SECTION 1.
PROJECT DESCRIPTION

1.1 PROJECT SUMMARY

Number Nine Wind Farm LLC (the Applicant), a wholly-owned subsidiary of EDP Renewables North America LLC, has designed and now proposes the construction of the Number Nine Wind Farm (Project), a grid-scale wind energy facility in Aroostook County, Maine. The Project consists of the Turbine Area, North Generator Lead Line (North Line), and Bridal Path Generator Lead Line (Bridal Path Line).

It is anticipated that the Bridal Path Line will be acquired by a utility at some point in the future, and is incorporated into the Project permit application as a distinct Project component in anticipation of the transfer of this portion of the Project. Similarly, the North Line may also be transferred to a third party at some point in the future, and is also presented in this permit application as a distinct Project component.

Each of these Project components is discussed below. Throughout this application, details are presented separately for each component, where there are relevant distinctions among the components. Exhibit 1-A provides the alternatives analysis for the Project.

Turbine Area

The Turbine Area is primarily located in T10 R3 WELS; E Township; T9 R3 WELS; TD R2 WELS; T8 R3 WELS; and Saint Croix Township (Figure 1-1, Exhibit 1-B). The Turbine Area includes 119 wind turbine generators with a total nameplate capacity of approximately 250 megawatts (MW). The design contemplates and depicts 129 locations; however, based on the Applicant's further due diligence review, the Applicant will ultimately select up to 119 of these turbine sites for construction. The Turbine Area also includes up to 4 permanent and 4 temporary meteorological "met" towers with a maximum height of 93 meters; a collector substation in T9 R3 WELS; an Operations and Maintenance (O&M) building in T9 R3 WELS; access roads; 34.5 kilovolt (kV) overhead and underground electrical collection lines; and laydown areas. In addition, the Turbine Area also includes improvements to associated access roads in Bridgewater.

Turbines were selected to optimize long-term Project performance given the unique characteristics of the Project site. Further, to reduce the cost of energy production and to conform to the Power Purchase Agreement for the Project, the Project will include 2 turbine models, 17 Gamesa G114-2.0 MW turbines and 102 Gamesa G114-2.1 MW Turbines.[1] Both turbine

[1] Turbine components (as noted above) are fully detailed here. Turbine selection is addressed in Section 32. The sizing and design of turbines are not further evaluated in this application, since 35-A MRSA §3459 relates only to best practical mitigation methods related to project construction and operation, and not to

models would be on a 93-meter tower and have a 114-meter rotor diameter, for a total height with the blade fully extended of 150 meters (492 feet); the turbine pad footprint is the same for both turbine models.

North Generator Lead Line

The North Line is an approximately 26.2 mile long proposed 345 kV generator lead line sited in a 170 foot wide corridor. The North Line begins at the Turbine Area collector substation in T9 R3 and runs south through T8 R3 WELS, TC R2 WELS, Hammond, Littleton, and Houlton and ends north of Ludlow Road in Houlton (Figure 1-2, Exhibit 1-C). Clearing limits along the corridor length will be up to 150 feet. The line will be accessed via existing public and private access roads for construction and operations.

Bridal Path Generator Lead Line

The Bridal Path Line is an approximately 25.4 mile long proposed 345 kV generator lead line sited within an existing 225-foot wide transmission line easement, the development rights to which are utility-owned. The Bridal Path Line runs south from south of Ludlow Road in Houlton through Hodgdon, Linneus, TA R2 WELS, Forkstown Township, and Haynesville and ends at an Interconnection Switchyard[2] north of Route 2 in Haynesville (Figure 1-3, Exhibit 1-D). Clearing limits along the corridor length will be up to 150 feet. The line will be accessed via existing public and private access roads for construction and operations.

1.2 PROJECT PURPOSE AND CONTEXT

The purpose of the Project is to construct and operate a grid-scale wind energy facility of approximately 250 megawatts (MW) in Aroostook County, Maine to support the Maine Wind Energy Act's goals for renewable energy in Maine and to deliver the power generated from the facility to the New England Independent System Operator (ISO-NE) electric market. The Project is located in an area identified as appropriate for grid-scale wind energy development as defined under 35-A MRSA §3451-3458 and is sited to maximize energy generation while minimizing impacts to ecological and environmental resources. Exhibit 1-A provides the alternatives analysis for the Project.

In accordance with the Maine legislative mandate under the Maine Wind Energy Act to meet certain stated renewable wind energy goals (35-A MRSA §3404), the Project will facilitate progress towards Maine's achievement of these goals and will bring clean, renewable wind power to the New England energy market. The demand for regional facilities that generate clean, renewable energy is increasing each year, and in addition, there is growing concern about greenhouse gases from fossil fuel emissions that are affecting the environment, the

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Project design or turbine selection. Turbine manufacturer, model and capacity are equipment selection and design factors and not project construction or operation factors.

[2] The application is MDEP Project Number #L-26475-24-A-N, and was submitted by CMP on February 24, 2015 and accepted by MDEP on March 4, 2015.

climate, and the health of Maine citizens. The Project will displace about 487,000 tons of global warming inducing CO2 emissions.[3]

The proposed Project will add approximately 250 MW of nameplate capacity to the ISO-NE grid as required by the Power Purchase Agreement that the Applicant executed in September, 2013. The Project is designed to minimize the cost of electrical production and environmental impact, and uses industry-wide best practices for construction and operation of the Project.[4]

1.3 CONSTRUCTION PLAN

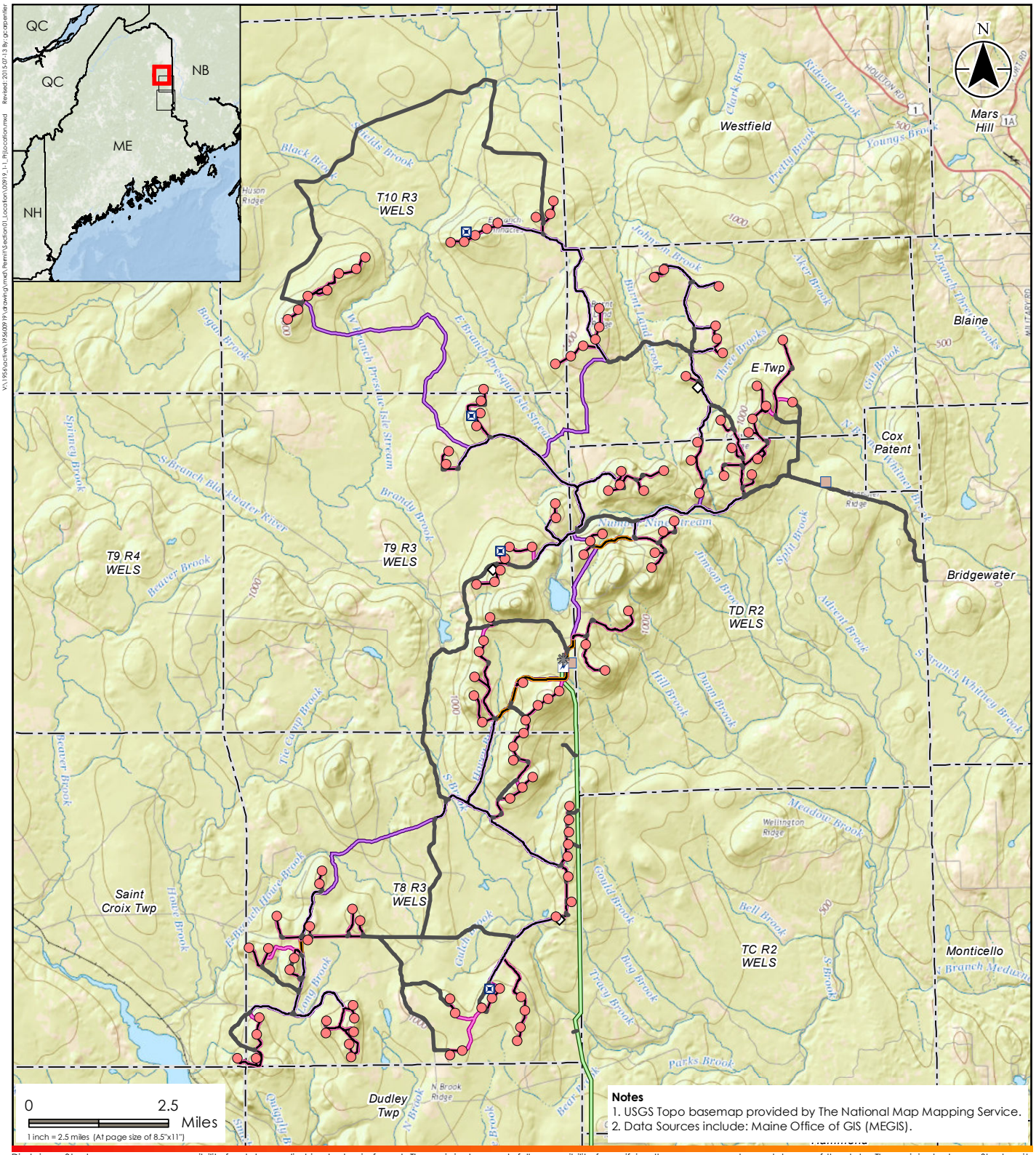
Construction of the Project is expected to begin in late 2015. The major tasks involved in construction are described in the sequence of events depicted in Table 1-1, but may be adjusted based on seasonality and weather conditions. Typical clearing limits are depicted in Figure 1-4 (Sheets 1-4).

[3] Estimate based on eGRID data and carbon equivalency conversions provided by the Environmental Protection Agency (EPA). http://www.epa.gov/greenpower/pubs/calculator.htm. Accessed March 2015.
[4] There is a full discussion of the new statutory BPM (Best Practical Mitigation) requirements under 35-A MRSA §3459 in Section 32 of the Application. The BPM methods relate to mitigation during construction and operations for impacts to wildlife, consistent with the specific scope of the statutory requirement.

Table 1-1. Construction Schedule.

Task	Duration
Preliminary layout and staking of new road segments, turbine clearings, generator lead, and laydown areas	Weeks 1 - 25
Installation of erosion control measures in areas to be disturbed	Weeks 3 - 26
Clearing for roads, collection system, turbines, and laydown areas	Weeks 5 - 26
Installation of preliminary roads for turbine foundations and turbine delivery	Weeks 36 - 52
Collection system installation (overhead & underground)	Weeks 36 - 63
Blasting as necessary and on-site stockpiling of reusable blasted bedrock	Weeks 38 - 58
Construction of turbine foundations	Weeks 39 - 59
Turbine delivery	Weeks 41 - 61
Turbine installation	Weeks 42 - 63
Turbine commissioning	Weeks 49 - 64
Final grading for roads and turbine areas	Weeks 51 - 68
Gen Lead Line	Weeks 7 - 48
Installation of interconnect	Weeks 7 - 48
Installation of substation	Weeks 30 - 48
Start of commercial operations	Week 64
Removal of temporary erosion and sedimentation control materials upon final site stabilization and reseeding	Weeks 88 - 100

FIGURES



Notes
1. USGS Topo basemap provided by The National Map Mapping Service.
2. Data Sources include: Maine Office of GIS (MEGIS).

195600919

Stantec

30 Park Drive
Topsham, ME USA 04086
Phone (207) 729-1199

Prepared by GAC on 2015-03-01
Reviewed by JYP on 2015-03-26

00919_1-1_PrjLocation.mxd

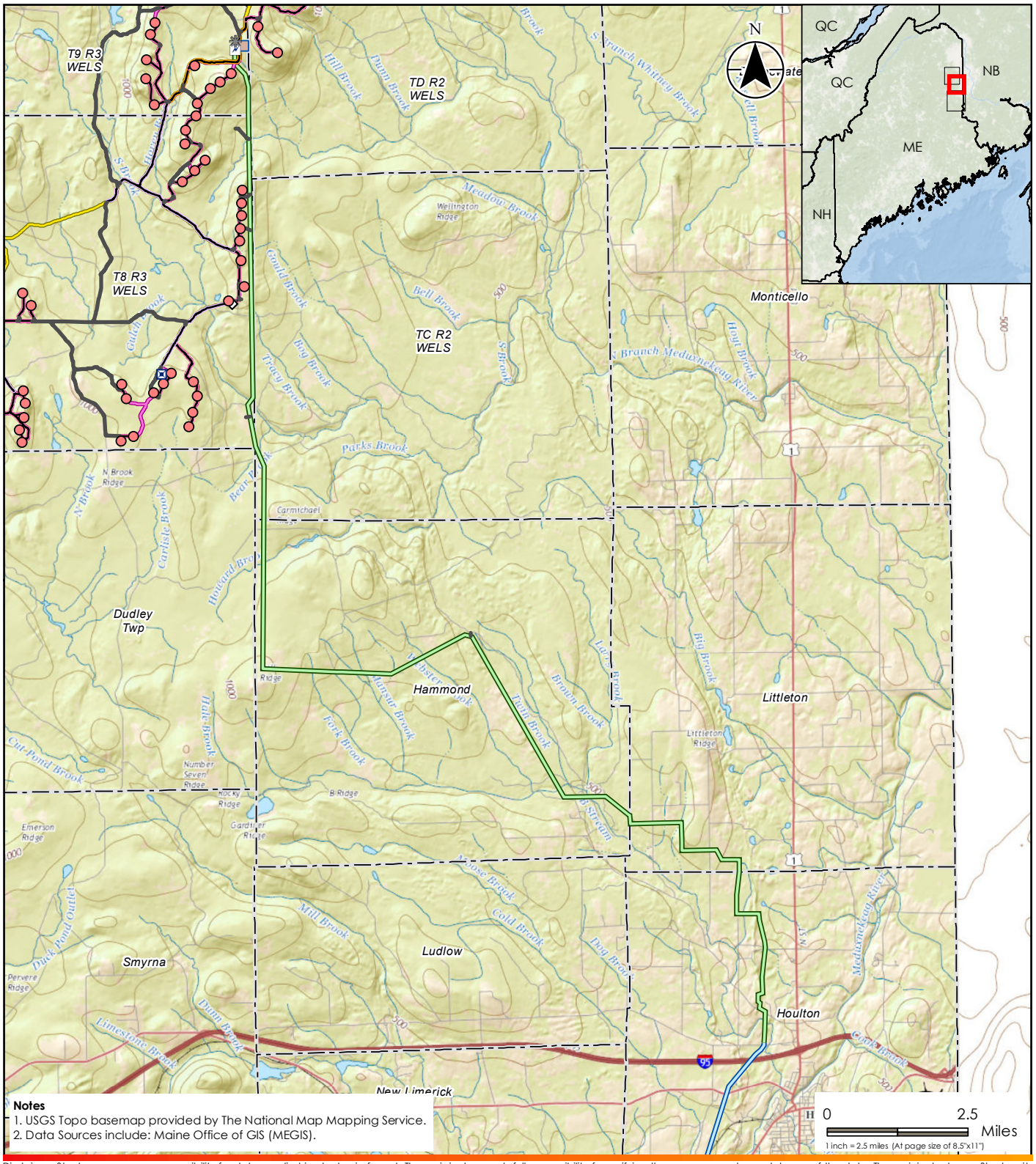
Legend

- Turbines
- Permanent MET Tower
- Substation
- O&M Building
- Laydown Yard
- Batch Plant
- Overhead Collector
- Underground Collector
- Access Road
- Access Road with Overhead Collector
- Access Road with Underground Collector
- Access Road with Overhead and Underground Collector
- North Generator Lead

Client/Project
EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

Figure No.
1-1

Title
Turbine Area
7/13/2015



Notes
1. USGS Topo basemap provided by The National Map Mapping Service.
2. Data Sources include: Maine Office of GIS (MEGIS).

195600919

Stantec

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Prepared by GAC on 2015-03-01
Reviewed by JYP on 2015-03-26

00919_1-2_PrjLocation.mxd

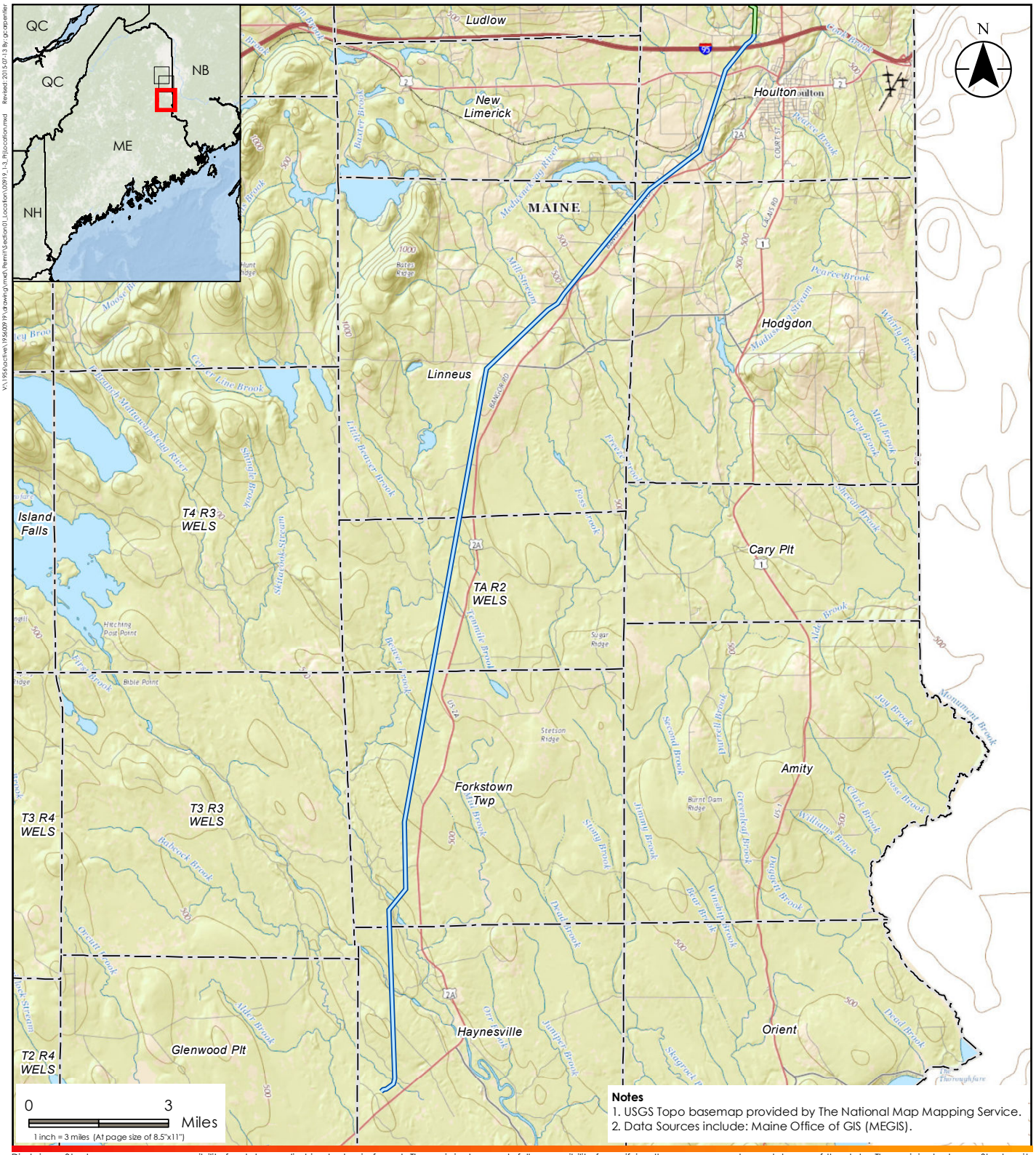
Legend

- Turbines
- Permanent MET Tower
- Substation
- O&M Building
- Laydown Yard
- Batch Plant
- North Generator Lead
- Bridal Path Generator Lead
- Overhead Collector
- Underground Collector
- Access Road
- Access Road with Overhead Collector
- Access Road with Underground Collector
- Access Road with Overhead and Underground Collector

Client/Project
EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

Figure No.
1-2

Title
North Generator Lead
7/13/2015



195600919

Stantec

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Topsham, ME USA 04086
Phone (207) 729-1199

Prepared by GAC on 2015-03-01
Reviewed by JYP on 2015-03-26

00919_1-3_PrjLocation.mxd

Legend

- North Generator Lead
- Bridal Path Generator Lead

Client/Project

EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

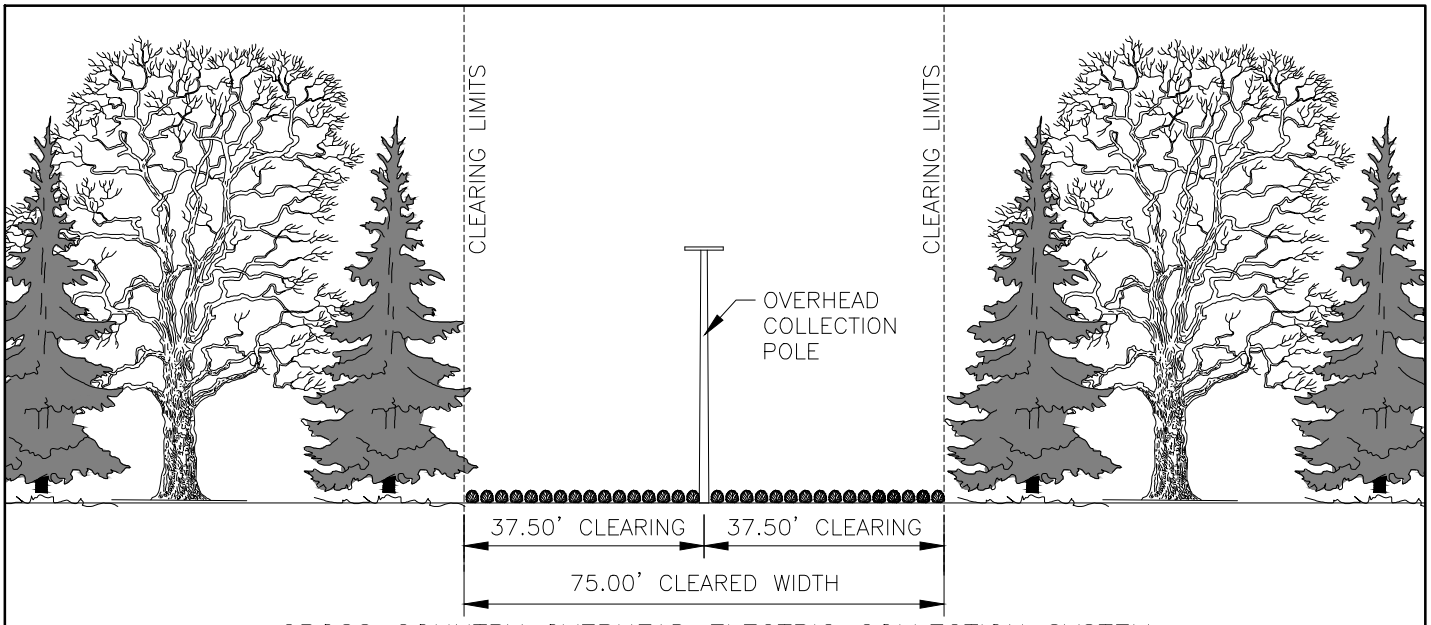
Figure No.

1-3

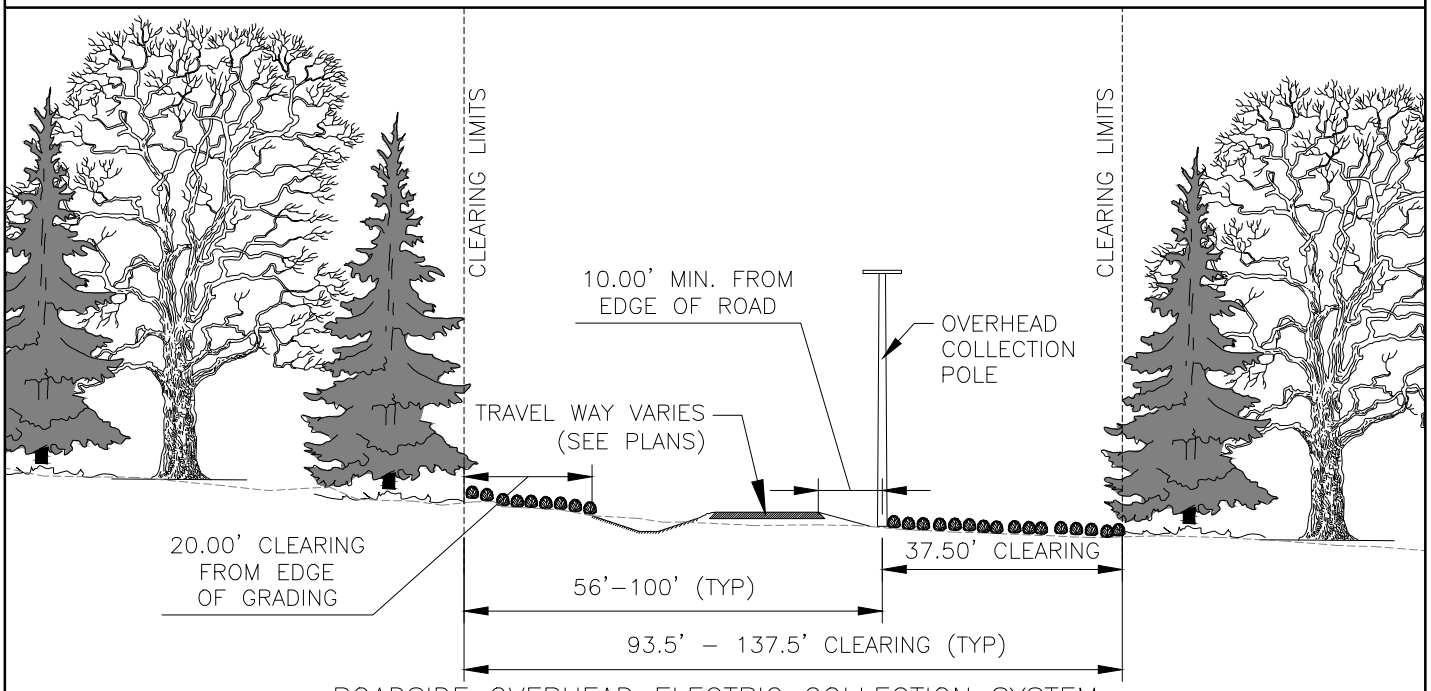
Title

Bridal Path Generator Lead

7/13/2015



CROSS COUNTRY OVERHEAD ELECTRIC COLLECTION SYSTEM
TYPICAL CLEARING LIMITS
NOT TO SCALE



ROADSIDE OVERHEAD ELECTRIC COLLECTION SYSTEM
TYPICAL CLEARING LIMITS
NOT TO SCALE

PROJECT

NUMBER NINE WIND FARM
AROOSTOOK COUNTY, MAINE
PRELIMINARY PLANS NOT FOR CONSTRUCTION

AROOSTOOK COUNTY STATE OF MAINE

TITLE OF DRAWING

TYPICAL CLEARING LIMITS-1

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CL-1	SHEET 1 OF 4	DP/BA
FA PROJECT NO.	SCALE:	CHECKED BY:
140009	NOT TO SCALE	S. MELLOTT

FISHERASSOCIATES
WWW.FISHERASSOC.COM
135 Calkins Road, Rochester, NY 14623
Phone: 585-334-1310

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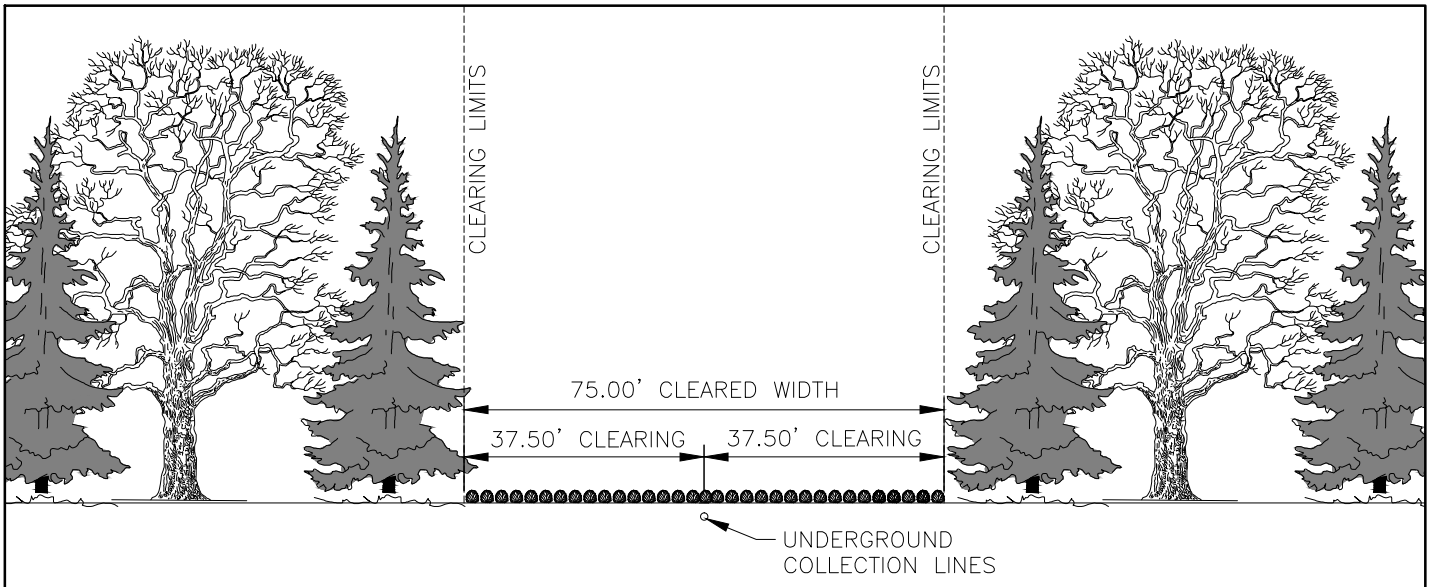
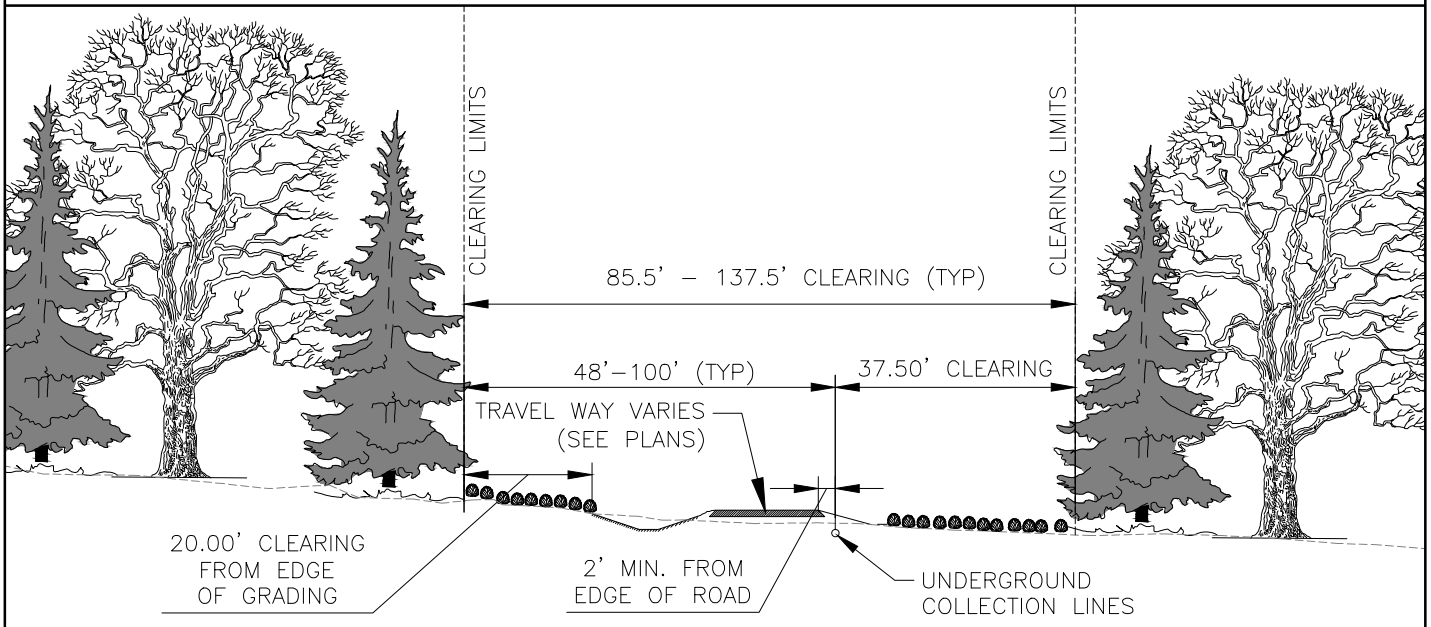
USER: Steven Mellott



CROSS COUNTRY UNDERGROUND ELECTRIC COLLECTION SYSTEM
TYPICAL CLEARING LIMITS
NOT TO SCALE



ROADSIDE UNDERGROUND ELECTRIC COLLECTION SYSTEM
TYPICAL CLEARING LIMITS
NOT TO SCALE

PROJECT

NUMBER NINE WIND FARM
AROOSTOOK COUNTY, MAINE
PRELIMINARY PLANS NOT FOR CONSTRUCTION

AROOSTOOK COUNTY STATE OF MAINE

TITLE OF DRAWING

TYPICAL CLEARING LIMITS-2

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CL-2	SHEET 2 OF 4	DP/BA
FA PROJECT NO.	SCALE:	CHECKED BY:
140009	NOT TO SCALE	S. MELLOTT

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135 Calkins Road, Rochester, NY 14623
Phone: 585-334-1310

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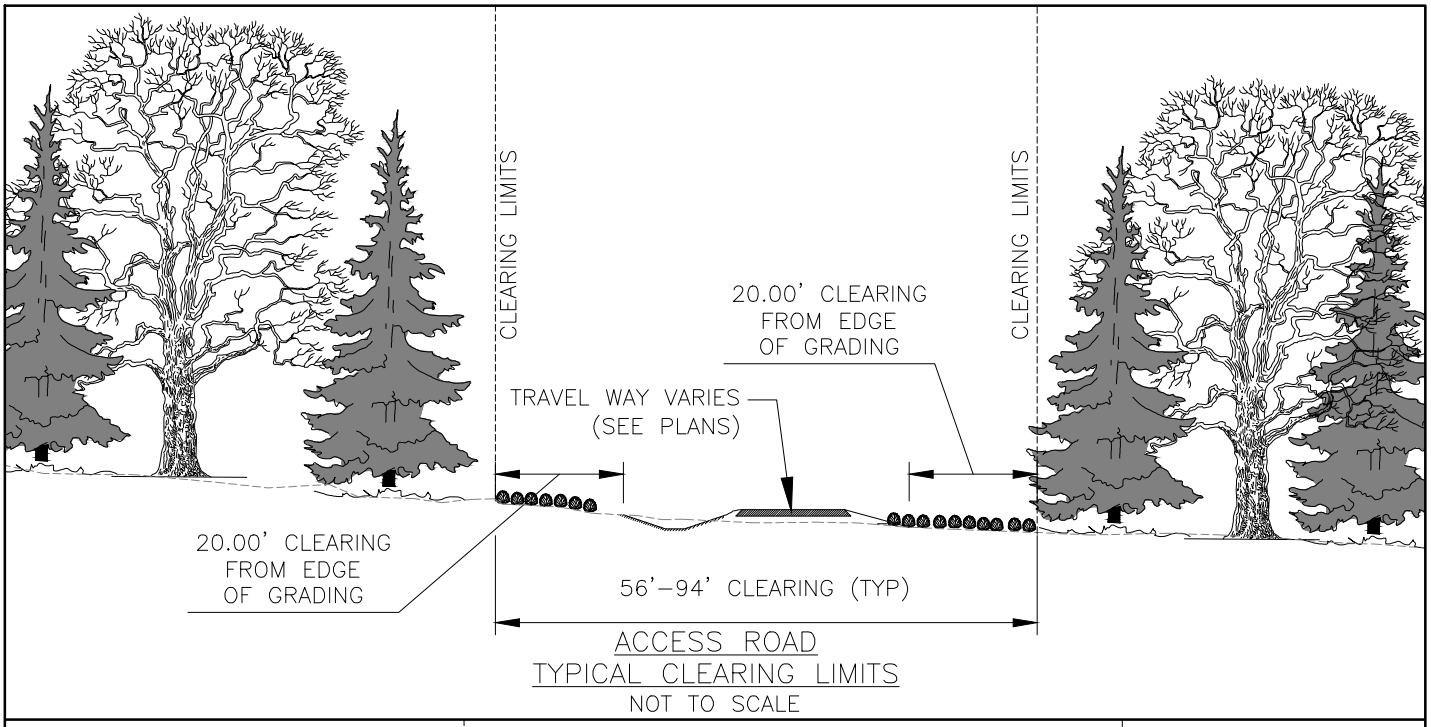

ACCESS ROAD
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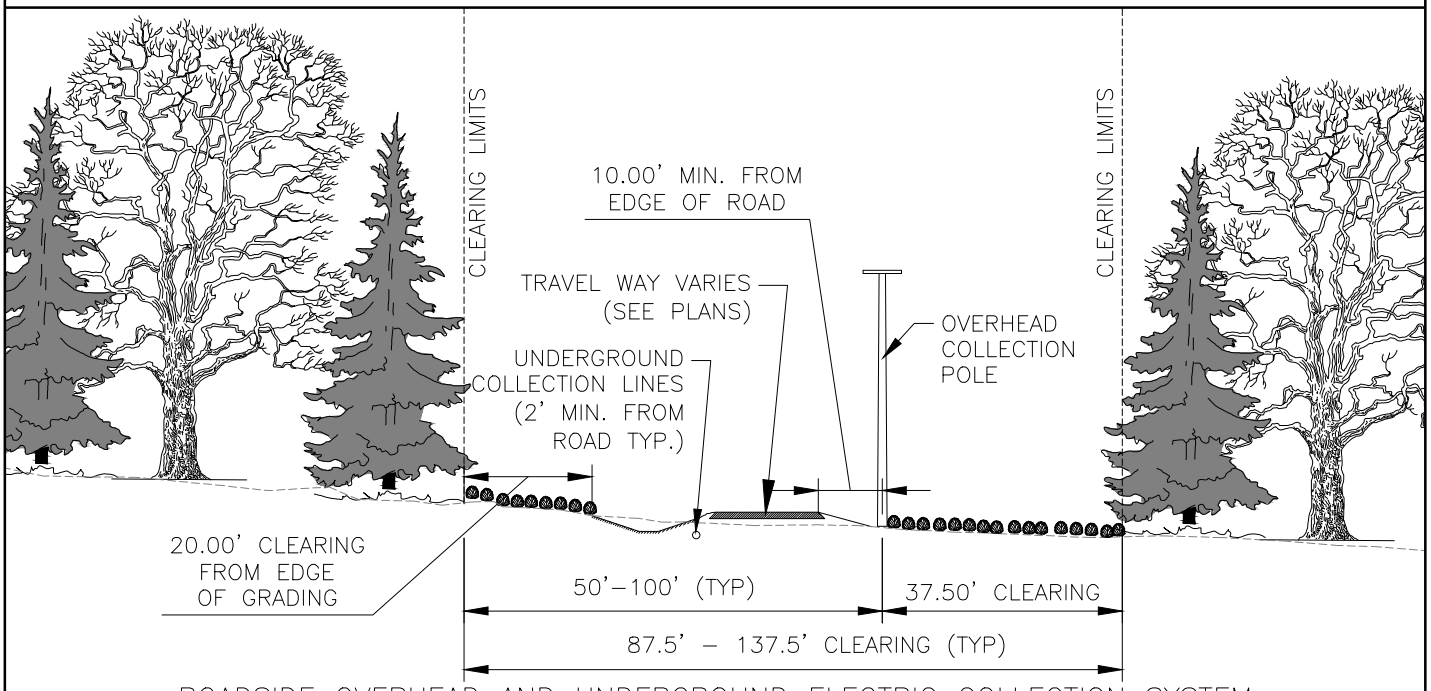

ROADSIDE OVERHEAD AND UNDERGROUND ELECTRIC COLLECTION SYSTEM
TYPICAL CLEARING LIMITS
NOT TO SCALE

PROJECT

NUMBER NINE WIND FARM
AROOSTOOK COUNTY, MAINE
PRELIMINARY PLANS NOT FOR CONSTRUCTION

AROOSTOOK COUNTY STATE OF MAINE

TITLE OF DRAWING

TYPICAL CLEARING LIMITS-3

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FA PROJECT NO.	SCALE:	CHECKED BY:
140009	NOT TO SCALE	S. MELLOTT

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Phone: 585-334-1310

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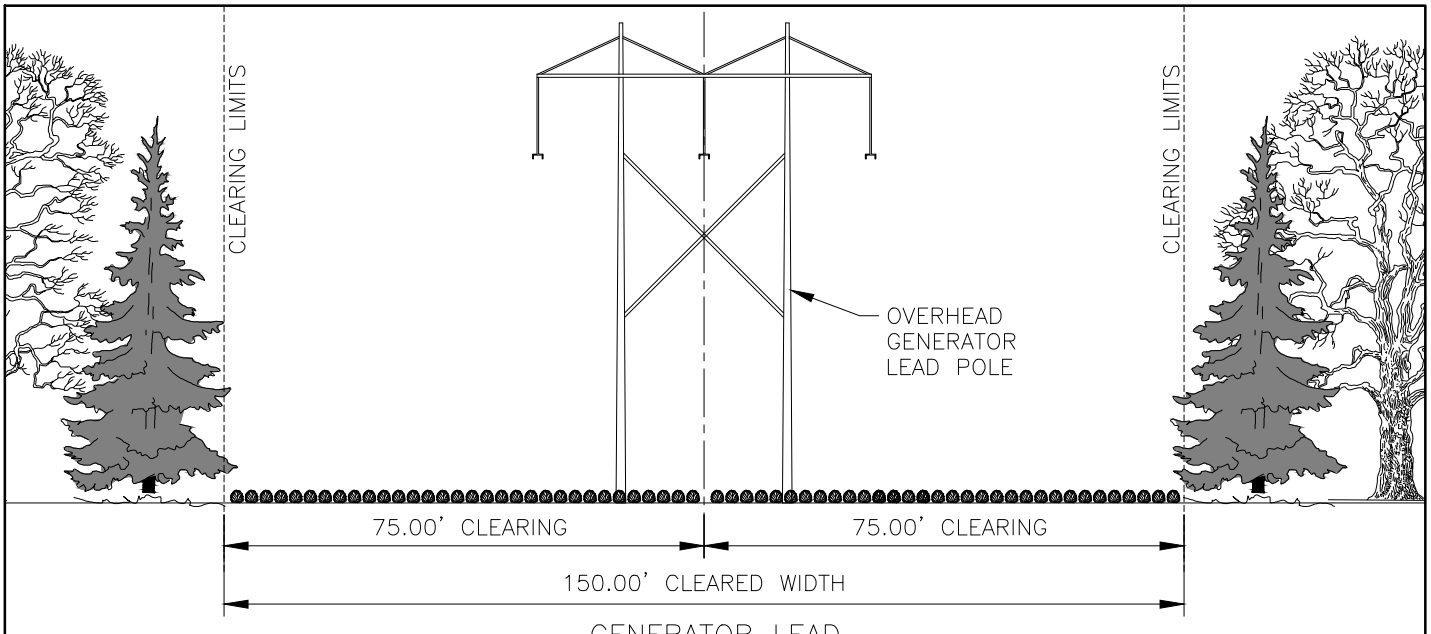

GENERATOR LEAD
TYPICAL CLEARING LIMITS

NOT TO SCALE

PROJECT

NUMBER NINE WIND FARM
AROOSTOOK COUNTY, MAINE
PRELIMINARY PLANS NOT FOR CONSTRUCTION

AROOSTOOK COUNTY STATE OF MAINE

TITLE OF DRAWING

TYPICAL CLEARING LIMITS-4

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EXHIBIT 1-A ALTERNATIVES ANALYSIS

SECTION 1-A.
ALTERNATIVES ANALYSIS

As described in Section 1, Number Nine Wind Farm LLC (the Applicant) has proposed the construction of the Number Nine Wind Farm (Project), a grid-scale wind energy facility in Aroostook County, Maine. The Project consists of the Turbine Area, North Generator Lead Line (North Line), and Bridal Path Generator Lead Line (Bridal Path Line). There are two statutory provisions applicable to this Project that include an analysis of alternatives.

Maine's Site Location of Development Law (Site Law), 38 MRSA § 487-A(4), requires that in addition to the findings set forth in Section 484 of the Site Law, in the case of certain transmission lines, the Department "shall consider whether any proposed alternatives to the proposed location and character of the transmission line . . . may lessen its impact on the environment or the risks it would engender to the public health or safety, without unreasonably increasing its costs." To the extent this provision applies to this Project, this Alternatives Analysis provides information demonstrating that alternatives have been considered and that there is no alternative that would lessen the Project's impact on the environment without unreasonably increasing its cost.

Maine's Natural Resources Protection Act (NRPA), 38 M.R.S.A. Sections §§480-A-HH, and wetlands rules, 06-096 CMR Chapter 310, also require that the applicant evaluate whether a less environmentally damaging practicable alternative to the proposed wetland alteration, which meets the project purpose, exists (06-096 CMR 310.9.A). The Maine regulations define practicable as "available and feasible considering cost, existing technology and logistics based on the overall purpose of the project" (06-096 CMR 310.2.R). This Alternatives Analysis and the information set forth in Section 7 of this application demonstrate that are no less environmentally damaging practical alternatives.

1A.1 PROJECT PURPOSE AND NEED

The overall Project purpose is to construct and operate a grid-scale wind energy facility of approximately 250 megawatts (MW) in Aroostook County to support the Maine Wind Energy's Act's goals for renewable wind energy in Maine and to deliver the power generated from the facility to the New England Independent System Operator (ISO-NE) electric market.

In 2008, the Maine Legislature made a significant statement of its preference and desire to attract wind power in the State through its adoption of recommendations of the wind power

task force.[1] This legislation, generally referred to as the "Maine Wind Energy Act" (the Act), mandated the State to "take every reasonable action to encourage the attraction of appropriately sited development related to wind development" and includes measures designed to streamline and standardize the regulatory process for wind farm development. It was deemed to be "immediately necessary for the preservation of the public peace, health and safety."[2] The Act goes further to state that the encouragement of wind energy may displace power generation through fossil fuels and thus "improve environmental quality."[3] In addition to specific provisions governing the permitting of wind power in Maine, the Act established a goal of developing at least 2,000 MW of installed capacity by 2015 and 3,000 MW by 2020. As of April 2015, there were 900 MW of commercial wind power operating, under construction, or permitted in Maine. At 250 MW, this Project represents an important and substantial step toward meeting the State's goals.

The Applicant will be constructing 2 sections of a 345 kV generator lead in the corridor south from the Turbine Area to interconnect with the ISO-NE administered grid. A segment of this generator lead line is located in a transmission easement historically known as the "Bridal Path" corridor, the development rights to which are utility owned. As described in Section 1, it is anticipated that an electric utility will acquire the Bridal Path Lineand use it for a different purpose, namely to interconnect the northern Maine electrical system to the north and improve the reliability of the northern Maine grid system. The potential use of the Project infrastructure in this way will also enable renewable and other power generation in northern Maine to have direct access to energy markets served by the ISO-NE administered system to the south.

1A.2 SITE SELECTION CRITERIA

The Project site selection was based on maximization of wind energy generation and minimizing impacts to regulated resources while taking into consideration the feasibility, logistics, and potential environmental impacts. A number of areas in the vicinity of the Project were evaluated with the ultimate goal of identifying a site that meets the Project purpose and has the least environmental impacts. As discussed more thoroughly below, the selected Project location is the most practicable site available.

Quality of Wind Resource

Wind resource quality is one of the initial drivers when selecting the location for a wind power development. Without sufficient wind quality, commercial scale wind energy projects are infeasible. The quality of the wind resource is based on the speed and frequency of the wind.

[1] P.L. 2007, ch. 661 (effective Apr. 18, 2008); An Act to Implement Recommendations of the Governor's Task Force in Wind Power Development.
[2] Id.
[3] Id.

The Applicant reviewed information about the wind resource in northern Maine and determined that the wind resource in the vicinity of the proposed Project site is well-suited for wind energy development while other areas in Central Aroostook County are generally lower in elevation, resulting in lower wind speeds and lower-quality wind resource. Based on this information, the Applicant installed a series of meteorological towers within the general proposed Turbine Area during 2008-2014. Since their installation, these met towers have collected data on wind speed, direction, and frequency. This site specific wind data, in combination with the land form and surrounding landscape, confirm that the Project area is well suited for an economically viable grid-scale wind development.

Topography and Accessibility

Most economically viable sites for wind project development are limited to areas where the topography is characterized by land forms of sufficient size to allow placement of a significant number of turbines in a string, oriented in relation to wind direction, and elevated such that they capture the wind resource. Additionally, the topography of feasible project sites must allow sufficient access to the project facilities (i.e. not be so logistically difficult or steep) that design and construction costs are high.

The Project area offers an excellent example of a site that features each of these preferable topographic and accessibility characteristics. The topography throughout the Project area is gradual to moderate, which are key considerations for access roads, and the gradual rises within the Project area provide suitability for wind energy development. The extensive network of logging roads which already exist in the Project area will be utilized and upgraded where appropriate to provide construction and operational access, thereby reducing development of new roads. In comparison, sites with high wind resources are often less feasible for development due to steep terrain and lack of existing road network requiring increased costs.

Additionally, the Project offers proximate access to electrical infrastructure. Because the northern Maine electrical grid is not directly connected to the rest of New England, the Number Nine Wind Farm must connect to the ISO-NE market to reliably deliver power and meet the conditions of its power purchase agreement. The Project is located in one of the closest areas to the ISO-NE market that has both wind resource and topography that is feasible for wind energy development. By comparison, a project constructed further north would require a much longer generator lead line to connect to the ISO-NE market.

Equipment Selection

Based on the wind resource, topography and accessibility, the appropriate equipment was chosen to fit these parameters. In August 2013 the Applicant bid the Project into the Connecticut Department of Energy and Environmental Protection (DEEP)'s Request for Proposals (RFP) for a contract for renewable energy. The Project team evaluated a myriad of turbines

ranging from a 1.5MW turbine to a 3.0MW turbine. The Applicant's Central Procurement team completed an internal competitive process which analyzed a number of turbine models from different manufacturers and resulted in narrowing the best turbine option for the Project to a 2.0MW turbine. Factors that led to this result included the cost of turbines evaluated, a technical evaluation of turbine performance projections, suitability based on the Project area wind regime, the track record of the 2.0MW platform of wind turbines, logistics related to turbine delivery, and the Applicant's ability to secure turbine components by the end of 2013 to qualify the Project to receive the Federal Production Tax Credit (PTC).

The Project was awarded a contract from the Connecticut DEEP RFP process in September 2013, and in December 2013 the Applicant purchased 22 Gamesa 114 2.0MW turbines as a way to secure PTC qualification for the Project. At this point layout development and engineering design work began in earnest which contemplated 125 2.0MW G114 turbines with several alternate locations included to provide flexibility as design work and various studies progressed. In March 2014, Gamesa brought a 2.1MW turbine to market that was consistent with the technical design considerations for the Project. This led to the adoption of the 2.1MW turbine for the Project in addition to the 2.0MW turbines and resulted in a reduction of 6 turbines to be proposed for the Project.

Compatibility with Existing Land Uses

The proposed Turbine Area is located in an area currently used for commercial logging operations, a land use that is particularly compatible with wind power development. The forest landscape in the Turbine Area has been extensively cut and disturbed by logging equipment over the past several decades, and the Project is compatible with the timber management operations of the existing landowners. Wind energy projects provide an alternative source of economic value to landowners during a time when value derived from timber and fiber production continues to decline. During operations, landowners can continue forest management activities on the surrounding land; the proximity of the Project facilities to other privately owned working forests would not decrease the economic value of those lands. A report on the future of forests in Maine describes wind turbines as "[c]apital intensive to build but have no fuel costs, meaning that leasing space for them can bring major benefits to landowners. Like carbon storage but in a more tangible way, windpower creates additional value for landowners and helps preserve the larger forest economy."[4]

The Turbine Area has two Scenic Resources of State or National Significance (SRSNS) within 8 miles of proposed turbine locations, and there are no visible turbines within 8 miles of either of these SRSNS. In addition, the Turbine Area is sited such that there will be no cumulative visual impact between the Project and Mars Hill or Oakfield, the nearest existing wind projects.

[4] Keeping Maine's Forests: A Study of the Future of Maine's Forests, November 2009. Coordinated and managed by the Center for Research on Sustainable Forests, University of Maine.

The generator lead for the Project similarly takes advantage of existing land uses. The North Line is located within an area currently used for commercial timber, gravel, and agricultural operations and the Bridal Path Line is located within an existing transmission line corridor dating back to the 1960s. This corridor has been partially cleared by utilities in the past, though no infrastructure has been installed.

Environmental Impacts

The Project area is not highly unique in terms of ecological function and values. The Turbine Area consists of managed timberland. The majority of the forested communities are not exemplary as a result of past and on-going timber management practices including forest thinning, selective harvesting, and regenerating stands. Forest substrates and hydrology have also been altered in many areas as a result of rutting, timber skidding, and grading from logging equipment. The generator leads cross through areas that include commercial timber and agricultural lands as well as limited residential development and an established utility ROW. Despite these anthropogenic changes to the landscape, the Project area includes several mapped wildlife habitats including Deer Wintering Areas (DWA), Inland Waterfowl and Wading Bird Habitats (IWWH), designated Critical Habitat for Canada lynx (*Lynx canadensis*) and Atlantic salmon (*Salmo salar*). To the extent practicable, the Project has been designed to minimize direct impacts to wetlands and streams and to maintain buffers on these habitats as outlined in the NRPA. As currently designed, the Project avoids and minimizes environmental impacts by incorporating existing infrastructure such as private logging roads, avoiding direct impacts to sensitive resources where practicable, and maintaining wooded buffers on streams and sensitive wildlife habitats. Specific examples of these avoidance and minimization efforts are discussed below in Section 1A.5.

Surveys conducted for the Project determined that wildlife species such as bald eagles (*Pandion haliaetus)* and Canada lynx do utilize the area, but use is either limited or the Project will implement efforts to mitigate potential impacts. The nearest bald eagle nest to the Project is approximately 2 miles from the nearest proposed turbine location, and use surveys only documented eagles in the Project during the spring and fall. There is little eagle foraging opportunity within one mile of proposed turbine locations, particularly when compared to foraging habitat available in the landscape surrounding the Project. Therefore, the Project is unlikely to attract foraging bald eagles that may be nesting in the area.

Habitat assessments for Canada lynx documented varying qualities of habitat within and surrounding the Project. In addition, winter tracking surveys documented Canada lynx use of the area. Canada lynx and other wildlife populations that occupy this landscape have historically adapted to the continual habitat conversion that occurs with timber management; therefore changes associated with the proposed Project are not expected to adversely affect these local populations, or the habitat supporting those populations. In addition, the Project will

implement speed restrictions within the Project area to minimize the potential for collisions with Canada lynx.

Similarly, acoustic surveys were conducted for the Project to assess bat activity. Based upon these surveys, the levels of acoustic bat activity were generally low compared to rates reported at other wind projects in Maine and the Northeast. Over 90 percent of acoustic data recorded were generated by low-frequency echolocating bats [hoary bat (*Lasiurus cinereus)*, silver-haired bat (*Lasionycteris noctivagans*), and big brown bat (*Eptesicus fuscus*)]. For those bat species particularly affected by white-nose syndrome, there was little evidence of use identified: no evidence of northern long-eared bat (*Myotis septentrionalis)* was documented during the acoustic surveys, fewer than 5 calls of the little brown bat (*Myotis lucifugus*) were detected, and no eastern small-footed bat (*Myotis leibii*) call sequences were identified. Given that no northern long-eared bats or eastern small-footed bat were recorded and very few little brown bat calls were recorded, the risk to *Myotis* bats is estimated to be very low. In addition, the Project will implement an operational curtailment plan that will help minimize the potential risk to bats that may be utilizing the Turbine Area.

1A.3 TURBINE AREA

The Project design and layout for the Turbine Area reflects an extensive and iterative process in which multiple ridges and hills in the vicinity of the Project were evaluated for proposed turbine sites. The objective of the selected Project design for the Turbine Area was to maximize generation of wind energy and minimize impacts to regulated resources.

A number of layouts were reviewed during Project development, with the ultimate goal of identifying a preferred alternative that meets the Project purpose and minimizes environmental impacts. The final layout of the turbine locations was developed to avoid and minimize impacts to regulated resources while meeting the necessary design requirements described in the selection of this site for the Project. As discussed below and summarized in Table 1A-1, the selected turbine layout includes the most practicable locations available.

After evaluating route selection criteria, the Applicant identified four potential alternatives for turbine layouts. The four alternatives include:

Alternative 1 (preferred turbine layout) includes 119 turbines (129 potential sites) and 134 miles of roads located in T10 R3 WELS; E Township; T9 R3 WELS; TD R2 WELS; T8 R3 WELS; and Saint Croix Township (Figure 1).

Alternative 2 includes 125 turbines (135 potential sites) and approximately 144 miles of roads located in T10 R3 WELS; E Township; T9 R3 WELS; TD R2 WELS; T8 R3 WELS; TC R2 WELS; and Saint Croix Township (Figure 2).

Alternative 3 includes 125 turbines (135 potential sites) and 142 miles of roads located in T10 R3 WELS; E Township; T9 R3 WELS; TD R2 WELS; T8 R3 WELS; and Saint Croix Township (Figure 3).

Alternative 4 includes 125 turbines (135 potential sites) and 136 miles of roads located in T10 R3 WELS; E Township; T9 R3 WELS; TD R2 WELS; T8 R3 WELS; and Saint Croix Township (Figure 4).

All four alternatives each include 10 alternate turbine sites. The design describes and depicts these additional sites, but the Applicant would ultimately select up to the number of turbines identified in each alternative (119 turbines for Alternative 1; 125 turbines for Alternatives 2, 3, and 4;). All four alternatives include the same layout for supporting infrastructure, such as Operations and Maintenance building, laydown areas, and meteorological towers.

The Applicant evaluated these alternatives and selected the alternative that meets the Project purpose and minimizes environmental impacts.

Alternative 1(Preferred Turbine Layout)

Alternative 1 would have moderate environmental impacts. As discussed in Section 1A.5, turbine locations would have minimal impacts to wetlands due to extensive micrositing. Access roads were designed to avoid many wetland impacts, and stream crossings would be minimized.

This alternative includes 6.84 acres of permanent wetland fill associated with turbines and roads in the Turbine Area. This alternative includes 6 crossings of IWWH and does not include any impacts to any DWA.

This alternative includes 8 turbines within one mile of Number Nine Lake, does not include any turbines within one-half mile of camps at Number Nine Lake, and includes 10 structures within one-half mile of turbines.

Alternative 2

Alternative 2 would have moderate to potentially high environmental impacts. This alternative would include 9 turbines (2 in TD R2 WELS and 7 in TC R2 WELS) in locations where the wind resource is high in comparison to other locations within the Project area, but are in an area with a limited existing road network. Limited existing access would require construction of additional new roads beyond that needed for other alternatives. Road construction in this area would require stream crossings, including crossing tributaries to Meadow Brook and the North Branch of the Meduxnekeag River, as well as potential impacts to vernal pools, many of which are high functioning. Additional wetland impacts would also have been associated with turbine installation in these areas.

Alternative 2 would also include 8 turbines in the northwestern corner of T8 R3 WELS and T9R3 WELS not included in the other alternatives, some of which are in locations where the wind resource is high in comparison to other locations within the Project area. These turbines would be located on Nighthawk Mountain and unnamed hills in the area. This location is near the headwaters of Presque Isle Stream. There are 3 mapped IWWH habitats in this general area. Although there are existing roads in this area, it is likely that road upgrades and some new roads would be needed. Road work and placement of turbines and electrical corridors likely would have involved additional wetland and stream impacts as well as potential impacts to IWWH. Alternative 2 does not include 5 turbines in the northeastern corner of T9 R3 WELS and 5 turbines in the northwestern corner of E Twp that are included in the other alternatives. Exclusion of these turbines avoids some wetland, stream, and vernal pool habitat impacts.

Compared to Alternative 1, this alternative includes approximately 10% more permanent wetland fill. This alternative is comparable to Alternative 1 for impacts to DWA and IWWH.

Alternative 2 includes several turbine locations in TC R2 WELS and TD R2 WELS for which landowners were not willing to convey the necessary property interests. This alternative includes 8 turbines within one mile of Number Nine Lake, does not include any turbines within one-half mile of camps at Number Nine Lake, and includes 10 structures within one-half mile of turbines.

Alternative 3

Alternative 3 would have moderate to potentially high environmental impacts. In T9 R3 WELS, 3 turbines located in the northwestern corner of the township are not included in the other alternatives. A new road would need to be constructed to access these turbines, which would involve a crossing of the West Branch Presque Isle Stream and an associated mapped IWWH. An additional 13 turbines located in southwestern T9 R3 WELS are not included in the other alternatives, many of which are located where the wind resource is high in comparison to other locations within the Project area. New roads would need to be constructed or existing roads significantly improved to provide access to these turbines. This would have included additional new stream crossings including a crossing of Tie Camp Brook. These turbines would also be in proximity to 2 mapped IWWH. In addition, road access and electrical collection would either require upgrades to significant portions of existing roads because roads do not connect across property lines, or would require creating significant length of new roads and collector lines, with a substantial amount of wetland and stream impacts near West Lake and Presque Isle Lake. In T10 R3 WELS, the access road between turbine strings would cross a DWA in two locations and would also cross the West Branch of Presque Isle Stream in 2 locations. In the southwest corner of T10 R3 WELS, turbines would be located in a relatively isolated location and upgrades to roads in this location could potentially impact nearly 40 roadside vernal pools, many of which are high functioning. Alternative 3 does not include 6 turbines in the northeast corner of T8 R3 WELS and 6 turbines in the southeastern corner of T9 R3 WELS that are included in the other alternatives. Exclusion of these turbines avoids some wetland, stream, and vernal pool habitat impacts.

Compared to Alternative 1, this alternative includes approximately 10% more permanent wetland fill. This alternative includes 8.45 acres of impact within a DWA and includes one additional crossing of an IWWH, compared to Alternative 1.

Alternative 3 includes several turbine locations in T9 R3 WELS for which landowners were not willing to convey the necessary property interests. This alternative includes 8 turbines within one mile of Number Nine Lake, does not include any turbines within one-half mile of camps at Number Nine Lake, and includes 10 structures within one-half mile of turbines.

Alternative 4

Alternative 4 would have moderate to potentially high environmental impacts. In T9 R3 WELS, 2 turbines would be located in the central portion of the township and are located in an area with a high wind resource in comparison to other locations within the Project area. These 2 turbines are included in Alternative 3, but not in the other alternatives. Access to these 2 turbines would require construction of a new road that would require crossing at least one tributary of Presque Isle Lake. In T8 R3 WELS, 6 turbines would be located in the northcentral portion of the township that are not included in the other alternatives. Construction of new roads would be required to access these turbines, which would likely include wetland and stream impacts not involved in the other alternatives. Similar to Alternative 3, some turbine locations would require new access roads, with associated wetland impacts, stream crossings and potential impacts to IWWH. Alternative 4 does not include 11 turbines in the northeastern portion of T8 R3 WELS that are included in the other alternatives. Exclusion of these turbines avoids some wetland, stream, and vernal pool habitat impacts.

Compared to Alternative 1, this alternative has approximately the same permanent wetland fill. This alternative is comparable to Alternative 1 for impacts to DWA and IWWH.

This alternative includes 12 turbines within one mile of Number Nine Lake, includes 2 turbines within one-half mile of camps at Number Nine Lake, and includes 17 structures within one-half mile of turbines.

Based on this analysis, the Applicant selected Alternative 1 as the alternative that meets the Project purpose and minimizes environmental impacts. Alternative 2 was not selected because it included turbine locations for which property interest was not available and it also would require extensive new road network in two locations. Alternative 3 was not selected because it included impacts to a DWA as well as to a cluster of high-functioning vernal pools. Alternative 4 was not selected primarily because of the environmental impacts associated with proximity to residences near Number Nine Lake, as well as the extensive new road network required for some turbine locations.

Table 1A-1. Number Nine Wind Farm Turbine Layout Comparison.

Selection Criteria	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Project Size[5]	250 MW, 119 turbines	250 MW, 125 turbines	250 MW, 125 turbines	250 MW, 125 turbines
Number of Landowners / Property Interest	Moderate • *15 parcels* • *6 landowners* • *Property interest fully available*	High • *18 parcels* • *7 landowners* • *Property interest not fully available*	High • *17 parcels* • *8 landowners* • *Property interest not fully available*	Moderate • *16 parcels* • *6 landowners* • *Property interest fully available*
Proximity to Residences	Moderate • *8 turbines within 1 mile of Number Nine Lake* • *0 turbines within 1/2 mile of Number Nine Lake* • *10 structures within ½ mile of turbines*	Moderate • *8 turbines within 1 mile of Number Nine Lake* • *0 turbines within 1/2 mile of Number Nine Lake* • *10 structures within ½ mile of turbines*	Moderate • *8 turbines within 1 mile of Number Nine Lake* • *0 turbines within 1/2 mile of Number Nine Lake* • *10 structures within ½ mile of turbines*	High • *12 turbines within 1 mile of Number Nine Lake* • *2 turbines within 1/2 mile of Number Nine Lake* • *17 structures within ½ mile of turbines*
Natural Resource Impacts from Turbine and Roads	Moderate • *6.84 acres permanent wetland fill* • *6 crossings of IWWH* • *0 crossings of DWA*	Moderate to High • *10% more permanent wetland fill* • *6 crossings of IWWH* • *0 crossings of DWA*	Moderate to High • *9% more permanent wetland fill* • *7 crossings of IWWH* • *1 crossings of DWA*	Moderate • *Wetland fill similar to Alternative 1* • *6 crossings of IWWH* • *0 crossings of DWA*
Project Costs	$606 million	~4% more than Alternative 1	~3% more than Alternative 1	~3% more than Alternative 1

[5] Alternative 1 includes 119 turbines; although the design describes and depicts 10 additional alternate turbine sites, the Applicant will ultimately select up to 119 turbines for construction Alternatives 2, 3, and 4 include 125 turbines; although the design for each of these alternatives describes and depicts 10 additional turbine sites, the Applicant would ultimately select up to 125 turbines for construction. All other project components are the same for all alternatives.

1A.4 GENERATOR LEAD LOCATION

1A.4.1 Selection Criteria

The location of the generator lead line was based on an evaluation of multiple alternatives, and the Project route is available, feasible, and minimizes overall environmental impacts.

The Applicant evaluated 4 site selection criteria to identify potential generator lead routes that could connect the Project to the ISO-NE market and that could reasonably be constructed while minimizing environmental and cultural impacts. The selection criteria included right-of-way acquisition, landowner impacts, environmental impacts, and project costs. Each selection criterion is further described below.

Right-of-Way Acquisition

Right-of-way (ROW) acquisition refers to the ability to obtain the ROW easements necessary to construct and operate the Project. The Applicant, unlike regulated public utilities, does not have the right of eminent domain and must rely on willing landowners and negotiated agreements to acquire the necessary land interest for any particular route. The specific factors related to this criterion include both whether the landowners are willing to convey the necessary land interests and the costs of acquiring such interests. Without entering into negotiations with individual landowners, however, it is difficult to determine whether the necessary land interests can be acquired, if so at what cost, and where on a parcel the landowner will insist the corridor be placed. Considerations relevant to this evaluation include the number of parcels, the value of land in the area, and any known information on the willingness of individual landowners to convey the necessary land interests for the particular alternative.

Landowner Impacts

Landowner impacts refer to the potential impacts of locating a generator lead line adjacent to abutting landowners (e.g., visual impacts). Specific criteria used to evaluate landowner impacts include the number of parcels crossed by the ROW; impacts to landowners in proximity to the ROW as measured by the number of structures within 200 feet of the ROW; and whether the generator lead line corridor is parallel to or within existing ROWs, roadways, railways, or other infrastructure.

Environmental Impacts

Environmental impacts refer to the presence and/or proximity to natural and cultural resources. Wetland data for each of the alternatives is based on field delineations and available National Wetland Inventory (NWI) data. Publicly available data sources were used to identify other potential natural resources in proximity to each corridor. The presence of cultural resources including the presence of recreational trails, preservation lands, tribal lands and historic

structures also were considered when selecting the alternative. These resources provide unique social benefits to landowners and residents of the area.

Project Costs

For an alternative to be "practicable" under MDEP rules, the alternative must be available and capable of being completed after considering costs, technology, and logistics. Specifically, Chapter 310 of the MDEP rules, 06-096 CMR § 310(3)(R), defines "practicable" as "[a]vailable and feasible considering cost, existing technology and logistics based on the overall purpose of the project."

1A.4.2 Site Selection

After evaluating the route selection criteria, the Applicant identified four potential alternatives for siting the North Line. Each of the North Line alternatives connects to the Bridal Path Line, starting south of Ludlow Road in Houlton. The Applicant selected the Bridal Path Line because it is an established, although not fully cleared ROW, and the acquisition of ROW for other corridors were not available because of non-participating landowners and existing easements.

The four generator lead alternatives identified by the Applicant (Figure 4) are:

- Alternative 1 – Proceeds approximately 27.6 miles east through TD R2 and Bridgewater and then south near Route 1 through Monticello, Littleton, and Houlton before connecting with the Bridal Path Line.
- Alternative 1.1 – Similar to Alternative 1, but proceeds 26.3 miles east through TD R2 and Bridgewater and then to the southwest through Monticello, Littleton, and Houlton before connecting with the Bridal Path Line.
- Alternative 2 – Proceeds south and east for 26.2 miles through T8 R3 WELS, TC R2 WELS, Hammond, Littleton, and Houlton before connecting with the Bridal Path Line.
- Alternative 2.1 – Similar to Alternative 1, but proceeds 26.8 miles through T8 R3 WELS, TC R2 WELS, Hammond, Littleton, Ludlow, and Houlton before connecting with the Bridal Path Line.

Four generator lead options were reviewed, with the goal of identifying the least environmentally damaging practicable alternative. For each generator lead alternative, the following analysis provides the feasibility, logistics, cost, and potential environmental impacts of acquiring and constructing the alternative. The evaluations are provided below and summarized in Table 1A-2.

Right-of-Way Acquisition

Alternative 1 is located adjacent to existing road or utility corridors for the majority of its distance along Route 1, which typically facilitates ROW acquisition. However, due to number of parcels with residential development surrounding portions of the route, the difficulty and cost of ROW

acquisition is increased and is infeasible in some locations due to non-participating landowners. Therefore, ROW Acquisition for Alternative 1 is ranked as high. Alternative 1-1 is also located adjacent to existing corridors for a portion of the route, but also includes areas of high residential development with multiple parcels, and therefore, ROW acquisition is ranked as high. Alternative 2 is located primarily within commercial timberland, with a relatively low number of landowners and ROW acquisition is ranked as medium. Alternative 2-1 is located in a similar location but includes additional landowners and ROW acquisition is ranked as high.

Landowner Impacts

Alternatives 1 and 1-1 would follow or closely parallel existing roads for the majority of the corridor. In both cases, moderately to densely populated areas are located in Monticello, Littleton, and portions of Houlton. Given the proximity of existing, and relatively dense development along these corridors, both Alternatives 1 and 1-1 are ranked high. Alternative 2 is located near one sparsely developed area in Littleton and is ranked low. Alternative 2-1 is located near two moderately developed residential areas in Houlton and is ranked medium. Alternatives 2 and 2-1 are both located in a corridor for a portion of the route identified as preferable to the timberland landowners.

Environmental Impacts

Alternative 1 would be expected to have moderate to high environmental impacts, which is in part the result of its comparatively long length in relation to the other alternatives, as well as proximity to IWWH, rare plant locations, and required stream crossings. Alternative 1-1 would also be expected to have relatively high environmental impacts, for these same reasons, as well as for additional stream crossings that would be required in Littleton. Because this alternative does not parallel an existing corridor for portions of the route, clearing impacts in forested habitats including forested wetlands would be relatively high.

Alternative 2 would be expected to have a moderate level of environmental impacts when compared to the other alternatives. Although required tree clearing would be high compared to most of the other alternatives, much of this clearing would occur on parcels managed for timber production. Alternative 2-1 would be expected to have relatively high environmental impacts, which is in part the result of its comparatively long length in relation to the other alternatives.

Based on the analysis provided above, the Applicant selected Alternative 2 as the least environmentally damaging practicable alternative. Alternatives 1 and 1-1 were eliminated due to the relatively high environmental impacts as well as comparatively high landowner impacts. Alternative 2-1 was eliminated because of relatively high environmental impacts compared to the other alternatives.

Table 1A-2: Number Nine Wind Farm North Generator Lead Comparison.

Selection Criteria	Criteria Components	Alternative 1	Alternative 1.1	Alternative 2	Alternative 2.1
Total Length	Miles	27.6	26.3	26.2	26.8
Difficulty of ROW Acquisition	Qualitative (Low to High)	High	High	Medium	High
Landowners	Low Impacts to Landowners	No (67 parcels)	No (71 parcels)	Yes (28 parcels)	Yes (30 parcels)
	Number of Structures within ~200 Feet	12	7	2	5
	Visual Impacts	Low	Low	Low	Low
	Length within or Parallel to Existing Corridors (miles)	9.7 miles	4.1 miles	4.0 miles	4.2 miles
Visual	Other than residences	Low	Low	Low	Low
Environmental	Natural Resources	• *34 crossings of NWI wetland* • *3 crossings of IWWHs* • *0 crossings of DWAs* • *30 stream crossings including MDIFW brook trout habitat* • *Crossings of 9 named streams*	• *43 crossings of NWI wetland* • *6 crossings of IWWHs* • *1 crossings of DWAs* • *29 stream crossings including MDIFW brook trout habitat* • *Crossings of 7 named streams*	• *23 crossings of NWI wetland* • *0 crossings of IWWHs* • *0 crossings of DWAs* • *29 stream crossings including MDIFW brook trout habitat* • *Crossings of 10 named streams*	• *34 crossings of NWI wetland* • *1 crossings of IWWHs* • *0 crossings of DWAs* • *28 stream crossings including MDIFW brook trout habitat* • *Crossings of 10 named streams*
Project Costs	Construction & Maintenance	~13% more than Alternative 2	~8% more than Alternative 2	$31 million	~3% more than Alternative 2

1A.5 AVOIDANCE AND MINIMIZATION

The Applicant selected Alternative 1 for the turbines and Alternative 2 for the generator lead line. Each of these alternatives includes refinements to the Project layout to provide the most economically feasible and environmentally sound design. Wetland impacts, land availability, engineering and design constraints, and economics were the key variables used to adjust the Project layout and design.

1A.5.1 Avoidance

Efforts were made throughout the planning and design phases of the Project to avoid impacts to wetlands and other natural and cultural resources. Where possible, structures along the generator lead corridor will be installed outside of wetland boundaries. Although it was not possible to avoid placing some structures within wetlands, efforts were made to avoid these resources where practicable. As is typical for wind development projects, the initial turbine layout was designed to maximize energy output. Design revisions were then incorporated to avoid impacts where feasible. Accordingly, the final design of the Project took into consideration impacts to wetlands and sensitive wildlife habitats. Turbines were placed to avoid wetland areas where possible and minimize those impacts that could not be avoided. The following provides specific examples of efforts to avoid resource impacts.

Access Roads

The project area contains an extensive network of existing logging roads and skidder trails. The design of the access road network attempted to first utilize these existing disturbed areas prior to identify new access roads. If improvements were required along existing roads, the Project attempted to improve and widen away from sensitive environmental features to the extent practicable.

Throughout the Project, proposed access roads were also eliminated or relocated to avoid resource impacts where avoidance was feasible based on engineering and design constraints. Several examples of these design revisions are described below and the locations are depicted in Figure 6.

In T10R3 WELS the original Project design included an access road between turbine strings M and DD. This access road, which crossed through a DWA in two locations, would have required significant upgrades and resulted in impacts to the DWA and wetlands including wetlands along the West Branch of Presque Isle Stream. Upgrades to this road also would have required impacts to the critical terrestrial habitat associated with 2 Significant Vernal Pools. Although the selected Project access road that connects these 2 turbine strings is significantly longer than the original access road and still crosses through the DWA, it is an existing road and will require very limited

upgrades at corners that would result in no additional impacts to the habitat and limited impact to other resources.

In TD R2 WELS a proposed access road to turbine D20 was removed from the Project design. This road would have required a new crossing of Number Nine Stream and a tributary to Number Nine Stream.

Another proposed access road crossing from the northern edge of TD R2 WELS and into E Township connecting to turbine CC3 was eliminated to avoid wetland impacts and take advantage of an existing road.

Similarly, the original access road between turbines B14 and B13 was removed from the Project design. This new road would have resulted in wetland impacts and required the crossing of a small perennial stream.

In some instances roads were relocated rather than eliminated to avoid impacts. The proposed access road between turbines D7 and D2 was shifted west from its original location. This redesign moved the proposed road from immediately adjacent to a Significant Vernal Pool (SVP) to the outer edge of the SVP's 250 foot critical terrestrial habitat.

In another example, the proposed access road to turbine CC5 was relocated to avoid wetland impacts and take advantage of an existing road.

At turbine O10, the original design included extensive wetland impacts along the proposed access road, while the final design shifted the road to the west to reduce wetland impacts.

A new road was originally proposed to provide access to turbine O7. This new road was designed to come from the west and would have required wetland impacts. Access to this turbine was changed to come from the south along a newly constructed logging road that required no improvement for the Project, thereby avoiding the additional wetland impacts.

Additionally, the original access road to turbine LL11 was relocated to come from the south to avoid wetland impacts.

In this same area, the access road to turbine L16, which was originally proposed to come from turbine LL11, was relocated to come from the north to utilize existing logging roads and avoid wetland impacts.

The Project also will take advantage of existing roads for construction access of the generator lead, which will limit the need to construct new roads.

Turbines

The layout of the crane pads, work space, and storage areas at each turbine sites was significantly reduced as compared to recently permitted and constructed projects in Maine. The Project will not clear and grade a large circle on the ground to assemble the full rotor and blades prior to installing the rotor on the tower. Rather, the blades will be lifted and installed one at a time reducing the amount of clearing and grading required.

Throughout the Project, proposed turbine sites were eliminated or microsited to avoid resource impacts where avoidance was feasible based on engineering and design constraints. Several examples of these design revisions are described below and the locations are depicted in Figure 7.

Resource avoidance is demonstrated at turbine M8 where the turbine was relocated west to reduce impacts to the critical terrestrial habitat of a Potentially Significant Vernal Pool (PSVP).

Similarly, turbine J6 was shifted west to minimize impacts to the critical terrestrial habitat associated with 2 PSVPs.

In the western portion of T8 R3 WELS, turbine I9 was dropped from the Project layout because of its proximity to IWWH UMO-3014, which would likely have required some clearing of the southwestern edge of the habitat.

Turbine C7 near the northern edge of TD R2 WELS also was dropped from the Project layout because of its proximity to IWWH UMO-2457.

Similarly, turbine J13, which would have been located along New Harvey Siding Road in T8 R3 WELS, was dropped from the Project layout to reduce impacts to the critical terrestrial habitat of a PSVP.

The design process included the avoidance of historic features as well as natural resources. In the southwestern corner of T8 R3 WELS, the proposed location of Turbine I3 was shifted east and its associated access road was moved to avoid the historic fire tower located on Howe Brook Mountain. This redesign will avoid ground disturbance in proximity to the historic fire tower.

Laydown Areas and Batch Plants

Laydown areas, which will be used to store material during construction, have been placed in uplands where possible. In some locations, these proposed laydown areas were moved to avoid resource impacts (Figure 8).

For example, a proposed laydown area along Number Nine Lake Road, the main project access road through TD R2 WELS, was shifted northwest from its original location. Delineations

determined that wetlands covered much of the original laydown location and three PSVPs were identified within these wetlands. The chosen location for this laydown area is upland with one small wetland on the northern edge of the site.

In TD R2 WELS south of turbine CC5, two other locations where laydown areas or batch plants were proposed were eliminated from the Project design because wetlands occupied the majority of these sites.

Electrical Corridors

In portions of the Project, the collector line is buried underground in the shoulder of the access roads, which eliminates the need for additional clearing and avoids potential fill impacts. For the aboveground portions of the collector line system, fill impacts were avoided where feasible by locating poles in available upland areas. In addition, pole placement along the generator lead line corridor also was designed to avoid direct impacts to wetlands and vernal pool envelopes.

In some locations the electrical corridors were relocated to avoid resource impacts. This avoidance effort is well demonstrated at the northern end of the North Line (Figure 9). In the original design, the corridor would have crossed IWWH UMO-2783 located approximately 1.6 miles of the Project substation. To avoid this impact the corridor was shifted east, which also places the corridor crossing at a narrower point on the North Branch of the Meduxnekeag River.

In other locations, overland collector connections were eliminated to avoid resource impacts. In E Township, the collector between turbine E3 and turbine EE6 was eliminated from the Project design and turbine E5 was dropped from the layout, eliminating the need for additional collector connection in this location. Wetland and stream impacts including a new crossing of Burnt Land Brook were avoided by eliminating this collector segment.

1A.5.2 Minimization

It was not practicable to avoid all resource impacts during Project design. Where resource impacts could not be avoided, various construction and management practices will be employed to limit impacts. The following provides some examples of these minimization efforts.

Roads

The Project access roads were designed to avoid wetland and stream resources where possible, but they could not be completely avoided. The road layout generally avoids larger and higher functioning wetlands, which on a landscape level helps to reduce functional losses. In general larger wetlands have a greater physical capacity to provide many wetland functions such as flood attenuation so avoiding impacts to these resources helps to maintain these functions within the landscape. Where individual resources could not be avoided, the design attempted

to place crossings at the narrowest point of the resource. Designing crossings in this manner limits the amount of fill or area of clearing and thereby maintains most wetland functions, although the capacity and opportunity to provide these functions will change.

The Project also will employ specific construction techniques to further minimize impacts. For example, where possible, road shoulders were narrowed and cut and fill slopes were modified to reduce impacts to adjacent resources. In addition, for locations where vernal pools are located within 100' of an existing road, any necessary road expansion was designed for the opposite side of the road from the vernal pool, thereby minimizing the impact to the vernal pool habitat.

The Project also will include upgrades of some existing roads for construction that will only be temporary. In these instances the upgrades will involve temporary wetland fill and/or temporary extensions of existing culverts. This will allow movement of the crane needed to erect the turbines during construction. Once construction is complete, the fill and culvert extensions will be removed. The Project design will employ limited-cut stormwater buffers along access roads, which will provide phosphorus and stormwater treatment, and reduce potential effects on adjacent wetlands and stream from sedimentation.

Turbines

As described in Section 1A.5.1, the Project developed a unique crane pad, storage, and grading configuration to minimize the amount of disturbance at each construction site. The Project design also avoided impacts to several resources by relocating or eliminating proposed turbine locations. To minimize unavoidable impacts, design for turbine pads minimized the area needed to be cleared. Additionally, cut and fill slopes were modified similar to the methods used for roads. Turbines as well as the Project substation and operations & maintenance building also will have an associated limited-cut stormwater buffer.

Electrical Corridors

Within the Turbine Area, much of the collector line is either buried in the shoulder of the access roads, which avoids impacts, or the collector runs parallel to the access roads, which helps to minimize impacts by reducing clearing and potential habitat fragmentation.

The Bridal Path Line and the North Line both cross through areas of active forest management, which will further reduce vegetation clearing and potential fragmentation. Similarly, potential fragmentation along the Bridal Path Line will be reduced because this line will be located within an existing transmission corridor that is already partially cleared.

During construction, temporary mats rather than granular fill will be used to cross wetlands thereby avoiding permanent wetland fill impacts.

In addition, vegetated buffers will be used to minimize impacts on natural resources. Vegetated buffer strips will help maintain the water quality of surface waterbodies and provide habitat and travel corridors for wildlife between habitats. During design, the placement of poles was evaluated to maximize the distance between poles and natural resources where feasible based on engineering and design constraints.

For example, in the Turbine Area, 20 collector poles were microsited to be greater than 25' from a stream; 4 collector poles were microsited to be greater than 100' from a Significant Vernal Pool; and 4 collector poles were microsited to be greater than 25' from a Vernal Pool depression.

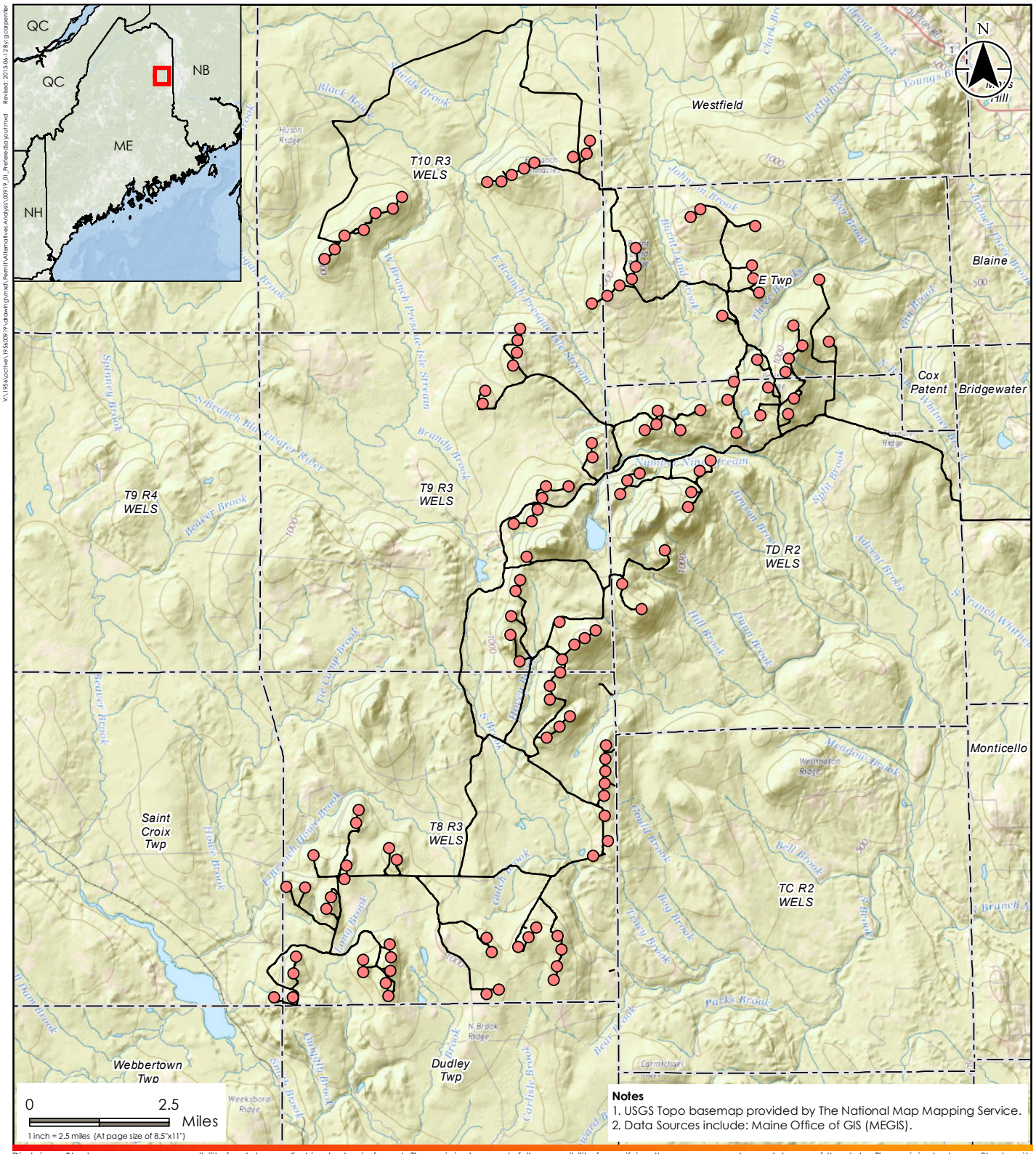
Along the generator lead, 7 poles were microsited to be greater than 100' from a stream, and the height of 3 of these poles was increased to accommodate the greater span; and 4 poles were relocated to be greater than 100' from a Significant Vernal Pool.

As a result of these practices, including selective clearing during construction, strategic placement of poles, and minimal cutting of vegetation, the construction and maintenance of the collector and generator lead lines will minimize unavoidable impacts. Section 10 of the application includes additional information on specific buffers for specific types of resources.

1A.6 CONCLUSION

The Applicant undertook a careful consideration of the practicability of multiple siting options to accomplish the Project purpose considering cost, feasibility, and logistics. The preferred turbine alternative (Alternative 1) and generator lead alternative (Alternative 2) both incorporate avoidance and minimization measures, and represent the Project designs as described in Section 1. These designs have been identified as the least environmentally damaging practicable alternative.

FIGURES



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Reviewed by JYP on 2015-05-20

00919_01_PreferedLayout.mxd

Legend

- Turbine Alternative 1 (Preferred)
- Access Roads Alternative 1

Client/Project

EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

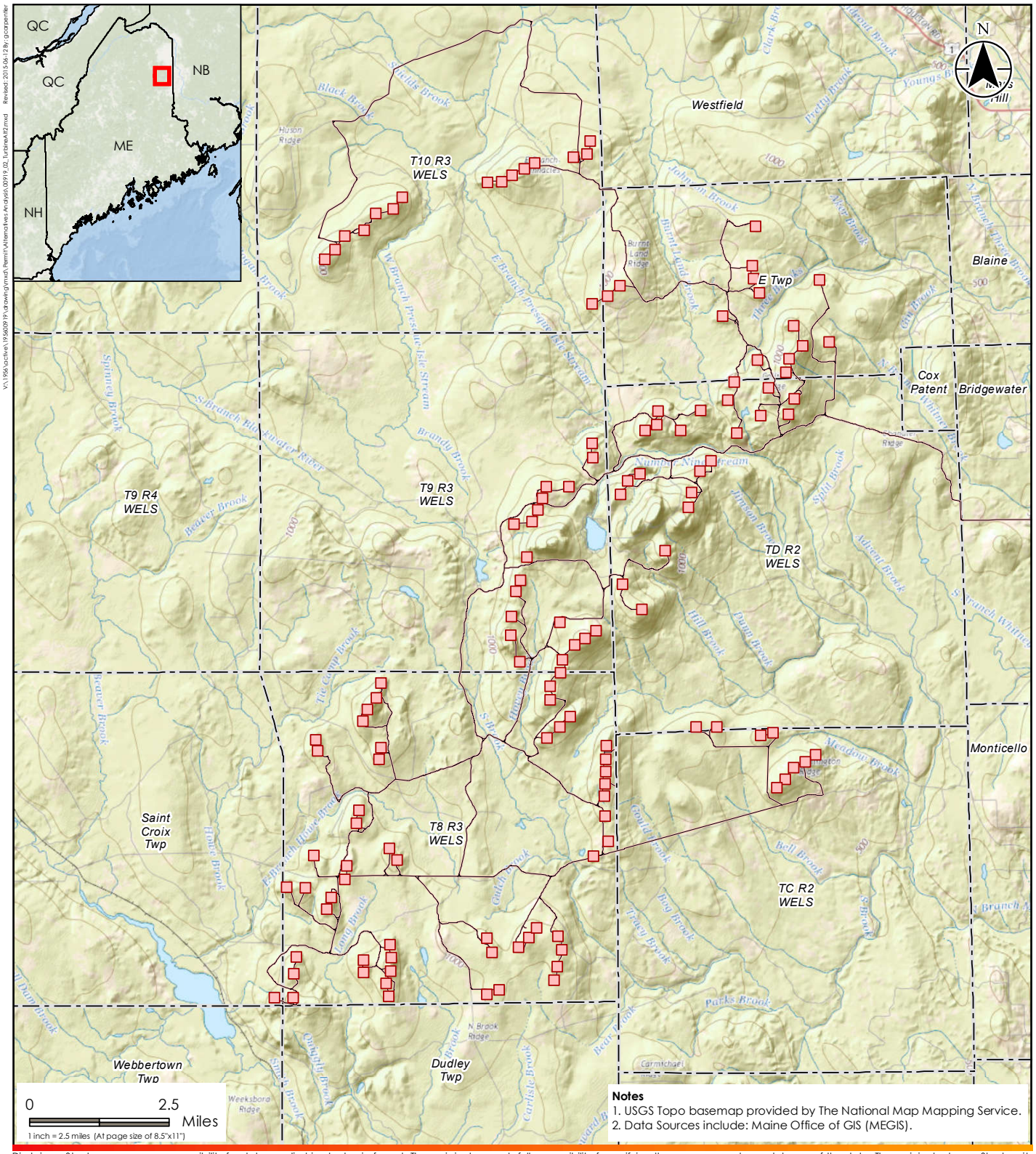
Figure No.

1

Title

Turbine Alternative 1 (Preferred)

6/12/2015



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Legend

- Turbine Alternative 2
- Access Roads Alternative 2

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00919_02_TurbineAlt2.mxd

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Number Nine Wind Farm
Aroostook County, Maine

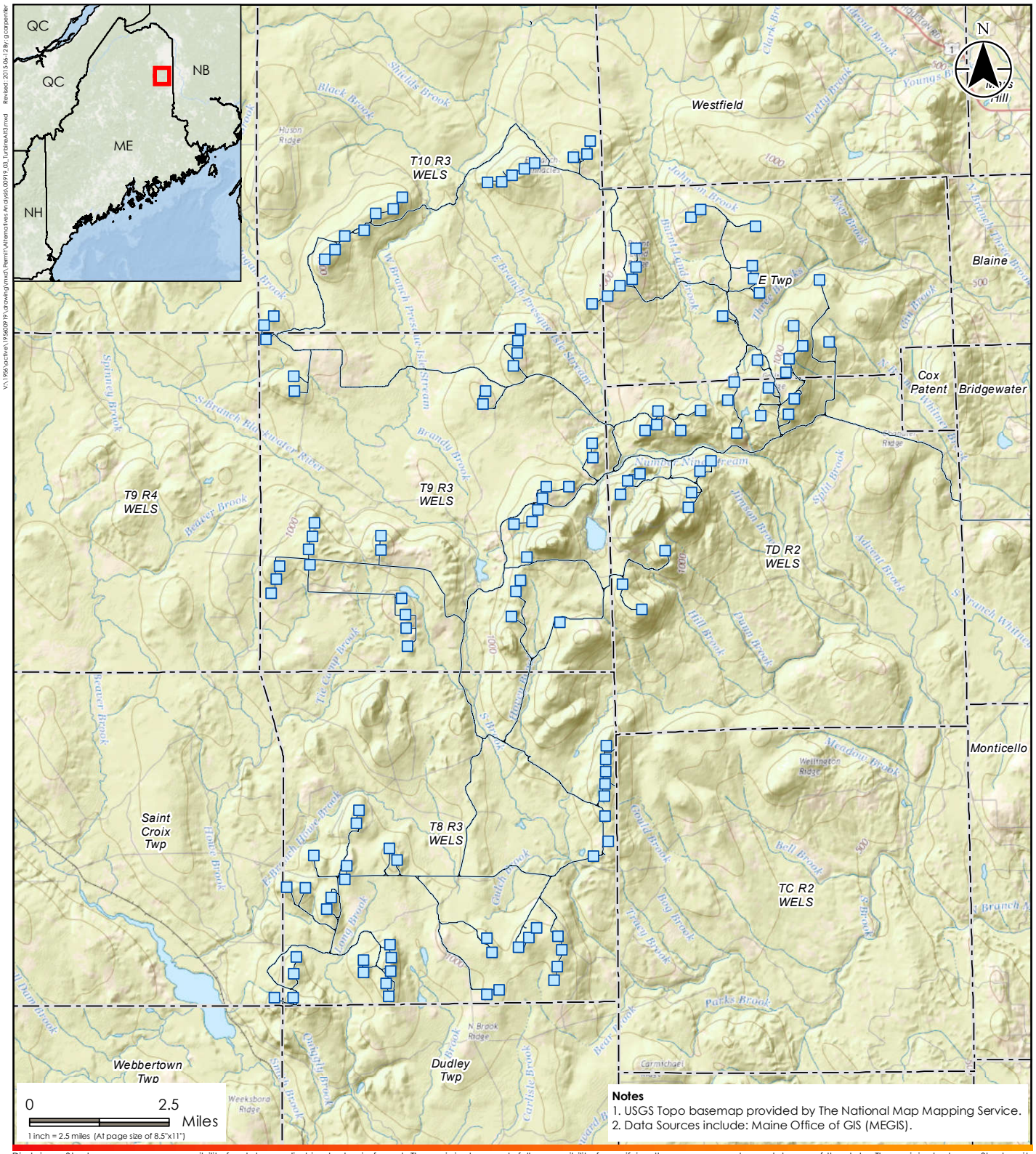
Figure No.

2

Title

Turbine Alternative 2

6/12/2015



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00919_03_TurbineAlt3.mxd

Legend

- Turbine Alternative 3
- Access Roads Alternative 3

Client/Project

EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

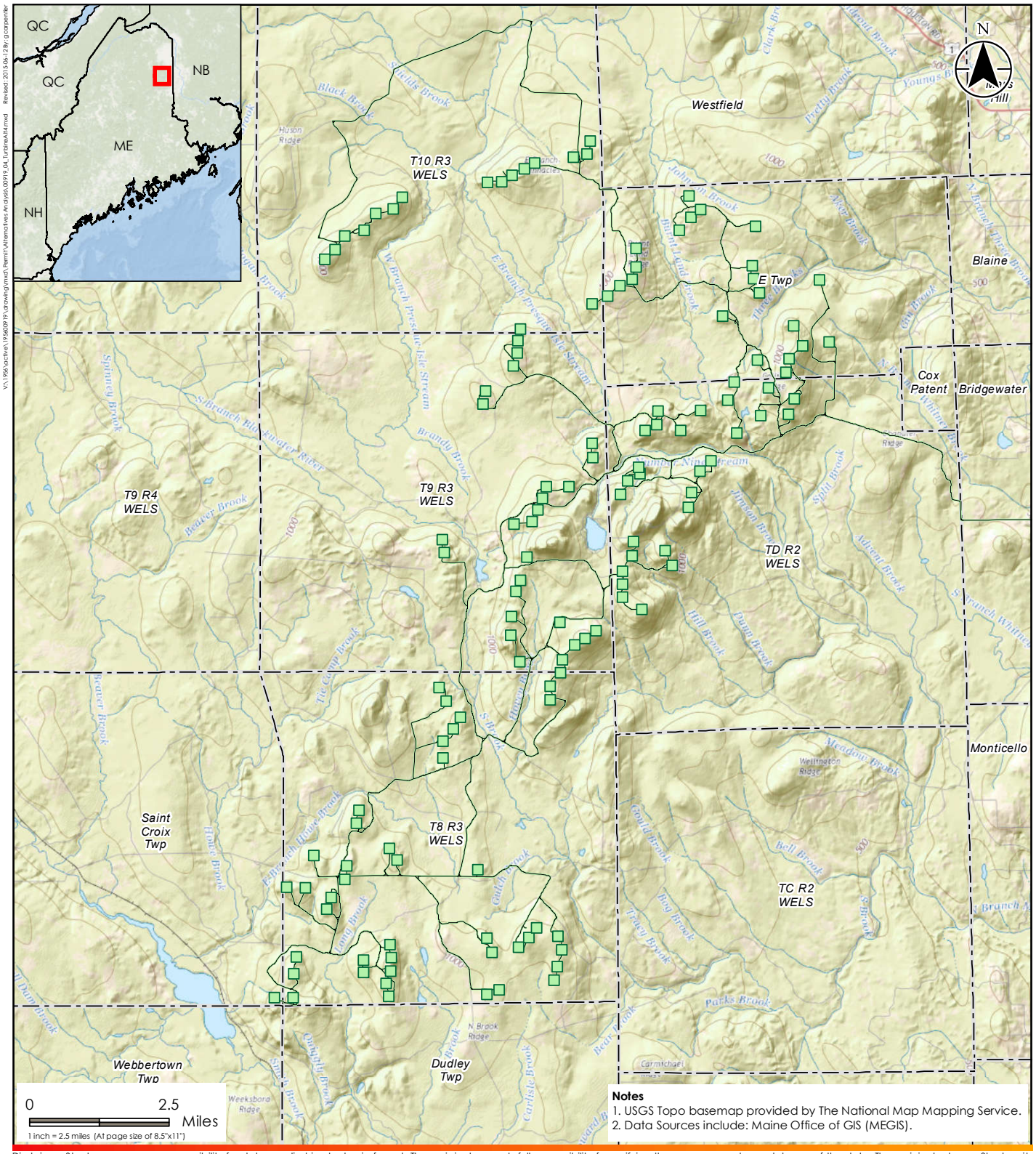
Figure No.

3

Title

Turbine Alternative 3

6/12/2015



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00919_04_TurbineAlt4.mxd

Legend

- Turbine Alternative 4
- Access Roads Alternative 4

Client/Project

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Number Nine Wind Farm
Aroostook County, Maine

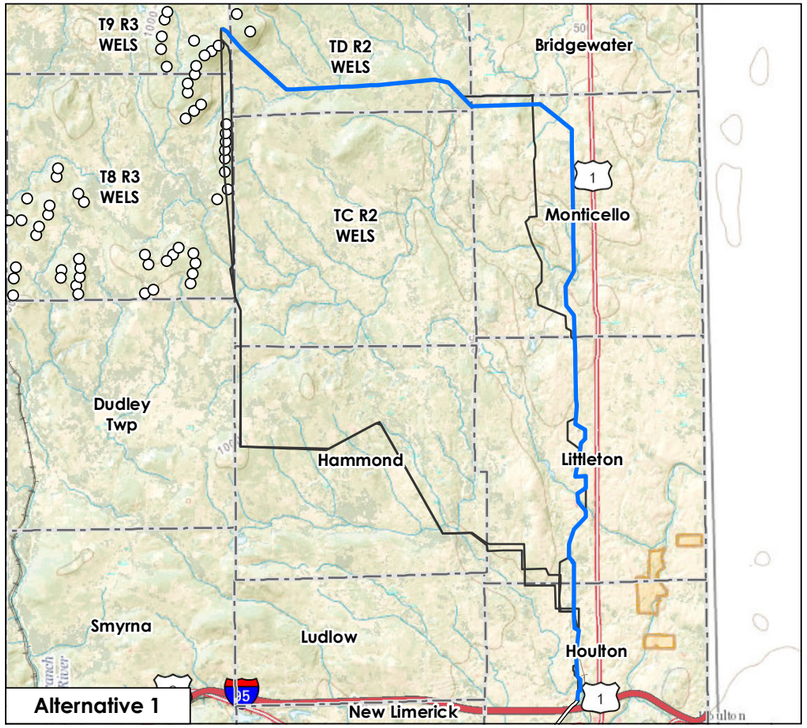
Figure No.

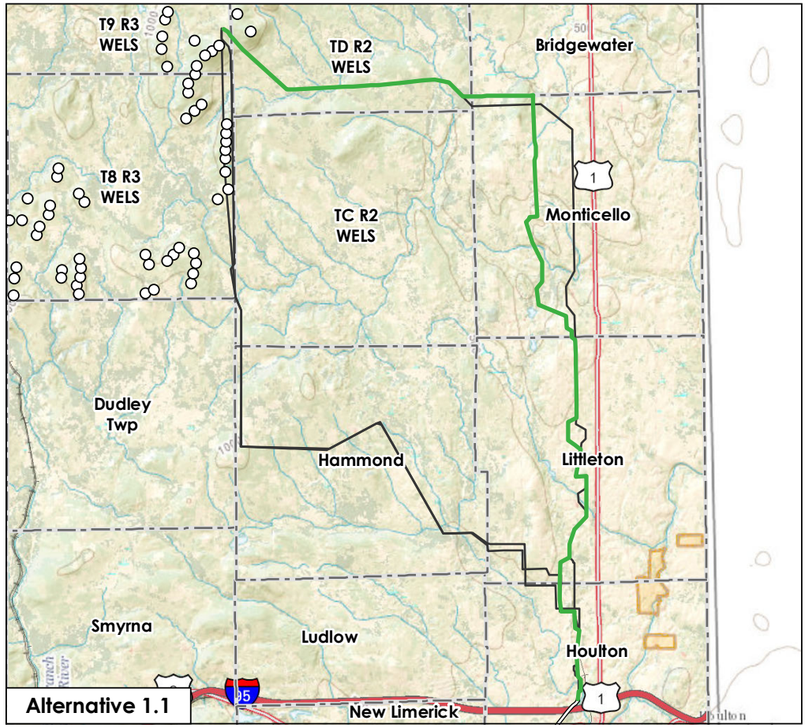
4

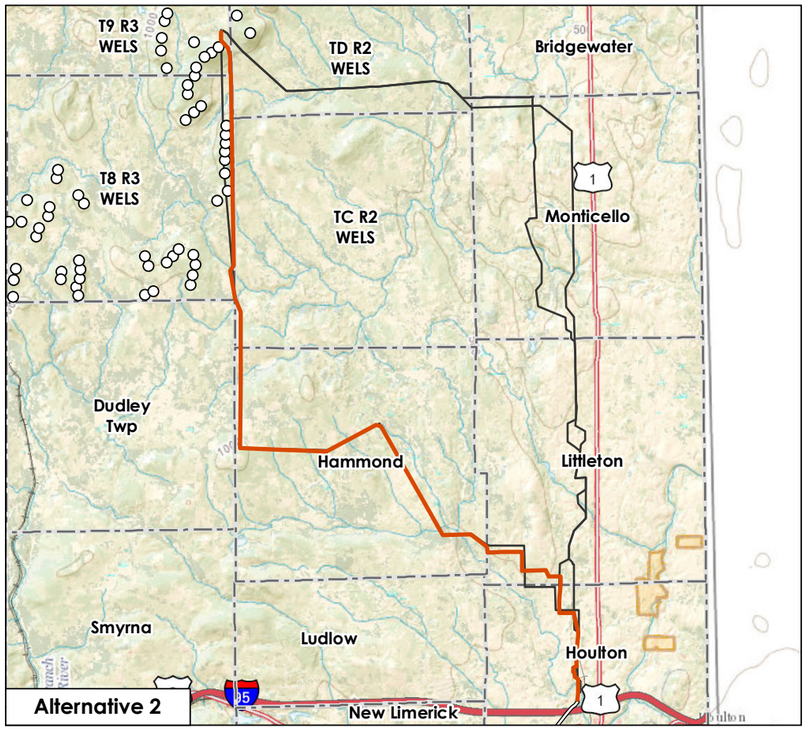
Title

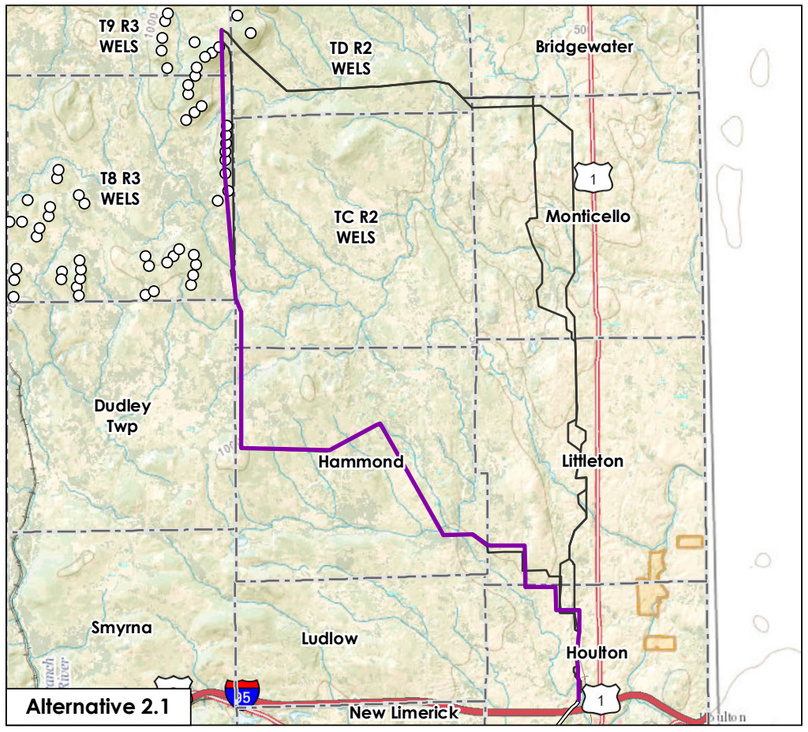
Turbine Alternative 4

6/12/2015









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Legend

- Turbine Location
- Bridal Path Generator Lead

North Generator Lead Alternatives

- Alternative 1
- Alternative 1.1
- Alternative 2
- Aternative 2.1
- Township Boundary

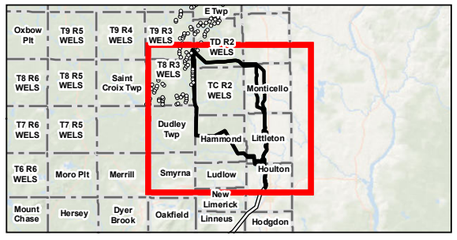
N

0 4 8 Miles

1" = 4 Miles (At original page size of 11"x17")

Notes

1. Data sources: Maine Office of GIS
2. Base Map: The National Map USGS topo base map



Project Location
Aroostook County, Maine

195600919
Prepared by GAC on 2015-05-14
Reviewed by KAW on 2015-05-15

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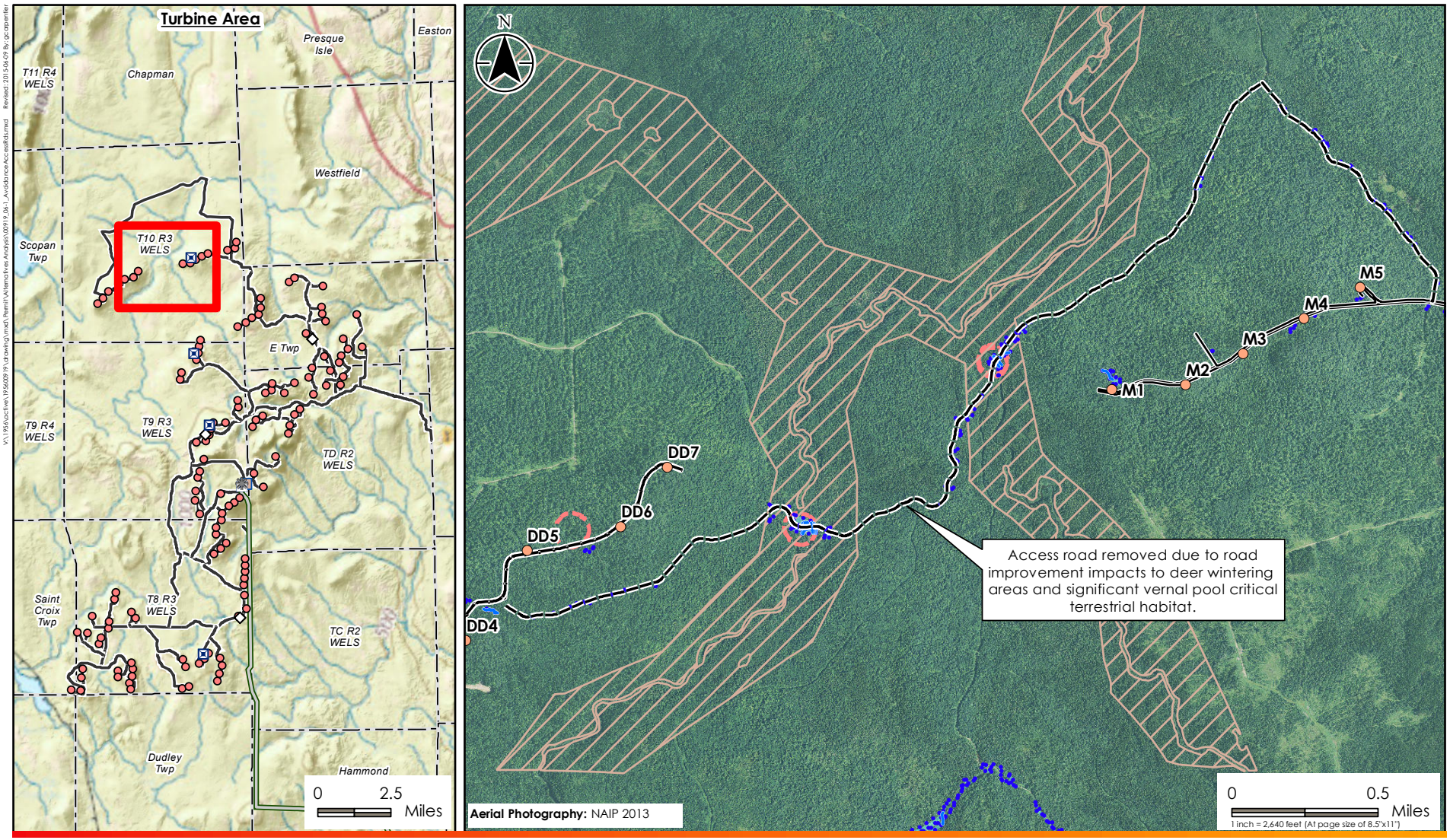
EDP Renewables North America LLC
Number Nine Wind Farm

Figure No.
1

Title
North Generator Lead Alternatives Analysis



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Prepared by GAC on 2015-06-09
Reviewed by JYP on 2015-06-10

00919_06-1_AvoidanceAccessRds.mxd

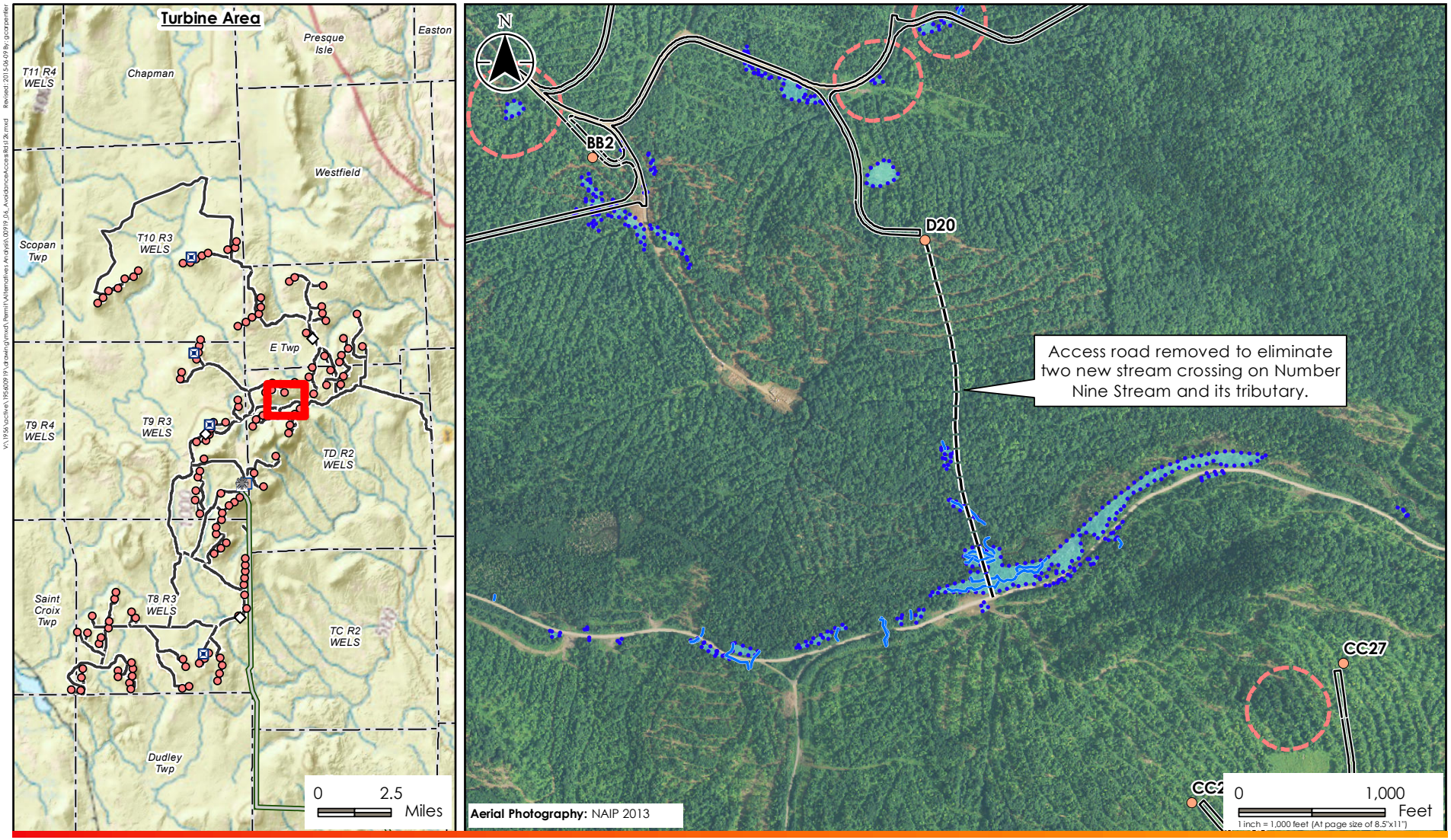
Legend

- Turbines (20150403)
- Access Road Edge of Gravel (20150403)
- Previous Access Road Alternative
- Delineated Stream
- Delineated Wetland
- Significant Vernal Pool 250' Critical Terrestrial Habitat
- Deer Wintering Area

Client/Project
EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

Figure No.
6-1

Title
Access Roads Avoidance
6/9/2015



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Reviewed by JYP on 2015-03-26

00919_06_AvoidanceAccessRds12k.mxd

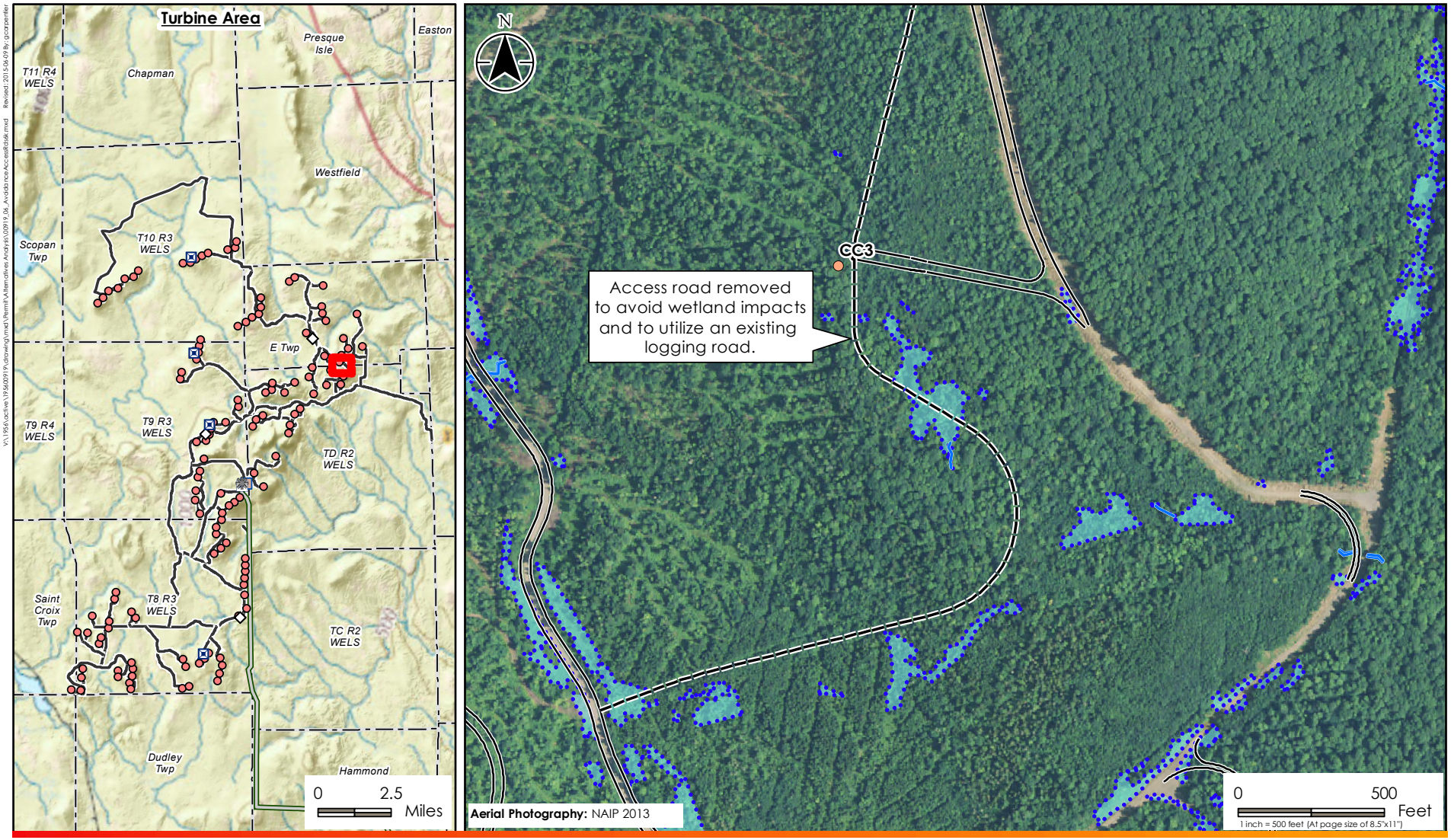
Legend

- Turbines (20150403)
- Access Road Edge of Gravel (20150403)
- Previous Access Road Alternative
- Delineated Stream
- Delineated Wetland
- Significant Vernal Pool 250' Critical Terrestrial Habitat

Client/Project
EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

Figure No.
6-2

Title
Access Roads Avoidance
6/9/2015



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00919_06_AvoidanceAccessRds6k.mxd

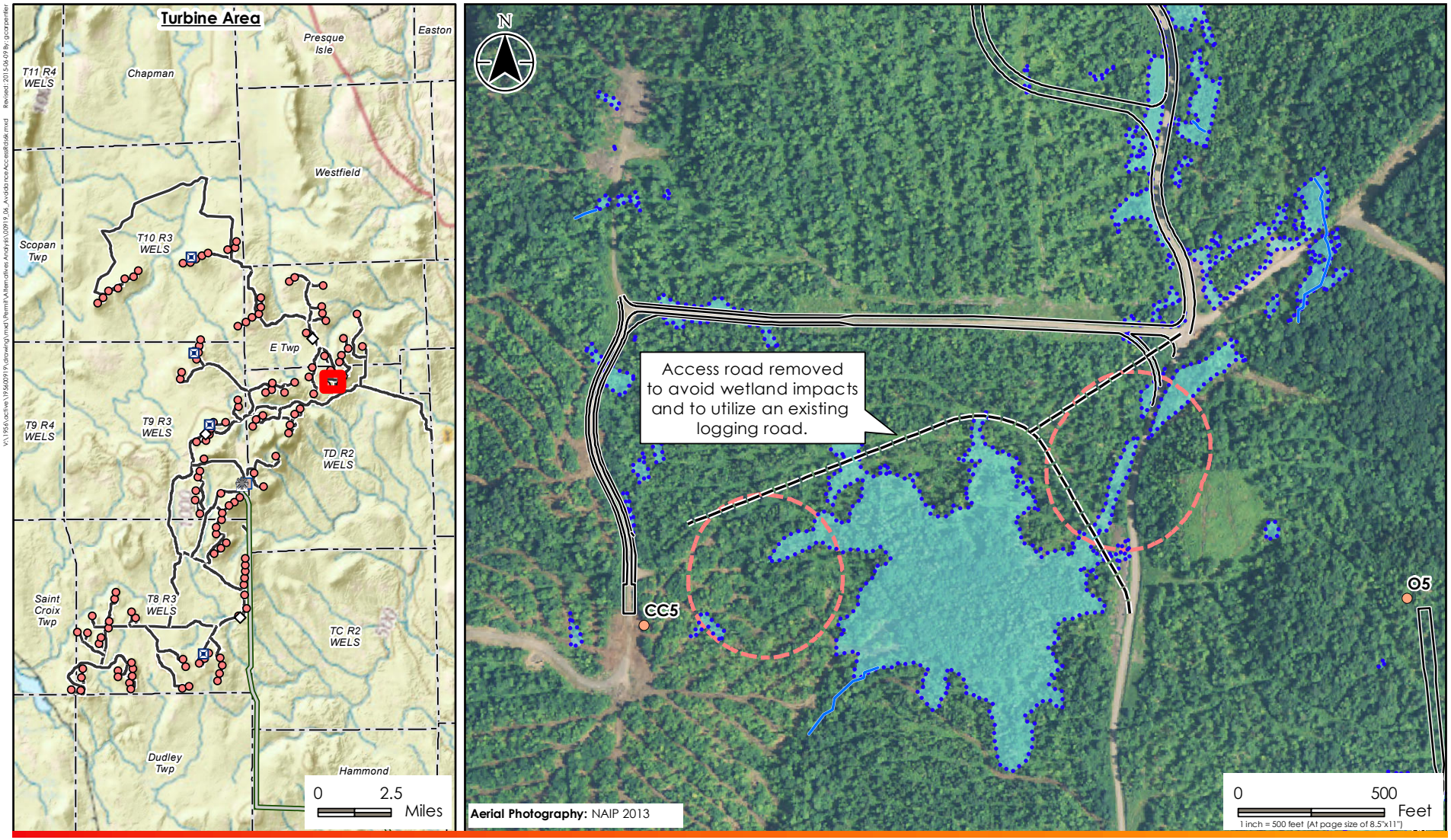
Legend

- Turbines (20150403)
- Access Road Edge of Gravel (20150403)
- Previous Access Road Alternative
- Delineated Stream
- Delineated Wetland

Client/Project
EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

Figure No.
6-3

Title
Access Roads Avoidance
6/9/2015



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00919_06_AvoidanceAccessRds6k.mxd

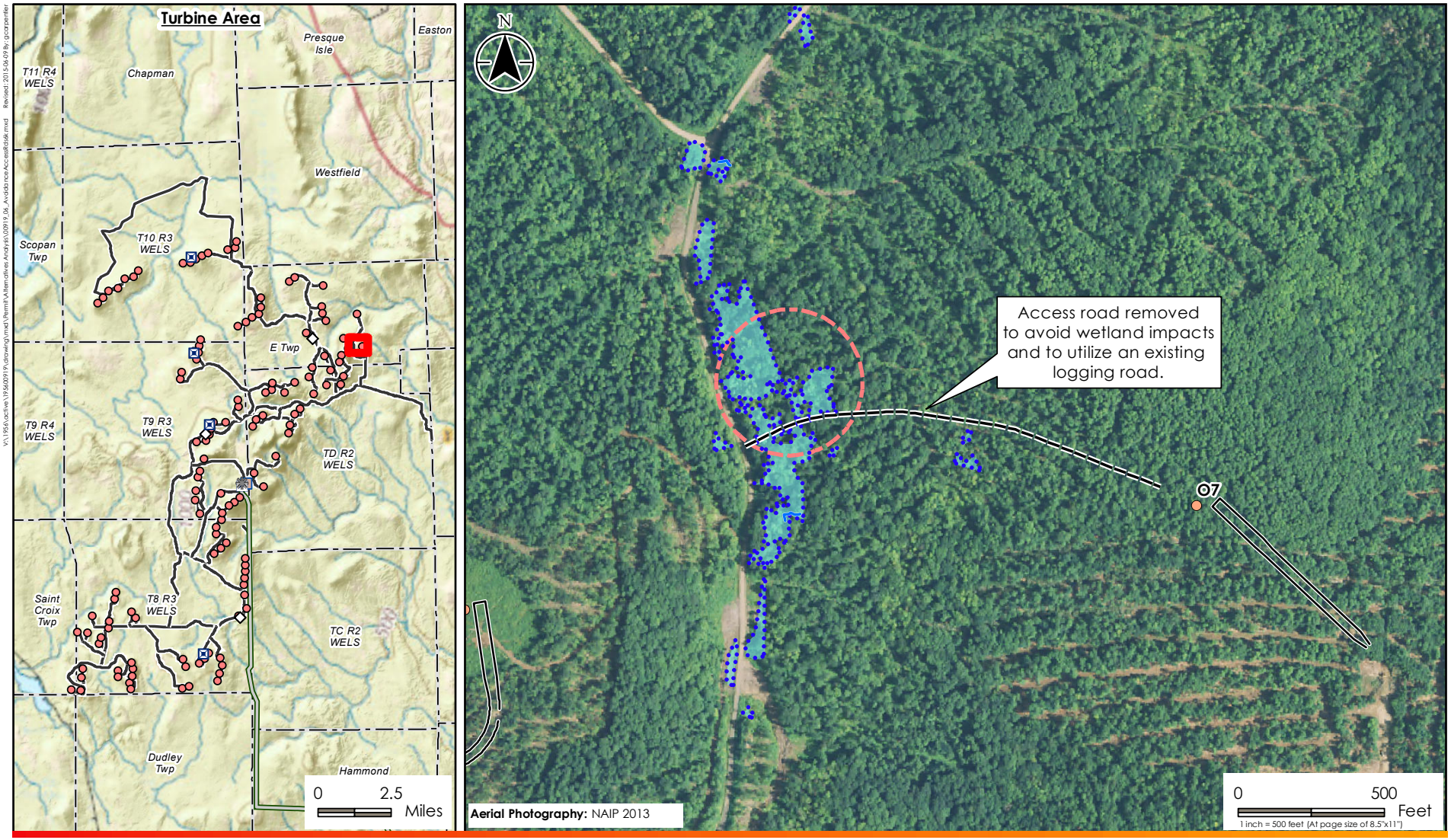
Legend

- Turbines (20150403)
- Access Road Edge of Gravel (20150403)
- Previous Access Road Alternative
- Delineated Stream
- Delineated Wetland
- Significant Vernal Pool 250' Critical Terrestrial Habitat

Client/Project
EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

Figure No.
6-6

Title
Access Roads Avoidance
6/9/2015



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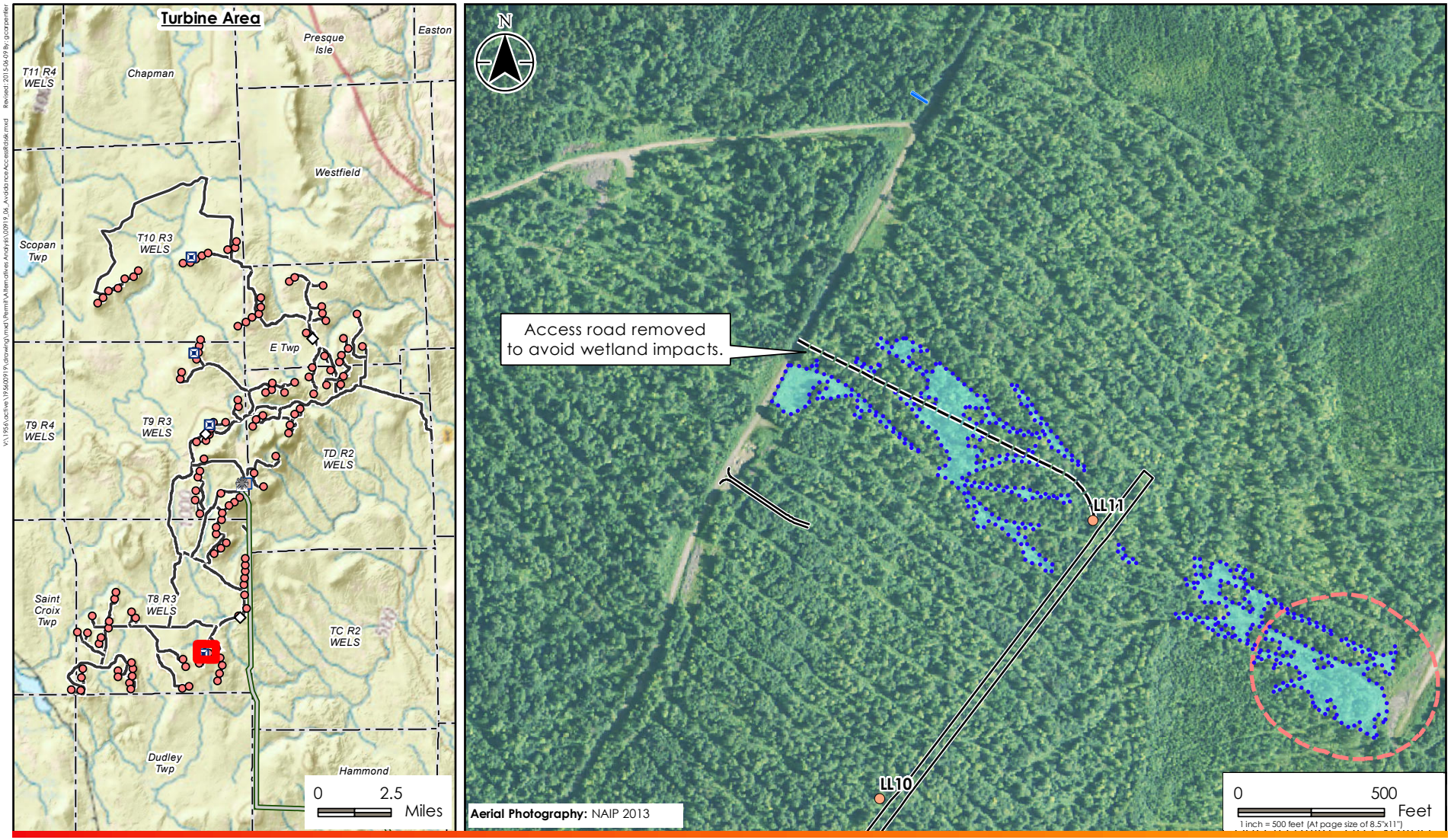
Legend

- Turbines (20150403)
- Access Road Edge of Gravel (20150403)
- Previous Access Road Alternative
- Delineated Stream
- Delineated Wetland
- Significant Vernal Pool 250' Critical Terrestrial Habitat

Client/Project
EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

Figure No.
6-8

Title
Access Roads Avoidance
6/9/2015



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00919_06_AvoidanceAccessRds6k.mxd

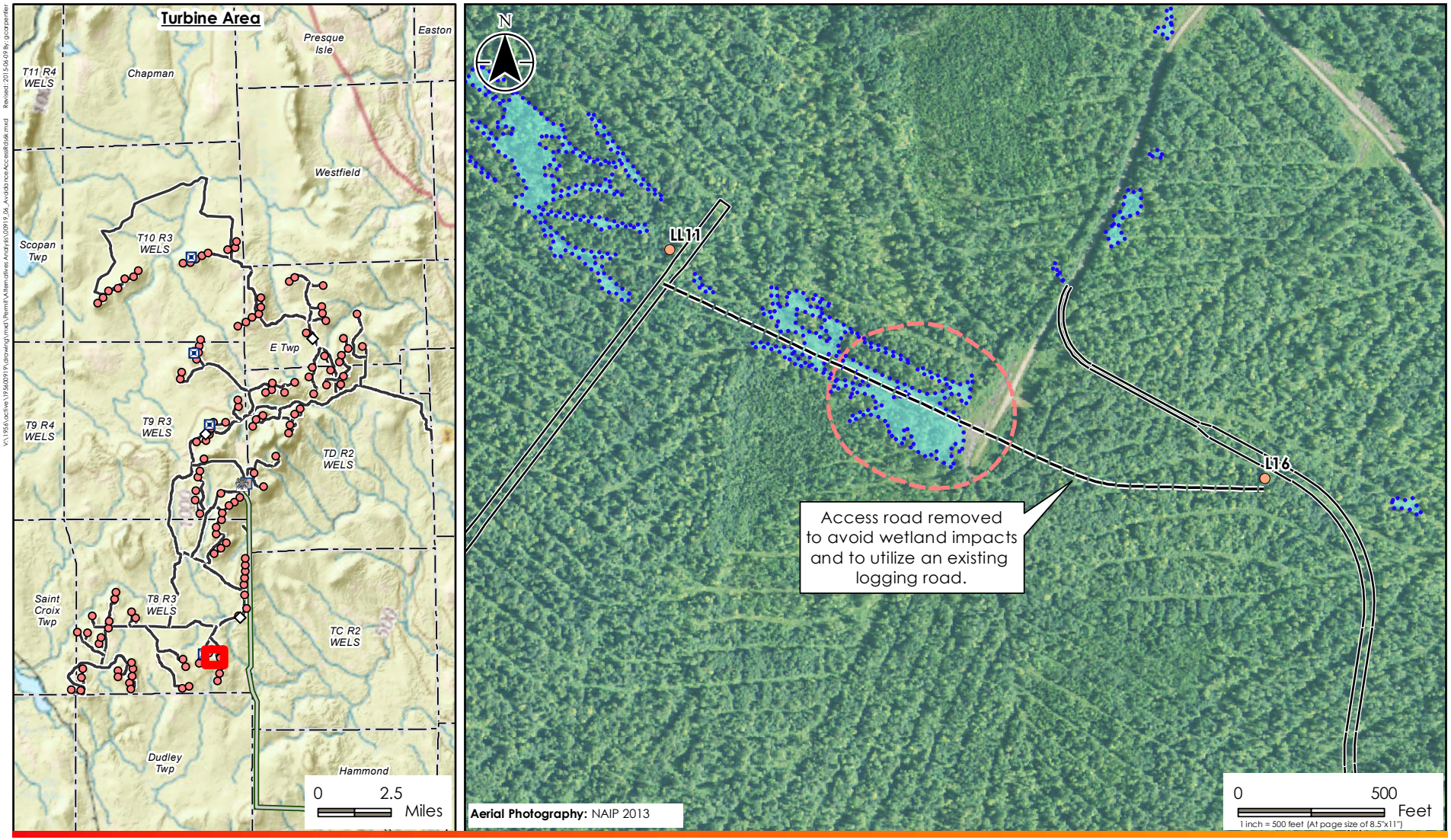
Legend

- Turbines (20150403)
- Access Road Edge of Gravel (20150403)
- Previous Access Road Alternative
- Delineated Stream
- Delineated Wetland
- Significant Vernal Pool 250' Critical Terrestrial Habitat

Client/Project
EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

Figure No.
6-9

Title
Access Roads Avoidance
6/9/2015



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00919_06_AvoidanceAccessRds6k.mxd

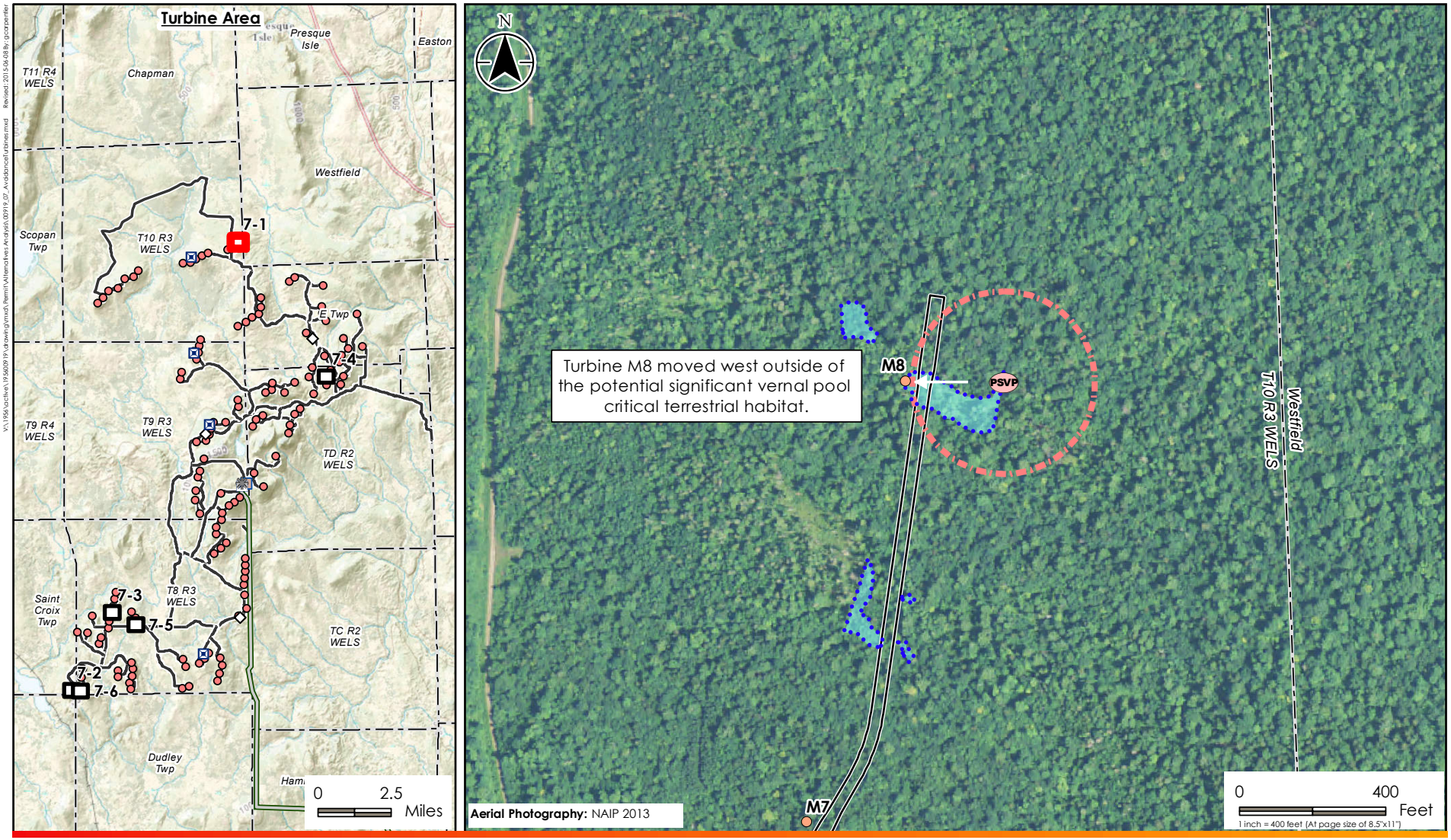
Legend

- Turbines (20150403)
- Access Road Edge of Gravel (20150403)
- Previous Access Road Alternative
- Delineated Wetland
- Significant Vernal Pool 250' Critical Terrestrial Habitat

Client/Project
EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

Figure No.
6-10

Title
Access Roads Avoidance
6/9/2015



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Reviewed by JYP on 2015-06-08

00919_07_AvoidanceTurbines.mxd

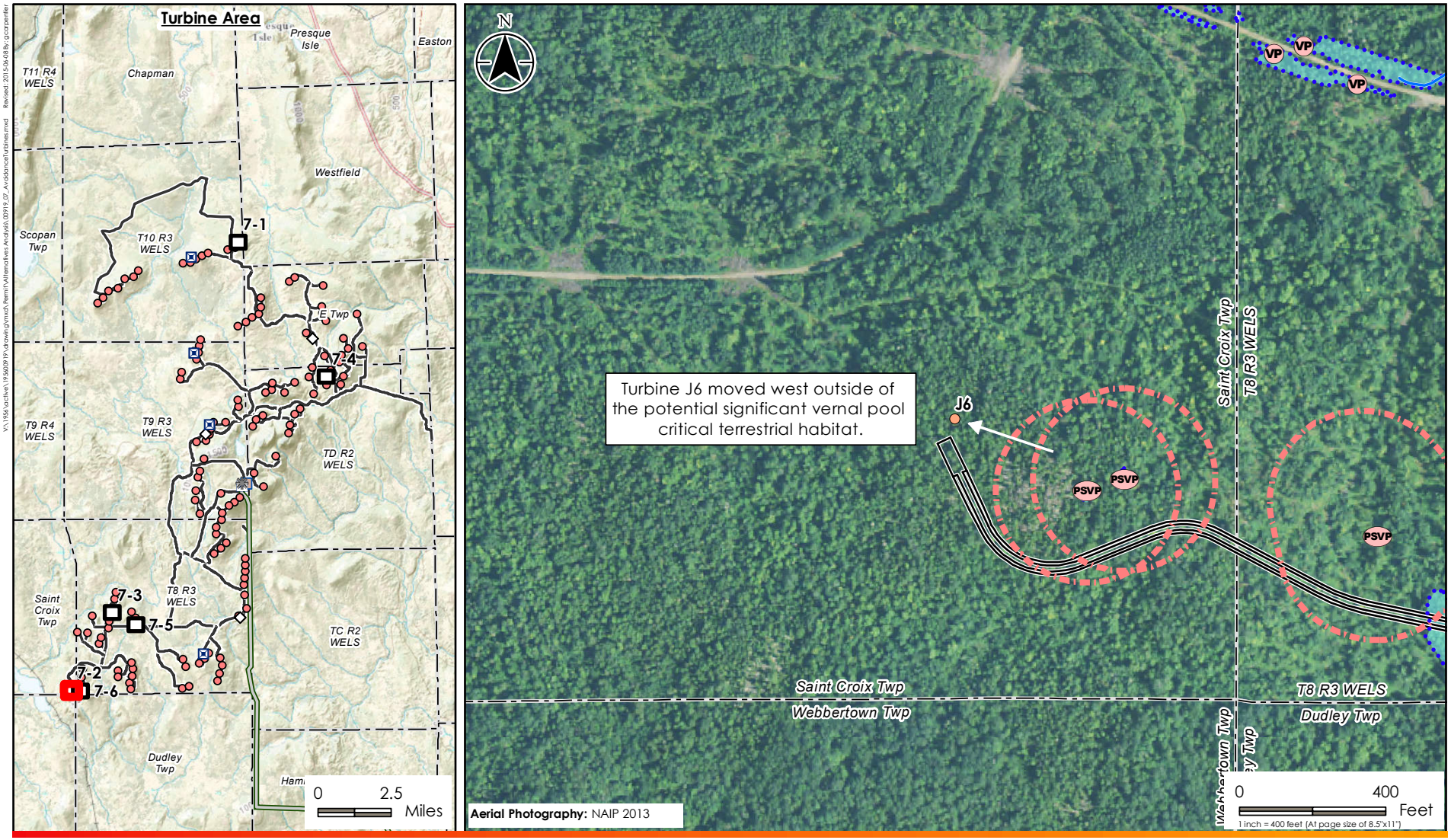
Legend

- Turbines (20150403)
- Access Road Edge of Gravel (20150403)
- PSVP Potential Significant Vernal Pool
- Delineated Wetland
- Potential Significant Vernal Pool 250' Critical Terrestrial Habitat

Client/Project
EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

Figure No.
7-1

Title
Turbine Design Avoidance
6/8/2015



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00919_07_AvoidanceTurbines.mxd

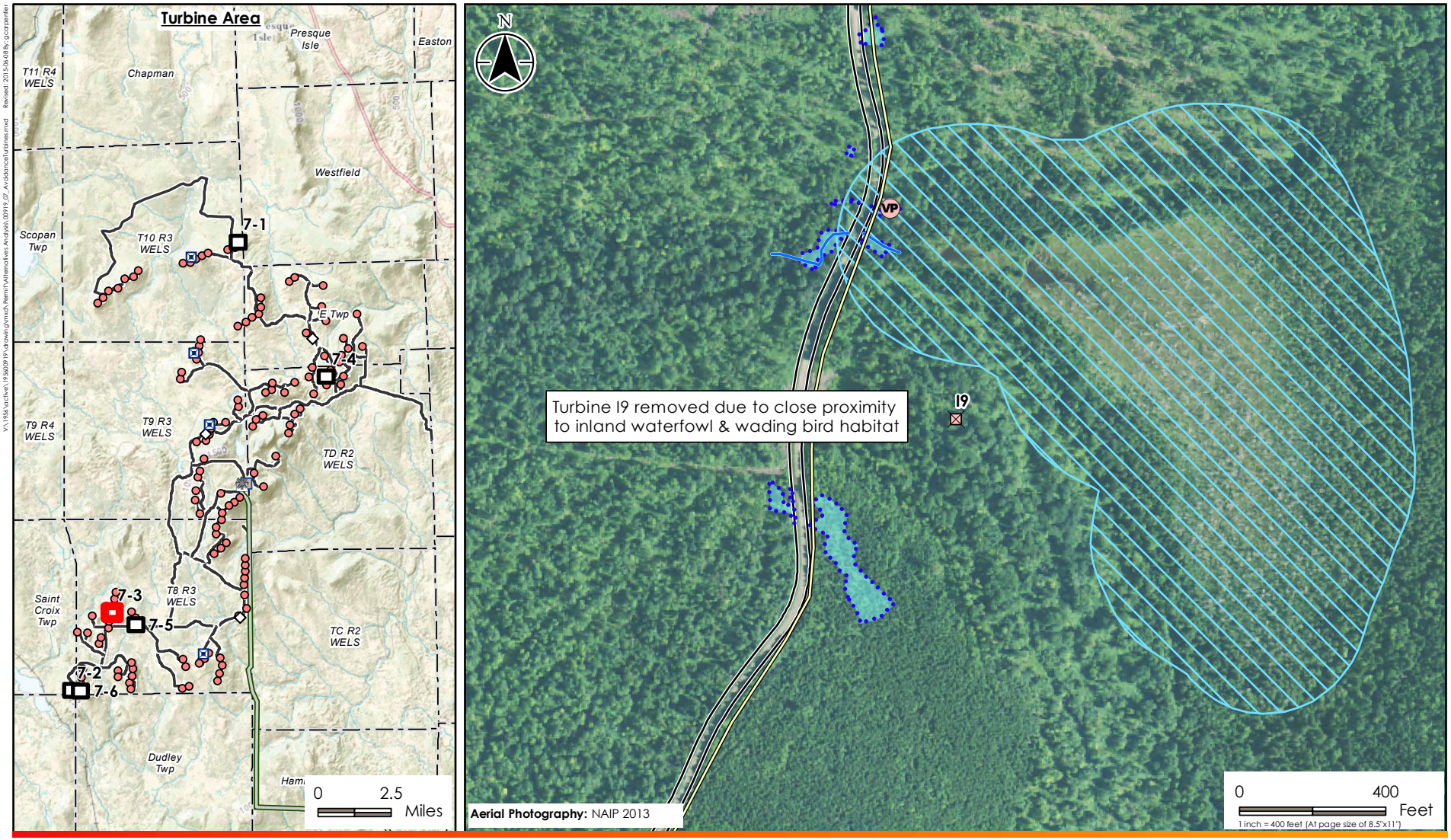
Legend

- Turbines (20150403)
- Access Road Edge of Gravel (20150403)
- Vernal Pool
- Potential Significant Vernal Pool
- Delineated Stream
- Delineated Wetland
- Potential Significant Vernal Pool 250' Critical Terrestrial Habitat

Client/Project
EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

Figure No.
7-2

Title
Turbine Design Avoidance
6/8/2015



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00919_07_AvoidanceTurbines.mxd

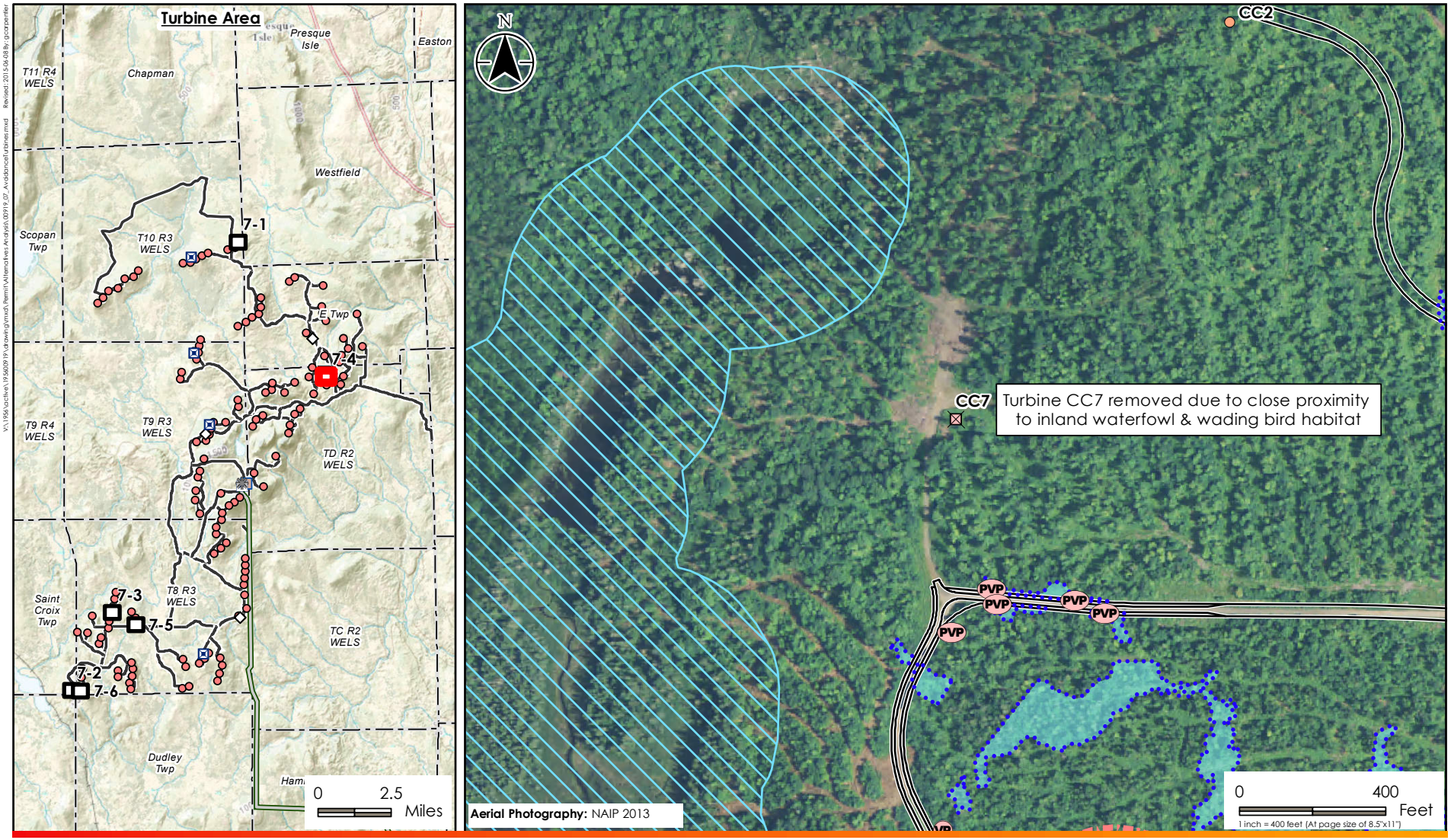
Legend

- Turbine Removed from Design
- Access Road Edge of Gravel (20150403)
- Inland Waterfowl & Wading Bird Habitat
- Vernal Pool
- Delineated Stream
- Delineated Wetland

Client/Project
EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

Figure No.
7-3

Title
Turbine Design Avoidance
6/8/2015



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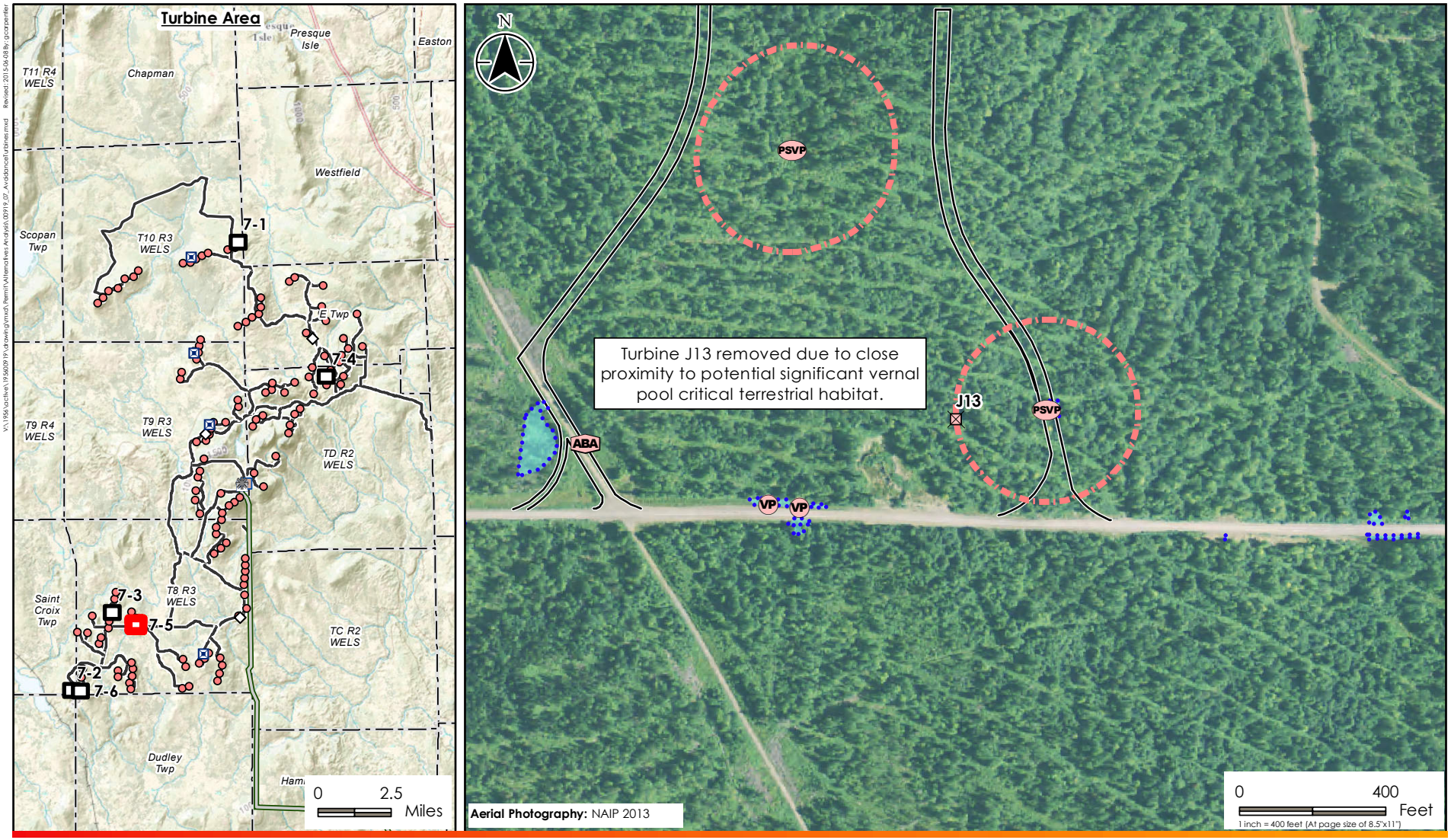
Legend

- Turbines (20150403)
- Turbine Removed from Design
- Access Road Edge of Gravel (20150403)
- Inland Waterfowl & Wading Bird Habitat
- Vernal Pool
- Potential Vernal Pool
- Delineated Wetland
- Potential Significant Vernal Pool 250' Critical Terrestrial Habitat

Client/Project
EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

Figure No.
7-4

Title
Turbine Design Avoidance
6/8/2015



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00919_07_AvoidanceTurbines.mxd

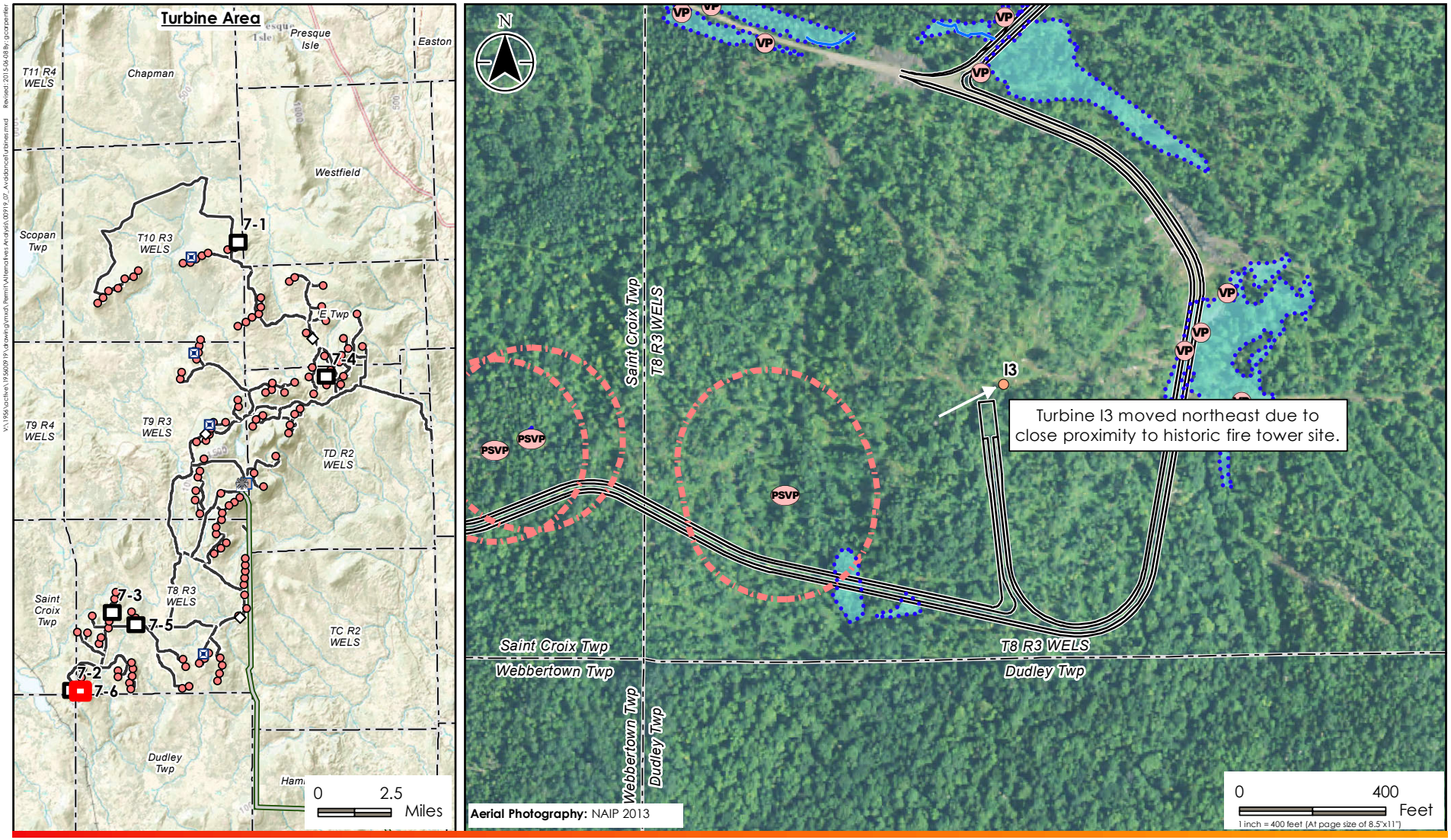
Legend

- Turbine Removed from Design
- Access Road Edge of Gravel (20150403)
- VP Vernal Pool
- PSVP Potential Significant Vernal Pool
- ABA Amphibian Breeding Area
- Delineated Wetland
- Potential Significant Vernal Pool 250' Critical Terrestrial Habitat

Client/Project
EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

Figure No.
7-5

Title
Turbine Design Avoidance
6/8/2015



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00919_07_AvoidanceTurbines.mxd

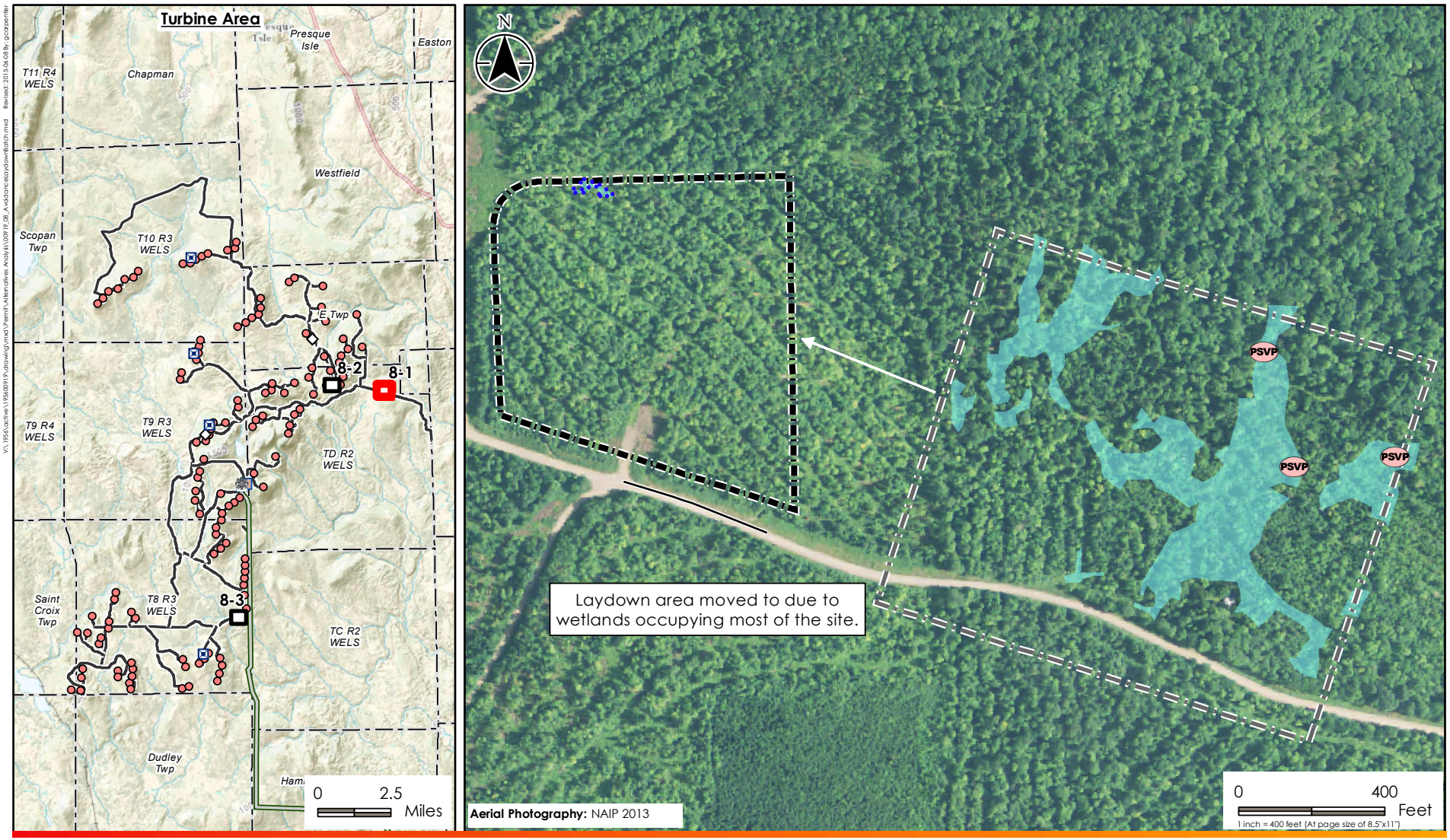
Legend

- Turbines (20150403)
- Access Road Edge of Gravel (20150403)
- Vernal Pool
- Potential Significant Vernal Pool
- Delineated Stream
- Delineated Wetland
- Potential Significant Vernal Pool 250' Critical Terrestrial Habitat

Client/Project
EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

Figure No.
7-6

Title
Turbine Design Avoidance
6/8/2015



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00919_08_AvoidanceLaydownBatch.mxd

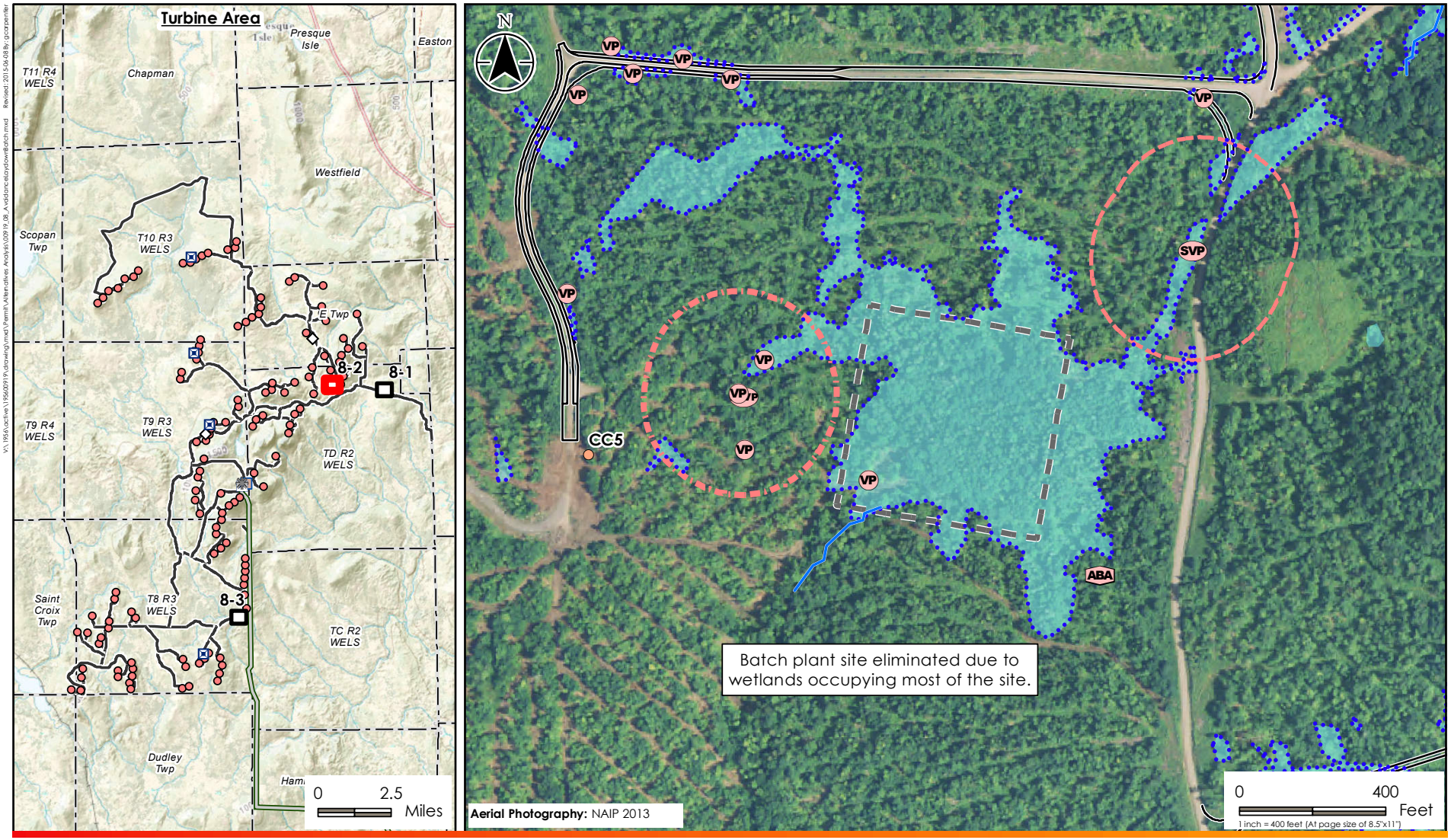
Legend

- PSVP — Potential Significant Vernal Pool
- Previous Laydown Area
- Laydown Area
- Access Road Edge of Gravel (20150403)
- Delineated Wetland

Client/Project
EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

Figure No.
8-1

Title
Batch Plants/Laydown Area Design Avoidance
6/8/2015



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Prepared by GAC on 2015-06-05
Reviewed by JYP on 2015-06-08

00919_08_AvoidanceLaydownBatch.mxd

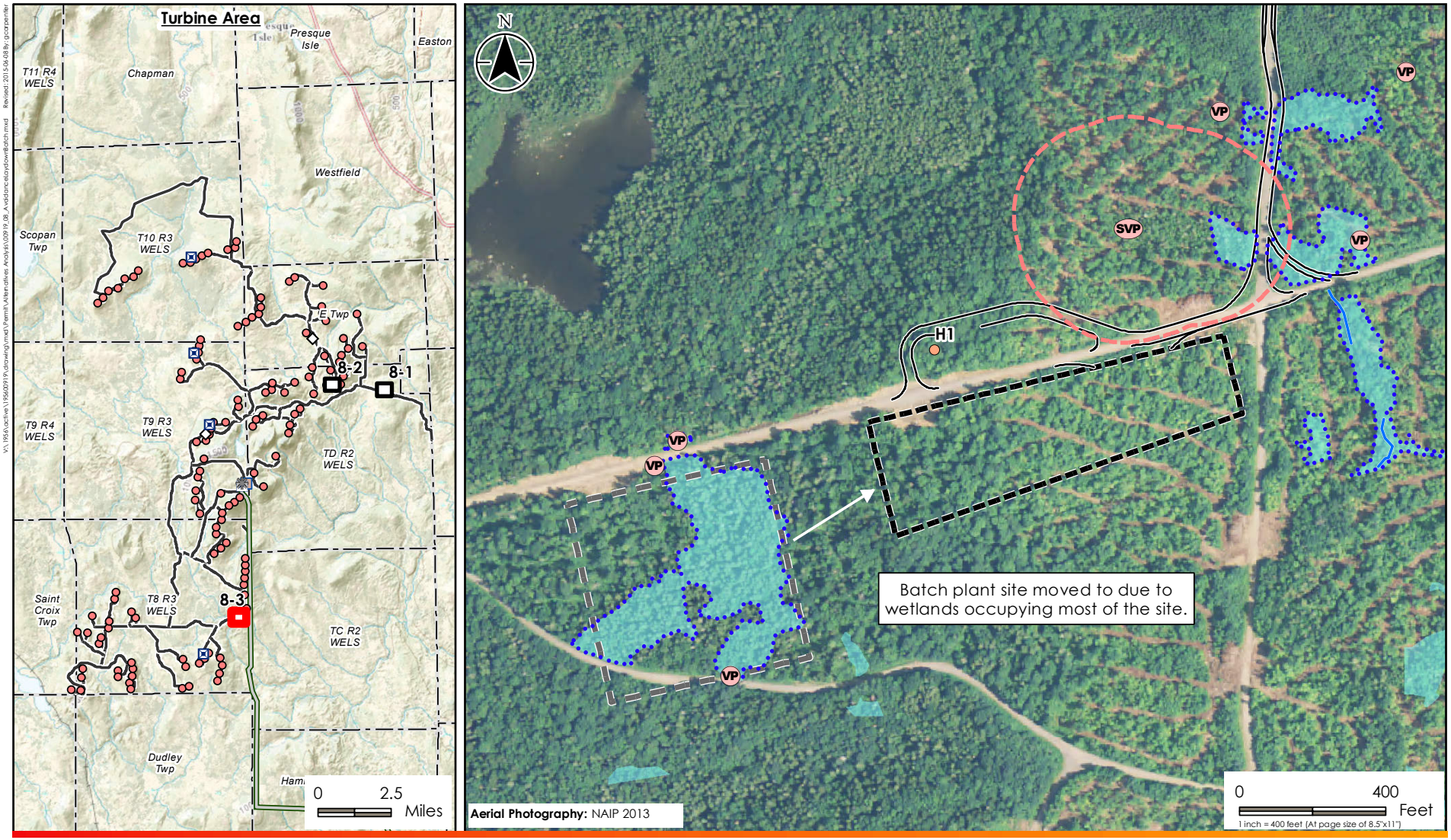
Legend

- Turbines (20150403)
- SVP Significant Vernal Pool
- VP Vernal Pool
- PSVP Potential Significant Vernal Pool
- ABA Amphibian Breeding Area
- Previous Batch Plant Site
- Access Road Edge of Gravel (20150403)
- Delineated Stream
- Delineated Wetland
- Significant Vernal Pool 250' Critical Terrestrial Habitat
- Potential Significant Vernal Pool 250' Critical Terrestrial Habitat

Client/Project
EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

Figure No.
8-2

Title
Batch Plants/Laydown Area Design Avoidance
6/8/2015



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00919_08_AvoidanceLaydownBatch.mxd

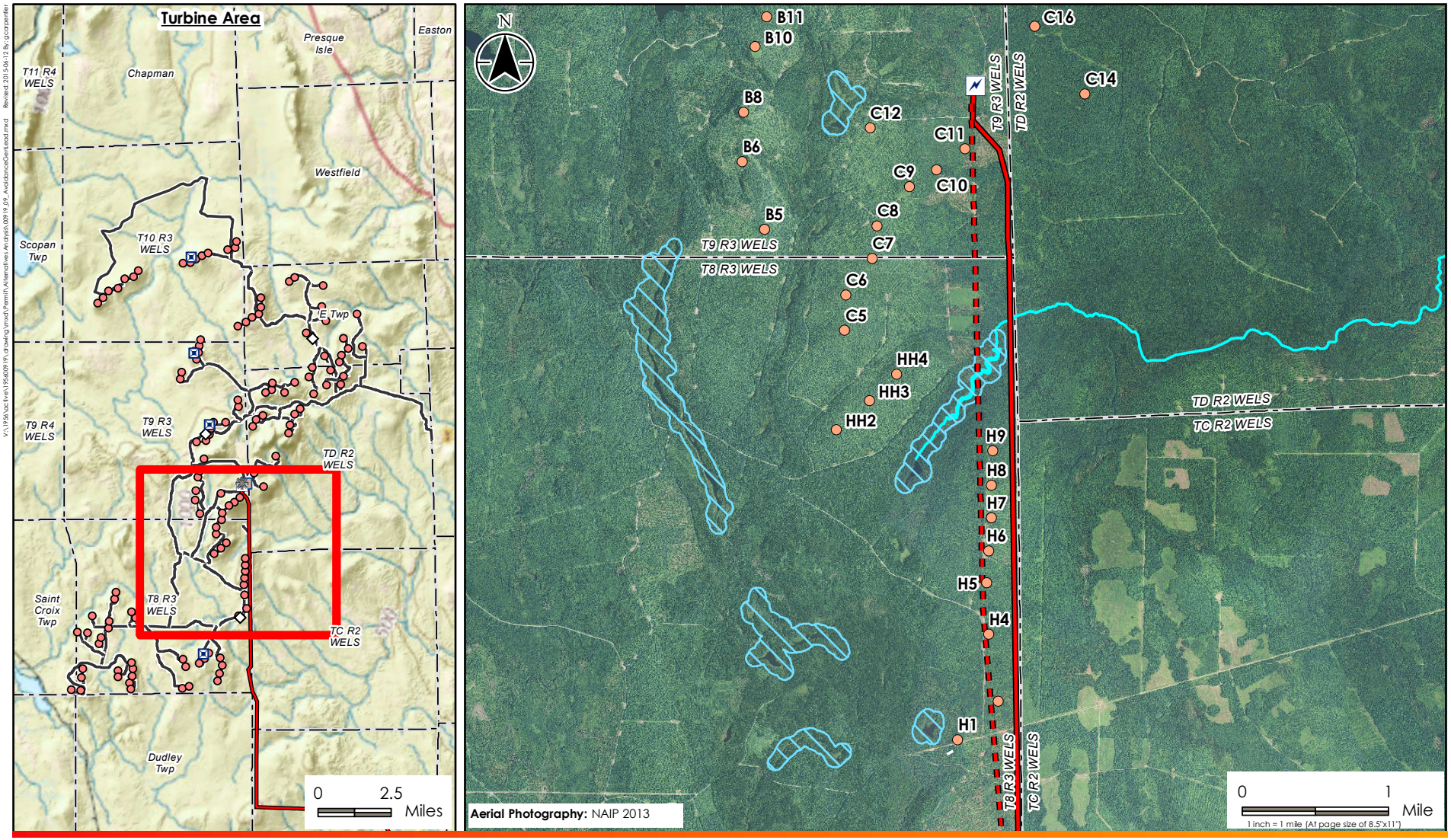
Legend

- Turbines (20150403)
- SVP Significant Vernal Pool
- VP Vernal Pool
- Previous Batch Plant Site
- Batch Plant Site
- Access Road Edge of Gravel (20150403)
- Delineated Stream
- Delineated Wetland
- Significant Vernal Pool 250' Critical Terrestrial Habitat

Client/Project
EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

Figure No.
8-3

Title
Batch Plants/Laydown Area Design Avoidance
6/8/2015



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00919_09_AvoidanceGenLead.mxd

Legend

- Turbines (20150403)
- Substation (20150219)
- North Generator Lead (20150316)
- Previous Generator Lead
- North Branch Meduxnekeag River
- Inland Waterfowl & Wading Bird Habitat
- Township Boundary

Client/Project
EDP Renewables North America LLC
Number Nine Wind Farm
Aroostook County, Maine

Figure No.
9-1

Title
Electrical Corridors
Design Avoidance
6/12/2015

EXHIBIT 1-B TURBINE AREA CIVIL AND ELECTRICAL DESIGN

EXHIBIT 1-C NORTH GENERATOR LEAD LINE DESIGN

EXHIBIT 1-D BRIDAL PATH GENERATOR LEAD LINE DESIGN