Section 1
Development Description

PATRIOT RENEWABLES
Canton Mountain Wind, LLC

TABLE OF CONTENTS

1.0 PROJECT DESCRIPTION 1-1
1.1 Construction Schedule 1-4

TABLE

Table 1-1. Project Impacts During Construction and Operation 1-3

FIGURES

Figure 1-1 Project Site Location
Figure 1-2 Ridgeline Layout
Figure 1-3 Transmission Line Layout
Figure 1-4a Dimensions of a GE 2.75-103 Wind Turbine
Figure 1-4b Dimensions of a GE 2.75-100 Wind Turbine
Figure 1-4c Dimensions of a Gamesa G90 Wind Turbine

1.0 PROJECT DESCRIPTION

The Canton Mountain Wind Project (Project) is a 22 megawatt (MW) wind energy generation project located in the municipality of Canton, Oxford County, Maine (see Figure 1-1). The Project is being proposed by Canton Mountain Wind, LLC (CMW) and has been developed by CMW's affiliate, Patriot Renewables, LLC (Patriot), a wind development company based in Quincy, Massachusetts. The project site is secured by lease and easement agreements with landowners (see Section 2 of this application).

The Project occupies 2,978 acres of land and includes the upgrading of 7,175 linear feet of an existing road known as Ludden Lane, the upgrading of 8,600 feet of an existing unnamed private gravel logging road that begins at the end of Ludden Lane, and construction of a 3,425-linear-foot access road extending from the end of the existing logging road to the ridgeline (see Figure 1-1). Access along the ridgeline will be via an approximately 7,175-linear-foot ridgeline road that will connect the wind turbine tower foundations. Along the ridgeline road, eight wind turbines and associated electrical collection infrastructure will be installed (see Figure 1-2).

Power from the turbines will be collected in a 34.5-kilovolt (kV) underground electric collector line system buried within the ridgeline road work limits. The underground collector line will transition to an aboveground transmission line on the access road approximately 3,425 feet down from the new ridgeline access road (Figure 1-3). From there it will continue aboveground, mounted on wood poles, for approximately 8,405 feet roadside along the upgraded logging road until it reaches the transmission line corridor for the Saddleback Ridge Wind Project (Maine Department of Environmental Protection [Maine DEP] license L-25137-24-A-N/L-25137-TG-B-N). Poles will be placed within the existing transmission corridor and travel 5,800 feet to the Ludden Lane Substation. For approximately 1,410 feet of this corridor, lines from both projects will occupy one set of poles; there will be two sets of poles in the rest of the corridor. Placing the transmission line within the existing Saddleback Ridge Wind corridor will result in no additional right-of-way clearing or permanent wetland impacts. The Project will interconnect with the regional grid at the Ludden Lane Substation built for the Saddleback Ridge Wind Project.

The Project also includes an approximately 3,500-square-foot operations and maintenance (O&M) building located along Ludden Lane on a parcel of land that will be leased from CMW's affiliate Saddleback Ridge Wind Farm, LLC (see Section 2 of this application). The O&M building is designed to accommodate up to six employees and will include an approximately 7,500-square-foot parking lot. An overhead distribution line and fiber-optic cabling mounted on wooden poles will connect the O&M building to the turbines.

The Project will consist of seven General Electric (GE) 2.75-103 and one GE 2.75-100 wind turbines with a nameplate capacity of 2.75 MW each. The GE 2.75-103 turbines will have 103-meter-diameter (approximately 338 feet) rotors mounted on 85-meter (approximately 279 feet) tubular steel towers, resulting in a total height of 136.5 meters (approximately 448 feet) from the ground to the tip of a fully extended blade. The GE 2.75-100 turbine will have a 100-meter-diameter (approximately 328 feet) rotor mounted on an 85-meter (approximately 279 feet) tubular steel tower, resulting in a total height of 135 meters (approximately 443 feet) from the ground to the tip of a fully extended blade. Figures 1-4a and 1-4b show the configuration and dimensions for both of these turbine models. As an alternative to the GE turbines described above, the Project may also use eight Gamesa G90 turbines in the same locations. The Gamesa G90 turbines have 90-meter (approximately 295 feet) rotors mounted on 78-meter

(approximately 256 feet) towers (Figure 1-4c). The Gamesa turbines are shorter and have the same or lower sound output as the GE turbines; therefore, all studies will be done using the larger GE 2.75-103 turbine to depict the worst-case scenario.

Current land use in the project area consists of undeveloped, privately owned forest land and commercial forestry operations in the vicinity of the proposed access road, ridgeline, and transmission line. The topography in the project area ranges from relatively flat, at the lower elevations and in the vicinity of the O&M building, to moderate and steep side slopes that climb from roughly 1,000 feet to 1,600 feet above sea level. The ridgeline between the northernmost and southernmost proposed turbines ranges in elevation from 1,324 feet to 1,538 feet above sea level.

Preliminary wetlands and waterbody field surveys, along with "in-season" (i.e., amphibian breeding season) vernal pool surveys, were performed during the spring of 2010 to facilitate the avoidance and minimization of impacts during the facility design. Wetlands and waterbody surveys, Roaring Brook mayfly surveys, and northern spring salamander surveys of the Project were conducted during the summer and fall of 2010. "In-season" vernal pool surveys and additional wetland and waterbody field surveys were also conducted in spring 2011 to address shifts in the road alignments and possible alternate access routes resulting from resource impact avoidance and minimization efforts. Additional reports and surveys include an analysis of historic architecture, Euro-American and Pre-Contact archaeology, visual impact analysis, shadow flicker analysis, sound analysis, high intensity soil surveys, and soils evaluations.

After modifying the project design to avoid and minimize impacts, the final facility design and layout for the turbines and associated roads and transmission line results in only 3,039 square feet of permanent wetland fill, 4,286 square feet of temporary alterations during construction, and 2,258 square feet of conversion of forested wetland to scrub-shrub wetland to support operations of the roadside transmission line right-of-way (refer to Table 7-4 in Section 7 of this application for a detailed summary of wetland impacts). Existing roads are used to the greatest extent practicable and most of the impacts associated with the Project are from the temporary expansion of Ludden Lane and an existing unnamed gravel road. There is one new crossing of a stream regulated by the Maine DEP and the U.S. Army Corps of Engineers on the new access road to the ridgeline; this new crossing will be performed using an open bottom arch culvert built in accordance with Maine DEP's permit-by-rule standards. Detailed information regarding these resources are provided in Section 7 of this application and site-specific resource crossing plans can be found in Exhibit 3.

There will be 58 acres initially cleared for construction of the turbines, new access and ridgeline roads, upgraded roads, transmission line, and O&M building (see Table 1-1). Impact calculations are based on the following definitions of disturbed and developed areas: disturbed area is the graded area, calculated to the grading limits; developed area is calculated based on the definition in Maine DEP's Chapter 500, Stormwater Management Rules (pursuant to the Maine Stormwater Law [38 M.R.S.A. § 420-D], and Site Location of Development Act [38M.R.S.A. §§ 481 - 490]), which defines developed area as "all disturbed area excluding area that within one calendar year of being disturbed is returned to a condition with the same drainage pattern that existed prior to the disturbance and is revegetated, provided the area is not mowed more than once per year." When construction of the Project is complete, the total developed area will be 9.6 acres, including 9.0 acres of impervious area. See Table 1-1 for a complete breakdown of project impact numbers.

Table 1-1. Project Impacts During Construction and Operation

Project Component	Cleared Area	Disturbed Area During Construction	Developed Area After Construction	Impervious Area After Construction
8 Turbine Locations	14.0 acres	11.18 acres	1.3 acres	1.2 acres
Access Road	7.5 acres	4.2 acres	1.1 acres	1.0 acres
Ridgeline Road	14.6 acres	6.3 acres	2.2 acres	2.1 acres
Gravel Road Improvements	12.0 acres	5.9 acres	2.4 acres	2.3 acres
Ludden Lane Improvements	8.1 acres	4.9 acres	2.1 acres	2.0 acres
O&M Building	1.2 acres	0.9 acres	0.5 acres	0.4 acres
Overhead Transmission Line	0 acres	0 acres	0.014 acres	0.014 acres
TOTAL*	**57.4 acres**	**33.4 acres**	**9.6 acres**	**9.0 acres**

*Component impacts may not exactly match total impacts due to rounding.

The turbines will be constructed on eight individual turbine pads. Each pad will include an approximately 16-foot-diameter concrete turbine foundation surrounded by an approximately 10-foot gravel ring and a 50-foot by 80-foot crane pad comprised of compacted gravel or processed rock.

The Project will create a total of 2 miles of new roads and upgrades to an additional 3 miles of road on Ludden Lane and an existing gravel logging road. The primary access to the site for component delivery will be from Ludden Lane that will be temporarily widened from 14-18 feet to 16-20 feet. The new access road to the ridgeline will be approximately 24 feet wide during construction. Along the ridgeline and between the turbine sites, the ridgeline road will be constructed of gravel and will be 32 feet wide to allow for the large construction equipment required to assemble the turbines. Following construction, both the 24-foot-wide access road and 32-foot-wide ridgeline road will be reduced to 12 feet in width, with the exception of periodic turnouts, for use during operation of the facility. The upgraded roads will be reduced to their original width. As shown on the plans (see Exhibit 1), these portions of the roads will be restored by loaming and seeding and/or erosion control mulching. Construction of the transmission line may take place in the summer or winter construction seasons depending on when final regulatory authorizations for the Project are received.

1.1 Construction Schedule

The proposed schedule for construction of the Project is presented below.

Project Phase	Start Date	End Date
Mobilization and Geotechnical Surveys	**May 2, 2013**	**May 13, 2013**
Clearing and Grubbing	**May 16, 2013**	**June 10, 2013**
Road and Site Work	**May 30, 2013**	**August 5, 2013**
Construction of Turbine Foundations	**July 18, 2013**	**August 26, 2013**
Transmission Line	**July 18, 2013**	**October 1, 2013**
Turbine Delivery and Site Placement	**August 8, 2013**	**September 2, 2013**
Turbine Erection	**August 8, 2013**	**October 15, 2013**
Ridgeline Electric Collection System	**August 15, 2013**	**October 5, 2013**
Testing and Commissioning	**October 17, 2013**	**November 4, 2013**
Start of Commercial Operation	**November 11, 2013**	**N/A**

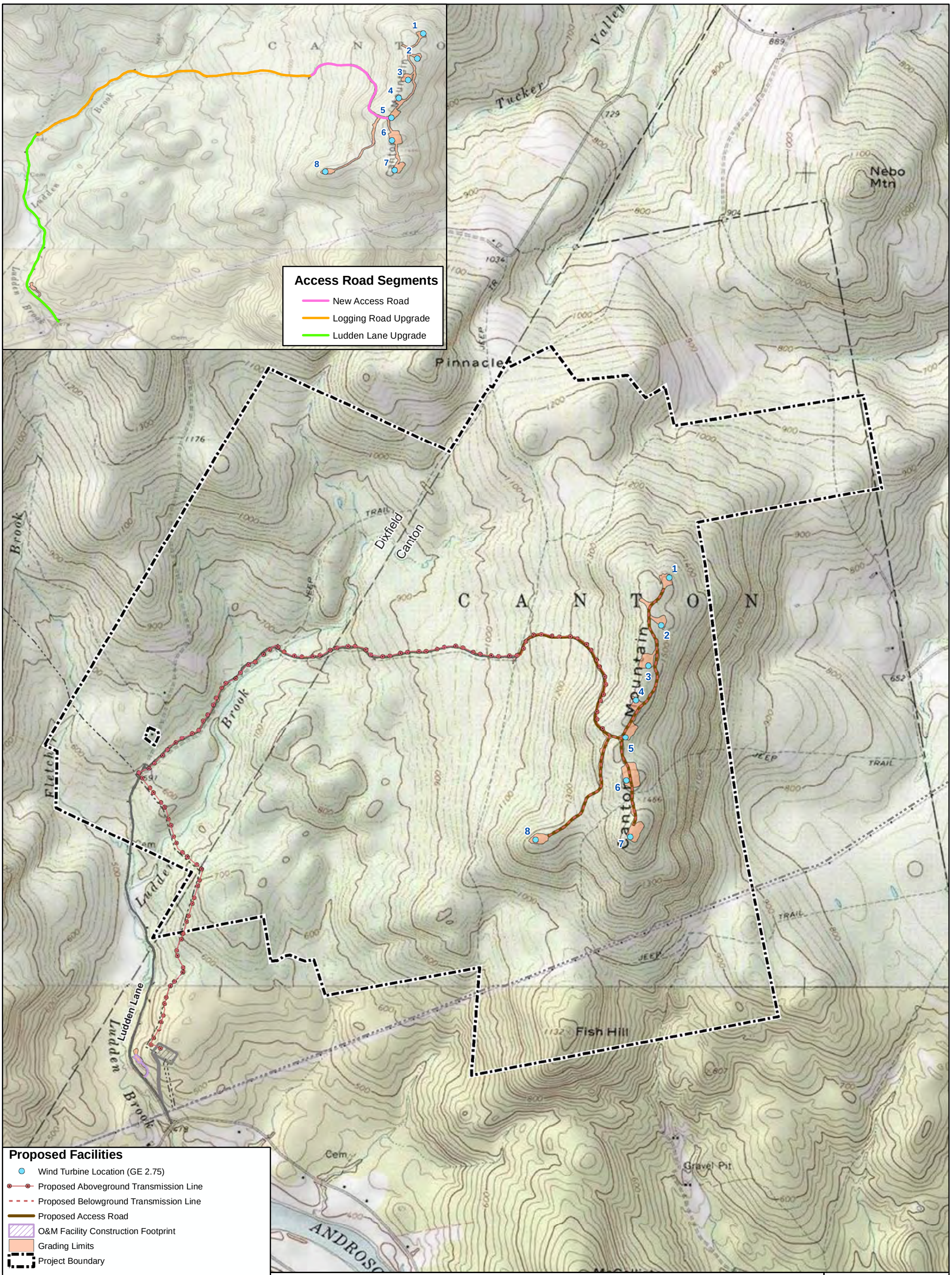

Figure 1-1
Project Site Location

Canton Mountain Wind Project
Canton and Dixfield, Maine

TETRA TECH EC, INC.

December 2011

PATRIOT RENEWABLES
Canton Mountain Wind, LLC

TODD.GYS(ECIBOSDGYST) P:\GIS\Patriot_Renewables\canton\GIS\Spatial\MXD\Permit_Figures\Canton_Fig1-1_ProjectLayout.mxd

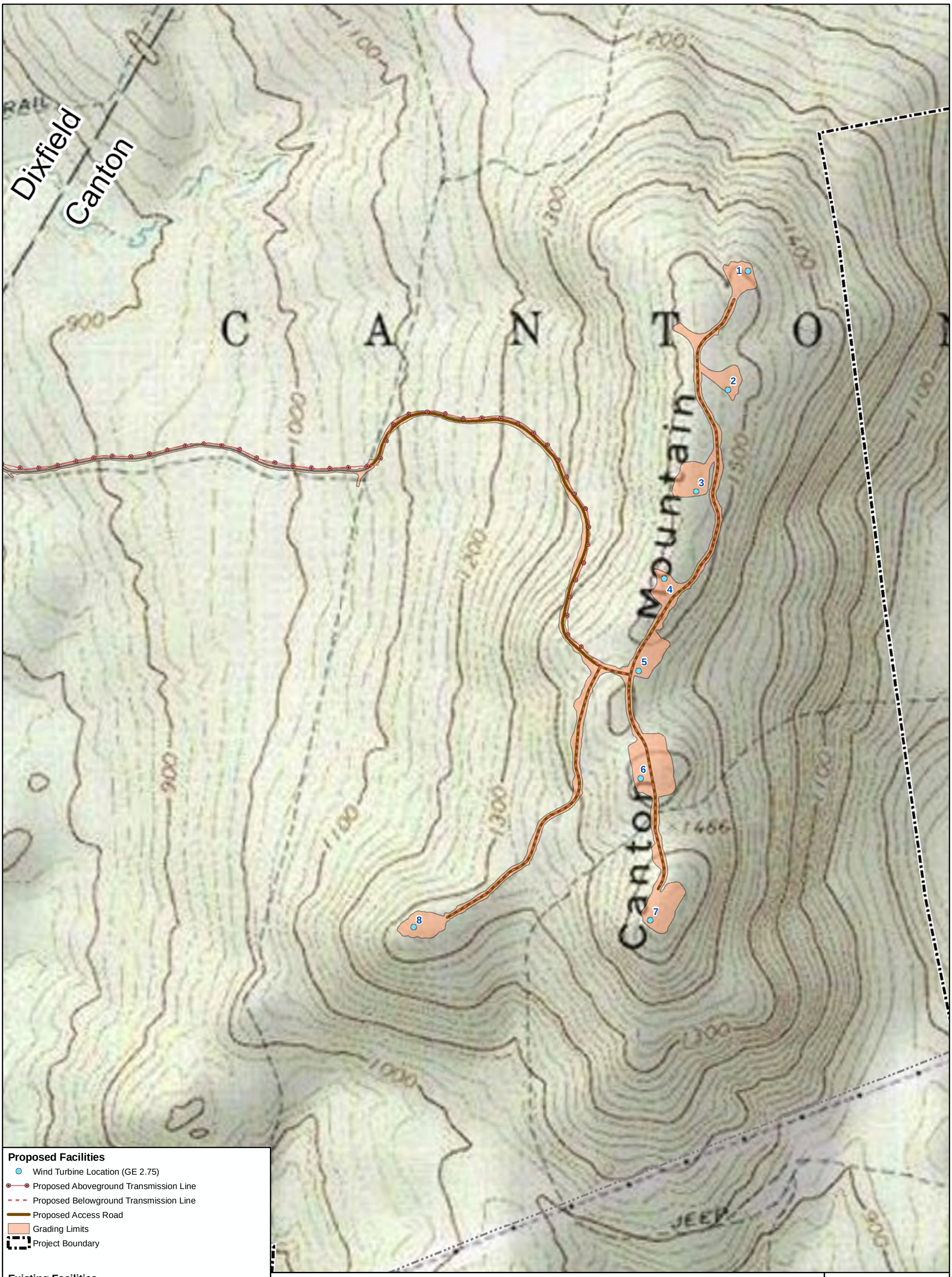

Figure 1-2
Ridgeline Layout

Canton Mountain Wind Project
Canton and Dixfield, Maine

TETRA TECH EC, INC.

December 2011

PATRIOT RENEWABLES
Canton Mountain Wind, LLC

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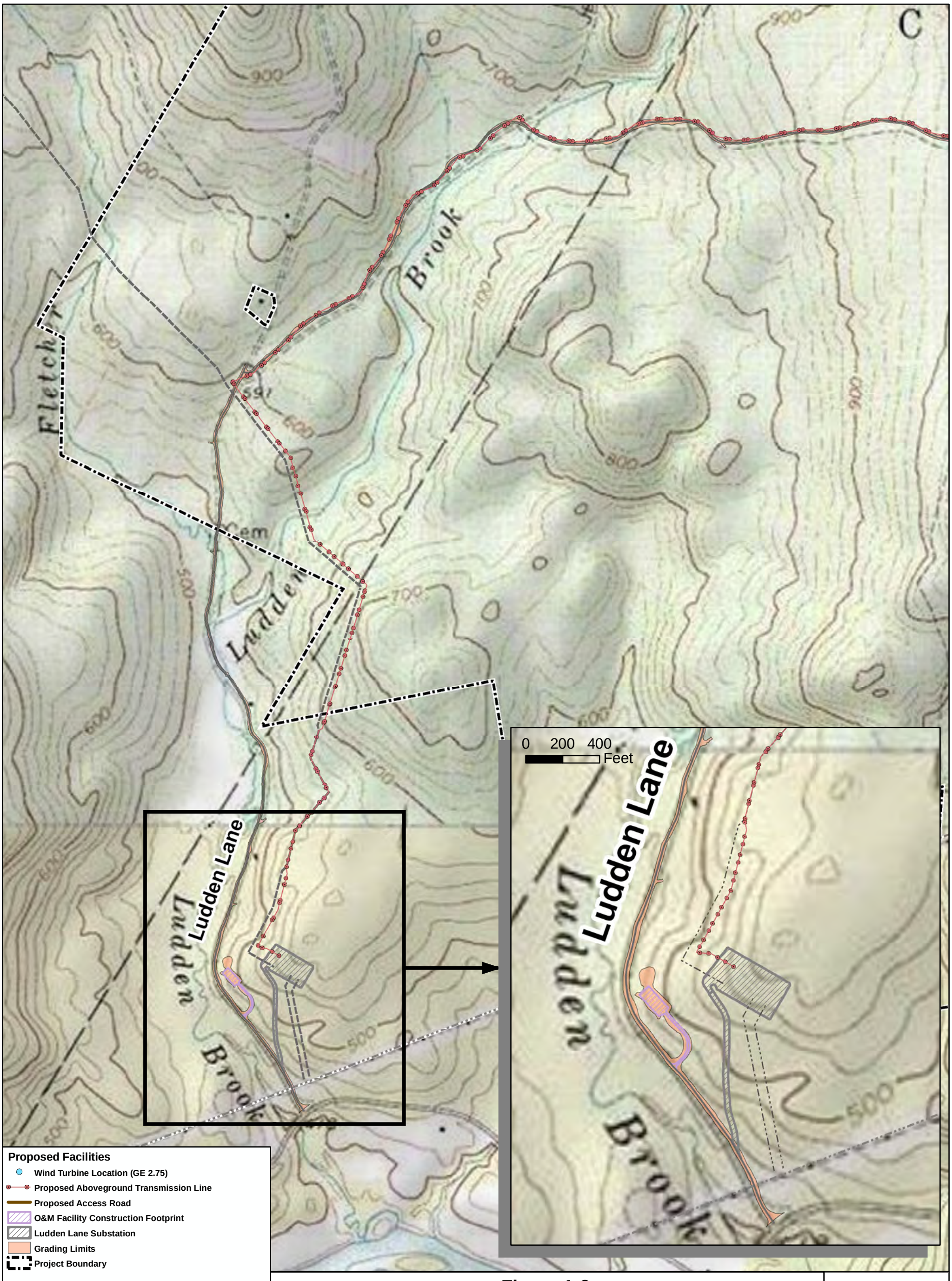


Figure 1-3
Transmission Line to Substation

Canton Mountain Wind Project
Canton and Dixfield, Maine

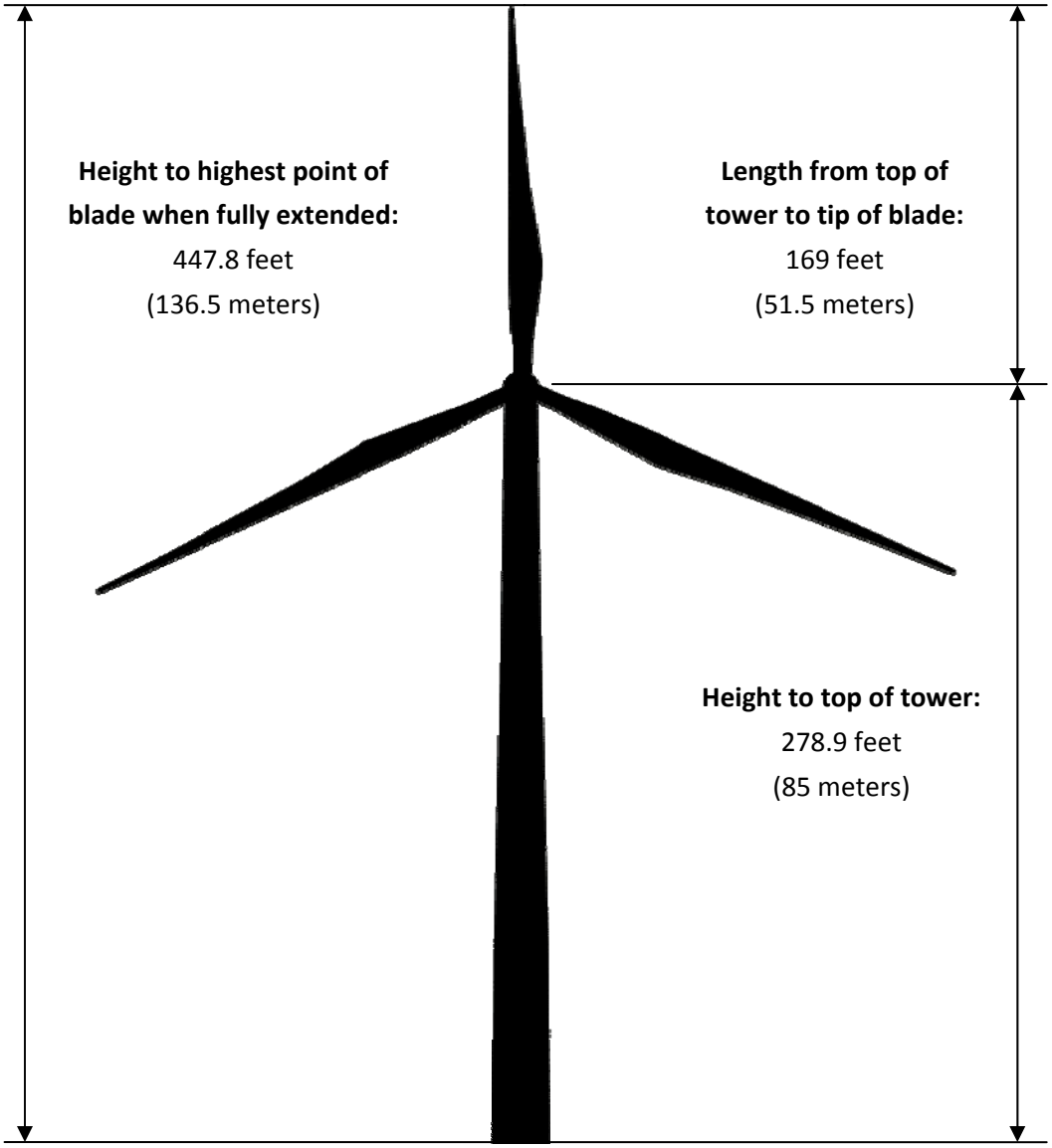
TETRA TECH EC, INC.

December 2011

PATRIOT RENEWABLES
Canton Mountain Wind, LLC

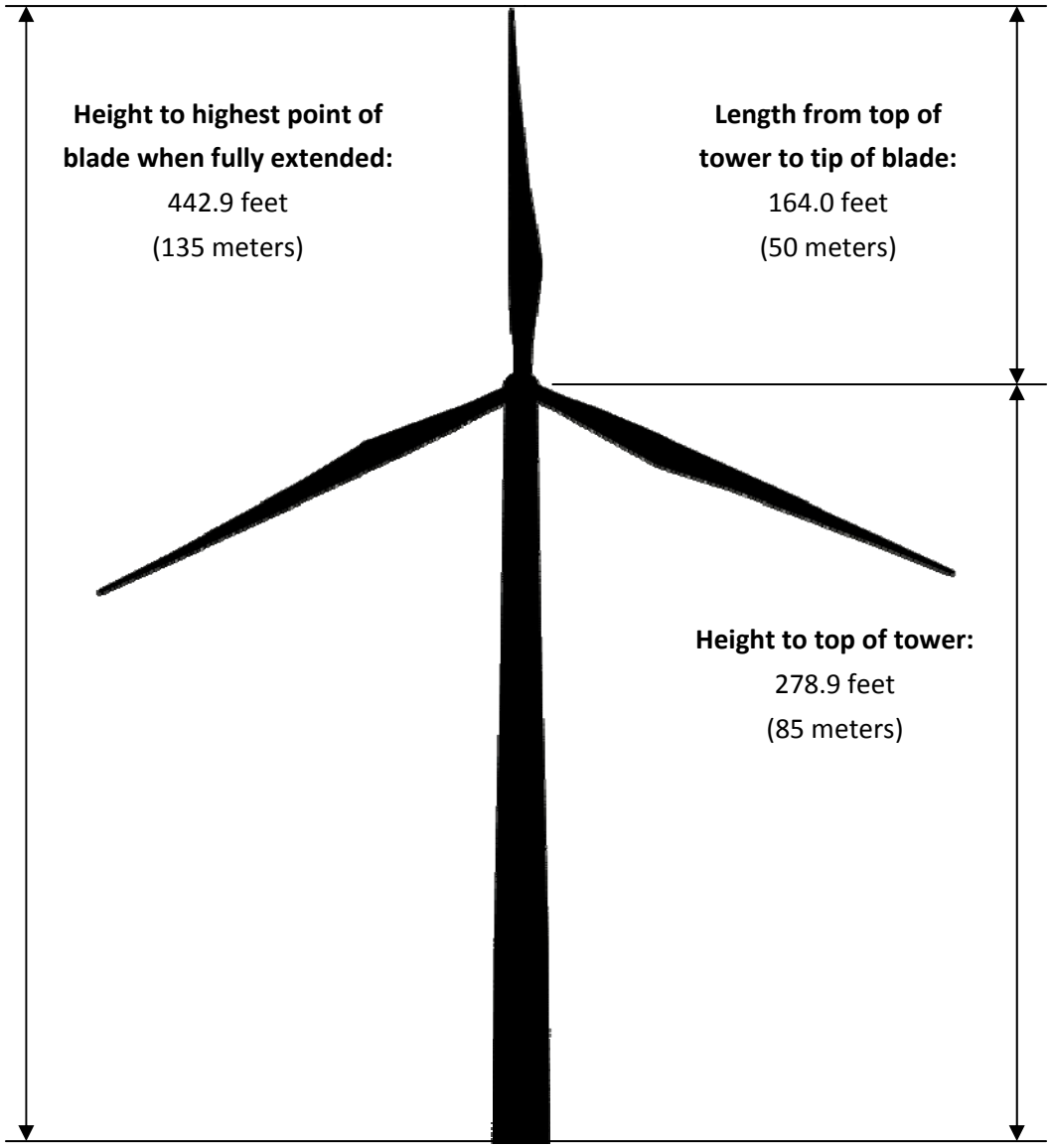
TODD.GYS(ECIBOSDGYST) P:\GIS\Patriot_Renewables\canton\GIS\Spatial\MXD\Permit_Figures\Canton_Fig1-3_OH_TlineSub.mxd

Figure 1-4a: Dimensions of a GE 2.75-103 Wind Turbine



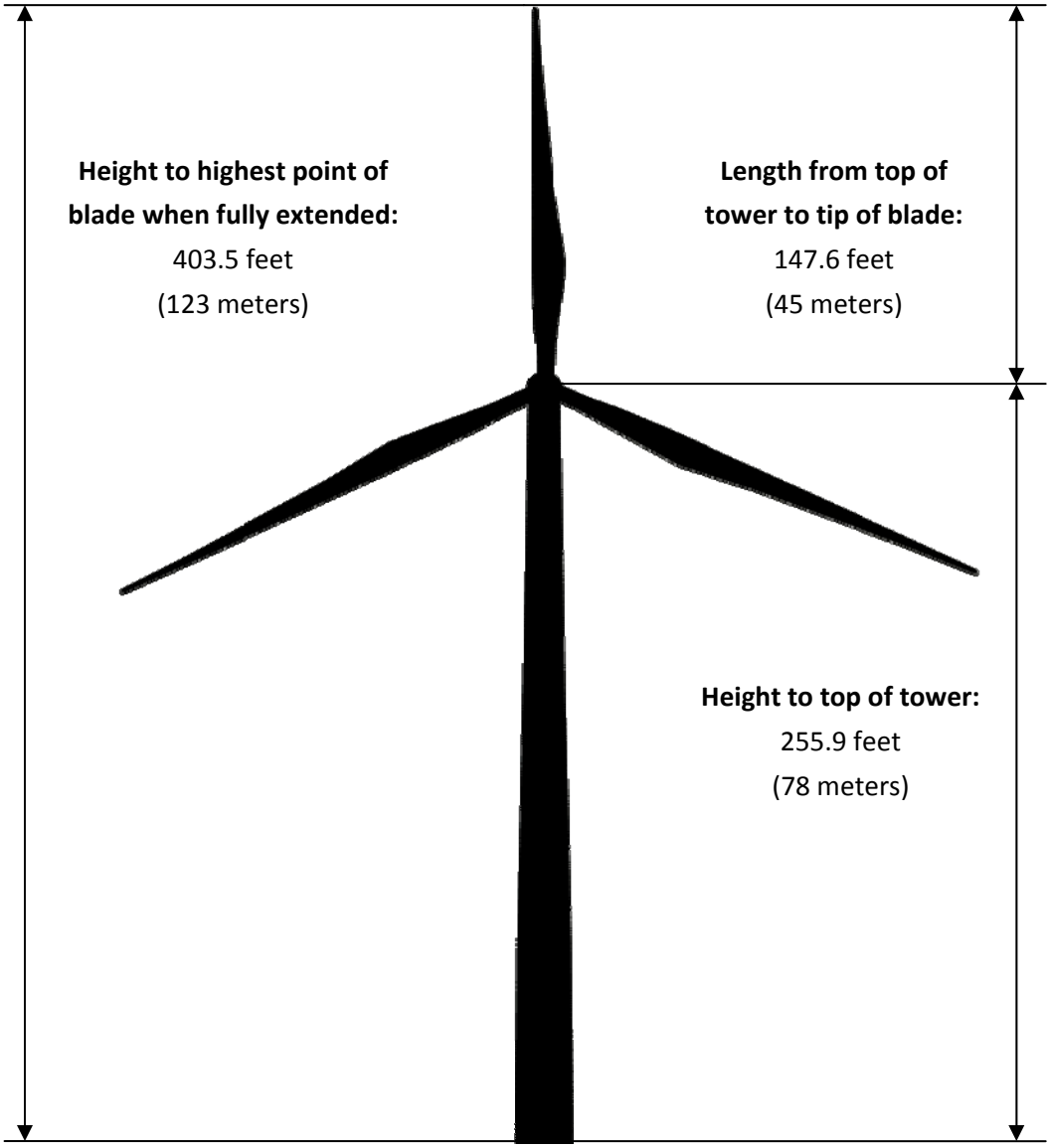
Not to Scale

Figure 1-4b: Dimensions of a GE 2.75-100 Wind Turbine



Not to Scale

Figure 1-4c: Dimensions of a Gamesa G90 Wind Turbine



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