6. ENVIRONMENTAL INFORMATION – PROPOSED PROJECT

Minn. Rules pt. 7849.0330 paragraph G and Minn. Rules pt. 4400.1150, subp. 2 paragraphs E and F, and subp. 3 require environmental information for the proposed project that is intended to meet the needs of the northern Lake Mille Lacs area load center. This portion of the Application provides a description of the land use and environmental setting associated with the project.

The project has been reviewed by a number of state and federal agencies. All environmental review correspondence related to the proposed 115 kV transmission line route is provided in Appendix A. The questions raised in those correspondences are addressed in this section of the Application.

6.1 Description of Environmental Setting

GRE is proposing to construct a 115 kV transmission line connecting the Wilson Lake Substation with the Mud Lake Substation located in Crow Wing County, Minnesota, northwest of the town of Garrison and east of Brainerd. The total length of the proposed 115 kV transmission line is approximately 12 miles. The proposed Project Corridor for the 115 kV transmission line is located in the townships of Nokay Lake, Oak Lawn, Long Lake, Bay Lake, Garrison, and Maple Grove in Crow Wing County as identified in Figure 6-1. Much of the corridor is undeveloped wetland, forested, and cultivated land. Some residential areas and several businesses occur along STH 18 and are scattered along the lakeshores that exist within the corridor.

The environmental setting within the Project Corridor includes hydrologic features such as creeks, ditches, wetlands, and riparian areas. A mix of groundcover is also present along the proposed route. The physiographic features (topography, soils, geology, and farmland) are typical of this area and do not preclude the development of this project.

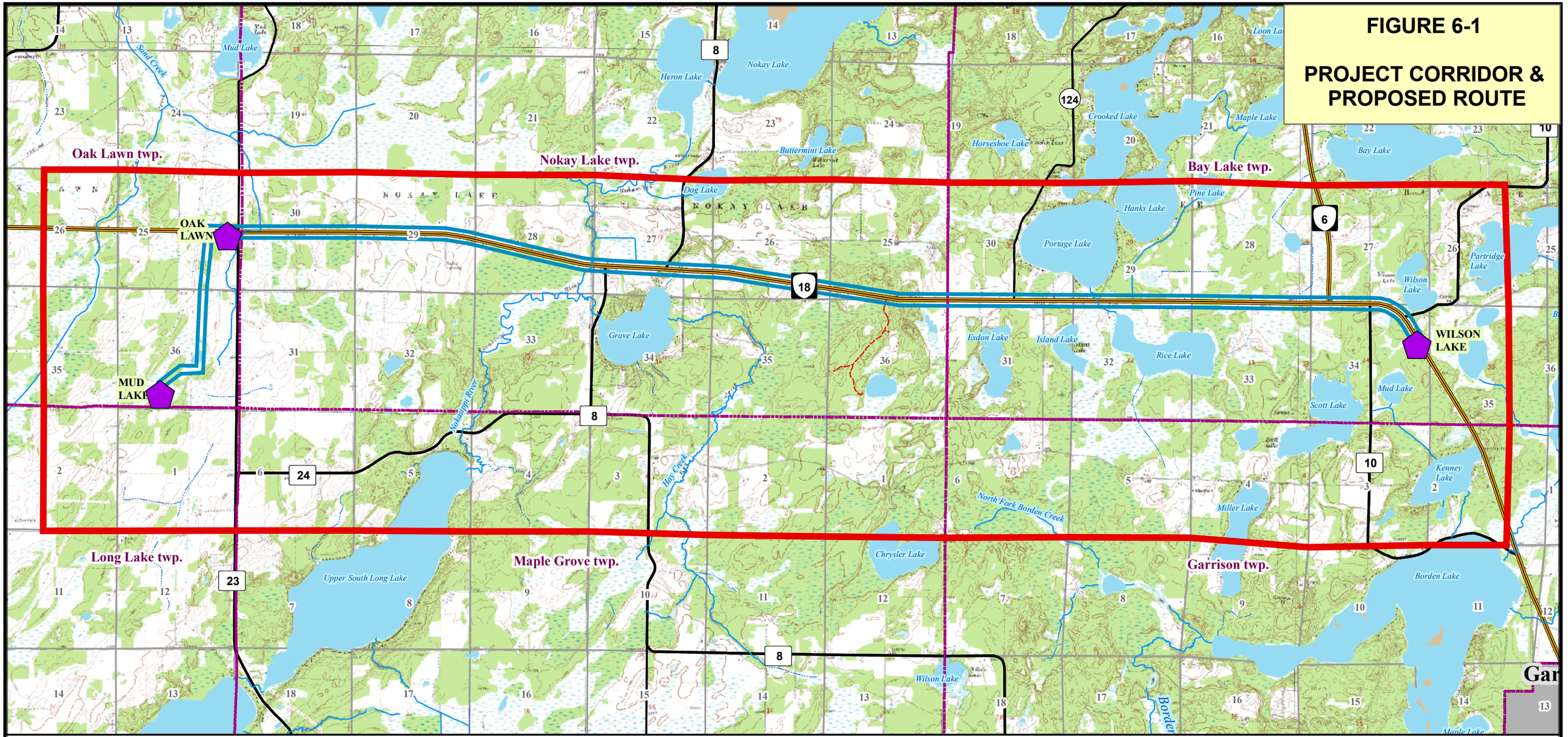
Wildlife habitat exists in pockets throughout the proposed route. There are 12 listings of rare plants and animals within the Project Corridor. These include seven listings of a vascular plant and five listings of a vertebrate animal according to the Minnesota Department of Natural Resources (DNR) Natural Heritage Program.

Land use along the Project Corridor includes a mix of public, residential, business, open space, and agricultural lands. The residential areas within the Project Corridor are primarily single-family homes of varying density. Open space areas include wetlands, forest, and cultivated land.

Information on environmental resources in both the Project Corridor and along the proposed transmission line route is provided in this section. Fieldwork along the proposed route needed to prepare this Application was completed in spring 2006.

FIGURE 6-1

PROJECT CORRIDOR & PROPOSED ROUTE



Substation
Proposed Transmission Route
Project Corridor
Municipality
Civil Township
Section Line

Roads (MN DOT)
US Highway
MN State Highway
County State-aid Highway
County Road
State Forest Road

Water Features (MN DNR)
River
Stream or Drainage Ditch (Perennial)
Stream or Drainage Ditch (Intermittent)
Lake or Pond
Island

N W E S

0.5 0.25 0 0.5 1 1.5 Miles

1 inch equals 0.80 miles

Disclaimer: Houston Engineering, Inc. does not guarantee this data to be free from errors or inaccuracies and disclaims any responsibility or liability for interpretations or decisions based on this data. Any errors found should be reported to the original data source provider.

Data Source: MN DNR, Houston Engineering, Inc., USGS & MN DOT. Project Area and Proposed Transmission Corridor shapefiles provided by United Services Group - Great River Energy.

Great River Energy - Wilson Lake Transmission Line

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Figure 6-1 Project Corridor and Proposed Route

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
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6.2 Effects on Human Settlement

6.2.1 Public Health and Safety

The Minnesota Department of Transportation (DOT), Office of Aeronautics was contacted (GRE letter of March 1, 2006, Appendix A) requesting information on the possible effects of the proposed project on airports or airstrips in the project area. In an e-mail dated May 10, 2006 (Appendix A), the DOT indicated that the nearest public use airport is the Brainerd Lakes Regional Airport. A new runway has just been built at this airport, which is located several miles northwest of the proposed project. The DOT recommended that GRE check with the Airport Manager to determine if the line would interfere with approaches to the airport. In an e-mail response dated July 26, 2006 (Appendix A), a project manager indicated that more information is required to determine whether there would be an airspace issue. GRE believes that given the height of the poles, glide slope, and distance to the airport, the line will not interfere with the operation of the airport. However, once design details are available, GRE will work with the DOT and FAA to obtain a determination. GRE is not aware of any private airstrips in the vicinity.

GRE is working in cooperation with the Federal Aviation Administration (FAA) with regard to the proposed construction of the Wilson Lake 115 kV transmission line project. The FAA operates, maintains, and is responsible for the operational integrity of a Very High Frequency Omnirange (VOR) aviation navigational facility in the vicinity of the proposed transmission line route. GRE is currently surveying the proposed transmission route in the vicinity of the VOR. Upon survey completion, GRE will submit a "notice of proposed construction or alteration" (FAA Form 7460-1) as required by the FAA. Studies are ongoing to determine the effect, if any, the transmission line may have on the VOR facilities. Possible solutions to avoid interference issues include changing the conductor configuration, spacing of conductors, changing pole heights, etc., prior to construction.

The primary public health and safety issues with electrical transmission lines are electric and magnetic fields (EMF), which are discussed in Section 7.3 of this document, and ozone and nitrogen oxide emissions, which are discussed in Sections 6.5.1 and 7.4.

6.2.2 Displacement

The new transmission line and poles will be constructed such that no person will be displaced from their residence or business.

6.2.3 Noise

There will be two sources of audible noise from the project; the conductors along the transmission line and the existing Mud Lake and Wilson Lake substations.

Although changes to the equipment at the existing Mud Lake Substation will be made, existing noise levels at that substation will not increase.

Conductor Noise

Audible noise from electrical conductors is due to point source corona (minor breakdown of air insulating a conductor), and is a function of conductor voltage gradient. Noise emission from a transmission line occurs during heavy rain and wet conductor conditions. In foggy, damp, or rainy weather conditions, power lines can create a crackling sound due to the small amount of electricity ionizing the moist air near the wires. During heavy rain, the general background noise level is usually greater than the noise from the transmission line and few people are out near the line at these times. As a result, people do not normally notice audible noise from a transmission line during heavy rain. Transmission lines will typically produce audible noise at household background levels during light rain, dense fog, snow, and other times when there is moisture in the air. During dry weather, audible noise from transmission lines is barely perceptible.

Audible noise is generally measured by the decibel (dB(A)) scale (the "A" suffix refers to the weighting network used for measurement), which is used for general noise ordinances.

The proposed 115 kV line operating at or below 121 kV should not exceed approximately 12 dB(A) at the edge of the right of way during fair weather conditions. When dry, the noise level at the right of way edge will be essentially inaudible. During a heavy rain (one inch per hour) the noise level may approach 18 dB(A) at the right of way edge. However, background noise levels will also be greatly increased during this type of weather event.

Some common noise levels are listed in Table 6-1.

Table 6-1 Common Noise Levels

Sound Level db(A)	Environmental Condition
134	Threshold of pain
114	Loud automobile horn
80-90	Inside motor bus
74	Average traffic on street corner
60-70	Conversational speech
54	Typical business office
40-50	Living room, suburban area
34	Library
20-30	Bedroom at night
14	Broadcast studio
0-10	Threshold of hearing

Source: Electric Power Research Institute (EPRI), 1982.
Note: Noise levels for a 115 kV transmission line would be between 0 and 18 dB(A), depending on the weather.

The Noise Control Requirement in Minnesota Pollution Control Agency (MPCA) Minn. Rules 7030.0030 (MPCA, Undated) states that noise contributors shall comply with the Noise Area Classifications (NAC) Rule criteria (Minn. Rule 7030.0040) shown in Table 6-2.

The noise area classification is based on land use activity at the location of the receiver. For example, household units are defined under NAC (1), bus passenger terminals are defined under NAC (2), and transportation right of way is defined under NAC (3). NAC (1) includes the most noise-sensitive areas such as households, hospitals, churches, and campgrounds. The L_{10} is defined as the noise level exceeded 10 percent of the time, or for six minutes in an hour. The L_{50} is the noise level exceeded 50 percent of the time, or for 30 minutes in an hour. The L_5 is the noise level exceeded five percent of the time, or for three minutes in an hour.

Table 6-2 Rule 7030.0040 Noise Area Classifications

	Day (0700-2200)		Night (2200-0700)	
NAC	**L_{50}**	**L_{10}**	**L_{50}**	**L_{10}**
1	60	65	50	55
2	65	70	65	70
3	75	80	75	80

The industry standard for utilities is calculated based on L_{50} and L_5 for audible noise emissions. The worst-case scenario is when the transmission line is exposed to heavy rain conditions (one inch per hour). Anticipated levels for heavy rain conditions for the proposed 115 kV line based on the results from the Bonneville Power Administration Corona and Field Effects Program version 3 (U.S. Department of Energy (USDOE), Bonneville Power Administration (BPA), Undated) are listed in Table 6-3.

Table 6-3 BPA Program Results – Heavy Rain Case

L_5	L_{50}	NAC Category
17.7 dB(A)	14.2 dB(A)	1 (edge of right of way)
18.8 dB(A)	15.3 dB(A)	3 (directly under the line)

BPA has developed a general guideline based upon public response to alternating current (AC) transmission line audible noise. The guideline indicates that numerous complaints can be expected if the line noise exceeds approximately 58.5 dB(A) and that few complaints should be expected if audible noise is limited to 52.5 dB(A). The calculated values for the proposed project are well below the guidelines mentioned above and audible noise will be barely perceptible during fair weather.

Substation Noise

Transformers at substations produce noise under certain conditions. The level of noise or its loudness depends on conductor conditions, voltage level, and weather conditions. Generally, noise levels during operation and maintenance of substations are minimal.

The new 115/69 kV step-down transformer to be added to the MLEC Wilson Lake distribution substation will be designed and constructed to comply with state noise standards.

None of the proposed changes at the Wilson Lake Substation will impact existing noise levels. This substation is located in a rural area surrounded by wooded areas and agricultural uses, and should not create significant noise impacts.

No additional equipment is planned for the Mud Lake Substation that would increase existing noise levels. The Mud Lake Substation will require only minor physical changes and is surrounded by a wooded area. There have been no previous noise issues associated with the substation.

6.2.4 Aesthetics

The GRE 115 kV single circuit line will use single pole wood structures with horizontal post insulators. The average height will be approximately 70 feet, with an average span of 250 to 300 feet.

The structures proposed for the transmission line will have a narrow profile that is designed to be less intrusive than other types of structures.

The transmission line will be visible along STH 18. In some areas it will replace an existing distribution line, which will be carried as distribution underbuild on the new poles. Land use along STH 18 is primarily agricultural, wooded, or wetlands with some scattered farmsteads and residences. Two sets of lines will be visible for 1.5 miles of the route heading north out of the Mud Lake Substation. This area is largely agricultural. No significant impacts to the visual character of this area will occur.

6.2.5 Socioeconomics

Demographics

The population of the Crow Wing County in 2000 was 55,099 (Table 6-4) with a 25% increase in population from 1990 through 2000. In 2000 the number of persons per square mile (density) was 55.3 and the number of housing units was 33.6. The home ownership rate in 2000 was 79.7% and housing units in multi-unit structures 9.9%.

The minority population includes individuals who are members of the following population groups: Black, American Indian or Alaskan Native; Asian; Native Hawaiian or other Pacific Islander; or Hispanic or Latino.

Based on the 2000 Census, Crow Wing County had a 98% White population a 0.3% Black population, 0.7% American Indian population, 0.2% Asian population, 0.01% Native Hawaiian or other Pacific Islander, and a 0.7% Hispanic or Latino population. The 2000 population was almost evenly split between males and females (49.2% and 50.8%, respectively). The age group composition was 24.8% for persons under 18 years old, 17.1% for persons 65 years and older, and 58.1% for 18-64 year olds.

Table 6-4 Population Characteristics

Location	Population 2000	Population 2004 (est)	Change 2000-2004	Forecasted Population 2030	Change 2000-2030
Minnesota	4,919,479	5,100,958	181,479	6,268,200	27.4 %
Crow Wing County	55,099	59,431	4,332	65,949	24.5%

Source: US Census Bureau, 2000

Crow Wing County is generally less racially and ethnically diverse than the state of Minnesota as a whole (Table 6-5). Neither racial nor ethnic minorities would be disproportionately affected by the project.

Table 6-5 Race/Ethnicity Characteristics

Place	Population	Percentage of Population						
		White	Black/ African-American	American Indian	Asian/ Pacific Islander	Other Race	More than One Race	Hispanic /Latino
Minnesota	4,919,479	89.4	3.5	1.1	z	1.3	2.9	2.9
Crow Wing County	55,099	97.6	0.3	0.8	z	0.2	1.8	0.7
Bay Lake Twp	923	98.4	0	x	x	0	x	x
Garrison Twp	796	97.4	x	0.01	0	x	x	x
Maple Grove Twp	665	99.0	0	x	x	0	x	x
Nokay Lake Twp	681	97.9	x	x	x	x	x	0.1

Z – Value greater than zero but less than 0.1% Source: U.S. Census Bureau, 2000
X – Value greater than 0.01%

The 1999 median household income for Crow Wing County was $37,589 with 9.8% of people living below the poverty level (Table 6-6).

Table 6-6 Household Economic Characteristics, 2000

Place	Median Household Income	Home Ownership Rate	Median Value of Owner Occupied Housing	Persons per household	Percentage Below Poverty Level Individuals
Minnesota	$47,111	74.6	$122,400	2.52	7.9
Crow Wing County	$37,589	79.7	$107,500	2.43	9.8

Source: U.S. Census Bureau, 2000

6.2.6 Cultural Values

As part of the development of the update to Crow Wing County's Comprehensive Plan (Crow Wing County, 2004) originally adopted in 1970 and updated in 1994 and 2004, residents and other stakeholders were asked to identify both a vision for the future of the county and the values that should guide development. Crow Wing County lies in the heart of the Central Lakes Region, the fifth fastest growing region in the State of Minnesota from 1990-2000. The region is well known for its lakes, forests, wetlands, and natural beauty. The County has recognized that areas of growth need to be the focus of intense growth management with an emphasis placed on preserving lakes, forests, and wetlands that are the very amenities that make these areas desirable places to live and vacation (Crow Wing County, 2004).

6.2.7 Public Services

Public services provided in the Wilson Lake area (i.e., police, fire protection, waste collection, etc.) will not be affected by the proposed transmission project. There are no anticipated impacts on the public services in the community.

6.2.8 Potential Impacts/Mitigation

There will be minimal short-term impacts on the human environment during the physical placement of the transmission line poles. This will be a temporary impact with no anticipated long-term impacts.

The proposed transmission line exits MP's Mud Lake Substation to the east side of GRE's existing 230 kV transmission line, proceeds north paralleling the 230 kV line for approximately 1.5 miles to the intersection of STH 18, then runs east along STH 18 for approximately 10.5 miles to the MLEC Wilson Lake Substation. Most of the existing MLEC and CWP overhead distribution lines along STH 18 will be removed, upgraded, and attached to the new transmission line. The transmission project will provide the customers from the local Cooperatives with a reliable and efficient future energy supply; therefore, some of the anticipated impacts are positive.

There is no anticipated mitigation necessary for the effects on human settlement.

6.3 Effects on Land-Based Economies

6.3.1 Agriculture

Undeveloped land and agricultural land occur in patches across the entire Project Corridor and along the length of the proposed route. These areas consist of pastureland and some small scale agricultural operations. The agricultural sites are tilled for row crop production and are currently planted in soybean or corn.

6.3.2 Forestry

Project Corridor

The citizens of Crow Wing County value forest resources for many reasons that contribute to the economy, environment, and quality of life in Crow Wing County. Much of the forested area in the county is scattered and isolated. The project corridor contains 218 acres of coniferous forests, 2510 acres of deciduous forests, 200 acres of mixed wood forests, and 100 acres of regeneration/young forests. Much of that forested area is privately-owned woodlots.

Proposed Route

There are forests along the proposed route located on private and public lands. Much of the wooded areas are spaced between residences and in rows sheltering the residences from the road.

6.3.3 Tourism

Project Corridor

Tourism in the Project Corridor consists primarily of fishing and cabin rentals surrounding the lakes during the summer months, and ice-fishing and snowmobiling in the winter months. One tourist site, Paul Bunyan Land, is located within the Project Corridor and south of STH 18.

Proposed Route

Paul Bunyan Land is located in Section 29 of Nokay Township. Because the large parking lot associated with Paul Bunyan Land provides a buffer between the site (including the buildings and rides) and STH 18, the proposed project should not adversely affect this tourist area.

The lakes in this area are located away from the proposed route. There are snowmobile trails along STH 18, although these trails are in the road ditches and should not be impacted by the placement of poles.

6.3.4 Mineable Resources

There are mines that have been identified in Crow Wing County; however, there are no mines of economic importance within the Project Corridor or along the proposed route.

6.3.5 Potential Impacts/Mitigation

Impacts to farmland may occur from pole placement in areas currently farmed. The area of impact will be the footprint of the pole itself. Most of the route that runs through farmland will be located near existing roads, thus minimizing the impact to agricultural land.

Mitigation measures are not anticipated for the land-based economies along the proposed transmission line route.

6.4 Cultural Resources

The Minnesota Historical Society (MHS) was contacted (GRE letter of March 1, 2006, Appendix A) requesting information on the possible effects of the proposed project on historic properties in the project area. In a letter dated April 7, 2006 (Appendix A), the MHS indicated that the proposed project was reviewed pursuant to the responsibilities given the State Historic Preservation Officer by the National Historic Preservation Act of 1966 and the Procedures of the Advisory Council on Historic Preservation (36 Code of Federal Regulations (CFR) 800).

6.4.1 Archaeological and Historic Resources

The compliance staff at the MHS completed an initial review of the proposal and identified some archaeological potential in the project area. They recommended that either an archaeological survey be completed of the project area; or a survey assessment be completed by a qualified archaeologist regarding the need for a survey.

GRE contracted with Dr. Richard Rothaus of Rothaus Consulting, LLC to conduct a First Stage Cultural Resources Evaluation of the Project Area. The report (Appendix A) indicated that there are ten previously identified archaeological sites within two miles of the proposed transmission line corridor along STH 18. However, these sites are not located within the proposed transmission route, and the line will be constructed parallel to a right of way that has already been disturbed by highway construction and distribution line construction.

6.4.2 Potential Impacts/Mitigation

No known historical resources were identified within the proposed route or near the substations. Therefore, no impacts are anticipated during the installation of the transmission line poles. If any archaeological sites are identified during placement of the poles along the proposed route, construction work will be stopped and MHS staff consulted as to how to proceed.

6.5 Natural Environment

6.5.1 Air Quality

The only potential air emissions from a transmission line result from corona, which may produce ozone and oxides of nitrogen. This can occur when the electric field intensity exceeds the breakdown strength of the air. For a 115 kV transmission line, the conductor surface gradient is typically below the air breakdown level. As such, it is unlikely that any measurable emissions would occur from the conductor surface.

Therefore, the 115 kV transmission line project is not expected to impact air quality.

6.5.2 Water Resources

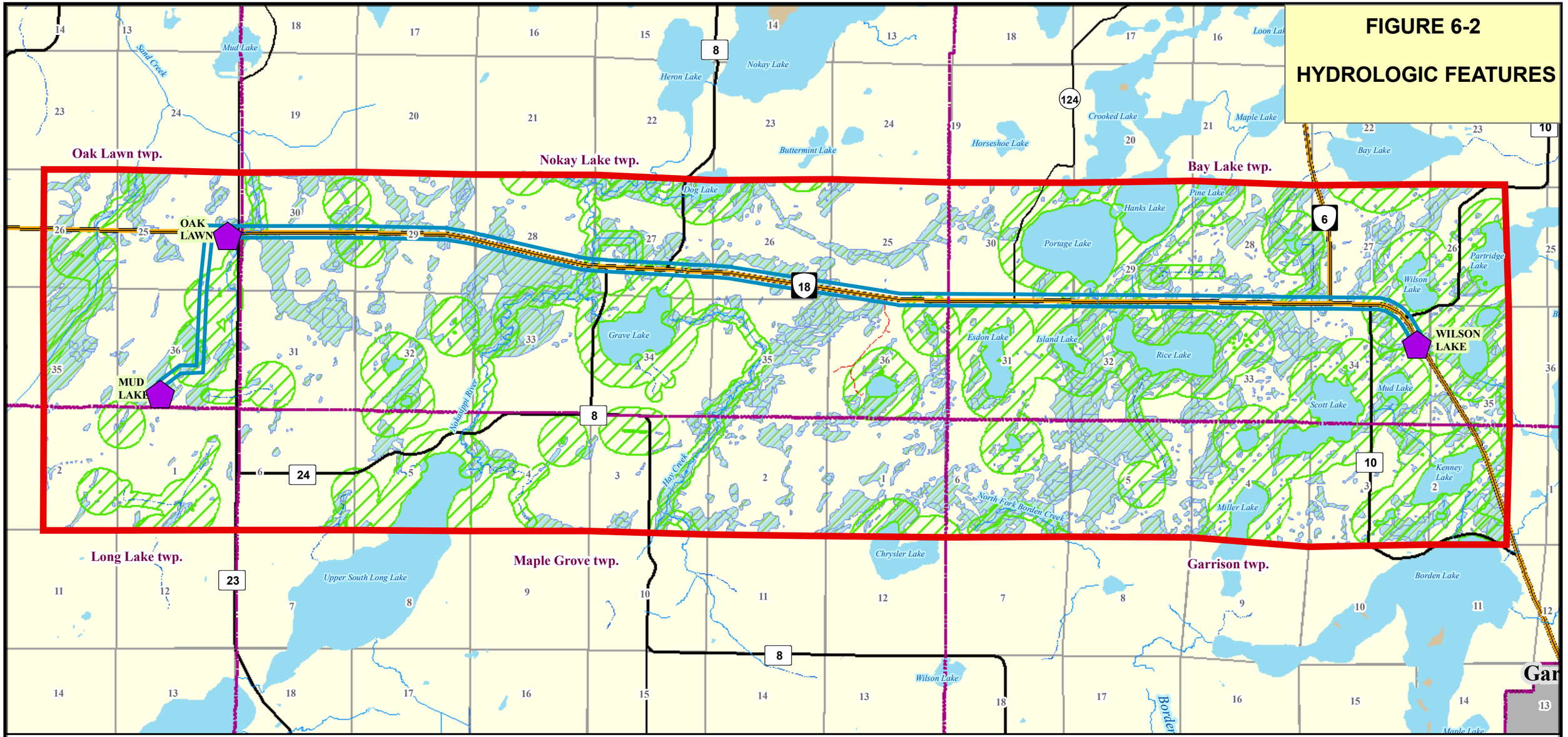
Hydrologic features in the project corridor and along the proposed route are shown in Figure 6-2.

The United States Army Corps of Engineers (Corps) was contacted (GRE letter of March 1, 2006, Appendix A) requesting information on the possible effects of the proposed project on floodplains, waters, and wetlands in the project corridor and along the proposed route. The Corps response letter dated March 28, 2006 (Appendix A) addressed their regulatory jurisdiction and permitting requirements.

The project would need a Corps permit under Section 404 of the Clean Water Act if the work involves discharge of dredged or fill material into any water of the United States. The proposed project will not result in any such discharge. The project would require a Corps permit under Section 10 of the Rivers and Harbors Act if the work involves a navigable water of the United States. There are no navigable waters within the project area. The Mississippi River and Lake Mille Lacs are the nearest navigable waters to the project area and are unaffected by the proposed project.

FIGURE 6-2

HYDROLOGIC FEATURES



Substation
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Section Line

Roads (MN DOT)
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MN State Highway
County State-aid Highway
County Road
State Forest Road

Water Features (MN DNR)
River
Stream or Drainage Ditch (Perennial)
Stream or Drainage Ditch (Intermittent)
Lake or Pond
Island

Wetlands (NWI)
Riparian Area

Great River Energy - Wilson Lake Transmission Line

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N W E S

0.5 0.25 0 0.5 1 1.5 Miles

1 inch equals 0.8 miles

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Data Source: MN DNR, Houston Engineering, Inc. & MN DOT. Project Area and Proposed Transmission Corridor shapefiles provided by United Services Group - Great River Energy.

Figure 6-2 Hydrologic Features

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	CLS		5001-000	03/09/06	

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Surface Water

Project Corridor - Lakes

There are 1808.57 acres of lakes in the Project Corridor (Figure 6-2). The fourteen main lakes are: Rice, Upper South Long, Grave, Hanks, Portage, Miller, Scott, Mud, Esdon, Wilson, Island, Kenney, Partridge, and Dog (Minnesota DNR Lake Finder).

Rice Lake provides recreational fishing at a public access located at the east end of the lake via a carry-in launch site. This land surrounding the east side of the lake is under the jurisdiction of the State Trails and Waterways Land Administration.

Upper South Long Lake is located in the southeast part of the Project Corridor and is the largest lake in the corridor. It has a surface area of 802 acres with a maximum depth of 47 feet. Game fish species include black crappie, bluegill, largemouth bass, northern pike, sunfish, rock bass and walleye.

Grave Lake is located in the central part of the Project Corridor and is fed by Hay Creek. It has a surface area of 157 acres and a maximum depth of 13 feet. Other game fish species include black crappie, bluegill, green sunfish, largemouth bass, and northern pike.

Hanks Lake is located along the northern boundary of the corridor toward the eastern end. The lake has a surface area of 161 acres and a maximum depth of 45 feet. Game fish include black crappie, bluegill, northern pike, pumpkin seed, sunfish, rock bass and walleye.

Portage Lake is located on the west side of Hanks Lake along the northern boundary of the corridor. It has a surface area of 274 acres and a maximum depth of 37 feet. Game fish species include black crappie, bluegill, largemouth bass, northern pike, pumpkinseed sunfish, rockbass, and walleye.

Miller Lake is located along the southern border of the corridor towards the east end. It has a surface area of 108 acres and a maximum depth of 48 feet. Game fish species include black crappie, bluegill, green sunfish, largemouth bass, northern pike and pumpkinseed sunfish.

Scott Lake is located at the eastern end the corridor. It has a surface area of 155 acres and a maximum depth of 49 feet. Game fish species include black crappie, bluegill, largemouth bass, northern pike and pumpkinseed sunfish.

Kenney Lake is located at the eastern end of the corridor. It has a surface area of 99 acres and a maximum depth of 55 feet. Game fish species include walleye, tullibee, northern pike, carp, bowfin, bluegill, pumpkinseed sunfish, and black crappie.

Partridge Lake is located in the northeast corner of the project corridor. It has a surface area of 184 acres and a maximum depth of 42 feet. Game fish species include pumpkinseed sunfish, northern pike, largemouth bass, bluegill, and black crappie.

Wilson Lake is located at the eastern end of the corridor. It has a surface area of 63 acres and it is not managed for fisheries. No other data were listed for this lake.

Dog Lake is located along the northern border of the corridor. It is not managed for fisheries and no data were listed for this lake.

The remaining three lakes, Mud, Esdon, and Island were not listed in the DNR Lake Finder.

Proposed Route – Lakes

There are no lakes directly in the proposed route. The route passes within a quarter mile of Grave Lake, Esdon Lake, Island Lake, Rice Lake, Portage Lake and Wilson Lake.

Project Corridor - Rivers and Creeks

There are 140,107.21 feet (26.5 miles) of streams/rivers/ditches in Project Corridor. The Project Corridor includes one main river, one stream, and one creek, as well as several other unnamed flowages (Figure 6-2). The Nokasippi River flows between Heron Lake north of the Project Corridor and Upper South Long Lake near the southwest corner of the Project Corridor almost perpendicular to STH 18. Hay Creek flows into Grave Lake from the east just south of STH 18. The North Fork of Borden Creek flows along the southern boundary of the Project Corridor for approximately one mile.

A small flowage connects Portage Lake and Rice Lake. There is a small flowage into Hanks Lake and a small unnamed flowage that flows into Grave Lake. There is another small flowage system connecting Scott Lake, Mud Lake, and Kenney Lake in the eastern end of the Project Corridor. Several small tributaries to Sand Creek begin within the Project Corridor and there is an intermittent stream that flows into Rice Lake.

Proposed Route – Rivers and Creeks

STH 18 crosses a small tributary north of Grave Lake and just east of CSAH 8. There is another crossing between Portage Lake and Rice Lake that flows under STH 18. The Nokasippi River flows under STH 18 just west of CSAH 8 and a tributary to Sand Creek flows north under STH 18 just east of the Oak Lawn Substation.

Project Corridor - Riparian Areas

Riparian areas are ecosystems that occur along watercourses or at the fringe of water bodies (NRCS, April 1999). For purposes of this Application, the riparian areas are defined as the land within 300 feet of streams and within 1,000 feet of lakes. These distances were selected because they are consistent with the definition of shoreland in the DNR Statewide Standards. These statewide standards set guidelines for the use and development of shoreland (riparian) property around all lakes greater than 25 acres (10 acres in municipalities) and rivers with a drainage area of two miles or greater. There are 7,908.00 acres of riparian areas in the Project Corridor (Figure 6-2).

Proposed Route – Riparian Areas

The proposed route crosses riparian areas in 10 locations (Figure 6-2). These areas include the riparian areas of lakes (named and unnamed) as well as stream and ditch crossings. Potential impacts to the riparian areas along the route would be limited to ground disturbances due to pole placement. Due to the small area that would be disturbed and the flexibility to avoid placing poles in sensitive areas, the anticipated impacts to the riparian areas along the proposed route are minimal.

Project Corridor - Floodplains

Floodplains in the Project Corridor are found along the Nokasippi River, Hay Creek and the North Fork Borden Creek, and around the lakes and large wetland areas. The Nokasippi River is located in the western end of the Project Corridor and flows between Upper South Long Lake and Heron Lake. Hay Creek is located in the central portion of the Project Corridor and flows into Grave Lake. North Fork Borden Creek flows east/west along the southern border of the Project Corridor.

Proposed Route - Floodplains

The proposed route crosses the floodplains of the Nokasippi River, the small tributary north of Grave Lake and just east of CSAH 8, the small tributary crossing between Portage Lake and Rice Lake that flows under STH 18, and a tributary to Sand Creek flows north under STH 18 just east of the Oak Lawn Substation. The floodplain of Hay Creek and the North Fork of Borden Creek do not cross the proposed route. Potential impacts to the floodplains along the route would be limited to ground disturbances due to pole placement. Due to the small area that would be disturbed and the flexibility to avoid placing poles in sensitive areas the anticipated impacts to the floodplains along the proposed route are minimal.

Project Corridor - Wetlands

Wetlands in the Project Corridor were identified using the National Wetland Inventory (NWI) data. There are approximately 6,155 acres of wetland in the Project Corridor (Figure 6-2). The wetland types and percentage within the Project Corridor are provided in Table 6-7.

Table 6-7 Wetland Types in the Project Corridor Using NWI

Cowardin Type[1]	Approximate Acreage	Approximate Percentage of the Total Acreage
PEM/SS1B	91.51	1.49
PEM/SS1Bd	30.82	0.50
PEM/SS1C	48.24	0.78
PEM/SS3B	6.97	0.11
PEM5B	2.30	0.04
PEMB	561.45	9.12
PEMBd	200.66	3.26
PEMC	573.01	9.31
PEMCb	39.91	0.65
PEMCd	196.89	3.20
PEMF	128.35	2.09
PEMFb	50.54	0.82
PEMFh	0.72	0.01
PFO/SS1C	2.21	0.04
PFO1/4B	32.18	0.52
PFO1/SS1B	0.50	0.01
PFO1A	18.93	0.31
PFO1Ad	0.97	0.02
PFO1B	40.89	0.66
PFO1C	246.28	4.00
PFO1Cb	1.90	0.03
PFO1Cd	1.41	0.02
PFO2/4B	78.31	1.27
PFO2/4Bg	14.80	0.24
PFO2/EMB	7.37	0.12

Cowardin Type[1]	Approximate Acreage	Approximate Percentage of the Total Acreage
PFO2/SS1B	9.41	0.15
PFO2/SS3B	17.14	0.28
PFO2B	509.15	8.27
PFO2Bg	69.13	1.12
PFO4/1B	59.37	0.96
PFO4/2B	59.40	0.97
PFO4/6B	17.36	0.28
PFO4/SS1B	36.54	0.59
PFO4A	10.48	0.17
PFO4B	120.53	1.96
PFO4Bd	1.98	0.03
PFO4Bg	3.10	0.05
PFO5Fb	2.29	0.04
PFO6/4B	15.33	0.25
PFO6B	65.49	1.06
PFO6Bg	1.13	0.02
PSS1/3B	1.09	0.02
PSS1/3Bd	15.46	0.25
PSS1/EMB	97.05	1.58
PSS1/EMBd	45.14	0.73
PSS1/EMC	146.00	2.37
PSS1/FO2B	73.73	1.20
PSS1B	398.41	6.47
PSS1Bd	72.72	1.18
PSS1C	1299.34	21.11
PSS1Cb	21.68	0.35
PSS1Cd	236.00	3.83
PSS1F	1.50	0.02
PSS1Fb	23.49	0.38
PSS2B	21.05	0.34
PSS3/1B	2.29	0.04
PSS3/2B	10.56	0.17

Cowardin Type[1]	Approximate Acreage	Approximate Percentage of the Total Acreage
PSS3/4B	8.04	0.13
PSS3/EMB	21.18	0.34
PSS3B	176.67	2.87
PSS4B	23.39	0.38
PSS6B	2.12	0.03
PUB/EMFh	5.70	0.09
PUBF	15.81	0.26
PUBFb	2.58	0.04
PUBFx	1.43	0.02
PUBG	13.93	0.23
PUBGx	2.00	0.03
PUBH	41.86	0.68
Total	**6155.2**	100.00

[1]Cowardin et. al. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. US Department of the Interior, USFWS, Washington D.C. The wetland type was classified using the Cowardin system that defines the habitat system, vegetative and sediment class and water regime. The wetland classification system is hierarchical, with wetlands and deepwater habitats divided among five major systems at the broadest level. The five systems include Marine (open ocean and associated coastline), Estuarine (salt marshes and brackish tidal water), Riverine (rivers, creeks, and streams), Lacustrine (lakes and deep ponds), and Palustrine (shallow ponds, marshes, swamps, sloughs). Systems are further subdivided into subsystems that reflect hydrologic conditions. Below the subsystem is the class that describes the appearance of the wetland in terms of vegetation or substrate. Each class is further subdivided into subclasses; vegetated subclasses are described in terms of life form, and substrate subclasses in terms of composition. The classification system also includes modifiers to describe hydrology (water regime), soils, water chemistry (pH, salinity), and special modifiers relating to man's activities (e.g., impounded, partly drained).

Some common symbols used in the wetland classification system include:

SYSTEM:	P - Palustrine	L - Lacustrine
CLASS:	RB - Rock Bottom EM - Emergent FO - Forested	UB - Unconsolidated Bottom SS - Scrub-Shrub OW - Open Water
MODIFIERS:	A - Temporarily flooded C - Seasonally flooded E - Seasonally saturated G - Intermittently flooded	B - Saturated D - Seasonally well drained F - Semipermanently flooded H - Permanently flooded
SPECIAL MODIFIERS:	b -beaver f - farmed x - excavated	d- partially drained/ditched s - spoil

Proposed Route - Wetlands

The width of the area that will be disturbed during construction of the transmission line is approximately 100 feet. As such, the proposed route will cross approximately 167 acres of wetlands, which represents 23.3% of the land that could potentially be disturbed between the Mud Lake Substation and the Wilson Lake Substation. Wetlands classified as Palustrine Emergent (PEM) make up approximately 42.5% of the wetland types. Those classified as Palustrine Scrub-Shrub (PSS) make up approximately 45% of the wetland types. Palustrine Forested (PFO) wetlands make up approximately 9% of the wetland types; and the remainder of the wetland types along the proposed route is classified as Palustrine Unconsolidated Bottom (PUB).

There are more wetlands located in the eastern half of the route than the western half of the route (Figure 6-2). Potential impacts to the wetland features along the route would be limited to ground disturbances due to pole placement. Due to the small area that would be disturbed and the flexibility to avoid placing poles in sensitive areas the anticipated impacts to the wetland along the proposed route are minimal.

Ground Water

Project Corridor and Proposed Route

The DNR divides Minnesota into six groundwater provinces. Crow Wing County falls into the Central Province, which is described as sand aquifers in generally thick sandy and clayey glacial drift overlaying Precambrian and Cretaceous bedrock. Fractured and weathered Precambrian bedrock is used locally as a water source.

6.5.3 Natural Vegetation and Associated Wildlife

Vegetative Communities

Project Corridor

Prior to European settlement, much of the Project Corridor was dominated by mixed white pine and red pine, jack pine barrens and openings, and conifer bogs and swamps. Most of these forested areas were logged during the early 1900's and have regenerated.

There is some cultivated land in the central to eastern portions of the corridor. The land surrounding the south side of Rice Lake towards the eastern end of the corridor is the Hesitation State Wildlife Management Area and is under state ownership.

According to the Crow Wing County Parks, Trails, and Open Space Plan (Crow Wing County, 2004), Crow Wing County covers 999 square miles. Currently, 28 percent of the County is lakes, streams, and wetlands, and 50 percent of the County is forests. The County is located in the Mille Lacs Uplands Subsection of the Western Lake Superior Uplands Section of the Laurentian Mixed Forest Province.

Current vegetative communities found in the Project Corridor include upland deciduous forests, coniferous forests, shrubby grasslands, grasslands and wetlands (Manitoba Remote Sensing Center 1995 and 1996).

Because of the lack of development in the Project Corridor, much of the wetland vegetation has remained rich in species diversity. The closest town is Garrison, which is located approximately one mile from the southeastern corner of the Project Corridor.

Proposed Route

Current vegetative communities found in the proposed route include upland deciduous forests, coniferous forests, shrubby grasslands, grasslands and multiple types of wetlands (Manitoba Remote Sensing Center 1995 and 1996). This land use is consistent with the larger Project Corridor area.

6.5.4 Rare and Unique Natural Resources

Rare and unique natural features include information on federal and state protected and rare species, remnant areas of native vegetation, significant natural resource sites, and significant natural features.

The United States Fish and Wildlife Service (FWS) was contacted by GRE by letter on March 1, 2006 requesting information on the possible effects of the proposed project on any listed or proposed threatened or endangered species and designated or proposed critical habitat that may be present in the project area. The FWS determined that they were not aware of any significant conflicts in the project area (e-mail response of May 3, 2006, Appendix A).

The DNR was also contacted (GRE letter of March 1, 2006, Appendix A) requesting information on the possible effects of the proposed project on rare and unique features in the project area. The DNR identifies Federal and State protected and rare species within the Project Corridor in their Natural Heritage database.

Proposed Corridor

The DNR reviewed the proposed project and in their response letter of March 21, 2006 (Appendix A), identified 32 known occurrences of rare species or native plant communities known to occur within an approximate one-mile radius of the

project corridor. The DNR provided printouts of known locations of rare features in the vicinity of the project and a fact sheet that provides guidance on determining whether the project might negatively affect one of these rare features. The database contains seven records of locations that document the occurrence of a rare vascular plant and five records of locations that document the occurrence of a vertebrate animal within the Project Corridor (Table 6-8). These occurrences are shown on Figure 6-3.

Table 6-8 Rare Plants and Animals within the Project Corridor

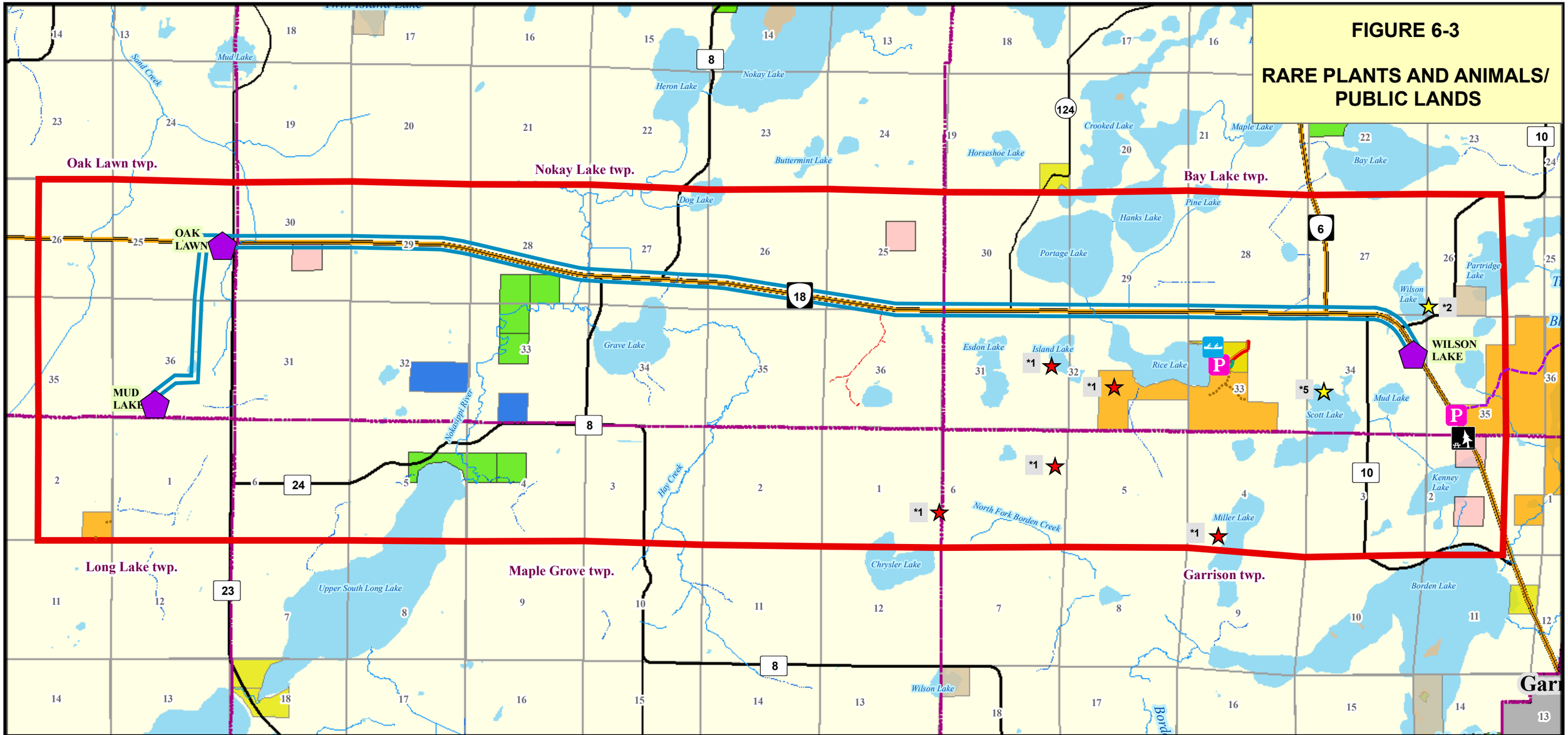
Common Name	Scientific Name	Number of Occurrences	Subnational Rank[1]	Minnesota Protection Status[2]
Bald Eagle	Haliaeetus leucocephalus	2	S3	SPC
Robbin's Spike-rush	Eleocharis robbinsii	1	SNR	NON
Red-shouldered Hawk	Buteo lineatus	3	S3	SPC
Thread-like Naiad	Najas gracillima	2	S3	SPC
Vasey's Pondweed	Potamogeton vaseyi	2	S3	SPC
Leafless Water Milfoil	Myriophyllum tenellum	1	SNR	NON
Humped Bladderwort	Utricularia gibba	1	S4	NON

[1] Subnational rank: Rank that best characterizes the relative rarity or endangerment of the taxon or community in Minnesota. S3 – Vulnerable in Minnesota either because rare or uncommon, or found in a restricted range, or because of other factors making it vulnerable to extirpation. S4 – Apparently secure in Minnesota, usually widespread. SNR – Rank not assessed yet.

[2] Minnesota Protection Status: The official endangerment status or level of legal protection Minnesota assigned to this element. SPC – Special concern. NON – A species with no legal status, but about which the Natural Heritage and Nongame Research Program is gathering data because the species falls into one of the following categories: the species is being considered for addition to the state list; the species was removed from the state list; the species was removed from the state list but records for the species are still entered and maintained as a precautionary measure or the species has been recently discovered in the state; the species is presumed to be extirpated from the state.

FIGURE 6-3

RARE PLANTS AND ANIMALS/ PUBLIC LANDS



- Substation
- Project Corridor
- Proposed Transmission Route
- Municipality
- Civil Township
- Section Line

Rare Natural Features (MN DNR)

- Vascular Plant
- Vertebrate Animal

* Denotes number of species identified at one location

- Rest Area (limited facilities)

Water Access Sites

- Carry-in

State Wildlife Management Area Public Facilities

- Parking Lot
- DNR Maintained Public Road
- DNR Minimum Maintenance Public Road
- Snowmobile Trail
- Walking Trail (Foot Travel Only - Maintained)

Land Ownership

- Federal Lands
- State Wildlife Management Area Boundaries
- State Land Ownership - Trails & Waterways Land Administration
- State Land Ownership - Fisheries Land Administration
- Miscellaneous State Lands
- Major Private Lands

N W E S

0.5 0.25 0 0.5 1 1.5 Miles

1 inch equals 0.8 miles

Disclaimer: Houston Engineering, Inc. does not guarantee this data to be free from errors or inaccuracies and disclaims any responsibility or liability for interpretations or decisions based on this data. Any errors found should be reported to the original data source provider.

Data Source: MN DNR, MN DOT, & Houston Engineering.
Rare Natural Features provided by the MN DNR Natural Heritage Program.
Water Access Sites & State WMA Public Facilities downloaded from MN DNR and digitized by Houston Engineering from MN DNR Public Recreation Information Maps.
Project Area and Proposed Transmission Corridor shapefiles provided by United Services Group - Great River Energy.

Great River Energy - Wilson Lake Transmission Line

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Figure 6-3 Rare Plants and Animals/Public Lands

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
AS SHOWN	CLS		5001-000	03/09/06	

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Proposed Route

There are no significant natural resource sites, significant natural features, threatened or endangered species, or state listed species identified by the DNR or the FWS along the proposed route.

6.5.5 Potential Impacts/Mitigation

The proposed project will not result in discharge of dredged or fill material into any water of the United States. If necessary, GRE will use wooden mats or the Dura-Base Composite Mat System to minimize impacts to wetlands during construction. There are no navigable waters within the project area.

The transmission line will cross the Nokasippi River and several other DNR public waters (DNR, 1984). GRE will obtain a license to cross those waters from the DNR and will follow any recommendations to minimize erosion and other impacts.

Potential impacts to the riparian areas, floodplains and wetlands along the route would be limited to ground disturbances due to pole placement. Due to the small area that would be disturbed and the flexibility to avoid placing poles in sensitive areas, the anticipated impacts to these areas are minimal.

There are no significant natural resource sites, significant natural features, threatened or endangered species, or state listed species identified by the DNR or the FWS along the proposed route.

No impacts to native vegetation are anticipated. Placement of the poles will not occur in areas where native vegetation has been identified.

There is a potential for the temporary displacement of wildlife, loss of habitat, and avian collisions with the new power lines. Wildlife could be impacted within the immediate area of construction. The distance that animals will be displaced will depend on the species. Impacts to wildlife are anticipated to be short-term, as the transmission line will be constructed parallel to existing rights of way. Additionally, these animals will be typical of those found in agricultural and forested settings, and will not incur population level effects due to construction. When possible, impacts to wooded areas along the proposed route will be avoided.

Raptors, waterfowl, and other bird species may also be affected by the construction and placement of the transmission lines. Avian collisions are a possibility after the completion of the transmission line and could potentially increase as a result of the proposed line. Waterfowl are typically more susceptible to transmission line collision, especially if the line is placed between agricultural fields that serve as resting areas or along major migration flyways. This project is not located in an area where there is a major flyway or feeding area for waterfowl.

Additionally, large birds such as raptors are sometimes impacted by power lines through electrocution. This is an electric distribution issue, as electrocution occurs when birds with large wingspans come in contact with either two conductors, or a conductor and grounding device. Transmission line designs used by GRE for this project will not create any electrocution hazards.

The following measures can be used to help avoid or minimize impacts to area vegetation and wildlife resources during and after the completion of the proposed transmission line:

- Utilize Best Management Practices to prevent erosion of the soils in the areas of impact.
- Implement sound water and soil conservation practices during construction and operation of the project to protect topsoil and adjacent water resources and minimize soil erosion. Practices may include containing excavated material, protecting exposed soil, and stabilizing restored soil.
- Minimize tree felling and shrub removal that are important to area wildlife.
- Implement raptor protection measures, including placement of bird flight diverters on the line at water crossings after consultation with local wildlife management staff.
- Revegetate disturbed areas with native species and wildlife conservation species where applicable.

6.6 Physiographic Features

6.6.1 Topography

The topography of Crow Wing County is the result of glacial deposition. The area is characterized by nearly level to moderate topography (Figure 6-1). The elevation ranges from approximately 1,194 to 1,370 feet mean sea level. The topography of the proposed route is nearly level and is representative of the surrounding corridor.

6.6.2 Geology

The majority of the corridor soils were formed on the Rainy Lobe of the Late Wisconsinan glaciation. This most recent glaciation period began approximately 70,000 years ago and ended 10,000 years ago. The Project Corridor is largely made up of till deposits (glacial drift) of silt loam to loam, unsorted sediments pebbles, cobbles, and boulders in the eastern third of the corridor. The central portion of the corridor is largely mixed outwash made up of sand, gravelly sand

and gravel. The western third of the corridor is drumlinized till deposits of sandy loam textured unsorted sediment with pebbles, cobbles, and boulders. There are pockets of peat surrounding most of the lakes and rivers (University of Minnesota-Duluth Geology Department et. al, 1997).

6.6.3 Soils

Soils in the western portion of the Project Corridor were formed primarily in glacial till, whereas soils in the central portion were formed in outwash sediments and in glacial drift and till (USDA, 1965). STATSGO datasets (USDA, 1994) show that the corridor is dominated by three soil associations Dusler-Duluth-Blackhoof, Chetek-Menahga-Mahtomedi, and Brainerd-Wabedo-Nokay.

The NRCS uses the universal soil loss and wind erosion equations to determine a soil's erodibility based on the potential erosion from a particular soil. These equations do not account for the benefits of vegetative cover or conservation practice. For each unit, there is an estimate of the erosion that would occur if the land were left completely without protection, including residue and cover from a crop, or from structures such as terraces.

The NRCS office in Crow Wing County provided a list of the identified highly erodible (HEL) soil units. There are four HEL soil units identified for Crow Wing County (Table 6-9). These soils are susceptible to water erosion.

Table 6-9 Highly Erodible Land in Crow Wing County by Mapping Unit

Mapping Symbol	Map Unit Name
ChD	Chetek Sandy Loam 13-18 percent slopes
ChE	Chetek Sandy Loam 18-30 percent slopes
HbC	Hibbing Silt Loam 7-13 percent slopes
PpD	Pomroy Loamy Sand 13-18 percent slopes

6.6.4 Prime Farmland and Additional Lands of Statewide Importance

The NRCS office in Crow Wing County provided a list of prime farmlands listed by soil mapping unit for Crow Wing County (Table 6-10). Other farmlands of statewide importance have limitations such as high water table or flooding, and may qualify as prime farmland if these limitations are overcome by management methods. Thirteen soil series meet the criteria within Crow Wing County (Table 6-11).

Table 6-10 Prime Farmland in Crow Wing County by Mapping Unit

Mapping Symbol	Map Unit Name
BbA	Brainerd sandy loam 0-2 percent slopes
BbB	Brainerd sandy loam 2-7 percent slopes
Ha	Halder loam
HbB	Hibbing silt loam 2-7 percent slopes
OnA	Onamia sandy loam
Zc	Zim silt loam

Table 6-11 Farmlands of Statewide Importance by Mapping Unit

Mapping Symbol	Map Unit Name
BbC	Brainerd sandy loam 7-13 percent slopes
BcB	Brainerd-Chetek complex 2-7 percent slopes
BcC	Brainerd-Chetek complex 7-13 percent slopes
BuA	Burkhardt sandy loam 0-2 percent slopes
BuB	Burkhardt sandy loam 2-7 percent slopes
ChA	Chetek sandy loam 0-2 percent slopes
ChB	Chetek sandy loam 2-7 percent slopes
Lo	Lino loamy sand
OnB	Onamia sandy loam 2-7 percent slopes
PoA	Pomroy loamy sand 0-2 percent slopes
PoB	Pomroy loamy sand 2-7 percent slopes
NoA	Nokay sandy loam 0-2 percent slopes
NoB	Nokay sandy loam 2-7 percent slopes

6.6.5 Potential Impacts/Mitigation

The Natural Resources Conservation Service (NRCS) was contacted (GRE letter of March 1, 2006, Appendix A) requesting information on the possible effects of the proposed project on important or prime farmlands in the project area. In an e-mail dated March 24, 2006 (Appendix A), the NRCS indicated that there are areas of Prime Farmlands and Farmlands of Statewide importance within the corridor. In subsequent phone conversations, the NRCS indicated that impacts to soils along the route cannot be assessed until pole locations are known. GRE will work with the NRCS to identify these potential impacts and to minimize impacts to soils during construction.

Potential impacts of construction are compacting the soil and exposing the soils to wind and water erosion. Impacts to physiographic features should be minimal during and after installation of the transmission line structures and substation, and these impacts will be short term. There should be no long-term impacts resulting from this project.

Soils will need to be revegetated as soon as possible to minimize erosion or some other method used during construction to prevent soil erosion.

6.7 Land Use

6.7.1 General

Project Corridor

The Project Corridor encompasses approximately 23,879.89 acres. Current land uses within the Project Corridor are shown below in Table 6-12.

Table 6-12 Current Land Use in the Project Corridor

Land Use Category	Land Use (total acres)	Percentage by Land Use Category
Unknown	0.22	0.00
Coniferous forest	649.02	2.72
Cultivated land	780.93	3.27
Deciduous forest	7045.29	29.50
Farmsteads and rural residences	143.51	0.60
Grasslands	6,798.70	28.47
Gravel pits and open mines	6.86	0.03
Mixed-wood forest	851.09	3.56
Open water	1,936.46	8.11
Other rural developments	372.67	1.56
Regeneration/young forests	238.39	1.00
Shrubby grassland	316.87	1.33
Wetland - bogs	1,262.64	5.29
Wetlands – marshes and fens	3,477.23	14.56
Total	**23,879.89**	**100.00%**

Manitoba Remote Sensing Center, 1995 and 1996

Proposed Route

Land use along the proposed route consists of cultivated land, farmsteads and rural residences, wetlands, and forested areas (Figure 6-4). There are several businesses along the proposed route including: Eagle Creek Boutique, RV Storage, Mike Nesseth Machinery, Northern Marine, Halburs Nursery, Green Lantern Bar, Phillips 66, a Bait Shop, Whispering Pines Hobby Farm, Paul Bunyan Land, and Country Roots Greenhouse.

6.7. 2 Undeveloped/Agricultural Land

Undeveloped land and agricultural land (listed as cultivated land) occur in patches across the entire Project Corridor and along the proposed route. These areas consist of pastureland and some small scale agricultural operations. The agricultural sites are tilled for row crop production and are currently planted in soybean or corn.

6.7.3 Public Lands and Recreational Areas

Project Corridor

Parks and Recreational Areas

There are no regional parks or recreational areas located in the Project Corridor. There is one State Wildlife Management Area located adjacent to the south side of Rice Lake called the Hesitation Wildlife Management Area and one area of State Forest Land located between Esdon Lake and Hay Creek (Figure 6-3).

Regional Trails

There is one official recreational trail in the Project Corridor, a hiking trail located in the Hesitation Wildlife Management Area adjacent to Rice Lake (Figure 6-3).

State-Owned Lands

There are five small areas of state-owned land, less than one square mile each, located within the Project Corridor (Figure 6-3). There are two areas owned by the State Fisheries Land Administration within the Project Corridor, one in Nokay Lake Township and one in Maple Grove Township. There are two areas of Miscellaneous State Lands. An area adjacent to Rice Lake is partially owned by the Trails and Waterways Land Administration and is partially a State Wildlife Management Area.

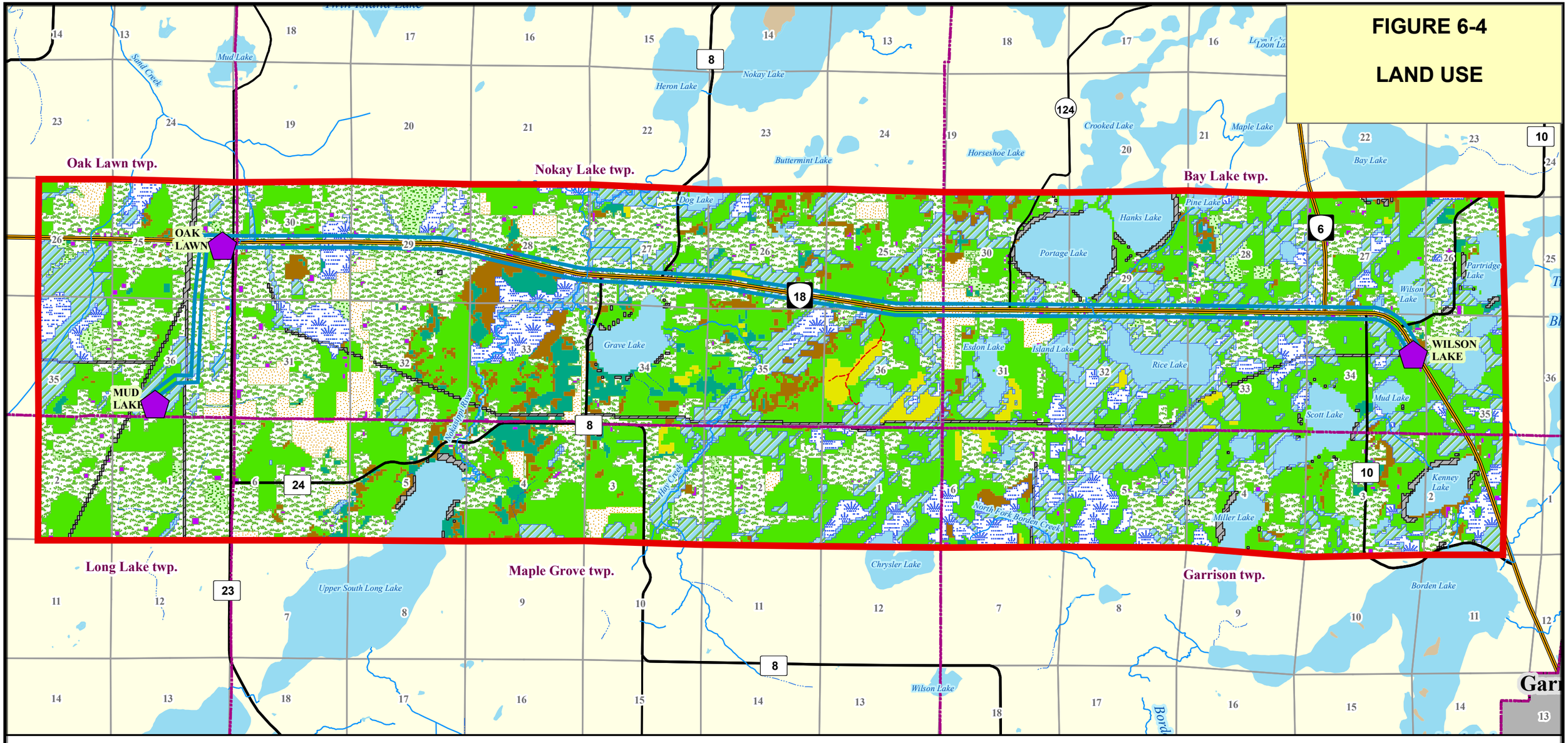
Proposed Route

Parks and Recreational Areas

There are no parks or recreational areas within the proposed route.

FIGURE 6-4

LAND USE



Substation
Project Corridor
Proposed Transmission Route
Municipality
Civil Township
Section Line

Land Use

Coniferous forest
Deciduous forest
Mixedwood forest
Regeneration/Young Forests
Cultivated land
Grassland
Shrubby grassland
Wetlands - bogs
Wetlands - marsh and fens
Open water
Farmsteads and rural residences
Other rural developments
Gravel pits and open mines
Unknown

Data Source: MN DNR, MN DOT, MB Remote Sensing Center, & Houston Engineering. Land Use/Land Cover Data Generate from LandSat collected by the Manitoba Remote Sensing Center. Imagery dates range from June 1995 to June 1996. Project Area and Proposed Transmission Corridor shapefiles provided by United Services Group - Great River Energy.

N W E S

0.5 0.25 0 0.5 1 1.5 Miles

1 inch equals 0.8 miles

Great River Energy - Wilson Lake Transmission Line

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Figure 6-4 Land Use

Scale:	Drawn by:	Checked by:	Project No.:	Date:	Sheet:
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Regional Trails

There are no regional trails that cross the proposed route.

State-Owned Lands

There is one area of Miscellaneous State Land and one area of Fisheries Land Administration ownership adjacent to the proposed route (Figure 6-3).

6.7.4 Zoning

Construction of an electric transmission line is covered in Part II, Article 19 Part 19.4 and 19.5 of the Crow Wing County Zoning Ordinance (Crow Wing County, 2005)(http://www.co.crow-wing.mn.us/planning_zoning/docs/2005_Zoning_Ordinance_10_11_05.pdf).

The Crow Wing County Planning and Zoning Department was contacted (e-mail dated July 24, 2006, Appendix A) requesting information on how the proposed project fits into the planning and zoning of the county. In an e-mail dated July 25, 2006 (Appendix A) the Planning and Zoning Department indicated that the proposed transmission route traverses an area whose predominant land use classification is "GS – Green Space District". Electric transmission facilities in the GS District are considered a "Conditional Use" in accordance with the Crow Wing County Zoning Ordinance. Other land use classifications that are in the near vicinity of the proposed transmission route include, "A – Agricultural"; "RR – Rural Residential, and C2 – Commercial District. Electric transmission facilities in these districts are also considered a "Conditional Use".

Zoning permits are typically required for all parts of a utility distribution or transmission system, and the City Engineer determines if the proposed project is in compliance with the Crow Wing County Comprehensive Plan. However, a route permit issued by the Commission supersedes any local permitting requirements.

6.7.5. Potential Impacts/Mitigation

Potential land use impacts along the proposed route due to the 115 kV transmission line will be limited. The proposed route for the 115 kV transmission line will be approximately 12 miles long and will parallel existing transmission line right of way and road right of way as much as possible. The new 115 kV transmission line does not represent an incompatible land use with those that exist in the corridor. Therefore, anticipated impacts of the proposed project on land use are minimal and no mitigation measures are anticipated.