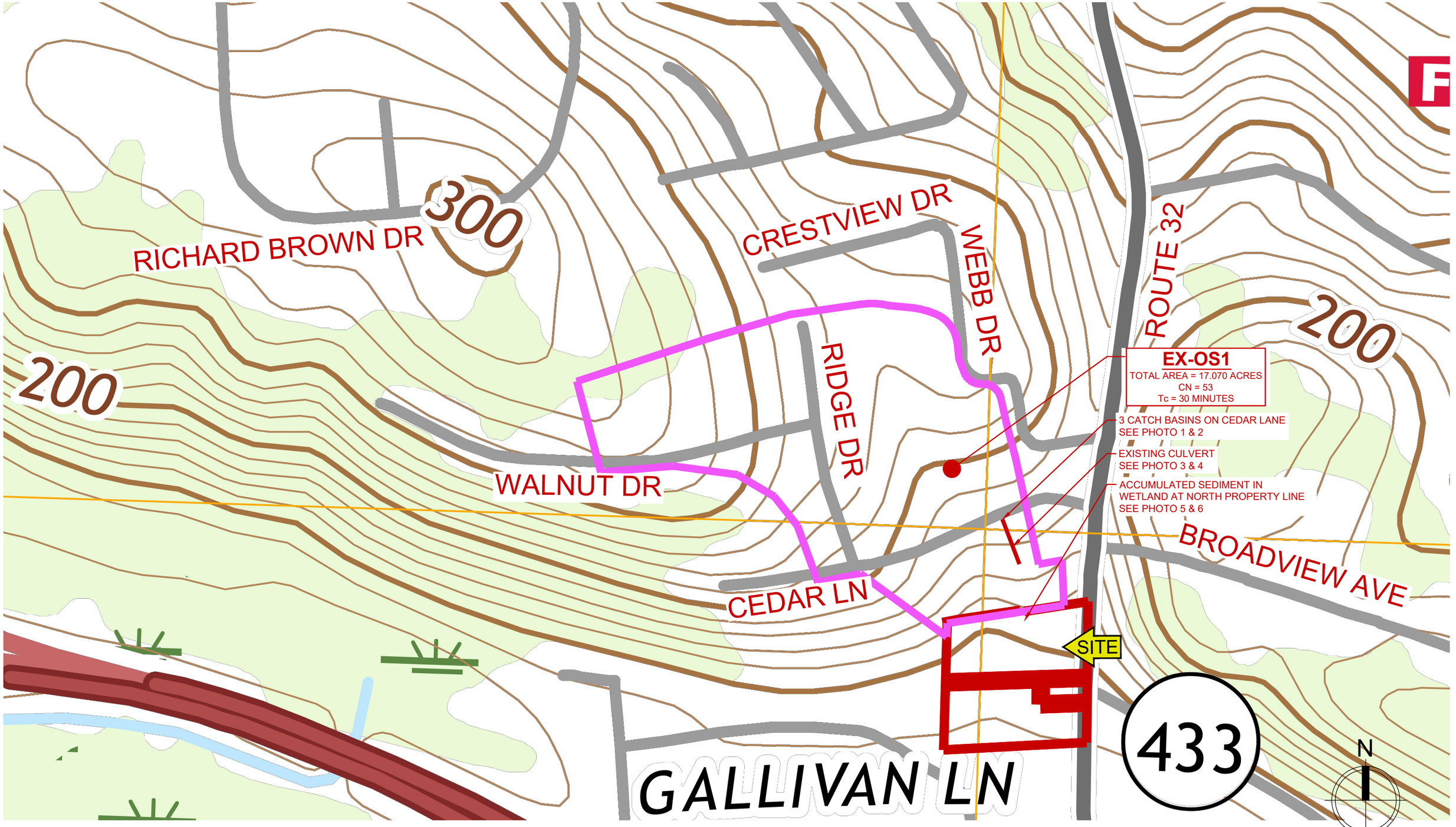


OFF-SITE WATERSHED

250 0 125 250 500

GRAPHIC SCALE IN FEET

RJOC

Photo #1

Catch basin on Cedar Lane

Photo #2

Catch basins on Cedar lane

Photo #3

Culvert from Catch bason from Cedar Lane

Photo #4

Culvert from Catch bason from Cedar Lane

Photo #5

Downstream Cedar Lane Culvert accumulated sediment in Wetland at the northern property line.

Photo #6

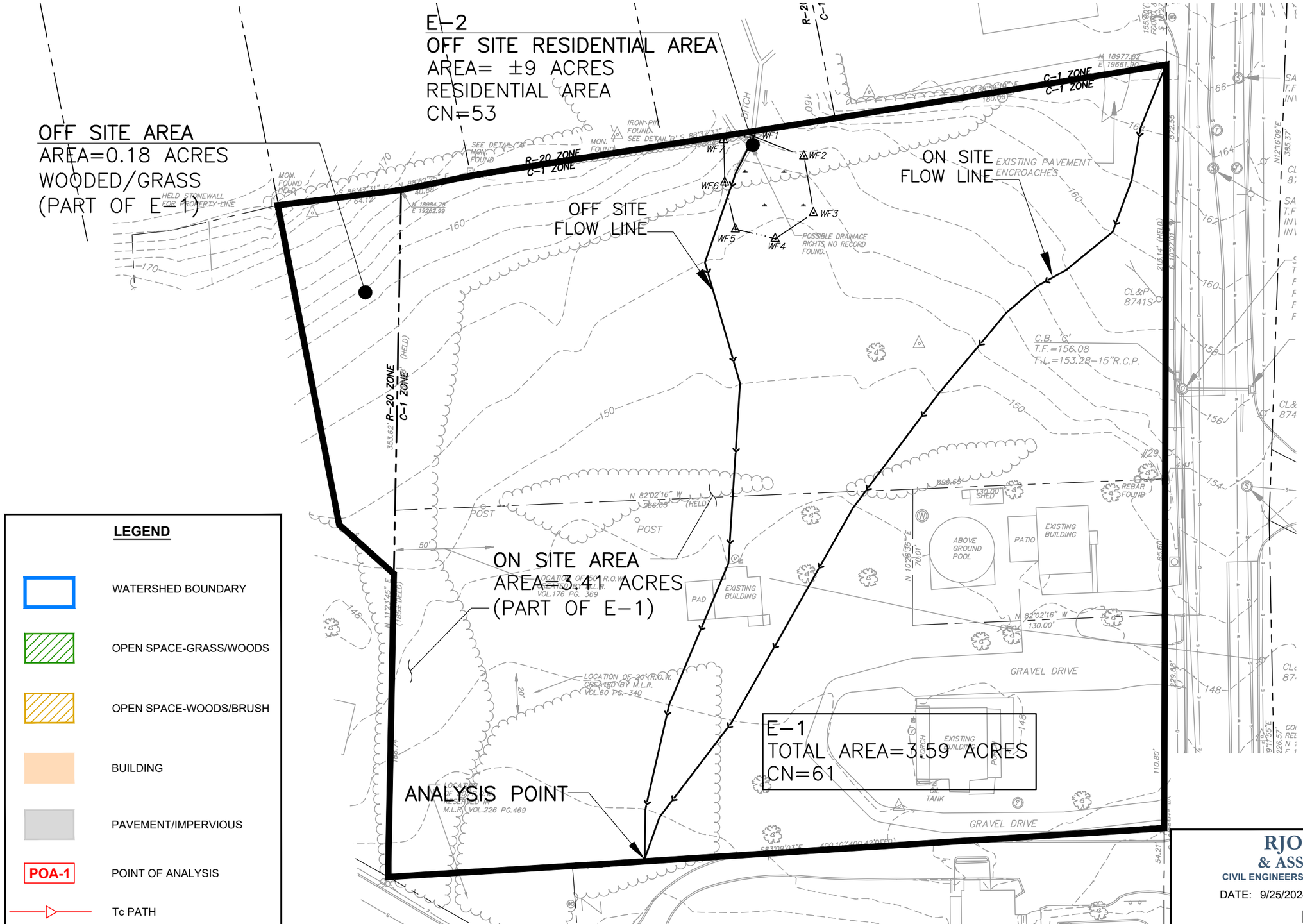
Downstream Cedar Lane Culvert accumulated sediment in Wetland at the northern property line.

Photo #7

CMP pipe

Photo #8

CMP pipe



LEGEND

- WATERSHED BOUNDARY
- OPEN SPACE-GRASS/WOODS
- OPEN SPACE-WOODS/BRUSH
- BUILDING
- PAVEMENT/IMPERVIOUS
- POA-1 — POINT OF ANALYSIS
- Tc PATH

50 0 25 50 100

GRAPHIC SCALE IN FEET

RJOC

N

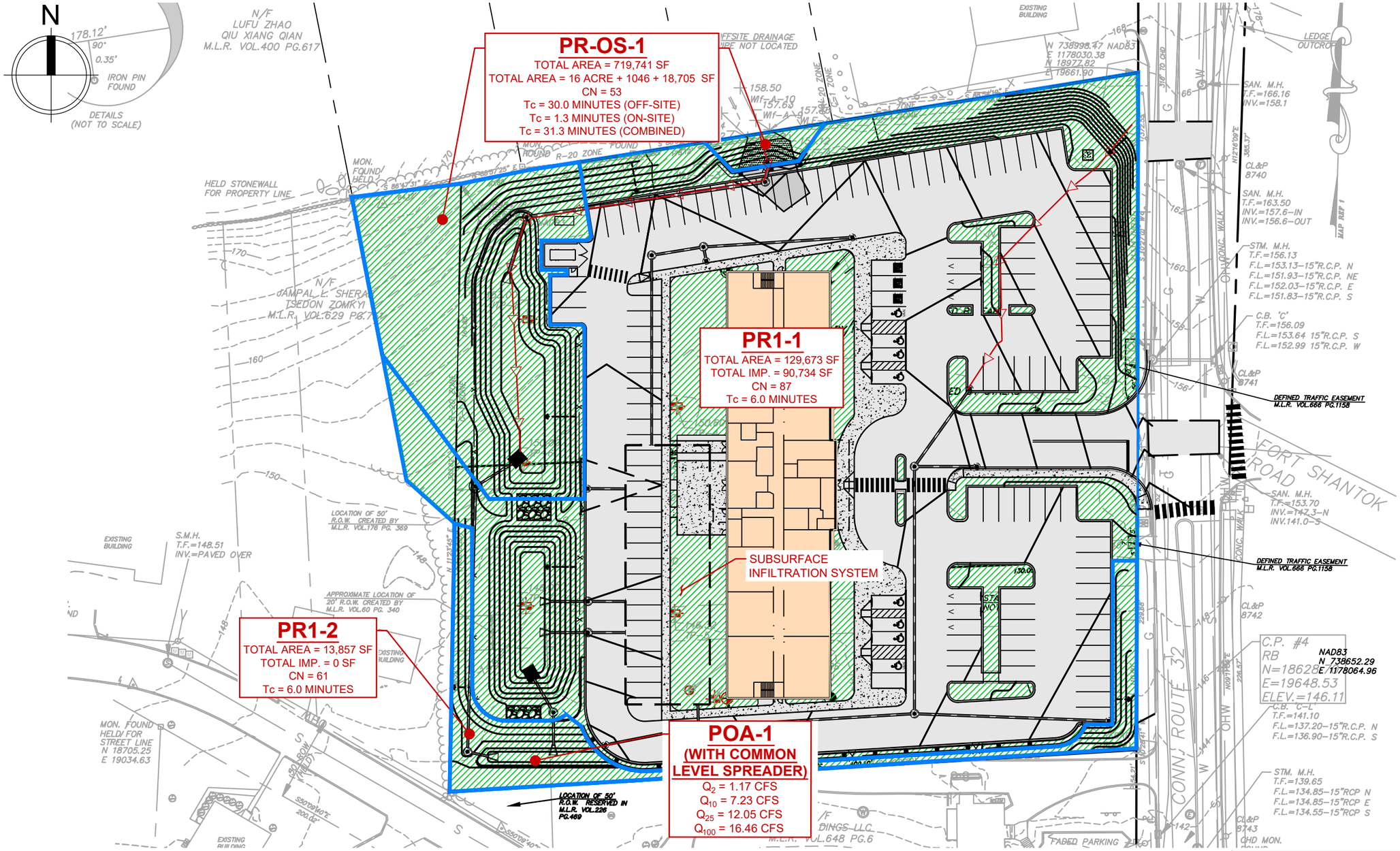
RJO'CONNELL
& ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS

DATE: 9/25/2024 SCALE: 1"=50'

FIGURE 4
EXISTING WATERSHED PLAN

40 TUNXIS AVENUE
BLOOMFIELD, CT 06002

Drawing name: G:\CT\Montville\Honeycomb Real Estate Partners\2268-2284 Route 32\Reports\Stormwater Report\Figures\Figure 4 Pre-Development Watershed.dwg
Sep 23, 2024 - 13:11pm



LEGEND

- WATERSHED BOUNDARY
- OPEN SPACE-GRASS/WOODS
- OPEN SPACE-WOODS/BRUSH
- BUILDING
- PAVEMENT/IMPERVIOUS
- POA-1 DESIGN ANALYSIS AREA
- Tc PATH

50 0 25 50 100

GRAPHIC SCALE IN FEET

RJO'CONNELL & ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS

DATE: 09/25/2024 SCALE: 1"=60'

FIGURE 6
PROPOSED WATERSHED PLAN
2268-2284 ROUTE 32
MONTVILLE, CT

Drawing name: G:\CT\Montville\Honeycomb Real Estate Partners\2268-2284 Route 32\Engineer\Drainage\Watershed\Proposed Watershed Plan.dwg
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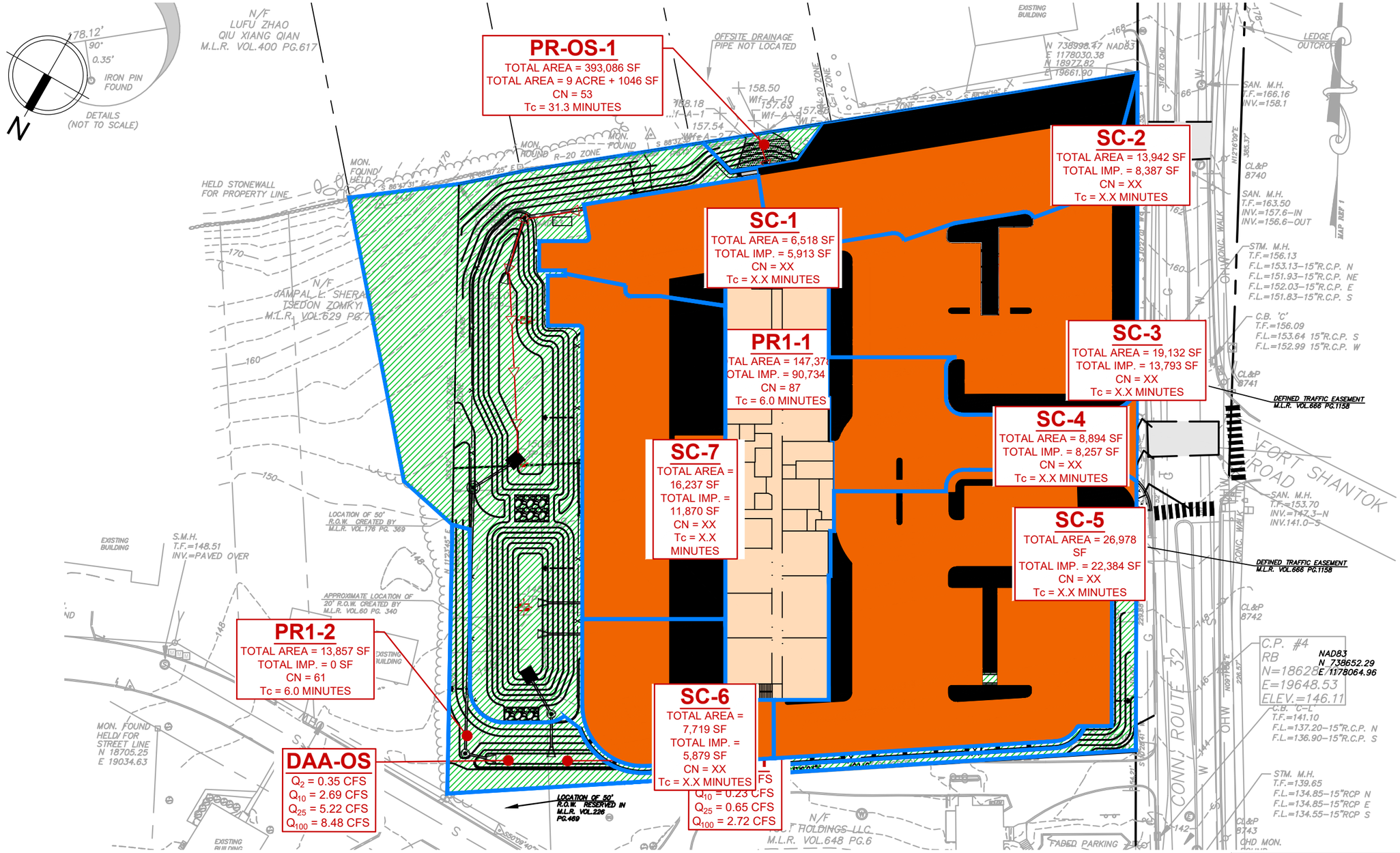


LEGEND

- WATERSHED BOUNDARY
- OPEN SPACE-GRASS/WOODS
- OPEN SPACE-WOODS/BRUSH
- BUILDING
- PAVEMENT/IMPERVIOUS
- DAA-1 DESIGN ANALYSIS AREA
- Tc PATH

50 0 25 50 100

GRAPHIC SCALE IN FEET

RJO'CONNELL & ASSOCIATES, INC.
CIVIL ENGINEERS, SURVEYORS & LAND PLANNERS

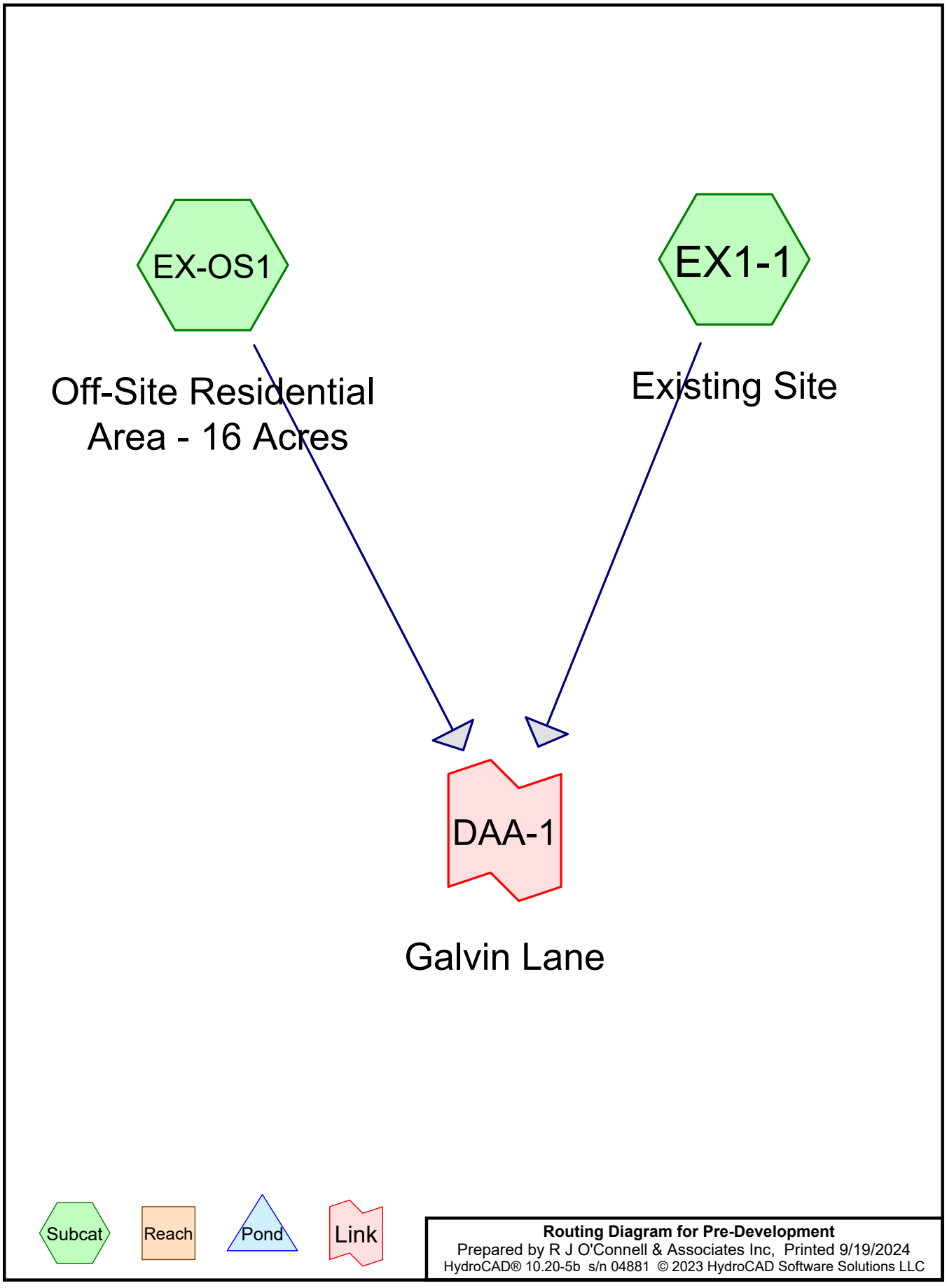
DATE: 09/25/2024 SCALE: 1"=60'

FIGURE 7
PROPOSED CATCHMENT PLAN
MONTVILLE, CT

III. APPENDICIES

APPENDIX A
Computations

Pre-Development Hydrological Computations



Routing Diagram for Pre-Development
Prepared by R J O'Connell & Associates Inc, Printed 9/19/2024

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.587	61	>75% Grass cover, Good, HSG B (EX1-1)
16.070	53	OFF SITE RESIDENTIAL AREAS (EX-OS1)

Summary for Subcatchment EX-OS1: Off-Site Residential Area - 16 Acres

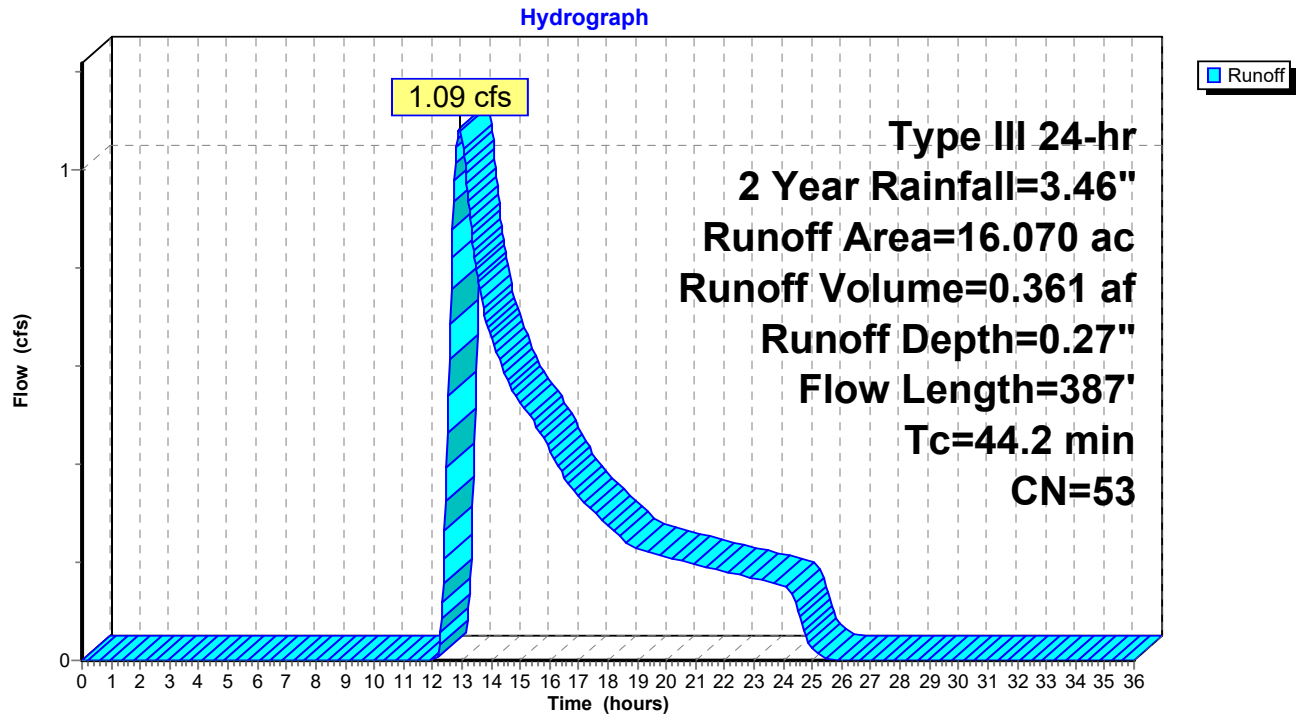
Runoff = 1.09 cfs @ 12.92 hrs, Volume= 0.361 af, Depth= 0.27"
Routed to Link DAA-1 : Galvin Lane

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 Year Rainfall=3.46"

	Area (ac)	CN	Description
*	16.070	53	OFF SITE RESIDENTIAL AREAS
	16.070		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.0					**Direct Entry,**
10.3	100	0.0400	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
3.9	287	0.0300	1.21		**Shallow Concentrated Flow, ON SITE SHALLOW CONC. FLOW** Short Grass Pasture Kv= 7.0 fps
44.2	387	Total			

Subcatchment EX-OS1: Off-Site Residential Area - 16 Acres



Summary for Subcatchment EX1-1: Existing Site

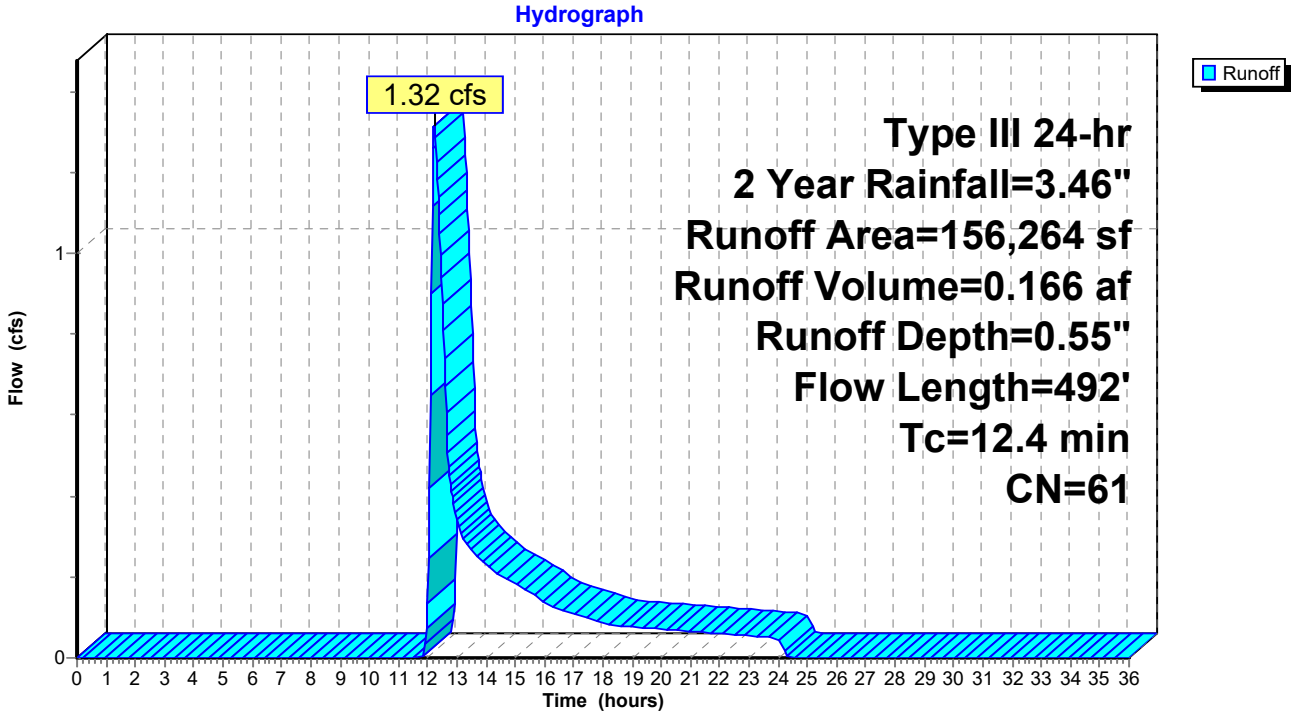
Runoff = 1.32 cfs @ 12.22 hrs, Volume= 0.166 af, Depth= 0.55"
Routed to Link DAA-1 : Galvin Lane

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 Year Rainfall=3.46"

Area (sf)	CN	Description
156,264	61	>75% Grass cover, Good, HSG B
156,264		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	100	0.0400	0.16		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 3.50"
0.2	76	0.1300	5.80		**Shallow Concentrated Flow, Shallow Flow through site to Galvi** Unpaved Kv= 16.1 fps
1.9	316	0.0300	2.79		**Shallow Concentrated Flow, Shallow Concentrated Flow on site** Unpaved Kv= 16.1 fps
12.4	492	Total			

Subcatchment EX1-1: Existing Site

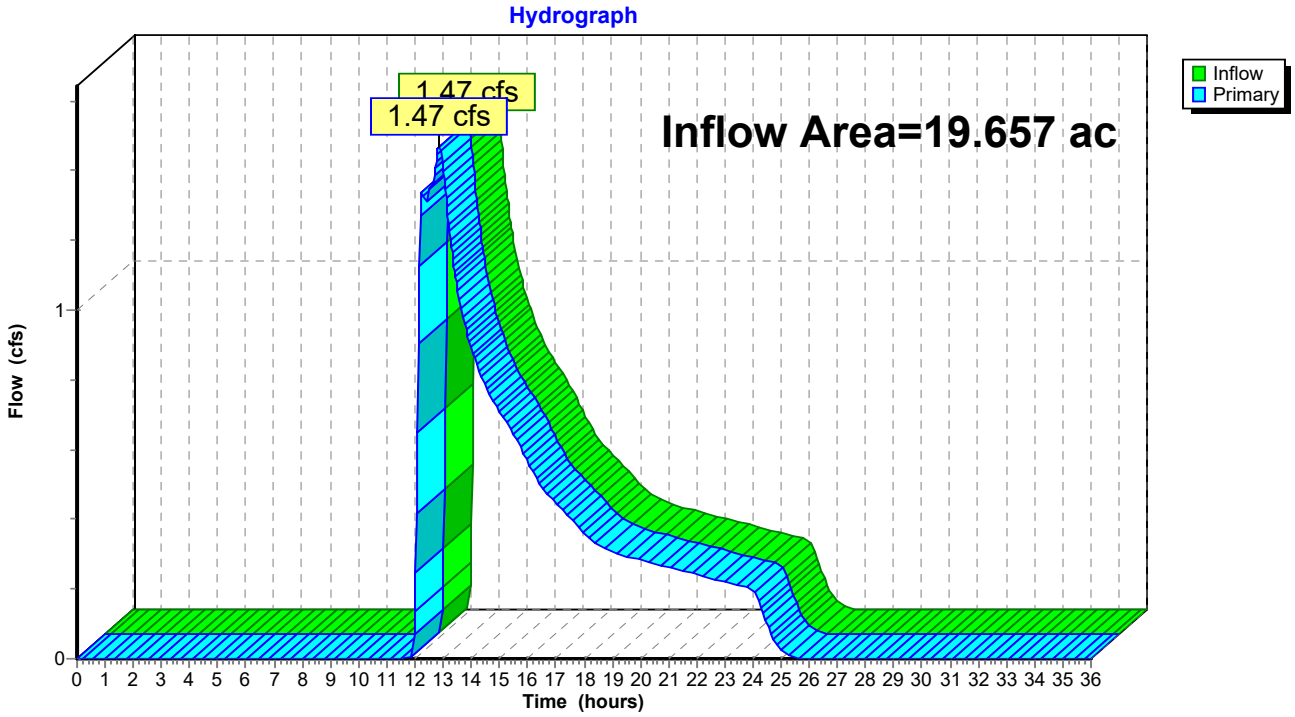


Summary for Link DAA-1: Galvin Lane

Inflow Area = 19.657 ac, 0.00% Impervious, Inflow Depth = 0.32" for 2 Year event
Inflow = 1.47 cfs @ 12.86 hrs, Volume= 0.527 af
Primary = 1.47 cfs @ 12.86 hrs, Volume= 0.527 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs

Link DAA-1: Galvin Lane



Summary for Subcatchment EX-OS1: Off-Site Residential Area - 16 Acres

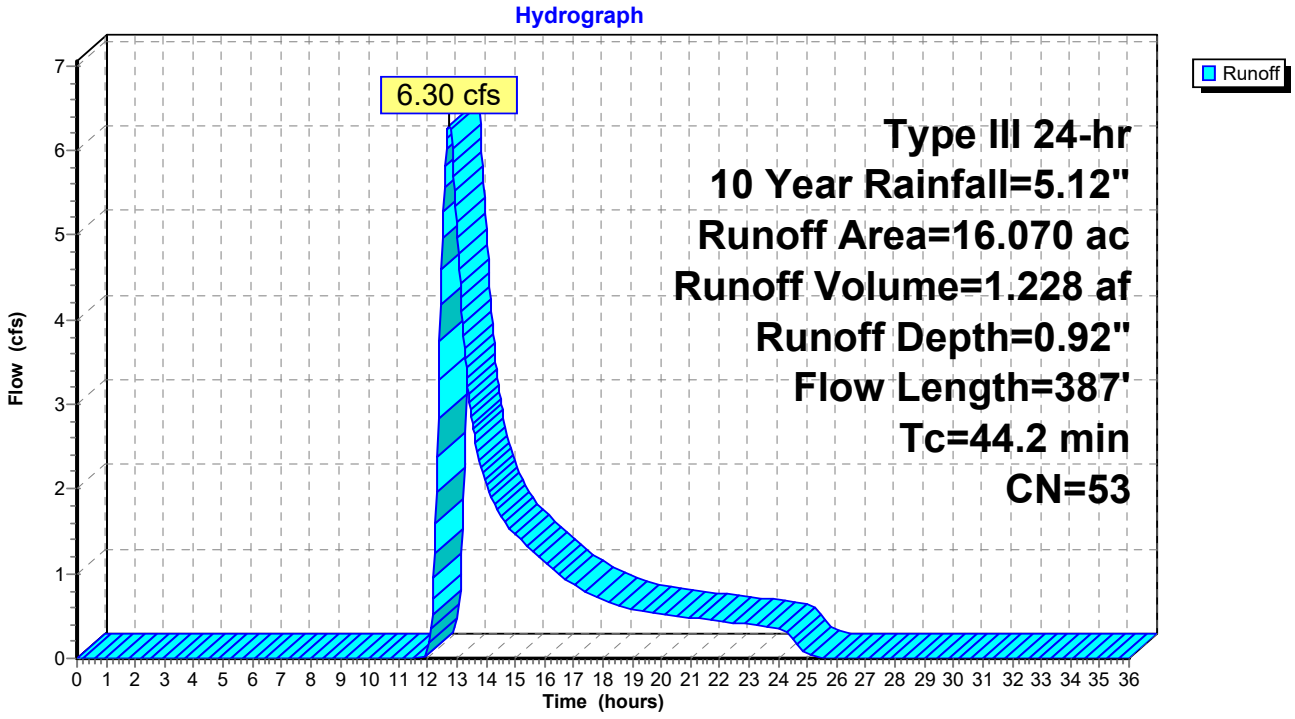
Runoff = 6.30 cfs @ 12.73 hrs, Volume= 1.228 af, Depth= 0.92"
Routed to Link DAA-1 : Galvin Lane

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 Year Rainfall=5.12"

	Area (ac)	CN	Description
*	16.070	53	OFF SITE RESIDENTIAL AREAS
	16.070		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.0					**Direct Entry,**
10.3	100	0.0400	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
3.9	287	0.0300	1.21		**Shallow Concentrated Flow, ON SITE SHALLOW CONC. FLOW** Short Grass Pasture Kv= 7.0 fps
44.2	387	Total			

Subcatchment EX-OS1: Off-Site Residential Area - 16 Acres



Summary for Subcatchment EX1-1: Existing Site

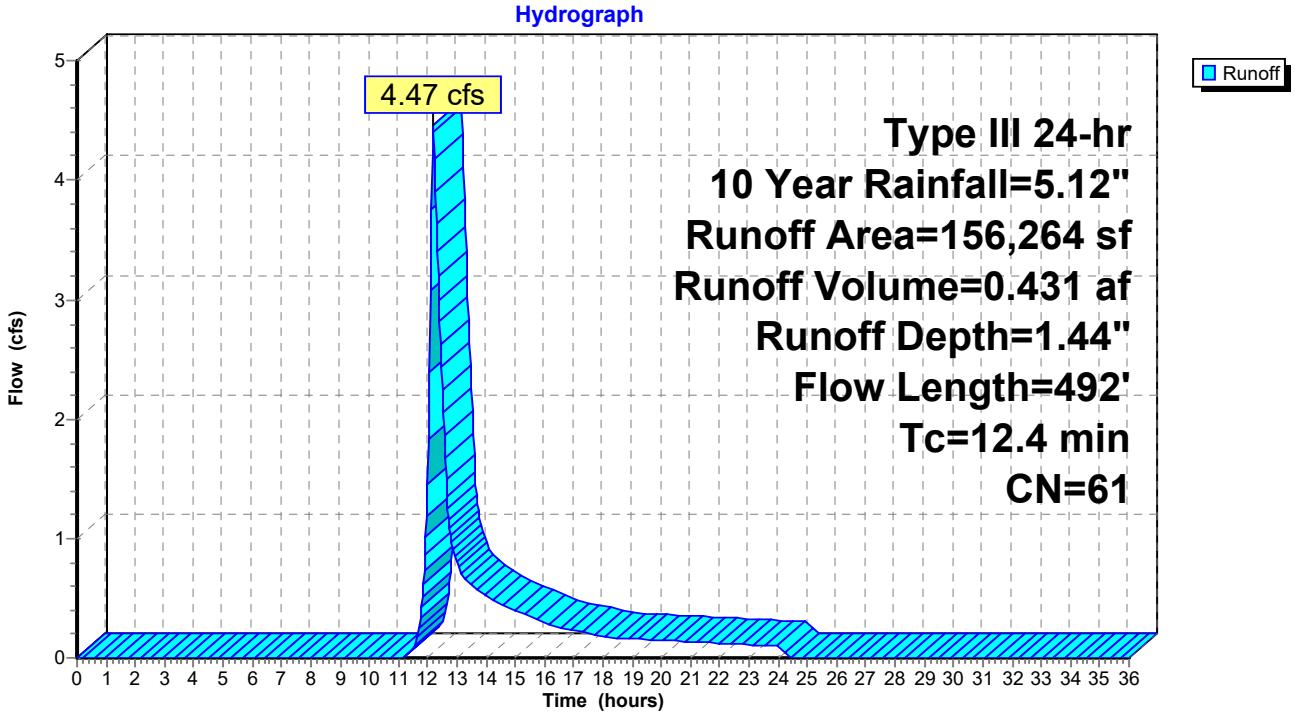
Runoff = 4.47 cfs @ 12.19 hrs, Volume= 0.431 af, Depth= 1.44"
Routed to Link DAA-1 : Galvin Lane

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 Year Rainfall=5.12"

Area (sf)	CN	Description
156,264	61	>75% Grass cover, Good, HSG B
156,264		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	100	0.0400	0.16		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 3.50"
0.2	76	0.1300	5.80		**Shallow Concentrated Flow, Shallow Flow through site to Galvi** Unpaved Kv= 16.1 fps
1.9	316	0.0300	2.79		**Shallow Concentrated Flow, Shallow Concentrated Flow on site** Unpaved Kv= 16.1 fps
12.4	492	Total			

Subcatchment EX1-1: Existing Site

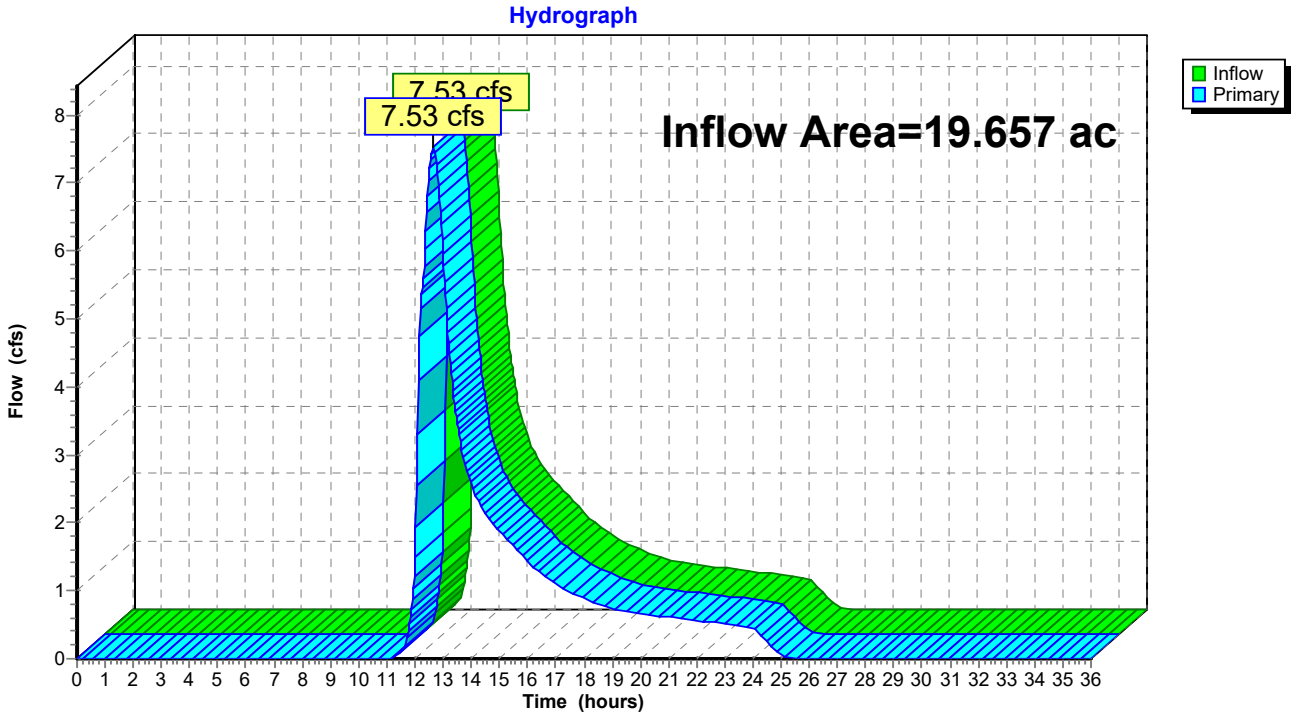


Summary for Link DAA-1: Galvin Lane

Inflow Area = 19.657 ac, 0.00% Impervious, Inflow Depth = 1.01" for 10 Year event
Inflow = 7.53 cfs @ 12.64 hrs, Volume= 1.659 af
Primary = 7.53 cfs @ 12.64 hrs, Volume= 1.659 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs

Link DAA-1: Galvin Lane



Summary for Subcatchment EX-OS1: Off-Site Residential Area - 16 Acres

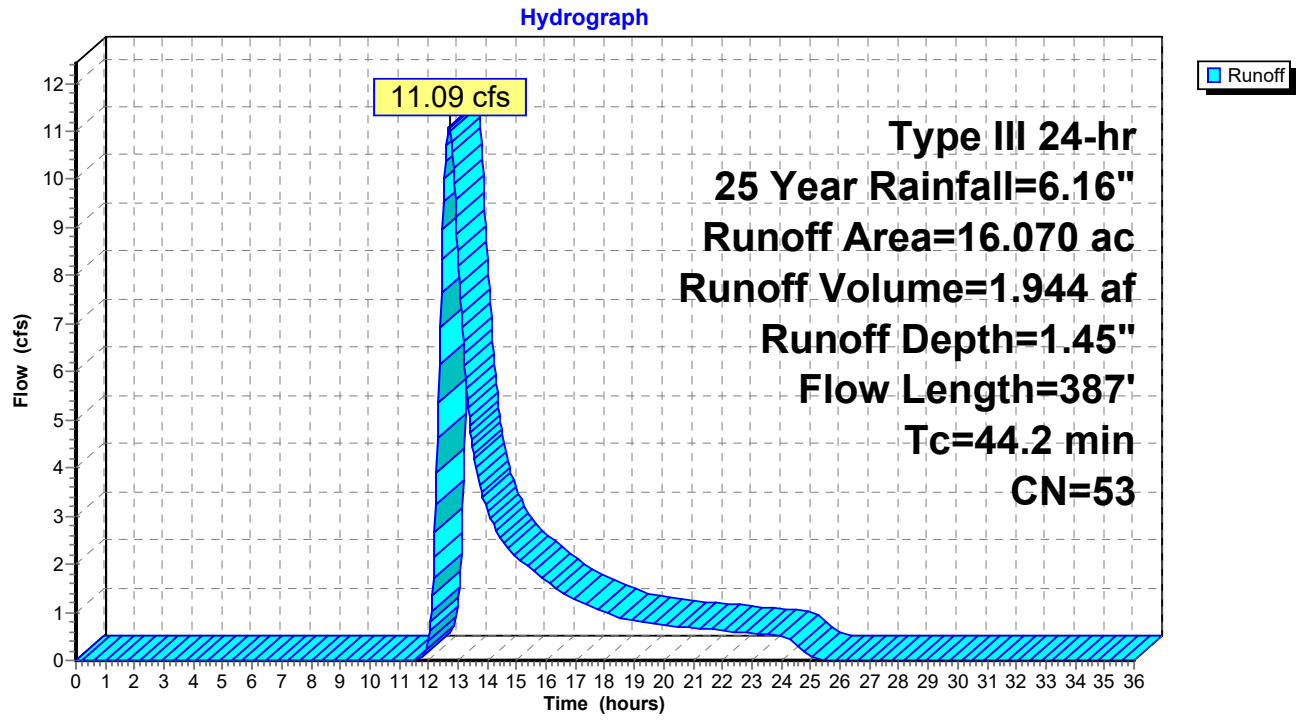
Runoff = 11.09 cfs @ 12.70 hrs, Volume= 1.944 af, Depth= 1.45"
Routed to Link DAA-1 : Galvin Lane

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Year Rainfall=6.16"

	Area (ac)	CN	Description
*	16.070	53	OFF SITE RESIDENTIAL AREAS
	16.070		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.0					**Direct Entry,**
10.3	100	0.0400	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
3.9	287	0.0300	1.21		**Shallow Concentrated Flow, ON SITE SHALLOW CONC. FLOW** Short Grass Pasture Kv= 7.0 fps
44.2	387	Total			

Subcatchment EX-OS1: Off-Site Residential Area - 16 Acres



Summary for Subcatchment EX1-1: Existing Site

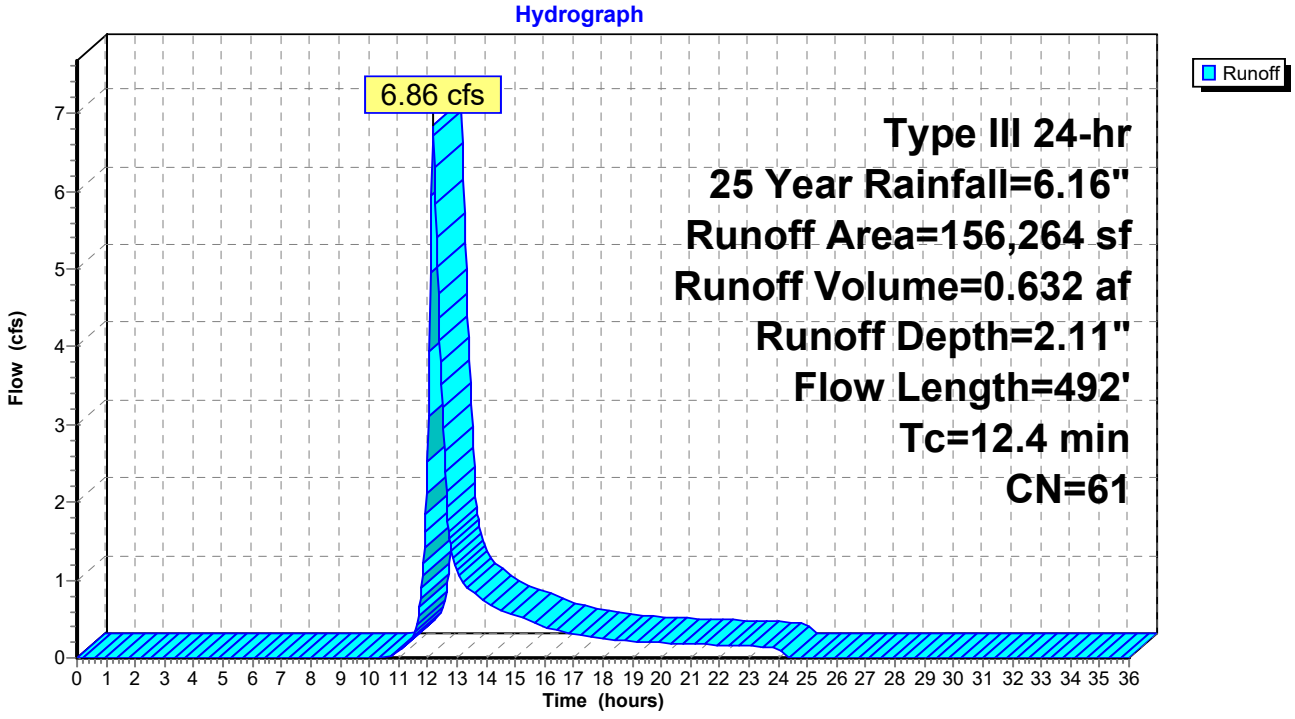
Runoff = 6.86 cfs @ 12.18 hrs, Volume= 0.632 af, Depth= 2.11"
Routed to Link DAA-1 : Galvin Lane

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Year Rainfall=6.16"

Area (sf)	CN	Description
156,264	61	>75% Grass cover, Good, HSG B
156,264		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	100	0.0400	0.16		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 3.50"
0.2	76	0.1300	5.80		**Shallow Concentrated Flow, Shallow Flow through site to Galvi** Unpaved Kv= 16.1 fps
1.9	316	0.0300	2.79		**Shallow Concentrated Flow, Shallow Concentrated Flow on site** Unpaved Kv= 16.1 fps
12.4	492	Total			

Subcatchment EX1-1: Existing Site

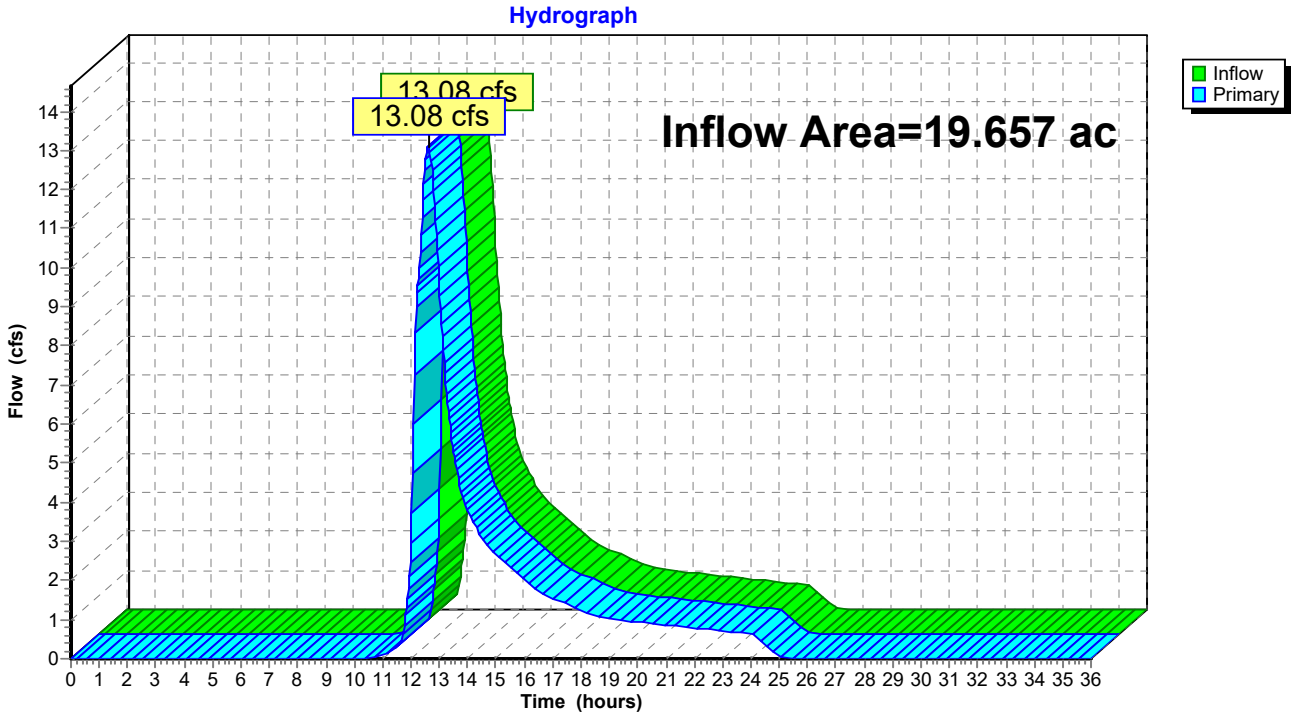


Summary for Link DAA-1: Galvin Lane

Inflow Area = 19.657 ac, 0.00% Impervious, Inflow Depth = 1.57" for 25 Year event
Inflow = 13.08 cfs @ 12.61 hrs, Volume= 2.576 af
Primary = 13.08 cfs @ 12.61 hrs, Volume= 2.576 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs

Link DAA-1: Galvin Lane



Summary for Subcatchment EX-OS1: Off-Site Residential Area - 16 Acres

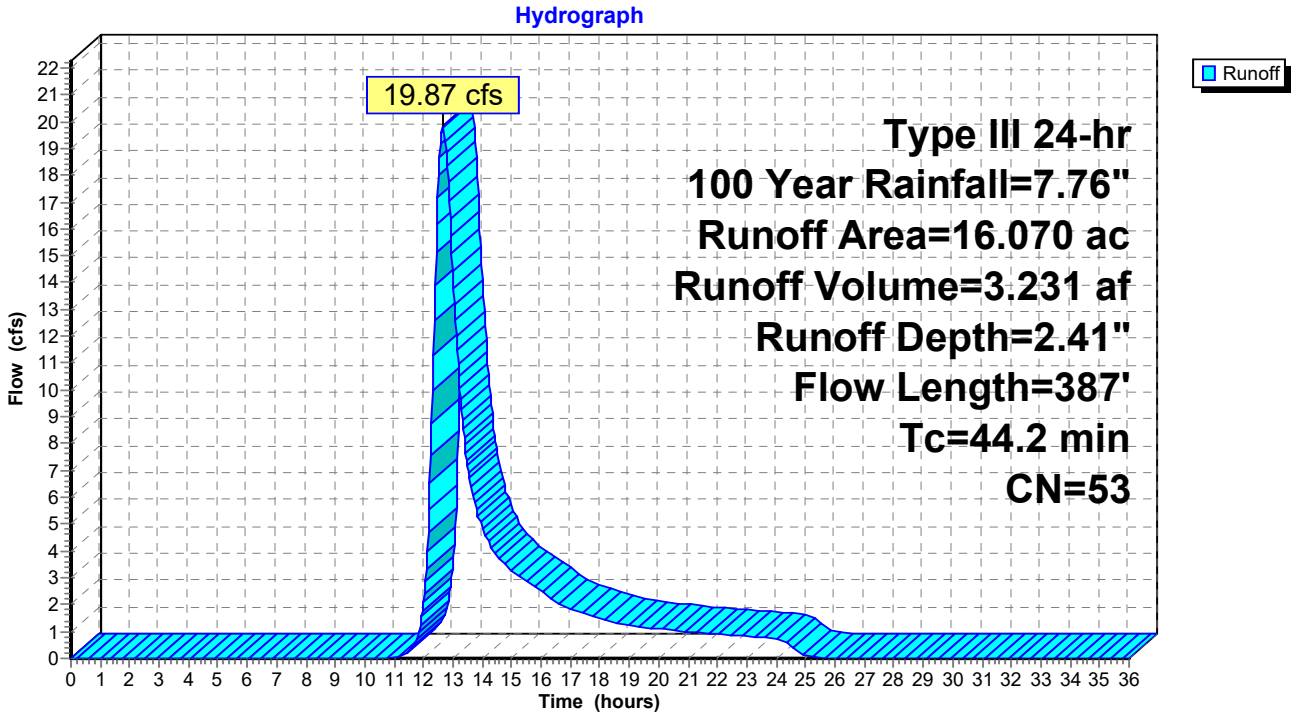
Runoff = 19.87 cfs @ 12.65 hrs, Volume= 3.231 af, Depth= 2.41"
Routed to Link DAA-1 : Galvin Lane

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100 Year Rainfall=7.76"

	Area (ac)	CN	Description
*	16.070	53	OFF SITE RESIDENTIAL AREAS
	16.070		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.0					**Direct Entry,**
10.3	100	0.0400	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
3.9	287	0.0300	1.21		**Shallow Concentrated Flow, ON SITE SHALLOW CONC. FLOW** Short Grass Pasture Kv= 7.0 fps
44.2	387	Total			

Subcatchment EX-OS1: Off-Site Residential Area - 16 Acres



Summary for Subcatchment EX1-1: Existing Site

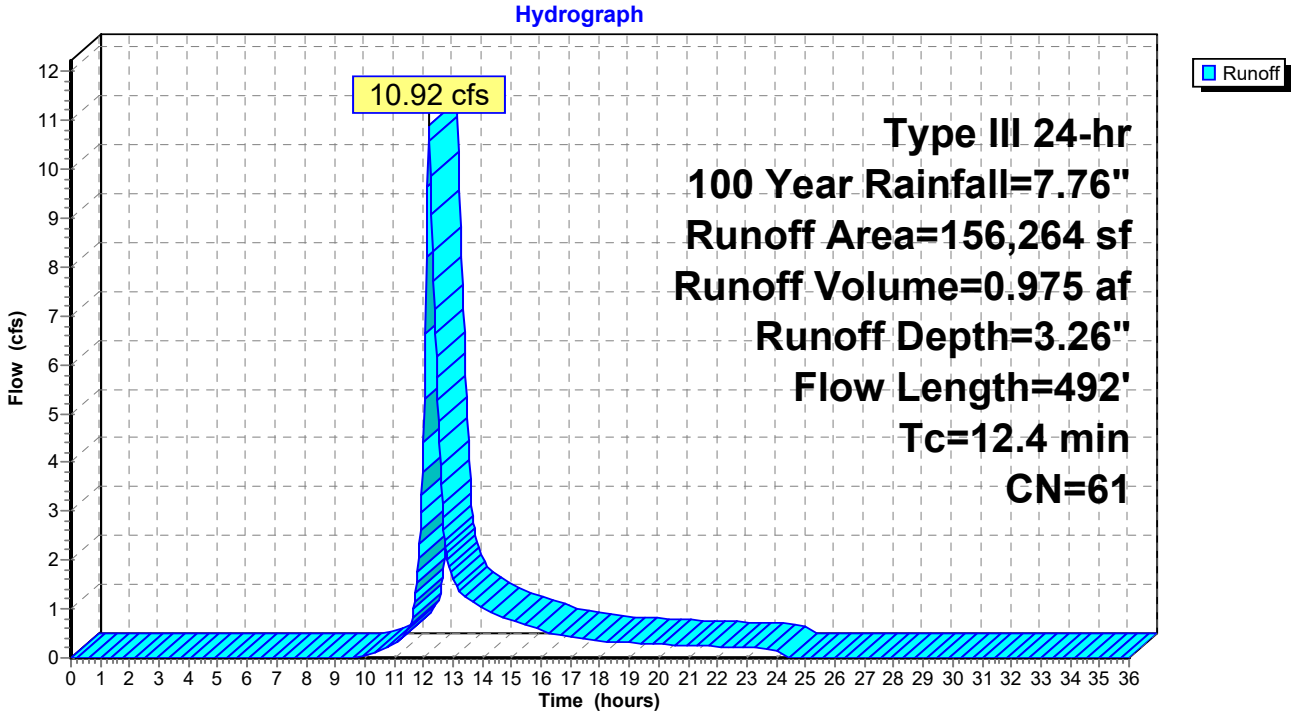
Runoff = 10.92 cfs @ 12.18 hrs, Volume= 0.975 af, Depth= 3.26"
Routed to Link DAA-1 : Galvin Lane

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100 Year Rainfall=7.76"

Area (sf)	CN	Description
156,264	61	>75% Grass cover, Good, HSG B
156,264		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	100	0.0400	0.16		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 3.50"
0.2	76	0.1300	5.80		**Shallow Concentrated Flow, Shallow Flow through site to Galvi** Unpaved Kv= 16.1 fps
1.9	316	0.0300	2.79		**Shallow Concentrated Flow, Shallow Concentrated Flow on site** Unpaved Kv= 16.1 fps
12.4	492	Total			

Subcatchment EX1-1: Existing Site

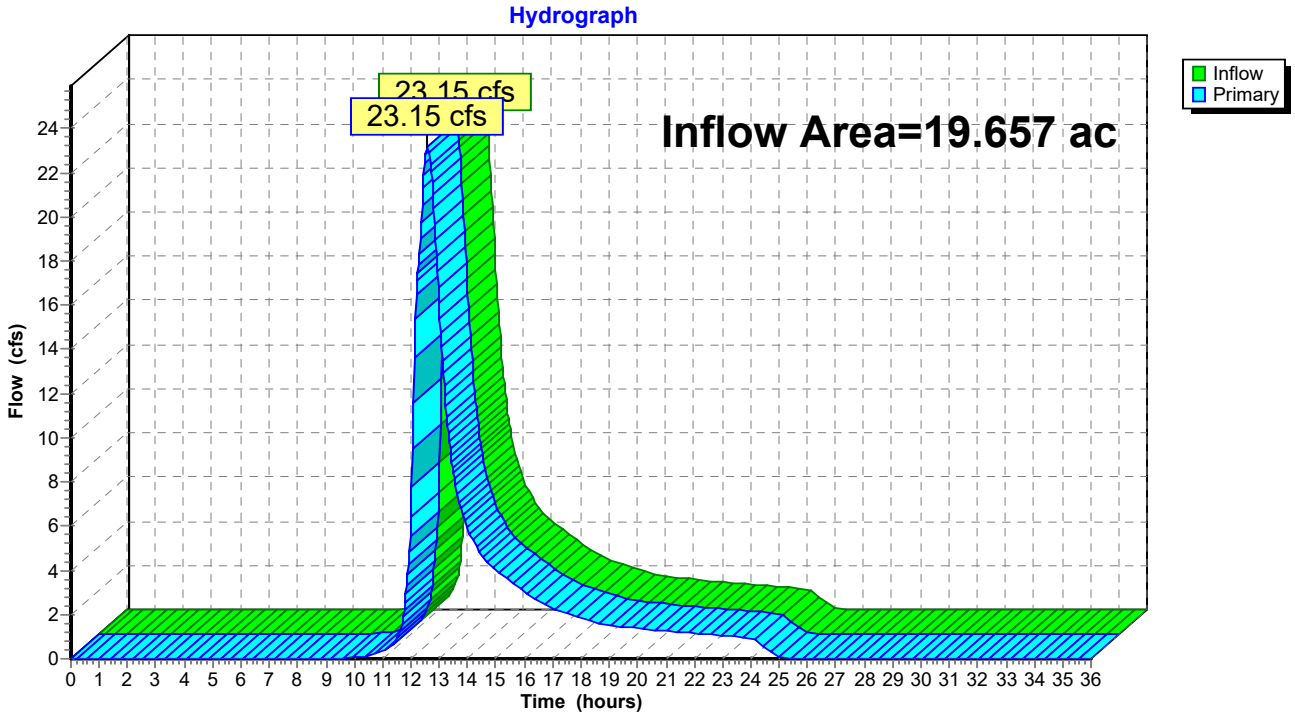


Summary for Link DAA-1: Galvin Lane

Inflow Area = 19.657 ac, 0.00% Impervious, Inflow Depth = 2.57" for 100 Year event
Inflow = 23.15 cfs @ 12.58 hrs, Volume= 4.206 af
Primary = 23.15 cfs @ 12.58 hrs, Volume= 4.206 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs

Link DAA-1: Galvin Lane



Summary for Subcatchment EX-OS1: Off-Site Residential Area - 16 Acres

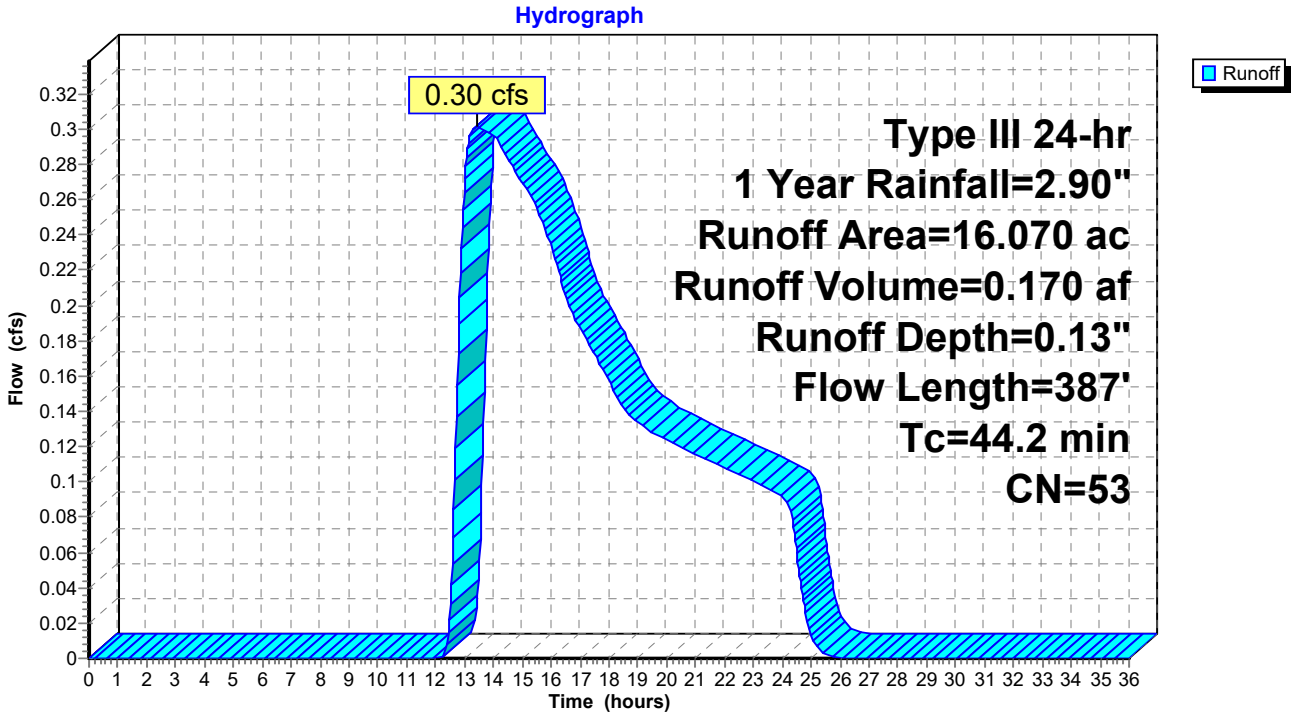
Runoff = 0.30 cfs @ 13.41 hrs, Volume= 0.170 af, Depth= 0.13"
Routed to Link DAA-1 : Galvin Lane

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 1 Year Rainfall=2.90"

	Area (ac)	CN	Description
*	16.070	53	OFF SITE RESIDENTIAL AREAS
	16.070		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.0					**Direct Entry,**
10.3	100	0.0400	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
3.9	287	0.0300	1.21		**Shallow Concentrated Flow, ON SITE SHALLOW CONC. FLOW** Short Grass Pasture Kv= 7.0 fps
44.2	387	Total			

Subcatchment EX-OS1: Off-Site Residential Area - 16 Acres



Summary for Subcatchment EX1-1: Existing Site

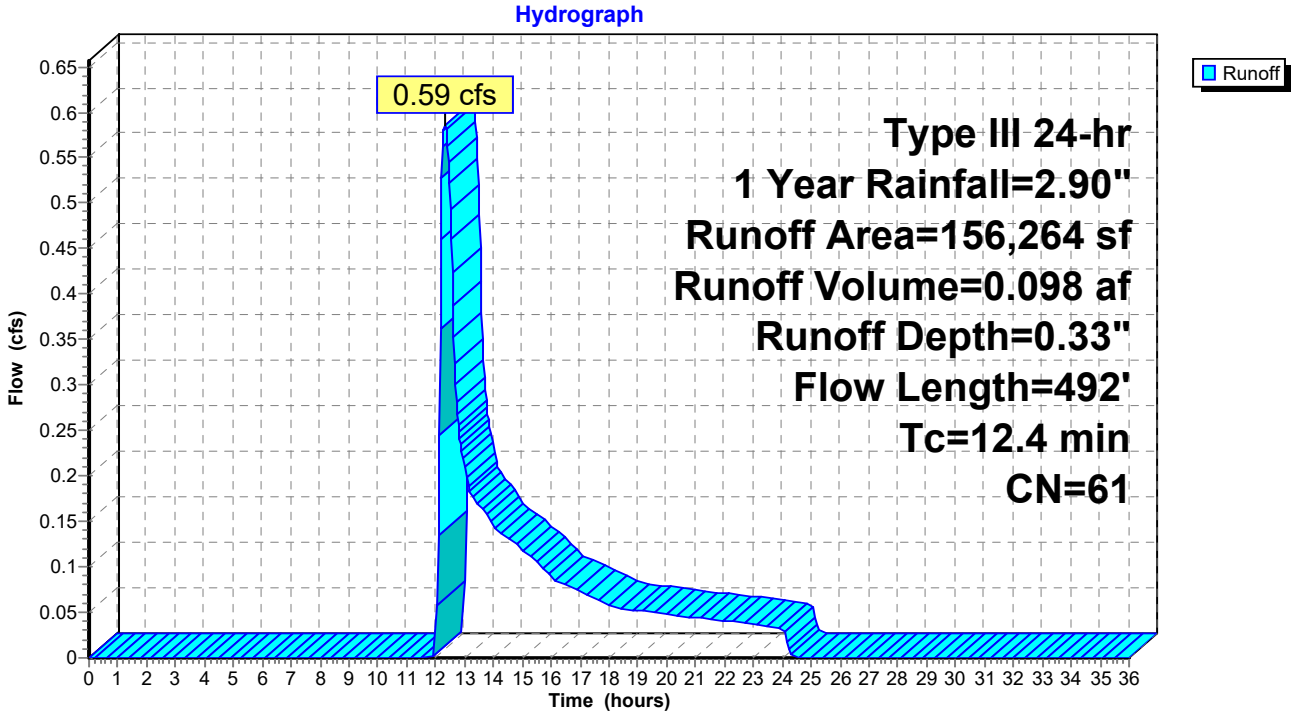
Runoff = 0.59 cfs @ 12.33 hrs, Volume= 0.098 af, Depth= 0.33"
Routed to Link DAA-1 : Galvin Lane

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 1 Year Rainfall=2.90"

Area (sf)	CN	Description
156,264	61	>75% Grass cover, Good, HSG B
156,264		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	100	0.0400	0.16		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 3.50"
0.2	76	0.1300	5.80		**Shallow Concentrated Flow, Shallow Flow through site to Galvi** Unpaved Kv= 16.1 fps
1.9	316	0.0300	2.79		**Shallow Concentrated Flow, Shallow Concentrated Flow on site** Unpaved Kv= 16.1 fps
12.4	492	Total			

Subcatchment EX1-1: Existing Site

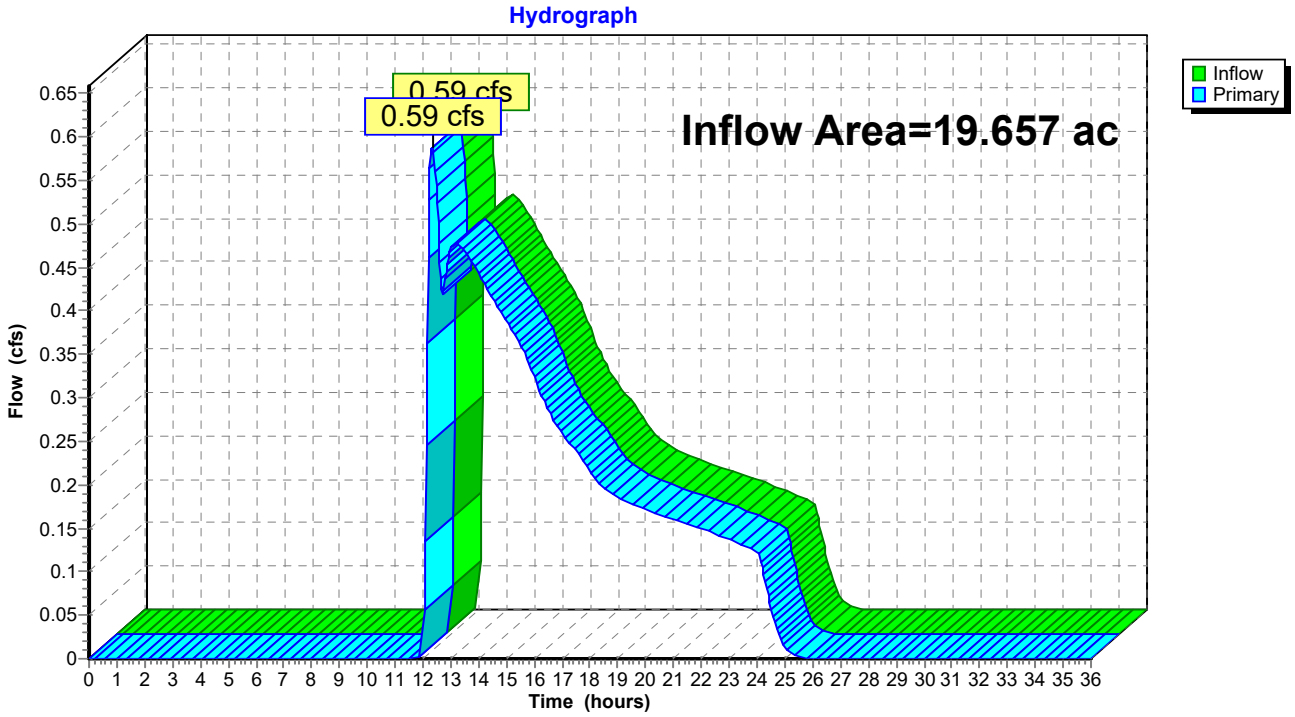


Summary for Link DAA-1: Galvin Lane

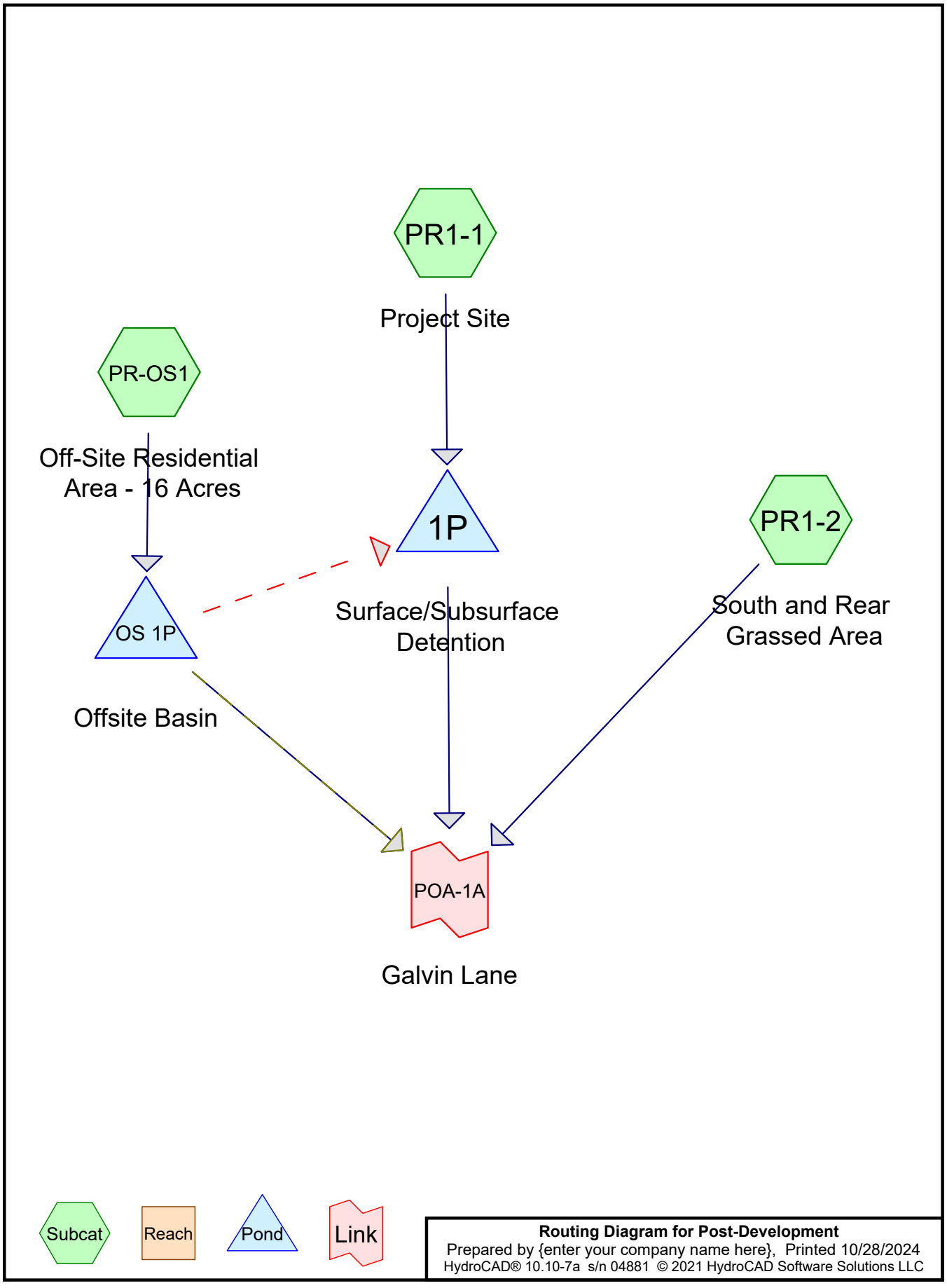
Inflow Area = 19.657 ac, 0.00% Impervious, Inflow Depth = 0.16" for 1 Year event
Inflow = 0.59 cfs @ 12.34 hrs, Volume= 0.268 af
Primary = 0.59 cfs @ 12.34 hrs, Volume= 0.268 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs

Link DAA-1: Galvin Lane



Post-Development Hydrologic Computations



Routing Diagram for Post-Development

Prepared by {enter your company name here}, Printed 10/28/2024

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.300	69	50-75% Grass cover, Fair, HSG B (PR-OS1, PR1-1)
0.204	61	>75% Grass cover, Good, HSG B (PR-OS1, PR1-2)
16.070	53	OFF SITE RESIDENTIAL AREAS (PR-OS1)
1.735	98	Paved parking, HSG B (PR1-1)
0.348	98	Roofs, HSG B (PR1-1)
19.657	**59**	**TOTAL AREA**

Summary for Subcatchment PR-OS1: Off-Site Residential Area - 16 Acres

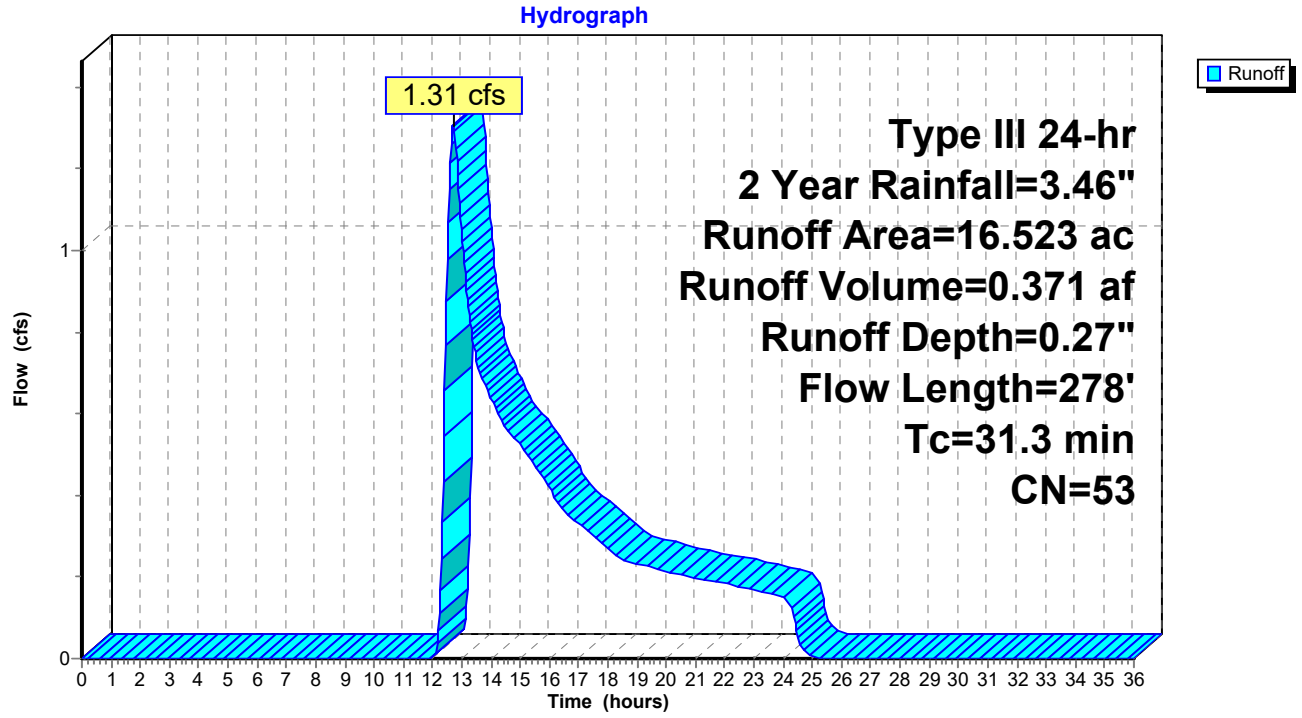
Runoff = 1.31 cfs @ 12.70 hrs, Volume= 0.371 af, Depth= 0.27"
Routed to Pond OS 1P : Offsite Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 Year Rainfall=3.46"

	Area (ac)	CN	Description
*	16.070	53	OFF SITE RESIDENTIAL AREAS
	0.024	61	>75% Grass cover, Good, HSG B
	0.429	69	50-75% Grass cover, Fair, HSG B
	16.523	53	Weighted Average
	16.523		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.0					**Direct Entry,**
0.3	180	0.0070	9.24	16.32	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.007
1.0	98	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
31.3	278	Total			

Subcatchment PR-OS1: Off-Site Residential Area - 16 Acres



Summary for Subcatchment PR1-1: Project Site

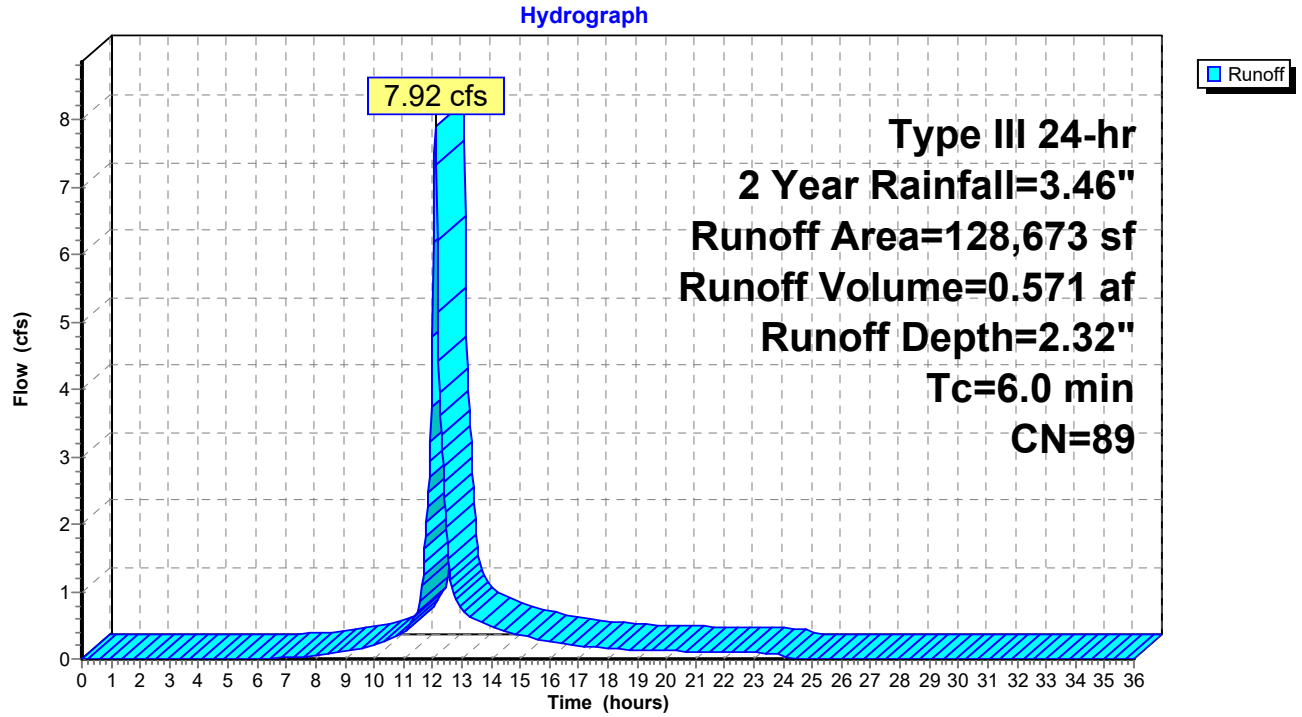
Runoff = 7.92 cfs @ 12.09 hrs, Volume= 0.571 af, Depth= 2.32"
Routed to Pond 1P : Surface/Subsurface Detention

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 Year Rainfall=3.46"

Area (sf)	CN	Description
37,938	69	50-75% Grass cover, Fair, HSG B
75,564	98	Paved parking, HSG B
15,171	98	Roofs, HSG B
128,673	89	Weighted Average
37,938		29.48% Pervious Area
90,735		70.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR1-1: Project Site



Summary for Subcatchment PR1-2: South and Rear Grassed Area

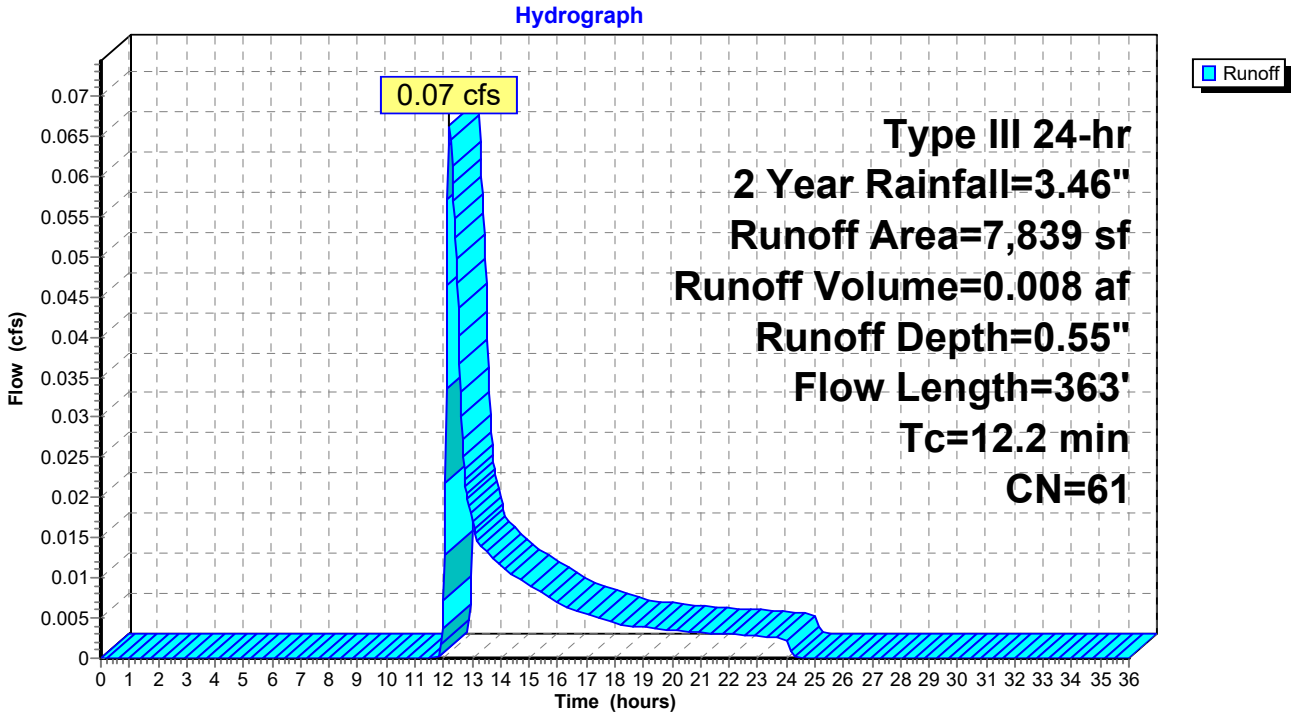
Runoff = 0.07 cfs @ 12.22 hrs, Volume= 0.008 af, Depth= 0.55"
Routed to Link POA-1A : Galvin Lane

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2 Year Rainfall=3.46"

Area (sf)	CN	Description
7,839	61	>75% Grass cover, Good, HSG B
7,839		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.1000	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.4	263	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
12.2	363	Total			

Subcatchment PR1-2: South and Rear Grassed Area



Summary for Pond 1P: Surface/Subsurface Detention

Inflow Area = 2.954 ac, 70.52% Impervious, Inflow Depth = 2.32" for 2 Year event
Inflow = 7.92 cfs @ 12.09 hrs, Volume= 0.571 af
Outflow = 0.17 cfs @ 17.61 hrs, Volume= 0.367 af, Atten= 98%, Lag= 331.1 min
Discarded = 0.17 cfs @ 17.61 hrs, Volume= 0.367 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link POA-1A : Galvin Lane

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Peak Elev= 145.50' @ 17.61 hrs Surf.Area= 10,812 sf Storage= 17,170 cf

Plug-Flow detention time= 643.4 min calculated for 0.367 af (64% of inflow)
Center-of-Mass det. time= 542.8 min (1,350.8 - 808.0)

Volume	Invert	Avail.Storage	Storage Description
#1	146.00'	17,407 cf	**Detention Basin 1 (Irregular)**Listed below (Recalc)
#2A	143.00'	21,814 cf	**68.00'W x 159.00'L x 7.00'H Field A** 75,684 cf Overall - 21,149 cf Embedded = 54,535 cf x 40.0% Voids
#3A	143.50'	21,149 cf	**CMP Round 48** x 77 Inside #2 Effective Size= 48.0"W x 48.0"H => 12.57 sf x 20.00'L = 251.3 cf Overall Size= 48.0"W x 48.0"H x 20.00'L Row Length Adjustment= +13.00' x 12.57 sf x 11 rows
		60,370 cf	Total Available Storage

Storage Group A created with Chamber Wizard

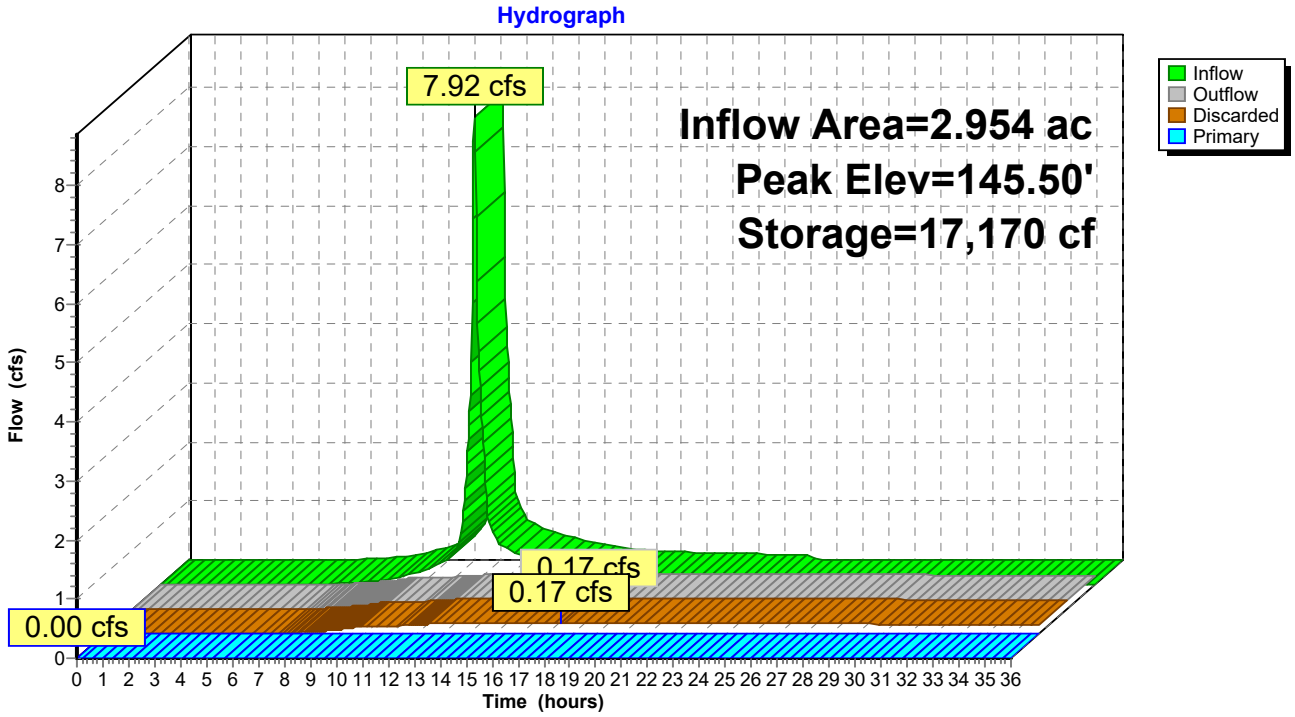
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
146.00	991	163.0	0	0	991
147.00	1,528	186.0	1,250	1,250	1,653
148.00	2,135	209.0	1,823	3,073	2,403
150.00	3,553	254.0	5,628	8,701	4,124
151.00	4,345	273.0	3,942	12,643	4,963
152.00	5,194	292.0	4,763	17,407	5,863

Device	Routing	Invert	Outlet Devices
#1	Primary	146.00'	**12.0" Round Culvert** L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 146.00' / 145.70' S= 0.0200 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	146.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	151.20'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#4	Discarded	143.00'	**0.510 in/hr Exfiltration over Surface area from 141.00' - 146.00'** Conductivity to Groundwater Elevation = 136.00' Excluded Surface area = 0 sf

Discarded OutFlow Max=0.17 cfs @ 17.61 hrs HW=145.50' (Free Discharge)
└**4=Exfiltration** (Controls 0.17 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=143.00' (Free Discharge)
└**1=Culvert** (Controls 0.00 cfs)
└**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Surface/Subsurface Detention



Summary for Pond OS 1P: Offsite Basin

Inflow Area = 16.523 ac, 0.00% Impervious, Inflow Depth = 0.27" for 2 Year event
Inflow = 1.31 cfs @ 12.70 hrs, Volume= 0.371 af
Outflow = 1.15 cfs @ 12.90 hrs, Volume= 0.371 af, Atten= 12%, Lag= 12.0 min
Primary = 1.15 cfs @ 12.90 hrs, Volume= 0.371 af
Routed to Link POA-1A : Galvin Lane
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 1P : Surface/Subsurface Detention

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Peak Elev= 148.48' @ 12.90 hrs Surf.Area= 2,246 sf Storage= 981 cf

Plug-Flow detention time= 23.8 min calculated for 0.371 af (100% of inflow)
Center-of-Mass det. time= 23.7 min (1,003.0 - 979.3)

Volume	Invert	Avail.Storage	Storage Description
#1	148.00'	21,446 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

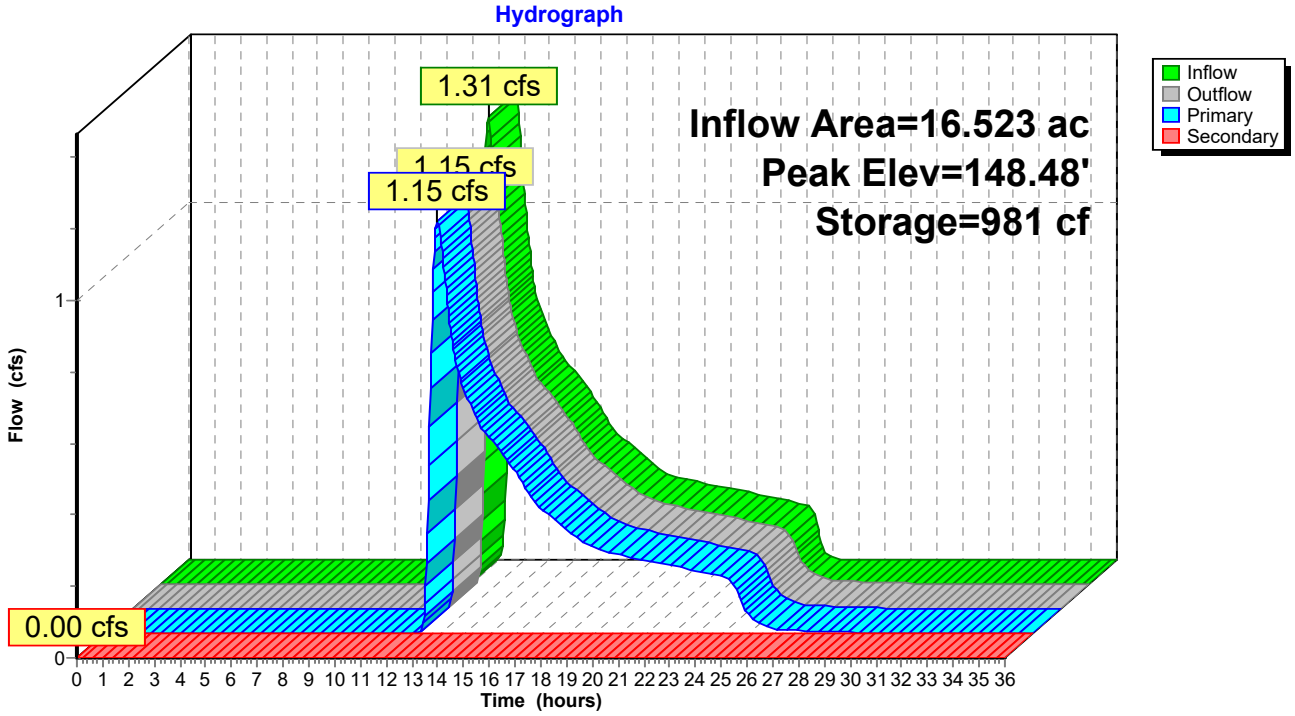
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
148.00	1,856	257.0	0	0	1,856
150.00	3,729	332.0	5,477	5,477	5,420
151.00	4,768	354.0	4,238	9,715	6,669
152.00	5,860	373.0	5,305	15,020	7,827
153.00	7,009	392.0	6,426	21,446	9,045

Device	Routing	Invert	Outlet Devices
#1	Primary	148.00'	**18.0" Round Culvert** L= 190.0' Ke= 0.500 Inlet / Outlet Invert= 148.00' / 142.00' S= 0.0316 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Device 1	148.00'	**20.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	150.00'	**12.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#4	Secondary	151.50'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=1.15 cfs @ 12.90 hrs HW=148.48' (Free Discharge)
└**1=Culvert** (Inlet Controls 1.15 cfs @ 2.36 fps)
└**2=Orifice/Grate** (Passes 1.15 cfs of 1.77 cfs potential flow)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=148.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond OS 1P: Offsite Basin

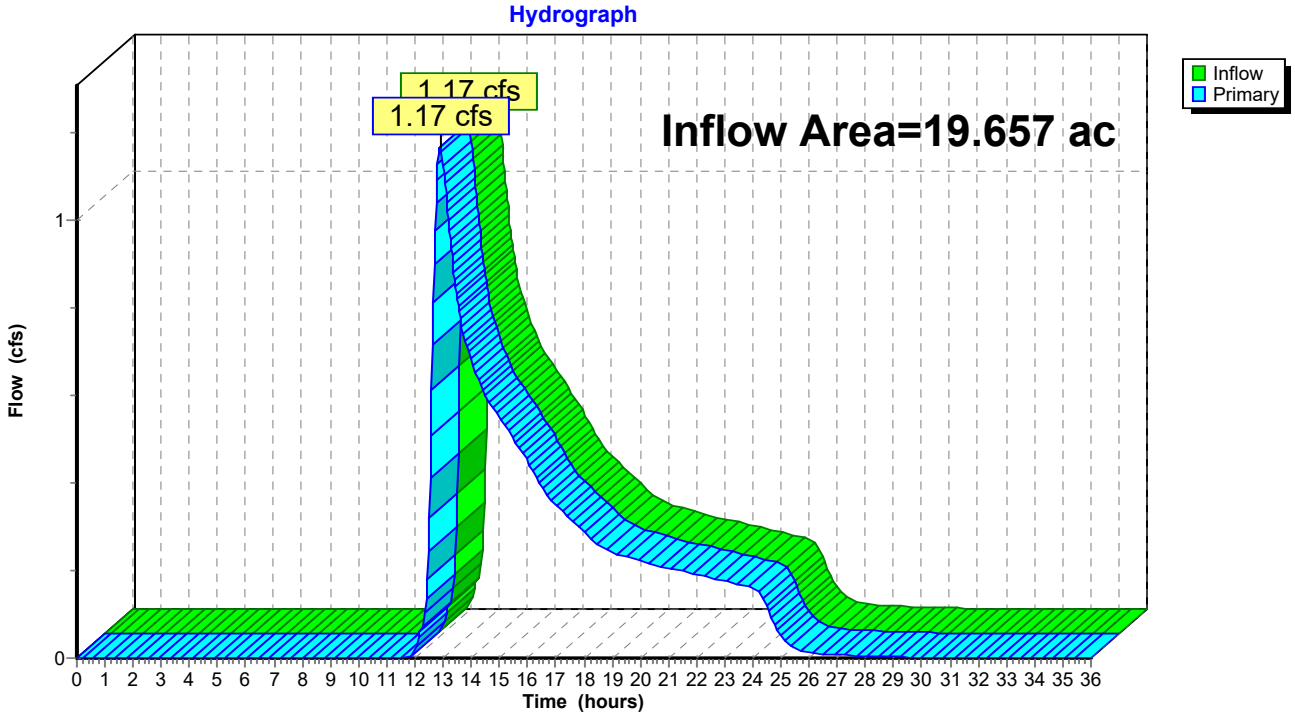


Summary for Link POA-1A: Galvin Lane

Inflow Area = 19.657 ac, 10.60% Impervious, Inflow Depth = 0.23" for 2 Year event
Inflow = 1.17 cfs @ 12.90 hrs, Volume= 0.379 af
Primary = 1.17 cfs @ 12.90 hrs, Volume= 0.379 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs

Link POA-1A: Galvin Lane



Summary for Subcatchment PR-OS1: Off-Site Residential Area - 16 Acres

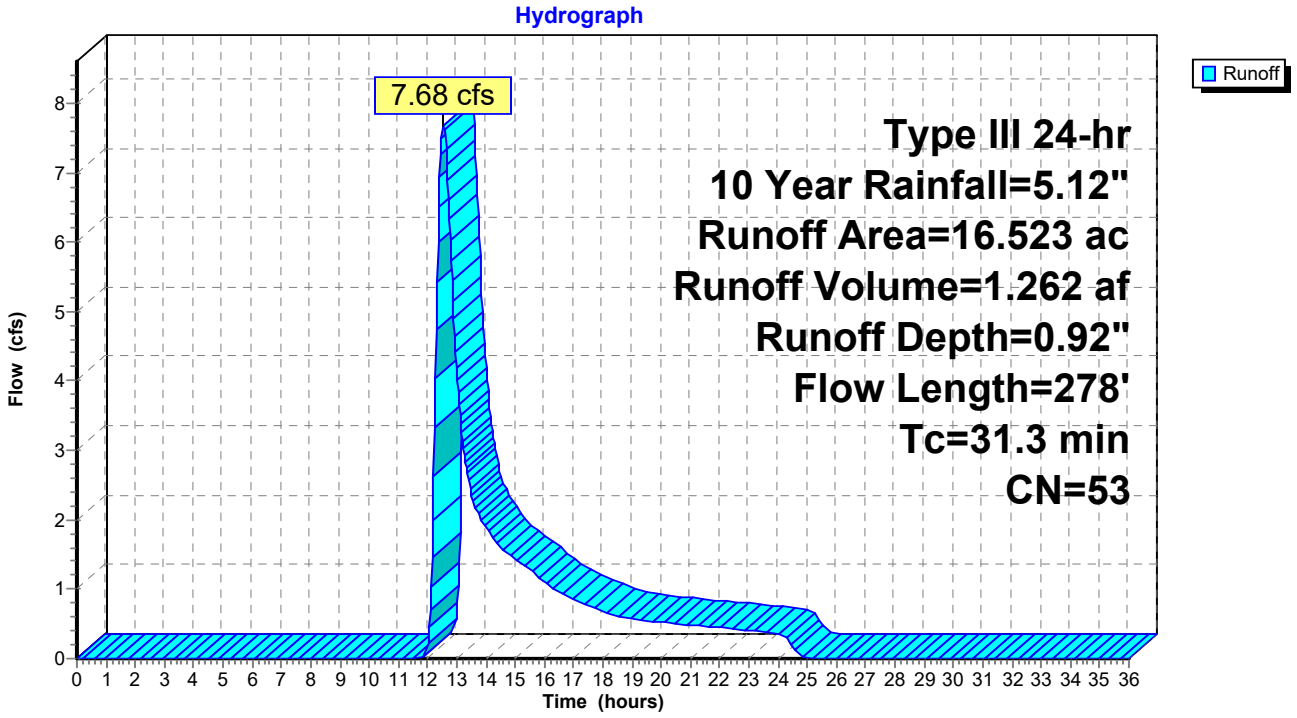
Runoff = 7.68 cfs @ 12.54 hrs, Volume= 1.262 af, Depth= 0.92"
Routed to Pond OS 1P : Offsite Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 Year Rainfall=5.12"

	Area (ac)	CN	Description
*	16.070	53	OFF SITE RESIDENTIAL AREAS
	0.024	61	>75% Grass cover, Good, HSG B
	0.429	69	50-75% Grass cover, Fair, HSG B
	16.523	53	Weighted Average
	16.523		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.0					**Direct Entry,**
0.3	180	0.0070	9.24	16.32	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.007
1.0	98	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
31.3	278	Total			

Subcatchment PR-OS1: Off-Site Residential Area - 16 Acres



Summary for Subcatchment PR1-1: Project Site

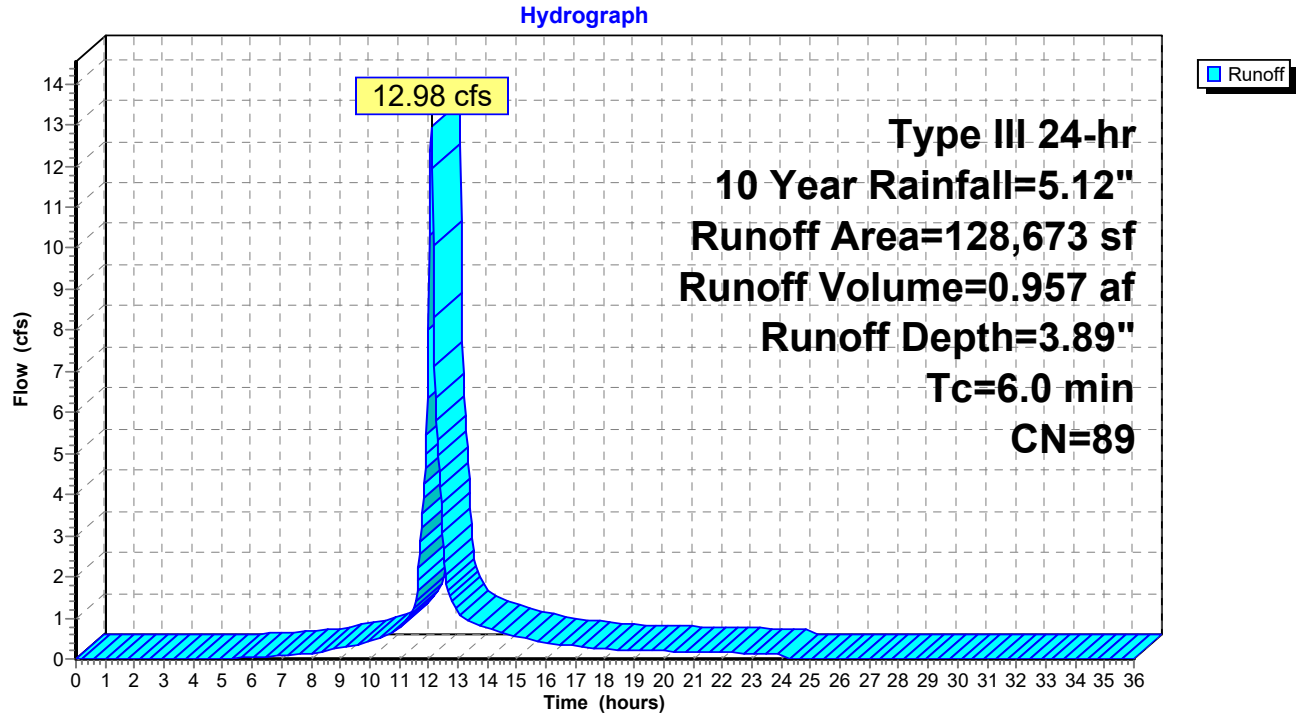
Runoff = 12.98 cfs @ 12.09 hrs, Volume= 0.957 af, Depth= 3.89"
Routed to Pond 1P : Surface/Subsurface Detention

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 Year Rainfall=5.12"

Area (sf)	CN	Description
37,938	69	50-75% Grass cover, Fair, HSG B
75,564	98	Paved parking, HSG B
15,171	98	Roofs, HSG B
128,673	89	Weighted Average
37,938		29.48% Pervious Area
90,735		70.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR1-1: Project Site



Summary for Subcatchment PR1-2: South and Rear Grassed Area

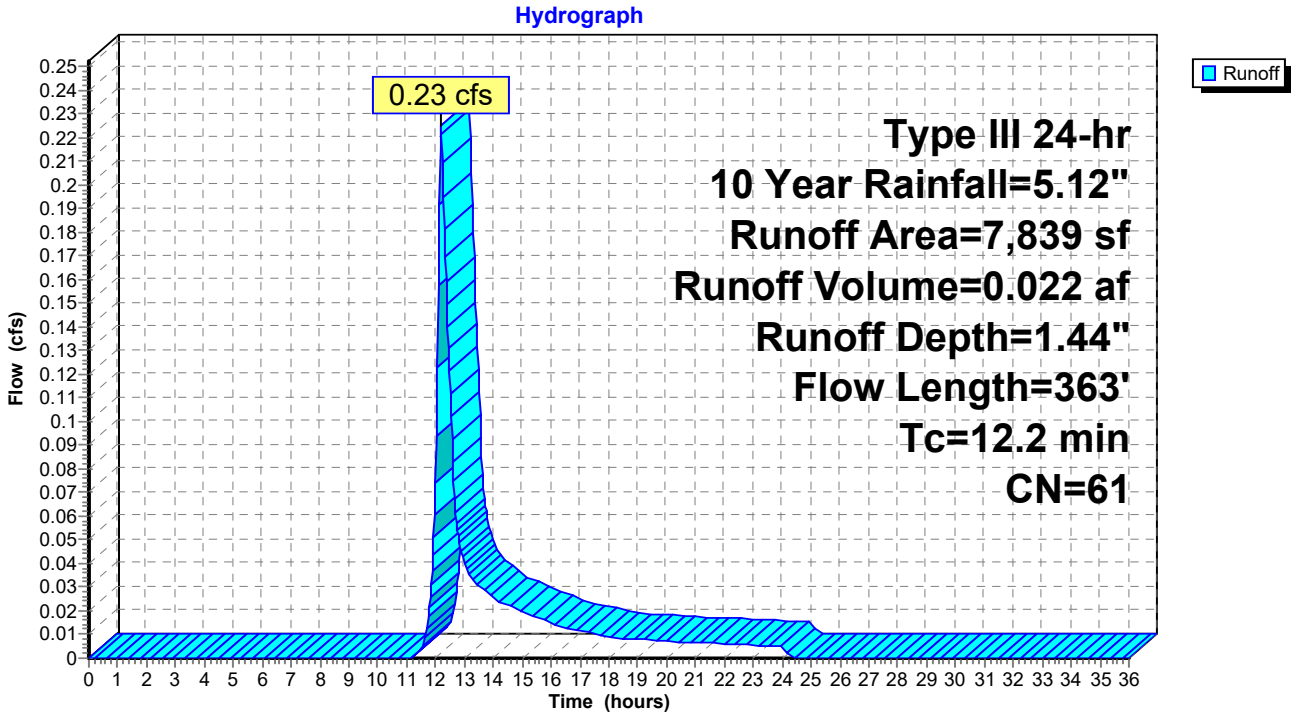
Runoff = 0.23 cfs @ 12.19 hrs, Volume= 0.022 af, Depth= 1.44"
Routed to Link POA-1A : Galvin Lane

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10 Year Rainfall=5.12"

Area (sf)	CN	Description
7,839	61	>75% Grass cover, Good, HSG B
7,839		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.1000	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.4	263	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
12.2	363	Total			

Subcatchment PR1-2: South and Rear Grassed Area



Summary for Pond 1P: Surface/Subsurface Detention

Inflow Area = 2.954 ac, 70.52% Impervious, Inflow Depth = 3.89" for 10 Year event
Inflow = 12.98 cfs @ 12.09 hrs, Volume= 0.957 af
Outflow = 0.67 cfs @ 14.28 hrs, Volume= 0.630 af, Atten= 95%, Lag= 131.6 min
Discarded = 0.20 cfs @ 14.28 hrs, Volume= 0.425 af
Primary = 0.47 cfs @ 14.28 hrs, Volume= 0.204 af
Routed to Link POA-1A : Galvin Lane

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Peak Elev= 146.50' @ 14.28 hrs Surf.Area= 12,056 sf Storage= 25,879 cf

Plug-Flow detention time= 498.1 min calculated for 0.630 af (66% of inflow)
Center-of-Mass det. time= 400.8 min (1,194.4 - 793.6)

Volume	Invert	Avail.Storage	Storage Description
#1	146.00'	17,407 cf	**Detention Basin 1 (Irregular)**Listed below (Recalc)
#2A	143.00'	21,814 cf	**68.00'W x 159.00'L x 7.00'H Field A** 75,684 cf Overall - 21,149 cf Embedded = 54,535 cf x 40.0% Voids
#3A	143.50'	21,149 cf	**CMP Round 48** x 77 Inside #2 Effective Size= 48.0"W x 48.0"H => 12.57 sf x 20.00'L = 251.3 cf Overall Size= 48.0"W x 48.0"H x 20.00'L Row Length Adjustment= +13.00' x 12.57 sf x 11 rows
		60,370 cf	Total Available Storage

Storage Group A created with Chamber Wizard

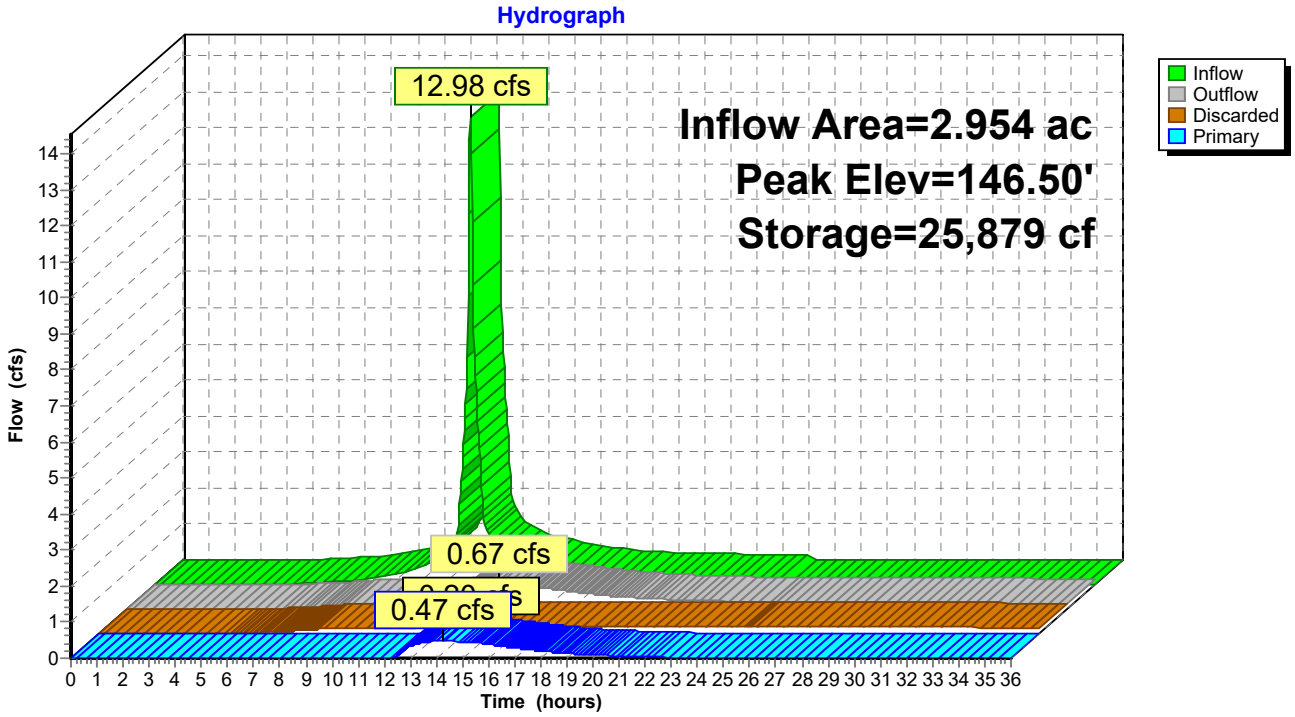
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
146.00	991	163.0	0	0	991
147.00	1,528	186.0	1,250	1,250	1,653
148.00	2,135	209.0	1,823	3,073	2,403
150.00	3,553	254.0	5,628	8,701	4,124
151.00	4,345	273.0	3,942	12,643	4,963
152.00	5,194	292.0	4,763	17,407	5,863

Device	Routing	Invert	Outlet Devices
#1	Primary	146.00'	**12.0" Round Culvert** L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 146.00' / 145.70' S= 0.0200 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	146.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	151.20'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#4	Discarded	143.00'	**0.510 in/hr Exfiltration over Surface area from 141.00' - 146.00'** Conductivity to Groundwater Elevation = 136.00' Excluded Surface area = 0 sf

Discarded OutFlow Max=0.20 cfs @ 14.28 hrs HW=146.50' (Free Discharge)
└**4=Exfiltration** (Controls 0.20 cfs)

Primary OutFlow Max=0.47 cfs @ 14.28 hrs HW=146.50' (Free Discharge)
└**1=Culvert** (Passes 0.47 cfs of 0.94 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.47 cfs @ 2.40 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Surface/Subsurface Detention



Summary for Pond OS 1P: Offsite Basin

Inflow Area = 16.523 ac, 0.00% Impervious, Inflow Depth = 0.92" for 10 Year event
Inflow = 7.68 cfs @ 12.54 hrs, Volume= 1.262 af
Outflow = 7.02 cfs @ 12.67 hrs, Volume= 1.262 af, Atten= 9%, Lag= 8.0 min
Primary = 7.02 cfs @ 12.67 hrs, Volume= 1.262 af
Routed to Link POA-1A : Galvin Lane
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 1P : Surface/Subsurface Detention

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Peak Elev= 149.42' @ 12.67 hrs Surf.Area= 3,120 sf Storage= 3,495 cf

Plug-Flow detention time= 13.3 min calculated for 1.261 af (100% of inflow)
Center-of-Mass det. time= 13.5 min (935.2 - 921.8)

Volume	Invert	Avail.Storage	Storage Description
#1	148.00'	21,446 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

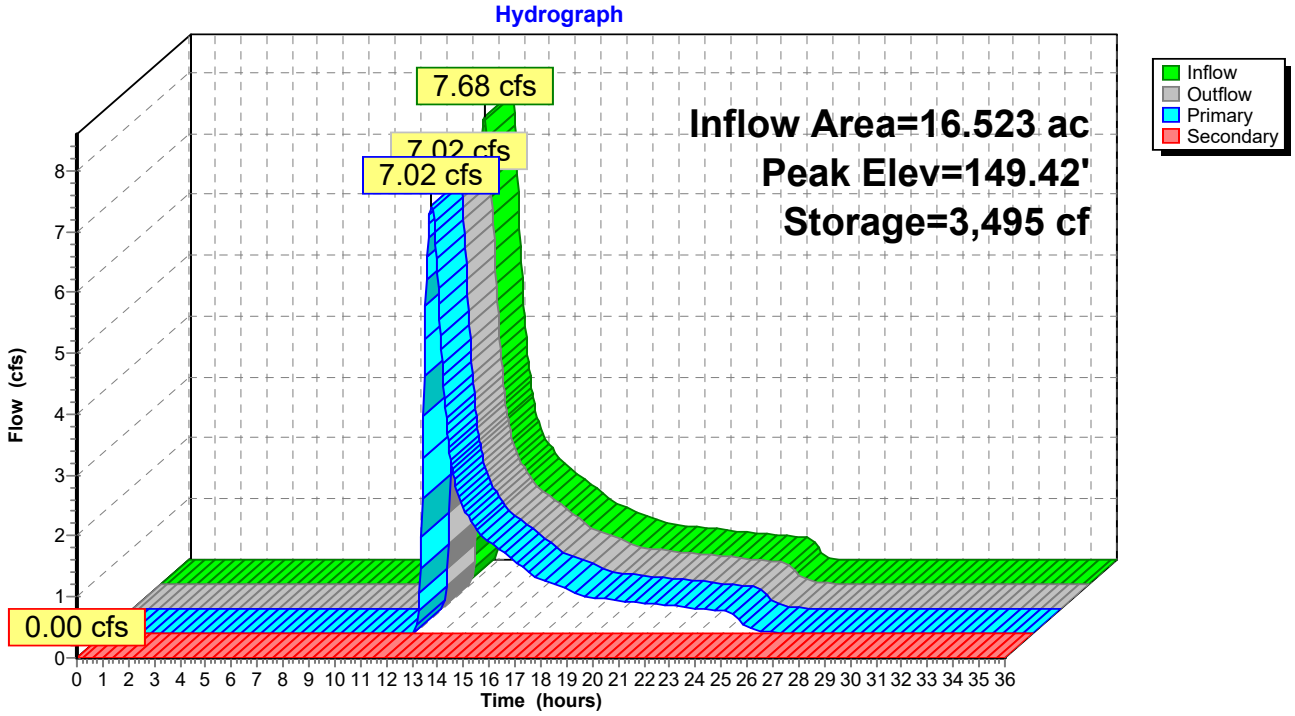
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
148.00	1,856	257.0	0	0	1,856
150.00	3,729	332.0	5,477	5,477	5,420
151.00	4,768	354.0	4,238	9,715	6,669
152.00	5,860	373.0	5,305	15,020	7,827
153.00	7,009	392.0	6,426	21,446	9,045

Device	Routing	Invert	Outlet Devices
#1	Primary	148.00'	**18.0" Round Culvert** L= 190.0' Ke= 0.500 Inlet / Outlet Invert= 148.00' / 142.00' S= 0.0316 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Device 1	148.00'	**20.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	150.00'	**12.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#4	Secondary	151.50'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=7.02 cfs @ 12.67 hrs HW=149.42' (Free Discharge)
└**1=Culvert** (Inlet Controls 7.02 cfs @ 4.06 fps)
└**2=Orifice/Grate** (Passes 7.02 cfs of 7.59 cfs potential flow)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=148.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond OS 1P: Offsite Basin

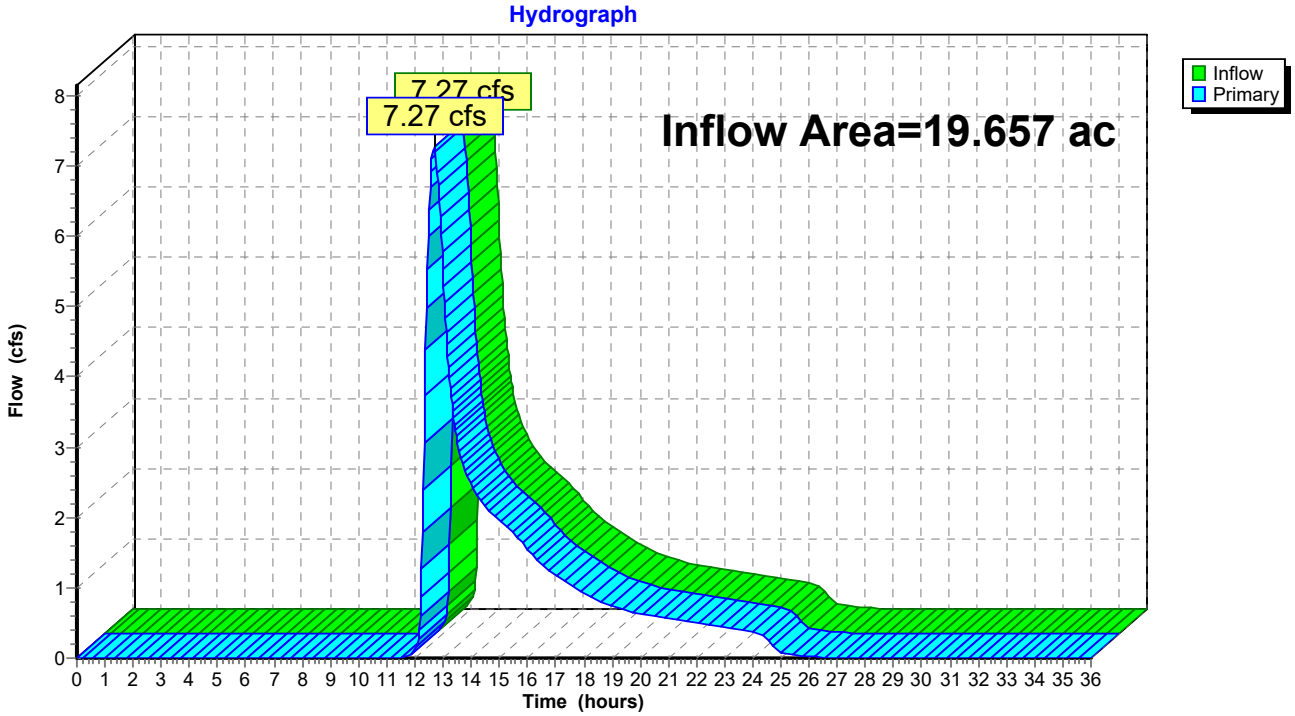


Summary for Link POA-1A: Galvin Lane

Inflow Area = 19.657 ac, 10.60% Impervious, Inflow Depth = 0.91" for 10 Year event
Inflow = 7.27 cfs @ 12.68 hrs, Volume= 1.488 af
Primary = 7.27 cfs @ 12.68 hrs, Volume= 1.488 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs

Link POA-1A: Galvin Lane



Summary for Subcatchment PR-OS1: Off-Site Residential Area - 16 Acres

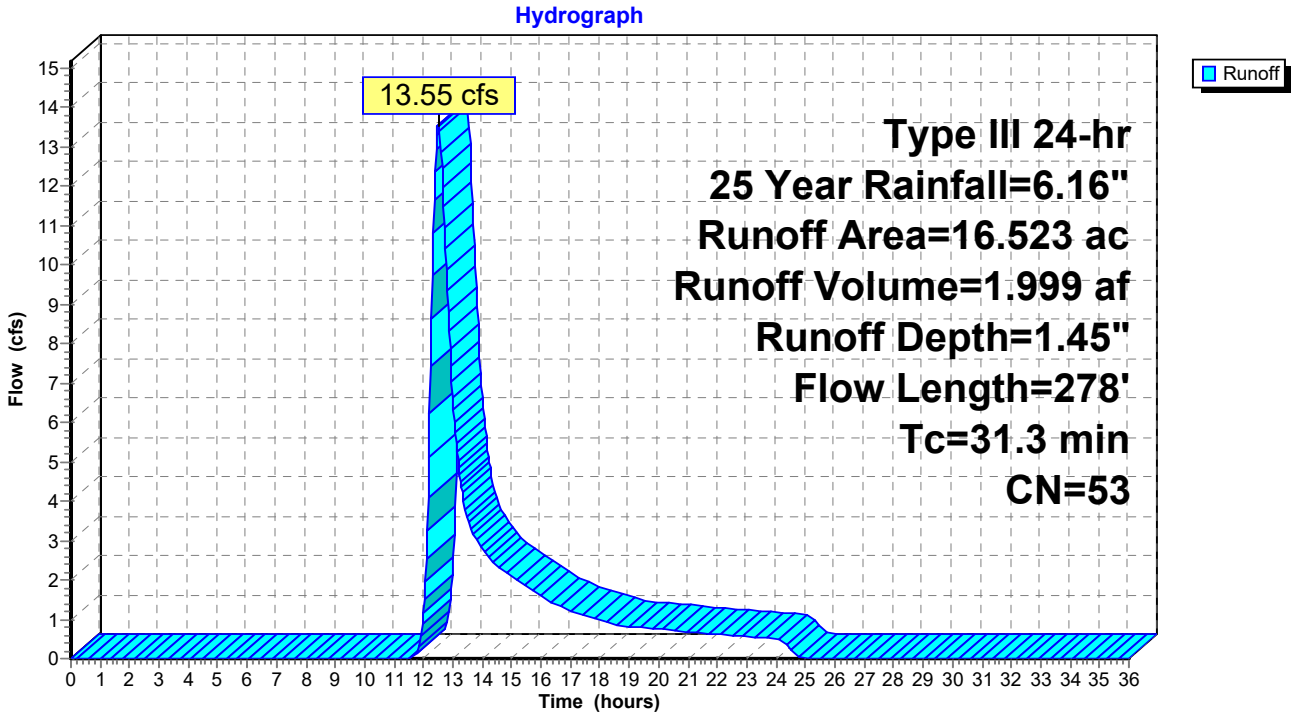
Runoff = 13.55 cfs @ 12.50 hrs, Volume= 1.999 af, Depth= 1.45"
Routed to Pond OS 1P : Offsite Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Year Rainfall=6.16"

	Area (ac)	CN	Description
*	16.070	53	OFF SITE RESIDENTIAL AREAS
	0.024	61	>75% Grass cover, Good, HSG B
	0.429	69	50-75% Grass cover, Fair, HSG B
	16.523	53	Weighted Average
	16.523		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.0					**Direct Entry,**
0.3	180	0.0070	9.24	16.32	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.007
1.0	98	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
31.3	278	Total			

Subcatchment PR-OS1: Off-Site Residential Area - 16 Acres



Summary for Subcatchment PR1-1: Project Site

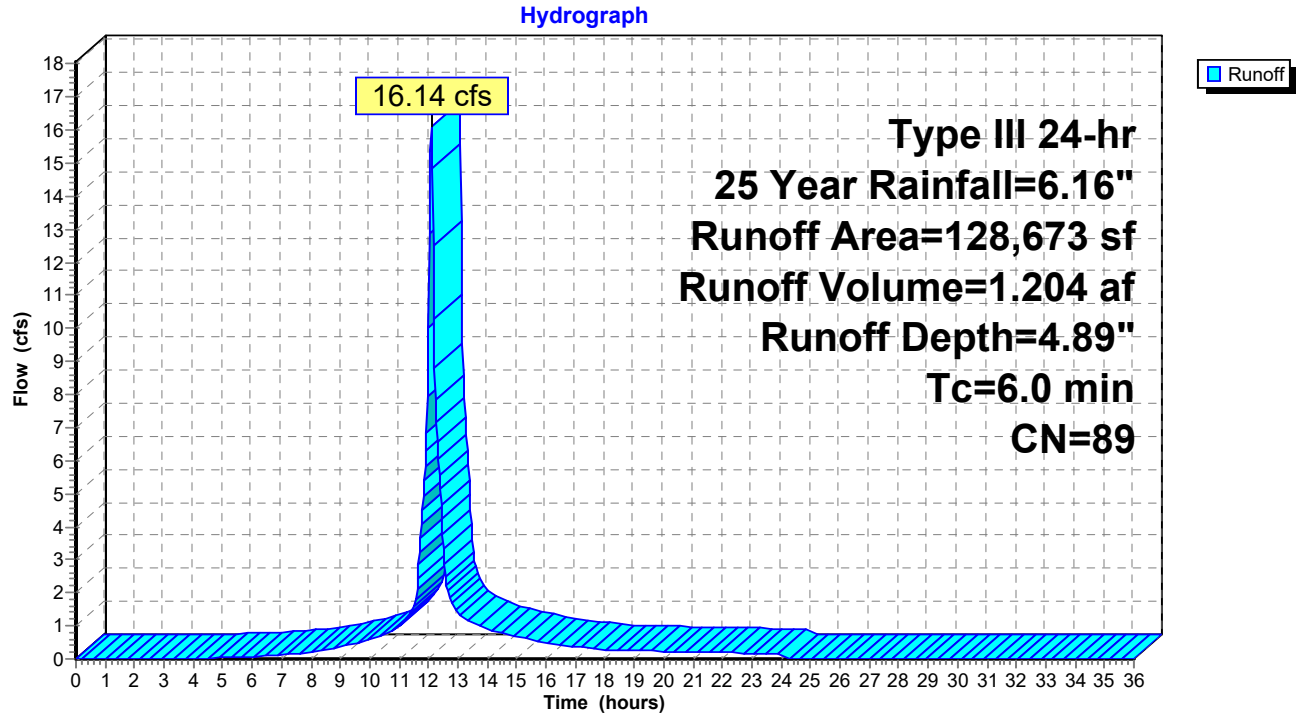
Runoff = 16.14 cfs @ 12.09 hrs, Volume= 1.204 af, Depth= 4.89"
Routed to Pond 1P : Surface/Subsurface Detention

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Year Rainfall=6.16"

Area (sf)	CN	Description
37,938	69	50-75% Grass cover, Fair, HSG B
75,564	98	Paved parking, HSG B
15,171	98	Roofs, HSG B
128,673	89	Weighted Average
37,938		29.48% Pervious Area
90,735		70.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR1-1: Project Site



Summary for Subcatchment PR1-2: South and Rear Grassed Area

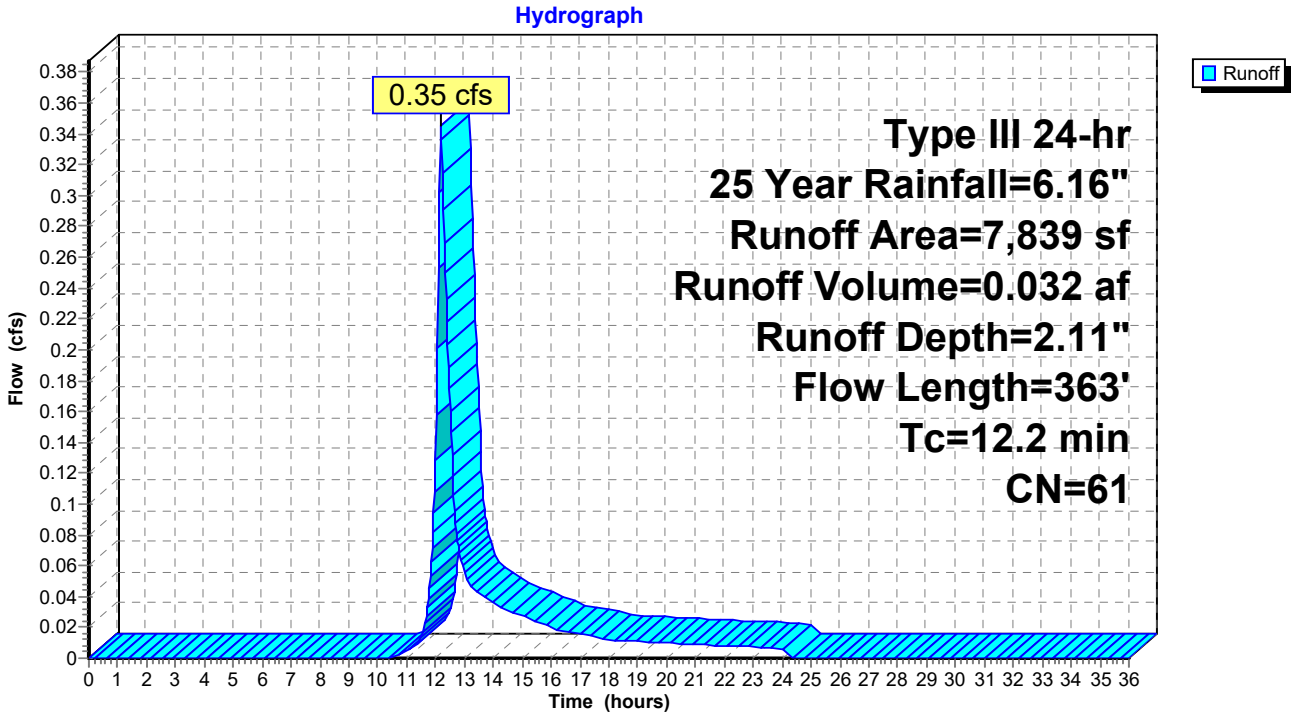
Runoff = 0.35 cfs @ 12.18 hrs, Volume= 0.032 af, Depth= 2.11"
Routed to Link POA-1A : Galvin Lane

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25 Year Rainfall=6.16"

Area (sf)	CN	Description
7,839	61	>75% Grass cover, Good, HSG B
7,839		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.1000	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.4	263	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
12.2	363	Total			

Subcatchment PR1-2: South and Rear Grassed Area



Summary for Pond 1P: Surface/Subsurface Detention

Inflow Area = 2.954 ac, 70.52% Impervious, Inflow Depth = 4.89" for 25 Year event
Inflow = 16.14 cfs @ 12.09 hrs, Volume= 1.204 af
Outflow = 1.07 cfs @ 13.59 hrs, Volume= 0.868 af, Atten= 93%, Lag= 90.4 min
Discarded = 0.21 cfs @ 13.59 hrs, Volume= 0.442 af
Primary = 0.85 cfs @ 13.59 hrs, Volume= 0.425 af
Routed to Link POA-1A : Galvin Lane

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Peak Elev= 147.07' @ 13.59 hrs Surf.Area= 12,377 sf Storage= 30,887 cf

Plug-Flow detention time= 424.3 min calculated for 0.867 af (72% of inflow)
Center-of-Mass det. time= 335.9 min (1,123.2 - 787.3)

Volume	Invert	Avail.Storage	Storage Description
#1	146.00'	17,407 cf	**Detention Basin 1 (Irregular)**Listed below (Recalc)
#2A	143.00'	21,814 cf	**68.00'W x 159.00'L x 7.00'H Field A** 75,684 cf Overall - 21,149 cf Embedded = 54,535 cf x 40.0% Voids
#3A	143.50'	21,149 cf	**CMP Round 48** x 77 Inside #2 Effective Size= 48.0"W x 48.0"H => 12.57 sf x 20.00'L = 251.3 cf Overall Size= 48.0"W x 48.0"H x 20.00'L Row Length Adjustment= +13.00' x 12.57 sf x 11 rows
		60,370 cf	Total Available Storage

Storage Group A created with Chamber Wizard

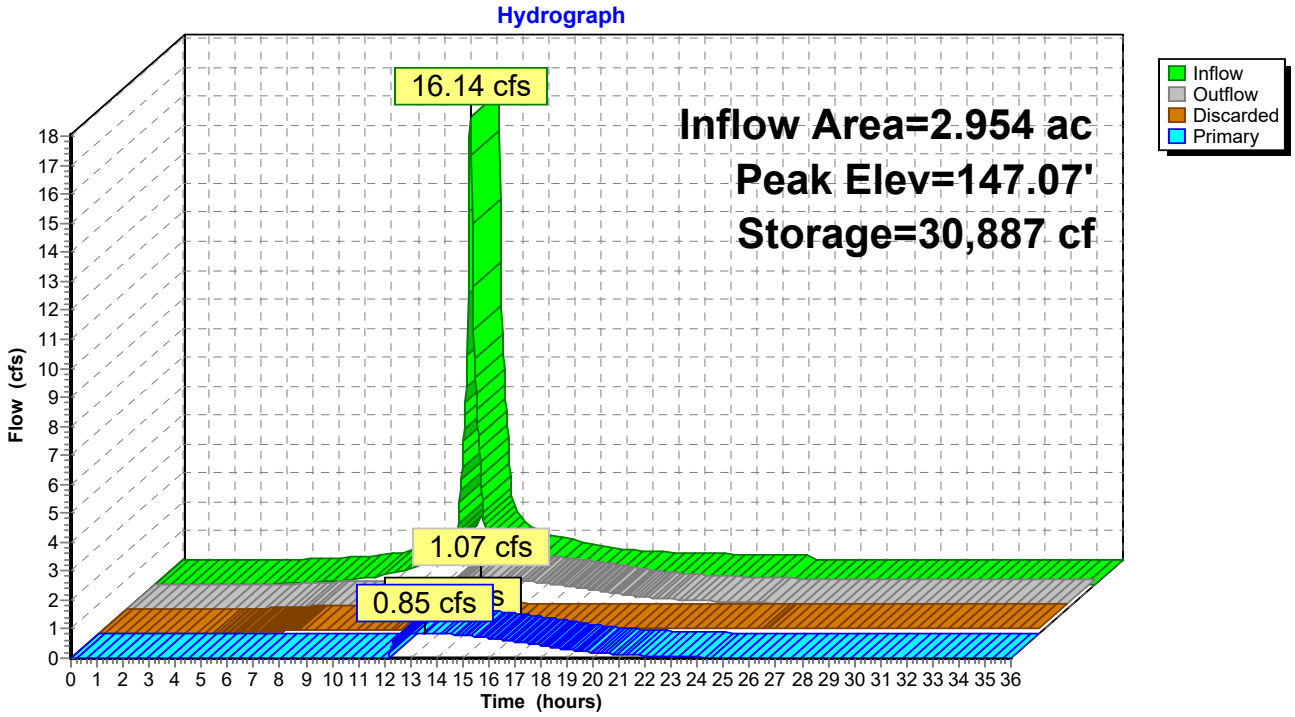
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
146.00	991	163.0	0	0	991
147.00	1,528	186.0	1,250	1,250	1,653
148.00	2,135	209.0	1,823	3,073	2,403
150.00	3,553	254.0	5,628	8,701	4,124
151.00	4,345	273.0	3,942	12,643	4,963
152.00	5,194	292.0	4,763	17,407	5,863

Device	Routing	Invert	Outlet Devices
#1	Primary	146.00'	**12.0" Round Culvert** L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 146.00' / 145.70' S= 0.0200 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	146.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	151.20'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#4	Discarded	143.00'	**0.510 in/hr Exfiltration over Surface area from 141.00' - 146.00'** Conductivity to Groundwater Elevation = 136.00' Excluded Surface area = 0 sf

Discarded OutFlow Max=0.21 cfs @ 13.59 hrs HW=147.07' (Free Discharge)
└**4=Exfiltration** (Controls 0.21 cfs)

Primary OutFlow Max=0.85 cfs @ 13.59 hrs HW=147.07' (Free Discharge)
└**1=Culvert** (Passes 0.85 cfs of 2.85 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.85 cfs @ 4.35 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Surface/Subsurface Detention



Summary for Pond OS 1P: Offsite Basin

Inflow Area = 16.523 ac, 0.00% Impervious, Inflow Depth = 1.45" for 25 Year event
Inflow = 13.55 cfs @ 12.50 hrs, Volume= 1.999 af
Outflow = 11.15 cfs @ 12.71 hrs, Volume= 1.999 af, Atten= 18%, Lag= 12.3 min
Primary = 11.15 cfs @ 12.71 hrs, Volume= 1.999 af
Routed to Link POA-1A : Galvin Lane
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 1P : Surface/Subsurface Detention

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Peak Elev= 150.47' @ 12.71 hrs Surf.Area= 4,197 sf Storage= 7,324 cf

Plug-Flow detention time= 12.3 min calculated for 1.999 af (100% of inflow)
Center-of-Mass det. time= 12.1 min (917.0 - 904.8)

Volume	Invert	Avail.Storage	Storage Description
#1	148.00'	21,446 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

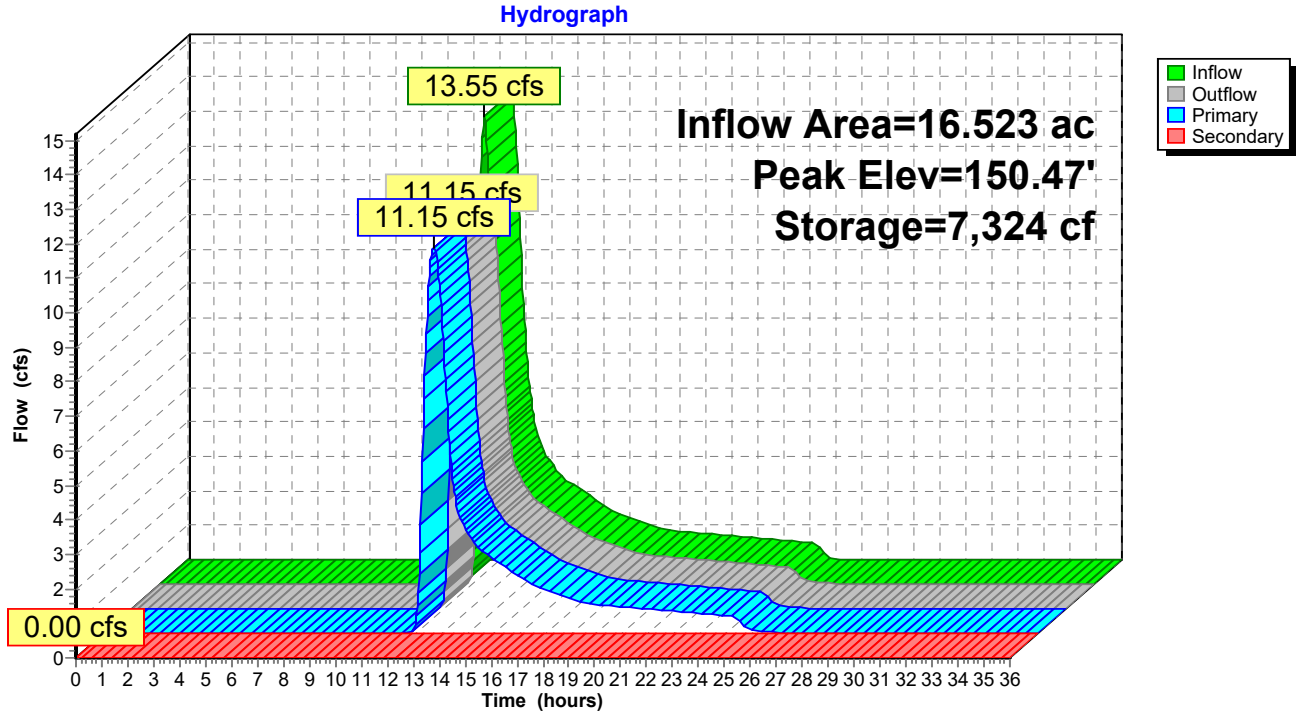
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
148.00	1,856	257.0	0	0	1,856
150.00	3,729	332.0	5,477	5,477	5,420
151.00	4,768	354.0	4,238	9,715	6,669
152.00	5,860	373.0	5,305	15,020	7,827
153.00	7,009	392.0	6,426	21,446	9,045

Device	Routing	Invert	Outlet Devices
#1	Primary	148.00'	**18.0" Round Culvert** L= 190.0' Ke= 0.500 Inlet / Outlet Invert= 148.00' / 142.00' S= 0.0316 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Device 1	148.00'	**20.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	150.00'	**12.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#4	Secondary	151.50'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=11.14 cfs @ 12.71 hrs HW=150.46' (Free Discharge)
└**1=Culvert** (Inlet Controls 11.14 cfs @ 6.30 fps)
└**2=Orifice/Grate** (Passes < 11.22 cfs potential flow)
└**3=Broad-Crested Rectangular Weir** (Passes < 10.38 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=148.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond OS 1P: Offsite Basin

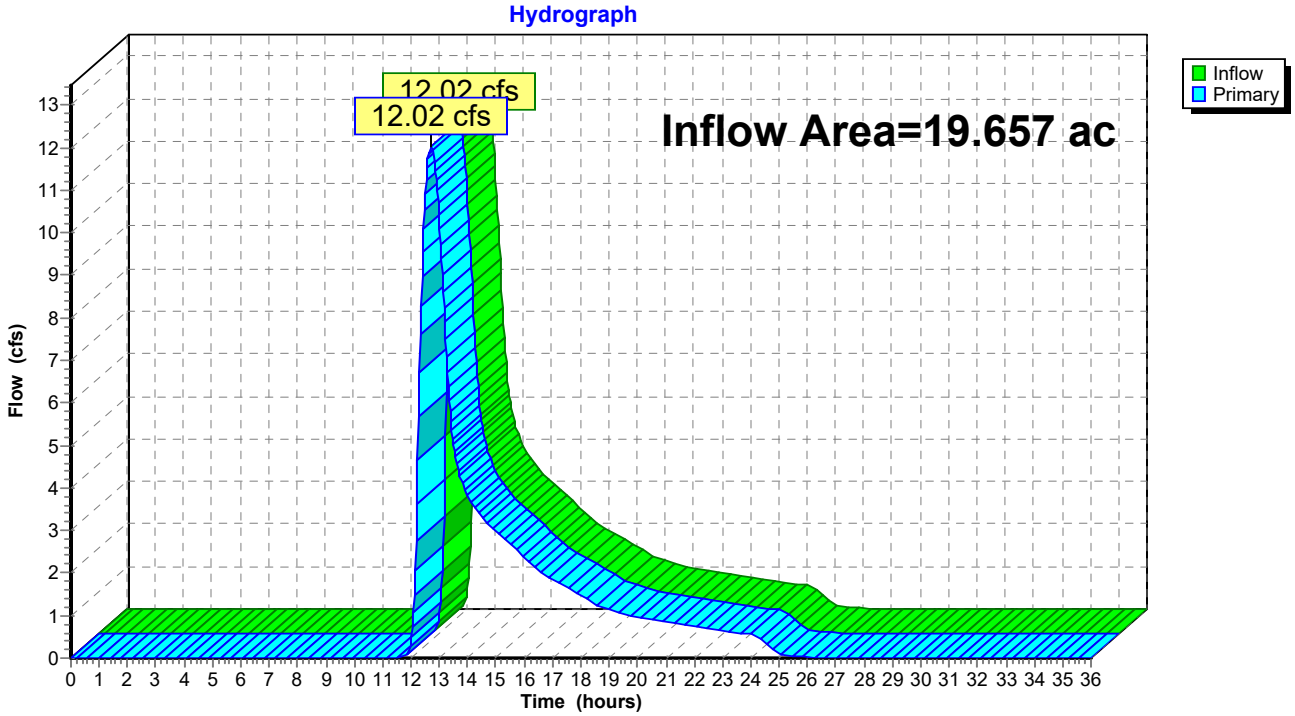


Summary for Link POA-1A: Galvin Lane

Inflow Area = 19.657 ac, 10.60% Impervious, Inflow Depth = 1.50" for 25 Year event
Inflow = 12.02 cfs @ 12.71 hrs, Volume= 2.456 af
Primary = 12.02 cfs @ 12.71 hrs, Volume= 2.456 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs

Link POA-1A: Galvin Lane



Summary for Subcatchment PR-OS1: Off-Site Residential Area - 16 Acres

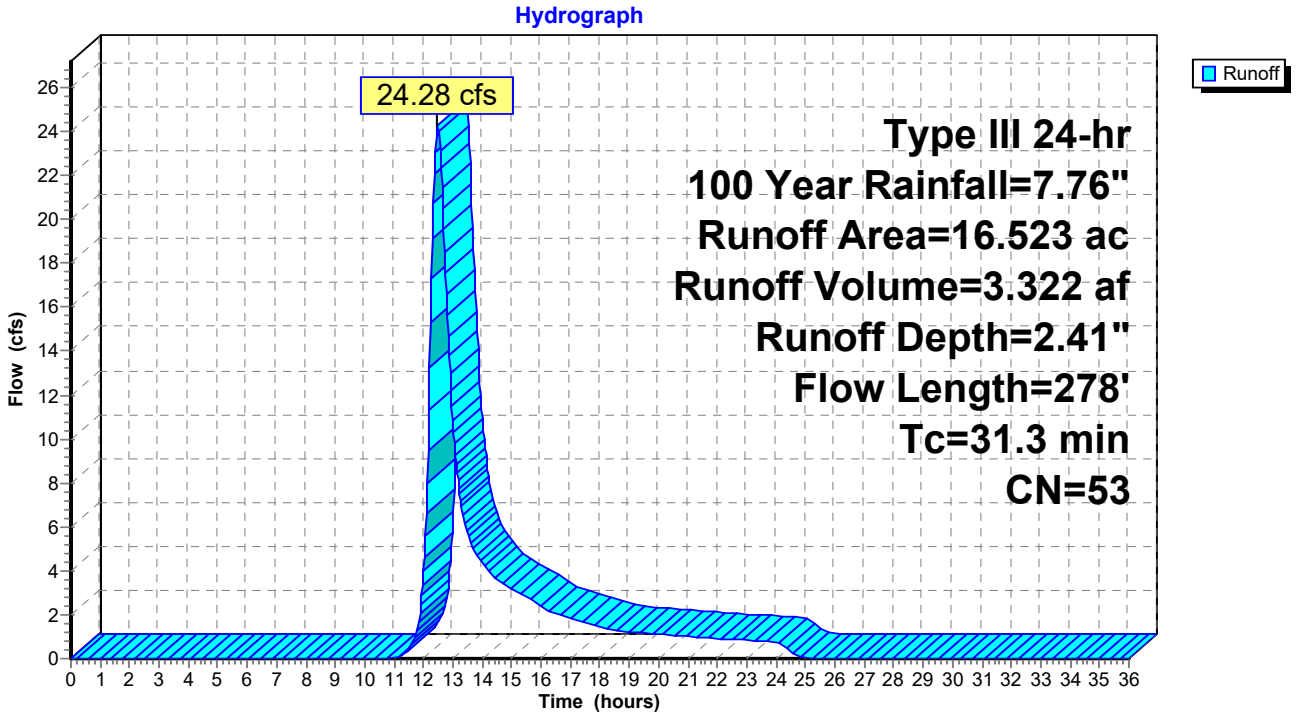
Runoff = 24.28 cfs @ 12.48 hrs, Volume= 3.322 af, Depth= 2.41"
Routed to Pond OS 1P : Offsite Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100 Year Rainfall=7.76"

	Area (ac)	CN	Description
*	16.070	53	OFF SITE RESIDENTIAL AREAS
	0.024	61	>75% Grass cover, Good, HSG B
	0.429	69	50-75% Grass cover, Fair, HSG B
	16.523	53	Weighted Average
	16.523		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.0					**Direct Entry,**
0.3	180	0.0070	9.24	16.32	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.007
1.0	98	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
31.3	278	Total			

Subcatchment PR-OS1: Off-Site Residential Area - 16 Acres



Summary for Subcatchment PR1-1: Project Site

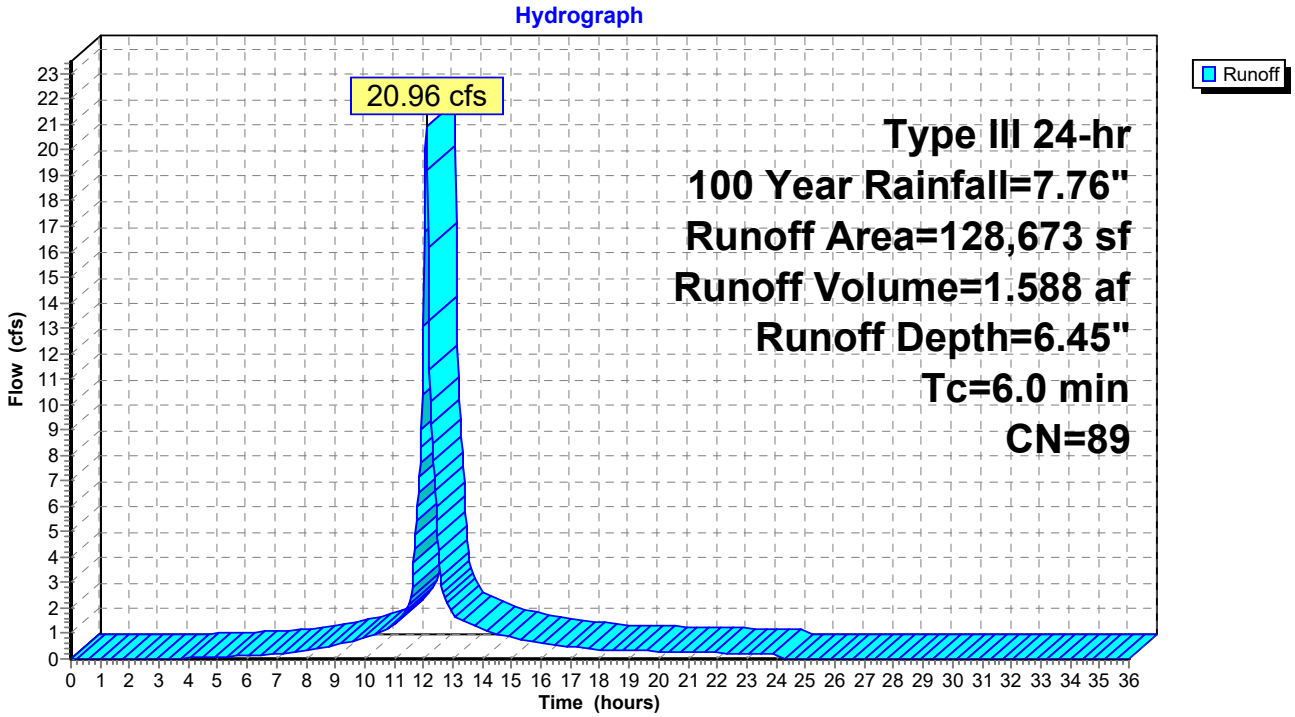
Runoff = 20.96 cfs @ 12.09 hrs, Volume= 1.588 af, Depth= 6.45"
Routed to Pond 1P : Surface/Subsurface Detention

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100 Year Rainfall=7.76"

Area (sf)	CN	Description
37,938	69	50-75% Grass cover, Fair, HSG B
75,564	98	Paved parking, HSG B
15,171	98	Roofs, HSG B
128,673	89	Weighted Average
37,938		29.48% Pervious Area
90,735		70.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR1-1: Project Site



Summary for Subcatchment PR1-2: South and Rear Grassed Area

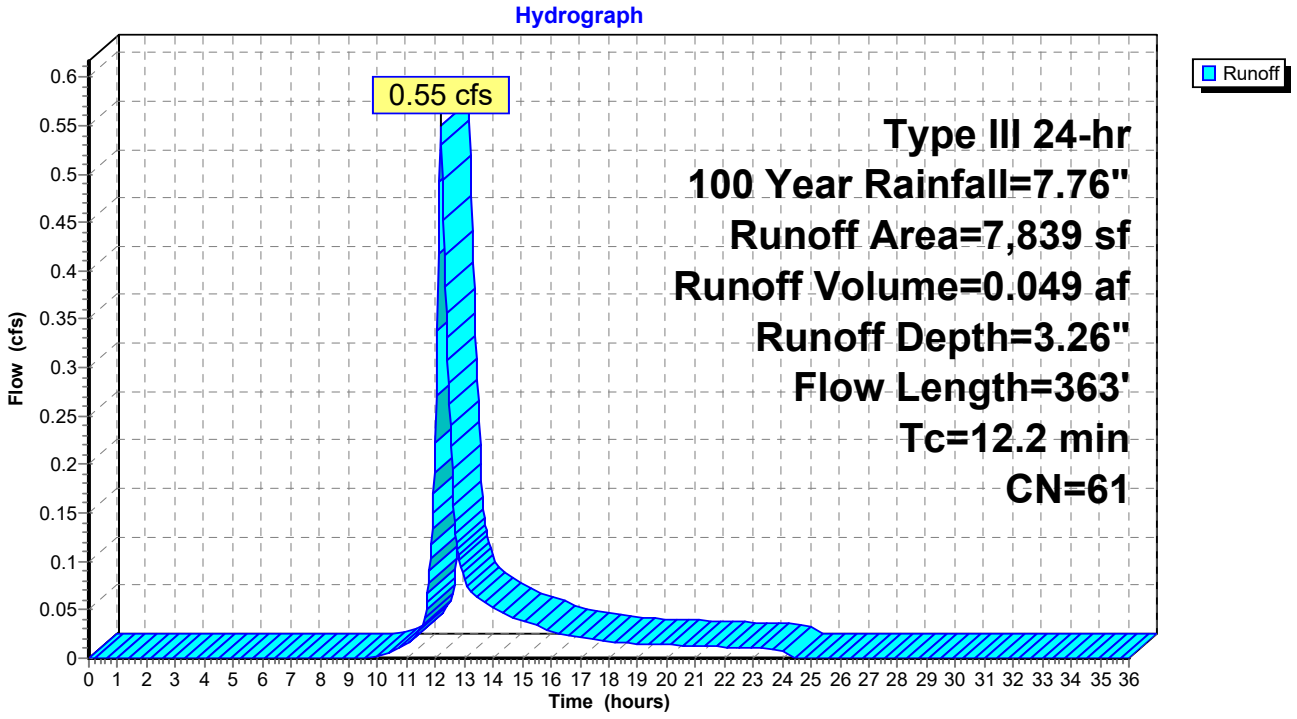
Runoff = 0.55 cfs @ 12.18 hrs, Volume= 0.049 af, Depth= 3.26"
Routed to Link POA-1A : Galvin Lane

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 100 Year Rainfall=7.76"

Area (sf)	CN	Description
7,839	61	>75% Grass cover, Good, HSG B
7,839		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	100	0.1000	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.50"
1.4	263	0.0400	3.22		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
12.2	363	Total			

Subcatchment PR1-2: South and Rear Grassed Area



Summary for Pond 1P: Surface/Subsurface Detention

Inflow Area = 2.954 ac, 70.52% Impervious, Inflow Depth = 7.14" for 100 Year event
Inflow = 20.96 cfs @ 12.09 hrs, Volume= 1.757 af
Outflow = 1.94 cfs @ 12.96 hrs, Volume= 1.407 af, Atten= 91%, Lag= 52.3 min
Discarded = 0.26 cfs @ 12.96 hrs, Volume= 0.476 af
Primary = 1.68 cfs @ 12.96 hrs, Volume= 0.931 af
Routed to Link POA-1A : Galvin Lane

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Peak Elev= 149.41' @ 12.96 hrs Surf.Area= 13,906 sf Storage= 47,121 cf

Plug-Flow detention time= 364.0 min calculated for 1.406 af (80% of inflow)
Center-of-Mass det. time= 294.5 min (1,072.4 - 777.9)

Volume	Invert	Avail.Storage	Storage Description
#1	146.00'	17,407 cf	**Detention Basin 1 (Irregular)**Listed below (Recalc)
#2A	143.00'	21,814 cf	**68.00'W x 159.00'L x 7.00'H Field A** 75,684 cf Overall - 21,149 cf Embedded = 54,535 cf x 40.0% Voids
#3A	143.50'	21,149 cf	**CMP Round 48** x 77 Inside #2 Effective Size= 48.0"W x 48.0"H => 12.57 sf x 20.00'L = 251.3 cf Overall Size= 48.0"W x 48.0"H x 20.00'L Row Length Adjustment= +13.00' x 12.57 sf x 11 rows
		60,370 cf	Total Available Storage

Storage Group A created with Chamber Wizard

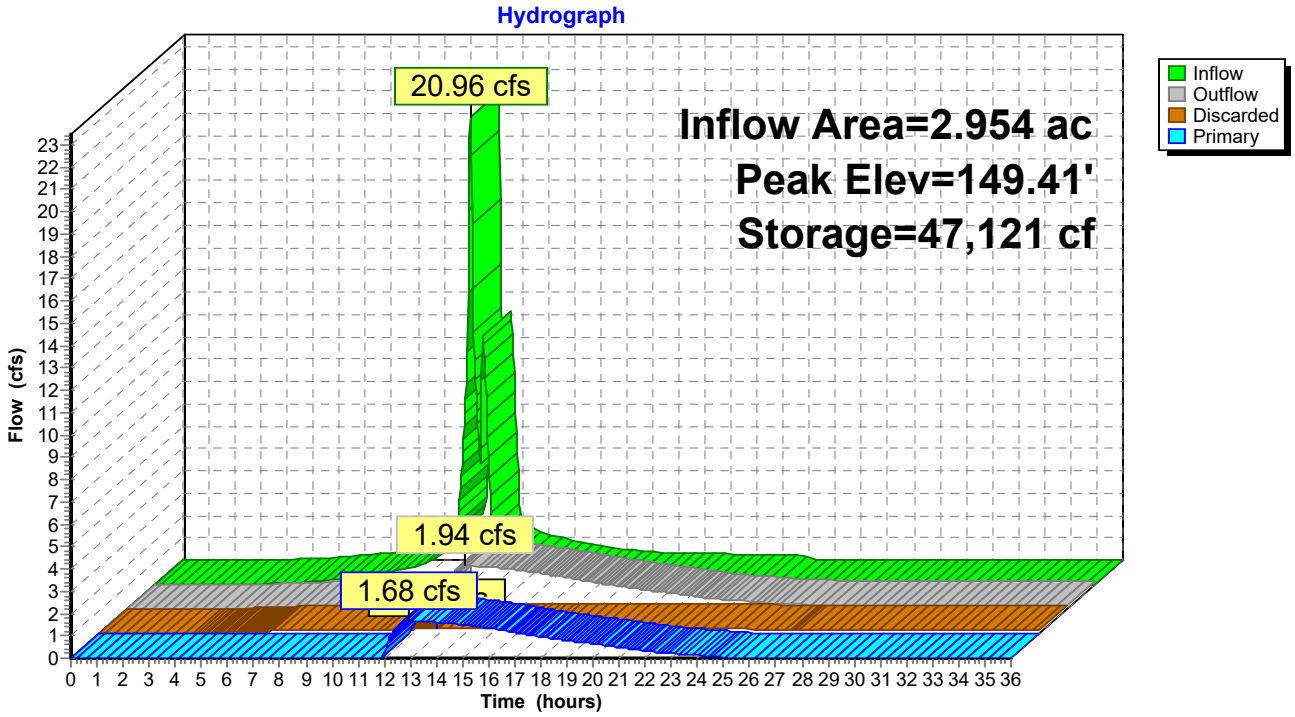
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
146.00	991	163.0	0	0	991
147.00	1,528	186.0	1,250	1,250	1,653
148.00	2,135	209.0	1,823	3,073	2,403
150.00	3,553	254.0	5,628	8,701	4,124
151.00	4,345	273.0	3,942	12,643	4,963
152.00	5,194	292.0	4,763	17,407	5,863

Device	Routing	Invert	Outlet Devices
#1	Primary	146.00'	**12.0" Round Culvert** L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 146.00' / 145.70' S= 0.0200 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	146.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	151.20'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#4	Discarded	143.00'	**0.510 in/hr Exfiltration over Surface area from 141.00' - 146.00'** Conductivity to Groundwater Elevation = 136.00' Excluded Surface area = 0 sf

Discarded OutFlow Max=0.26 cfs @ 12.96 hrs HW=149.41' (Free Discharge)
└**4=Exfiltration** (Controls 0.26 cfs)

Primary OutFlow Max=1.68 cfs @ 12.96 hrs HW=149.41' (Free Discharge)
└**1=Culvert** (Passes 1.68 cfs of 6.45 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 1.68 cfs @ 8.55 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Surface/Subsurface Detention



Summary for Pond OS 1P: Offsite Basin

Inflow Area = 16.523 ac, 0.00% Impervious, Inflow Depth = 2.41" for 100 Year event
Inflow = 24.28 cfs @ 12.48 hrs, Volume= 3.322 af
Outflow = 22.91 cfs @ 12.58 hrs, Volume= 3.322 af, Atten= 6%, Lag= 6.2 min
Primary = 14.87 cfs @ 12.58 hrs, Volume= 3.153 af
Routed to Link POA-1A : Galvin Lane
Secondary = 8.04 cfs @ 12.58 hrs, Volume= 0.169 af
Routed to Pond 1P : Surface/Subsurface Detention

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Peak Elev= 151.80' @ 12.58 hrs Surf.Area= 5,635 sf Storage= 13,883 cf

Plug-Flow detention time= 12.0 min calculated for 3.322 af (100% of inflow)
Center-of-Mass det. time= 11.8 min (899.9 - 888.1)

Volume	Invert	Avail.Storage	Storage Description
#1	148.00'	21,446 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

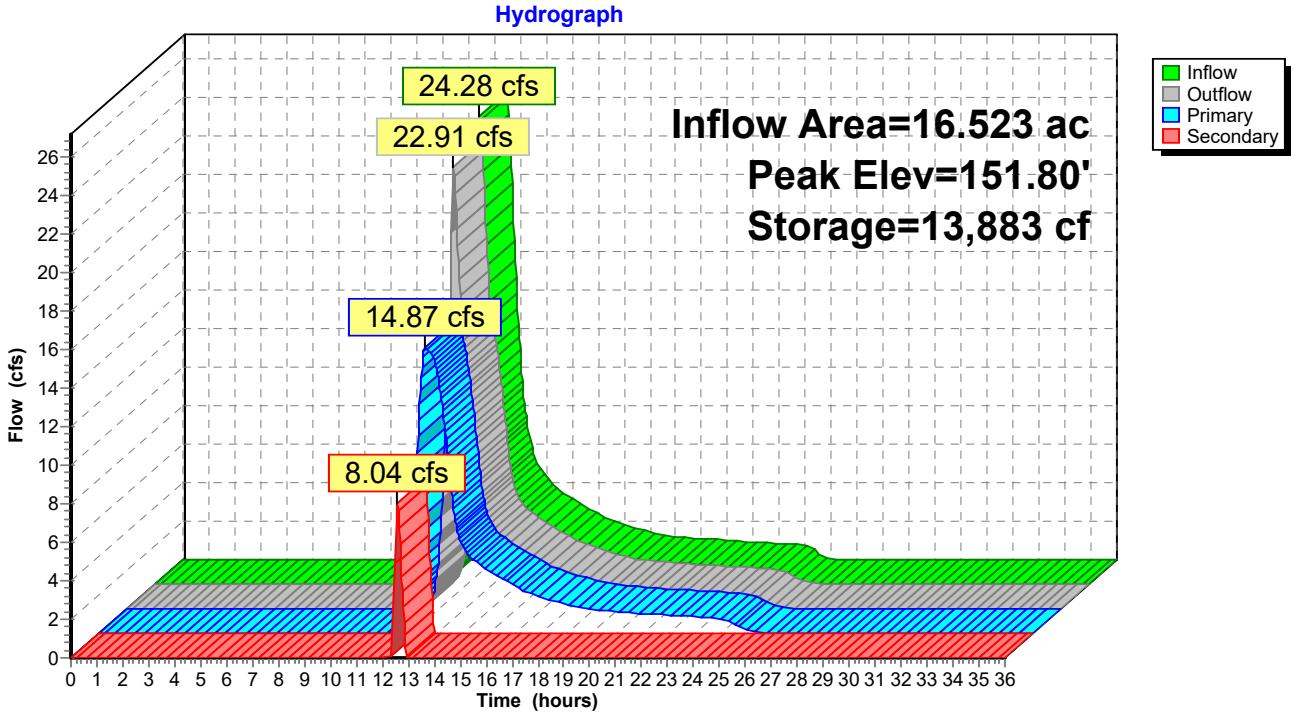
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
148.00	1,856	257.0	0	0	1,856
150.00	3,729	332.0	5,477	5,477	5,420
151.00	4,768	354.0	4,238	9,715	6,669
152.00	5,860	373.0	5,305	15,020	7,827
153.00	7,009	392.0	6,426	21,446	9,045

Device	Routing	Invert	Outlet Devices
#1	Primary	148.00'	**18.0" Round Culvert** L= 190.0' Ke= 0.500 Inlet / Outlet Invert= 148.00' / 142.00' S= 0.0316 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Device 1	148.00'	**20.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	150.00'	**12.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#4	Secondary	151.50'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=14.86 cfs @ 12.58 hrs HW=151.80' (Free Discharge)
└**1=Culvert** (Inlet Controls 14.86 cfs @ 8.41 fps)
└**2=Orifice/Grate** (Passes < 14.56 cfs potential flow)
└**3=Broad-Crested Rectangular Weir** (Passes < 95.89 cfs potential flow)

Secondary OutFlow Max=7.94 cfs @ 12.58 hrs HW=151.80' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 7.94 cfs @ 1.32 fps)

Pond OS 1P: Offsite Basin

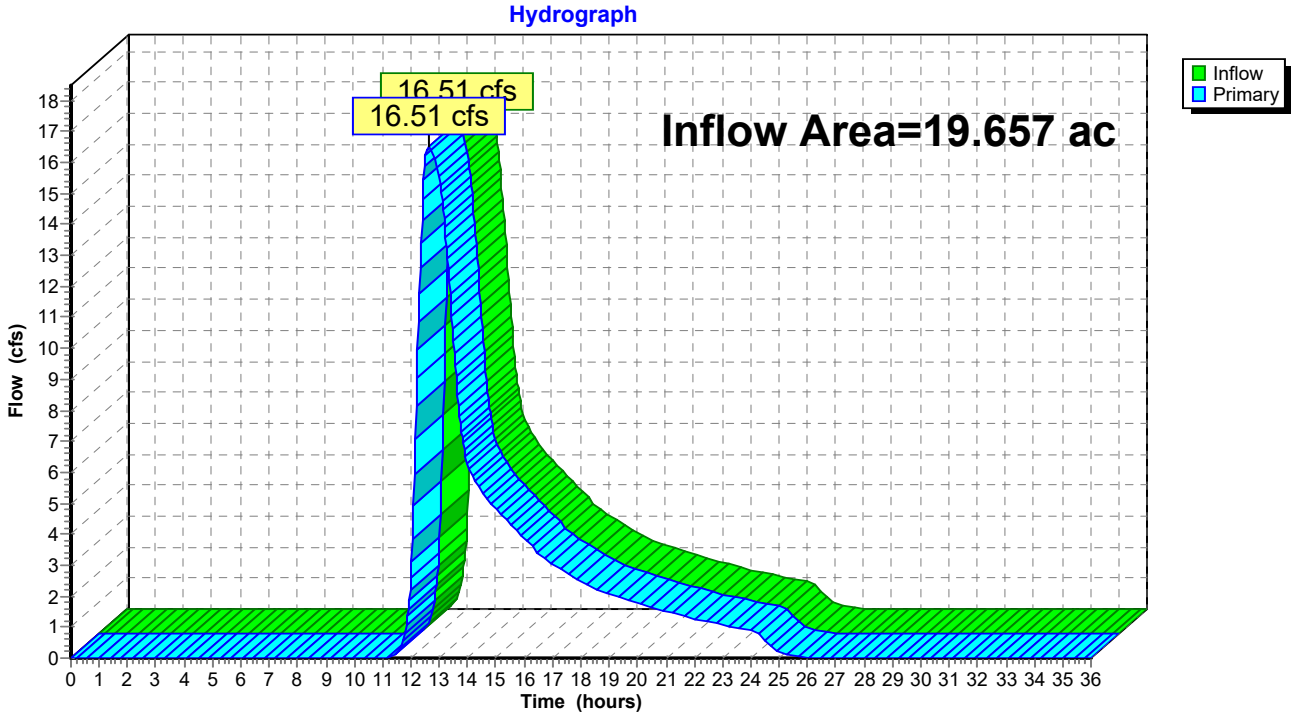


Summary for Link POA-1A: Galvin Lane

Inflow Area = 19.657 ac, 10.60% Impervious, Inflow Depth = 2.52" for 100 Year event
Inflow = 16.51 cfs @ 12.61 hrs, Volume= 4.132 af
Primary = 16.51 cfs @ 12.61 hrs, Volume= 4.132 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs

Link POA-1A: Galvin Lane



Pipe Capacity Analysis

RJOC & ASSOCIATES, INC.
80 Montvale Ave
Stoneham MA 02180
P 781.279.0173

Storm Drainage Computations

Name: Horizon View
Client: Honeycomb Partners

Proj. No.: **24029**
Date: **9/25/2024**
Computed by: **MAP**
Checked by: **RWS**

Design Parameters:
10 Year Storm
k_e= **0.5**

	LOCATION		AREA	Cn	Cn x A	SUM	TIME OF	INTENSITY	DESIGN					CAPACITY	
DESCRIPTION	**FROM**	**TO**	(AC.)			Cn x A	**CONCENTRATION**	IDF CURVE	**Q** cfs	**V** fps	**n**	**PIPE SIZE**	**SLOPE**	**Q full** ft^3/s	**V full** ft/s
To SSIB	CB-1	DMH-1	0.32	0.90	0.29	0.29	6.0	5.1	1.47	3.35	0.011	12	0.006	3.21	4.08
	CB-2	DMH-1	0.15	0.90	0.14	0.14	6.0	5.1	0.69	3.41	0.011	12	0.012	4.61	5.87
	DMH-1	CDS-1	-	-	-	0.42	-	5.1	2.16	4.51	0.011	12	0.010	4.17	5.31
	CDS-1	SSIB	-	-	-	0.42	-	5.1	2.16	3.66	0.011	12	0.005	3.09	3.94
	CB-3	DMH-2	0.44	0.90	0.40	0.40	6.0	5.1	2.02	3.59	0.011	12	0.005	3.09	3.94
	CB4	DMH-2	0.20	0.90	0.18	0.18	6.0	5.1	0.92	3.32	0.011	12	0.008	3.84	4.88
	DMH-2	DMH-3	-	-	-	0.58	-	5.1	2.94	3.75	0.011	15	0.005	5.34	4.35
	CB-5	DMH-3	0.62	0.90	0.56	1.13	6.0	5.1	5.78	4.60	0.011	18	0.005	9.04	5.11
	DMH-3	CDS-2	-	-	-	1.13	-	5.1	5.78	4.73	0.011	18	0.006	9.29	5.26
	CB-6	CDS-2	0.18	0.90	0.16	0.16	6.0	5.1	0.83	3.07	0.011	12	0.007	3.60	4.58
	CDS-2	SSIB	-	-	-	1.13	-	5.1	5.78	5.27	0.011	18	0.008	10.96	6.20
	CB-7	SSIB	0.37	0.90	0.33	0.33	6.0	5.1	1.70	4.54	0.011	12	0.012	4.57	5.82
To ON-SITE DB	SSIB	SSI-OCS-1	1.69	0.90	1.52	1.52	6.0	5.1	7.76	1.94	0.011	30	0.000	9.69	1.98
	SSI-OCS-1	OSDB	-	-	-	1.52	-	5.1	7.76	1.94	0.011	30	0.000	9.69	1.98
	SSIB	SSI-OCS-2	1.69	0.90	1.52	1.52	6.0	5.1	7.76	1.94	0.011	30	0.000	9.69	1.98
	SSI-OCS-2	OSDB	-	-	-	1.52	-	5.1	7.76	1.94	0.011	30	0.000	9.69	1.98
To LS	OCS-OFF	OS-DMH-1	FLOW RATE BASED ON STORMWATER MODEL POND DISCHARGE RATE						14.86	9.89	0.011	18	0.020	17.47	9.89
	OS-DMH-1	OS-DMH-2	FLOW RATE BASED ON STORMWATER MODEL POND DISCHARGE RATE						14.86	9.84	0.011	18	0.020	17.38	9.84
	OCS-1	OS-DMH-2	FLOW RATE BASED ON STORMWATER MODEL POND DISCHARGE RATE						1.62	7.42	0.011	18	0.086	36.41	20.60
	OS-DMH-2	OS-DMH-3	FLOW RATE BASED ON STORMWATER MODEL POND DISCHARGE RATE						16.48	11.21	0.011	18	0.026	20.02	11.33
	OS-DMH-3	OS-FES1	FLOW RATE BASED ON STORMWATER MODEL POND DISCHARGE RATE						16.48	10.95	0.011	18	0.024	19.35	10.95

Level Spreader Swale Calculations

Level Spreader Calculation

Continuity Equation Q=VA

Q = Weir Discharge Rate (cfs)
C = Runoff Coefficient (3.2)
H = Height of Water over Weir (ft)
L = Length of Level Spreader Required (ft)
V = Velocity over Level Spreader (fps)

Q =	11.1	cfs	(From HydroCAD routing data - 100yr 24hr)
C =	3.2		(Runoff Coefficient)
V =	2	fps	(Max Velocity Allowed over Spreader Swale)
H =	0.1	ft	(Max Height of Water)

Q =	VA	cfs	
A =	Q/V	sf	

A =	5.55	sf	
A =	LH	sf	(Area = Length x Height)

L =	A / H	ft	
L =	55.5	ft @ 2 fps	Minimum Required Length

APPENDIX B
Soil Report by NRCS

WHITESTONE
An Employee-Owned Company

16 OLD FORGE ROAD
SUITE A
ROCKY HILL, CT 06067
860.726.7889
whitestoneassoc.com

August 15, 2024

via email

R.J. O'CONNELL & ASSOCIATES, INC.
80 Montvale Avenue
Suite 201
Stoneham, Massachusetts 02180

Attention: Mr. Roy W. Smith
Vice President

Regarding: STORMWATER MANAGEMENT AREA EVALUATION
PROPOSED APARTMENT BUILDING
2268 - 2284 CONNECTICUT ROUTE 32
MAP 106, LOTS 34, 35, & 36
MONTVILLE, NEW LONDON COUNTY, CONNECTICUT
WHITESTONE PROJECT NO.: GM2422090.000

Dear Mr. Smith:

Whitestone Associates, Inc. (Whitestone) is pleased to submit the results of a stormwater management (SWM) area evaluation in support of the proposed development referenced above. Services were provided in general accordance with Whitestone's May 10, 2024 proposal. Whitestone also issued an August 14, 2024 *Report of Geotechnical Investigation* for the above-referenced project.

1.0 PROJECT DESCRIPTION

1.1 Site Location & Existing Conditions

The 3.36-acre site is located at 2268 - 2284 Connecticut Route 32 (Norwich New London Turnpike) in the Town of Montville, New London County, Connecticut. At the time of Whitestone's investigation, the subject site was vacant, with brush and mature trees. The site was previously developed with residences and outbuildings, since demolished. Existing fill from this previous development was encountered in several explorations. A buried asphaltic concrete driveway was encountered in one boring. Limited asphalt-paved driveways were noted around the site. Low stone walls and concrete rubble were noted within the western portion of the site. There appears to be a former well within the eastern/central portion of the site.

1.2 Site Geology

On the *Surficial Materials Map of Connecticut (1992)*, the site is shown underlain by glacial till. The *Bedrock Geologic Map of Connecticut (1985)* indicates that the site is primarily underlain by the Proterozoic Z-age Waterford Group, consisting of gneiss with minor amphibolite, and in the northeastern corner by Proterozoic Z-age Hope Valley Alaskite Gneiss, consisting of gneiss, both part of the Eastern Uplands; Avalonian (Continental) Terrane; Avalonian Anticlinorium.

1.3 Proposed Construction

Based on a March 15, 2010 *Conceptual Site Plan* prepared by R.J. O'Connell & Associates, Inc. (RJO), the proposed development will include the construction of a three-story apartment building with a footprint of approximately 20,500-square feet and associated pavements, landscaping, and utilities. Stormwater detention basins planned on the western side of the site.

2.0 FIELD & LABORATORY WORK

2.1 Field Exploration

Field exploration consisted of excavating eight test pits (identified as TP-1 through TP-8). The test pits subsequently were backfilled to the surface with excavated soils from the investigation after observing soil conditions. The locations of the test pits are shown on the accompanying *Test Location Plan* included as Figure 1. *Records of Subsurface Exploration* for the test pits are provided in Appendix A.

The subsurface tests were conducted in the presence of a Whitestone engineer who conducted field tests, recorded visual classifications, and collected samples of the various strata encountered. Test locations were surveyed by others.

Groundwater was not encountered in the test pits during field operations and prior to backfilling. Seasonal variations, temperature effects, man-made effects, and recent rainfall conditions may influence the levels of the groundwater. The levels will also depend on the permeability of the soils. Groundwater elevations derived from sources other than seasonally observed groundwater monitor wells may not be representative of true groundwater levels.

2.2 Laboratory Testing

Laboratory testing was conducted to provide data for a US Department of Agriculture (USDA) textural analysis. The laboratory testing was conducted in general accordance with applicable ASTM standard test methods and included physical/textural testing of representative samples of the natural soils. Quantitative test results are provided in Appendix B.

Physical and Textural Analysis: Representative samples were subjected to laboratory testing that included moisture content determinations (ASTM D2216) and washed gradation analyses (ASTM D422). The soil stratum tested was classified by the Unified Soil Classification System (USCS). The results of the laboratory testing are summarized in the following table.

PHYSICAL/TEXTURAL ANALYSES SUMMARY					
Exploration	**Sample**	**Depth (fbgs)**	**Moisture Content (%)**	**% Passing No. 200 Sieve**	**USCS Classification**
B-5	S-2	2.0 - 4.0	11.6	20.8	SM
B-8	S-3	5.0 - 7.0	3.2	12.1	SM
TP-6	S-1	3.5	18.2	44.9	SM
TP-7	S-1	3.5	4.6	12.7	SM
TP-8	S-1	4.5	9.2	26.2	SM

Based on the results of the gradation testing, the United States Department of Agriculture (USDA) textural analysis classifies the glacial till as "sand" and "sandy loam", which implies USDA Natural Resources Conservation Service (NRCS) Hydrological Soil Group (HSG) "A" or "B".

2.3 Infiltration Testing

Because of the above soil classification (HSG "A" and "B"), infiltration testing was omitted from the scope. A Rawls infiltration rate of 1.02 inches per hour is appropriate for each test pit location.

3.0 SUBSURFACE CONDITIONS

The soil conditions encountered within the subsurface tests conducted by Whitestone consisted of the following generalized strata in order of increasing depth. *Records of Subsurface Exploration* are provided in Appendix A.

Surface Cover Materials: The test pits encountered four inches to 30 inches of topsoil at the ground surface, underlain by six inches to 36 inches of subsoil with roots.

Glacial Till: Beneath the surface cover materials, the test pits encountered glacial till, consisting of gray to brown, silty sand with gravel (USCS: SM), frequent cobbles and boulders. Where penetrated, the glacial till extended to depths of eight fbgs to 9.5 fbgs. Test pits TP-5 and TP-8 terminated in the glacial till at depths of 10 fbgs and nine fbgs, respectively.

Bedrock: Test pits TP-1 through TP-4, TP-6, and TP-7 encountered excavator refusal on bedrock at depths of eight fbgs to 9.5 fbgs. The bedrock was not sampled through rock coring efforts but was inferred by excavator bucket refusal. Rock coring techniques would be required to further characterize the nature and extent of the bedrock.

Groundwater: Groundwater was not encountered within the test pits during the exploration. Minor mottling was noted on the sidewalls of test pit TP-6 at a depth of three fbgs. Whitestone does not consider this mottling to be a true indication of an estimated seasonal groundwater high (ESGWH) but is perhaps indicative of a brief high-water event associated with localized perched conditions. Groundwater levels should be expected to fluctuate seasonally and following periods of precipitation.

Whitestone appreciates being of continued service to R.J. O'Connell & Associates, Inc. Please do not hesitate to contact us with any questions regarding this letter.

Sincerely,

WHITESTONE ASSOCIATES, INC.

Richard W.M. McLaren, PE
Senior Consultant

Ryan R. Roy, PE
Vice President

RWM/th N:\Job Folders\2024\2422090GM\Reports and Submittals\RJO Montville CT GM2422090 SWM 8-15-24 (Rev. 1).docx
Enclosures

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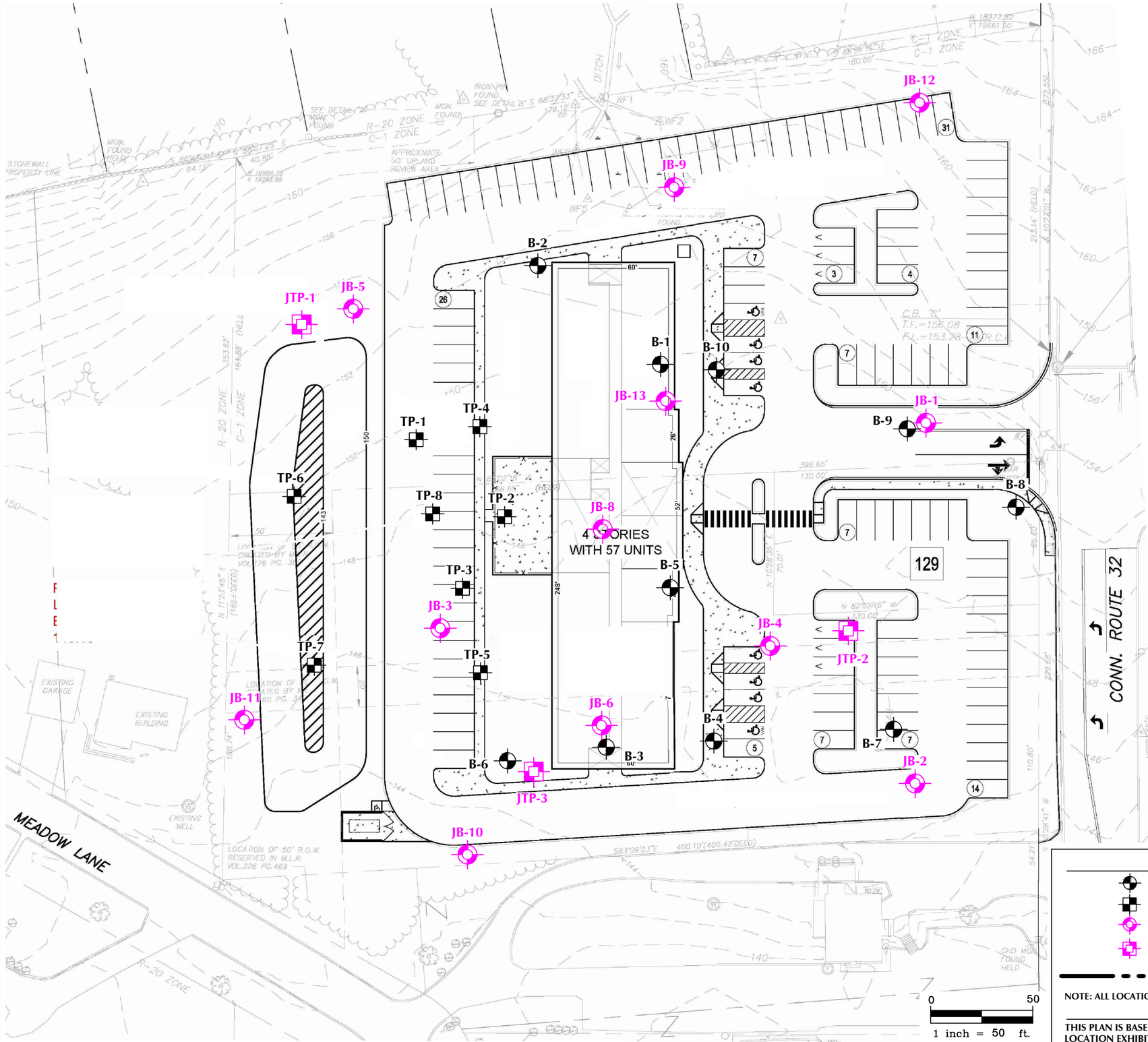
FIGURE 1
Test Location Plan



LEGEND

- BORING LOCATION
- TEST PIT LOCATION
- PREVIOUS BORING LOCATION
- PREVIOUS TEST PIT LOCATION
- SUBJECT PROPERTY BOUNDARY

NOTE: ALL LOCATIONS ARE APPROXIMATE.

REFERENCE

THIS PLAN IS BASED ON A 7/19/24 TEST PIT & BUILDING CORNER LOCATION EXHIBIT PREPARED BY RJ O'CONNELL & ASSOCIATES, INC.

WHITESTONE
An Employee-Owned Company
16 OLD FORGE ROAD, SUITE A, ROCKY HILL, CT 06067
860.726.7889 WHITESTONEASSOC.COM

DRAWING TITLE: **TEST LOCATION PLAN**

CLIENT: R.J. O'CONNELL & ASSOCIATES, INC.

PROJECT: PROPOSED APARTMENT BUILDING
2268 - 2284 ROUTE 32
MONTVILLE, NEW LONDON COUNTY, CONNECTICUT

PROJECT #: GM2422090.000	
DESIGNED BY: MR	PROJ. MGR.: RR
DATE: 8/12/24	FIGURE: 1
SCALE: 1" = 50'	

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WHITESTONE

APPENDIX A
Records of Subsurface Exploration

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RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-1

Page 1 of 1

Project:	Proposed Apartment Building	**WAI Project No.:**	GM2422090.000
Location:	2268 - 2284 Connecticut Route 32, Montville, New London County, Connecticut	**Client:**	R.J. O'Connell & Associates, Inc.

Surface Elevation:	± 149.9 feet NAVD88	**Date Started:**	7/22/2024		**Water Depth (feet bgs) | Elevation (ft NAVD88)**		**Cave-In Depth (feet bgs) | Elevation (ft NAVD88)**
Termination Depth:	9.0 feet bgs	**Date Completed:**	7/22/2024				
Proposed Location:	SWM Area	**Logged By:**	JB	**During:**	-- | --		
Excavating Method:	Midi Excavator	**Contractor:**	CL	**At Completion:**	-- | --	**At Completion:**	-- | --
Test Method:	Visual Observation	**Rig Type:**	Caterpillar 314	**24 Hours:**	-- | --		

SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				No indication of ESGWH
				TOPSOIL		4" Topsoil	
				SUBSOIL		20" Subsoil, Roots	
3.5	1	Grab		GLACIAL TILL		Gray-Brown, Silty Sand with Gravel, Cobbles, Boulders (SM)	
			5.0				
7.5	2	Grab					
						Test Pit TP-1 Terminated upon Refusal at Depth of 9.0 Feet Below Ground Surface.	
			10.0				
			15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-2

Page 1 of 1

Project:	Proposed Apartment Building	**WAI Project No.:**	GM2422090.000
Location:	2268 - 2284 Connecticut Route 32, Montville, New London County, Connecticut	**Client:**	R.J. O'Connell & Associates, Inc.

Surface Elevation:	± 148.2 feet NAVD88	**Date Started:**	7/22/2024		**Water Depth (feet bgs) | Elevation (ft NAVD88)**	**Cave-In Depth (feet bgs) | Elevation (ft NAVD88)**	
Termination Depth:	9.0 feet bgs	**Date Completed:**	7/22/2024				
Proposed Location:	SWM Area	**Logged By:**	JB	**During:**	-- | --		
Excavating Method:	Midi Excavator	**Contractor:**	CL	**At Completion:**	-- | --	**At Completion:**	-- | --
Test Method:	Visual Observation	**Rig Type:**	Caterpillar 314	**24 Hours:**	-- | --		

SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				No indication of ESGWH
				TOPSOIL		30" Topsoil	
			5.0	SUBSOIL		30" Subsoil, Roots	
				GLACIAL TILL		Gray, Silty Sand with Gravel, Cobbles, Boulders (SM)	
			10.0			Test Pit TP-2 Terminated upon Refusal at Depth of 9.0 Feet Below Ground Surface.	
			15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-3

Page 1 of 1

Project:	Proposed Apartment Building	**WAI Project No.:**	GM2422090.000
Location:	2268 - 2284 Connecticut Route 32, Montville, New London County, Connecticut	**Client:**	R.J. O'Connell & Associates, Inc.

Surface Elevation:	± 147.1 feet NAVD88	**Date Started:**	7/22/2024		**Water Depth (feet bgs) | Elevation (ft NAVD88)**	**Cave-In Depth (feet bgs) | Elevation (ft NAVD88)**	
Termination Depth:	8.0 feet bgs	**Date Completed:**	7/22/2024				
Proposed Location:	SWM Area	**Logged By:**	JB	**During:**	-- | --		
Excavating Method:	Midi Excavator	**Contractor:**	CL	**At Completion:**	-- | --	**At Completion:**	-- | --
Test Method:	Visual Observation	**Rig Type:**	Caterpillar 314	**24 Hours:**	-- | --		

SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				No indication of ESGWH
				TOPSOIL		24" Topsoil	
3	1	Grab		SUBSOIL		30" Subsoil, Roots	
			5.0				
5.5	2	Grab		GLACIAL TILL		Brown, Silty Sand with Gravel, Cobbles, Boulders (SM)	
			10.0			Test Pit TP-3 Terminated upon Refusal at Depth of 8.0 Feet Below Ground Surface.	
			15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-4

Page 1 of 1

Project:	Proposed Apartment Building	**WAI Project No.:**	GM2422090.000
Location:	2268 - 2284 Connecticut Route 32, Montville, New London County, Connecticut	**Client:**	R.J. O'Connell & Associates, Inc.
Surface Elevation:	± 150.6 feet NAVD88	**Date Started:**	7/22/2024
Termination Depth:	8.0 feet bgs	**Date Completed:**	7/22/2024
Proposed Location:	SWM Area	**Logged By:**	JB
Excavating Method:	Midi Excavator	**Contractor:**	CL
Test Method:	Visual Observation	**Rig Type:**	Caterpillar 314

	Water Depth (feet bgs)	Elevation (ft NAVD88)	Cave-In Depth (feet bgs)	Elevation (ft NAVD88)
During:	--	--		
At Completion:	--	--	**At Completion:** --	--
24 Hours:	--	--		

SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				No indication of ESGWH
				TOPSOIL		12" Topsoil	
				SUBSOIL		36" Subsoil, Roots	
			5.0	GLACIAL TILL		Gray-Brown, Silty Sand with Gravel, Cobbles, Boulders (SM)	
7.5	1	Grab					
			10.0			Test Pit TP-4 Terminated upon Refusal at Depth of 8.0 Feet Below Ground Surface.	
			15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-5

Page 1 of 1

Project:	Proposed Apartment Building	**WAI Project No.:**	GM2422090.000
Location:	2268 - 2284 Connecticut Route 32, Montville, New London County, Connecticut	**Client:**	R.J. O'Connell & Associates, Inc.

				Water Depth | Elevation (feet bgs) | (ft NAVD88)	Cave-In Depth | Elevation (feet bgs) | (ft NAVD88)
Surface Elevation:	± 146.3 feet NAVD88	**Date Started:**	7/22/2024		
Termination Depth:	10.0 feet bgs	**Date Completed:**	7/22/2024		
Proposed Location:	SWM Area	**Logged By:**	JB	**During:** -- | --	
Excavating Method:	Midi Excavator	**Contractor:**	CL	**At Completion:** -- | --	**At Completion:** -- | --
Test Method:	Visual Observation	**Rig Type:**	Caterpillar 314	**24 Hours:** -- | --	

SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				No indication of ESGWH
				TOPSOIL		24" Topsoil	
				SUBSOIL		30" Subsoil, Roots	
			5.0				
5.5	1	Grab					
				GLACIAL TILL		Brown to Gray-Brown, Silty Sand with Gravel, Cobbles, Boulders (SM)	
			10.0				
						Test Pit TP-5 Terminated at Depth of 10.0 Feet Below Ground Surface.	
			15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-6

Page 1 of 1

Project:	Proposed Apartment Building	**WAI Project No.:**	GM2422090.000
Location:	2268 - 2284 Connecticut Route 32, Montville, New London County, Connecticut	**Client:**	R.J. O'Connell & Associates, Inc.

Surface Elevation:	± 150.0 feet NAVD88	**Date Started:**	8/10/2024		**Water Depth (feet bgs) | Elevation (ft NAVD88)**		**Cave-In Depth (feet bgs) | Elevation (ft NAVD88)**
Termination Depth:	9.5 feet bgs	**Date Completed:**	8/10/2024				
Proposed Location:	SWM Area	**Logged By:**	JB	**During:**	-- | --		
Excavating Method:	Backhoe	**Contractor:**	CL	**At Completion:**	-- | --	**At Completion:**	-- | --
Test Method:	Visual Observation	**Rig Type:**	Caterpillar 430	**24 Hours:**	-- | --		

SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				No indication of ESGWH
				TOPSOIL		12" Topsoil	
				SUBSOIL		6" Subsoil, Roots	
							Minor mottling @ 3 fbgs
3.5	1	Grab					
			5.0	GLACIAL TILL		Brown, Silty Sand with Gravel, Cobbles, Boulders (SM)	
			10.0			Test Pit TP-6 Terminated upon Refusal at Depth of 9.5 Feet Below Ground Surface.	
			15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-7

Page 1 of 1

Project:	Proposed Apartment Building	**WAI Project No.:**	GM2422090.000
Location:	2268 - 2284 Connecticut Route 32, Montville, New London County, Connecticut	**Client:**	R.J. O'Connell & Associates, Inc.

Surface Elevation:	± 146.0 feet NAVD88	**Date Started:**	8/10/2024		**Water Depth (feet bgs) | Elevation (ft NAVD88)**		**Cave-In Depth (feet bgs) | Elevation (ft NAVD88)**
Termination Depth:	9.5 feet bgs	**Date Completed:**	8/10/2024				
Proposed Location:	SWM Area	**Logged By:**	JB	**During:**	-- | --		
Excavating Method:	Backhoe	**Contractor:**	CL	**At Completion:**	-- | --	**At Completion:**	-- | --
Test Method:	Visual Observation	**Rig Type:**	Caterpillar 430	**24 Hours:**	-- | --		

SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				No indication of ESGWH
				TOPSOIL		24" Topsoil	
				SUBSOIL		6" Subsoil, Roots	
3.5	1	Grab					
			5.0	GLACIAL TILL		Brown, Silty Sand with Gravel, Cobbles, Boulders (SM)	
			10.0			Test Pit TP-7 Terminated upon Refusal at Depth of 9.5 Feet Below Ground Surface.	
			15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

RECORD OF SUBSURFACE EXPLORATION

Test Pit No.: TP-8

Page 1 of 1

Project:	Proposed Apartment Building	**WAI Project No.:**	GM2422090.000
Location:	2268 - 2284 Connecticut Route 32, Montville, New London County, Connecticut	**Client:**	R.J. O'Connell & Associates, Inc.
Surface Elevation:	± 148.0 feet NAVD88	**Date Started:**	8/10/2024
Termination Depth:	9.0 feet bgs	**Date Completed:**	8/10/2024
Proposed Location:	SWM Area	**Logged By:**	JB
Excavating Method:	Backhoe	**Contractor:**	CL
Test Method:	Visual Observation	**Rig Type:**	Caterpillar 430

	Water Depth (feet bgs)	Elevation (ft NAVD88)	Cave-In Depth (feet bgs)	Elevation (ft NAVD88)
During:	--	--		
At Completion:	--	--	**At Completion:** --	--
24 Hours:	--	--		

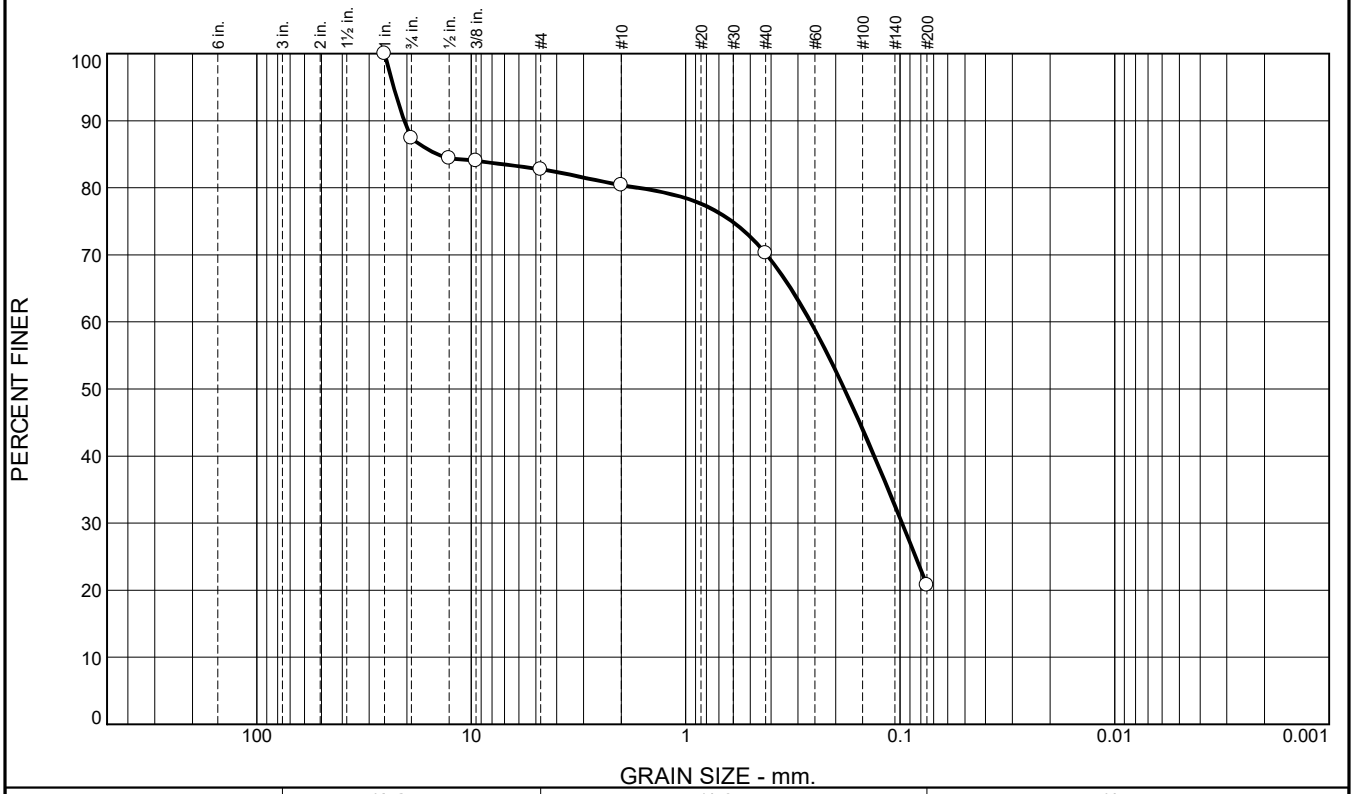
SAMPLE INFORMATION			DEPTH	STRATA		DESCRIPTION OF MATERIALS (Classification)	REMARKS
Depth (ft.)	Number	Type	(feet)				
			0.0				No indication of ESGWH
				TOPSOIL		12" Topsoil	
				SUBSOIL		6" Subsoil, Roots	
4.5	1	Grab	5.0	GLACIAL TILL		Brown, Silty Sand with Gravel, Cobbles, Boulders (SM)	
			10.0			Test Pit TP-8 Terminated upon Refusal at Depth of 9.0 Feet Below Ground Surface.	
			15.0				

NOTES: bgs = below ground surface, msl = mean sea level, NA = Not Applicable, NE = Not Encountered, NS = Not Surveyed, P = Perched

WHITESTONE

APPENDIX B
Laboratory Test Results

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	12.6	4.7	2.3	10.2	49.4	20.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	87.4		
1/2"	84.4		
3/8"	84.0		
#4	82.7		
#10	80.4		
#40	70.2		
#200	20.8		

* (no specification provided)

Material Description

Silty Sand with Gravel

Atterberg Limits

PL= NP LL= NV PI= NV

Coefficients

D_{90}= 20.5856 D_{85}= 14.3912 D_{60}= 0.2618
D_{50}= 0.1823 D_{30}= 0.0982 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Moisture Content: 11.6%

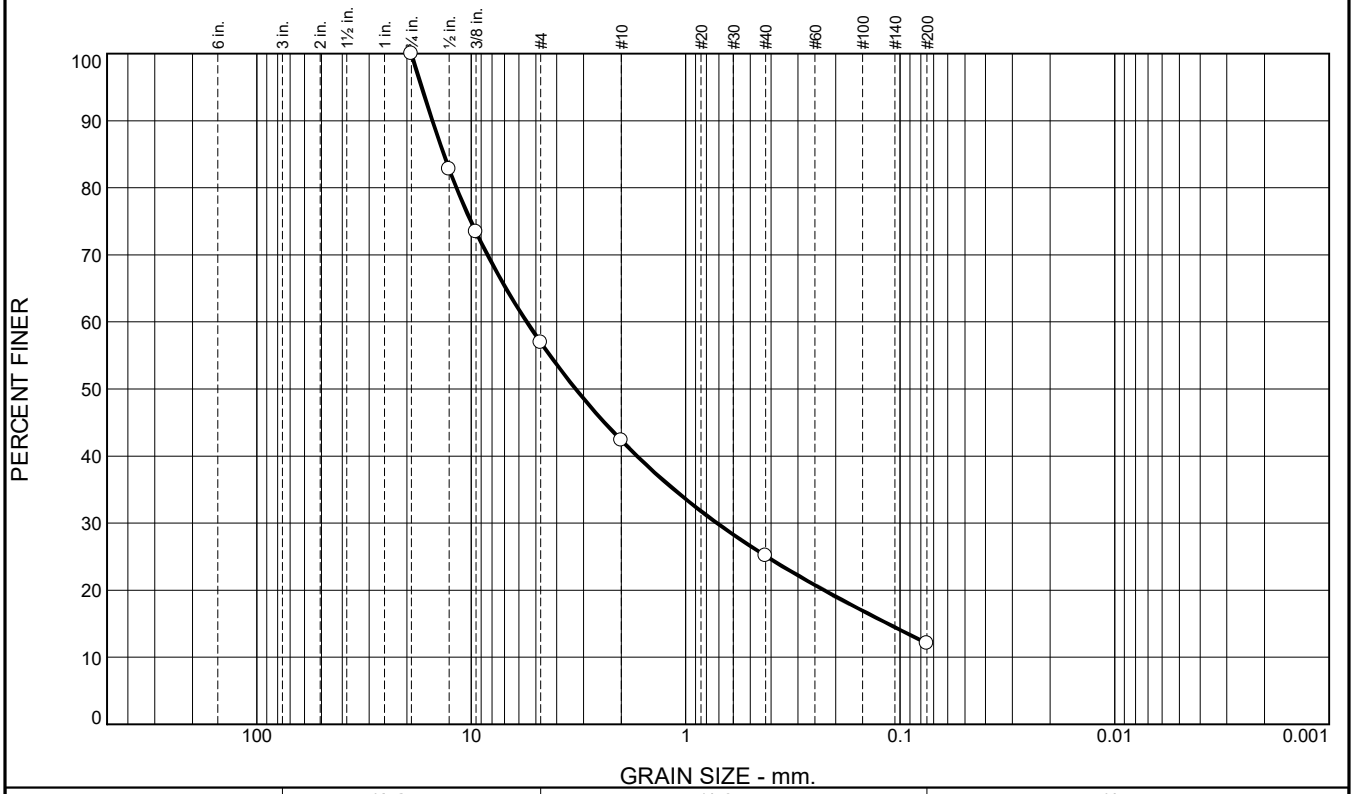
Location: B-5
Sample Number: S-2 **Depth:** 2' - 4' **Date:** 7/30/24

WHITESTONE

Client: R.J. O'Connell and Associates, Inc.
Project: Proposed Apartment Building
2268-2284 CT Route 32, Montville, New London County, CT
Project No: GM2422090.000 **Figure** S-1

Tested By: MM **Checked By:** RWM

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	43.1	14.6	17.2	13.0	12.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	82.8		
3/8"	73.4		
#4	56.9		
#10	42.3		
#40	25.1		
#200	12.1		

* (no specification provided)

Material Description

Silty Sand with Gravel

Atterberg Limits

PL= NP LL= NV PI= NV

Coefficients

D_{90}= 15.2013 D_{85}= 13.4589 D_{60}= 5.5190
D_{50}= 3.2631 D_{30}= 0.7150 D_{15}= 0.1143
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-a

Remarks

Moisture Content: 3.2%

Location: B-8
Sample Number: S-3 **Depth:** 5' - 7' **Date:** 7/30/24

WHITESTONE

Client: R.J. O'Connell and Associates, Inc.
Project: Proposed Apartment Building
2268-2284 CT Route 32, Montville, New London County, CT
Project No: GM2422090.000 **Figure** S-2

Tested By: MM **Checked By:** RWM

Particle Size Distribution Report

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.7	0.8	2.4	51.2	44.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	99.9		
3/8"	99.9		
#4	99.3		
#10	98.5		
#40	96.1		
#200	44.9		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NV

Coefficients

D_{90}= 0.3020 D_{85}= 0.2457 D_{60}= 0.1126
D_{50}= 0.0859 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

Moisture Content: 18.2%

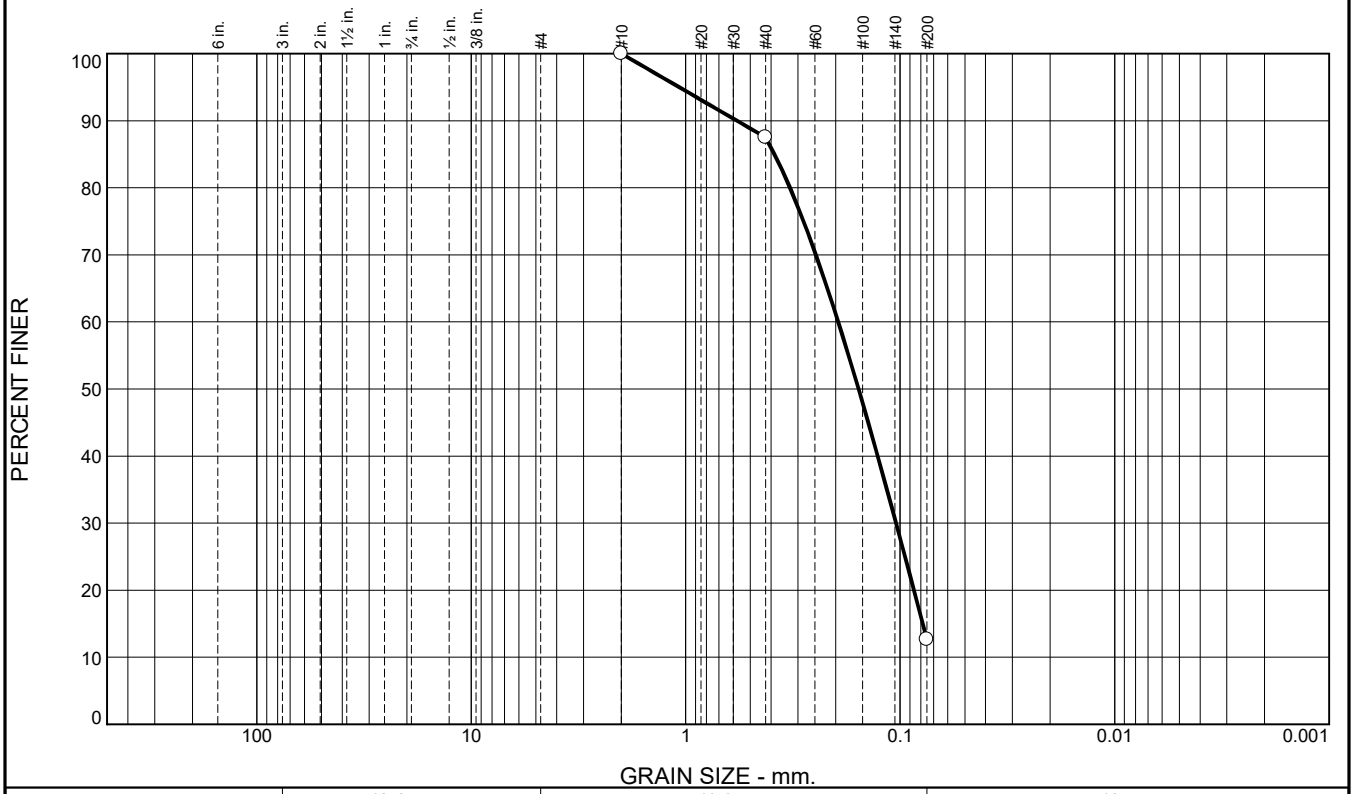
Location: TP-6
Sample Number: S-1 **Depth:** 3.5' **Date:** 8/13/24

WHITESTONE

Client: R.J. O'Connell and Associates, Inc.
Project: Proposed Apartment Building
2268-2284 CT Route 32, Montville, New London County, CT
Project No: GM2422090.000 **Figure** S-3

Tested By: MM **Checked By:** RWM

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	12.5	74.8	12.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	87.5		
#200	12.7		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NV

Coefficients

D_{90}= 0.5781 D_{85}= 0.3859 D_{60}= 0.1947
D_{50}= 0.1565 D_{30}= 0.1046 D_{15}= 0.0784
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Moisture Content: 4.6%

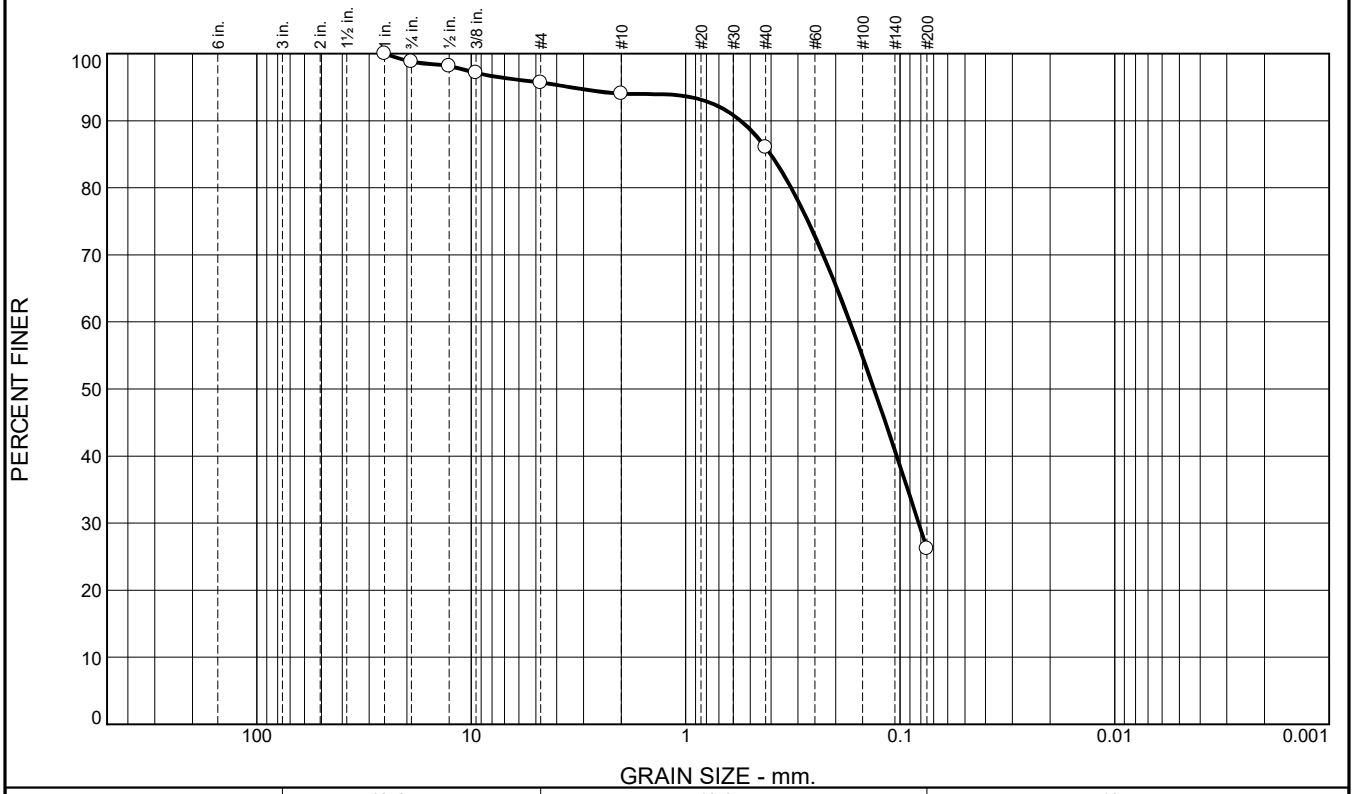
Location: TP-7
Sample Number: S-1 **Depth:** 3.5' **Date:** 8/13/24

WHITESTONE

Client: R.J. O'Connell and Associates, Inc.
Project: Proposed Apartment Building
2268-2284 CT Route 32, Montville, New London County, CT
Project No: GM2422090.000 **Figure** S-4

Tested By: MM **Checked By:** RWM

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.2	3.1	1.7	8.0	59.8	26.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	98.8		
1/2"	98.1		
3/8"	97.1		
#4	95.7		
#10	94.0		
#40	86.0		
#200	26.2		

* (no specification provided)

Material Description

Silty Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 0.5562 D_{85}= 0.4025 D_{60}= 0.1719
D_{50}= 0.1327 D_{30}= 0.0820 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Moisture Content: 9.2%

Location: TP-8
Sample Number: S-1 **Depth:** 4.5' **Date:** 8/13/24

WHITESTONE

Client: R.J. O'Connell and Associates, Inc.
Project: Proposed Apartment Building
2268-2284 CT Route 32, Montville, New London County, CT
Project No: GM2422090.000 **Figure** S-5

Tested By: MM **Checked By:** RWM

WHITESTONE

APPENDIX C
Supplemental Information (USCS, Terms & Symbols)

WHITESTONE
An Employee-Owned Company

16 Old Forge Road
Suite A
Rocky Hill, CT 06067
860.726.7889
whitestoneassoc.com

UNIFIED SOIL CLASSIFICATION SYSTEM

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
			GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)	SM	SILTY SANDS, SAND-SILT MIXTURES
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMITS LESS THAN 50	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMITS GREATER THAN 50	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS FOR SAMPLES WITH 5% TO 12% FINES

GRADATION*

% FINER BY WEIGHT

TRACE..... 1% TO 10%
LITTLE..... 10% TO 20%
SOME..... 20% TO 35%
AND..... 35% TO 50%

COMPACTNESS*
Sand and/or Gravel

RELATIVE DENSITY

LOOSE. ..... 0% TO 40%
MEDIUM DENSE.... 40% TO 70%
DENSE..... 70% TO 90%
VERY DENSE..... 90% TO 100%

CONSISTENCY*
Clay and/or Silt

RANGE OF SHEARING STRENGTH IN POUNDS PER SQUARE FOOT

VERY SOFT..... LESS THAN 250
SOFT..... ..... 250 TO 500
MEDIUM..... 500 TO 1000
STIFF..... 1000 TO 2000
VERY STIFF..... 2000 TO 4000
HARD..... GREATER THAN 4000

** VALUES ARE FROM LABORATORY OR FIELD TEST DATA, WHERE APPLICABLE. WHEN NO TESTING WAS PERFORMED, VALUES ARE ESTIMATED.*

L:\Geotechnical Forms and References\Reports\USCSTRMSSYM CT.docx

WHITESTONE
An Employee-Owned Company

16 OLD FORGE ROAD
SUITE A
ROCKY HILL, CT 06067
860.726.7889
whitestoneassoc.com

GEOTECHNICAL TERMS AND SYMBOLS

SAMPLE IDENTIFICATION

The Unified Soil Classification System is used to identify the soil unless otherwise noted.

SOIL PROPERTY SYMBOLS

N: Standard Penetration Value: Blows per ft. of a 140 lb. hammer falling 30" on a 2" O.D. split-spoon.
Qu: Unconfined compressive strength, TSF.
Qp: Penetrometer value, unconfined compressive strength, TSF.
Mc: Moisture content, %.
LL: Liquid limit, %.
PI: Plasticity index, %.
δd: Natural dry density, PCF.
▼: Apparent groundwater level at time noted after completion of boring.

DRILLING AND SAMPLING SYMBOLS

NE: Not Encountered (Groundwater was not encountered).
SS: Split-Spoon - 1 ⅜" I.D., 2" O.D., except where noted.
ST: Shelby Tube - 3" O.D., except where noted.
AU: Auger Sample.
OB: Diamond Bit.
CB: Carbide Bit
WS: Washed Sample.

RELATIVE DENSITY AND CONSISTENCY CLASSIFICATION

Term (Non-Cohesive Soils)	Standard Penetration Resistance
Very Loose	0-4
Loose	4-10
Medium Dense	10-30
Dense	30-50
Very Dense	Over 50

Term (Cohesive Soils)	Qu (TSF)
Very Soft	0 - 0.25
Soft	0.25 - 0.50
Firm (Medium)	0.50 - 1.00
Stiff	1.00 - 2.00
Very Stiff	2.00 - 4.00
Hard	4.00+

PARTICLE SIZE

Boulders	8 in.+	Coarse Sand	5mm-0.6mm	Silt	0.074mm-0.005mm
Cobbles	8 in.-3 in.	Medium Sand	0.6mm-0.2mm	Clay	-0.005mm
Gravel	3 in.-5mm	Fine Sand	0.2mm-0.074mm		

APPENDIX C
Stormwater Pollution Control Plan (SWPCP)
To be submitted prior to construction

Stormwater Pollution Control Plan (SWPCP)

Horizon View
2268-2284 Connecticut Route 32
Montville, CT 06353

Prepared for:

Honeycomb Real Estate Partners
20 Avon Meadow Lane
Montville, CT 06001

Prepared by:

RJOC
R.J. O'Connell & Associates, Inc.
80 Montvale Ave, Suite 201
Stoneham, MA 02180

Date:

October 2024

STORMWATER POLLUTION CONTROL PLAN
SWPCP

Horizon View
Montville, CT

State Project No. TBD
EzFile No. TBD

Connecticut Department of Transportation

October 2024

This Stormwater Pollution Control Plan (SWPCP) is prepared to comply with the requirements for the General Permit for Stormwater Discharges from Construction Activities and the 2024 Connecticut Guidelines for Soil Erosion and Sediment Control (2024 E&S Guidelines).