PAUL R. LEPAGE
GOVERNOR

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
LAND USE PLANNING COMMISSION
45 RADAR ROAD
ASHLAND, MAINE 04732-3600

WALTER E. WHITCOMB
COMMISSIONER

NICHOLAS D. LIVESAY
EXECUTIVE DIRECTOR

PERMIT

AMENDMENT A TO
DEVELOPMENT PERMIT DP 4910

The staff of the Maine Land Use Regulation Commission, after reviewing the application and supporting documents submitted by King Pine Wind, LLC for Amendment A to Development Permit DP 4910, finds the following facts:

1. Applicant: King Pine Wind, LLC
   c/o Pattern Energy Group LP
   Pier 1, Bay 3
   San Francisco, CA 94111

2. Agent: Stantec Consulting Services Inc.
   c/o Joy Prescott
   30 Park Drive
   Topsham, Maine 04086

3. Landowner: Aroostook Timberlands LLC
   PO Box 240
   Saint John, Maine 04743

4. Date of Completed Application: September 15, 2016

5. Location of Proposal: Dudley Twp., Aroostook County, Maine
   Tax Plan 01; Lot 1
   Tower 1115 (Coordinates: 46.288967N; -68.092552W)
   SODAR 1115 (Coordinates: 46.289381N; -68.093198W)

6. Zoning: (M-GN) General Management Subdistrict

7. Proposed Structure(s): One (1) Temporary Meteorological Testing Equipment Tower and SODAR unit

Background and Proposal

8. In September of 2011, Development Permit DP 4910 was issued to the applicant authorizing the installation of one (1) temporary meteorological testing equipment tower and associated Sonic Detections and Ranging (SODAR) unit in the southeastern corner of the landowner's parcel in Dudley Twp., Aroostook County. The tower was installed and subsequently removed. The clearing for the SODAR did not occur. King Pine Wind LLC has now been purchased by a new company, Pattern Energy Group LP.

9. The applicant now seeks amendment approval to erect one (1) temporary meteorological testing equipment tower and associated Sonic Detections and Ranging (SODAR) unit in the location of the previously authroized tower and SODAR. The tower will be outfitted with wind resource analysis. Currently, the parcel is utilized for commercial timber harvesting, which will continue; the meteorological tower site is generally flat. The canopy species include red maple, American beech, sugar maple, striped map, balsam fir, yellow birch and hobblebush.

10. *Structure(s) description and design.* The one (1) temporary meteorological testing equipment tower is proposed to be 60 meters (197 feet) tall, 10-inch diameter pole-style meteorological tower. The tower will be situated on an approximately 7.7 square foot base plate that will be supported by cable guy wires and anchors. The applicant anticipates that anchoring each of the guy wires of the tower will be achieved using rock or screw anchors; however, site conditions may require buried dead-men anchors. Clearing of vegetation for the tower and SODAR unit will be approximately 4.69 acres. The proposed facility will be set back approximately 450 from the nearest road, approximately 2,300 from the nearest great pond, approximately 2,300 feet from the nearest stream, approximately 870 feet from the nearest wetland area and approximately 2,100 feet from the nearest property boundary line.

11. *Birds and bat strikes and ungulate entanglement*. The applicant states that the tower will be equipped with bird and bat diverters arranged on the guy wires to prevent/reduce strikes. In addition, to prevent/reduce entanglement of mammalian wildlife, especially ungulates, double yellow-marker sleeves will be placed on all guy wires long enough to cover the entirety of any wire loops. In addition, pulleys for potential future placement of anabat detectors will be placed on the tower at a height of at least 20 meters.

12. *Site access*. The tower will be located approximately 450 feet from an existing logging road and will be accessed existing access. No permanent roads will be constructed. No water supply or new parking areas are proposed.

13. *Soils, Soil Disturbance, Wetland Alteration*. Soils map unit data for the proposed application were obtained and reviewed using the U.S. Department of Agriculture's (USDA) National Resource Conservation Service's (NRCS) Soils data for Aroostook County, Maine. Soils at the meteorological tower location and soils crossed by the access route are classified as Plaisted very stony loam, a very well-drained soils. Soil disturbance will be minimal, limited to the guy wire anchoring locations for the tower. No jurisdictional wetlands are located within the clearing limits of the proposed project.

14. *Lighting*. Because the tower would be less than 200 feet in height, it will not require Federal Aviation Administration (FAA) compliant lighting

15. *Period of use.* The applicant will leave the proposed meteorological tower in place for no more than five years. At the end of the data collection period, if no other project is proposed and permitted, the tower and associated appurtenances will be dismantled and removed from the site.

16. *Visual impact assessment.* The tower will be located in a regenerating forest area that exhibits evidence of past logging activities such as: land management roads; log landing yards; and skidder trails. One structure has been identified within one mile of the site. The applicant states that the installation of the temporary tower is not anticipated to impact scenic character or natural or historic features.

17. *Title, right, and interest and land division history.*

    A. The applicant submitted an outlined, 20-year land division history and the associated applicable deeds for the subject property and states that there have been no unauthorized divisions of the parcel in the past 20 years.

    B. On August 22, 2011, the applicant entered into a "Memorandum of Agreement" with the landowner, Aroostook Timberlands LLC., for their entire ownership within Dudley Twp., which grants the applicant permission for, among other things, the installation of a meteorological testing equipment tower for the purpose of collecting wind resource data.

    C. On January 25, 2016, SunEdison Utility Holdings, Inc. entered into a "Memorandum of Lease Option Agreement" with the landowner, Aroostook Timberlands LLC. By Contribution Agreement dated July 1, 2016, this Lease Option Agreement was assigned by SunEdision Utility Holdings, Inc. to King Pine Wind, LLC, immediately prior to the acquisition by Pattern Renewables LP of all of the membership interests in King Pine Wind, LLC.

18. *Technical and financial capacity.* The applicant is an indirect wholly-owned subsidiary of Pattern Development which has significant experience in the development and funding of wind energy facility projects. In addition, the applicant has retained Stantec Consulting, a company which has extensive experience in environmental assessment and permitting.

Agency Review Comments

19. The Maine Natural Areas Program reviewed the proposed application and searched the Natural Areas Program's Biological and Conservation Data System files for rare or unique botanical features in the vicinity of the proposed site and indicates that according to their current information there are no rare botanical features that will be disturbed within the project site.

20. The Maine Department of Inland Fisheries and Wildlife (MDIFW) reviewed the proposal and had submitted the following comments.

    A. <u>Avian diverters</u>—we recommend the diverters should be of the "flapper" variety, which research has shown to be effective at reducing avian collisions. The diverters should be placed at the manufacturer's suggested rate and spacing for each guy wire. During

placement of these diverters, the technician should stagger them on the guy wires so they are not directly under the prior one. We recommend that towers be inspected annually for the life of the project, prior to the spring migration season, and if it is discovered that more than 20% of the installed diverters are no longer on the guy lines or are otherwise inoperable, we recommend that the diverters be immediately repaired or replaced so that the tower is restored to being fitted with the original number of diverters. If greater than 80% of the diverters still remain appropriately attached during the inspection and are operational, any repairs or replacements should be made during regularly scheduled tower maintenance visits.

B. Sleeves to prevent wildlife entanglement—we recommend that the sleeves be placed on each guy wire from the ground level up to approximately 12-15 feet in height. The intent is to make sure that there is adequate coverage of plastic sleeve on the guy wires that would account for ground slope and snowpack to reduce the risk of entanglement. Depending on the angle of the wires, this could necessitate 30 feet or more of length of sleeve per wire. All loops of excess wire should be eliminated, but if excess wire is required for future application then loops of excess wire should be tied off at a height of 20-25 feet above the ground (well above snowpack) instead of near ground level to isolate it from wildlife. These recommendations are made to aid wildlife in detection of wires and help to prevent or reduce entanglement of mammalian wildlife, especially ungulates (see photo below). Additionally, we recommend that all construction materials (i.e., cable, rope, loose fencing) is either cleaned up and removed from the site, or adequately stored and secured to further prevent/reduce entanglement of wildlife.

C. Other Wildlife and Fisheries – Based on the description of the site, there are no vernal pool or fisheries concerns with this project.

Commission Review Criteria

21. Pursuant to Section 10.22,A,3,a,(6) of the Commission's Land Use Districts and Standards, surveying and other resource analysis are uses allowed without a permit from the Commission within a (M-GN) General Management Subdistrict.

22. Pursuant to Section 10.22,A,3,c,(27) of the Commission's Land Use Districts and Standards, other structures, uses, or services that are essential to the uses listed in Section 10.22,A,3,a through c may be allowed within a (M-GN) General Management Subdistrict upon issuance of a permit from the Commission pursuant to 12 M.R.S.A §685-B, and subject to the applicable requirement set forth in Sub-Chapter III.

23. Pursuant to Section 10.26,F of the Commission's Land Use Districts and Standards, the maximum building height shall be 100 feet for commercial, industrial, and other non-residential uses involving one or more buildings. Features of buildings which contain no floor area such as chimneys, towers, ventilators and spires, may exceed the maximum height with the Commission's approval.

24. The facts are otherwise as represented in Development Permit application DP 4910, Amendment Request A and supporting documents.

Based upon the above Findings, the staff concludes that:

1. In accordance with Sections 10.22,A,3,a,(6) and 10.22,A,3,c,(27) of the Commission's Land Use Districts and Standards, the proposed temporary meteorological testing equipment tower is an allowed use in an (M-GN) General Management Subdistrict. The towers are necessary to support and elevate the wind resource collection equipment, and as such are structures essential to an allowed use.

2. In accordance with Section 10.26,F of the Commission's Land Use Districts and Standards, the meteorological testing equipment tower may exceed the Commission's maximum 100 foot height restriction for buildings because the proposed structure does not contain floor area, and the proposed height of 197 feet height is necessary for wind data collection.

3. If carried out in compliance with the Conditions below, the proposal will meet the Criteria for Approval, section 685-B(4) of the Commission's Statutes, 12 M.R.S.A.

Therefore, the staff approves the amendment request of King Pine Wind, LLC with the following Conditions:

1. The Standard Conditions for Development Permits, revised 10/90, a copy of which is attached.

2. Notwithstanding Standard Conditions for Development Permits, Condition #3, prior to five years from the date of issuance of this permit (the permit expiration), if the one (1) temporary meteorological testing equipment tower is proposed to remain on site, the permittee shall submit a new permit application and obtain approval from the Commission.

3. Upon completion of the data collection, upon expiration of a valid Wind Resource Evaluation License Agreement, or upon the expiration date of this permit, if no additional approval for the one (1) temporary meteorological testing equipment tower has been issued by the Commission, the permittee shall lower the one (1) temporary meteorological testing equipment tower and remove it and all other associated equipment from the site. Any waste materials must be disposed of in accordance with Maine Solid Waste Disposal Rules.

4. The Standards for Vegetation Clearing, Section 10.27,B of the Commission's Land Use Districts and Standards, a copy of which is attached.

5. The Standards for Filling and Grading, Section 10.27,F of the Commission's Land Use Districts and Standards, a copy of which is attached.

6. The Guidelines for Vegetative Stabilization, Appendix B of the Commission's Land Use Districts and Standards, a copy of which is attached.

7. Clearing and construction activities, except those necessary to establish sedimentation control devices, shall not begin until all erosion and sedimentation control devices (including ditches, culverts, sediment traps, settling basins, hay bales, silt fences, etc.) have

been installed and stabilized. Once in place, such devices shall be maintained to ensure proper functioning. All temporary sedimentation and erosion control devices shall be removed after construction activity has ceased and a cover of healthy vegetation has established itself or other appropriate permanent control measures have been effectively implemented.

8. Excluding areas actively used for forest management activities or existing access roads or skid trails, all areas of disturbed soil associated with the installation of the tower must be promptly reseeded and stabilized with mulch, and maintained in a vegetated state to prevent soil erosion. In areas where re-vegetation is not initially successful, additional measures to control erosion and sedimentation must be undertaken as often as necessary to be effective.

9. Should any erosion or sedimentation occur during construction, the permittee shall contact the Land Use Regulation Commission immediately, notifying it of the problem and describing all proposed corrective measures.

10. Installation of the one (1) temporary meteorological testing equipment tower must be avoided when the soil is saturated; or if unavoidable slash, wood chips or mats must be used to drive heavy equipment over where the soil is soft enough to rut. The installation of the temporary meteorological testing equipment tower must not disturb any wetland areas.

11. The one (1) temporary meteorological testing equipment tower must be placed at the identified locations. The base of the tower must be set back at least one tower height from any public road, any private road open for public use, and any property boundary line, 500 feet from all bodies of standing water 10 acres or greater in size, 150 feet from the nearest major flowing water, and 100 feet from the nearest minor flowing water or P-WL1 wetland of special significance.

12. The total cleared area for the tower and SODAR must not exceed 4.86 acres. The cleared areas must not extend into a P-SL Subdistrict or P-WL Subdistrict.

13. Access to the temporary meteorological testing equipment tower site must be by temporary logging roads and skidder trails, or overland; no new permanent access roads shall be created.

14. “Flapper” avian diverters must be placed on the guy wires at the manufacturer’s suggested rate and spacing for each guy wire. During placement of these diverters, the technician must stagger them on the guy wires so they are not directly under the prior one. The tower must be inspected annually for the life of the project, prior to the spring migration season. Should more than 20% of the installed diverters be missing from the guy lines or are otherwise inoperable, the diverters must be immediately repaired or replaced so that the tower is restored to being fitted with the original number of diverters. If greater than 80% of the diverters still remain appropriately attached during the inspection and are operational, any repairs or replacements should be made during regularly scheduled tower maintenance visits.

15. Double yellow sleeves must be placed on each guy wire from the ground level up to approximately 12-15 feet in height. Depending on the angle of the wires, this could necessitate 30 feet or more of length of sleeve per wire. In addition, all loops of excess wire must be eliminated if not needed or tied off at a height of 20-25 feet above the ground. All construction materials (i.e., cable, rope, loose fencing) must be cleaned up and removed from the site or adequately stored and secured to further prevent/reduce entanglement of wildlife.

16. All conditions of Development Permit DP 4910 shall remain in effect except as modified by this amendment.

This permit is approved upon the proposal as set forth in the application and supporting documents except as modified in the above stated conditions, and remains valid only if the permittee complies with all of these conditions. Any variation from the application or the conditions of approval is subject to prior Commission review and approval. Any variation undertaken without Commission approval constitutes a violation of Land Use Regulation Commission law. In addition, any person aggrieved by this decision of the staff may, within 30 days, request that the Commission review the decision.

DONE AND DATED AT ASHLAND, MAINE, THIS 14th DAY OF OCTOBER, 2016.

By: Billie J. MacLean
for Nicholas Livesay, Executive Director

B. VEGETATION CLEARING

Vegetation clearing activities not in conformance with the standards of this section may be allowed upon issuance of a permit from the Commission provided that such types of activities are allowed in the subdistrict involved. An applicant for such permit shall show by a preponderance of the evidence that the proposed activity, which is not in conformance with the standards of this section, shall be conducted in a manner which produces no undue adverse impact upon the resources and uses in the area.

The following requirements shall apply to vegetation clearing activities for any purpose other than road construction, road reconstruction and maintenance, wildlife or fishery management, forest management, agricultural management, public trailered ramps or hand-carry launches:

1. A vegetative buffer strip shall be retained within:

a. 50 feet of the right-of-way or similar boundary of any public roadway,

b. 75 feet of the normal high water mark of any body of standing water less than 10 acres in size, or any coastal wetland or flowing water draining less than 50 square miles, and

c. 100 feet of the normal high water mark of a body of standing water 10 acres or greater in size or flowing water draining 50 square miles or more.

2. Within this buffer strip, vegetation shall be maintained as follows:

a. There shall be no cleared opening greater than 250 square feet in the forest canopy as measured from the outer limits of the tree crown. However, a footpath is permitted, provided it does not exceed six (6) feet in width as measured between tree trunks, and, has at least one bend in its path to divert channelized runoff.

b. Selective cutting of trees within the buffer strip is permitted provided that a well-distributed stand of trees and other natural vegetation is maintained.

For the purposes of this section a "well-distributed stand of trees" adjacent to a body of standing water 10 acres or greater in size shall be defined as maintaining a rating score of 24 or more in a 25-foot by 50-foot rectangular area as determined by the following rating system.

Near other water bodies, tributary streams and public roadways a "well-distributed stand of trees" shall be defined as maintaining a rating score of 16 or more per 25-foot by 50-foot (1250 square feet) rectangular area as determined by the following rating system.

Diameter of Tree at 4-1/2 feet Above Ground Level (inches)	**Points**
2.0 to < 4.0	1
4.0 to < 8.0	2
8.0 to < 12.0	4
12.0 +	8

Table 10.27,B-1. Rating system for a well-distributed stand of trees.

The following shall govern in applying this rating system:

(1) The 25-foot x 50-foot rectangular plots shall be established where the landowner or lessee proposes clearing within the required buffer;

(2) Each successive plot shall be adjacent to but not overlap a previous plot;

(3) Any plot not containing the required points shall have no vegetation removed except as otherwise allowed by these rules;

(4) Any plot containing the required points may have vegetation removed down to the minimum points required or as otherwise allowed by these rules; and

(5) Where conditions permit, no more than 50% of the points on any 25-foot by 50-foot rectangular area may consist of trees greater than 12 inches in diameter.

For the purposes of this section, "other natural vegetation" is defined as retaining existing vegetation under 3 feet in height and other ground cover and retaining at least 5 saplings less than 2 inches in diameter at 4½ feet above ground level for each 25-foot by 50-foot rectangular area. If 5 saplings do not exist, the landowner or lessee may not remove any woody stems less than 2 inches in diameter until 5 saplings have been recruited into the plot. In addition, the soil shall not be disturbed, except to provide for a footpath or other permitted use.

c. In addition to Section 10.27,B,2,b above, no more than 40% of the total basal area of trees 4.0 inches or more in diameter, measured at 4½ feet above ground level, may be removed in any ten (10) year period.

d. Pruning of live tree branches is prohibited, except on the bottom 1/3 of the tree provided that tree vitality will not be adversely affected.

e. In order to maintain a buffer strip of vegetation, when the removal of storm-damaged, diseased, unsafe, or dead trees results in the creation of cleared openings in excess of 250 square feet, these openings shall be established with native tree species.

3. At distances greater than one hundred (100) feet, horizontal distance, from the normal high water mark of a body of standing water greater than 10 acres, no more than 40% of the total basal area of trees four inches or more in diameter, measured at 4½ feet above ground level, may be removed in any ten (10) year period. In no instance shall cleared openings exceed, in the aggregate, 10,000 square feet, including land previously cleared. These provisions apply to areas within 250 feet of all bodies of standing water greater than ten (10) acres, and to the full depth of the P-AL zone. This requirement does not apply to the development of uses allowed by permit.

4. Cleared openings legally in existence as of June 7, 1990 may be maintained, but shall not be enlarged except as permitted by these regulations.

5. When revegetation is required: (i) in response to violations of the vegetation standards set forth in Section 10.27,B,1 through 4; (ii) to address the removal of non-native invasive species of vegetation; (iii) as a mechanism to allow for development by permit that exceeds the vegetation standards of Section 10.27,B or the cleared opening standards of Section 10.27,Q,1,Table A,(4), including removal of vegetation in conjunction with a shoreline stabilization project; or (iv) as part of a mitigation plan for clearing associated with a recreational lodging facility, the revegetation must comply with the following requirements.

a. The property owner must submit a revegetation plan, prepared with and signed by a qualified professional (examples include: arborist, forester, landscape architect, U.S.D.A. Natural Resources Conservation Service), that describes revegetation activities and maintenance. The plan must include a scaled site plan depicting where vegetation was, or is to be removed, where existing vegetation is to remain, and where vegetation is to be planted, including a list of all vegetation to be planted.

b. Revegetation must occur along the same segment of shoreline and in the same area where vegetation was removed and at a density comparable to the pre-existing vegetation, except where a shoreline stabilization activity does not allow revegetation to occur in the same area and at a density comparable to the pre-existing vegetation, in which case revegetation must occur along the same segment of shoreline and as close as possible to the area where vegetation was removed. When part of a mitigation plan, revegetation must occur along the same segment of shoreline, road, or other resource affected by proposed uses or development, and at a density and configuration comparable to other naturally occurring forests on the site or in the vicinity.

c. Revegetation activities must meet the following requirements for trees and saplings:

(1) All trees and saplings removed must be replaced with native noninvasive species;

(2) Replacement vegetation must at a minimum consist of saplings;

(3) If more than three trees or saplings are planted, then at least three different species shall be used;

(4) No one species shall make up 50% or more of the number of trees and saplings planted;

(5) If revegetation is required for a shoreline stabilization project, and it is not possible to plant trees and saplings in the same area where trees or saplings were removed, then trees or sapling must be planted in a location that effectively reestablishes the screening between the shoreline and structures; and

(6) A survival rate of at least 80% of planted trees or saplings is required for a minimum five years period from the time of planting. Replanting of trees or saplings that did not survive does not trigger a new five year period.

d. Revegetation activities must meet the following requirements for woody vegetation and other vegetation under three feet in height:

(1) All woody vegetation and vegetation under three feet in height must be replaced with native noninvasive species of woody vegetation and vegetation under three feet in height as applicable;

(2) Woody vegetation and vegetation under three feet in height shall be planted in quantities and variety sufficient to prevent erosion and provide for effective infiltration of stormwater;

(3) If more than three woody vegetation plants are to be planted, then at least three different species shall be planted;

(4) No one species shall make up 50% or more of the number of planted woody vegetation plants; and

(5) Survival of planted woody vegetation and vegetation under three feet in height must be sufficient to remain in compliance with the standards contained within this chapter for a minimum of five years from the time of planting. Replanting of trees or saplings that did not survive does not trigger a new five year period.

e. Revegetation activities must meet the following requirements for ground vegetation and ground cover:

(1) All ground vegetation and ground cover removed must be replaced with native herbaceous vegetation, in quantities and variety sufficient to prevent erosion and provide for effective infiltration of stormwater;

(2) Where necessary due to a lack of sufficient ground cover, an area must be supplemented with a minimum four inch depth of leaf mulch and/or bark mulch to prevent erosion and provide for effective infiltration of stormwater; and

(3) Survival and functionality of ground vegetation and ground cover must be sufficient to remain in compliance with the standards contained within Section 10.27,B for a minimum of five years from the time of planting.

f. The applicant may propose, and the Commission may approve or require, variations from the standards in Section 10.27,B,5,c through e if necessary to achieve effective buffering. The Commission may exempt an individual, whether an applicant or violator, from the requirement that the revegetation plan be prepared by a qualified professional in accordance with Section 10.27,B,5,a, when the proposed revegetation is routine and would not affect a particularly sensitive resource.

F. FILLING AND GRADING

The following requirements for filling and grading shall apply in all subdistricts except as otherwise provided herein.

Filling and grading activities not in conformance with the standards of this section may be allowed upon issuance of a permit from the Commission provided that such types of activities are allowed in the subdistrict involved. An applicant for such permit shall show by a preponderance of the evidence that the proposed activity, which is not in conformance with the standards of this section, shall be conducted in a manner which produces no undue adverse impact upon the resources and uses in the area.

These standards do not apply to filling or grading activities which constitute forest or agricultural management activities, the construction, reconstruction and maintenance of roads, or the construction of public trailered ramps, hand-carry launches, or driveways. Such activities are separately regulated.

1. Within 250 feet of water bodies and wetlands, the maximum size of a filled or graded area, on any single lot or parcel, shall be 5,000 square feet. This shall include all areas of mineral soil disturbed by the filling or grading activity; and

2. Beyond 250 feet from water bodies and wetlands, the maximum size of filled or graded areas, as described above, shall be 20,000 square feet, except that there shall be no limit to the size of filled or graded areas in M-GN subdistricts which are greater than 250 feet from water bodies and wetlands. In such M-GN subdistrict areas, the provisions of Section 10.27,F,4 and 6 shall apply; and

3. Clearing of areas to be filled or graded is subject to the clearing standards of Section 10.27,B; and

4. Imported fill material to be placed within 250 feet of water bodies shall not contain debris, trash, rubbish or hazardous or toxic materials. All fill, regardless of where placed, shall be free of hazardous or toxic materials; and

5. Within 250 feet of major flowing waters, bodies of standing water and P-WL1 wetlands, the sustained slope between the normal high water mark or the upland edge of the resource and the soil disturbance shall be no greater than 20%. For the purposes of this standard, sustained slope means a change in elevation where the referenced percent grade is substantially maintained or exceeded throughout the measured area. The provisions of this paragraph apply only to a face sloping toward the water body or wetland; and

6. Where filled or graded areas are in the vicinity of water bodies or wetlands, such filled or graded areas shall not extend closer to the normal high water mark of a flowing water, a body of standing water, a coastal wetland, or the upland edge of freshwater wetlands identified as P-WL1 subdistrict than the following:

a. For a minor flowing water, body of standing water less than 10 acres in size, coastal wetland, or freshwater wetland: 75 feet; and

b. For a major flowing water and body of standing water 10 acres or greater in size: 100 feet.

7. All filled or graded areas shall be promptly stabilized to prevent erosion and sedimentation.

Filled or graded areas, including all areas of disturbed soil, within 250 feet of water bodies and wetlands, shall be stabilized according to the Guidelines for Vegetative Stabilization contained in Appendix B of this chapter.

APPENDIX B GUIDELINES FOR VEGETATIVE STABILIZATION

Areas of disturbed soil, including but not limited to areas that are filled, graded or otherwise disturbed during construction projects, should be stabilized according to the following guidelines. These guidelines do not apply to forest management activities and are not strict regulations, and therefore alternative methods of stabilizing soil may be used. However, whenever soil stabilization or stabilization of disturbed areas is required by regulation or by the terms of individual permits, individuals must assure that either these guidelines, or measures equally effective in stabilizing disturbed areas of soil are employed.

The goals to be achieved by proper stabilization are the avoidance of accelerated soil erosion and the avoidance of sedimentation or pollution of water bodies. All stabilization measures must be maintained so that grass or other vegetation remains intact and healthy, otherwise these measures will be ineffective.

In general:

1. Sterile soils such as sands and gravels should be covered with 2 to 4 inches of soil medium that will support vegetative growth.

2. Disturbed soil areas should be graded such that runoff water is either minimized or eliminated from running over the site.

3. Disturbed areas which can be seeded between May 1 and September 15 should be prepared and seeded during that period.

4. Disturbed areas which cannot be seeded between May 1 and September 15 should be mulched with hay, straw or some other suitable material to keep them as stable as possible over the winter, and particularly during spring runoff the following year. For over-wintering, mulch must be tacked down, as it is easily blown around on frozen ground, leaving areas of soil exposed. Mulch hay should be applied at a depth of 4 inches, or between 150 to 200 lbs. per 1,000 square feet, over the disturbed site. Mulched over-wintered areas should be prepared and seeded the following spring as soon as conditions allow.

It is not recommended that disturbed areas be seeded after September 15th ("dormant seeding") for a number of reasons. Among the reasons, seeding rates are doubled, which is more expensive; timing is critical to ensure that germination does not occur before the following spring; there is an increased risk of sedimentation because sites are generally wetter in the fall; the thicker mulch must be removed in the spring in order to allow the germinating seed to survive; and the application of fertilizer during this time increases the risk of leaching or runoff loss of nutrients into water bodies.

5. Seeding preparation, in addition to providing a soil medium that will support vegetative growth if the site is sterile, includes the application of lime and fertilizer, which should be lightly raked prior to seeding. After the area is seeded, it should be lightly watered and then mulched with 70 to 90 lbs. (2 standard bales) per 1,000 square feet of weed free hay or straw to protect the seed. Keep the site stable and moist, and allow the seed to germinate and grow.

6. For accurate liming as well as fertilization, it is recommended that you have the soil analyzed to determine the specific nutrient requirements of your site.

Lime should be applied at a rate of approximately 140 pounds to 1,000 square feet of area. This rate may vary depending on the natural conditions of the soil on the site. 10-5-20 fertilizer should be applied at a rate of 18.5 lbs. per 1,000 square feet of area. Following the establishment of vegetation, non-phosphorous fertilizer should be used in accordance with the Department of Environmental Protection's recommendations.

7. In shoreland areas in particular, fertilizers should be of the "quick release" low phosphorus type, such as 12-4-8 mixtures applied at a rate of 8 pounds per 1,000 square feet of area. If you are near water bodies, it is important not to apply more than approximately this amount of fertilizer, as excess may be washed into streams or lakes and contribute to lowering water quality and such things as algae blooms in lakes.

Following the establishment of vegetation, non-phosphorous fertilizer should be used in accordance with the Department of Environmental Protection's recommendations.

Fertilizers should never be applied right before thunder storms or before spring runoff, because the great amounts of water running over the land will wash the fertilizer, particularly phosphorus, into water bodies. However, a light watering after the fertilizer is applied will help bind the phosphorus to the soil.

8. There are many combinations of grasses that can be used. One combination particularly good for providing soil stability, generally referred to as the Soil Conservation Mixture, consists of: (Proportions, by weight)

Creeping Red Fescue	35%	Kentucky Bluegrass	25%
Annual Rye Grass	15%	Perennial Rye Grass	10%
Red Top	10%	White Dutch Clover	5%
* Oats - See Below			

This seed would be applied at a rate of 1 pound per 1,000 square feet. These particular grasses do best if mowed no closer than 2-1/2 to 3 inches from the ground. Of course, other seed mixtures are available.

It is important, in choosing a mixture, to choose one suitable for the site being stabilized. There are many different types of seeding mixtures designed for particular site conditions such as shade, sun, and drainage. Any mix should contain some seed which germinates rapidly to provide the quickest stabilization possible while awaiting the germination of the remaining types.

(*) For quick germination, oats are very good. They germinate in 7 to 10 days. They should be planted at a rate of approximately 1 to 1-1/2 bushels per acre, in addition to the basic grass mixture. Oats should be mowed when they reach knee height to allow the germinating grasses to receive sunlight.

Alternatives:

As indicated above, other stabilization programs may be used, provided they are equivalently effective in stabilizing disturbed areas and preventing accelerated soil erosion and sedimentation of water bodies. Further assistance may be obtained, including in some cases site-specific recommendations, as follows:

- Local Soil and Water Conservation Districts
- The USDA Natural Resource Conservation Service
- Maine Department of Environmental Protection, Lakes Program
- Landscaping Professionals
- Reputable Lawn and Garden Supply Dealers

The following documents may provide valuable assistance to those developing a soil stabilization plan:

Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices (Cumberland County Soil & Water Conservation District and Maine Department of Environmental Protection, 1991)

Strategy for Managing Nonpoint Source Pollution From Agricultural Sources and Best Management Guidelines (NPS Agricultural Task Force, 1991)

Erosion and Sediment Control Handbook for Maine Timber Harvesting Operations, Best Management Practices (Maine Forest Service, 1991)