

March 31, 2026

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

RE: STORMWATER NARRATIVE
4 Earle St, Fairhaven MA
Applicant: Coastal Village Partners LLC c/o Joel Cordero

The proposed project at 4 Earle Street consists of the extension of an existing dead-end gravel roadway by approximately 90 feet to serve a new residential lot. The project also includes the construction of a fire apparatus turnaround and a paved driveway associated with the proposed single-family residence. The site has been carefully graded to direct stormwater runoff in a controlled manner. Runoff generated from the proposed gravel road extension, fire truck turnaround, and paved driveway will be conveyed via surface flow toward a proposed above-ground infiltration system (P1) located at the front of the proposed dwelling. The grading design ensures positive drainage while preventing uncontrolled discharge to adjacent properties and resource areas.

The proposed infiltration system (P1) is designed as an above-ground stormwater management practice with a minimum depth exceeding one (1) foot. The system has been sized to fully retain and infiltrate the runoff generated from the 100-year storm event, thereby eliminating off-site discharge under design conditions. This approach is consistent with the Massachusetts Stormwater Standards by promoting groundwater recharge and minimizing peak rate increases.

To further control runoff and protect abutting properties, a bituminous concrete berm is proposed along the edge of the new gravel roadway. This berm will act as a physical barrier to prevent stormwater from sheeting toward adjacent parcels and will ensure that all runoff is directed toward the designed collection and infiltration system.

Refer to the accompanying HydroCAD report submitted as part of this application.

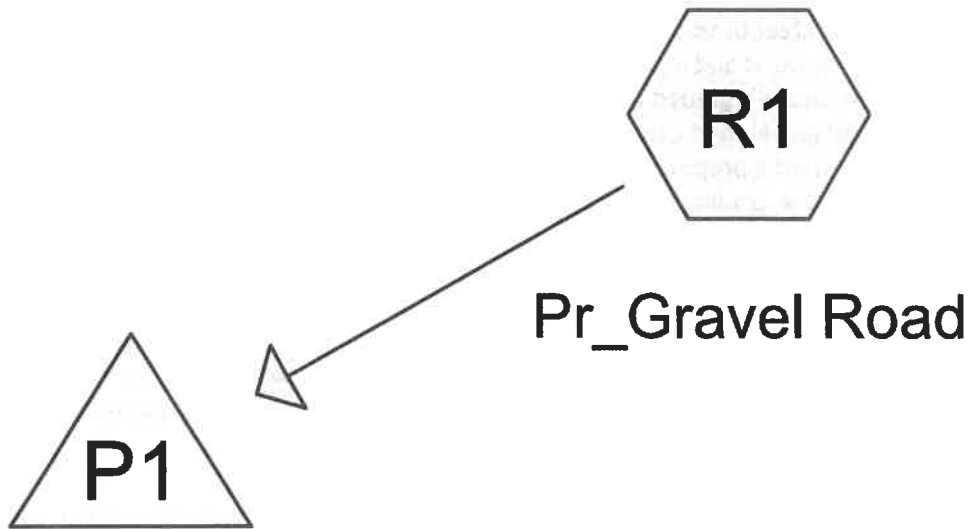
The proposed stormwater management system has been designed to minimize impacts to surrounding areas, promote infiltration, and maintain pre-development drainage characteristics to the maximum extent practicable.

Sincerely,
KBM Design Group



Alfons Koka PE
Partner

cc: Joel Cordero



Pr_Inf-Det_System 1



4 Earle St

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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

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.056	90	Gravel Road (R1)
0.022	98	Paved parking, HSG A (R1)
0.078	92	TOTAL AREA

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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	0.056	0.056	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	0.056	0.078	TOTAL AREA	

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

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Summary for Subcatchment R1: Pr_Gravel Road

Runoff = 0.30 cfs @ 11.97 hrs, Volume= 0.015 af, Depth= 2.35"
 Routed to Pond P1 : Pr_Inf-Det_System 1

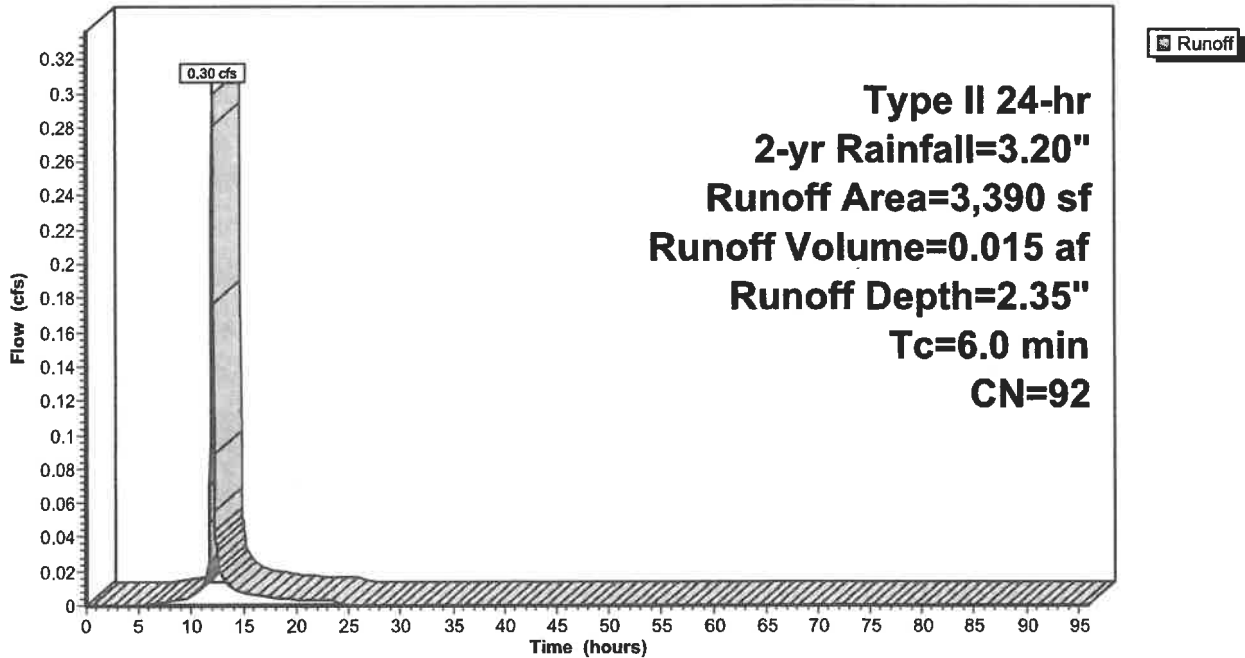
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type II 24-hr 2-yr Rainfall=3.20"

	Area (sf)	CN	Description
*	2,450	90	Gravel Road
	940	98	Paved parking, HSG A
	3,390	92	Weighted Average
	2,450		72.27% Pervious Area
	940		27.73% 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



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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 = 0.078 ac, 27.73% Impervious, Inflow Depth = 2.35" for 2-yr event
 Inflow = 0.30 cfs @ 11.97 hrs, Volume= 0.015 af
 Outflow = 0.04 cfs @ 12.27 hrs, Volume= 0.015 af, Atten= 88%, Lag= 18.5 min
 Discarded = 0.04 cfs @ 12.27 hrs, Volume= 0.015 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 61.41' @ 12.27 hrs Surf.Area= 663 sf Storage= 237 cf

Plug-Flow detention time= 45.5 min calculated for 0.015 af (100% of inflow)
 Center-of-Mass det. time= 45.5 min (840.1 - 794.6)

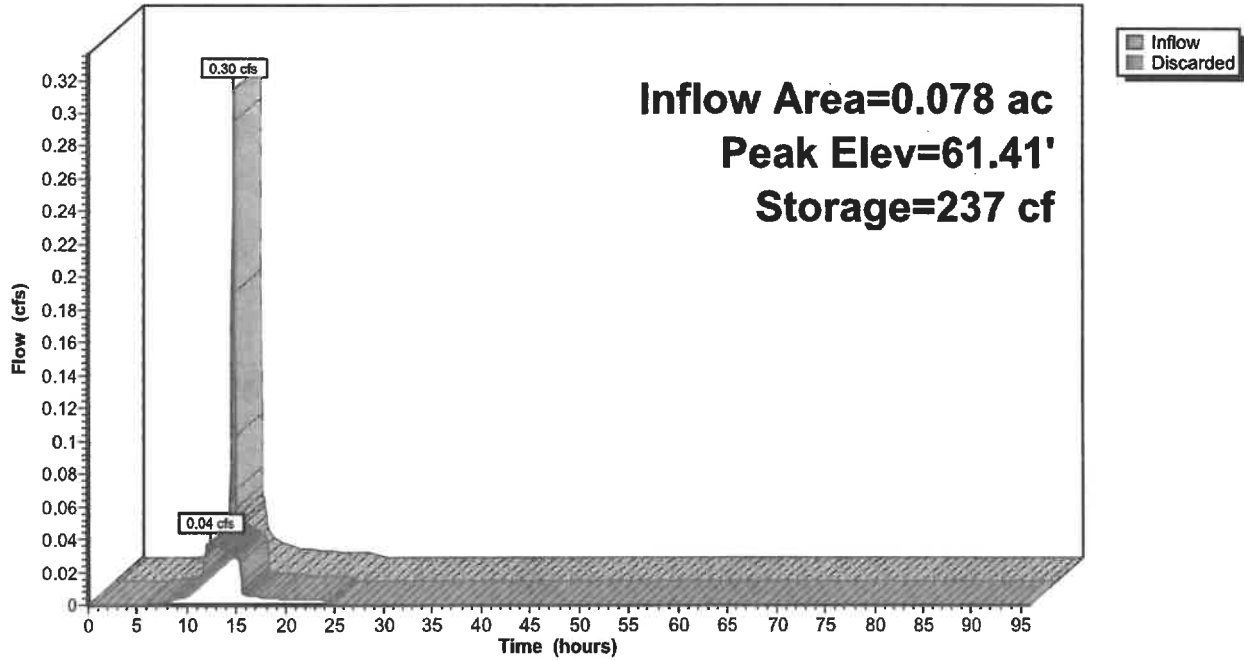
Volume #1	Invert 61.00'	Avail.Storage 931 cf	Storage Description Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
61.00	500	0	0	
62.00	900	700	700	
62.25	950	231	931	

Device #1	Routing Discarded	Invert 61.00'	Outlet Devices 2.410 in/hr Exfiltration over Surface area
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Discarded OutFlow Max=0.04 cfs @ 12.27 hrs HW=61.41' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.04 cfs)

Pond P1: Pr_Inf-Det_System 1

Hydrograph



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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 = 0.48 cfs @ 11.96 hrs, Volume= 0.025 af, Depth= 3.85"
 Routed to Pond P1 : Pr_Inf-Det_System 1

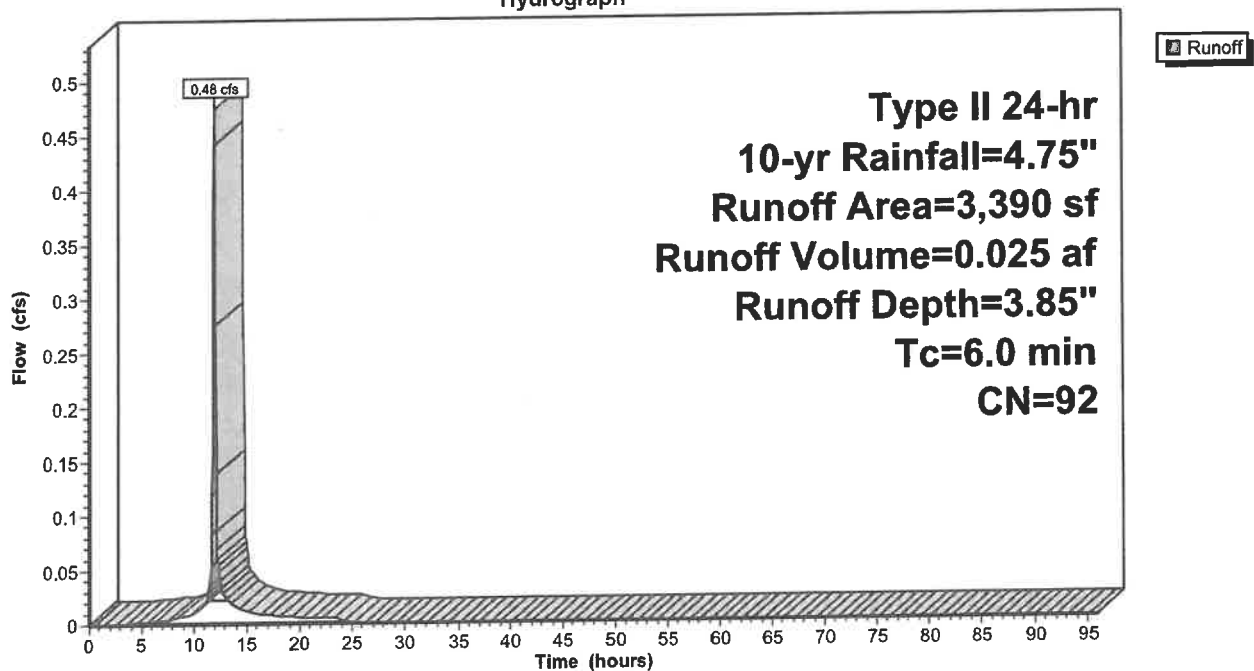
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type II 24-hr 10-yr Rainfall=4.75"

	Area (sf)	CN	Description
*	2,450	90	Gravel Road
	940	98	Paved parking, HSG A
	3,390	92	Weighted Average
	2,450		72.27% Pervious Area
	940		27.73% 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

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

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Summary for Pond P1: Pr_Inf-Det_System 1

Inflow Area = 0.078 ac, 27.73% Impervious, Inflow Depth = 3.85" for 10-yr event
 Inflow = 0.48 cfs @ 11.96 hrs, Volume= 0.025 af
 Outflow = 0.04 cfs @ 12.45 hrs, Volume= 0.025 af, Atten= 91%, Lag= 28.9 min
 Discarded = 0.04 cfs @ 12.45 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 61.67' @ 12.45 hrs Surf.Area= 769 sf Storage= 428 cf

Plug-Flow detention time= 77.4 min calculated for 0.025 af (100% of inflow)
 Center-of-Mass det. time= 77.4 min (858.4 - 781.0)

Volume	Invert	Avail.Storage	Storage Description
#1	61.00'	931 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

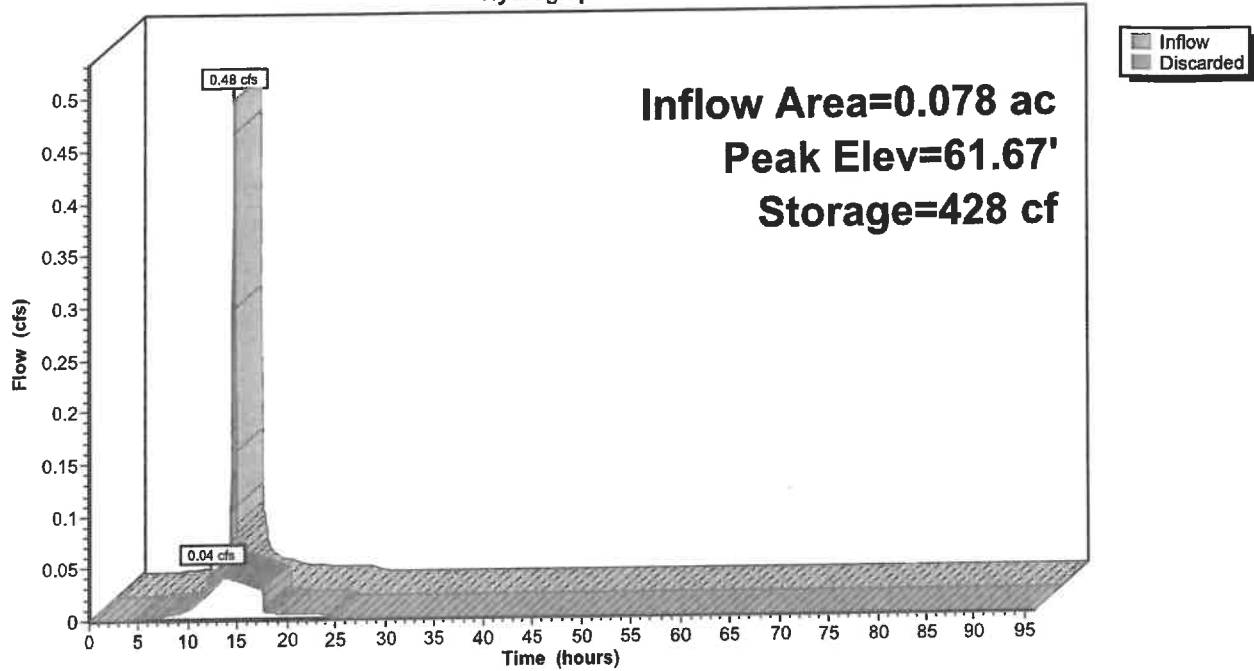
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
61.00	500	0	0
62.00	900	700	700
62.25	950	231	931

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

Discarded OutFlow Max=0.04 cfs @ 12.45 hrs HW=61.67' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.04 cfs)

Pond P1: Pr_Inf-Det_System 1

Hydrograph



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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 = 0.60 cfs @ 11.96 hrs, Volume= 0.032 af, Depth= 4.89"
 Routed to Pond P1 : Pr_Inf-Det_System 1

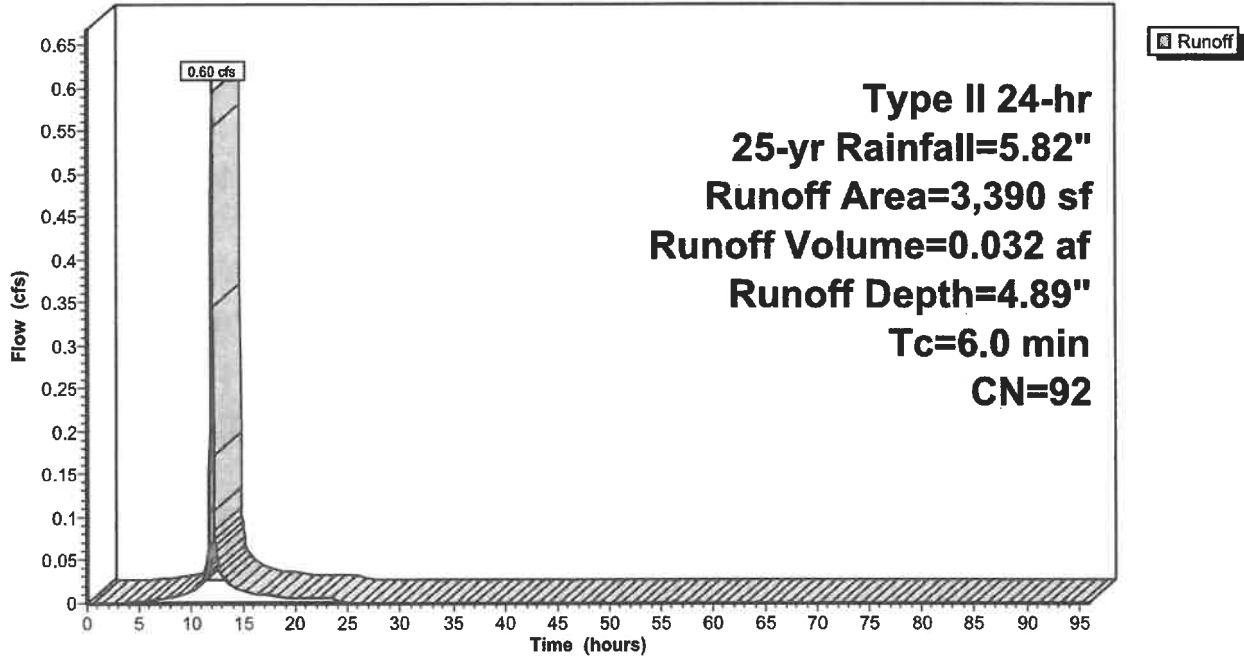
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type II 24-hr 25-yr Rainfall=5.82"

Area (sf)	CN	Description
* 2,450	90	Gravel Road
940	98	Paved parking, HSG A
3,390	92	Weighted Average
2,450		72.27% Pervious Area
940		27.73% 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



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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 = 0.078 ac, 27.73% Impervious, Inflow Depth = 4.89" for 25-yr event
 Inflow = 0.60 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= 61.85' @ 12.51 hrs Surf.Area= 840 sf Storage= 569 cf

Plug-Flow detention time= 99.0 min calculated for 0.032 af (100% of inflow)
 Center-of-Mass det. time= 99.0 min (873.6 - 774.6)

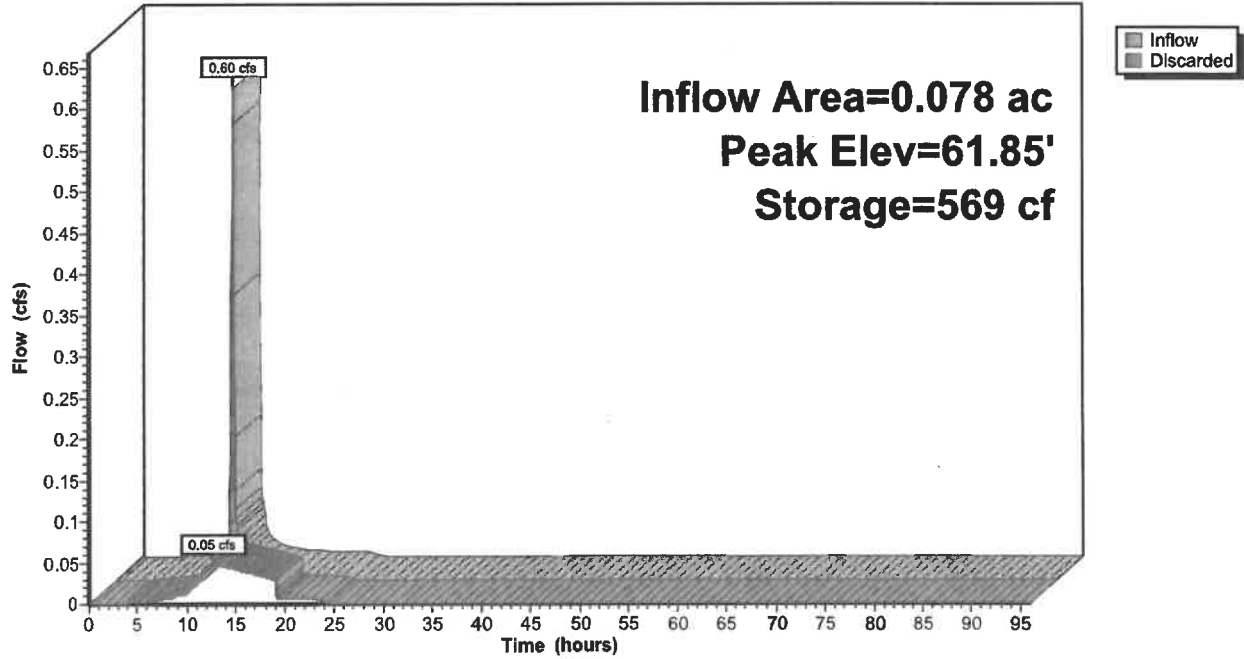
Volume	Invert	Avail.Storage	Storage Description
#1	61.00'	931 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
61.00	500	0	0
62.00	900	700	700
62.25	950	231	931

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=61.85' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.05 cfs)

Pond P1: Pr_Inf-Det_System 1

Hydrograph



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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 = 0.78 cfs @ 11.96 hrs, Volume= 0.042 af, Depth= 6.53"
 Routed to Pond P1 : Pr_Inf-Det_System 1

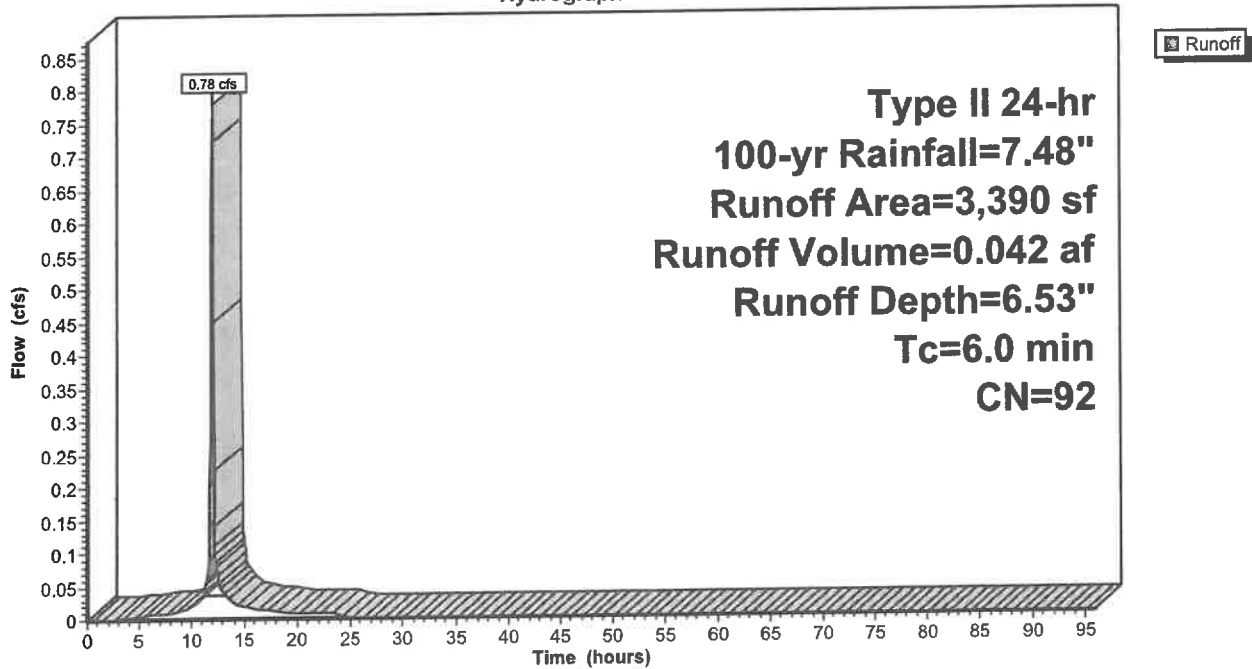
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Type II 24-hr 100-yr Rainfall=7.48"

Area (sf)	CN	Description
* 2,450	90	Gravel Road
940	98	Paved parking, HSG A
3,390	92	Weighted Average
2,450		72.27% Pervious Area
940		27.73% 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



Summary for Pond P1: Pr_Inf-Det_System 1

Inflow Area = 0.078 ac, 27.73% Impervious, Inflow Depth = 6.53" for 100-yr event
 Inflow = 0.78 cfs @ 11.96 hrs, Volume= 0.042 af
 Outflow = 0.05 cfs @ 12.61 hrs, Volume= 0.042 af, Atten= 93%, Lag= 38.6 min
 Discarded = 0.05 cfs @ 12.61 hrs, Volume= 0.042 af

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
 Peak Elev= 62.11' @ 12.61 hrs Surf.Area= 922 sf Storage= 802 cf

Plug-Flow detention time= 132.5 min calculated for 0.042 af (100% of inflow)
 Center-of-Mass det. time= 132.5 min (899.8 - 767.3)

Volume	Invert	Avail.Storage	Storage Description
#1	61.00'	931 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
61.00	500	0	0
62.00	900	700	700
62.25	950	231	931

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

Discarded OutFlow Max=0.05 cfs @ 12.61 hrs HW=62.11' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.05 cfs)

Pond P1: Pr_Inf-Det_System 1

Hydrograph

