.22"

Area (ac)	CN	Description
0.062	87	Dirt roads, HSG C
1.379	74	Pasture/grassland/range, Good, HSG C
0.063	86	Pasture/grassland/range, Poor, HSG C
0.045	98	Paved Road, HSG C
0.015	98	Roofs, HSG C
3.087	75	Vineyard (P), Good, HSG C
0.974	98	Water Surface, HSG C
3.585	72	Woods/grass comb., Good, HSG C
9.210	76	Weighted Average
8.176		88.77% Pervious Area
1.034		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, POST WS UA** Woods: Light underbrush n= 0.400 P2= 4.58"
3.7	369	0.1111	1.67		**Shallow Concentrated Flow, POST WS UA** Woodland Kv= 5.0 fps
2.9	550	0.4127	3.21		**Shallow Concentrated Flow, POST WS UA** Woodland Kv= 5.0 fps
0.0	23	0.1739	16.40	32.81	**Channel Flow, POST WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.022 Earth, clean & straight
0.0	19	0.2105	13.53	10.63	**Pipe Channel, POST WS UA** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.020 Corrugated PE, corrugated interior
0.6	128	0.2344	3.39		**Shallow Concentrated Flow, POST WS UA** Short Grass Pasture Kv= 7.0 fps
0.3	43	0.2791	2.64		**Shallow Concentrated Flow, POST WS UA** Woodland Kv= 5.0 fps
0.1	80	0.4250	18.81	37.61	**Channel Flow, POST WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.030 Stream, clean & straight
0.2	195	0.1282	14.60	145.96	**Channel Flow, POST WS UA** Area= 10.0 sf Perim= 8.7' r= 1.15' n= 0.040 Mountain streams
0.4	372		17.02		**Lake or Reservoir, POST WS UA** Mean Depth= 9.00'
0.1	119	0.2941	20.95	37.03	**Pipe Channel, POST WS UA** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
18.1	1,998	Total			

Subcatchment WS UA: POST WS UA



Summary for Subcatchment WS UB: POST WS UB

Runoff = 11.69 cfs @ 12.14 hrs, Volume= 5.641 af, Depth> 5.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 25 YEAR Rainfall=8.22"

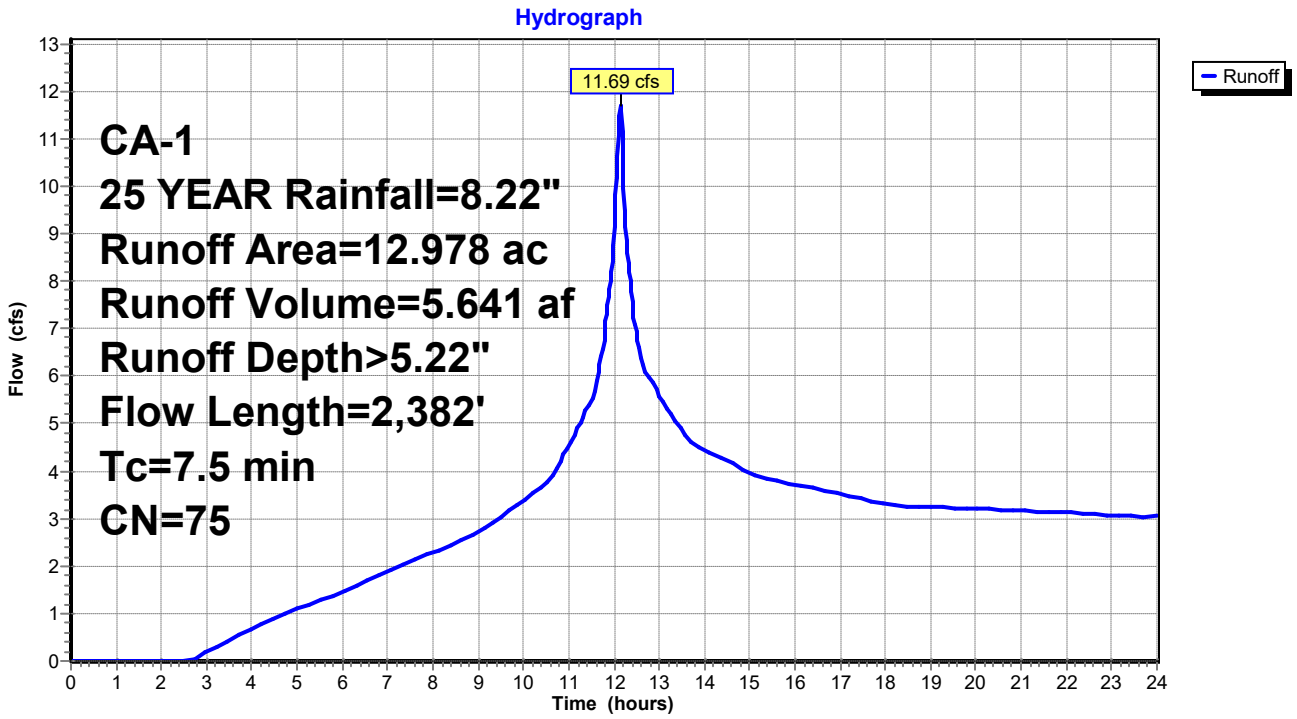
	Area (ac)	CN	Description
	0.058	65	Brush, Good, HSG C
	0.058	87	Dirt roads, HSG C
	0.127	79	Pasture/grassland/range, Fair, HSG C
	3.403	74	Pasture/grassland/range, Good, HSG C
	0.077	86	Pasture/grassland/range, Poor, HSG C
	0.033	98	Paved Road, HSG C
	0.006	98	Roofs, HSG C
*	0.043	74	Plant Grass, Good, HSG C
	6.512	75	Vineyard (P), Good, HSG C
	0.305	98	Water Surface, HSG C
	2.057	72	Woods/grass comb., Good, HSG C
*	0.299	89	Rock Disposal Avenue, HSG C
	12.978	75	Weighted Average
	12.634		97.35% Pervious Area
	0.344		2.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	100	0.1700	0.48		**Sheet Flow, POST WS UB** Grass: Short n= 0.150 P2= 4.58"
1.2	202	0.1535	2.74		**Shallow Concentrated Flow, POST WS UB** Short Grass Pasture Kv= 7.0 fps
0.5	320	0.0656	11.23	56.17	**Channel Flow, POST WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	38	0.1053	12.54	22.16	**Pipe Channel, POST WS UB** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
0.5	407	0.0860	12.86	64.32	**Channel Flow, POST WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.9	506	0.0415	8.94	44.68	**Channel Flow, POST WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	133		16.05		**Lake or Reservoir, POST WS UB** Mean Depth= 8.00'
0.1	65	0.1538	21.30	104.56	**Pipe Channel, POST WS UB** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.020 Corrugated PE, corrugated interior
0.1	61	0.0328	10.71	128.51	**Channel Flow, POST WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, POST WS UB**

36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75'
n= 0.020 Corrugated PE, corrugated interior

0.2	200	0.0550	13.87	166.41	**Channel Flow, POST WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	328	0.1189	20.39	244.68	**Channel Flow, POST WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
7.5	2,382	Total			

Subcatchment WS UB: POST WS UB



Summary for Subcatchment WS UA: POST WS UA

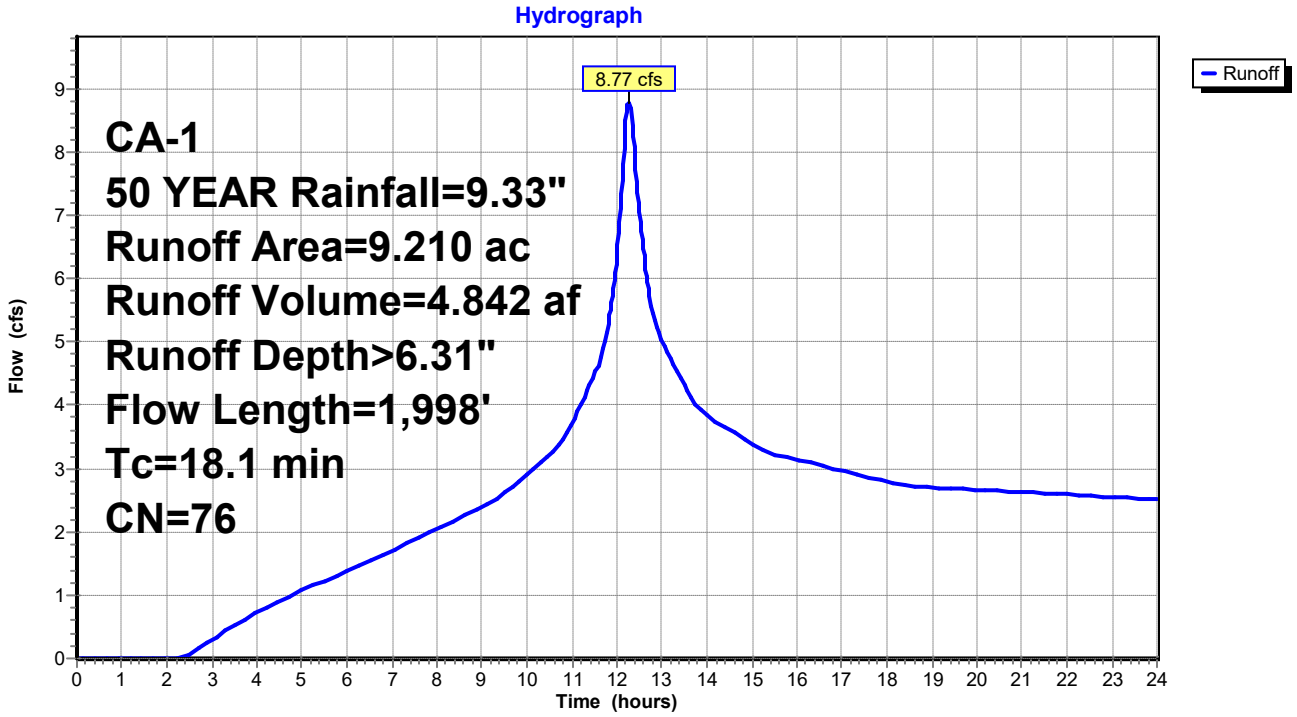
Runoff = 8.77 cfs @ 12.26 hrs, Volume= 4.842 af, Depth> 6.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 50 YEAR Rainfall=9.33"

Area (ac)	CN	Description
0.062	87	Dirt roads, HSG C
1.379	74	Pasture/grassland/range, Good, HSG C
0.063	86	Pasture/grassland/range, Poor, HSG C
0.045	98	Paved Road, HSG C
0.015	98	Roofs, HSG C
3.087	75	Vineyard (P), Good, HSG C
0.974	98	Water Surface, HSG C
3.585	72	Woods/grass comb., Good, HSG C
9.210	76	Weighted Average
8.176		88.77% Pervious Area
1.034		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, POST WS UA** Woods: Light underbrush n= 0.400 P2= 4.58"
3.7	369	0.1111	1.67		**Shallow Concentrated Flow, POST WS UA** Woodland Kv= 5.0 fps
2.9	550	0.4127	3.21		**Shallow Concentrated Flow, POST WS UA** Woodland Kv= 5.0 fps
0.0	23	0.1739	16.40	32.81	**Channel Flow, POST WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.022 Earth, clean & straight
0.0	19	0.2105	13.53	10.63	**Pipe Channel, POST WS UA** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.020 Corrugated PE, corrugated interior
0.6	128	0.2344	3.39		**Shallow Concentrated Flow, POST WS UA** Short Grass Pasture Kv= 7.0 fps
0.3	43	0.2791	2.64		**Shallow Concentrated Flow, POST WS UA** Woodland Kv= 5.0 fps
0.1	80	0.4250	18.81	37.61	**Channel Flow, POST WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.030 Stream, clean & straight
0.2	195	0.1282	14.60	145.96	**Channel Flow, POST WS UA** Area= 10.0 sf Perim= 8.7' r= 1.15' n= 0.040 Mountain streams
0.4	372		17.02		**Lake or Reservoir, POST WS UA** Mean Depth= 9.00'
0.1	119	0.2941	20.95	37.03	**Pipe Channel, POST WS UA** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
18.1	1,998	Total			

Subcatchment WS UA: POST WS UA



Summary for Subcatchment WS UB: POST WS UB

Runoff = 13.88 cfs @ 12.14 hrs, Volume= 6.735 af, Depth> 6.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 50 YEAR Rainfall=9.33"

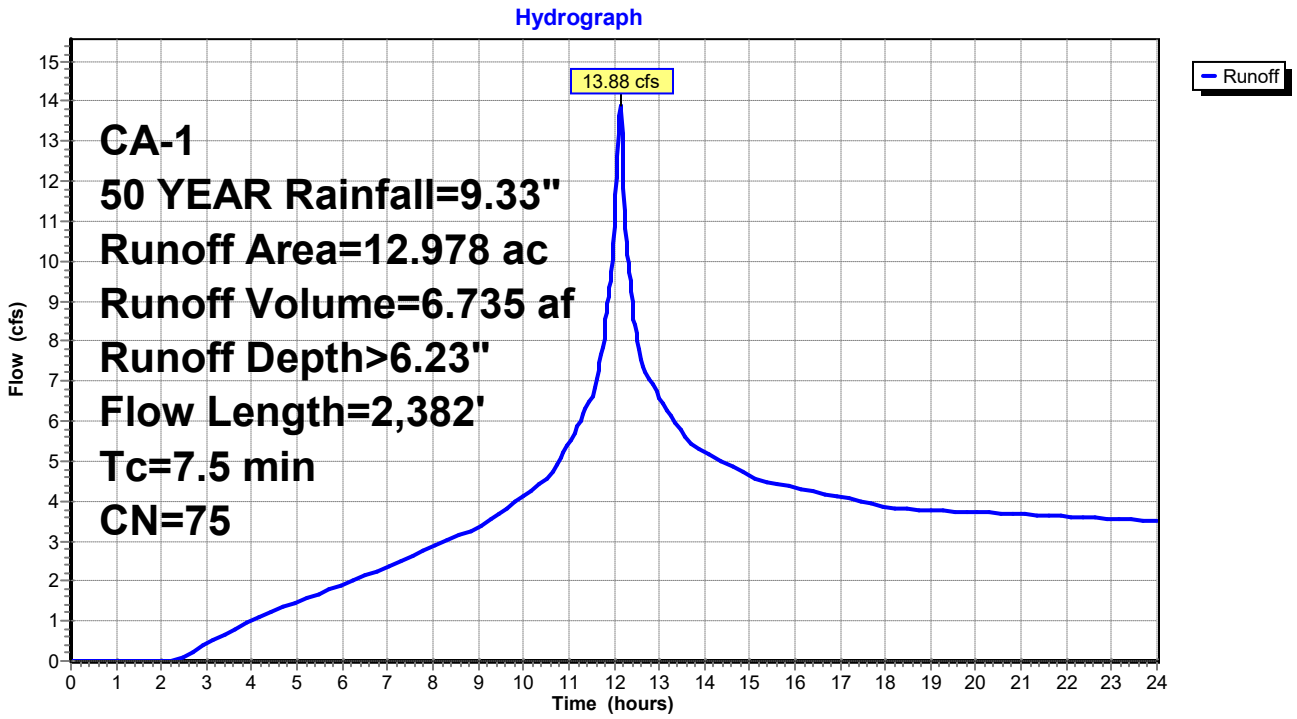
	Area (ac)	CN	Description
	0.058	65	Brush, Good, HSG C
	0.058	87	Dirt roads, HSG C
	0.127	79	Pasture/grassland/range, Fair, HSG C
	3.403	74	Pasture/grassland/range, Good, HSG C
	0.077	86	Pasture/grassland/range, Poor, HSG C
	0.033	98	Paved Road, HSG C
	0.006	98	Roofs, HSG C
*	0.043	74	Plant Grass, Good, HSG C
	6.512	75	Vineyard (P), Good, HSG C
	0.305	98	Water Surface, HSG C
	2.057	72	Woods/grass comb., Good, HSG C
*	0.299	89	Rock Disposal Avenue, HSG C
	12.978	75	Weighted Average
	12.634		97.35% Pervious Area
	0.344		2.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	100	0.1700	0.48		**Sheet Flow, POST WS UB** Grass: Short n= 0.150 P2= 4.58"
1.2	202	0.1535	2.74		**Shallow Concentrated Flow, POST WS UB** Short Grass Pasture Kv= 7.0 fps
0.5	320	0.0656	11.23	56.17	**Channel Flow, POST WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	38	0.1053	12.54	22.16	**Pipe Channel, POST WS UB** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
0.5	407	0.0860	12.86	64.32	**Channel Flow, POST WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.9	506	0.0415	8.94	44.68	**Channel Flow, POST WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	133		16.05		**Lake or Reservoir, POST WS UB** Mean Depth= 8.00'
0.1	65	0.1538	21.30	104.56	**Pipe Channel, POST WS UB** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.020 Corrugated PE, corrugated interior
0.1	61	0.0328	10.71	128.51	**Channel Flow, POST WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, POST WS UB**

36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75'
n= 0.020 Corrugated PE, corrugated interior

0.2	200	0.0550	13.87	166.41	**Channel Flow, POST WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	328	0.1189	20.39	244.68	**Channel Flow, POST WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
7.5	2,382	Total			

Subcatchment WS UB: POST WS UB



Summary for Subcatchment WS UA: POST WS UA

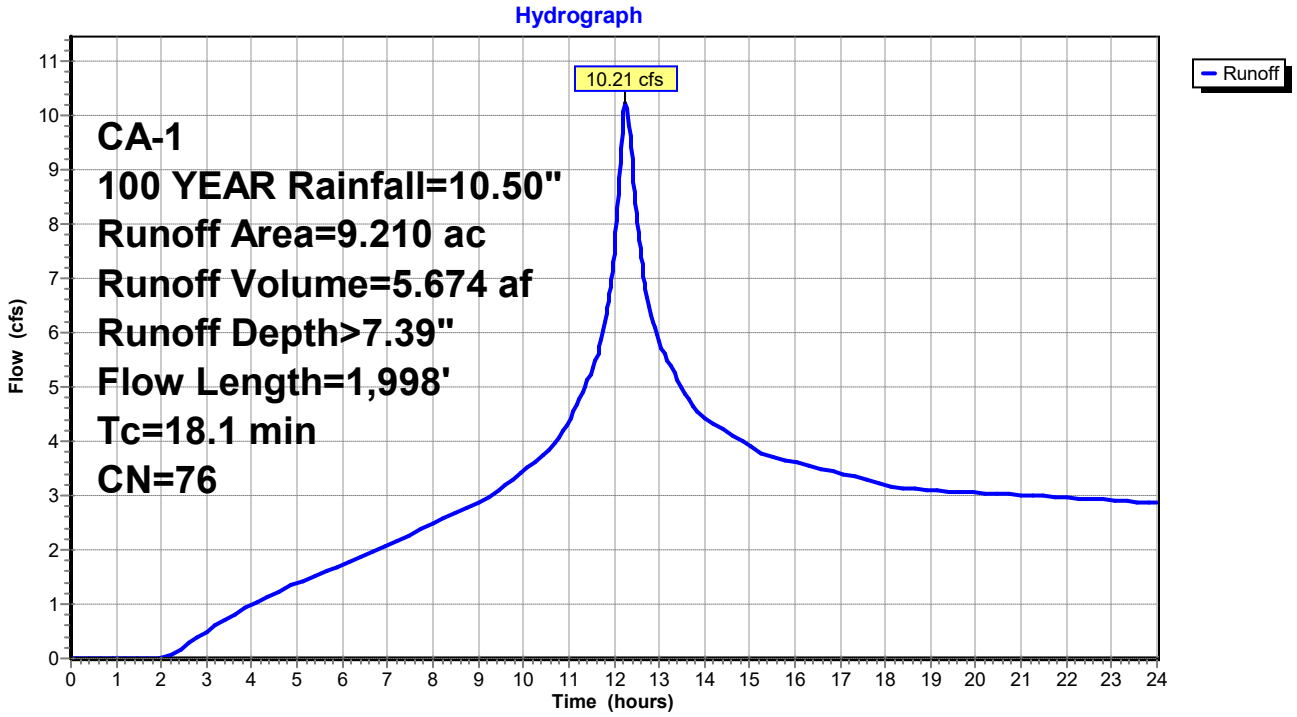
Runoff = 10.21 cfs @ 12.26 hrs, Volume= 5.674 af, Depth> 7.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 100 YEAR Rainfall=10.50"

Area (ac)	CN	Description
0.062	87	Dirt roads, HSG C
1.379	74	Pasture/grassland/range, Good, HSG C
0.063	86	Pasture/grassland/range, Poor, HSG C
0.045	98	Paved Road, HSG C
0.015	98	Roofs, HSG C
3.087	75	Vineyard (P), Good, HSG C
0.974	98	Water Surface, HSG C
3.585	72	Woods/grass comb., Good, HSG C
9.210	76	Weighted Average
8.176		88.77% Pervious Area
1.034		11.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, POST WS UA** Woods: Light underbrush n= 0.400 P2= 4.58"
3.7	369	0.1111	1.67		**Shallow Concentrated Flow, POST WS UA** Woodland Kv= 5.0 fps
2.9	550	0.4127	3.21		**Shallow Concentrated Flow, POST WS UA** Woodland Kv= 5.0 fps
0.0	23	0.1739	16.40	32.81	**Channel Flow, POST WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.022 Earth, clean & straight
0.0	19	0.2105	13.53	10.63	**Pipe Channel, POST WS UA** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.020 Corrugated PE, corrugated interior
0.6	128	0.2344	3.39		**Shallow Concentrated Flow, POST WS UA** Short Grass Pasture Kv= 7.0 fps
0.3	43	0.2791	2.64		**Shallow Concentrated Flow, POST WS UA** Woodland Kv= 5.0 fps
0.1	80	0.4250	18.81	37.61	**Channel Flow, POST WS UA** Area= 2.0 sf Perim= 4.5' r= 0.44' n= 0.030 Stream, clean & straight
0.2	195	0.1282	14.60	145.96	**Channel Flow, POST WS UA** Area= 10.0 sf Perim= 8.7' r= 1.15' n= 0.040 Mountain streams
0.4	372		17.02		**Lake or Reservoir, POST WS UA** Mean Depth= 9.00'
0.1	119	0.2941	20.95	37.03	**Pipe Channel, POST WS UA** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
18.1	1,998	Total			

Subcatchment WS UA: POST WS UA



Summary for Subcatchment WS UB: POST WS UB

Runoff = 16.20 cfs @ 12.14 hrs, Volume= 7.907 af, Depth> 7.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 100 YEAR Rainfall=10.50"

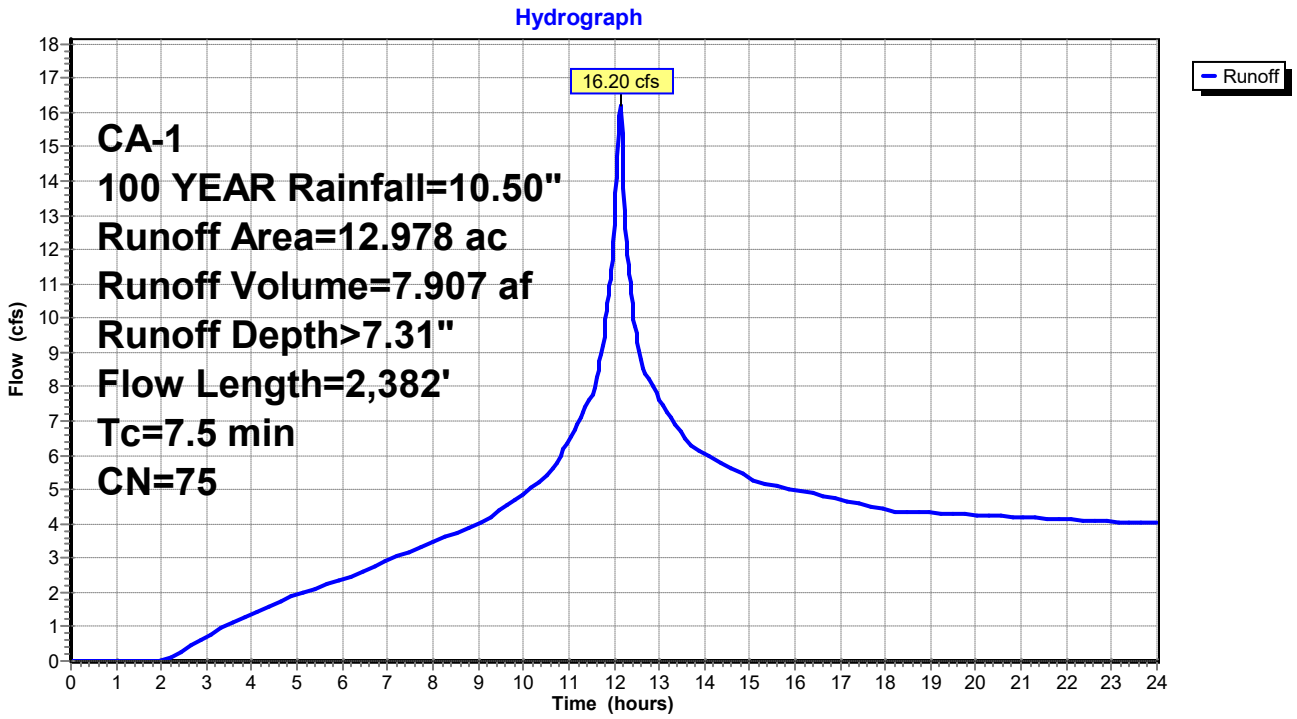
	Area (ac)	CN	Description
	0.058	65	Brush, Good, HSG C
	0.058	87	Dirt roads, HSG C
	0.127	79	Pasture/grassland/range, Fair, HSG C
	3.403	74	Pasture/grassland/range, Good, HSG C
	0.077	86	Pasture/grassland/range, Poor, HSG C
	0.033	98	Paved Road, HSG C
	0.006	98	Roofs, HSG C
*	0.043	74	Plant Grass, Good, HSG C
	6.512	75	Vineyard (P), Good, HSG C
	0.305	98	Water Surface, HSG C
	2.057	72	Woods/grass comb., Good, HSG C
*	0.299	89	Rock Disposal Avenue, HSG C
	12.978	75	Weighted Average
	12.634		97.35% Pervious Area
	0.344		2.65% Impervious Area

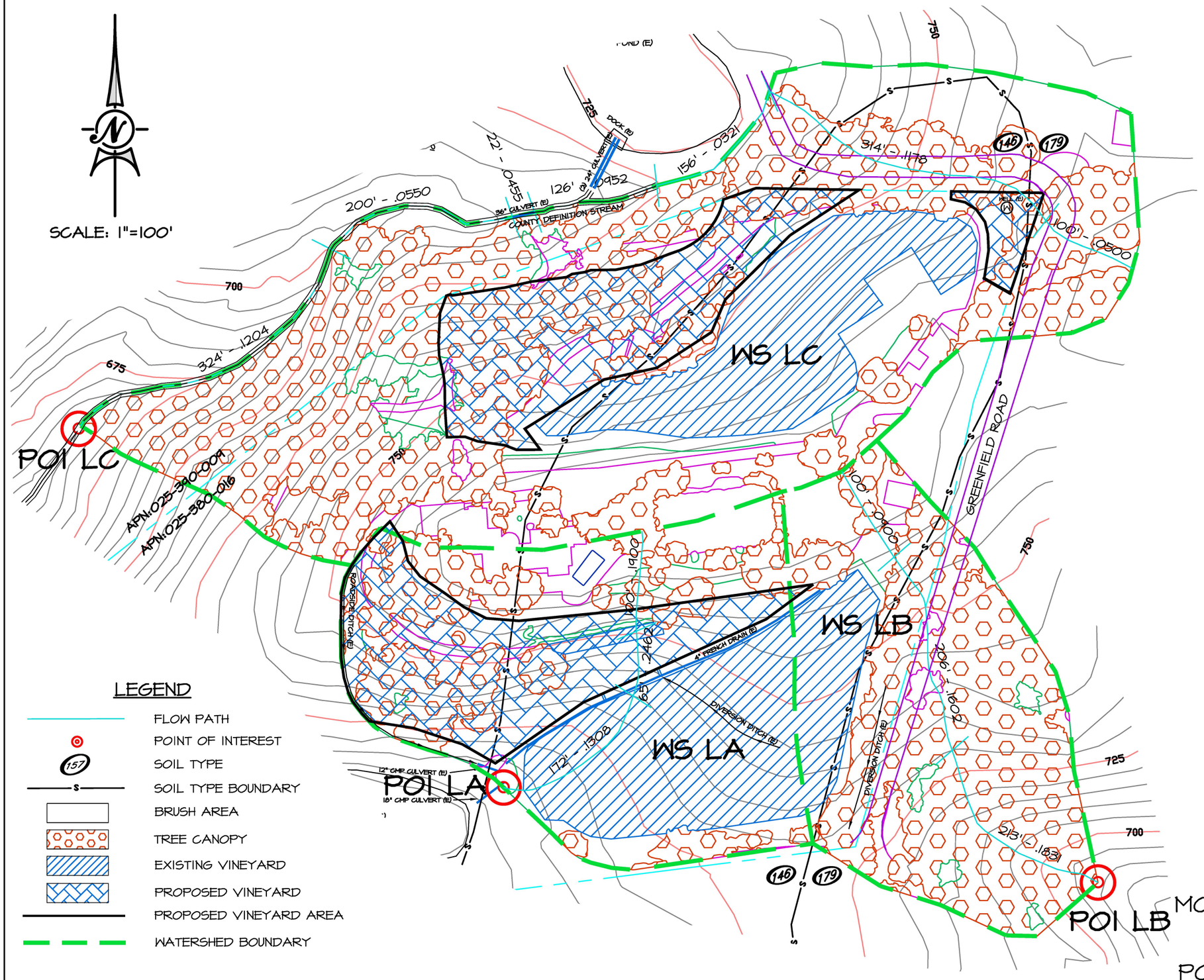
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	100	0.1700	0.48		**Sheet Flow, POST WS UB** Grass: Short n= 0.150 P2= 4.58"
1.2	202	0.1535	2.74		**Shallow Concentrated Flow, POST WS UB** Short Grass Pasture Kv= 7.0 fps
0.5	320	0.0656	11.23	56.17	**Channel Flow, POST WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	38	0.1053	12.54	22.16	**Pipe Channel, POST WS UB** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.020 Corrugated PE, corrugated interior
0.5	407	0.0860	12.86	64.32	**Channel Flow, POST WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.9	506	0.0415	8.94	44.68	**Channel Flow, POST WS UB** Area= 5.0 sf Perim= 6.0' r= 0.83' n= 0.030 Stream, clean & straight
0.1	133		16.05		**Lake or Reservoir, POST WS UB** Mean Depth= 8.00'
0.1	65	0.1538	21.30	104.56	**Pipe Channel, POST WS UB** 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.020 Corrugated PE, corrugated interior
0.1	61	0.0328	10.71	128.51	**Channel Flow, POST WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, POST WS UB**

36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75'
n= 0.020 Corrugated PE, corrugated interior

0.2	200	0.0550	13.87	166.41	**Channel Flow, POST WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	328	0.1189	20.39	244.68	**Channel Flow, POST WS UB** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
7.5	2,382	Total			

Subcatchment WS UB: POST WS UB





Area LA

SOIL 179 = C

TOTAL AREA = 0.747 ACRES
TREE AREA = 0.118 ACRES
GRASS (GOOD) AREA = 0.022 ACRES
GRASS (FAIR) AREA = 0.004 ACRES
DEVELOPED AREA = 0.031 ACRES
NEW VINEYARD AREA = 0.571 ACRES

SOIL 146 = D

TOTAL AREA = 2.128 ACRES
TREE AREA = 0.258 ACRES
GRASS (GOOD) AREA = 0.279 ACRES
GRASS (POOR) AREA = 0.012 ACRES
DEVELOPED AREA = 0.175 ACRES
LANDSCAPE AREA = 0.024 ACRES
EXISTING VINEYARD (FAIR) AREA = 0.917 ACRES
WATER SURFACE AREA = 0.011 ACRES
NEW VINEYARD AREA = 0.453 ACRES

Area LB

SOIL 179 = C

TOTAL AREA = 1.672 ACRES
TREE AREA = 1.486 ACRES
GRASS (GOOD) AREA = 0.113 ACRES
DEVELOPED AREA = 0.060 ACRES
EXISTING VINEYARD (FAIR) AREA = 0.013 ACRES

SOIL 146 = D

TOTAL AREA = 0.676 ACRES
TREE AREA = 0.187 ACRES
GRASS (GOOD) AREA = 0.030 ACRES
GRASS (FAIR) AREA = 0.042 ACRES
DEVELOPED AREA = 0.137 ACRES
EXISTING VINEYARD (FAIR) AREA = 0.276 ACRES
NEW VINEYARD AREA = 0.004 ACRES

Area LC

SOIL 179 = C

TOTAL AREA = 4.047 ACRES
TREE AREA = 2.242 ACRES
GRASS (GOOD) AREA = 0.518 ACRES
GRASS (FAIR) AREA = 0.126 ACRES
GRASS (POOR) AREA = 0.018 ACRES
DEVELOPED AREA = 0.251 ACRES
LANDSCAPE AREA = 0.024 ACRES
EXISTING VINEYARD (FAIR) AREA = 0.039 ACRES
NEW VINEYARD AREA = 0.830 ACRES

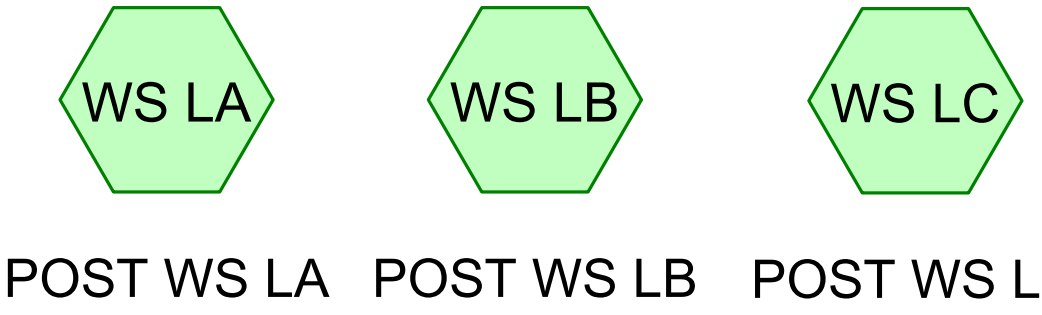
SOIL 146 = D

TOTAL AREA = 2.694 ACRES
TREE AREA = 0.680 ACRES
GRASS (GOOD) AREA = 0.448 ACRES
DEVELOPED AREA = 0.378 ACRES
LANDSCAPE AREA = 0.097 ACRES
EXISTING VINEYARD (FAIR) AREA = 0.857 ACRES
NEW VINEYARD AREA = 0.233 ACRES

MOSHKELANI FAMILY VINEYARDS, LLC
805 GREENFIELD ROAD
APN:025-380-016
POST HYDROLOGY BLOCKS B, C, % D

NVVE 12-1-21

NAPA COUNTY GIS DATA BASE



Subcat Reach Pond Link

Routing Diagram for 20ECP Moshkelani Blocks B, C, D POST
Prepared by Napa Valley Vineyard Engineering, Printed 12/6/2021

Summary for Subcatchment WS LA: POST WS LA

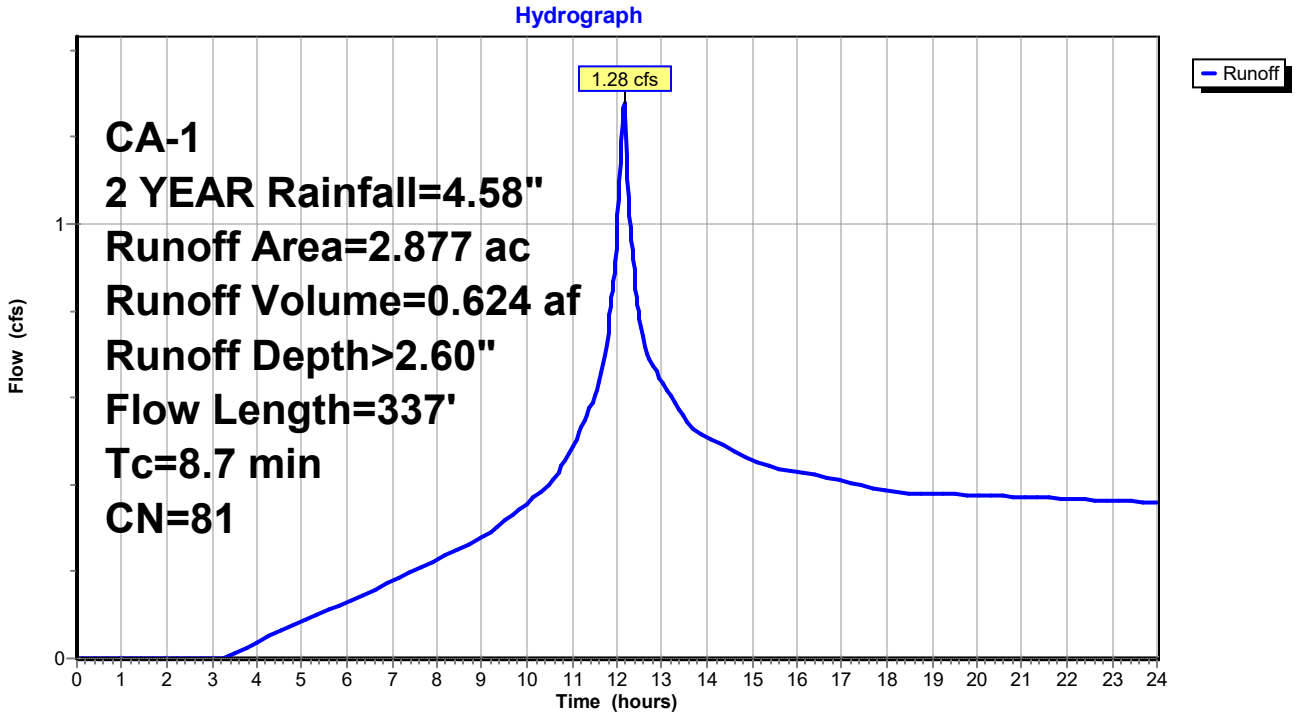
Runoff = 1.28 cfs @ 12.16 hrs, Volume= 0.624 af, Depth> 2.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 2 YEAR Rainfall=4.58"

Area (ac)	CN	Description
0.002	89	Gravel roads, HSG C
0.004	91	Gravel roads, HSG D
0.024	80	Landscape, Good, HSG D
0.004	79	Pasture/grassland/range, Fair, HSG C
0.022	74	Pasture/grassland/range, Good, HSG C
0.279	80	Pasture/grassland/range, Good, HSG D
0.012	89	Pasture/grassland/range, Poor, HSG D
0.005	98	Paved Road, HSG C
0.144	98	Paved Road, HSG D
0.024	98	Roofs, HSG C
0.027	98	Roofs, HSG D
0.917	84	Vineyard (E), Fair, HSG D
0.571	75	Vineyard (P), Good, HSG C
0.453	81	Vineyard (P), Good, HSG D
0.011	98	Water Surface, HSG D
0.118	72	Woods/grass comb., Good, HSG C
0.258	79	Woods/grass comb., Good, HSG D
2.877	81	Weighted Average
2.666		92.66% Pervious Area
0.211		7.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.1900	0.23		**Sheet Flow, POST WS LA** Woods: Light underbrush n= 0.400 P2= 4.58"
0.3	65	0.2462	3.47		**Shallow Concentrated Flow, POST WS LA** Short Grass Pasture Kv= 7.0 fps
1.1	172	0.1308	2.53		**Shallow Concentrated Flow, POST WS LA** Short Grass Pasture Kv= 7.0 fps
8.7	337	Total			

Subcatchment WS LA: POST WS LA



Summary for Subcatchment WS LB: POST WS LB

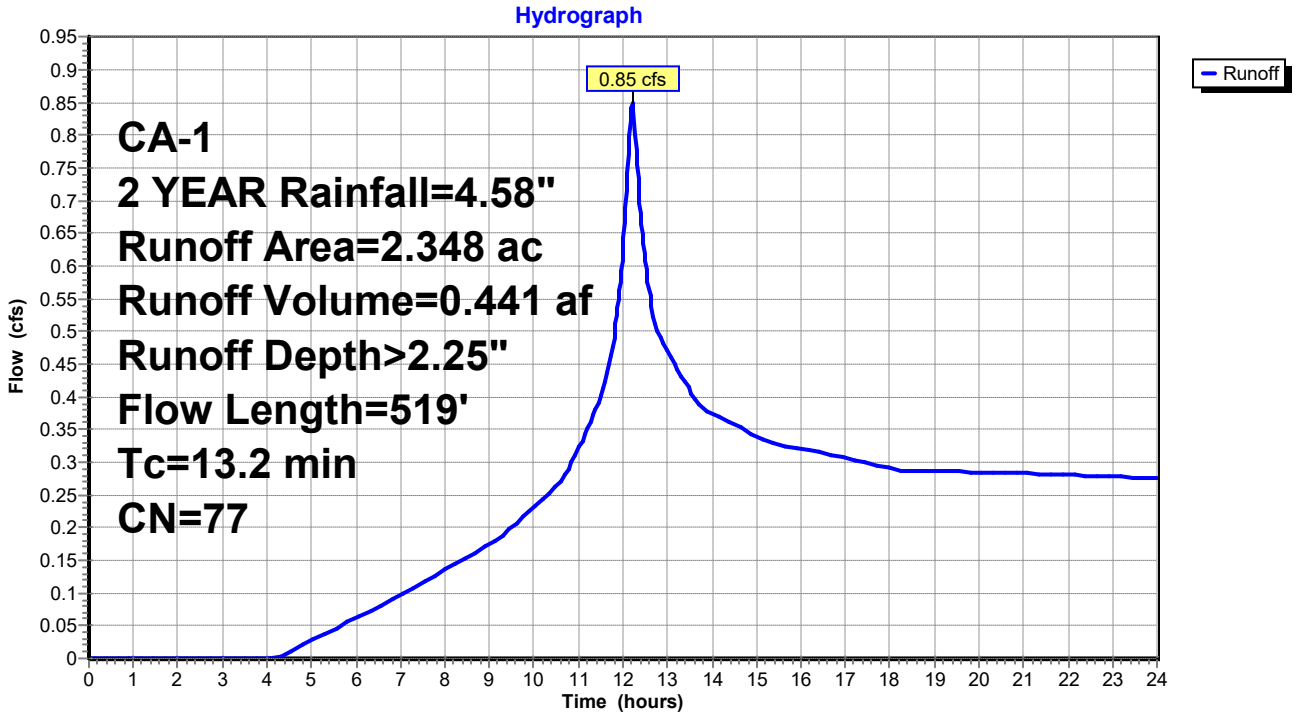
Runoff = 0.85 cfs @ 12.21 hrs, Volume= 0.441 af, Depth> 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 2 YEAR Rainfall=4.58"

Area (ac)	CN	Description
0.001	91	Gravel roads, HSG D
0.042	84	Pasture/grassland/range, Fair, HSG D
0.113	74	Pasture/grassland/range, Good, HSG C
0.030	80	Pasture/grassland/range, Good, HSG D
0.059	98	Paved Road, HSG C
0.121	98	Paved Road, HSG D
0.001	98	Roofs, HSG C
0.015	98	Roofs, HSG D
0.013	79	Vineyard (E), Fair, HSG C
0.276	84	Vineyard (E), Fair, HSG D
0.004	81	Vineyard (P), Good, HSG D
1.486	72	Woods/grass comb., Good, HSG C
0.187	79	Woods/grass comb., Good, HSG D
2.348	77	Weighted Average
2.152		91.66% Pervious Area
0.196		8.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, POST WS LB** Woods: Light underbrush n= 0.400 P2= 4.58"
1.7	206	0.1602	2.00		**Shallow Concentrated Flow, POST WS LB** Woodland Kv= 5.0 fps
1.7	213	0.1831	2.14		**Shallow Concentrated Flow, POST WS LB** Woodland Kv= 5.0 fps
13.2	519	Total			

Subcatchment WS LB: POST WS LB



Summary for Subcatchment WS LC: POST WS LC

Runoff = 2.38 cfs @ 12.28 hrs, Volume= 1.306 af, Depth> 2.33"

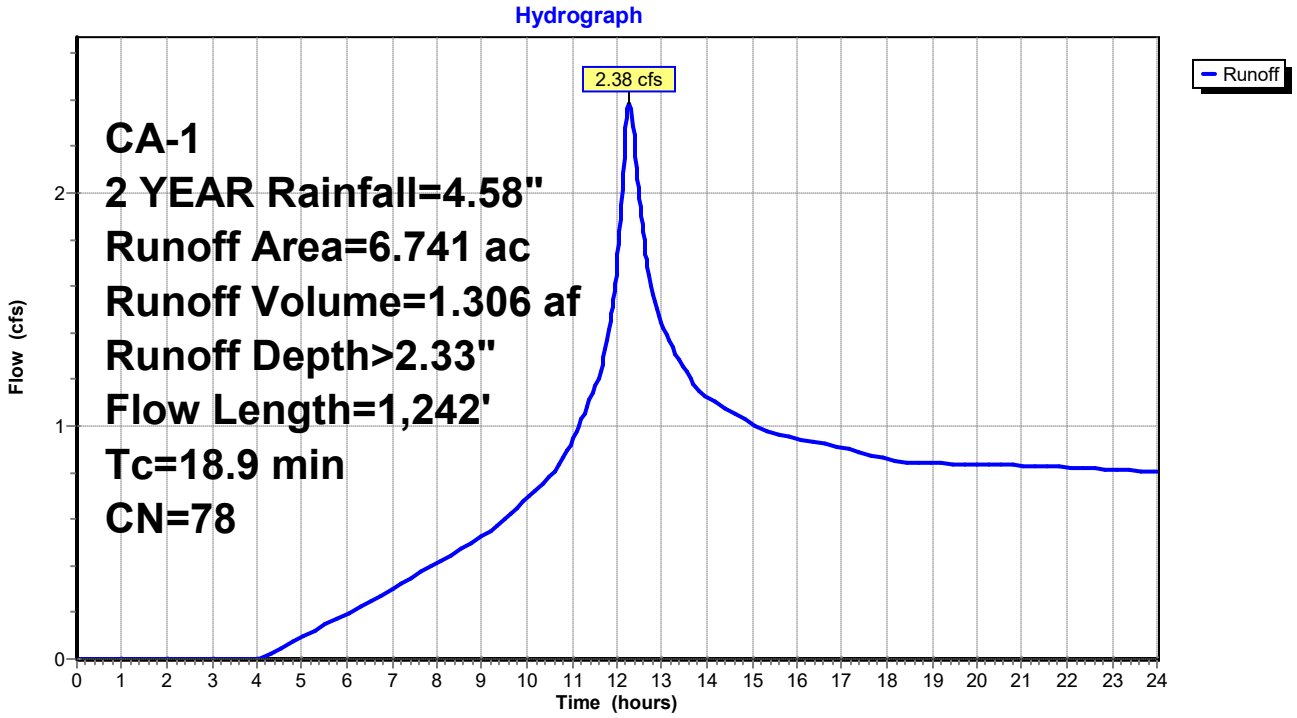
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 2 YEAR Rainfall=4.58"

Area (ac)	CN	Description
0.040	87	Dirt roads, HSG C
0.070	89	Gravel roads, HSG C
0.185	91	Gravel roads, HSG D
0.024	74	Landscape, Good, HSG C
0.097	80	Landscape, Good, HSG D
0.126	79	Pasture/grassland/range, Fair, HSG C
0.518	74	Pasture/grassland/range, Good, HSG C
0.448	80	Pasture/grassland/range, Good, HSG D
0.018	86	Pasture/grassland/range, Poor, HSG C
0.061	98	Paved Road, HSG C
0.139	98	Paved Road, HSG D
0.080	98	Roofs, HSG C
0.054	98	Roofs, HSG D
0.039	79	Vineyard (E), Fair, HSG C
0.857	84	Vineyard (E), Fair, HSG D
0.830	75	Vineyard (P), Good, HSG C
0.233	81	Vineyard (P), Good, HSG D
2.242	72	Woods/grass comb., Good, HSG C
0.680	79	Woods/grass comb., Good, HSG D
6.741	78	Weighted Average
6.406		95.03% Pervious Area
0.335		4.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0500	0.13		**Sheet Flow, POST WS LC** Woods: Light underbrush n= 0.400 P2= 4.58"
3.0	314	0.1178	1.72		**Shallow Concentrated Flow, POST WS LC** Woodland Kv= 5.0 fps
2.9	156	0.0321	0.90		**Shallow Concentrated Flow, POST WS LC** Woodland Kv= 5.0 fps
0.1	126	0.0952	18.25	218.94	**Channel Flow, POST WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, POST WS LC** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.020 Corrugated PE, corrugated interior
0.2	200	0.0550	13.87	166.41	**Channel Flow, POST WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	324	0.1204	20.52	246.22	**Channel Flow, POST WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight

18.9 1,242 Total

Subcatchment WS LC: POST WS LC



Summary for Subcatchment WS LA: POST WS LA

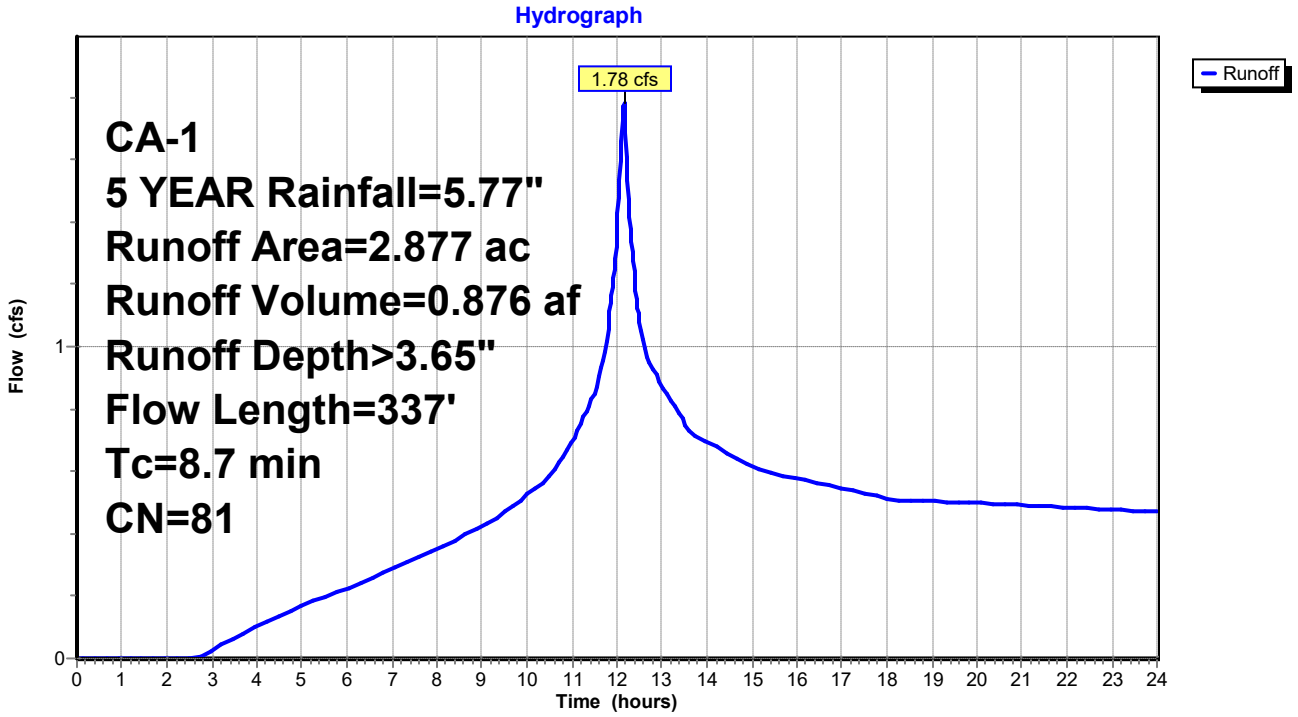
Runoff = 1.78 cfs @ 12.16 hrs, Volume= 0.876 af, Depth> 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 5 YEAR Rainfall=5.77"

Area (ac)	CN	Description
0.002	89	Gravel roads, HSG C
0.004	91	Gravel roads, HSG D
0.024	80	Landscape, Good, HSG D
0.004	79	Pasture/grassland/range, Fair, HSG C
0.022	74	Pasture/grassland/range, Good, HSG C
0.279	80	Pasture/grassland/range, Good, HSG D
0.012	89	Pasture/grassland/range, Poor, HSG D
0.005	98	Paved Road, HSG C
0.144	98	Paved Road, HSG D
0.024	98	Roofs, HSG C
0.027	98	Roofs, HSG D
0.917	84	Vineyard (E), Fair, HSG D
0.571	75	Vineyard (P), Good, HSG C
0.453	81	Vineyard (P), Good, HSG D
0.011	98	Water Surface, HSG D
0.118	72	Woods/grass comb., Good, HSG C
0.258	79	Woods/grass comb., Good, HSG D
2.877	81	Weighted Average
2.666		92.66% Pervious Area
0.211		7.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.1900	0.23		**Sheet Flow, POST WS LA** Woods: Light underbrush n= 0.400 P2= 4.58"
0.3	65	0.2462	3.47		**Shallow Concentrated Flow, POST WS LA** Short Grass Pasture Kv= 7.0 fps
1.1	172	0.1308	2.53		**Shallow Concentrated Flow, POST WS LA** Short Grass Pasture Kv= 7.0 fps
8.7	337	Total			

Subcatchment WS LA: POST WS LA



Summary for Subcatchment WS LB: POST WS LB

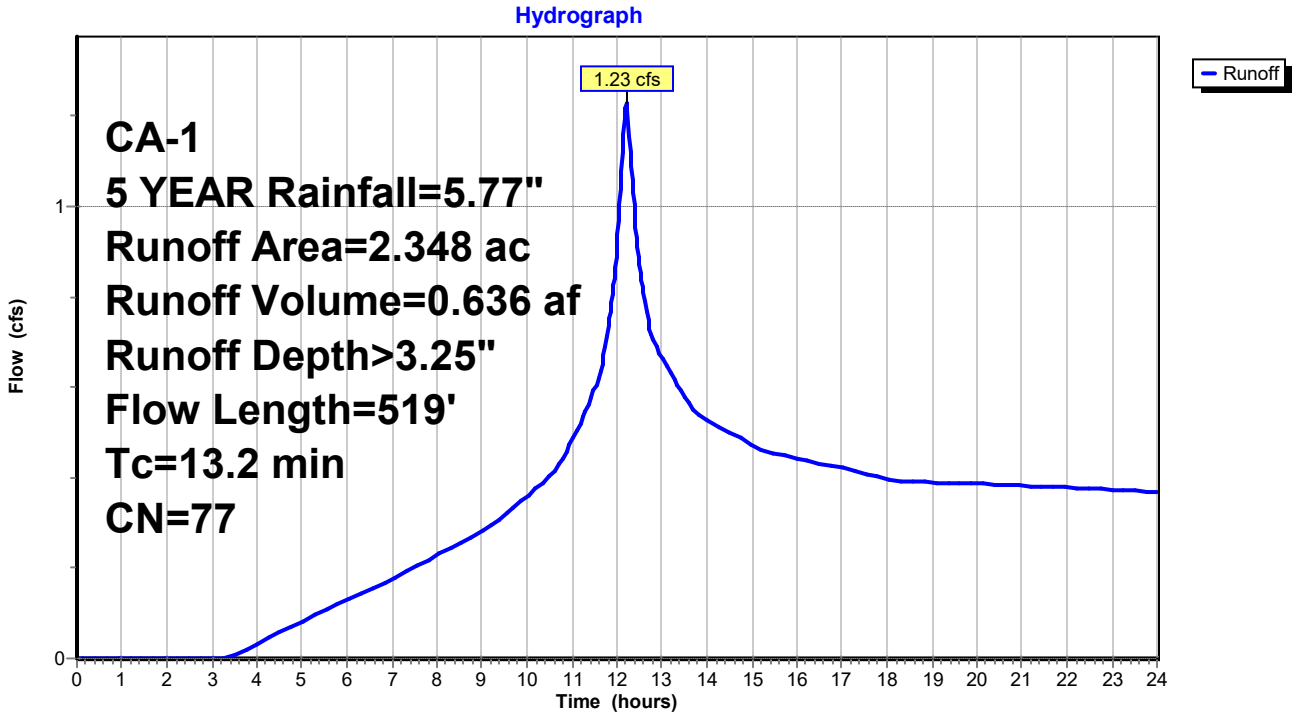
Runoff = 1.23 cfs @ 12.21 hrs, Volume= 0.636 af, Depth> 3.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 5 YEAR Rainfall=5.77"

Area (ac)	CN	Description
0.001	91	Gravel roads, HSG D
0.042	84	Pasture/grassland/range, Fair, HSG D
0.113	74	Pasture/grassland/range, Good, HSG C
0.030	80	Pasture/grassland/range, Good, HSG D
0.059	98	Paved Road, HSG C
0.121	98	Paved Road, HSG D
0.001	98	Roofs, HSG C
0.015	98	Roofs, HSG D
0.013	79	Vineyard (E), Fair, HSG C
0.276	84	Vineyard (E), Fair, HSG D
0.004	81	Vineyard (P), Good, HSG D
1.486	72	Woods/grass comb., Good, HSG C
0.187	79	Woods/grass comb., Good, HSG D
2.348	77	Weighted Average
2.152		91.66% Pervious Area
0.196		8.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, POST WS LB** Woods: Light underbrush n= 0.400 P2= 4.58"
1.7	206	0.1602	2.00		**Shallow Concentrated Flow, POST WS LB** Woodland Kv= 5.0 fps
1.7	213	0.1831	2.14		**Shallow Concentrated Flow, POST WS LB** Woodland Kv= 5.0 fps
13.2	519	Total			

Subcatchment WS LB: POST WS LB



Summary for Subcatchment WS LC: POST WS LC

Runoff = 3.41 cfs @ 12.27 hrs, Volume= 1.872 af, Depth> 3.33"

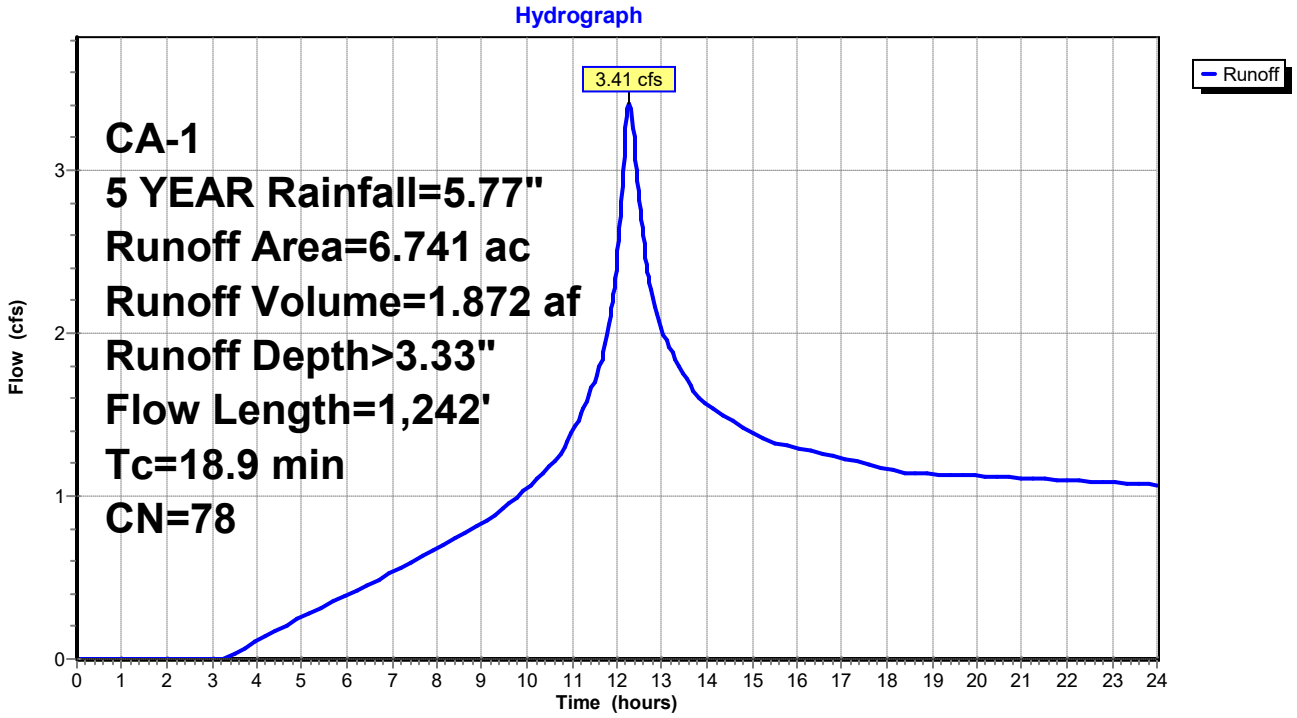
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 5 YEAR Rainfall=5.77"

Area (ac)	CN	Description
0.040	87	Dirt roads, HSG C
0.070	89	Gravel roads, HSG C
0.185	91	Gravel roads, HSG D
0.024	74	Landscape, Good, HSG C
0.097	80	Landscape, Good, HSG D
0.126	79	Pasture/grassland/range, Fair, HSG C
0.518	74	Pasture/grassland/range, Good, HSG C
0.448	80	Pasture/grassland/range, Good, HSG D
0.018	86	Pasture/grassland/range, Poor, HSG C
0.061	98	Paved Road, HSG C
0.139	98	Paved Road, HSG D
0.080	98	Roofs, HSG C
0.054	98	Roofs, HSG D
0.039	79	Vineyard (E), Fair, HSG C
0.857	84	Vineyard (E), Fair, HSG D
0.830	75	Vineyard (P), Good, HSG C
0.233	81	Vineyard (P), Good, HSG D
2.242	72	Woods/grass comb., Good, HSG C
0.680	79	Woods/grass comb., Good, HSG D
6.741	78	Weighted Average
6.406		95.03% Pervious Area
0.335		4.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0500	0.13		**Sheet Flow, POST WS LC** Woods: Light underbrush n= 0.400 P2= 4.58"
3.0	314	0.1178	1.72		**Shallow Concentrated Flow, POST WS LC** Woodland Kv= 5.0 fps
2.9	156	0.0321	0.90		**Shallow Concentrated Flow, POST WS LC** Woodland Kv= 5.0 fps
0.1	126	0.0952	18.25	218.94	**Channel Flow, POST WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, POST WS LC** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.020 Corrugated PE, corrugated interior
0.2	200	0.0550	13.87	166.41	**Channel Flow, POST WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	324	0.1204	20.52	246.22	**Channel Flow, POST WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight

18.9 1,242 Total

Subcatchment WS LC: POST WS LC



Summary for Subcatchment WS LA: POST WS LA

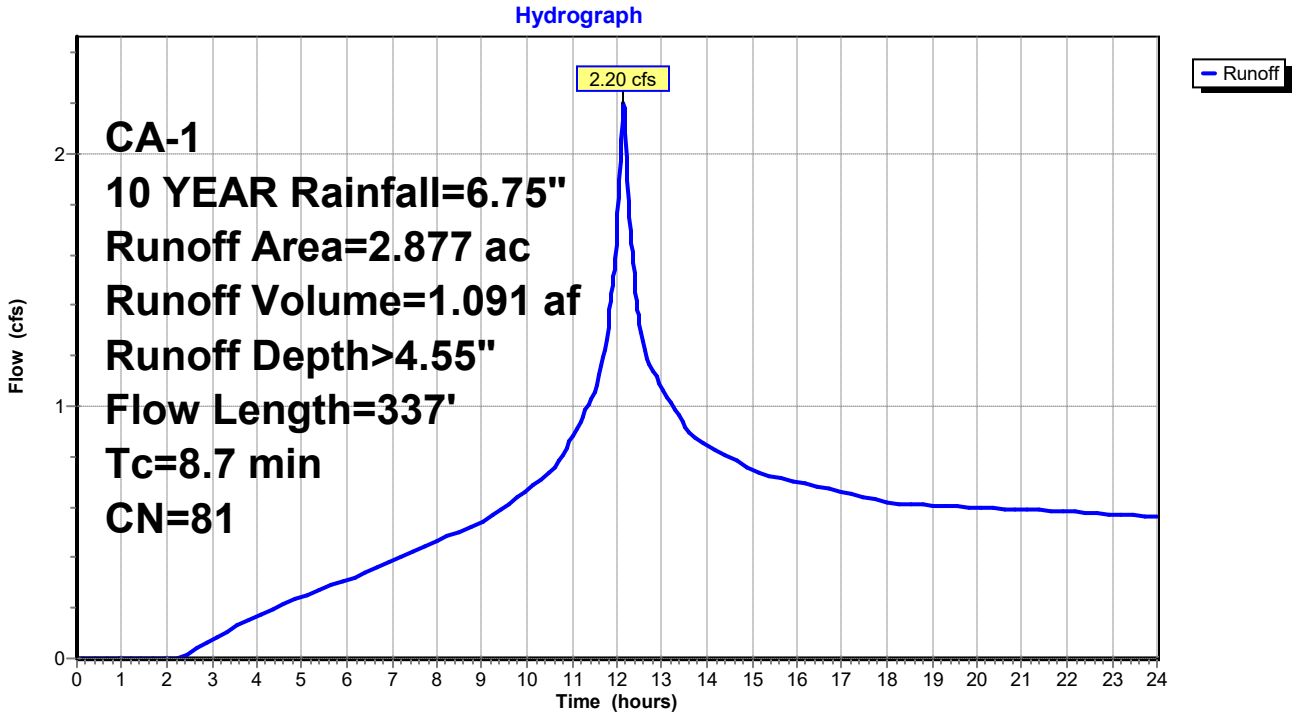
Runoff = 2.20 cfs @ 12.16 hrs, Volume= 1.091 af, Depth> 4.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 10 YEAR Rainfall=6.75"

Area (ac)	CN	Description
0.002	89	Gravel roads, HSG C
0.004	91	Gravel roads, HSG D
0.024	80	Landscape, Good, HSG D
0.004	79	Pasture/grassland/range, Fair, HSG C
0.022	74	Pasture/grassland/range, Good, HSG C
0.279	80	Pasture/grassland/range, Good, HSG D
0.012	89	Pasture/grassland/range, Poor, HSG D
0.005	98	Paved Road, HSG C
0.144	98	Paved Road, HSG D
0.024	98	Roofs, HSG C
0.027	98	Roofs, HSG D
0.917	84	Vineyard (E), Fair, HSG D
0.571	75	Vineyard (P), Good, HSG C
0.453	81	Vineyard (P), Good, HSG D
0.011	98	Water Surface, HSG D
0.118	72	Woods/grass comb., Good, HSG C
0.258	79	Woods/grass comb., Good, HSG D
2.877	81	Weighted Average
2.666		92.66% Pervious Area
0.211		7.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.1900	0.23		**Sheet Flow, POST WS LA** Woods: Light underbrush n= 0.400 P2= 4.58"
0.3	65	0.2462	3.47		**Shallow Concentrated Flow, POST WS LA** Short Grass Pasture Kv= 7.0 fps
1.1	172	0.1308	2.53		**Shallow Concentrated Flow, POST WS LA** Short Grass Pasture Kv= 7.0 fps
8.7	337	Total			

Subcatchment WS LA: POST WS LA



Summary for Subcatchment WS LB: POST WS LB

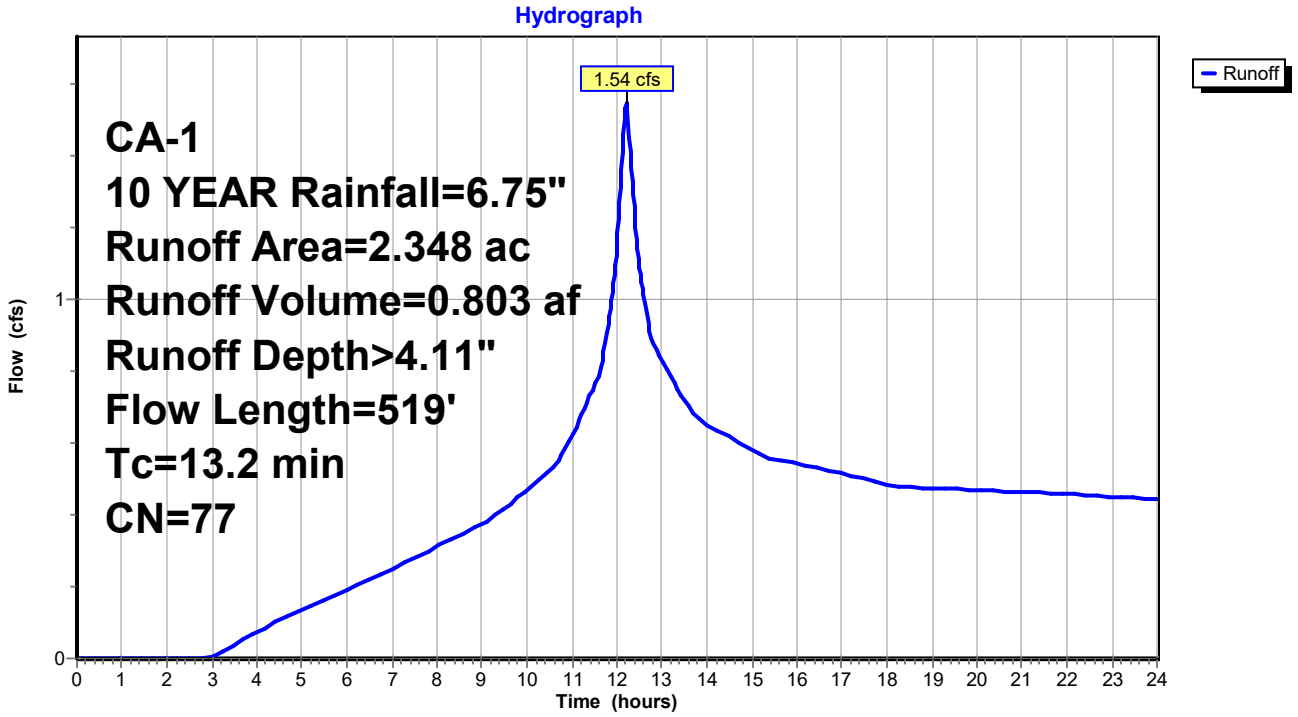
Runoff = 1.54 cfs @ 12.21 hrs, Volume= 0.803 af, Depth> 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 10 YEAR Rainfall=6.75"

Area (ac)	CN	Description
0.001	91	Gravel roads, HSG D
0.042	84	Pasture/grassland/range, Fair, HSG D
0.113	74	Pasture/grassland/range, Good, HSG C
0.030	80	Pasture/grassland/range, Good, HSG D
0.059	98	Paved Road, HSG C
0.121	98	Paved Road, HSG D
0.001	98	Roofs, HSG C
0.015	98	Roofs, HSG D
0.013	79	Vineyard (E), Fair, HSG C
0.276	84	Vineyard (E), Fair, HSG D
0.004	81	Vineyard (P), Good, HSG D
1.486	72	Woods/grass comb., Good, HSG C
0.187	79	Woods/grass comb., Good, HSG D
2.348	77	Weighted Average
2.152		91.66% Pervious Area
0.196		8.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, POST WS LB** Woods: Light underbrush n= 0.400 P2= 4.58"
1.7	206	0.1602	2.00		**Shallow Concentrated Flow, POST WS LB** Woodland Kv= 5.0 fps
1.7	213	0.1831	2.14		**Shallow Concentrated Flow, POST WS LB** Woodland Kv= 5.0 fps
13.2	519	Total			

Subcatchment WS LB: POST WS LB



Summary for Subcatchment WS LC: POST WS LC

Runoff = 4.28 cfs @ 12.27 hrs, Volume= 2.357 af, Depth> 4.20"

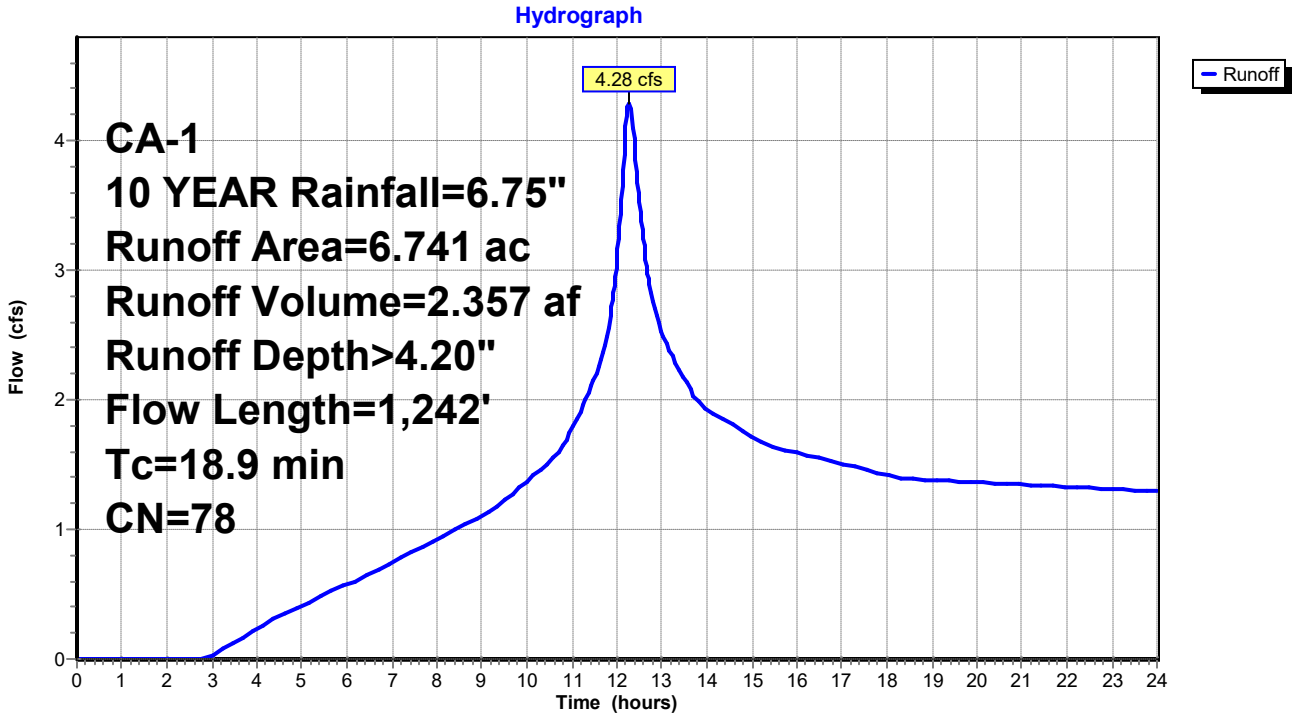
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 10 YEAR Rainfall=6.75"

Area (ac)	CN	Description
0.040	87	Dirt roads, HSG C
0.070	89	Gravel roads, HSG C
0.185	91	Gravel roads, HSG D
0.024	74	Landscape, Good, HSG C
0.097	80	Landscape, Good, HSG D
0.126	79	Pasture/grassland/range, Fair, HSG C
0.518	74	Pasture/grassland/range, Good, HSG C
0.448	80	Pasture/grassland/range, Good, HSG D
0.018	86	Pasture/grassland/range, Poor, HSG C
0.061	98	Paved Road, HSG C
0.139	98	Paved Road, HSG D
0.080	98	Roofs, HSG C
0.054	98	Roofs, HSG D
0.039	79	Vineyard (E), Fair, HSG C
0.857	84	Vineyard (E), Fair, HSG D
0.830	75	Vineyard (P), Good, HSG C
0.233	81	Vineyard (P), Good, HSG D
2.242	72	Woods/grass comb., Good, HSG C
0.680	79	Woods/grass comb., Good, HSG D
6.741	78	Weighted Average
6.406		95.03% Pervious Area
0.335		4.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0500	0.13		**Sheet Flow, POST WS LC** Woods: Light underbrush n= 0.400 P2= 4.58"
3.0	314	0.1178	1.72		**Shallow Concentrated Flow, POST WS LC** Woodland Kv= 5.0 fps
2.9	156	0.0321	0.90		**Shallow Concentrated Flow, POST WS LC** Woodland Kv= 5.0 fps
0.1	126	0.0952	18.25	218.94	**Channel Flow, POST WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, POST WS LC** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.020 Corrugated PE, corrugated interior
0.2	200	0.0550	13.87	166.41	**Channel Flow, POST WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	324	0.1204	20.52	246.22	**Channel Flow, POST WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight

18.9 1,242 Total

Subcatchment WS LC: POST WS LC



Summary for Subcatchment WS LA: POST WS LA

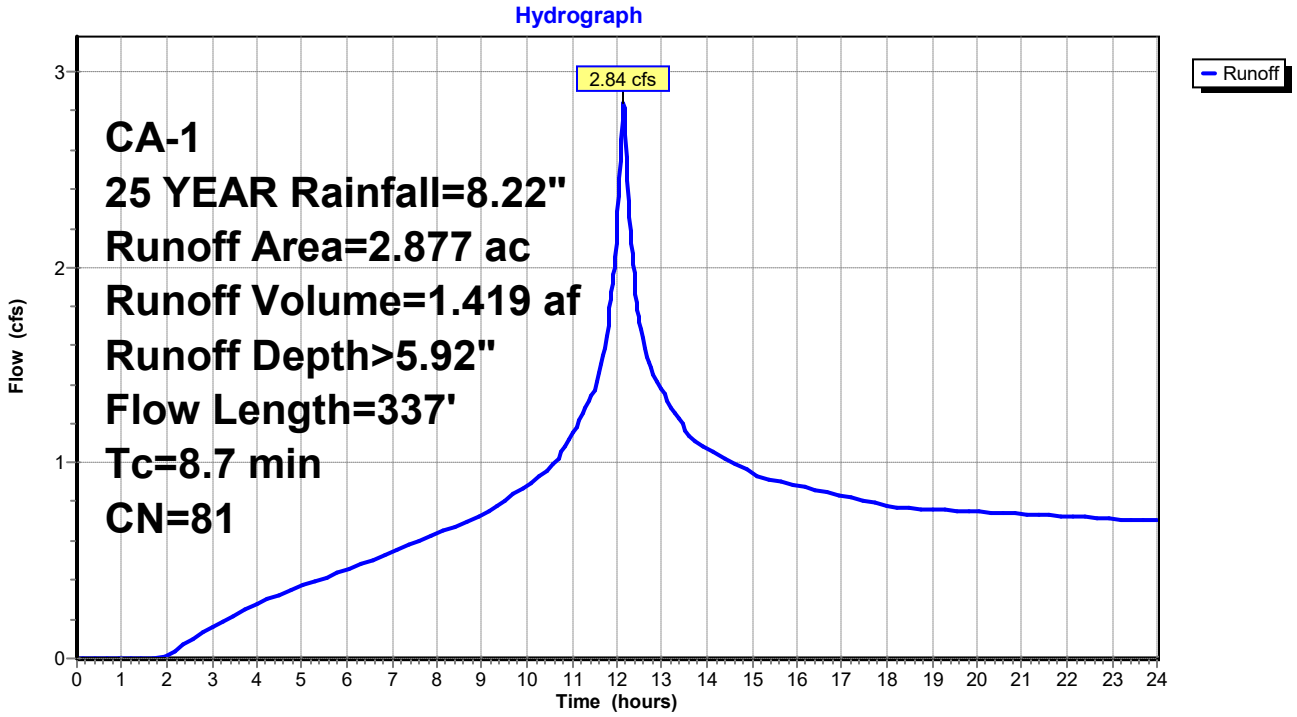
Runoff = 2.84 cfs @ 12.16 hrs, Volume= 1.419 af, Depth> 5.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 25 YEAR Rainfall=8.22"

Area (ac)	CN	Description
0.002	89	Gravel roads, HSG C
0.004	91	Gravel roads, HSG D
0.024	80	Landscape, Good, HSG D
0.004	79	Pasture/grassland/range, Fair, HSG C
0.022	74	Pasture/grassland/range, Good, HSG C
0.279	80	Pasture/grassland/range, Good, HSG D
0.012	89	Pasture/grassland/range, Poor, HSG D
0.005	98	Paved Road, HSG C
0.144	98	Paved Road, HSG D
0.024	98	Roofs, HSG C
0.027	98	Roofs, HSG D
0.917	84	Vineyard (E), Fair, HSG D
0.571	75	Vineyard (P), Good, HSG C
0.453	81	Vineyard (P), Good, HSG D
0.011	98	Water Surface, HSG D
0.118	72	Woods/grass comb., Good, HSG C
0.258	79	Woods/grass comb., Good, HSG D
2.877	81	Weighted Average
2.666		92.66% Pervious Area
0.211		7.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.1900	0.23		**Sheet Flow, POST WS LA** Woods: Light underbrush n= 0.400 P2= 4.58"
0.3	65	0.2462	3.47		**Shallow Concentrated Flow, POST WS LA** Short Grass Pasture Kv= 7.0 fps
1.1	172	0.1308	2.53		**Shallow Concentrated Flow, POST WS LA** Short Grass Pasture Kv= 7.0 fps
8.7	337	Total			

Subcatchment WS LA: POST WS LA



Summary for Subcatchment WS LB: POST WS LB

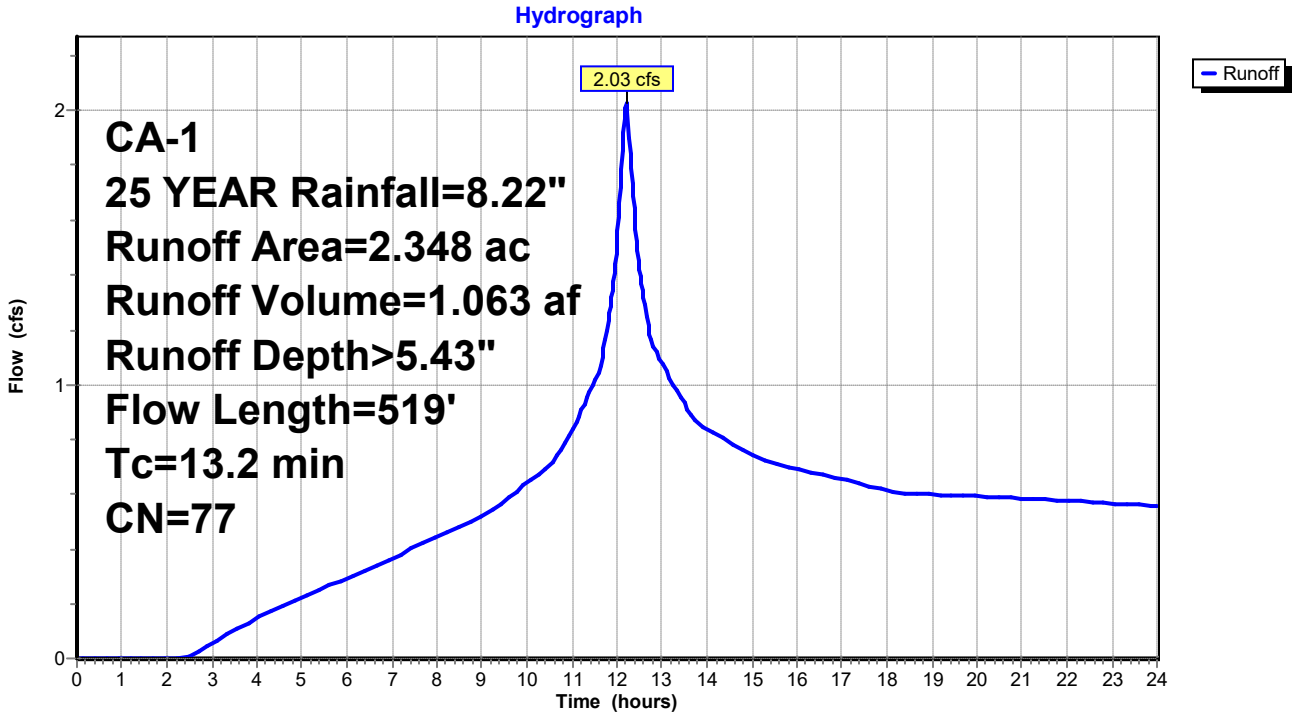
Runoff = 2.03 cfs @ 12.20 hrs, Volume= 1.063 af, Depth> 5.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 25 YEAR Rainfall=8.22"

Area (ac)	CN	Description
0.001	91	Gravel roads, HSG D
0.042	84	Pasture/grassland/range, Fair, HSG D
0.113	74	Pasture/grassland/range, Good, HSG C
0.030	80	Pasture/grassland/range, Good, HSG D
0.059	98	Paved Road, HSG C
0.121	98	Paved Road, HSG D
0.001	98	Roofs, HSG C
0.015	98	Roofs, HSG D
0.013	79	Vineyard (E), Fair, HSG C
0.276	84	Vineyard (E), Fair, HSG D
0.004	81	Vineyard (P), Good, HSG D
1.486	72	Woods/grass comb., Good, HSG C
0.187	79	Woods/grass comb., Good, HSG D
2.348	77	Weighted Average
2.152		91.66% Pervious Area
0.196		8.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, POST WS LB** Woods: Light underbrush n= 0.400 P2= 4.58"
1.7	206	0.1602	2.00		**Shallow Concentrated Flow, POST WS LB** Woodland Kv= 5.0 fps
1.7	213	0.1831	2.14		**Shallow Concentrated Flow, POST WS LB** Woodland Kv= 5.0 fps
13.2	519	Total			

Subcatchment WS LB: POST WS LB



Summary for Subcatchment WS LC: POST WS LC

Runoff = 5.59 cfs @ 12.27 hrs, Volume= 3.105 af, Depth> 5.53"

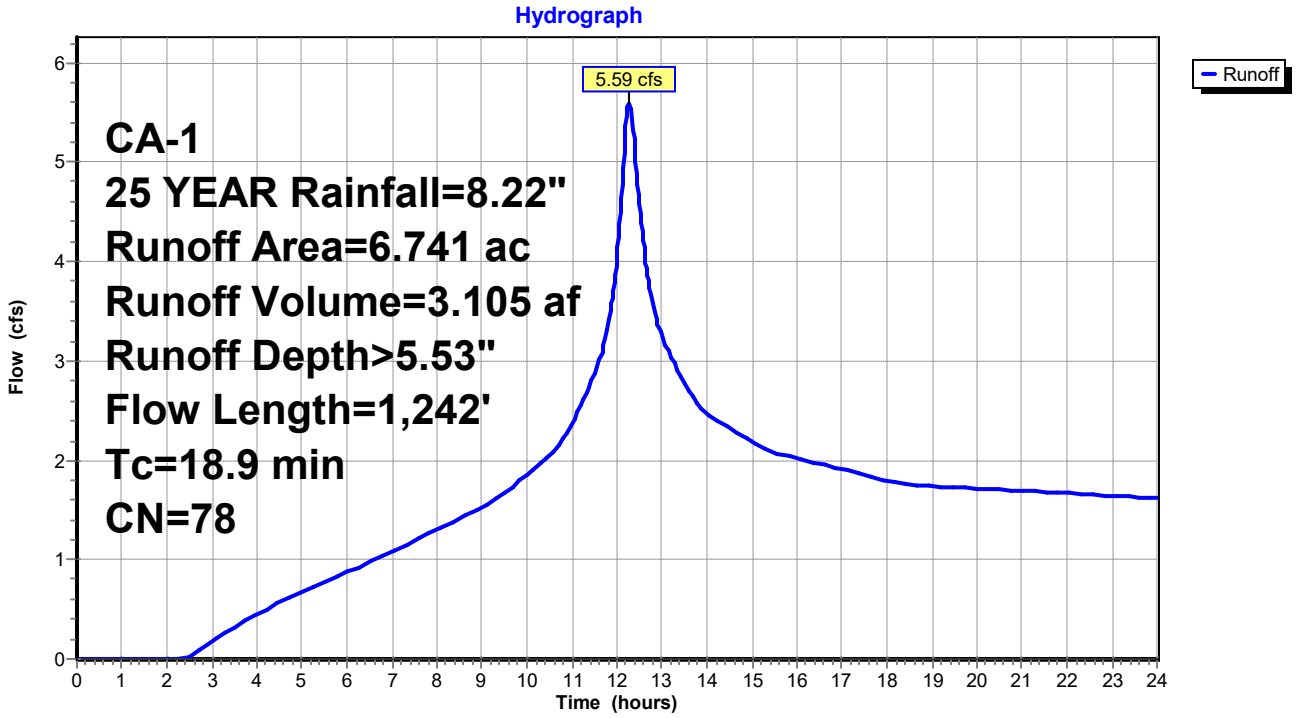
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 25 YEAR Rainfall=8.22"

Area (ac)	CN	Description
0.040	87	Dirt roads, HSG C
0.070	89	Gravel roads, HSG C
0.185	91	Gravel roads, HSG D
0.024	74	Landscape, Good, HSG C
0.097	80	Landscape, Good, HSG D
0.126	79	Pasture/grassland/range, Fair, HSG C
0.518	74	Pasture/grassland/range, Good, HSG C
0.448	80	Pasture/grassland/range, Good, HSG D
0.018	86	Pasture/grassland/range, Poor, HSG C
0.061	98	Paved Road, HSG C
0.139	98	Paved Road, HSG D
0.080	98	Roofs, HSG C
0.054	98	Roofs, HSG D
0.039	79	Vineyard (E), Fair, HSG C
0.857	84	Vineyard (E), Fair, HSG D
0.830	75	Vineyard (P), Good, HSG C
0.233	81	Vineyard (P), Good, HSG D
2.242	72	Woods/grass comb., Good, HSG C
0.680	79	Woods/grass comb., Good, HSG D
6.741	78	Weighted Average
6.406		95.03% Pervious Area
0.335		4.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0500	0.13		**Sheet Flow, POST WS LC** Woods: Light underbrush n= 0.400 P2= 4.58"
3.0	314	0.1178	1.72		**Shallow Concentrated Flow, POST WS LC** Woodland Kv= 5.0 fps
2.9	156	0.0321	0.90		**Shallow Concentrated Flow, POST WS LC** Woodland Kv= 5.0 fps
0.1	126	0.0952	18.25	218.94	**Channel Flow, POST WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, POST WS LC** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.020 Corrugated PE, corrugated interior
0.2	200	0.0550	13.87	166.41	**Channel Flow, POST WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	324	0.1204	20.52	246.22	**Channel Flow, POST WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight

18.9 1,242 Total

Subcatchment WS LC: POST WS LC



Summary for Subcatchment WS LA: POST WS LA

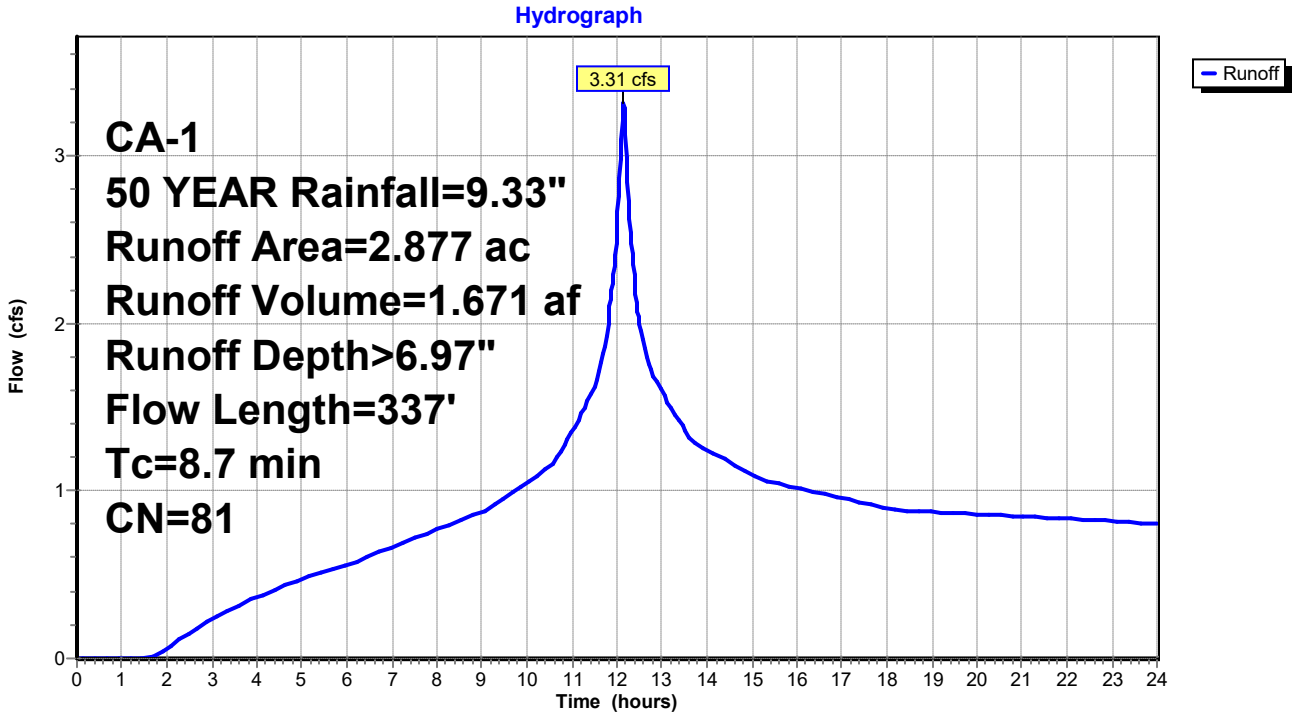
Runoff = 3.31 cfs @ 12.15 hrs, Volume= 1.671 af, Depth> 6.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 50 YEAR Rainfall=9.33"

Area (ac)	CN	Description
0.002	89	Gravel roads, HSG C
0.004	91	Gravel roads, HSG D
0.024	80	Landscape, Good, HSG D
0.004	79	Pasture/grassland/range, Fair, HSG C
0.022	74	Pasture/grassland/range, Good, HSG C
0.279	80	Pasture/grassland/range, Good, HSG D
0.012	89	Pasture/grassland/range, Poor, HSG D
0.005	98	Paved Road, HSG C
0.144	98	Paved Road, HSG D
0.024	98	Roofs, HSG C
0.027	98	Roofs, HSG D
0.917	84	Vineyard (E), Fair, HSG D
0.571	75	Vineyard (P), Good, HSG C
0.453	81	Vineyard (P), Good, HSG D
0.011	98	Water Surface, HSG D
0.118	72	Woods/grass comb., Good, HSG C
0.258	79	Woods/grass comb., Good, HSG D
2.877	81	Weighted Average
2.666		92.66% Pervious Area
0.211		7.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.1900	0.23		**Sheet Flow, POST WS LA** Woods: Light underbrush n= 0.400 P2= 4.58"
0.3	65	0.2462	3.47		**Shallow Concentrated Flow, POST WS LA** Short Grass Pasture Kv= 7.0 fps
1.1	172	0.1308	2.53		**Shallow Concentrated Flow, POST WS LA** Short Grass Pasture Kv= 7.0 fps
8.7	337	Total			

Subcatchment WS LA: POST WS LA



Summary for Subcatchment WS LB: POST WS LB

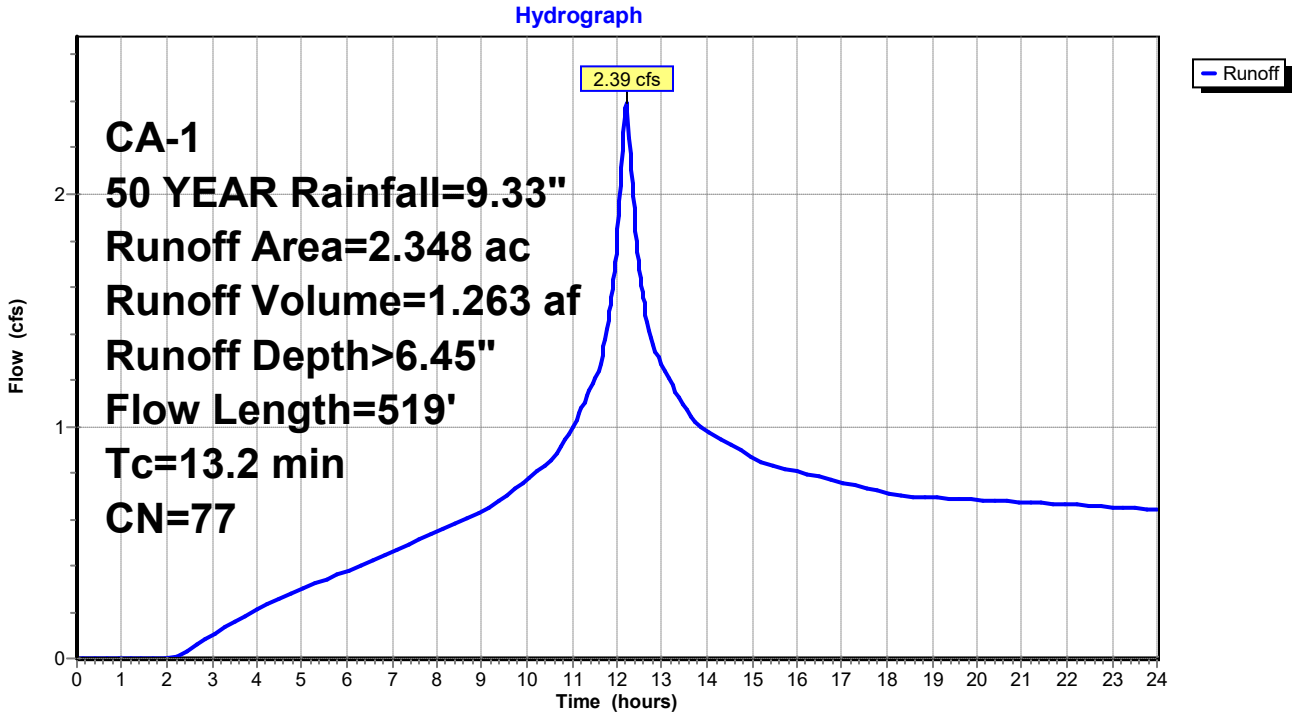
Runoff = 2.39 cfs @ 12.20 hrs, Volume= 1.263 af, Depth> 6.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 50 YEAR Rainfall=9.33"

Area (ac)	CN	Description
0.001	91	Gravel roads, HSG D
0.042	84	Pasture/grassland/range, Fair, HSG D
0.113	74	Pasture/grassland/range, Good, HSG C
0.030	80	Pasture/grassland/range, Good, HSG D
0.059	98	Paved Road, HSG C
0.121	98	Paved Road, HSG D
0.001	98	Roofs, HSG C
0.015	98	Roofs, HSG D
0.013	79	Vineyard (E), Fair, HSG C
0.276	84	Vineyard (E), Fair, HSG D
0.004	81	Vineyard (P), Good, HSG D
1.486	72	Woods/grass comb., Good, HSG C
0.187	79	Woods/grass comb., Good, HSG D
2.348	77	Weighted Average
2.152		91.66% Pervious Area
0.196		8.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, POST WS LB** Woods: Light underbrush n= 0.400 P2= 4.58"
1.7	206	0.1602	2.00		**Shallow Concentrated Flow, POST WS LB** Woodland Kv= 5.0 fps
1.7	213	0.1831	2.14		**Shallow Concentrated Flow, POST WS LB** Woodland Kv= 5.0 fps
13.2	519	Total			

Subcatchment WS LB: POST WS LB



Summary for Subcatchment WS LC: POST WS LC

Runoff = 6.58 cfs @ 12.27 hrs, Volume= 3.682 af, Depth> 6.55"

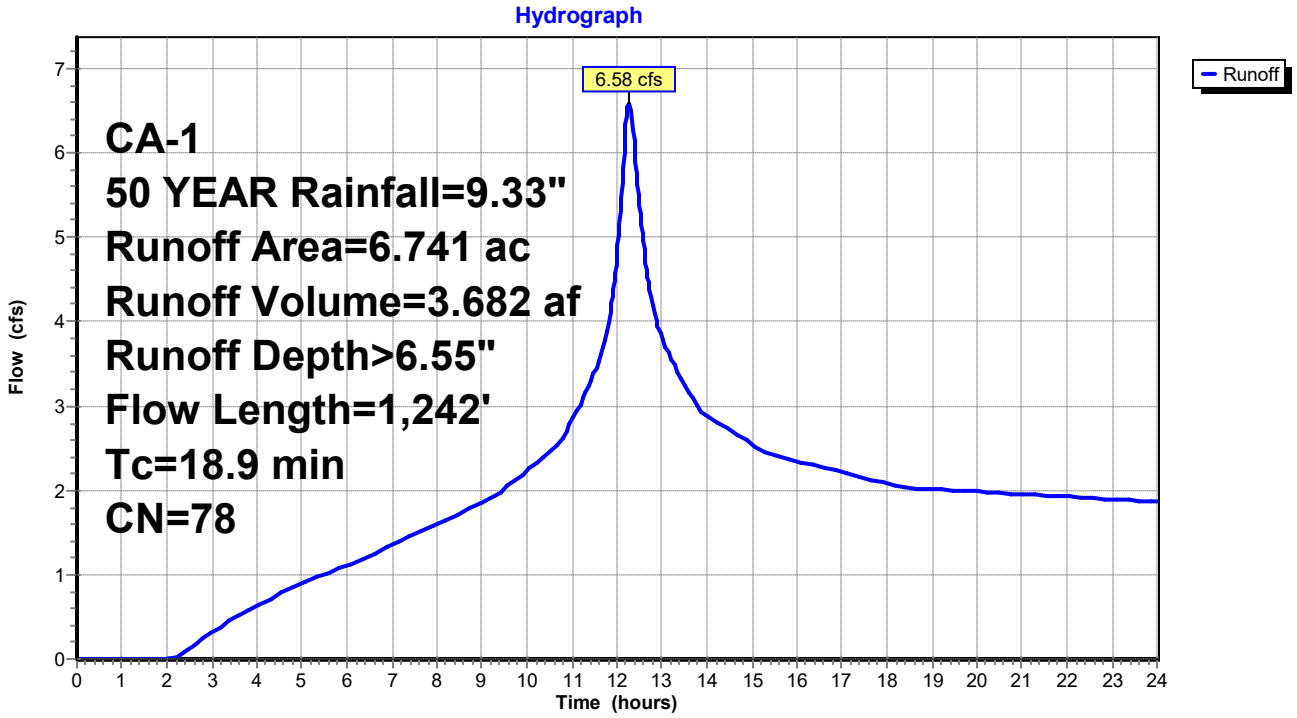
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 50 YEAR Rainfall=9.33"

Area (ac)	CN	Description
0.040	87	Dirt roads, HSG C
0.070	89	Gravel roads, HSG C
0.185	91	Gravel roads, HSG D
0.024	74	Landscape, Good, HSG C
0.097	80	Landscape, Good, HSG D
0.126	79	Pasture/grassland/range, Fair, HSG C
0.518	74	Pasture/grassland/range, Good, HSG C
0.448	80	Pasture/grassland/range, Good, HSG D
0.018	86	Pasture/grassland/range, Poor, HSG C
0.061	98	Paved Road, HSG C
0.139	98	Paved Road, HSG D
0.080	98	Roofs, HSG C
0.054	98	Roofs, HSG D
0.039	79	Vineyard (E), Fair, HSG C
0.857	84	Vineyard (E), Fair, HSG D
0.830	75	Vineyard (P), Good, HSG C
0.233	81	Vineyard (P), Good, HSG D
2.242	72	Woods/grass comb., Good, HSG C
0.680	79	Woods/grass comb., Good, HSG D
6.741	78	Weighted Average
6.406		95.03% Pervious Area
0.335		4.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0500	0.13		**Sheet Flow, POST WS LC** Woods: Light underbrush n= 0.400 P2= 4.58"
3.0	314	0.1178	1.72		**Shallow Concentrated Flow, POST WS LC** Woodland Kv= 5.0 fps
2.9	156	0.0321	0.90		**Shallow Concentrated Flow, POST WS LC** Woodland Kv= 5.0 fps
0.1	126	0.0952	18.25	218.94	**Channel Flow, POST WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, POST WS LC** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.020 Corrugated PE, corrugated interior
0.2	200	0.0550	13.87	166.41	**Channel Flow, POST WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	324	0.1204	20.52	246.22	**Channel Flow, POST WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight

18.9 1,242 Total

Subcatchment WS LC: POST WS LC



Summary for Subcatchment WS LA: POST WS LA

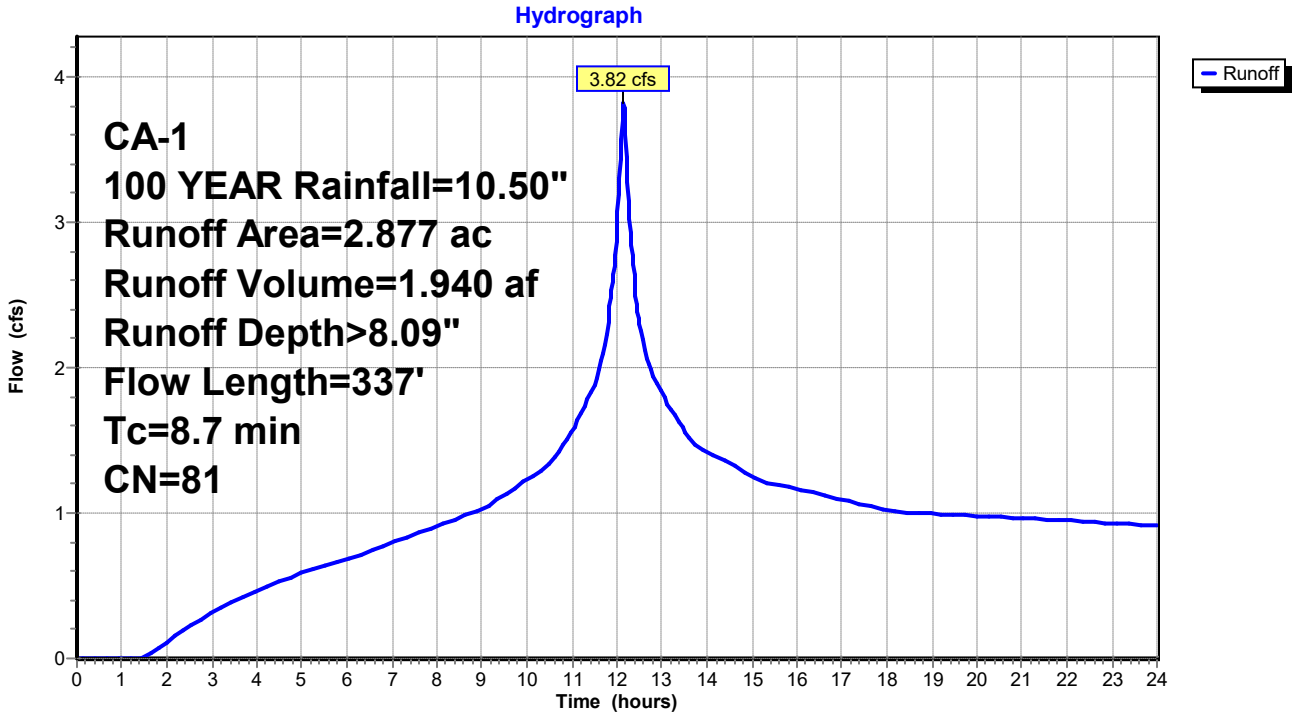
Runoff = 3.82 cfs @ 12.15 hrs, Volume= 1.940 af, Depth> 8.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 100 YEAR Rainfall=10.50"

Area (ac)	CN	Description
0.002	89	Gravel roads, HSG C
0.004	91	Gravel roads, HSG D
0.024	80	Landscape, Good, HSG D
0.004	79	Pasture/grassland/range, Fair, HSG C
0.022	74	Pasture/grassland/range, Good, HSG C
0.279	80	Pasture/grassland/range, Good, HSG D
0.012	89	Pasture/grassland/range, Poor, HSG D
0.005	98	Paved Road, HSG C
0.144	98	Paved Road, HSG D
0.024	98	Roofs, HSG C
0.027	98	Roofs, HSG D
0.917	84	Vineyard (E), Fair, HSG D
0.571	75	Vineyard (P), Good, HSG C
0.453	81	Vineyard (P), Good, HSG D
0.011	98	Water Surface, HSG D
0.118	72	Woods/grass comb., Good, HSG C
0.258	79	Woods/grass comb., Good, HSG D
2.877	81	Weighted Average
2.666		92.66% Pervious Area
0.211		7.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.1900	0.23		**Sheet Flow, POST WS LA** Woods: Light underbrush n= 0.400 P2= 4.58"
0.3	65	0.2462	3.47		**Shallow Concentrated Flow, POST WS LA** Short Grass Pasture Kv= 7.0 fps
1.1	172	0.1308	2.53		**Shallow Concentrated Flow, POST WS LA** Short Grass Pasture Kv= 7.0 fps
8.7	337	Total			

Subcatchment WS LA: POST WS LA



Summary for Subcatchment WS LB: POST WS LB

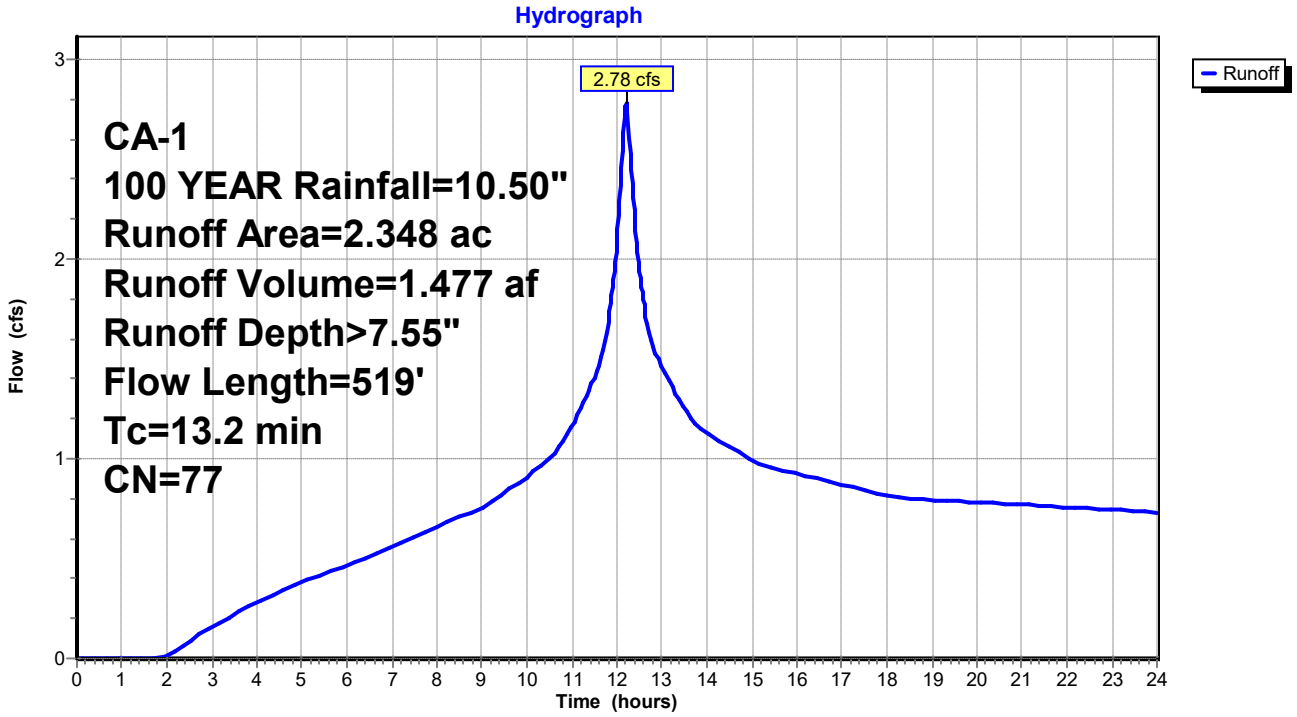
Runoff = 2.78 cfs @ 12.20 hrs, Volume= 1.477 af, Depth> 7.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 100 YEAR Rainfall=10.50"

Area (ac)	CN	Description
0.001	91	Gravel roads, HSG D
0.042	84	Pasture/grassland/range, Fair, HSG D
0.113	74	Pasture/grassland/range, Good, HSG C
0.030	80	Pasture/grassland/range, Good, HSG D
0.059	98	Paved Road, HSG C
0.121	98	Paved Road, HSG D
0.001	98	Roofs, HSG C
0.015	98	Roofs, HSG D
0.013	79	Vineyard (E), Fair, HSG C
0.276	84	Vineyard (E), Fair, HSG D
0.004	81	Vineyard (P), Good, HSG D
1.486	72	Woods/grass comb., Good, HSG C
0.187	79	Woods/grass comb., Good, HSG D
2.348	77	Weighted Average
2.152		91.66% Pervious Area
0.196		8.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	100	0.0900	0.17		**Sheet Flow, POST WS LB** Woods: Light underbrush n= 0.400 P2= 4.58"
1.7	206	0.1602	2.00		**Shallow Concentrated Flow, POST WS LB** Woodland Kv= 5.0 fps
1.7	213	0.1831	2.14		**Shallow Concentrated Flow, POST WS LB** Woodland Kv= 5.0 fps
13.2	519	Total			

Subcatchment WS LB: POST WS LB



Summary for Subcatchment WS LC: POST WS LC

Runoff = 7.63 cfs @ 12.27 hrs, Volume= 4.298 af, Depth> 7.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
CA-1 100 YEAR Rainfall=10.50"

Area (ac)	CN	Description
0.040	87	Dirt roads, HSG C
0.070	89	Gravel roads, HSG C
0.185	91	Gravel roads, HSG D
0.024	74	Landscape, Good, HSG C
0.097	80	Landscape, Good, HSG D
0.126	79	Pasture/grassland/range, Fair, HSG C
0.518	74	Pasture/grassland/range, Good, HSG C
0.448	80	Pasture/grassland/range, Good, HSG D
0.018	86	Pasture/grassland/range, Poor, HSG C
0.061	98	Paved Road, HSG C
0.139	98	Paved Road, HSG D
0.080	98	Roofs, HSG C
0.054	98	Roofs, HSG D
0.039	79	Vineyard (E), Fair, HSG C
0.857	84	Vineyard (E), Fair, HSG D
0.830	75	Vineyard (P), Good, HSG C
0.233	81	Vineyard (P), Good, HSG D
2.242	72	Woods/grass comb., Good, HSG C
0.680	79	Woods/grass comb., Good, HSG D
6.741	78	Weighted Average
6.406		95.03% Pervious Area
0.335		4.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	100	0.0500	0.13		**Sheet Flow, POST WS LC** Woods: Light underbrush n= 0.400 P2= 4.58"
3.0	314	0.1178	1.72		**Shallow Concentrated Flow, POST WS LC** Woodland Kv= 5.0 fps
2.9	156	0.0321	0.90		**Shallow Concentrated Flow, POST WS LC** Woodland Kv= 5.0 fps
0.1	126	0.0952	18.25	218.94	**Channel Flow, POST WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.0	22	0.0455	13.08	92.48	**Pipe Channel, POST WS LC** 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.020 Corrugated PE, corrugated interior
0.2	200	0.0550	13.87	166.41	**Channel Flow, POST WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight
0.3	324	0.1204	20.52	246.22	**Channel Flow, POST WS LC** Area= 12.0 sf Perim= 9.2' r= 1.30' n= 0.030 Stream, clean & straight

18.9 1,242 Total

Subcatchment WS LC: POST WS LC