

# ROARING BROOK WIND FARM

## Historic Architectural Resources Survey

Towns of Harrisburg, West Turin, Lowville,  
Martinsburg, Montague, and Osceola  
in Lewis County, New York



*Prepared for*

**Roaring Brook Wind Power, LLC**  
Lowville, New York

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**ROARING BROOK WIND FARM:  
HISTORIC ARCHITECTURAL RESOURCES SURVEY**

**TOWNS OF HARRISBURG, WEST TURIN, LOWVILLE, MARTINSBURG, MONTAGUE,  
AND OSCEOLA IN LEWIS COUNTY, NEW YORK**

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## MANAGEMENT SUMMARY

JMA conducted a historic-architectural resources survey for the proposed 78 megawatt Roaring Brook Wind Farm (the Project) located in the Town of Martinsburg, Lewis County, New York. The historic-architectural resources survey was conducted on behalf of Roaring Brook Wind Power, LLC, a subsidiary of PPM Energy. JMA carried out field surveys and post-survey analyses to a) identify architecturally and historically significant properties that might be affected by construction and operation of the proposed Roaring Brook Wind Farm (the Project), and b) evaluate the possible effects of the Project on those properties. All work was carried out in accordance with the *Guidelines for Wind Farm Development Cultural Resources Survey Work* issued in 2006 by the New York State Office of Parks, Recreation and Historic Preservation (OPRHP).

Project facilities will be located on 26 parcels of leased privately owned land (one landowner) totaling approximately 3,980 acres, located off of Carey Road in the southwestern part of Martinsburg. The Project will consist of approximately 39 wind turbines, each with a maximum (or nameplate) capacity of 2.0 megawatts (MW). As presently envisioned, the Project will use the Gamesa G90 Turbine (or equivalent), which will include a three-bladed rotor, with a diameter of 90-meters (295-foot), mounted on an 100-meter (328-foot) tubular steel tower. The Project will also involve the upgrade of an existing 11 mile system of unpaved forest roads, construction of 4 miles of new gravel access roads, installation of approximately 16 miles of buried gathering lines (electrical interconnects), and construction of an approximately 10-mile 34.5kV electrical interconnection line and substation. The proposed 10-mile interconnection line route and substation location have not yet been finalized; cultural resources concerns associated with these Project components will be addressed in a separate report.

The survey Study Area was defined to include the entire area within five miles of any proposed wind turbine generator (WTG). Defined in this manner, the Study Area includes parts of the Towns of Harrisburg, West Turin, Lowville, Martinsburg, Montague, and Osceola in Lewis County.

In accordance with the SHPO *Guidelines*, the Project's Area of Potential Effect (APE) was defined as the portion of the Study Area located within the Project's topographic viewshed (all areas within line-of-sight of a project facility without regard to the presence of intervening vegetation, structures, or other non-topographic obstructions). JMA identified five historic properties within the APE, including two cemeteries.

After taking into account moderating effects of distance, seasonality of views, and observer orientation in relation to the affected property, JMA concludes that none of the identified properties will incur an adverse visual impact as a result of Project construction or operation. No additional studies are recommended. In the opinion of JMA, no visual impact mitigation measures will be required.

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## 1.0 INTRODUCTION

### 1.1 PURPOSE AND GOALS OF THE INVESTIGATION

JMA conducted a historic-architectural resources survey for the Roaring Brook Wind Farm located in the Town of Martinsburg, Lewis County, New York. The survey was conducted on behalf of PPM Energy, Inc. The information and recommendations contained in this report are intended to assist the Town of Martinsburg in evaluating the potential effects of the project in accordance with its obligations under the New York State Environmental Quality Review Act (SEQRA).

The purpose of the work described here was to identify architecturally and historically significant properties that might be affected by construction and operation of the proposed Roaring Brook Wind Farm (the Project), and evaluate the possible effects of the Project on those properties. All work was carried out in accordance with the *New York State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work* (the SHPO Guidelines) issued by the New York State Office of Parks, Recreation and Historic Preservation in January 2006 (OPRHP 2006).

### 1.2 PROJECT LOCATION AND DESCRIPTION

Roaring Brook Wind Power, LLC, a subsidiary of PPM Energy, is proposing to develop a wind-powered generating facility (the Project) in the Town of Martinsburg in Lewis County. Project facilities will be located on 26 parcels of leased privately owned land (one landowner) totaling approximately 3,980 acres (the Project Area) located off of Carey Road in the southwestern part of Martinsburg (Figure 1). The landscape within the Project Area is actively logged forest in various stages of re-growth. There are no public roads located within the Project Area.

The Project will consist of approximately 39 wind turbines, each with a maximum (or nameplate) capacity of 2.0 megawatts (MW), resulting in a generating capacity of approximately 78 MW. As presently envisioned, the Project will use the Gamesa G90 Turbine (or equivalent), which will include a three-bladed rotor, with a diameter of 90-meters (295-foot), mounted on an 100-meter (328-foot) tubular steel tower. The Project will also involve the upgrade of an existing 11 mile system of unpaved forest roads, construction of 4 miles of new gravel access roads, and installation of approximately 16 miles of buried gathering lines (electrical interconnects).

To deliver power to the New York State power grid, the Project will also include construction of a 34.5 kV electrical interconnection line and substation/point of interconnection facility located adjacent to the National Grid Taylor-Boonville 115 kilovolt (kV) transmission line near Lee Road. The interconnection route will be comprised of approximately 4 miles of buried electrical line and 6 miles of overhead line on wooden pole structures. The precise route of the interconnection line has not yet been finalized. Cultural resources concerns associated with the proposed interconnection line and substation will be addressed in a separate report.

Construction of the proposed Project would include ground-disturbing activities, and the proposed turbines would be visible in the surrounding landscape. In accordance with the SHPO *Guidelines*, the Area of Potential Effect (APE) for identifying previously recorded historic and/or architecturally significant structures was defined as the topographic viewshed within a five-mile radius from proposed wind turbine locations. The topographic viewshed includes all areas that, based solely on topography without any intervening structures or forest cover, would have views of one or more Project facilities. This APE includes all of the areas where there is a potential for significant visual effects.

## 2.0 HISTORIC PERIOD CULTURAL CONTEXTS

### 2.1. CONTACT AND COLONIAL PERIODS

During the seventeenth century, northern New York (including the Study Area) was within the traditional hunting grounds of the Oneida Nation of the Iroquois Confederacy. The traditional territory of the Oneida Iroquois included the area around Oneida Lake and along Oneida Creek. Their hunting territory extended north to the Saint Lawrence River and south to the Susquehanna River. The Iroquois controlled strategic trade routes between the colonial ports of the Atlantic Coast and the rich fur-trapping grounds of the West. The Confederacy capitalized on their strategic location by combining sophisticated diplomacy with military power and successfully played off the interests of the English and French for most of the seventeenth and eighteenth centuries (Tooker 1978:430). The Oneida fought alongside the Americans in the Revolutionary War. Despite this fact, after the war the Oneida were accorded no better treatment than the Mohawk or Seneca by the State of New York. The Second Treaty of Fort Stanwix (1784) alienated all Iroquois lands east of the Genesee River except for a few small reservations (Klein 2001:259–260).

Throughout most of the seventeenth and eighteenth centuries, European activities in northern New York were restricted to limited commercial, missionary, and military expeditions (Klein 2001:258; Trigger 1978). Historians have characterized northern New York in the eighteenth century as a frontier wilderness:

Northern New York was virtually unbroken wilderness in 1783 except for a few settlements fringing Lake Champlain. In fact, most of the region lying between Lake Champlain on the east, Lake Ontario on the west, the Saint Lawrence River on the north, and the southern slopes of the Adirondacks remained wilderness until late in the nineteenth century (Ellis et al. 1973:156, quoted in PCI 2001:13).

A period of grand-scale land speculation followed the American Revolution in western, central, and northern New York. In 1789, the state sold an enormous tract of land comprising 3,670,715 acres in northern New York to Alexander Macomb, Daniel McCormick, and William Constable. This land grant came to be known as Macomb's Purchase and included almost all of the lands in present-day Franklin, Saint Lawrence, Jefferson, and Lewis counties (Hough 1883:28; Klein et al. 1985:2.15; PCI 2001:13). Lands within the Study Area for the Roaring Brook Wind Project were included in subsequent sales from Macomb's Purchase. In 1796 William Constable sold most of the land south and west of the Black River to a group of New York City speculators as the Black River Tract. Some of these lands, including the present Town of Lowville, were sold to Nicholas Low. General Walter Martin purchased 8,000 acres of the Black River Tract. The present Town of Harrisburg was also part of the Black River Tract, sold to William Henderson and Richard Harrison along with other lands. Portions of the present Town of Martinsburg were subdivided and sold off to speculators between 1795 and 1803 as parts of the Boylston Tract (Hough 1883:29–32). Erroneous surveys, multiple land sales, and competing claims characterized many of these early land transactions. These complications, combined with the undeveloped frontier character of the region, delayed settlement of northern New York until the early nineteenth century.

### 2.2 NINETEENTH-CENTURY SETTLEMENT AND DEVELOPMENT

When the original American settlers arrived in what is now Lewis County, it was still part of Oneida County. Lewis County was formed from Oneida County by an act of legislature in 1805 (French 1860).

Within the Study Area, the Town of Lowville was the earliest established town. It was created in March 1800 from part of the Town of Mexico (Oswego County). The Town of Lowville was reduced in February 1803 by the creation of the Town of Harrisburg. The Town of Martinsburg was also established in February 1803. It was created from part of the Town of Turin and was enlarged in 1819 by annexation of another part of the Town of Turin. In March 1830, the Town of West Turin was formed from part of the Town of Turin. The Town of West Turin was reduced in size by the establishment of the Towns of Osceola (February 1844), Montague (November 1850), and High Market (November 1852) (French 1860). The Town of High Market was subsumed back into the Town of West Turin in 1973.

Early-nineteenth-century settlement in the Study Area was centered in the Black River valley. Much of this land had been purchased in large parcels and was then sold off as smaller parcels, often under the auspices of land agents, including General Walter Martin, Nicholas Low, and Hezekiah Pierpont. Rural communities formed around gristmills and sawmills, and other institutions such as stores, taverns, schools, and churches that developed to service these communities. The early settlers in the area were primarily Yankee migrants from New England who were attracted by the availability of cheap land and the potential for industrial and commercial success (Ellis et al. 1973:156–157, cited in PCI 2001:13; Klein et al. 1985:2.16).

Nicholas Low appointed Silas Stow as his land agent in 1797 to sell lands within the present Town of Lowville. A sawmill and gristmill, built in 1798 and 1799, were the first industrial concerns to be built here (Hough 1883:301–332).

In 1801, General Walter Martin of Massachusetts purchased 8,000 acres within the Boylston Tract and founded the hamlet of Martinsburg. Martin was a great promoter of this area and built several mills to entice settlement. Martin wielded considerable political influence and secured the county seat at Martinsburg by donating land and money for the construction of a courthouse, which was built in Martinsburg in 1810 (French 1860). In 1828 a deposit of galena (lead ore) was discovered near the hamlet, and in the 1860s, speculators began selling shares in mining companies to extract copper and lead ore from Martinsburg. The brief boom provided by these mining concerns did not result in long-term growth in Martinsburg (French 1860; Hough 1883:457–459).

Hezekiah Pierpont owned several large tracts of land in the Tug Hill plateau, including all of the present Town of Montague, and part of the Town of Osceola. Pierpont's land agents, Seymour Green in the Town of Osceola and Diadate Pease in the Town of Montague, began selling small parcels from the Pierpont land to individuals in 1838 and 1846, respectively (French 1860).

By the second quarter of the nineteenth century, the lands in the Black River valley were largely settled, but the western portion of the county, including parts of the Towns of High Market, Martinsburg, Montague, Osceola, and West Turin, remained principally wilderness through the 1860s. The soil in these areas was not as suited to agriculture (French 1860). This settlement pattern explains the predominance of Greek Revival domestic-architecture in the Black River valley, because this area was initially settled when the Greek Revival style was most popular, from the 1830s to 1860s.

In the early nineteenth century, there was a concentration of French settlers in the portion of the Town of Martinsburg in the Tug Hill, along today's French Road. An influx of Irish immigrants came to the county, settling largely in the Towns of Martinsburg and High Market in the 1840s and 1850s after construction of the Black River Canal had been completed (Bowen 1970:372).

In the early nineteenth century, regional transportation networks consisted of dirt roads and a few plank-road turnpikes. The Black River Canal opened in 1848 in Oneida County, and the canal was extended over the next few years to 35 miles in length. The canal included 39 locks to accommodate the descent from Boonville (northward) to the Black River below Lyons Falls, with additional slackwater navigation to Carthage. The canal provided access to downstate markets for local timber, agricultural, milled, and manufactured products (Hough 1883:132; PCI 2001:14). Railroad construction further encouraged economic growth in Lewis County. The Black River and Utica Railroad (chartered in 1857) connected villages in Lewis County with the southern railroad routes at Utica. The railroad to Lowville was completed in 1868 (Hough 1883:355; Klein et al. 1985:2.20). These large projects were built largely using immigrant labor, and many of these workers stayed behind in Lewis County after the projects were finished (Bowen 1970:372; French 1860).

Agriculture was the dominant economic pursuit in Lewis County in the nineteenth century. The alluvial soils of the Black River valley were fertile and allowed for the cultivation of market crops. Sheep, and their wool, were the primary cash crop of the earliest farmers. Wool was compact and had a high value per unit of weight, making it economical to ship via overland routes (Durand 1967:31). The thin soils of the Tug Hill Plateau, however, were better suited to pasturage, and by the 1840s, dairying had become the principal agricultural activity within the county. Lewis County is part of the North Country dairy belt of New York State. Initially the dairy industry served local markets, but in the late nineteenth century, numerous small cheese factories flourished, and cheese was exported by railroad to farther markets (Bowen 1970:497; Hough 1883:327–328; PCI 2001:14). In the last quarter of

the nineteenth century, hops were the county's second-most-important agricultural commodity, but this crop ceased to be of much importance after the turn of the twentieth century (Hough 1883:76; Bowen 1970:13).

Large, bank dairy barns are the predominant agricultural building type found within the Study Area. Smaller outbuildings, such as granaries, corncribs, equipment-sheds and milk houses, are also common.

By the second half of the nineteenth century, lumbering operations had been established in the thick forests of the Tug Hill Plateau. The community of Michigan Mills, immediately south of the Study Area in the Town of West Turin was established in the 1880s as a hardwood veneer mill. Another mill town was established in West Turin (then High Market) at Page in the 1890s. The Glenfield and Western Railroad was built to Page in 1902 to carry the lumber to Glenfield on the Black River fifteen miles away. By the 1930s, these lumbering companies had closed and the railroad discontinued (Bowen 1870:233-236). In the Town of Martinsburg the Holden and Owens Mill on Fish Creek was established in the 1870s but had discontinued operations by 1885 (Bowen 1970:379). Within the Town of Montague, the earliest sawmills were established in the late 1840s near Sears' Pond, which was originally a mill pond. A mill continued to operate here until the 1930s (Bowen 1970:418). Also within the Town of Montague, the communities of Rector and Gardner Corners, both within the Study Area, were also established in the mid-nineteenth century. Rectors Corners had a sawmill, store, church, school, hotel, and cheese factory, as well as a store and several houses. The cheese factory in Rector was the last to operate in the Town of Montague, closing in 1945 (Bowen 1970:423-426). In the nineteenth century Gardner Corners included a school, a blacksmith and cooper, a cheese factory, a hotel, and a store and post office.

Throughout the mid-nineteenth century, Lewis County was comprised of small towns and many farms. Martinsburg had reached its peak importance in the 1840s and early 1850s. By the late 1850s it was showing signs of decline due to its location in the hills, away from the Black River Canal and the Black River and Utica Railroad; and a disastrous 1859 fire. After the removal of the county seat to Lowville in 1864, Martinsburg decreased in countywide importance but continued to serve as a hub for farmers in the area (Hough 1883:461).

The 1857 Ligowsky map of Lewis County (Figures 2 and 3) shows the Study Area as largely unsettled, with no roads, except for the northern and eastern sections of the Study Area. This settlement pattern remains the same in the 1875 Beers atlas of Lewis County (Figures 4 and 5). The northern part of the Study Area is organized according to a grid-like network of rural roads laid out during the original early-nineteenth-century property surveys. The farmsteads are generally evenly dispersed, although households tended to be constructed in clusters in the vicinity of crossroads or major thoroughfares. The southern part of the Study Area is largely unsettled, with Holden and Owens over-5000-acre tract and sawmill noted in the southwest corner of the Town of Martinsburg, within the Project Area.

Several iron deposits were mined with great success in Jefferson County (north of Lewis County) between the 1840s and the 1880s. A vein of lead and iron ores was discovered near Lowville in 1828, resulting in the formation of Silver Creek Copper and Lead Mining Company in 1864. This endeavor was a short-lived speculation (Hough 1883:323-324).

## **2.3 TWENTIETH CENTURY IMPROVEMENTS AND CHANGES**

In the early twentieth century, New York State began a program of reforestation in their existing lands, such as those in the Tug Hill plateau that had never been purchased by private owners. They also purchased additional lands for reforestation (Bowen 1970:231). Today state lands make up a large portion of the Study Area.

By the late twentieth century, agriculture was still a major force in Lewis County economics, but the number of farms had decreased and their average acreage had increased. Many of the farms on the Tug Hill Plateau or in the hills east of the Black River had been abandoned for the more fertile soil of the Black River valley.

The number of cheese factories in the Study Area declined in the early twentieth century as transportation and milk-handling technologies improved, although the areas in the Tug Hill Plateau further from railroads and improved roads retained community cheese factories. Improved technology allowed for the consolidation of cheese-making operations, as well as the sale of a greater portion of Lewis County's milk production as fluid milk in larger metropolitan markets (Bowen 1970:497; Hough 1883:327-328; PCI 2001:14). Cheese remains important to Lewis County dairy farmers, and Lowville currently has several cheese manufactories. In 1964, Lewis County produced

over 14% of New York State's American (cheddar) cheese (Durand 1967:42). Maple syrup is the county's second most important cash crop. Many maple sugar stands are found throughout the Study Area.

In the early twentieth century, Lewis County saw another wave of immigrants as Polish émigrés began purchasing Lewis County dairy farms, mostly in the poorer soils on the Tug Hill Plateau. As soils in this area became depleted, many of these farmers moved their operations to the better soils of the Black River valley (Bowen 1970:374).

Many of the Towns in the Tug Hill plateau saw drastic declines in population. The population of the Town of High Market was 541 in 1880 and 95 in 1960. In 1973 this town was subsumed into the Town of West Turin, which it had been created out of in 1852. The Town of Montague also had a similarly drastic decline in population, from 975 in 1880 to 73 in 1960. The Town of Martinsburg's population decline is not quite as dramatic, but is still significant. In 1880 this town had 2386 residents, but in 1960 there were only 1969 (Bowen 1970:551).

## 3.0 ARCHITECTURAL SURVEY

### 3.1 ARCHITECTURAL SURVEY METHODS

#### *The Study Area*

JMA conducted this architectural survey in accordance with the *New York State Historic Preservation Office's Guidelines for Wind Farm Development Cultural Resources Survey Work* (OPRHP 2006) (the *SHPO Guidelines*). As a first step, the *SHPO Guidelines* call for the establishment of “a five-mile Area of Potential Effect (APE) around the project site” (OPRHP 2006:1). The Project Study Area for the Roaring Brook Wind Farm was defined to include the entire area within five miles of any proposed wind turbine. Defined in this manner, the Study Area includes parts of the Towns of Harrisburg, Lowville, Martinsburg, Montague, Osceola, and West Turin in Lewis County.

#### *The Project Viewshed and the Area of Potential Effect*

In accordance with the *SHPO Guidelines*, the APE for visual effects includes only those portions of the Study Area that are also located within the Project viewshed “as defined by topographic study” (OPRHP 2006:1). Topographic viewshed maps for the Study Area were prepared by Environmental Design and Research, PC (EDR) using USGS digital elevation model (DEM) data (7.5 minute series) and the ArcView Spatial Analyst® computer program. The ArcView program defines the viewshed (using topography only) by reading every cell of the DEM data and assigning a value based upon visibility from observation points throughout the Study Area. The resulting maps define the maximum area from which any proposed turbine could potentially be seen. This topographic viewshed is based on topography only and illustrates “worst case” daytime visibility based on a maximum turbine blade-tip height of 145 meters (approximately 475 feet) above existing grade (Figure 6). This viewshed is considered “worst case” because it does not take into account the screening effects of vegetation and structures. This viewshed was used to define the limits of survey within the Study Area.

To illustrate the potential screening effect of forest vegetation, a second 5-mile viewshed map was prepared (Figure 7). This viewshed map was prepared in the same way as the topographic viewshed map, except that a base vegetation layer was created using USGS National Land Cover Data and assigning an elevation value (40 feet) to areas of deciduous, evergreen and mixed forest cover types. This layer was then added to the DEM model to produce a base layer for the viewshed analysis. The resulting viewshed map classifies as “not visible” those areas which according to model would have views of the Project screened by intervening forest cover.

It is worth noting that because characteristics of the proposed turbines that influence visibility (color, narrow profile, distance from viewer, etc.) are not taken into consideration in the viewshed analysis, being within the viewshed does not necessarily equate to actual project visibility.

#### *Previously Recorded Data*

JMA reviewed survey OPRHP files and the SPHINX database maintained by OPRHP. Information on properties within the five-mile Study Area, irrespective of whether or not they are located in the Project's viewshed, was collected. This information included all buildings, sites, districts, structures, and objects that fall into either of more of the following categories:

- listed on the New York State Register of Historic Places (SRHP)
- have been determined eligible for listing on the National Register of Historic Places (NRHP) and/or SRHP
- have been surveyed but eligibility for listing on the NRHP and/or SRHP has not been determined

#### *Field Surveys*

In-field architectural surveys were undertaken by JMA during August and September 2007. The purpose of these surveys was to identify potentially significant architectural and historic properties within the Project's APE that have

not been previously identified, verify the current condition of previously recorded NRHP/SRHP and NRHP/SRHP-eligible properties, and evaluate previously recorded but unevaluated properties.<sup>1</sup>

In accordance with the SHPO *Guidelines*, field surveys were undertaken in two phases. The first phase of survey was limited to the area within two miles of any proposed Project facility. This first survey phase was expanded from the one-mile area requested in the SHPO *Guidelines* because no properties over fifty years of age are located within one mile of any proposed Project facility. Within this two-mile “ring”, all properties determined by style-dating or other methods to be over fifty years of age were inventoried and digital photographs of the property exteriors were taken. Residential, commercial, and agricultural properties were included in the survey, as were designed landscapes such as cemeteries.

JMA personnel met with OPRHP staff on September 4, 2007 to review the results of the survey of the one-mile “ring.” As part of the review JMA identified those inventoried properties that in the opinion of JMA satisfy NRHP/SRHP eligibility criteria (36 CFR 60.4 and Section 14.07 of the NYS Parks, Recreation and Historic Preservation Law), and a sample of those that in the opinion of JMA do not. OPRHP staff verified JMA’s evaluation criteria/methodology and advised that it was acceptable for use in surveying remaining portions of the larger 5-mile Study Area during the second phase of survey.

The second phase of survey consisted of an inventory of properties within the 5-mile Study Area that are also within the Project’s topographic viewshed, and which in the opinion of JMA, employing the evaluation methodology approved by OPRHP, satisfy NRHP/SRHP eligibility criteria.

### 3.2 PREVIOUSLY RECORDED HISTORIC AND ARCHITECTURAL RESOURCES

Four previously recorded individual historic properties that OPRHP has determined satisfy NRHP/SRHP eligibility criteria lie within the Study Area. All of these previously recorded and evaluated properties identified through a review of OPRHP records are listed in Table 1.

**Table 1. Previously recorded historic and architectural resources within the Study Area that satisfy NRHP/SRHP eligibility criteria (evaluated prior to JMA surveys).**

OPRHP Identifier	Property Name & Address	Town	S/NRHP status <sup>2</sup>	Comments
04909.000029	4247 Gardner Rd.	Lowville	I	Outside the Project’s topographic viewshed
04911.000022	Ashback Cemetery, 3805 Rector Rd.	Martinsburg	I	Outside the Project’s topographic viewshed
04911.000023	Chapel Hill Cemetery, 4253 Flat Rock Rd.	Martinsburg	I	Outside the Project’s topographic viewshed
04911.000084	St. Patrick’s Cemetery, Maple Ridge Rd.	Martinsburg	I	Within the Project’s topographic viewshed.

<sup>1</sup> NRHP eligibility criteria are set forth at 36 CFR 60.4. “The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or (b) that are associated with the lives of persons significant in our past; or (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or (d) that have yielded, or may be likely to yield, information important in prehistory or history.”

<sup>2</sup> I = Individually determined eligible for listing on the NRHP and/or SRHP.

In addition to properties listed on the NRHP and/or SRHP and determined eligible for listing, OPRHP's files and the SPHINX data base contain information on inventoried but unevaluated properties. Unevaluated properties listed in OPRHP's inventory that are located within the five-mile Study Area are listed in Table 2.

**Table 2. Previously recorded but unevaluated historic and architectural resources within the Study Area.**

OPRHP Identifier	Property Name & Address	Town	Comments
04912.000063	2705 Rector Rd.	Montague	Within the Project's topographic viewshed.

### 3.3 ARCHITECTURAL SURVEY RESULTS

The initial survey of the two-mile "ring" was completed by JMA in August 2007 and included 4 properties. An additional 4 properties which, in the opinion of JMA, satisfy NRHP/SRHP eligibility criteria, were inventoried in the remainder of the 5-mile viewshed in September 2007.

Of the 4 previously recorded NRHP/SRHP listed or eligible properties in the Study Area (Table 1), three were dropped from further consideration because they are outside the topographic viewshed.

The single previously inventoried but unevaluated property listed in Table 2 (OPRHP 04912.000063), in the opinion of JMA, satisfies NRHP/SRHP eligibility criteria.

Table 3 presents a consolidated list of properties within the Project's 5-mile topographic viewshed and that are: a) properties previously determined by OPRHP to meet NRHP/SRHP eligibility criteria; or b) properties inventoried and/or evaluated by JMA which in the opinion of JMA, satisfy NRHP/SRHP eligibility criteria. A total of five properties are included in Table 3.

**Table 3. Properties previously determined by OPRHP to meet NRHP/SRHP eligibility criteria, and properties inventoried and/or evaluated by JMA, which in the opinion of JMA, satisfy NRHP/SRHP eligibility criteria, and which are within the Project's 5-mile topographic viewshed.**

JMA Identifier	OPRHP Identifier	Property Name & Address	Town	S/NRHP status <sup>3</sup>	Comments
R1	04911.000084	St. Patrick's Cemetery, Maple Ridge Rd.	Martinsburg	I	The associated church has been demolished.
R2	-	6371 Poor Rd.	Martinsburg	J	
R3		2176 Pitcher Rd.	Montague	J	
R4	04912.000063	2705 Rector Rd.	Montague	J	
R5	-	Gardner Corners Cemetery, Gardner Rd.	Montague	J	

Photographs and additional information concerning the properties listed in Table 3 is included in an annotated property list (Appendix I).

The locations of the properties listed in Table 3 in relation to the boundary of the 5-mile Study Area and to the Project topographic viewshed is shown on Figure 6.

### 3.4 CEMETERIES

Within the Study Area are a small community cemetery and a cemetery associated with the now-demolished St. Patrick's Church. Both cemeteries include interments from the late-eighteenth through mid-nineteenth century and follow a rectilinear arrangement of the burials.

<sup>3</sup> I = Individually determined eligible for listing on the S/NRHP; J = In the opinion of JMA satisfy S/NRHP eligibility criteria.

In order to be considered eligible for listing in the National Register of Historic Places, a cemetery must satisfy the same criteria as any other type of property. However, it must also satisfy Criteria Consideration D: “a cemetery is eligible if it derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events ... Only that portion of a historic cemetery that retains its historic integrity can be eligible” (Andrus 1997:34-36). The integrity of a historic cemetery can be lost through the introduction of a large number of modern markers that overwhelm the historic portion of the cemetery and also through deterioration and loss of historic fabric.

In the opinion of JMA, the two cemeteries located within the Study Area satisfy both NRHP/SRHP eligibility criteria and Criteria Consideration D. The Gardner Corners Cemetery (R5) and the St. Patrick’s Cemetery (R1) meet the criteria consideration through their association with the early history of their communities. Both cemeteries have a high degree of physical integrity, retaining much of their historic fabric.

### **3.5 CULTURAL LANDSCAPES**

A cultural landscape is “a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein associated with a historic event, activity, or person, or that exhibits other cultural or aesthetic values.” (Page, Gilbert, and Dolan 1998:129). All landscapes impacted by human activity are cultural landscapes.

There are four types of cultural landscapes: ethnographic, historic designed, historic vernacular, and historic site. The cultural landscape in the Study Area is largely a historic vernacular landscape. This is “a landscape whose use, construction, or physical layout reflects endemic traditions, customs, beliefs, or values. The expression of cultural values, social behavior, and individual actions over time is manifested in physical features and materials and their interrelationships, including patterns of spatial organization, land use, circulation, vegetation, structures, and objects. The physical, biological, and cultural features of the landscape reflect the customs and everyday lives of people” (Page, Gilbert, and Dolan. 1998:136). The Study Area landscape reflects its agricultural and extractive heritage, from the New England settlers of the early nineteenth century, through the recreational uses and dairy farms of the twenty-first century.

The Maple Ridge Wind Farm is located immediately north and northwest of the Study Area. This 195-turbine wind farm dominates the surrounding landscape, including the eastern part of the Study Area.

In order to be considered eligible for listing in the National Register of Historic Places, a historic vernacular landscape must be associated with an important historic context (i.e., it must be historically be significant) and retain sufficient integrity to convey this significance.

The northeastern part of the Study Area retains visible remnants of the nineteenth- and twentieth-century patterns of agricultural land use, such as field boundaries, roads, and property lines. The southern and western parts of the Study Area, however, have never been actively cultivated or developed, and have been used primarily for logging since the mid-to-late-nineteenth century. The landscape in the southern and western parts of the Study Area is largely forest in various stages of re-growth traversed by unimproved roads. The topography and vegetation within the southern and western parts of the Study Area is such that distant views and/or wide vistas are generally not available from public rights-of-way.

Most of the buildings within the Study Area represent vernacular building traditions rather than pure academic styles of architecture. While many of the farmsteads of the northern part of the Study Area retain some historic buildings, although most have additions or have been replaced with modern buildings, such as pole barns and ranch houses. In the southern part of the Study Area, numerous camps, consisting of modern dwellings on small lots, dot the roads.

During the nineteenth and early twentieth century, the Study Area was known for its dairy production, especially its cheese. There are few resources remaining in the Study Area that relate directly to these two areas of significance. No cheese factories remain, even though there was an operational cheese factory in the Town of Montague as late as 1945. The overall agricultural product in Lewis County, however, remains dairy farming.

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## 4.0 ANALYSIS AND CONCLUSIONS

### 4.1 VISUAL IMPACTS TO HISTORIC PROPERTIES

In accordance with the SHPO *Guidelines*, consideration of visual impacts to significant historic properties (including landscapes) was confined to the area within five miles of any of the proposed wind turbine generator (WTG) locations which would also have views of one or more WTGs. However, it should be noted that while OPRHP has never articulated the basis for the recommendation that analyses be limited to five miles, there is a basis for the five mile limitation beyond the fact that it has historically been the distance used by OPRHP and other state agencies in conduction assessments of visual impacts to historic properties. [A five mile viewshed is frequently used by the NYS Department of Public Service in the course of their review of electric generation and transmitting projects, even though New York States Article VII regulations for permitting electric transmission lines only require information for the area within three miles of a proposed transmission line right-of-way (16 NYCRR 86.3(1)(iii).]

At least two reports issued by the European Commission suggest that the five mile limit placed on analyses by OPRHP may, in fact, result in a conservative analysis of visual impacts. These reports note “there is unlikely to be any significant visual impact at a range greater than 6 km” (Berry et al. 1998:163, Eyre 1995). One of these (Berry et al 1998) was based on a review of environmental assessments for wind farms in the United Kingdom.

Another report by the Royal Commission on Environmental Pollution notes that although wind turbines sited on high ground or coasts can be visible from at least 20 km, “they are not prominent at more than 6 km” [3.7 miles] (Eyre 1998).

In further support of the five mile limit to analyses is another study to determine the threshold of visual impact from wind turbines (Bishop 2002). That study found that the ability of an observer to detect a turbine drops significantly at distances between 8 and 12 km (5.0-7.5 miles) in clear conditions, and at distances between 7 and 9 km (4.3-5.6 miles) in light haze. The same study also concluded that virtually all views perceive a “visual impact” (as distinct from the ability to detect or recognize) when the distance is two miles or less, but less than 10 percent of observers identify a “visual impact” at a distance of 6,000 m (3.7 miles) in clear conditions.

Most of the studies cited above are based on assumed turbine heights of 95 m or less. The turbines proposed for the Roaring Brook Project will include a three-bladed rotor, with a diameter of 90-meters (295-foot), mounted on a 100-meter (328-foot) tubular steel tower. The result will be a maximum height of 145 m (475 ft). The degree to which increase turbine height increases visibility is, however, not straight forward. Distance, contrast, and atmospheric scattering, as well as object size must all be considered when assessing object visibility. The relationship between object visibility and distance is not a simple geometric one. As noted in one analysis of landscape visibility, the shape of atmospheric extinction curves, which directly relate to visibility, “are clearly continuous exponentials and not linear or step functions” (Felleman 1986). The report of the National Research Council’s Committee on Environmental Impacts of Wind Energy Projects notes that the “difference between a 200-foot turbine and a 360-foot turbine (hub or nacelle height) can be difficult to perceive, especially when the turbines are seen against the sky” (NRC 2007:264).

The distinction between “impact” and “detection or recognition” is important. The NYS Department of Environmental Conservation’s program policy on assessing and mitigating visual impacts notes that “mere visibility should not be considered a threshold for decision making” and that a “project, by virtue of its visibility, must clearly interfere with or reduce the public’s enjoyment and/or appreciation of the appearance of an inventoried resource” (NYSDEC 2000:9). However, the criteria of adverse effect called out in both federal (36 CRR 800.5a) and New York State (Section 428.7 of the NYS Historic Preservation Act) regulations, to be used in evaluating a proposed project’s effect on historic properties, define an adverse effect more precisely. The federal regulation states that adverse effects on historic properties include “Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property’s setting that contribute to its significance.” The regulation states that an adverse impact may occur when a project (undertaking) “is likely to cause . . . introduction of visual, audible or atmospheric elements which are out of character with the property or alter its setting.”

The distance of the five historic properties within the Project's 5-mile viewshed to the nearest Project turbine is presented in Table 4. It is important to note that a property is considered to be within line-of-sight no matter how much of a turbine is visible. The information in Table 4 does not distinguish between properties from which only the tip of a turbine blade is visible at it rotates, and properties which will have views of entire turbine structures.

Table 4 also identifies those properties which are not located within the 5-mile viewshed when the screening effects of forest cover are considered (see Figure 7). Rather than eliminate these properties from further consideration, they are treated here as being in the Project's viewshed only during the defoliate season, and as being subject to a lesser degree of visual effect.

**Table 4. Distance from historic properties in the 5-mile viewshed to the nearest Project turbine.**

JMA Identifier	Property Name & Address	Distance to nearest turbine (miles/km)	Within 5-mile viewshed with vegetation present
R1	St. Patrick's Cemetery, Maple Ridge Rd.	2.55 miles/4.10 km	No
R2	6371 Poor Rd.	1.3 miles/2.09 km	No
R3	2176 Pitcher Rd.	2.5 miles/4.02 km	No
R4	2705 Rector Rd.	2.8 miles/4.51 km	No
R5	Gardner Corners Cemetery, Gardner Rd.	4.5 miles/7.24 km	yes/partial

JMA believes that a conservative approach has been used in the analysis that follows. The computer-generated viewshed maps used to determine visibility make no distinction between views that will include entire turbines, and views that may include only the tip of a turbine blade as it rotates (although this has been considered in assessing visual impacts associated with individual properties). Finally, no consideration is given to the number of turbines visible. The visual intrusion of a single turbine into the setting associated with a historic property is treated as an effect.

#### ***Affected Properties within Two Miles of a Proposed Turbine Location***

Of the five properties considered in this analysis, only one (R2: 6371 Poor Road), located approximately 1.3 miles from the nearest proposed turbine location, is located less than two miles from a Project facility. R2 is located on the west side of the adjacent public right-of-way (Poor Road). Topography and vegetation surrounding the property result in the best view of the property (Photograph 1) being from the north. Views from this location will not include a view towards the Project, which will be beyond the periphery of viewers. Viewers looking southeast from the north side of R2 will also be facing the Project (Photograph 2). Large trees in the foreground severely limit views in that direction. It is possible that turbine blade tips *may* be visible from this location during the defoliate season. Because of the limited angle of view (which is from private property), the foreground vegetation between the property and the Project, and the fact that only blade tips *may* be visible from the limited vantage points during the defoliate season only, in the opinion of JMA, the Project will not have an adverse visual effect on R2..

#### ***Affected Properties between 2.0 and 3.7 Miles from Project Facilities***

Of the five properties considered in this analysis, three are located between 2.0 and 3.7 miles from a Project facility. R3 (2176 Pitcher Rd.) is located approximately 2.5 miles from the nearest proposed WTG location. The best views of this property from the adjacent public right-of-way are from locations immediately south of the property (Photograph 3) looking towards the northeast. Project elements will be at (and potentially visible) or beyond the periphery of observers of R3 from this point. Observers of R3 from points along Pitcher Road north of R3 will be facing southeast and towards the Project (Photograph 4). From this location views of the Project will be blocked by R3 itself, and foreground and middle-distance vegetation. This is confirmed by the viewshed analysis (Figure 7). Because of the limited angle of view (which is from private property), the foreground vegetation between the property and the Project which will bloc views during the foliate season, and the fact that only blade tips *may* be visible from the limited vantage points during the defoliate season only, the Project will exist, in the opinion of JMA, the Project will not have an adverse visual effect on R3.

St. Patrick's Cemetery (R1) is located on the north side of Maple Ridge Road, approximately 2.55 miles from the nearest proposed WTG site. Observers of the cemetery, looking towards the northeast from Maple Ridge Road will be facing the Project (Photograph 5) and it is possible blade tips will be visible in views from this location that also include views of the cemetery. Observers of the cemetery from directly in front of its presumptive entrance (Photograph 6) will be facing north and will not see the Project. Views to west (facing the Project) from within the cemetery are illustrated in Photographs 7 and 8. Although technically within the computer-generated viewshed (Figures 6 and 7) it is highly unlikely that the Project will be visible above the intervening vegetation between the cemetery and the Project. Based on the viewshed analysis, it is possible that the turbine blade-tips *may* be visible, above the top of intervening vegetation, from within the cemetery, during the defoliate season only. During the balloon test carried out in connection with the visual impact assessment for the Project, observers located at the cemetery were unable to see any of the four balloons used during the test (EDR 2007, personal communication). In the opinion of JMA, if any change will, in fact, occur, resulting from the introduction of limited views of WTG elements from within the cemetery, these changes will be so minimal that it can not be considered constitute an adverse visual effect on St. Patrick's Cemetery.

R4 (2705 Rector Road) is located on the north side of Rector Road, approximately 2.8 miles from the nearest proposed WTG location. Views of this property from the adjacent public right-of-way, will not include the Project, which will be behind the backs of viewers of R4 from Rector Road. In the opinion of JMA, R4 will not be visually affected by the Project.

#### ***Affected Properties More than 3.7 Miles from Project Facilities***

Only one inventoried property, Gardner Corners Cemetery (R5) is located more than 3.7 miles from the Project. The cemetery is located along the south side of Gardner Road, approximately 4.5 miles from the nearest proposed WTG location. Any potential visual impacts will be significantly mitigated by this distance. Photograph 9 is a view facing southeast (towards the Project) from within the cemetery. Although the computer-generated viewshed (Figures 7) indicates that proposed WTGS may be visible from a small area within the southern portion of the cemetery, it is highly unlikely that the Project will be visible above the intervening vegetation between the cemetery and the Project. A photosimulation (Figure 8) prepared for the Project supports this conclusion. The simulation shows the expected appearance of several proposed turbines on the distant horizon. The nearest of these is approximately 4.2 miles from the viewpoint. (The large turbine in the foreground is existing, and located a distance of 1100 feet from the viewpoint). That view point (located along Gardner Road, approximately 4.5 miles east of Gardner Corners Cemetery) is at an elevation of approximately 1720 ft ASL, the same elevation as Gardner Corners Cemetery. Although Gardner Corners Cemetery retains a high degree of physical integrity, the integrity of its visual setting is reduced by the presence of an overhead utility line which passes above the cemetery, paralleling Gardner Road. Support structures are visible from various locations within the cemetery (Photograph 10). In the opinion of JMA, Gardner Corners Cemetery will not be visually affected by the Project.

## **4.2 NOISE IMPACTS TO HISTORIC PROPERTIES**

The introduction of audible elements that diminish the integrity of a historic property's significant historic features can result in an adverse effect to the historic property. Operating wind turbines generate mechanical, electrical and aerodynamic noise. The exact noise level at any given point in the vicinity of a wind turbine is affected by a variety of variables including distance from the source(s) and attenuating factors such as intervening topography and shielding factors such as structures or trees.

A noise assessment has been prepared for the Roaring Brook Wind Project (Hessler 2007). Figure 9 shows the predicted sound contours (dBA) in the Project vicinity during Project operation.

“The sound emissions from the project are shown out to a limit of 35 dBA because this sound level represents the point where project noise is likely to become insignificant relative to typical background sound level found in rural areas during moderately windy conditions. Based on many field surveys in New York State and elsewhere, a residual, or L90, background level of between 35 and 43 dBA is very commonly measured in rural areas during wintertime, leaf-off conditions

when the wind is blowing in at around 6 to 8 m/s – the speed when turbine noise usually first begins to be significant” (Hessler 2007:3).

NYSDEC policy states that increases in noise levels ranging from 0-3 decibels “should have no appreciable effect on receptors [and i]ncreases from 3-6 dB may have potential for adverse noise impact only in cases where the most sensitive of receptors are present” (2001:13). This is consistent with other studies, including studies done specifically for wind farms. For example, guidelines issued by the Environmental Protection Agency of South Australia states “If noise generated does not exceed the background noise by more than 5 db(A) the impact will be marginal and acceptable” (SAEPA 2003:2).

The results of the noise analysis as shown on Figure 9 indicate that all the properties discussed in this analysis are located beyond the 35 dBA contour and will not incur any increase in noise levels as a result of Project operation.

### **4.3 CONCLUSIONS**

In the opinion of JMA, construction and operation of the Project will have no effect on significant historic architectural resources. No additional studies are recommended, and no mitigation measures will be necessary.

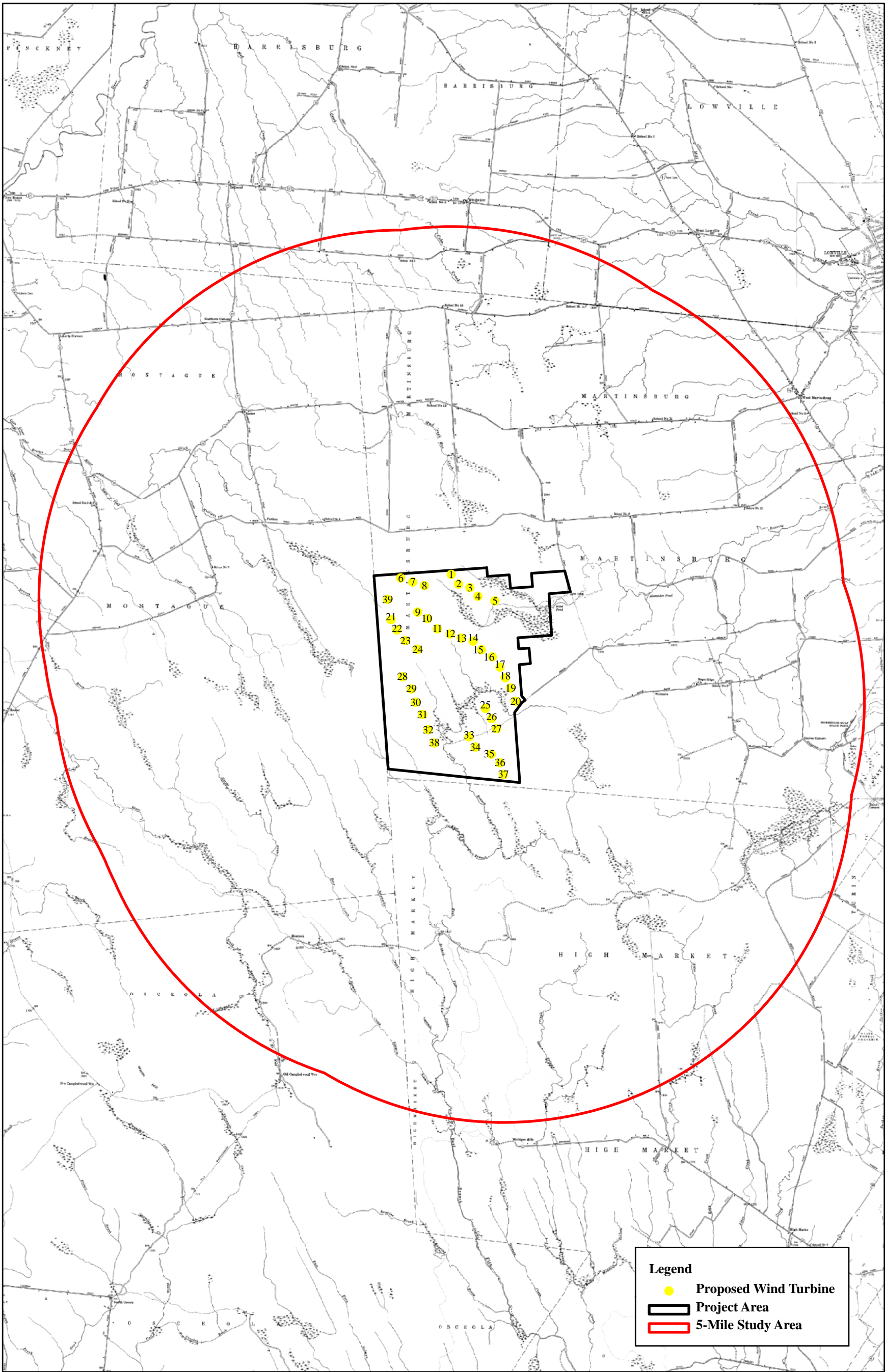
The proposed Project will also include the construction of a 10-mile-long 34.5 kV electrical interconnection line and substation/point of interconnection facility. After the precise route of the interconnection line has been finalized, JMA recommends that additional Phase 1 survey work be conducted to address any cultural resources concerns associated with the proposed interconnection line and substation.

## 5.0 REFERENCES CITED

- Andrus, Patrick W.  
1997 *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation*. National Register Branch, National Park Service, Department of the Interior, Washington, D.C.
- Beers, D.G.  
1875 *Atlas of Lewis County, New York*. Pomeroy, Whitman, and Company, Philadelphia.
- Berry, J.E., M.R. Holland, P.R. Watkis, R. Boyd and W. Stephenson  
1998 *Power Generation and the Environment-a UK Perspective, Volume 1*. European Commission, Brussels.
- Bowen, G. Byron  
1970 *History of Lewis County New York 1880–1965*. The Board of Legislators of Lewis County, Lowville, NY.
- Durand, Loyal Jr.  
1967 The Historical and Economic Geography of Dairying in the North Country of New York State. *Geographical Review*. 57(1):24-47.
- Ellis, David M., James A. Frost, Harold C. Syrett, and Harry J. Carmen  
1973 *A History of New York State*. Cornell University Press, Ithaca, NY.
- Eyre, N.J.  
1995 Externalities of Energy, “Extern E” Project. Volume 6, Wind and Hydro, Part 1 Wind, pp. 1-121. Report No. EUR 16525. European Commission, Brussels.
- 1998 Environmental Impacts of Energy. Paper prepared as background to Study on Energy and the Environment. Royal Commission on Environmental Pollution, London.  
<http://www.rcep.org.uk/studies/energy/98-6064/eyre.htm#3.4>
- Felleman, John P.  
1986 Landscape Visibility, in *Foundations for Visual Project Analysis*, edited by Richard C. Smarden, James F. Palmer and John P. Felleman, pp. 47-62. John Wiley and Sons, New York.
- French, J.H.  
1860 *Gazetteer of the State of New York*. R. Pearsall Smith, Syracuse.
- Hessler, David M.  
2007 Noise Modeling Study and environmental Impact Assessment, Roaring Brook Wind Farm Project, Lewis County, New York. Report No. 1802-091507-A prepared for PPM Energy, Inc., by hessler Associates, Inc., Haymarket, Virginia.
- Hough, Franklin B.  
1883 *History of Lewis County, New York*. D. Mason & Co., Syracuse.
- Klein, Joel I., Cara Wise, Margaret M.W. Schaeffer, and Sydne B. Marshall  
1985 An Archeological Overview and Management Plan for Fort Drum. Report prepared by Envirosphere Company, New York, for the U.S. Department of the Interior, National Park Service, Philadelphia.
- Klein, Milton M. (editor)  
2001 *The Empire State: A History of New York*. Cornell University Press, Ithaca and London.
- Ligowsky, A.  
1857 *A Topographical Map of Lewis Co., New York*. Philadelphia, PA.

- 
- New York State Department of Environmental Conservation [NYSDEC]  
 2000 *Program Policy: Assessing and Mitigating Visual Impacts.*
- National Research Council [NRC]  
 2007 *Environmental Impacts of Wind Energy Projects.* The National Academies Press: Washington.
- New York State Department of environmental Conservation [NYSDEC]  
 2000 *Assessing and Mitigating Visual Impacts*, Program Policy, DEP-00-2. NYSDEC, Albany, New York.
- 2001 *Assessing and Mitigating Noise Impacts*, Program Policy, DEP-00-1. NYSDEC, Albany, New York.
- Office of Parks, Recreation, and Historic Preservation [OPRHP]  
 2006 *New York State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work.* New York State Office of Parks, Recreation, and Historic Preservation, Waterford.
- Panamerican Consultants, Inc. [PCI]  
 2001 Phase 1 Cultural Resources Investigation for the Proposed Wetlands Restoration on the Hanno Property in the Town of Martinsburg, Lewis County, New York. OPRHP Project Review Number 99PR4466. Report prepared for the USDA, Natural Resources Conservation Service, Syracuse, New York by Panamerican Consultants, Inc., Buffalo.
- Page, Robert, Cathy A. Gilbert, and Susan A. Dolan  
 1998 *A Guide to Cultural Landscape Reports: Contents, Processes, and Techniques.* Park Historic Structures and Cultural Landscapes Program, Cultural Resource Stewardship and Partnerships, National Park Service, U.S. Department of the Interior. Washington, D.C.
- Tooker, Elisabeth  
 1978 The League of the Iroquois: Its History, Politics, and Ritual. In *Northeast: Handbook of North American Indians*, Volume 15, edited by Bruce G. Trigger, pp. 418–441. Smithsonian Institution Press, Washington, DC.
- United States Geological Survey (USGS)
- 1966 Glenfield, NY. 7.5-minute Series Topographic Quadrangle. US Department of the Interior, Geological Survey, Denver. Scale 1:24,000.
- 1980a High Market, NY. 7.5-minute Series Topographic Quadrangle. US Department of the Interior, Geological Survey, Denver. Scale 1:24,000.
- 1980b New Boston, NY. 7.5-minute Series Topographic Quadrangle. US Department of the Interior, Geological Survey, Denver. Scale 1:24,000.
- 1980c North Osceola, NY. 7.5-minute Series Topographic Quadrangle. US Department of the Interior, Geological Survey, Denver. Scale 1:24,000.
- 1980d Page, NY. 7.5-minute Series Topographic Quadrangle. US Department of the Interior, Geological Survey, Denver. Scale 1:24,000.
- 1980e Sears Pond, NY. 7.5-minute Series Topographic Quadrangle. US Department of the Interior, Geological Survey, Denver. Scale 1:24,000.
- 1980f West Lowville, NY. 7.5-minute Series Topographic Quadrangle. US Department of the Interior, Geological Survey, Denver. Scale 1:24,000.

## Figures



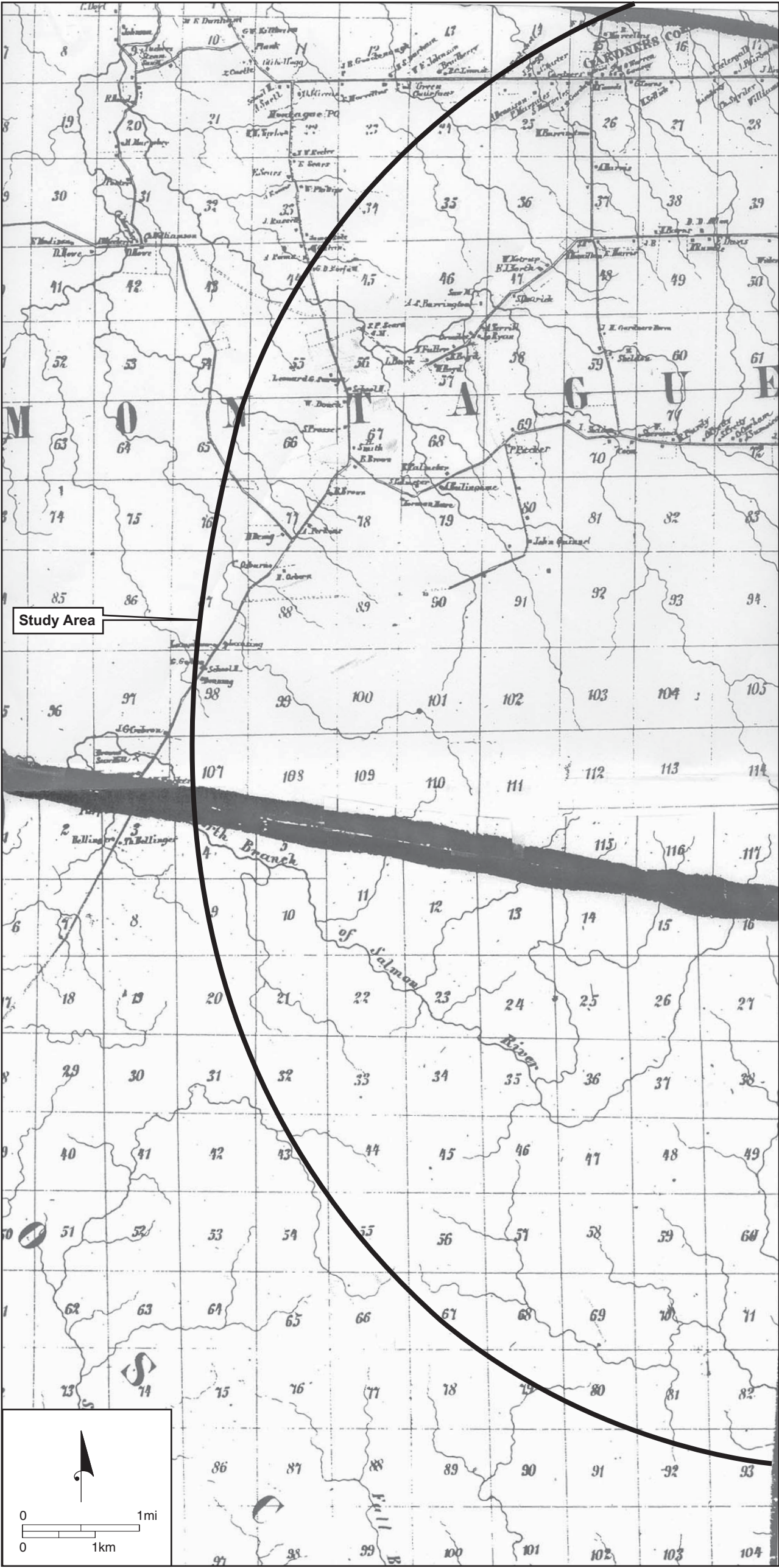


Figure 2. Detail of 1857 Ligowsky *A Topographical Map of Lewis Co. New York* (Towns of Montague and Osceola), showing the Roaring Brook Wind Project Study Area.



Figure 3. Detail of 1857 Ligowsky *A Topographical Map of Lewis Co. New York* (Towns of Harrisburg, High Market [now West Turin], Lowville, and Martinsburg), showing the Roaring Brook Wind Project Study Area and Project Area.

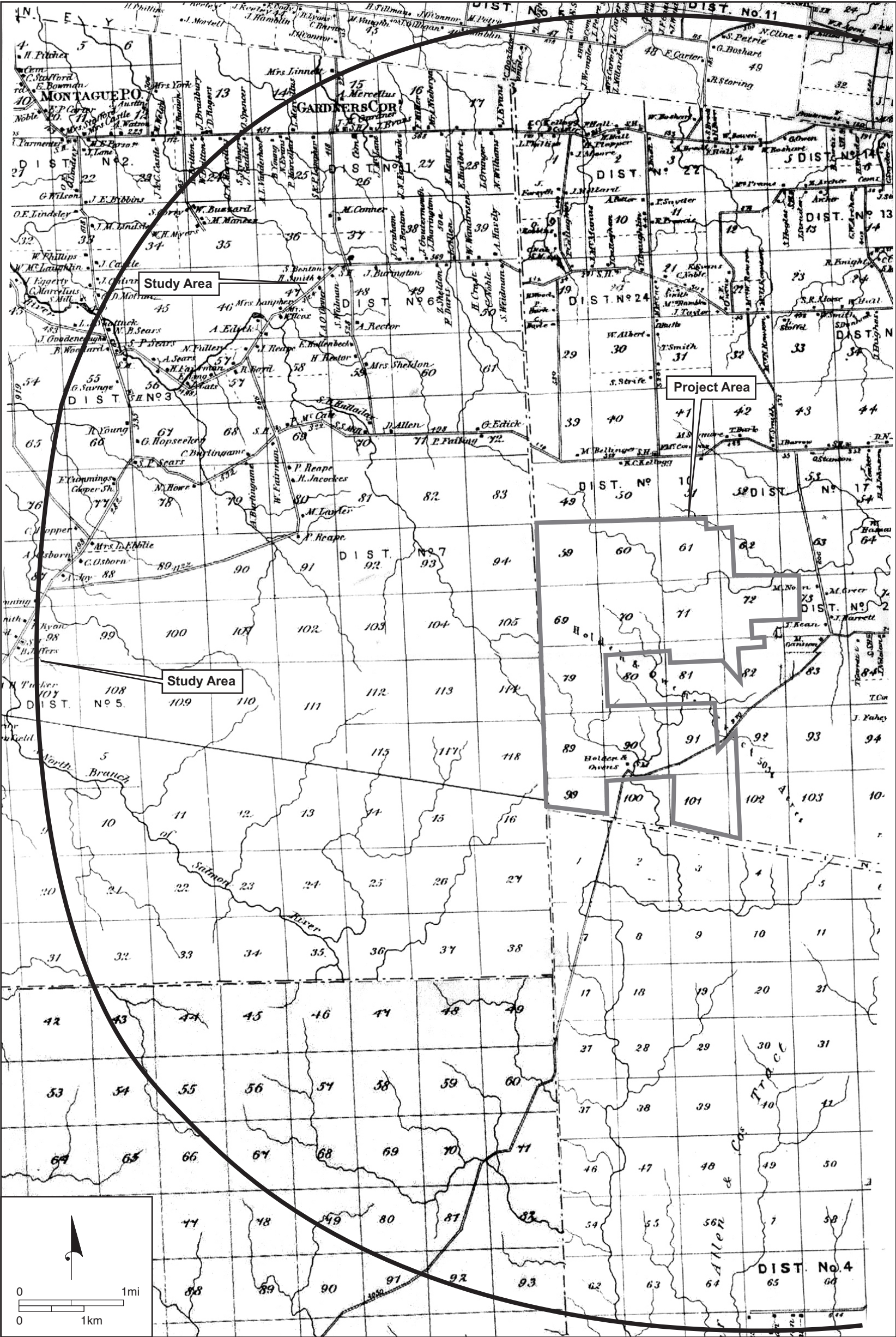
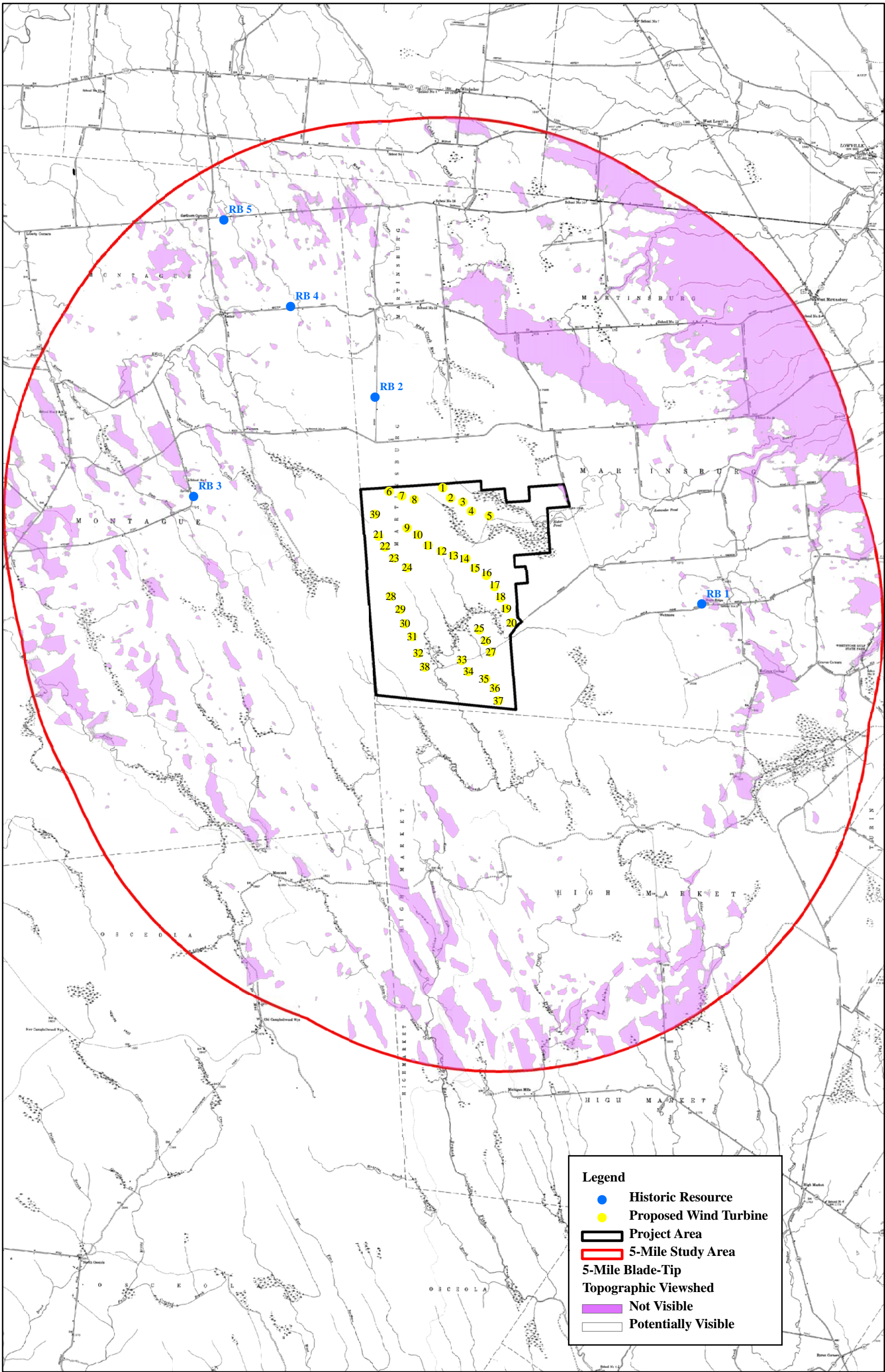



Figure 4. Detail of 1975 Beers Atlas of Lewis Co., New York (Towns of Harrisburg, High Market [now West Turin], Martinsburg, Montague, and Osceola), showing the Rearing Brook Wind Project Study Area and Project Area.



Figure 5. Detail of 1975 Beers *Atlas of Lewis Co., New York* (Towns of Harrisburg, High Market [now West Turin], Lowville, and Martinsburg), showing the Roaring Brook Wind Project Study Area and Project Area.



 **JMA** architects  
archeologists  
planners  
John Miner Associates, Inc.

0 0.5 1 2 Miles  
0 1 2 4 Kilometers

Figure 6. NYSDOT quadrangles showing the potential visibility of proposed wind turbines from identified historic-architectural resources within 5 miles of the Roaring Brook Wind Farm taking into account the effects of intervening topography.

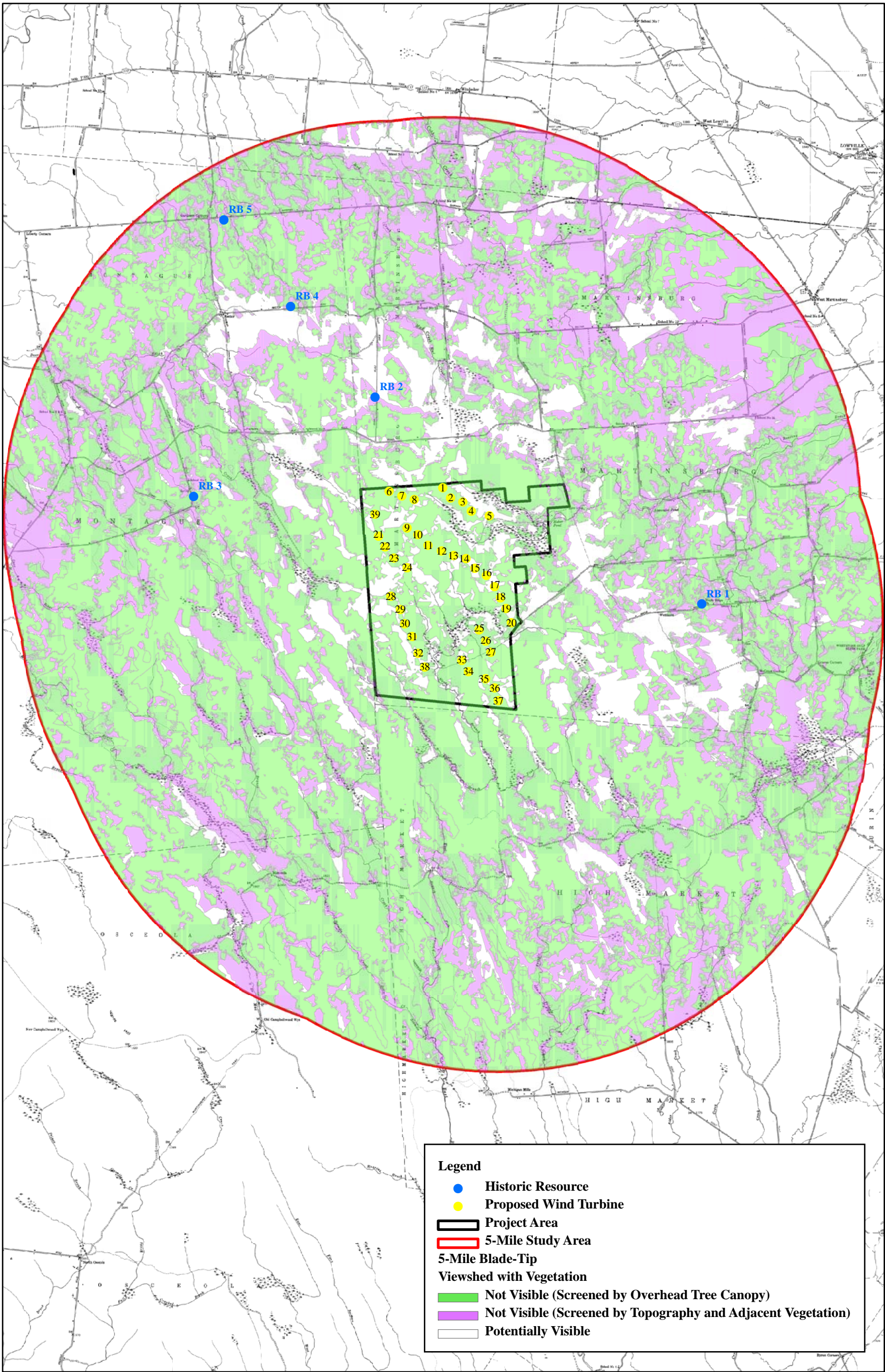


Figure 7. NYSDOT quadrangles showing the potential visibility of proposed wind turbines from identified historic-architectural resources within 5 miles of the Roaring Brook Wind Farm taking into account the effects of overhead tree canopy and intervening topography and vegetation.

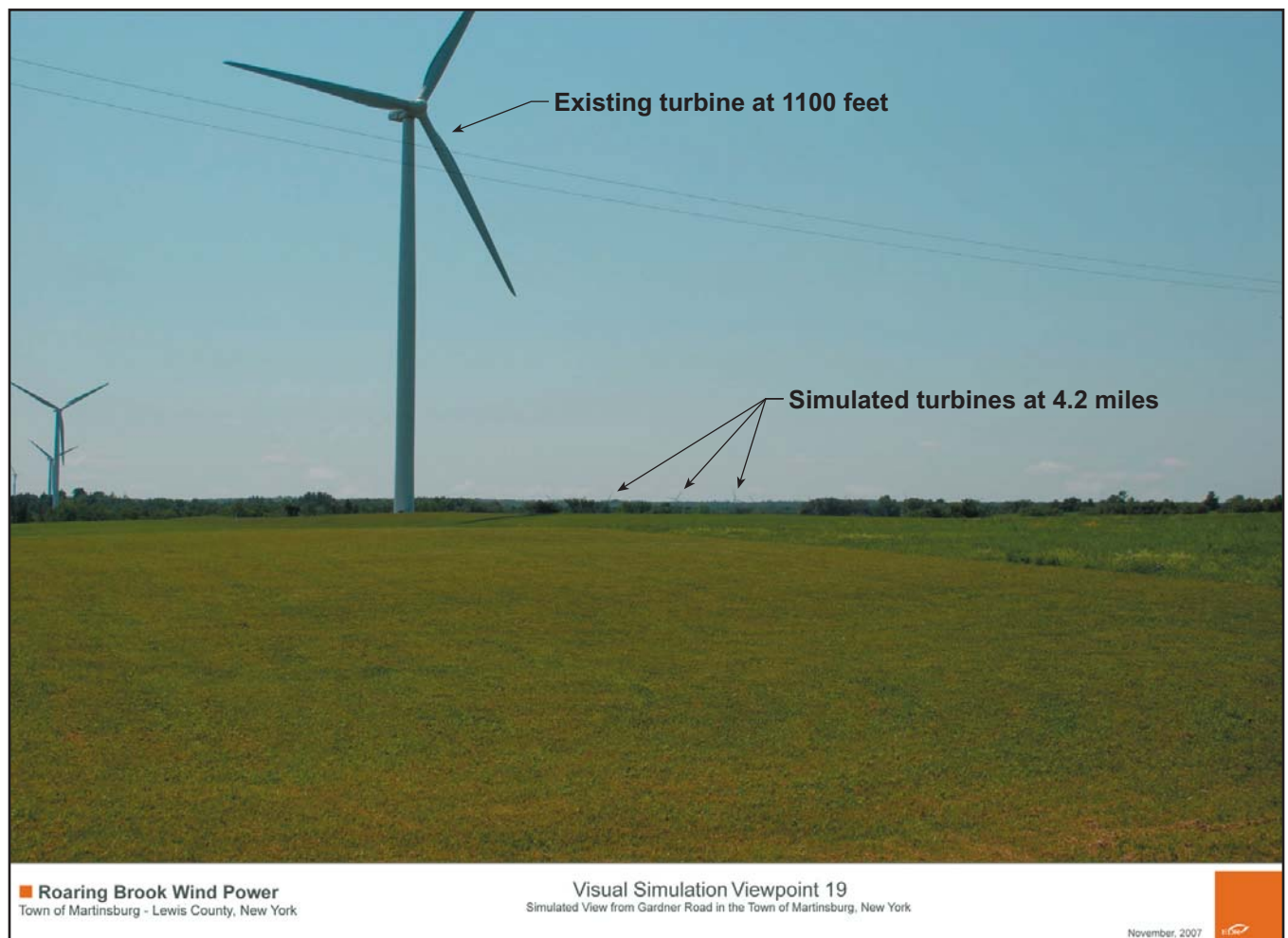


Figure 8. Photosimulation showing appearance of proposed turbines at a distance of approximately 4.2 miles from the observer. The large turbine in the foreground is existing, and located approximately 1100 feet from the observer.

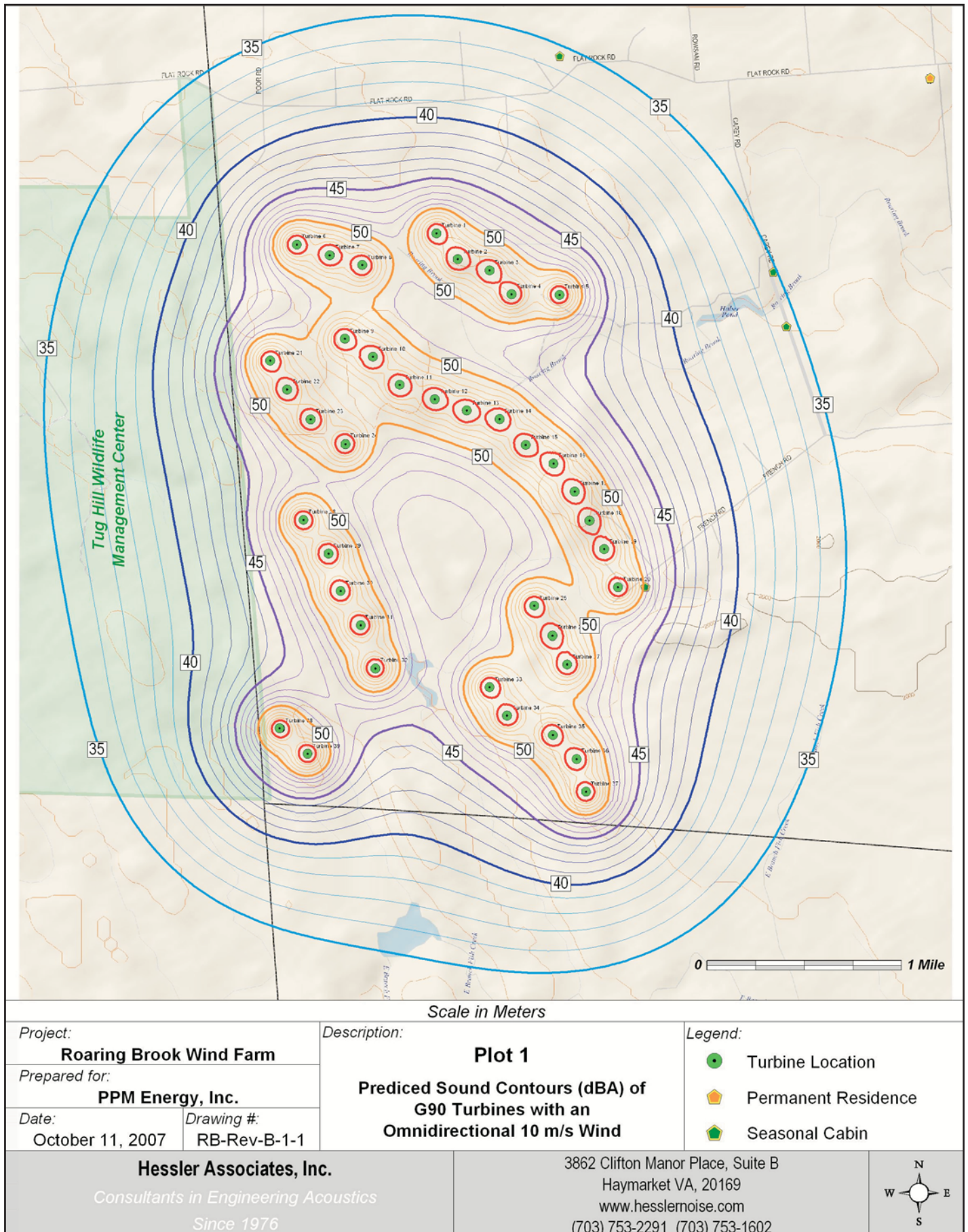


Figure 9. Noise contour map.

## Photographs



Photograph 1. R2 (6371 Poor Road) as seen from Poor Road. View towards southwest.



Photograph 2. R2 (6371 Poor Road). View towards southeast towards Project.



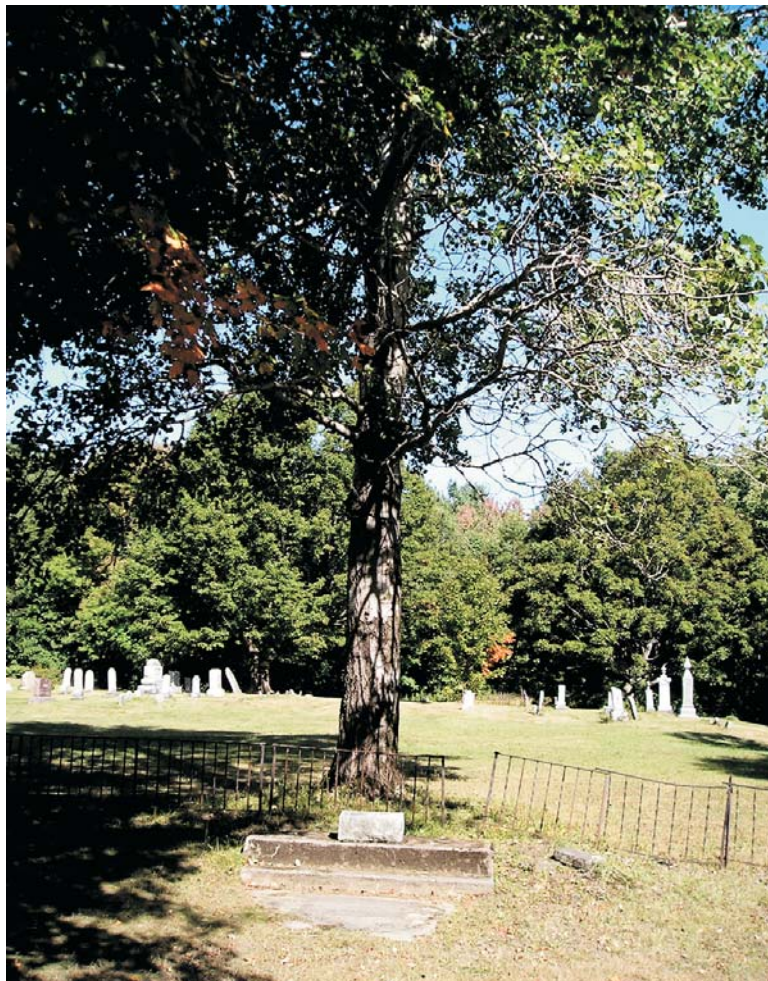
Photograph 3. R3 (2176 Pitcher Road) as seen from Pitcher Road. View towards east.



Photograph 4. R3 (2176 Pitcher Road) as seen from Pitcher Road. View towards southeast towards Project.



Photograph 5. St. Patrick's Cemetery (R1) as seen from Maple Ridge Road. View from outside southeast corner of the cemetery facing west towards the Project.



Photograph 6. St. Patrick's Cemetery (R1) as seen from Maple Ridge Road. View towards north.



Photograph 7. St. Patrick's Cemetery (R1) as seen from its southeast corner. View towards the west towards the Project.



Photograph 8. St. Patrick's Cemetery (R1) as seen from within the cemetery. View towards the west towards the Project.



Photograph 9. Garner Corners Cemetery (R5) as seen from within the cemetery. View towards the southeast towards the Project










Photograph 10. Garner Corners Cemetery (R5) as seen from within the cemetery. View towards the east towards the Project. Note overhead utility line.

Appendix I:

Annotated Historic Properties List

Annotated List of Properties – Roaring Brook Wind Project

 <p>photo R1-1</p>  <p>Photo R1-2</p>	<p>04911.000084 St. Patrick's Cemetery Maple Ridge Rd. Martinsburg Lewis County MCD: 04911 Map point: R1 Date: ca. 1861-1995 Original use: cemetery Current use: cemetery NR Criterion: A NR Criteria Consideration: D NR status: determined individually eligible</p>	<p>This cemetery is associated with the former St. Patrick's Catholic Church. This church was founded in 1859 and closed in 1944. The church building has been demolished, but the original front steps remain just beyond the southern cemetery fence. Most of the burials within this cemetery are from the 1860s-1920s, with a few from the 1940s and 1990s. This cemetery Criteria Consideration D through its association with the early history of the Town of Martinsburg and the now-demolished St. Patrick's Church.</p>
 <p>Photo R2</p>	<p>6371 Poor Rd. Martinsburg Lewis County MCD: 04911 Map point: R2 Date: ca. 1880 Original use: residential Current use: vacant NR Criterion: C NR status: JMA recommends eligible</p>	<p>This one-and-one-half story, vernacular, hall-parlor house is three bays wide and two bays deep. The windows are double-hung sash, with vertical and horizontal two-over-two patterns. The roof is corrugated metal and the exterior is covered with clapboards. A modern pole building stands directly behind this historic structure.</p>
 <p>Photo R3</p>	<p>2176 Pitcher Rd. Montague Lewis County MCD: 04912 Map point: R3 Date: ca. 1870 Original use: residential Current use: residential NR Criterion: C NR status: JMA recommends eligible</p>	<p>This one-and-one-half story, gable-front-and-wing house stands on a stone foundation. The exterior is clad with wavy-edge clapboards and the roof is sheathed with corrugated metal. The windows are modern one-over-one, double-hung sash. Shed roof porches with square posts shelter both the front and side entrances. Concrete block chimneys are located on the front elevation and the ridge of the wing. A modern shed is located south of the house. The house has modern siding, but retains its historic form and fenestration pattern.</p>

 <p>Photo R4</p>	<p>04912.000063 2705 Rector Rd. Town of Montague Lewis County MCD: 04912 Map point: R4 Date: ca. 1870 Original use: residential Current use: vacant NR Criterion: C NR status: previously undetermined, JMA recommends eligible</p>	<p>This two-story vernacular house is surrounded by overgrown shrubbery. The T-plan house is three bays wide and three bays deep. A one-and-one-half story, cross-gable wing is located on the rear elevation of the house. The exterior is clad with clapboards the roof covered with corrugated metal. A square bay is centered on the front elevation. A now-enclosed, hipped roof porch wraps around the is front and side elevations. The windows are a mixture of wooden, two-over-two, and one-over-one, double-hung sash.</p>
 <p>Photo R5-1</p>  <p>Photo R5-2</p>	<p>Gardners Corners Cemetery Gardner Rd. Town of Montague Lewis County MCD: 04912 Map point: R5 Date: ca. 1864-2001 Original use: cemetery Current use: cemetery NR Criterion: A NR Criteria Consideration: D NR status: JMA recommends eligible</p>	<p>A wrought iron fence surrounds this cemetery, located on the south side of Gardner Rd. A road trace runs through the cemetery, with burials arranged in rows perpendicular to Gardner Rd. The cemetery is in good condition, with a few markers in deteriorated or damaged condition. Most of the burials within this cemetery are from the 1860s-1930s, with a few from the 1950s-2000s. This cemetery Criteria Consideration D through its association with the early history of the Town of Montague.</p>