

December 4, 2009

Dr. Nancy Herter
Historic Preservation Field Services Bureau
NYS Office of Parks and Recreation, and Historic Preservation
Peebles Island, P.O. Box 189
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Subject: Archaeological Model for the Phase IB Archaeological Investigation, Stony Creek Wind Farm, Wyoming County, New York.

Dear Dr. Herter,

On behalf of Mr. Jay Schoenberger of Stony Creek Energy LLC, an affiliate of Invenergy Wind North America LLC, Panamerican Consultants, Inc. is pleased to submit this field-testing plan for the above referenced project. We have prepared a list of all project components for the Stony Creek Wind Farm that is presented below in Table 1. The area of potential effect (APE) for each component is shown in acres. The total APE includes 125 acres where 59 turbines, access roads, electrical collection lines, a construction lay-down area, a substation and an Operations and Management (O&M) facility are planned. Each proposed turbine APE has a 130 ft (39.6 m) radius which includes 1.2 acres. The APE width of electrical interconnects is 4 ft (1.2 m) and is 16 ft (4.9 m) for access roads. The width is 20 ft (6.1 m) where access roads and collection lines are parallel (i.e., collinear). The APE for the O&M facility is 2.07 acres, 1.67 acres for the substation, and 7.74 acres of the laydown area. The calculated number of shovel tests that would be required to test the project area at a standard 15 m (50 ft) interval is 2,000. The percentages of the APE per local habitat areas are also shown with the relative number of shovel tests.

ENVIRONMENTAL ZONES AND LOCAL HABITAT AREAS

As requested by New York SHPO wind farm guidelines, Environmental Zones and Local Habitat Areas were assessed following Robert E. Funk's 1993 work, *Archaeological Investigations in the Upper Susquehanna Valley, New York State*. The project area is located in the western part of the dissected Allegheny Plateau and is referred to as the Cattaraugus Hills of the Appalachian Uplands (Cressey 1966: Figure 9). The Cattaraugus Hills are relatively flat-topped upland with deep intervening valleys (Cressey 1966:33). Elevations within the project area range between 1,400 ft (427 m) and 1,978 ft (603 m) AMSL. In *Roadside Geology of New York State*, the region is labeled the dissected *Allegheny Plateau* (Van Diver 1985:viii and 13). The study area discussed by Funk is within a dissected plateau (Allegheny Plateau). There are three environmental zones discussed by Funk including: valley floor, valley walls, and interfluvial (uplands) (1993:65). The project area is most comparable to the interfluvial environmental zone but it is incised with deep gullies that have similar characteristics that those of the valley walls zone. Less than one percent of the APE crosses what can best be described as a valley floor.

As best can be determined, the APE crosses five local habitat areas including: (1) summit knolls and ridges; (2) valley walls including benches along them; (3) near streams and headwaters; (4) near bogs, swamps, ponds; and, valley floor (see Funk 1993:71). The term “near” is used as defined by Funk as anything less than 100 meters (328 ft) from the feature discussed (1993:70). Other local habitats associated with the interfluvial zone including “rockshelters” and “near springs on saddles between knolls and ridges” do not appear applicable for the project area. No springs are shown within or in proximity to the APE on the current or historic USGS Quadrangles. The geography of the region is not generally sensitive for rock shelters. Table 1 shows the percentage of APE components (and acreage) within each local habitat area.

Table 1. Project components within local habitat areas.

Project Components	Total Component Acreage	Local Habitat Area				
		1 Summit knolls and ridges	2 Valley Walls (including benches)	3 Near streams and headwaters	4 Near bogs, swamps, ponds	5 Valley Floor
Percentage of the APE (rounded)		26%	41%	12%	20%	1%
Turbine (1.2 acres) (130 ft radius)	59 turbines $\times 1.2$ acres 70.8 acres	n=18 (21.6 acres) T3, T10, T11, T12, T14, T15, T17, T18, T21, T22, T23, T24, T25, T43, T44, T51, T53, T54	n=21 (25.2 acres) T5, T7, T8, T13, T19, T20, T26, T27, T28, T29, T32, T34, T36, T41, T42, T48, T49, T50, T52, T55, T56	n=6 (7.2 acres) T31, T33, T35, T37, T38, T39	n=14 (16.8 acres) T1, T2, T4, T6, T9, T16, T30, T40, T45, T46, T47, T57, T58, T59	n=0
Access Roads	18.13	4.78	6.89	3.87	2.59	0
Collection Lines	10.37	1.71	3.7	2.68	2.1	0.18
Collection Line Collinear with an Access Road	14.21	4.64	5.46	0.83	3.28	0
Substation	1.67	0	0.85	0.82	0	0
Laydown Area	7.74	0	7.56	0.18	0	0
O&M Facility	2.07	0	2.07	0	0	0
Total Acreage	124.99	32.73	51.73	15.58	24.77	0.18
Shovel Tests per Local Habitat Area (using rounded percentages)	2,000 STPs	520 STPs	820 STPs	240 STPs	400 STPs	20 STPs

Site File and Archival Review. A review of archaeological site files at the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) and the New York State Museum (NYSM) identified nine sites located within approximately one mile of the project area. None are adjacent or within the APE. Eight of the sites are historic, consisting of nineteenth-century to early twentieth-century glass and ceramics. Small amounts of construction material such as brick fragments and nails also were recovered. Remains of a collapsed structure were found in association with artifacts found at OPRHP Site #12111.000011). The one prehistoric site, NYSM 5260, is referenced by Parker (1922). No additional information was found in association with this site.

Previous Surveys. Nine cultural resources investigations are on file at the OPRHP as having been completed for projects in the vicinity of the project area. Three were conducted by Panamerican Consultants, Inc. (Hanley et al. 2007; Longiaru et al. 2007a, 2007b) (see Section 4.1). A Phase IAB investigation for the proposed Noble Wethersfield Windpark (Hanley et al. 2007) did not identify any prehistoric materials or sites. Historic artifacts recovered during the investigation were thinly scattered, not found within an historic context, and not determined eligible for listing in the National Register of Historic Places.

Examinations conducted by Herold et al. (1987), Nagel (2001), O'Donovan and Carter (2003), Dean (2006), and Baldwin and Klein (2007) all did not identify any archaeological sites. Recovered prehistoric artifacts were few in number and further investigations concluded that the finds were not of type or context to warrant site designation. Small amounts of modern cultural material were recovered during the investigations as well. These included such items as glass, ceramics and construction materials (bricks, nails). Results from a 2005 Phase IA investigation undertaken by Tetra Tech (2005) revealed documented structures and archaeological sites that are not in the APE of the Stony Creek Wind Farm.

Register Listings. A review of the New York State Register and National Register of Historic Places recorded in the files of the New York State OPRHP does not show any National Register-listed archaeological sites, structures or districts within the area of proposed turbine construction.

Prehistoric Archaeological Sensitivity. This area is generally sensitive for small seasonal camps and processing stations. Habitation of this area was likely influenced by seasonality as discussed by Funk, "During winter months, when major lakes and streams were frozen over, it seems likely that at least a few hunting groups moved into the uplands in search of deer and other game active at that time of year" (1993:74). Sensitivity for burials is generally low because the larger settlements (e.g., base camps, villages) are more likely found in the valleys. However, knolls in the uplands may be sensitive (Funk 1993:75). No additional information was available on the one reported prehistoric site (NYSM 5260) located more than 500 meters west of the APE along Tonawanda Creek in the bottom of a valley.

Historic Archaeological Sensitivity. The project area and its surroundings are and have been historically used for agriculture. The proposed turbine locations are generally set in agricultural fields (e.g., pasture, crop) well behind locations of existing and map-documented farmsteads. Sensitivity for historic middens is moderate to low. Access roads and interconnect lines will likely cross and or follow roads, which raises the likelihood that some cross or closely pass historic farmsteads. Although eight historic sites have been reported within one-mile of the project area, none have been reported within. Areas considered sensitive for historic sites are in proximity to map-documented structure locations.

A review of three historic maps (Beers and Beers [1866]; Century Map Company [1902]; and USGS 1904, 1905a, 1905b, 1925) found 23 MDS locations within or near (<100 m) the

APE. None of the MDSs are at or near the 59 proposed *Turbine* locations. Eleven MDSs are at or near locations proposed for *Access Roads*, eight near *Collection Lines*, three near *Collinear Access Roads and Collection Lines* and one MDS is near the Substation (Table 2). A total of 35 MDS locations were identified in the Phase IA report but 11 of them were determined to be further than 100 m after better location data became available.

Table 2. Map-Documented Structure (MDS) locations at or in proximity to the APE

MDS	Current Street	Map Date	Lot #/Name	Project Component and Nearest Turbine	Local Habitat Area			
					1	2	3	4
1	Halls Corner Road (NY 238)	1866 1902	16/ A. Spring 16/ O.W. Spring	Access road, 27	X			
2	Halls Corner Road (NY 238)	1866 1902	16/ C. Prentice 16/ Chas Prentice	Collection line, 22	X			
3	Buffalo Road	1866 1902	15/ W.H. Bartlett 15/ P. Eisenburg Est.	Access road, 25		X		
4	Buffalo Road	1866 1902	15/ Cemetery 15/ Cemetery	Collection line, 25				X
11	US 20A	1866 1902	13/ J. Salter 13/ G. Nevinger	Access road, 31				X
14	US 20A	1866 1902	21/ J. Misel 21/ A.A. Fargo	Collection line, 18		X		
16	Nesbitt Road	1866 1902	32/ P. Breakiener 32/ Fred Dauber	Collection line/access road, 7		X		
17	Nesbitt Road	1866 1902	31/ F. Benewith 31/ H.C. Baker	Access road, 9				X
18	Exchange Street	1866	31/ G. Kittle	Collection line, 9		X		
19	Exchange Street	1902	39/ Geo. Glasser	Collection line/access road, 4		X		
20	Centerline Road	1866 1902	28/ A. Reidsall [Reitzel] 28/ Mrs. R. Pfortor [?]	Substation, 48			X	
21	Orangeville Center Road	1902	27/ Rudolph Koch	Access road, 51				X
22	Quakertown Road	1902	27/ J. Krause	Access road, 54	X			
23	Orangeville Center Road	1866 1902	27/ J. Bowen 27/ A. Reitzel	Collection line, 43			X	
24	Orangeville Center Road	1866 1902	26/ O.C. Tilton 26/ R.B. Tilton	Access road, 43	X			
25	Orangeville Center Road	1866 1902	36/ R. Stone 36/ C.M. Tozier	Access road, 48		X		
26	Dunham Road	1866	34/ School #7	Collection line, 43			X	
27	Almeter-Wilder Road	1866 1902	34/ B. Franklin 34/ J. L. Blodget	Access road, 42			X	
28	Road no longer exists	1866	42/ Mrs. P. Wright	Collection line, 41				X
29	Syler Road	1866 1902	43/ S. Johnson 43/ G.P. Bauer	Access road, 38			X	
33	Gassman Road	1866 1902	56/ D. Spink 56/Wm A. West	Collection line, 2		X		
34	Buffalo Road	1902	56/Michael Glor	Access road, 3	X			
35	Centerline Road	1902	45 / Mrs. M. Jones	Collection line/access road, 34			X	

A grid of 143 shovel tests at 5-m intervals is proposed for each of six turbine locations. Each grid will be comprised of 13 transects of 11 shovel tests. The number of shovel tests dug will be different (fewer) than 143 at three turbine locations due to allotment limits of the local habitat area formula. Table 3 lists the 36 turbines selected relative to the local habitat areas they are within. Portions of 23 linear components will be surveyed by two transects at 5-meter intervals (40 STPs each). Their locations have been selected due to proximity of MDSs and by type of *Local Habitat Area* (see Tables 2 and 3). Each location will be designated using the arbitrarily assigned MDS number. Twenty additional shovel tests will be dug at 5-meter intervals to test the Valley Floor local habitat area/environmental zone. This location will be designated Linear A.

Table 3. Shovel tests allocated per Local Habitat Area

Project Components	Total STPs Per Component	Local Habitat Area				
		1 Summit knolls and ridges	2 Valley Walls (including benches)	3 Near streams and headwaters	4 Near bogs, swamps, ponds	5 Valley Floor
Turbine	9 locations 1,060 STPs	n=3 (320 STPs) T3, T22, T44 - 2 turbines with 143 STPs - 1 turbine with 34 STPs	n=4 (540 STPs) T8, T34, T41, and T55 - 3 turbines with 143 STPs - 1 turbine with 111 STPs	n=0	n=2 (200 STPs) T16 and T46 - 1 turbine with 143 STPs - 1 turbine with 57 STPs	n=0
Access Roads	12 locations 480 STPs	MDS 1 40 STPs, MDS 22 40 STPs MDS 24 40 STPs MDS 34 40 STPs	MDS 3 40 STPs MDS 14 40 STPs MDS 25 40 STPs	MDS 27 40 STPs MDS 29 40 STPs	MDS 11 40 STPs MDS 17 40 STPs MDS 21 40 STPs	---
Collection Lines	8 locations 300 STPs	MDS 2 40 STPs	MDS 18 40 STPs MDS 33 40 STPs	MDS 23 40 STPs MDS 26 40 STPs	MDS 4 40 STPs MDS 28 40 STPs	Linear A 20 STPs
Collection Line Collinear with an Access Road	3 locations 120 STPs	---	MDS 16 40 STPs MDS 19 40 STPs	MDS 35 40 STPs	---	---
Substation	1 location 40 STPs	---	---	MDS 20 40 STPs	---	---
Laydown Area	---	---	---	---	---	---
O&M Facility	---	---	---	---	---	---
Shovel Tests per Local Habitat Area	2,000 STPs	520 STPs	820 STPs	240 STPs	400 STPs	20 STPs

This survey breakdown follows the *New York State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work*. We appreciate a timely review. If you have any questions or require any additional information, please do not hesitate to contact Dr. Michael A. Cinquino or me at your convenience.

Sincerely,



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cc: Eric Miller, Invenergy

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