

**STORMWATER DRAINAGE SYSTEM
MAINTENANCE AGREEMENT**

For SITE PLANS (THAT ARE NOT SUBDIVISIONS)

IN CONSIDERATION OF the site plan approval granted by the Planning Board/Planning Authority of the City of Portland to the proposed **171 Warren Ave – Parking Lot Expansion (Application #2015-221)** and the associated **Site Plan** (Exhibit A) submitted by **Poulin Property Holdings LLC** prepared by **Northeast Civil Solutions** (*engineer/agent*) of **Payne Road, Scarborough, ME** address) dated **January 05, 2016 (revised)** and pursuant to a condition thereof, **Poulin Property Holdings LLC** (*name of owner*) a Maine limited liability company with a principal place of business in Portland, Maine, and having a mailing address of **171 Warren Ave** the owner of the subject premises, does hereby agree, for itself, its successors and assigns (the “Owner”), as follows:

Maintenance Agreement

That it, its successors and assigns, will, at its own cost and expense and at all times in perpetuity, maintain in good repair and in proper working order the **Rain Garden** (*details of the system such as underdrained subsurface sand filter BMP system, rain gardens, storm drain pipes, underdrain pipes, catch basins*), (hereinafter collectively referred to as the “stormwater system”), as shown on the **Site Plan** in Exhibit A and in strict compliance with the approved **Stormwater Design Memo dated December 07, 2015** prepared for the Owner by **Northeast Civil Solutions** (copy attached at Exhibit B) and Chapter 32 of the Portland City Code.

Owner of the subject premises further agrees, at its own cost, to keep a Stormwater Maintenance Log. Such log shall be made available for inspection by the City of Portland upon reasonable notice and request.

Said agreement is for the benefit of the said City of Portland and all persons in lawful possession of said premises and abutters thereto; further, that the said City of Portland and said persons in lawful possession may enforce this Agreement by an action at law or in equity in any court of competent jurisdiction; further, that after giving the Owner written notice and a stated time to perform, the said City of Portland, by its authorized agents or representatives, may, but is not obligated to, enter upon said premises to maintain, repair, or replace said stormwater system in the event of any failure or neglect thereof, the cost and expense thereof to be reimbursed in full to the said City of Portland by the Owner upon written demand. Any funds owed to the City under this paragraph shall be secured by a lien on the property.

This Agreement shall also not be construed to allow any change or deviation from the requirements of the site plan most recently and formally approved by the Planning Board/Planning Authority of the City of Portland.

This agreement shall bind the undersigned only so long as it retains any interest in said premises, and shall run with the land and be binding upon the Owner's successors and assigns as their interests may from time to time appear.

The Owner agrees to record a copy of this Agreement in the Cumberland County Registry of Deeds within thirty (30) days of final execution of this Agreement. The Owner further agrees to provide a copy of this Agreement to any Condominium Association or management company, and to any successor or assign and to forward to the City an Addendum signed by any successor or assign in which the successor or assign states that the successor or assign has read the Agreement, agrees to all its terms and conditions and the successor or assign will obtain and forward to the City's Department of Public Services and Department of Planning and Urban Development a similar Addendum from any other successor or assign.

For the purpose of this agreement and release "Owner" is any person or entity who is a successor or assign and has a legal interest in part, or all, of the real estate and any building. The real estate shown by chart, block and lot number in the records on file in the City Assessor's office shall constitute "the property" that may be entered by the City and liened if the City is not paid all of its costs and charges following the mailing of a written demand for payment to the owner pursuant to the process and with the same force and effect as that established by 36 M.R.S.A. §§ 942 and 943 for real estate tax liens.

Any written notices or demands required by the agreement shall be complete on the date the notice is attached to one or more doors providing entry to any buildings and mailed by certified mail, return receipt requested or ordinary mail or both to the owner of record as shown on the tax roles on file in the City Assessor's Office.

If the property has more than one owner on the tax rolls, service shall be complete by mailing it to only the first listed owner. The failure to receive any written notice required by this agreement shall not prevent the City from entering the property and performing maintenance or repairs on the stormwater system, or any component thereof, or liening it or create a cause of action against the City.

Dated at Portland, Maine this **06 day of January. 2016.**

Poulin Property Holdings LLC

(name of company)



Marc M. Poulin , Sole Member

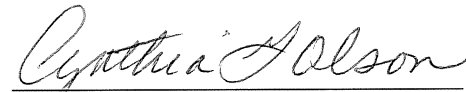
(representative of owner, name and title)

STATE OF MAINE
CUMBERLAND, ss.

Date: Jan 6, 2016

Personally appeared the above-named Marc M. Poulin ^{*sole member*} *(name and title)*, and acknowledged the foregoing instrument to be his free act and deed in his said capacity.

Before me,



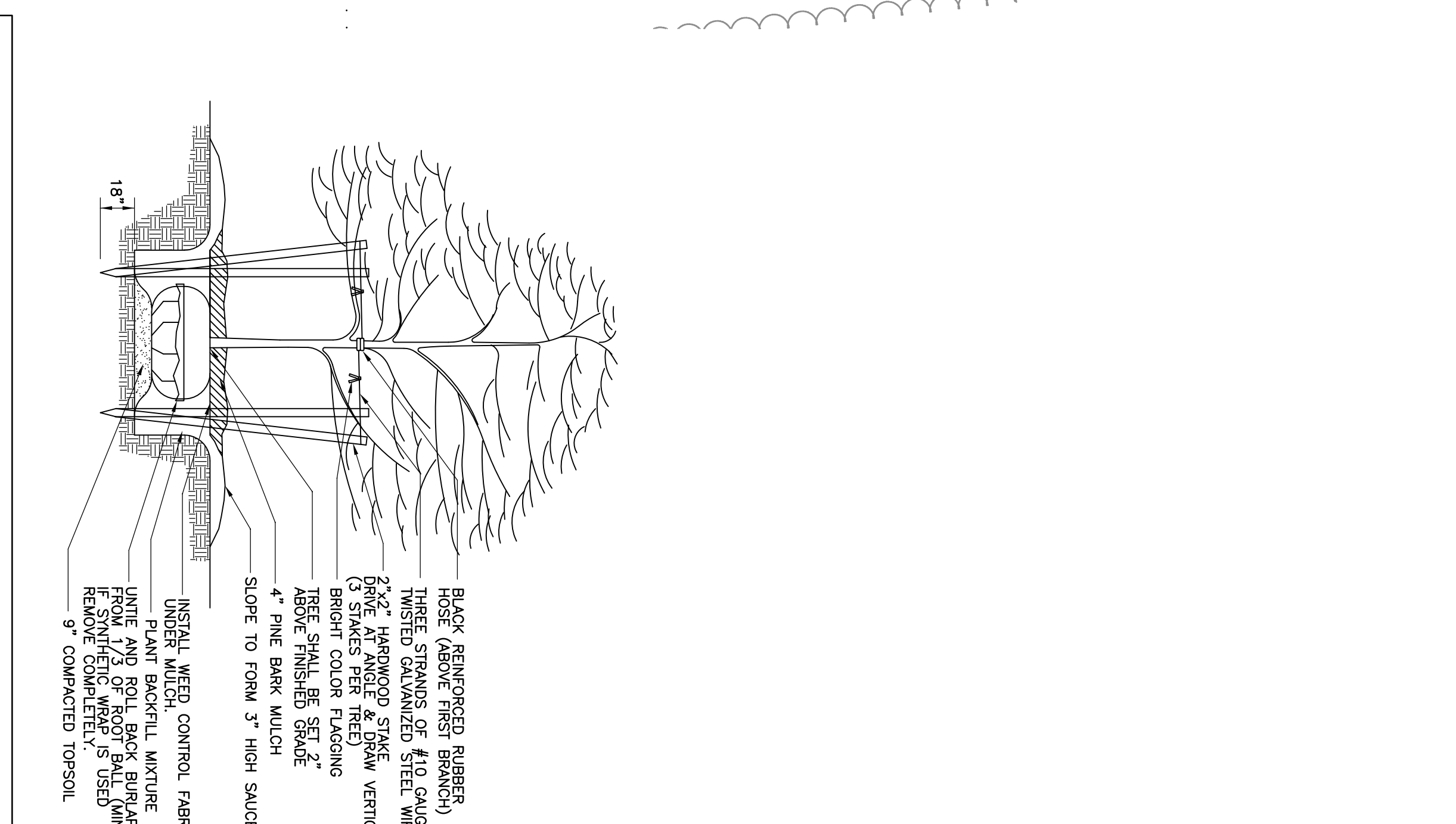
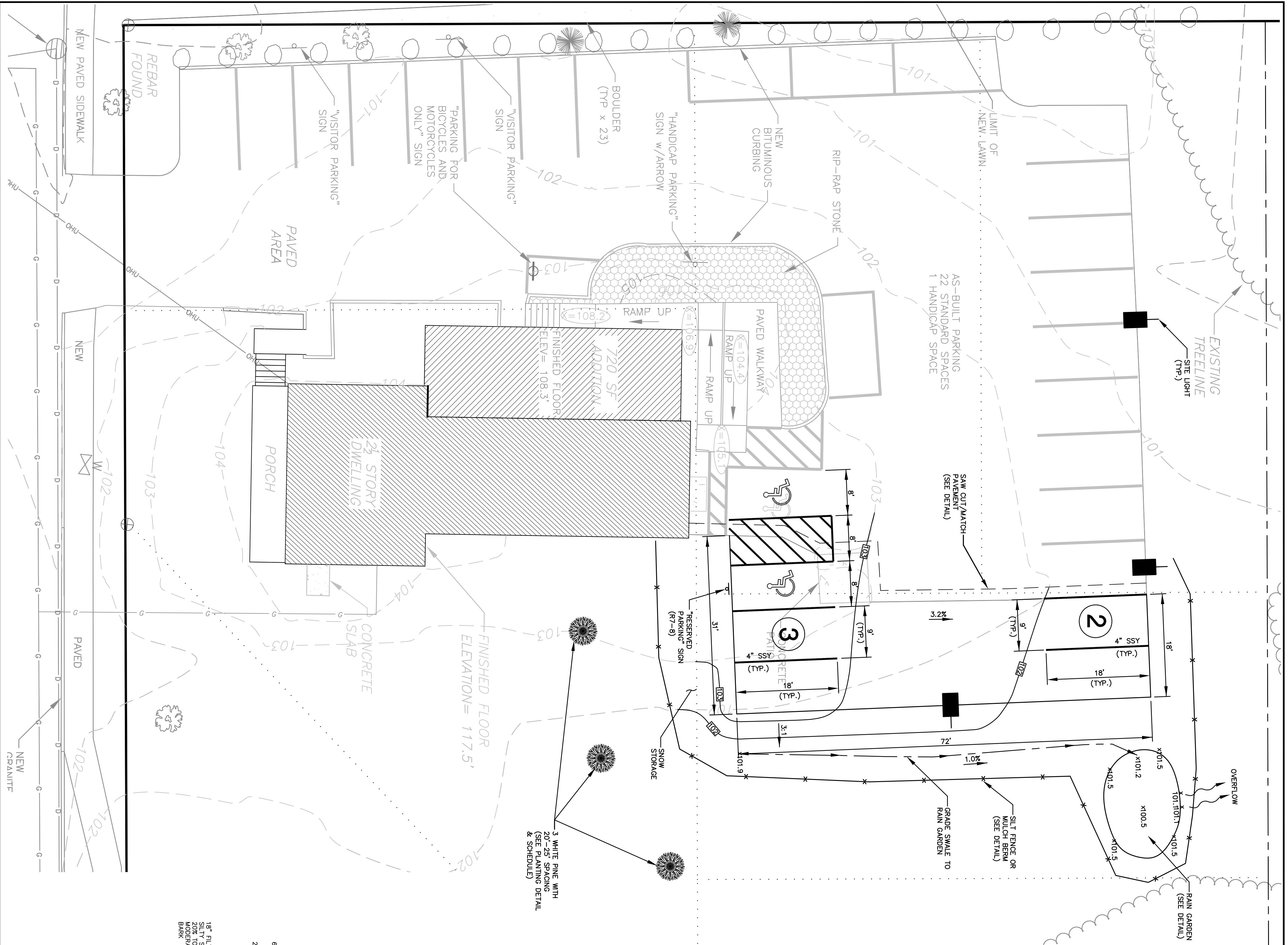
Notary Public/~~Attorney at Law~~

Print name: Cynthia G. Olson

My commission expires 12/31/2022

Exhibit A: **Site Plan**

Exhibit B: **Stormwater Design Memo dated December 07, 2015**



LENGTH	WIDTH	LOW POINT ELEV.	HIGH POINT ELEV.	INVT. TO OVERFLOW
20'	10'	100.5'	101.5'	101.1'

QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE
3	Pinus strobus	White Pine	6'-7' Height

TYPICAL STREET TREE PLANTING
NOT TO SCALE

Plant List for a Sunny Rain Garden

Plants for the wetter center of the garden:

- Woody shrubs:****
 - SS: *Cornus amomifolia*, summer-wet, 5-6'H x 4-6'W. Late-to-early bloom. Fragrant, large, white flower stalks in summer.
- Perennials:****
 - CA: *Lobelia cardinalis*, cardinal flower, 2-4'H x 1'W. Bright red flowers from July to September.
 - T: *Achillea millefolium*, orange butterfly weed, 2-3'H x 2-3'W. Can handle dry September.
 - I: *Asplenium platyneuron*, blue flag iris, 2-4'H x 1'W. Glossy, heart-shaped leaves with bright yellow flowers in the spring.
 - J: *Equisetum maculatum*, Joe-pye weed, 3-5'H x 1-2'W. Red stems, purple-red flowers from July to September.
 - SM: *Asclepias incarnata*, swamp milkweed, 2-3'H x 2-3'W. Will not tolerate drought. Showy, flat, reddish flowers from July to October.

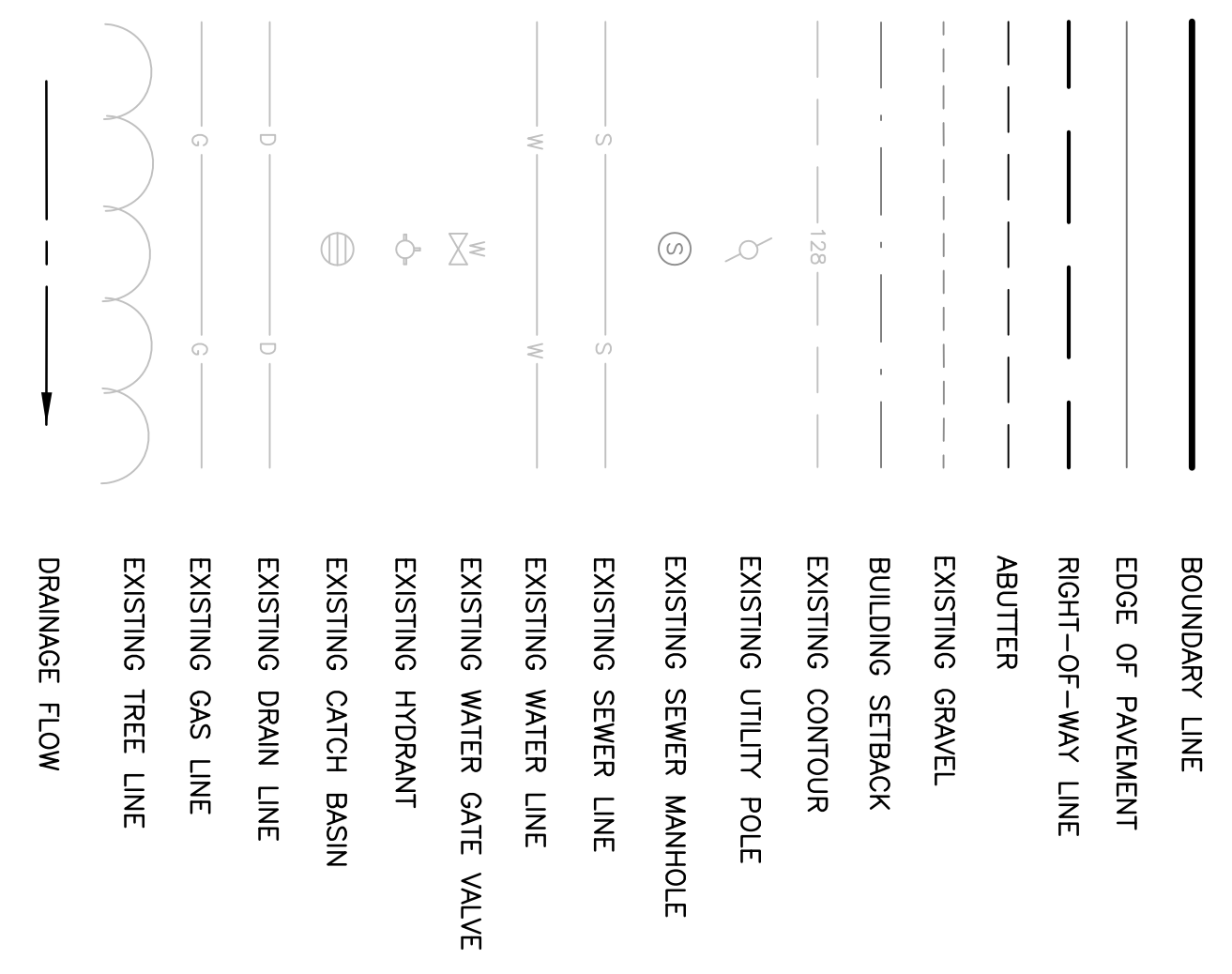
Plants for the dryer outer edge of the garden:

- Woody shrubs:****
 - P: *Potentilla arguta*, tall conquebill, 1-3'H x 1-3'W. Thick leaves and many white flowers all summer.
- Perennials:****
 - G: *Geranium maculatum*, wild geranium, 1-2'H x 2'W or more. Purple flowers in the late spring and sometimes again in the fall. Pretty foliage.
 - A: *Asplenium canadense*, swordflower, 2'H x 1'W. Large, attractive leaves.
 - LO: *Lobelia spicata*, spotted lobelia, 3-5'H x 3-5'W. Blue flowers from June to August.
 - FA: *Symphoricarpos umbellatus*, fat-hopped aster, 3-7'H x 3-7'W. White to yellowish-centered flowers in the fall.
 - AS: *Symphoricarpos noveboracensis*, New England aster, 3-7'H x 3-7'W. Purple flowers in the fall.
 - H: *Helianthus autumnalis*, perennial salicaria, 5-5'H x 2-3'W. Lots of yellow flowers in the fall.

**Woody shrubs: Though they may shed their leaves, the woody structure of these plants will provide winter interest in the garden.

**Perennials: These plants die over the winter, but their roots will be surviving. Sometimes some of last year's foliage will remain, but generally you should trim off the dead foliage in late fall and wait for the green growth of spring.

LEGEND



NOTES

- THE PARCEL SURVEYED IS IDENTIFIED ON THE CITY OF PORTLAND TAX ASSESSORS' MAP 295, BLOCK E4, PARCEL 1-7 & 10.
- THE PARCEL SURVEYED IS LOCATED IN THE B-4 BUSINESS ZONE/DISTRICT.
- PORTIONS OF BULK AND SPACE REQUIREMENTS ARE AS FOLLOWS:
 - MINIMUM LOT AREA: 50,240.03 SQ. FT. (WARREN AVE)
 - MINIMUM STREET FRONTAGE: 60 FT.
 - MINIMUM FRONT SETBACK: 20 FT.
 - MINIMUM SIDE SETBACK: 20 FT.
 - MINIMUM MAX STRUCTURE HT: 65 FT.
 - 30 FT.
- PARKING - OFFICES: 1 SPACE/100 SF PROPOSED FLOOR AREA = 3,330 SF SPACES PROVIDED = 26 SPACES
- MAXIMUM IMPERVIOUS AREA RATIO = 80% PROPOSED IMPERVIOUS AREA RATIO = 30%

THIS PLAN IS FOR REVIEW PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION OR RECORDING

PROJECT NUMBER: 32209
 ACAD TITLE: 32209-SITE PARKING.DWG SCALE: 1" = 10' DATE: DECEMBER 7, 2015

SITE PLAN

Project Name: **PARKING EXPANSION**
 171 WARREN AVE, PORTLAND, MAINE 04103

Owner/Client: **POULIN PROPERTY HOLDINGS, LLC**
 276 CANO ROAD, PORTLAND, MAINE 04103

Northwest Civil Solutions
 INCORPORATED

381 PAYNE ROAD, SCARBOROUGH, MAINE 04074
 Tel: 207.883.1000 Fax: 207.883.2227
 8-1001 info@northwestcivilsolutions.com

SHEET 2 OF 3

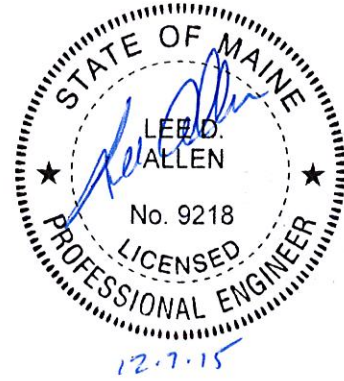


***Northeast
Civil
Solutions, Inc.***

381 Payne Road
Scarborough, Maine 04074
(800) 882-2227/ (207) 883-1000
FAX: (207) 883-1001

Memorandum

TO: Jean Fraser
FROM: Lee Allen, P.E.
DATE: December 7, 2015
RE: 171 Warren Avenue – Stormwater Design (Pocket Raingarden)



Following please find calculations and data that support the design of a pocket raingarden for the proposed expansion of 5 parking spaces at 171 Warren Avenue. The parking expansion introduces 1,663 sf of new impervious area to the site. A 200 sf “pocket raingarden” has been proposed to treat runoff from the new impervious surface. Stormwater runoff is proposed to be collected in a swale and directed to the raingarden. The raingarden was sized to contain and treat runoff from the 1-year storm event (first flush). The soil in this area was found to be Hollis Fine Sandy Loam (HrB) with saturated infiltration rate of 28.23 micrometer/sec. This infiltration rate was converted to an exfiltration rate over the bottom of the raingarden for the purposes of the HydroCAD analysis to size the raingarden. As can be seen from the HydroCAD data the raingarden will hold approximately 7” of water during the 1-year rain event without discharging over the spillway.

NORTHEAST CIVIL SOLUTIONS, INC.

Surveying Engineering Land Planning

381 Payne Road, Scarborough, Maine 04074

Tel: 207-883-1000 • Fax: 207-883-1001

PROJECT Pool - 32209

SHEET NO. 1 OF _____

CALCULATED BY LDA DATE 12/7/15

CHECKED BY _____ DATE _____

SCALE Rain Garden Calculation

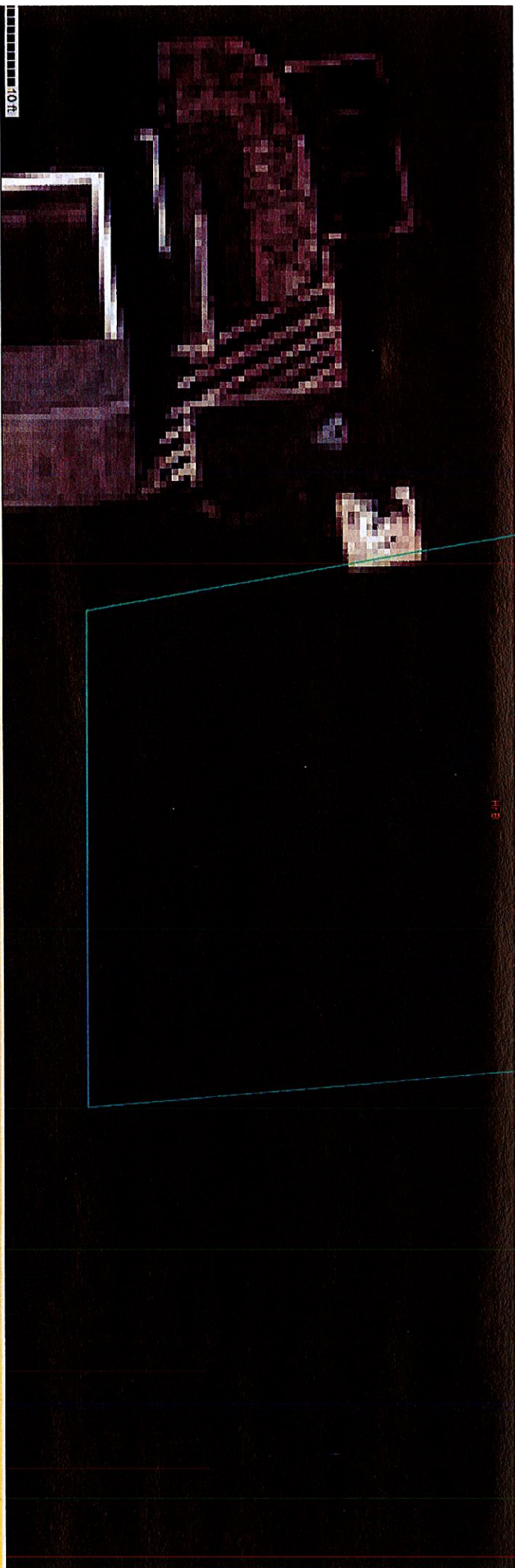
Soil = HFR: HOLLY FINE SANDY LOAM

$$\begin{aligned}
 K_{SAT} = \text{SATURATED HYDRAULIC CONDUCTIVITY} &= \text{MICRO M/SEC} = 28.23 \text{ MICRO M/SEC} \\
 &= 2.823 \times 10^{-5} \text{ M/SEC} \\
 &= .0002823 \text{ M/SEC} \\
 &= 9.26 \times 10^{-5} \text{ FT/SEC}
 \end{aligned}$$

NEW IMPERVIOUS AREA = 1,663 SF

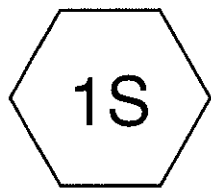
$$\text{TOTAL RAIN GARDEN AREA} = 200 \text{ SF} = Q_{INFIL} = .0185 \text{ CFS} = \sqrt{A} (9.26 \times 10^{-5} \text{ FT/SEC})(200 \text{ SF})$$

SEE HYDROCAT DATA Q_1 (FIRST FLUSH) CONTAINED WITHIN RAIN GARDEN

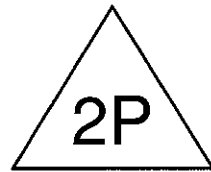
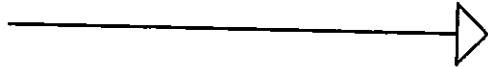


Physical Soil Properties

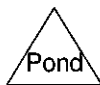
erland County and Part of Oxford County, Maine														
Symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors	Wind erodibility group	Wind erodil index		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct	Kw	Kf	T		
olls fine sandy 3 to 8 percent	0-6	45-60-85	0-34-50	2-6-10	0.75-0.98- 1.20	14.11-28.23-42.34	0.08-0.17-0.25	0.0-1.5-2.9	4.0-5.0-6.0	.32	.32	1	3	86
	6-18	45-48-85	0-46-50	2-6-10	0.90-1.15- 1.40	14.11-28.23-42.34	0.08-0.18-0.28	0.0-1.5-2.9	2.0-3.0-5.0	.49	.49			
	18-22	-	-	-	-	0.00-0.01-1.40	-	-	-	-	-			



(new Subcat)



Raingarden



Raingarden

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.038	98	Paved parking, HSG A (1S)
0.038	98	TOTAL AREA

Raingarden

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.038	HSG A	1S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.038		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.038	0.000	0.000	0.000	0.000	0.038	Paved parking	1S
0.038	0.000	0.000	0.000	0.000	0.038	TOTAL AREA	

Raingarden

Type III 24-hr 1-Year Rainfall=2.60"

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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: (new Subcat)

Runoff Area=1,663 sf 100.00% Impervious Runoff Depth>2.22"
Flow Length=20' Slope=0.0200 '/' Tc=0.3 min CN=98 Runoff=0.11 cfs 0.007 af

Pond 2P: Raingarden

Peak Elev=101.06' Storage=74 cf Inflow=0.11 cfs 0.007 af
Discarded=0.02 cfs 0.007 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.007 af

Total Runoff Area = 0.038 ac Runoff Volume = 0.007 af Average Runoff Depth = 2.22"
0.00% Pervious = 0.000 ac 100.00% Impervious = 0.038 ac

Raingarden

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Type III 24-hr 1-Year Rainfall=2.60"

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Summary for Subcatchment 1S: (new Subcat)

Runoff = 0.11 cfs @ 12.00 hrs, Volume= 0.007 af, Depth> 2.22"

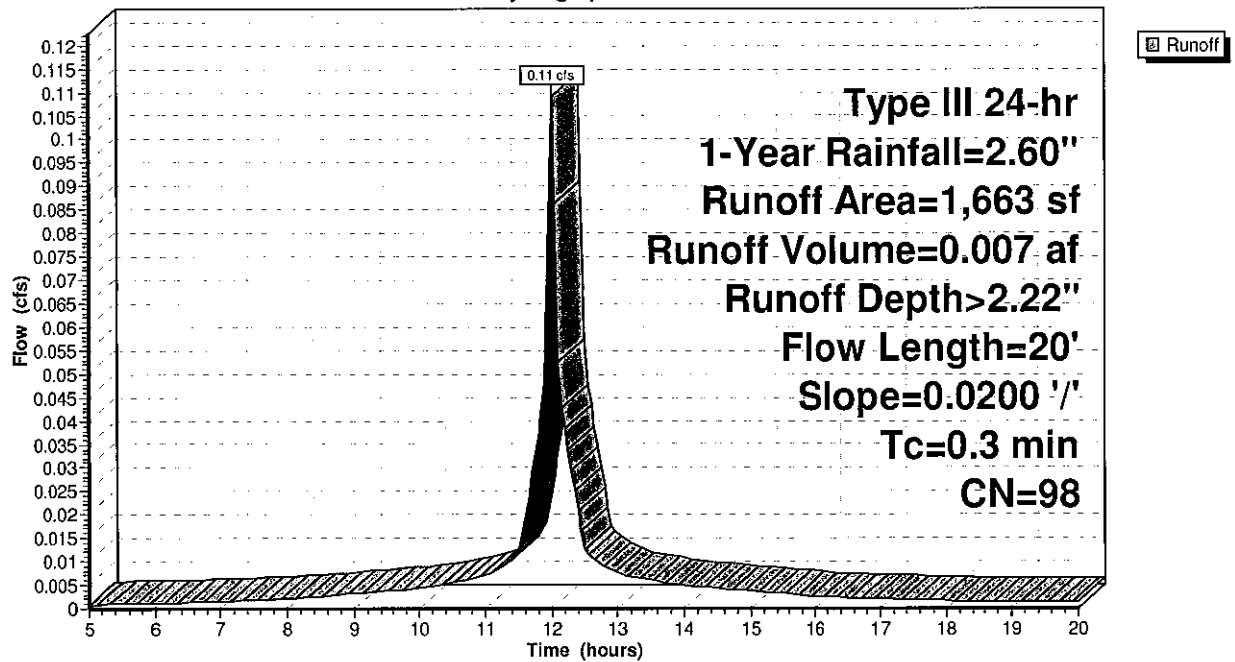
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.60"

Area (sf)	CN	Description
1,663	98	Paved parking, HSG A
1,663		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.0200	0.98		Sheet Flow, SHEET Smooth surfaces n= 0.011 P2= 3.10"

Subcatchment 1S: (new Subcat)

Hydrograph



Raingarden

Type III 24-hr 1-Year Rainfall=2.60"

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Summary for Pond 2P: Raingarden

Inflow Area = 0.038 ac, 100.00% Impervious, Inflow Depth > 2.22" for 1-Year event
 Inflow = 0.11 cfs @ 12.00 hrs, Volume= 0.007 af
 Outflow = 0.02 cfs @ 11.65 hrs, Volume= 0.007 af, Atten= 82%, Lag= 0.0 min
 Discarded = 0.02 cfs @ 11.65 hrs, Volume= 0.007 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 101.06' @ 12.41 hrs Surf.Area= 206 sf Storage= 74 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 19.2 min (755.8 - 736.5)

Volume	Invert	Avail.Storage	Storage Description
#1	100.50'	175 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.50	50	0	0
101.00	200	63	63
101.50	250	113	175

Device	Routing	Invert	Outlet Devices
#1	Primary	101.10'	5.0' long x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32
#2	Discarded	100.50'	0.02 cfs Exfiltration at all elevations

Discarded OutFlow Max=0.02 cfs @ 11.65 hrs HW=100.52' (Free Discharge)
 ↑**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=100.50' (Free Discharge)
 ↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Raingarden

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Type III 24-hr 1-Year Rainfall=2.60"

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Pond 2P: Raingarden

Hydrograph

