EXHIBIT F

PPI ENGINEERING

VINEYARD DESIGN
EROSION CONTROL
WATER DEVELOPMENT
DRAINAGE
PERMITTING
GPS/GIS

2800 Jefferson Street
Napa, California 94558
707-253-1806
www.ppiengineering.com

MEMORANDUM

Date: October 15, 2019

To: Patrick Ryan, Napa County Planning, Building, and Environmental Services

From: James R. Bushey, P.E.

Cc: Brian Bordona, Napa County Planning, Building, and Environmental Services

Re: Hibbard Ranch Track I ECP
APN 050-380-014
Revised Hydrologic Analysis

This memo transmits the findings of a revised hydrologic analysis for the above-referenced Track I Erosion Control Plan (ECP). The original analysis submitted in February 2019 was revised to incorporate comments per Napa County staff. This revised analysis includes approximately 54.3 net acres of proposed new vineyard.

HydroCAD software was used to estimate pre- and post-project runoff from the watersheds containing the proposed development areas. The software uses the Natural Resource Conservation Service (NRCS) TR-20 method to calculate runoff. The analysis uses the Type IA 24-hr storm distribution and includes site-specific National Oceanic and Atmospheric Administration (NOAA) point precipitation data for the ranch.

A total of 27 watersheds and subwatersheds were delineated for the hydrologic modeling using American Aerial and Napa County contours. Runoff from Watershed 1 flows to a swale that runs north to south down the middle of the property. This waterway eventually drains to Carneros Creek. Watershed 2 drains into a nearby swale that is also connected to Carneros Creek. Runoff from Watersheds 3, 4, 5, 6, and 7 drain to separate swales east of the property. Each of these waterways eventually drain into Carneros Creek. Runoff from Watersheds 8 and 9 meets in a swale that drains to the east of the property. This swale eventually flows into Browns Valley Creek. Please see the attached figures for the locations of these watersheds.

Soils within the watersheds were obtained from the NRCS Web Soil Survey and are classified as the following:

Fagan Clay Loam, 5-15% Slopes (Map Unit Symbol 131)
Fagan Clay Loam, 15-30% Slopes (Map Unit Symbol 132)
Fagan Clay Loam, 30-50% Slopes (Map Unit Symbol 133)

Felton Gravelly Loam, 30-50% Slopes (Map Unit Symbol 136)
Haire Loam, 2-9% Slopes (Map Unit Symbol 146)

The Fagan Clay Loams and the Felton Gravelly Loam are classified as Hydrologic Soil Group (HSG) C. The Haire Loam is classified as HSG D. Please see the attached figures for soil type delineations within the vicinity of each watershed.

Land use areas were initially delineated based on Napa County Orthophotos. A site visit was then conducted on August 17, 2018 by Matt Bueno and Rachel Rosasco of PPI Engineering to ground truth the orthophotos and determine the existing land use conditions. All proposed development areas were inspected, and the cover values used in this analysis represent existing conditions at the time of the site visit. An additional site visit occurred with you and PPI Engineering staff on April 11, 2019 to confirm pre-project conditions. The area has been historically grazed and is currently intermittently grazed for fire protection and fuel-load reduction purposes. The land use hydrologic conditions were classified based on the respective covers as poor (less than 50% cover), fair (50%-75% cover), or good (greater than or equal to 75% cover). The HydroCAD software analyzes the land use data along with the corresponding soil HSGs to determine a weighted Curve Number (CN) for runoff calculations. Please see the attached figures for existing and proposed land use delineations.

The Time of Concentration (Tc) flow path within each watershed was determined using both American Aerial and Napa County contours. The flow path was drafted from the hydrologically most distant point (longest travel time) in the watershed to the watershed outlet per NRCS standards. For all watersheds, the Tc did not change from pre- to post-project conditions and no storm drainage infrastructure is proposed for this project. Please see the attached figures for both the pre- and post-project Tc flow paths.

Pre- and post-project runoff calculations from the HydroCAD models are summarized in Table 1 below. Runoff was calculated for the 2-, 10-, 50- and 100-year storms respectively for the watersheds.

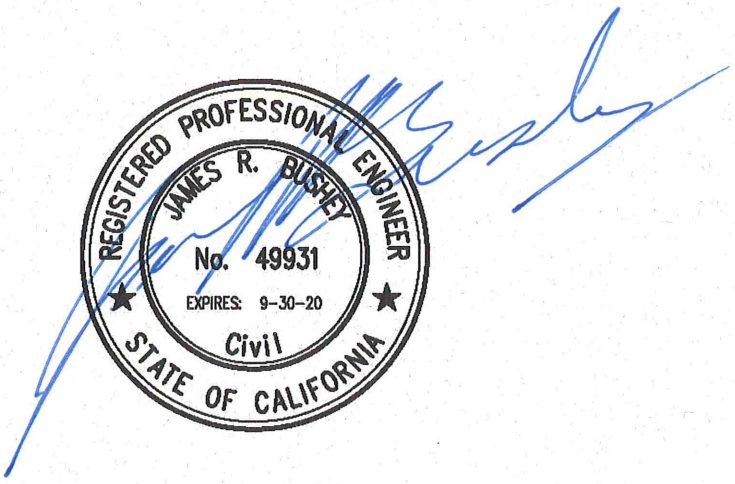
Table 1. Individual Watershed Summary

	Runoff (cfs)											
	Watershed 1			Watershed 2			Watershed 3			Watershed 4		
	Pre-Project	Post-Project	Increase/Decrease	Pre-Project	Post-Project	Increase/Decrease	Pre-Project	Post-Project	Increase/Decrease	Pre-Project	Post-Project	Increase/Decrease
2-Year Storm	98.11	93.25	4.86	12.01	11.36	0.65	4.44	4.19	0.25	4.15	4.15	0.00
10-Year Storm	229.55	220.97	8.58	24.22	23.39	0.83	9.33	8.99	0.34	9.27	9.27	0.00
50-Year Storm	383.61	372.62	10.99	37.79	36.87	0.92	14.84	14.45	0.39	15.21	15.21	0.00
100-Year Storm	453.59	441.78	11.81	43.82	42.87	0.95	17.28	16.88	0.40	17.91	17.91	0.00

Table 1 (continued). Individual Watershed Summary

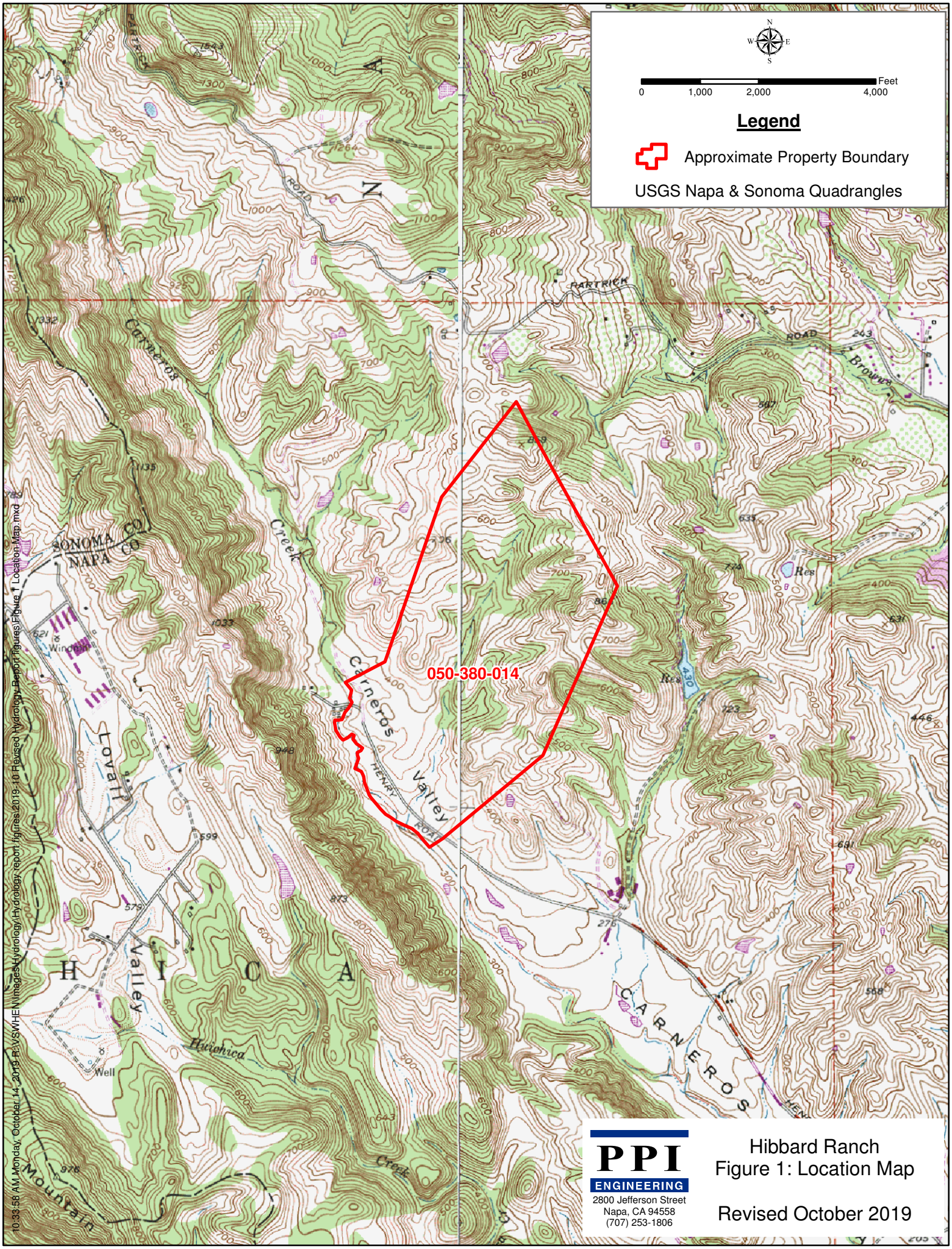
	Runoff (cfs)														
	Watershed 5			Watershed 6			Watershed 7			Watershed 8			Watershed 9		
	Pre-Project	Post-Project	Increase / Decrease	Pre-Project	Post-Project	Increase / Decrease	Pre-Project	Post-Project	Increase / Decrease	Pre-Project	Post-Project	Increase / Decrease	Pre-Project	Post-Project	Increase / Decrease
2-Year Storm	4.26	4.00	0.26	6.88	6.42	0.46	6.88	6.88	0.00	6.60	6.60	0.00	9.14	9.14	0.00
10-Year Storm	9.35	8.99	0.36	15.83	15.18	0.65	15.44	15.44	0.00	15.22	15.22	0.00	21.77	21.77	0.00
50-Year Storm	15.14	14.72	0.42	26.20	25.42	0.78	25.30	25.30	0.00	25.31	25.31	0.00	36.57	36.57	0.00
100-Year Storm	17.77	17.33	0.44	30.93	30.12	0.81	29.77	29.77	0.00	29.89	29.89	0.00	43.36	43.36	0.00

Watersheds 1, 2, 3, 5, and 6 exhibit decreases in runoff from pre- to post-project conditions. These post-project runoff reductions are associated with corresponding decreases in watershed CN from pre- to post-project. Watersheds 4, 7, 8, and 9 show no net change in runoff from pre- to post-project conditions. This is because neither the CN nor the Tc changed for post-project analysis in these respective watersheds. Please see the attached HydroCAD analyses for inputs, details, and summaries of the hydrologic modeling. Based on our analysis, there are no predicted net runoff increases, and no negative hydrologic impacts are expected as a result of this project. The project as proposed is in compliance with Napa County's General Plan policy requiring no net increase in runoff.



ATTACHMENT A

SUPPORTING FIGURES



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Hibbard Ranch
Figure 1: Location Map

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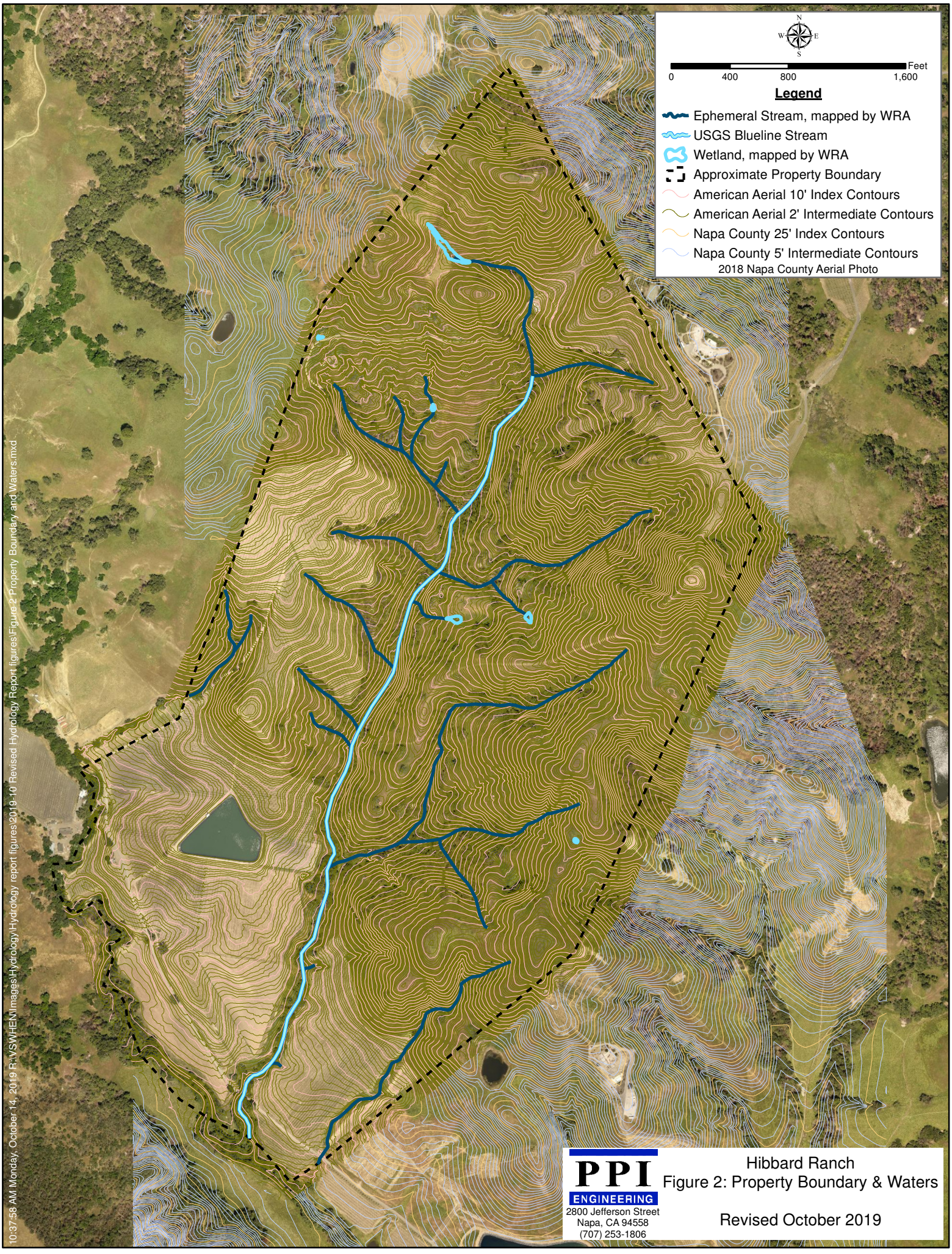
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Legend
Ephemeral Stream, mapped by WRA
USGS Blueline Stream
Wetland, mapped by WRA
Approximate Property Boundary
American Aerial 10' Index Contours
American Aerial 2' Intermediate Contours
Napa County 25' Index Contours
Napa County 5' Intermediate Contours
2018 Napa County Aerial Photo
10:37:58 AM Monday, October 14, 2019 R:\YSWHEN\Images\Hydrology\Hydrology report figures\2019-10 Revised Hydrology Report figures\Figure 2 Property Boundary and Waters.mxd
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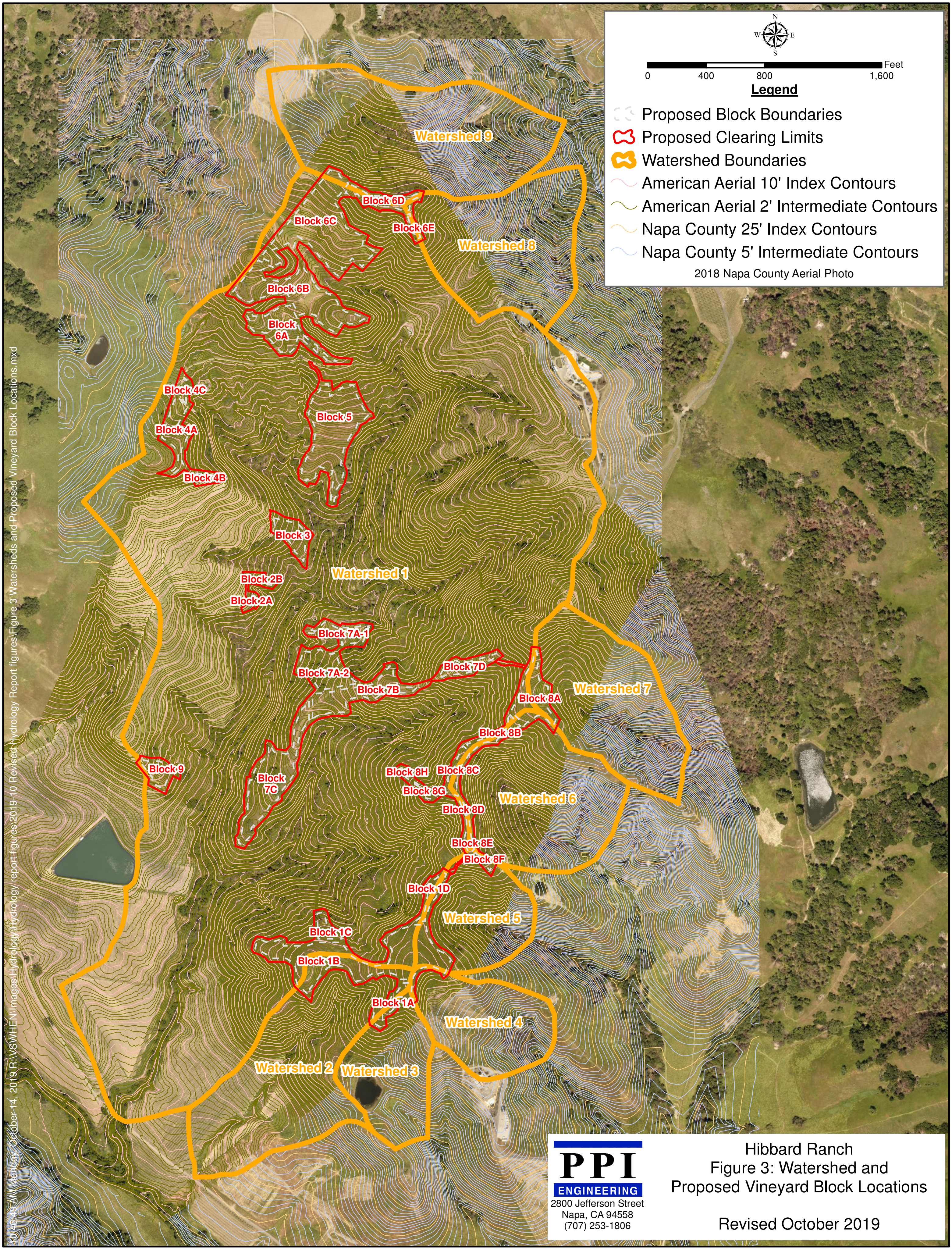
Hibbard Ranch
Figure 2: Property Boundary & Waters
Revised October 2019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Proposed Block Boundaries
Proposed Clearing Limits
Watershed Boundaries
American Aerial 10' Index Contours
American Aerial 2' Intermediate Contours
Napa County 25' Index Contours
Napa County 5' Intermediate Contours
2018 Napa County Aerial Photo
Watershed 9
Watershed 8
Watershed 1
Watershed 7
Watershed 6
Watershed 5
Watershed 4
Watershed 2
Watershed 3
Block 6D
Block 6E
Block 6C
Block 6B
Block 6A
Block 4C
Block 5
Block 4A
Block 4B
Block 3
Block 2B
Block 2A
Block 7A-1
Block 7D
Block 7A-2
Block 7B
Block 8A
Block 8B
Block 9
Block 7C
Block 8H
Block 8C
Block 8G
Block 8D
Block 8E
Block 8F
Block 1D
Block 1C
Block 1B
Block 1A
10:46:45 AM, Monday, October 14, 2019 R:\SWHEN\images\Hydrology\Hydrology report figures\2019-10 Revised Hydrology Report figures\Figure 3 Watersheds and Proposed Vineyard Block Locations.mxd
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Hibbard Ranch
Figure 3: Watershed and
Proposed Vineyard Block Locations
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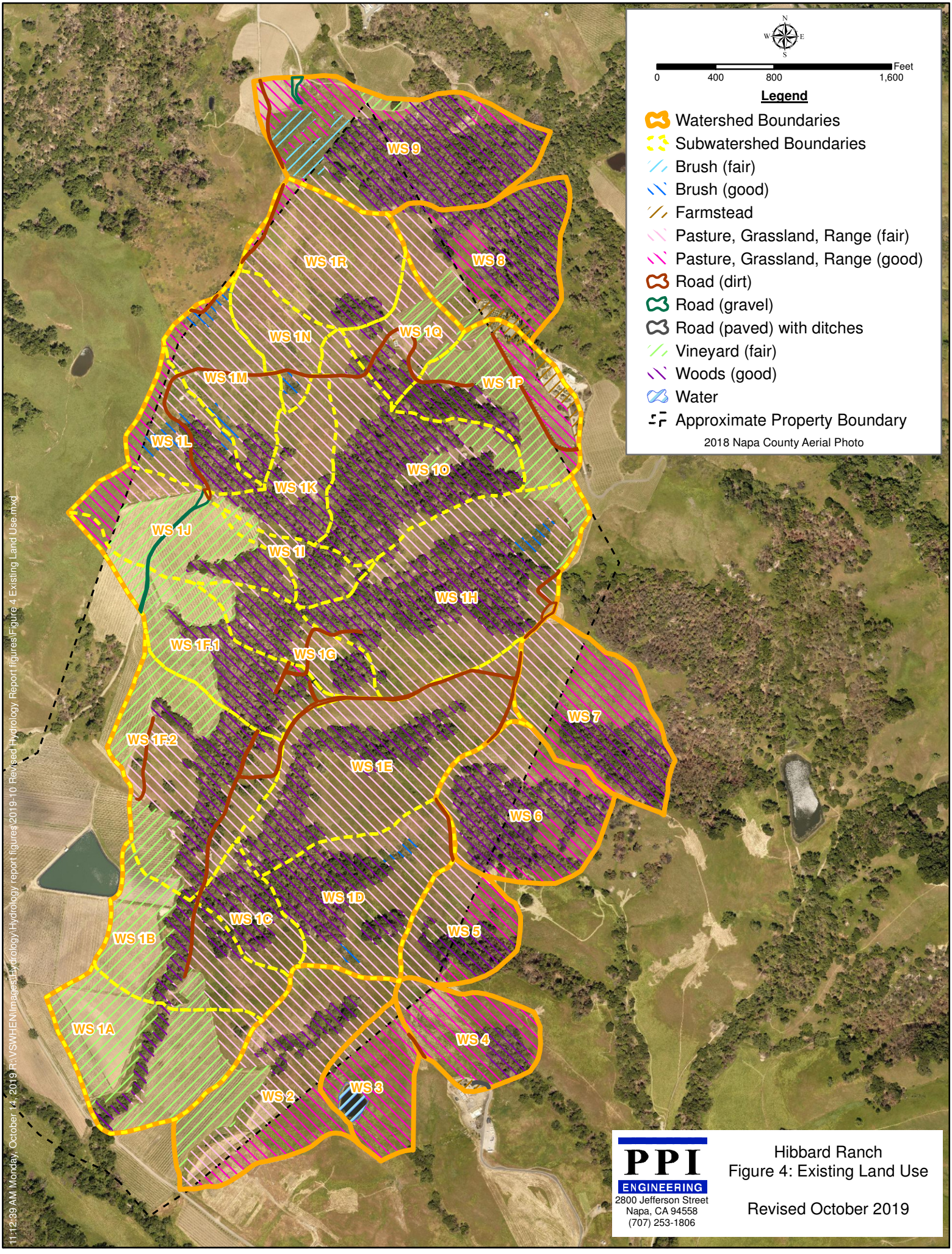
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Feet
Legend
Watershed Boundaries
Subwatershed Boundaries
Brush (fair)
Brush (good)
Farmstead
Pasture, Grassland, Range (fair)
Pasture, Grassland, Range (good)
Road (dirt)
Road (gravel)
Road (paved) with ditches
Vineyard (fair)
Woods (good)
Water
Approximate Property Boundary
2018 Napa County Aerial Photo
WS 9
WS 1R
WS 8
WS 1N
WS 1Q
WS 1M
WS 1P
WS 1L
WS 1O
WS 1K
WS 1J
WS 1I
WS 1H
WS 1F.1
WS 1G
WS 7
WS 1F.2
WS 1E
WS 6
WS 1D
WS 1C
WS 5
WS 1B
WS 1A
WS 4
WS 3
WS 2
11:12:39 AM Monday, October 14, 2019 P:\VSWHEN\Images\Hydrology\Hydrology report figures\2019-10 Revised Hydrology Report figures\Figure 4 Existing Land Use.mxd
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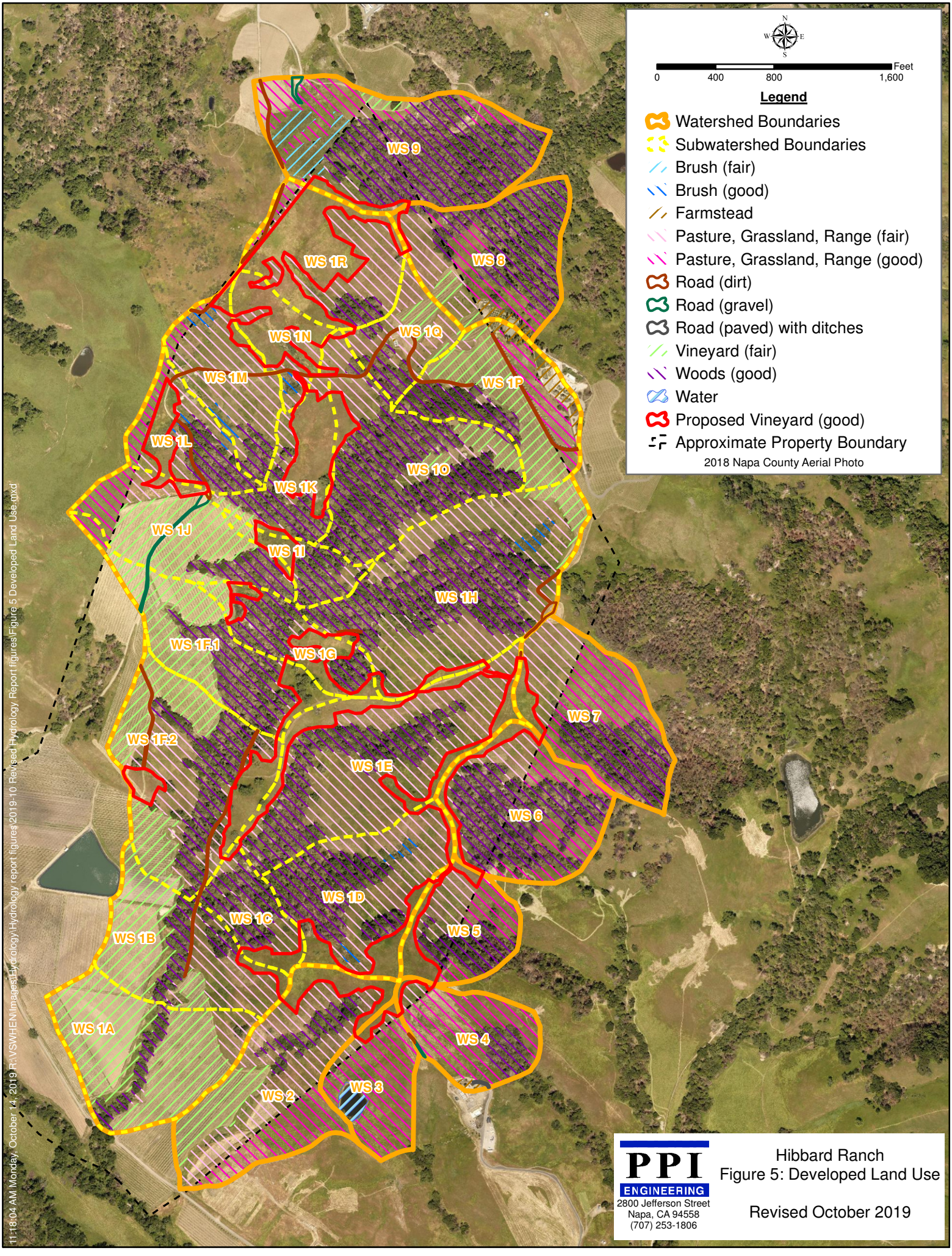
Hibbard Ranch
Figure 4: Existing Land Use
Revised October 2019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Watershed Boundaries
Subwatershed Boundaries
Brush (fair)
Brush (good)
Farmstead
Pasture, Grassland, Range (fair)
Pasture, Grassland, Range (good)
Road (dirt)
Road (gravel)
Road (paved) with ditches
Vineyard (fair)
Woods (good)
Water
Proposed Vineyard (good)
Approximate Property Boundary
2018 Napa County Aerial Photo
WS 9
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WS 2
11:18:04 AM Monday, October 14, 2019 P:\VSWHEN\Images\Hydrology\Hydrology report figures\2019-10 Revised Hydrology Report figures\Figure 5 Developed Land Use.mxd
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Hibbard Ranch
Figure 5: Developed Land Use
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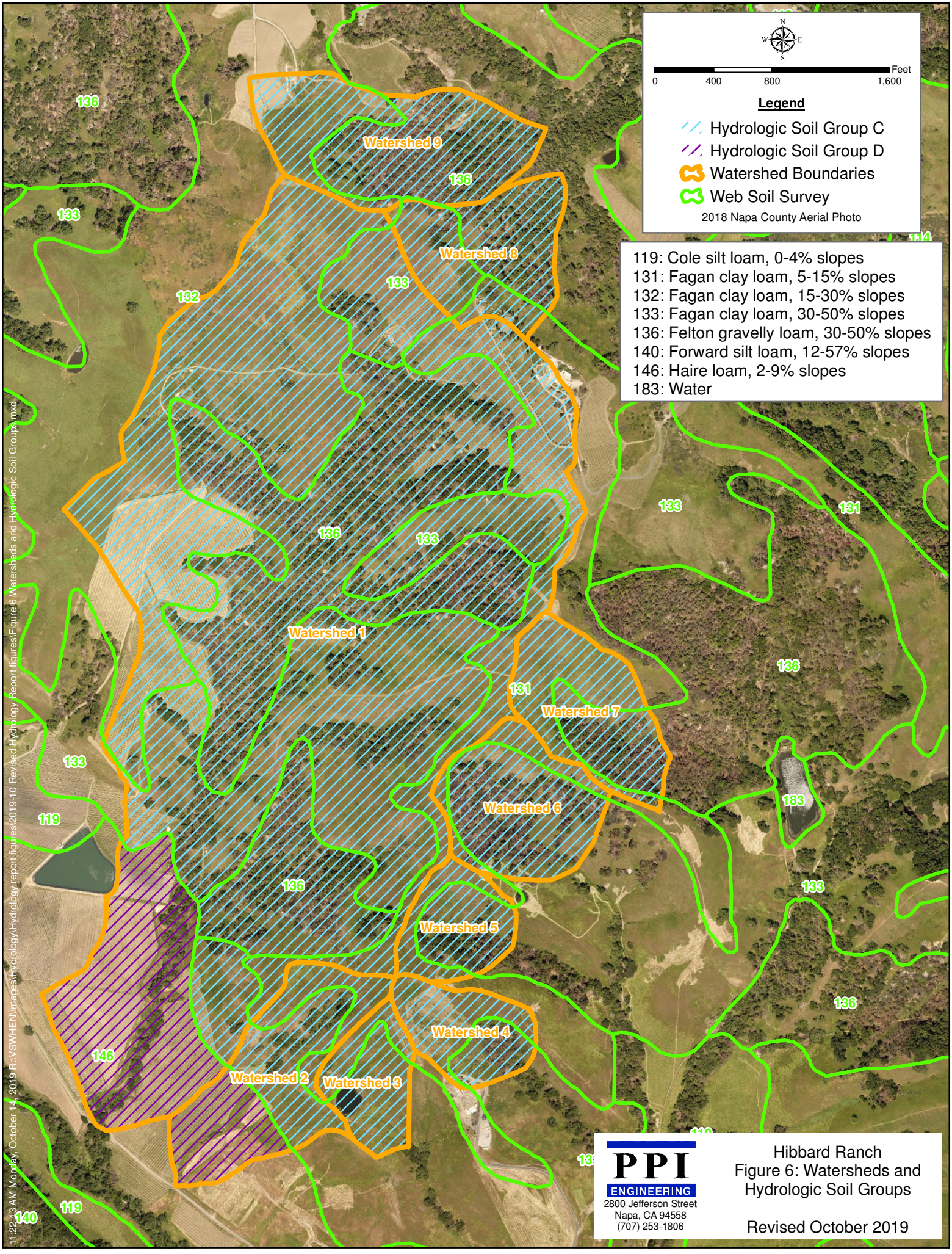

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Hibbard Ranch
Figure 6: Watersheds and Hydrologic Soil Groups

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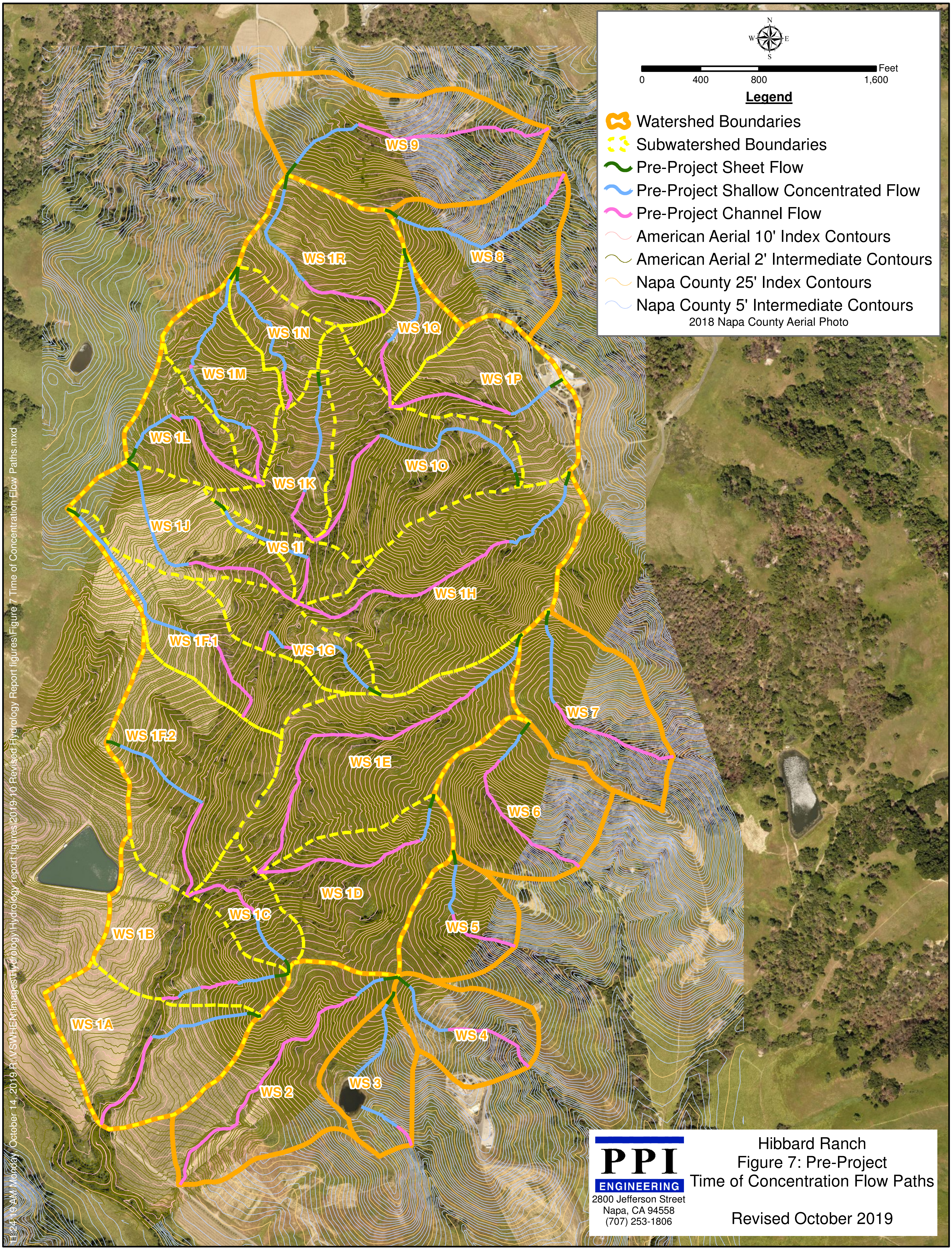

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Hibbard Ranch
Figure 7: Pre-Project
Time of Concentration Flow Paths

Revised October 2019

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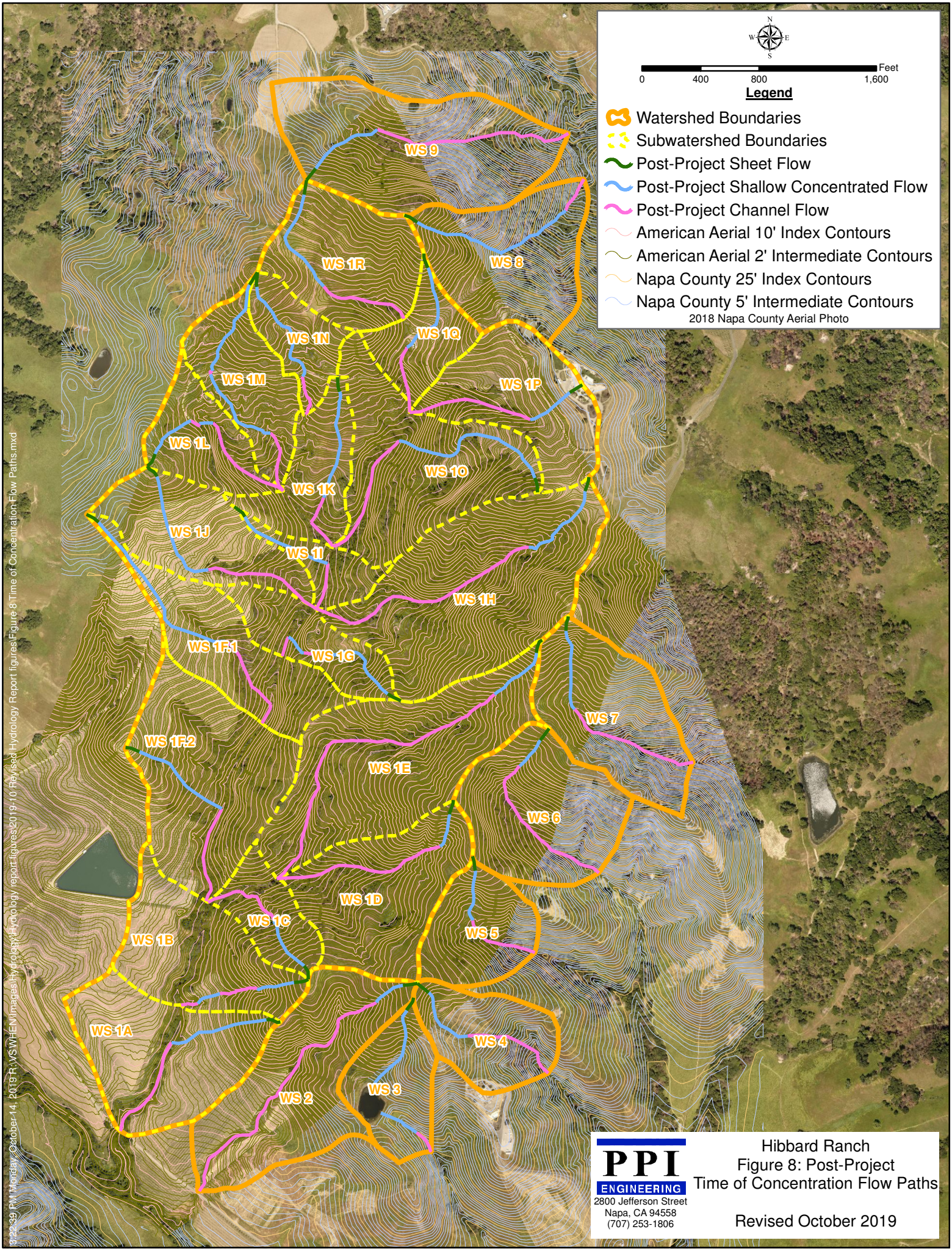
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Legend
Watershed Boundaries
Subwatershed Boundaries
Post-Project Sheet Flow
Post-Project Shallow Concentrated Flow
Post-Project Channel Flow
American Aerial 10' Index Contours
American Aerial 2' Intermediate Contours
Napa County 25' Index Contours
Napa County 5' Intermediate Contours
2018 Napa County Aerial Photo
WS 9
WS 8
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WS 1H
WS 1F1
WS 1G
WS 7
WS 1F2
WS 1E
WS 6
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WS 5
WS 1B
WS 1A
WS 4
WS 3
WS 2
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Hibbard Ranch
Figure 8: Post-Project
Time of Concentration Flow Paths
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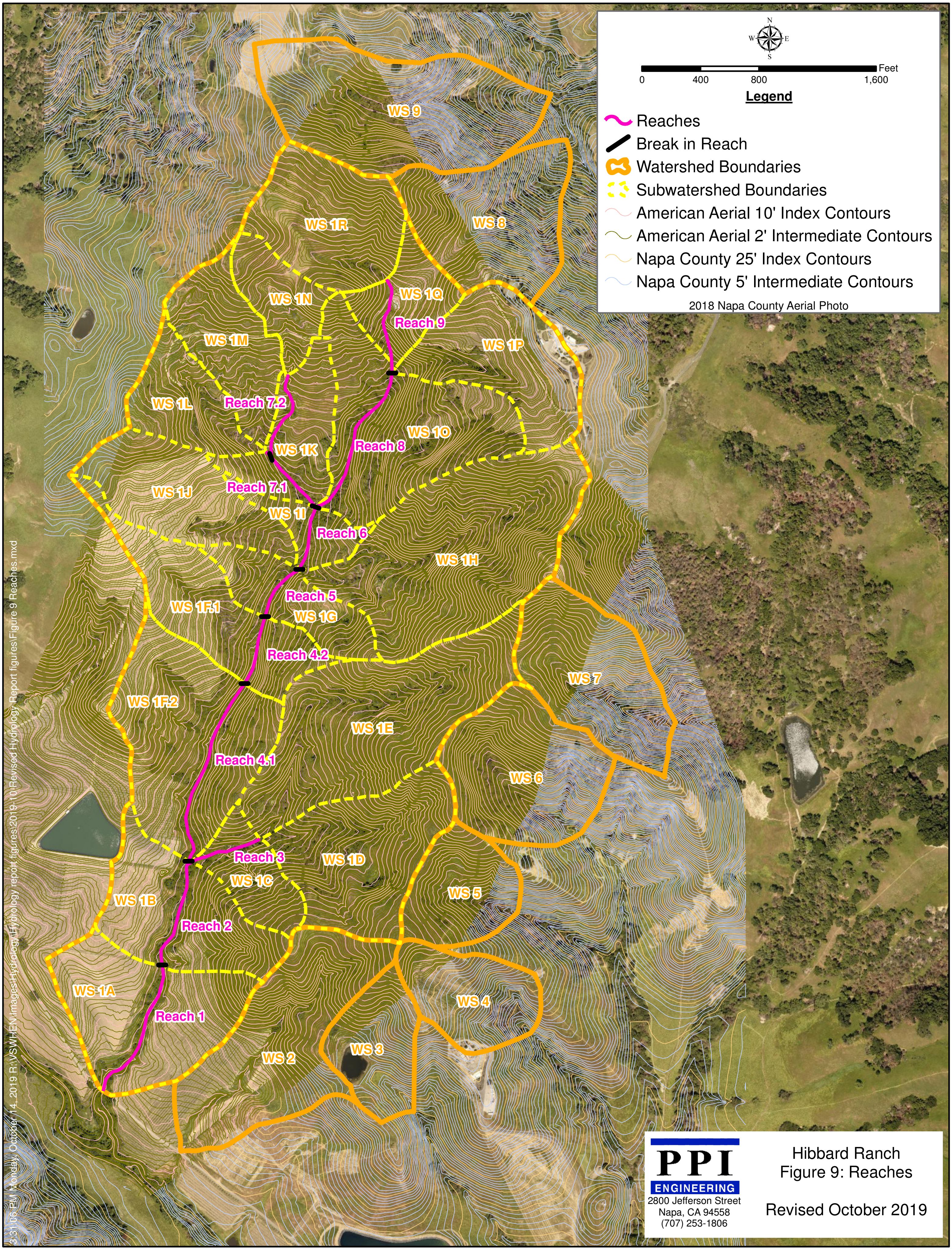
8/23/39 PM Monday, October 14, 2019 R:\WS\HEN\Images\Hydrology\Hydrology report figures\2019-10 Revised Hydrology Report figures\Figure 8 Time of Concentration Flow Paths.mxd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Reaches
Break in Reach
Watershed Boundaries
Subwatershed Boundaries
American Aerial 10' Index Contours
American Aerial 2' Intermediate Contours
Napa County 25' Index Contours
Napa County 5' Intermediate Contours
2018 Napa County Aerial Photo
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Reach 9
Reach 7.2
Reach 8
Reach 7.1
Reach 6
Reach 5
Reach 4.2
Reach 4.1
Reach 3
Reach 2
Reach 1
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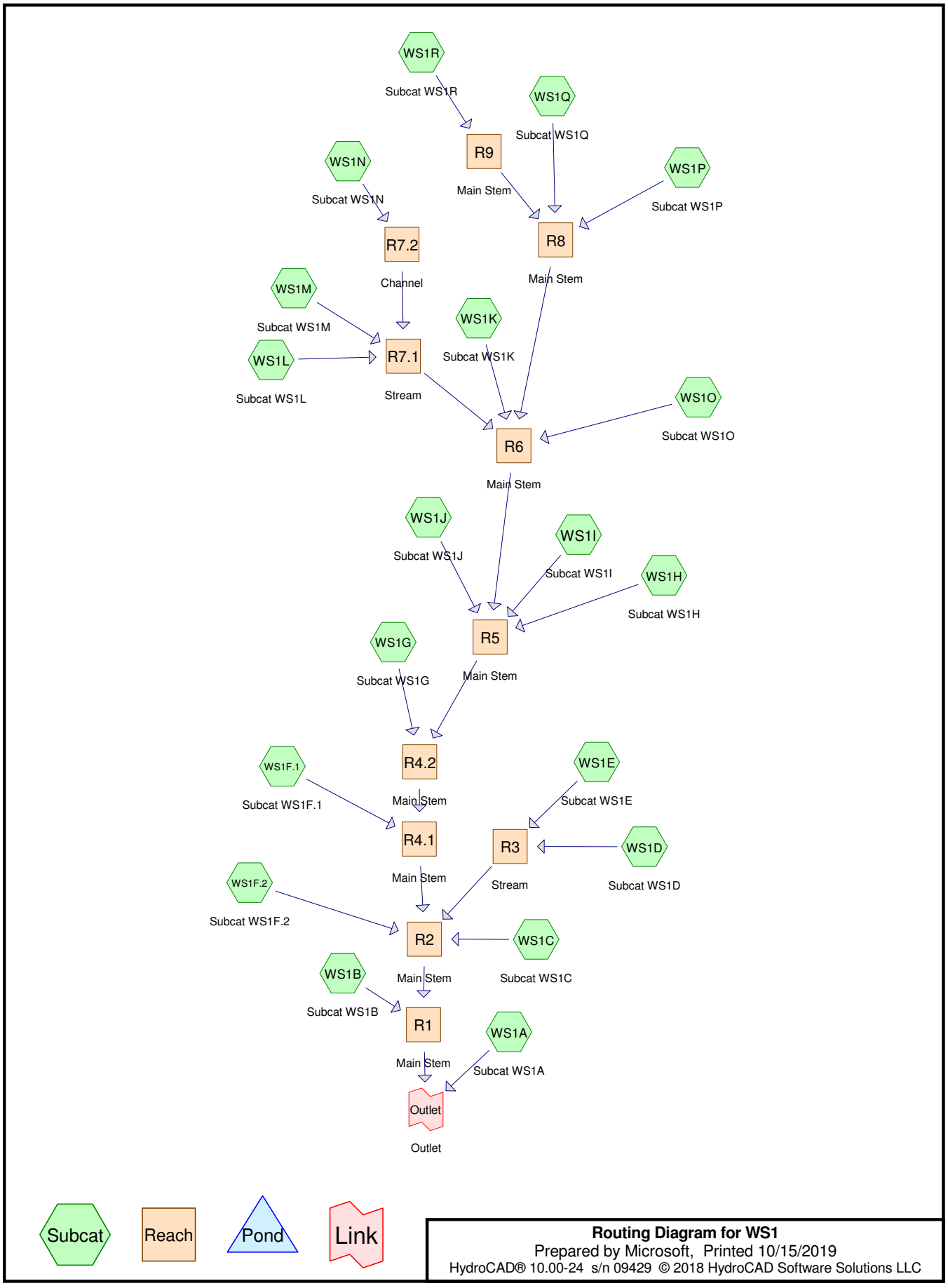
Hibbard Ranch
Figure 9: Reaches
Revised October 2019

ATTACHMENT B

HYDROCAD ANALYSES



Routing Diagram for WS1

Prepared by Microsoft, Printed 10/15/2019

Summary for Subcatchment WS1A: Subcat WS1A

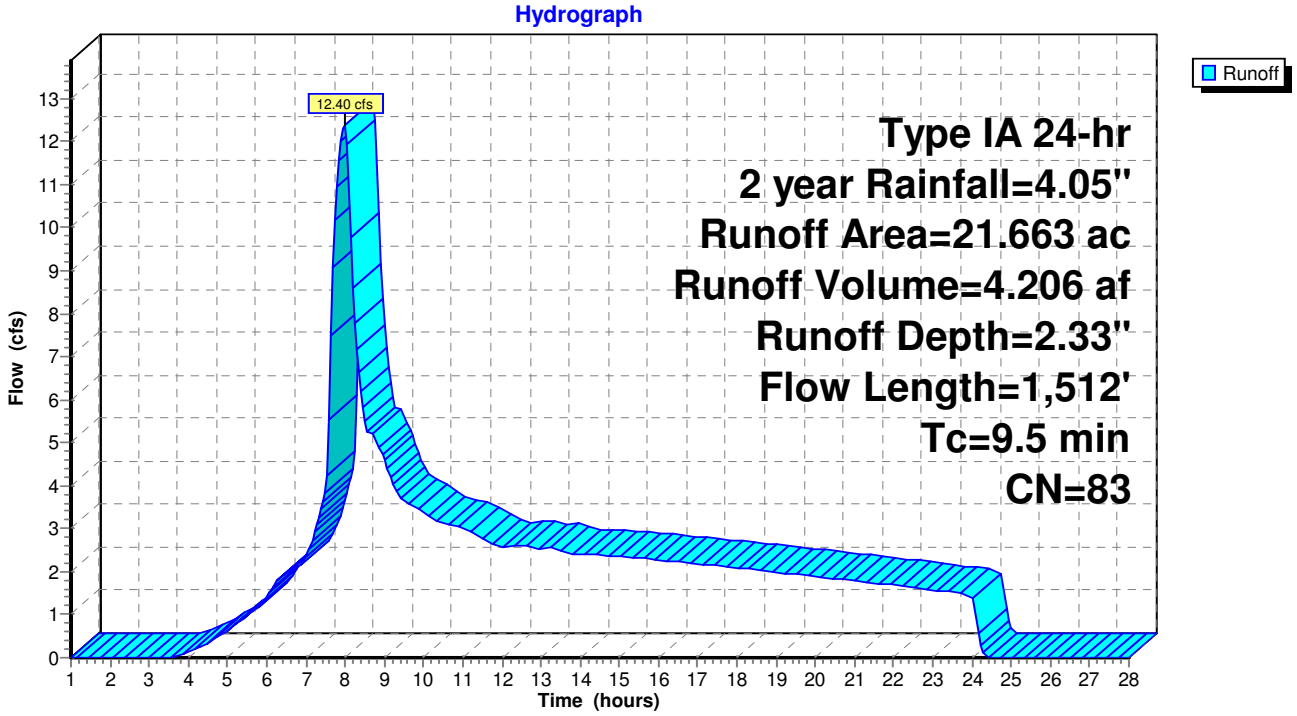
Runoff = 12.40 cfs @ 7.99 hrs, Volume= 4.206 af, Depth= 2.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
1.730	79	Pasture/grassland/range, Fair, HSG C
0.161	84	Pasture/grassland/range, Fair, HSG D
0.733	79	Vineyard, Fair, HSG C
16.760	84	Vineyard, Fair, HSG D
2.279	77	Woods, Good, HSG D
21.663	83	Weighted Average
21.663		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.2500	0.36		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	681	0.2500	8.05		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
3.5	731	0.0300	3.47	32.92	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
9.5	1,512	Total			

Subcatchment WS1A: Subcat WS1A



Summary for Subcatchment WS1B: Subcat WS1B

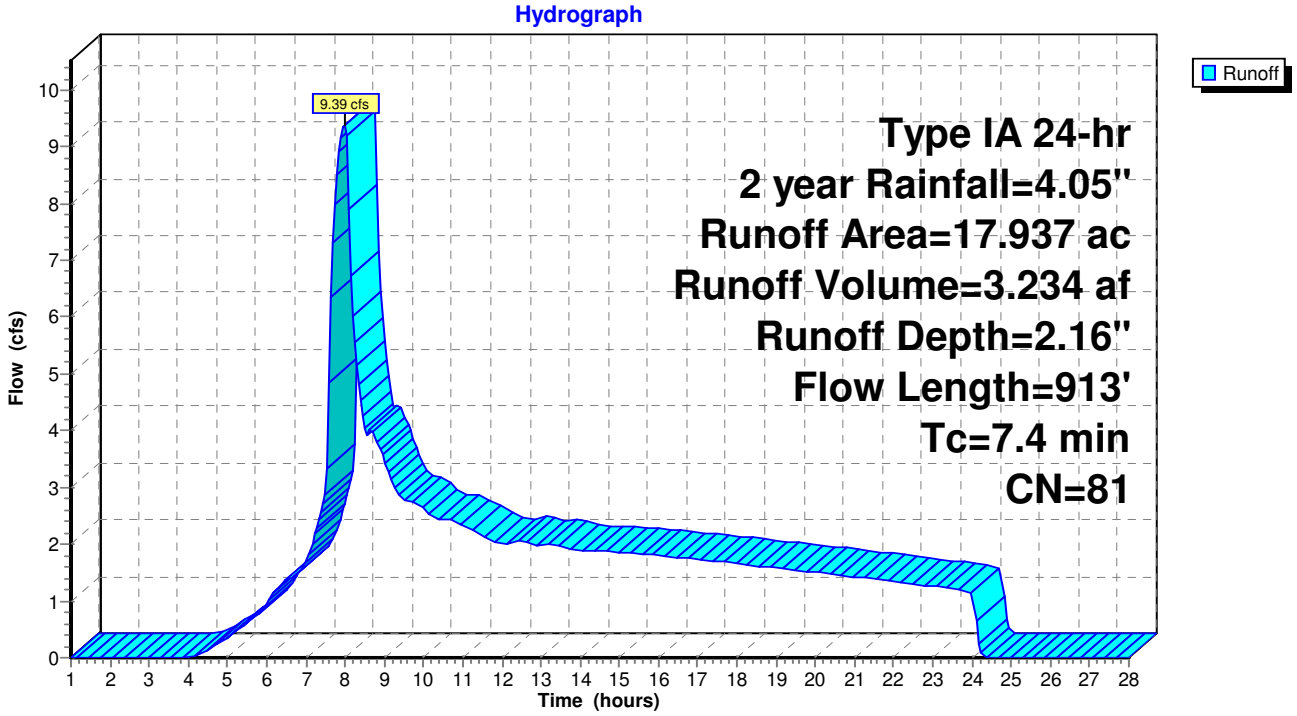
Runoff = 9.39 cfs @ 7.98 hrs, Volume= 3.234 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.094	89	Dirt roads, HSG D
4.813	79	Pasture/grassland/range, Fair, HSG C
0.902	84	Pasture/grassland/range, Fair, HSG D
0.531	79	Vineyard, Fair, HSG C
8.409	84	Vineyard, Fair, HSG D
0.912	70	Woods, Good, HSG C
2.276	77	Woods, Good, HSG D
17.937	81	Weighted Average
17.937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	261	0.4400	10.68		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.4	265	0.2200	11.65	23.29	**Trap/Vee/Rect Channel Flow, Assumed std ditch-1** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.4	170	0.1800	6.83		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.1	74	0.1100	8.23	16.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch-2** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.1	43	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch-3** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.4	913	Total			

Subcatchment WS1B: Subcat WS1B



Summary for Subcatchment WS1C: Subcat WS1C

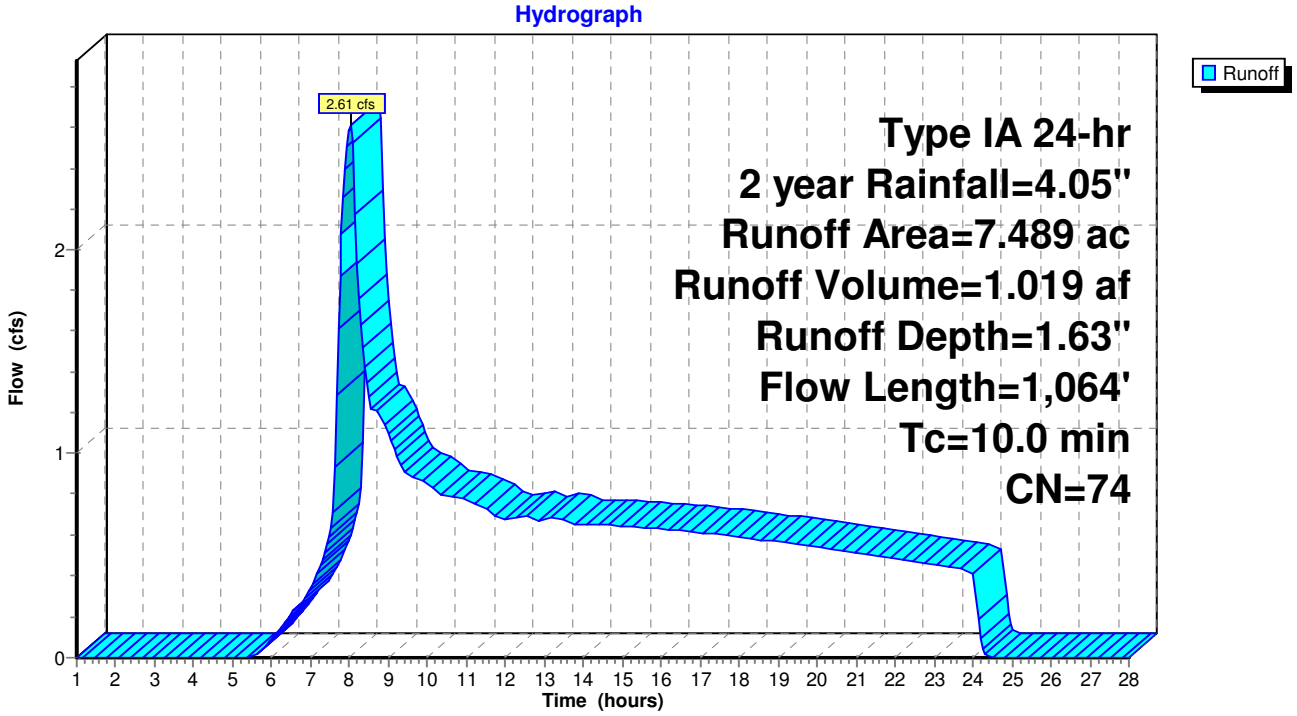
Runoff = 2.61 cfs @ 8.03 hrs, Volume= 1.019 af, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.017	87	Dirt roads, HSG C
0.005	89	Dirt roads, HSG D
3.080	79	Pasture/grassland/range, Fair, HSG C
4.353	70	Woods, Good, HSG C
0.035	77	Woods, Good, HSG D
7.489	74	Weighted Average
7.489		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.7	396	0.3400	9.39		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.5	333	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.6	235	0.0600	6.08	12.16	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.0	1,064	Total			

Subcatchment WS1C: Subcat WS1C



Summary for Subcatchment WS1D: Subcat WS1D

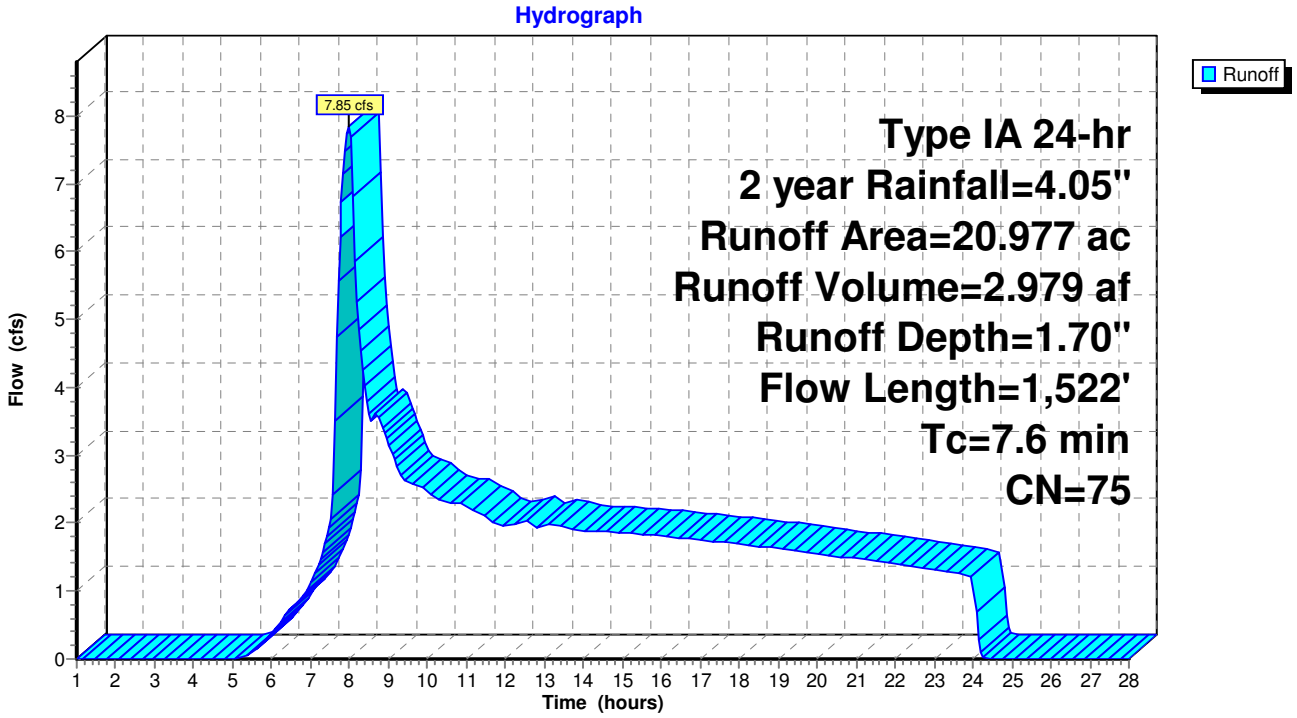
Runoff = 7.85 cfs @ 8.00 hrs, Volume= 2.979 af, Depth= 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.624	65	Brush, Good, HSG C
0.080	87	Dirt roads, HSG C
11.776	79	Pasture/grassland/range, Fair, HSG C
8.498	70	Woods, Good, HSG C
20.977	75	Weighted Average
20.977		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.1800	0.32		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	236	0.3800	9.92		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.9	1,186	0.1800	10.53	21.07	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	1,522	Total			

Subcatchment WS1D: Subcat WS1D



Summary for Subcatchment WS1E: Subcat WS1E

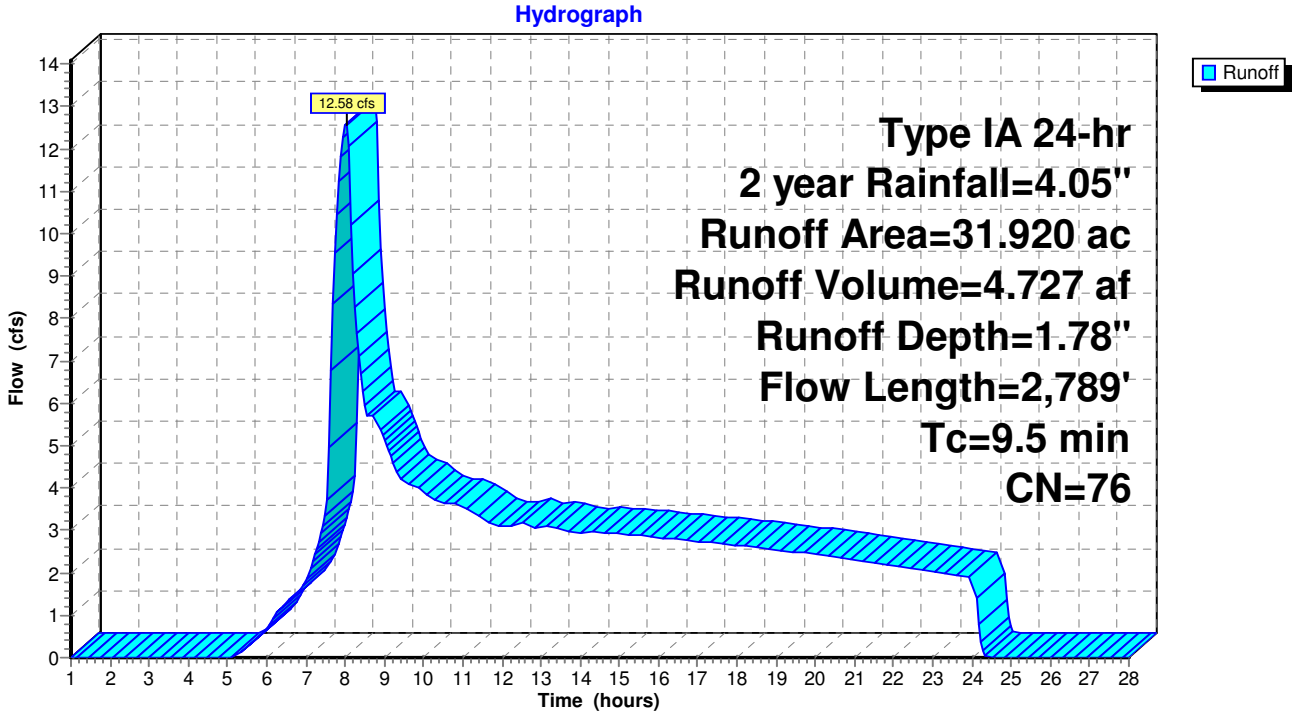
Runoff = 12.58 cfs @ 8.02 hrs, Volume= 4.727 af, Depth= 1.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.339	87	Dirt roads, HSG C
20.920	79	Pasture/grassland/range, Fair, HSG C
10.661	70	Woods, Good, HSG C
31.920	76	Weighted Average
31.920		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	100	0.2600	0.37		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.8	418	0.3200	9.11		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
4.2	2,271	0.1300	8.95	17.90	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
9.5	2,789	Total			

Subcatchment WS1E: Subcat WS1E



Summary for Subcatchment WS1F.1: Subcat WS1F.1

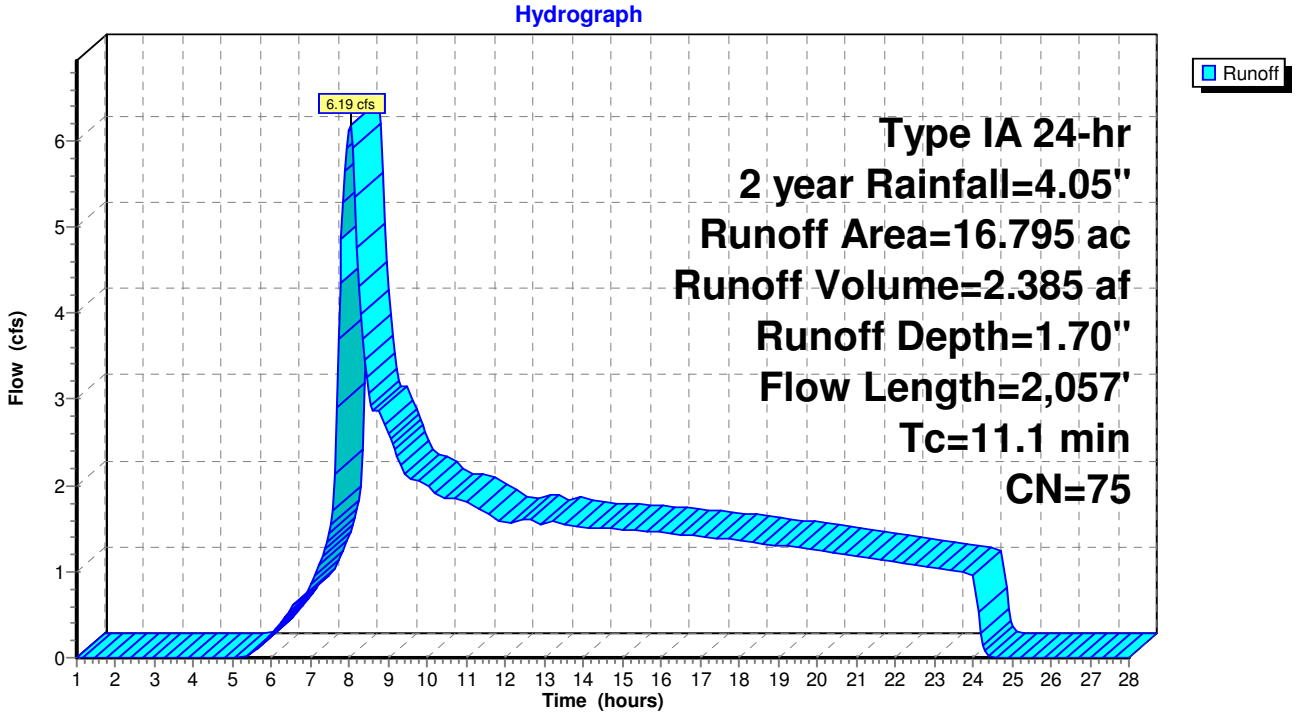
Runoff = 6.19 cfs @ 8.03 hrs, Volume= 2.385 af, Depth= 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.262	87	Dirt roads, HSG C
0.080	89	Gravel Roads, HSG C
1.461	79	Pasture/grassland/range, Fair, HSG C
0.776	74	Pasture/grassland/range, Good, HSG C
7.618	79	Vineyard, Fair, HSG C
6.598	70	Woods, Good, HSG C
16.795	75	Weighted Average
16.795		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
3.4	1,267	0.1500	6.24		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.9	548	0.1700	10.24	20.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.8	142	0.0200	2.83	26.88	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
11.1	2,057	Total			

Subcatchment WS1F.1: Subcat WS1F.1



Summary for Subcatchment WS1F.2: Subcat WS1F.2

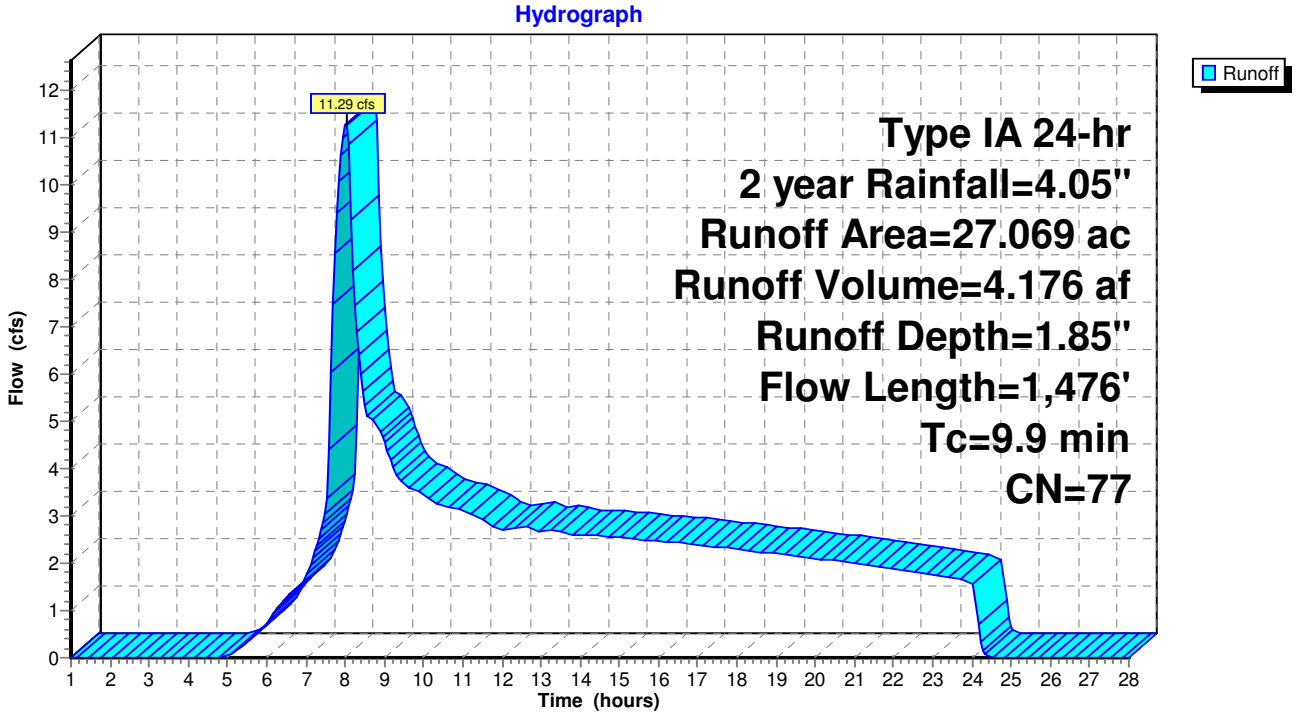
Runoff = 11.29 cfs @ 8.02 hrs, Volume= 4.176 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.462	87	Dirt roads, HSG C
9.900	79	Pasture/grassland/range, Fair, HSG C
0.143	84	Pasture/grassland/range, Fair, HSG D
7.542	79	Vineyard, Fair, HSG C
1.496	84	Vineyard, Fair, HSG D
7.378	70	Woods, Good, HSG C
0.149	77	Woods, Good, HSG D
27.069	77	Weighted Average
27.069		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	702	0.2500	8.05		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.2	674	0.0100	5.21	531.60	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=6.00' Z= 1.5 '/' Top.W=26.00' n= 0.065
9.9	1,476	Total			

Subcatchment WS1F.2: Subcat WS1F.2



Summary for Subcatchment WS1G: Subcat WS1G

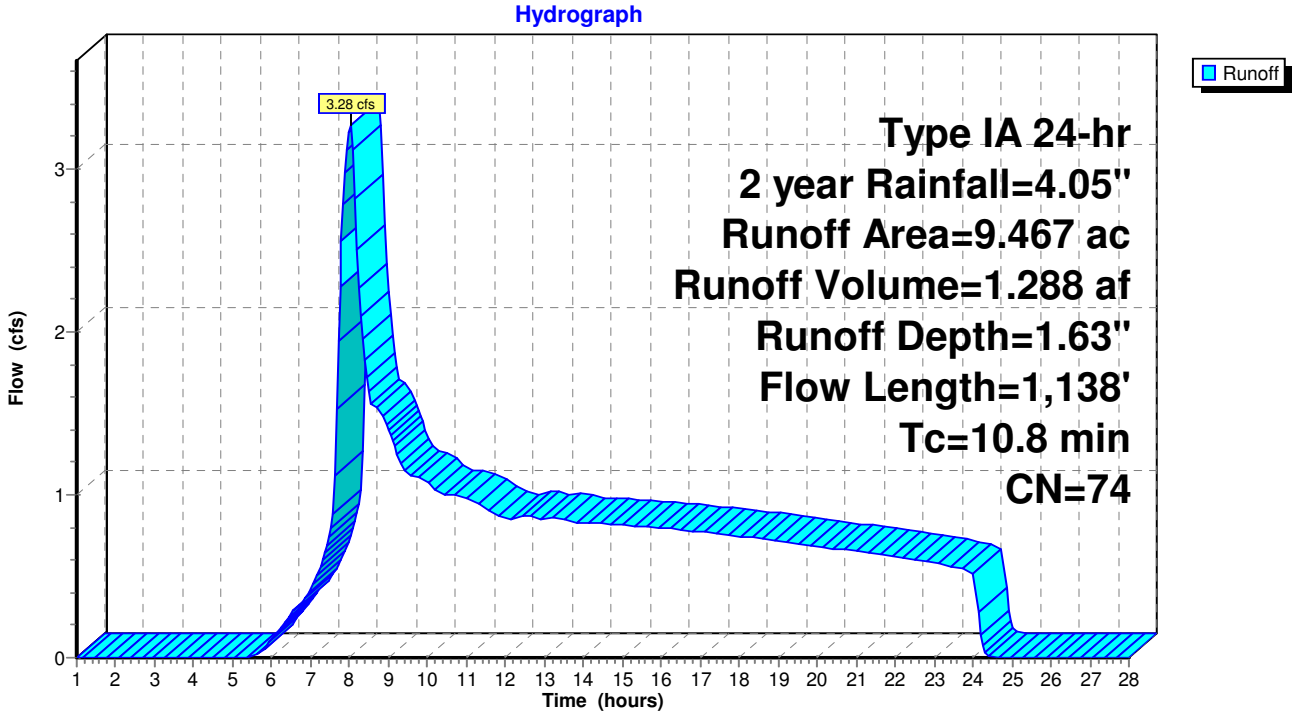
Runoff = 3.28 cfs @ 8.03 hrs, Volume= 1.288 af, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.070	87	Dirt roads, HSG C
3.140	79	Pasture/grassland/range, Fair, HSG C
0.819	79	Vineyard, Fair, HSG C
5.438	70	Woods, Good, HSG C
9.467	74	Weighted Average
9.467		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.3	604	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	139	0.2300	11.91	23.82	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.3	156	0.2600	8.21		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.8	139	0.0200	2.83	26.88	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
10.8	1,138	Total			

Subcatchment WS1G: Subcat WS1G



Summary for Subcatchment WS1H: Subcat WS1H

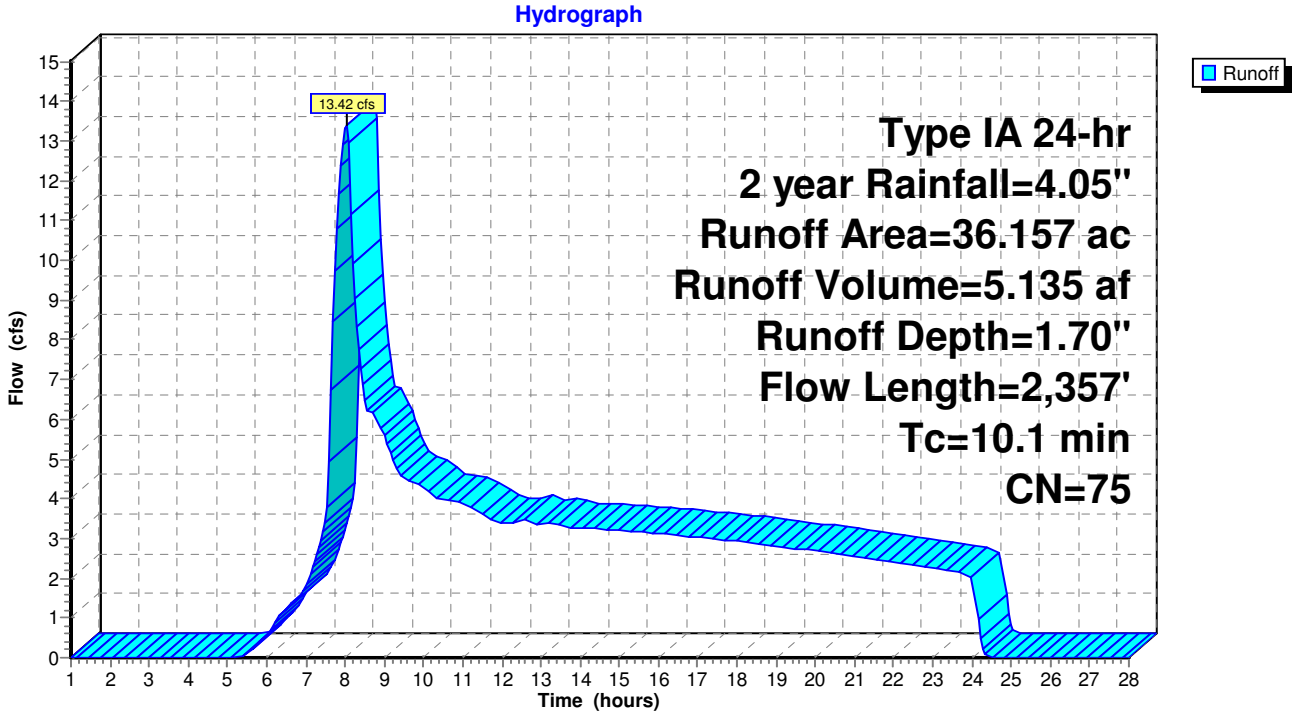
Runoff = 13.42 cfs @ 8.03 hrs, Volume= 5.135 af, Depth= 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.574	65	Brush, Good, HSG C
0.341	87	Dirt roads, HSG C
16.188	79	Pasture/grassland/range, Fair, HSG C
2.076	79	Vineyard, Fair, HSG C
16.978	70	Woods, Good, HSG C
36.157	75	Weighted Average
36.157		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1400	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	610	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.9	1,647	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.1	2,357	Total			

Subcatchment WS1H: Subcat WS1H



Summary for Subcatchment WS1l: Subcat WS1l

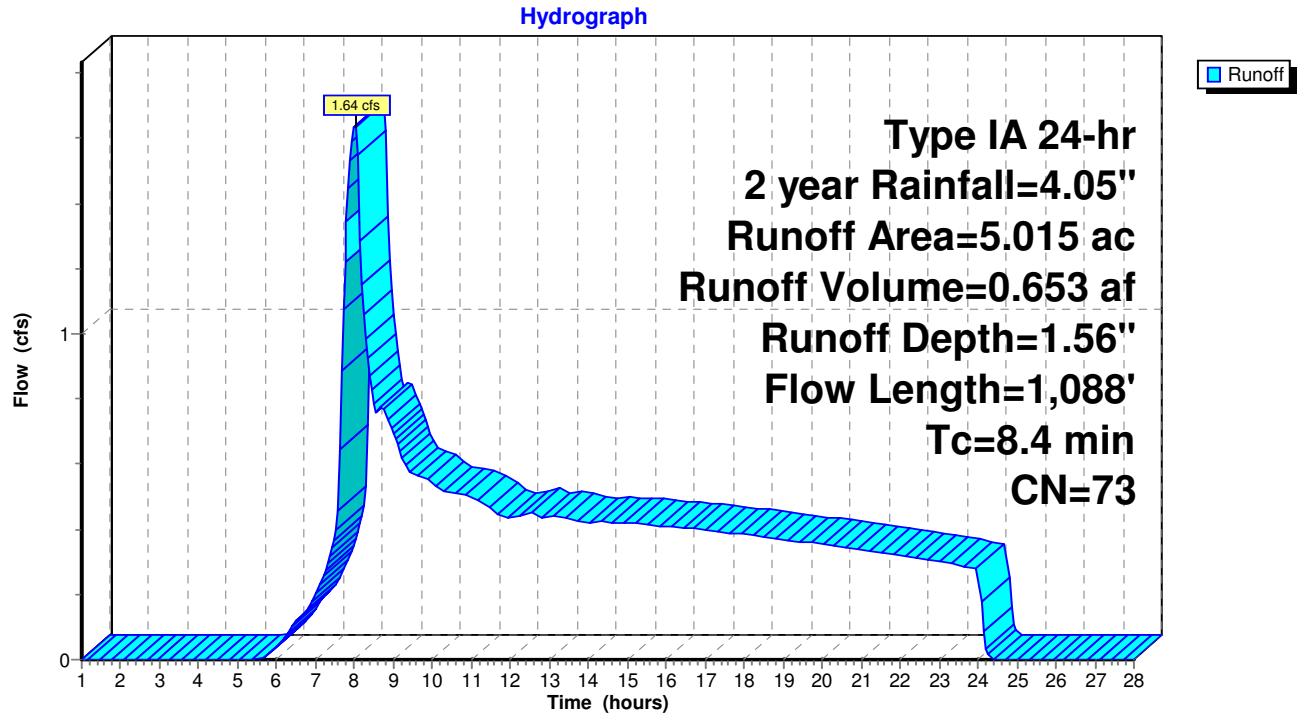
Runoff = 1.64 cfs @ 8.01 hrs, Volume= 0.653 af, Depth= 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
1.412	79	Pasture/grassland/range, Fair, HSG C
0.535	79	Vineyard, Fair, HSG C
3.068	70	Woods, Good, HSG C
5.015	73	Weighted Average
5.015		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1400	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	664	0.2100	7.38		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.1	324	0.0600	4.90	46.55	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
8.4	1,088	Total			

Subcatchment WS1l: Subcat WS1l



Summary for Subcatchment WS1J: Subcat WS1J

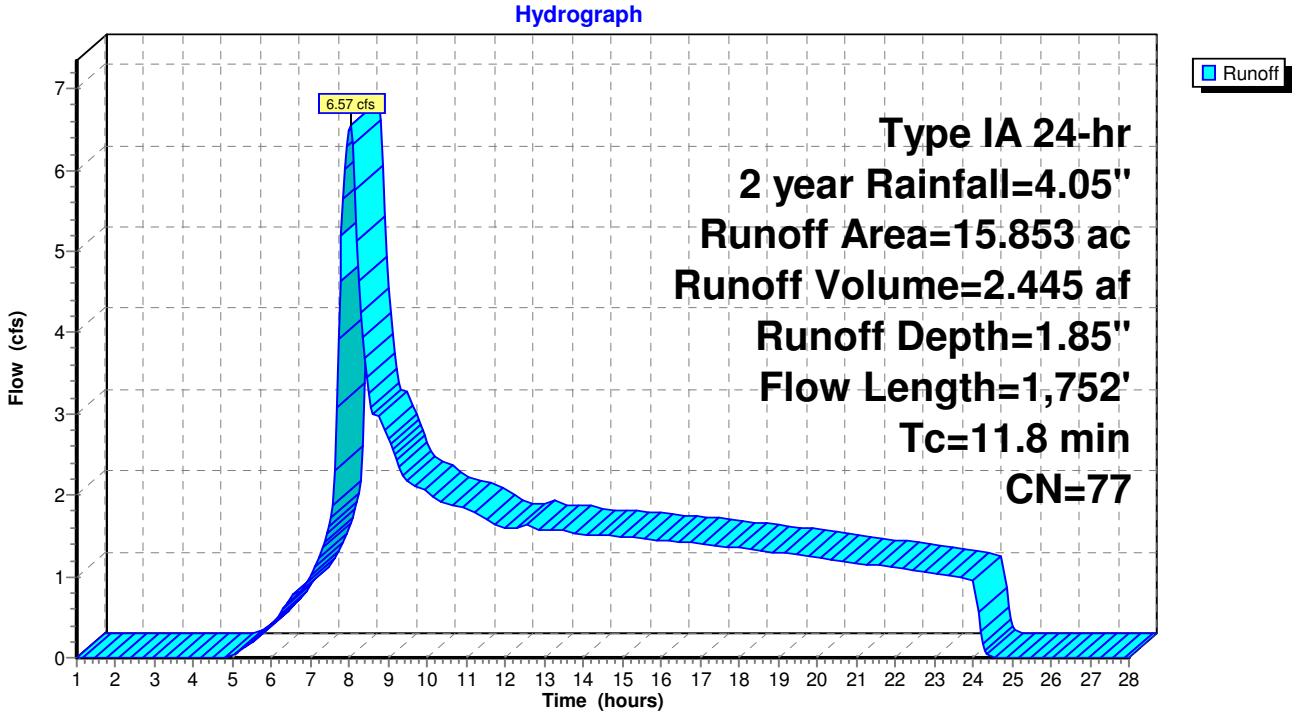
Runoff = 6.57 cfs @ 8.04 hrs, Volume= 2.445 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.211	89	Gravel Roads, HSG C
1.797	79	Pasture/grassland/range, Fair, HSG C
2.246	74	Pasture/grassland/range, Good, HSG C
8.948	79	Vineyard, Fair, HSG C
2.650	70	Woods, Good, HSG C
15.853	77	Weighted Average
15.853		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	93	0.0500	0.19		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
2.1	826	0.1700	6.64		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	833	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
11.8	1,752	Total			

Subcatchment WS1J: Subcat WS1J



Summary for Subcatchment WS1K: Subcat WS1K

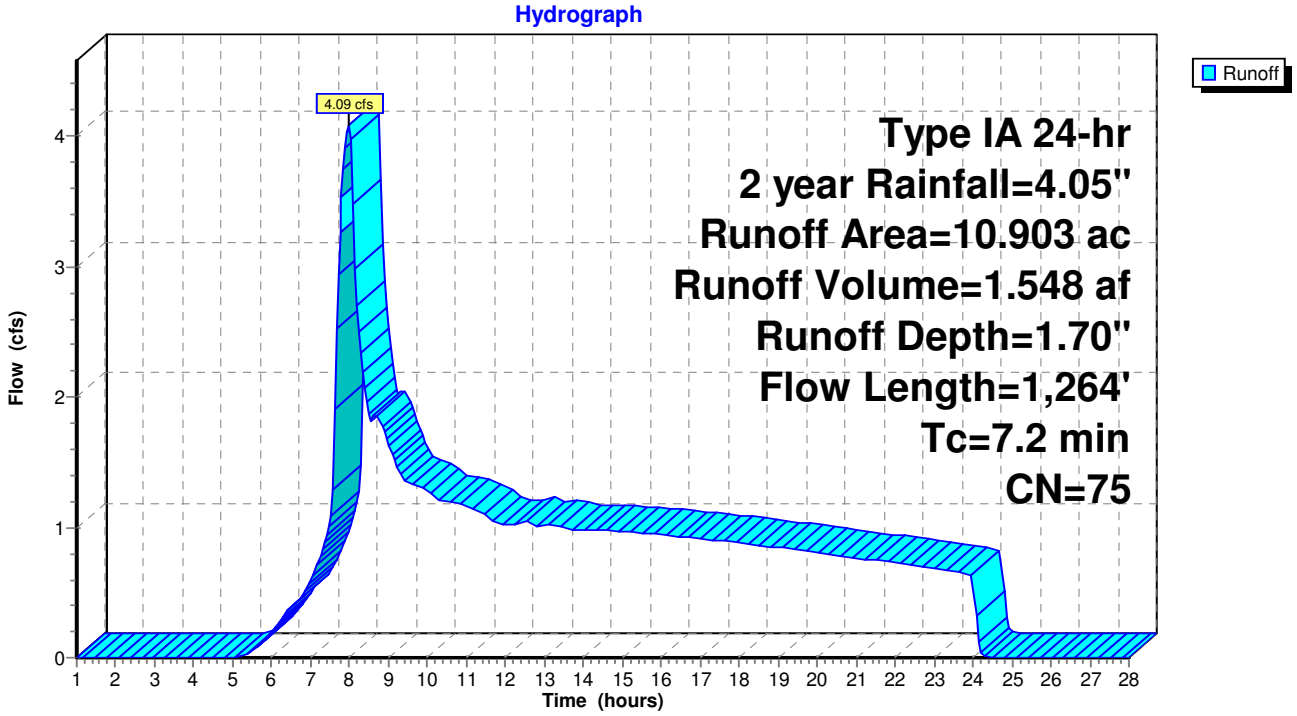
Runoff = 4.09 cfs @ 7.99 hrs, Volume= 1.548 af, Depth= 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.051	87	Dirt roads, HSG C
5.933	79	Pasture/grassland/range, Fair, HSG C
0.486	79	Vineyard, Fair, HSG C
4.433	70	Woods, Good, HSG C
10.903	75	Weighted Average
10.903		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	100	0.2700	0.37		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.8	753	0.1800	6.83		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.3	189	0.1400	9.29	18.58	**Trap/Vee/Rect Channel Flow, Assumed std ditch-1** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.6	222	0.0600	6.08	12.16	**Trap/Vee/Rect Channel Flow, Assumed std ditch-2** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.2	1,264	Total			

Subcatchment WS1K: Subcat WS1K



Summary for Subcatchment WS1L: Subcat WS1L

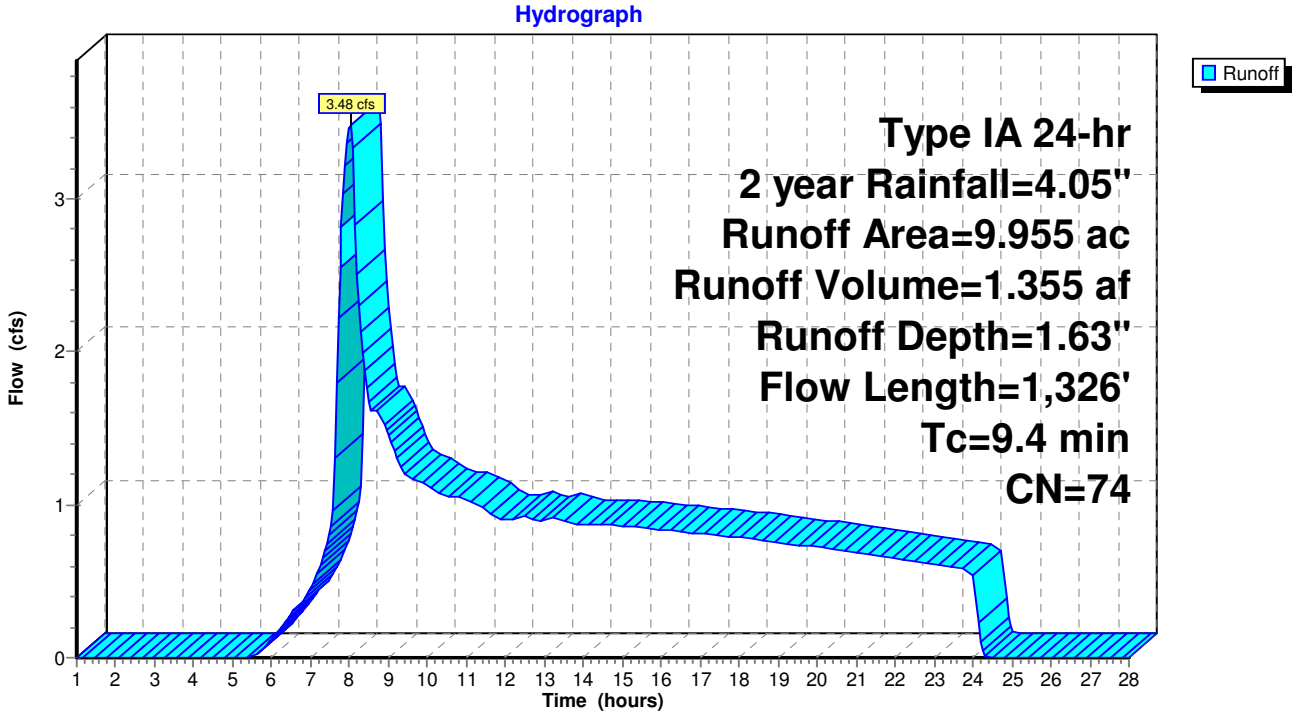
Runoff = 3.48 cfs @ 8.03 hrs, Volume= 1.355 af, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
1.300	65	Brush, Good, HSG C
0.181	87	Dirt roads, HSG C
3.543	79	Pasture/grassland/range, Fair, HSG C
1.606	74	Pasture/grassland/range, Good, HSG C
3.325	70	Woods, Good, HSG C
9.955	74	Weighted Average
9.955		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	100	0.0900	0.24		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.8	348	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	78	0.0800	7.02	14.05	**Trap/Vee/Rect Channel Flow, Std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.2	92	0.3200	9.11		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
1.2	708	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
9.4	1,326	Total			

Subcatchment WS1L: Subcat WS1L



Summary for Subcatchment WS1M: Subcat WS1M

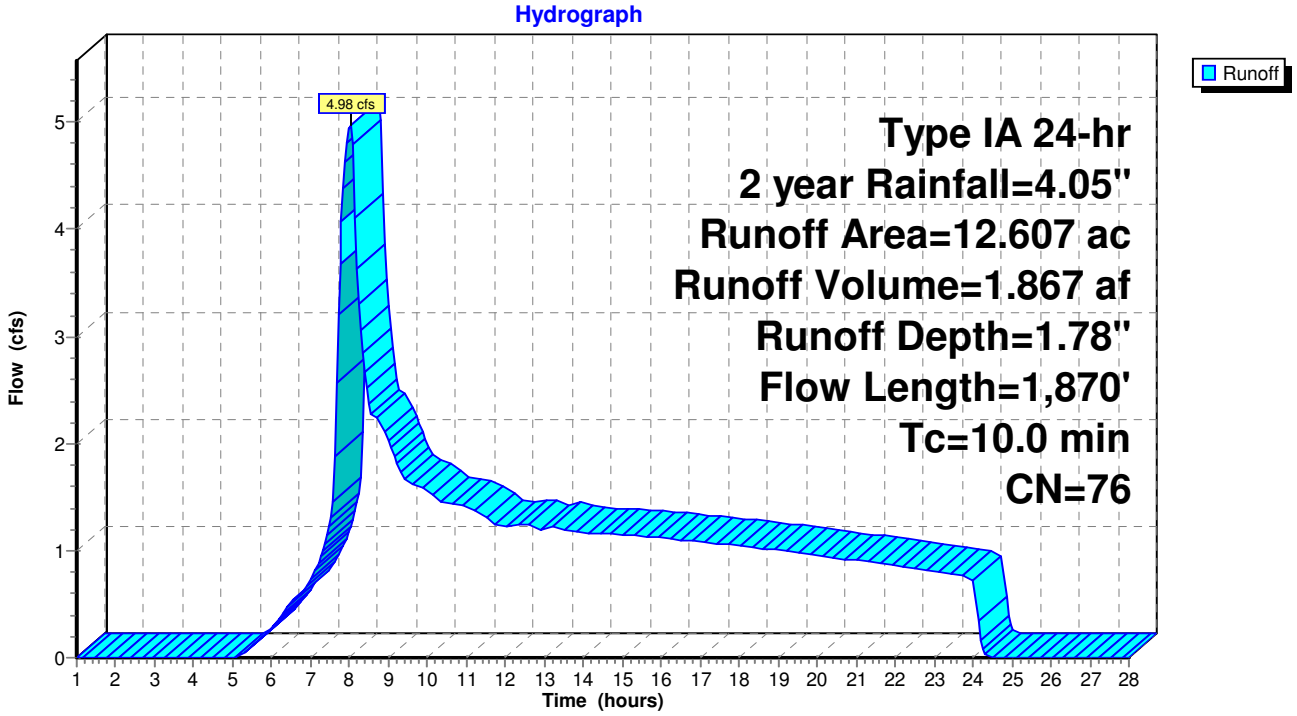
Runoff = 4.98 cfs @ 8.03 hrs, Volume= 1.867 af, Depth= 1.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
1.186	65	Brush, Good, HSG C
0.165	87	Dirt roads, HSG C
9.079	79	Pasture/grassland/range, Fair, HSG C
0.673	74	Pasture/grassland/range, Good, HSG C
1.503	70	Woods, Good, HSG C
12.607	76	Weighted Average
12.607		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1500	0.29		**Sheet Flow, 0.15** Grass: Dense n= 0.240 P2= 4.05"
1.6	675	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	37	0.0200	3.51	7.02	**Trap/Vee/Rect Channel Flow, Std Ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
1.7	626	0.1400	6.02		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.8	432	0.1400	9.29	18.58	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.0	1,870	Total			

Subcatchment WS1M: Subcat WS1M



Summary for Subcatchment WS1N: Subcat WS1N

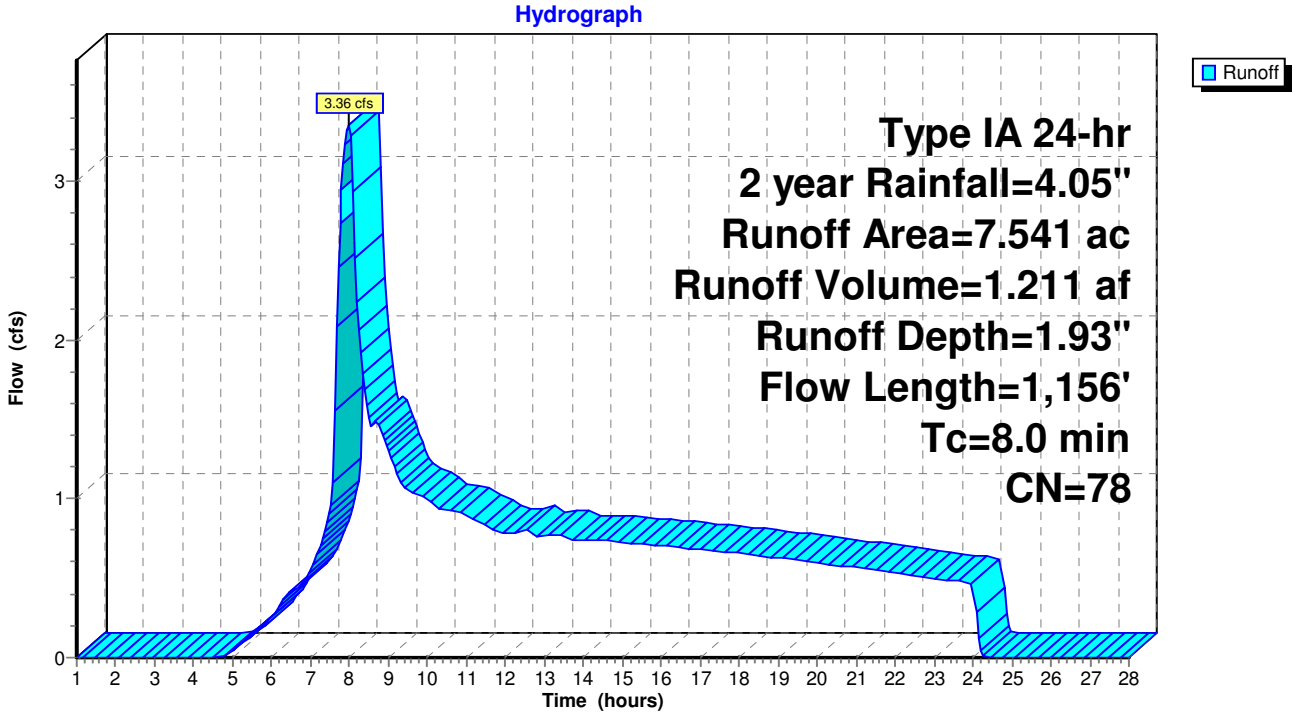
Runoff = 3.36 cfs @ 7.99 hrs, Volume= 1.211 af, Depth= 1.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.332	65	Brush, Good, HSG C
0.045	87	Dirt roads, HSG C
7.164	79	Pasture/grassland/range, Fair, HSG C
7.541	78	Weighted Average
7.541		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1500	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.9	775	0.1700	6.64		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.4	281	0.2600	12.66	25.32	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.0	1,156	Total			

Subcatchment WS1N: Subcat WS1N



Summary for Subcatchment WS1O: Subcat WS1O

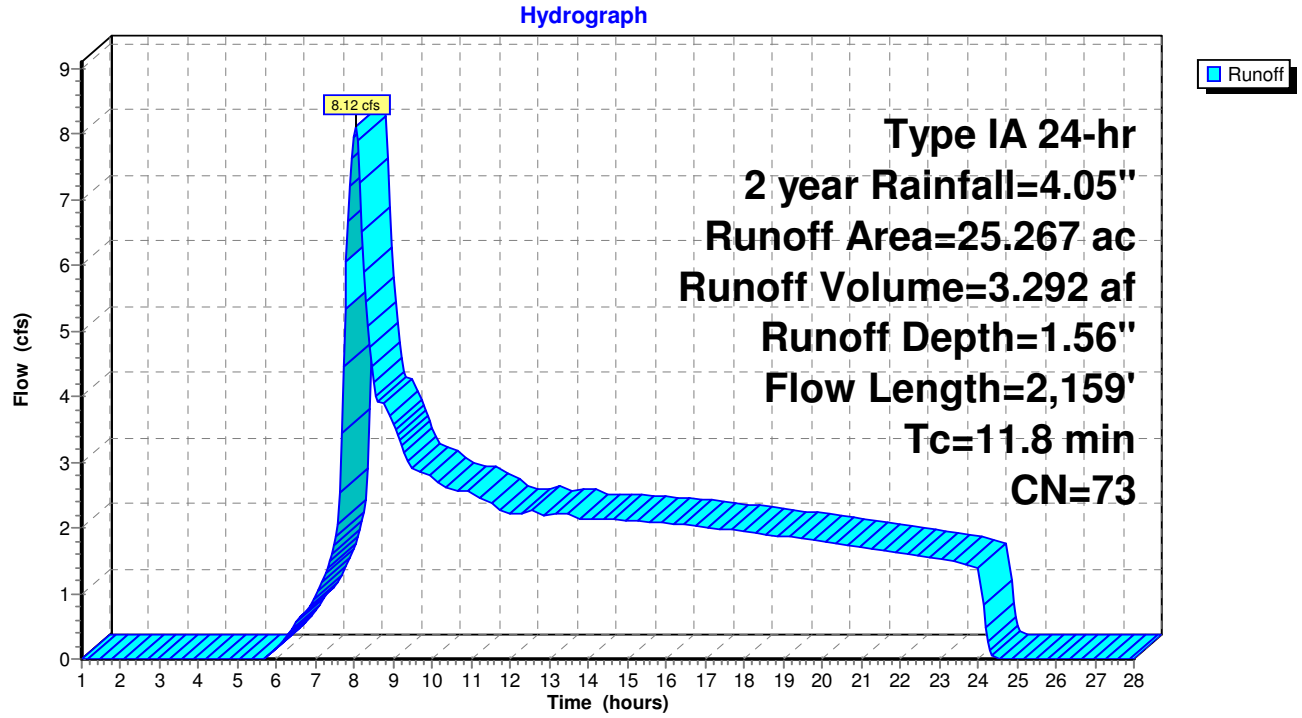
Runoff = 8.12 cfs @ 8.05 hrs, Volume= 3.292 af, Depth= 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.049	87	Dirt roads, HSG C
5.153	79	Pasture/grassland/range, Fair, HSG C
2.236	79	Vineyard, Fair, HSG C
17.829	70	Woods, Good, HSG C
25.267	73	Weighted Average
25.267		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.3100	0.26		**Sheet Flow, Sheet-1** Woods: Light underbrush n= 0.400 P2= 4.05"
2.6	1,166	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.8	893	0.0700	5.29	50.28	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
11.8	2,159	Total			

Subcatchment WS1O: Subcat WS1O



Summary for Subcatchment WS1P: Subcat WS1P

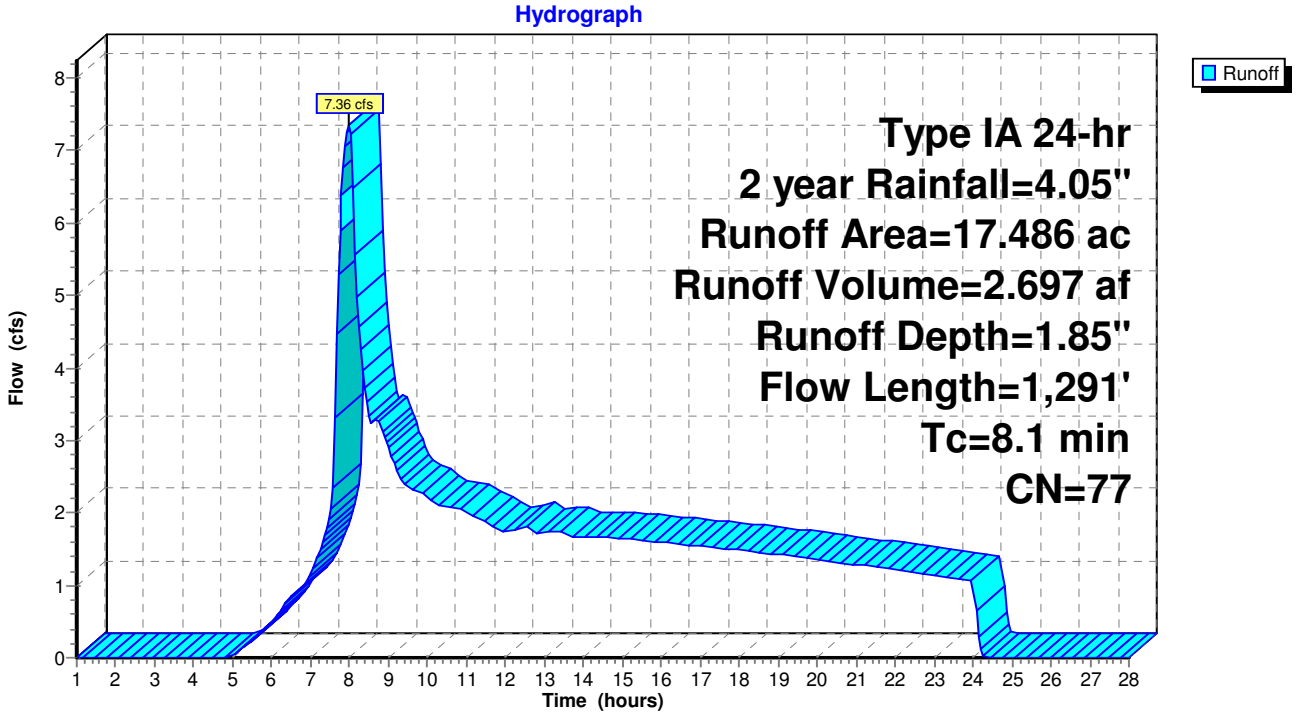
Runoff = 7.36 cfs @ 8.00 hrs, Volume= 2.697 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.263	87	Dirt roads, HSG C
2.086	82	Farmsteads, HSG C
0.713	79	Pasture/grassland/range, Fair, HSG C
3.477	74	Pasture/grassland/range, Good, HSG C
7.176	79	Vineyard, Fair, HSG C
3.771	70	Woods, Good, HSG C
17.486	77	Weighted Average
17.486		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0500	0.28		**Sheet Flow, Sheet-1** Grass: Short n= 0.150 P2= 4.05"
0.7	331	0.2400	7.89		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	860	0.1700	10.24	20.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.1	1,291	Total			

Subcatchment WS1P: Subcat WS1P



Summary for Subcatchment WS1Q: Subcat WS1Q

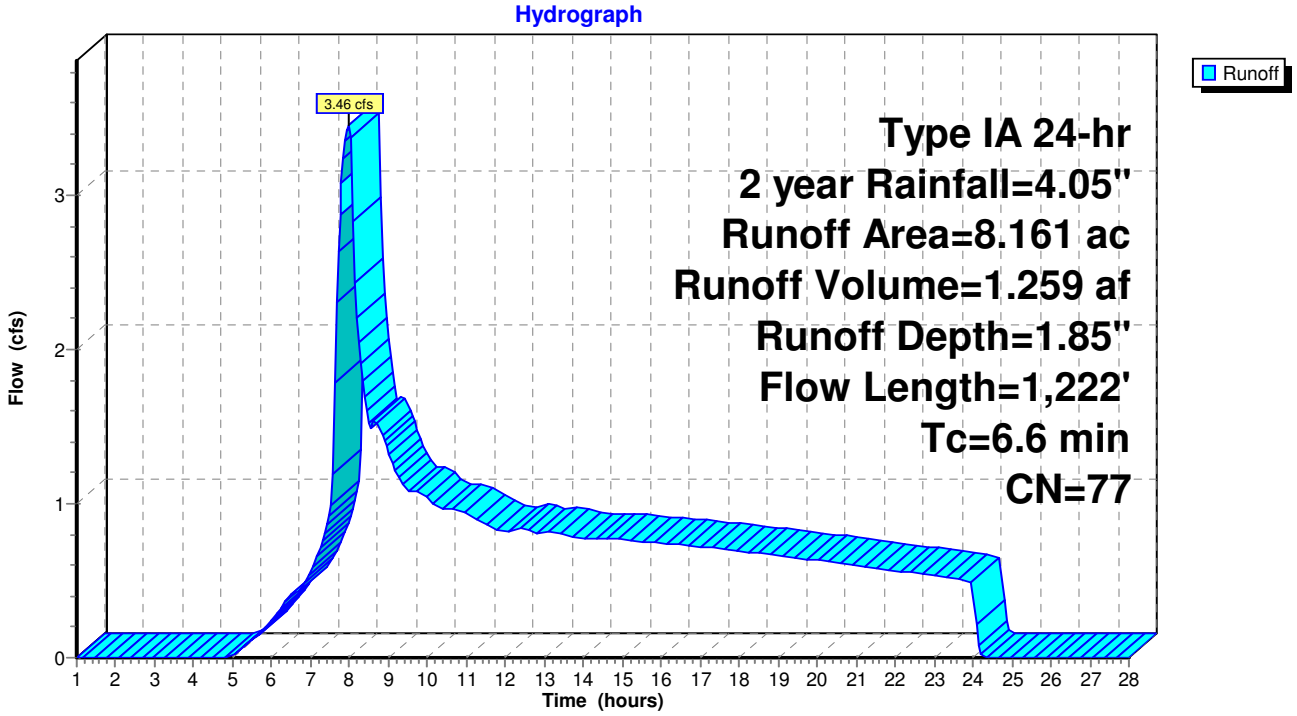
Runoff = 3.46 cfs @ 7.98 hrs, Volume= 1.259 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.151	87	Dirt roads, HSG C
0.039	82	Farmsteads, HSG C
4.319	79	Pasture/grassland/range, Fair, HSG C
1.502	79	Vineyard, Fair, HSG C
2.150	70	Woods, Good, HSG C
8.161	77	Weighted Average
8.161		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.3200	0.40		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	659	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.9	463	0.1900	8.72	82.84	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
6.6	1,222	Total			

Subcatchment WS1Q: Subcat WS1Q



Summary for Subcatchment WS1R: Subcat WS1R

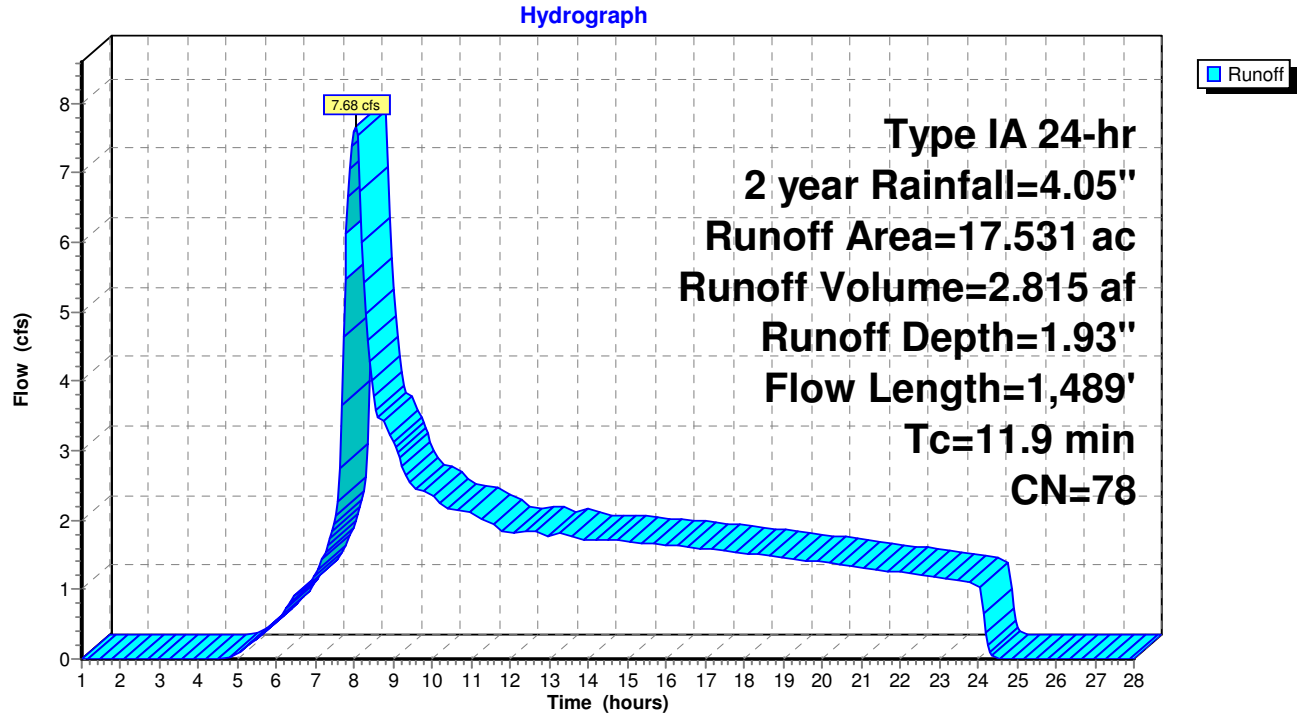
Runoff = 7.68 cfs @ 8.03 hrs, Volume= 2.815 af, Depth= 1.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.110	87	Dirt roads, HSG C
15.096	79	Pasture/grassland/range, Fair, HSG C
0.815	74	Pasture/grassland/range, Good, HSG C
1.510	70	Woods, Good, HSG C
17.531	78	Weighted Average
17.531		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
2.3	759	0.1200	5.58		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	630	0.0900	7.45	14.90	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
11.9	1,489	Total			

Subcatchment WS1R: Subcat WS1R



Summary for Reach R1: Main Stem

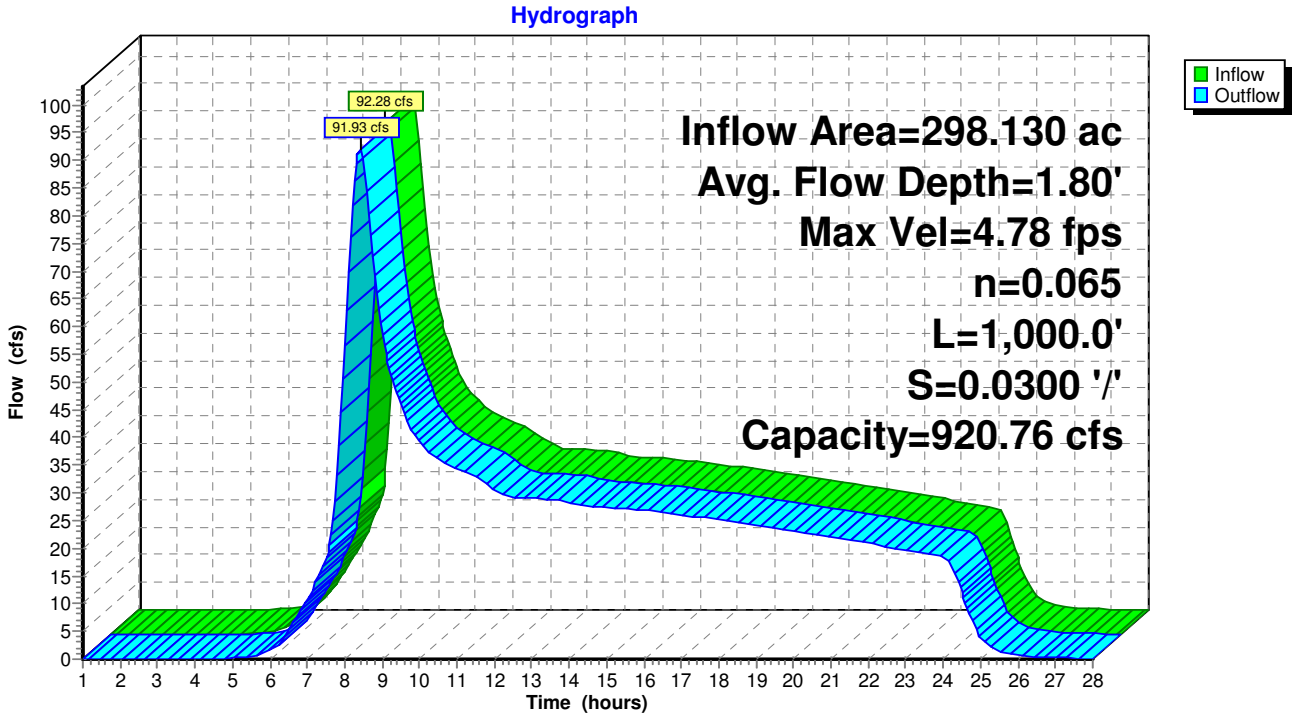
Inflow Area = 298.130 ac, 0.00% Impervious, Inflow Depth > 1.77" for 2 year event
Inflow = 92.28 cfs @ 8.32 hrs, Volume= 44.082 af
Outflow = 91.93 cfs @ 8.41 hrs, Volume= 44.078 af, Atten= 0%, Lag= 5.7 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.78 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 2.68 fps, Avg. Travel Time= 6.2 min

Peak Storage= 19,230 cf @ 8.36 hrs
Average Depth at Peak Storage= 1.80'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 920.76 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,000.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -30.00'

Reach R1: Main Stem



Summary for Reach R2: Main Stem

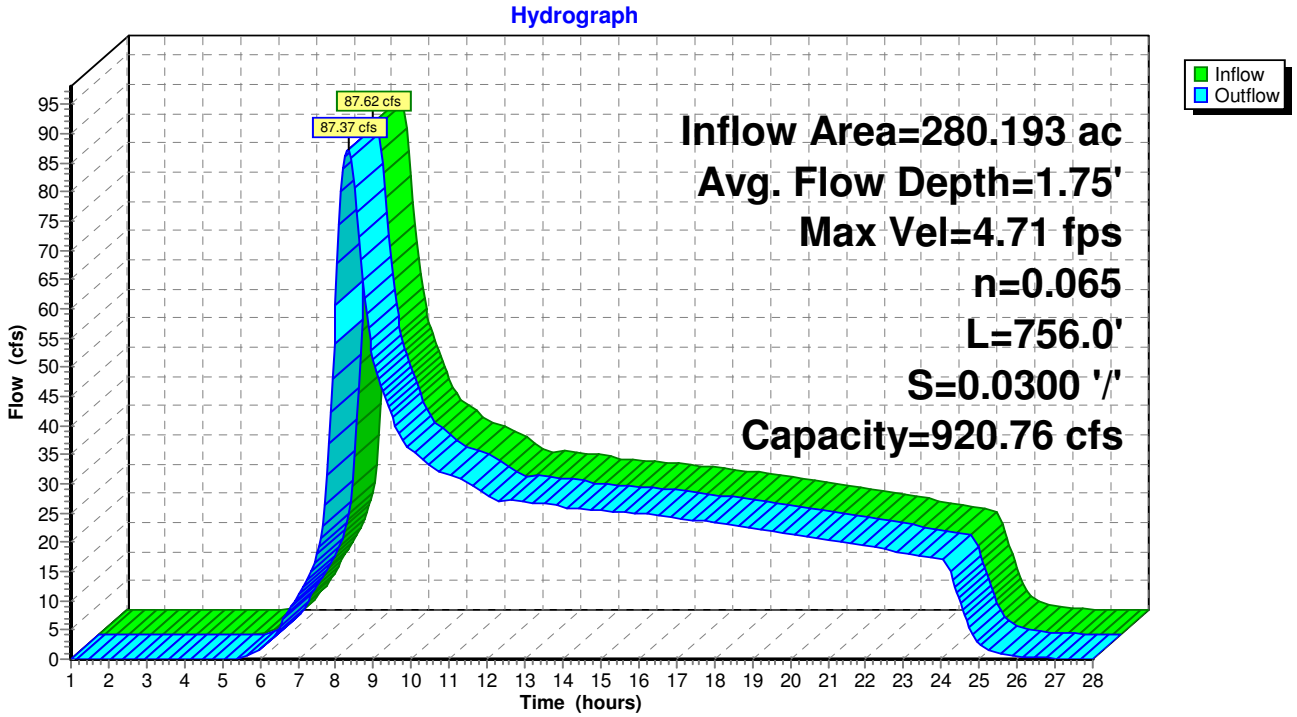
Inflow Area = 280.193 ac, 0.00% Impervious, Inflow Depth > 1.75" for 2 year event
Inflow = 87.62 cfs @ 8.26 hrs, Volume= 40.849 af
Outflow = 87.37 cfs @ 8.33 hrs, Volume= 40.848 af, Atten= 0%, Lag= 4.3 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.71 fps, Min. Travel Time= 2.7 min
Avg. Velocity = 2.67 fps, Avg. Travel Time= 4.7 min

Peak Storage= 14,030 cf @ 8.29 hrs
Average Depth at Peak Storage= 1.75'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 920.76 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 756.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -22.68'

Reach R2: Main Stem



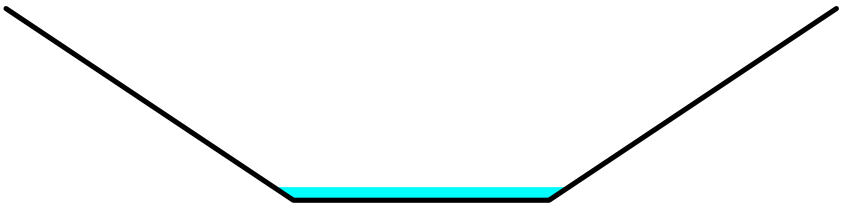
Summary for Reach R3: Stream

Inflow Area = 52.897 ac, 0.00% Impervious, Inflow Depth = 1.75" for 2 year event
Inflow = 20.41 cfs @ 8.01 hrs, Volume= 7.706 af
Outflow = 20.31 cfs @ 8.04 hrs, Volume= 7.706 af, Atten= 0%, Lag= 1.9 min

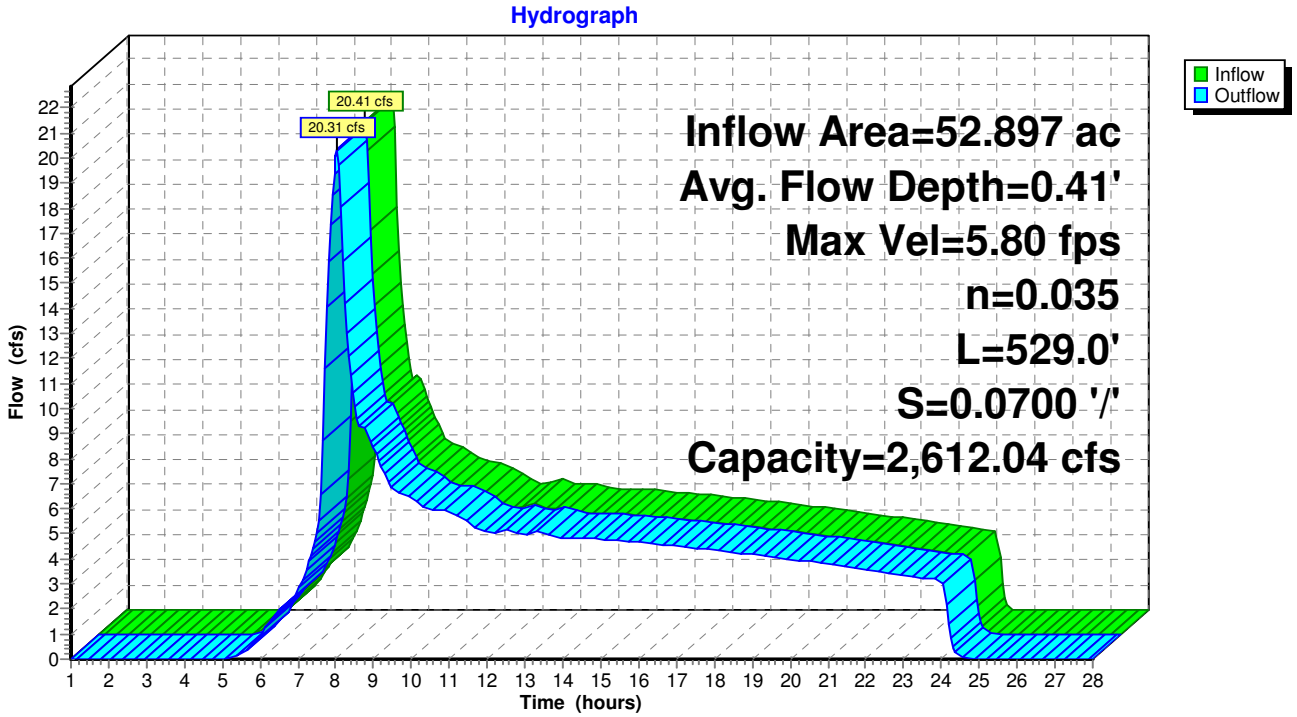
Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.80 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 3.25 fps, Avg. Travel Time= 2.7 min

Peak Storage= 1,861 cf @ 8.03 hrs
Average Depth at Peak Storage= 0.41'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 2,612.04 cfs

8.00' x 6.00' deep channel, n= 0.035
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 529.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -37.03'



Reach R3: Stream



Summary for Reach R4.1: Main Stem

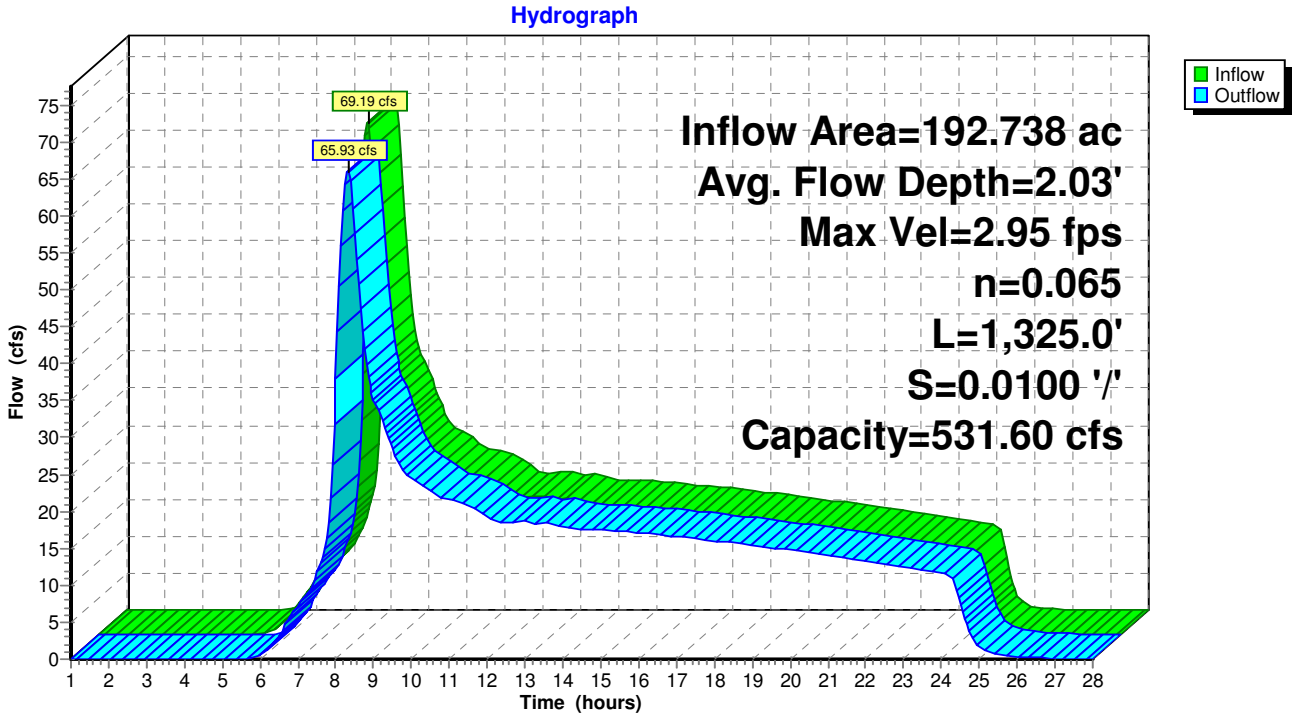
Inflow Area = 192.738 ac, 0.00% Impervious, Inflow Depth = 1.74" for 2 year event
Inflow = 69.19 cfs @ 8.11 hrs, Volume= 27.952 af
Outflow = 65.93 cfs @ 8.32 hrs, Volume= 27.949 af, Atten= 5%, Lag= 12.6 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.95 fps, Min. Travel Time= 7.5 min
Avg. Velocity = 1.63 fps, Avg. Travel Time= 13.5 min

Peak Storage= 29,729 cf @ 8.19 hrs
Average Depth at Peak Storage= 2.03'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 531.60 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,325.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -13.25'

Reach R4.1: Main Stem



Summary for Reach R4.2: Main Stem

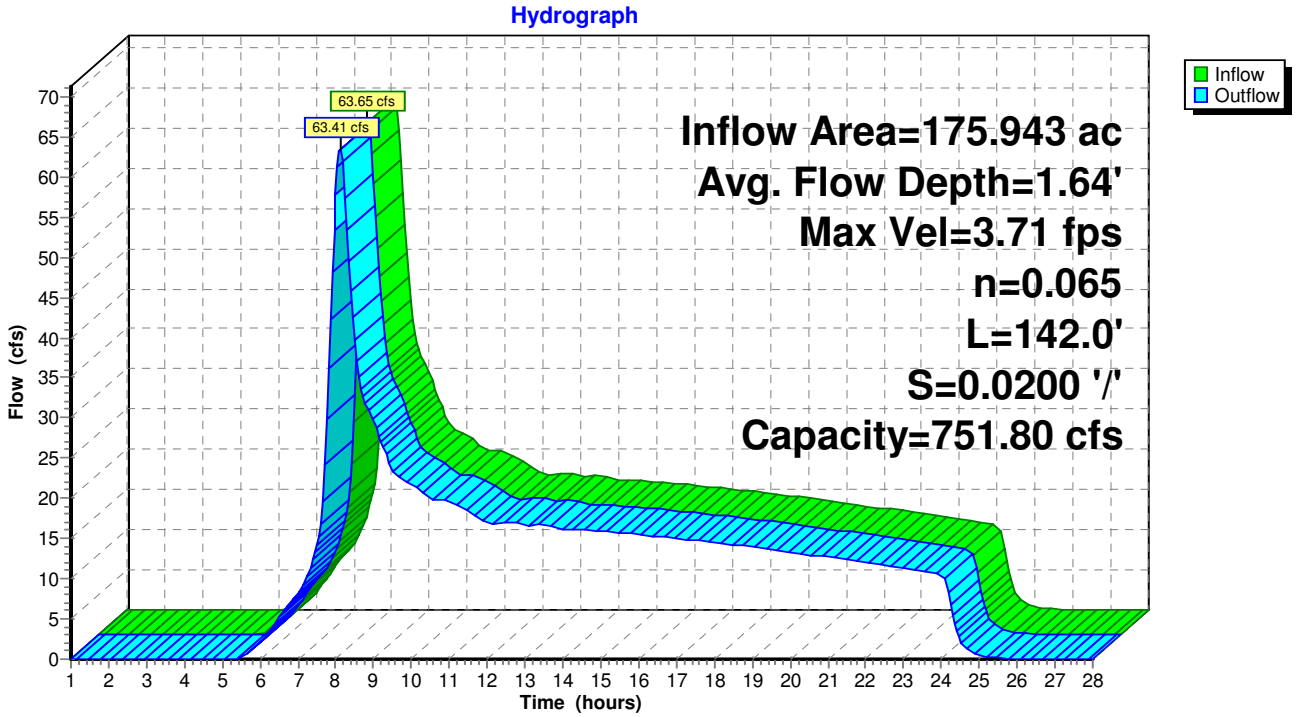
Inflow Area = 175.943 ac, 0.00% Impervious, Inflow Depth = 1.74" for 2 year event
Inflow = 63.65 cfs @ 8.10 hrs, Volume= 25.566 af
Outflow = 63.41 cfs @ 8.12 hrs, Volume= 25.566 af, Atten= 0%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.71 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.00 fps, Avg. Travel Time= 1.2 min

Peak Storage= 2,432 cf @ 8.11 hrs
Average Depth at Peak Storage= 1.64'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 751.80 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 142.0' Slope= 0.0200 '/'
Inlet Invert= 0.00', Outlet Invert= -2.84'

Reach R4.2: Main Stem



Summary for Reach R5: Main Stem

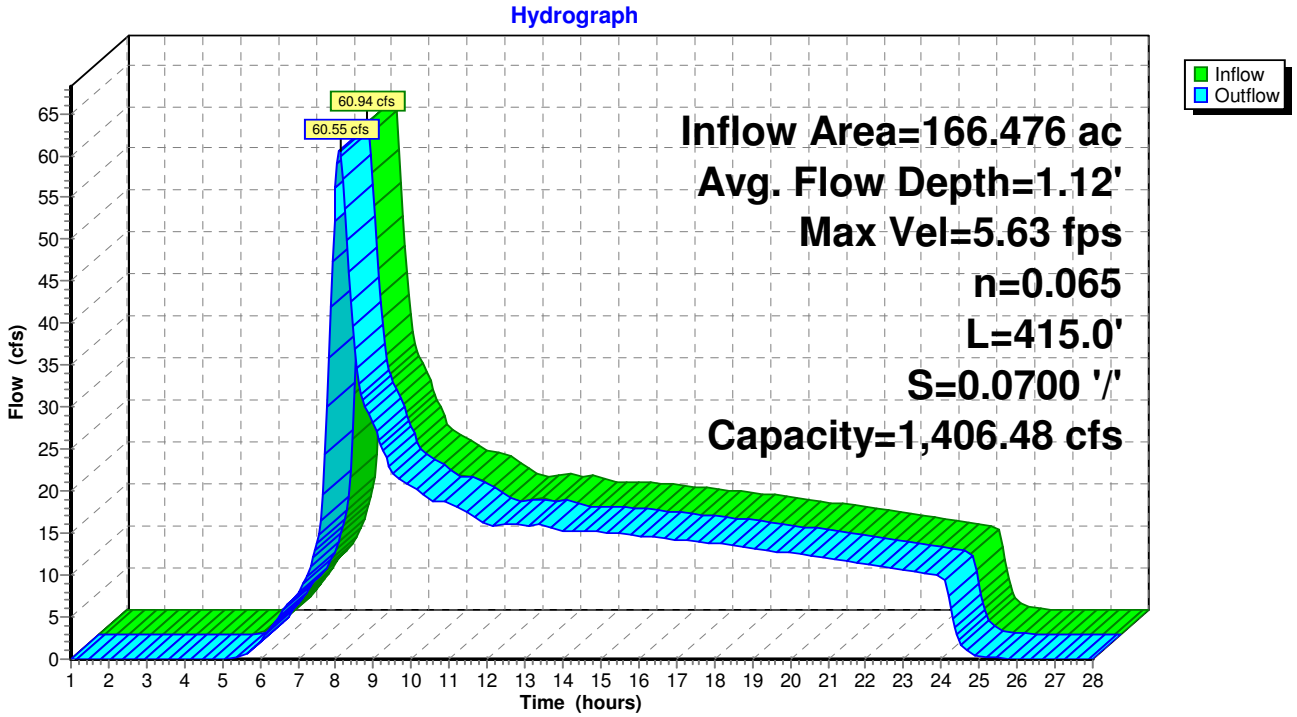
Inflow Area = 166.476 ac, 0.00% Impervious, Inflow Depth = 1.75" for 2 year event
Inflow = 60.94 cfs @ 8.08 hrs, Volume= 24.278 af
Outflow = 60.55 cfs @ 8.11 hrs, Volume= 24.278 af, Atten= 1%, Lag= 2.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.63 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 3.01 fps, Avg. Travel Time= 2.3 min

Peak Storage= 4,483 cf @ 8.09 hrs
Average Depth at Peak Storage= 1.12'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,406.48 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 415.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -29.05'

Reach R5: Main Stem



Summary for Reach R6: Main Stem

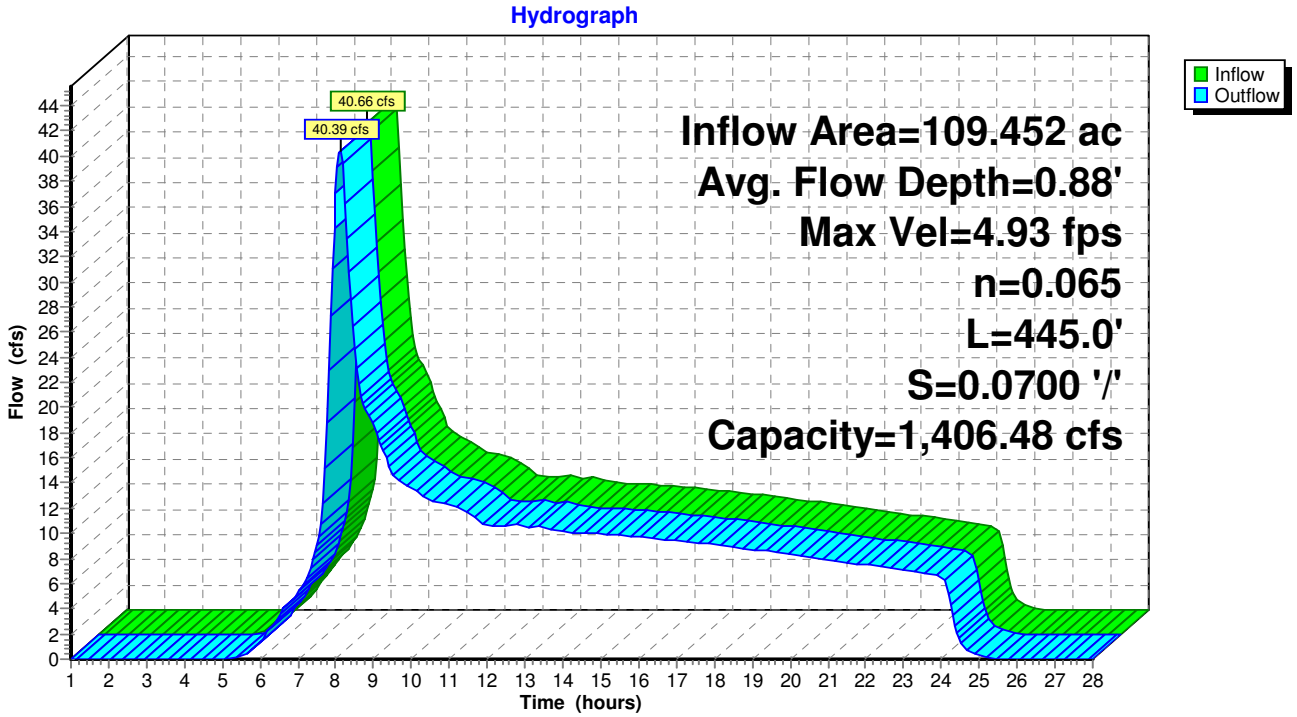
Inflow Area = 109.452 ac, 0.00% Impervious, Inflow Depth = 1.76" for 2 year event
Inflow = 40.66 cfs @ 8.08 hrs, Volume= 16.044 af
Outflow = 40.39 cfs @ 8.12 hrs, Volume= 16.044 af, Atten= 1%, Lag= 2.5 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.93 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 2.62 fps, Avg. Travel Time= 2.8 min

Peak Storage= 3,662 cf @ 8.10 hrs
Average Depth at Peak Storage= 0.88'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,406.48 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 445.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -31.15'

Reach R6: Main Stem



Summary for Reach R7.1: Stream

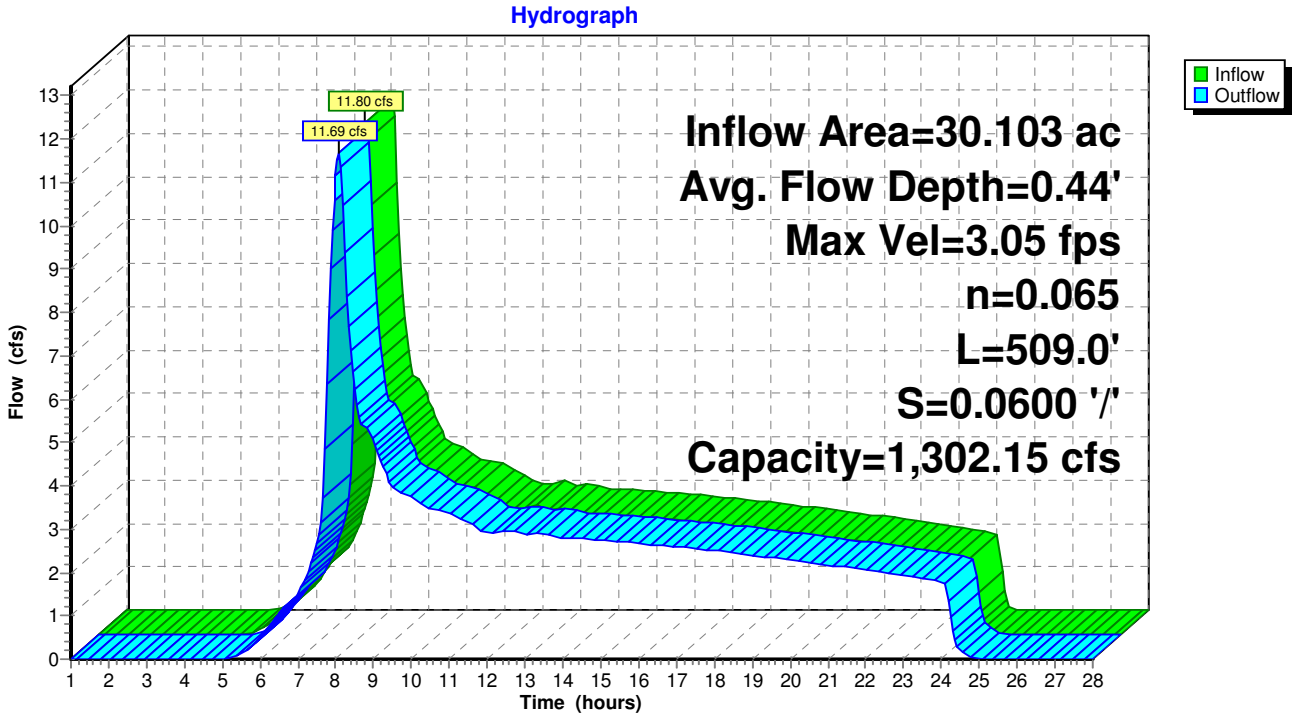
Inflow Area = 30.103 ac, 0.00% Impervious, Inflow Depth = 1.77" for 2 year event
Inflow = 11.80 cfs @ 8.03 hrs, Volume= 4.432 af
Outflow = 11.69 cfs @ 8.09 hrs, Volume= 4.432 af, Atten= 1%, Lag= 3.8 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.05 fps, Min. Travel Time= 2.8 min
Avg. Velocity = 1.66 fps, Avg. Travel Time= 5.1 min

Peak Storage= 1,955 cf @ 8.05 hrs
Average Depth at Peak Storage= 0.44'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,302.15 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 509.0' Slope= 0.0600 '/'
Inlet Invert= 0.00', Outlet Invert= -30.54'

Reach R7.1: Stream



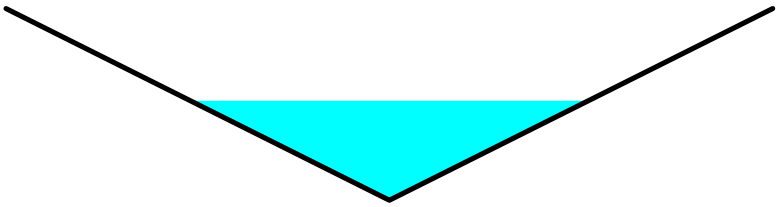
Summary for Reach R7.2: Channel

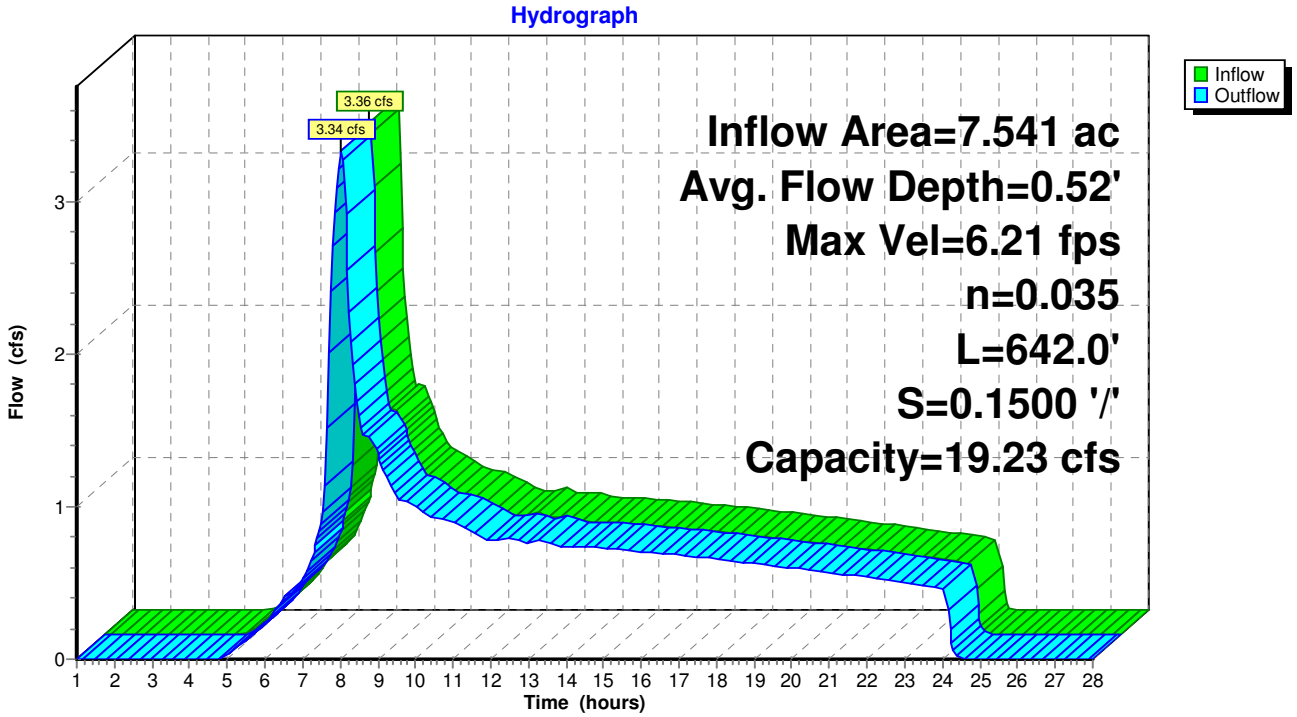
Inflow Area = 7.541 ac, 0.00% Impervious, Inflow Depth = 1.93" for 2 year event
Inflow = 3.36 cfs @ 7.99 hrs, Volume= 1.211 af
Outflow = 3.34 cfs @ 8.03 hrs, Volume= 1.211 af, Atten= 1%, Lag= 2.5 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.21 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 3.93 fps, Avg. Travel Time= 2.7 min

Peak Storage= 346 cf @ 8.01 hrs
Average Depth at Peak Storage= 0.52'
Bank-Full Depth= 1.00' Flow Area= 2.0 sf, Capacity= 19.23 cfs

0.00' x 1.00' deep channel, n= 0.035
Side Slope Z-value= 2.0 '/' Top Width= 4.00'
Length= 642.0' Slope= 0.1500 '/'
Inlet Invert= 0.00', Outlet Invert= -96.30'





Summary for Reach R8: Main Stem

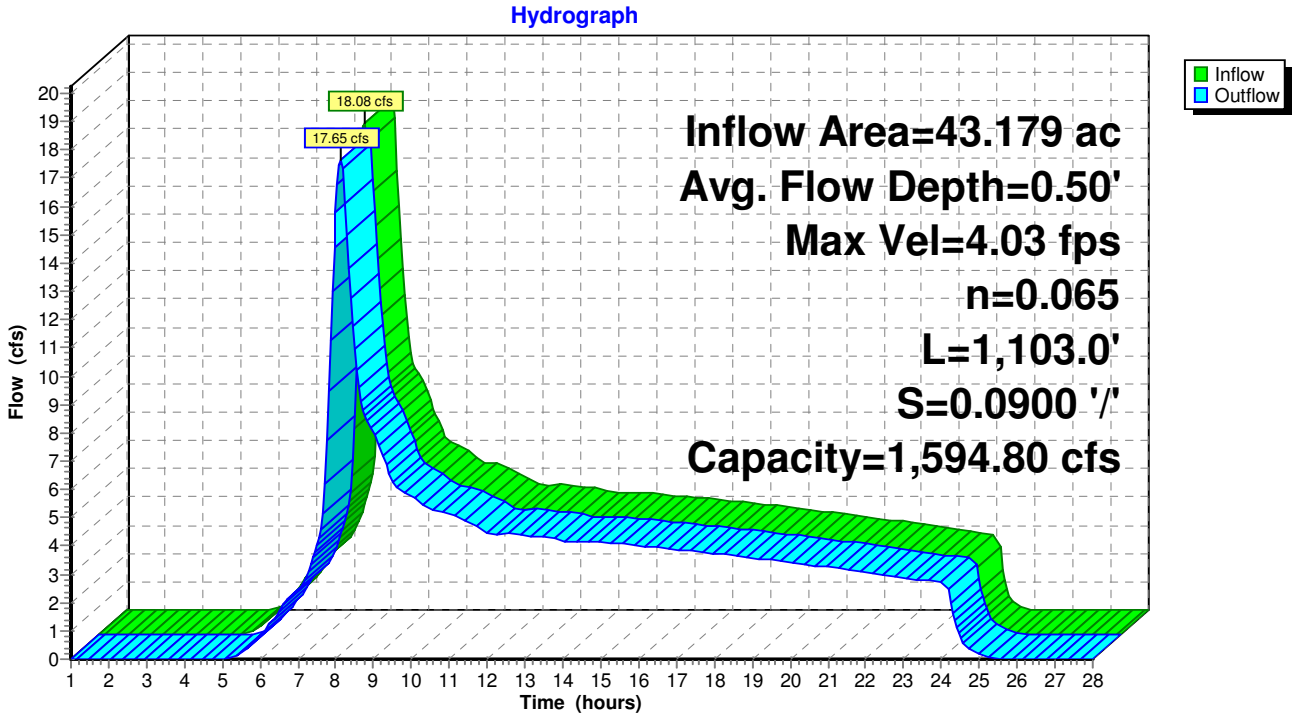
Inflow Area = 43.179 ac, 0.00% Impervious, Inflow Depth = 1.88" for 2 year event
Inflow = 18.08 cfs @ 8.03 hrs, Volume= 6.771 af
Outflow = 17.65 cfs @ 8.14 hrs, Volume= 6.771 af, Atten= 2%, Lag= 6.6 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.03 fps, Min. Travel Time= 4.6 min
Avg. Velocity = 2.13 fps, Avg. Travel Time= 8.6 min

Peak Storage= 4,858 cf @ 8.06 hrs
Average Depth at Peak Storage= 0.50'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,594.80 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,103.0' Slope= 0.0900 '/'
Inlet Invert= 0.00', Outlet Invert= -99.27'

Reach R8: Main Stem



Summary for Reach R9: Main Stem

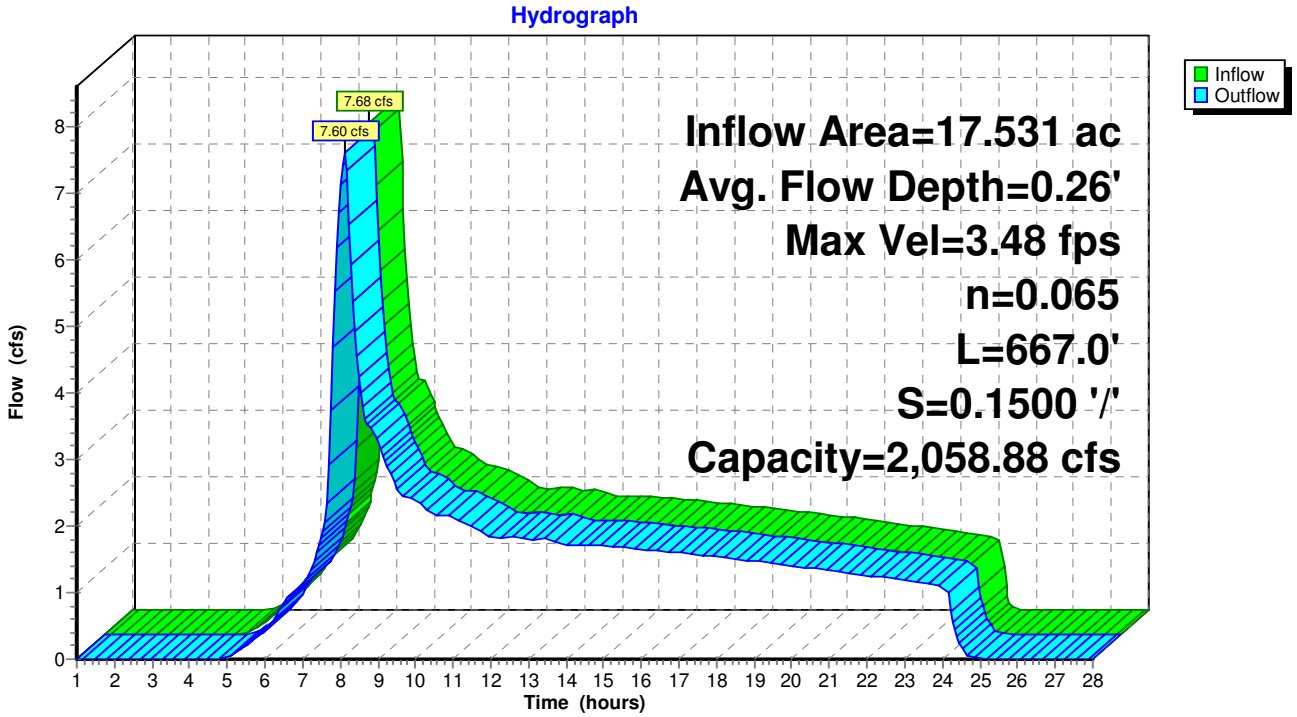
Inflow Area = 17.531 ac, 0.00% Impervious, Inflow Depth = 1.93" for 2 year event
Inflow = 7.68 cfs @ 8.03 hrs, Volume= 2.815 af
Outflow = 7.60 cfs @ 8.11 hrs, Volume= 2.815 af, Atten= 1%, Lag= 4.7 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.48 fps, Min. Travel Time= 3.2 min
Avg. Velocity = 1.93 fps, Avg. Travel Time= 5.8 min

Peak Storage= 1,458 cf @ 8.06 hrs
Average Depth at Peak Storage= 0.26'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 2,058.88 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 667.0' Slope= 0.1500 '/'
Inlet Invert= 0.00', Outlet Invert= -100.05'

Reach R9: Main Stem

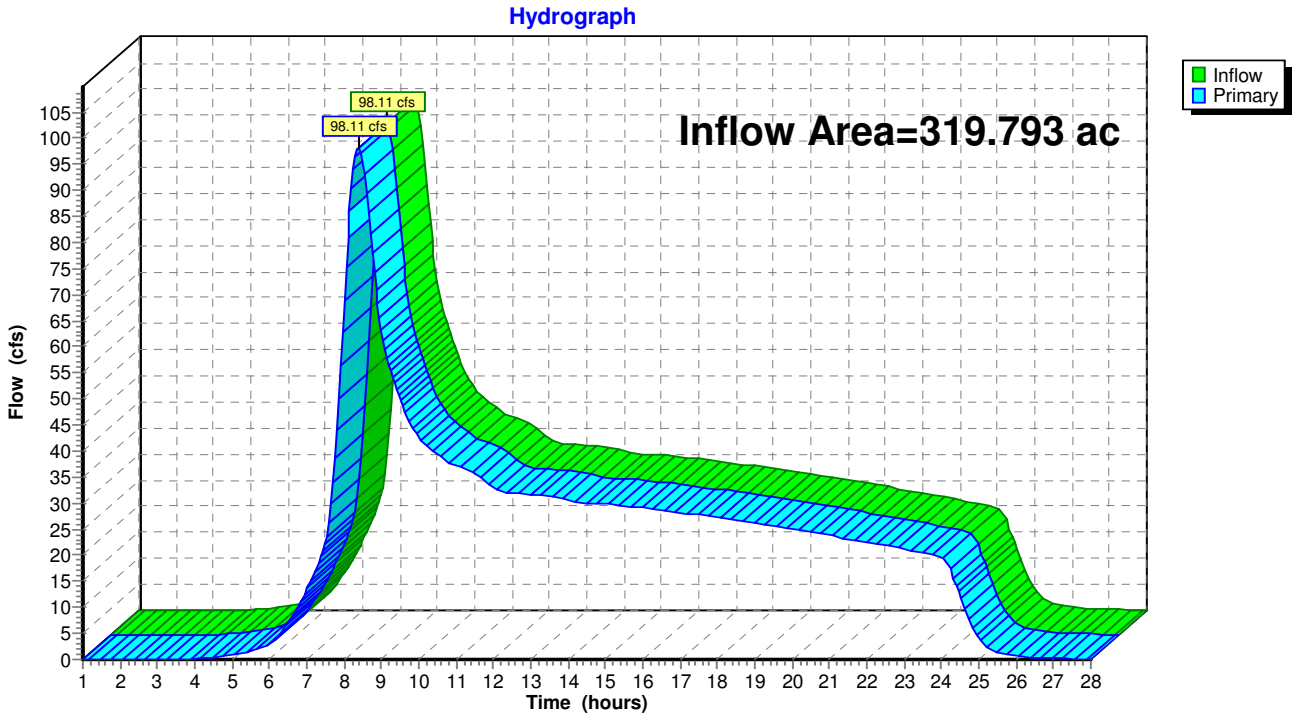


Summary for Link Outlet: Outlet

Inflow Area = 319.793 ac, 0.00% Impervious, Inflow Depth > 1.81" for 2 year event
Inflow = 98.11 cfs @ 8.39 hrs, Volume= 48.284 af
Primary = 98.11 cfs @ 8.39 hrs, Volume= 48.284 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs

Link Outlet: Outlet



Summary for Subcatchment WS1A: Subcat WS1A

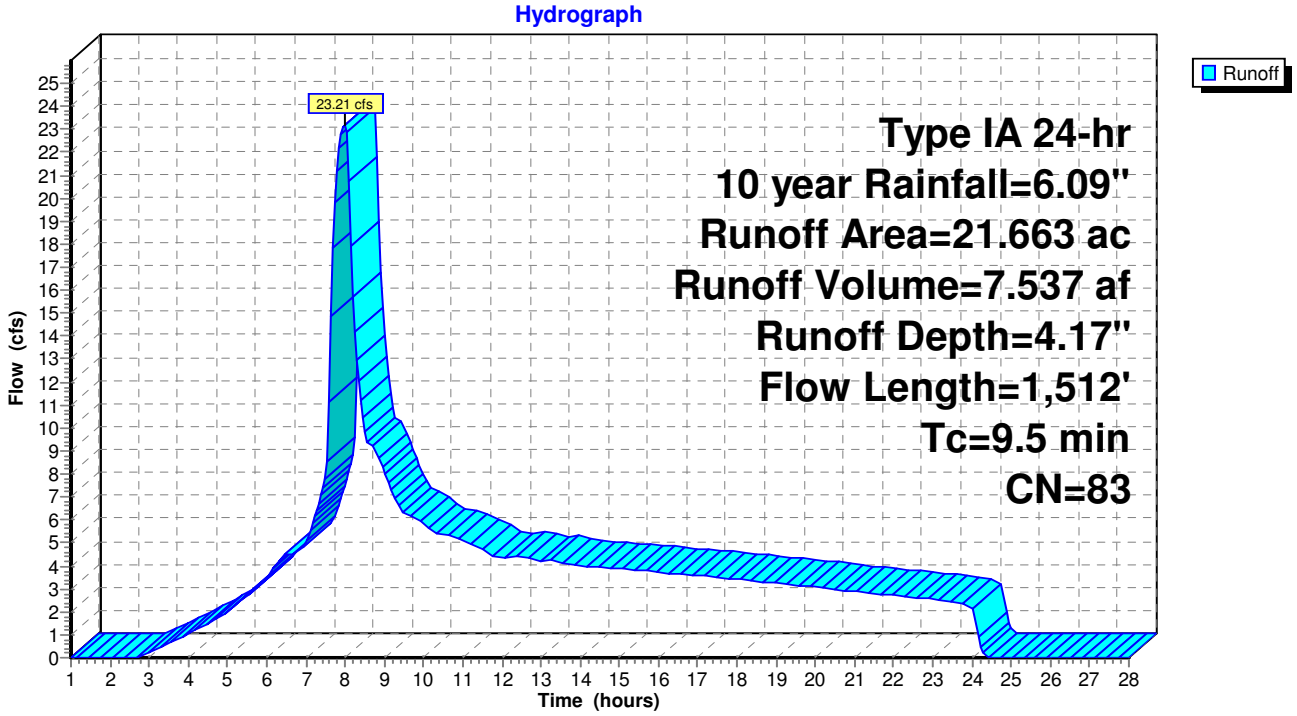
Runoff = 23.21 cfs @ 7.98 hrs, Volume= 7.537 af, Depth= 4.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
1.730	79	Pasture/grassland/range, Fair, HSG C
0.161	84	Pasture/grassland/range, Fair, HSG D
0.733	79	Vineyard, Fair, HSG C
16.760	84	Vineyard, Fair, HSG D
2.279	77	Woods, Good, HSG D
21.663	83	Weighted Average
21.663		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.2500	0.36		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	681	0.2500	8.05		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
3.5	731	0.0300	3.47	32.92	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
9.5	1,512	Total			

Subcatchment WS1A: Subcat WS1A



Summary for Subcatchment WS1B: Subcat WS1B

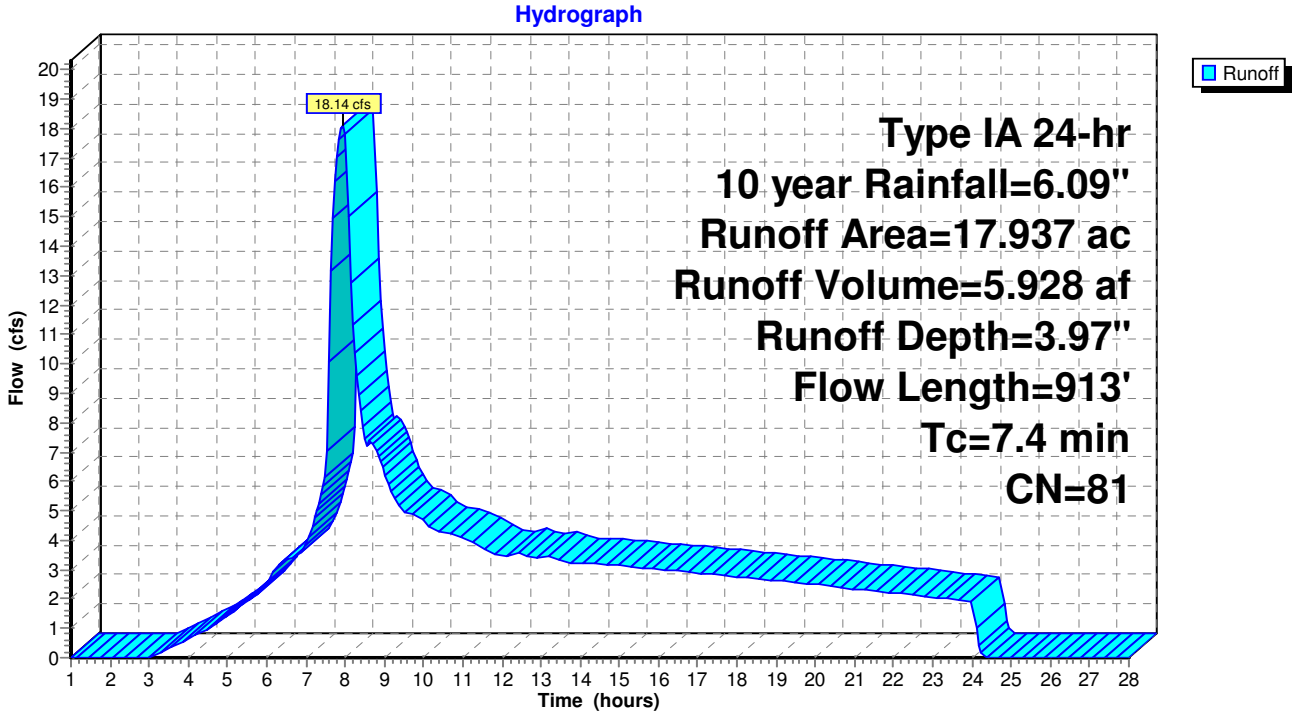
Runoff = 18.14 cfs @ 7.95 hrs, Volume= 5.928 af, Depth= 3.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.094	89	Dirt roads, HSG D
4.813	79	Pasture/grassland/range, Fair, HSG C
0.902	84	Pasture/grassland/range, Fair, HSG D
0.531	79	Vineyard, Fair, HSG C
8.409	84	Vineyard, Fair, HSG D
0.912	70	Woods, Good, HSG C
2.276	77	Woods, Good, HSG D
17.937	81	Weighted Average
17.937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	261	0.4400	10.68		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.4	265	0.2200	11.65	23.29	**Trap/Vee/Rect Channel Flow, Assumed std ditch-1** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.4	170	0.1800	6.83		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.1	74	0.1100	8.23	16.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch-2** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.1	43	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch-3** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.4	913	Total			

Subcatchment WS1B: Subcat WS1B



Summary for Subcatchment WS1C: Subcat WS1C

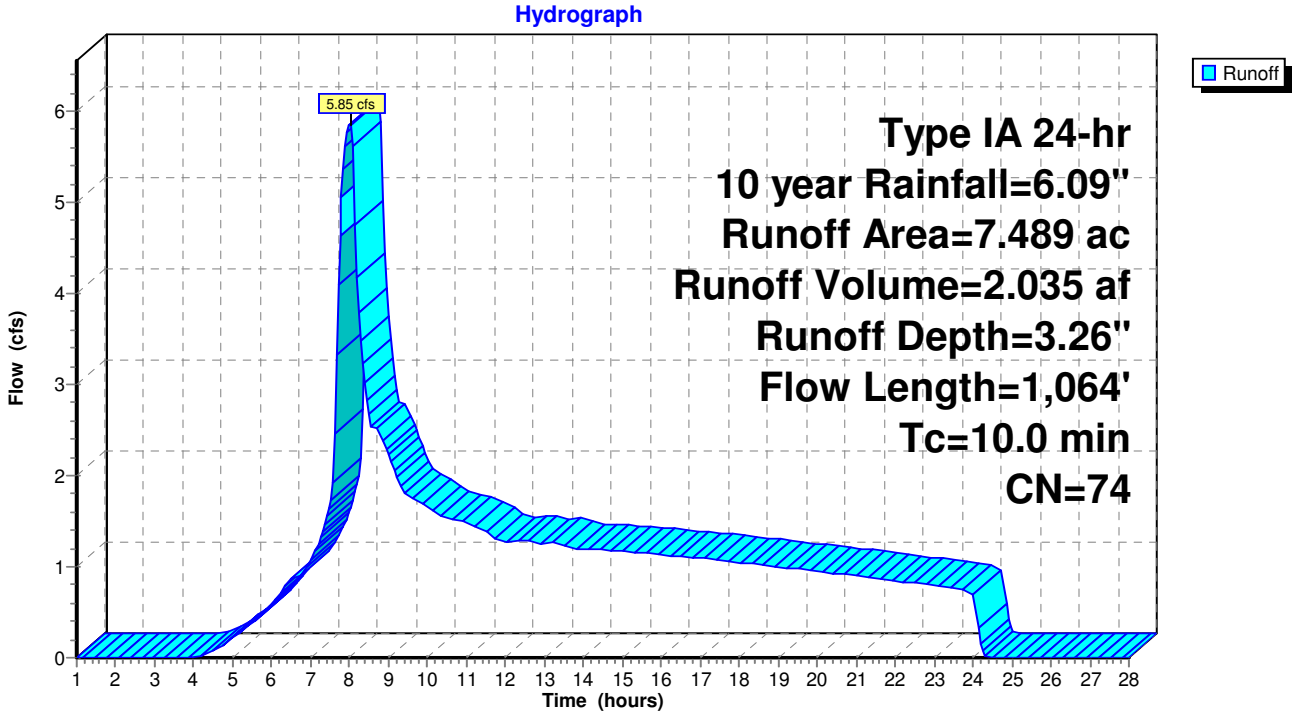
Runoff = 5.85 cfs @ 8.01 hrs, Volume= 2.035 af, Depth= 3.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.017	87	Dirt roads, HSG C
0.005	89	Dirt roads, HSG D
3.080	79	Pasture/grassland/range, Fair, HSG C
4.353	70	Woods, Good, HSG C
0.035	77	Woods, Good, HSG D
7.489	74	Weighted Average
7.489		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.7	396	0.3400	9.39		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.5	333	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.6	235	0.0600	6.08	12.16	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.0	1,064	Total			

Subcatchment WS1C: Subcat WS1C



Summary for Subcatchment WS1D: Subcat WS1D

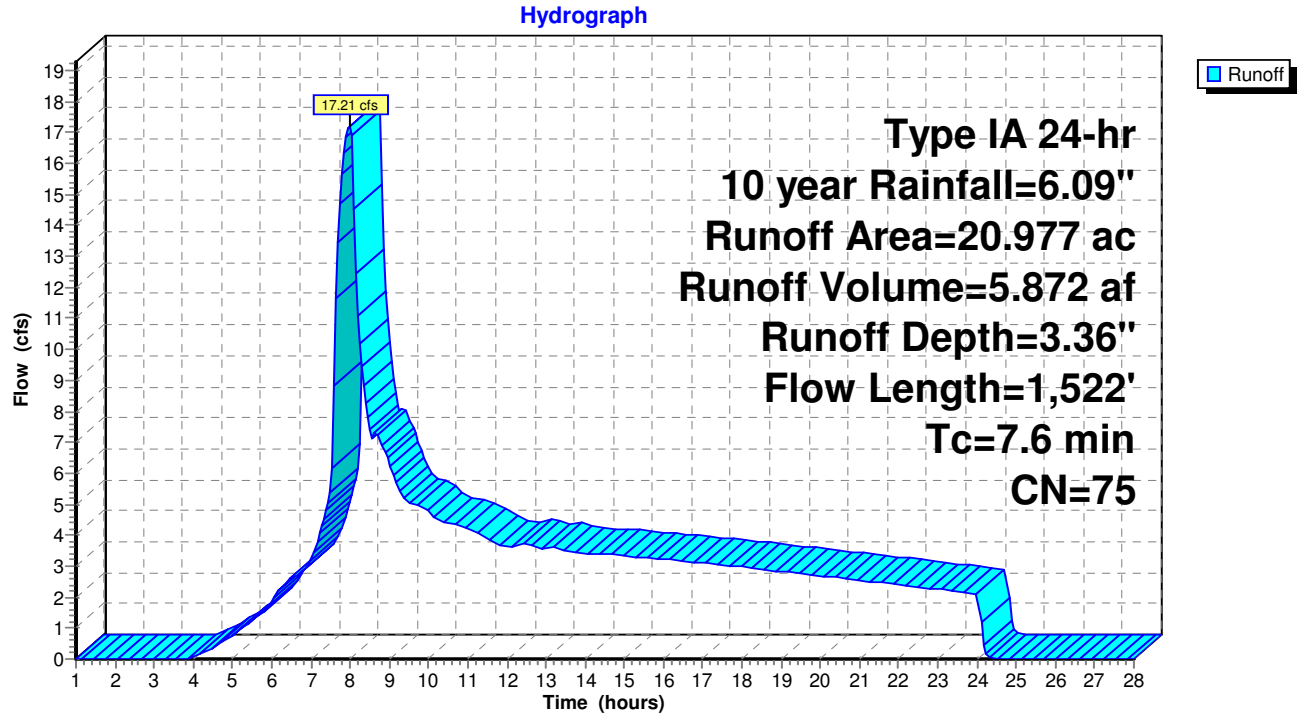
Runoff = 17.21 cfs @ 7.98 hrs, Volume= 5.872 af, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.624	65	Brush, Good, HSG C
0.080	87	Dirt roads, HSG C
11.776	79	Pasture/grassland/range, Fair, HSG C
8.498	70	Woods, Good, HSG C
20.977	75	Weighted Average
20.977		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.1800	0.32		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	236	0.3800	9.92		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.9	1,186	0.1800	10.53	21.07	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	1,522	Total			

Subcatchment WS1D: Subcat WS1D



Summary for Subcatchment WS1E: Subcat WS1E

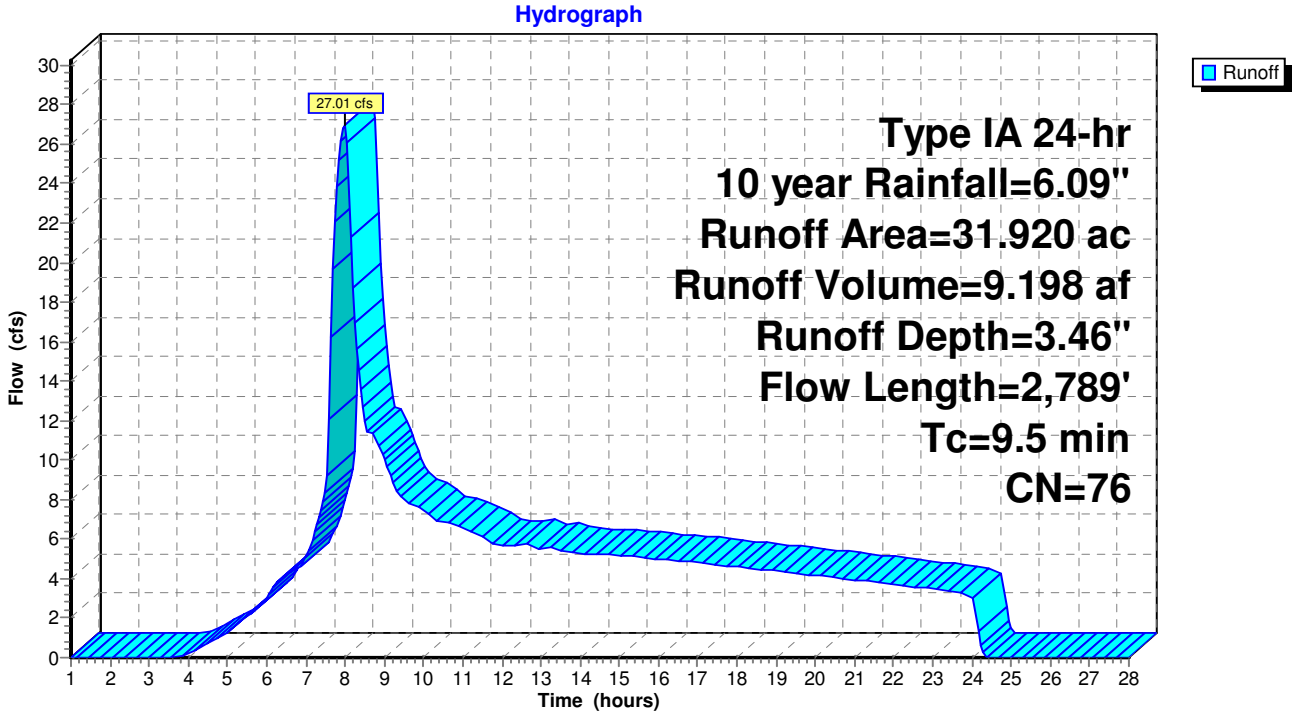
Runoff = 27.01 cfs @ 7.99 hrs, Volume= 9.198 af, Depth= 3.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.339	87	Dirt roads, HSG C
20.920	79	Pasture/grassland/range, Fair, HSG C
10.661	70	Woods, Good, HSG C
31.920	76	Weighted Average
31.920		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	100	0.2600	0.37		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.8	418	0.3200	9.11		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
4.2	2,271	0.1300	8.95	17.90	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
9.5	2,789	Total			

Subcatchment WS1E: Subcat WS1E



Summary for Subcatchment WS1F.1: Subcat WS1F.1

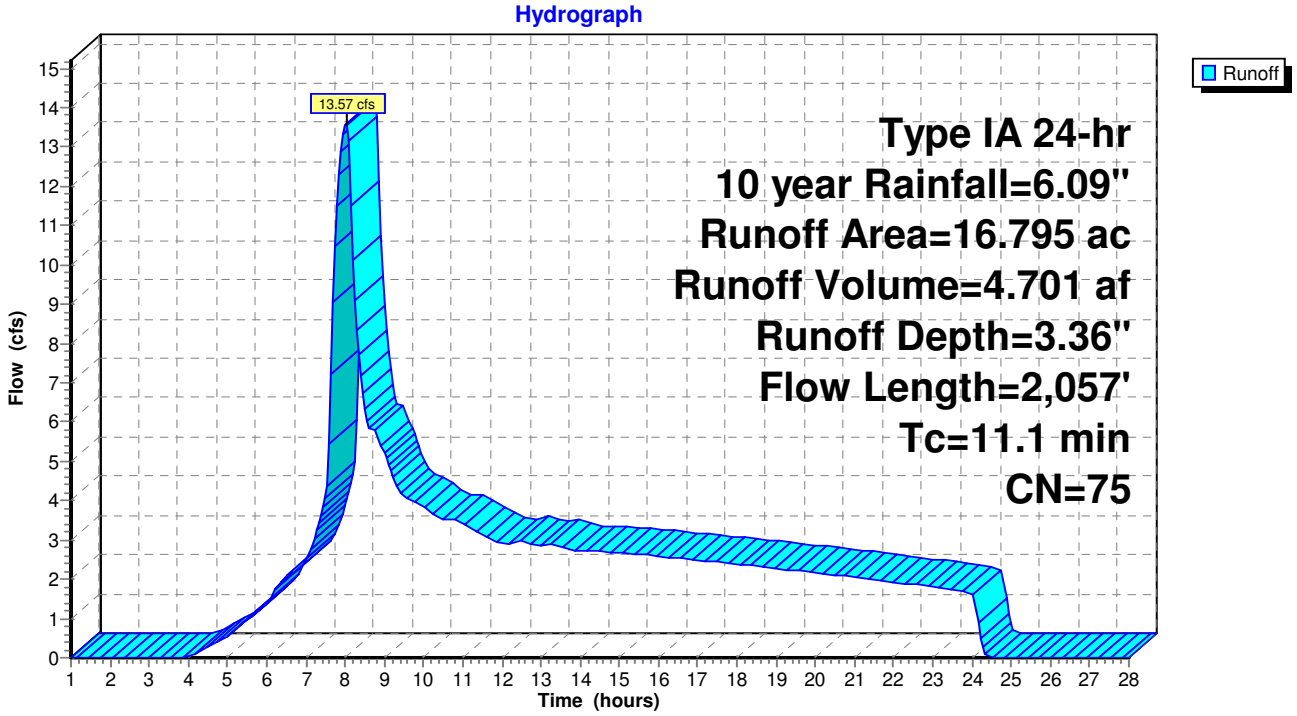
Runoff = 13.57 cfs @ 8.02 hrs, Volume= 4.701 af, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.262	87	Dirt roads, HSG C
0.080	89	Gravel Roads, HSG C
1.461	79	Pasture/grassland/range, Fair, HSG C
0.776	74	Pasture/grassland/range, Good, HSG C
7.618	79	Vineyard, Fair, HSG C
6.598	70	Woods, Good, HSG C
16.795	75	Weighted Average
16.795		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
3.4	1,267	0.1500	6.24		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.9	548	0.1700	10.24	20.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.8	142	0.0200	2.83	26.88	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
11.1	2,057	Total			

Subcatchment WS1F.1: Subcat WS1F.1



Summary for Subcatchment WS1F.2: Subcat WS1F.2

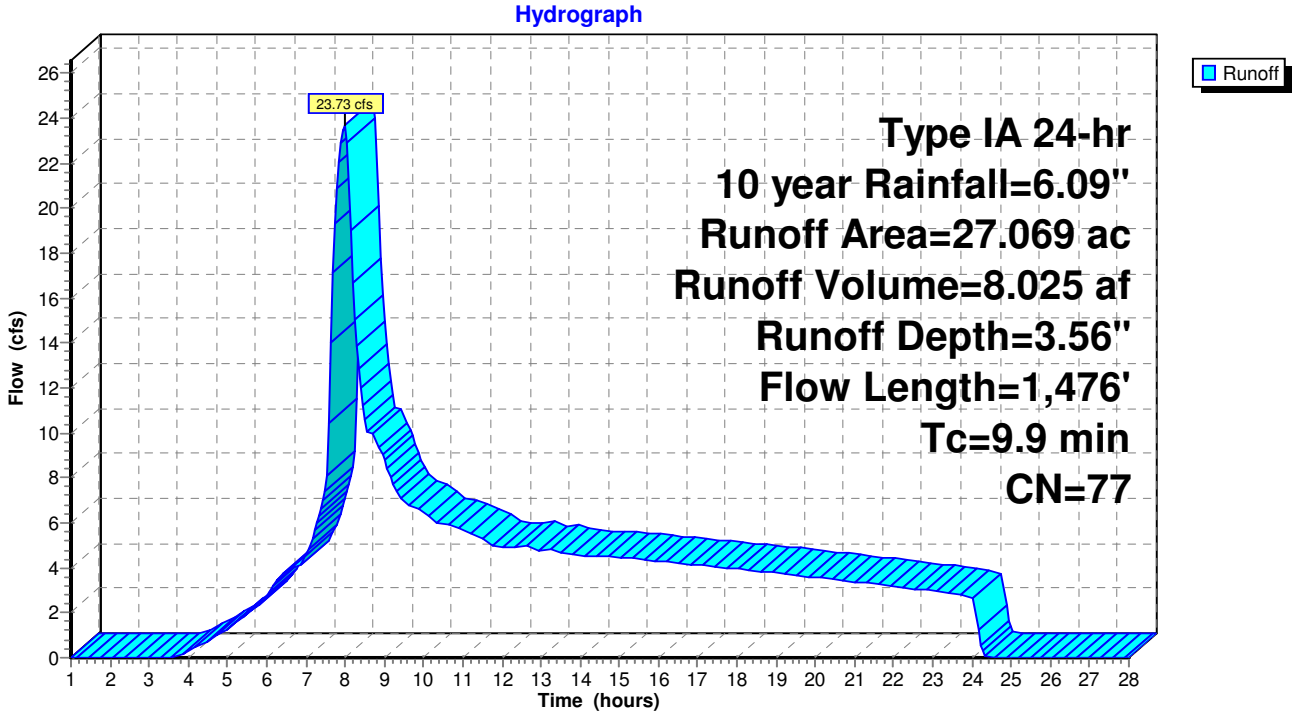
Runoff = 23.73 cfs @ 8.00 hrs, Volume= 8.025 af, Depth= 3.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.462	87	Dirt roads, HSG C
9.900	79	Pasture/grassland/range, Fair, HSG C
0.143	84	Pasture/grassland/range, Fair, HSG D
7.542	79	Vineyard, Fair, HSG C
1.496	84	Vineyard, Fair, HSG D
7.378	70	Woods, Good, HSG C
0.149	77	Woods, Good, HSG D
27.069	77	Weighted Average
27.069		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	702	0.2500	8.05		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.2	674	0.0100	5.21	531.60	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=6.00' Z= 1.5 '/' Top.W=26.00' n= 0.065
9.9	1,476	Total			

Subcatchment WS1F.2: Subcat WS1F.2



Summary for Subcatchment WS1G: Subcat WS1G

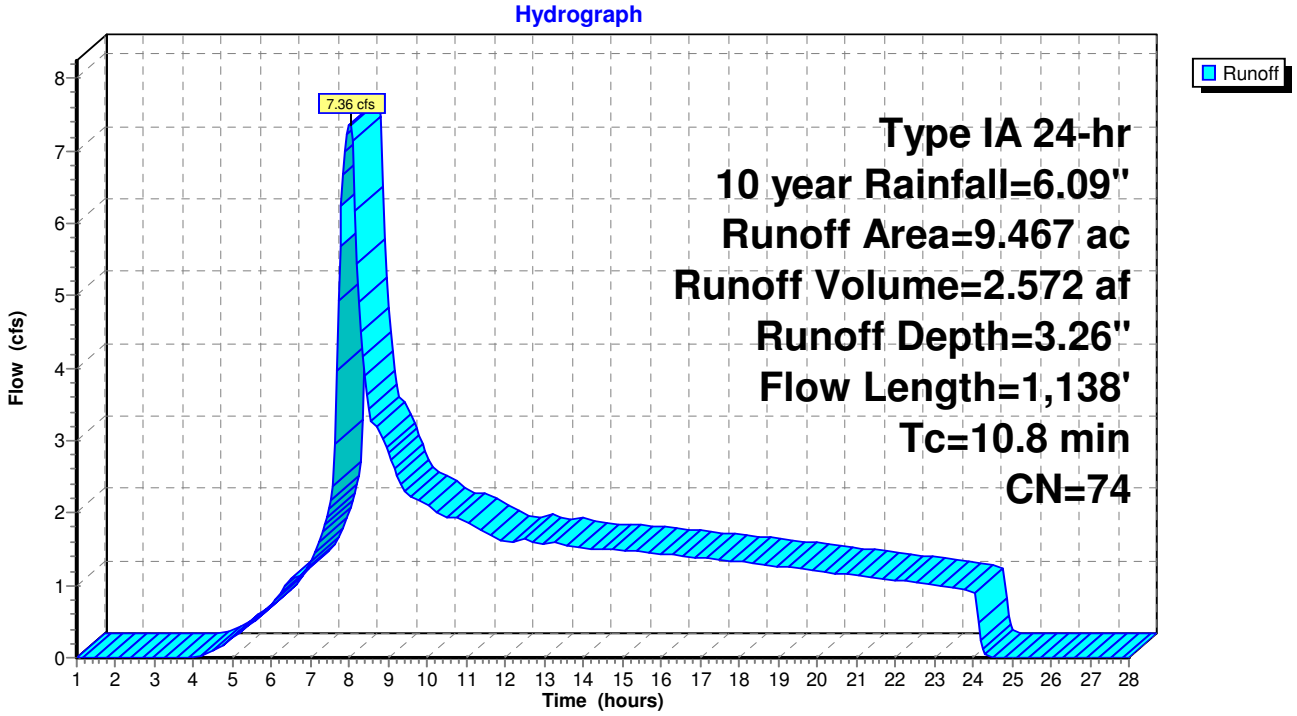
Runoff = 7.36 cfs @ 8.02 hrs, Volume= 2.572 af, Depth= 3.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.070	87	Dirt roads, HSG C
3.140	79	Pasture/grassland/range, Fair, HSG C
0.819	79	Vineyard, Fair, HSG C
5.438	70	Woods, Good, HSG C
9.467	74	Weighted Average
9.467		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.3	604	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	139	0.2300	11.91	23.82	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.3	156	0.2600	8.21		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.8	139	0.0200	2.83	26.88	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
10.8	1,138	Total			

Subcatchment WS1G: Subcat WS1G



Summary for Subcatchment WS1H: Subcat WS1H

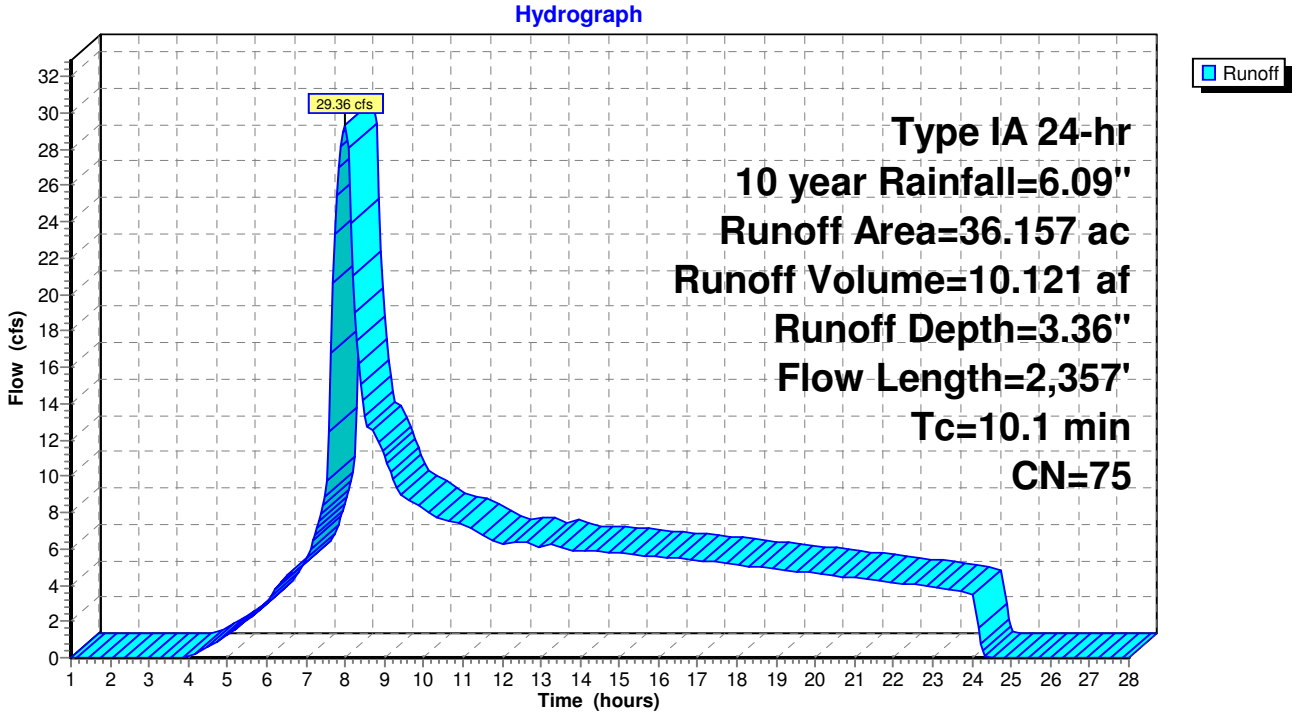
Runoff = 29.36 cfs @ 8.00 hrs, Volume= 10.121 af, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.574	65	Brush, Good, HSG C
0.341	87	Dirt roads, HSG C
16.188	79	Pasture/grassland/range, Fair, HSG C
2.076	79	Vineyard, Fair, HSG C
16.978	70	Woods, Good, HSG C
36.157	75	Weighted Average
36.157		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1400	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	610	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.9	1,647	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.1	2,357	Total			

Subcatchment WS1H: Subcat WS1H



Summary for Subcatchment WS1I: Subcat WS1I

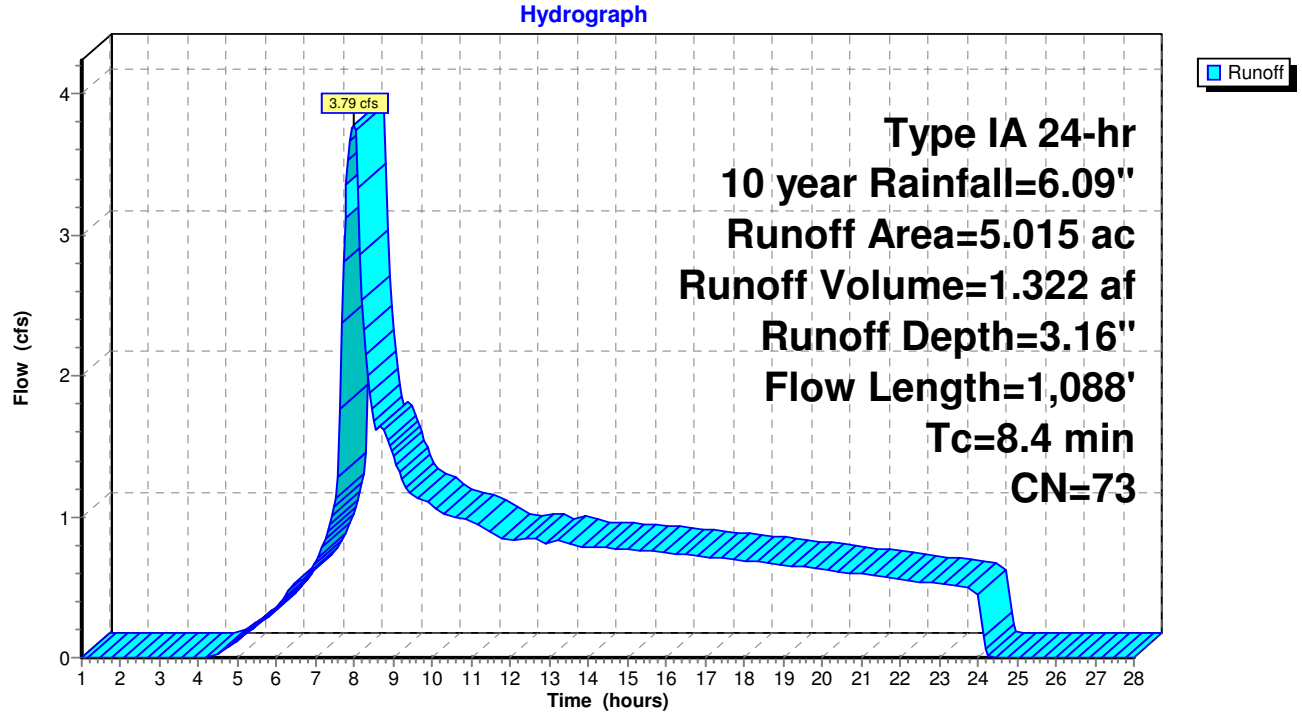
Runoff = 3.79 cfs @ 7.99 hrs, Volume= 1.322 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
1.412	79	Pasture/grassland/range, Fair, HSG C
0.535	79	Vineyard, Fair, HSG C
3.068	70	Woods, Good, HSG C
5.015	73	Weighted Average
5.015		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1400	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	664	0.2100	7.38		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.1	324	0.0600	4.90	46.55	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
8.4	1,088	Total			

Subcatchment WS1I: Subcat WS1I



Summary for Subcatchment WS1J: Subcat WS1J

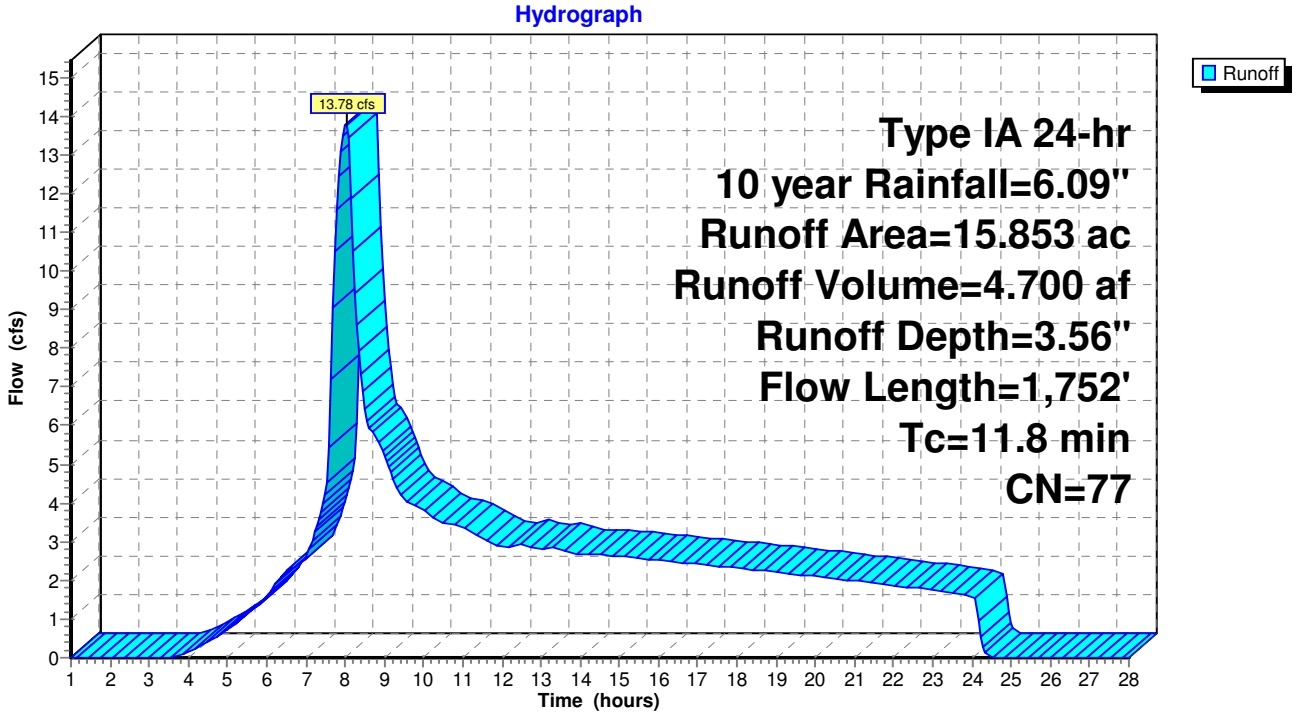
Runoff = 13.78 cfs @ 8.02 hrs, Volume= 4.700 af, Depth= 3.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.211	89	Gravel Roads, HSG C
1.797	79	Pasture/grassland/range, Fair, HSG C
2.246	74	Pasture/grassland/range, Good, HSG C
8.948	79	Vineyard, Fair, HSG C
2.650	70	Woods, Good, HSG C
15.853	77	Weighted Average
15.853		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	93	0.0500	0.19		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
2.1	826	0.1700	6.64		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	833	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
11.8	1,752	Total			

Subcatchment WS1J: Subcat WS1J



Summary for Subcatchment WS1K: Subcat WS1K

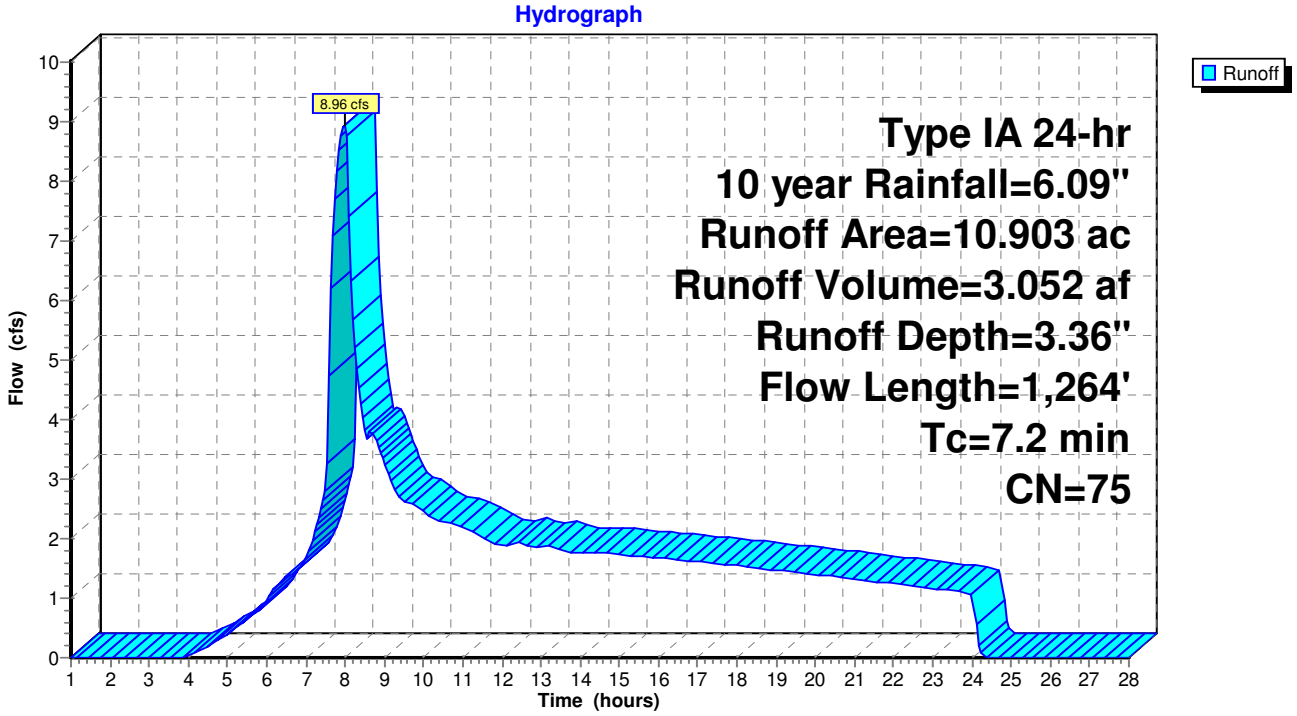
Runoff = 8.96 cfs @ 7.98 hrs, Volume= 3.052 af, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.051	87	Dirt roads, HSG C
5.933	79	Pasture/grassland/range, Fair, HSG C
0.486	79	Vineyard, Fair, HSG C
4.433	70	Woods, Good, HSG C
10.903	75	Weighted Average
10.903		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	100	0.2700	0.37		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.8	753	0.1800	6.83		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.3	189	0.1400	9.29	18.58	**Trap/Vee/Rect Channel Flow, Assumed std ditch-1** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.6	222	0.0600	6.08	12.16	**Trap/Vee/Rect Channel Flow, Assumed std ditch-2** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.2	1,264	Total			

Subcatchment WS1K: Subcat WS1K



Summary for Subcatchment WS1L: Subcat WS1L

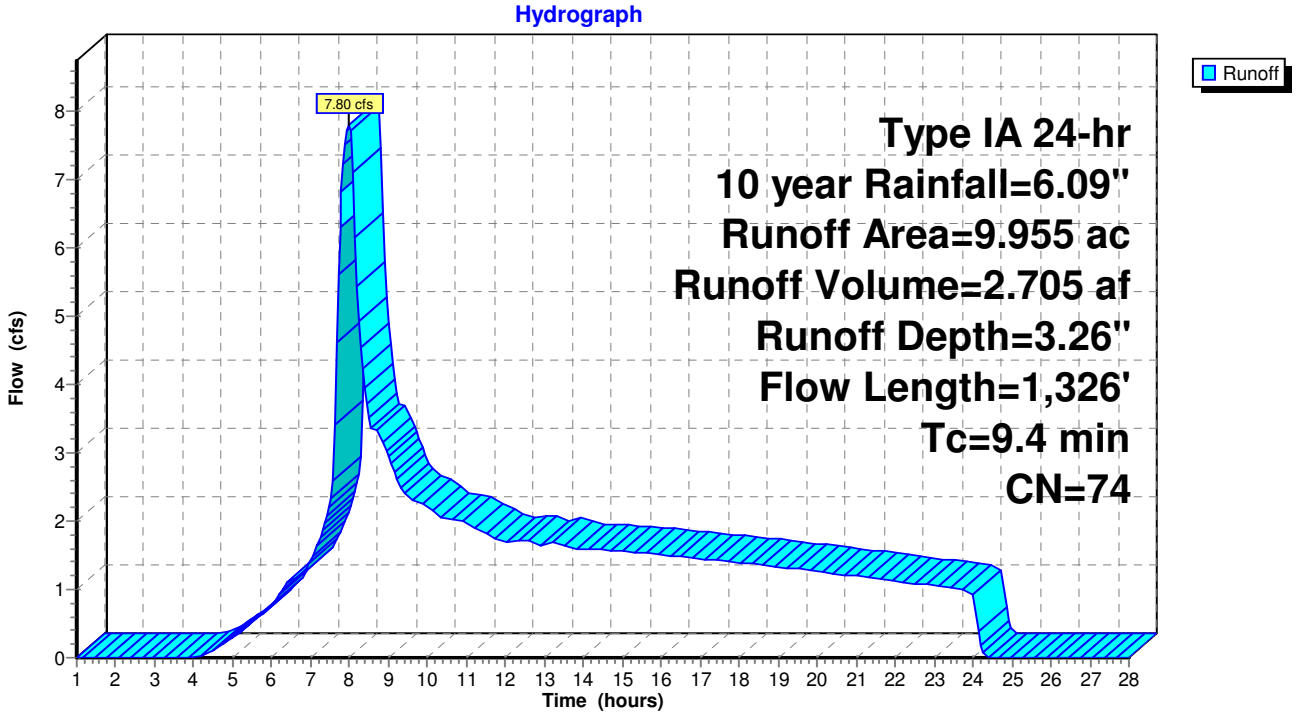
Runoff = 7.80 cfs @ 8.00 hrs, Volume= 2.705 af, Depth= 3.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
1.300	65	Brush, Good, HSG C
0.181	87	Dirt roads, HSG C
3.543	79	Pasture/grassland/range, Fair, HSG C
1.606	74	Pasture/grassland/range, Good, HSG C
3.325	70	Woods, Good, HSG C
9.955	74	Weighted Average
9.955		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	100	0.0900	0.24		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.8	348	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	78	0.0800	7.02	14.05	**Trap/Vee/Rect Channel Flow, Std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.2	92	0.3200	9.11		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
1.2	708	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
9.4	1,326	Total			

Subcatchment WS1L: Subcat WS1L



Summary for Subcatchment WS1M: Subcat WS1M

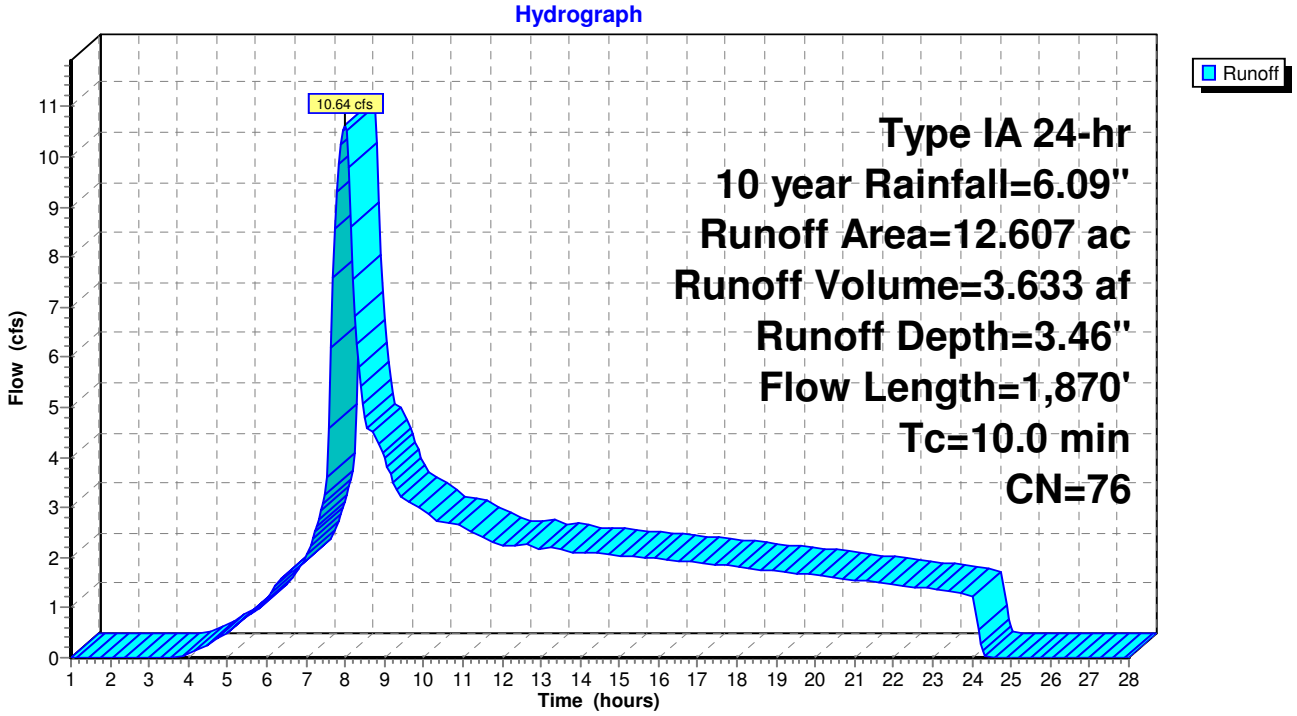
Runoff = 10.64 cfs @ 8.00 hrs, Volume= 3.633 af, Depth= 3.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
1.186	65	Brush, Good, HSG C
0.165	87	Dirt roads, HSG C
9.079	79	Pasture/grassland/range, Fair, HSG C
0.673	74	Pasture/grassland/range, Good, HSG C
1.503	70	Woods, Good, HSG C
12.607	76	Weighted Average
12.607		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1500	0.29		**Sheet Flow, 0.15** Grass: Dense n= 0.240 P2= 4.05"
1.6	675	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	37	0.0200	3.51	7.02	**Trap/Vee/Rect Channel Flow, Std Ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
1.7	626	0.1400	6.02		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.8	432	0.1400	9.29	18.58	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.0	1,870	Total			

Subcatchment WS1M: Subcat WS1M



Summary for Subcatchment WS1N: Subcat WS1N

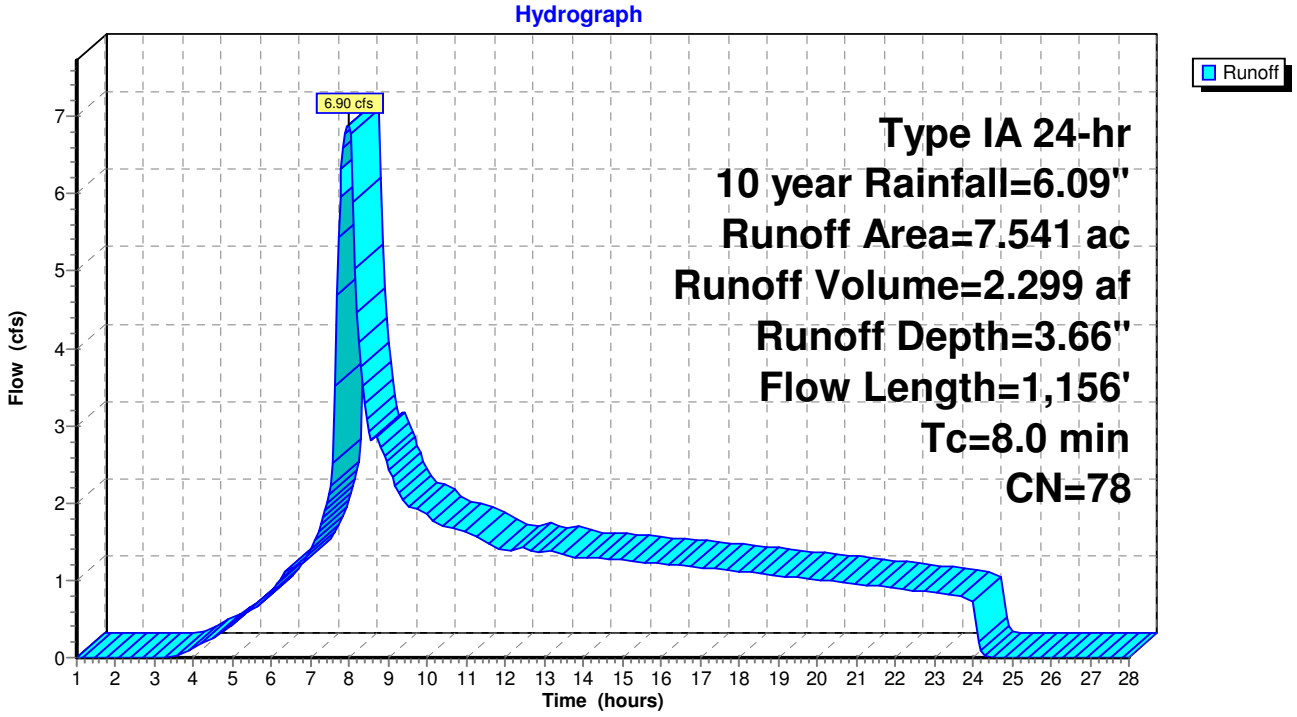
Runoff = 6.90 cfs @ 7.98 hrs, Volume= 2.299 af, Depth= 3.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.332	65	Brush, Good, HSG C
0.045	87	Dirt roads, HSG C
7.164	79	Pasture/grassland/range, Fair, HSG C
7.541	78	Weighted Average
7.541		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1500	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.9	775	0.1700	6.64		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.4	281	0.2600	12.66	25.32	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.0	1,156	Total			

Subcatchment WS1N: Subcat WS1N



Summary for Subcatchment WS1O: Subcat WS1O

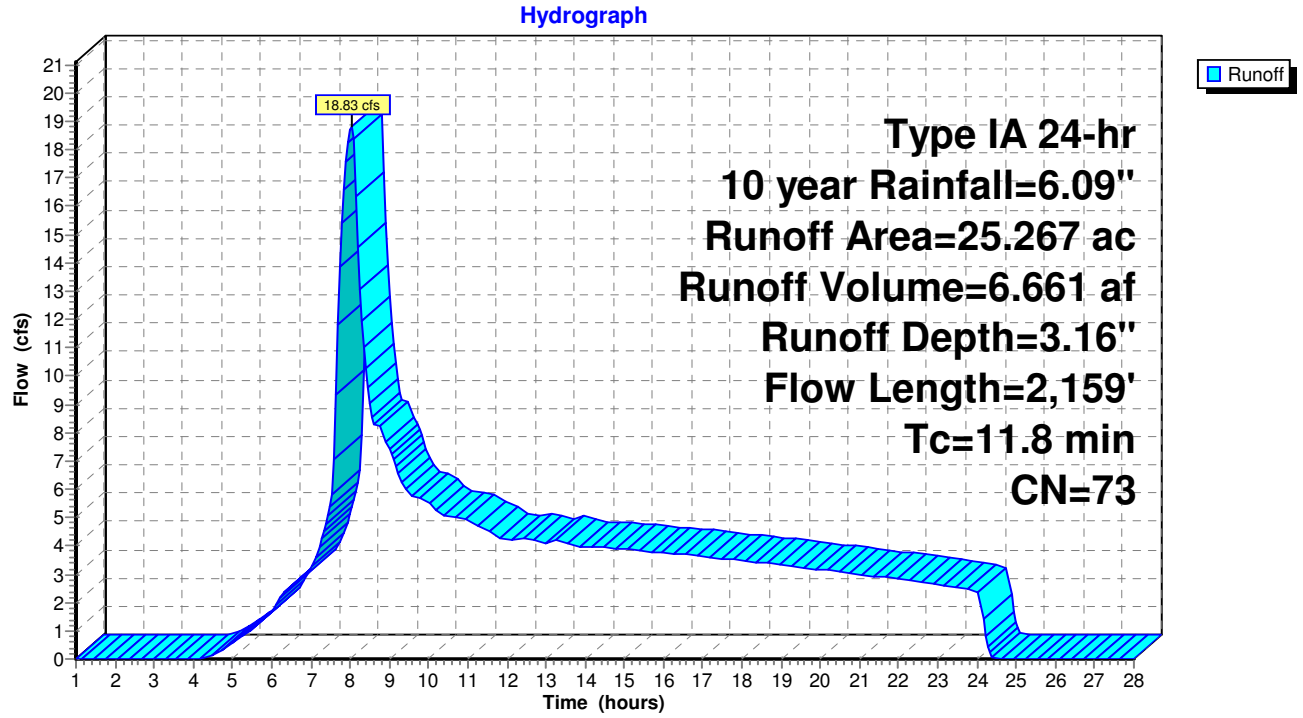
Runoff = 18.83 cfs @ 8.03 hrs, Volume= 6.661 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.049	87	Dirt roads, HSG C
5.153	79	Pasture/grassland/range, Fair, HSG C
2.236	79	Vineyard, Fair, HSG C
17.829	70	Woods, Good, HSG C
25.267	73	Weighted Average
25.267		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.3100	0.26		**Sheet Flow, Sheet-1** Woods: Light underbrush n= 0.400 P2= 4.05"
2.6	1,166	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.8	893	0.0700	5.29	50.28	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
11.8	2,159	Total			

Subcatchment WS1O: Subcat WS1O



Summary for Subcatchment WS1P: Subcat WS1P

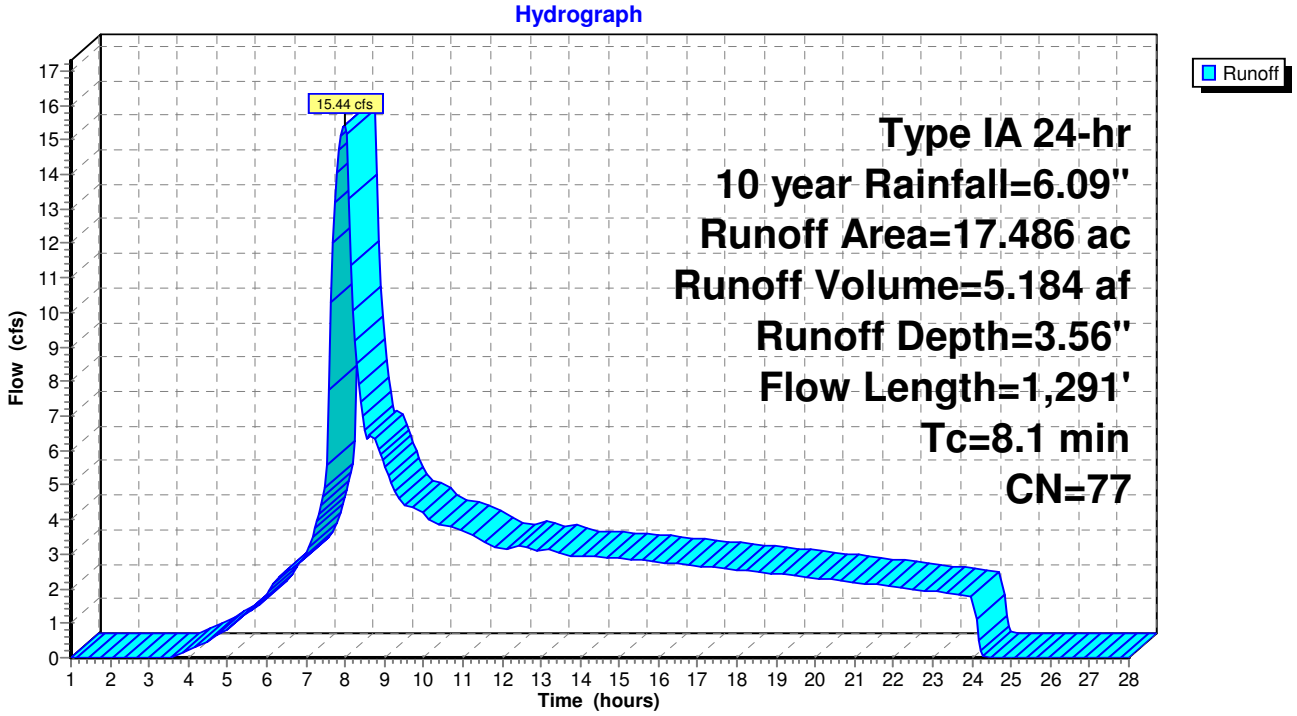
Runoff = 15.44 cfs @ 7.98 hrs, Volume= 5.184 af, Depth= 3.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.263	87	Dirt roads, HSG C
2.086	82	Farmsteads, HSG C
0.713	79	Pasture/grassland/range, Fair, HSG C
3.477	74	Pasture/grassland/range, Good, HSG C
7.176	79	Vineyard, Fair, HSG C
3.771	70	Woods, Good, HSG C
17.486	77	Weighted Average
17.486		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0500	0.28		**Sheet Flow, Sheet-1** Grass: Short n= 0.150 P2= 4.05"
0.7	331	0.2400	7.89		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	860	0.1700	10.24	20.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.1	1,291	Total			

Subcatchment WS1P: Subcat WS1P



Summary for Subcatchment WS1Q: Subcat WS1Q

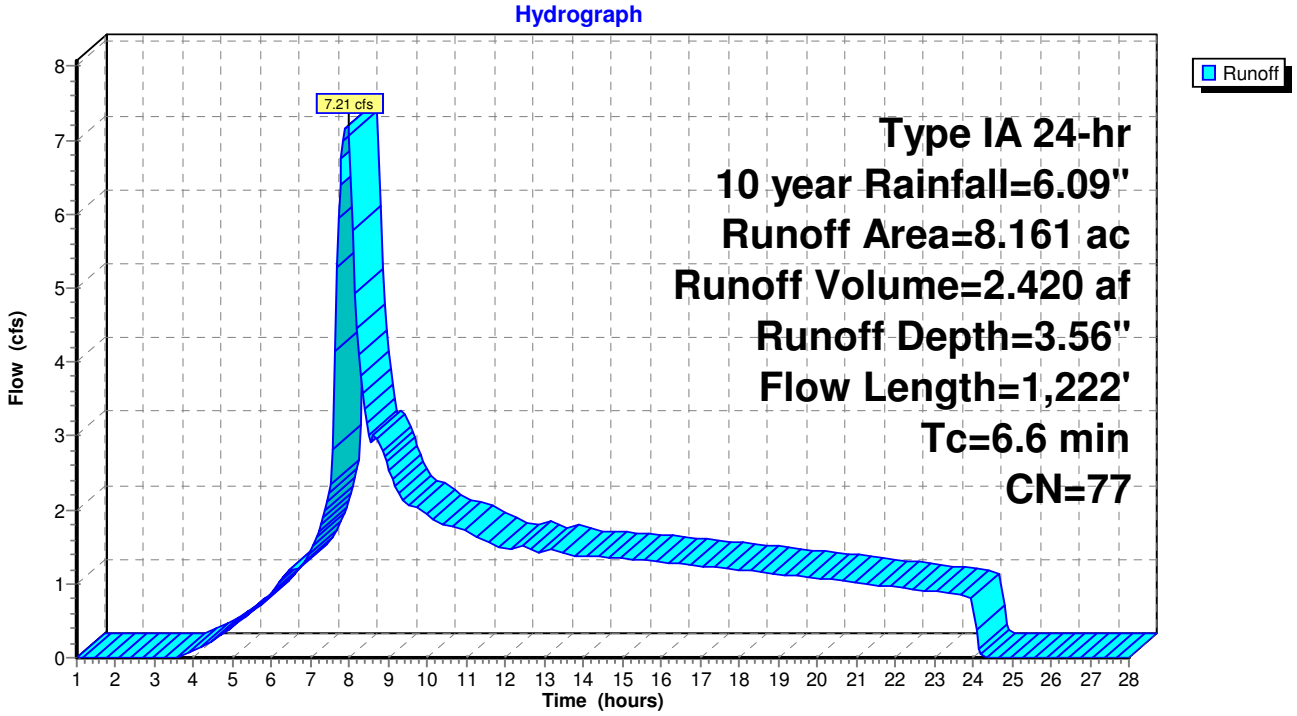
Runoff = 7.21 cfs @ 7.96 hrs, Volume= 2.420 af, Depth= 3.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.151	87	Dirt roads, HSG C
0.039	82	Farmsteads, HSG C
4.319	79	Pasture/grassland/range, Fair, HSG C
1.502	79	Vineyard, Fair, HSG C
2.150	70	Woods, Good, HSG C
8.161	77	Weighted Average
8.161		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.3200	0.40		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	659	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.9	463	0.1900	8.72	82.84	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
6.6	1,222	Total			

Subcatchment WS1Q: Subcat WS1Q



Summary for Subcatchment WS1R: Subcat WS1R

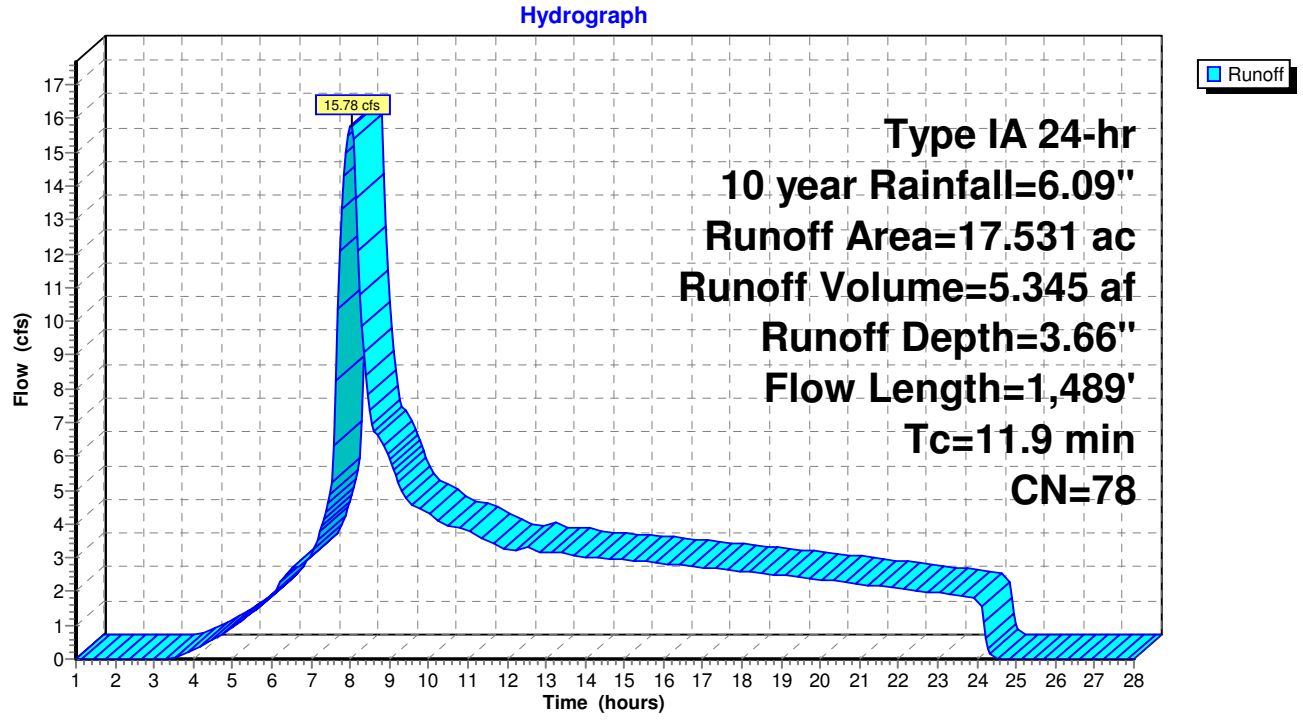
Runoff = 15.78 cfs @ 8.02 hrs, Volume= 5.345 af, Depth= 3.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.110	87	Dirt roads, HSG C
15.096	79	Pasture/grassland/range, Fair, HSG C
0.815	74	Pasture/grassland/range, Good, HSG C
1.510	70	Woods, Good, HSG C
17.531	78	Weighted Average
17.531		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
2.3	759	0.1200	5.58		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	630	0.0900	7.45	14.90	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
11.9	1,489	Total			

Subcatchment WS1R: Subcat WS1R



Summary for Reach R1: Main Stem

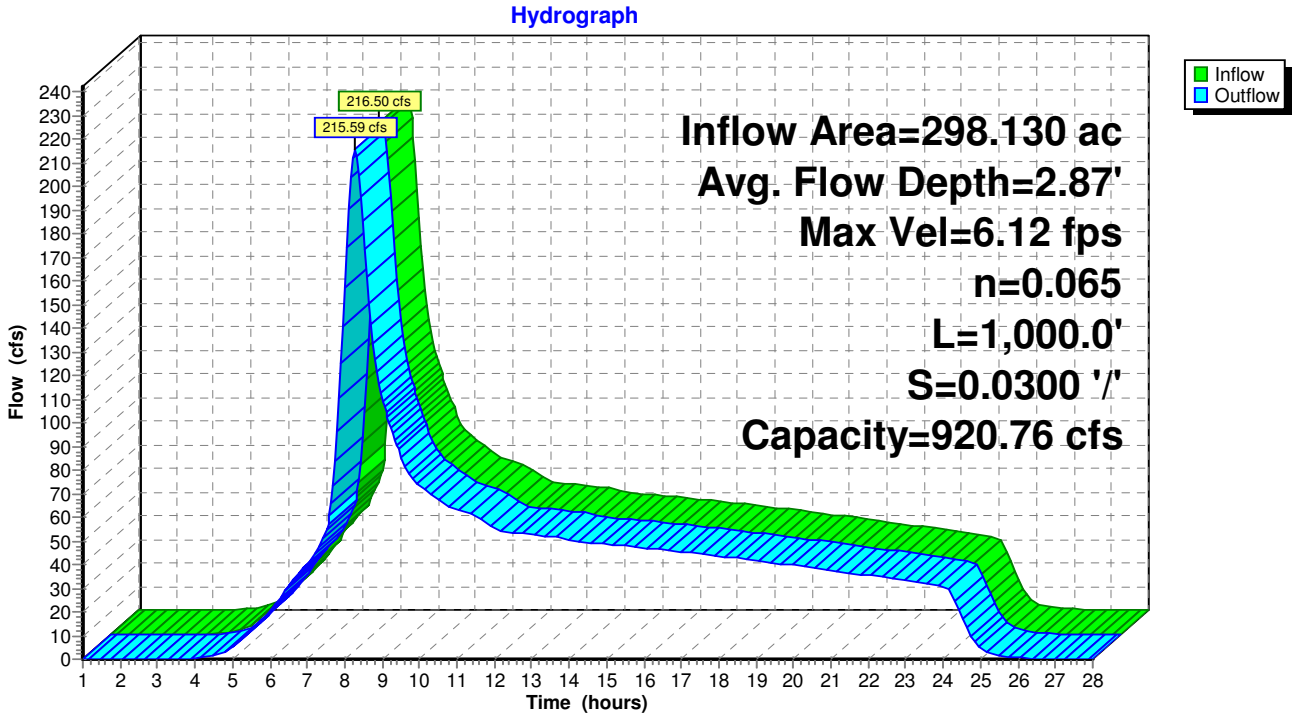
Inflow Area = 298.130 ac, 0.00% Impervious, Inflow Depth > 3.45" for 10 year event
Inflow = 216.50 cfs @ 8.18 hrs, Volume= 85.768 af
Outflow = 215.59 cfs @ 8.27 hrs, Volume= 85.764 af, Atten= 0%, Lag= 4.9 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.12 fps, Min. Travel Time= 2.7 min
Avg. Velocity = 3.24 fps, Avg. Travel Time= 5.1 min

Peak Storage= 35,240 cf @ 8.22 hrs
Average Depth at Peak Storage= 2.87'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 920.76 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,000.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -30.00'

Reach R1: Main Stem



Summary for Reach R2: Main Stem

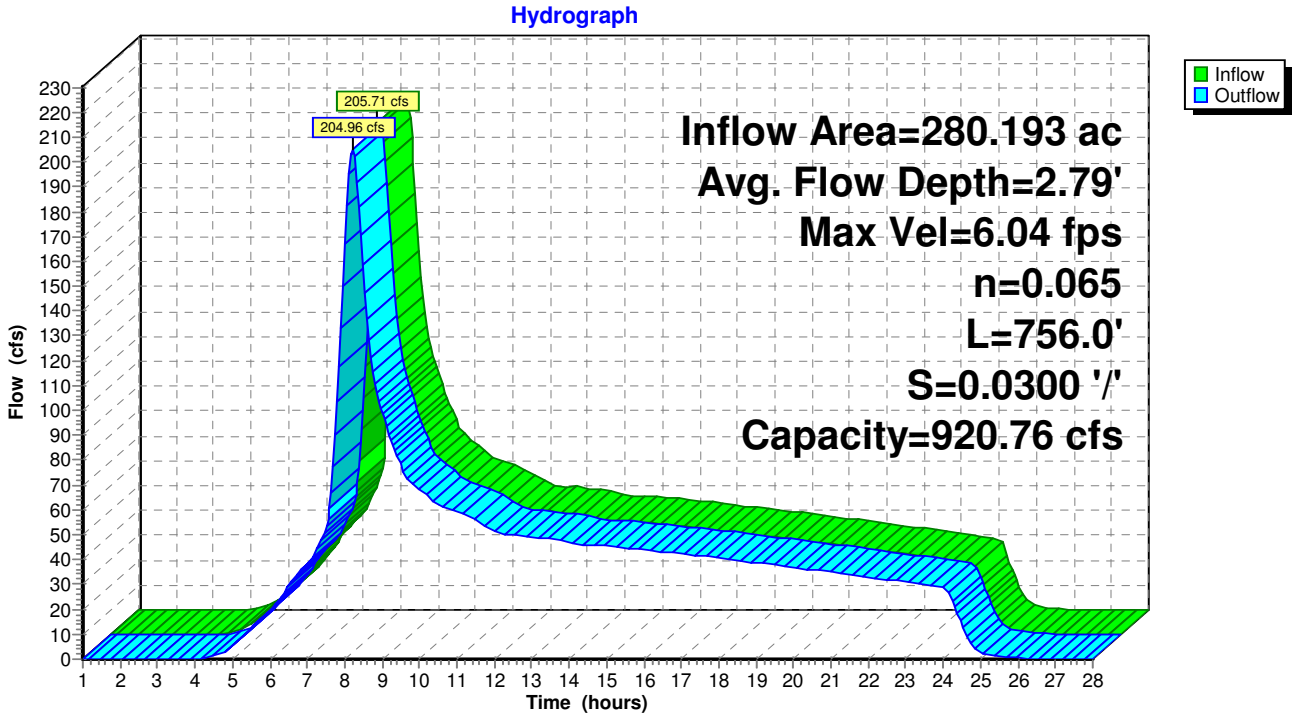
Inflow Area = 280.193 ac, 0.00% Impervious, Inflow Depth > 3.42" for 10 year event
Inflow = 205.71 cfs @ 8.13 hrs, Volume= 79.841 af
Outflow = 204.96 cfs @ 8.20 hrs, Volume= 79.840 af, Atten= 0%, Lag= 4.2 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.04 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 3.23 fps, Avg. Travel Time= 3.9 min

Peak Storage= 25,720 cf @ 8.16 hrs
Average Depth at Peak Storage= 2.79'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 920.76 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 756.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -22.68'

Reach R2: Main Stem



Summary for Reach R3: Stream

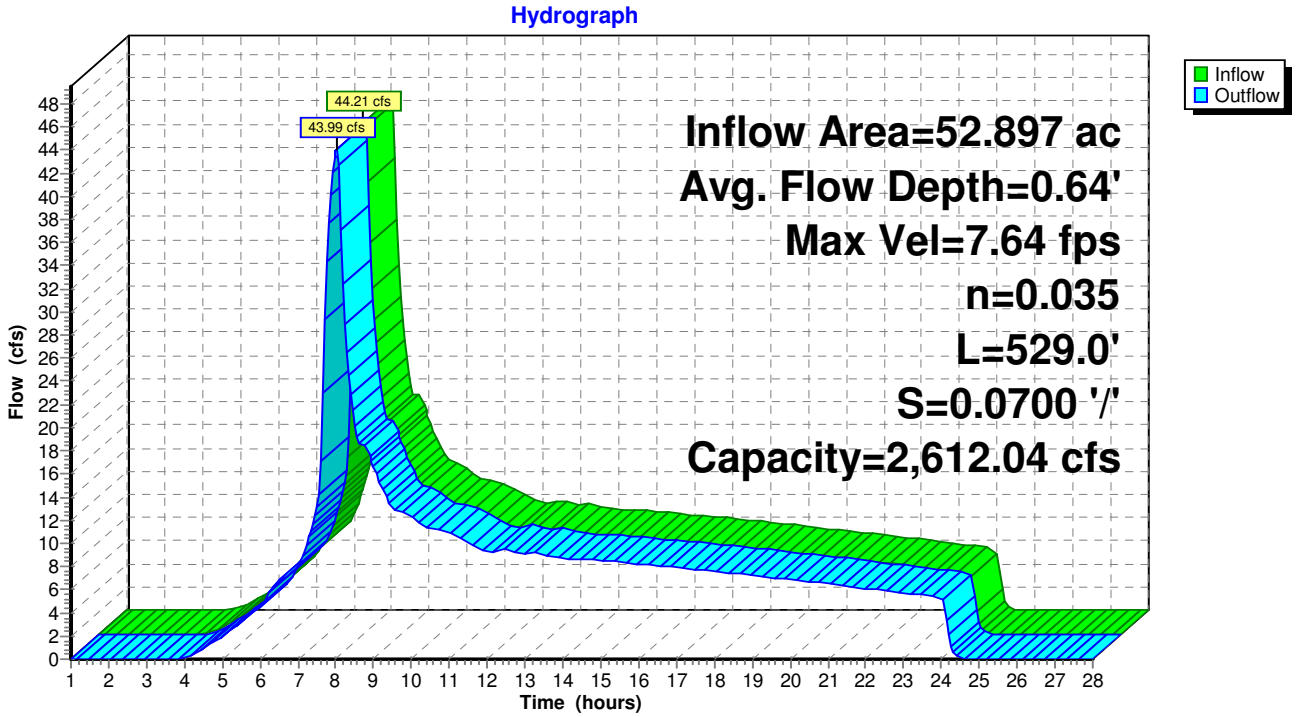
Inflow Area = 52.897 ac, 0.00% Impervious, Inflow Depth = 3.42" for 10 year event
Inflow = 44.21 cfs @ 7.99 hrs, Volume= 15.070 af
Outflow = 43.99 cfs @ 8.01 hrs, Volume= 15.070 af, Atten= 0%, Lag= 1.6 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.64 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 4.00 fps, Avg. Travel Time= 2.2 min

Peak Storage= 3,057 cf @ 8.00 hrs
Average Depth at Peak Storage= 0.64'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 2,612.04 cfs

8.00' x 6.00' deep channel, n= 0.035
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 529.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -37.03'

Reach R3: Stream



Summary for Reach R4.1: Main Stem

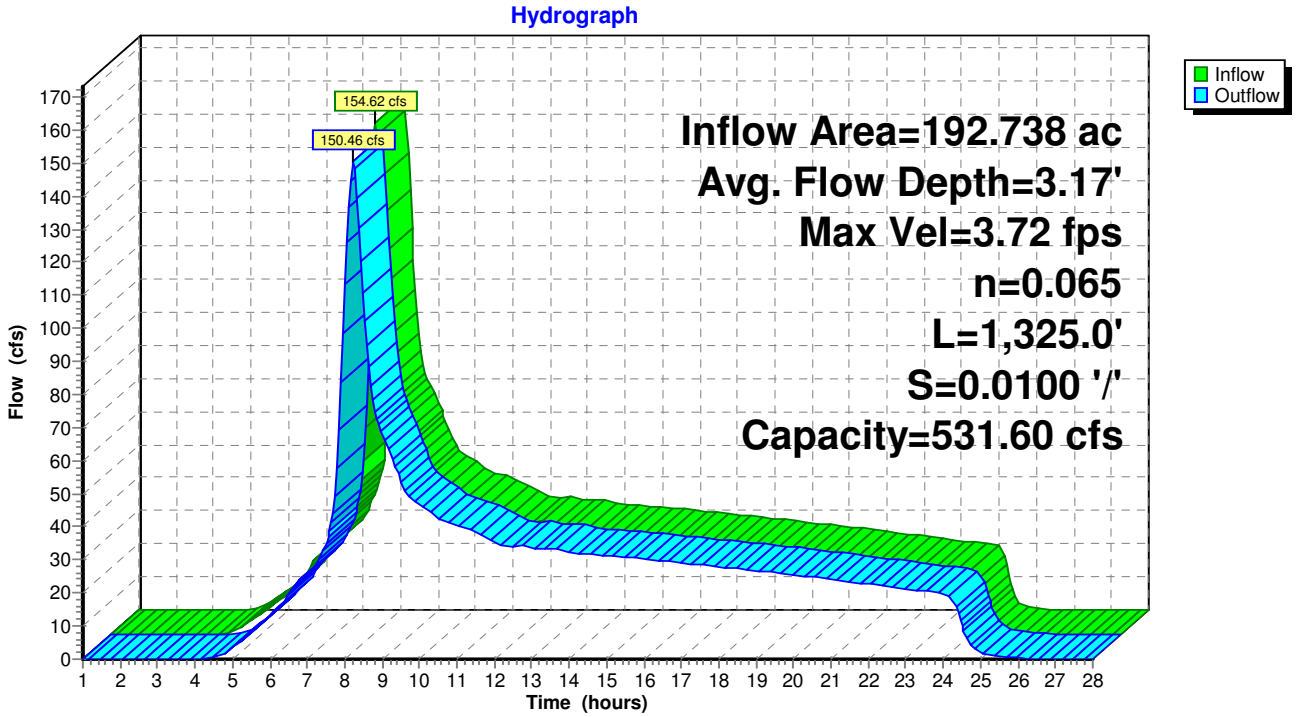
Inflow Area = 192.738 ac, 0.00% Impervious, Inflow Depth = 3.41" for 10 year event
Inflow = 154.62 cfs @ 8.07 hrs, Volume= 54.714 af
Outflow = 150.46 cfs @ 8.23 hrs, Volume= 54.711 af, Atten= 3%, Lag= 9.7 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.72 fps, Min. Travel Time= 5.9 min
Avg. Velocity = 1.97 fps, Avg. Travel Time= 11.2 min

Peak Storage= 53,534 cf @ 8.14 hrs
Average Depth at Peak Storage= 3.17'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 531.60 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,325.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -13.25'

Reach R4.1: Main Stem



Summary for Reach R4.2: Main Stem

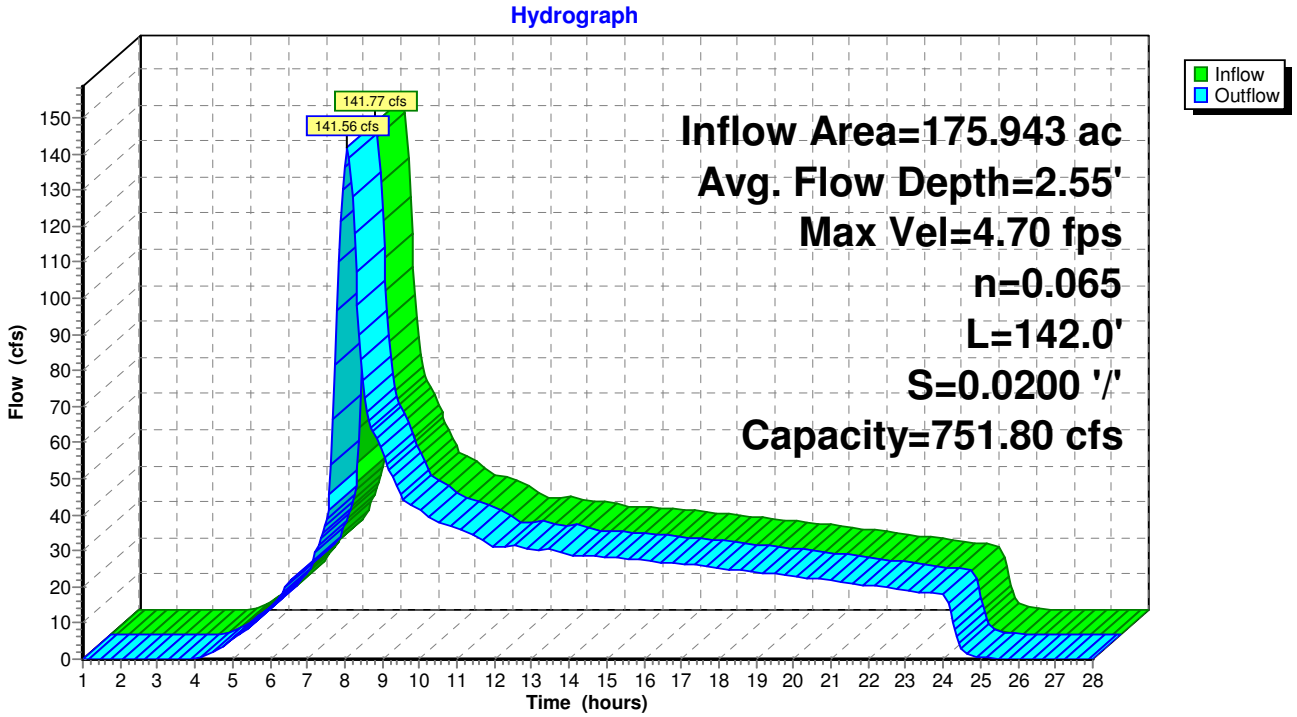
Inflow Area = 175.943 ac, 0.00% Impervious, Inflow Depth = 3.41" for 10 year event
Inflow = 141.77 cfs @ 8.07 hrs, Volume= 50.013 af
Outflow = 141.56 cfs @ 8.08 hrs, Volume= 50.013 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.70 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.42 fps, Avg. Travel Time= 1.0 min

Peak Storage= 4,280 cf @ 8.07 hrs
Average Depth at Peak Storage= 2.55'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 751.80 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 142.0' Slope= 0.0200 '/'
Inlet Invert= 0.00', Outlet Invert= -2.84'

Reach R4.2: Main Stem



Summary for Reach R5: Main Stem

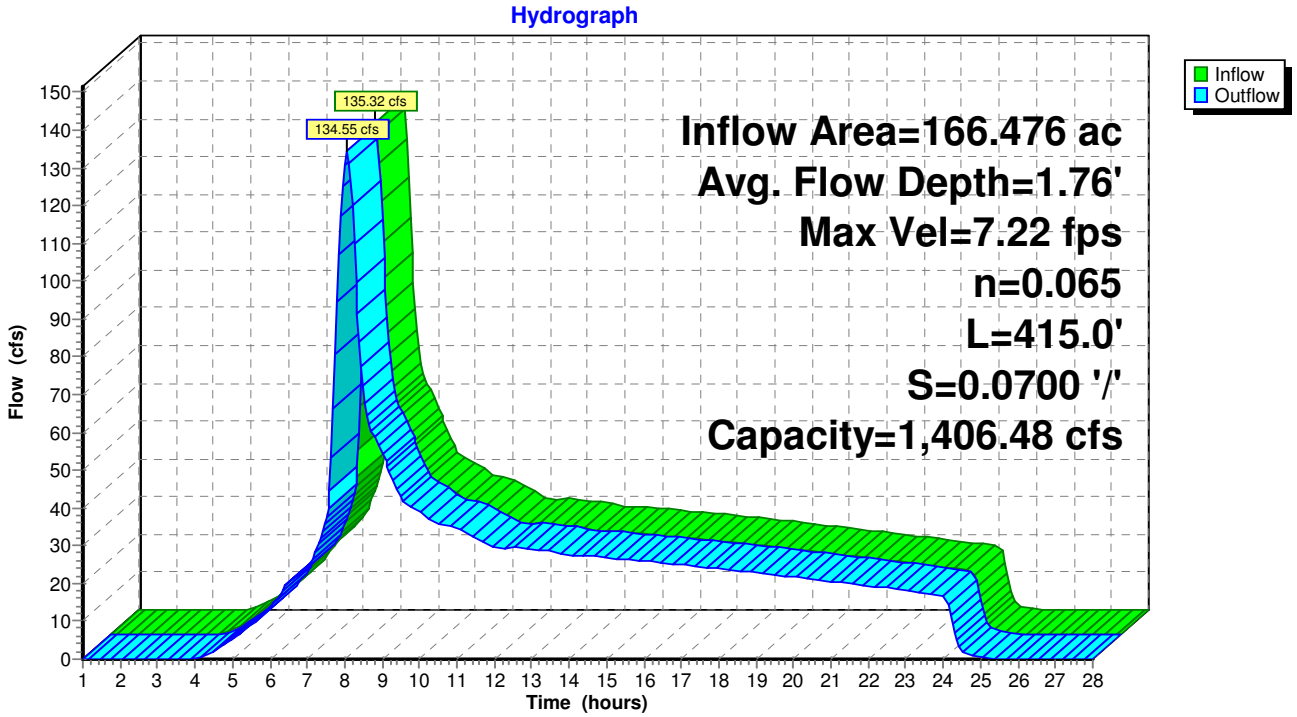
Inflow Area = 166.476 ac, 0.00% Impervious, Inflow Depth = 3.42" for 10 year event
Inflow = 135.32 cfs @ 8.05 hrs, Volume= 47.441 af
Outflow = 134.55 cfs @ 8.07 hrs, Volume= 47.441 af, Atten= 1%, Lag= 1.6 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.22 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 3.67 fps, Avg. Travel Time= 1.9 min

Peak Storage= 7,762 cf @ 8.06 hrs
Average Depth at Peak Storage= 1.76'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,406.48 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 415.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -29.05'

Reach R5: Main Stem



Summary for Reach R6: Main Stem

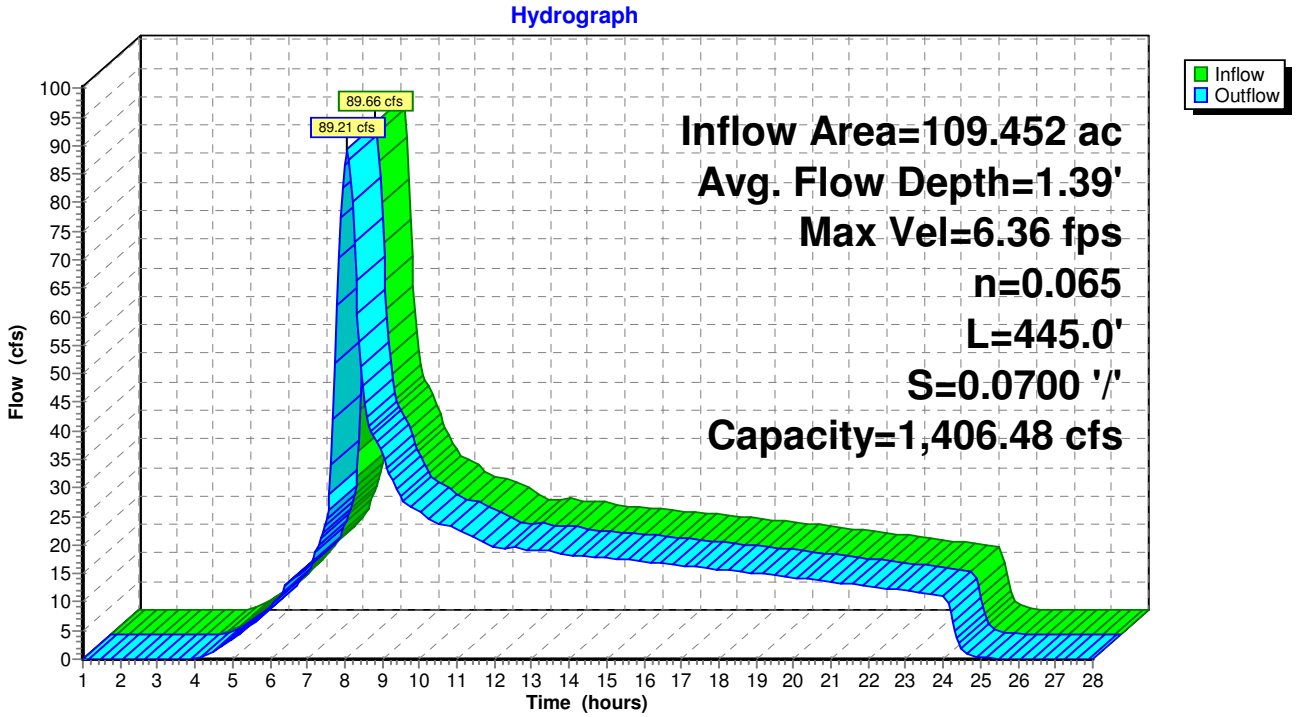
Inflow Area = 109.452 ac, 0.00% Impervious, Inflow Depth = 3.43" for 10 year event
Inflow = 89.66 cfs @ 8.05 hrs, Volume= 31.298 af
Outflow = 89.21 cfs @ 8.08 hrs, Volume= 31.298 af, Atten= 0%, Lag= 1.9 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.36 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 3.20 fps, Avg. Travel Time= 2.3 min

Peak Storage= 6,255 cf @ 8.06 hrs
Average Depth at Peak Storage= 1.39'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,406.48 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 445.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -31.15'

Reach R6: Main Stem



Summary for Reach R7.1: Stream

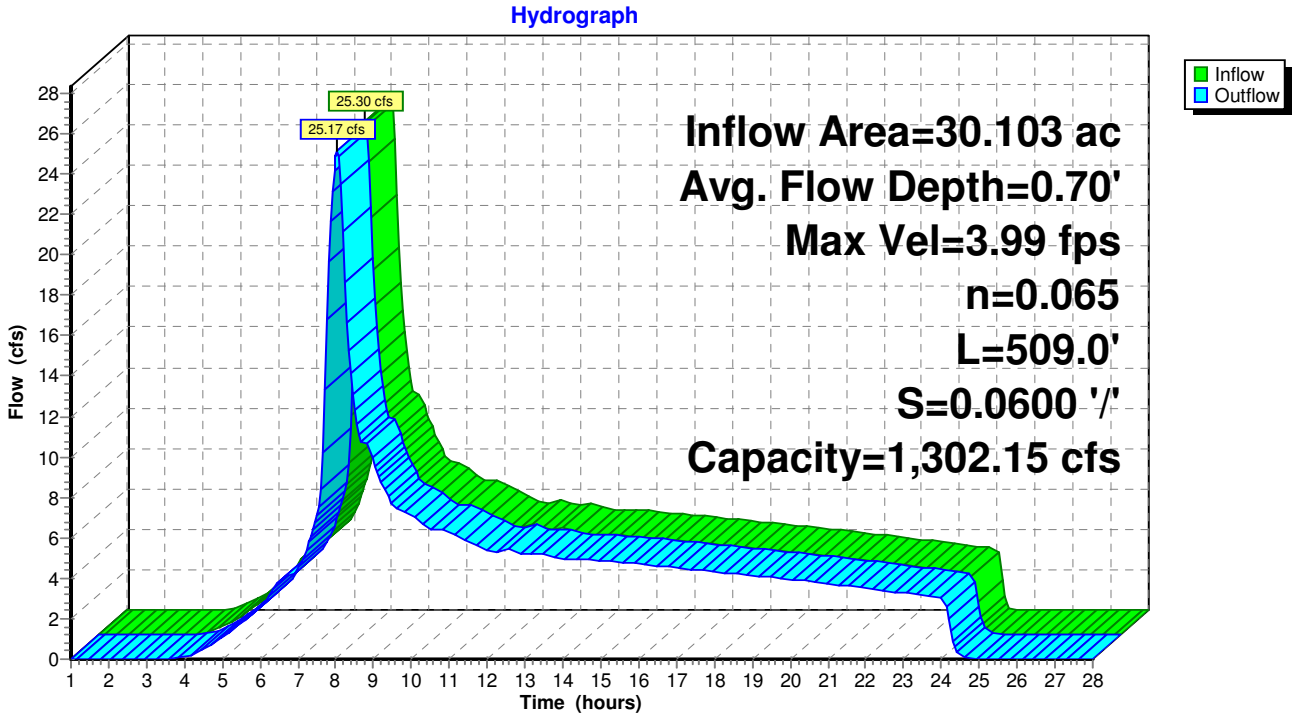
Inflow Area = 30.103 ac, 0.00% Impervious, Inflow Depth = 3.44" for 10 year event
Inflow = 25.30 cfs @ 8.00 hrs, Volume= 8.637 af
Outflow = 25.17 cfs @ 8.05 hrs, Volume= 8.637 af, Atten= 1%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.99 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 2.04 fps, Avg. Travel Time= 4.2 min

Peak Storage= 3,224 cf @ 8.03 hrs
Average Depth at Peak Storage= 0.70'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,302.15 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 509.0' Slope= 0.0600 '/'
Inlet Invert= 0.00', Outlet Invert= -30.54'

Reach R7.1: Stream



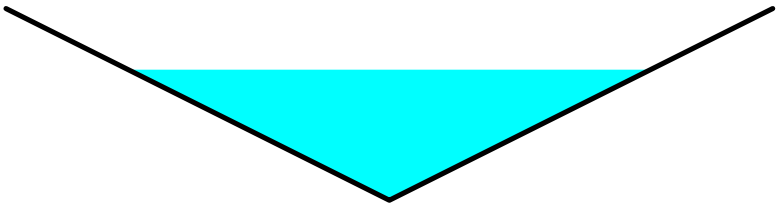
Summary for Reach R7.2: Channel

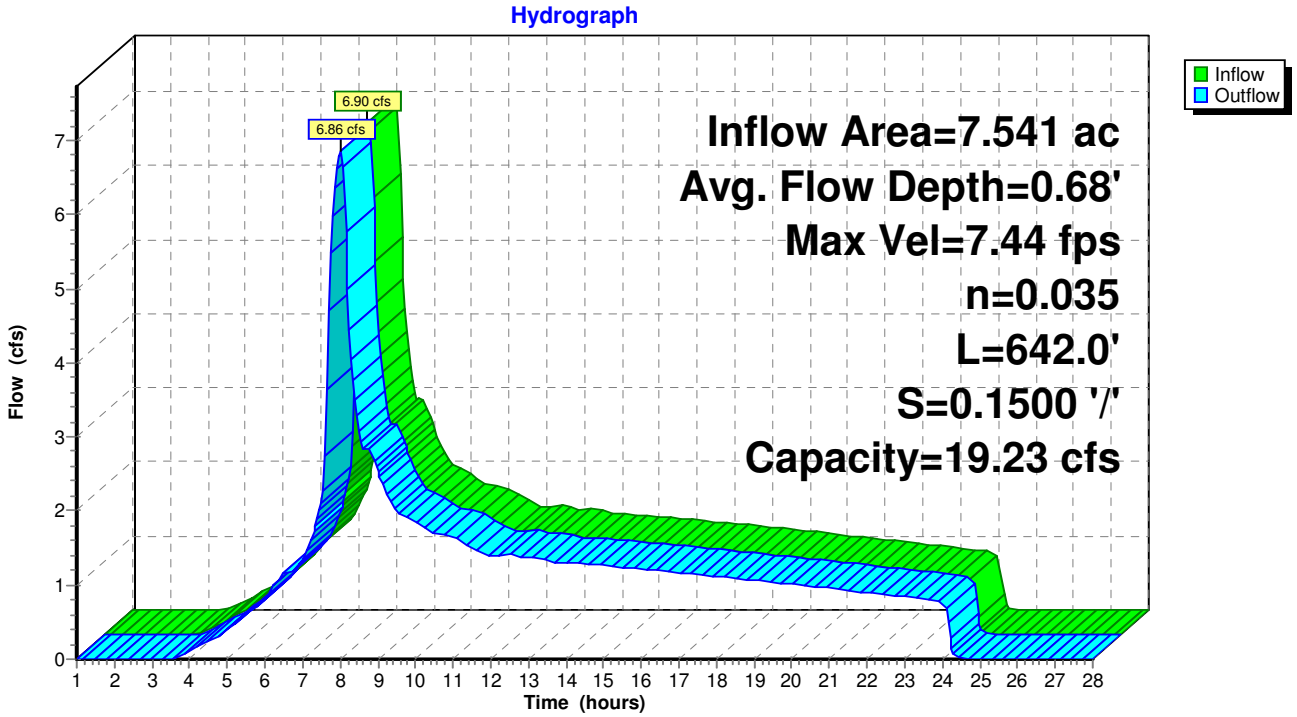
Inflow Area = 7.541 ac, 0.00% Impervious, Inflow Depth = 3.66" for 10 year event
Inflow = 6.90 cfs @ 7.98 hrs, Volume= 2.299 af
Outflow = 6.86 cfs @ 8.01 hrs, Volume= 2.299 af, Atten= 1%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.44 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 4.51 fps, Avg. Travel Time= 2.4 min

Peak Storage= 594 cf @ 7.99 hrs
Average Depth at Peak Storage= 0.68'
Bank-Full Depth= 1.00' Flow Area= 2.0 sf, Capacity= 19.23 cfs

0.00' x 1.00' deep channel, n= 0.035
Side Slope Z-value= 2.0 '/' Top Width= 4.00'
Length= 642.0' Slope= 0.1500 '/'
Inlet Invert= 0.00', Outlet Invert= -96.30'





Summary for Reach R8: Main Stem

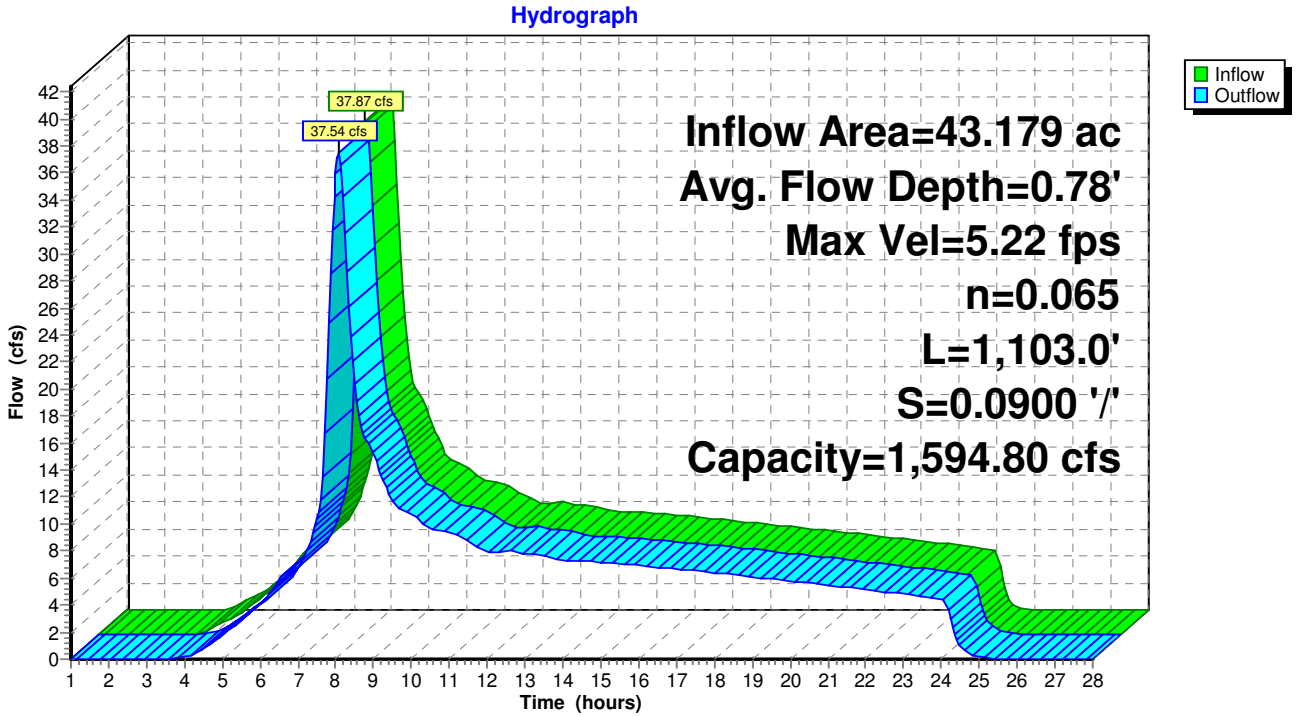
Inflow Area = 43.179 ac, 0.00% Impervious, Inflow Depth = 3.60" for 10 year event
Inflow = 37.87 cfs @ 8.00 hrs, Volume= 12.949 af
Outflow = 37.54 cfs @ 8.09 hrs, Volume= 12.949 af, Atten= 1%, Lag= 5.3 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.22 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 2.60 fps, Avg. Travel Time= 7.1 min

Peak Storage= 7,943 cf @ 8.03 hrs
Average Depth at Peak Storage= 0.78'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,594.80 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,103.0' Slope= 0.0900 '/'
Inlet Invert= 0.00', Outlet Invert= -99.27'

Reach R8: Main Stem



Summary for Reach R9: Main Stem

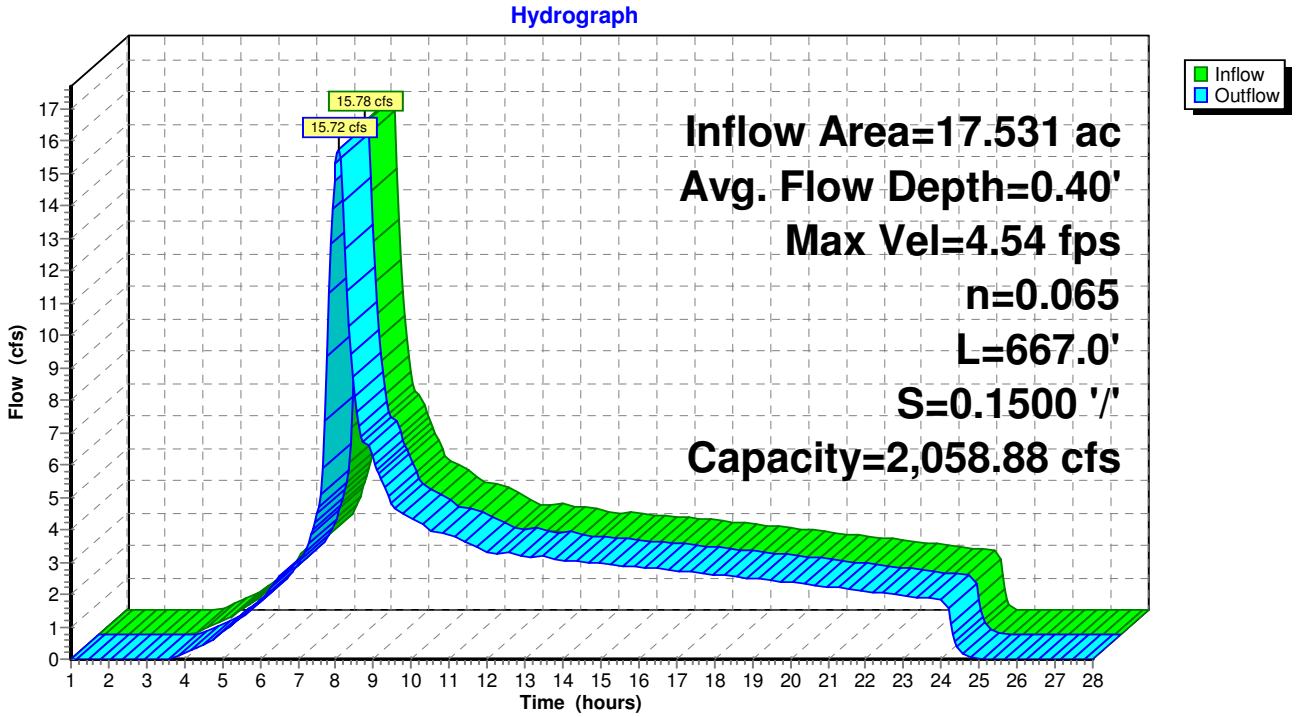
Inflow Area = 17.531 ac, 0.00% Impervious, Inflow Depth = 3.66" for 10 year event
Inflow = 15.78 cfs @ 8.02 hrs, Volume= 5.345 af
Outflow = 15.72 cfs @ 8.08 hrs, Volume= 5.345 af, Atten= 0%, Lag= 3.5 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.54 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 2.33 fps, Avg. Travel Time= 4.8 min

Peak Storage= 2,311 cf @ 8.04 hrs
Average Depth at Peak Storage= 0.40'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 2,058.88 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 667.0' Slope= 0.1500 '/'
Inlet Invert= 0.00', Outlet Invert= -100.05'

Reach R9: Main Stem

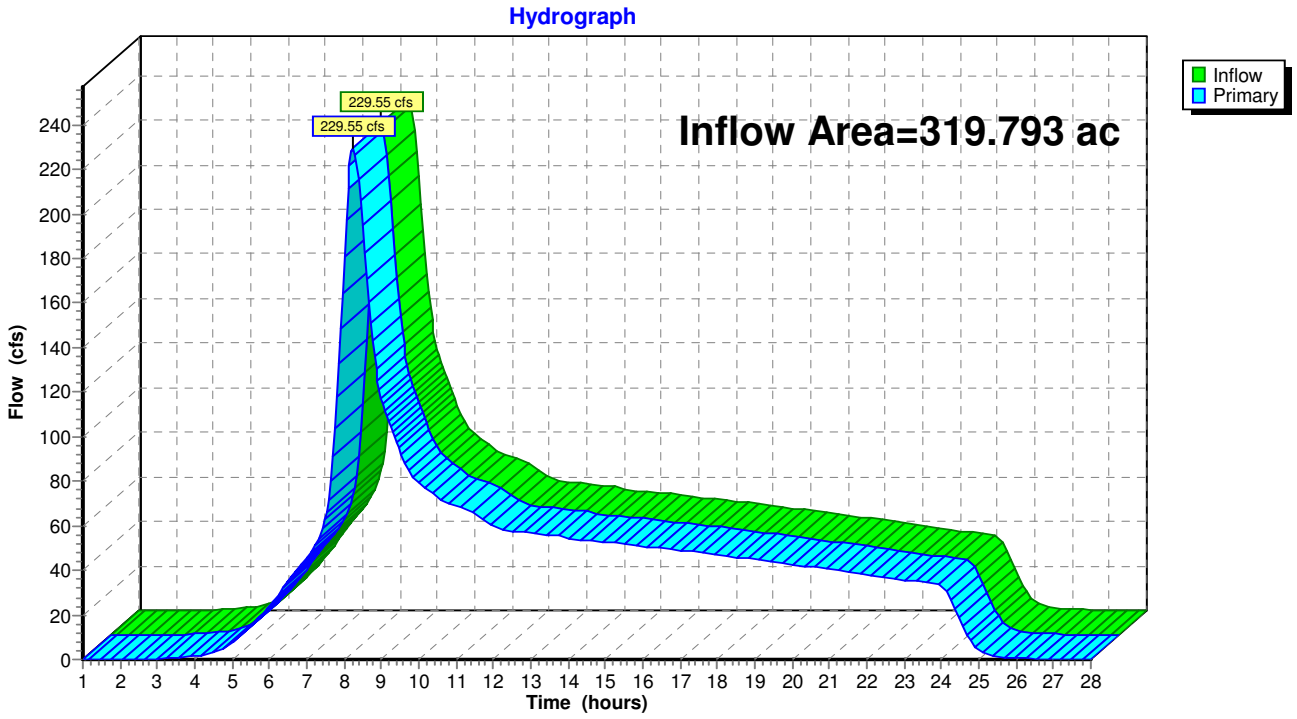


Summary for Link Outlet: Outlet

Inflow Area = 319.793 ac, 0.00% Impervious, Inflow Depth > 3.50" for 10 year event
Inflow = 229.55 cfs @ 8.25 hrs, Volume= 93.301 af
Primary = 229.55 cfs @ 8.25 hrs, Volume= 93.301 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs

Link Outlet: Outlet



Summary for Subcatchment WS1A: Subcat WS1A

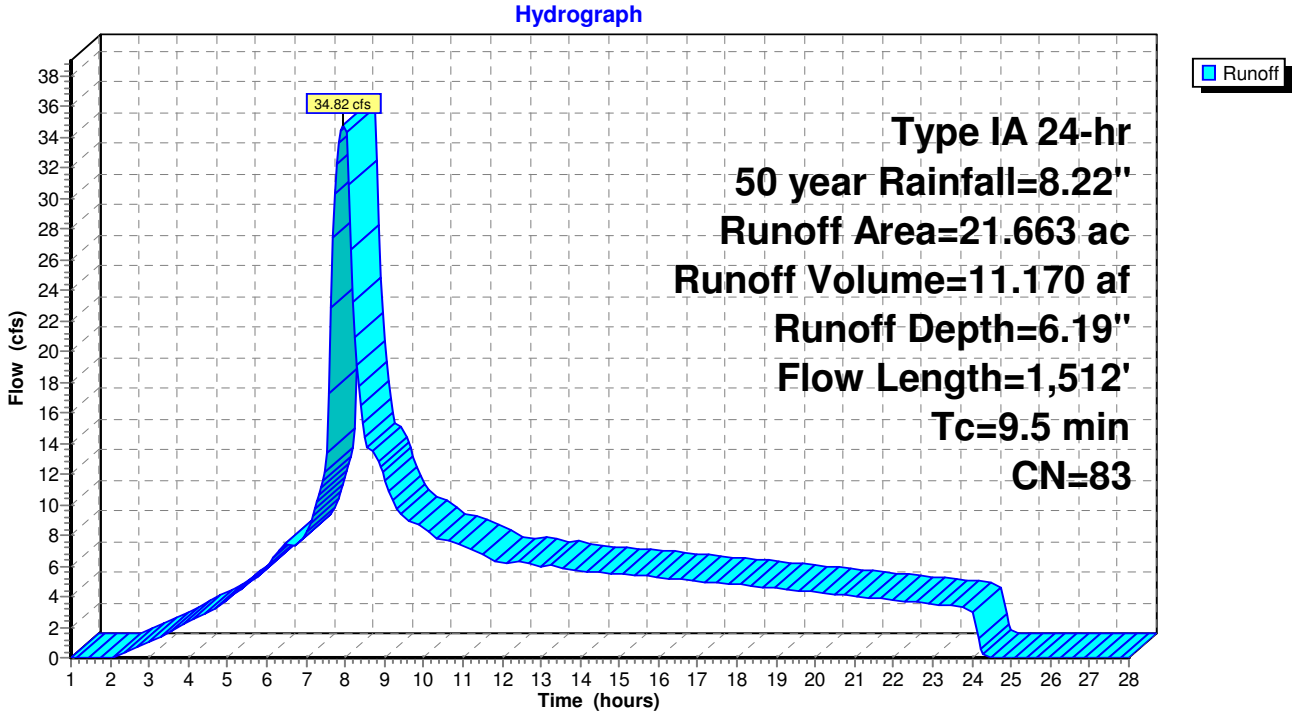
Runoff = 34.82 cfs @ 7.96 hrs, Volume= 11.170 af, Depth= 6.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
1.730	79	Pasture/grassland/range, Fair, HSG C
0.161	84	Pasture/grassland/range, Fair, HSG D
0.733	79	Vineyard, Fair, HSG C
16.760	84	Vineyard, Fair, HSG D
2.279	77	Woods, Good, HSG D
21.663	83	Weighted Average
21.663		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.2500	0.36		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	681	0.2500	8.05		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
3.5	731	0.0300	3.47	32.92	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
9.5	1,512	Total			

Subcatchment WS1A: Subcat WS1A



Summary for Subcatchment WS1B: Subcat WS1B

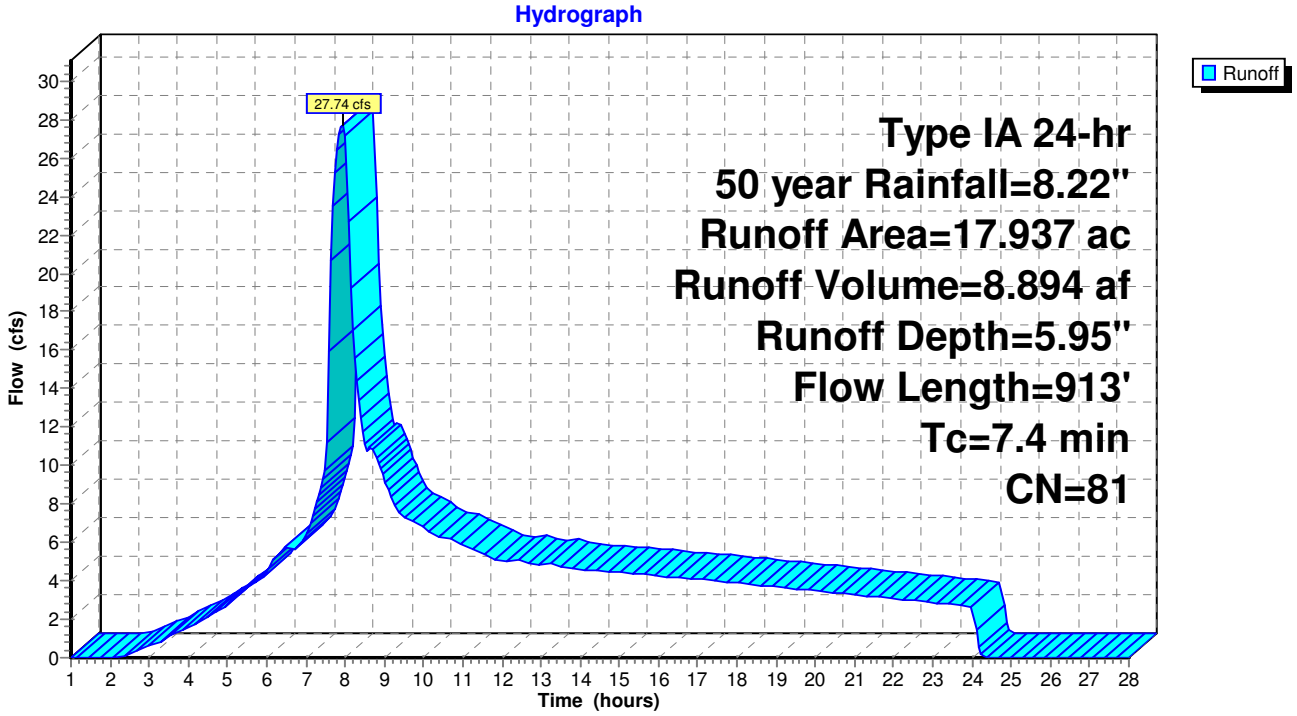
Runoff = 27.74 cfs @ 7.94 hrs, Volume= 8.894 af, Depth= 5.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.094	89	Dirt roads, HSG D
4.813	79	Pasture/grassland/range, Fair, HSG C
0.902	84	Pasture/grassland/range, Fair, HSG D
0.531	79	Vineyard, Fair, HSG C
8.409	84	Vineyard, Fair, HSG D
0.912	70	Woods, Good, HSG C
2.276	77	Woods, Good, HSG D
17.937	81	Weighted Average
17.937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	261	0.4400	10.68		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.4	265	0.2200	11.65	23.29	**Trap/Vee/Rect Channel Flow, Assumed std ditch-1** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.4	170	0.1800	6.83		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.1	74	0.1100	8.23	16.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch-2** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.1	43	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch-3** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.4	913	Total			

Subcatchment WS1B: Subcat WS1B



Summary for Subcatchment WS1C: Subcat WS1C

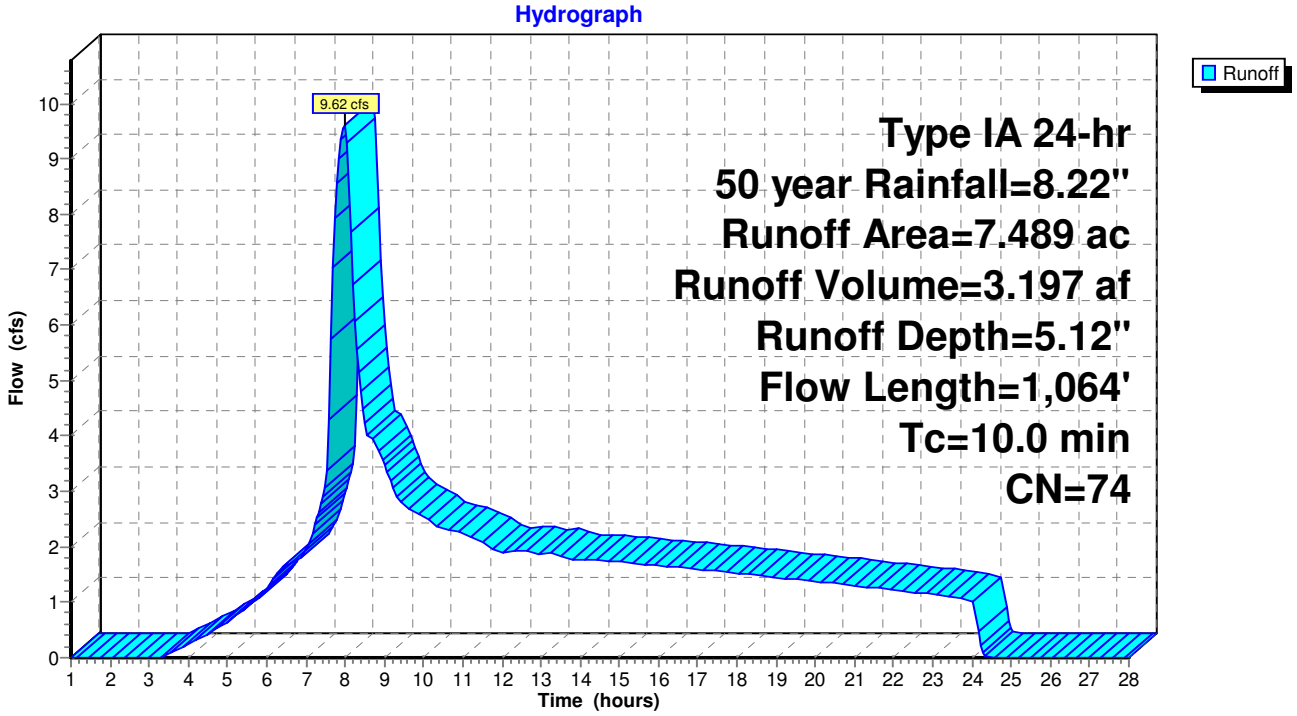
Runoff = 9.62 cfs @ 7.99 hrs, Volume= 3.197 af, Depth= 5.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.017	87	Dirt roads, HSG C
0.005	89	Dirt roads, HSG D
3.080	79	Pasture/grassland/range, Fair, HSG C
4.353	70	Woods, Good, HSG C
0.035	77	Woods, Good, HSG D
7.489	74	Weighted Average
7.489		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.7	396	0.3400	9.39		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.5	333	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.6	235	0.0600	6.08	12.16	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.0	1,064	Total			

Subcatchment WS1C: Subcat WS1C



Summary for Subcatchment WS1D: Subcat WS1D

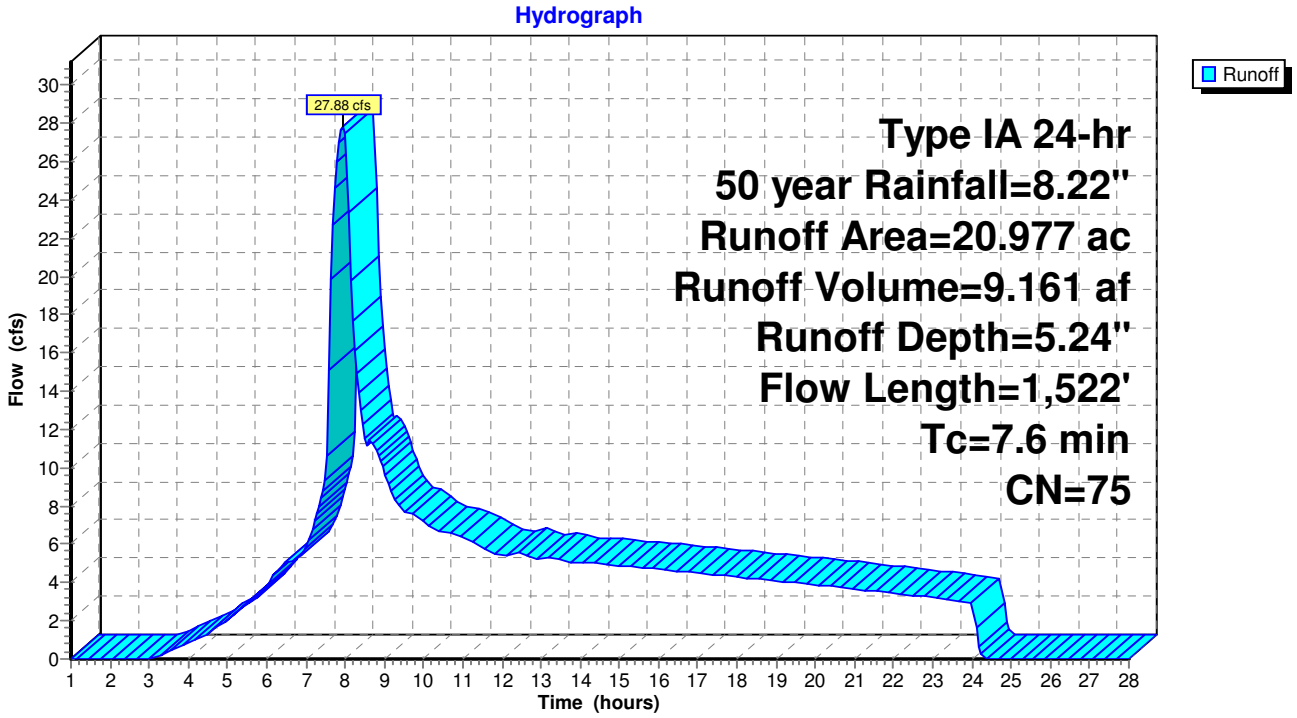
Runoff = 27.88 cfs @ 7.96 hrs, Volume= 9.161 af, Depth= 5.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.624	65	Brush, Good, HSG C
0.080	87	Dirt roads, HSG C
11.776	79	Pasture/grassland/range, Fair, HSG C
8.498	70	Woods, Good, HSG C
20.977	75	Weighted Average
20.977		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.1800	0.32		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	236	0.3800	9.92		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.9	1,186	0.1800	10.53	21.07	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	1,522	Total			

Subcatchment WS1D: Subcat WS1D



Summary for Subcatchment WS1E: Subcat WS1E

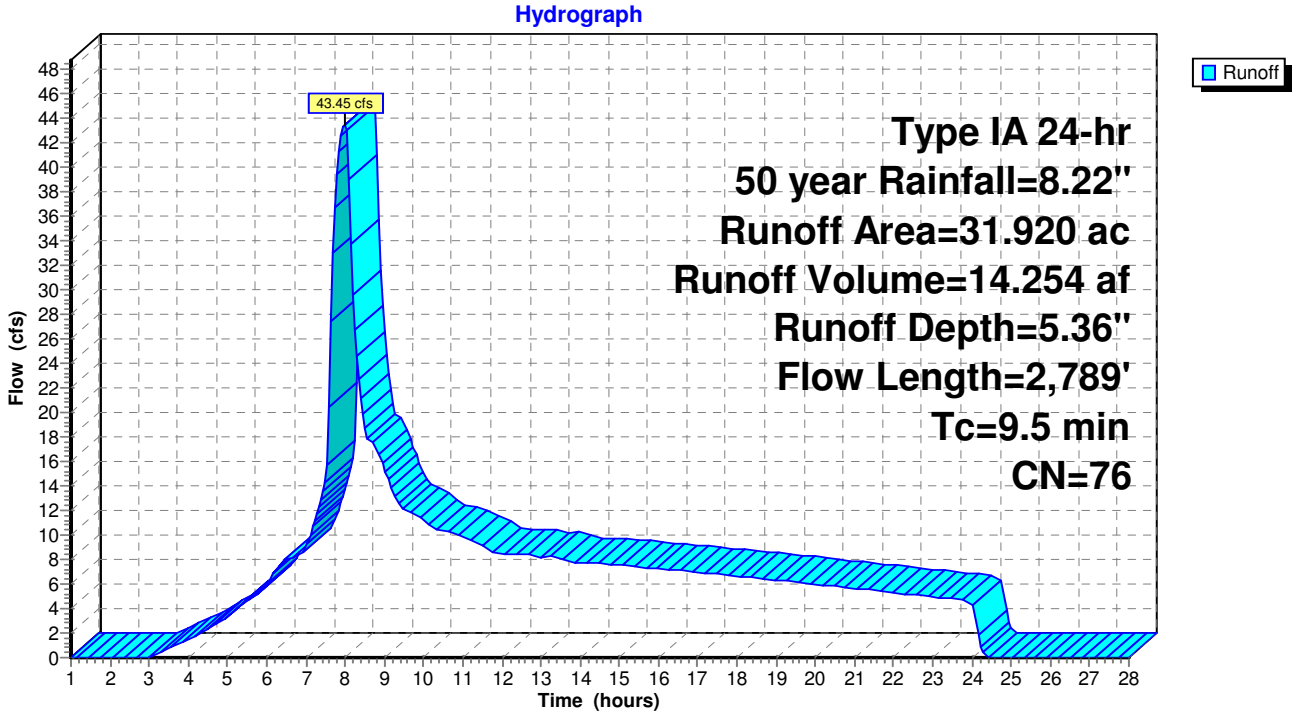
Runoff = 43.45 cfs @ 7.98 hrs, Volume= 14.254 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.339	87	Dirt roads, HSG C
20.920	79	Pasture/grassland/range, Fair, HSG C
10.661	70	Woods, Good, HSG C
31.920	76	Weighted Average
31.920		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	100	0.2600	0.37		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.8	418	0.3200	9.11		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
4.2	2,271	0.1300	8.95	17.90	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
9.5	2,789	Total			

Subcatchment WS1E: Subcat WS1E



Summary for Subcatchment WS1F.1: Subcat WS1F.1

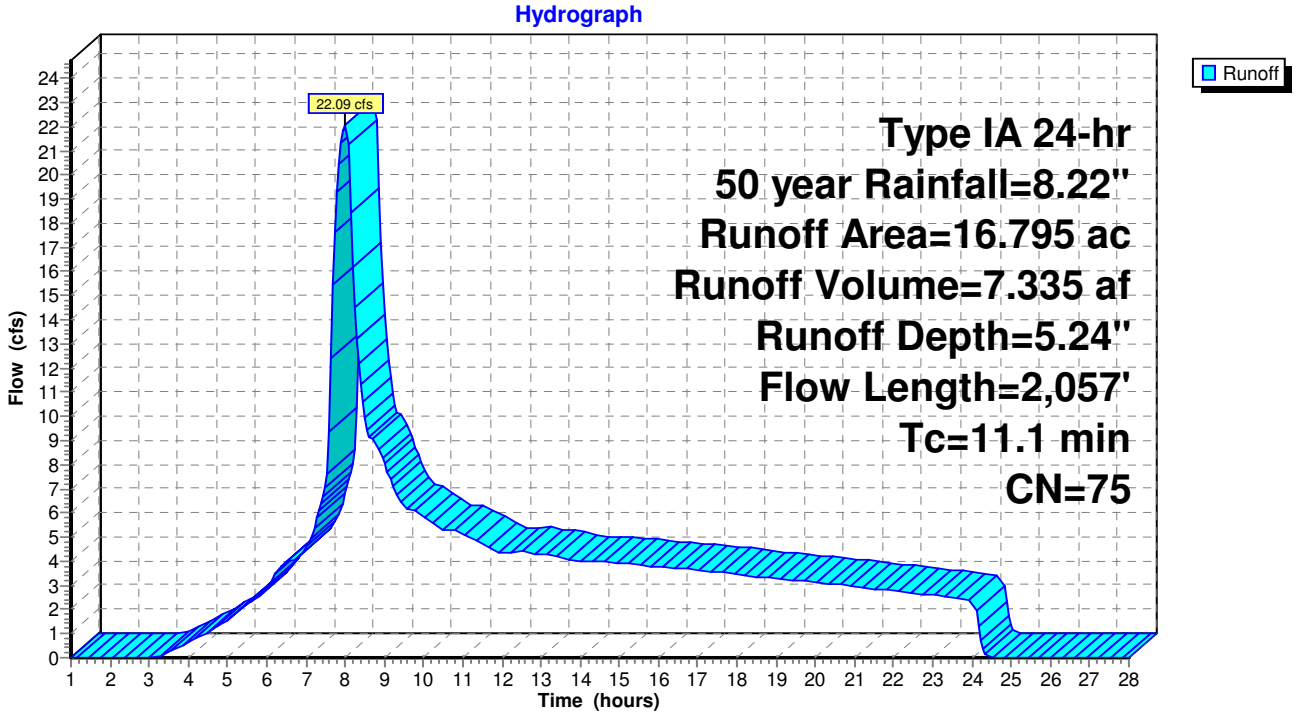
Runoff = 22.09 cfs @ 8.00 hrs, Volume= 7.335 af, Depth= 5.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.262	87	Dirt roads, HSG C
0.080	89	Gravel Roads, HSG C
1.461	79	Pasture/grassland/range, Fair, HSG C
0.776	74	Pasture/grassland/range, Good, HSG C
7.618	79	Vineyard, Fair, HSG C
6.598	70	Woods, Good, HSG C
16.795	75	Weighted Average
16.795		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
3.4	1,267	0.1500	6.24		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.9	548	0.1700	10.24	20.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.8	142	0.0200	2.83	26.88	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
11.1	2,057	Total			

Subcatchment WS1F.1: Subcat WS1F.1



Summary for Subcatchment WS1F.2: Subcat WS1F.2

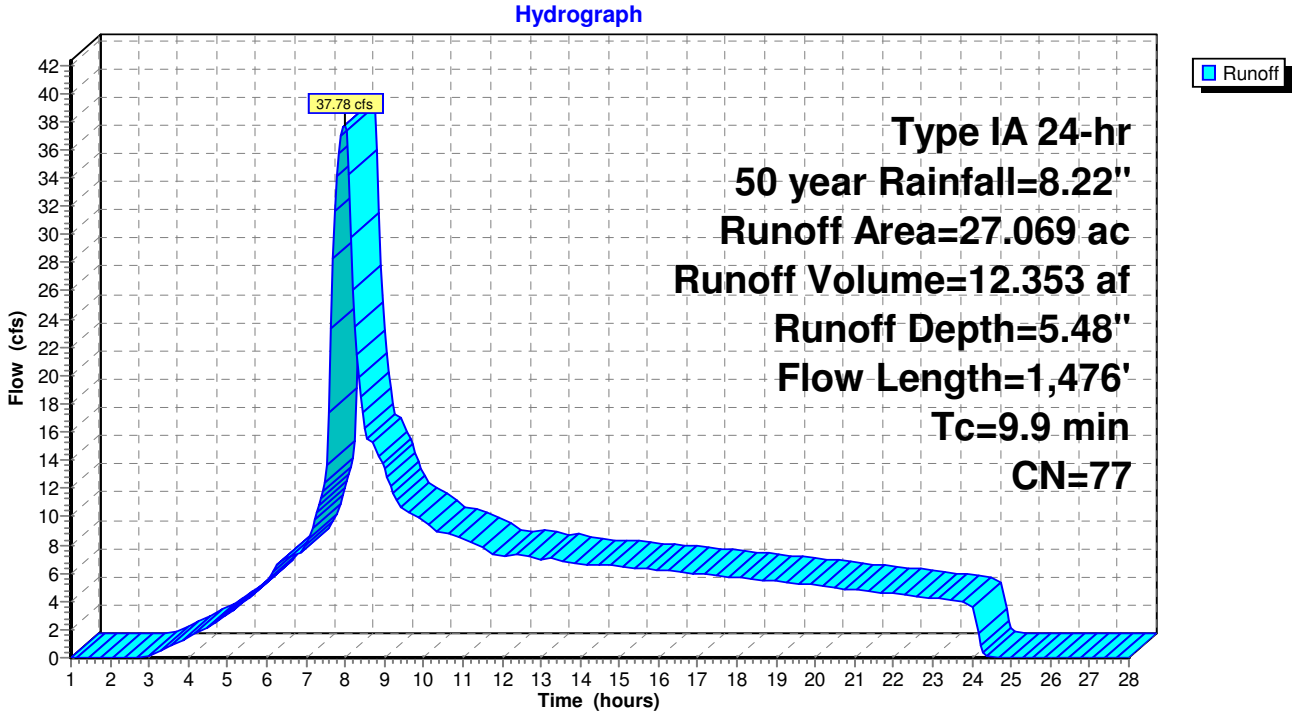
Runoff = 37.78 cfs @ 7.98 hrs, Volume= 12.353 af, Depth= 5.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.462	87	Dirt roads, HSG C
9.900	79	Pasture/grassland/range, Fair, HSG C
0.143	84	Pasture/grassland/range, Fair, HSG D
7.542	79	Vineyard, Fair, HSG C
1.496	84	Vineyard, Fair, HSG D
7.378	70	Woods, Good, HSG C
0.149	77	Woods, Good, HSG D
27.069	77	Weighted Average
27.069		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	702	0.2500	8.05		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.2	674	0.0100	5.21	531.60	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=6.00' Z= 1.5 '/' Top.W=26.00' n= 0.065
9.9	1,476	Total			

Subcatchment WS1F.2: Subcat WS1F.2



Summary for Subcatchment WS1G: Subcat WS1G

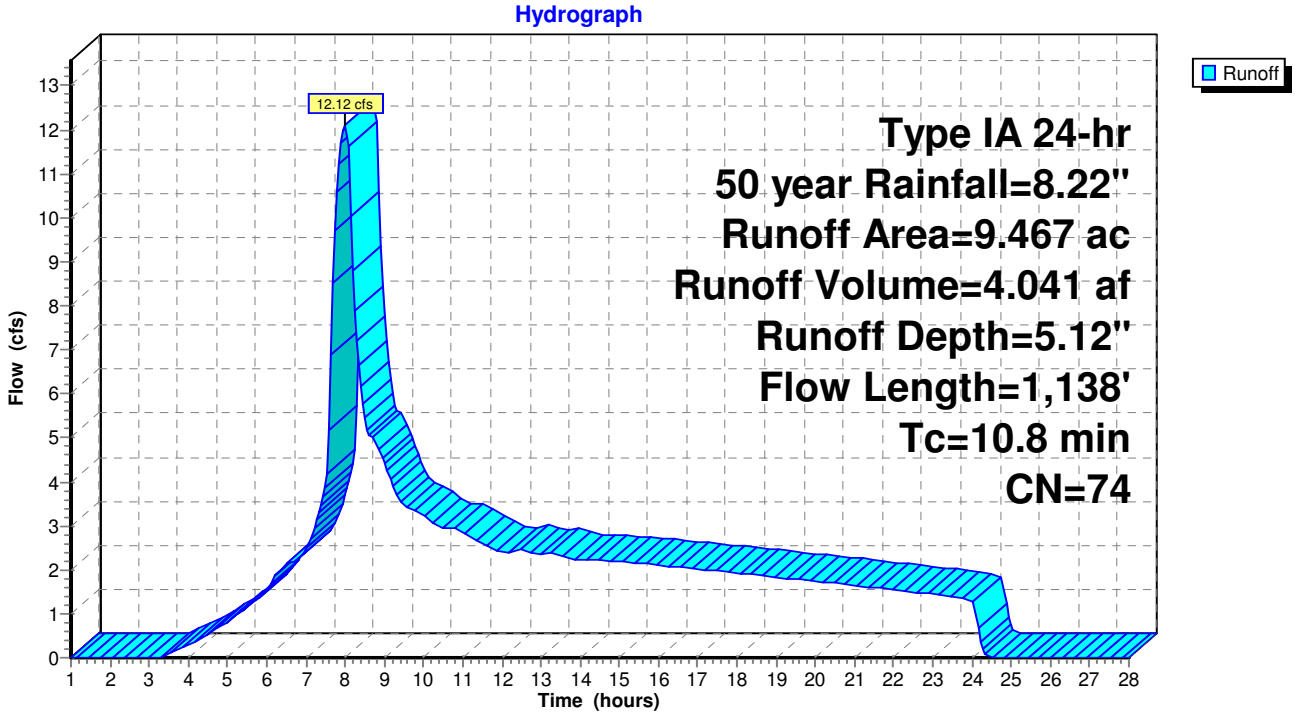
Runoff = 12.12 cfs @ 8.00 hrs, Volume= 4.041 af, Depth= 5.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.070	87	Dirt roads, HSG C
3.140	79	Pasture/grassland/range, Fair, HSG C
0.819	79	Vineyard, Fair, HSG C
5.438	70	Woods, Good, HSG C
9.467	74	Weighted Average
9.467		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.3	604	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	139	0.2300	11.91	23.82	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.3	156	0.2600	8.21		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.8	139	0.0200	2.83	26.88	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
10.8	1,138	Total			

Subcatchment WS1G: Subcat WS1G



Summary for Subcatchment WS1H: Subcat WS1H

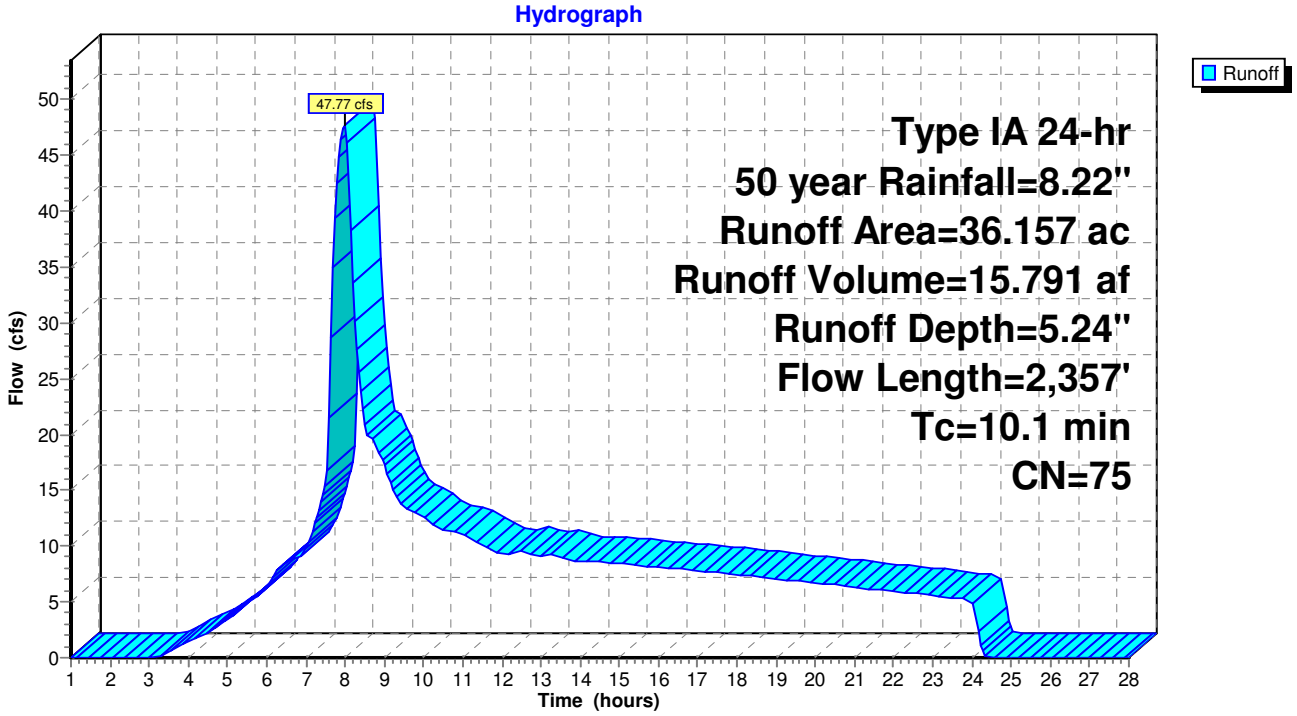
Runoff = 47.77 cfs @ 7.99 hrs, Volume= 15.791 af, Depth= 5.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.574	65	Brush, Good, HSG C
0.341	87	Dirt roads, HSG C
16.188	79	Pasture/grassland/range, Fair, HSG C
2.076	79	Vineyard, Fair, HSG C
16.978	70	Woods, Good, HSG C
36.157	75	Weighted Average
36.157		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1400	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	610	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.9	1,647	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.1	2,357	Total			

Subcatchment WS1H: Subcat WS1H



Summary for Subcatchment WS1I: Subcat WS1I

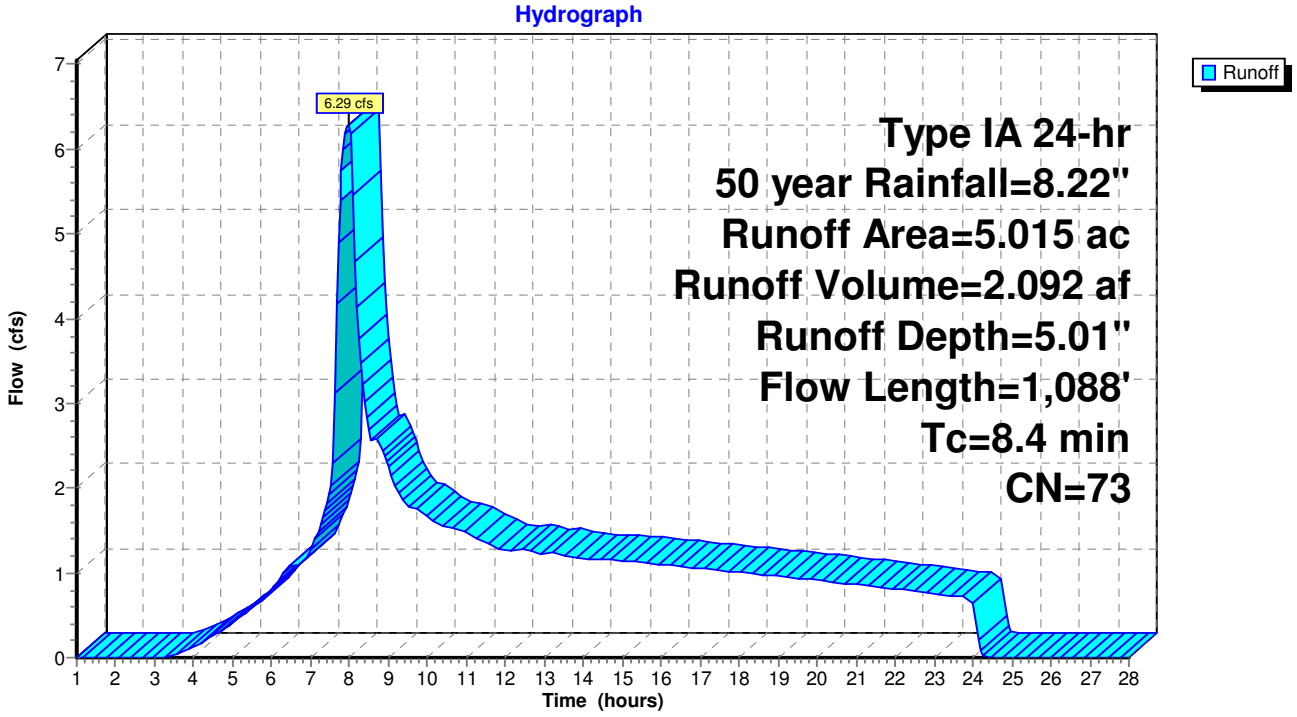
Runoff = 6.29 cfs @ 7.98 hrs, Volume= 2.092 af, Depth= 5.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
1.412	79	Pasture/grassland/range, Fair, HSG C
0.535	79	Vineyard, Fair, HSG C
3.068	70	Woods, Good, HSG C
5.015	73	Weighted Average
5.015		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1400	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	664	0.2100	7.38		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.1	324	0.0600	4.90	46.55	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
8.4	1,088	Total			

Subcatchment WS1I: Subcat WS1I



Summary for Subcatchment WS1J: Subcat WS1J

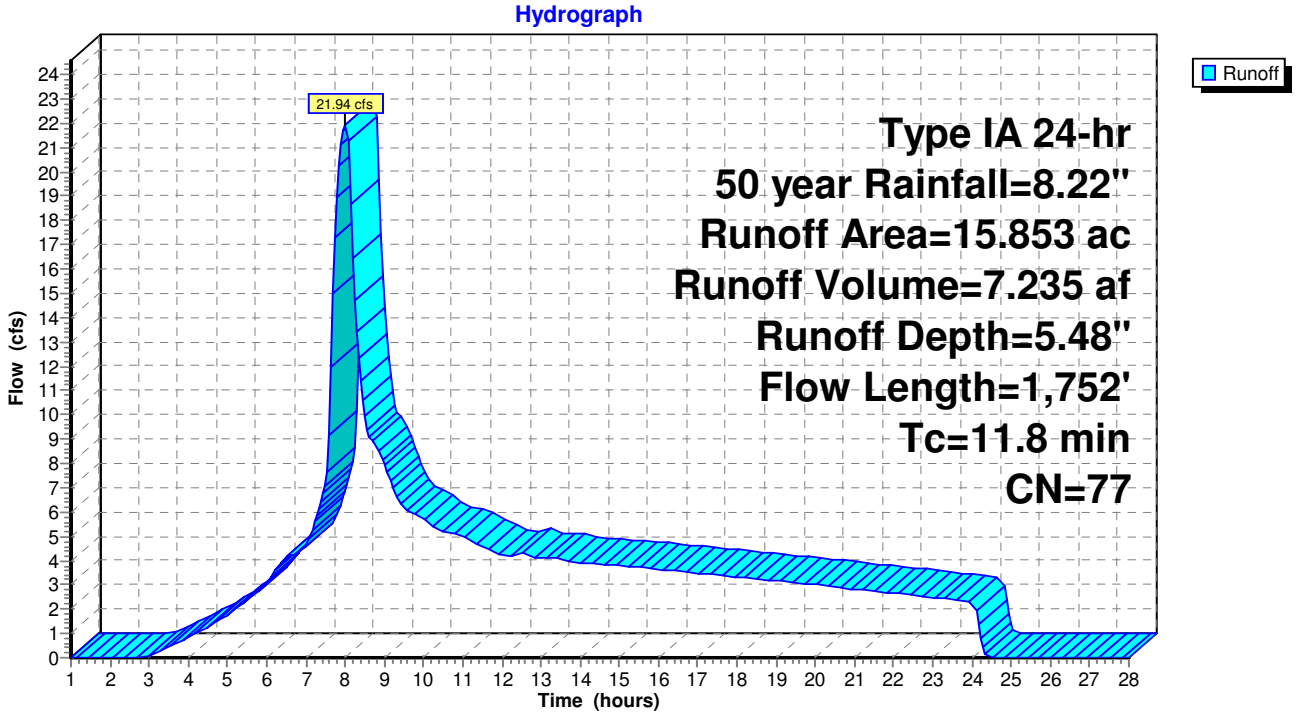
Runoff = 21.94 cfs @ 8.01 hrs, Volume= 7.235 af, Depth= 5.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.211	89	Gravel Roads, HSG C
1.797	79	Pasture/grassland/range, Fair, HSG C
2.246	74	Pasture/grassland/range, Good, HSG C
8.948	79	Vineyard, Fair, HSG C
2.650	70	Woods, Good, HSG C
15.853	77	Weighted Average
15.853		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	93	0.0500	0.19		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
2.1	826	0.1700	6.64		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	833	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
11.8	1,752	Total			

Subcatchment WS1J: Subcat WS1J



Summary for Subcatchment WS1K: Subcat WS1K

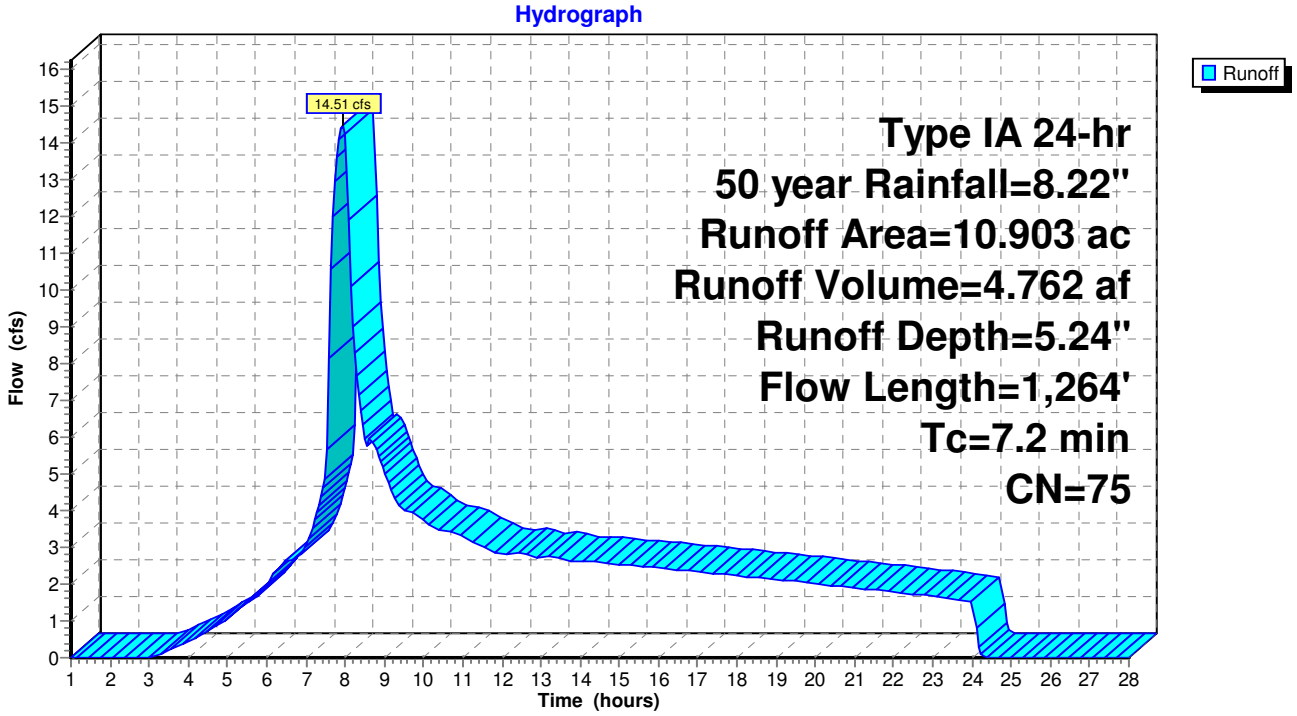
Runoff = 14.51 cfs @ 7.96 hrs, Volume= 4.762 af, Depth= 5.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.051	87	Dirt roads, HSG C
5.933	79	Pasture/grassland/range, Fair, HSG C
0.486	79	Vineyard, Fair, HSG C
4.433	70	Woods, Good, HSG C
10.903	75	Weighted Average
10.903		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	100	0.2700	0.37		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.8	753	0.1800	6.83		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.3	189	0.1400	9.29	18.58	**Trap/Vee/Rect Channel Flow, Assumed std ditch-1** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.6	222	0.0600	6.08	12.16	**Trap/Vee/Rect Channel Flow, Assumed std ditch-2** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.2	1,264	Total			

Subcatchment WS1K: Subcat WS1K



Summary for Subcatchment WS1L: Subcat WS1L

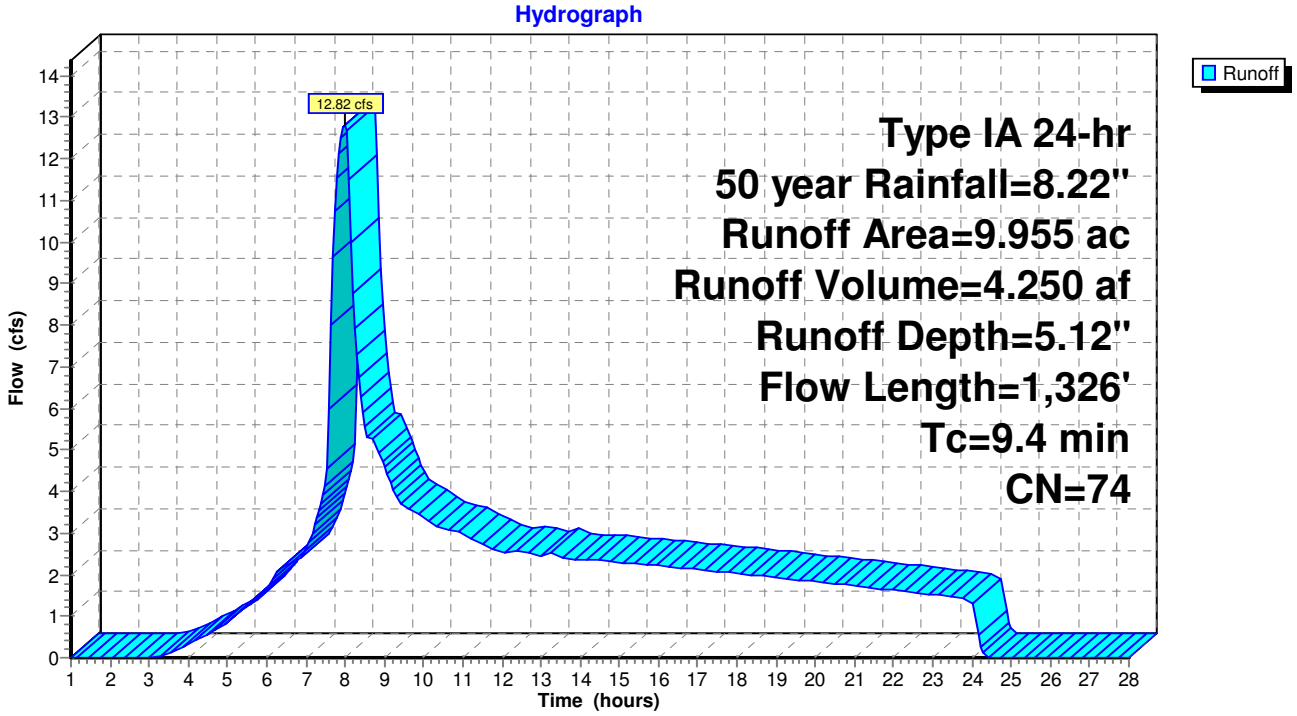
Runoff = 12.82 cfs @ 7.99 hrs, Volume= 4.250 af, Depth= 5.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
1.300	65	Brush, Good, HSG C
0.181	87	Dirt roads, HSG C
3.543	79	Pasture/grassland/range, Fair, HSG C
1.606	74	Pasture/grassland/range, Good, HSG C
3.325	70	Woods, Good, HSG C
9.955	74	Weighted Average
9.955		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	100	0.0900	0.24		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.8	348	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	78	0.0800	7.02	14.05	**Trap/Vee/Rect Channel Flow, Std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.2	92	0.3200	9.11		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
1.2	708	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
9.4	1,326	Total			

Subcatchment WS1L: Subcat WS1L



Summary for Subcatchment WS1M: Subcat WS1M

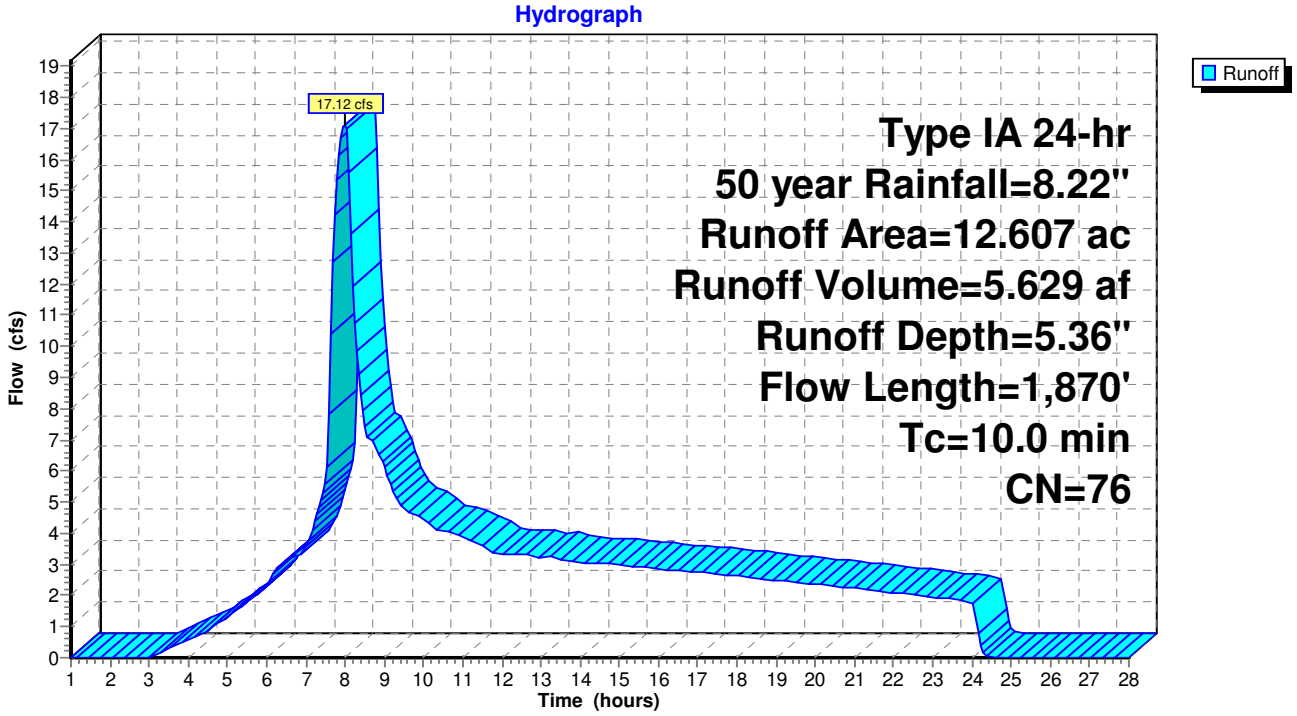
Runoff = 17.12 cfs @ 7.99 hrs, Volume= 5.629 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
1.186	65	Brush, Good, HSG C
0.165	87	Dirt roads, HSG C
9.079	79	Pasture/grassland/range, Fair, HSG C
0.673	74	Pasture/grassland/range, Good, HSG C
1.503	70	Woods, Good, HSG C
12.607	76	Weighted Average
12.607		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1500	0.29		**Sheet Flow, 0.15** Grass: Dense n= 0.240 P2= 4.05"
1.6	675	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	37	0.0200	3.51	7.02	**Trap/Vee/Rect Channel Flow, Std Ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
1.7	626	0.1400	6.02		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.8	432	0.1400	9.29	18.58	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.0	1,870	Total			

Subcatchment WS1M: Subcat WS1M



Summary for Subcatchment WS1N: Subcat WS1N

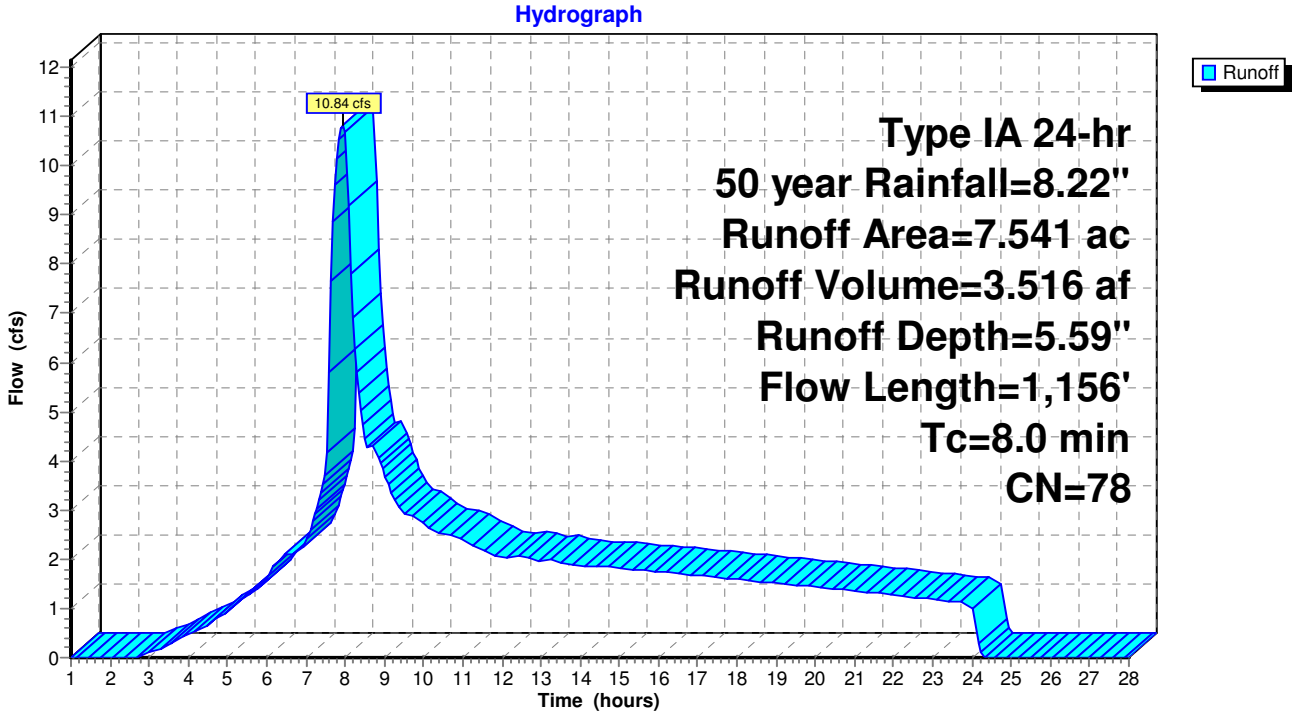
Runoff = 10.84 cfs @ 7.96 hrs, Volume= 3.516 af, Depth= 5.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.332	65	Brush, Good, HSG C
0.045	87	Dirt roads, HSG C
7.164	79	Pasture/grassland/range, Fair, HSG C
7.541	78	Weighted Average
7.541		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1500	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.9	775	0.1700	6.64		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.4	281	0.2600	12.66	25.32	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.0	1,156	Total			

Subcatchment WS1N: Subcat WS1N



Summary for Subcatchment WS1O: Subcat WS1O

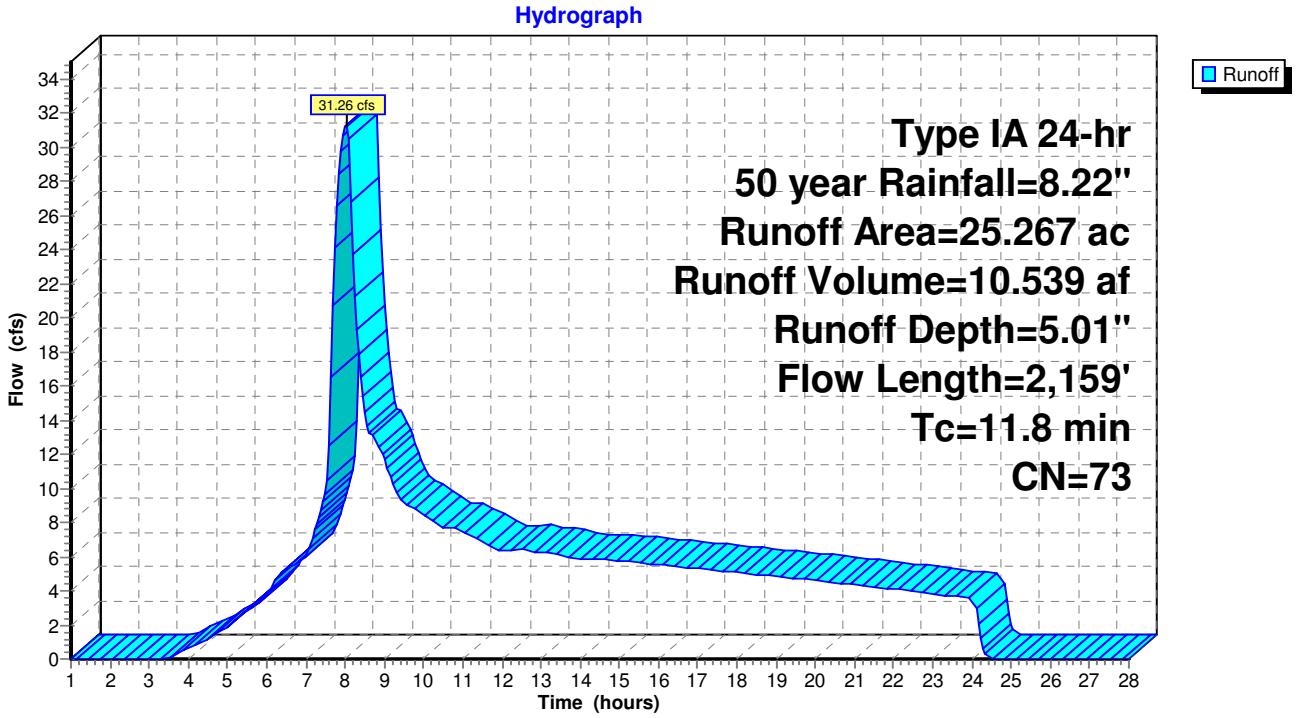
Runoff = 31.26 cfs @ 8.02 hrs, Volume= 10.539 af, Depth= 5.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.049	87	Dirt roads, HSG C
5.153	79	Pasture/grassland/range, Fair, HSG C
2.236	79	Vineyard, Fair, HSG C
17.829	70	Woods, Good, HSG C
25.267	73	Weighted Average
25.267		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.3100	0.26		**Sheet Flow, Sheet-1** Woods: Light underbrush n= 0.400 P2= 4.05"
2.6	1,166	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.8	893	0.0700	5.29	50.28	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
11.8	2,159	Total			

Subcatchment WS1O: Subcat WS1O



Summary for Subcatchment WS1P: Subcat WS1P

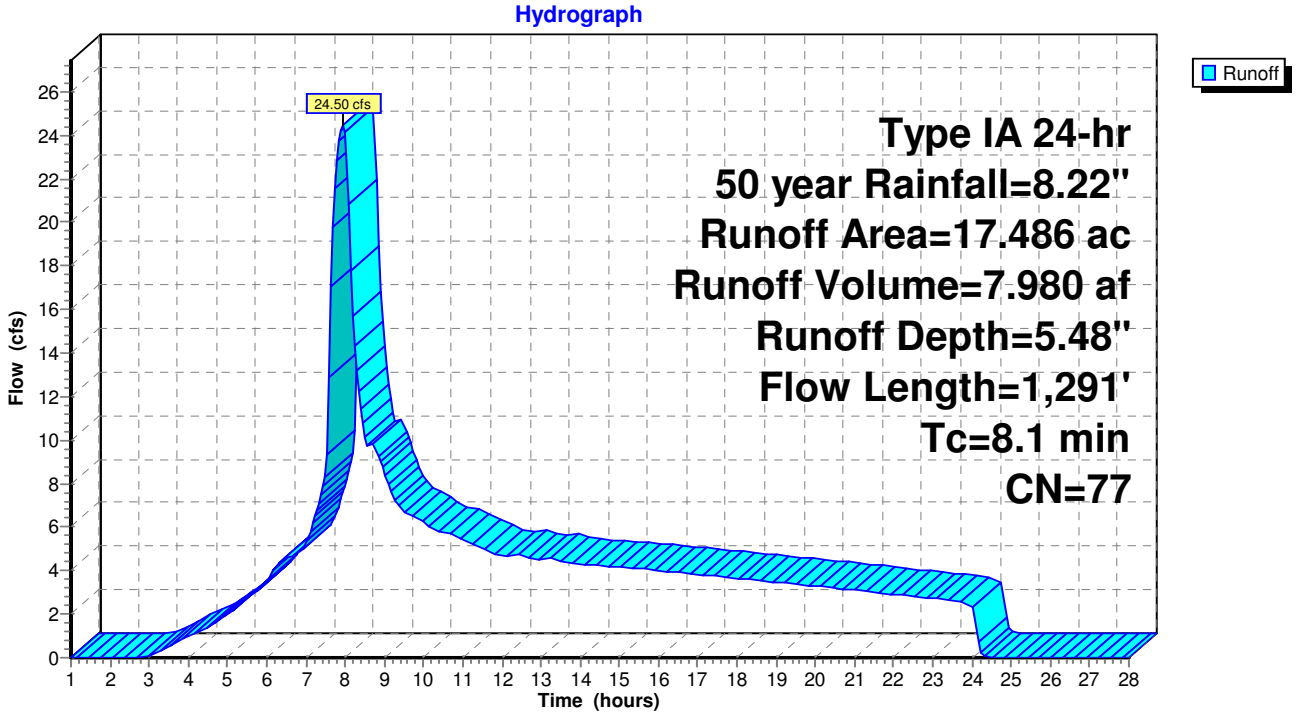
Runoff = 24.50 cfs @ 7.96 hrs, Volume= 7.980 af, Depth= 5.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.263	87	Dirt roads, HSG C
2.086	82	Farmsteads, HSG C
0.713	79	Pasture/grassland/range, Fair, HSG C
3.477	74	Pasture/grassland/range, Good, HSG C
7.176	79	Vineyard, Fair, HSG C
3.771	70	Woods, Good, HSG C
17.486	77	Weighted Average
17.486		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0500	0.28		**Sheet Flow, Sheet-1** Grass: Short n= 0.150 P2= 4.05"
0.7	331	0.2400	7.89		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	860	0.1700	10.24	20.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.1	1,291	Total			

Subcatchment WS1P: Subcat WS1P



Summary for Subcatchment WS1Q: Subcat WS1Q

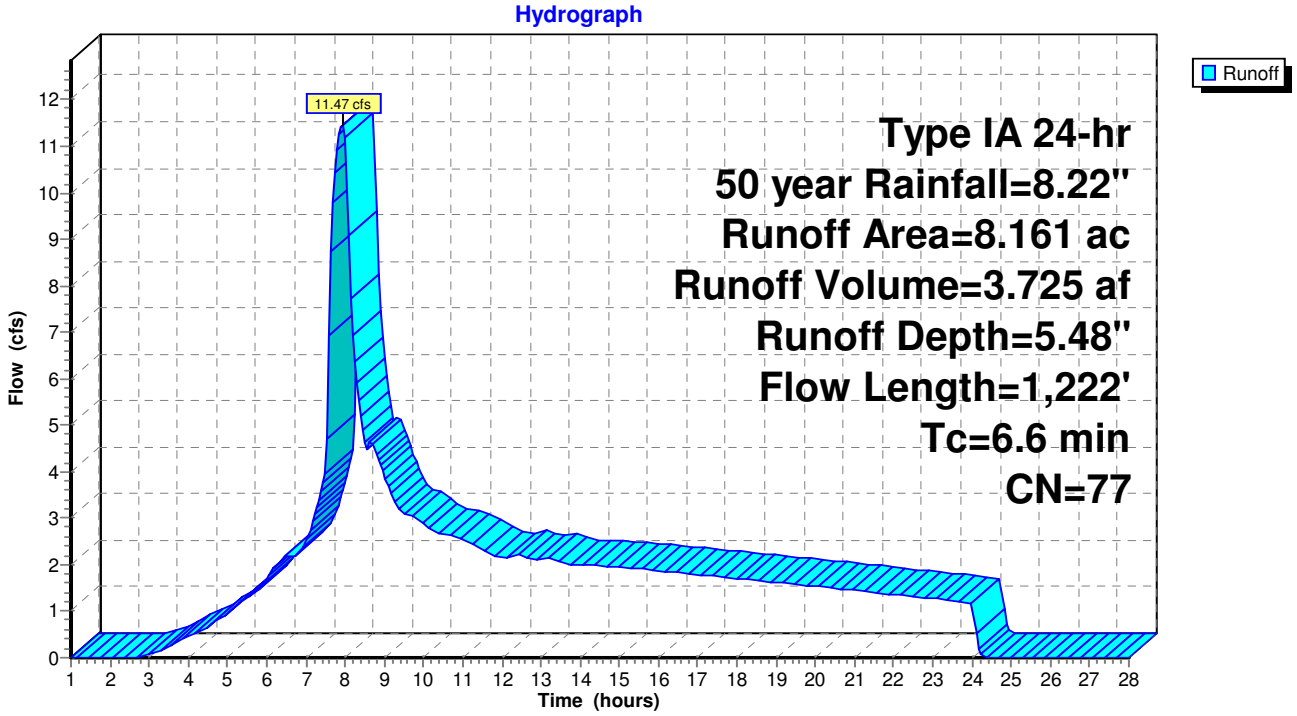
Runoff = 11.47 cfs @ 7.94 hrs, Volume= 3.725 af, Depth= 5.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.151	87	Dirt roads, HSG C
0.039	82	Farmsteads, HSG C
4.319	79	Pasture/grassland/range, Fair, HSG C
1.502	79	Vineyard, Fair, HSG C
2.150	70	Woods, Good, HSG C
8.161	77	Weighted Average
8.161		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.3200	0.40		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	659	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.9	463	0.1900	8.72	82.84	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
6.6	1,222	Total			

Subcatchment WS1Q: Subcat WS1Q



Summary for Subcatchment WS1R: Subcat WS1R

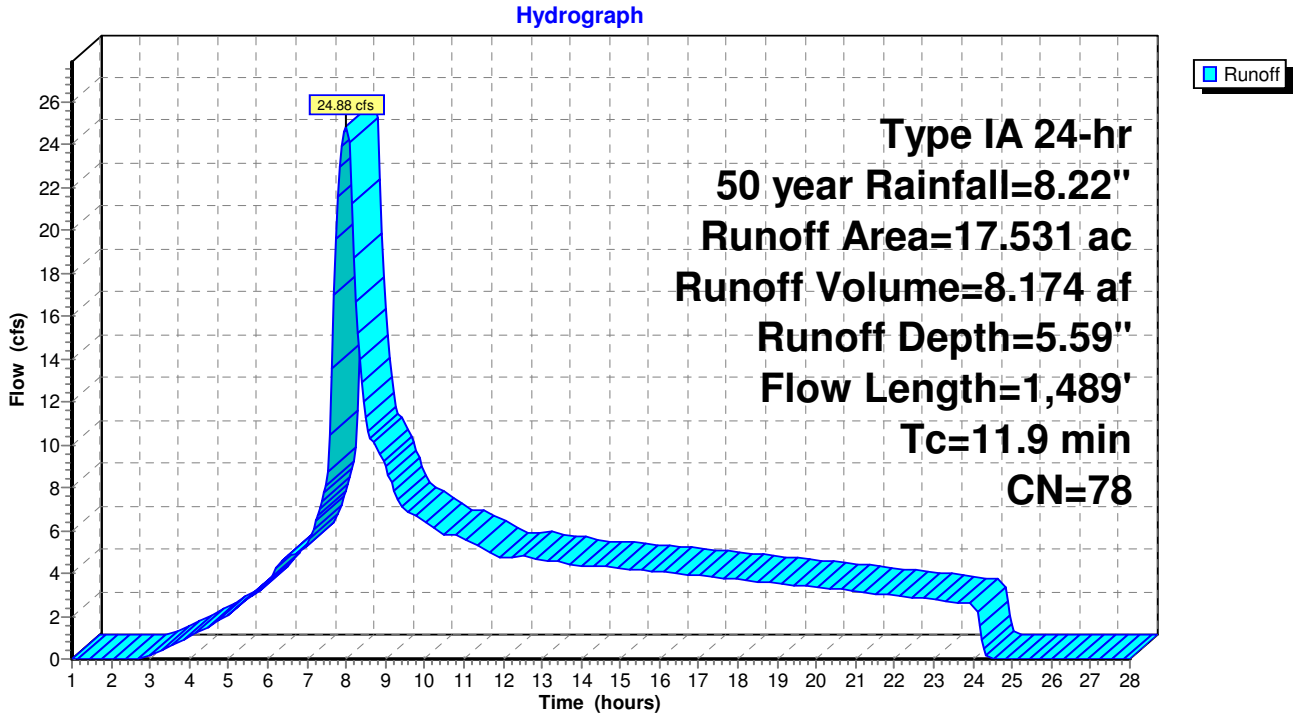
Runoff = 24.88 cfs @ 8.01 hrs, Volume= 8.174 af, Depth= 5.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.110	87	Dirt roads, HSG C
15.096	79	Pasture/grassland/range, Fair, HSG C
0.815	74	Pasture/grassland/range, Good, HSG C
1.510	70	Woods, Good, HSG C
17.531	78	Weighted Average
17.531		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
2.3	759	0.1200	5.58		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	630	0.0900	7.45	14.90	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
11.9	1,489	Total			

Subcatchment WS1R: Subcat WS1R



Summary for Reach R1: Main Stem

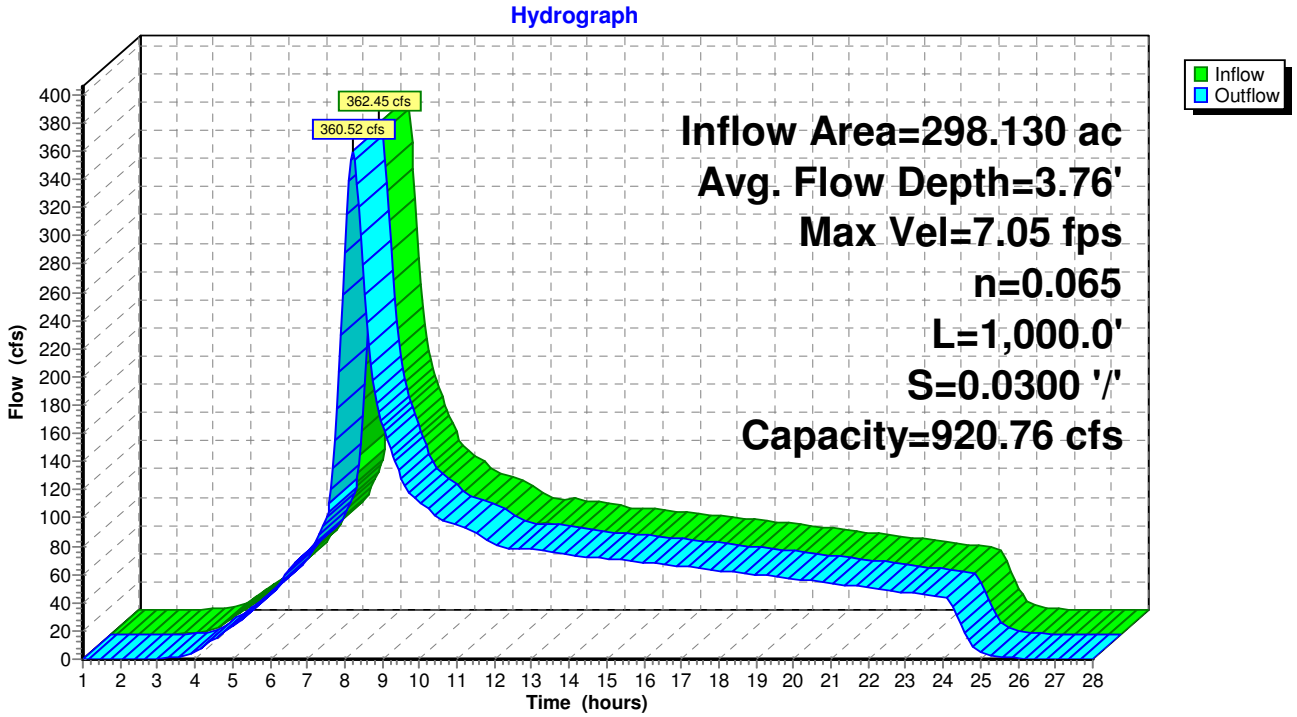
Inflow Area = 298.130 ac, 0.00% Impervious, Inflow Depth > 5.35" for 50 year event
Inflow = 362.45 cfs @ 8.14 hrs, Volume= 132.923 af
Outflow = 360.52 cfs @ 8.21 hrs, Volume= 132.919 af, Atten= 1%, Lag= 4.3 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.05 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 3.68 fps, Avg. Travel Time= 4.5 min

Peak Storage= 51,212 cf @ 8.17 hrs
Average Depth at Peak Storage= 3.76'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 920.76 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,000.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -30.00'

Reach R1: Main Stem



Summary for Reach R2: Main Stem

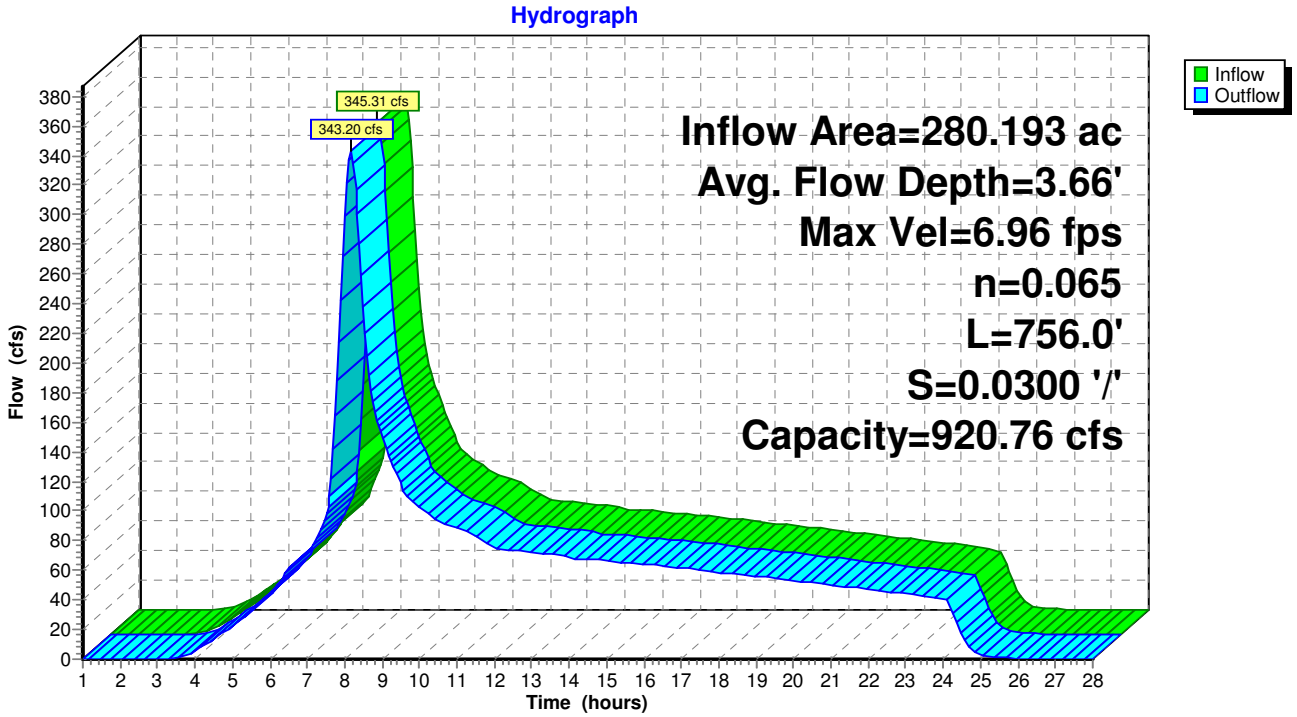
Inflow Area = 280.193 ac, 0.00% Impervious, Inflow Depth > 5.31" for 50 year event
Inflow = 345.31 cfs @ 8.10 hrs, Volume= 124.030 af
Outflow = 343.20 cfs @ 8.16 hrs, Volume= 124.028 af, Atten= 1%, Lag= 3.4 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.96 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 3.65 fps, Avg. Travel Time= 3.5 min

Peak Storage= 37,394 cf @ 8.12 hrs
Average Depth at Peak Storage= 3.66'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 920.76 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 756.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -22.68'

Reach R2: Main Stem



Summary for Reach R3: Stream

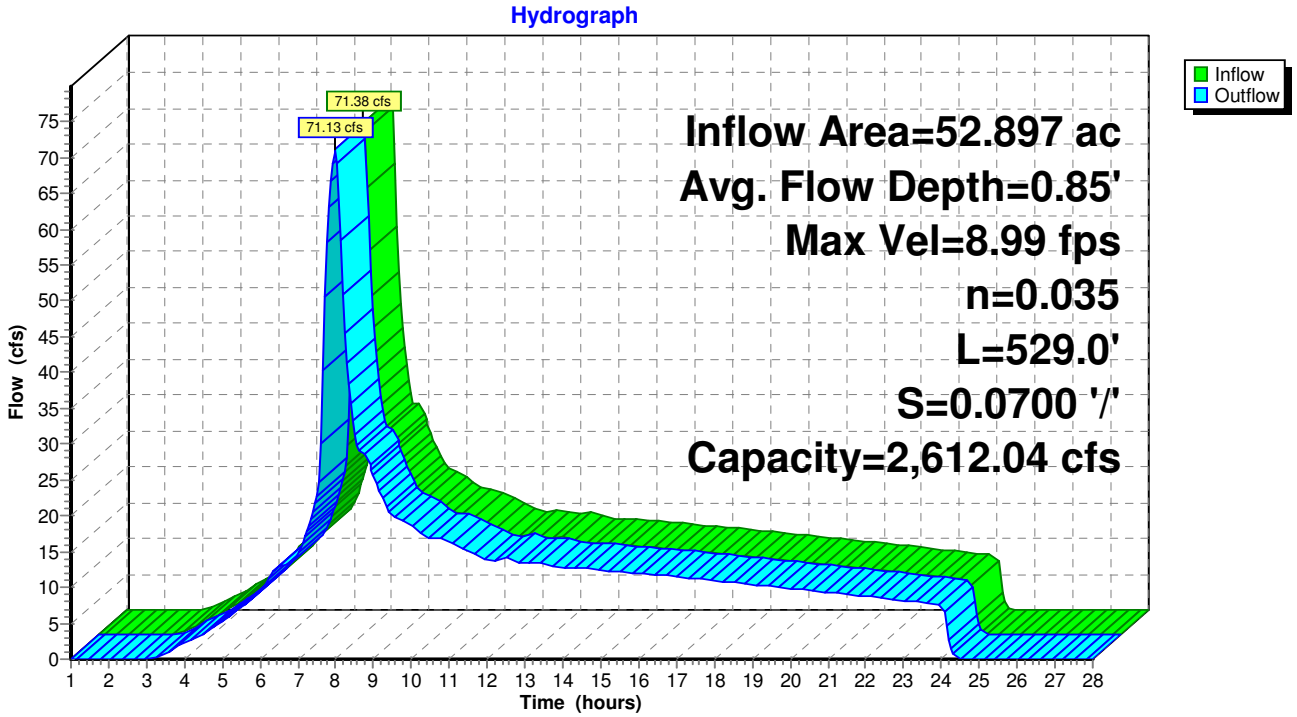
Inflow Area = 52.897 ac, 0.00% Impervious, Inflow Depth = 5.31" for 50 year event
Inflow = 71.38 cfs @ 7.98 hrs, Volume= 23.415 af
Outflow = 71.13 cfs @ 7.99 hrs, Volume= 23.415 af, Atten= 0%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.99 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 4.60 fps, Avg. Travel Time= 1.9 min

Peak Storage= 4,195 cf @ 7.98 hrs
Average Depth at Peak Storage= 0.85'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 2,612.04 cfs

8.00' x 6.00' deep channel, n= 0.035
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 529.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -37.03'

Reach R3: Stream



Summary for Reach R4.1: Main Stem

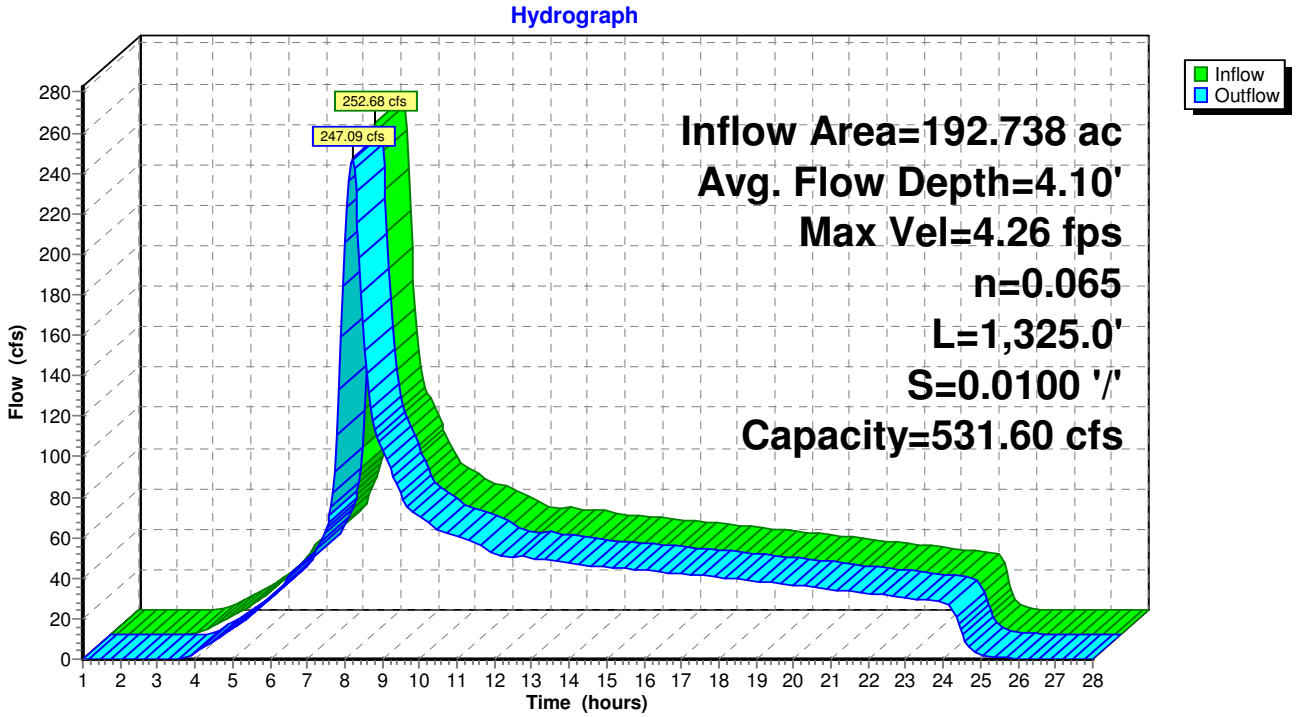
Inflow Area = 192.738 ac, 0.00% Impervious, Inflow Depth = 5.30" for 50 year event
Inflow = 252.68 cfs @ 8.05 hrs, Volume= 85.067 af
Outflow = 247.09 cfs @ 8.19 hrs, Volume= 85.064 af, Atten= 2%, Lag= 8.5 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.26 fps, Min. Travel Time= 5.2 min
Avg. Velocity = 2.22 fps, Avg. Travel Time= 9.9 min

Peak Storage= 76,969 cf @ 8.11 hrs
Average Depth at Peak Storage= 4.10'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 531.60 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,325.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -13.25'

Reach R4.1: Main Stem



Summary for Reach R4.2: Main Stem

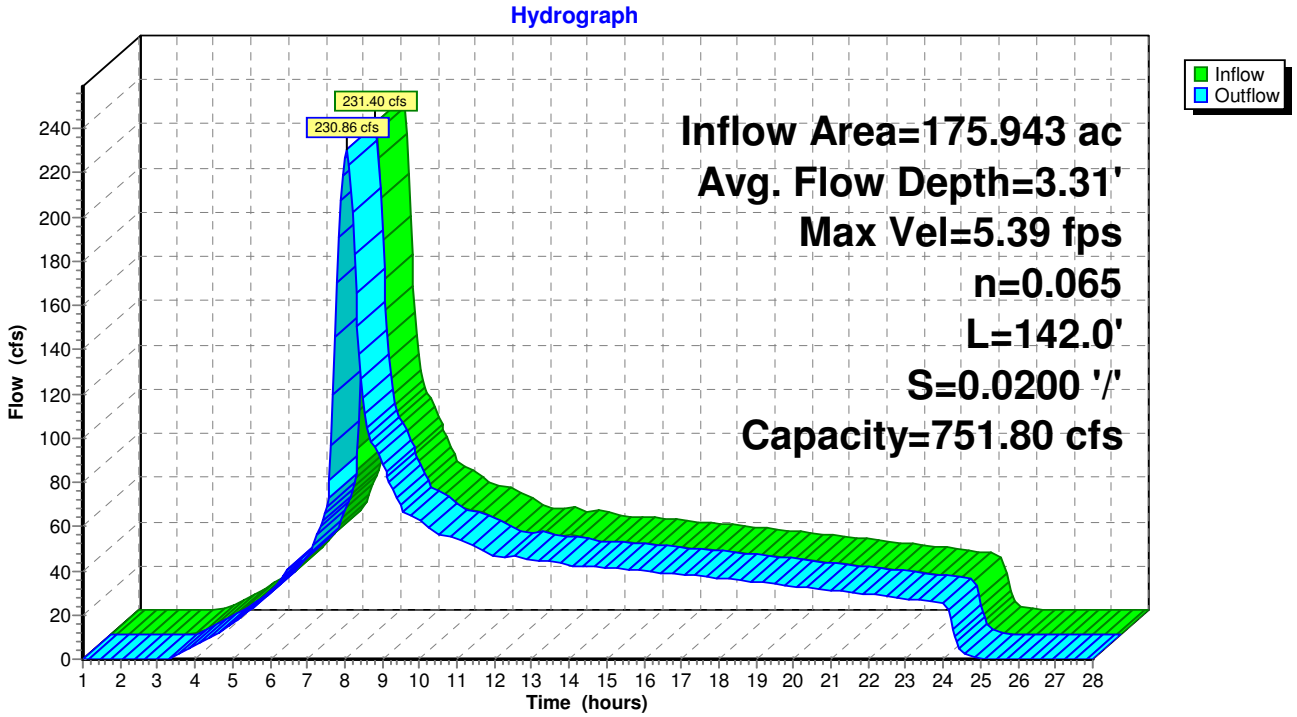
Inflow Area = 175.943 ac, 0.00% Impervious, Inflow Depth = 5.30" for 50 year event
Inflow = 231.40 cfs @ 8.05 hrs, Volume= 77.733 af
Outflow = 230.86 cfs @ 8.06 hrs, Volume= 77.733 af, Atten= 0%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.39 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.75 fps, Avg. Travel Time= 0.9 min

Peak Storage= 6,093 cf @ 8.05 hrs
Average Depth at Peak Storage= 3.31'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 751.80 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 142.0' Slope= 0.0200 '/'
Inlet Invert= 0.00', Outlet Invert= -2.84'

Reach R4.2: Main Stem



Summary for Reach R5: Main Stem

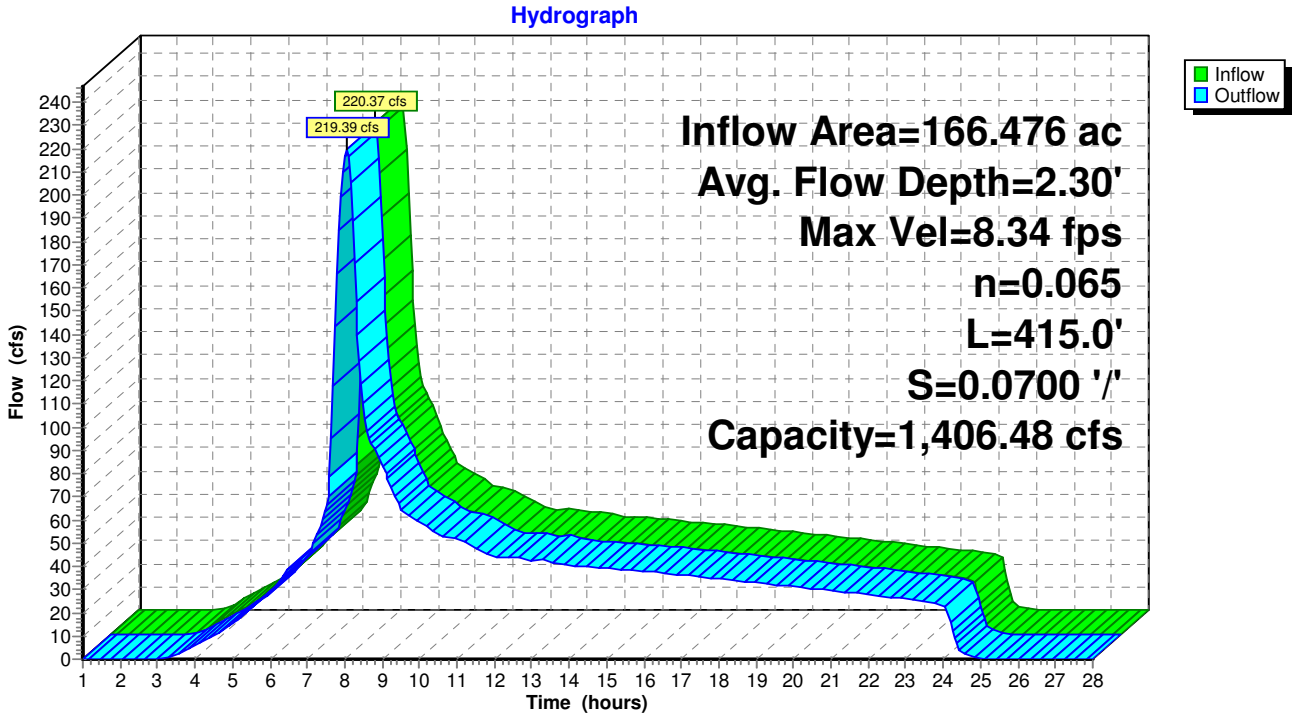
Inflow Area = 166.476 ac, 0.00% Impervious, Inflow Depth = 5.31" for 50 year event
Inflow = 220.37 cfs @ 8.03 hrs, Volume= 73.691 af
Outflow = 219.39 cfs @ 8.05 hrs, Volume= 73.691 af, Atten= 0%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.34 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 4.18 fps, Avg. Travel Time= 1.7 min

Peak Storage= 10,953 cf @ 8.04 hrs
Average Depth at Peak Storage= 2.30'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,406.48 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 415.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -29.05'

Reach R5: Main Stem



Summary for Reach R6: Main Stem

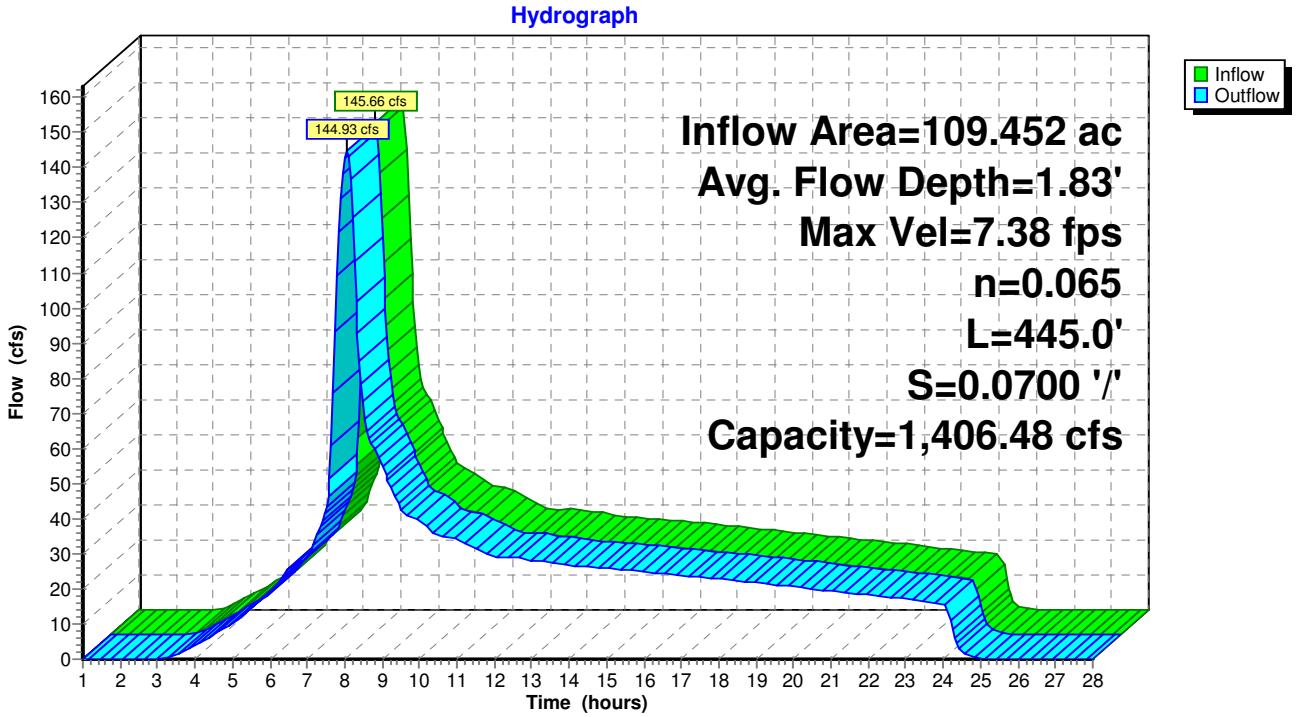
Inflow Area = 109.452 ac, 0.00% Impervious, Inflow Depth = 5.33" for 50 year event
Inflow = 145.66 cfs @ 8.03 hrs, Volume= 48.574 af
Outflow = 144.93 cfs @ 8.05 hrs, Volume= 48.574 af, Atten= 1%, Lag= 1.3 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.38 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 3.67 fps, Avg. Travel Time= 2.0 min

Peak Storage= 8,765 cf @ 8.04 hrs
Average Depth at Peak Storage= 1.83'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,406.48 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 445.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -31.15'

Reach R6: Main Stem



Summary for Reach R7.1: Stream

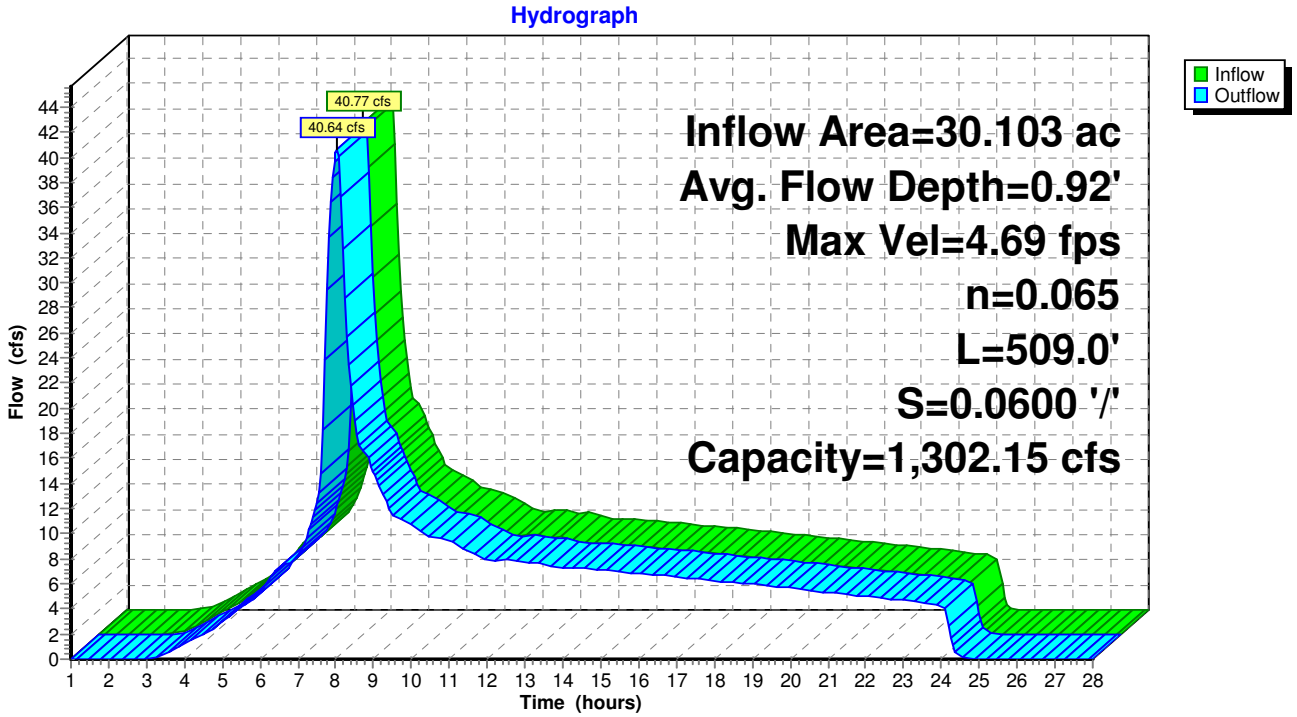
Inflow Area = 30.103 ac, 0.00% Impervious, Inflow Depth = 5.34" for 50 year event
Inflow = 40.77 cfs @ 7.99 hrs, Volume= 13.395 af
Outflow = 40.64 cfs @ 8.03 hrs, Volume= 13.395 af, Atten= 0%, Lag= 2.7 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.69 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 2.34 fps, Avg. Travel Time= 3.6 min

Peak Storage= 4,416 cf @ 8.00 hrs
Average Depth at Peak Storage= 0.92'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,302.15 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 509.0' Slope= 0.0600 '/'
Inlet Invert= 0.00', Outlet Invert= -30.54'

Reach R7.1: Stream



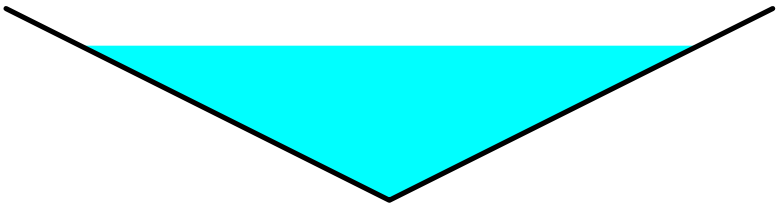
Summary for Reach R7.2: Channel

Inflow Area = 7.541 ac, 0.00% Impervious, Inflow Depth = 5.59" for 50 year event
Inflow = 10.84 cfs @ 7.96 hrs, Volume= 3.516 af
Outflow = 10.82 cfs @ 7.99 hrs, Volume= 3.516 af, Atten= 0%, Lag= 1.9 min

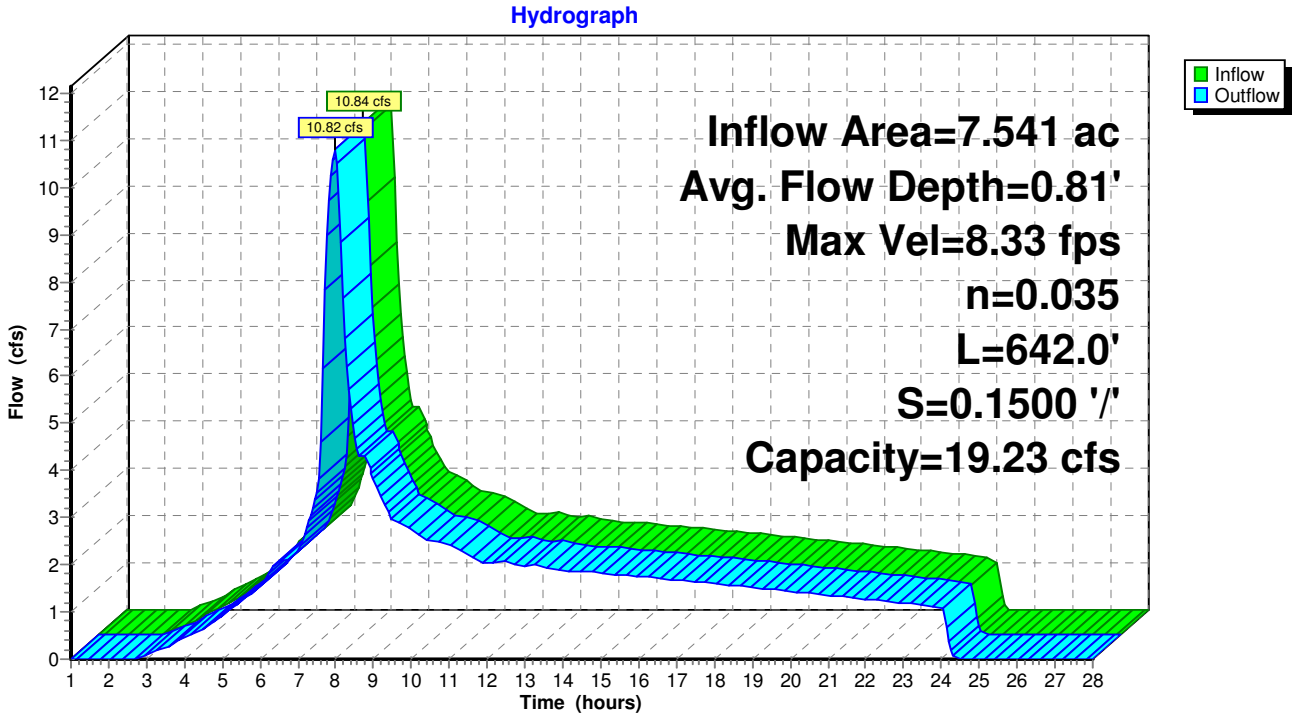
Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.33 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 4.95 fps, Avg. Travel Time= 2.2 min

Peak Storage= 835 cf @ 7.97 hrs
Average Depth at Peak Storage= 0.81'
Bank-Full Depth= 1.00' Flow Area= 2.0 sf, Capacity= 19.23 cfs

0.00' x 1.00' deep channel, n= 0.035
Side Slope Z-value= 2.0 '/' Top Width= 4.00'
Length= 642.0' Slope= 0.1500 '/'
Inlet Invert= 0.00', Outlet Invert= -96.30'



Reach R7.2: Channel



Summary for Reach R8: Main Stem

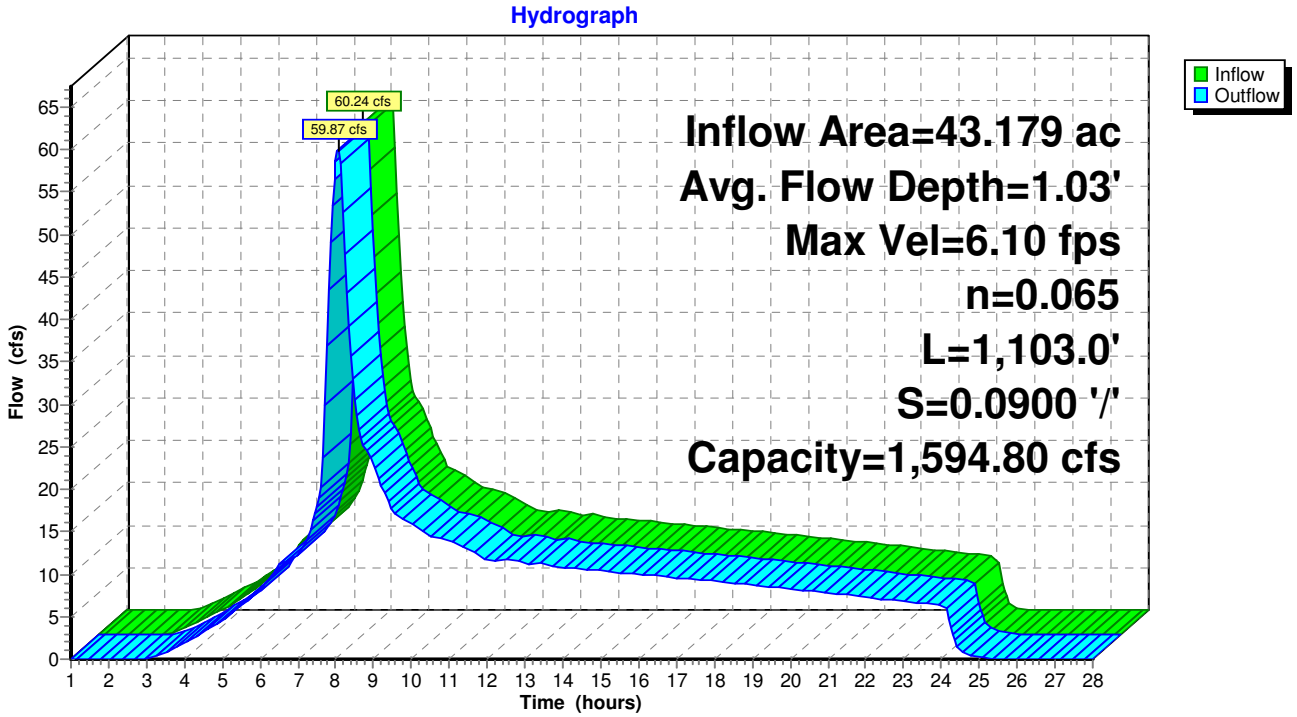
Inflow Area = 43.179 ac, 0.00% Impervious, Inflow Depth = 5.52" for 50 year event
Inflow = 60.24 cfs @ 7.99 hrs, Volume= 19.879 af
Outflow = 59.87 cfs @ 8.07 hrs, Volume= 19.879 af, Atten= 1%, Lag= 4.8 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.10 fps, Min. Travel Time= 3.0 min
Avg. Velocity = 2.97 fps, Avg. Travel Time= 6.2 min

Peak Storage= 10,827 cf @ 8.02 hrs
Average Depth at Peak Storage= 1.03'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,594.80 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,103.0' Slope= 0.0900 '/'
Inlet Invert= 0.00', Outlet Invert= -99.27'

Reach R8: Main Stem



Summary for Reach R9: Main Stem

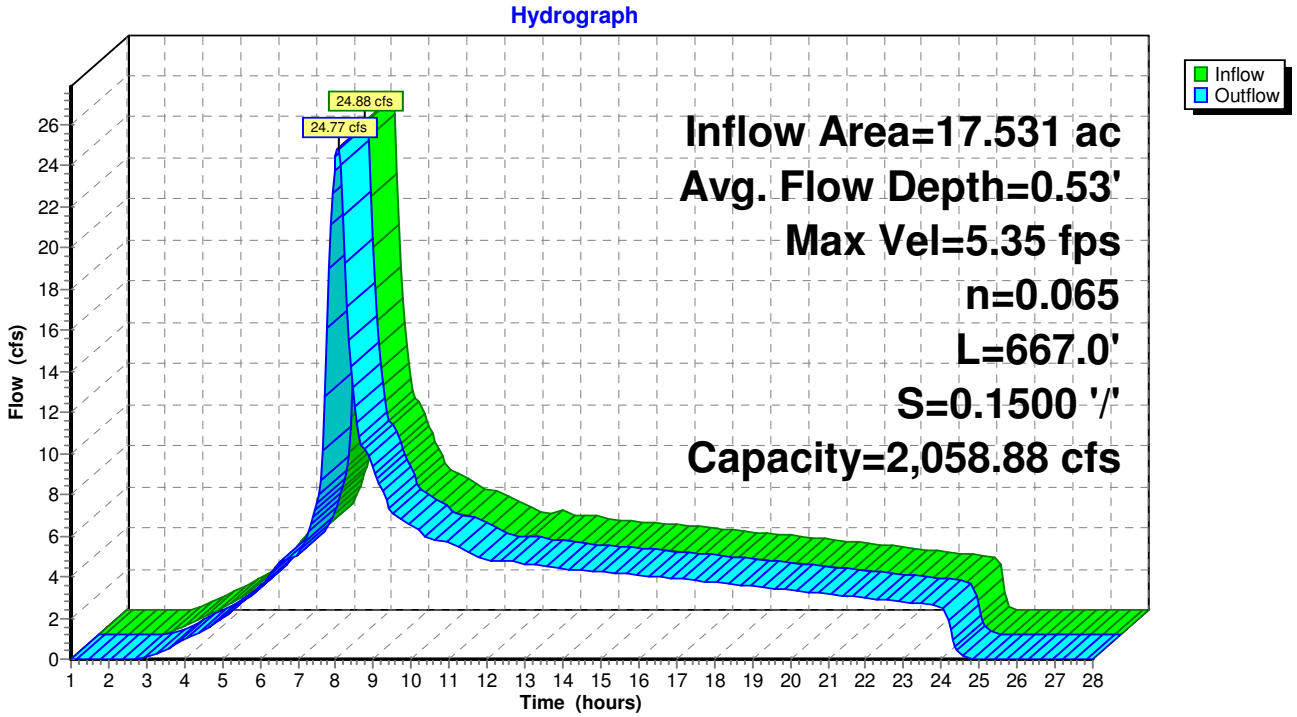
Inflow Area = 17.531 ac, 0.00% Impervious, Inflow Depth = 5.59" for 50 year event
Inflow = 24.88 cfs @ 8.01 hrs, Volume= 8.174 af
Outflow = 24.77 cfs @ 8.06 hrs, Volume= 8.174 af, Atten= 0%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.35 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 2.66 fps, Avg. Travel Time= 4.2 min

Peak Storage= 3,100 cf @ 8.03 hrs
Average Depth at Peak Storage= 0.53'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 2,058.88 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 667.0' Slope= 0.1500 '/'
Inlet Invert= 0.00', Outlet Invert= -100.05'

Reach R9: Main Stem

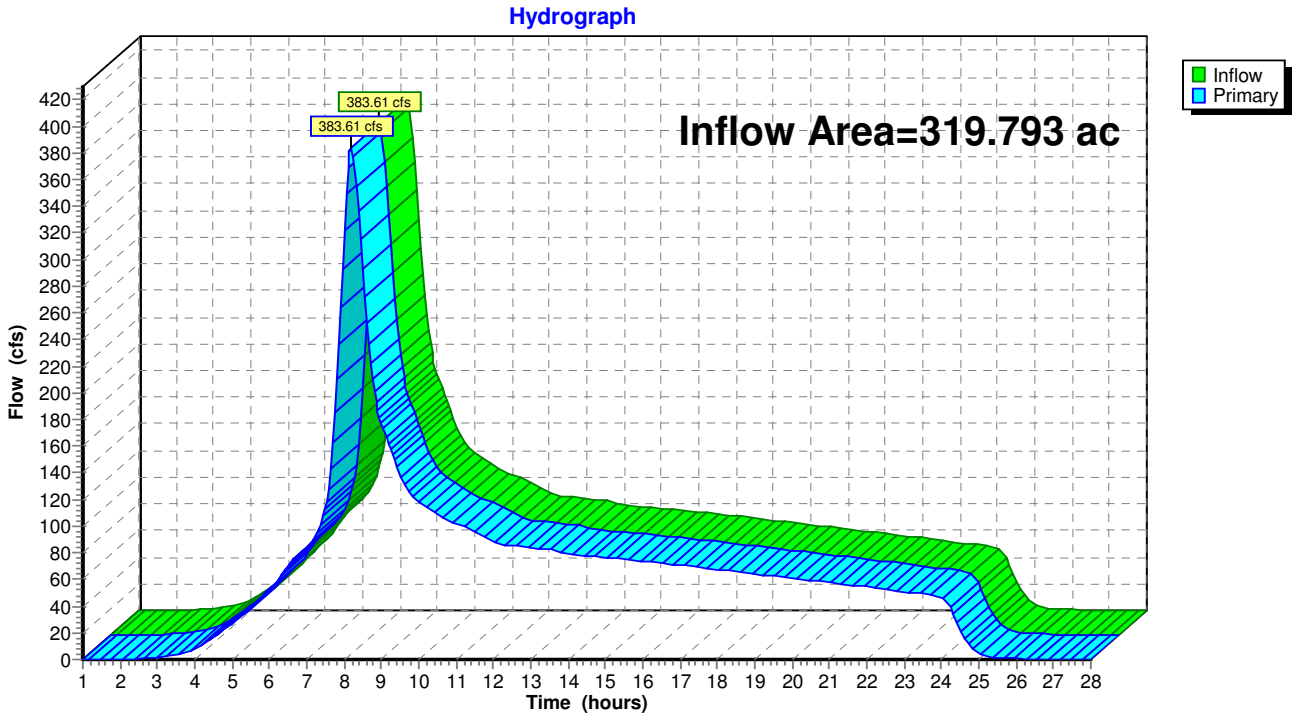


Summary for Link Outlet: Outlet

Inflow Area = 319.793 ac, 0.00% Impervious, Inflow Depth > 5.41" for 50 year event
Inflow = 383.61 cfs @ 8.19 hrs, Volume= 144.089 af
Primary = 383.61 cfs @ 8.19 hrs, Volume= 144.089 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs

Link Outlet: Outlet



Summary for Subcatchment WS1A: Subcat WS1A

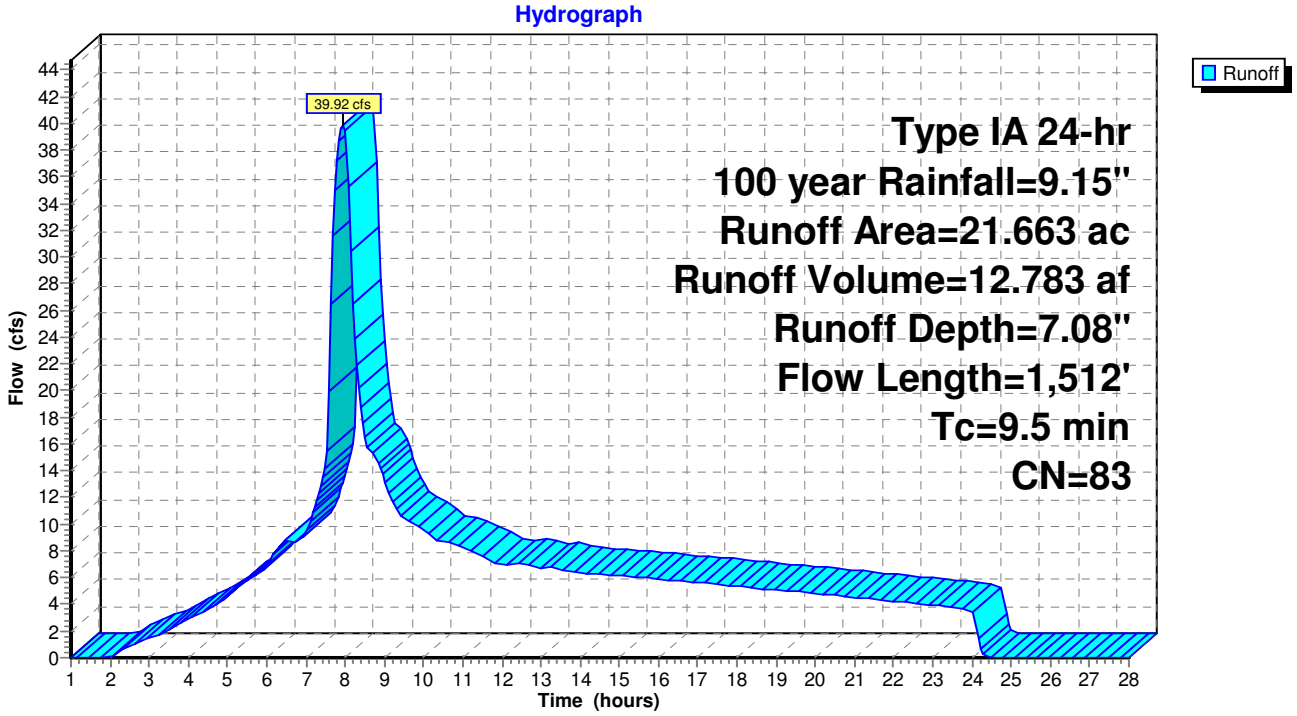
Runoff = 39.92 cfs @ 7.96 hrs, Volume= 12.783 af, Depth= 7.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
1.730	79	Pasture/grassland/range, Fair, HSG C
0.161	84	Pasture/grassland/range, Fair, HSG D
0.733	79	Vineyard, Fair, HSG C
16.760	84	Vineyard, Fair, HSG D
2.279	77	Woods, Good, HSG D
21.663	83	Weighted Average
21.663		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.2500	0.36		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	681	0.2500	8.05		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
3.5	731	0.0300	3.47	32.92	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
9.5	1,512	Total			

Subcatchment WS1A: Subcat WS1A



Summary for Subcatchment WS1B: Subcat WS1B

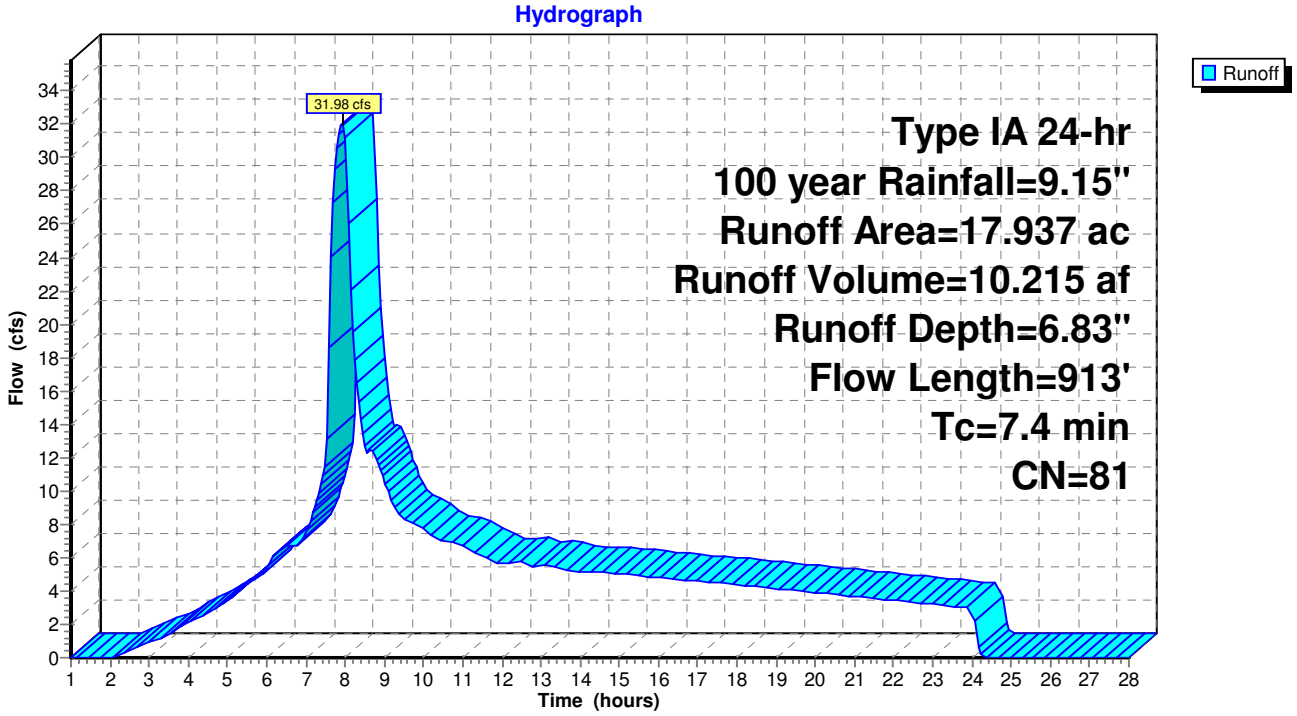
Runoff = 31.98 cfs @ 7.93 hrs, Volume= 10.215 af, Depth= 6.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.094	89	Dirt roads, HSG D
4.813	79	Pasture/grassland/range, Fair, HSG C
0.902	84	Pasture/grassland/range, Fair, HSG D
0.531	79	Vineyard, Fair, HSG C
8.409	84	Vineyard, Fair, HSG D
0.912	70	Woods, Good, HSG C
2.276	77	Woods, Good, HSG D
17.937	81	Weighted Average
17.937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	261	0.4400	10.68		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.4	265	0.2200	11.65	23.29	**Trap/Vee/Rect Channel Flow, Assumed std ditch-1** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.4	170	0.1800	6.83		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.1	74	0.1100	8.23	16.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch-2** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.1	43	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch-3** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.4	913	Total			

Subcatchment WS1B: Subcat WS1B



Summary for Subcatchment WS1C: Subcat WS1C

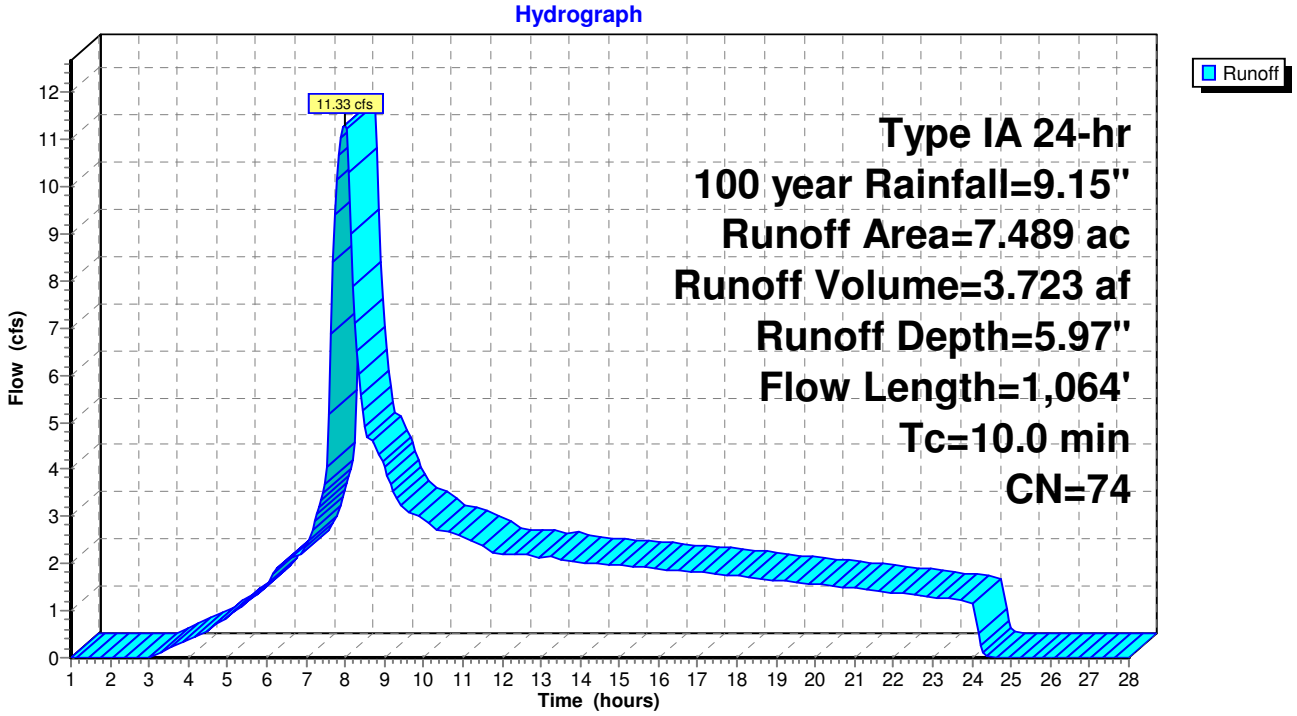
Runoff = 11.33 cfs @ 7.99 hrs, Volume= 3.723 af, Depth= 5.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.017	87	Dirt roads, HSG C
0.005	89	Dirt roads, HSG D
3.080	79	Pasture/grassland/range, Fair, HSG C
4.353	70	Woods, Good, HSG C
0.035	77	Woods, Good, HSG D
7.489	74	Weighted Average
7.489		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.7	396	0.3400	9.39		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.5	333	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.6	235	0.0600	6.08	12.16	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.0	1,064	Total			

Subcatchment WS1C: Subcat WS1C



Summary for Subcatchment WS1D: Subcat WS1D

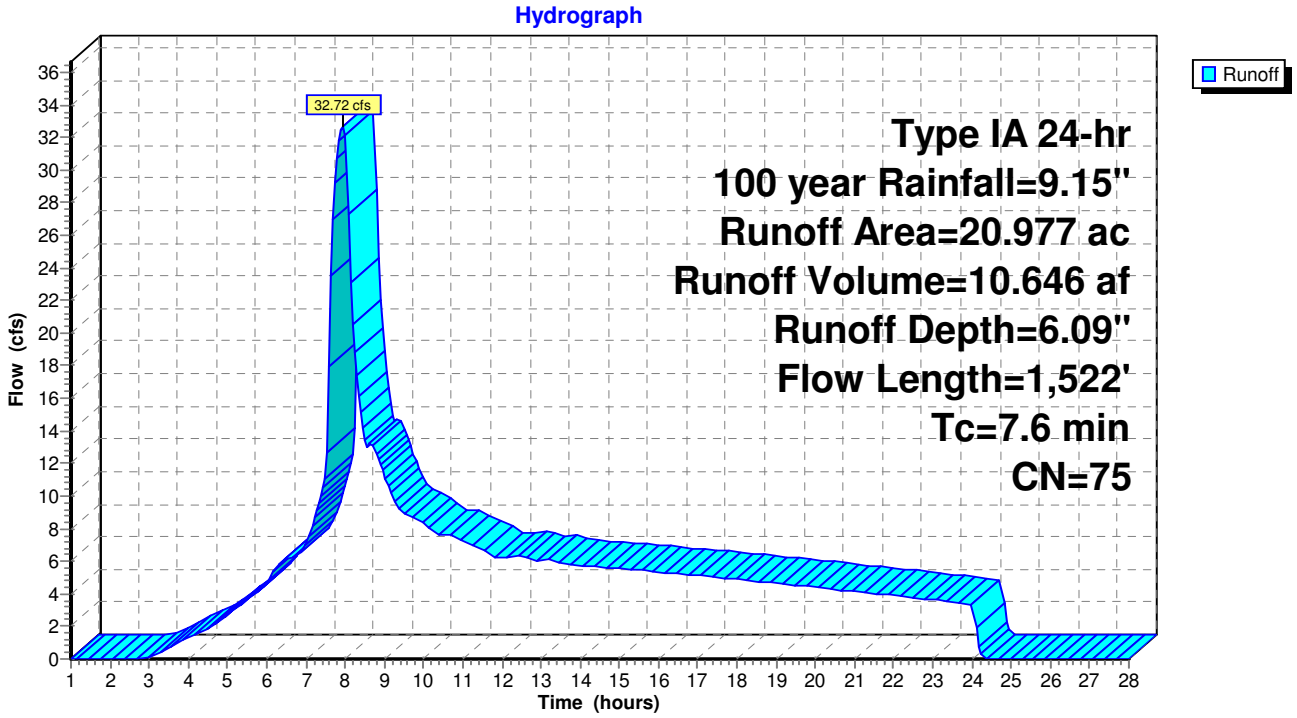
Runoff = 32.72 cfs @ 7.95 hrs, Volume= 10.646 af, Depth= 6.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.624	65	Brush, Good, HSG C
0.080	87	Dirt roads, HSG C
11.776	79	Pasture/grassland/range, Fair, HSG C
8.498	70	Woods, Good, HSG C
20.977	75	Weighted Average
20.977		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.1800	0.32		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	236	0.3800	9.92		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.9	1,186	0.1800	10.53	21.07	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	1,522	Total			

Subcatchment WS1D: Subcat WS1D



Summary for Subcatchment WS1E: Subcat WS1E

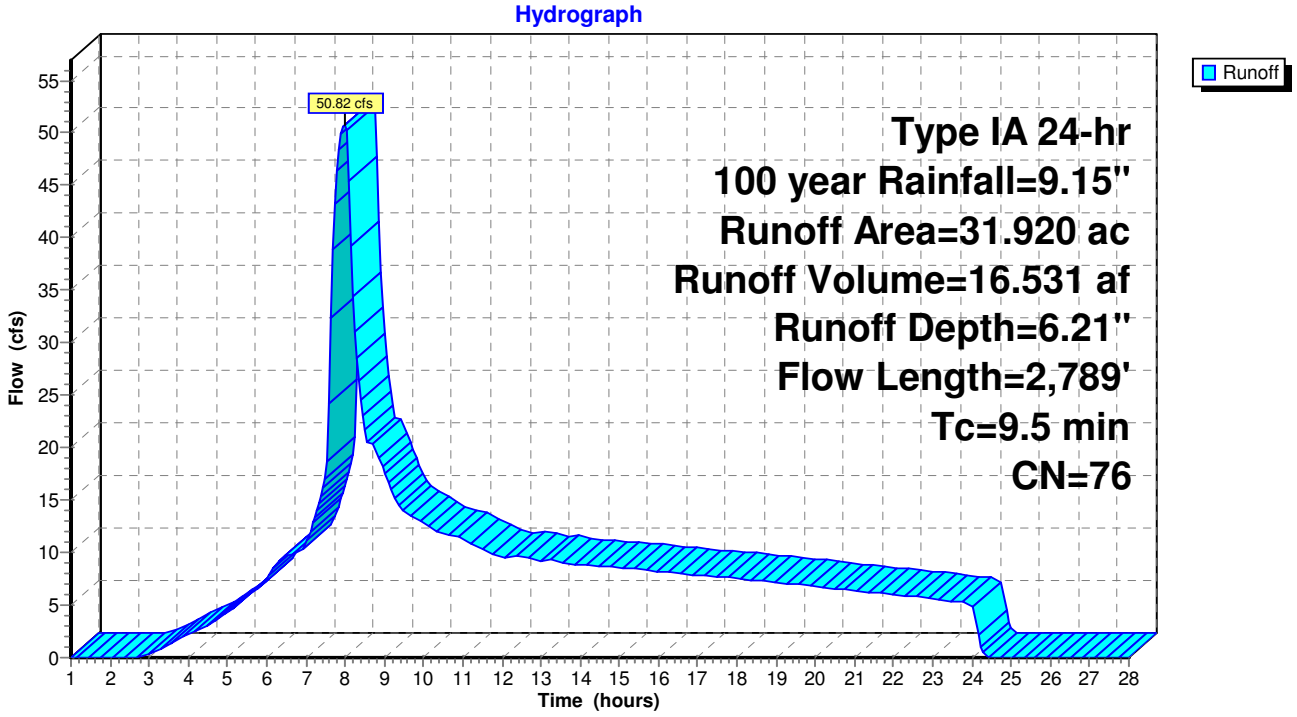
Runoff = 50.82 cfs @ 7.98 hrs, Volume= 16.531 af, Depth= 6.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.339	87	Dirt roads, HSG C
20.920	79	Pasture/grassland/range, Fair, HSG C
10.661	70	Woods, Good, HSG C
31.920	76	Weighted Average
31.920		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	100	0.2600	0.37		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.8	418	0.3200	9.11		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
4.2	2,271	0.1300	8.95	17.90	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
9.5	2,789	Total			

Subcatchment WS1E: Subcat WS1E



Summary for Subcatchment WS1F.1: Subcat WS1F.1

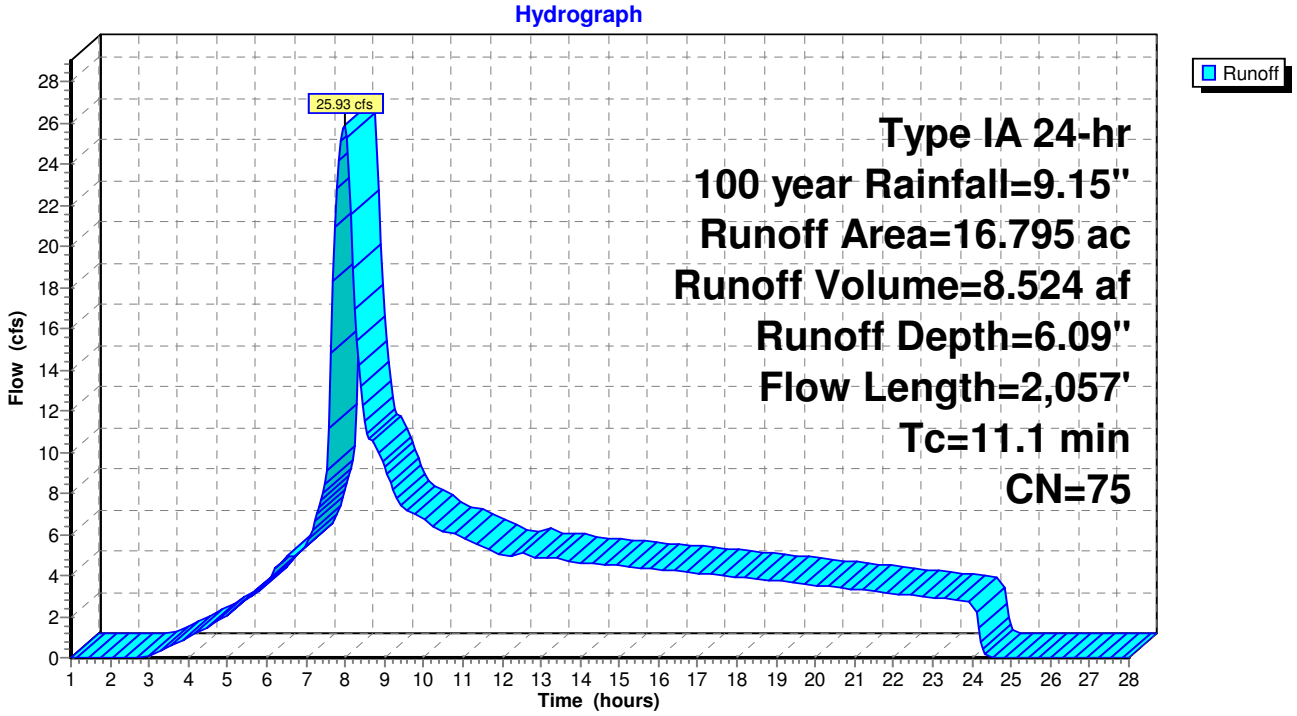
Runoff = 25.93 cfs @ 8.00 hrs, Volume= 8.524 af, Depth= 6.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.262	87	Dirt roads, HSG C
0.080	89	Gravel Roads, HSG C
1.461	79	Pasture/grassland/range, Fair, HSG C
0.776	74	Pasture/grassland/range, Good, HSG C
7.618	79	Vineyard, Fair, HSG C
6.598	70	Woods, Good, HSG C
16.795	75	Weighted Average
16.795		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
3.4	1,267	0.1500	6.24		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.9	548	0.1700	10.24	20.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.8	142	0.0200	2.83	26.88	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
11.1	2,057	Total			

Subcatchment WS1F.1: Subcat WS1F.1



Summary for Subcatchment WS1F.2: Subcat WS1F.2

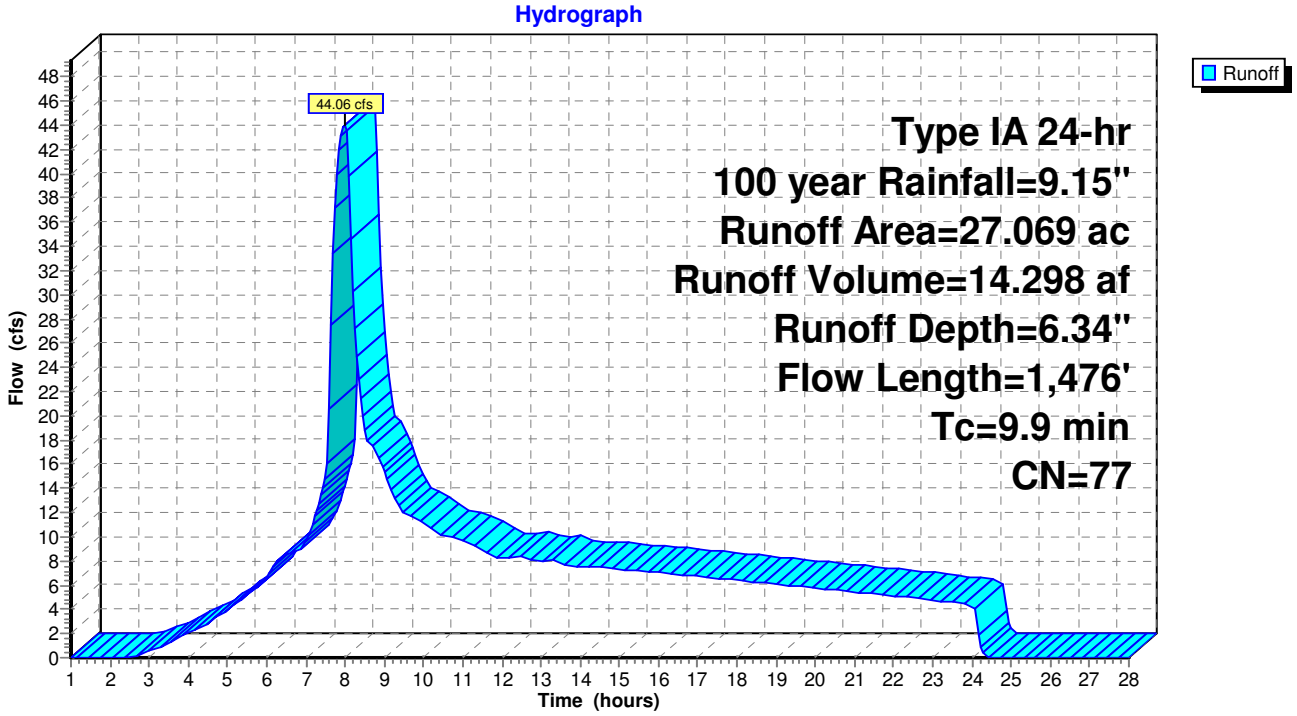
Runoff = 44.06 cfs @ 7.98 hrs, Volume= 14.298 af, Depth= 6.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.462	87	Dirt roads, HSG C
9.900	79	Pasture/grassland/range, Fair, HSG C
0.143	84	Pasture/grassland/range, Fair, HSG D
7.542	79	Vineyard, Fair, HSG C
1.496	84	Vineyard, Fair, HSG D
7.378	70	Woods, Good, HSG C
0.149	77	Woods, Good, HSG D
27.069	77	Weighted Average
27.069		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	702	0.2500	8.05		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.2	674	0.0100	5.21	531.60	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=6.00' Z= 1.5 '/' Top.W=26.00' n= 0.065
9.9	1,476	Total			

Subcatchment WS1F.2: Subcat WS1F.2



Summary for Subcatchment WS1G: Subcat WS1G

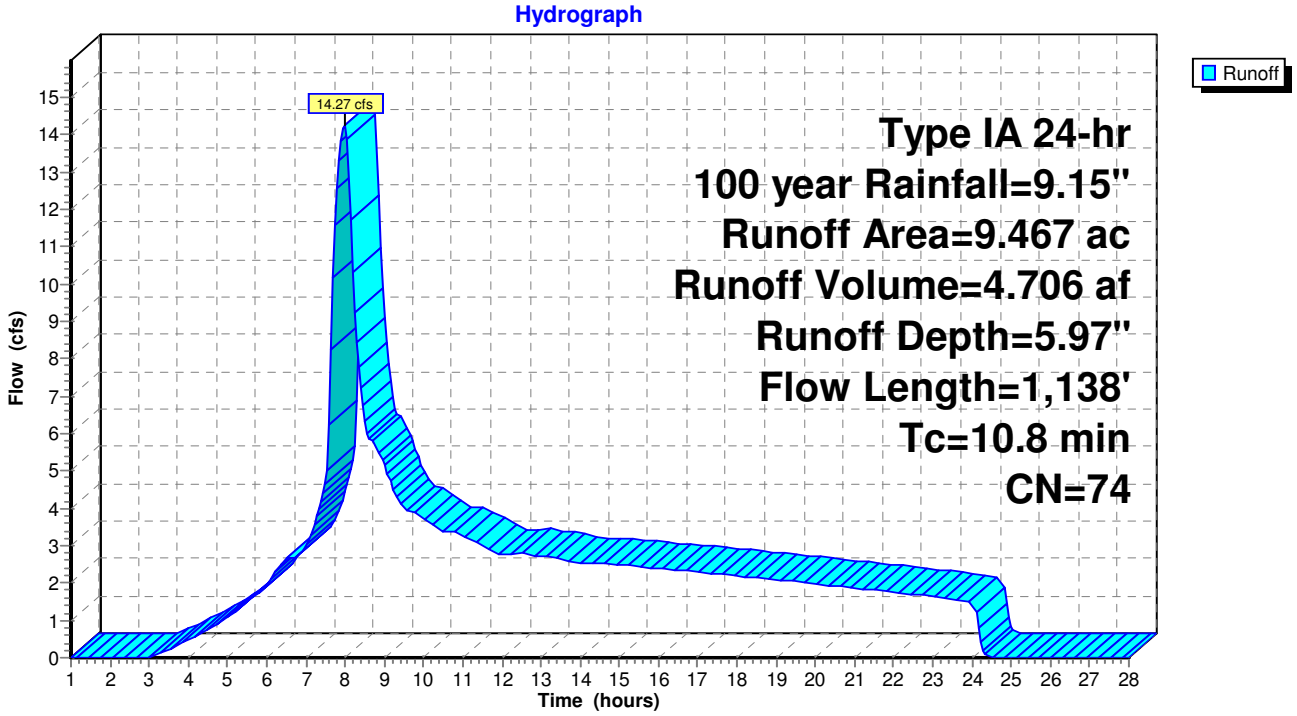
Runoff = 14.27 cfs @ 8.00 hrs, Volume= 4.706 af, Depth= 5.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.070	87	Dirt roads, HSG C
3.140	79	Pasture/grassland/range, Fair, HSG C
0.819	79	Vineyard, Fair, HSG C
5.438	70	Woods, Good, HSG C
9.467	74	Weighted Average
9.467		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.3	604	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	139	0.2300	11.91	23.82	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.3	156	0.2600	8.21		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.8	139	0.0200	2.83	26.88	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
10.8	1,138	Total			

Subcatchment WS1G: Subcat WS1G



Summary for Subcatchment WS1H: Subcat WS1H

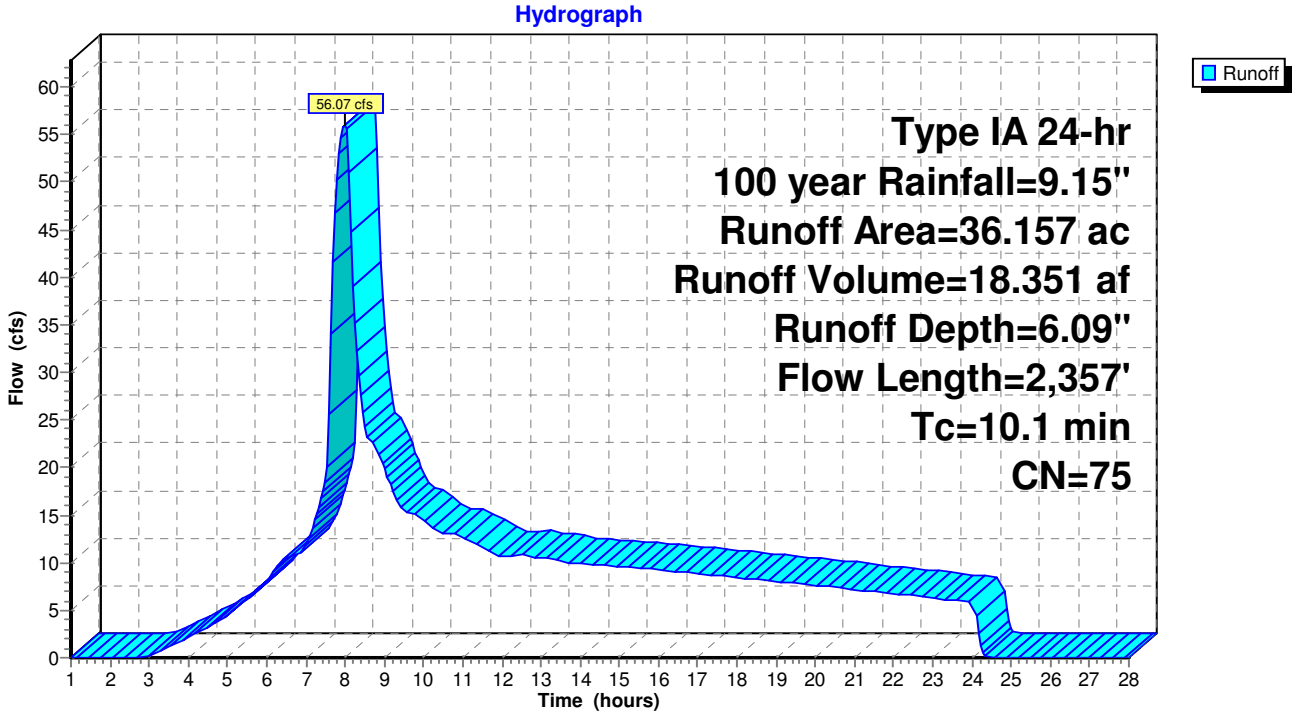
Runoff = 56.07 cfs @ 7.99 hrs, Volume= 18.351 af, Depth= 6.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.574	65	Brush, Good, HSG C
0.341	87	Dirt roads, HSG C
16.188	79	Pasture/grassland/range, Fair, HSG C
2.076	79	Vineyard, Fair, HSG C
16.978	70	Woods, Good, HSG C
36.157	75	Weighted Average
36.157		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1400	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	610	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.9	1,647	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.1	2,357	Total			

Subcatchment WS1H: Subcat WS1H



Summary for Subcatchment WS1I: Subcat WS1I

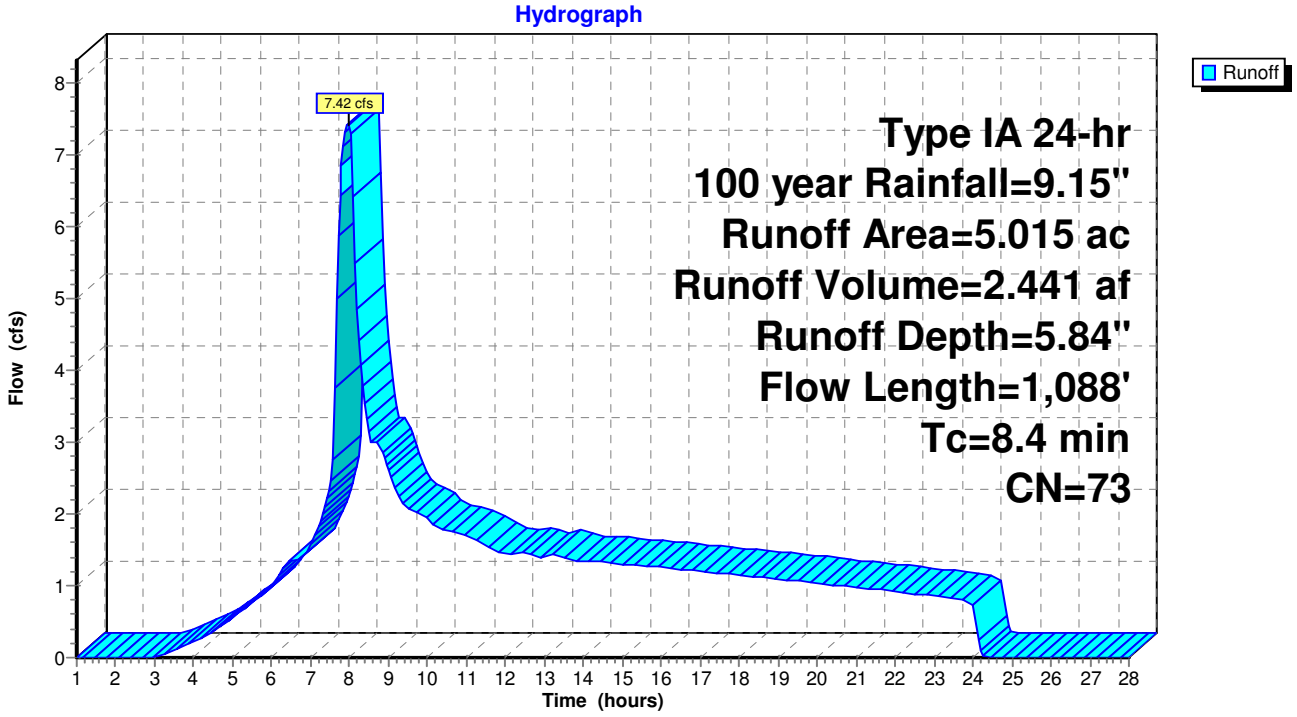
Runoff = 7.42 cfs @ 7.97 hrs, Volume= 2.441 af, Depth= 5.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
1.412	79	Pasture/grassland/range, Fair, HSG C
0.535	79	Vineyard, Fair, HSG C
3.068	70	Woods, Good, HSG C
5.015	73	Weighted Average
5.015		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1400	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	664	0.2100	7.38		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.1	324	0.0600	4.90	46.55	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
8.4	1,088	Total			

Subcatchment WS1I: Subcat WS1I



Summary for Subcatchment WS1J: Subcat WS1J

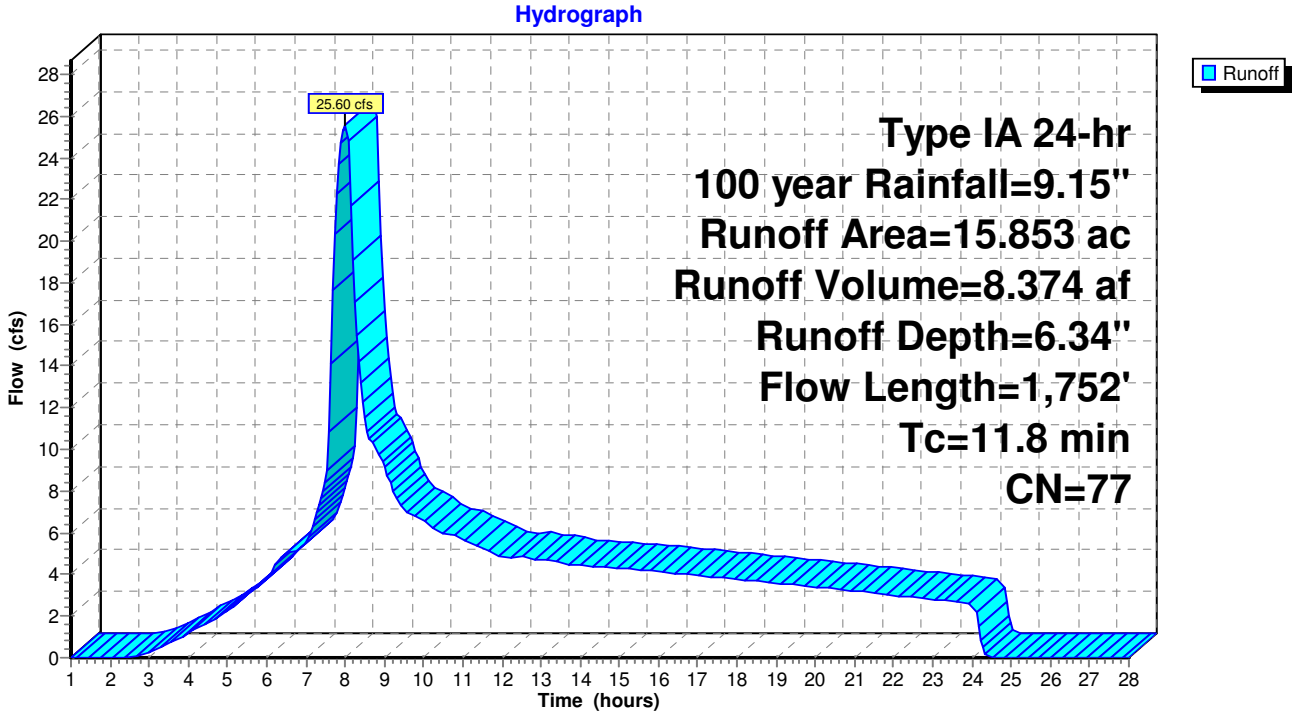
Runoff = 25.60 cfs @ 8.00 hrs, Volume= 8.374 af, Depth= 6.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.211	89	Gravel Roads, HSG C
1.797	79	Pasture/grassland/range, Fair, HSG C
2.246	74	Pasture/grassland/range, Good, HSG C
8.948	79	Vineyard, Fair, HSG C
2.650	70	Woods, Good, HSG C
15.853	77	Weighted Average
15.853		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	93	0.0500	0.19		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
2.1	826	0.1700	6.64		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	833	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
11.8	1,752	Total			

Subcatchment WS1J: Subcat WS1J



Summary for Subcatchment WS1K: Subcat WS1K

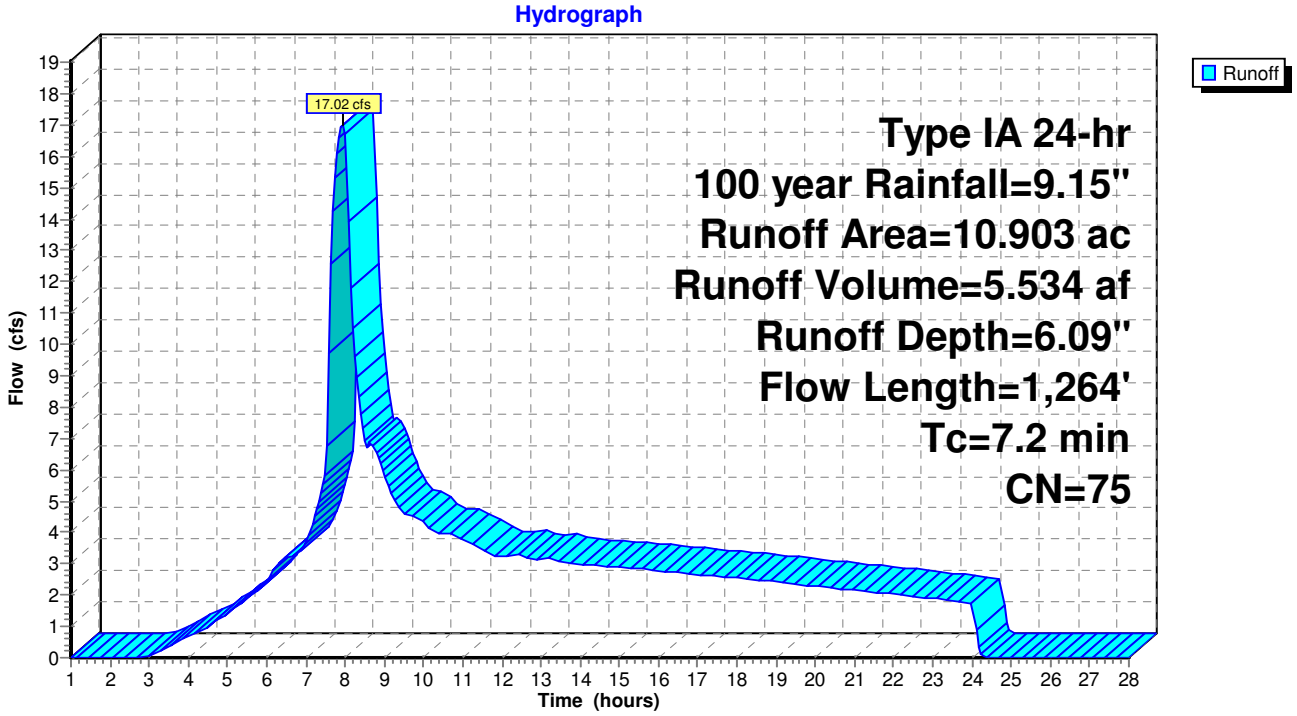
Runoff = 17.02 cfs @ 7.95 hrs, Volume= 5.534 af, Depth= 6.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.051	87	Dirt roads, HSG C
5.933	79	Pasture/grassland/range, Fair, HSG C
0.486	79	Vineyard, Fair, HSG C
4.433	70	Woods, Good, HSG C
10.903	75	Weighted Average
10.903		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	100	0.2700	0.37		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.8	753	0.1800	6.83		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.3	189	0.1400	9.29	18.58	**Trap/Vee/Rect Channel Flow, Assumed std ditch-1** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.6	222	0.0600	6.08	12.16	**Trap/Vee/Rect Channel Flow, Assumed std ditch-2** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.2	1,264	Total			

Subcatchment WS1K: Subcat WS1K



Summary for Subcatchment WS1L: Subcat WS1L

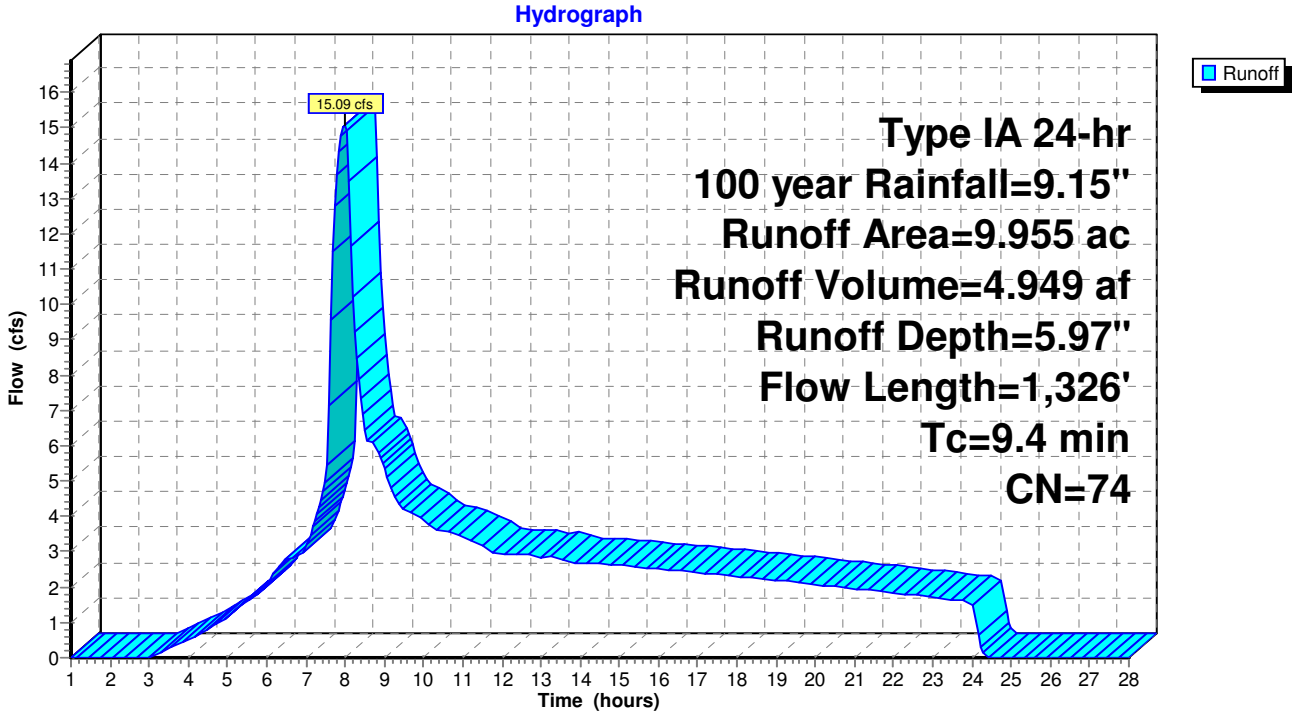
Runoff = 15.09 cfs @ 7.98 hrs, Volume= 4.949 af, Depth= 5.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
1.300	65	Brush, Good, HSG C
0.181	87	Dirt roads, HSG C
3.543	79	Pasture/grassland/range, Fair, HSG C
1.606	74	Pasture/grassland/range, Good, HSG C
3.325	70	Woods, Good, HSG C
9.955	74	Weighted Average
9.955		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	100	0.0900	0.24		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.8	348	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	78	0.0800	7.02	14.05	**Trap/Vee/Rect Channel Flow, Std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.2	92	0.3200	9.11		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
1.2	708	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
9.4	1,326	Total			

Subcatchment WS1L: Subcat WS1L



Summary for Subcatchment WS1M: Subcat WS1M

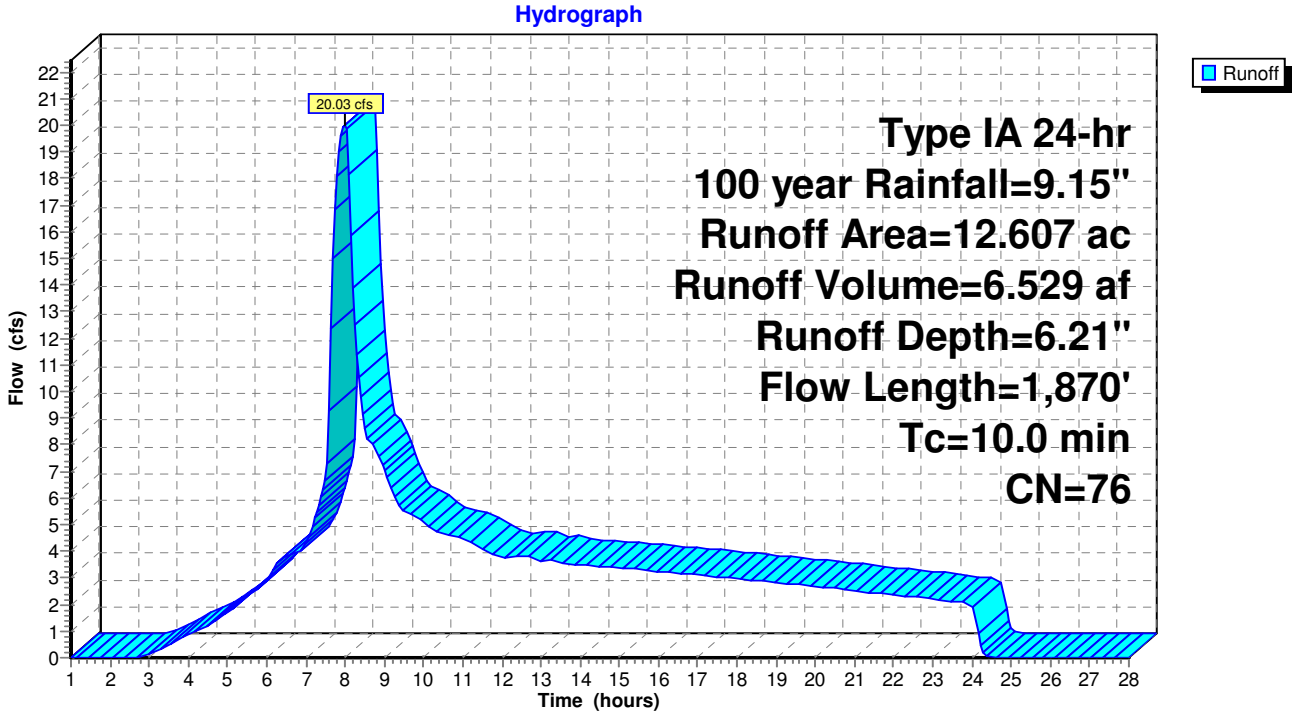
Runoff = 20.03 cfs @ 7.98 hrs, Volume= 6.529 af, Depth= 6.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
1.186	65	Brush, Good, HSG C
0.165	87	Dirt roads, HSG C
9.079	79	Pasture/grassland/range, Fair, HSG C
0.673	74	Pasture/grassland/range, Good, HSG C
1.503	70	Woods, Good, HSG C
12.607	76	Weighted Average
12.607		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1500	0.29		**Sheet Flow, 0.15** Grass: Dense n= 0.240 P2= 4.05"
1.6	675	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	37	0.0200	3.51	7.02	**Trap/Vee/Rect Channel Flow, Std Ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
1.7	626	0.1400	6.02		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.8	432	0.1400	9.29	18.58	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.0	1,870	Total			

Subcatchment WS1M: Subcat WS1M



Summary for Subcatchment WS1N: Subcat WS1N

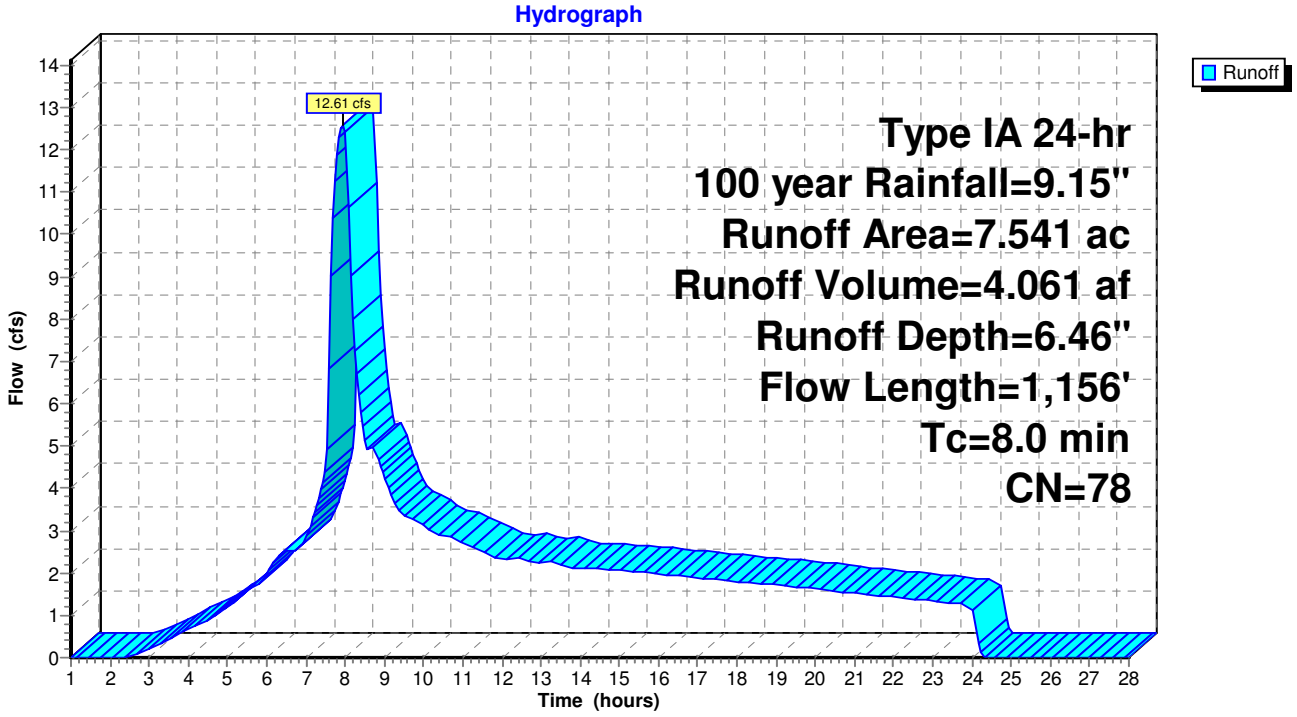
Runoff = 12.61 cfs @ 7.95 hrs, Volume= 4.061 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.332	65	Brush, Good, HSG C
0.045	87	Dirt roads, HSG C
7.164	79	Pasture/grassland/range, Fair, HSG C
7.541	78	Weighted Average
7.541		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1500	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.9	775	0.1700	6.64		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.4	281	0.2600	12.66	25.32	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.0	1,156	Total			

Subcatchment WS1N: Subcat WS1N



Summary for Subcatchment WS1O: Subcat WS1O

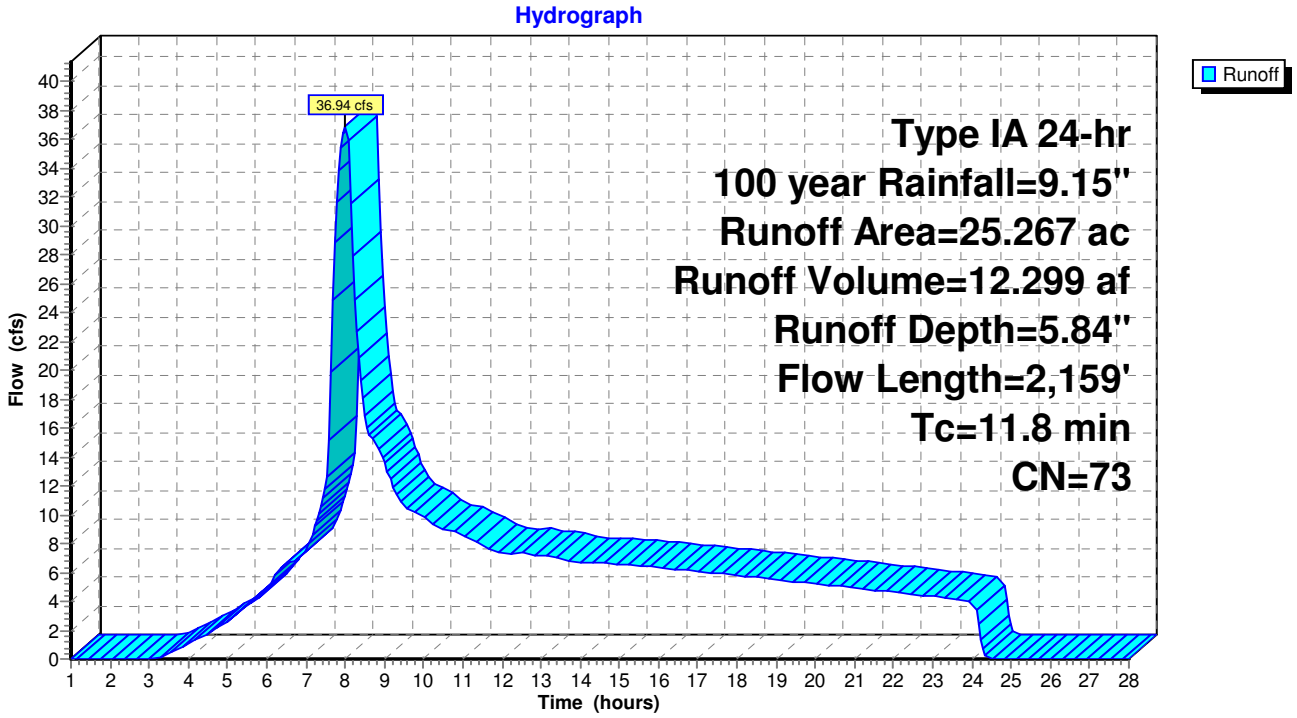
Runoff = 36.94 cfs @ 8.01 hrs, Volume= 12.299 af, Depth= 5.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.049	87	Dirt roads, HSG C
5.153	79	Pasture/grassland/range, Fair, HSG C
2.236	79	Vineyard, Fair, HSG C
17.829	70	Woods, Good, HSG C
25.267	73	Weighted Average
25.267		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.3100	0.26		**Sheet Flow, Sheet-1** Woods: Light underbrush n= 0.400 P2= 4.05"
2.6	1,166	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.8	893	0.0700	5.29	50.28	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
11.8	2,159	Total			

Subcatchment WS1O: Subcat WS1O



Summary for Subcatchment WS1P: Subcat WS1P

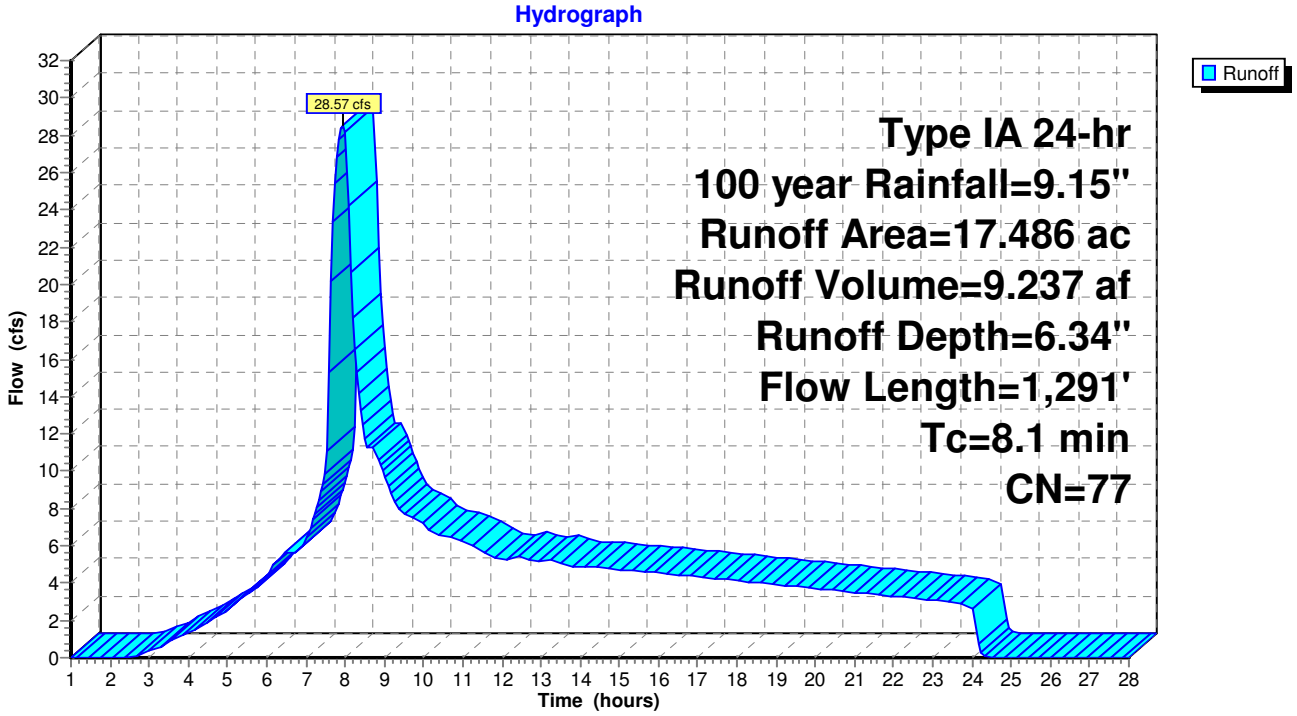
Runoff = 28.57 cfs @ 7.96 hrs, Volume= 9.237 af, Depth= 6.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.263	87	Dirt roads, HSG C
2.086	82	Farmsteads, HSG C
0.713	79	Pasture/grassland/range, Fair, HSG C
3.477	74	Pasture/grassland/range, Good, HSG C
7.176	79	Vineyard, Fair, HSG C
3.771	70	Woods, Good, HSG C
17.486	77	Weighted Average
17.486		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0500	0.28		**Sheet Flow, Sheet-1** Grass: Short n= 0.150 P2= 4.05"
0.7	331	0.2400	7.89		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	860	0.1700	10.24	20.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.1	1,291	Total			

Subcatchment WS1P: Subcat WS1P



Summary for Subcatchment WS1Q: Subcat WS1Q

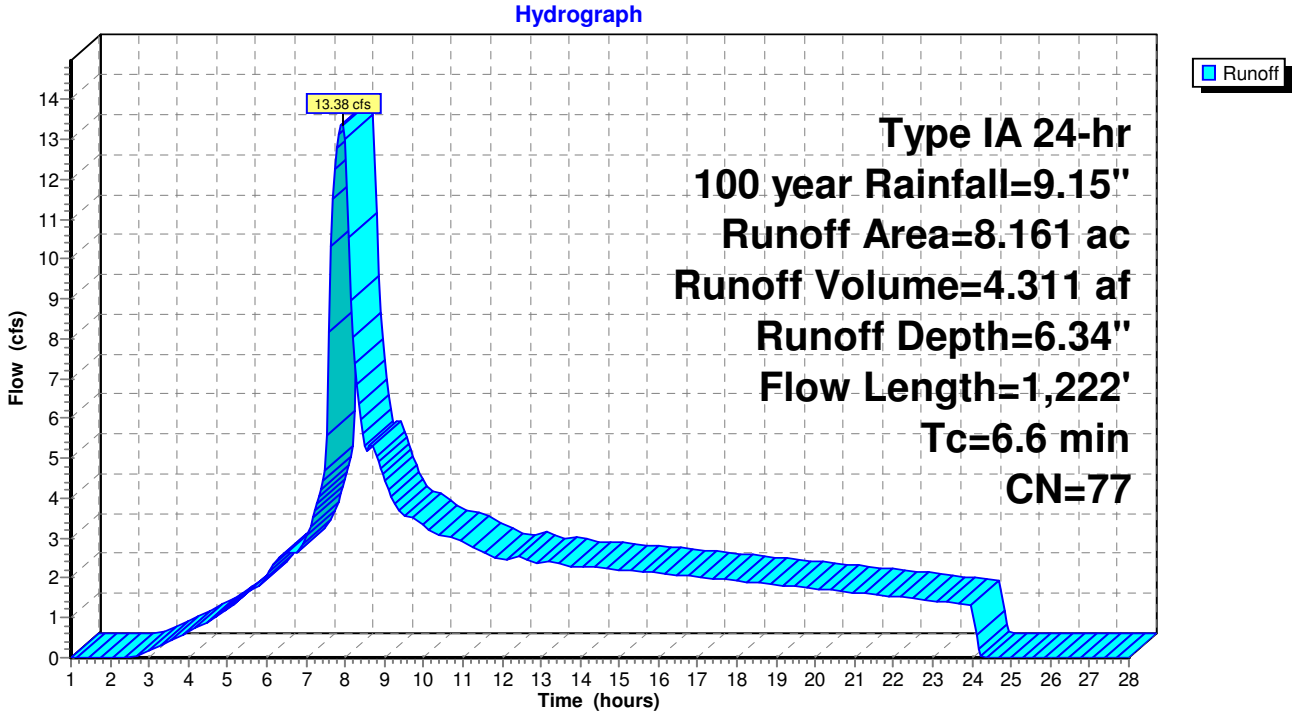
Runoff = 13.38 cfs @ 7.93 hrs, Volume= 4.311 af, Depth= 6.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.151	87	Dirt roads, HSG C
0.039	82	Farmsteads, HSG C
4.319	79	Pasture/grassland/range, Fair, HSG C
1.502	79	Vineyard, Fair, HSG C
2.150	70	Woods, Good, HSG C
8.161	77	Weighted Average
8.161		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.3200	0.40		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	659	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.9	463	0.1900	8.72	82.84	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
6.6	1,222	Total			

Subcatchment WS1Q: Subcat WS1Q



Summary for Subcatchment WS1R: Subcat WS1R

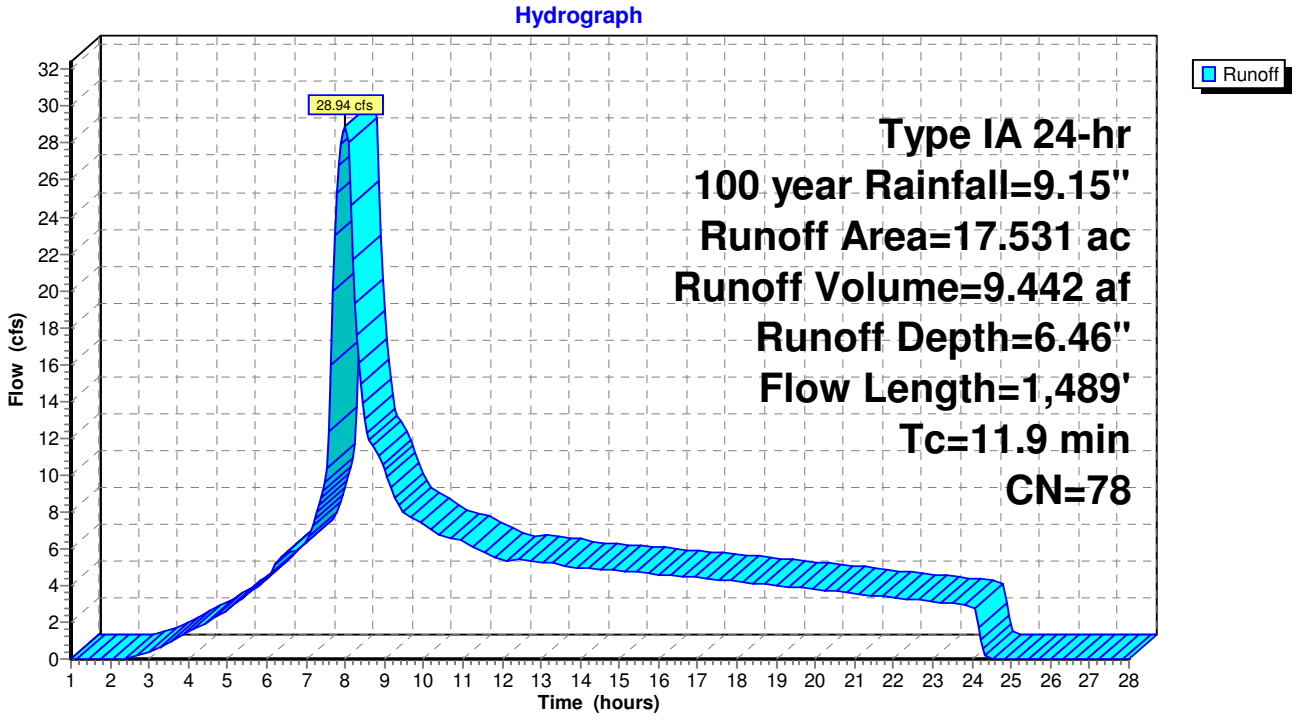
Runoff = 28.94 cfs @ 8.00 hrs, Volume= 9.442 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.110	87	Dirt roads, HSG C
15.096	79	Pasture/grassland/range, Fair, HSG C
0.815	74	Pasture/grassland/range, Good, HSG C
1.510	70	Woods, Good, HSG C
17.531	78	Weighted Average
17.531		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
2.3	759	0.1200	5.58		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	630	0.0900	7.45	14.90	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
11.9	1,489	Total			

Subcatchment WS1R: Subcat WS1R



Summary for Reach R1: Main Stem

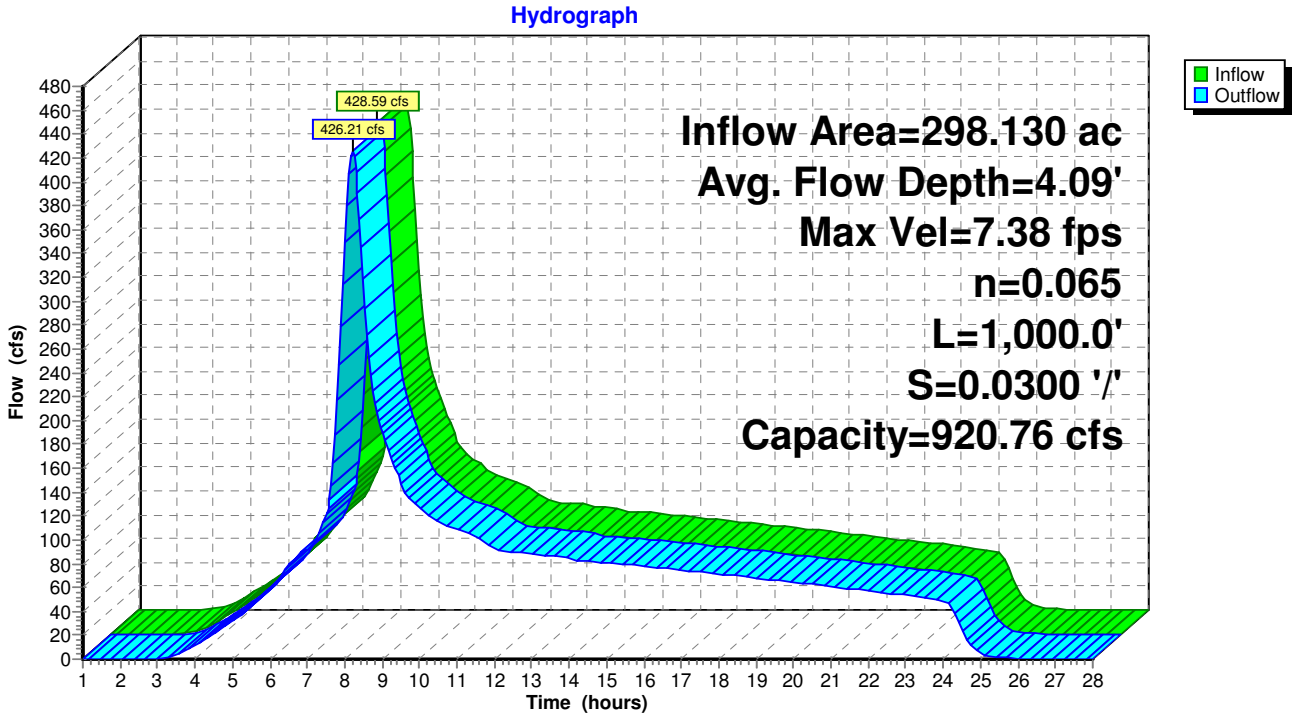
Inflow Area = 298.130 ac, 0.00% Impervious, Inflow Depth > 6.21" for 100 year event
Inflow = 428.59 cfs @ 8.13 hrs, Volume= 154.168 af
Outflow = 426.21 cfs @ 8.20 hrs, Volume= 154.164 af, Atten= 1%, Lag= 4.2 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.38 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 3.84 fps, Avg. Travel Time= 4.3 min

Peak Storage= 57,897 cf @ 8.16 hrs
Average Depth at Peak Storage= 4.09'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 920.76 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,000.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -30.00'

Reach R1: Main Stem



Summary for Reach R2: Main Stem

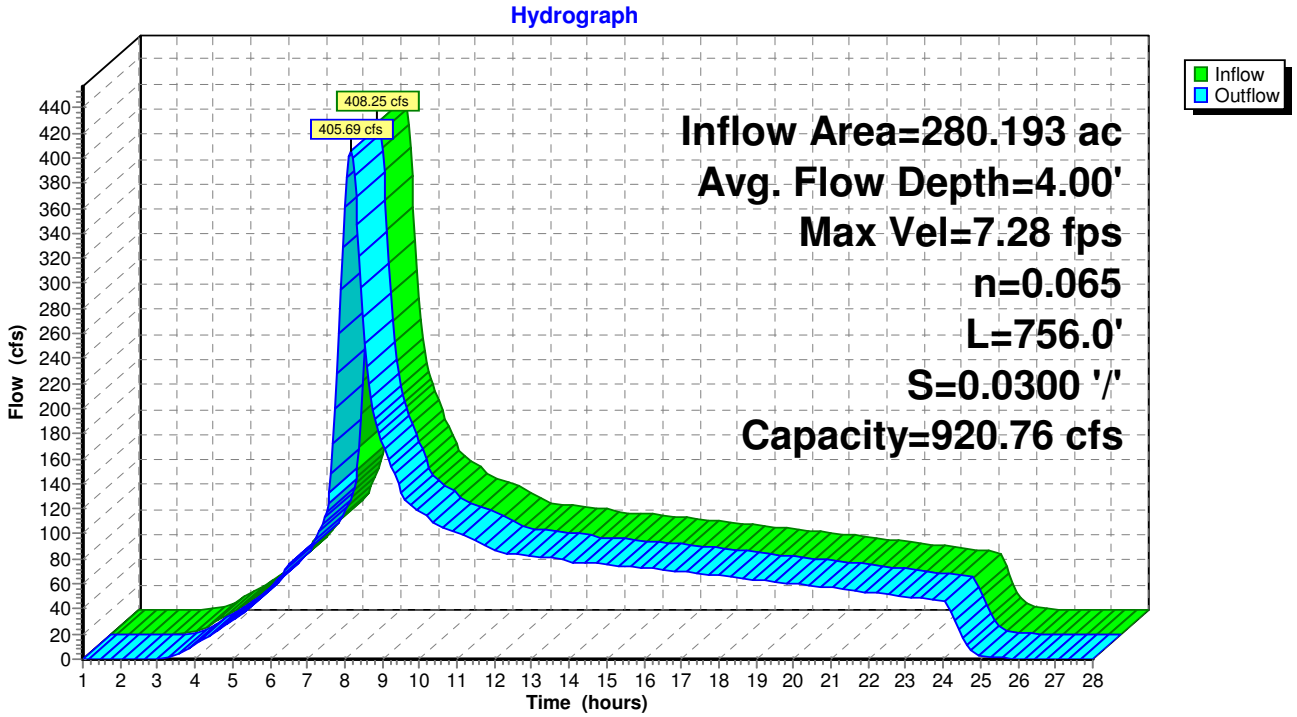
Inflow Area = 280.193 ac, 0.00% Impervious, Inflow Depth = 6.17" for 100 year event
Inflow = 408.25 cfs @ 8.09 hrs, Volume= 143.954 af
Outflow = 405.69 cfs @ 8.15 hrs, Volume= 143.952 af, Atten= 1%, Lag= 3.2 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.28 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 3.80 fps, Avg. Travel Time= 3.3 min

Peak Storage= 42,266 cf @ 8.11 hrs
Average Depth at Peak Storage= 4.00'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 920.76 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 756.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -22.68'

Reach R2: Main Stem



Summary for Reach R3: Stream

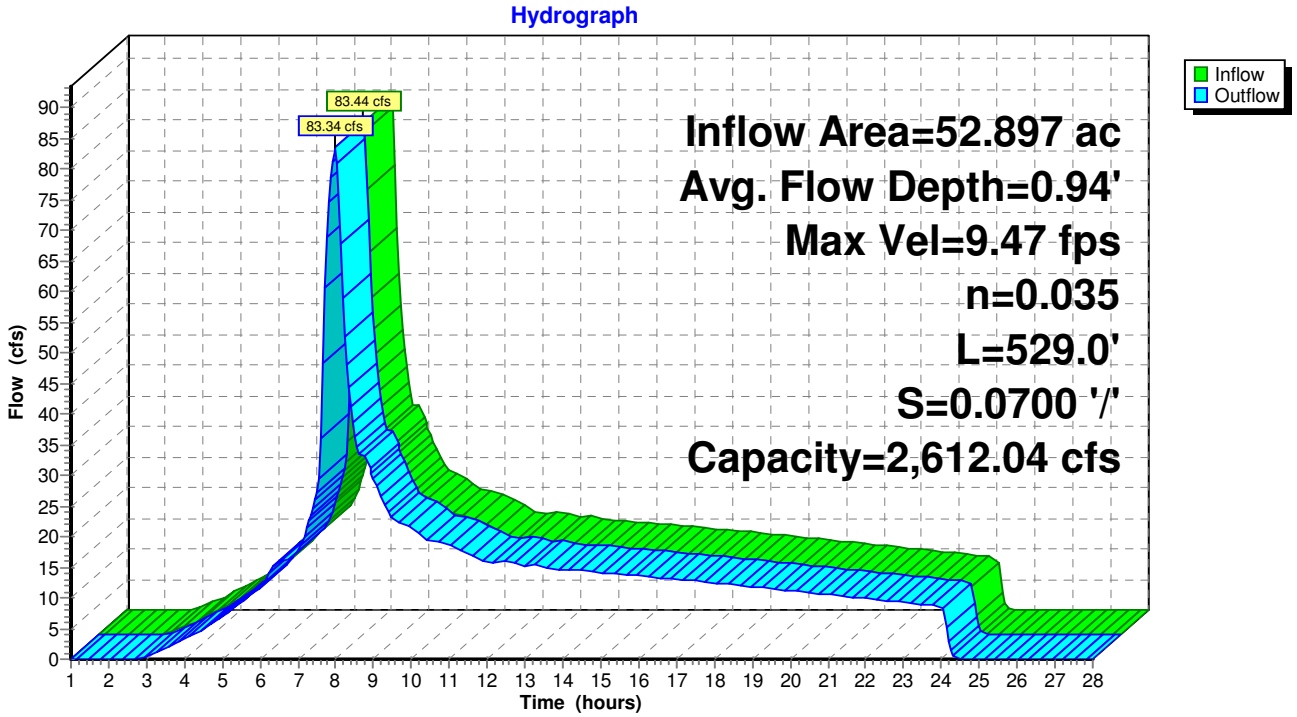
Inflow Area = 52.897 ac, 0.00% Impervious, Inflow Depth = 6.17" for 100 year event
Inflow = 83.44 cfs @ 7.97 hrs, Volume= 27.177 af
Outflow = 83.34 cfs @ 7.99 hrs, Volume= 27.177 af, Atten= 0%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.47 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 4.83 fps, Avg. Travel Time= 1.8 min

Peak Storage= 4,662 cf @ 7.98 hrs
Average Depth at Peak Storage= 0.94'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 2,612.04 cfs

8.00' x 6.00' deep channel, n= 0.035
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 529.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -37.03'

Reach R3: Stream



Summary for Reach R4.1: Main Stem

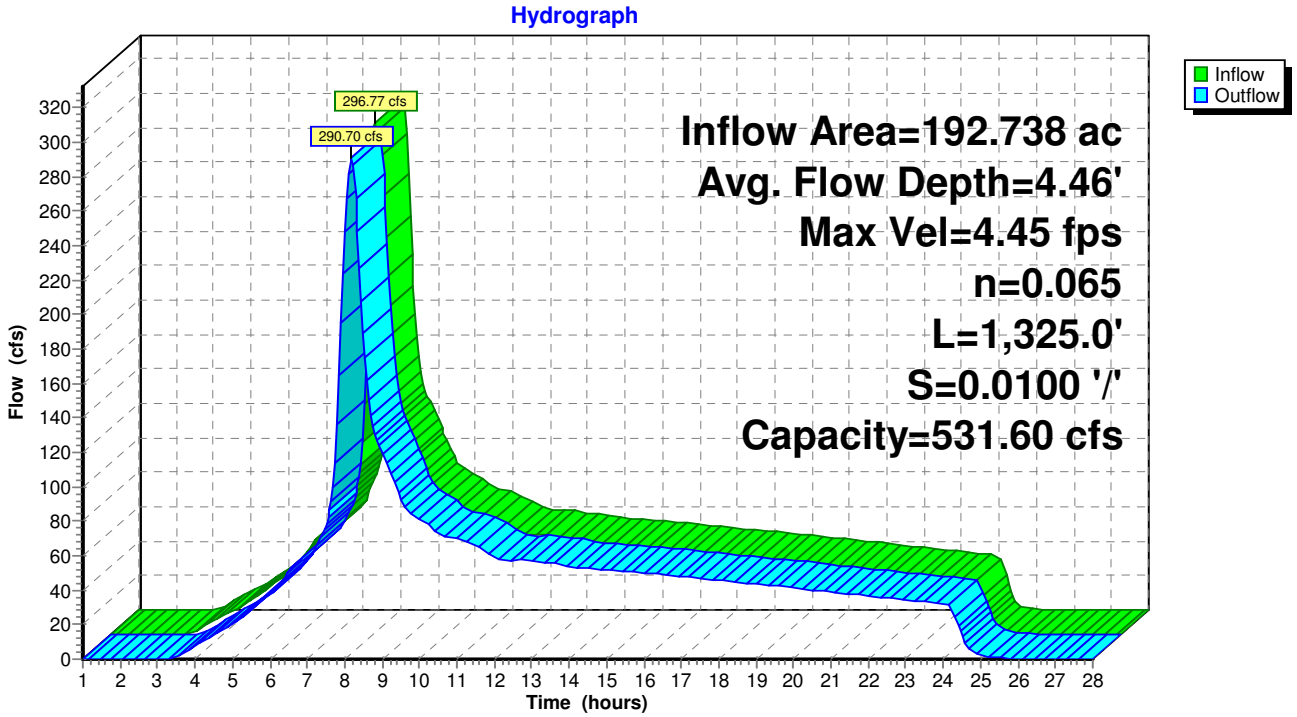
Inflow Area = 192.738 ac, 0.00% Impervious, Inflow Depth = 6.15" for 100 year event
Inflow = 296.77 cfs @ 8.05 hrs, Volume= 98.758 af
Outflow = 290.70 cfs @ 8.18 hrs, Volume= 98.755 af, Atten= 2%, Lag= 8.1 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.45 fps, Min. Travel Time= 5.0 min
Avg. Velocity = 2.32 fps, Avg. Travel Time= 9.5 min

Peak Storage= 86,741 cf @ 8.10 hrs
Average Depth at Peak Storage= 4.46'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 531.60 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,325.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -13.25'

Reach R4.1: Main Stem



Summary for Reach R4.2: Main Stem

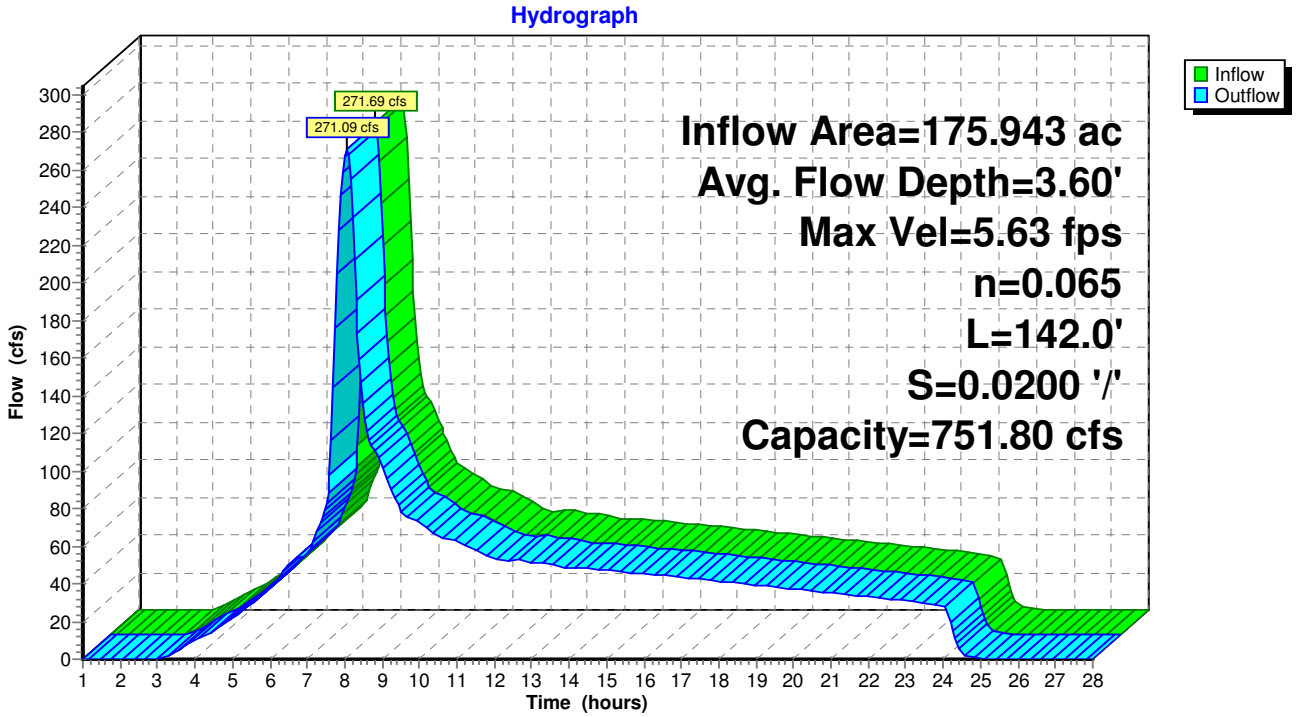
Inflow Area = 175.943 ac, 0.00% Impervious, Inflow Depth = 6.15" for 100 year event
Inflow = 271.69 cfs @ 8.04 hrs, Volume= 90.234 af
Outflow = 271.09 cfs @ 8.05 hrs, Volume= 90.234 af, Atten= 0%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.63 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.87 fps, Avg. Travel Time= 0.8 min

Peak Storage= 6,847 cf @ 8.05 hrs
Average Depth at Peak Storage= 3.60'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 751.80 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 142.0' Slope= 0.0200 '/'
Inlet Invert= 0.00', Outlet Invert= -2.84'

Reach R4.2: Main Stem



Summary for Reach R5: Main Stem

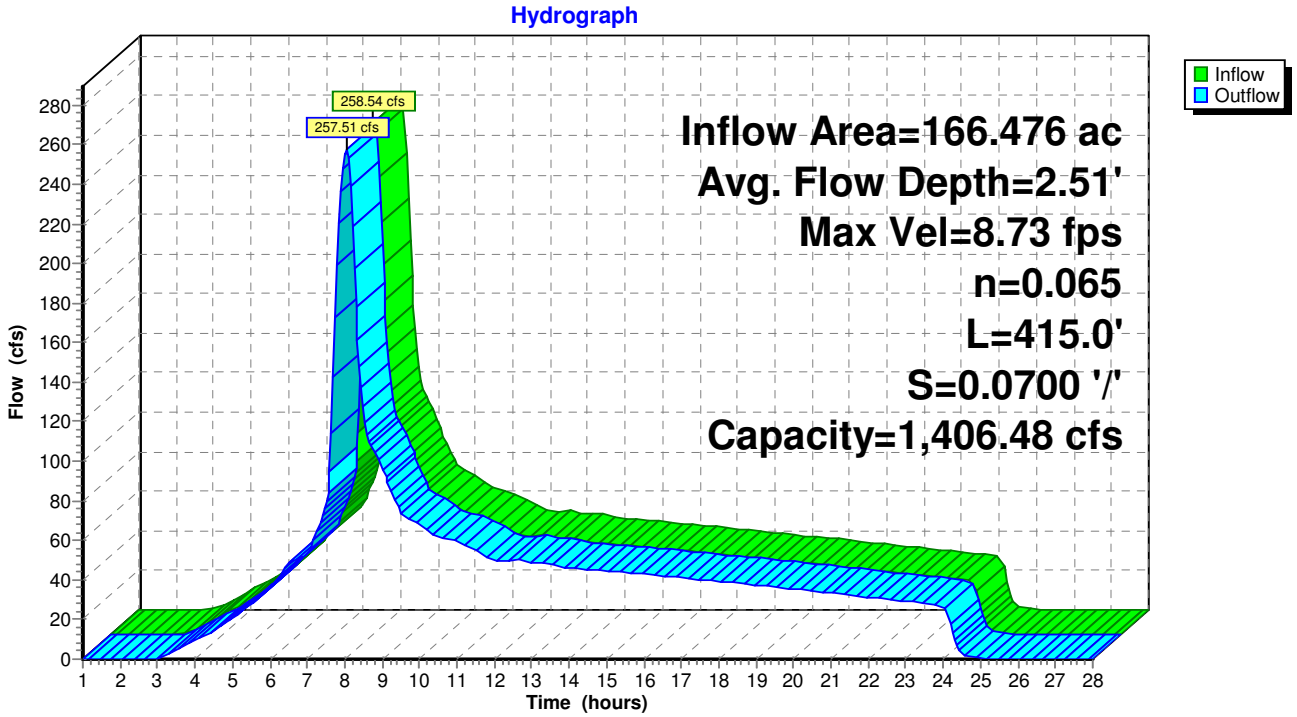
Inflow Area = 166.476 ac, 0.00% Impervious, Inflow Depth = 6.17" for 100 year event
Inflow = 258.54 cfs @ 8.03 hrs, Volume= 85.528 af
Outflow = 257.51 cfs @ 8.04 hrs, Volume= 85.528 af, Atten= 0%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.73 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 4.37 fps, Avg. Travel Time= 1.6 min

Peak Storage= 12,277 cf @ 8.03 hrs
Average Depth at Peak Storage= 2.51'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,406.48 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 415.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -29.05'

Reach R5: Main Stem



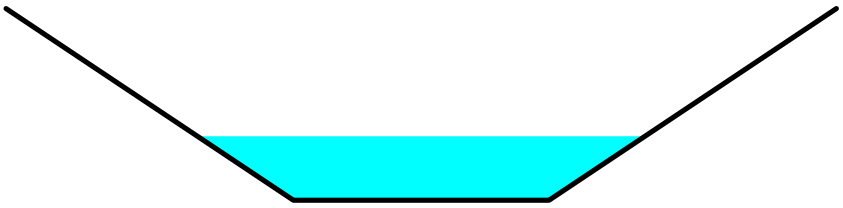
Summary for Reach R6: Main Stem

Inflow Area = 109.452 ac, 0.00% Impervious, Inflow Depth = 6.18" for 100 year event
Inflow = 170.76 cfs @ 8.03 hrs, Volume= 56.362 af
Outflow = 169.99 cfs @ 8.05 hrs, Volume= 56.362 af, Atten= 0%, Lag= 1.2 min

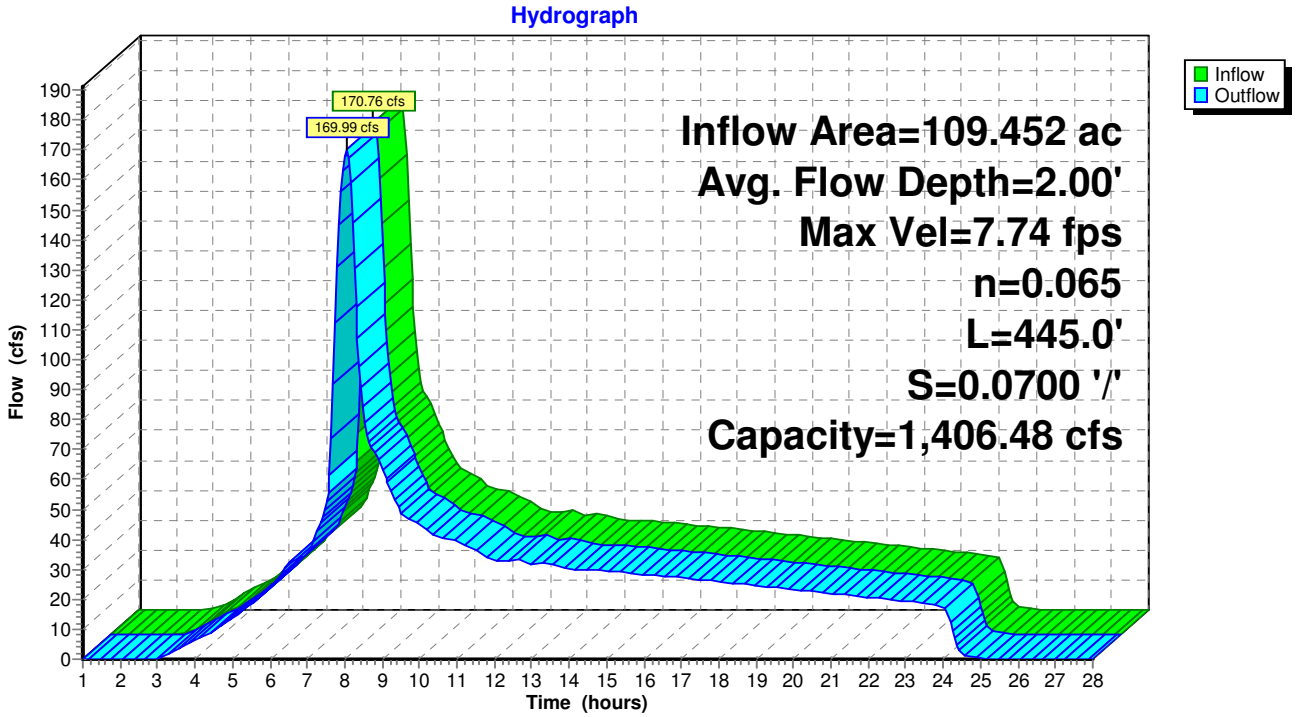
Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.74 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 3.84 fps, Avg. Travel Time= 1.9 min

Peak Storage= 9,804 cf @ 8.03 hrs
Average Depth at Peak Storage= 2.00'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,406.48 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 445.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -31.15'



Reach R6: Main Stem



Summary for Reach R7.1: Stream

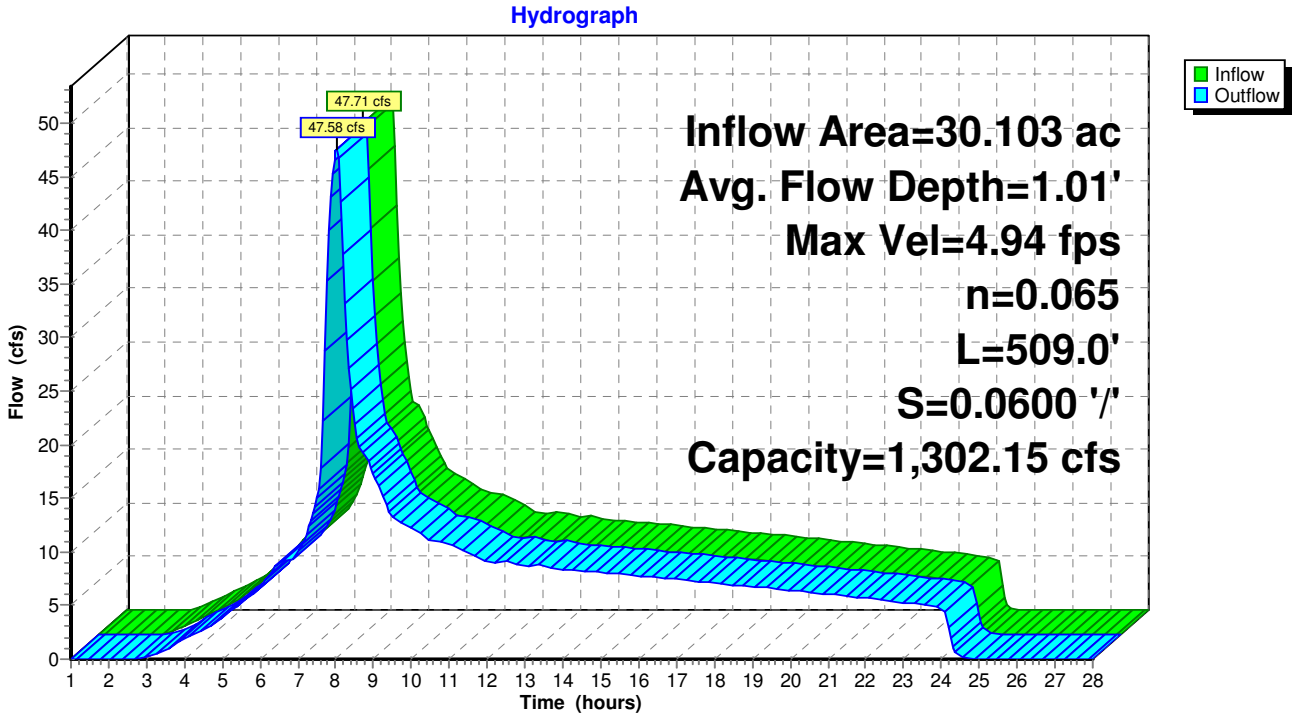
Inflow Area = 30.103 ac, 0.00% Impervious, Inflow Depth = 6.19" for 100 year event
Inflow = 47.71 cfs @ 7.98 hrs, Volume= 15.540 af
Outflow = 47.58 cfs @ 8.03 hrs, Volume= 15.540 af, Atten= 0%, Lag= 2.6 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.94 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 2.46 fps, Avg. Travel Time= 3.5 min

Peak Storage= 4,909 cf @ 8.00 hrs
Average Depth at Peak Storage= 1.01'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,302.15 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 509.0' Slope= 0.0600 '/'
Inlet Invert= 0.00', Outlet Invert= -30.54'

Reach R7.1: Stream



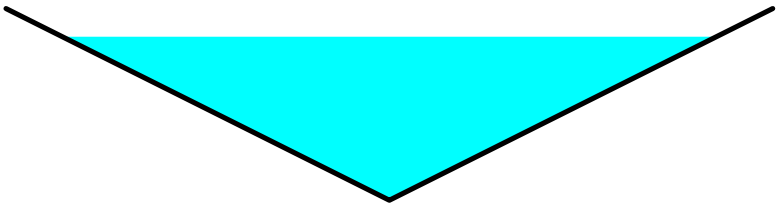
Summary for Reach R7.2: Channel

Inflow Area = 7.541 ac, 0.00% Impervious, Inflow Depth = 6.46" for 100 year event
Inflow = 12.61 cfs @ 7.95 hrs, Volume= 4.061 af
Outflow = 12.59 cfs @ 7.98 hrs, Volume= 4.061 af, Atten= 0%, Lag= 1.9 min

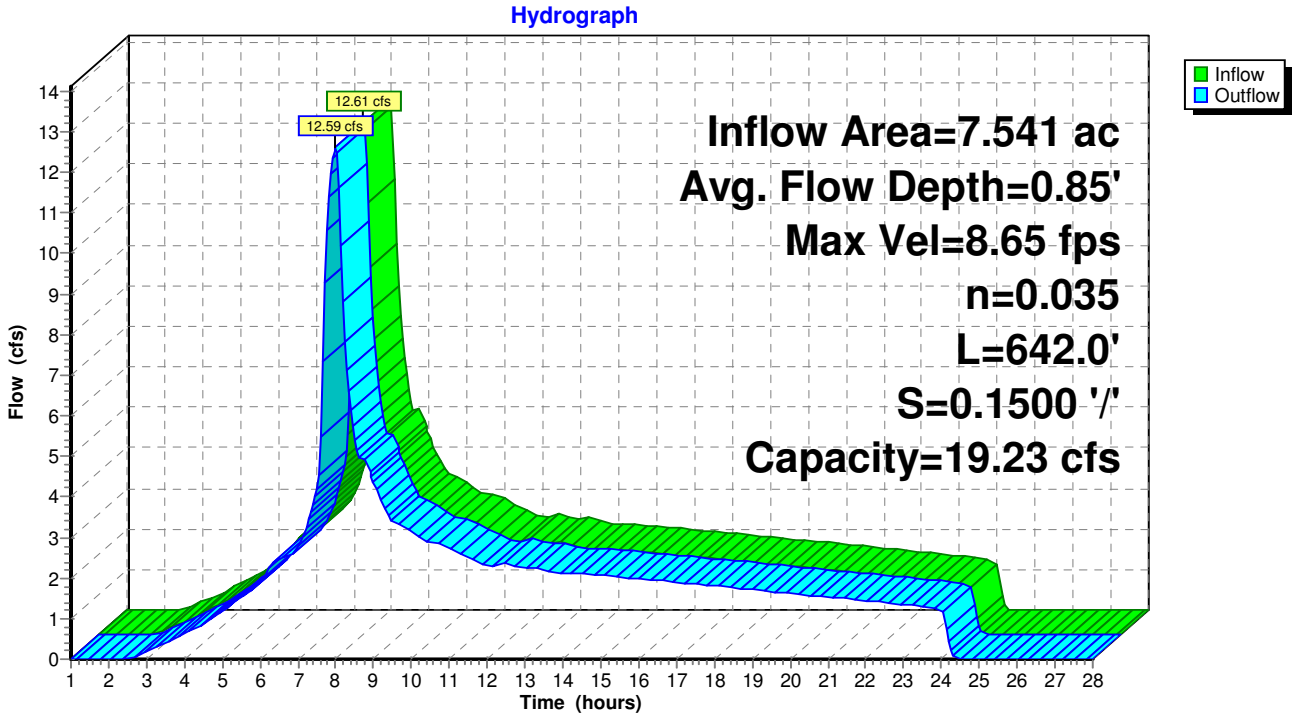
Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.65 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 5.13 fps, Avg. Travel Time= 2.1 min

Peak Storage= 935 cf @ 7.97 hrs
Average Depth at Peak Storage= 0.85'
Bank-Full Depth= 1.00' Flow Area= 2.0 sf, Capacity= 19.23 cfs

0.00' x 1.00' deep channel, n= 0.035
Side Slope Z-value= 2.0 '/' Top Width= 4.00'
Length= 642.0' Slope= 0.1500 '/'
Inlet Invert= 0.00', Outlet Invert= -96.30'



Reach R7.2: Channel



Summary for Reach R8: Main Stem

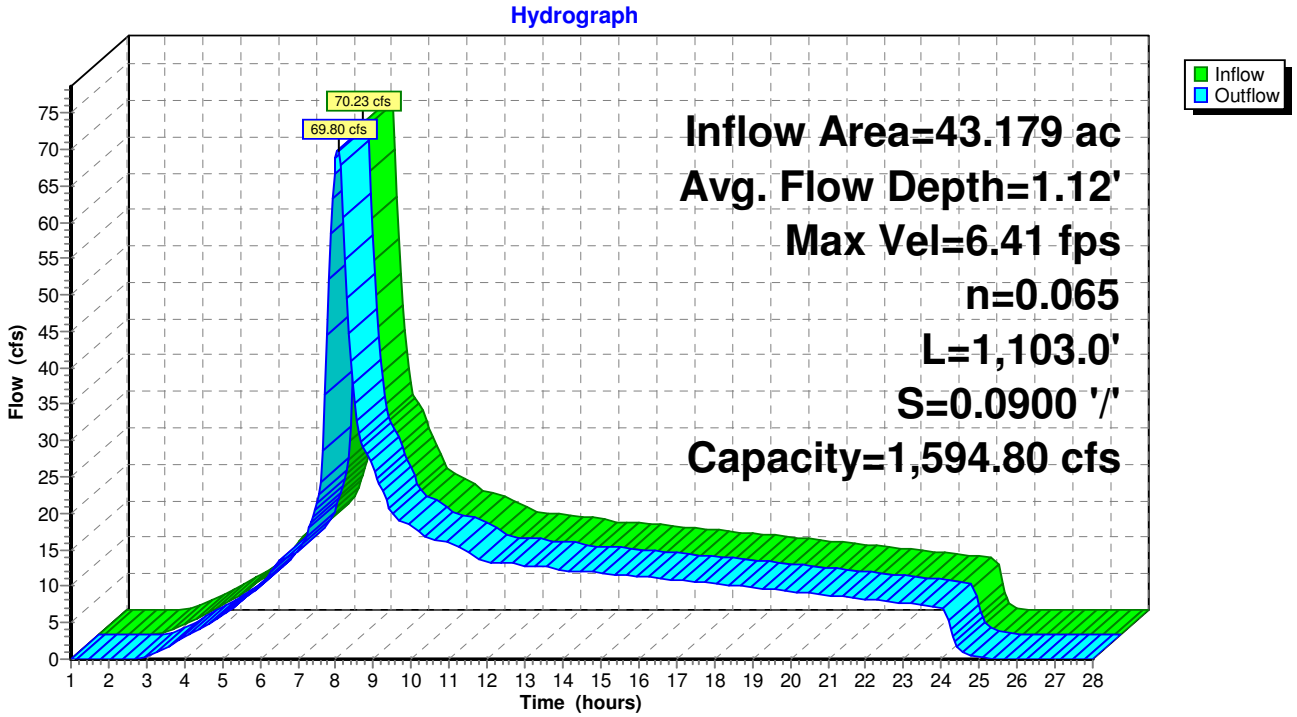
Inflow Area = 43.179 ac, 0.00% Impervious, Inflow Depth = 6.39" for 100 year event
Inflow = 70.23 cfs @ 7.99 hrs, Volume= 22.990 af
Outflow = 69.80 cfs @ 8.06 hrs, Volume= 22.990 af, Atten= 1%, Lag= 4.5 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.41 fps, Min. Travel Time= 2.9 min
Avg. Velocity = 3.11 fps, Avg. Travel Time= 5.9 min

Peak Storage= 12,014 cf @ 8.01 hrs
Average Depth at Peak Storage= 1.12'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,594.80 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,103.0' Slope= 0.0900 '/'
Inlet Invert= 0.00', Outlet Invert= -99.27'

Reach R8: Main Stem



Summary for Reach R9: Main Stem

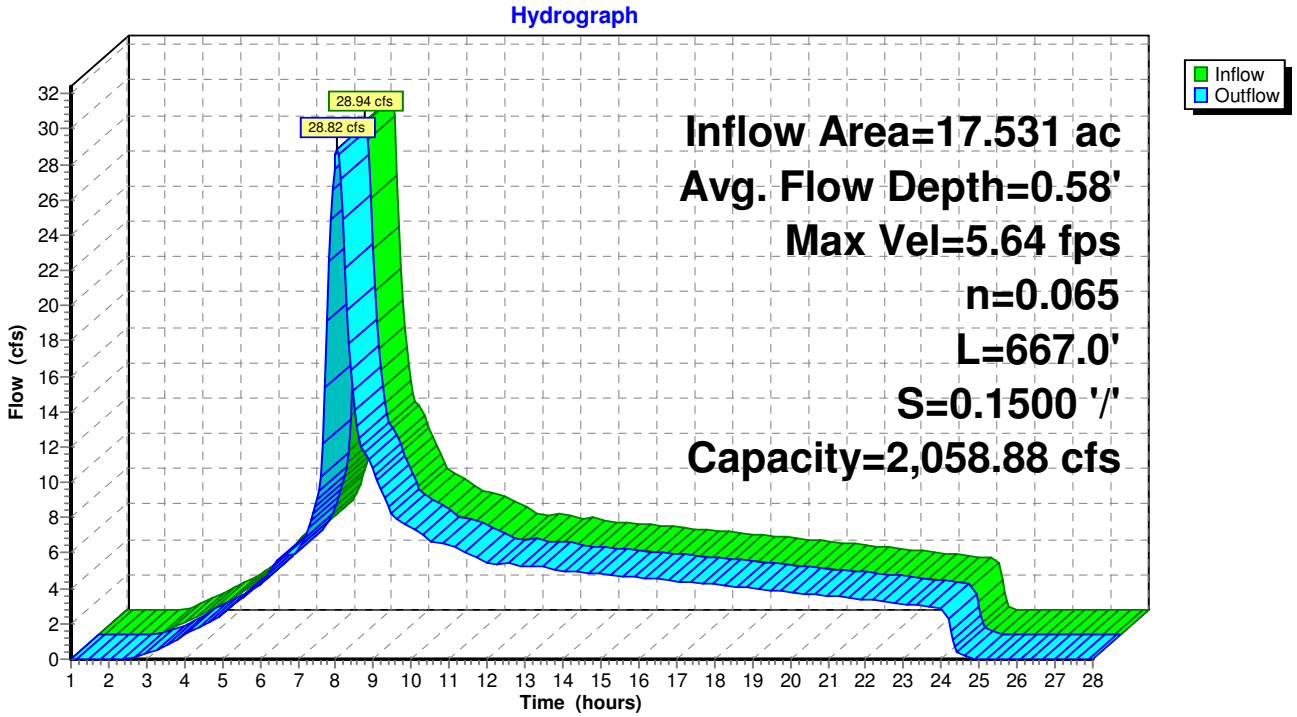
Inflow Area = 17.531 ac, 0.00% Impervious, Inflow Depth = 6.46" for 100 year event
Inflow = 28.94 cfs @ 8.00 hrs, Volume= 9.442 af
Outflow = 28.82 cfs @ 8.05 hrs, Volume= 9.442 af, Atten= 0%, Lag= 2.8 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.64 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 2.79 fps, Avg. Travel Time= 4.0 min

Peak Storage= 3,414 cf @ 8.02 hrs
Average Depth at Peak Storage= 0.58'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 2,058.88 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 667.0' Slope= 0.1500 '/'
Inlet Invert= 0.00', Outlet Invert= -100.05'

Reach R9: Main Stem

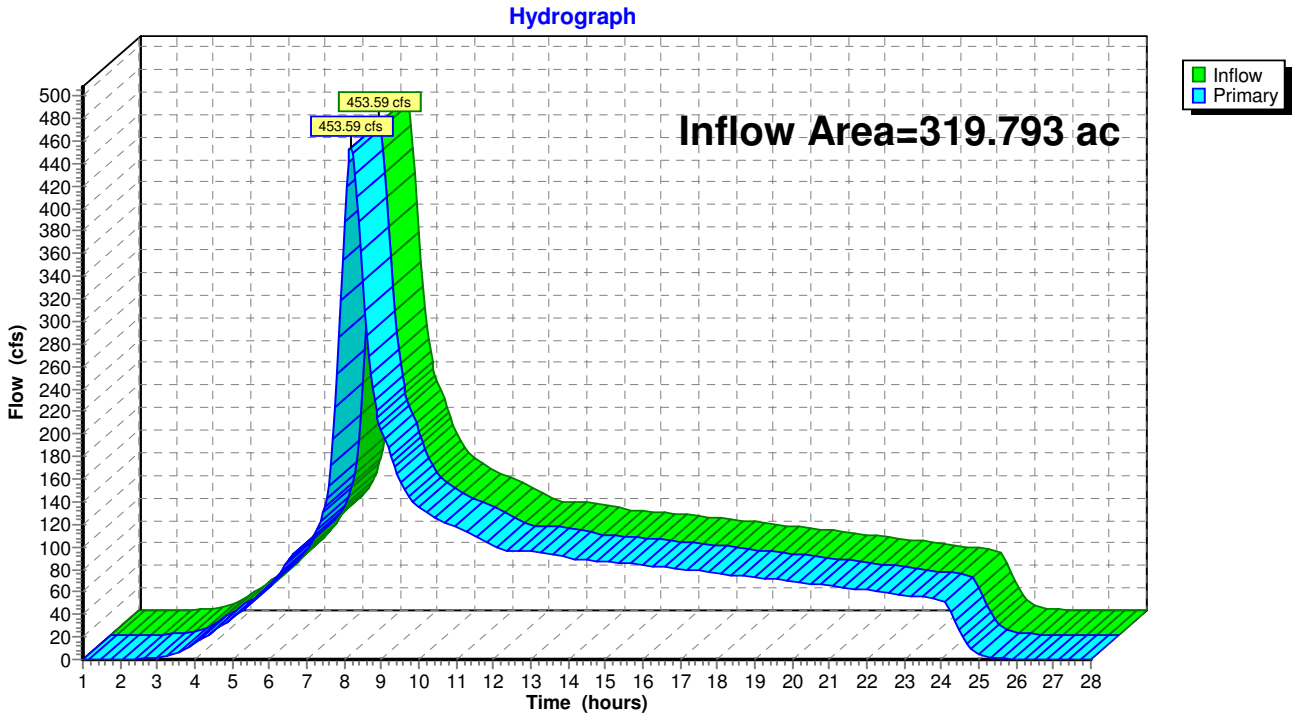


Summary for Link Outlet: Outlet

Inflow Area = 319.793 ac, 0.00% Impervious, Inflow Depth > 6.26" for 100 year event
Inflow = 453.59 cfs @ 8.18 hrs, Volume= 166.947 af
Primary = 453.59 cfs @ 8.18 hrs, Volume= 166.947 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs

Link Outlet: Outlet



Summary for Subcatchment WS1A: Subcat WS1A

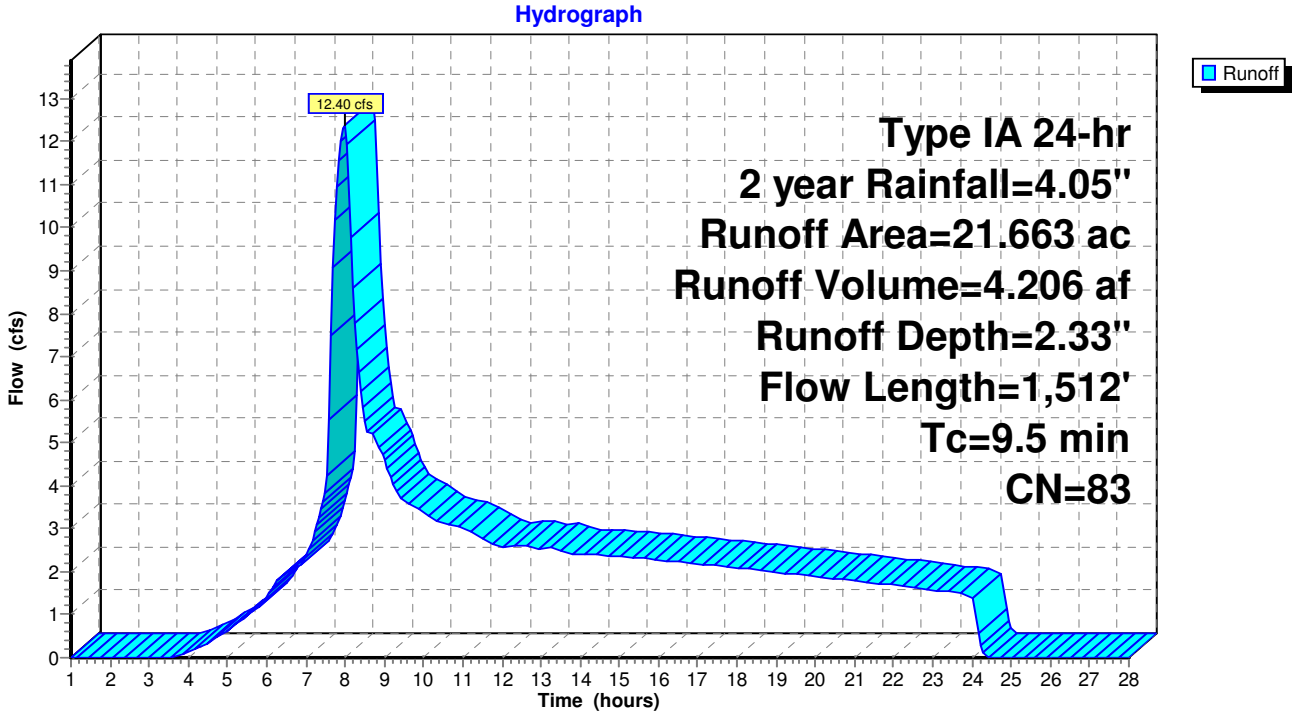
Runoff = 12.40 cfs @ 7.99 hrs, Volume= 4.206 af, Depth= 2.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
1.730	79	Pasture/grassland/range, Fair, HSG C
0.161	84	Pasture/grassland/range, Fair, HSG D
0.733	79	Vineyard, Fair, HSG C
16.760	84	Vineyard, Fair, HSG D
2.279	77	Woods, Good, HSG D
21.663	83	Weighted Average
21.663		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.2500	0.36		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	681	0.2500	8.05		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
3.5	731	0.0300	3.47	32.92	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
9.5	1,512	Total			

Subcatchment WS1A: Subcat WS1A



Summary for Subcatchment WS1B: Subcat WS1B

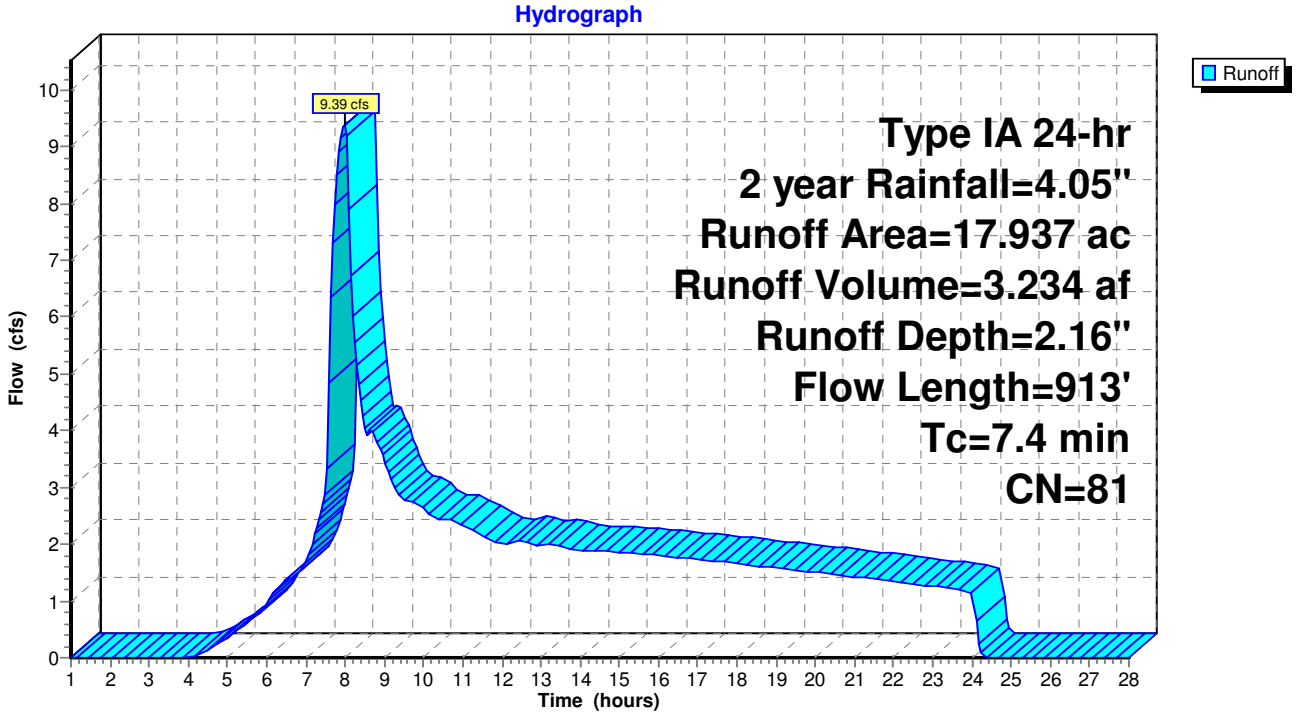
Runoff = 9.39 cfs @ 7.98 hrs, Volume= 3.234 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.094	89	Dirt roads, HSG D
4.189	79	Pasture/grassland/range, Fair, HSG C
0.896	84	Pasture/grassland/range, Fair, HSG D
0.531	79	Vineyard, Fair, HSG C
8.409	84	Vineyard, Fair, HSG D
0.658	75	Vineyard, Good, HSG C
0.877	70	Woods, Good, HSG C
2.282	77	Woods, Good, HSG D
17.937	81	Weighted Average
17.937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	261	0.4400	10.68		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.4	265	0.2200	11.65	23.29	**Trap/Vee/Rect Channel Flow, Assumed std ditch-1** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.4	170	0.1800	6.83		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.1	74	0.1100	8.23	16.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch-2** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.1	43	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch-3** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.4	913	Total			

Subcatchment WS1B: Subcat WS1B



Summary for Subcatchment WS1C: Subcat WS1C

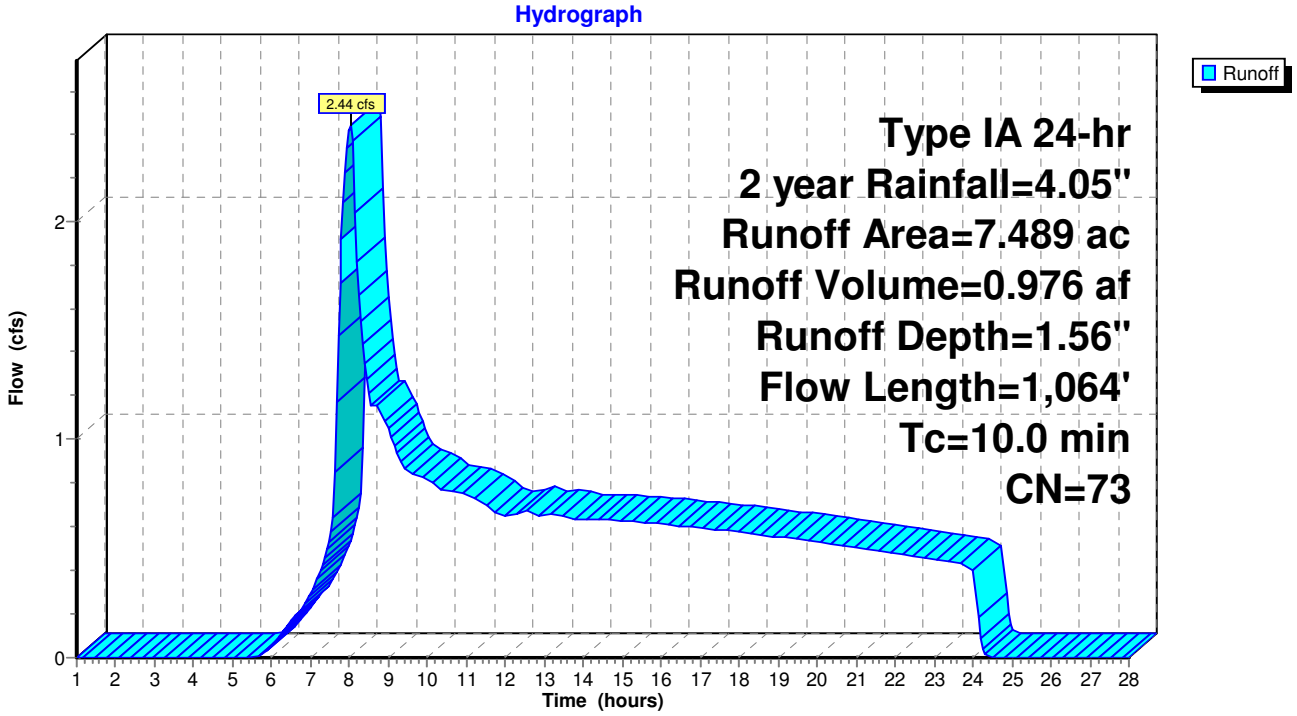
Runoff = 2.44 cfs @ 8.03 hrs, Volume= 0.976 af, Depth= 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.017	87	Dirt roads, HSG C
0.005	89	Dirt roads, HSG D
1.904	79	Pasture/grassland/range, Fair, HSG C
1.228	75	Vineyard, Good, HSG C
4.301	70	Woods, Good, HSG C
0.035	77	Woods, Good, HSG D
7.489	73	Weighted Average
7.489		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.7	396	0.3400	9.39		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.5	333	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.6	235	0.0600	6.08	12.16	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.0	1,064	Total			

Subcatchment WS1C: Subcat WS1C



Summary for Subcatchment WS1D: Subcat WS1D

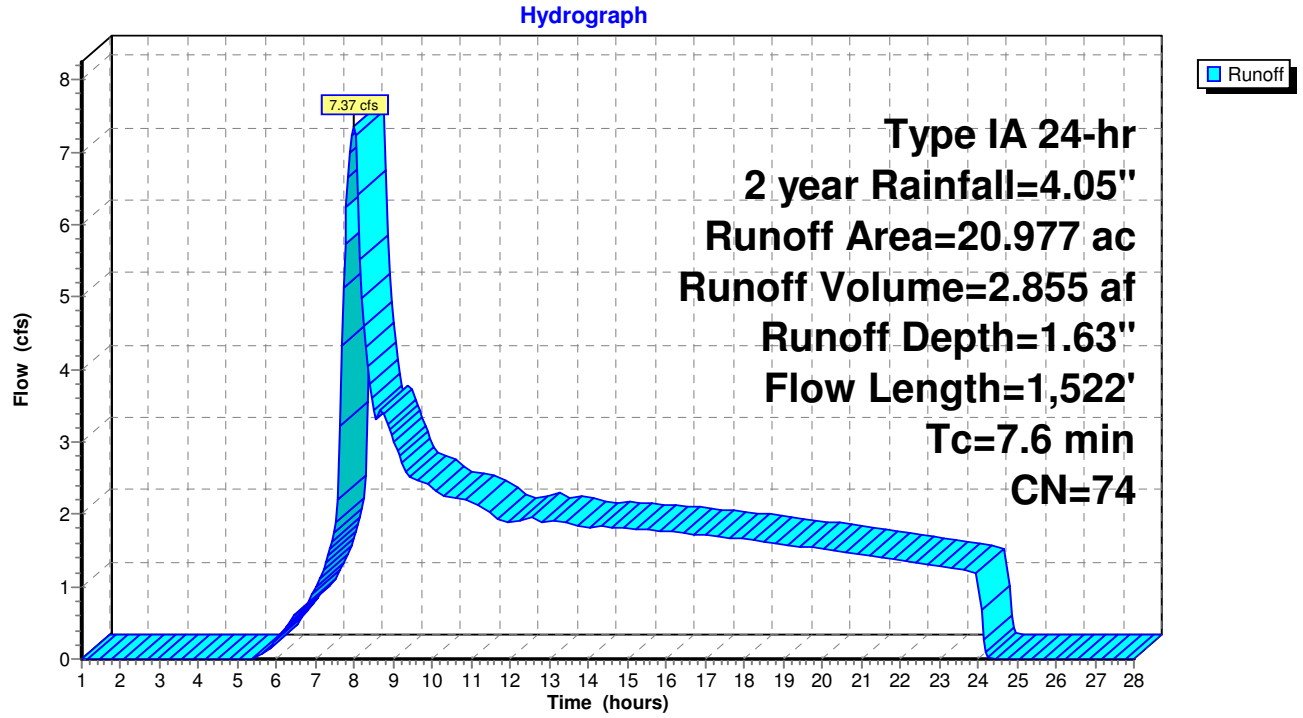
Runoff = 7.37 cfs @ 8.00 hrs, Volume= 2.855 af, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.624	65	Brush, Good, HSG C
8.487	79	Pasture/grassland/range, Fair, HSG C
3.619	75	Vineyard, Good, HSG C
8.247	70	Woods, Good, HSG C
20.977	74	Weighted Average
20.977		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.1800	0.32		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	236	0.3800	9.92		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.9	1,186	0.1800	10.53	21.07	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	1,522	Total			

Subcatchment WS1D: Subcat WS1D



Summary for Subcatchment WS1E: Subcat WS1E

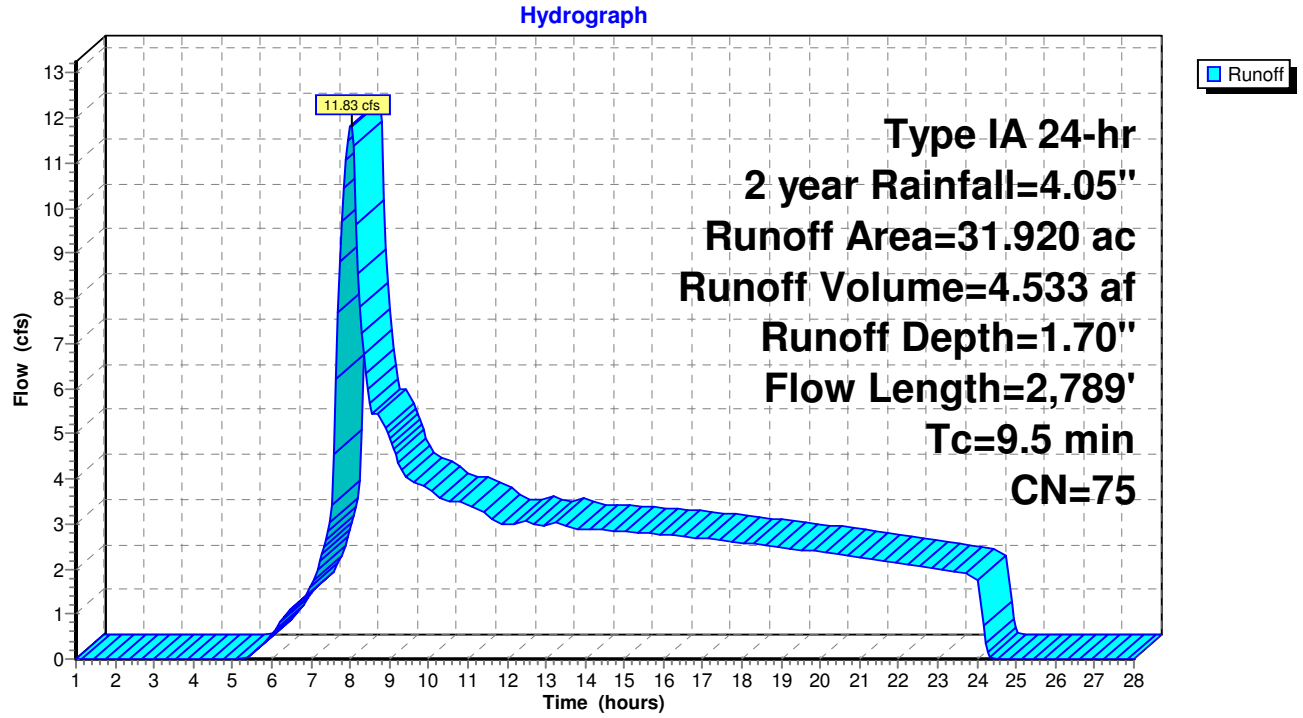
Runoff = 11.83 cfs @ 8.02 hrs, Volume= 4.533 af, Depth= 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.002	87	Dirt roads, HSG C
15.665	79	Pasture/grassland/range, Fair, HSG C
5.637	75	Vineyard, Good, HSG C
10.617	70	Woods, Good, HSG C
31.920	75	Weighted Average
31.920		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	100	0.2600	0.37		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.8	418	0.3200	9.11		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
4.2	2,271	0.1300	8.95	17.90	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
9.5	2,789	Total			

Subcatchment WS1E: Subcat WS1E



Summary for Subcatchment WS1F.1: Subcat WS1F.1

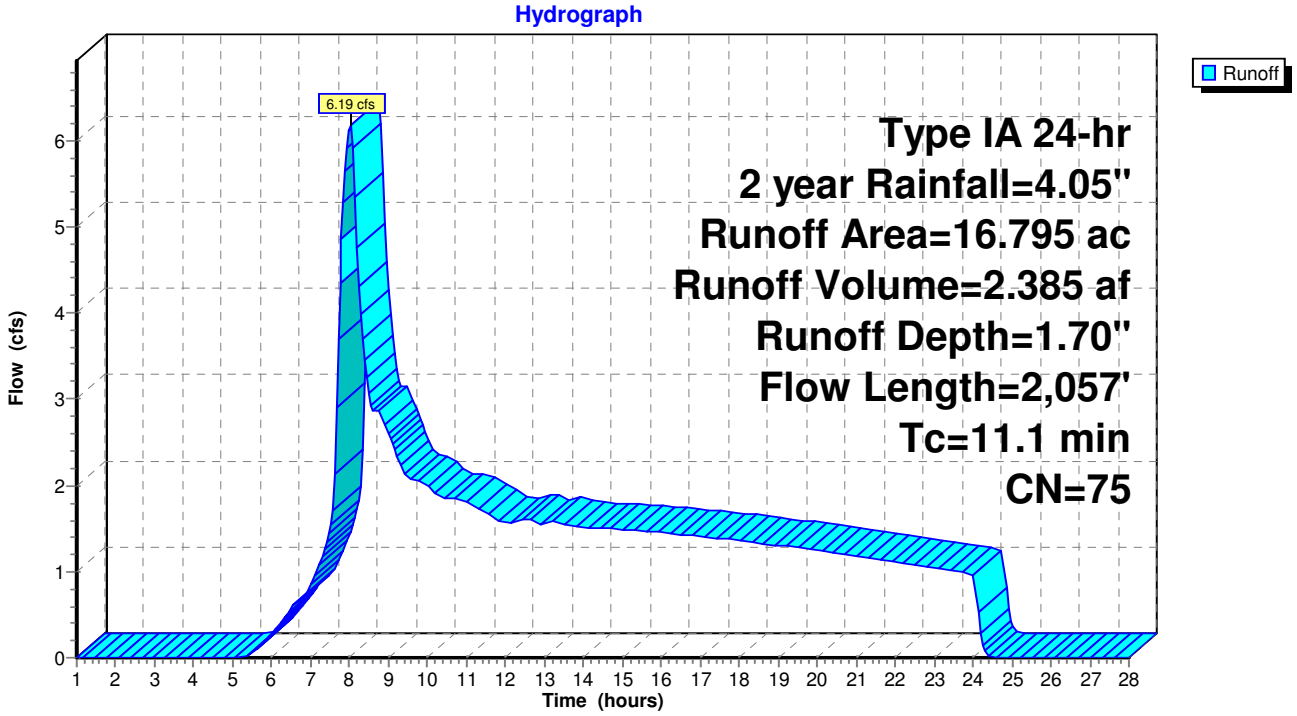
Runoff = 6.19 cfs @ 8.03 hrs, Volume= 2.385 af, Depth= 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.080	89	Gravel Roads, HSG C
0.436	79	Pasture/grassland/range, Fair, HSG C
0.626	74	Pasture/grassland/range, Good, HSG C
7.618	79	Vineyard, Fair, HSG C
1.739	75	Vineyard, Good, HSG C
6.296	70	Woods, Good, HSG C
16.795	75	Weighted Average
16.795		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
3.4	1,267	0.1500	6.24		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.9	548	0.1700	10.24	20.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.8	142	0.0200	2.83	26.88	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
11.1	2,057	Total			

Subcatchment WS1F.1: Subcat WS1F.1



Summary for Subcatchment WS1F.2: Subcat WS1F.2

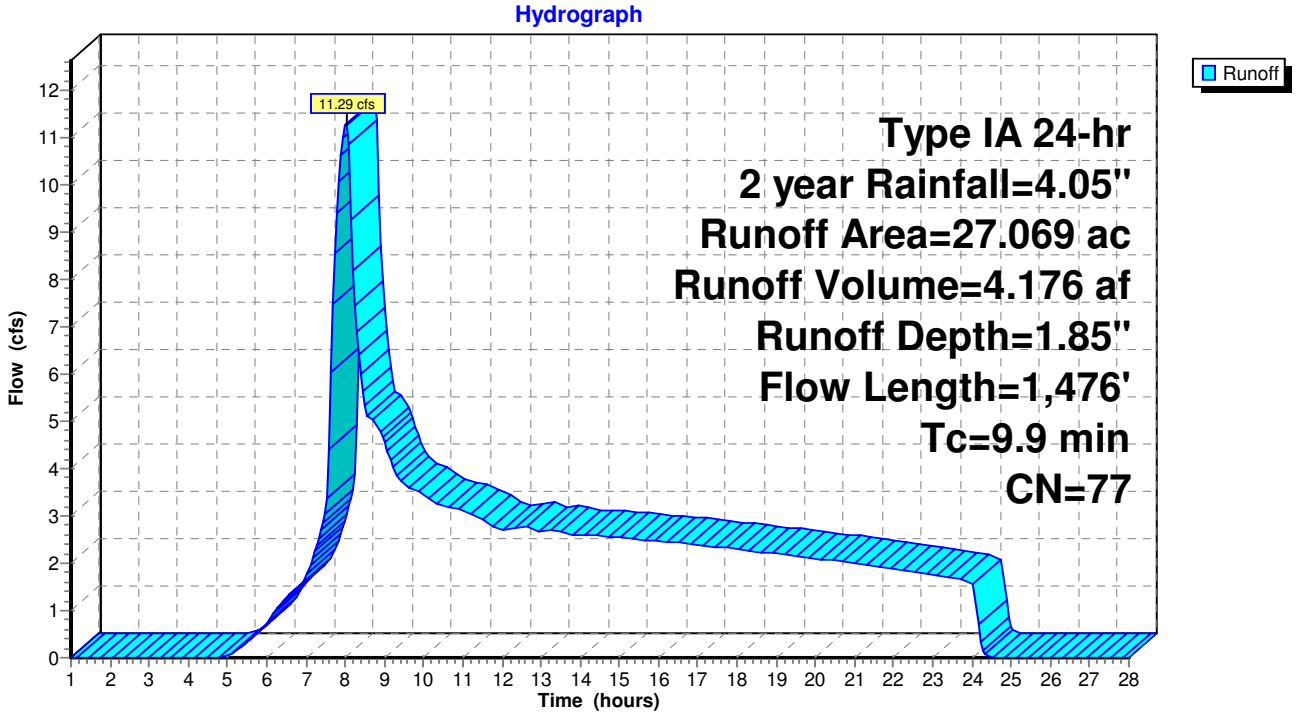
Runoff = 11.29 cfs @ 8.02 hrs, Volume= 4.176 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.429	87	Dirt roads, HSG C
6.691	79	Pasture/grassland/range, Fair, HSG C
0.143	84	Pasture/grassland/range, Fair, HSG D
0.001	74	Pasture/grassland/range, Good, HSG C
7.427	79	Vineyard, Fair, HSG C
1.496	84	Vineyard, Fair, HSG D
3.820	75	Vineyard, Good, HSG C
6.912	70	Woods, Good, HSG C
0.149	77	Woods, Good, HSG D
27.069	77	Weighted Average
27.069		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	702	0.2500	8.05		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.2	674	0.0100	5.21	531.60	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=6.00' Z= 1.5 '/' Top.W=26.00' n= 0.065
9.9	1,476	Total			

Subcatchment WS1F.2: Subcat WS1F.2



Summary for Subcatchment WS1G: Subcat WS1G

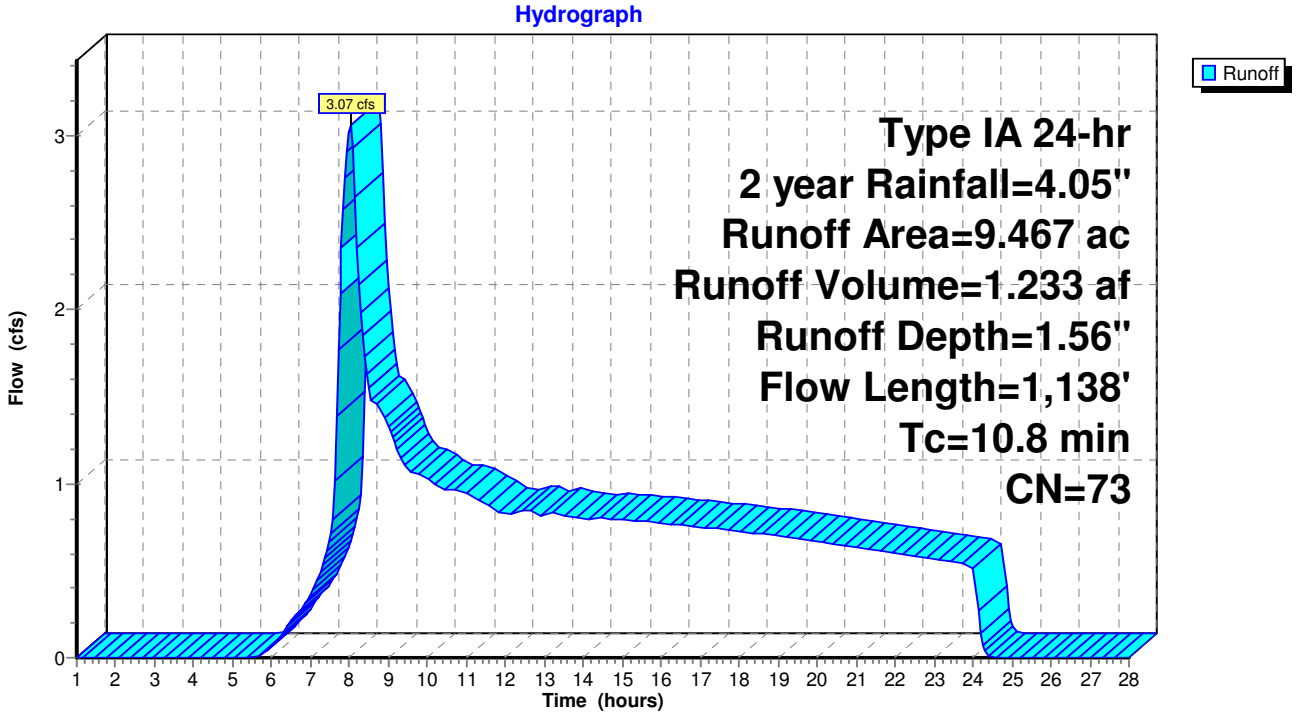
Runoff = 3.07 cfs @ 8.04 hrs, Volume= 1.233 af, Depth= 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.012	87	Dirt roads, HSG C
1.037	79	Pasture/grassland/range, Fair, HSG C
0.649	79	Vineyard, Fair, HSG C
3.002	75	Vineyard, Good, HSG C
4.766	70	Woods, Good, HSG C
9.467	73	Weighted Average
9.467		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.3	604	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	139	0.2300	11.91	23.82	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.3	156	0.2600	8.21		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.8	139	0.0200	2.83	26.88	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
10.8	1,138	Total			

Subcatchment WS1G: Subcat WS1G



Summary for Subcatchment WS1H: Subcat WS1H

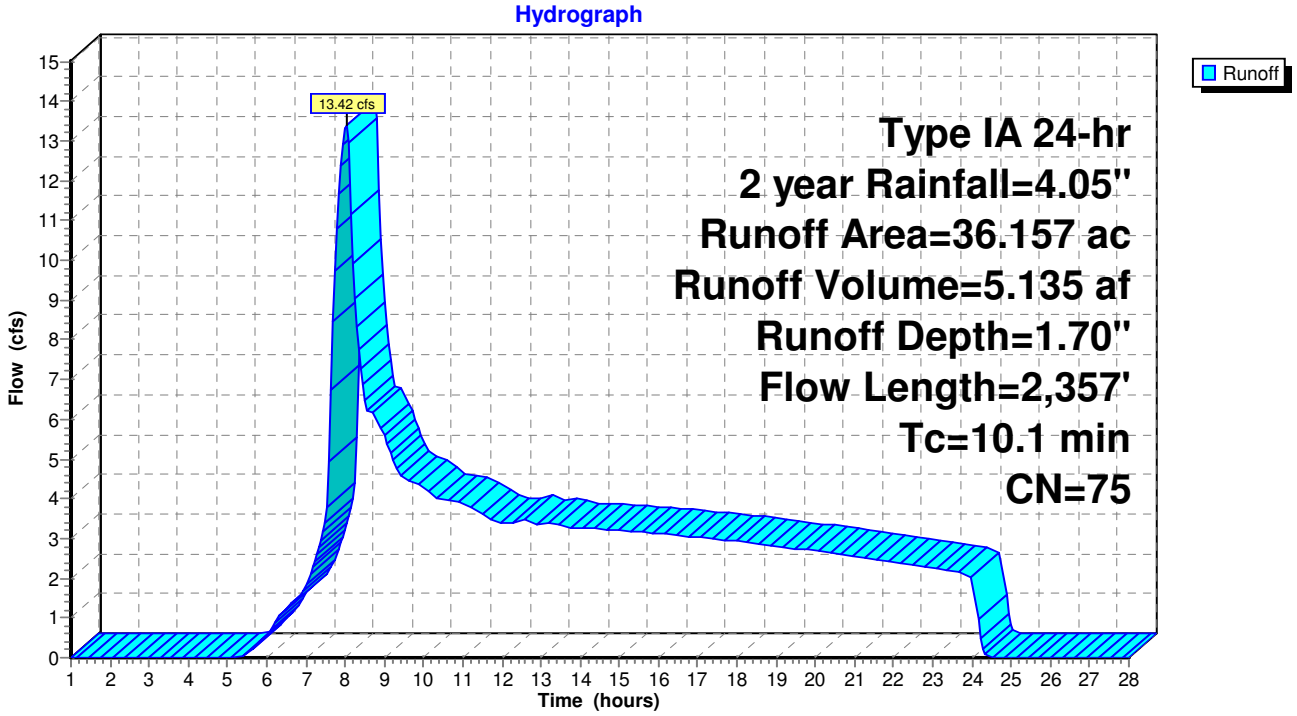
Runoff = 13.42 cfs @ 8.03 hrs, Volume= 5.135 af, Depth= 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.574	65	Brush, Good, HSG C
0.237	87	Dirt roads, HSG C
15.971	79	Pasture/grassland/range, Fair, HSG C
2.076	79	Vineyard, Fair, HSG C
0.993	75	Vineyard, Good, HSG C
16.305	70	Woods, Good, HSG C
36.157	75	Weighted Average
36.157		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1400	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	610	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.9	1,647	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.1	2,357	Total			

Subcatchment WS1H: Subcat WS1H



Summary for Subcatchment WS1I: Subcat WS1I

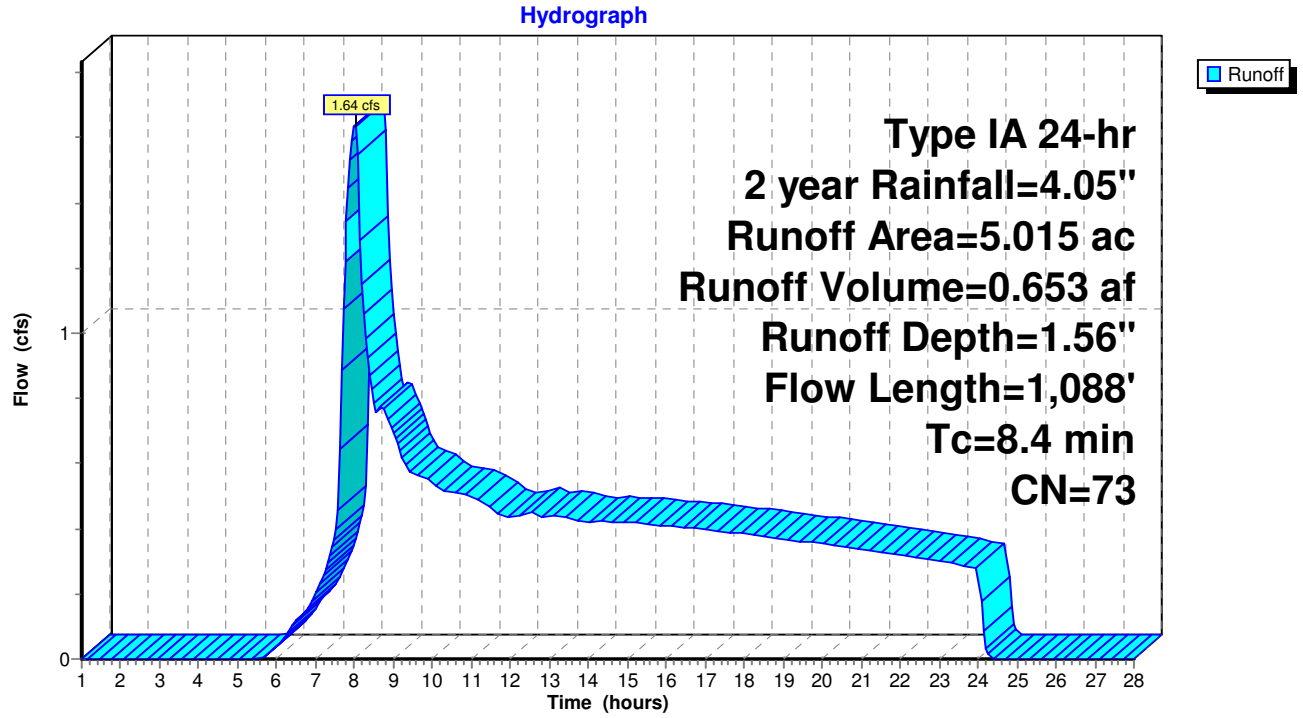
Runoff = 1.64 cfs @ 8.01 hrs, Volume= 0.653 af, Depth= 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.595	79	Pasture/grassland/range, Fair, HSG C
0.504	79	Vineyard, Fair, HSG C
0.862	75	Vineyard, Good, HSG C
3.053	70	Woods, Good, HSG C
5.015	73	Weighted Average
5.015		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1400	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	664	0.2100	7.38		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.1	324	0.0600	4.90	46.55	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
8.4	1,088	Total			

Subcatchment WS1I: Subcat WS1I



Summary for Subcatchment WS1J: Subcat WS1J

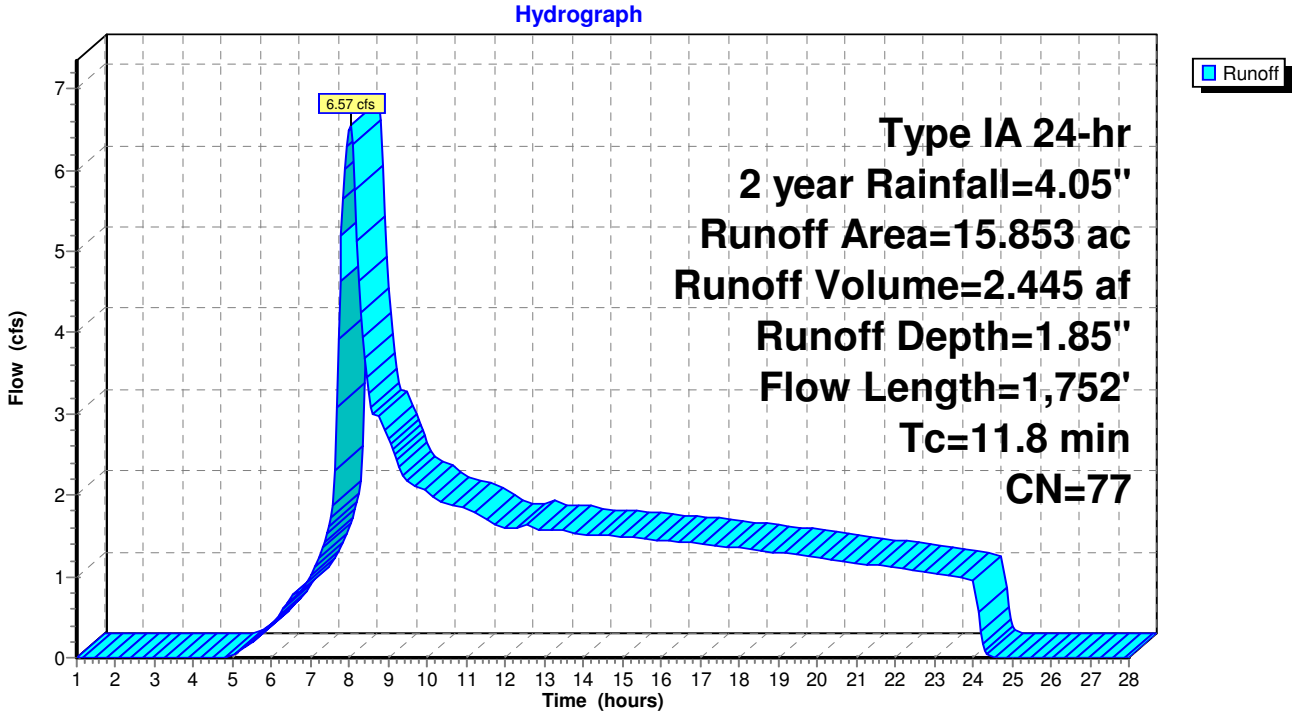
Runoff = 6.57 cfs @ 8.04 hrs, Volume= 2.445 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.204	89	Gravel Roads, HSG C
1.188	79	Pasture/grassland/range, Fair, HSG C
2.246	74	Pasture/grassland/range, Good, HSG C
8.865	79	Vineyard, Fair, HSG C
0.714	75	Vineyard, Good, HSG C
2.636	70	Woods, Good, HSG C
15.853	77	Weighted Average
15.853		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	93	0.0500	0.19		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
2.1	826	0.1700	6.64		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	833	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
11.8	1,752	Total			

Subcatchment WS1J: Subcat WS1J



Summary for Subcatchment WS1K: Subcat WS1K

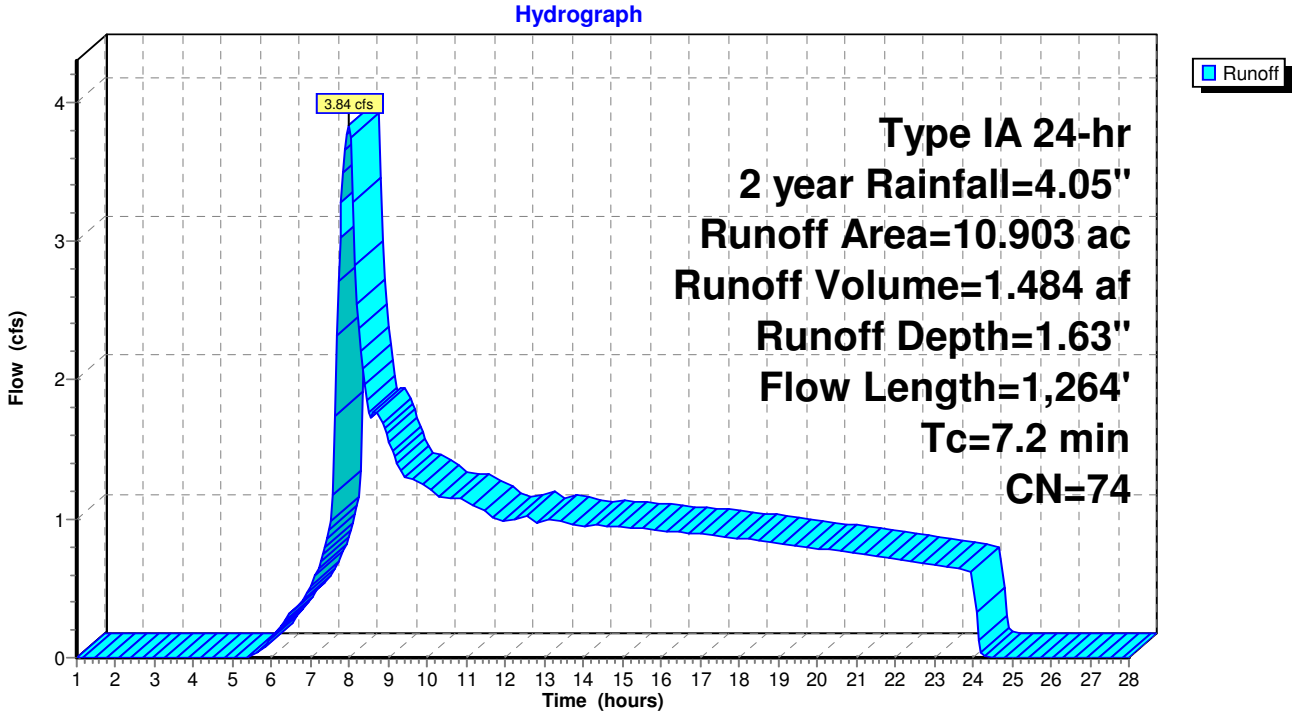
Runoff = 3.84 cfs @ 8.00 hrs, Volume= 1.484 af, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.046	87	Dirt roads, HSG C
1.830	79	Pasture/grassland/range, Fair, HSG C
0.465	79	Vineyard, Fair, HSG C
4.696	75	Vineyard, Good, HSG C
3.867	70	Woods, Good, HSG C
10.903	74	Weighted Average
10.903		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	100	0.2700	0.37		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.8	753	0.1800	6.83		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.3	189	0.1400	9.29	18.58	**Trap/Vee/Rect Channel Flow, Assumed std ditch-1** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.6	222	0.0600	6.08	12.16	**Trap/Vee/Rect Channel Flow, Assumed std ditch-2** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.2	1,264	Total			

Subcatchment WS1K: Subcat WS1K



Summary for Subcatchment WS1L: Subcat WS1L

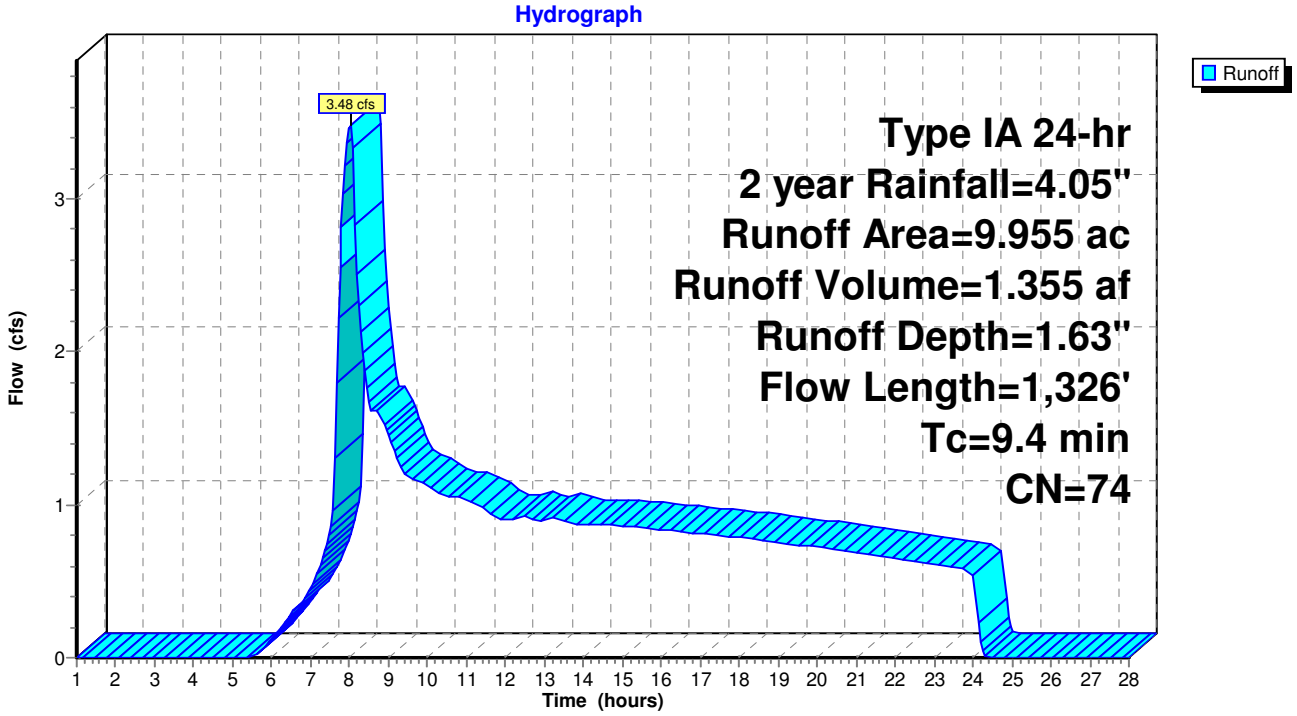
Runoff = 3.48 cfs @ 8.03 hrs, Volume= 1.355 af, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.516	65	Brush, Good, HSG C
0.121	87	Dirt roads, HSG C
2.284	79	Pasture/grassland/range, Fair, HSG C
1.606	74	Pasture/grassland/range, Good, HSG C
2.111	75	Vineyard, Good, HSG C
3.318	70	Woods, Good, HSG C
9.955	74	Weighted Average
9.955		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	100	0.0900	0.24		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.8	348	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	78	0.0800	7.02	14.05	**Trap/Vee/Rect Channel Flow, Std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.2	92	0.3200	9.11		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
1.2	708	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
9.4	1,326	Total			

Subcatchment WS1L: Subcat WS1L



Summary for Subcatchment WS1M: Subcat WS1M

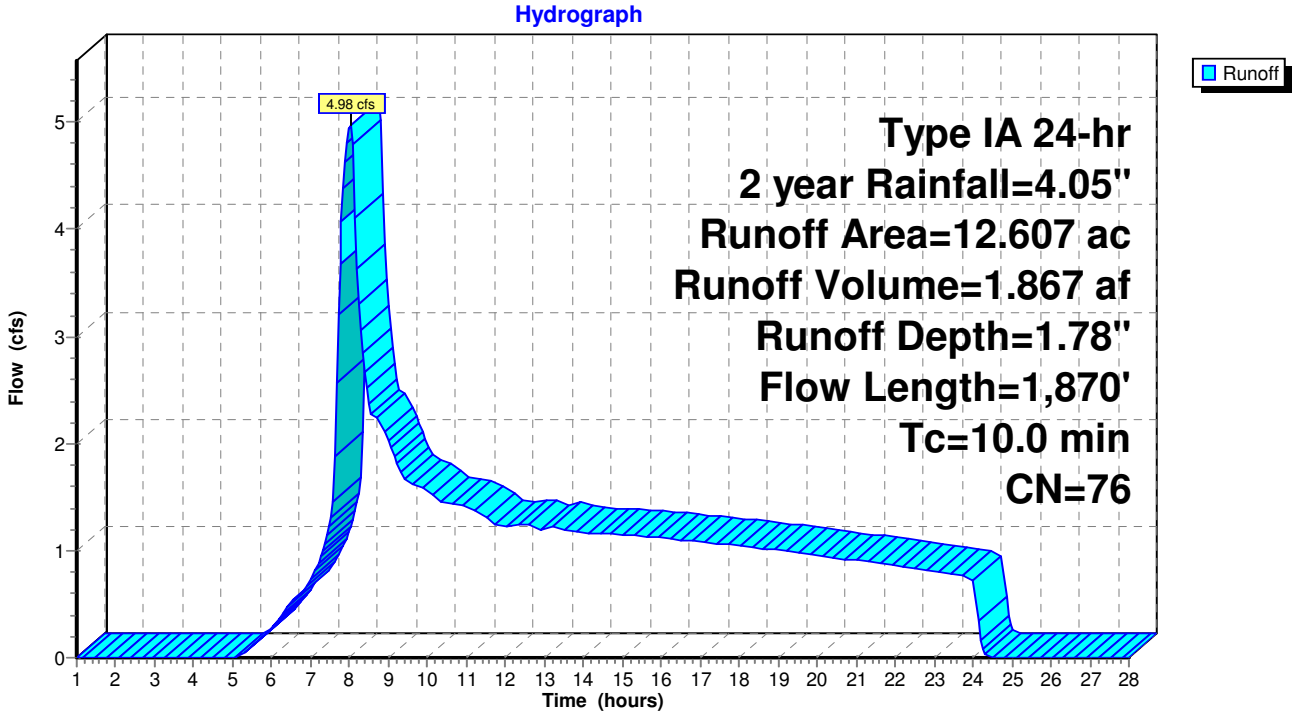
Runoff = 4.98 cfs @ 8.03 hrs, Volume= 1.867 af, Depth= 1.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.975	65	Brush, Good, HSG C
0.165	87	Dirt roads, HSG C
8.500	79	Pasture/grassland/range, Fair, HSG C
0.673	74	Pasture/grassland/range, Good, HSG C
0.790	75	Vineyard, Good, HSG C
1.503	70	Woods, Good, HSG C
12.607	76	Weighted Average
12.607		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1500	0.29		**Sheet Flow, 0.15** Grass: Dense n= 0.240 P2= 4.05"
1.6	675	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	37	0.0200	3.51	7.02	**Trap/Vee/Rect Channel Flow, Std Ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
1.7	626	0.1400	6.02		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.8	432	0.1400	9.29	18.58	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.0	1,870	Total			

Subcatchment WS1M: Subcat WS1M



Summary for Subcatchment WS1N: Subcat WS1N

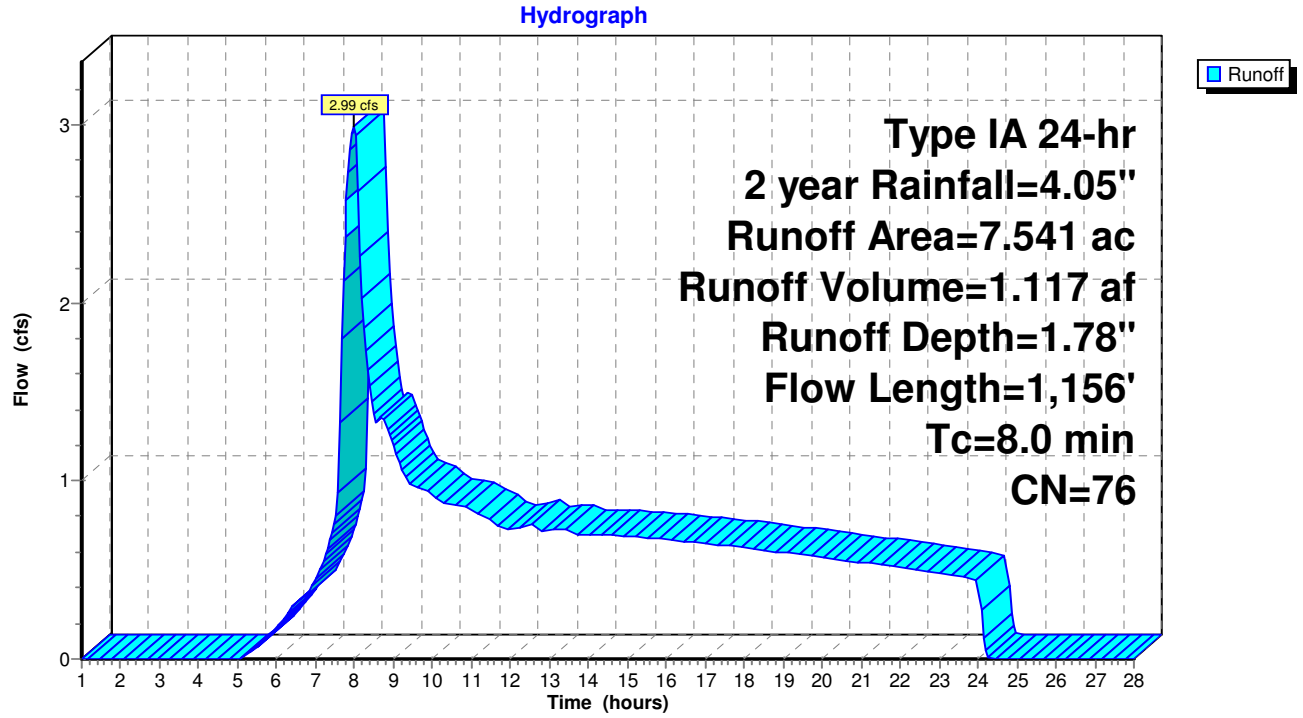
Runoff = 2.99 cfs @ 8.00 hrs, Volume= 1.117 af, Depth= 1.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.322	65	Brush, Good, HSG C
0.044	87	Dirt roads, HSG C
2.074	79	Pasture/grassland/range, Fair, HSG C
5.101	75	Vineyard, Good, HSG C
7.541	76	Weighted Average
7.541		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1500	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.9	775	0.1700	6.64		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.4	281	0.2600	12.66	25.32	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.0	1,156	Total			

Subcatchment WS1N: Subcat WS1N



Summary for Subcatchment WS1O: Subcat WS1O

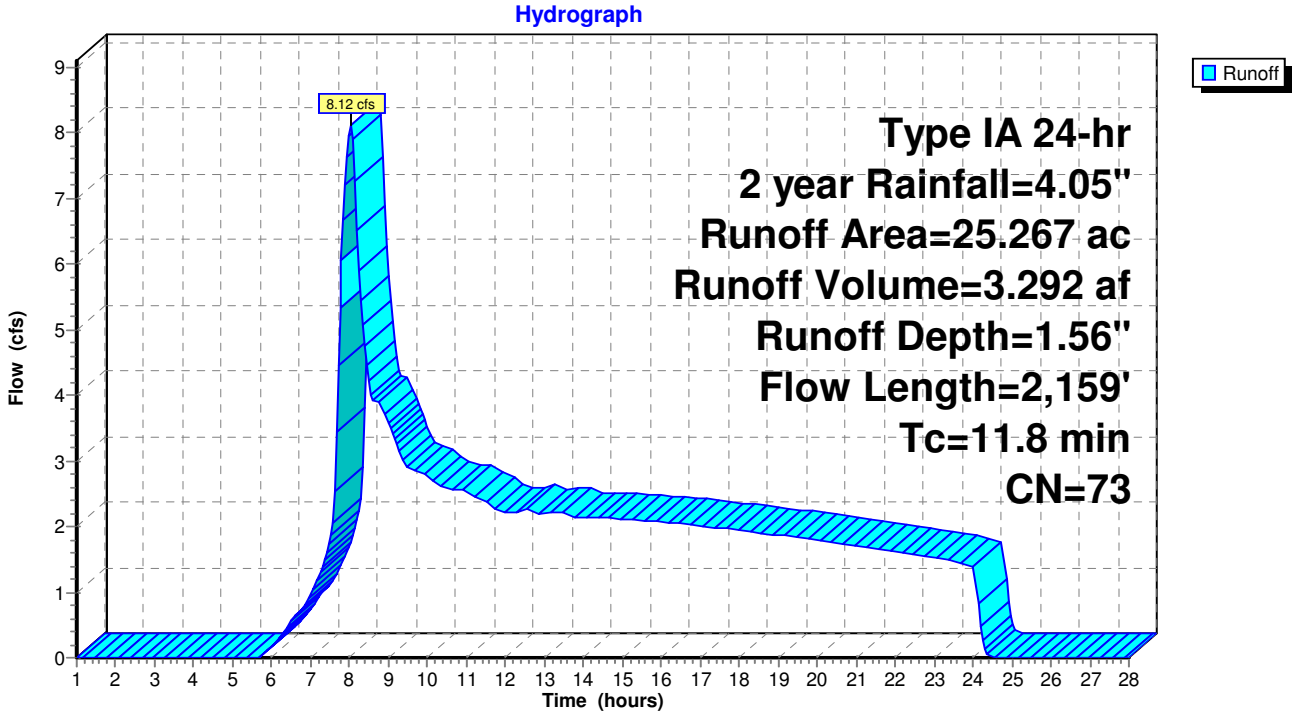
Runoff = 8.12 cfs @ 8.05 hrs, Volume= 3.292 af, Depth= 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.049	87	Dirt roads, HSG C
4.062	79	Pasture/grassland/range, Fair, HSG C
2.236	79	Vineyard, Fair, HSG C
1.138	75	Vineyard, Good, HSG C
17.782	70	Woods, Good, HSG C
25.267	73	Weighted Average
25.267		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.3100	0.26		**Sheet Flow, Sheet-1** Woods: Light underbrush n= 0.400 P2= 4.05"
2.6	1,166	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.8	893	0.0700	5.29	50.28	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
11.8	2,159	Total			

Subcatchment WS1O: Subcat WS1O



Summary for Subcatchment WS1P: Subcat WS1P

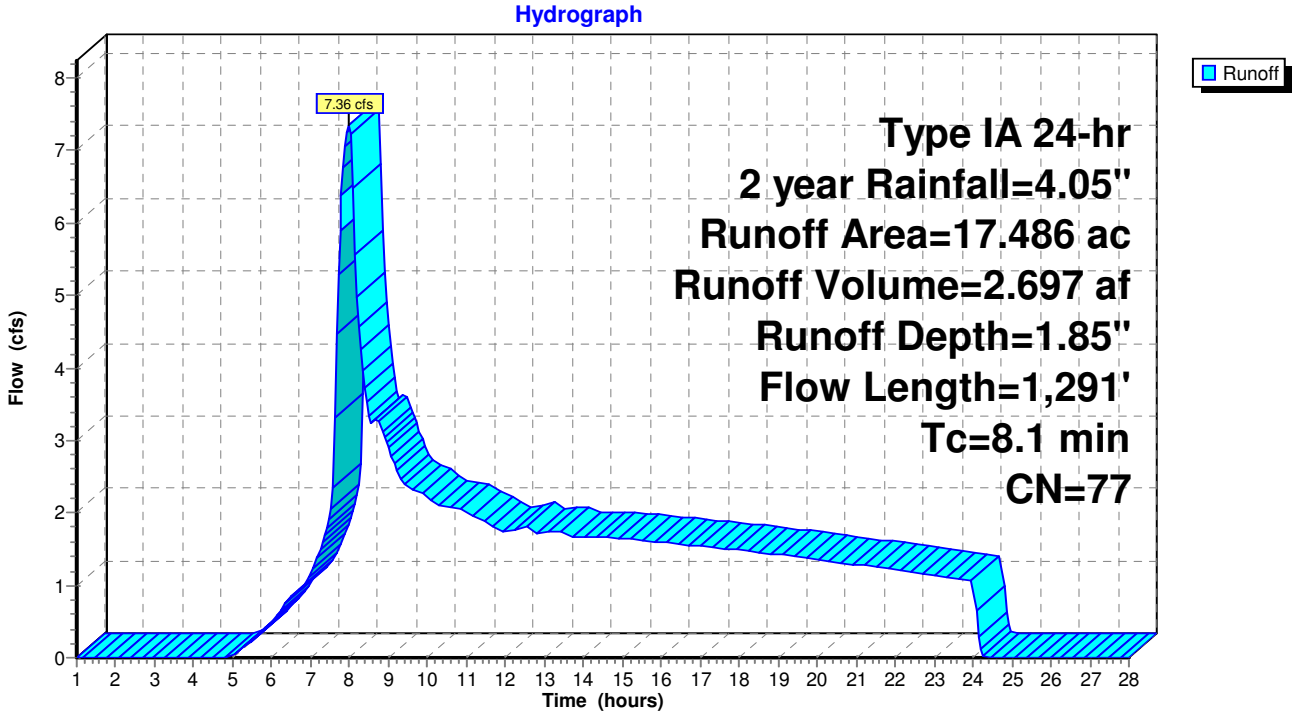
Runoff = 7.36 cfs @ 8.00 hrs, Volume= 2.697 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.263	87	Dirt roads, HSG C
2.086	82	Farmsteads, HSG C
0.713	79	Pasture/grassland/range, Fair, HSG C
3.477	74	Pasture/grassland/range, Good, HSG C
7.176	79	Vineyard, Fair, HSG C
3.771	70	Woods, Good, HSG C
17.486	77	Weighted Average
17.486		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0500	0.28		**Sheet Flow, Sheet-1** Grass: Short n= 0.150 P2= 4.05"
0.7	331	0.2400	7.89		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	860	0.1700	10.24	20.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.1	1,291	Total			

Subcatchment WS1P: Subcat WS1P



Summary for Subcatchment WS1Q: Subcat WS1Q

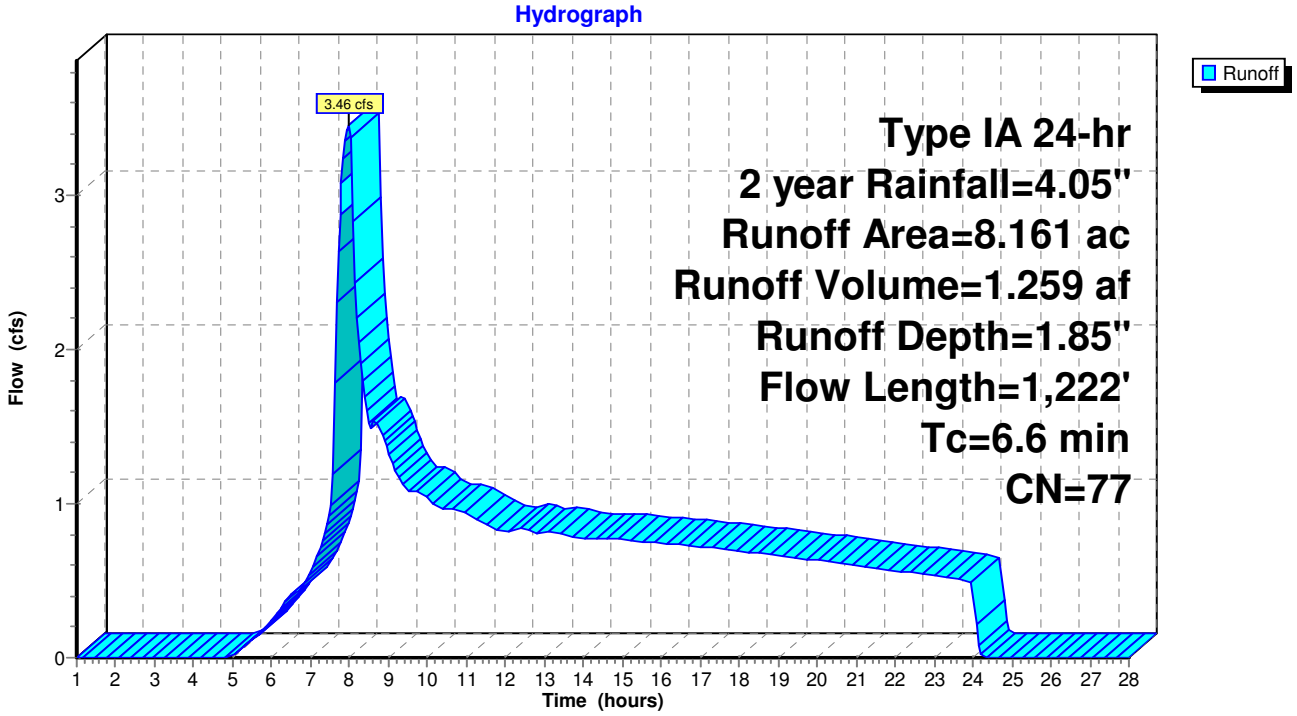
Runoff = 3.46 cfs @ 7.98 hrs, Volume= 1.259 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.151	87	Dirt roads, HSG C
0.039	82	Farmsteads, HSG C
4.260	79	Pasture/grassland/range, Fair, HSG C
1.502	79	Vineyard, Fair, HSG C
0.064	75	Vineyard, Good, HSG C
2.145	70	Woods, Good, HSG C
8.161	77	Weighted Average
8.161		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.3200	0.40		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	659	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.9	463	0.1900	8.72	82.84	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
6.6	1,222	Total			

Subcatchment WS1Q: Subcat WS1Q



Summary for Subcatchment WS1R: Subcat WS1R

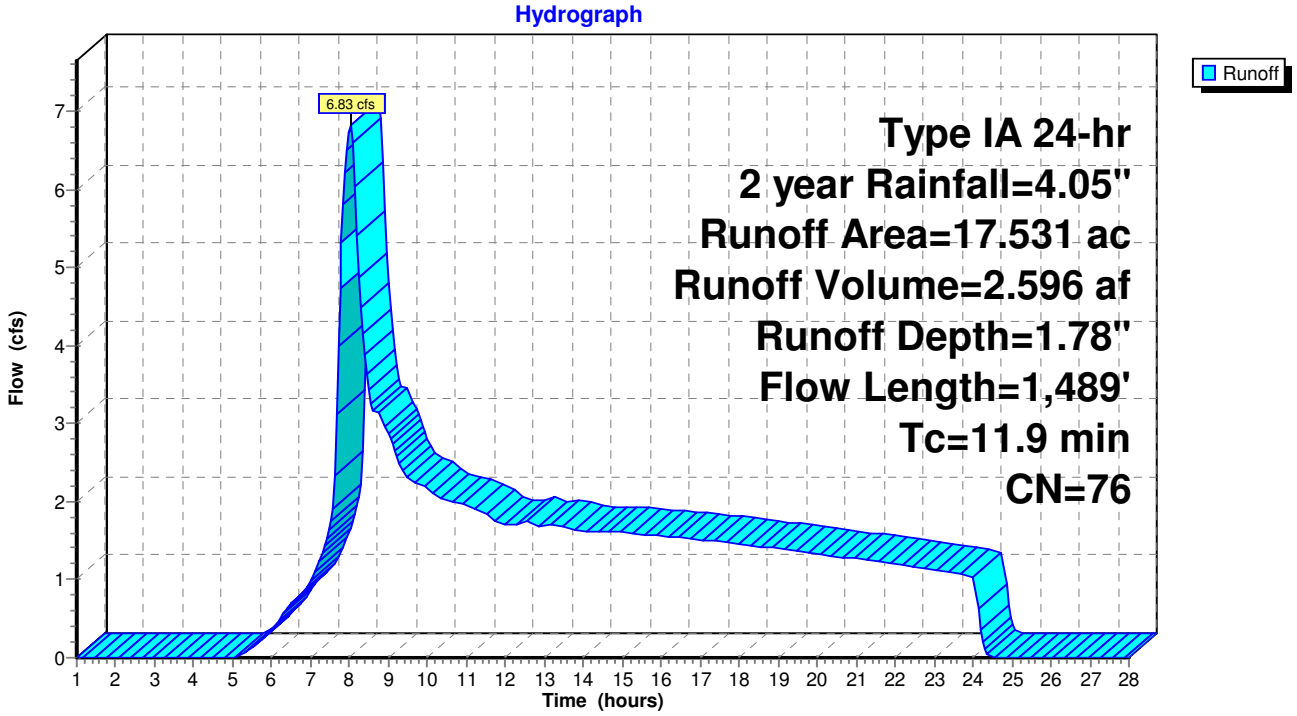
Runoff = 6.83 cfs @ 8.04 hrs, Volume= 2.596 af, Depth= 1.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.110	87	Dirt roads, HSG C
6.674	79	Pasture/grassland/range, Fair, HSG C
0.780	74	Pasture/grassland/range, Good, HSG C
8.523	75	Vineyard, Good, HSG C
1.443	70	Woods, Good, HSG C
17.531	76	Weighted Average
17.531		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
2.3	759	0.1200	5.58		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	630	0.0900	7.45	14.90	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
11.9	1,489	Total			

Subcatchment WS1R: Subcat WS1R



Summary for Reach R1: Main Stem

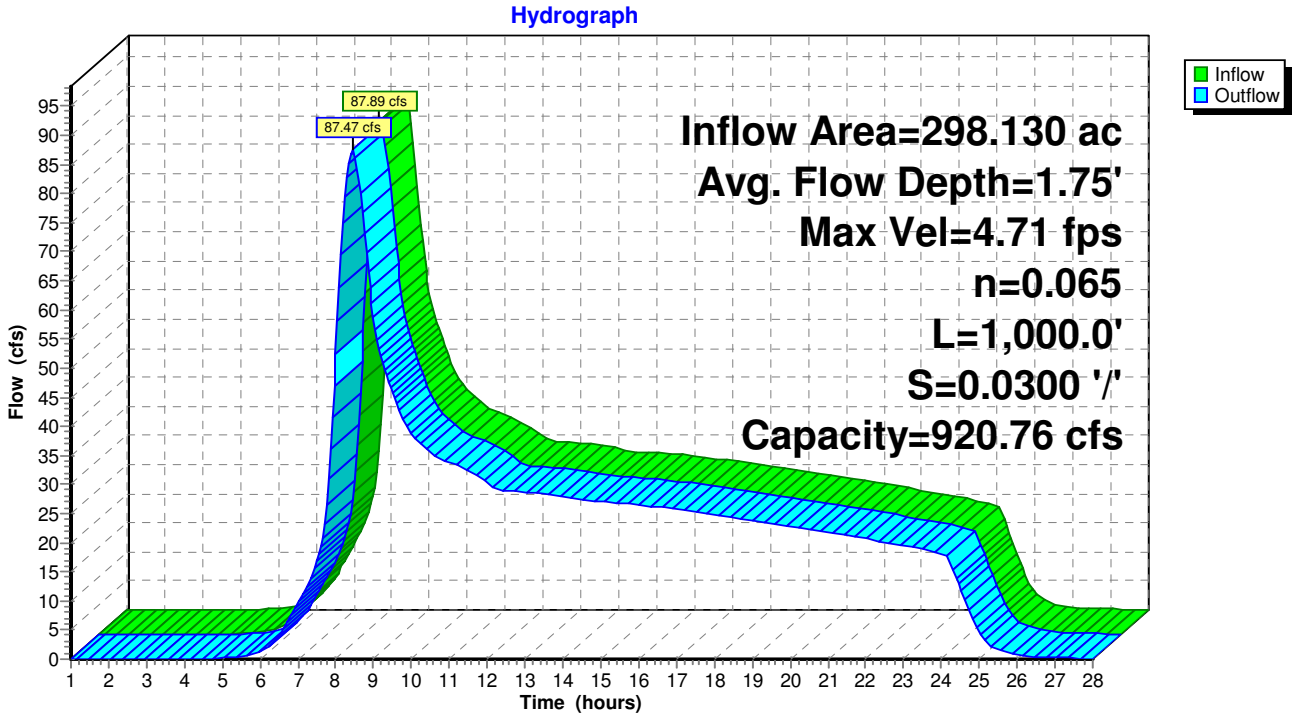
Inflow Area = 298.130 ac, 0.00% Impervious, Inflow Depth > 1.74" for 2 year event
Inflow = 87.89 cfs @ 8.37 hrs, Volume= 43.287 af
Outflow = 87.47 cfs @ 8.47 hrs, Volume= 43.283 af, Atten= 0%, Lag= 5.7 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.71 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 2.66 fps, Avg. Travel Time= 6.3 min

Peak Storage= 18,576 cf @ 8.41 hrs
Average Depth at Peak Storage= 1.75'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 920.76 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,000.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -30.00'

Reach R1: Main Stem



Summary for Reach R2: Main Stem

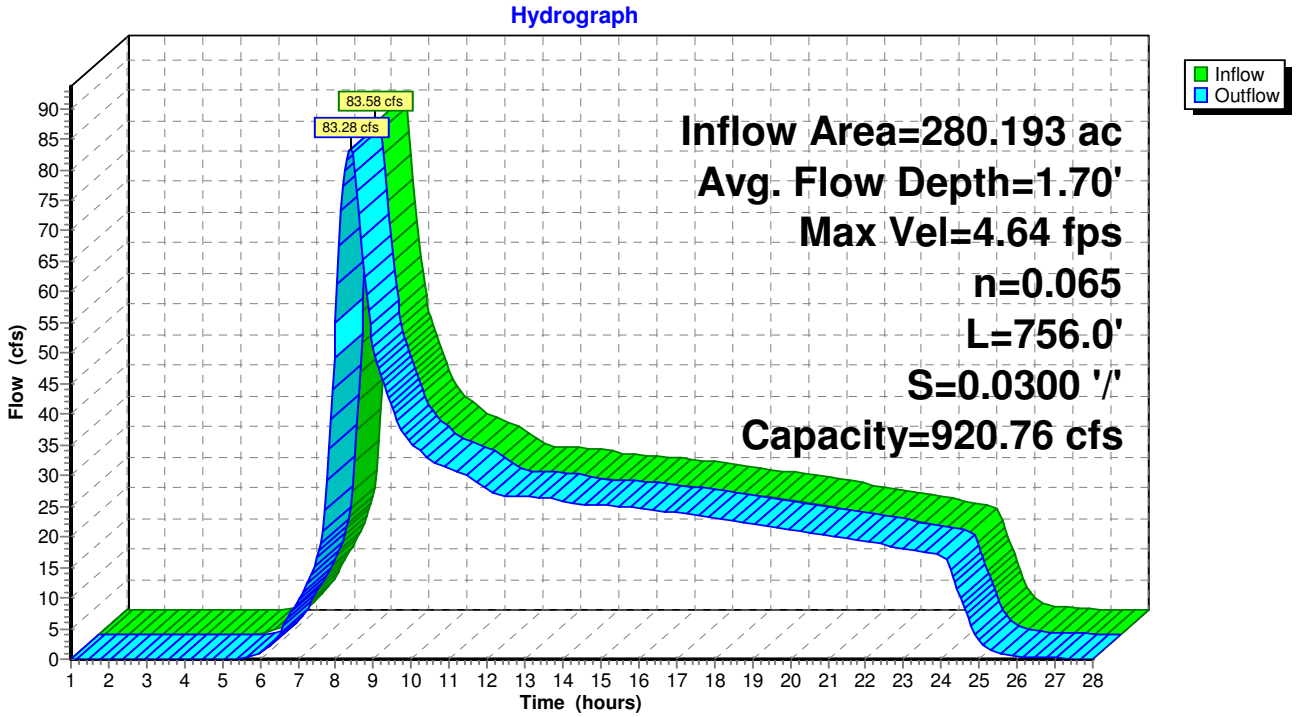
Inflow Area = 280.193 ac, 0.00% Impervious, Inflow Depth > 1.72" for 2 year event
Inflow = 83.58 cfs @ 8.31 hrs, Volume= 40.055 af
Outflow = 83.28 cfs @ 8.38 hrs, Volume= 40.053 af, Atten= 0%, Lag= 4.5 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.64 fps, Min. Travel Time= 2.7 min
Avg. Velocity = 2.65 fps, Avg. Travel Time= 4.7 min

Peak Storage= 13,567 cf @ 8.34 hrs
Average Depth at Peak Storage= 1.70'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 920.76 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 756.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -22.68'

Reach R2: Main Stem



Summary for Reach R3: Stream

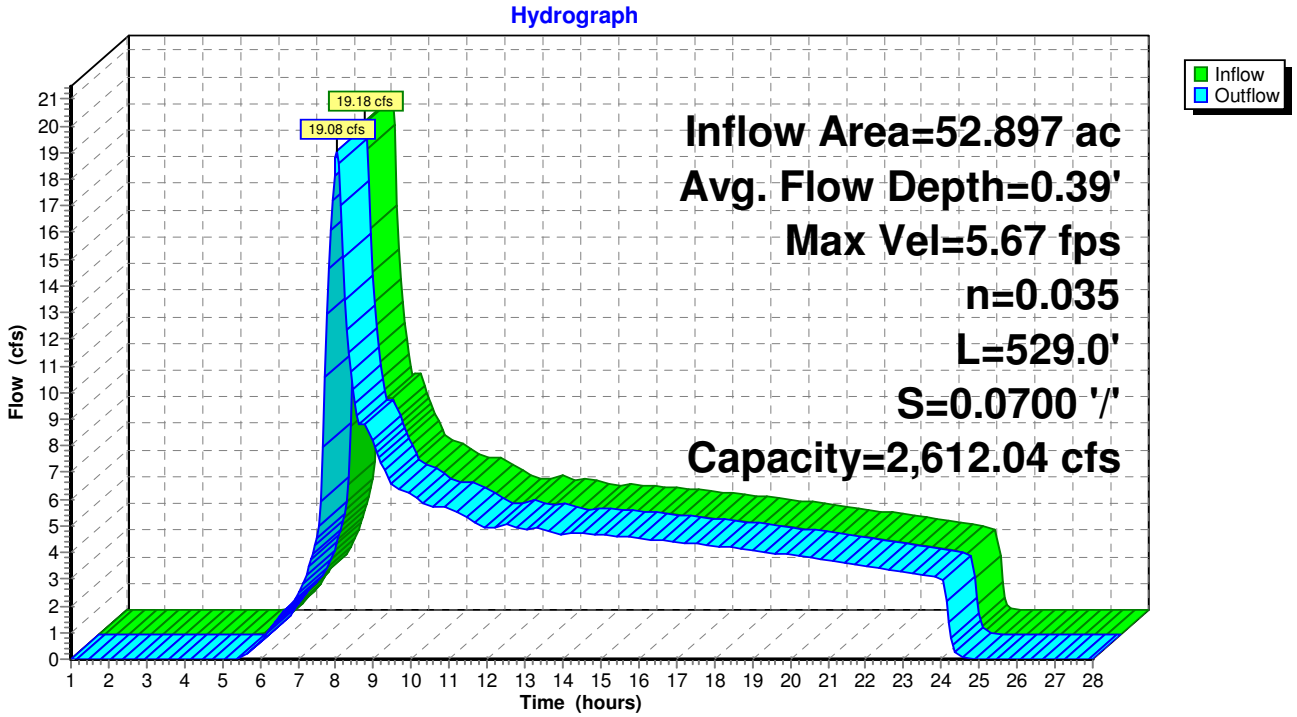
Inflow Area = 52.897 ac, 0.00% Impervious, Inflow Depth = 1.68" for 2 year event
Inflow = 19.18 cfs @ 8.01 hrs, Volume= 7.388 af
Outflow = 19.08 cfs @ 8.04 hrs, Volume= 7.388 af, Atten= 1%, Lag= 1.9 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.67 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 3.22 fps, Avg. Travel Time= 2.7 min

Peak Storage= 1,787 cf @ 8.03 hrs
Average Depth at Peak Storage= 0.39'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 2,612.04 cfs

8.00' x 6.00' deep channel, n= 0.035
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 529.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -37.03'

Reach R3: Stream



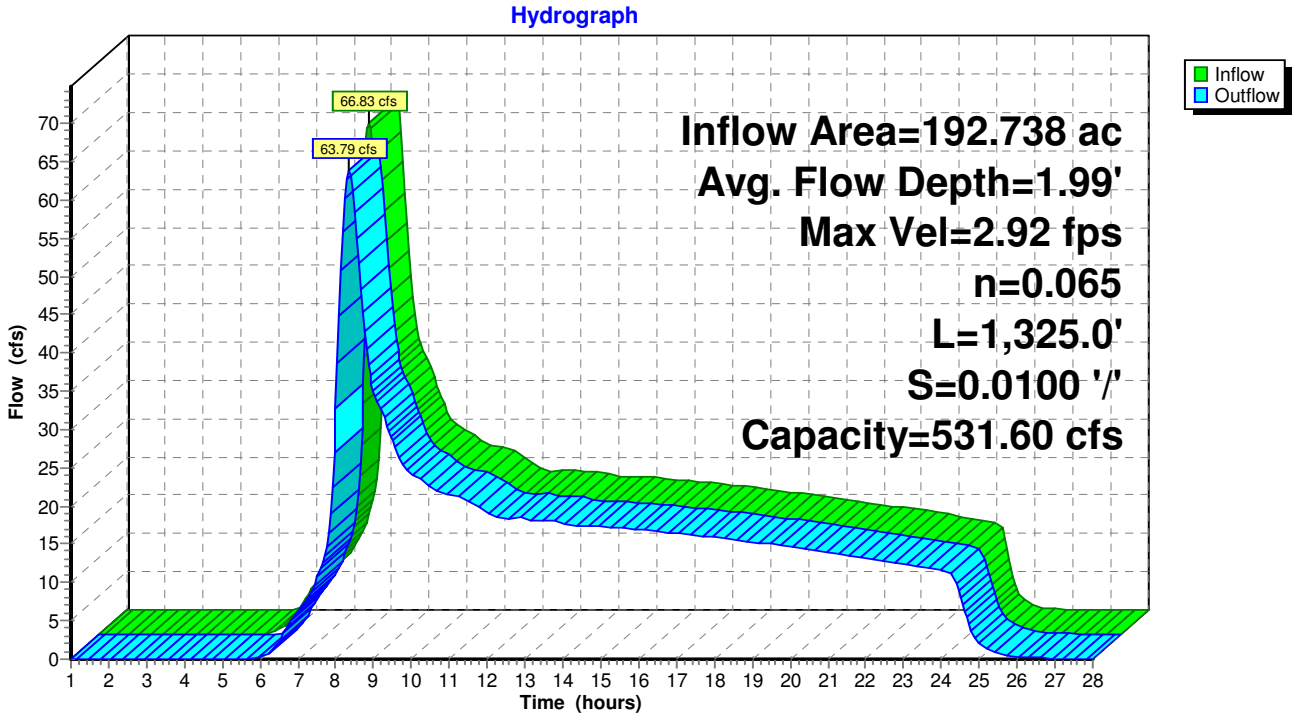
Summary for Reach R4.1: Main Stem

Inflow Area = 192.738 ac, 0.00% Impervious, Inflow Depth = 1.71" for 2 year event
Inflow = 66.83 cfs @ 8.14 hrs, Volume= 27.519 af
Outflow = 63.79 cfs @ 8.35 hrs, Volume= 27.515 af, Atten= 5%, Lag= 12.8 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.92 fps, Min. Travel Time= 7.6 min
Avg. Velocity = 1.63 fps, Avg. Travel Time= 13.6 min

Peak Storage= 29,039 cf @ 8.23 hrs
Average Depth at Peak Storage= 1.99'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 531.60 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,325.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -13.25'



Summary for Reach R4.2: Main Stem

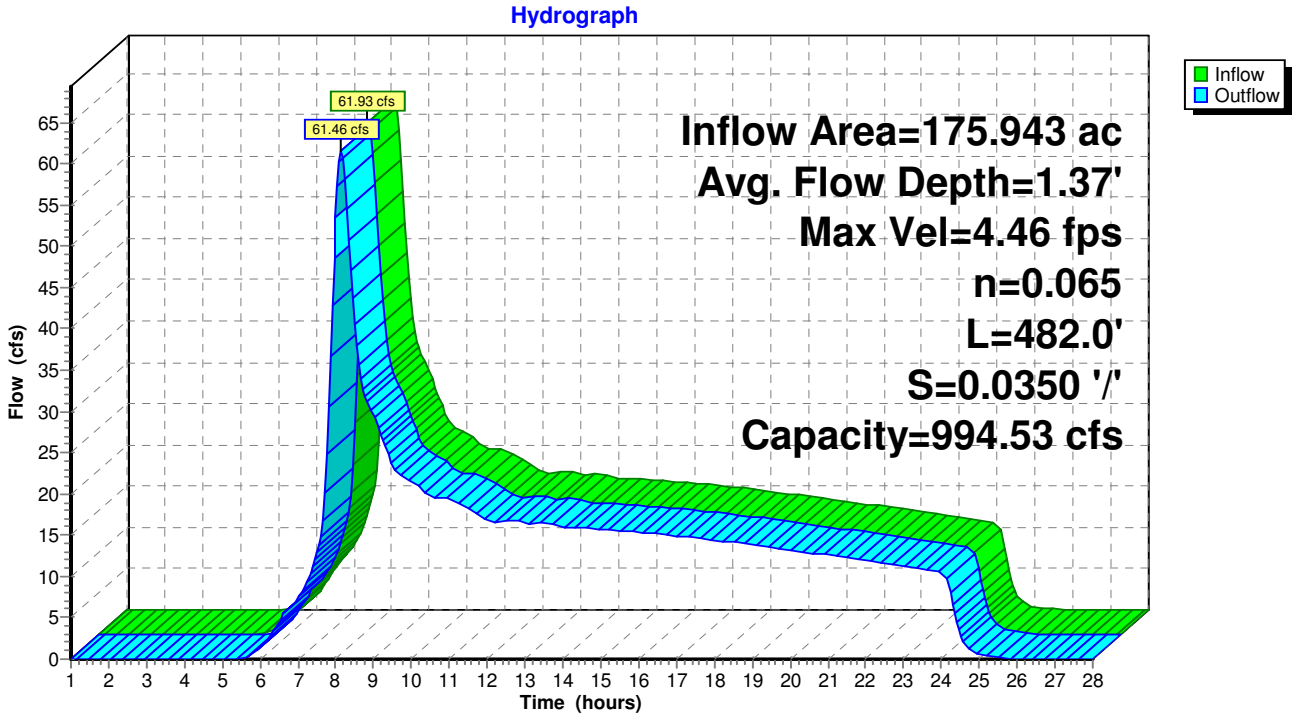
Inflow Area = 175.943 ac, 0.00% Impervious, Inflow Depth = 1.71" for 2 year event
Inflow = 61.93 cfs @ 8.10 hrs, Volume= 25.133 af
Outflow = 61.46 cfs @ 8.16 hrs, Volume= 25.133 af, Atten= 1%, Lag= 3.1 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.46 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 2.39 fps, Avg. Travel Time= 3.4 min

Peak Storage= 6,660 cf @ 8.13 hrs
Average Depth at Peak Storage= 1.37'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 994.53 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 482.0' Slope= 0.0350 '/'
Inlet Invert= 0.00', Outlet Invert= -16.87'

Reach R4.2: Main Stem



Summary for Reach R5: Main Stem

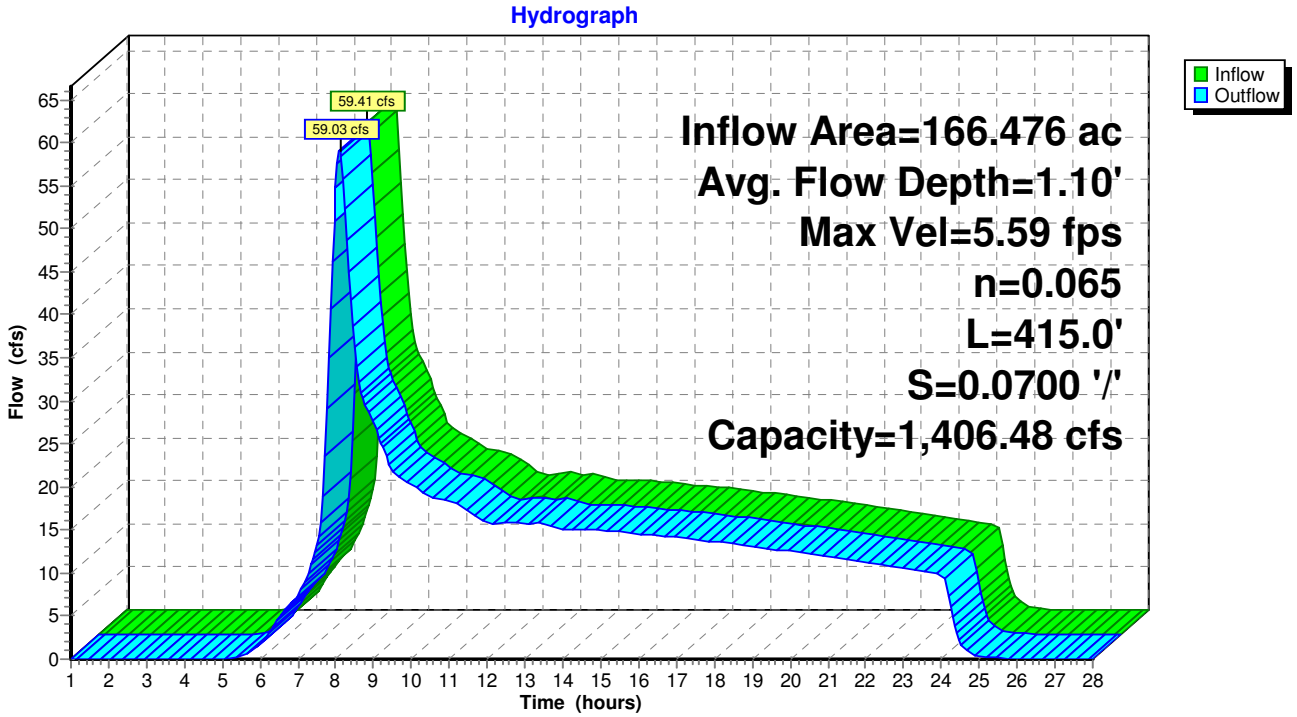
Inflow Area = 166.476 ac, 0.00% Impervious, Inflow Depth = 1.72" for 2 year event
Inflow = 59.41 cfs @ 8.08 hrs, Volume= 23.900 af
Outflow = 59.03 cfs @ 8.11 hrs, Volume= 23.900 af, Atten= 1%, Lag= 2.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.59 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 2.99 fps, Avg. Travel Time= 2.3 min

Peak Storage= 4,407 cf @ 8.09 hrs
Average Depth at Peak Storage= 1.10'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,406.48 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 415.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -29.05'

Reach R5: Main Stem



Summary for Reach R6: Main Stem

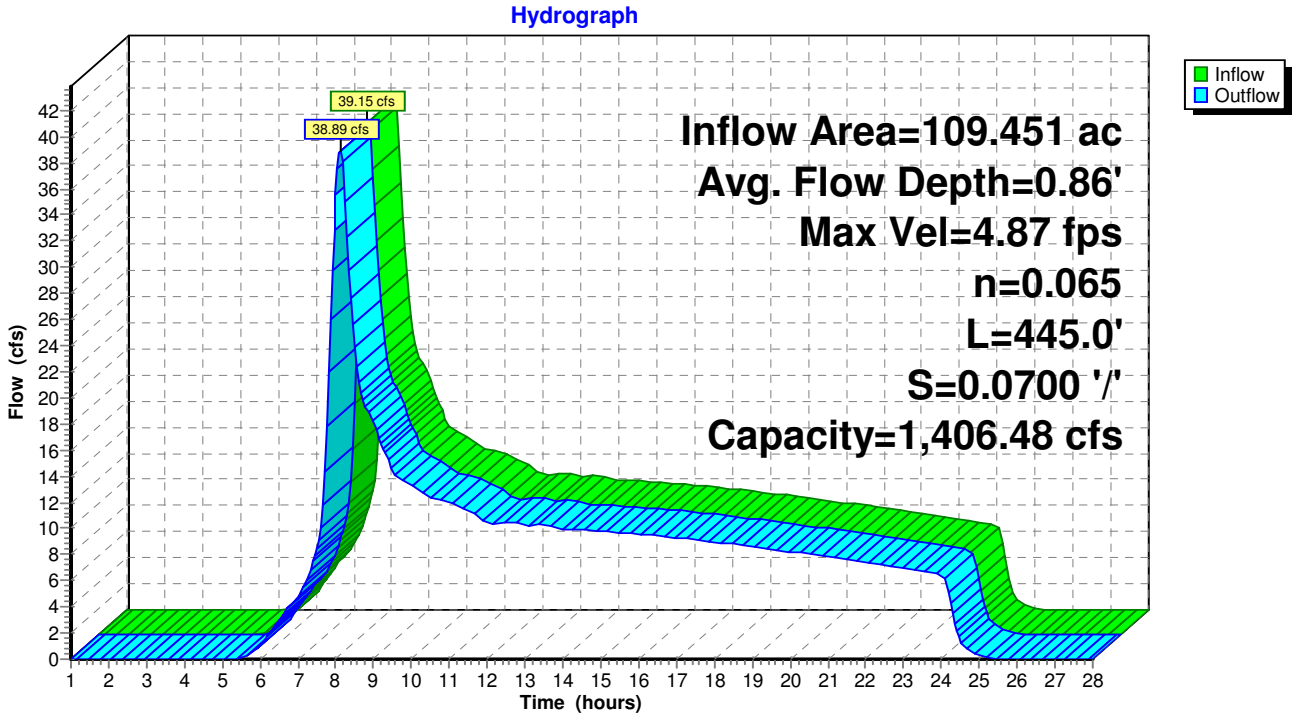
Inflow Area = 109.451 ac, 0.00% Impervious, Inflow Depth = 1.72" for 2 year event
Inflow = 39.15 cfs @ 8.08 hrs, Volume= 15.666 af
Outflow = 38.89 cfs @ 8.12 hrs, Volume= 15.666 af, Atten= 1%, Lag= 2.5 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.87 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 2.61 fps, Avg. Travel Time= 2.8 min

Peak Storage= 3,570 cf @ 8.10 hrs
Average Depth at Peak Storage= 0.86'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,406.48 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 445.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -31.15'

Reach R6: Main Stem



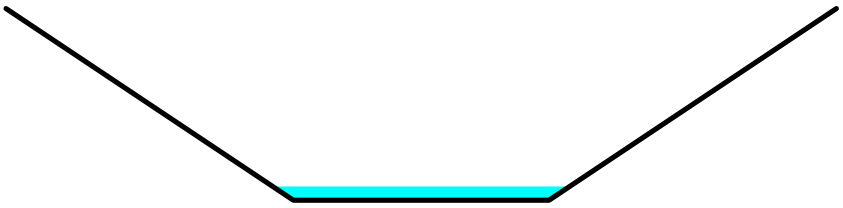
Summary for Reach R7.1: Stream

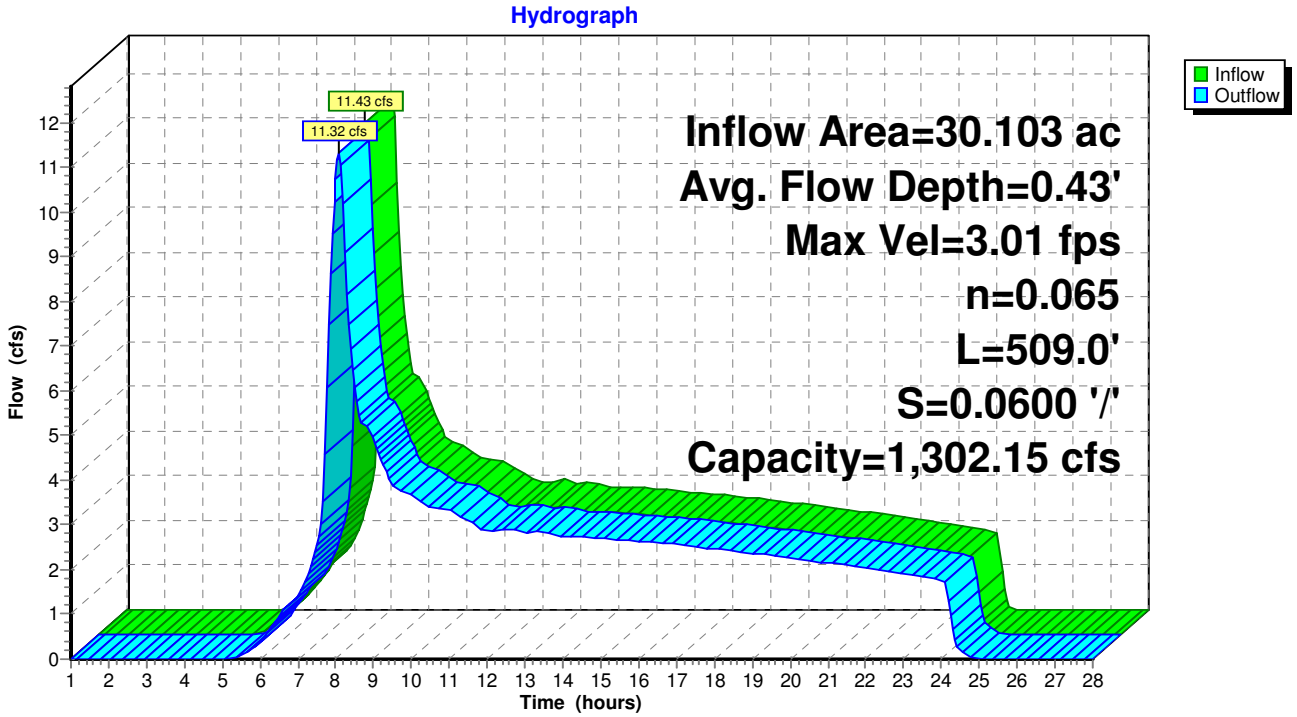
Inflow Area = 30.103 ac, 0.00% Impervious, Inflow Depth = 1.73" for 2 year event
Inflow = 11.43 cfs @ 8.03 hrs, Volume= 4.338 af
Outflow = 11.32 cfs @ 8.09 hrs, Volume= 4.338 af, Atten= 1%, Lag= 3.9 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.01 fps, Min. Travel Time= 2.8 min
Avg. Velocity = 1.66 fps, Avg. Travel Time= 5.1 min

Peak Storage= 1,916 cf @ 8.05 hrs
Average Depth at Peak Storage= 0.43'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,302.15 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 509.0' Slope= 0.0600 '/'
Inlet Invert= 0.00', Outlet Invert= -30.54'





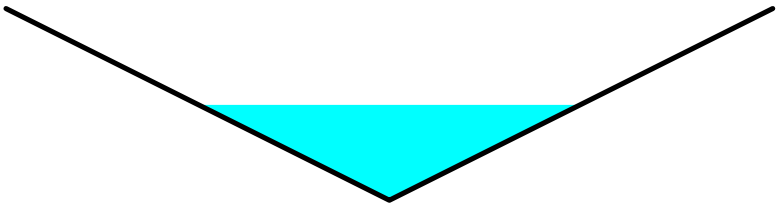
Summary for Reach R7.2: Channel

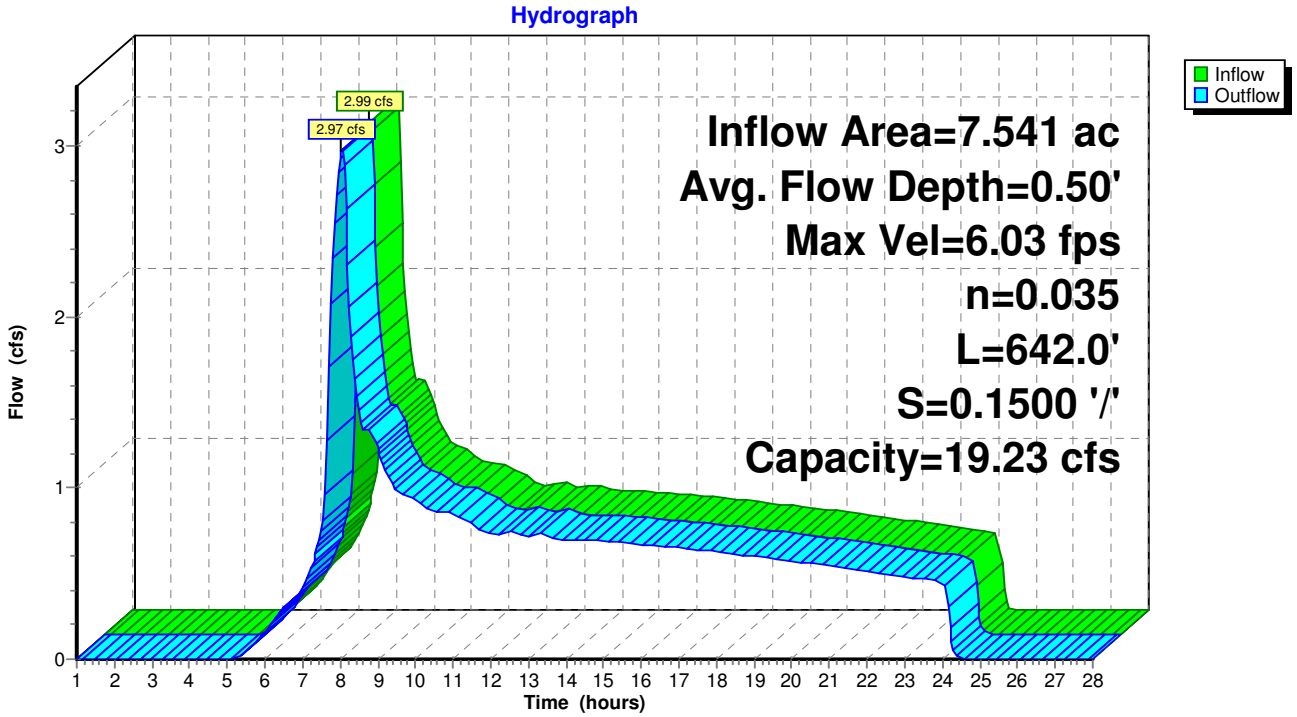
Inflow Area = 7.541 ac, 0.00% Impervious, Inflow Depth = 1.78" for 2 year event
Inflow = 2.99 cfs @ 8.00 hrs, Volume= 1.117 af
Outflow = 2.97 cfs @ 8.04 hrs, Volume= 1.117 af, Atten= 1%, Lag= 2.5 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.03 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 3.88 fps, Avg. Travel Time= 2.8 min

Peak Storage= 317 cf @ 8.02 hrs
Average Depth at Peak Storage= 0.50'
Bank-Full Depth= 1.00' Flow Area= 2.0 sf, Capacity= 19.23 cfs

0.00' x 1.00' deep channel, n= 0.035
Side Slope Z-value= 2.0 '/' Top Width= 4.00'
Length= 642.0' Slope= 0.1500 '/'
Inlet Invert= 0.00', Outlet Invert= -96.30'





Summary for Reach R8: Main Stem

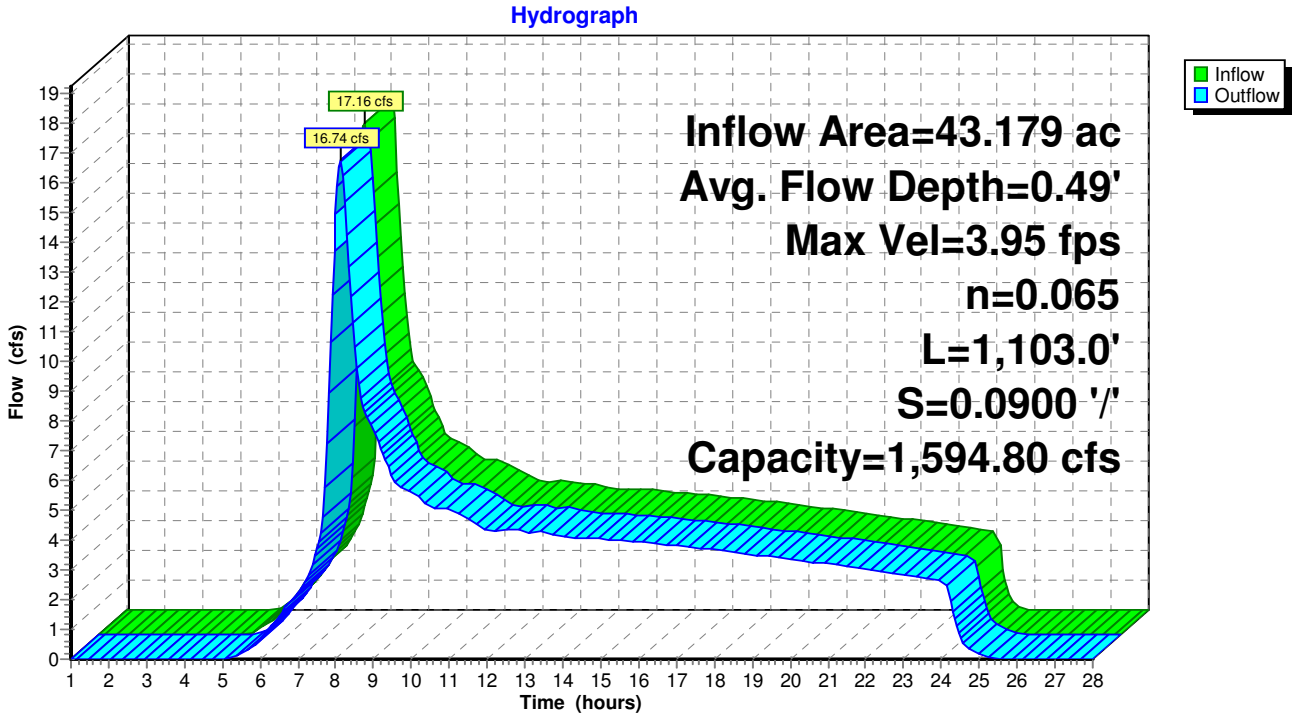
Inflow Area = 43.179 ac, 0.00% Impervious, Inflow Depth = 1.82" for 2 year event
Inflow = 17.16 cfs @ 8.03 hrs, Volume= 6.552 af
Outflow = 16.74 cfs @ 8.14 hrs, Volume= 6.552 af, Atten= 2%, Lag= 6.8 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.95 fps, Min. Travel Time= 4.7 min
Avg. Velocity = 2.11 fps, Avg. Travel Time= 8.7 min

Peak Storage= 4,698 cf @ 8.06 hrs
Average Depth at Peak Storage= 0.49'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,594.80 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,103.0' Slope= 0.0900 '/'
Inlet Invert= 0.00', Outlet Invert= -99.27'

Reach R8: Main Stem



Summary for Reach R9: Main Stem

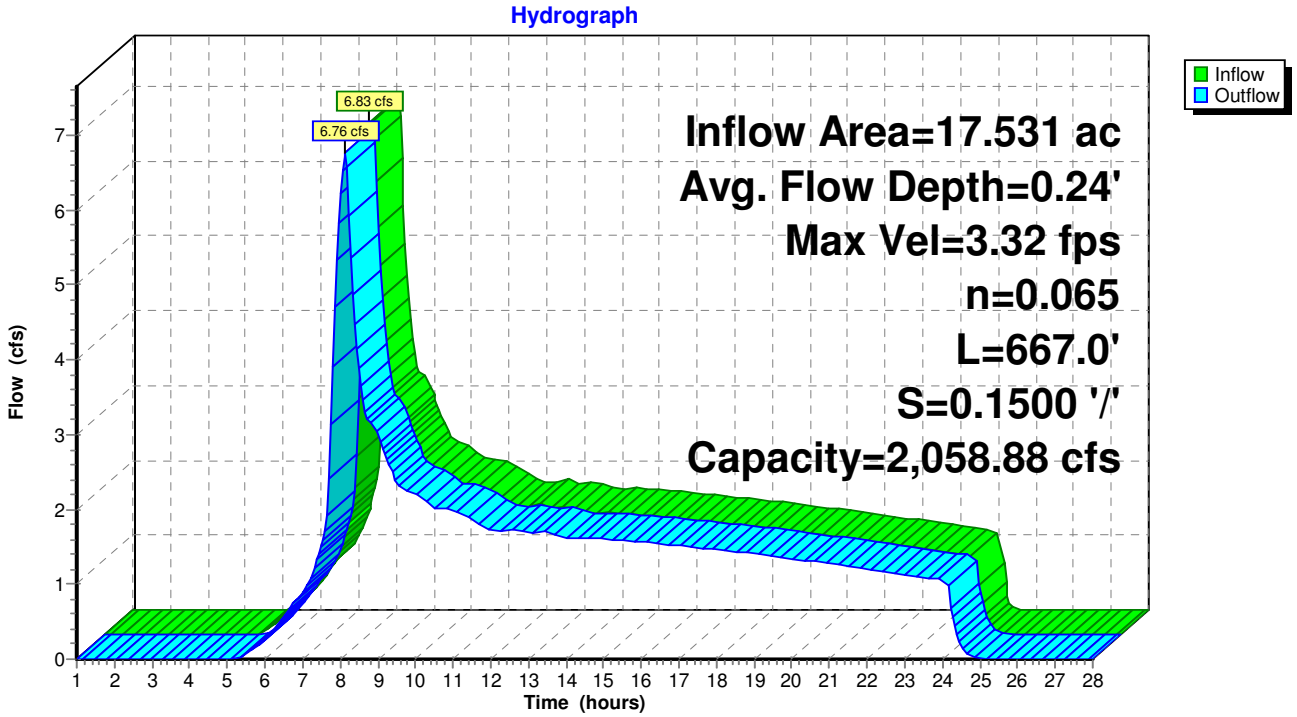
Inflow Area = 17.531 ac, 0.00% Impervious, Inflow Depth = 1.78" for 2 year event
Inflow = 6.83 cfs @ 8.04 hrs, Volume= 2.596 af
Outflow = 6.76 cfs @ 8.13 hrs, Volume= 2.596 af, Atten= 1%, Lag= 5.1 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.32 fps, Min. Travel Time= 3.4 min
Avg. Velocity = 1.90 fps, Avg. Travel Time= 5.9 min

Peak Storage= 1,358 cf @ 8.07 hrs
Average Depth at Peak Storage= 0.24'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 2,058.88 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 667.0' Slope= 0.1500 '/'
Inlet Invert= 0.00', Outlet Invert= -100.05'

Reach R9: Main Stem

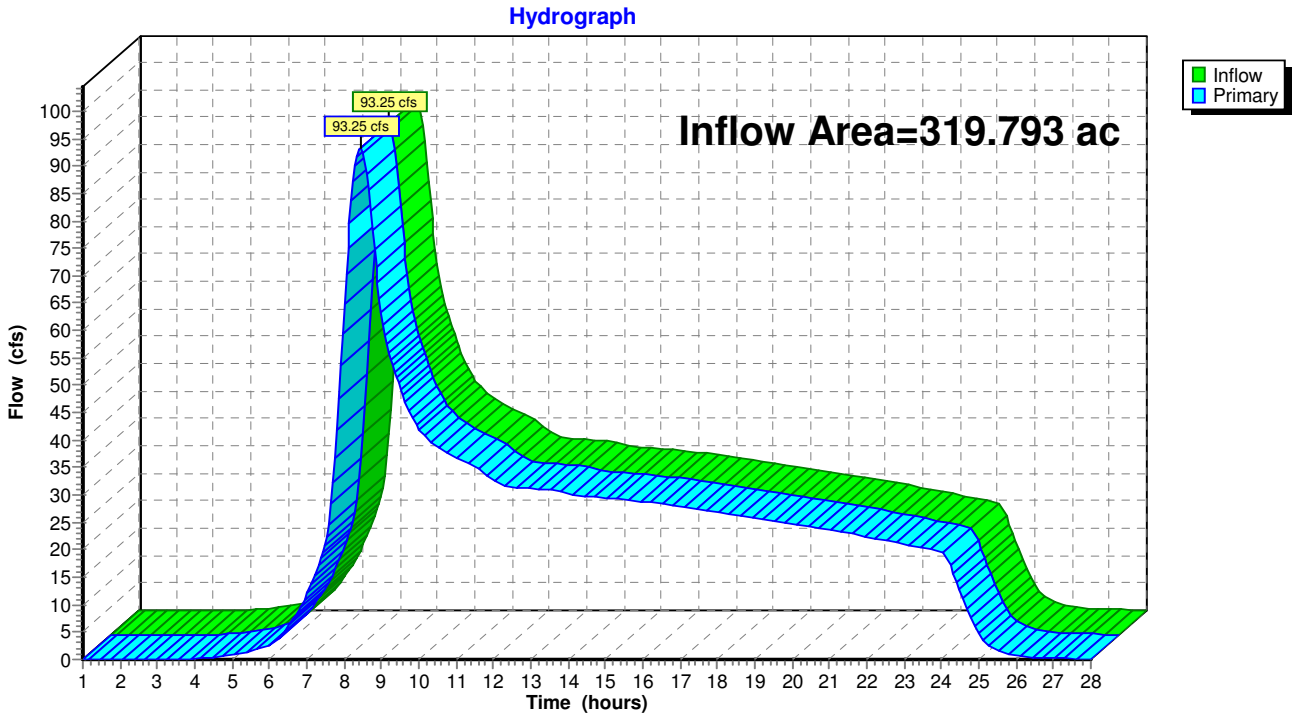


Summary for Link Outlet: Outlet

Inflow Area = 319.793 ac, 0.00% Impervious, Inflow Depth > 1.78" for 2 year event
Inflow = 93.25 cfs @ 8.45 hrs, Volume= 47.488 af
Primary = 93.25 cfs @ 8.45 hrs, Volume= 47.488 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs

Link Outlet: Outlet



Summary for Subcatchment WS1A: Subcat WS1A

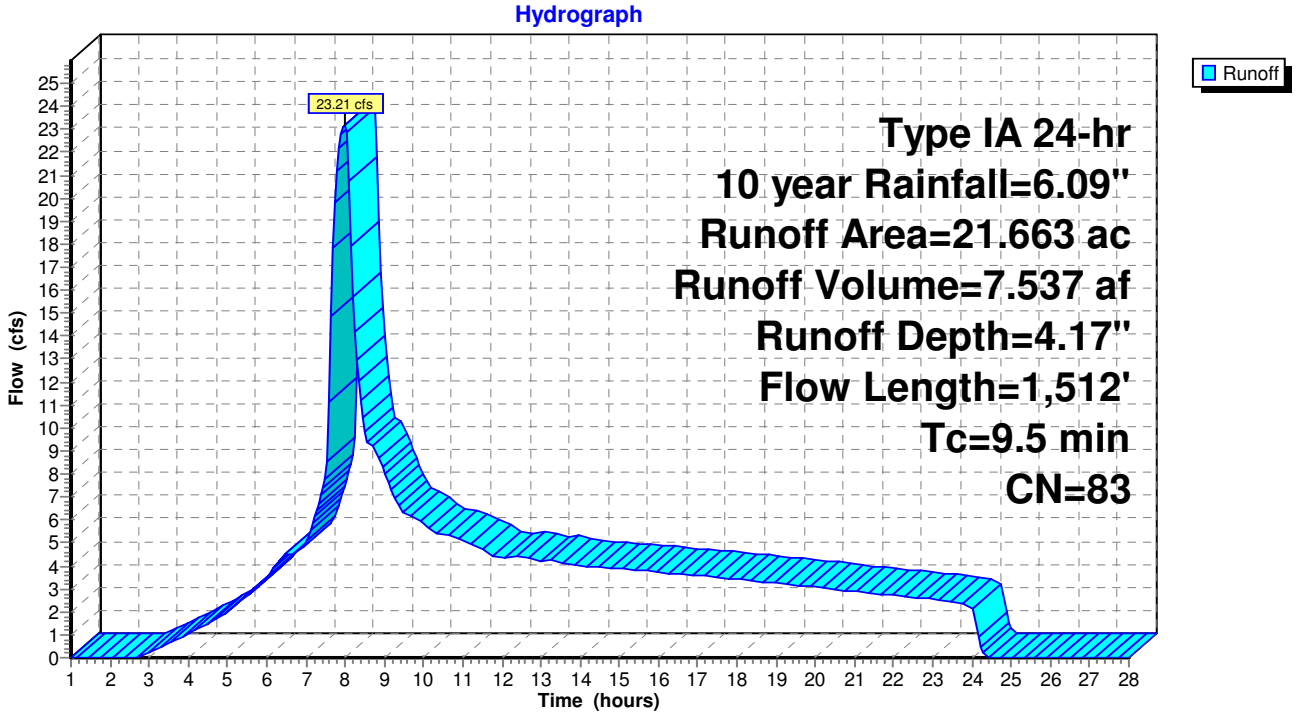
Runoff = 23.21 cfs @ 7.98 hrs, Volume= 7.537 af, Depth= 4.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
1.730	79	Pasture/grassland/range, Fair, HSG C
0.161	84	Pasture/grassland/range, Fair, HSG D
0.733	79	Vineyard, Fair, HSG C
16.760	84	Vineyard, Fair, HSG D
2.279	77	Woods, Good, HSG D
21.663	83	Weighted Average
21.663		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.2500	0.36		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	681	0.2500	8.05		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
3.5	731	0.0300	3.47	32.92	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
9.5	1,512	Total			

Subcatchment WS1A: Subcat WS1A



Summary for Subcatchment WS1B: Subcat WS1B

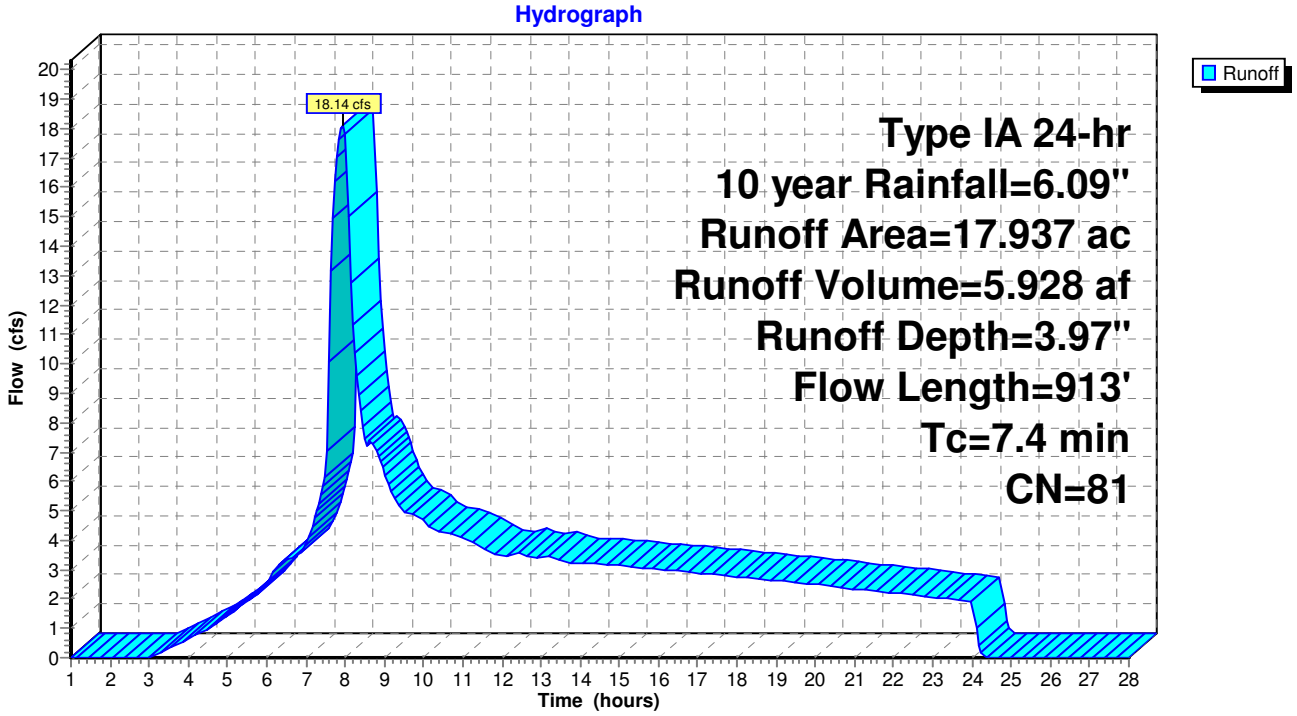
Runoff = 18.14 cfs @ 7.95 hrs, Volume= 5.928 af, Depth= 3.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.094	89	Dirt roads, HSG D
4.189	79	Pasture/grassland/range, Fair, HSG C
0.896	84	Pasture/grassland/range, Fair, HSG D
0.531	79	Vineyard, Fair, HSG C
8.409	84	Vineyard, Fair, HSG D
0.658	75	Vineyard, Good, HSG C
0.877	70	Woods, Good, HSG C
2.282	77	Woods, Good, HSG D
17.937	81	Weighted Average
17.937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	261	0.4400	10.68		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.4	265	0.2200	11.65	23.29	**Trap/Vee/Rect Channel Flow, Assumed std ditch-1** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.4	170	0.1800	6.83		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.1	74	0.1100	8.23	16.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch-2** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.1	43	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch-3** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.4	913	Total			

Subcatchment WS1B: Subcat WS1B



Summary for Subcatchment WS1C: Subcat WS1C

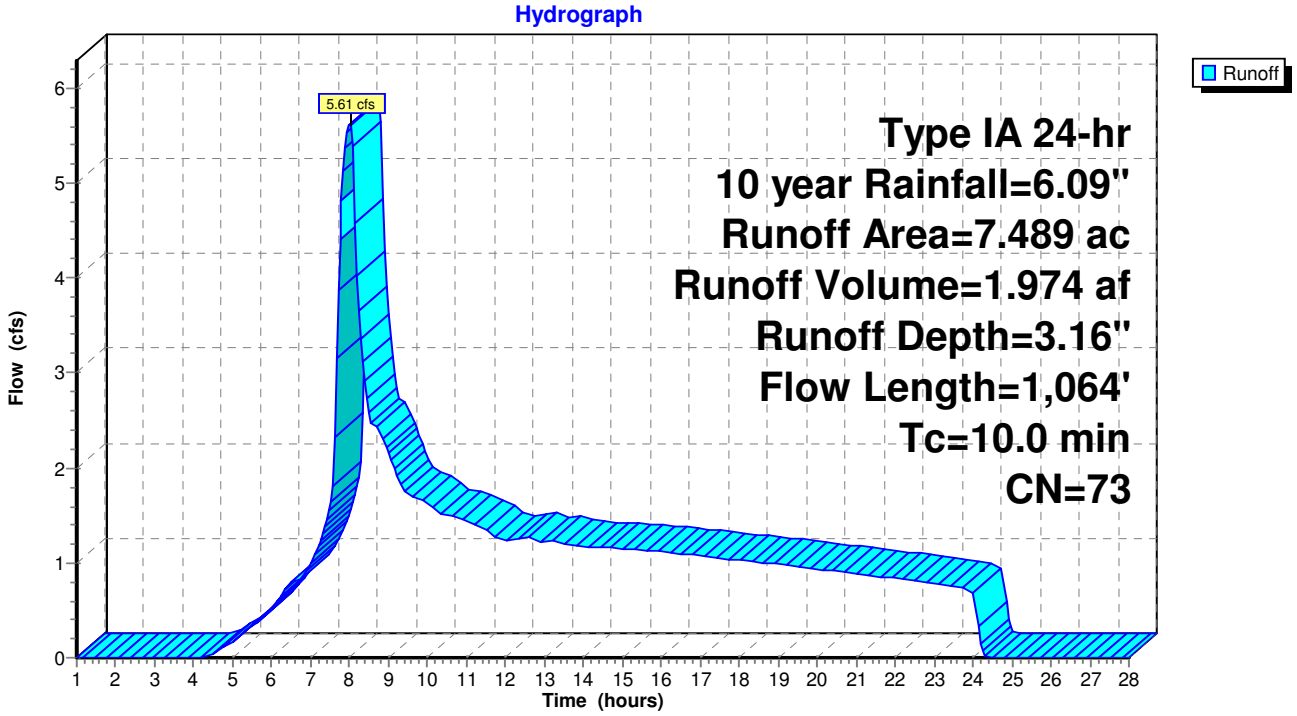
Runoff = 5.61 cfs @ 8.01 hrs, Volume= 1.974 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.017	87	Dirt roads, HSG C
0.005	89	Dirt roads, HSG D
1.904	79	Pasture/grassland/range, Fair, HSG C
1.228	75	Vineyard, Good, HSG C
4.301	70	Woods, Good, HSG C
0.035	77	Woods, Good, HSG D
7.489	73	Weighted Average
7.489		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.7	396	0.3400	9.39		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.5	333	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.6	235	0.0600	6.08	12.16	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.0	1,064	Total			

Subcatchment WS1C: Subcat WS1C



Summary for Subcatchment WS1D: Subcat WS1D

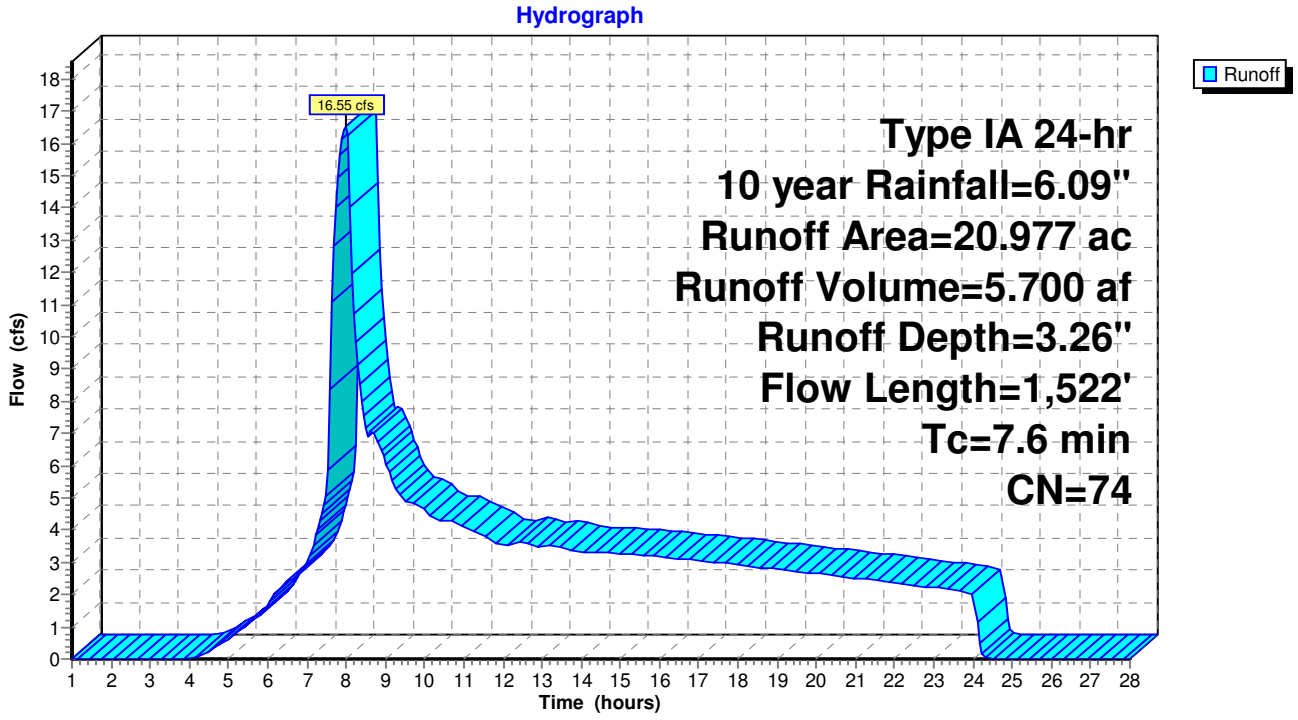
Runoff = 16.55 cfs @ 7.98 hrs, Volume= 5.700 af, Depth= 3.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.624	65	Brush, Good, HSG C
8.487	79	Pasture/grassland/range, Fair, HSG C
3.619	75	Vineyard, Good, HSG C
8.247	70	Woods, Good, HSG C
20.977	74	Weighted Average
20.977		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.1800	0.32		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	236	0.3800	9.92		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.9	1,186	0.1800	10.53	21.07	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	1,522	Total			

Subcatchment WS1D: Subcat WS1D



Summary for Subcatchment WS1E: Subcat WS1E

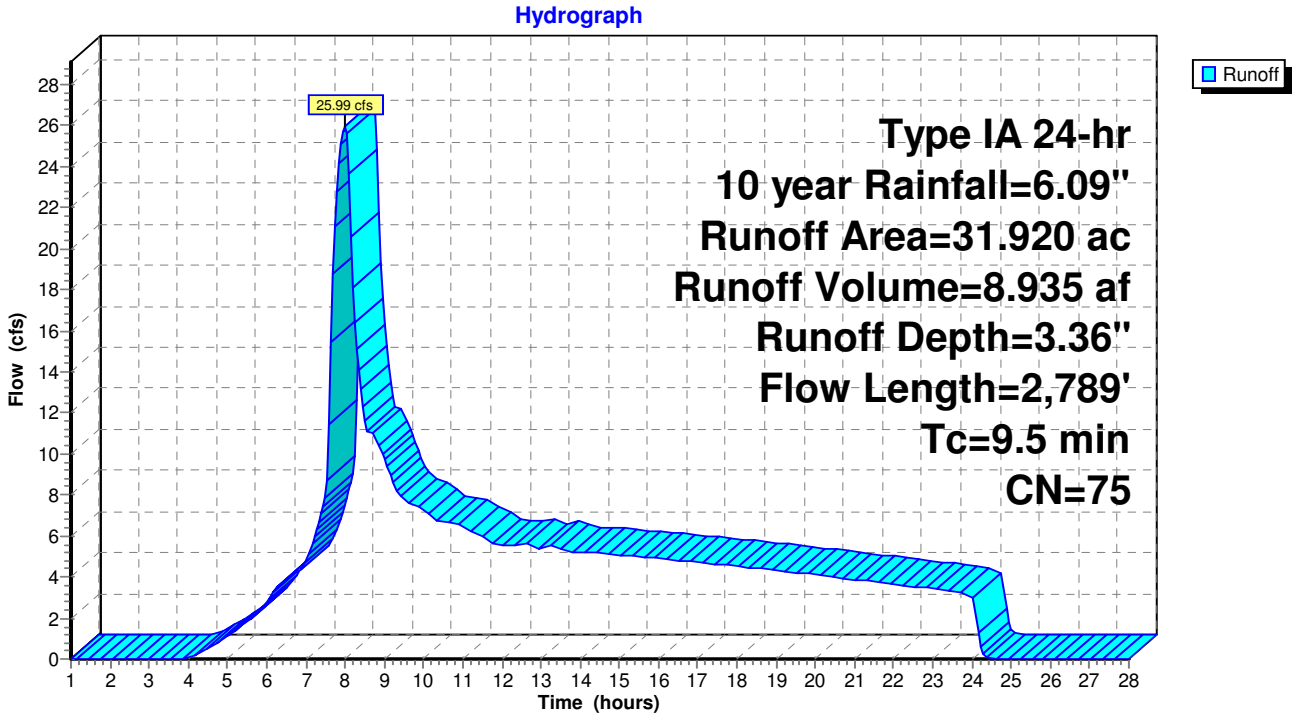
Runoff = 25.99 cfs @ 8.00 hrs, Volume= 8.935 af, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.002	87	Dirt roads, HSG C
15.665	79	Pasture/grassland/range, Fair, HSG C
5.637	75	Vineyard, Good, HSG C
10.617	70	Woods, Good, HSG C
31.920	75	Weighted Average
31.920		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	100	0.2600	0.37		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.8	418	0.3200	9.11		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
4.2	2,271	0.1300	8.95	17.90	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
9.5	2,789	Total			

Subcatchment WS1E: Subcat WS1E



Summary for Subcatchment WS1F.1: Subcat WS1F.1

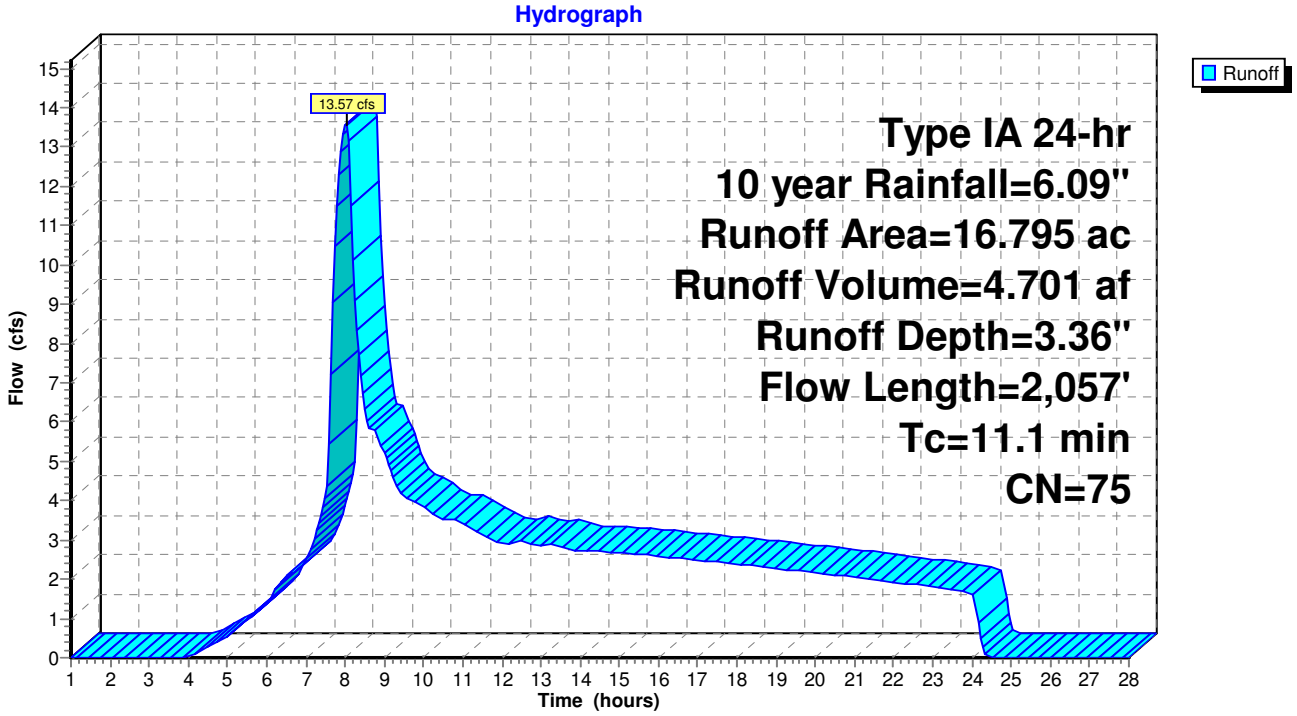
Runoff = 13.57 cfs @ 8.02 hrs, Volume= 4.701 af, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.080	89	Gravel Roads, HSG C
0.436	79	Pasture/grassland/range, Fair, HSG C
0.626	74	Pasture/grassland/range, Good, HSG C
7.618	79	Vineyard, Fair, HSG C
1.739	75	Vineyard, Good, HSG C
6.296	70	Woods, Good, HSG C
16.795	75	Weighted Average
16.795		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
3.4	1,267	0.1500	6.24		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.9	548	0.1700	10.24	20.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.8	142	0.0200	2.83	26.88	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
11.1	2,057	Total			

Subcatchment WS1F.1: Subcat WS1F.1



Summary for Subcatchment WS1F.2: Subcat WS1F.2

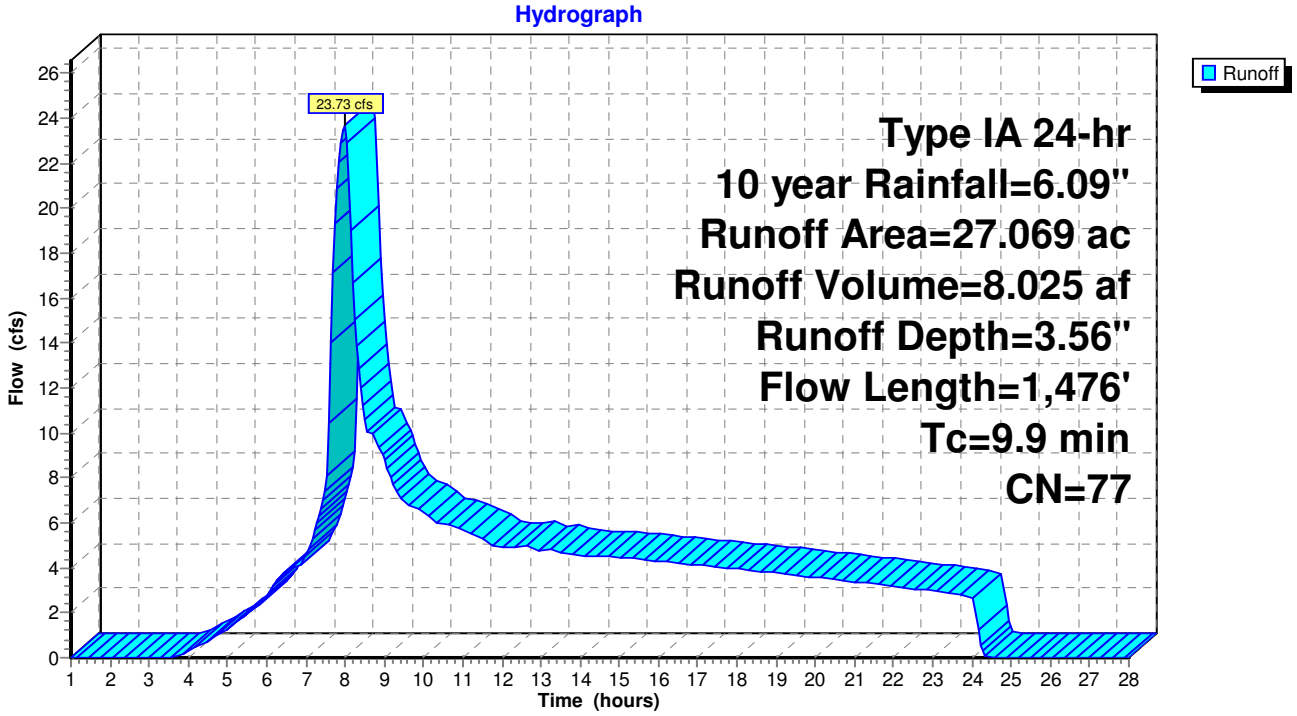
Runoff = 23.73 cfs @ 8.00 hrs, Volume= 8.025 af, Depth= 3.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.429	87	Dirt roads, HSG C
6.691	79	Pasture/grassland/range, Fair, HSG C
0.143	84	Pasture/grassland/range, Fair, HSG D
0.001	74	Pasture/grassland/range, Good, HSG C
7.427	79	Vineyard, Fair, HSG C
1.496	84	Vineyard, Fair, HSG D
3.820	75	Vineyard, Good, HSG C
6.912	70	Woods, Good, HSG C
0.149	77	Woods, Good, HSG D
27.069	77	Weighted Average
27.069		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	702	0.2500	8.05		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.2	674	0.0100	5.21	531.60	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=6.00' Z= 1.5 '/' Top.W=26.00' n= 0.065
9.9	1,476	Total			

Subcatchment WS1F.2: Subcat WS1F.2



Summary for Subcatchment WS1G: Subcat WS1G

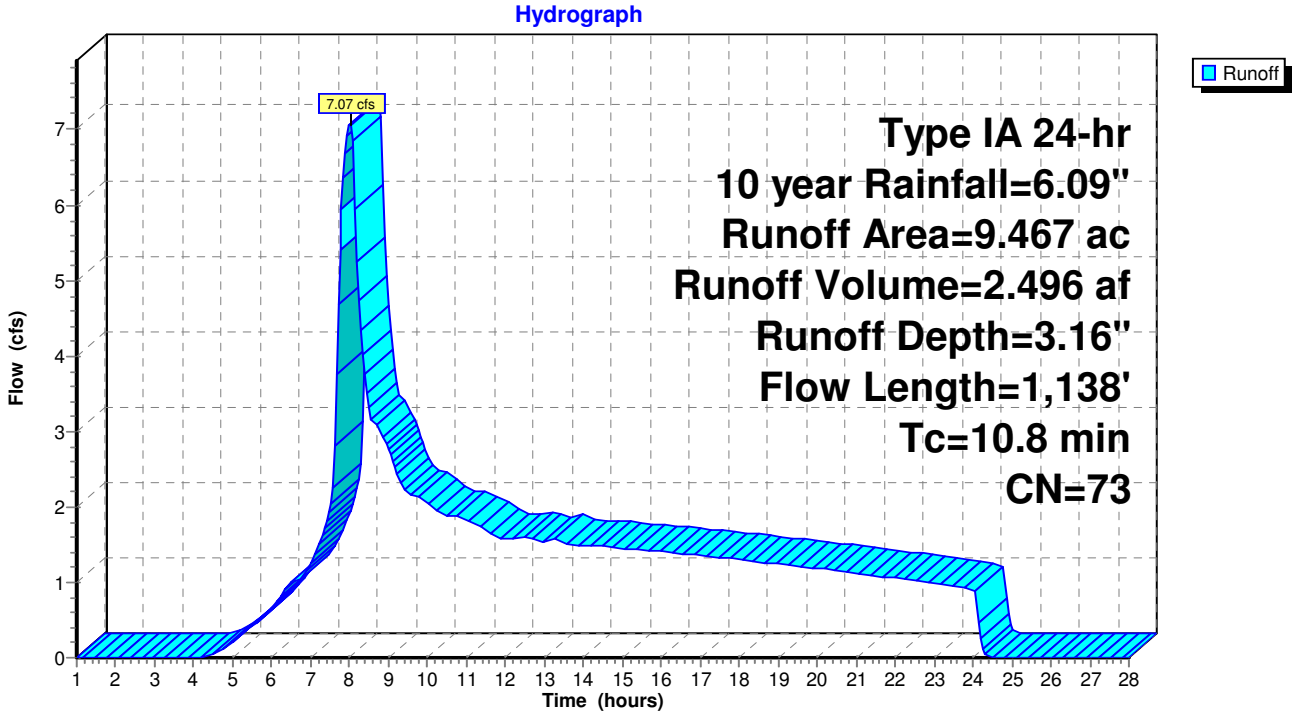
Runoff = 7.07 cfs @ 8.02 hrs, Volume= 2.496 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.012	87	Dirt roads, HSG C
1.037	79	Pasture/grassland/range, Fair, HSG C
0.649	79	Vineyard, Fair, HSG C
3.002	75	Vineyard, Good, HSG C
4.766	70	Woods, Good, HSG C
9.467	73	Weighted Average
9.467		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.3	604	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	139	0.2300	11.91	23.82	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.3	156	0.2600	8.21		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.8	139	0.0200	2.83	26.88	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
10.8	1,138	Total			

Subcatchment WS1G: Subcat WS1G



Summary for Subcatchment WS1H: Subcat WS1H

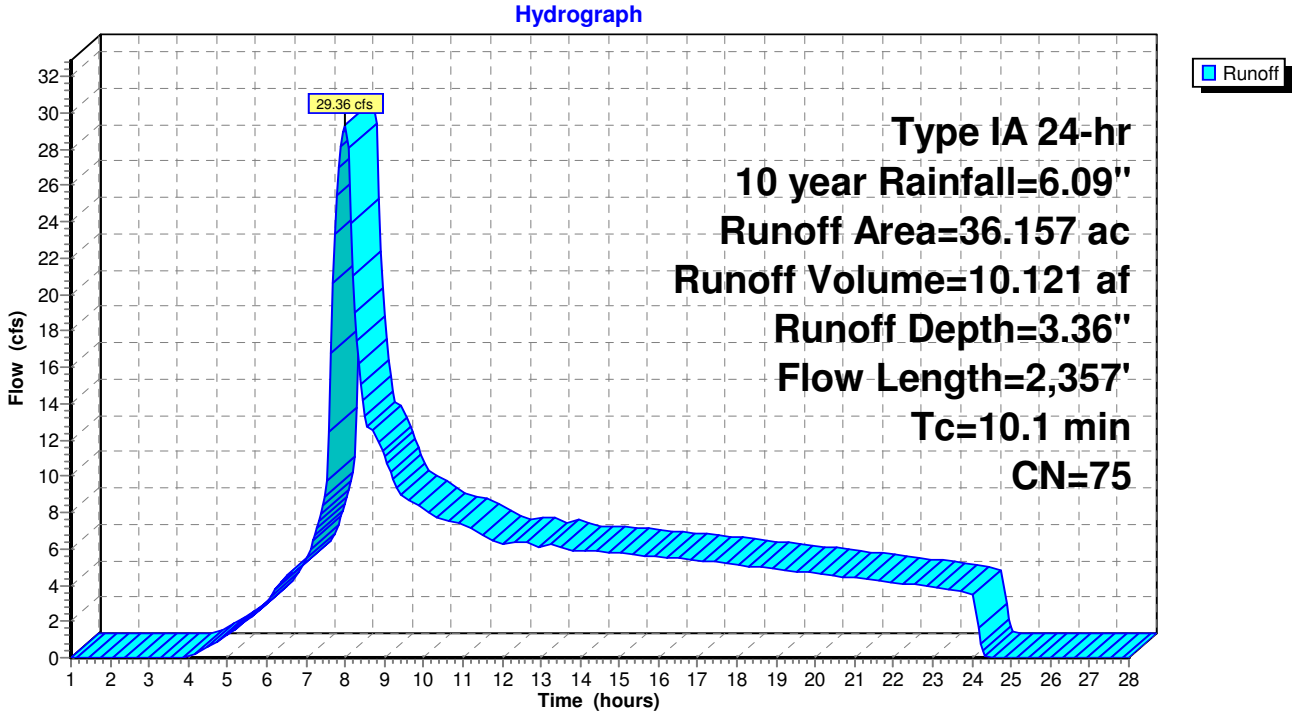
Runoff = 29.36 cfs @ 8.00 hrs, Volume= 10.121 af, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.574	65	Brush, Good, HSG C
0.237	87	Dirt roads, HSG C
15.971	79	Pasture/grassland/range, Fair, HSG C
2.076	79	Vineyard, Fair, HSG C
0.993	75	Vineyard, Good, HSG C
16.305	70	Woods, Good, HSG C
36.157	75	Weighted Average
36.157		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1400	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	610	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.9	1,647	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.1	2,357	Total			

Subcatchment WS1H: Subcat WS1H



Summary for Subcatchment WS1I: Subcat WS1I

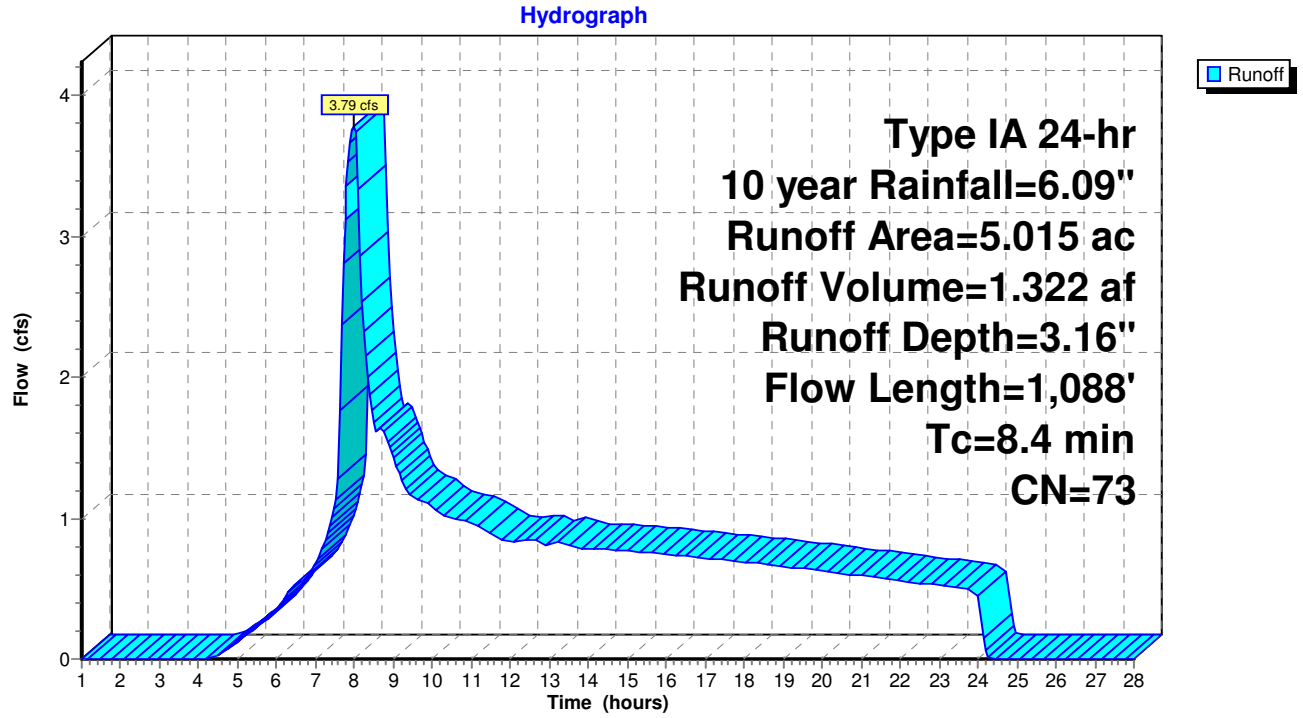
Runoff = 3.79 cfs @ 7.99 hrs, Volume= 1.322 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.595	79	Pasture/grassland/range, Fair, HSG C
0.504	79	Vineyard, Fair, HSG C
0.862	75	Vineyard, Good, HSG C
3.053	70	Woods, Good, HSG C
5.015	73	Weighted Average
5.015		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1400	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	664	0.2100	7.38		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.1	324	0.0600	4.90	46.55	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
8.4	1,088	Total			

Subcatchment WS1I: Subcat WS1I



Summary for Subcatchment WS1J: Subcat WS1J

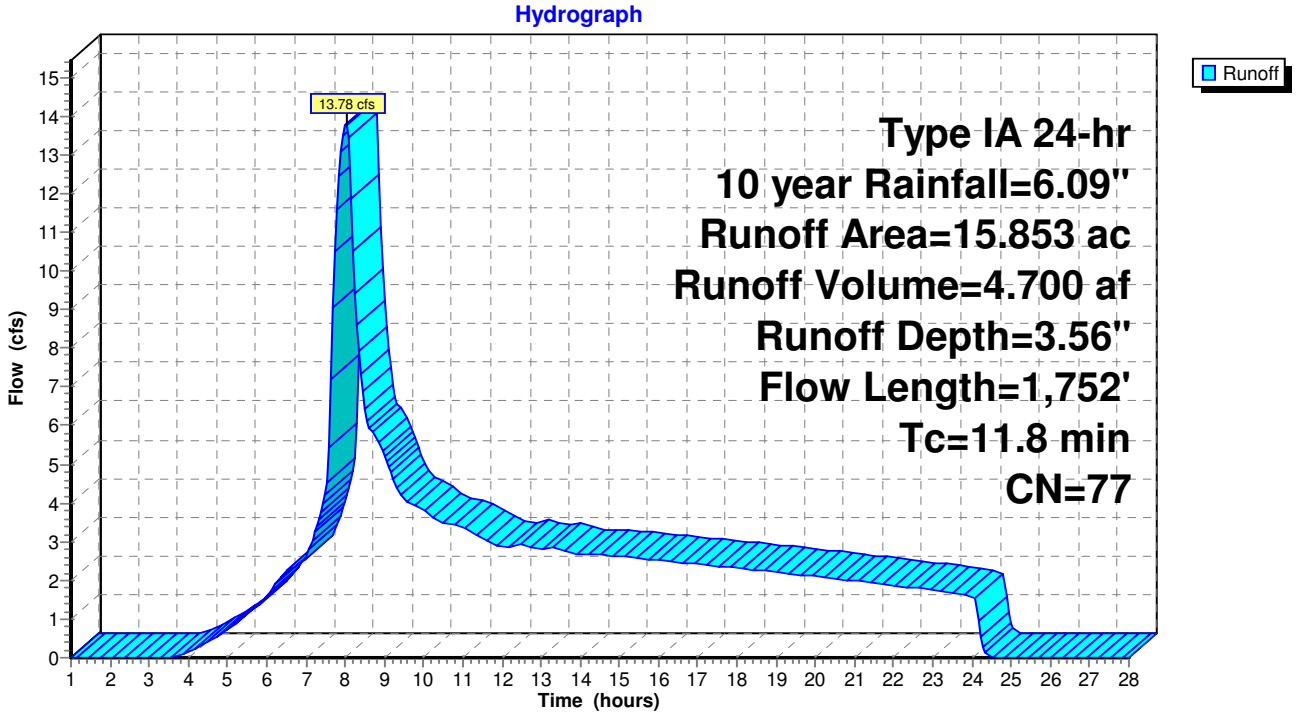
Runoff = 13.78 cfs @ 8.02 hrs, Volume= 4.700 af, Depth= 3.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.204	89	Gravel Roads, HSG C
1.188	79	Pasture/grassland/range, Fair, HSG C
2.246	74	Pasture/grassland/range, Good, HSG C
8.865	79	Vineyard, Fair, HSG C
0.714	75	Vineyard, Good, HSG C
2.636	70	Woods, Good, HSG C
15.853	77	Weighted Average
15.853		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	93	0.0500	0.19		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
2.1	826	0.1700	6.64		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	833	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
11.8	1,752	Total			

Subcatchment WS1J: Subcat WS1J



Summary for Subcatchment WS1K: Subcat WS1K

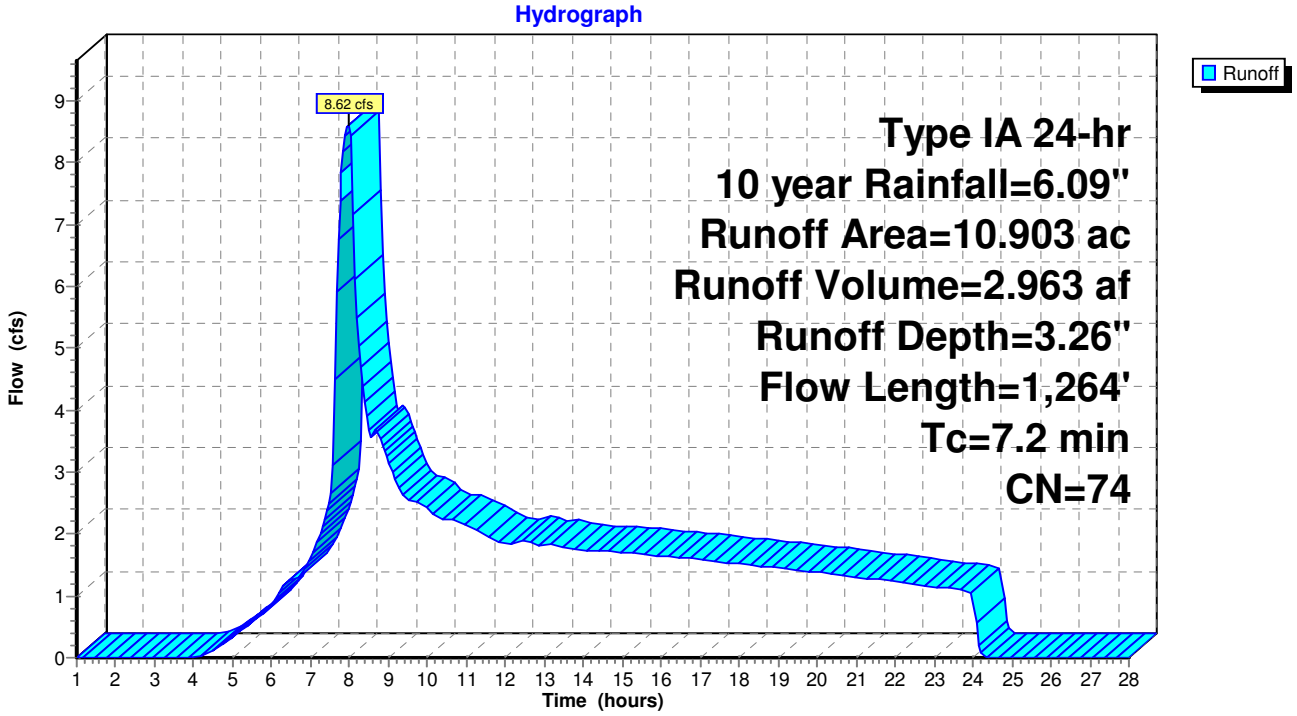
Runoff = 8.62 cfs @ 7.98 hrs, Volume= 2.963 af, Depth= 3.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.046	87	Dirt roads, HSG C
1.830	79	Pasture/grassland/range, Fair, HSG C
0.465	79	Vineyard, Fair, HSG C
4.696	75	Vineyard, Good, HSG C
3.867	70	Woods, Good, HSG C
10.903	74	Weighted Average
10.903		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	100	0.2700	0.37		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.8	753	0.1800	6.83		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.3	189	0.1400	9.29	18.58	**Trap/Vee/Rect Channel Flow, Assumed std ditch-1** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.6	222	0.0600	6.08	12.16	**Trap/Vee/Rect Channel Flow, Assumed std ditch-2** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.2	1,264	Total			

Subcatchment WS1K: Subcat WS1K



Summary for Subcatchment WS1L: Subcat WS1L

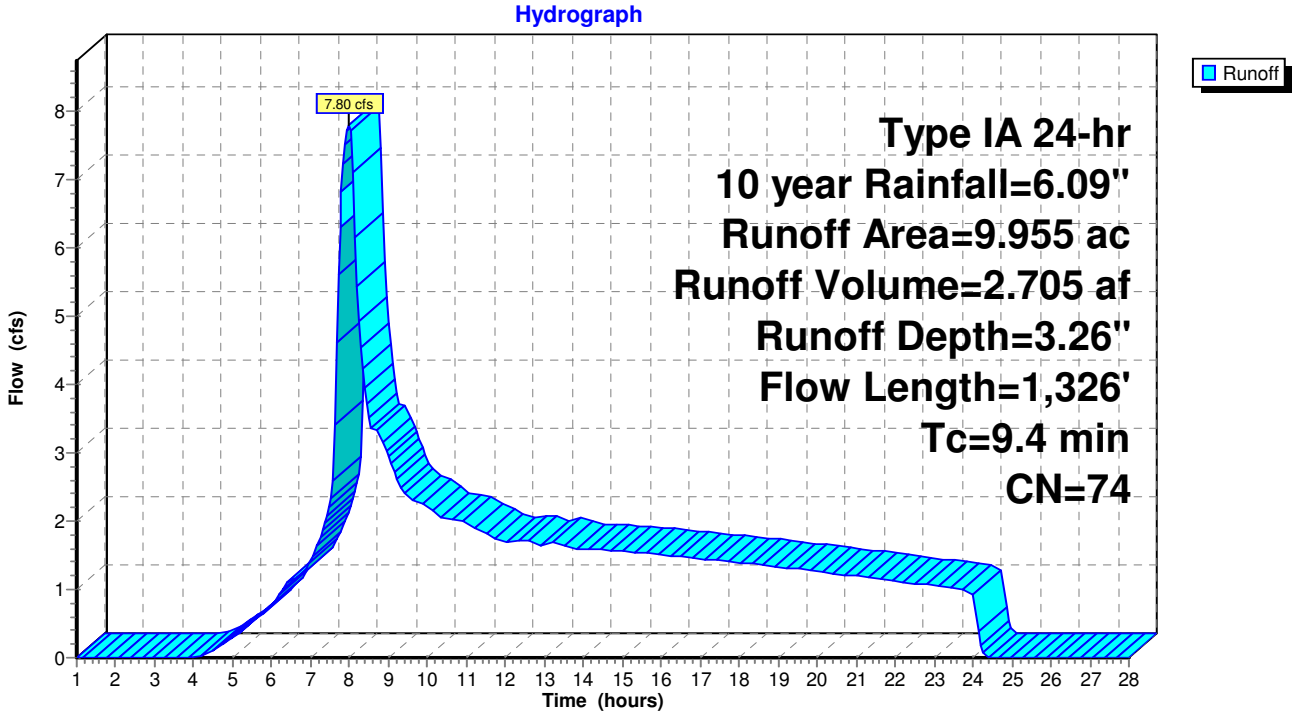
Runoff = 7.80 cfs @ 8.00 hrs, Volume= 2.705 af, Depth= 3.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.516	65	Brush, Good, HSG C
0.121	87	Dirt roads, HSG C
2.284	79	Pasture/grassland/range, Fair, HSG C
1.606	74	Pasture/grassland/range, Good, HSG C
2.111	75	Vineyard, Good, HSG C
3.318	70	Woods, Good, HSG C
9.955	74	Weighted Average
9.955		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	100	0.0900	0.24		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.8	348	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	78	0.0800	7.02	14.05	**Trap/Vee/Rect Channel Flow, Std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.2	92	0.3200	9.11		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
1.2	708	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
9.4	1,326	Total			

Subcatchment WS1L: Subcat WS1L



Summary for Subcatchment WS1M: Subcat WS1M

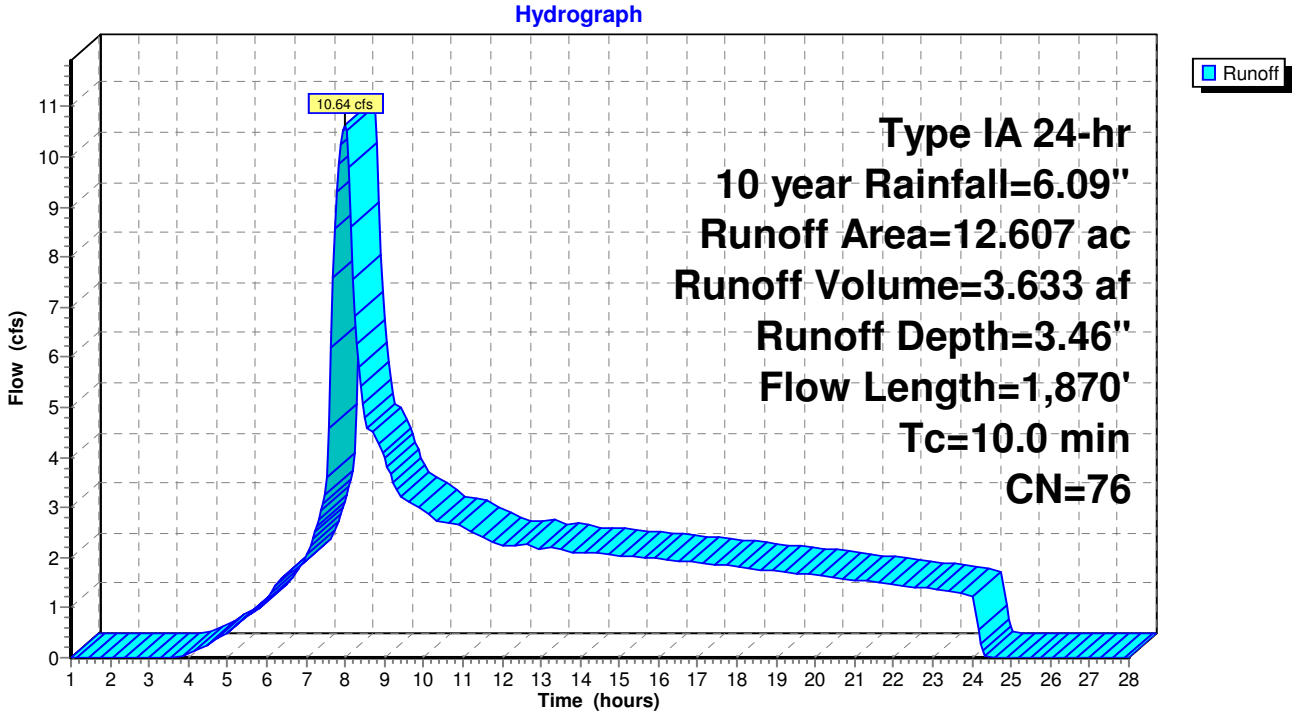
Runoff = 10.64 cfs @ 8.00 hrs, Volume= 3.633 af, Depth= 3.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.975	65	Brush, Good, HSG C
0.165	87	Dirt roads, HSG C
8.500	79	Pasture/grassland/range, Fair, HSG C
0.673	74	Pasture/grassland/range, Good, HSG C
0.790	75	Vineyard, Good, HSG C
1.503	70	Woods, Good, HSG C
12.607	76	Weighted Average
12.607		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1500	0.29		**Sheet Flow, 0.15** Grass: Dense n= 0.240 P2= 4.05"
1.6	675	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	37	0.0200	3.51	7.02	**Trap/Vee/Rect Channel Flow, Std Ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
1.7	626	0.1400	6.02		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.8	432	0.1400	9.29	18.58	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.0	1,870	Total			

Subcatchment WS1M: Subcat WS1M



Summary for Subcatchment WS1N: Subcat WS1N

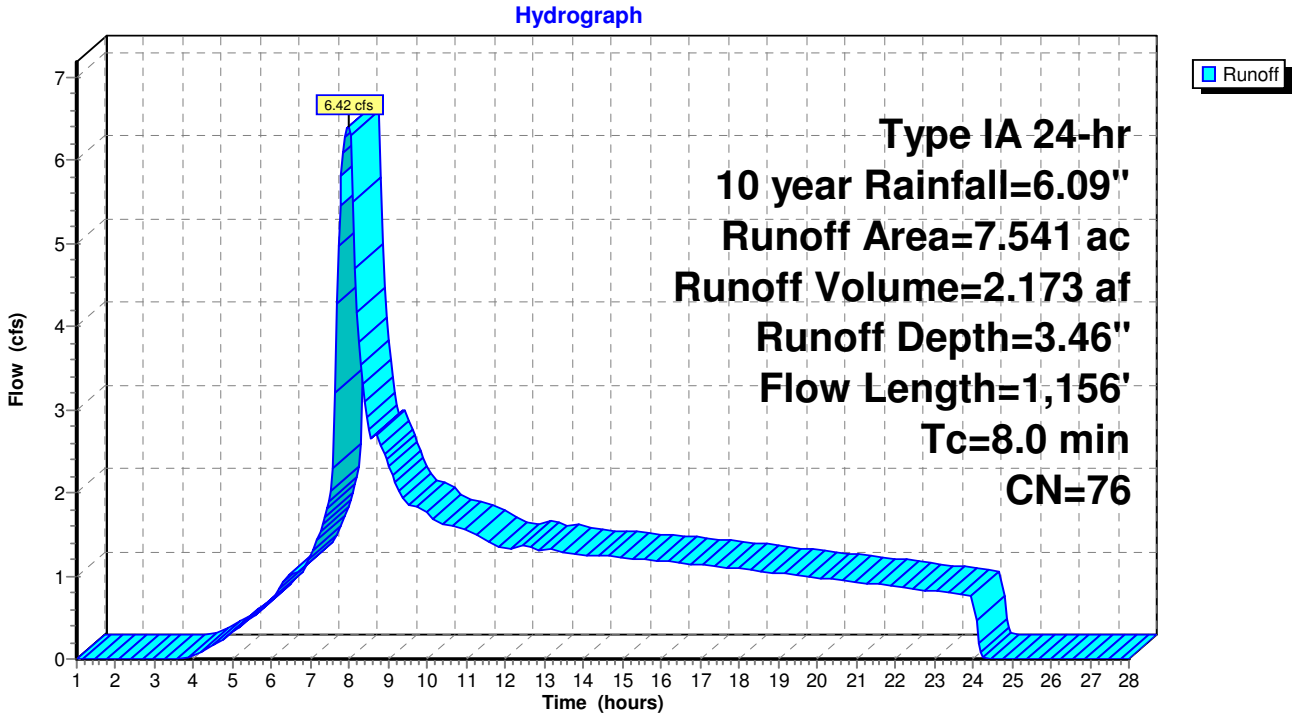
Runoff = 6.42 cfs @ 7.98 hrs, Volume= 2.173 af, Depth= 3.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.322	65	Brush, Good, HSG C
0.044	87	Dirt roads, HSG C
2.074	79	Pasture/grassland/range, Fair, HSG C
5.101	75	Vineyard, Good, HSG C
7.541	76	Weighted Average
7.541		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1500	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.9	775	0.1700	6.64		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.4	281	0.2600	12.66	25.32	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.0	1,156	Total			

Subcatchment WS1N: Subcat WS1N



Summary for Subcatchment WS1O: Subcat WS1O

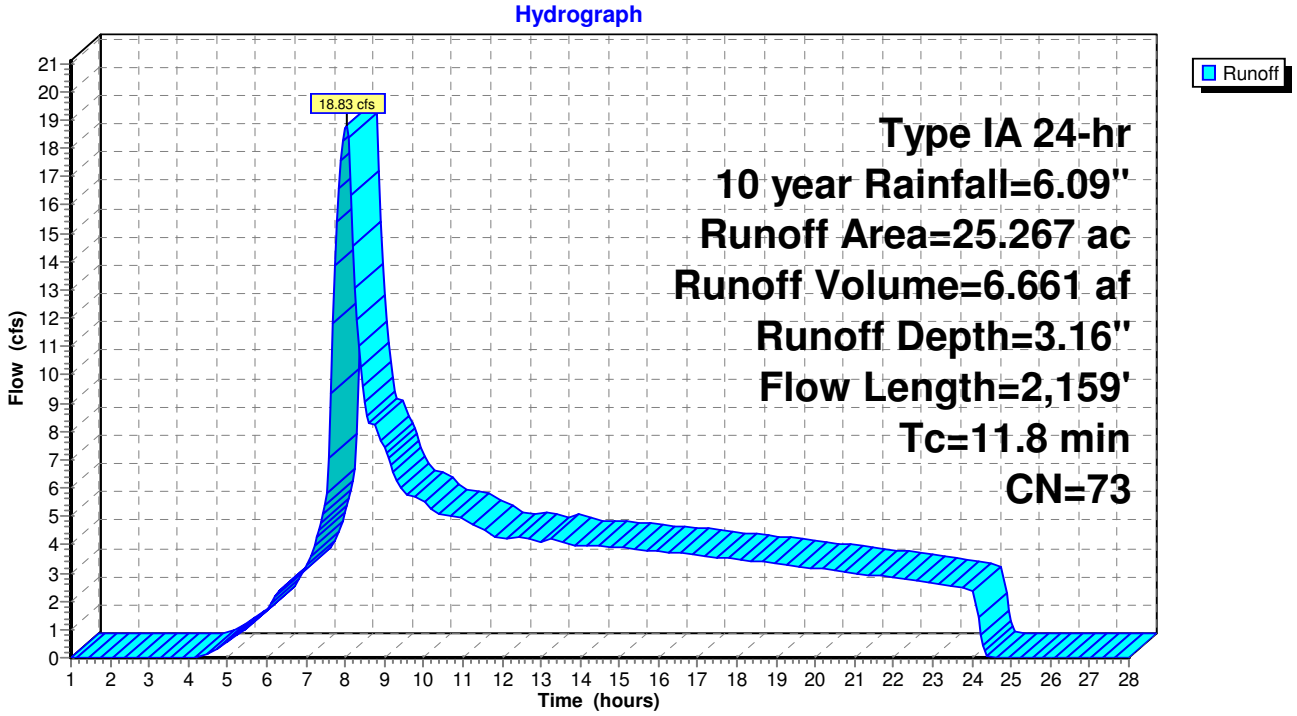
Runoff = 18.83 cfs @ 8.03 hrs, Volume= 6.661 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.049	87	Dirt roads, HSG C
4.062	79	Pasture/grassland/range, Fair, HSG C
2.236	79	Vineyard, Fair, HSG C
1.138	75	Vineyard, Good, HSG C
17.782	70	Woods, Good, HSG C
25.267	73	Weighted Average
25.267		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.3100	0.26		**Sheet Flow, Sheet-1** Woods: Light underbrush n= 0.400 P2= 4.05"
2.6	1,166	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.8	893	0.0700	5.29	50.28	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
11.8	2,159	Total			

Subcatchment WS1O: Subcat WS1O



Summary for Subcatchment WS1P: Subcat WS1P

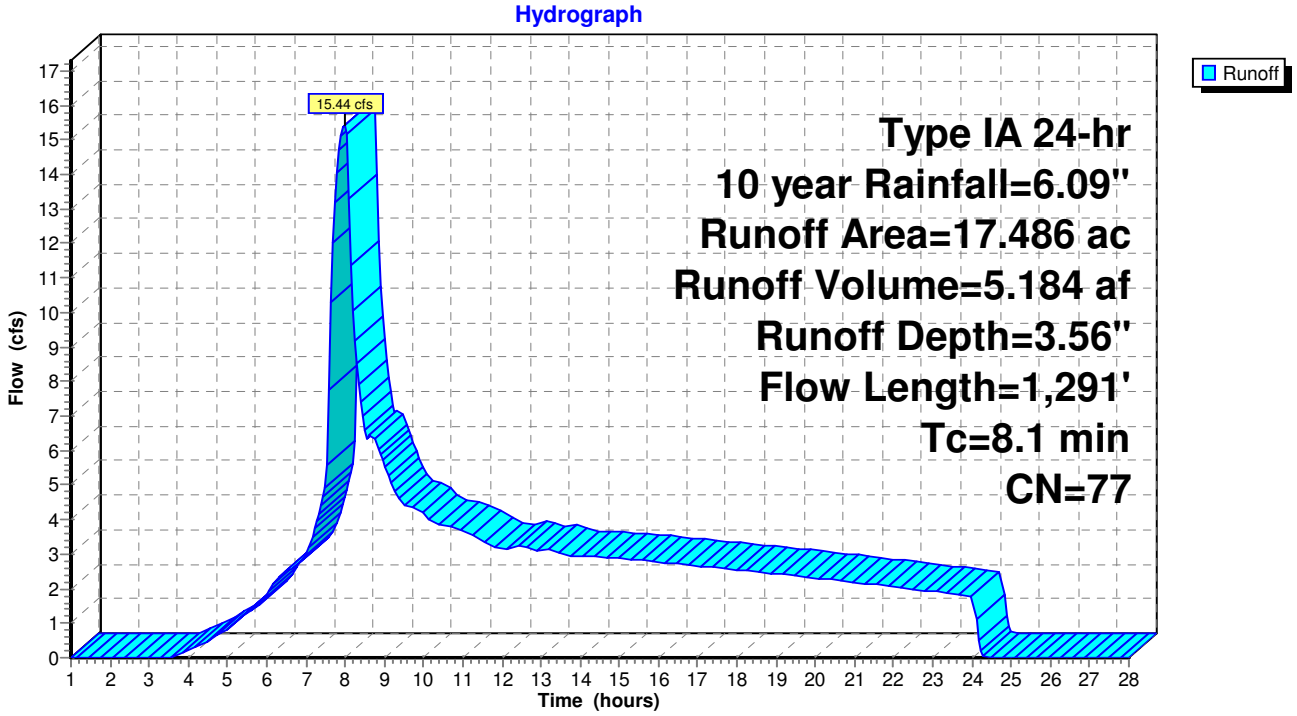
Runoff = 15.44 cfs @ 7.98 hrs, Volume= 5.184 af, Depth= 3.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.263	87	Dirt roads, HSG C
2.086	82	Farmsteads, HSG C
0.713	79	Pasture/grassland/range, Fair, HSG C
3.477	74	Pasture/grassland/range, Good, HSG C
7.176	79	Vineyard, Fair, HSG C
3.771	70	Woods, Good, HSG C
17.486	77	Weighted Average
17.486		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0500	0.28		**Sheet Flow, Sheet-1** Grass: Short n= 0.150 P2= 4.05"
0.7	331	0.2400	7.89		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	860	0.1700	10.24	20.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.1	1,291	Total			

Subcatchment WS1P: Subcat WS1P



Summary for Subcatchment WS1Q: Subcat WS1Q

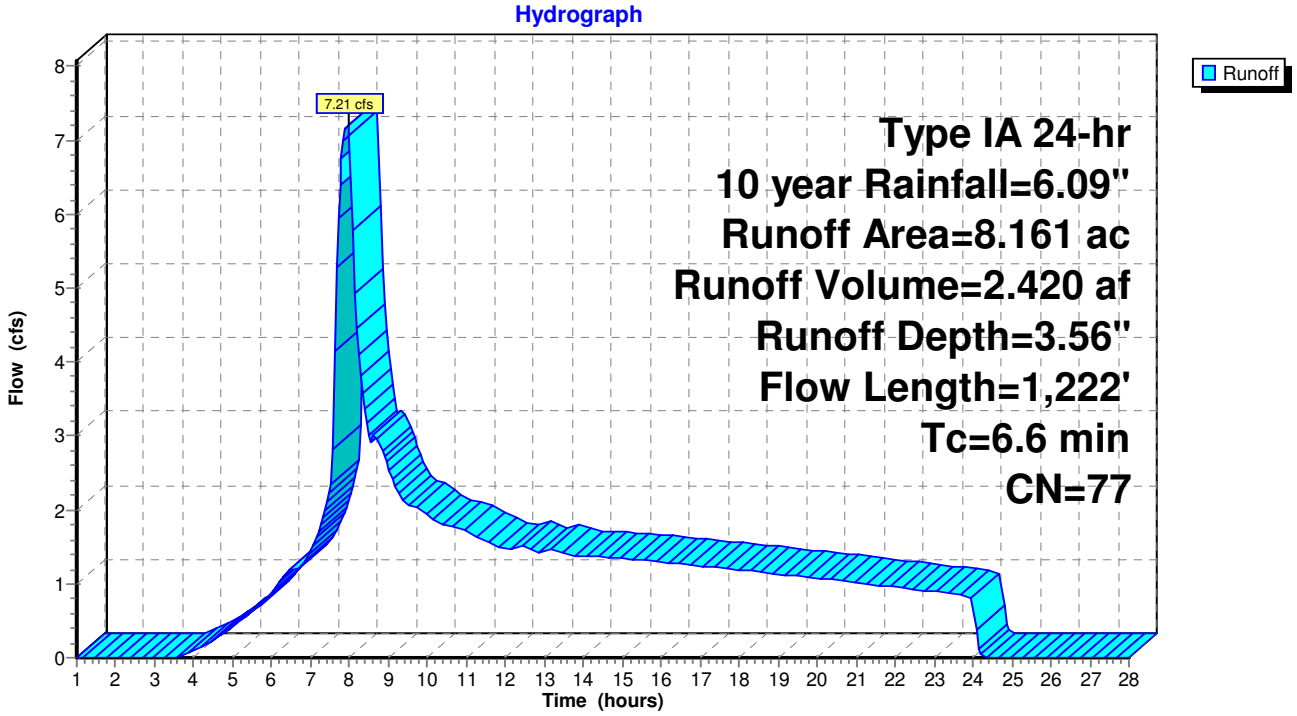
Runoff = 7.21 cfs @ 7.96 hrs, Volume= 2.420 af, Depth= 3.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.151	87	Dirt roads, HSG C
0.039	82	Farmsteads, HSG C
4.260	79	Pasture/grassland/range, Fair, HSG C
1.502	79	Vineyard, Fair, HSG C
0.064	75	Vineyard, Good, HSG C
2.145	70	Woods, Good, HSG C
8.161	77	Weighted Average
8.161		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.3200	0.40		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	659	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.9	463	0.1900	8.72	82.84	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
6.6	1,222	Total			

Subcatchment WS1Q: Subcat WS1Q



Summary for Subcatchment WS1R: Subcat WS1R

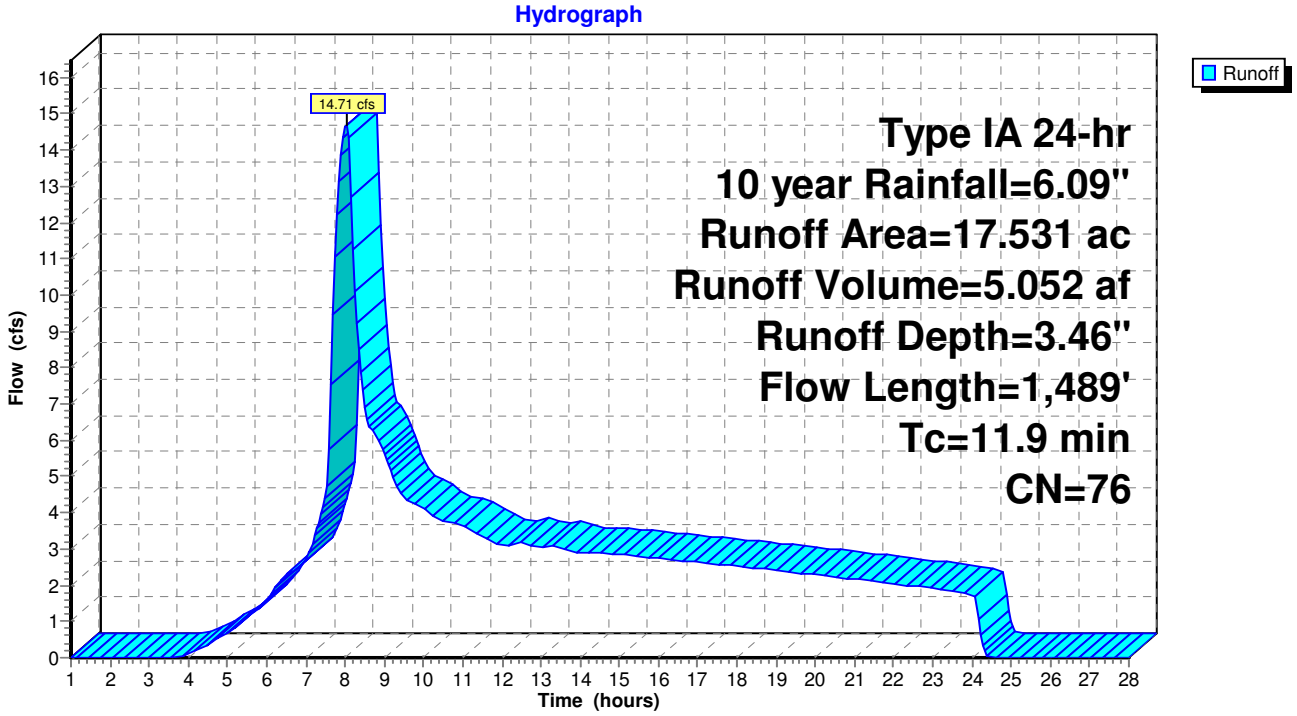
Runoff = 14.71 cfs @ 8.03 hrs, Volume= 5.052 af, Depth= 3.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.110	87	Dirt roads, HSG C
6.674	79	Pasture/grassland/range, Fair, HSG C
0.780	74	Pasture/grassland/range, Good, HSG C
8.523	75	Vineyard, Good, HSG C
1.443	70	Woods, Good, HSG C
17.531	76	Weighted Average
17.531		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
2.3	759	0.1200	5.58		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	630	0.0900	7.45	14.90	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
11.9	1,489	Total			

Subcatchment WS1R: Subcat WS1R



Summary for Reach R1: Main Stem

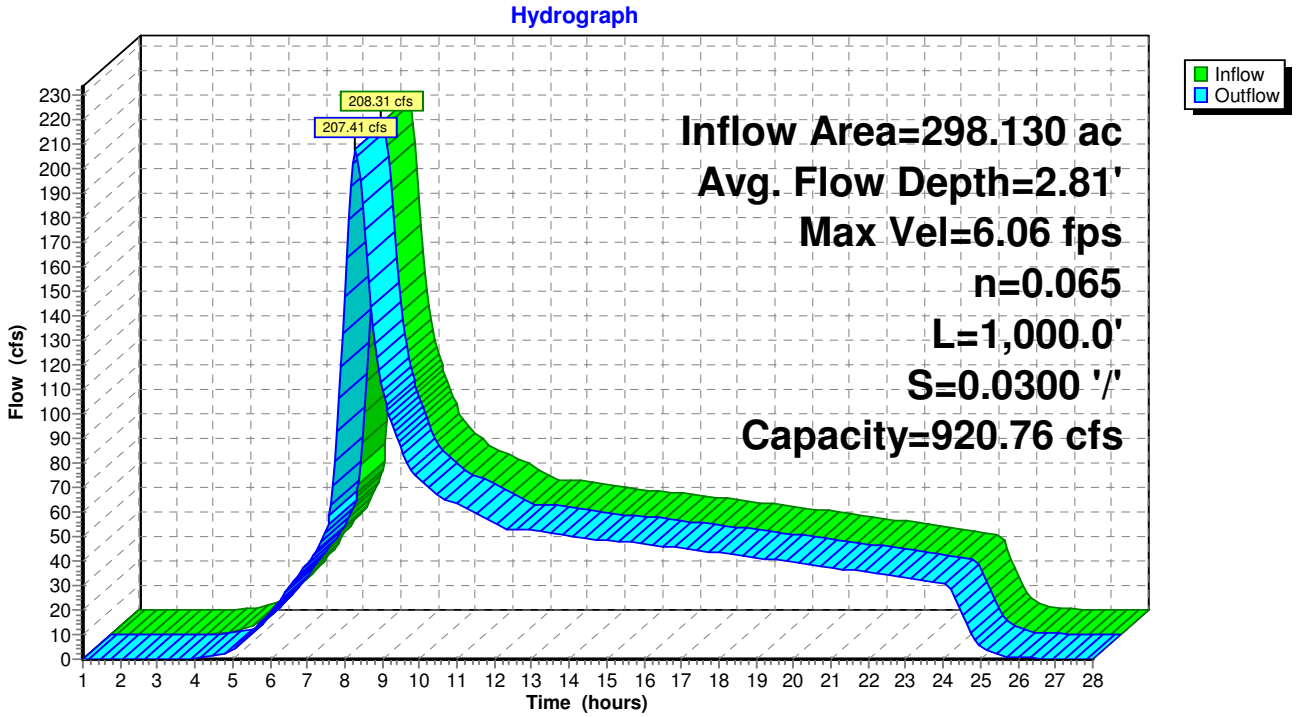
Inflow Area = 298.130 ac, 0.00% Impervious, Inflow Depth > 3.41" for 10 year event
Inflow = 208.31 cfs @ 8.21 hrs, Volume= 84.686 af
Outflow = 207.41 cfs @ 8.29 hrs, Volume= 84.682 af, Atten= 0%, Lag= 5.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.06 fps, Min. Travel Time= 2.8 min
Avg. Velocity = 3.23 fps, Avg. Travel Time= 5.2 min

Peak Storage= 34,267 cf @ 8.24 hrs
Average Depth at Peak Storage= 2.81'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 920.76 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,000.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -30.00'

Reach R1: Main Stem



Summary for Reach R2: Main Stem

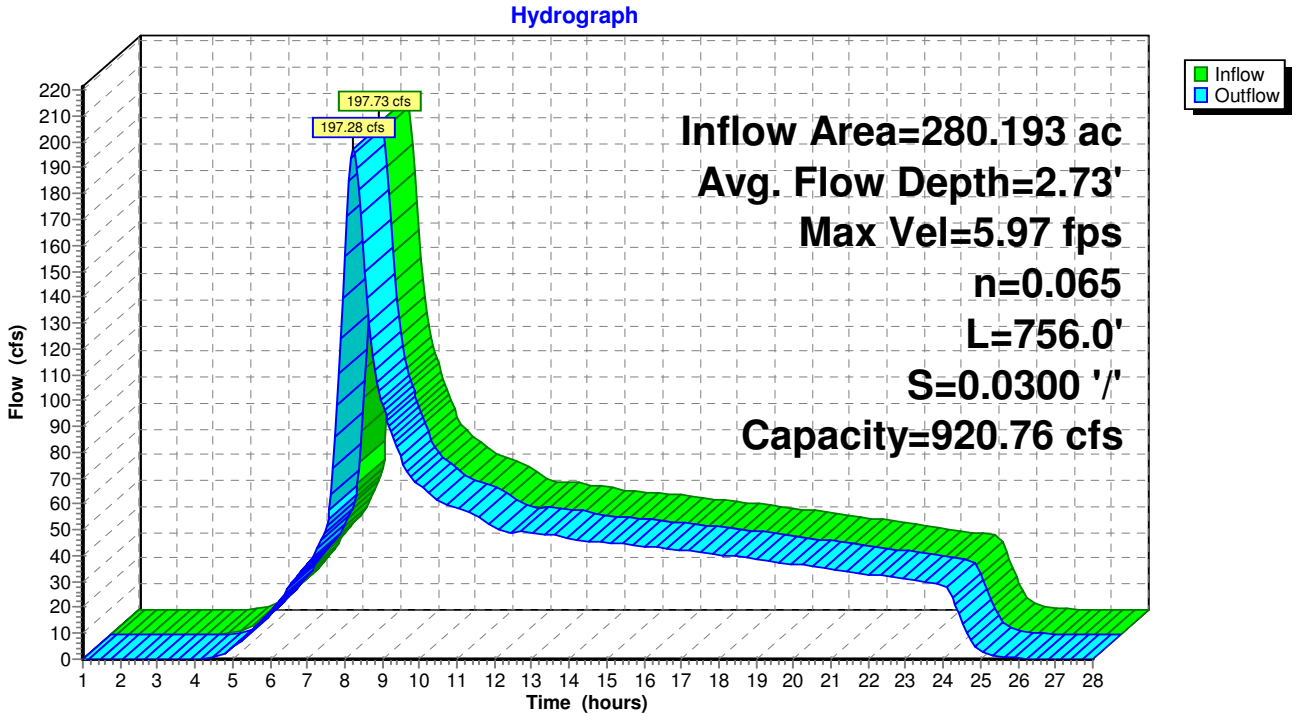
Inflow Area = 280.193 ac, 0.00% Impervious, Inflow Depth > 3.37" for 10 year event
Inflow = 197.73 cfs @ 8.16 hrs, Volume= 78.760 af
Outflow = 197.28 cfs @ 8.22 hrs, Volume= 78.758 af, Atten= 0%, Lag= 3.9 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.97 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 3.21 fps, Avg. Travel Time= 3.9 min

Peak Storage= 24,984 cf @ 8.18 hrs
Average Depth at Peak Storage= 2.73'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 920.76 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 756.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -22.68'

Reach R2: Main Stem



Summary for Reach R3: Stream

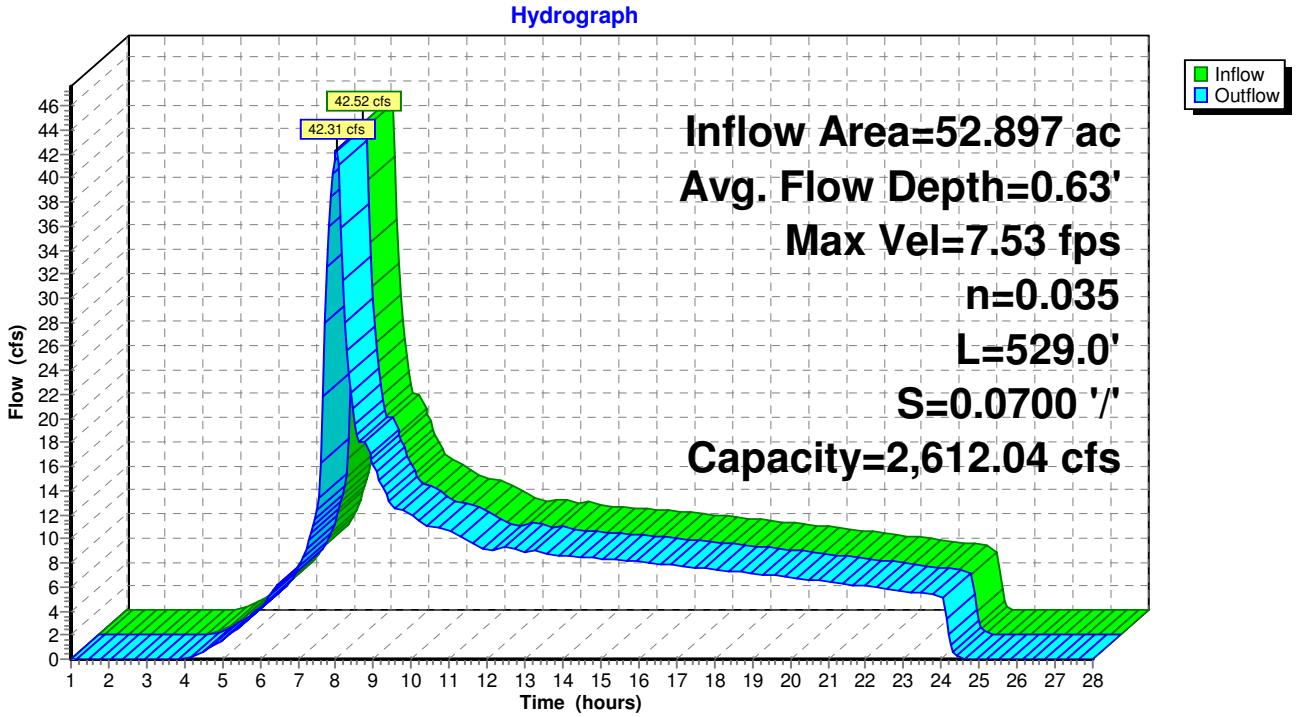
Inflow Area = 52.897 ac, 0.00% Impervious, Inflow Depth = 3.32" for 10 year event
Inflow = 42.52 cfs @ 7.99 hrs, Volume= 14.635 af
Outflow = 42.31 cfs @ 8.02 hrs, Volume= 14.635 af, Atten= 1%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.53 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 3.97 fps, Avg. Travel Time= 2.2 min

Peak Storage= 2,980 cf @ 8.00 hrs
Average Depth at Peak Storage= 0.63'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 2,612.04 cfs

8.00' x 6.00' deep channel, n= 0.035
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 529.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -37.03'

Reach R3: Stream



Summary for Reach R4.1: Main Stem

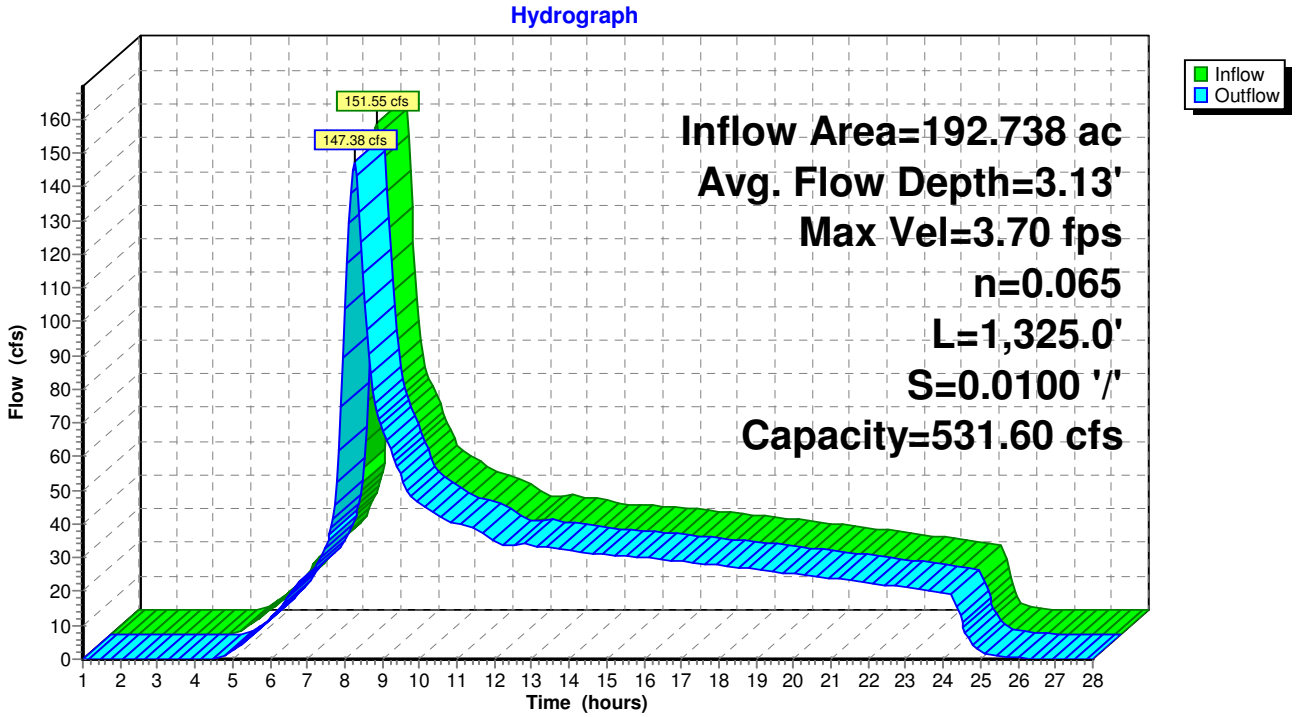
Inflow Area = 192.738 ac, 0.00% Impervious, Inflow Depth = 3.37" for 10 year event
Inflow = 151.55 cfs @ 8.09 hrs, Volume= 54.129 af
Outflow = 147.38 cfs @ 8.26 hrs, Volume= 54.126 af, Atten= 3%, Lag= 9.9 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.70 fps, Min. Travel Time= 6.0 min
Avg. Velocity = 1.96 fps, Avg. Travel Time= 11.3 min

Peak Storage= 52,730 cf @ 8.16 hrs
Average Depth at Peak Storage= 3.13'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 531.60 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,325.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -13.25'

Reach R4.1: Main Stem



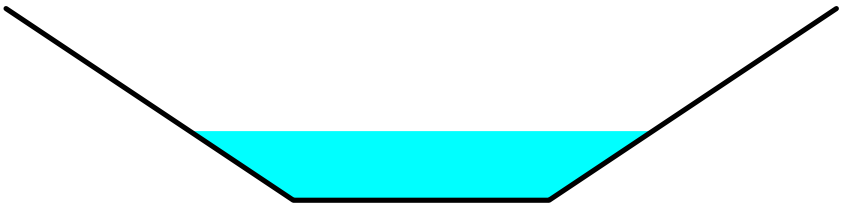
Summary for Reach R4.2: Main Stem

Inflow Area = 175.943 ac, 0.00% Impervious, Inflow Depth = 3.37" for 10 year event
Inflow = 139.46 cfs @ 8.07 hrs, Volume= 49.428 af
Outflow = 138.70 cfs @ 8.10 hrs, Volume= 49.428 af, Atten= 1%, Lag= 2.2 min

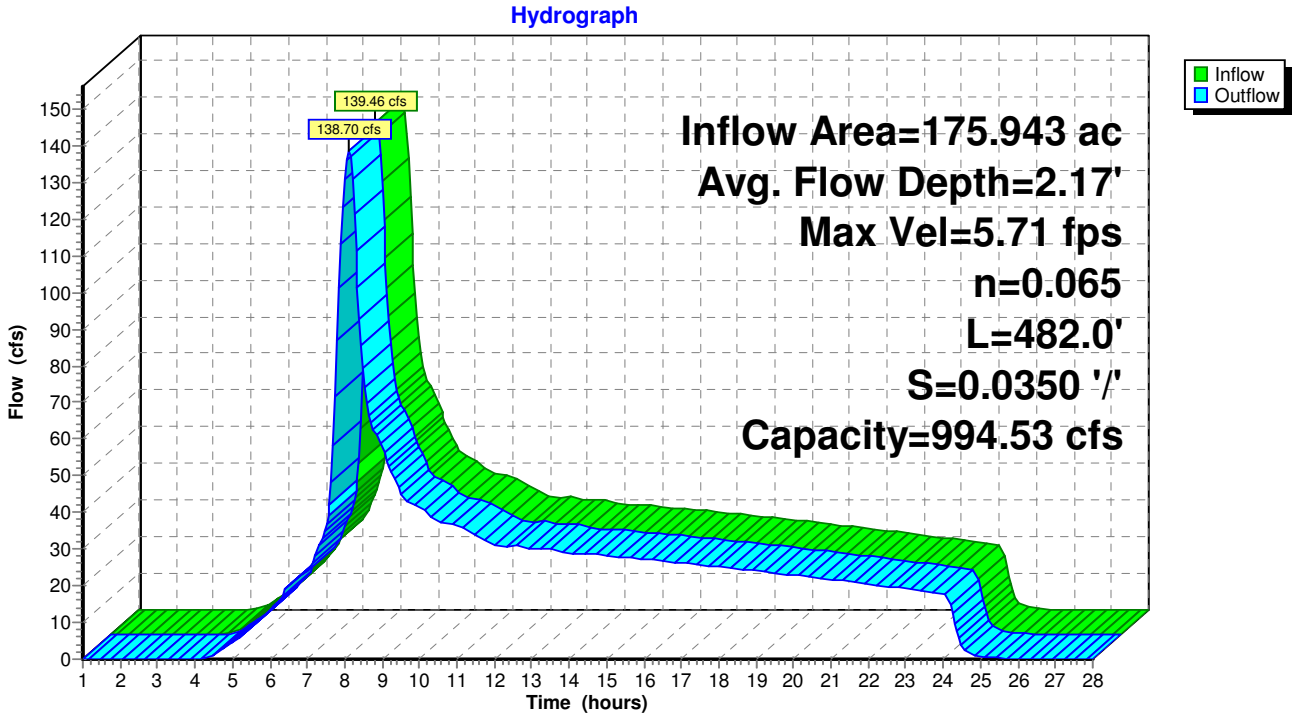
Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.71 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 2.91 fps, Avg. Travel Time= 2.8 min

Peak Storage= 11,761 cf @ 8.08 hrs
Average Depth at Peak Storage= 2.17'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 994.53 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 482.0' Slope= 0.0350 '/'
Inlet Invert= 0.00', Outlet Invert= -16.87'



Reach R4.2: Main Stem



Summary for Reach R5: Main Stem

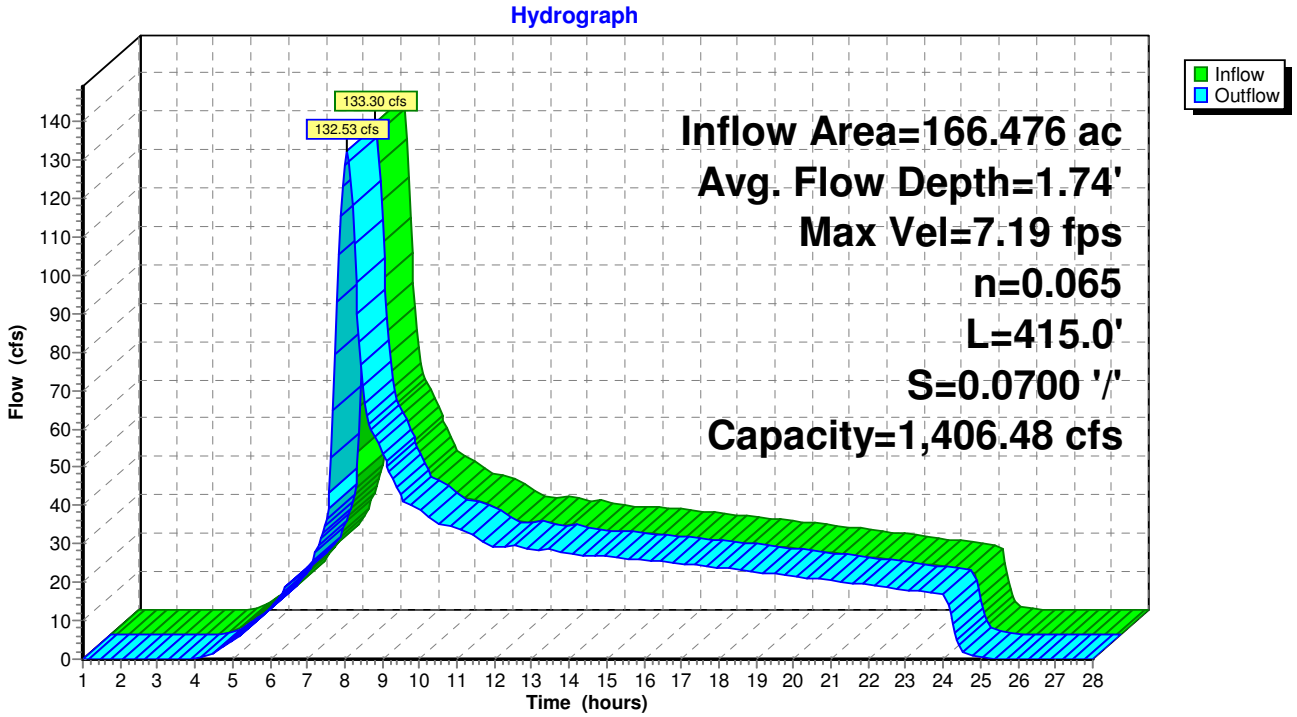
Inflow Area = 166.476 ac, 0.00% Impervious, Inflow Depth = 3.38" for 10 year event
Inflow = 133.30 cfs @ 8.05 hrs, Volume= 46.933 af
Outflow = 132.53 cfs @ 8.07 hrs, Volume= 46.933 af, Atten= 1%, Lag= 1.6 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.19 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 3.65 fps, Avg. Travel Time= 1.9 min

Peak Storage= 7,681 cf @ 8.06 hrs
Average Depth at Peak Storage= 1.74'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,406.48 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 415.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -29.05'

Reach R5: Main Stem



Summary for Reach R6: Main Stem

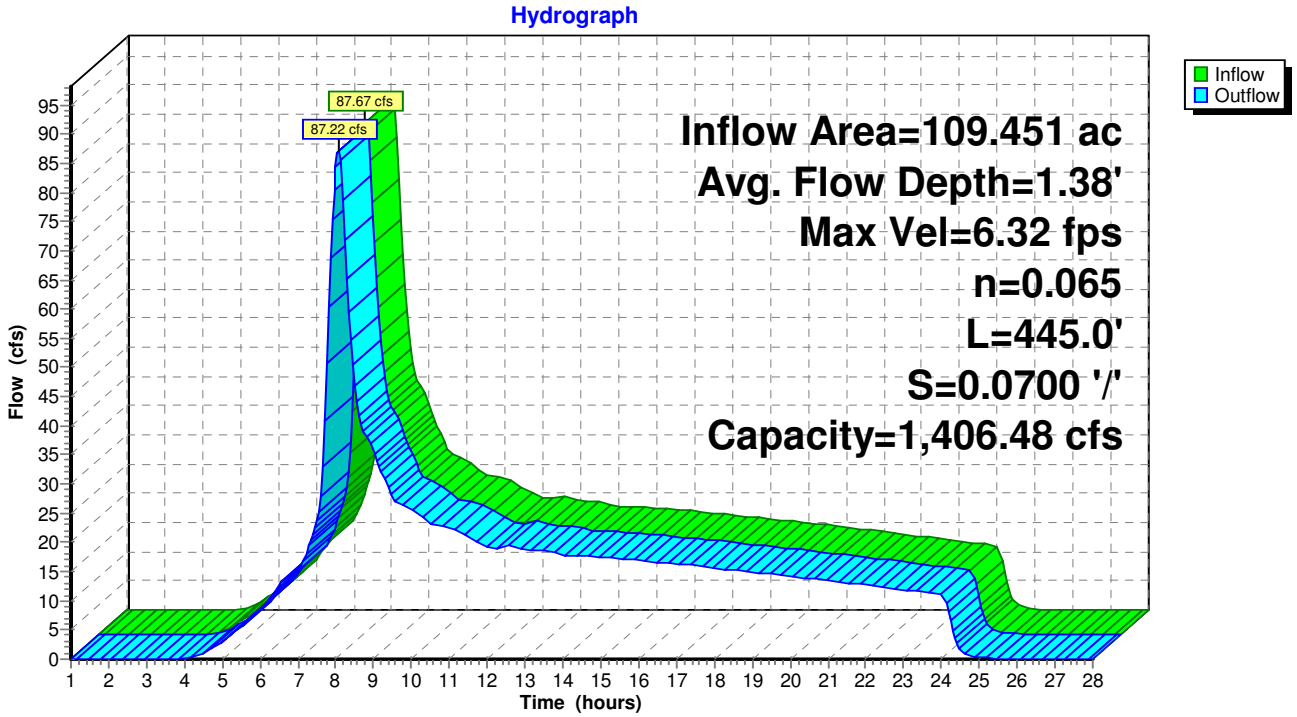
Inflow Area = 109.451 ac, 0.00% Impervious, Inflow Depth = 3.38" for 10 year event
Inflow = 87.67 cfs @ 8.05 hrs, Volume= 30.790 af
Outflow = 87.22 cfs @ 8.08 hrs, Volume= 30.790 af, Atten= 1%, Lag= 1.9 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.32 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 3.19 fps, Avg. Travel Time= 2.3 min

Peak Storage= 6,159 cf @ 8.06 hrs
Average Depth at Peak Storage= 1.38'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,406.48 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 445.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -31.15'

Reach R6: Main Stem



Summary for Reach R7.1: Stream

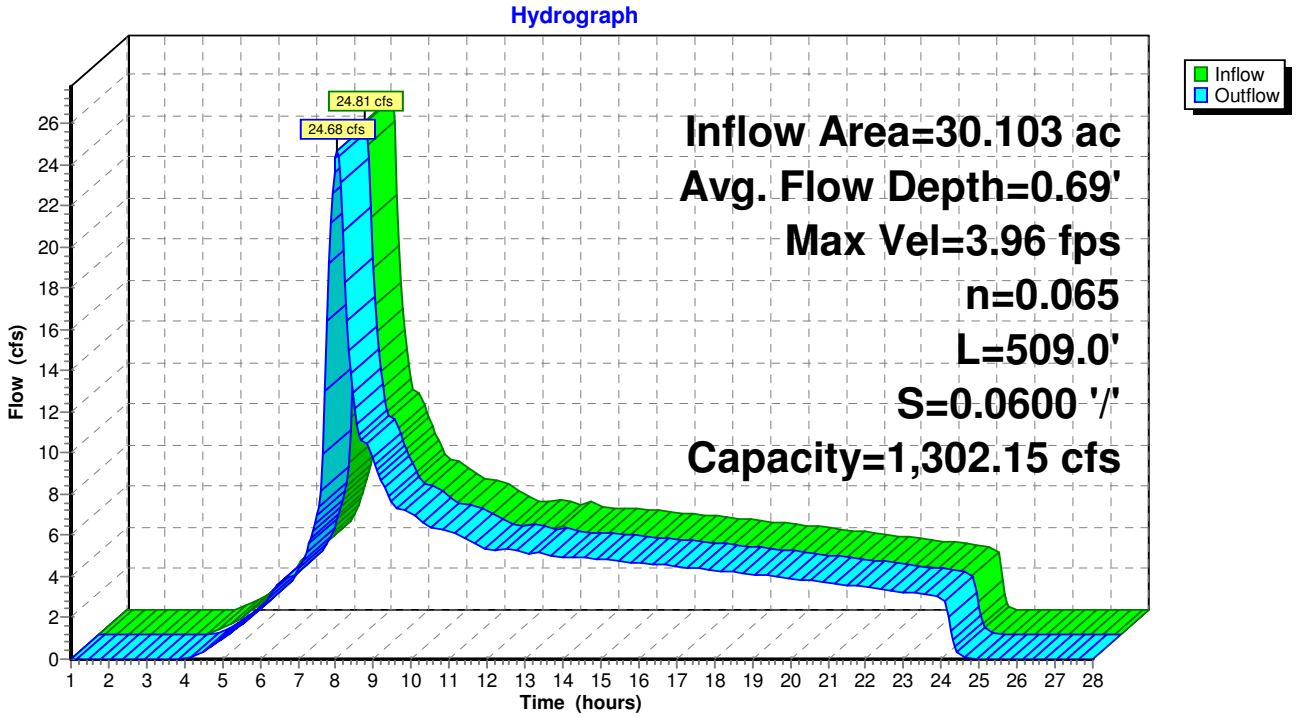
Inflow Area = 30.103 ac, 0.00% Impervious, Inflow Depth = 3.39" for 10 year event
Inflow = 24.81 cfs @ 8.00 hrs, Volume= 8.511 af
Outflow = 24.68 cfs @ 8.05 hrs, Volume= 8.511 af, Atten= 1%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.96 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 2.04 fps, Avg. Travel Time= 4.2 min

Peak Storage= 3,182 cf @ 8.03 hrs
Average Depth at Peak Storage= 0.69'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,302.15 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 509.0' Slope= 0.0600 '/'
Inlet Invert= 0.00', Outlet Invert= -30.54'

Reach R7.1: Stream



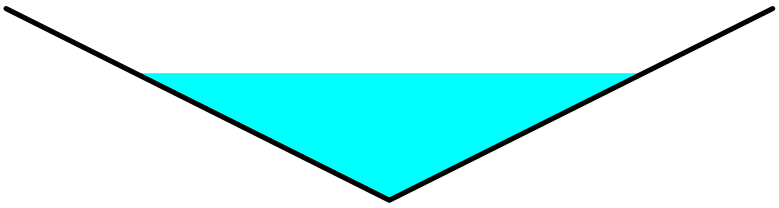
Summary for Reach R7.2: Channel

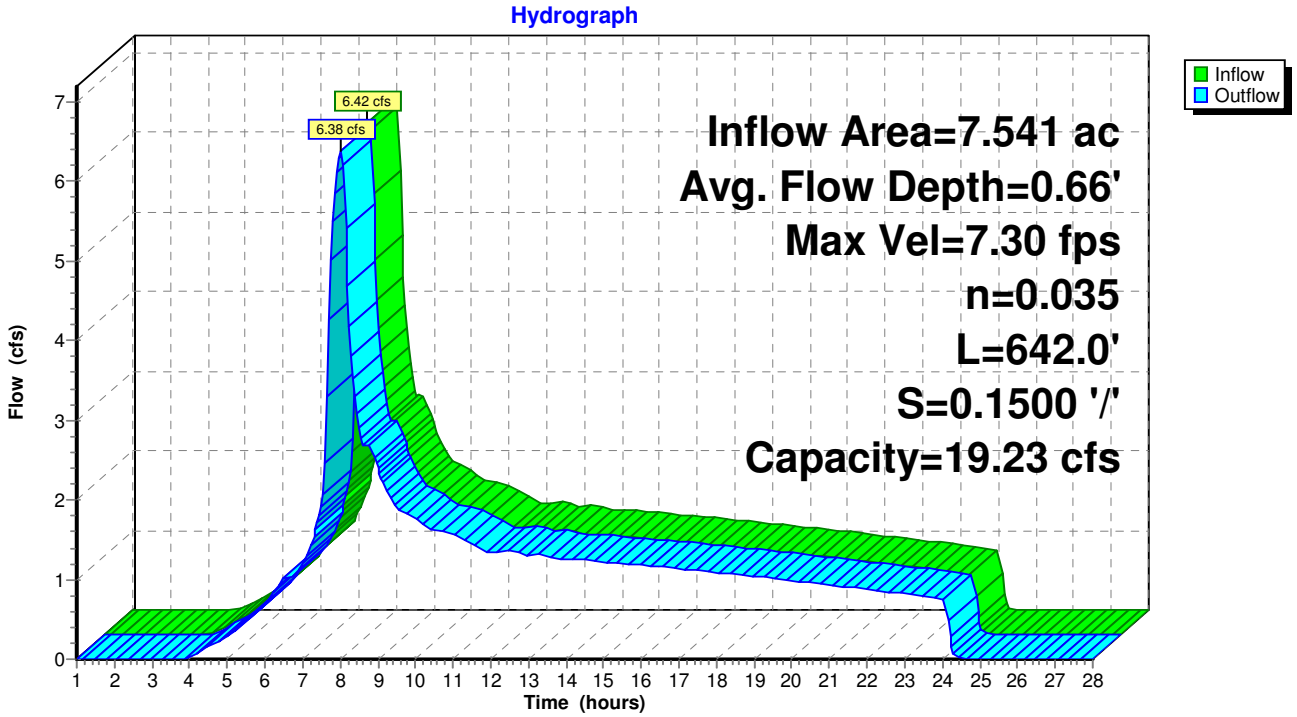
Inflow Area = 7.541 ac, 0.00% Impervious, Inflow Depth = 3.46" for 10 year event
Inflow = 6.42 cfs @ 7.98 hrs, Volume= 2.173 af
Outflow = 6.38 cfs @ 8.01 hrs, Volume= 2.173 af, Atten= 1%, Lag= 2.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.30 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 4.47 fps, Avg. Travel Time= 2.4 min

Peak Storage= 563 cf @ 7.99 hrs
Average Depth at Peak Storage= 0.66'
Bank-Full Depth= 1.00' Flow Area= 2.0 sf, Capacity= 19.23 cfs

0.00' x 1.00' deep channel, n= 0.035
Side Slope Z-value= 2.0 '/' Top Width= 4.00'
Length= 642.0' Slope= 0.1500 '/'
Inlet Invert= 0.00', Outlet Invert= -96.30'





Summary for Reach R8: Main Stem

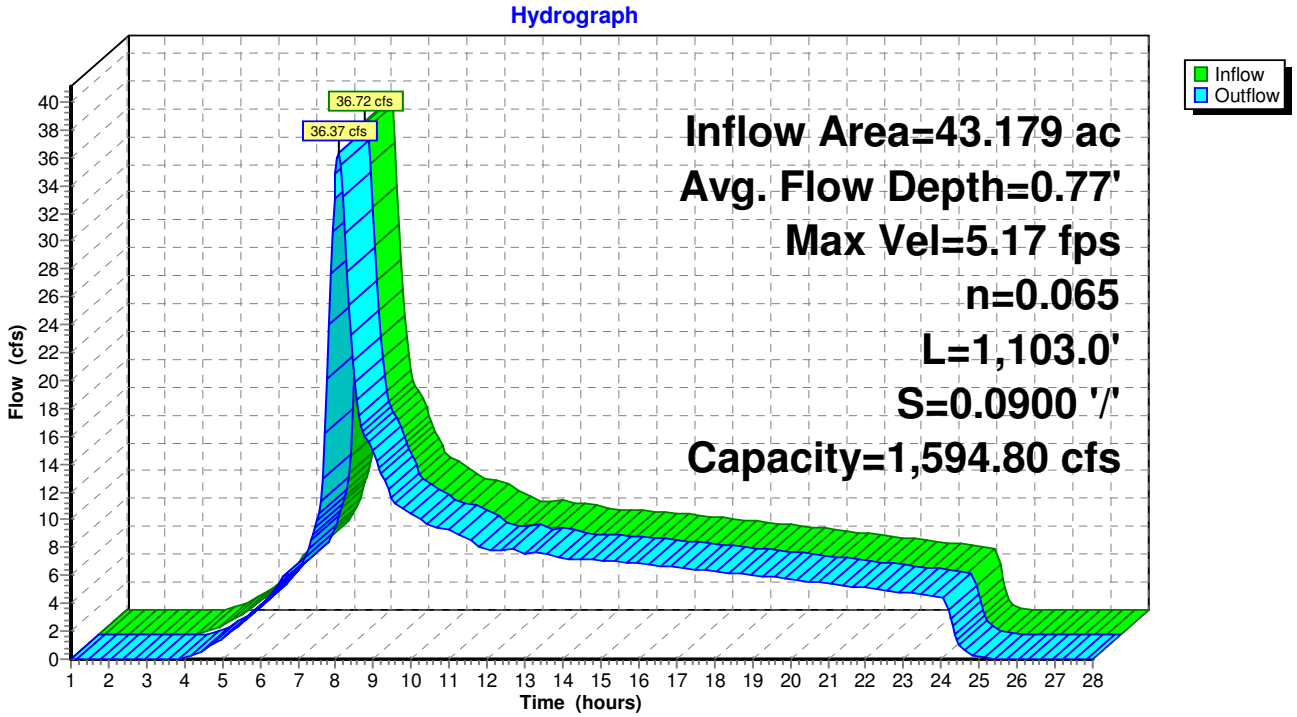
Inflow Area = 43.179 ac, 0.00% Impervious, Inflow Depth = 3.52" for 10 year event
Inflow = 36.72 cfs @ 8.00 hrs, Volume= 12.656 af
Outflow = 36.37 cfs @ 8.09 hrs, Volume= 12.656 af, Atten= 1%, Lag= 5.3 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.17 fps, Min. Travel Time= 3.6 min
Avg. Velocity = 2.58 fps, Avg. Travel Time= 7.1 min

Peak Storage= 7,778 cf @ 8.04 hrs
Average Depth at Peak Storage= 0.77'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,594.80 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,103.0' Slope= 0.0900 '/'
Inlet Invert= 0.00', Outlet Invert= -99.27'

Reach R8: Main Stem



Summary for Reach R9: Main Stem

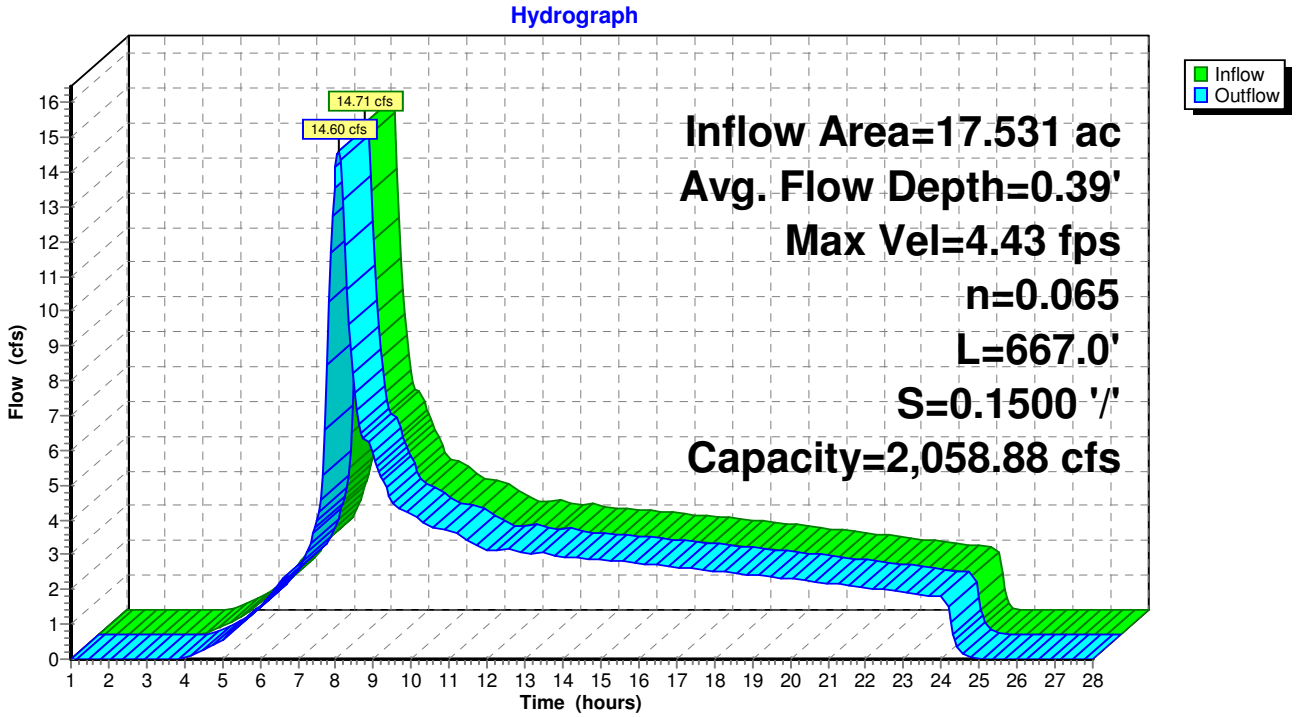
Inflow Area = 17.531 ac, 0.00% Impervious, Inflow Depth = 3.46" for 10 year event
Inflow = 14.71 cfs @ 8.03 hrs, Volume= 5.052 af
Outflow = 14.60 cfs @ 8.08 hrs, Volume= 5.052 af, Atten= 1%, Lag= 3.5 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.43 fps, Min. Travel Time= 2.5 min
Avg. Velocity = 2.30 fps, Avg. Travel Time= 4.8 min

Peak Storage= 2,204 cf @ 8.04 hrs
Average Depth at Peak Storage= 0.39'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 2,058.88 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 667.0' Slope= 0.1500 '/'
Inlet Invert= 0.00', Outlet Invert= -100.05'

Reach R9: Main Stem

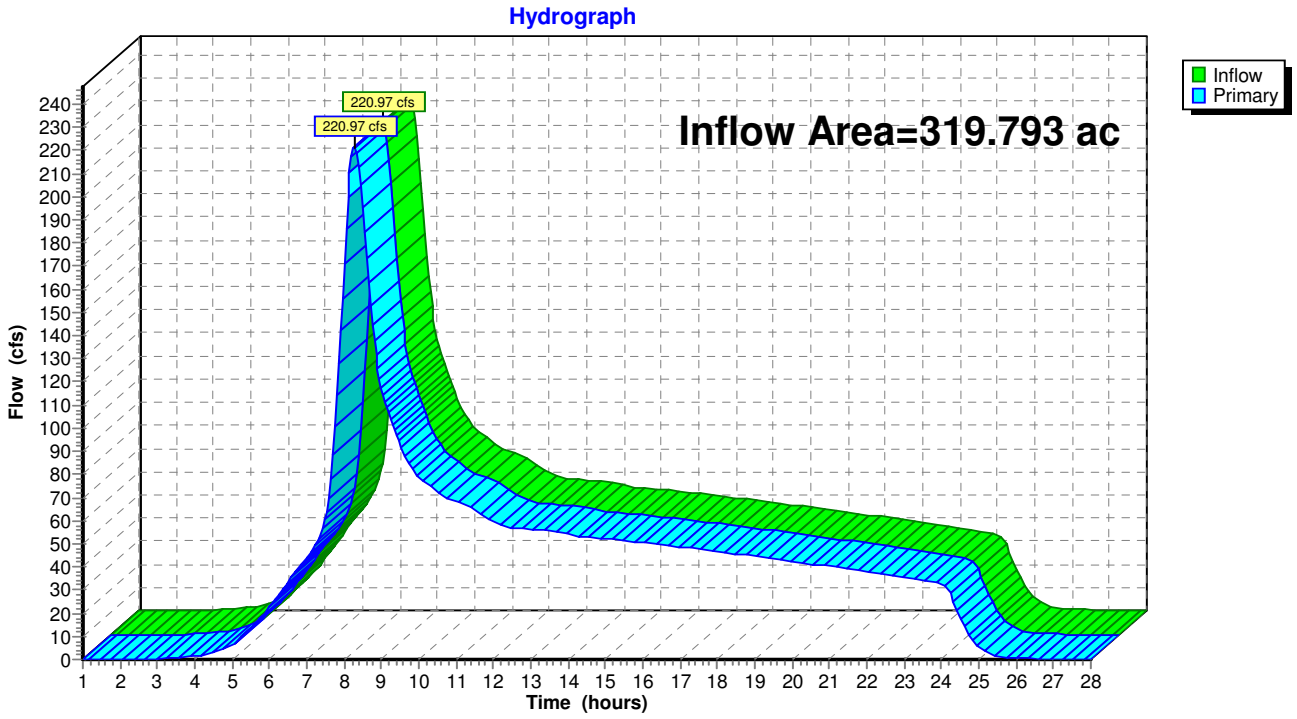


Summary for Link Outlet: Outlet

Inflow Area = 319.793 ac, 0.00% Impervious, Inflow Depth > 3.46" for 10 year event
Inflow = 220.97 cfs @ 8.27 hrs, Volume= 92.219 af
Primary = 220.97 cfs @ 8.27 hrs, Volume= 92.219 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs

Link Outlet: Outlet



Summary for Subcatchment WS1A: Subcat WS1A

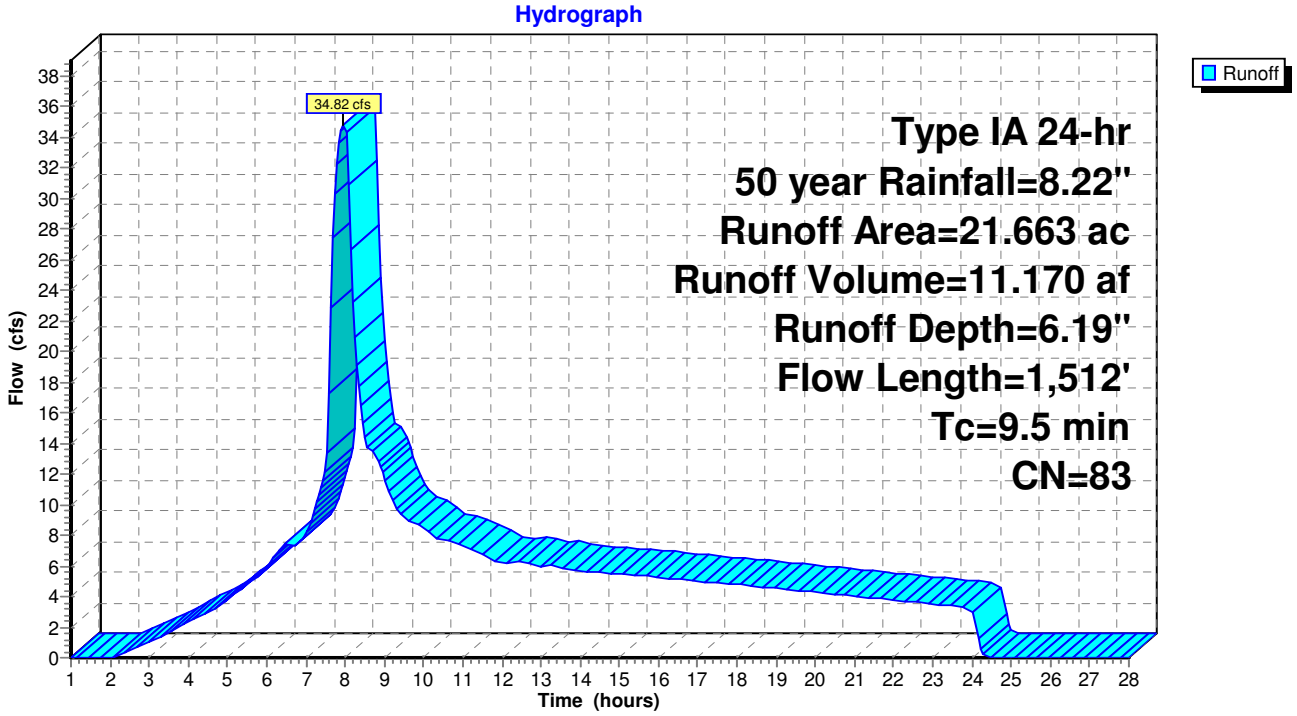
Runoff = 34.82 cfs @ 7.96 hrs, Volume= 11.170 af, Depth= 6.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
1.730	79	Pasture/grassland/range, Fair, HSG C
0.161	84	Pasture/grassland/range, Fair, HSG D
0.733	79	Vineyard, Fair, HSG C
16.760	84	Vineyard, Fair, HSG D
2.279	77	Woods, Good, HSG D
21.663	83	Weighted Average
21.663		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.2500	0.36		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	681	0.2500	8.05		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
3.5	731	0.0300	3.47	32.92	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
9.5	1,512	Total			

Subcatchment WS1A: Subcat WS1A



Summary for Subcatchment WS1B: Subcat WS1B

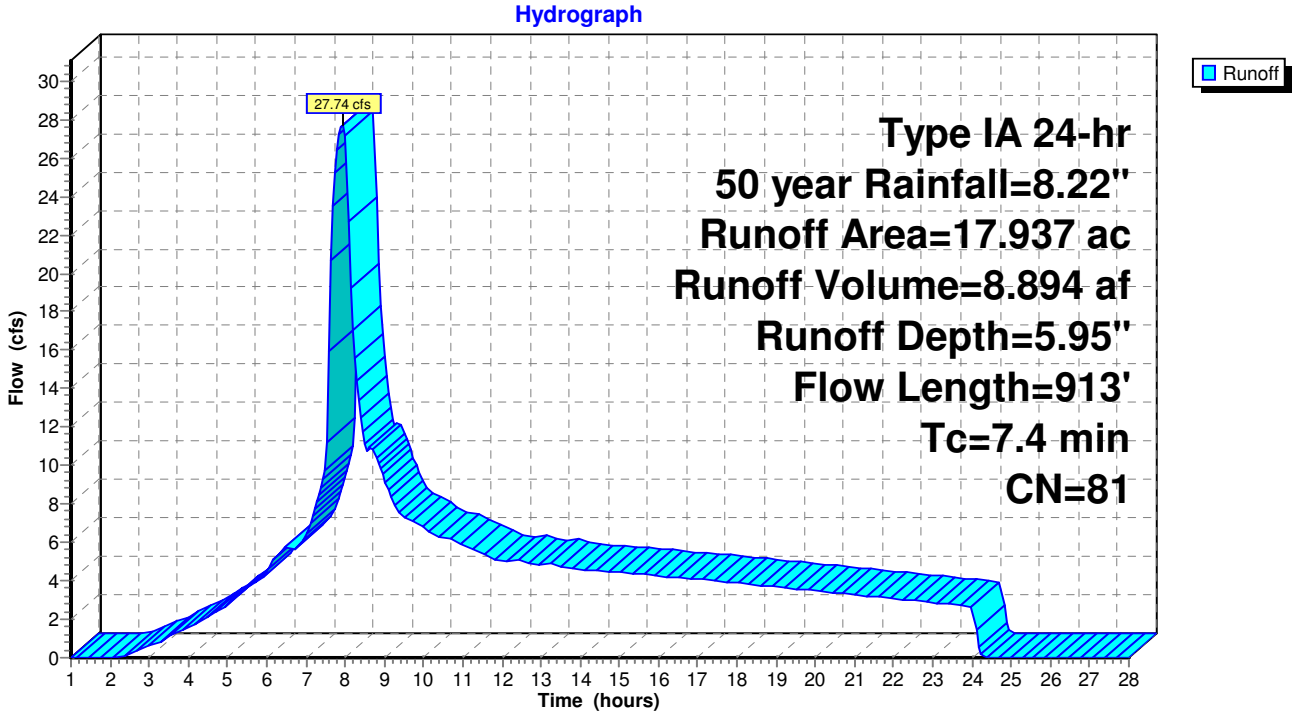
Runoff = 27.74 cfs @ 7.94 hrs, Volume= 8.894 af, Depth= 5.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.094	89	Dirt roads, HSG D
4.189	79	Pasture/grassland/range, Fair, HSG C
0.896	84	Pasture/grassland/range, Fair, HSG D
0.531	79	Vineyard, Fair, HSG C
8.409	84	Vineyard, Fair, HSG D
0.658	75	Vineyard, Good, HSG C
0.877	70	Woods, Good, HSG C
2.282	77	Woods, Good, HSG D
17.937	81	Weighted Average
17.937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	261	0.4400	10.68		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.4	265	0.2200	11.65	23.29	**Trap/Vee/Rect Channel Flow, Assumed std ditch-1** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.4	170	0.1800	6.83		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.1	74	0.1100	8.23	16.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch-2** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.1	43	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch-3** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.4	913	Total			

Subcatchment WS1B: Subcat WS1B



Summary for Subcatchment WS1C: Subcat WS1C

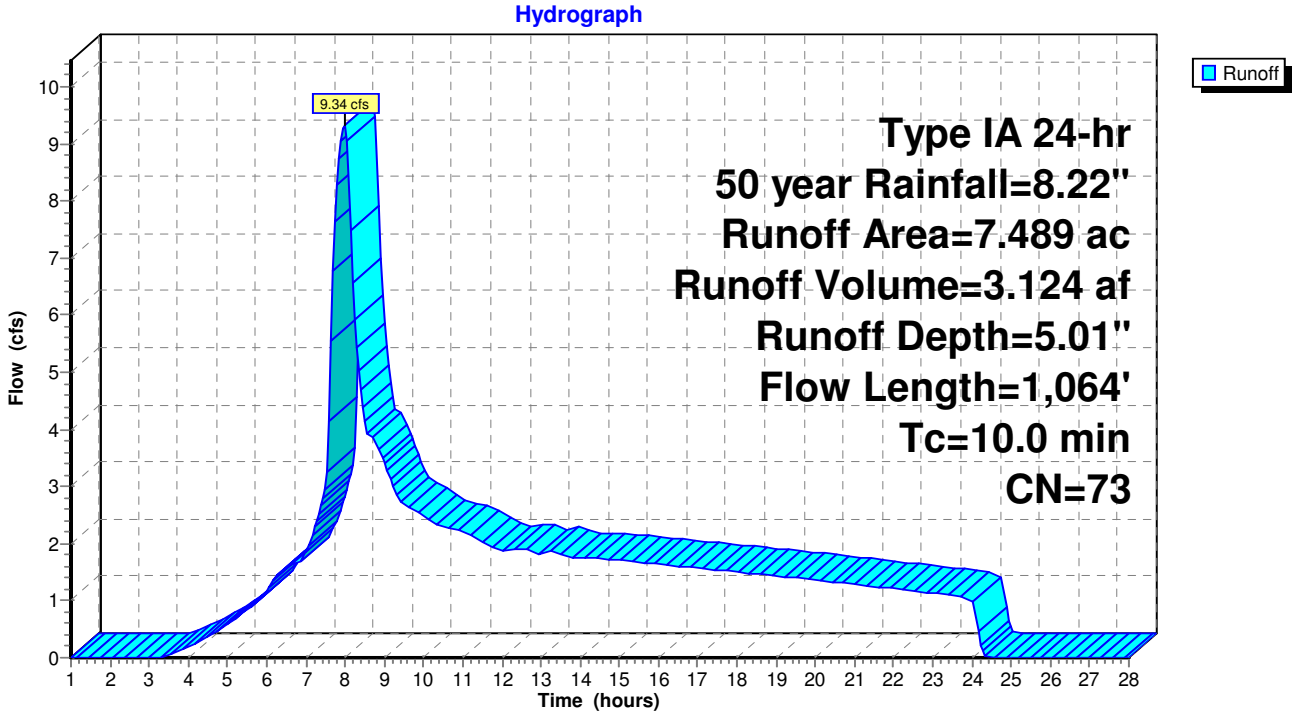
Runoff = 9.34 cfs @ 7.99 hrs, Volume= 3.124 af, Depth= 5.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.017	87	Dirt roads, HSG C
0.005	89	Dirt roads, HSG D
1.904	79	Pasture/grassland/range, Fair, HSG C
1.228	75	Vineyard, Good, HSG C
4.301	70	Woods, Good, HSG C
0.035	77	Woods, Good, HSG D
7.489	73	Weighted Average
7.489		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.7	396	0.3400	9.39		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.5	333	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.6	235	0.0600	6.08	12.16	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.0	1,064	Total			

Subcatchment WS1C: Subcat WS1C



Summary for Subcatchment WS1D: Subcat WS1D

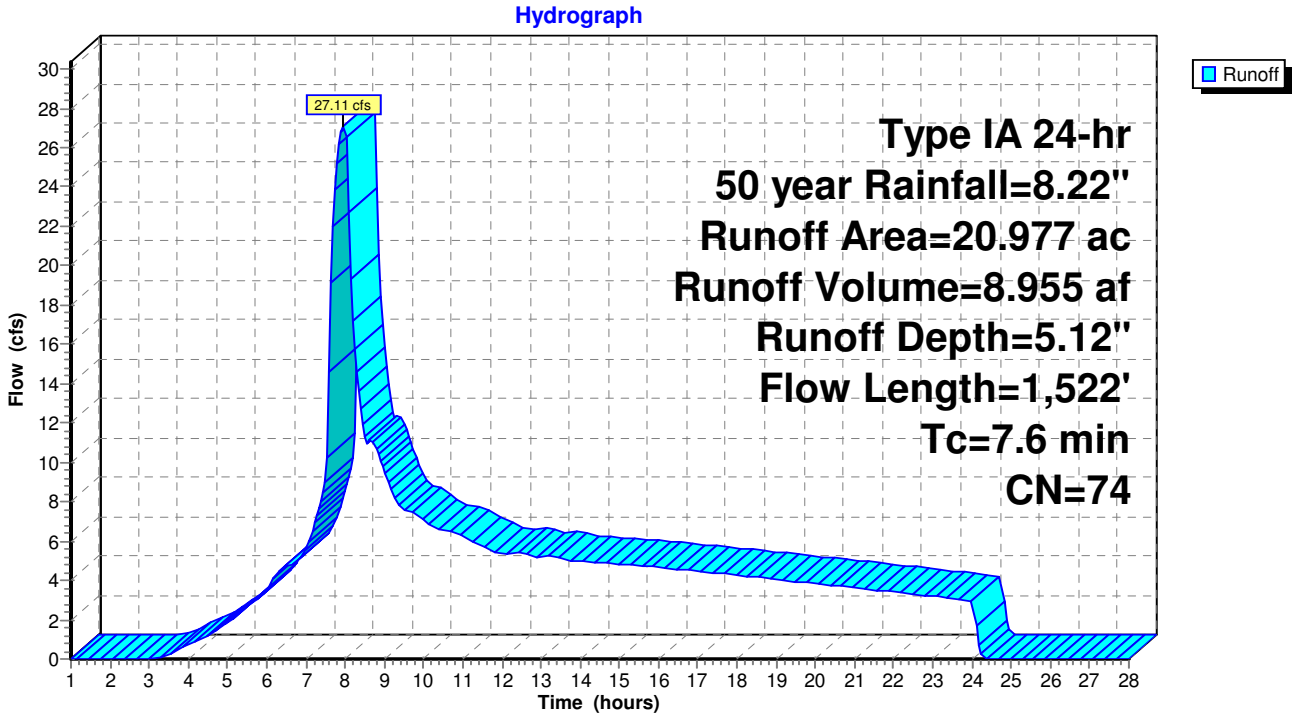
Runoff = 27.11 cfs @ 7.96 hrs, Volume= 8.955 af, Depth= 5.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.624	65	Brush, Good, HSG C
8.487	79	Pasture/grassland/range, Fair, HSG C
3.619	75	Vineyard, Good, HSG C
8.247	70	Woods, Good, HSG C
20.977	74	Weighted Average
20.977		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.1800	0.32		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	236	0.3800	9.92		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.9	1,186	0.1800	10.53	21.07	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	1,522	Total			

Subcatchment WS1D: Subcat WS1D



Summary for Subcatchment WS1E: Subcat WS1E

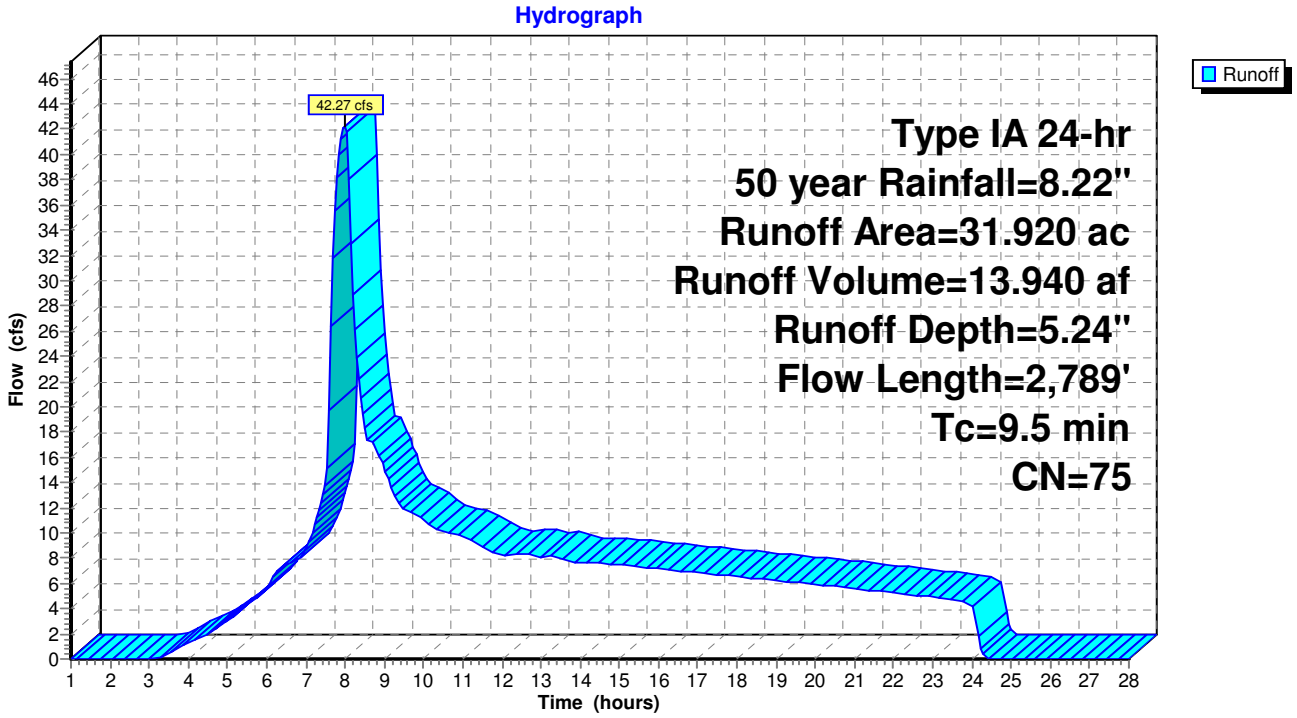
Runoff = 42.27 cfs @ 7.98 hrs, Volume= 13.940 af, Depth= 5.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.002	87	Dirt roads, HSG C
15.665	79	Pasture/grassland/range, Fair, HSG C
5.637	75	Vineyard, Good, HSG C
10.617	70	Woods, Good, HSG C
31.920	75	Weighted Average
31.920		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	100	0.2600	0.37		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.8	418	0.3200	9.11		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
4.2	2,271	0.1300	8.95	17.90	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
9.5	2,789	Total			

Subcatchment WS1E: Subcat WS1E



Summary for Subcatchment WS1F.1: Subcat WS1F.1

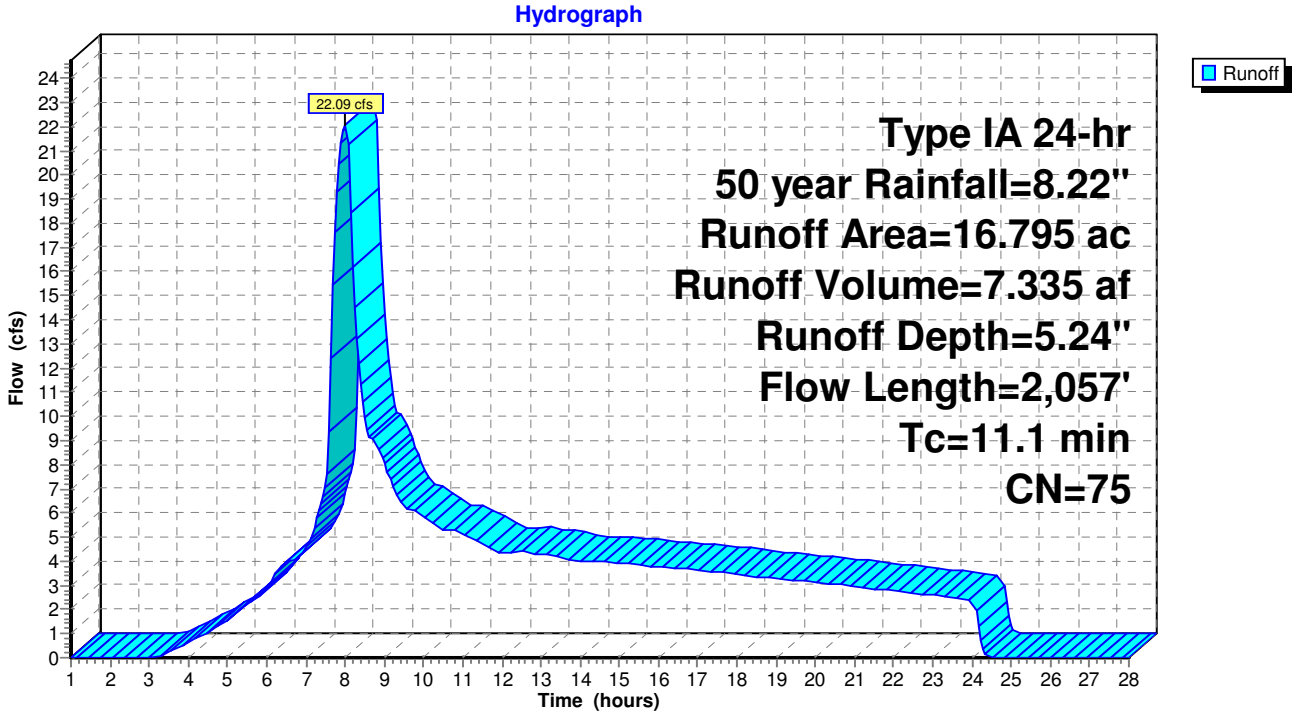
Runoff = 22.09 cfs @ 8.00 hrs, Volume= 7.335 af, Depth= 5.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.080	89	Gravel Roads, HSG C
0.436	79	Pasture/grassland/range, Fair, HSG C
0.626	74	Pasture/grassland/range, Good, HSG C
7.618	79	Vineyard, Fair, HSG C
1.739	75	Vineyard, Good, HSG C
6.296	70	Woods, Good, HSG C
16.795	75	Weighted Average
16.795		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
3.4	1,267	0.1500	6.24		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.9	548	0.1700	10.24	20.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.8	142	0.0200	2.83	26.88	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
11.1	2,057	Total			

Subcatchment WS1F.1: Subcat WS1F.1



Summary for Subcatchment WS1F.2: Subcat WS1F.2

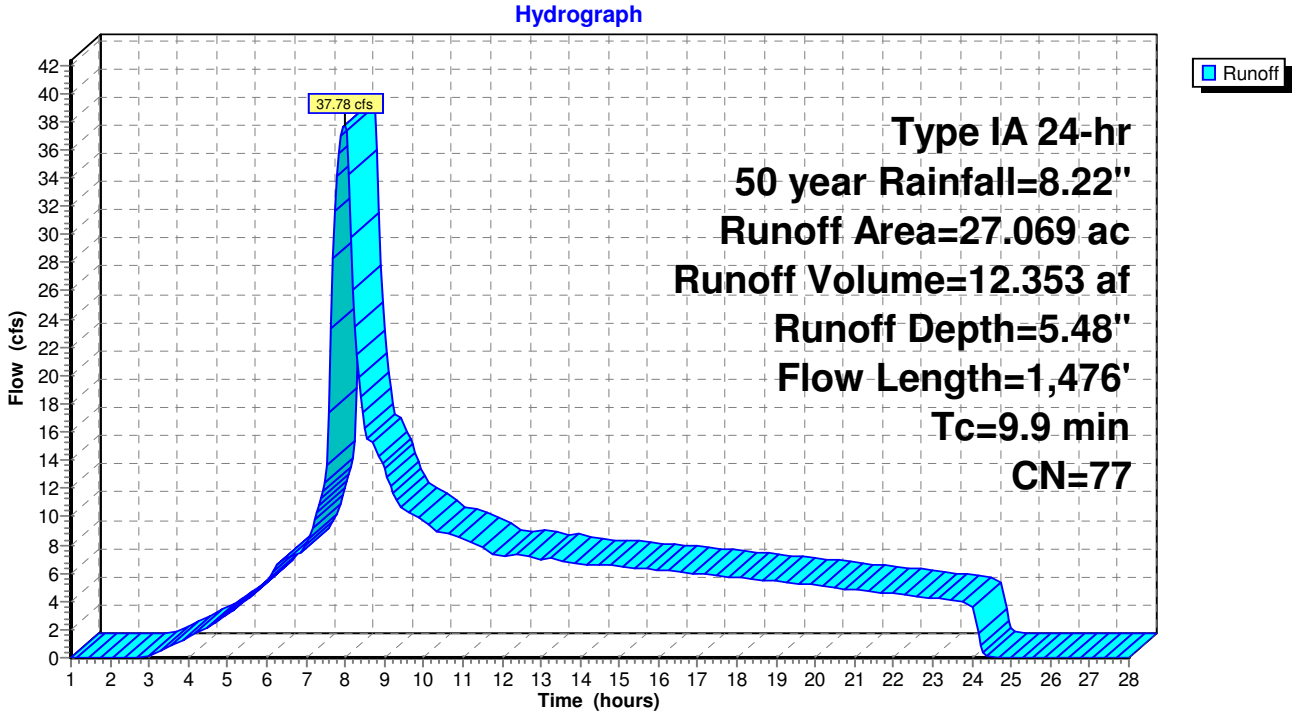
Runoff = 37.78 cfs @ 7.98 hrs, Volume= 12.353 af, Depth= 5.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.429	87	Dirt roads, HSG C
6.691	79	Pasture/grassland/range, Fair, HSG C
0.143	84	Pasture/grassland/range, Fair, HSG D
0.001	74	Pasture/grassland/range, Good, HSG C
7.427	79	Vineyard, Fair, HSG C
1.496	84	Vineyard, Fair, HSG D
3.820	75	Vineyard, Good, HSG C
6.912	70	Woods, Good, HSG C
0.149	77	Woods, Good, HSG D
27.069	77	Weighted Average
27.069		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	702	0.2500	8.05		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.2	674	0.0100	5.21	531.60	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=6.00' Z= 1.5 '/' Top.W=26.00' n= 0.065
9.9	1,476	Total			

Subcatchment WS1F.2: Subcat WS1F.2



Summary for Subcatchment WS1G: Subcat WS1G

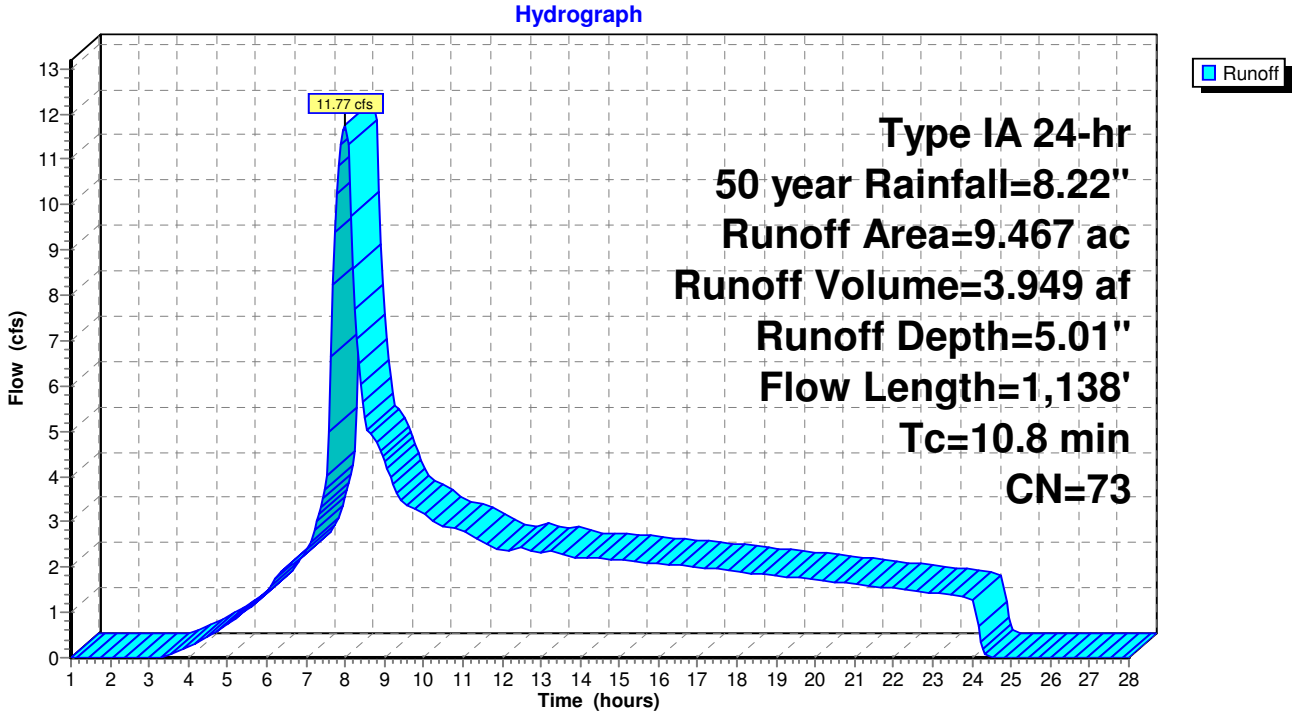
Runoff = 11.77 cfs @ 8.00 hrs, Volume= 3.949 af, Depth= 5.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.012	87	Dirt roads, HSG C
1.037	79	Pasture/grassland/range, Fair, HSG C
0.649	79	Vineyard, Fair, HSG C
3.002	75	Vineyard, Good, HSG C
4.766	70	Woods, Good, HSG C
9.467	73	Weighted Average
9.467		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.3	604	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	139	0.2300	11.91	23.82	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.3	156	0.2600	8.21		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.8	139	0.0200	2.83	26.88	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
10.8	1,138	Total			

Subcatchment WS1G: Subcat WS1G



Summary for Subcatchment WS1H: Subcat WS1H

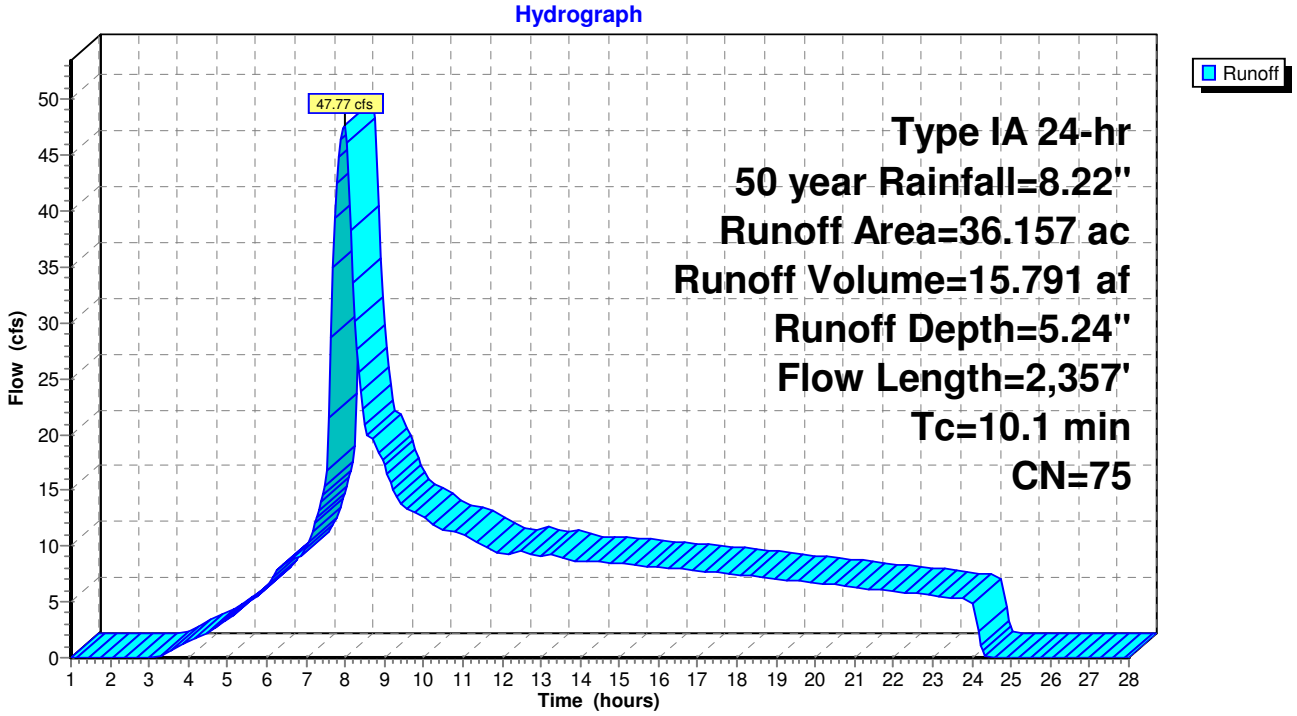
Runoff = 47.77 cfs @ 7.99 hrs, Volume= 15.791 af, Depth= 5.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.574	65	Brush, Good, HSG C
0.237	87	Dirt roads, HSG C
15.971	79	Pasture/grassland/range, Fair, HSG C
2.076	79	Vineyard, Fair, HSG C
0.993	75	Vineyard, Good, HSG C
16.305	70	Woods, Good, HSG C
36.157	75	Weighted Average
36.157		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1400	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	610	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.9	1,647	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.1	2,357	Total			

Subcatchment WS1H: Subcat WS1H



Summary for Subcatchment WS1l: Subcat WS1l

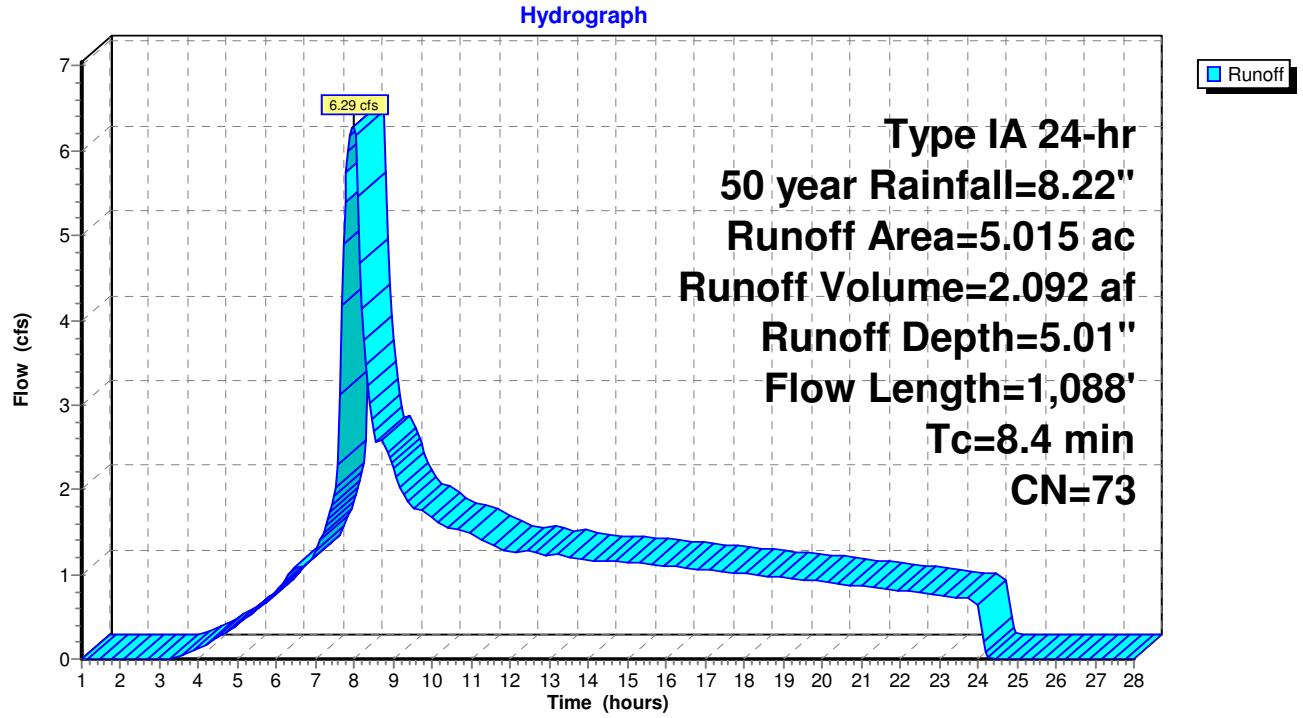
Runoff = 6.29 cfs @ 7.98 hrs, Volume= 2.092 af, Depth= 5.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.595	79	Pasture/grassland/range, Fair, HSG C
0.504	79	Vineyard, Fair, HSG C
0.862	75	Vineyard, Good, HSG C
3.053	70	Woods, Good, HSG C
5.015	73	Weighted Average
5.015		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1400	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	664	0.2100	7.38		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.1	324	0.0600	4.90	46.55	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
8.4	1,088	Total			

Subcatchment WS1l: Subcat WS1l



Summary for Subcatchment WS1J: Subcat WS1J

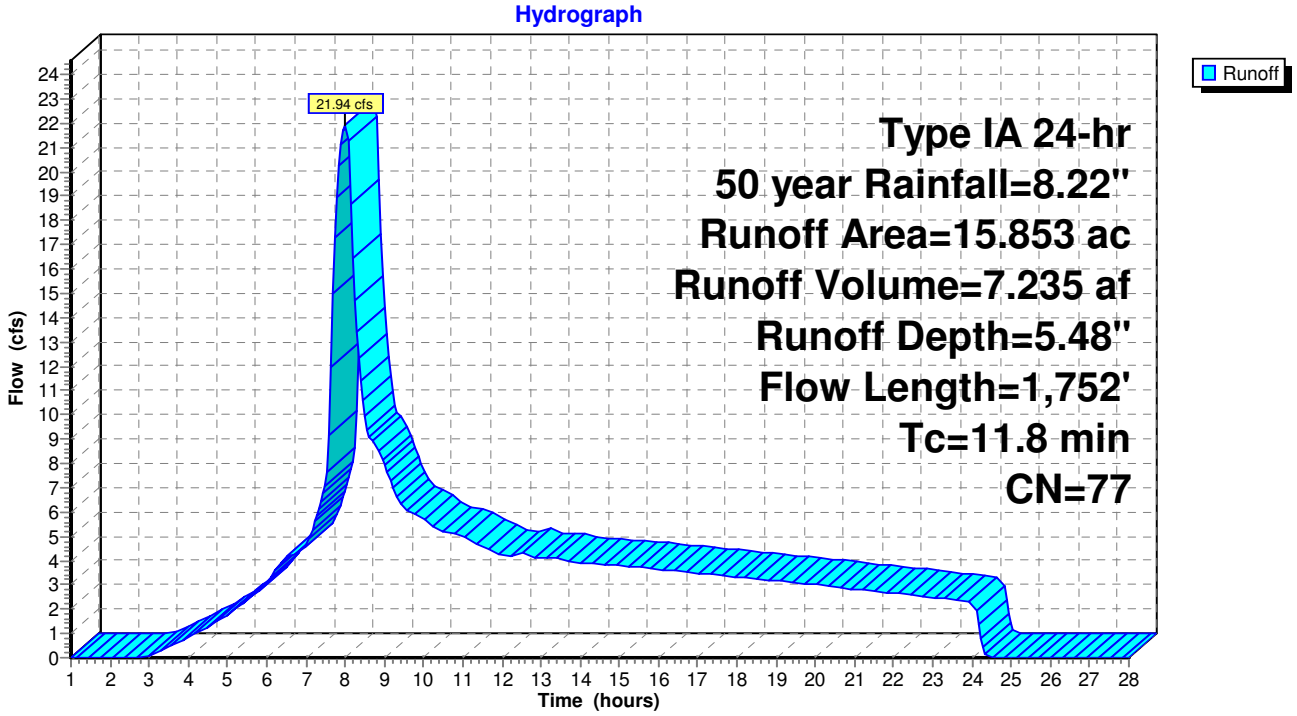
Runoff = 21.94 cfs @ 8.01 hrs, Volume= 7.235 af, Depth= 5.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.204	89	Gravel Roads, HSG C
1.188	79	Pasture/grassland/range, Fair, HSG C
2.246	74	Pasture/grassland/range, Good, HSG C
8.865	79	Vineyard, Fair, HSG C
0.714	75	Vineyard, Good, HSG C
2.636	70	Woods, Good, HSG C
15.853	77	Weighted Average
15.853		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	93	0.0500	0.19		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
2.1	826	0.1700	6.64		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	833	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
11.8	1,752	Total			

Subcatchment WS1J: Subcat WS1J



Summary for Subcatchment WS1K: Subcat WS1K

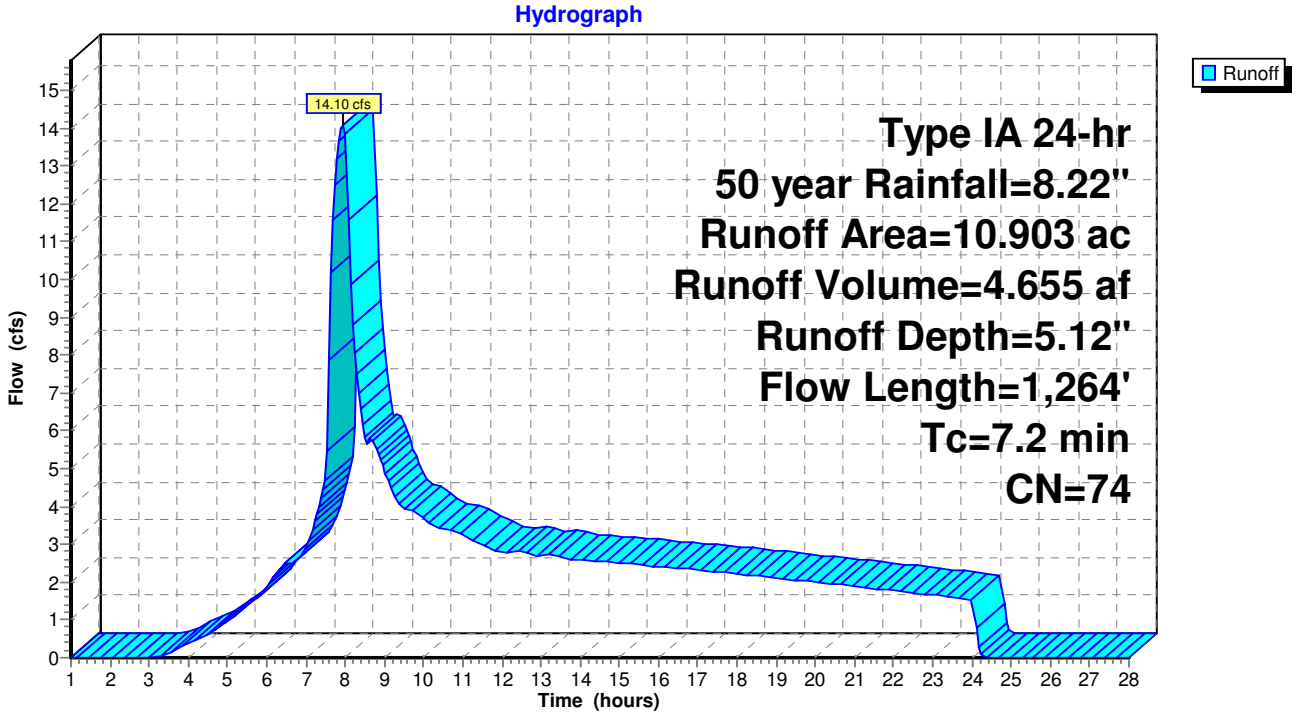
Runoff = 14.10 cfs @ 7.96 hrs, Volume= 4.655 af, Depth= 5.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.046	87	Dirt roads, HSG C
1.830	79	Pasture/grassland/range, Fair, HSG C
0.465	79	Vineyard, Fair, HSG C
4.696	75	Vineyard, Good, HSG C
3.867	70	Woods, Good, HSG C
10.903	74	Weighted Average
10.903		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	100	0.2700	0.37		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.8	753	0.1800	6.83		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.3	189	0.1400	9.29	18.58	**Trap/Vee/Rect Channel Flow, Assumed std ditch-1** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.6	222	0.0600	6.08	12.16	**Trap/Vee/Rect Channel Flow, Assumed std ditch-2** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.2	1,264	Total			

Subcatchment WS1K: Subcat WS1K



Summary for Subcatchment WS1L: Subcat WS1L

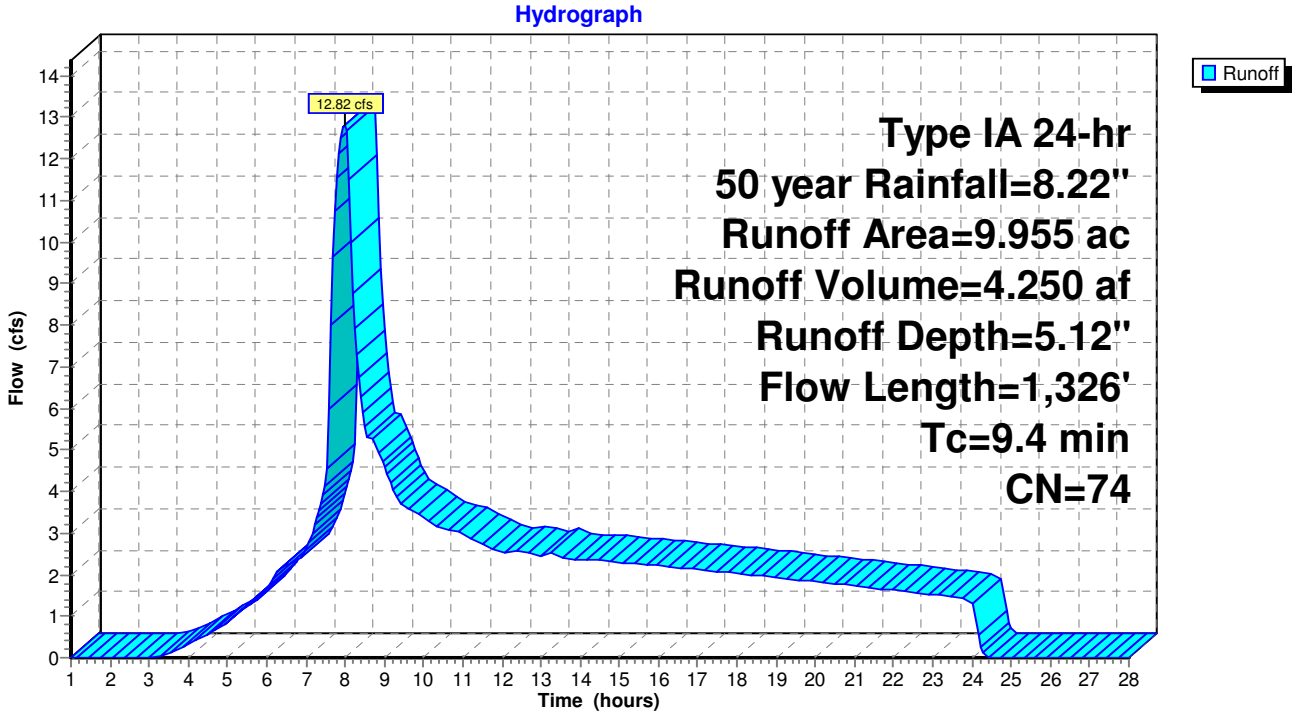
Runoff = 12.82 cfs @ 7.99 hrs, Volume= 4.250 af, Depth= 5.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.516	65	Brush, Good, HSG C
0.121	87	Dirt roads, HSG C
2.284	79	Pasture/grassland/range, Fair, HSG C
1.606	74	Pasture/grassland/range, Good, HSG C
2.111	75	Vineyard, Good, HSG C
3.318	70	Woods, Good, HSG C
9.955	74	Weighted Average
9.955		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	100	0.0900	0.24		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.8	348	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	78	0.0800	7.02	14.05	**Trap/Vee/Rect Channel Flow, Std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.2	92	0.3200	9.11		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
1.2	708	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
9.4	1,326	Total			

Subcatchment WS1L: Subcat WS1L



Summary for Subcatchment WS1M: Subcat WS1M

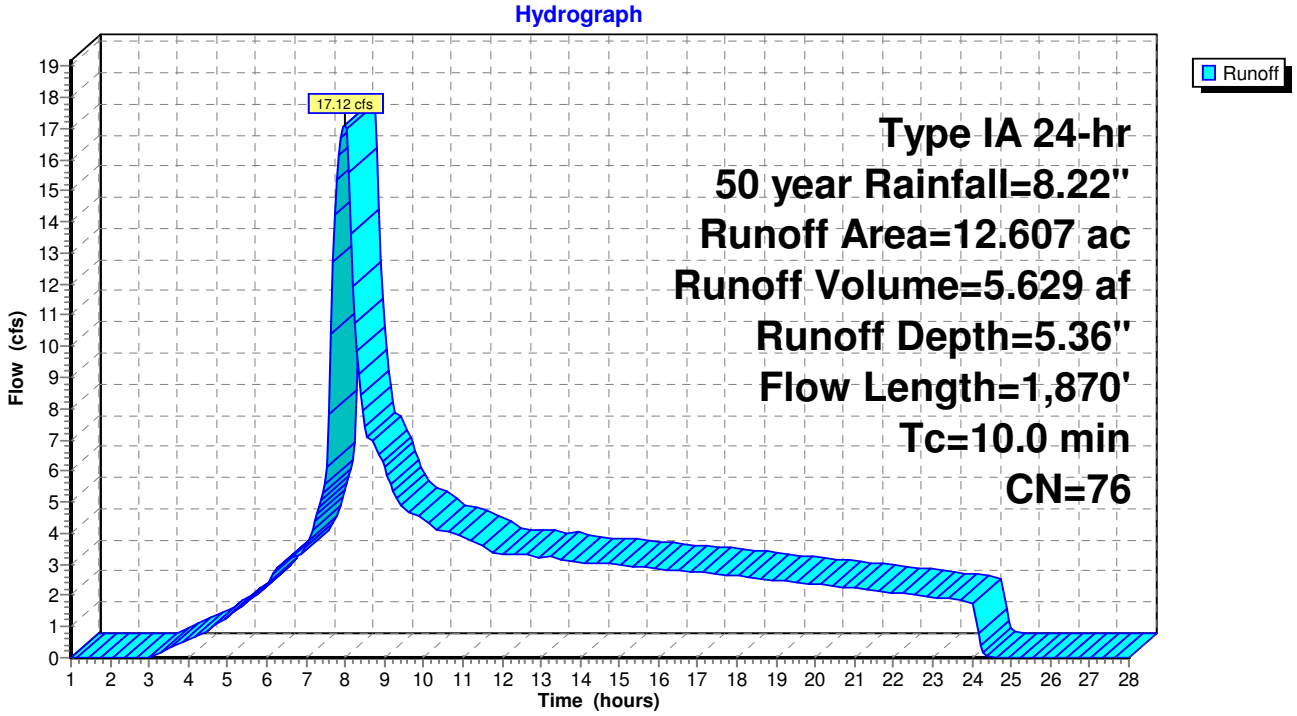
Runoff = 17.12 cfs @ 7.99 hrs, Volume= 5.629 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.975	65	Brush, Good, HSG C
0.165	87	Dirt roads, HSG C
8.500	79	Pasture/grassland/range, Fair, HSG C
0.673	74	Pasture/grassland/range, Good, HSG C
0.790	75	Vineyard, Good, HSG C
1.503	70	Woods, Good, HSG C
12.607	76	Weighted Average
12.607		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1500	0.29		**Sheet Flow, 0.15** Grass: Dense n= 0.240 P2= 4.05"
1.6	675	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	37	0.0200	3.51	7.02	**Trap/Vee/Rect Channel Flow, Std Ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
1.7	626	0.1400	6.02		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.8	432	0.1400	9.29	18.58	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.0	1,870	Total			

Subcatchment WS1M: Subcat WS1M



Summary for Subcatchment WS1N: Subcat WS1N

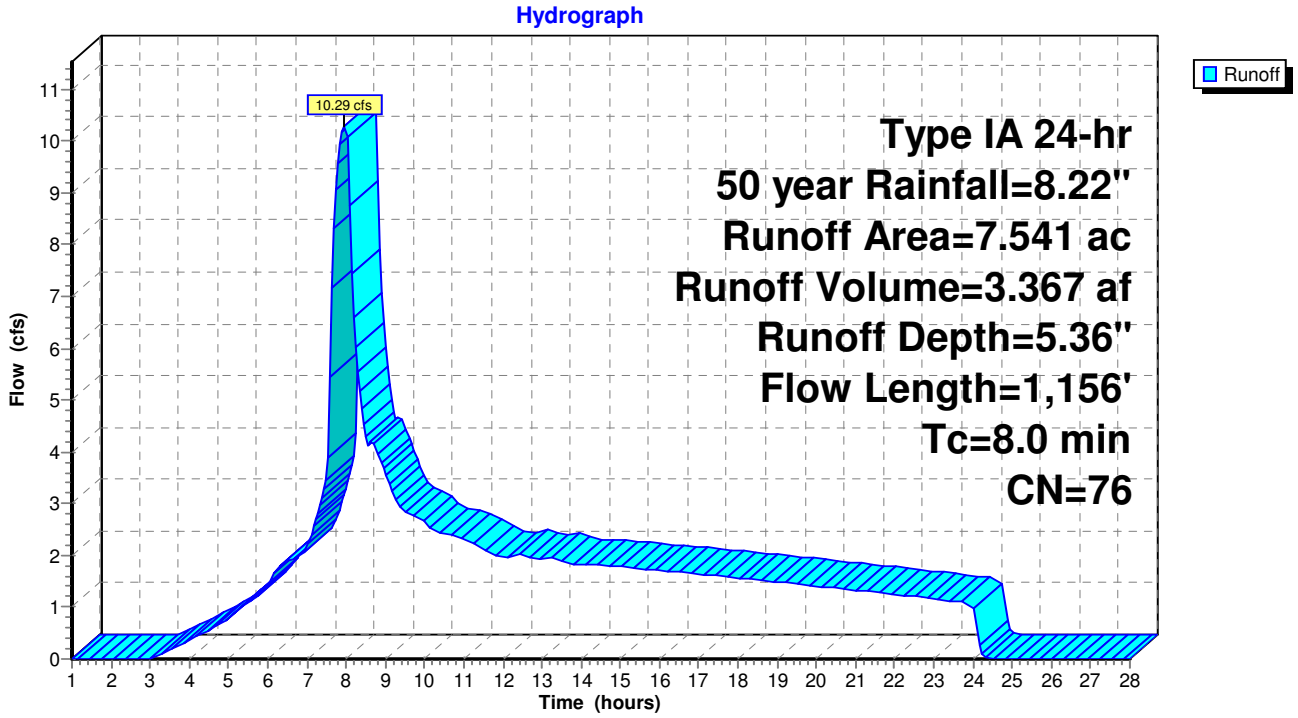
Runoff = 10.29 cfs @ 7.96 hrs, Volume= 3.367 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.322	65	Brush, Good, HSG C
0.044	87	Dirt roads, HSG C
2.074	79	Pasture/grassland/range, Fair, HSG C
5.101	75	Vineyard, Good, HSG C
7.541	76	Weighted Average
7.541		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1500	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.9	775	0.1700	6.64		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.4	281	0.2600	12.66	25.32	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.0	1,156	Total			

Subcatchment WS1N: Subcat WS1N



Summary for Subcatchment WS1O: Subcat WS1O

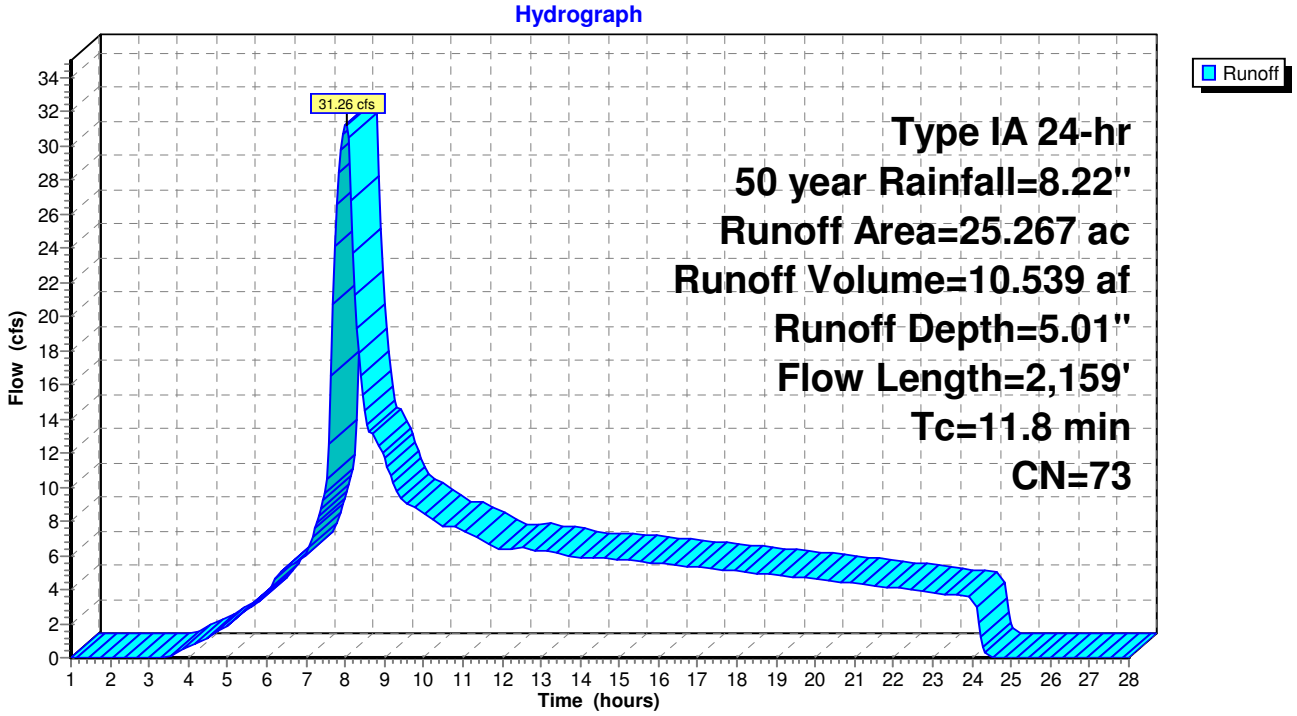
Runoff = 31.26 cfs @ 8.02 hrs, Volume= 10.539 af, Depth= 5.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.049	87	Dirt roads, HSG C
4.062	79	Pasture/grassland/range, Fair, HSG C
2.236	79	Vineyard, Fair, HSG C
1.138	75	Vineyard, Good, HSG C
17.782	70	Woods, Good, HSG C
25.267	73	Weighted Average
25.267		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.3100	0.26		**Sheet Flow, Sheet-1** Woods: Light underbrush n= 0.400 P2= 4.05"
2.6	1,166	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.8	893	0.0700	5.29	50.28	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
11.8	2,159	Total			

Subcatchment WS1O: Subcat WS1O



Summary for Subcatchment WS1P: Subcat WS1P

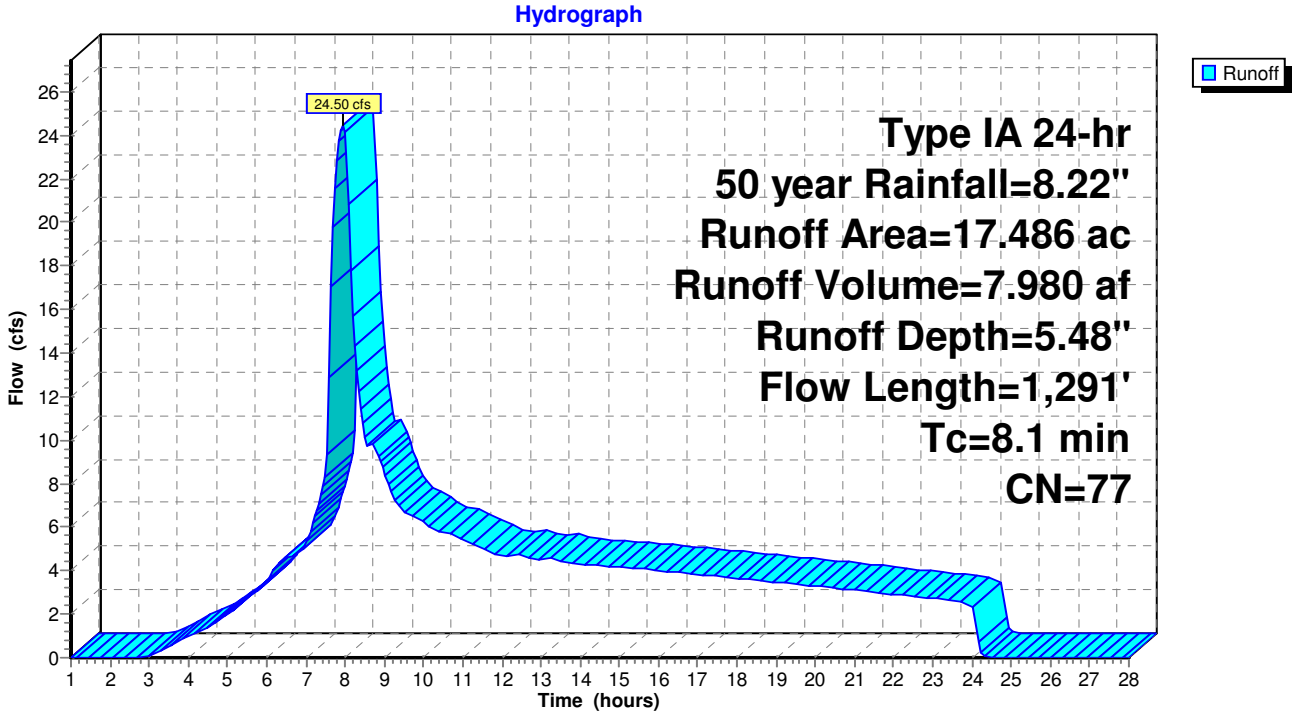
Runoff = 24.50 cfs @ 7.96 hrs, Volume= 7.980 af, Depth= 5.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.263	87	Dirt roads, HSG C
2.086	82	Farmsteads, HSG C
0.713	79	Pasture/grassland/range, Fair, HSG C
3.477	74	Pasture/grassland/range, Good, HSG C
7.176	79	Vineyard, Fair, HSG C
3.771	70	Woods, Good, HSG C
17.486	77	Weighted Average
17.486		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0500	0.28		**Sheet Flow, Sheet-1** Grass: Short n= 0.150 P2= 4.05"
0.7	331	0.2400	7.89		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	860	0.1700	10.24	20.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.1	1,291	Total			

Subcatchment WS1P: Subcat WS1P



Summary for Subcatchment WS1Q: Subcat WS1Q

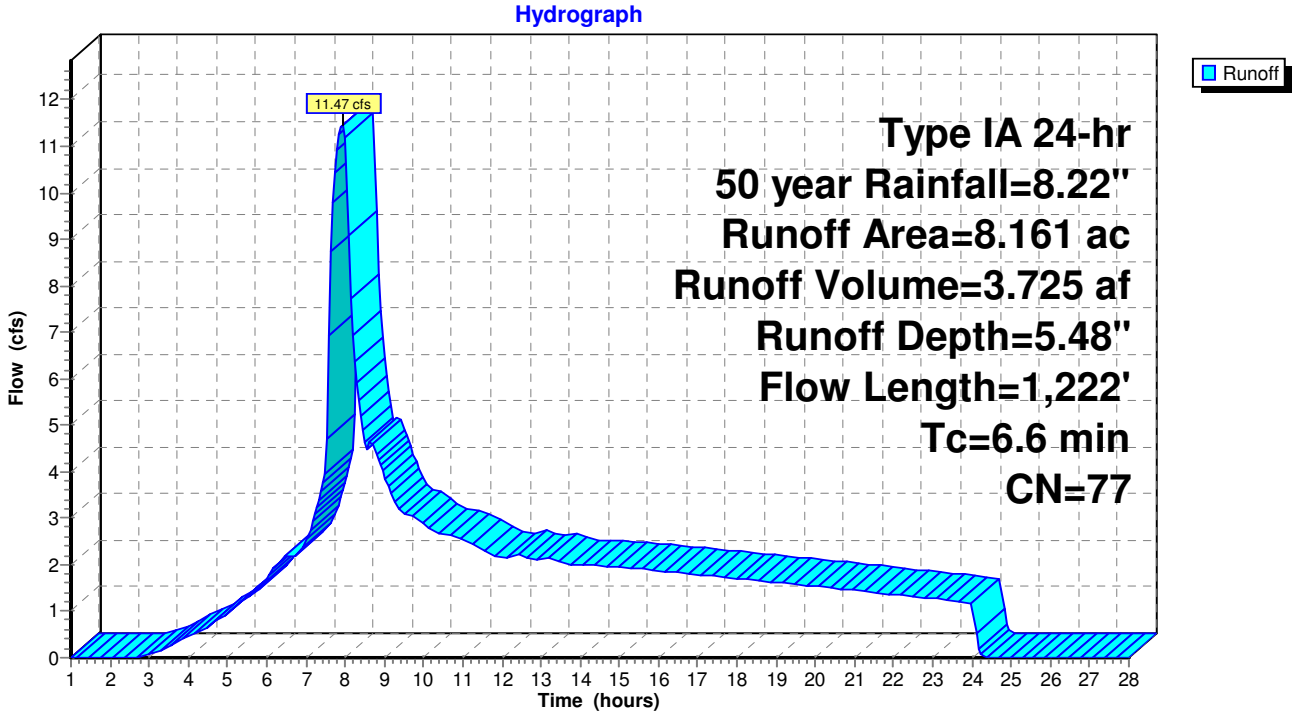
Runoff = 11.47 cfs @ 7.94 hrs, Volume= 3.725 af, Depth= 5.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.151	87	Dirt roads, HSG C
0.039	82	Farmsteads, HSG C
4.260	79	Pasture/grassland/range, Fair, HSG C
1.502	79	Vineyard, Fair, HSG C
0.064	75	Vineyard, Good, HSG C
2.145	70	Woods, Good, HSG C
8.161	77	Weighted Average
8.161		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.3200	0.40		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	659	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.9	463	0.1900	8.72	82.84	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
6.6	1,222	Total			

Subcatchment WS1Q: Subcat WS1Q



Summary for Subcatchment WS1R: Subcat WS1R

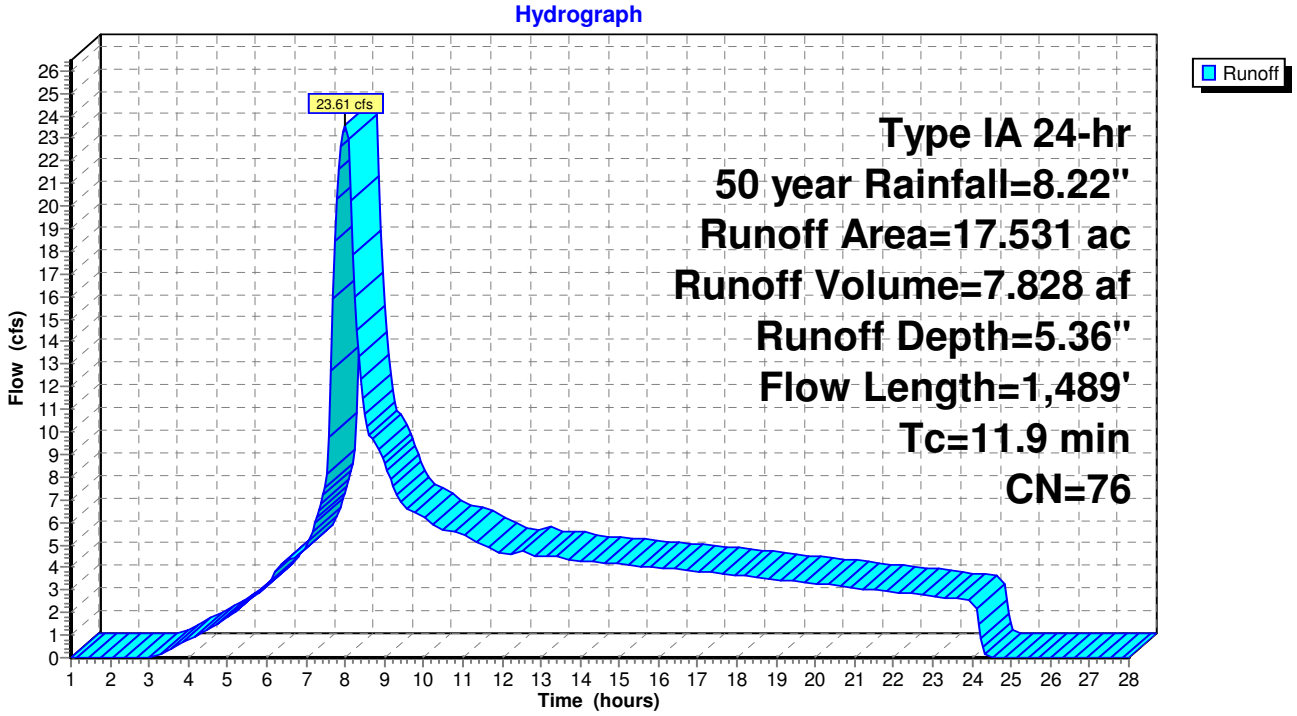
Runoff = 23.61 cfs @ 8.01 hrs, Volume= 7.828 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.110	87	Dirt roads, HSG C
6.674	79	Pasture/grassland/range, Fair, HSG C
0.780	74	Pasture/grassland/range, Good, HSG C
8.523	75	Vineyard, Good, HSG C
1.443	70	Woods, Good, HSG C
17.531	76	Weighted Average
17.531		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
2.3	759	0.1200	5.58		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	630	0.0900	7.45	14.90	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
11.9	1,489	Total			

Subcatchment WS1R: Subcat WS1R



Summary for Reach R1: Main Stem

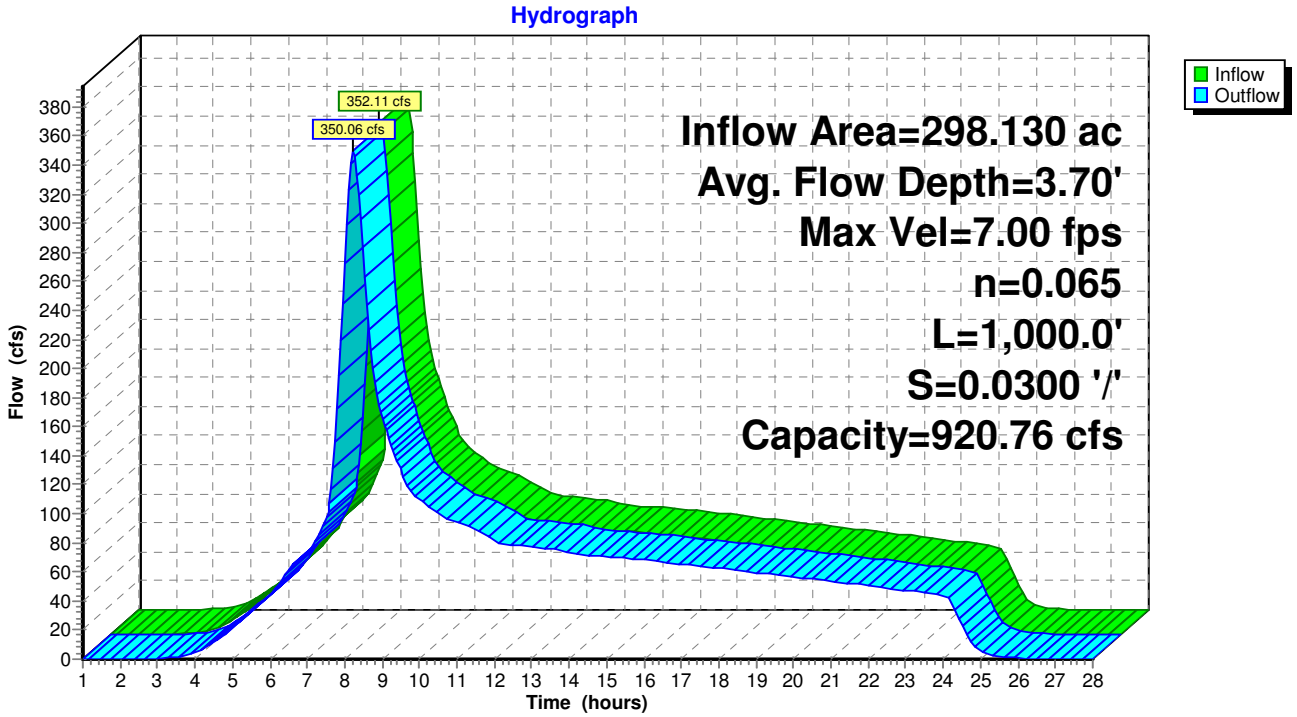
Inflow Area = 298.130 ac, 0.00% Impervious, Inflow Depth > 5.30" for 50 year event
Inflow = 352.11 cfs @ 8.15 hrs, Volume= 131.636 af
Outflow = 350.06 cfs @ 8.23 hrs, Volume= 131.632 af, Atten= 1%, Lag= 4.3 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.00 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 3.67 fps, Avg. Travel Time= 4.5 min

Peak Storage= 50,115 cf @ 8.19 hrs
Average Depth at Peak Storage= 3.70'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 920.76 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,000.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -30.00'

Reach R1: Main Stem



Summary for Reach R2: Main Stem

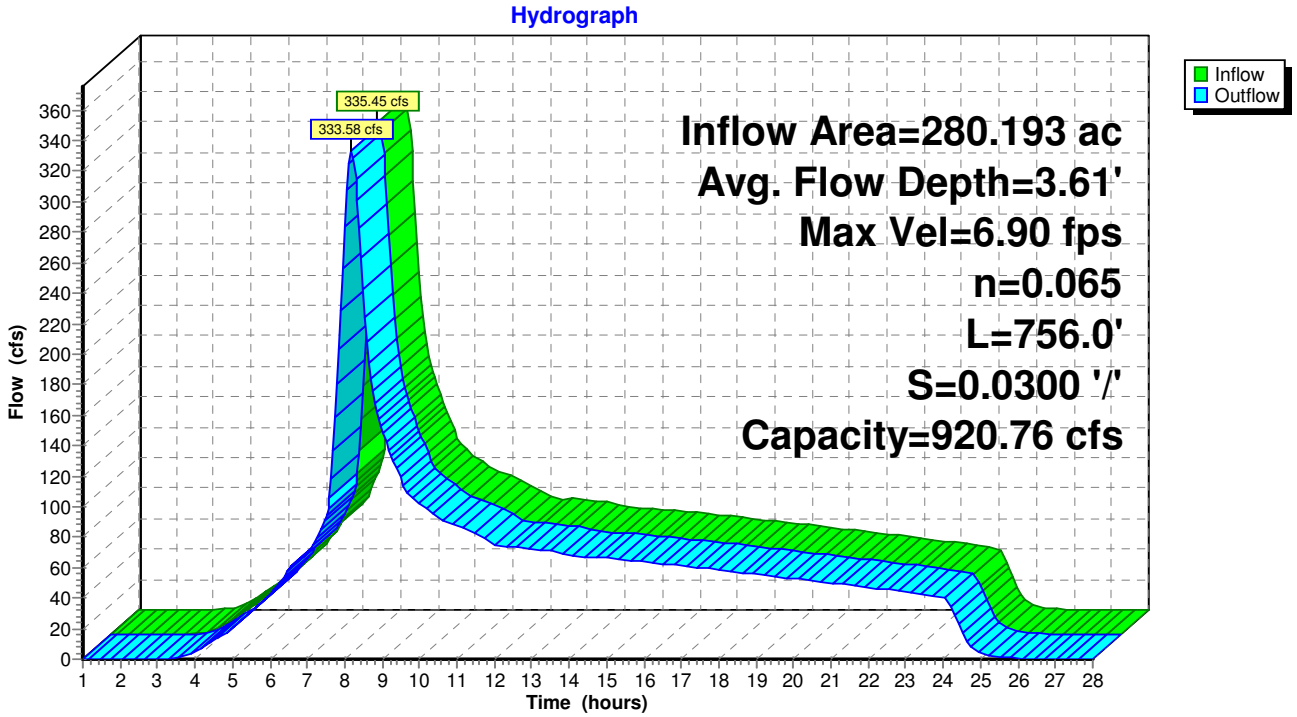
Inflow Area = 280.193 ac, 0.00% Impervious, Inflow Depth > 5.26" for 50 year event
Inflow = 335.45 cfs @ 8.11 hrs, Volume= 122.744 af
Outflow = 333.58 cfs @ 8.17 hrs, Volume= 122.742 af, Atten= 1%, Lag= 3.5 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.90 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 3.64 fps, Avg. Travel Time= 3.5 min

Peak Storage= 36,582 cf @ 8.14 hrs
Average Depth at Peak Storage= 3.61'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 920.76 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 756.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -22.68'

Reach R2: Main Stem



Summary for Reach R3: Stream

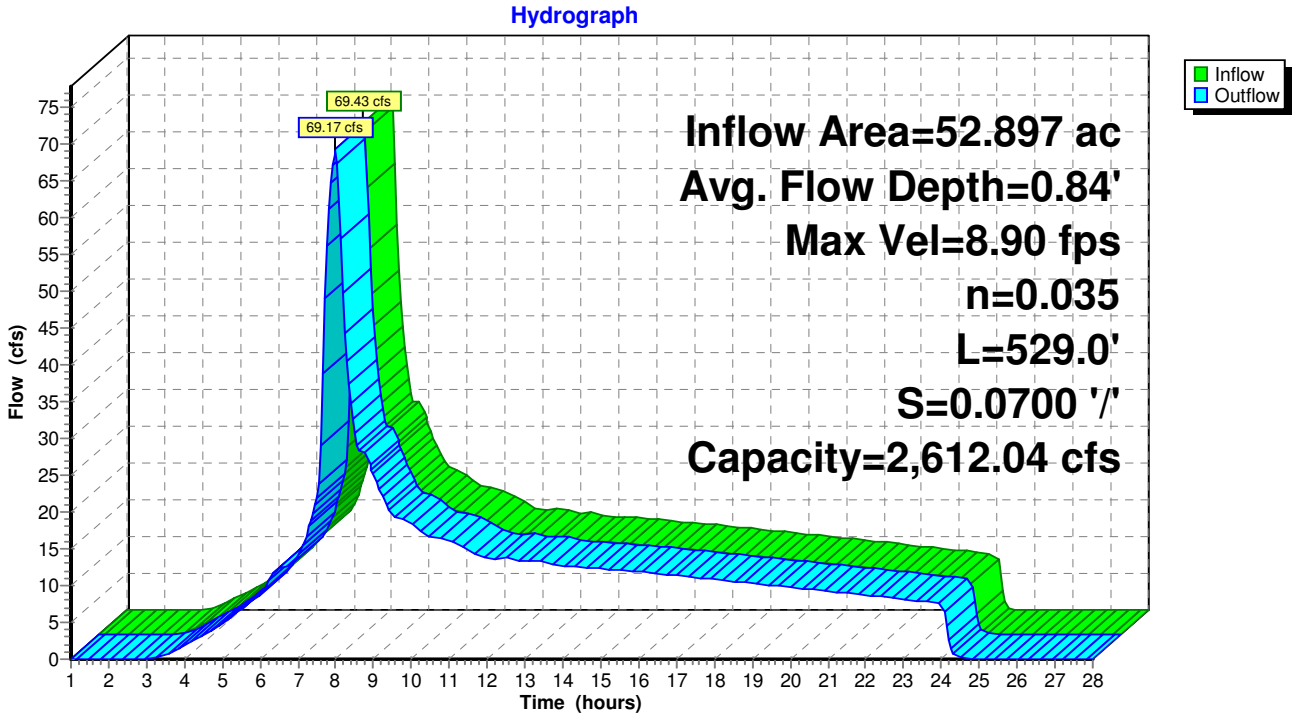
Inflow Area = 52.897 ac, 0.00% Impervious, Inflow Depth = 5.19" for 50 year event
Inflow = 69.43 cfs @ 7.98 hrs, Volume= 22.895 af
Outflow = 69.17 cfs @ 8.00 hrs, Volume= 22.895 af, Atten= 0%, Lag= 1.2 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.90 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 4.57 fps, Avg. Travel Time= 1.9 min

Peak Storage= 4,119 cf @ 7.98 hrs
Average Depth at Peak Storage= 0.84'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 2,612.04 cfs

8.00' x 6.00' deep channel, n= 0.035
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 529.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -37.03'

Reach R3: Stream



Summary for Reach R4.1: Main Stem

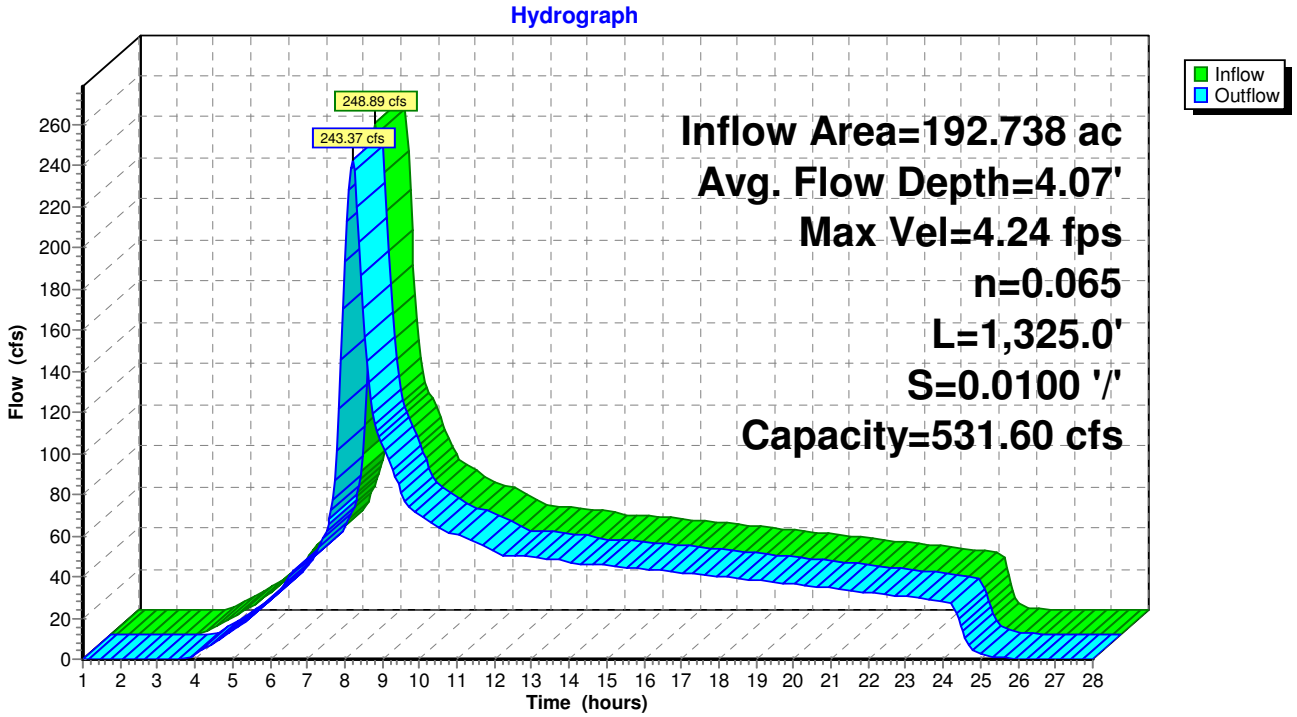
Inflow Area = 192.738 ac, 0.00% Impervious, Inflow Depth = 5.25" for 50 year event
Inflow = 248.89 cfs @ 8.07 hrs, Volume= 84.374 af
Outflow = 243.37 cfs @ 8.21 hrs, Volume= 84.371 af, Atten= 2%, Lag= 8.5 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.24 fps, Min. Travel Time= 5.2 min
Avg. Velocity = 2.22 fps, Avg. Travel Time= 10.0 min

Peak Storage= 76,138 cf @ 8.13 hrs
Average Depth at Peak Storage= 4.07'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 531.60 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,325.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -13.25'

Reach R4.1: Main Stem



Summary for Reach R4.2: Main Stem

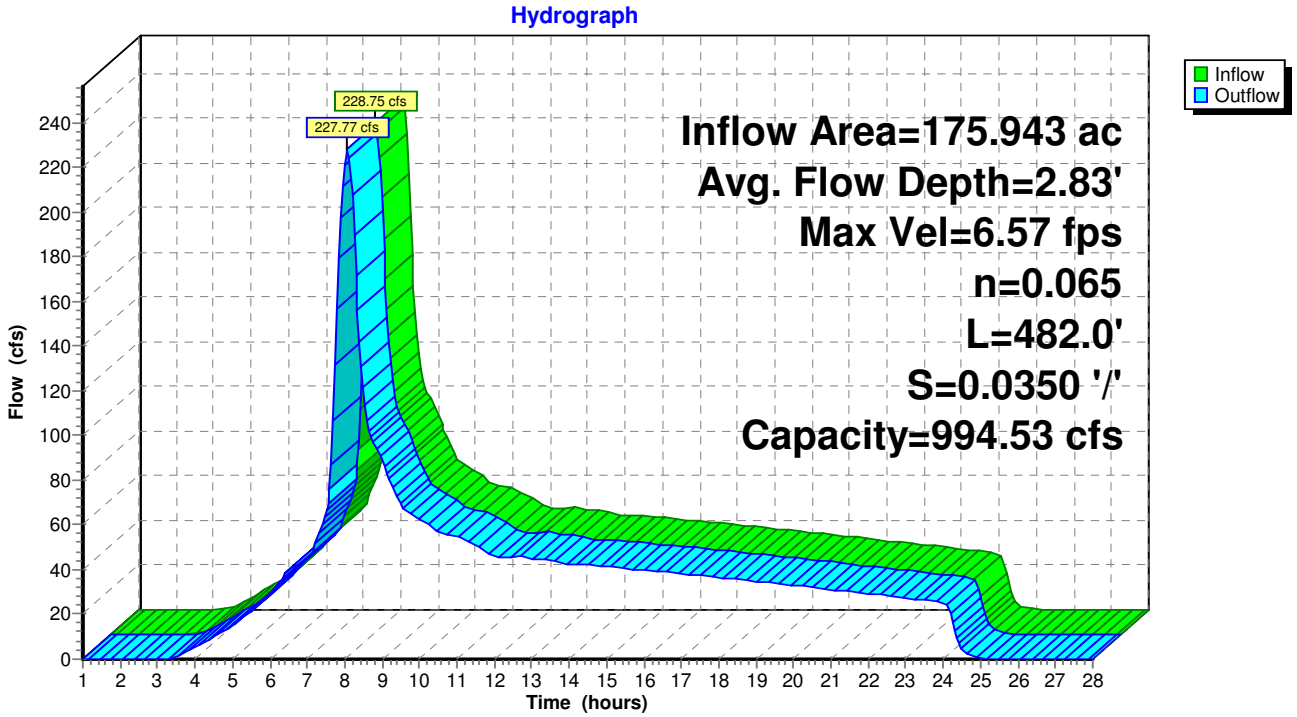
Inflow Area = 175.943 ac, 0.00% Impervious, Inflow Depth = 5.25" for 50 year event
Inflow = 228.75 cfs @ 8.05 hrs, Volume= 77.040 af
Outflow = 227.77 cfs @ 8.08 hrs, Volume= 77.040 af, Atten= 0%, Lag= 2.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.57 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 3.31 fps, Avg. Travel Time= 2.4 min

Peak Storage= 16,736 cf @ 8.06 hrs
Average Depth at Peak Storage= 2.83'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 994.53 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 482.0' Slope= 0.0350 '/'
Inlet Invert= 0.00', Outlet Invert= -16.87'

Reach R4.2: Main Stem



Summary for Reach R5: Main Stem

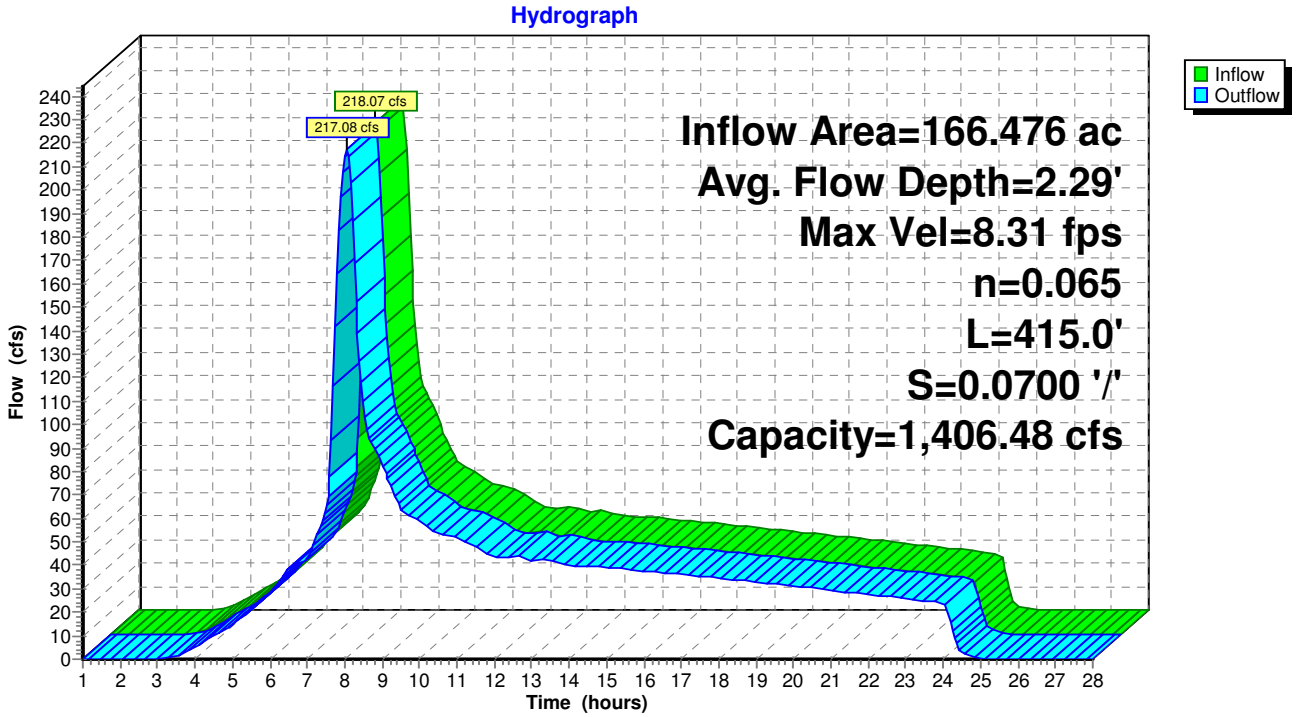
Inflow Area = 166.476 ac, 0.00% Impervious, Inflow Depth = 5.27" for 50 year event
Inflow = 218.07 cfs @ 8.03 hrs, Volume= 73.091 af
Outflow = 217.08 cfs @ 8.05 hrs, Volume= 73.091 af, Atten= 0%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.31 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 4.16 fps, Avg. Travel Time= 1.7 min

Peak Storage= 10,871 cf @ 8.04 hrs
Average Depth at Peak Storage= 2.29'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,406.48 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 415.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -29.05'

Reach R5: Main Stem



Summary for Reach R6: Main Stem

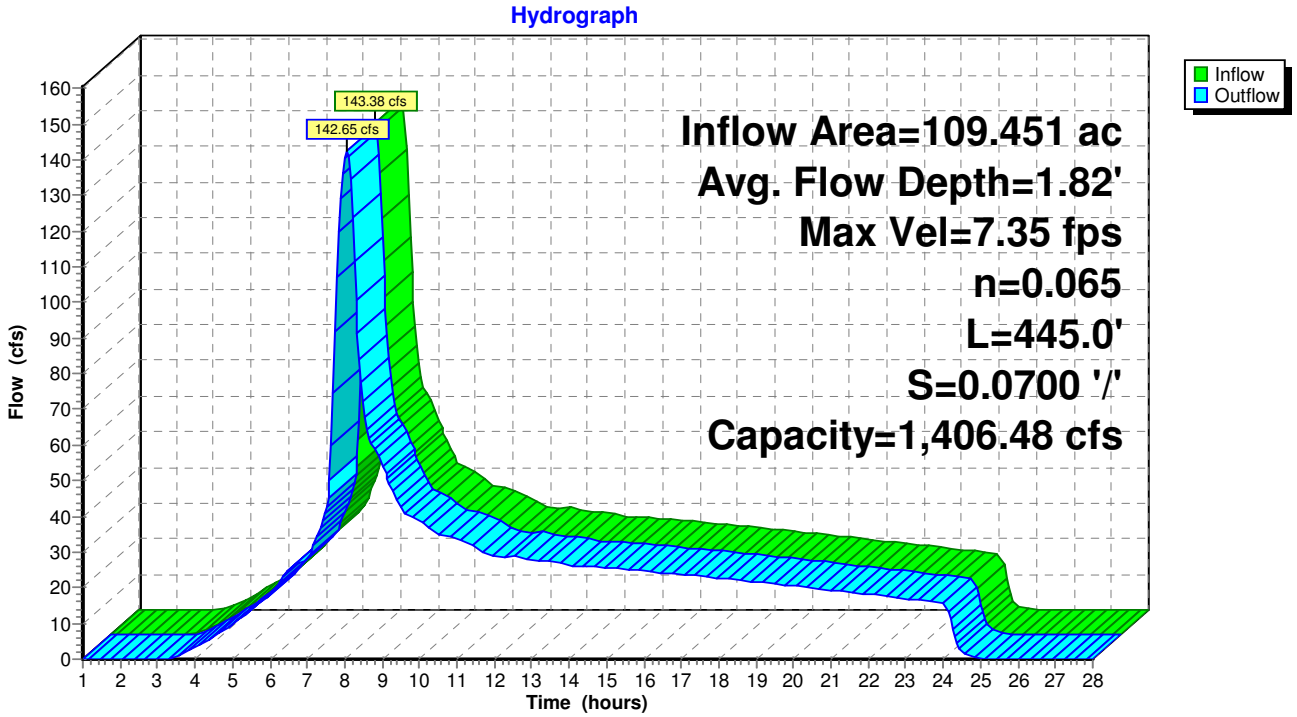
Inflow Area = 109.451 ac, 0.00% Impervious, Inflow Depth = 5.26" for 50 year event
Inflow = 143.38 cfs @ 8.03 hrs, Volume= 47.974 af
Outflow = 142.65 cfs @ 8.05 hrs, Volume= 47.974 af, Atten= 1%, Lag= 1.4 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.35 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 3.65 fps, Avg. Travel Time= 2.0 min

Peak Storage= 8,669 cf @ 8.04 hrs
Average Depth at Peak Storage= 1.82'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,406.48 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 445.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -31.15'

Reach R6: Main Stem



Summary for Reach R7.1: Stream

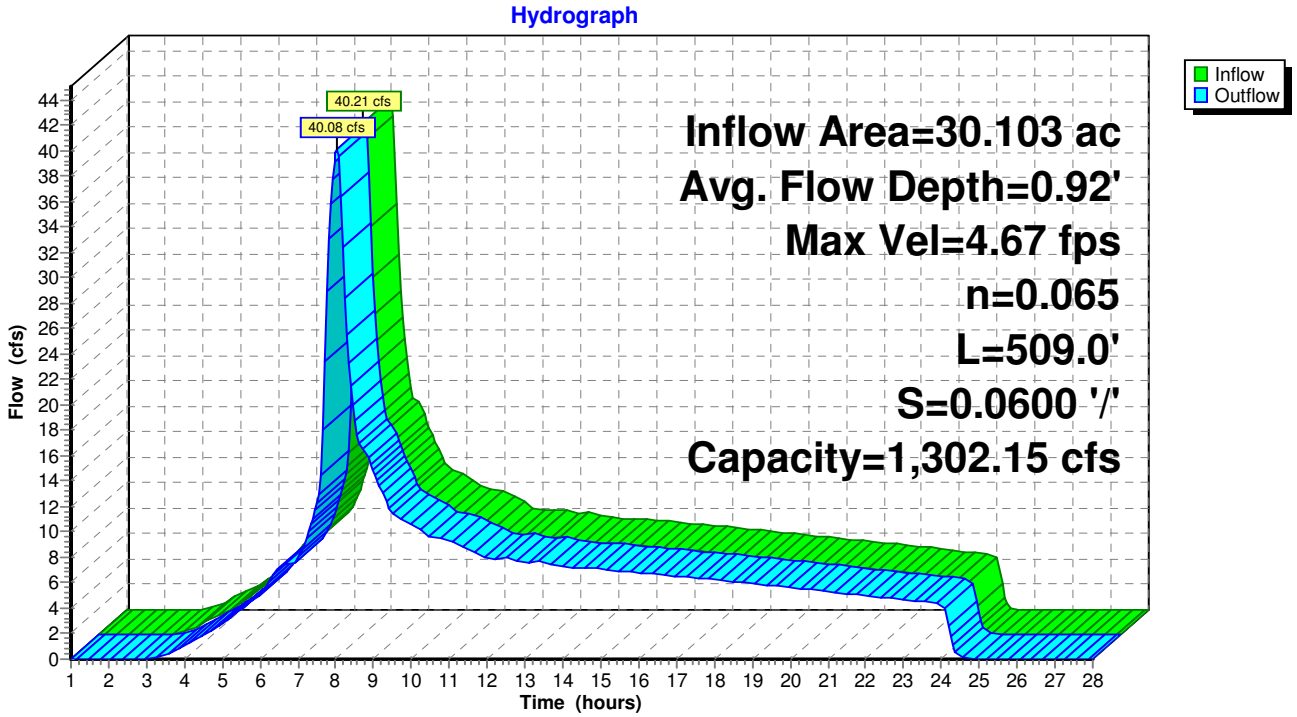
Inflow Area = 30.103 ac, 0.00% Impervious, Inflow Depth = 5.28" for 50 year event
Inflow = 40.21 cfs @ 7.99 hrs, Volume= 13.247 af
Outflow = 40.08 cfs @ 8.03 hrs, Volume= 13.247 af, Atten= 0%, Lag= 2.6 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.67 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 2.34 fps, Avg. Travel Time= 3.6 min

Peak Storage= 4,376 cf @ 8.01 hrs
Average Depth at Peak Storage= 0.92'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,302.15 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 509.0' Slope= 0.0600 '/'
Inlet Invert= 0.00', Outlet Invert= -30.54'

Reach R7.1: Stream



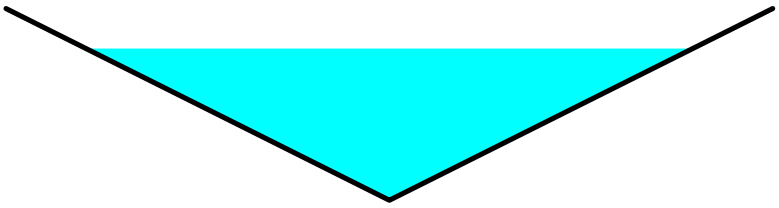
Summary for Reach R7.2: Channel

Inflow Area = 7.541 ac, 0.00% Impervious, Inflow Depth = 5.36" for 50 year event
Inflow = 10.29 cfs @ 7.96 hrs, Volume= 3.367 af
Outflow = 10.27 cfs @ 7.99 hrs, Volume= 3.367 af, Atten= 0%, Lag= 1.8 min

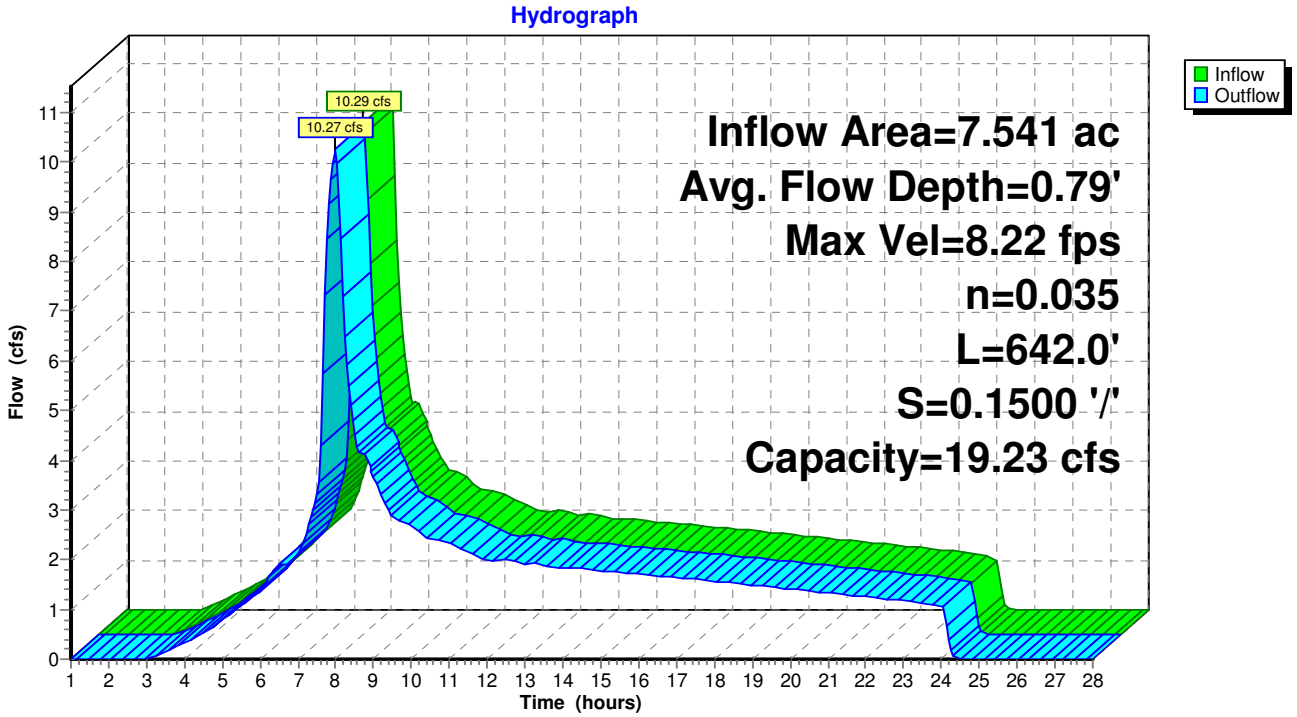
Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.22 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 4.93 fps, Avg. Travel Time= 2.2 min

Peak Storage= 804 cf @ 7.98 hrs
Average Depth at Peak Storage= 0.79'
Bank-Full Depth= 1.00' Flow Area= 2.0 sf, Capacity= 19.23 cfs

0.00' x 1.00' deep channel, n= 0.035
Side Slope Z-value= 2.0 '/' Top Width= 4.00'
Length= 642.0' Slope= 0.1500 '/'
Inlet Invert= 0.00', Outlet Invert= -96.30'



Reach R7.2: Channel



Summary for Reach R8: Main Stem

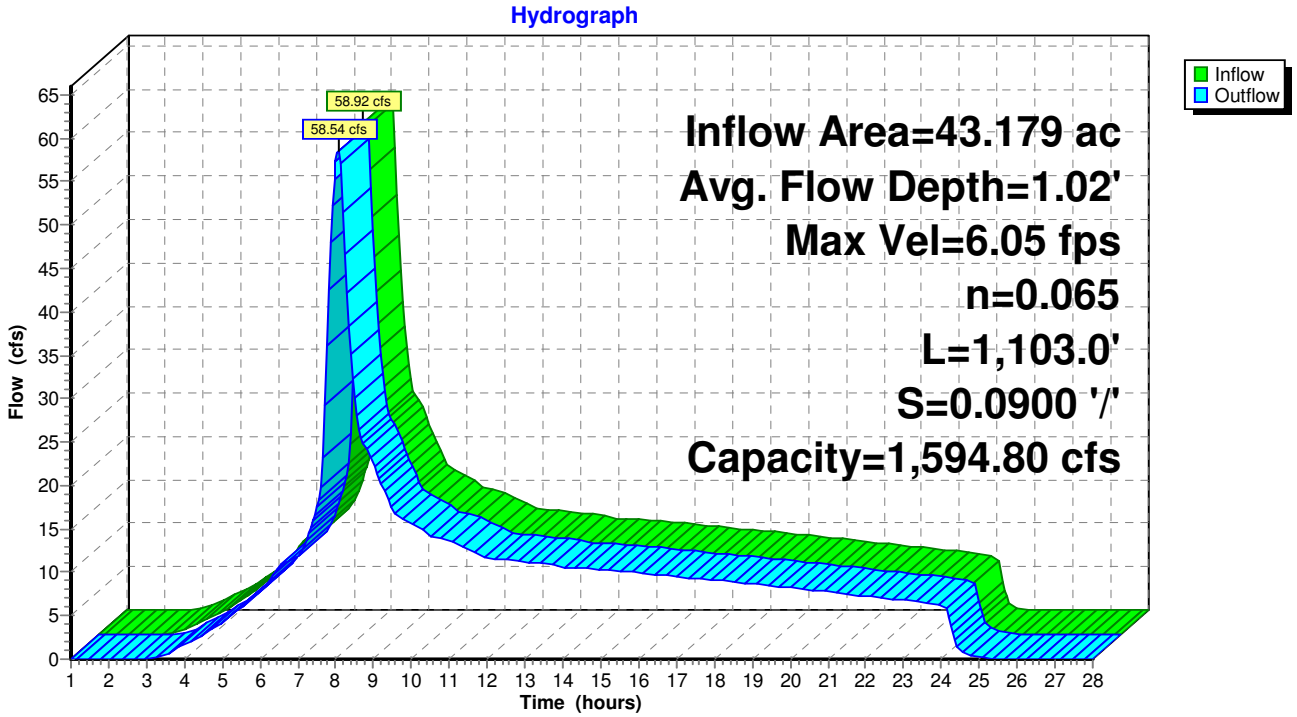
Inflow Area = 43.179 ac, 0.00% Impervious, Inflow Depth = 5.43" for 50 year event
Inflow = 58.92 cfs @ 7.99 hrs, Volume= 19.533 af
Outflow = 58.54 cfs @ 8.07 hrs, Volume= 19.533 af, Atten= 1%, Lag= 4.9 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.05 fps, Min. Travel Time= 3.0 min
Avg. Velocity = 2.95 fps, Avg. Travel Time= 6.2 min

Peak Storage= 10,666 cf @ 8.02 hrs
Average Depth at Peak Storage= 1.02'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,594.80 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,103.0' Slope= 0.0900 '/'
Inlet Invert= 0.00', Outlet Invert= -99.27'

Reach R8: Main Stem



Summary for Reach R9: Main Stem

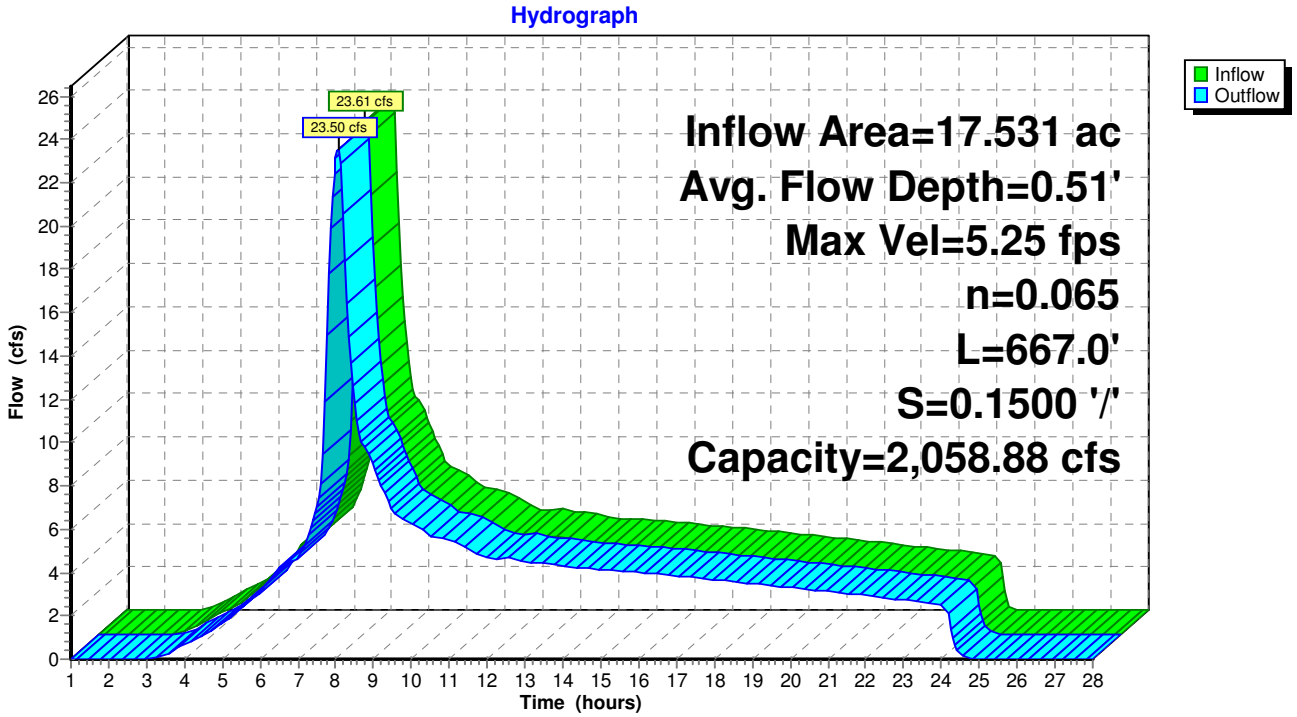
Inflow Area = 17.531 ac, 0.00% Impervious, Inflow Depth = 5.36" for 50 year event
Inflow = 23.61 cfs @ 8.01 hrs, Volume= 7.828 af
Outflow = 23.50 cfs @ 8.06 hrs, Volume= 7.828 af, Atten= 0%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.25 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 2.64 fps, Avg. Travel Time= 4.2 min

Peak Storage= 2,995 cf @ 8.03 hrs
Average Depth at Peak Storage= 0.51'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 2,058.88 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 667.0' Slope= 0.1500 '/'
Inlet Invert= 0.00', Outlet Invert= -100.05'

Reach R9: Main Stem

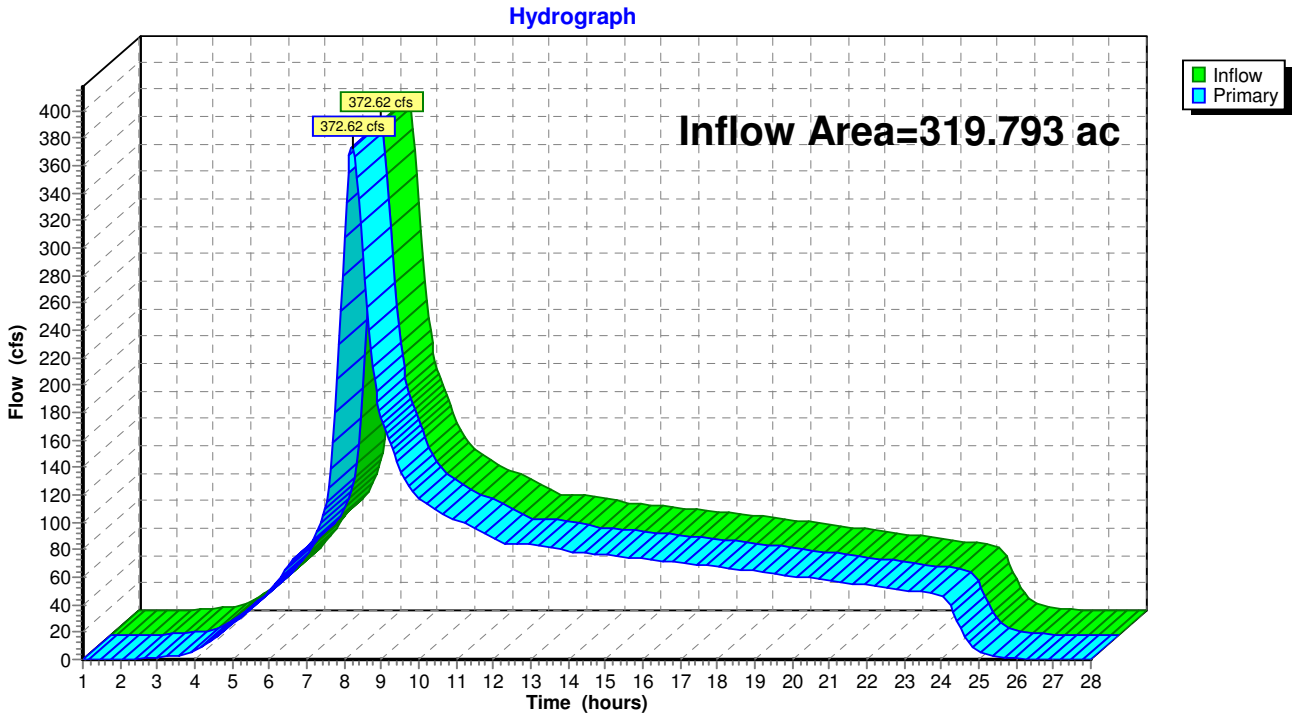


Summary for Link Outlet: Outlet

Inflow Area = 319.793 ac, 0.00% Impervious, Inflow Depth > 5.36" for 50 year event
Inflow = 372.62 cfs @ 8.21 hrs, Volume= 142.802 af
Primary = 372.62 cfs @ 8.21 hrs, Volume= 142.802 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs

Link Outlet: Outlet



Summary for Subcatchment WS1A: Subcat WS1A

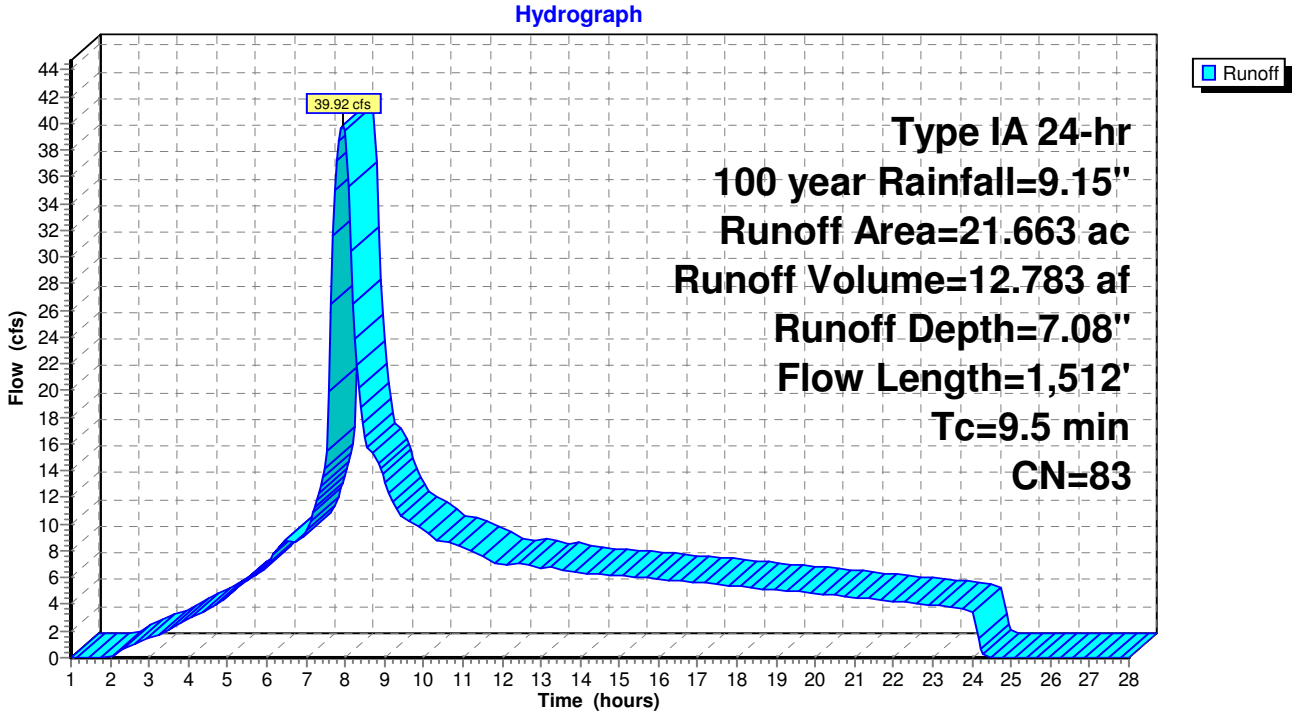
Runoff = 39.92 cfs @ 7.96 hrs, Volume= 12.783 af, Depth= 7.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
1.730	79	Pasture/grassland/range, Fair, HSG C
0.161	84	Pasture/grassland/range, Fair, HSG D
0.733	79	Vineyard, Fair, HSG C
16.760	84	Vineyard, Fair, HSG D
2.279	77	Woods, Good, HSG D
21.663	83	Weighted Average
21.663		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	100	0.2500	0.36		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	681	0.2500	8.05		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
3.5	731	0.0300	3.47	32.92	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
9.5	1,512	Total			

Subcatchment WS1A: Subcat WS1A



Summary for Subcatchment WS1B: Subcat WS1B

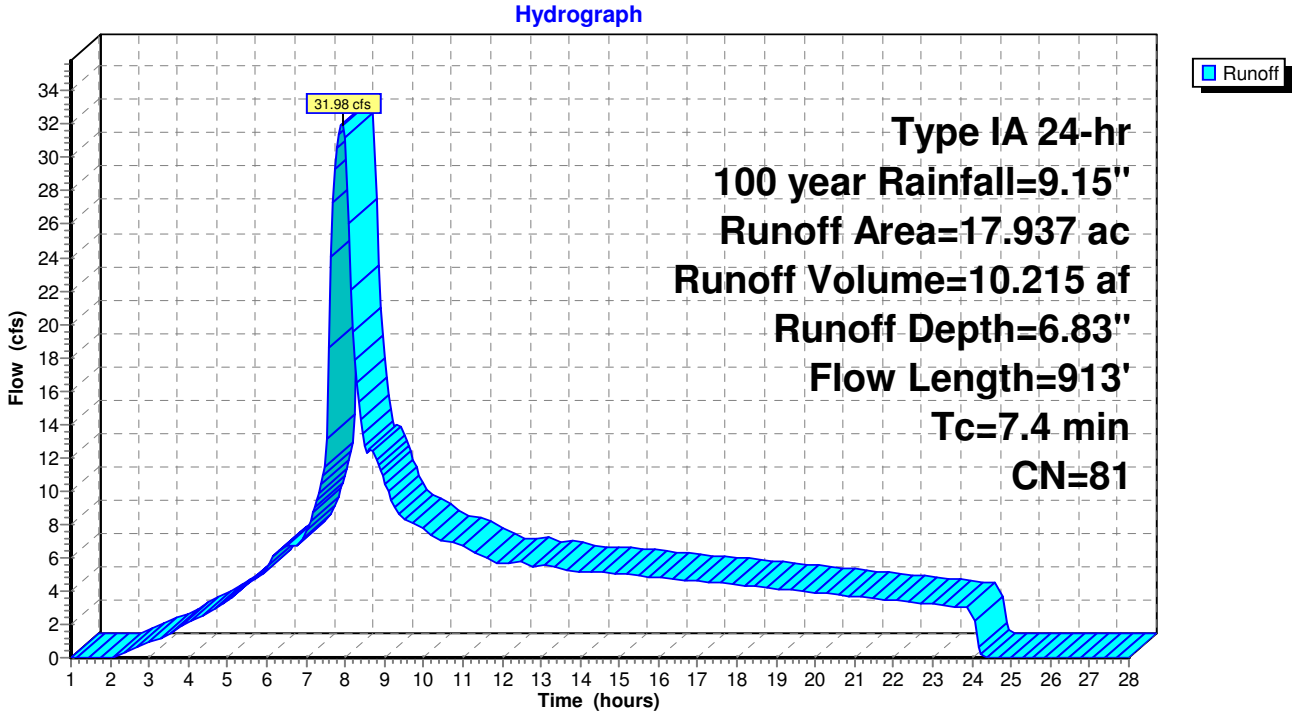
Runoff = 31.98 cfs @ 7.93 hrs, Volume= 10.215 af, Depth= 6.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.094	89	Dirt roads, HSG D
4.189	79	Pasture/grassland/range, Fair, HSG C
0.896	84	Pasture/grassland/range, Fair, HSG D
0.531	79	Vineyard, Fair, HSG C
8.409	84	Vineyard, Fair, HSG D
0.658	75	Vineyard, Good, HSG C
0.877	70	Woods, Good, HSG C
2.282	77	Woods, Good, HSG D
17.937	81	Weighted Average
17.937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	261	0.4400	10.68		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.4	265	0.2200	11.65	23.29	**Trap/Vee/Rect Channel Flow, Assumed std ditch-1** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.4	170	0.1800	6.83		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.1	74	0.1100	8.23	16.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch-2** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.1	43	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch-3** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.4	913	Total			

Subcatchment WS1B: Subcat WS1B



Summary for Subcatchment WS1C: Subcat WS1C

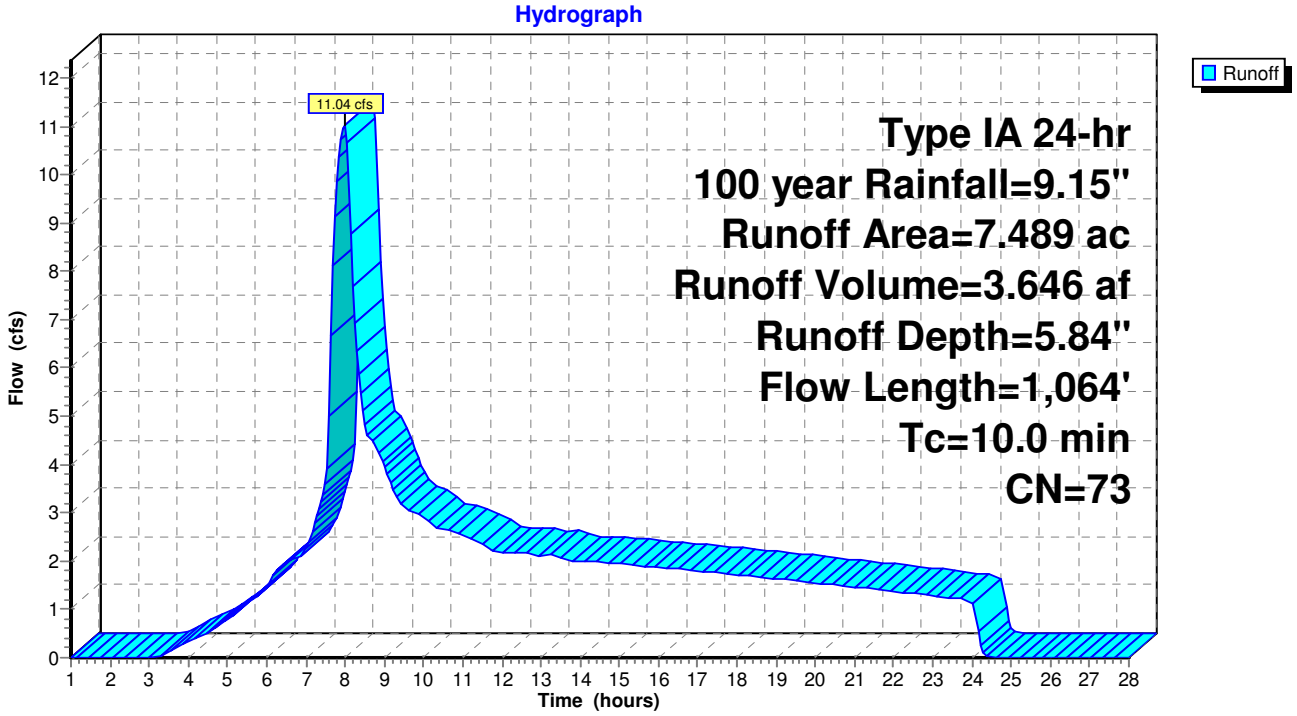
Runoff = 11.04 cfs @ 7.99 hrs, Volume= 3.646 af, Depth= 5.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.017	87	Dirt roads, HSG C
0.005	89	Dirt roads, HSG D
1.904	79	Pasture/grassland/range, Fair, HSG C
1.228	75	Vineyard, Good, HSG C
4.301	70	Woods, Good, HSG C
0.035	77	Woods, Good, HSG D
7.489	73	Weighted Average
7.489		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.7	396	0.3400	9.39		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.5	333	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.6	235	0.0600	6.08	12.16	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.0	1,064	Total			

Subcatchment WS1C: Subcat WS1C



Summary for Subcatchment WS1D: Subcat WS1D

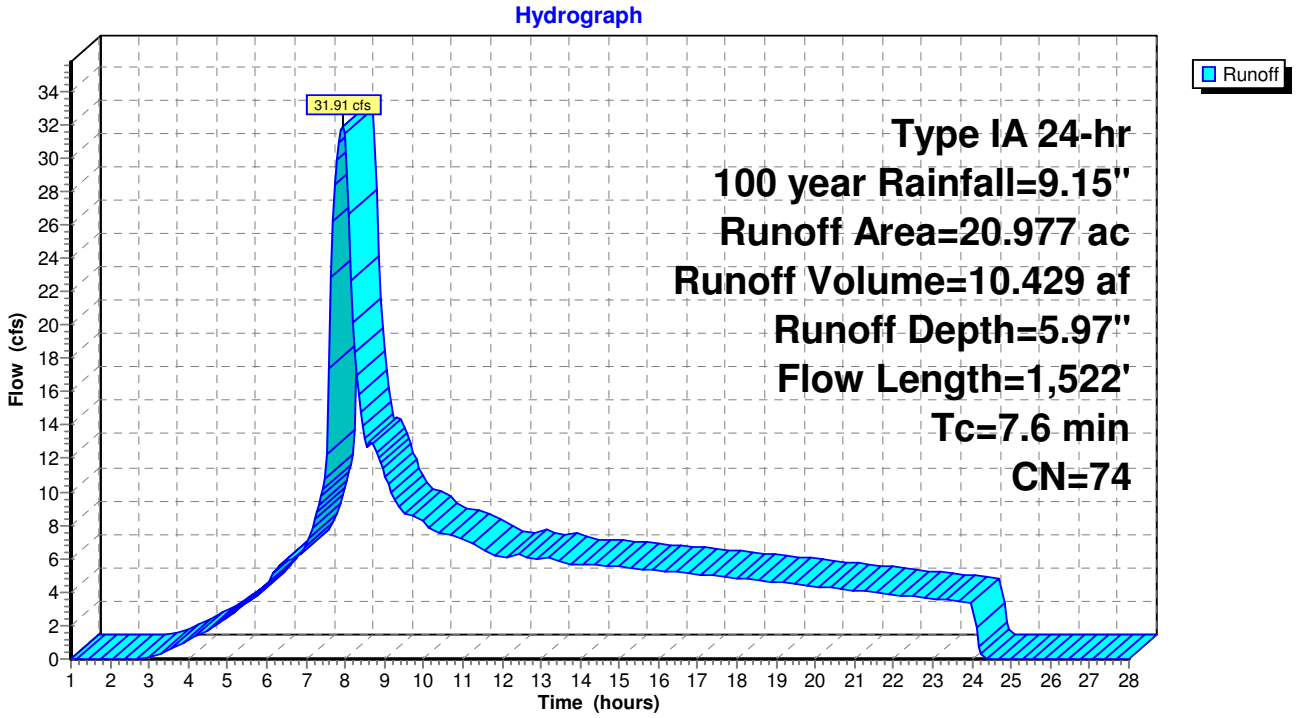
Runoff = 31.91 cfs @ 7.96 hrs, Volume= 10.429 af, Depth= 5.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.624	65	Brush, Good, HSG C
8.487	79	Pasture/grassland/range, Fair, HSG C
3.619	75	Vineyard, Good, HSG C
8.247	70	Woods, Good, HSG C
20.977	74	Weighted Average
20.977		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.3	100	0.1800	0.32		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	236	0.3800	9.92		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.9	1,186	0.1800	10.53	21.07	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	1,522	Total			

Subcatchment WS1D: Subcat WS1D



Summary for Subcatchment WS1E: Subcat WS1E

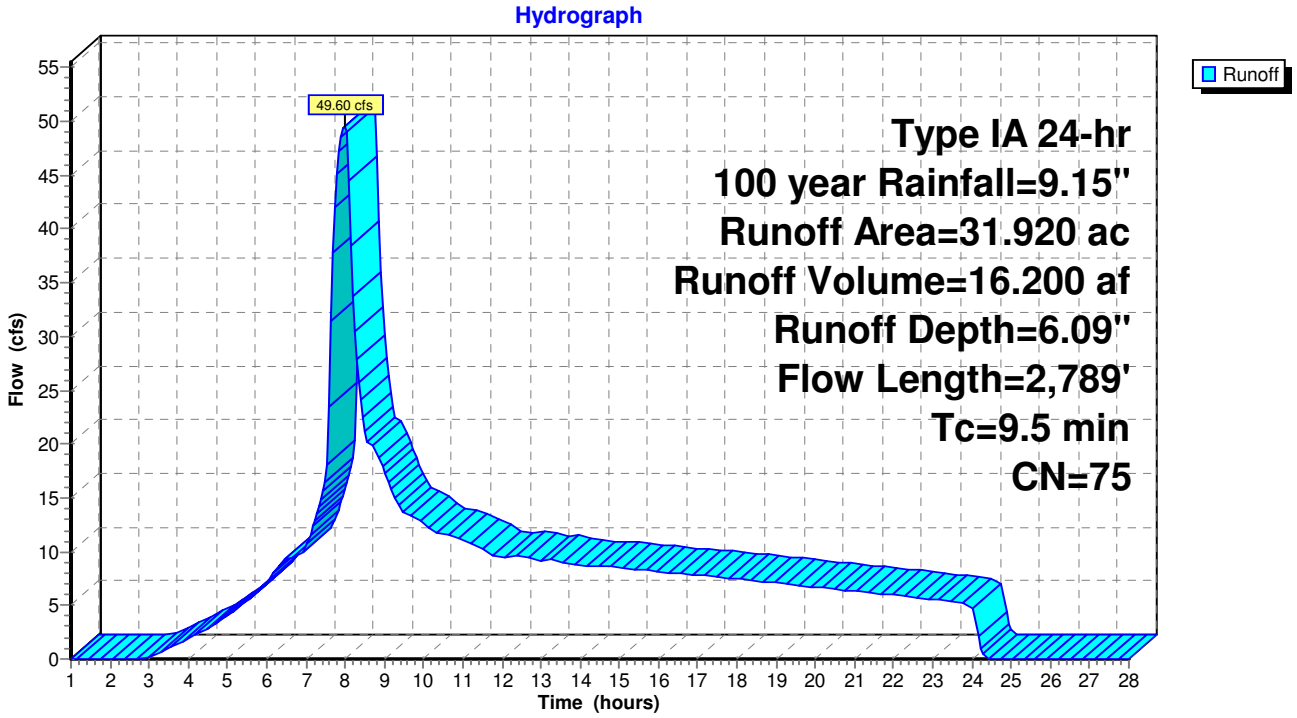
Runoff = 49.60 cfs @ 7.98 hrs, Volume= 16.200 af, Depth= 6.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.002	87	Dirt roads, HSG C
15.665	79	Pasture/grassland/range, Fair, HSG C
5.637	75	Vineyard, Good, HSG C
10.617	70	Woods, Good, HSG C
31.920	75	Weighted Average
31.920		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	100	0.2600	0.37		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.8	418	0.3200	9.11		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
4.2	2,271	0.1300	8.95	17.90	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
9.5	2,789	Total			

Subcatchment WS1E: Subcat WS1E



Summary for Subcatchment WS1F.1: Subcat WS1F.1

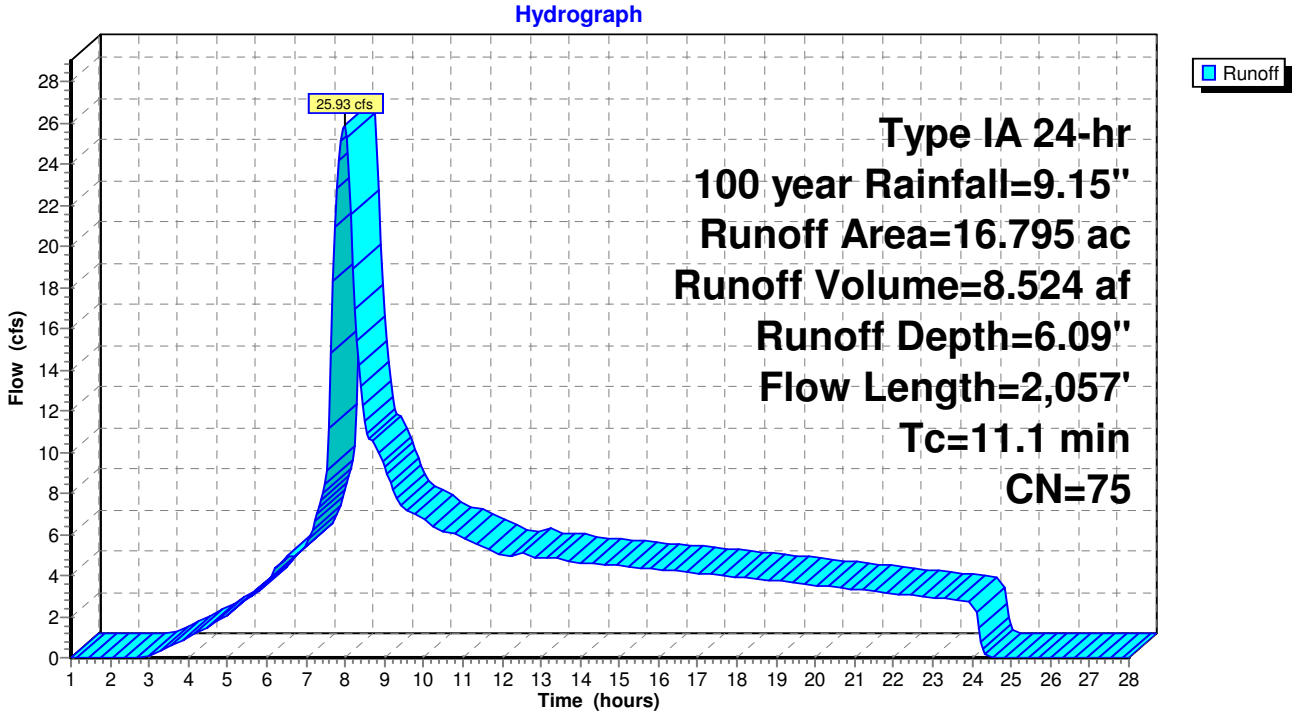
Runoff = 25.93 cfs @ 8.00 hrs, Volume= 8.524 af, Depth= 6.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.080	89	Gravel Roads, HSG C
0.436	79	Pasture/grassland/range, Fair, HSG C
0.626	74	Pasture/grassland/range, Good, HSG C
7.618	79	Vineyard, Fair, HSG C
1.739	75	Vineyard, Good, HSG C
6.296	70	Woods, Good, HSG C
16.795	75	Weighted Average
16.795		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
3.4	1,267	0.1500	6.24		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.9	548	0.1700	10.24	20.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.8	142	0.0200	2.83	26.88	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
11.1	2,057	Total			

Subcatchment WS1F.1: Subcat WS1F.1



Summary for Subcatchment WS1F.2: Subcat WS1F.2

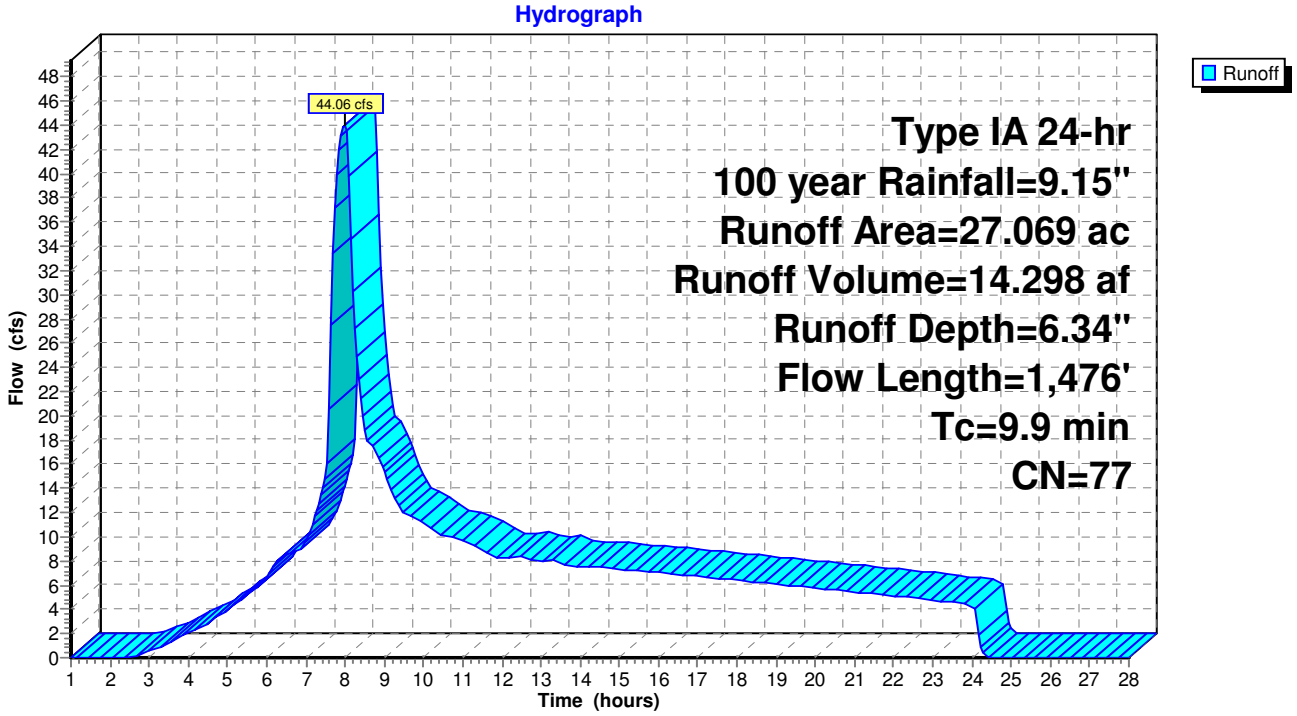
Runoff = 44.06 cfs @ 7.98 hrs, Volume= 14.298 af, Depth= 6.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.429	87	Dirt roads, HSG C
6.691	79	Pasture/grassland/range, Fair, HSG C
0.143	84	Pasture/grassland/range, Fair, HSG D
0.001	74	Pasture/grassland/range, Good, HSG C
7.427	79	Vineyard, Fair, HSG C
1.496	84	Vineyard, Fair, HSG D
3.820	75	Vineyard, Good, HSG C
6.912	70	Woods, Good, HSG C
0.149	77	Woods, Good, HSG D
27.069	77	Weighted Average
27.069		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	702	0.2500	8.05		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.2	674	0.0100	5.21	531.60	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=6.00' Z= 1.5 '/' Top.W=26.00' n= 0.065
9.9	1,476	Total			

Subcatchment WS1F.2: Subcat WS1F.2



Summary for Subcatchment WS1G: Subcat WS1G

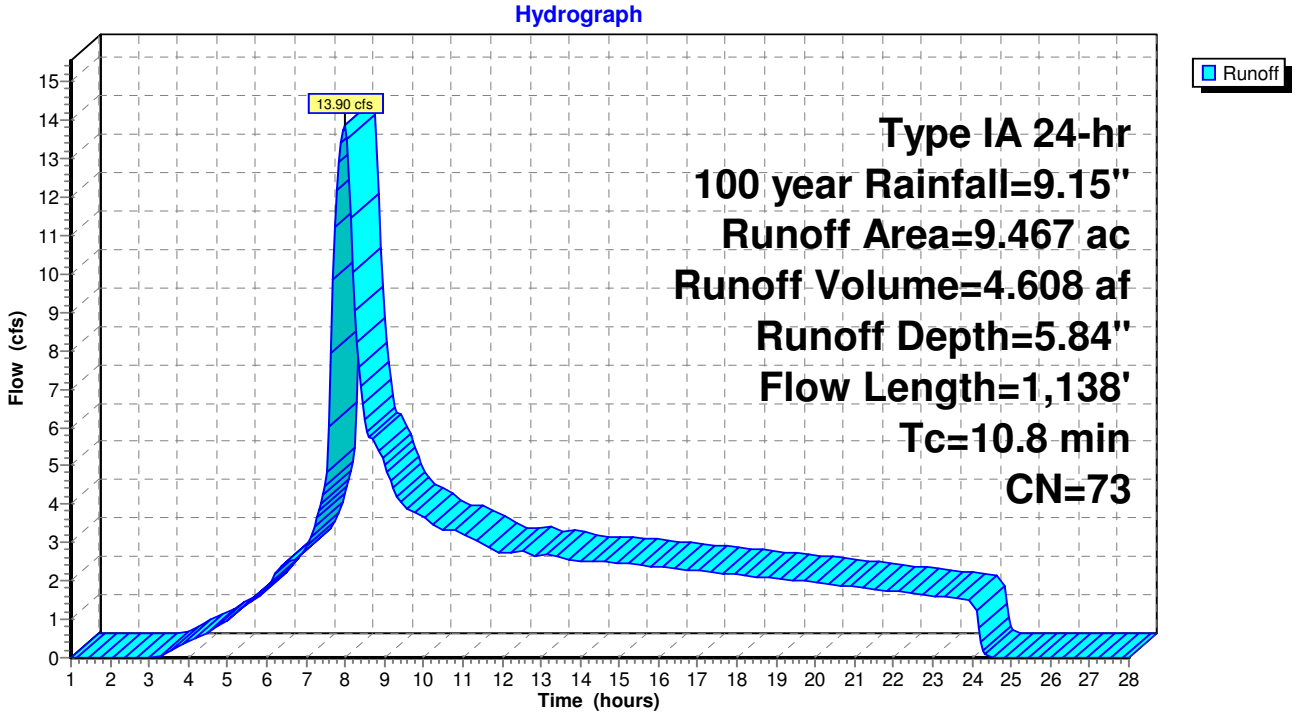
Runoff = 13.90 cfs @ 8.00 hrs, Volume= 4.608 af, Depth= 5.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.012	87	Dirt roads, HSG C
1.037	79	Pasture/grassland/range, Fair, HSG C
0.649	79	Vineyard, Fair, HSG C
3.002	75	Vineyard, Good, HSG C
4.766	70	Woods, Good, HSG C
9.467	73	Weighted Average
9.467		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.3	604	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	139	0.2300	11.91	23.82	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.3	156	0.2600	8.21		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.8	139	0.0200	2.83	26.88	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
10.8	1,138	Total			

Subcatchment WS1G: Subcat WS1G



Summary for Subcatchment WS1H: Subcat WS1H

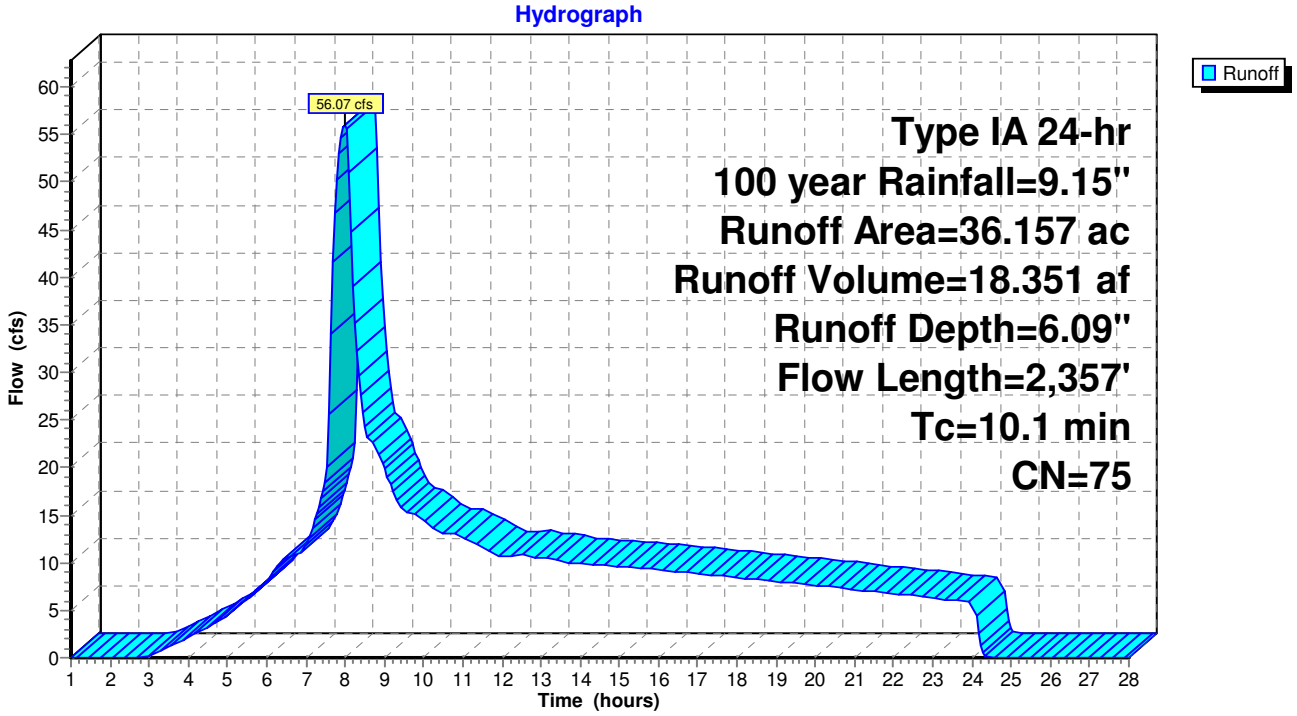
Runoff = 56.07 cfs @ 7.99 hrs, Volume= 18.351 af, Depth= 6.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.574	65	Brush, Good, HSG C
0.237	87	Dirt roads, HSG C
15.971	79	Pasture/grassland/range, Fair, HSG C
2.076	79	Vineyard, Fair, HSG C
0.993	75	Vineyard, Good, HSG C
16.305	70	Woods, Good, HSG C
36.157	75	Weighted Average
36.157		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1400	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	610	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.9	1,647	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.1	2,357	Total			

Subcatchment WS1H: Subcat WS1H



Summary for Subcatchment WS1I: Subcat WS1I

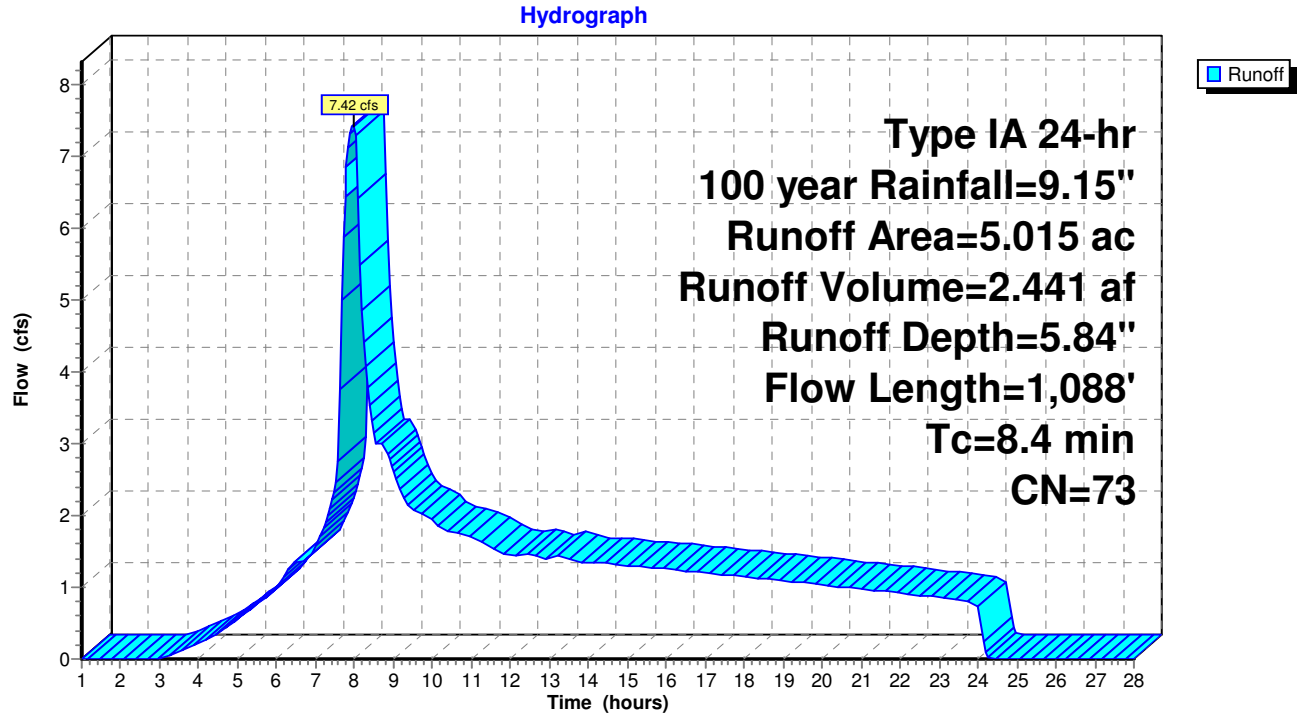
Runoff = 7.42 cfs @ 7.97 hrs, Volume= 2.441 af, Depth= 5.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.595	79	Pasture/grassland/range, Fair, HSG C
0.504	79	Vineyard, Fair, HSG C
0.862	75	Vineyard, Good, HSG C
3.053	70	Woods, Good, HSG C
5.015	73	Weighted Average
5.015		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1400	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	664	0.2100	7.38		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.1	324	0.0600	4.90	46.55	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
8.4	1,088	Total			

Subcatchment WS1I: Subcat WS1I



Summary for Subcatchment WS1J: Subcat WS1J

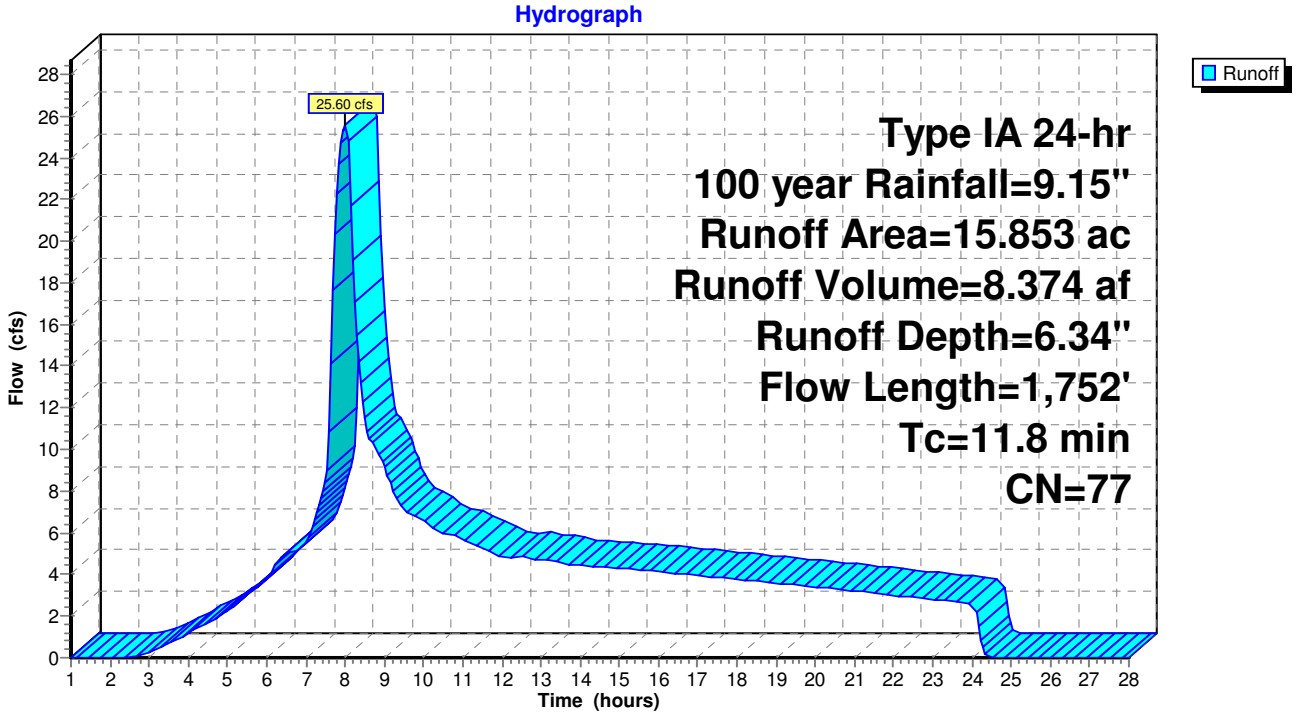
Runoff = 25.60 cfs @ 8.00 hrs, Volume= 8.374 af, Depth= 6.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.204	89	Gravel Roads, HSG C
1.188	79	Pasture/grassland/range, Fair, HSG C
2.246	74	Pasture/grassland/range, Good, HSG C
8.865	79	Vineyard, Fair, HSG C
0.714	75	Vineyard, Good, HSG C
2.636	70	Woods, Good, HSG C
15.853	77	Weighted Average
15.853		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	93	0.0500	0.19		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
2.1	826	0.1700	6.64		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	833	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
11.8	1,752	Total			

Subcatchment WS1J: Subcat WS1J



Summary for Subcatchment WS1K: Subcat WS1K

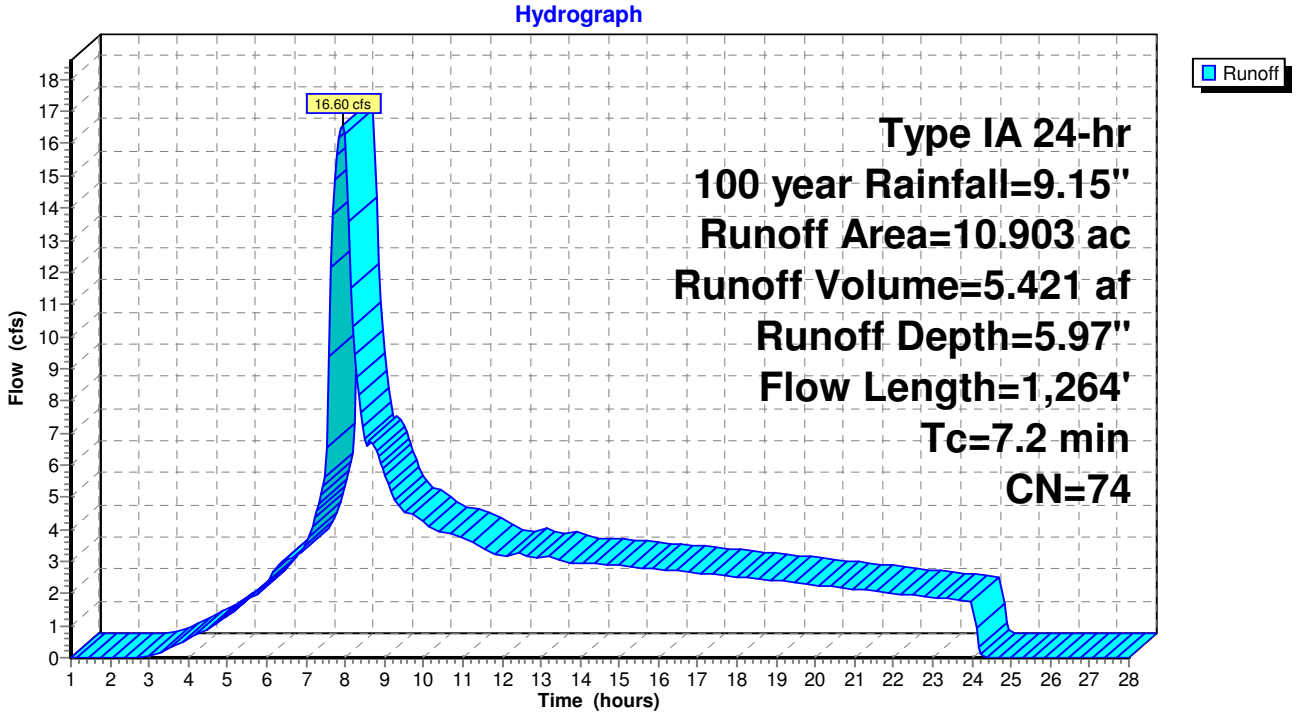
Runoff = 16.60 cfs @ 7.95 hrs, Volume= 5.421 af, Depth= 5.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.046	87	Dirt roads, HSG C
1.830	79	Pasture/grassland/range, Fair, HSG C
0.465	79	Vineyard, Fair, HSG C
4.696	75	Vineyard, Good, HSG C
3.867	70	Woods, Good, HSG C
10.903	74	Weighted Average
10.903		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.5	100	0.2700	0.37		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.8	753	0.1800	6.83		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.3	189	0.1400	9.29	18.58	**Trap/Vee/Rect Channel Flow, Assumed std ditch-1** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.6	222	0.0600	6.08	12.16	**Trap/Vee/Rect Channel Flow, Assumed std ditch-2** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.2	1,264	Total			

Subcatchment WS1K: Subcat WS1K



Summary for Subcatchment WS1L: Subcat WS1L

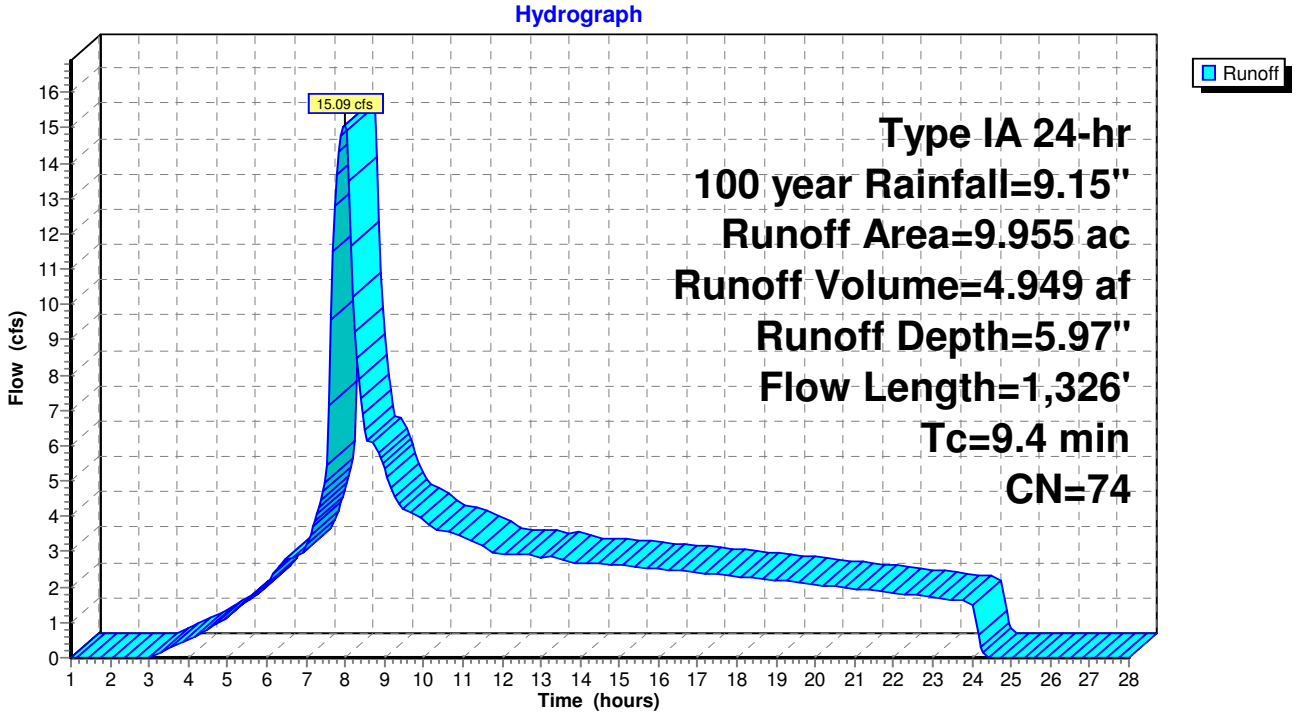
Runoff = 15.09 cfs @ 7.98 hrs, Volume= 4.949 af, Depth= 5.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.516	65	Brush, Good, HSG C
0.121	87	Dirt roads, HSG C
2.284	79	Pasture/grassland/range, Fair, HSG C
1.606	74	Pasture/grassland/range, Good, HSG C
2.111	75	Vineyard, Good, HSG C
3.318	70	Woods, Good, HSG C
9.955	74	Weighted Average
9.955		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	100	0.0900	0.24		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.8	348	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	78	0.0800	7.02	14.05	**Trap/Vee/Rect Channel Flow, Std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
0.2	92	0.3200	9.11		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
1.2	708	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
9.4	1,326	Total			

Subcatchment WS1L: Subcat WS1L



Summary for Subcatchment WS1M: Subcat WS1M

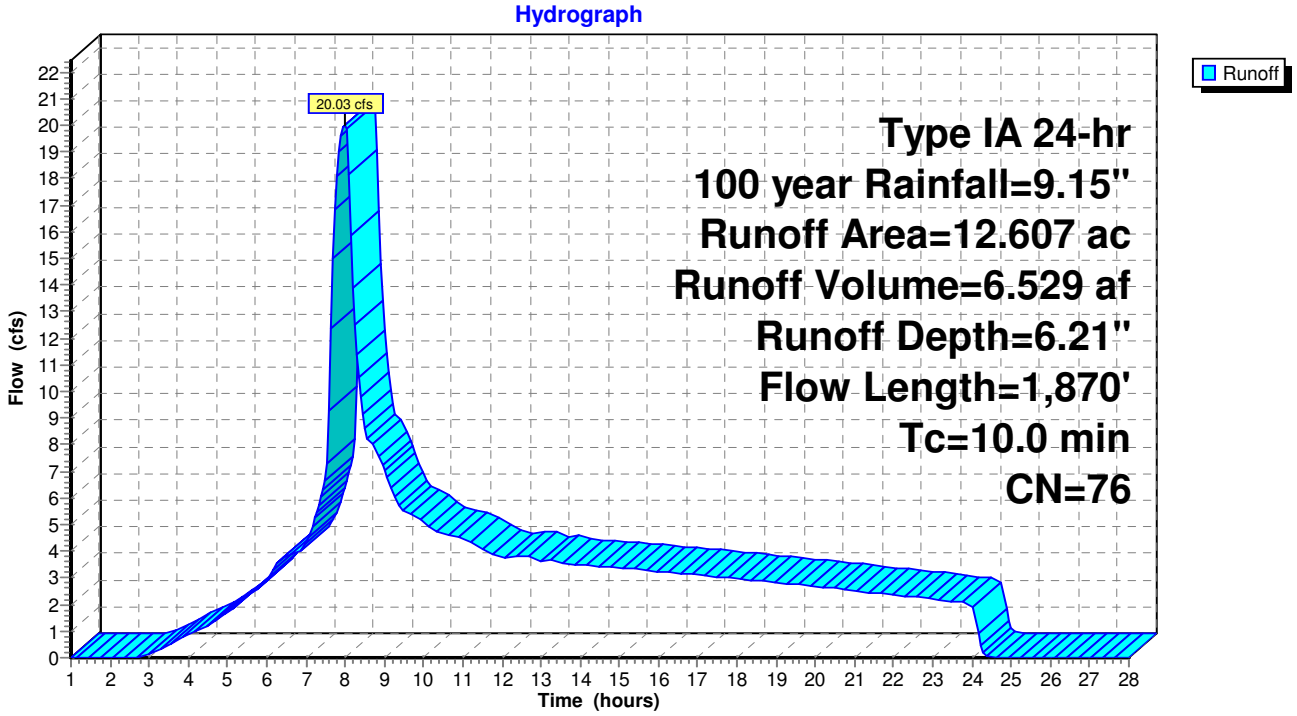
Runoff = 20.03 cfs @ 7.98 hrs, Volume= 6.529 af, Depth= 6.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.975	65	Brush, Good, HSG C
0.165	87	Dirt roads, HSG C
8.500	79	Pasture/grassland/range, Fair, HSG C
0.673	74	Pasture/grassland/range, Good, HSG C
0.790	75	Vineyard, Good, HSG C
1.503	70	Woods, Good, HSG C
12.607	76	Weighted Average
12.607		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1500	0.29		**Sheet Flow, 0.15** Grass: Dense n= 0.240 P2= 4.05"
1.6	675	0.2000	7.20		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.2	37	0.0200	3.51	7.02	**Trap/Vee/Rect Channel Flow, Std Ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
1.7	626	0.1400	6.02		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.8	432	0.1400	9.29	18.58	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.0	1,870	Total			

Subcatchment WS1M: Subcat WS1M



Summary for Subcatchment WS1N: Subcat WS1N

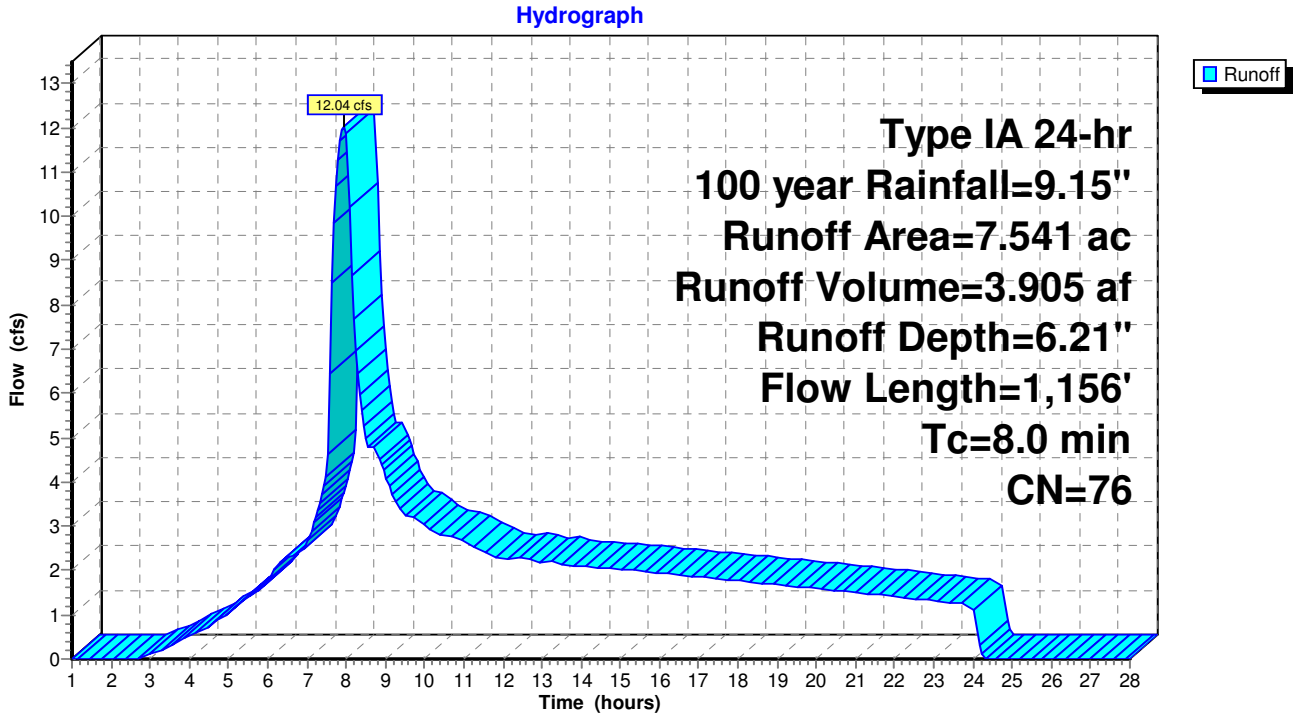
Runoff = 12.04 cfs @ 7.96 hrs, Volume= 3.905 af, Depth= 6.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.322	65	Brush, Good, HSG C
0.044	87	Dirt roads, HSG C
2.074	79	Pasture/grassland/range, Fair, HSG C
5.101	75	Vineyard, Good, HSG C
7.541	76	Weighted Average
7.541		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	100	0.1500	0.29		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.9	775	0.1700	6.64		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.4	281	0.2600	12.66	25.32	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.0	1,156	Total			

Subcatchment WS1N: Subcat WS1N



Summary for Subcatchment WS1O: Subcat WS1O

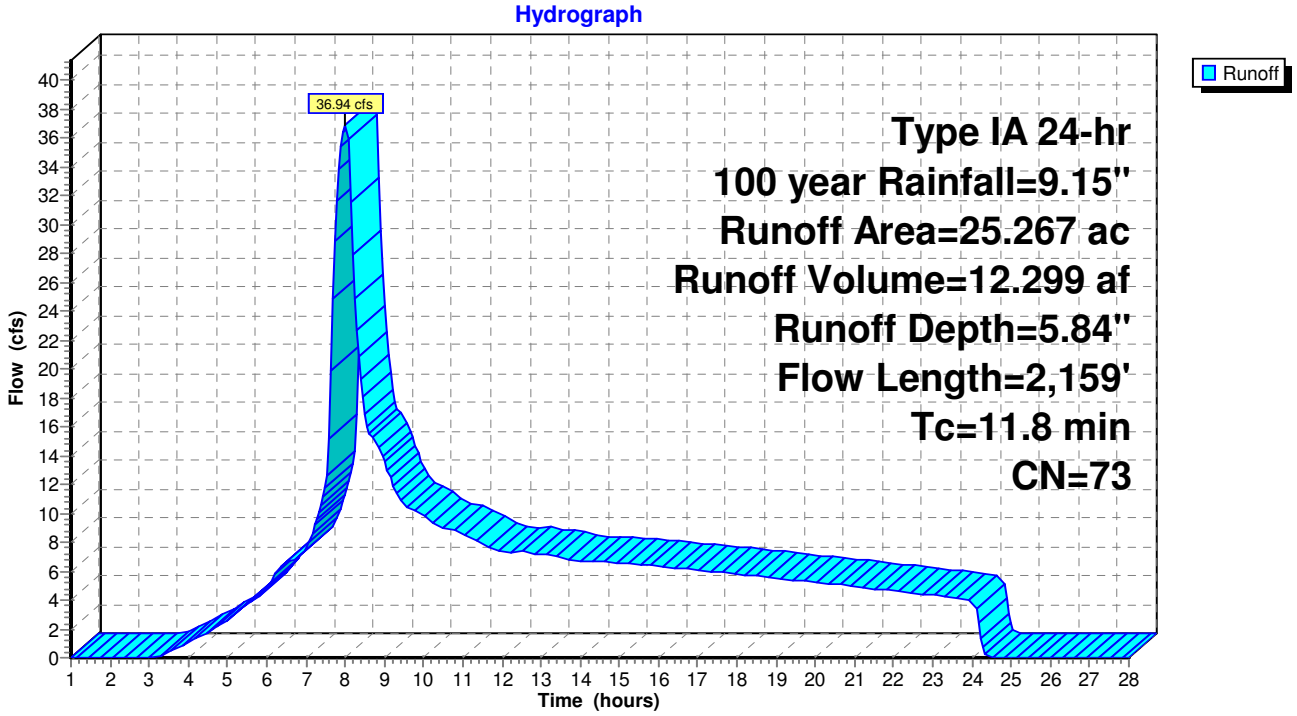
Runoff = 36.94 cfs @ 8.01 hrs, Volume= 12.299 af, Depth= 5.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.049	87	Dirt roads, HSG C
4.062	79	Pasture/grassland/range, Fair, HSG C
2.236	79	Vineyard, Fair, HSG C
1.138	75	Vineyard, Good, HSG C
17.782	70	Woods, Good, HSG C
25.267	73	Weighted Average
25.267		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.3100	0.26		**Sheet Flow, Sheet-1** Woods: Light underbrush n= 0.400 P2= 4.05"
2.6	1,166	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
2.8	893	0.0700	5.29	50.28	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
11.8	2,159	Total			

Subcatchment WS1O: Subcat WS1O



Summary for Subcatchment WS1P: Subcat WS1P

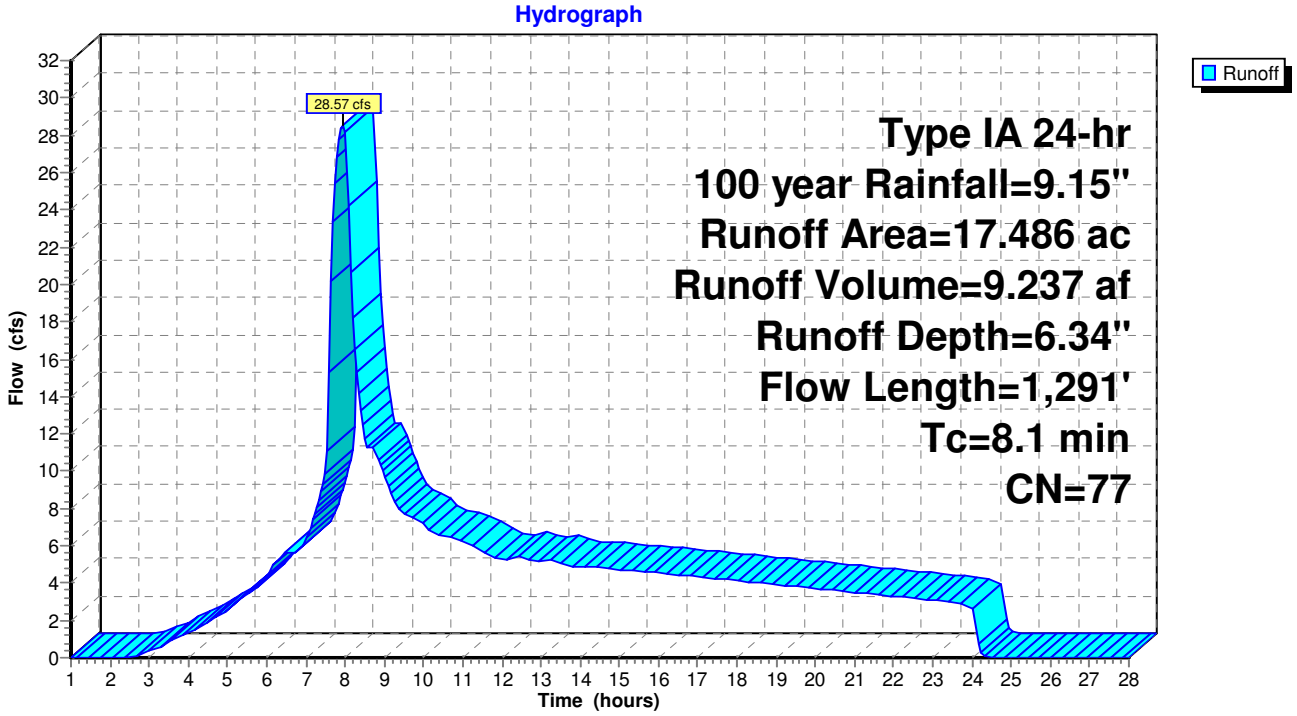
Runoff = 28.57 cfs @ 7.96 hrs, Volume= 9.237 af, Depth= 6.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.263	87	Dirt roads, HSG C
2.086	82	Farmsteads, HSG C
0.713	79	Pasture/grassland/range, Fair, HSG C
3.477	74	Pasture/grassland/range, Good, HSG C
7.176	79	Vineyard, Fair, HSG C
3.771	70	Woods, Good, HSG C
17.486	77	Weighted Average
17.486		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0500	0.28		**Sheet Flow, Sheet-1** Grass: Short n= 0.150 P2= 4.05"
0.7	331	0.2400	7.89		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	860	0.1700	10.24	20.47	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.1	1,291	Total			

Subcatchment WS1P: Subcat WS1P



Summary for Subcatchment WS1Q: Subcat WS1Q

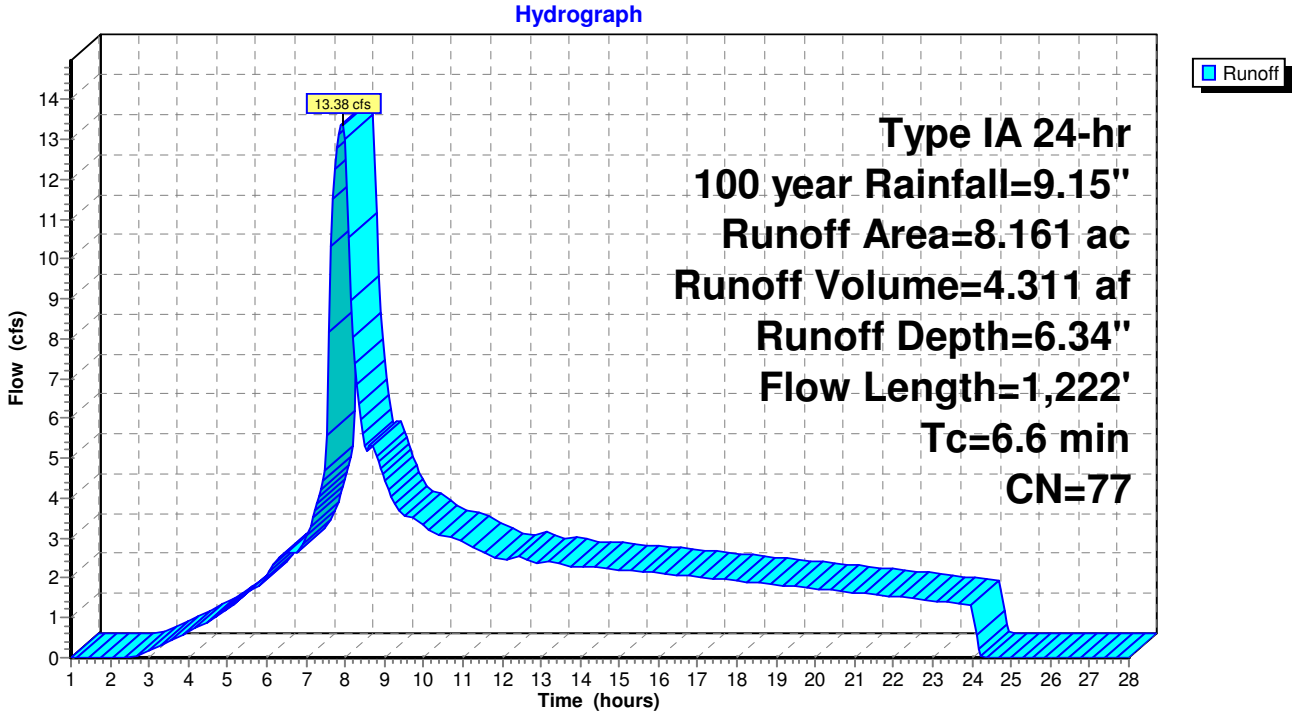
Runoff = 13.38 cfs @ 7.93 hrs, Volume= 4.311 af, Depth= 6.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.151	87	Dirt roads, HSG C
0.039	82	Farmsteads, HSG C
4.260	79	Pasture/grassland/range, Fair, HSG C
1.502	79	Vineyard, Fair, HSG C
0.064	75	Vineyard, Good, HSG C
2.145	70	Woods, Good, HSG C
8.161	77	Weighted Average
8.161		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.3200	0.40		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.5	659	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.9	463	0.1900	8.72	82.84	**Trap/Vee/Rect Channel Flow, Main Stem** Bot.W=8.00' D=1.00' Z= 1.5 '/' Top.W=11.00' n= 0.065
6.6	1,222	Total			

Subcatchment WS1Q: Subcat WS1Q



Summary for Subcatchment WS1R: Subcat WS1R

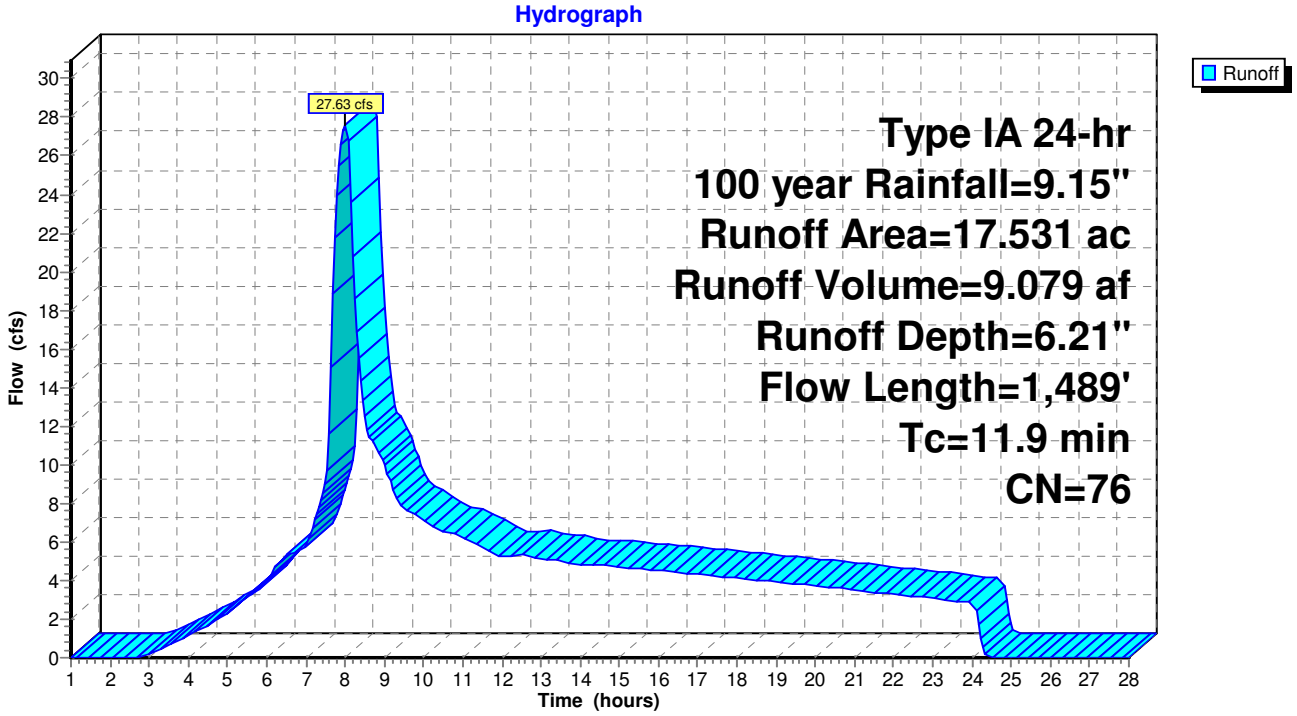
Runoff = 27.63 cfs @ 8.01 hrs, Volume= 9.079 af, Depth= 6.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.110	87	Dirt roads, HSG C
6.674	79	Pasture/grassland/range, Fair, HSG C
0.780	74	Pasture/grassland/range, Good, HSG C
8.523	75	Vineyard, Good, HSG C
1.443	70	Woods, Good, HSG C
17.531	76	Weighted Average
17.531		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	100	0.0600	0.20		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
2.3	759	0.1200	5.58		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.4	630	0.0900	7.45	14.90	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
11.9	1,489	Total			

Subcatchment WS1R: Subcat WS1R



Summary for Reach R1: Main Stem

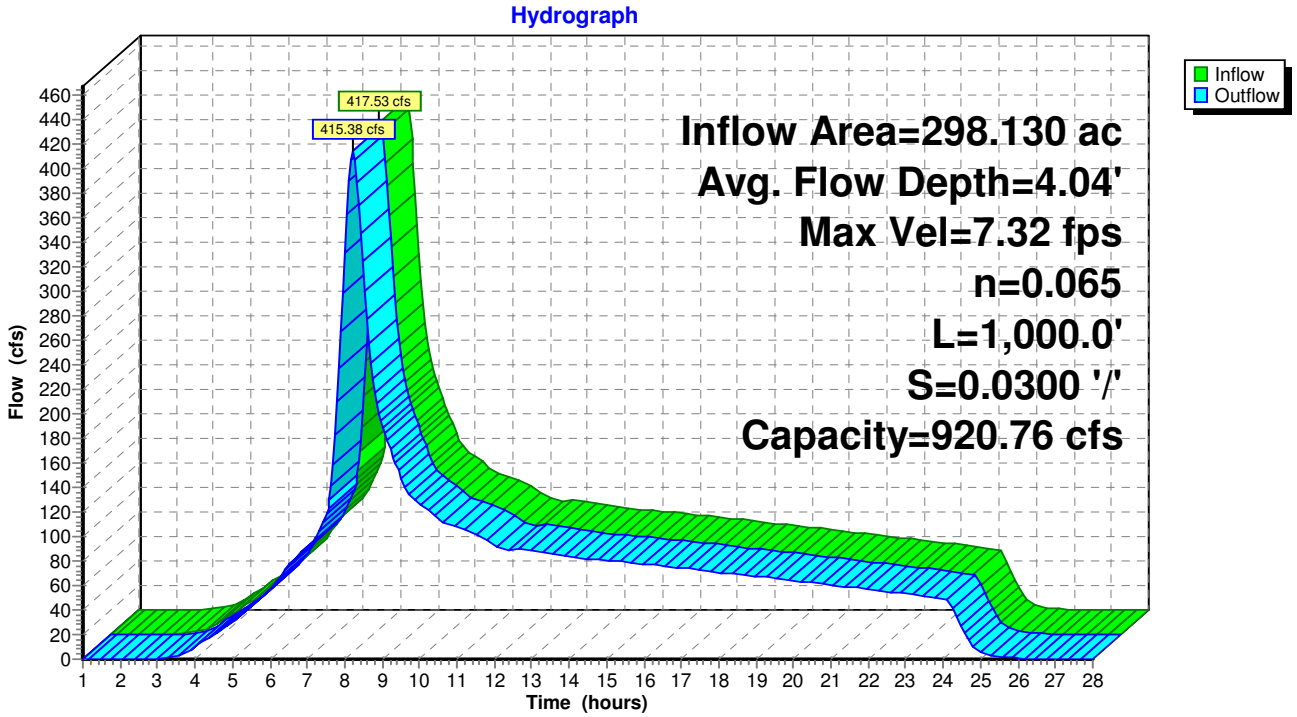
Inflow Area = 298.130 ac, 0.00% Impervious, Inflow Depth > 6.15" for 100 year event
Inflow = 417.53 cfs @ 8.14 hrs, Volume= 152.811 af
Outflow = 415.38 cfs @ 8.21 hrs, Volume= 152.807 af, Atten= 1%, Lag= 4.1 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.32 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 3.83 fps, Avg. Travel Time= 4.4 min

Peak Storage= 56,806 cf @ 8.17 hrs
Average Depth at Peak Storage= 4.04'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 920.76 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,000.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -30.00'

Reach R1: Main Stem



Summary for Reach R2: Main Stem

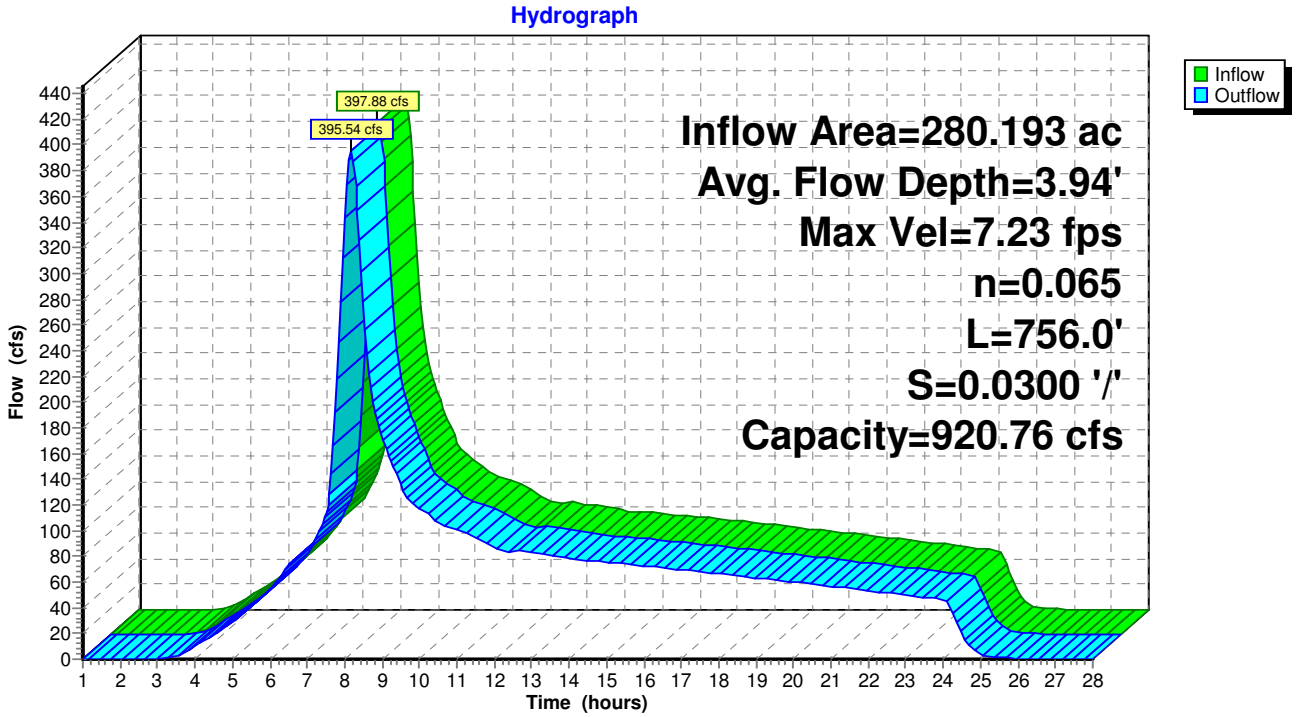
Inflow Area = 280.193 ac, 0.00% Impervious, Inflow Depth > 6.11" for 100 year event
Inflow = 397.88 cfs @ 8.10 hrs, Volume= 142.598 af
Outflow = 395.54 cfs @ 8.16 hrs, Volume= 142.596 af, Atten= 1%, Lag= 3.3 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.23 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 3.79 fps, Avg. Travel Time= 3.3 min

Peak Storage= 41,477 cf @ 8.12 hrs
Average Depth at Peak Storage= 3.94'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 920.76 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 756.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -22.68'

Reach R2: Main Stem



Summary for Reach R3: Stream

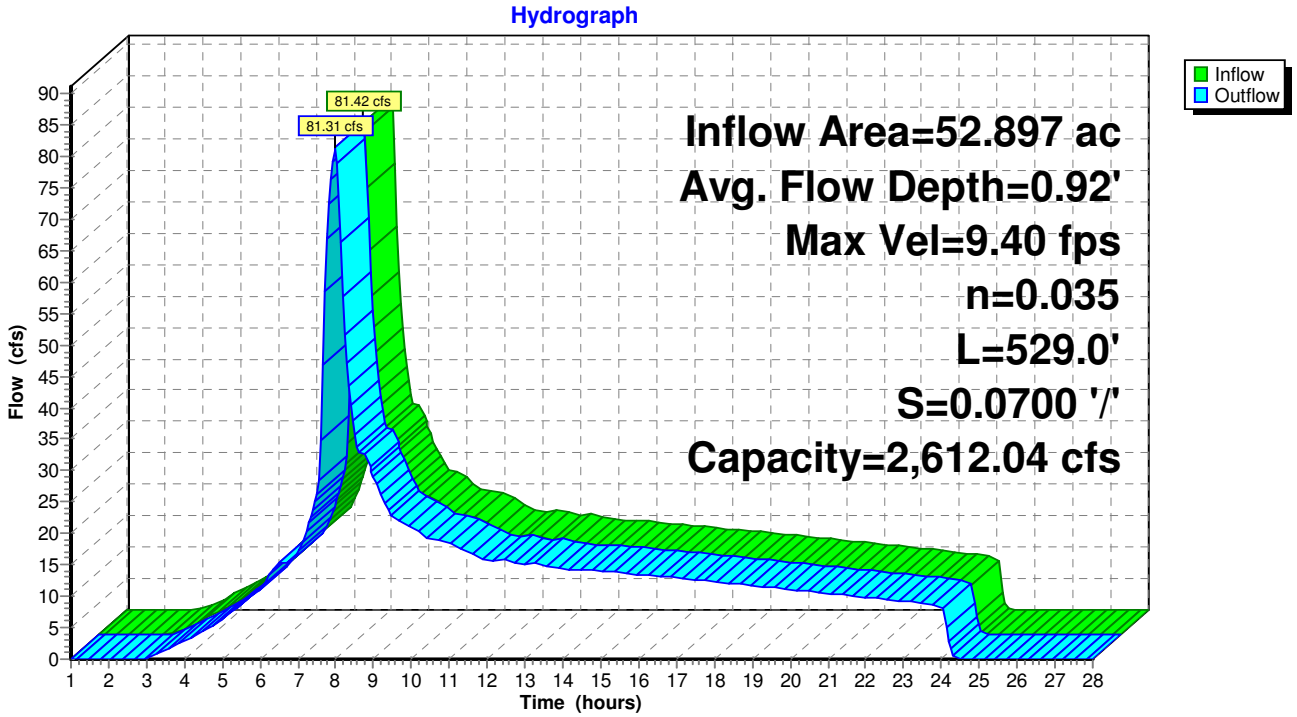
Inflow Area = 52.897 ac, 0.00% Impervious, Inflow Depth = 6.04" for 100 year event
Inflow = 81.42 cfs @ 7.97 hrs, Volume= 26.629 af
Outflow = 81.31 cfs @ 7.99 hrs, Volume= 26.629 af, Atten= 0%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.40 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 4.81 fps, Avg. Travel Time= 1.8 min

Peak Storage= 4,586 cf @ 7.98 hrs
Average Depth at Peak Storage= 0.92'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 2,612.04 cfs

8.00' x 6.00' deep channel, n= 0.035
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 529.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -37.03'

Reach R3: Stream



Summary for Reach R4.1: Main Stem

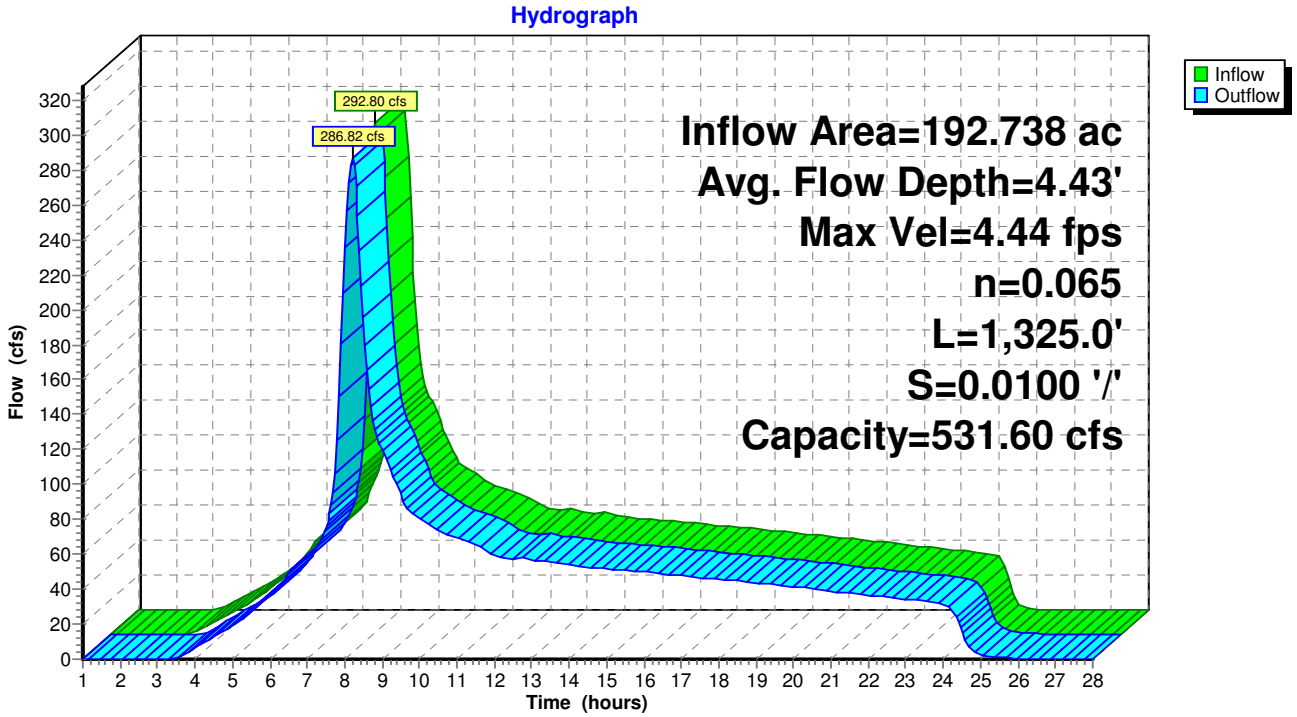
Inflow Area = 192.738 ac, 0.00% Impervious, Inflow Depth = 6.10" for 100 year event
Inflow = 292.80 cfs @ 8.06 hrs, Volume= 98.028 af
Outflow = 286.82 cfs @ 8.20 hrs, Volume= 98.024 af, Atten= 2%, Lag= 8.2 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.44 fps, Min. Travel Time= 5.0 min
Avg. Velocity = 2.31 fps, Avg. Travel Time= 9.5 min

Peak Storage= 85,876 cf @ 8.12 hrs
Average Depth at Peak Storage= 4.43'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 531.60 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,325.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -13.25'

Reach R4.1: Main Stem



Summary for Reach R4.2: Main Stem

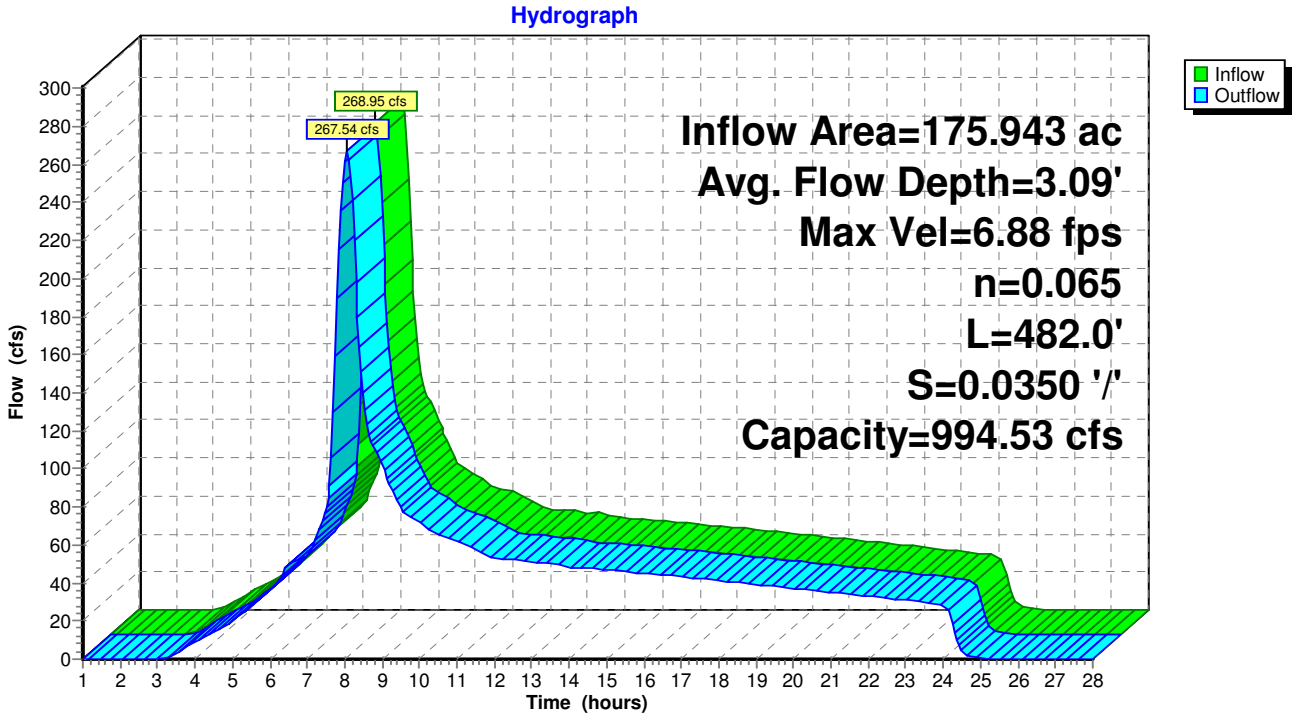
Inflow Area = 175.943 ac, 0.00% Impervious, Inflow Depth = 6.10" for 100 year event
Inflow = 268.95 cfs @ 8.04 hrs, Volume= 89.504 af
Outflow = 267.54 cfs @ 8.07 hrs, Volume= 89.504 af, Atten= 1%, Lag= 1.9 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.88 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 3.46 fps, Avg. Travel Time= 2.3 min

Peak Storage= 18,811 cf @ 8.05 hrs
Average Depth at Peak Storage= 3.09'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 994.53 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 482.0' Slope= 0.0350 '/'
Inlet Invert= 0.00', Outlet Invert= -16.87'

Reach R4.2: Main Stem



Summary for Reach R5: Main Stem

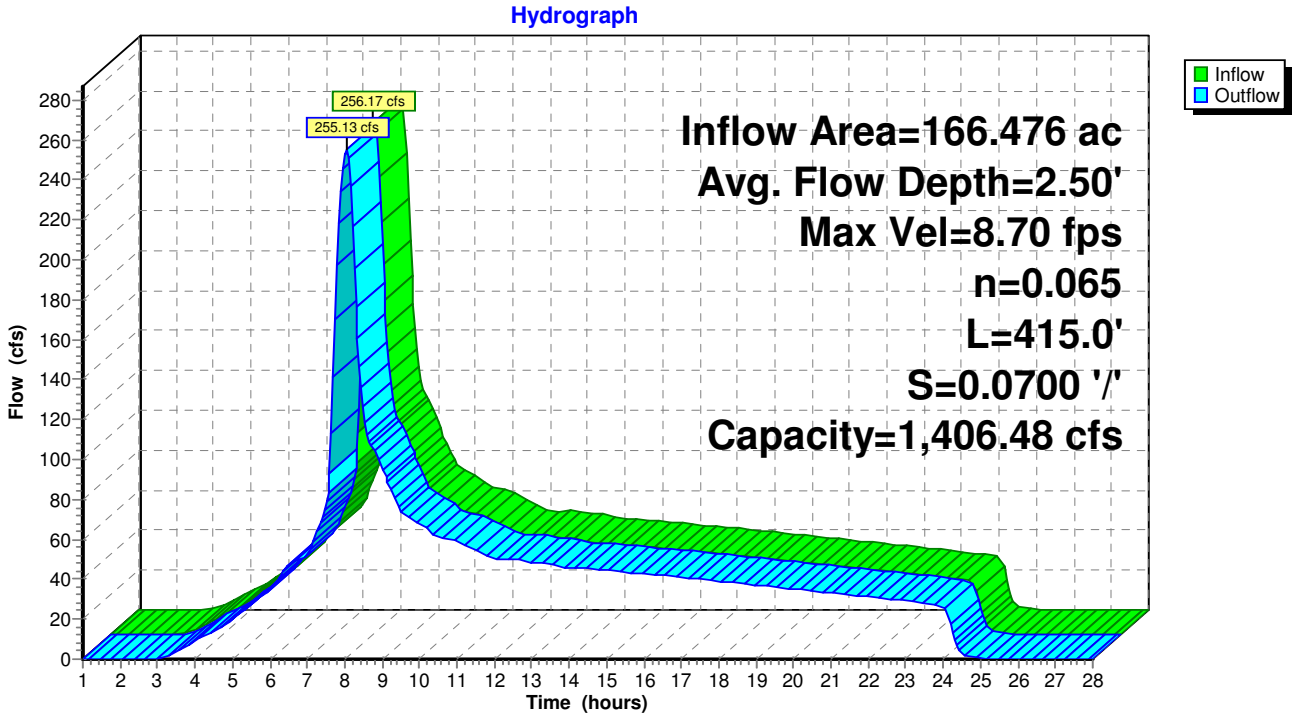
Inflow Area = 166.476 ac, 0.00% Impervious, Inflow Depth = 6.12" for 100 year event
Inflow = 256.17 cfs @ 8.03 hrs, Volume= 84.896 af
Outflow = 255.13 cfs @ 8.04 hrs, Volume= 84.896 af, Atten= 0%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.70 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 4.35 fps, Avg. Travel Time= 1.6 min

Peak Storage= 12,196 cf @ 8.03 hrs
Average Depth at Peak Storage= 2.50'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,406.48 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 415.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -29.05'

Reach R5: Main Stem



Summary for Reach R6: Main Stem

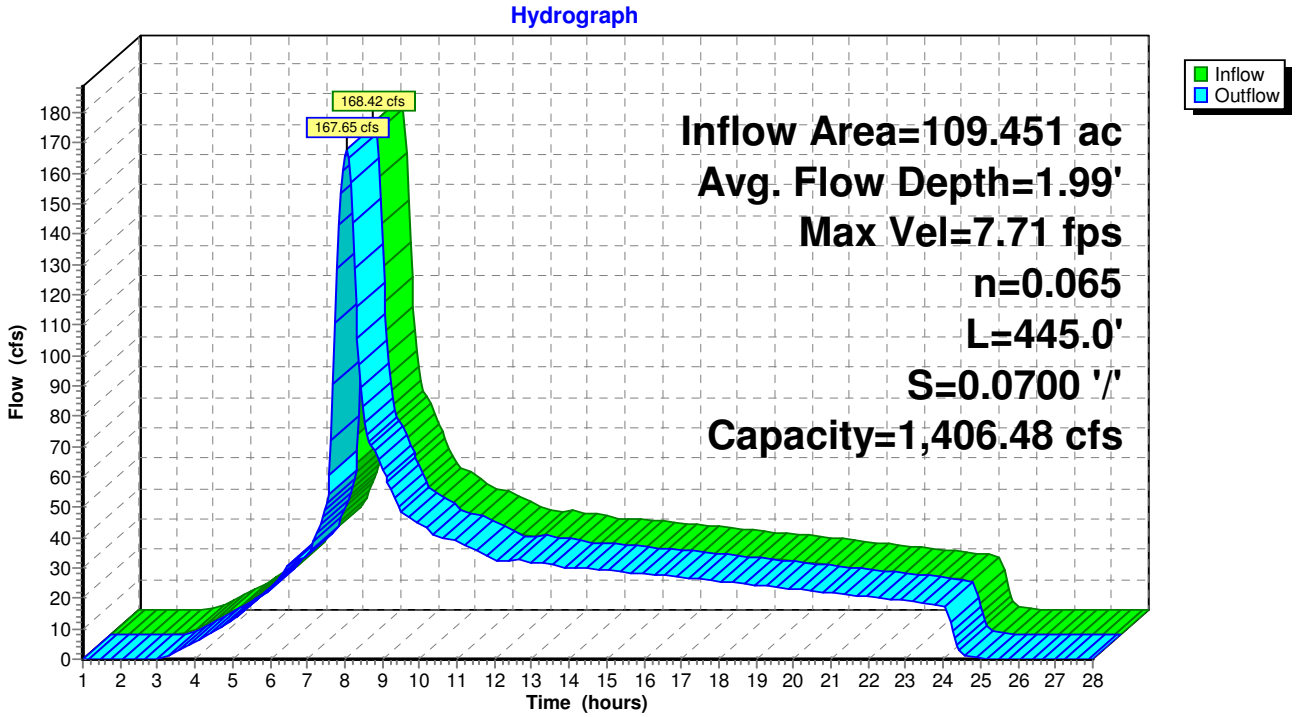
Inflow Area = 109.451 ac, 0.00% Impervious, Inflow Depth = 6.11" for 100 year event
Inflow = 168.42 cfs @ 8.03 hrs, Volume= 55.730 af
Outflow = 167.65 cfs @ 8.05 hrs, Volume= 55.730 af, Atten= 0%, Lag= 1.2 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.71 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 3.83 fps, Avg. Travel Time= 1.9 min

Peak Storage= 9,709 cf @ 8.04 hrs
Average Depth at Peak Storage= 1.99'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,406.48 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 445.0' Slope= 0.0700 '/'
Inlet Invert= 0.00', Outlet Invert= -31.15'

Reach R6: Main Stem



Summary for Reach R7.1: Stream

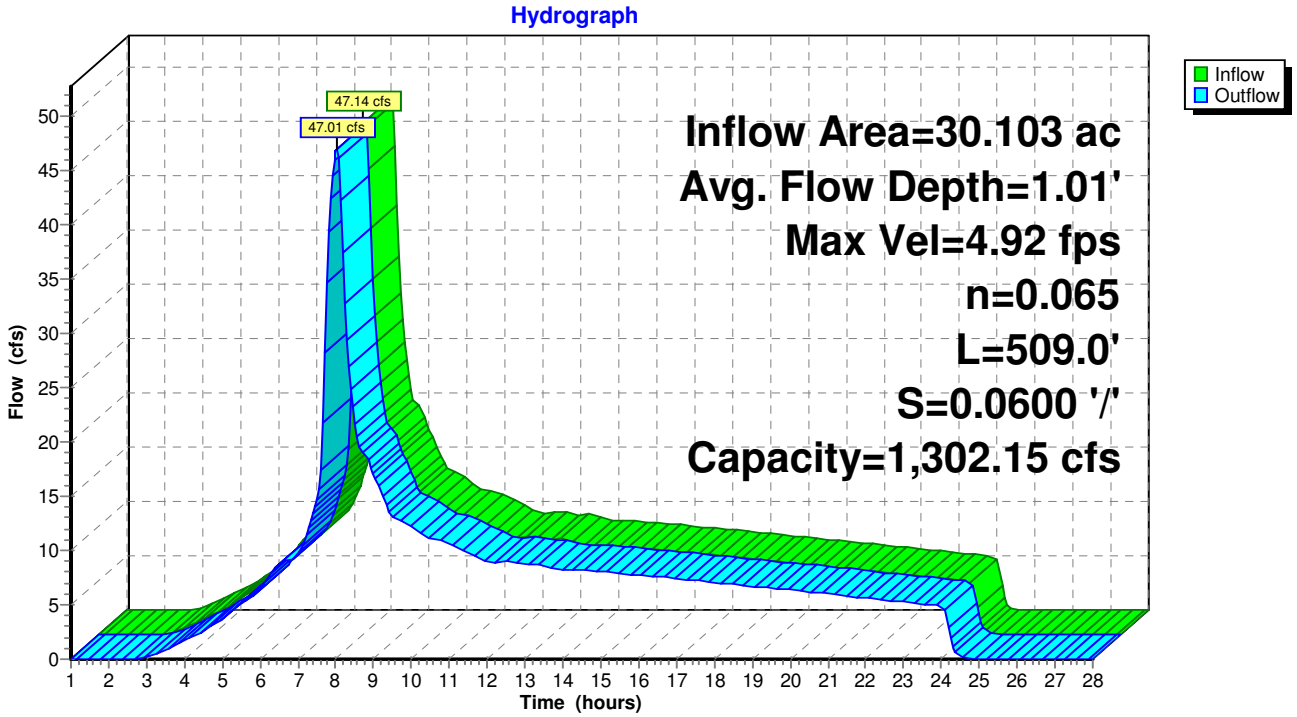
Inflow Area = 30.103 ac, 0.00% Impervious, Inflow Depth = 6.13" for 100 year event
Inflow = 47.14 cfs @ 7.98 hrs, Volume= 15.383 af
Outflow = 47.01 cfs @ 8.03 hrs, Volume= 15.383 af, Atten= 0%, Lag= 2.6 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.92 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 2.46 fps, Avg. Travel Time= 3.5 min

Peak Storage= 4,869 cf @ 8.00 hrs
Average Depth at Peak Storage= 1.01'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,302.15 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 509.0' Slope= 0.0600 '/'
Inlet Invert= 0.00', Outlet Invert= -30.54'

Reach R7.1: Stream



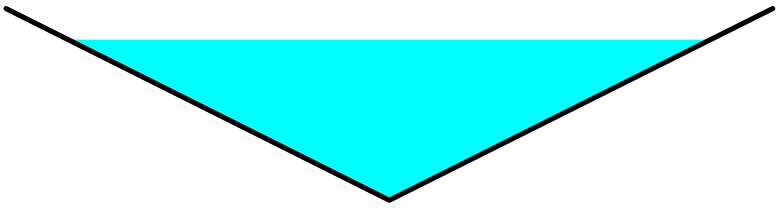
Summary for Reach R7.2: Channel

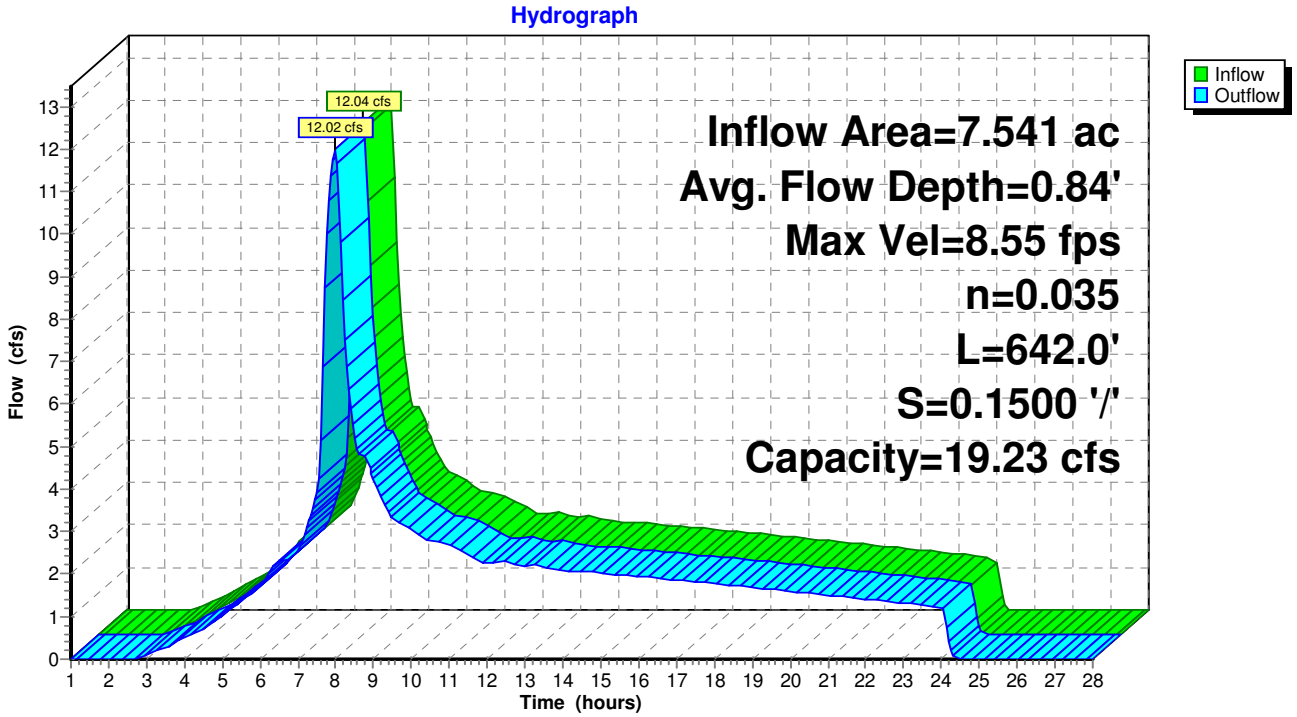
Inflow Area = 7.541 ac, 0.00% Impervious, Inflow Depth = 6.21" for 100 year event
Inflow = 12.04 cfs @ 7.96 hrs, Volume= 3.905 af
Outflow = 12.02 cfs @ 7.99 hrs, Volume= 3.905 af, Atten= 0%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.55 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 5.09 fps, Avg. Travel Time= 2.1 min

Peak Storage= 903 cf @ 7.97 hrs
Average Depth at Peak Storage= 0.84'
Bank-Full Depth= 1.00' Flow Area= 2.0 sf, Capacity= 19.23 cfs

0.00' x 1.00' deep channel, n= 0.035
Side Slope Z-value= 2.0 '/' Top Width= 4.00'
Length= 642.0' Slope= 0.1500 '/'
Inlet Invert= 0.00', Outlet Invert= -96.30'





Summary for Reach R8: Main Stem

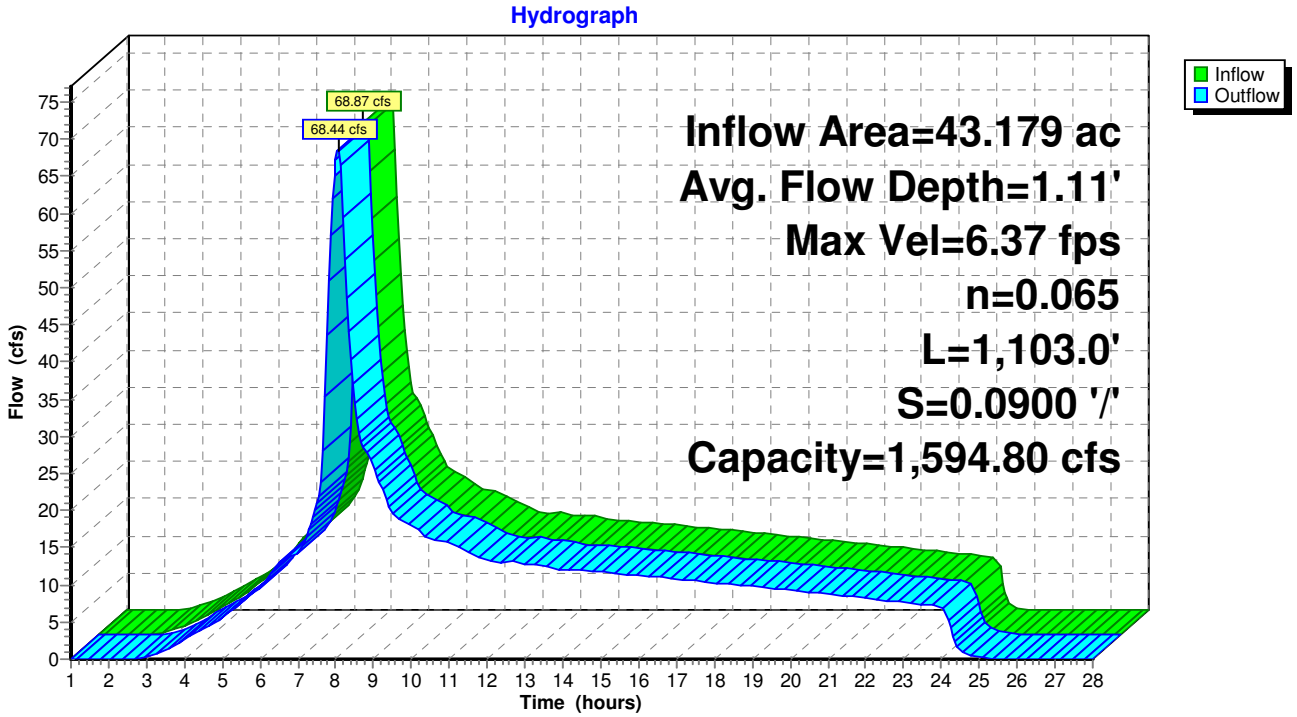
Inflow Area = 43.179 ac, 0.00% Impervious, Inflow Depth = 6.29" for 100 year event
Inflow = 68.87 cfs @ 7.99 hrs, Volume= 22.627 af
Outflow = 68.44 cfs @ 8.06 hrs, Volume= 22.627 af, Atten= 1%, Lag= 4.5 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.37 fps, Min. Travel Time= 2.9 min
Avg. Velocity = 3.09 fps, Avg. Travel Time= 6.0 min

Peak Storage= 11,854 cf @ 8.02 hrs
Average Depth at Peak Storage= 1.11'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 1,594.80 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 1,103.0' Slope= 0.0900 '/'
Inlet Invert= 0.00', Outlet Invert= -99.27'

Reach R8: Main Stem



Summary for Reach R9: Main Stem

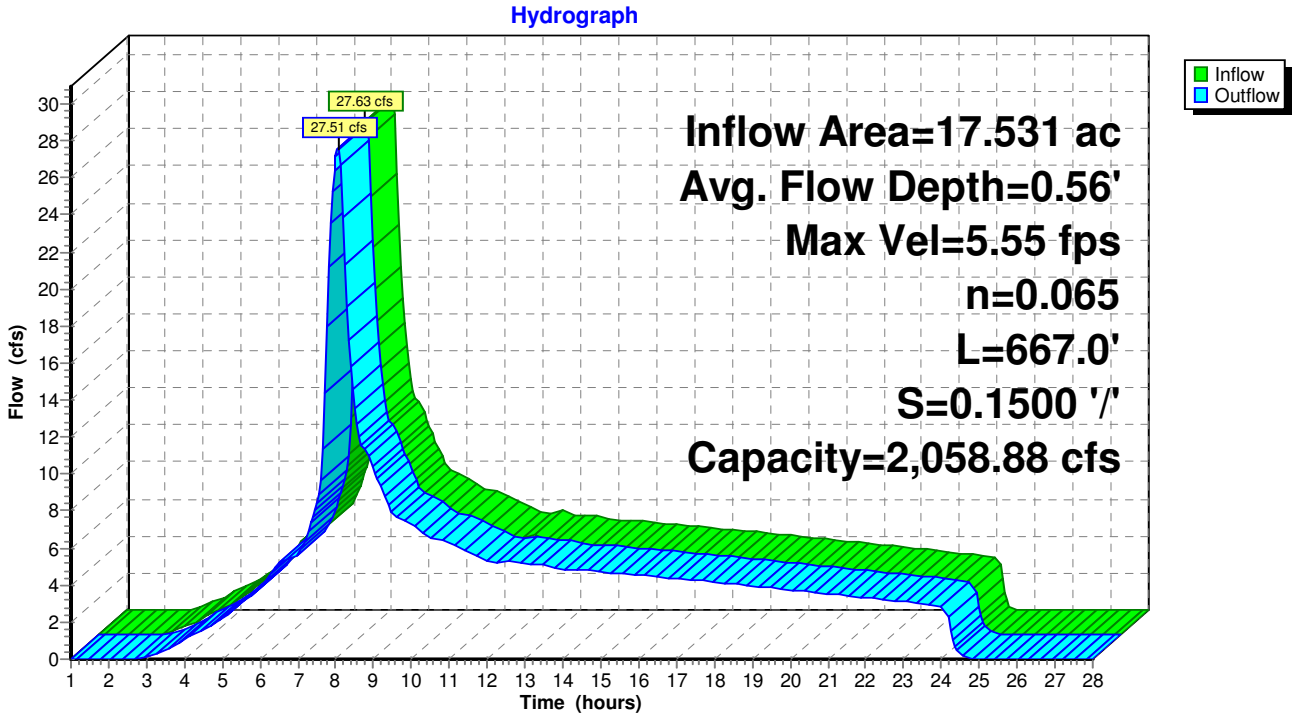
Inflow Area = 17.531 ac, 0.00% Impervious, Inflow Depth = 6.21" for 100 year event
Inflow = 27.63 cfs @ 8.01 hrs, Volume= 9.079 af
Outflow = 27.51 cfs @ 8.05 hrs, Volume= 9.079 af, Atten= 0%, Lag= 2.8 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.55 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 2.77 fps, Avg. Travel Time= 4.0 min

Peak Storage= 3,317 cf @ 8.03 hrs
Average Depth at Peak Storage= 0.56'
Bank-Full Depth= 6.00' Flow Area= 102.0 sf, Capacity= 2,058.88 cfs

8.00' x 6.00' deep channel, n= 0.065
Side Slope Z-value= 1.5 '/' Top Width= 26.00'
Length= 667.0' Slope= 0.1500 '/'
Inlet Invert= 0.00', Outlet Invert= -100.05'

Reach R9: Main Stem

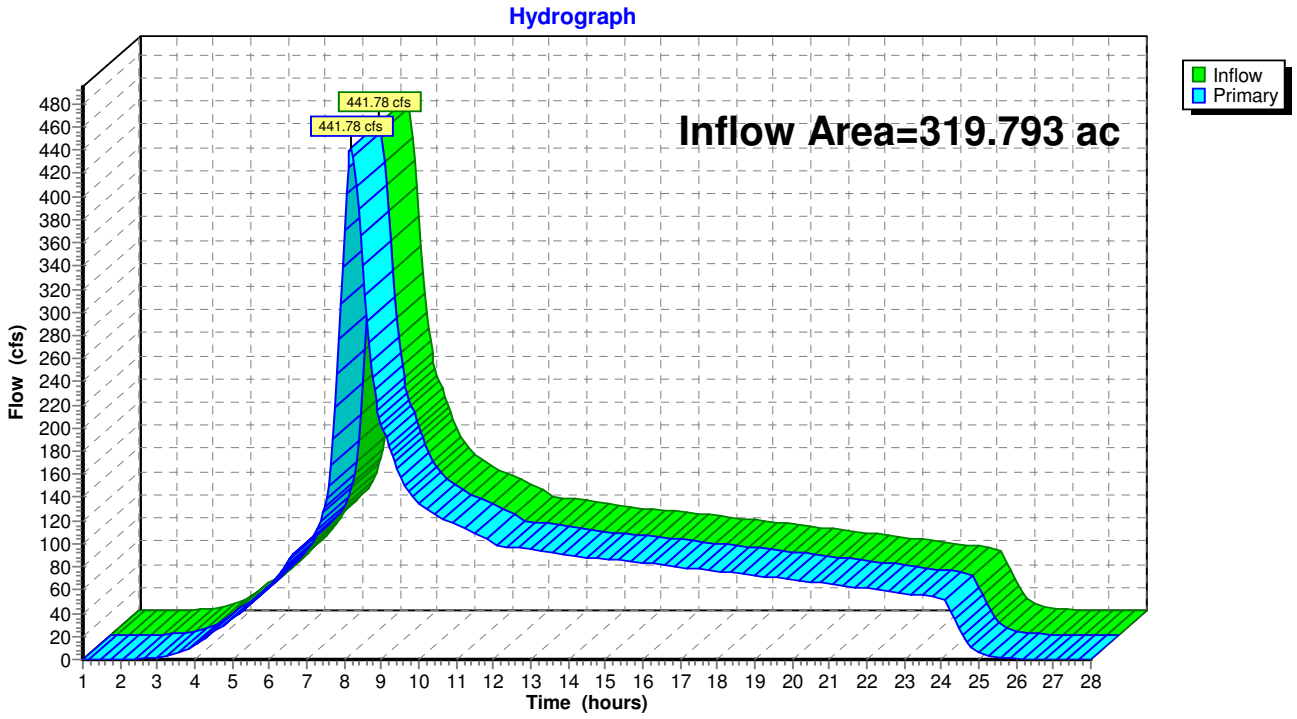


Summary for Link Outlet: Outlet

Inflow Area = 319.793 ac, 0.00% Impervious, Inflow Depth > 6.21" for 100 year event
Inflow = 441.78 cfs @ 8.19 hrs, Volume= 165.590 af
Primary = 441.78 cfs @ 8.19 hrs, Volume= 165.590 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs

Link Outlet: Outlet



Summary for Subcatchment WS2: Subcat WS2

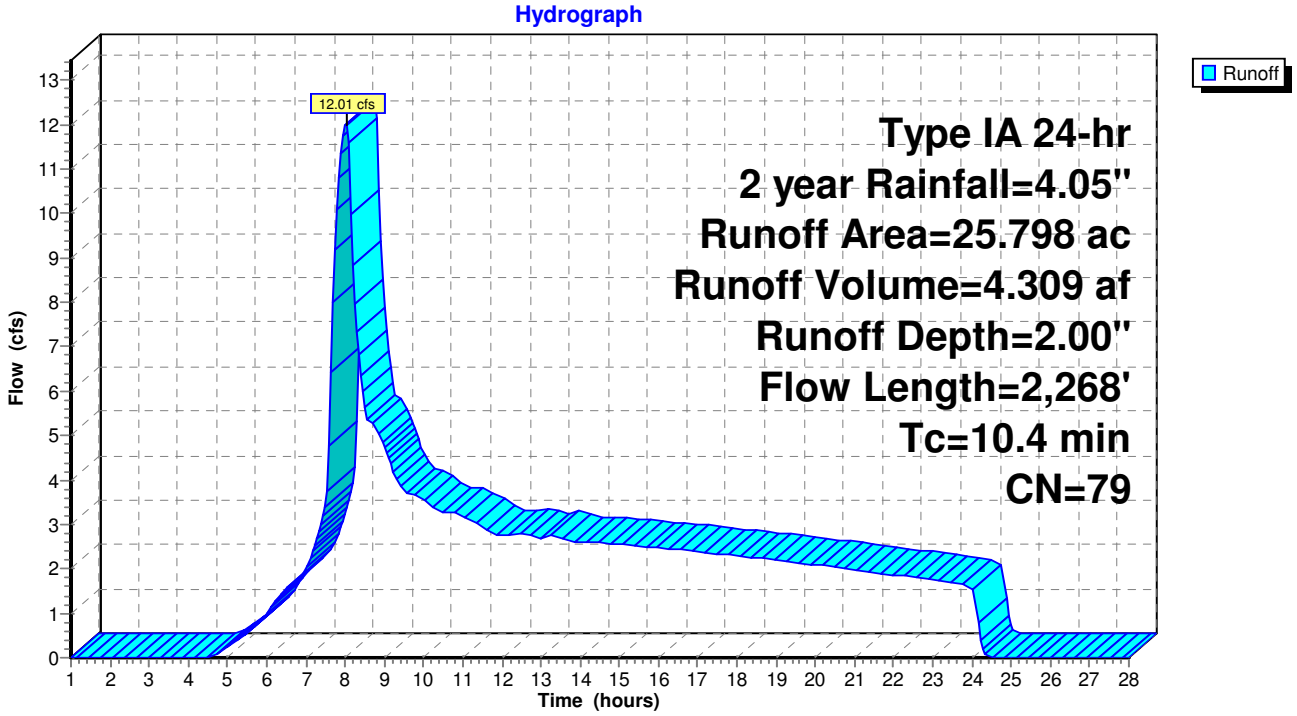
Runoff = 12.01 cfs @ 8.02 hrs, Volume= 4.309 af, Depth= 2.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
10.130	79	Pasture/grassland/range, Fair, HSG C
3.349	84	Pasture/grassland/range, Fair, HSG D
2.936	74	Pasture/grassland/range, Good, HSG C
2.561	80	Pasture/grassland/range, Good, HSG D
0.556	79	Vineyard, Fair, HSG C
3.563	84	Vineyard, Fair, HSG D
2.702	70	Woods, Good, HSG C
25.798	79	Weighted Average
25.798		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	223	0.3200	9.11		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
3.8	1,945	0.1200	8.60	17.20	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.4	2,268	Total			

Subcatchment WS2: Subcat WS2



Summary for Subcatchment WS2: Subcat WS2

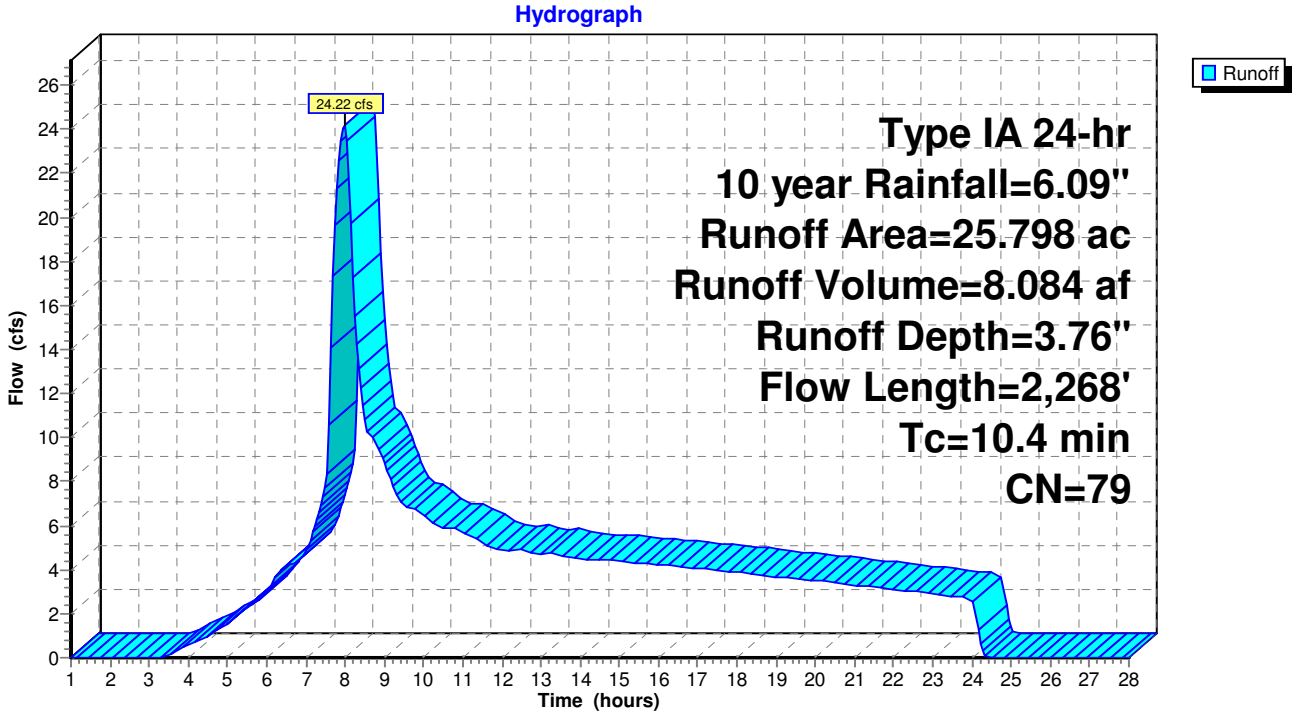
Runoff = 24.22 cfs @ 8.00 hrs, Volume= 8.084 af, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
10.130	79	Pasture/grassland/range, Fair, HSG C
3.349	84	Pasture/grassland/range, Fair, HSG D
2.936	74	Pasture/grassland/range, Good, HSG C
2.561	80	Pasture/grassland/range, Good, HSG D
0.556	79	Vineyard, Fair, HSG C
3.563	84	Vineyard, Fair, HSG D
2.702	70	Woods, Good, HSG C
25.798	79	Weighted Average
25.798		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	223	0.3200	9.11		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
3.8	1,945	0.1200	8.60	17.20	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.4	2,268	Total			

Subcatchment WS2: Subcat WS2



Summary for Subcatchment WS2: Subcat WS2

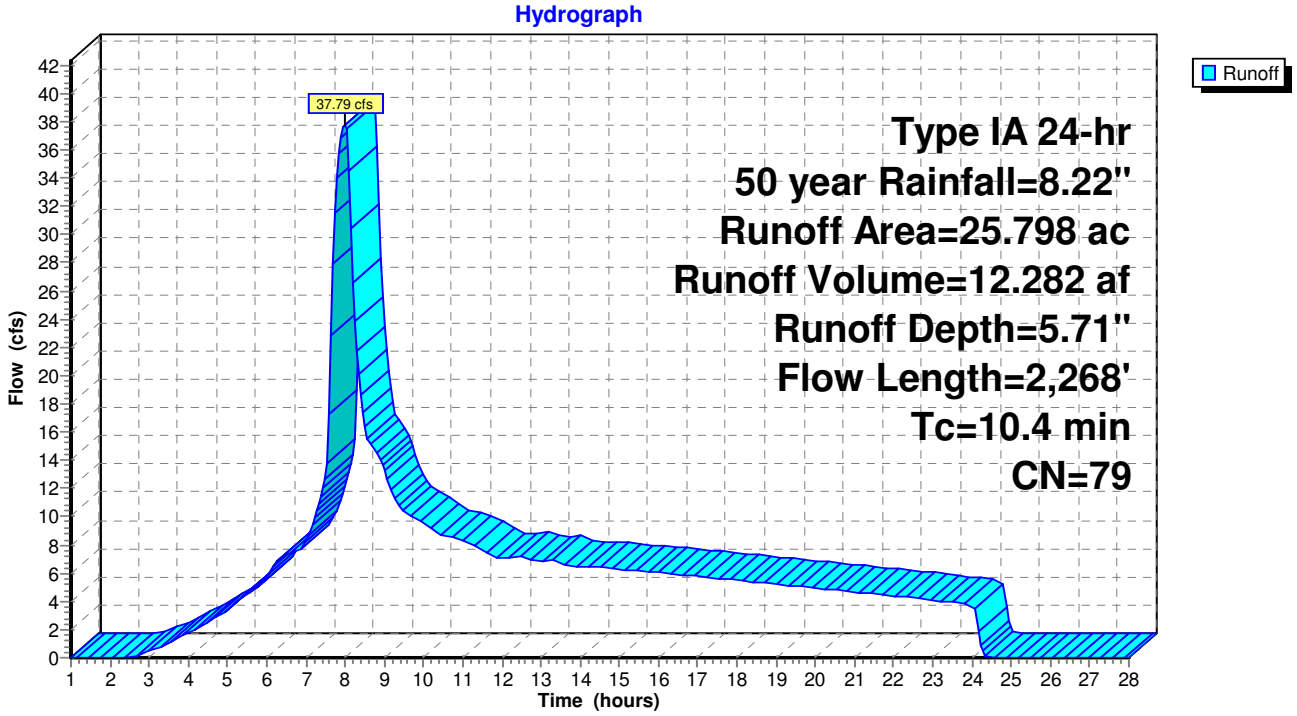
Runoff = 37.79 cfs @ 7.99 hrs, Volume= 12.282 af, Depth= 5.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
10.130	79	Pasture/grassland/range, Fair, HSG C
3.349	84	Pasture/grassland/range, Fair, HSG D
2.936	74	Pasture/grassland/range, Good, HSG C
2.561	80	Pasture/grassland/range, Good, HSG D
0.556	79	Vineyard, Fair, HSG C
3.563	84	Vineyard, Fair, HSG D
2.702	70	Woods, Good, HSG C
25.798	79	Weighted Average
25.798		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	223	0.3200	9.11		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
3.8	1,945	0.1200	8.60	17.20	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.4	2,268	Total			

Subcatchment WS2: Subcat WS2



Summary for Subcatchment WS2: Subcat WS2

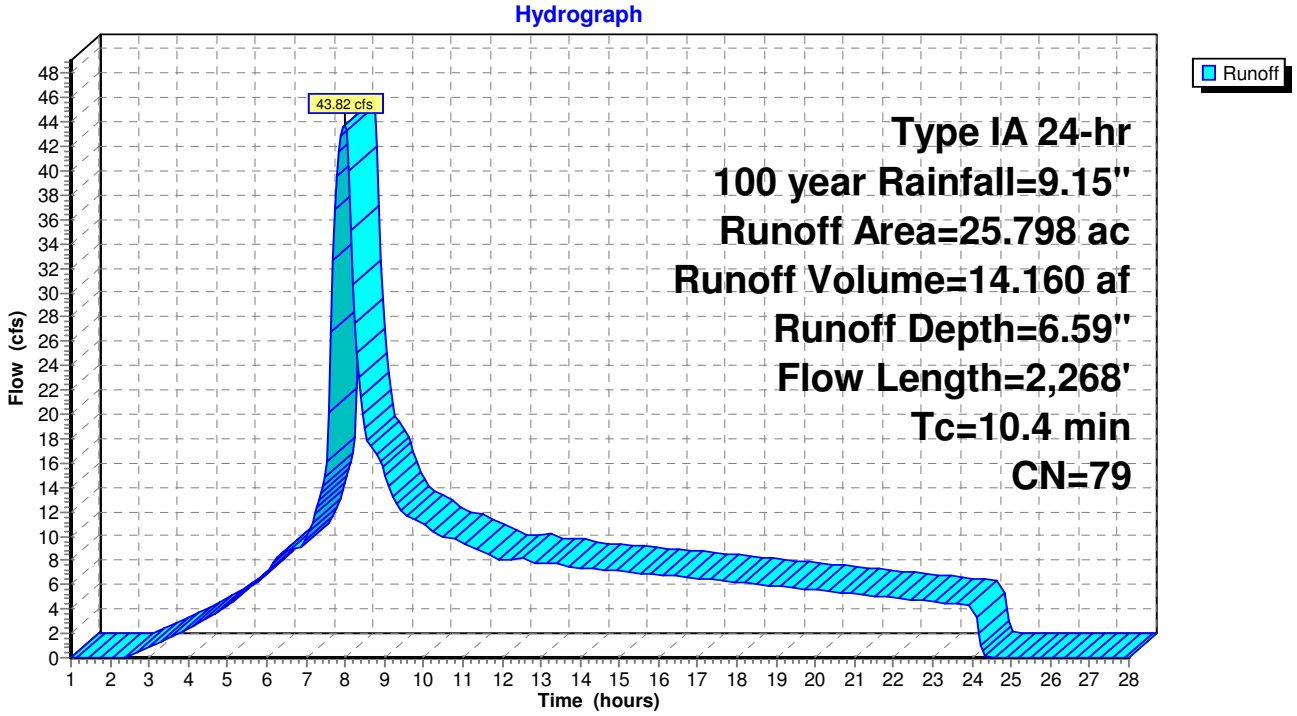
Runoff = 43.82 cfs @ 7.98 hrs, Volume= 14.160 af, Depth= 6.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
10.130	79	Pasture/grassland/range, Fair, HSG C
3.349	84	Pasture/grassland/range, Fair, HSG D
2.936	74	Pasture/grassland/range, Good, HSG C
2.561	80	Pasture/grassland/range, Good, HSG D
0.556	79	Vineyard, Fair, HSG C
3.563	84	Vineyard, Fair, HSG D
2.702	70	Woods, Good, HSG C
25.798	79	Weighted Average
25.798		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	223	0.3200	9.11		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
3.8	1,945	0.1200	8.60	17.20	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.4	2,268	Total			

Subcatchment WS2: Subcat WS2



Summary for Subcatchment WS2: Subcat WS2

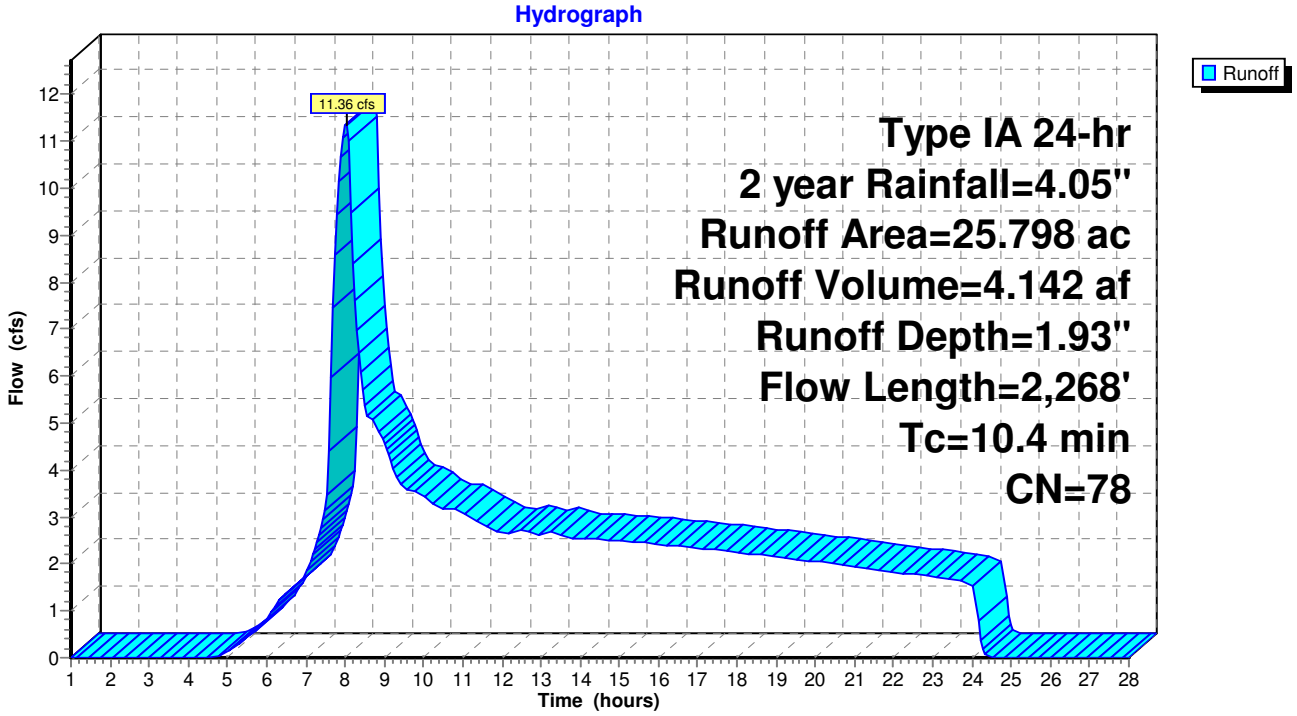
Runoff = 11.36 cfs @ 8.02 hrs, Volume= 4.142 af, Depth= 1.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
7.343	79	Pasture/grassland/range, Fair, HSG C
3.349	84	Pasture/grassland/range, Fair, HSG D
2.936	74	Pasture/grassland/range, Good, HSG C
2.561	80	Pasture/grassland/range, Good, HSG D
0.556	79	Vineyard, Fair, HSG C
3.563	84	Vineyard, Fair, HSG D
2.786	75	Vineyard, Good, HSG C
2.702	70	Woods, Good, HSG C
25.798	78	Weighted Average
25.798		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	223	0.3200	9.11		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
3.8	1,945	0.1200	8.60	17.20	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.4	2,268	Total			

Subcatchment WS2: Subcat WS2



Summary for Subcatchment WS2: Subcat WS2

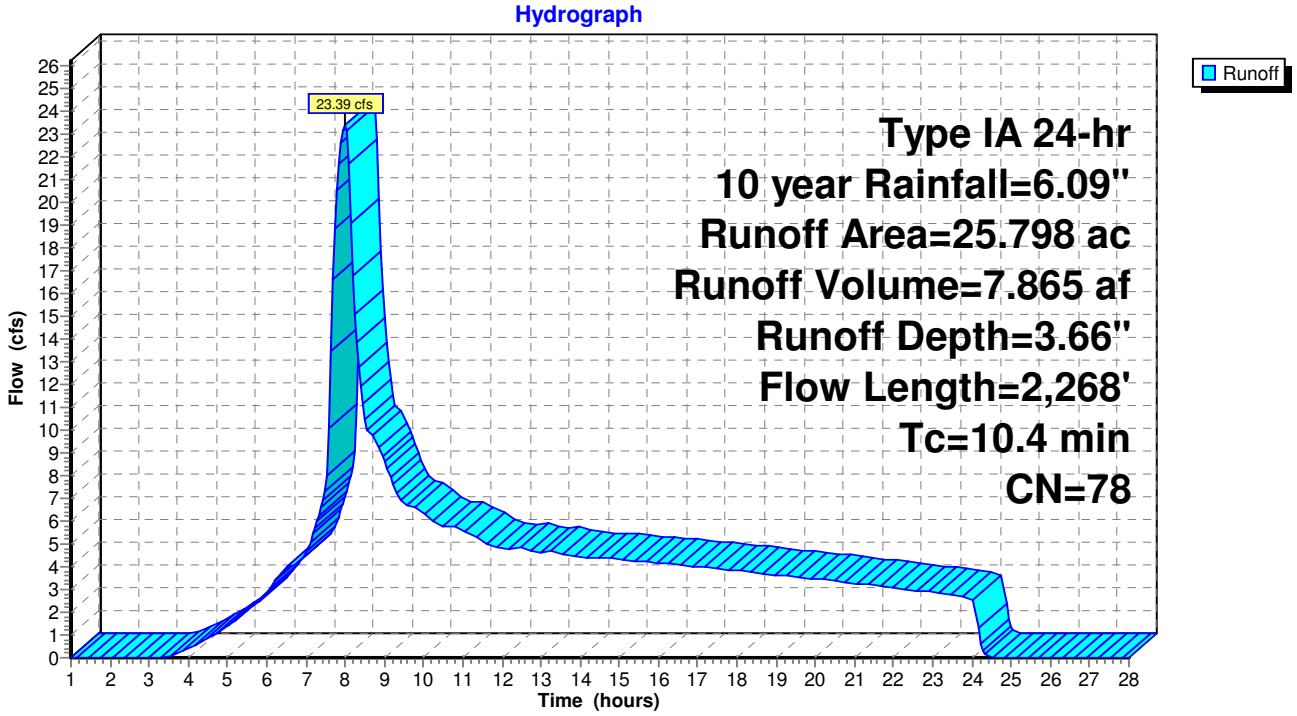
Runoff = 23.39 cfs @ 8.00 hrs, Volume= 7.865 af, Depth= 3.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
7.343	79	Pasture/grassland/range, Fair, HSG C
3.349	84	Pasture/grassland/range, Fair, HSG D
2.936	74	Pasture/grassland/range, Good, HSG C
2.561	80	Pasture/grassland/range, Good, HSG D
0.556	79	Vineyard, Fair, HSG C
3.563	84	Vineyard, Fair, HSG D
2.786	75	Vineyard, Good, HSG C
2.702	70	Woods, Good, HSG C
25.798	78	Weighted Average
25.798		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	223	0.3200	9.11		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
3.8	1,945	0.1200	8.60	17.20	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.4	2,268	Total			

Subcatchment WS2: Subcat WS2



Summary for Subcatchment WS2: Subcat WS2

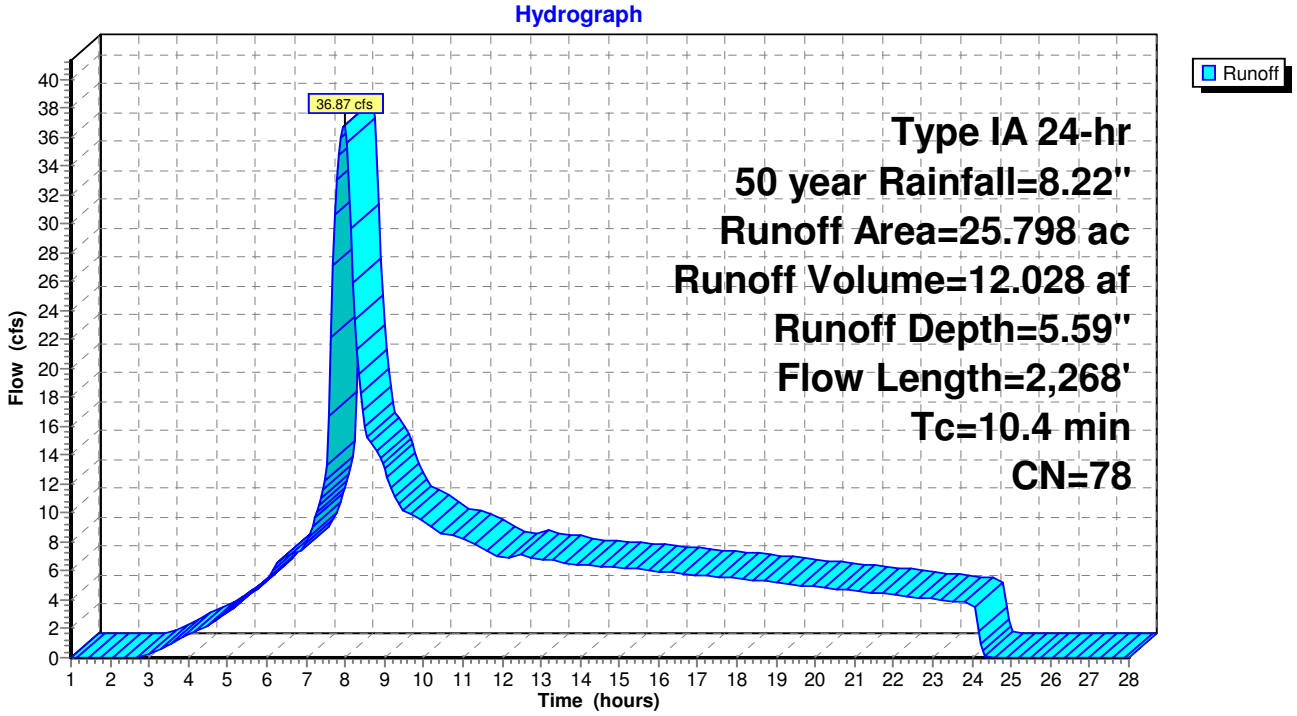
Runoff = 36.87 cfs @ 7.99 hrs, Volume= 12.028 af, Depth= 5.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
7.343	79	Pasture/grassland/range, Fair, HSG C
3.349	84	Pasture/grassland/range, Fair, HSG D
2.936	74	Pasture/grassland/range, Good, HSG C
2.561	80	Pasture/grassland/range, Good, HSG D
0.556	79	Vineyard, Fair, HSG C
3.563	84	Vineyard, Fair, HSG D
2.786	75	Vineyard, Good, HSG C
2.702	70	Woods, Good, HSG C
25.798	78	Weighted Average
25.798		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	223	0.3200	9.11		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
3.8	1,945	0.1200	8.60	17.20	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.4	2,268	Total			

Subcatchment WS2: Subcat WS2



Summary for Subcatchment WS2: Subcat WS2

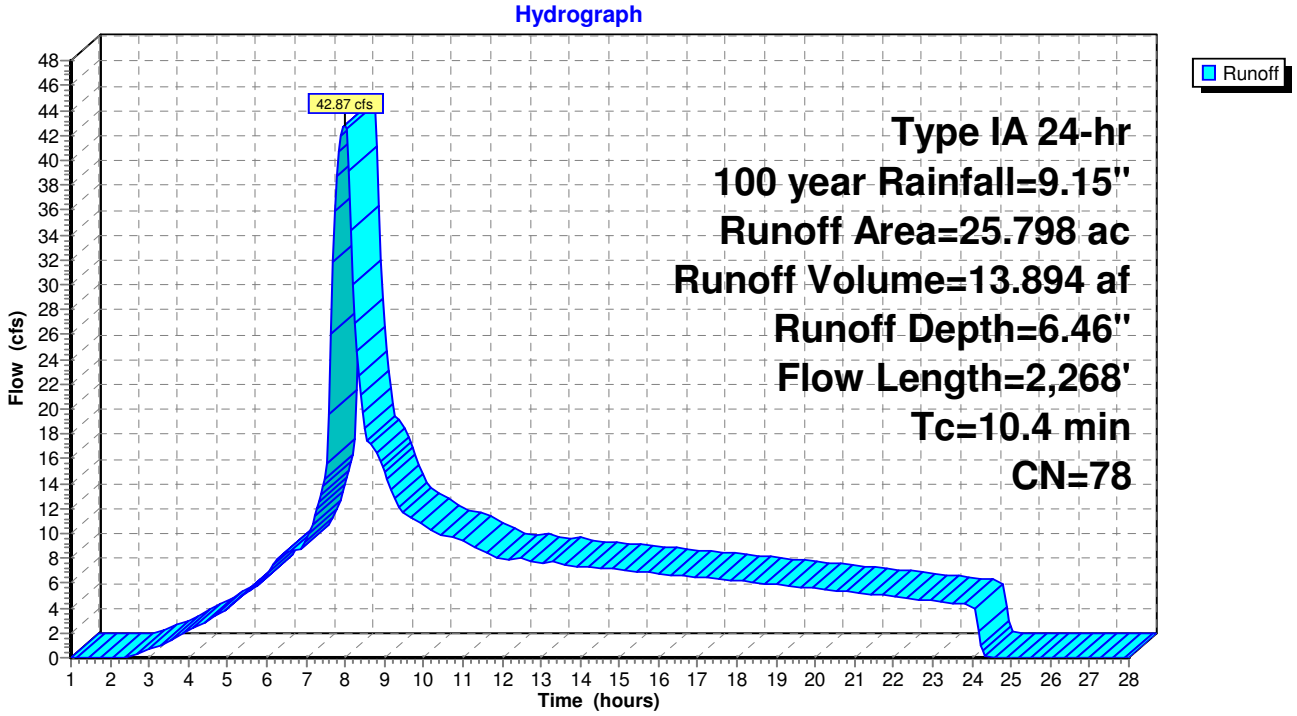
Runoff = 42.87 cfs @ 7.98 hrs, Volume= 13.894 af, Depth= 6.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
7.343	79	Pasture/grassland/range, Fair, HSG C
3.349	84	Pasture/grassland/range, Fair, HSG D
2.936	74	Pasture/grassland/range, Good, HSG C
2.561	80	Pasture/grassland/range, Good, HSG D
0.556	79	Vineyard, Fair, HSG C
3.563	84	Vineyard, Fair, HSG D
2.786	75	Vineyard, Good, HSG C
2.702	70	Woods, Good, HSG C
25.798	78	Weighted Average
25.798		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	223	0.3200	9.11		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
3.8	1,945	0.1200	8.60	17.20	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
10.4	2,268	Total			

Subcatchment WS2: Subcat WS2



Summary for Subcatchment WS3: Subcat WS3

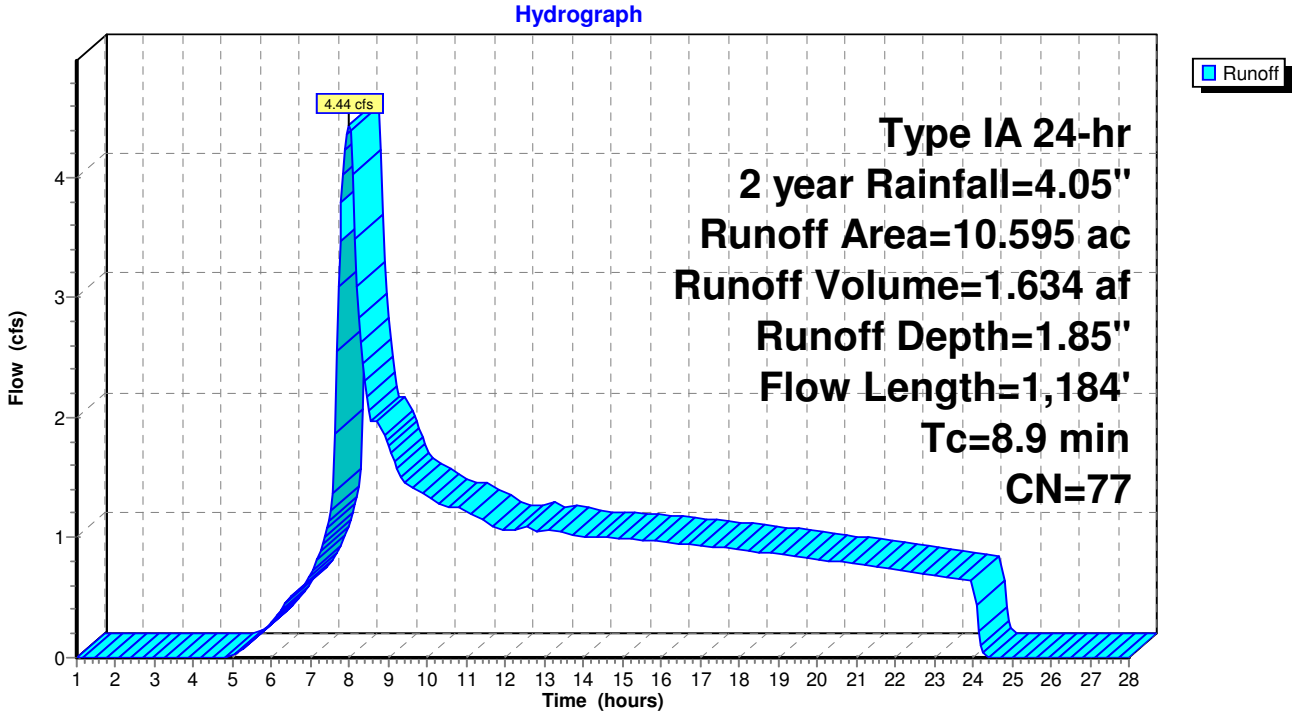
Runoff = 4.44 cfs @ 8.01 hrs, Volume= 1.634 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.011	87	Dirt roads, HSG C
1.226	79	Pasture/grassland/range, Fair, HSG C
8.471	74	Pasture/grassland/range, Good, HSG C
0.875	98	Water Surface, HSG C
0.012	70	Woods, Good, HSG C
10.595	77	Weighted Average
9.719		91.74% Pervious Area
0.875		8.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.1100	0.26		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	633	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.8	279	0.1400	6.02		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.3	172	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.9	1,184	Total			

Subcatchment WS3: Subcat WS3



Summary for Subcatchment WS3: Subcat WS3

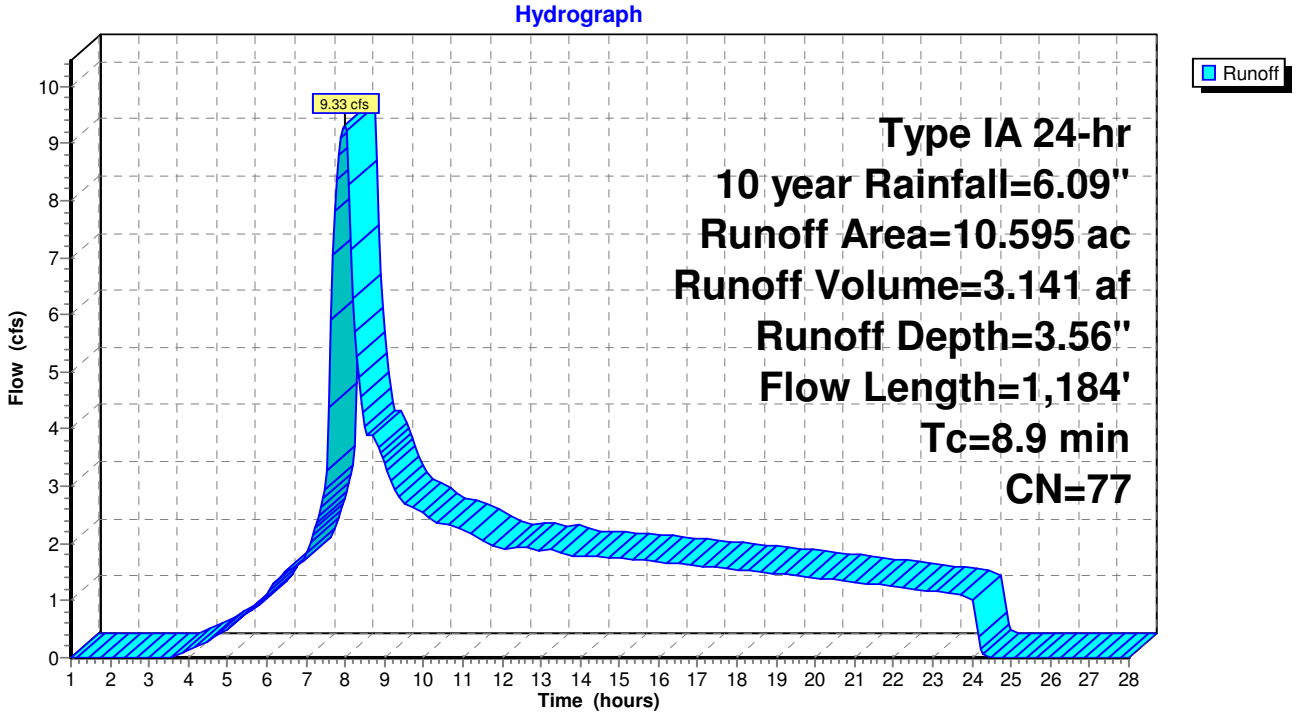
Runoff = 9.33 cfs @ 7.99 hrs, Volume= 3.141 af, Depth= 3.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.011	87	Dirt roads, HSG C
1.226	79	Pasture/grassland/range, Fair, HSG C
8.471	74	Pasture/grassland/range, Good, HSG C
0.875	98	Water Surface, HSG C
0.012	70	Woods, Good, HSG C
10.595	77	Weighted Average
9.719		91.74% Pervious Area
0.875		8.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.1100	0.26		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	633	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.8	279	0.1400	6.02		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.3	172	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.9	1,184	Total			

Subcatchment WS3: Subcat WS3



Summary for Subcatchment WS3: Subcat WS3

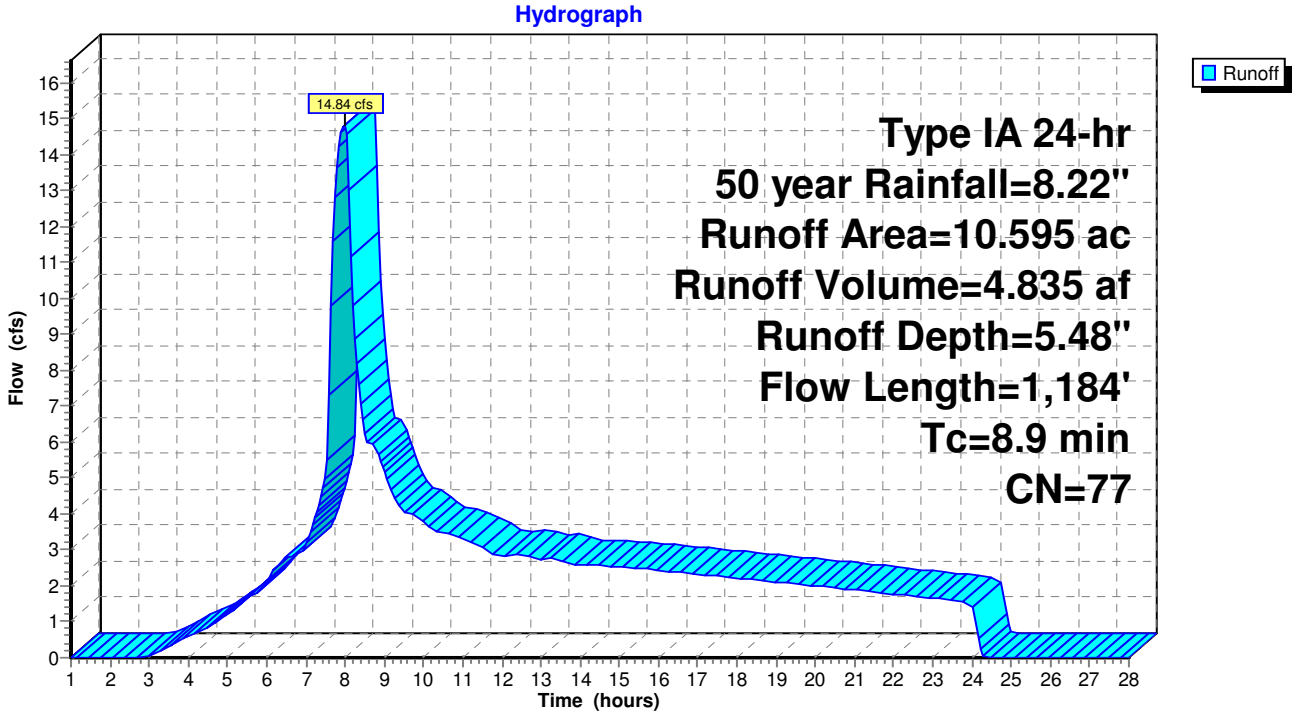
Runoff = 14.84 cfs @ 7.98 hrs, Volume= 4.835 af, Depth= 5.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.011	87	Dirt roads, HSG C
1.226	79	Pasture/grassland/range, Fair, HSG C
8.471	74	Pasture/grassland/range, Good, HSG C
0.875	98	Water Surface, HSG C
0.012	70	Woods, Good, HSG C
10.595	77	Weighted Average
9.719		91.74% Pervious Area
0.875		8.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.1100	0.26		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	633	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.8	279	0.1400	6.02		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.3	172	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.9	1,184	Total			

Subcatchment WS3: Subcat WS3



Summary for Subcatchment WS3: Subcat WS3

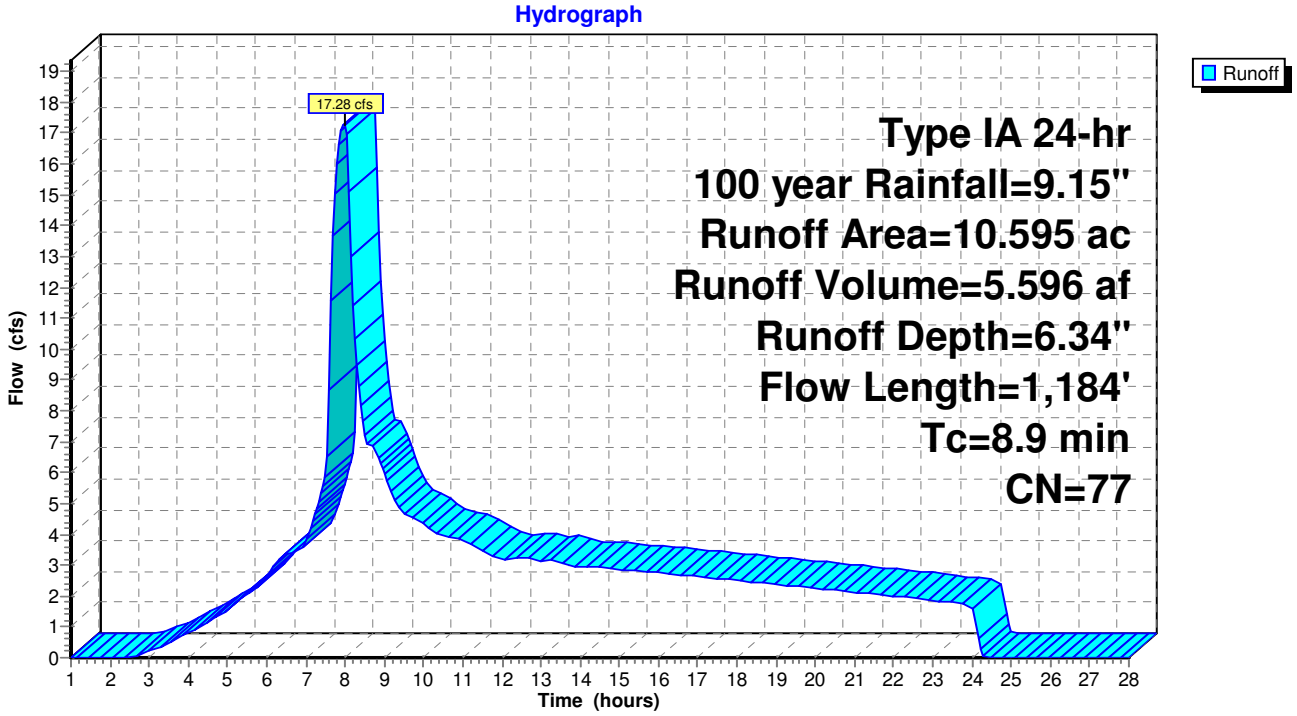
Runoff = 17.28 cfs @ 7.97 hrs, Volume= 5.596 af, Depth= 6.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.011	87	Dirt roads, HSG C
1.226	79	Pasture/grassland/range, Fair, HSG C
8.471	74	Pasture/grassland/range, Good, HSG C
0.875	98	Water Surface, HSG C
0.012	70	Woods, Good, HSG C
10.595	77	Weighted Average
9.719		91.74% Pervious Area
0.875		8.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.1100	0.26		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	633	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.8	279	0.1400	6.02		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.3	172	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.9	1,184	Total			

Subcatchment WS3: Subcat WS3



Summary for Subcatchment WS3: Subcat WS3

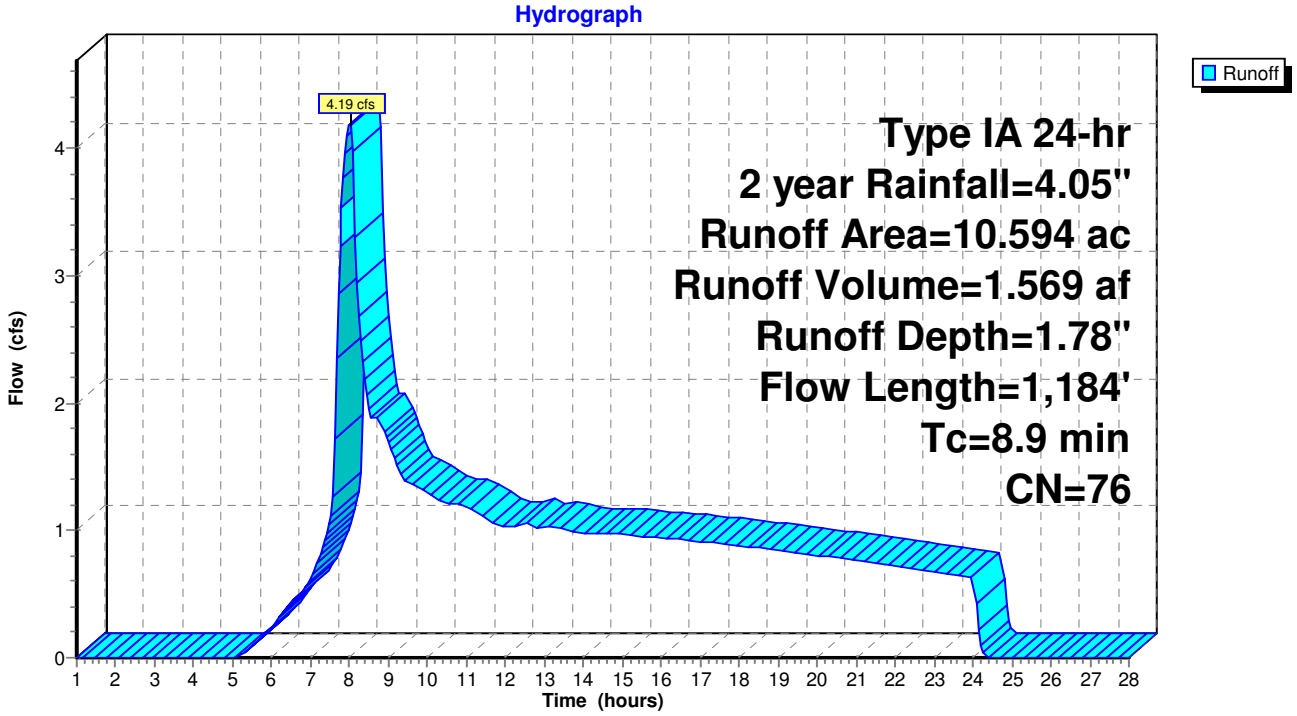
Runoff = 4.19 cfs @ 8.01 hrs, Volume= 1.569 af, Depth= 1.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.011	87	Dirt roads, HSG C
0.692	79	Pasture/grassland/range, Fair, HSG C
8.470	74	Pasture/grassland/range, Good, HSG C
0.533	75	Vineyard, Good, HSG C
0.875	98	Water Surface, HSG C
0.012	70	Woods, Good, HSG C
10.594	76	Weighted Average
9.718		91.74% Pervious Area
0.875		8.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.1100	0.26		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	633	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.8	279	0.1400	6.02		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.3	172	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.9	1,184	Total			

Subcatchment WS3: Subcat WS3



Summary for Subcatchment WS3: Subcat WS3

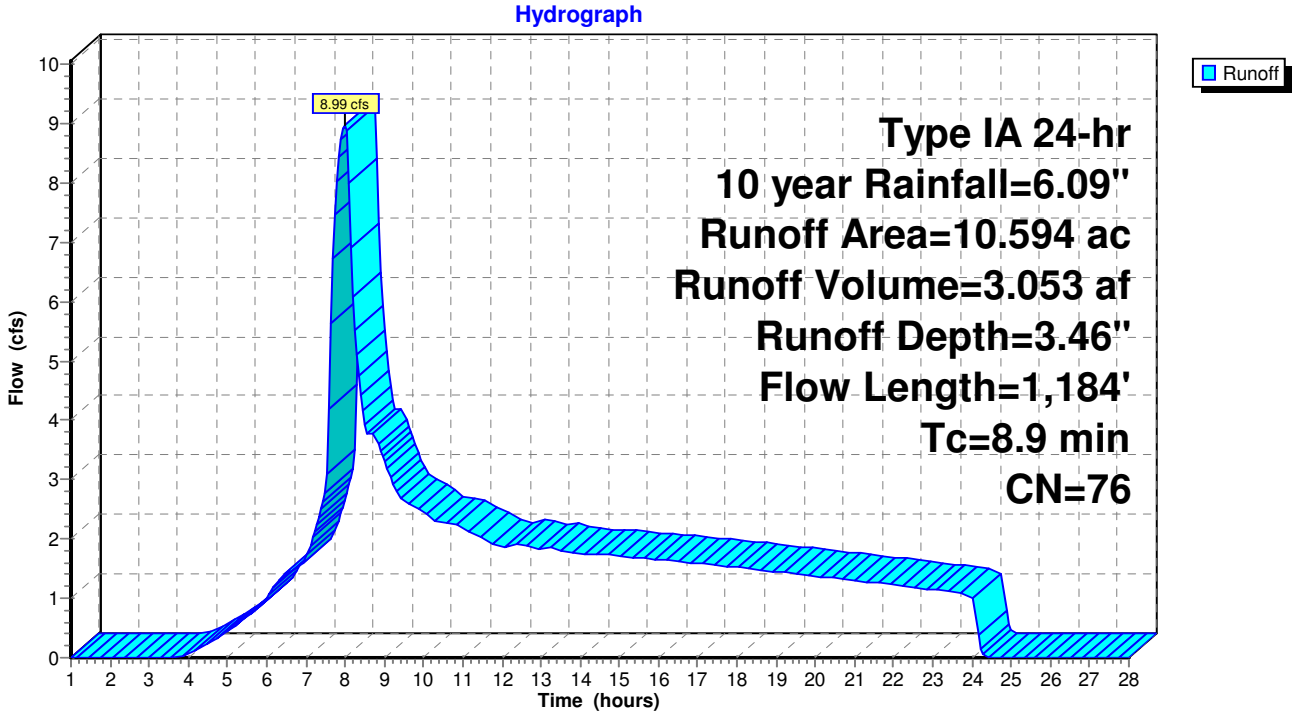
Runoff = 8.99 cfs @ 7.99 hrs, Volume= 3.053 af, Depth= 3.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.011	87	Dirt roads, HSG C
0.692	79	Pasture/grassland/range, Fair, HSG C
8.470	74	Pasture/grassland/range, Good, HSG C
0.533	75	Vineyard, Good, HSG C
0.875	98	Water Surface, HSG C
0.012	70	Woods, Good, HSG C
10.594	76	Weighted Average
9.718		91.74% Pervious Area
0.875		8.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.1100	0.26		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	633	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.8	279	0.1400	6.02		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.3	172	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.9	1,184	Total			

Subcatchment WS3: Subcat WS3



Summary for Subcatchment WS3: Subcat WS3

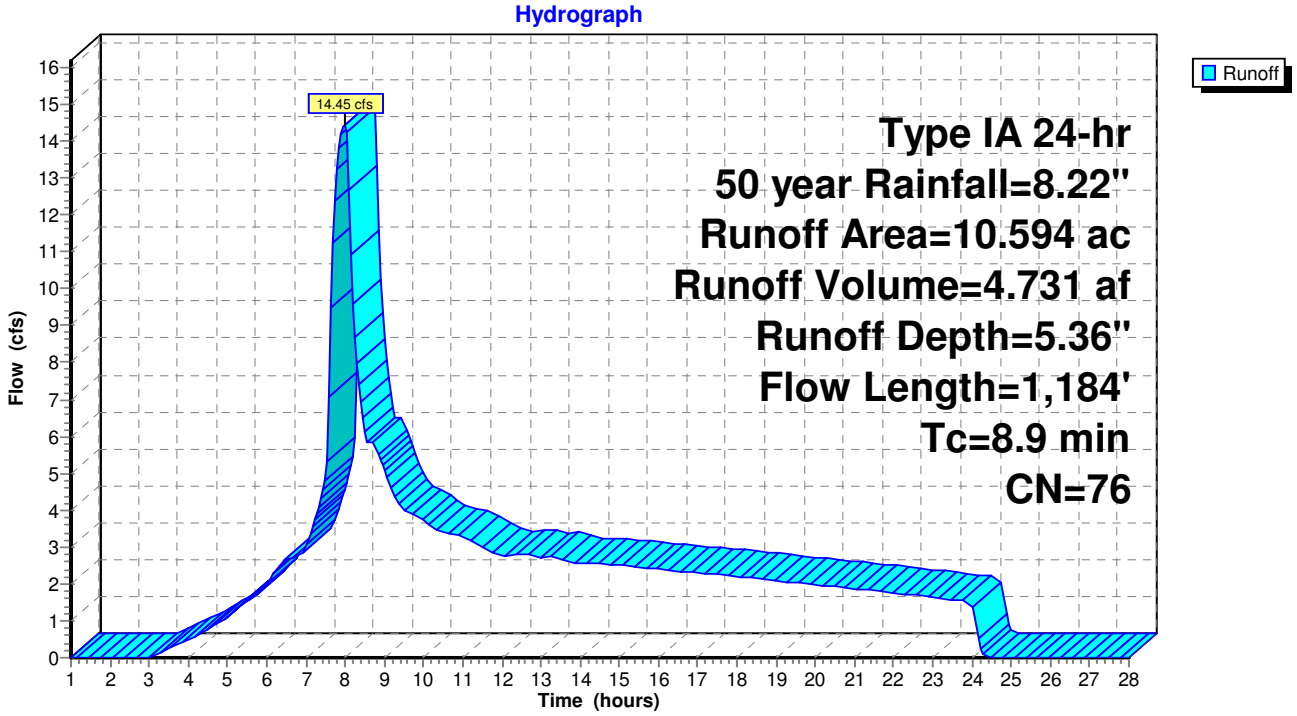
Runoff = 14.45 cfs @ 7.98 hrs, Volume= 4.731 af, Depth= 5.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.011	87	Dirt roads, HSG C
0.692	79	Pasture/grassland/range, Fair, HSG C
8.470	74	Pasture/grassland/range, Good, HSG C
0.533	75	Vineyard, Good, HSG C
0.875	98	Water Surface, HSG C
0.012	70	Woods, Good, HSG C
10.594	76	Weighted Average
9.718		91.74% Pervious Area
0.875		8.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.1100	0.26		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	633	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.8	279	0.1400	6.02		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.3	172	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.9	1,184	Total			

Subcatchment WS3: Subcat WS3



Summary for Subcatchment WS3: Subcat WS3

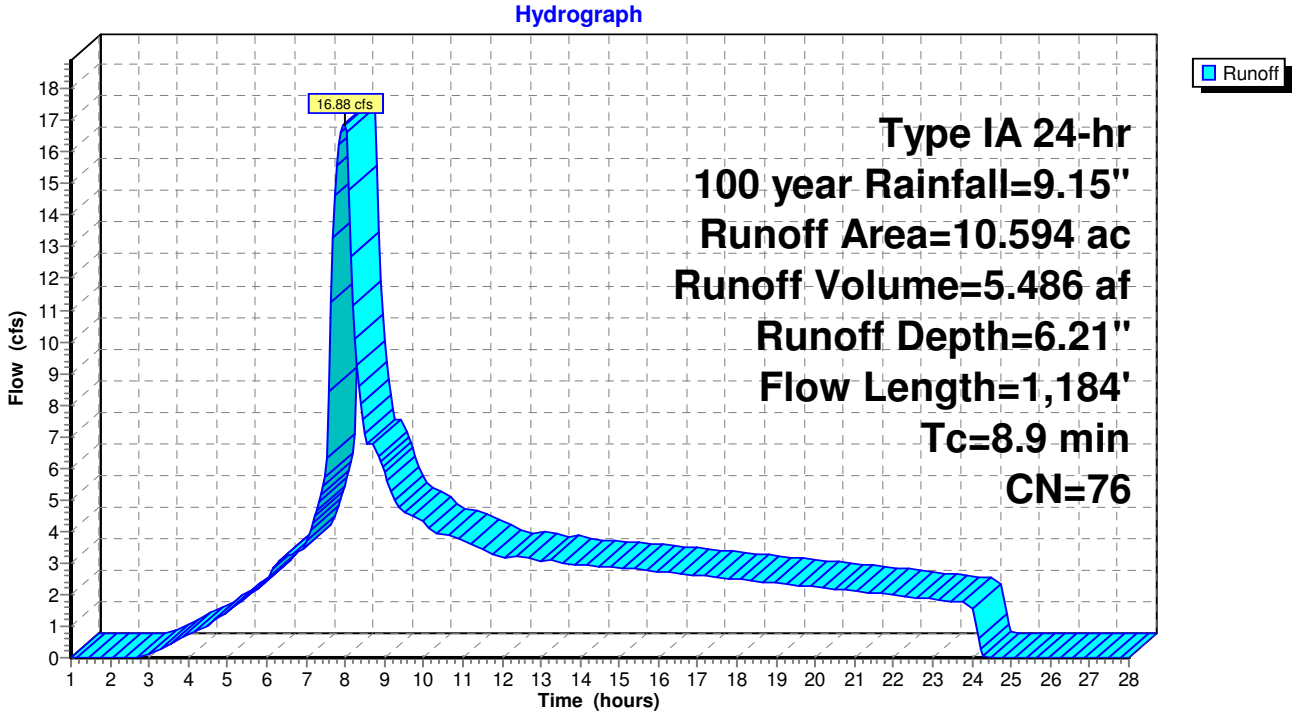
Runoff = 16.88 cfs @ 7.97 hrs, Volume= 5.486 af, Depth= 6.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.011	87	Dirt roads, HSG C
0.692	79	Pasture/grassland/range, Fair, HSG C
8.470	74	Pasture/grassland/range, Good, HSG C
0.533	75	Vineyard, Good, HSG C
0.875	98	Water Surface, HSG C
0.012	70	Woods, Good, HSG C
10.594	76	Weighted Average
9.718		91.74% Pervious Area
0.875		8.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.1100	0.26		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.4	633	0.2200	7.55		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.8	279	0.1400	6.02		**Shallow Concentrated Flow, Shallow-2** Unpaved Kv= 16.1 fps
0.3	172	0.1500	9.62	19.23	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
8.9	1,184	Total			

Subcatchment WS3: Subcat WS3



Summary for Subcatchment WS4: Subcat WS4

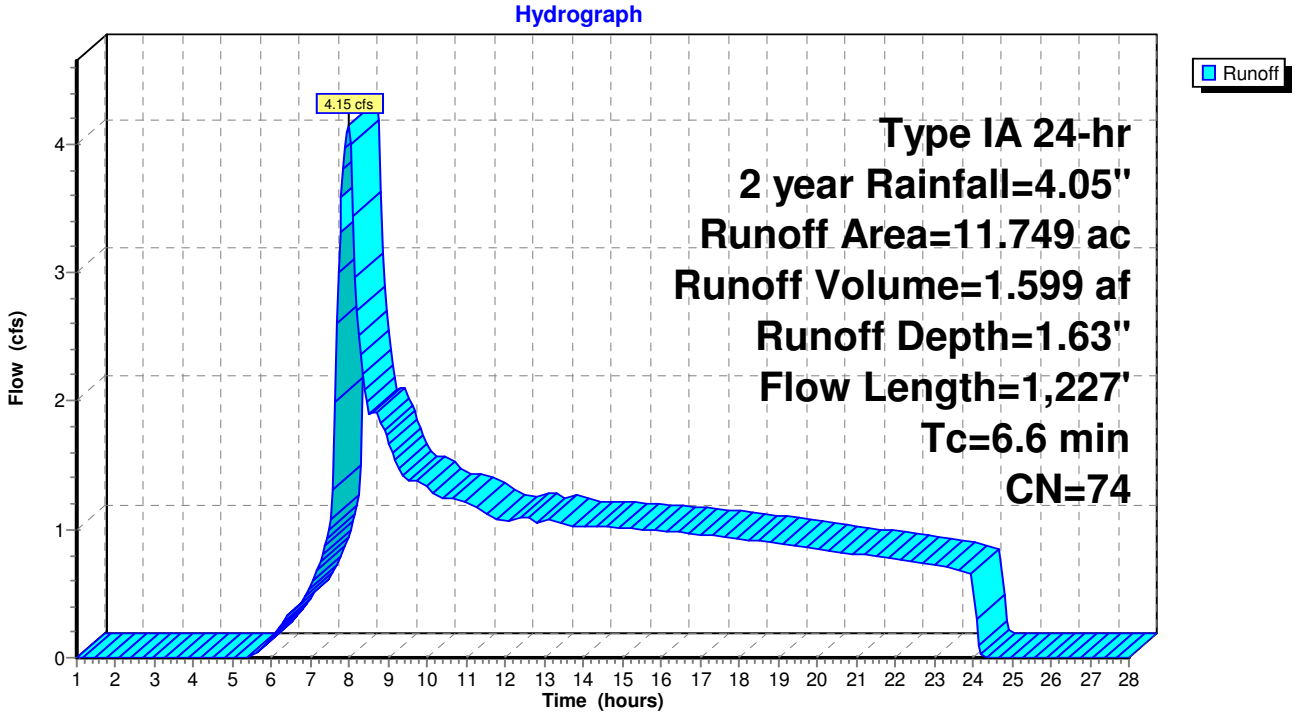
Runoff = 4.15 cfs @ 7.99 hrs, Volume= 1.599 af, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.024	87	Dirt roads, HSG C
0.279	82	Farmsteads, HSG C
0.841	79	Pasture/grassland/range, Fair, HSG C
8.401	74	Pasture/grassland/range, Good, HSG C
0.034	92	Paved roads w/open ditches, 50% imp, HSG C
2.170	70	Woods, Good, HSG C
11.749	74	Weighted Average
11.732		99.86% Pervious Area
0.017		0.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.2800	0.38		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.2	453	0.1500	6.24		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.0	674	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
6.6	1,227	Total			

Subcatchment WS4: Subcat WS4



Summary for Subcatchment WS4: Subcat WS4

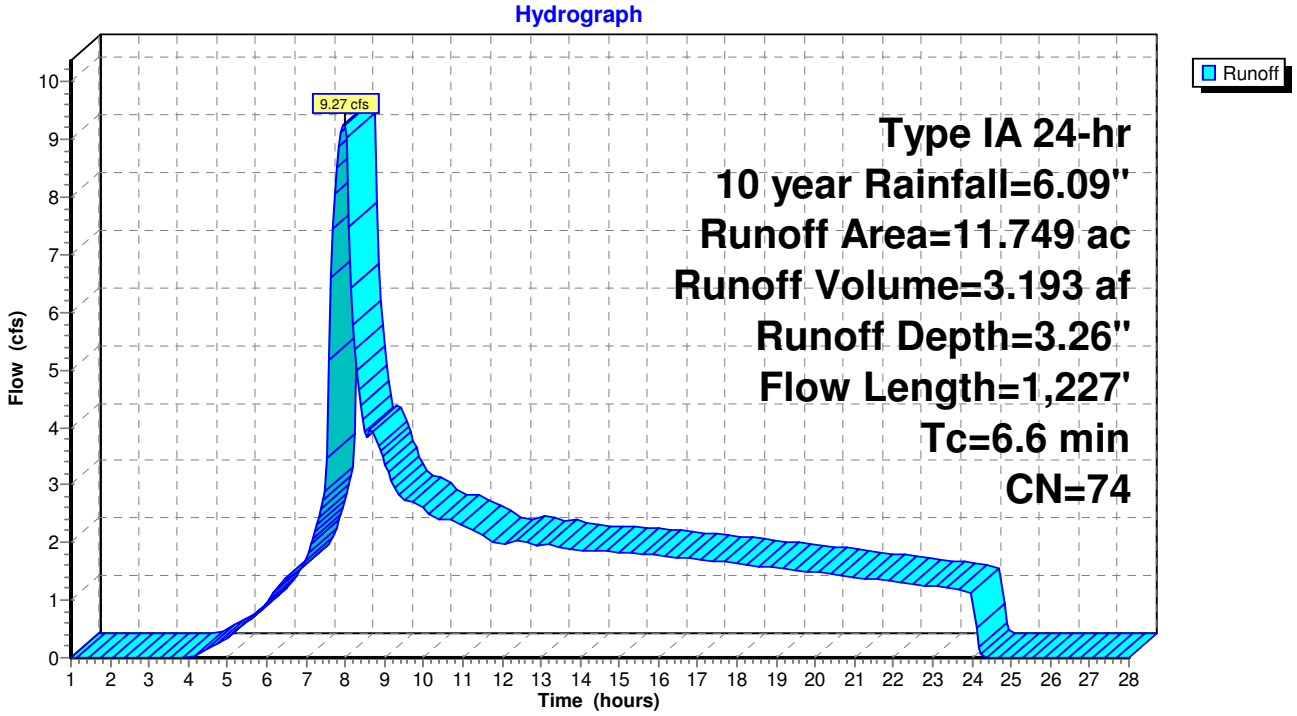
Runoff = 9.27 cfs @ 7.97 hrs, Volume= 3.193 af, Depth= 3.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.024	87	Dirt roads, HSG C
0.279	82	Farmsteads, HSG C
0.841	79	Pasture/grassland/range, Fair, HSG C
8.401	74	Pasture/grassland/range, Good, HSG C
0.034	92	Paved roads w/open ditches, 50% imp, HSG C
2.170	70	Woods, Good, HSG C
11.749	74	Weighted Average
11.732		99.86% Pervious Area
0.017		0.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.2800	0.38		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.2	453	0.1500	6.24		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.0	674	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
6.6	1,227	Total			

Subcatchment WS4: Subcat WS4



Summary for Subcatchment WS4: Subcat WS4

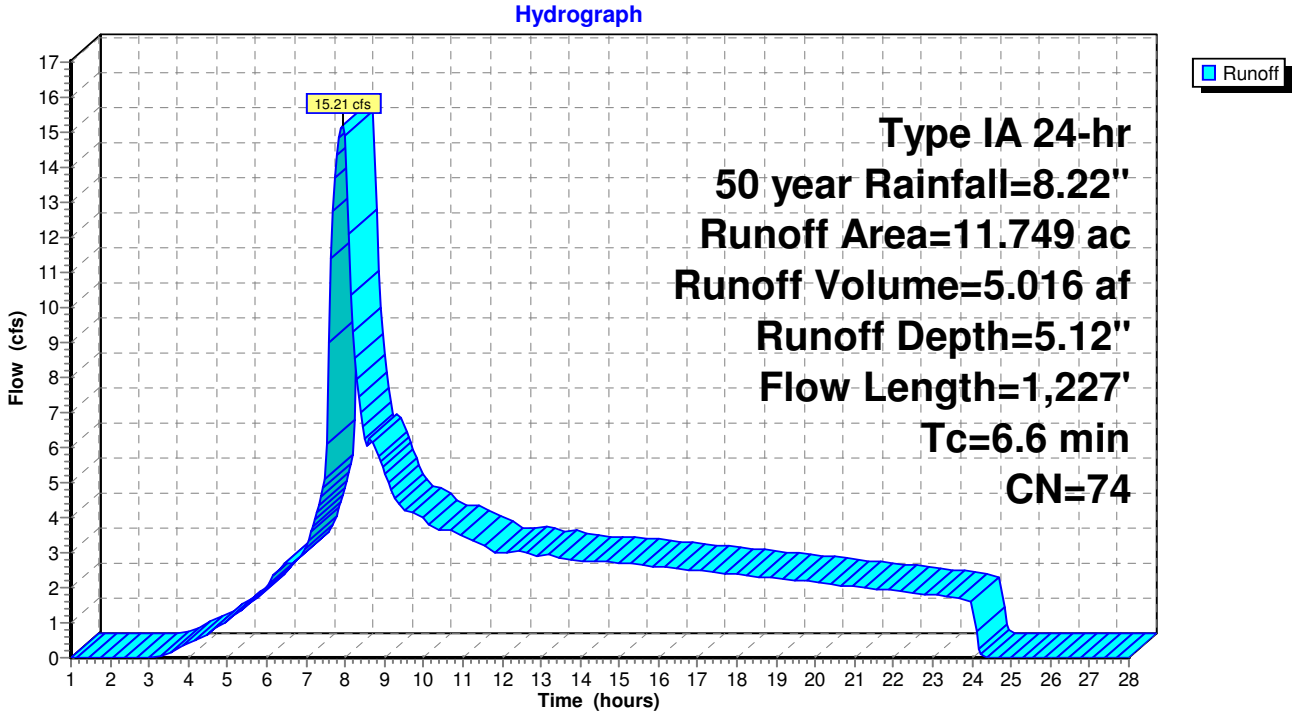
Runoff = 15.21 cfs @ 7.95 hrs, Volume= 5.016 af, Depth= 5.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.024	87	Dirt roads, HSG C
0.279	82	Farmsteads, HSG C
0.841	79	Pasture/grassland/range, Fair, HSG C
8.401	74	Pasture/grassland/range, Good, HSG C
0.034	92	Paved roads w/open ditches, 50% imp, HSG C
2.170	70	Woods, Good, HSG C
11.749	74	Weighted Average
11.732		99.86% Pervious Area
0.017		0.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.2800	0.38		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.2	453	0.1500	6.24		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.0	674	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
6.6	1,227	Total			

Subcatchment WS4: Subcat WS4



Summary for Subcatchment WS4: Subcat WS4

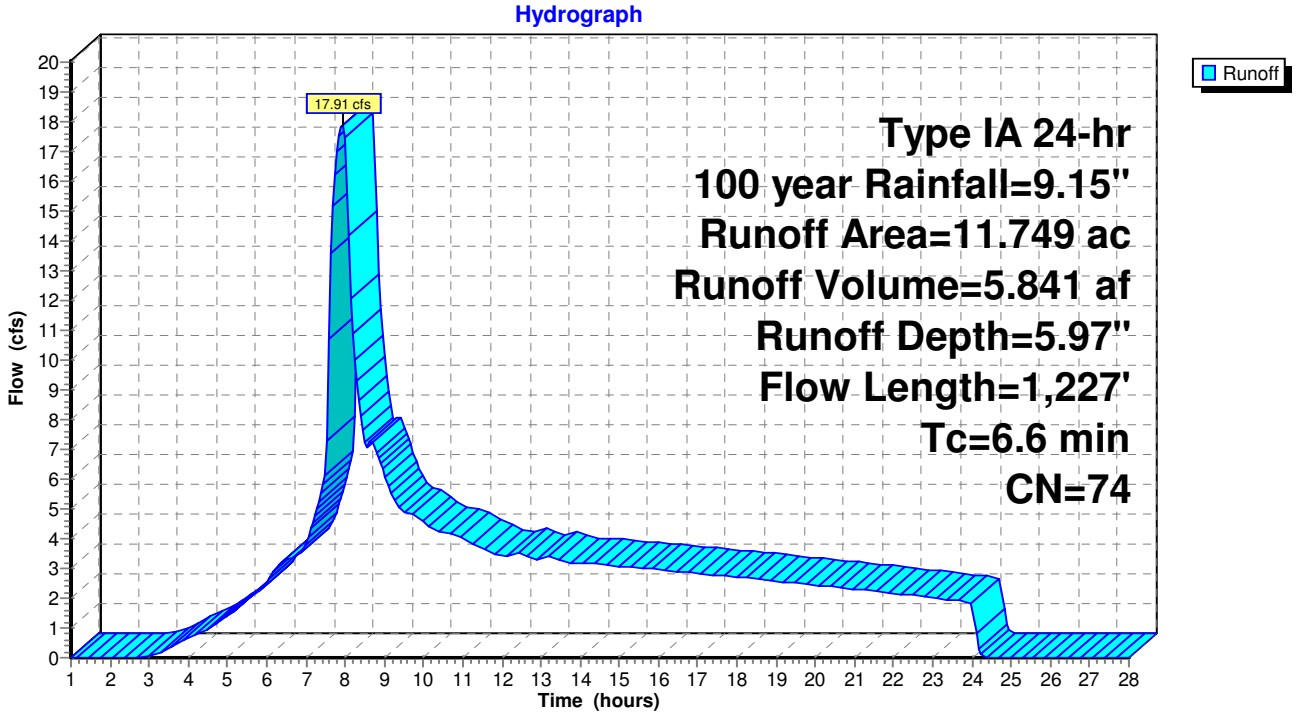
Runoff = 17.91 cfs @ 7.94 hrs, Volume= 5.841 af, Depth= 5.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.024	87	Dirt roads, HSG C
0.279	82	Farmsteads, HSG C
0.841	79	Pasture/grassland/range, Fair, HSG C
8.401	74	Pasture/grassland/range, Good, HSG C
0.034	92	Paved roads w/open ditches, 50% imp, HSG C
2.170	70	Woods, Good, HSG C
11.749	74	Weighted Average
11.732		99.86% Pervious Area
0.017		0.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.2800	0.38		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.2	453	0.1500	6.24		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.0	674	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
6.6	1,227	Total			

Subcatchment WS4: Subcat WS4



Summary for Subcatchment WS4: Subcat WS4

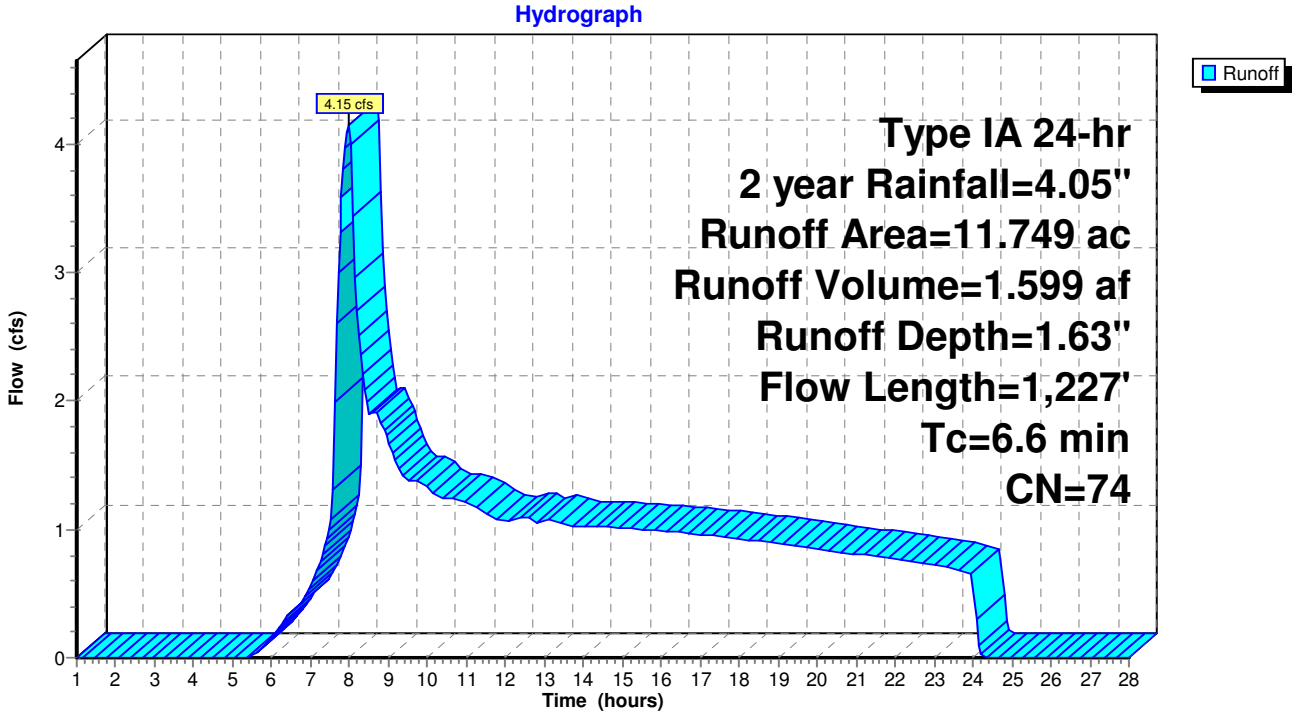
Runoff = 4.15 cfs @ 7.99 hrs, Volume= 1.599 af, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.279	82	Farmsteads, HSG C
0.024	89	Gravel Roads, HSG C
0.520	79	Pasture/grassland/range, Fair, HSG C
8.401	74	Pasture/grassland/range, Good, HSG C
0.034	92	Paved roads w/open ditches, 50% imp, HSG C
0.322	75	Vineyard, Good, HSG C
2.170	70	Woods, Good, HSG C
11.749	74	Weighted Average
11.732		99.86% Pervious Area
0.017		0.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.2800	0.38		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.2	453	0.1500	6.24		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.0	674	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
6.6	1,227	Total			

Subcatchment WS4: Subcat WS4



Summary for Subcatchment WS4: Subcat WS4

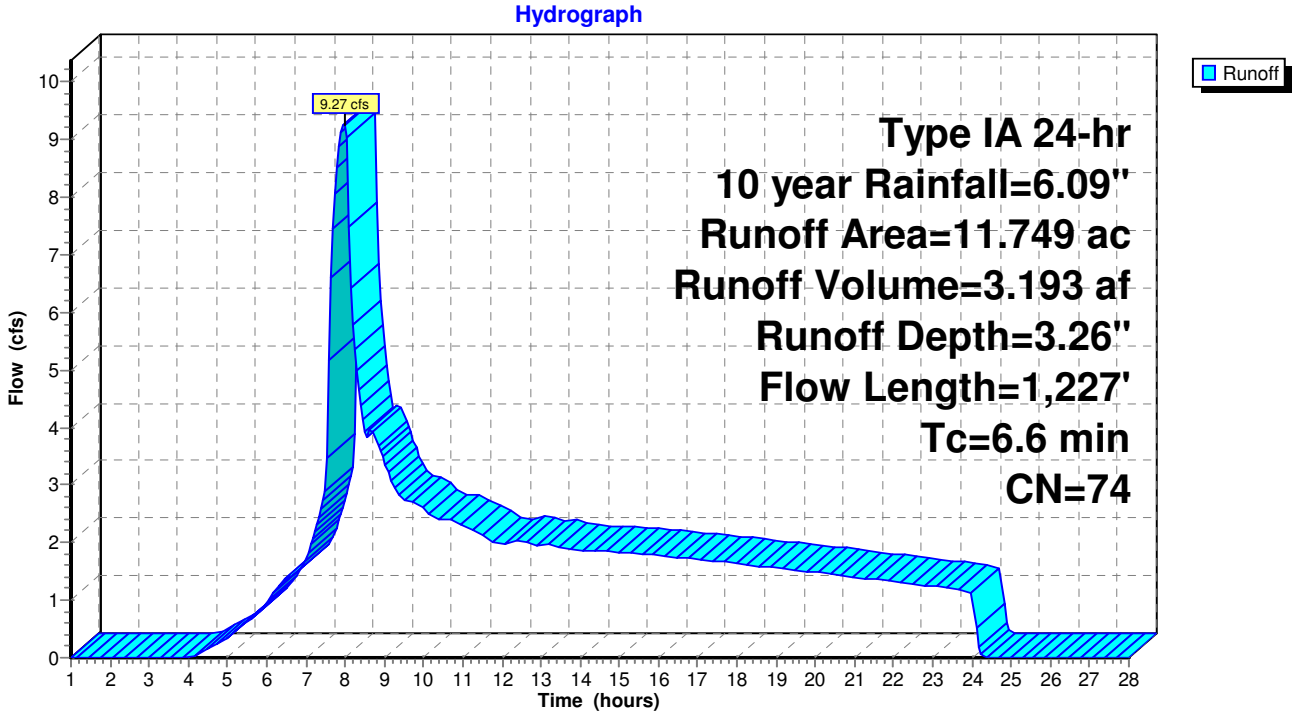
Runoff = 9.27 cfs @ 7.97 hrs, Volume= 3.193 af, Depth= 3.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.279	82	Farmsteads, HSG C
0.024	89	Gravel Roads, HSG C
0.520	79	Pasture/grassland/range, Fair, HSG C
8.401	74	Pasture/grassland/range, Good, HSG C
0.034	92	Paved roads w/open ditches, 50% imp, HSG C
0.322	75	Vineyard, Good, HSG C
2.170	70	Woods, Good, HSG C
11.749	74	Weighted Average
11.732		99.86% Pervious Area
0.017		0.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.2800	0.38		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.2	453	0.1500	6.24		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.0	674	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
6.6	1,227	Total			

Subcatchment WS4: Subcat WS4



Summary for Subcatchment WS4: Subcat WS4

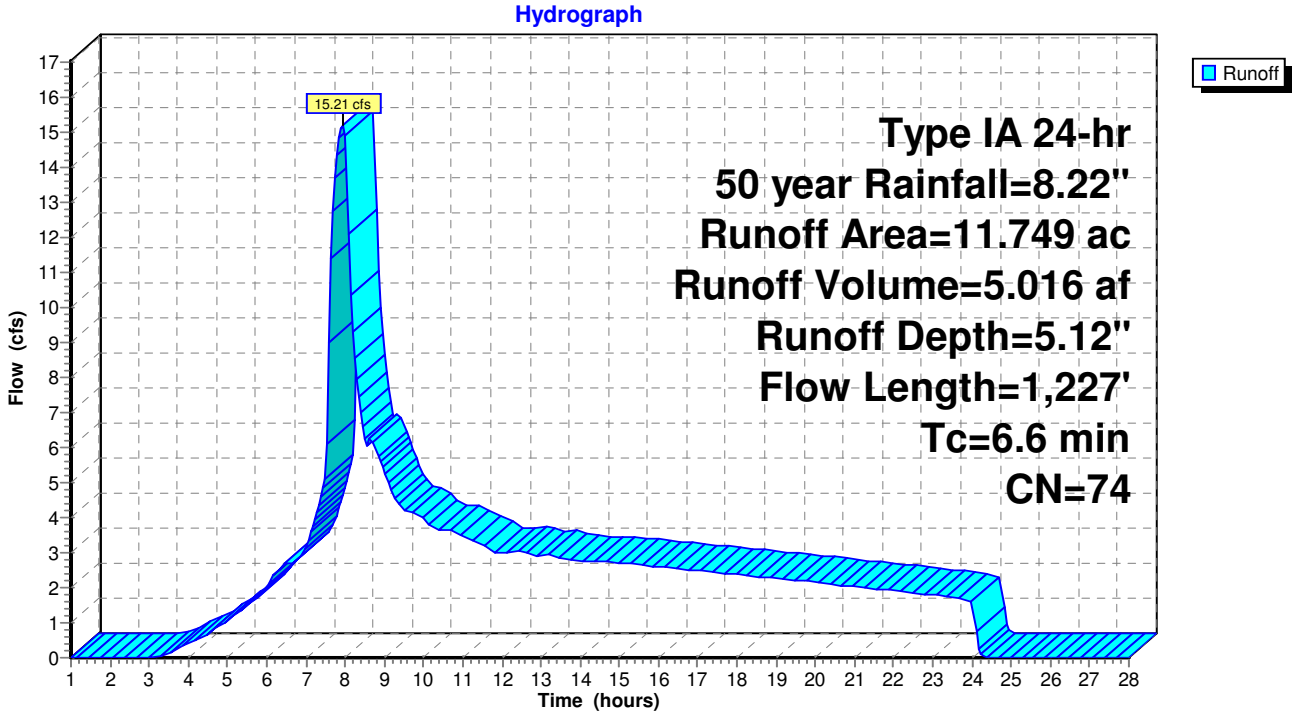
Runoff = 15.21 cfs @ 7.95 hrs, Volume= 5.016 af, Depth= 5.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.279	82	Farmsteads, HSG C
0.024	89	Gravel Roads, HSG C
0.520	79	Pasture/grassland/range, Fair, HSG C
8.401	74	Pasture/grassland/range, Good, HSG C
0.034	92	Paved roads w/open ditches, 50% imp, HSG C
0.322	75	Vineyard, Good, HSG C
2.170	70	Woods, Good, HSG C
11.749	74	Weighted Average
11.732		99.86% Pervious Area
0.017		0.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.2800	0.38		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.2	453	0.1500	6.24		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.0	674	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
6.6	1,227	Total			

Subcatchment WS4: Subcat WS4



Summary for Subcatchment WS4: Subcat WS4

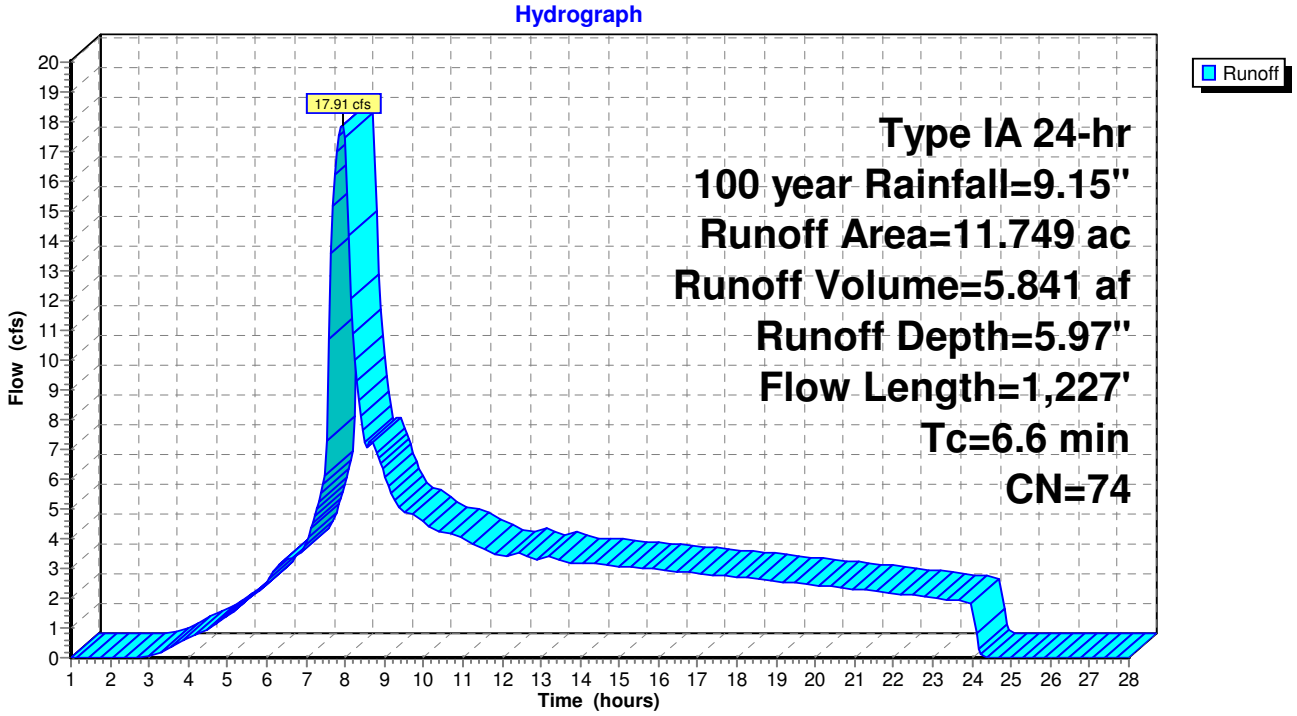
Runoff = 17.91 cfs @ 7.94 hrs, Volume= 5.841 af, Depth= 5.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.279	82	Farmsteads, HSG C
0.024	89	Gravel Roads, HSG C
0.520	79	Pasture/grassland/range, Fair, HSG C
8.401	74	Pasture/grassland/range, Good, HSG C
0.034	92	Paved roads w/open ditches, 50% imp, HSG C
0.322	75	Vineyard, Good, HSG C
2.170	70	Woods, Good, HSG C
11.749	74	Weighted Average
11.732		99.86% Pervious Area
0.017		0.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.4	100	0.2800	0.38		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.2	453	0.1500	6.24		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.0	674	0.2100	11.38	22.76	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
6.6	1,227	Total			

Subcatchment WS4: Subcat WS4



Summary for Subcatchment WS5: Subcat WS5

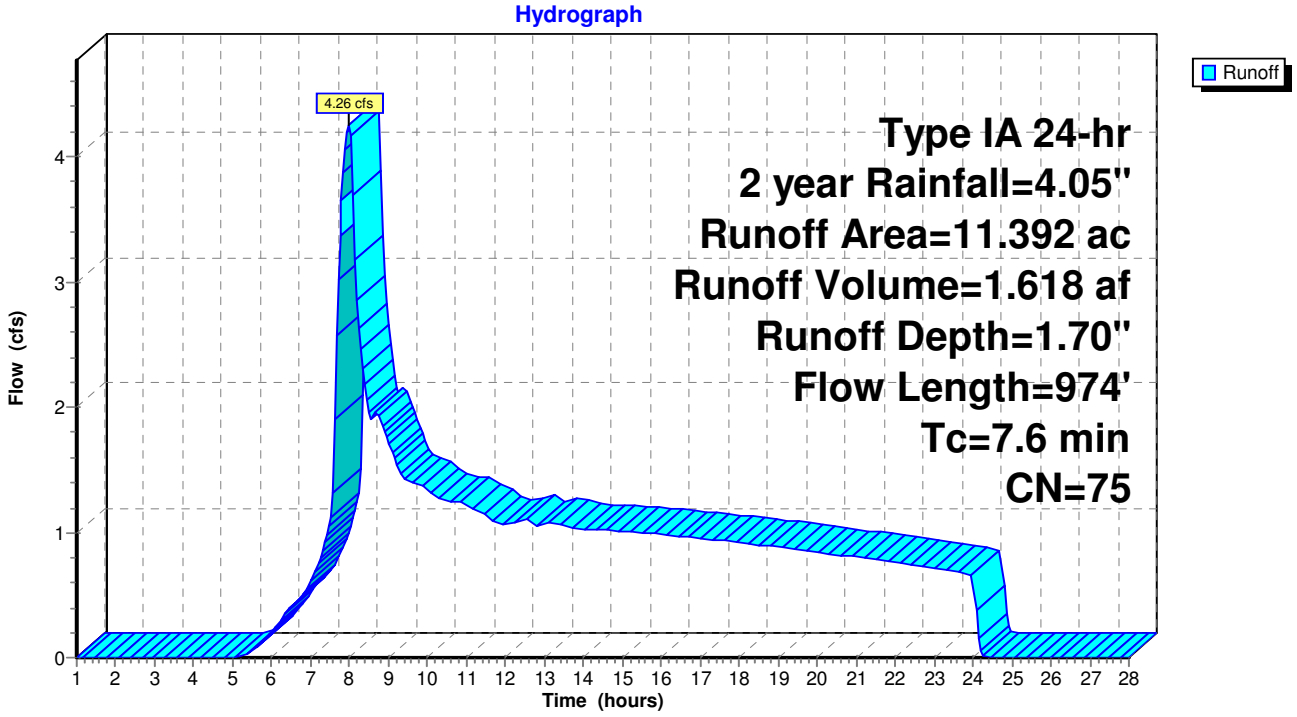
Runoff = 4.26 cfs @ 8.00 hrs, Volume= 1.618 af, Depth= 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
4.889	79	Pasture/grassland/range, Fair, HSG C
2.919	74	Pasture/grassland/range, Good, HSG C
3.584	70	Woods, Good, HSG C
11.392	75	Weighted Average
11.392		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.6	355	0.3500	9.52		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.8	519	0.1800	10.53	21.07	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	974	Total			

Subcatchment WS5: Subcat WS5



Summary for Subcatchment WS5: Subcat WS5

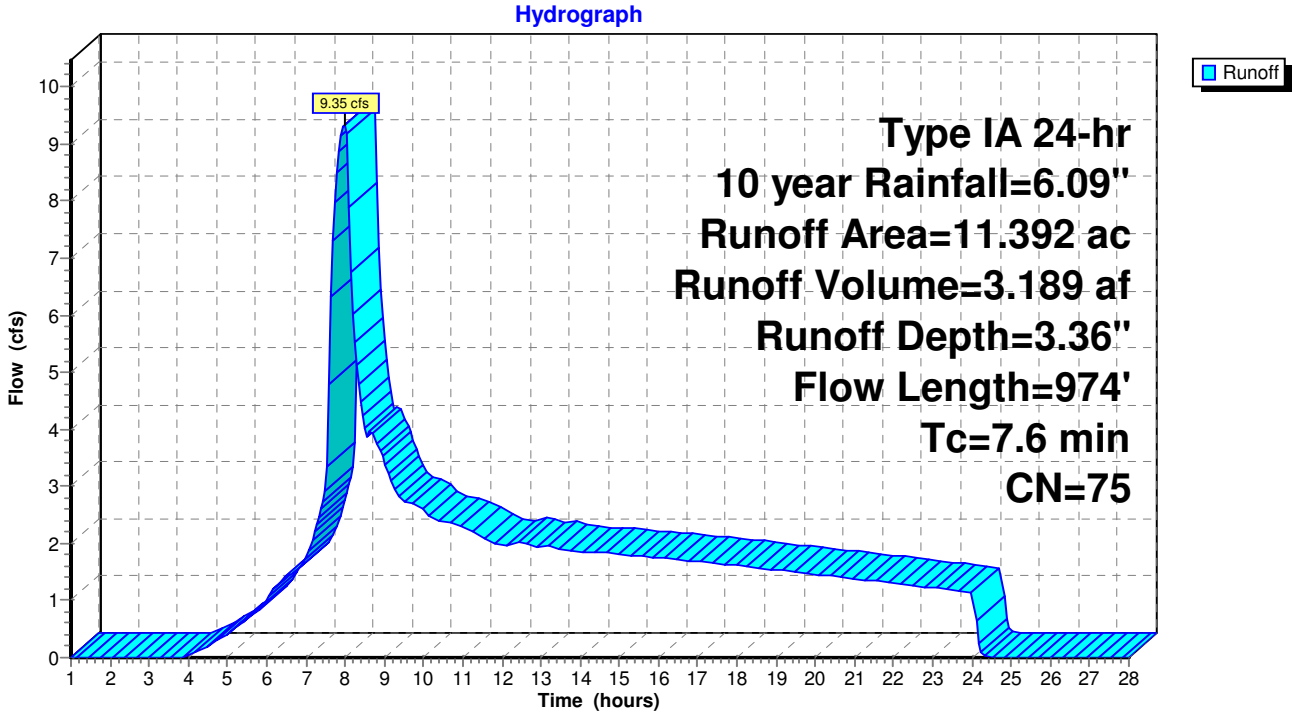
Runoff = 9.35 cfs @ 7.98 hrs, Volume= 3.189 af, Depth= 3.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
4.889	79	Pasture/grassland/range, Fair, HSG C
2.919	74	Pasture/grassland/range, Good, HSG C
3.584	70	Woods, Good, HSG C
11.392	75	Weighted Average
11.392		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.6	355	0.3500	9.52		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.8	519	0.1800	10.53	21.07	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	974	Total			

Subcatchment WS5: Subcat WS5



Summary for Subcatchment WS5: Subcat WS5

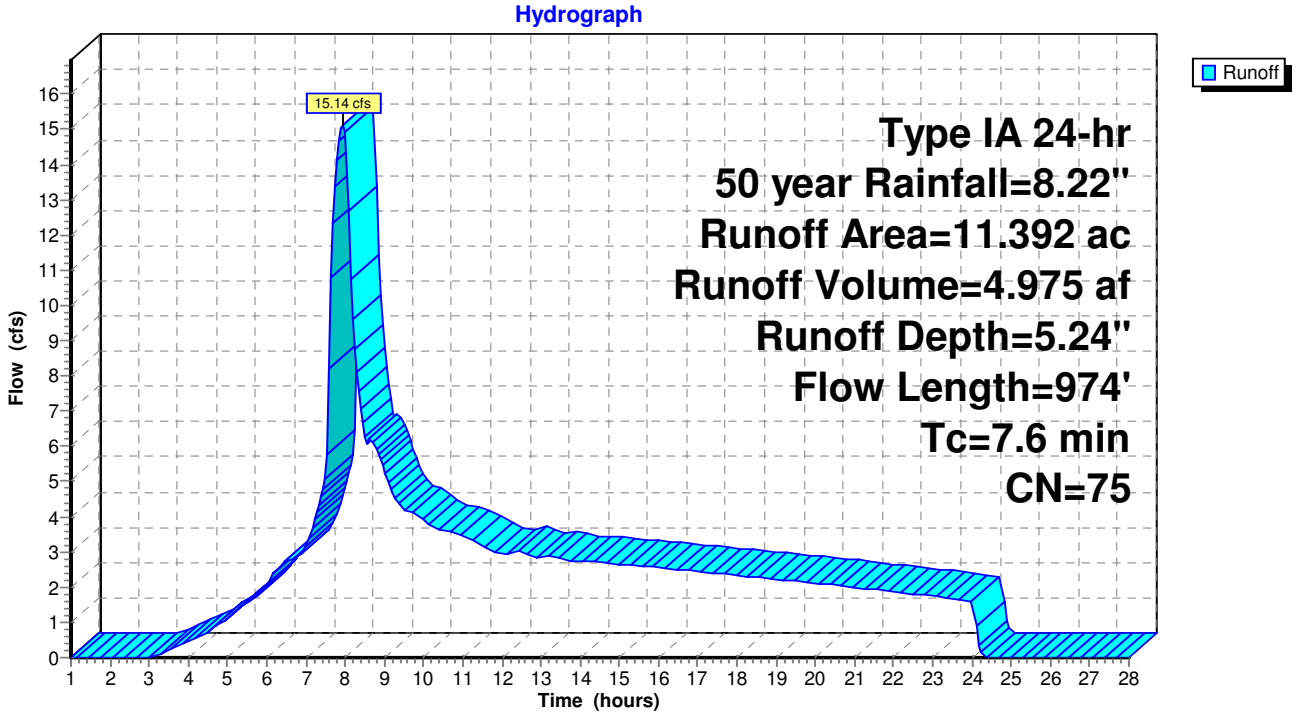
Runoff = 15.14 cfs @ 7.96 hrs, Volume= 4.975 af, Depth= 5.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
4.889	79	Pasture/grassland/range, Fair, HSG C
2.919	74	Pasture/grassland/range, Good, HSG C
3.584	70	Woods, Good, HSG C
11.392	75	Weighted Average
11.392		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.6	355	0.3500	9.52		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.8	519	0.1800	10.53	21.07	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	974	Total			

Subcatchment WS5: Subcat WS5



Summary for Subcatchment WS5: Subcat WS5

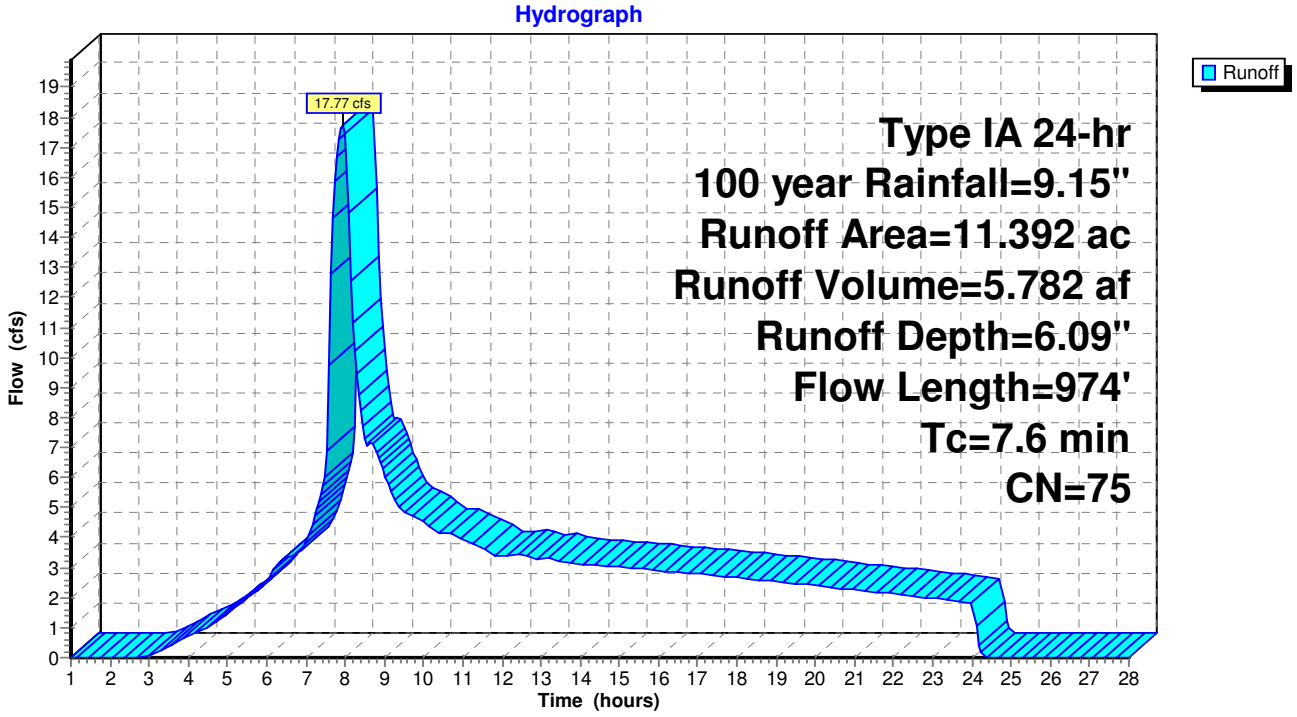
Runoff = 17.77 cfs @ 7.95 hrs, Volume= 5.782 af, Depth= 6.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
4.889	79	Pasture/grassland/range, Fair, HSG C
2.919	74	Pasture/grassland/range, Good, HSG C
3.584	70	Woods, Good, HSG C
11.392	75	Weighted Average
11.392		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.6	355	0.3500	9.52		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.8	519	0.1800	10.53	21.07	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	974	Total			

Subcatchment WS5: Subcat WS5



Summary for Subcatchment WS5: Subcat WS5

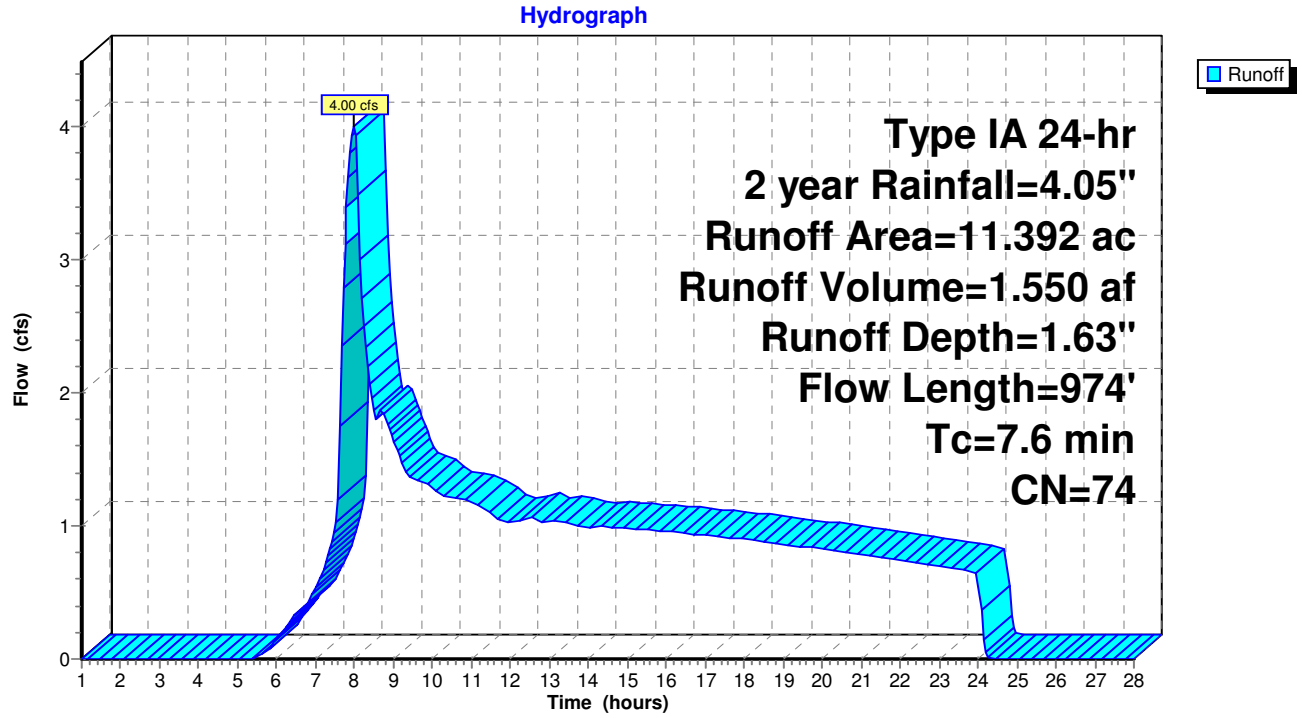
Runoff = 4.00 cfs @ 8.00 hrs, Volume= 1.550 af, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
2.812	79	Pasture/grassland/range, Fair, HSG C
2.920	74	Pasture/grassland/range, Good, HSG C
2.076	75	Vineyard, Good, HSG C
3.584	70	Woods, Good, HSG C
11.392	74	Weighted Average
11.392		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.6	355	0.3500	9.52		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.8	519	0.1800	10.53	21.07	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	974	Total			

Subcatchment WS5: Subcat WS5



Summary for Subcatchment WS5: Subcat WS5

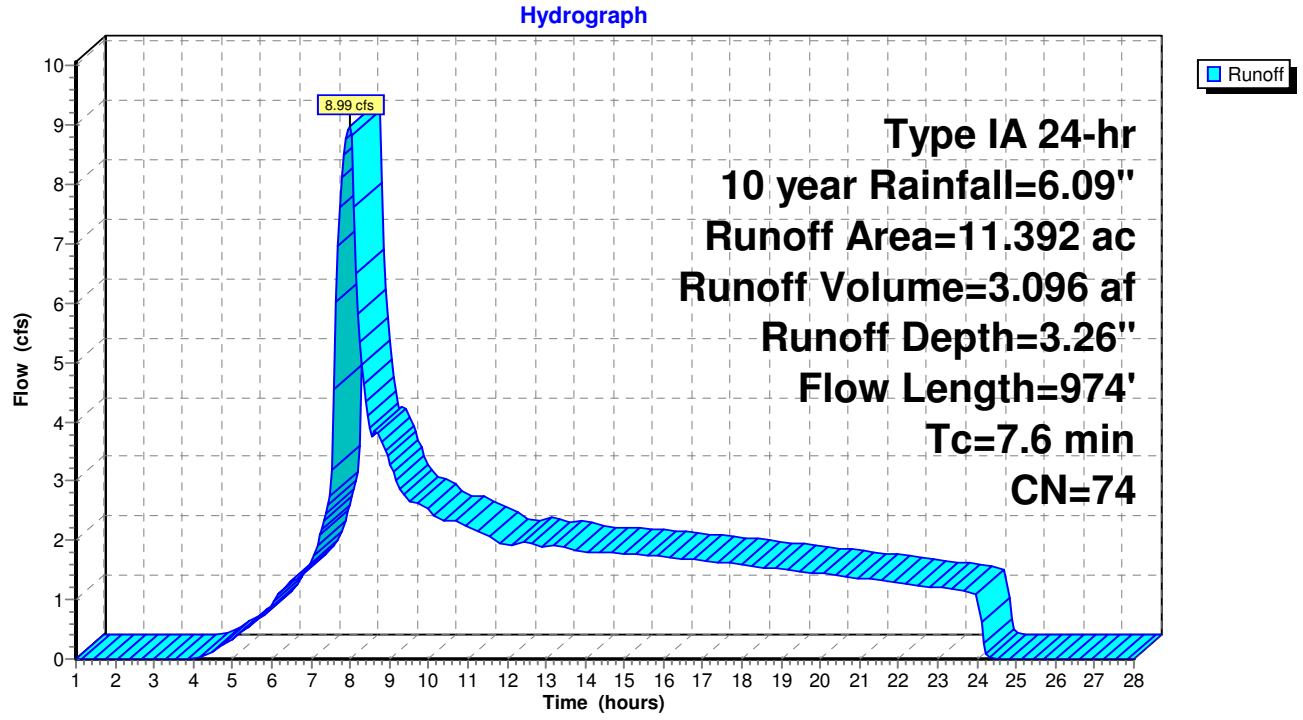
Runoff = 8.99 cfs @ 7.98 hrs, Volume= 3.096 af, Depth= 3.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
2.812	79	Pasture/grassland/range, Fair, HSG C
2.920	74	Pasture/grassland/range, Good, HSG C
2.076	75	Vineyard, Good, HSG C
3.584	70	Woods, Good, HSG C
11.392	74	Weighted Average
11.392		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.6	355	0.3500	9.52		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.8	519	0.1800	10.53	21.07	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	974	Total			

Subcatchment WS5: Subcat WS5



Summary for Subcatchment WS5: Subcat WS5

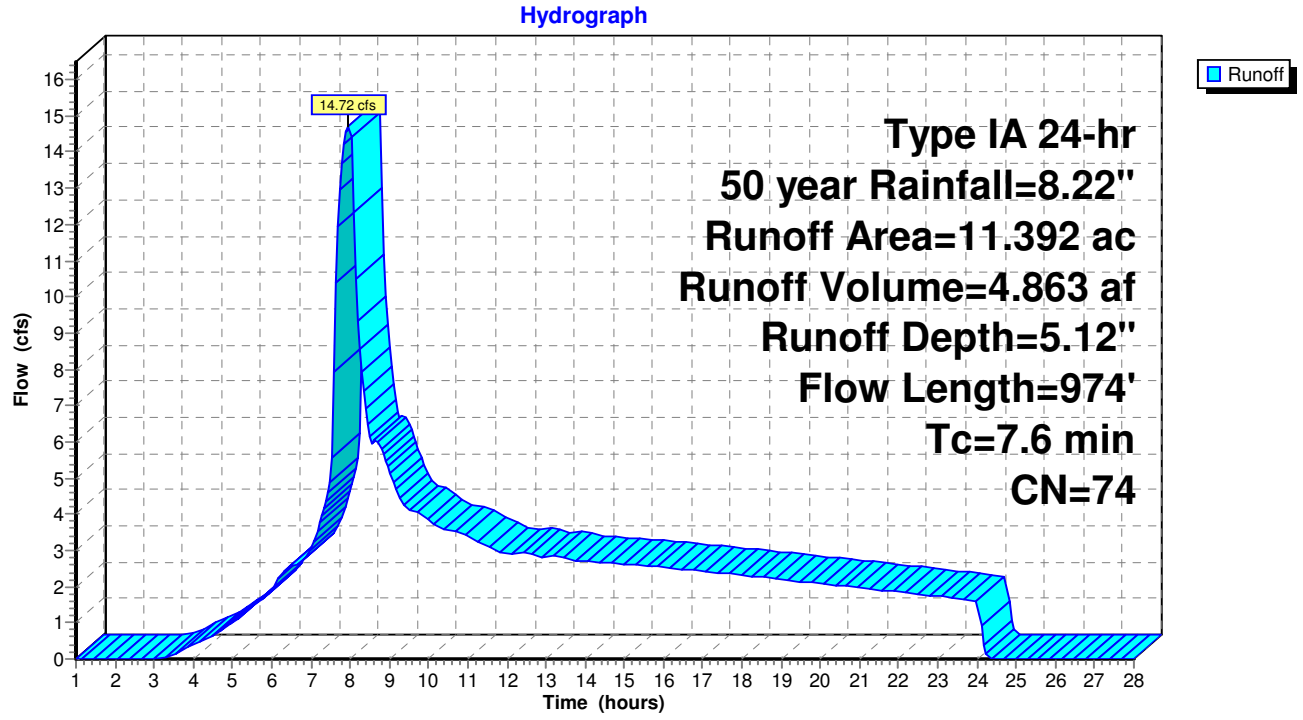
Runoff = 14.72 cfs @ 7.96 hrs, Volume= 4.863 af, Depth= 5.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
2.812	79	Pasture/grassland/range, Fair, HSG C
2.920	74	Pasture/grassland/range, Good, HSG C
2.076	75	Vineyard, Good, HSG C
3.584	70	Woods, Good, HSG C
11.392	74	Weighted Average
11.392		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.6	355	0.3500	9.52		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.8	519	0.1800	10.53	21.07	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	974	Total			

Subcatchment WS5: Subcat WS5



Summary for Subcatchment WS5: Subcat WS5

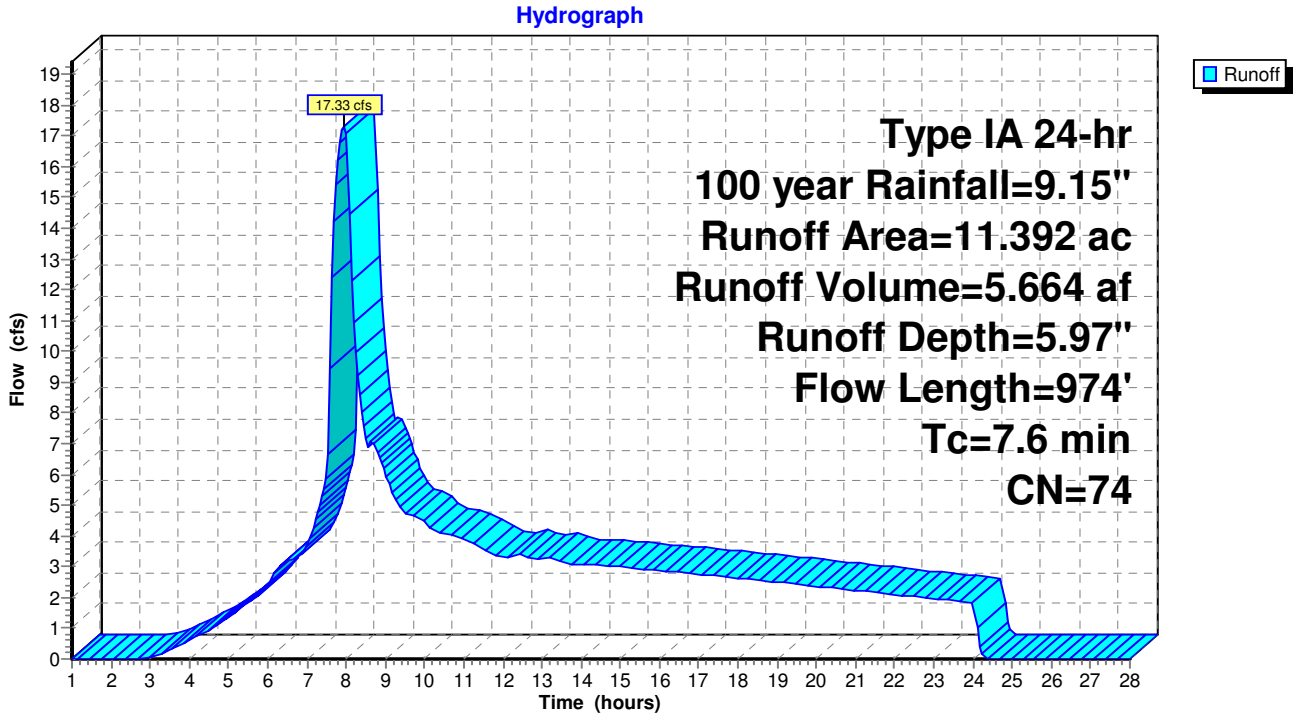
Runoff = 17.33 cfs @ 7.96 hrs, Volume= 5.664 af, Depth= 5.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
2.812	79	Pasture/grassland/range, Fair, HSG C
2.920	74	Pasture/grassland/range, Good, HSG C
2.076	75	Vineyard, Good, HSG C
3.584	70	Woods, Good, HSG C
11.392	74	Weighted Average
11.392		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.1200	0.27		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.6	355	0.3500	9.52		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
0.8	519	0.1800	10.53	21.07	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	974	Total			

Subcatchment WS5: Subcat WS5



Summary for Subcatchment WS6: Subcat WS6

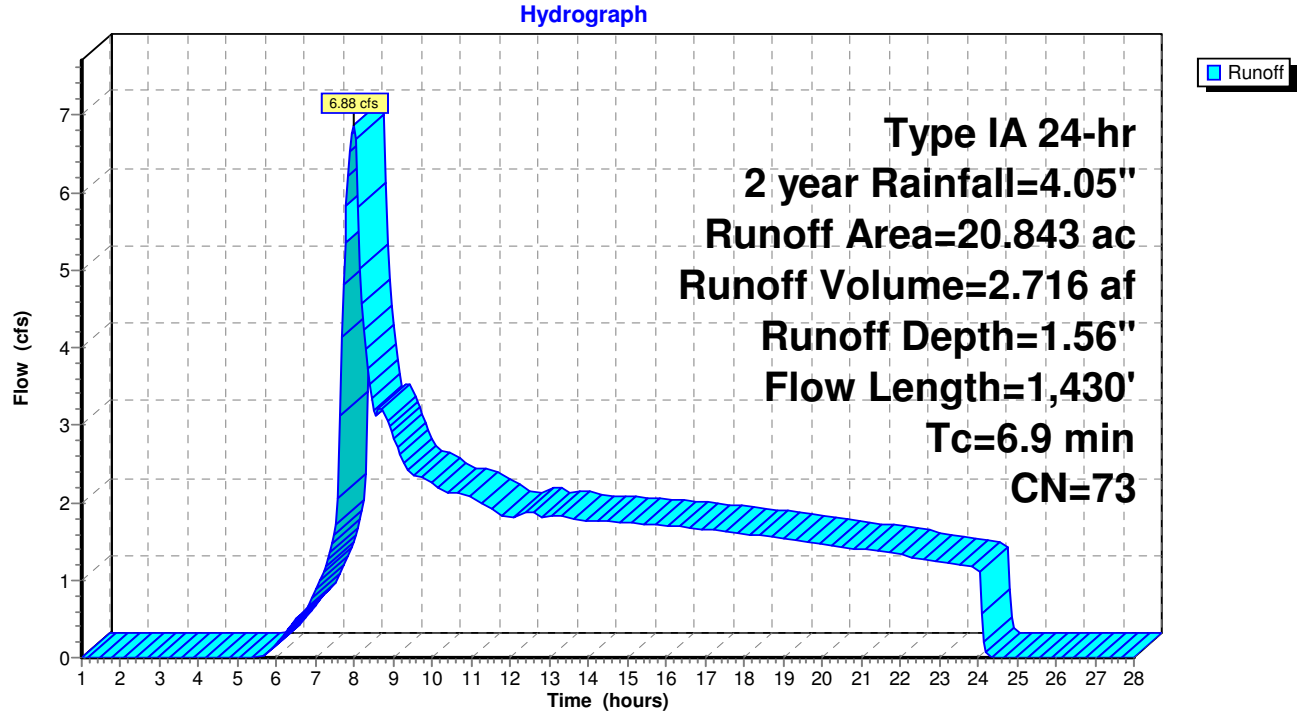
Runoff = 6.88 cfs @ 7.99 hrs, Volume= 2.716 af, Depth= 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
4.004	79	Pasture/grassland/range, Fair, HSG C
5.386	74	Pasture/grassland/range, Good, HSG C
11.453	70	Woods, Good, HSG C
20.843	73	Weighted Average
20.843		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	100	0.2300	0.35		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	229	0.3400	9.39		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.7	1,101	0.1900	10.82	21.65	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
6.9	1,430	Total			

Subcatchment WS6: Subcat WS6



Summary for Subcatchment WS6: Subcat WS6

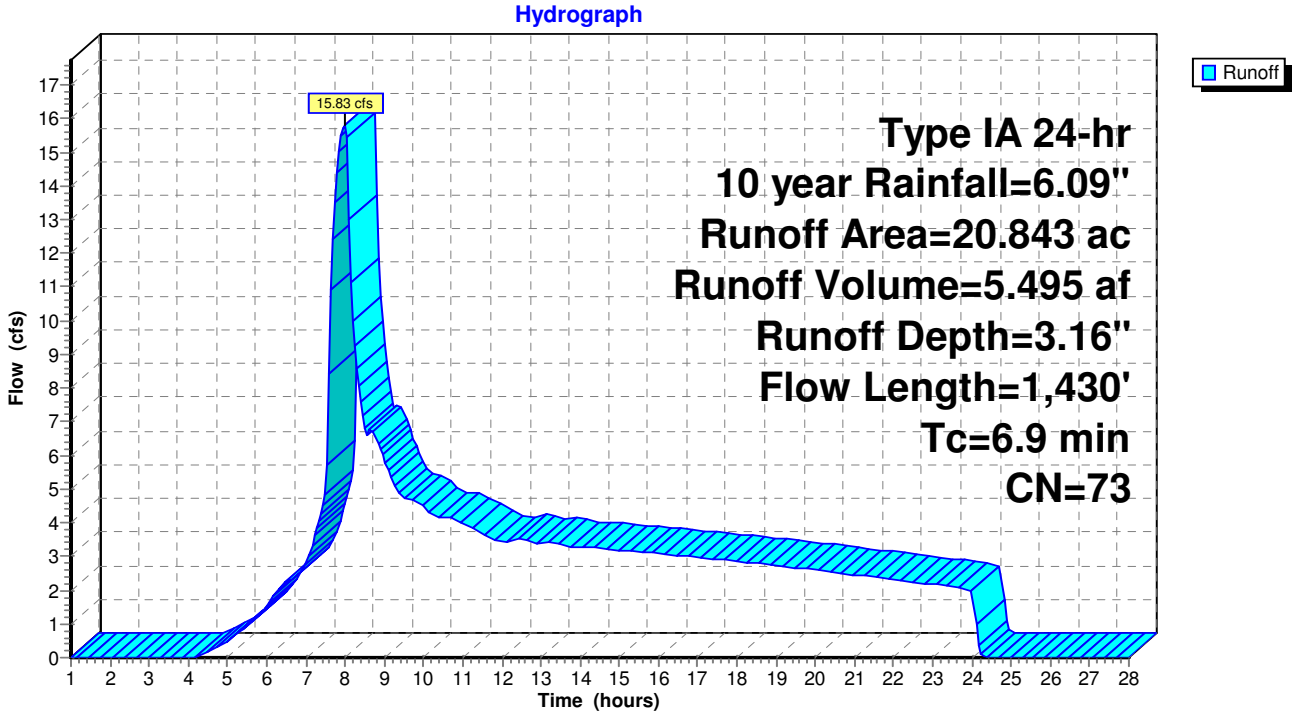
Runoff = 15.83 cfs @ 7.98 hrs, Volume= 5.495 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
4.004	79	Pasture/grassland/range, Fair, HSG C
5.386	74	Pasture/grassland/range, Good, HSG C
11.453	70	Woods, Good, HSG C
20.843	73	Weighted Average
20.843		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	100	0.2300	0.35		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	229	0.3400	9.39		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.7	1,101	0.1900	10.82	21.65	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
6.9	1,430	Total			

Subcatchment WS6: Subcat WS6



Summary for Subcatchment WS6: Subcat WS6

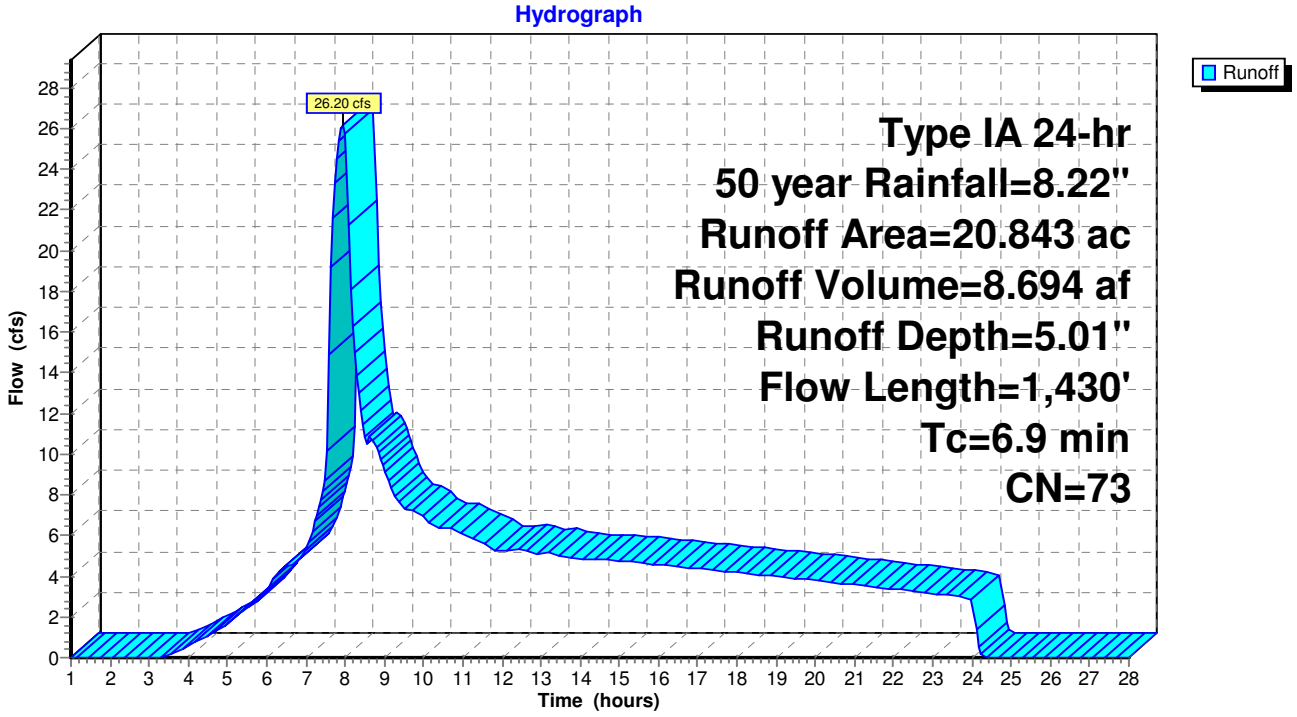
Runoff = 26.20 cfs @ 7.96 hrs, Volume= 8.694 af, Depth= 5.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
4.004	79	Pasture/grassland/range, Fair, HSG C
5.386	74	Pasture/grassland/range, Good, HSG C
11.453	70	Woods, Good, HSG C
20.843	73	Weighted Average
20.843		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	100	0.2300	0.35		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	229	0.3400	9.39		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.7	1,101	0.1900	10.82	21.65	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
6.9	1,430	Total			

Subcatchment WS6: Subcat WS6



Summary for Subcatchment WS6: Subcat WS6

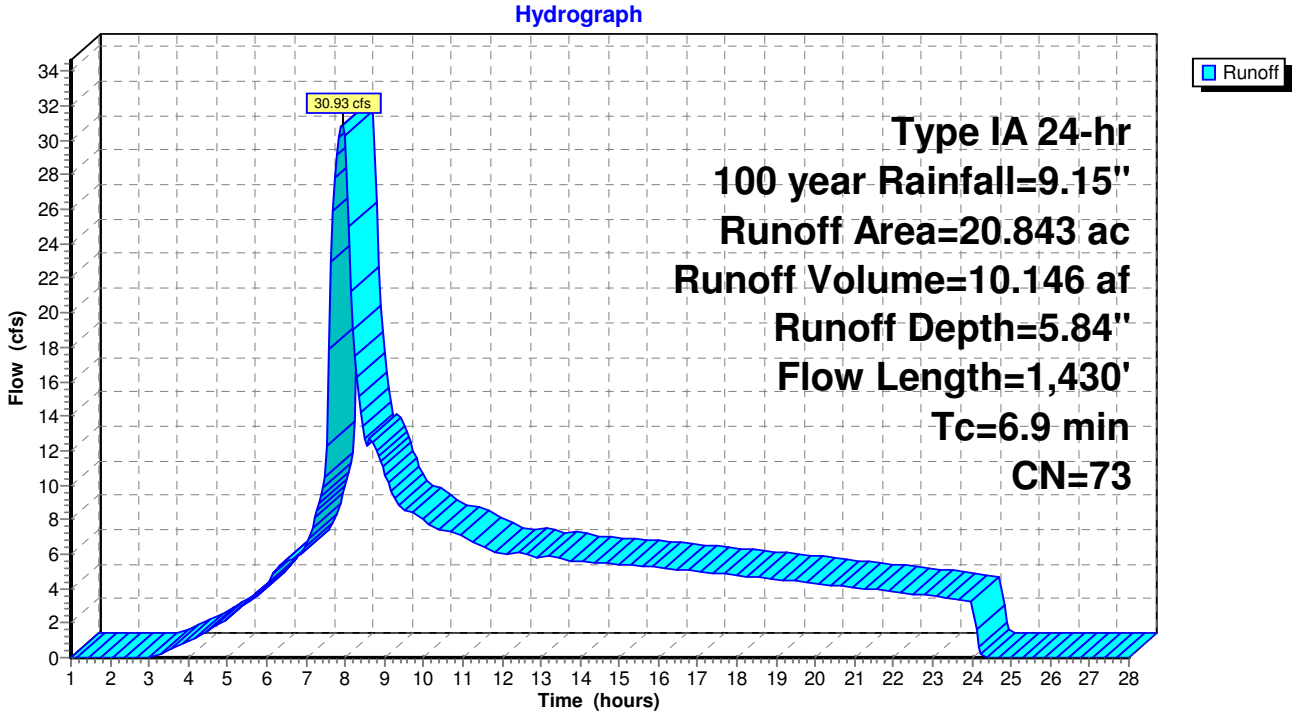
Runoff = 30.93 cfs @ 7.95 hrs, Volume= 10.146 af, Depth= 5.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
4.004	79	Pasture/grassland/range, Fair, HSG C
5.386	74	Pasture/grassland/range, Good, HSG C
11.453	70	Woods, Good, HSG C
20.843	73	Weighted Average
20.843		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	100	0.2300	0.35		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	229	0.3400	9.39		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.7	1,101	0.1900	10.82	21.65	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
6.9	1,430	Total			

Subcatchment WS6: Subcat WS6



Summary for Subcatchment WS6: Subcat WS6

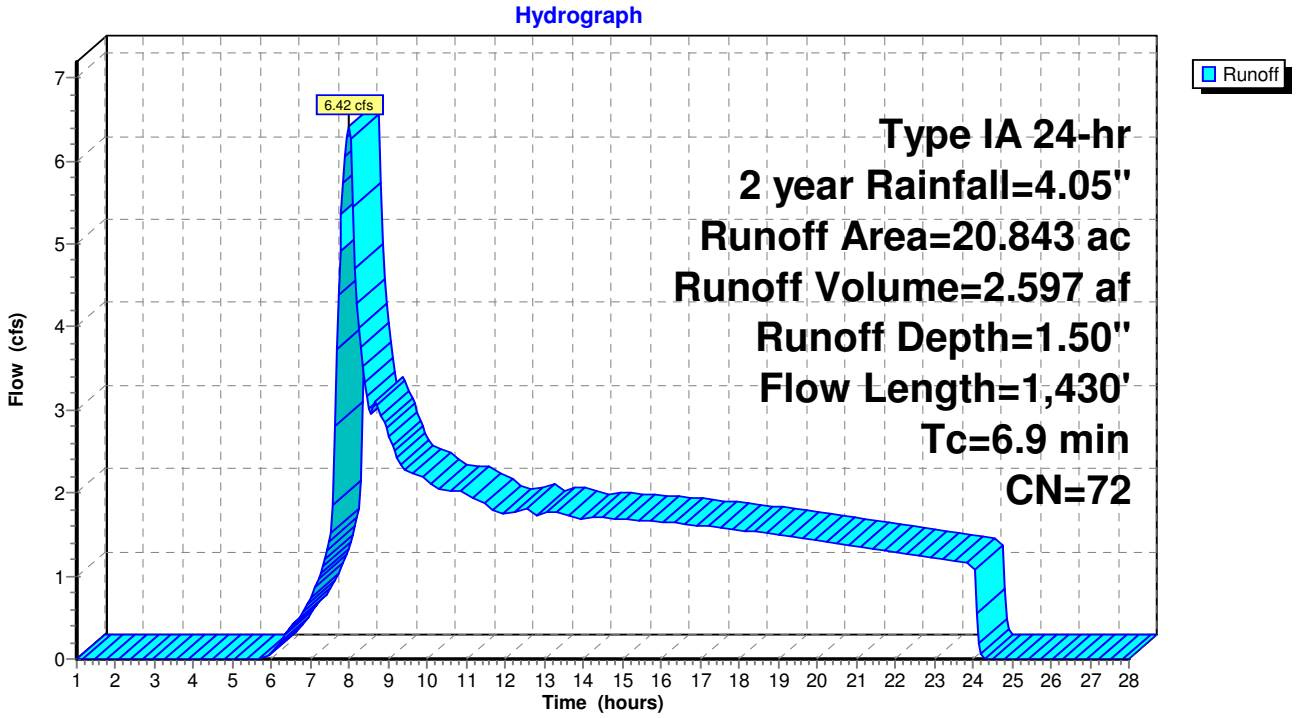
Runoff = 6.42 cfs @ 8.00 hrs, Volume= 2.597 af, Depth= 1.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
2.376	79	Pasture/grassland/range, Fair, HSG C
5.386	74	Pasture/grassland/range, Good, HSG C
1.627	75	Vineyard, Good, HSG C
11.453	70	Woods, Good, HSG C
20.843	72	Weighted Average
20.843		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	100	0.2300	0.35		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	229	0.3400	9.39		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.7	1,101	0.1900	10.82	21.65	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
6.9	1,430	Total			

Subcatchment WS6: Subcat WS6



Summary for Subcatchment WS6: Subcat WS6

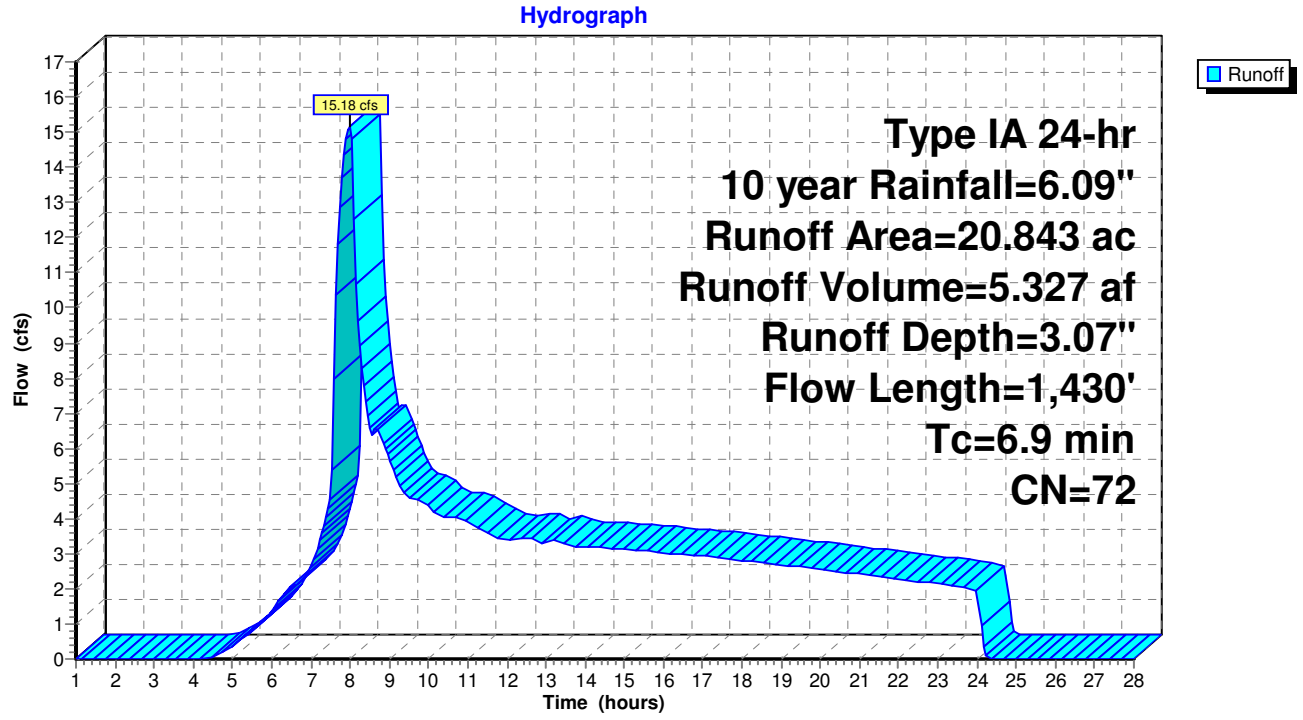
Runoff = 15.18 cfs @ 7.98 hrs, Volume= 5.327 af, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
2.376	79	Pasture/grassland/range, Fair, HSG C
5.386	74	Pasture/grassland/range, Good, HSG C
1.627	75	Vineyard, Good, HSG C
11.453	70	Woods, Good, HSG C
20.843	72	Weighted Average
20.843		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	100	0.2300	0.35		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	229	0.3400	9.39		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.7	1,101	0.1900	10.82	21.65	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
6.9	1,430	Total			

Subcatchment WS6: Subcat WS6



Summary for Subcatchment WS6: Subcat WS6

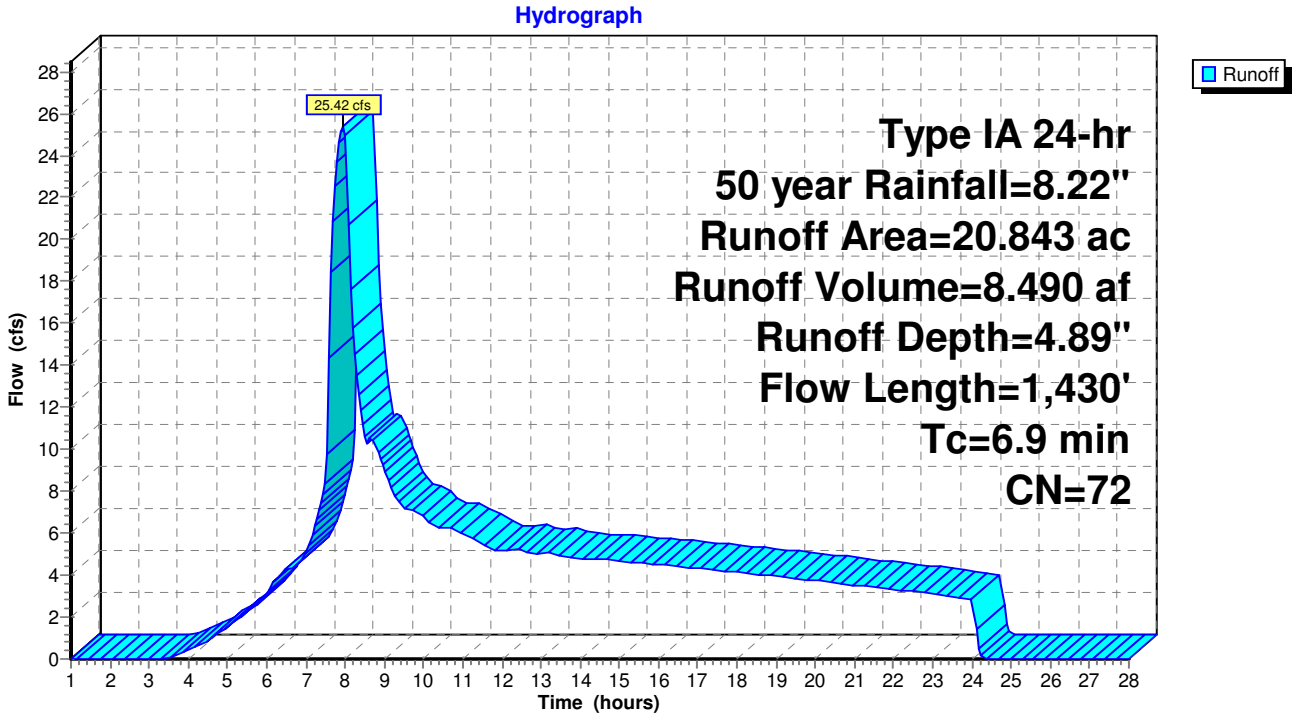
Runoff = 25.42 cfs @ 7.96 hrs, Volume= 8.490 af, Depth= 4.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
2.376	79	Pasture/grassland/range, Fair, HSG C
5.386	74	Pasture/grassland/range, Good, HSG C
1.627	75	Vineyard, Good, HSG C
11.453	70	Woods, Good, HSG C
20.843	72	Weighted Average
20.843		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	100	0.2300	0.35		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	229	0.3400	9.39		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.7	1,101	0.1900	10.82	21.65	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
6.9	1,430	Total			

Subcatchment WS6: Subcat WS6



Summary for Subcatchment WS6: Subcat WS6

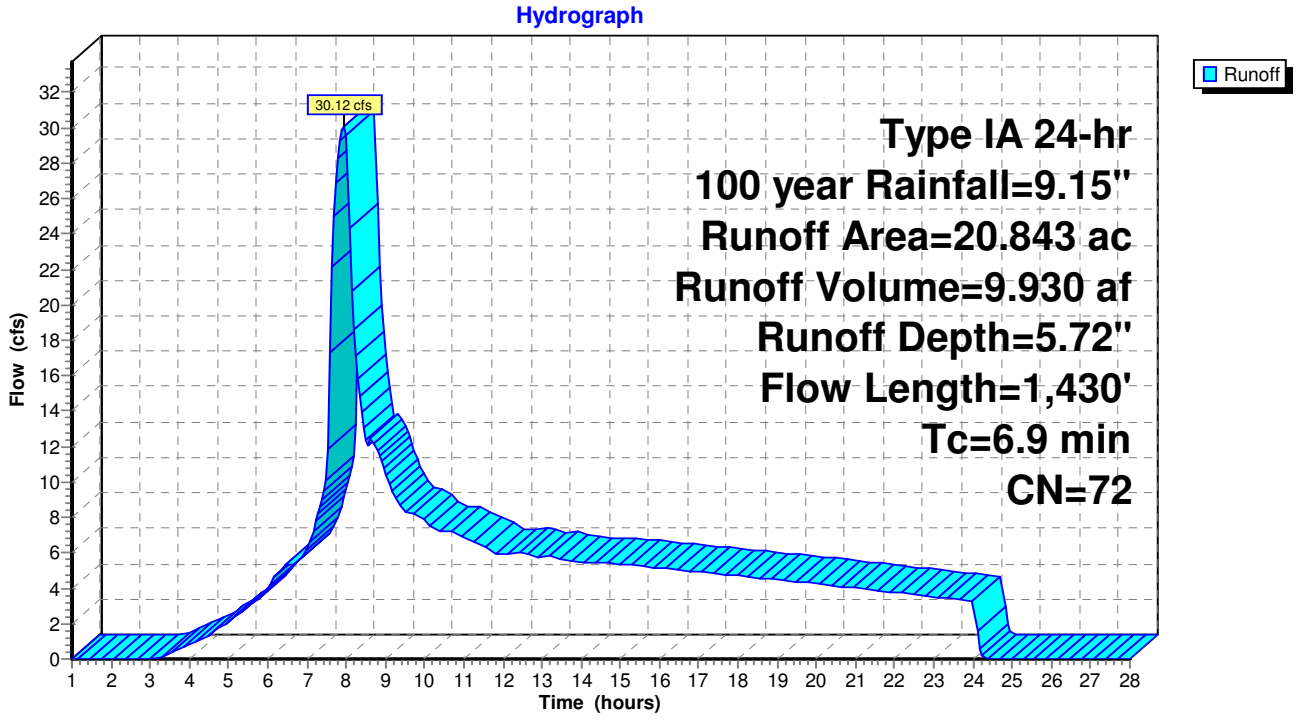
Runoff = 30.12 cfs @ 7.95 hrs, Volume= 9.930 af, Depth= 5.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
2.376	79	Pasture/grassland/range, Fair, HSG C
5.386	74	Pasture/grassland/range, Good, HSG C
1.627	75	Vineyard, Good, HSG C
11.453	70	Woods, Good, HSG C
20.843	72	Weighted Average
20.843		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	100	0.2300	0.35		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
0.4	229	0.3400	9.39		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.7	1,101	0.1900	10.82	21.65	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
6.9	1,430	Total			

Subcatchment WS6: Subcat WS6



Summary for Subcatchment WS7: Subcat WS7

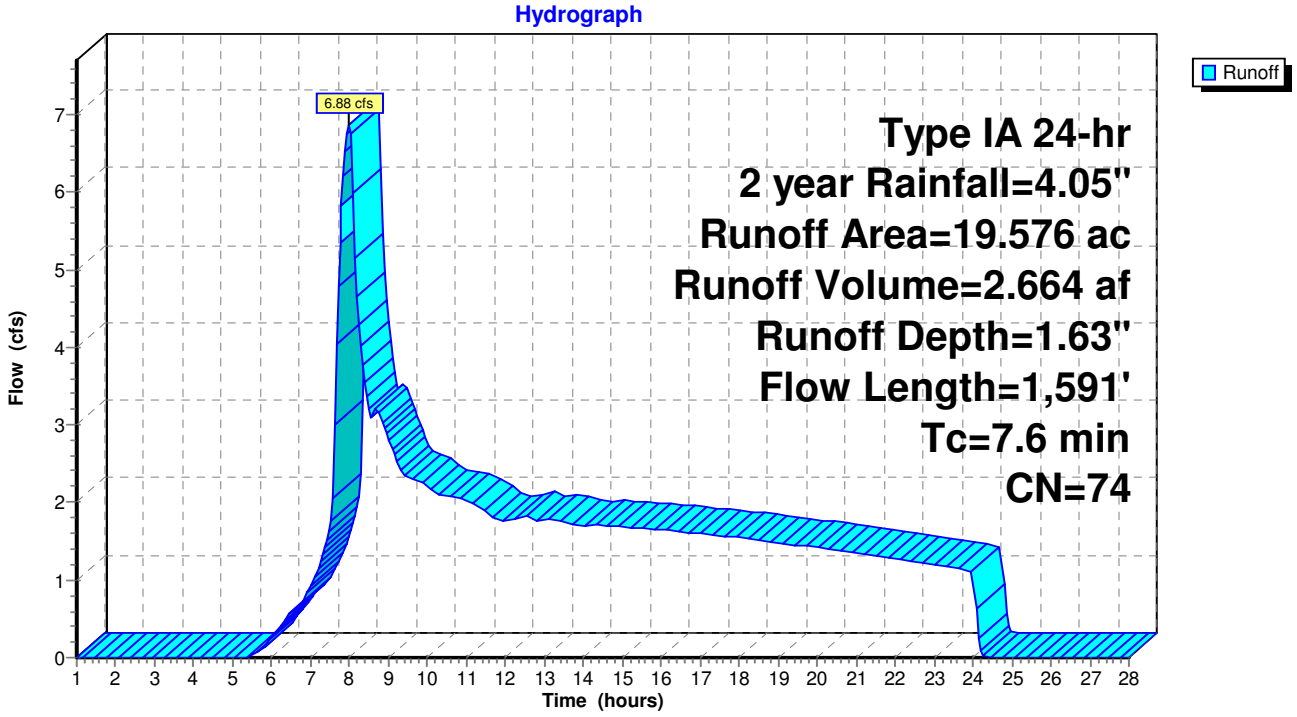
Runoff = 6.88 cfs @ 8.00 hrs, Volume= 2.664 af, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
5.446	79	Pasture/grassland/range, Fair, HSG C
7.332	74	Pasture/grassland/range, Good, HSG C
6.797	70	Woods, Good, HSG C
19.576	74	Weighted Average
19.576		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.2200	0.34		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.1	552	0.2900	8.67		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.6	939	0.1600	9.93	19.86	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	1,591	Total			

Subcatchment WS7: Subcat WS7



Summary for Subcatchment WS7: Subcat WS7

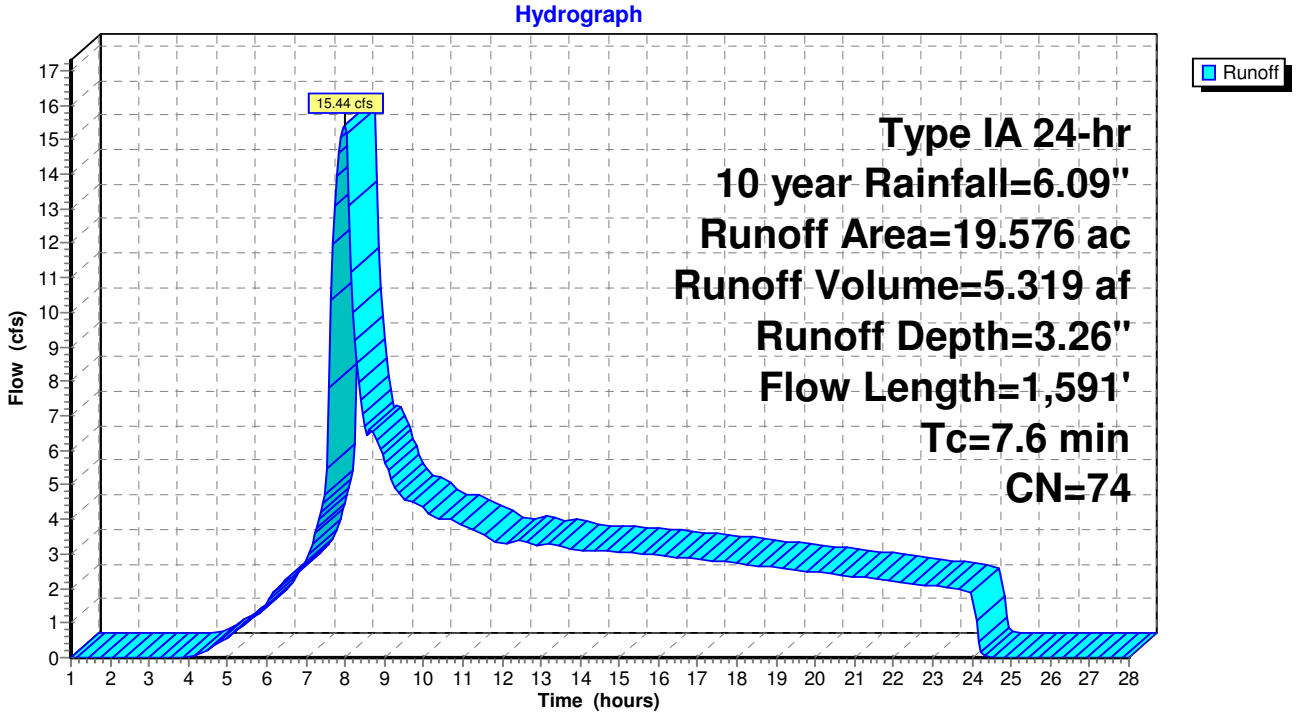
Runoff = 15.44 cfs @ 7.98 hrs, Volume= 5.319 af, Depth= 3.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
5.446	79	Pasture/grassland/range, Fair, HSG C
7.332	74	Pasture/grassland/range, Good, HSG C
6.797	70	Woods, Good, HSG C
19.576	74	Weighted Average
19.576		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.2200	0.34		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.1	552	0.2900	8.67		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.6	939	0.1600	9.93	19.86	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	1,591	Total			

Subcatchment WS7: Subcat WS7



Summary for Subcatchment WS7: Subcat WS7

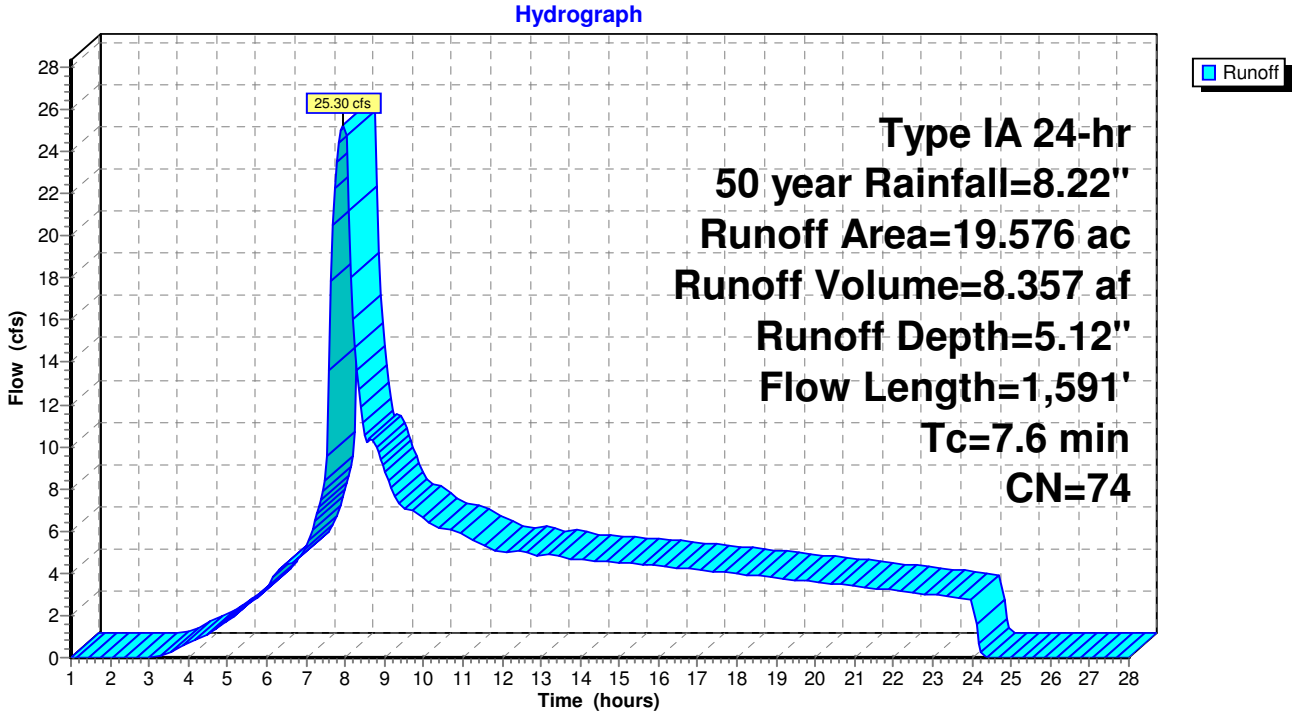
Runoff = 25.30 cfs @ 7.96 hrs, Volume= 8.357 af, Depth= 5.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
5.446	79	Pasture/grassland/range, Fair, HSG C
7.332	74	Pasture/grassland/range, Good, HSG C
6.797	70	Woods, Good, HSG C
19.576	74	Weighted Average
19.576		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.2200	0.34		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.1	552	0.2900	8.67		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.6	939	0.1600	9.93	19.86	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	1,591	Total			

Subcatchment WS7: Subcat WS7



Summary for Subcatchment WS7: Subcat WS7

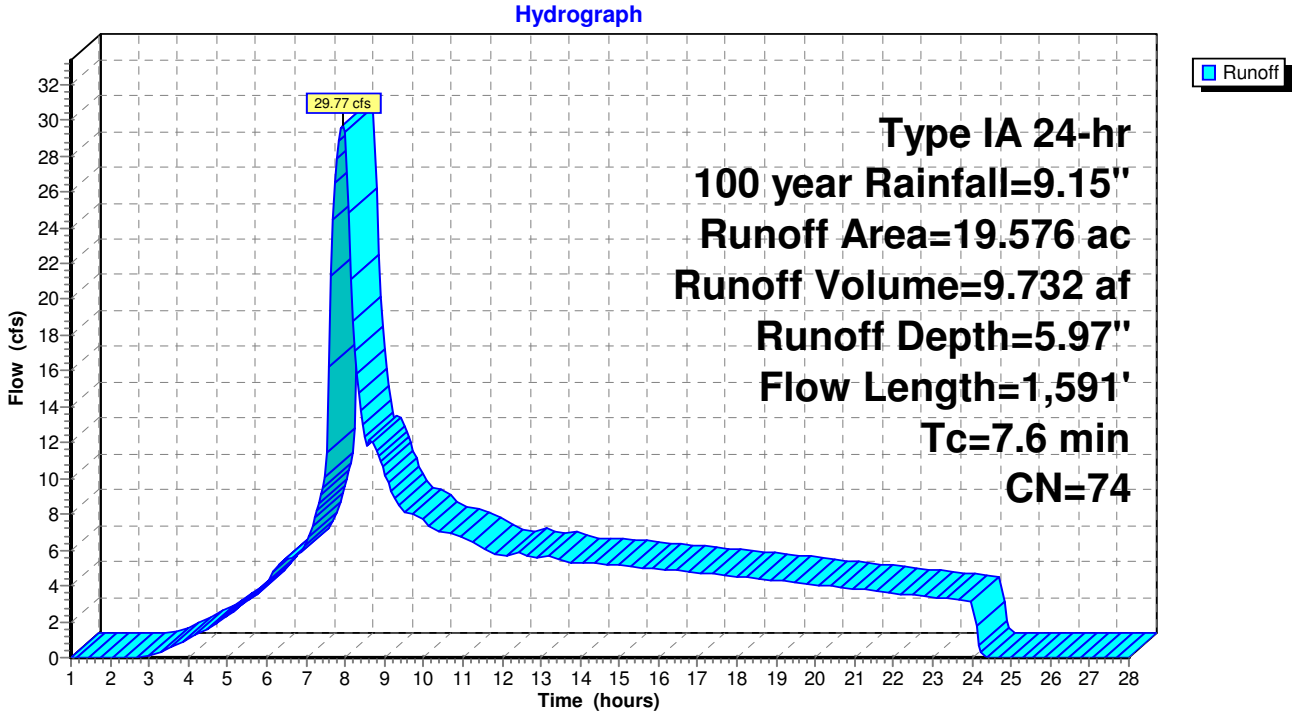
Runoff = 29.77 cfs @ 7.96 hrs, Volume= 9.732 af, Depth= 5.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
5.446	79	Pasture/grassland/range, Fair, HSG C
7.332	74	Pasture/grassland/range, Good, HSG C
6.797	70	Woods, Good, HSG C
19.576	74	Weighted Average
19.576		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.2200	0.34		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.1	552	0.2900	8.67		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.6	939	0.1600	9.93	19.86	**Trap/Vee/Rect Channel Flow, Assumed std ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	1,591	Total			

Subcatchment WS7: Subcat WS7



Summary for Subcatchment WS7: Subcat WS7

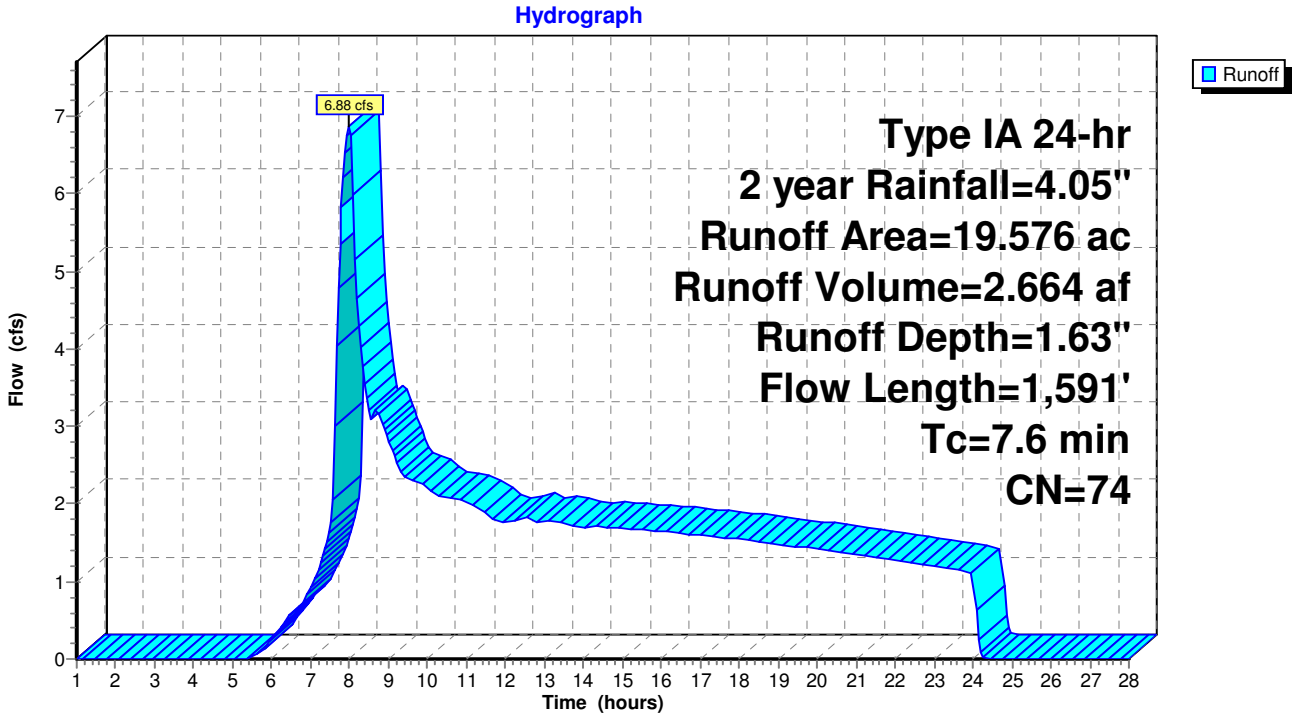
Runoff = 6.88 cfs @ 8.00 hrs, Volume= 2.664 af, Depth= 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
4.340	79	Pasture/grassland/range, Fair, HSG C
7.333	74	Pasture/grassland/range, Good, HSG C
1.106	75	Vineyard, Good, HSG C
6.797	70	Woods, Good, HSG C
19.576	74	Weighted Average
19.576		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.2200	0.34		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.1	552	0.2900	8.67		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.6	939	0.1600	9.93	19.86	**Trap/Vee/Rect Channel Flow, Assumed s6tsd ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	1,591	Total			

Subcatchment WS7: Subcat WS7



Summary for Subcatchment WS7: Subcat WS7

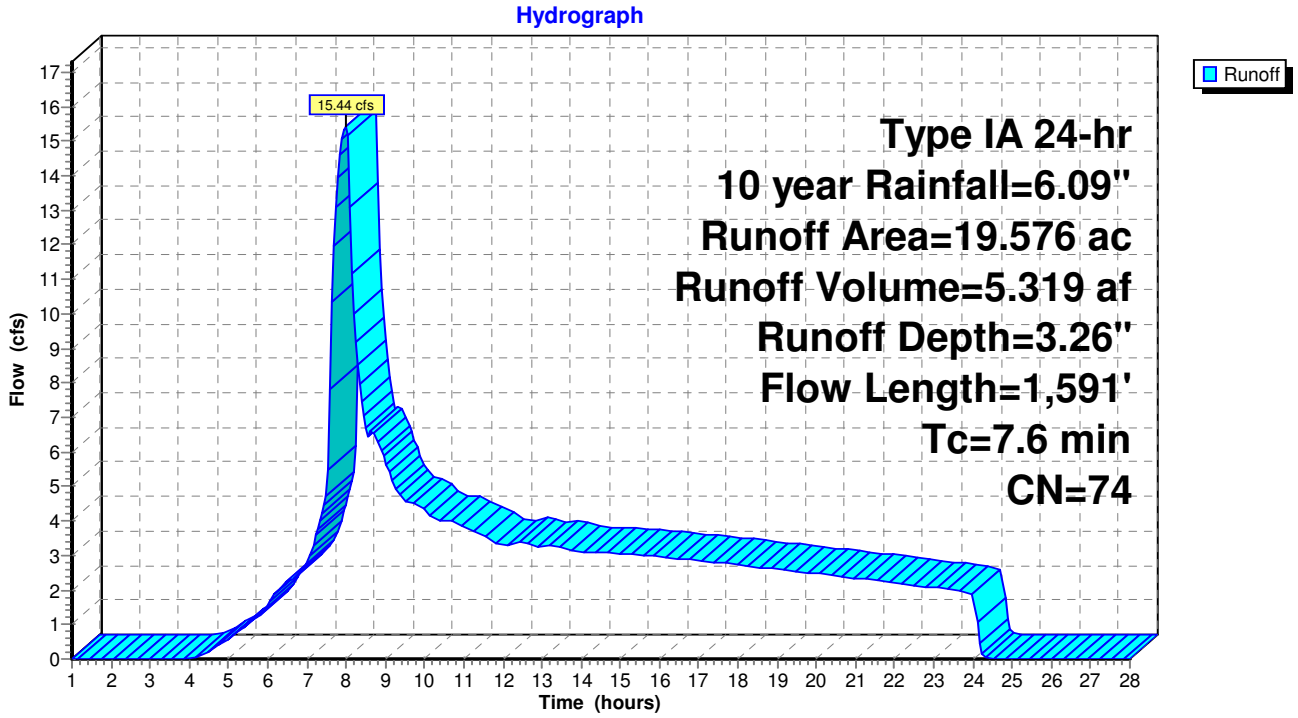
Runoff = 15.44 cfs @ 7.98 hrs, Volume= 5.319 af, Depth= 3.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
4.340	79	Pasture/grassland/range, Fair, HSG C
7.333	74	Pasture/grassland/range, Good, HSG C
1.106	75	Vineyard, Good, HSG C
6.797	70	Woods, Good, HSG C
19.576	74	Weighted Average
19.576		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.2200	0.34		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.1	552	0.2900	8.67		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.6	939	0.1600	9.93	19.86	**Trap/Vee/Rect Channel Flow, Assumed s6tsd ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	1,591	Total			

Subcatchment WS7: Subcat WS7



Summary for Subcatchment WS7: Subcat WS7

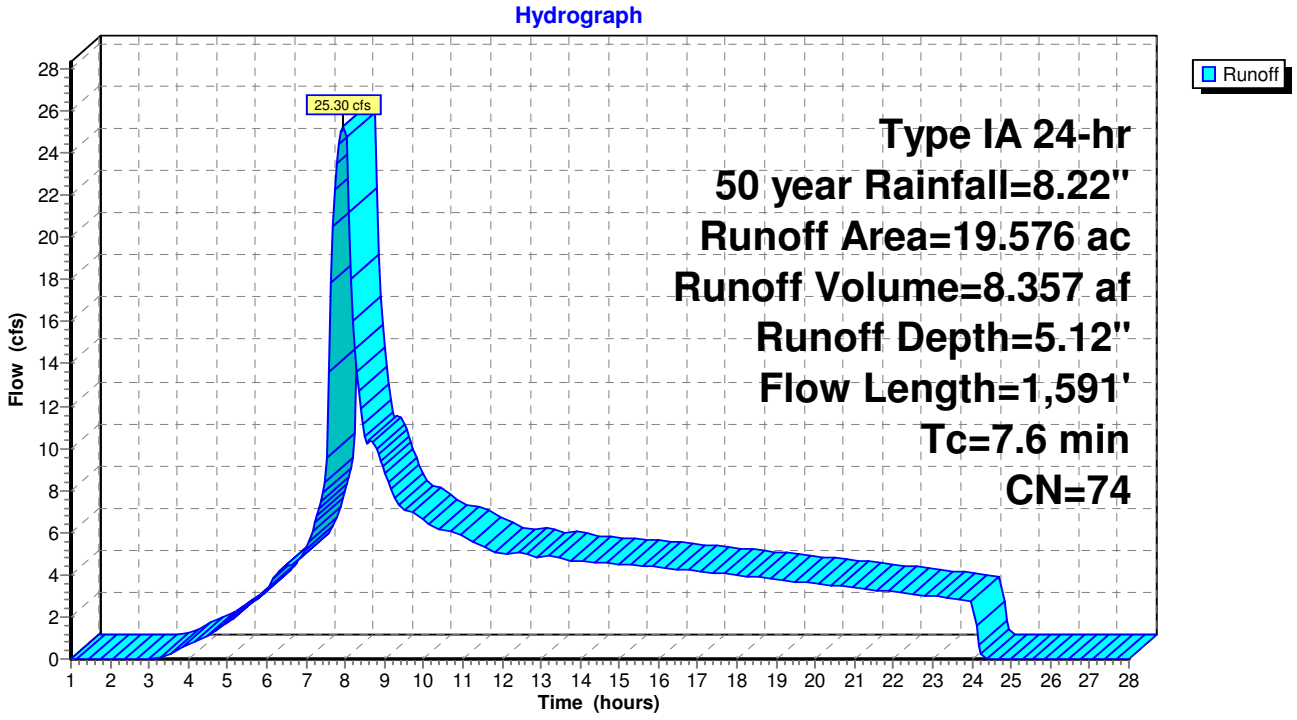
Runoff = 25.30 cfs @ 7.96 hrs, Volume= 8.357 af, Depth= 5.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
4.340	79	Pasture/grassland/range, Fair, HSG C
7.333	74	Pasture/grassland/range, Good, HSG C
1.106	75	Vineyard, Good, HSG C
6.797	70	Woods, Good, HSG C
19.576	74	Weighted Average
19.576		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.2200	0.34		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.1	552	0.2900	8.67		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.6	939	0.1600	9.93	19.86	**Trap/Vee/Rect Channel Flow, Assumed s6tsd ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	1,591	Total			

Subcatchment WS7: Subcat WS7



Summary for Subcatchment WS7: Subcat WS7

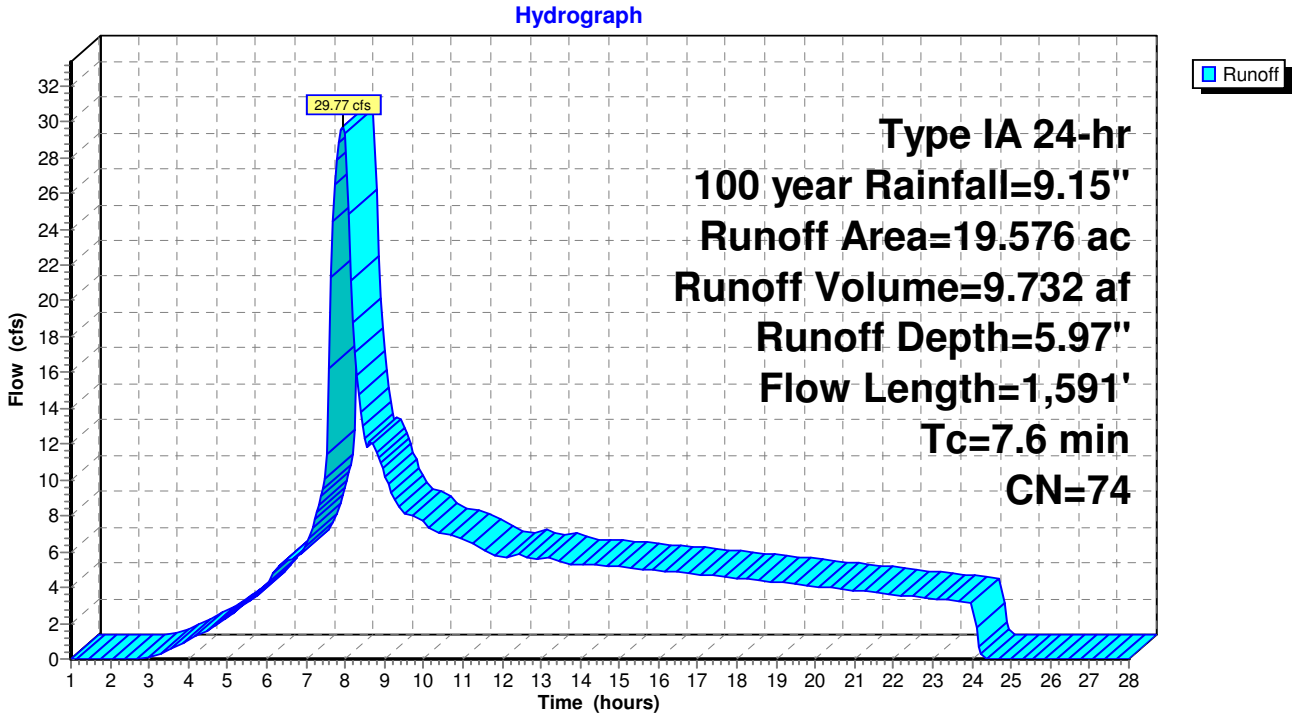
Runoff = 29.77 cfs @ 7.96 hrs, Volume= 9.732 af, Depth= 5.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
4.340	79	Pasture/grassland/range, Fair, HSG C
7.333	74	Pasture/grassland/range, Good, HSG C
1.106	75	Vineyard, Good, HSG C
6.797	70	Woods, Good, HSG C
19.576	74	Weighted Average
19.576		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	100	0.2200	0.34		**Sheet Flow, Sheet-1** Grass: Dense n= 0.240 P2= 4.05"
1.1	552	0.2900	8.67		**Shallow Concentrated Flow, Shallow-1** Unpaved Kv= 16.1 fps
1.6	939	0.1600	9.93	19.86	**Trap/Vee/Rect Channel Flow, Assumed s6tsd ditch** Bot.W=0.00' D=1.00' Z= 2.0 '/' Top.W=4.00' n= 0.035
7.6	1,591	Total			

Subcatchment WS7: Subcat WS7



Summary for Subcatchment WS8: Subcat WS8

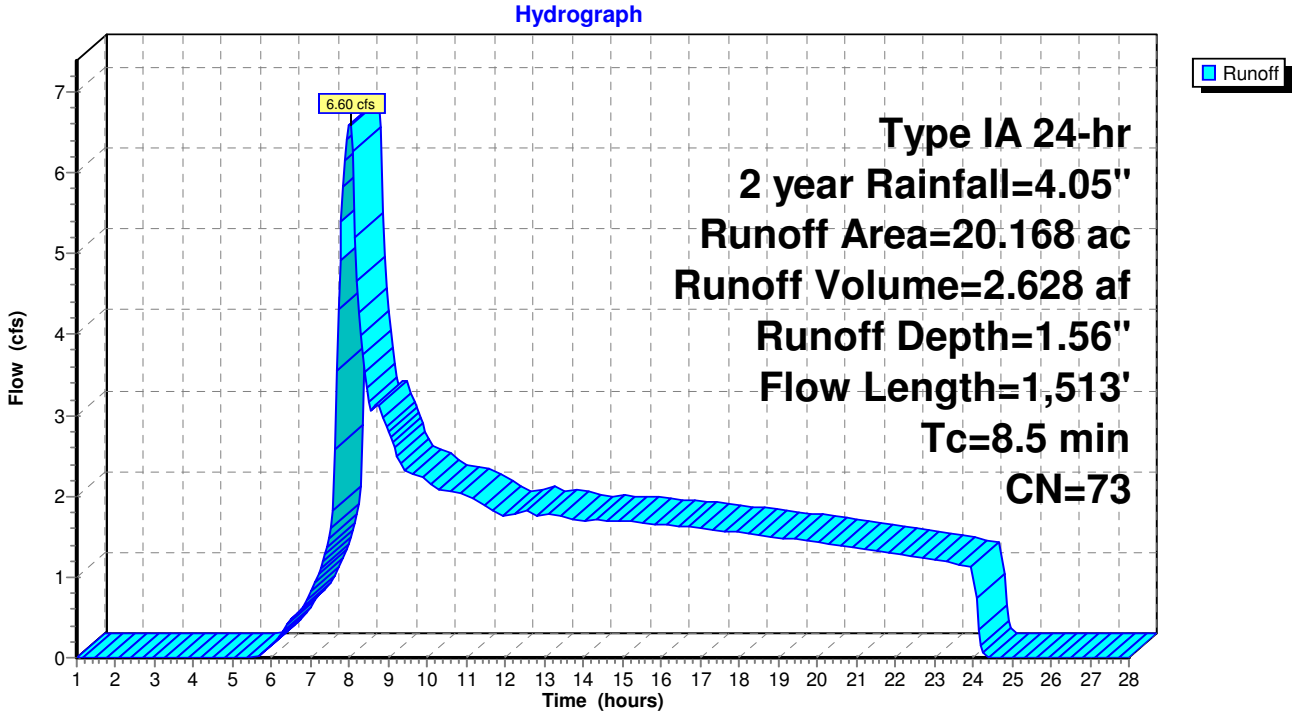
Runoff = 6.60 cfs @ 8.02 hrs, Volume= 2.628 af, Depth= 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.837	82	Farmsteads, HSG C
3.412	79	Pasture/grassland/range, Fair, HSG C
3.371	74	Pasture/grassland/range, Good, HSG C
1.067	79	Vineyard, Fair, HSG C
11.480	70	Woods, Good, HSG C
20.168	73	Weighted Average
20.168		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet** Grass: Dense n= 0.240 P2= 4.05"
2.2	1,162	0.2900	8.67		**Shallow Concentrated Flow, Shallow** Unpaved Kv= 16.1 fps
0.3	251	0.2000	12.63	31.59	**Trap/Vee/Rect Channel Flow, Channel** Bot.W=1.00' D=1.00' Z= 1.5 '/' Top.W=4.00' n= 0.035
8.5	1,513	Total			

Subcatchment WS8: Subcat WS8



Summary for Subcatchment WS8: Subcat WS8

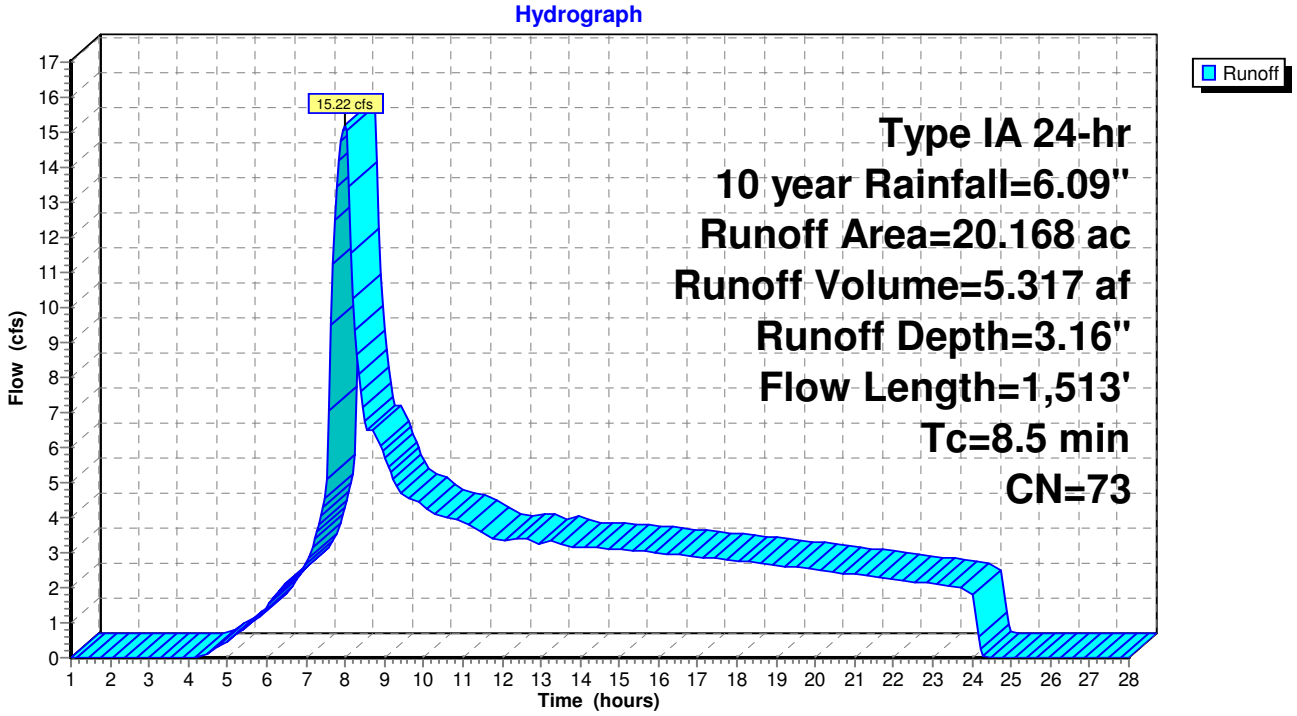
Runoff = 15.22 cfs @ 7.99 hrs, Volume= 5.317 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.837	82	Farmsteads, HSG C
3.412	79	Pasture/grassland/range, Fair, HSG C
3.371	74	Pasture/grassland/range, Good, HSG C
1.067	79	Vineyard, Fair, HSG C
11.480	70	Woods, Good, HSG C
20.168	73	Weighted Average
20.168		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet** Grass: Dense n= 0.240 P2= 4.05"
2.2	1,162	0.2900	8.67		**Shallow Concentrated Flow, Shallow** Unpaved Kv= 16.1 fps
0.3	251	0.2000	12.63	31.59	**Trap/Vee/Rect Channel Flow, Channel** Bot.W=1.00' D=1.00' Z= 1.5 '/' Top.W=4.00' n= 0.035
8.5	1,513	Total			

Subcatchment WS8: Subcat WS8



Summary for Subcatchment WS8: Subcat WS8

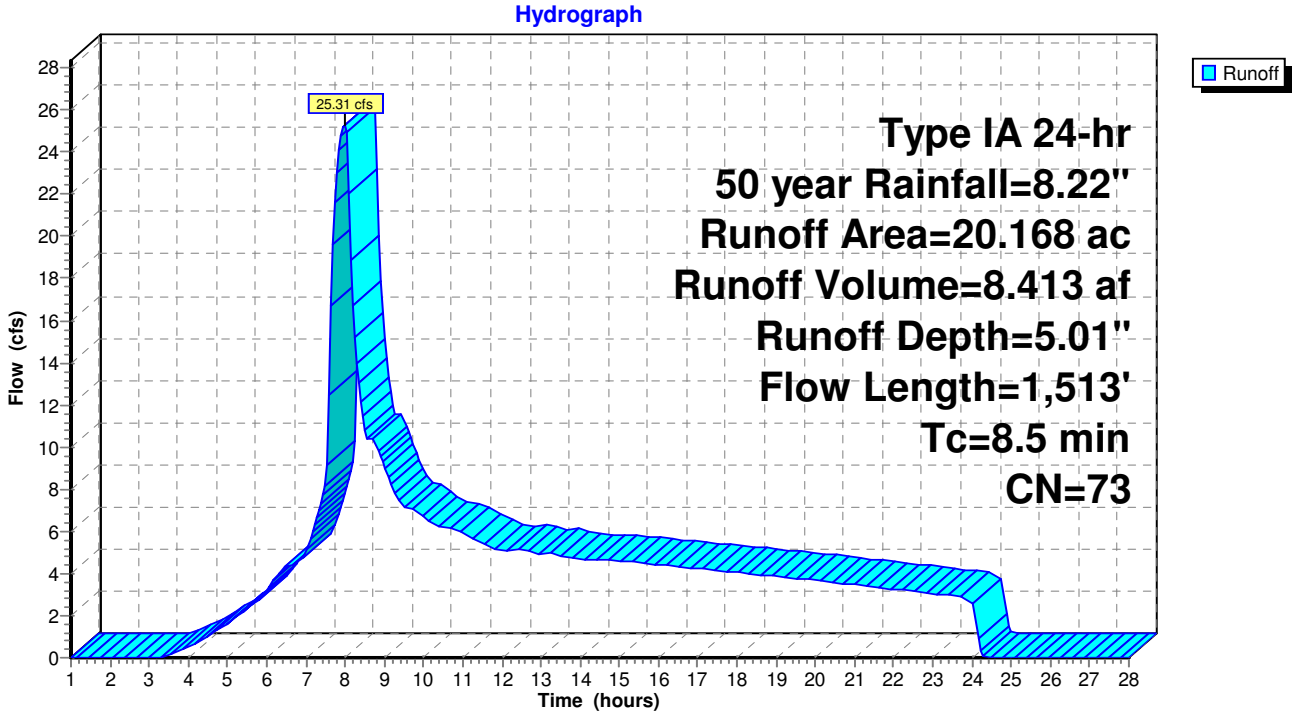
Runoff = 25.31 cfs @ 7.98 hrs, Volume= 8.413 af, Depth= 5.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.837	82	Farmsteads, HSG C
3.412	79	Pasture/grassland/range, Fair, HSG C
3.371	74	Pasture/grassland/range, Good, HSG C
1.067	79	Vineyard, Fair, HSG C
11.480	70	Woods, Good, HSG C
20.168	73	Weighted Average
20.168		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet** Grass: Dense n= 0.240 P2= 4.05"
2.2	1,162	0.2900	8.67		**Shallow Concentrated Flow, Shallow** Unpaved Kv= 16.1 fps
0.3	251	0.2000	12.63	31.59	**Trap/Vee/Rect Channel Flow, Channel** Bot.W=1.00' D=1.00' Z= 1.5 '/' Top.W=4.00' n= 0.035
8.5	1,513	Total			

Subcatchment WS8: Subcat WS8



Summary for Subcatchment WS8: Subcat WS8

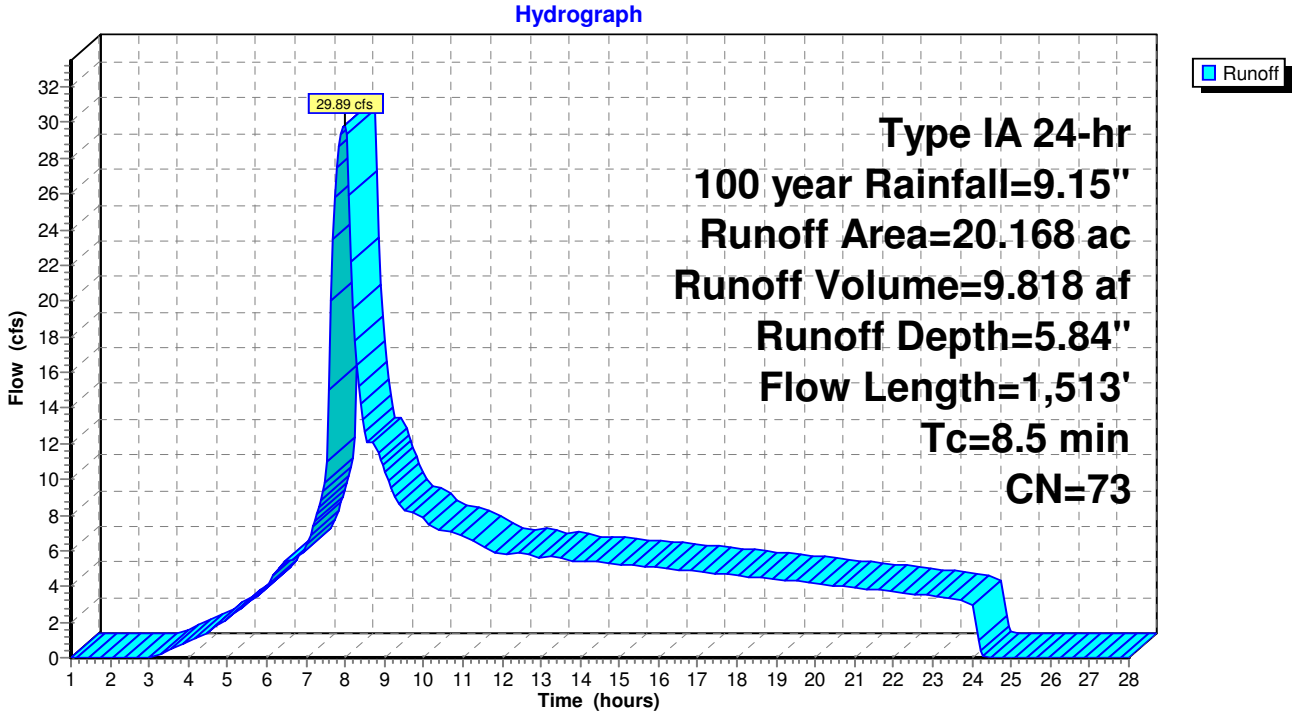
Runoff = 29.89 cfs @ 7.98 hrs, Volume= 9.818 af, Depth= 5.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.837	82	Farmsteads, HSG C
3.412	79	Pasture/grassland/range, Fair, HSG C
3.371	74	Pasture/grassland/range, Good, HSG C
1.067	79	Vineyard, Fair, HSG C
11.480	70	Woods, Good, HSG C
20.168	73	Weighted Average
20.168		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet** Grass: Dense n= 0.240 P2= 4.05"
2.2	1,162	0.2900	8.67		**Shallow Concentrated Flow, Shallow** Unpaved Kv= 16.1 fps
0.3	251	0.2000	12.63	31.59	**Trap/Vee/Rect Channel Flow, Channel** Bot.W=1.00' D=1.00' Z= 1.5 '/' Top.W=4.00' n= 0.035
8.5	1,513	Total			

Subcatchment WS8: Subcat WS8



Summary for Subcatchment WS8: Subcat WS8

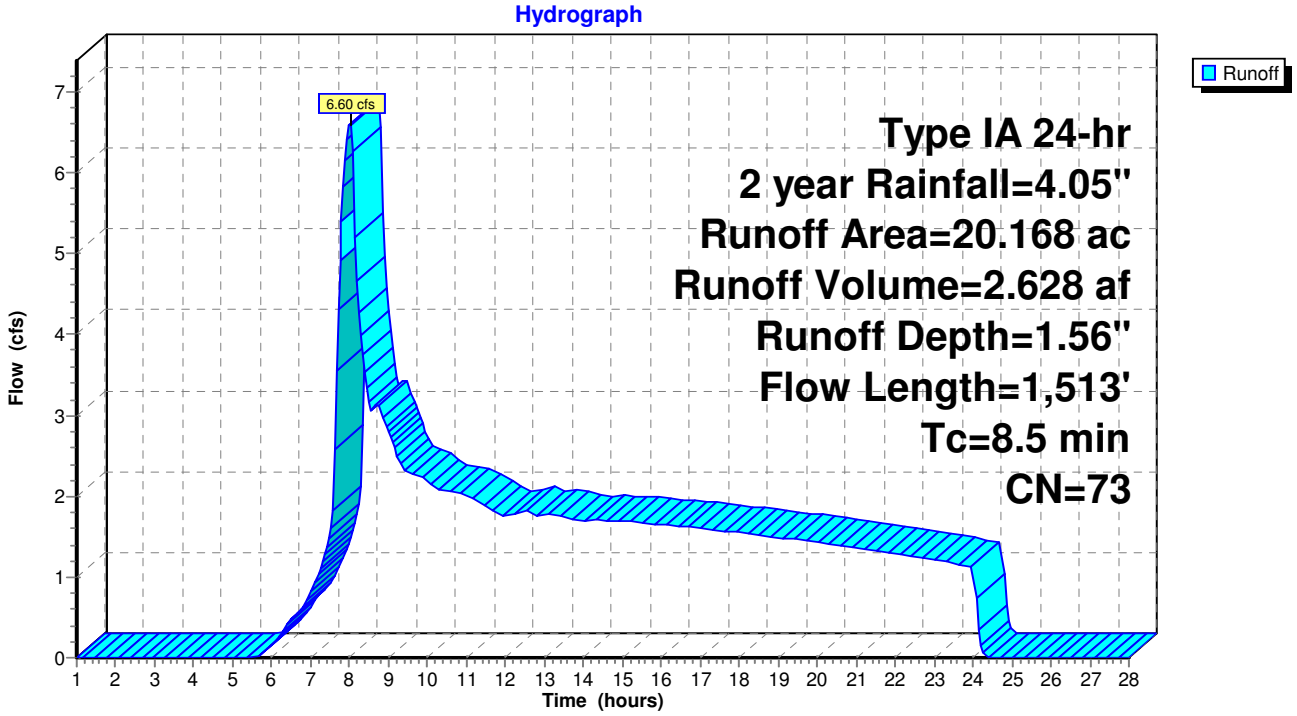
Runoff = 6.60 cfs @ 8.02 hrs, Volume= 2.628 af, Depth= 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
0.837	82	Farmsteads, HSG C
3.196	79	Pasture/grassland/range, Fair, HSG C
3.371	74	Pasture/grassland/range, Good, HSG C
1.067	79	Vineyard, Fair, HSG C
0.281	75	Vineyard, Good, HSG C
11.416	70	Woods, Good, HSG C
20.168	73	Weighted Average
20.168		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet** Grass: Dense n= 0.240 P2= 4.05"
2.2	1,162	0.2900	8.67		**Shallow Concentrated Flow, Shallow** Unpaved Kv= 16.1 fps
0.3	251	0.2000	12.63	31.59	**Trap/Vee/Rect Channel Flow, Channel** Bot.W=1.00' D=1.00' Z= 1.5 '/' Top.W=4.00' n= 0.035
8.5	1,513	Total			

Subcatchment WS8: Subcat WS8



Summary for Subcatchment WS8: Subcat WS8

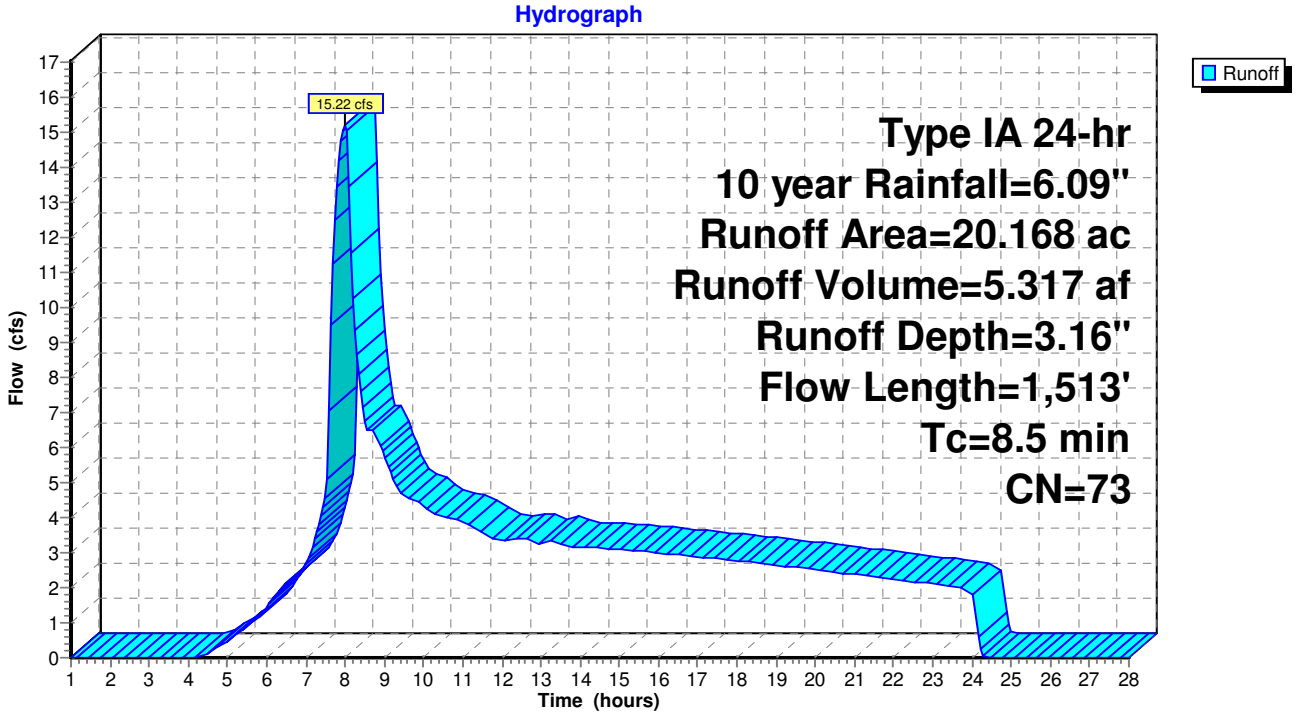
Runoff = 15.22 cfs @ 7.99 hrs, Volume= 5.317 af, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
0.837	82	Farmsteads, HSG C
3.196	79	Pasture/grassland/range, Fair, HSG C
3.371	74	Pasture/grassland/range, Good, HSG C
1.067	79	Vineyard, Fair, HSG C
0.281	75	Vineyard, Good, HSG C
11.416	70	Woods, Good, HSG C
20.168	73	Weighted Average
20.168		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet** Grass: Dense n= 0.240 P2= 4.05"
2.2	1,162	0.2900	8.67		**Shallow Concentrated Flow, Shallow** Unpaved Kv= 16.1 fps
0.3	251	0.2000	12.63	31.59	**Trap/Vee/Rect Channel Flow, Channel** Bot.W=1.00' D=1.00' Z= 1.5 '/' Top.W=4.00' n= 0.035
8.5	1,513	Total			

Subcatchment WS8: Subcat WS8



Summary for Subcatchment WS8: Subcat WS8

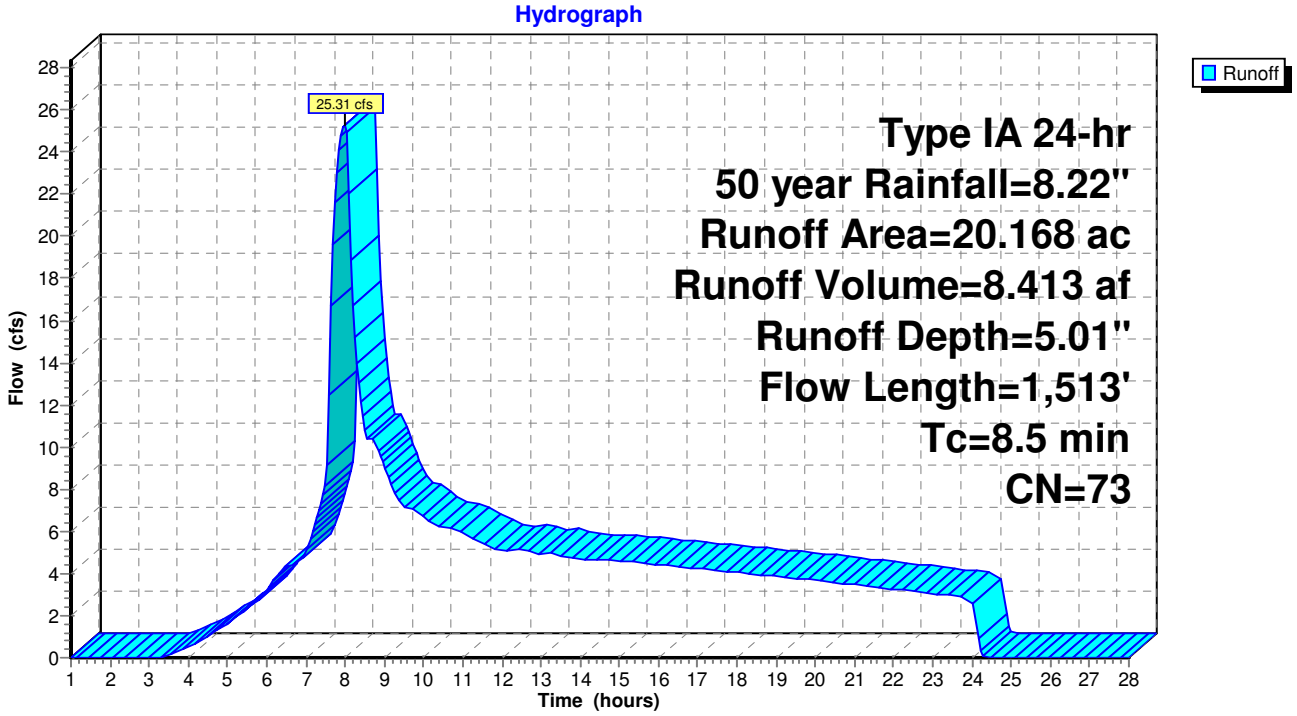
Runoff = 25.31 cfs @ 7.98 hrs, Volume= 8.413 af, Depth= 5.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
0.837	82	Farmsteads, HSG C
3.196	79	Pasture/grassland/range, Fair, HSG C
3.371	74	Pasture/grassland/range, Good, HSG C
1.067	79	Vineyard, Fair, HSG C
0.281	75	Vineyard, Good, HSG C
11.416	70	Woods, Good, HSG C
20.168	73	Weighted Average
20.168		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet** Grass: Dense n= 0.240 P2= 4.05"
2.2	1,162	0.2900	8.67		**Shallow Concentrated Flow, Shallow** Unpaved Kv= 16.1 fps
0.3	251	0.2000	12.63	31.59	**Trap/Vee/Rect Channel Flow, Channel** Bot.W=1.00' D=1.00' Z= 1.5 '/' Top.W=4.00' n= 0.035
8.5	1,513	Total			

Subcatchment WS8: Subcat WS8



Summary for Subcatchment WS8: Subcat WS8

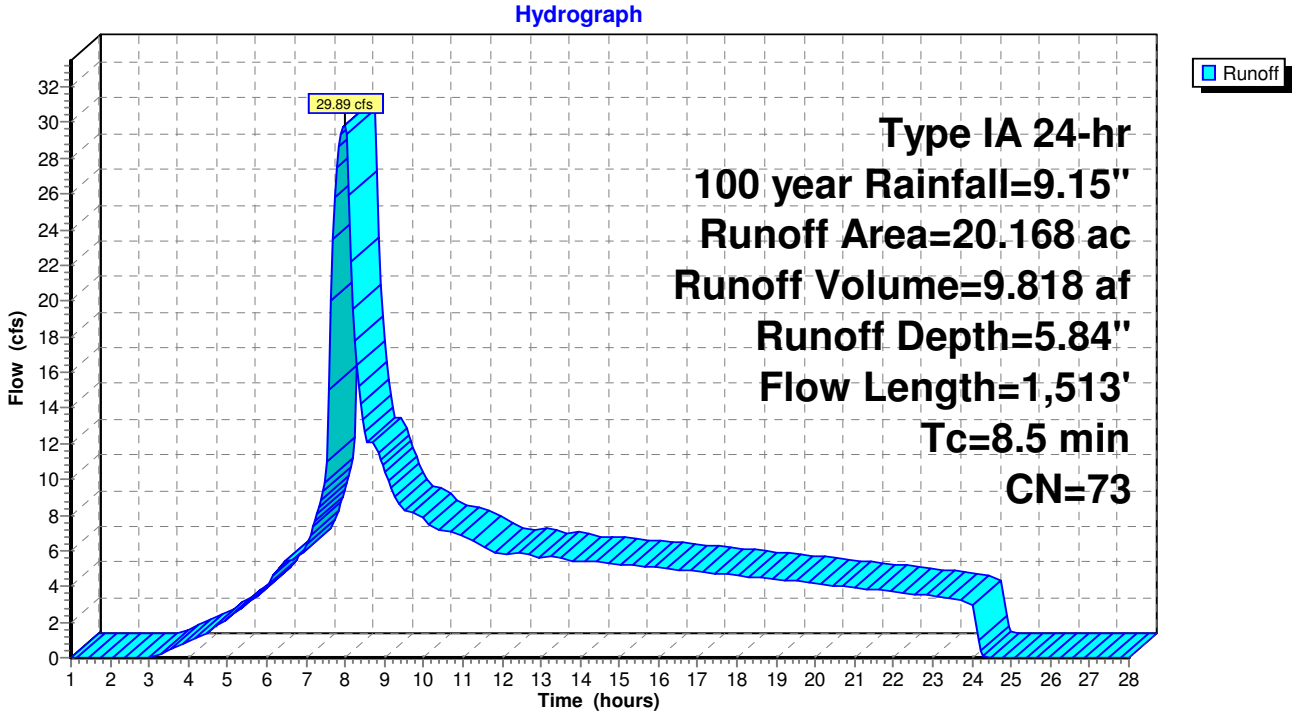
Runoff = 29.89 cfs @ 7.98 hrs, Volume= 9.818 af, Depth= 5.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
0.837	82	Farmsteads, HSG C
3.196	79	Pasture/grassland/range, Fair, HSG C
3.371	74	Pasture/grassland/range, Good, HSG C
1.067	79	Vineyard, Fair, HSG C
0.281	75	Vineyard, Good, HSG C
11.416	70	Woods, Good, HSG C
20.168	73	Weighted Average
20.168		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.1300	0.28		**Sheet Flow, Sheet** Grass: Dense n= 0.240 P2= 4.05"
2.2	1,162	0.2900	8.67		**Shallow Concentrated Flow, Shallow** Unpaved Kv= 16.1 fps
0.3	251	0.2000	12.63	31.59	**Trap/Vee/Rect Channel Flow, Channel** Bot.W=1.00' D=1.00' Z= 1.5 '/' Top.W=4.00' n= 0.035
8.5	1,513	Total			

Subcatchment WS8: Subcat WS8



Summary for Subcatchment WS9: Subcat WS9

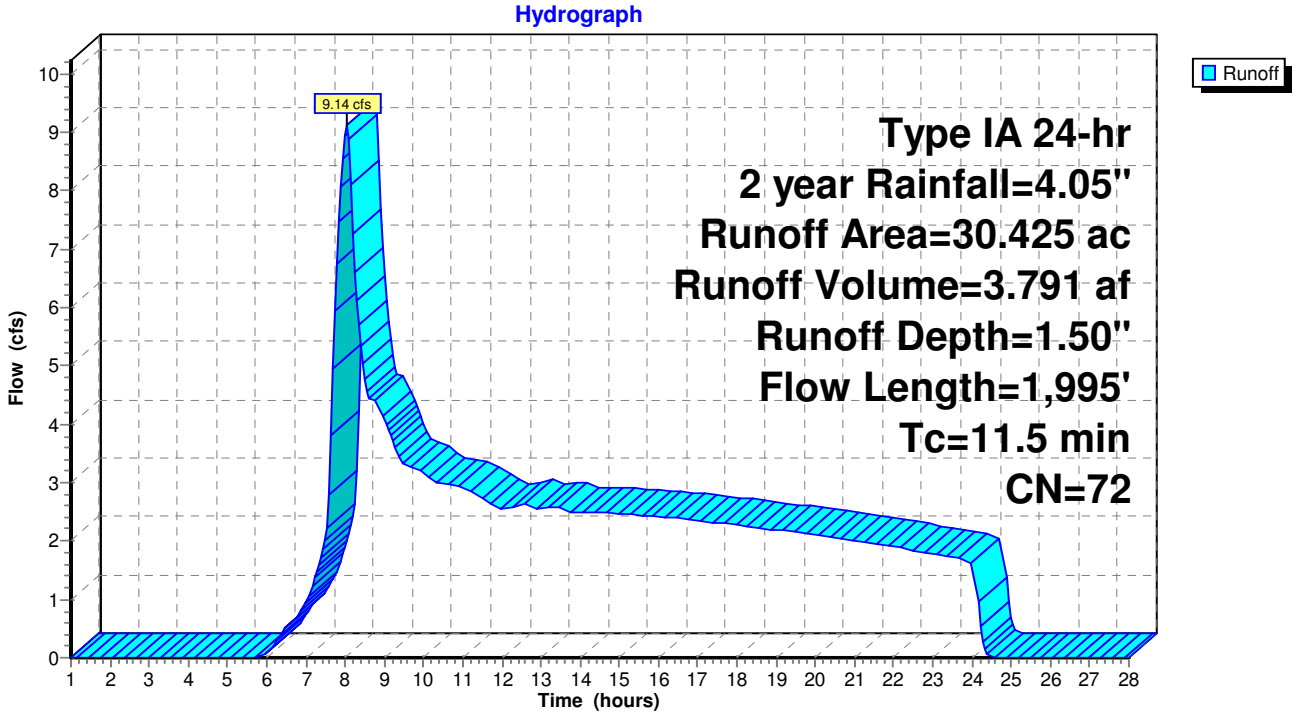
Runoff = 9.14 cfs @ 8.05 hrs, Volume= 3.791 af, Depth= 1.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
2.844	70	Brush, Fair, HSG C
0.121	87	Dirt roads, HSG C
0.140	89	Gravel Roads, HSG C
1.613	79	Pasture/grassland/range, Fair, HSG C
6.723	74	Pasture/grassland/range, Good, HSG C
0.661	79	Vineyard, Fair, HSG C
18.325	70	Woods, Good, HSG C
30.425	72	Weighted Average
30.425		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	71	0.0800	0.14		**Sheet Flow, Sheet** Woods: Light underbrush n= 0.400 P2= 4.05"
1.2	552	0.2400	7.89		**Shallow Concentrated Flow, Shallow** Unpaved Kv= 16.1 fps
2.0	1,372	0.1700	11.65	29.12	**Trap/Vee/Rect Channel Flow, Channel 1** Bot.W=1.00' D=1.00' Z= 1.5 '/' Top.W=4.00' n= 0.035
11.5	1,995	Total			

Subcatchment WS9: Subcat WS9



Summary for Subcatchment WS9: Subcat WS9

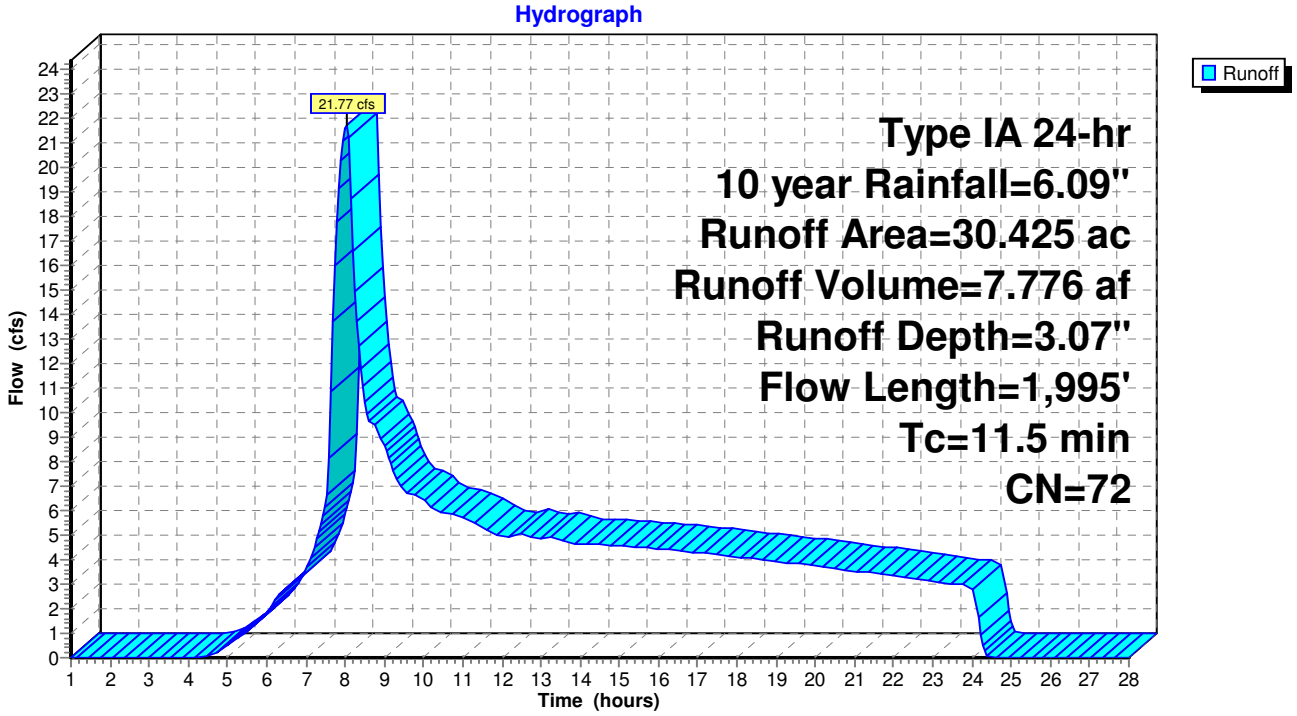
Runoff = 21.77 cfs @ 8.03 hrs, Volume= 7.776 af, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
2.844	70	Brush, Fair, HSG C
0.121	87	Dirt roads, HSG C
0.140	89	Gravel Roads, HSG C
1.613	79	Pasture/grassland/range, Fair, HSG C
6.723	74	Pasture/grassland/range, Good, HSG C
0.661	79	Vineyard, Fair, HSG C
18.325	70	Woods, Good, HSG C
30.425	72	Weighted Average
30.425		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	71	0.0800	0.14		**Sheet Flow, Sheet** Woods: Light underbrush n= 0.400 P2= 4.05"
1.2	552	0.2400	7.89		**Shallow Concentrated Flow, Shallow** Unpaved Kv= 16.1 fps
2.0	1,372	0.1700	11.65	29.12	**Trap/Vee/Rect Channel Flow, Channel 1** Bot.W=1.00' D=1.00' Z= 1.5 '/' Top.W=4.00' n= 0.035
11.5	1,995	Total			

Subcatchment WS9: Subcat WS9



Summary for Subcatchment WS9: Subcat WS9

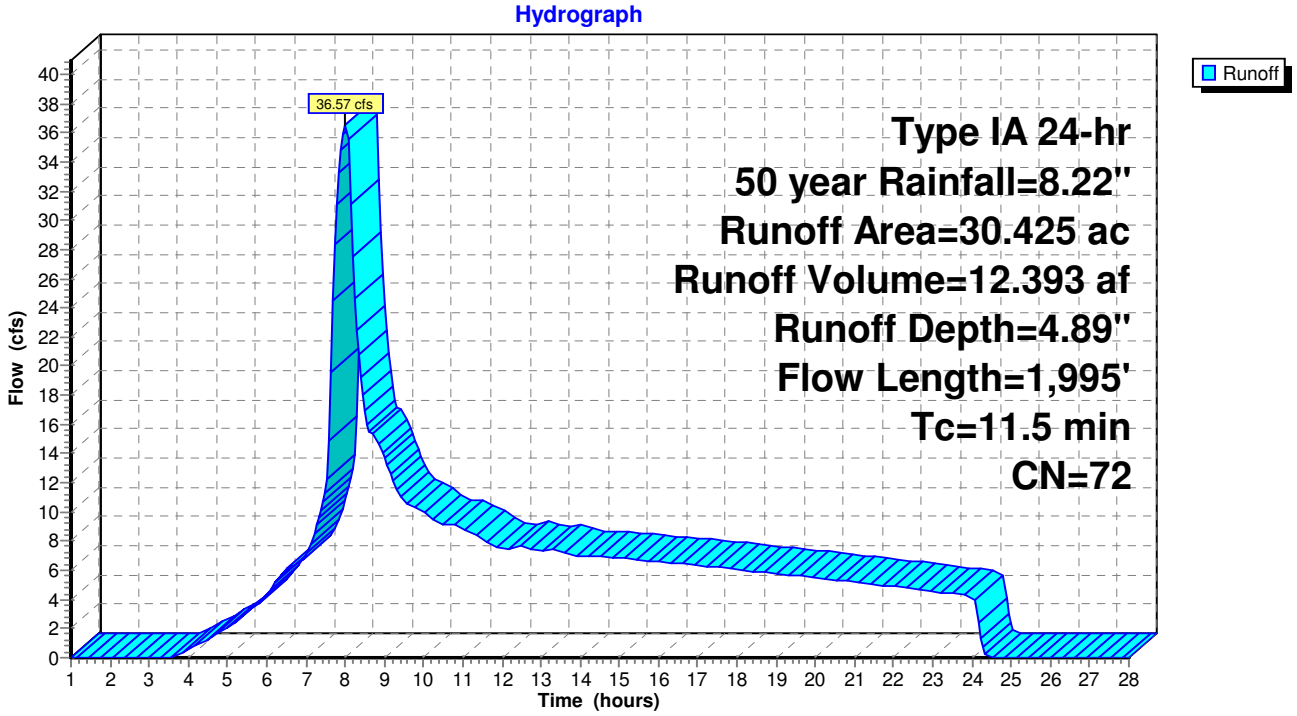
Runoff = 36.57 cfs @ 8.02 hrs, Volume= 12.393 af, Depth= 4.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
2.844	70	Brush, Fair, HSG C
0.121	87	Dirt roads, HSG C
0.140	89	Gravel Roads, HSG C
1.613	79	Pasture/grassland/range, Fair, HSG C
6.723	74	Pasture/grassland/range, Good, HSG C
0.661	79	Vineyard, Fair, HSG C
18.325	70	Woods, Good, HSG C
30.425	72	Weighted Average
30.425		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	71	0.0800	0.14		**Sheet Flow, Sheet** Woods: Light underbrush n= 0.400 P2= 4.05"
1.2	552	0.2400	7.89		**Shallow Concentrated Flow, Shallow** Unpaved Kv= 16.1 fps
2.0	1,372	0.1700	11.65	29.12	**Trap/Vee/Rect Channel Flow, Channel 1** Bot.W=1.00' D=1.00' Z= 1.5 '/' Top.W=4.00' n= 0.035
11.5	1,995	Total			

Subcatchment WS9: Subcat WS9



Summary for Subcatchment WS9: Subcat WS9

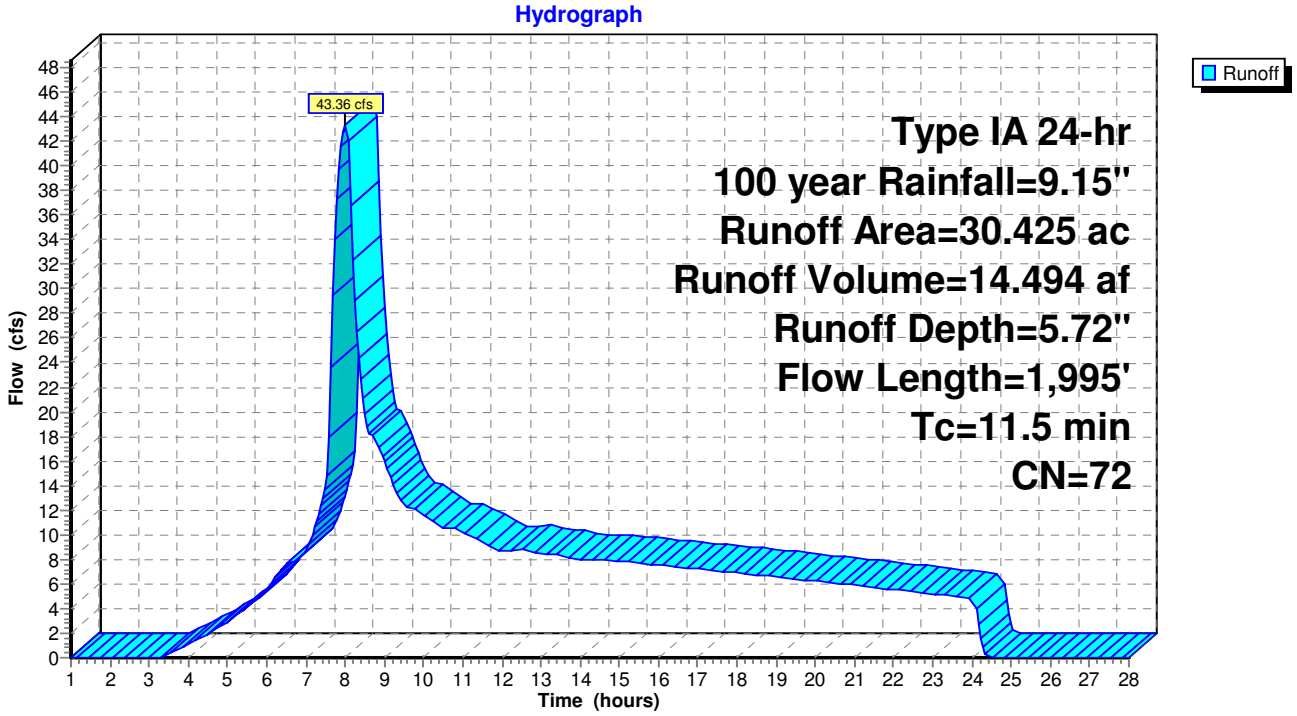
Runoff = 43.36 cfs @ 8.01 hrs, Volume= 14.494 af, Depth= 5.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
2.844	70	Brush, Fair, HSG C
0.121	87	Dirt roads, HSG C
0.140	89	Gravel Roads, HSG C
1.613	79	Pasture/grassland/range, Fair, HSG C
6.723	74	Pasture/grassland/range, Good, HSG C
0.661	79	Vineyard, Fair, HSG C
18.325	70	Woods, Good, HSG C
30.425	72	Weighted Average
30.425		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	71	0.0800	0.14		**Sheet Flow, Sheet** Woods: Light underbrush n= 0.400 P2= 4.05"
1.2	552	0.2400	7.89		**Shallow Concentrated Flow, Shallow** Unpaved Kv= 16.1 fps
2.0	1,372	0.1700	11.65	29.12	**Trap/Vee/Rect Channel Flow, Channel 1** Bot.W=1.00' D=1.00' Z= 1.5 '/' Top.W=4.00' n= 0.035
11.5	1,995	Total			

Subcatchment WS9: Subcat WS9



Summary for Subcatchment WS9: Subcat WS9

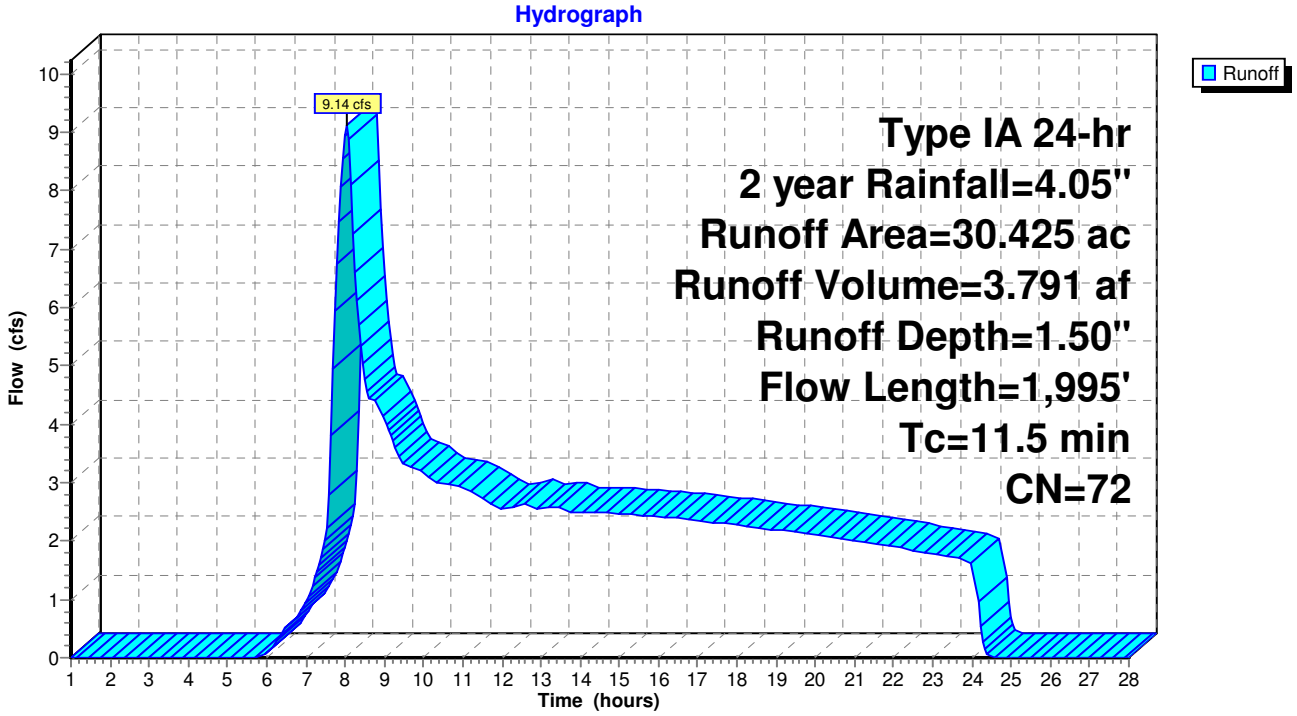
Runoff = 9.14 cfs @ 8.05 hrs, Volume= 3.791 af, Depth= 1.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2 year Rainfall=4.05"

Area (ac)	CN	Description
2.844	70	Brush, Fair, HSG C
0.121	87	Dirt roads, HSG C
0.140	89	Gravel Roads, HSG C
0.956	79	Pasture/grassland/range, Fair, HSG C
6.723	74	Pasture/grassland/range, Good, HSG C
0.661	79	Vineyard, Fair, HSG C
0.869	75	Vineyard, Good, HSG C
18.112	70	Woods, Good, HSG C
30.425	72	Weighted Average
30.425		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	71	0.0800	0.14		**Sheet Flow, Sheet** Woods: Light underbrush n= 0.400 P2= 4.05"
1.2	552	0.2400	7.89		**Shallow Concentrated Flow, Shallow** Unpaved Kv= 16.1 fps
2.0	1,372	0.1700	11.65	29.12	**Trap/Vee/Rect Channel Flow, Channel 1** Bot.W=1.00' D=1.00' Z= 1.5 '/' Top.W=4.00' n= 0.035
11.5	1,995	Total			

Subcatchment WS9: Subcat WS9



Summary for Subcatchment WS9: Subcat WS9

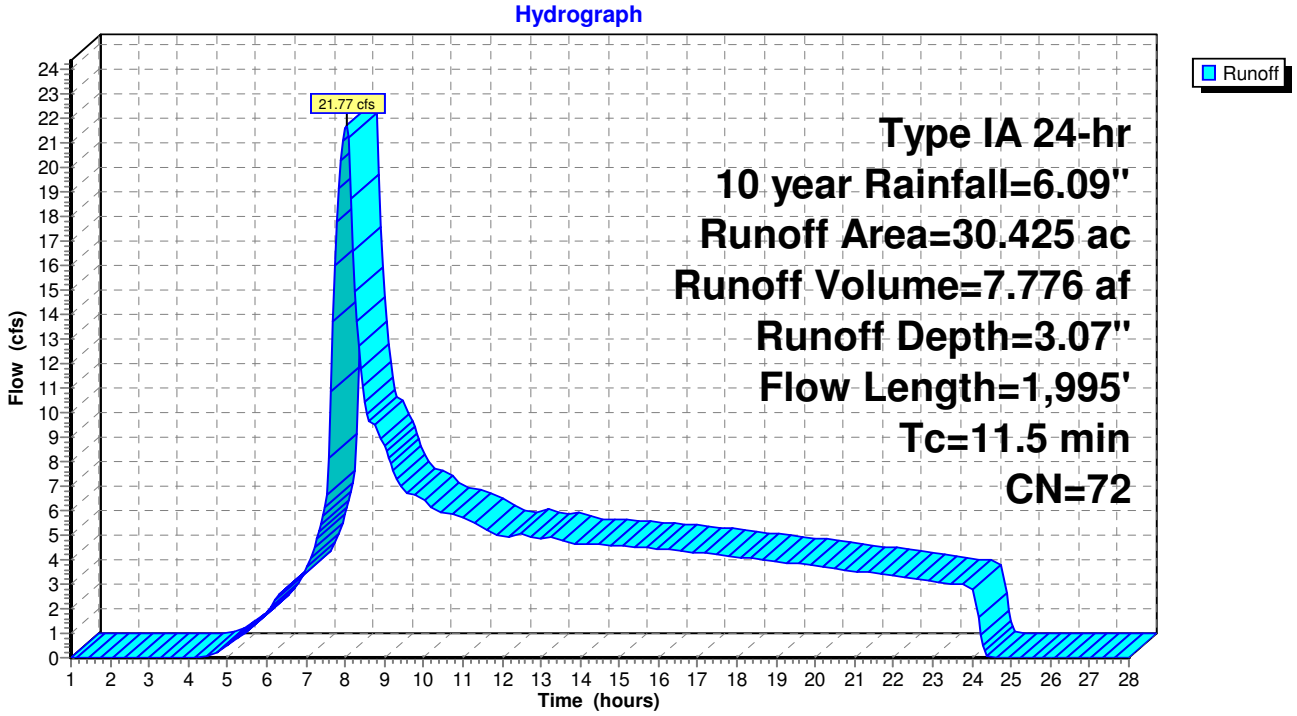
Runoff = 21.77 cfs @ 8.03 hrs, Volume= 7.776 af, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10 year Rainfall=6.09"

Area (ac)	CN	Description
2.844	70	Brush, Fair, HSG C
0.121	87	Dirt roads, HSG C
0.140	89	Gravel Roads, HSG C
0.956	79	Pasture/grassland/range, Fair, HSG C
6.723	74	Pasture/grassland/range, Good, HSG C
0.661	79	Vineyard, Fair, HSG C
0.869	75	Vineyard, Good, HSG C
18.112	70	Woods, Good, HSG C
30.425	72	Weighted Average
30.425		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	71	0.0800	0.14		**Sheet Flow, Sheet** Woods: Light underbrush n= 0.400 P2= 4.05"
1.2	552	0.2400	7.89		**Shallow Concentrated Flow, Shallow** Unpaved Kv= 16.1 fps
2.0	1,372	0.1700	11.65	29.12	**Trap/Vee/Rect Channel Flow, Channel 1** Bot.W=1.00' D=1.00' Z= 1.5 '/' Top.W=4.00' n= 0.035
11.5	1,995	Total			

Subcatchment WS9: Subcat WS9



Summary for Subcatchment WS9: Subcat WS9

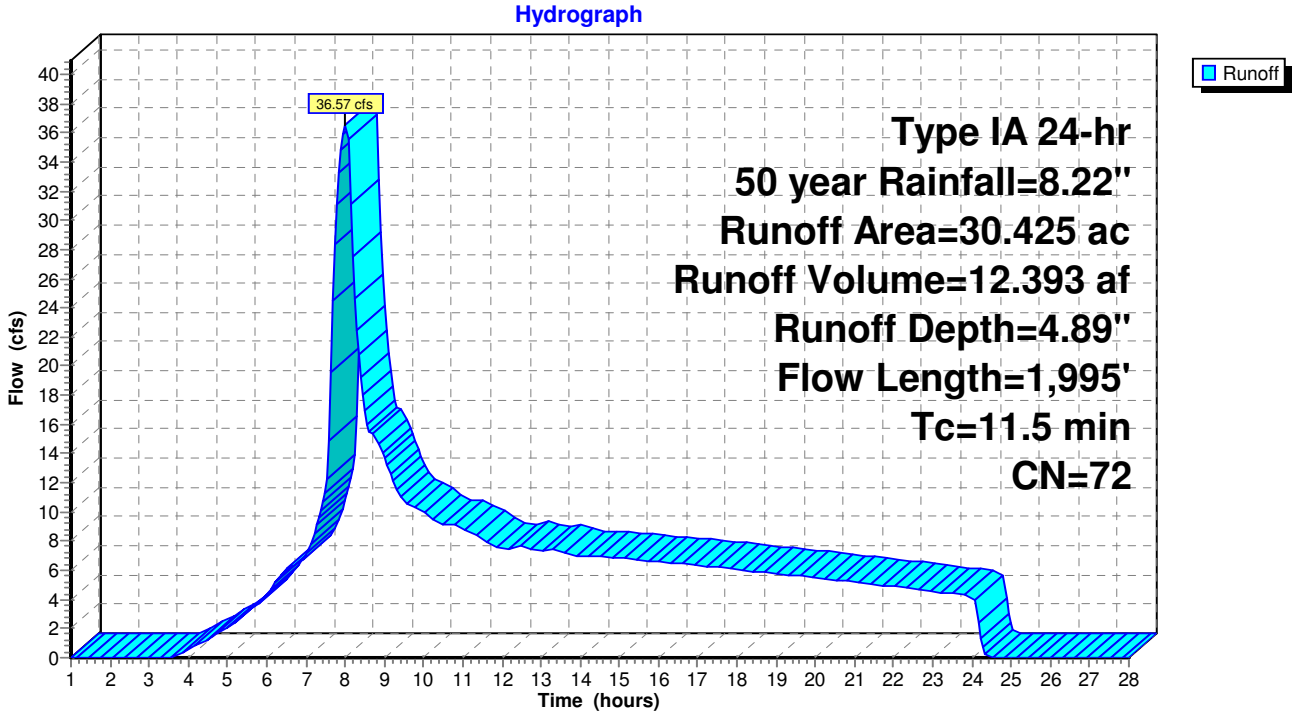
Runoff = 36.57 cfs @ 8.02 hrs, Volume= 12.393 af, Depth= 4.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50 year Rainfall=8.22"

Area (ac)	CN	Description
2.844	70	Brush, Fair, HSG C
0.121	87	Dirt roads, HSG C
0.140	89	Gravel Roads, HSG C
0.956	79	Pasture/grassland/range, Fair, HSG C
6.723	74	Pasture/grassland/range, Good, HSG C
0.661	79	Vineyard, Fair, HSG C
0.869	75	Vineyard, Good, HSG C
18.112	70	Woods, Good, HSG C
30.425	72	Weighted Average
30.425		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	71	0.0800	0.14		**Sheet Flow, Sheet** Woods: Light underbrush n= 0.400 P2= 4.05"
1.2	552	0.2400	7.89		**Shallow Concentrated Flow, Shallow** Unpaved Kv= 16.1 fps
2.0	1,372	0.1700	11.65	29.12	**Trap/Vee/Rect Channel Flow, Channel 1** Bot.W=1.00' D=1.00' Z= 1.5 '/' Top.W=4.00' n= 0.035
11.5	1,995	Total			

Subcatchment WS9: Subcat WS9



Summary for Subcatchment WS9: Subcat WS9

Runoff = 43.36 cfs @ 8.01 hrs, Volume= 14.494 af, Depth= 5.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-28.00 hrs, dt= 0.05 hrs
Type IA 24-hr 100 year Rainfall=9.15"

Area (ac)	CN	Description
2.844	70	Brush, Fair, HSG C
0.121	87	Dirt roads, HSG C
0.140	89	Gravel Roads, HSG C
0.956	79	Pasture/grassland/range, Fair, HSG C
6.723	74	Pasture/grassland/range, Good, HSG C
0.661	79	Vineyard, Fair, HSG C
0.869	75	Vineyard, Good, HSG C
18.112	70	Woods, Good, HSG C
30.425	72	Weighted Average
30.425		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	71	0.0800	0.14		**Sheet Flow, Sheet** Woods: Light underbrush n= 0.400 P2= 4.05"
1.2	552	0.2400	7.89		**Shallow Concentrated Flow, Shallow** Unpaved Kv= 16.1 fps
2.0	1,372	0.1700	11.65	29.12	**Trap/Vee/Rect Channel Flow, Channel 1** Bot.W=1.00' D=1.00' Z= 1.5 '/' Top.W=4.00' n= 0.035
11.5	1,995	Total			

Subcatchment WS9: Subcat WS9