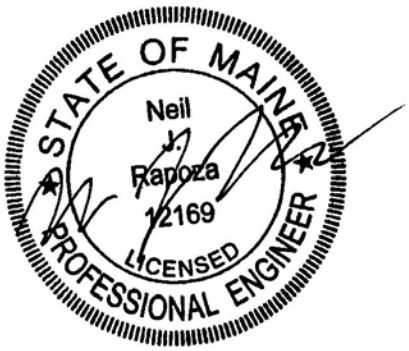


The seal affixed above applies to this report,
Appendices A through E, and Stormwater Plans D1 & D2.

Town of York Site Plan Application

"731 US ROUTE 1 DEVELOPMENT"

YORK, ME

Prepared for

731 US Route 1 Realty Trust
132 Western Point Avenue
York, Maine 03903

October 2016

CIVIL
CONSULTANTS

Engineers

Planners

Surveyors

Stormwater Management Narrative

York Site Plan Application

STORMWATER MANAGEMENT PLAN

"731 US Route 1 Development"
Route 1
York, Maine

Prepared for:

731 US Route 1 Realty Trust
132 Western Point Avenue
York, ME 03903

October, 2016

INTRODUCTION:

The proposed site is located on Map 94, Lots 14. The lot is situated on the south side of Route 1. The lot is located in the Route1-2 zone and contains 15.25 acres.

The development will consist of a building housing a combined marine retail, machine shop, and indoor boat storage facility. The portion of the lot that is proposed to be developed has been cleared in the past and hayed periodically.

Of the site's 15.25 acres, approximately 2.1 acres is proposed to be altered by the development.

The proposed storm water BMP's that will be used to treat runoff and control peak flows are a combination of detention basins located throughout the development.

DESIGN REQUIREMENTS:

The site improvements are required to meet basic standards of DEP Chapter 500, which address general erosion control and stormwater maintenance practices.

Refer to the runoff calculations included in this submittal for additional information regarding the BMP sizing.

The analysis for this report includes the 2- and 100-year event to predict the downstream effects of the proposed site coverage changes, as dictated by the Town of York.

EXISTING DRAINAGE CONDITIONS:

The site is currently a tall grass field, and has been filled recently in the area of the proposed site. There is a large wetland on the site at the south property line that receives flow from the site. This wetland feeds Little River, which outlets to the Atlantic Ocean.

Soils in the watershed are predominantly hydrologic type B in the area of development that was previously filled. Naturally existing soils and wetland areas have been classified as type D. On site soils were determined by a High Intensity Soil Survey performed by Joseph Noel, CSS #209.

The site is not located in a flood zone (See Appendix C for a copy of the applicable FEMA map).

PROPOSED DRAINAGE:

The proposed storm water management system has been designed to limit flows off site to pre-development levels. This will ensure that the proposed storm water management measures will maintain the runoff to the adjacent wetland and abutting properties similarly to that which existed prior to development.

A total of three detention basins are proposed to control runoff from the site. Two (30P and 40P) are located to the south of the development and outlet to the large on-site wetland. A third (20P) is a roadside depression located along Route 1 and outlets to a swale that directs flow to pond 40P. Ponds 30P and 40P will have outlet structures consisting of 24" HDPE risers with beehive grates and orifices that will restrict flow to bring peak runoff to acceptable values.

See the attached calculations for additional information.

ANALYSIS:

The overall perimeter of the watershed remained the same for both Pre- and Post Development. There were two subcatchments identified for the Pre Development analysis. Five subcatchments were used to model the site for the Post Development analysis. The increase in subcatchments is required to evaluate the flows around the proposed development features and detention basins.

The project runoff drains to two discharge points. OUT 1 is the discharge point to the abutting lot to the west. OUT 2 is the area that drains to the large wetland that occupies the southern portion of the lot and feeds Little River.

For further details regarding subcatchment determination, refer to the project drawings and D1 & D2 included in the appendix of this report.

METHODOLOGY:

All runoff calculations were performed using methods based on USDA–SCS Technical Release No. 20 (also known as TR-20). The 2- and 100-year events (Type III rainfall distribution) were used for the site-specific analysis to determine pre- and post-development peak discharge rates and required stormwater conveyance systems.

Runoff curve numbers (CN) and times of concentration (Tc) were determined by the methods outlined in USDA-SCS Technical Release No. 55 (better known as TR-55).

On site watershed areas were determined using two-foot contour data provided by field survey crews and previously compiled topography plans.

The detailed analysis for this project was performed by computer utilizing "HYDROCAD." The computer printouts are attached.

The attached Pre- and Post Development plans (D1 & D2) show subcatchment boundaries, hydraulic flow lines, existing and proposed roads, and drainage features and facilities. Land cover type boundaries used in the model for on-site areas are also shown on the plan (i.e. tree lines, wetlands, etc).

POND SIZING:

The proposed basins have been sized to detain the storm events as required to meet the Town regulations, which require the post-development flows off of the site remain at or below pre-development flows.

The storm intensities have been obtained from the NOAA Precipitation Frequency Data Server (PFDS), and represent a significant increase from previously published values by Maine DEP. This will insure that the proposed ponds will be sufficient to convey anticipated flows.

RUNOFF RATES:

TWO-YEAR EVENT -

Discharge Point Desig Pre/Post	Peak Runoff(in cfs) Pre	Post	Change (cfs)
OUT 1	0.50	0.50	N/C
OUT 2	2.97	2.48	-0.49

ONE-HUNDRED-YEAR EVENT -

Discharge Point Desig Pre/Post	Peak Runoff(in cfs) Pre	Post	Change (cfs)
OUT 1	2.30	1.76	-0.54
OUT 2	12.24	8.66	-3.58

Please see Appendix B for the stormwater maintenance and inspection plan.

LOW IMPACT DESIGN:

The use of low impact design practices were investigated for this project, such as permeable pavement and infiltration basins. Implementation of the LID practices were determined to be inefficient for this location, due to the fact that the existing soil characteristics do not allow for runoff infiltration. Significant site disturbance would be required to install the LID practices, and it was decided that breaking up pavement with landscaped islands and utilizing the existing grades to slow runoff would be a more effective approach to stormwater management in this case.

CONCLUSIONS:

The proposed site modification will maintain approximately the same flow rate exiting the site for all evaluated storm events required by the Town.

It is our opinion that there will be no adverse impacts as a result of this project.

J:\aaa\2016\1623700\Drainage\20161024_DRAINAGE_NARRATIVE.docx

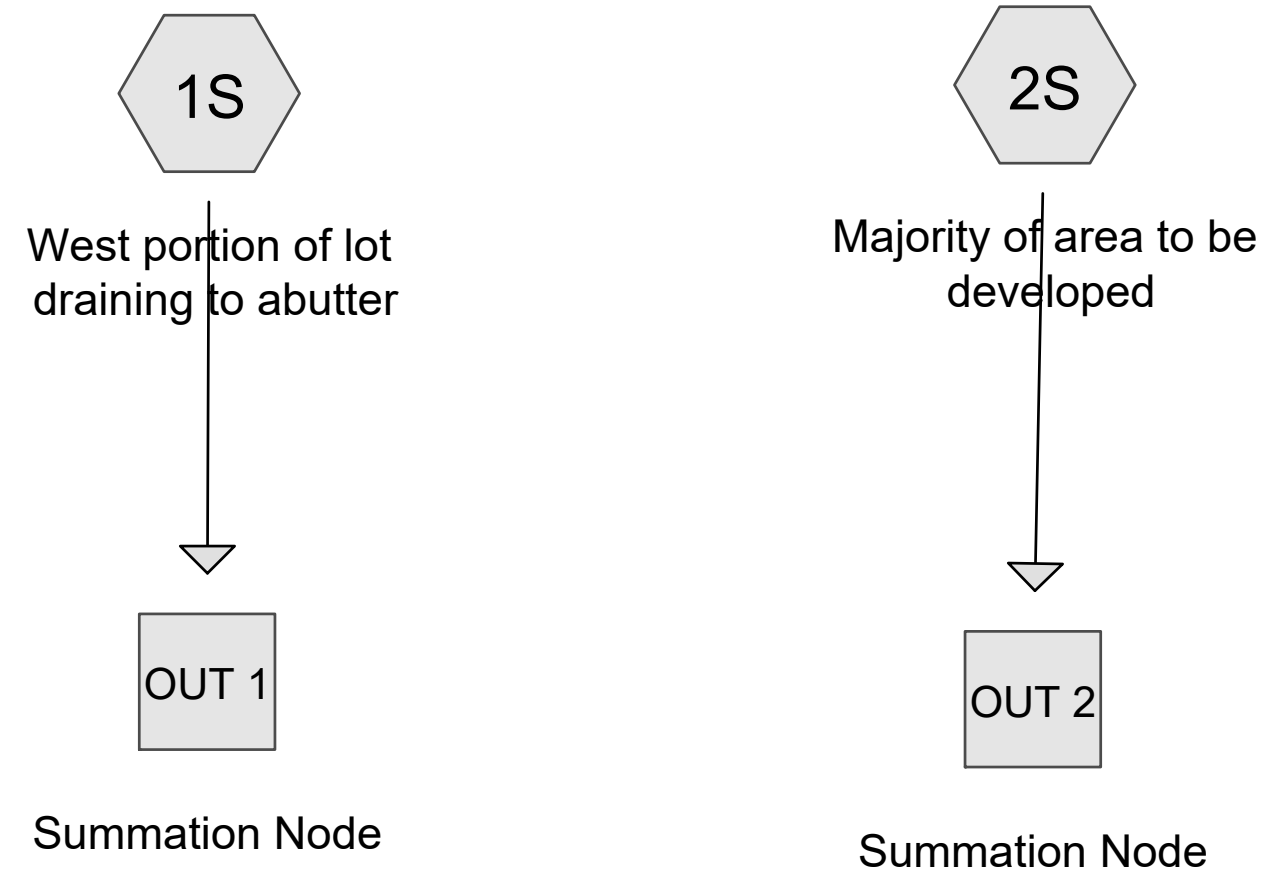
CIVIL
CONSULTANTS

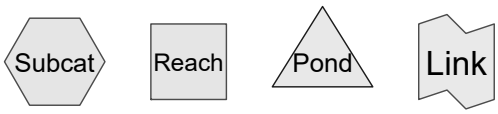
Engineers

Planners

Surveyors

Pre-Development Calculations





Routing Diagram for 20161024_1623700-PRE
Prepared by Civil Consultants, Printed 10/27/2016
HydroCAD® 10.00-13 s/n 00552 © 2014 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.789	61	>75% Grass cover, Good, HSG B (1S, 2S)
0.043	74	>75% Grass cover, Good, HSG C (2S)
1.748	80	>75% Grass cover, Good, HSG D (1S, 2S)
0.139	98	Paved parking, HSG B (2S)
0.075	98	Paved roads w/curbs & sewers, HSG B (1S)
0.031	98	Paved roads w/curbs & sewers, HSG D (1S)
2.825	**76**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
1.003	HSG B	1S, 2S
0.043	HSG C	2S
1.779	HSG D	1S, 2S
0.000	Other	
2.825		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.789	0.043	1.748	0.000	2.580	>75% Grass cover, Good	1S, 2S
0.000	0.139	0.000	0.000	0.000	0.139	Paved parking	2S
0.000	0.075	0.000	0.031	0.000	0.106	Paved roads w/curbs & sewers	1S
0.000	**1.003**	**0.043**	**1.779**	**0.000**	**2.825**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: West portion of lot Runoff Area=0.439 ac 24.15% Impervious Runoff Depth>1.01"
Flow Length=181' Tc=7.9 min CN=74 Runoff=0.50 cfs 0.037 af

Subcatchment 2S: Majority of area to be Runoff Area=2.386 ac 5.83% Impervious Runoff Depth>1.18"
Flow Length=268' Tc=10.6 min CN=77 Runoff=2.97 cfs 0.234 af

Reach OUT 1: Summation Node Inflow=0.50 cfs 0.037 af
Outflow=0.50 cfs 0.037 af

Reach OUT 2: Summation Node Inflow=2.97 cfs 0.234 af
Outflow=2.97 cfs 0.234 af

Total Runoff Area = 2.825 ac Runoff Volume = 0.271 af Average Runoff Depth = 1.15"
91.33% Pervious = 2.580 ac 8.67% Impervious = 0.245 ac

Summary for Subcatchment 1S: West portion of lot draining to abutter

Runoff = 0.50 cfs @ 12.12 hrs, Volume= 0.037 af, Depth> 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 YR Rainfall=3.30"

Area (ac)	CN	Description
0.100	80	>75% Grass cover, Good, HSG D
0.233	61	>75% Grass cover, Good, HSG B
0.031	98	Paved roads w/curbs & sewers, HSG D
0.075	98	Paved roads w/curbs & sewers, HSG B
0.439	74	Weighted Average
0.333		75.85% Pervious Area
0.106		24.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.0400	0.14		**Sheet Flow, 1.1** Grass: Dense n= 0.240 P2= 3.30"
1.8	131	0.0300	1.21		**Shallow Concentrated Flow, 1.2** Short Grass Pasture Kv= 7.0 fps
7.9	181	Total			

Summary for Subcatchment 2S: Majority of area to be developed

Runoff = 2.97 cfs @ 12.16 hrs, Volume= 0.234 af, Depth> 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 YR Rainfall=3.30"

Area (ac)	CN	Description
1.648	80	>75% Grass cover, Good, HSG D
0.139	98	Paved parking, HSG B
0.043	74	>75% Grass cover, Good, HSG C
0.556	61	>75% Grass cover, Good, HSG B
2.386	77	Weighted Average
2.247		94.17% Pervious Area
0.139		5.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0240	0.11		**Sheet Flow, 2.1** Grass: Dense n= 0.240 P2= 3.30"
3.1	218	0.0279	1.17		**Shallow Concentrated Flow, 2.2** Short Grass Pasture Kv= 7.0 fps
10.6	268	Total			

Summary for Reach OUT 1: Summation Node

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

Inflow Area = 0.439 ac, 24.15% Impervious, Inflow Depth > 1.01" for 2 YR event
Inflow = 0.50 cfs @ 12.12 hrs, Volume= 0.037 af
Outflow = 0.50 cfs @ 12.12 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach OUT 2: Summation Node

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

Inflow Area = 2.386 ac, 5.83% Impervious, Inflow Depth > 1.18" for 2 YR event
Inflow = 2.97 cfs @ 12.16 hrs, Volume= 0.234 af
Outflow = 2.97 cfs @ 12.16 hrs, Volume= 0.234 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: West portion of lot Runoff Area=0.439 ac 24.15% Impervious Runoff Depth>4.53"
Flow Length=181' Tc=7.9 min CN=74 Runoff=2.30 cfs 0.166 af

Subcatchment 2S: Majority of area to be Runoff Area=2.386 ac 5.83% Impervious Runoff Depth>4.86"
Flow Length=268' Tc=10.6 min CN=77 Runoff=12.24 cfs 0.966 af

Reach OUT 1: Summation Node Inflow=2.30 cfs 0.166 af
Outflow=2.30 cfs 0.166 af

Reach OUT 2: Summation Node Inflow=12.24 cfs 0.966 af
Outflow=12.24 cfs 0.966 af

Total Runoff Area = 2.825 ac Runoff Volume = 1.132 af Average Runoff Depth = 4.81"
91.33% Pervious = 2.580 ac 8.67% Impervious = 0.245 ac

Summary for Subcatchment 1S: West portion of lot draining to abutter

Runoff = 2.30 cfs @ 12.11 hrs, Volume= 0.166 af, Depth> 4.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 YR Rainfall=7.90"

Area (ac)	CN	Description
0.100	80	>75% Grass cover, Good, HSG D
0.233	61	>75% Grass cover, Good, HSG B
0.031	98	Paved roads w/curbs & sewers, HSG D
0.075	98	Paved roads w/curbs & sewers, HSG B
0.439	74	Weighted Average
0.333		75.85% Pervious Area
0.106		24.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.0400	0.14		**Sheet Flow, 1.1** Grass: Dense n= 0.240 P2= 3.30"
1.8	131	0.0300	1.21		**Shallow Concentrated Flow, 1.2** Short Grass Pasture Kv= 7.0 fps
7.9	181	Total			

Summary for Subcatchment 2S: Majority of area to be developed

Runoff = 12.24 cfs @ 12.15 hrs, Volume= 0.966 af, Depth> 4.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 YR Rainfall=7.90"

Area (ac)	CN	Description
1.648	80	>75% Grass cover, Good, HSG D
0.139	98	Paved parking, HSG B
0.043	74	>75% Grass cover, Good, HSG C
0.556	61	>75% Grass cover, Good, HSG B
2.386	77	Weighted Average
2.247		94.17% Pervious Area
0.139		5.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	50	0.0240	0.11		**Sheet Flow, 2.1** Grass: Dense n= 0.240 P2= 3.30"
3.1	218	0.0279	1.17		**Shallow Concentrated Flow, 2.2** Short Grass Pasture Kv= 7.0 fps
10.6	268	Total			

Summary for Reach OUT 1: Summation Node

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

Inflow Area = 0.439 ac, 24.15% Impervious, Inflow Depth > 4.53" for 100 YR event
Inflow = 2.30 cfs @ 12.11 hrs, Volume= 0.166 af
Outflow = 2.30 cfs @ 12.11 hrs, Volume= 0.166 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach OUT 2: Summation Node

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

Inflow Area = 2.386 ac, 5.83% Impervious, Inflow Depth > 4.86" for 100 YR event
Inflow = 12.24 cfs @ 12.15 hrs, Volume= 0.966 af
Outflow = 12.24 cfs @ 12.15 hrs, Volume= 0.966 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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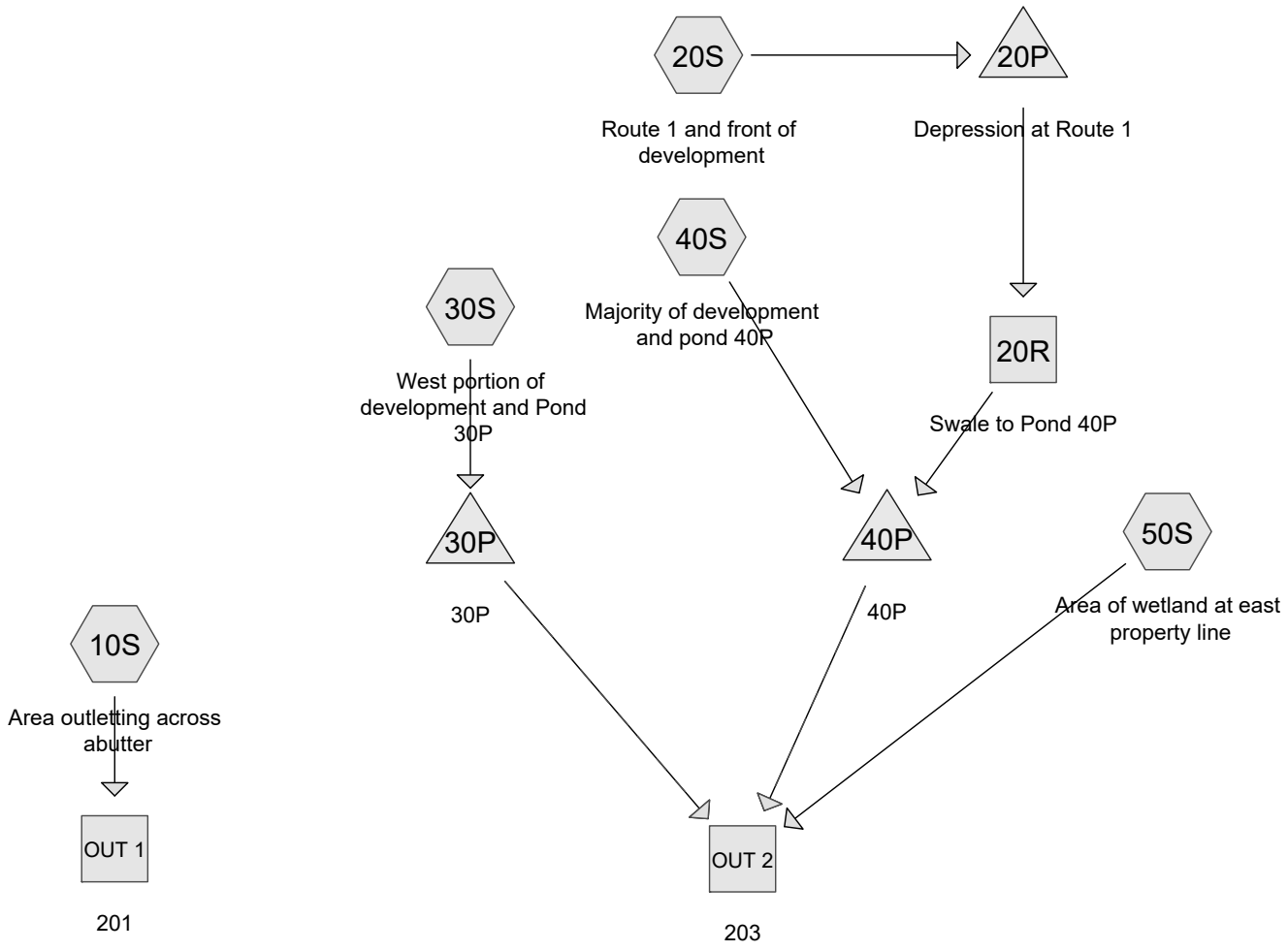
Post-Development Calculations



Subcat Reach Pond Link

Routing Diagram for 20161026_1623700-POST(Lowered)
Prepared by Civil Consultants, Printed 10/27/2016
HydroCAD® 10.00-13 s/n 00552 © 2014 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.351	61	>75% Grass cover, Good, HSG B (10S, 20S, 30S, 40S)
0.016	74	>75% Grass cover, Good, HSG C (20S)
1.200	80	>75% Grass cover, Good, HSG D (10S, 30S, 40S, 50S)
0.534	98	Paved parking, HSG B (20S, 30S, 40S, 50S)
0.062	98	Paved parking, HSG C (20S, 50S)
0.601	98	Paved parking, HSG D (20S, 30S, 40S)
0.048	98	Paved roads w/curbs & sewers, HSG B (10S)
0.034	98	Paved roads w/curbs & sewers, HSG D (10S)
2.846	**86**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.933	HSG B	10S, 20S, 30S, 40S, 50S
0.078	HSG C	20S, 50S
1.835	HSG D	10S, 20S, 30S, 40S, 50S
0.000	Other	
2.846		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.351	0.016	1.200	0.000	1.567	>75% Grass cover, Good	10S, 20S, 30S, 40S, 50S
0.000	0.534	0.062	0.601	0.000	1.197	Paved parking	20S, 30S, 40S, 50S
0.000	0.048	0.000	0.034	0.000	0.082	Paved roads w/curbs & sewers	10S
0.000	**0.933**	**0.078**	**1.835**	**0.000**	**2.846**	**TOTAL AREA**	

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 10S: Area outletting across Runoff Area=0.258 ac 31.78% Impervious Runoff Depth=1.62"
Flow Length=179' Tc=5.1 min CN=82 Runoff=0.50 cfs 0.035 af

Subcatchment 20S: Route 1 and front of Runoff Area=0.662 ac 60.12% Impervious Runoff Depth=1.77"
Flow Length=208' Slope=0.0310 '/' Tc=7.8 min CN=84 Runoff=1.29 cfs 0.097 af

Subcatchment 30S: West portion of Runoff Area=0.301 ac 53.82% Impervious Runoff Depth=2.17"
Flow Length=154' Tc=4.3 min CN=89 Runoff=0.81 cfs 0.055 af

Subcatchment 40S: Majority of Runoff Area=0.939 ac 60.60% Impervious Runoff Depth=2.26"
Flow Length=137' Tc=6.7 min CN=90 Runoff=2.40 cfs 0.177 af

Subcatchment 50S: Area of wetland at east Runoff Area=0.686 ac 9.91% Impervious Runoff Depth=1.62"
Flow Length=157' Tc=6.1 min CN=82 Runoff=1.29 cfs 0.093 af

Reach 20R: Swale to Pond 40P Avg. Flow Depth=0.52' Max Vel=0.40 fps Inflow=0.99 cfs 0.097 af
n=0.240 L=80.0' S=0.0156 '/' Capacity=3.46 cfs Outflow=0.95 cfs 0.097 af

Reach OUT 1: 201 Inflow=0.50 cfs 0.035 af
Outflow=0.50 cfs 0.035 af

Reach OUT 2: 203 Inflow=2.48 cfs 0.421 af
Outflow=2.48 cfs 0.421 af

Pond 20P: Depression at Route 1 Peak Elev=113.55' Storage=571 cf Inflow=1.29 cfs 0.097 af
12.0" Round Culvert n=0.010 L=107.0' S=0.0103 '/' Outflow=0.99 cfs 0.097 af

Pond 30P: 30P Peak Elev=106.36' Storage=736 cf Inflow=0.81 cfs 0.055 af
Primary=0.31 cfs 0.054 af Secondary=0.00 cfs 0.000 af Outflow=0.31 cfs 0.054 af

Pond 40P: 40P Peak Elev=106.73' Storage=2,908 cf Inflow=2.79 cfs 0.274 af
Primary=1.45 cfs 0.274 af Secondary=0.00 cfs 0.000 af Outflow=1.45 cfs 0.274 af

Total Runoff Area = 2.846 ac Runoff Volume = 0.456 af Average Runoff Depth = 1.92"
55.06% Pervious = 1.567 ac 44.94% Impervious = 1.279 ac

Summary for Subcatchment 10S: Area outletting across abutter

Runoff = 0.50 cfs @ 12.08 hrs, Volume= 0.035 af, Depth= 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.30"

Area (ac)	CN	Description
0.034	98	Paved roads w/curbs & sewers, HSG D
0.057	61	>75% Grass cover, Good, HSG B
0.048	98	Paved roads w/curbs & sewers, HSG B
0.119	80	>75% Grass cover, Good, HSG D
0.258	82	Weighted Average
0.176		68.22% Pervious Area
0.082		31.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		**Sheet Flow, 10.2** Grass: Dense n= 0.240 P2= 3.30"
1.6	129	0.0388	1.38		**Shallow Concentrated Flow, 10.2** Short Grass Pasture Kv= 7.0 fps
5.1	179	Total			

Summary for Subcatchment 20S: Route 1 and front of development

Runoff = 1.29 cfs @ 12.11 hrs, Volume= 0.097 af, Depth= 1.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.30"

Area (ac)	CN	Description
0.016	74	>75% Grass cover, Good, HSG C
0.027	98	Paved parking, HSG C
0.367	98	Paved parking, HSG B
0.004	98	Paved parking, HSG D
0.248	61	>75% Grass cover, Good, HSG B
0.662	84	Weighted Average
0.264		39.88% Pervious Area
0.398		60.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	50	0.0310	0.12		**Sheet Flow, 20.1** Grass: Dense n= 0.240 P2= 3.30"
1.0	158	0.0310	2.64		**Shallow Concentrated Flow, 20.2** Grassed Waterway Kv= 15.0 fps
7.8	208	Total			

Summary for Subcatchment 30S: West portion of development and Pond 30P

Runoff = 0.81 cfs @ 12.06 hrs, Volume= 0.055 af, Depth= 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.30"

Area (ac)	CN	Description
0.059	98	Paved parking, HSG B
0.010	61	>75% Grass cover, Good, HSG B
0.129	80	>75% Grass cover, Good, HSG D
0.103	98	Paved parking, HSG D
0.301	89	Weighted Average
0.139		46.18% Pervious Area
0.162		53.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	22	0.0395	0.12		**Sheet Flow, 30.1** Grass: Dense n= 0.240 P2= 3.30"
1.0	112	0.0090	1.93		**Shallow Concentrated Flow, 30.2** Paved Kv= 20.3 fps
0.1	20	0.1000	4.74		**Shallow Concentrated Flow, 30.3** Grassed Waterway Kv= 15.0 fps
4.3	154	Total			

Summary for Subcatchment 40S: Majority of development and pond 40P

Runoff = 2.40 cfs @ 12.10 hrs, Volume= 0.177 af, Depth= 2.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.30"

Area (ac)	CN	Description
0.036	61	>75% Grass cover, Good, HSG B
0.075	98	Paved parking, HSG B
0.334	80	>75% Grass cover, Good, HSG D
0.494	98	Paved parking, HSG D
0.939	90	Weighted Average
0.370		39.40% Pervious Area
0.569		60.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	25	0.0100	0.07		**Sheet Flow, 40.1** Grass: Dense n= 0.240 P2= 3.30"
0.3	50	0.0200	2.87		**Shallow Concentrated Flow, 40.2** Paved Kv= 20.3 fps
0.3	62	0.0556	3.54		**Shallow Concentrated Flow, 40.3** Grassed Waterway Kv= 15.0 fps
6.7	137	Total			

Summary for Subcatchment 50S: Area of wetland at east property line

Runoff = 1.29 cfs @ 12.09 hrs, Volume= 0.093 af, Depth= 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.30"

Area (ac)	CN	Description
0.600	80	>75% Grass cover, Good, HSG D
0.035	98	Paved parking, HSG C
0.033	98	Paved parking, HSG B
0.018	80	>75% Grass cover, Good, HSG D
0.686	82	Weighted Average
0.618		90.09% Pervious Area
0.068		9.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0800	0.18		**Sheet Flow, 50.1** Grass: Dense n= 0.240 P2= 3.30"
1.5	107	0.0280	1.17		**Shallow Concentrated Flow, 50.2** Short Grass Pasture Kv= 7.0 fps
6.1	157	Total			

Summary for Reach 20R: Swale to Pond 40P

Inflow Area = 0.662 ac, 60.12% Impervious, Inflow Depth = 1.77" for 2 YR event
Inflow = 0.99 cfs @ 12.19 hrs, Volume= 0.097 af
Outflow = 0.95 cfs @ 12.29 hrs, Volume= 0.097 af, Atten= 4%, Lag= 6.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.40 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 0.09 fps, Avg. Travel Time= 14.6 min

Peak Storage= 188 cf @ 12.24 hrs
Average Depth at Peak Storage= 0.52'
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 3.46 cfs

3.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 3.0 '/' Top Width= 9.00'
Length= 80.0' Slope= 0.0156 '/'
Inlet Invert= 111.25', Outlet Invert= 110.00'

‡

Summary for Reach OUT 1: 201

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

Inflow Area = 0.258 ac, 31.78% Impervious, Inflow Depth = 1.62" for 2 YR event
Inflow = 0.50 cfs @ 12.08 hrs, Volume= 0.035 af
Outflow = 0.50 cfs @ 12.08 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach OUT 2: 203

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

Inflow Area = 2.588 ac, 46.25% Impervious, Inflow Depth > 1.95" for 2 YR event
Inflow = 2.48 cfs @ 12.11 hrs, Volume= 0.421 af
Outflow = 2.48 cfs @ 12.11 hrs, Volume= 0.421 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Pond 20P: Depression at Route 1

Inflow Area = 0.662 ac, 60.12% Impervious, Inflow Depth = 1.77" for 2 YR event
Inflow = 1.29 cfs @ 12.11 hrs, Volume= 0.097 af
Outflow = 0.99 cfs @ 12.19 hrs, Volume= 0.097 af, Atten= 23%, Lag= 4.7 min
Primary = 0.99 cfs @ 12.19 hrs, Volume= 0.097 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 113.55' @ 12.19 hrs Surf.Area= 1,191 sf Storage= 571 cf

Plug-Flow detention time= 24.8 min calculated for 0.097 af (100% of inflow)
Center-of-Mass det. time= 24.9 min (854.7 - 829.8)

Volume	Invert	Avail.Storage	Storage Description
#1	113.00'	4,879 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
113.00	895	0	0	895
114.00	1,464	1,168	1,168	1,477
116.00	2,277	3,711	4,879	2,345

Device	Routing	Invert	Outlet Devices
#1	Primary	113.00'	**12.0" Round Culvert** L= 107.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 113.00' / 111.90' S= 0.0103 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.99 cfs @ 12.19 hrs HW=113.55' (Free Discharge)
└**1=Culvert** (Inlet Controls 0.99 cfs @ 2.23 fps)

Summary for Pond 30P: 30P

Inflow Area = 0.301 ac, 53.82% Impervious, Inflow Depth = 2.17" for 2 YR event
Inflow = 0.81 cfs @ 12.06 hrs, Volume= 0.055 af
Outflow = 0.31 cfs @ 12.28 hrs, Volume= 0.054 af, Atten= 61%, Lag= 13.0 min
Primary = 0.31 cfs @ 12.28 hrs, Volume= 0.054 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 106.36' @ 12.28 hrs Surf.Area= 2,136 sf Storage= 736 cf

Plug-Flow detention time= 89.6 min calculated for 0.054 af (100% of inflow)
Center-of-Mass det. time= 88.8 min (897.0 - 808.3)

Volume	Invert	Avail.Storage	Storage Description
#1	106.00'	5,067 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
106.00	1,929	0	0	1,929
107.00	2,525	2,220	2,220	2,548
108.00	3,180	2,846	5,067	3,230

Device	Routing	Invert	Outlet Devices
#1	Primary	105.50'	**12.0" Round Culvert** L= 22.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 105.50' / 105.00' S= 0.0227 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Secondary	107.25'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	106.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	106.50'	**4.0" Vert. Orifice/Grate** C= 0.600
#5	Device 1	107.25'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.31 cfs @ 12.28 hrs HW=106.36' (Free Discharge)
└─**1=Culvert** (Passes 0.31 cfs of 2.01 cfs potential flow)
  ├─**3=Orifice/Grate** (Orifice Controls 0.31 cfs @ 2.05 fps)
  ├─**4=Orifice/Grate** (Controls 0.00 cfs)
  └─**5=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=106.00' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 40P: 40P

Inflow Area = 1.601 ac, 60.40% Impervious, Inflow Depth = 2.06" for 2 YR event
Inflow = 2.79 cfs @ 12.10 hrs, Volume= 0.274 af
Outflow = 1.45 cfs @ 12.45 hrs, Volume= 0.274 af, Atten= 48%, Lag= 20.8 min
Primary = 1.45 cfs @ 12.45 hrs, Volume= 0.274 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 106.73' @ 12.45 hrs Surf.Area= 4,397 sf Storage= 2,908 cf

Plug-Flow detention time= 57.0 min calculated for 0.274 af (100% of inflow)
Center-of-Mass det. time= 56.5 min (883.5 - 827.0)

Volume	Invert	Avail.Storage	Storage Description
#1	106.00'	12,697 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
106.00	3,556	0	0	3,556
107.00	4,726	4,127	4,127	4,748
108.00	6,100	5,398	9,526	6,146
108.50	6,590	3,172	12,697	6,656

Device	Routing	Invert	Outlet Devices
#1	Primary	105.50'	**12.0" Round Culvert** L= 24.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 105.50' / 105.00' S= 0.0208 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	106.00'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600
#3	Device 1	106.58'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600
#4	Device 1	107.33'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	107.50'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=1.45 cfs @ 12.45 hrs HW=106.73' (Free Discharge)
└─**1=Culvert** (Passes 1.45 cfs of 2.86 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.31 cfs @ 3.35 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.14 cfs @ 1.33 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=106.00' (Free Discharge)
└─**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 10S: Area outletting across Runoff Area=0.258 ac 31.78% Impervious Runoff Depth=5.76"
Flow Length=179' Tc=5.1 min CN=82 Runoff=1.76 cfs 0.124 af

Subcatchment 20S: Route 1 and front of Runoff Area=0.662 ac 60.12% Impervious Runoff Depth=6.00"
Flow Length=208' Slope=0.0310 '/' Tc=7.8 min CN=84 Runoff=4.25 cfs 0.331 af

Subcatchment 30S: West portion of Runoff Area=0.301 ac 53.82% Impervious Runoff Depth=6.59"
Flow Length=154' Tc=4.3 min CN=89 Runoff=2.33 cfs 0.165 af

Subcatchment 40S: Majority of Runoff Area=0.939 ac 60.60% Impervious Runoff Depth=6.71"
Flow Length=137' Tc=6.7 min CN=90 Runoff=6.74 cfs 0.525 af

Subcatchment 50S: Area of wetland at east Runoff Area=0.686 ac 9.91% Impervious Runoff Depth=5.76"
Flow Length=157' Tc=6.1 min CN=82 Runoff=4.52 cfs 0.330 af

Reach 20R: Swale to Pond 40P Avg. Flow Depth=0.92' Max Vel=0.55 fps Inflow=2.98 cfs 0.331 af
n=0.240 L=80.0' S=0.0156 '/' Capacity=3.46 cfs Outflow=2.95 cfs 0.331 af

Reach OUT 1: 201 Inflow=1.76 cfs 0.124 af
Outflow=1.76 cfs 0.124 af

Reach OUT 2: 203 Inflow=8.66 cfs 1.350 af
Outflow=8.66 cfs 1.350 af

Pond 20P: Depression at Route 1 Peak Elev=114.30' Storage=1,622 cf Inflow=4.25 cfs 0.331 af
12.0" Round Culvert n=0.010 L=107.0' S=0.0103 '/' Outflow=2.98 cfs 0.331 af

Pond 30P: 30P Peak Elev=106.86' Storage=1,872 cf Inflow=2.33 cfs 0.165 af
Primary=0.92 cfs 0.165 af Secondary=0.00 cfs 0.000 af Outflow=0.92 cfs 0.165 af

Pond 40P: 40P Peak Elev=107.60' Storage=7,198 cf Inflow=8.60 cfs 0.856 af
Primary=4.22 cfs 0.827 af Secondary=1.57 cfs 0.029 af Outflow=5.79 cfs 0.856 af

Total Runoff Area = 2.846 ac Runoff Volume = 1.475 af Average Runoff Depth = 6.22"
55.06% Pervious = 1.567 ac 44.94% Impervious = 1.279 ac

Summary for Subcatchment 10S: Area outletting across abutter

Runoff = 1.76 cfs @ 12.07 hrs, Volume= 0.124 af, Depth= 5.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 YR Rainfall=7.90"

Area (ac)	CN	Description
0.034	98	Paved roads w/curbs & sewers, HSG D
0.057	61	>75% Grass cover, Good, HSG B
0.048	98	Paved roads w/curbs & sewers, HSG B
0.119	80	>75% Grass cover, Good, HSG D
0.258	82	Weighted Average
0.176		68.22% Pervious Area
0.082		31.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		**Sheet Flow, 10.2** Grass: Dense n= 0.240 P2= 3.30"
1.6	129	0.0388	1.38		**Shallow Concentrated Flow, 10.2** Short Grass Pasture Kv= 7.0 fps
5.1	179	Total			

Summary for Subcatchment 20S: Route 1 and front of development

Runoff = 4.25 cfs @ 12.11 hrs, Volume= 0.331 af, Depth= 6.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 YR Rainfall=7.90"

Area (ac)	CN	Description
0.016	74	>75% Grass cover, Good, HSG C
0.027	98	Paved parking, HSG C
0.367	98	Paved parking, HSG B
0.004	98	Paved parking, HSG D
0.248	61	>75% Grass cover, Good, HSG B
0.662	84	Weighted Average
0.264		39.88% Pervious Area
0.398		60.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	50	0.0310	0.12		**Sheet Flow, 20.1** Grass: Dense n= 0.240 P2= 3.30"
1.0	158	0.0310	2.64		**Shallow Concentrated Flow, 20.2** Grassed Waterway Kv= 15.0 fps
7.8	208	Total			

Summary for Subcatchment 30S: West portion of development and Pond 30P

Runoff = 2.33 cfs @ 12.06 hrs, Volume= 0.165 af, Depth= 6.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 YR Rainfall=7.90"

Area (ac)	CN	Description
0.059	98	Paved parking, HSG B
0.010	61	>75% Grass cover, Good, HSG B
0.129	80	>75% Grass cover, Good, HSG D
0.103	98	Paved parking, HSG D
0.301	89	Weighted Average
0.139		46.18% Pervious Area
0.162		53.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	22	0.0395	0.12		**Sheet Flow, 30.1** Grass: Dense n= 0.240 P2= 3.30"
1.0	112	0.0090	1.93		**Shallow Concentrated Flow, 30.2** Paved Kv= 20.3 fps
0.1	20	0.1000	4.74		**Shallow Concentrated Flow, 30.3** Grassed Waterway Kv= 15.0 fps
4.3	154	Total			

Summary for Subcatchment 40S: Majority of development and pond 40P

Runoff = 6.74 cfs @ 12.09 hrs, Volume= 0.525 af, Depth= 6.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 YR Rainfall=7.90"

Area (ac)	CN	Description
0.036	61	>75% Grass cover, Good, HSG B
0.075	98	Paved parking, HSG B
0.334	80	>75% Grass cover, Good, HSG D
0.494	98	Paved parking, HSG D
0.939	90	Weighted Average
0.370		39.40% Pervious Area
0.569		60.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	25	0.0100	0.07		**Sheet Flow, 40.1** Grass: Dense n= 0.240 P2= 3.30"
0.3	50	0.0200	2.87		**Shallow Concentrated Flow, 40.2** Paved Kv= 20.3 fps
0.3	62	0.0556	3.54		**Shallow Concentrated Flow, 40.3** Grassed Waterway Kv= 15.0 fps
6.7	137	Total			

Summary for Subcatchment 50S: Area of wetland at east property line

Runoff = 4.52 cfs @ 12.09 hrs, Volume= 0.330 af, Depth= 5.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 YR Rainfall=7.90"

Area (ac)	CN	Description
0.600	80	>75% Grass cover, Good, HSG D
0.035	98	Paved parking, HSG C
0.033	98	Paved parking, HSG B
0.018	80	>75% Grass cover, Good, HSG D
0.686	82	Weighted Average
0.618		90.09% Pervious Area
0.068		9.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0800	0.18		**Sheet Flow, 50.1** Grass: Dense n= 0.240 P2= 3.30"
1.5	107	0.0280	1.17		**Shallow Concentrated Flow, 50.2** Short Grass Pasture Kv= 7.0 fps
6.1	157	Total			

Summary for Reach 20R: Swale to Pond 40P

[79] Warning: Submerged Pond 20P Primary device # 1 OUTLET by 0.27'

Inflow Area = 0.662 ac, 60.12% Impervious, Inflow Depth = 6.00" for 100 YR event
Inflow = 2.98 cfs @ 12.20 hrs, Volume= 0.331 af
Outflow = 2.95 cfs @ 12.27 hrs, Volume= 0.331 af, Atten= 1%, Lag= 4.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.55 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 0.13 fps, Avg. Travel Time= 10.5 min

Peak Storage= 427 cf @ 12.23 hrs
Average Depth at Peak Storage= 0.92'
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 3.46 cfs

3.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 3.0 '/' Top Width= 9.00'
Length= 80.0' Slope= 0.0156 '/'
Inlet Invert= 111.25', Outlet Invert= 110.00'

‡

Summary for Reach OUT 1: 201

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

Inflow Area = 0.258 ac, 31.78% Impervious, Inflow Depth = 5.76" for 100 YR event
Inflow = 1.76 cfs @ 12.07 hrs, Volume= 0.124 af
Outflow = 1.76 cfs @ 12.07 hrs, Volume= 0.124 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach OUT 2: 203

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

Inflow Area = 2.588 ac, 46.25% Impervious, Inflow Depth = 6.26" for 100 YR event
Inflow = 8.66 cfs @ 12.27 hrs, Volume= 1.350 af
Outflow = 8.66 cfs @ 12.27 hrs, Volume= 1.350 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Pond 20P: Depression at Route 1

Inflow Area = 0.662 ac, 60.12% Impervious, Inflow Depth = 6.00" for 100 YR event
Inflow = 4.25 cfs @ 12.11 hrs, Volume= 0.331 af
Outflow = 2.98 cfs @ 12.20 hrs, Volume= 0.331 af, Atten= 30%, Lag= 5.5 min
Primary = 2.98 cfs @ 12.20 hrs, Volume= 0.331 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 114.30' @ 12.20 hrs Surf.Area= 1,574 sf Storage= 1,622 cf

Plug-Flow detention time= 16.0 min calculated for 0.331 af (100% of inflow)
Center-of-Mass det. time= 15.9 min (811.1 - 795.2)

Volume	Invert	Avail.Storage	Storage Description
#1	113.00'	4,879 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
113.00	895	0	0	895
114.00	1,464	1,168	1,168	1,477
116.00	2,277	3,711	4,879	2,345

Device	Routing	Invert	Outlet Devices
#1	Primary	113.00'	**12.0" Round Culvert** L= 107.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 113.00' / 111.90' S= 0.0103 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.98 cfs @ 12.20 hrs HW=114.30' (Free Discharge)
└**1=Culvert** (Inlet Controls 2.98 cfs @ 3.80 fps)

Summary for Pond 30P: 30P

Inflow Area = 0.301 ac, 53.82% Impervious, Inflow Depth = 6.59" for 100 YR event
Inflow = 2.33 cfs @ 12.06 hrs, Volume= 0.165 af
Outflow = 0.92 cfs @ 12.25 hrs, Volume= 0.165 af, Atten= 60%, Lag= 11.2 min
Primary = 0.92 cfs @ 12.25 hrs, Volume= 0.165 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 106.86' @ 12.25 hrs Surf.Area= 2,437 sf Storage= 1,872 cf

Plug-Flow detention time= 58.9 min calculated for 0.165 af (100% of inflow)
Center-of-Mass det. time= 58.4 min (836.3 - 777.9)

Volume	Invert	Avail.Storage	Storage Description
#1	106.00'	5,067 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
106.00	1,929	0	0	1,929
107.00	2,525	2,220	2,220	2,548
108.00	3,180	2,846	5,067	3,230

Device	Routing	Invert	Outlet Devices
#1	Primary	105.50'	**12.0" Round Culvert** L= 22.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 105.50' / 105.00' S= 0.0227 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Secondary	107.25'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	106.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	106.50'	**4.0" Vert. Orifice/Grate** C= 0.600
#5	Device 1	107.25'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.92 cfs @ 12.25 hrs HW=106.86' (Free Discharge)
└─**1=Culvert** (Passes 0.92 cfs of 3.09 cfs potential flow)
  ├─**3=Orifice/Grate** (Orifice Controls 0.74 cfs @ 3.76 fps)
  ├─**4=Orifice/Grate** (Orifice Controls 0.18 cfs @ 2.12 fps)
  └─**5=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=106.00' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 40P: 40P

Inflow Area = 1.601 ac, 60.40% Impervious, Inflow Depth = 6.41" for 100 YR event
Inflow = 8.60 cfs @ 12.10 hrs, Volume= 0.856 af
Outflow = 5.79 cfs @ 12.30 hrs, Volume= 0.856 af, Atten= 33%, Lag= 11.9 min
Primary = 4.22 cfs @ 12.30 hrs, Volume= 0.827 af
Secondary = 1.57 cfs @ 12.30 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 107.60' @ 12.30 hrs Surf.Area= 5,529 sf Storage= 7,198 cf

Plug-Flow detention time= 38.5 min calculated for 0.855 af (100% of inflow)
Center-of-Mass det. time= 38.6 min (831.4 - 792.8)

Volume	Invert	Avail.Storage	Storage Description
#1	106.00'	12,697 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
106.00	3,556	0	0	3,556
107.00	4,726	4,127	4,127	4,748
108.00	6,100	5,398	9,526	6,146
108.50	6,590	3,172	12,697	6,656

Device	Routing	Invert	Outlet Devices
#1	Primary	105.50'	**12.0" Round Culvert** L= 24.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 105.50' / 105.00' S= 0.0208 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	106.00'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600
#3	Device 1	106.58'	**6.0" Vert. Orifice/Grate X 2.00** C= 0.600
#4	Device 1	107.33'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Secondary	107.50'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=4.22 cfs @ 12.30 hrs HW=107.60' (Free Discharge)
└─**1=Culvert** (Inlet Controls 4.22 cfs @ 5.37 fps)
  ├─**2=Orifice/Grate** (Passes < 2.20 cfs potential flow)
  ├─**3=Orifice/Grate** (Passes < 1.66 cfs potential flow)
  └─**4=Orifice/Grate** (Passes < 2.88 cfs potential flow)

Secondary OutFlow Max=1.56 cfs @ 12.30 hrs HW=107.60' (Free Discharge)
└─**5=Broad-Crested Rectangular Weir** (Weir Controls 1.56 cfs @ 0.79 fps)

CIVIL
CONSULTANTS

Engineers

Planners

Surveyors

APPENDICIES

A – Location & Topographic Plan

B – Soils Information

C – Supplemental Calculations

D – Stormwater Maintenance Plan and Inspection Log

E – FIRM Flood Mapping

F – Drainage & Site Plans

APPENDIX A

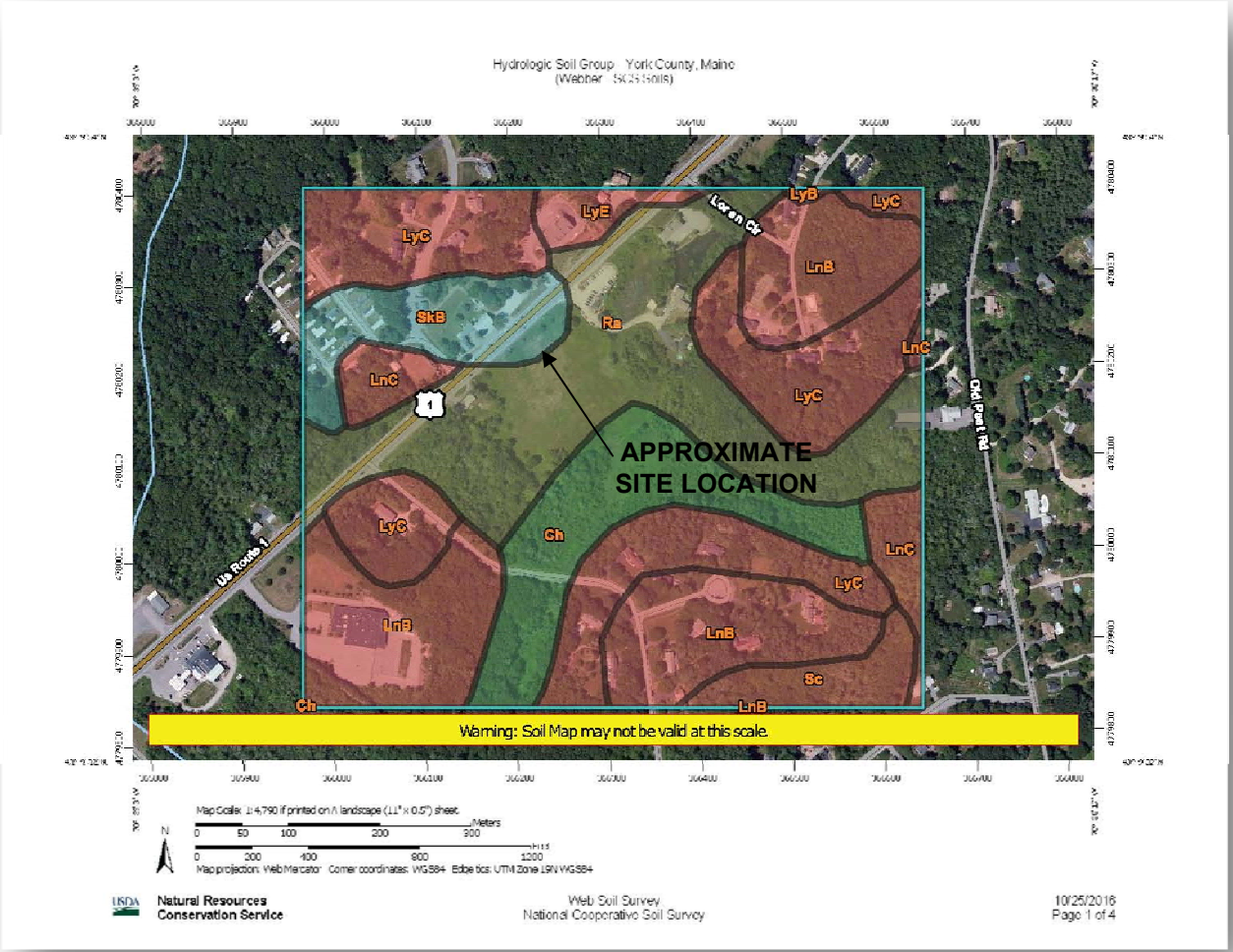
LOCATION AND TOPOGRAPHIC PLAN

Portion of

U.S.G.S. Map for York Harbor
MAINE
Not To Scale

APPENDIX B

Medium Intensity Soil Survey Plan



Portions of

USDA Soil Conservation Service – WEB SOIL SURVEY
YORK COUNTY, MAINE

CLASS A HIGH INTENSITY SOIL SURVEY REPORT

FOR

731 U.S. ROUTE ONE
YORK, MAINE

PREPARED FOR:

CIVIL CONSULTANTS
P.O. BOX 100
SOUTH BERWICK, MAINE 03908

PREPARED BY:

JOSEPH W. NOEL
P.O. BOX 174
SOUTH BERWICK, MAINE

OCTOBER 24, 2016
JWN #14-32

JOSEPH W. NOEL
P.O. BOX 174
SOUTH BERWICK, MAINE 03908
(207) 384-5587

*CERTIFIED SOIL SCIENTIST * WETLAND SCIENTIST * LICENSED SITE EVALUATOR*

INTRODUCTION

PURPOSE

This report and the attached high intensity soil survey map were prepared to aid in planning for the proposed commercial development. The property is 15+/- acres and located off of U.S, Route One in York, Maine. Only the portion of the property with 2-foot contours has been soil mapped.

WETLAND DELINEATION

Wetland delineation services were conducted on October 10, 2014. To determine the wetland boundary, the methodologies in the U.S. Army Corps of Engineers document *Corps of Engineers Wetlands Delineation Manual* (1987) along with the required *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, (Version 2.0) were used. Wetlands were identified based on soils, vegetation, and wetland hydrology. Except in special cases, all three factors (hydric soils, hydrophytic vegetation, and wetland hydrology) must be present for an area to classify as wetland. A predominance of wetland and upland vegetation was determined from visual estimates in the vegetative layers (herbaceous, shrub, sapling, and tree layers). Plant species indicator status was based on the U.S. Army Corps of Engineers publication *National Wetland Plant List* (2014).

Shallow soil observations were made using a Montana sharpshooter shovel and hand auger to assess the soil morphological features and to examine for wetland hydrology. Hydric soil determinations were conducted in accordance with the United States Department of Agriculture, Natural Resources Conservation Service document *Field Indicators of Hydric Soils in the United States, Version 7.0* (2010) along with the manual *Field Indicators for Identifying Hydric Soils in New England* (Version 3, April 2004).

The wetland boundary was field delineated with sequentially numbered pink flagging. Flagged sequences were differentiated by the placement of a letter before the numbers (e.g., A1, A2, etc.). These flags were survey located by Anderson Livingston Engineers, Inc. and placed on the project plans.

SOIL SURVEY METHODS

Fieldwork was conducted from October of 2014 to October of 2016. Soil mapping procedures followed Maine Association of Professional Soil Scientists (MAPSS) guidelines (revised, March 2009). Seven hand excavated test pits were conducted on October 10, 2014 and May 20, 2016 (refer to attached test pit logs for details). These test pits were conducted prior to any fill being placed. The test pit information was used to prove-out suitable soils for wastewater disposal and

for generating the high intensity soil survey. The test pits were survey located by Anderson Livingston Engineers, Inc. Additional soil observations on October 17, 2016 were conducted to verify the soil map units (test pit information was not completed). If additional test pits are conducted within the mapping limits, the soil survey may be fine-tuned/updated. The hydrologic soil groups for the soil map were taken from the NRCS Web Soil Survey or determined using the "Hydrologic Soil Triangle" (HST) that was provided by the NRCS.

SOIL SURVEY CLASS

Soil surveys are divided into four levels or classes. For this project, a Class A (high intensity) level map was created. Characteristics of Class A maps include the following:

1. Map units will not contain dissimilar limiting individual inclusions larger than one-eighth acre. Dissimilar limiting inclusions may total more than one-eighth acre per map unit delineation, in the aggregate, if not continuous.
2. Scale of 1 inch equals 100 feet or larger (e.g., 1" = 50').
3. Ground control – base line and test pits for which detailed data is recorded are accurately located under the direction of a registered land surveyor or qualified professional engineer.
4. Base map with 2-foot contour lines with ground survey, or aerial survey with ground control.

SOIL MAP UNIT DESCRIPTIONS

Below are descriptions for each of the soil map units found on the site. Each of the soil map units includes: physical characteristics of the soil, hydrologic soil group, slopes, soil inclusions, soil limitations, etc.

1) Map Symbol: Ly
   Soils Series: Lyman

The Lyman soils are somewhat excessively drained and formed in a thin mantle of glacial till overlying bedrock. It occurs in an intermediate topographic setting and is found in one small area in the soil survey area. Typically, the surface layer is a dark brown fine sandy loam about 8 to 10 inches thick. The subsoil, ranging from 7 to 11 inches thick is a dark yellowish brown fine sandy loam. The hydrologic soil group is D, the slopes range from 0-3%, and the flood hazard is none.

Soil Limitations

The shallow to bedrock feature of the Lyman soils presents limitations to all aspects of development. Where a certain depth of soil is required over bedrock for an activity such has pouring a foundation, a shallow excavation, or siting a road, bedrock may be ripped or blasted out as necessary and replaced with fill. Fill may also be placed over the bedrock to attain the desired depth without blasting or ripping.

2) Map Symbol: Md
Soil Series: Made land

This mapping unit represents areas of disturbed or altered material due to man's recent activities (i.e., since May 20, 2016). This area has three to four feet of fill that appears to be predominantly a stony till-like material that has been placed over the natural soil. These filled areas are deep to bedrock; the hydrologic soil group with the fill is B using the "Hydrologic Soil Triangle". The slopes range from 0-3% and the flood hazard is none. The soils prior to fill placement were dominated by Nicholville and Nicholville Variant soils with inclusions of the Lyman and Tunbridge soils (e.g., test pits B & E).

Soil Limitations

These soils with the recent fill are now functioning as well drained and have few limitations to site development. At the edge of the fill limits, it is important that the short steep slopes be stabilized and not allowed to erode into the downslope soil areas.

3) Map Symbol: Ni
Soil Series: Nicholville

Nicholville soils are moderately well drained and formed in medium to fine textured marine and lacustrine sediments. It occurs in one map unit near Route One where the wastewater disposal system is planned. It is surrounded by the recently created Made land map unit and has an intermediate position on the landscape. Typically bedrock is greater than 40 inches. The surface horizon is dark brown very fine sandy loam to fine sandy loam (about 9 inches thick). The subsoil is dark yellowish brown to yellowish brown fine sandy loam to loamy very fine sand (about 5 to 6 inches thick). The substratum is a dense brownish yellow to light olive brown very fine sandy loam to silt loam with redoximorphic features (i.e., evidence of wetness) and is restrictive in nature. The hydrologic soil group is C, the slopes range from 0-3%, and the flood hazard is none. Inclusions in this map unit are the somewhat poorly drained Nicholville Variant soils comprising 5% of this map unit.

Soil Limitations

A limitation to development is wetness due to perched water on the restrictive subsoil/substratum. These limitations can be overcome by intercepting and diverting water upslope of the construction area, by using coarse fill to raise the septic system, foundation and parking areas, and by using footing drains around the building.

4) Map Symbol: Nv
Soil Series: Nicholville Variant

Nicholville Variant soils are formed in medium to fine textured marine and lacustrine sediments. The Variant component is used to designate the somewhat poorly drained designation that is not typical of the Nicholville soils. It occurs in one map unit located between the recently filled area and the downslope wetlands and has an intermediate to low position on the landscape. It is extensive in the soil survey area. Typically bedrock is greater than 40 inches. The surface horizon is a dark brown fine sandy loam (about 9 inches

thick). The subsoil is a light olive brown loamy fine sand and very fine sand with redoximorphic features (i.e., evidence of wetness) that is about 10 to 12 inches thick. The substratum is a dense olive very fine sandy loam to silt loam also with redoximorphic features and is restrictive in nature. The hydrologic soil group is D using the Hydrologic Soil Triangle, the slopes range from 3-8%, and the flood hazard is none. Inclusions in this map unit are Lyman and Tunbridge comprising 5% of this map unit

Soil Limitations

A limitation to development is wetness due to perched water on the restrictive subsoil/substratum. These limitations can be overcome by intercepting and diverting water upslope of the construction area, by using coarse fill to foundation floors, parking areas, etc. and by using footing drains around buildings. For soil inclusions with bedrock (i.e., Lyman and Tunbridge) refer to the Lyman series limitation section on measures to deal with bedrock.

5) Map Symbol: Sc
Soil Series: Scantic

The poorly drained Scantic soils are formed in marine/lacustrine sediments. These soils are low on the landscape. Typically on this site, the surface horizon varies from 8 to 10 inches thick and consists of a very dark grayish brown loam with oxidized rhizospheres. The subsoil and substratum are olive to olive gray silt loam with redoximorphic features and is restrictive in nature. These soils are deep to bedrock, the hydrologic soil group is D, the slopes range from 0-3%, and the flood hazard is none. Inclusions in this map unit are the Swanton soil series comprising 5% of this map unit.

Soil Limitations

These poorly drained soils have limitations to site development, primarily due to wetness and frost action. These are hydric soils and are found in the wetlands in the soil survey area and are being avoided by the proposed development. The use/development of the wetland areas would be governed by local, state and federal regulations.

6) Map Symbol: Sw
Soil Series: Swanton

The poorly drained Swanton soils formed in a thin mantle of loamy outwash/lacustrine materials underlain by fine textured marine and lacustrine deposits. These soils are low on the landscape and are found in the wetlands. Typically on this site, the surface horizon is about 7 inches thick and consists of very dark brown loamy fine sand with oxidized rhizospheres. The subsoil is an olive loamy fine sand with redoximorphic features. The substratum is an olive gray silt loam with redoximorphic features. These soils are deep to bedrock, the hydrologic soil group is D, the slopes range from 0-3%, and the flood hazard is none. Inclusions in this map unit are the Scantic soil series comprising 15% of this map unit.

Soil Limitations

These poorly drained soils have limitations to site development, primarily due to wetness and frost action. These are hydric soils and are found in the wetlands in the soil survey area and are being avoided by the proposed development. The use/development of the wetland areas would be governed by local, state and federal regulations.

SOIL MAP LIMITATIONS

The quality of the soil map produced is affected by the accuracy of the topographic information and location of the wetland flagging by the surveyors along with the quality of the ground control provided. Inaccuracies or deficiencies in the base map may be unknowingly reflected in the soil survey, particularly in the boundary line placement between soil map units.

Each map unit may contain inclusions. Inclusions are soil series within a map unit that are different from the named soil series. In general, the total amount of dissimilar soils is less than fifteen percent of the named map unit.

It is important to realize that this map was designed for the use in planning for a commercial building and associated parking areas and that it may not be adequate for other uses.

Joseph W. Noel

Joseph W. Noel
Maine Certified Soil Scientist #209
Wetland Scientist

SOIL PROFILE/CLASSIFICATION INFORMATION

Project Name:

Applicant Name: *JOE CARR*

Project Location (municipality) *731 U.S. ROUTE ONE - YORK, MAINE*

Observation Hole *10* ■ Test Pit ☐ Boring

2 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
VERY FINE SANDY LOAM	FRIABLE	DARK BROWN	NONE
LOAMY VERY FINE SAND		YELLOWISH BROWN	
VERY FINE SANDY LOAM	FIRM (IN PLACE)	BROWNISH YELLOW	COMMON FAINT FEW DISTINCT
	L.O.E. @ 30"		

Soil Classification		Slope	Limiting Factor	
8 Profile	C Condition	~5 %	15 "	■ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Observation Hole *A* ■ Test Pit ☐ Boring

1 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
FINE SANDY LOAM	FRIABLE	DARK BROWN	NONE
		DARK YELLOWISH BROWN	
VERY FINE SANDY LOAM	FIRM	LIGHT OLIVE BROWN	COMMON DISTINCT
	L.O.E. @ 30"		

Soil Classification		Slope	Limiting Factor	
8 Profile	C Condition	~3 %	16 "	■ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Hand excavated test pits were conducted on October 11, 2014 & May 20, 2016..

Observation Hole *B* ■ Test Pit ☐ Boring

1 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
FINE SANDY LOAM	FRIABLE	DARK BROWN	NONE
		DARK YELLOWISH BROWN	
VERY FINE SANDY LOAM	FIRM	LIGHT OLIVE BROWN	COMMON DISTINCT
	POSSIBLE BEDROCK @ 20"		

Soil Classification		Slope	Most Limiting Factor	
8 Profile	C/AIII Condition	~3 %	20 "	☐ Ground Water ☐ Restrictive Layer ■ Bedrock ☐ Pit Depth

Observation Hole *C* ■ Test Pit ☐ Boring

1 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
FINE SANDY LOAM	FRIABLE	DARK BROWN	NONE
LOAMY FINE SAND		DARK YELLOWISH BROWN	COMMON DISTINCT
VERY FINE SANDY LOAM	FIRM	OLIVE	
	L.O.E. @ 35"		

Soil Classification		Slope	Limiting Factor	
7 Profile	C Condition	~3 %	18 "	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Signature

221 209 SE # SS#

6/16/16 Date

SOIL PROFILE/CLASSIFICATION INFORMATION

Project Name:

Applicant Name: *JOE CARR*

Project Location (municipality) *731 U.S. ROUTE ONE - YORK, MAINE*

Observation Hole *D* ■ Test Pit ☐ Boring

2 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
FINE SANDY LOAM	FRIABLE	DARK BROWN	NONE
LOAMY FINE SAND		LIGHT OLIVE BROWN	
VERY FINE SANDY LOAM	FIRM	OLIVE	COMMON DISTINCT
	L.O.E. @ 35"		

Soil Classification		Slope	Limiting Factor	
7 Profile	C Condition	~3 %	17 "	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Observation Hole *E* ■ Test Pit ☐ Boring

1 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
FINE SANDY LOAM	FRIABLE	DARK BROWN	NONE
		DRK YELLOWISH BROWN	
	BEDROCK @ 15"		

Soil Classification		Slope	Limiting Factor	
2 Profile	AIII Condition	~3 %	15 "	☐ Ground Water ☐ Restrictive Layer ■ Bedrock ☐ Pit Depth

Hand excavated test pits were conducted on May 20, 2016..

Observation Hole *F* ■ Test Pit ☐ Boring

1 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
FINE SANDY LOAM	FRIABLE	DARK BROWN	NONE
		DARK YELLOWISH BROWN	
	BEDROCK @ 17"		

Soil Classification		Slope	Limiting Factor	
2 Profile	AIII Condition	~3 %	17 "	☐ Ground Water ☐ Restrictive Layer ■ Bedrock ☐ Pit Depth

Observation Hole _____ ☐ Test Pit ☐ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

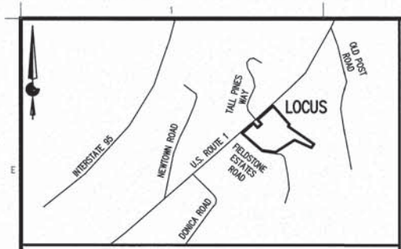
Texture	Consistency	Color	Mottling

Soil Classification		Slope	Limiting Factor	
Profile	Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

John W. Noel
Signature

221 209
SE # SS#

6/16/16
Date



LOCATION PLAN
(NOT TO SCALE)

NOTES:

1. ASSESSOR'S INFORMATION:
   TOWN OF YORK ASSESSOR'S MAP 94 LOT 14
2. RECORD OWNER:
   CARR DEVELOPMENT CORPORATION
   12 CARWIN DRIVE
   YORK, MAINE 03909
3. DEED REFERENCE:
   Y.C.R.D. 17246/602
4. ZONING INFORMATION:
   RTI-2

LOT SIZE:	1 ACRE
MINIMUM FRONTAGE:	150'
SETBACKS:	
FRONT YARD:	50'
SIDE YARD:	30'
REAR YARD:	30'
MAXIMUM BUILDING HEIGHT:	35'
MAXIMUM LOT COVERAGE:	50%

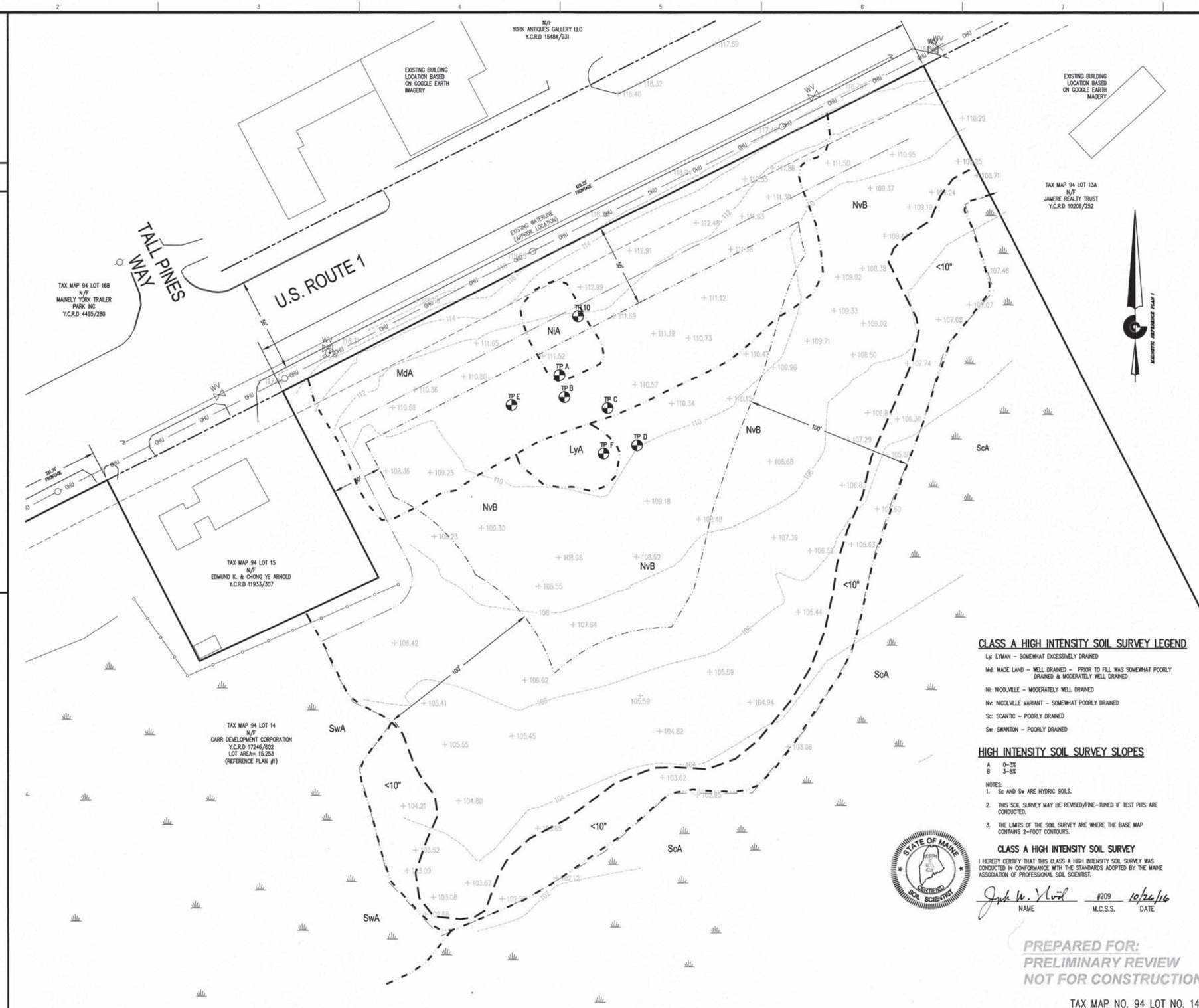
   MIXED USE SHORELAND OVERLAY ZONE
   SHALL NOT EXCEED 70% OF LAND AREA OF THE LOT
5. THE PARCEL IS LOCATED IN FLOOD HAZARD ZONE X AS SHOWN ON THE FLOOD INSURANCE RATE MAP FOR THE TOWN OF YORK, COMMUNITY PANEL NO 23015900220, EFFECTIVE DATE JUNE 17, 2002.
6. EXISTING CONDITIONS, BOUNDARY AND WETLAND DELINEATION IS BASED ON PLAN REFERENCE #1 AND DIGITAL INFORMATION PROVIDED BY ANDERSON LIVINGSTON ENGINEERS, INC. NO BOUNDARY SURVEY HAS BEEN PERFORMED BY CIVIL CONSULTANTS
7. LOCUS PARCEL CONTAINS 15.25 ACRES MORE OR LESS.
8. UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL CONTACT DIGSAFE (1-888-344-7233) FOR LOCATION OF ALL EXISTING UTILITIES.
9. CLASS A HIGH INTENSITY SOIL SURVEY WAS PERFORMED IN OCTOBER 2016 BY JOSEPH NOEL; M.C.S.S. #209.

REFERENCE PLAN:

1. "PLAN SHOWING PARCEL B PREPARED FOR LEON R. MOULTON AND BARBARA STEVENS 731 U.S. ROUTE ONE YORK, MAINE", BY ANDERSON LIVINGSTON ENGINEERS, INC., DATED: MAY 28, 2016. PLAN RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS IN PLAN BOOK 382 PAGE 20.

LEGEND

- PROPERTY BOUNDARY
- EASEMENTS
- SETBACKS
- EDGE OF WETLAND
- 114 EXISTING CONTOURS
- + 110.80 EXISTING SPOT ELEVATION
- EXISTING FENCE
- HIGH INTENSITY SOIL SURVEY
- AREA WHERE SEASONALLY HIGH WATER TABLE IS WITHIN 10" OF THE SURFACE FOR 3 MONTHS OR MORE AT LEAST
- EXISTING WETLAND
- WV EXISTING WATER VALVE
- EXISTING HYDRANT
- EXISTING UTILITY POLE



CLASS A HIGH INTENSITY SOIL SURVEY LEGEND

Ly: LYMAN – SOMEWHAT EXCESSIVELY DRAINED

Md: MADE LAND – WELL DRAINED – PRIOR TO FILL WAS SOMEWHAT POORLY DRAINED & MODERATELY WELL DRAINED

Ni: NICOLVILLE – MODERATELY WELL DRAINED

Nv: NICOLVILLE VARIANT – SOMEWHAT POORLY DRAINED

Sc: SCANTIC – POORLY DRAINED

Sw: SWANTON – POORLY DRAINED

HIGH INTENSITY SOIL SURVEY SLOPES

A 0–3%
B 3–8%

NOTES:
1. Sc AND Sw ARE HYDRIC SOILS.
2. THIS SOIL SURVEY MAY BE REVISED/FINE-TUNED IF TEST PITS ARE CONDUCTED.
3. THE LIMITS OF THE SOIL SURVEY ARE WHERE THE BASE MAP CONTAINS 2-FOOT CONTOURS.

CLASS A HIGH INTENSITY SOIL SURVEY

I HEREBY CERTIFY THAT THIS CLASS A HIGH INTENSITY SOIL SURVEY WAS CONDUCTED IN CONFORMANCE WITH THE STANDARDS ADOPTED BY THE MAINE ASSOCIATION OF PROFESSIONAL SOIL SCIENTIST.

STATE OF MAINE CERTIFIED SOIL SCIENTIST

Joseph W. Noel — NAME | #209 — M.C.S.S. | 10/26/16 — DATE

PREPARED FOR:
PRELIMINARY REVIEW
NOT FOR CONSTRUCTION

TAX MAP NO. 94 LOT NO. 14

© CIVIL CONSULTANTS

CIVIL CONSULTANTS
Engineers
Planners
Surveyors
P.O. Box 100
South Berwick
Maine
03908
207-384-2550
www.civcon.com

NO.	REVISIONS	INT.	DATE
1			

RECORD OWNER:
CARR DEVELOPMENT CORP.

OWNER ADDRESS:
12 CARWIN DRIVE
YORK, MAINE 03909

SITE PLAN
TAX MAP 94 LOT 14
731 US ROUTE ONE
YORK, MAINE

PREPARED FOR:
731 US ROUTE ONE REALTY TRUST
132 WESTERN POINT AVENUE YORK,MAINE 03903

CLIENT ADDRESS:

1"=30'
0' 30'

DATE: 10/27/2016
DRAWN BY: DRC/JAA
CHECKED BY:
APPROVED BY:

EXISTING CONDITIONS PLAN

PROJECT NO: 16-237.00

C1

SHEET: 1 OF 1

APPENDIX C

Supplemental Stormwater Calculations

Conveyance Systems. Calculations for sizing on-site conveyance structures, including culverts are included in the HydroCad print outs included in this report. Stabilization calculations are included here. Ditch stabilization is per MDOT Highway design manual. Riprap sizing and erosion control measures are shown and noted on the Site Plans. These plans also show scaled drawings and cross sections of these conveyance systems and associated practices.

Detention Basins. There are 3 detention basins designed to reduce peak flows from the site per Town requirements. Sizing determinations have been based on anticipated flows, modeled as shown in the preceding Post Development Calculation report.

Riprap Outlet Calculations.

Based upon guidelines set forth in the 1991 Maine Erosion Control BMPs, the geometry presented in the table on the project drawings will be used for the control structure discharge pipe outlets with the following gradation:

d_{50} Gradation range for d_{50} of 6"
100% of weight to be stones smaller than 9"
50% of weight to be stones smaller than 6"

Stormwater Maintenance & Inspection Plan

During the construction of the 731 US Route One Development, maintenance of all erosion, sedimentation, and stormwater flow control structures and devices will be the responsibility of the contractor on site. Upon stabilization of the completed Development, the developer will assume all responsibilities. The developer will be responsible for the required maintenance of the stormwater treatment system.

The developer will be responsible for the maintenance of all erosion, sedimentation, and stormwater flow control structures and devices within the limits of the development (limits as defined in the association documents) and will retain that responsibility until such time as another individual and/or agency (acceptable to the DEP) accepts the responsibility.

During and after construction all erosion control devices and structures shall be checked monthly and after each "significant rainfall"**. Necessary repairs will be made to correct undermining or deterioration of the devices and/or structures. Sediment in the stormwater detention ponds will be removed annually or as needed to maintain functionality of the structure.

The developer shall maintain inspection logs as shown below (or similar) of all stormwater and erosion control measures. The log shall reflect the dates of the inspections and describe actions taken (if any) and be kept on file for a minimum of 5 years. This logbook will be made available to the DEP upon request.

Where a major storm event is noted in the plan, this is classified as a rainfall exceeding 3.3 inches (2yr) storm event.

** significant rainfall is ½" in 24 hr

Sweeping

Paved surfaces shall be swept or vacuumed at least annually in the Spring to remove all Winter sand, and periodically during the year on an as-needed basis to minimize transportation of sediment during rainfall events.

Roadways and Parking Surfaces				
	Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years
Clear accumulated winter sand in parking lots and along roadways	**X**			
Sweep pavement to remove sediment	**X**			
Grade road shoulders and remove excess sand either manually or by a front-end loader	**X**			
Grade gravel roads and gravel shoulders	**X**			
Clean-out the sediment within water bars or open top culverts	**X**			
Ensure that stormwater is not impeded by accumulations of material or false ditches in the shoulder	**X**			

Catch Basins

All catch basins, and any other field inlets throughout the collection system, need to be inspected on a monthly basis to assure that the inlet entry point is clear of debris and will allow the intended water entry. These will be cleared, if necessary on a yearly basis or when sediment reaches two thirds of total volume. Catch basins need to be vacuumed and cleaned of all accumulated sediment. This work must be done by a vacuum truck. The removed material must be disposed of in accordance with the Maine Solid Waste Disposal Rules.

Catch Basins Systems				
	Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years
Remove and legally dispose of accumulated sediments and debris from the bottom of the basin, inlet grates, inflow channels to the basin, and pipes between basins.	**X**	**X**		
Remove floating debris and floating oils (using oil absorptive pads) from any trap designed for such	**X**	**X**		

Culverts				
	Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years
Remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit	**X**	**X**	**X**	
Repair any erosion damage at the culvert's inlet and outlet	**X**	**X**	**X**	

Vegetated Swales

Erosion: It is important to install erosion and sediment control measures to stabilize this area as soon as possible and to retain any organic matter in the bottom of the trench.

Routine Maintenance and Inspection: The area should be inspected for failures following heavy rainfall and repaired as necessary for newly formed channels or gullies, reseeding or sodding of bare spots, removal of trash, leaves and/or accumulated sediments, the control of woody or other undesirable vegetation, and to check the condition and integrity of any stone dams.

Mowing: Grass should not be trimmed extremely short, as this will reduce the filtering effect of the swale. The cut vegetation should be removed to prevent the decaying organic litter from adding pollutants to the discharge from the swale. The mowed height of the grass should be 2-4 inches taller than the maximum flow depth of the design water quality storm. A minimum mow height of 6 inches is generally recommended.

Fertilization: Routine fertilization and/or use of pesticides is strongly discouraged. If complete reseeding is necessary, half the original recommended rate of fertilizer should be applied with a full rate of reseeding.

Sediment Removal: The level of sediment deposition in the channel should be monitored regularly, and removed from grassed channels before permanent damage is done to the grassed vegetation, or if infiltration times are longer than 12 hours. Sediment should be removed from riprap channels when it reduces the capacity of the channel.

Aeration: The buffer strip may require periodic mechanical aeration to restore infiltration capacity. This aeration must be done during a time when the area can be reseeded and mulched prior to any significant rainfall.

	Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years
Vegetated Swales				
Grass should not be trimmed extremely short, as this will reduce the filtering effect of the swale (MPCA, 1989). The cut vegetation should be removed to prevent the decaying organic litter from adding pollutants to the discharge from the swale. The mowed height of the grass should be 2-4 inches taller than the maximum flow depth of the design water quality storm. A minimum mow height of 6 inches is generally recommended		**X**		
The area should be inspected for failures following heavy rainfall and repaired as necessary for newly formed channels or gullies, sodding of bare spots, removal of trash, leaves and/or accumulated sediments, the control of woody or other undesirable vegetation, and to check the condition and integrity of the check dams			**X**	
The buffer strip may require periodic mechanical aeration to restore infiltration capacity. This aeration must be done during a time when the area can be reseedinged and mulched prior to any significant rainfall				**X**
The level of sediment deposition in the channel should be monitored regularly, and removed from grassed channels before permanent damage is done to the grassed vegetation, or if infiltration times are longer than 12 hours. Sediment should be removed from riprap channels when it reduces the capacity of the channel				**X**

Vegetated Areas

All areas of maintained lawn are to be inspected regularly for signs of erosions and channelization. Areas where erosion is occurring or areas of sparse growth shall be replanted and stabilized. Channelized flows from the eroded land shall be diverted to buffers or other areas able to withstand the high sediment load in the erosive runoff.

	Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years
Vegetated Areas				
Inspect all slopes and embankments	**X**		**X**	
Replant bare areas or areas with sparse growth	**X**		**X**	
Armor areas with fill erosions with an appropriate lining or divert the erosive flows to on-site areas able to withstand concentrated flows. Any materials used to armor/stabilize the affected areas shall be submitted to the Town and Engineer for review and approval prior to installation.	**X**		**X**	

Detention Ponds

After each significant rainfall event, or at least monthly, the detention basin shall be visually inspected to assure that the outlet structure is not blocked and that no sign of erosion is apparent within the berm or riprap.

Any sign of erosion or blockage shall be immediately repaired.

The pond shall be inspected on an annual basis to assure that significant sediment accumulation has not occurred. Whenever the sediment is within three inches of the outlet invert the accumulated sediment shall be removed and disposed of properly.

On a semi-annual basis, remove debris from the outlets and emergency overflow channel. Examine the sediment accumulation in the forebay/swale sump.

On a semi-annual basis, inspect and remove debris from the control structure; check the orifice and all openings, and the elevation of any outlet weirs.

Remove sediment if it occupies 15% of the pond volume. In larger ponds with a permanent pool of water, the sediment can be measured by measuring bottom surface elevations and comparing with records of initial construction.

During the active dewatering process, inspection of the dewatering facility should be reviewed frequently. Special attention should be paid to the buffer area for any sign of erosion and concentration of flow that may compromise the buffer area. Observe where possible the visual quality of the effluent and determine if additional treatment can be provided.

Stormwater Detention and Retention Facilities				
	Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years
Inspect the embankments for settlement, slope erosion, internal piping, and downstream swamping. A professional engineer must review these immediately.		**X**	**X**	
Mow the embankment to control woody vegetation		**X**		
Inspect the outlet control structure for broken seals, obstructed orifices, and plugged trash racks	**X**	**X**	**X**	
Remove and dispose of sediments and debris within the control structure		**X**		**X**
Repair any damage to trash racks or debris guards		**X**		
Mow vegetated spillways to control woody vegetation and replace any dislodged stone in riprap spillways		**X**		
Remove and dispose of accumulated sediments within the impoundment and forebay/swale		**X**		**X**

Roadway Ditches, Swales and Culverts

Open swales and ditches need to be inspected on a monthly basis or after a major rainfall event to assure that debris or sediments do not reduce the effectiveness of the system. Debris needs to be removed at that time. Any sign of erosion or blockage shall be immediately repaired to assure a vigorous growth of vegetation for the stability of the structure and proper functioning.

Vegetated ditches should be mowed at least monthly during the growing season. Larger brush or trees must not be allowed to become established in the channel. Any areas where the vegetation fails will be subject to erosion and should be repaired and revegetated.

If sediment in culverts or piped drainage systems exceeds 20% of the diameter of the pipe, it should be removed. This may be accomplished by hydraulic flushing or any mechanical means; however, care should be taken to not flush the sediments into the retention/detention pond as it will reduce the pond's capacity and hasten the time when it must be cleaned. All pipes should be inspected on an annual basis.

Stormwater Channels				
	Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years
Inspect ditches, swales and other open stormwater channels	**X**	**X**	**X**	
Remove any obstructions and accumulated sediments or debris	**X**	**X**		
Control vegetated growth and woody vegetation		**X**		
Repair any erosion of the ditch lining		**X**		
Mow vegetated ditches		**X**		
Remove woody vegetation growing through riprap		**X**		
Repair any slumping side slopes	**X**	**X**		
Replace riprap where underlying filter fabric or underdrain gravel is showing or where stones have dislodge	**X**			**X**

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Stormwater Maintenance
731 US Route One Development
Maintenance Log

This log is intended to accompany the Stormwater Management Facilities Maintenance Plan for the 731 US Route One Development. The following items shall be checked, cleaned and maintained on regular basis as specified in the Maintenance Plan and as described in the table below. This log shall be kept on file for a minimum of five years and shall be available for review by MDEP. Qualified personnel familiar with drainage systems and soils shall perform all inspections.

Item	Maintenance Required & Frequency					Date Completed	Maintenance Personnel	Comments
Sweeping of Roads		Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years			
	Clear accumulated winter sand in parking lots and along roadways	**X**						
	Sweep pavement to remove sediment	**X**						
	Grade road shoulders and remove excess sand either manually or by a front-end loader	**X**						
	Grade gravel roads and gravel shoulders	**X**						
	Clean-out the sediment within water bars or open top culverts	**X**						
	Ensure that stormwater is not impeded by accumulations of material or false ditches in the shoulder	**X**						

Item	Maintenance Required & Frequency					Date Completed	Maintenance Personnel	Comments
		Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years			
Vegetated Swales	Grass should not be trimmed extremely short, as this will reduce the filtering effect of the swale (MPCA, 1989). The cut vegetation should be removed to prevent the decaying organic litter from adding pollutants to the discharge from the swale. The mowed height of the grass should be 2-4 inches taller than the maximum flow depth of the design water quality storm. A minimum mow height of 6 inches is generally recommended		**X**					
	The area should be inspected for failures following heavy rainfall and repaired as necessary for newly formed channels or gullies, sodding of bare spots, removal of trash, leaves and/or accumulated sediments, the control of woody or other undesirable vegetation, and to check the condition and integrity of the check dams			**X**				
	The buffer strip may require periodic mechanical aeration to restore infiltration capacity. This aeration must be done during a time when the area can be reseedinged and mulched prior to any significant rainfall				**X**			
	The level of sediment deposition in the channel should be monitored regularly, and removed from grassed channels before permanent damage is done to the grassed vegetation, or if infiltration times are longer than 12 hours. Sediment should be removed from riprap channels when it reduces the capacity of the channel				**X**			

Item	Maintenance Required & Frequency					Date Completed	Maintenance Personnel	Comments
Catch Basins and Culverts		Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years			
	Remove and legally dispose of accumulated sediments and debris from the bottom of the basin, inlet grates, inflow channels to the basin, and pipes between basins.	X	X					
	Remove floating debris and floating oils (using oil absorptive pads) from any trap designed for such	X	X					
	Remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit	X	X	X				
	Repair any erosion damage at the culvert's inlet and outlet	X	X	X				
Roadway Ditches, Swales and Culverts	Inspect ditches, swales and other open stormwater channels	X	X	X				
	Remove any obstructions and accumulated sediments or debris	X	X					
	Control vegetated growth and woody vegetation		X					
	Repair any erosion of the ditch lining		X					
	Mow vegetated ditches		X					
	Remove woody vegetation growing through riprap		X					
	Repair any slumping side slopes	X	X					
	Replace riprap where underlying filter fabric or underdrain gravel is showing or where stones have dislodge	X			X			

Item	Maintenance Required & Frequency					Date Completed	Maintenance Personnel	Comments
Detention Basins	**Stormwater Detention and Retention Facilities**							
		Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years			
	Inspect the embankments for settlement, slope erosion, internal piping, and downstream swamping. A professional engineer must review these immediately.		**X**	**X**				
	Mow the embankment to control woody vegetation		**X**					
	Inspect the outlet control structure for broken seals, obstructed orifices, and plugged trash racks	**X**	**X**	**X**				
	Remove and dispose of sediments and debris within the control structure		**X**		**X**			
	Repair any damage to trash racks or debris guards		**X**					
	Mow vegetated spillways to control woody vegetation and replace any dislodged stone in riprap spillways		**X**					
	Remove and dispose of accumulated sediments within the impoundment and forebay		**X**		**X**			

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Stormwater Management System

731 US Route One Development

Inspection & Maintenance Checklist

BMP/System Component	Date Inspected	Inspector	Cleaning/Repair Needed *(List Items/Comments)*	Date of Cleaning/Repair	Performed By

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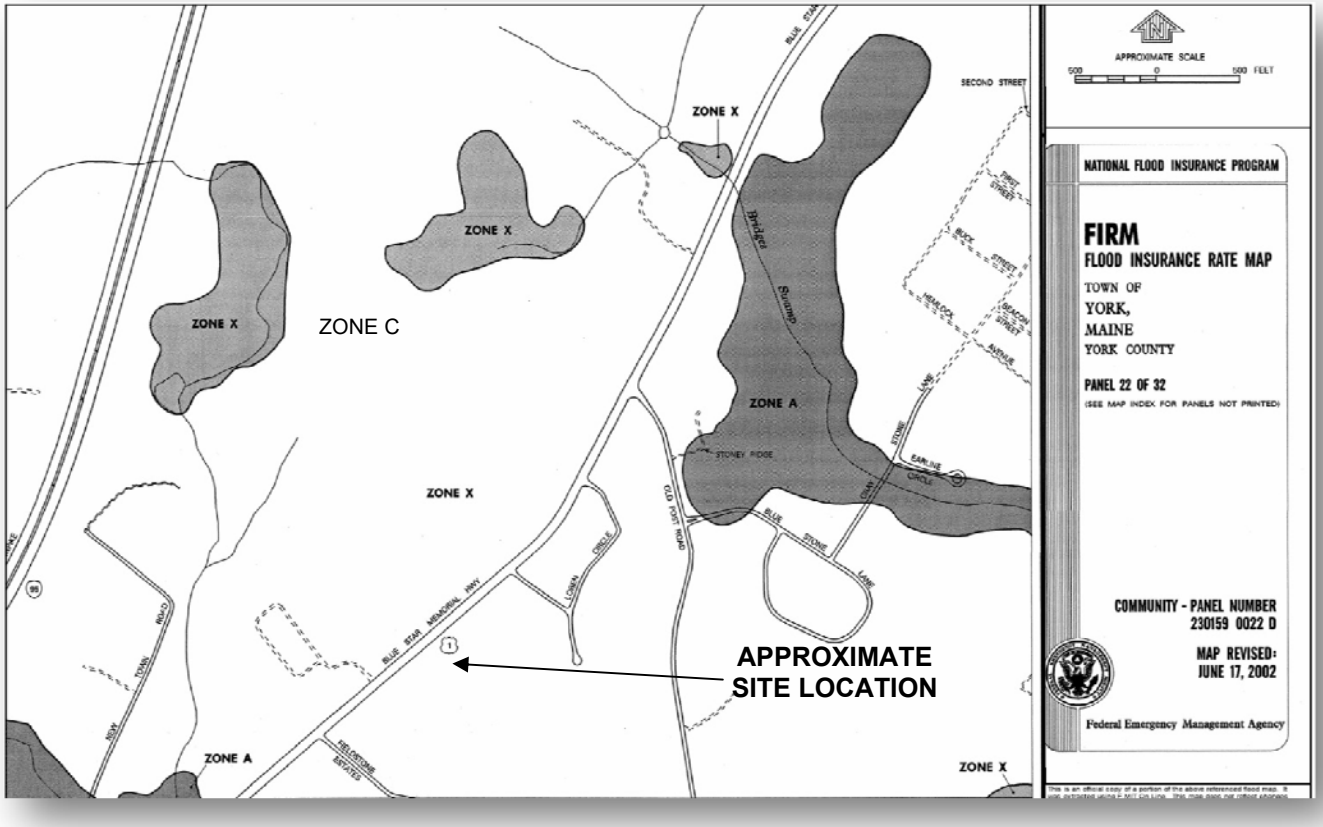
APPENDIX E

NATIONAL FLOOD INSURANCE RATE MAP- FIRM



Reduced Scale Sketch Reproduced from Portion of

Town of York, ME
Panel 2301590022D
(Effective dates: June 17, 2002)

CIVIL
CONSULTANTS

Engineers

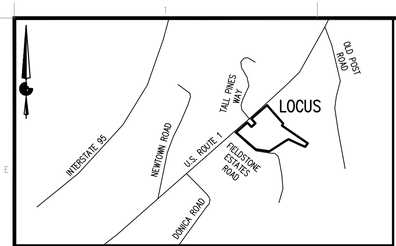
Planners

Surveyors

APPENDIX F

D1 – Pre-Development Stormwater Plan

D2 – Post-Development Stormwater Plan



LOCATION PLAN
(NOT TO SCALE)

DRAINAGE LEGEND

POND — 4 — POND NUMBER

SUBCATCHMENT — 11 / 0.56 — SUBCATCHMENT NUMBER / SUBCATCHMENT ACREAGE

REACH — 50 — REACH NUMBER

Tc COMPONENTS — S = Sheet, T = Shallow Concentrated, C = Channel

ROUTING DIRECTION

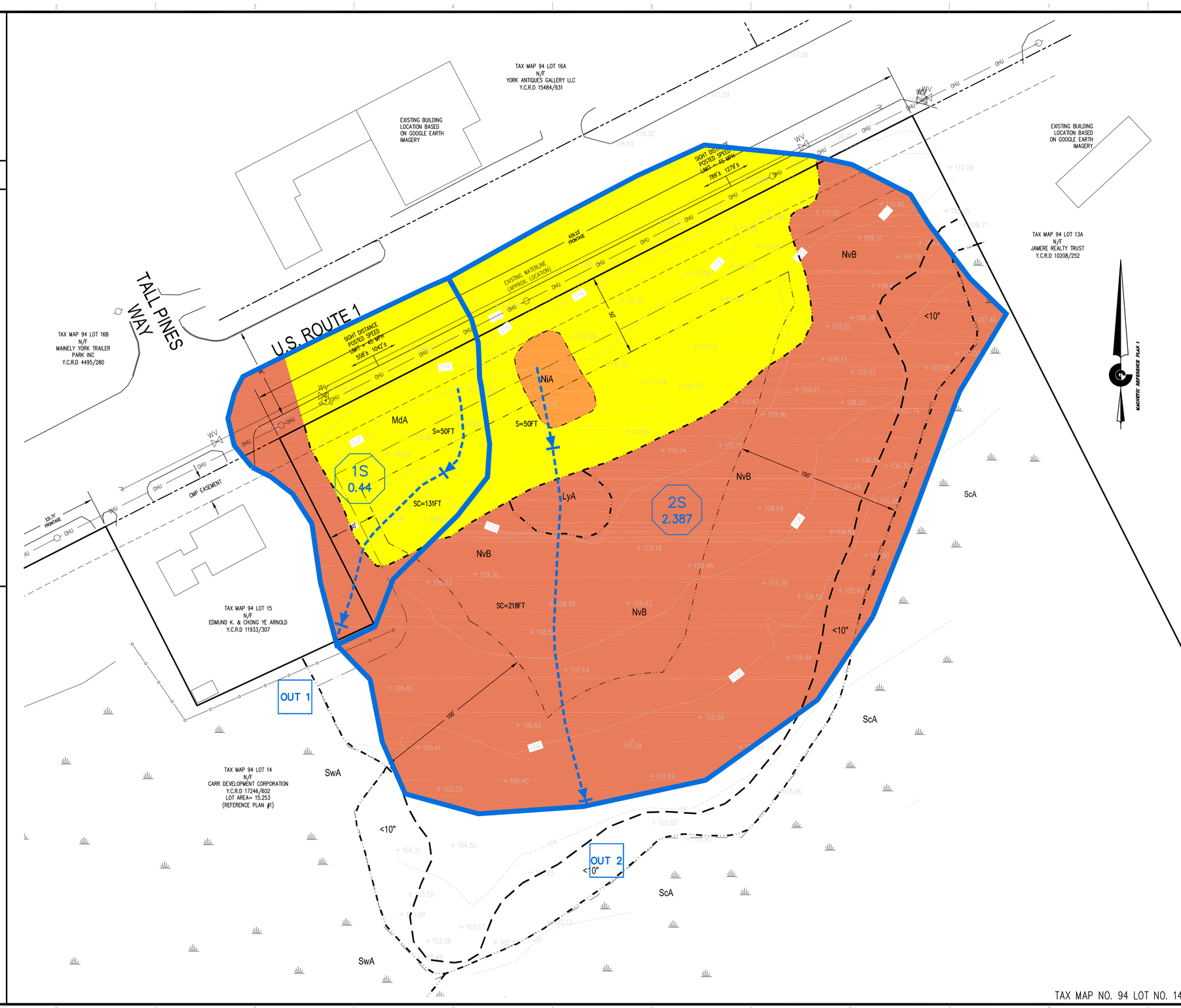
SOILS LEGEND

- A Soils: SCS Soils: HISS Soils:
- B Soils: SCS Soils: HISS Soils: Md(MADE LAND)
- C Soils: SCS Soils: HISS Soils: Ly
- D Soils: SCS Soils: HISS Soils: Ni, Sc, Sw

- Subcatchment Boundaries Pre-Development
- Subcatchment Boundaries Post-Development
- SCS Soil Line
- High Intensity Soil Line
- Tc Flow Path & Direction Pre-Development
- Tc Flow Path & Direction Post-Development

LEGEND

- PROPERTY BOUNDARY
- EASEMENTS
- SETBACKS
- PROPOSED BUILDING
- PROPOSED EDGE OF PAVEMENT
- EDGE OF WETLAND
- 114 — EXISTING CONTOURS
- 114 — PROPOSED CONTOURS
- + 110.80 — EXISTING SPOT ELEVATION
- 114X00 — PROPOSED SPOT ELEVATION
- EXISTING FENCE
- PROPOSED CULVERT
- EXISTING WETLAND
- WV — EXISTING WATER VALVE
- EXISTING HYDRANT
- EXISTING UTILITY POLE
- PROPOSED HANDICAP PARKING
- PROPOSED RIP RAP
- PROPOSED CATCH BASIN



TAX MAP NO. 94 LOT NO. 14

STATE OF MAINE
Neil J. Rapoza
12169
LICENSED
PROFESSIONAL ENGINEER

© CIVIL CONSULTANTS

CIVIL CONSULTANTS
Engineers
Planners
Surveyors
P.O. Box 100
South Berwick
Maine
03908
207-384-2550
www.civcon.com

NO.	REVISIONS	INT.	DATE
1			

RECORD OWNER:
CARR DEVELOPMENT CORP.
OWNER ADDRESS:
12 CARWIN DRIVE
YORK, MAINE 03909

SITE PLAN
TAX MAP 94 LOT 14
731 US ROUTE ONE
YORK, MAINE

PREPARED FOR:
731 US ROUTE ONE REALTY TRUST
CLIENT ADDRESS: 132 WESTERN POINT AVENUE YORK,MAINE 03903

1"=30'
0' 30'

DATE: 10/25/2016
DRAWN BY: NJR
CHECKED BY:
APPROVED BY:

PRE-DEVELOPMENT STORMWATER MANAGEMENT PLAN

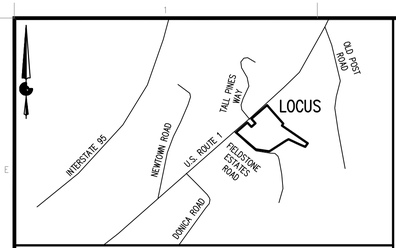
PROJECT NO: 16-237.00

D1

SHEET: 1 OF 2

CADD FILE: J:\aaa\2016\1623700\Carlson\Engineering\Drawing\1623700E-ST.dwg

PLOT DATE: 10/27/2016 9:41 AM



LOCATION PLAN

(NOT TO SCALE)

DRAINAGE LEGEND

POND — 4 — POND NUMBER

SUBCATCHMENT — 11 / 0.56 — SUBCATCHMENT NUMBER / SUBCATCHMENT ACREAGE

REACH — 50 — REACH NUMBER

Tc COMPONENTS — S = Sheet, T = Shallow Concentrated, C = Channel

ROUTING DIRECTION

SOILS LEGEND

- A Soils: SCS Soils: HISS Soils:
- B Soils: SCS Soils: HISS Soils: Md(MADE LAND)
- C Soils: SCS Soils: HISS Soils: Ly
- D Soils: SCS Soils: HISS Soils: Ni, Sc, Sw

NOTE: SOIL DESIGNATION AND HATCHING NOT SHOWN ON SHEET D2 FOR CLARITY, REFER TO SHEET D1

- Subcatchment Boundaries Pre-Development
- Subcatchment Boundaries Post-Development
- SCS Soil Line
- High Intensity Soil Line
- Tc Flow Path & Direction Pre-Development
- Tc Flow Path & Direction Post-Development

LEGEND

- PROPERTY BOUNDARY
- EASEMENTS
- SETBACKS
- PROPOSED BUILDING
- PROPOSED EDGE OF PAVEMENT
- EDGE OF WETLAND
- 114 — EXISTING CONTOURS
- 114 — PROPOSED CONTOURS
- + 110.80 — EXISTING SPOT ELEVATION
- 114X00 — PROPOSED SPOT ELEVATION
- EXISTING FENCE
- PROPOSED CULVERT
- EXISTING WETLAND
- WV — EXISTING WATER VALVE
- EXISTING HYDRANT
- EXISTING UTILITY POLE
- PROPOSED HANDICAP PARKING
- PROPOSED RIP RAP
- PROPOSED CATCH BASIN

TAX MAP NO. 94 LOT NO. 14

STATE OF MAINE — Neil J. Rapoza 12169 — LICENSED PROFESSIONAL ENGINEER

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Engineers
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P.O. Box 100
South Berwick
Maine
03908
207-384-2550
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NO.	REVISIONS	INT.	DATE
1			

RECORD OWNER: CARR DEVELOPMENT CORP.
OWNER ADDRESS: 12 CARWIN DRIVE YORK, MAINE 03909

SITE PLAN
TAX MAP 94 LOT 14
731 US ROUTE ONE
YORK, MAINE

PREPARED FOR:
731 US ROUTE ONE REALTY TRUST
132 WESTERN POINT AVENUE YORK,MAINE 03903

CLIENT ADDRESS:

1"=30"
0' 30'

DATE: 10/20/2016
DRAWN BY: NJR
CHECKED BY:
APPROVED BY:

POST-DEVELOPMENT STORMWATER MANAGEMENT PLAN

PROJECT NO: 16-237.00

D2

SHEET: 2 OF 2

CADD FILE: J:\aaa\2016\16237001\Carlson\Engineering\Drawing\16237001E-ST.dwg

PLOT DATE: 10/27/2016 9:42 AM