

May 14, 2026

Fairhaven Planning Board
Town of Fairhaven
40 Center Street
Fairhaven, MA 02719

RE: Preliminary Subdivision Submission
4 Earle St, Fairhaven MA
Applicant: Coastal Village Partners LLC c/o Joel Cordero

1. Project Overview

This Stormwater Narrative is submitted in support of a Preliminary Subdivision Plan for the property located at 4 Earle Street, Fairhaven, Massachusetts. The applicant, Coastal Village Partners LLC, proposes to subdivide the existing 37,968± square-foot parcel into two (2) buildable lots in accordance with the Town of Fairhaven Zoning Bylaw and applicable Subdivision Rules and Regulations.

As part of the proposed subdivision, the existing gravel access road will be extended to provide access to the proposed new lot. The roadway extension will be designed to maintain appropriate access, minimize disturbance, and manage stormwater runoff associated with the proposed improvements. Stormwater management measures will be incorporated into the design to control runoff from the proposed gravel road extension, promote infiltration where feasible, and prevent adverse impacts to adjacent properties, resource areas, and the existing drainage patterns.

2. Proposed Stormwater Mitigation

The stormwater runoff generated from the proposed gravel road extension and the new paved driveway serving the proposed dwelling will be directed by proposed surface grading toward the proposed above-ground infiltration/detention basin, identified as Basin P1.

The proposed Basin P1 has been designed to fully recharge the runoff generated during the 2-year, 10-year, 25-year, and 100-year storm events. Based on the HydroCAD analysis, Basin P1 has adequate capacity to fully capture the 100-year storm event while maintaining 6 inches of freeboard. The calculated 100-year stormwater elevation within Basin P1 is Elevation 62.03, while the lowest point at the top of basin is Elevation 62.50. Refer to the attached HydroCAD report for additional supporting calculations.

Runoff generated by the proposed roof area will be collected by roof downspouts and conveyed through underground 6-inch ADS piping to the proposed underground infiltration system, identified as System P2, located at the rear of the proposed dwelling. System P2 has been designed to fully capture and recharge 3.20 inches of rainfall, as documented in the HydroCAD report.

Both proposed stormwater management systems will be located entirely within the new lot. Long-term ownership and maintenance of both systems will be the responsibility of the owner of the new lot. A full long-term operation and maintenance plan for both stormwater systems will be prepared and submitted with the Definitive Subdivision Plan.

3. Soil Conditions

Soil data used for the HydroCAD calculations are based on available record information from a test pit performed on May 18, 2017, when the original subdivision for 4 Earle Street was created. Refer to the attached record drawing for additional information.

Based on the available record soil data, the on-site soils consist of loamy sand. For stormwater modeling purposes, a Rawls exfiltration rate of 2.41 inches per hour was used in the HydroCAD calculations.

4. Rainfall Data

Peak stormwater discharges have been determined for total rainfall estimated for the 2, 10, 25 and 100-year storm event recurrence intervals are outlined in Table 1 – Summary of Rainfall Data.

Table 1. – Summary of Rainfall Data

Reference	Rainfall Recurrence Interval	24 Hour Rainfall Depth
NOAA Atlas 14	2-Year Storm	3.20 inches
	10-Year Storm	4.75 inches
	25-Year Storm	5.82 inches
	100-Year Storm	7.48 inches

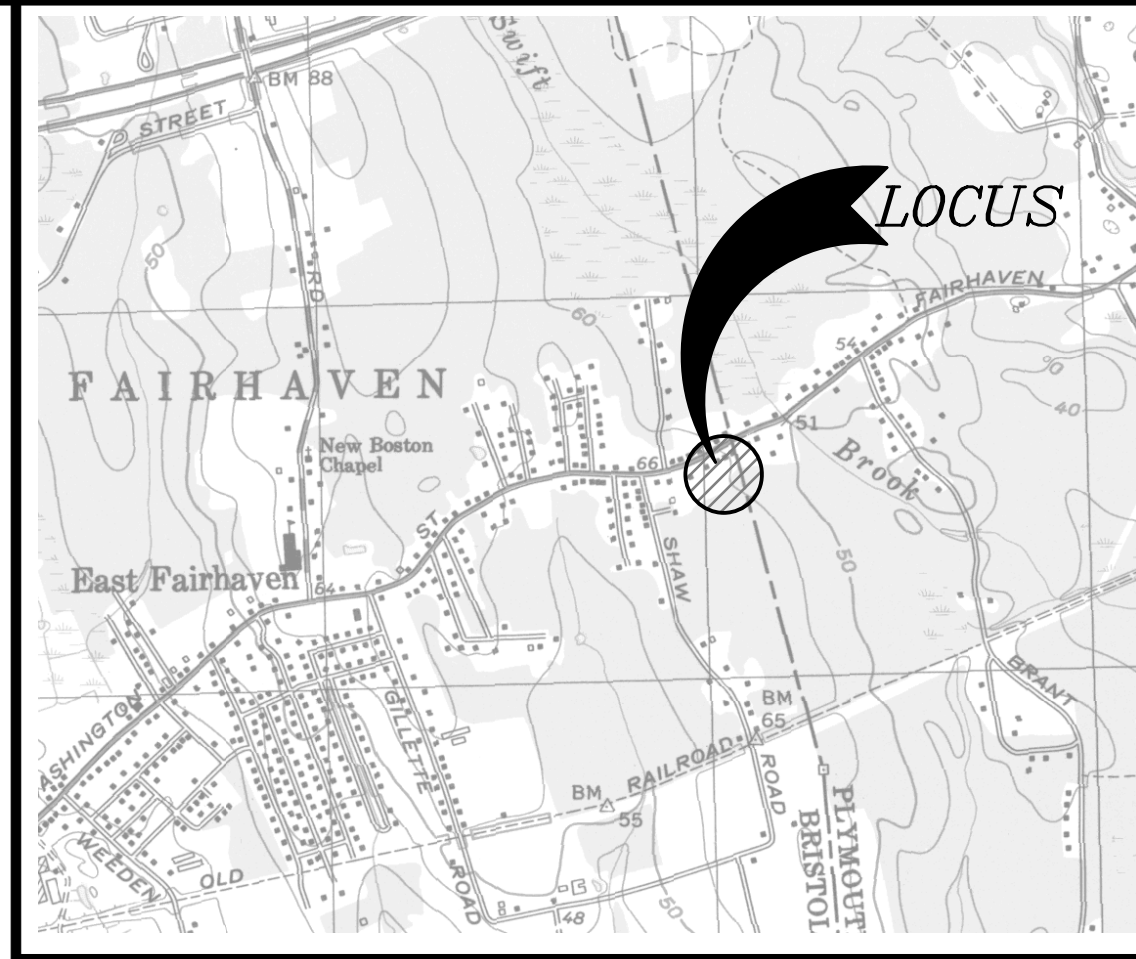
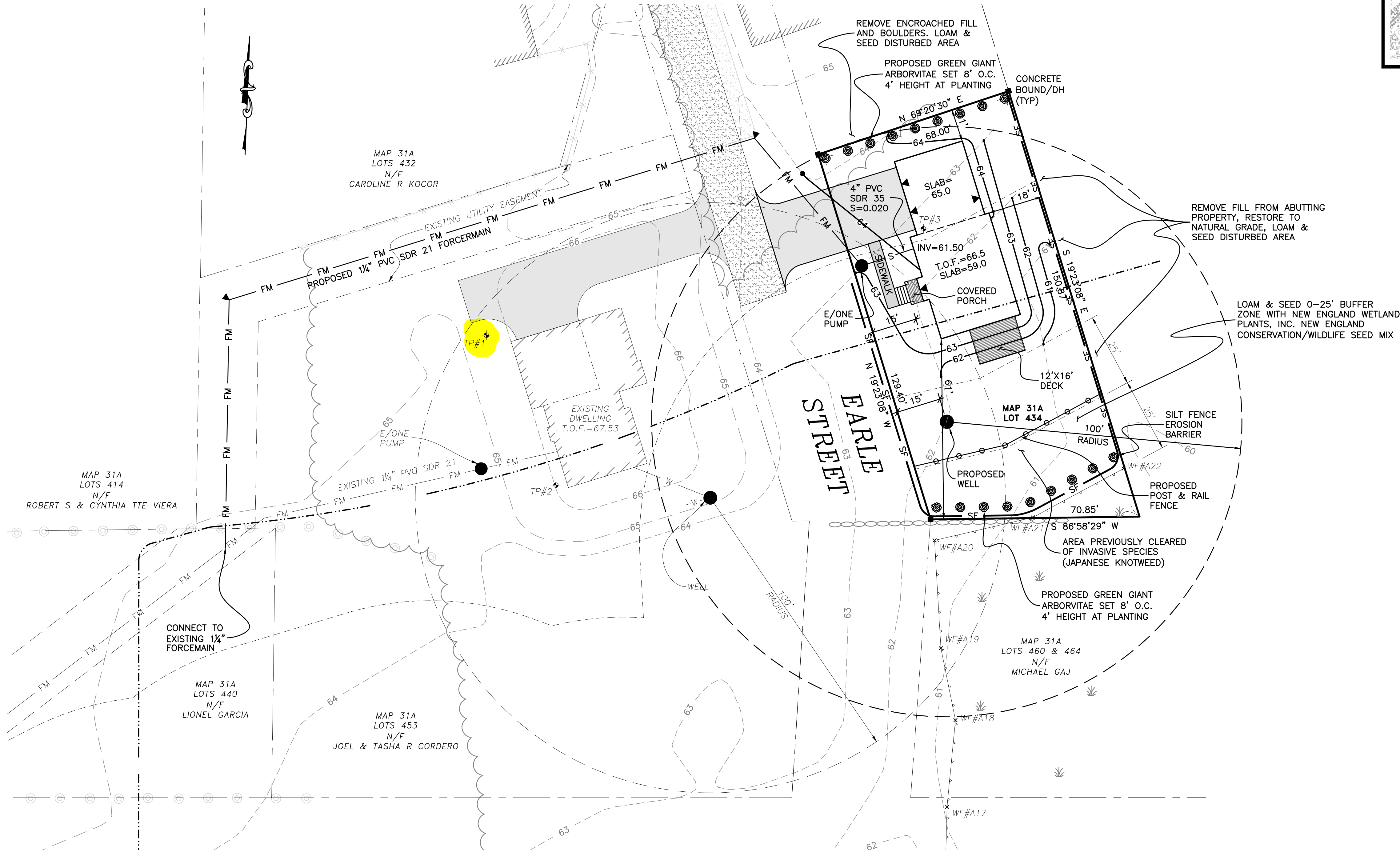
Should you have any questions please contact my office at 508-730-9515 or akoka@kbmdesigngroup.com

Sincerely,
KBM Design Group



Alfons Koka PE
Partner

cc: Joel Cordero



LOCUS MAP
SCALE: 1"=500'±

LEGEND

- PROPERTY LINE
- 57 EXISTING MINOR CONTOUR
- 57 EXISTING MAJOR CONTOUR
- W EXISTING WATER MAIN
- S EXISTING SEWER LINE
- EDGE OF BORDERING VEGETATED WETLANDS
- EXISTING TEST PIT
- ABUTTING PROPERTY LINE
- EXISTING BUILDING
- W PROPOSED WATER
- S PROPOSED SEWER
- PROPOSED BUILDING
- PROPOSED BUILDING ENTRANCE
- SF PROPOSED SILT FENCE
- PROPOSED POST & RAIL FENCE

TEST PIT DATA		
DATE: MAY 18, 2017		
SOIL EVALUATOR: MICHAEL DIBENEDETTO		
0" - 2"	A	SANDY LOAM
2" - 40"	C ₁	MEDIUM SAND 7.5YR 4/6
40" - 72"	C ₂	LOAMY SAND 10YR 6/4

MOTTLES @ 42" (59.3)
WATER @ 72" (56.8)



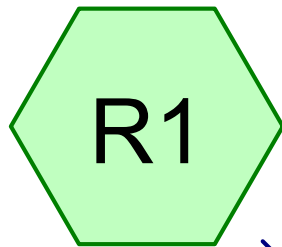
Project	ASSESSOR'S MAP 31A - LOT 434 EARLE STREET FAIRHAVEN, MASSACHUSETTS
Client	VERMETTE DEVELOPMENT CORP.
Drawing Title	SITE PLAN

Scale: 1" = 20'
Date: FEB. 25, 2025
Drawn: KJ
Checked: SDG
Approved: SDG
Sheet 1 of 1
Drawing Number: SP-1

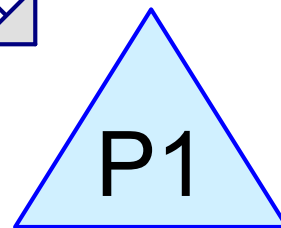
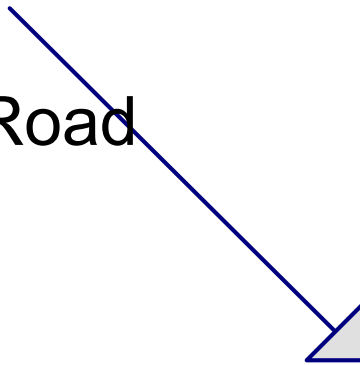
Project: ASSESSOR'S MAP 31A - LOT 434
Earle Street
Fairhaven, Massachusetts
Client: VERMETTE DEVELOPMENT CORP.
Drawing Title: SITE PLAN

SITEC
ENGINEERING &
CONSULTANTS, INC.
908 Main Street
New Bedford, MA 02740
Tel: (508) 331-0100 Fax: (508) 331-4783
https://sitecinc.com/

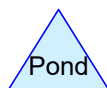
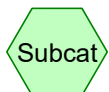
File No. 25-1897



Pr_Gravel Road



Pr_Inf-Det_System 1



Routing Diagram for 4 Earle St_Roof

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4 Earle St_Roof

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type II 24-hr		Default	24.00	1	3.20	2
2	10-yr	Type II 24-hr		Default	24.00	1	4.75	2
3	25-yr	Type II 24-hr		Default	24.00	1	5.82	2
4	100-yr	Type II 24-hr		Default	24.00	1	7.48	2

4 Earle St_Roof

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Page 3

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.022	HSG A	R1
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.057	Other	R1
0.080		TOTAL AREA

4 Earle St_Roof

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.057	0.057	Gravel Road	R1
0.022	0.000	0.000	0.000	0.000	0.022	Paved parking	R1
0.022	0.000	0.000	0.000	0.057	0.080	TOTAL AREA	

4 Earle St_Roof

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Type II 24-hr 2-yr Rainfall=3.20"

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Page 5

Summary for Subcatchment R1: Pr_Gravel Road

Runoff = 0.31 cfs @ 11.97 hrs, Volume= 0.016 af, Depth= 2.35"
Routed to Pond P1 : Pr_Inf-Det_System 1

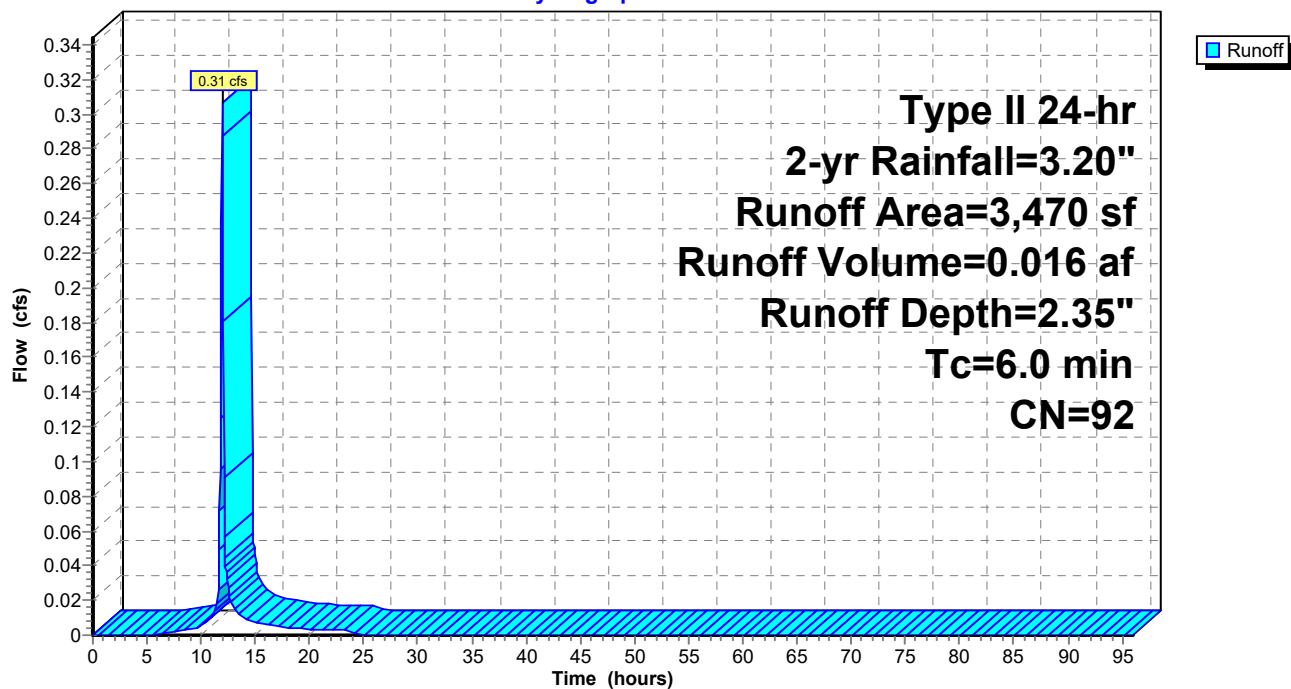
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.20"

	Area (sf)	CN	Description
*	2,500	90	Gravel Road
	970	98	Paved parking, HSG A
	3,470	92	Weighted Average
	2,500		72.05% Pervious Area
	970		27.95% Impervious Area

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

Subcatchment R1: Pr_Gravel Road

Hydrograph



4 Earle St_Roof

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Type II 24-hr 2-yr Rainfall=3.20"

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Summary for Pond P1: Pr_Inf-Det_System 1

Inflow Area = 0.080 ac, 27.95% Impervious, Inflow Depth = 2.35" for 2-yr event
Inflow = 0.31 cfs @ 11.97 hrs, Volume= 0.016 af
Outflow = 0.04 cfs @ 12.24 hrs, Volume= 0.016 af, Atten= 87%, Lag= 16.7 min
Discarded = 0.04 cfs @ 12.24 hrs, Volume= 0.016 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 61.35' @ 12.24 hrs Surf.Area= 726 sf Storage= 234 cf

Plug-Flow detention time= 38.9 min calculated for 0.016 af (100% of inflow)
Center-of-Mass det. time= 38.9 min (833.5 - 794.6)

Volume	Invert	Avail.Storage	Storage Description
#1	61.00'	1,028 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
61.00	615	0	0
62.00	933	774	774
62.25	1,100	254	1,028

Device	Routing	Invert	Outlet Devices
#1	Discarded	61.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.04 cfs @ 12.24 hrs HW=61.35' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

4 Earle St_Roof

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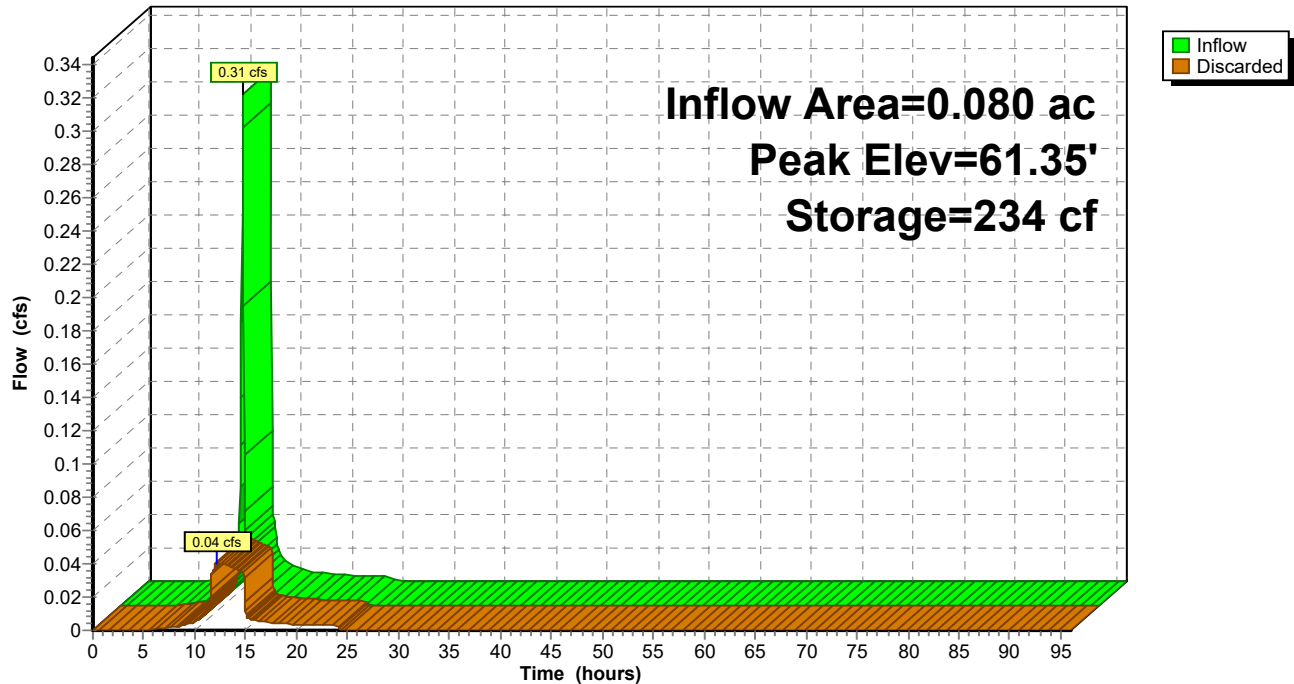
Type II 24-hr 2-yr Rainfall=3.20"

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Pond P1: Pr_Inf-Det_System 1

Hydrograph



4 Earle St_Roof

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Type II 24-hr 10-yr Rainfall=4.75"

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Summary for Subcatchment R1: Pr_Gravel Road

Runoff = 0.49 cfs @ 11.96 hrs, Volume= 0.026 af, Depth= 3.85"
Routed to Pond P1 : Pr_Inf-Det_System 1

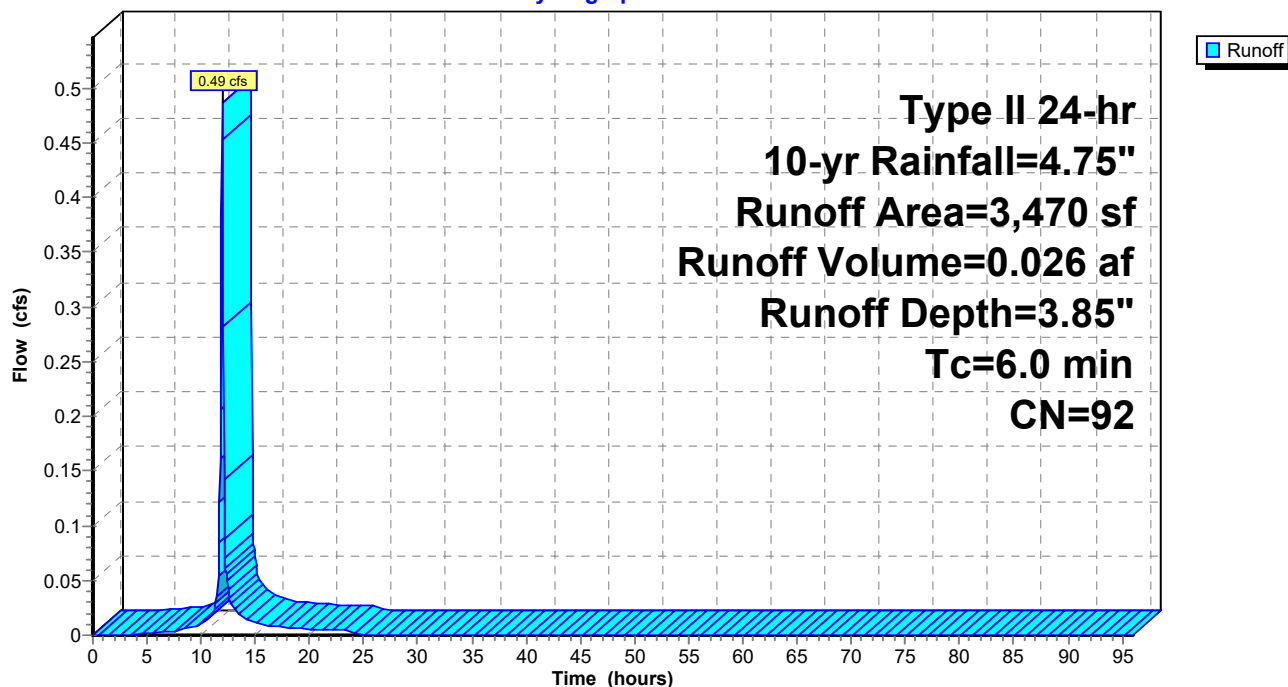
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.75"

	Area (sf)	CN	Description
*	2,500	90	Gravel Road
	970	98	Paved parking, HSG A
	3,470	92	Weighted Average
	2,500		72.05% Pervious Area
	970		27.95% Impervious Area

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

Subcatchment R1: Pr_Gravel Road

Hydrograph



4 Earle St_Roof

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Type II 24-hr 10-yr Rainfall=4.75"

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Summary for Pond P1: Pr_Inf-Det_System 1

Inflow Area = 0.080 ac, 27.95% Impervious, Inflow Depth = 3.85" for 10-yr event
Inflow = 0.49 cfs @ 11.96 hrs, Volume= 0.026 af
Outflow = 0.04 cfs @ 12.43 hrs, Volume= 0.026 af, Atten= 91%, Lag= 28.2 min
Discarded = 0.04 cfs @ 12.43 hrs, Volume= 0.026 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 61.60' @ 12.43 hrs Surf.Area= 806 sf Storage= 427 cf

Plug-Flow detention time= 70.1 min calculated for 0.026 af (100% of inflow)
Center-of-Mass det. time= 70.1 min (851.1 - 781.0)

Volume	Invert	Avail.Storage	Storage Description
#1	61.00'	1,028 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
61.00	615	0	0
62.00	933	774	774
62.25	1,100	254	1,028

Device	Routing	Invert	Outlet Devices
#1	Discarded	61.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.04 cfs @ 12.43 hrs HW=61.60' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

4 Earle St_Roof

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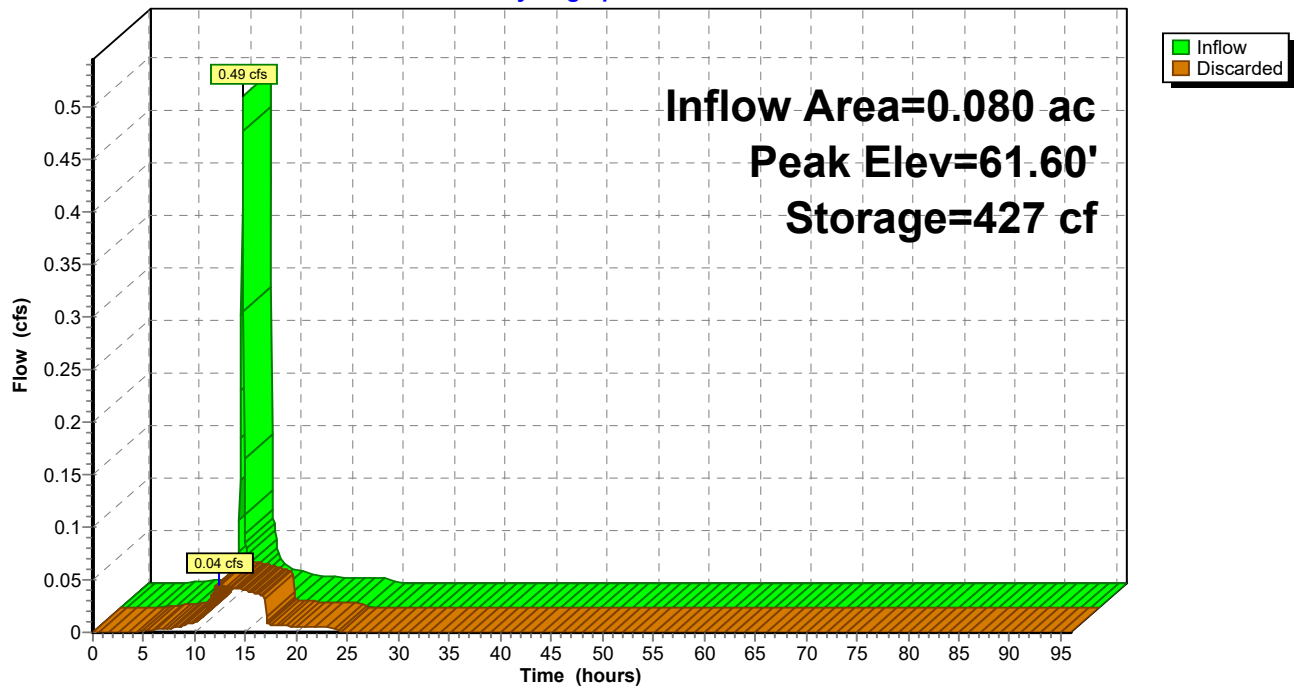
Type II 24-hr 10-yr Rainfall=4.75"

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Pond P1: Pr_Inf-Det_System 1

Hydrograph



4 Earle St_Roof

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Type II 24-hr 25-yr Rainfall=5.82"

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Summary for Subcatchment R1: Pr_Gravel Road

Runoff = 0.61 cfs @ 11.96 hrs, Volume= 0.032 af, Depth= 4.89"
Routed to Pond P1 : Pr_Inf-Det_System 1

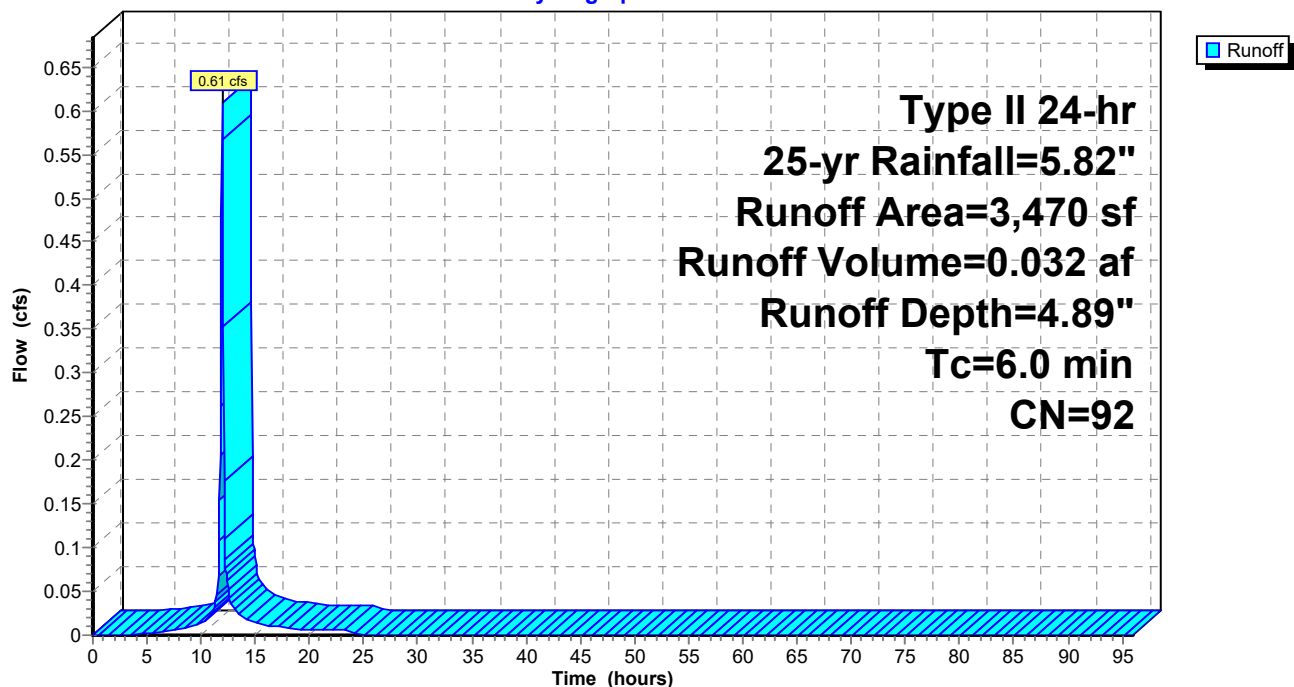
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.82"

	Area (sf)	CN	Description
*	2,500	90	Gravel Road
	970	98	Paved parking, HSG A
	3,470	92	Weighted Average
	2,500		72.05% Pervious Area
	970		27.95% Impervious Area

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

Subcatchment R1: Pr_Gravel Road

Hydrograph



4 Earle St_Roof

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Type II 24-hr 25-yr Rainfall=5.82"

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Summary for Pond P1: Pr_Inf-Det_System 1

Inflow Area = 0.080 ac, 27.95% Impervious, Inflow Depth = 4.89" for 25-yr event
Inflow = 0.61 cfs @ 11.96 hrs, Volume= 0.032 af
Outflow = 0.05 cfs @ 12.51 hrs, Volume= 0.032 af, Atten= 92%, Lag= 32.8 min
Discarded = 0.05 cfs @ 12.51 hrs, Volume= 0.032 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 61.77' @ 12.51 hrs Surf.Area= 861 sf Storage= 570 cf

Plug-Flow detention time= 92.0 min calculated for 0.032 af (100% of inflow)
Center-of-Mass det. time= 91.9 min (866.5 - 774.6)

Volume	Invert	Avail.Storage	Storage Description
#1	61.00'	1,028 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
61.00	615	0	0
62.00	933	774	774
62.25	1,100	254	1,028

Device	Routing	Invert	Outlet Devices
#1	Discarded	61.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.05 cfs @ 12.51 hrs HW=61.77' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

4 Earle St_Roof

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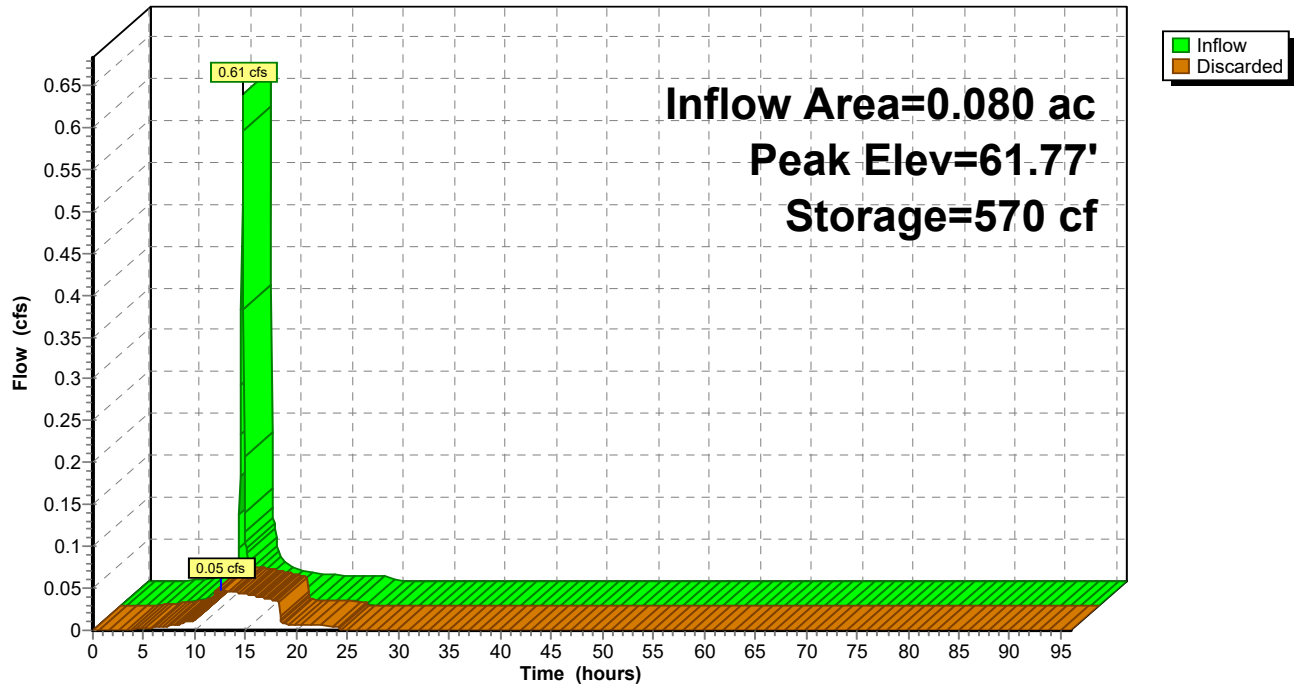
Type II 24-hr 25-yr Rainfall=5.82"

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Pond P1: Pr_Inf-Det_System 1

Hydrograph



4 Earle St_Roof

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Type II 24-hr 100-yr Rainfall=7.48"

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Summary for Subcatchment R1: Pr_Gravel Road

Runoff = 0.80 cfs @ 11.96 hrs, Volume= 0.043 af, Depth= 6.53"

Routed to Pond P1 : Pr_Inf-Det_System 1

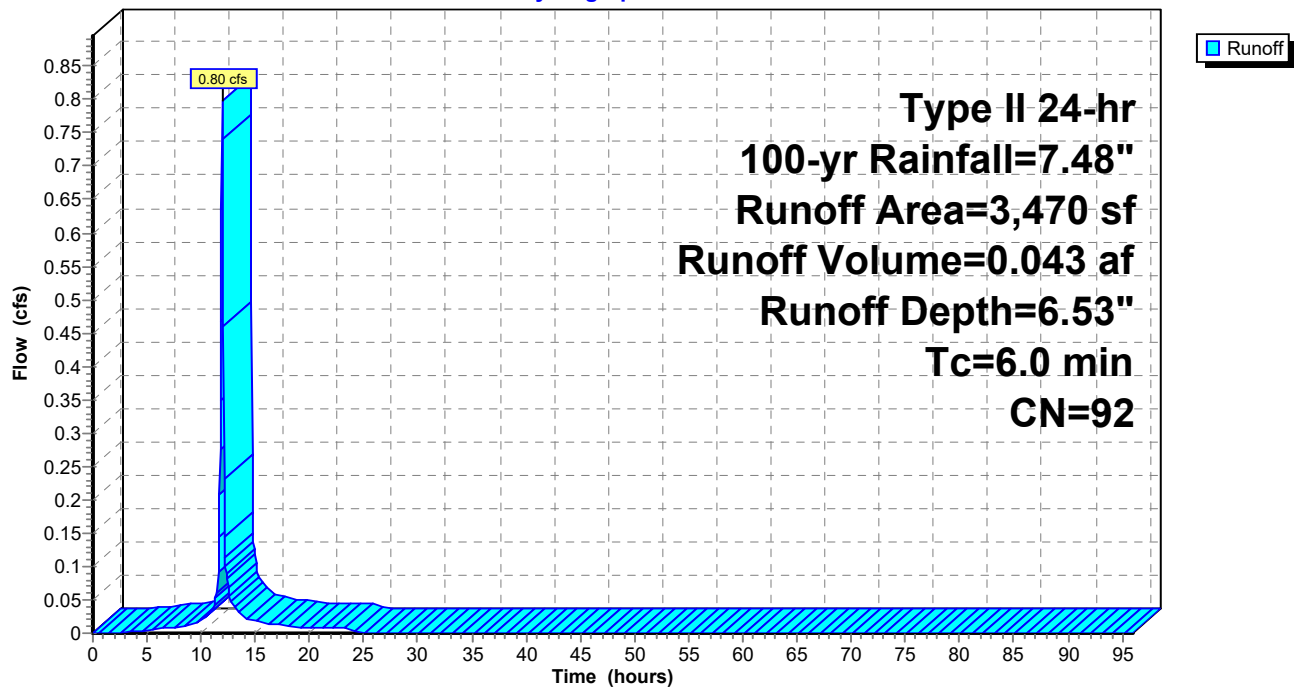
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.48"

	Area (sf)	CN	Description
*	2,500	90	Gravel Road
	970	98	Paved parking, HSG A
	3,470	92	Weighted Average
	2,500		72.05% Pervious Area
	970		27.95% Impervious Area

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

Subcatchment R1: Pr_Gravel Road

Hydrograph



4 Earle St_Roof

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Type II 24-hr 100-yr Rainfall=7.48"

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Summary for Pond P1: Pr_Inf-Det_System 1

Inflow Area = 0.080 ac, 27.95% Impervious, Inflow Depth = 6.53" for 100-yr event
Inflow = 0.80 cfs @ 11.96 hrs, Volume= 0.043 af
Outflow = 0.05 cfs @ 12.60 hrs, Volume= 0.043 af, Atten= 93%, Lag= 38.1 min
Discarded = 0.05 cfs @ 12.60 hrs, Volume= 0.043 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 62.03' @ 12.60 hrs Surf.Area= 954 sf Storage= 803 cf

Plug-Flow detention time= 125.6 min calculated for 0.043 af (100% of inflow)
Center-of-Mass det. time= 125.6 min (892.9 - 767.3)

Volume	Invert	Avail.Storage	Storage Description
#1	61.00'	1,028 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
61.00	615	0	0
62.00	933	774	774
62.25	1,100	254	1,028

Device	Routing	Invert	Outlet Devices
#1	Discarded	61.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.05 cfs @ 12.60 hrs HW=62.03' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

4 Earle St_Roof

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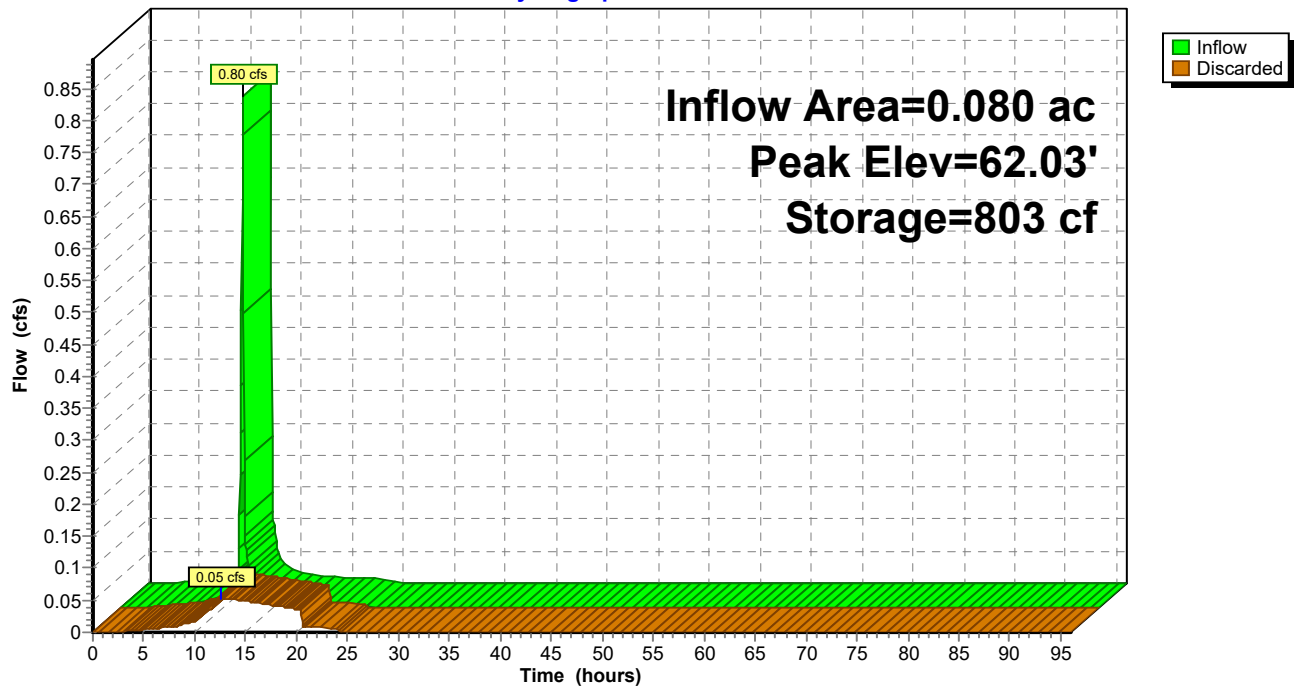
Type II 24-hr 100-yr Rainfall=7.48"

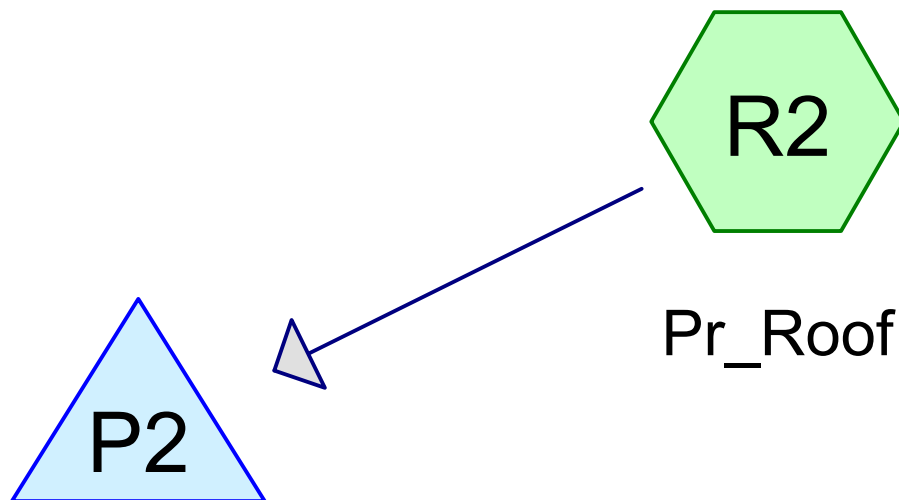
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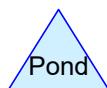
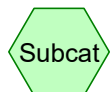
Pond P1: Pr_Inf-Det_System 1

Hydrograph





Pr_Infiltration_System
P2



Routing Diagram for 4 Earle St_Roof

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4 Earle St_Roof

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Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type II 24-hr		Default	24.00	1	3.20	2

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Page 3

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.039	HSG A	R2
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.039		TOTAL AREA

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Page 4

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.039	0.000	0.000	0.000	0.000	0.039	Unconnected roofs	R2
0.039	0.000	0.000	0.000	0.000	0.039	TOTAL AREA	

4 Earle St_Roof

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Type II 24-hr 2-yr Rainfall=3.20"

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Page 5

Summary for Subcatchment R2: Pr_Roof

Runoff = 0.17 cfs @ 11.96 hrs, Volume= 0.010 af, Depth= 2.97"

Routed to Pond P2 : Pr_Infiltration_System P2

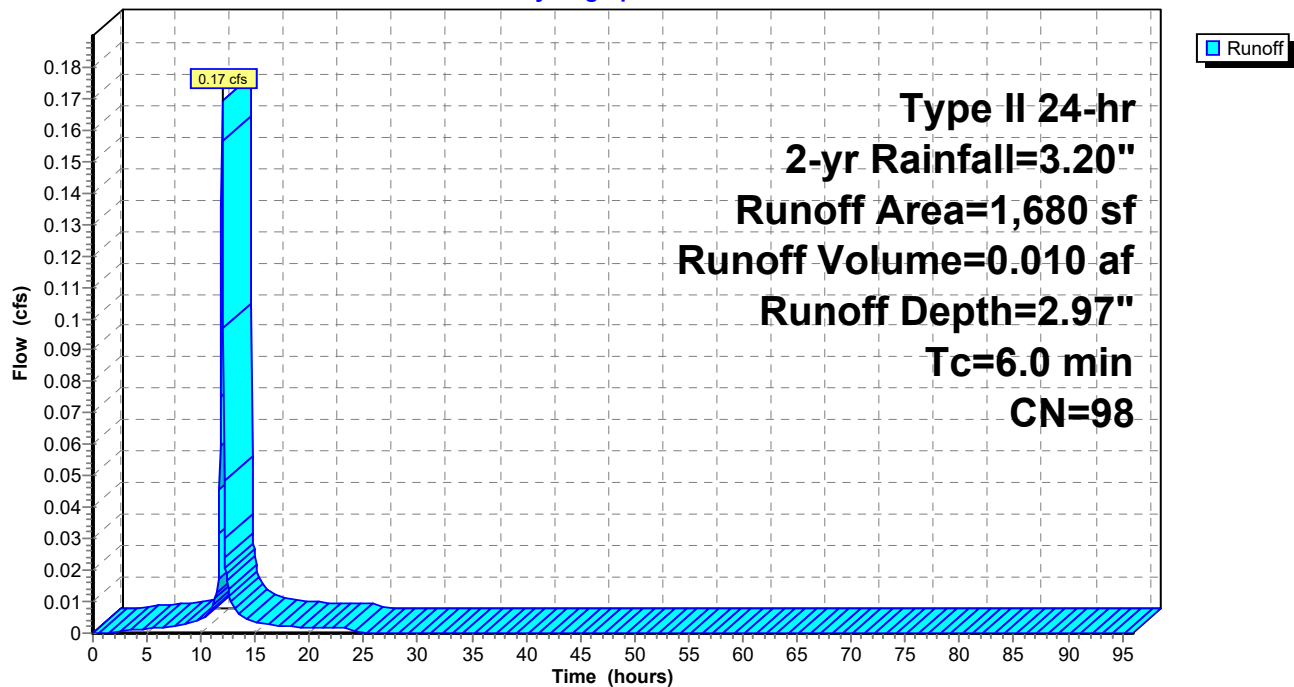
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Description
1,680	98	Unconnected roofs, HSG A
1,680		100.00% Impervious Area
1,680		100.00% Unconnected

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

Subcatchment R2: Pr_Roof

Hydrograph



4 Earle St_Roof

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Type II 24-hr 2-yr Rainfall=3.20"

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Summary for Pond P2: Pr_Infiltration_System P2

Inflow Area = 0.039 ac, 100.00% Impervious, Inflow Depth = 2.97" for 2-yr event
Inflow = 0.17 cfs @ 11.96 hrs, Volume= 0.010 af
Outflow = 0.01 cfs @ 11.10 hrs, Volume= 0.010 af, Atten= 95%, Lag= 0.0 min
Discarded = 0.01 cfs @ 11.10 hrs, Volume= 0.010 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 63.17' @ 13.00 hrs Surf.Area= 0.003 ac Storage= 0.004 af

Plug-Flow detention time= 166.7 min calculated for 0.010 af (100% of inflow)
Center-of-Mass det. time= 166.6 min (919.1 - 752.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	61.00'	0.003 af	11.25"W x 13.00'L x 2.54'H Field A 0.009 af Overall - 0.002 af Embedded = 0.007 af x 40.0% Voids
#2A	61.50'	0.002 af	Cultec R-150XLHD x 3 Inside #1 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 3 rows
		0.005 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	61.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.01 cfs @ 11.10 hrs HW=61.03' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

4 Earle St_Roof

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Type II 24-hr 2-yr Rainfall=3.20"

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Pond P2: Pr_Infiltration_System P2 - Chamber Wizard Field A

Chamber Model = Cultec R-150XLHD (Cultec Recharger®150XLHD)

Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf

Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap

Row Length Adjustment= +0.75' x 2.65 sf x 3 rows

33.0" Wide + 6.0" Spacing = 39.0" C-C Row Spacing

1 Chambers/Row x 10.25' Long +0.75' Row Adjustment = 11.00' Row Length +12.0" End Stone x 2 = 13.00' Base Length

3 Rows x 33.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 11.25' Base Width

6.0" Stone Base + 18.5" Chamber Height + 6.0" Stone Cover = 2.54' Field Height

3 Chambers x 27.2 cf +0.75' Row Adjustment x 2.65 sf x 3 Rows = 87.4 cf Chamber Storage

371.7 cf Field - 87.4 cf Chambers = 284.3 cf Stone x 40.0% Voids = 113.7 cf Stone Storage

Chamber Storage + Stone Storage = 201.1 cf = 0.005 af

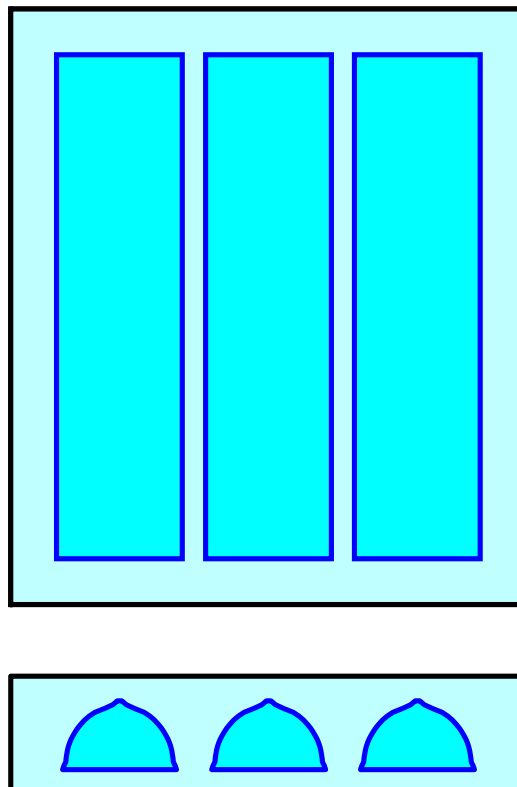
Overall Storage Efficiency = 54.1%

Overall System Size = 13.00' x 11.25' x 2.54'

3 Chambers

13.8 cy Field

10.5 cy Stone



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Pond P2: Pr_Infiltration_System P2

Hydrograph

