



November 20, 2017

Amanda Lessard
Town of Windham
8 School Road
Windham, Maine 04062

**Re: Major Subdivision Final Plan Application
River Road Subdivision
River Road Housing, LLC – Applicant**

Dear Amana:

On behalf of River Road Housing, LLC we have prepared the enclosed Final Major Subdivision Plan application and supporting documents for Planning Board approval. Please note the following as you review our application:

- We have submitted our Maine DOT Driveway Entrance Permit and will forward the approval to the Town upon receipt.
- The final easement documents are currently being prepared by the applicant's attorney and will be provided upon completion.
- We have revised our roadway design to be in conformance with the Town's Minor Local Street Standard, with the intent to offer the road for public acceptance upon completion.
- We have consulted with the Town Engineer and Public Works Director, who have indicated that the proposed hammerhead turnaround is an acceptable design and that a waiver from the standard to provide a cul-de-sac is reasonable and would not negatively impact a recommendation for public acceptance of the roadway.
- While performing field reconnaissance we found evidence that the initial boundary survey contained an error in the vicinity of the roadway entrance. Upon further investigation our surveyor confirmed that a mistake was made, which has been corrected on the attached plans. The result of the error is that approximately 0.22 acres of land has been removed from the subject property and the roadway intersection location has been moved approximately 50 feet further down the hill. The physical location of the driveway, as observed during the site walk, is not changed.

Upon your review of this information, please let us know if you have any questions or require any additional information.

Sincerely,

DM ROMA CONSULTING ENGINEERS

Dustin M Roma

Dustin M. Roma, P.E.
President

Cc: River Road Housing, LLC
Enc.

Project Name: RIVER ROAD SUBDIVISION

Tax Map: 8A **Lot:** 56

Estimated square footage of building(s): 7 SINGLE FAMILY DWELLINGS

If no buildings proposed, estimated square footage of total development/disturbance:

7 RESIDENTIAL LOTS AND 640 FT OF ROADWAY

Contact Information

1. Applicant

Name: RIVER ROAD HOUSING, LLC

Mailing Address: 105 STANDISH NECK ROAD, STANDISH, ME 04084

Telephone: 329-4612

Fax:

E-mail: RIGOJO53@AOL.COM

2. Record owner of property

X (Check here if same as applicant)

Name:

Mailing Address:

Telephone:

Fax:

E-mail:

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: 59 HARVEST HILL ROAD, 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 M Roma

11-20-17

Signature

Date

Applicant

Staff

Final Plan - Major Subdivision: Submission Requirements		
A. Mandatory Written Information		
1	A fully executed application form	×
2	Evidence that the escrow account balance is greater than 25% of the initial Preliminary Plan deposit	×
3	If public open space is to be provided, written offers of cession to the Town of Windham shall be provided	N/A
4	If the subdivider reserves title to spaces within the subdivision, provide copies of agreements or other documents.	N/A
5	Copies of any outside agency approvals	Pending
6	Statement from the Maine Inland Fisheries & Wildlife that no significant wildlife habitat exists on the site	N/A
7	Digital transfer of subdivision plan data	×
B. Mandatory Plan Information		
1	All information presented on the Preliminary Plan, and any amendments suggested or required by the Board.	×
2	Map and lot numbers for all lots as assigned by the Town of Windham Assessing Department	Pending
3	Seal of the Maine Licensed Professional who prepared the plan	×
4	All public open space for which offers of cession are made by the subdivider and those spaces to which title is reserved by the subdivider	×
5	Location of all permanent monuments	×

STORMWATER MANAGEMENT REPORT

RIVER ROAD SUBDIVISION WINDHAM, MAINE

A. Narrative

River Road Housing, LLC is proposing to develop property located along River Road in Windham as a seven-lot cluster subdivision and a conventional single-family lot indicated on the Subdivision Plan as Lot A. The subdivision will require the construction of a 640-linear foot roadway for access and street frontage. The development will be served by private wells, private onsite subsurface septic and underground electric, telephone and cable. The property is approximately 9.22 acres, is located in the Farm-Residential zoning district and is identified as a portion of lot 56 on the Town of Windham Assessors Map 8A. The property is currently undeveloped woods with a short gravel drive. In general, the site drains to the north to a large wetland complex. Eventually this flow drains to Otter Brook and into Dundee Pond.

B. Alterations to Land Cover

The property is currently undeveloped. The proposed development will create approximately 39,605 square feet of new impervious area consisting of the proposed roadways, driveways and buildings. The project will also consist of 94,810 square feet of new landscaped/disturbed areas resulting in a total new developed area of 134,415 square feet. The site is moderately steep (5-8%) north of the proposed road and steeper to the south (10-20%). The onsite soils as identified on the Medium Intensity Soil Maps for Cumberland County, Maine published by the Natural Resources Conservation Service are listed below in Table 1 and included on the enclosed Soils Map.

Table 1 – Onsite Soils		
Map Unit Symbol	Soil Name	Hydrologic Soils Group
BgB	Belgrade very fine sandy loam	B/D
HID	Hinckley loamy sand	A
Sn	Scantic silt loam	D

C. Methodology and Modeling Assumptions

The proposed stormwater management system has been designed utilizing Best Management Practices (BMPs) to maintain existing drainage patterns while providing stormwater quality improvement measures. The goal of the storm drainage design is to remove potential pollutants while promoting infiltration and filtration of runoff generated by the development.

D. Basic Standards

The project is required by the Town and the Maine Department of Environmental Protection (MDEP) to provide permanent and temporary Erosion Control Best Management Practices. These methods are outlined in detail in the plan set.

E. General Standard

The Windham Land Use Ordinance requires that projects requiring Subdivision Review shall comply with Section 4B-General Standards of the MDEP Chapter 500 Stormwater Management. This document outlines the requirement of the project to provide stormwater quality treatment for no less than 95% of the new impervious surface and 80% of the total new developed area associated with the project. The water quality requirements will be met with the utilization of an underdrained filter basin, two stone berm level spreaders discharging to a forested buffer, a forested buffer adjacent to a Residential, Largely Pervious or Small Impervious Area and a roof dripedge on Lot A. Calculations can be found on the Treatment Plan and enclosed in this report.

F. Flooding Standards

The Windham Land Use Ordinance requires that projects requiring Subdivision Review shall comply with Section 4E-Flooding Standards of the MDEP Chapter 500 Stormwater Management. Pursuant to Section 911.J.6 of the Town of Windham Land Use Ordinance we are requesting a waiver of the Flooding Standard for this project. The subdivision has been designed to send more than 75% of the impervious and developed areas associated with the project to buffers in accordance with DEP Chapter 500 Stormwater Management.

A stormwater model has been created to determine the appropriate pipe sizes for the two proposed culverts beneath the roadway. These culverts have been designed to convey the 25-year storm event without surcharging the pipe. The rainfall input data for the 25-year storm event was obtained from Appendix H of the MDEP, Chapter 500 Stormwater Management, last revised in 2015. The Treatment Plan showing the post development drainage patterns are included in the plan set and the computations performed with the HydroCAD software program are included as an attachment to this report.

G. Maintenance of common facilities or property

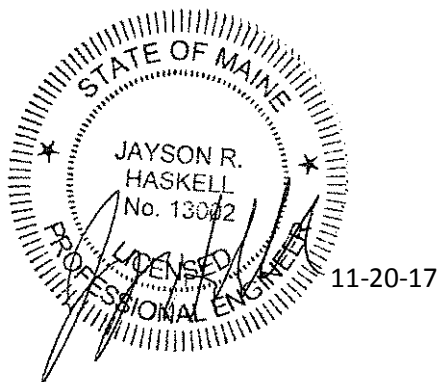
The homeowner's association will be responsible for the maintenance of the stormwater facilities. Enclosed is an Inspection, Maintenance and Housekeeping Plan for the project.

Prepared by:

DM ROMA CONSULTING ENGINEERS



Jayson R. Haskell, P.E.
Project Manager



ATTACHMENT 1

GENERAL STANDARD CALCULATIONS

Stormwater Treatment Table

River Road Subdivision

	Total Watershed Area (SF)	New Impervious Area (SF)	New Landscaped Area (SF)	Existing/Offsite Impervious Area (SF)	Existing/Offsite Landscaping Area (SF)	Existing Undeveloped Area (SF)	Treatment Provided	New Impervious Area Treated (SF)	New Landscaped Area Treated (SF)	Treatment Device
WS-10	59,560	3,615	8,485	3,125	6,870	37,465	Yes	3,615	8,485	Filter Basin
WS-11	7,795	2,500	5,295	0	0	0	Yes	2,500	5,295	Filter Basin
WS-12	179,350	15,565	33,825	2,680	10,705	116,575	Yes	15,565	33,825	Level Spreader
WS-13	8,985	3,035	5,950	0	0	0	Yes	3,035	5,950	Level Spreader
WS-14	6,680	4,095	2,585	0	0	0	Yes	4,095	2,585	Level Spreader
WS-15	1,420	1,420	0	0	0	0	Yes	1,420	0	Drip Edge
WS-16	55,185	685	7,190	4,275	1,905	41,130	No	0	0	None
WS-20	157,595	8,690	31,480	3,595	3,215	110,615	Yes	8,690	31,480	Buffer
Total		39,605	94,810					38,920	87,620	

New Impervious Area = 39,605 sf
 New Impervious Area Requiring Treatment (95%) = 37,625 sf
 Provided New Impervious Treatment = 38,920 sf
 98% New Impervious Area Treated

New Developed Area = 134,415 sf
 New Developed Area Requiring Treatment (80%) = 107,532 sf
 New Developed Area Treated = 126,540 sf
 94% New Developed Area Treated

Filter Basin FB-1

Tributary Impervious Area=	9,240 sf	(WS-10 & 11 Impervious Area)
Tributary Landscaped Area=	20,650 sf	(WS-10 & 11 Landscaped Area)

Water Quality Volume (WQV) Calculation

WQV (Required) = $1.0 \times \text{Impervious Area} + 0.4 \times \text{Landscaped Area}$

WQV (Required) = 1,458 cf

Stage Storage Volume

Elevation	Area (sf)	Storage (cf)
211.9	920	0
212	970	94
214	1,990	3,054

Outlet Elevation = 213.40

Storage Volume Provided = 2,167 cf > Required

Total Storage Volume Provided=

Filter Bottom Calculation

Filter Area (Required) = $5\% \times \text{Impervious Area} + 2\% \times \text{Landscaped Area}$

Filter Area Required = 875 sf

Filter Area Provided = 920 sf > Required

Forested Stormwater Buffer (with Level Lip Spreader)

Soils 1: Belgrade

Class 1: Very fine sandy loam

HSG: B/D

*Since this soil is classified as a fine sandy loam and has an HSG of B/D we are proposing to utilize the sizing criteria for an HSG C Loamy Sand or Sandy Loam

% Area of Buffer: 55%

Soils 2: Scantic

Class 2: Silt loam

HSG: D

% Area of Buffer: 45%

Buffer Length= 100 ft

Buffer Slope= <8%

HSG	Berm Length	
	Per Acre of Impervious Area	Berm Length Per Acre of Landscaped Area
C	100	30
D	150	45
Composite	122.42	36.73

Level Spreader 1

Tributary Impervious Area = 21,280 sf (WS-12 & 13 Impervious Area)

Tributary Landscaped Area = 50,480 sf (WS-12 & 13 Landscaped Area)

Required Berm Length: 102 ft

Provided Berm Length: 105 ft

Level Spreader 2

Tributary Impervious Area = 4,095 sf (WS-14 Impervious Area)

Tributary Landscaped Area = 2,900 sf (WS-14 Landscaped Area)

Required Berm Length: 14 ft

Provided Berm Length: 20 ft

ATTACHMENT 2

FLOODING STANDARD WAIVER CALCULATION & HYDROCAD MODEL OUTPUT

Flooding Waiver Calculations

A waiver from the Flooding Standard can be requested if 75% of the project's impervious and developed areas are treated in buffers

Total New Site Impervious Area = 39,605 sf

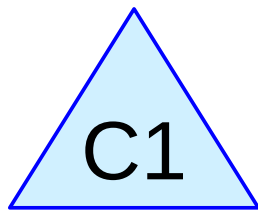
Total New Site Developed Area = 134,415 sf

Watersheds Treated By Buffer

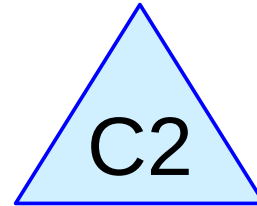
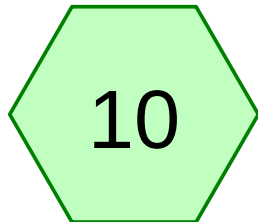
	New Impervious Area (SF)	New Landscaped Area (SF)	New Developed Area (SF)
WS-12	15,565	33,825	49,390
WS-13	3,035	5,950	8,985
WS-14	4,095	2,585	6,680
WS-20	8,690	31,480	40,170
	31,385		105,225

% of New Impervious Area Treated In Buffers = 79.2%

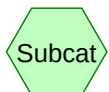
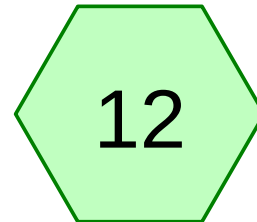
% of New Developed Area Treated In Buffers = 78.3%



CULVERT @ 0+50



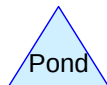
CULVERT @ 2+60



Subcat



Reach



Pond



Link

Routing Diagram for 17020-Culvert Sizing

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17020-Culvert Sizing

Prepared by DM Roma Consulting Engineers

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

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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=59,560 sf 10.61% Impervious Runoff Depth>1.62"
Flow Length=451' Tc=20.8 min CN=60 Runoff=1.77 cfs 0.185 af

Subcatchment12:

Runoff Area=179,350 sf 9.84% Impervious Runoff Depth>0.79"
Flow Length=673' Tc=31.0 min CN=48 Runoff=1.79 cfs 0.271 af

Pond C1: CULVERT @ 0+50

Peak Elev=214.09' Storage=15 cf Inflow=1.77 cfs 0.185 af
15.0" Round Culvert n=0.013 L=45.0' S=0.0056 '/' Outflow=1.77 cfs 0.185 af

Pond C2: CULVERT @ 2+60

Peak Elev=222.00' Storage=16 cf Inflow=1.79 cfs 0.271 af
15.0" Round Culvert n=0.013 L=53.0' S=0.0236 '/' Outflow=1.79 cfs 0.271 af

17020-Culvert Sizing

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

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Summary for Subcatchment 10:

Runoff = 1.77 cfs @ 12.32 hrs, Volume= 0.185 af, 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
*	3,195	98	Pavement
*	420	96	Gravel Shoulder
*	3,125	98	Offsite Pavement and Buildings
	8,485	80	>75% Grass cover, Good, HSG D
*	1,955	39	Offsite Grass A
*	4,915	80	Offsite Grass D
	24,165	30	Woods, Good, HSG A
	13,300	77	Woods, Good, HSG D
	59,560	60	Weighted Average
	53,240		89.39% Pervious Area
	6,320		10.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.8	150	0.0650	0.13		Sheet Flow, A TO B Woods: Light underbrush n= 0.400 P2= 3.10"
0.9	120	0.2000	2.24		Shallow Concentrated Flow, B TO C Woodland Kv= 5.0 fps
0.6	39	0.0500	1.12		Shallow Concentrated Flow, C TO D Woodland Kv= 5.0 fps
0.4	54	0.1700	2.06		Shallow Concentrated Flow, D TO E Woodland Kv= 5.0 fps
0.1	88	0.0800	17.62	209.38	Trap/Vee/Rect Channel Flow, D TO E Bot.W=1.00' D=2.20' Z= 1.0 & 3.0 ' Top.W=9.80' n= 0.025
20.8	451	Total			

Summary for Subcatchment 12:

Runoff = 1.79 cfs @ 12.56 hrs, Volume= 0.271 af, Depth> 0.79"

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"

17020-Culvert Sizing

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

Prepared by DM Roma Consulting Engineers

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Area (sf)	CN	Description
* 14,960	98	Pavement and Buildings
* 605	96	Gravel Shoulder
* 2,680	98	Offsite Buildings
2,490	39	>75% Grass cover, Good, HSG A
31,335	80	>75% Grass cover, Good, HSG D
* 10,705	39	Offsite Grass A
111,410	30	Woods, Good, HSG A
5,165	77	Woods, Good, HSG D
179,350	48	Weighted Average
161,710		90.16% Pervious Area
17,640		9.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.1	72	0.0100	0.05		Sheet Flow, A TO B Woods: Light underbrush n= 0.400 P2= 3.10"
6.1	78	0.3000	0.21		Sheet Flow, B TO C Woods: Light underbrush n= 0.400 P2= 3.10"
1.9	182	0.1000	1.58		Shallow Concentrated Flow, C TO D Woodland Kv= 5.0 fps
0.7	125	0.2000	3.13		Shallow Concentrated Flow, D TO E Short Grass Pasture Kv= 7.0 fps
0.2	216	0.1000	21.10	348.10	Trap/Vee/Rect Channel Flow, E TO F Bot.W=2.00' D=2.20' Z= 2.0 & 3.0 ' Top.W=13.00' n= 0.025
31.0	673	Total			

Summary for Pond C1: CULVERT @ 0+50

Inflow Area = 1.367 ac, 10.61% Impervious, Inflow Depth > 1.62" for 25-Year event
 Inflow = 1.77 cfs @ 12.32 hrs, Volume= 0.185 af
 Outflow = 1.77 cfs @ 12.32 hrs, Volume= 0.185 af, Atten= 0%, Lag= 0.3 min
 Primary = 1.77 cfs @ 12.32 hrs, Volume= 0.185 af

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

Peak Elev= 214.09' @ 12.32 hrs Surf.Area= 72 sf Storage= 15 cf

Plug-Flow detention time= 0.2 min calculated for 0.184 af (100% of inflow)

Center-of-Mass det. time= 0.1 min (831.8 - 831.7)

Volume	Invert	Avail.Storage	Storage Description
#1	213.30'	1,230 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
213.30	10	0	0
214.00	20	10	10
216.00	1,200	1,220	1,230

17020-Culvert Sizing

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

Prepared by DM Roma Consulting Engineers

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Device	Routing	Invert	Outlet Devices
#1	Primary	213.30'	15.0" Round Culvert L= 45.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 213.30' / 213.05' S= 0.0056 ' / Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=1.76 cfs @ 12.32 hrs HW=214.08' (Free Discharge)↑**1=Culvert** (Barrel Controls 1.76 cfs @ 3.09 fps)**Summary for Pond C2: CULVERT @ 2+60**

Inflow Area = 4.117 ac, 9.84% Impervious, Inflow Depth > 0.79" for 25-Year event
Inflow = 1.79 cfs @ 12.56 hrs, Volume= 0.271 af
Outflow = 1.79 cfs @ 12.56 hrs, Volume= 0.271 af, Atten= 0%, Lag= 0.1 min
Primary = 1.79 cfs @ 12.56 hrs, Volume= 0.271 af

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

Peak Elev= 222.00' @ 12.56 hrs Surf.Area= 33 sf Storage= 16 cf

Plug-Flow detention time= 0.2 min calculated for 0.271 af (100% of inflow)

Center-of-Mass det. time= 0.1 min (868.7 - 868.6)

Volume	Invert	Avail.Storage	Storage Description
#1	221.25'	879 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
221.25	10	0	0
222.00	33	16	16
224.00	830	863	879

Device	Routing	Invert	Outlet Devices
#1	Primary	221.25'	15.0" Round Culvert L= 53.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 221.25' / 220.00' S= 0.0236 ' / Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=1.79 cfs @ 12.56 hrs HW=222.00' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.79 cfs @ 2.33 fps)

ATTACHMENT 3

INSPECTION, MAINTENANCE & HOUSEKEEPING PLAN

INSPECTION, MAINTENANCE, AND HOUSEKEEPING PLAN

RIVER ROAD SUBDIVISION WINDHAM, MAINE

Responsible Party

Owner: Rick Jones
108 Standish Neck Road
Raymond, Maine 04084

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 Town and Maine Department of Environmental Protection (MDEP) 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 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 MDEP 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.

Houskeeping

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 MDEP 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 MDEP'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. Roofline Dripedge:** The dripedges should be inspected semi-annually and following major storm events for the first year and every six months thereafter. The reservoir crushed stone 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 stone reservoir course shall be removed and the filter bed be rototilled to reestablish the soil's filtration capacity. If water ponds in the reservoir course 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 at surface and remove as needed. The dripedges are part of the stormwater management plan and cannot be paved over or altered in anyway.
- G. 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.
- H. 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 SUBDIVISION 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 SUBDIVISION

WINDHAM, MAINE

Maintenance Item	Maintenance Event	Date Performed	Responsible Personnel	Comments
Underdrained Filter Basin 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.			