

**MINOR SUBDIVISION PLAN APPLICATION
TO TOWN OF WINDHAM**

FOR

RIVER ROAD CONDOMINIUM

**RIVER ROAD
WINDHAM, MAINE**

PREPARED FOR

**R MILLS, LLC
13 VICTORIA LANE
WINDHAM, MAINE 04062**

PREPARED BY

DM ROMA
CONSULTING ENGINEERS

**PO BOX 1116
WINDHAM, ME 04062**

JULY 23, 2018

Project Name: RIVER ROAD CONDOMINIUM

Tax Map: 5 **Lot:** 1-1

Number of lots/dwelling units: 4 DWELLINGS **Estimated road length:** 350 FEET

Is the total disturbance proposed > 1 acre? ☒ **Yes** ☐ **No**

Contact Information

1. Applicant

Name: R MILLS, LLC

Mailing Address: 13 VICTORIA LANE, WINDHAM, ME 04062

Telephone: 939 - 7472 **Fax:** **E-mail:** BUCKNICO03@YAHOO.COM

2. Record owner of property

X (Check here if same as applicant)

Name:

Mailing Address:

Telephone: **Fax:** **Email:**

3. Contact Person/Agent (if completed and signed by applicant's agent, provide written documentation of authority to act on behalf of applicant)

Name: DUSTIN ROMA

Company Name: DM ROMA CONSULTING ENGINEERS

Mailing Address: PO BOX 1116, WINDHAM, ME 04062

Telephone: 310 - 0506 **Fax:** **E-mail:** DUSTIN@DMROMA.COM

I certify all the information in this application form and accompanying materials is true and accurate to the best of my knowledge.

Dustin Roma

Signature

7-23-18

Date

Final Plan - Minor Subdivision: Submission Requirements

A. Mandatory Written Information		Applicant	Staff
1	A fully executed application form, signed by person with right, title, or interest in the property	X	
2	Evidence of payment of the application and escrow fees	X	
3	Name, registration number and seal of the Maine Licensed Professional Land Surveyor who conducted the survey	X	
4	Name, registration number and seal of the licensed professional who prepared the plan (if applicable)	X	
5	Description of how solid waste generated at the site is to be collected and disposed of.	X	
6	Statement from the Maine Inland Fisheries & Wildlife that no significant wildlife habitat exists on the site	X	
7	Copies of existing or proposed deed restrictions or covenants.	N/A	
8	Copies of existing or proposed easements over the property	N/A	
9	Title opinion proving right of access to the proposed subdivision or site for any property proposed for development on or off of a private way or private road	N/A	
10	Financial Capacity. Estimated costs of development, and itemization of major costs	X	
	i. Estimated costs of development, and itemization of major costs	X	
	ii. Financing - provide one of the following:	X	
	a. Letter of commitment to fund from financial institution, governmental agency, or other funding agency		
	b. Annual corporate report with explanatory material showing availability of liquid assets to finance development		
	c. Bank statement showing availability of funds if personally financing development		
	d. Cash equity commitment		
	e. Financial plan for remaining financing		
	f. Letter from financial institution indicating an intention to finance	X	
	iii. If a corporation, Certificate of Good Standing from the Secretary of State	X	
11	Technical Capacity	X	
	i. A statement of the applicant's experience and training related to the nature of the development, including developments receiving permits from the Town.	X	
	ii. Resumes or similar documents showing experience and qualifications of full-time, permanent or temporary staff contracted with or employed by the applicant who will design the development.	X	
12	Name and contact information for the road association who's private way or road is used to access the subdivision (if applicable)	N/A	

B. Mandatory Plan Information		Applicant	Staff
1	Name of subdivision, date and scale	X	
2	Stamp of the Maine License Professional Land Surveyor that conducted the survey, including at least one copy of original stamped seal that is embossed and signed	X	
3	Stamp with date and signature of the Maine Licensed Professional Engineer that prepared the plans.	X	
4	North arrow identifying all of the following: Grid North, Magnetic North, declination between Grid and Magnetic, and whether Magnetic or Grid bearings were used in the plan design	X	
5	Location map showing the subdivision within the municipality	X	
6	Vicinity plan showing the area within 250 feet, to include:	X	
	i. approximate location of all property lines and acreage of parcels	X	
	ii. locations, widths, and names of existing, filed, or proposed streets, easements or building footprints	X	
	iii. location and designations of any public spaces	X	
	iv. outline of proposed subdivision, together with its street system and indication of future probably street system, if the proposed subdivision encompasses only part of the applicants entire property.	X	
7	Standard boundary survey of parcel, including all contiguous land in common ownership within the last 5 years	X	
8	Existing and proposed street names, pedestrian ways, lot easements, and areas to be reserved or dedicated to public use	X	
9	All lots within the subdivision, including numbers for each lot, and map and lot number assigned by the Windham Assessing Department	X	
10	Location of all monuments as required by ordinance	X	
11	Location of any important or unique natural and site features including, but not limited to wetlands, water bodies, streams, scenic areas, sand and gravel aquifers, significant wildlife habitats, significant fisheries, treelines, historic and/or archaeological resources.	X	
12	Location of all yard setback lines.	X	
13	Medium intensity soils map for the area to be subdivided. The Planning Board may require submission of a high intensity soils map in instances where poor soils are evident.	X	
14	Location and results of test pits performed by a Maine Licensed Site Evaluator or Certified Soil Scientist if subsurface wastewater disposal systems (septic) are proposed.	X	
15	Written offers of cessation to the Town of all public open space shown on the plan.	N/A	
16	All conditions of approval and/or waivers required or granted by the Planning Board, with the exception of waivers from the submission requirements.	X	
17	Boundaries of any flood hazard areas and the 100-year flood elevation as depicted on the Town's Flood Insurance Rate Map	N/A	

C. Submission information for which a waiver may be granted.		Applicant	Staff
1	Contour lines at intervals of 5 feet, or at lesser intervals as the Planning Board may require	X	
2	Description of how stumps and demolition debris will be disposed of	X	
3	A surface drainage plan or stormwater management plan with profiles and cross-sections showing the design of all facilities and conveyances necessary to meet the stormwater management standards set forth in Section 900.	X	
4	A soil erosion and sediment control plan prepared by a Maine Licensed Professional Engineer or a Certified Professional in Erosion and Sediment Control (CPESC).	X	
5	If subsurface wastewater disposal systems (septic) are proposed, a hydrogeologic assessment prepared by a Maine Licensed Site Evaluator or Certified Geologist.		
6	Show location of driveways	X	
Electronic Submission		X	

PROJECT NARRATIVE

SECTION 1 – PROPOSED USE NARRATIVE

The property is a 5.97-acre vacant parcel comprised of mostly open field area, adjacent to a Central Maine Power Company transmission line. The northwestern boundary is mostly wooded, and there is a single-family residence to the north. The property is bisected by a zoning boundary, with the front portion being located in the Medium Density Residential Zoning District and the back portion located in the Farm Residential Zoning District. The proposed 4-unit subdivision will be developed as a condominium consisting of two (2) buildings, each having two (2) dwellings. The project will include a water main extension from River Road to serve the four (4) dwellings and to provide water service for additional land owned by the applicant, which may be developed at some point in the future. A single shared wastewater disposal field will be constructed on the property, and electrical utilities will be installed underground. The new private driveway will be constructed with a 24-foot wide paved surface in accordance with the Town's standards for a Major Private Street, and will include a hammerhead turnaround. The buildings are not intended to be equipped with sprinkler systems.

SECTION 2 – RECORD OWNER INFORMATION

See Application Form

SECTION 3 – ABUTTING PROPERTY OWNERS

See Boundary Survey and Subdivision Plan

SECTION 4 – TITLE, RIGHT, OR INTEREST

See attached deed

SECTION 5 – COVENANTS OR DEED RESTRICTIONS

The lots will be part of a condominium that will be responsible for maintenance of the private roadway and common facilities.

SECTION 6 – EASEMENTS

There are no known existing easements on the property.

SECTION 7 – LICENSED PROFESSIONALS

The plans and applications were prepared by DM Roma Consulting Engineers. Dustin Roma is a Maine Licensed Professional Engineer PE#12131. The Boundary Survey was prepared by Survey, Inc. Soils analysis and septic system design was performed by Alex Finamore.

SECTION 8 – TECHNICAL ABILITY

The design professionals at DM Roma Consulting Engineers, Survey, Inc, and Alex Finamore have been performing similar consulting and design work in Southern Maine for many years, including many projects in Windham and the surrounding communities.

SECTION 9 – UTILITIES

The project will be served by public water from the Portland Water District. A single private on-site wastewater disposal field will be installed. Electrical & data utilities will be installed underground from River Road.

SECTION 10 – WATER SUPPLY AND SEWAGE DISPOSAL

We have included an HHE-200 Septic System design for the shared leach field. The design of the water main extension and services has been submitted to the Portland Water District for approval.

SECTION 11 – SOLID WASTES

The residential lots will utilize the Town's curbside trash collection program to dispose of solid wastes.

SECTION 12 – VEHICLE TRAFFIC

Vehicle sight distance at the proposed roadway intersections looking right is generally unrestricted to the signalized intersection with Gray Road. Vehicle sight distance looking left is approximately 620 feet to the top of a roadway crest just beyond the crosswalk for the funeral home. Based on the Institute of Transportation Engineers Trip Generation Manual, 9th edition, the proposed 4 residential dwellings are expected to generate 3 peak hour trip-ends and 25 daily vehicle trips.

SECTION 13 – UNIQUE NATURAL AREAS

There are no known unique natural areas within the project vicinity.

SECTION 14 – STORMWATER MANAGEMENT

A stormwater management report and stormwater maintenance plan is included as an attachment. The project has been designed to meet the water quality and quantity control standards outlined in the Subdivision Ordinance. A waiver is requested for an insignificant increase in peak flows during the 2-year storm at Study Point 2 for an increase of approximately 4%.

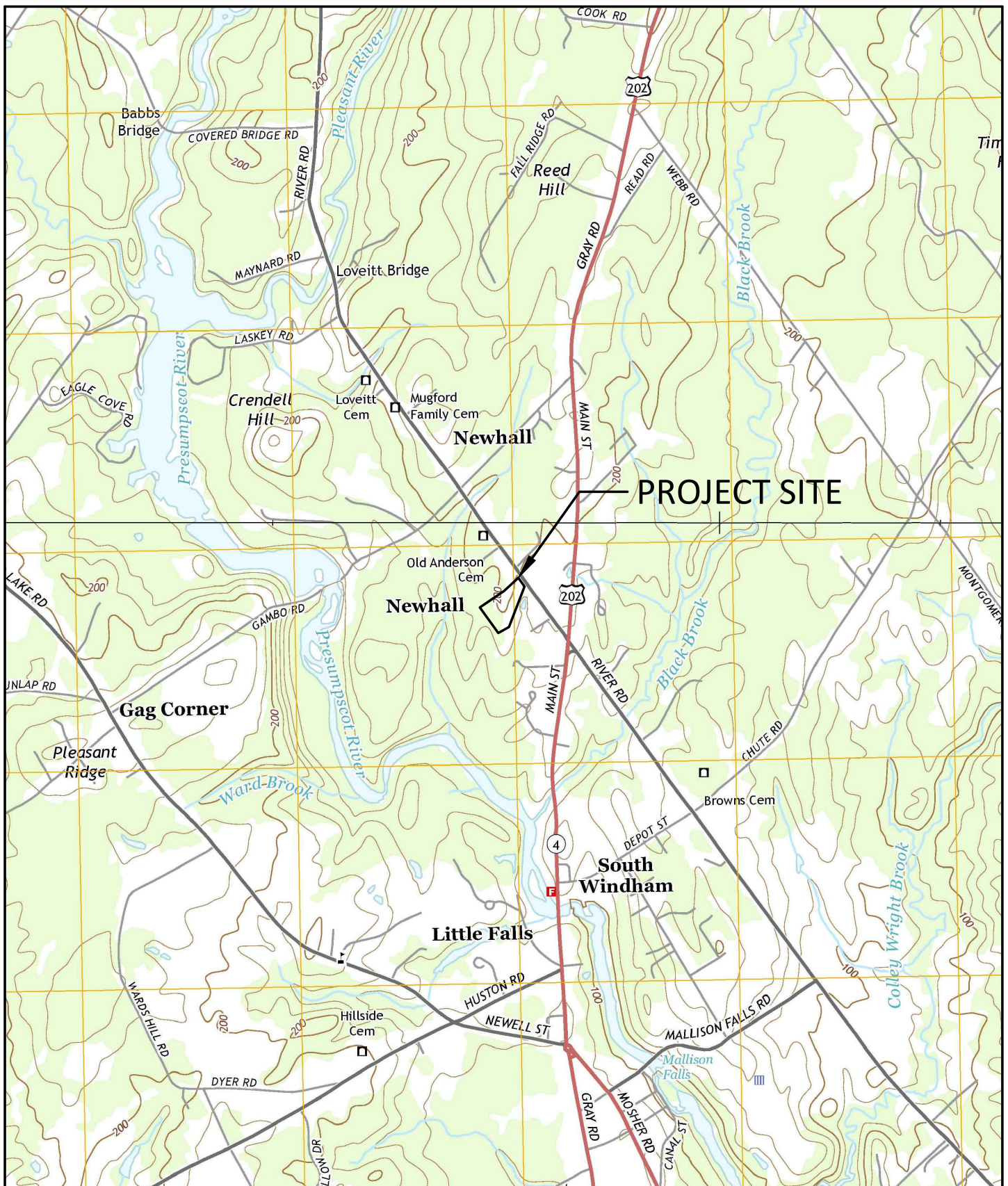
SECTION 15 – FINANCIAL CAPACITY

The expected construction costs to complete the project are as follows:

- | | |
|--------------------------------|----------|
| • Clear and grub roadway areas | \$8,000 |
| • Construct gravel roadways | \$20,000 |
| • Bituminous Pavement | \$11,000 |
| • Electrical Conduit & Risers | \$9,000 |
| • Stormwater BMPs | \$7,000 |
| • Common Leach Field | \$11,000 |
| • Water Main Extension | \$16,000 |

Total Construction Costs	\$82,000
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The applicant already owns the land, so land costs were not included in the project budget. A letter indicating the ability to fund the project is attached.



SITE LOCATION MAP

RIVER ROAD CONDOMINIUMS
WINDHAM, MAINE

FOR RECORD OWNER:
RMILLS, LLC

SCALE: 1"=2,000'
DATE: 07-19-2018
JOB NUMBER: 17057

DM ROMA

CONSULTING ENGINEERS

P.O. BOX 1116
WINDHAM, ME 04062
(207) 310 - 0506

QUITCLAIM DEED
(Maine Statutory Short Form)

DLN: 1001840024463

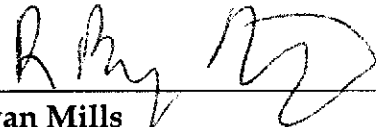
KNOW ALL PERSONS BY THESE PRESENTS, that, **R. Bryan Mills** of Windham, Maine, for consideration paid, hereby GRANTS to **RMILLS, LLC**, with a mailing address of 13 Victoria Lane, Windham, ME 04062, with **QUITCLAIM COVENANT**, the land with any buildings thereon situated in Windham, County of Cumberland and State of Maine, described as follows:

See Attached Exhibit A

Meaning and intending to convey the same premises conveyed to **R. Bryan Mills** by virtue of a deed from Stephen C. Loura and Richard L. Plummer. dated July 12, 2017 and recorded in the Cumberland County Registry of Deeds in Book 34155, Page 270.

Witness my hand and seal this 6th day of April, 2018.

Witness



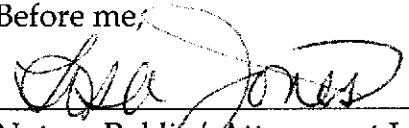
R. Bryan Mills

STATE OF MAINE
COUNTY OF CUMBERLAND

April 6, 2018

Then personally appeared before me the above- named **R. Bryan Mills** and acknowledged the foregoing instrument to be his free act and deed.

Before me;



Notary Public/ Attorney at Law

Printed Name:

My Comm. Exp:

LISA JONES
NOTARY PUBLIC
State of Maine
My Commission Expires
November 10, 2022

EXHIBIT A

A certain lot or parcel of land, situated in the Town of Windham, County of Cumberland and State of Maine, more particularly bounded and described as follows:

Beginning at a point located at the southeasterly corner of land recently conveyed to Jennifer Libby by deed dated January 21, 2015 and recorded in the Cumberland County Registry of Deeds in Book 32039, Page 238, and thence traveling along River Road in a southerly direction for a distance of approximately one hundred fifty-nine and fifty-eight tenths (159.58) feet to a monument; Thence, S20°55'56"W a distance of six hundred fifty and eighteen hundredths (650.18) feet to an iron pipe or rod; Thence, S60°36'03"W a distance of one hundred eighty-two and two tenths (182.20) feet to an iron pipe or rod; Thence, N36°07'33"W a distance of four hundred seventy-four and forty-seven hundredths (474.47) to an iron pipe or rod along land now or formerly of Donald Toms as set forth in CCRD Book 13039, Page 271; Thence, N54°06'44"E a distance of two hundred forty-three (243) feet along land of said Toms to an iron pipe or rod; Thence, N58°21 '23"E a distance off one hundred ninety-six and six tenths (196.60) feet along land of said Toms to an iron pipe rod located at the southwesterly corner of land of said Libby; Thence, traveling along the southern border of said Libby N41°12'54"E a distance of two hundred ninety and sixty-four tenths (290.64) feet to the point of beginning.

Said property being the property which was known as the Alexander Estates Subdivision as set forth on the Minor Subdivision Plan of Alexander Estates Subdivision recorded at the CCRD in Plan Book 207, Page 341. See also Vacancy and Termination Order Minor Subdivision Plan Alexander Estates Subdivision recorded at CCRD in Book 32174, Page 235.

No Title Search was done in preparation of this deed

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
Division of Health Engineering, 10 SHS
(207) 287-5672 Fax: (207) 287-3165

PROPERTY LOCATION		>> CAUTION: PERMIT REQUIRED - ATTACH IN SPACE BELOW <<		
City, Town, or Plantation	Windham	Town _____	Permit# _____	
Street or Road	River Road, Map 5, Lot 1-1	Date Permit Issued ____/____/____	Fee: \$ _____ Double Fee Charged []	
Subdivision, Lot #		L.P.I. # _____		
OWNER/APPLICANT INFORMATION		Local Plumbing Inspector _____		
Name (last, first, MI) _____		☐ Owner ☐ Town ☐ State		
Owner RMILLS, LLC ×Applicant		The Subsurface Wastewater Disposal System shall not be installed until a Permit is attached HERE by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.		
Mailing Address of Owner/Applicant	13 Victoria Lane Windham, ME 04062			
Daytime Tel. #	207-310-0506			
OWNER OR APPLICANT STATEMENT		CAUTION: INSPECTION REQUIRED		
I state and acknowledge that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a Permit. _____ Signature of Owner or Applicant Date		I have inspected the installation authorized above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application. _____ (1st) date approved		
		Municipal Tax Map # <u>5</u> Lot # <u>1-1</u>		
		_____ Local Plumbing Inspector Signature (2nd) date approved		
PERMIT INFORMATION				
TYPE OF APPLICATION	THIS APPLICATION REQUIRES	DISPOSAL SYSTEM COMPONENTS		
☒ 1. First Time System 2. Replacement System Type replaced: _____ Year installed: _____ 3. Expanded System a. Minor Expansion b. Major Expansion 4. Experimental System 5. Seasonal Conversion	☒ 1. No Rule Variance 2. First Time System Variance a. Local Plumbing Inspector Approval b. State & Local Plumbing Inspector Approval 3. Replacement System Variance a. Local Plumbing Inspector Approval b. State & Local Plumbing Inspector Approval 4. Minimum Lot Size Variance 5. Seasonal Conversion Permit	☒ 1. Complete Non-engineered System 2. Primitive System (graywater & alt. toilet) 3. Alternative Toilet, specify: _____ 4. Non-engineered Treatment Tank (only) 5. Holding Tank, _____ gallons 6. Non-engineered Disposal Field (only) 7. Separated Laundry System 8. Complete Engineered System (2000 gpd or more) 9. Engineered Treatment Tank (only) 10. Engineered Disposal Field (only) 11. Pre-treatment, specify: _____ 12. Miscellaneous Components		
SIZE OF PROPERTY	DISPOSAL SYSTEM TO SERVE	TYPE OF WATER SUPPLY		
5.97 SQ. FT. ×ACRES	1. Single Family Dwelling Unit, No. of Bedrooms: _____ ☒ 2. Multiple Family Dwelling, No. of Units: <u>4</u> 3. Other: _____ (specify) Current Use Seasonal Year Round Undeveloped	☒ 1. Drilled Well 2. Dug Well 3. Private 4. Public 5. Other		
SHORELAND ZONING				
Yes No				
DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)				
TREATMENT TANK	DISPOSAL FIELD TYPE & SIZE	GARBAGE DISPOSAL UNIT	DESIGN FLOW	
☒ 1. Concrete ☒ a. Regular b. Low Profile 2. Plastic 3. Other: _____ CAPACITY: <u>2X2000</u> GAL.	1. Stone Bed 2. Stone Trench ☒ 3. Proprietary Device ×a. cluster array c. Linear ×b. regular load d. H-20 load 4. Other: _____ SIZE: <u>3564</u> ×sq. ft. lin. ft.	☒ 1. No 2. Yes 3. Maybe If Yes or Maybe, specify one below: a. multi-compartment tank b. _____ tanks in series c. increase in tank capacity d. Filter on Tank Outlet	<u>1,080</u> gallons per day BASED ON: ☒ 1. Table 501.1 (dwelling unit(s)) 2. Table 501.2 (other facilities) SHOW CALCULATIONS for other facilities 4 units @ 3 bedrooms @ 90 gpd = 1,080 gpd	
SOIL DATA & DESIGN CLASS	DISPOSAL FIELD SIZING	EFFLUENT/EJECTOR PUMP	LATITUDE AND LONGITUDE	
PROFILE CONDITION <u>2</u> / <u>C</u> at Observation Hole # <u>TP-1</u> Depth <u>18</u> " of Most Limiting Soil Factor	1. Small---2.0 sq. ft. / gpd 2. Medium---2.6 sq. ft. / gpd ☒ 3. Medium---Large 3.3 sq. ft. / gpd 4. Large---4.1 sq. ft. / gpd 5. Extra Large---5.0 sq. ft. / gpd	1. Not Required ☒ 2. May Be Required 3. Required Specify only for engineered systems: DOSE: _____ gallons	3. Section 503.0 (meter readings) ATTACH WATER METER DATA at center of disposal area Lat. <u>43</u> d <u>44</u> m <u>49.87</u> s Lon. <u>-70</u> d <u>25</u> m <u>41.27</u> s	
SITE EVALUATOR STATEMENT				
I certify that on <u>7-1-2018</u> (date) I completed a site evaluation on this property and state that the data reported are accurate and that the proposed system is in compliance with the State of Maine Subsurface Wastewater Disposal Rules (10-144A CMR 241).				
_____ Site Evaluator Signature		391 SE #	7-1-2018 Date	
Alexander A. Finamore Site Evaluator Name Printed		(207) 650-4313 Telephone Number	alfinamore@yahoo.com E-mail Address	
Note: Changes to or deviations from the design should be confirmed with the Site Evaluator.				

Maine Department of Human Services
Division of Health Engineering, 10 SHS
(207) 287-5672 FAX (207) 287-3165

Owner or Applicant Name
RMILLS, LLC



(Location of Observation Holes Shown Above)

Observation Hole Bor-2 ☐ Test pit ☒ Boring

0" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0 - 10	SANDY LOAM	FRIABLE	DARK BROWN	NONE OBSERVED
10 - 20	FINE SANDY LOAM	FRIABLE	DARK YELLOWISH BROWN	NONE OBSERVED
20 - 30			LIGHT GREYISH BROWN	FINE & FAINT
30 - 50	LIMIT OF EXCAVATION = 30"			

Soil 2 Profile	Classification C Condition	Slope 2 %	Limiting Factor 18 "	☒ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
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HHE-200 Rev. 2/2011

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
Division of Health Engineering, 10 SHS
(207) 287-5672 FAX (207) 287-3165

Town, City, Plantation
WINDHAM

Street, Road, Subdivision
RIVER ROAD - MAP 5, LOT 1-1

Owner or Applicant Name
RMILLS, LLC

SUBSURFACE WASTEWATER DISPOSAL PLAN

Scale 1" = 40 FT.

NOTE: ALLOW FOR POSITIVE DRAINAGE
AROUND THE LEACHFIELD.

ERP = ELEVATION REFERENCE POINT
TP = TEST PIT

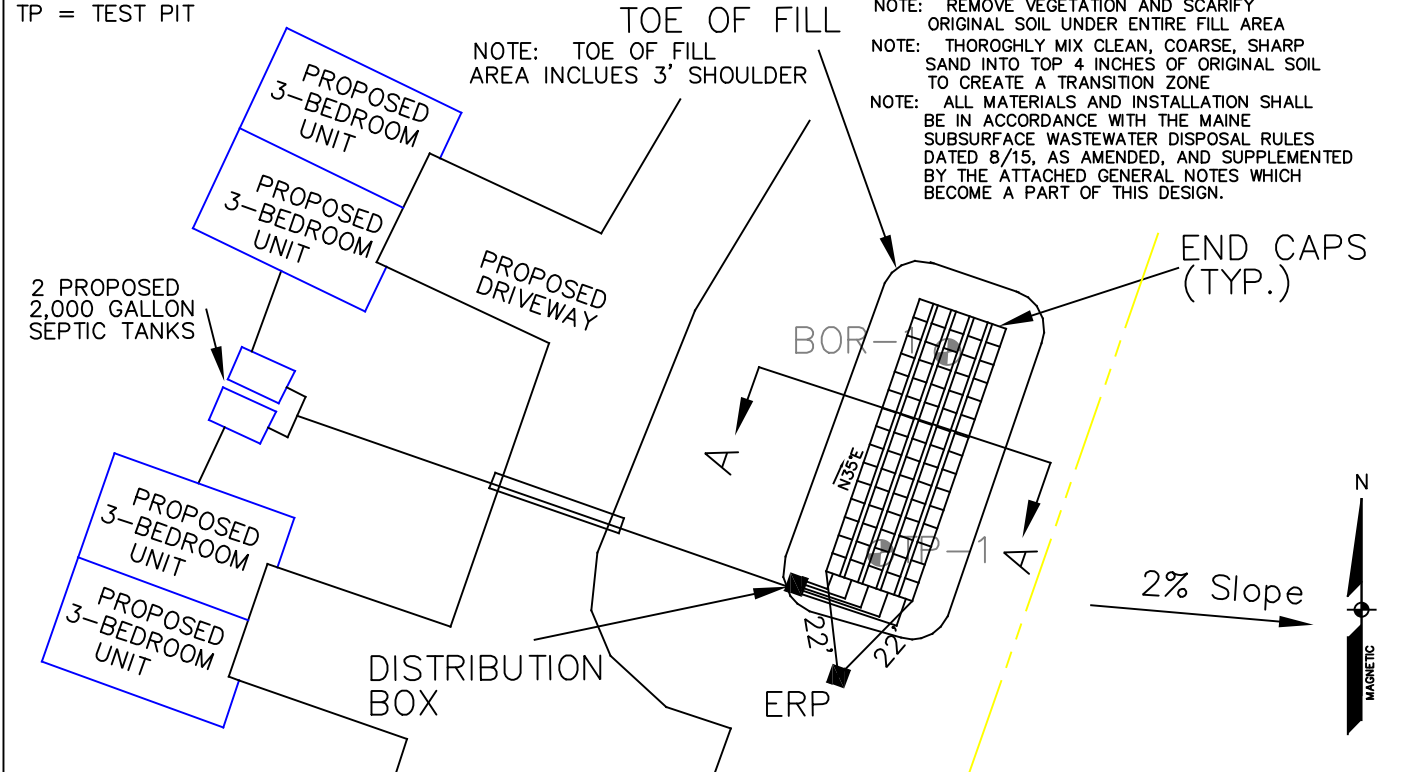
PROPOSED DISPOSAL FIELD

5 ROWS OF 15 ELJEN IN-DRAINS

NOTE: REMOVE VEGETATION AND SCARIFY
ORIGINAL SOIL UNDER ENTIRE FILL AREA

NOTE: THOROUGHLY MIX CLEAN, COARSE, SHARP
SAND INTO TOP 4 INCHES OF ORIGINAL SOIL
TO CREATE A TRANSITION ZONE

NOTE: ALL MATERIALS AND INSTALLATION SHALL
BE IN ACCORDANCE WITH THE MAINE
SUBSURFACE WASTEWATER DISPOSAL RULES
DATED 8/15, AS AMENDED, AND SUPPLEMENTED
BY THE ATTACHED GENERAL NOTES WHICH
BECOME A PART OF THIS DESIGN.



BACKFILL REQUIREMENTS

Depth of Fill (Upslope) 19"
Depth of Fill (Downslope) 17"

CONSTRUCTION ELEVATIONS

Finished Grade Elevation
Top of Distribution Pipe or Proprietary Device
Bottom of Disposal Area (Bottom of Stone)

ELEVATION REFERENCE POINT

SEE TABLE Location & Description TOP OF
SEE TABLE GRADE STAKE - UP 35"
SEE TABLE Reference Elevation 0"

Construction Elevations

Row #	Finish Grade	Top of Pipe	Bottom of Eljen
1	-11"	-19"	-30"
2	-16"	-24"	-35"
3	-21"	-29"	-40"
4	-26"	-34"	-45"
5	-31"	-39"	-50"

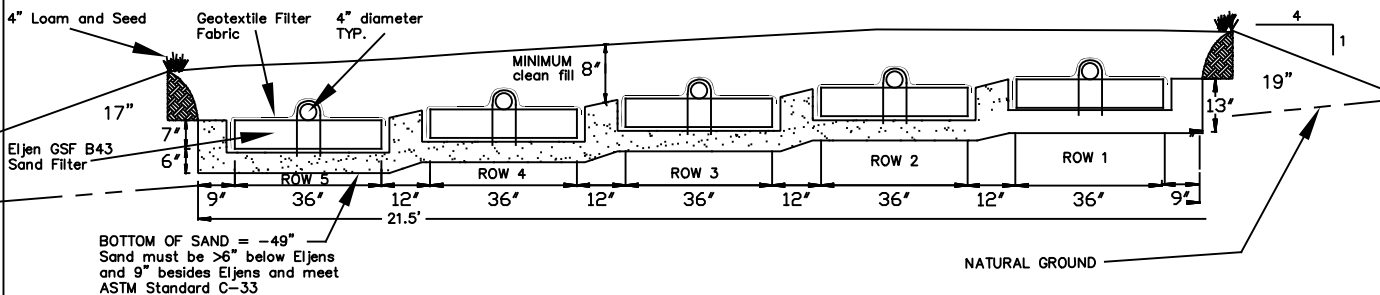
DISPOSAL FIELD CROSS SECTION

CROSS SECTION A-A'

12" SEPARATION USED IN DESIGN

SCALE:

VERTICAL: 1" = 3'
HORIZONTAL: 1" = 5'



Albert A. V.

Site Evaluator Signature

391

SE #

7-1-2018

Date

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HHE-200 Rev. 2/2011

General Notes
(attachment to form HHE-200)
<1,000 gpd Septic System

The nature of the site evaluation profession is one of interpretation of soil and site conditions. We, in the field, attempt to both provide a satisfactory service to the client, and comply by the rules by which we are bound – The Maine Subsurface Wastewater Disposal Rules. If at any time you, the client, are not satisfied with the services provided or the results found, it is your right to hire another site evaluator for a second opinion.

Property information is supplied by the owner, applicant or representative. Such information presented herein shall be verified as correct by the owner or applicant prior to signing this application.

All work shall be in accordance with the Maine Subsurface Wastewater Disposal Rules dated 8/15, as amended.

All work should be performed under dry conditions only (for disposal area).

No vehicular or equipment traffic to be allowed on disposal area. Disposal field shall be constructed from outside the corner stakes located in the field. The downslope area is also to be protected in the same manner.

Backfill, if required, is to be gravelly coarse sand to coarse sand texture and to be free of foreign debris. If backfill is coarser than original soil, then mix top 4" of backfill and original soil with rototiller.

No neighboring wells are apparent (unless so indicated) within 100' of disposal area. Owner or applicant shall verify this prior to signing the application.

The disposal field stone shall be clean, uniform in size and free of fines, dust, ashes, or clay. It shall be no smaller than $\frac{3}{4}$ inch and no larger than 2 $\frac{1}{2}$ inches in size (per Section 11.F.2 of the Maine subsurface Wastewater Disposal Rules).

Minimum separation distances required (unless reduced by variance or special circumstance).

- a) Wells with water usage of 2000 or more gpd or public water supply wells:

Disposal Fields:	300'
Septic Tanks and Holding Tanks:	100'
 - b) Any well to disposal area: 100'
 - c) Any well to septic tank: 100'
 - d) Septic tank or disposal area to lake, river, stream or brook: 100' for major watercourse,
50' for minor watercourse
 - e) House to treatment tank: 8'
 - f) House to disposal area: 20'
- For all other separation distances, use separations for less than 1,000 gpd per Maine Subsurface Wastewater Disposal Rules Table 7B.

Location of septic system near a wetland may require a separate permit. As such, the owner, prior to construction of the septic system, shall hire a professional to evaluate proximity of adjacent wetlands and prepare necessary permit applications.

0. Garbage disposals are not recommended and, if installed, are done so at the owner's risk. The additional waste load requires increased maintenance frequency, higher potential for failure, and larger septic tanks.
1. Pump stations, when required, shall be installed watertight to prevent infiltration of ground and/or surface water.
2. Force mains and pressure lines shall be flushed of any foreign material and pumps shall be checked for proper on/off cycle before being put into service.
3. Force mains, pump stations, and/or gravity piping subject to freezing shall be installed below frost line or adequately insulated.



July 9, 2018

RMills LLC and R. Bryan Mills
RE: River Road Estate project, Windham, Maine

To Whom It May Concern,

RMills LLC, R. Bryan Mills and Robert Mills have an established relationship with Gorham Savings Bank. They have the financial capacity to develop and complete the proposed 4 unit project on River Road in Windham, Maine aka the River Road Estate project. Final approval of the financing is subject to full underwriting, Town approvals and an acceptable "as completed" appraisal of the project.

Should you have any further questions, I can be reached at 207-222-1499.

Sincerely,

Kimberly A. Donnelly
SVP, Director of Business Banking
Gorham Savings Bank

**MAINE**

Department of the Secretary of State

Bureau of Corporations, Elections and Commissions

Corporate Name Search**Information Summary**[Subscriber activity report](#)

This record contains information from the CEC database and is accurate as of: Mon Jul 23 2018 11:33:13. Please print or save for your records.

Legal Name	Charter Number	Filing Type	Status
RMILLS LLC	20133918DC	LIMITED LIABILITY COMPANY (DOMESTIC)	GOOD STANDING

Filing Date	Expiration Date	Jurisdiction
05/08/2013	N/A	MAINE

Other Names (A=Assumed ; F=Former)

NONE

Clerk/Registered Agent

TIMOTHY J. BRYANT
P.O. BOX 9564
PORTLAND, ME 04112 9546

[Back to previous screen](#)[New Search](#)

Click on a link to obtain additional information.

List of Filings

[View list of filings](#)**Obtain additional information:**

Additional Addresses

[Plain Copy](#)[Certified copy](#)Certificate of Existence [\(more info\)](#)

Short Form without amendments (\$30.00)	Long Form with amendments (\$30.00)
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You will need Adobe Acrobat version 3.0 or higher in order to view PDF files.





STORMWATER MANAGEMENT REPORT

RIVER ROAD PROPERTY CONDOMINIUMS WINDHAM, MAINE

A. Narrative

RMills, LLC is proposing to develop a 6-acre parcel off River Road in Windham. The project site is located on a portion of Lot 1-1 on the Town of Windham Assessors Map 5 and is located in the Medium Residential and Farm Residential Zoning Districts.

This proposed development will consist of two (2) residential duplex buildings, totaling four (4) residential units including the construction of approximately 375 linear feet of paved roadway, utilities and stormwater infrastructure. In general, the site drains to the southeast toward the Central Maine Power easement which abuts the property. Runoff from the property is tributary to the Presumpscot River.

B. Alterations to Land Cover

The 6-acre parcel consists of undeveloped meadow. The proposed development will generate approximately 15,950 square feet ($0.37\pm$ acres) of new impervious area consisting of the two (2) structures and the new roadway. An additional 44,320 square feet ($1.02\pm$ acres) of proposed lawn and landscaping will generate a total site developed area of approximately 60,270 square feet ($1.38\pm$ acres).

Since the project site will generate less than one (1) acre of new impervious surface or five (5) acres of new developed area, a Stormwater Permit will not be required from the Maine Department of Environmental Protection (MDEP). The site will be required to obtain an MDEP Stormwater Permit by Rule prior to construction since it will generate more than one (1) acre of land disturbance. The project will be reviewed by the Town of Windham as a Minor Subdivision.

The site is moderately sloped (5%-15%), draining southeasterly onto the abutting Central Maine Power Company easement. The onsite soils are primarily Belgrade very fine sandy loam and Woodbridge fine sandy loam as identified on the Medium Intensity Soil Maps for Cumberland County, Maine published by the Natural Resources Conservation Service. The

soils within the proposed development are in the hydrologic soil group “B” and “C” respectively.

The soils boundaries and hydrologic soils group (HSG) designations are indicated on the Watershed Maps and the Medium Intensity Soils Map has been included as Attachment 1 of this report.

C. Methodology and Modeling Assumptions

The proposed stormwater management system has been designed utilizing Best Management Practices to maintain existing drainage patterns while providing stormwater quality improvement measures. The goal of the storm drainage system design is to remove potential stormwater pollutants from runoff generated by the development while providing attenuation of the peak rates of runoff leaving the site. The method utilized to predict the surface water runoff rates in this analysis is a computer program entitled HydroCAD, which is based on the same methods that were originally developed by the U.S. Department of Agriculture (USDA), Natural Resources Conservation Service, and utilized in the TR-20 modeling program. Peak rates of runoff are forecasted based upon land use, hydrologic soil conditions, vegetative cover, contributing watershed area, time of concentration, rainfall data, storage volumes of detention basins and the hydraulic capacity of structures. The computer model predicts the amount of runoff as a function of time, with the ability to include the attenuation effect due to dams, lakes, large wetlands, floodplains and constructed stormwater management basins. The input data for rainfalls with statistical recurrence frequencies of 2-, 10- and 25 years was obtained from Appendix H of the MDEP, Chapter 500 Stormwater Management, last revised in 2015. The National Weather Service developed four synthetic storm types to simulate rainfall patterns around the country. For analysis in Cumberland County, Maine, the type III rainfall pattern with a 24-hour duration is appropriate.

D. Basic Standards

The project is required by the Town and the MDEP to provide permanent and temporary Erosion Control Best Management Practices. These methods are incorporated into the project design and outlined in detail in the plan set.

E. General Standard

The Town of Windham requires the entire project to meet the General Standards outlined in the MDEP Chapter 500 to provide water quality treatment for no less than 95% of the new impervious surface and 80% of the total developed area associated with the project.

To provide the required stormwater treatment for the development, two (2) underdrained filter basins will be constructed and a meadow buffer adjacent to the downhill side of a road will be maintained as part of the site’s stormwater infrastructure. As a result of the proposed

stormwater infrastructure and providing treatment for existing offsite impervious and landscaped areas, the project provides water quality treatment for over 100% of the equivalent new impervious and developed areas. Calculations can be found on the Watershed Maps and enclosed as Attachment 2 in this report.

F. Flooding Standard

The Town of Windham Land Use Ordinance requires the project to detain, retain or result in the infiltration of stormwater from the 24-hour storms of the 2-year, 10-year and 25-year frequencies such that the peak flows of stormwater from the project site do not exceed the peak flows of stormwater prior to undertaking the project. To maintain these rates, two (2) underdrained filter basins have been proposed as part of the stormwater infrastructure.

The proposed project design has been modeled to evaluate and analyze the stormwater runoff characteristics of the site prior to construction of the project and upon completion of all proposed construction activities. Since the project site is not being completely utilized, the study was performed on the area of development along River Road. The first study point (SP-1) is located along the southeasterly property line where the project site drains to a narrow wetland which eventually crosses the CMP easement. The second study point (SP-2) is located at the easterly property corner along River Road. This is the location where flow enters the River Road drainage ditch briefly before combining with flow from SP-1.

The following table summarizes the analysis prepared for this stormwater management report:

Table 1 – Peak Rates of Stormwater Runoff						
Study Point	2-Year (cfs)		10-Year (cfs)		25-Year (cfs)	
	Pre	Post	Pre	Post	Pre	Post
SP-1	0.27	0.14	1.10	0.36	1.94	1.74
SP-2	1.29	1.34	3.47	2.98	5.50	4.44

As illustrated by the table above, the proposed BMP's as incorporated in the project's storm water design, effectively reduces the peak flow at all study points, during all storms except for a relatively small increase at Study Point 2 during the 2-year storm. We do not anticipate any increase in flooding or downstream erosion as a result of the 0.05 cfs increase (4%).

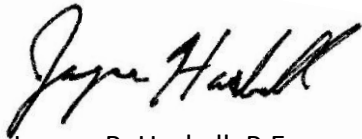
The watershed maps showing pre-development and post-development drainage patterns are included in the plan set and the computations performed with the HydroCAD software program are included as Attachment 3 of this report.

G. Maintenance of common facilities or property

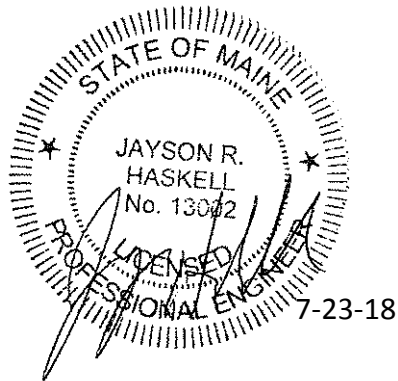
The applicant will be responsible for the maintenance of the stormwater facilities until a homeowners' association is created. Enclosed within this submission is an Inspection, Maintenance and Housekeeping Plan for the project.

Prepared by:

DM ROMA CONSULTING ENGINEERS



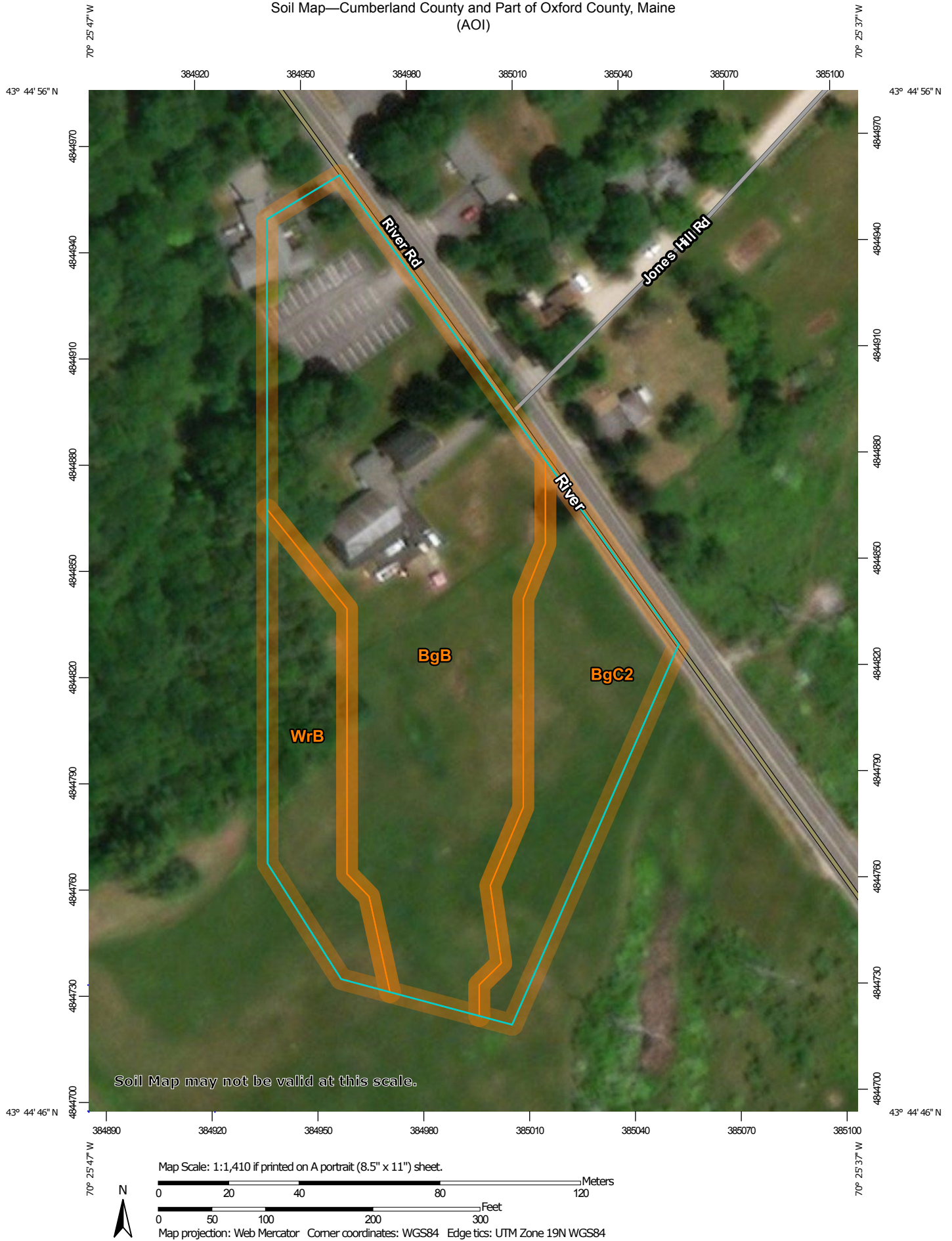
Jayson R. Haskell, P.E.
Southern Maine Regional Manager



ATTACHMENT 1

MEDIUM INTENSITY SOILS MAP

Soil Map—Cumberland County and Part of Oxford County, Maine
(AOI)



Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BgB	Belgrade very fine sandy loam, 0 to 8 percent slopes	2.9	64.8%
BgC2	Belgrade very fine sandy loam, 8 to 15 percent slopes, eroded	0.9	20.9%
WrB	Woodbridge fine sandy loam, 0 to 8 percent slopes	0.6	14.3%
Totals for Area of Interest		4.5	100.0%

ATTACHMENT 2

STORMWATER TREATMENT CALCULATIONS

Stormwater Treatment Table

River Road Condominium Property

	Total Watershed Area (SF)	New Driveway and Road Impervious Area (SF)	New Landscaped Area (SF)	Existing/Offsite Impervious Area (SF)	Existing/Offsite Landscaped Area (SF)	Existing Undeveloped Area (SF)	Treatment Provided	Impervious Area Treated In Treatment Device (SF)	Landscaped Area Treated In Treatment Device (SF)	Treatment Device
WS-10	48,050	10,240	24,190	1,615	5,270	6,735	Yes	11,855	29,460	FB2
WS-11	8,455	0	1,205	0	0	7,250	No	0	0	None
WS-20	28,300	1,855	12,700	3,190	6,170	4,385	Yes	5,045	18,870	FB1
WS-21	45,075	0	590	17,170	25,300	2,015	No	0	0	None
WS-22	15,520	1,825	4,635	0	0	9,060	Yes	1,825	4,635	Buffer
WS-23	5,200	2,030	1,000	1,055	0	1,115	No	0	0	None
Total		15,950	44,320					18,725	52,965	

New Impervious Area = 15,950 sf
 Impervious Area Requiring Treatment (95%) = 15,153 sf
 Impervious Area Treatment Provided = 18,725 sf
 >100% New Impervious Area Treated

New Developed Area = 60,270 sf
 Developed Area Requiring Treatment (80%) = 48,216 sf
 Developed Area Treatment Provided = 71,690 sf
 >100% New Developed Area Treated

Filter Basin FB-1

Tributary Impervious Area=	5,045 sf	(WS-20 Impervious Area)
Tributary Landscaped Area=	18,870 sf	(WS-20 Landscaped Area)

Water Quality Volume (WQV) Calculation

WQV (Required) = 1.0"xImpervious Area + 0.4"xLandscaped Area

WQV (Required) = 1,049 cf

Stage Storage Volume

Elevation	Area (sf)	Storage (cf)
194.25	780	0
195.75	1,487	1,700
196	1,605	2,087

Outlet Elevation =	195.75
Storage Volume Provided=	1,700 cf > Required

Filter Bottom Calculation

Filter Area (Required) = 5%xImpervious Area + 2%xLandscaped Area

Filter Area Required = 630 sf

Filter Area Provided = 780 sf > Required

Filter Basin FB-2

Tributary Impervious Area=	11,855 sf	(WS-10 Impervious Area)
Tributary Landscaped Area=	29,460 sf	(WS-10 Landscaped Area)

Water Quality Volume (WQV) Calculation

WQV (Required) = 1.0"xImpervious Area + 0.4"xLandscaped Area

WQV (Required) = 1,970 cf

Stage Storage Volume

Elevation	Area (sf)	Storage (cf)
193.5	1,400	0
194	1,805	801
195	2,808	3,108
196	3,810	6,416

Outlet Elevation =	195.00
Storage Volume Provided =	3,108 cf > Required

Filter Bottom Calculation

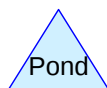
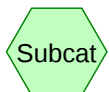
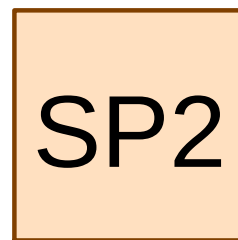
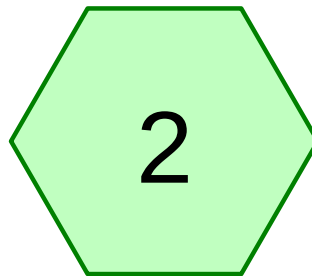
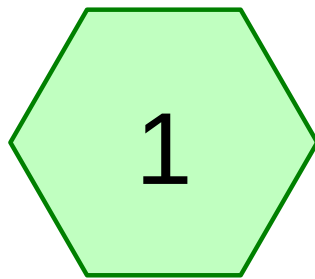
Filter Area (Required) = 5%xImpervious Area + 2%xLandscaped Area

Filter Area Required = 1,182 sf

Filter Area Provided = 1,400 sf > Required

ATTACHMENT 3

HYDROCAD OUTPUT



Routing Diagram for 17057-Pre

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17057-Pre*Type III 24-hr 25-Year Rainfall=5.80"*

Prepared by DM Roma Consulting Engineers

Printed 7/19/2018

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Page 2

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

Subcatchment1:

Runoff Area=56,920 sf 2.88% Impervious Runoff Depth>1.70"
Flow Length=450' Tc=16.8 min CN=61 Runoff=1.94 cfs 8,062 cf

Subcatchment2:

Runoff Area=93,680 sf 22.83% Impervious Runoff Depth>2.27"
Flow Length=408' Tc=8.5 min CN=68 Runoff=5.50 cfs 17,759 cf

Reach SP1:

Inflow=1.94 cfs 8,062 cf
Outflow=1.94 cfs 8,062 cf

Reach SP2:

Inflow=5.50 cfs 17,759 cf
Outflow=5.50 cfs 17,759 cf

Summary for Subcatchment 1:

Runoff = 1.94 cfs @ 12.25 hrs, Volume= 8,062 cf, Depth> 1.70"

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 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	1,640	98	Offsite Building
*	5,310	61	Offsite Grass B
	41,670	58	Meadow, non-grazed, HSG B
	7,325	71	Meadow, non-grazed, HSG C
*	975	78	Meadow, non-grazed, HSG D-Wetland
	56,920	61	Weighted Average
	55,280		97.12% Pervious Area
	1,640		2.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	65	0.0460	0.21		Sheet Flow, A TO B Grass: Short n= 0.150 P2= 3.10"
8.8	85	0.0500	0.16		Sheet Flow, B TO C Grass: Dense n= 0.240 P2= 3.10"
2.5	205	0.0390	1.38		Shallow Concentrated Flow, C TO D Short Grass Pasture Kv= 7.0 fps
0.4	95	0.0300	4.52	15.80	Trap/Vee/Rect Channel Flow, D TO E Bot.W=2.00' D=0.50' Z= 10.0 ' /' Top.W=12.00' n= 0.025
16.8	450	Total			

Summary for Subcatchment 2:

Runoff = 5.50 cfs @ 12.13 hrs, Volume= 17,759 cf, Depth> 2.27"

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 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	21,390	98	Offsite Building and Pavement
*	32,380	61	Offsite Grass B
	39,910	58	Meadow, non-grazed, HSG B
	93,680	68	Weighted Average
	72,290		77.17% Pervious Area
	21,390		22.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	123	0.1000	0.33		Sheet Flow, A TO B Grass: Short n= 0.150 P2= 3.10"
0.3	15	0.0200	0.93		Sheet Flow, B TO C Smooth surfaces n= 0.011 P2= 3.10"
1.7	17	0.0500	0.17		Sheet Flow, C TO D Grass: Short n= 0.150 P2= 3.10"
0.3	253	0.0500	16.02	256.30	Trap/Vee/Rect Channel Flow, D TO E Bot.W=2.00' D=2.00' Z= 3.0 ' Top.W=14.00' n= 0.022 Earth, clean & straight
8.5	408	Total			

Summary for Reach SP1:

Inflow Area = 56,920 sf, 2.88% Impervious, Inflow Depth > 1.70" for 25-Year event
 Inflow = 1.94 cfs @ 12.25 hrs, Volume= 8,062 cf
 Outflow = 1.94 cfs @ 12.25 hrs, Volume= 8,062 cf, 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 SP2:

Inflow Area = 93,680 sf, 22.83% Impervious, Inflow Depth > 2.27" for 25-Year event
 Inflow = 5.50 cfs @ 12.13 hrs, Volume= 17,759 cf
 Outflow = 5.50 cfs @ 12.13 hrs, Volume= 17,759 cf, Atten= 0%, Lag= 0.0 min

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

17057-Pre

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Type III 24-hr 2-Year Rainfall=3.10"

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Page 1

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

Subcatchment1:

Runoff Area=56,920 sf 2.88% Impervious Runoff Depth>0.35"
Flow Length=450' Tc=16.8 min CN=61 Runoff=0.27 cfs 1,655 cf

Subcatchment2:

Runoff Area=93,680 sf 22.83% Impervious Runoff Depth>0.61"
Flow Length=408' Tc=8.5 min CN=68 Runoff=1.29 cfs 4,741 cf

Reach SP1:

Inflow=0.27 cfs 1,655 cf
Outflow=0.27 cfs 1,655 cf

Reach SP2:

Inflow=1.29 cfs 4,741 cf
Outflow=1.29 cfs 4,741 cf

17057-Pre*Type III 24-hr 10-Year Rainfall=4.60"*

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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

Subcatchment1:

Runoff Area=56,920 sf 2.88% Impervious Runoff Depth>1.02"
Flow Length=450' Tc=16.8 min CN=61 Runoff=1.10 cfs 4,826 cf

Subcatchment2:

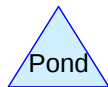
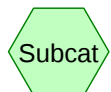
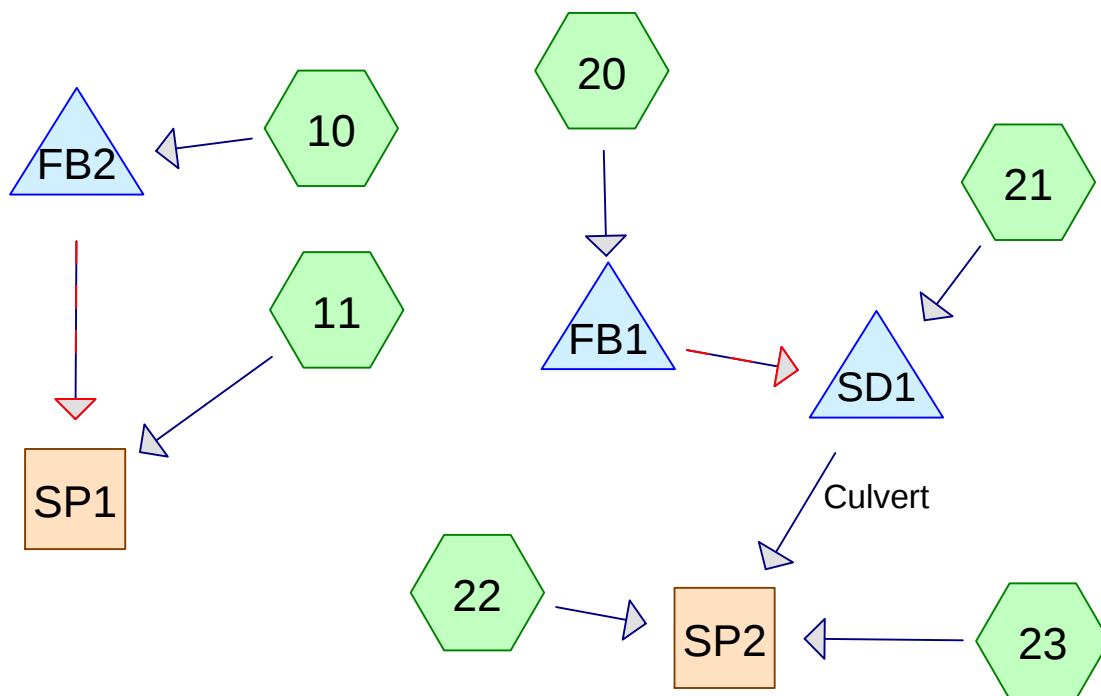
Runoff Area=93,680 sf 22.83% Impervious Runoff Depth>1.46"
Flow Length=408' Tc=8.5 min CN=68 Runoff=3.47 cfs 11,417 cf

Reach SP1:

Inflow=1.10 cfs 4,826 cf
Outflow=1.10 cfs 4,826 cf

Reach SP2:

Inflow=3.47 cfs 11,417 cf
Outflow=3.47 cfs 11,417 cf



17057-Post

Type III 24-hr 25-Year Rainfall=5.80"

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Page 2

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

Subcatchment10: Runoff Area=48,050 sf 24.67% Impervious Runoff Depth>2.62"
Flow Length=415' Tc=13.1 min CN=72 Runoff=2.87 cfs 10,487 cf

Subcatchment11: Runoff Area=8,455 sf 0.00% Impervious Runoff Depth>1.62"
Flow Length=192' Tc=14.5 min CN=60 Runoff=0.29 cfs 1,145 cf

Subcatchment20: Runoff Area=28,300 sf 17.83% Impervious Runoff Depth>2.19"
Flow Length=190' Tc=7.8 min CN=67 Runoff=1.65 cfs 5,167 cf

Subcatchment21: Runoff Area=45,075 sf 38.09% Impervious Runoff Depth>2.89"
Flow Length=360' Tc=10.4 min CN=75 Runoff=3.23 cfs 10,871 cf

Subcatchment22: Runoff Area=15,520 sf 11.76% Impervious Runoff Depth>1.86"
Flow Length=78' Slope=0.0700 '/' Tc=7.2 min CN=63 Runoff=0.77 cfs 2,411 cf

Subcatchment23: Runoff Area=5,200 sf 59.33% Impervious Runoff Depth>3.57"
Flow Length=35' Slope=0.0850 '/' Tc=6.0 min CN=82 Runoff=0.52 cfs 1,548 cf

Reach SP1: Inflow=1.74 cfs 9,366 cf
Outflow=1.74 cfs 9,366 cf

Reach SP2: Inflow=4.44 cfs 18,731 cf
Outflow=4.44 cfs 18,731 cf

Pond FB1: Peak Elev=195.87' Storage=1,880 cf Inflow=1.65 cfs 5,167 cf
Primary=0.09 cfs 2,577 cf Secondary=0.61 cfs 1,327 cf Outflow=0.70 cfs 3,904 cf

Pond FB2: Peak Elev=195.20' Storage=3,638 cf Inflow=2.87 cfs 10,487 cf
Primary=0.17 cfs 4,958 cf Secondary=1.38 cfs 3,263 cf Outflow=1.55 cfs 8,221 cf

Pond SD1: Culvert Peak Elev=193.04' Storage=45 cf Inflow=3.30 cfs 14,775 cf
15.0" Round Culvert n=0.013 L=51.0' S=0.0049 '/' Outflow=3.30 cfs 14,773 cf

17057-Post

Type III 24-hr 25-Year Rainfall=5.80"

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Page 3

Summary for Subcatchment 10:

Runoff = 2.87 cfs @ 12.19 hrs, Volume= 10,487 cf, Depth> 2.62"

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 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	1,615	98	Existing Building
*	5,270	61	Existing Grass B
*	10,240	98	New Building and Pavement
	20,970	61	>75% Grass cover, Good, HSG B
	2,775	74	>75% Grass cover, Good, HSG C
	445	80	>75% Grass cover, Good, HSG D
	2,550	58	Meadow, non-grazed, HSG B
	4,185	71	Meadow, non-grazed, HSG C
	48,050	72	Weighted Average
	36,195		75.33% Pervious Area
	11,855		24.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	150	0.0460	0.25		Sheet Flow, A TO B Grass: Short n= 0.150 P2= 3.10"
3.2	265	0.0400	1.40		Shallow Concentrated Flow, C TO D Short Grass Pasture Kv= 7.0 fps
13.1	415	Total			

Summary for Subcatchment 11:

Runoff = 0.29 cfs @ 12.22 hrs, Volume= 1,145 cf, Depth> 1.62"

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 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	1,135	61	>75% Grass cover, Good, HSG B
	70	80	>75% Grass cover, Good, HSG D
	6,350	58	Meadow, non-grazed, HSG B
	470	71	Meadow, non-grazed, HSG C
	430	78	Meadow, non-grazed, HSG D
	8,455	60	Weighted Average
	8,455		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	150	0.0500	0.18		Sheet Flow, A TO B Grass: Dense n= 0.240 P2= 3.10"
0.6	42	0.0250	1.11		Shallow Concentrated Flow, B TO C Short Grass Pasture Kv= 7.0 fps
14.5	192	Total			

17057-Post

Type III 24-hr 25-Year Rainfall=5.80"

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Page 4

Summary for Subcatchment 20:

Runoff = 1.65 cfs @ 12.12 hrs, Volume= 5,167 cf, Depth> 2.19"

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 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	3,190	98	Existing Pavement and Building
*	6,170	61	Existing Grass B
*	1,855	98	New Road
	12,700	61	>75% Grass cover, Good, HSG B
	4,385	58	Meadow, non-grazed, HSG B
	28,300	67	Weighted Average
	23,255		82.17% Pervious Area
	5,045		17.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	120	0.0670	0.28		Sheet Flow, A TO B
					Grass: Short n= 0.150 P2= 3.10"
0.7	70	0.0570	1.67		Shallow Concentrated Flow, B TO C
					Short Grass Pasture Kv= 7.0 fps
7.8	190	Total			

Summary for Subcatchment 21:

Runoff = 3.23 cfs @ 12.15 hrs, Volume= 10,871 cf, Depth> 2.89"

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 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	17,170	98	Existing Building and Pavement
*	25,300	61	Existing Grass B
	2,015	58	Meadow, non-grazed, HSG B
	590	61	>75% Grass cover, Good, HSG B
	45,075	75	Weighted Average
	27,905		61.91% Pervious Area
	17,170		38.09% Impervious Area

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Type III 24-hr 25-Year Rainfall=5.80"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	123	0.0490	0.25		Sheet Flow, A TO B Grass: Short n= 0.150 P2= 3.10"
0.3	15	0.0200	0.93		Sheet Flow, B TO C Smooth surfaces n= 0.011 P2= 3.10"
1.7	17	0.0500	0.17		Sheet Flow, C TO D Grass: Short n= 0.150 P2= 3.10"
0.2	205	0.0500	16.02	256.30	Trap/Vee/Rect Channel Flow, D TO E Bot.W=2.00' D=2.00' Z= 3.0 ' /' Top.W=14.00' n= 0.022 Earth, clean & straight
10.4	360	Total			

Summary for Subcatchment 22:

Runoff = 0.77 cfs @ 12.11 hrs, Volume= 2,411 cf, Depth> 1.86"

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 25-Year Rainfall=5.80"

Area (sf)	CN	Description
* 1,825	98	New Road
0	61	>75% Grass cover, Good, HSG B
13,695	58	Meadow, non-grazed, HSG B
15,520	63	Weighted Average
13,695		88.24% Pervious Area
1,825		11.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	78	0.0700	0.18		Sheet Flow, A TO B Grass: Dense n= 0.240 P2= 3.10"

Summary for Subcatchment 23:

Runoff = 0.52 cfs @ 12.09 hrs, Volume= 1,548 cf, Depth> 3.57"

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 25-Year Rainfall=5.80"

Area (sf)	CN	Description
* 1,055	98	Existing Pavement
* 2,030	98	New Road
1,000	61	>75% Grass cover, Good, HSG B
1,115	58	Meadow, non-grazed, HSG B
5,200	82	Weighted Average
2,115		40.67% Pervious Area
3,085		59.33% Impervious Area

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Type III 24-hr 25-Year Rainfall=5.80"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	35	0.0850	0.17		Sheet Flow, A TO B
					Grass: Dense n= 0.240 P2= 3.10"
2.5					Direct Entry, 6 MINUTE MIN. TC
6.0	35	Total			

Summary for Reach SP1:

Inflow Area = 56,505 sf, 20.98% Impervious, Inflow Depth > 1.99" for 25-Year event
 Inflow = 1.74 cfs @ 12.45 hrs, Volume= 9,366 cf
 Outflow = 1.74 cfs @ 12.45 hrs, Volume= 9,366 cf, 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 SP2:

Inflow Area = 94,095 sf, 28.83% Impervious, Inflow Depth > 2.39" for 25-Year event
 Inflow = 4.44 cfs @ 12.14 hrs, Volume= 18,731 cf
 Outflow = 4.44 cfs @ 12.14 hrs, Volume= 18,731 cf, 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 Pond FB1:

Inflow Area = 28,300 sf, 17.83% Impervious, Inflow Depth > 2.19" for 25-Year event
 Inflow = 1.65 cfs @ 12.12 hrs, Volume= 5,167 cf
 Outflow = 0.70 cfs @ 12.42 hrs, Volume= 3,904 cf, Atten= 58%, Lag= 18.0 min
 Primary = 0.09 cfs @ 12.42 hrs, Volume= 2,577 cf
 Secondary = 0.61 cfs @ 12.42 hrs, Volume= 1,327 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 195.87' @ 12.42 hrs Surf.Area= 1,543 sf Storage= 1,880 cf

Plug-Flow detention time= 133.4 min calculated for 3,891 cf (75% of inflow)
 Center-of-Mass det. time= 72.8 min (881.2 - 808.5)

Volume	Invert	Avail.Storage	Storage Description
#1	194.25'	2,087 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.25	780	0	0
196.00	1,605	2,087	2,087
Device	Routing	Invert	Outlet Devices
#1	Primary	194.25'	2.410 in/hr Exfiltration over Surface area
#2	Secondary	195.75'	6.0' 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

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Type III 24-hr 25-Year Rainfall=5.80"

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Primary OutFlow Max=0.09 cfs @ 12.42 hrs HW=195.87' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.09 cfs)**Secondary OutFlow** Max=0.60 cfs @ 12.42 hrs HW=195.87' (Free Discharge)↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.60 cfs @ 0.85 fps)**Summary for Pond FB2:**

Inflow Area = 48,050 sf, 24.67% Impervious, Inflow Depth > 2.62" for 25-Year event
 Inflow = 2.87 cfs @ 12.19 hrs, Volume= 10,487 cf
 Outflow = 1.55 cfs @ 12.46 hrs, Volume= 8,221 cf, Atten= 46%, Lag= 16.1 min
 Primary = 0.17 cfs @ 12.46 hrs, Volume= 4,958 cf
 Secondary = 1.38 cfs @ 12.46 hrs, Volume= 3,263 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 195.20' @ 12.46 hrs Surf.Area= 2,989 sf Storage= 3,638 cf

Plug-Flow detention time= 118.8 min calculated for 8,221 cf (78% of inflow)
 Center-of-Mass det. time= 63.2 min (866.5 - 803.3)

Volume	Invert	Avail.Storage	Storage Description
#1	193.50'	6,343 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
193.50	1,405	0	0
194.00	1,745	788	788
196.00	3,810	5,555	6,343

Device	Routing	Invert	Outlet Devices
#1	Primary	193.50'	2.410 in/hr Exfiltration over Surface area
#2	Secondary	195.00'	6.0' 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=0.17 cfs @ 12.46 hrs HW=195.20' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.17 cfs)**Secondary OutFlow** Max=1.37 cfs @ 12.46 hrs HW=195.20' (Free Discharge)↑**2=Broad-Crested Rectangular Weir** (Weir Controls 1.37 cfs @ 1.12 fps)**Summary for Pond SD1: Culvert**

Inflow Area = 73,375 sf, 30.28% Impervious, Inflow Depth > 2.42" for 25-Year event
 Inflow = 3.30 cfs @ 12.15 hrs, Volume= 14,775 cf
 Outflow = 3.30 cfs @ 12.16 hrs, Volume= 14,773 cf, Atten= 0%, Lag= 0.3 min
 Primary = 3.30 cfs @ 12.16 hrs, Volume= 14,773 cf

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

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Type III 24-hr 25-Year Rainfall=5.80"

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Peak Elev= 193.04' @ 12.16 hrs Surf.Area= 71 sf Storage= 45 cf

Plug-Flow detention time= 0.2 min calculated for 14,773 cf (100% of inflow)

Center-of-Mass det. time= 0.2 min (818.3 - 818.1)

Volume	Invert	Avail.Storage	Storage Description
#1	191.85'	765 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
191.85	5	0	0
194.00	125	140	140
196.00	500	625	765

Device	Routing	Invert	Outlet Devices
#1	Primary	191.85'	15.0" Round Culvert L= 51.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 191.85' / 191.60' S= 0.0049 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=3.27 cfs @ 12.16 hrs HW=193.03' (Free Discharge)↑**1=Culvert** (Barrel Controls 3.27 cfs @ 3.51 fps)

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Type III 24-hr 2-Year Rainfall=3.10"

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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

Subcatchment10:	Runoff Area=48,050 sf 24.67% Impervious Runoff Depth>0.78" Flow Length=415' Tc=13.1 min CN=72 Runoff=0.81 cfs 3,140 cf
Subcatchment11:	Runoff Area=8,455 sf 0.00% Impervious Runoff Depth>0.32" Flow Length=192' Tc=14.5 min CN=60 Runoff=0.04 cfs 224 cf
Subcatchment20:	Runoff Area=28,300 sf 17.83% Impervious Runoff Depth>0.57" Flow Length=190' Tc=7.8 min CN=67 Runoff=0.36 cfs 1,336 cf
Subcatchment21:	Runoff Area=45,075 sf 38.09% Impervious Runoff Depth>0.94" Flow Length=360' Tc=10.4 min CN=75 Runoff=1.01 cfs 3,514 cf
Subcatchment22:	Runoff Area=15,520 sf 11.76% Impervious Runoff Depth>0.42" Flow Length=78' Slope=0.0700 '/' Tc=7.2 min CN=63 Runoff=0.13 cfs 540 cf
Subcatchment23:	Runoff Area=5,200 sf 59.33% Impervious Runoff Depth>1.35" Flow Length=35' Slope=0.0850 '/' Tc=6.0 min CN=82 Runoff=0.20 cfs 585 cf
Reach SP1:	Inflow=0.14 cfs 3,190 cf Outflow=0.14 cfs 3,190 cf
Reach SP2:	Inflow=1.34 cfs 5,970 cf Outflow=1.34 cfs 5,970 cf
Pond FB1:	Peak Elev=194.74' Storage=441 cf Inflow=0.36 cfs 1,336 cf Primary=0.06 cfs 1,332 cf Secondary=0.00 cfs 0 cf Outflow=0.06 cfs 1,332 cf
Pond FB2:	Peak Elev=194.25' Storage=1,253 cf Inflow=0.81 cfs 3,140 cf Primary=0.11 cfs 2,966 cf Secondary=0.00 cfs 0 cf Outflow=0.11 cfs 2,966 cf
Pond SD1: Culvert	Peak Elev=192.44' Storage=13 cf Inflow=1.06 cfs 4,846 cf 15.0" Round Culvert n=0.013 L=51.0' S=0.0049 '/' Outflow=1.06 cfs 4,845 cf

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

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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

Subcatchment10:	Runoff Area=48,050 sf 24.67% Impervious Runoff Depth>1.74" Flow Length=415' Tc=13.1 min CN=72 Runoff=1.89 cfs 6,969 cf
Subcatchment11:	Runoff Area=8,455 sf 0.00% Impervious Runoff Depth>0.96" Flow Length=192' Tc=14.5 min CN=60 Runoff=0.16 cfs 677 cf
Subcatchment20:	Runoff Area=28,300 sf 17.83% Impervious Runoff Depth>1.40" Flow Length=190' Tc=7.8 min CN=67 Runoff=1.03 cfs 3,292 cf
Subcatchment21:	Runoff Area=45,075 sf 38.09% Impervious Runoff Depth>1.97" Flow Length=360' Tc=10.4 min CN=75 Runoff=2.19 cfs 7,391 cf
Subcatchment22:	Runoff Area=15,520 sf 11.76% Impervious Runoff Depth>1.14" Flow Length=78' Slope=0.0700 '/' Tc=7.2 min CN=63 Runoff=0.45 cfs 1,477 cf
Subcatchment23:	Runoff Area=5,200 sf 59.33% Impervious Runoff Depth>2.55" Flow Length=35' Slope=0.0850 '/' Tc=6.0 min CN=82 Runoff=0.37 cfs 1,104 cf
Reach SP1:	Inflow=0.36 cfs 5,781 cf Outflow=0.36 cfs 5,781 cf
Reach SP2:	Inflow=2.98 cfs 12,302 cf Outflow=2.98 cfs 12,302 cf
Pond FB1:	Peak Elev=195.70' Storage=1,620 cf Inflow=1.03 cfs 3,292 cf Primary=0.08 cfs 2,333 cf Secondary=0.00 cfs 0 cf Outflow=0.08 cfs 2,333 cf
Pond FB2:	Peak Elev=195.05' Storage=3,185 cf Inflow=1.89 cfs 6,969 cf Primary=0.16 cfs 4,553 cf Secondary=0.16 cfs 551 cf Outflow=0.32 cfs 5,104 cf
Pond SD1: Culvert	Peak Elev=192.78' Storage=29 cf Inflow=2.25 cfs 9,724 cf 15.0" Round Culvert n=0.013 L=51.0' S=0.0049 '/' Outflow=2.25 cfs 9,722 cf

ATTACHMENT 4

INSPECTION, MAINTENANCE & HOUSEKEEPING PLAN



INSPECTION, MAINTENANCE, AND HOUSEKEEPING PLAN

RIVER ROAD PROPERTY CONDOMINIUMS WINDHAM, MAINE

Responsible Party

Owner: RMills, LLC
13 Victoria Lane
Windham, Maine 04062

The owners are responsible for the maintenance of all stormwater management structures and related site components and the keeping of a maintenance log book with service records until such time that a homeowner's association is created. Records of all inspections and maintenance work performed must be kept on file with the owner and retained for a minimum of five years. The maintenance log will be made available to the upon request. At a minimum, the maintenance of stormwater management systems will be performed on the prescribed schedule.

The procedures outlined in this plan are provided as a general overview of the anticipated practices to be utilized on this site. In some instances, additional measures may be required due to unexpected conditions. *The Maine Erosion and Sedimentation Control BMP* and *Stormwater Management for Maine: Best Management Practices* Manuals published by the Maine Department of Environmental Protection (MDEP) should be referenced for additional information.

During Construction

- 1. Inspection and Corrective Action:** It is the contractor's responsibility to comply with the inspection and maintenance procedures outlined in this section. Inspection shall occur on all disturbed and impervious areas, erosion control measures, material storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. These areas shall be inspected at least once a week as well as 24 hours before and after a storm event and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections.
- 2. Maintenance:** Erosion controls shall be maintained in effective operating condition until areas are permanently stabilized. If best management practices (BMPs) need to be repaired, the repair work should be initiated upon discovery of the problem but no later than the end of the next workday. If BMPs need to be maintained or modified,

additional BMPs are necessary, or other corrective action is needed, implementation must be completed within seven calendar days and prior to any rainfall event.

3. **Documentation:** A report summarizing the inspections and any corrective action taken must be maintained on site. The log must include the name(s) and qualifications of the person making the inspections; the date(s) of the inspections; and the major observations about the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicle access points to the parcel. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and location(s) where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken. The log must be made accessible to Town staff, and a copy must be provided upon request. The owner shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

Housekeeping

1. **Spill prevention:** Controls must be used to prevent pollutants from construction and waste materials on site to enter stormwater, which includes storage practices to minimize exposure of the materials to stormwater. The site contractor or operator must develop, and implement as necessary, appropriate spill prevention, containment, and response planning measures.
2. **Groundwater protection:** During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials. Any project proposing infiltration of stormwater must provide adequate pre-treatment of stormwater prior to discharge of stormwater to the infiltration area, or provide for treatment within the infiltration area, in order to prevent the accumulation of fines, reduction in infiltration rate, and consequent flooding and destabilization.
3. **Fugitive sediment and dust:** Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control, but other water additives may be considered as needed. A stabilized construction entrance (SCE) should be included to minimize tracking of mud and sediment. If off-site tracking occurs, public roads should be swept immediately and no less than once a week and prior to significant storm events. Operations during dry months, that experience fugitive dust problems, should

wet down unpaved access roads once a week or more frequently as needed with a water additive to suppress fugitive sediment and dust.

4. **Debris and other materials:** Minimize the exposure of construction debris, building and landscaping materials, trash, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials to precipitation and stormwater runoff. These materials must be prevented from becoming a pollutant source.
5. **Excavation de-watering:** Excavation de-watering is the removal of water from trenches, foundations, coffer dams, ponds, and other areas within the construction area that retain water after excavation. In most cases the collected water is heavily silted and hinders correct and safe construction practices. The collected water removed from the ponded area, either through gravity or pumping, must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved by the Department.
6. **Authorized Non-stormwater discharges:** Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Authorized non-stormwater discharges are:
 - (a) Discharges from firefighting activity;
 - (b) Fire hydrant flushings;
 - (c) Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
 - (d) Dust control runoff in accordance with permit conditions and Appendix (C)(3);
 - (e) Routine external building washdown, not including surface paint removal, that does not involve detergents;
 - (f) Pavement washwater (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;
 - (g) Uncontaminated air conditioning or compressor condensate;
 - (h) Uncontaminated groundwater or spring water;
 - (i) Foundation or footer drain-water where flows are not contaminated;
 - (j) Uncontaminated excavation dewatering (see requirements in Appendix C(5));
 - (k) Potable water sources including waterline flushings; and
 - (l) Landscape irrigation.
7. **Unauthorized non-stormwater discharges:** Approval from the Town does not authorize a discharge that is mixed with a source of non-stormwater, other than those discharges in compliance with Section 6 above. Specifically, the Town's approval does not authorize discharges of the following:

- (a) Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;
- (b) Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;
- (c) Soaps, solvents, or detergents used in vehicle and equipment washing; and
- (d) Toxic or hazardous substances from a spill or other release.

Post construction

- 1. Inspection and Corrective Action:** All measures must be maintained by the owner in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions of the permit, shall conduct the inspections. The following areas, facilities, and measures must be inspected, and identified deficiencies must be corrected. Areas, facilities, and measures other than those listed below may also require inspection on a specific site.
 - A. Vegetated Areas:** Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after heavy rains to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.
 - B. Ditches, Swales, and Open Channels:** Inspect ditches, swales, and other open channels in the spring, late fall, and after heavy rains to remove any obstructions to flow, remove accumulated sediments and debris, control vegetative growth that could obstruct flow, and repair any erosion of the ditch lining. Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. The channel must receive adequate routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or side slopes.
 - C. Culverts:** Inspect culverts in the spring, late fall, and after heavy rains to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the culvert's inlet and outlet.
 - D. Buffers:** Wooded buffers must remain fully wooded and have no disturbance to the duff layer. Vegetation in non-wooded buffers may not be cut more than three times per year, and may not be cut shorter than six inches. Stormwater runoff should enter the buffer as sheet flow, and any observed channelization of flows or erosion

should be corrected immediately. Activities that may result in disturbance of the duff layer are prohibited in a buffer.

- E. Underdrained Filter Basin:** Basin should be inspected semi-annually and following major storm events for the first year and every six months thereafter. The basin should drain within 48 hours following a one-inch storm and if a larger storm fills the system to overflow, it shall drain within 36 to 60 hours. If ponding exceeds 48 hours, the top of the filter bed must be rototilled to reestablish the soil's filtration capacity. If water ponds on the surface of the bed for more than 72 hours, the top several inches of the filter shall be replaced with fresh material. Inspect for debris and sediment build up in the forebay and basin and remove as needed. Mowing of the basin can only occur semi-annually to a height of no less than 6 inches utilizing a hand-held string trimmer or push-mower. Any bare areas or erosion rills shall be repaired with new filter media or sandy loam then seeded and mulched. The basin should also be inspected annually for destabilization of side slopes, embankment settling and other signs of structural failure.
- F. Regular Maintenance:** Clear accumulations of winter sand along roadway once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. Accumulations of sand along pavement shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader.
- G. Documentation:** Keep a log (report) summarizing inspections, maintenance, and any corrective actions taken. The log must include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If a maintenance task requires the clean-out of any sediments or debris, indicate where the sediment and debris was disposed after removal. The log must be made accessible to Town staff upon request. The permittee shall retain a copy of the log for a period of at least five years from the completion of permanent stabilization. Attached is a sample log.

Duration of Maintenance

Perform maintenance as described.

MAINTENANCE LOG

RIVER ROAD PROPERTY CONDOMINIUMS WINDHAM, MAINE

The following stormwater management and erosion control items shall be inspected and maintained as prescribed in the Maintenance Plan with recommended frequencies as identified below. The owner is responsible for keeping this maintenance log on file for a minimum of five years and shall provide a copy to the Town upon request. Inspections are to be performed by a qualified third party inspector and all corrective actions shall be performed by personnel familiar with stormwater management systems and erosion controls.

Maintenance Item	Maintenance Event	Date Performed	Responsible Personnel	Comments
Vegetated Areas	Inspect slopes and embankments early in Spring.			
Ditches, swales, and other open channels	Inspect after major rainfall event producing 1" of rain in two hours.			
	Inspect for erosion or slumping & repair			
	Mowed at least annually.			
Culverts	Inspect semiannually and after major rainfall.			
	Repair erosion at inlet or outlet of pipe.			
	Repair displaced riprap.			
	Clean accumulated sediment in culverts when >20% full.			
Buffers	Inspect for erosion and channelized flow semiannually.			
	Remove accumulated sediment semiannually.			
	Inspect vegetation cover and reestablish as needed.			

MAINTENANCE LOG

RIVER ROAD PROPERTY CONDOMINIUMS

WINDHAM, MAINE

Maintenance Item	Maintenance Event	Date Performed	Responsible Personnel	Comments
Underdrained Filter Basin, Bioretention Cells, And Roofline Dripedges	Check after each rainfall event to ensure that pond drains within 24-48 hours.			
	Replace top several inches of filter if pond does not drain within 72 hours.			
	Mow grass no more than twice a year to no less than 6 inches in height.			
	Inspect semi-annually for erosion or sediment accumulation and repair as necessary.			
Regular Maintenance	Clear accumulation of winter sand in paved areas annually.			