DRAINAGE ANALYSIS
&
SEDIMENT AND EROSION CONTROL PLAN

Prepared for:

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RESIDENTIAL SUBDIVISION PLAN

Prepared by:

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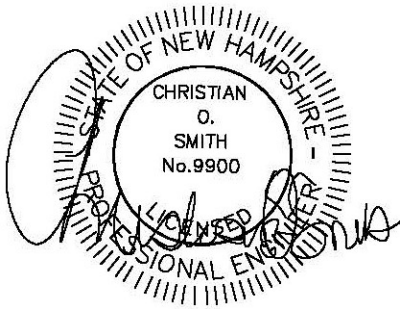
Project Number:
NH-1490
Raymond Road – Route 156
Nottingham, New Hampshire
December 18, 2023



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1.0 ANALYSIS SUMMARY

Joseph Falzone proposes to construct a residential site plan to establish an 18-lot subdivision off Raymond Road – Route 156 in Nottingham, New Hampshire. A drainage analysis of 93.9 acres of the proposed site improvements was conducted for the purpose of estimating the peak rate of stormwater runoff and to subsequently design adequate drainage structures. Two models were compiled: one for the area in its existing (pre-construction) condition and a second for its proposed (post-construction) condition. The analysis was conducted using Extreme Precipitation data provided by Cornell University for the following 24-hour duration storm events:

Storm Event	Rainfall Depth (inches)
2-Year	3.04
10-Year	4.60
25-Year	5.83
50-Year	6.98

These storm events use the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment to model the rainfall and predict stormwater runoff flows and volumes. A Type III storm pattern was used in the model. The purpose of this analysis is to estimate the peak rates of run-off from the site for detention adequacy purposes, and to compare the peak rate of run-off between the existing and proposed conditions.

Peak Rate of Discharge

		Component Peak Rate of Discharge (CFS)			
Analysis Point # Analysis Point Description	**Condition**	**2-Year**	**10-Year**	**25-Year**	**50-Year**
Reach #100 North to Pawtuckaway River	Existing	12.48	32.63	51.11	69.44
	Proposed	12.29	32.39	51.11	69.05
Reach #200 Northeast towards Raymond Road	Existing	5.28	13.84	21.63	29.39
	Proposed	4.78	12.76	19.39	24.59
Reach #300 East to Raymond Road	Existing	2.87	7.10	10.88	14.59
	Proposed	2.31	5.76	8.86	13.63
Reach #400 Southeast to Wetland	Existing	11.92	26.39	38.82	50.80
	Proposed	11.85	25.50	37.25	50.26
Reach #500 Southwest to Wetland	Existing	10.04	20.60	29.46	37.93
	Proposed	9.92	20.15	28.64	36.71

Channel Protection

Analysis Point # Analysis Point Description	Condition	2-Year Storm Volume (Acre-Feet)
Reach #100 North to Pawtuckaway River	Existing Proposed	1.913 1.912
Reach #200 Northeast towards Raymond Road	Existing Proposed	0.927 1.001
Reach #300 East to Raymond Road	Existing Proposed	0.333 0.247
Reach #400 Southeast to Wetland	Existing Proposed	1.450 1.441
Reach #500 Southwest to Wetland	Existing Proposed	2.791 2.754

Channel Protection requirements geared towards protecting channels, downstream receiving waters, and wetlands from erosion and associated sedimentation are met by reducing the 2-year pre-development peak flow rates compared to the 2-year post-development peak flow rates for each storm event, while also not increasing the post-development volumes by more than 0.1 acre-feet over the pre-development volumes in all storm events.

The proposed residential subdivision includes a cul-de-sac roadway off of Raymond Road and this analysis includes five (5) different subcatchments. The peak rate of run-off in the proposed conditions is equal to or decreased from that of the existing conditions, due to the addition of seven (7) infiltration ponds and altering the subcatchment to reduce the runoff. All roadway runoff receives treatment from a forebay and infiltration pond prior to discharging overland. In addition, the potential for increased erosion and sedimentation is handled by way of silt barriers surrounding the disturbed areas. The use of Best Management Practices per the Rockingham Conservation District / DES Handbook have been applied to the design of these structures and will be observed during all stages of construction. All land disturbed during construction will be stabilized within 30 days of groundbreaking. Existing wetlands and abutters will suffer no adverse effects resulting from this proposed development.

2.0 EXISTING CONDITIONS ANALYSIS

The existing properties are located on parcels consisting of woodlands, wetlands, and two residential homes. The existing topography is such that the site analysis is divided into five (5) subcatchments within the area proposed to be improved. Final Reach #100 flows north to the Pawtuckaway River, Final Reach #200 flows to the northeast towards Raymond Road, Reach #300 flows to the east towards Raymond Road, Reach #400 flows to the southeast towards a large existing wetlands (downstream of the existing dam), and Reach #500 flows to the southwest towards a large existing wetlands (upstream of the existing dam).

Classified by Site-Specific Soil Mapping, the land of the site is composed of sloping topography and soils categorized into the Hydrologic Soil Groups (HSG) C and D (See appendix for HSG designations).

3.0 PROPOSED CONDITIONS ANALYSIS

The addition of the impervious area, clearing of trees, and grading of slopes causes an increase in the curve number (Cn) and a decrease in the time of concentration (Tc) which results in a potential increase in peak rates of run-off from the site. To reduce these flows to pre-development conditions, various stormwater management systems will be proposed. Catchbasins with deep sumps and oil-debris separators within the curbed roadway are directed to proposed infiltration ponds with forebays to both provide stormwater treatment and temporary storage. The proposed development divides the site into different post-construction subcatchments to match and analyze the flows compared to the pre-construction analysis.

In an effort to prevent the sedimentation of nearby wetlands, abutting properties, and adjacent roadways, the proposed roadway with curbing will be graded to flow into a closed drainage system (CB's and DMH's) prior to flowing into either the wet detention pond or bioretention pond. During construction, appropriate Best Management Practices (BMP's) will be applied so as to negate the potential for sediment-laden run-off to discharge into wetlands or abutting properties prior to the final stabilization of the proposed grading. The structures outlined in this proposal provide for adequate treatment of stormwater run-off for sediment control.

4.0 SEDIMENT & EROSION CONTROL PLANS BEST MANAGEMENT PRACTICES (BMP's)

The proposed site development is protected from erosion and the roadways and abutting properties are protected from sediment by the use of Best Management Practices as outlined in the New Hampshire Stormwater Manual. Any area disturbed by construction will be re-stabilized within 30 days, and abutting properties and wetlands will not be adversely affected by this development. All swales and drainage structures will be constructed and stabilized prior to having run-off directed to them.

4.1 Silt Barrier / Construction Fence

The plan set demonstrates the location of silt barriers for sediment control. Sheet E-1, Erosion and Sediment Control Details, has the specifications for installation and maintenance of the silt barriers selected for the site. In areas where the limits of construction need to be emphasized to operators, construction fence for added visibility will be installed. Orange construction fence will be VISI Perimeter Fence by Conwed Plastic Fencing, or approved equal. The four-foot construction fencing is to be installed using six-foot posts buried at least two feet into the ground spaced six to eight feet apart.

4.2 Vegetated Stabilization

All areas that are disturbed during construction will be stabilized with vegetated material within 30 days of disturbance. Construction will be managed in such a manner that erosion is prevented and that no abutter's property will be subjected to any siltation, unless otherwise permitted. All areas to be planted with grass for long-term cover will follow the specifications on Sheet E-1 using the seeding mixture below:

Mixture C	Pounds per Acre	Pounds per 1,000 sf
Tall Fescue	20	0.45
Creeping Red Fescue	20	0.45
Birdsfoot Trefoil	8	0.20
Total	**48**	**1.10**

4.3 Stabilized Construction Entrance/Exit

A temporary gravel construction entrance/exit provides an area where mud can be dislodged from tires before the vehicle leaves the construction site to reduce the amount of mud and sediment transported onto paved municipal and state roads. The stone size for the gravel pad should be between 1- and 2-inch coarse aggregate and the pad itself constructed to a minimum length of 50' for the full width of the access road. The aggregate should be placed at least six inches thick. Plan and profile view details are shown on Sheet E1 - Sediment and Erosion Control Detail Plan.

4.2 Drainage Swales / Stormwater Conveyance Channels

Drainage swales will be stabilized with vegetation for long term cover as outlined below using seed mixture C. As a general rule, velocities in the swale should not exceed 3.0 feet per second for a vegetated swale although velocities as high as 4.5 FPS are allowed under certain soil conditions.

4.5 Level Spreaders

Level spreaders enable any run-off directed towards them to be spread evenly into sheet flow prior to discharge into wetlands or treatment by a filter strip, thus allowing for better filter strip efficiency and a lesser potential for erosion.

4.6 Vegetated Buffers

Vegetated buffers are areas of land with natural or planted vegetation designed to receive sheet run-off from upgradient development. These natural areas, preferably wooded, are effective in removing sediment and sediment-laden pollutants from such run-off, although their effectiveness is severely diminished when forced to deal with concentrated flow and must therefore be equipped with a level-spreading device. Vegetated buffers should not have a slope exceeding fifteen percent and have a minimum length of seventy-five feet.

4.6 Filter Strips

Filter strips are areas of land with natural or planted vegetation designed to receive sheet run-off from upgradient development. These natural areas, preferably wooded, are effective in removing sediment and sediment-laden pollutants from such run-off, although their effectiveness is severely

diminished when forced to deal with concentrated flow and must therefore be equipped with a level-spreading device. Filter strips should not have a slope exceeding fifteen percent and have a minimum length of seventy-five feet.

4.4 Environmental Dust Control

Dust will be controlled on the site using multiple Best Management Practices. Mulching and temporary seeding will be the first line of protection to be utilized where problems occur. If dust problems are not solved by these applications, the use of water and calcium chloride can be applied. Calcium chloride will be applied at a rate that will keep the surface moist but not cause pollution.

4.5 Construction Sequence

1. Cut and remove trees in construction areas as directed or required.
2. Construct and/or install temporary and permanent sediment erosion and detention control facilities, as required. Erosion, sediment, and facilities shall be installed and stabilized prior to any earth moving operation, and prior to directing run-off to them.
3. Clear, cut, grub, and dispose of debris in approved facilities.
4. Excavate and stockpile topsoil / loam. All disturbed areas shall be stabilized immediately after grading.
5. Construct the roadway and its associated drainage structures.
6. Begin permanent and temporary seeding and mulching. All cut and fill slopes and disturbed areas shall be seeded and mulched as required or directed.
7. Daily, or as required, construct temporary berms, drainage ditches, sediment traps, etc. to prevent erosion on the site and prevent any siltation of abutting waters or property.
8. Inspect and maintain all erosion and sediment control measures during construction.
9. Complete permanent seeding and landscaping.
10. Remove temporary erosion control measures after seeding areas have established themselves and site improvements are complete. Smooth and re-vegetate all disturbed areas.
11. All swales and drainage structures will be constructed and stabilized prior to having run-off being directed to them.

4.6 Temporary Erosion Control Measures

1. The smallest practical area of land shall be exposed at any one time.

2. Erosion and sediment control measures shall be installed as shown on the plans and at locations as required, or directed by the engineer.

3. All disturbed areas shall be returned to original grades and elevations. Disturbed areas shall be loamed with a minimum of 4" of loam and seeded with not less than 1.10 pound of seed per 1,000 square feet (48 pounds per acre) of area.

4. Silt barriers shall be inspected periodically and after every rainstorm during the life of the project. All damaged areas shall be repaired and sediment deposits shall periodically be removed and properly disposed of.

5. After all disturbed areas have been stabilized, the temporary erosion control measures are to be removed and the area disturbed by the removal smoothed and revegetated.

6. Areas must be seeded and mulched within 5 days of final grading, permanently stabilized within 15 days of final grading, or temporarily stabilized within 30 days of initial disturbance of soil.

4.7 Inspection and Maintenance Schedule

Silt barriers shall be inspected during and after storm events to ensure that the fence still has integrity and is not allowing sediment to pass.

5.0 CONCLUSION

This proposed site development off of Raymond Road – Route 156 in Nottingham, NH will have no adverse effect on the abutting property owners by way of stormwater run-off or siltation. The post-construction peak rates of run-off for the site will be the same or lower than the existing conditions for the storm events, as shown in the tables above. Appropriate steps will be taken to eliminate erosion and sedimentation; these will be accomplished through the construction of a drainage system consisting of a closed drainage system, forebays, and infiltration ponds. The Best Management Practices developed by the State of New Hampshire have been utilized in the design of this system and these applications will be enforced throughout the construction process.

An Alteration of Terrain Permit (RSA 485: A-17) is required for this project due to the area of disturbance being more than 100,000 square feet.

Respectfully Submitted,

BEALS ASSOCIATES, *PLLC*.

Christian O. Smith

Christian O Smith, PE
Principal

Appendix I

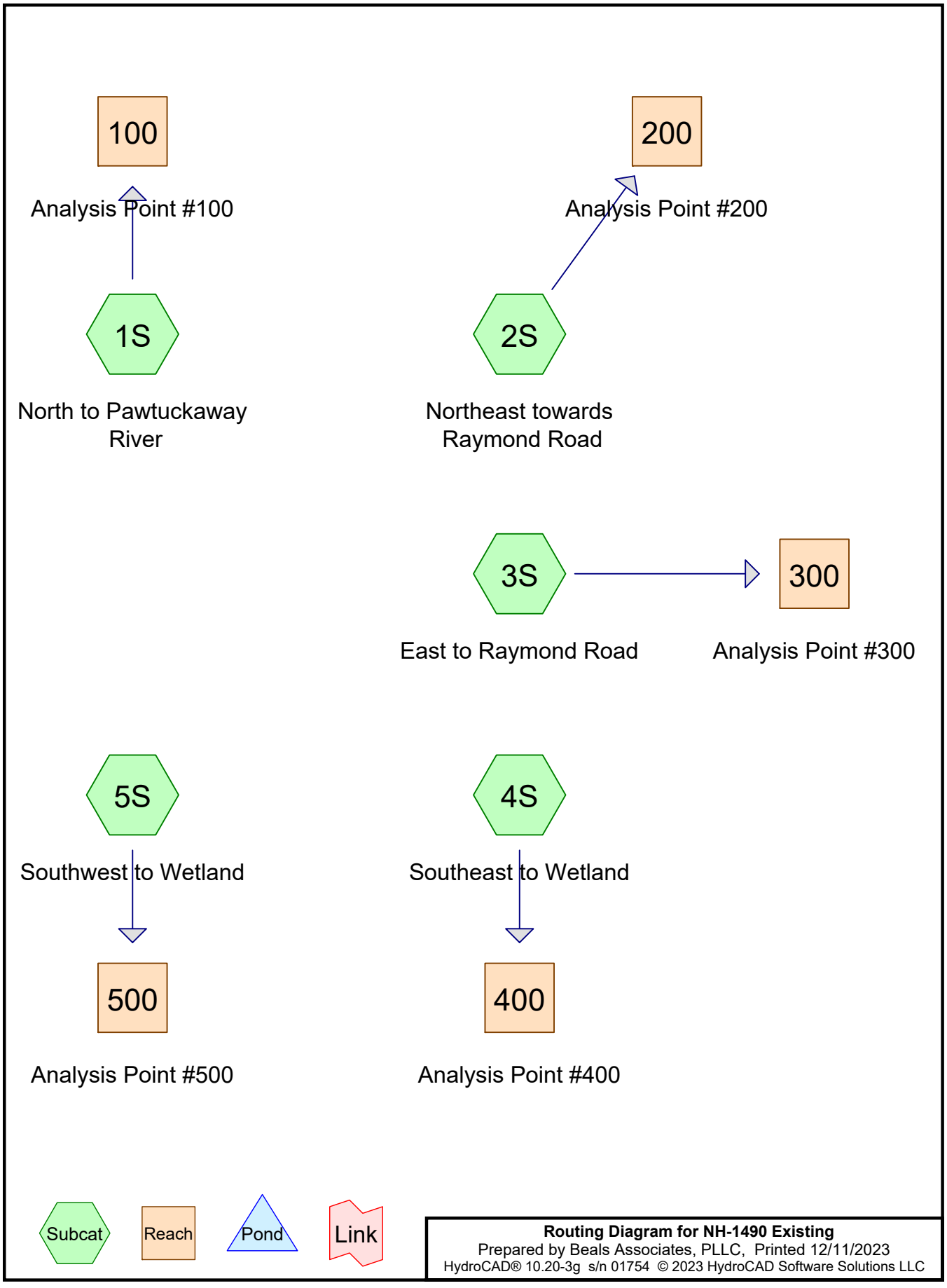
Existing Conditions Analysis

2-Year 24-Hour Summary

10-Year 24-Hour Complete

25-Year 24-Hour Summary

50-Year 24-Hour Summary



Routing Diagram for NH-1490 Existing
Prepared by Beals Associates, PLLC, Printed 12/11/2023

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.309	74	>75% Grass cover, Good, HSG C (3S)
0.309	98	Paved parking, HSG C (3S)
12.919	98	Water Surface, HSG D (4S, 5S)
80.393	70	Woods, Good, HSG C (1S, 2S, 3S, 4S, 5S)
93.930	**74**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
81.011	HSG C	1S, 2S, 3S, 4S, 5S
12.919	HSG D	4S, 5S
0.000	Other	
93.930		**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: North to Pawtuckaway Runoff Area=1,357,507 sf 0.00% Impervious Runoff Depth=0.74"
Flow Length=1,312' Tc=34.8 min CN=70 Runoff=12.48 cfs 1.913 af

Subcatchment 2S: Northeast towards Runoff Area=657,582 sf 0.00% Impervious Runoff Depth=0.74"
Flow Length=1,708' Tc=45.1 min CN=70 Runoff=5.28 cfs 0.927 af

Subcatchment 3S: East to Raymond Road Runoff Area=209,445 sf 6.43% Impervious Runoff Depth=0.83"
Flow Length=640' Tc=19.7 min CN=72 Runoff=2.87 cfs 0.333 af

Subcatchment 4S: Southeast to Wetland Runoff Area=727,293 sf 23.18% Impervious Runoff Depth=1.04"
Flow Length=1,133' Tc=25.0 min CN=76 Runoff=11.92 cfs 1.450 af

Subcatchment 5S: Southwest to Runoff Area=1,139,752 sf 34.58% Impervious Runoff Depth=1.28"
Flow Length=2,282' Tc=110.9 min CN=80 Runoff=10.04 cfs 2.791 af

Reach 100: Analysis Point #100 Inflow=12.48 cfs 1.913 af
Outflow=12.48 cfs 1.913 af

Reach 200: Analysis Point #200 Inflow=5.28 cfs 0.927 af
Outflow=5.28 cfs 0.927 af

Reach 300: Analysis Point #300 Inflow=2.87 cfs 0.333 af
Outflow=2.87 cfs 0.333 af

Reach 400: Analysis Point #400 Inflow=11.92 cfs 1.450 af
Outflow=11.92 cfs 1.450 af

Reach 500: Analysis Point #500 Inflow=10.04 cfs 2.791 af
Outflow=10.04 cfs 2.791 af

Total Runoff Area = 93.930 ac Runoff Volume = 7.414 af Average Runoff Depth = 0.95"
85.92% Pervious = 80.702 ac 14.08% Impervious = 13.228 ac

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: North to Pawtuckaway Runoff Area=1,357,507 sf 0.00% Impervious Runoff Depth=1.74"
Flow Length=1,312' Tc=34.8 min CN=70 Runoff=32.63 cfs 4.531 af

Subcatchment 2S: Northeast towards Runoff Area=657,582 sf 0.00% Impervious Runoff Depth=1.74"
Flow Length=1,708' Tc=45.1 min CN=70 Runoff=13.84 cfs 2.195 af

Subcatchment 3S: East to Raymond Road Runoff Area=209,445 sf 6.43% Impervious Runoff Depth=1.89"
Flow Length=640' Tc=19.7 min CN=72 Runoff=7.10 cfs 0.759 af

Subcatchment 4S: Southeast to Wetland Runoff Area=727,293 sf 23.18% Impervious Runoff Depth=2.21"
Flow Length=1,133' Tc=25.0 min CN=76 Runoff=26.39 cfs 3.075 af

Subcatchment 5S: Southwest to Runoff Area=1,139,752 sf 34.58% Impervious Runoff Depth=2.55"
Flow Length=2,282' Tc=110.9 min CN=80 Runoff=20.60 cfs 5.553 af

Reach 100: Analysis Point #100 Inflow=32.63 cfs 4.531 af
Outflow=32.63 cfs 4.531 af

Reach 200: Analysis Point #200 Inflow=13.84 cfs 2.195 af
Outflow=13.84 cfs 2.195 af

Reach 300: Analysis Point #300 Inflow=7.10 cfs 0.759 af
Outflow=7.10 cfs 0.759 af

Reach 400: Analysis Point #400 Inflow=26.39 cfs 3.075 af
Outflow=26.39 cfs 3.075 af

Reach 500: Analysis Point #500 Inflow=20.60 cfs 5.553 af
Outflow=20.60 cfs 5.553 af

Total Runoff Area = 93.930 ac Runoff Volume = 16.114 af Average Runoff Depth = 2.06"
85.92% Pervious = 80.702 ac 14.08% Impervious = 13.228 ac

Summary for Subcatchment 1S: North to Pawtuckaway River

Runoff = 32.63 cfs @ 12.50 hrs, Volume= 4.531 af, Depth= 1.74"
Routed to Reach 100 : Analysis Point #100

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
1,357,507	70	Woods, Good, HSG C
1,357,507	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.1800	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.92"
25.5	1,262	0.1086	0.82		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
34.8	1,312	Total			

Summary for Subcatchment 2S: Northeast towards Raymond Road

Runoff = 13.84 cfs @ 12.67 hrs, Volume= 2.195 af, Depth= 1.74"
Routed to Reach 200 : Analysis Point #200

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
657,582	70	Woods, Good, HSG C
657,582	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	50	0.2000	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.92"
36.2	1,658	0.0934	0.76		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
45.1	1,708	Total			

Summary for Subcatchment 3S: East to Raymond Road

Runoff = 7.10 cfs @ 12.28 hrs, Volume= 0.759 af, Depth= 1.89"
Routed to Reach 300 : Analysis Point #300

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
182,532	70	Woods, Good, HSG C
13,454	74	>75% Grass cover, Good, HSG C
13,459	98	Paved parking, HSG C
209,445	72	Weighted Average
195,986	70	93.57% Pervious Area
13,459	98	6.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	50	0.1200	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.92"
5.6	320	0.1469	0.96		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
1.3	113	0.0442	1.47		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.2	116	0.1034	1.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	15	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	26	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.7	640	Total			

Summary for Subcatchment 4S: Southeast to Wetland

Runoff = 26.39 cfs @ 12.36 hrs, Volume= 3.075 af, Depth= 2.21"
Routed to Reach 400 : Analysis Point #400

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
558,689	70	Woods, Good, HSG C
168,604	98	Water Surface, HSG D
727,293	76	Weighted Average
558,689	70	76.82% Pervious Area
168,604	98	23.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.2400	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.92"
7.2	542	0.2546	1.26		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
9.5	541	0.0040	0.95		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
25.0	1,133	Total			

Summary for Subcatchment 5S: Southwest to Wetland

Runoff = 20.60 cfs @ 13.43 hrs, Volume= 5.553 af, Depth= 2.55"
Routed to Reach 500 : Analysis Point #500

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
745,613	70	Woods, Good, HSG C
394,139	98	Water Surface, HSG D
1,139,752	80	Weighted Average
745,613	70	65.42% Pervious Area
394,139	98	34.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	50	0.2000	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.92"
25.3	1,256	0.1099	0.83		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
76.7	976	0.0002	0.21		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
110.9	2,282	Total			

Summary for Reach 100: Analysis Point #100

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 31.164 ac, 0.00% Impervious, Inflow Depth = 1.74" for 10-YR event
Inflow = 32.63 cfs @ 12.50 hrs, Volume= 4.531 af
Outflow = 32.63 cfs @ 12.50 hrs, Volume= 4.531 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach 200: Analysis Point #200

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15.096 ac, 0.00% Impervious, Inflow Depth = 1.74" for 10-YR event
Inflow = 13.84 cfs @ 12.67 hrs, Volume= 2.195 af
Outflow = 13.84 cfs @ 12.67 hrs, Volume= 2.195 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 501R

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach 300: Analysis Point #300

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.808 ac, 6.43% Impervious, Inflow Depth = 1.89" for 10-YR event
Inflow = 7.10 cfs @ 12.28 hrs, Volume= 0.759 af
Outflow = 7.10 cfs @ 12.28 hrs, Volume= 0.759 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 501R

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach 400: Analysis Point #400

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 16.696 ac, 23.18% Impervious, Inflow Depth = 2.21" for 10-YR event
Inflow = 26.39 cfs @ 12.36 hrs, Volume= 3.075 af
Outflow = 26.39 cfs @ 12.36 hrs, Volume= 3.075 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach 500: Analysis Point #500

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 26.165 ac, 34.58% Impervious, Inflow Depth = 2.55" for 10-YR event
Inflow = 20.60 cfs @ 13.43 hrs, Volume= 5.553 af
Outflow = 20.60 cfs @ 13.43 hrs, Volume= 5.553 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: North to Pawtuckaway Runoff Area=1,357,507 sf 0.00% Impervious Runoff Depth=2.67"
Flow Length=1,312' Tc=34.8 min CN=70 Runoff=51.11 cfs 6.937 af

Subcatchment 2S: Northeast towards Runoff Area=657,582 sf 0.00% Impervious Runoff Depth=2.67"
Flow Length=1,708' Tc=45.1 min CN=70 Runoff=21.63 cfs 3.360 af

Subcatchment 3S: East to Raymond Road Runoff Area=209,445 sf 6.43% Impervious Runoff Depth=2.85"
Flow Length=640' Tc=19.7 min CN=72 Runoff=10.88 cfs 1.144 af

Subcatchment 4S: Southeast to Wetland Runoff Area=727,293 sf 23.18% Impervious Runoff Depth=3.23"
Flow Length=1,133' Tc=25.0 min CN=76 Runoff=38.82 cfs 4.500 af

Subcatchment 5S: Southwest to Runoff Area=1,139,752 sf 34.58% Impervious Runoff Depth=3.63"
Flow Length=2,282' Tc=110.9 min CN=80 Runoff=29.46 cfs 7.911 af

Reach 100: Analysis Point #100 Inflow=51.11 cfs 6.937 af
Outflow=51.11 cfs 6.937 af

Reach 200: Analysis Point #200 Inflow=21.63 cfs 3.360 af
Outflow=21.63 cfs 3.360 af

Reach 300: Analysis Point #300 Inflow=10.88 cfs 1.144 af
Outflow=10.88 cfs 1.144 af

Reach 400: Analysis Point #400 Inflow=38.82 cfs 4.500 af
Outflow=38.82 cfs 4.500 af

Reach 500: Analysis Point #500 Inflow=29.46 cfs 7.911 af
Outflow=29.46 cfs 7.911 af

Total Runoff Area = 93.930 ac Runoff Volume = 23.851 af Average Runoff Depth = 3.05"
85.92% Pervious = 80.702 ac 14.08% Impervious = 13.228 ac

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: North to Pawtuckaway Runoff Area=1,357,507 sf 0.00% Impervious Runoff Depth=3.60"
Flow Length=1,312' Tc=34.8 min CN=70 Runoff=69.44 cfs 9.354 af

Subcatchment 2S: Northeast towards Runoff Area=657,582 sf 0.00% Impervious Runoff Depth=3.60"
Flow Length=1,708' Tc=45.1 min CN=70 Runoff=29.39 cfs 4.531 af

Subcatchment 3S: East to Raymond Road Runoff Area=209,445 sf 6.43% Impervious Runoff Depth=3.81"
Flow Length=640' Tc=19.7 min CN=72 Runoff=14.59 cfs 1.527 af

Subcatchment 4S: Southeast to Wetland Runoff Area=727,293 sf 23.18% Impervious Runoff Depth=4.24"
Flow Length=1,133' Tc=25.0 min CN=76 Runoff=50.80 cfs 5.899 af

Subcatchment 5S: Southwest to Runoff Area=1,139,752 sf 34.58% Impervious Runoff Depth=4.68"
Flow Length=2,282' Tc=110.9 min CN=80 Runoff=37.93 cfs 10.196 af

Reach 100: Analysis Point #100 Inflow=69.44 cfs 9.354 af
Outflow=69.44 cfs 9.354 af

Reach 200: Analysis Point #200 Inflow=29.39 cfs 4.531 af
Outflow=29.39 cfs 4.531 af

Reach 300: Analysis Point #300 Inflow=14.59 cfs 1.527 af
Outflow=14.59 cfs 1.527 af

Reach 400: Analysis Point #400 Inflow=50.80 cfs 5.899 af
Outflow=50.80 cfs 5.899 af

Reach 500: Analysis Point #500 Inflow=37.93 cfs 10.196 af
Outflow=37.93 cfs 10.196 af

Total Runoff Area = 93.930 ac Runoff Volume = 31.507 af Average Runoff Depth = 4.03"
85.92% Pervious = 80.702 ac 14.08% Impervious = 13.228 ac

Appendix II

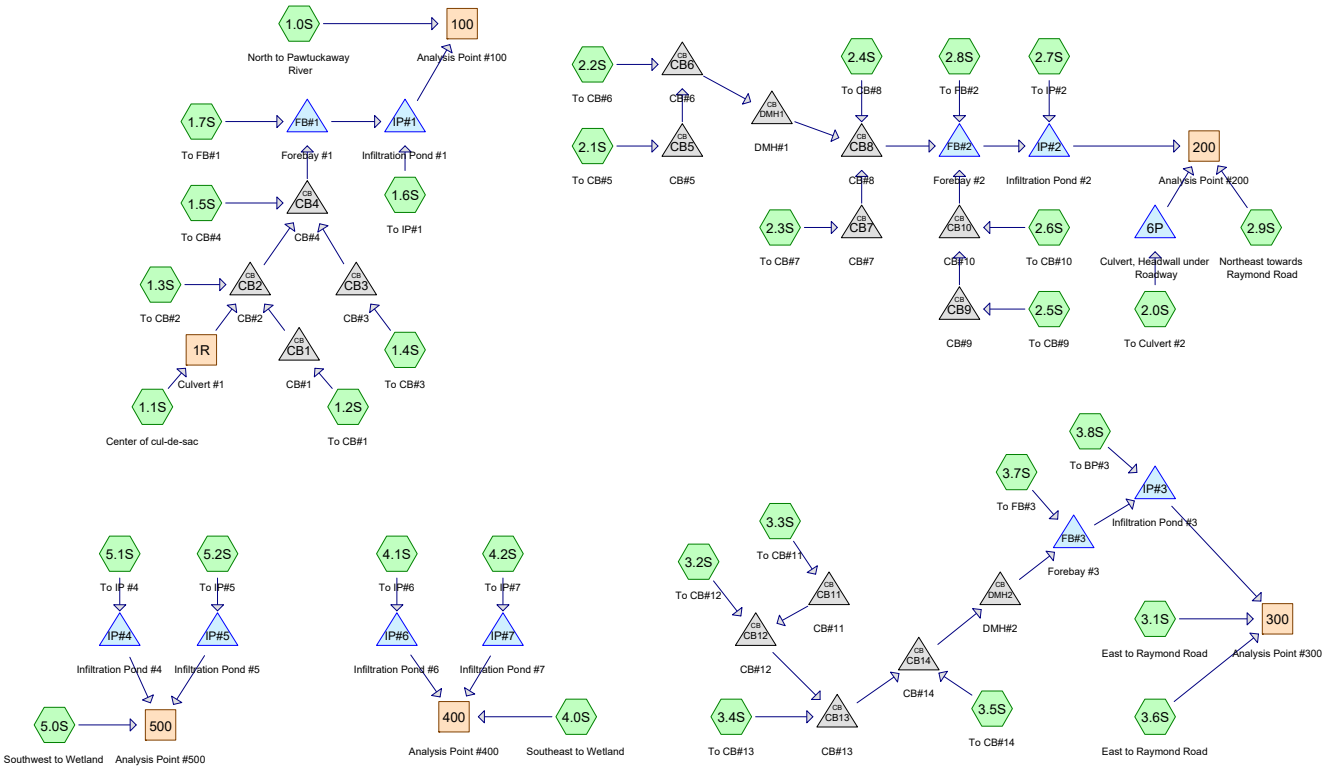
Proposed Conditions Analysis

2-Year 24-Hour Summary

10-Year 24-Hour Complete

25-Year 24-Hour Summary

50-Year 24-Hour Summary



Subcat Reach Pond Link

Routing Diagram for NH-1490 Proposed
Prepared by Beals Associates, PLLC, Printed 12/11/2023
HydroCAD® 10.20-3g s/n 01754 © 2023 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
20.788	77	2 acre lots, 12% imp, HSG C (1.0S, 1.2S, 1.3S, 1.4S, 1.5S, 1.6S, 1.7S, 2.0S, 2.1S, 2.3S, 2.4S, 2.7S, 2.9S, 4.0S, 4.1S, 4.2S, 5.0S, 5.1S, 5.2S)
3.555	74	>75% Grass cover, Good, HSG C (1.0S, 1.1S, 1.2S, 1.3S, 1.4S, 1.5S, 1.6S, 1.7S, 2.0S, 2.1S, 2.2S, 2.3S, 2.4S, 2.5S, 2.7S, 2.8S, 2.9S, 3.1S, 3.2S, 3.3S, 3.4S, 3.5S, 3.6S, 3.7S, 3.8S, 4.0S, 4.1S, 4.2S, 5.1S, 5.2S)
1.198	98	Paved parking, HSG C (1.2S, 1.3S, 1.4S, 1.5S, 2.1S, 2.2S, 2.3S, 2.4S, 2.5S, 2.6S, 3.1S, 3.2S, 3.3S, 3.4S, 3.5S, 3.6S)
12.919	98	Water Surface, HSG D (4.0S, 5.0S)
55.470	70	Woods, Good, HSG C (1.0S, 2.0S, 2.7S, 2.9S, 3.1S, 3.2S, 3.3S, 3.4S, 3.5S, 3.6S, 3.7S, 3.8S, 4.0S, 4.2S, 5.0S, 5.1S)
93.930	**76**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
81.011	HSG C	1.0S, 1.1S, 1.2S, 1.3S, 1.4S, 1.5S, 1.6S, 1.7S, 2.0S, 2.1S, 2.2S, 2.3S, 2.4S, 2.5S, 2.6S, 2.7S, 2.8S, 2.9S, 3.1S, 3.2S, 3.3S, 3.4S, 3.5S, 3.6S, 3.7S, 3.8S, 4.0S, 4.1S, 4.2S, 5.0S, 5.1S, 5.2S
12.919	HSG D	4.0S, 5.0S
0.000	Other	
93.930		**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.0S: North to Runoff Area=1,149,049 sf 2.84% Impervious Runoff Depth=0.83"
Flow Length=1,261' Tc=35.2 min CN=72 Runoff=12.29 cfs 1.829 af

Subcatchment 1.1S: Center of cul-de-sac Runoff Area=17,927 sf 0.00% Impervious Runoff Depth=0.93"
Tc=6.0 min CN=74 Runoff=0.42 cfs 0.032 af

Subcatchment 1.2S: To CB#1 Runoff Area=13,212 sf 41.32% Impervious Runoff Depth=1.55"
Tc=6.0 min CN=84 Runoff=0.55 cfs 0.039 af

Subcatchment 1.3S: To CB#2 Runoff Area=30,935 sf 24.74% Impervious Runoff Depth=1.28"
Tc=6.0 min CN=80 Runoff=1.05 cfs 0.076 af

Subcatchment 1.4S: To CB#3 Runoff Area=23,013 sf 22.06% Impervious Runoff Depth=1.22"
Tc=6.0 min CN=79 Runoff=0.74 cfs 0.054 af

Subcatchment 1.5S: To CB#4 Runoff Area=15,809 sf 26.77% Impervious Runoff Depth=1.28"
Tc=6.0 min CN=80 Runoff=0.54 cfs 0.039 af

Subcatchment 1.6S: To IP#1 Runoff Area=82,510 sf 10.56% Impervious Runoff Depth=1.10"
Flow Length=517' Tc=10.1 min CN=77 Runoff=2.05 cfs 0.173 af

Subcatchment 1.7S: To FB#1 Runoff Area=26,992 sf 11.72% Impervious Runoff Depth=1.10"
Flow Length=363' Tc=13.9 min CN=77 Runoff=0.60 cfs 0.057 af

Subcatchment 2.0S: To Culvert #2 Runoff Area=470,357 sf 5.09% Impervious Runoff Depth=0.88"
Flow Length=1,193' Tc=33.1 min CN=73 Runoff=5.57 cfs 0.794 af

Subcatchment 2.1S: To CB#5 Runoff Area=36,391 sf 18.35% Impervious Runoff Depth=1.22"
Tc=6.0 min CN=79 Runoff=1.17 cfs 0.085 af

Subcatchment 2.2S: To CB#6 Runoff Area=4,295 sf 75.62% Impervious Runoff Depth=2.20"
Tc=6.0 min CN=92 Runoff=0.25 cfs 0.018 af

Subcatchment 2.3S: To CB#7 Runoff Area=9,066 sf 39.04% Impervious Runoff Depth=1.48"
Tc=6.0 min CN=83 Runoff=0.36 cfs 0.026 af

Subcatchment 2.4S: To CB#8 Runoff Area=9,757 sf 38.10% Impervious Runoff Depth=1.48"
Tc=6.0 min CN=83 Runoff=0.39 cfs 0.028 af

Subcatchment 2.5S: To CB#9 Runoff Area=1,953 sf 82.90% Impervious Runoff Depth=2.39"
Tc=6.0 min CN=94 Runoff=0.12 cfs 0.009 af

Subcatchment 2.6S: To CB#10 Runoff Area=1,593 sf 100.00% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.009 af

Subcatchment 2.7S: To IP#2 Runoff Area=26,894 sf 5.62% Impervious Runoff Depth=0.99"
Flow Length=258' Tc=10.8 min CN=75 Runoff=0.57 cfs 0.051 af

Subcatchment 2.8S: To FB#2 Runoff Area=3,362 sf 0.00% Impervious Runoff Depth=0.93"
Tc=6.0 min CN=74 Runoff=0.08 cfs 0.006 af

Subcatchment 2.9S: Northeast towards Runoff Area=102,941 sf 0.57% Impervious Runoff Depth=0.78"
Flow Length=355' Tc=50.9 min CN=71 Runoff=0.84 cfs 0.154 af

Subcatchment 3.1S: East to Raymond Road Runoff Area=87,099 sf 3.72% Impervious Runoff Depth=0.78"
Flow Length=459' Tc=10.9 min CN=71 Runoff=1.38 cfs 0.131 af

Subcatchment 3.2S: To CB#12 Runoff Area=8,671 sf 31.30% Impervious Runoff Depth=1.34"
Tc=6.0 min CN=81 Runoff=0.31 cfs 0.022 af

Subcatchment 3.3S: To CB#11 Runoff Area=7,054 sf 38.13% Impervious Runoff Depth=1.41"
Tc=6.0 min CN=82 Runoff=0.27 cfs 0.019 af

Subcatchment 3.4S: To CB#13 Runoff Area=20,793 sf 15.15% Impervious Runoff Depth=0.99"
Tc=6.0 min CN=75 Runoff=0.52 cfs 0.039 af

Subcatchment 3.5S: To CB#14 Runoff Area=5,598 sf 25.74% Impervious Runoff Depth=1.16"
Tc=6.0 min CN=78 Runoff=0.17 cfs 0.012 af

Subcatchment 3.6S: East to Raymond Road Runoff Area=68,906 sf 8.16% Impervious Runoff Depth=0.88"
Flow Length=239' Tc=17.7 min CN=73 Runoff=1.06 cfs 0.116 af

Subcatchment 3.7S: To FB#3 Runoff Area=8,247 sf 0.00% Impervious Runoff Depth=0.78"
Flow Length=139' Tc=11.1 min CN=71 Runoff=0.13 cfs 0.012 af

Subcatchment 3.8S: To BP#3 Runoff Area=10,001 sf 0.00% Impervious Runoff Depth=0.83"
Flow Length=81' Tc=12.2 min CN=72 Runoff=0.16 cfs 0.016 af

Subcatchment 4.0S: Southeast to Wetland Runoff Area=633,245 sf 27.06% Impervious Runoff Depth=1.16"
Flow Length=1,011' Tc=24.4 min CN=78 Runoff=11.85 cfs 1.402 af

Subcatchment 4.1S: To IP#6 Runoff Area=45,091 sf 9.61% Impervious Runoff Depth=1.04"
Flow Length=284' Tc=9.7 min CN=76 Runoff=1.06 cfs 0.090 af

Subcatchment 4.2S: To IP#7 Runoff Area=38,838 sf 7.59% Impervious Runoff Depth=0.99"
Flow Length=316' Tc=14.0 min CN=75 Runoff=0.75 cfs 0.073 af

Subcatchment 5.0S: Southwest to Runoff Area=1,056,643 sf 38.33% Impervious Runoff Depth=1.34"
Flow Length=2,184' Tc=110.4 min CN=81 Runoff=9.87 cfs 2.717 af

Subcatchment 5.1S: To IP #4 Runoff Area=25,166 sf 9.83% Impervious Runoff Depth=1.04"
Flow Length=254' Tc=14.0 min CN=76 Runoff=0.52 cfs 0.050 af

Subcatchment 5.2S: To IP#5 Runoff Area=50,170 sf 10.46% Impervious Runoff Depth=1.10"
Flow Length=399' Tc=16.5 min CN=77 Runoff=1.04 cfs 0.105 af

Reach 1R: Culvert #1 Avg. Flow Depth=0.15' Max Vel=5.61 fps Inflow=0.42 cfs 0.032 af
12.0" Round Pipe n=0.013 L=257.0' S=0.0568 '/' Capacity=8.49 cfs Outflow=0.42 cfs 0.032 af

Reach 100: Analysis Point #100 Inflow=12.29 cfs 1.912 af
Outflow=12.29 cfs 1.912 af

Reach 200: Analysis Point #200 Inflow=4.78 cfs 1.001 af
Outflow=4.78 cfs 1.001 af

Reach 300: Analysis Point #300 Inflow=2.31 cfs 0.247 af
Outflow=2.31 cfs 0.247 af

Reach 400: Analysis Point #400 Inflow=11.85 cfs 1.441 af
Outflow=11.85 cfs 1.441 af

Reach 500: Analysis Point #500 Inflow=9.92 cfs 2.754 af
Outflow=9.92 cfs 2.754 af

Pond 6P: Culvert, Headwall under Roadway Peak Elev=199.79' Storage=3,080 cf Inflow=5.57 cfs 0.794 af
Outflow=3.91 cfs 0.794 af

Pond CB1: CB#1 Peak Elev=310.09' Inflow=0.55 cfs 0.039 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=0.55 cfs 0.039 af

Pond CB10: CB#10 Peak Elev=209.63' Inflow=0.23 cfs 0.017 af
12.0" Round Culvert n=0.130 L=67.0' S=0.0104 '/' Outflow=0.23 cfs 0.017 af

Pond CB11: CB#11 Peak Elev=190.78' Inflow=0.27 cfs 0.019 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=0.27 cfs 0.019 af

Pond CB12: CB#12 Peak Elev=190.58' Inflow=0.58 cfs 0.041 af
12.0" Round Culvert n=0.012 L=166.0' S=0.0301 '/' Outflow=0.58 cfs 0.041 af

Pond CB13: CB#13 Peak Elev=185.88' Inflow=1.10 cfs 0.081 af
12.0" Round Culvert n=0.012 L=16.0' S=0.0062 '/' Outflow=1.10 cfs 0.081 af

Pond CB14: CB#14 Peak Elev=185.81' Inflow=1.27 cfs 0.093 af
15.0" Round Culvert n=0.013 L=294.0' S=0.0044 '/' Outflow=1.27 cfs 0.093 af

Pond CB2: CB#2 Peak Elev=309.95' Inflow=2.02 cfs 0.147 af
18.0" Round Culvert n=0.013 L=296.0' S=0.0895 '/' Outflow=2.02 cfs 0.147 af

Pond CB3: CB#3 Peak Elev=283.61' Inflow=0.74 cfs 0.054 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=0.74 cfs 0.054 af

Pond CB4: CB#4 Peak Elev=283.47' Inflow=3.29 cfs 0.239 af
24.0" Round Culvert n=0.013 L=281.0' S=0.1555 '/' Outflow=3.29 cfs 0.239 af

Pond CB5: CB#5 Peak Elev=253.71' Inflow=1.17 cfs 0.085 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=1.17 cfs 0.085 af

Pond CB6: CB#6 Peak Elev=253.37' Inflow=1.42 cfs 0.103 af
15.0" Round Culvert n=0.013 L=149.0' S=0.0993 '/' Outflow=1.42 cfs 0.103 af

Pond CB7: CB#7 Peak Elev=223.41' Inflow=0.36 cfs 0.026 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=0.36 cfs 0.026 af

Pond CB8: CB#8 Peak Elev=213.68' Inflow=2.17 cfs 0.156 af
18.0" Round Culvert n=0.013 L=63.0' S=0.0873 '/' Outflow=2.17 cfs 0.156 af

Pond CB9: CB#9 Peak Elev=209.63' Inflow=0.12 cfs 0.009 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=0.12 cfs 0.009 af

Pond DMH1: DMH#1 Peak Elev=238.47' Inflow=1.42 cfs 0.103 af
15.0" Round Culvert n=0.013 L=147.0' S=0.1020 '/' Outflow=1.42 cfs 0.103 af

Pond DMH2: DMH#2 Peak Elev=185.64' Inflow=1.27 cfs 0.093 af
15.0" Round Culvert n=0.013 L=150.0' S=0.0040 '/' Outflow=1.27 cfs 0.093 af

Pond FB#1: Forebay #1 Peak Elev=239.55' Storage=6,570 cf Inflow=3.71 cfs 0.296 af
Outflow=0.55 cfs 0.150 af

Pond FB#2: Forebay #2 Peak Elev=209.59' Storage=3,311 cf Inflow=2.47 cfs 0.180 af
Outflow=0.99 cfs 0.107 af

Pond FB#3: Forebay #3 Peak Elev=185.61' Storage=1,262 cf Inflow=1.37 cfs 0.105 af
Outflow=0.90 cfs 0.079 af

Pond IP#1: Infiltration Pond #1 Peak Elev=237.29' Storage=5,984 cf Inflow=2.05 cfs 0.323 af
Discarded=0.13 cfs 0.239 af Primary=0.23 cfs 0.084 af Outflow=0.36 cfs 0.323 af

Pond IP#2: Infiltration Pond #2 Peak Elev=207.35' Storage=2,726 cf Inflow=1.36 cfs 0.158 af
Discarded=0.07 cfs 0.105 af Primary=0.11 cfs 0.053 af Outflow=0.18 cfs 0.158 af

Pond IP#3: Infiltration Pond #3 Peak Elev=183.48' Storage=1,355 cf Inflow=1.07 cfs 0.094 af
Discarded=0.12 cfs 0.094 af Primary=0.00 cfs 0.000 af Outflow=0.12 cfs 0.094 af

Pond IP#4: Infiltration Pond #4 Peak Elev=291.34' Storage=1,606 cf Inflow=0.52 cfs 0.050 af
Discarded=0.01 cfs 0.050 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.050 af

Pond IP#5: Infiltration Pond #5 Peak Elev=280.22' Storage=2,623 cf Inflow=1.04 cfs 0.105 af
Discarded=0.02 cfs 0.069 af Primary=0.07 cfs 0.036 af Outflow=0.09 cfs 0.105 af

Pond IP#6: Infiltration Pond #6 Peak Elev=269.60' Storage=2,433 cf Inflow=1.06 cfs 0.090 af
Discarded=0.03 cfs 0.080 af Primary=0.02 cfs 0.010 af Outflow=0.05 cfs 0.090 af

Pond IP#7: Infiltration Pond #7 Peak Elev=289.67' Storage=1,504 cf Inflow=0.75 cfs 0.073 af
Discarded=0.02 cfs 0.044 af Primary=0.08 cfs 0.029 af Outflow=0.09 cfs 0.073 af

Total Runoff Area = 93.930 ac Runoff Volume = 8.283 af Average Runoff Depth = 1.06"
82.32% Pervious = 77.319 ac 17.68% Impervious = 16.611 ac

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.0S: North to Runoff Area=1,149,049 sf 2.84% Impervious Runoff Depth=1.89"
Flow Length=1,261' Tc=35.2 min CN=72 Runoff=30.12 cfs 4.165 af

Subcatchment 1.1S: Center of cul-de-sac Runoff Area=17,927 sf 0.00% Impervious Runoff Depth=2.05"
Tc=6.0 min CN=74 Runoff=0.98 cfs 0.070 af

Subcatchment 1.2S: To CB#1 Runoff Area=13,212 sf 41.32% Impervious Runoff Depth=2.91"
Tc=6.0 min CN=84 Runoff=1.03 cfs 0.073 af

Subcatchment 1.3S: To CB#2 Runoff Area=30,935 sf 24.74% Impervious Runoff Depth=2.55"
Tc=6.0 min CN=80 Runoff=2.12 cfs 0.151 af

Subcatchment 1.4S: To CB#3 Runoff Area=23,013 sf 22.06% Impervious Runoff Depth=2.46"
Tc=6.0 min CN=79 Runoff=1.52 cfs 0.108 af

Subcatchment 1.5S: To CB#4 Runoff Area=15,809 sf 26.77% Impervious Runoff Depth=2.55"
Tc=6.0 min CN=80 Runoff=1.08 cfs 0.077 af

Subcatchment 1.6S: To IP#1 Runoff Area=82,510 sf 10.56% Impervious Runoff Depth=2.29"
Flow Length=517' Tc=10.1 min CN=77 Runoff=4.42 cfs 0.362 af

Subcatchment 1.7S: To FB#1 Runoff Area=26,992 sf 11.72% Impervious Runoff Depth=2.29"
Flow Length=363' Tc=13.9 min CN=77 Runoff=1.29 cfs 0.118 af

Subcatchment 2.0S: To Culvert #2 Runoff Area=470,357 sf 5.09% Impervious Runoff Depth=1.97"
Flow Length=1,193' Tc=33.1 min CN=73 Runoff=13.30 cfs 1.774 af

Subcatchment 2.1S: To CB#5 Runoff Area=36,391 sf 18.35% Impervious Runoff Depth=2.46"
Tc=6.0 min CN=79 Runoff=2.41 cfs 0.171 af

Subcatchment 2.2S: To CB#6 Runoff Area=4,295 sf 75.62% Impervious Runoff Depth=3.70"
Tc=6.0 min CN=92 Runoff=0.41 cfs 0.030 af

Subcatchment 2.3S: To CB#7 Runoff Area=9,066 sf 39.04% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=83 Runoff=0.69 cfs 0.049 af

Subcatchment 2.4S: To CB#8 Runoff Area=9,757 sf 38.10% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=83 Runoff=0.74 cfs 0.053 af

Subcatchment 2.5S: To CB#9 Runoff Area=1,953 sf 82.90% Impervious Runoff Depth=3.91"
Tc=6.0 min CN=94 Runoff=0.19 cfs 0.015 af

Subcatchment 2.6S: To CB#10 Runoff Area=1,593 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.16 cfs 0.013 af

Subcatchment 2.7S: To IP#2 Runoff Area=26,894 sf 5.62% Impervious Runoff Depth=2.13"
Flow Length=258' Tc=10.8 min CN=75 Runoff=1.30 cfs 0.110 af

Subcatchment 2.8S: To FB#2 Runoff Area=3,362 sf 0.00% Impervious Runoff Depth=2.05"
Tc=6.0 min CN=74 Runoff=0.18 cfs 0.013 af

Subcatchment 2.9S: Northeast towards Runoff Area=102,941 sf 0.57% Impervious Runoff Depth=1.82"
Flow Length=355' Tc=50.9 min CN=71 Runoff=2.13 cfs 0.358 af

Subcatchment 3.1S: East to Raymond Road Runoff Area=87,099 sf 3.72% Impervious Runoff Depth=1.82"
Flow Length=459' Tc=10.9 min CN=71 Runoff=3.53 cfs 0.303 af

Subcatchment 3.2S: To CB#12 Runoff Area=8,671 sf 31.30% Impervious Runoff Depth=2.63"
Tc=6.0 min CN=81 Runoff=0.62 cfs 0.044 af

Subcatchment 3.3S: To CB#11 Runoff Area=7,054 sf 38.13% Impervious Runoff Depth=2.72"
Tc=6.0 min CN=82 Runoff=0.52 cfs 0.037 af

Subcatchment 3.4S: To CB#13 Runoff Area=20,793 sf 15.15% Impervious Runoff Depth=2.13"
Tc=6.0 min CN=75 Runoff=1.18 cfs 0.085 af

Subcatchment 3.5S: To CB#14 Runoff Area=5,598 sf 25.74% Impervious Runoff Depth=2.38"
Tc=6.0 min CN=78 Runoff=0.36 cfs 0.025 af

Subcatchment 3.6S: East to Raymond Road Runoff Area=68,906 sf 8.16% Impervious Runoff Depth=1.97"
Flow Length=239' Tc=17.7 min CN=73 Runoff=2.55 cfs 0.260 af

Subcatchment 3.7S: To FB#3 Runoff Area=8,247 sf 0.00% Impervious Runoff Depth=1.82"
Flow Length=139' Tc=11.1 min CN=71 Runoff=0.33 cfs 0.029 af

Subcatchment 3.8S: To BP#3 Runoff Area=10,001 sf 0.00% Impervious Runoff Depth=1.89"
Flow Length=81' Tc=12.2 min CN=72 Runoff=0.41 cfs 0.036 af

Subcatchment 4.0S: Southeast to Wetland Runoff Area=633,245 sf 27.06% Impervious Runoff Depth=2.38"
Flow Length=1,011' Tc=24.4 min CN=78 Runoff=25.08 cfs 2.878 af

Subcatchment 4.1S: To IP#6 Runoff Area=45,091 sf 9.61% Impervious Runoff Depth=2.21"
Flow Length=284' Tc=9.7 min CN=76 Runoff=2.35 cfs 0.191 af

Subcatchment 4.2S: To IP#7 Runoff Area=38,838 sf 7.59% Impervious Runoff Depth=2.13"
Flow Length=316' Tc=14.0 min CN=75 Runoff=1.71 cfs 0.158 af

Subcatchment 5.0S: Southwest to Runoff Area=1,056,643 sf 38.33% Impervious Runoff Depth=2.63"
Flow Length=2,184' Tc=110.4 min CN=81 Runoff=19.76 cfs 5.326 af

Subcatchment 5.1S: To IP #4 Runoff Area=25,166 sf 9.83% Impervious Runoff Depth=2.21"
Flow Length=254' Tc=14.0 min CN=76 Runoff=1.15 cfs 0.106 af

Subcatchment 5.2S: To IP#5 Runoff Area=50,170 sf 10.46% Impervious Runoff Depth=2.29"
Flow Length=399' Tc=16.5 min CN=77 Runoff=2.25 cfs 0.220 af

Reach 1R: Culvert #1 Avg. Flow Depth=0.23' Max Vel=7.20 fps Inflow=0.98 cfs 0.070 af
12.0" Round Pipe n=0.013 L=257.0' S=0.0568 '/' Capacity=8.49 cfs Outflow=0.98 cfs 0.070 af

Reach 100: Analysis Point #100 Inflow=32.39 cfs 4.706 af
Outflow=32.39 cfs 4.706 af

Reach 200: Analysis Point #200 Inflow=12.76 cfs 2.379 af
Outflow=12.76 cfs 2.379 af

Reach 300: Analysis Point #300 Inflow=5.76 cfs 0.563 af
Outflow=5.76 cfs 0.563 af

Reach 400: Analysis Point #400 Inflow=25.50 cfs 3.089 af
Outflow=25.50 cfs 3.089 af

Reach 500: Analysis Point #500 Inflow=20.15 cfs 5.518 af
Outflow=20.15 cfs 5.518 af

Pond 6P: Culvert, Headwall under Roadway Peak Elev=200.86' Storage=9,547 cf Inflow=13.30 cfs 1.774 af
Outflow=10.34 cfs 1.774 af

Pond CB1: CB#1 Peak Elev=310.41' Inflow=1.03 cfs 0.073 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=1.03 cfs 0.073 af

Pond CB10: CB#10 Peak Elev=210.42' Inflow=0.36 cfs 0.028 af
12.0" Round Culvert n=0.130 L=67.0' S=0.0104 '/' Outflow=0.36 cfs 0.028 af

Pond CB11: CB#11 Peak Elev=190.94' Inflow=0.52 cfs 0.037 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=0.52 cfs 0.037 af

Pond CB12: CB#12 Peak Elev=190.75' Inflow=1.13 cfs 0.080 af
12.0" Round Culvert n=0.012 L=166.0' S=0.0301 '/' Outflow=1.13 cfs 0.080 af

Pond CB13: CB#13 Peak Elev=187.08' Inflow=2.32 cfs 0.165 af
12.0" Round Culvert n=0.012 L=16.0' S=0.0062 '/' Outflow=2.32 cfs 0.165 af

Pond CB14: CB#14 Peak Elev=186.72' Inflow=2.67 cfs 0.191 af
15.0" Round Culvert n=0.013 L=294.0' S=0.0044 '/' Outflow=2.67 cfs 0.191 af

Pond CB2: CB#2 Peak Elev=310.28' Inflow=4.12 cfs 0.294 af
18.0" Round Culvert n=0.013 L=296.0' S=0.0895 '/' Outflow=4.12 cfs 0.294 af

Pond CB3: CB#3 Peak Elev=284.01' Inflow=1.52 cfs 0.108 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=1.52 cfs 0.108 af

Pond CB4: CB#4 Peak Elev=283.84' Inflow=6.73 cfs 0.480 af
24.0" Round Culvert n=0.013 L=281.0' S=0.1555 '/' Outflow=6.73 cfs 0.480 af

Pond CB5: CB#5 Peak Elev=254.09' Inflow=2.41 cfs 0.171 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=2.41 cfs 0.171 af

Pond CB6: CB#6 Peak Elev=253.66' Inflow=2.82 cfs 0.202 af
15.0" Round Culvert n=0.013 L=149.0' S=0.0993 '/' Outflow=2.82 cfs 0.202 af

Pond CB7: CB#7 Peak Elev=223.54' Inflow=0.69 cfs 0.049 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=0.69 cfs 0.049 af

Pond CB8: CB#8 Peak Elev=214.00' Inflow=4.24 cfs 0.303 af
18.0" Round Culvert n=0.013 L=63.0' S=0.0873 '/' Outflow=4.24 cfs 0.303 af

Pond CB9: CB#9 Peak Elev=210.43' Inflow=0.19 cfs 0.015 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=0.19 cfs 0.015 af

Pond DMH1: DMH#1 Peak Elev=238.76' Inflow=2.82 cfs 0.202 af
15.0" Round Culvert n=0.013 L=147.0' S=0.1020 '/' Outflow=2.82 cfs 0.202 af

Pond DMH2: DMH#2 Peak Elev=186.11' Inflow=2.67 cfs 0.191 af
15.0" Round Culvert n=0.013 L=150.0' S=0.0040 '/' Outflow=2.67 cfs 0.191 af

Pond FB#1: Forebay #1 Peak Elev=239.76' Storage=7,380 cf Inflow=7.67 cfs 0.598 af
Outflow=6.45 cfs 0.452 af

Pond FB#2: Forebay #2 Peak Elev=209.76' Storage=3,616 cf Inflow=4.78 cfs 0.344 af
Outflow=4.66 cfs 0.272 af

Pond FB#3: Forebay #3 Peak Elev=185.75' Storage=1,373 cf Inflow=2.94 cfs 0.219 af
Outflow=2.91 cfs 0.192 af

Pond IP#1: Infiltration Pond #1 Peak Elev=238.19' Storage=12,191 cf Inflow=10.86 cfs 0.814 af
Discarded=0.16 cfs 0.272 af Primary=2.49 cfs 0.542 af Outflow=2.64 cfs 0.814 af

Pond IP#2: Infiltration Pond #2 Peak Elev=208.58' Storage=7,489 cf Inflow=5.85 cfs 0.382 af
Discarded=0.08 cfs 0.135 af Primary=0.51 cfs 0.247 af Outflow=0.60 cfs 0.382 af

Pond IP#3: Infiltration Pond #3 Peak Elev=185.19' Storage=5,198 cf Inflow=3.25 cfs 0.229 af
Discarded=0.19 cfs 0.229 af Primary=0.00 cfs 0.000 af Outflow=0.19 cfs 0.229 af

Pond IP#4: Infiltration Pond #4 Peak Elev=291.56' Storage=2,059 cf Inflow=1.15 cfs 0.106 af
Discarded=0.01 cfs 0.060 af Primary=0.40 cfs 0.046 af Outflow=0.41 cfs 0.106 af

Pond IP#5: Infiltration Pond #5 Peak Elev=281.04' Storage=4,837 cf Inflow=2.25 cfs 0.220 af
Discarded=0.02 cfs 0.074 af Primary=0.29 cfs 0.146 af Outflow=0.31 cfs 0.220 af

Pond IP#6: Infiltration Pond #6 Peak Elev=269.99' Storage=4,147 cf Inflow=2.35 cfs 0.191 af
Discarded=0.03 cfs 0.090 af Primary=0.20 cfs 0.101 af Outflow=0.23 cfs 0.191 af

Pond IP#7: Infiltration Pond #7 Peak Elev=290.15' Storage=2,735 cf Inflow=1.71 cfs 0.158 af
Discarded=0.02 cfs 0.048 af Primary=0.44 cfs 0.110 af Outflow=0.45 cfs 0.158 af

Total Runoff Area = 93.930 ac Runoff Volume = 17.408 af Average Runoff Depth = 2.22"
82.32% Pervious = 77.319 ac 17.68% Impervious = 16.611 ac

Summary for Subcatchment 1.0S: North to Pawtuckaway River

Runoff = 30.12 cfs @ 12.51 hrs, Volume= 4.165 af, Depth= 1.89"
Routed to Reach 100 : Analysis Point #100

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
867,098	70	Woods, Good, HSG C
10,139	74	>75% Grass cover, Good, HSG C
271,812	77	2 acre lots, 12% imp, HSG C
1,149,049	72	Weighted Average
1,116,432	71	97.16% Pervious Area
32,617	98	2.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	50	0.2400	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.92"
26.9	1,211	0.0900	0.75		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
35.2	1,261	Total			

Summary for Subcatchment 1.1S: Center of cul-de-sac

Runoff = 0.98 cfs @ 12.09 hrs, Volume= 0.070 af, Depth= 2.05"
Routed to Reach 1R : Culvert #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
17,927	74	>75% Grass cover, Good, HSG C
17,927	74	100.00% Pervious Area

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

Summary for Subcatchment 1.2S: To CB#1

Runoff = 1.03 cfs @ 12.09 hrs, Volume= 0.073 af, Depth= 2.91"
Routed to Pond CB1 : CB#1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
6,948	74	>75% Grass cover, Good, HSG C
914	77	2 acre lots, 12% imp, HSG C
5,350	98	Paved parking, HSG C
13,212	84	Weighted Average
7,752	74	58.68% Pervious Area
5,460	98	41.32% Impervious Area

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

Summary for Subcatchment 1.3S: To CB#2

Runoff = 2.12 cfs @ 12.09 hrs, Volume= 0.151 af, Depth= 2.55"
Routed to Pond CB2 : CB#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
6,858	74	>75% Grass cover, Good, HSG C
18,665	77	2 acre lots, 12% imp, HSG C
5,412	98	Paved parking, HSG C
30,935	80	Weighted Average
23,283	74	75.26% Pervious Area
7,652	98	24.74% Impervious Area

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

Summary for Subcatchment 1.4S: To CB#3

Runoff = 1.52 cfs @ 12.09 hrs, Volume= 0.108 af, Depth= 2.46"
Routed to Pond CB3 : CB#3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
4,190	74	>75% Grass cover, Good, HSG C
15,621	77	2 acre lots, 12% imp, HSG C
3,202	98	Paved parking, HSG C
23,013	79	Weighted Average
17,936	74	77.94% Pervious Area
5,077	98	22.06% Impervious Area

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

Summary for Subcatchment 1.5S: To CB#4

Runoff = 1.08 cfs @ 12.09 hrs, Volume= 0.077 af, Depth= 2.55"
Routed to Pond CB4 : CB#4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
4,366	74	>75% Grass cover, Good, HSG C
8,195	77	2 acre lots, 12% imp, HSG C
3,248	98	Paved parking, HSG C
15,809	80	Weighted Average
11,578	74	73.23% Pervious Area
4,231	98	26.77% Impervious Area

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

Summary for Subcatchment 1.6S: To IP#1

Runoff = 4.42 cfs @ 12.14 hrs, Volume= 0.362 af, Depth= 2.29"
Routed to Pond IP#1 : Infiltration Pond #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
9,923	74	>75% Grass cover, Good, HSG C
72,587	77	2 acre lots, 12% imp, HSG C
82,510	77	Weighted Average
73,800	74	89.44% Pervious Area
8,710	98	10.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	50	0.1400	0.31		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.92"
7.4	467	0.1777	1.05		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
10.1	517	Total			

Summary for Subcatchment 1.7S: To FB#1

Runoff = 1.29 cfs @ 12.19 hrs, Volume= 0.118 af, Depth= 2.29"
Routed to Pond FB#1 : Forebay #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
636	74	>75% Grass cover, Good, HSG C
26,356	77	2 acre lots, 12% imp, HSG C
26,992	77	Weighted Average
23,829	74	88.28% Pervious Area
3,163	98	11.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	50	0.1600	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.92"
4.1	313	0.2572	1.27		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
13.9	363	Total			

Summary for Subcatchment 2.0S: To Culvert #2

Runoff = 13.30 cfs @ 12.47 hrs, Volume= 1.774 af, Depth= 1.97"
Routed to Pond 6P : Culvert, Headwall under Roadway

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
263,823	70	Woods, Good, HSG C
7,166	74	>75% Grass cover, Good, HSG C
199,368	77	2 acre lots, 12% imp, HSG C
470,357	73	Weighted Average
446,433	72	94.91% Pervious Area
23,924	98	5.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	50	0.2150	0.10		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.92"
24.4	1,143	0.0976	0.78		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
33.1	1,193	Total			

Summary for Subcatchment 2.1S: To CB#5

Runoff = 2.41 cfs @ 12.09 hrs, Volume= 0.171 af, Depth= 2.46"
Routed to Pond CB5 : CB#5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
4,122	74	>75% Grass cover, Good, HSG C
29,080	77	2 acre lots, 12% imp, HSG C
3,189	98	Paved parking, HSG C
36,391	79	Weighted Average
29,712	74	81.65% Pervious Area
6,679	98	18.35% Impervious Area

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

Summary for Subcatchment 2.2S: To CB#6

Runoff = 0.41 cfs @ 12.08 hrs, Volume= 0.030 af, Depth= 3.70"
Routed to Pond CB6 : CB#6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
1,047	74	>75% Grass cover, Good, HSG C
3,248	98	Paved parking, HSG C
4,295	92	Weighted Average
1,047	74	24.38% Pervious Area
3,248	98	75.62% Impervious Area

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

Summary for Subcatchment 2.3S: To CB#7

Runoff = 0.69 cfs @ 12.09 hrs, Volume= 0.049 af, Depth= 2.81"
Routed to Pond CB7 : CB#7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
2,797	74	>75% Grass cover, Good, HSG C
3,102	77	2 acre lots, 12% imp, HSG C
3,167	98	Paved parking, HSG C
9,066	83	Weighted Average
5,527	74	60.96% Pervious Area
3,539	98	39.04% Impervious Area

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

Summary for Subcatchment 2.4S: To CB#8

Runoff = 0.74 cfs @ 12.09 hrs, Volume= 0.053 af, Depth= 2.81"
Routed to Pond CB8 : CB#8

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
2,888	74	>75% Grass cover, Good, HSG C
3,581	77	2 acre lots, 12% imp, HSG C
3,288	98	Paved parking, HSG C
9,757	83	Weighted Average
6,039	74	61.90% Pervious Area
3,718	98	38.10% Impervious Area

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

Summary for Subcatchment 2.5S: To CB#9

Runoff = 0.19 cfs @ 12.08 hrs, Volume= 0.015 af, Depth= 3.91"
Routed to Pond CB9 : CB#9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
334	74	>75% Grass cover, Good, HSG C
1,619	98	Paved parking, HSG C
1,953	94	Weighted Average
334	74	17.10% Pervious Area
1,619	98	82.90% Impervious Area

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

Summary for Subcatchment 2.6S: To CB#10

Runoff = 0.16 cfs @ 12.08 hrs, Volume= 0.013 af, Depth= 4.36"
Routed to Pond CB10 : CB#10

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
1,593	98	Paved parking, HSG C
1,593	98	100.00% Impervious Area

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

Summary for Subcatchment 2.7S: To IP#2

Runoff = 1.30 cfs @ 12.15 hrs, Volume= 0.110 af, Depth= 2.13"
Routed to Pond IP#2 : Infiltration Pond #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
5,469	70	Woods, Good, HSG C
8,828	74	>75% Grass cover, Good, HSG C
12,597	77	2 acre lots, 12% imp, HSG C
26,894	75	Weighted Average
25,382	73	94.38% Pervious Area
1,512	98	5.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	50	0.3000	0.11		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.92"
3.2	208	0.1875	1.08		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
10.8	258	Total			

Summary for Subcatchment 2.8S: To FB#2

Runoff = 0.18 cfs @ 12.09 hrs, Volume= 0.013 af, Depth= 2.05"
Routed to Pond FB#2 : Forebay #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
3,362	74	>75% Grass cover, Good, HSG C
3,362	74	100.00% Pervious Area

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

Summary for Subcatchment 2.9S: Northeast towards Raymond Road

Runoff = 2.13 cfs @ 12.73 hrs, Volume= 0.358 af, Depth= 1.82"
Routed to Reach 200 : Analysis Point #200

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
90,578	70	Woods, Good, HSG C
7,460	74	>75% Grass cover, Good, HSG C
4,903	77	2 acre lots, 12% imp, HSG C
102,941	71	Weighted Average
102,353	70	99.43% Pervious Area
588	98	0.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.1	50	0.0050	0.02		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.92"
11.8	305	0.0295	0.43		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
50.9	355	Total			

Summary for Subcatchment 3.1S: East to Raymond Road

Runoff = 3.53 cfs @ 12.16 hrs, Volume= 0.303 af, Depth= 1.82"
Routed to Reach 300 : Analysis Point #300

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
80,999	70	Woods, Good, HSG C
2,857	74	>75% Grass cover, Good, HSG C
3,243	98	Paved parking, HSG C
87,099	71	Weighted Average
83,856	70	96.28% Pervious Area
3,243	98	3.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.1980	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.92"
3.3	231	0.2208	1.17		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.7	60	0.0383	1.37		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	41	0.0488	4.48		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.5	77	0.1169	0.85		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
10.9	459	Total			

Summary for Subcatchment 3.2S: To CB#12

Runoff = 0.62 cfs @ 12.09 hrs, Volume= 0.044 af, Depth= 2.63"
Routed to Pond CB12 : CB#12

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
1,117	70	Woods, Good, HSG C
4,840	74	>75% Grass cover, Good, HSG C
2,714	98	Paved parking, HSG C
8,671	81	Weighted Average
5,957	73	68.70% Pervious Area
2,714	98	31.30% Impervious Area

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

Summary for Subcatchment 3.3S: To CB#11

Runoff = 0.52 cfs @ 12.09 hrs, Volume= 0.037 af, Depth= 2.72"
Routed to Pond CB11 : CB#11

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
2,767	70	Woods, Good, HSG C
1,597	74	>75% Grass cover, Good, HSG C
2,690	98	Paved parking, HSG C
7,054	82	Weighted Average
4,364	71	61.87% Pervious Area
2,690	98	38.13% Impervious Area

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

Summary for Subcatchment 3.4S: To CB#13

Runoff = 1.18 cfs @ 12.09 hrs, Volume= 0.085 af, Depth= 2.13"
Routed to Pond CB13 : CB#13

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
11,936	70	Woods, Good, HSG C
5,707	74	>75% Grass cover, Good, HSG C
3,150	98	Paved parking, HSG C
20,793	75	Weighted Average
17,643	71	84.85% Pervious Area
3,150	98	15.15% Impervious Area

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

Summary for Subcatchment 3.5S: To CB#14

Runoff = 0.36 cfs @ 12.09 hrs, Volume= 0.025 af, Depth= 2.38"
Routed to Pond CB14 : CB#14

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
2,468	70	Woods, Good, HSG C
1,689	74	>75% Grass cover, Good, HSG C
1,441	98	Paved parking, HSG C
5,598	78	Weighted Average
4,157	72	74.26% Pervious Area
1,441	98	25.74% Impervious Area

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

Summary for Subcatchment 3.6S: East to Raymond Road

Runoff = 2.55 cfs @ 12.25 hrs, Volume= 0.260 af, Depth= 1.97"
Routed to Reach 300 : Analysis Point #300

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
52,651	70	Woods, Good, HSG C
10,633	74	>75% Grass cover, Good, HSG C
5,622	98	Paved parking, HSG C
68,906	73	Weighted Average
63,284	71	91.84% Pervious Area
5,622	98	8.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	50	0.0800	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.92"
4.8	189	0.0690	0.66		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
17.7	239	Total			

Summary for Subcatchment 3.7S: To FB#3

Runoff = 0.33 cfs @ 12.16 hrs, Volume= 0.029 af, Depth= 1.82"
Routed to Pond FB#3 : Forebay #3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
6,849	70	Woods, Good, HSG C
1,398	74	>75% Grass cover, Good, HSG C
8,247	71	Weighted Average
8,247	71	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.1800	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.92"
1.8	89	0.1124	0.84		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
11.1	139	Total			

Summary for Subcatchment 3.8S: To BP#3

Runoff = 0.41 cfs @ 12.18 hrs, Volume= 0.036 af, Depth= 1.89"
Routed to Pond IP#3 : Infiltration Pond #3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
6,154	70	Woods, Good, HSG C
3,847	74	>75% Grass cover, Good, HSG C
10,001	72	Weighted Average
10,001	72	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	50	0.1000	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.92"
0.4	31	0.2258	1.19		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
12.2	81	Total			

Summary for Subcatchment 4.0S: Southeast to Wetland

Runoff = 25.08 cfs @ 12.34 hrs, Volume= 2.878 af, Depth= 2.38"
Routed to Reach 400 : Analysis Point #400

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
439,742	70	Woods, Good, HSG C
1,916	74	>75% Grass cover, Good, HSG C
22,983	77	2 acre lots, 12% imp, HSG C
168,604	98	Water Surface, HSG D
633,245	78	Weighted Average
461,883	70	72.94% Pervious Area
171,362	98	27.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0800	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.92"
8.1	562	0.2162	1.16		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
8.9	399	0.0025	0.75		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
24.4	1,011	Total			

Summary for Subcatchment 4.1S: To IP#6

Runoff = 2.35 cfs @ 12.14 hrs, Volume= 0.191 af, Depth= 2.21"
Routed to Pond IP#6 : Infiltration Pond #6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
8,968	74	>75% Grass cover, Good, HSG C
36,123	77	2 acre lots, 12% imp, HSG C
45,091	76	Weighted Average
40,756	74	90.39% Pervious Area
4,335	98	9.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.5	50	0.1100	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.92"
3.1	213	0.2089	1.14		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.1	21	0.4762	4.83		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
9.7	284	Total			

Summary for Subcatchment 4.2S: To IP#7

Runoff = 1.71 cfs @ 12.20 hrs, Volume= 0.158 af, Depth= 2.13"
Routed to Pond IP#7 : Infiltration Pond #7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
11,428	70	Woods, Good, HSG C
2,839	74	>75% Grass cover, Good, HSG C
24,571	77	2 acre lots, 12% imp, HSG C
38,838	75	Weighted Average
35,889	73	92.41% Pervious Area
2,949	98	7.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	50	0.1850	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.92"
4.7	245	0.1220	0.87		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.1	21	0.4762	4.83		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.0	316	Total			

Summary for Subcatchment 5.0S: Southwest to Wetland

Runoff = 19.76 cfs @ 13.49 hrs, Volume= 5.326 af, Depth= 2.63"
Routed to Reach 500 : Analysis Point #500

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
571,805	70	Woods, Good, HSG C
90,699	77	2 acre lots, 12% imp, HSG C
394,139	98	Water Surface, HSG D
1,056,643	81	Weighted Average
651,620	71	61.67% Pervious Area
405,023	98	38.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.1800	0.09		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.92"
24.4	1,158	0.1001	0.79		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
76.7	976	0.0002	0.21		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
110.4	2,184	Total			

Summary for Subcatchment 5.1S: To IP #4

Runoff = 1.15 cfs @ 12.20 hrs, Volume= 0.106 af, Depth= 2.21"
Routed to Pond IP#4 : Infiltration Pond #4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
1,403	70	Woods, Good, HSG C
3,149	74	>75% Grass cover, Good, HSG C
20,614	77	2 acre lots, 12% imp, HSG C
25,166	76	Weighted Average
22,692	74	90.17% Pervious Area
2,474	98	9.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	50	0.1500	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.92"
4.0	204	0.1176	0.86		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
14.0	254	Total			

Summary for Subcatchment 5.2S: To IP#5

Runoff = 2.25 cfs @ 12.23 hrs, Volume= 0.220 af, Depth= 2.29"
Routed to Pond IP#5 : Infiltration Pond #5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
6,422	74	>75% Grass cover, Good, HSG C
43,748	77	2 acre lots, 12% imp, HSG C
50,170	77	Weighted Average
44,920	74	89.54% Pervious Area
5,250	98	10.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	50	0.1500	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 2.92"
6.5	349	0.1275	0.89		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
16.5	399	Total			

Summary for Reach 1R: Culvert #1

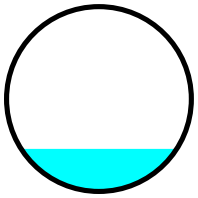
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 0.412 ac, 0.00% Impervious, Inflow Depth = 2.05" for 10-YR event
Inflow = 0.98 cfs @ 12.09 hrs, Volume= 0.070 af
Outflow = 0.98 cfs @ 12.10 hrs, Volume= 0.070 af, Atten= 0%, Lag= 0.4 min
Routed to Pond CB2 : CB#2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.20 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.62 fps, Avg. Travel Time= 1.6 min

Peak Storage= 35 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.23' , Surface Width= 0.84'
Defined Flood Depth= 326.00' Flow Area= 44.0 sf, Capacity= -11,572.27 cfs
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 8.49 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 257.0' Slope= 0.0568 '/'
Inlet Invert= 324.00', Outlet Invert= 309.40'



Summary for Reach 100: Analysis Point #100

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 31.209 ac, 4.92% Impervious, Inflow Depth = 1.81" for 10-YR event
Inflow = 32.39 cfs @ 12.52 hrs, Volume= 4.706 af
Outflow = 32.39 cfs @ 12.52 hrs, Volume= 4.706 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach 200: Analysis Point #200

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 15.303 ac, 6.96% Impervious, Inflow Depth = 1.87" for 10-YR event
Inflow = 12.76 cfs @ 12.73 hrs, Volume= 2.379 af
Outflow = 12.76 cfs @ 12.73 hrs, Volume= 2.379 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 3R

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach 300: Analysis Point #300

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.967 ac, 8.72% Impervious, Inflow Depth = 1.36" for 10-YR event
Inflow = 5.76 cfs @ 12.19 hrs, Volume= 0.563 af
Outflow = 5.76 cfs @ 12.19 hrs, Volume= 0.563 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 3R

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach 400: Analysis Point #400

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 16.464 ac, 24.91% Impervious, Inflow Depth = 2.25" for 10-YR event
Inflow = 25.50 cfs @ 12.34 hrs, Volume= 3.089 af
Outflow = 25.50 cfs @ 12.34 hrs, Volume= 3.089 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Reach 500: Analysis Point #500

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 25.987 ac, 36.46% Impervious, Inflow Depth = 2.55" for 10-YR event
Inflow = 20.15 cfs @ 13.49 hrs, Volume= 5.518 af
Outflow = 20.15 cfs @ 13.49 hrs, Volume= 5.518 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Pond 6P: Culvert, Headwall under Roadway

Inflow Area = 10.798 ac, 5.09% Impervious, Inflow Depth = 1.97" for 10-YR event
Inflow = 13.30 cfs @ 12.47 hrs, Volume= 1.774 af
Outflow = 10.34 cfs @ 12.71 hrs, Volume= 1.774 af, Atten= 22%, Lag= 14.4 min
Primary = 10.34 cfs @ 12.71 hrs, Volume= 1.774 af
Routed to Reach 200 : Analysis Point #200

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 200.86' @ 12.71 hrs Surf.Area= 7,833 sf Storage= 9,547 cf
Flood Elev= 204.00' Surf.Area= 19,394 sf Storage= 52,568 cf

Plug-Flow detention time= 8.3 min calculated for 1.774 af (100% of inflow)
Center-of-Mass det. time= 8.1 min (877.5 - 869.4)

Volume	Invert	Avail.Storage	Storage Description
#1	197.20'	52,568 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
197.20	6	0.0	0	0	6
198.00	127	100.0	43	43	129
200.00	5,082	100.0	4,008	4,051	5,092
202.00	12,418	100.0	16,963	21,014	12,457
204.00	19,394	100.0	31,554	52,568	19,489

Device	Routing	Invert	Outlet Devices
#1	Primary	197.20'	**10.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 197.20' / 195.80' S= 0.0194 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Primary	199.60'	**18.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 199.60' / 195.80' S= 0.0528 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=10.34 cfs @ 12.71 hrs HW=200.86' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 4.30 cfs @ 7.88 fps)
2=Culvert (Inlet Controls 6.04 cfs @ 3.82 fps)

Summary for Pond CB1: CB#1

Inflow Area = 0.303 ac, 41.32% Impervious, Inflow Depth = 2.91" for 10-YR event
Inflow = 1.03 cfs @ 12.09 hrs, Volume= 0.073 af
Outflow = 1.03 cfs @ 12.09 hrs, Volume= 0.073 af, Atten= 0%, Lag= 0.0 min
Primary = 1.03 cfs @ 12.09 hrs, Volume= 0.073 af
Routed to Pond CB2 : CB#2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 310.41' @ 12.10 hrs
Flood Elev= 313.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	309.60'	**12.0" Round Culvert** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 309.60' / 309.40' S= 0.0133 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.00 cfs @ 12.09 hrs HW=310.40' TW=310.28' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 1.00 cfs @ 2.03 fps)

Summary for Pond CB10: CB#10

[80] Warning: Exceeded Pond CB9 by 1.54' @ 14.89 hrs (3.85 cfs 3.177 af)

Inflow Area = 0.081 ac, 90.58% Impervious, Inflow Depth = 4.12" for 10-YR event
Inflow = 0.36 cfs @ 12.08 hrs, Volume= 0.028 af
Outflow = 0.36 cfs @ 12.08 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min
Primary = 0.36 cfs @ 12.08 hrs, Volume= 0.028 af
Routed to Pond FB#2 : Forebay #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 210.42' @ 12.09 hrs
Flood Elev= 212.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	207.70'	**12.0" Round Culvert** L= 67.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 207.70' / 207.00' S= 0.0104 '/' Cc= 0.900 n= 0.130, Flow Area= 0.79 sf

Primary OutFlow Max=0.35 cfs @ 12.08 hrs HW=210.42' TW=209.75' (Dynamic Tailwater)
↑**1=Culvert** (Outlet Controls 0.35 cfs @ 0.45 fps)

Summary for Pond CB11: CB#11

Inflow Area = 0.162 ac, 38.13% Impervious, Inflow Depth = 2.72" for 10-YR event
Inflow = 0.52 cfs @ 12.09 hrs, Volume= 0.037 af
Outflow = 0.52 cfs @ 12.09 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min
Primary = 0.52 cfs @ 12.09 hrs, Volume= 0.037 af
Routed to Pond CB12 : CB#12

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 190.94' @ 12.09 hrs
Flood Elev= 194.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	190.50'	**12.0" Round Culvert** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 190.50' / 190.30' S= 0.0133 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.51 cfs @ 12.09 hrs HW=190.94' TW=190.75' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.51 cfs @ 2.30 fps)

Summary for Pond CB12: CB#12

Inflow Area = 0.361 ac, 34.37% Impervious, Inflow Depth = 2.67" for 10-YR event
Inflow = 1.13 cfs @ 12.09 hrs, Volume= 0.080 af
Outflow = 1.13 cfs @ 12.09 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min
Primary = 1.13 cfs @ 12.09 hrs, Volume= 0.080 af
Routed to Pond CB13 : CB#13

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 190.75' @ 12.09 hrs
Flood Elev= 194.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	190.20'	**12.0" Round Culvert** L= 166.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 190.20' / 185.20' S= 0.0301 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.13 cfs @ 12.09 hrs HW=190.75' TW=187.04' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.13 cfs @ 2.53 fps)

Summary for Pond CB13: CB#13

Inflow Area = 0.838 ac, 23.42% Impervious, Inflow Depth = 2.36" for 10-YR event
Inflow = 2.32 cfs @ 12.09 hrs, Volume= 0.165 af
Outflow = 2.32 cfs @ 12.09 hrs, Volume= 0.165 af, Atten= 0%, Lag= 0.0 min
Primary = 2.32 cfs @ 12.09 hrs, Volume= 0.165 af
Routed to Pond CB14 : CB#14

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 187.08' @ 12.10 hrs
Flood Elev= 188.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	185.10'	**12.0" Round Culvert** L= 16.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 185.10' / 185.00' S= 0.0062 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=2.20 cfs @ 12.09 hrs HW=187.05' TW=186.71' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.20 cfs @ 2.81 fps)

Summary for Pond CB14: CB#14

[80] Warning: Exceeded Pond CB13 by 0.37' @ 24.33 hrs (0.42 cfs 0.375 af)

Inflow Area = 0.967 ac, 23.73% Impervious, Inflow Depth = 2.37" for 10-YR event
Inflow = 2.67 cfs @ 12.09 hrs, Volume= 0.191 af
Outflow = 2.67 cfs @ 12.09 hrs, Volume= 0.191 af, Atten= 0%, Lag= 0.0 min
Primary = 2.67 cfs @ 12.09 hrs, Volume= 0.191 af
Routed to Pond DMH2 : DMH#2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 186.72' @ 12.10 hrs
Flood Elev= 187.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	184.90'	**15.0" Round Culvert** L= 294.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 184.90' / 183.60' S= 0.0044 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.65 cfs @ 12.09 hrs HW=186.71' TW=186.11' (Dynamic Tailwater)
1=Culvert (Outlet Controls 2.65 cfs @ 2.16 fps)

Summary for Pond CB2: CB#2

[62] Hint: Exceeded Reach 1R OUTLET depth by 0.65' @ 12.09 hrs

Inflow Area = 1.425 ac, 21.12% Impervious, Inflow Depth = 2.48" for 10-YR event
Inflow = 4.12 cfs @ 12.09 hrs, Volume= 0.294 af
Outflow = 4.12 cfs @ 12.09 hrs, Volume= 0.294 af, Atten= 0%, Lag= 0.0 min
Primary = 4.12 cfs @ 12.09 hrs, Volume= 0.294 af
Routed to Pond CB4 : CB#4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 310.28' @ 12.09 hrs
Flood Elev= 313.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	309.30'	**18.0" Round Culvert** L= 296.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 309.30' / 282.80' S= 0.0895 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.12 cfs @ 12.09 hrs HW=310.28' TW=283.84' (Dynamic Tailwater)
1=Culvert (Inlet Controls 4.12 cfs @ 3.37 fps)

Summary for Pond CB3: CB#3

Inflow Area = 0.528 ac, 22.06% Impervious, Inflow Depth = 2.46" for 10-YR event
Inflow = 1.52 cfs @ 12.09 hrs, Volume= 0.108 af
Outflow = 1.52 cfs @ 12.09 hrs, Volume= 0.108 af, Atten= 0%, Lag= 0.0 min
Primary = 1.52 cfs @ 12.09 hrs, Volume= 0.108 af
Routed to Pond CB4 : CB#4

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 284.01' @ 12.10 hrs
Flood Elev= 287.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	283.00'	**12.0" Round Culvert** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 283.00' / 282.80' S= 0.0133 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.50 cfs @ 12.09 hrs HW=284.00' TW=283.84' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.50 cfs @ 2.36 fps)

Summary for Pond CB4: CB#4

Inflow Area = 2.316 ac, 22.22% Impervious, Inflow Depth = 2.49" for 10-YR event
Inflow = 6.73 cfs @ 12.09 hrs, Volume= 0.480 af
Outflow = 6.73 cfs @ 12.09 hrs, Volume= 0.480 af, Atten= 0%, Lag= 0.0 min
Primary = 6.73 cfs @ 12.09 hrs, Volume= 0.480 af
Routed to Pond FB#1 : Forebay #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 283.84' @ 12.09 hrs
Flood Elev= 287.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	282.70'	**24.0" Round Culvert** L= 281.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 282.70' / 239.00' S= 0.1555 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=6.73 cfs @ 12.09 hrs HW=283.84' TW=239.64' (Dynamic Tailwater)
1=Culvert (Inlet Controls 6.73 cfs @ 3.64 fps)

Summary for Pond CB5: CB#5

Inflow Area = 0.835 ac, 18.35% Impervious, Inflow Depth = 2.46" for 10-YR event
Inflow = 2.41 cfs @ 12.09 hrs, Volume= 0.171 af
Outflow = 2.41 cfs @ 12.09 hrs, Volume= 0.171 af, Atten= 0%, Lag= 0.0 min
Primary = 2.41 cfs @ 12.09 hrs, Volume= 0.171 af
Routed to Pond CB6 : CB#6

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Peak Elev= 254.09' @ 12.09 hrs
Flood Elev= 257.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	253.10'	**12.0" Round Culvert** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 253.10' / 252.90' S= 0.0133 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.40 cfs @ 12.09 hrs HW=254.09' TW=253.66' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 2.40 cfs @ 3.85 fps)

Summary for Pond CB6: CB#6

Inflow Area = 0.934 ac, 24.40% Impervious, Inflow Depth = 2.59" for 10-YR event
Inflow = 2.82 cfs @ 12.09 hrs, Volume= 0.202 af
Outflow = 2.82 cfs @ 12.09 hrs, Volume= 0.202 af, Atten= 0%, Lag= 0.0 min
Primary = 2.82 cfs @ 12.09 hrs, Volume= 0.202 af
Routed to Pond DMH1 : DMH#1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 253.66' @ 12.09 hrs
Flood Elev= 257.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	252.80'	**15.0" Round Culvert** L= 149.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 252.80' / 238.00' S= 0.0993 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.82 cfs @ 12.09 hrs HW=253.66' TW=238.76' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 2.82 cfs @ 3.15 fps)

Summary for Pond CB7: CB#7

Inflow Area = 0.208 ac, 39.04% Impervious, Inflow Depth = 2.81" for 10-YR event
Inflow = 0.69 cfs @ 12.09 hrs, Volume= 0.049 af
Outflow = 0.69 cfs @ 12.09 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min
Primary = 0.69 cfs @ 12.09 hrs, Volume= 0.049 af
Routed to Pond CB8 : CB#8

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 223.54' @ 12.09 hrs
Flood Elev= 227.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	223.10'	**12.0" Round Culvert** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 223.10' / 222.90' S= 0.0133 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.68 cfs @ 12.09 hrs HW=223.54' TW=214.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.68 cfs @ 3.01 fps)

Summary for Pond CB8: CB#8

Inflow Area = 1.366 ac, 28.88% Impervious, Inflow Depth = 2.66" for 10-YR event
Inflow = 4.24 cfs @ 12.09 hrs, Volume= 0.303 af
Outflow = 4.24 cfs @ 12.09 hrs, Volume= 0.303 af, Atten= 0%, Lag= 0.0 min
Primary = 4.24 cfs @ 12.09 hrs, Volume= 0.303 af
Routed to Pond FB#2 : Forebay #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 214.00' @ 12.09 hrs
Flood Elev= 227.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	213.00'	**18.0" Round Culvert** L= 63.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 213.00' / 207.50' S= 0.0873 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=4.24 cfs @ 12.09 hrs HW=214.00' TW=209.75' (Dynamic Tailwater)
1=Culvert (Inlet Controls 4.24 cfs @ 3.40 fps)

Summary for Pond CB9: CB#9

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=548)

Inflow Area = 0.045 ac, 82.90% Impervious, Inflow Depth = 3.91" for 10-YR event
Inflow = 0.19 cfs @ 12.08 hrs, Volume= 0.015 af
Outflow = 0.19 cfs @ 12.08 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.0 min
Primary = 0.19 cfs @ 12.08 hrs, Volume= 0.015 af
Routed to Pond CB10 : CB#10

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 210.43' @ 12.10 hrs
Flood Elev= 212.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	208.00'	**12.0" Round Culvert** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 208.00' / 207.80' S= 0.0133 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.08 hrs HW=210.40' TW=210.42' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Summary for Pond DMH1: DMH#1

Inflow Area = 0.934 ac, 24.40% Impervious, Inflow Depth = 2.59" for 10-YR event
Inflow = 2.82 cfs @ 12.09 hrs, Volume= 0.202 af
Outflow = 2.82 cfs @ 12.09 hrs, Volume= 0.202 af, Atten= 0%, Lag= 0.0 min
Primary = 2.82 cfs @ 12.09 hrs, Volume= 0.202 af
Routed to Pond CB8 : CB#8

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 238.76' @ 12.09 hrs
Flood Elev= 242.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	237.90'	**15.0" Round Culvert** L= 147.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 237.90' / 222.90' S= 0.1020 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.82 cfs @ 12.09 hrs HW=238.76' TW=214.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.82 cfs @ 3.15 fps)

Summary for Pond DMH2: DMH#2

[80] Warning: Exceeded Pond CB14 by 0.58' @ 24.37 hrs (0.68 cfs 0.287 af)

Inflow Area = 0.967 ac, 23.73% Impervious, Inflow Depth = 2.37" for 10-YR event
Inflow = 2.67 cfs @ 12.09 hrs, Volume= 0.191 af
Outflow = 2.67 cfs @ 12.09 hrs, Volume= 0.191 af, Atten= 0%, Lag= 0.0 min
Primary = 2.67 cfs @ 12.09 hrs, Volume= 0.191 af
Routed to Pond FB#3 : Forebay #3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 186.11' @ 12.09 hrs
Flood Elev= 190.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	183.60'	**15.0" Round Culvert** L= 150.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 183.60' / 183.00' S= 0.0040 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.66 cfs @ 12.09 hrs HW=186.11' TW=185.74' (Dynamic Tailwater)
1=Culvert (Outlet Controls 2.66 cfs @ 2.16 fps)

Summary for Pond FB#1: Forebay #1

Inflow Area = 2.936 ac, 20.00% Impervious, Inflow Depth = 2.45" for 10-YR event
Inflow = 7.67 cfs @ 12.10 hrs, Volume= 0.598 af
Outflow = 6.45 cfs @ 12.16 hrs, Volume= 0.452 af, Atten= 16%, Lag= 3.6 min
Primary = 6.45 cfs @ 12.16 hrs, Volume= 0.452 af
Routed to Pond IP#1 : Infiltration Pond #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 239.76' @ 12.16 hrs Surf.Area= 3,945 sf Storage= 7,380 cf
Flood Elev= 240.00' Surf.Area= 4,200 sf Storage= 8,345 cf

Plug-Flow detention time= 138.0 min calculated for 0.452 af (76% of inflow)
Center-of-Mass det. time= 50.3 min (879.9 - 829.6)

Volume	Invert	Avail.Storage	Storage Description
#1	237.00'	8,345 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
237.00	1,600	0	0	1,600
238.00	2,300	1,939	1,939	2,317
240.00	4,200	6,405	8,345	4,259

Device	Routing	Invert	Outlet Devices
#1	Primary	239.50'	**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=6.44 cfs @ 12.16 hrs HW=239.76' TW=237.11' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 6.44 cfs @ 1.23 fps)

Summary for Pond FB#2: Forebay #2

[80] Warning: Exceeded Pond CB10 by 1.80' @ 24.32 hrs (0.53 cfs 0.340 af)

Inflow Area = 1.525 ac, 30.71% Impervious, Inflow Depth = 2.71" for 10-YR event
Inflow = 4.78 cfs @ 12.09 hrs, Volume= 0.344 af
Outflow = 4.66 cfs @ 12.11 hrs, Volume= 0.272 af, Atten= 3%, Lag= 1.1 min
Primary = 4.66 cfs @ 12.11 hrs, Volume= 0.272 af
Routed to Pond IP#2 : Infiltration Pond #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 209.76' @ 12.11 hrs Surf.Area= 1,911 sf Storage= 3,616 cf
Flood Elev= 210.00' Surf.Area= 2,056 sf Storage= 4,099 cf

Plug-Flow detention time= 124.8 min calculated for 0.272 af (79% of inflow)
Center-of-Mass det. time= 44.9 min (861.2 - 816.3)

Volume	Invert	Avail.Storage	Storage Description
#1	206.50'	4,099 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
206.50	458	0	0	458
208.00	1,021	1,081	1,081	1,039
210.00	2,056	3,017	4,099	2,109

Device	Routing	Invert	Outlet Devices
#1	Primary	209.50'	**15.0' 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=4.65 cfs @ 12.11 hrs HW=209.76' TW=207.18' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 4.65 cfs @ 1.21 fps)

Summary for Pond FB#3: Forebay #3

[80] Warning: Exceeded Pond DMH2 by 1.91' @ 24.15 hrs (4.94 cfs 2.761 af)

Inflow Area = 1.156 ac, 19.85% Impervious, Inflow Depth = 2.28" for 10-YR event
Inflow = 2.94 cfs @ 12.09 hrs, Volume= 0.219 af
Outflow = 2.91 cfs @ 12.11 hrs, Volume= 0.192 af, Atten= 1%, Lag= 0.8 min
Primary = 2.91 cfs @ 12.11 hrs, Volume= 0.192 af
Routed to Pond IP#3 : Infiltration Pond #3

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 185.75' @ 12.11 hrs Surf.Area= 869 sf Storage= 1,373 cf
Flood Elev= 186.00' Surf.Area= 956 sf Storage= 1,605 cf

Plug-Flow detention time= 81.8 min calculated for 0.192 af (88% of inflow)
Center-of-Mass det. time= 25.1 min (858.7 - 833.6)

Volume	Invert	Avail.Storage	Storage Description
#1	182.75'	1,605 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
182.75	137	0	0	137
184.00	381	311	311	391
186.00	956	1,294	1,605	993

Device	Routing	Invert	Outlet Devices
#1	Primary	185.50'	**10.0' 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=2.90 cfs @ 12.11 hrs HW=185.75' TW=183.50' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 2.90 cfs @ 1.18 fps)

Summary for Pond IP#1: Infiltration Pond #1

Inflow Area = 4.830 ac, 16.30% Impervious, Inflow Depth = 2.02" for 10-YR event
Inflow = 10.86 cfs @ 12.15 hrs, Volume= 0.814 af
Outflow = 2.64 cfs @ 12.62 hrs, Volume= 0.814 af, Atten= 76%, Lag= 28.3 min
Discarded = 0.16 cfs @ 12.62 hrs, Volume= 0.272 af
Primary = 2.49 cfs @ 12.62 hrs, Volume= 0.542 af
Routed to Reach 100 : Analysis Point #100

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 238.19' @ 12.62 hrs Surf.Area= 7,504 sf Storage= 12,191 cf
Flood Elev= 240.00' Surf.Area= 9,923 sf Storage= 27,916 cf

Plug-Flow detention time= 193.0 min calculated for 0.814 af (100% of inflow)
Center-of-Mass det. time= 193.0 min (1,054.0 - 861.0)

Volume	Invert	Avail.Storage	Storage Description
#1	236.25'	27,916 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
236.25	5,126	0.0	0	0	5,126
238.00	7,270	100.0	10,792	10,792	7,325
240.00	9,923	100.0	17,124	27,916	10,057

Device	Routing	Invert	Outlet Devices
#1	Primary	230.00'	**12.0" Round Culvert** L= 43.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 230.00' / 228.00' S= 0.0465 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	236.25'	**0.898 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Device 1	237.00'	**4.0" Vert. Vertical Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	237.15'	**5.0" Vert. Vertical Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 1	237.20'	**5.0" Vert. Vertical Orifice** C= 0.600 Limited to weir flow at low heads
#6	Device 1	237.50'	**3.0" Vert. Vertical Orifice** C= 0.600 Limited to weir flow at low heads
#7	Device 1	238.00'	**10.0" Horiz. Horizontal Grate** C= 0.600 in 11.0" Grate (83% open area) Limited to weir flow at low heads
#8	Primary	239.60'	**12.0' long x 7.0' 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) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Discarded OutFlow Max=0.16 cfs @ 12.62 hrs HW=238.19' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.16 cfs)

Primary OutFlow Max=2.49 cfs @ 12.62 hrs HW=238.19' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 2.49 cfs of 10.49 cfs potential flow)
  └**3=Vertical Orifice** (Orifice Controls 0.42 cfs @ 4.87 fps)
  └**4=Vertical Orifice** (Orifice Controls 0.60 cfs @ 4.39 fps)
  └**5=Vertical Orifice** (Orifice Controls 0.58 cfs @ 4.26 fps)
  └**6=Vertical Orifice** (Orifice Controls 0.18 cfs @ 3.62 fps)
  └**7=Horizontal Grate** (Weir Controls 0.71 cfs @ 1.42 fps)
└**8=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond IP#2: Infiltration Pond #2

Inflow Area = 2.142 ac, 23.48% Impervious, Inflow Depth = 2.14" for 10-YR event
Inflow = 5.85 cfs @ 12.11 hrs, Volume= 0.382 af
Outflow = 0.60 cfs @ 13.10 hrs, Volume= 0.382 af, Atten= 90%, Lag= 59.2 min
Discarded = 0.08 cfs @ 13.10 hrs, Volume= 0.135 af
Primary = 0.51 cfs @ 13.10 hrs, Volume= 0.247 af
Routed to Reach 200 : Analysis Point #200

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 208.58' @ 13.10 hrs Surf.Area= 4,314 sf Storage= 7,489 cf
Flood Elev= 210.00' Surf.Area= 5,400 sf Storage= 14,378 cf

Plug-Flow detention time= 271.5 min calculated for 0.381 af (100% of inflow)
Center-of-Mass det. time= 271.6 min (1,127.7 - 856.1)

Volume	Invert	Avail.Storage	Storage Description
#1	206.50'	14,378 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
206.50	2,931	0.0	0	0	2,931
208.00	3,907	100.0	5,111	5,111	3,955
210.00	5,400	100.0	9,267	14,378	5,524

Device	Routing	Invert	Outlet Devices
#1	Primary	204.00'	**12.0" Round Culvert** L= 33.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 204.00' / 203.00' S= 0.0303 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Discarded	206.50'	**0.850 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Primary	207.00'	**3.0" Vert. Vertical Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 1	208.50'	**12.0" Horiz. Horizontal Grate** C= 0.600 in 13.0" Grate (85% open area) Limited to weir flow at low heads
#5	Primary	209.50'	**12.0' long x 7.0' 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) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65
2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Discarded OutFlow Max=0.08 cfs @ 13.10 hrs HW=208.58' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.51 cfs @ 13.10 hrs HW=208.58' TW=0.00' (Dynamic Tailwater)
├**1=Culvert** (Passes 0.23 cfs of 7.64 cfs potential flow)
│└**4=Horizontal Grate** (Weir Controls 0.23 cfs @ 0.92 fps)
├**3=Vertical Orifice** (Orifice Controls 0.28 cfs @ 5.81 fps)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond IP#3: Infiltration Pond #3

[58] Hint: Peaked 0.19' above defined flood level

Inflow Area = 1.386 ac, 16.56% Impervious, Inflow Depth = 1.98" for 10-YR event
Inflow = 3.25 cfs @ 12.11 hrs, Volume= 0.229 af
Outflow = 0.19 cfs @ 15.09 hrs, Volume= 0.229 af, Atten= 94%, Lag= 178.5 min
Discarded = 0.19 cfs @ 15.09 hrs, Volume= 0.229 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 300 : Analysis Point #300

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 185.19' @ 15.09 hrs Surf.Area= 2,728 sf Storage= 5,198 cf
Flood Elev= 185.00' Surf.Area= 2,617 sf Storage= 4,698 cf

Plug-Flow detention time= 341.2 min calculated for 0.229 af (100% of inflow)
Center-of-Mass det. time= 341.2 min (1,198.9 - 857.7)

Volume	Invert	Avail.Storage	Storage Description
#1	182.62'	7,620 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
182.62	1,385	0.0	0	0	1,385
184.00	2,063	100.0	2,364	2,364	2,092
186.00	3,237	100.0	5,256	7,620	3,321

Device	Routing	Invert	Outlet Devices
#1	Discarded	182.62'	**2.939 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	185.50'	**10.0' long x 7.0' 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) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Discarded OutFlow Max=0.19 cfs @ 15.09 hrs HW=185.19' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=182.62' TW=0.00' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond IP#4: Infiltration Pond #4

Inflow Area = 0.578 ac, 9.83% Impervious, Inflow Depth = 2.21" for 10-YR event
Inflow = 1.15 cfs @ 12.20 hrs, Volume= 0.106 af
Outflow = 0.41 cfs @ 12.60 hrs, Volume= 0.106 af, Atten= 64%, Lag= 24.4 min
Discarded = 0.01 cfs @ 12.60 hrs, Volume= 0.060 af
Primary = 0.40 cfs @ 12.60 hrs, Volume= 0.046 af
Routed to Reach 500 : Analysis Point #500

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 291.56' @ 12.60 hrs Surf.Area= 2,103 sf Storage= 2,059 cf
Flood Elev= 292.00' Surf.Area= 2,475 sf Storage= 3,054 cf

Plug-Flow detention time= 850.8 min calculated for 0.106 af (100% of inflow)
Center-of-Mass det. time= 849.7 min (1,693.4 - 843.7)

Volume	Invert	Avail.Storage	Storage Description
#1	290.30'	3,054 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
290.30	1,195	0.0	0	0	1,195
292.00	2,475	100.0	3,054	3,054	2,500

Device	Routing	Invert	Outlet Devices
#1	Discarded	290.30'	**0.300 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	291.50'	**10.0' long x 7.0' 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) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Discarded OutFlow Max=0.01 cfs @ 12.60 hrs HW=291.56' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.40 cfs @ 12.60 hrs HW=291.56' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 0.40 cfs @ 0.61 fps)

Summary for Pond IP#5: Infiltration Pond #5

Inflow Area = 1.152 ac, 10.46% Impervious, Inflow Depth = 2.29" for 10-YR event
Inflow = 2.25 cfs @ 12.23 hrs, Volume= 0.220 af
Outflow = 0.31 cfs @ 13.23 hrs, Volume= 0.220 af, Atten= 86%, Lag= 60.0 min
Discarded = 0.02 cfs @ 13.23 hrs, Volume= 0.074 af
Primary = 0.29 cfs @ 13.23 hrs, Volume= 0.146 af
Routed to Reach 500 : Analysis Point #500

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 281.04' @ 13.23 hrs Surf.Area= 2,970 sf Storage= 4,837 cf
Flood Elev= 282.00' Surf.Area= 3,603 sf Storage= 7,998 cf

Plug-Flow detention time= 568.1 min calculated for 0.220 af (100% of inflow)

Center-of-Mass det. time= 568.4 min (1,411.7 - 843.4)

Volume	Invert	Avail.Storage	Storage Description
#1	279.00'	7,998 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
279.00	1,819	0.0	0	0	1,819
280.00	2,357	100.0	2,082	2,082	2,381
282.00	3,603	100.0	5,916	7,998	3,685

Device	Routing	Invert	Outlet Devices
#1	Discarded	279.00'	**0.300 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	276.00'	**12.0" Round Culvert** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 276.00' / 275.00' S= 0.0385 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Primary	280.00'	**3.0" Vert. Vertical Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 2	281.00'	**10.0" Horiz. Horizontal Grate** C= 0.600 in 11.0" Grate (83% open area) Limited to weir flow at low heads
#5	Primary	281.50'	**12.0' long x 7.0' 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) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Discarded OutFlow Max=0.02 cfs @ 13.23 hrs HW=281.04' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.29 cfs @ 13.23 hrs HW=281.04' TW=0.00' (Dynamic Tailwater)
├**2=Culvert** (Passes 0.06 cfs of 8.05 cfs potential flow)
│└**4=Horizontal Grate** (Weir Controls 0.06 cfs @ 0.63 fps)
├**3=Vertical Orifice** (Orifice Controls 0.23 cfs @ 4.60 fps)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond IP#6: Infiltration Pond #6

Inflow Area = 1.035 ac, 9.61% Impervious, Inflow Depth = 2.21" for 10-YR event
Inflow = 2.35 cfs @ 12.14 hrs, Volume= 0.191 af
Outflow = 0.23 cfs @ 13.42 hrs, Volume= 0.191 af, Atten= 90%, Lag= 76.7 min
Discarded = 0.03 cfs @ 13.42 hrs, Volume= 0.090 af
Primary = 0.20 cfs @ 13.42 hrs, Volume= 0.101 af
Routed to Reach 400 : Analysis Point #400

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 269.99' @ 13.42 hrs Surf.Area= 4,623 sf Storage= 4,147 cf
Flood Elev= 271.00' Surf.Area= 5,232 sf Storage= 9,132 cf

Plug-Flow detention time= 481.5 min calculated for 0.191 af (100% of inflow)
Center-of-Mass det. time= 481.6 min (1,321.3 - 839.7)

Volume	Invert	Avail.Storage	Storage Description
#1	269.00'	9,132 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
269.00	3,785	0.0	0	0	3,785
270.00	4,634	100.0	4,202	4,202	4,665
271.00	5,232	100.0	4,930	9,132	5,312

Device	Routing	Invert	Outlet Devices
#1	Discarded	269.00'	**0.300 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	265.00'	**12.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 265.00' / 264.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	269.50'	**3.0" Vert. Vertical Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 2	269.80'	**3.0" Vert. Vertical Orifice** C= 0.600 Limited to weir flow at low heads
#5	Device 2	270.40'	**12.0" Horiz. Horizaton Grate** C= 0.600 in 13.0" Grate (85% open area) Limited to weir flow at low heads
#6	Primary	270.50'	**12.0' long x 7.0' 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) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Discarded OutFlow Max=0.03 cfs @ 13.42 hrs HW=269.99' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.20 cfs @ 13.42 hrs HW=269.99' TW=0.00' (Dynamic Tailwater)
└**2=Culvert** (Passes 0.20 cfs of 8.01 cfs potential flow)
  └**3=Vertical Orifice** (Orifice Controls 0.14 cfs @ 2.90 fps)
  └**4=Vertical Orifice** (Orifice Controls 0.06 cfs @ 1.48 fps)
  └**5=Horizaton Grate** (Controls 0.00 cfs)
└**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond IP#7: Infiltration Pond #7

Inflow Area = 0.892 ac, 7.59% Impervious, Inflow Depth = 2.13" for 10-YR event
Inflow = 1.71 cfs @ 12.20 hrs, Volume= 0.158 af
Outflow = 0.45 cfs @ 12.69 hrs, Volume= 0.158 af, Atten= 73%, Lag= 29.5 min
Discarded = 0.02 cfs @ 12.69 hrs, Volume= 0.048 af
Primary = 0.44 cfs @ 12.69 hrs, Volume= 0.110 af
Routed to Reach 400 : Analysis Point #400

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 290.15' @ 12.69 hrs Surf.Area= 2,742 sf Storage= 2,735 cf
Flood Elev= 291.00' Surf.Area= 3,318 sf Storage= 5,309 cf

Plug-Flow detention time= 288.0 min calculated for 0.158 af (100% of inflow)
Center-of-Mass det. time= 288.1 min (1,134.5 - 846.4)

Volume	Invert	Avail.Storage	Storage Description
#1	289.00'	5,309 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
289.00	2,033	0.0	0	0	2,033
290.00	2,647	100.0	2,333	2,333	2,670
291.00	3,318	100.0	2,976	5,309	3,369

Device	Routing	Invert	Outlet Devices
#1	Discarded	289.00'	**0.300 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#2	Primary	287.00'	**12.0" Round Culvert** L= 26.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 287.00' / 286.00' S= 0.0385 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	289.50'	**5.0" Vert. Vertical Orifice** C= 0.600 Limited to weir flow at low heads
#4	Device 2	290.30'	**6.0" Horiz. Horizontal Grate** C= 0.600 in 7.0" Grate (73% open area) Limited to weir flow at low heads
#5	Primary	290.50'	**12.0' long x 7.0' 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) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Discarded OutFlow Max=0.02 cfs @ 12.69 hrs HW=290.15' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.44 cfs @ 12.69 hrs HW=290.15' TW=0.00' (Dynamic Tailwater)
├**2=Culvert** (Passes 0.44 cfs of 6.16 cfs potential flow)
│ ├**3=Vertical Orifice** (Orifice Controls 0.44 cfs @ 3.20 fps)
│ └**4=Horizontal Grate** (Controls 0.00 cfs)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.0S: North to Runoff Area=1,149,049 sf 2.84% Impervious Runoff Depth=2.85"
Flow Length=1,261' Tc=35.2 min CN=72 Runoff=46.11 cfs 6.275 af

Subcatchment 1.1S: Center of cul-de-sac Runoff Area=17,927 sf 0.00% Impervious Runoff Depth=3.04"
Tc=6.0 min CN=74 Runoff=1.47 cfs 0.104 af

Subcatchment 1.2S: To CB#1 Runoff Area=13,212 sf 41.32% Impervious Runoff Depth=4.04"
Tc=6.0 min CN=84 Runoff=1.42 cfs 0.102 af

Subcatchment 1.3S: To CB#2 Runoff Area=30,935 sf 24.74% Impervious Runoff Depth=3.63"
Tc=6.0 min CN=80 Runoff=3.01 cfs 0.215 af

Subcatchment 1.4S: To CB#3 Runoff Area=23,013 sf 22.06% Impervious Runoff Depth=3.53"
Tc=6.0 min CN=79 Runoff=2.18 cfs 0.155 af

Subcatchment 1.5S: To CB#4 Runoff Area=15,809 sf 26.77% Impervious Runoff Depth=3.63"
Tc=6.0 min CN=80 Runoff=1.54 cfs 0.110 af

Subcatchment 1.6S: To IP#1 Runoff Area=82,510 sf 10.56% Impervious Runoff Depth=3.33"
Flow Length=517' Tc=10.1 min CN=77 Runoff=6.44 cfs 0.526 af

Subcatchment 1.7S: To FB#1 Runoff Area=26,992 sf 11.72% Impervious Runoff Depth=3.33"
Flow Length=363' Tc=13.9 min CN=77 Runoff=1.89 cfs 0.172 af

Subcatchment 2.0S: To Culvert #2 Runoff Area=470,357 sf 5.09% Impervious Runoff Depth=2.95"
Flow Length=1,193' Tc=33.1 min CN=73 Runoff=20.15 cfs 2.653 af

Subcatchment 2.1S: To CB#5 Runoff Area=36,391 sf 18.35% Impervious Runoff Depth=3.53"
Tc=6.0 min CN=79 Runoff=3.45 cfs 0.246 af

Subcatchment 2.2S: To CB#6 Runoff Area=4,295 sf 75.62% Impervious Runoff Depth=4.90"
Tc=6.0 min CN=92 Runoff=0.53 cfs 0.040 af

Subcatchment 2.3S: To CB#7 Runoff Area=9,066 sf 39.04% Impervious Runoff Depth=3.93"
Tc=6.0 min CN=83 Runoff=0.95 cfs 0.068 af

Subcatchment 2.4S: To CB#8 Runoff Area=9,757 sf 38.10% Impervious Runoff Depth=3.93"
Tc=6.0 min CN=83 Runoff=1.02 cfs 0.073 af

Subcatchment 2.5S: To CB#9 Runoff Area=1,953 sf 82.90% Impervious Runoff Depth=5.13"
Tc=6.0 min CN=94 Runoff=0.25 cfs 0.019 af

Subcatchment 2.6S: To CB#10 Runoff Area=1,593 sf 100.00% Impervious Runoff Depth=5.59"
Tc=6.0 min CN=98 Runoff=0.21 cfs 0.017 af

Subcatchment 2.7S: To IP#2 Runoff Area=26,894 sf 5.62% Impervious Runoff Depth=3.14"
Flow Length=258' Tc=10.8 min CN=75 Runoff=1.93 cfs 0.161 af

Subcatchment 2.8S: To FB#2 Runoff Area=3,362 sf 0.00% Impervious Runoff Depth=3.04"
Tc=6.0 min CN=74 Runoff=0.28 cfs 0.020 af

Subcatchment 2.9S: Northeast towards Runoff Area=102,941 sf 0.57% Impervious Runoff Depth=2.76"
Flow Length=355' Tc=50.9 min CN=71 Runoff=3.29 cfs 0.544 af

Subcatchment 3.1S: East to Raymond Road Runoff Area=87,099 sf 3.72% Impervious Runoff Depth=2.76"
Flow Length=459' Tc=10.9 min CN=71 Runoff=5.47 cfs 0.460 af

Subcatchment 3.2S: To CB#12 Runoff Area=8,671 sf 31.30% Impervious Runoff Depth=3.73"
Tc=6.0 min CN=81 Runoff=0.87 cfs 0.062 af

Subcatchment 3.3S: To CB#11 Runoff Area=7,054 sf 38.13% Impervious Runoff Depth=3.83"
Tc=6.0 min CN=82 Runoff=0.72 cfs 0.052 af

Subcatchment 3.4S: To CB#13 Runoff Area=20,793 sf 15.15% Impervious Runoff Depth=3.14"
Tc=6.0 min CN=75 Runoff=1.76 cfs 0.125 af

Subcatchment 3.5S: To CB#14 Runoff Area=5,598 sf 25.74% Impervious Runoff Depth=3.43"
Tc=6.0 min CN=78 Runoff=0.52 cfs 0.037 af

Subcatchment 3.6S: East to Raymond Road Runoff Area=68,906 sf 8.16% Impervious Runoff Depth=2.95"
Flow Length=239' Tc=17.7 min CN=73 Runoff=3.87 cfs 0.389 af

Subcatchment 3.7S: To FB#3 Runoff Area=8,247 sf 0.00% Impervious Runoff Depth=2.76"
Flow Length=139' Tc=11.1 min CN=71 Runoff=0.51 cfs 0.044 af

Subcatchment 3.8S: To BP#3 Runoff Area=10,001 sf 0.00% Impervious Runoff Depth=2.85"
Flow Length=81' Tc=12.2 min CN=72 Runoff=0.62 cfs 0.055 af

Subcatchment 4.0S: Southeast to Wetland Runoff Area=633,245 sf 27.06% Impervious Runoff Depth=3.43"
Flow Length=1,011' Tc=24.4 min CN=78 Runoff=36.28 cfs 4.154 af

Subcatchment 4.1S: To IP#6 Runoff Area=45,091 sf 9.61% Impervious Runoff Depth=3.23"
Flow Length=284' Tc=9.7 min CN=76 Runoff=3.46 cfs 0.279 af

Subcatchment 4.2S: To IP#7 Runoff Area=38,838 sf 7.59% Impervious Runoff Depth=3.14"
Flow Length=316' Tc=14.0 min CN=75 Runoff=2.54 cfs 0.233 af

Subcatchment 5.0S: Southwest to Runoff Area=1,056,643 sf 38.33% Impervious Runoff Depth=3.73"
Flow Length=2,184' Tc=110.4 min CN=81 Runoff=28.01 cfs 7.538 af

Subcatchment 5.1S: To IP #4 Runoff Area=25,166 sf 9.83% Impervious Runoff Depth=3.23"
Flow Length=254' Tc=14.0 min CN=76 Runoff=1.70 cfs 0.156 af

Subcatchment 5.2S: To IP#5 Runoff Area=50,170 sf 10.46% Impervious Runoff Depth=3.33"
Flow Length=399' Tc=16.5 min CN=77 Runoff=3.28 cfs 0.320 af

Reach 1R: Culvert #1 Avg. Flow Depth=0.28' Max Vel=8.09 fps Inflow=1.47 cfs 0.104 af
12.0" Round Pipe n=0.013 L=257.0' S=0.0568 '/' Capacity=8.49 cfs Outflow=1.46 cfs 0.104 af

Reach 100: Analysis Point #100 Inflow=51.11 cfs 7.225 af
Outflow=51.11 cfs 7.225 af

Reach 200: Analysis Point #200 Inflow=19.39 cfs 3.623 af
Outflow=19.39 cfs 3.623 af

Reach 300: Analysis Point #300 Inflow=8.86 cfs 0.916 af
Outflow=8.86 cfs 0.916 af

Reach 400: Analysis Point #400 Inflow=37.25 cfs 4.521 af
Outflow=37.25 cfs 4.521 af

Reach 500: Analysis Point #500 Inflow=28.64 cfs 7.876 af
Outflow=28.64 cfs 7.876 af

Pond 6P: Culvert, Headwall under Peak Elev=201.60' Storage=16,440 cf Inflow=20.15 cfs 2.653 af
Outflow=14.19 cfs 2.653 af

Pond CB1: CB#1 Peak Elev=310.67' Inflow=1.42 cfs 0.102 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=1.42 cfs 0.102 af

Pond CB10: CB#10 Peak Elev=210.92' Inflow=0.46 cfs 0.036 af
12.0" Round Culvert n=0.130 L=67.0' S=0.0104 '/' Outflow=0.46 cfs 0.036 af

Pond CB11: CB#11 Peak Elev=191.05' Inflow=0.72 cfs 0.052 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=0.72 cfs 0.052 af

Pond CB12: CB#12 Peak Elev=190.88' Inflow=1.59 cfs 0.114 af
12.0" Round Culvert n=0.012 L=166.0' S=0.0301 '/' Outflow=1.59 cfs 0.114 af

Pond CB13: CB#13 Peak Elev=188.61' Inflow=3.34 cfs 0.238 af
12.0" Round Culvert n=0.012 L=16.0' S=0.0062 '/' Outflow=3.34 cfs 0.238 af

Pond CB14: CB#14 Peak Elev=187.84' Inflow=3.86 cfs 0.275 af
15.0" Round Culvert n=0.013 L=294.0' S=0.0044 '/' Outflow=3.86 cfs 0.275 af

Pond CB2: CB#2 Peak Elev=310.53' Inflow=5.89 cfs 0.421 af
18.0" Round Culvert n=0.013 L=296.0' S=0.0895 '/' Outflow=5.89 cfs 0.421 af

Pond CB3: CB#3 Peak Elev=284.44' Inflow=2.18 cfs 0.155 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=2.18 cfs 0.155 af

Pond CB4: CB#4 Peak Elev=284.11' Inflow=9.61 cfs 0.686 af
24.0" Round Culvert n=0.013 L=281.0' S=0.1555 '/' Outflow=9.61 cfs 0.686 af

Pond CB5: CB#5 Peak Elev=254.71' Inflow=3.45 cfs 0.246 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=3.45 cfs 0.246 af

Pond CB6: CB#6 Peak Elev=253.88' Inflow=3.98 cfs 0.286 af
15.0" Round Culvert n=0.013 L=149.0' S=0.0993 '/' Outflow=3.98 cfs 0.286 af

Pond CB7: CB#7 Peak Elev=223.64' Inflow=0.95 cfs 0.068 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=0.95 cfs 0.068 af

Pond CB8: CB#8 Peak Elev=214.24' Inflow=5.96 cfs 0.428 af
18.0" Round Culvert n=0.013 L=63.0' S=0.0873 '/' Outflow=5.96 cfs 0.428 af

Pond CB9: CB#9 Peak Elev=210.92' Inflow=0.25 cfs 0.019 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=0.25 cfs 0.019 af

Pond DMH1: DMH#1 Peak Elev=238.98' Inflow=3.98 cfs 0.286 af
15.0" Round Culvert n=0.013 L=147.0' S=0.1020 '/' Outflow=3.98 cfs 0.286 af

Pond DMH2: DMH#2 Peak Elev=186.57' Inflow=3.86 cfs 0.275 af
15.0" Round Culvert n=0.013 L=150.0' S=0.0040 '/' Outflow=3.86 cfs 0.275 af

Pond FB#1: Forebay #1 Peak Elev=239.86' Storage=7,763 cf Inflow=10.99 cfs 0.858 af
Outflow=10.61 cfs 0.712 af

Pond FB#2: Forebay #2 Peak Elev=209.82' Storage=3,735 cf Inflow=6.69 cfs 0.483 af
Outflow=6.55 cfs 0.411 af

Pond FB#3: Forebay #3 Peak Elev=185.81' Storage=1,432 cf Inflow=4.28 cfs 0.319 af
Outflow=4.24 cfs 0.292 af

Pond IP#1: Infiltration Pond #1 Peak Elev=238.94' Storage=18,171 cf Inflow=16.96 cfs 1.238 af
Discarded=0.18 cfs 0.288 af Primary=5.01 cfs 0.949 af Outflow=5.19 cfs 1.238 af

Pond IP#2: Infiltration Pond #2 Peak Elev=208.93' Storage=9,064 cf Inflow=8.33 cfs 0.573 af
Discarded=0.09 cfs 0.147 af Primary=2.81 cfs 0.426 af Outflow=2.90 cfs 0.573 af

Pond IP#3: Infiltration Pond #3 Peak Elev=185.63' Storage=6,452 cf Inflow=4.77 cfs 0.346 af
Discarded=0.20 cfs 0.279 af Primary=1.06 cfs 0.067 af Outflow=1.27 cfs 0.346 af

Pond IP#4: Infiltration Pond #4 Peak Elev=291.64' Storage=2,216 cf Inflow=1.70 cfs 0.156 af
Discarded=0.02 cfs 0.061 af Primary=1.24 cfs 0.094 af Outflow=1.25 cfs 0.155 af

Pond IP#5: Infiltration Pond #5 Peak Elev=281.29' Storage=5,620 cf Inflow=3.28 cfs 0.320 af
Discarded=0.02 cfs 0.077 af Primary=1.61 cfs 0.243 af Outflow=1.64 cfs 0.320 af

Pond IP#6: Infiltration Pond #6 Peak Elev=270.38' Storage=6,007 cf Inflow=3.46 cfs 0.279 af
Discarded=0.03 cfs 0.095 af Primary=0.36 cfs 0.184 af Outflow=0.40 cfs 0.279 af

Pond IP#7: Infiltration Pond #7 Peak Elev=290.51' Storage=3,773 cf Inflow=2.54 cfs 0.233 af
Discarded=0.02 cfs 0.050 af Primary=1.06 cfs 0.183 af Outflow=1.08 cfs 0.233 af

Total Runoff Area = 93.930 ac Runoff Volume = 25.403 af Average Runoff Depth = 3.25"
82.32% Pervious = 77.319 ac 17.68% Impervious = 16.611 ac

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1.0S: North to Runoff Area=1,149,049 sf 2.84% Impervious Runoff Depth=3.81"
Flow Length=1,261' Tc=35.2 min CN=72 Runoff=61.90 cfs 8.380 af

Subcatchment 1.1S: Center of cul-de-sac Runoff Area=17,927 sf 0.00% Impervious Runoff Depth=4.02"
Tc=6.0 min CN=74 Runoff=1.94 cfs 0.138 af

Subcatchment 1.2S: To CB#1 Runoff Area=13,212 sf 41.32% Impervious Runoff Depth=5.12"
Tc=6.0 min CN=84 Runoff=1.78 cfs 0.129 af

Subcatchment 1.3S: To CB#2 Runoff Area=30,935 sf 24.74% Impervious Runoff Depth=4.68"
Tc=6.0 min CN=80 Runoff=3.86 cfs 0.277 af

Subcatchment 1.4S: To CB#3 Runoff Area=23,013 sf 22.06% Impervious Runoff Depth=4.57"
Tc=6.0 min CN=79 Runoff=2.81 cfs 0.201 af

Subcatchment 1.5S: To CB#4 Runoff Area=15,809 sf 26.77% Impervious Runoff Depth=4.68"
Tc=6.0 min CN=80 Runoff=1.97 cfs 0.141 af

Subcatchment 1.6S: To IP#1 Runoff Area=82,510 sf 10.56% Impervious Runoff Depth=4.35"
Flow Length=517' Tc=10.1 min CN=77 Runoff=8.38 cfs 0.686 af

Subcatchment 1.7S: To FB#1 Runoff Area=26,992 sf 11.72% Impervious Runoff Depth=4.35"
Flow Length=363' Tc=13.9 min CN=77 Runoff=2.46 cfs 0.225 af

Subcatchment 2.0S: To Culvert #2 Runoff Area=470,357 sf 5.09% Impervious Runoff Depth=3.92"
Flow Length=1,193' Tc=33.1 min CN=73 Runoff=26.85 cfs 3.526 af

Subcatchment 2.1S: To CB#5 Runoff Area=36,391 sf 18.35% Impervious Runoff Depth=4.57"
Tc=6.0 min CN=79 Runoff=4.44 cfs 0.318 af

Subcatchment 2.2S: To CB#6 Runoff Area=4,295 sf 75.62% Impervious Runoff Depth=6.04"
Tc=6.0 min CN=92 Runoff=0.65 cfs 0.050 af

Subcatchment 2.3S: To CB#7 Runoff Area=9,066 sf 39.04% Impervious Runoff Depth=5.01"
Tc=6.0 min CN=83 Runoff=1.20 cfs 0.087 af

Subcatchment 2.4S: To CB#8 Runoff Area=9,757 sf 38.10% Impervious Runoff Depth=5.01"
Tc=6.0 min CN=83 Runoff=1.29 cfs 0.093 af

Subcatchment 2.5S: To CB#9 Runoff Area=1,953 sf 82.90% Impervious Runoff Depth=6.27"
Tc=6.0 min CN=94 Runoff=0.30 cfs 0.023 af

Subcatchment 2.6S: To CB#10 Runoff Area=1,593 sf 100.00% Impervious Runoff Depth=6.74"
Tc=6.0 min CN=98 Runoff=0.25 cfs 0.021 af

Subcatchment 2.7S: To IP#2 Runoff Area=26,894 sf 5.62% Impervious Runoff Depth=4.13"
Flow Length=258' Tc=10.8 min CN=75 Runoff=2.55 cfs 0.213 af

Subcatchment 2.8S: To FB#2 Runoff Area=3,362 sf 0.00% Impervious Runoff Depth=4.02"
Tc=6.0 min CN=74 Runoff=0.36 cfs 0.026 af

Subcatchment 2.9S: Northeast towards Runoff Area=102,941 sf 0.57% Impervious Runoff Depth=3.71"
Flow Length=355' Tc=50.9 min CN=71 Runoff=4.44 cfs 0.730 af

Subcatchment 3.1S: East to Raymond Road Runoff Area=87,099 sf 3.72% Impervious Runoff Depth=3.71"
Flow Length=459' Tc=10.9 min CN=71 Runoff=7.38 cfs 0.618 af

Subcatchment 3.2S: To CB#12 Runoff Area=8,671 sf 31.30% Impervious Runoff Depth=4.79"
Tc=6.0 min CN=81 Runoff=1.10 cfs 0.079 af

Subcatchment 3.3S: To CB#11 Runoff Area=7,054 sf 38.13% Impervious Runoff Depth=4.90"
Tc=6.0 min CN=82 Runoff=0.92 cfs 0.066 af

Subcatchment 3.4S: To CB#13 Runoff Area=20,793 sf 15.15% Impervious Runoff Depth=4.13"
Tc=6.0 min CN=75 Runoff=2.31 cfs 0.164 af

Subcatchment 3.5S: To CB#14 Runoff Area=5,598 sf 25.74% Impervious Runoff Depth=4.46"
Tc=6.0 min CN=78 Runoff=0.67 cfs 0.048 af

Subcatchment 3.6S: East to Raymond Road Runoff Area=68,906 sf 8.16% Impervious Runoff Depth=3.92"
Flow Length=239' Tc=17.7 min CN=73 Runoff=5.15 cfs 0.516 af

Subcatchment 3.7S: To FB#3 Runoff Area=8,247 sf 0.00% Impervious Runoff Depth=3.71"
Flow Length=139' Tc=11.1 min CN=71 Runoff=0.69 cfs 0.058 af

Subcatchment 3.8S: To BP#3 Runoff Area=10,001 sf 0.00% Impervious Runoff Depth=3.81"
Flow Length=81' Tc=12.2 min CN=72 Runoff=0.84 cfs 0.073 af

Subcatchment 4.0S: Southeast to Wetland Runoff Area=633,245 sf 27.06% Impervious Runoff Depth=4.46"
Flow Length=1,011' Tc=24.4 min CN=78 Runoff=47.01 cfs 5.399 af

Subcatchment 4.1S: To IP#6 Runoff Area=45,091 sf 9.61% Impervious Runoff Depth=4.24"
Flow Length=284' Tc=9.7 min CN=76 Runoff=4.53 cfs 0.366 af

Subcatchment 4.2S: To IP#7 Runoff Area=38,838 sf 7.59% Impervious Runoff Depth=4.13"
Flow Length=316' Tc=14.0 min CN=75 Runoff=3.35 cfs 0.307 af

Subcatchment 5.0S: Southwest to Runoff Area=1,056,643 sf 38.33% Impervious Runoff Depth=4.79"
Flow Length=2,184' Tc=110.4 min CN=81 Runoff=35.91 cfs 9.675 af

Subcatchment 5.1S: To IP #4 Runoff Area=25,166 sf 9.83% Impervious Runoff Depth=4.24"
Flow Length=254' Tc=14.0 min CN=76 Runoff=2.23 cfs 0.204 af

Subcatchment 5.2S: To IP#5 Runoff Area=50,170 sf 10.46% Impervious Runoff Depth=4.35"
Flow Length=399' Tc=16.5 min CN=77 Runoff=4.28 cfs 0.417 af

Reach 1R: Culvert #1 Avg. Flow Depth=0.32' Max Vel=8.76 fps Inflow=1.94 cfs 0.138 af
12.0" Round Pipe n=0.013 L=257.0' S=0.0568 '/' Capacity=8.49 cfs Outflow=1.94 cfs 0.138 af

Reach 100: Analysis Point #100 Inflow=69.05 cfs 9.729 af
Outflow=69.05 cfs 9.729 af

Reach 200: Analysis Point #200 Inflow=24.59 cfs 4.857 af
Outflow=24.59 cfs 4.857 af

Reach 300: Analysis Point #300 Inflow=13.63 cfs 1.295 af
Outflow=13.63 cfs 1.295 af

Reach 400: Analysis Point #400 Inflow=50.26 cfs 5.921 af
Outflow=50.26 cfs 5.921 af

Reach 500: Analysis Point #500 Inflow=36.71 cfs 10.156 af
Outflow=36.71 cfs 10.156 af

Pond 6P: Culvert, Headwall under Peak Elev=202.33' Storage=25,283 cf Inflow=26.85 cfs 3.526 af
Outflow=16.96 cfs 3.526 af

Pond CB1: CB#1 Peak Elev=311.06' Inflow=1.78 cfs 0.129 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=1.78 cfs 0.129 af

Pond CB10: CB#10 Peak Elev=211.63' Inflow=0.58 cfs 0.044 af
12.0" Round Culvert n=0.130 L=67.0' S=0.0104 '/' Outflow=0.58 cfs 0.044 af

Pond CB11: CB#11 Peak Elev=191.32' Inflow=0.92 cfs 0.066 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=0.92 cfs 0.066 af

Pond CB12: CB#12 Peak Elev=191.24' Inflow=2.02 cfs 0.145 af
12.0" Round Culvert n=0.012 L=166.0' S=0.0301 '/' Outflow=2.02 cfs 0.145 af

Pond CB13: CB#13 Peak Elev=190.56' Inflow=4.33 cfs 0.310 af
12.0" Round Culvert n=0.012 L=16.0' S=0.0062 '/' Outflow=4.33 cfs 0.310 af

Pond CB14: CB#14 Peak Elev=189.28' Inflow=5.00 cfs 0.358 af
15.0" Round Culvert n=0.013 L=294.0' S=0.0044 '/' Outflow=5.00 cfs 0.358 af

Pond CB2: CB#2 Peak Elev=310.84' Inflow=7.57 cfs 0.544 af
18.0" Round Culvert n=0.013 L=296.0' S=0.0895 '/' Outflow=7.57 cfs 0.544 af

Pond CB3: CB#3 Peak Elev=284.92' Inflow=2.81 cfs 0.201 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=2.81 cfs 0.201 af

Pond CB4: CB#4 Peak Elev=284.37' Inflow=12.35 cfs 0.887 af
24.0" Round Culvert n=0.013 L=281.0' S=0.1555 '/' Outflow=12.35 cfs 0.887 af

Pond CB5: CB#5 Peak Elev=255.54' Inflow=4.44 cfs 0.318 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=4.44 cfs 0.318 af

Pond CB6: CB#6 Peak Elev=254.17' Inflow=5.09 cfs 0.367 af
15.0" Round Culvert n=0.013 L=149.0' S=0.0993 '/' Outflow=5.09 cfs 0.367 af

Pond CB7: CB#7 Peak Elev=223.72' Inflow=1.20 cfs 0.087 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=1.20 cfs 0.087 af

Pond CB8: CB#8 Peak Elev=214.54' Inflow=7.58 cfs 0.548 af
18.0" Round Culvert n=0.013 L=63.0' S=0.0873 '/' Outflow=7.58 cfs 0.548 af

Pond CB9: CB#9 Peak Elev=211.64' Inflow=0.30 cfs 0.023 af
12.0" Round Culvert n=0.013 L=15.0' S=0.0133 '/' Outflow=0.33 cfs 0.023 af

Pond DMH1: DMH#1 Peak Elev=239.27' Inflow=5.09 cfs 0.367 af
15.0" Round Culvert n=0.013 L=147.0' S=0.1020 '/' Outflow=5.09 cfs 0.367 af

Pond DMH2: DMH#2 Peak Elev=187.15' Inflow=5.00 cfs 0.358 af
15.0" Round Culvert n=0.013 L=150.0' S=0.0040 '/' Outflow=5.00 cfs 0.358 af

Pond FB#1: Forebay #1 Peak Elev=239.92' Storage=8,016 cf Inflow=14.16 cfs 1.111 af
Outflow=13.76 cfs 0.965 af

Pond FB#2: Forebay #2 Peak Elev=209.87' Storage=3,836 cf Inflow=8.51 cfs 0.618 af
Outflow=8.35 cfs 0.546 af

Pond FB#3: Forebay #3 Peak Elev=185.87' Storage=1,482 cf Inflow=5.57 cfs 0.416 af
Outflow=5.53 cfs 0.389 af

Pond IP#1: Infiltration Pond #1 Peak Elev=239.69' Storage=24,879 cf Inflow=21.99 cfs 1.651 af
Discarded=0.20 cfs 0.302 af Primary=7.15 cfs 1.349 af Outflow=7.34 cfs 1.651 af

Pond IP#2: Infiltration Pond #2 Peak Elev=209.42' Storage=11,392 cf Inflow=10.68 cfs 0.758 af
Discarded=0.10 cfs 0.156 af Primary=3.99 cfs 0.602 af Outflow=4.09 cfs 0.758 af

Pond IP#3: Infiltration Pond #3 Peak Elev=185.75' Storage=6,827 cf Inflow=6.24 cfs 0.462 af
Discarded=0.21 cfs 0.301 af Primary=3.02 cfs 0.161 af Outflow=3.23 cfs 0.462 af

Pond IP#4: Infiltration Pond #4 Peak Elev=291.69' Storage=2,337 cf Inflow=2.23 cfs 0.204 af
Discarded=0.02 cfs 0.062 af Primary=2.04 cfs 0.142 af Outflow=2.06 cfs 0.204 af

Pond IP#5: Infiltration Pond #5 Peak Elev=281.55' Storage=6,461 cf Inflow=4.28 cfs 0.417 af
Discarded=0.02 cfs 0.079 af Primary=2.61 cfs 0.339 af Outflow=2.63 cfs 0.417 af

Pond IP#6: Infiltration Pond #6 Peak Elev=270.57' Storage=6,932 cf Inflow=4.53 cfs 0.366 af
Discarded=0.03 cfs 0.099 af Primary=1.65 cfs 0.267 af Outflow=1.68 cfs 0.366 af

Pond IP#7: Infiltration Pond #7 Peak Elev=290.62' Storage=4,104 cf Inflow=3.35 cfs 0.307 af
Discarded=0.02 cfs 0.052 af Primary=2.38 cfs 0.255 af Outflow=2.40 cfs 0.307 af

Total Runoff Area = 93.930 ac Runoff Volume = 33.255 af Average Runoff Depth = 4.25"
82.32% Pervious = 77.319 ac 17.68% Impervious = 16.611 ac

Appendix III

Charts, Graphs, and Calculations

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point

Smoothing	Yes
State	New Hampshire
Location	New Hampshire, United States
Latitude	43.070 degrees North
Longitude	71.145 degrees West
Elevation	70 feet
Date/Time	Mon Nov 20 2023 15:20:10 GMT-0500 (Eastern Standard Time)

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.03	**1yr**	0.70	0.98	1.20	1.53	1.97	2.55	2.75	**1yr**	2.25	2.65	3.06	3.76	4.35	**1yr**
2yr	0.32	0.49	0.61	0.81	1.02	1.29	**2yr**	0.88	1.17	1.49	1.89	2.39	3.04	3.38	**2yr**	2.69	3.25	3.76	4.47	5.09	**2yr**
5yr	0.37	0.58	0.73	0.98	1.25	1.60	**5yr**	1.08	1.46	1.87	2.38	3.02	3.85	4.33	**5yr**	3.41	4.17	4.78	5.66	6.40	**5yr**
10yr	0.41	0.65	0.83	1.12	1.46	1.89	**10yr**	1.26	1.72	2.22	2.84	3.62	4.60	5.22	**10yr**	4.07	5.02	5.74	6.78	7.62	**10yr**
25yr	0.49	0.77	0.98	1.35	1.80	2.35	**25yr**	1.55	2.14	2.77	3.57	4.57	5.83	6.70	**25yr**	5.16	6.44	7.30	8.62	9.59	**25yr**
50yr	0.55	0.88	1.12	1.57	2.11	2.79	**50yr**	1.82	2.53	3.30	4.27	5.47	6.98	8.09	**50yr**	6.18	7.78	8.77	10.33	11.42	**50yr**
100yr	0.61	0.99	1.28	1.82	2.48	3.31	**100yr**	2.14	2.98	3.93	5.10	6.55	8.35	9.77	**100yr**	7.39	9.40	10.53	12.40	13.61	**100yr**
200yr	0.70	1.14	1.47	2.11	2.91	3.91	**200yr**	2.51	3.53	4.67	6.08	7.83	10.00	11.81	**200yr**	8.85	11.36	12.65	14.88	16.23	**200yr**
500yr	0.82	1.36	1.77	2.57	3.61	4.90	**500yr**	3.12	4.41	5.87	7.68	9.92	12.70	15.18	**500yr**	11.24	14.59	16.14	18.97	20.51	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.35	0.43	0.58	0.72	0.89	**1yr**	0.62	0.87	0.99	1.29	1.56	2.04	2.53	**1yr**	1.81	2.43	2.82	3.47	3.88	**1yr**
2yr	0.31	0.48	0.59	0.80	0.99	1.18	**2yr**	0.86	1.15	1.35	1.79	2.29	2.94	3.24	**2yr**	2.61	3.11	3.62	4.28	4.89	**2yr**
5yr	0.35	0.54	0.67	0.92	1.18	1.40	**5yr**	1.02	1.37	1.59	2.09	2.69	3.48	3.85	**5yr**	3.08	3.71	4.27	5.29	5.78	**5yr**
10yr	0.39	0.60	0.74	1.04	1.34	1.60	**10yr**	1.16	1.56	1.80	2.37	3.03	3.93	4.37	**10yr**	3.48	4.21	4.84	6.15	6.49	**10yr**
25yr	0.45	0.68	0.85	1.21	1.59	1.90	**25yr**	1.38	1.86	2.11	2.76	3.54	4.58	5.16	**25yr**	4.05	4.96	5.71	7.49	8.28	**25yr**
50yr	0.50	0.75	0.94	1.35	1.82	2.17	**50yr**	1.57	2.12	2.37	3.10	3.99	5.12	5.80	**50yr**	4.53	5.58	6.45	8.69	9.51	**50yr**
100yr	0.56	0.84	1.06	1.52	2.09	2.48	**100yr**	1.80	2.43	2.68	3.48	4.48	5.73	6.52	**100yr**	5.07	6.27	7.32	10.10	10.90	**100yr**
200yr	0.62	0.93	1.18	1.72	2.39	2.83	**200yr**	2.06	2.76	3.01	3.90	5.03	6.37	8.70	**200yr**	5.64	8.37	8.30	11.75	12.50	**200yr**
500yr	0.73	1.08	1.39	2.02	2.88	3.38	**500yr**	2.48	3.31	3.53	4.54	5.89	7.29	10.52	**500yr**	6.45	10.12	9.80	14.36	14.96	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.29	0.44	0.54	0.73	0.89	1.08	**1yr**	0.77	1.05	1.24	1.67	2.12	2.78	3.19	**1yr**	2.46	3.07	3.46	4.01	4.80	**1yr**
2yr	0.33	0.51	0.63	0.85	1.05	1.25	**2yr**	0.90	1.22	1.45	1.91	2.44	3.22	3.57	**2yr**	2.85	3.44	3.96	4.68	5.38	**2yr**
5yr	0.40	0.62	0.77	1.05	1.34	1.59	**5yr**	1.16	1.56	1.84	2.42	3.09	4.23	4.87	**5yr**	3.75	4.69	5.34	6.06	7.09	**5yr**
10yr	0.48	0.73	0.91	1.27	1.64	1.94	**10yr**	1.41	1.89	2.22	2.92	3.70	5.27	6.19	**10yr**	4.67	5.95	6.72	7.47	8.84	**10yr**
25yr	0.59	0.90	1.12	1.60	2.11	2.51	**25yr**	1.82	2.46	2.87	3.75	4.71	7.04	8.55	**25yr**	6.23	8.23	9.09	9.88	10.92	**25yr**
50yr	0.70	1.06	1.32	1.90	2.56	3.05	**50yr**	2.21	2.99	3.48	4.54	5.67	8.77	10.95	**50yr**	7.76	10.53	11.45	12.20	13.39	**50yr**
100yr	0.83	1.25	1.57	2.27	3.11	3.71	**100yr**	2.68	3.63	4.23	5.50	6.84	10.95	14.01	**100yr**	9.69	13.47	14.43	15.08	16.45	**100yr**
200yr	0.98	1.47	1.87	2.70	3.77	4.52	**200yr**	3.25	4.42	5.14	6.67	8.23	13.70	15.49	**200yr**	12.13	14.89	18.17	18.65	20.23	**200yr**
500yr	1.23	1.83	2.35	3.42	4.86	5.87	**500yr**	4.20	5.74	6.65	8.62	10.54	18.45	20.93	**500yr**	16.33	20.12	24.66	24.71	26.65	**500yr**

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Pollutant Removal Efficiencies for Best Management Practices for Use in Pollutant Loading Analysis

Best Management Practice (BMP) removal efficiencies for pollutant loading analysis for total suspended solids (TSS), total nitrogen (TN), and total phosphorus (TP) are presented in the table below. These removal efficiencies were developed by reviewing various literature sources and using best professional judgment based on literature values and general expectation of how values for different BMPS should relate to one another. The intent is to update this information and add BMPs and removal efficiencies for other parameters as more information/data becomes available in the future.

NHDES will consider other BMP removal efficiencies if sufficient documentation is provided.

Please note that all BMPs must be designed in accordance with the specifications in the Alteration of Terrain (AoT) Program Administrative Rules (Env-Wq 1500). If BMPs are not designed in accordance with the AoT Rules, NHDES may require lower removal efficiencies to be used in the analysis.

BMP in Series: When BMPs are placed in series, the BMP with the highest removal efficiency shall be the efficiency used in the model for computing annual loadings. Adding efficiencies together is generally not allowed because removals typically decrease rapidly with decreasing influent concentration and, in the case of primary BMPs (i.e., stormwater ponds, infiltration and filtering practices), pre-treatment is usually part of the design and is therefore, most likely already accounted for in the efficiencies cited for these BMPs.

Pollutant Removal Efficiencies for Best Management Practices for Use in Pollutant Loading Analysis				Values Accepted for Loading Analyses		
BMP Type	**BMP**	**Notes**	**Lit. Ref.**	**TSS**	**TN**	**TP**
Stormwater Ponds	Wet Pond		B, F	70%	35%	45%
	Wet Extended Detention Pond		A, B	80%	55%	68%
	Micropool Extended Detention Pond	TBA				
	Multiple Pond System	TBA				
	Pocket Pond	TBA				
Stormwater Wetlands	Shallow Wetland		A, B, F, I	80%	55%	45%
	Extended Detention Wetland		A, B, F, I	80%	55%	45%
	Pond/Wetland System	TBA				
	Gravel Wetland		H	95%	85%	64%
Infiltration Practices	Infiltration Trench (≥75 ft from surface water)		B, D, I	90%	55%	60%
	Infiltration Trench (<75 ft from surface water)		B, D, I	90%	10%	60%
	Infiltration Basin (≥75 ft from surface water)		A, F, B, D, I	90%	60%	65%
	Infiltration Basin (<75 ft from surface water)		A, F, B, D, I	90%	10%	65%
	Dry Wells			90%	55%	60%
	Drip Edges			90%	55%	60%
Filtering Practices	Aboveground or Underground Sand Filter that infiltrates WQV (≥75 ft from surface water)		A, F, B, D, I	90%	60%	65%
	Aboveground or Underground Sand Filter that infiltrates WQV (<75 ft from surface water)		A, F, B, D, I	90%	10%	65%
	Aboveground or Underground Sand Filter with underdrain		A, I, F, G, H	85%	10%	45%
	Tree Box Filter	TBA				
	Bioretention System		I, G, H	90%	65%	65%
	Permeable Pavement that infiltrates WQV (≥75 ft from surface water)		A, F, B, D, I	90%	60%	65%
	Permeable Pavement that infiltrates WQV (<75 ft from surface water)		A, F, B, D, I	90%	10%	65%
	Permeable Pavement with underdrain		Use TN and TP values for sand filter w/ underdrain and outlet pipe	90%	10%	45%

INFILTRATION PRACTICE CRITERIA
(Env-Wq 1508.06)

Type/Node Name: **Infiltration Pond #1 (IP#1)**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

Yes		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	**← yes**
4.83	ac	A = Area draining to the practice	
0.79	ac	A_I = Impervious area draining to the practice	
0.16	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.20	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.95	ac-in	WQV= 1" x Rv x A	
3,449	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
862	cf	25% x WQV (check calc for sediment forebay volume)	
Forebay		Method of pretreatment? (not required for clean or roof runoff)	
8,345	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
27,916	cf	V = Volume[1] (attach a stage-storage table)	**≥ WQV**
5,126	sf	A_{SA} = Surface area of the bottom of the pond	
0.90	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
9.0	hours	I_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
236.25	feet	E_{BTM} = Elevation of the bottom of the basin	
233.21	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
231.21	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
3.04	feet	D_{SHWT} = Separation from SHWT	**≥ *** [3]
5.0	feet	D_{ROCK} = Separation from bedrock	**≥ *** [3]
	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	**≥ 24"**
	ft	D_T = Depth of trench, if trench proposed	**4 - 10 ft**
	Yes/No	If a trench or underground system is proposed, has observation well been provided?	**←yes**
		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	**← yes**
Yes	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	**← yes**
3.0	:1	If a basin is proposed, pond side slopes.	**≥3:1**
238.19	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
239.69	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
240.00	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?[5]	**← yes**
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	**← yes**

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. $Ksat_{DESIGN}$ includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes:

Stage-Area-Storage for Pond IP#1: Infiltration Pond #1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
236.25	5,126	0
236.30	5,182	258
236.35	5,238	518
236.40	5,295	782
236.45	5,352	1,048
236.50	5,409	1,317
236.55	5,467	1,589
236.60	5,525	1,863
236.65	5,583	2,141
236.70	5,642	2,422
236.75	5,700	2,705
236.80	5,760	2,992
236.85	5,819	3,281
236.90	5,879	3,574
236.95	5,939	3,869
237.00	5,999	4,168
237.05	6,060	4,469
237.10	6,121	4,774
237.15	6,182	5,081
237.20	6,244	5,392
237.25	6,305	5,706
237.30	6,368	6,022
237.35	6,430	6,342
237.40	6,493	6,665
237.45	6,556	6,992
237.50	6,619	7,321
237.55	6,683	7,654
237.60	6,747	7,989
237.65	6,811	8,328
237.70	6,876	8,670
237.75	6,941	9,016
237.80	7,006	9,364
237.85	7,072	9,716
237.90	7,137	10,072
237.95	7,204	10,430
238.00	7,270	10,792
238.05	7,331	11,157
238.10	7,393	11,525
238.15	7,455	11,896
238.20	7,517	12,271
238.25	7,579	12,648
238.30	7,642	13,029
238.35	7,705	13,412
238.40	7,768	13,799
238.45	7,831	14,189
238.50	7,895	14,582
238.55	7,959	14,978
238.60	8,023	15,378
238.65	8,087	15,781
238.70	8,152	16,187
238.75	8,217	16,596
238.80	8,282	17,008
238.85	8,347	17,424
238.90	8,413	17,843
238.95	8,479	18,265
239.00	8,545	18,691
239.05	8,611	19,120
239.10	8,678	19,552
239.15	8,745	19,988
239.20	8,812	20,427
239.25	8,880	20,869
239.30	8,948	21,315
239.35	9,016	21,764
239.40	9,084	22,216
239.45	9,152	22,672
239.50	9,221	23,131
239.55	9,290	23,594
239.60	9,359	24,060
239.65	9,429	24,530
239.70	9,499	25,003
239.75	9,569	25,480
239.80	9,639	25,960
239.85	9,710	26,444
239.90	9,781	26,931
239.95	9,852	27,422
240.00	**9,923**	**27,916**

INFILTRATION PRACTICE CRITERIA
(Env-Wq 1508.06)

Type/Node Name: **Infiltration Pond #2 (IP#2)**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

Yes		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	← **yes**
2.14	ac	A = Area draining to the practice	
0.50	ac	A_I = Impervious area draining to the practice	
0.23	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.26	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.56	ac-in	WQV= 1" x Rv x A	
2,032	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
508	cf	25% x WQV (check calc for sediment forebay volume)	
Forebay		Method of pretreatment? (not required for clean or roof runoff)	
8,345	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	≥ **25%WQV**
14,378	cf	V = Volume[1] (attach a stage-storage table)	≥ **WQV**
2,931	sf	A_{SA} = Surface area of the bottom of the pond	
0.85	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
9.8	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	≤ **72-hrs**
206.50	feet	E_{BTM} = Elevation of the bottom of the basin	
203.36	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
200.20	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
3.14	feet	D_{SHWT} = Separation from SHWT	≥ *[3]
6.3	feet	D_{ROCK} = Separation from bedrock	≥ *[3]
	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	≥ **24"**
	ft	D_T = Depth of trench, if trench proposed	**4 - 10 ft**
	Yes/No	If a trench or underground system is proposed, has observation well been provided?	←**yes**
		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	← **yes**
Yes	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	← **yes**
3.0	:1	If a basin is proposed, pond side slopes.	≥**3:1**
208.58	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
209.42	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
210.00	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?[5]	← **yes**
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	← **yes**

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. $Ksat_{DESIGN}$ includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes:

Stage-Area-Storage for Pond IP#2: Infiltration Pond #2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
206.50	2,931	0
206.55	2,961	147
206.60	2,992	296
206.65	3,022	446
206.70	3,053	598
206.75	3,084	752
206.80	3,115	907
206.85	3,146	1,063
206.90	3,178	1,221
206.95	3,209	1,381
207.00	3,241	1,542
207.05	3,273	1,705
207.10	3,305	1,870
207.15	3,337	2,036
207.20	3,369	2,203
207.25	3,401	2,372
207.30	3,434	2,543
207.35	3,467	2,716
207.40	3,500	2,890
207.45	3,533	3,066
207.50	3,566	3,243
207.55	3,599	3,423
207.60	3,633	3,603
207.65	3,667	3,786
207.70	3,701	3,970
207.75	3,735	4,156
207.80	3,769	4,343
207.85	3,803	4,533
207.90	3,838	4,724
207.95	3,872	4,917
208.00	3,907	5,111
208.05	3,941	5,307
208.10	3,976	5,505
208.15	4,011	5,705
208.20	4,045	5,906
208.25	4,080	6,109
208.30	4,116	6,314
208.35	4,151	6,521
208.40	4,186	6,729
208.45	4,222	6,940
208.50	4,258	7,152
208.55	4,294	7,365
208.60	4,330	7,581
208.65	4,366	7,798
208.70	4,402	8,017
208.75	4,439	8,238
208.80	4,475	8,461
208.85	4,512	8,686
208.90	4,549	8,913
208.95	4,586	9,141
209.00	4,623	9,371
209.05	4,661	9,603
209.10	4,698	9,837
209.15	4,736	10,073
209.20	4,774	10,311
209.25	4,812	10,550
209.30	4,850	10,792
209.35	4,888	11,035
209.40	4,927	11,281
209.45	4,965	11,528
209.50	5,004	11,777
209.55	5,043	12,029
209.60	5,082	12,282
209.65	5,121	12,537
209.70	5,161	12,794
209.75	5,200	13,053
209.80	5,240	13,314
209.85	5,280	13,577
209.90	5,320	13,842
209.95	5,360	14,109
210.00	**5,400**	**14,378**

INFILTRATION PRACTICE CRITERIA
(Env-Wq 1508.06)

Type/Node Name: **Infiltration Pond #3 (IP#3)**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

Yes		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	← **yes**
1.39	ac	A = Area draining to the practice	
0.23	ac	A_I = Impervious area draining to the practice	
0.17	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.20	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.28	ac-in	WQV= 1" x Rv x A	
1,001	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
250	cf	25% x WQV (check calc for sediment forebay volume)	
Forebay		Method of pretreatment? (not required for clean or roof runoff)	
1,605	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	≥ **25%WQV**
7,620	cf	V = Volume[1] (attach a stage-storage table)	≥ **WQV**
1,385	sf	A_{SA} = Surface area of the bottom of the pond	
2.94	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
3.0	hours	I_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	≤ **72-hrs**
182.62	feet	E_{BTM} = Elevation of the bottom of the basin	
179.62	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
176.87	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
3.00	feet	D_{SHWT} = Separation from SHWT	≥ *[3]
5.8	feet	D_{ROCK} = Separation from bedrock	≥ *[3]
	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	≥ **24"**
	ft	D_T = Depth of trench, if trench proposed	**4 - 10 ft**
	Yes/No	If a trench or underground system is proposed, has observation well been provided?	←**yes**
		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	← **yes**
Yes	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	← **yes**
3.0	:1	If a basin is proposed, pond side slopes.	≥**3:1**
185.19	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
185.75	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
186.00	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?[5]	← **yes**
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	← **yes**

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. $Ksat_{DESIGN}$ includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes:

Stage-Area-Storage for Pond IP#3: Infiltration Pond #3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
182.62	1,385	0
182.67	1,407	70
182.72	1,430	141
182.77	1,452	213
182.82	1,475	286
182.87	1,498	360
182.92	1,521	436
182.97	1,544	512
183.02	1,568	590
183.07	1,591	669
183.12	1,615	749
183.17	1,639	831
183.22	1,663	913
183.27	1,688	997
183.32	1,712	1,082
183.37	1,737	1,168
183.42	1,762	1,256
183.47	1,787	1,344
183.52	1,812	1,434
183.57	1,837	1,526
183.62	1,863	1,618
183.67	1,889	1,712
183.72	1,915	1,807
183.77	1,941	1,903
183.82	1,967	2,001
183.87	1,993	2,100
183.92	2,020	2,200
183.97	2,047	2,302
184.02	2,073	2,405
184.07	2,100	2,509
184.12	2,126	2,615
184.17	2,153	2,722
184.22	2,179	2,830
184.27	2,206	2,940
184.32	2,233	3,051
184.37	2,260	3,163
184.42	2,288	3,277
184.47	2,315	3,392
184.52	2,343	3,508
184.57	2,371	3,626
184.62	2,399	3,745
184.67	2,427	3,866
184.72	2,455	3,988
184.77	2,484	4,112
184.82	2,512	4,237
184.87	2,541	4,363
184.92	2,570	4,491
184.97	2,600	4,620
185.02	2,629	4,751
185.07	2,658	4,883
185.12	2,688	5,016
185.17	2,718	5,152
185.22	2,748	5,288
185.27	2,778	5,426
185.32	2,808	5,566
185.37	2,839	5,707
185.42	2,869	5,850
185.47	2,900	5,994
185.52	2,931	6,140
185.57	2,962	6,287
185.62	2,994	6,436
185.67	3,025	6,587
185.72	3,057	6,739
185.77	3,089	6,892
185.82	3,121	7,048
185.87	3,153	7,204
185.92	3,185	7,363
185.97	**3,217**	**7,523**

INFILTRATION PRACTICE CRITERIA
(Env-Wq 1508.06)

Type/Node Name: **Infiltration Pond #4 (IP#4)**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

Yes		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	← **yes**
0.58	ac	A = Area draining to the practice	
0.06	ac	A_I = Impervious area draining to the practice	
0.10	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.14	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.08	ac-in	WQV= 1" x Rv x A	
291	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
73	cf	25% x WQV (check calc for sediment forebay volume)	
n/a		Method of pretreatment? (not required for clean or roof runoff)	
-	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	≥ **25%WQV**
3,054	cf	V = Volume[1] (attach a stage-storage table)	≥ **WQV**
1,195	sf	A_{SA} = Surface area of the bottom of the pond	
0.30	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
9.7	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	≤ **72-hrs**
290.30	feet	E_{BTM} = Elevation of the bottom of the basin	
289.23	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
289.23	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.07	feet	D_{SHWT} = Separation from SHWT	≥ *[3]
1.1	feet	D_{ROCK} = Separation from bedrock	≥ *[3]
	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	≥ **24"**
	ft	D_T = Depth of trench, if trench proposed	**4 - 10 ft**
	Yes/No	If a trench or underground system is proposed, has observation well been provided?	←**yes**
		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	← **yes**
Yes	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	← **yes**
3.0	:1	If a basin is proposed, pond side slopes.	≥**3:1**
291.56	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
291.69	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
292.00	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?[5]	← **yes**
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	← **yes**

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. $Ksat_{DESIGN}$ includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes:

Infiltration rate taken from "Ksat Values for New Hampshire Soils" by SSSNNE Special Publication No. 5, September 2009, and reduce by 1/2.

Stage-Area-Storage for Pond IP#4: Infiltration Pond #4

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
290.30	1,195	0
290.32	1,207	24
290.34	1,220	48
290.36	1,232	73
290.38	1,245	98
290.40	1,258	123
290.42	1,270	148
290.44	1,283	173
290.46	1,296	199
290.48	1,309	225
290.50	1,322	252
290.52	1,335	278
290.54	1,348	305
290.56	1,361	332
290.58	1,374	359
290.60	1,387	387
290.62	1,401	415
290.64	1,414	443
290.66	1,428	471
290.68	1,441	500
290.70	1,455	529
290.72	1,468	558
290.74	1,482	588
290.76	1,496	618
290.78	1,510	648
290.80	1,524	678
290.82	1,538	709
290.84	1,552	739
290.86	1,566	771
290.88	1,580	802
290.90	1,594	834
290.92	1,608	866
290.94	1,623	898
290.96	1,637	931
290.98	1,652	964
291.00	1,666	997
291.02	1,681	1,030
291.04	1,696	1,064
291.06	1,710	1,098
291.08	1,725	1,133
291.10	1,740	1,167
291.12	1,755	1,202
291.14	1,770	1,237
291.16	1,785	1,273
291.18	1,800	1,309
291.20	1,815	1,345
291.22	1,830	1,381
291.24	1,846	1,418
291.26	1,861	1,455
291.28	1,877	1,493
291.30	1,892	1,530
291.32	1,908	1,568
291.34	1,923	1,607
291.36	1,939	1,645
291.38	1,955	1,684
291.40	1,971	1,723
291.42	1,986	1,763
291.44	2,002	1,803
291.46	2,018	1,843
291.48	2,035	1,884
291.50	2,051	1,924
291.52	2,067	1,966
291.54	2,083	2,007
291.56	2,099	2,049
291.58	2,116	2,091
291.60	2,132	2,134
291.62	2,149	2,176
291.64	2,165	2,220
291.66	2,182	2,263
291.68	2,199	2,307
291.70	2,216	2,351
291.72	2,232	2,395
291.74	2,249	2,440
291.76	2,266	2,485
291.78	2,283	2,531
291.80	2,300	2,577
291.82	2,318	2,623
291.84	2,335	2,669
291.86	2,352	2,716
291.88	2,370	2,764
291.90	2,387	2,811
291.92	2,404	2,859
291.94	2,422	2,907
291.96	2,440	2,956
291.98	2,457	3,005
292.00	**2,475**	**3,054**

INFILTRATION PRACTICE CRITERIA
(Env-Wq 1508.06)

Type/Node Name: **Infiltration Pond #5 (IP#5)**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

Yes		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	**← yes**
1.15	ac	A = Area draining to the practice	
0.12	ac	A_I = Impervious area draining to the practice	
0.10	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.14	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.17	ac-in	WQV= 1" x Rv x A	
603	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
151	cf	25% x WQV (check calc for sediment forebay volume)	
n/a		Method of pretreatment? (not required for clean or roof runoff)	
-	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
7,998	cf	V = Volume[1] (attach a stage-storage table)	**≥ WQV**
1,819	sf	A_{SA} = Surface area of the bottom of the pond	
0.30	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
13.3	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
279.00	feet	E_{BTM} = Elevation of the bottom of the basin	
278.00	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
278.00	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.00	feet	D_{SHWT} = Separation from SHWT	**≥ *** [3]
1.0	feet	D_{ROCK} = Separation from bedrock	**≥ *** [3]
	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	**≥ 24"**
	ft	D_T = Depth of trench, if trench proposed	**4 - 10 ft**
	Yes/No	If a trench or underground system is proposed, has observation well been provided?	**←yes**
		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	**← yes**
Yes	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	**← yes**
3.0	:1	If a basin is proposed, pond side slopes.	**≥3:1**
281.04	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
281.55	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
282.00	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?[5]	**← yes**
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	**← yes**

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. $Ksat_{DESIGN}$ includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes:

Infiltration rate taken from "Ksat Values for New Hampshire Soils" by SSSNNE Special Publication No. 5, September 2009, and reduce by 1/2.

ESHWT assumed based on similar test data.

Stage-Area-Storage for Pond IP#5: Infiltration Pond #5

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
279.00	1,819	0
279.05	1,844	92
279.10	1,870	184
279.15	1,895	279
279.20	1,921	374
279.25	1,947	471
279.30	1,973	569
279.35	1,999	668
279.40	2,026	769
279.45	2,052	871
279.50	2,079	974
279.55	2,106	1,078
279.60	2,133	1,184
279.65	2,161	1,292
279.70	2,188	1,401
279.75	2,216	1,511
279.80	2,244	1,622
279.85	2,272	1,735
279.90	2,300	1,849
279.95	2,328	1,965
280.00	2,357	2,082
280.05	2,385	2,201
280.10	2,413	2,321
280.15	2,441	2,442
280.20	2,470	2,565
280.25	2,498	2,689
280.30	2,527	2,815
280.35	2,556	2,942
280.40	2,585	3,070
280.45	2,614	3,200
280.50	2,644	3,332
280.55	2,673	3,465
280.60	2,703	3,599
280.65	2,733	3,735
280.70	2,763	3,872
280.75	2,793	4,011
280.80	2,824	4,152
280.85	2,854	4,294
280.90	2,885	4,437
280.95	2,916	4,582
281.00	2,947	4,729
281.05	2,978	4,877
281.10	3,010	5,027
281.15	3,041	5,178
281.20	3,073	5,331
281.25	3,105	5,485
281.30	3,137	5,641
281.35	3,169	5,799
281.40	3,202	5,958
281.45	3,234	6,119
281.50	3,267	6,282
281.55	3,300	6,446
281.60	3,333	6,612
281.65	3,366	6,779
281.70	3,399	6,948
281.75	3,433	7,119
281.80	3,467	7,291
281.85	3,500	7,466
281.90	3,534	7,641
281.95	3,569	7,819
282.00	**3,603**	**7,998**

INFILTRATION PRACTICE CRITERIA
(Env-Wq 1508.06)

Type/Node Name: **Infiltration Pond #6 (IP#6)**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

Yes		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	**← yes**
1.04	ac	A = Area draining to the practice	
0.10	ac	A_I = Impervious area draining to the practice	
0.10	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.14	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.14	ac-in	WQV= 1" x Rv x A	
513	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
128	cf	25% x WQV (check calc for sediment forebay volume)	
n/a		Method of pretreatment? (not required for clean or roof runoff)	
-	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	**≥ 25%WQV**
9,132	cf	V = Volume[1] (attach a stage-storage table)	**≥ WQV**
3,785	sf	A_{SA} = Surface area of the bottom of the pond	
0.30	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
5.4	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	**≤ 72-hrs**
269.00	feet	E_{BTM} = Elevation of the bottom of the basin	
268.00	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
268.00	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.00	feet	D_{SHWT} = Separation from SHWT	**≥ *** [3]
1.0	feet	D_{ROCK} = Separation from bedrock	**≥ *** [3]
	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	**≥ 24"**
	ft	D_T = Depth of trench, if trench proposed	**4 - 10 ft**
	Yes/No	If a trench or underground system is proposed, has observation well been provided?	**←yes**
		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	**← yes**
Yes	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	**← yes**
3.0	:1	If a basin is proposed, pond side slopes.	**≥3:1**
269.99	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
270.57	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
271.00	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?[5]	**← yes**
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	**← yes**

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. $Ksat_{DESIGN}$ includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes:

Infiltration rate taken from "Ksat Values for New Hampshire Soils" by SSSNNE Special Publication No. 5, September 2009, and reduce by 1/2.

ESHWT assumed based on similar test data.

Stage-Area-Storage for Pond IP#6: Infiltration Pond #6

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
269.00	3,785	0
269.02	3,801	76
269.04	3,817	152
269.06	3,834	229
269.08	3,850	305
269.10	3,866	383
269.12	3,882	460
269.14	3,899	538
269.16	3,915	616
269.18	3,931	694
269.20	3,948	773
269.22	3,964	852
269.24	3,981	932
269.26	3,997	1,012
269.28	4,014	1,092
269.30	4,031	1,172
269.32	4,047	1,253
269.34	4,064	1,334
269.36	4,081	1,416
269.38	4,098	1,497
269.40	4,114	1,579
269.42	4,131	1,662
269.44	4,148	1,745
269.46	4,165	1,828
269.48	4,182	1,911
269.50	4,199	1,995
269.52	4,216	2,079
269.54	4,233	2,164
269.56	4,250	2,249
269.58	4,267	2,334
269.60	4,284	2,419
269.62	4,301	2,505
269.64	4,318	2,591
269.66	4,336	2,678
269.68	4,353	2,765
269.70	4,370	2,852
269.72	4,388	2,939
269.74	4,405	3,027
269.76	4,422	3,116
269.78	4,440	3,204
269.80	4,457	3,293
269.82	4,475	3,383
269.84	4,492	3,472
269.86	4,510	3,562
269.88	4,528	3,653
269.90	4,545	3,743
269.92	4,563	3,834
269.94	4,581	3,926
269.96	4,598	4,018
269.98	4,616	4,110
270.00	4,634	4,202
270.02	4,646	4,295
270.04	4,657	4,388
270.06	4,669	4,481
270.08	4,681	4,575
270.10	4,692	4,669
270.12	4,704	4,763
270.14	4,716	4,857
270.16	4,727	4,951
270.18	4,739	5,046
270.20	4,751	5,141
270.22	4,762	5,236
270.24	4,774	5,331
270.26	4,786	5,427
270.28	4,798	5,523
270.30	4,810	5,619
270.32	4,821	5,715
270.34	4,833	5,812
270.36	4,845	5,908
270.38	4,857	6,005
270.40	4,869	6,103
270.42	4,881	6,200
270.44	4,893	6,298
270.46	4,905	6,396
270.48	4,917	6,494
270.50	4,928	6,593
270.52	4,940	6,691
270.54	4,952	6,790
270.56	4,964	6,889
270.58	4,976	6,989
270.60	4,988	7,088
270.62	5,000	7,188
270.64	5,013	7,288
270.66	5,025	7,389
270.68	5,037	7,489
270.70	5,049	7,590
270.72	5,061	7,691
270.74	5,073	7,793
270.76	5,085	7,894
270.78	5,097	7,996
270.80	5,109	8,098
270.82	5,122	8,201
270.84	5,134	8,303
270.86	5,146	8,406
270.88	5,158	8,509
270.90	5,171	8,612
270.92	5,183	8,716
270.94	5,195	8,820
270.96	5,207	8,924
270.98	5,220	9,028
271.00	**5,232**	**9,132**

INFILTRATION PRACTICE CRITERIA
(Env-Wq 1508.06)

Type/Node Name: **Infiltration Pond #7 (IP#7)**

Enter the type of infiltration practice (e.g., basin, trench) and the node name in the drainage analysis, if applicable.

Yes		Have you reviewed Env-Wq 1508.06(a) to ensure that infiltration is allowed?	← yes
0.89	ac	A = Area draining to the practice	
0.07	ac	A_I = Impervious area draining to the practice	
0.08	decimal	I = Percent impervious area draining to the practice, in decimal form	
0.12	unitless	Rv = Runoff coefficient = 0.05 + (0.9 x I)	
0.11	ac-in	WQV= 1" x Rv x A	
383	cf	WQV conversion (ac-in x 43,560 sf/ac x 1ft/12")	
96	cf	25% x WQV (check calc for sediment forebay volume)	
n/a		Method of pretreatment? (not required for clean or roof runoff)	
-	cf	V_{SED} = Sediment forebay volume, if used for pretreatment	≥ 25%WQV
5,309	cf	V = Volume[1] (attach a stage-storage table)	≥ WQV
2,033	sf	A_{SA} = Surface area of the bottom of the pond	
0.30	iph	$Ksat_{DESIGN}$ = Design infiltration rate[2]	
7.5	hours	T_{DRAIN} = Drain time = V / (A_{SA} * I_{DESIGN})	≤ 72-hrs
289.00	feet	E_{BTM} = Elevation of the bottom of the basin	
288.00	feet	E_{SHWT} = Elevation of SHWT (if none found, enter the lowest elevation of the test pit)	
288.00	feet	E_{ROCK} = Elevation of bedrock (if none found, enter the lowest elevation of the test pit)	
1.00	feet	D_{SHWT} = Separation from SHWT	≥ *[3]
1.0	feet	D_{ROCK} = Separation from bedrock	≥ *[3]
	ft	D_{amend} = Depth of amended soil, if applicable due high infiltation rate	≥ 24"
	ft	D_T = Depth of trench, if trench proposed	4 - 10 ft
	Yes/No	If a trench or underground system is proposed, has observation well been provided?	←yes
		If a trench is proposed, does materialmeet Env-Wq 1508.06(k)(2) requirements.[4]	← yes
Yes	Yes/No	If a basin is proposed, Is the perimeter curvilinear, and basin floor flat?	← yes
3.0	:1	If a basin is proposed, pond side slopes.	≥3:1
290.15	ft	Peak elevation of the 10-year storm event (infiltration can be used in analysis)	
290.62	ft	Peak elevation of the 50-year storm event (infiltration can be used in analysis)	
291.00	ft	Elevation of the top of the practice (if a basin, this is the elevation of the berm)	
YES		10 peak elevation ≤ Elevation of the top of the trench?[5]	← yes
YES		If a basin is proposed, 50-year peak elevation ≤ Elevation of berm?	← yes

1. Volume below the lowest invert of the outlet structure and excludes forebay volume
2. $Ksat_{DESIGN}$ includes a factor of safety. See Env-Wq 1504.14 for requirements for determining the infiltr. rate
3. 1' separation if treatment not required; 4' for treatment in GPAs & WSIPAs; & 3' in all other areas.
4. Clean, washed well graded diameter of 1.5 to 3 inches above the in-situ soil.
5. If 50-year peak elevation exceeds top of trench, the overflow must be routed in HydroCAD as secondary discharge.

Designer's Notes:

Infiltration rate taken from "Ksat Values for New Hampshire Soils" by SSSNNE Special Publication No. 5, September 2009, and reduce by 1/2.

ESHWT assumed based on similar test data.

Stage-Area-Storage for Pond IP#7: Infiltration Pond #7

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
289.00	2,033	0
289.02	2,044	41
289.04	2,056	82
289.06	2,068	123
289.08	2,079	164
289.10	2,091	206
289.12	2,102	248
289.14	2,114	290
289.16	2,126	333
289.18	2,138	375
289.20	2,149	418
289.22	2,161	461
289.24	2,173	505
289.26	2,185	548
289.28	2,197	592
289.30	2,209	636
289.32	2,221	680
289.34	2,233	725
289.36	2,245	770
289.38	2,257	815
289.40	2,269	860
289.42	2,281	905
289.44	2,293	951
289.46	2,305	997
289.48	2,318	1,043
289.50	2,330	1,090
289.52	2,342	1,137
289.54	2,355	1,184
289.56	2,367	1,231
289.58	2,379	1,278
289.60	2,392	1,326
289.62	2,404	1,374
289.64	2,417	1,422
289.66	2,429	1,471
289.68	2,442	1,519
289.70	2,454	1,568
289.72	2,467	1,617
289.74	2,480	1,667
289.76	2,492	1,717
289.78	2,505	1,767
289.80	2,518	1,817
289.82	2,531	1,867
289.84	2,543	1,918
289.86	2,556	1,969
289.88	2,569	2,020
289.90	2,582	2,072
289.92	2,595	2,124
289.94	2,608	2,176
289.96	2,621	2,228
289.98	2,634	2,280
290.00	2,647	2,333
290.02	2,660	2,386
290.04	2,672	2,440
290.06	2,685	2,493
290.08	2,698	2,547
290.10	2,711	2,601
290.12	2,724	2,655
290.14	2,736	2,710
290.16	2,749	2,765
290.18	2,762	2,820
290.20	2,775	2,875
290.22	2,788	2,931
290.24	2,801	2,987
290.26	2,814	3,043
290.28	2,827	3,100
290.30	2,840	3,156
290.32	2,853	3,213
290.34	2,867	3,270
290.36	2,880	3,328
290.38	2,893	3,386
290.40	2,906	3,444
290.42	2,920	3,502
290.44	2,933	3,560
290.46	2,946	3,619
290.48	2,960	3,678
290.50	2,973	3,737
290.52	2,986	3,797
290.54	3,000	3,857
290.56	3,013	3,917
290.58	3,027	3,977
290.60	3,041	4,038
290.62	3,054	4,099
290.64	3,068	4,160
290.66	3,081	4,222
290.68	3,095	4,284
290.70	3,109	4,346
290.72	3,122	4,408
290.74	3,136	4,471
290.76	3,150	4,533
290.78	3,164	4,597
290.80	3,178	4,660
290.82	3,192	4,724
290.84	3,206	4,788
290.86	3,220	4,852
290.88	3,233	4,916
290.90	3,247	4,981
290.92	3,262	5,046
290.94	3,276	5,112
290.96	3,290	5,177
290.98	3,304	5,243
291.00	**3,318**	**5,309**

GROUNDWATER RECHARGE VOLULME (GRV) CALCULATION (Env-Wq 1507.04)

-	ac	Area of HSG A soil that was replaced by impervious cover	0.40"
-	ac	Area of HSG B soil that was replaced by impervious cover	0.25"
3.38	ac	Area of HSG C soil that was replaced by impervious cover	0.10"
-	ac	Area of HSG D soil or impervious cover that was replaced by impervious cover	0.0"
0.10	inches	Rd = Weighted groundwater recharge depth	
0.3383	ac-in	GRV = AI * Rd	
1,228	cf	GRV conversion (ac-in x 43,560 sf/ac x 1ft/12")	

Provide calculations below showing that the project meets the groundwater recharge requirements (Env-Wq 1507.04):

TOTAL REQUIRED = 1,228 cf = 0.282 ac-ft

Infiltration Pond #1: 0.239 ac-ft
Infiltration Pond #2: 0.105 ac-ft
Infiltration Pond #3: 0.094 ac-ft
Infiltration Pond #4: 0.050 ac-ft
Infiltration Pond #5: 0.069 ac-ft
Infiltration Pond #6: 0.099 ac-ft
Infiltration Pond #7: 0.052 ac-ft

TOTAL PROVIDED = 0.708 ac-ft in 2-year storm

RIP RAP CALCULATIONS

Residential Subdivision Development
Raymond Road - Route 156
Nottingham, New Hampshire

APRON DESIGN

Terms: Rip Rap Apron IP#1

length of apron (ft.)	L_a	
discharge from pipe (cfs)	Q	(25 YR STORM EVENT)
pipe dia. or channel width (ft.)	Do	
tailwater depth (ft.)	T_w	
width of apron (at outlet)(ft)	W1	
width of apron (downstream)(ft)	W2	
median stone diameter (ft.)	d_{50}	

Equations Used:

Length of Apron (L_a)

when Tw < .5*Do $L_a = \frac{1.8(Q)}{Do^{(3/2)}} + 7Do$

when Tw >= .5*Do $L_a = \frac{3(Q)}{Do^{(3/2)}} + 7Do$

Width of Apron (W1)

$W1 = 3Do$

Width of Apron (W2)

when Tw < .5*Do $W2 = 3Do + La$

when Tw >= .5*Do $W2 = 3Do + 0.4La$

Median Diameter $d_{50} = \frac{0.02 * Q^{(1.3)}}{(Tw * Do)}$

Input:		
Q (cfs)	5.01	cfs
Do (ft.)	1.00	ft
T_w (ft.)	0.40	ft

Output:		
Width of Apron (W1)	3	ft.
Width of Apron (W2)	19	ft.
Length of Apron (L_a)	16	ft.
Median Diameter	0.50	ft.
Riprap min. depth	1.13	ft.

RIP RAP CALCULATIONS

Residential Subdivision Development
Raymond Road - Route 156
Nottingham, New Hampshire

APRON DESIGN

Terms: Rip Rap Apron IP#2

length of apron (ft.)	L_a	
discharge from pipe (cfs)	Q	(25 YR STORM EVENT)
pipe dia. or channel width (ft.)	Do	
tailwater depth (ft.)	T_w	
width of apron (at outlet)(ft)	W1	
width of apron (downstream)(ft)	W2	
median stone diameter (ft.)	d_{50}	

Equations Used:

Length of Apron (L_a)

when Tw < .5*Do $L_a = \frac{1.8(Q)}{Do^{(3/2)}} + 7Do$

when Tw >= .5*Do $L_a = \frac{3(Q)}{Do^{(3/2)}} + 7Do$

Width of Apron (W1)

$W1 = 3Do$

Width of Apron (W2)

when Tw < .5*Do $W2 = 3Do + La$

when Tw >= .5*Do $W2 = 3Do + 0.4La$

Median Diameter $d_{50} = \frac{0.02 * Q^{(1.3)}}{(Tw * Do)}$

Input:		
Q (cfs)	2.49	cfs
Do (ft.)	1.00	ft
T_w (ft.)	0.40	ft

Output:		
Width of Apron (W1)	3	ft.
Width of Apron (W2)	14	ft.
Length of Apron (L_a)	11	ft.
Median Diameter	0.50	ft.
Riprap min. depth	1.13	ft.

RIP RAP CALCULATIONS

Residential Subdivision Development
Raymond Road - Route 156
Nottingham, New Hampshire

APRON DESIGN

Terms: Rip Rap Apron IP#5

length of apron (ft.)	L_a	
discharge from pipe (cfs)	Q	(25 YR STORM EVENT)
pipe dia. or channel width (ft.)	Do	
tailwater depth (ft.)	T_w	
width of apron (at outlet)(ft)	W1	
width of apron (downstream)(ft)	W2	
median stone diameter (ft.)	d_{50}	

Equations Used:

Length of Apron (L_a)

when Tw < .5*Do $L_a = \frac{1.8(Q)}{Do^{(3/2)}} + 7Do$

when Tw >= .5*Do $L_a = \frac{3(Q)}{Do^{(3/2)}} + 7Do$

Width of Apron (W1)

$W1 = 3Do$

Width of Apron (W2)

when Tw < .5*Do $W2 = 3Do + La$

when Tw >= .5*Do $W2 = 3Do + 0.4La$

Median Diameter $d_{50} = \frac{0.02 * Q^{(1.3)}}{(Tw * Do)}$

Input:		
Q (cfs)	1.36	cfs
Do (ft.)	1.00	ft
T_w (ft.)	0.40	ft

Output:		
Width of Apron (W1)	3	ft.
Width of Apron (W2)	12	ft.
Length of Apron (L_a)	9	ft.
Median Diameter	0.50	ft.
Riprap min. depth	1.13	ft.

RIP RAP CALCULATIONS

Residential Subdivision Development
Raymond Road - Route 156
Nottingham, New Hampshire

APRON DESIGN

Terms: Rip Rap Apron IP#6

length of apron (ft.)	L_a	
discharge from pipe (cfs)	Q	(25 YR STORM EVENT)
pipe dia. or channel width (ft.)	Do	
tailwater depth (ft.)	T_w	
width of apron (at outlet)(ft)	W1	
width of apron (downstream)(ft)	W2	
median stone diameter (ft.)	d_{50}	

Equations Used:

Length of Apron (L_a)

when Tw < .5*Do $L_a = \frac{1.8(Q)}{Do^{(3/2)}} + 7Do$

when Tw >= .5*Do $L_a = \frac{3(Q)}{Do^{(3/2)}} + 7Do$

Width of Apron (W1)

$W1 = 3Do$

Width of Apron (W2)

when Tw < .5*Do $W2 = 3Do + La$

when Tw >= .5*Do $W2 = 3Do + 0.4La$

Median Diameter $d_{50} = \frac{0.02 * Q^{(1.3)}}{(Tw * Do)}$

Input:		
Q (cfs)	0.36	cfs
Do (ft.)	1.00	ft
T_w (ft.)	0.40	ft

Output:		
Width of Apron (W1)	3	ft.
Width of Apron (W2)	11	ft.
Length of Apron (L_a)	8	ft.
Median Diameter	0.50	ft.
Riprap min. depth	1.13	ft.

RIP RAP CALCULATIONS

Residential Subdivision Development
Raymond Road - Route 156
Nottingham, New Hampshire

APRON DESIGN

Terms: Rip Rap Apron IP#7

length of apron (ft.)	L_a	
discharge from pipe (cfs)	Q	(25 YR STORM EVENT)
pipe dia. or channel width (ft.)	Do	
tailwater depth (ft.)	T_w	
width of apron (at outlet)(ft)	W1	
width of apron (downstream)(ft)	W2	
median stone diameter (ft.)	d_{50}	

Equations Used:

Length of Apron (L_a)

when Tw < .5*Do $L_a = \frac{1.8(Q)}{Do^{(3/2)}} + 7Do$

when Tw >= .5*Do $L_a = \frac{3(Q)}{Do^{(3/2)}} + 7Do$

Width of Apron (W1)

$W1 = 3Do$

Width of Apron (W2)

when Tw < .5*Do $W2 = 3Do + La$

when Tw >= .5*Do $W2 = 3Do + 0.4La$

Median Diameter $d_{50} = \frac{0.02 * Q^{(1.3)}}{(Tw * Do)}$

Input:		
Q (cfs)	1.02	cfs
Do (ft.)	1.00	ft
T_w (ft.)	0.40	ft

Output:		
Width of Apron (W1)	3	ft.
Width of Apron (W2)	12	ft.
Length of Apron (L_a)	9	ft.
Median Diameter	0.50	ft.
Riprap min. depth	1.13	ft.

RIP RAP CALCULATIONS

Residential Subdivision Development
Raymond Road - Route 156
Nottingham, New Hampshire

APRON DESIGN

Terms: Rip Rap Apron FB#1

length of apron (ft.)	L_a	
discharge from pipe (cfs)	Q	(25 YR STORM EVENT)
pipe dia. or channel width (ft.)	Do	
tailwater depth (ft.)	T_w	
width of apron (at outlet)(ft)	W1	
width of apron (downstream)(ft)	W2	
median stone diameter (ft.)	d_{50}	

Equations Used:

Length of Apron (L_a)

when Tw < .5*Do $L_a = \frac{1.8(Q)}{Do^{(3/2)}} + 7Do$

when Tw >= .5*Do $L_a = \frac{3(Q)}{Do^{(3/2)}} + 7Do$

Width of Apron (W1)

$W1 = 3Do$

Width of Apron (W2)

when Tw < .5*Do $W2 = 3Do + La$

when Tw >= .5*Do $W2 = 3Do + 0.4La$

Median Diameter $d_{50} = \frac{0.02 * Q^{(1.3)}}{(Tw * Do)}$

Input:		
Q (cfs)	10.99	cfs
Do (ft.)	2.00	ft
T_w (ft.)	0.85	ft

Output:		
Width of Apron (W1)	6	ft.
Width of Apron (W2)	27	ft.
Length of Apron (L_a)	21	ft.
Median Diameter	0.50	ft.
Riprap min. depth	1.13	ft.

RIP RAP CALCULATIONS

Residential Subdivision Development
Raymond Road - Route 156
Nottingham, New Hampshire

APRON DESIGN

Terms: Rip Rap Apron FB#2 (from CB#8)

length of apron (ft.)	L_a	
discharge from pipe (cfs)	Q	(25 YR STORM EVENT)
pipe dia. or channel width (ft.)	Do	
tailwater depth (ft.)	T_w	
width of apron (at outlet)(ft)	W1	
width of apron (downstream)(ft)	W2	
median stone diameter (ft.)	d_{50}	

Equations Used:

Length of Apron (L_a)

when Tw < .5*Do $L_a = \frac{1.8(Q)}{Do^{(3/2)}} + 7Do$

when Tw >= .5*Do $L_a = \frac{3(Q)}{Do^{(3/2)}} + 7Do$

Width of Apron (W1)

$W1 = 3Do$

Width of Apron (W2)

when Tw < .5*Do $W2 = 3Do + La$

when Tw >= .5*Do $W2 = 3Do + 0.4La$

Median Diameter $d_{50} = \frac{0.02 * Q^{(1.3)}}{(Tw * Do)}$

Input:		
Q (cfs)	5.96	cfs
Do (ft.)	1.50	ft
T_w (ft.)	pl	ft

Output:		
Width of Apron (W1)	5	ft.
Width of Apron (W2)	13	ft.
Length of Apron (L_a)	20	ft.
Median Diameter	0.50	ft.
Riprap min. depth	1.13	ft.

RIP RAP CALCULATIONS

Residential Subdivision Development
Raymond Road - Route 156
Nottingham, New Hampshire

APRON DESIGN

Terms: Rip Rap Apron FB#2 (from CB#10)

length of apron (ft.)	L_a	
discharge from pipe (cfs)	Q	(25 YR STORM EVENT)
pipe dia. or channel width (ft.)	Do	
tailwater depth (ft.)	T_w	
width of apron (at outlet)(ft)	W1	
width of apron (downstream)(ft)	W2	
median stone diameter (ft.)	d_{50}	

Equations Used:

Length of Apron (L_a)

when Tw < .5*Do $L_a = \frac{1.8(Q)}{Do^{(3/2)}} + 7Do$

when Tw >= .5*Do $L_a = \frac{3(Q)}{Do^{(3/2)}} + 7Do$

Width of Apron (W1)

$W1 = 3Do$

Width of Apron (W2)

when Tw < .5*Do $W2 = 3Do + La$

when Tw >= .5*Do $W2 = 3Do + 0.4La$

Median Diameter $d_{50} = \frac{0.02 * Q^{(1.3)}}{(Tw * Do)}$

Input:		
Q (cfs)	0.46	cfs
Do (ft.)	1.00	ft
T_w (ft.)	2.81	ft

Output:		
Width of Apron (W1)	3	ft.
Width of Apron (W2)	6	ft.
Length of Apron (L_a)	8	ft.
Median Diameter	0.50	ft.
Riprap min. depth	1.13	ft.

RIP RAP CALCULATIONS

Residential Subdivision Development
Raymond Road - Route 156
Nottingham, New Hampshire

APRON DESIGN

Terms: Rip Rap Apron FB#3

length of apron (ft.)	L_a	
discharge from pipe (cfs)	Q	(25 YR STORM EVENT)
pipe dia. or channel width (ft.)	Do	
tailwater depth (ft.)	T_w	
width of apron (at outlet)(ft)	W1	
width of apron (downstream)(ft)	W2	
median stone diameter (ft.)	d_{50}	

Equations Used:

Length of Apron (L_a)

when Tw < .5*Do $L_a = \frac{1.8(Q)}{Do^{(3/2)}} + 7Do$

when Tw >= .5*Do $L_a = \frac{3(Q)}{Do^{(3/2)}} + 7Do$

Width of Apron (W1)

$W1 = 3Do$

Width of Apron (W2)

when Tw < .5*Do $W2 = 3Do + La$

when Tw >= .5*Do $W2 = 3Do + 0.4La$

Median Diameter $d_{50} = \frac{0.02 * Q^{(1.3)}}{(Tw * Do)}$

Input:		
Q (cfs)	3.86	cfs
Do (ft.)	1.25	ft
T_w (ft.)	2.81	ft

Output:		
Width of Apron (W1)	4	ft.
Width of Apron (W2)	11	ft.
Length of Apron (L_a)	17	ft.
Median Diameter	0.50	ft.
Riprap min. depth	1.13	ft.

STORMWATER MANAGEMENT / BMP
INSPECTION & MAINTENANCE PLAN

JOSEPH FALZONE
RESIDENTIAL SUBDIVISION PLAN
RAYMOND ROAD – ROUTE 156
NOTTINGHAM, NEW HAMPSHIRE
NH-1490
December 2023

Proper construction, inspections, maintenance, and repairs are key elements in maintaining a successful stormwater management program on a developed property. Routine inspections ensure permit compliance and reduce the potential for deterioration of infrastructure or reduced water quality.

For the purpose of this Stormwater Management Program, a significant rainfall event is considered an event of three (3) inches or more in a 24-hour period or at least 0.5 inches in a one-hour period. During construction, inspections should be conducted every two weeks or after a 0.25" rainfall event in a 24-hour period per the EPA NPDES Phase II SWPPP, until the entire disturbed area is fully restabilized. Upon full stabilization of the project and filing of an NOI, inspections need only be conducted after a significant rainfall event as described above or as described in the maintenance guidelines below.

During construction activities Joseph Falzone (the property developer) with an address of 7B Emery Lane, Stratham, New Hampshire 03885 and a phone of 603.772.9400, or their heirs and/or assigns, shall be responsible for inspections and maintenance activities for the above project site. Upon homeowners acquiring more than 50% of the proposed units, the Homeowner's Association shall be responsible for *ongoing inspection and maintenance* of the roadway and structures under the roadway. Best Management Practices (BMP) drainage structures and treatment areas shall be inspected and maintained by the private Homeowner's Association to be created. The owner shall document the transfer of responsibility in writing to the Homeowner's Association Board and/or NHDES AoT Bureau.

The owner is responsible to ensure that any subsequent owner's association has copies of the Log Form and Annual Report records and fully understands the responsibilities of this plan. The grantor owner(s) will ensure this document is provided to the grantee owner(s) by duplicating the Ownership Responsibility Sheet which is found toward the back of this document, which will be maintained with the Inspection & Maintenance Logs and provided to the Town of Nottingham and/or NHDES Alteration of Terrain Bureau upon request.

Documentation:
A maintenance log (i.e., report) will be kept summarizing inspections, maintenance, and any corrective actions taken. The log will include the date on which each inspection or maintenance task

was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task (see Stormwater System Operation and Maintenance Plan Inspection & Maintenance Manual Checklist attached). If a maintenance task requires the clean-out of any sediments or debris, the location where the sediment and debris was disposed after removal shall be indicated.

Best Management Practices (BMP) Maintenance Guidelines
The following provides a list of recommendations and guidelines for managing the Stormwater facilities. The cited areas, facilities, and measures will be inspected and the identified deficiencies will be corrected. Clean-out must include the removal and legal disposal of any accumulated sediments and debris.

DURING CONSTRUCTION

1. Stabilized Construction Entrance

A temporary gravel construction entrance provides an area where mud can be dislodged from tires before the vehicle leaves the construction site to reduce the amount of mud and sediment transported onto paved municipal and state roads. The stone size for the pad should be between 1 and 2-inch coarse aggregate, and the pad itself constructed to a minimum length of 50' for the full width of the access road. The aggregate should be placed at least six inches thick. A plan view and profile are shown on Sheet E1 - Sediment and Erosion Control Detail Plan.

2. Dust Control

Dust will be controlled on the site using multiple BMPs. Mulching and temporary seeding will be the first line of protection to be utilized where problems occur. If dust problems are not solved by these applications, the use of water and calcium chloride can be applied. Calcium chloride will be applied at a rate that will keep the surface moist but not cause pollution.

3. Temporary Erosion and Sediment Control Devices / Barriers

Function – Temporary erosion and sediment control devices are utilized during construction period to divert, store and filter stormwater from non-stabilized surfaces. These devices include, but are not limited to: silt fences, hay bales, filters, sediment traps, stone check dams, mulch and erosion control blankets.

Maintenance – Temporary erosion and sediment control devices shall be inspected and maintained on a weekly basis and following a significant storm event (>0.5-inch rain event) throughout the construction period to ensure that they still have integrity and are not allowing sediment to pass. Sediment build-up in swales will be removed if it is deeper than six inches. Sediment is to be removed from sumps in the catch basin semi-annually. Refer to the Site Plan drawings for the maintenance of temporary erosion and sediment control devices.

4. Invasive Species

THE NH COMMISSIONER OF AGRICULTURE PROHIBITS THE COLLECTION, POSSESSION, IMPORTATION, TRANSPORTATION, SALE, PROPAGATION, TRANSPLANTATION, OR CULTIVATION OF PLANTS BANNED BY NH LAW RSA 430:53 AND NH CODE ADMINISTRATIVE RULES AGR 3800. THE PROJECT SHALL MEET ALL REQUIREMENTS AND THE INTENT OF. RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.

POST CONSTRUCTION / LONG TERM MAINTENANCE:

5. Catch Basins/Manholes

Inspect catch basins 2 times per year (preferably in spring and fall) to ensure that the catch basins are working in their intended fashion and that they are free of debris. Clean structures when sediment depths reach 12" from invert of outlet. If the basin outlet is designed with a hood to trap floatable materials (i.e. Snout), check to ensure watertight seal is working. Remove floating debris and hydrocarbons at the time of the inspection.

6. Culverts

Inspect culverts 2 times per year (preferably in spring and fall) to ensure that the culverts are working in their intended fashion and that they are free of debris. Remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit and to repair any erosion damage at the culvert's inlet and outlet. Repair/replace culvert if it becomes crushed or deteriorated.

7. Vegetated Areas

Inspect slopes and embankments early in the growing season to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows. The facilities will be inspected after major storms and any identified deficiencies will be corrected.

8. Roadways and Paved Surfaces

Clear accumulations of winter sand along roadways at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader.

9. Winter Maintenance

The plowing and application of de-icing materials shall be conducted by a certified Green Snow Pro contractor trained in best management practices for road salt/deicing at the expense of the association. No snow dump shall be allowed onsite. In the event that snow storage areas are inundated in any given winter, snow will be trucked offsite and disposed of in a legal fashion.

10. Pretreatment Structures/Sediment Forebays

Inspect all upstream pre-treatment measures (forebays, etc.) for sediment and floatables accumulation. Remove and dispose of sediments, debris, or woody vegetation as needed. Inspect structure on a semiannual basis by using inspection port and/or access structure. Remove sediment as needed when average depths reach 6". Mow embankments at least two times annually.

11. Stormwater Infiltration Facilities

- Inspect all upstream pre-treatment measures for sediment and floatables accumulation. Remove and dispose of sediments or debris as needed.
- The infiltration facility will be inspected within the first three months after construction.
- After the initial three months, the infiltration facility will be inspected 2 times per year to ensure that the filter is draining within 72 hours of a rain event equivalent to 1/2" or more.
- Failure to drain in 72 hours will require part or all of the top 3 inches of the infiltration area to be removed and replaced with new like material. If the infiltration system does not drain within 72-hours following a rainfall event, then a qualified professional should assess the condition of the facility to determine measures required to restore infiltration function.
- Vegetated infiltration ponds or swales will be mowed at least annually or otherwise maintained to control the growth of woody vegetation and to control the accumulation of sediments in order to maintain the water quality volume. Any woody vegetation or accumulated sediment must be removed.
- The facilities will be inspected after major storms and any identified deficiencies will be corrected.

12. Riprap Weir – Maintenance

- Inspect at least once annually for accumulation of sediment and debris and for signs of erosion within weir or down-slope of the spreader.
- Remove debris whenever observed during inspection.
- Mow as required by landscaping design. At a minimum, mow annually to control woody vegetation.
- Repair any erosion and re-grade or replace stone berm material, as warranted by inspection.
- Reconstruct the spreader if down-slope channelization indicates that the spreader is not level or that discharge has become concentrated, and corrections cannot be made through minor re-grading.

13. Invasive Species

Background

Invasive plants are introduced, alien, or non-native plants, which have been moved by people from their native habitat to a new area. Some exotic plants are imported for human use such as landscaping, erosion control, or food crops. They also can arrive as "hitchhikers" among shipments of other plants, seeds, packing materials, or fresh produce. Some exotic plants become invasive and cause harm by:

- Becoming weedy and overgrown;
- Killing established shade trees;
- Obstructing pipes and drainage systems;
- Forming dense beds in water;
- Lowering water levels in lakes, streams, and wetlands;
- Destroying natural communities;
- Promoting erosion on stream banks and hillsides; and
- Resisting control except by hazardous chemical.

During maintenance activities, check for the presence of invasive plants and remove in a safe manner. They should be controlled as described on the following fact sheet prepared by the University of New Hampshire Cooperative Extension entitled Methods for Disposing Non-Native Invasive Plant dated January 2010.

In the event that invasive species are noticed growing in any of the stormwater management practices, the invasive vegetation shall be removed completely to include root matter and disposed of properly. Prior to disposal, the vegetation shall be placed on and completely cover with a plastic tarp for a period of two – three weeks until plants are completely dead. If necessary or to expedite the process, spray only the invasive vegetation and roots with a systemic nonselective herbicide after placement on the tarp (to prevent chemical migration) and then cover.

Annual Report

Description: The owner is responsible to keep an **Inspection & Maintenance Activity Log** that documents inspection, maintenance, and repairs to the storm water management system, and a **Deicing Log** to track the amount and type of deicing material applied to the site. The original owner is responsible to ensure that any subsequent owner (s) have copies of the Stormwater System Operation and Maintenance Plan & Inspection and Maintenance Manual, copies of past logs and check lists. The Annual Report will be prepared and submitted to the Town of Nottingham upon request.

Disposal Requirements

Disposal of debris, trash, sediment, and other waste materials should be done at suitable disposal/recycling sites and in compliance with all applicable local, state, and federal waste regulations.

STORMWATER SYSTEM OPERATION AND MAINTENANCE PLAN

Inspection & Maintenance Manual Checklist

Residential Subdivision

Raymond Road – Route 156

Nottingham, NH

BMP / System	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
Stabilized Construction Entrance	Weekly	Inspect adjacent roadway for sediment tracking Inspect stone for sediment accumulation	Sweep adjacent roadways as soon as sediment is tracked Top dress with additional stone when necessary to prevent tracking
Sediment Control Devices / Barriers	Weekly	Inspect accumulated sediment level, rips, and tears	Repair or replace damaged lengths Remove and dispose of accumulated sediment once level reaches 1/3 of barrier height
Pavement Sweeping	Spring and Fall	Removal of sand and litter from impervious areas	N/A
Litter/Trash Removal	Routinely	Inspect dumpsters, outdoor waste receptacles area, and yard areas, as well as ponds and swale areas.	Site will be free of litter/trash.
Deicing Agents	N/A	N/A	Use salt as the primary agent for roadway safety during winter.
Landscaping	Maintained as required and mulched each Spring	N/A	Trash/debris and weed removal
Drainage Pipes, Catchbasins & Drain Manholes	Spring and Fall	Check for sediment accumulation & clogging.	More than 2" sediment depth

Sediment Forebay	Spring and Fall	Sediment accumulation. Inspect embankments, inlet and outlet structures, and appurtenances.	Remove sediment as needed. Remove trash & debris from system and appurtenances. Mow embankment and remove woody vegetation.
Infiltration Basin	Spring and Fall and after every 2.5" of rain or greater in a 24-hour period	Monitoring and evaluation of wetland vegetation, inspection of sediment on pond surface, inlet/outlet and appurtenance structure evaluation. 72-Hour drawdown time evaluation and vegetation evaluation.	Remove dead & diseased vegetation along with all debris; take corrective measures, reseed and repair inlet/outlet structures and appurtenances if required. Mow embankments and remove woody vegetation. Restore infiltration by removing accumulated sediments and reconstruction of the infiltration basin as necessary.
Riprap Outlet Protection/Level Spreaders	Spring and Fall and after every 2.5" of rain or greater in a 24-hour period	Check for sediment buildup and displaced stones. Inspect for torn or visible fabric.	Remove excess sediment and trash/debris. Immediately repair and replace stone and/or fabric as necessary.
Annual Report	1 time per year	Submit Annual Report to Town of Nottingham Inspector upon request	

Inspection Notes:

STORMWATER SYSTEM OPERATION AND MAINTENANCE PLAN

Inspection & Maintenance Manual Log Form

Residential Subdivision

Raymond Road – Route 156

Nottingham, NH

BMP / System	Date Inspected	Inspected By	Cleaning/Repair (List Items & Comments)	Date Repaired	Repairs Performed By

INSPECTION CHECKLIST AND MAINTENANCE GUIDANCE

INFILTRATION POND - INSPECTION CHECKLIST

Location: _____

Owner Change Since Last Inspection? Y N

Owner Name, Address, Phone: _____

Date:_____Time:_____Site Conditions: _____

Inspection Items	Satisfactory (S) or Unsatisfactory (U)	Comments/Corrective Action
Sand Filter Inspection List		
Complete drainage of the filter in about 40 hours after a rain event?		
Clogging of filter surface?		
Clogging of inlet/outlet structures?		
Clogging of filter fabric?		
Clear of debris and functional?		
Leaks or seeps in filter?		
Obstructions of spillway(s)?		
Animal burrows in filter?		
Sediment accumulation in filter bed (less than 50% is acceptable)?		
Cracking, spalling, bulging or deterioration of concrete?		
Erosion in area draining to sand filter?		
Erosion around inlets, filter bed, or outlets?		
Pipes and other structures in good		
Undesirable vegetation growth?		
Other (describe)?		
Hazards		
Have there been complaints from residents?		
Public hazards noted?		

If any of the above inspection items are **UNSATISFACTORY**, list corrective actions and the corresponding completion dates below:

Corrective Action Needed	Due Date

Inspector Signature:_____

Inspector Name (printed):_____

Date:_____

Anti-icing Route Data Form

Truck Station:

Date:

Air Temperature	Pavement Temperature	Relative Humidity	Dew Point	Sky

Reason for applying:

Route:

Chemical:

Application Time:

Application Amount:

Observation (first day):

Observation (after event):

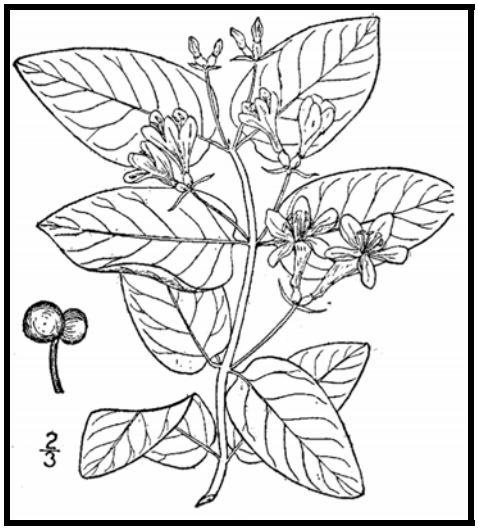
Observation (before next application);

Name:

University of New Hampshire Cooperative Extension

Methods for Disposing Non-Native Invasive Plants

Prepared by the Invasives Species Outreach Group, volunteers interested in helping people control invasive plants. Assistance provided by the Piscataquog Land Conservancy and the NH Invasives Species Committee. Edited by Karen Bennett, Extension Forestry Professor and Specialist.



Tatarian honeysuckle
Lonicera tatarica
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 3: 282.

Non-native invasive plants crowd out natives in natural and managed landscapes. They cost taxpayers billions of dollars each year from lost agricultural and forest crops, decreased biodiversity, impacts to natural resources and the environment, and the cost to control and eradicate them.

Invasive plants grow well even in less than desirable conditions such as sandy soils along roadsides, shaded wooded areas, and in wetlands. In ideal conditions, they grow and spread even faster. There are many ways to remove these non-native invasives, but once removed, care is needed to dispose the removed plant material so the plants don't grow where disposed.

Knowing how a particular plant reproduces indicates its method of spread and helps determine the appropriate disposal method. Most are spread by seed and are dispersed by wind, water, animals, or people. Some reproduce by vegetative means from pieces of stems or roots forming new plants. Others spread through both seed and vegetative means.

Because movement and disposal of viable plant parts is restricted (see NH Regulations), viable invasive parts can't be brought to most transfer stations in the state. Check with your transfer station to see if there is an approved, designated area for invasives disposal. This fact sheet gives recommendations for rendering plant parts non-viable.

Control of invasives is beyond the scope of this fact sheet. For information about control visit www.nhinvasives.org or contact your UNH Cooperative Extension office.

New Hampshire Regulations

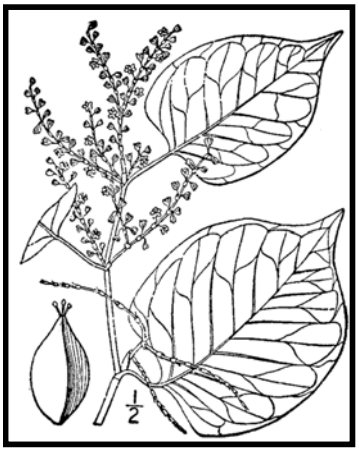
Prohibited invasive species shall only be disposed of in a manner that renders them nonliving and nonviable. (Agr. 3802.04)

No person shall collect, transport, import, export, move, buy, sell, distribute, propagate or transplant any living and viable portion of any plant species, which includes all of their cultivars and varieties, listed in Table 3800.1 of the New Hampshire prohibited invasive species list. (Agr 3802.01)

How and When to Dispose of Invasives?

To prevent seed from spreading remove invasive plants before seeds are set (produced). Some plants continue to grow, flower and set seed even after pulling or cutting. Seeds can remain viable in the ground for many years. If the plant has flowers or seeds, place the flowers and seeds in a heavy plastic bag "head first" at the weeding site and transport to the disposal site. The following are general descriptions of disposal methods. See the chart for recommendations by species.

Burning: Large woody branches and trunks can be used as firewood or burned in piles. For outside burning, a written fire permit from the local forest fire warden is required unless the ground is covered in snow. Brush larger than 5 inches in diameter can't be burned. Invasive plants with easily airborne seeds like black swallow-wort with mature seed pods (indicated by their brown color) shouldn't be burned as the seeds may disperse by the hot air created by the fire.



Japanese knotweed
Polygonum cuspidatum
USDA-NRCS PLANTS Database / Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 1: 676.

Bagging (solarization): Use this technique with softer-tissue plants. Use heavy black or clear plastic bags (contractor grade), making sure that no parts of the plants poke through. Allow the bags to sit in the sun for several weeks and on dark pavement for the best effect.

Tarping and Drying: Pile material on a sheet of plastic and cover with a tarp, fastening the tarp to the ground and monitoring it for escapes. Let the material dry for several weeks, or until it is clearly nonviable.

Chipping: Use this method for woody plants that don't reproduce vegetatively.

Burying: This is risky, but can be done with watchful diligence. Lay thick plastic in a deep pit before placing the cut up plant material in the hole. Place the material away from the edge of the plastic before covering it with more heavy plastic. Eliminate as much air as possible and toss in soil to weight down the material in the pit. Note that the top of the buried material should be at least three feet underground. Japanese knotweed should be at least 5 feet underground!

Drowning: Fill a large barrel with water and place soft-tissue plants in the water. Check after a few weeks and look for rotted plant material (roots, stems, leaves, flowers). Well-rotted plant material may be composted. A word of caution- seeds may still be viable after using this method. Do this before seeds are set. This method isn't used often. Be prepared for an awful stink!

Composting: Invasive plants can take root in compost. Don't compost any invasives unless you know there is no viable (living) plant material left. Use one of the above techniques (bagging, tarping, drying, chipping, or drowning) to render the plants nonviable before composting. Closely examine the plant before composting and avoid composting seeds.

Be diligent looking for seedlings for *years* in areas where removal and disposal took place.

Suggested Disposal Methods for Non-Native Invasive Plants

This table provides information concerning the disposal of removed invasive plant material. If the infestation is treated with herbicide and left in place, these guidelines don't apply. Don't bring invasives to a local transfer station, unless there is a designated area for their disposal, or they have been rendered non-viable. This listing includes wetland and upland plants from the New Hampshire Prohibited Invasive Species List. The disposal of aquatic plants isn't addressed.

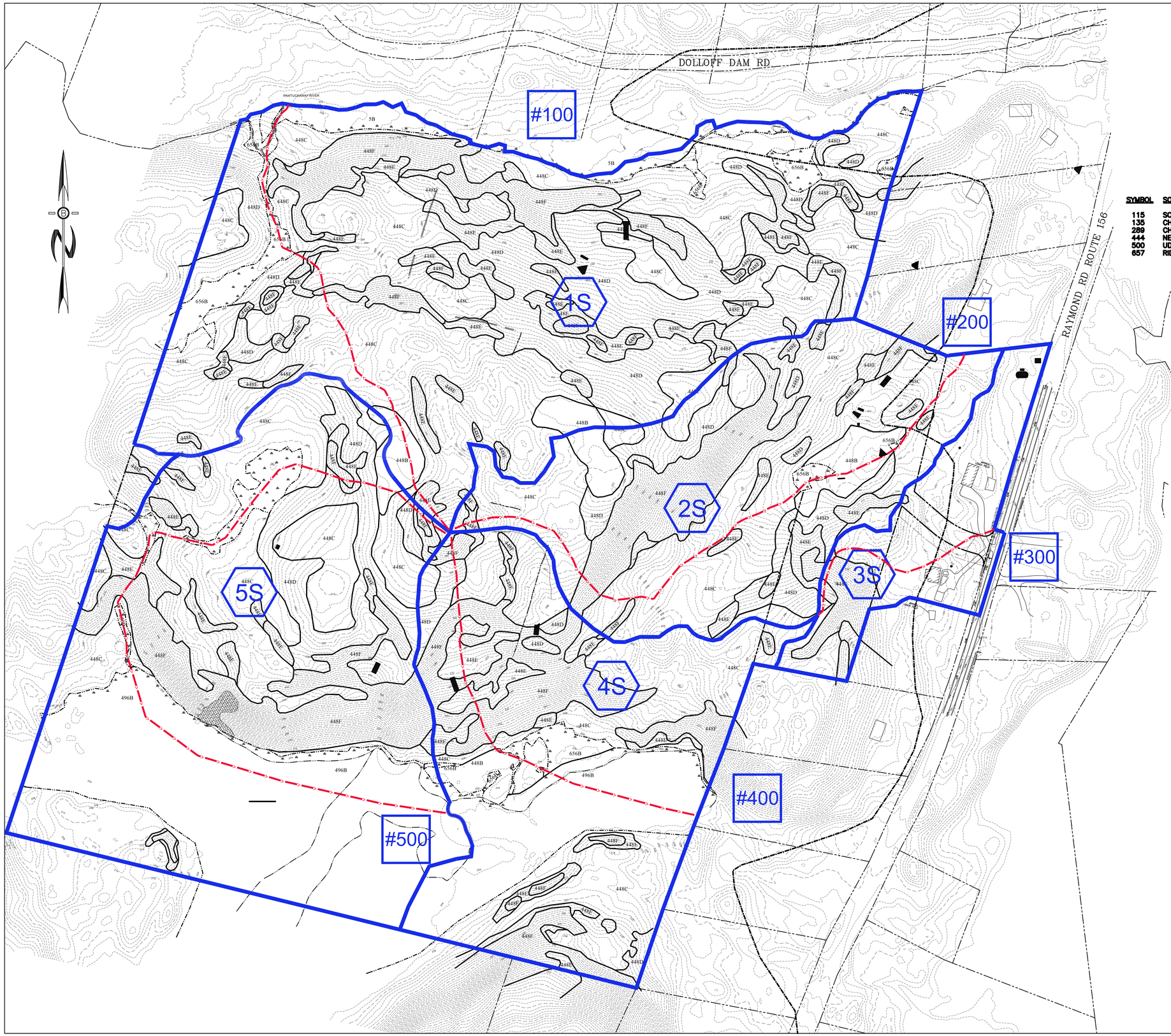
<table>
<tr><th>Woody Plants</th><th>Method of Reproducing</th><th>Methods of Disposal</th></tr>
<tr><td rowspan="2">Norway maple
(Acer platanoides)
European barberry
(Berberis vulgaris)
Japanese barberry
(Berberis thunbergii)
autumn olive
(Elaeagnus umbellata)
burning bush
(Euonymus alatus)
Morrow's honeysuckle
(Lonicera morrowii)
Tatarian honeysuckle
(Lonicera tatarica)
showy bush honeysuckle
(Lonicera x bella)
common buckthorn
(Rhamnus cathartica)
glossy buckthorn
(Frangula alnus)</td><td rowspan="2">Fruit and Seeds
  </td><td>Prior to fruit/seed ripening
Seedlings and small plants
▪ Pull or cut and leave on site with roots exposed. No special care needed.
Larger plants
▪ Use as firewood.
▪ Make a brush pile.
▪ Chip.
▪ Burn.</td></tr>
<tr><td>After fruit/seed is ripe
Don't remove from site.
▪ Burn.
▪ Make a covered brush pile.
▪ Chip once all fruit has dropped from branches.
▪ Leave resulting chips on site and monitor.</td></tr>
<tr><td rowspan="2">oriental bittersweet
(Celastrus orbiculatus)
multiflora rose
(Rosa multiflora)</td><td rowspan="2">Fruits, Seeds, Plant Fragments
  </td><td>Prior to fruit/seed ripening
Seedlings and small plants
▪ Pull or cut and leave on site with roots exposed. No special care needed.
Larger plants
▪ Make a brush pile.
▪ Burn.</td></tr>
<tr><td>After fruit/seed is ripe
Don't remove from site.
▪ Burn.
▪ Make a covered brush pile.
▪ Chip – only after material has fully dried (1 year) and all fruit has dropped from branches. Leave resulting chips on site and monitor.</td></tr>
</table>

Non-Woody Plants	Method of Reproducing	Methods of Disposal
garlic mustard *(Alliaria petiolata)* spotted knapweed *(Centaurea maculosa)* ▪ Sap of related knapweed can cause skin irritation and tumors. Wear gloves when handling. black swallow-wort *(Cynanchum nigrum)* ▪ May cause skin rash. Wear gloves and long sleeves when handling. pale swallow-wort *(Cynanchum rossicum)* giant hogweed *(Heracleum mantegazzianum)* ▪ Can cause major skin rash. Wear gloves and long sleeves when handling. dame's rocket *(Hesperis matronalis)* perennial pepperweed *(Lepidium latifolium)* purple loosestrife *(Lythrum salicaria)* Japanese stilt grass *(Microstegium vimineum)* mile-a-minute weed *(Polygonum perfoliatum)*	**Fruits and Seeds** 	**Prior to flowering** Depends on scale of infestation Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile. (You can pile onto or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material. **During and following flowering** Do nothing until the following year or remove flowering heads and bag and let rot. Small infestation ▪ Pull or cut plant and leave on site with roots exposed. Large infestation ▪ Pull or cut plant and pile remaining material. (You can pile onto plastic or cover with plastic sheeting). ▪ Monitor. Remove any re-sprouting material.
common reed (*Phragmites australis*) Japanese knotweed *(Polygonum cuspidatum)* Bohemian knotweed *(Polygonum x bohemicum)*	**Fruits, Seeds, Plant Fragments** Primary means of spread in these species is by plant parts. Although all care should be given to preventing the dispersal of seed during control activities, the presence of seed doesn't materially influence disposal activities.	**Small infestation** ▪ Bag all plant material and let rot. ▪ Never pile and use resulting material as compost. ▪ Burn. **Large infestation** ▪ Remove material to unsuitable habitat (dry, hot and sunny or dry and shaded location) and scatter or pile. ▪ Monitor and remove any sprouting material. ▪ Pile, let dry, and burn.

January 2010

Appendix IV

Plans



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SITE SPECIFIC SOIL MAP LEGEND

SYMBOL	SOIL TAXONOMIC NAME	HSG CLASS	DRAINAGE CLASS
115	SCARBORO	D	VERY POORLY DRAINED
135	CHATFIELD VARIANT – NEWFIELDS COMPLEX	B	MODERATELY WELL DRAINED
289	CHATFIELD VARIANT	B	SOMEWHAT POORLY DRAINED
444	NEWFIELDS	B	MODERATELY WELL DRAINED
500	UDORTHENTS – LOAMY	B	UNKNOWN
657	RIDGEBURY – VERY STONY	C	POORLY DRAINED

SLOPE DESIGNATION	PERCENT SLOPE
B	0 – 8%
C	9 – 15%
D	16 – 25%
E	> 25%

Certification Statement:

This map product is within the technical standards of the National Cooperative Soil Survey. It is a special purpose product, intended for infiltration requirements by the NH DES Alteration of Terrain Bureau. It was produced by a professional soil scientist, and is not a product of the USDA Natural Resources Conservation Service. There is a report that accompanies this map.

The site specific soil survey (SSSS) was produced October 17, 2023, and was prepared by Luke Hurley, CSS # 095.

Soils were identified with the New Hampshire State–wide Numerical Soils Legend, USDA NRCS, Durham, NH, Issue # 10, January 2011. The numeric legend was amended to identify the correct soil components of the complex.
Hydrologic Soil Group from Ksat Values for New Hampshire Soils, Society of Soil Scientists of New England, Special Publication No. 5, September, 2009.

WATERSHED KEY

- 4 SUBCATCHMENT
- 4 REACH
- 4 POND
- LIMIT OF SUBCATCHMENT
- FLOW PATH

THIS DRAWING IS FOR DRAINAGE PURPOSED ONLY

0 120 240 360
SCALE: 1"=120'

REVISIONS:	DATE:

EXISTING WATERSHED PLAN

FOR:
RESIDENTIAL DEVELOPMENT
RAYMOND RD – ROUTE 156
NOTTINGHAM, NH

DATE:	DECEMBER 2023	SCALE:	1"=120'
PROJ. N0:	NH-1490	SHEET NO.	W-1

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DOLLOFF DAM RD

RAYMOND RD ROUTE 156

PANTUCKAWAY RIVER

#100 #200 #300 #400 #500

1.0S 2.0S 3.0S 4.0S 5.0S

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0 120 240 360
SCALE: 1"=120'

REVISIONS:	DATE:

PROPOSED WATERSHED PLAN

FOR:
RESIDENTIAL DEVELOPMENT
RAYMOND RD – ROUTE 156
NOTTINGHAM, NH

DATE:	DECEMBER 2023	SCALE:	1"=120'
PROJ. N0:	NH-1490	SHEET NO.	W-2