



- Land Use Planning
- Civil Engineering
- Construction Permitting

December 1, 2021

Douglas Golemme, Chair
Rockland Conservation Commission
242 Union Street
Rockland, MA 02301

RE: **Concord Meadows – Proposed Planned Unit Development 365 Concord Street**
Notice of Intent - MassDEP File No. 273-0416

Dear Mr. Golemme:

The purpose of this letter is to accompany a revised set of plans that reflect a new potential Vernal Pool delineation as flagged in the field by South River Environmental and confirmed by BETA which created new areas of potential Conservation Commission jurisdiction. We used the most conservative Vernal Pool delineation to guide our latest design. Additionally, topographic information was added to the plan to define the limit of the Floodplain and research was performed on the existing 12" CPP pipe that crosses the driveway.

South River Environmental flagged a potential Series B Vernal Pool within the middle and north areas of the C Series BVW, as shown flagged VP B1 thru VP B32. The Vernal Pool Resource Area (VPRA) was extended 100' from the limit of this potential Vernal Pool to the limit of existing developed areas. A 25' no disturbance buffer and a 100' Buffer were also added from the limit of the potential VPRA. The revised potential VPRA buffer zones guided the new subdivision design which was revised to eliminate disturbance within undeveloped portions of the 25' no disturbance buffer with the exception of the work at the entrance to the subdivision. The new design eliminated one of the infiltration basins, it reduced the building footprint of the proposed homes in lots 1, 16 and 17, reduced the length of the road by approximately 30' and it incorporated shared and shorter driveways. The revisions resulted in the reduction of pavement by approximately 1,000 SF from our last design iteration.

A negative RDA was issued for the residential development of 365 Concord Street on 4/20/1998. One of the requirements of the RDA was to extend the existing 12" drainage pipe to cross the driveway and provide a 2' wide by 30' long area of riprap at the end of the extended pipe. The area downstream of this pipe extension is presently comprised of wetlands. The existing driveway will be replaced with a new higher roadway. The new gas, water, electrical, telephone and cable mains will cross over the existing 12" CPP drainage pipe while the 8" sewer main will cross under it. The section of sewer pipe proposed under the 12" CPP is required to be installed with caution. A note has been added to the profile plan. The existing 12" CPP pipe will be inspected prior to the installation of the sewer main and will be replaced if needed after the sewer main installation.

The proposed project complies with Massachusetts DEP Stormwater Standards as follows:

Standard 1: No New Stormwater Conveyances of Untreated Stormwater or Erosion Offsite

All proposed road and sidewalk runoff will receive 44% TSS removal for pretreatment and 80% total TSS removal. All new roof runoff will be disconnected from the street runoff and will receive 80% TSS removal. Driveways serving the existing dwelling and detached garage that are presently untreated will be reduced from 23,861 SF to 5,683 SF. Therefore, this Standard is met.

Standard 2: Peak Rate Attenuation

All proposed runoff rates and volumes will be reduced from existing conditions during all design storm events as noted below. The proposed improvements are expected to improve offsite drainage conditions.

Runoff to Stream – Design Control Point (DCP 1) – To Stream

<u>Storm</u>	<u>Existing (Reach 1E)</u>		<u>Post-development (Reach 1P)</u>	
	<u>Peak Rate</u>	<u>Volume</u>	<u>Peak Rate</u>	<u>Volume</u>
2–Year-24Hour (3.2’')	4.12 cfs	0.622 af	3.63 cfs	0.537 af
10–Year-24Hour (4.6’')	7.72 cfs	1.145 af	7.45 cfs	0.999 af
25–Year-24Hour (5.5’')	10.18 cfs	1.506 af	9.98 cfs	1.328 af
100–Year-24Hour (6.8’')	14.37 cfs	2.133 af	14.01 cfs	1.889 af

Runoff to East Wetland – Design Control Point (DCP 2) – To East Wetland

<u>Storm</u>	<u>Existing (Reach 2E)</u>		<u>Post-development (Reach 2P)</u>	
	<u>Peak Rate</u>	<u>Volume</u>	<u>Peak Rate</u>	<u>Volume</u>
2–Year-24Hour (3.2’)	2.27 cfs	0.327 af	2.15 cfs	0.327 af
10–Year-24Hour (4.6’)	4.50 cfs	0.628 af	4.18 cfs	0.613 af
25–Year-24Hour (5.5’)	6.04 cfs	0.839 af	5.73 cfs	0.822 af
100–Year-24Hour (6.8’)	8.70 cfs	1.210 af	8.35 cfs	1.184 af

Runoff to Concord Street – Design Control Point (DCP 3) – To Street

<u>Storm</u>	<u>Existing (Reach 3E)</u>		<u>Post-development (Reach 3P)</u>	
	<u>Peak Rate</u>	<u>Volume</u>	<u>Peak Rate</u>	<u>Volume</u>
2–Year-24Hour (3.2’)	0.06 cfs	0.004 af	0.04 cfs	0.003 af
10–Year-24Hour (4.6’)	0.10 cfs	0.007 af	0.06 cfs	0.004 af
25–Year-24Hour (5.5’)	0.13 cfs	0.009 af	0.07 cfs	0.005 af
100–Year-24Hour (6.8’)	0.17 cfs	0.012 af	0.09 cfs	0.007 af

Runoff to North Wetland – Design Control Point (DCP 4) – To North Wetland

<u>Storm</u>	<u>Existing (Reach 2E)</u>		<u>Post-development (Reach 2P)</u>	
	<u>Peak Rate</u>	<u>Volume</u>	<u>Peak Rate</u>	<u>Volume</u>
2–Year-24Hour (3.2’')	0.64 cfs	0.098 af	0.53 cfs	0.073 af
10–Year-24Hour (4.6’')	1.24 cfs	0.186 af	1.06 cfs	0.140 af
25–Year-24Hour (5.5’')	1.66 cfs	0.247 af	1.42 cfs	0.187 af
100–Year-24Hour (6.8’')	2.37 cfs	0.355 af	2.05 cfs	0.270 af

Standard 3: Recharge

Recharge will be increased by minimizing the impervious areas discharging directly over ground. The minimum required recharge volume is calculated as follows:

Existing Impervious Area = 33,166 SF

Proposed Impervious Area = 97,256 SF

Total Increase in Impervious Area = 64,090 SF

$(0.25''/12 \times 64,090 \text{ SF}) = 1,335 \text{ CF}$

The storage capacity of each infiltration BMP is listed below:

Drywells for Houses 1-19:

Volume below outlet elevation = $71 \text{ CF} \times 19 = \underline{1,349 \text{ CF}}$

Pond No.1:

Volume below outlet elevation = $\underline{1,035 \text{ CF}}$

Pond No.2:

Volume below outlet elevation = $\underline{3,215 \text{ CF}}$

Total recharge volume provided:

$1,349 \text{ CF} + 1,035 \text{ CF} + 3,215 \text{ CF} = 5,599 \text{ CF} \ggg 1,335 \text{ CF}$; therefore, this requirement is met.

In order to confirm that the infiltration systems will drain in 72 hours, the volume under the lowest outlet pipe must be divided by the bottom area of the infiltration system and the infiltration rate as follows:

Pond 1:

$$\frac{\left[\frac{(1035 \text{ ft}^3)}{1260 \text{ ft}^2} \right]}{\left(8.27 \frac{\text{in}}{\text{hr}} \right) \left(\frac{1 \text{ ft}}{12 \text{ in}} \right)} = 1.19 \text{ hours}$$

1.19 hours << 72 hours; therefore, this requirement is met for this infiltration system.

Pond 2:

$$\frac{\left[\frac{(3,215 \text{ ft}^3)}{2050 \text{ ft}^2} \right]}{\left(8.27 \frac{\text{in}}{\text{hr}} \right) \left(\frac{1 \text{ ft}}{12 \text{ in}} \right)} = 2.28 \text{ hours}$$

2.28 hours << 72 hours; therefore, this requirement is met for this infiltration system.

Standard 4: Water Quality

Water quality requirements are met for work in critical areas; namely, rapid infiltration soils under the proposed infiltration systems and discharging near a potential vernal pool for Pond 1 per BETA's request. Pretreatment consists of deep sump catch basins and forebays prior to exfiltration at each infiltration basin. The proposed pretreatment will remove 44% of TSS while the infiltration basin will provide a total 80% TSS removal with pretreatment. Roof runoff does not require pretreatment. Drywells are proposed to provide 80% TSS removal for each new dwelling.

The WQV required and provided at each infiltration basin is as follows:

Pond 1:

Impervious area directed to Pond 1=10,533 SF

$$(1\frac{1}{12}\text{''per ft})(10,533) = 878 \text{ SF}$$

Pond 1 has a capacity of 1,035 CF below the lowest outlet elevation. Therefore, this requirement is met.

Pond 2:

Impervious area directed to Pond 2=38,056 SF

$$(1\frac{1}{12}\text{''per ft})(38,056 \text{ ft}^2) = 3,171 \text{ ft}^3$$

Pond 2 has a capacity of 3,215 CF below the lowest outlet elevation. Therefore, this requirement is met.

Drywells for Houses 1-19:

C soils are expected for the site aside from the infiltration system locations. Thus, the required WQV for the proposed dwellings is as follows:

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Proposed roof areas directed to drywells=(16 houses x 1,550 SF/house) + (3 houses x 1,200 SF/house)=28,400 SF

Required WQV=(0.5"/12"per ft)(28,400 SF) = 1,183 CF

Volume capacity provided below outlet elevation=71 CFx19=1,349 CF

1,349 CF > 1,183 CF. Therefore, this standard is met.

Standard 5: Land Uses with Higher Pollutant Loads (LUHPPLs)

The proposed use of the site, single family home, does not constitute a higher potential pollutant load, therefore this standard does not apply.

Standard 6: Critical Areas

The locus does not fall within any critical areas.

Standard 7: Redevelopment

This project is a combination of redevelopment and new development.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

The Operation and Maintenance Plan included with this submittal will ensure proper maintenance of the proposed pollution, erosion and sedimentation measures proposed during construction.

Standard 9: Long Term Operation and Maintenance Plan

The Long Term Operation and Maintenance Plan is included within the Operation and Maintenance Plan enclosed in this submittal to ensure the proposed drainage improvements are maintained as intended.

Standard 10: Prohibition of Illicit Discharges

Routine visual inspections are scheduled as part of the Operations and Maintenance Plan to prevent illicit discharges into the stormwater system. Furthermore, an Illicit Compliance Statement is included in this submittal.

Low Impact Measures Used:

The design of the proposed development has incorporated the following low impact development measures:

- Utilizes the natural hydrology to manage Stormwater.
- Treats Stormwater through a combination of stormwater controls.
- Uses natural topography for drainage ways and storage areas.

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We appreciate BETA's thoughtful comments and look forward to presenting these revised materials to you and the Commission at our hearing scheduled on 12/14/21. If any questions arise, please do not hesitate to contact us.

Sincerely,

Cavanaro Consulting, Inc.

A handwritten signature in black ink, appearing to read "John Cavanaro". The signature is fluid and cursive, with the first name "John" and last name "Cavanaro" clearly distinguishable.

John C. Cavanaro, P.E.
Managing Principal

Enclosures

cc: M. Dacey
W. Sullivan
File 19.103

This spreadsheet will calculate the height of a groundwater mound beneath a stormwater infiltration basin. More information can be found in the U.S. Geological Survey Scientific Investigations Report 2010-5102 "Simulation of groundwater mounding beneath hypothetical stormwater infiltration basins".

The user must specify infiltration rate (R), specific yield (Sy), horizontal hydraulic conductivity (Kh), basin dimensions (x, y), duration of infiltration period (t), and the initial thickness of the saturated zone (hi(0), height of the water table if the bottom of the aquifer is the datum). For a square basin the half width equals the half length (x = y). For a rectangular basin, if the user wants the water-table changes perpendicular to the long side, specify x as the short dimension and y as the long dimension. Conversely, if the user wants the values perpendicular to the short side, specify y as the short dimension, x as the long dimension. All distances are from the center of the basin. Users can change the distances from the center of the basin at which water-table aquifer thickness are calculated.

Cells highlighted in yellow are values that can be changed by the user. Cells highlighted in red are output values based on user-specified inputs. **The user MUST click the blue "Re-Calculate Now" button each time ANY of the user-specified inputs are changed** otherwise necessary iterations to converge on the correct solution will not be done and values shown will be incorrect. Use consistent units for all input values (for example, feet and days)

Input Values		use consistent units (e.g. feet & days or inches & hours)	Conversion Table	
			inch/hour	feet/day
16.4000	R	Recharge (infiltration) rate (feet/day)	0.67	1.33
0.260	Sy	Specific yield, Sy (dimensionless, between 0 and 1)		
45.00	K	Horizontal hydraulic conductivity, Kh (feet/day)*	2.00	4.00
35.000	x	1/2 length of basin (x direction, in feet)		
8.000	y	1/2 width of basin (y direction, in feet)	hours	days
0.050	t	duration of infiltration period (days)	36	1.50
28.000	hi(0)	initial thickness of saturated zone (feet)		
29.053	h(max)	maximum thickness of saturated zone (beneath center of basin at end of infiltration period)		
1.053	Δh(max)	maximum groundwater mounding (beneath center of basin at end of infiltration period)		

In the report accompanying this spreadsheet (USGS SIR 2010-5102), vertical soil permeability (ft/d) is assumed to be one-tenth horizontal hydraulic conductivity (ft/d).

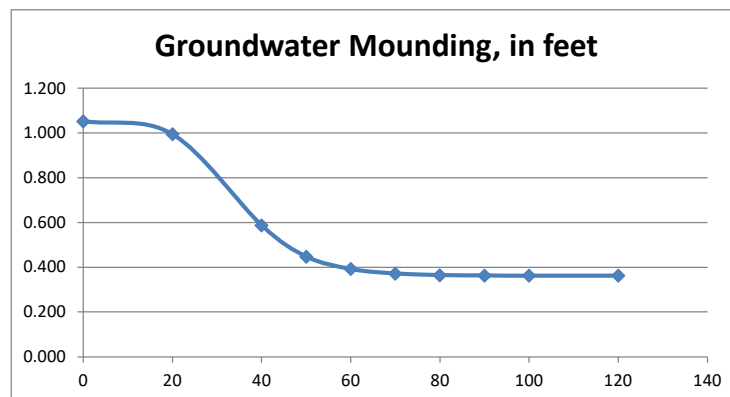
Ground-water Mounding, in feet

Distance from center of basin in x direction, in feet

1.053	0
0.995	20
0.587	40
0.448	50
0.393	60
0.372	70
0.365	80
0.363	90
0.363	100
0.363	120



Re-Calculate Now



Disclaimer

This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

INSTRUCTIONS:

1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Version 1, Automated: Mar. 4, 2008

Location: **CONCORD MEADOWS**

TSS Removal Calculation Worksheet	B	C	D	E	F
	BMP ¹	TSS Removal Rate ¹	Starting TSS Load*	Amount Removed (C*D)	Remaining Load (D-E)
	Deep Sump and Hooded Catch Basin	0.25	1.00	0.25	0.75
	Sediment Forebay	0.25	0.75	0.19	0.56
		0.00	0.56	0.00	0.56
		0.00	0.56	0.00	0.56
		0.00	0.56	0.00	0.56

Total TSS Removal =

44%

Separate Form Needs to
be Completed for Each
Outlet or BMP Train

Project: 19103
Prepared By: CCH
Date: 12/1/2021

*Equals remaining load from previous BMP (E)
which enters the BMP

INSTRUCTIONS:

1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
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3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Version 1, Automated: Mar. 4, 2008

Location: **CONCORD MEADOWS**

TSS Removal Calculation Worksheet	B BMP ¹	C TSS Removal Rate ¹	D Starting TSS Load*	E Amount Removed (C*D)	F Remaining Load (D-E)
	Infiltration Basin	0.80	1.00	0.80	0.20
		0.00	0.20	0.00	0.20
		0.00	0.20	0.00	0.20
		0.00	0.20	0.00	0.20
		0.00	0.20	0.00	0.20

Total TSS Removal =

80%

Separate Form Needs to
be Completed for Each
Outlet or BMP Train

Project: 19103
Prepared By: CCH
Date: 12/1/2021

*Equals remaining load from previous BMP (E)
which enters the BMP

Prepared by Cavanaro Consulting

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Type III 24-hr 2 Year Event Rainfall=3.20"

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Time span=0.00-35.00 hrs, dt=0.01 hrs, 3501 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 3S: Prop Lawn to Pond 2 Runoff Area=13,665 sf 0.00% Impervious Runoff Depth=1.04"
Tc=5.0 min CN=74 Runoff=0.38 cfs 0.027 af

Subcatchment 4S: Prop. to East Wetland Runoff Area=124,494 sf 20.92% Impervious Runoff Depth=1.21"
Flow Length=370' Tc=37.0 min CN=77 Runoff=2.02 cfs 0.289 af

Subcatchment 5S: Prop. to Pond 1 Runoff Area=17,230 sf 61.13% Impervious Runoff Depth=2.08"
Tc=5.0 min CN=89 Runoff=0.99 cfs 0.069 af

Subcatchment 6S: Prop. to CB # 6 Runoff Area=19,917 sf 54.20% Impervious Runoff Depth=1.91"
Tc=5.0 min CN=87 Runoff=1.06 cfs 0.073 af

Subcatchment 8S: Prop. to Street Runoff Area=592 sf 83.11% Impervious Runoff Depth=2.54"
Tc=5.0 min CN=94 Runoff=0.04 cfs 0.003 af

Subcatchment 9S: Prop. to North Wetland Runoff Area=33,123 sf 15.76% Impervious Runoff Depth=1.15"
Flow Length=480' Slope=0.0100 1' Tc=33.1 min CN=76 Runoff=0.53 cfs 0.073 af

Subcatchment 10S: Prop. to Steam Runoff Area=146,224 sf 41.94% Impervious Runoff Depth=1.68"
Flow Length=1,030' Slope=0.0100 '/ Tc=38.3 min CN=84 Runoff=3.33 cfs 0.471 af

Subcatchment 11S: Prop. to CB # 5 Runoff Area=22,568 sf 48.10% Impervious Runoff Depth=1.84"
Tc=5.0 min CN=86 Runoff=1.16 cfs 0.079 af

Subcatchment 12S: Prop to CB#4 Runoff Area=16,270 sf 58.78% Impervious Runoff Depth=2.00"
Tc=5.0 min CN=88 Runoff=0.90 cfs 0.062 af

Subcatchment 13S: Prop to CB #3 Runoff Area=13,262 sf 51.58% Impervious Runoff Depth=1.84"
Tc=5.0 min CN=86 Runoff=0.68 cfs 0.047 af

Subcatchment E1: Exist. to Stream Runoff Area=243,161 sf 28.05% Impervious Runoff Depth=1.34"
Flow Length=460' Slope=0.0100 '/ Tc=42.0 min CN=79 Runoff=4.12 cfs 0.622 af

Subcatchment E2: Exist. To East Runoff Area=148,590 sf 21.32% Impervious Runoff Depth=1.15"
Flow Length=370' Tc=37.0 min CN=76 Runoff=2.27 cfs 0.327 af

Subcatchment E3: Exist. To Street Runoff Area=1,271 sf 37.21% Impervious Runoff Depth=1.61"
Tc=5.0 min CN=83 Runoff=0.06 cfs 0.004 af

Subcatchment E4: Exist. to Wetlands North Runoff Area=42,453 sf 19.69% Impervious Runoff Depth=1.21"
Flow Length=480' Slope=0.0100 1' Tc=42.6 min CN=77 Runoff=0.64 cfs 0.098 af

Reach 1E: Exist. to Stream (DCP1) Inflow=4.12 cfs 0.622 af
Outflow=4.12 cfs 0.622 af

Reach 1P: Prop. to Stream (DCP1) Inflow=3.63 cfs 0.537 af
Outflow=3.63 cfs 0.537 af

Reach 2E: Exist East Wetland (DCP2)	Inflow=2.27 cfs 0.327 af Outflow=2.27 cfs 0.327 af
Reach 2P: Prop. to East Wetland (DCP2)	Inflow=2.15 cfs 0.327 af Outflow=2.15 cfs 0.327 af
Reach 3E: Exist To Street (DCP3)	Inflow=0.06 cfs 0.004 af Outflow=0.06 cfs 0.004 af
Reach 3P: Prop. To Street (DCP3)	Inflow=0.04 cfs 0.003 af Outflow=0.04 cfs 0.003 af
Reach 4E: Exist North Wetland (DCP4)	Inflow=0.64 cfs 0.098 af Outflow=0.64 cfs 0.098 af
Reach 4P: Prop. to North Wetland (DCP4)	Inflow=0.53 cfs 0.073 af Outflow=0.53 cfs 0.073 af
Pond 9P: CB 4	Peak Elev=87.45' Inflow=0.90 cfs 0.062 af 12.0" Round Culvert n=0.011 L=22.0' S=0.0136 '/' Outflow=0.90 cfs 0.062 af
Pond 10P: MH	Peak Elev=87.33' Inflow=3.80 cfs 0.261 af 18.0" Round Culvert n=0.011 L=140.0' S=0.0100 '/' Outflow=3.80 cfs 0.261 af
Pond 12P: MH	Peak Elev=89.39' Inflow=2.22 cfs 0.152 af 15.0" Round Culvert n=0.011 L=300.0' S=0.0075 '/' Outflow=2.22 cfs 0.152 af
Pond 13P: CB6	Peak Elev=89.81' Inflow=1.06 cfs 0.073 af 12.0" Round Culvert n=0.011 L=62.0' S=0.0089 '/' Outflow=1.06 cfs 0.073 af
Pond MH1: MH	Peak Elev=87.47' Inflow=0.99 cfs 0.069 af 15.0" Round Culvert n=0.011 L=55.0' S=0.0091 '/' Outflow=0.99 cfs 0.069 af
Pond MH2: CB 3	Peak Elev=87.41' Inflow=0.68 cfs 0.047 af 12.0" Round Culvert n=0.011 L=22.0' S=0.0136 '/' Outflow=0.68 cfs 0.047 af
Pond MH3: CB5	Peak Elev=89.84' Inflow=1.16 cfs 0.079 af 12.0" Round Culvert n=0.011 L=65.0' S=0.0085 '/' Outflow=1.16 cfs 0.079 af
Pond P1: POND 1	Peak Elev=86.95' Storage=586 cf Inflow=0.99 cfs 0.069 af Discarded=0.26 cfs 0.069 af Primary=0.00 cfs 0.000 af Outflow=0.26 cfs 0.069 af
Pond P2: POND 2	Peak Elev=86.32' Storage=3,617 cf Inflow=4.18 cfs 0.288 af Discarded=0.83 cfs 0.287 af Primary=0.06 cfs 0.001 af Outflow=0.89 cfs 0.288 af
Pond R1: Pond1 Outlet - 12" RCP	Peak Elev=86.50' Inflow=0.00 cfs 0.000 af 12.0" Round Culvert n=0.011 L=25.0' S=0.0120 '/' Outflow=0.00 cfs 0.000 af
Pond R4: Pond 2 Outlet - 12" RCP	Peak Elev=85.02' Inflow=0.06 cfs 0.001 af 12.0" Round Culvert n=0.011 L=35.0' S=0.0200 '/' Outflow=0.06 cfs 0.001 af

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Type III 24-hr 2 Year Event Rainfall=3.20"

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ar Event Outflow [Link](#) Imported from Concord ST one house with infiltration 1550~Reach 2R.hce x 6.00 Inflow=0.11 cfs 0.006 af
Area= 0.036 ac 100.00% Imperv. Primary=0.67 cfs 0.034 af

2 Year Event Outflow [Link](#) Imported from Concord ST one house with infiltration 1200~Reach 2R.hce Inflow=0.09 cfs 0.004 af
Area= 0.028 ac 100.00% Imperv. Primary=0.09 cfs 0.004 af

ar Event Outflow [Link](#) Imported from Concord ST one house with infiltration 1550~Reach 2R.hce x 10.00 Inflow=0.11 cfs 0.006 af
Area= 0.036 ac 100.00% Imperv. Primary=1.12 cfs 0.057 af

ar Event Outflow [Link](#) Imported from Concord ST one house with infiltration 1200~Reach 2R.hce x 2.00 Inflow=0.09 cfs 0.004 af
Area= 0.028 ac 100.00% Imperv. Primary=0.17 cfs 0.008 af

Total Runoff Area = 19.348 ac Runoff Volume = 2.243 af Average Runoff Depth = 1.39"
70.29% Pervious = 13.600 ac 29.71% Impervious = 5.748 ac

Summary for Subcatchment 3S: Prop Lawn to Pond 2

Runoff = 0.38 cfs @ 12.08 hrs, Volume= 0.027 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Event Rainfall=3.20"

Area (sf)	CN	Description
13,665	74	>75% Grass cover, Good, HSG C
13,665		100.00% Pervious Area

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

Summary for Subcatchment 4S: Prop. to East Wetland

Runoff = 2.02 cfs @ 12.54 hrs, Volume= 0.289 af, Depth= 1.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Event Rainfall=3.20"

Area (sf)	CN	Description
* 25,672	98	Water Surface Wetlands, HSG C
38,352	74	>75% Grass cover, Good, HSG C
58,938	70	Woods, Good, HSG C
* 1,155	74	Patio
* 377	98	ret wall
124,494	77	Weighted Average
98,445		79.08% Pervious Area
26,049		20.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow,
					Woods: Dense underbrush n= 0.800 P2= 3.20"
8.7	320	0.0150	0.61		Shallow Concentrated Flow, shallow
					Woodland Kv= 5.0 fps
37.0	370	Total			

Summary for Subcatchment 5S: Prop. to Pond 1

Runoff = 0.99 cfs @ 12.07 hrs, Volume= 0.069 af, Depth= 2.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Event Rainfall=3.20"

Concord ST - Rockland 11.20.21

Type III 24-hr 2 Year Event Rainfall=3.20"

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Area (sf)	CN	Description
10,533	98	Paved parking, HSG C
6,697	74	>75% Grass cover, Good, HSG C
17,230	89	Weighted Average
6,697		38.87% Pervious Area
10,533		61.13% Impervious Area

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

Summary for Subcatchment 6S: Prop. to CB # 6

Runoff = 1.06 cfs @ 12.07 hrs, Volume= 0.073 af, Depth= 1.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Event Rainfall=3.20"

Area (sf)	CN	Description
* 959	98	Paved parking, HSG C - Sidewalk
* 9,836	98	Paved parking, HSG C - rroad-drives
9,122	74	>75% Grass cover, Good, HSG C
19,917	87	Weighted Average
9,122		45.80% Pervious Area
10,795		54.20% Impervious Area

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

Summary for Subcatchment 8S: Prop. to Street

Runoff = 0.04 cfs @ 12.07 hrs, Volume= 0.003 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Event Rainfall=3.20"

Area (sf)	CN	Description
492	98	Paved parking, HSG C
100	74	>75% Grass cover, Good, HSG C
592	94	Weighted Average
100		16.89% Pervious Area
492		83.11% Impervious Area

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

Summary for Subcatchment 9S: Prop. to North Wetland

Runoff = 0.53 cfs @ 12.48 hrs, Volume= 0.073 af, Depth= 1.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Event Rainfall=3.20"

Area (sf)	CN	Description
* 906	98	Water Surface Wetlands, HSG C
2,744	98	Paved parking, HSG C
16,242	74	>75% Grass cover, Good, HSG C
1,286	98	Roofs, HSG C - infiltrated
* 283	98	walls othe rimp.
11,662	70	Woods, Good, HSG C
33,123	76	Weighted Average
27,904		84.24% Pervious Area
5,219		15.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow, Sheet
					Woods: Dense underbrush n= 0.800 P2= 3.20"
4.8	430	0.0100	1.50		Shallow Concentrated Flow, shallow
					Grassed Waterway Kv= 15.0 fps
33.1	480	Total			

Summary for Subcatchment 10S: Prop. to Steam

Runoff = 3.33 cfs @ 12.55 hrs, Volume= 0.471 af, Depth= 1.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Event Rainfall=3.20"

Area (sf)	CN	Description
* 48,878	98	Water Surface Wetlands, HSG C
63,472	74	>75% Grass cover, Good, HSG C
* 4,305	98	walls othe rimp.
1,100	87	Dirt roads, HSG C
18,844	70	Woods, Good, HSG C
* 2,457	98	Exisit., Roof
* 5,683	98	Exisit. Pavement
* 1,485	74	Prop. Patios
146,224	84	Weighted Average
84,901		58.06% Pervious Area
61,323		41.94% Impervious Area

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Type III 24-hr 2 Year Event Rainfall=3.20"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow, Woods: Dense underbrush n= 0.800 P2= 3.20"
1.7	50	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.7	30	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
3.7	110	0.0100	0.50		Shallow Concentrated Flow, shallow Woodland Kv= 5.0 fps
3.9	790	0.0100	3.35	20.11	Channel Flow, Stream Area= 6.0 sf Perim= 7.0' r= 0.86' n= 0.040 Earth, cobble bottom, clean sides
38.3	1,030	Total			

Summary for Subcatchment 11S: Prop. to CB # 5

Runoff = 1.16 cfs @ 12.07 hrs, Volume= 0.079 af, Depth= 1.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Event Rainfall=3.20"

Area (sf)	CN	Description
* 466	98	Paved parking, HSG C - Sidewalk
* 10,390	98	Paved parking, HSG C - rroad-drives
11,712	74	>75% Grass cover, Good, HSG C
22,568	86	Weighted Average
11,712		51.90% Pervious Area
10,856		48.10% Impervious Area

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

Summary for Subcatchment 12S: Prop to CB#4

Runoff = 0.90 cfs @ 12.07 hrs, Volume= 0.062 af, Depth= 2.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Event Rainfall=3.20"

Area (sf)	CN	Description
* 1,652	98	Paved parking, HSG C-Sidewalk
7,912	98	Paved parking, HSG C
6,706	74	>75% Grass cover, Good, HSG C
16,270	88	Weighted Average
6,706		41.22% Pervious Area
9,564		58.78% Impervious Area

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Type III 24-hr 2 Year Event Rainfall=3.20"

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

Summary for Subcatchment 13S: Prop to CB #3

Runoff = 0.68 cfs @ 12.07 hrs, Volume= 0.047 af, Depth= 1.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Event Rainfall=3.20"

Area (sf)	CN	Description
6,841	98	Paved parking, HSG C
6,421	74	>75% Grass cover, Good, HSG C
13,262	86	Weighted Average
6,421		48.42% Pervious Area
6,841		51.58% Impervious Area

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

Summary for Subcatchment E1: Exist. to Stream

Runoff = 4.12 cfs @ 12.60 hrs, Volume= 0.622 af, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Event Rainfall=3.20"

Area (sf)	CN	Description
* 48,977	98	Water Surface Wetlands, HSG C
11,952	98	Paved parking, HSG C
34,335	74	>75% Grass cover, Good, HSG C
2,457	98	Roofs, HSG C
* 4,820	98	walls othe rimp.
8,801	87	Dirt roads, HSG C
131,819	70	Woods, Good, HSG C
243,161	79	Weighted Average
174,955		71.95% Pervious Area
68,206		28.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow, Sheet
					Woods: Dense underbrush n= 0.800 P2= 3.20"
13.7	410	0.0100	0.50		Shallow Concentrated Flow, shallow - woods
					Woodland Kv= 5.0 fps
42.0	460	Total			

Summary for Subcatchment E2: Exist. To East Wetlands

Runoff = 2.27 cfs @ 12.54 hrs, Volume= 0.327 af, Depth= 1.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Event Rainfall=3.20"

	Area (sf)	CN	Description
*	25,672	98	Water Surface Wetlands, HSG C
	5,792	98	Paved parking, HSG C
	9,907	74	>75% Grass cover, Good, HSG C
*	217	98	walls othe rimp.
	107,002	70	Woods, Good, HSG C
	148,590	76	Weighted Average
	116,909		78.68% Pervious Area
	31,681		21.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow, Sheet
					Woods: Dense underbrush n= 0.800 P2= 3.20"
8.7	320	0.0150	0.61		Shallow Concentrated Flow, shallow - woods
					Woodland Kv= 5.0 fps
37.0	370	Total			

Summary for Subcatchment E3: Exist. To Street

Runoff = 0.06 cfs @ 12.08 hrs, Volume= 0.004 af, Depth= 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Event Rainfall=3.20"

	Area (sf)	CN	Description
	473	98	Paved parking, HSG C
	798	74	>75% Grass cover, Good, HSG C
	1,271	83	Weighted Average
	798		62.79% Pervious Area
	473		37.21% Impervious Area

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

Summary for Subcatchment E4: Exist. to Wetlands North

Runoff = 0.64 cfs @ 12.63 hrs, Volume= 0.098 af, Depth= 1.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Event Rainfall=3.20"

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Area (sf)	CN	Description
* 907	98	Water Surface Wetlands, HSG C
5,644	98	Paved parking, HSG C
12,783	74	>75% Grass cover, Good, HSG C
* 520	98	walls othe rimp.
21,313	70	Woods, Good, HSG C
1,286	98	Roofs, HSG C
42,453	77	Weighted Average
34,096		80.31% Pervious Area
8,357		19.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow, Sheet
					Woods: Dense underbrush n= 0.800 P2= 3.20"
14.3	430	0.0100	0.50		Shallow Concentrated Flow, shallow - woods
					Woodland Kv= 5.0 fps
42.6	480	Total			

Summary for Reach 1E: Exist. to Stream (DCP1)

Inflow Area = 5.582 ac, 28.05% Impervious, Inflow Depth = 1.34" for 2 Year Event event
 Inflow = 4.12 cfs @ 12.60 hrs, Volume= 0.622 af
 Outflow = 4.12 cfs @ 12.60 hrs, Volume= 0.622 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 1P: Prop. to Stream (DCP1)

Inflow Area = 5.387 ac, 43.52% Impervious, Inflow Depth = 1.20" for 2 Year Event event
 Inflow = 3.63 cfs @ 12.51 hrs, Volume= 0.537 af
 Outflow = 3.63 cfs @ 12.51 hrs, Volume= 0.537 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 2E: Exist East Wetland (DCP2)

Inflow Area = 3.411 ac, 21.32% Impervious, Inflow Depth = 1.15" for 2 Year Event event
 Inflow = 2.27 cfs @ 12.54 hrs, Volume= 0.327 af
 Outflow = 2.27 cfs @ 12.54 hrs, Volume= 0.327 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 2P: Prop. to East Wetland (DCP2)

Inflow Area = 3.317 ac, 27.22% Impervious, Inflow Depth = 1.18" for 2 Year Event event
 Inflow = 2.15 cfs @ 12.51 hrs, Volume= 0.327 af
 Outflow = 2.15 cfs @ 12.51 hrs, Volume= 0.327 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 3E: Exist To Street (DCP3)

Inflow Area = 0.029 ac, 37.21% Impervious, Inflow Depth = 1.61" for 2 Year Event event
 Inflow = 0.06 cfs @ 12.08 hrs, Volume= 0.004 af
 Outflow = 0.06 cfs @ 12.08 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 3P: Prop. To Street (DCP3)

Inflow Area = 0.014 ac, 83.11% Impervious, Inflow Depth = 2.54" for 2 Year Event event
 Inflow = 0.04 cfs @ 12.07 hrs, Volume= 0.003 af
 Outflow = 0.04 cfs @ 12.07 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 4E: Exist North Wetland (DCP4)

Inflow Area = 0.975 ac, 19.69% Impervious, Inflow Depth = 1.21" for 2 Year Event event
 Inflow = 0.64 cfs @ 12.63 hrs, Volume= 0.098 af
 Outflow = 0.64 cfs @ 12.63 hrs, Volume= 0.098 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 4P: Prop. to North Wetland (DCP4)

Inflow Area = 0.760 ac, 15.76% Impervious, Inflow Depth = 1.15" for 2 Year Event event
 Inflow = 0.53 cfs @ 12.48 hrs, Volume= 0.073 af
 Outflow = 0.53 cfs @ 12.48 hrs, Volume= 0.073 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Pond 9P: CB 4

Inflow Area = 0.374 ac, 58.78% Impervious, Inflow Depth = 2.00" for 2 Year Event event
 Inflow = 0.90 cfs @ 12.07 hrs, Volume= 0.062 af
 Outflow = 0.90 cfs @ 12.07 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.90 cfs @ 12.07 hrs, Volume= 0.062 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 87.45' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	86.70'	12.0" Round Culvert L= 22.0' Ke= 0.500 Inlet / Outlet Invert= 86.70' / 86.40' S= 0.0136 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=0.88 cfs @ 12.07 hrs HW=87.45' TW=87.33' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 0.88 cfs @ 1.94 fps)

Summary for Pond 10P: MH

Inflow Area = 1.653 ac, 52.84% Impervious, Inflow Depth = 1.89" for 2 Year Event event
 Inflow = 3.80 cfs @ 12.07 hrs, Volume= 0.261 af
 Outflow = 3.80 cfs @ 12.07 hrs, Volume= 0.261 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.80 cfs @ 12.07 hrs, Volume= 0.261 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 87.33' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	86.40'	18.0" Round Culvert L= 140.0' Ke= 0.500 Inlet / Outlet Invert= 86.40' / 85.00' S= 0.0100 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.77 sf

Primary OutFlow Max=3.79 cfs @ 12.07 hrs HW=87.33' TW=85.73' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 3.79 cfs @ 3.29 fps)

Summary for Pond 12P: MH

Inflow Area = 0.975 ac, 50.96% Impervious, Inflow Depth = 1.87" for 2 Year Event event
 Inflow = 2.22 cfs @ 12.07 hrs, Volume= 0.152 af
 Outflow = 2.22 cfs @ 12.07 hrs, Volume= 0.152 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.22 cfs @ 12.07 hrs, Volume= 0.152 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 89.39' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	88.65'	15.0" Round Culvert L= 300.0' Ke= 0.500 Inlet / Outlet Invert= 88.65' / 86.40' S= 0.0075 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

Primary OutFlow Max=2.21 cfs @ 12.07 hrs HW=89.39' TW=87.33' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 2.21 cfs @ 2.93 fps)

Summary for Pond 13P: CB6

Inflow Area = 0.457 ac, 54.20% Impervious, Inflow Depth = 1.91" for 2 Year Event event
 Inflow = 1.06 cfs @ 12.07 hrs, Volume= 0.073 af
 Outflow = 1.06 cfs @ 12.07 hrs, Volume= 0.073 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.06 cfs @ 12.07 hrs, Volume= 0.073 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 89.81' @ 12.08 hrs

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Device	Routing	Invert	Outlet Devices
#1	Primary	89.20'	12.0" Round Culvert L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 89.20' / 88.65' S= 0.0089 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=1.06 cfs @ 12.07 hrs HW=89.81' TW=89.39' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 1.06 cfs @ 3.01 fps)**Summary for Pond MH1: MH**

Inflow Area = 0.396 ac, 61.13% Impervious, Inflow Depth = 2.08" for 2 Year Event event
 Inflow = 0.99 cfs @ 12.07 hrs, Volume= 0.069 af
 Outflow = 0.99 cfs @ 12.07 hrs, Volume= 0.069 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.99 cfs @ 12.07 hrs, Volume= 0.069 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 87.47' @ 12.07 hrs

Flood Elev= 89.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	87.00'	15.0" Round Culvert L= 55.0' Ke= 0.500 Inlet / Outlet Invert= 87.00' / 86.50' S= 0.0091 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

Primary OutFlow Max=0.99 cfs @ 12.07 hrs HW=87.47' TW=86.70' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 0.99 cfs @ 2.34 fps)**Summary for Pond MH2: CB 3**

Inflow Area = 0.304 ac, 51.58% Impervious, Inflow Depth = 1.84" for 2 Year Event event
 Inflow = 0.68 cfs @ 12.07 hrs, Volume= 0.047 af
 Outflow = 0.68 cfs @ 12.07 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.68 cfs @ 12.07 hrs, Volume= 0.047 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 87.41' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	86.70'	12.0" Round Culvert L= 22.0' Ke= 0.500 Inlet / Outlet Invert= 86.70' / 86.40' S= 0.0136 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=0.66 cfs @ 12.07 hrs HW=87.41' TW=87.33' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 0.66 cfs @ 1.56 fps)

Summary for Pond MH3: CB5

Inflow Area = 0.518 ac, 48.10% Impervious, Inflow Depth = 1.84" for 2 Year Event event
 Inflow = 1.16 cfs @ 12.07 hrs, Volume= 0.079 af
 Outflow = 1.16 cfs @ 12.07 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.16 cfs @ 12.07 hrs, Volume= 0.079 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
 Peak Elev= 89.84' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	89.20'	12.0" Round Culvert L= 65.0' Ke= 0.500 Inlet / Outlet Invert= 89.20' / 88.65' S= 0.0085 ' S= 0.0085 ' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=1.15 cfs @ 12.07 hrs HW=89.84' TW=89.39' (Dynamic Tailwater)
 1=Culvert (Outlet Controls 1.15 cfs @ 3.09 fps)

Summary for Pond P1: POND 1

Inflow Area = 0.396 ac, 61.13% Impervious, Inflow Depth = 2.08" for 2 Year Event event
 Inflow = 0.99 cfs @ 12.07 hrs, Volume= 0.069 af
 Outflow = 0.26 cfs @ 12.44 hrs, Volume= 0.069 af, Atten= 74%, Lag= 21.8 min
 Discarded = 0.26 cfs @ 12.44 hrs, Volume= 0.069 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
 Peak Elev= 86.95' @ 12.44 hrs Surf.Area= 1,367 sf Storage= 586 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 11.3 min (821.5 - 810.2)

Volume	Invert	Avail.Storage	Storage Description
#1	86.50'	5,959 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
86.50	1,260	224.0	0	0	1,260
87.00	1,380	231.0	660	660	1,538
88.00	1,630	242.0	1,503	2,163	2,015
89.00	1,896	254.0	1,761	3,924	2,549
90.00	2,176	265.0	2,034	5,959	3,072

Device	Routing	Invert	Outlet Devices
#1	Primary	87.30'	6.0" Vert. Orifice/Grate C= 0.600
#2	Discarded	86.50'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.26 cfs @ 12.44 hrs HW=86.95' (Free Discharge)

↑**2=Exfiltration** (Exfiltration Controls 0.26 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=86.50' TW=86.50' (Dynamic Tailwater)

↑**1=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond P2: POND 2

Inflow Area = 1.967 ac, 44.42% Impervious, Inflow Depth = 1.76" for 2 Year Event event
 Inflow = 4.18 cfs @ 12.07 hrs, Volume= 0.288 af
 Outflow = 0.89 cfs @ 12.50 hrs, Volume= 0.288 af, Atten= 79%, Lag= 25.5 min
 Discarded = 0.83 cfs @ 12.50 hrs, Volume= 0.287 af
 Primary = 0.06 cfs @ 12.50 hrs, Volume= 0.001 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
 Peak Elev= 86.32' @ 12.50 hrs Surf.Area= 3,474 sf Storage= 3,617 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 32.6 min (855.4 - 822.8)

Volume	Invert	Avail.Storage	Storage Description
#1	85.00'	11,154 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
85.00	2,050	344.0	0	0	2,050
86.00	3,124	374.0	2,568	2,568	3,801
87.00	4,287	402.0	3,690	6,258	5,573
88.00	5,530	425.0	4,895	11,154	7,142

Device	Routing	Invert	Outlet Devices
#1	Primary	86.20'	12.0" Vert. Orifice/Grate C= 0.600
#2	Discarded	85.00'	8.270 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.83 cfs @ 12.50 hrs HW=86.32' (Free Discharge)

↑**2=Exfiltration** (Exfiltration Controls 0.83 cfs)

Primary OutFlow Max=0.06 cfs @ 12.50 hrs HW=86.32' TW=85.02' (Dynamic Tailwater)

↑**1=Orifice/Grate** (Orifice Controls 0.06 cfs @ 1.17 fps)

Summary for Pond R1: Pond1 Outlet - 12" RCP

Inflow Area = 0.396 ac, 61.13% Impervious, Inflow Depth = 0.00" for 2 Year Event event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

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Type III 24-hr 2 Year Event Rainfall=3.20"

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Peak Elev= 86.50' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	86.50'	12.0" Round Culvert L= 25.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 86.50' / 86.20' S= 0.0120 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=86.50' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Controls 0.00 cfs)**Summary for Pond R4: Pond 2 Outlet - 12" RCP**

Inflow Area = 1.967 ac, 44.42% Impervious, Inflow Depth = 0.01" for 2 Year Event event
 Inflow = 0.06 cfs @ 12.50 hrs, Volume= 0.001 af
 Outflow = 0.06 cfs @ 12.50 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.06 cfs @ 12.50 hrs, Volume= 0.001 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 85.02' @ 12.50 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	84.90'	12.0" Round Culvert L= 35.0' Ke= 0.500 Inlet / Outlet Invert= 84.90' / 84.20' S= 0.0200 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=0.06 cfs @ 12.50 hrs HW=85.02' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 0.06 cfs @ 1.17 fps)**Summary for Link 1L: 6 -1550 Houses**

Inflow Area = 0.036 ac, 100.00% Impervious, Inflow Depth = 1.93" for 2 Year Event event
 Inflow = 0.11 cfs @ 12.08 hrs, Volume= 0.006 af
 Primary = 0.67 cfs @ 12.08 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow x 6.00, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

2 Year Event Outflow Imported from Concord ST one house with infiltration 1550~Reach 2R.hce

Summary for Link 2L: 1 - 1200 House

Inflow Area = 0.028 ac, 100.00% Impervious, Inflow Depth = 1.65" for 2 Year Event event
 Inflow = 0.09 cfs @ 12.08 hrs, Volume= 0.004 af
 Primary = 0.09 cfs @ 12.08 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

2 Year Event Outflow Imported from Concord ST one house with infiltration 1200~Reach 2R.hce

Summary for Link 3L: 10 - 1550 Houses

Inflow Area = 0.036 ac, 100.00% Impervious, Inflow Depth = 1.93" for 2 Year Event event
Inflow = 0.11 cfs @ 12.08 hrs, Volume= 0.006 af
Primary = 1.12 cfs @ 12.08 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow x 10.00, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

2 Year Event Outflow Imported from Concord ST one house with infiltration 1550~Reach 2R.hce

Summary for Link 4L: 2 - 1200 House

Inflow Area = 0.028 ac, 100.00% Impervious, Inflow Depth = 1.65" for 2 Year Event event
Inflow = 0.09 cfs @ 12.08 hrs, Volume= 0.004 af
Primary = 0.17 cfs @ 12.08 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow x 2.00, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

2 Year Event Outflow Imported from Concord ST one house with infiltration 1200~Reach 2R.hce

Reach 2E: Exist East Wetland (DCP2)	Inflow=4.50 cfs 0.628 af Outflow=4.50 cfs 0.628 af
Reach 2P: Prop. to East Wetland (DCP2)	Inflow=4.18 cfs 0.613 af Outflow=4.18 cfs 0.613 af
Reach 3E: Exist To Street (DCP3)	Inflow=0.10 cfs 0.007 af Outflow=0.10 cfs 0.007 af
Reach 3P: Prop. To Street (DCP3)	Inflow=0.06 cfs 0.004 af Outflow=0.06 cfs 0.004 af
Reach 4E: Exist North Wetland (DCP4)	Inflow=1.24 cfs 0.186 af Outflow=1.24 cfs 0.186 af
Reach 4P: Prop. to North Wetland (DCP4)	Inflow=1.06 cfs 0.140 af Outflow=1.06 cfs 0.140 af
Pond 9P: CB 4	Peak Elev=87.84' Inflow=1.47 cfs 0.102 af 12.0" Round Culvert n=0.011 L=22.0' S=0.0136 '/' Outflow=1.47 cfs 0.102 af
Pond 10P: MH	Peak Elev=87.69' Inflow=6.28 cfs 0.436 af 18.0" Round Culvert n=0.011 L=140.0' S=0.0100 '/' Outflow=6.28 cfs 0.436 af
Pond 12P: MH	Peak Elev=89.67' Inflow=3.68 cfs 0.255 af 15.0" Round Culvert n=0.011 L=300.0' S=0.0075 '/' Outflow=3.68 cfs 0.255 af
Pond 13P: CB6	Peak Elev=90.08' Inflow=1.75 cfs 0.122 af 12.0" Round Culvert n=0.011 L=62.0' S=0.0089 '/' Outflow=1.75 cfs 0.122 af
Pond MH1: MH	Peak Elev=87.61' Inflow=1.59 cfs 0.112 af 15.0" Round Culvert n=0.011 L=55.0' S=0.0091 '/' Outflow=1.59 cfs 0.112 af
Pond MH2: CB 3	Peak Elev=87.78' Inflow=1.13 cfs 0.079 af 12.0" Round Culvert n=0.011 L=22.0' S=0.0136 '/' Outflow=1.13 cfs 0.079 af
Pond MH3: CB5	Peak Elev=90.12' Inflow=1.93 cfs 0.134 af 12.0" Round Culvert n=0.011 L=65.0' S=0.0085 '/' Outflow=1.93 cfs 0.134 af
Pond P1: POND 1	Peak Elev=87.44' Storage=1,290 cf Inflow=1.59 cfs 0.112 af Discarded=0.28 cfs 0.110 af Primary=0.06 cfs 0.002 af Outflow=0.34 cfs 0.112 af
Pond P2: POND 2	Peak Elev=86.86' Storage=5,662 cf Inflow=7.05 cfs 0.490 af Discarded=1.02 cfs 0.415 af Primary=1.51 cfs 0.074 af Outflow=2.53 cfs 0.490 af
Pond R1: Pond1 Outlet - 12" RCP	Peak Elev=86.61' Inflow=0.06 cfs 0.002 af 12.0" Round Culvert n=0.011 L=25.0' S=0.0120 '/' Outflow=0.06 cfs 0.002 af
Pond R4: Pond 2 Outlet - 12" RCP	Peak Elev=85.56' Inflow=1.51 cfs 0.074 af 12.0" Round Culvert n=0.011 L=35.0' S=0.0200 '/' Outflow=1.51 cfs 0.074 af

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Type III 24-hr 10 Year Event Rainfall=4.60"

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ar Event Outflow [Link](#) Imported from Concord ST one house with infiltration 1550~Reach 2R.hce x 6.00 Inflow=0.16 cfs 0.010 af
Area= 0.036 ac 100.00% Imperv. Primary=0.97 cfs 0.059 af

10 Year Event Outflow [Link](#) Imported from Concord ST one house with infiltration 1200~Reach 2R.hce Inflow=0.13 cfs 0.007 af
Area= 0.028 ac 100.00% Imperv. Primary=0.13 cfs 0.007 af

ar Event Outflow [Link](#) Imported from Concord ST one house with infiltration 1550~Reach 2R.hce x 10.00 Inflow=0.16 cfs 0.010 af
Area= 0.036 ac 100.00% Imperv. Primary=1.61 cfs 0.098 af

ar Event Outflow [Link](#) Imported from Concord ST one house with infiltration 1200~Reach 2R.hce x 2.00 Inflow=0.13 cfs 0.007 af
Area= 0.028 ac 100.00% Imperv. Primary=0.25 cfs 0.014 af

Total Runoff Area = 19.348 ac Runoff Volume = 4.071 af Average Runoff Depth = 2.52"
70.29% Pervious = 13.600 ac 29.71% Impervious = 5.748 ac

Summary for Subcatchment 3S: Prop Lawn to Pond 2

Runoff = 0.77 cfs @ 12.08 hrs, Volume= 0.054 af, Depth= 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Event Rainfall=4.60"

Area (sf)	CN	Description
13,665	74	>75% Grass cover, Good, HSG C
13,665		100.00% Pervious Area

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

Summary for Subcatchment 4S: Prop. to East Wetland

Runoff = 3.92 cfs @ 12.54 hrs, Volume= 0.546 af, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Event Rainfall=4.60"

Area (sf)	CN	Description
* 25,672	98	Water Surface Wetlands, HSG C
38,352	74	>75% Grass cover, Good, HSG C
58,938	70	Woods, Good, HSG C
* 1,155	74	Patio
* 377	98	ret wall
124,494	77	Weighted Average
98,445		79.08% Pervious Area
26,049		20.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow,
					Woods: Dense underbrush n= 0.800 P2= 3.20"
8.7	320	0.0150	0.61		Shallow Concentrated Flow, shallow
					Woodland Kv= 5.0 fps
37.0	370	Total			

Summary for Subcatchment 5S: Prop. to Pond 1

Runoff = 1.59 cfs @ 12.07 hrs, Volume= 0.112 af, Depth= 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Event Rainfall=4.60"

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Type III 24-hr 10 Year Event Rainfall=4.60"

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Area (sf)	CN	Description
10,533	98	Paved parking, HSG C
6,697	74	>75% Grass cover, Good, HSG C
17,230	89	Weighted Average
6,697		38.87% Pervious Area
10,533		61.13% Impervious Area

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

Summary for Subcatchment 6S: Prop. to CB # 6

Runoff = 1.75 cfs @ 12.07 hrs, Volume= 0.122 af, Depth= 3.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Event Rainfall=4.60"

Area (sf)	CN	Description
* 959	98	Paved parking, HSG C - Sidewalk
* 9,836	98	Paved parking, HSG C - rroad-drives
9,122	74	>75% Grass cover, Good, HSG C
19,917	87	Weighted Average
9,122		45.80% Pervious Area
10,795		54.20% Impervious Area

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

Summary for Subcatchment 8S: Prop. to Street

Runoff = 0.06 cfs @ 12.07 hrs, Volume= 0.004 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Event Rainfall=4.60"

Area (sf)	CN	Description
492	98	Paved parking, HSG C
100	74	>75% Grass cover, Good, HSG C
592	94	Weighted Average
100		16.89% Pervious Area
492		83.11% Impervious Area

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

Summary for Subcatchment 9S: Prop. to North Wetland

Runoff = 1.06 cfs @ 12.47 hrs, Volume= 0.140 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Event Rainfall=4.60"

	Area (sf)	CN	Description
*	906	98	Water Surface Wetlands, HSG C
	2,744	98	Paved parking, HSG C
	16,242	74	>75% Grass cover, Good, HSG C
	1,286	98	Roofs, HSG C - infiltrated
*	283	98	walls othe rimp.
	11,662	70	Woods, Good, HSG C
	33,123	76	Weighted Average
	27,904		84.24% Pervious Area
	5,219		15.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow, Sheet
					Woods: Dense underbrush n= 0.800 P2= 3.20"
4.8	430	0.0100	1.50		Shallow Concentrated Flow, shallow
					Grassed Waterway Kv= 15.0 fps
33.1	480	Total			

Summary for Subcatchment 10S: Prop. to Steam

Runoff = 5.74 cfs @ 12.52 hrs, Volume= 0.813 af, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Event Rainfall=4.60"

	Area (sf)	CN	Description
*	48,878	98	Water Surface Wetlands, HSG C
	63,472	74	>75% Grass cover, Good, HSG C
*	4,305	98	walls othe rimp.
	1,100	87	Dirt roads, HSG C
	18,844	70	Woods, Good, HSG C
*	2,457	98	Exisit,. Roof
*	5,683	98	Exisit. Pavement
*	1,485	74	Prop. Patios
	146,224	84	Weighted Average
	84,901		58.06% Pervious Area
	61,323		41.94% Impervious Area

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Type III 24-hr 10 Year Event Rainfall=4.60"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow, Woods: Dense underbrush n= 0.800 P2= 3.20"
1.7	50	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.7	30	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
3.7	110	0.0100	0.50		Shallow Concentrated Flow, shallow Woodland Kv= 5.0 fps
3.9	790	0.0100	3.35	20.11	Channel Flow, Stream Area= 6.0 sf Perim= 7.0' r= 0.86' n= 0.040 Earth, cobble bottom, clean sides
38.3	1,030	Total			

Summary for Subcatchment 11S: Prop. to CB # 5

Runoff = 1.93 cfs @ 12.07 hrs, Volume= 0.134 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Event Rainfall=4.60"

	Area (sf)	CN	Description
*	466	98	Paved parking, HSG C - Sidewalk
*	10,390	98	Paved parking, HSG C - rroad-drives
	11,712	74	>75% Grass cover, Good, HSG C
	22,568	86	Weighted Average
	11,712		51.90% Pervious Area
	10,856		48.10% Impervious Area

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

Summary for Subcatchment 12S: Prop to CB#4

Runoff = 1.47 cfs @ 12.07 hrs, Volume= 0.102 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Event Rainfall=4.60"

	Area (sf)	CN	Description
*	1,652	98	Paved parking, HSG C-Sidewalk
	7,912	98	Paved parking, HSG C
	6,706	74	>75% Grass cover, Good, HSG C
	16,270	88	Weighted Average
	6,706		41.22% Pervious Area
	9,564		58.78% Impervious Area

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Type III 24-hr 10 Year Event Rainfall=4.60"

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

Summary for Subcatchment 13S: Prop to CB #3

Runoff = 1.13 cfs @ 12.07 hrs, Volume= 0.079 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Event Rainfall=4.60"

Area (sf)	CN	Description
6,841	98	Paved parking, HSG C
6,421	74	>75% Grass cover, Good, HSG C
13,262	86	Weighted Average
6,421		48.42% Pervious Area
6,841		51.58% Impervious Area

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

Summary for Subcatchment E1: Exist. to Stream

Runoff = 7.72 cfs @ 12.56 hrs, Volume= 1.145 af, Depth= 2.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Event Rainfall=4.60"

Area (sf)	CN	Description
* 48,977	98	Water Surface Wetlands, HSG C
11,952	98	Paved parking, HSG C
34,335	74	>75% Grass cover, Good, HSG C
2,457	98	Roofs, HSG C
* 4,820	98	walls othe rimp.
8,801	87	Dirt roads, HSG C
131,819	70	Woods, Good, HSG C
243,161	79	Weighted Average
174,955		71.95% Pervious Area
68,206		28.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow, Sheet
					Woods: Dense underbrush n= 0.800 P2= 3.20"
13.7	410	0.0100	0.50		Shallow Concentrated Flow, shallow - woods
					Woodland Kv= 5.0 fps
42.0	460	Total			

Summary for Subcatchment E2: Exist. To East Wetlands

Runoff = 4.50 cfs @ 12.54 hrs, Volume= 0.628 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Event Rainfall=4.60"

	Area (sf)	CN	Description
*	25,672	98	Water Surface Wetlands, HSG C
	5,792	98	Paved parking, HSG C
	9,907	74	>75% Grass cover, Good, HSG C
*	217	98	walls othe rimp.
	107,002	70	Woods, Good, HSG C
	148,590	76	Weighted Average
	116,909		78.68% Pervious Area
	31,681		21.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow, Sheet
					Woods: Dense underbrush n= 0.800 P2= 3.20"
8.7	320	0.0150	0.61		Shallow Concentrated Flow, shallow - woods
					Woodland Kv= 5.0 fps
37.0	370	Total			

Summary for Subcatchment E3: Exist. To Street

Runoff = 0.10 cfs @ 12.07 hrs, Volume= 0.007 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Event Rainfall=4.60"

	Area (sf)	CN	Description
	473	98	Paved parking, HSG C
	798	74	>75% Grass cover, Good, HSG C
	1,271	83	Weighted Average
	798		62.79% Pervious Area
	473		37.21% Impervious Area

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

Summary for Subcatchment E4: Exist. to Wetlands North

Runoff = 1.24 cfs @ 12.59 hrs, Volume= 0.186 af, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Event Rainfall=4.60"

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Type III 24-hr 10 Year Event Rainfall=4.60"

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Area (sf)	CN	Description
* 907	98	Water Surface Wetlands, HSG C
5,644	98	Paved parking, HSG C
12,783	74	>75% Grass cover, Good, HSG C
* 520	98	walls othe rimp.
21,313	70	Woods, Good, HSG C
1,286	98	Roofs, HSG C
42,453	77	Weighted Average
34,096		80.31% Pervious Area
8,357		19.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow, Sheet
					Woods: Dense underbrush n= 0.800 P2= 3.20"
14.3	430	0.0100	0.50		Shallow Concentrated Flow, shallow - woods
					Woodland Kv= 5.0 fps
42.6	480	Total			

Summary for Reach 1E: Exist. to Stream (DCP1)

Inflow Area = 5.582 ac, 28.05% Impervious, Inflow Depth = 2.46" for 10 Year Event event
 Inflow = 7.72 cfs @ 12.56 hrs, Volume= 1.145 af
 Outflow = 7.72 cfs @ 12.56 hrs, Volume= 1.145 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 1P: Prop. to Stream (DCP1)

Inflow Area = 5.387 ac, 43.52% Impervious, Inflow Depth = 2.23" for 10 Year Event event
 Inflow = 7.45 cfs @ 12.47 hrs, Volume= 0.999 af
 Outflow = 7.45 cfs @ 12.47 hrs, Volume= 0.999 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 2E: Exist East Wetland (DCP2)

Inflow Area = 3.411 ac, 21.32% Impervious, Inflow Depth = 2.21" for 10 Year Event event
 Inflow = 4.50 cfs @ 12.54 hrs, Volume= 0.628 af
 Outflow = 4.50 cfs @ 12.54 hrs, Volume= 0.628 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 2P: Prop. to East Wetland (DCP2)

Inflow Area = 3.317 ac, 27.22% Impervious, Inflow Depth = 2.22" for 10 Year Event event
 Inflow = 4.18 cfs @ 12.50 hrs, Volume= 0.613 af
 Outflow = 4.18 cfs @ 12.50 hrs, Volume= 0.613 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 3E: Exist To Street (DCP3)

Inflow Area = 0.029 ac, 37.21% Impervious, Inflow Depth = 2.81" for 10 Year Event event
 Inflow = 0.10 cfs @ 12.07 hrs, Volume= 0.007 af
 Outflow = 0.10 cfs @ 12.07 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 3P: Prop. To Street (DCP3)

Inflow Area = 0.014 ac, 83.11% Impervious, Inflow Depth = 3.91" for 10 Year Event event
 Inflow = 0.06 cfs @ 12.07 hrs, Volume= 0.004 af
 Outflow = 0.06 cfs @ 12.07 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 4E: Exist North Wetland (DCP4)

Inflow Area = 0.975 ac, 19.69% Impervious, Inflow Depth = 2.29" for 10 Year Event event
 Inflow = 1.24 cfs @ 12.59 hrs, Volume= 0.186 af
 Outflow = 1.24 cfs @ 12.59 hrs, Volume= 0.186 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 4P: Prop. to North Wetland (DCP4)

Inflow Area = 0.760 ac, 15.76% Impervious, Inflow Depth = 2.21" for 10 Year Event event
 Inflow = 1.06 cfs @ 12.47 hrs, Volume= 0.140 af
 Outflow = 1.06 cfs @ 12.47 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Pond 9P: CB 4

Inflow Area = 0.374 ac, 58.78% Impervious, Inflow Depth = 3.29" for 10 Year Event event
 Inflow = 1.47 cfs @ 12.07 hrs, Volume= 0.102 af
 Outflow = 1.47 cfs @ 12.07 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.47 cfs @ 12.07 hrs, Volume= 0.102 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 87.84' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	86.70'	12.0" Round Culvert L= 22.0' Ke= 0.500 Inlet / Outlet Invert= 86.70' / 86.40' S= 0.0136 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=1.42 cfs @ 12.07 hrs HW=87.83' TW=87.69' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 1.42 cfs @ 1.80 fps)

Summary for Pond 10P: MH

Inflow Area = 1.653 ac, 52.84% Impervious, Inflow Depth = 3.17" for 10 Year Event event
 Inflow = 6.28 cfs @ 12.07 hrs, Volume= 0.436 af
 Outflow = 6.28 cfs @ 12.07 hrs, Volume= 0.436 af, Atten= 0%, Lag= 0.0 min
 Primary = 6.28 cfs @ 12.07 hrs, Volume= 0.436 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 87.69' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	86.40'	18.0" Round Culvert L= 140.0' Ke= 0.500 Inlet / Outlet Invert= 86.40' / 85.00' S= 0.0100 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.77 sf

Primary OutFlow Max=6.27 cfs @ 12.07 hrs HW=87.69' TW=86.34' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 6.27 cfs @ 3.87 fps)

Summary for Pond 12P: MH

Inflow Area = 0.975 ac, 50.96% Impervious, Inflow Depth = 3.14" for 10 Year Event event
 Inflow = 3.68 cfs @ 12.07 hrs, Volume= 0.255 af
 Outflow = 3.68 cfs @ 12.07 hrs, Volume= 0.255 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.68 cfs @ 12.07 hrs, Volume= 0.255 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 89.67' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	88.65'	15.0" Round Culvert L= 300.0' Ke= 0.500 Inlet / Outlet Invert= 88.65' / 86.40' S= 0.0075 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

Primary OutFlow Max=3.67 cfs @ 12.07 hrs HW=89.67' TW=87.69' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 3.67 cfs @ 4.68 fps)

Summary for Pond 13P: CB6

Inflow Area = 0.457 ac, 54.20% Impervious, Inflow Depth = 3.19" for 10 Year Event event
 Inflow = 1.75 cfs @ 12.07 hrs, Volume= 0.122 af
 Outflow = 1.75 cfs @ 12.07 hrs, Volume= 0.122 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.75 cfs @ 12.07 hrs, Volume= 0.122 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 90.08' @ 12.08 hrs

Concord ST - Rockland 11.20.21

Type III 24-hr 10 Year Event Rainfall=4.60"

Prepared by Cavanaro Consulting

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Device	Routing	Invert	Outlet Devices
#1	Primary	89.20'	12.0" Round Culvert L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 89.20' / 88.65' S= 0.0089 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=1.73 cfs @ 12.07 hrs HW=90.08' TW=89.67' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 1.73 cfs @ 3.16 fps)**Summary for Pond MH1: MH**

Inflow Area = 0.396 ac, 61.13% Impervious, Inflow Depth = 3.39" for 10 Year Event event
 Inflow = 1.59 cfs @ 12.07 hrs, Volume= 0.112 af
 Outflow = 1.59 cfs @ 12.07 hrs, Volume= 0.112 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.59 cfs @ 12.07 hrs, Volume= 0.112 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 87.61' @ 12.07 hrs

Flood Elev= 89.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	87.00'	15.0" Round Culvert L= 55.0' Ke= 0.500 Inlet / Outlet Invert= 87.00' / 86.50' S= 0.0091 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

Primary OutFlow Max=1.58 cfs @ 12.07 hrs HW=87.61' TW=86.97' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 1.58 cfs @ 3.88 fps)**Summary for Pond MH2: CB 3**

Inflow Area = 0.304 ac, 51.58% Impervious, Inflow Depth = 3.10" for 10 Year Event event
 Inflow = 1.13 cfs @ 12.07 hrs, Volume= 0.079 af
 Outflow = 1.13 cfs @ 12.07 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.13 cfs @ 12.07 hrs, Volume= 0.079 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 87.78' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	86.70'	12.0" Round Culvert L= 22.0' Ke= 0.500 Inlet / Outlet Invert= 86.70' / 86.40' S= 0.0136 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=1.08 cfs @ 12.07 hrs HW=87.77' TW=87.69' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 1.08 cfs @ 1.37 fps)

Summary for Pond MH3: CB5

Inflow Area = 0.518 ac, 48.10% Impervious, Inflow Depth = 3.10" for 10 Year Event event
 Inflow = 1.93 cfs @ 12.07 hrs, Volume= 0.134 af
 Outflow = 1.93 cfs @ 12.07 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.93 cfs @ 12.07 hrs, Volume= 0.134 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
 Peak Elev= 90.12' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	89.20'	12.0" Round Culvert L= 65.0' Ke= 0.500 Inlet / Outlet Invert= 89.20' / 88.65' S= 0.0085 ' S= 0.0085 ' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=1.91 cfs @ 12.07 hrs HW=90.12' TW=89.67' (Dynamic Tailwater)
 ↑1=Culvert (Outlet Controls 1.91 cfs @ 3.31 fps)

Summary for Pond P1: POND 1

Inflow Area = 0.396 ac, 61.13% Impervious, Inflow Depth = 3.39" for 10 Year Event event
 Inflow = 1.59 cfs @ 12.07 hrs, Volume= 0.112 af
 Outflow = 0.34 cfs @ 12.48 hrs, Volume= 0.112 af, Atten= 79%, Lag= 24.5 min
 Discarded = 0.28 cfs @ 12.48 hrs, Volume= 0.110 af
 Primary = 0.06 cfs @ 12.48 hrs, Volume= 0.002 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
 Peak Elev= 87.44' @ 12.48 hrs Surf.Area= 1,487 sf Storage= 1,290 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 26.3 min (822.7 - 796.4)

Volume	Invert	Avail.Storage	Storage Description
#1	86.50'	5,959 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
86.50	1,260	224.0	0	0	1,260
87.00	1,380	231.0	660	660	1,538
88.00	1,630	242.0	1,503	2,163	2,015
89.00	1,896	254.0	1,761	3,924	2,549
90.00	2,176	265.0	2,034	5,959	3,072

Device	Routing	Invert	Outlet Devices
#1	Primary	87.30'	6.0" Vert. Orifice/Grate C= 0.600
#2	Discarded	86.50'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.28 cfs @ 12.48 hrs HW=87.44' (Free Discharge)

↑**2=Exfiltration** (Exfiltration Controls 0.28 cfs)

Primary OutFlow Max=0.06 cfs @ 12.48 hrs HW=87.44' TW=86.61' (Dynamic Tailwater)

↑**1=Orifice/Grate** (Orifice Controls 0.06 cfs @ 1.27 fps)

Summary for Pond P2: POND 2

Inflow Area = 1.967 ac, 44.42% Impervious, Inflow Depth = 2.99" for 10 Year Event event
 Inflow = 7.05 cfs @ 12.07 hrs, Volume= 0.490 af
 Outflow = 2.53 cfs @ 12.33 hrs, Volume= 0.490 af, Atten= 64%, Lag= 15.6 min
 Discarded = 1.02 cfs @ 12.33 hrs, Volume= 0.415 af
 Primary = 1.51 cfs @ 12.33 hrs, Volume= 0.074 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
 Peak Elev= 86.86' @ 12.33 hrs Surf.Area= 4,111 sf Storage= 5,662 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 33.9 min (842.1 - 808.2)

Volume	Invert	Avail.Storage	Storage Description
#1	85.00'	11,154 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
85.00	2,050	344.0	0	0	2,050
86.00	3,124	374.0	2,568	2,568	3,801
87.00	4,287	402.0	3,690	6,258	5,573
88.00	5,530	425.0	4,895	11,154	7,142

Device	Routing	Invert	Outlet Devices
#1	Primary	86.20'	12.0" Vert. Orifice/Grate C= 0.600
#2	Discarded	85.00'	8.270 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=1.02 cfs @ 12.33 hrs HW=86.86' (Free Discharge)

↑**2=Exfiltration** (Exfiltration Controls 1.02 cfs)

Primary OutFlow Max=1.51 cfs @ 12.33 hrs HW=86.86' TW=85.56' (Dynamic Tailwater)

↑**1=Orifice/Grate** (Orifice Controls 1.51 cfs @ 2.76 fps)

Summary for Pond R1: Pond1 Outlet - 12" RCP

Inflow Area = 0.396 ac, 61.13% Impervious, Inflow Depth = 0.05" for 10 Year Event event
 Inflow = 0.06 cfs @ 12.48 hrs, Volume= 0.002 af
 Outflow = 0.06 cfs @ 12.48 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.06 cfs @ 12.48 hrs, Volume= 0.002 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Concord ST - Rockland 11.20.21

Type III 24-hr 10 Year Event Rainfall=4.60"

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Peak Elev= 86.61' @ 12.48 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	86.50'	12.0" Round Culvert L= 25.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 86.50' / 86.20' S= 0.0120 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=0.06 cfs @ 12.48 hrs HW=86.61' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 0.06 cfs @ 1.15 fps)**Summary for Pond R4: Pond 2 Outlet - 12" RCP**

Inflow Area = 1.967 ac, 44.42% Impervious, Inflow Depth = 0.45" for 10 Year Event event
 Inflow = 1.51 cfs @ 12.33 hrs, Volume= 0.074 af
 Outflow = 1.51 cfs @ 12.33 hrs, Volume= 0.074 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.51 cfs @ 12.33 hrs, Volume= 0.074 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 85.56' @ 12.33 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	84.90'	12.0" Round Culvert L= 35.0' Ke= 0.500 Inlet / Outlet Invert= 84.90' / 84.20' S= 0.0200 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=1.51 cfs @ 12.33 hrs HW=85.56' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 1.51 cfs @ 2.76 fps)**Summary for Link 1L: 6 -1550 Houses**

Inflow Area = 0.036 ac, 100.00% Impervious, Inflow Depth = 3.30" for 10 Year Event event
 Inflow = 0.16 cfs @ 12.09 hrs, Volume= 0.010 af
 Primary = 0.97 cfs @ 12.09 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow x 6.00, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

10 Year Event Outflow Imported from Concord ST one house with infiltration 1550~Reach 2R.hce

Summary for Link 2L: 1 - 1200 House

Inflow Area = 0.028 ac, 100.00% Impervious, Inflow Depth = 3.00" for 10 Year Event event
 Inflow = 0.13 cfs @ 12.08 hrs, Volume= 0.007 af
 Primary = 0.13 cfs @ 12.08 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

10 Year Event Outflow Imported from Concord ST one house with infiltration 1200~Reach 2R.hce

Summary for Link 3L: 10 - 1550 Houses

Inflow Area = 0.036 ac, 100.00% Impervious, Inflow Depth = 3.30" for 10 Year Event event
Inflow = 0.16 cfs @ 12.09 hrs, Volume= 0.010 af
Primary = 1.61 cfs @ 12.09 hrs, Volume= 0.098 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow x 10.00, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

10 Year Event Outflow Imported from Concord ST one house with infiltration 1550~Reach 2R.hce

Summary for Link 4L: 2 - 1200 House

Inflow Area = 0.028 ac, 100.00% Impervious, Inflow Depth = 3.00" for 10 Year Event event
Inflow = 0.13 cfs @ 12.08 hrs, Volume= 0.007 af
Primary = 0.25 cfs @ 12.08 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow x 2.00, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

10 Year Event Outflow Imported from Concord ST one house with infiltration 1200~Reach 2R.hce

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Time span=0.00-35.00 hrs, dt=0.01 hrs, 3501 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 3S: Prop Lawn to Pond 2 Runoff Area=13,665 sf 0.00% Impervious Runoff Depth=2.77"
Tc=5.0 min CN=74 Runoff=1.05 cfs 0.072 af

Subcatchment 4S: Prop. to East Wetland Runoff Area=124,494 sf 20.92% Impervious Runoff Depth=3.05"
Flow Length=370' Tc=37.0 min CN=77 Runoff=5.22 cfs 0.726 af

Subcatchment 5S: Prop. to Pond 1 Runoff Area=17,230 sf 61.13% Impervious Runoff Depth=4.25"
Tc=5.0 min CN=89 Runoff=1.97 cfs 0.140 af

Subcatchment 6S: Prop. to CB # 6 Runoff Area=19,917 sf 54.20% Impervious Runoff Depth=4.04"
Tc=5.0 min CN=87 Runoff=2.19 cfs 0.154 af

Subcatchment 8S: Prop. to Street Runoff Area=592 sf 83.11% Impervious Runoff Depth=4.80"
Tc=5.0 min CN=94 Runoff=0.07 cfs 0.005 af

Subcatchment 9S: Prop. to North Wetland Runoff Area=33,123 sf 15.76% Impervious Runoff Depth=2.95"
Flow Length=480' Slope=0.0100 '/' Tc=33.1 min CN=76 Runoff=1.42 cfs 0.187 af

Subcatchment 10S: Prop. to Steam Runoff Area=146,224 sf 41.94% Impervious Runoff Depth=3.73"
Flow Length=1,030' Slope=0.0100 '/' Tc=38.3 min CN=84 Runoff=7.33 cfs 1.044 af

Subcatchment 11S: Prop. to CB # 5 Runoff Area=22,568 sf 48.10% Impervious Runoff Depth=3.94"
Tc=5.0 min CN=86 Runoff=2.43 cfs 0.170 af

Subcatchment 12S: Prop to CB#4 Runoff Area=16,270 sf 58.78% Impervious Runoff Depth=4.15"
Tc=5.0 min CN=88 Runoff=1.83 cfs 0.129 af

Subcatchment 13S: Prop to CB #3 Runoff Area=13,262 sf 51.58% Impervious Runoff Depth=3.94"
Tc=5.0 min CN=86 Runoff=1.43 cfs 0.100 af

Subcatchment E1: Exist. to Stream Runoff Area=243,161 sf 28.05% Impervious Runoff Depth=3.24"
Flow Length=460' Slope=0.0100 '/' Tc=42.0 min CN=79 Runoff=10.18 cfs 1.506 af

Subcatchment E2: Exist. To East Runoff Area=148,590 sf 21.32% Impervious Runoff Depth=2.95"
Flow Length=370' Tc=37.0 min CN=76 Runoff=6.04 cfs 0.839 af

Subcatchment E3: Exist. To Street Runoff Area=1,271 sf 37.21% Impervious Runoff Depth=3.63"
Tc=5.0 min CN=83 Runoff=0.13 cfs 0.009 af

Subcatchment E4: Exist. to Wetlands North Runoff Area=42,453 sf 19.69% Impervious Runoff Depth=3.05"
Flow Length=480' Slope=0.0100 '/ Tc=42.6 min CN=77 Runoff=1.66 cfs 0.247 af

Reach 1E: Exist. to Stream (DCP1) Inflow=10.18 cfs 1.506 af
Outflow=10.18 cfs 1.506 af

Reach 1P: Prop. to Stream (DCP1) Inflow=9.98 cfs 1.328 af
Outflow=9.98 cfs 1.328 af

Reach 2E: Exist East Wetland (DCP2)	Inflow=6.04 cfs 0.839 af Outflow=6.04 cfs 0.839 af
Reach 2P: Prop. to East Wetland (DCP2)	Inflow=5.73 cfs 0.822 af Outflow=5.73 cfs 0.822 af
Reach 3E: Exist To Street (DCP3)	Inflow=0.13 cfs 0.009 af Outflow=0.13 cfs 0.009 af
Reach 3P: Prop. To Street (DCP3)	Inflow=0.07 cfs 0.005 af Outflow=0.07 cfs 0.005 af
Reach 4E: Exist North Wetland (DCP4)	Inflow=1.66 cfs 0.247 af Outflow=1.66 cfs 0.247 af
Reach 4P: Prop. to North Wetland (DCP4)	Inflow=1.42 cfs 0.187 af Outflow=1.42 cfs 0.187 af
Pond 9P: CB 4	Peak Elev=88.24' Inflow=1.83 cfs 0.129 af 12.0" Round Culvert n=0.011 L=22.0' S=0.0136 '/' Outflow=1.83 cfs 0.129 af
Pond 10P: MH	Peak Elev=88.01' Inflow=7.88 cfs 0.553 af 18.0" Round Culvert n=0.011 L=140.0' S=0.0100 '/' Outflow=7.88 cfs 0.553 af
Pond 12P: MH	Peak Elev=89.89' Inflow=4.62 cfs 0.324 af 15.0" Round Culvert n=0.011 L=300.0' S=0.0075 '/' Outflow=4.62 cfs 0.324 af
Pond 13P: CB6	Peak Elev=90.29' Inflow=2.19 cfs 0.154 af 12.0" Round Culvert n=0.011 L=62.0' S=0.0089 '/' Outflow=2.19 cfs 0.154 af
Pond MH1: MH	Peak Elev=87.73' Inflow=1.97 cfs 0.140 af 15.0" Round Culvert n=0.011 L=55.0' S=0.0091 '/' Outflow=1.97 cfs 0.140 af
Pond MH2: CB 3	Peak Elev=88.15' Inflow=1.43 cfs 0.100 af 12.0" Round Culvert n=0.011 L=22.0' S=0.0136 '/' Outflow=1.43 cfs 0.100 af
Pond MH3: CB5	Peak Elev=90.35' Inflow=2.43 cfs 0.170 af 12.0" Round Culvert n=0.011 L=65.0' S=0.0085 '/' Outflow=2.43 cfs 0.170 af
Pond P1: POND 1	Peak Elev=87.63' Storage=1,578 cf Inflow=1.97 cfs 0.140 af Discarded=0.29 cfs 0.129 af Primary=0.27 cfs 0.011 af Outflow=0.56 cfs 0.140 af
Pond P2: POND 2	Peak Elev=87.15' Storage=6,905 cf Inflow=8.93 cfs 0.625 af Discarded=1.11 cfs 0.486 af Primary=2.55 cfs 0.139 af Outflow=3.66 cfs 0.625 af
Pond R1: Pond1 Outlet - 12" RCP	Peak Elev=86.75' Inflow=0.27 cfs 0.011 af 12.0" Round Culvert n=0.011 L=25.0' S=0.0120 '/' Outflow=0.27 cfs 0.011 af
Pond R4: Pond 2 Outlet - 12" RCP	Peak Elev=85.85' Inflow=2.55 cfs 0.139 af 12.0" Round Culvert n=0.011 L=35.0' S=0.0200 '/' Outflow=2.55 cfs 0.139 af

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Type III 24-hr 25 Year Event Rainfall=5.50"

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ar Event Outflow [Link](#) Imported from Concord ST one house with infiltration 1550~Reach 2R.hce x 6.00 Inflow=0.19 cfs 0.013 af
Area= 0.036 ac 100.00% Imperv. Primary=1.17 cfs 0.076 af

25 Year Event Outflow [Link](#) Imported from Concord ST one house with infiltration 1200~Reach 2R.hce Inflow=0.15 cfs 0.009 af
Area= 0.028 ac 100.00% Imperv. Primary=0.15 cfs 0.009 af

ar Event Outflow [Link](#) Imported from Concord ST one house with infiltration 1550~Reach 2R.hce x 10.00 Inflow=0.19 cfs 0.013 af
Area= 0.036 ac 100.00% Imperv. Primary=1.95 cfs 0.127 af

ar Event Outflow [Link](#) Imported from Concord ST one house with infiltration 1200~Reach 2R.hce x 2.00 Inflow=0.15 cfs 0.009 af
Area= 0.028 ac 100.00% Imperv. Primary=0.31 cfs 0.018 af

Total Runoff Area = 19.348 ac Runoff Volume = 5.328 af Average Runoff Depth = 3.30"
70.29% Pervious = 13.600 ac 29.71% Impervious = 5.748 ac

Summary for Subcatchment 3S: Prop Lawn to Pond 2

Runoff = 1.05 cfs @ 12.08 hrs, Volume= 0.072 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Event Rainfall=5.50"

Area (sf)	CN	Description
13,665	74	>75% Grass cover, Good, HSG C
13,665		100.00% Pervious Area

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

Summary for Subcatchment 4S: Prop. to East Wetland

Runoff = 5.22 cfs @ 12.53 hrs, Volume= 0.726 af, Depth= 3.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Event Rainfall=5.50"

Area (sf)	CN	Description
* 25,672	98	Water Surface Wetlands, HSG C
38,352	74	>75% Grass cover, Good, HSG C
58,938	70	Woods, Good, HSG C
* 1,155	74	Patio
* 377	98	ret wall
124,494	77	Weighted Average
98,445		79.08% Pervious Area
26,049		20.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow,
					Woods: Dense underbrush n= 0.800 P2= 3.20"
8.7	320	0.0150	0.61		Shallow Concentrated Flow, shallow
					Woodland Kv= 5.0 fps
37.0	370	Total			

Summary for Subcatchment 5S: Prop. to Pond 1

Runoff = 1.97 cfs @ 12.07 hrs, Volume= 0.140 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Event Rainfall=5.50"

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Type III 24-hr 25 Year Event Rainfall=5.50"

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Area (sf)	CN	Description
10,533	98	Paved parking, HSG C
6,697	74	>75% Grass cover, Good, HSG C
17,230	89	Weighted Average
6,697		38.87% Pervious Area
10,533		61.13% Impervious Area

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

Summary for Subcatchment 6S: Prop. to CB # 6

Runoff = 2.19 cfs @ 12.07 hrs, Volume= 0.154 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Event Rainfall=5.50"

Area (sf)	CN	Description
* 959	98	Paved parking, HSG C - Sidewalk
* 9,836	98	Paved parking, HSG C - rroad-drives
9,122	74	>75% Grass cover, Good, HSG C
19,917	87	Weighted Average
9,122		45.80% Pervious Area
10,795		54.20% Impervious Area

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

Summary for Subcatchment 8S: Prop. to Street

Runoff = 0.07 cfs @ 12.07 hrs, Volume= 0.005 af, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Event Rainfall=5.50"

Area (sf)	CN	Description
492	98	Paved parking, HSG C
100	74	>75% Grass cover, Good, HSG C
592	94	Weighted Average
100		16.89% Pervious Area
492		83.11% Impervious Area

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

Summary for Subcatchment 9S: Prop. to North Wetland

Runoff = 1.42 cfs @ 12.47 hrs, Volume= 0.187 af, Depth= 2.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Event Rainfall=5.50"

Area (sf)	CN	Description
* 906	98	Water Surface Wetlands, HSG C
2,744	98	Paved parking, HSG C
16,242	74	>75% Grass cover, Good, HSG C
1,286	98	Roofs, HSG C - infiltrated
* 283	98	walls othe rimp.
11,662	70	Woods, Good, HSG C
33,123	76	Weighted Average
27,904		84.24% Pervious Area
5,219		15.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow, Sheet
					Woods: Dense underbrush n= 0.800 P2= 3.20"
4.8	430	0.0100	1.50		Shallow Concentrated Flow, shallow
					Grassed Waterway Kv= 15.0 fps
33.1	480	Total			

Summary for Subcatchment 10S: Prop. to Steam

Runoff = 7.33 cfs @ 12.51 hrs, Volume= 1.044 af, Depth= 3.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Event Rainfall=5.50"

Area (sf)	CN	Description
* 48,878	98	Water Surface Wetlands, HSG C
63,472	74	>75% Grass cover, Good, HSG C
* 4,305	98	walls othe rimp.
1,100	87	Dirt roads, HSG C
18,844	70	Woods, Good, HSG C
* 2,457	98	Exisit., Roof
* 5,683	98	Exisit. Pavement
* 1,485	74	Prop. Patios
146,224	84	Weighted Average
84,901		58.06% Pervious Area
61,323		41.94% Impervious Area

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Type III 24-hr 25 Year Event Rainfall=5.50"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow, Woods: Dense underbrush n= 0.800 P2= 3.20"
1.7	50	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.7	30	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
3.7	110	0.0100	0.50		Shallow Concentrated Flow, shallow Woodland Kv= 5.0 fps
3.9	790	0.0100	3.35	20.11	Channel Flow, Stream Area= 6.0 sf Perim= 7.0' r= 0.86' n= 0.040 Earth, cobble bottom, clean sides
38.3	1,030	Total			

Summary for Subcatchment 11S: Prop. to CB # 5

Runoff = 2.43 cfs @ 12.07 hrs, Volume= 0.170 af, Depth= 3.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Event Rainfall=5.50"

	Area (sf)	CN	Description
*	466	98	Paved parking, HSG C - Sidewalk
*	10,390	98	Paved parking, HSG C - rroad-drives
	11,712	74	>75% Grass cover, Good, HSG C
	22,568	86	Weighted Average
	11,712		51.90% Pervious Area
	10,856		48.10% Impervious Area

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

Summary for Subcatchment 12S: Prop to CB#4

Runoff = 1.83 cfs @ 12.07 hrs, Volume= 0.129 af, Depth= 4.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Event Rainfall=5.50"

	Area (sf)	CN	Description
*	1,652	98	Paved parking, HSG C-Sidewalk
	7,912	98	Paved parking, HSG C
	6,706	74	>75% Grass cover, Good, HSG C
	16,270	88	Weighted Average
	6,706		41.22% Pervious Area
	9,564		58.78% Impervious Area

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Type III 24-hr 25 Year Event Rainfall=5.50"

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

Summary for Subcatchment 13S: Prop to CB #3

Runoff = 1.43 cfs @ 12.07 hrs, Volume= 0.100 af, Depth= 3.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Event Rainfall=5.50"

Area (sf)	CN	Description
6,841	98	Paved parking, HSG C
6,421	74	>75% Grass cover, Good, HSG C
13,262	86	Weighted Average
6,421		48.42% Pervious Area
6,841		51.58% Impervious Area

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

Summary for Subcatchment E1: Exist. to Stream

Runoff = 10.18 cfs @ 12.56 hrs, Volume= 1.506 af, Depth= 3.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Event Rainfall=5.50"

Area (sf)	CN	Description
* 48,977	98	Water Surface Wetlands, HSG C
11,952	98	Paved parking, HSG C
34,335	74	>75% Grass cover, Good, HSG C
2,457	98	Roofs, HSG C
* 4,820	98	walls othe rimp.
8,801	87	Dirt roads, HSG C
131,819	70	Woods, Good, HSG C
243,161	79	Weighted Average
174,955		71.95% Pervious Area
68,206		28.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow, Sheet
					Woods: Dense underbrush n= 0.800 P2= 3.20"
13.7	410	0.0100	0.50		Shallow Concentrated Flow, shallow - woods
					Woodland Kv= 5.0 fps
42.0	460	Total			

Summary for Subcatchment E2: Exist. To East Wetlands

Runoff = 6.04 cfs @ 12.53 hrs, Volume= 0.839 af, Depth= 2.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Event Rainfall=5.50"

	Area (sf)	CN	Description
*	25,672	98	Water Surface Wetlands, HSG C
	5,792	98	Paved parking, HSG C
	9,907	74	>75% Grass cover, Good, HSG C
*	217	98	walls othe rimp.
	107,002	70	Woods, Good, HSG C
	148,590	76	Weighted Average
	116,909		78.68% Pervious Area
	31,681		21.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow, Sheet
					Woods: Dense underbrush n= 0.800 P2= 3.20"
8.7	320	0.0150	0.61		Shallow Concentrated Flow, shallow - woods
					Woodland Kv= 5.0 fps
37.0	370	Total			

Summary for Subcatchment E3: Exist. To Street

Runoff = 0.13 cfs @ 12.07 hrs, Volume= 0.009 af, Depth= 3.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Event Rainfall=5.50"

	Area (sf)	CN	Description
	473	98	Paved parking, HSG C
	798	74	>75% Grass cover, Good, HSG C
	1,271	83	Weighted Average
	798		62.79% Pervious Area
	473		37.21% Impervious Area

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

Summary for Subcatchment E4: Exist. to Wetlands North

Runoff = 1.66 cfs @ 12.59 hrs, Volume= 0.247 af, Depth= 3.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Year Event Rainfall=5.50"

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Type III 24-hr 25 Year Event Rainfall=5.50"

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Area (sf)	CN	Description
* 907	98	Water Surface Wetlands, HSG C
5,644	98	Paved parking, HSG C
12,783	74	>75% Grass cover, Good, HSG C
* 520	98	walls othe rimp.
21,313	70	Woods, Good, HSG C
1,286	98	Roofs, HSG C
42,453	77	Weighted Average
34,096		80.31% Pervious Area
8,357		19.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow, Sheet
					Woods: Dense underbrush n= 0.800 P2= 3.20"
14.3	430	0.0100	0.50		Shallow Concentrated Flow, shallow - woods
					Woodland Kv= 5.0 fps
42.6	480	Total			

Summary for Reach 1E: Exist. to Stream (DCP1)

Inflow Area = 5.582 ac, 28.05% Impervious, Inflow Depth = 3.24" for 25 Year Event event
 Inflow = 10.18 cfs @ 12.56 hrs, Volume= 1.506 af
 Outflow = 10.18 cfs @ 12.56 hrs, Volume= 1.506 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 1P: Prop. to Stream (DCP1)

Inflow Area = 5.387 ac, 43.52% Impervious, Inflow Depth = 2.96" for 25 Year Event event
 Inflow = 9.98 cfs @ 12.46 hrs, Volume= 1.328 af
 Outflow = 9.98 cfs @ 12.46 hrs, Volume= 1.328 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 2E: Exist East Wetland (DCP2)

Inflow Area = 3.411 ac, 21.32% Impervious, Inflow Depth = 2.95" for 25 Year Event event
 Inflow = 6.04 cfs @ 12.53 hrs, Volume= 0.839 af
 Outflow = 6.04 cfs @ 12.53 hrs, Volume= 0.839 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 2P: Prop. to East Wetland (DCP2)

Inflow Area = 3.317 ac, 27.22% Impervious, Inflow Depth = 2.97" for 25 Year Event event
 Inflow = 5.73 cfs @ 12.49 hrs, Volume= 0.822 af
 Outflow = 5.73 cfs @ 12.49 hrs, Volume= 0.822 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 3E: Exist To Street (DCP3)

Inflow Area = 0.029 ac, 37.21% Impervious, Inflow Depth = 3.63" for 25 Year Event event
 Inflow = 0.13 cfs @ 12.07 hrs, Volume= 0.009 af
 Outflow = 0.13 cfs @ 12.07 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 3P: Prop. To Street (DCP3)

Inflow Area = 0.014 ac, 83.11% Impervious, Inflow Depth = 4.80" for 25 Year Event event
 Inflow = 0.07 cfs @ 12.07 hrs, Volume= 0.005 af
 Outflow = 0.07 cfs @ 12.07 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 4E: Exist North Wetland (DCP4)

Inflow Area = 0.975 ac, 19.69% Impervious, Inflow Depth = 3.05" for 25 Year Event event
 Inflow = 1.66 cfs @ 12.59 hrs, Volume= 0.247 af
 Outflow = 1.66 cfs @ 12.59 hrs, Volume= 0.247 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 4P: Prop. to North Wetland (DCP4)

Inflow Area = 0.760 ac, 15.76% Impervious, Inflow Depth = 2.95" for 25 Year Event event
 Inflow = 1.42 cfs @ 12.47 hrs, Volume= 0.187 af
 Outflow = 1.42 cfs @ 12.47 hrs, Volume= 0.187 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Pond 9P: CB 4

Inflow Area = 0.374 ac, 58.78% Impervious, Inflow Depth = 4.15" for 25 Year Event event
 Inflow = 1.83 cfs @ 12.07 hrs, Volume= 0.129 af
 Outflow = 1.83 cfs @ 12.07 hrs, Volume= 0.129 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.83 cfs @ 12.07 hrs, Volume= 0.129 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 88.24' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	86.70'	12.0" Round Culvert L= 22.0' Ke= 0.500 Inlet / Outlet Invert= 86.70' / 86.40' S= 0.0136 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=1.76 cfs @ 12.07 hrs HW=88.22' TW=88.01' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 1.76 cfs @ 2.24 fps)

Summary for Pond 10P: MH

Inflow Area = 1.653 ac, 52.84% Impervious, Inflow Depth = 4.01" for 25 Year Event event
 Inflow = 7.88 cfs @ 12.07 hrs, Volume= 0.553 af
 Outflow = 7.88 cfs @ 12.07 hrs, Volume= 0.553 af, Atten= 0%, Lag= 0.0 min
 Primary = 7.88 cfs @ 12.07 hrs, Volume= 0.553 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 88.01' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	86.40'	18.0" Round Culvert L= 140.0' Ke= 0.500 Inlet / Outlet Invert= 86.40' / 85.00' S= 0.0100 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.77 sf

Primary OutFlow Max=7.87 cfs @ 12.07 hrs HW=88.01' TW=86.71' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 7.87 cfs @ 4.45 fps)

Summary for Pond 12P: MH

Inflow Area = 0.975 ac, 50.96% Impervious, Inflow Depth = 3.98" for 25 Year Event event
 Inflow = 4.62 cfs @ 12.07 hrs, Volume= 0.324 af
 Outflow = 4.62 cfs @ 12.07 hrs, Volume= 0.324 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.62 cfs @ 12.07 hrs, Volume= 0.324 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 89.89' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	88.65'	15.0" Round Culvert L= 300.0' Ke= 0.500 Inlet / Outlet Invert= 88.65' / 86.40' S= 0.0075 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

Primary OutFlow Max=4.60 cfs @ 12.07 hrs HW=89.88' TW=88.01' (Dynamic Tailwater)

↑1=Culvert (Outlet Controls 4.60 cfs @ 4.73 fps)

Summary for Pond 13P: CB6

Inflow Area = 0.457 ac, 54.20% Impervious, Inflow Depth = 4.04" for 25 Year Event event
 Inflow = 2.19 cfs @ 12.07 hrs, Volume= 0.154 af
 Outflow = 2.19 cfs @ 12.07 hrs, Volume= 0.154 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.19 cfs @ 12.07 hrs, Volume= 0.154 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 90.29' @ 12.08 hrs

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Device	Routing	Invert	Outlet Devices
#1	Primary	89.20'	12.0" Round Culvert L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 89.20' / 88.65' S= 0.0089 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=2.15 cfs @ 12.07 hrs HW=90.28' TW=89.88' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 2.15 cfs @ 3.15 fps)**Summary for Pond MH1: MH**

Inflow Area = 0.396 ac, 61.13% Impervious, Inflow Depth = 4.25" for 25 Year Event event
 Inflow = 1.97 cfs @ 12.07 hrs, Volume= 0.140 af
 Outflow = 1.97 cfs @ 12.07 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.97 cfs @ 12.07 hrs, Volume= 0.140 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 87.73' @ 12.10 hrs

Flood Elev= 89.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	87.00'	15.0" Round Culvert L= 55.0' Ke= 0.500 Inlet / Outlet Invert= 87.00' / 86.50' S= 0.0091 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

Primary OutFlow Max=1.90 cfs @ 12.07 hrs HW=87.72' TW=87.15' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 1.90 cfs @ 3.77 fps)**Summary for Pond MH2: CB 3**

Inflow Area = 0.304 ac, 51.58% Impervious, Inflow Depth = 3.94" for 25 Year Event event
 Inflow = 1.43 cfs @ 12.07 hrs, Volume= 0.100 af
 Outflow = 1.43 cfs @ 12.07 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.43 cfs @ 12.07 hrs, Volume= 0.100 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 88.15' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	86.70'	12.0" Round Culvert L= 22.0' Ke= 0.500 Inlet / Outlet Invert= 86.70' / 86.40' S= 0.0136 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=1.35 cfs @ 12.07 hrs HW=88.13' TW=88.00' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 1.35 cfs @ 1.72 fps)

Summary for Pond MH3: CB5

Inflow Area = 0.518 ac, 48.10% Impervious, Inflow Depth = 3.94" for 25 Year Event event
 Inflow = 2.43 cfs @ 12.07 hrs, Volume= 0.170 af
 Outflow = 2.43 cfs @ 12.07 hrs, Volume= 0.170 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.43 cfs @ 12.07 hrs, Volume= 0.170 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 90.35' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	89.20'	12.0" Round Culvert L= 65.0' Ke= 0.500 Inlet / Outlet Invert= 89.20' / 88.65' S= 0.0085 ' S= 0.0085 ' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=2.39 cfs @ 12.07 hrs HW=90.34' TW=89.88' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 2.39 cfs @ 3.34 fps)

Summary for Pond P1: POND 1

Inflow Area = 0.396 ac, 61.13% Impervious, Inflow Depth = 4.25" for 25 Year Event event
 Inflow = 1.97 cfs @ 12.07 hrs, Volume= 0.140 af
 Outflow = 0.56 cfs @ 12.40 hrs, Volume= 0.140 af, Atten= 71%, Lag= 19.6 min
 Discarded = 0.29 cfs @ 12.40 hrs, Volume= 0.129 af
 Primary = 0.27 cfs @ 12.40 hrs, Volume= 0.011 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 87.63' @ 12.40 hrs Surf.Area= 1,535 sf Storage= 1,578 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 27.6 min (817.8 - 790.2)

Volume	Invert	Avail.Storage	Storage Description
#1	86.50'	5,959 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
86.50	1,260	224.0	0	0	1,260
87.00	1,380	231.0	660	660	1,538
88.00	1,630	242.0	1,503	2,163	2,015
89.00	1,896	254.0	1,761	3,924	2,549
90.00	2,176	265.0	2,034	5,959	3,072

Device	Routing	Invert	Outlet Devices
#1	Primary	87.30'	6.0" Vert. Orifice/Grate C= 0.600
#2	Discarded	86.50'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.29 cfs @ 12.40 hrs HW=87.63' (Free Discharge)

↑**2=Exfiltration** (Exfiltration Controls 0.29 cfs)

Primary OutFlow Max=0.27 cfs @ 12.40 hrs HW=87.63' TW=86.75' (Dynamic Tailwater)

↑**1=Orifice/Grate** (Orifice Controls 0.27 cfs @ 1.96 fps)

Summary for Pond P2: POND 2

Inflow Area = 1.967 ac, 44.42% Impervious, Inflow Depth = 3.81" for 25 Year Event event
 Inflow = 8.93 cfs @ 12.07 hrs, Volume= 0.625 af
 Outflow = 3.66 cfs @ 12.27 hrs, Volume= 0.625 af, Atten= 59%, Lag= 12.0 min
 Discarded = 1.11 cfs @ 12.27 hrs, Volume= 0.486 af
 Primary = 2.55 cfs @ 12.27 hrs, Volume= 0.139 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
 Peak Elev= 87.15' @ 12.27 hrs Surf.Area= 4,461 sf Storage= 6,905 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 33.0 min (834.6 - 801.6)

Volume	Invert	Avail.Storage	Storage Description
#1	85.00'	11,154 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
85.00	2,050	344.0	0	0	2,050
86.00	3,124	374.0	2,568	2,568	3,801
87.00	4,287	402.0	3,690	6,258	5,573
88.00	5,530	425.0	4,895	11,154	7,142

Device	Routing	Invert	Outlet Devices
#1	Primary	86.20'	12.0" Vert. Orifice/Grate C= 0.600
#2	Discarded	85.00'	8.270 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=1.11 cfs @ 12.27 hrs HW=87.15' (Free Discharge)

↑**2=Exfiltration** (Exfiltration Controls 1.11 cfs)

Primary OutFlow Max=2.55 cfs @ 12.27 hrs HW=87.15' TW=85.85' (Dynamic Tailwater)

↑**1=Orifice/Grate** (Orifice Controls 2.55 cfs @ 3.31 fps)

Summary for Pond R1: Pond1 Outlet - 12" RCP

Inflow Area = 0.396 ac, 61.13% Impervious, Inflow Depth = 0.34" for 25 Year Event event
 Inflow = 0.27 cfs @ 12.40 hrs, Volume= 0.011 af
 Outflow = 0.27 cfs @ 12.40 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.27 cfs @ 12.40 hrs, Volume= 0.011 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Concord ST - Rockland 11.20.21

Type III 24-hr 25 Year Event Rainfall=5.50"

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Peak Elev= 86.75' @ 12.40 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	86.50'	12.0" Round Culvert L= 25.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 86.50' / 86.20' S= 0.0120 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=0.27 cfs @ 12.40 hrs HW=86.75' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 0.27 cfs @ 1.72 fps)**Summary for Pond R4: Pond 2 Outlet - 12" RCP**

Inflow Area = 1.967 ac, 44.42% Impervious, Inflow Depth = 0.85" for 25 Year Event event
 Inflow = 2.55 cfs @ 12.27 hrs, Volume= 0.139 af
 Outflow = 2.55 cfs @ 12.27 hrs, Volume= 0.139 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.55 cfs @ 12.27 hrs, Volume= 0.139 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 85.85' @ 12.27 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	84.90'	12.0" Round Culvert L= 35.0' Ke= 0.500 Inlet / Outlet Invert= 84.90' / 84.20' S= 0.0200 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=2.55 cfs @ 12.27 hrs HW=85.85' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 2.55 cfs @ 3.31 fps)**Summary for Link 1L: 6 -1550 Houses**

Inflow Area = 0.036 ac, 100.00% Impervious, Inflow Depth = 4.28" for 25 Year Event event
 Inflow = 0.19 cfs @ 12.09 hrs, Volume= 0.013 af
 Primary = 1.17 cfs @ 12.09 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow x 6.00, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

25 Year Event Outflow Imported from Concord ST one house with infiltration 1550~Reach 2R.hce

Summary for Link 2L: 1 - 1200 House

Inflow Area = 0.028 ac, 100.00% Impervious, Inflow Depth = 3.98" for 25 Year Event event
 Inflow = 0.15 cfs @ 12.08 hrs, Volume= 0.009 af
 Primary = 0.15 cfs @ 12.08 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

25 Year Event Outflow Imported from Concord ST one house with infiltration 1200~Reach 2R.hce

Summary for Link 3L: 10 - 1550 Houses

Inflow Area = 0.036 ac, 100.00% Impervious, Inflow Depth = 4.28" for 25 Year Event event
Inflow = 0.19 cfs @ 12.09 hrs, Volume= 0.013 af
Primary = 1.95 cfs @ 12.09 hrs, Volume= 0.127 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow x 10.00, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

25 Year Event Outflow Imported from Concord ST one house with infiltration 1550~Reach 2R.hce

Summary for Link 4L: 2 - 1200 House

Inflow Area = 0.028 ac, 100.00% Impervious, Inflow Depth = 3.98" for 25 Year Event event
Inflow = 0.15 cfs @ 12.08 hrs, Volume= 0.009 af
Primary = 0.31 cfs @ 12.08 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow x 2.00, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

25 Year Event Outflow Imported from Concord ST one house with infiltration 1200~Reach 2R.hce

Time span=0.00-35.00 hrs, dt=0.01 hrs, 3501 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 3S: Prop Lawn to Pond 2 Runoff Area=13,665 sf 0.00% Impervious Runoff Depth=4.04"
Tc=5.0 min CN=74 Runoff=1.54 cfs 0.106 af

Subcatchment 4S: Prop. to East Wetland Runoff Area=124,494 sf 20.92% Impervious Runoff Depth=4.37"
Flow Length=370' Tc=37.0 min CN=77 Runoff=7.47 cfs 1.040 af

Subcatchment 5S: Prop. to Pond 1 Runoff Area=17,230 sf 61.13% Impervious Runoff Depth=5.71"
Tc=5.0 min CN=89 Runoff=2.61 cfs 0.188 af

Subcatchment 6S: Prop. to CB # 6 Runoff Area=19,917 sf 54.20% Impervious Runoff Depth=5.48"
Tc=5.0 min CN=87 Runoff=2.93 cfs 0.209 af

Subcatchment 8S: Prop. to Street Runoff Area=592 sf 83.11% Impervious Runoff Depth=6.29"
Tc=5.0 min CN=94 Runoff=0.09 cfs 0.007 af

Subcatchment 9S: Prop. to North Wetland Runoff Area=33,123 sf 15.76% Impervious Runoff Depth=4.26"
Flow Length=480' Slope=0.0100 '/' Tc=33.1 min CN=76 Runoff=2.05 cfs 0.270 af

Subcatchment 10S: Prop. to Steam Runoff Area=146,224 sf 41.94% Impervious Runoff Depth=5.14"
Flow Length=1,030' Slope=0.0100 '/' Tc=38.3 min CN=84 Runoff=10.00 cfs 1.438 af

Subcatchment 11S: Prop. to CB # 5 Runoff Area=22,568 sf 48.10% Impervious Runoff Depth=5.37"
Tc=5.0 min CN=86 Runoff=3.27 cfs 0.232 af

Subcatchment 12S: Prop to CB#4 Runoff Area=16,270 sf 58.78% Impervious Runoff Depth=5.59"
Tc=5.0 min CN=88 Runoff=2.43 cfs 0.174 af

Subcatchment 13S: Prop to CB #3 Runoff Area=13,262 sf 51.58% Impervious Runoff Depth=5.37"
Tc=5.0 min CN=86 Runoff=1.92 cfs 0.136 af

Subcatchment E1: Exist. to Stream Runoff Area=243,161 sf 28.05% Impervious Runoff Depth=4.58"
Flow Length=460' Slope=0.0100 '/' Tc=42.0 min CN=79 Runoff=14.37 cfs 2.133 af

Subcatchment E2: Exist. To East Runoff Area=148,590 sf 21.32% Impervious Runoff Depth=4.26"
Flow Length=370' Tc=37.0 min CN=76 Runoff=8.70 cfs 1.210 af

Subcatchment E3: Exist. To Street Runoff Area=1,271 sf 37.21% Impervious Runoff Depth=5.03"
Tc=5.0 min CN=83 Runoff=0.17 cfs 0.012 af

Subcatchment E4: Exist. to Wetlands North Runoff Area=42,453 sf 19.69% Impervious Runoff Depth=4.37"
Flow Length=480' Slope=0.0100 '/' Tc=42.6 min CN=77 Runoff=2.37 cfs 0.355 af

Reach 1E: Exist. to Stream (DCP1) Inflow=14.37 cfs 2.133 af
Outflow=14.37 cfs 2.133 af

Reach 1P: Prop. to Stream (DCP1) Inflow=14.01 cfs 1.889 af
Outflow=14.01 cfs 1.889 af

Reach 2E: Exist East Wetland (DCP2)	Inflow=8.70 cfs 1.210 af Outflow=8.70 cfs 1.210 af
Reach 2P: Prop. to East Wetland (DCP2)	Inflow=8.35 cfs 1.184 af Outflow=8.35 cfs 1.184 af
Reach 3E: Exist To Street (DCP3)	Inflow=0.17 cfs 0.012 af Outflow=0.17 cfs 0.012 af
Reach 3P: Prop. To Street (DCP3)	Inflow=0.09 cfs 0.007 af Outflow=0.09 cfs 0.007 af
Reach 4E: Exist North Wetland (DCP4)	Inflow=2.37 cfs 0.355 af Outflow=2.37 cfs 0.355 af
Reach 4P: Prop. to North Wetland (DCP4)	Inflow=2.05 cfs 0.270 af Outflow=2.05 cfs 0.270 af
Pond 9P: CB 4	Peak Elev=89.40' Inflow=2.43 cfs 0.174 af 12.0" Round Culvert n=0.011 L=22.0' S=0.0136 '/' Outflow=2.43 cfs 0.174 af
Pond 10P: MH	Peak Elev=89.02' Inflow=10.54 cfs 0.751 af 18.0" Round Culvert n=0.011 L=140.0' S=0.0100 '/' Outflow=10.54 cfs 0.751 af
Pond 12P: MH	Peak Elev=91.52' Inflow=6.20 cfs 0.440 af 15.0" Round Culvert n=0.011 L=300.0' S=0.0075 '/' Outflow=6.20 cfs 0.440 af
Pond 13P: CB6	Peak Elev=92.11' Inflow=2.93 cfs 0.209 af 12.0" Round Culvert n=0.011 L=62.0' S=0.0089 '/' Outflow=2.93 cfs 0.209 af
Pond MH1: MH	Peak Elev=87.97' Inflow=2.61 cfs 0.188 af 15.0" Round Culvert n=0.011 L=55.0' S=0.0091 '/' Outflow=2.61 cfs 0.188 af
Pond MH2: CB 3	Peak Elev=89.26' Inflow=1.92 cfs 0.136 af 12.0" Round Culvert n=0.011 L=22.0' S=0.0136 '/' Outflow=1.92 cfs 0.136 af
Pond MH3: CB5	Peak Elev=92.27' Inflow=3.27 cfs 0.232 af 12.0" Round Culvert n=0.011 L=65.0' S=0.0085 '/' Outflow=3.27 cfs 0.232 af
Pond P1: POND 1	Peak Elev=87.91' Storage=2,021 cf Inflow=2.61 cfs 0.188 af Discarded=0.31 cfs 0.157 af Primary=0.57 cfs 0.032 af Outflow=0.88 cfs 0.188 af
Pond P2: POND 2	Peak Elev=87.67' Storage=9,404 cf Inflow=12.08 cfs 0.856 af Discarded=1.27 cfs 0.598 af Primary=3.73 cfs 0.259 af Outflow=4.99 cfs 0.856 af
Pond R1: Pond1 Outlet - 12" RCP	Peak Elev=86.88' Inflow=0.57 cfs 0.032 af 12.0" Round Culvert n=0.011 L=25.0' S=0.0120 '/' Outflow=0.57 cfs 0.032 af
Pond R4: Pond 2 Outlet - 12" RCP	Peak Elev=86.37' Inflow=3.73 cfs 0.259 af 12.0" Round Culvert n=0.011 L=35.0' S=0.0200 '/' Outflow=3.73 cfs 0.259 af

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Type III 24-hr 100 Year Event Rainfall=7.00"

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ar Event Outflow [Link](#) Imported from Concord ST one house with infiltration 1550~Reach 2R.hce x 6.00 Inflow=0.24 cfs 0.017 af
Area= 0.036 ac 100.00% Imperv. Primary=1.45 cfs 0.101 af

100 Year Event Outflow [Link](#) Imported from Concord ST one house with infiltration 1200~Reach 2R.hce Inflow=0.19 cfs 0.012 af
Area= 0.028 ac 100.00% Imperv. Primary=0.19 cfs 0.012 af

r Event Outflow [Link](#) Imported from Concord ST one house with infiltration 1550~Reach 2R.hce x 10.00 Inflow=0.24 cfs 0.017 af
Area= 0.036 ac 100.00% Imperv. Primary=2.41 cfs 0.168 af

ar Event Outflow [Link](#) Imported from Concord ST one house with infiltration 1200~Reach 2R.hce x 2.00 Inflow=0.19 cfs 0.012 af
Area= 0.028 ac 100.00% Imperv. Primary=0.38 cfs 0.025 af

Total Runoff Area = 19.348 ac Runoff Volume = 7.509 af Average Runoff Depth = 4.66"
70.29% Pervious = 13.600 ac 29.71% Impervious = 5.748 ac

Summary for Subcatchment 3S: Prop Lawn to Pond 2

Runoff = 1.54 cfs @ 12.07 hrs, Volume= 0.106 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Event Rainfall=7.00"

Area (sf)	CN	Description
13,665	74	>75% Grass cover, Good, HSG C
13,665		100.00% Pervious Area

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

Summary for Subcatchment 4S: Prop. to East Wetland

Runoff = 7.47 cfs @ 12.50 hrs, Volume= 1.040 af, Depth= 4.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Event Rainfall=7.00"

Area (sf)	CN	Description
* 25,672	98	Water Surface Wetlands, HSG C
38,352	74	>75% Grass cover, Good, HSG C
58,938	70	Woods, Good, HSG C
* 1,155	74	Patio
* 377	98	ret wall
124,494	77	Weighted Average
98,445		79.08% Pervious Area
26,049		20.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow,
					Woods: Dense underbrush n= 0.800 P2= 3.20"
8.7	320	0.0150	0.61		Shallow Concentrated Flow, shallow
					Woodland Kv= 5.0 fps
37.0	370	Total			

Summary for Subcatchment 5S: Prop. to Pond 1

Runoff = 2.61 cfs @ 12.07 hrs, Volume= 0.188 af, Depth= 5.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Event Rainfall=7.00"

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Type III 24-hr 100 Year Event Rainfall=7.00"

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Area (sf)	CN	Description
10,533	98	Paved parking, HSG C
6,697	74	>75% Grass cover, Good, HSG C
17,230	89	Weighted Average
6,697		38.87% Pervious Area
10,533		61.13% Impervious Area

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

Summary for Subcatchment 6S: Prop. to CB # 6

Runoff = 2.93 cfs @ 12.07 hrs, Volume= 0.209 af, Depth= 5.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Event Rainfall=7.00"

Area (sf)	CN	Description
* 959	98	Paved parking, HSG C - Sidewalk
* 9,836	98	Paved parking, HSG C - rroad-drives
9,122	74	>75% Grass cover, Good, HSG C
19,917	87	Weighted Average
9,122		45.80% Pervious Area
10,795		54.20% Impervious Area

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

Summary for Subcatchment 8S: Prop. to Street

Runoff = 0.09 cfs @ 12.07 hrs, Volume= 0.007 af, Depth= 6.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Event Rainfall=7.00"

Area (sf)	CN	Description
492	98	Paved parking, HSG C
100	74	>75% Grass cover, Good, HSG C
592	94	Weighted Average
100		16.89% Pervious Area
492		83.11% Impervious Area

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

Summary for Subcatchment 9S: Prop. to North Wetland

Runoff = 2.05 cfs @ 12.47 hrs, Volume= 0.270 af, Depth= 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Event Rainfall=7.00"

Area (sf)	CN	Description
* 906	98	Water Surface Wetlands, HSG C
2,744	98	Paved parking, HSG C
16,242	74	>75% Grass cover, Good, HSG C
1,286	98	Roofs, HSG C - infiltrated
* 283	98	walls othe rimp.
11,662	70	Woods, Good, HSG C
33,123	76	Weighted Average
27,904		84.24% Pervious Area
5,219		15.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow, Sheet
					Woods: Dense underbrush n= 0.800 P2= 3.20"
4.8	430	0.0100	1.50		Shallow Concentrated Flow, shallow
					Grassed Waterway Kv= 15.0 fps
33.1	480	Total			

Summary for Subcatchment 10S: Prop. to Steam

Runoff = 10.00 cfs @ 12.51 hrs, Volume= 1.438 af, Depth= 5.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Event Rainfall=7.00"

Area (sf)	CN	Description
* 48,878	98	Water Surface Wetlands, HSG C
63,472	74	>75% Grass cover, Good, HSG C
* 4,305	98	walls othe rimp.
1,100	87	Dirt roads, HSG C
18,844	70	Woods, Good, HSG C
* 2,457	98	Exisit., Roof
* 5,683	98	Exisit. Pavement
* 1,485	74	Prop. Patios
146,224	84	Weighted Average
84,901		58.06% Pervious Area
61,323		41.94% Impervious Area

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Type III 24-hr 100 Year Event Rainfall=7.00"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow, Woods: Dense underbrush n= 0.800 P2= 3.20"
1.7	50	0.0100	0.50		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.7	30	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
3.7	110	0.0100	0.50		Shallow Concentrated Flow, shallow Woodland Kv= 5.0 fps
3.9	790	0.0100	3.35	20.11	Channel Flow, Stream Area= 6.0 sf Perim= 7.0' r= 0.86' n= 0.040 Earth, cobble bottom, clean sides
38.3	1,030	Total			

Summary for Subcatchment 11S: Prop. to CB # 5

Runoff = 3.27 cfs @ 12.07 hrs, Volume= 0.232 af, Depth= 5.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Event Rainfall=7.00"

	Area (sf)	CN	Description
*	466	98	Paved parking, HSG C - Sidewalk
*	10,390	98	Paved parking, HSG C - rroad-drives
	11,712	74	>75% Grass cover, Good, HSG C
	22,568	86	Weighted Average
	11,712		51.90% Pervious Area
	10,856		48.10% Impervious Area

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

Summary for Subcatchment 12S: Prop to CB#4

Runoff = 2.43 cfs @ 12.07 hrs, Volume= 0.174 af, Depth= 5.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Event Rainfall=7.00"

	Area (sf)	CN	Description
*	1,652	98	Paved parking, HSG C-Sidewalk
	7,912	98	Paved parking, HSG C
	6,706	74	>75% Grass cover, Good, HSG C
	16,270	88	Weighted Average
	6,706		41.22% Pervious Area
	9,564		58.78% Impervious Area

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Type III 24-hr 100 Year Event Rainfall=7.00"

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

Summary for Subcatchment 13S: Prop to CB #3

Runoff = 1.92 cfs @ 12.07 hrs, Volume= 0.136 af, Depth= 5.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Event Rainfall=7.00"

Area (sf)	CN	Description
6,841	98	Paved parking, HSG C
6,421	74	>75% Grass cover, Good, HSG C
13,262	86	Weighted Average
6,421		48.42% Pervious Area
6,841		51.58% Impervious Area

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

Summary for Subcatchment E1: Exist. to Stream

Runoff = 14.37 cfs @ 12.56 hrs, Volume= 2.133 af, Depth= 4.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Event Rainfall=7.00"

Area (sf)	CN	Description
* 48,977	98	Water Surface Wetlands, HSG C
11,952	98	Paved parking, HSG C
34,335	74	>75% Grass cover, Good, HSG C
2,457	98	Roofs, HSG C
* 4,820	98	walls othe rimp.
8,801	87	Dirt roads, HSG C
131,819	70	Woods, Good, HSG C
243,161	79	Weighted Average
174,955		71.95% Pervious Area
68,206		28.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow, Sheet
					Woods: Dense underbrush n= 0.800 P2= 3.20"
13.7	410	0.0100	0.50		Shallow Concentrated Flow, shallow - woods
					Woodland Kv= 5.0 fps
42.0	460	Total			

Summary for Subcatchment E2: Exist. To East Wetlands

Runoff = 8.70 cfs @ 12.50 hrs, Volume= 1.210 af, Depth= 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Event Rainfall=7.00"

	Area (sf)	CN	Description
*	25,672	98	Water Surface Wetlands, HSG C
	5,792	98	Paved parking, HSG C
	9,907	74	>75% Grass cover, Good, HSG C
*	217	98	walls othe rimp.
	107,002	70	Woods, Good, HSG C
	148,590	76	Weighted Average
	116,909		78.68% Pervious Area
	31,681		21.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow, Sheet
					Woods: Dense underbrush n= 0.800 P2= 3.20"
8.7	320	0.0150	0.61		Shallow Concentrated Flow, shallow - woods
					Woodland Kv= 5.0 fps
37.0	370	Total			

Summary for Subcatchment E3: Exist. To Street

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.012 af, Depth= 5.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Event Rainfall=7.00"

	Area (sf)	CN	Description
	473	98	Paved parking, HSG C
	798	74	>75% Grass cover, Good, HSG C
	1,271	83	Weighted Average
	798		62.79% Pervious Area
	473		37.21% Impervious Area

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

Summary for Subcatchment E4: Exist. to Wetlands North

Runoff = 2.37 cfs @ 12.59 hrs, Volume= 0.355 af, Depth= 4.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Event Rainfall=7.00"

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Type III 24-hr 100 Year Event Rainfall=7.00"

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Area (sf)	CN	Description
* 907	98	Water Surface Wetlands, HSG C
5,644	98	Paved parking, HSG C
12,783	74	>75% Grass cover, Good, HSG C
* 520	98	walls othe rimp.
21,313	70	Woods, Good, HSG C
1,286	98	Roofs, HSG C
42,453	77	Weighted Average
34,096		80.31% Pervious Area
8,357		19.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.3	50	0.0100	0.03		Sheet Flow, Sheet
					Woods: Dense underbrush n= 0.800 P2= 3.20"
14.3	430	0.0100	0.50		Shallow Concentrated Flow, shallow - woods
					Woodland Kv= 5.0 fps
42.6	480	Total			

Summary for Reach 1E: Exist. to Stream (DCP1)

Inflow Area = 5.582 ac, 28.05% Impervious, Inflow Depth = 4.58" for 100 Year Event event
 Inflow = 14.37 cfs @ 12.56 hrs, Volume= 2.133 af
 Outflow = 14.37 cfs @ 12.56 hrs, Volume= 2.133 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 1P: Prop. to Stream (DCP1)

Inflow Area = 5.387 ac, 43.52% Impervious, Inflow Depth = 4.21" for 100 Year Event event
 Inflow = 14.01 cfs @ 12.47 hrs, Volume= 1.889 af
 Outflow = 14.01 cfs @ 12.47 hrs, Volume= 1.889 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 2E: Exist East Wetland (DCP2)

Inflow Area = 3.411 ac, 21.32% Impervious, Inflow Depth = 4.26" for 100 Year Event event
 Inflow = 8.70 cfs @ 12.50 hrs, Volume= 1.210 af
 Outflow = 8.70 cfs @ 12.50 hrs, Volume= 1.210 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 2P: Prop. to East Wetland (DCP2)

Inflow Area = 3.317 ac, 27.22% Impervious, Inflow Depth = 4.29" for 100 Year Event event
 Inflow = 8.35 cfs @ 12.46 hrs, Volume= 1.184 af
 Outflow = 8.35 cfs @ 12.46 hrs, Volume= 1.184 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 3E: Exist To Street (DCP3)

Inflow Area = 0.029 ac, 37.21% Impervious, Inflow Depth = 5.03" for 100 Year Event event
 Inflow = 0.17 cfs @ 12.07 hrs, Volume= 0.012 af
 Outflow = 0.17 cfs @ 12.07 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 3P: Prop. To Street (DCP3)

Inflow Area = 0.014 ac, 83.11% Impervious, Inflow Depth = 6.29" for 100 Year Event event
 Inflow = 0.09 cfs @ 12.07 hrs, Volume= 0.007 af
 Outflow = 0.09 cfs @ 12.07 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 4E: Exist North Wetland (DCP4)

Inflow Area = 0.975 ac, 19.69% Impervious, Inflow Depth = 4.37" for 100 Year Event event
 Inflow = 2.37 cfs @ 12.59 hrs, Volume= 0.355 af
 Outflow = 2.37 cfs @ 12.59 hrs, Volume= 0.355 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Reach 4P: Prop. to North Wetland (DCP4)

Inflow Area = 0.760 ac, 15.76% Impervious, Inflow Depth = 4.26" for 100 Year Event event
 Inflow = 2.05 cfs @ 12.47 hrs, Volume= 0.270 af
 Outflow = 2.05 cfs @ 12.47 hrs, Volume= 0.270 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Summary for Pond 9P: CB 4

Inflow Area = 0.374 ac, 58.78% Impervious, Inflow Depth = 5.59" for 100 Year Event event
 Inflow = 2.43 cfs @ 12.07 hrs, Volume= 0.174 af
 Outflow = 2.43 cfs @ 12.07 hrs, Volume= 0.174 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.43 cfs @ 12.07 hrs, Volume= 0.174 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 89.40' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	86.70'	12.0" Round Culvert L= 22.0' Ke= 0.500 Inlet / Outlet Invert= 86.70' / 86.40' S= 0.0136 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=2.10 cfs @ 12.07 hrs HW=89.29' TW=88.98' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 2.10 cfs @ 2.68 fps)

Summary for Pond 10P: MH

Inflow Area = 1.653 ac, 52.84% Impervious, Inflow Depth = 5.45" for 100 Year Event event
 Inflow = 10.54 cfs @ 12.07 hrs, Volume= 0.751 af
 Outflow = 10.54 cfs @ 12.07 hrs, Volume= 0.751 af, Atten= 0%, Lag= 0.0 min
 Primary = 10.54 cfs @ 12.07 hrs, Volume= 0.751 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
 Peak Elev= 89.02' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	86.40'	18.0" Round Culvert L= 140.0' Ke= 0.500 Inlet / Outlet Invert= 86.40' / 85.00' S= 0.0100 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.77 sf

Primary OutFlow Max=10.34 cfs @ 12.07 hrs HW=88.98' TW=87.21' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 10.34 cfs @ 5.85 fps)

Summary for Pond 12P: MH

Inflow Area = 0.975 ac, 50.96% Impervious, Inflow Depth = 5.42" for 100 Year Event event
 Inflow = 6.20 cfs @ 12.07 hrs, Volume= 0.440 af
 Outflow = 6.20 cfs @ 12.07 hrs, Volume= 0.440 af, Atten= 0%, Lag= 0.0 min
 Primary = 6.20 cfs @ 12.07 hrs, Volume= 0.440 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
 Peak Elev= 91.52' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	88.65'	15.0" Round Culvert L= 300.0' Ke= 0.500 Inlet / Outlet Invert= 88.65' / 86.40' S= 0.0075 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

Primary OutFlow Max=6.07 cfs @ 12.07 hrs HW=91.45' TW=88.98' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 6.07 cfs @ 4.94 fps)

Summary for Pond 13P: CB6

Inflow Area = 0.457 ac, 54.20% Impervious, Inflow Depth = 5.48" for 100 Year Event event
 Inflow = 2.93 cfs @ 12.07 hrs, Volume= 0.209 af
 Outflow = 2.93 cfs @ 12.07 hrs, Volume= 0.209 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.93 cfs @ 12.07 hrs, Volume= 0.209 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
 Peak Elev= 92.11' @ 12.09 hrs

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Device	Routing	Invert	Outlet Devices
#1	Primary	89.20'	12.0" Round Culvert L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 89.20' / 88.65' S= 0.0089 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=2.37 cfs @ 12.07 hrs HW=91.86' TW=91.45' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 2.37 cfs @ 3.02 fps)**Summary for Pond MH1: MH**

Inflow Area = 0.396 ac, 61.13% Impervious, Inflow Depth = 5.71" for 100 Year Event event
 Inflow = 2.61 cfs @ 12.07 hrs, Volume= 0.188 af
 Outflow = 2.61 cfs @ 12.07 hrs, Volume= 0.188 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.61 cfs @ 12.07 hrs, Volume= 0.188 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 87.97' @ 12.29 hrs

Flood Elev= 89.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	87.00'	15.0" Round Culvert L= 55.0' Ke= 0.500 Inlet / Outlet Invert= 87.00' / 86.50' S= 0.0091 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

Primary OutFlow Max=2.46 cfs @ 12.07 hrs HW=87.92' TW=87.46' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 2.46 cfs @ 3.55 fps)**Summary for Pond MH2: CB 3**

Inflow Area = 0.304 ac, 51.58% Impervious, Inflow Depth = 5.37" for 100 Year Event event
 Inflow = 1.92 cfs @ 12.07 hrs, Volume= 0.136 af
 Outflow = 1.92 cfs @ 12.07 hrs, Volume= 0.136 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.92 cfs @ 12.07 hrs, Volume= 0.136 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 89.26' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	86.70'	12.0" Round Culvert L= 22.0' Ke= 0.500 Inlet / Outlet Invert= 86.70' / 86.40' S= 0.0136 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=1.50 cfs @ 12.07 hrs HW=89.14' TW=88.98' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 1.50 cfs @ 1.91 fps)

Summary for Pond MH3: CB5

Inflow Area = 0.518 ac, 48.10% Impervious, Inflow Depth = 5.37" for 100 Year Event event
 Inflow = 3.27 cfs @ 12.07 hrs, Volume= 0.232 af
 Outflow = 3.27 cfs @ 12.07 hrs, Volume= 0.232 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.27 cfs @ 12.07 hrs, Volume= 0.232 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
 Peak Elev= 92.27' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	89.20'	12.0" Round Culvert L= 65.0' Ke= 0.500 Inlet / Outlet Invert= 89.20' / 88.65' S= 0.0085 ' S= 0.0085 ' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=2.80 cfs @ 12.07 hrs HW=92.03' TW=91.45' (Dynamic Tailwater)
 ↑**1=Culvert** (Outlet Controls 2.80 cfs @ 3.56 fps)

Summary for Pond P1: POND 1

Inflow Area = 0.396 ac, 61.13% Impervious, Inflow Depth = 5.71" for 100 Year Event event
 Inflow = 2.61 cfs @ 12.07 hrs, Volume= 0.188 af
 Outflow = 0.88 cfs @ 12.34 hrs, Volume= 0.188 af, Atten= 66%, Lag= 16.0 min
 Discarded = 0.31 cfs @ 12.34 hrs, Volume= 0.157 af
 Primary = 0.57 cfs @ 12.34 hrs, Volume= 0.032 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
 Peak Elev= 87.91' @ 12.34 hrs Surf.Area= 1,607 sf Storage= 2,021 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 27.4 min (809.7 - 782.3)

Volume	Invert	Avail.Storage	Storage Description
#1	86.50'	5,959 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
86.50	1,260	224.0	0	0	1,260
87.00	1,380	231.0	660	660	1,538
88.00	1,630	242.0	1,503	2,163	2,015
89.00	1,896	254.0	1,761	3,924	2,549
90.00	2,176	265.0	2,034	5,959	3,072

Device	Routing	Invert	Outlet Devices
#1	Primary	87.30'	6.0" Vert. Orifice/Grate C= 0.600
#2	Discarded	86.50'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.31 cfs @ 12.34 hrs HW=87.91' (Free Discharge)

↑**2=Exfiltration** (Exfiltration Controls 0.31 cfs)

Primary OutFlow Max=0.57 cfs @ 12.34 hrs HW=87.91' TW=86.88' (Dynamic Tailwater)

↑**1=Orifice/Grate** (Orifice Controls 0.57 cfs @ 2.90 fps)

Summary for Pond P2: POND 2

Inflow Area = 1.967 ac, 44.42% Impervious, Inflow Depth = 5.22" for 100 Year Event event
 Inflow = 12.08 cfs @ 12.07 hrs, Volume= 0.856 af
 Outflow = 4.99 cfs @ 12.26 hrs, Volume= 0.856 af, Atten= 59%, Lag= 11.5 min
 Discarded = 1.27 cfs @ 12.26 hrs, Volume= 0.598 af
 Primary = 3.73 cfs @ 12.26 hrs, Volume= 0.259 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs
 Peak Elev= 87.67' @ 12.26 hrs Surf.Area= 5,103 sf Storage= 9,404 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 33.3 min (826.4 - 793.1)

Volume	Invert	Avail.Storage	Storage Description		
#1	85.00'	11,154 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
85.00	2,050	344.0	0	0	2,050
86.00	3,124	374.0	2,568	2,568	3,801
87.00	4,287	402.0	3,690	6,258	5,573
88.00	5,530	425.0	4,895	11,154	7,142

Device	Routing	Invert	Outlet Devices	
#1	Primary	86.20'	12.0" Vert. Orifice/Grate C= 0.600	
#2	Discarded	85.00'	8.270 in/hr Exfiltration over Wetted area	

Discarded OutFlow Max=1.27 cfs @ 12.26 hrs HW=87.67' (Free Discharge)

↑**2=Exfiltration** (Exfiltration Controls 1.27 cfs)

Primary OutFlow Max=3.73 cfs @ 12.26 hrs HW=87.67' TW=86.37' (Dynamic Tailwater)

↑**1=Orifice/Grate** (Orifice Controls 3.73 cfs @ 4.74 fps)

Summary for Pond R1: Pond1 Outlet - 12" RCP

Inflow Area = 0.396 ac, 61.13% Impervious, Inflow Depth = 0.96" for 100 Year Event event
 Inflow = 0.57 cfs @ 12.34 hrs, Volume= 0.032 af
 Outflow = 0.57 cfs @ 12.34 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.57 cfs @ 12.34 hrs, Volume= 0.032 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

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Peak Elev= 86.88' @ 12.34 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	86.50'	12.0" Round Culvert L= 25.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 86.50' / 86.20' S= 0.0120 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=0.57 cfs @ 12.34 hrs HW=86.88' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 0.57 cfs @ 2.09 fps)**Summary for Pond R4: Pond 2 Outlet - 12" RCP**

Inflow Area = 1.967 ac, 44.42% Impervious, Inflow Depth = 1.58" for 100 Year Event event
 Inflow = 3.73 cfs @ 12.26 hrs, Volume= 0.259 af
 Outflow = 3.73 cfs @ 12.26 hrs, Volume= 0.259 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.73 cfs @ 12.26 hrs, Volume= 0.259 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

Peak Elev= 86.37' @ 12.26 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	84.90'	12.0" Round Culvert L= 35.0' Ke= 0.500 Inlet / Outlet Invert= 84.90' / 84.20' S= 0.0200 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=3.73 cfs @ 12.26 hrs HW=86.37' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 3.73 cfs @ 4.74 fps)**Summary for Link 1L: 6 -1550 Houses**

Inflow Area = 0.036 ac, 100.00% Impervious, Inflow Depth = 5.66" for 100 Year Event event
 Inflow = 0.24 cfs @ 12.09 hrs, Volume= 0.017 af
 Primary = 1.45 cfs @ 12.09 hrs, Volume= 0.101 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow x 6.00, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

100 Year Event Outflow Imported from Concord ST one house with infiltration 1550~Reach 2R.hce

Summary for Link 2L: 1 - 1200 House

Inflow Area = 0.028 ac, 100.00% Impervious, Inflow Depth = 5.36" for 100 Year Event event
 Inflow = 0.19 cfs @ 12.09 hrs, Volume= 0.012 af
 Primary = 0.19 cfs @ 12.09 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

100 Year Event Outflow Imported from Concord ST one house with infiltration 1200~Reach 2R.hce

Summary for Link 3L: 10 - 1550 Houses

Inflow Area = 0.036 ac, 100.00% Impervious, Inflow Depth = 5.66" for 100 Year Event event
Inflow = 0.24 cfs @ 12.09 hrs, Volume= 0.017 af
Primary = 2.41 cfs @ 12.09 hrs, Volume= 0.168 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow x 10.00, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

100 Year Event Outflow Imported from Concord ST one house with infiltration 1550~Reach 2R.hce

Summary for Link 4L: 2 - 1200 House

Inflow Area = 0.028 ac, 100.00% Impervious, Inflow Depth = 5.36" for 100 Year Event event
Inflow = 0.19 cfs @ 12.09 hrs, Volume= 0.012 af
Primary = 0.38 cfs @ 12.09 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow x 2.00, Time Span= 0.00-35.00 hrs, dt= 0.01 hrs

100 Year Event Outflow Imported from Concord ST one house with infiltration 1200~Reach 2R.hce

DRAWING REVISIONS

1	9/22/21	CONSERVATION COMMENTS
ACTION	DATE	DESCRIPTION

SURVEY NOTES:

1. ALL RESOURCE AREAS SHOWN HEREON WERE FIELD LOCATED BY CAVANARO CONSULTING IN JANUARY, 2018.

2. RESOURCE AREAS WERE FLAGGED BY SOUTH RIVER ENVIRONMENTAL DECEMBER 2017 AND REVISED BY SAME ON OCTOBER 9, 2018.

3. LOCUS LIES IN F.I.R.M. ZONE A, AE AND X AS SHOWN ON COMMUNITY PANEL NO. 25023C0181J DATED JULY 17, 2012. LOCATION OF ZONE AE TO BE CONFIRMED BY ADDITIONAL TOPOGRAPHY.

WETLANDS NOTES:

1. WETLAND DELINEATION AREAS SHOWN HEREON ARE BASED ON ORDER OF RESOURCE AREA DELINEATION SE 273-0400 ISSUED BY THE TOWN OF ROCKLAND ON JANUARY 11, 2019.

OWNERS OF RECORD:

DANIEL G. & CHRISTINE M. DELPRETE
365 CONCORD STREET
ROCKLAND, MA 02370
ASSESSOR'S PARCEL: 62-35
DEED BOOK:16754, PAGE: 267

DELPRETE REALTY CORP.
365 CONCORD STREET
ROCKLAND, MA 02370
ASSESSOR'S PARCEL: 62-46
BOOK:28919, PAGE: 257
ASSESSOR'S PARCEL: 62-36
DEED BOOK:28919, PAGE: 245

DANIEL DELPRETE
365 CONCORD STREET
ROCKLAND, MA 02370
ASSESSOR'S PARCEL: 62-41&42
BOOK: 48716, PAGE: 32
ASSESSOR'S PARCEL: 62-43&44
BOOK: 37548, PAGE: 217

SCALE: 1" = 40'

0' 20' 40' 80' 120'

EXISTING CONDITIONS SUBCATCHMENT AREAS

CAVANARO CONSULTING
687 MAIN STREET
P.O. BOX 5175
NORWELL, MASSACHUSETTS 02061
PHONE: 781.659.8187
FAX: 781.659.8186

CONCORD MEADOWS EXISTING CONDITIONS 365 CONCORD STREET ROCKLAND, MA 02370

PREPARED FOR: CONROCK LLC
P.O. BOX 1414
DUXBURY, MA 02331

PROJECT NO. : 19.103

SCALE : AS SHOWN

DATE : 6/1/21

DELINEATED BY : JZ

DRAWN BY : DB/CR

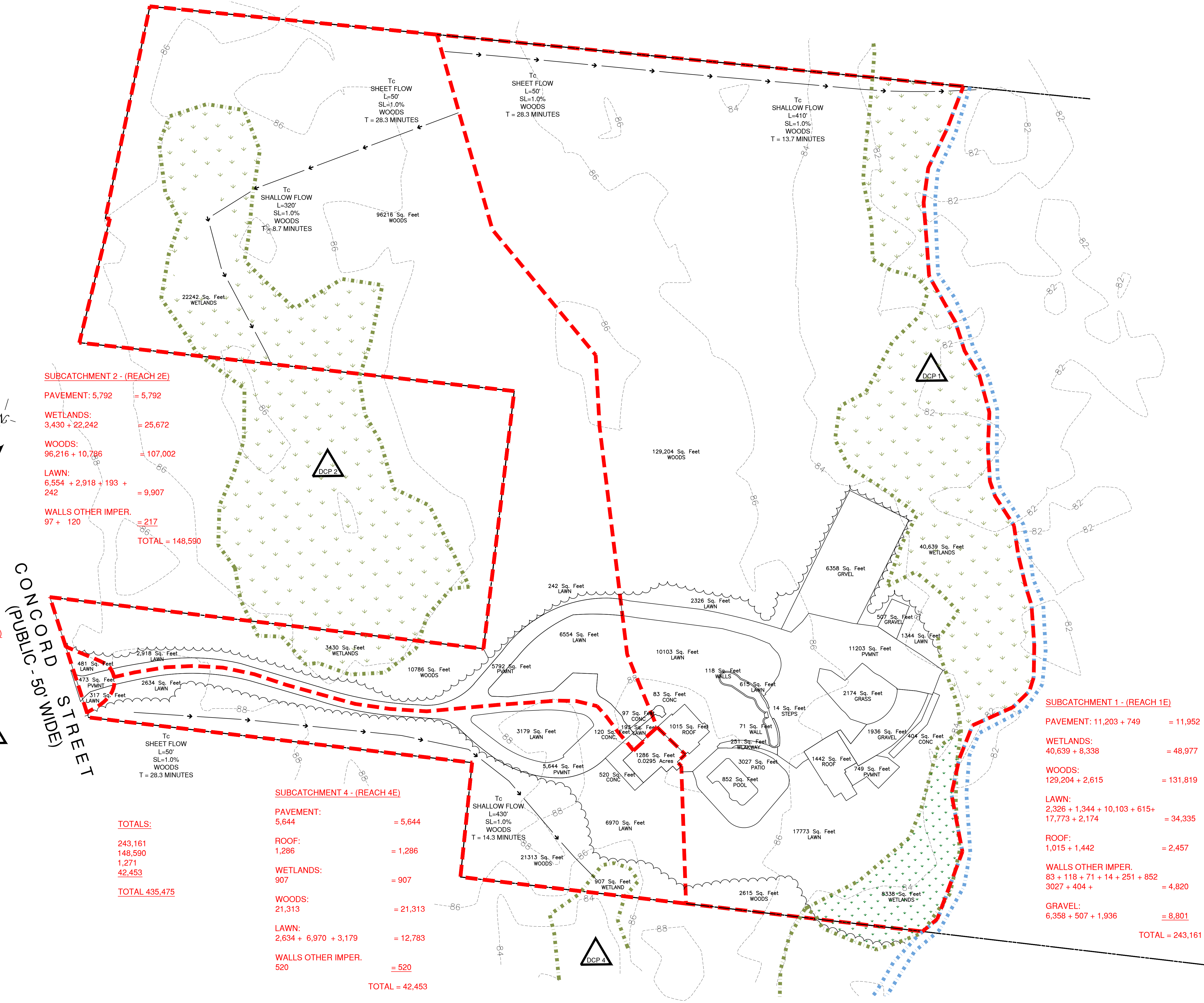
CHECKED BY : BPS

DRAWING NO.

ECSA

SHEET NO. 1 OF 2

FILENAME: X:\PR\2011\19.103\DWG\2019\PRELIM 2/18/21



SUBCATCHMENT 2 - (REACH 2E)

PAVEMENT: 5,792 = 5,792

WETLANDS: 3,430 + 22,242 = 25,672

WOODS: 96,216 + 10,786 = 107,002

LAWN: 6,554 + 2,918 + 193 + 242 = 9,907

WALLS OTHER IMPER. 97 + 120 = 217

TOTAL = 148,590

SUBCATCHMENT 3 - (REACH 3E)

PAVEMENT: 473 = 473

LAWN: 481 + 317 = 798

TOTAL = 1,271

Tc ASSUMED
T = 5.0 MINUTES

SUBCATCHMENT 4 - (REACH 4E)

PAVEMENT: 5,644 = 5,644

ROOF: 1,286 = 1,286

WETLANDS: 907 = 907

WOODS: 21,313 = 21,313

LAWN: 2,634 + 6,970 + 3,179 = 12,783

WALLS OTHER IMPER. 520 = 520

TOTAL = 42,453

TOTALS:

243,161

148,590

1,271

42,453

TOTAL 435,475

SUBCATCHMENT 1 - (REACH 1E)

PAVEMENT: 11,203 + 749 = 11,952

WETLANDS: 40,639 + 8,338 = 48,977

WOODS: 129,204 + 2,615 = 131,819

LAWN: 2,326 + 1,344 + 10,103 + 615 + 17,773 + 2,174 = 34,335

ROOF: 1,015 + 1,442 = 2,457

WALLS OTHER IMPER. 83 + 118 + 71 + 14 + 251 + 852 + 3027 + 404 + = 4,820

GRAVEL: 6,358 + 507 + 1,936 = 8,801

TOTAL = 243,161

SUBCATCHMENT OFFSITE - (SUBCAT 4S)

WOODS:
58,938 = 58,938 S.F.

LAWN:
38,352 = 38,352 S.F.

HOUSES:
7 @ 1,550 = 10,850
1 @ 1,200 = 1,200 = 12,050 S.F.

WETLANDS:
22,242 + 3,430 = 25,672 S.F.

PATIOS:
7 @ 165 = 1,155 S.F.

RETAINING WALL
= 377 S.F.

TOTAL = 136,544

SUBCATCHMENT - CATCH BASIN #5 (SUBCAT 5S)

PAVEMENT:
10,390 = 10,390

SIDEWALKS:
54+31+ 381 = 466 S.F.

LAWN:
184 (Grass Strip) + 628+3250+
2074+672+2201+237+1588+878 = 11,712 S.F.

TOTAL = 22,568 S.F.

SUBCATCHMENT TO POND 1 - SUBCAT 5S)

PAVEMENT:
4,260 + 4541 + 1,732(SIDEWALK)
S.F. = 10,533

LAWN:
680 (Grass Strip) + 1,928
+ 1,490 + 2,599(Det. pond) = 6,697 S.F.

TOTAL = 17,230 S.F.

SUBCATCHMENT - STREET - (SUBCAT 8S)

PAVEMENT:
451 + 41 = 492 S.F.

LAWN:
100 (Grass Strip) = 100 S.F.

TOTAL = 592 S.F.

TOTALS:
162,574
43,197
136,544
22,568
19,917
17,230
33,123
592

TOTAL = 435,745 S.F.

SUBCATCHMENT TO WETLAND - (SUBCAT 9S)

PAVEMENT: 2,744 = 2,744 S.F.

WETLANDS: 906 = 906 S.F.

WOODS: 11,662 = 11,662 S.F.

LAWN:
7,045 + 4,522 + 4,675 S.F. = 16,242 S.F.

ROOF:
1,286 = 1,286 S.F.

WALLS OTHER IMPER.
78 + 205 (NEW) = 283 S.F.

TOTAL = 33,123 S.F.

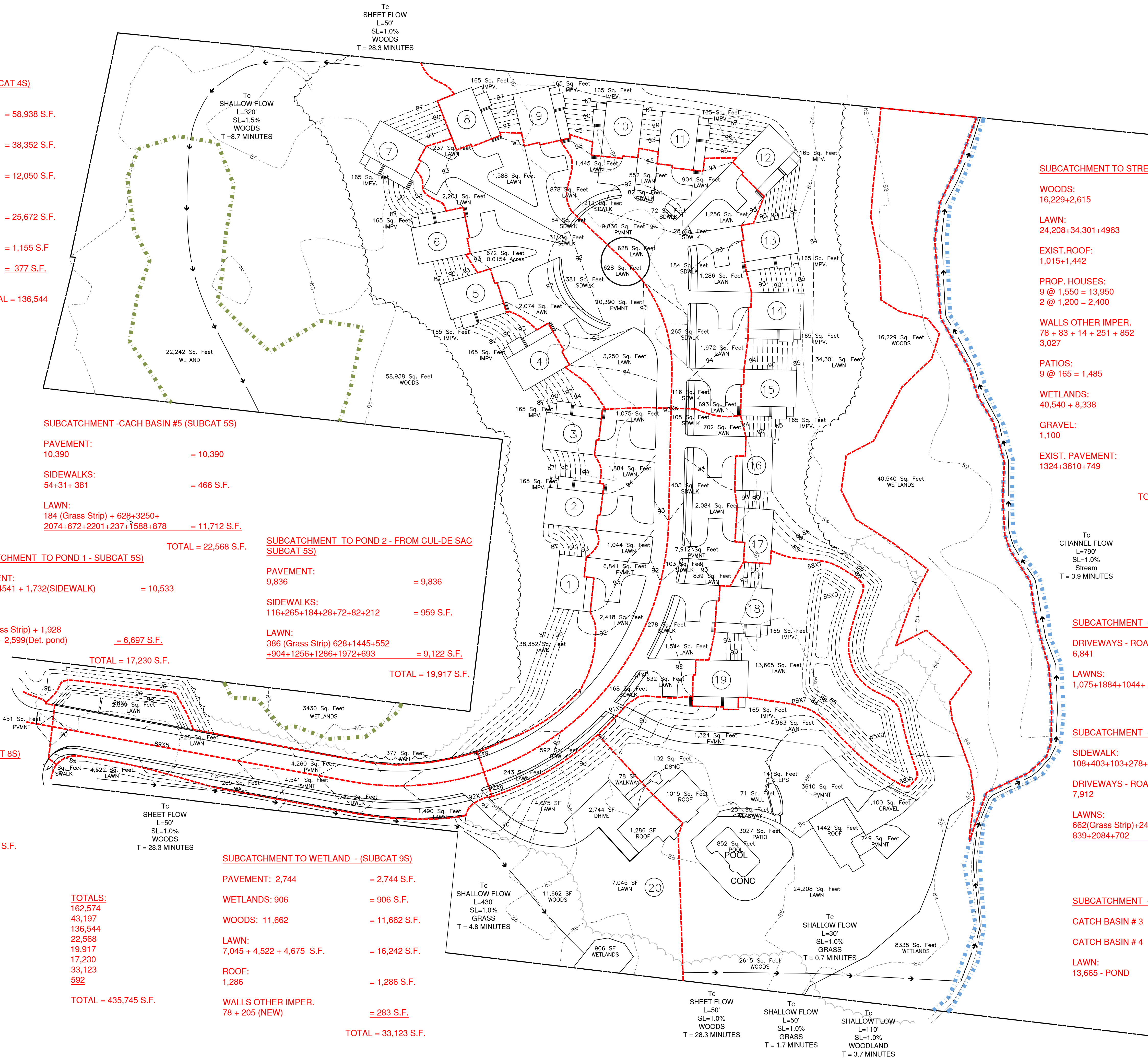
SUBCATCHMENT TO POND 2 - FROM CUL-DE SAC
SUBCAT 5S)

PAVEMENT:
9,836 = 9,836

SIDEWALKS:
116+265+184+28+72+82+212 = 959 S.F.

LAWN:
386 (Grass Strip) 628+1445+552
+904+1256+1286+1972+693 = 9,122 S.F.

TOTAL = 19,917 S.F.



SUBCATCHMENT TO STREAM - (SUBCAT 10S)

WOODS:
16,229+2,615 = 18,844

LAWN:
24,208+34,301+4963 = 63,472

EXIST. ROOF:
1,015+1,442 = 2,457

PROP. HOUSES:
9 @ 1,550 = 13,950
2 @ 1,200 = 2,400 = 16,350

WALLS OTHER IMPER.
78 + 83 + 14 + 251 + 852
3,027 = 4,305

PATIOS:
9 @ 165 = 1,485 = 1,485

WETLANDS:
40,540 + 8,338 = 48,878

GRAVEL:
1,100 = 1,100

EXIST. PAVEMENT:
1324+3610+749 = 5,683

TOTAL = 162,574 S.F.

SUBCATCHMENT - CATCH BASIN #3 - (SUBCAT 3S)

DRIVEWAYS - ROADWAY
6,841 = 6,841 S.F.

LAWNS:
1,075+1884+1044+ 2418 = 6,421 S.F.

TOTAL = 13,262 S.F.

SUBCATCHMENT - CATCH BASIN #4 - (SUBCAT 3S)

SIDEWALK:
108+403+103+278+168+592 = 1,652 S.F.

DRIVEWAYS - ROADWAY
7,912 = 7,912 S.F.

LAWNS:
662(Grass Strip)+243+632+1544
839+2084+702 = 6,706 S.F.

TOTAL = 16,270 S.F.

SUBCATCHMENT - TO POND 2 - (SUBCAT 3S)

CATCH BASIN # 3 = 13,262 S.F.

CATCH BASIN # 4 = 16,270 S.F.

LAWN:
13,665 - POND = 13,665 S.F.

TOTAL = 43,197 S.F.

DRAWING REVISIONS

2	11/30/21	CONSERVATION COMMENTS
1	9/22/21	CONSERVATION COMMENTS
ACTION	DATE	DESCRIPTION

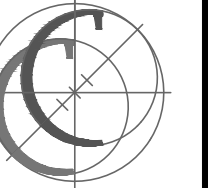
SCALE: 1" = 40'



PROPOSED CONDITIONS
SUBCATCHMENT AREAS

CAVANARO CONSULTING

687 MAIN STREET
P.O. BOX 5175
NORWELL, MASSACHUSETTS 02061
PHONE: 781.659.8187
FAX: 781.659.8186



CONCORD MEADOWS
EXISTING CONDITIONS
365 CONCORD STREET
ROCKLAND, MA 02370

PREPARED FOR:
CONROCK LLC
P.O. BOX 1414
DUXBURY, MA 02331

PROJECT NO. : 19.103	DRAWING NO.
SCALE : AS SHOWN	PCSA
DATE : 6/1/21	
DELINEATED BY : JZ	SHEET NO. 2 OF 2
DRAWN BY : DB/CR	
CHECKED BY : BPS	FILENAME: X:\PH\2011\19.103\DWG\2019\PRELIM 2/18/21