

**Ashtabula Wind Farm Project:
A Class III Cultural Resource Inventory,
Barnes County, North Dakota**

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Abstract

Tetra Tech, EC contracted Beaver Creek Archaeology, Inc (BCA) to complete a Class III Cultural Resource Inventory for the proposed Ashtabula Wind Farm turbines, access roads, substation, and transmission line (the Project), in Barnes County, North Dakota. The Project consists of 131 wind turbine generators (five acre in size each), approximately 125 miles of associated access roads, collector lines, and transmission lines (with a 250' wide corridor), and one substation (20 acres in size). The total Area of Potential Effect (APE) is approximately 3675 acres in size. In April 2008, BCA conducted the Class III Inventory in the sections for proposed wind turbines and associated roads, collector lines, and transmission lines.

The APE consisted of pasture land, native prairie and agricultural fields. Proposed turbine, access road, substation, and collector- and transmission line locations were identified using topographic and aerial maps as well as Global Positioning System hardware. Survey methods at these locations included intensive pedestrian survey. In areas with 30 percent or more ground visibility, it was adequate to perform a pedestrian survey with crew members spaced 10-15 meters apart.

During the survey, BCA archaeologists identified five (5) previously unrecorded cultural resources. Resources included two isolated finds (32BAx279 and 32BAx280), one stone circle site with a rock cairn (32BA172), one rock cairn site (32BA173), and one historic/architectural site (32BA174). As cultural resources were identified in the field, BCA and Ashtabula Wind LLC worked together to make adjustments to the locations of project components to avoid identified site boundaries. These adjustments included BCA flagging a 30 meter buffer around sites 32BA172 and 32BA173, which have been recommended potentially eligible to the National Register of Historic Places (NRHP) by BCA.

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Introduction

Tetra Tech, EC contracted Beaver Creek Archaeology, Inc (BCA) to complete a Class III Cultural Resource Inventory of the Ashtabula Wind Farm Project (the Project), in Barnes County, North Dakota (Figure 1 and 2). The Project consists of 131 wind turbine generators.

The Ashtabula Wind Farm project contains 131 wind turbine generators (five acres in size each), approximately 125 miles of associated access roads, collection- and transmission lines (with a 250' wide corridor), and one substation (20 acres in size). The total Area of Potential Effect (APE) is approximately 3675 acres in size. Surveyed proposed wind turbine locations are located in T143N R57W, T142N R58W, T142N R57W, and T141N R57W (Table 1).

Table 1. Surveyed Proposed Wind Turbine Locations

Township Name	Township	Range	Sections	Quadrangle Maps
BALDWIN	T143N	R57W	13-15; 19-20; 22; 27; 30; 32-34	Sibley, Pillsbury
ASHTABULA	T142N	R58W	11-12	Sibley
GRAND PRAIRIE	T142N	R57W	4-10; 16-18; 20-21; 28; 31-34	Sibley, Pillsbury SW
NOLTIMIER	T141N	R57W	2-6; 8-9; 11	Pillsbury SE, Pillsbury SW

BCA performed a Class III Cultural Resource Inventory of the proposed wind turbines, associated access roads, collection lines, transmission line, and substation in April 2008. Land use along the transmission line and substation consisted of CRP and agricultural land. No cultural resources were found in the transmission line corridor or proposed substation location. Land use in turbine locations and access roads consisted of native prairie, pasture, and agricultural lands. Ground visibility in these areas did not go below 25 percent, so no shovel probes were excavated. During the course of the inventory five previously unrecorded cultural resources were identified.

Intensive pedestrian survey was performed in areas where ground visibility was 25 percent or more. During the pedestrian survey, crew members were spaced 10-15 meters apart, walking parallel transects across the project area.

Proposed turbine-, collection line-, transmission line-, and access road locations were identified using Trimble Juno Global Positioning System (GPS), topographic maps, and aerial photos georeferenced in ESRI ArcView Geographic Information System (GIS).



Figure 1. Location of the APE in North Dakota

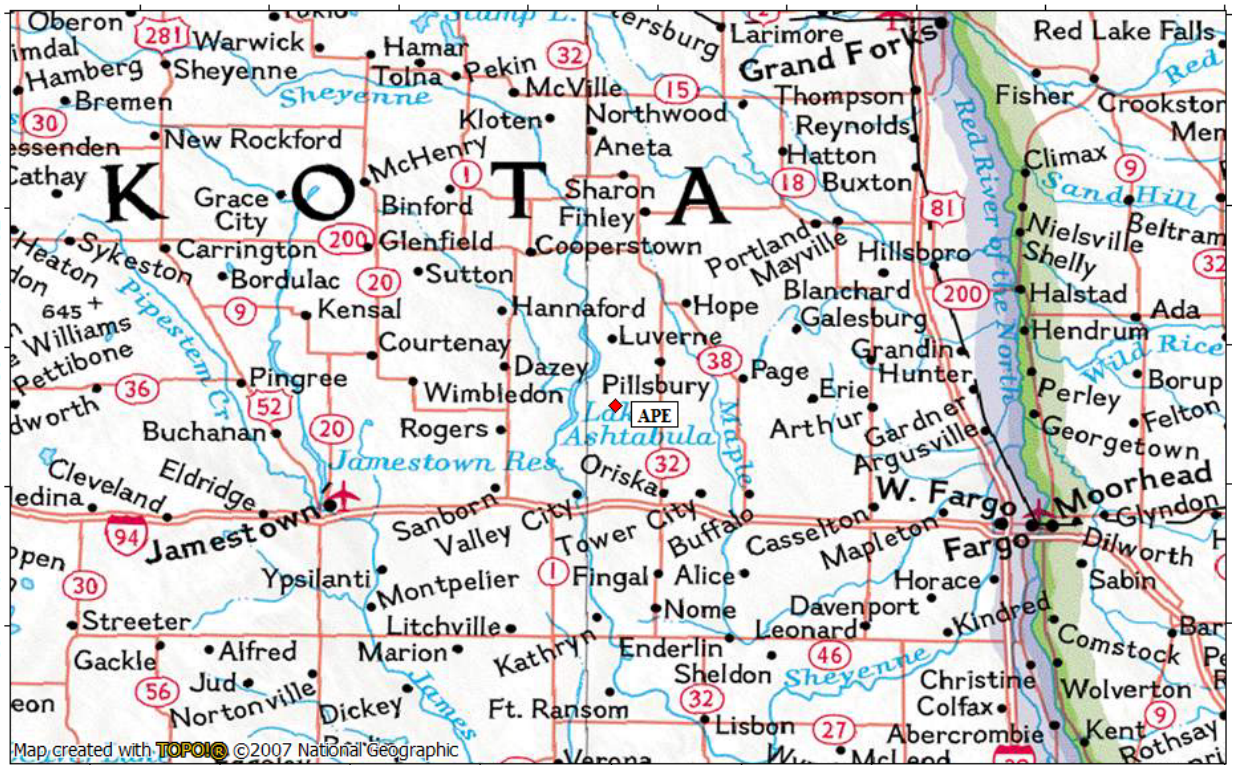


Figure 2. Location of the APE.

Project Background and Inventory Methodology

BCA cultural resource staff conducted the Class III Cultural Resource Inventory of the turbine locations, access roads, substation, and transmission line in April 2008. The field crew consisted of Christina Burns (P.I.), Wade Burns (Crew Chief), Jennifer Pollman (Archaeological Assistant), and Nicholas Roehrdanz (Archaeological Assistant). Christina Burns prepared the report. Nicolas Roehrdanz created the project maps and site form maps. Jennifer Pollman created site forms. The report and fieldwork preparation included a review of previously identified cultural resources and intensive pedestrian surveys of the APE.

All proposed 5 acre turbine locations and connecting access roads and collection lines as well as substation and transmission line corridor were surveyed during the fieldwork. A 250' corridor was surveyed along the access roads, collection -, and transmission lines. BCA archaeologists begun the survey at access road entrance and then continued to individual turbines (Figure 3). A 250' wide access road corridor was surveyed. Turbine center points and outer boundaries were identified and an intensive pedestrian survey was performed within the five acre turbine location. After completing the first turbine location along the access road, the crew would then continue surveying the access road towards the next turbine location. The substation, as well as collection lines and the transmission line that were not associated with turbines, were located in the field and surveyed individually.

The pedestrian survey was performed by lining crew members 10-15 meter apart walking in parallel transects across the APE. In areas with 25 percent or more ground surface visibility, pedestrian survey is deemed sufficient. During the project, no area fell below 25 percent ground surface visibility.

When an artifact or feature was identified, the location was marked with pin-flags and the surrounding area was intensely surveyed for additional cultural resources to determine the size and nature of the resource. When the nature of the resource was determined, the appropriate site forms were filled out, and site boundaries and features were plotted with a GPS. These GPS points were later brought into a GIS software, where site maps and sketch maps were created. The sites and general APE was photographed with a digital camera. Isolated find spots were not photographed. Throughout the project field notes were taken. Copies of maps, field noted, site forms, and photographs are located at the BCA main office in Linton, North Dakota.

Ashtabula Windfarm Class III Cultural Resources Inventory Project Overview

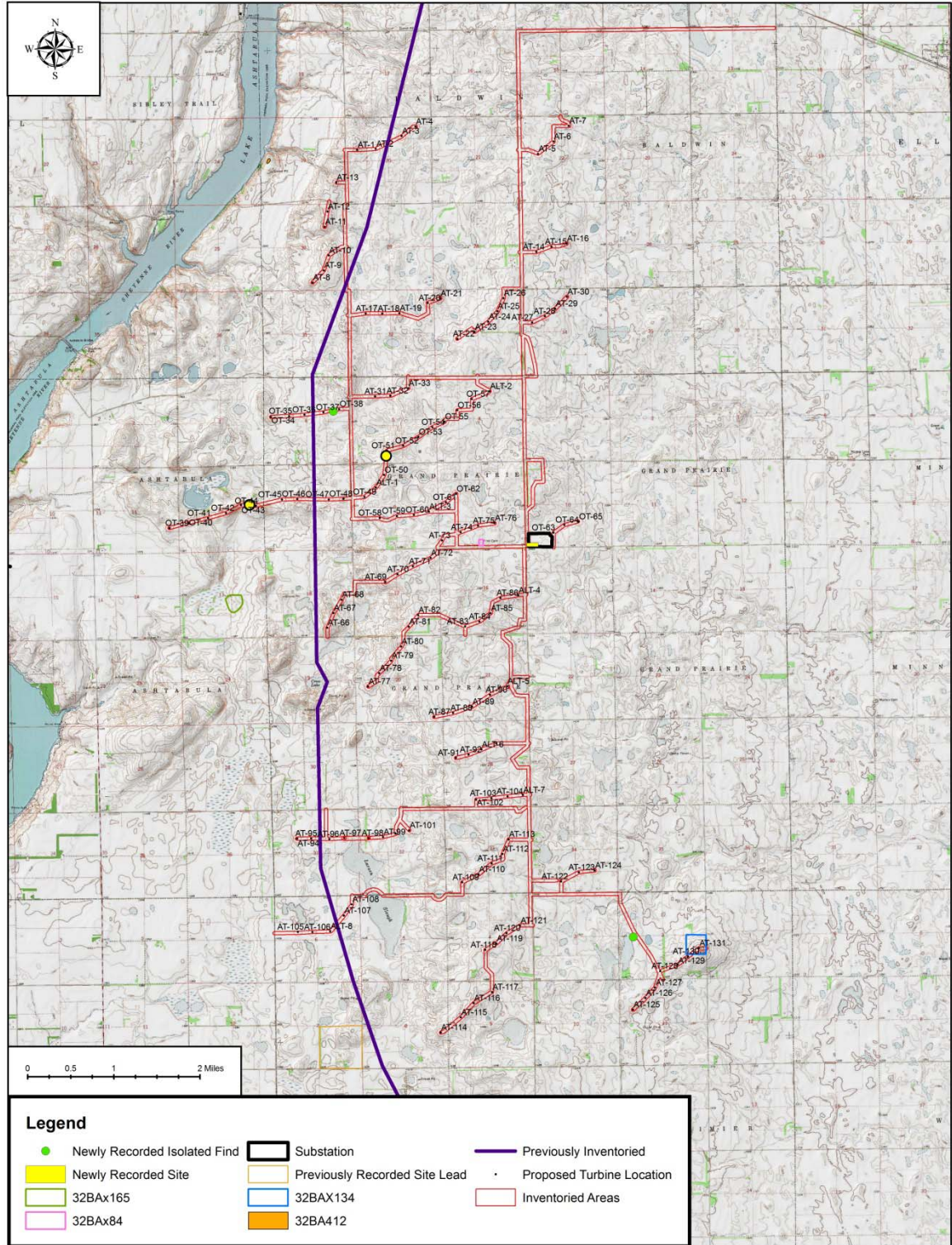


Figure 3. Turbine Locations and Access Roads

Environment

The APE is located in the Drift Prairie physiographic zone of the Central Lowlands physiographic province. This area is dotted with prairie pothole lakes and wetlands surrounded by gently rolling hills, low ridges, and swales. At the northernmost end, the project area is located less than one mile east of Lake Ashtabula, which is created by the damming of the Sheyenne River. The Sheyenne River is a major river in North Dakota, with headwaters in the central part of the state (Sheridan County) and drains into the Red River of the North by Fargo, North Dakota.

This area of North Dakota is situated in a Transition Prairie found between Mixed-grass Prairie and Tall-grass Prairie (Sedivec and Barker 1998). Green ash, cottonwood, bur oak, and grasses are found on riparian areas where chokecherries, plum rose, currants, wild plums, and prairie turnips would have been found seasonally (SHSND 1990). There is also an abundance of wetlands throughout the area.

This is a fit habitat for a number of animals, such as white-tailed deer, mule deer, coyote, muskrat, beaver, fox, and other fur-bearing animals. Bison, elk, antelope, bear, and wolf were once present. There is also an abundance of eagles, hawks, and owls, as well as waterfowl along wetland marshes and prairie potholes. Many of these creatures were resources for food, furs, and feathers for native groups.

Today the area contains an agricultural-based economy. Small grain, corn, grasslands and pasture comprise the project area. Tree cover in the project area is limited to wind blocks surrounding farmsteads.

Cultural Background

There are several different time periods in which the area has been occupied by people. Paleo-Indian hunting and gathering adaptation is very sparse in this area, and evidence of occupation is limited to isolated artifacts in private collections (SHSND 1990:12.25). Other periods include the Plains Archaic Period, where hunting and gathering involved modern flora and fauna; Plains Woodland Period, where routine ceramic processing, burial mound mortuary practices, and possibly some gardening first is evident (SHSND 1990:B.28); Plains Village Period, where the Plains Village lifeways with horticulture and subsequent storage of surplus foods is developed, with diagnostic artifacts such as styles and designs of ceramic vessels and the thin, lightweight axe; Equestrian Period, where hunting and foraging modern fauna and flora took place with the introduction of the horse and Euro-American trade goods.

Most sites in the Sheyenne River Study Unit are located on hills/knolls/bluffs, terraces, and upland plain; and consists primarily of Cultural Material Scatter (CM Scatter), Mounds, Rock Cairns, and Stone Circles (SHSND 1990:12.11). Earth Lodge Villages were primarily located on terraces along the Sheyenne River.

Research Goals

As the Ashtabula Windfarm Project falls above the 100MW size, which requires State agency approval, this project was inventoried to comply with State and Federal regulations to locate any cultural resources within the project area. This allows Ashtabula Wind to plan construction to minimize impact to any National Register of Historic Places (NRHP) eligible cultural resources.

Result

File Search

BCA conducted a literature review at the State Historical Society of North Dakota and discovered two manuscripts, one Archaeological site, three Archaeological site leads, and one Architectural site lead (Tables 2, 3, 4, 5). There is a scant amount of cultural resources in the area, but this is possibly due to the lack of Cultural Resource Inventories that have been performed here. According to State Historical Society of North Dakota, the Sheyenne River Study Unit, in which the project area is located, has a relatively low site density, one site per 26.6 mi². This is due to sporadic survey work conducted here, rather than actual site density (1990:12.7).

Table 2: Manuscripts on File as of October 26, 2006 at the Archaeology and Historic Preservation Division, State Historical Society of North Dakota in or near the APE.

Year	MS #	Author	Location			Title
			Twp	R	S	
2006	9969	A. Bleier et al	141	57	6-8, 17	Keystone Pipeline Project: Class I, II, and III Cultural resource Investigations in Eastern North Dakota, Volumes 1 & 2.
			142	57	19	
1978	547	R. Fox	142	57	24-26	Archaeological Field Report: 1978 Fall Field Season and Rip Rap Operation Investigations, lake Ashtabula, Barnes Co., North Dakota

The 2006 Keystone Pipeline project (MS # 9969), runs in a north-south direction through parts of the project area (see figure 3). The 1978 Rip Rap Project (MS #547) looked at a number of small areas along the shores of Lake Ashtabula. These are the only Class III Cultural Resource Inventories performed in or near the APE (within a mile).

Table 3. Summary Information on Archaeological Sites within one mile of the Project Area

SITS #	Location			Affiliation	Description	Recorder	MS #
	Twp	R	S				
32BA412	143	57	19	Prehistoric	CM Scatter	R. Fox	547

Table 4. Summary Information on Archaeological Site Leads within one mile of the Project Area

SITS #	Location			Affiliation	Description	Recorder
	Twp	R	S			
32BAx165	142	58	13	Historic	CM Scatter	E. Benson
32BAx134	141	57	2	Prehistoric	Mound	E. Benson
32BAx233	141	57	7	Prehistoric	Grave/CM Scatter/ other rock feature	B. Thomas

Table 5. Summary Information on Architectural Site Leads within one mile of the Project Area

Location			Site Number	Feature	Recorder	Year Recorded
Twp	R	S				
142	57	9	32BAx84	Cemetery	B. Mertz	2001

There are some cultural resources previously recorded in the vicinity of the APE (within a mile). One is an archaeological site (32BA412) which consists of a CM Scatter with chipped stones and faunal remains. The cultural/temporal affiliation is not known, and the site needs further evaluation to determine NRHP status. The project will not impact the site as it is located outside of the project area.

Three resources are site leads (32BAx165, 32BAx134, 32BAx233), which have not been evaluated by a professional archaeologist. Site lead 32BAx165 is recorded as “Camp Libby” with a historic CM Scatter. This site lead will not be impacted by the project. Site lead 32BAx134 has been recorded as an effigy mound with no associated artifacts. The site lead will be impacted by the project, but as the site is disturbed by intensive plowing, it is considered destroyed and will have to be avoided. Site lead 32BAx233 has been recorded as “O’Mally Farm” which contains a grave with human remains, other rock feature (a more detailed description does not exist, but is possibly a rock cairn), and a CM Scatter. This site lead will not be impacted by the project. There were no maps attached to the site lead forms, so general locations have been created on the project maps to indicate where approximately the site leads are located.

There has also been one architectural site lead recorded: 32BAx84. This site lead is recorded as a cemetery. This site lead falls within the APE for one of the collection lines. It will, however, be avoided by the project.

Intensive Pedestrian Survey

The inventory covered 131 wind turbine generators (five acres in size each), approximately 125 miles of associated access roads, transmission-, and collection lines (with a 250’ wide corridor), and one substation (20 acres in size). The total APE is approximately 3675 acres in size. Information on turbine locations can be seen in Figure 3 and in the maps located in Appendix A.

The inventory resulted in the identification of five sites (Table 6, 7, and 8). They include one Rock Cairn site (32BA173), one Stone Circle and Rock Cairn site (32BA172), two Isolated Finds (32BAx279 and 32BAx280), and one Historic/Architectural Site (32BA174). Although none of these sites have formally been evaluated for NRHP eligibility, BCA has recommended the Rock Cairn site (32BA173) and the Stone Circle site (32BA172) to be potentially eligible. BCA recommends that FPLE consider relocating the access roads in order to avoid the sites. If not, further evaluation of the sites is recommended to determine if they meet criteria for eligibility to the NRHP. The Isolated Finds and the Historic/Architectural site show poor integrity and based on the NRHP criteria, BCA has recommended them to be not significant.

Table 6. Summary of Archaeological Sites Inventoried by the Class III Intensive Survey

Site Number	Site Type	Features	Condition	Recommendation	Turbine Block	NRHP Evaluation
32BA172	Stone Feature	Stone Circle	Extant	Avoidance	Access Road	Unevaluated
32BA173	Stone Feature	Rock Cairn	Extant	Avoidance	Access Road	Unevaluated

Table 7. Summary Information on Isolated Finds Inventoried by the Class III Intensive Survey

Site Number	Affiliation	Description	NRHP Evaluation
32BAx279	Unknown	Grinding Tool	Not Eligible
32BAx280	Unknown	Biface Fragment	Not Eligible

Table 8. Summary of Historic/Architectural Sites Inventoried by the Class III Intensive Survey

Site Number	Features	Condition	Recommendation	NRHP Evaluation
BCA-HA1	1 Windmill	Extant	No Further Work	Not Eligible

Archaeological Sites

32BA172

The site consists of one stone circle with a rock cairn (Table 9 and 10). It is located on a ridge within a pasture (Figure 4, 5, and 6). The site condition is excellent, as very little disturbance seems to have occurred. The pasture consists of native and non-native plants. This site was identified during the inventory of an access road.

Table 9. Stone Circle Data

Stone Circle	Number of Rocks	Diameter		Shape	Rock Depth	Wall Gaps	Definition
		N-S	E-W				
1	75	6 m	5 m	O	Moderate	Absent	Good

Table 10. Rock Cairn Data

Rock Cairn	Diameter		Visible Rocks	Height of Cairn
	N-S	E-W		
1	1 meters	2 meters	20+	30 centimeter

Although the site has not been formally evaluated for eligibility, the site is BCA has recommended the site potentially eligible as it has potential to provide an existing context that can allow for the interpretation of scientific data.



Figure 4. Overview Stone Circle at 32BA172. View to Northeast.



Figure 5. Overview of Cairn at 32BA172. View to Northeast.

Sketch Map of 32BA172

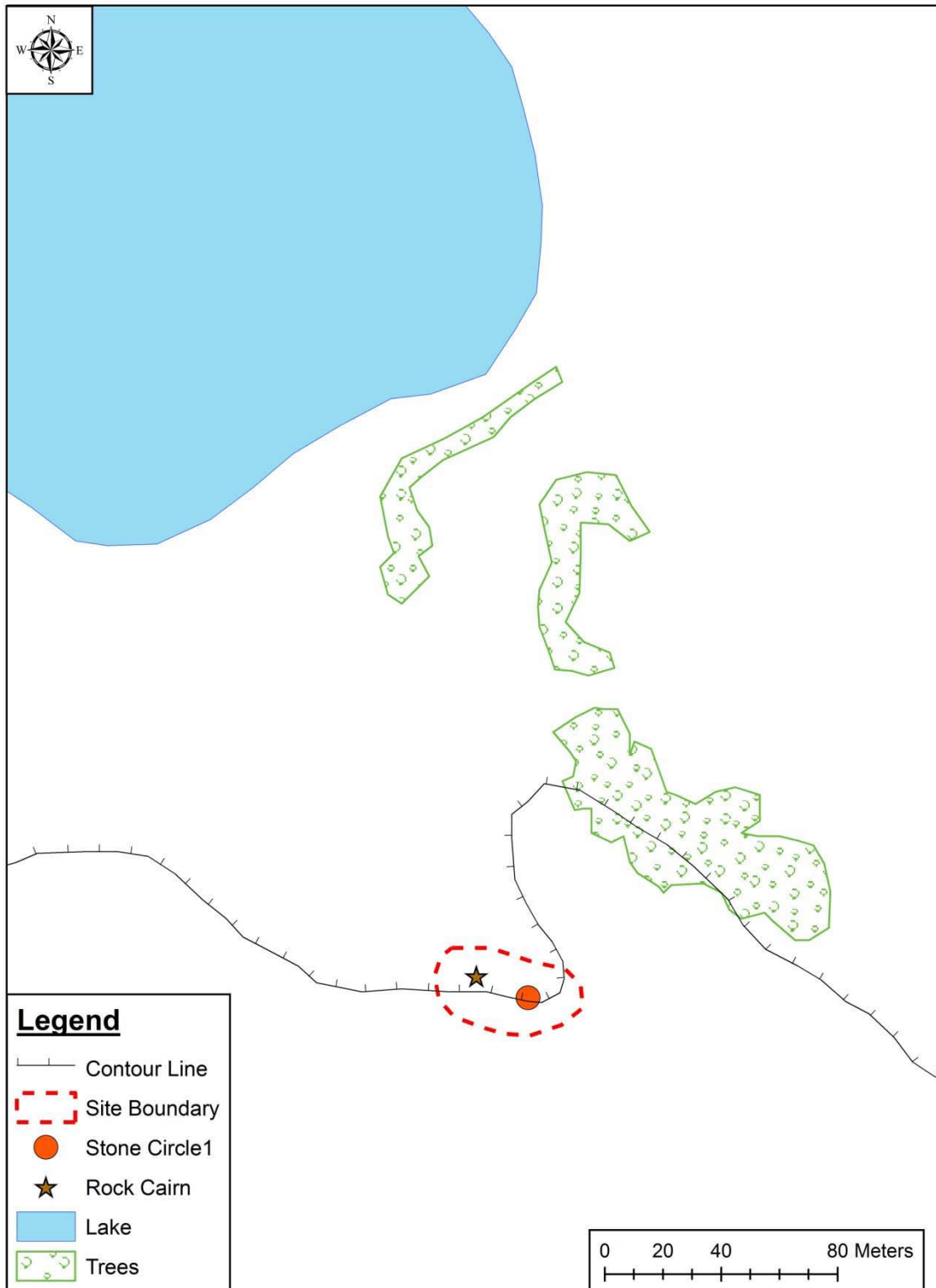


Figure 6. Sketch Map of 32BA172 (for a general location see North-Central Map in Appendix A).

32BA173

The site consists of one rock cairn situated on top of a hill in a pasture (Table 11). The site condition is excellent as very little disturbance seems to have occurred (Figure 7 and 8). The pasture consists of native and non-native plants. The site was identified during the inventory of an access road.

Table 11. Rock Cairn Data.

Rock Cairn	Diameter		Visible Rocks	Height of Cairn
	N-S	E-W		
1	2 meters	2 meters	20+	1 meter

Rock Cairns were constructed for various functions, such as markers for trails and big game drive lines, offering piles and caps for caches. They are also known to function as caps for human burials. Because the purpose for this cairns is unknown, and can possibly be a cap for a burial, BCA has recommended that the site be avoided.



Figure 7. View of Rock Cairn. View to North.

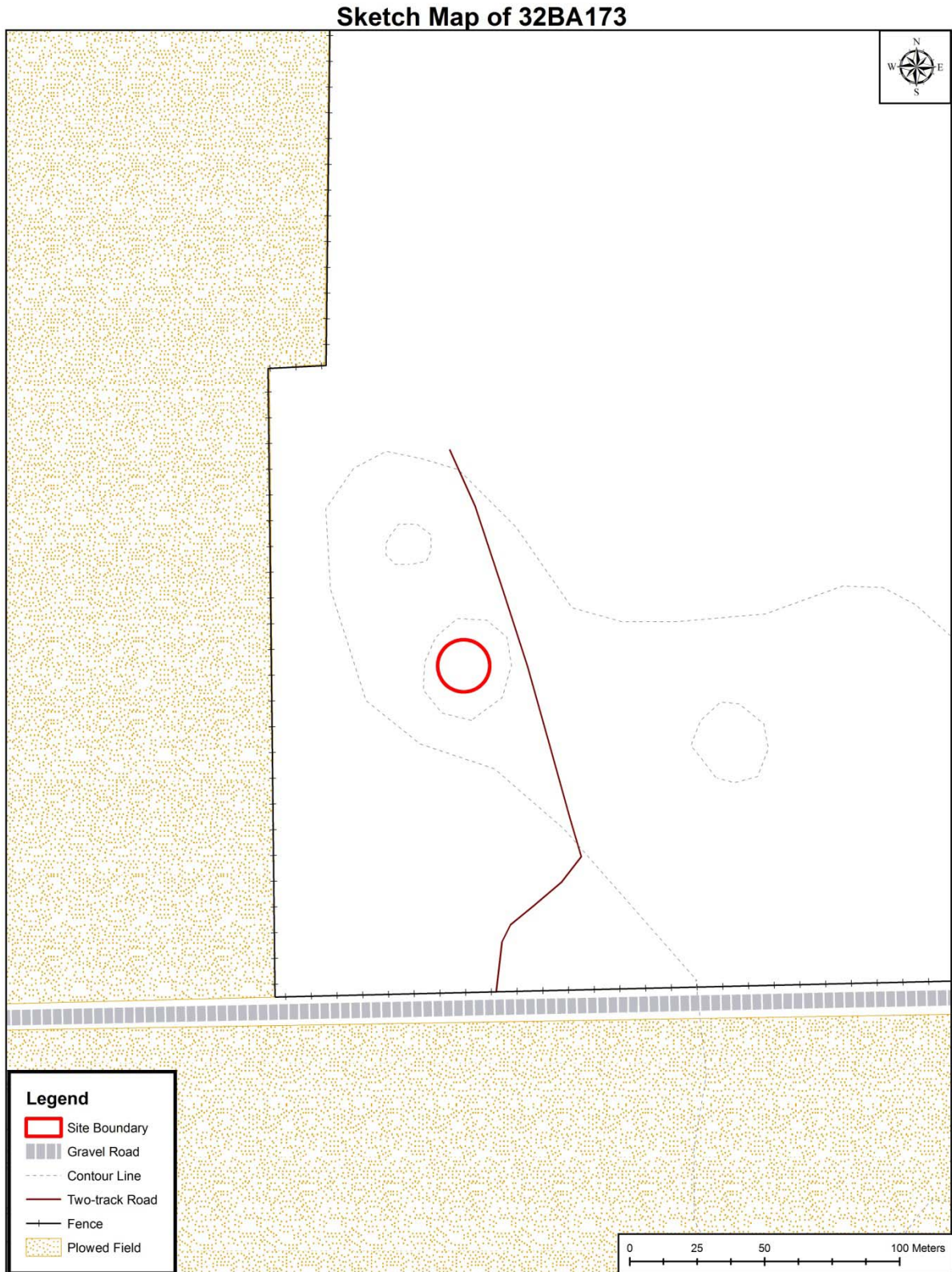


Figure 8. Rock Cairn Site (for a General Location, See North-Central Map in Appendix A).

32BAx279

This isolated find consisted of one Ground Stone Tool, and was located in a plowed field (Figure 9). Because isolated finds are not classified as being a site (SHSND 1990:B.3), and it is located in a plowed field, BCA has recommended that it is not eligible for the NRHP. Therefore, no further work is recommended for this location.



Figure 9. View towards 32BAx279. View to North.

32BAx280

This isolated find consisted of one biface fragment (not diagnostic) made of Knife River Flint, and was located in a plowed field (Figure 10). Because isolated finds are not classified as being a site (SHSND 1990:B.3), and it is located in a plowed field, BCA has recommended it is not eligible for the NRHP. Therefore, no further work is recommended for this location.



Figure 10. View towards 32BAx180. View to East.

32BA174

This site consists of a historic farmstead with only one standing structure: a windmill. Because the topographic map indicated there has been a building at this location, the site was treated as an historic farmstead (Figure 11 and 12).

The site consists of a single metal frame windmill. No construction date was found, but a manufacturer's name (Baker MFG. Evansville WIS.) was found on the tail of the windmill. No other standing structures, or signs of removed buildings, were found. Some historic cultural material was located, such as plastic bottles, torn plastic bags, and rubber tires. None of the cultural material seems to be from domestic use, but rather from dumping at the site after buildings were removed.

Because of the poor integrity and significance of the standing structure and historic features, BCA has recommended the site is ineligible to the NRHP. No further work is recommended.



Figure 11. Site 32BA174. View to Northeast.

Sketch Map of 32BA174

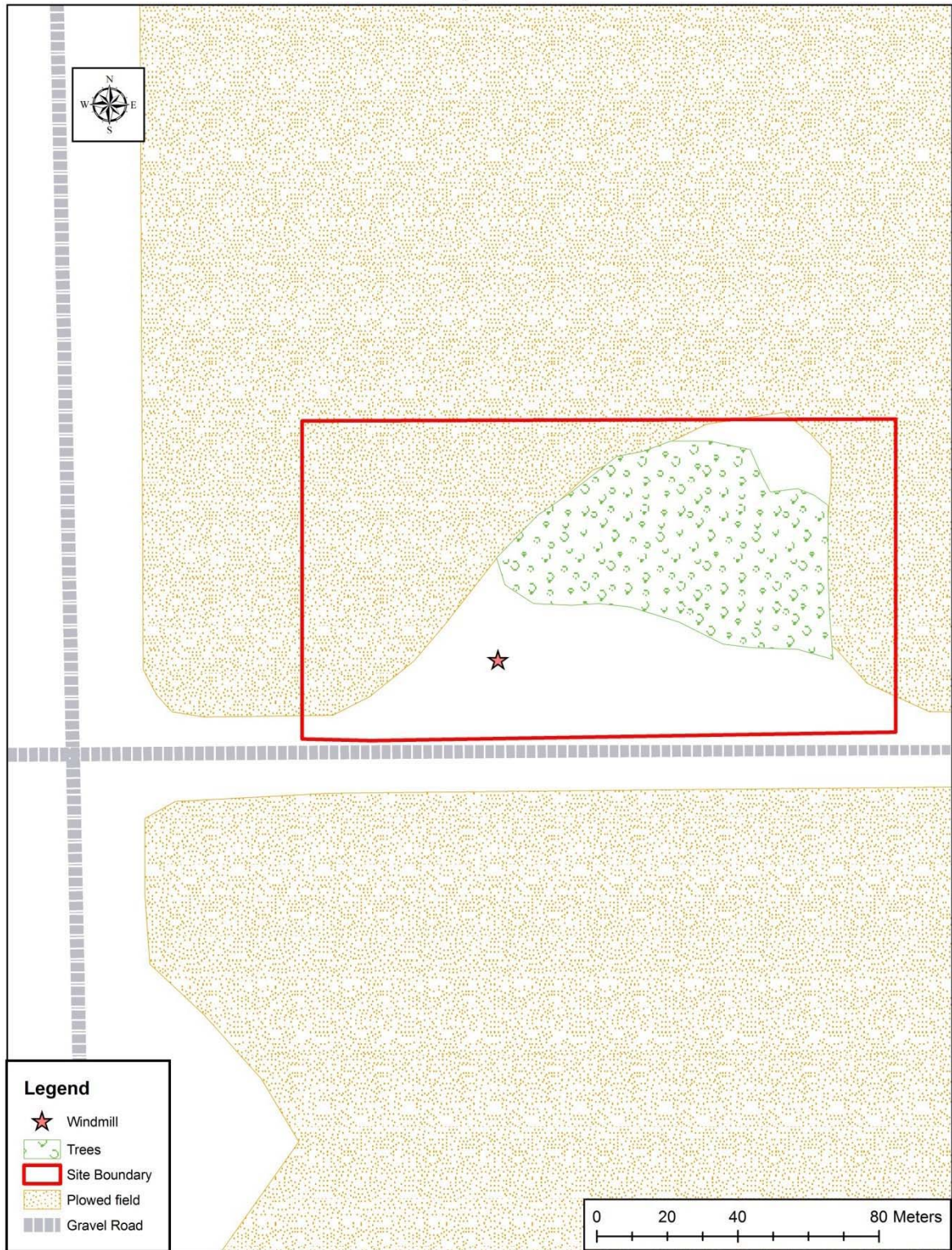


Figure 12. Historic Architectural Site (for a General Location, See North-Central Map in Appendix A).

Conclusion and Recommendation

In April 2008, BCA conducted a Class III Cultural Resource Inventory of the proposed Ashtabula Wind Farm project. During the course of the inventory, one previously recorded site (32BA412), three previously recorded site leads (32BAx165, 32BAx134, 32BAx233) and one previously recorded architectural site (32BAx84) were identified within one mile of the APE. Also, five new cultural resource sites were identified within the APE: One Stone Circle and Rock Cairn Site (32BA172), one Rock Cairn Site (32BA173), two isolated finds (32BAx279 and BAx280), and one Historic/Architectural site (32BA174).

Previously recorded site lead 32BAx134, was recorded as an effigy mound which has been disturbed by intensive plowing over the years. It is unlikely that there are any subsurface materials or burials present. (As the site lead was not recorded by a professional archaeologist, it is also a question whether there actually was a mound in this location.) This area will be affected by the project, but BCA is recommending that the site lead will not need to be avoided as it is destroyed.

Previously recorded site lead 32BAx84, was recorded as a cemetery. The cemetery is located within the APE, and BCA recommends the cemetery to be avoided during construction. No other prerecorded sites or site leads will be affected by the project.

BCA recommends that two sites, 32BA172 and 32BA173, are potentially eligible for listing in the NRHP, and recommends that these sites should therefore be avoided.

At the request of Ashtabula Wind, BCA pin-flagged a 30 meter buffer zone around sites 32BA172 and 32BA173 to avoid accidental disturbance during construction. If project plans do not allow for avoidance of the potential NRHP-eligible sites, a Phase II site evaluation is recommended to determine NRHP eligibility.

Newly recorded site 32BA174 and the two isolated finds, 32BAx279 and 32BAx280, is recommended not eligible to the NRHP, and will therefore not need to be avoided during construction.

References Cited

Sedivec, Kevin K., and William T. Barker

1998 Selected North Dakota and Minnesota Range Plants. NDSU Extension Service, North Dakota State University, Fargo, North Dakota.

State Historical Society of North Dakota (SHSND)

1990 North Dakota Comprehensive Plan for Historic Preservation: Archaeological Component. Archaeology and Historic Preservation Division, State Historical Society of North Dakota, Bismarck, North Dakota.

Appendix A, Project Maps

Ashtabula Windfarm Class III Cultural Resources Inventory South-Central Map

1:24,000

