Land Use Regulation Commission
Grid Scale Wind Energy Development Application

Bowers Wind Project
Carroll Plantation and Kossuth Township
Penobscot and Washington County

March 2011

Prepared for:
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Submitted to Land Use Regulation Commission on March 10, 2011

CHAMPLAIN WIND, LLC
AN AFFILIATE OF FIRST WIND

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1.0 PROJECT DESCRIPTION

Champlain Wind, LLC (Champlain; the applicant) has proposed construction of the Bowers Wind Project (Project), a utility-scale wind energy facility with a net generating capacity of up to 69.1 megawatts (MW) to be located in Carroll Plantation, Penobscot County, and Kossuth Township, Washington County (Figure 1). The Project will include up to 27 turbines, associated access roads, up to four permanent 80-meter meteorological (met) towers, a 34.5-kilovolt (kV) electrical collector system, an electrical collection substation, and an Operations and Maintenance (O&M) building and other potential ancillary improvements associated with the foregoing.

The turbines will be constructed on three ridges in the Project area: Bowers Mountain, an unnamed ridge to the south (referred to as “South Peak” throughout the application) in Carroll Plantation, and Dill Hill in Kossuth Township (Exhibit 1A). Multiple turbine models are being evaluated for the civil and electrical design described in this permit application. This permit application considers the greatest impact aspects of the various candidate turbine models, providing analysis of the tallest turbines for visual, shadow flicker and public safety analyses, the highest sound output turbines for sound assessment, as well as the largest turbine pad footprint. This application describes the aspects of Siemens turbines, assuming up to 10 Siemens 3.0 MW turbines and up to 17 Siemens 2.3 MW turbines, with maximum height of 130.5 meters (428 feet).

The Project will also include up to four 80-meter lattice-type permanent meteorological (met) towers. The project design provides information for five candidate locations for permanent met towers, and this application describes the clearing associated with four locations. Up to four permanent met towers will be constructed, and may be installed before turbines are erected. In addition, up to three temporary 80-meter met towers may be placed in turbine locations before the turbines are erected. These temporary towers will be removed prior to the completion of construction.

A 34.5-kV electrical collector line will collect power from each turbine along the summit, and will then travel north in an “express collector” line for 5.2 miles, from the Project site to a proposed substation located adjacent to Line 56 (Exhibit 1B, Exhibit 1C). The substation will “step up” the power to 115 kV so it can connect to Line 56, an existing 115-kV transmission line, owned by Evergreen Gen Lead, LLC, an affiliate of Champlain. Line 56 will accept the power from the Project without the need to update the capacity of the line..

Access roads will connect each turbine location and will provide construction and maintenance access from Route 6. Existing roads will be utilized to the extent possible. The new 20-foot access roads and 35-foot crane path will be maintained by the applicant (Exhibit 1A).The O&M building will up to a 7,000 square foot building, located north of Route 6, adjacent to the express collector line (Exhibit 1A).

The Project is located within the area designated as expedited for wind permitting. The Project area is zoned as a General Management Subdistrict (M-GN), and includes some limited areas of Stream Protection subdistricts (P-SL) and Wetland Protection subdistricts (P-WL) (Figure 2). Turbine locations and the area of the express collector line have been managed for commercial timber production. Summit elevations range from 750 to 1,120 feet above sea level.

Champlain has obtained leases from three landowners for siting the turbine portion of the Project, and has executed purchase and sale agreements to acquire an easement or fee ownership from nine landowners for the express collector line (Exhibit 4A).

Existing structures within the lease area include three temporary met towers and a collection of seven seasonal camp buildings located in one area and owned by one of the landowners providing a lease for the Project. The structures associated with the camps are more than 1,100 feet from any proposed turbine location. The temporary meteorological towers will be removed prior to completion of Project construction.

The Project design includes approximately 3.79 acres (165,243 square feet) of wetland clearing; 0.10 acre (4,161 square feet) of permanent wetland fill; 64 square feet of stream impact for a culvert replacement; and minor impact to an Inland Wading Bird and Waterfowl Habitat (IWWH), including 0.14 acres of upland clearing. No other Significant Wildlife Habitats (e.g., Deer Wintering Area or Significant Vernal Pools) will be impacted by the Project design.

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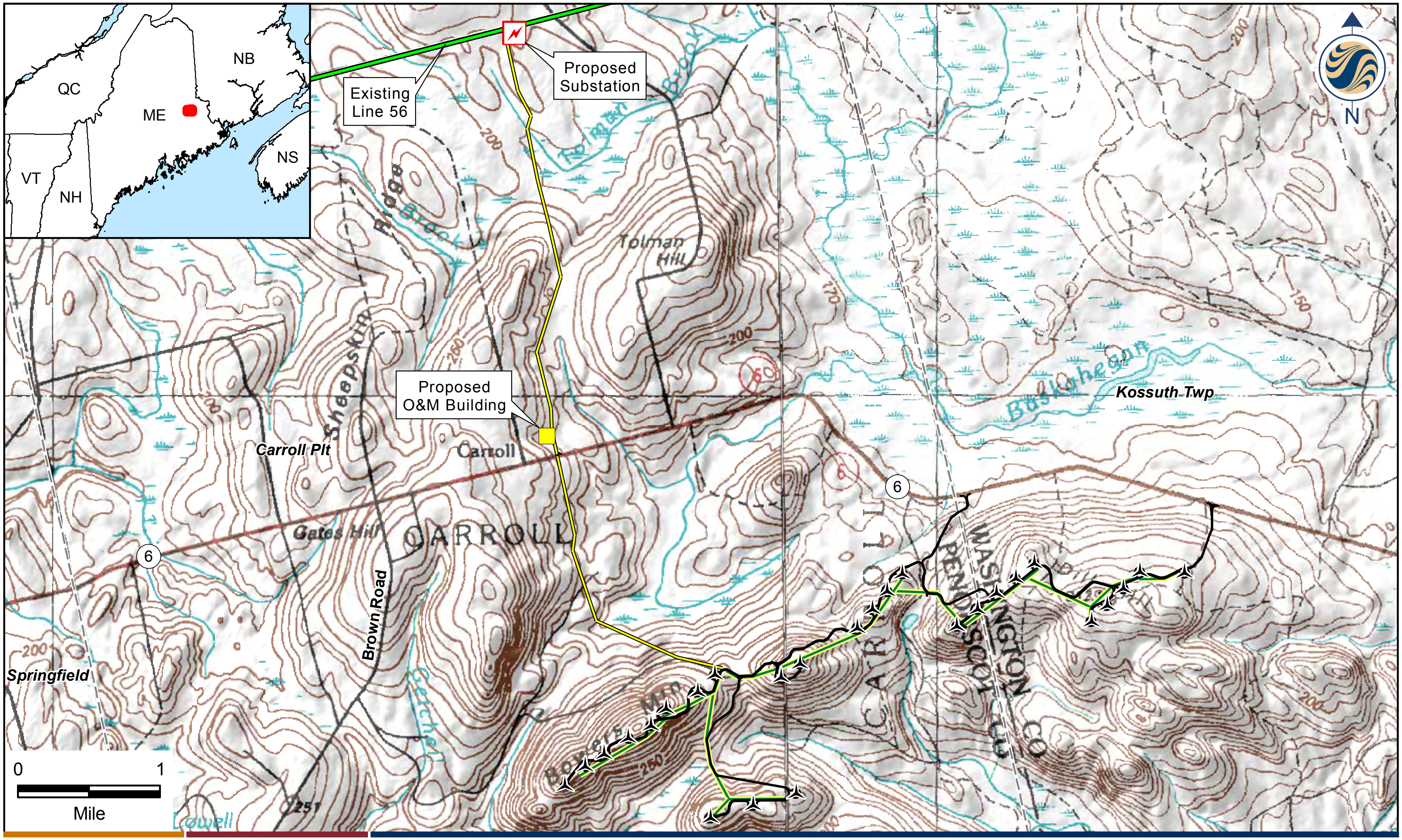

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Legend

- Proposed Turbine Layout
- Express Collector Corridor
- Mountain Top Collector Corridor
- Proposed Access Road

Client/Project

Bowers Mountain Wind Project
Carroll Plt. and Kossuth TWP, Maine

Figure No.

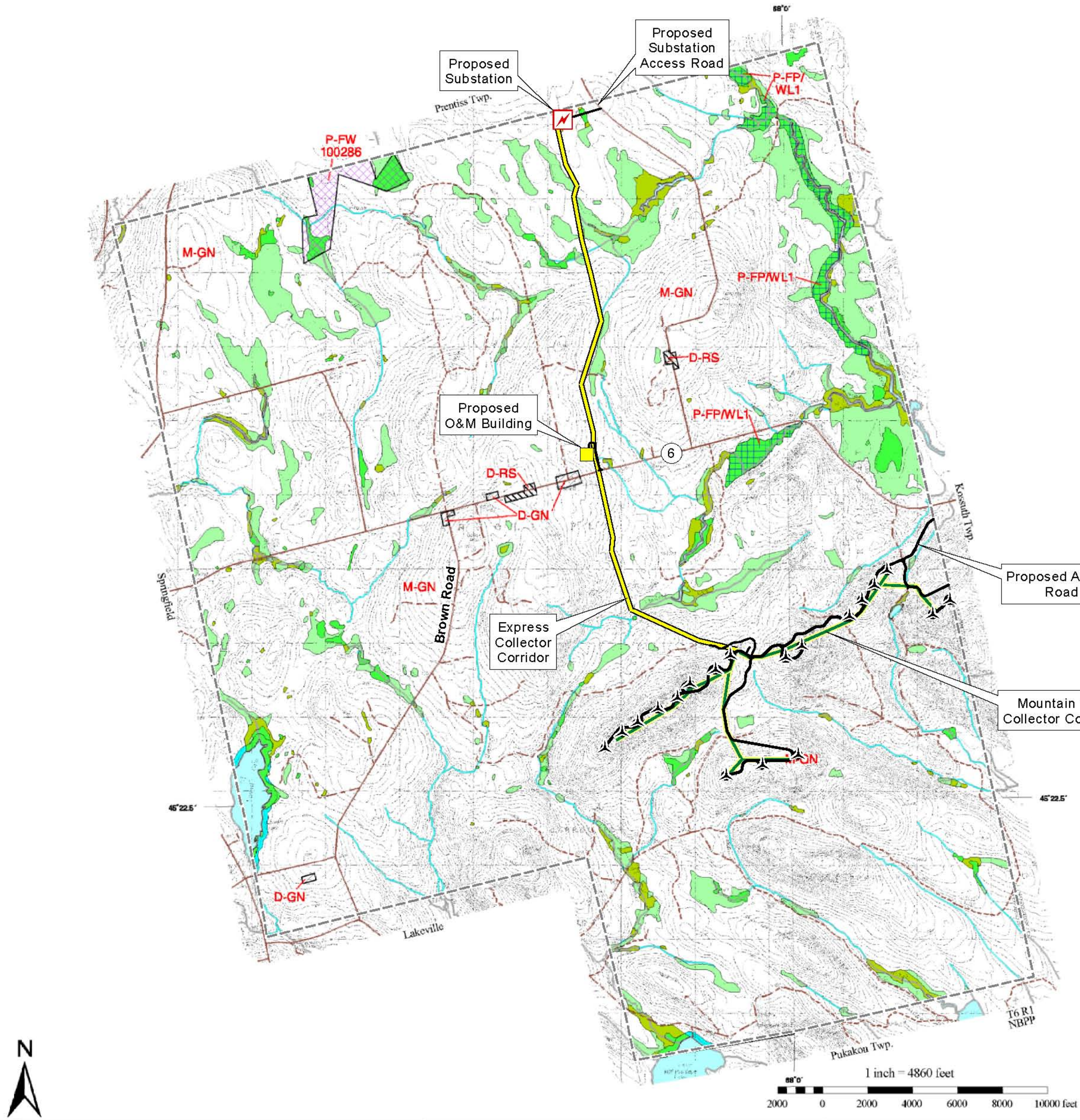
1

Title

Site Location Map

January 10, 2011

Land Use Guidance Map



Carroll Plt.

T6 R2 NBPP

Penobscot County

Maine Department of Conservation
LAND USE REGULATION COMMISSION
Augusta, Maine 04333–0022
(207) 287–2631
TTY (207) 287–2213
http://www.state.me.us/doc/lurc

Legend

Development Subdistricts

- D–GN General
- D–RS Residential

Protection Subdistricts

- P–FP Flood Prone
- P–FW Fish and Wildlife
- P–GP Great Pond
- P–SL2 75 feet Shoreland – Minor
- P–WL1 Wetlands – Significant
- P–WL2 Wetlands – Scrub–shrub
- P–WL3 Wetlands – Forested

Management Subdistricts

- M–GN General

- Water body
- Improved road
- Unimproved road
- Trail

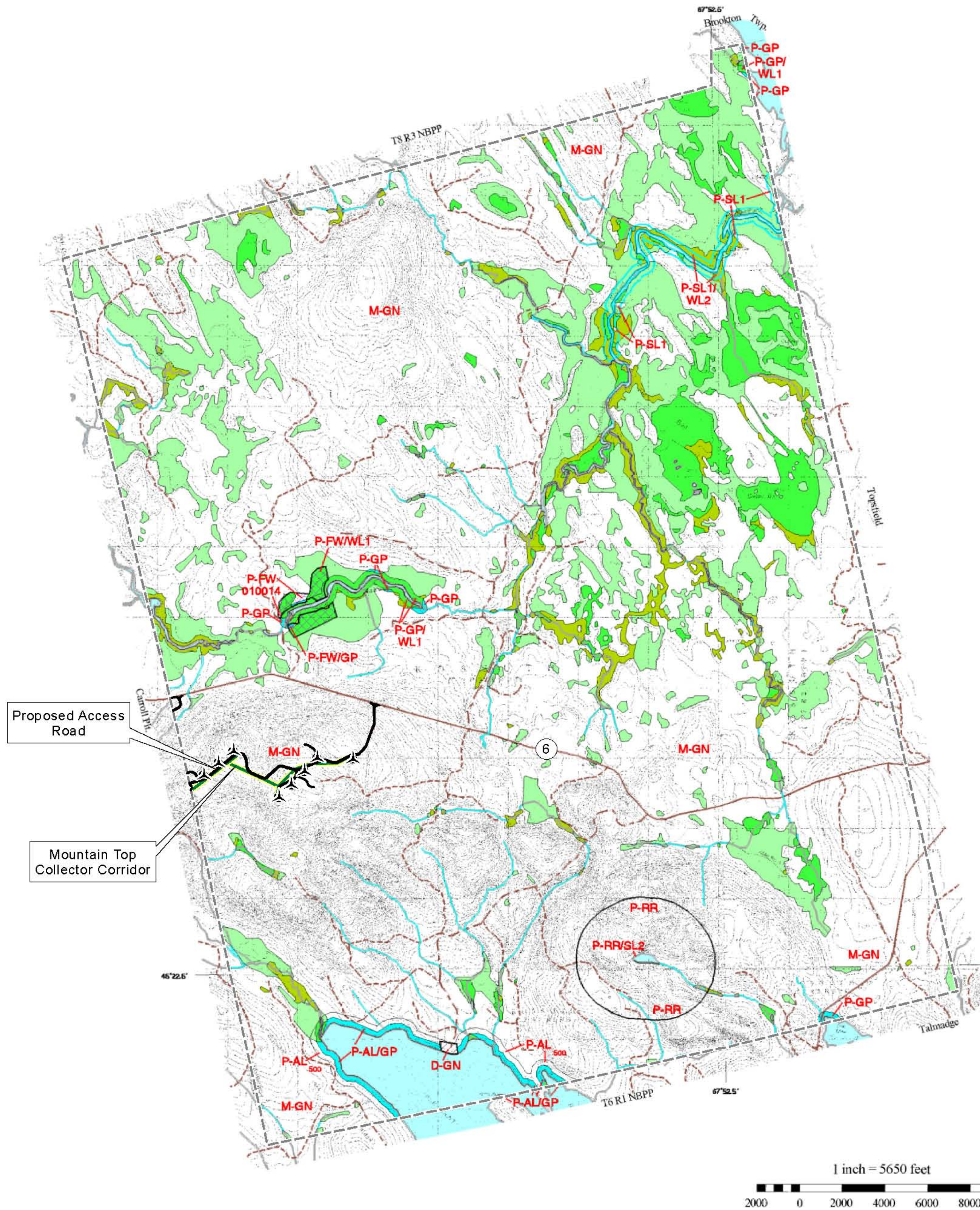
Areas designated as two or more protection zones are annotated with each zone, e.g. P-FP/FW/WL1, P-FP/SL1, etc., where necessary

- or Subdistrict boundary
- 1 Zoning amendment

Topographic base, roads and trails from U.S. Geological Survey 7.5–minute map series

For the purpose of simplicity, this map does not show the Wetland Protection Subdistricts for areas identified pursuant to Section 10.16,K,2 such as beds of rivers, lakes, and other water bodies, and freshwater wetlands within 25 feet of stream channels, which are nevertheless within P–WL Subdistricts.

This map is a reduced version of the official Land Use Guidance Map. It is not certified to be a true and correct copy. Full size official LURC Land Use Guidance Maps are available from the Commission at its Augusta office. Potential applicants unsure of their zoning should request a full size map from the Augusta office.



1 inch = 5650 feet

2000 0 2000 4000 6000 8000 10000 feet

Land Use Guidance Map

Kossuth Twp.

T7 R2 NBPP

Washington County

Maine Department of Conservation
LAND USE REGULATION COMMISSION
Augusta, Maine 04333-0022
(207) 287-2631
TTY (207) 287-2213
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Legend

Development Subdistricts

- D-GN General

Protection Subdistricts

- P-AL Accessible Lake
- P-FW Fish and Wildlife
- P-GP Great Pond
- P-RR Recreation – Water
- P-SL1 250 feet Shoreland – Major
- P-SL2 75 feet Shoreland – Minor
- P-WL1 Wetlands – Significant
- P-WL2 Wetlands – Scrub-shrub
- P-WL3 Wetlands – Forested

Management Subdistricts

- M-GN General

Water body

Improved road

Unimproved road

Trail

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Land Use Guidance Map last amended on August 18, 2005

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Table 1. Key Facts

Key Facts		Units	Comments
Number of Turbines			
		Up to 27 turbines	Final turbine number and type to be determined.
Rated Output			
		Up to 69.1 MW	Actual generation will vary.
Wind Resource			
Prevailing wind direction		West-Northwest	
Average wind speed		7.5 meters/second	
Cleared Acreage			
Temporary	27 Turbine Pads and associated roads	145 acres	Temporary clearing for each turbine ranges from 2.25 to 3.30 acres.
	Temporary MET Towers	3.66 acres	Additional clearing beyond turbine pad for up to three temporary towers.
	Laydown areas	8.8 acres	Revegetated after construction.
	Mountaintop collector line corridor	58.28 acres	80’ corridor.
	Express collector line corridor	63.79 acres	100’ corridor, with portions 150’ at corners.
Permanent[1]	27 Turbine Pads	11.61 acres	Approximately 0.43 acres of permanent clearing for each turbine.
	New/Improved Access Roads	10.4 acres	0.21 miles of 10’ roads, 0.69 miles of 16’ roads, 3.50 miles of 20’ roads
	New Crane Paths	28.5 acres	6.73 miles of 35-foot wide crane roads
	O&M Building	0 acres	Located in existing field
	Substation and Access Road	3.77 acres	
	Permanent MET Towers	11.68 acres	Permanent clearing for up to four towers, and 12-foot access roads.
Stump Dump(s)		< 1 acre	Up to two locations on different parcels, each would be < 1 acre.
Total Project Clearing **Temporary clearing** **Permanent clearing**		 **295 acres** **66 acres**	
Impacts to Wetlands & Streams[2]			
Access Roads Permanent Clearing Permanent Wetland Fill		 0.01 acres (443 s.f.) 0.09 acres (3681 s.f.)	
Electrical Collector Temporary Clearing Permanent Wetland Fill Temporary Wetland Fill		 3.78 acres (164,800 s.f.) 480 s.f. 0.45 acres (19,883 s.f.)	
Total Wetland Impact **Clearing** **Permanent Fill** **Temporary Fill**		 **3.79 acres** **0.10 acres (4,161 s.f.)** **0.45 acres**	
Road Mileage			
Total New Roads **Total Improved Roads**		9.82 miles 1.31 miles	
Approximate Location Distances from nearest turbine			
From nearest protected location		2500’ from a residence or camp	
From nearest scenic resource		2.02 miles from Pleasant Lake	

[1] Permanent clearing does not include new impervious areas associated with development of non-forested areas. Those impacts are identified and addressed in Section 10.
[2] Clearing in wetlands is included in the total cleared acreage.

2.0 ESTIMATED PROJECT COST AND FINANCIAL CAPACITY

As evidenced below, Champlain has adequate financial and technical capacity to construct the Project in compliance with state environmental laws and the standards and regulations adopted pursuant thereto.

2.1 Estimated Project Cost

The total Project cost is expected to be approximately $136 million, broken down approximately as follows, based on Siemens turbines.

Turbine cost	$80.9 million
Turbine installation cost	$8.1 million
Foundations	$5.2 million
Roads	$5.3 million
Electrical collector lines	$13.6 million
Other Construction Costs	$22.7 million

Champlain is the Project applicant and lessee. A Certificate of Good Standing is included as Exhibit 2A. Champlain is a wholly owned subsidiary of First Wind Maine Holdings, LLC, which in turn is a wholly-owned subsidiary of First Wind Holdings, LLC (First Wind). Paul Gaynor is the President or Chief Executive Officer of all three companies. An affiliate of Champlain and First Wind will purchase the turbines that will be erected at the Bowers Wind Project and will assign ownership of such turbines to Champlain. First Wind will provide the initial equity for the Project. Letters of financial support from First Wind and from Key Bank are included as Exhibit 2B. In addition, a consolidated balance sheet for First Wind and its subsidiaries is included as Exhibit 2C

2.2 First Wind Background

First Wind (www.firstwind.com) is an independent wind energy company exclusively focused on the development, financing, construction, ownership, and operation of utility-scale wind projects in the United States.

First Wind's strategy since inception in 2002 has been to build a company with the ability to develop, own, and operate a portfolio of wind energy projects in favorable markets. Its team of approximately 200 employees has broad experience in wind project development, transmission line development, meteorology, engineering, permitting, construction, finance, law, asset management, maintenance, and operations. It has established land control, stakeholder relationships, meteorological programs, and community initiatives, and has developed transmission solutions in the markets in which it focuses.

First Wind currently operates seven wind energy projects across the country with a generating capacity of 504 MW, has three more projects currently under construction, and as reflected in the attached balance sheet, has assets in excess of $1.5 billion. First Wind is providing the initial equity for development of the Project and, as described more fully in its letter of financial support in Exhibit 2B, has the financial and technical resources and ability to finance the construction and operation of the Project.

3.0 TECHNICAL CAPACITY

The assembled project team is nearly identical to the Stetson team and has a wealth of experience in project design and wind project development (Exhibit 3). First Wind has successfully permitted five projects in Maine: Mars Hill, Stetson, Stetson II, Rollins and Oakfield. Mars Hill, Stetson and Stetson II are operating. The Rollins project is under construction, and the Oakfield project is in the construction planning phases.

First Wind has four other projects in operation outside of Maine: Kaheawa Wind (30 MW) in Hawaii; Steel Winds (20 MW) and Cohocton (125 MW) in New York; and Milford (204 MW) in Utah. In addition, First Wind has four projects under construction in Maine, Vermont, Utah and Hawaii, to complement its development portfolio in the Northeast and across the country.

The project team consists of Stantec Consulting (environmental and permitting); James W. Sewall Company (civil design); SGC Engineering, LLC (electrical engineering); Landworks (visual impact); Stantec Consulting (sound and shadow flicker); Albert Frick and Associates (soils); TRC, Independent Archeological Consulting and Public Archeology Lab (cultural resources); and Verrill Dana (legal counsel). Each consultant was chosen for their extensive experience in development, design, and siting, particularly with wind energy facilities in Maine.

4.0 RIGHT, TITLE, OR INTEREST

Champlain holds lease agreements for parcels in Carroll Plantation and Kossuth Township where turbines will be located and has executed purchase and sale agreements to acquire an easement or fee ownership for portions of additional parcels associated with the express electrical collector in Carroll Plantation that are necessary for the Project (Exhibit 4A). Included as Exhibit 4B is a 20-year land division analysis demonstrating that none of these leases create a subdivision.

5.0 PROJECT LOCATION AND DESIGN

5.1 Project Location

Turbine locations were selected based on analyzed wind data and topographical terrain in three distinct areas: Bowers Mountain; an unnamed mountain designated in this application as South Peak; and Dill Hill. Road locations were evaluated and routed to minimize impacts while meeting the Project purpose. Turbine pad layouts were also designed to minimize clearing and cut/fill requirements needed for turbine construction. The final road design takes advantage of existing roads where possible, while also incorporating design requirements for minimum width and maximum grade. Where feasible, the collector design connecting turbines is located adjacent to these roads to minimize clearing impacts. In areas where slopes on the edges of roads are too steep or road alignment has too many curves to allow for a collector line without excessive road crossings, the collector line runs cross-country. The cross-country portions are more direct and require fewer poles and anchors. Exhibit 1A includes the civil design drawings and incorporates the mountain-top electrical collector design. Exhibit 1B includes the express electrical collector design.

The O&M building will be located north of Route 6, adjacent to the express collector line. The layout for the O&M location is included in Exhibit 1A, Sheet 4 and the HHE-200 form for the subsurface wastewater disposal system, is presented in Exhibit 15A. The O&M building will be up to a 7,000-square foot building, constructed of metal or other suitable materials, and painted in neutral colors. It will be heated by a propane boiler. Electricity will be supplied by an overhead line from the existing EMEC line along Route 6, with a propane-fired generator as backup. Exterior lighting will be motion sensitive or manually controlled. Parking will be in an unpaved gravel area, approximately 20’ x 100’. The building will be constructed in accordance with all relevant building and electrical codes; have offices for maintenance and operations personnel; and includes a garage for vehicle and equipment storage and repair.

The substation will be located adjacent to the existing Line 56 transmission line corridor. The substation will be fenced and may have pole-mounted floodlights that would only be on during nighttime work at the substation.

Up to four 80-meter lattice-type permanent meteorological (met) towers will be constructed, and may be installed before turbines are erected. Five potential locations are shown on the plans in Exhibit 1A. The access roads to these towers will be 12 feet wide. Total clearing associated with four permanent met towers is 11.67 acres. Clearing at a potential location will only occur if a permanent met tower will be constructed at that location.

In addition, up to three temporary 80-meter met towers may be placed in turbine locations before the turbines are erected. These temporary towers will be removed prior to the completion of construction. Total clearing associated with three temporary met towers is 3.66 acres of temporary additional clearing beyond the turbine pads. Clearing at a potential location will only occur if a temporary met tower will be constructed at that location.

5.2 Compliance with LURC Setbacks

The Project complies with setbacks for all structures in accordance with 10.26D and 10.27D. With the exception of structures associated with the electrical collection system, the nearest structure to a road used for public access is the O&M building, which is located more than 900’ from Route 6. The nearest structure to a property line is the O&M building, which is located more than 400’ from the nearest property line. The nearest structure to a lake is a turbine, which is located more than 1300’ from Dipper Pond. The nearest structure to a stream is a pole on the express collector line, which is located more than 130’ from a stream. There are three poles on the express collector line that will be located in wetlands, and these impacts are described further in Section 11.

5.3 Alternatives, Avoidance, and Minimization

During the planning and conceptual phases of the Project, several alternative designs were considered for turbine pads, crane paths, and access roads for each of the three ridges. The final design alternative described in this application minimizes impacts to natural resources and cut/fill impacts while meeting all necessary design requirements.

On the westerly end of the Bowers Mountain ridgeline, situating the necessary 334-foot diameter turbine pad on the slopes proved challenging as the required fill to construct the pad extended down either side of the mountain. To minimize these potential fill impacts, five of the westerly six turbine pads were decreased in size, which reduced the impact footprint on the mountain summit. In those same areas, the initial alignment of the crane path connecting these turbine pads was situated on the north side of the ridgeline in an effort to reduce the project’s visual impact on areas south of the Project site. However, due to the narrowness and steepness of the ridgeline, fill necessary for the construction of a crane path on the north side of the ridge would have required significant fill slopes down the mountain in several locations. To reduce the fill slopes and avoid delineated wetlands on the mountain top, the crane path was ultimately routed along the ridgeline, on both the north and south sides, to minimize the overall impact footprint. This resulted in a longer crane path, but lesser overall fill requirements and footprint. Two spur roads were designed as part of the Bowers Mountain ridgeline crane path; one to turbine 6 and one to turbines 9 and 10. If spur roads were not utilized to these three sites, the resulting crane path would have been too steep (i.e., greater than 12 percent) and/or would have required excessive cuts and fills.

Portions of the existing woods roads on the Bowers Mountain site were utilized as much as possible. The majority of these existing woods roads, however, were either greater than 12 percent or in poor locations relative to the turbine pads. The remaining turbine pads and crane paths on Bowers Mountain were designed to avoid any natural resources and to keep the impact footprint to a minimum.

The South Peak ridgeline was selected for installation of turbines 15 through 17. The South Peak ridgeline was flat enough to site all three turbine pads without significant cuts and fills. The crane path connecting the turbine pads generally follows existing grades to minimize the impact footprint. There will be no wetland impacts on the South Peak ridgeline, with only minor wetland impacts associated with the South Peak access road. While there were several existing woods/logging roads in the vicinity of South Peak, those that provided potential access to the ridgeline were greater than 12 percent. Additionally, these existing woods/logging roads leading to South Peak meandered several miles through existing woodlands before connecting to existing improved roads. In order to minimize the impact of accessing South Peak, a direct route was selected for the final site design. This proposed direct route access road extended southerly from the crane path near turbine 8 on the Bowers ridgeline around several large wetland areas to the toe of South Peak. The access road was then routed up the north side of south peak, from west to east, until it tied into the crane path at turbine 17. An existing road crossing at the northerly toe of South Peak was utilized to minimize wetland impacts. To minimize the footprint of this access road and overall wetland impacts, the applicant proposes to break down the cranes on Bowers Mountain and move them by truck to South Peak. This additional crane breakdown, transportation, and re-assembly will increase the costs of construction, but minimize the overall project impact.

Turbines 18 through 27 were sited along Dill Hill without any wetland impacts or excessive cuts and fills. Approximately 15 percent of the proposed crane path along Dill Hill will utilize existing logging roads. Several sections, however, of existing logging roads, especially between turbines 25 and 27, are within delineated wetland areas. The crane path was rerouted as necessary to avoid wetland impacts in this area. One spur road was designed as part of the Dill Hill crane path. This spur leads to turbines 23 and 24 and was routed around several delineated wetlands to avoid impacts in this area. The proposed access road to the west was designed to connect to the existing Dipper Pond Road and utilized a section of existing camp road to minimize wetland impacts. An existing wetland area along the Dill Hill access road would be crossed at the narrowest point to minimize impacts. The proposed access road to the east, which connects to Route 6, utilized approximately 56 percent of the existing logging road in this area. Again, the access road was rerouted as necessary to avoid wetland impacts along the existing logging road.

After multiple design iterations, natural resource impacts were avoided and minimized throughout the planning of the Project. Total impacts have been limited to approximately 0.10 acre of permanent wetland fill, 3.79 acres of wetland clearing, and 0.14 acres of upland clearing in an IWWH.

The Project was designed to avoid any impacts to other Significant Wildlife Habitats or rare, threatened, or endangered species. For example, a rare plant was documented south of turbine 1, and therefore the size of the turbine pad at turbine 1 was minimized and the electrical collector system runs underground near this location to avoid all impacts. A Significant Vernal Pool was documented north of the access road between Bowers Mountain ridge and Dill Hill. To avoid impacts, the access road was re-routed to the south. In addition, structures on the electrical collector will be designed to be in compliance with guidelines set forth in the Avian APLIC document, “Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006.” Compliance will be met primarily by providing adequate spacing between conductors with additional insulation or covering of energized elements as suggested.

5.4 Grading and Filling

The Project site plans were designed to take advantage of the existing topography at each turbine location and, where possible, utilize existing roads to reduce overall cut and fill for the Project. However, the Project will require use of aggregate material for improvement of the existing logging roads and construction of new access roads, crane paths, and spur roads. Turbine sites must be graded to be approximately level with no more than three percent cross slopes. Table 2 summarizes the cut and fill projections for the different portions of the Project.

Table 2 Cut and Fill Calculations

Cut and Fill Calculations Per Project Section	Cut (Cubic Yards)	Fill (Cubic Yards)	Net (Cubic Yards)	
Baskahegan Access Road	5,800	11,600	5,800	Fill
Dipper Pond Road	2,000	1,400	600	Cut
Moose Road (Brown Rd to T14; & spurs to T8 and T11)		4,000	4,000	Fill
Bowers Crane Path (& Access Road to Dipper Pond Rd)	369,000	353,000	15,800	Cut
South Peak Access Road (T8 to T17)	8,000	20,900	12,900	Fill
South Peak Crane Path	45,000	33,200	11,800	Cut
Dill Hill Access Rd (Dipper Pond Rd to T20)	4,200	3,800	400	Cut
Dill Hill Crane Path (& Access Road from T27 to Route 6)	111,000	110,000	1,000	Cut
O&M Site (& Access Rd)	4,700	13,400	8,700	Fill
Substation Site(& Access Rd)	8,800	6,900	1900	Cut
Total	558,500	558,200	300	Cut

The following assumptions were made in performing the cut and fill calculations:

- Competent rock material will generally be found approximately five feet below grade (based on preliminary geotechnical investigation) along the ridges of Bowers Mountain, South Peak, and portions of Dill Hill (Exhibit 5A);
- The Project site is suitable for rock anchor type foundations. This assumption is reflected in the turbine clearing elevations and site grading plans;
- Blast rock material will be crushed as necessary and reused on-site as roadway and turbine clearing fill material;
- Grubbings (i.e., top layer of soil that is heavy with organics) will be stockpiled on-site and reused in select areas for reseeding and final stabilization; and
- The Project fill slopes have been graded at a horizontal to vertical ratio of 2H:1V. It is assumed that suitable blast rock material will be available for these fills and slope stabilization.

It is anticipated that during construction, blasting may be required in some locations to break up bedrock ledge. This will enable road grades to accommodate oversized loads accessing the site and allow for construction of the turbine foundations. Refer to Exhibit 5B for the Project blasting plan. This blasting and other areas of excavation cuts will provide fill that can be used elsewhere on site for road, turbine pad, and turbine crane pad material. When designing the access roads and crane paths for this Project, the cut/fill balance attempted to minimize the net import or export of fill to or from the site. As the table above indicates, this was achieved, and the Project design will have a small excess of cut material. This excess material will be utilized on-site. In addition, any waste concrete from tower foundations may also be crushed and used as fill in the turbine clearings.

The vast majority of aggregate material required for construction will come from blasted rock produced during ledge removal operations, which will be graded for reuse in accordance with the Project geotechnical specifications. Based on earthwork balance calculations, additional sources of aggregate will not likely be required. However, according to Maine Geological Survey (MGS) mapping of sand and gravel aquifers for the Springfield Quadrangle, Maine (Foster *et al.* 2001. *Sand and Gravel Aquifers – Springfield Quadrangle, Maine.* MGS, Open-File No. 01-242), there are 3 active gravel pits within 13 miles of the Project site. As necessary, the Project's geotechnical engineering consultant will evaluate these potential gravel sources to assess their suitability for construction use. As part of their investigation, the Project's geotechnical consultant will evaluate other potential gravel source areas based on review of on-site soils mapping and test pit data from Albert Frick and Associates. Any gravel extraction areas utilized by the Project will be from gravel pits less than five acres, and any additional gravel removed in connection with the project will not cause a gravel source extraction area to exceed five acres.

6.0 CLEARING AND REVEGETATION

6.1 Clearing

The Project will require clearing a portion of the Project area for construction of the wind turbine pads, up to four permanent meteorological towers, access roads, and the electrical collector corridor. Commercial timber harvesting has previously disturbed the entire development area; therefore, clearing activities will not be as extensive as would be required in virgin or otherwise unmanaged forest areas.

Clearing will involve a mix of temporary and permanent impacts. Erosion control protection will be installed as necessary prior to initiation of clearing operations, and buffer areas will be maintained as described more fully in Section 10 below. Construction of a portion of the wind turbine pad and permanent access roads will require permanent clearing. In addition, the construction process will require temporary clearing impact for the electrical collector corridor and for material and equipment laydown areas. Areas of temporary clearing will be revegetated following completion of construction. The Key Facts Table (Table 1) summarizes the permanent and temporary clearing impacts associated with this Project. Wetland impacts were minimized to the greatest extent practicable, and the Project was redesigned multiple times to minimize all impacts, including clearing.

General descriptions of the clearing required in each portion of the development area are provided in Exhibit 6.

6.2 Revegetation

Following construction, laydown areas and all but a typical 0.43 acre at each turbine pad will be revegetated by both seeding and natural revegetation. Topsoil material previously stripped from the development areas and stockpiles will be spread on these areas and seeded with a suitable mix of non-invasive species. Alternatively, some areas may be covered with bark mulch to prevent erosion and will be allowed to revegetate naturally. After November 15, seeding will be delayed until the following spring (after April 15) to provide adequate growth time before the onset of cold weather. In this instance, each area will be heavily mulched to stabilize it for winter.

Following completion of initial revegetation activities, the reseeded areas will be inspected at one-month, three-month and six-month intervals and reseeded again, as necessary, to provide adequate herbaceous coverage. If eroded or poorly vegetated areas are noted during these inspections, the areas will be stabilized and reseeded. Areas will continue to be inspected until a vegetative cover is established.

Topsoil stockpiles throughout the site will be protected from erosion and sedimentation through implementation of Best Management Practices (BMPs). This will include encircling down-gradient sides of stockpiles with silt fencing and/or an erosion control mix berm. Slopes will be left in a roughened condition to reduce runoff erosion.

The Project does not intend to reseed access roads or crane paths. Comments from the State Soil Scientist, Maine Department of Environmental Protection (MDEP) engineers, and Third-Party Inspectors were received on previous projects that the roadside revegetation did little to minimize the impacts and created unstable soils along the roadside. The roads will be well constructed due to the heavy loads that need to be carried during construction. These heavy loads further compact and stabilize the roadway. Maintaining the roads at the designed width also facilitates access during operation of the Project. The clearing numbers for the Project found in Table 1 reflect a permanent 35-foot wide clearing impact for the crane roads and 20 feet for the access roads.

7.0 CONSTRUCTION, SIGNAGE, TRANSPORTATION AND TRAFFIC

7.1 Construction Plan

Construction of the Project is planned to minimize on-site environmental impacts while optimizing the efficiency of construction resources, including personnel, equipment, and supplies. Minor adjustments may be made during construction provided they do not impact regulated resources and are reflected in the final as-built drawings. These include changes that result in a reduction in impact and/or footprint (such as a reduction in clearing or impervious area, and elimination of structures or a reduction in structure size); location of a structure within the identified clearing limits; the type of foundations used; additional drainage culverts, level spreaders or rock sandwiches; changes to culvert size or type provided the hydraulic capacity of the substitute is greater than or equal to that of the original; and changes of up to 10 feet in the base elevation of a turbine vertically up or down as long as the change in elevation does not result in new visual impacts or changes to the stormwater management plan.

Additionally, Champlain expects the following minor adjustments may be made upon prior approval by the Third-Party Inspector and reflected in the final as built drawings: minor changes that do not increase overall Project footprint or impacts and which do not impact any regulated resources as long as any new areas of impact have been surveyed for environmental resources and do not affect other landowners. These changes include adjustments to horizontal or vertical road geometry that do not result in changes to the stormwater management plan; a shift of up to 100 feet in a turbine clearing area; a shift of pole or anchor locations of up to 25 feet from the center line or horizontal line of the electrical collector alignment; and adjustments to culvert locations based on in-field topography.

The proposed construction schedule is attached as Exhibit 7A. Further details on the construction sequence are provided in Exhibit 1A Sheet 3.

Temporary office trailers will be utilized by the contractor during the construction phase of the Project. These trailers will likely be located within the proposed construction material laydown area located near the O&M site north of Route 6. This area is located beyond the 75-foot setback from the roadway, as required by Section 10. The temporary trailers will be removed within 3 months after commencement of operation of the Project.

A Third Party Inspection Program (Exhibit 7B) provides for construction oversight for the environmental aspects of the Project. A Spill Prevention Control and Countermeasures Plan for construction was also prepared (Exhibit 7C).

7.2 Signage

Signage on the leased area will be limited to informational signs associated with site activities. Any permanent signs will confirm to 10.27.J.

7.3 Transportation

It is anticipated that the port of entry for delivery of the wind turbine components will be Searsport, Maine. Eastport is also being considered as an alternative port of entry. A transportation study was conducted by James W. Sewall Company (Sewall) to analyze the roads from Searsport and Eastport to the Project entrances (Exhibit 7D).

Turbine components will be delivered to the Project via Route 6 to two entrances located off of Route 6. The primary entrance will be the Baskahegan access road (see Exhibit 1A for civil design plans), which will be a newly-constructed entrance that will connect Route 6 with the Dipper Pond Road. The second entrance to the Project site will be at the east end of the Dill Hill Loop Road, an existing logging road that connects to Route 6. Both entrances to these roads will accommodate delivery of the oversized turbine components. Additional access to the Project for construction vehicles will be provided from Route 6 via the Brown Road (public) to the private Moose Road. No delivery of turbine components will be made via Brown Road or Moose Road.

The transportation of turbine components will be managed by the selected manufacturer or construction contractor under the terms of the turbine purchase or construction agreement. That party will continue to coordinate with the Maine Department of Transportation (MDOT) and other applicable agencies and town officials and is responsible for obtaining all necessary permits to affect delivery.

7.4 Traffic

Traffic movements associated with the Project will primarily consist of construction-related traffic, including delivery of construction equipment, and commuting of construction workers to the Project site during the approximately 10-month construction period. The majority of access to the turbine areas will be from two intersections with Route 6, the Baskahegan entrance or the Dill Hill East Loop Road, as well as Moose Road via Brown Road. Access to the O&M building will be provided via an expansion of an existing intersection to the north of Route 6. Access to the express electrical collector system will be provided thru existing woods roads via Route 6, Danforth Road, and Sheepskin Road that will need minor improvements and access to the substation will be provided via a new road from North Road (Exhibit 7E). It is estimated that during peak construction, the number of worker vehicles traveling to the Project site will be approximately 150 vehicles per day. This constitutes a minor traffic demand on Route 6. Once the project is fully operational, the number of vehicles traveling to the Project site will be approximately ten to sixteen vehicles per day.

The Baskahegan entrance/Route 6 intersection, the Dill Hill East Loop Road/Route 6 intersection, and the O&M entrance/Route 6 intersection each have suitable sight distances for traffic entering and leaving. The Brown Road/Route 6 intersection has adequate sight distances to the west, but a vertical curve on Route 6 limits the attainable sight distance to the east to no more than 400 feet. This falls short of the minimum recommendation of 425 feet for a 50-mile per hour posted speed road that carries 1,510 vehicles per day, per the guidelines presented in the American Association of State and Highway Transportation Officials “Green Book.” However, this is an existing intersection that is not identified as a high crash location (MDOT High Crash Location Listing 2006-2008). There should be no need for permanent mitigation of the limited sight distance at this location, in light of the very low traffic volume on Route 6 and the trip generation rate that is projected for the site following project completion. The applicant will coordinate with the MDOT regional traffic engineer to determine whether additional work zone signage, and temporary speed reduction plaques should be utilized.

Necessary requirements and permits will be complied with and obtained from the Over Limit Permits Department, Maine Bureau of Motor Vehicles (BMV). The applicant will continue to coordinate with the MDOT and BMV as more specific information is developed. In addition, approvals will be sought from MDOT for any temporary modifications to existing roadways that might be required to accommodate construction of the Project.

Once off the public roads, the Project roads will accommodate all construction traffic. Turnouts have been incorporated in the design of the access roads to allow construction equipment and material delivery trucks to pass safely and prevent construction traffic delays or unreasonable queuing of vehicles. This is also incorporated as a safety measure to allow emergency response unhindered access to the Project (2-way traffic) in the event of an emergency.

The majority of traffic to the Project site will occur during delivery of the turbines. The turbine components, including hubs, DTA’s, tower sections, and nacelles and blades are estimated to be delivered to the site at a rate of five turbines per week. Approximately 14 truck loads are required to deliver the component sections of each turbine, resulting in a total of approximately 70 truck trips per week during the six-week delivery period. The applicant and its transportation contractor will coordinate closely with Maine State Police personnel and local authorities during the turbine delivery period to minimize any potential impacts on localized traffic movement. In the event turbines need to be stored in the area due to turbine delivery schedule, the applicant will ensure that necessary permits are in place for this storage. It is expected that police escorts will be required for every oversized load.

Once the wind turbines are online and fully operational, site-generated traffic will be limited to vehicles for operations and maintenance. The underlying fee owners will continue to regulate public access to the parcels. Champlain and the underlying fee owners reserve the right to install gates for safety or security purposes.

There will be no concrete batching on-site. Concrete for foundations will be delivered to the Project site via Route 6 from Lincoln. Turbine foundations will generally be installed at a rate no greater than one turbine location per day to spread out construction crew utilization. Foundation types will be determined upon completion of geotechnical investigation; rock anchor and/or spread footing type foundations will be used. For rock anchor foundations, up to approximately 15 truckloads of concrete are anticipated for each day a turbine pad is poured. For spread footing foundations, up to approximately 40 truckloads of concrete are anticipated for each day a turbine pad is poured. Daily concrete requirements will increase if more than one foundation per day is poured. Traffic flagging crews will be utilized as necessary on Route 6, as appropriate, during periods of construction.

8.0 LIGHTING

A safe, efficient turbine lighting scheme that encompasses key safety elements for obstructions has been approved by the Federal Aviation Administration (FAA) (Exhibit 8). The lighting plan is in accordance with the FAA Technical Note Development of Obstruction Lighting Standards for Wind Turbine Farms (2005) and "Obstruction Marking and Lighting", Advisory Circular AC 70/7460-1K, Chapter 13 (February 2, 2007). Both are publications of the U.S. Department of Transportation/FAA. The determination of no hazard is conditioned on the Project components being lit in accordance with the FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights – Chapters 4,12 & 13 (Turbines).

The Project layout will consist of up to 27 turbines. The lighting design was submitted based on the tallest turbine type, with a maximum height of approximately 428 feet tall from the ground to the full vertical extent of the blade. The following FAA guidelines were used in placement of obstruction lighting for the turbines.

- Lights will be placed on the turbines positioned at each end of the line of turbines;
- Lights will be placed on the highest elevation turbines;
- Lights will then be placed to provide the minimum number of lights that still maintains a safe standard of one lit turbine at least every half mile (i.e., no more than 2,640 feet between lit turbines);
- Lighting will be synchronized; and
- A high concentration of lights, in close proximity, will be avoided.

Other lighting associated with the Project includes lighting at the O&M building and the substation. The substation will be fenced and have pole-mounted floodlights that will only be on during nighttime work at the substation. At the O&M building, exterior lighting will be motion sensitive or manually controlled,

The only other permanent lighting that may be associated with the Project will be motion sensitive entry lights at stairs located at the base of each turbine. These may or may not be utilized. This lighting would meet the requirements of LURC's Land Use Standard,10.25,F.

Some temporary nighttime lighting may be required during construction. Turbine erection must be done in lower wind conditions. Therefore, methods such as nighttime lighting are anticipated to provide as much time as possible to take advantage of favorable construction conditions. If required, portable (i.e., trailer mounted) flood light systems will be used to facilitate nighttime tower erection. Approximately three of these portable flood light units would be used at each tower location. At entrances to the Project, there will also be limited temporary nighttime security lighting.

9.0 SERVICES

9.1 Emergency Services

Current emergency services are adequate to meet the needs of the Project. No additional emergency medical services will be necessary. Additionally, current police and fire services provided to the area are adequate for the Project. The Washington County Sheriff, Penobscot County Sheriff and Maine Forest Service were consulted and each has provided confirmation that current services are adequate (Exhibit 9A). If emergency medical services are required during or after construction, 911 will be called. The emergency dispatcher will connect to the Houlton Regional Hospital, which will be able to dispatch LifeFlight.

9.2 Solid Waste

Construction of the wind turbines and the 34.5-kV electrical collection line will generate up to an estimated 344 cubic yards of solid waste consisting of construction debris, packaging material, and associated construction wastes. Any waste concrete will be incorporated into the sub-base for the proposed roadway and turbine pads. Concrete truck washdown will be contained and not allowed to flow to waters of the state prior to appropriate treatment. Cleared vegetation will be harvested and removed as merchantable forest products or chipped and flailed onsite.

Marketable timber will be removed from the site for sale. Smaller woody debris will be mulched and used as a soil amendment or as an erosion control measure. In areas of fill around the turbine pads where trees need to be removed, stumps may be left in place and filled over to avoid unnecessary ground disturbance and minimize waste disposal of the grindings. Other stump grindings will be used to make erosion control mix berms, which will be used to augment or substitute for fabric silt fencing. Ultimately, some stumps and other organic debris may need to be disposed of. This will be accomplished through reuse for erosion control measures (Exhibit 10A), or in up to two stump dump areas constructed in upland areas on different project parcels, each of which would have a total footprint area of less than one acre. If needed, the location will be determined by the applicant and the contractor in consultation with the Third Party Inspector during construction.

Any general construction debris associated with the Project, including packing or transportation materials, will be disposed of at appropriately licensed disposal facilities. Included as Exhibit 9B is a capability letter indicating capacity and willingness to take waste generated by the Project.

Following construction, a small amount of operational solid waste generated at the site, primarily office waste, will be collected at the O&M building and disposed of at a licensed facility.

9.3 Waste Water

During construction, portable toilets will be serviced and wastewater disposed of by contract with a service provider. They will be placed throughout the site as necessary.

The only subsurface disposal required for the Project will be associated with the O&M building located in the center of the Project area. The location of the subsurface wastewater disposal system is included in Exhibit 1A. The design of an appropriate subsurface wastewater disposal system is included in Exhibit 15A.

9.4 Water Supply

During construction, Champlain (or its contractors) will supply drinking water for workers and water for dust abatement on the gravel access roads. Drinking water will be provided as bottled water. Dust abatement water will be drawn from off-site non-potable water sources, and its use will not require withdrawals from any ground water source. Any off-site water sources may include lake water but not water from streams or brooks. Surface water withdrawals will be done in accordance with reporting requirements in 38 M.R.S.A. section 470-B, and if applicable, in-stream flows and pond water level regulations in 06-096 Chapter 587.

No concrete batch plants are proposed during construction; concrete for the turbine foundations will be supplied and delivered to the Project site by local concrete plants.

10.0 STORMWATER CONTROL AND PHOSPHORUS ANALYSIS

The construction of gravel roads, tower foundations, turbine pads, and an O&M building may create stormwater runoff in excess of what the Project area presently generates. It is important to mitigate this increase in stormwater runoff to prevent erosion or damage to downgradient ecosystems. In general, the stormwater control plan is designed to minimize the concentration of stormwater flows off the Project site. The primary components of the plan include minimizing the permanently impacted areas of the Project site, and incorporating appropriate BMPs in the Project design.

The primary component of the stormwater management will be minimizing the permanent impacts through revegetation (see Section 6.2 for further details). The total temporary and permanent clearing impacts associated with the Project are summarized in Table 1, Key Facts. The stormwater analysis addresses stormwater from all new impervious areas associated with the Project, which includes the 1.5 acre footprint associated with the O&M building.

The impacts to site hydrology from the proposed Project will also be minimized by the use of appropriate stormwater management BMPs such as culverts with riprap outlet protection and level spreaders. Where appropriate, the design incorporates the use of a “rock sandwich” road design that allows surface water and ground water presently flowing or seeping from uphill areas to continue flowing under the road through a layer of coarse gravel. This specialized technique is superior to culverts in some instances because the flows are distributed instead of concentrated, thus minimizing the potential for erosion. Rock sandwich construction has been used as appropriate in fill areas where there are groundwater seeps or other hydrologic conditions that warrant its application. In some areas, culverts have been determined to be more appropriate, and their outlets will be protected by plunge pools and level spreaders to dissipate concentrated flows. Stormwater ditches have been designed to discharge via ditch turnouts with level spreaders as suggested by MDEP and LURC design criteria (see Exhibit 1A for locations of appropriate stormwater management BMPs). A Third-Party Inspector will be retained at the commencement of clearing to inspect clearing activities and ensure BMPs are implemented and erosion control requirements are being met.

10.1 Erosion and Sedimentation Control

Activities that may potentially cause erosion during Project construction primarily include grading for access and crane path roads and grading and site preparation for turbine locations. An erosion and sedimentation plan has been developed and is included as Exhibit 10A. The proposed erosion control plans are included on the 400- to 900-series sheets of the Project design plans located in Exhibit 1A. There is the potential for conditions to be encountered during construction that have not been anticipated at this time. This plan and supporting drawings identify the tools that can be implemented during construction of the roadways and pads, explain the basis for their use, and provide details for their installation to be able to field adjust the controls to match encountered conditions. The erosion and sedimentation control plan and related drawings are not intended to provide the exact location for placement of the erosion control measures, but rather provide the basis for their use as a "tool box" of control measures, implemented in consultation with the Third-Party Inspector.

10.2 Phosphorous Analysis

The Project lies within the Mill Privilege Pond, Shaw Lake, Dipper Pond, Pleasant Lake and Baskahegan Lake watersheds. The runoff from these watersheds is required to meet the MDEP phosphorus standards. Buffers were used throughout the Project to reduce the phosphorus loading and treat stormwater to ultimately meet MDEP standards. See the support documents in Exhibit 10B for more detailed information.

The phosphorus analysis is based on several assumptions listed in this narrative and specific analytical methods described in "Phosphorus Control in Lake Watersheds: A Technical Guide to Evaluating New Development" published in January 2008 by the MDEP.

Phosphorus export from the proposed development was calculated, and treated by providing buffers. The Phosphorus Development Limits are shown on the stormwater management plans in Exhibit 1A and were defined based on the expected export associated within the watersheds. These Limits refer to the total development area in the phosphorus calculations. The calculated phosphorus export for the Project will be less than that allowed in the phosphorus budget allocation, which is based on the size of the Phosphorus Development Limits. Within these Limits, which are generally defined as a setback from the centerline of Project roads, no additional development resulting in permanent impervious areas will be allowed.

10.3 Buffers

Buffers around Project construction areas are vital to minimize construction-related impacts to existing wetlands, streams, and soils in the Project area. In development of the turbine site and road plans, the Project has provided for several types of buffers. These buffers include general stormwater buffers, wetland and stream buffers, and Significant Vernal Pool buffers.

The length and width of the proposed buffers will be based on site-specific conditions, including land slope and soil type, as defined by the Maine BMP Manual Chapter 500, Appendix F.

10.1.1 Stormwater Buffers

Three types of stormwater buffers were used. The first type was used in areas adjacent to the downhill side of the road, in which the runoff from the road will sheet directly into a buffer. The second type is a ditch turn-out buffer, in which ditch runoff is diverted to a 20-foot-wide level spreader then distributed into a buffer. The third type of buffer allows runoff to be diverted to a stone bermed level lip spreader and distributed into a buffer. The level lip spreaders were sized according to the most recent version of the Maine BMP Manual.

The length and width of the proposed buffers will be sufficient to treat the phosphorus in the amounts reflected and Exhibit 10B and will be based on site-specific conditions, including land slope and soil type, as defined by the Maine BMP Manual Chapter 500, Appendix F.

10.1.2 Wetland and Stream Buffers

Where practical, the Project also incorporates 75-foot-wide buffers around delineated wetlands and streams. Some encroachment to these buffers will be required for access roads and for clearing associated with the electrical collector. Other than the wetland impact described in section 11, no turbines, buildings or other structures will be located within 100 feet of a P-WL1 wetland. See the Project plans, (Exhibits 1A, 1B, 1C), for stream and wetland locations in relation to Project components.

10.1.3 Significant Vernal Pool Buffers

Only one Significant Vernal Pool, as defined by MDEP and Maine Department of Inland Fisheries and Wildlife (MDIFW) standards, was identified in the Project area. Through avoidance and minimization measures, there are no impacts to Significant Vernal Pools or their associated 250-foot habitat.

11.0 WETLAND IMPACT

Wetlands within the Project area were delineated in 2009 and 2010 (Exhibit 11A and Exhibit 11B), and are shown on Project design plans included in Exhibit 1 as well as Exhibit 11A, Appendix B. The wetland impacts associated with construction and operation of the Project totals 0.10 acre of permanent wetland fill and 3.79 acres of vegetation clearing.

Along the proposed Dill Hill access road from T14 to T18, there will be approximately 709 square feet of permanent wetland fill in P-WL1c and P-WL2a, as well as 962 square feet of upland clearing within an IWWH. See Exhibit 1A, Sheet 300. Along the proposed South Peak access road from T8 to T15, there will be approximately 71 square feet of permanent wetland fill in P-WL2a. See Exhibit 1A, Sheet 200. Along Dipper Pond Road, there will be approximately 375 square feet of permanent wetland fill in P-WL1c, as well as 64 square feet of stream impact for a 24" culvert that needs to be replaced and lengthened to 32 feet. See Exhibit 1A, Sheet 10.

Along the mountaintop electrical collector system from T14 to T18, there will be 5,010 square feet (0.12 acre) of upland clearing within an IWWH.

Along the express collector, there will be approximately 80 square feet of permanent wetland fill in P-WL2a and 400 square feet of permanent fill in P-WL3 associated with three pole locations. See Exhibit 1B, Sheet 4.

Along the access road to the substation, there will be approximately 2,522 square feet (0.06 acres) of permanent wetland fill. See Exhibit 1C, Drawing #106-07-1002 Sheets 1 through 3.

There are no impacts associated with other Significant Wildlife Habitat (e.g. Significant Vernal Pools or Deer Wintering Areas).

Construction of the electrical collector line requires clearing of wetland areas under and directly adjacent to the line. After construction, the vegetation in the corridor is allowed to grow back but is typically cut every 8 to 10 years to keep the vegetation away from the lines. Maintenance cutting will remove the trees and not allow the canopy to form, but will leave vegetative undergrowth. The total wetland clearing for the collector line will be 3.78 acres.

There are no wetland impacts associated with turbine pads, substation, O&M building, or permanent met tower locations.

A complete wetland and stream report is included in Exhibit 11A.

12.0 WILDLIFE

A variety of forested natural communities can occur within this ecosystem but only one, a regenerating Beech-Birch-Maple Forest, is predominant in the Project area. This is a common forest type across the State, and as such, the Project area includes many common wildlife species. See Exhibit 12A for a complete characterization of the area.

The Project is anticipated to affect wildlife populations in various ways. In general, the impacts could include habitat loss or conversion, and collision-related fatalities. Temporary and permanent changes as a result of the clearing associated with the proposed Project have the potential to impact wildlife habitat. However, impacts to wildlife communities due to habitat conversion are not expected to be adverse because those populations already adapt to the occasional rapid changes in the distribution of habitats along the ridge from harvesting activities. The potential for avian and bat mortality through direct collisions with the turbines is one of the primary wildlife impacts expected from this Project.

The Project area is not within Critical Habitat for any federally-listed species, and no bald eagle (*Haliaeetus leucocephalus*) nests are located within four miles of proposed turbine locations. The Project includes 0.14 acres of upland clearing within an IWWH. The Project area includes no other Significant Wildlife Habitat (e.g. Deer Wintering Areas, Significant Vernal Pools, or habitat for rare, threatened, or endangered animal species).

Prior to permitting activities for the Project, Stantec conducted a variety of wildlife surveys in the Project area. These surveys provided data to help assess the Project's potential to impact birds and bats, rare, threatened, and endangered (RTE) plants and animals, breeding amphibians, and wetlands. The scope of the surveys was based on evolving standard pre-construction survey methods within the wind power industry (i.e., guidelines outlined by the U.S. Fish and Wildlife Service [USFWS] and MDIFW) and is consistent with other studies conducted recently in the state and the northeast.

Field surveys were conducted between September 2009 and August 2010. Fall 2009 migration surveys were conducted between September 8 and November 4, 2009, and included radar surveys for nocturnal migration, bat acoustic surveys, diurnal raptor migration surveys, and aerial nest surveys for bald eagle and great blue heron (*Ardea herodias*). The spring/summer 2010 migration field surveys occurred between April 15 and August 31, 2010, and included nocturnal radar; acoustic bat; raptor; and aerial nest surveys. For a complete description of these surveys, refer to Exhibit 12B.

Other site-specific surveys included wetland delineations and RTE surveys conducted in fall 2009 and spring-summer 2010, as well as vernal pool surveys in April and May 2010. For a complete description of these surveys, refer to Exhibit 11A.

As described in the seasonal Avian and Bat Migration Survey Reports (Exhibit 12B), the results of these pre-construction site-specific surveys were consistent with the results of other surveys conducted for other proposed wind developments. In addition, during fall 2009, pre-construction surveys at Bowers were conducted during the same timeframe as post-construction surveys at the nearby Stetson project, and documented similar levels of activity.

Fatality rates from other projects can be used to determine a possible level of impact at the proposed Project. The rates observed at other facilities can be considered comparable to a proposed wind farm if those projects are representative of the site being assessed (i.e., in the same region with similar landscape and project design characteristics). As described in Exhibit 12A, mortality estimates from post-construction monitoring conducted at twelve projects in the Northeast are now available, including the Mars Hill Wind Project in Maine, Stetson Wind Project in Maine, and Lempster Wind Project in New Hampshire. Bowers would include up to 27 turbines, which is similar in size to these projects and it can be expected that mortality rates would be relatively similar.

13.0 UNUSUAL NATURAL AREAS

Stantec contacted the Maine Natural Areas Program (MNAP) during the course of project development and requested information regarding known botanical features, including rare and exemplary natural communities that have been documented within the vicinity of the proposed Project. No mapped locations of known botanical features were identified by MNAP.

The wetland delineation efforts for the Project in 2009 and 2010 included a field evaluation of hydrologic, soil, and vegetative conditions for the entire Project area. An RTE plant field survey was also completed during early June 2010 (Exhibit 13A). Four rare plants were observed within the Project area during those field efforts, including two plants ranked as SI, large toothwort (*Cardamine maxima*) and male fern (*Dryopteris filix-mas*), and two plants ranked as S3, Orono sedge (*Carex oronensis*) and swamp fly-honeysuckle (*Lonicera oblongifolia*). Although rare plants do not receive specific statutory protection, Stantec and Champlain consulted with MNAP on October 25, 2010 to ensure that habitat needs were appropriately factored into the design, such that impacts could be avoided. These design considerations included reducing the size of the turbine pad at turbine 1 and running underground electrical collector in the vicinity of turbine 1; locating express electrical collector poles outside the habitat area of a rare plant location; and locating the O&M building away from a rare plant location. Through avoidance and minimization measures described in Exhibit 13A, there are no impacts to any of these plants. For a complete description of the field surveys, refer to Exhibit 11A and Exhibit 13A.

14.0 HISTORICAL AND ARCHAEOLOGICAL

In response to the Maine Historic Preservation Commission (MHPC) (Exhibit 14A), Champlain conducted historic architecture, Euro-American archaeological, and historic archaeological investigations of the Project area to determine what impact the Project might have on these historic resources. Reports of these investigations are included as Exhibits 14B through 14D. Each report is being provided to the Maine Historic Preservation Commission for its review.

14.1 Historic Architecture Survey

PAL conducted the survey of historic architectural resources. PAL evaluated historic architectural resources in accordance with the requirements of Section 106 of the National Historic Preservation Act of 1966. That effort identified one resource of state or national significance within eight miles of the Project. The Springfield Congregational Church, approximately five miles from the nearest turbine, is listed on the National Register of Historic Places. Since the church would not have a view of the Project due to intervening vegetation and topography, the report concludes that the Project would have no visual effect on that property. Exhibit 14B.

14.2 Euro-American Archaeology Phase O and Phase II Surveys

Independent Archaeological Consulting (IAC) conducted the survey for Euro-American historic resources. IAC evaluated cartographic information and conducted field investigations to identify likely locations of historic structures. That effort found no evidence of historical archaeological resources in the Project area. Exhibit 14C.

14.3 Prehistoric Archaeological Survey

TRC Solutions (TRC) conducted the survey for pre-contact archaeology. TRC evaluated cartographic information and conducted field investigations to identify likely locations of prehistoric archaeological sites. That effort concluded that based on the variables of water proximity, unavailability of stone appropriate for tool making, and lack of previously reported sites or artifacts in the area, the Project area is of low archaeological sensitivity. Once additional consultation with MHPC is completed, two stream crossings will likely be checked. Exhibit 14D.

15.0 SOILS AND BEDROCK CHARACTERIZATION

Multiple types of soil surveys have been completed in the Project area. Albert Frick Associates, Inc., conducted a Class L Soil Survey of the turbine and road areas, and a Class A High Intensity Soil Survey of the O&M building location (Exhibit 15A). The report concludes that with proper planning and construction techniques, the soils are appropriate for the proposed construction activities. Stantec conducted a hybrid Class L Soil Survey of the express collector corridor, the methodology of which was implemented in consultation with State Soil Scientist, Dave Rocque (Exhibit 15B). The report concludes that the soils are appropriate for the proposed construction activities. Stantec also conducted a site visit with Dave Rocque on November 10, 2010.

Areas of hydric soils also are identified in the wetland delineation report (Exhibit 11A) of this application..

Prior to construction, a geotechnical investigation of new road segments and each turbine pad will be conducted. Although rock anchor foundations are anticipated, the results of this investigation will determine the final turbine foundation design appropriate for each turbine location.

As part of the preliminary geotechnical investigation for the Project, the underlying bedrock was evaluated for the potential for acid rock drainage (Exhibit 5A). That evaluation analyzed rock samples from the Project and identified rock samples that may be acid based on sulfur content as well as rock samples that may generate a balancing alkaline drainage, in which potential to generate acid drainage is buffered by the carbonate, with the presence of metamorphic alteration resulting in altered rock that will weather slowly. Therefore, that evaluation concluded that the Project poses low potential to create acid rock drainage. If acid rock is identified during pre-construction engineering, soils will be amended appropriately to mitigate for pH levels, in general accord with the mitigation techniques included in Exhibit 15C.

16.0 SOUND ANALYSIS

Stantec conducted an analysis of the likely sound impacts of the Project in accordance with the MDEP noise control regulations that apply to the Project.[3] This assessment considered the candidate turbines with the highest sound output, including 17 Siemens 2.3 MW turbines and 10 Siemens 3.0 MW turbines. The assessment determines expected sound levels from the Project and compares them to MDEP sound level limits for quiet areas of 45 decibels (dBA) nighttime and 55 dBA daytime at protected locations.

The report conservatively estimates wind turbine sound levels and propagation by assuming that:

- candidate turbines have the highest possible maximum sound power level;
- all turbines are operating simultaneously at continuous full sound output;
- receptor points are simultaneously located downwind of all turbines;
- receptor height of four meters, which represents the height of a second-floor bedroom, and source height is equal to the hub height of the turbine;
- there is no intervening vegetation between the source and receptor; and
- an uncertainty factor ranging from 0.5 to 2 dBA and additional 3dBA was added to the maximum sound power level information provided by the manufacturer to reflect uncertainty in the performance specification provided by the manufacturer and in the model.

The report demonstrated that the operation of the Project will comply with applicable sound level requirements during construction or routine operation. No sound easements are required. Exhibit 16.

17.0 VISUAL ANALYSIS AND SCENIC CHARACTER

Landworks conducted a Visual Impact Assessment to evaluate the impact on scenic resources of state or national significance. This assessment considered the candidate turbines with the tallest height, based on Siemens 2.3 MW turbines, with a maximum height of 130.5 meters (428’). There are two types of scenic resource of state or national significance within eight miles of the Project: Great Ponds with Outstanding or Significant scenic value and one property on the National Register of Historic Places.

The Project will not be visible from any national natural landmarks or federally designated wilderness areas, properties on the National Register of Historic Places, national or state parks, scenic rivers or streams, designated scenic viewpoints, MDOT scenic turnouts, or scenic viewpoints identified in the coast

[3] The project is located within the “expedited permitting area” as identified by LURC and defined by 35-A M.R.S.A. Chapter 34-A, Expedited Permitting of Grid-Scale Wind Energy Development. In accordance with the provisions of 12 M.R.S.A. Section 685-B, a wind energy development within the expedited permitting area is required to meet the requirements of the MDEP noise control rules. These rules were adopted pursuant to the Site Location of Development Law and are identified as MDEP Chapter 375.10, Control of Noise. The MDEP noise control regulation applies in lieu of Section 2, F,1 Noise of LURC Chapter 10 Land Use Districts and Standards.

area. Throughout the majority of the study area, views of the Project are blocked by topography and roadside vegetation.

Five of the designated lakes, Horseshoe, Norway, Lombard, West Musquash, and Upper Sysladobsis, would not have any visibility of the Project within eight miles because of intervening vegetation and topography. The remaining eight lakes, Bottle, Duck, Junior, Keg, Pleasant, Scraggly, Shaw, and Sysladobsis, will have visibility of the Project.

For each of the scenic resources of state or national significance, the assessment examined its significance, character, use, and visibility. This information was used to determine whether the Project would significantly compromise views from these resources such that it would have an unreasonable adverse effect on its scenic character or the existing uses related to its scenic character. The Visual Impact Assessment concluded that the Project should not have an unreasonable adverse impact on scenic values and existing uses of scenic resources of state or national significance. Exhibit 17.

18.0 SHADOW FLICKER

Shadow flicker from wind turbines is the effect resulting from the shadows cast by the rotating blades of the turbine on sunny days. The effect may be more or less pronounced depending on the intensity of the sun/shadow contrast and the distance from the turbines to a receptor. The effect is most pronounced during sunrise and sunset on clear days and on receptors closer than 1,000 feet to a turbine.[4]

Stantec conducted an assessment of shadow flicker. This assessment considered the candidate turbines with the tallest height, based on Siemens 2.3 MW turbines, with a maximum height of 130.5 meters (428'). The 27 potential turbine sites were modeled using the Windpro software model. This software is designed to simulate the path of the sun over the course of a year in order to predict the area where shadow flicker is likely to occur. It is a worst-case prediction, assuming a maximum turbine height of 428 feet, the sun is shining each day, and does not take into account vegetation screening between a turbine and a receptor. It also assumes that the turbines are perpendicular to the receiver and are always operating. Real expected shadow flicker would be substantially less. Two non-participating receptors potentially will receive shadow flicker, based on the worst-case prediction, both of which will have maximum shadow for less than 30 hours per year. Exhibit 18.

19.0 POST-CONSTRUCTION MONITORING

During the construction phase of the Project, the general contractor will be responsible for site management and maintenance of roads and facilities.

Following completion of construction activities, Champlain will assume responsibility for monitoring and maintaining roads and facilities associated with the Project. Disturbed areas will be seeded and mulched or otherwise managed for slope stabilization, as explained in the erosion and sedimentation control plan. An approximately 0.43-acre area around each turbine foundation pad will be maintained as a permanently cleared part of the Project.

Activities and facilities at the site will be monitored both remotely and by on-site personnel. Turbines and overhead electrical systems will be visually inspected once a month. The turbines will receive a detailed annual inspection and will undergo regular maintenance in accordance with the manufacturer's recommendations. These inspections and maintenance procedures will be conducted by technicians trained in the design of the turbine selected for construction.

Overhead electrical collector system inspections will focus on ensuring adequate vegetation clearances and integrity of poles, insulators, and guy wires. Any trees that threaten the collection system will be removed, and vegetation will be managed on an 8 to 10-year cycle to ensure adequate clearance below the lines.

[4] Environmental Impacts of Wind Energy Projects, National Academies Press, 2007, p. 160.

Champlain will enter into a maintenance agreement with a contractor to provide any services necessary to maintain stormwater and erosion control structures. Ditches, culverts, and drainages for roads and access ways will be inspected and repaired as necessary after heavy rain events and spring runoff each year. Maintenance and inspection logs will be maintained and kept at the O&M building.

Post-construction avian and bat monitoring will be conducted in general accord with the draft post-construction monitoring protocol included in Exhibit 19. This protocol is evolving to take into account post construction monitoring that is being completed at existing operating facilities, and the final post construction protocol will be developed in consultation with MDIFW and USFWS prior to commencement of commercial operation.

20.0 DECOMMISSIONING

The Decommissioning Plan provides a mechanism to set money aside over the next 7 years in order to finance decommissioning, with a commitment to full decommissioning funding by year 15 following commencement of commercial operations. Exhibit 20.

21.0 PUBLIC SAFETY

Recently enacted legislation requires a demonstration that the proposed generating facilities will be constructed with setbacks adequate to protect public safety. Subsequent guidance from the LURC and MDEP states that this requirement is fulfilled by providing documentation that the turbine design meets accepted safety standards, and has appropriate overspeed control and evidence that the generating facilities have been sited with the appropriate safety related setbacks.[5]

21.1 Turbine Design Certification

The Siemens 2.3-MW and 3.0-MW turbines conform with International Electrotechnical Commission standards and this conformity has been certified by Det Norsk Veritas. (Exhibit 21).

21.2 Overspeed Control

The Siemens 2.3-MW and 3-MW turbines are 3-bladed, horizontal-axis, upwind, variable-speed, pitch-regulated turbines.

The speed and power output is controlled primarily by an active, hydraulic pitch regulation system. The blades are mounted on pitch bearings and can be feathered 80 degrees for shutdown purposes. Each blade has its own independent pitching mechanism capable of feathering the blade under any operating condition. The independent pitch mechanism on each of the blades provides for redundancy.

The wind turbine operates automatically. It is self-starting when the wind speed reaches an average about 3 to 4 meters per second (m/s) (about 10 miles per hour [mph]). The output increases approximately linearly with the wind speed until the wind speed reaches 12 to 13 m/s (about 30 mph). At this point, the power is regulated at rated power.

If the average wind speed exceeds the maximum operational limit of 25 m/s, the wind turbine will shut down automatically by feathering of blades. The aerodynamic brakes are redundant due to the ability to brake with one blade. When the average wind speed drops back below 20 m/s over a 10-minute average, the systems reset automatically. The turbine is designed to withstand gusts of 55 m/s (180 mph).

The mechanical disc brake is fitted to the gearbox high-speed shaft and has two hydraulic calipers.

[5] Grid Scale Wind Energy Development Permit Applications, Guidance Document issued November 2008 and Checklist for LURC, Appendix B (5). 35-A M.R.S.A § 3455.

The rotor hub is sufficiently large to provide a comfortable working environment for two service technicians during maintenance of blade roots and pitch bearings from inside the structure.

In addition to the Siemens WebWPS SCADA system, the wind turbines are equipped with the unique Siemens TCM condition monitoring system. This system monitors the vibration level of the main components and compares the actual vibration spectra with a set of established reference spectra.

21.3 Public Safety Setbacks

Guidance associated with LURC's application requirements indicates that evidence should be provided that the wind turbines have been sited with the appropriate safety related setbacks from adjacent properties and adjacent existing uses. The LURC Guidance Documents recommend a minimum setback from property lines, public roads, or other structures of at least 1.5 times the maximum turbine blade height.

The Project has been designed and sited with appropriate safety-related setbacks. The recommended setback of 1.5 times the maximum blade height is 642 feet for the Siemens 2.3-101 turbines, the largest of candidate turbines. Each turbine is more than 642 feet from the property boundary and the nearest public road, Route 6, is more than 2,700 feet from the nearest turbine. The closest dwelling is a collection of seasonal camps, more than 1,100 feet away, owned by a participating landowner. The next closest dwelling is 2,500 feet away.

22.0 TANGIBLE BENEFITS

The Project will provide significant tangible benefits to Carroll Plantation, Kossuth Township and Washington County, as well as the entire State of Maine.[6] Tangible benefits are defined as environmental or economic improvements or benefits to residents of the State attributable to the construction, operation, and maintenance of the Project and include, but are not limited to, property tax payments resulting from the development; other payments to a host community, including, but not limited to, payments under a community benefits agreement; construction-related employment; local purchase of materials; employment in operations and maintenance; reduced property taxes; reduced electrical rates; land or natural resource conservation; performance of construction, operations, and maintenance activities by trained, qualified and licensed workers; or other comparable benefits[7]. There is no requirement in the statute that a project include benefits in each of the specified areas, but rather that the collective benefits from the project be significant.[8]

On the local level, the benefits include payments for land leases, fee acquisitions, and easements; employment opportunities; the local purchase of materials and supplies; taxes paid on the Project; and a Community Benefits package that includes a conservation fund as well as annual payments to the Host Communities.

On a larger scale, the Project will increase energy diversity, thereby helping to reduce electric price volatility in Maine. The project will also help Maine meet its commitments under the Regional Greenhouse Gas Initiative (RGGI), which establishes limits for emissions associated with the generation of electricity. The Project includes a myriad of environmental and economic benefits that constitute tangible benefits under the Wind Power Act and collectively are significant. The U.S. Department of Energy recently evaluated and affirmed that wind power will bring these very benefits to Maine.[9]

[6] See 35-A MRSA §3454 and 35-A MRSA §484(3) for relevant criteria.
[7] 38 M.R.S.A. § 3451(10).
[8] Ibid.
[9] http://www.windpoweringamerica.gov/pdfs/economic_development/2008/me_wind_benefits_factsheet.pdf)

22.1 Economic Benefits

22.1.1 Local Landowner Benefits

The Project provides a new source of income and direct economic benefit to the twelve local landowners participating in the Project through land leases, fee acquisitions, and easements. The Project allows these landowners to capture the financial benefits from a new resource without disruption to existing land uses. For those landowners with turbines sited on their property, the Project will produce steady annual income throughout the life of the Project. This income stream can supplement what the landowners typically earn from logging and other uses of the property and represents an economic benefit to the landowner. It will help maintain traditional forestry and recreational uses while creating a new source of clean energy.[10]

22.1.2 Increased Employment Opportunities

Locally, measures of economic climate in the vicinity of the Project area are below the State average,[11] signaling the need for investment and economic development. The 2008 income for the State of Maine was $25,264; Penobscot County's average income of $22,875 is 11 percent below the state average and Washington County's average income of $19,135 is 25 percent below that state average. In 2009, the average unemployment rate was 8.1 percent in Penobscot County and 11.0 percent in Washington County. Since 1990, the unemployment rate in this area has exceeded the state average.

The Project would respond directly to area needs and to the people who live and work in the vicinity of Carroll Plantation and Kossuth Township. A significant portion of the estimated $136 million dollar Project cost will be spent on development, engineering, and construction-related activities, many of which can be provided by local or Maine-based businesses. The Maine-based EPC contractor is expected to subcontract with local businesses for activities like concrete supply, excavation, and tree-clearing. The construction activity will provide an economic boost to ancillary businesses that support construction such as lodging, restaurant, and fuel stations.

Construction-related jobs are a major component of the Project's potential economic benefits. In total, 850 Maine-based employees have worked on First Wind construction projects at Mars Hill, Stetson, and Stetson II. The Project will hire locally whenever possible, providing construction, operations, and maintenance employment opportunities to residents in the area. Based on First Wind's experience developing and constructing facilities similar projects in Maine, development and construction of the proposed Project is estimated to require the direct labor of approximately 150 individuals (or 115 full-time equivalent jobs). Following the construction phase, Champlain anticipates hiring five to eight permanent employees to operate and maintain the facility. In addition, it is anticipated that five to eight technicians employed by manufacturer will be on-site for at least the first three years of the project. Finally, First Wind directly and continuously employs 30 Maine-based employees at 2 regional offices (Portland and Lincoln) to support ongoing development, project management and operations of both operating and proposed wind facilities.

The economic benefits of a wind project are significant and can provide value and economic stability to the local, regional, and statewide economy. Although the exact amount of direct and indirect economic benefits of the Project may be difficult to predict, the actual economic spending associated with the development and construction of the nearby Stetson Wind Project is evidence of the tangible economic benefits that can be expected from this Project. Exhibit 22 demonstrates the breadth and geographical reach of Maine-based businesses which are engaged during the development and construction process. As indicated in that graphic, of the approximately $65 million spent for construction, engineering, and development services, about $50 million was spent with Maine businesses, with approximately 350 people directly engaged in construction of the project. Another $23 million was spent locally and in Maine for construction of the Stetson II project. Contractors throughout the state from Fryeburg to Presque Isle,

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[10] Ibid.
[11] Maine State Planning Office, Economics and Demographics Program.

consultants with offices throughout the state, and local businesses in the Lincoln and Danforth area all benefited from these expenditures. These amounts reflect only direct spending by the developer and do not capture the indirect jobs and benefits that may result from that direct spending. For example, the contractors hired by the developer to build the Project will spend money on food, lodging, and fuel in the area. Similar benefits during construction are also expected for the Bowers Wind Project.

22.1.3 Reduced Local Property Taxes

The significant capital investments in utility-scale wind power projects, which range from $95 million to $270 million, typically result in a dramatic increase in property value. Such investments can have the corresponding effect of substantially increasing the local property tax base, without creating an increased demand for services. The applicant expects to pay significant annual taxes on the Project. Champlain estimates that the Project will add approximately $125 million of new property tax value, based on Siemens turbines, resulting in estimated average annual tax payment of approximately $628,000 (averaged over a 20-year period), adjusted by any credit enhancement package.

22.1.4 Community Benefits Package

Champlain is required to provide a community benefits package that is valued at no less than $4,000 per year per installed turbine, averaged over a 20-year period, to the host community or communities.[12] To satisfy this requirement, Champlain proposes a package of benefits to the host and adjacent communities, valued at $4,000 per installed turbine per year averaged over a 20-year period, to be paid annually for each year of project operation. A portion of these payments will be allocated to a fund established to host and administer conservation funds to be utilized for land or natural resource conservation in a designated geographic area; this fund will have an advisory panel of representatives from the host communities, as well as Lakeville and other conservation groups. The remainder of these payments will be allocated to the host communities[13] of Carroll Plantation and Washington County; these payments will be in addition to the property tax benefits realized from the Project. The specifics of the community benefit package are being developed and will be submitted when they are finalized.

22.1.5 Reduced Energy Price Volatility

The addition of new power generation facilities in Maine will likely exert a downward pressure on electricity prices. The price and reliability benefits of new renewable resources have been described by the Maine Public Utilities Commission (MPUC) as follows:

> The addition of diverse (non-gas) resources in Maine and elsewhere in the region will be beneficial for several reasons. As more non-gas generation is added to the mix, cheaper gas resources and non-gas resources will set the clearing prices in a greater number of hours. **This would have the general effect of reducing both the level and volatility of electricity prices throughout the region. To the extent new generation is constructed within Maine's borders, the benefit to Maine consumers is more direct in that the result would be lower prices within the Maine zone**. In addition, any overall reduction in the demand for gas that results from the addition of non-gas resources in the region should have the effect of reducing the price of natural gas which translates into lower electricity prices. Finally, a reduction in the region's reliance on natural gas would result in a more secure system that is less vulnerable to gas shortages and thus less susceptible to curtailments and blackouts.[14]

Additionally, in a number of New England states, including Maine, some type of Renewable Portfolio Standards (RPS) have been adopted to diversify the electricity supply portfolio, stabilize rates, increase energy security, improve environmental quality, invigorate the clean energy industry, and promote

[12] 35-A M.R.S.A. §3454(2)
[13] 35-A MRSA §3451, sub-§7, as enacted by PL 2007, c. 661, Pt. A, §7
[14] MPUC Review Comments for the Land Use Regulation Commission, Zoning Petition ZP 709 (Kibby Wind Power Project), June 7, 2007, page 4.

economic development. Essentially, RPSs create market demand for clean power, and the Maine Legislature has reaffirmed its support for the Maine RPS - and in fact expanded it - in recent sessions. The combined effect of the RPS in New England is an increasing regional demand for renewable energy that far exceeds the currently available and qualifying supply of renewable energy. This 69.1 MW is estimated to provide an approximate average output of 200,000 MW/hours per year, and thereby provide an important contribution toward achieving the policy objectives of the Maine RPS law. The Mars Hill and combined Stetson Wind Projects are already generating a total of approximately 377,000 MW/ hours per year, enough to power 52,000 homes.

22.2 Environmental Benefits

Electricity generation from wind energy projects results in zero air or water pollution. Each clean megawatt produced by wind energy displaces generation from more costly and polluting fossil fuels. In comparison, a traditional fossil fuel burning power plant would have burned approximately 288,000 barrels of oil or 61,000 tons of coal per year to produce an amount of energy equivalent to the clean energy produced last year at the 42 MW (nameplate capacity) Mars Hill Wind project in Mars Hill, Maine. However, wind energy generation results in none of the associated toxicity, pollution and public health issues associated with traditional fossil fuel energy sources.

Maine and the region have set aggressive greenhouse gas reduction goals. State and regional experts, including the MPUC and ISO-New England, have concluded that Maine and the region cannot meet these greenhouse gas policy goals without significant additions of wind power and other renewable energy sources in Maine and elsewhere.[15]

In making findings related to tangible benefits, 35-A M.R.S.A. §3402 directs the Commission shall presume that an expedited wind energy development provides energy and emissions-related benefits. There are significant environmental benefits associated with wind power, including avoided air pollution benefits. These benefits were referenced and summarized in a new energy policy added to the Comprehensive Land Use Plan (CLUP), "to reflect the state's goals of supporting indigenous renewable resources, and to guide the Commission's future deliberations over wind power projects" (CLUP, 194):

> "Wind energy is an economically feasible, large-scale energy resource that does not rely on fossil fuel combustion or nuclear fission, thereby displacing electrical energy provided by these other sources and avoiding air pollution, waste disposal problems and hazards to human health from emissions, waste and by-products; consequently, wind energy development may address energy needs while making a significant contribution to achievement of the State's renewable energy and greenhouse gas reduction objectives…wind energy may be used to displace electrical power that is generated from fossil fuel combustion and thus reduce our citizens' dependence on imported oil and natural gas and improve environmental quality and state and regional energy security."[16]

23.0 NOTICE AND PUBLIC MEETINGS

The applicant has provided a list of the names and addresses of all persons owning land within one mile of proposed turbine locations and within 1000 feet of the proposed express electrical corridor. On January 21, 2010, a copy of the Notice of Intent to File was sent to these addresses and was also sent to all individuals who have registered with LURC as Interested Parties (Exhibit 23A). The Notice was also published on January 24 in the *Bangor Daily News* and on January 27 in the *Lincoln Times*.

The applicant has hosted additional public meetings and forums, and conducted significant community outreach in Carroll, Kossuth, and neighboring communities. Exhibit 23B includes a summary of outreach

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[15] *New England Energy Market and Wind Power in Maine*, MPUC presentation to the Wind Power Task Force, August 3, 2007.
[16] 35-A M.R.S.A. §3402(1)

efforts, as well as copies of relevant notices and invitations. The applicant held a pre-application meeting with LURC on December 10, 2010.

24.0 ADDITIONAL PERMITS REQUIRED

This Project will require the following additional permits.

- U.S. Army Corps of Engineers Category 2 Programmatic General Permit
- MDEP Notice of Intent for a Construction General Permit
- Forest Operation Notification
- MDOT road opening permit
- MDOT road crossing permit for overhead lines
- An amendment to MDEP Site Development Permit #L-23774-24-A-N for the three-ring bus that will connect the Project to Line 56.