

SECTION 14
BASIC STANDARDS

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A. NARRATIVE

As required for all projects which do not qualify for a Stormwater Permit by Rule, an Erosion and Sedimentation Plan was prepared for this project. The erosion control notes address permanent stabilization measures, seeding, and mulching rates, as well as the timing of installation. Construction and installation details are also provided for the project. Additional descriptions and specifications are provided in the Erosion and Sedimentation Control.

An Inspection and Maintenance Plan has been included in this section. This plan includes a list of measures to be inspected and maintained. It also includes the frequency and responsible parties to implement the plan. A Housekeeping Plan has also been submitted. This plan provides controls to address spill prevention and possible contamination of the site.

EROSION AND SEDIMENTATION CONTROL PLAN

A. Narrative: The proposed construction will require the implementation of temporary and permanent erosion control measures. These measures will be implemented in accordance with the Maine Erosion and Sediment Control Best Management Practices (BMPs) Manual, prior to removal of any on-site vegetation or disturbance of any on-site soil. The general erosion and sediment control specifications and details, as provided within this section, are intended to describe measures to be used by contractors working on the site to maintain compliance with the standards established in the BMPs. These standards include information on temporary and permanent erosion control measures, rates of seeding and applied mulch, slope and soil stabilization, effect of construction schedule, and other details.

The proposed location and use of erosion control measures on-site are shown on the plan located in **Appendix A** of this application. There are no known existing erosion control concerns with the site. Implementation of proper erosion control measures will be required by site contractors to confine sediment and debris within the limit of soil disturbance. Proper use and maintenance of erosion control measures will provide protection against off-site transport of sediment and discharge of sediment to undisturbed areas of the development.

B. Construction Schedule:

DESCRIPTION	TIME FRAME
Establishing Temporary Erosion Control	April 2020
Culvert Installation	Spring 2020
Level Lip Spreader Installation	Spring 2020
Tower Installation	Summer 2020
Clearing/Grubbing and Rough Grading	Summer 2020
Finish Grading/Revegetate Disturbed Areas	Fall 2020
Remove Temporary Erosion Control	Fall 2020
Project Completion	November 2020

*Site work is not anticipated through the winter season.

C. Site Features: For site features please refer to the enclosed plan.

D. Temporary and Permanent Erosion Control Measures: For temporary and permanent erosion control measures please refer to the enclosed plan.

E. Limits of Disturbed Areas: Areas of disturbance will be limited to the proposed work shown on the enclosed plan. Clearing and disturbances will be limited to the extent of proposed structures and grading. Existing vegetation will be maintained to the greatest extent possible.

F. Design Drawings and Specifications: For design drawings please refer to the enclosed plan. The following specifications will be utilized by the site contractor during construction of the project.

EROSION CONTROL PLAN SPECIFICATIONS

A. General

1. All work and measures will be as per the Maine Erosion and Sediment Control BMPs manual.
2. The following specifications will be employed.

B. Prior to Construction

1. Prior to beginning of construction, erosion and sedimentation controls shall be in place.

C. During Construction

1. Exposed soil surfaces will be treated immediately if they are to remain ungraded more than 30 days, or if they are at final grades.
2. Drainage ways, either designed or incidental, will have filter barriers installed.
3. All work and materials necessary to minimize sediment loss from the site will be provided.
4. All erosion control measures will be inspected and repaired after every rainfall greater than ½-inch and at least daily during rain events lasting longer than 24 hours.

D. Post Construction

1. Erosion control measures will be maintained until permanent soil stabilization has been achieved with a growth of vegetation greater than 90%.

SOIL PROTECTION AND EROSION CONTROL

PART 1 – GENERAL

1.01 Description of Work

- A. Provide and maintain devices to control erosion, siltation, sedimentation, and dust that occur during construction operations. Undertake every reasonable precaution to avoid erosion of soil and to prevent silting of wetland areas and drainage ditches.
- B. Provide measures to control dust caused whether on or off the project site.
- C. Deficiencies in erosion control measures indicated by failures or erosion will be corrected as soon as reasonably possible by providing additional measures or different techniques to correct the situation and prevent subsequent erosion.
- D. Exposure of soils on embankments, excavations, and graded areas will be kept as short as possible. Initiate seeding and other erosion control practices as soon as reasonably possible.

1.02 Quality Assurance

- A. Conform to all requirements of applicable Federal, State and local permits and conform

to the recommendations of the Maine Erosion and Sediment Control BMPs (see Part B below) whether the measures are specifically noted herein, or not.

- B. Standards: Maine Erosion and Sediment Control BMPs Manual, hereinafter called Erosion Control Handbook.

PART 2 - PRODUCTS

2.01 Materials: Use the following materials to implement and construct erosion control measures.

- A. Hay Bale: Rectangular shaped bales of hay or straw weighting at least 40 pounds per bale; free from noxious weed seeds and rough or woody materials.
- B. Mulch: Type and use as specified by the Erosion Control Handbook
 - 1. Long fibered hay or straw in dry condition and which are relatively free of weeds and foreign matter detrimental to plant life.
 - 2. Mulch netting: Plastic or nylon mesh netting with approximate openings of ¼-inch to 1-inch.
- C. Silt Fence: Type and use as specified by the Erosion Control Handbook
- D. Permanent Seeding: Cut and fill slopes and disturbed areas will be stabilized as follows:
 - 1. Four inches of loam will be spread over disturbed areas and smoothed to a uniform surface.
 - 2. In lieu of tests, agricultural limestone will be spread at the rate of three tons per acre. 10-20-20 fertilizer will follow at the rate of 800 lbs. per acre. These two soil additives will be incorporated into the soil prior to seeding.
 - 3. Following seed bed preparation, back slopes will be seeded to a mixture of 83% creeping red fescue, and 17% rye grass. Seeding rate is 3 lbs. per 1,000 square feet. Lawn quality sod may be substituted for seed.
 - 4. Hay mulch at the rate of 90 lbs. per 1,000 square feet of a hydro-application of asphalt, wood, or paper fiber will be applied following seeding. A suitable binder such as curason or terrtack will be used on hay mulch for wind control.
 - 5. If final seeding of the disturbed areas is not completed by September 15th of the year of the construction, then on that date these areas will be graded and a cover crop of rye at the rate of 112 lbs/acre or 3 lbs/1,000 sq. ft. will be applied. The rye seeding will be preceded by an application of 3 tons of lime and 800 lbs. of 10-20-20 fertilizer or its equivalent and covered by a layer of jute mat to aide in stabilization.

PART 3 - EXECUTION

3.01 Construction

- A. Hay Bales:
 - 1. Install as directed by Erosion Control Handbook, and stake with required stakes.

- B. Mulch:
 - 1. Undertake after each area has been properly prepared.
 - 2. When seed for erosion control is sown prior to placing the mulch, place mulch on the seeded areas within 48 hours after seeding.
 - 3. Blowing chopped mulch will be permitted.
 - 4. Hay mulch should cover the ground enough to shade it, but the mulch should not be so thick that a person standing cannot see the ground through the mulch.
 - 5. Remove matted mulch or bunches.

- C. Silt Fence:
 - 1. Install as directed by Erosion Control Handbook, and stake with required stakes.

- D. Temporary Erosion Control Matting (where necessary):
 - 1. Surface Preparation:
 - a. Conform to grades for slopes and ditches shown of the drawings.
 - b. Finish to a smooth and even condition with all debris, roots, stones, and lumps raked out and removed.
 - c. Loosen soil surface to permit bedding of the matting.
 - d. Unless otherwise directed, apply seed prior to placement.
 - 2. Installation:
 - a. Place strips lengthwise in the direction of the flow of water.
 - b. Where strips are laid parallel or meet as in a tee, overlap at least four inches.
 - c. Overlap ends at least six inches in a shingle fashion.
 - d. The up-slope end of each strip of the matting will be turned down and buried to a depth of not less than six inches with the soil firmly tamped against it.
 - e. Build check slots at right angles to the direction of the flow of water. Space so that one check slot or one end occurs within each 50 feet of slope length. Construct by placing a tight fold of the matting at least six inches vertically into the ground and tamp the same as up-slope ends.
 - f. Bury edges of matting around the edges of the catch basins and other structures.
 - g. Where determined by the Engineers, additional seed will be spread over matting, particularly at those locations disturbed by building the slots. Matting will then be pressed onto the ground with a light lawn roller or by other satisfactory means.
 - h. Drive staples vertically into the ground flush with the surface.
 - i. On slopes flatter than 4:1, space staples not more than three feet and one row, alternately spaced, down the center.
 - j. On grades 4:1 or steeper, place in the same three rows, but spaced two feet apart.

- k. On all overlapping or butting edges, double the number of staples, with the spacing halved; all ends of the matting and all required check slots will likewise have staples spaced every foot.

- E. Permanent Seeding:
 1. Seed with appropriate seeds and application rates as noted in Section 2.01C.
 2. Mulch areas where seeding has been applied. Do not mulch seeded areas where matting will be immediately installed.

- F. Topsoil Storage:
 1. Topsoil which is stockpiled on the site for use in loam applications will be placed out of natural drainages, in piles that have side slopes of 2:1 to 1.5:1.
 2. A trench (depth as required) will be constructed around the base of the pile to prevent eroding soil from washing into drainages.

- G. Dust Control: Utilize the application of sprinkled water to reduce the emission of airborne soil particulates from the Project site.

- H. Temporary Berms: Construct temporary barriers along the toe of embankments using side drains as necessary.

- I. Temporary Basins: Construct temporary sedimentation basins adequate to avoid siltation of surface water bodies.

- J. Other Temporary Measures:
 1. Type and use will be as specified in the Erosion Control Handbook.

- K. Winter Stabilization Notes
 1. At this time, it is not expected that significant soil disturbance will occur during winter months or periods of heavy icing. If construction is performed during these times, the following construction practices will be followed.
 - a. All disturbed areas not stabilized with stone or other measures will have approved erosion control matting installed and be dormant seeded.
 - b. No frozen soil material or material containing significant snow or ice will be used for fill material.
 - c. All material stockpiles will have silt fence and/or hay bales installed downgradient of piles.
 - d. Follow general erosion control notes described previously wherever possible and as conditions permit.

3.02 Maintenance

- A. Inspect erosion control practices immediately after each rainfall greater than ½-inch and at least daily during rainfall lasting longer than 24 hours or snowmelt for damage. Provide maintenance and make appropriate repairs or replacement.

- B. Remove silt from around hay bales when it has reached one foot above grade or prior to expected heavy runoff or siltation.
- C. Repair matting if any staples become loosened or raised, or if any matting becomes loose, torn, or undermined, make satisfactory repairs immediately.

3.03 Removal of Temporary Erosion Control

- A. Remove temporary materials and devices when permanent soil stabilization has been substantially achieved. For vegetated areas, substantially complete means 95% vegetated cover has been established.
- B. Level and grade to the extent required to present a sightly appearance and to prevent any obstruction of the flow of water or any other interference with the operation of or access to the permanent works.
- C. Remove unsuitable materials from site and dispose of in a lawful manner.

INSPECTION AND MAINTENANCE PLAN

The following Maintenance Plan will be employed for this facility. SWEB Development USA, LLC. will be responsible for all maintenance. Erosion control measures for this site were designed by:

Chip Haskell, P.E.
CES, Inc.
465 South Main Street
P.O. Box 639
Brewer, Maine 04412
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A Pre- and Post-Construction Maintenance Plan for the stormwater management system and erosion control measures are included in this section.

MAINTENANCE PLAN

The MDEP's Stormwater Management for Maine: Best Management Practices (2016), and the MDEP's Chapter 500: Stormwater Management were used as guidelines in the development of this Maintenance Plan. General maintenance requirements are listed below.

A. DURING CONSTRUCTION

The general contractor will be responsible for the inspection and maintenance of all stormwater management system components during construction.

Inspection: Inspection of disturbed and impervious areas, erosion control measures, materials' storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site will be performed at least once a week as well as before and after a storm event, and prior to completing permanent stabilization measures. Inspections shall be conducted by a person with knowledge of erosion and stormwater control, including the standards and conditions in the permit.

Maintenance: All erosion control measures will be kept in effective operating condition until areas are permanently stabilized. If BMPs need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation will be completed within 7 calendar days and prior to any rainfall event.

Documentation: A log shall be kept summarizing the inspections and any corrective action taken. A copy of the log is provided at the end of this section, and is titled, Construction Inspection Log.

B. POST-CONSTRUCTION

The Owner or their assigns will be responsible for the inspection and maintenance of all stormwater management system components.

Inspection and Corrective Action:

Inspection shall be performed by an individual with experience and/or training on the maintenance and functions of these devices.

1. Vegetated Areas: Inspections and maintenance of vegetated areas will be performed early in the growing season or after significant rainfall to identify any erosion problems. Areas where erosion is evident will be covered with an appropriate lining, or erosive flows will be diverted to an area able to handle the flows. Any bare areas or areas with sparse growth will be replanted.
2. Roadways: Gravel roadways will be graded as necessary to maintain drainage patterns as designed.

3. Ditches, Swales and Culverts: Remove obstructions, sediments or debris from ditches, swales and other open channels. Repair any erosion in the ditch lining and mow vegetated ditches. Remove woody vegetation growing through riprap and repair any slumping side slopes. Repair riprap where underlying filter fabric or gravel is showing or if stones have dislodged.

4. Forested Buffers: Inspect buffers for evidence of erosion, concentrated flow, or encroachment by development and repair as necessary. Manage the buffer's vegetation with the requirements in any deed restrictions. Inspect and repair any down-slope of all spreaders and turn-outs for erosions. Install more level spreaders or ditch turn-outs for better distribution of runoff if necessary. Clean-out any accumulation of sediment within the spreader bays or turnout pools.

HOUSEKEEPING

1. Spill Prevention - During construction, controls will be used to prevent pollutants from being discharged from materials on site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.
2. Groundwater Protection - During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater will not be stored or handled in areas of the site draining to an infiltration area. 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.
3. Fugitive Sediment and Dust - Actions will be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil will not be used for dust control. Water will be used for dust control during construction. Operations during wet months that cause mud to be tracked off the site onto public roads will provide sweeping of the road areas at least once per week and prior to significant storm events.
4. Debris and Other Materials - Litter, construction debris, and chemicals exposed to stormwater will be prevented from becoming a pollutant source. The nature of this development will not cause problems related to debris and other materials.
5. Trench or Foundation De-Watering - If de-watering is necessary, the collected water will be removed from the ponded area and spread through natural wooded buffers or discharged into a construction sedimentation basin. The water will not be allowed to flow over disturbed areas to the site.

INSPECTION AND MAINTENANCE PLAN FOR STORMWATER MANAGEMENT STRUCTURES (BMPS)		
	INSPECTION SCHEDULE	CORRECTIVE ACTIONS
VEGETATED AREAS	Annually early spring and after heavy rains	Inspect all slopes and embankments and replant areas of bare soil or with sparse growth
		Armor rill erosion areas with riprap or divert the runoff to a stable area
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Mow vegetation as specified for the area
DITCHES, SWALES AND OPEN STORMWATER CHANNELS	Annually spring and late fall and after heavy rains	Remove obstructions, sediments or debris from ditches, swales and other open channels
		Repair any erosion of the ditch lining
		Mow vegetated ditches
		Remove woody vegetation growing through riprap
		Repair any slumping side slopes
Repair riprap where underlying filter fabric or gravel is showing or if stones have dislodged		
CULVERTS	Spring and late fall and after heavy rains	Remove accumulated sediments and debris at the inlet, outlet, or within the conduit
		Remove any obstruction to flow
		Repair any erosion damage at the culvert's inlet and outlet
CATCHBASINS	Annually in the spring	Remove sediments and debris from the bottom of the basin and inlet grates
		Remove floating debris and oils (using oil absorptive pads) from any trap
ROADWAYS AND PARKING AREAS	Annually in the spring or as needed	Clear and remove accumulated winter sand in parking lots and along roadways
		Sweep pavement to remove sediment
		Grade road shoulders and remove accumulated winter sand
		Grade gravel roads and gravel shoulders
		Clean-out the sediment within water bars or open-top culverts
Ensure that stormwater runoff is not impeded by false ditches of sediment in the shoulder		
RESOURCE AND TREATMENT BUFFERS	Annually in the spring	Inspect buffers for evidence of erosion, concentrated flow, or encroachment by development
		Manage the buffer's vegetation with the requirements in any deed restrictions
		Repair any sign of erosion within a buffer
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Install more level spreaders, or ditch turn-outs if needed for a better distribution of flow
		Clean-out any accumulation of sediment within the spreader bays or turnout pools
Mow non-wooded buffers no shorter than six inches and less than three times per year		
WETPONDS AND DETENTION BASINS	Annually in fall and after heavy rains	Inspect the embankments for settlement, slope erosion, piping, and slumping
		Mow the embankment to control woody vegetation
		Inspect the outlet structure for broken seals, obstructed orifices, and plugged trash racks
		Remove and dispose of sediments and debris within the control structure
		Repair any damage to trash racks or debris guards
		Replace any dislodged stone in riprap spillways
Remove and dispose of accumulated sediments within the impoundment and forebay		
FILTRATION AND INFILTRATION BASINS	Annually in the spring and late fall	Clean the basin of debris, sediment and hydrocarbons
		Provide for the removal and disposal of accumulated sediments within the basin
		Renew the basin media if it fails to drain within 72 hours after a one inch rainfall event
		Till, seed and mulch the basin if vegetation is sparse
		Repair riprap where underlying filter fabric or gravel is showing or where stones have dislodged
PROPRIETARY DEVICES	As specified by manufacturer	Contract with a third-party for inspection and maintenance
		Follow the manufacturer's plan for cleaning of devices
OTHER PRACTICES	As specified for devices	Contact the department for appropriate inspection and maintenance requirements for other drainage control and runoff treatment measures.