

**SECTION 12**  
**STORMWATER MANAGEMENT**

## A. NARRATIVE

This Plan is in accordance with the Maine Department of Environmental Protection (MDEP) Chapter 500 rules. This project includes the creation of approximately 71,232 square feet, (1.64 acres), of new impervious surface and 931,810 square feet, (21.39 acres), of total developed area. The construction phase of this project will create additional areas of impact that will be returned to existing conditions upon project completion. This stormwater management plan is for the final, post-construction quantities, listed above. Based on the Chapter 500 rules, the Basic Standards, General Standards, Phosphorus Standards, and Flooding Standards apply to this project. As a result, it will be required to treat 95% of the impervious area and 80% of the developed area. Additionally, the access road is defined as a linear portion and is only required to treat 75% of new impervious and 50% of developed area for that portion. We are proposing to utilize forested buffers to provide the required treatment for this project.



## A. BASIC STANDARDS

**Basic Standards Submission:** Information is provided as required for the Basic Standards Submission in **Section 14.0 - Basic Standards**.

## B. GENERAL STANDARDS

**General Standards Submission:** The following information is provided as required in the General Standards Submission.

1. Narrative: The proposed development will include five tower pads and an access road. The tower pads, substation and switching station (site portion) will create a total of approximately 8,644 square feet of new impervious surface and 575,537 square feet of total developed area. The access road (linear portion) will create a total of approximately 62,588 square feet of new impervious surface and 356,273 square feet of developed area. More information on this project and treatment methodology can be seen below in the **Stormwater Quality Control Narrative**
2. Drainage Plans: A set Proposed Site Plans are provided in **Section 1** of this Application. These plans include locations of the forested buffers used to treat the stormwater from this development. A set of Hydrology Plans are included with this **Section 12.**, these include the development's pre- and post-development watershed boundaries.
3. Calculations: This project will utilize Buffers with Stone Berm Level Lip Spreaders, Buffers Adjacent to the Downhill Sides of Roads, and Ditch Turnout Buffers. These buffers have been designed in accordance with Chapter 5 of the MDEP Stormwater BMP Technical Design Manual, Volume III.
4. Details, Designs, and Specifications: The project is currently proposing to control runoff quality issues using forested buffers.

## STORMWATER QUALITY CONTROL NARRATIVE

In total the project will develop approximately 21.39 acres of the site. The proposed development is being separated into two different portions, the tower pads, substation and switching station (Site) and the access roads (Linear.) The Site portion of the project consists of the tower pads, substation and switching station. These pads have been sized for spacing needs during construction. Upon completion of the project, the only impervious areas will be the gravel paths leading to the towers, and the towers themselves. The rest of the pads will be allowed to re-vegetate and will be annually maintained.

The linear portion of the project consists of three gravel access roads. These roads have also been sized for construction needs. The first is 2,675 feet long, the second is 2,834 feet long, and the third road is about 356 feet long. Some of the first two roads travel through tower sites and the developed area associated with these sections are processed as part of the tower site totals. During construction, the first two roads will be approximately 28 feet wide, and the clearing limits will vary due to ditching and down slopes. Upon completion of the project, the roadways will be reduced to 12 feet wide, and the extra width used during construction will be allowed to re-vegetate and will be regularly maintained. Stormwater quality control has been provided for the final, post-construction conditions.

The tower pads, substation and switching station cover approximately 575,537 square feet and will include approximately 8,644 square feet of new impervious area and 566,893 square feet of new landscaped developed area that will be stabilized with vegetation or other approved permanent measures. The access roads will cover approximately 356,273 square feet. The total access road impervious area is 62,588 square feet, and 293,685 square feet of new landscaped developed area.

Based on Maine Department of Environmental Protection stormwater standards, the required treatment is 95% of the impervious surface and 80% of the developed area resulting from the impervious surface, landscaped surface, and stormwater conveyance provisions created by the development. The portion of the project involving the access road qualifies for the linear portion exemption. As a result, this portion of the development is required to treat 75% of the impervious and 50% of the developed area.

The project is proposing forested buffers to meet stormwater quality standards. The buffers will be located at various locations along the access roads and along the tower pads to maximize the treatment of runoff and provide the necessary treatment areas. The locations of these buffers are shown on the Proposed Site Plans, which can be seen in **Section 1** of this Application.

The following tables summarize the impervious and developed area created by the project, as well as the treatment structure, area treated, and relationship with the total developed and impervious areas for the project.

### TOWER PADS (SITE PORTION)

PROJECT AREA	IMPERVIOUS AREA	DEVELOPED AREA
Tower Pads	6,474 SF	497,656 SF
Substation and Switch Station	2,170 SF	77,881 SF
Site Portion Totals	8,644 SF	575,537 SF

### STORMWATER TREATMENT SYSTEMS (SITE PORTION)

TREATMENT METHOD	AREA TREATED (SF)	
	IMPERVIOUS AREA	DEVELOPED AREA
Buffer A	3,064	93,322
Buffer G	0	79,524
Buffer H	80	17,208
Buffer K	0	58,131
Buffer L	3,180	77,303
Buffer N	80	71,476
Buffer O	2,170	11,534
System Q	0	51,109
TOTAL	8,574	459,607
<b>PERCENT OF TOTAL AREA TREATED</b>	<b>99%</b>	<b>80%</b>

As can be seen in the table above, we are proposing to treat 99% of the Impervious Area and 80% of the Developed Area from the site portion of the project. This exceeds the standards required by Chapter 500.

### BMP DESCRIPTIONS AND SIZING CALCULATIONS

A description of the treatment type follows. A sample Deed Restriction for forested buffers has been included at the end of this **Section 12**.

## 1. Buffer A

### Description:

Buffer A is a vegetated buffer with a stone berm level lip spreader. It is a 150-foot long, forested buffer on HSG C soil, with a slope between 8 and 15%. Buffer A is treating the impervious and developed areas created by the Tower 1 Pad, as well as some of the area from the adjacent access road. This buffer has been sized in accordance with Chapter 500 and based on Table 5.5 of the *MDEP Stormwater BMPs Technical Design Manual*, seen below.

### Calculations:

Required Level Spreader Width (For 150' long flow path) = (90\*acres of impervious) + (30\*acres of lawn)

$$= (90*0.17) + (30*2.7) = 97.30'$$

Provided width = 100'

## 2. Buffer G

### Description:

Buffer G is a vegetated buffer with a stone berm level lip spreader. It is a 150-foot long, forested buffer on HSG C soil, with a slope between 8 and 15%. Buffer G is treating impervious and developed area created by the Tower 2 pad, as well as some of the adjacent access road. This buffer has been sized in accordance with Chapter 500 and based on Table 5.5 of the *MDEP Stormwater BMPs Technical Design Manual*, seen below.

### Calculations:

Required Level Spreader Width (For 150' long flow path) = (90\*acres of impervious) + (30\*acres of lawn)

$$= (90*.05) + (30*2.0) = 65.65'$$

Provided width = 360'

## 3. Buffer H

### Description:

Buffer H is a vegetated, forested buffer adjacent to the downhill side of the access road. This buffer is treating the Tower 2 pad construction storage area, as well as the right travel lane from STA 12+85 to STA 15+75 and is 55 feet wide. This buffer has been sized in accordance with Chapter 500 and based on Table 5.6 of the *MDEP Stormwater BMPs Technical Design Manual*.

#### 4. Buffer K

**Description:**

Buffer K is a vegetated buffer with a stone berm level lip spreader. It is a 150-foot long, forested buffer on HSG C soil, with a slope between 8 and 15%. Buffer K is treating impervious and developed area created by the Tower 3 pad, as well as some of the area from the adjacent access road. This buffer has been sized in accordance with Chapter 500 and based on Table 5.5 of the *MDEP Stormwater BMPs Technical Design Manual*, seen below.

**Calculations:**

Required Level Spreader Width (For 150' long flow path) = (90\*acres of impervious) + (30\*acres of lawn)

$$= (90*0.06) + (30*2.41) = 78.23'$$

Provided width = 168'

#### 5. Buffer L

**Description:**

Buffer L is a vegetated buffer with a stone berm level lip spreader. It is a 150-foot long, forested buffer on HSG C soil, with a slope between 8 and 15%. Buffer L is treating impervious and developed area created by the Tower 4 pad, as well as some of the area from the adjacent access road. This buffer has been sized in accordance with Chapter 500 and based on Table 5.5 of the *MDEP Stormwater BMPs Technical Design Manual*, seen below.

**Calculations:**

Required Level Spreader Width (For 150' long flow path) = (90\*acres of impervious) + (30\*acres of lawn)

$$= (90*0.23) + (30*1.98) = 80.30'$$

Provided width = 360'

#### 6. Buffer N

**Description:**

Buffer N is a vegetated buffer with a stone berm level lip spreader. It is a 150-foot long, forested buffer on HSG C soil, with a slope between 8 and 15%. Buffer N is treating impervious and developed area created by the Tower 5 pad, as well as some of the area from the adjacent access road. This buffer has been sized in accordance with Chapter 500 and based on Table 5.5 of the *MDEP Stormwater BMPs Technical Design Manual*, seen below.

**Calculations:**

Required Level Spreader Width (For 150' long flow path) = (90\*acres of impervious) + (30\*acres of lawn)

$$= (90*0.0018) + (30*2.47) = 74.54'$$

Provided width = 130'

## 7. Buffer O

**Description:**

Buffer O is a vegetated buffer with a stone berm level lip spreader. It is a 75-foot long, forested buffer on HSG B soil, with a slope between 0 and 8%. Buffer O is treating impervious and developed area created by the Switch Station Access Turnaround Area, developed fill area associated with the substation, as well as some of the area from the adjacent access road. This buffer has been sized in accordance with Chapter 500 and based on Table 5.5 of the *MDEP Stormwater BMPs Technical Design Manual*, seen below.

**Calculations:**

Required Level Spreader Width (For 75' long flow path) = (100\*acres of impervious) + (30\*acres of lawn)

$$= (100*0.13) + (30*0.36) = 23.8$$

Provided width = 25'

## ACCESS ROAD AREA (LINEAR PORTION)

PROJECT AREA	IMPERVIOUS AREA	DEVELOPED AREA
Access Road (Towers)	56,895 SF	339,827 SF
Access Road (Substation to Switching)	5,693 SF	16,446 SF
Access Road Total	62,588 SF	356,273 SF

## STORMWATER TREATMENT SYSTEMS (LINEAR PORTION)

TREATMENT METHOD	AREA TREATED (SF)	
	IMPERVIOUS AREA	DEVELOPED AREA
Buffer A	1,653	5,942
Buffer B	1,710	6,840
Buffer C	1,260	5,040
Buffer D	2,340	11,310
Buffer E	1,260	5,040
Buffer F	2,340	11,310
Buffer G	2,250	7,067
Buffer H	1,740	5,220
Buffer I	5,160	24,940
Buffer J	5,940	28,710
Buffer K	2,846	23,855
Buffer L	6,840	19,093
Buffer M	11,280	35,720
Buffer N	0	5,331
Buffer O	3,405	4,300
Buffer P	2,288	6,224
<b>Total</b>	<b>52,312</b>	<b>238,972</b>
<b>PERCENT OF TOTAL AREA TREATED</b>	<b>84%</b>	<b>67%</b>

As can be seen in the table above, we are proposing to treat 84% of the Impervious area and 67% of the Developed area from the linear portion of the project. This exceeds the standards required by Chapter 500.

## BMP DESCRIPTIONS AND SIZING CALCULATIONS

A description of the treatment type follows. A sample Deed Restriction for forested buffers has been included at the end of this **Section 12**.

## 1. Buffer A

### **Description:**

See Site Portion section above for description and sizing calculations.

## 2. Buffer B

### **Description:**

Buffer B is a vegetated, forested buffer adjacent to the downhill side of the access road. Buffer B is treating two travel lanes from STA 4+15 to STA 7+00 and has a flow path of 55 feet. This buffer has been sized in accordance with Chapter 500 and based on Table 5.6 of the *MDEP Stormwater BMPs Technical Design Manual*.

## 3. Buffer C

### **Description:**

Buffer C is a vegetated, ditch turnout buffer. It is a forested buffer on HSG C soil, with a slope between 0 and 8%. Buffer C is treating the left lane of the access road from STA 7+00 to STA 9+10. This buffer has been sized in accordance with Chapter 500 and based on Table 5.7 of the *MDEP Stormwater BMPs Technical Design Manual*, seen below.

### **Calculations:**

Required Buffer Flow Path (For 210' long ditch) = 60'  
Provided = 60'

## 4. Buffer D

### **Description:**

Buffer D is a vegetated, ditch turnout buffer. It is a forested buffer on HSG C soil, with a slope between 0 and 8%. Buffer D is treating the left lane of the access road from STA 9+10 to STA 13+00. This buffer has been sized in accordance with Chapter 500 and based on Table 5.7 of the *MDEP Stormwater BMPs Technical Design Manual*, seen below.

### **Calculations:**

Required Buffer Flow Path (For 400' long ditch) = 100'  
Provided = 120'

## 5. Buffer E

### **Description:**

Buffer E is a vegetated, ditch turnout buffer. It is a forested buffer on HSG C soil, with a slope between 0 and 8%. Buffer E is treating the right lane of the access road from STA 7+00 to

STA 9+10. This buffer has been sized in accordance with Chapter 500 and based on Table 5.7 of the *MDEP Stormwater BMPs Technical Design Manual*, seen below.

**Calculations:**

Required Buffer Flow Path (For 210' long ditch) = 60'

Provided = 60'

## 6. Buffer F

**Description:**

Buffer F is a vegetated, ditch turnout buffer. It is a forested buffer on HSG C soil, with a slope between 0 and 8%. Buffer F is treating the right lane of the access road from STA 9+10 to STA 13+00. This buffer has been sized in accordance with Chapter 500 and based on Table 5.7 of the *MDEP Stormwater BMPs Technical Design Manual*, seen below.

**Calculations:**

Required Buffer Flow Path (For 400' long ditch) = 100'

Provided = 120'

## 7. Buffer G

**Description:**

See Site Portion section above for description and sizing calculations.

## 8. Buffer H

**Description**

See Site Portion section above for description and sizing calculations.

## 9. Buffer I

**Description:**

Buffer I is a vegetated, forested buffer adjacent to the downhill side of the access road. Buffer I is treating the left travel lane from STA 16+90 to STA 25+50 and has a flow path of 35 feet. This buffer has been sized in accordance with Chapter 500 and based on Table 5.6 of the *MDEP Stormwater BMPs Technical Design Manual*.

## 10. Buffer J

**Description:**

Buffer J is a vegetated, forested buffer adjacent to the downhill side of the access road. Buffer J is treating the right travel lane from STA 15+85 to STA 25+75 and has a flow path of 35 feet.

This buffer has been sized in accordance with Chapter 500 and based on Table 5.6 of the *MDEP Stormwater BMPs Technical Design Manual*.

### 11. Buffer K

**Description:**

See Site Portion section above for description and sizing calculations.

### 12. Buffer L

**Description:**

See Site Portion section above for description and sizing calculations.

### 13. Buffer M

**Description:**

Buffer M is a vegetated, forested buffer adjacent to the downhill side of the access road. Buffer M is treating two travel lanes from STA 16+10 to STA 25+50 and has a flow path of 55 feet. This buffer has been sized in accordance with Chapter 500 and based on Table 5.6 of the *MDEP Stormwater BMPs Technical Design Manual*.

### 14. Buffer N

**Description:**

See Site Portion section above for description and sizing calculations.

### 15. Buffer P

**Description:**

Buffer P is a forested buffer with a stone berm level lip spreader. It is a 75-foot long, forested buffer on HSG B soil, with a slope between 0 and 8%. Buffer P is treating impervious and developed area created by the linear access road to the Switch Station. This buffer has been sized in accordance with Chapter 500 and based on Table 5.5 of the *MDEP Stormwater BMPs Technical Design Manual*, seen below.

**Calculations:**

Required Level Spreader Width (For 75' long flow path) = (100\*acres of impervious) + (30\*acres of lawn)

$$= (100*0.053) + (30*0.144) = 9.60'$$

Provided width = 10'

## 16. System Q

**Description:**

System Q is a Crushed Stone Yard constructed with a profile of six inches of crushed ledge overlaying 18 inches of gravel fill, MDOT 703.06 Type A. This system is typical of substation surfaces throughout Maine and accepted as treatment and detention for the one-inch design standard under the Chapter 500 requirements.

The proposed stormwater quality control devices have been designed according to the standards outlined in the Stormwater Management for Maine, Volume III BMP Manual, latest edition. Construction and maintenance will be according to standards outlined in this manual.

## C. PHOSPHOROUS STANDARDS

**Phosphorous Standards Submission:** The Silver Maple Wind project will be developed within the lake watershed of Lower Springy Pond in Clifton, Maine. Because this project will create more than one acre of impervious area, it is required to comply with the Chapter 500 Phosphorous Standards. Worksheets provided by the *Maine Stormwater Management BMP Manual, Volume II* have been used to calculate the per-acre phosphorous allocation for this site and to determine if stormwater export from this project will meet this parcel's allocation. The worksheets listed below have been provided to demonstrate that the Phosphorous Standards have been met for this project.

**a. Calculations for determining the site's allowable phosphorous export.**

For calculations on the Project Phosphorus Budget, please see attached **Worksheet 1**.

**b. Calculations for determine the post-development phosphorous export.**

Forested buffers have been used to treat stormwater runoff from the Site, see attached **Worksheet 2**.

For more information on BMP's used in this project, please see above for **Section B - General Standards**.

**c. Calculations for determining the compensation fee.**

This project will not claim any mitigation credits. See attached **Worksheet 3**.

This project has a Project Phosphorus Export that is less than the Project Phosphorous Budget, therefore, phosphorous treatment for this site meets the required standards, and no compensation fees are required. See attached **Worksheet 4**.

## D. FLOODING STANDARDS

**Flooding Standards Submission:** The watersheds in which the proposed development is located cover approximately 1,150 acres of undeveloped forest, while the proposed development will create only 1.61 acres of impervious area. Given the size of the watersheds, in comparison to the size of the proposed development, we do not expect the project to have a significant impact on peak flows. A curve number analysis has been performed to demonstrate this.

The weighted curve number was calculated for each subcatchment by multiplying the curve number of each cover type by that cover type's respective area quantity, then dividing by the overall subcatchment area quantity. Please see the tables below for a pre-development and post-development comparison of the weighted curve numbers for each subcatchment within the project area. The watershed boundaries can be seen on the **Hydrology Plans**, attached to this **Section 12**.

### PRE-DEVELOPMENT CURVE NUMBER ANALYSIS

	COVER TYPE	AREA (ACRES)	CURVE NUMBER
Subcatchment #1	Woods/grass	424	76
Subcatchment #2	Woods/grass	462	76
Subcatchment #3	Woods/grass	264	76
Overall Site Weighted Curve Number			76

## POST-DEVELOPMENT CURVE NUMBER ANALYSIS

	COVER TYPE	AREA (ACRES)	CURVE NUMBER
<b>Subcatchment #1</b>	Woods/grass	423	76
	Grass	2.07	79
	Impervious	0.34	96
Weighted Curve Number			76.03
Net Change (Percent)			0.04
<b>Subcatchment #2</b>	Woods/grass	455.6	76
	Grass	5.42	79
	Impervious	1.18	96
Weighted Curve Number			76.08
Net Change (Percent)			0.11
<b>Subcatchment #3</b>	Woods/grass	261.3	76
	Grass	2.78	79
	Impervious	0.09	96
Weighted Curve Number			76.03
Net Change (Percent)			0.04
<b>Overall Site Weighted Curve Number</b>			<b>76.055</b>
<b>Overall Site Net Change (Percent)</b>			<b>0.07</b>

As seen above, the weighted curve number for the pre-development overall site is 76, and the weighted curve number for post-development overall site is 76.055. This results in a weighted curve number increase of approximately 0.07%. Because of the small magnitude of this change, we do not expect there to be any negative impact on peak flows from this development, meeting the quantity standard.

## SAMPLE DEED RESTRICTIONS

### Forested buffer, limited disturbance

DECLARATION OF RESTRICTIONS (Forested Buffer, Limited Disturbance)

THIS DECLARATION OF RESTRICTIONS is made this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by  
\_\_\_\_\_, \_\_\_\_\_,  
(name) (street address)

\_\_\_\_\_, \_\_\_\_\_ County, Maine, \_\_\_\_\_, (herein referred to as the  
(city or town) (county) (zip code)

"Declarant"), pursuant to a permit received from the Maine Department of Environmental Protection under the Stormwater Management Law, to preserve a buffer area on a parcel of land near

\_\_\_\_\_.  
(road name) (known feature and/or town)

WHEREAS, the Declarant holds title to certain real property situated in \_\_\_\_\_, Maine  
(town)

described in a deed from \_\_\_\_\_ to \_\_\_\_\_ dated  
(name) (name of Declarant)

\_\_\_\_\_, 20\_\_\_\_, and recorded in Book \_\_\_\_ Page \_\_\_\_ at the \_\_\_\_\_ County Registry of Deeds, herein referred to as the "property"; and

WHEREAS, Declarant desires to place certain restrictions, under the terms and conditions herein, over a portion of said real property (hereinafter referred to as the "Restricted Buffer") described as follows:  
(Note: Insert description of restricted buffer area location here)

WHEREAS, pursuant to the Stormwater Management Law, 38 M.R.S.A. Section 420-D and Chapter 500 of rules promulgated by the Maine Board of Environmental Protection ("Stormwater Management Rules"), Declarant has agreed to impose certain restrictions on the Restricted Buffer Area as more particularly set forth herein and has agreed that these restrictions may be enforced by the Maine Department of Environmental Protection or any successor (hereinafter the "MDEP"),

NOW, THEREFORE, the Declarant hereby declares that the Restricted Buffer Area is and shall forever be held, transferred, sold, conveyed, occupied and maintained subject to the conditions and restrictions set forth herein. The Restrictions shall run with the Restricted Buffer Area and shall be binding on all parties having any right, title or interest in and to the Restricted Buffer Area, or any portion thereof, and their heirs, personal representatives, successors, and assigns. Any present or future owner or occupant of the Restricted Buffer Area or any portion thereof, by the acceptance of a deed of conveyance of all or part of the Covenant Area or an instrument conveying any interest therein, whether or not the deed or instrument shall so express, shall be deemed to have accepted the Restricted Buffer Area subject to the Restrictions and shall agree to be bound by, to comply with and to be subject to each and every one of the Restrictions hereinafter set forth.

1. Restrictions on Restricted Buffer Area. Unless the owner of the Restricted Buffer Area, or any successors or assigns, obtains the prior written approval of the MDEP, the Restricted Buffer Area must remain undeveloped in perpetuity. To maintain the ability of the Restricted Buffer Area to filter and absorb stormwater, and to maintain compliance with the Stormwater Management Law and the permit issued thereunder to the Declarant, the use of the Restricted Buffer Area is hereinafter limited as follows.
  - a. No soil, loam, peat, sand, gravel, concrete, rock or other mineral substance, refuse, trash, vehicle bodies or parts, rubbish, debris, junk waste, pollutants or other fill material may be placed, stored or dumped on the Restricted Buffer Area, nor may the topography of the area be altered or manipulated in any way;
  - b. Any removal of trees or other vegetation within the Restricted Buffer Area must be limited to the following:
    - (i) No purposefully cleared openings may be created and an evenly distributed stand of trees and other vegetation must be maintained. An "evenly distributed stand of trees " is defined as maintaining a minimum rating score of 24 points in any 25 foot by 50 foot square (2500 square feet) area, as determined by the following rating scheme:

Diameter of tree at 4½ feet above ground level	Points
2 - 4 inches	1
4 - 8 inches	2
8 - 12 inches	4
>12 inches	8

Where existing trees and other vegetation result in a rating score less than 24 points, no trees may be cut or sprayed with biocides except for the normal maintenance of dead, windblown or damaged trees and for pruning of tree branches below a height of 12 feet provided two thirds of the tree's canopy is maintained;

- (ii) No undergrowth, ground cover vegetation, leaf litter, organic duff layer or mineral soil may be disturbed except that one winding path, that is no wider than six feet and that does not provide a downhill channel for runoff, is allowed through the area;
- c. No building or other temporary or permanent structure may be constructed, placed or permitted to remain on the Restricted Buffer Area, except for a sign, utility pole or fence;
- d. No trucks, cars, dirt bikes, ATVs, bulldozers, backhoes, or other motorized vehicles or mechanical equipment may be permitted on the Restricted Buffer Area;
- e. Any level lip spreader directing flow to the Restricted Buffer Area must be regularly inspected and adequately maintained to preserve the function of the level spreader.

Any activity on or use of the Restricted Buffer Area inconsistent with the purpose of these Restrictions is prohibited. Any future alterations or changes in use of the Restricted Buffer Area must receive prior approval in writing from the MDEP. The MDEP may approve such alterations and changes in use if such alterations and uses do not impede the stormwater control and treatment capability of the Restricted Buffer Area or if adequate and appropriate alternative means of stormwater control and treatment are provided.

- 2. Enforcement. The MDEP may enforce any of the Restrictions set forth in Section 1 above.
- 3. Binding Effect. The restrictions set forth herein shall be binding on any present or future owner of the Restricted Buffer Area. If the Restricted Buffer Area is at any time owned by more than one owner, each owner shall be bound by the foregoing restrictions to the extent that any of the Restricted Buffer Area is included within such owner's property.

4. Amendment. Any provision contained in this Declaration may be amended or revoked only by the recording of a written instrument or instruments specifying the amendment or the revocation signed by the owner or owners of the Restricted Buffer Area and by the MDEP.
5. Effective Provisions of Declaration. Each provision of this Declaration, and any agreement, promise, covenant and undertaking to comply with each provision of this Declaration, shall be deemed a land use restriction running with the land as a burden and upon the title to the Restricted Buffer Area.
6. Severability. Invalidity or unenforceability of any provision of this Declaration in whole or in part shall not affect the validity or enforceability of any other provision or any valid and enforceable part of a provision of this Declaration.
7. Governing Law. This Declaration shall be governed by and interpreted in accordance with the laws of the State of Maine.

\_\_\_\_\_

(NAME)

STATE OF MAINE \_\_\_\_\_ County, \_\_\_\_\_, 20\_\_.

(County)

(date)

Personally appeared before me the above named \_\_\_\_\_, who swore to the truth of the foregoing to the best of (his/her) knowledge, information and belief and acknowledged the foregoing instrument to be (his/her) free act and deed.

\_\_\_\_\_

Notary Public

\_\_\_\_\_

Pre Development				
Total WS area	81870491			
Sub area 1	25338064	NEW	18482818	20134070
Sub area 2	25423411	SA -1	18482818	20134070
Sub area 3	19597451	SA -2	20134070	11511565
Sub area 4	11511565	SA -3	11511565	

\*\*all areas considered to be woods/grass combination with averaged CN of 76\*\*  
 \*\*\*Relied on google maps to determine the ground coverage\*\*  
 \*\*\*\*Don't have existing access road with turbines in file, therefore they arent included in this calc\*\*\*\*

Post Development				
Total WS area	81870491		75015245	
Sub area 1	18482818			
PAD 1 partial	access path	2974		
	maintained	37268	40242	
	unmaintained	525		
	tower	80		
ROAD	impervious	4329		
	developed	9092		
TOTALS				
	impervious	7383		
grass cover	maintained	46360		
wood cover	unmaintained	525		
**remaining area wooded and existing towers**		18429075	53743	
Total wood		18429075		

Total developed  
852702.5  
Total site pad impervious  
8639.5  
Total site pad developed  
582209.5

NEW Sub area 2				
Sub area 2	25423411		20134070	
Sub area 3	19597451			
PAD 1 Partial	maintained	470		
	unmaintained	53910		
PAD 2	maintained	17230		
PAD 3 Partial	maintained	30385		
	unmaintained	5169		
	access road	2609		
	tower	80		
PAD 4				
impervious	tower	80		
developed				
	maintained	20506		
	unmaintained	87045		
PAD 5				
impervious				
	tower	80		
	access road	2736.5		
	total	2816.5		
developed				
	maintained	51729		
	unmaintained	64489		
ROAD				
	impervious	58149	25420	8150
	developed	174514	131537	101126
TOTALS				
	Impervious	35700.45		
grass cover	maintained	236364		
woods cover	unmaintained	210613		
*remaining area is wooded*		19862005.55	272064.45	
TOTAL		20134070		

NEW  
32851.45 30114.95  
146162 116044

20134070

sub area 3				
PAD 1 Partial	maintained	6220		
	unmaintained	53910		
PAD 2 Partial	unmaintained	77709		
PAD 3 Partial	maintained	8544		
	unmaintained	58461		
ROAD	impervious	4273		
	developed	106640		
TOTALS				
	impervious	4273		
grass	maintained	121404		
wood	unmaintained	190080		
*remainder wooded*		11385888	125677	
		11575968		
total wood		11385888		

**NEW**

WS Area 50128453

Pre Development CN				Post Development CN							
	Area (SF)		CN		Area (SF)		CN				
SA -1	18482818	424.3071	76	1404694168	SA-1						
				0	Impervious	15246	96	1463616	0.35	Total impervious	Acres
SA-2	20134070	462.2146	76	1530189320	Grass (50-70)	90411	79	7142469	2.075551	71232	1.635262
				0	Wood/grass	18377161	76	1396664236	421.8816		63369
SA-3	11511565	264.2692	76	874878940						Total developed	
	50128453	1150.791		3809762428	SA-2					852702.5	19.57535
				76.00000000	Impervious	51713	96	4964448	1.187167	Total site pad developed	
					Grass(50-70)	236364	79	18672756	5.426171	582209.5	13.36569
					Wood/grass	19845993	76	1508295468	455.6013		
					SA-3					Total site pad impervious	
					Impervious	4273	96	410208	0.098095	8639.5	0.198336
					Grass(50-70)	121404	79	9590916	2.787052		
					wood/grass	11385888	76	865327488	261.384		
						50128453		3812531605			
								76.05524162			
					% difference			-0.0727%			

Pre development CN			Post Development Weighted CN				
	Area (SF)	CN		Sub area 1	Area (SF)	CN	
Sub area 1	25338064	76	1.93E+09	Imperviou:	7383	96	708768
Sub area 2	25423411	76	1.93E+09	Grass (50-7:	46360	79	3662440
Sub area 3	19597451	76	1.49E+09	Wood/gra:	25284321	76	1.92E+09
sub area 4	11511565	76	8.75E+08	Sub area 2			
	81870491		76	Wood/gra:	24423411	76	1.86E+09
				Sub area 3			
				Imperviou:	65034	96	6243264
WS Area in acres	1879.488			Grass (50-7:	295504	79	23344816
				Wood/gra:	19236913	76	1.46E+09
				Sub area 4			
				Imperviou:	4273	96	410208
				Grass (50-7:	121404	79	9590916
				Wood/gra:	11385888	76	8.65E+08
					80870491		76.03615
				% difference			##### increase in CN by 0.05%

Total impervious	ACRES
76690	1.76056
Total Developed	
852702.5	19.57535
Total site pad impervious	
8639.5	0.198336
Total site pad developed	
582209.5	13.36569
Total site pad area	
573570	13.16736

**Worksheet 2**

**Pre-PPE and Post-PPE Calculations**

Calculate phosphorus export from development for before and after treatment  
 Use as many sheets as needed for each development type (commercial, roads, residential lots, etc.)

Project name: \_\_\_\_\_ SILVER  
 MAPLE  
 WIND Development type: \_\_\_\_\_ COMMERCIAL Sheet # \_\_\_\_\_

Land Surface Type or Lot #(s) with description	Acres or # of lots	Export Coefficient from Table 3.1 Table 3.2	Pre-treatment Algal Av. P Export (lbs P/year)	Treatment Factor for BMP(s) from Chapter 6	Post-treatment Algal Av. P Export (lbs P/year)	Description of BMPs
Tower	0.0018	0.5	0.0009	0.4	0.00036	Buffer A
Lawn (HSG C)	2.17	0.3	0.651	0.4	0.2604	Buffer A
Road (Gravel)	0.11	1.75	0.1925	0.4	0.077	Buffer A
Lawn (HSG C)	0.11	0.3	0.033	0.4	0.0132	Buffer B
Road (Gravel)	0.039	1.75	0.06825	0.4	0.0273	Buffer B
Lawn (HSG C)	0.087	0.3	0.0261	0.4	0.01044	Buffer C
Road (Gravel)	0.028	1.75	0.049	0.4	0.0196	Buffer C
Lawn (HSG C)	0.206	0.3	0.0618	0.4	0.02472	Buffer D
Road (Gravel)	0.054	1.75	0.0945	0.4	0.0378	Buffer D
Lawn (HSG C)	0.087	0.3	0.0261	0.4	0.01044	Buffer E
Road (Gravel)	0.028	1.75	0.049	0.4	0.0196	Buffer E
Lawn (HSG C)	0.206	0.3	0.0618	0.4	0.02472	Buffer F
Road (Gravel)	0.054	1.75	0.0945	0.4	0.0378	Buffer F
Lawn (HSG C)	1.93	0.3	0.579	0.4	0.2316	Buffer G
Road (Gravel)	0.051	1.75	0.08925	0.4	0.0357	Buffer G
Tower	0.0018	0.5	0.0009	0.4	0.00036	Buffer H
Lawn (HSG C)	0.47	0.3	0.141	0.4	0.0564	Buffer H
Road (Gravel)	0.039	1.75	0.06825	0.4	0.0273	Buffer H
Lawn (HSG C)	0.45	0.3	0.135	0.4	0.054	Buffer I
Road (Gravel)	0.12	1.75	0.21	0.4	0.084	Buffer I
Lawn (HSG C)	0.52	0.3	0.156	0.4	0.0624	Buffer J
Road (Gravel)	0.14	1.75	0.245	0.4	0.098	Buffer J
Tower	0.0018	0.5	0.0009	0.4	0.00036	Buffer K
Lawn (HSG C)	1.81	0.3	0.543	0.4	0.2172	Buffer K
Road (Gravel)	0.063	1.75	0.11025	0.4	0.0441	Buffer K
Tower	0.0018	0.5	0.0009	0.4	0.00036	Buffer L
Lawn (HSG C)	1.98	0.3	0.594	0.4	0.2376	Buffer L
Road (Gravel)	0.23	1.75	0.4025	0.4	0.161	Buffer L
Lawn (HSG C)	0.56	0.3	0.168	0.4	0.0672	Buffer M
Road (Gravel)	0.26	1.75	0.455	0.4	0.182	Buffer M
Tower	0.0018	0.5	0.0009	0.4	0.00036	Buffer N
Lawn (HSG C)	1.76	0.3	0.528	0.4	0.2112	Buffer N
Road (Gravel)	0.14	1.75	0.245	0.4	0.098	Buffer N
Road (Gravel) Switch Sta	0.18	1.75	0.315	0.4	0.126	Buffers O & P
		<b>Total Pre-PPE (lbs P/year)</b>	6.3963	<b>Total PostPPE (lbs P/year)</b>	2.55852	

<b>WORKSHEET 4 - PROJECT PHOSPHORUS EXPORT SUMMARY</b>			
Summarizing the project's algal available phosphorus export (PPE)			
<b>Project Name: SILVER MAPLE WIND</b>			
<b>Project Phosphorus Budget - Worksheet 1</b>	<b>PPB</b>	3.21	lbs P/year
<b>Total Pre-Treatment Phosphorus Export - Worksheet 2</b>	<b>Pre-PPE</b>	6.08	lbs P/year
<b>Total Post-Treatment Phosphorus Export - Worksheet 2</b>	<b>Post-PPE</b>	2.56	lbs P/year
<b>Total Phosphorus Mitigation Credit - Worksheet 3</b>	<b>TMC</b>	0.00	lbs P/year
<b>Project Phosphorus Export (Post-PPE - TMC)</b>	<b>PPE</b>	2.56	lbs P/year
<b>Is the Project Phosphorus Export ≤ the Project Phosphorus Budget? (PPE ≤ PPB)</b>			
<i>If YES, PPE is less than or equal to PPB and the project meets its phosphorus budget.</i> <i>If NO, PPE is greater than PPB, more reduction in phosphorus export is required or the payment of a compensation fee may be an option</i>		YES	
The amount of phosphorus that needs further treatment or compensation		lbs P/year	
<b>Has Project Phosphorus Export been sufficiently reduced?</b> <i>Is (Pre-PPE - Post-PPE)/Pre-PPE greater than 0.60?</i>			
<i>If YES, in some watersheds the compensation fee is an available option.</i> <i>If NO, more treatment must be provided. PPE must be further reduced.</i>			
The post-treatment phosphorus export must be less than 40% of the pre-treatment export (Post-PPE < 0.4*Pre-PPE)		%	
<b>If the project is located in a watershed that is eligible for a compensation fee (or is a residential subdivision with buffers), a compensation fee may be appropriate as follows:</b>			
<i>If Project Export has been reduced by greater than 60% and less than 75%, \$25,000 per pound minus \$833 per 1% Percent Export</i>			
<i>If Project Export has been reduced by greater than 75%, \$12,500 per pound minus \$500 per 1% Project Export</i>			

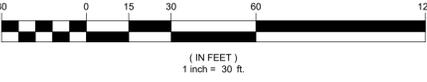


**LEGEND:**

DESCRIPTION	EXISTING	PROPOSED
PROPERTY LINE	---	---
UTILITY POLE	○	○
EDGE OF GRAVEL	---	---
MAJOR FOOT CONTOUR	---	---
MINOR FOOT CONTOUR	---	---
OVERHEAD UTILITIES	OHU	OHU
GRAVEL SURFACE		▨



**SUBSTATION AND SWITCH STATION PLAN**  
 FOR  
**SILVER MAPLE WIND ENERGY PROJECT**  
 CLIFTON, MAINE  
**GRAPHIC SCALE**

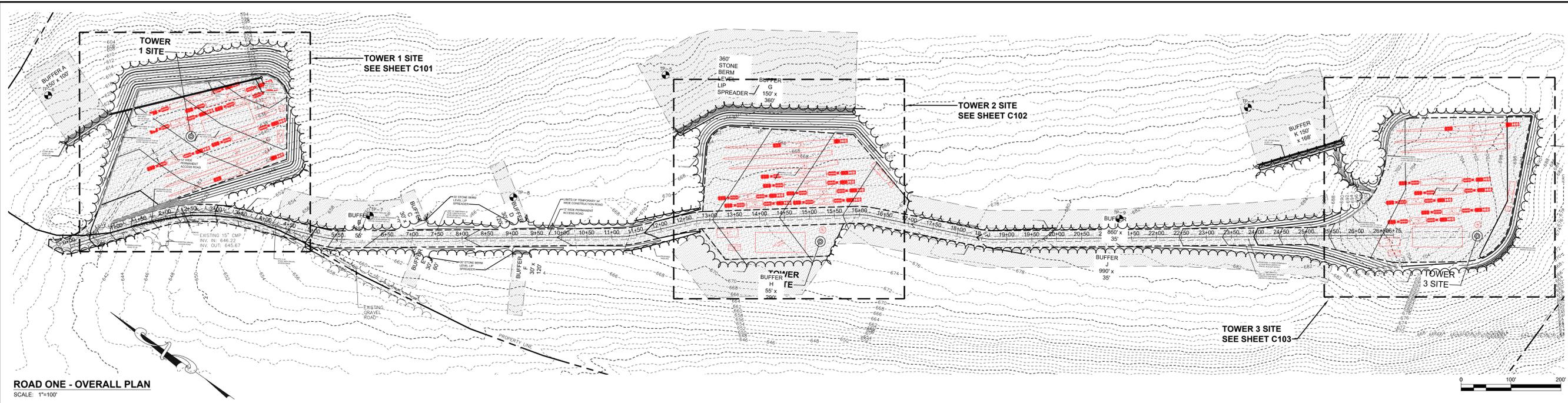


NO.	DESCRIPTION	DATE	DRAWN BY	CHECKED BY

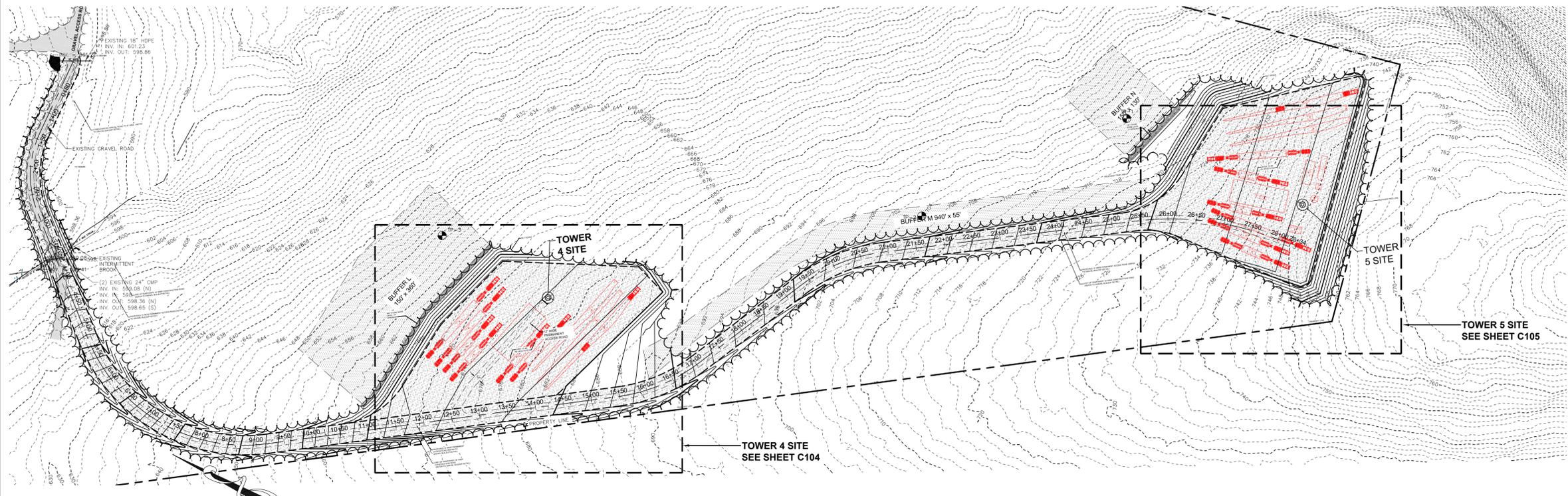
ISSUE STATUS  
**NOT FOR CONSTRUCTION**

SCALE	1"=30'
DATE	2020.08.21
DRAWN BY	WAB
CHECKED BY	TRB
DESIGNED BY	
APPROVED BY	
JOB NUMBER	11657.006
SHEET NUMBER	<b>SK-1</b>

P:\11657-006\_DEV\11657-006\_DEV\SILVER MAPLE CIVIL DESIGN & PERMITTING\TRB\11657-006-C-01.DWG



ROAD ONE - OVERALL PLAN  
SCALE: 1"=100'



ROAD TWO OVERALL PLAN  
SCALE: 1"=100'

**EROSION CONTROL NOTES**

- ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE MAINE EROSION AND SEDIMENTATION CONTROL BEST MANAGEMENT PRACTICES (BMPs), PUBLISHED BY THE BUREAU OF LAND AND WATER QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST EDITION.
- SILT FENCE WILL BE INSPECTED, REPLACED AND/OR REPAIRED IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR LOSS OF SERVICEABILITY DUE TO SEDIMENT ACCUMULATION. AT A MINIMUM, ALL EROSION CONTROL DEVICES WILL BE OBSERVED WEEKLY.
- DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO CONSTRUCTION SITE.
- SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE STABILIZED BY A SUITABLE GROWTH OF GRASS. ONCE A SUITABLE GROWTH OF GRASS HAS BEEN OBTAINED, ALL TEMPORARY EROSION CONTROL ITEMS SHALL BE REMOVED BY THE CONTRACTOR. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THEY ARE REMOVED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED, SEEDED, AND MULCHED IMMEDIATELY.
- ALL DISTURBED AREAS WILL BE SEEDED WITH 2.5 LBS. RED FESCUE AND 0.5 LBS. RYE GRASS PER 1,000 SQUARE FEET AND MULCHED AT A RATE OF 90 LBS. PER 1,000 SQUARE FEET OR EQUIVALENT APPLICATION OF SEED AND MULCH.
- A SUITABLE BINDER SUCH AS CURASOL OR TERRACK WILL BE USED ON THE HAY MULCH FOR WIND CONTROL.
- IF FINAL SEEDING OF DISTURBED AREAS IS NOT COMPLETED BY SEPTEMBER 15th OF THE YEAR OF CONSTRUCTION, THEN ON THAT DATE THESE AREAS WILL BE GRADED AND SEEDED WITH WINTER RYE AT THE RATE OF 112 POUNDS PER ACRE OR 3 POUNDS PER 1000 SQUARE FEET. 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. MULCH WILL BE APPLIED AT A RATE OF 90 POUNDS PER 1000 SQUARE FEET.
- IF THE RYE SEEDING CANNOT BE COMPLETED BY OCTOBER 1st OR IF THE RYE DOES NOT MAKE ADEQUATE GROWTH BY DECEMBER 1st, THEN ON THOSE DATES, HAY MULCH WILL BE APPLIED AT 150 POUNDS PER 1000 SQUARE FEET.
- INTERIOR SILT FENCES ALONG CONTOUR DIVIDING FLAT AND STEEP SLOPES, AREAS WITH DIFFERENT DISTURBANCE SCHEDULES, AROUND TEMPORARY STOCKPILES OR IN OTHER UNSPECIFIED POSSIBLE CIRCUMSTANCES SHOULD BE CONSIDERED BY THE CONTRACTOR. THE INTENT OF SUCH INTERIOR SILT FENCES IS TO LIMIT SEDIMENT TRANSPORT WITHIN THE SITE TOWARD THE PROTECTED CATCH BASIN INLETS TO MINIMIZE SEDIMENT REMOVAL REQUIRED BY THE EROSION CONTROL NOTE 9 PROTECTIONS AND EXTEND LIFE OF SUCH DEVICES.
- THE CONTRACTOR SHALL PROVIDE A SEDIMENT BASIN FOR ALL WATER PUMPED FROM EXCAVATIONS. BASIN SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES". THE CONTRACTOR SHALL SUBMIT FOR REVIEW/APPROVAL PRIOR TO BEGINNING ANY PROJECT WORK.
- MINIMUM EROSION CONTROL MEASURES WILL NEED TO BE IMPLEMENTED AND THE CONTRACTOR WILL BE RESPONSIBLE TO MAINTAIN ALL COMPONENTS OF THE EROSION CONTROL PLAN UNTIL THE SITE IS FULLY STABILIZED. HOWEVER, BASED ON SITE AND WEATHER CONDITIONS DURING CONSTRUCTION, ADDITIONAL EROSION CONTROL MEASURES MAY NEED TO BE IMPLEMENTED. ALL AREAS OF INSTABILITY AND EROSION MUST BE REPAIRED IMMEDIATELY DURING CONSTRUCTION AND NEED TO BE MAINTAINED UNTIL THE SITE IS FULLY STABILIZED OR VEGETATION IS ESTABLISHED. A CONSTRUCTION LOG MUST BE MAINTAINED FOR THE EROSION AND SEDIMENTATION CONTROL INSPECTIONS AND MAINTENANCE.

CONTRACTOR WILL BE RESPONSIBLE FOR FOLLOWING PROCEDURES FOUND IN THE "MAINE EROSION AND SEDIMENT CONTROL PRACTICES FIELD GUIDE FOR CONTRACTORS" (PUBLISHED MARCH 2015). THE PUBLICATION CAN BE FOUND AT: [HTTP://WWW.MAINE.GOV/DEPLAND/EROSION/ESCBMPS/INDEX.HTML](http://www.maine.gov/depland/erosion/escbmps/index.html)

**NOTES**

- PLAN ORIENTED TO MAINE STATE PLANE COORDINATE SYSTEM, NAD83, EAST ZONE, U.S. SURVEY FOOT AND THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
- CONTOUR INTERVAL: 2 FOOT.
- TOPOGRAPHY SHOWN IS A COMPILED OF LIDAR DATA PROVIDED BY THE STATE OF MAINE OFFICE OF GIS AND A FIELD SURVEY COMPLETED BY CES, INC. ON APRIL 1, 2019, APRIL 2, 2019, APRIL 18, 2019, AND APRIL 23, 2019.
- EXISTING CONDITIONS BASED ON SURVEY COMPLETED BY CES, INC. ON DATES NOTED ABOVE.

**LEGEND:**

DESCRIPTION	EXISTING SYMBOL	PROPOSED SYMBOL
10' CONTOUR	--- 90 ---	--- 90 ---
2' CONTOUR	--- 92 ---	--- 92 ---
EDGE OF GRAVEL	---	---
PROPERTY LINE	---	NA
CULVERT	---	NA
SILT FENCE	NA	SF
GRAVEL SURFACE	---	---
STORMWATER BUFFER	NA	---
WETLAND	---	NA
TREE LINE	---	---
TEST PIT	TP-6	NA

**CES INC**  
Engineers • Environmental Scientists • Surveyors

PROJECT TITLE: SILVER MAPLE WIND ENERGY PROJECT  
SITE: CLIFTON, MAINE

SCALE: 1"=100'

DATE: 2019-07-24

DRAWN BY: BLO  
CHECKED BY: TRB

DESIGNED BY: LF  
APPROVED BY: TRB

JOB NUMBER: 11657.006  
DRAWING NUMBER: C001