

**PHASE IA ARCHAEOLOGICAL AND  
ARCHITECTURAL HISTORY SURVEY FOR THE  
UMORE PARK RESEARCH WIND TURBINE PROJECT,  
DAKOTA COUNTY, MINNESOTA**

**SHPO File No. Pending  
Client No. Pending  
The 106 Group Project No. 10-18**

**Submitted to:  
Barr Engineering Company  
4700 West 77th Street  
Minneapolis, MN 55435-4803**

**Submitted by:  
The 106 Group Ltd.  
The Dacotah Building  
370 Selby Avenue  
St. Paul, MN 55102**

**Principal Investigators:  
AnneKetz, M.A., RPA  
Greg Mathis, M.C.R.P.**

**Report Authors:  
Mark Doperalski, B.S.  
Miranda Van Vleet, M.H.P**

**July 2010**

## MANAGEMENT SUMMARY

During May of 2010, The 106 Group Ltd. (106 Group) conducted a Phase IA archaeological and architectural history survey for the University of Minnesota Outreach, Research, and Education (UMore) Park Research Wind Turbine project (project). The proposed project consists of the construction of a wind turbine, a 34.5 kV interconnect line, a meteorologic tower, and several associated roads and laydown areas. The survey was conducted under contract with Barr Engineering Company (Barr) on behalf of the University of Minnesota. This project is receiving federal funding from the Department of Energy (DOE) and, therefore, must comply with Section 106 of the National Historic Preservation Act of 1966 (Section 106), as well as the National Environmental Policy Act and other applicable state mandates governing cultural resources. The purpose of the Phase IA investigation was to determine whether the project area contains previously recorded archaeological sites and architectural history properties and/or has the potential to contain unrecorded archaeological sites or architectural history properties that may be eligible for listing in the National Register of Historic Places (NRHP).

The project area is located in Sections 25 and 36, T115N, R19W, Dakota County, Minnesota. The study area for archaeology is the same as the project area, and it includes all areas of proposed construction activities or other potential ground disturbing activities associated with construction of the wind turbine, 34.5 kV interconnect line, meteorologic tower, and associated roads and laydown areas, which encompasses approximately 33.25 acres (13.46 hectares [ha]). The archaeological investigation consisted of a review of documentation of previously recorded sites within one mile (1.6 kilometers [km]) of the project area and of surveys previously conducted within the project area. The investigation also included a Phase IA archaeological field survey to identify areas of high potential for containing intact archaeological sites, systematic pedestrian surface reconnaissance of high potential areas with adequate surface visibility, and documentation of any high potential areas with poor ground surface visibility to be shovel tested at a later date. The archaeological study area is within the Southeast Riverine West archaeological sub-region. Anne Ketz, M.A. served as principal investigator for archaeology.

The study area for architectural history accounts for any physical, auditory, atmospheric, or visual impacts to historic properties. Preliminary plans indicate that the proposed wind turbine, the tallest element of the proposed project, will be approximately 120 meters (393.7 feet [ft.]) tall. Therefore, the 106 Group assumes that visual effects has the greatest potential to impact architectural history properties; however, the effects of the proposed project on architectural history properties will need to be determined by the DOE as the lead federal agency in consultation with the Minnesota State Historic Preservation Office (SHPO). Due to the proposed height of the wind turbine, the study area for architectural history includes a one-mile radius around the proposed wind turbine area to account for potential visual effects. The one-mile radius also encompasses 0.5 miles or more around the proposed interconnect line, which includes all properties that may be impacted by this portion of the proposed project. The Phase IA architectural history investigation consisted of a review of documents of previously inventoried properties and of surveys previously conducted within

the study area, as well as a field reconnaissance survey to identify properties that are 45 years of age or older within the study area. The architectural history study area included approximately 2,788.19 acres (1,128.34 ha). Greg Mathis, M.C.R.P. served as principal investigator for architectural history.

During the Phase IA archaeological investigation, the project area's lack of topographically prominent areas or close naturally occurring water resources indicated it likely has low potential for containing precontact archaeological resources. In addition, historical maps and aerial photographs indicate that, although three small outlying structures associated with the historic Gopher Ordnance Works (GOW) property were located within the project area in the 1940s, the area appears to have been returned to agricultural use by 1951 and has continued in that use to the present day. As a result, the likelihood for intact post-contact sites within the project area is considered to be low.

No new or previously recorded archaeological sites were uncovered during field survey. Additionally, the project area consisted primarily of agricultural field exhibiting 50 to 95 percent ground visibility and, therefore, systematic pedestrian survey was used. During the archaeological investigation no areas were identified that warranted subsurface testing. As a result, no further archaeological work is recommended prior to construction as currently planned.

During the reconnaissance architectural history survey, the 106 Group identified 79 properties 45 years in age or older within the architectural history study area. Of these 79 properties, 19 were previously inventoried, nine were previously evaluated but not assigned SHPO inventory numbers, and 51 are newly identified. Of the 28 previously inventoried or evaluated properties, 26 have been previously determined not eligible for listing in the NRHP (25 of which are associated with the GOW). The two remaining previously inventoried properties have either been recommended for further research or have had no determination of eligibility.

The DOE, as the lead federal agency, is responsible for determining an APE. Once an APE has been defined, pursuant to Section 106, the 106 Group recommends that a Phase I architectural history survey be conducted of those properties that have not been previously inventoried or evaluated for listing in the NRHP located within the APE.

## TABLE OF CONTENTS

<b>MANAGEMENT SUMMARY .....</b>	<b>I</b>
<b>LIST OF FIGURES .....</b>	<b>IV</b>
<b>LIST OF TABLES .....</b>	<b>IV</b>
<b>1.0 INTRODUCTION.....</b>	<b>1</b>
<b>2.0 METHODS .....</b>	<b>3</b>
2.1 OBJECTIVES.....	3
2.2 ARCHAEOLOGY .....	3
2.2.1 <i>Study Area</i> .....	3
2.2.2 <i>Background Research</i> .....	3
2.2.3 <i>Field Methods</i> .....	3
2.2.3.1 Systematic Surface Reconnaissance.....	4
2.3 ARCHITECTURAL HISTORY.....	4
2.3.1 <i>Study Area</i> .....	4
2.3.2 <i>Background Research</i> .....	5
2.3.3 <i>Field Methods</i> .....	5
<b>3.0 LITERATURE SEARCH.....</b>	<b>6</b>
3.1 ENVIRONMENTAL HISTORY OVERVIEW .....	6
3.2 PREVIOUS ARCHAEOLOGICAL STUDIES.....	6
3.3 PREVIOUS ARCHITECTURAL HISTORY STUDIES.....	6
3.4 HISTORICAL DOCUMENT REVIEW .....	11
<b>4.0 RESULTS .....</b>	<b>13</b>
4.1 ARCHAEOLOGICAL INVESTIGATION.....	13
4.1.1 <i>Results</i> .....	15
4.2 ARCHITECTURAL HISTORY INVESTIGATION .....	15
4.2.1 <i>Results</i> .....	15
<b>5.0 RECOMMENDATIONS.....</b>	<b>19</b>
5.1 ARCHAEOLOGY .....	19
5.2 ARCHITECTURAL HISTORY.....	19
<b>6.0 REFERENCES CITED .....</b>	<b>20</b>
<b>APPENDIX A: PHOTOGRAPHS OF PROPERTIES 45 YEARS OF AGE OR OLDER NOT PREVIOUSLY INVENTORIED OR EVALUATED WITHIN THE STUDY AREA</b>	
<b>APPENDIX B: PHOTO SIMULATIONS OF THE PROPOSED WIND TURBINE</b>	
<b>APPENDIX C: LIST OF PROJECT PERSONNEL</b>	

## LIST OF FIGURES

FIGURE 1. PROJECT LOCATION.....	2
FIGURE 2. PREVIOUS INVESTIGATIONS.....	7
FIGURE 3. OVERVIEW OF THE PROJECT AREA; FACING NORTH .....	13
FIGURE 4. ARCHAEOLOGICAL SURVEY RESULTS.....	14
FIGURE 5. ARCHITECTURAL HISTORY SURVEY RESULTS .....	18

## LIST OF TABLES

TABLE 1. PREVIOUSLY INVENTORIED ARCHITECTURAL HISTORY PROPERTIES.....	9
TABLE 2. PROPERTIES 45 YEARS OF AGE OR OLDER NOT PREVIOUSLY INVENTORIED OR EVALUATED WITHIN THE ARCHITECTURAL HISTORY STUDY AREA.....	16

## 1.0 INTRODUCTION

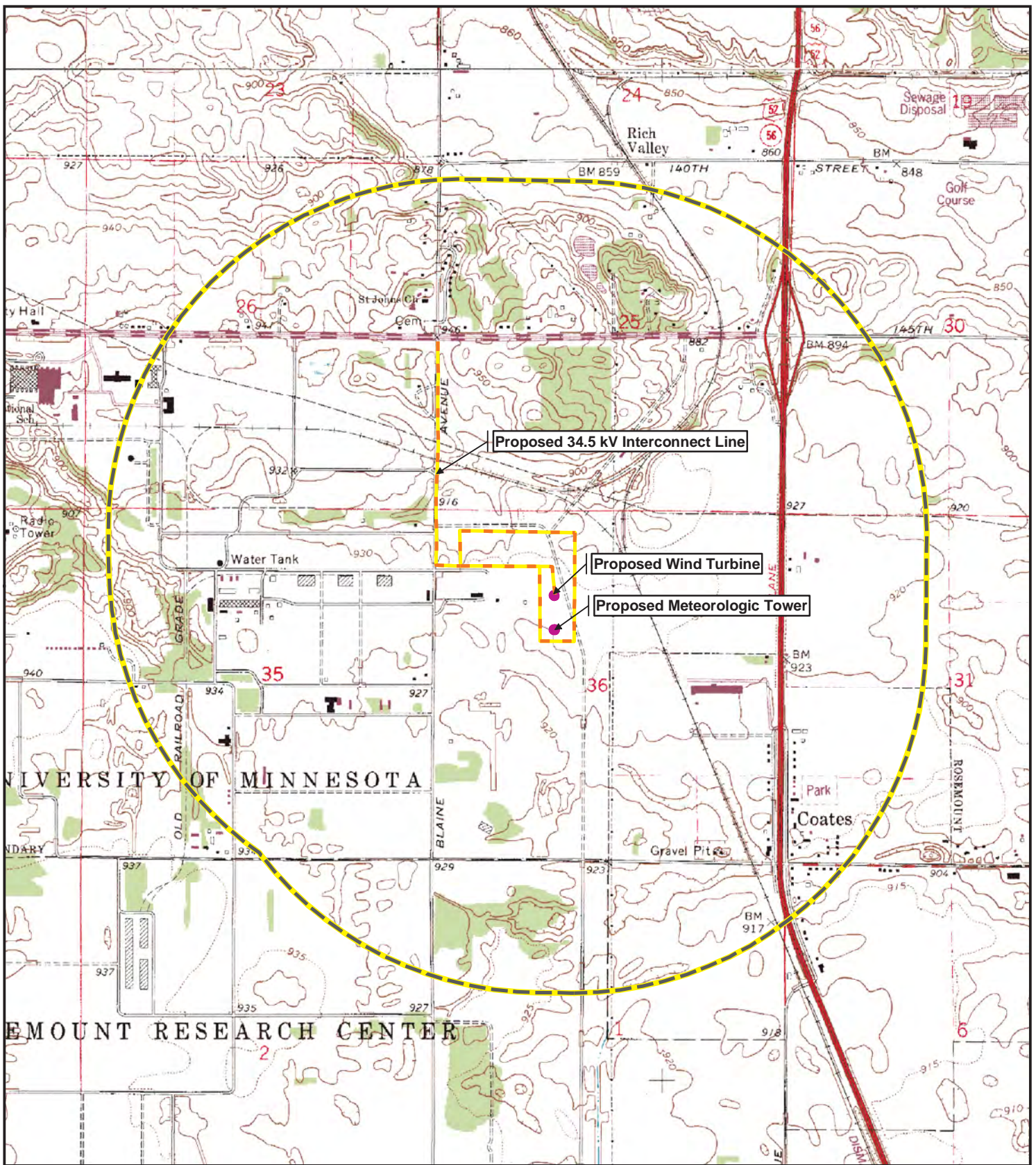
During May of 2010, The 106 Group Ltd. (106 Group) conducted a Phase IA archaeological and architectural history survey for the University of Minnesota Outreach, Research, and Education (UMore) Park Research Wind Turbine project (project). The proposed project consists of the construction of a wind turbine, a 34.5 kV interconnect line, a meteorologic tower, and several associated roads and laydown areas. The survey was conducted under contract with Barr Engineering Company (Barr) on behalf of the University of Minnesota. This project is receiving federal funding from the Department of Energy (DOE) and, therefore, must comply with Section 106 of the National Historic Preservation Act of 1966 (Section 106), as well as the National Environmental Policy Act and other applicable state mandates governing cultural resources. The purpose of the Phase IA investigation was to determine whether the project area contains previously recorded archaeological sites and architectural history properties and/or has the potential to contain unrecorded archaeological sites and architectural history properties that may be eligible for listing in the National Register of Historic Places (NRHP).

The project area is located in Sections 25 and 36, T115N, R19W, Dakota County, Minnesota (Figure 1). The archaeological investigation consisted of a review of documentation of previously recorded sites within one mile (1.6 kilometers [km]) of the project area and of surveys previously conducted within the project area. The investigation also included a Phase IA archaeological field survey to identify areas of high potential for containing intact archaeological sites, systematic pedestrian surface reconnaissance of high potential areas with adequate surface visibility, and documentation of any high potential areas with poor ground surface visibility to be shovel tested at a later date. The archaeological study area is located within the Southeast Riverine West archaeological sub-region. The UTM coordinates for the survey area are Zone 15, northeast corner: E 496295 N 4953057; southeast corner: E 496296 N 4952548; southwest corner: E 495650 N 4952894; and northwest corner: E 495652 N 4953924. Anne Ketz, M.A. served as principal investigator for archaeology.

The Phase IA architectural history investigation consisted of a review of documents of previously inventoried properties and of surveys previously conducted within the architectural history study area, as well as a field reconnaissance to identify properties that are 45 years of age or older within the study area. Greg Mathis, M.C.R.P. served as principal investigator.

The following report describes project methodology, environmental setting, previous investigations, results, and recommendations for the project area. Because no archaeological resources were encountered during the survey, the inclusion of contexts would be extraneous to the report; therefore, none are presented here. Appendix A contains photographs of properties within the study area not previously inventoried. Appendix B contains photo simulations of the proposed wind turbine. Appendix C provides a list of project personnel.



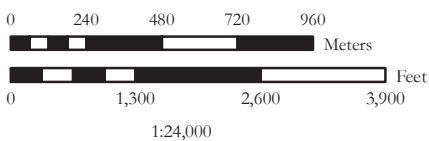


Source: The 106 Group Ltd.

Map Produced The 106 Group Ltd. - 6/4/2010

**Umore Park Research Wind Turbine Project  
Phase IA Archaeological and Architectural History Survey  
Dakota County, Minnesota**

**Project Location**



- Project Area/Archaeological Study Area
- One Mile Context Study Area/Architectural History Study Area



**Figure 1**

## 2.0 METHODS

### 2.1 OBJECTIVES

The primary objectives of this investigation were to determine whether the area to be affected by the proposed project:

- contains any known archaeological sites and architectural history properties; or
- has the potential to contain unknown archaeological sites and architectural history properties that may be eligible for listing in the NRHP.

All work was conducted in accordance with the Minnesota State Historic Preservation Office (SHPO) *Manual for Archaeological Projects in Minnesota* (Anfinson 2005), *Guidelines for History/Architecture Projects in Minnesota* (SHPO 2005), and *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* [48 Federal Register 44716-44740] (National Park Service [NPS] 1983).

### 2.2 ARCHAEOLOGY

#### 2.2.1 Study Area

The study area for archaeology is the same as the project area and includes all areas of proposed construction activities or other potential ground disturbing activities associated with the construction of a wind turbine, a 34.5 kV interconnect line, meteorologic tower, and several associated roads and laydown areas (see Figure 1). The study area for archaeology encompasses 33.25 acres (13.46 hectares [ha]).

#### 2.2.2 Background Research

On May 21, 2010, prior to the start of the field survey, staff from the 106 Group conducted background research at the SHPO for information on previously identified sites within one mile (1.6 km) of the project area and on surveys previously conducted within the project area. In addition, USGS topographic quadrangles, historical plat maps, aerial photographs, and data on project soils were reviewed in order to assess the portions of the project area that possessed a higher potential for containing archaeological sites.

#### 2.2.3 Field Methods

Intensive field investigation focused on areas assessed as having a greater probability to contain significant archaeological sites. These areas included undisturbed portions of the project area:

- within 500 feet (ft.) (150 meters [m]) of an existing or former water source of 40 acres (19 ha) or greater in extent, or within 500 ft. (150 m) of a former or existing perennial stream;
- located on topographically prominent landscape features;



- located within 300 ft. (100 m) of a previously reported site; or
- located within 300 ft. (100 m) of a former or existing historic structure or feature (such as a building foundation or cellar depression).

Areas assessed as having a relatively low potential for containing archaeological resources included inundated areas, former or existing wetland areas, poorly drained areas, and areas with a 20 percent or greater slope. Low potential areas and areas in which Holocene (less than 10,000 years old) deposits have been significantly disturbed were excluded from intensive field survey.

### **2.2.3.1 Systematic Surface Reconnaissance**

Systematic pedestrian surface reconnaissance was conducted in areas exhibiting a greater potential to contain intact archaeological deposits where 25 percent or more of the ground surface was visible. Pedestrian reconnaissance was also employed to ascertain whether above-ground features, such as earthworks or abandoned structural foundations, were present within the survey area. Pedestrian transects were placed 15 m (49 ft.) apart to ensure adequate coverage. The majority of the project area consisted of agricultural fields and as a result exhibited 50 to 95 percent surface visibility.

## **2.3 ARCHITECTURAL HISTORY**

### **2.3.1 Study Area**

The study area for architectural history accounts for any physical, auditory, atmospheric, or visual impacts to historic properties.

It is unknown if footings for the wind turbine and for the poles for the 34.5 kV interconnect line will be excavated or pile driven. If they are excavated, it is anticipated that the project will not result in any direct physical impacts to architectural history resources outside of the project area. If the project will include pile driving, vibrations from this activity could result in vibratory effects, which could physically impact properties in the surrounding area. If pile driving is used, it is anticipated that vibrations will dissipate further away from the project area and will not impact an area more than 500 feet from the project limits.

The project is not expected to result in any permanent atmospheric impacts. Atmospheric impacts are expected to be limited to temporary increases in dust associated with earth disturbing activities during the construction of the project. While increases in wind may increase levels of dust, the wind will also quickly dissipate dust. Therefore, it is expected that atmospheric impacts from increases in dust will be limited to an area no greater than 500 feet from the project area.

It is anticipated that the wind turbine and 34.5 kV interconnect line will generate little, if any noise during operation; therefore, auditory impacts are expected to be limited to temporary increases in noise associated with the operation of construction equipment during project

construction. Since the project is anticipated to be constructed during daytime hours, generally from 6:00 a.m. to 6:00 p.m., when allowable day-night average sound levels (DNL) are higher, it is expected that noise from construction activities will fall within acceptable limits and will not impact areas more than 500 feet from the project limits.

Preliminary plans indicate that the proposed wind turbine, the tallest element of the proposed project, will be approximately 120 meters (393.7 ft.) tall. The study area includes a large ordinance plant and a rural landscape comprised of farms, rural homes, and a small community. A 120-meter tall structure would introduce a new vertical feature to the landscape that is inconsistent with the wide-open, relatively unobstructed views of the landscape, thereby changing the nature and feeling of the rural landscape. This in turn may impact the setting and feeling of rural resources. Therefore, the 106 Group assumes that visual effects has the greatest potential to impact architectural history properties; however, the effects of the proposed project on architectural history properties will need to be determined by the DOE as the lead federal agency in consultation with the Minnesota SHPO. Due to the proposed height of the wind turbine, the study area for architectural history includes a one-mile radius around the proposed preliminary turbine area to account for potential physical, auditory, atmospheric, and visual effects.

The proposed project also includes a 34.5 kV interconnect line to be located along Blaine Avenue, south of Highway 42 / 145<sup>th</sup> Street East. The one-mile radius around the wind turbine encompasses 0.5 miles or more around the proposed interconnect line. The height of the proposed interconnect line is assumed to be no more than one-quarter of the height of the wind turbine. Therefore, the 106 Group recommends that 0.5 miles is sufficient to account for potential effects of the interconnect line. In addition, the area north of the interconnect line, where the study area boundary is at the minimum of 0.5 miles, is heavily forested and contains a number of hills which will effectively obstruct views from architectural history properties that are located north and northeast of the interconnect line. The total architectural history study area includes approximately 2,788.2 acres (1,128.34 ha).

### ***2.3.2 Background Research***

On May 21, 2010, prior to the start of the field survey, staff from the 106 Group conducted background research at the SHPO for information on previously inventoried properties and on surveys previously conducted within the architectural history study area. In addition, historical plat maps and aerial photographs were obtained from the University of Minnesota on June 1, 2010.

### ***2.3.3 Field Methods***

A windshield survey of the buildings, structures, and landscape features in the architectural history study area was conducted in order to identify those properties that appeared to be 45 years in age or older. Each of these properties was subsequently documented with brief field notes and digital photographs.

### **3.0 LITERATURE SEARCH**

#### **3.1 ENVIRONMENTAL HISTORY OVERVIEW**

The project area is located in Sections 25 and 36, T115N, R19W, Dakota County, Minnesota. The wind turbine project will be constructed in a generally rural agricultural area.

Geologically, the project area lies within the Mississippi Valley Outwash geomorphic region. The project area lies within the SLWD soil landscape unit, described as loamy over sandy, well drained, dark colored soils. The SLWD soil landscape unit makes up approximately 30 percent of the Mississippi Valley Outwash geomorphic region (Agricultural Experiment Station 1973).

The United States Department of Agriculture – Natural Resources Conversation Service (USDA – NRCS) Soil Survey Division recognizes two soil series within the project area (U.S. Department of Agriculture 2010; USDA Soil Survey Staff 2010). The Dakota series consists of very deep, well drained soils formed in 50 to 100 centimeters of loamy alluvium and in the underlying sandy outwash. These soils are on outwash plains, stream terraces, and valley trains. Native vegetation is big bluestem, little bluestem, switchgrass, and other grasses of the tall grass prairie with scattered oak groves. The Waukegan series consists of very deep well drained soils that formed in 50 to 100 centimeters of loess or silty glacial alluvium and in the underlying sandy or sandy-skeletal glacial outwash. These soils are on slightly concave to convex slopes on glacial outwash plains and valley trains. The native vegetation is big bluestem, indiagrass, switchgrass, and other grasses of the tall grass prairie.

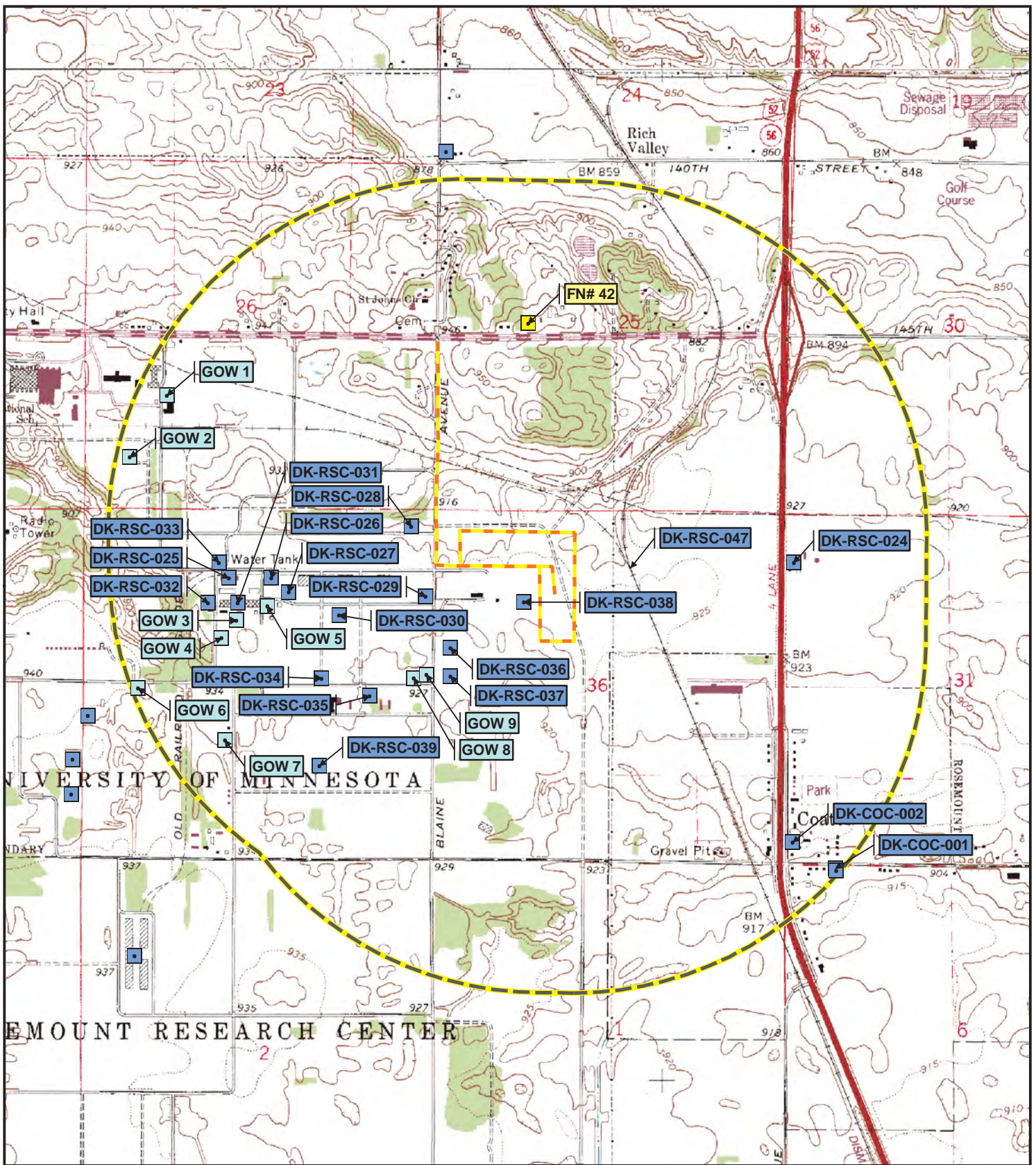
#### **3.2 PREVIOUS ARCHAEOLOGICAL STUDIES**

Research indicated that no archaeological surveys have been conducted within the project area. Additionally, no sites have been recorded with the project area or within one mile of the project area.

#### **3.3 PREVIOUS ARCHITECTURAL HISTORY STUDIES**

Research indicated that there have been six architectural history surveys conducted within the architectural history study area. In 1977, a visual reconnaissance survey of the city of Rosemount was undertaken for the SHPO. The reconnaissance survey identified several properties that were 50 years of age or older. Following the conclusion of the survey, four properties were identified as having greater architectural and/or visual interest than the other properties. These included: a residence, St. John's Church, St. Joseph's Church, and a residential district. Of these, only one, St. John's Church (Field Number 42), is located within the current survey area (Figure 2 and Table 1); the NRHP-eligibility of the church was considered questionable due to the fact that it had been moved from its original location (Dabrowski 1977a).



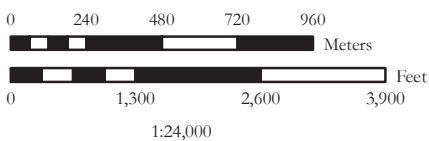







Source: The 106 Group Ltd.

Map Produced The 106 Group Ltd. - 6/4/2010

**Umore Park Research Wind Turbine Project  
Phase IA Archaeological and Architectural History Survey  
Dakota County, Minnesota**

**Previous Investigations**



-  Project Area/Archaeological Study Area
-  One Mile Context Study Area/Architectural History Study Area
-  Previously Inventoried Architectural History Property
-  Previously Evaluated Property with No SHPO Inventory Number
-  Previously Identified Property with No SHPO Inventory Number



**Figure 2**

In 1977, a visual reconnaissance survey of the town of Coates was undertaken for the SHPO. Approximately seven properties 50 years of age or older were identified, however only two of the properties were deemed to have architectural and/or visual interest and received SHPO inventory numbers. These two properties include the St. Agatha Church (DK-COC-001) and a House (DK-COC-002), both of which are located within the project area (Figure 2 and Table 1). The house was determined not eligible for listing in the NRHP and the NRHP-eligibility of the church was considered questionable but was not determined at the time of survey (Dabrowski 1977b).

In 1993, Archaeological Research Services and Hess, Roise and Company conducted a cultural resources survey to explore the feasibility of the construction of an airport in Dakota County. The architectural history survey included three different candidate sites, one of which includes portions of the current study area. The survey inventoried a total of 99 properties. One potential historic district was identified during the survey and was recommended for further study to determine NRHP-eligibility. The district, the Gopher Ordinance Works (GOW), consists of several buildings and structures within a plant facility designed to produce propellant for small-arms ammunition (structures within the district located within the current project area are listed in Table 1 and identified in Figure 2). The district was recommended as potentially eligible under Criterion D, for its potential to reveal information about ordinance facility and munitions manufacturing (Roise 1993). Subsequent review by the Minnesota SHPO determined that the GOW property was not eligible for listing on the NRHP (Kelly Gragg-Johnson, personal communication 2006).

In 1998, BRW Inc. conducted a Phase I archaeological survey and Phase II architectural history survey of the GOW property for the County Road 46 project in Empire Township, Dakota County. The Phase II architectural survey of the GOW identified 54 extant buildings of the estimated 840 original buildings and structures (Sluss and Malmquist 1998; structures within the district located within the current project area are listed in Table 1 and identified in Figure 2). Due to the extensive amount of historic documentation for the GOW (site plans, building photographs, and historical narratives), the facility was recommended as not eligible under Criterion D, as it is unlikely to yield additional information important to prehistory or history. The GOW facility was also recommended as not eligible for listing in the NRHP under Criterion A for its lack of integrity. In addition, the study indicated that the GOW “does not appear to stand out in terms of production, technological or scientific innovation, construction techniques, or architect-influenced design” and that another facility, the Badger Ordnance Works in Baraboo, Wisconsin, “better represents the technology, scale, and magnitude of the process of producing, packaging, and shipping smokeless powder” (Sluss and Malmquist 1998:15). The SHPO concurred with the recommendation.

In 2006, a detailed history of the UMore Park property was prepared for the University of Minnesota by Historic Preservation and Community Planning (Lauber 2006). This study reiterated that “resources associated with the Gopher Ordinance Works have been determined ineligible for the National Register due to a lack of integrity” (Lauber 2006:10). In addition, the report stated that although the structures were not eligible for listing on the



NRHP, consultation with the SHPO was recommended prior to demolition of any of the structures.

From 2006-2008, the 106 Group conducted Phase I and II cultural resources surveys for the MinnCan pipeline project through 13 counties, including Dakota County. Four architectural history properties were identified in Dakota County. One, a railroad grade, is located within the current study area. The Minnesota & North Western Railway / Chicago Great Western Railway (DK-RSC-047; Figure 2 and Table 1) was recommended as not eligible for listing in the NRHP due to a lack of historical significance.

Nineteen architectural history properties have been previously inventoried within the survey area (Table 1; Figure 2). These properties consist of a church, a farmstead, houses, several former buildings of the GOW, and a railroad. Of these 19 properties, one (DK-RSC-028) is no longer extant and two (DK-COC-001 and DK-RSC-024) have either been recommended for further research or have had no determination of NRHP-eligibility. The remaining 16 properties have been previously recommended not eligible for listing in the NRHP.

**TABLE 1. PREVIOUSLY INVENTORIED ARCHITECTURAL HISTORY PROPERTIES**

Inventory No.	Property Name	Address	T	R	S	¼ Sec.	Date of Constr.	NRHP Status
DK-COC-001	St. Agatha Church	3700 160th St. E.	115N	18W	6	NW	c. 1880	Undetermined
DK-COC-002	House	15944 Coates Blvd.	115N	18W	31	SW	1925	Not Eligible
DK-RSC-024	Farmstead	15102 Clayton Ave. E.	115N	18W	31	NW	1900	Further Research Recommended
DK-RSC-025	Gopher Ordnance Works – Buildings 707-FFF, 707-J, 707-LL	152nd St. E. and Babcock Ave.	115N	19W	35	NW	1942	Not Eligible
DK-RSC-026	Gopher Ordnance Works Building 718-A	152nd St. E. and Baron Ave.	115N	19W	35	NE	1942	Not Eligible
DK-RSC-027	Gopher Ordnance Works Buildings 102-A, 102-B, 102-C	152nd St. E.	115N	19W	35	NE	1942	Not Eligible
DK-RSC-028	House	151st St.	115N	19W	35	NE	1925	Non Extant
DK-RSC-029	Gopher Ordnance Works Building 706-B	Blaine Ave. South of 152nd St. E.	115N	19W	35	NE	1942	Not Eligible

**TABLE 1. PREVIOUSLY INVENTORIED ARCHITECTURAL HISTORY PROPERTIES**

<b>Inventory No.</b>	<b>Property Name</b>	<b>Address</b>	<b>T</b>	<b>R</b>	<b>S</b>	<b>¼ Sec.</b>	<b>Date of Constr.</b>	<b>NRHP Status</b>
DK-RSC-030	Gopher Ordnance Works Building 108-B	153rd Ave.	115N	19W	35	NE	1942	Not Eligible
DK-RSC-031	Gopher Ordnance Works Building 717-A	Babcock Ave. And 153rd St. E.	115N	19W	35	NW	1942	Not Eligible
DK-RSC-032	Gopher Ordnance Works Building 704-W	15325 Babcock Ave.	115N	19W	35	NW	1942	Not Eligible
DK-RSC-033	Gopher Ordnance Works Building 411-B	152nd St. E. and Babcock Ave.	115N	19W	35	NW	1942	Not Eligible
DK-RSC-034	Gopher Ordnance Works Building 746-C	155th St. E.	115N	19W	35	NE	1943	Not Eligible
DK-RSC-035	Gopher Ordnance Works Building 208-B	155th St. E.	115N	19W	35	SE	1942	Not Eligible
DK-RSC-036	Gopher Ordnance Works Buildings 412-A, 402-A	Blaine Ave.	115N	19W	36	NW	1942	Not Eligible
DK-RSC-037	Gopher Ordnance Works Structure 401-A	Blaine Ave. And 155th St. E.	115N	19W	36	NW	1942	Not Eligible
DK-RSC-038	Gopher Ordnance Works Building F	East of Blaine Ave.	115N	19W	36	NW	1942	Not Eligible
DK-RSC-039	Gopher Ordnance Works 214 Buildings	South of 156th St. E. between Barbara and Blaine Aves.	115N	19W	35	SE	1942	Not Eligible
DK-RSC-047	Minnesota & North Western Railway / Chicago Great Western Railway	Between Blaine Ave. and Clayton Ave.	115N	19W	36	NE	1886	Not Eligible

*Source: Minnesota SHPO Inventory Files*

In addition, nine architectural history properties were previously evaluated but not assigned SHPO inventory numbers. These properties were evaluated as part of BRW's Phase II investigation of the GOW potential historic district (Figure 2; Sluss and Malmquist 1998). The entire GOW property was recommended as not eligible for listing in the NRHP and SHPO concurred with the recommendation.

### 3.4 HISTORICAL DOCUMENT REVIEW

An examination of historical maps (Andreas 1874; W. W. Hixson & Company. 1916; Trygg 1966) indicated that at least one structure existed within the general area as early as 1874 and several structures existed in the general area by 1916. However, none of these structures resided within the actual project area. An industrial facilities inventory prepared by the U.S. Army Corps of Engineers in 1944 (Figure 3) indicates that three small outlying structures associated with the GOW property were constructed within the proposed project area in the 1940s (U.S. Army Corps of Engineers 1944). However, by 1953 the area was owned by the University of Minnesota and the structures appear to have been removed (Farm Plat Book Publishing Company 1953).

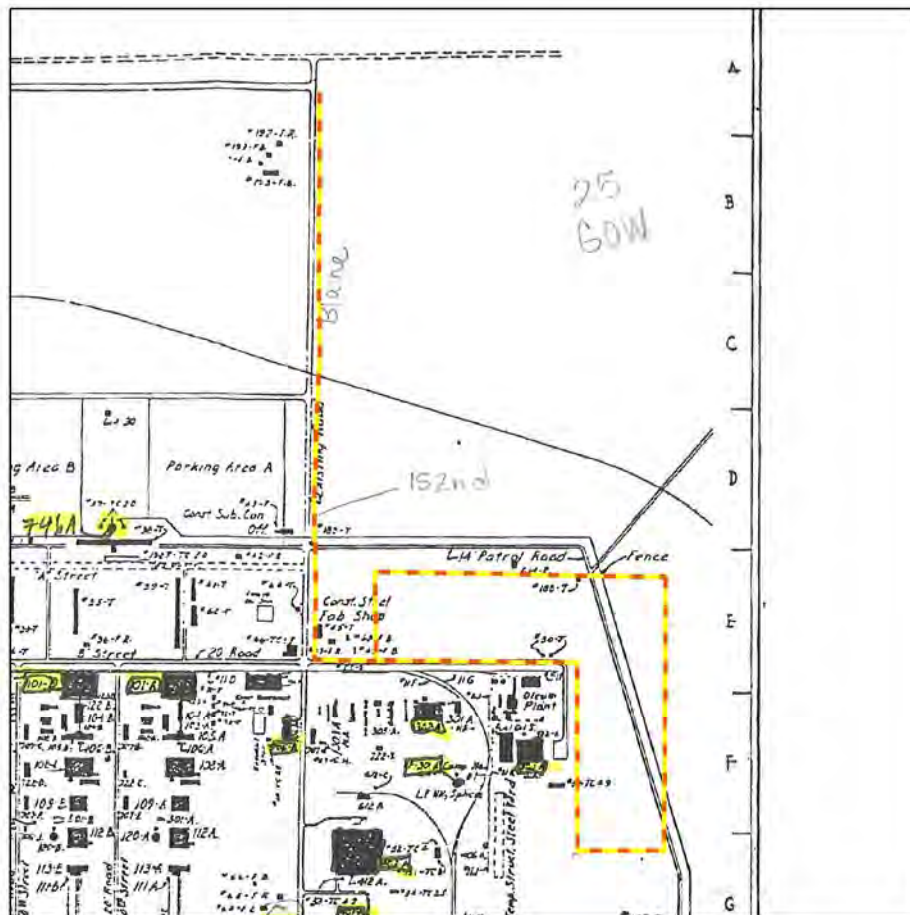
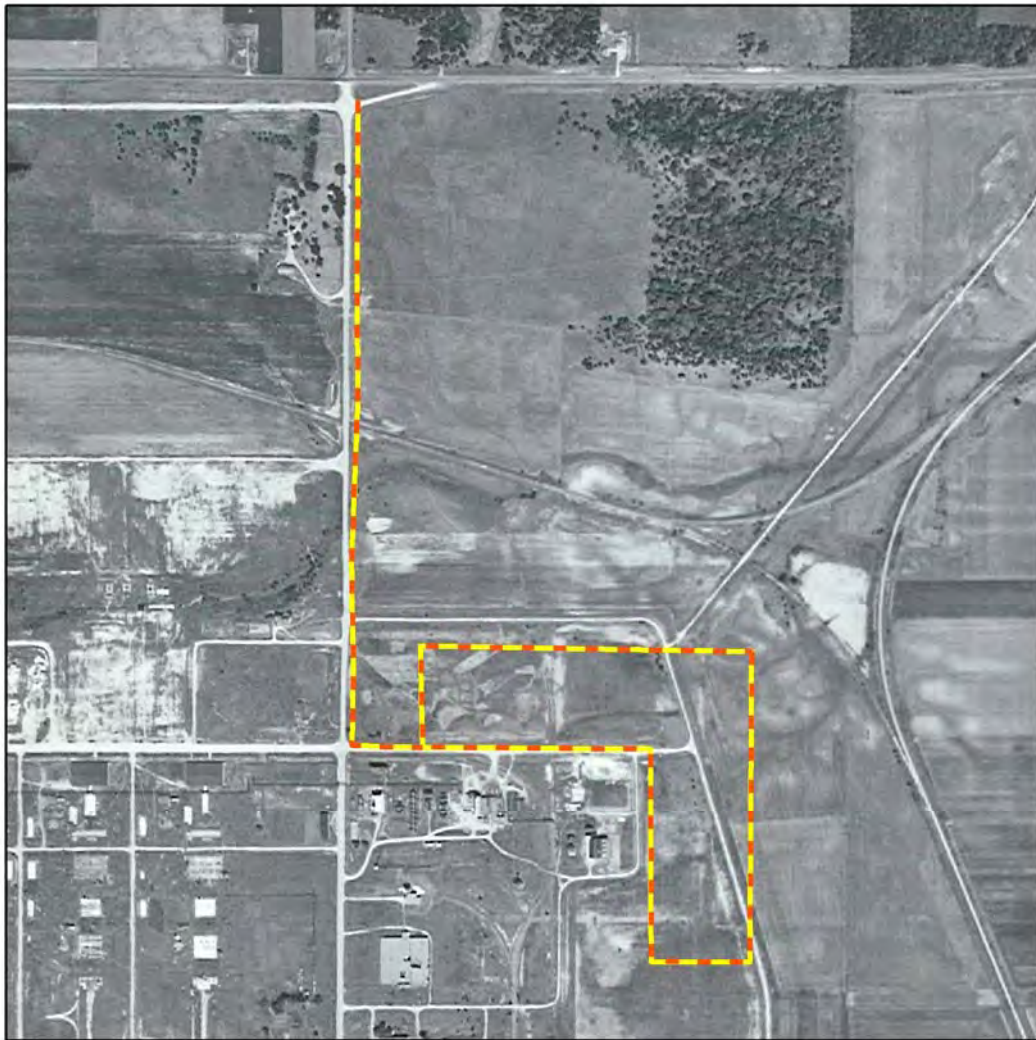


FIGURE 3. 1944 GOW FACILITIES INVENTORY MAP WITH PROJECT AREA OVERLAY

Historical aerial photographs from 1937, 1940, 1951, 1957, and 1964 were also examined. The images indicate that by 1937 the land comprising the proposed project area had been cleared and tilled for agricultural purposes. A 1951 aerial photograph indicates that, although three small outlying structures associated with the historic GOW property were located within the project area in the 1940s, the area appears to have been returned to agricultural use by 1951 (Figure 4). The aerial photographs also demonstrate that the proposed project area continued to serve as cultivated agricultural land over the next six decades to the present. As a result, the likelihood for intact post-contact sites within the project area is considered to be low.



**FIGURE 4. 1951 AERIAL PHOTOGRAPH WITH PROJECT AREA OVERLAY**



## 4.0 RESULTS

### 4.1 ARCHAEOLOGICAL INVESTIGATION

Staff from the 106 Group conducted a Phase IA archaeological survey of the project area on May 24, 2010. Anne Ketz, M.A. served as principal investigator and Mark Doperalski, B.S. conducted the fieldwork (see Appendix C for a list of project personnel).

At the time of the current survey, the project area consisted of portions of three agricultural fields broken up by wooded drainages and dirt roadways (Figures 5 and 6). The agricultural fields provided relatively flat to gently rolling topography with 50 to 95 percent surface visibility. The project area lacks topographically prominent areas and it does not lie within close proximity to naturally occurring water resources. Additionally, agricultural activities have altered the natural landscape. As a result, the project area was considered to possess a low potential for containing precontact archaeological resources.



**FIGURE 5. OVERVIEW OF THE PROJECT AREA; FACING NORTH**

As discussed in the literature review section, the project area has historically been used as cultivated agricultural land with exception to a brief period of use as part of the historic GOW property in the 1940s when three small outlying structures were constructed within the bounds of the project area (see Figure 3). A 1951 aerial photograph seems to demonstrate that, although three small outlying structures associated with the historic GOW property were located within the project area in the 1940s, the area appears to have been returned to agricultural use by 1951 (see Figure 4). The aerial photographs also demonstrate that the proposed project area continued to serve as cultivated agricultural land over the next six decades to the present. As a result, the likelihood for intact post-contact sites within the project area is considered to be low.



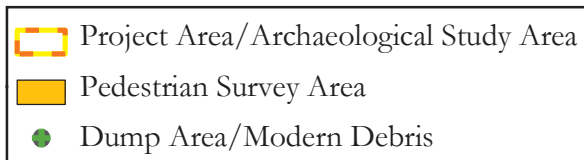
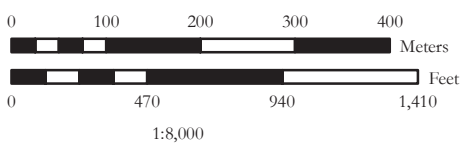


Source: USGS, LMIC, The 106 Group Ltd.

Map Produced The 106 Group Ltd. -06/04/2010

**UMore Park Research Wind Turbine Project  
Phase IA Archaeological and Architectural History Survey  
Dakota County, Minnesota**

**Archaeological Survey Results**



**Figure 6**

#### **4.1.1 Results**

As mentioned above, the agricultural fields provided 50 to 95 percent surface visibility. As a result, intensive pedestrian surface survey along transects set at 15-m (49-ft) intervals was used to test the project area. Three small dump areas were identified within one of the wooded drainage areas (see Figure 4). The dump areas contained modern debris consisting of tennis shoes, clothing, blankets, fireworks packaging, plastic bags, and tarp-like material. None of the items noted were over 20 years old and much of it appeared to have been deposited within the last year. No archaeological materials were discovered within the project area and no areas were identified that warranted subsurface testing.

Additionally, intensive pedestrian survey was conducted along the proposed 34.5 kV interconnect line corridor. The corridor has been greatly disturbed, as it runs directly adjacent to the east side of Blaine Avenue and falls within the existing road right of way. The corridor crosses two documented railroad lines; however, as the interconnect line will be traversing the railroad corridors within the existing road right of way, there is little potential for encountering intact archaeological resources associated with the two railroad properties.

## **4.2 ARCHITECTURAL HISTORY INVESTIGATION**

Staff from the 106 Group conducted a reconnaissance architectural history survey of the architectural history study area on May 24, 2010. Greg Mathis, M.C.R.P. served as principal investigator and Miranda Van Vleet, M.H.P. conducted the fieldwork (See Appendix C for a list of project personnel).

#### **4.2.1 Results**

During the reconnaissance architectural history survey, 79 properties 45 years of age or older were identified within the one-mile study area. Of these 79 properties, 19 were previously inventoried (see Table 1 and Figure 2), 9 were previously evaluated but not assigned SHPO inventory numbers (see Section 3.2 and Figure 2), and 51 are newly identified (see Table 2 and Appendix A). Of the 28 previously inventoried or evaluated properties, 26 have been previously determined not eligible for listing in the NRHP (25 of which are associated with the GOW); however, two properties (DK-COC-001 and DK-RSC-024) have either been recommended for further research or have had no determination of NRHP-eligibility (see Section 3.2 and Table 1). These two properties, as well as the 51 newly identified properties (Table 2; Figure 5), would need further investigation to determine their eligibility for listing on the NRHP.

**TABLE 2. PROPERTIES 45 YEARS OF AGE OR OLDER NOT PREVIOUSLY INVENTORIED OR EVALUATED WITHIN THE ARCHITECTURAL HISTORY STUDY AREA**

SHPO/ Field No.	Property Name	Address / Location	Property Type	Date
DK- COC- 001	St. Agatha Church	3700 160 <sup>th</sup> St. E.	Religious	ca. 1900
DK- RSC- 024	Farmstead	15102 Clayton Ave.	Residential	1885
1	Outbuilding	14110 Blaine Ave.	Outbuilding	ca. 1950
3	House	14217 Blaine Ave.	Residential	1955
4	House and Garage	14327 Blaine Ave.	Residential	1965
6	St. John's Lutheran Church Cemetery	14385 Blaine Ave.	Cemetery	ca. 1911
7	House and Garage	14380 Blaine Ct.	Residential	1954
8	Farmstead	1995 145 <sup>th</sup> St. E.	Farmstead	1910
9	House and Outbuildings	2051 145 <sup>th</sup> St. E.	Residential	1957
39	House and Outbuildings	14600 Blaine Ave.	Residential	ca. 1910
40	House and Garage	2583 145 <sup>th</sup> St. E.	Residential	1958
41	House and Outbuildings	2765 145 <sup>th</sup> St. E.	Residential	1948
42	St. John's Church and Parsonage	West of 2829 145 <sup>th</sup> St. E.	Religious	ca. 1911
43	House and Outbuildings	2829 145 <sup>th</sup> St. E.	Residential	1960
46	Outbuildings	3720 145 <sup>th</sup> St. E.	Outbuildings	ca. 1930
47	House and Outbuildings	3275 145 <sup>th</sup> St. E.	Residential	1942
48	Farmstead	3330 145 <sup>th</sup> St. E.	Farmstead	1955
49	House and Outbuildings	3381 145 <sup>th</sup> St. E.	Residential	1964
52	Virblas and Son Concrete Supply	16120 Coates Blvd.	Industrial	1964
54	House and Garage	16070 Coates Blvd.	Residential	1870
55	House	16048 Coates Blvd.	Residential	1910
56	Coates Corner	16022 Coates Blvd.	Commercial	1946
57	House and Garage	3590 160 <sup>th</sup> St. E.	Residential	1880
58	House	3610 160 <sup>th</sup> St. E.	Residential	1959
59	House	3660 160 <sup>th</sup> St. E.	Residential	1955

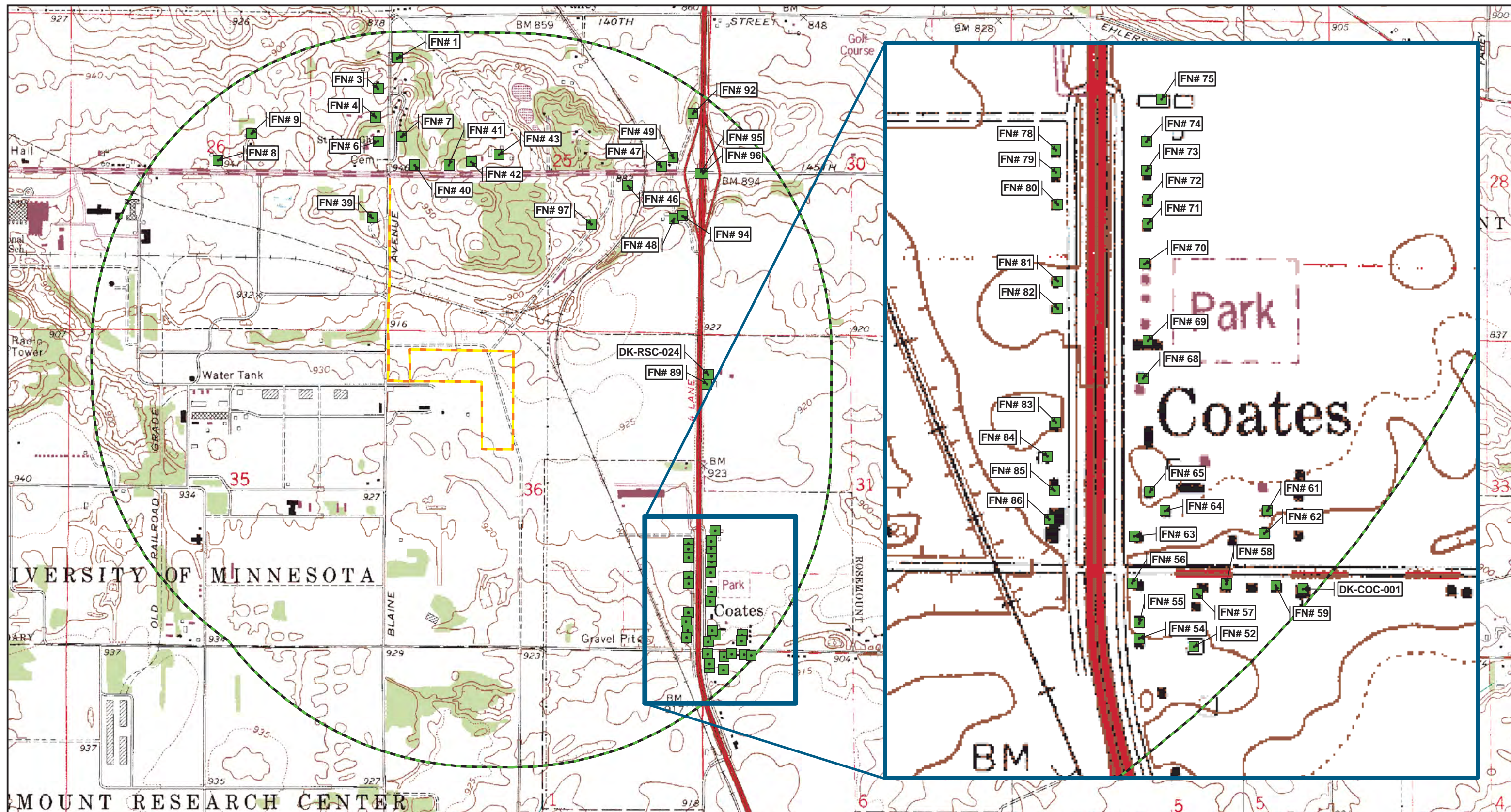


**TABLE 2. PROPERTIES 45 YEARS OF AGE OR OLDER NOT PREVIOUSLY INVENTORIED OR EVALUATED WITHIN THE ARCHITECTURAL HISTORY STUDY AREA**

SHPO/ Field No.	Property Name	Address / Location	Property Type	Date
61	House and Garage	15951 Comstock Ave.	Residential	1964
62	House and Garage	15993 Comstock Ave.	Residential	1955
63	House and Garage	15974 Clayton Ave.	Residential	1890
64	House	15950 Clayton Ave.	Residential	1920
65	House and Garage	15944 Clayton Ave.	Residential	1929
68	House	15820 Clayton Ave.	Residential	1950
69	House	15800 Clayton Ave.	Residential	1960
70	House and Garage	15744 Clayton Ave.	Residential	1890
71	House and Garage	15700 Clayton Ave.	Residential	1910
72	House and Garage	15690 Clayton Ave.	Residential	1910
73	House	15660 Clayton Ave.	Residential	1910
74	House	15646 Clayton Ave.	Residential	1914
75	Olson Carriers	15640 Clayton Ave.	Industrial	ca. 1964
78	House and Garage	15643 Clayton Ave.	Residential	1957
79	House	15679 Clayton Ave.	Residential	1957
80	House and Outbuilding	15697 Clayton Ave.	Residential	1950
81	House and Garage	15717 Clayton Ave.	Residential	1947
82	House	15777 Clayton Ave.	Residential	1954
83	House and Garage	15901 Clayton Ave.	Residential	1945
84	House and Garage	15915 Clayton Ave.	Residential	1925
85	House and Garage	15933 Clayton Ave.	Residential	1954
86	Jake's Exotic Dancers	15981 Clayton Ave.	Commercial	1948
89	House	15150 Clayton Ave.	Residential	1951
92	House and Outbuildings	3405 145 <sup>th</sup> St. E.	Residential	1956
94	House and Garage	14727 Clayton Ave.	Residential	1964
95	Bridge 19001	U.S. Highway 52 Southbound	Bridge	1962
96	Bridge 19002	U.S. Highway 52 Northbound	Bridge	1961
97	Vic's Crane and Heavy Haul	3000 145 <sup>th</sup> St. E.	Industrial	1960

*Source: 106 Group Field Notes, Dakota County Tax Assessor Website*



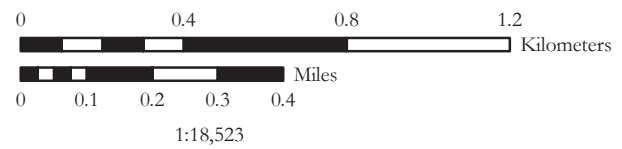


Source: 7.5 Minute USGS Quadrangles; LMIC; The 106 Group Ltd.

Map Produced by The 106 Group Ltd. -06/02/2010

**UMore Park Research Wind Turbine Project  
Phase IA Archaeological and Architectural History Survey  
Dakota County, Minnesota**

**Architectural History Survey Results**



- Project Area
- Architectural History Study Area
- Property 45 Years of Age or Older Not Previously Inventoried/Evaluated



**Figure 7**



## **5.0 RECOMMENDATIONS**

### **5.1 ARCHAEOLOGY**

During the Phase IA archaeological survey of the project area for the UMore Park Research Wind Turbine Project, no archaeological sites were discovered within the archaeological study area. Additionally, no areas were identified that warranted subsurface testing. As a result, the 106 Group recommends no further archaeological work prior to construction as currently planned.

### **5.2 ARCHITECTURAL HISTORY**

During the reconnaissance architectural history survey, the 106 Group identified 79 properties 45 years in age or older. Of these 79 properties, 19 were previously inventoried, nine were previously evaluated but not assigned SHPO inventory numbers, and 51 are newly identified.

The proposed project area is located in a relatively open rural area. Photo simulations of the proposed wind turbine and meteorologic tower prepared by Barr Engineering (Appendix B) indicate that in open areas, the turbine and tower may be visible from distances of 0.5 miles or more (see simulation VP 02). However, a photo simulation of the view from an area in the Town of Coates (VP 01) indicates that from some areas within the one-mile architectural history study area, trees and other vegetation may block views of the project area. Unfortunately, due to confidentiality issues, that photo simulation could not be included in this report.

The DOE, as the lead federal agency, is responsible for determining an APE. Once an APE has been defined, pursuant to Section 106, the 106 Group recommends that a Phase I architectural history survey be conducted of those properties that have not been previously inventoried or evaluated for listing in the NRHP located within the APE.

## 6.0 REFERENCES CITED

### Agricultural Experiment Station

1973 *Minnesota Soil Atlas: St. Paul Sheet*. Miscellaneous Report # 120-1973. Agricultural Experiment Station, University of Minnesota, St. Paul.

### Andreas, A.T.

1874 *An Illustrated Historical Atlas of the State of Minnesota*. A.T. Andreas, Chicago.

### Anfinson, S. F.

2005 *SHPO Manual for Archaeological Projects in Minnesota*. State Historic Preservation Office, St. Paul, Minnesota.

### Dabrowski, Mario

1977a *Visual Reconnaissance Survey of Twin Cities Suburbs: Rosemount*. On file at the Minnesota State Historic Preservation Office, St. Paul, Minnesota.

1977b *Visual Reconnaissance Survey of Twin Cities Suburbs: Coates*. On file at the Minnesota State Historic Preservation Office, St. Paul, Minnesota.

### Dakota County Tax Assessor

2010 Property Information Records. Electronic document.  
(<http://www.co.dakota.mn.us/HomeProperty/PropertyInformation/default.htm>). Accessed June 2010.

### Farm Plat Book Publishing Company

1953 *Official County Plat Book and Farmers' Directory of Dakota County, Minnesota*. Farm Plat Book Publishing Company, Mankato, Minnesota.

### Lauber, John

2006 *A Historical Interpretation and Preservation Plan for UMore Park*. Historic Preservation and Community Planning. On file with the University of Minnesota.

### Minnesota State Historic Preservation Office (SHPO)

1993 Tier II: Post Contact Period Contexts (1837-1945). In *Preserving Minnesota: A Comprehensive Planning Process*. On file at the Minnesota State Historic Preservation Office, St. Paul, Minnesota.

2005 *SHPO Guidelines for History/Architecture Projects in Minnesota*. State Historic Preservation Office, St. Paul, Minnesota.

### National Park Service

1983 Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation. *Federal Register* 48(190):44716-44740.

Roise, Charlene

1993 *Cultural Resources Survey Dakota County Airport Study Area Volume II: The Built Environment*. On file at the Minnesota State Historic Preservation Office, St. Paul, Minnesota.

Sluss, Jackie and Chandra Malmquist

1998 *A Phase I Archaeological Investigation of Future County Road 46 (CSAH 46), and Phase II Evaluation of the Gopher Ordnance Works, Dakota County, Minnesota*. On file at the Minnesota State Historic Preservation Office, St. Paul, Minnesota.

Trygg, J. W.

1966 *Composite Map of U.S. Land Surveyor's Original Plats and Field Notes*. Trygg Land Office, Ely.

U.S. Army Corps of Engineers

1944 *Gopher Ordnance Works Industrial Facilities Inventory Map*. U.S. Army Corps of Engineers, Fort Worth, Texas.

United States Department of Agriculture

2010 Web Soil Survey. Electronic document.  
<http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>. Accessed June 2010.

USDA Soil Survey Staff

2010 Official Soil Series Descriptions. Electronic document  
<http://soils.usda.gov/technical/classification/osd/index.html>. Accessed June 2010.

W. W. Hixon Company

1916 *Platbook of Minnesota*. W. W. Hixson & Company, Rockford, Illinois.

**APPENDIX A: PHOTOGRAPHS OF PROPERTIES 45 YEARS OF AGE OR  
OLDER NOT PREVIOUSLY INVENTORIED OR EVALUATED WITHIN THE  
STUDY AREA**





**SHPO Inventory No. DK COC-001, St. Agatha Church, facing SW**



**SHPO Inventory No. DK COC-002, Farmstead, facing NE**



**Field No. 1, Outbuilding, facing SE**



**Field No. 3, House, facing SW**



**Field No. 4, House and Garage, facing W**



**Field No. 6, St. John's Lutheran Church Cemetery, facing S**





**Field No. 7, House and Garage, facing NE**



**Field No. 8, Farmstead, facing N**





**Field No. 9, House and Outbuildings, facing NW**



**Field No. 39, House and Outbuildings, facing W**



**Field No. 40, House and Garage, facing N**



**Field No. 41, House and Outbuildings, facing N**





**Field No. 42, St. John's Church and Parsonage, facing N**



**Field No. 43, House and Outbuildings, facing NE**



**Field No. 46, Outbuildings, facing S**



**Field No. 47, House and Outbuildings, facing N**





**Field No. 48, Farmstead, facing SE**



**Field No. 49, House and Outbuildings, facing NW**



**Field No. 52, Virblas and Son Concrete Supply, facing NE**



**Field No. 54, House and Garage, facing NE**



**Field No. 55, House, facing NE**



**Field No. 56, Coates Corner, facing SE**





**Field No. 57, House and Garage, facing SW**



**Field No. 58, House, facing SE**





**Field No. 59, House, facing S**



**Field No. 61, House and Garage, facing SW**



**Field No. 62, House and Garage, facing W**



**Field No. 63, House and Garage, facing N**





**Field No. 64, House, facing E**



**Field No. 65, House and Garage, facing E**





**Field No. 68, House, facing E**



**Field No. 69, House, facing NE**



**Field No. 70, House and Garage, facing E**



**Field No. 71, House and Garage, facing E**





**Field No. 72, House and Garage, facing NE**



**Field No. 73, House, facing NE**





**Field No. 74, House, facing SE**



**Field No. 75, Olson Carriers, facing NE**



**Field No. 78, House and Garage, facing SW**



**Field No. 79, House, facing SW**





**Field No. 80, House and Outbuilding, facing W**



**Field No. 81, House and Garage, facing SW**





**Field No. 82, House, facing W**



**Field No. 83, House and Garage, facing NW**



**Field No. 84, House and Garage, facing SW**



**Field No. 85, House and Garage, facing W**



**Field No. 86, Jake's Exotic Dancers, facing NW**



**Field No. 89, House, facing SW**





**Field No. 92, House and Outbuildings, facing W**



**Field No. 94, House and Garage, facing NW**

**Field No. 95, Bridge 19001, Unavailable**

**Field No. 96, Bridge 19002, Unavailable**



**Field No. 97, Vic's Crane and Heavy Haul, facing S**

**APPENDIX B: PHOTO SIMULATIONS OF PROPOSED TURBINE**



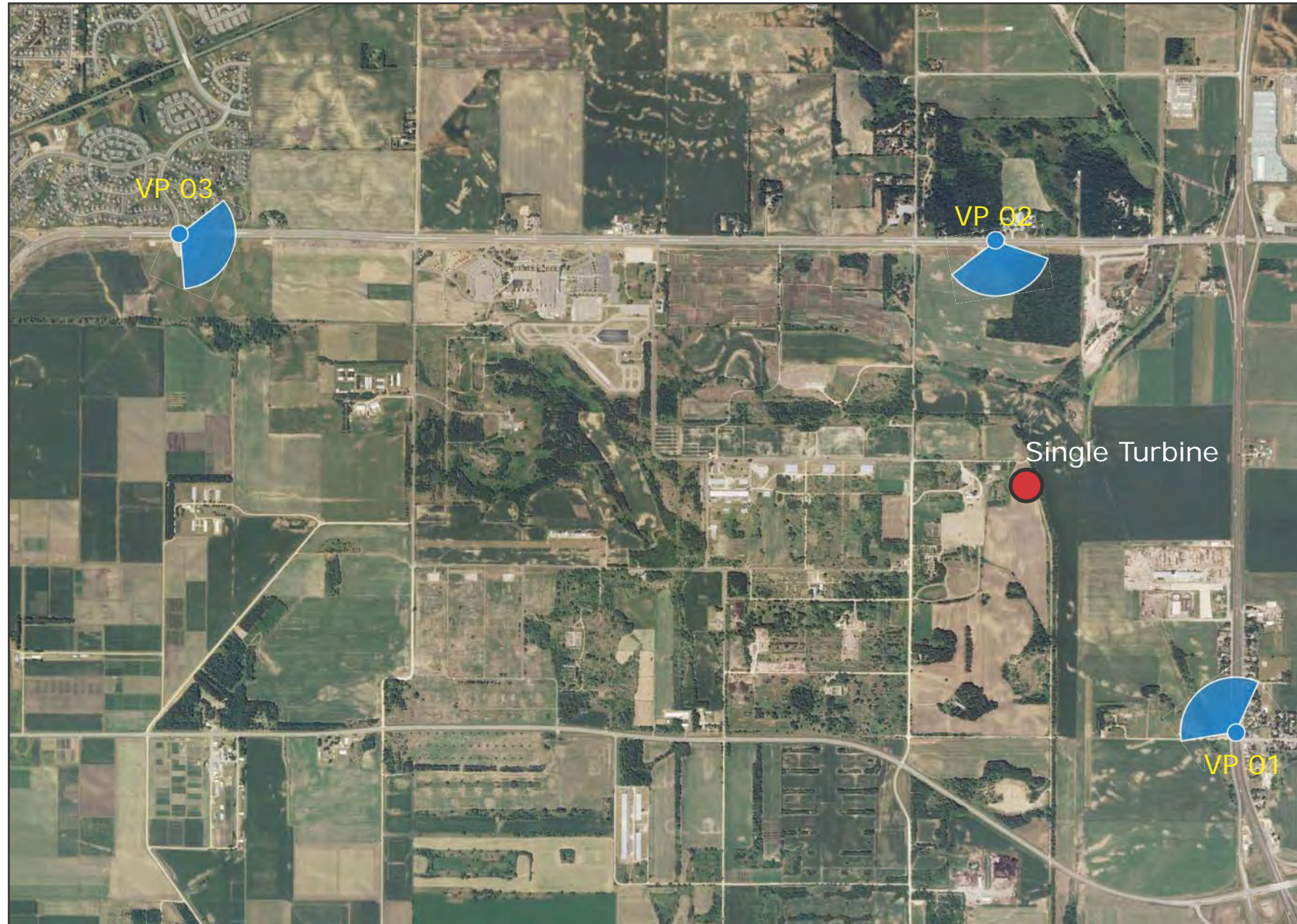


Barr Engineering  
Minnesota Single Turbine



Reduced Size TrueView™ 2 Photo Simulations  
30 June 2010

# Viewpoint Locations



## Barr Engineering - Minnesota Single Turbine

- VP 01 Corner of Clayton Ave E and 160th St E  
Looking Northwest Toward Turbine
- VP 02 Co Road 42  
Looking South Toward Turbine
- VP 03 145th St W  
Looking East Toward Turbine



VP 01 removed for confidentiality reasons



# VP 02 Co Road 42



Viewpoint 02 - Co Road 42 - Looking toward South



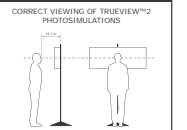
**BARR ENGINEERING**  
Rosemount Single Turbine Project

**VIEWPOINT 02**  
Co Road 42  
Looking toward South

- Turbine Position
- MET Tower Position



EASTING POSITION (Dakota County)	549027.7
NORTHING POSITION (Dakota County)	197495.8
ELEVATION OF VIEWPOINT POSITION (ft)	660.2
SHARD #02	0.4
HEIGHT OF CAMERA ABOVE GROUND (ft)	5
DATE OF PHOTOGRAPHY	June-01-2010 at 12:00 pm
ORIENTATION OF VIEW	5
HORIZONTAL FIELD OF VIEW	124°
DISTANCE TO THE TURBINE (miles)	0.7



**NOTES**  
Viewpoint locations have been prechecked surveyed by:  
Barr Engineering  
Ben Ludwig  
Center for the Environment  
Minneapolis office  
No part of this photosimulation shall be altered in any way.  
These photosimulations shall not be reproduced or used electronically or in any form without the permission from Barr Engineering.

PHOTOSIMULATION CREATED USING  
TrueView™ 2 TECHNOLOGY  
PROVIDED BY



WWW.TRUESCAPE.COM

DATE PRINTED: June-30-2010



# VP 03 145th St W



Viewpoint 03 - Corner of 145th St W and Auburn Ave - Looking toward East



**BARR ENGINEERING**  
 Rosemount Single Turbine Project

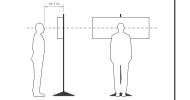
**VIEWPOINT 03**  
 Corner of 145th St W and Auburn Ave  
 Looking toward East

- Turbine Position
- MET Tower Position



EASTING POSITION (Dakota County)	558289.4
NORTHING POSITION (Dakota County)	197918.2
ELEVATION OF VIEWPOINT POSITION (ft)	608.1
GRADE (ft)	5.4
HEIGHT OF CAMERA ABOVE GROUND (ft)	6
DATE OF PHOTOGRAPHY	June-01-2010 at 12:17 pm
ORIENTATION OF VIEW	0
HORIZONTAL FIELD OF VIEW	124°
DISTANCE TO THE TURBINE (miles)	2.7

**CORRECT VIEWING OF TRUEVIEW™2 PHOTOSIMULATIONS**



**NOTES**  
 Viewpoint locations have been precision surveyed by Barr Engineering  
 Ben Cady  
 Senior Survey Technician  
 Minnesota Office  
 No part of this photosimulation shall be altered in any way.  
 These documents shall not be reproduced or used electronically or in any form without the prior written permission of Barr Engineering.

PHOTOSIMULATION CREATED USING  
 TrueView™ 2 TECHNOLOGY  
 PROVIDED BY



WWW.TRUESCAPE.COM

DATE PRINTED: June-30-2010

**APPENDIX C: LIST OF PROJECT PERSONNEL**



## LIST OF PERSONNEL

Principal-In-Charge	Anne Ketz, M.A., RPA
Project Manager	Jennifer Bring, B.A.
Principal Investigators Archaeology Architectural History	Anne Ketz, M.A., RPA Greg Mathis, M.C.R.P.
Field Archaeologist	Mark Doperalski, B.S.
Field Historian	Miranda Van Vleet, M.H.P.
Graphics and GIS	Nathan Moe, B.A.