

May

Engineering, LLC

Civil Engineering, Site Planning, and Consulting

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DRAINAGE REPORT NEHANTIC HIGHLANDS

March 8, 2026

Property Located at:

**HOLMES ROAD
EAST LYME CT**

Prepared For:

**Duval Partners LLC
1101 Red Ventures Dr.
Fort Mill, SC 29707**

Received

MAY 11 2026

**Town of East Lyme
Land Use**

Prepared By:

**Timothy A. May, P.E.
May Engineering, LLC
1297 Rte 163
Oakdale, CT 03670**



The stormwater management report is developed in support of a proposed plan for a twenty-lot subdivision located at Holmes Road, East Lyme CT. The proposed development is submitted for plan review and approval. The 2023 Connecticut Stormwater Quality Manual standards have been considered and evaluated for a plan review to demonstrate that stormwater design and devices can be effectively implemented to achieve Water Quality Volumes and Required Retention Volumes.

SITE DESCRIPTION:

The site is a 12.67-acre parcel located on the southern side of Holmes Rd in the Town of East Lyme, CT. The existing parcel is an undeveloped wooded parcel that has mature deciduous trees and several small grassed areas. The parcel has average slopes ranging from 2% to 8%. There is an existing gravel driveway that provides access. The soil type is primarily a hydraulic soil group C consisting of Paxton and Montauk fine sandy loams with gravelly sub soils. The soil types were evaluated for their permeability and have a moderate infiltration rate, referencing the USDA Natural Resource Conservation Service Soil Survey for this parcel. The stormwater infiltration proposed is designed using conservative infiltration rates based on USDA Soil Survey for this parcel, design to drain down withing a 72 hour period.

The existing parcel contains no Directly Connected Impervious Areas (DCIA) that convey stormwater. All stormwaters flow from the western side to the eastern side of the parcel to a common discharge point on the eastern property line near Holmes Rd.

The proposed twenty-lot subdivision design will have approximately 6.5 ac of disturbance for the 12.67-ac parcel. The drainage area for the 12.67-ac parcel is contained in a 13.5-ac sub catchment drainage area. HydroCad Stormwater modeling software using Soil Conservation Service (SCS/NRCS) methods was used to develop existing/undeveloped stormwater conditions, then compared to proposed/developed. Water quality volumes (WQV), Require Retention Volumes (RRV), Water Quality Flows (WQF) and pollutant reduction BMPs are evaluated and accomplished by the implementation of stormwater infiltration and retention devices to achieve the required 90% reduction in total suspended solid (TSS) and pollutant reduction. Stormwater from roof drains will be discharged to rain gardens designed to infiltrate storm water to reduce WQV and WQF. Stormwater estimates have been modeled and estimated to ensure sufficient reduction of stormwater WQV.

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DESIGN METHODOLOGY AND EVALUATION

Stormwater Management Report

Project: Nehantic Highlands

Location: Parcel ID 57.0 30

Total Area: 12.67 Acres

Date: March 1, 2026

1. Project Overview

The Nehantic Highlands project involves the development of a 12.67-acre parcel. The design utilizes Low Impact Development (LID) strategies, including rain gardens and stepped swales, to manage stormwater runoff and maintain water quality.

2. Existing Site Conditions

The site currently consists of wooded areas and bare earth.

Topography: Slopes range from 4% to 8%, with an **average slope of 6.1%**.

Land Cover:

- Woods: 6.17 ac (268,765 sf)

- Bare Earth: 6.50 ac (283,544 sf)

Soil Profile: 84B—Paxton and Montauk fine sandy loams.

Hydrologic Soil Group (HSG): C

Characteristics: Moderate permeability (0.30–0.85 in/hr) in the surface layer with a dense till substratum that creates a perched seasonal water table.

3. Proposed Improvements

The development introduces 20 residential lots and two private roads.

Total Impervious Area: 2.12 ac (92,581 sf)

- Private Roads: 0.82 ac (35,781 sf)

- Driveways (20 units): 0.64 ac (28,000 sf)

- Roofs (20 units @ 1,440 sf): 0.66 ac (28,800 sf)

Impervious Percentage (I): 16.7%

4. Water Quality Volume (WQV) Analysis

Calculations follow standard volumetric formulas to ensure the first flush of (1.3" rainfall) runoff is treated.

$$WQV = (1.3")(R)(A)/12$$

$$A = 12.67 \text{ Acres}$$

$$R = 0.05 + 0.009(I) = 0.20 \quad 0.05 + 0.009(2.39) = 0.071$$

$$I = 2.12 \text{ Acres} / 12.67 \text{ Acres} = 0.167 (16.7\%) \quad =$$

$$R = 0.20$$

$$= \{1.3" \times (0.20) \times 12.67\} / 12 = 0.27 \text{ acre-feet}$$

Required WQV: 11,935 cf or (0.27 ac-ft)

Design Mitigation Provided:

Treatment Feature	Unit Capacity	Total Storage
Individual Rain Gardens (20)	220 cf	4,400 cf
Infiltration Basins & Stepped Swales (accumulative)	1500 600 450 600 250	3400cf
Cul-de-sac (x2) Infiltration/Drain-away Areas	2400 cf (x2)	4800 cf
Total Provided for WQV		~12,600 cf (0.28 ac-ft)

5. HydroCAD Modeling Methodology

The stormwater system was modeled using **TR-20 methodology** within HydroCAD.

Subcatchments: Defined based on lot-specific drainage to rain gardens and road runoff to swales.

Rain Gardens/Basins:

Modeled as **Detention Ponds with Outlets:**

- **Exfiltration:** Set at 0.15–0.30 in/hr to simulate HSG-C soil infiltration.
- **Overflow:** Modeled using **Broad-Crested Weirs** to manage peak storm events (2/5/10/25/100-year).

Reaches: Stepped swales modeled as open channel, with exfiltration, reaches with Manning's n adjusted for vegetation.

SUMMARIZED RESULTS FROM HYDROCAD FOR STORM EVENTS

STORM EVENT Stormwater Runoff Amounts (cfs)

	2 year	5 Year	10 year	25 year	50 year	100 year
Existing	16.16	23.45	27.63	35.21	40.30	47.11
Proposed	11.53	17.2	20.31	26.20	30.18	35.52
Change (cfs)	4.63	6.25	7.32	9.01	10.12	11.59
% reduction	28%	26.6%	26.5%	25.5%	25%	24%

6. Conclusion

The proposed drainage system successfully captures the required **11,935 cf** of Water Quality Volume. By distributing infiltration through rain gardens and stepped swales, the design mimics natural hydrology and mitigates the impact of the new impervious surfaces on the surrounding watershed.

SUMMARY

The proposed subdivision plan as designed has incorporated stormwater BMP's and reduction practices to mitigate stormwater impacts. Water Quality Volumes and Required Retention Volumes are achieved and implemented with standard design practices that are within parameters of the existing site conditions using standard stormwater designs- Best Management Practices (2023 CT Stormwater Design Manual). The proposed Subdivision – *NEHANTIC HIGHLANDS* has an overall stormwater reduction of 25% in peak runoff attenuation and exceed WQV requirements.

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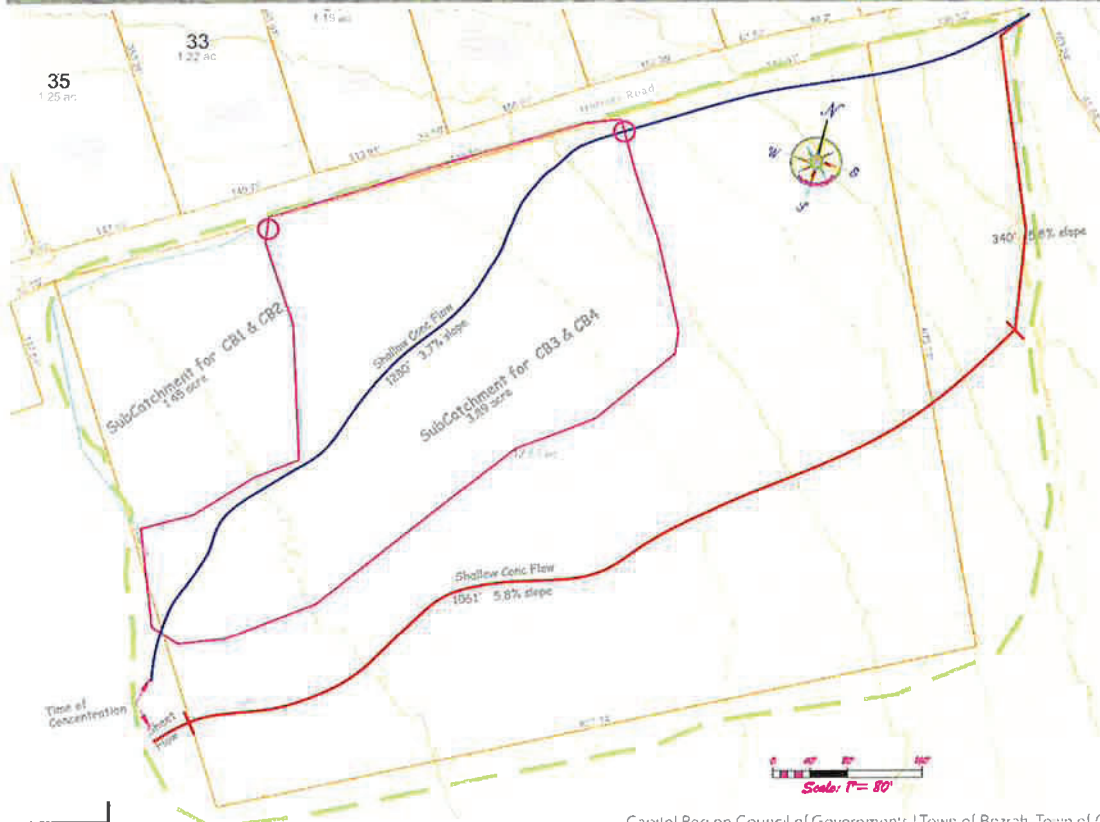
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AERIAL & TOPOGRAPHY - DRAINAGE MAP



Drainage Report for NEHANTIC HIGHLANDS
Holmes Rd. East Lyme CT

Soil Map—State of Connecticut, Eastern Part



Map Scale: 1:2,000 if printed on landscape (17" x 11") sheet.

0 50 100 200 300 Meters

Map projection: Web Mercator Corner coordinates: WGS84 Edge UTM Zone 18N WGS84

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
84B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes	19.1	80.5%
85C	Paxton and Montauk fine sandy loams, 8 to 15 percent slopes, very stony	4.6	19.5%
Totals for Area of Interest		23.8	100.0%

Holmes Rd existing

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Page 1

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
6.500	86	<50% Grass cover, Poor, HSG C (6S)
6.170	77	Woods, Poor, HSG C (6S)
12.670	82	TOTAL AREA

Holmes Rd existing

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Nehantic Highlands

Type III 24-hr 2-year Rainfall=3.40"

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Time span=8.00-25.00 hrs, dt=0.10 hrs, 171 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 6S: Existing

Runoff Area=12.670 ac 0.00% Impervious Runoff Depth>1.70"
Flow Length=1,441' Tc=22.1 min CN=82 Runoff=16.16 cfs 1.795 af

Total Runoff Area = 12.670 ac Runoff Volume = 1.795 af Average Runoff Depth = 1.70"
100.00% Pervious = 12.670 ac 0.00% Impervious = 0.000 ac

Holmes Rd existing

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Nehantic Highlands

Type III 24-hr 2-year Rainfall=3.40"

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Summary for Subcatchment 6S: Existing

Runoff = 16.16 cfs @ 12.32 hrs, Volume= 1.795 af, Depth> 1.70"

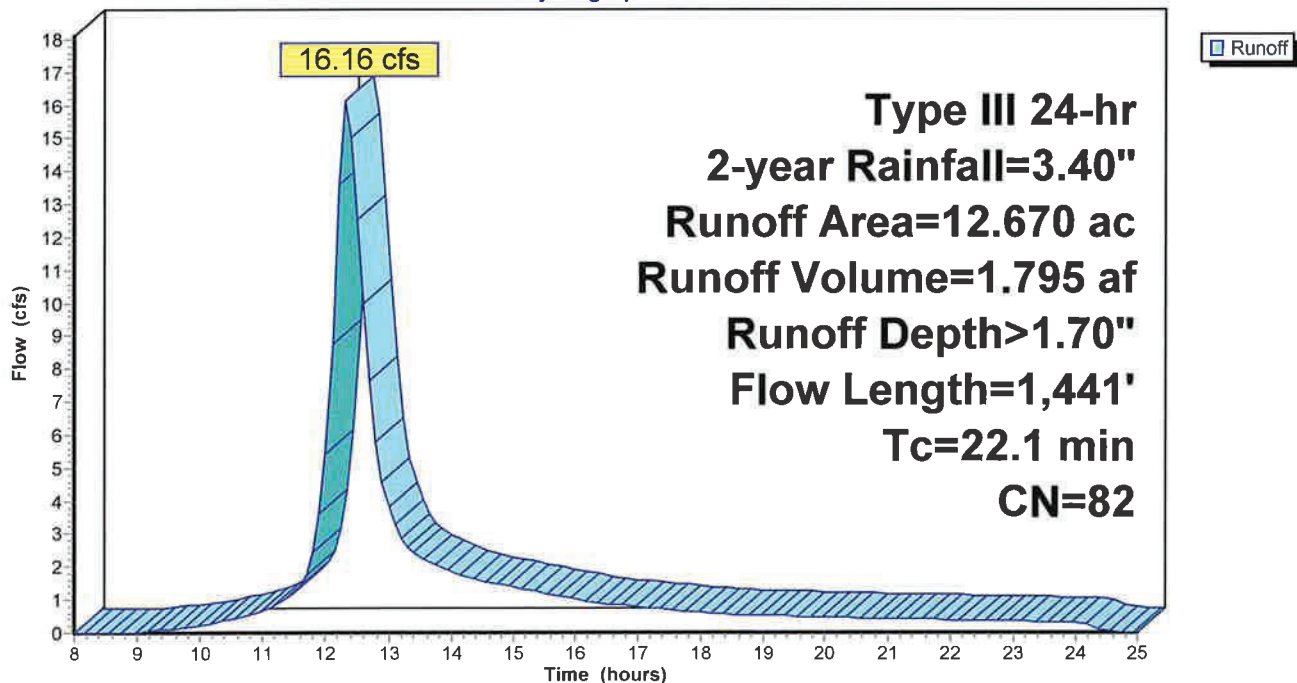
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 8.00-25.00 hrs, dt= 0.10 hrs
Type III 24-hr 2-year Rainfall=3.40"

Area (ac)	CN	Description
6.170	77	Woods, Poor, HSG C
6.500	86	<50% Grass cover, Poor, HSG C
12.670	82	Weighted Average
12.670		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	40	0.0200	0.07		Sheet Flow, Sheet Woods: Light underbrush n= 0.400 P2= 3.35"
7.2	1,061	0.0600	2.45		Shallow Concentrated Flow, Sha Nearly Bare & Untilled Kv= 10.0 fps
4.8	340	0.0550	1.17		Shallow Concentrated Flow, Concentrated flow Woodland Kv= 5.0 fps
22.1	1,441	Total			

Subcatchment 6S: Existing

Hydrograph



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Nehantic Highlands

Type III 24-hr 10 year Rainfall=4.80"

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Time span=8.00-25.00 hrs, dt=0.10 hrs, 171 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 6S: Existing

Runoff Area=12.670 ac 0.00% Impervious Runoff Depth>2.90"
Flow Length=1,441' Tc=22.1 min CN=82 Runoff=27.63 cfs 3.061 af

Total Runoff Area = 12.670 ac Runoff Volume = 3.061 af Average Runoff Depth = 2.90"
100.00% Pervious = 12.670 ac 0.00% Impervious = 0.000 ac

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Nehantic Highlands

Type III 24-hr 10 year Rainfall=4.80"

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Summary for Subcatchment 6S: Existing

Runoff = 27.63 cfs @ 12.31 hrs, Volume= 3.061 af, Depth> 2.90"

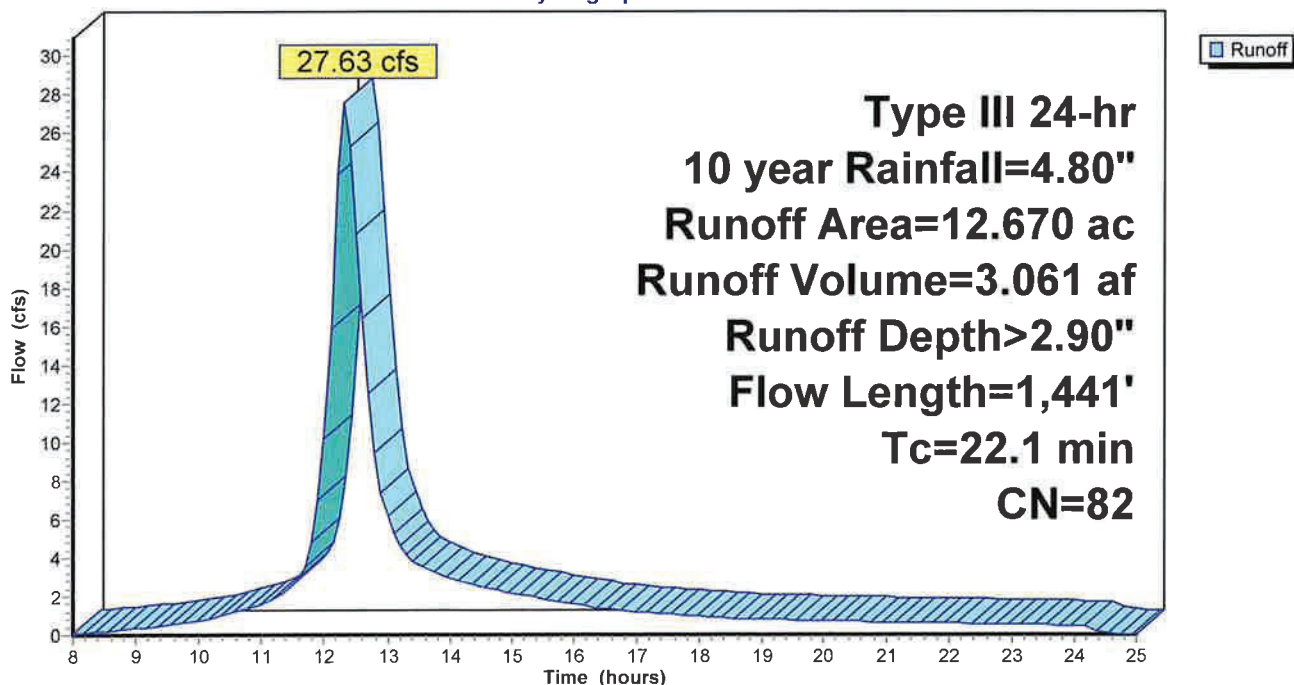
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 8.00-25.00 hrs, dt= 0.10 hrs
Type III 24-hr 10 year Rainfall=4.80"

Area (ac)	CN	Description
6.170	77	Woods, Poor, HSG C
6.500	86	<50% Grass cover, Poor, HSG C
12.670	82	Weighted Average
12.670		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	40	0.0200	0.07		Sheet Flow, Sheet Woods: Light underbrush n= 0.400 P2= 3.35"
7.2	1,061	0.0600	2.45		Shallow Concentrated Flow, Sha Nearly Bare & Untilled Kv= 10.0 fps
4.8	340	0.0550	1.17		Shallow Concentrated Flow, Concentrated flow Woodland Kv= 5.0 fps
22.1	1,441	Total			

Subcatchment 6S: Existing

Hydrograph



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Nehantic Highlands

Type III 24-hr 25 year Rainfall=5.70"

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Time span=8.00-25.00 hrs, dt=0.10 hrs, 171 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 6S: Existing

Runoff Area=12.670 ac 0.00% Impervious Runoff Depth>3.70"
Flow Length=1,441' Tc=22.1 min CN=82 Runoff=35.21 cfs 3.908 af

Total Runoff Area = 12.670 ac Runoff Volume = 3.908 af Average Runoff Depth = 3.70"
100.00% Pervious = 12.670 ac 0.00% Impervious = 0.000 ac

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Nehantic Highlands

Type III 24-hr 25 year Rainfall=5.70"

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Summary for Subcatchment 6S: Existing

Runoff = 35.21 cfs @ 12.31 hrs, Volume= 3.908 af, Depth> 3.70"

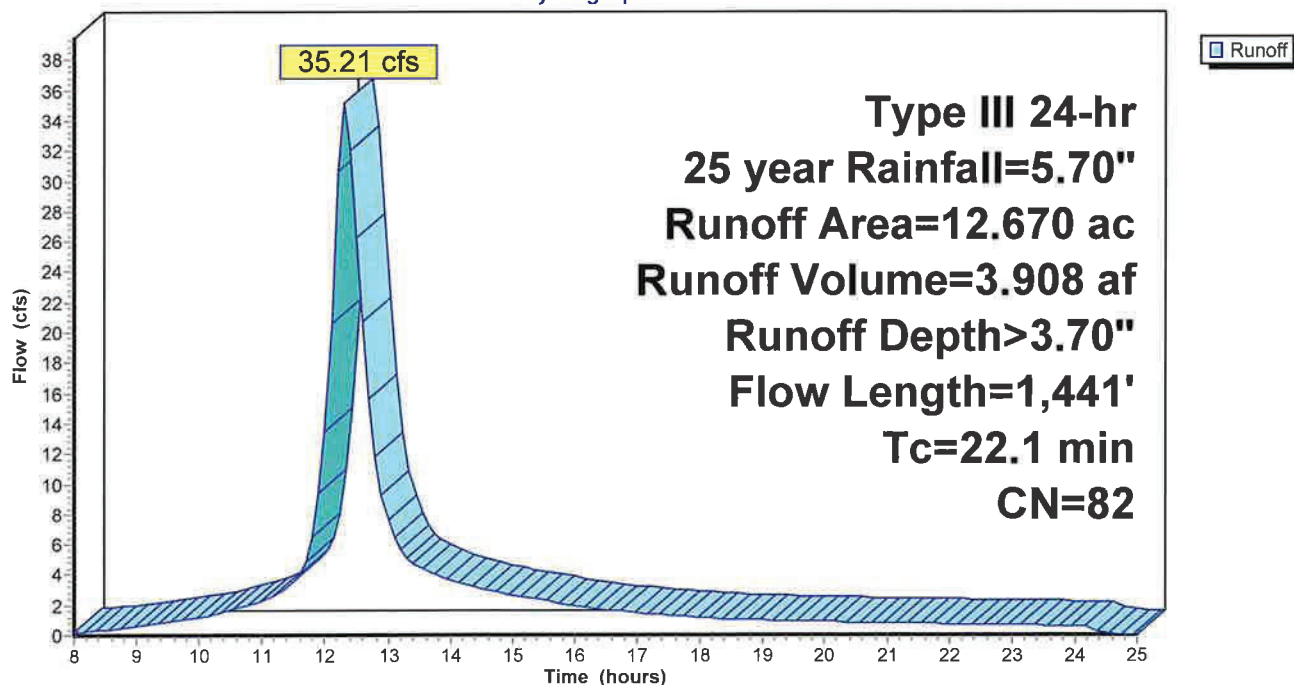
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 8.00-25.00 hrs, dt= 0.10 hrs
Type III 24-hr 25 year Rainfall=5.70"

Area (ac)	CN	Description
6.170	77	Woods, Poor, HSG C
6.500	86	<50% Grass cover, Poor, HSG C
12.670	82	Weighted Average
12.670		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	40	0.0200	0.07		Sheet Flow, Sheet Woods: Light underbrush n= 0.400 P2= 3.35"
7.2	1,061	0.0600	2.45		Shallow Concentrated Flow, Sha Nearly Bare & Untilled Kv= 10.0 fps
4.8	340	0.0550	1.17		Shallow Concentrated Flow, Concentrated flow Woodland Kv= 5.0 fps
22.1	1,441	Total			

Subcatchment 6S: Existing

Hydrograph



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Nehantic Highlands

Type III 24-hr 50 year Rainfall=6.30"

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Time span=8.00-25.00 hrs, dt=0.10 hrs, 171 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 6S: Existing

Runoff Area=12.670 ac 0.00% Impervious Runoff Depth=4.24"
Flow Length=1,441' Tc=22.1 min CN=82 Runoff=40.30 cfs 4.481 af

Total Runoff Area = 12.670 ac Runoff Volume = 4.481 af Average Runoff Depth = 4.24"
100.00% Pervious = 12.670 ac 0.00% Impervious = 0.000 ac

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Nehantic Highlands

Type III 24-hr 50 year Rainfall=6.30"

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Summary for Subcatchment 6S: Existing

Runoff = 40.30 cfs @ 12.31 hrs, Volume= 4.481 af, Depth> 4.24"

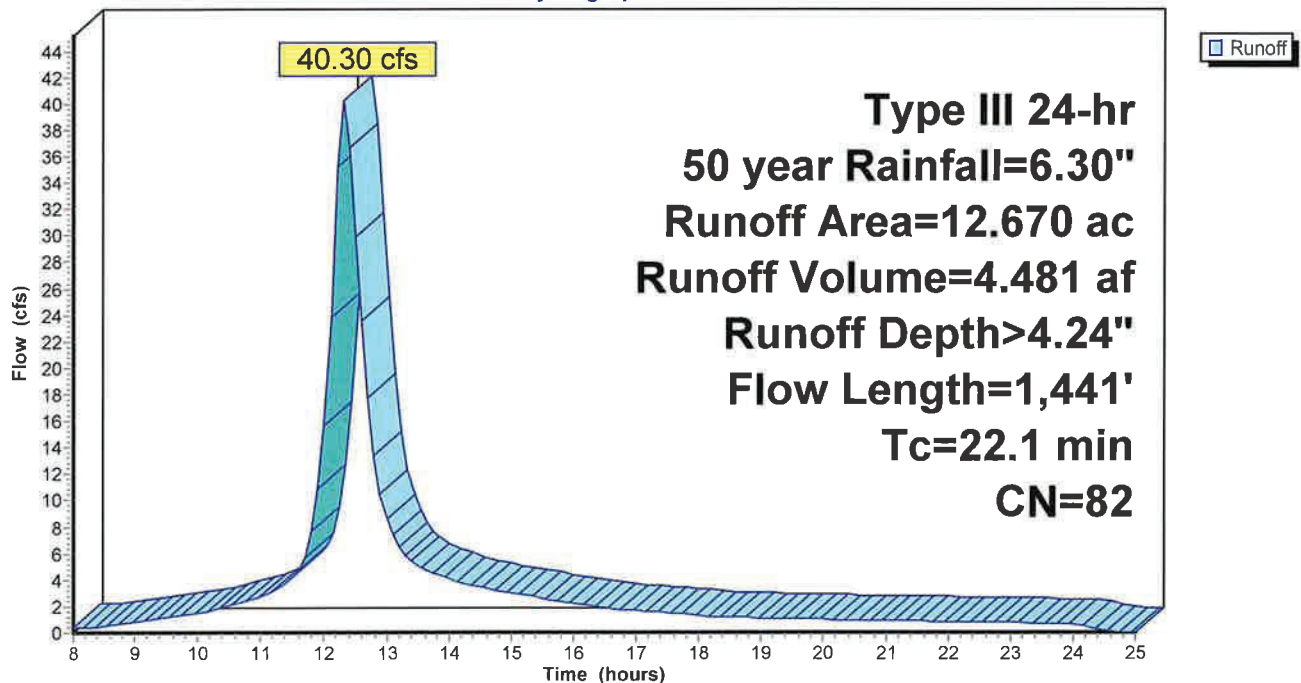
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 8.00-25.00 hrs, dt= 0.10 hrs
Type III 24-hr 50 year Rainfall=6.30"

Area (ac)	CN	Description
6.170	77	Woods, Poor, HSG C
6.500	86	<50% Grass cover, Poor, HSG C
12.670	82	Weighted Average
12.670		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	40	0.0200	0.07		Sheet Flow, Sheet Woods: Light underbrush n= 0.400 P2= 3.35"
7.2	1,061	0.0600	2.45		Shallow Concentrated Flow, Sha Nearly Bare & Untilled Kv= 10.0 fps
4.8	340	0.0550	1.17		Shallow Concentrated Flow, Concentrated flow Woodland Kv= 5.0 fps
22.1	1,441	Total			

Subcatchment 6S: Existing

Hydrograph



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Nehantic Highlands

Type III 24-hr 100 year Rainfall=7.10"

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Time span=8.00-25.00 hrs, dt=0.10 hrs, 171 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 6S: Existing

Runoff Area=12.670 ac 0.00% Impervious Runoff Depth>4.97"
Flow Length=1,441' Tc=22.1 min CN=82 Runoff=47.11 cfs 5.251 af

Total Runoff Area = 12.670 ac Runoff Volume = 5.251 af Average Runoff Depth = 4.97"
100.00% Pervious = 12.670 ac 0.00% Impervious = 0.000 ac

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Nehantic Highlands

Type III 24-hr 100 year Rainfall=7.10"

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Summary for Subcatchment 6S: Existing

Runoff = 47.11 cfs @ 12.31 hrs, Volume= 5.251 af, Depth> 4.97"

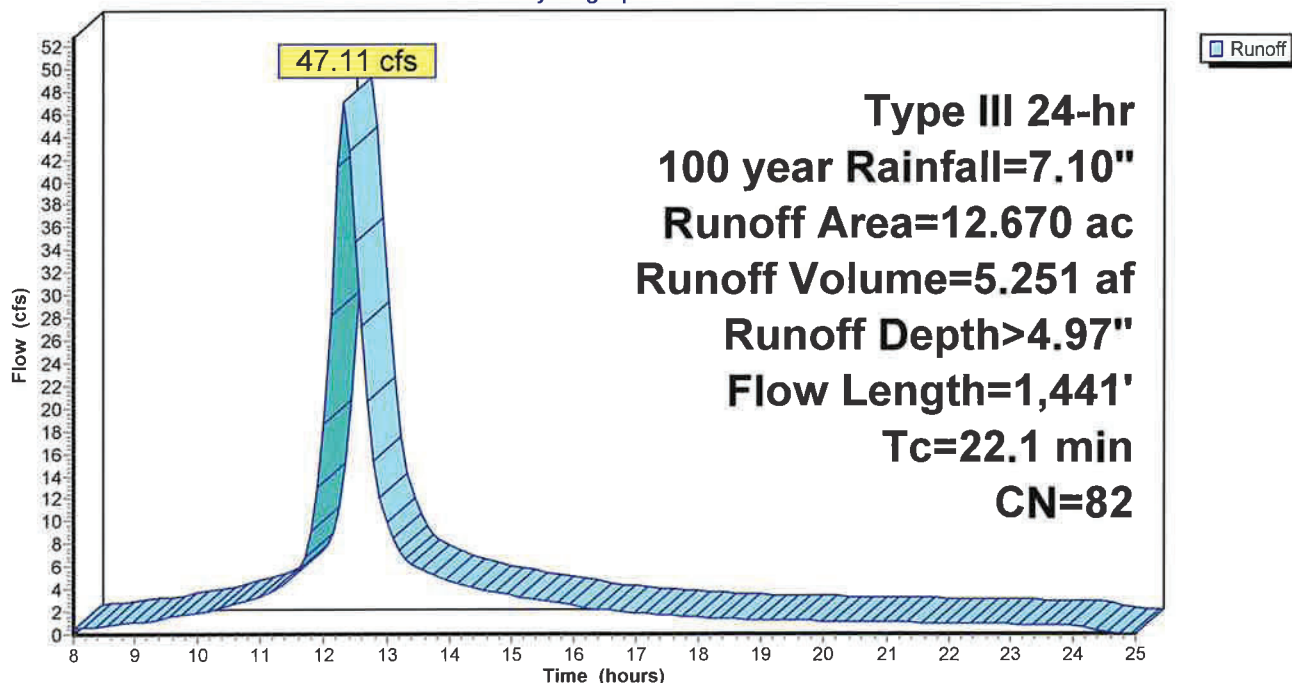
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 8.00-25.00 hrs, dt= 0.10 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
6.170	77	Woods, Poor, HSG C
6.500	86	<50% Grass cover, Poor, HSG C
12.670	82	Weighted Average
12.670		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	40	0.0200	0.07		Sheet Flow, Sheet Woods: Light underbrush n= 0.400 P2= 3.35"
7.2	1,061	0.0600	2.45		Shallow Concentrated Flow, Sha Nearly Bare & Untilled Kv= 10.0 fps
4.8	340	0.0550	1.17		Shallow Concentrated Flow, Concentrated flow Woodland Kv= 5.0 fps
22.1	1,441	Total			

Subcatchment 6S: Existing

Hydrograph



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Nehantic Highlands

Multi-Event Tables

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Events for Subcatchment 6S: Existing

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-year	3.40	16.16	1.795	1.70
10 year	4.80	27.63	3.061	2.90
25 year	5.70	35.21	3.908	3.70
50 year	6.30	40.30	4.481	4.24
100 year	7.10	47.11	5.251	4.97

Holmes Rd Proposed

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Page 1

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
5.000	83	1/4 acre lots, 38% imp, HSG C (6S)
1.670	74	>75% Grass cover, Good, HSG C (6S)
0.800	98	Paved roads w/curbs & sewers, HSG C (6S)
5.200	77	Woods, Poor, HSG C (6S)
12.670	80	TOTAL AREA

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Nehantic Highlands

Type III 24-hr 2-year Rainfall=3.40"

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Time span=8.00-25.00 hrs, dt=0.10 hrs, 171 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 6S: Proposed

Runoff Area=12.670 ac 21.31% Impervious Runoff Depth>1.56"
Flow Length=1,641' Tc=38.1 min CN=80 Runoff=11.53 cfs 1.644 af

Total Runoff Area = 12.670 ac Runoff Volume = 1.644 af Average Runoff Depth = 1.56"
78.69% Pervious = 9.970 ac 21.31% Impervious = 2.700 ac

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Nehantic Highlands

Type III 24-hr 2-year Rainfall=3.40"

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Summary for Subcatchment 6S: Proposed

Runoff = 11.53 cfs @ 12.55 hrs, Volume= 1.644 af, Depth> 1.56"
Routed to Pond 2P : Rain Gardens

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 8.00-25.00 hrs, dt= 0.10 hrs
Type III 24-hr 2-year Rainfall=3.40"

Area (ac)	CN	Description
5.200	77	Woods, Poor, HSG C
5.000	83	1/4 acre lots, 38% imp, HSG C
0.800	98	Paved roads w/curbs & sewers, HSG C
1.670	74	>75% Grass cover, Good, HSG C
12.670	80	Weighted Average
9.970		78.69% Pervious Area
2.700		21.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	40	0.0200	0.07		Sheet Flow, Sheet Woods: Light underbrush n= 0.400 P2= 3.35"
7.2	1,061	0.0600	2.45		Shallow Concentrated Flow, Sha Nearly Bare & Untilled Kv= 10.0 fps
4.8	340	0.0550	1.17		Shallow Concentrated Flow, Concentrated flow Woodland Kv= 5.0 fps
16.0	200	0.0200	0.21		Kerby Method, Stepped Swales Pasture, average grass N= 0.40
38.1	1,641	Total			

Holmes Rd Proposed

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Nehantic Highlands

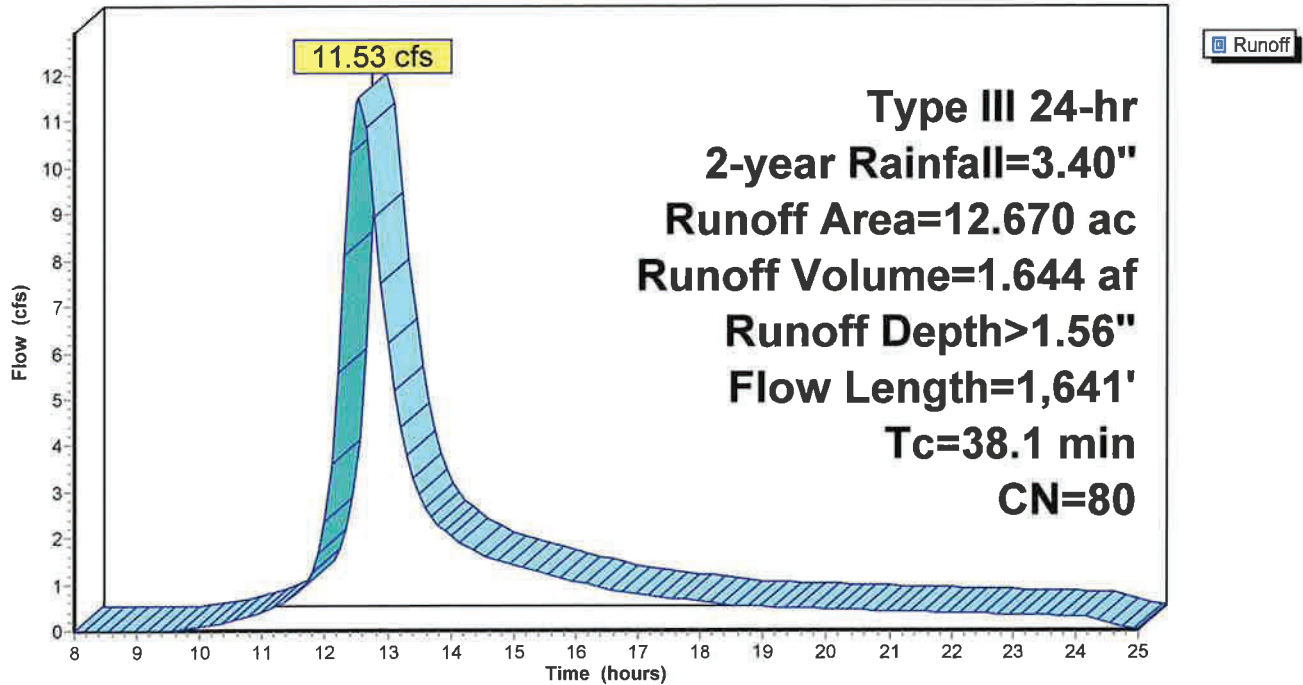
Type III 24-hr 2-year Rainfall=3.40"

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Subcatchment 6S: Proposed

Hydrograph



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Nehantic Highlands

Type III 24-hr 10 year Rainfall=4.80"

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Time span=8.00-25.00 hrs, dt=0.10 hrs, 171 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 6S: Proposed

Runoff Area=12.670 ac 21.31% Impervious Runoff Depth>2.72"
Flow Length=1,641' Tc=38.1 min CN=80 Runoff=20.31 cfs 2.870 af

Total Runoff Area = 12.670 ac Runoff Volume = 2.870 af Average Runoff Depth = 2.72"
78.69% Pervious = 9.970 ac 21.31% Impervious = 2.700 ac

Holmes Rd Proposed

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Nehantic Highlands

Type III 24-hr 10 year Rainfall=4.80"

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Summary for Subcatchment 6S: Proposed

Runoff = 20.31 cfs @ 12.53 hrs, Volume= 2.870 af, Depth> 2.72"
Routed to Pond 2P : Rain Gardens

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 8.00-25.00 hrs, dt= 0.10 hrs
Type III 24-hr 10 year Rainfall=4.80"

Area (ac)	CN	Description
5.200	77	Woods, Poor, HSG C
5.000	83	1/4 acre lots, 38% imp, HSG C
0.800	98	Paved roads w/curbs & sewers, HSG C
1.670	74	>75% Grass cover, Good, HSG C
12.670	80	Weighted Average
9.970		78.69% Pervious Area
2.700		21.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	40	0.0200	0.07		Sheet Flow, Sheet Woods: Light underbrush n= 0.400 P2= 3.35"
7.2	1,061	0.0600	2.45		Shallow Concentrated Flow, Sha Nearly Bare & Untilled Kv= 10.0 fps
4.8	340	0.0550	1.17		Shallow Concentrated Flow, Concentrated flow Woodland Kv= 5.0 fps
16.0	200	0.0200	0.21		Kerby Method, Stepped Swales Pasture, average grass N= 0.40
38.1	1,641	Total			

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Nehantic Highlands

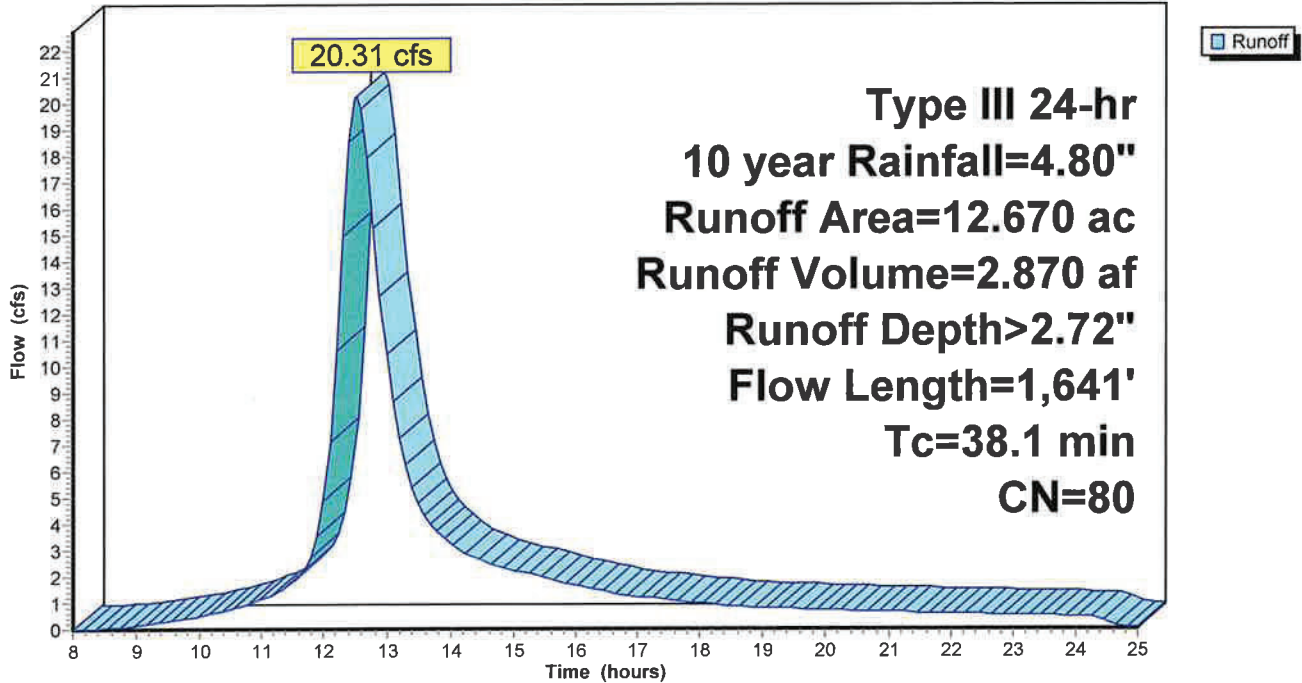
Type III 24-hr 10 year Rainfall=4.80"

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Subcatchment 6S: Proposed

Hydrograph



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Type III 24-hr 25 year Rainfall=5.70"

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Time span=8.00-25.00 hrs, dt=0.10 hrs, 171 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 6S: Proposed

Runoff Area=12.670 ac 21.31% Impervious Runoff Depth>3.51"
Flow Length=1,641' Tc=38.1 min CN=80 Runoff=26.20 cfs 3.705 af

Total Runoff Area = 12.670 ac Runoff Volume = 3.705 af Average Runoff Depth = 3.51"
78.69% Pervious = 9.970 ac 21.31% Impervious = 2.700 ac

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Type III 24-hr 25 year Rainfall=5.70"

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Summary for Subcatchment 6S: Proposed

Runoff = 26.20 cfs @ 12.53 hrs, Volume= 3.705 af, Depth> 3.51"
Routed to Pond 2P : Rain Gardens

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 8.00-25.00 hrs, dt= 0.10 hrs
Type III 24-hr 25 year Rainfall=5.70"

Area (ac)	CN	Description
5.200	77	Woods, Poor, HSG C
5.000	83	1/4 acre lots, 38% imp, HSG C
0.800	98	Paved roads w/curbs & sewers, HSG C
1.670	74	>75% Grass cover, Good, HSG C
12.670	80	Weighted Average
9.970		78.69% Pervious Area
2.700		21.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	40	0.0200	0.07		Sheet Flow, Sheet Woods: Light underbrush n= 0.400 P2= 3.35"
7.2	1,061	0.0600	2.45		Shallow Concentrated Flow, Sha Nearly Bare & Untilled Kv= 10.0 fps
4.8	340	0.0550	1.17		Shallow Concentrated Flow, Concentrated flow Woodland Kv= 5.0 fps
16.0	200	0.0200	0.21		Kerby Method, Stepped Swales Pasture, average grass N= 0.40
38.1	1,641	Total			

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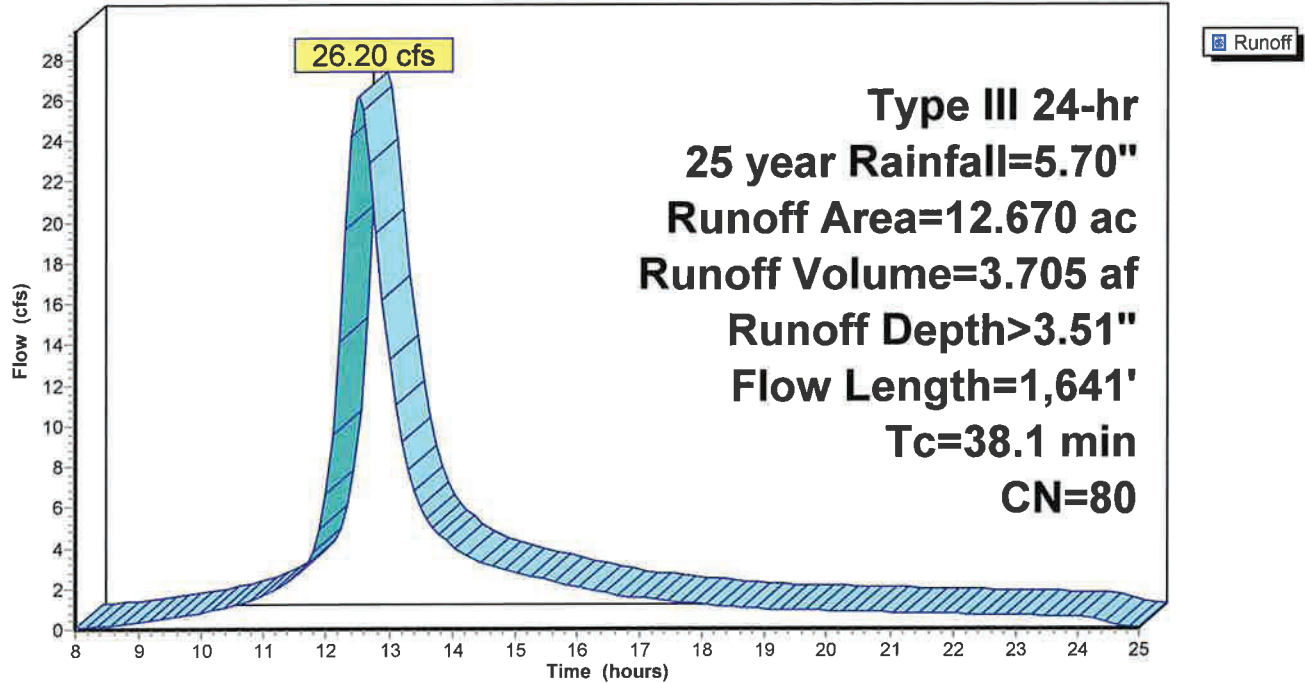
Type III 24-hr 25 year Rainfall=5.70"

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Subcatchment 6S: Proposed

Hydrograph



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Type III 24-hr 50 year Rainfall=6.30"

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Time span=8.00-25.00 hrs, dt=0.10 hrs, 171 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 6S: Proposed

Runoff Area=12.670 ac 21.31% Impervious Runoff Depth>4.05"

Flow Length=1,641' Tc=38.1 min CN=80 Runoff=30.18 cfs 4.272 af

Total Runoff Area = 12.670 ac Runoff Volume = 4.272 af Average Runoff Depth = 4.05"

78.69% Pervious = 9.970 ac 21.31% Impervious = 2.700 ac

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Type III 24-hr 50 year Rainfall=6.30"

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Summary for Subcatchment 6S: Proposed

Runoff = 30.18 cfs @ 12.52 hrs, Volume= 4.272 af, Depth> 4.05"
Routed to Pond 2P : Rain Gardens

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 8.00-25.00 hrs, dt= 0.10 hrs
Type III 24-hr 50 year Rainfall=6.30"

Area (ac)	CN	Description
5.200	77	Woods, Poor, HSG C
5.000	83	1/4 acre lots, 38% imp, HSG C
0.800	98	Paved roads w/curbs & sewers, HSG C
1.670	74	>75% Grass cover, Good, HSG C
12.670	80	Weighted Average
9.970		78.69% Pervious Area
2.700		21.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	40	0.0200	0.07		Sheet Flow, Sheet Woods: Light underbrush n= 0.400 P2= 3.35"
7.2	1,061	0.0600	2.45		Shallow Concentrated Flow, Sha Nearly Bare & Untilled Kv= 10.0 fps
4.8	340	0.0550	1.17		Shallow Concentrated Flow, Concentrated flow Woodland Kv= 5.0 fps
16.0	200	0.0200	0.21		Kerby Method, Stepped Swales Pasture, average grass N= 0.40
38.1	1,641	Total			

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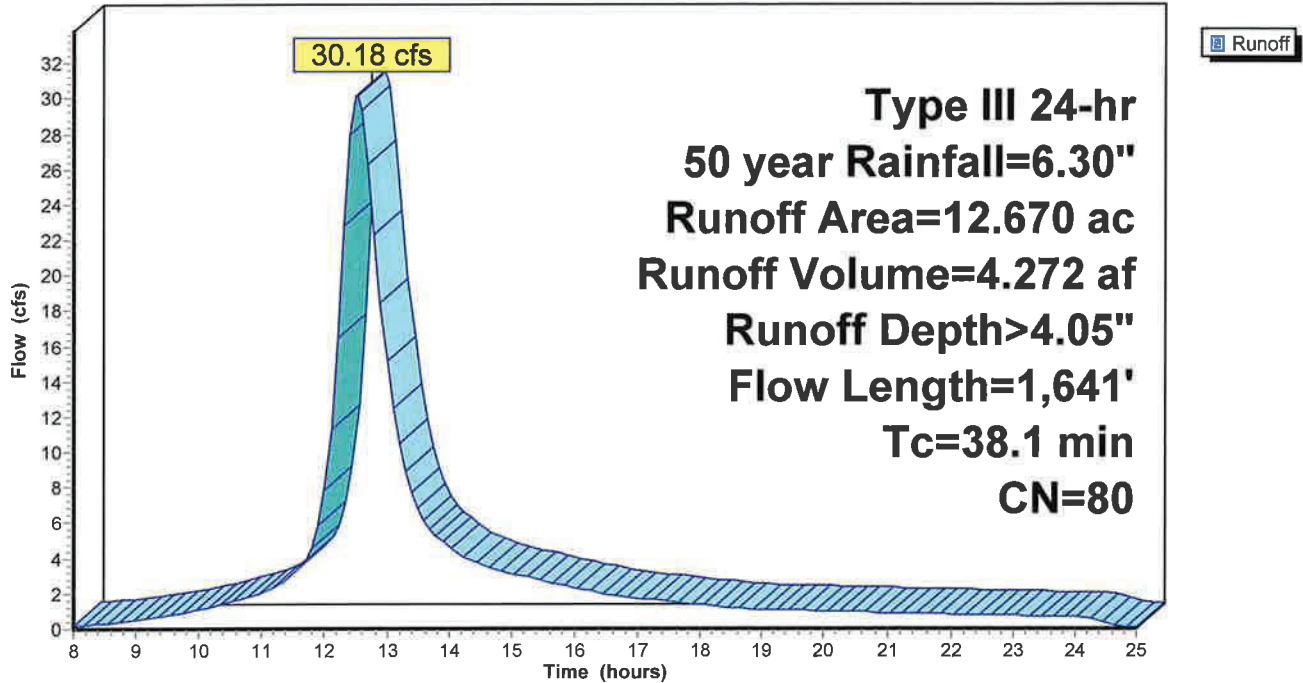
Type III 24-hr 50 year Rainfall=6.30"

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Subcatchment 6S: Proposed

Hydrograph



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Type III 24-hr 100 year Rainfall=7.10"

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Time span=8.00-25.00 hrs, dt=0.10 hrs, 171 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 6S: Proposed

Runoff Area=12.670 ac 21.31% Impervious Runoff Depth=4.77"
Flow Length=1,641' Tc=38.1 min CN=80 Runoff=35.52 cfs 5.037 af

Total Runoff Area = 12.670 ac Runoff Volume = 5.037 af Average Runoff Depth = 4.77"
78.69% Pervious = 9.970 ac 21.31% Impervious = 2.700 ac

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Type III 24-hr 100 year Rainfall=7.10"

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Summary for Subcatchment 6S: Proposed

Runoff = 35.52 cfs @ 12.52 hrs, Volume= 5.037 af, Depth> 4.77"
Routed to Pond 2P : Rain Gardens

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 8.00-25.00 hrs, dt= 0.10 hrs
Type III 24-hr 100 year Rainfall=7.10"

Area (ac)	CN	Description
5.200	77	Woods, Poor, HSG C
5.000	83	1/4 acre lots, 38% imp, HSG C
0.800	98	Paved roads w/curbs & sewers, HSG C
1.670	74	>75% Grass cover, Good, HSG C
12.670	80	Weighted Average
9.970		78.69% Pervious Area
2.700		21.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	40	0.0200	0.07		Sheet Flow, Sheet Woods: Light underbrush n= 0.400 P2= 3.35"
7.2	1,061	0.0600	2.45		Shallow Concentrated Flow, Sha Nearly Bare & Untilled Kv= 10.0 fps
4.8	340	0.0550	1.17		Shallow Concentrated Flow, Concentrated flow Woodland Kv= 5.0 fps
16.0	200	0.0200	0.21		Kerby Method, Stepped Swales Pasture, average grass N= 0.40
38.1	1,641	Total			

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Type III 24-hr 100 year Rainfall=7.10"

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Subcatchment 6S: Proposed

Hydrograph

