



June 5, 2008

**VIA E-FILING**

Dr. Burl W. Haar  
Executive Secretary  
Minnesota Public Utilities Commission  
121 7<sup>th</sup> Place East, Suite 350  
St. Paul, MN 55101-2147

Re: In the Matter of Minnesota Power's Application for a Gas Pipeline Routing Permit for the  
Boswell Energy Center Natural Gas Pipeline Project  
Docket No. E015/GP-08-586

Dear Dr. Haar:

Enclosed please find Minnesota Power's Gas Pipeline Routing Permit Application for the Boswell Energy Center Natural Gas Pipeline Project in Itasca County, Minnesota. The Boswell Energy Center Natural Gas Pipeline Project will include the installation of approximately 6,900 feet of 10.75-inch-outside-diameter steel pipe from the Great Lakes Gas Transmission Company (Great Lakes) pipeline to Minnesota Power's Boswell Energy Center in Cohasset, Minnesota. The pipeline Maximum Allowable Operating Pressure will be 974 pounds per square inch gauge (psig) and established by Great Lakes, the company metering the natural gas.

The Application is being made under the Partial Exemption Permitting processes of Minn. Rules 7852.0600 to 7852.0700. An electronic copy of the Application on CD ROM has been provided to Scott Ek of the Office of Energy Security. Also enclosed please find an Affidavit of Service.

Please contact me at the number below if you have any questions regarding this filing.

Yours Truly,

David R. Moeller

DRM:sr

Enc.

cc: Scott Ek – OES  
Bob Lindholm – Minnesota Power  
General Service List

STATE OF MINNESOTA     )  
  ) ss  
COUNTY OF ST. LOUIS    )

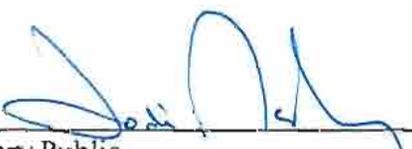
AFFIDAVIT OF SERVICE  
VIA E-FILING AND U.S. MAIL

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Susan Romans, of the City of Duluth, County of St. Louis, State of Minnesota, says that on the 5<sup>th</sup> day of June, 2008, she served Minnesota Power's Application for a Gas Pipeline Routing Permit for the Boswell Energy Center Natural Gas Pipeline Project in Docket No. E015/GP-08-586 to Burl Haar and Sharon Ferguson via e-filing. The persons on the attached Service List were served the Summary via First Class Mail.

  
\_\_\_\_\_  
Susan Romans

Subscribed and sworn to before  
me this 5<sup>th</sup> day of June, 2008.

  
\_\_\_\_\_  
Notary Public



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# **MINNESOTA POWER**

**BOSWELL ENERGY CENTER NATURAL GAS PIPELINE PROJECT**

**APPLICATION TO THE MINNESOTA PUBLIC UTILITIES COMMISSION**

**FOR A GAS PIPELINE ROUTING PERMIT**

**AND PARTIAL EXEMPTION OF PIPELINE ROUTE SELECTION PROCEDURES**

**DOCKET NUMBER E015/GP-08-586**



**June 2008**

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## **LIST OF ACRONYMS**

AC – Alternating Current  
ANSI – American National Standards Institute  
API – American Petroleum Institute  
BEC – Boswell Energy Center  
BNSF – Burlington Northern Santa Fe  
CFR – Code of Federal Regulations  
COE – United States Army Corps of Engineers  
CSAH – County State Aid Highway  
EWS – Extra Workspace  
Great Lakes – Great Lakes Gas Transmission Company  
HDD – Horizontal Directional Drill  
MAOP – Maximum Allowable Operating Pressure  
MCFH – Million Cubic Feet per Hour  
MHB - Mississippi Headwaters Board  
MN DNR – Minnesota Department of Natural Resources  
MNOPS – Minnesota Office of Pipeline Safety  
MPUC or Commission – Minnesota Public Utilities Commission  
MN SHPO – Minnesota State Historic Preservation Office  
MPCA – Minnesota Pollution Control Agency  
NPDES – National Pollutant Discharge Elimination System  
PHMSA - Pipeline and Hazardous Materials Safety Administration  
PSIG – Pounds per Square Inch Gauge  
RP – Recommended Practice  
SPCC Plan– Spill Prevention Containment and Countermeasure Plan  
SWCD – Soil and Water Conservation District  
SWPPP – Storm Water Pollution Prevention Plan  
U.S. DOT – United States Department of Transportation  
USFWS – United States Fish and Wildlife Service  
USGS – United States Geological Survey  
WCA – Wetland Conservation Act

## EXECUTIVE SUMMARY

Minnesota Power is an investor-owned electric utility headquartered in Duluth, Minnesota. Minnesota Power supplies retail electric service to 135,000 retail customers and wholesale electric service to 16 municipalities in a 26,000-square-mile electric service territory located in northeastern Minnesota. Minnesota Power generates and delivers electric energy through a network of electric transmission and distribution lines and substations throughout northeastern Minnesota. Minnesota Power's electric transmission network is interconnected with the regional transmission grid to promote reliability. Minnesota Power is a member of the Midwest Independent Transmission System Operator.

The proposed project, known as the Boswell Energy Center Natural Gas Pipeline Project (Project), will include the installation of approximately 6,900 feet of 10.75-inch-outside-diameter steel pipe from the Great Lakes Gas Transmission Company (Great Lakes) pipeline to Minnesota Power's Boswell Energy Center (BEC) in Cohasset, Minnesota. The pipeline Maximum Allowable Operating Pressure (MAOP) will be 974 pounds per square inch gauge (psig) and established by the company metering the natural gas (*i.e.*, Great Lakes). The wall thickness and pipe grade will be established in part by pipe availability with a minimum nominal wall thickness of 0.250 inches used for open areas and a minimum nominal wall thickness of 0.375 inches used for road crossings, railroad crossings, and Horizontal Directional Drills (HDD). The pipeline will be buried to a depth of at least three feet to the top of the pipe. The majority of the preferred pipeline route will be located parallel to existing pipeline and electric transmission line rights-of-way. A general overview map depicting the proposed Project is provided in Appendix A (Map 1).

The proposed pipeline will provide a source of natural gas to the BEC located in Cohasset, Minnesota. BEC is a low-sulfur, sub-bituminous coal-fired electric generating station operated by Minnesota Power and is comprised of four units that currently use fuel oil igniters. Separate from the proposed Project, Minnesota Power plans to install natural gas igniters. Currently the exhaust gases from Units 1 and 2 must bypass the fabric filter particulate controlling system during start-up with the oil igniters to avoid fouling the fabric filters. Start-up with the proposed natural gas igniters will eliminate present opacity issues with Units 1 and 2 during periods of start-up. Additionally, natural gas igniters will be installed at the two remaining units (Units 3 and 4). Installing a 10.75-inch-outside-diameter pipeline with an MAOP of 974 psig will allow for potential future additional uses of natural gas at the BEC if the necessity arises and required permitting is completed.

Minnesota Power is filing this Application to the Minnesota Public Utilities Commission (MPUC or Commission) for a Gas Pipeline Routing Permit under its partial exemption of pipeline route selection procedures. The Application describes the Project in accordance with Minnesota Statutes Chapter 216G and Minnesota Rules Chapter 7852. Application submittal requirements are listed in the following completeness checklist and cites where information can be found within the Application.

## Application for a Gas Pipeline Routing Permit and Partial Exemption of Pipeline Route Selection Procedures – Completeness Checklist

MN Rules Chapter	Description of Requirement	Section
<b>7852.2100 GENERAL INFORMATION.</b>		
Subp. 1	<b>Cover letter:</b> Each application must be accompanied by a cover letter signed by an authorized representative or agent of the applicant. The cover letter must specify the type, size, and general characteristics of the pipeline for which an application is submitted.	N/A
Subp. 2	<b>Title page and table of contents:</b> Each application must contain a title page and a complete table of contents.	N/A
Subp. 3	<b>Statement of ownership:</b> Each application must include a statement of proposed ownership of the pipeline as of the day of filing and an affidavit authorizing the applicant to act on behalf of those planning to participate in the pipeline project.	1.1
Subp. 4	<p><b>Background information:</b> Each application must contain the following information:</p> <ul style="list-style-type: none"> <li>A. the applicant's complete name, address, and telephone number;</li> <li>B. the complete name, title, address, and telephone number of the authorized representative or agent to be contacted concerning the applicant's filing;</li> <li>C. the signatures and titles of persons authorized to sign the application, and the signature of the preparer of the application if prepared by an outside representative or agent; and</li> <li>D. a brief description of the proposed project which includes: <ul style="list-style-type: none"> <li>1) general location;</li> <li>2) planned use and purpose;</li> <li>3) estimated cost;</li> <li>4) planned in-service date; and</li> <li>5) general design and operational specifications for the type of pipeline for which an application is submitted.</li> </ul> </li> </ul>	1.2

MN Rules Chapter	Description of Requirement	Section
<b>7852.2200 PROPOSED PIPELINE AND ASSOCIATED FACILITIES DESCRIPTION.</b>		
Subp. 1	<p><b><u>Pipeline design specifications:</u></b> The specifications for pipeline design and construction are assumed to be in compliance with all applicable state and federal rules or regulations unless determined otherwise by the state or federal agency having jurisdiction over the enforcement of such rules or regulations. For public information purposes, the anticipated pipeline design specifications must include but are not limited to:</p> <ul style="list-style-type: none"> <li>A. pipe size (outside diameter) in inches;</li> <li>B. pipe type;</li> <li>C. nominal wall thickness in inches;</li> <li>D. pipe design factor;</li> <li>E. longitudinal or seam joint factor;</li> <li>F. class location and requirements, where applicable;</li> <li>G. specified minimum yield strength in pounds per square inch; and</li> <li>H. tensile strength in pounds per square inch.</li> </ul>	2.1
Subp. 2	<p><b><u>Operating pressure:</u></b> Operating pressure must include:</p> <ul style="list-style-type: none"> <li>A. operating pressure (psig); and</li> <li>B. maximum allowable operating pressure (psig).</li> </ul>	2.2
Subp. 3	<p><b><u>Description of associated facilities:</u></b> For public information purposes, the applicant shall provide a general description of all pertinent associated facilities on the right-of-way.</p>	2.3
Subp. 4	<p><b><u>Product capacity information:</u></b> The applicant shall provide information on planned minimum and maximum design capacity or throughput in the appropriate unit of measure for the types of products shipped as defined in part <a href="#">7852.0100</a>.</p>	2.4
Subp. 5	<p><b><u>Product description:</u></b> The applicant shall provide a complete listing of products the pipeline is intended to ship and a list of products the pipeline is designed to transport, if different from those intended for shipping.</p>	2.5
Subp. 6	<p><b><u>Material safety data sheet:</u></b> For each type of product that will be shipped through the pipeline, the applicant shall provide for public information purposes the material identification, ingredients, physical data, fire and explosive data, reactivity data, occupational exposure limits, health information, emergency and first aid procedures, transportation requirements, and other known regulatory controls.</p>	2.6

MN Rules Chapter	Description of Requirement	Section
<b>7852.2300 LAND REQUIREMENTS.</b>		
	For the proposed pipeline, the applicant shall provide the following information: A. permanent right-of-way length, average width, and estimated acreage; B. temporary right-of-way (workspace) length, estimated width, and estimated acreage; C. estimated range of minimum trench or ditch dimensions including bottom width, top width, depth, and cubic yards of dirt excavated; D. minimum depth of cover for state and federal requirements; and E. rights-of-way sharing or paralleling: type of facility in the right-of-way, and the estimated length, width, and acreage of the right-of-way.	3
<b>7852.2400 PROJECT EXPANSION.</b>		
	If the pipeline and associated facilities are designed for expansion in the future, the applicant shall provide a description of how the proposed pipeline and associated facilities may be expanded by looping, by additional compressor and pump stations, or by other available methods.	4
<b>7852.2500 ROW PREPARATION PROCEDURES AND CONSTRUCTION ACTIVITY SEQUENCE.</b>		
	Each applicant shall provide a description of the general right-of-way preparation procedures and construction activity sequence anticipated for the proposed pipeline and associated facilities.	5
<b>7852.2600 PREFERRED ROUTE LOCATION; ENVIRONMENT DESCRIPTION.</b>		
Subp. 1	<b><u>Preferred route location:</u></b> The applicant must identify the preferred route for the proposed pipeline and associated facilities, on any of the following documents which must be submitted with the application: A. United States Geological Survey topographical maps to the scale of 1:24,000, if available; B. Minnesota Department of Transportation county highway maps; or C. aerial photos or other appropriate maps of equal or greater detail in items A and B. The maps or photos may be reduced for inclusion in the application. One full-sized set shall be provided to the commission.	6.1
Subp. 2	<b><u>Other route locations:</u></b> All other route alternatives considered by the applicant must be identified on a separate map or aerial photos or set of maps and photos or identified in correspondence or other documents evidencing consideration of the route by the applicant.	6.2
Subp. 3	<b><u>Description of environment:</u></b> The applicant must provide a description of the existing environment along the preferred route.	6.3

MN Rules Chapter	Description of Requirement	Section
<b>7852.2700 ENVIRONMENTAL IMPACT OF PREFERRED ROUTE.</b>		
	The applicant must also submit to the commission along with the application an analysis of the potential human and environmental impacts that may be expected from pipeline right-of-way preparation and construction practices and operation and maintenance procedures. These impacts include but are not limited to the impacts for which criteria are specified in part 7852.0700 or 7852.1900.	7
<b>7852.2800 RIGHT-OF-WAY PROTECTION AND RESTORATION MEASURES.</b>		
Subp. 1	<b>Protection:</b> The applicant must describe what measures will be taken to protect the right-of-way or mitigate the adverse impacts of right-of-way preparation, pipeline construction, and operation and maintenance on the human and natural environment.	8.1
Subp. 2	<b>Restoration:</b> The applicant must describe what measures will be taken to restore the right-of-way and other areas adversely affected by construction of the pipeline.	8.2
<b>7852.2900 OPERATION AND MAINTENANCE.</b>		
	Pipeline operations and maintenance are assumed to be in compliance with all applicable state and federal rules or regulations, unless determined otherwise by the state or federal agency having jurisdiction over the enforcement of such rules or regulations. For public information purposes, the applicant must provide a general description of the anticipated operation and maintenance practices planned for the proposed pipeline.	9
<b>7852.3000 LIST OF GOVERNMENT AGENCIES AND PERMITS.</b>		
	Each application must contain a list of all the known federal, state, and local agencies or authorities and titles of the permits they issue that are required for the proposed pipeline and associated facilities.	10

**1. GENERAL INFORMATION (MINN. RULES 7852.2100)**

1.1 Statement of Ownership

Minnesota Power is an investor-owned electric utility headquartered in Duluth, Minnesota. Minnesota Power supplies retail electric service to 135,000 retail customers and wholesale electric service to 16 municipalities in a 26,000-square-mile electric service territory located in northeastern Minnesota. Minnesota Power generates and delivers electric energy through a network of electric transmission and distribution lines and substations throughout northeastern Minnesota. Minnesota Power's electric transmission network is interconnected with the regional transmission grid to promote reliability. Minnesota Power is a member of the Midwest Independent Transmission System Operator.

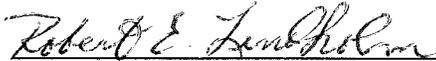
**AFFIDAVIT**

STATE OF MINNESOTA

COUNTY OF ST. LOUIS

I, Robert E. Lindholm, being first duly sworn, do hereby state that I am the Manager, Environmental Strategic Initiatives of Minnesota Power; that I have knowledge of the current plan for construction of the 10.75-inch-outside-diameter pipeline and related facilities for which Minnesota Power has filed a Pipeline Routing Permit application; that Minnesota Power will own and operate the proposed pipeline and associated facilities; and that officers of Minnesota Power, as well as its attorneys and other authorized agents, are authorized to act on behalf of Minnesota Power in association with the Boswell Energy Center Natural Gas Pipeline Project.

FURTHER AFFIANT SAYETH NOT.



Robert E. Lindholm  
Manager, Environmental Strategic Initiatives  
Minnesota Power  
30 West Superior Street  
Duluth, Minnesota 55802

Signed on June 3, 2008.

1.2 Background Information

1.2.1 Applicant's complete name, address, and telephone number:

Applicant: Minnesota Power  
Address: 30 West Superior Street  
Duluth, Minnesota 55802  
Phone: (218) 722-5642

1.2.2 Complete name, title, address, and telephone number of the authorized representative or agent to be contacted concerning the applicant's filing:

Contact: Robert E. Lindholm  
Manager, Environmental Strategic Initiatives  
Minnesota Power  
30 West Superior Street  
Duluth, Minnesota 55802  
Phone: (218) 722-5642 ext. 3342  
Fax: (218) 723-3916  
E-mail: rlindholm@allete.com

1.2.3 Signature and title of person authorized to sign the application:



Robert E. Lindholm  
Manager, Environmental Strategic Initiatives  
Minnesota Power  
30 West Superior Street  
Duluth, Minnesota 55802

Signed on June 3, 2008.

Signature and title of the preparer of the application if prepared by an outside representative or agent:



Thomas M. Janssen  
Senior Analyst  
Merjent, Inc.  
615 First Avenue NE, Suite 425  
Minneapolis, Minnesota 55413

Signed on June 4, 2008.

## 1.2.4 Project Description

### 1.2.4.1 General Location

Minnesota Power is proposing to construct an approximate 6,900-foot-long, 10.75-inch-outside-diameter, high pressure natural gas pipeline from Great Lakes' pipeline system to Minnesota Power's BEC in Cohasset, Minnesota. Minnesota Power proposes to locate the Project in Sections 3, 4, and 9, Township 55 North, Range 26 West in Itasca County, Minnesota. The proposed Project route is depicted on United States Geological Survey (USGS) topographic maps (Map 2) and aerial-based photographs (Map 3) enclosed in Appendix A.

The pipeline along Minnesota Power's preferred route will originate at Great Lakes' existing meter station facility located north of Cohasset and travel approximately 1,300 feet in a northwesterly direction adjacent to the Great Lakes existing pipelines. The proposed pipeline will then turn in a southerly direction and travel approximately 1,400 feet across U.S. Highway 2 and Burlington Northern Santa Fe (BNSF) railroad to the south side of Minnesota Power's existing high voltage electric transmission lines. The pipeline will travel westerly along the south side of the high voltage electric transmission lines for approximately 3,050 feet and then travel south for approximately 1,150 feet to the proposed terminus of the pipeline at the BEC plant site.

Minnesota Rules, Chapter 7852.0100, Subpart 31, defines "route" as the proposed location of a pipeline between two end points. A route may have a variable width from the minimum required for the pipeline right-of-way up to 1.25 miles. Minnesota Power assessed a 500- to 750-foot-wide route between the start of the proposed Project at Great Lakes' Cohasset Meter Station and its terminus at the proposed BEC Gas Delivery Station. This route should allow sufficient flexibility for selection of centerline and construction right-of-way during final pipeline design, landowner negotiations, and field routing decisions.

#### 1.2.4.2 Planned Use and Purpose

The planned use and purpose of the proposed pipeline Project is to provide a source of natural gas to BEC located in Cohasset, Minnesota. The power plant is comprised of four units that currently use fuel oil igniters. Separate from the pipeline Project, Minnesota Power plans to install natural gas igniters. Currently the exhaust gases from Units 1 and 2 must bypass the fabric filter particulate controlling system during start-up with the oil igniters to avoid fouling the fabric filters. Start-up with the proposed natural gas igniters will eliminate present opacity issues with Units 1 and 2 during periods of start-up. Additionally, natural gas igniters will be installed at the two remaining units (Units 3 and 4). Installing a 10.75-inch-outside-diameter pipeline with an MAOP of 974 psig will allow for potential future additional uses of natural gas at BEC if the necessity arises and required permitting is completed (e.g., gas “topping” system co-firing gas with coal, black start gas generator, etc.<sup>1</sup>).

#### 1.2.4.3 Estimated Cost

The estimated total cost of the Project is approximately \$2.5 Million.

#### 1.2.4.4 Planned In-Service Date

Construction is scheduled to begin as soon as September 1, 2008 with a planned in-service date of December 31, 2008.

#### 1.2.4.5 General Design and Operational Specifications

The proposed Project will include the installation of approximately 6,900 feet of 10.75-inch-outside-diameter pipeline from Great Lakes’ gas transmission pipeline to Minnesota Power’s Boswell Energy Center in Cohasset, Minnesota. The pipeline MAOP will be 974 psig and established by the company metering the natural gas (Great Lakes). The wall thickness and pipe grade will be established in part by pipe availability with a minimum nominal wall thickness of 0.250 inches used for open areas and a minimum nominal wall thickness of 0.375 inches used for road crossings, railroad crossings, and HDDs. The pipeline will be buried to a depth of at least three feet to the top of the pipe.

## **2. PROPOSED PIPELINE AND ASSOCIATED FACILITIES (MINN. RULES 7852.2200)**

### 2.1 Pipeline Design Specifications

The United States Department of Transportation (U.S. DOT), Title 49 Code of Federal Regulations (CFR), Part 192, defines minimum federal safety standards for construction, operation and maintenance of natural gas pipelines. Minnesota Power will comply with these

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<sup>1</sup> A gas topping system would consist of co-firing natural gas with coal to increase electricity production capacity. A blackstart unit is defined as a generating unit that is able to start without an outside electrical supply.

standards while constructing, operating and maintaining the proposed pipeline. Enforcement of pipeline safety regulations is under the jurisdiction of the Minnesota Office of Pipeline Safety (MNOPS). Anticipated design specifications are:

- A. Pipe size (outside diameter): 10.75 inches.
- B. Pipe type: The pipe will meet the most recent addition of API 5L PSL 2 Specifications for Line Pipe and is proposed to be seamless and/or ERW long seam welded.
- C. Nominal wall thickness (in inches): A minimum of 0.250-inch wall thickness will be used for line pipe. A minimum of 0.375-inch wall thickness will be used at road crossings, railroad crossings and HDDs.
- D. Pipe Design Factor: The pipe will meet or exceed a design factor of 0.60.
- E. Longitudinal or Seam Joint Factor: 1.0 pipe will be seamless or electric resistance welded.
- F. Class location and requirements (where applicable): pursuant to 49 CFR 192.5, the pipeline will be designed to a minimum of a Class 2 location. The pipeline at roads, railroads, and at facilities will be designed to a minimum of a Class 3 location.<sup>2</sup>
- G. Specified minimum yield strength: A minimum of API 5L Grade B (SMYS of 35,000 pounds per square inch) will be used.
- H. Tensile strength: 60,000 psig minimum.

## 2.2 Operating Pressure

- A. Proposed operating pressure: 900 to 974 psig.
- B. MAOP: 974 psig in accordance with 49 CFR Part 192.105.

## 2.3 Description of Associated Facilities

Minnesota Power will also install associated facilities as part of the proposed Project (e.g., valves and flanges, an in-line inspection tool launcher and receiver, cathodic protection, alternative current mitigation, gas delivery and odorizing station, etc.). Pipeline markers will be installed at various locations (e.g., road crossings) in accordance with applicable federal and state regulations. The following briefly describes each associated facility.

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<sup>2</sup> Class locations are designated by the number of buildings intended for human occupancy within 660 feet of either side of the pipeline centerline. The following criteria apply to classifications under 49 CFR 192.5:

- 1) Class 1: 0-10 buildings
- 2) Class 2: 10-45 buildings
- 3) Class 3: 46 or more buildings or an area where the pipeline lies within 100 yards (300 feet) of either a building or a small, well-defined outside area (such as a playground, recreation area, outdoor theater, or other place of public assembly) that is occupied by 20 or more persons on at least 5 days a week for 10 weeks in any 12-month period.
- 4) Class 4: Any class location unit where buildings with four or more stories above ground are prevalent.

### 2.3.1 Gas Delivery Station

Minnesota Power will install a fenced gas delivery station at BEC. The gas delivery station will include valves, regulators, over pressure protection, a filter, an in-line inspection tool receiver, and likely an automatic gas odorizing system. This facility will be approximately 200 feet long by 200 feet wide.

### 2.3.2 Valves and Flanges

Valves and flanges will be installed at Great Lakes' Cohasset Meter Station where Minnesota Power will be receiving the natural gas and at the proposed Boswell Gas Delivery station at the terminus of the proposed pipeline. The design, construction, testing and marking of the valves will comply with the requirements of 49 CFR Part 192.145 and Part 192.147.

### 2.3.3 Launcher and Receiver

Minnesota Power will design and construct the new pipeline to accommodate the passage of in-line inspection tools as required by 49 CFR Part 192.150. Above-ground appurtenances, called a launcher and receiver, will be installed to facilitate the passage of the in-line inspection tools. The launcher will be installed at the north end of the route within the fenced Great Lakes' meter station and the receiver will be installed at the terminus of the route within the gas delivery station at BEC.

### 2.3.4 Cathodic Protection

A cathodic protection system will be installed to prevent corrosion on the pipeline. The cathodic protection system will consist of a distributed sacrificial anode system or an impressed current system. The exact location of above-ground facilities, if required, will be determined at the time of final design by a cathodic protection specialist. The cathodic protection system will be designed in accordance with 49 CFR Part 192, Subpart I.

### 2.3.5 Alternating Current Mitigation

Along some portions of the proposed route, the pipeline is in proximity to high voltage electric transmission lines that could induce Alternating Current (AC) interference effects. Minnesota Power will contract with a firm that specializes in the evaluation and mitigation of AC interference. AC mitigation procedures will be implemented during construction and AC mitigation measures will be permanently installed as required following appropriate evaluations.

### 2.3.6 Gas Odorizing Station

Minnesota Power plans to install an electrically generated gas odorizing system within the newly constructed fenced gas delivery station at BEC. Natural gas flow through the system will vary from 80 million cubic feet per hour (mcfh) to 1200 mcfh. Minnesota Power plans to use RP Captan (V) to odorize the natural gas. The injection rate will be 0.25 to 0.75 lb per million cubic feet of natural gas. Stroke rate will be optimized to maintain steady odorant concentration in the

pipeline. Local reporting will be performed to assure the natural gas has the proper concentration of odorant. The pipeline will be new and properly pickled upon startup.

#### 2.4 Product Capacity Information

The planned minimum design capacity is 0.0 million cubic feet per day. Since the pipeline will be dedicated to the power plant facility, there may be occasional times throughout the year when the power plant will not require natural gas. In these instances, there will be no gas moving through the pipeline. The maximum design capacity is approximately 12,000 million cubic feet per day at 974 psig operating pressure.

#### 2.5 Product Description

The proposed pipeline will carry sweet processed natural gas (methane) from the Great Lakes system to BEC. Natural gas is a non-hazardous, but highly flammable substance.

#### 2.6 Material Safety Data Sheets

Material Safety Data Sheets for natural gas and the gas odorant RP Captan (V) are enclosed in Appendix C.

### **3. LAND REQUIREMENTS (MINN. RULES 7852.2300)**

The proposed pipeline alignment within the preferred route will be approximately 6,900 feet long. A total of approximately 16.47 acres of land will be required for the proposed Project. As depicted on drawings enclosed in Appendix B (Figures 1 and 2), a 75-foot-wide construction right-of-way will be used to facilitate safe construction. The construction right-of-way consists of 50-foot-wide permanent right-of-way and a 25-foot-wide temporary right-of-way. The use of temporary extra workspaces will also be necessary. Permanent associated aboveground facilities will also be installed at the beginning and end of the proposed pipeline. Minnesota Power will coordinate closely with landowners to obtain the necessary easements and temporary workspace agreements. Table 1 lists the land requirements for the proposed Project.

Pursuant to Minnesota Rules Chapter 7852.2300, the following provides a brief description of:

- 1) permanent right-of-way length, estimated width, and estimated acreage;
- 2) temporary right-of-way length, estimated width, and estimated acreage;
- 3) estimated trench dimensions including bottom width, top width, depth, and cubic yards of soil excavated;
- 4) minimum depth of cover for state and federal requirements; and
- 5) rights-of-way sharing or paralleling.

#### 3.1 Permanent Right-of-Way

Minnesota Power proposes to maintain a 50-foot-wide permanent right-of-way during operation of the pipeline. Approximately 7.92 acres of new permanent right-of-way will result from the proposed Project.

### 3.2 Temporary Right-of-Way

Of the 75-foot-wide construction right-of-way, 50 feet will be maintained as permanent right-of-way during operation of the pipeline and 25 feet will generally be used as temporary right-of-way. In some cases, site-specific conditions may dictate the need for additional temporary right-of-way in order to help ensure a safe working environment and to allow sufficient space for wetland spoil storage if wetlands contain high saturation levels or lack soil cohesiveness at the time of construction. The estimated acreage that will be used for temporary right-of-way is 3.96 acres assuming the temporary right-of-way will be 25 feet wide. Following construction, the temporary right-of-way will be allowed to revert back to its previous condition.

### 3.3 Temporary Extra Workspace

In addition to the construction right-of-way (permanent and temporary rights-of-way), temporary extra workspaces will be required at some locations to stage and store equipment and materials, park vehicles, and store excess spoil and construction waste materials as necessary. Each temporary extra workspace will be approximately 50 feet wide by 200 feet long located adjacent to the proposed construction right-of-way. Minnesota Power estimates that approximately 12 temporary extra workspaces will be needed at the beginning and end of the Project, wetland approaches, 3<sup>rd</sup> Street North/County State Aid Highway (CSAH) 87, foreign pipeline crossings (e.g., Enbridge Pipelines), and each side of the BNSF railroad/U.S. Highway 2 crossing. As listed in Table 1, the total land area required for temporary extra workspaces is estimated to be approximately 2.75 acres. Following construction, temporary extra workspaces will be allowed to revert back to their previous conditions.

### 3.4 Associated Aboveground Facilities

In addition to installing the pipeline, associated aboveground facilities will be installed at Great Lakes' Cohasset Meter Station where the proposed pipeline will be receiving the natural gas and at the Boswell Gas Delivery station at the terminus of the proposed pipeline (see Section 2.3). An approximate 200-foot by 200-foot area will be affected within or adjacent to Great Lakes' existing Cohasset Meter Station and a 200-foot by 200-foot area fenced gas delivery station will be installed at the pipeline terminus. The total land area required for associated aboveground facilities is estimated to be 1.84 acres. Following construction, these areas will be maintained as fenced and graveled facilities.

**Table 1  
Land Requirements**

Facility	Land Requirements (acres)
<b>PIPELINE FACILITIES</b>	
Permanent Right-of-Way	7.92
Temporary Right-of-Way	3.96 <sup>1</sup>
Temporary Extra Workspaces	2.75
<b>Sub-Total:</b>	14.63
<b>ABOVEGROUND FACILITIES</b>	
Cohasset Meter Station	0.92
BEC Gas Delivery Station	0.92
<b>Sub-Total:</b>	1.84
<b>Total:</b>	16.47

<sup>1</sup> The construction right-of-way in wetlands will generally be 75 feet wide (i.e., 50-foot-wide permanent right-of-way and 25-foot wide temporary right-of-way). To help ensure a safe working environment and to allow sufficient space for wetland spoil storage, additional temporary right-of-way may be needed if wetlands contain high saturation levels or lack soil cohesiveness at the time of construction.

### 3.5 Pipe Trench Dimensions

The depth of the trench will generally be four feet deep. Allowing for a 10.75-inch-outside-diameter pipe, the top of the pipe will be approximately three feet below the ground surface. The bottom of the pipe trench will be approximately two feet wide and the top of the trench approximately 12 feet wide. The pipe will be installed underneath three roads by using the boring method or horizontal directional drilling technique thereby reducing the estimated total trench length by approximately 1,000 feet. There will be approximately 5,900 feet of trench excavation, amounting to approximately 6,100 cubic yards of soil excavated from the proposed pipe trench.

### 3.6 Minimum Depth of Cover – State and Federal Standards

Minnesota Power proposes to bury the pipe to at least 36 inches below the surface in accordance with U.S. DOT pipeline standards (49 CFR, Part 192.327), except at locations that require additional depth pursuant to Minnesota Statute 216G.07, Subdivision 1. This statute requires the proposed pipeline to be buried at least a depth of 4.5 feet in all areas where the pipeline alignment crosses public drainage facilities, county or state highway rights-of-way, and actively cultivated agricultural lands. The proposed pipeline alignment will not cross any actively cultivated agricultural fields or public drainage facilities.

### 3.7 Rights-of-Way Sharing or Paralleling

Of the 6,900 feet crossed by the proposed pipeline alignment, 4,350 feet parallels existing natural gas pipeline and high voltage power line rights-of-way amounting to approximately 63

percent of the lands crossed. The purpose of aligning the pipeline adjacent to existing rights-of-way is to reduce the impact to current and future land uses and to minimize human and environmental impacts. Approximately 1,300 feet of the Project is intended to be installed parallel to the south side of Great Lakes' pipelines on the north end of the Project area. Approximately 3,050 feet of the Project will be installed parallel to and on the south side of the high voltage electric transmission lines. The anticipated alignment of the proposed pipeline in relation to the alignment of Great Lakes' pipelines and Minnesota Power's high voltage electric transmission lines are depicted in maps included in Appendix A (Maps 3 - 5). Figures 3 and 4 in Appendix B depict the anticipated configuration of the proposed construction right-of-way in relation to Great Lakes' existing natural gas pipeline and Minnesota Power's high voltage power line rights-of-way.

### 3.8 Access Roads

Minnesota Power intends to use existing roads to access the construction right-of-way. Roads that are paved or graveled will not require modification. If dirt roads and two-track trails are needed, Minnesota Power may need to perform minor grading and filling to ensure the roads are passable to construction equipment. No wetlands will be filled if dirt roads and two-track trails are used as part of this Project.

### 3.9 Contractor Staging Yard / Pipe Storage Yard

To support construction activities, Minnesota Power proposes to temporarily use a contractor yard and/or a pipe storage yard. Minnesota Power also anticipates a need to use a pipe offloading area adjacent to a rail line to accommodate transportation of pipe from the mill to the general Project vicinity. The locations of the yard(s) and pipe unloading area have not yet been determined. Minnesota Power will obtain federal, state and/or local permits and/or approvals for relevant activities at the yard(s).

## 4. PROJECT EXPANSION (MINN. RULES 7852.2400)

The proposed gas pipeline is designed to meet the future natural gas supply needs for BEC. No Project expansion beyond that proposed in this application is currently planned by Minnesota Power.

## 5. RIGHT-OF-WAY PREPARATION PROCEDURES AND CONSTRUCTION ACTIVITY SEQUENCE (MINN. RULES 7852.2500)

The right-of-way preparation procedures and construction sequence for the proposed Project will generally proceed in the progression of the activities provided below. A Typical Stages of Construction drawing is enclosed in Appendix B (Figure 5).

### 5.1 Survey and Staking of the Right-of-Way

Minnesota Power will conduct a centerline survey to accurately depict the location and layout of the pipeline, followed by staking of the pipeline centerline. This survey will also identify the extent of approved work areas. Prior to the commencement of any survey activities, all affected

landowners will be contacted to obtain any necessary survey permission. In addition, Minnesota Power will comply with Minnesota Rules 7852.0600 regarding public notice and distribution of application materials. Minnesota Power is committed to providing affected landowners with complete information about the Project, and keeping them informed throughout the survey, right-of-way acquisition, right-of-way preparation, construction and restoration stages of the Project.

## 5.2 Clearing and Grading

Preparation of the right-of-way is the initial step in the construction of the Project. Clearing and grading will commence along the right-of-way after the centerline survey and staking has been completed. Clearing of the right-of-way will take place in accordance with all permit conditions, as well as agreed upon landowner considerations. Clearing of vegetation and obstacles will be limited to the extent necessary to allow safe and effective use of construction equipment. In areas where clearing is required, the trees will be cut in uniform lengths and stacked along the right-of-way based on landowner preference. Stumps will only be removed when necessitated by pipeline installation (e.g., trenching) or at landowner's request. Debris created from preparation of the right-of-way will be disposed of at a licensed facility, mulched or otherwise handled using methods approved by the landowner and in accordance with applicable regulations. Fences encountered during construction will be cut and braced on each side of the right-of-way to prevent damage to the remaining fence. Temporary gates will be installed as needed to prohibit public access to the right-of-way during construction.

Following clearing activities, grading will be conducted as necessary in certain areas to create level working surfaces across the right-of-way in order to allow for the safe operation and travel of equipment. Grading will also be utilized to reduce grade along the right-of-way and to segregate topsoil. In wetland areas, topsoil will generally be separated from the subsoil over the trench line only. In upland areas, topsoil will be separated from the subsoil over the trench line and subsoil storage area. Topsoil and subsoil will be stored in a manner that prevents mixing, and topsoil will be returned to its original horizon during backfilling (see Section 5.10). After construction is completed, graded areas will be restored as close as possible to pre-construction contours.

## 5.3 Trenching

Prior to trenching activities, notification will be provided to the Minnesota Gopher State One-Call as required to ensure all utilities are properly identified. All other safety procedures will be adhered to as required by the Minnesota Office of Pipeline Safety, Minnesota Power safety procedures, and worker safety regulations.

After topsoil is removed, the trench will be excavated by track-mounted backhoes, or other similar equipment to a depth that provides sufficient cover over the pipeline after backfilling as required by U.S. DOT specifications. Due to the size of the pipe (10.75-inch-outside-diameter), the trench will be approximately four feet deep (to allow for about three feet of cover) and about 12 feet wide at the top of the trench.

During periods of excessive precipitation or where high water tables are encountered, the excavated trench may collect water and may need to be dewatered. Heavily silt-laden water will not be discharged from the trench into wetlands or waterbodies. To the extent practicable, discharges will be directed to well-vegetated upland areas. If discharge activities need to be located off the right-of-way, landowner consent will be obtained and locations will be chosen that will minimize off-right-of-way impacts and impacts to sensitive resources. In accordance with agency permits and approvals obtained for the Project, water will be discharged into an energy dissipating device if necessary (e.g., straw bale structure, filter bag, etc.).

The pipeline alignment along the preferred route will cross Pincherry Road/CSAH 88, US Highway 2, BNSF Railroad, and 3rd Street North/CSAH 87. These features will be crossed by mechanically boring beneath the road and railroad. Boring requires the excavation of a pit on each side of the road/railroad, the placement of boring equipment in the pit, then boring a straight-line hole under the road at least as large as the diameter of the pipe. Once the hole is bored, a prefabricated pipe section will be pushed through the borehole. For long crossings, sections may be welded onto the pipe string just before being pushed through the borehole. There will be little or no disruption to traffic at road or railroad crossings that are bored.

In the event that a bored crossing is not feasible at roads and railroads, the HDD method may be used as an alternative. The HDD method is similar to a bore, except that the hole can follow a longer, curved path. The first step in HDD will be to drill a small diameter pilot hole from one side of the crossing to the other. As the pilot hole progresses, segments of drill pipe will be inserted into the hole to extend the length of the drill. The drill bit will be steered and monitored throughout the process until the desired pilot hole has been completed. The pilot hole then will be enlarged using several passes of successively larger reaming tools. Once reamed to a sufficient size, a prefabricated segment of pipe will be attached to the drill string on the exit side of the hole and pulled back through the drill hole toward the drill rig. The HDD method will cause little or no disruption to traffic at road or railroad crossings.

#### 5.4 Padding Ditch Bottom

If areas of rock are encountered during trenching, padding material such as finer grain sand, soil, or gravel will be placed in the bottom of the trench to protect the pipeline during backfilling activities. No topsoil will be used as padding material.

#### 5.5 Pipe Stringing

After the pipe trench is excavated, sections of externally coated pipe up to 80 feet long (also referred to as joints) will be transported to the construction right-of-way by truck and strung along the side of the trench using side-boom tractors or other equipment in preparation for subsequent bending and welding operations.

#### 5.6 Bending

After the joints of pipe are strung along the trench and before the sections of pipe are joined together by welding, individual sections of the pipe may be bent by using a track-mounted,

hydraulic pipe-bending machine to tailor the shape of the pipe to conform to the contours of the terrain. Sections of pipe that require multiple or complex bends may be pre-fabricated off-site.

### 5.7 Line-up and Welding

After the pipe ends are sufficiently cleaned and bending activities have been completed, the pipe joints are lined up and welded together until the joints are securely joined. Welding will be completed by pre-qualified welders in accordance with American Petroleum Institute (API) 1104, the code for "Welding of Pipelines and Related Facilities". Welders will comply with the welding procedures that have been developed and tested to the detailed national industry standards and pipeline regulations. All welds are required to exhibit the same structural integrity with respect to strength and ductility.

### 5.8 Radiographic Examination of Welds and Weld Coating

Each weld will be inspected by qualified welding inspectors to determine the integrity of each weld. U.S. DOT regulations require nondestructive testing of all welds in areas such as inside railroad or public road rights-of-way and in certain other areas. Radiographic examination is a nondestructive method of inspecting the inner structure of welds and determining the presence of defects. Contractors specializing in radiographic examination will perform the inspections to ensure structural integrity. Welds that do not meet established specifications will be repaired or replaced with a weld that meets U.S. DOT standards. Once the welds are approved, a protective coating will be applied to the welded joints.

### 5.9 Inspection and Repair of Coating

The U.S. DOT requires buried pipelines to have an acceptable protective coating. The pipe is typically coated with a mill applied fusion-bonded epoxy prior to delivery in order to protect against corrosion. Directional drilled pipe will be dual-coated and construction field welds will be coated in the field with an approved material that is compatible with the mill applied coating. The entire coating will be inspected and any defects in the coating will be field-repaired. After this coating is inspected, the pipe will be ready to be lowered into the trench.

### 5.10 Lowering In and Backfilling

The pipeline will be lowered into the trench after the trench is excavated and free of rocks and other debris that could damage the pipe or protective coating. Dewatering may be necessary to inspect the bottom of the trench in areas where water has accumulated. Trench dewatering activities will be performed in accordance with Minnesota Department of Natural Resources (MN DNR) Water Appropriation General Permit MN 97-0005 and erosion control plans developed pursuant to the Minnesota Pollution Control Agency (MPCA) National Pollutant Discharge Elimination System (NPDES) Construction Storm Water Discharge Permit.

Trench breakers (stacked sand bags or polyurethane foam) will be installed in the trench as necessary to prevent subsurface water movement along the pipeline. The trench will then be backfilled using the material excavated from the trench. If the excavated material is rocky, the pipeline will be protected with a rock shield (fabric or screen that is wrapped around the pipe to

protect the pipe and coating from damage by rocks, stones, roots, and other debris) or will be covered with a more suitable fill as described in Section 5.4.

#### 5.11 Pressure Testing for Leaks

After backfilling, the pipeline will be hydrostatically tested to ensure the system is capable of withstanding the operating pressure for which it was designed. Test water will be pumped into each test section and pressurized to design test pressure. Test pressure and duration will be consistent with the requirements of Title 49 CFR Part 192. If leaks are found, they will be repaired and the section of pipe retested until the required specifications are met. Activities associated with hydrostatic testing will be performed in accordance with applicable federal, state, and local regulations.

#### 5.12 Cleanup and Restoration

Clean-up and restoration of the right-of-way is the final phase of pipeline construction and typically begins immediately after backfilling, or as soon as weather and soil conditions allow. The right-of-way will be cleaned up by the removal and disposal of construction debris and surplus materials. Construction debris will be taken to a licensed disposal facility.

The purpose of restoration is to return the Project area as closely as possible to pre-construction conditions. Restoration efforts may involve smoothing with disc harrows or other equipment, stabilization using erosion control devices, and revegetation activities. Preconstruction contours will be reestablished to the extent possible. Permanent slope breakers will be installed as necessary; and seed, fertilizer and mulch will be applied in accordance with requests of the landowner and applicable federal, state, and local permits and approvals obtained for the Project. The permanent 50-foot-wide right-of-way will be routinely cleared of woody vegetation (*e.g.*, trees, shrubs, *etc.*) by mechanical means about once every three to five years to maintain accessibility of the pipeline and accommodate inspection and potential maintenance of the pipeline.

If present, existing drain tiles that are cut or damaged during construction will be repaired by specialized tiling contractors or subcontractors. Access roads used for construction may require grading and will be restored to their preconstruction condition, unless the property owner requests otherwise.

## **6. LOCATION OF PREFERRED ROUTE AND DESCRIPTION OF ENVIRONMENT (MINN. RULES 7852.2600)**

Minnesota Rules 7852.0100, Subpart 31, defines “route” as the proposed location of a pipeline between two end points. A route may have a variable width from the minimum required for the pipeline right-of-way up to 1.25 miles. For the preferred route, a 500- to 750-foot-wide route was assessed between the start of the proposed Project at Great Lakes’ Cohasset Meter Station and its terminus at the proposed BEC Gas Delivery Station. This route should allow sufficient flexibility for selection of centerline and construction right-of-way during final pipeline design, landowner negotiations, and field routing decisions. Additionally, two alternative

pipeline alignments were reviewed.

## 6.1 Preferred Route Location

As depicted on USGS topographic maps and aerial-based photographs enclosed in Appendix A (Maps 3 - 5), Minnesota Power's preferred route will originate at Great Lakes' existing Cohasset meter station facility located in Cohasset on Pincherry Road/CSAH 88 and travels approximately 1,300 feet in a northwesterly direction adjacent to Great Lakes' existing pipelines. The preferred route will then turn in a southerly direction and travel approximately 1,400 feet across U.S. Highway 2/BNSF railroad to the south side of Minnesota Power's existing high voltage electric transmission lines. The route follows westerly along the south side of the high voltage electric transmission lines for approximately 3,050 feet and then turns south for approximately 1,150 feet to the preferred terminus of the pipeline. In total, this route will travel approximately 6,900 feet. A 75-foot-wide construction right-of-way will be located within the preferred route impacting approximately 16.47 acres as listed in table 1.

The two most important factors Minnesota Power considered in choosing a preferred pipeline route were to maximize the length that the pipeline will parallel existing utility rights-of-way and to minimize the length that parallels roads. Constructing and operating a pipeline parallel to existing utility rights-of-way generally greatly reduces any direct and long-term effect on the land use, human environment, or aesthetic values of the area. Conversely, constructing and operating a pipeline parallel to road impacts travelers, residents, and businesses along the road for the duration of the project. Examples of impacts to travelers, residents, and businesses while constructing a pipeline parallel to road may include disruption to local traffic by temporarily needing to close one or both road lanes to facilitate construction, a temporary increase of noise levels resulting from construction-related activities (e.g., construction equipment operation), and a temporary restriction of access to residential properties and businesses when working the direct vicinity of those features.

The preferred route will affect 5 landowners and approximately 4,350 feet (63 percent) of the route will be located parallel to Great Lakes' existing natural gas transmission pipeline right-of-way and Minnesota Power's high voltage power line right-of-way. As listed in table 2, the preferred route is slightly longer and may result in more wetland impacts than the alternatives considered. However, since the preferred route is located parallel to other utility rights-of-way to the greatest extent possible, will not parallel any existing roads, and will cross the least amount of occupied residential and active commercial/industrial lands, the total potential effects to the surrounding Cohasset community, road infrastructure, land use, aesthetic values resulting from construction and operation of the preferred pipeline will be far less than the two alternatives considered. A detailed description the environmental setting and impacts associated with the preferred route is provided in Section 6.3 and Section 7 of this application.

## 6.2 Other Route Locations

Project alternatives represent potential variations the proposed pipeline alignment could follow that vary significantly from the preferred route. An alternative will deviate from the preferred route for its entire length or at least a large portion of its total length and are identified to

determine if environmental or human impacts could be avoided or reduced. Alternatives are also identified in an attempt to reduce the creation of new right-of-way by locating the pipeline adjacent to existing utility rights-of-way. Paralleling or sharing existing utility rights-of-way is generally preferred by land use planners and regulatory agencies and has several inherent engineering and environmental advantages. While the origin and delivery points of alternatives are generally the same as for the corresponding centerline along the preferred route, the alternatives could follow significantly different alignments.

The following text describes two alternatives that were evaluated and considered for the Project. The proposed pipeline alignment along the preferred route and two alternative pipeline alignments are depicted in the USGS topographic maps and aerial-based photographs enclosed in Appendix A (Maps 3 - 5). Table 2 compares the preferred pipeline alignment with the two alternative alignments, including alignment lengths that parallel existing utilities and roads; alignment lengths that cross wetlands; and provides the number of landowners, occupied residential lands, and active industrial/commercial lands crossed by the preferred and alternative alignments.

**Table 2**  
**Comparison of Preferred and Alternative Pipeline Alignments <sup>1</sup>**

	Total Length (ft.) <sup>1</sup>	Parallel to Existing Utility		Parallel to Existing Road		Wetland Crossed		Landowners Crossed	Occupied Residential Land Crossed	Active Ind./Com. Land Crossed
		ft.	%	ft.	%	ft.	%			
Preferred Pipeline Alignment	6,900	4,350	63	0	0	2,775	40	5	1	2
Alternative 1 Pipeline Alignment	7,100	2,400	34	2,750	39	1,100	16	5	1	2
Alternative 2 Pipeline Alignment	6,600	0	0	6,200	94	1,400	21	13	9	4

<sup>1</sup> The preferred and alternative pipeline alignment lengths that parallel existing utilities, parallel existing roads, and cross wetlands will not match the total length provided for each respective alignment due to other land types crossed that are not included in this table and due to overlap of wetlands crossed with lengths that parallel the other features.

**Alternative 1**

As depicted on a USGS topographic map (Map 4) and aerial-based photograph (Map 5) enclosed in Appendix A, the Alternative 1 pipeline alignment originates at Great Lakes' Cohasset meter station facility and travels approximately 1,300 feet in a northwesterly direction adjacent to the Great Lakes existing pipelines. The pipeline alignment then turns in a southerly direction for approximately 1,400 feet across U.S. Highway 2/BNSF railroad to the south side of Minnesota Power's existing high voltage electric transmission lines. The pipeline alignment jogs 150 feet west and then turns south following the west edge of an existing electric distribution line right-of-way for approximately 1,100 feet to the south side of 3rd Street North/CSAH 87. Along the south side of 3rd Street North/CSAH 87, this alternative travels west for 2,750 feet and then south for 400 feet to the proposed Boswell Gas Delivery Station.

Alternative 1 pipeline alignment would be approximately 7,100 feet long. Assuming a 75-foot-wide construction right-of-way, approximately 12.23 acres would be disturbed along the

Alternative 1 pipeline alignment. Approximately 2,400 feet (34 percent) of this alternative would be located parallel to Great Lakes' existing natural gas transmission pipeline right-of-way and a distribution electric power line right-of-way. Thirty-nine percent of Alternative 1 parallels 3rd Street North/CSAH 87 totaling a distance of approximately 2,750 feet.

While Alternative 1 crosses less wetland compared to the preferred pipeline alignment, the two most important factors Minnesota Power considered in choosing a preferred pipeline route were to maximize the length that the pipeline will parallel existing utility rights-of-way and to minimize the length that parallels roads as stated in Section 6.1. Constructing and operating a pipeline parallel to existing utility rights-of-way generally reduces any direct and long-term effect on the land use, human environment, or aesthetic values of the area. Conversely, constructing and operating a pipeline parallel to road significantly impacts travelers, residents, and businesses along the road for the duration of the project. Alternative 1 parallels significantly less utility rights-of-way (approximately 1,950 feet less than the preferred pipeline alignment) and 2,750 feet more road rights-of-way (preferred pipeline alignment does not parallel any roads). Specifically, the 2,750 feet parallels 3rd Street North/CSAH 87, which serves as the primary entrance to the BEC. For the safety of both construction workers and motorists, one or both lanes of 3rd Street North/CSAH 87 may need to be closed temporarily to facilitate pipeline construction. In addition to the normal daily travel by plant employees, this road serves as access for several hundred contractors that would be performing an environmental retrofit at BEC during the proposed Project's planned fall 2008 pipeline construction period. Additionally, construction activities would temporarily affect access to Blackwater Park, located on the south side of 3rd Street North/CSAH 87 just east of BEC.

Minnesota Power rejected the pipeline alignment for Alternative 1 in favor of the preferred pipeline alignment primarily due to:

- 1) the pipeline alignment paralleling significantly less utility rights-of-way;
- 2) the significant impact to travelers, residents, and businesses along 3rd Street North/CSAH 87; and
- 3) the effects to access from 3rd Street North/CSAH 87 for the several hundred BEC employees and contractors performing the environmental retrofit at the BEC.

### Alternative 2

As depicted on a USGS topographic map (Map 4) and aerial-based photograph (Map 5) enclosed in Appendix A, the Alternative 2 pipeline alignment originates at Great Lakes' Cohasset meter station facility and travels approximately 2,100 feet south on the east side of Pincherry Road/CSAH 88 to the south side of 3rd Street North/CSAH 87. Along the south side of 3rd Street North/CSAH 87, this alternative travels west for 4,100 feet and then south for 400 feet to the proposed Boswell Gas Delivery Station. In total, this pipeline alignment is approximately 6,600 feet long and would disturb approximately 11.36 acres along an assumed 75-foot-wide construction right-of-way.

While the pipeline alignment for Alternative 2 crosses less wetland and is slightly shorter in length than the preferred pipeline alignment, no other factors for selecting a pipeline alignment compare favorably to the preferred pipeline alignment. Alternative 2 crosses at total of 13

landowners, 8 more than the preferred alignment. Of the 13 landowners crossed, 9 are occupied residences and 4 are industrial/commercial tracts with active businesses. In addition, as stated in Section 6.1, the two most important factors Minnesota Power considered in choosing a preferred pipeline route were to maximize the length that the pipeline will parallel existing utility rights-of-way and to minimize the length that parallels roads. Constructing and operating a pipeline parallel to existing utility rights-of-way generally reduces any direct and long-term effect on the land use, human environment, or aesthetic values of the area. Conversely, constructing and operating a pipeline parallel to road significantly impacts travelers, residents, and businesses along the road for the duration of the project.

No portion of this alternative is located parallel to existing natural gas transmission pipeline or electric transmission line rights-of-way. Ninety-four percent of this alternative's pipeline length parallels existing road rights-of-way along Pincherry Road/CSAH 88 and 3rd Street North/CSAH 87 totaling a distance of approximately 6,200 feet. For the safety of both pipeline construction workers and passing motorists, one or both lanes of these roads may need to be closed temporarily to facilitate pipeline construction. In addition to the normal daily travel by plant employees, 3rd Street North/CSAH 87 serves as access for several hundred contractors that would be performing an environmental retrofit at BEC during the proposed Project's planned fall 2008 pipeline construction period. Additionally, construction activities would temporarily affect access to Blackwater Park, located on the south side of 3rd Street North/CSAH 87 just east of BEC.

Minnesota Power rejected the pipeline alignment for Alternative 2 in favor of the preferred pipeline alignment due to:

- 1) the pipeline alignment not paralleling any utility rights-of-way;
- 2) crossing significantly more landowners.
- 3) the disruption of traffic that would result from construction activities along Pincherry Road/CSAH 88 and 3rd Street North/CSAH 87;
- 4) the disruption to access from 3rd Street North/CSAH 87 for the several hundred BEC employees and contractors performing the environmental retrofit at the BEC; and
- 5) the adverse effects that would result from construction-related activities to active businesses and occupied residents crossed for the duration of the project.

#### No Action Alternative

The no action alternative involves not constructing the proposed natural gas pipeline and therefore would avoid any impacts identified in this application. This alternative does not satisfy the need to provide the natural gas necessary to install natural gas igniters at the four units at BEC. As a result, the present opacity issues at Units 1 and 2 would continue and there would be no opportunity for additional natural gas usage in the future. For these reasons, Minnesota Power rejected the no action alternative.

### 6.3 Description of the Environment

#### 6.3.1 Land Use

The Project is located in a semi-rural area of southeastern Itasca County, Minnesota. The predominate land uses of this region are a mix of forested land, wetlands, open land, and occasional small parcels that have been cleared for agriculture. The regional terrain is relatively flat and marked by frequent low-lying lakes and wetlands, with forests of aspen, upland conifers, and lowland species such as black spruce, northern white-cedar, and tamarack.

The preferred route is located on the northern and western edge of the City of Cohasset outside of its central business district. Minnesota Power assessed a 750- to 500-foot-wide route for the Project. The route traverses four land use types: forested, industrial, residential, and open. No actively cultivated agricultural lands are crossed. Each land type and the percent of the route crossing for each type are listed in Table 3. This preferred route is depicted on USGS topographic maps and aerial-based photographs of the Project area and is enclosed in Appendix A (Maps 2 – 5).

**Table 3  
Preferred Route Land Uses**

Land Use Category	Land Description	Feet Crossed	Percent Crossed
Forested	Forested uplands/wetlands	1750	25.4
Industrial/commercial	Materials recycling center and BEC property	2100	30.4
Residential	Occupied residential property located north of Great Lakes' existing pipeline right-of-way	100	1.5
Open	Non-forested areas, scrub-shrub/emergent wetlands, undeveloped open fields, etc.	2950	42.7
	Total:	6,900	100

#### 6.3.2 Human Settlement

Major industries in the region include recreation, tourism, and forestry. The Project area is located on the transition zone between a northern Minnesota forested area and the expanding urban / industrial setting of the City of Cohasset. The area has been heavily disturbed by municipal growth and infrastructure development activities. The Project area is bisected by U.S. Highway 2; an actively used BNSF railroad track; and existing buried natural gas and oil pipeline systems; and several high-voltage overhead electric power transmission lines. The western end of the Project route terminates in the large industrial setting of BEC. One residence is located within the preferred route north of Great Lakes' existing pipeline right-of-way.

#### 6.3.3 Vegetation and Wildlife

The Minnesota Department of Natural Resources (MN DNR) and the U.S. Forest Service have developed an Ecological Classification System for ecological mapping and landscape classification in Minnesota. The Project area is contained within the Laurentian Mixed Forest

Province classification, which is characterized by broad areas of conifer forest, mixed hardwood and conifer forests, and conifer bogs and swamps (MN DNR, 2008). The vegetation in the Project area has been significantly altered from its original old-growth state due to timber harvesting activities and urban development. Loss of habitat and habitat fragmentation has occurred from construction of transportation and energy transmission rights-of-way and commercial development.

Representative forested upland vegetation includes quaking aspen, green ash, and white pine. Representative open upland vegetation includes smooth brome grass, Kentucky blue grass, field thistle, and golden rod. Wetland vegetation species include tamarack, willow, speckled alder, red osier dogwood, reed canary grass, meadowsweet, cattails, sedges, horsetail and bracken fern.

Mammals that inhabit land near the Project area include black bears, white-tail deer, and many smaller mammals such as muskrat, raccoon, snowshoe hare, porcupine, squirrel, chipmunk, mice. The Project area is also located within the geographic range of the gray wolf and Canada Lynx, but occurrences are unlikely along the Project route because of the developed nature of the area and fragmented lands. Both species are reclusive, highly mobile and prefer more remote, larger contiguous tracts of forested habitats.

#### 6.3.4 Water Resources

##### Surface Water

The Mississippi River flows through the southwestern corner of Itasca County and is approximately about ½ mile away from the terminus of the preferred route. The Project is located within the Mississippi River-Headwaters watershed of the Upper Mississippi River Basin, which drains approximately 20,100 square miles of land in north central Minnesota. The preferred route does not cross any perennial or intermittent streams and no impacts to the Mississippi River or its watershed are anticipated as a result of this Project.

##### Wetlands

Minnesota Power sponsored a wetland delineation of the Project area using routine determination methods set forth in the U.S. Army Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory, Waterways Experiment Station, 1987), in which a sampling transect is established in representative transition zones of the identified wetland (Mackenthun, 2008). According to the 1987 Manual, routine wetland determinations are based on the presence of hydrophytic vegetation, wetland hydrology and hydric soils, referred to as the “three parameter approach”. Soils, vegetation, and hydrology information are recorded at each sampling point on a field data form. Species dominance for vegetation measurements is based on the percent aerial or basal coverage visually estimated up to a 20-foot radius from the sampling point. Wetlands are shown in the maps enclosed in Appendix A (Maps 3 - 5).

Wetlands were classified according to *Wetlands of the United States* (USFWS, 1971) and *Wetlands of Deepwater Habitats of the United States* (USFWS, 1979). The Project area consists of palustrine emergent, palustrine scrub-shrub, and palustrine forested wetlands. The wetlands are saturated or inundated with no standing water and support the following plant

species: broad-leaved cattail (*Typha angustifolia*), reed canary grass (*Phalaris arundinacea*), lake sedge (*Carex lacustris*), uptight sedge (*Carex stricta*), red osier dogwood (*Conus stolonifera*), aster (*Aster spp.*), sensitive fern (*Onoclea sensibilis*) Canada goldenrod (*Solidago canadensis*), horsetail (*Equisetum arvense*), quaking aspen (*Populus tremula*), green ash (*Fraxinus pennsylvanica*), meadowsweet (*Spiraea spp.*), willow (*Salix spp.*), tamarack (*Larix spp.*), and speckled alder (*Alnus rugosa*). The MN DNR Public Waters Inventory List shows that the Project will not affect any wetlands designated as Minnesota Public Waters (MN DNR, 1996).

### Groundwater

The Project area is located in the Central Ground Water Province, which is characterized by relatively extensive surficial sand plain as part of a thick layer of unconsolidated sediments deposited by glaciers overlying bedrock. Fractured and weathered Precambrian bedrock generally have good aquifer properties and serve as a regional water source. Groundwater yields in this area can exceed 1,000 gallons per minute (Oakes, *et. al.*, 1968; USGS, 2004; MN DNR, 2008).

Ground disturbance associated with this project will be limited to about 5 to 6 feet below the existing ground surface. Although this excavation will likely encounter the shallow groundwater table, the limit of excavation is not expected to impact the unconsolidated aquifer that is typically more than 100 feet below the ground surface in this area. Construction activities, such as trenching, dewatering, and backfilling, may produce minor fluctuations in shallow groundwater levels, but these effects will be short-lived and will produce negligible impacts.

Information acquired from the Minnesota Department of Health County Well Index Online database indicates that several water wells are located in and around the City of Cohasset (MN DH, 2008). None of the wells are located within 200 feet of the preferred route.

### 6.3.5 Recreational Areas

The preferred pipeline route does not cross any city, county or state-owned park or other designated recreational areas. Minnesota Power owns the lands south of U.S. Highway 2, between the western edge of the residential portion of the City of Cohasset and the BEC to the west. Within this area, Minnesota Power owns and maintains Blackwater Park south of 3rd Street North/CSAH 87 in a forested upland area, which serves as a sound buffer between the BEC and residential areas to the east. The park contains trails used for hiking, cross-country skiing, and bicycling by local residents.

### 6.3.6 Cultural Resources

Minnesota Power sponsored a literature review of existing information regarding cultural resources that could potentially be impacted by the Project (Boden, 2008). The study area for the literature review included a one-mile buffer around the preferred route which is large enough to encompass the alternative routes considered. A summary of the results from this research are discussed below and a copy of the literature review report is enclosed in Appendix D.

### Cultural History of the Project Area

The Minnesota State Historic Preservation Office (MN SHPO) has identified nine archaeological regions defined by terrain, resources, and drainage systems. The Project area lies within Region 5, the Central Coniferous Lakes region, described as a mosaic of lakes, rugged end moraines, and glacial outwash features. Cultural activity in the Central Coniferous Lakes Region is recorded for all known cultural periods, beginning with the earliest pre-contact periods, PaleoIndian and Archaic. Sites dating to these periods have been found along former lake shorelines and abandoned river channels. Woodland period sites are well represented in the region. These sites are concentrated on the shores of medium to large lakes, and along rivers, notably at river inlets where wild rice grows well.

Fur traders were active in the region during the Contact period, with fur trading posts constructed along prominent river transportation routes. Ojibwa peoples lived in villages and seasonal outposts during the Contact period and subsequent historic periods. Euro-American activity intensified in the region during the last half of the nineteenth century when the timber industry began harvesting the extensive forests. Some parcels were cleared for agriculture but farming has never been a primary factor in the economy of the region. In the twentieth century, the timber industry made a comeback after a major decline, and iron mining was active in the Mesabi Iron Range. Tourism and recreation gained importance in the last half of the twentieth century, and continue to be a significant contribution to the economy.

### Review of MN SHPO Files for Previously Recorded Sites

Files at the MN SHPO Offices were examined to identify previously recorded archaeological sites and architectural historic properties within the Project area. Recorded archaeological sites within one mile of the Project area were reviewed. Eleven archaeological sites were recorded, all of which are located along the shoreline of the Mississippi River and associated lakes south of the Project area. A description of each previously recorded archaeological site is included in the literature review report enclosed in Appendix D.

The sites discovered to date confirm that pre-contact occupation of this region is strongly concentrated along lake and river shorelines. Occupation is closely associated with the aquatic resources of the region. In addition to fish and water fowl, wild rice is known to grow among shallows and lake and river outlets. The land away from lakes and river was heavily forested or swampy. Although such areas contained resources that were collected, such as berries and wild rice, the majority of activities and resulting archaeological sites, were located along well drained shorelines.

Regarding architectural history properties that may be affected by the Project, no such properties have been recorded within the Project area. Four buildings in Cohasset, none within the Project area, were inventoried during a 1980 Minnesota Historical Society standing structures survey. The inventoried houses and church were not evaluated regarding their eligibility for listing on the National Register of Historic Places, and no further action has been taken.

Overview of Previous Archaeological Investigations

A review of the cultural resources reports on file at the MN SHPO office determined that four archaeological surveys have been conducted within portions of the Project area. The results were negative for archaeological sites from the four of the survey efforts and are summarized in the Table 4. As specified in Section 7 and in Appendix D of this application, the potential for undiscovered cultural resources is considered low along the preferred route.

**Table 4  
Previous Archaeological Investigation Results**

Report Title	Report author	Date	Findings
The Minnesota Trunk Highway Archaeological Reconnaissance Survey: Annual Report 1972	David W. Nystuen	1972	Survey of TH No. 2 in Itasca County: negative findings for Project area
A Cultural Resources Inventory – St. Vincent to St. Clair Gas and Sault Lateral Pipelines, Minnesota, Wisconsin and Michigan	Donald J. Weir	1981	Survey of existing pipeline: negative findings for Project area.
1990 Great Lakes Gas Transmission Company Pipeline Expansion Project: Phase I Cultural Resources Survey, Supplement 1.	Clark A. Dobbs	1990	Survey of parcels prior to pipeline expansion: negative findings for Project area.
Archaeological Survey of BEC Parcel, Cohasset, Itasca County, Minnesota	Susan C. Mulholland, Grayson E. Larimer, and George Rapp, Jr.	1995	Survey of 2.5 acres in Project area: negative findings.

**6.3.7 Geology**

The landscape of the county was formed by the Des Moines and Wadena Lobes of the Middle to Late Wisconsin glaciation. Through the complex forces of glaciation, deep lacustrine plains were formed, as well as numerous moraines, small, medium, and large lakes, and in the northeastern portion of the county, bedrock-controlled topography that has been mined for its iron content

The surface geology in the route area consists of glacial outwash deposits, floodplain alluvium, and organic deposits. The physical landscape of the region is typified by forests, lakes and bogs in glacial till over somewhat shallow bedrock. The till is typically 25 feet thick or less in the Project area.

**6.3.8 Soils**

The general Project area contains a mix of soil types, varying from poorly drained mucks and peats formed by organic material, to silts formed by glacial processes. The majority of the pipeline route is dominated by poorly drained soils including Spooner silt loam, Greenwood peat, and Tawas Muck. A small portion of the western end of the route lays in well-drained soils.

## **7. ENVIRONMENTAL IMPACT OF PREFERRED ROUTE (MINN. RULES 7852.2700)**

### **7.1 Land Use**

Land within the permanent and temporary rights-of-way, temporary extra workspace, and workspace within the proposed aboveground facilities will be impacted during construction of the Project. The impact will be short-term, as the construction period normally lasts about two to three months. The primary permanent impact of construction will be the removal of trees and shrubs from the construction work area. Trees and shrubs within the temporary right-of-way and temporary extra workspaces will regenerate over time. The permanent right-of-way will be maintained in an open condition consisting of primarily herbaceous or shrub communities to facilitate maintenance and inspection activities.

### **7.2 Human Settlement**

Economic benefits to the local economy will be realized during construction resulting from the influx of Project labor workforce. These benefits include material expenditures, workforce lodging, fuel sales, grocery sales and restaurant expenditures. Additional local benefits include easement payments, permit fees and property tax revenues.

The Project may result in short-term impacts to the human environment during pipeline construction activities. Impacts to existing roads and the BNSF railroad would be minimized by installing the pipeline underneath these features by using the boring or HDD method as described in Section 5.3. These crossing methods will minimize traffic interruptions and prevent disturbance to the road and rail surfaces. If boring or the HDD is not successful, roads may be crossed by open-cut construction methods. In the event that a road is open-cut, traffic disruptions will be minimized if possible by maintaining one open lane of traffic except when the pipeline is being trenched and backfilled. Transportation of equipment and materials to the right-of-way could also result in minimal short-term impacts to traffic in the area. Minnesota Power will obtain all necessary permits for road right-of-way crossings.

The Project will not include new compression facilities so there will not be exhaust or other noise that can be associated with compressor stations. Noise impacts resulting from construction equipment will generally occur during daytime hours along the construction right-of-way. When in service, the pipeline will not generate noise under normal operations.

### **7.3 Vegetation and Wildlife**

Impacts to vegetation and wildlife along the preferred route are expected to be minimal and primarily short-term due to the short duration of construction and the widespread abundance of similar habitat present. Vegetation clearing and tree cutting will occur along the pipeline construction right-of-way. Permanent impacts to vegetation associated with construction of the proposed pipeline will primarily include the clearing and maintenance of trees along the permanent right-of-way. Given that the preferred route crosses privately owned lands in a secondary growth forest setting, impacts to rare or significant tree communities are not anticipated (*e.g.*, old growth forest, federal/state-managed timber, *etc.*).

Other construction impacts such as vegetation clearing of construction right-of-way will generally be short-term. Impacts to vegetation adjacent to the right-of-way will be minimized by restricting construction activities to only the approved work areas. After construction is complete, work areas will be restored to pre-construction conditions to the extent possible. Vegetation will be reestablished by applying seed, mulch, and fertilizer mixtures specified by permit conditions, land managing agencies, and/or landowners. During operation of the pipeline, the permanent right-of-way will be maintained by mechanically clearing trees and shrubs about once every three to five years to maintain accessibility of the pipeline and to accommodate inspection and potential maintenance of the pipeline.

Construction of the proposed facilities will likely result in temporary impacts to wildlife habitat in the immediate vicinity of the construction areas. Vegetation clearing will result in reduced cover, nesting and foraging habitat for some wildlife. The proposed construction will temporarily displace the vast majority of mobile avian, mammal, amphibian and reptile species that inhabit the Project area. The displaced species will likely colonize in nearby areas or reestablish their original habitats after construction activities are complete and the Project area is restored.

Long-term effects to wildlife are expected to be limited to occasional displacement or impact to individual animals due to future periodic clearing of the permanent right-of-way to maintain the vegetative cover in an herbaceous state. Vegetation maintenance of the right-of-way will comply with any wildlife timing windows if specified by agencies. Construction and maintenance of the proposed pipeline will not significantly alter the character of the landscape in the project area. Consequently, effects to wildlife will likely be short-term and the habitat disturbed by project-related activities is expected to generally revert back to preconstruction conditions.

#### 7.4 Water Resources

##### Surface Water

No surface waters will be impacted by the Project. Minnesota Power will consult with the Mississippi Headwaters Board (MHB) for conformity with its MHB land use plan.

##### Wetlands

Minnesota Power sponsored a wetland delineation of the Project area as described in Section 6.3.4. The preferred route crosses three wetlands classified as palustrine emergent, palustrine scrub-shrub, and palustrine forested wetlands. Of the 6,900 feet crossed by the preferred alignment, 2,775 feet, or 40 percent of the pipeline length, crosses wetland areas. Assuming a 75-foot-wide construction right-of-way in wetlands, approximately 4.78 acres of wetland will be disturbed along the preferred alignment. The preferred pipeline will cross 1,150 feet of forested wetland and approximately 1,625 feet of emergent/scrub-shrub wetland. Of the 4.78 wetland acres of total wetland disturbance, approximately 1.98 acres is forested wetland and 2.80 acres is emergent/scrub-shrub wetland.

Itasca County Soil Water Conservation District (SWCD), MN DNR, and the U.S. Army Corps of Engineers (COE) regulate construction activities in wetlands in Minnesota. All permits and approvals will be obtained as necessary from these agencies. Wetland impacts are generally evaluated on a per acre basis, without regard to wetland type being affected when the

Minnesota Wetland Conservation Act (WCA) *de minimis* thresholds have been exceeded (Minnesota Statutes Chapter 103G.2241, subd. 9). Higher protection levels are sometimes implemented for wetlands that have a particular ecological uniqueness or protection status, although none of the wetlands identified in the Project area fall into an ecologically unique category.

Wetland impacts will include tree and shrub clearing along the construction right-of-way. Wetlands will not be drained or permanently filled during construction or restoration of the Project. Affected wetlands will be restored to pre-construction conditions to the extent practicable. Construction of the proposed pipeline may result in minor short-term disturbances to wetlands in the following manners: loss of wetland vegetation, wildlife habitat and aesthetics associated with clearing and other construction activities; soil disturbance associated with trenching, equipment traffic and the limited pulling of stumps; and temporary increases in turbidity and fluctuations in wetland hydrology associated with trenching, equipment traffic and spoil storage. Restoration of forest and scrub-shrub wetlands will take longer than other wetland types in the temporary workspaces due to the additional time required to reestablish woody vegetation.

In preparation for construction, clearing crews will cut existing wetland vegetation off at ground level and remove it from the wetland. Pulling stumps in wetlands will be limited to the trench line only unless safety concerns warrant otherwise. Excavated stumps will be removed from the wetland. After clearing activities are complete, timber riprap and/or erosion control mats may be utilized as necessary to minimize construction impacts to the wetlands and create a safe, stable working surface for trench excavation. Weights or concrete coated pipe may be used in wetlands to secure the position of the pipeline.

Where wetlands are located adjacent to the construction right-of-way and the right-of-way slopes toward the wetland, sediment barriers will be installed along the edge of the construction right-of-way as necessary to prevent sediment flow into the wetland. In areas where trench dewatering is necessary, heavily silt-laden water will be prevented from entering a water body or undisturbed portion of a wetland by filtering the water through geotextile filter bags and/or into a straw bale structure.

After the pipe is lowered into the trench, the trench will be backfilled with the excavated trench spoil and the right-of-way will be restored as practicable to its pre-construction contours. Restoration and vegetation reestablishment will be performed in accordance with permit requirements and landowner agreements. Upon completion of construction, the maintained permanent right-of-way will gradually reestablish as emergent wetlands. In non-maintained areas, wetlands will be allowed to revert naturally to pre-construction conditions. No net loss of wetland is expected from construction and operation of the Project.

#### Groundwater

Construction of the proposed pipeline may cause a minor short-term impact on groundwater flow in localized areas, but is not expected to affect overall groundwater recharge in the Project area. Shallow groundwater is not a major source of drinking water in the area. The pipeline

trench will be approximately four feet deep and will not intersect any drinking water aquifers. The proposed Project will not require the installation or abandonment of any water wells or connection to or changes in any public water supply. No known water wells are crossed by the preferred route.

Construction equipment could cause compaction of organic and mineral soils, resulting in locally reduced water infiltration rates. Potential short-term construction impacts to surficial aquifers may include increased temporary turbidity from excavation, short-term disruption of recharge and localized flow along the pipeline trench. Pipeline construction, operation, and maintenance activities are not expected to have long-term impacts on groundwater resources.

Accidental equipment spills or leaks of fuel or oils could contaminate soil and groundwater. Contaminated soils could continue to leach pollutants to the groundwater for an extended period after the spill or leak. A Spill Prevention Containment and Countermeasure Plan (SPCC Plan) will be developed and implemented during construction to manage equipment spills or leaks should they occur.

#### 7.5 Recreational Areas

The preferred route does not cross any city, county or state-owned parks/lands.

#### 7.6 Cultural Resources

No archaeological or historic resources have been recorded within the Project area. The potential for undiscovered cultural resources is considered low based on several factors including ground disturbance of large areas through construction of Highway 2, County Road 87, access roads, pipelines, buildings, parking lots, and yards, the presence of wetlands and poorly drained soils, and the lack of a significant water source within 500 feet of the preferred route. A summary of the results from this research are discussed below and a copy of the literature review report is enclosed in Appendix D.

A Plan for the Unanticipated Discovery of Cultural Resources (Unanticipated Discovery Plan) will be implemented during the Project. In the event that buried cultural deposits or human remains are encountered, work in the immediate vicinity of the find will be stopped until a professional archaeologist can evaluate the find and recommend treatment in consultation with the Minnesota State Historic Preservation Office. Responsibilities and course of action will be specified in the Unanticipated Discovery Plan

#### 7.7 Threatened and Endangered Species

Minnesota Power is consulting with the U.S. Fish and Wildlife Service (USFWS) and the MN DNR regarding the potential impacts to federally or state listed threatened or endangered species. The Canada lynx (*Lynx canadensis*), a federally threatened species, has been confirmed to be present within Itasca County. The Project area is in close proximity to populated/industrial areas, lacks extensive boreal forest habitat, and is not specifically designated by the USFWS as "critical habitat" for the Canada lynx. Therefore, it is unlikely that the area will be occupied by resident Canada lynx. In the event that an individual is near the

Project area during construction, it will likely relocate to a suitable habitat elsewhere until after the construction activities are complete. Canada lynx is a very reclusive and highly mobile species. Minnesota Power anticipates the USFWS will concur that the Project will not likely adversely affect the Canada lynx. The MN DNR queried the Natural Heritage Inventory Data Base to determine if any rare species or other significant natural features are known to occur within an approximate one-mile radius of the proposed Project and issued the results of its query in a letter dated May 12, 2008. Based on the results, rare features are known to be present in the vicinity of the proposed Project. However, the MN DNR concluded that known occurrences of rare features will not be negatively affected given the nature and location of the Project. A copy of the MN DNR's response letter is enclosed in Appendix E.

#### 7.8 Geology

The terrain along the preferred route is level with very little or no elevation change. Little or no grading is anticipated in order to prepare the surface for the construction equipment. No special construction techniques are expected to be necessary because of the geology. The limited shallow excavation of the four-foot-deep trench will not have a significant effect on geology.

#### 7.9 Soils

Potential temporary impacts to soils resulting from construction of the Project include soil erosion; soil compaction; loss of soil productivity associated with mixing of topsoil; introduction of rock into the topsoil; and poor revegetation following construction. In order to protect topsoil resources, topsoil segregation procedures will be used as required in areas specified by applicable regulations, permit conditions or landowner requests. Adverse impacts to soils will be minimized by implementing Best Management Practices. Erosion control plans will be developed pursuant to the MPCA NPDES Construction Storm Water Discharge Permit. Temporary erosion controls will include slope breakers, mulching, and the use of silt fence. Following construction, application of seed, fertilizer and mulch will commence in accordance with any existing permit requirements and landowner agreements. Inspector(s) will be used to ensure contractor compliance with these procedures.

#### 7.10 Use of Existing Rights-of-way

The preferred route was selected to maximize the use of existing rights-of-way. As described in Section 3.7, 4,350 feet of the 6,900 feet crossed by the preferred route parallels Great Lakes' existing natural gas pipeline and Minnesota Power's high voltage power line rights-of-way amounting to approximately 63 percent of the lands crossed. Figures 3 and 4 in Appendix B depict the anticipated configuration of the proposed construction right-of-way in relation to Great Lakes' existing natural gas pipeline and Minnesota Power's high voltage power line rights-of-way.

#### 7.11 Cumulative Effects

Construction of the pipeline is not expected to have any direct effect on the cultural, historic or aesthetic values of the area. No significant changes in the vegetation, wildlife, wetlands, water quality, geology or soils are expected to result from the Project. The area presently has several

existing natural gas and crude oil pipelines, and high voltage power lines. Installation of the pipeline will not significantly change land use patterns. Consequentially, the cumulative potential effect of the Project is expected to be minimal.

#### 7.12 Impact Mitigation by Regulatory and Permit Conditions

Potential negative human and environmental impacts, which could result from the Project, are mitigated by many factors. Several levels of federal, state, county and local governmental authorities have jurisdiction over the Project. Environmental jurisdictions include an overall Project permit and partial exemption determination from the MPUC; and permits and approvals by independent agencies charged with responsibility for management of environmental resources, discharge limitations, and restrictions on land use modification. The most prominent environmental regulatory requirements are discussed in sections 7 and 8 of this application, and a listing of each environmental permit required for the Project is found in section 10 of this application. Engineering regulatory requirements include DOT Pipeline and Hazardous Materials Safety Administration (PHMSA) material specifications, and pipeline construction and operational standards, and building permit standards. DOT PHMSA construction and operation requirements are discussed in sections 2, 5 and 9 of this application. Additional protection is provided by on-site third party inspectors and agency oversight.

### **8. RIGHT-OF-WAY PROTECTION AND RESTORATION MEASURES (MINN. RULES 7852.2800)**

#### 8.1 Protection

Protection of the right-of-way and mitigating adverse impacts on the human and natural environment have been important factors while determining the preferred route and pipeline alignment and will continue to be a high priority during the construction and restoration phases of the Project. Various measures will be implemented to protect the right-of-way or mitigate the adverse impacts of right-of-way preparation, pipeline construction, and operation and maintenance on the human and natural environment. These measures include but are not limited to, utilizing low impact construction techniques in sensitive areas (horizontal directional drilling), installing erosion and sedimentation control measures, and restoring the right-of-way as close as possible to pre-construction conditions. Minnesota Power will work closely with affected landowners and applicable agencies to ensure proper restoration of the right-of-way is accomplished.

Inspectors will be utilized during construction and restoration activities to ensure environmental compliance throughout the duration of the Project. Inspection activities will include monitoring compliance with permit requirements, inspection of erosion control and sedimentation methods, compliance with wetland construction and mitigation procedures and permits, implementing spill response activities, inspection of water appropriation and dewatering activities and implementation of restoration plans. The Project contract documents will specifically address environmental compliance requirements and the construction contractor will be held responsible for mitigating any adverse impacts as identified by Minnesota Power, applicable agencies, and landowners.

### 8.1.1 Human Environment

The people living and working in the Project area will be protected by limiting construction activities to approved workspaces, maintaining safe working conditions along the right-of-way and by providing consistent communication with all affected parties during construction, restoration, and operation/maintenance of the facilities. To minimize fugitive dust in the Project area, water may be applied to upland portions of the construction right-of-way if deemed necessary.

### 8.1.2 Erosion Control

Minnesota Power will obtain an NPDES Construction Storm Water Discharge Permit and implement a Storm Water Pollution Prevention Plan (SWPPP) as required by the MPCA. Project-related activities will be conducted in accordance with Minnesota Rules 7852.3600 "Permit Conditions for Right-of-Way Preparation, Construction, Clean-up, and Restoration."

Temporary soil erosion and sediment control measures such as trench breakers, silt fence, and staked straw bales will be installed as necessary to minimize soil erosion and sediment runoff. These measures will be properly maintained throughout construction and reinstalled as necessary until the project area has been restored and vegetation has reestablished. Soil that is tracked onto public roads in the vicinity of the right-of-way will be shoveled and/or swept to ensure the road are kept clear of soil and construction debris. Typical silt fence and straw bale drawings are enclosed in Appendix B (Figures 6 and 7).

Trench breakers will be installed as necessary at the entry and exit point of wetlands to maintain original wetland hydrology and prevent subsurface erosion along the pipe. Trench breakers generally consist of sand bags installed from the bottom of the pipe trench to the natural ground surface, completely surrounding the pipe. The preferred route is generally flat terrain; therefore, the need to install trench breakers at steep slope locations is not anticipated.

### 8.1.3 Wetland Protection

To prevent rutting and minimize disturbance in saturated portions of wetlands, equipment may be supported on timber construction mats and/or timber riprap; or low-ground-pressure equipment may be used. After the pipe trench is excavated in wetlands, trench dewatering will likely be necessary to facilitate construction. Discharge from trench dewatering will be directed if possible to stable, well vegetated upland areas to minimize the potential of trench water flowing directly into wetlands. If a stable, well vegetated upland area is not available, trench water will be discharged into a dewatering device (e.g., filter bag, straw bale dewatering structure, etc.) to filter sediments from the water. Silt fence and staked straw bales will be installed and maintained at the perimeter of wetlands on the down-slope side of disturbed upland areas to help minimize silt-laden water from entering the wetlands.

### 8.1.4 Spill Prevention Containment and Countermeasure Plan

An SPCC Plan will be implemented during the Project. Specific requirements for reporting and responding to fuel spills or other similar instances will be specified in the construction contract

documents.

## 8.2 Restoration

Clean-up and restoration of the construction right-of-way generally begins immediately after backfilling as soon as weather and soil conditions allow. The Project area will be returned as closely as practicable to pre-construction conditions. Any drain tiles cut or damaged during construction will be repaired by specialized tiling contractors or subcontractors. Seed, fertilizer, mulch, and erosion control blankets will be applied as necessary to areas disturbed by construction in accordance with permit requirements, and landowner agreements. Construction-related debris will be removed and disposed of at a licensed waste facility. Following construction, the project area will be monitored in accordance with the NPDES Construction Storm Water Discharge Permit and associated SWPPP until vegetation has reestablished and the project area is stabilized. Minnesota Power will coordinate with applicable affected landowners to obtain a signed damage release indicating that clean-up and restoration was satisfactorily completed.

## 9. OPERATION AND MAINTENANCE (MINN. RULES 7852.2900)

Minnesota Power will own and operate the pipeline under the jurisdiction of the U.S. DOT PHMSA, the MPUC, and MNOPS. The minimum Federal Safety Standards for Gas Lines are contained in Title 49 of the Code of Federal Regulations (49 CFR Part 192). Subpart L (Operations) specifies minimum requirements for the utility's operations and maintenance plan. Under these rules, Minnesota Power is required to have the following:

- operation and maintenance plan;
- procedures for continuing surveillance of its facilities to determine and take appropriate action concerning changes in class location, failures, leakage history, corrosion, substantial changes in cathodic protection requirements, and other unusual operation and maintenance conditions;
- damage prevention programs;
- emergency plans; and
- procedures for investigation of failures.

The purpose of the regulations defined in 49 CFR Part 192, Minimum Federal Safety Standards, is to ensure safe operation of pipeline and associated facilities. The safety standards in Part 192 require each pipeline operator to:

- develop an emergency plan, working with local fire departments and other agencies to identify personnel to be contacted, equipment to be mobilized, and procedures to be followed to respond to a hazardous condition caused by the pipeline or associated facilities;
- establish and maintain a liaison with the appropriate fire, police, and public officials in order to coordinate mutual assistance when responding to emergencies;

- establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a natural gas pipeline emergency and report it to appropriate public officials;
- use only qualified personnel to operate and maintain the pipeline in accordance with an approved Operator Qualification Plan;
- have, maintain and implement a Pipeline Integrity Management Plan for gas pipelines in High Consequence Areas; and
- ensure that personnel working on these facilities are part of a random drug and alcohol testing program.

All personnel involved with operating and maintenance responsibilities for the pipeline facilities will be certified under an Operator Qualification Plan and will participate in a Drug and Alcohol Program in compliance with the U.S. DOT regulations.

A Gas Operations and Maintenance Manual will be developed detailing all aspects of operating distribution systems and gas pipelines and filed with the MNOPS upon completion. A brief description of the operations activities required for the Project is provided below.

#### 9.1 Patrolling and Leak Surveys

The pipeline will be monitored periodically to determine and take appropriate action concerning changes in class locations, gas leakage, erosion, cathodic protection requirements, and other conditions affecting safe pipeline operation in accordance with 49 CFR Part 192.

#### 9.2 Natural Gas Pipeline Markers

Natural gas pipeline markers will be installed and maintained over the buried pipeline at Pincherry Road/CSAH 88, U.S. Highway 2, BNSF Railroad, 3rd Street North/CSAH 87, and other locations necessary to identify the location of the pipeline facilities reducing the risk of inadvertent third-party damage or interference. The markers will identify the owner of the pipeline and convey emergency information in accordance with applicable governmental regulations, including U.S. DOT safety requirements.

#### 9.3 Corrosion Control

The gas pipeline will be externally coated and cathodically protected to prevent corrosion as required by 49 CFR Part 192, Subpart I – Requirements for Corrosion Control (192.451 through 192.491).

#### 9.4 Gas Odorizing

Two location options are currently being assessed for the installation of an automatic gas odorizing system. The system will likely be installed within the newly constructed fenced gas delivery station at BEC. Alternatively, the gas odorizing system may be installed at Great Lakes' Cohasset Meter Station. The odorizing system will control odorant flow based on the gas flow rate input signal.

## 9.5 Pipeline Valves

Pipeline valves may consist of main line valves, blow off valves, flow control valves, lateral line valves, station valves, and various appurtenances that may require isolation for maintenance. Each valve that may be needed for the safe operation of the proposed pipeline will be checked and serviced as required by applicable regulations. Each valve shall be secured with a locking device to prevent operation by unauthorized personnel.

## 9.6 Record Keeping and Maps

Records and maps are maintained and updated to indicate the location and identification of all primary components of the pipeline system. Route alignment sheets and other system maps are provided to public agencies to assist in identifying the presence of the pipeline and/or in preparing for potential emergencies.

## 9.7 Safety Considerations

Safety is a prime consideration for employees and contractors who will be operating and maintaining the pipeline system, and also for the general public. Safety code compliance is achieved through adherence to 49 CFR Part 192 as defined by the U.S. DOT.

### General Safety Procedures

- Strict adherence to Operations and Maintenance Plans.
- The pipeline MAOP is assured through the use of over pressure protection equipment.
- Company signs, with emergency numbers, are posted along the pipeline.
- Ignition sources are minimized.
- Smoking will be prohibited in and around any structure or area containing gas facilities.
- “No Smoking” signs are posted where appropriate.
- Above ground facilities will be painted or coated to prevent atmospheric corrosion.

## 9.8 Emergency Response

Federal rules require pipeline companies to prepare a procedural manual for operations, maintenance, and emergency plans. The State Fire Marshall has the authority to inspect the proposed pipeline to ensure compliance with safety requirements pursuant to Minnesota Statutes Section 299F.63. Minnesota Power follows a manual of written procedures for conducting normal operations and maintenance activities and handling abnormal operations and emergencies. The emergency plans include procedures for:

- receiving, identifying, and classifying notices of events which require immediate response by the operator;
- establishing and maintaining adequate means of communication with appropriate fire, police, and other public officials;
- prompt and effective response to a notice of each type of emergency;

- the availability of personnel, equipment, tools and material, as needed at the scene of an emergency;
- actions directed toward protecting people first, followed by property;
- emergency shutdown and pressure reduction in any section of the operator's pipeline system necessary to minimize hazards to life or property;
- making safe any actual or potential hazard to life or property;
- notifying appropriate fire, police, and other public officials of gas pipeline emergencies and coordinating with them planned responses and actual responses during emergencies;
- safely restoring any service outage; and
- training of personnel, liaison with appropriate fire, police and other public officials and continuing public education programs.

### 9.9 Pipeline Integrity Management Program

A Pipeline Integrity Management Program will be implemented to maintain and safety and integrity of the pipeline system. The program will ensure that the operational integrity of Minnesota Power's natural gas pipeline system meets the requirements as detailed in 49 CFR Part 192, Subpart O, and any supplemental state regulatory requirements related to pipeline integrity. The permanent pipeline right-of-way will be routinely maintained and patrolled in accordance with these regulations.

### 9.10 Training

An Operator Qualification program will be developed and implemented in accordance with 49 CFR Part 192, Subpart N. The program provides training, testing and record keeping for individuals performing operating or maintenance tasks on pipelines or tasks that affect the operation or integrity of the proposed pipeline.

### 9.11 Public Awareness Program

A public awareness program will be developed in accordance with federal safety standards and API RP 1162. A successful public awareness program will increase the safety and security of the proposed pipeline facilities. The program will raise public awareness of company facilities, increase the public's understanding of the role of pipelines in transporting energy, inform the public how to recognize and respond to a pipeline emergency, notify the public who to contact in the event of an emergency, and stress the importance of using the state's one-call system before excavating.

### 9.12 One-Call

Minnesota Power is committed to pipeline safety and is a member of the Gopher State One-Call program. The purpose of the One-Call notification center is to reduce third-party damage to underground facilities.

## 10. LIST OF GOVERNMENT AGENCIES AND PERMITS (MINN. RULES 7852.3000)

Table 5 lists the permits and approvals from federal, state, and local agencies or authorities for the proposed Project.

**Table 5**  
**List of Permits and Approvals**

Agency	Type of Permit	Description
<b>Federal</b>		
COE	Section 404 Permit	Minnesota Local/State/Federal Application Form for Water/Wetland Projects will be submitted to COE seeking approval under its Regional General Permit.
USFWS	Section 7 Consultation	Endangered Resources Consultations
<b>State</b>		
MPUC	Pipeline Routing Permit	Pipeline Routing Permit under the partial exemption of pipeline route selection procedures.
MN DNR	State Species Consultation	DNR review of the Minnesota National Heritage Database to determine if rare plant or animal species or other significant natural features are known to occur within the Project area.
	Wetland Mitigation Consultation/Approval	Minnesota Local/State/Federal Application Form for Water/Wetland Projects will be submitted to the DNR Area Hydrologist, as required.
	Water Appropriation Permit	DNR approval will be obtained under Water Appropriation General Permit MN 97-0005
Minnesota Pollution Control Agency (MPCA)	NPDES	Construction Storm Water and hydrostatic test water discharge.
	Section 401 Water Quality Certification	Water Quality Certification associated with the Section 404 US Army Corps permit. Certification is waived by the MPCA if Project is covered under the COE's Regional General Permit.
MN SHPO	Literature Search	A literature search was performed at the MN SHPO Offices were examined to identify previously recorded archaeological sites and architectural historic properties within the Project area.
Minnesota Department of Transportation	Road Crossing Permits	Road encroachment approval
<b>Local</b>		
City and County Permits	Road Crossing Permits	County and city road crossing permits and approvals will be obtained as necessary.
MHB	Consultation	Mississippi Headwaters Board will be consulted to assure compliance with the board's Comprehensive Land Use Plan.
Itasca County SWCD	Minnesota Wetland Conservation Act (WCA)	Minnesota Local/State/Federal Application Form for Water/Wetland Projects will be submitted to Itasca County SWCD pursuant to WCA.

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**MINNESOTA POWER  
BOSWELL ENERGY CENTER GAS TRANSMISSION PIPELINE PROJECT**

**APPLICATION TO THE MINNESOTA PUBLIC UTILITIES COMMISSION  
FOR A GAS PIPELINE ROUTING PERMIT  
AND PARTIAL EXEMPTION OF PIPELINE ROUTE SELECTION PROCEDURES**

**APPENDIX A: PROJECT MAPS**

# Project Overview Map

Boswell Energy Center  
Natural Gas Pipeline Project

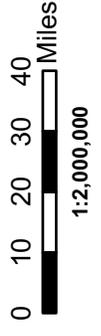
## LEGEND

● Proposed Project Location

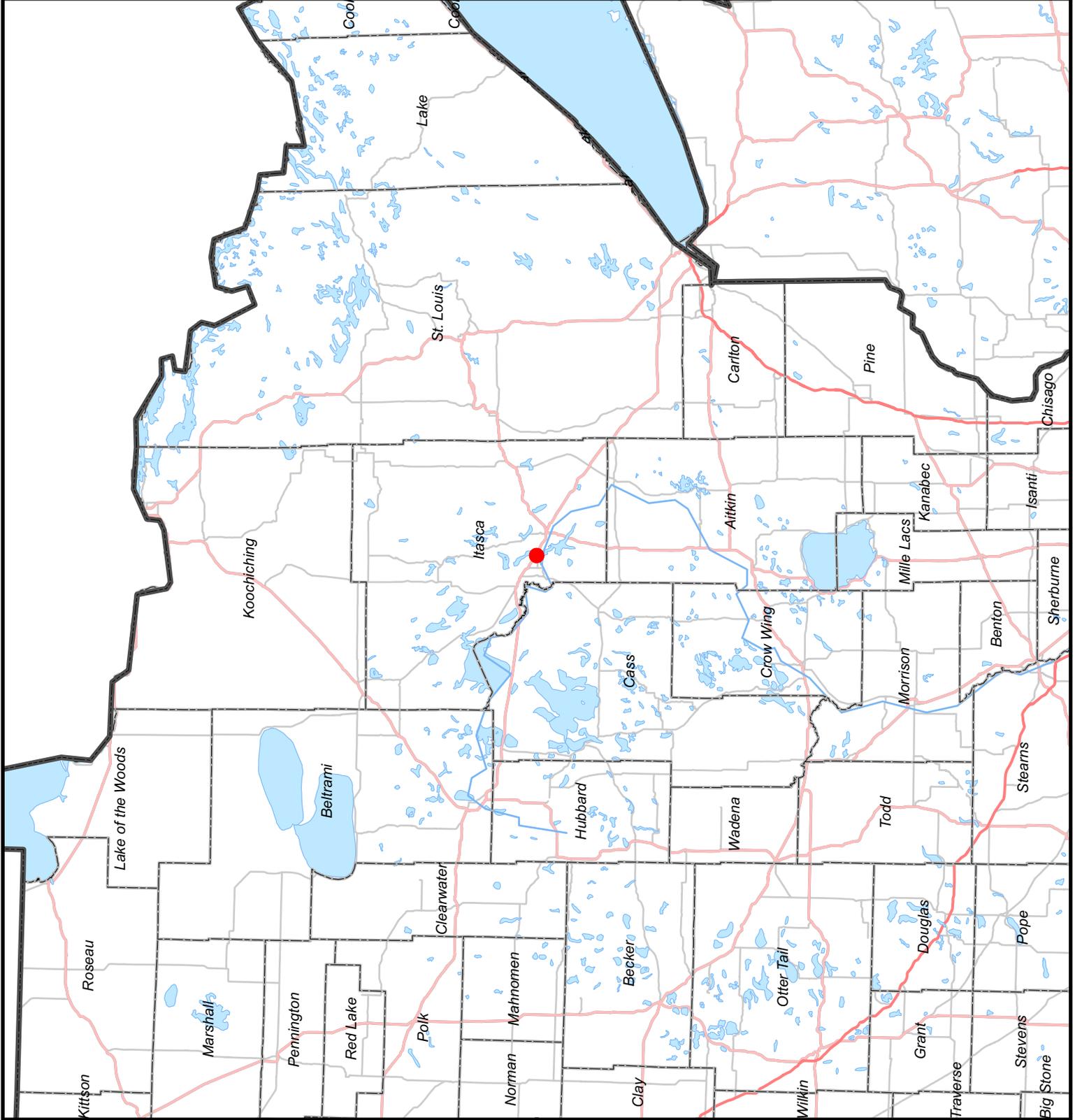
## LOCATION

Sections 3, 4, 9, & 10  
T55N, R26W  
Itasca County, Minnesota

Map 1



Prepared by:



# Project Location Map

Minnesota Power

Boswell Energy Center  
Natural Gas Pipeline Project

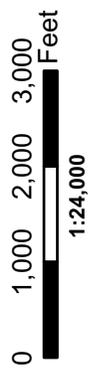
## LEGEND

Proposed Pipeline  
Alignment

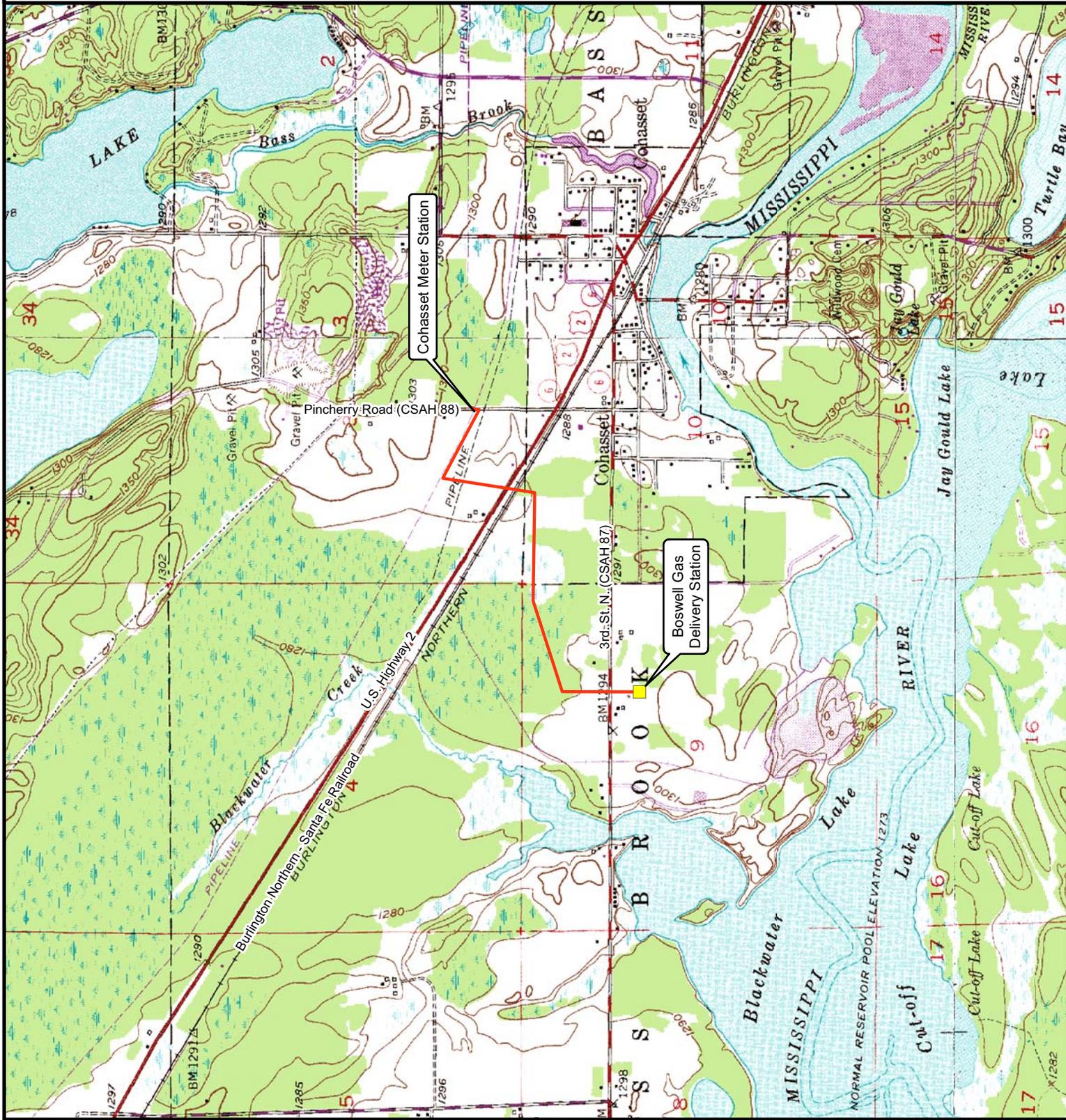
## LOCATION

Sections 3, 4, 9, & 10  
T55N, R26W  
Itasca County, Minnesota

Map 2



Prepared by: **Merjent**



# Project Location Map

## Minnesota Power

Boswell Energy Center  
Natural Gas Pipeline Project

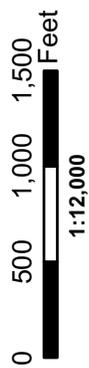
### LEGEND

- Proposed Pipeline Alignment
- Existing Electric Lines
- Existing Great Lakes Pipelines
- Existing Enbridge Pipelines
- Wetland Boundaries
- Preferred Route

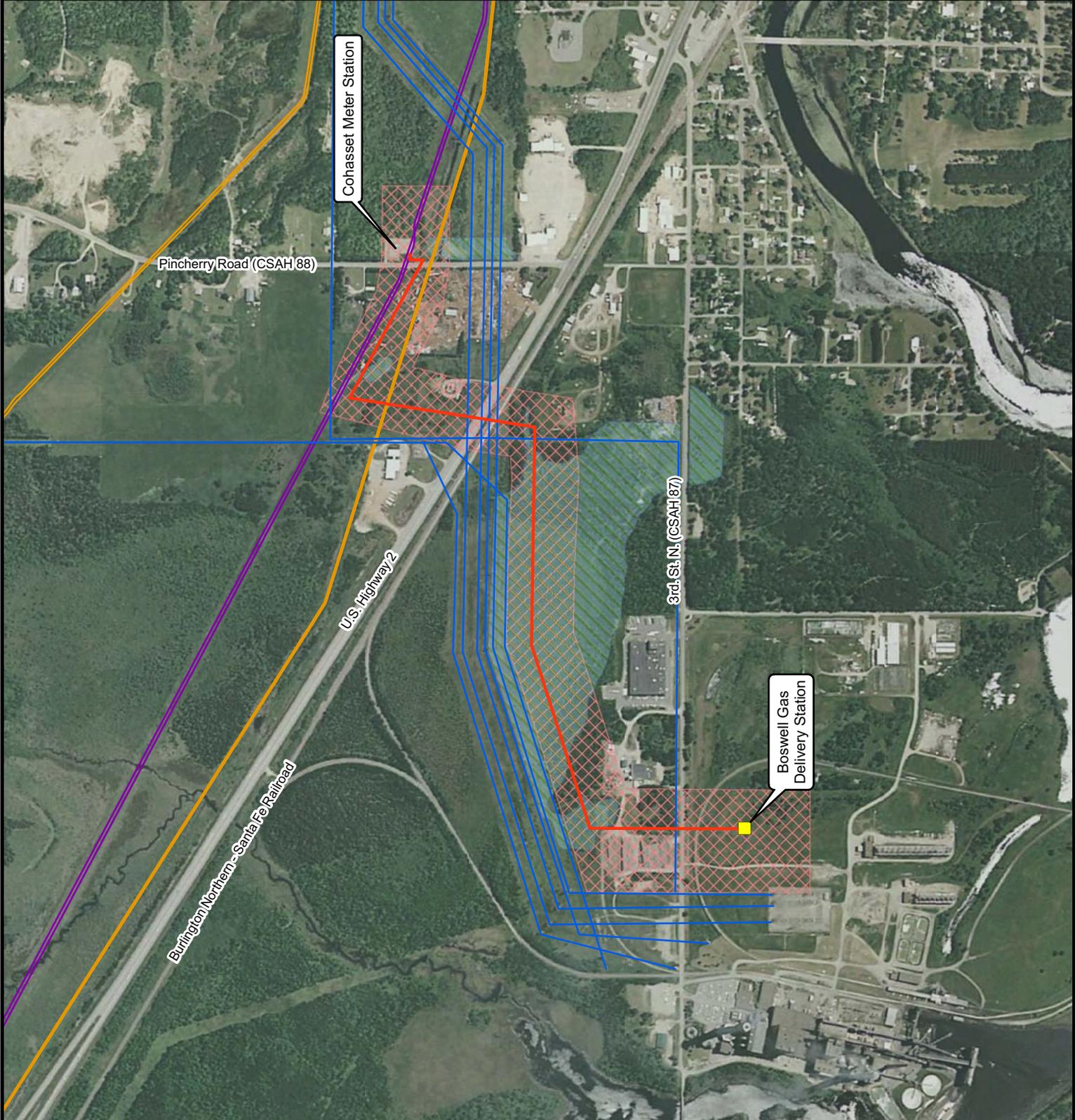
### LOCATION

Sections 3, 4, 9, & 10  
T55N, R26W  
Itasca County, Minnesota

Map 3



Prepared by: **Merjent**



# Project Alternative Map

Minnesota Power

Boswell Energy Center  
Natural Gas Pipeline Project

## LEGEND

Proposed Pipeline Alignment

Alternative Pipeline Alignments

Existing Electric Lines

Existing Great Lakes Pipelines

Existing Enbridge Pipelines

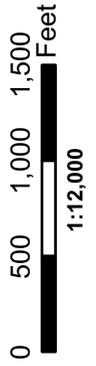
Wetland Boundaries

Preferred Route

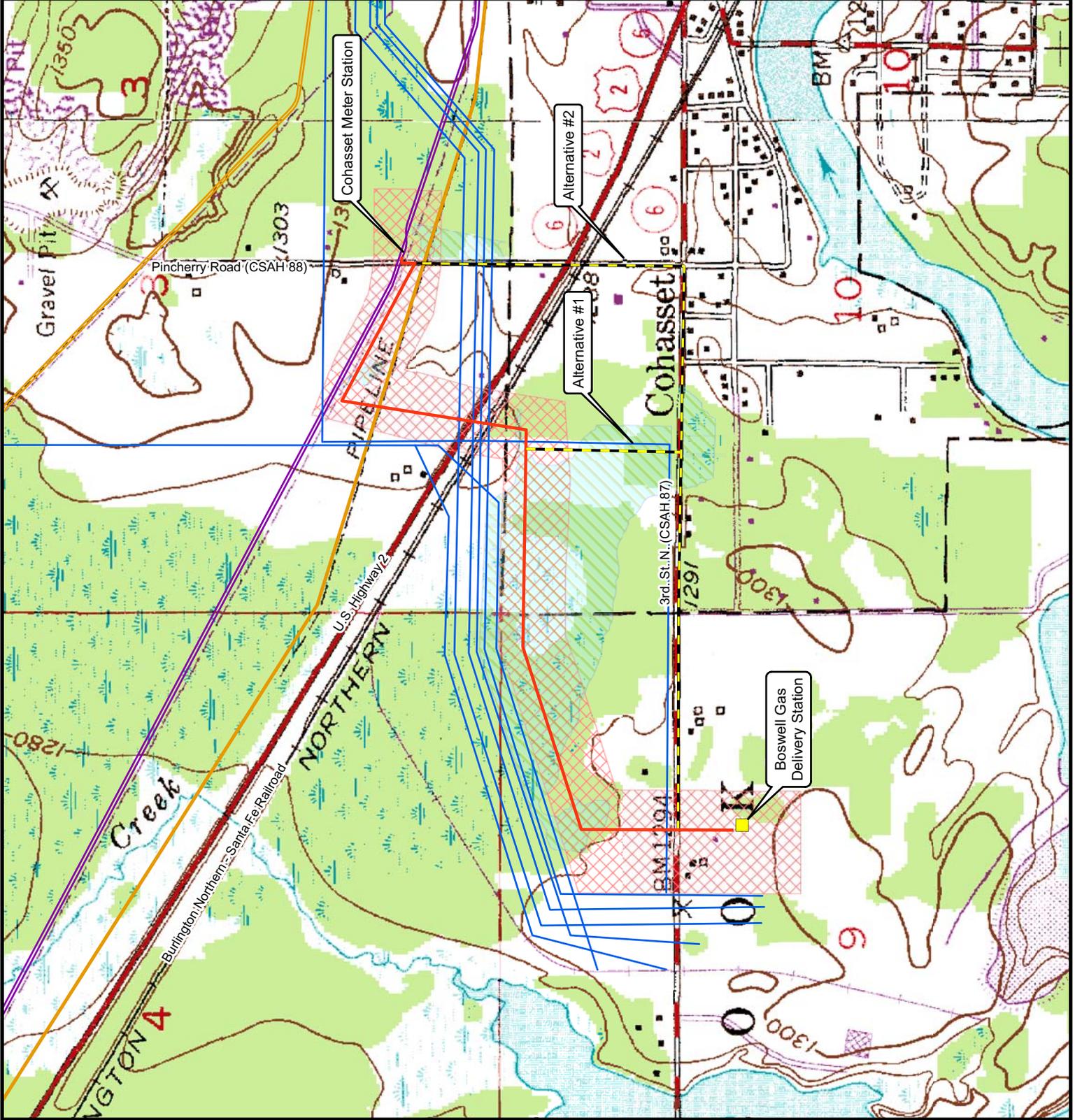
## LOCATION

Sections 3, 4, 9, & 10  
T55N, R26W  
Itasca County, Minnesota

Map 4



Prepared by: **merjent**



# Project Alternative Map

Minnesota Power

Boswell Energy Center  
Natural Gas Pipeline Project

## LEGEND

Proposed Pipeline Alignment

Alternative Pipeline Alignments

Existing Electric Lines

Existing Great Lakes Pipelines

Existing Enbridge Pipelines

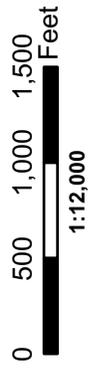
Wetland Boundaries

Preferred Route

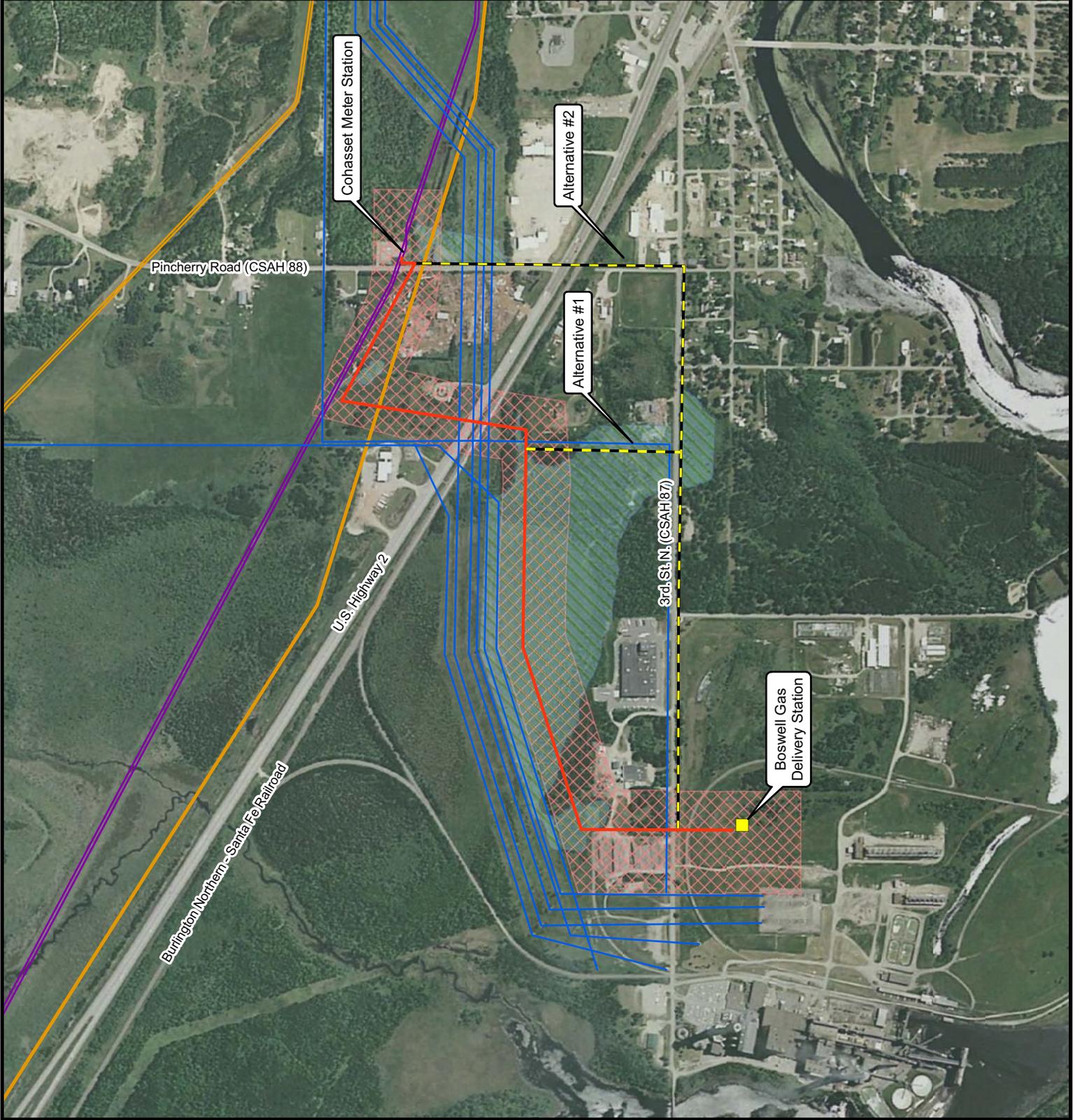
## LOCATION

Sections 3, 4, 9, & 10  
T55N, R26W  
Itasca County, Minnesota

Map 5



Prepared by:

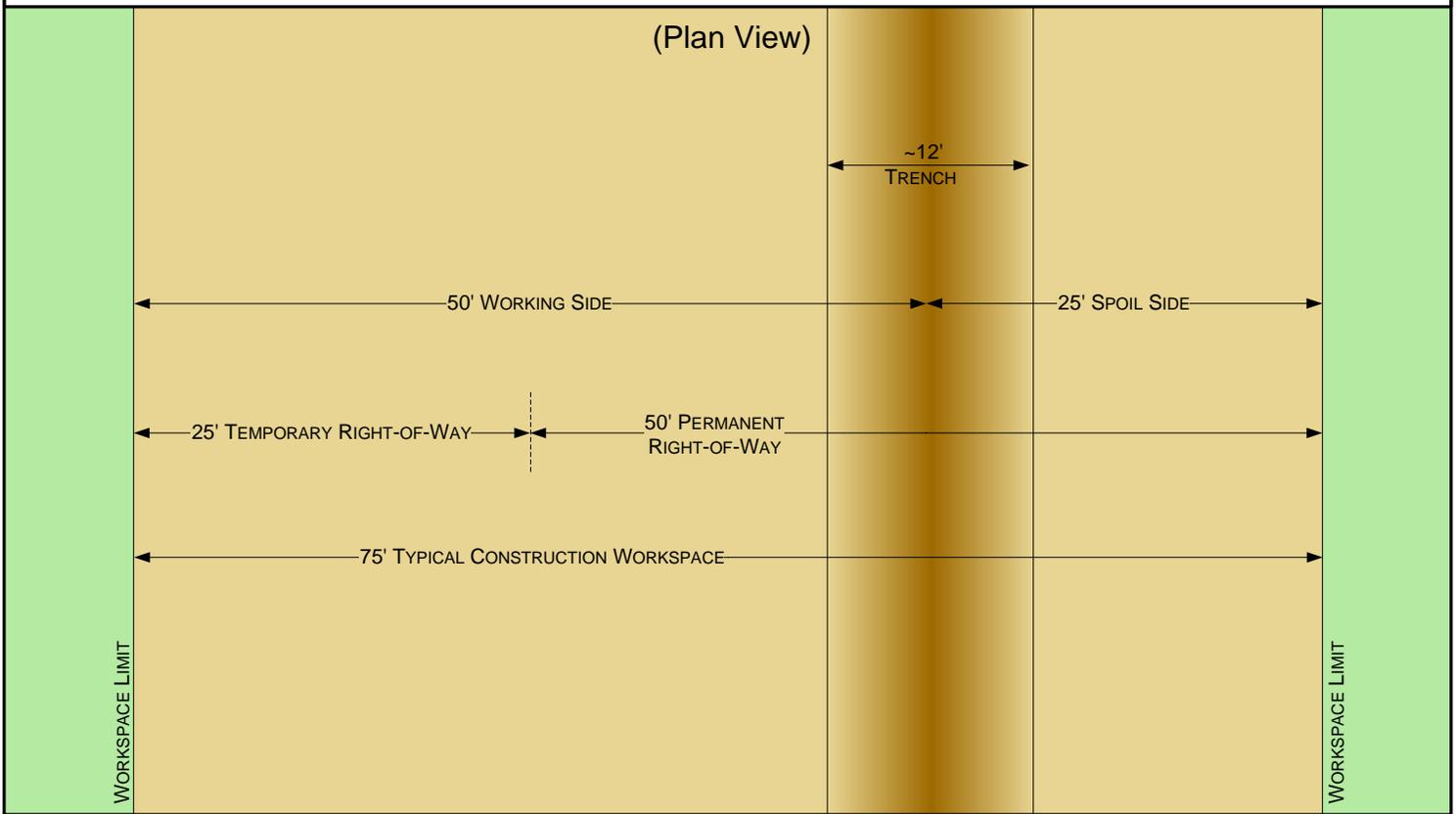
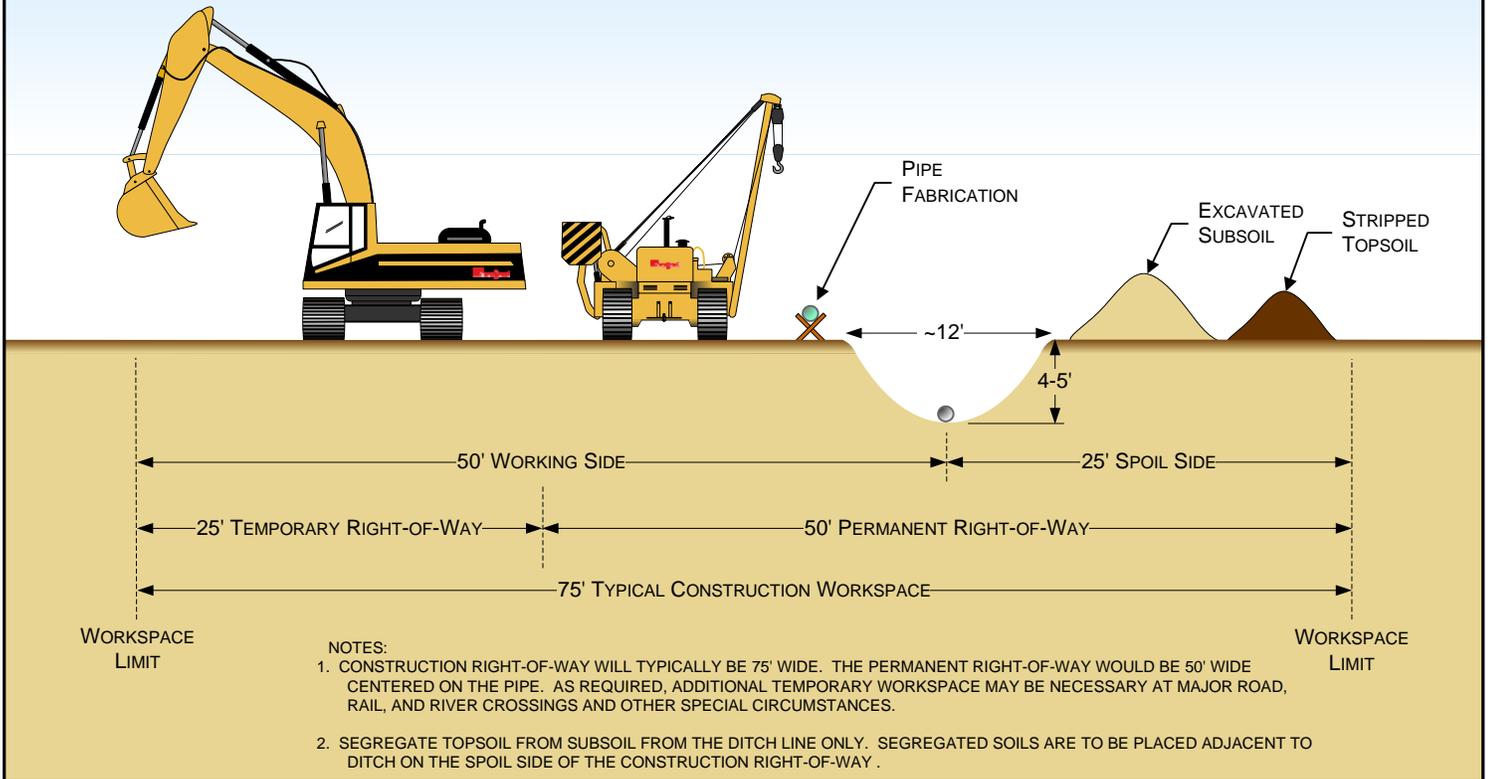


**MINNESOTA POWER  
BOSWELL ENERGY CENTER GAS TRANSMISSION PIPELINE PROJECT**

**APPLICATION TO THE MINNESOTA PUBLIC UTILITIES COMMISSION  
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AND PARTIAL EXEMPTION OF PIPELINE ROUTE SELECTION PROCEDURES**

**APPENDIX B: DRAWINGS**

# Typical Pipeline Construction Right-of-Way in Upland Areas (Profile View)



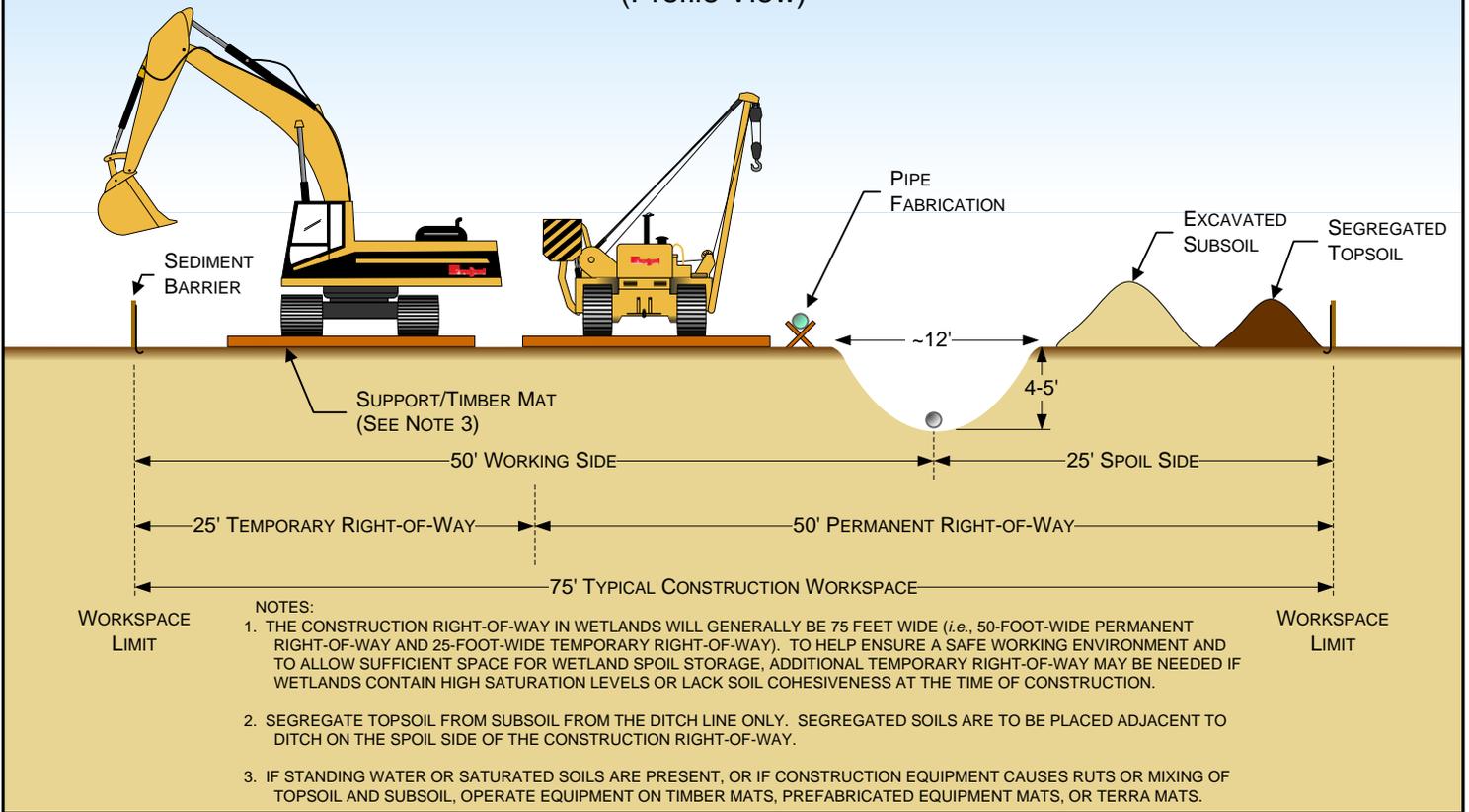
**Figure 1**

## Boswell Energy Center Natural Gas Pipeline Project

### Proposed Pipeline Construction Right-of-Way in Upland Areas

# Typical Pipeline Construction Right-of-Way in Wetland Areas

(Profile View)



(Plan View)

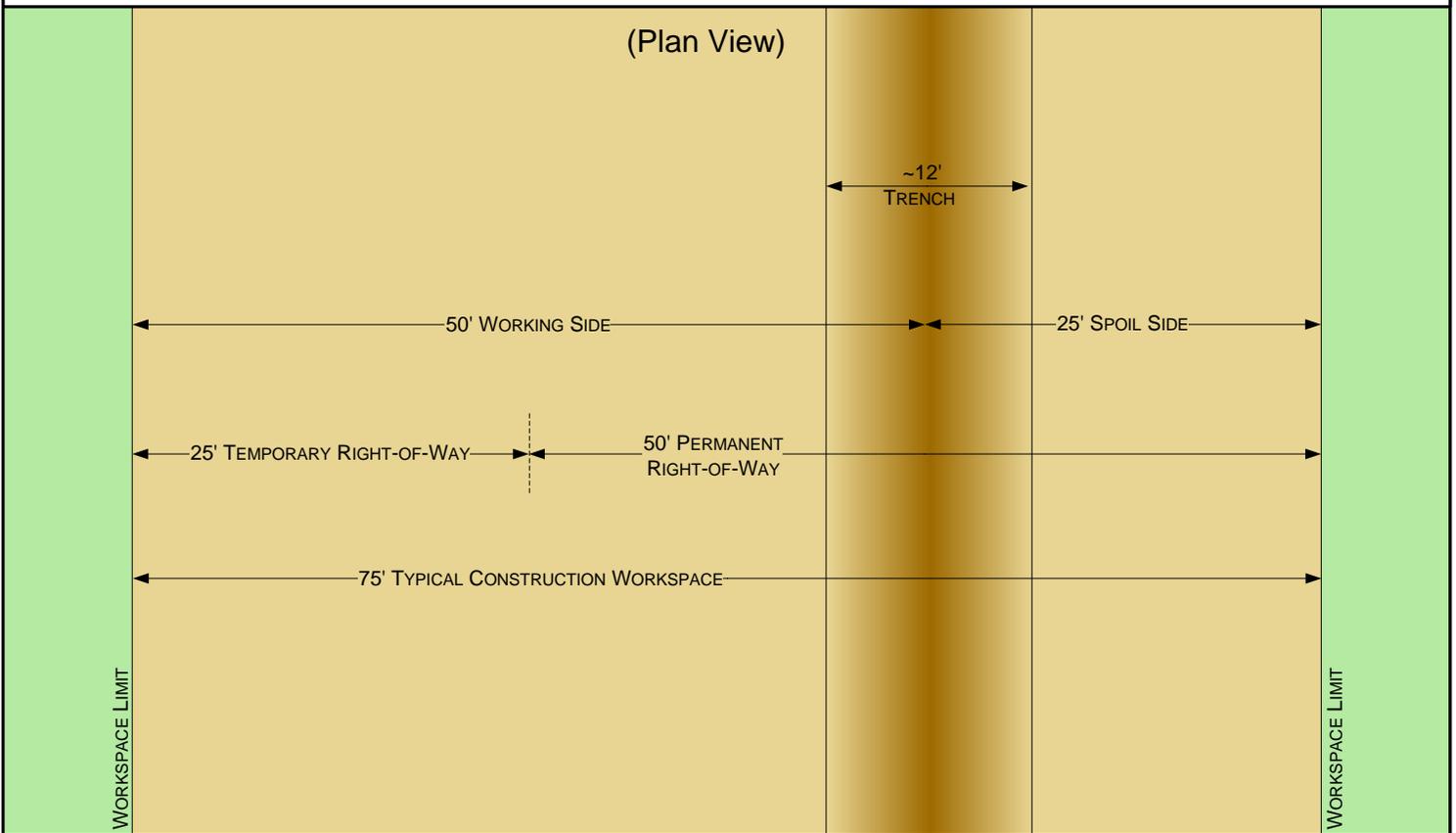
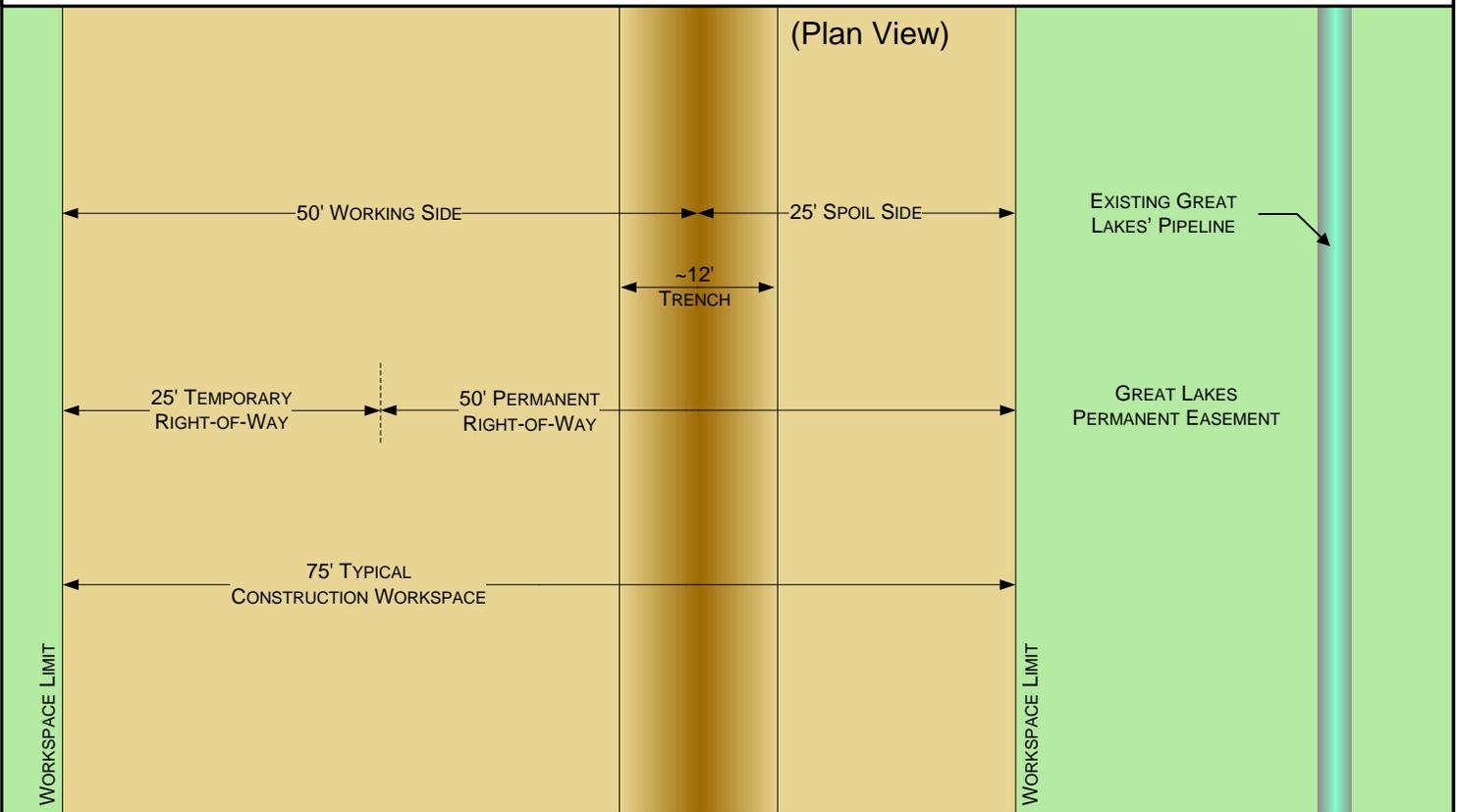
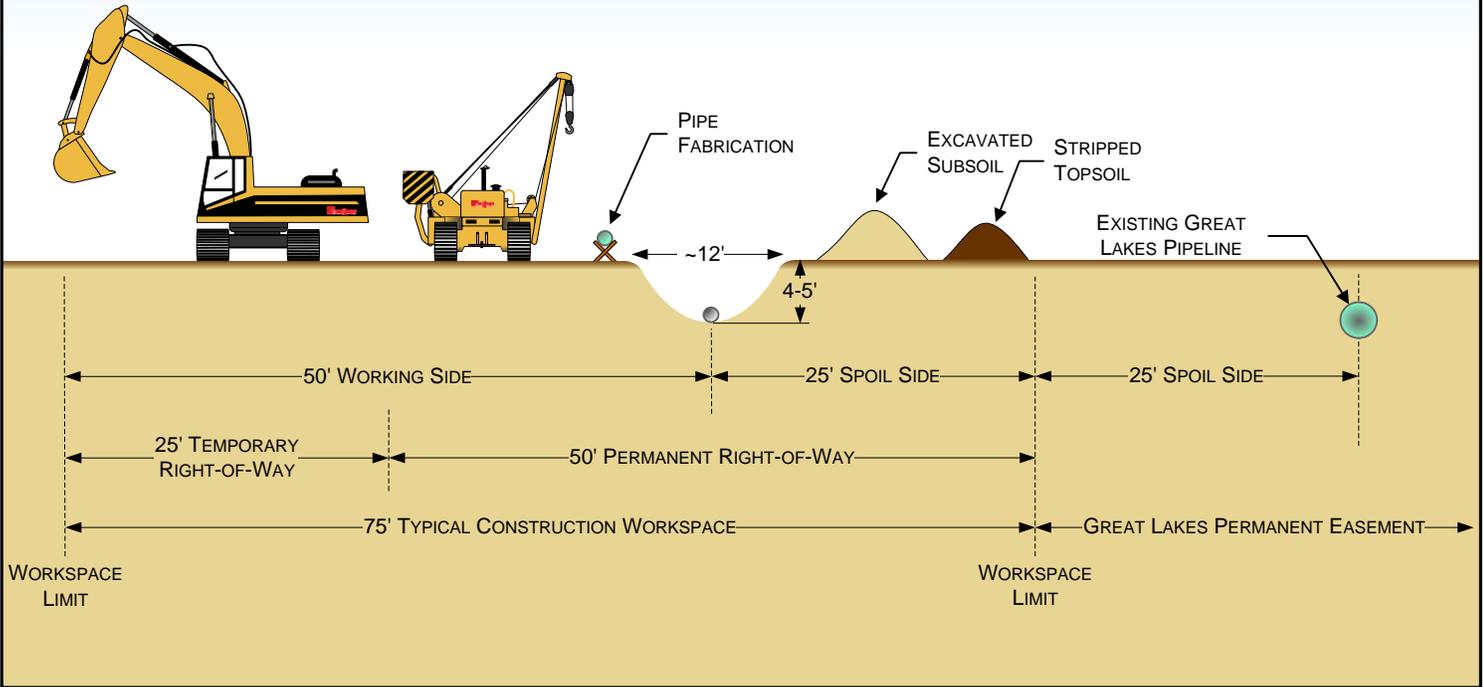


Figure 2

## Boswell Energy Center Natural Gas Pipeline Project

### Proposed Pipeline Construction Right-of-Way in Wetland Areas

# Typical Pipeline Construction Adjacent To The Great Lakes' Gas Pipeline 50 Foot Pipeline Separation (Profile View)

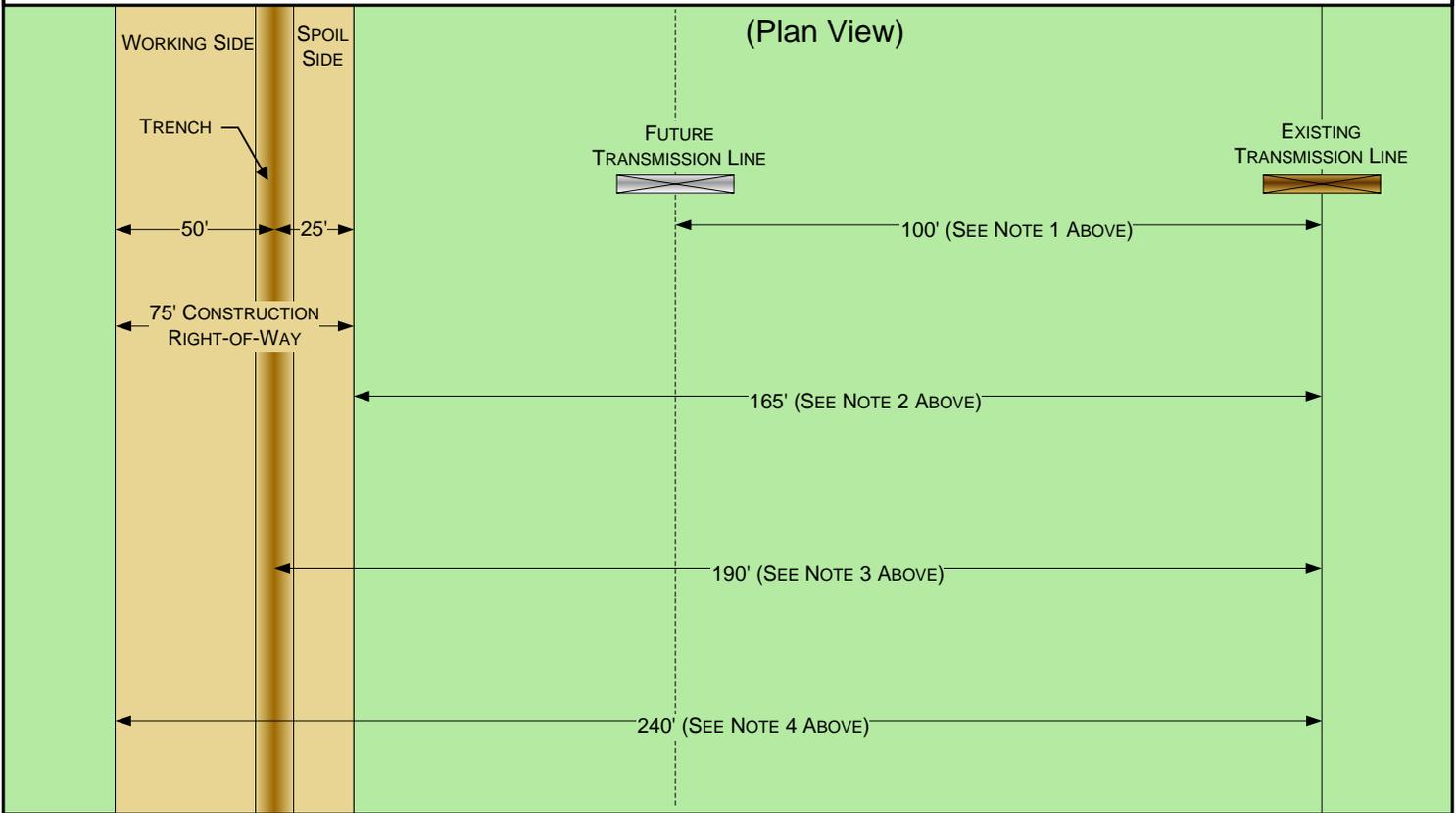
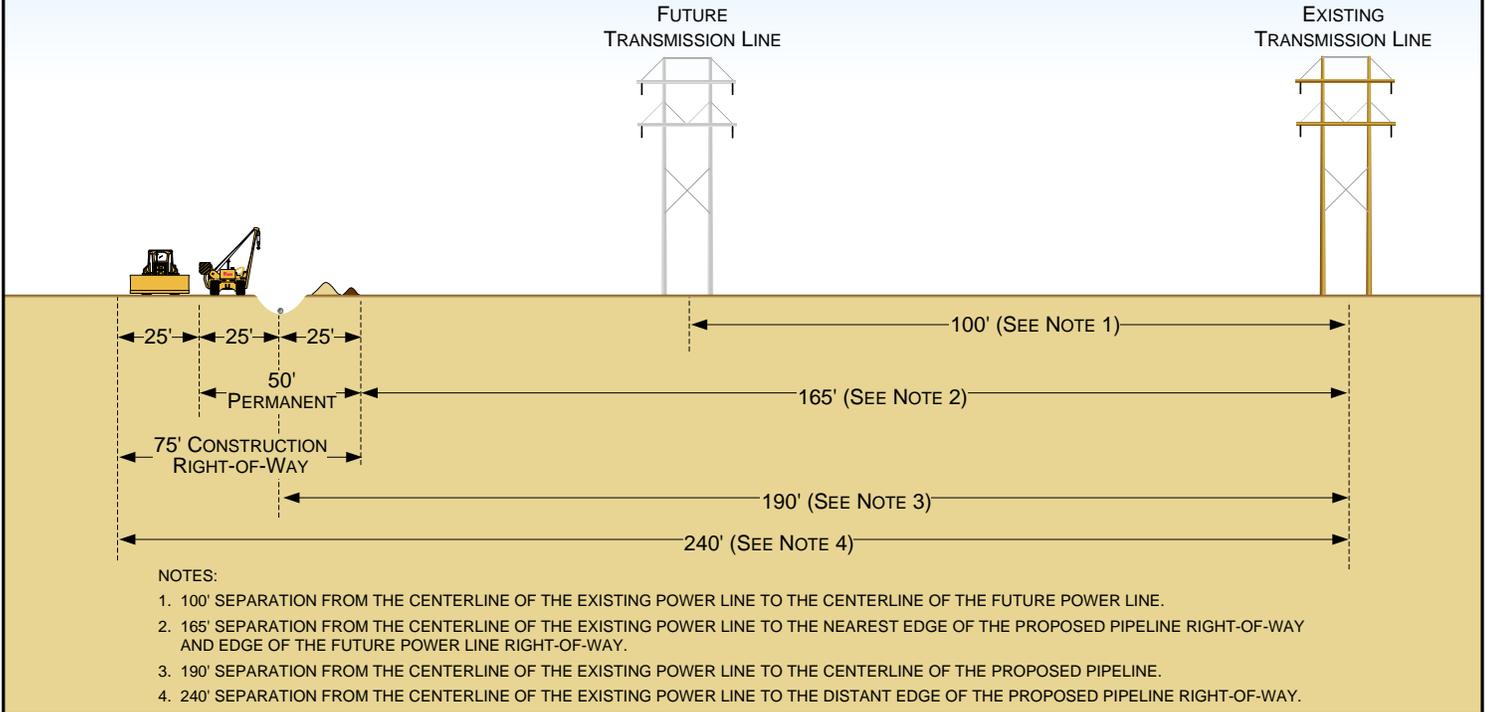


**Figure 3**

## Boswell Energy Center Natural Gas Pipeline Project

### Proposed Pipeline Construction Right-of-Way Adjacent To The Great Lakes' Gas Pipeline – 50 Foot Offset

## Typical Pipeline Construction Along Power Line Corridor 190 Foot Construction Right-of-Way Offset (Profile View)



**Figure 4**

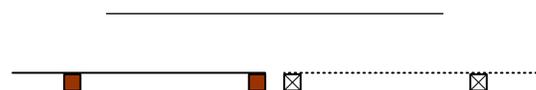
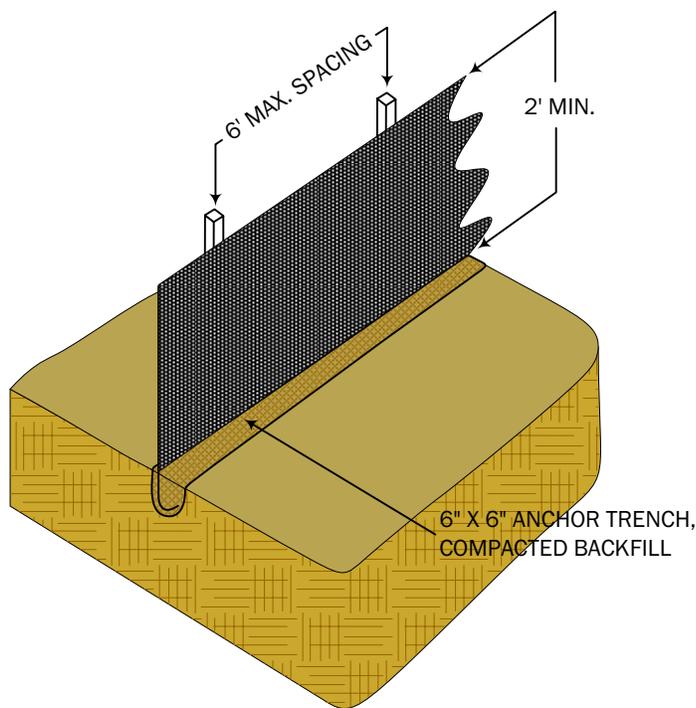
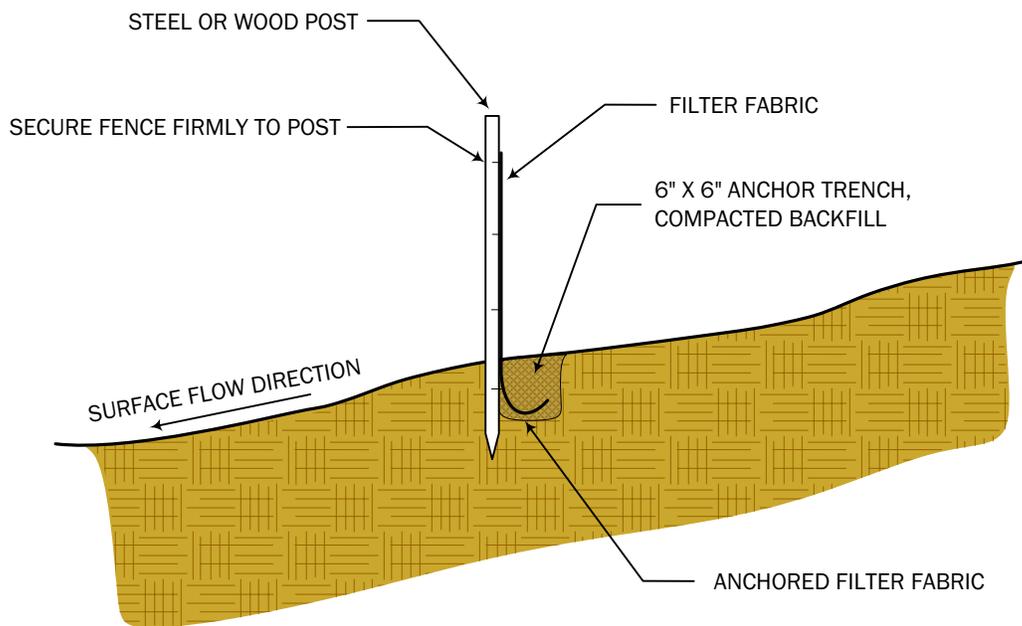
### Boswell Energy Center Natural Gas Pipeline Project

#### Proposed Pipeline Construction Right-of-Way Adjacent to Power Line Right-of-Way

**Minnesota Power  
Boswell Energy Center Natural Gas Pipeline Project  
Typical Stages of Construction**

**Figure 5**

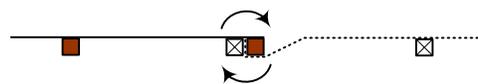




PLACE THE END POST OF THE SECOND FENCE INSIDE THE END POST OF THE FIRST FENCE.



ROTATE BOTH FENCE POST 180 DEGREES CLOCKWISE TO CREATE A TIGHT SEAL BETWEEN THE FABRIC MATERIAL.



DRIVE BOTH POSTS AT LEAST 10' INTO GROUND AND BURY FLAP.



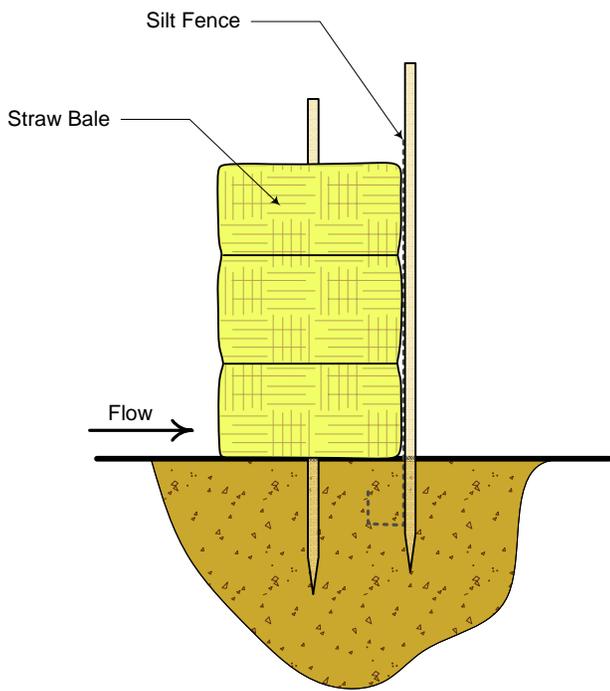
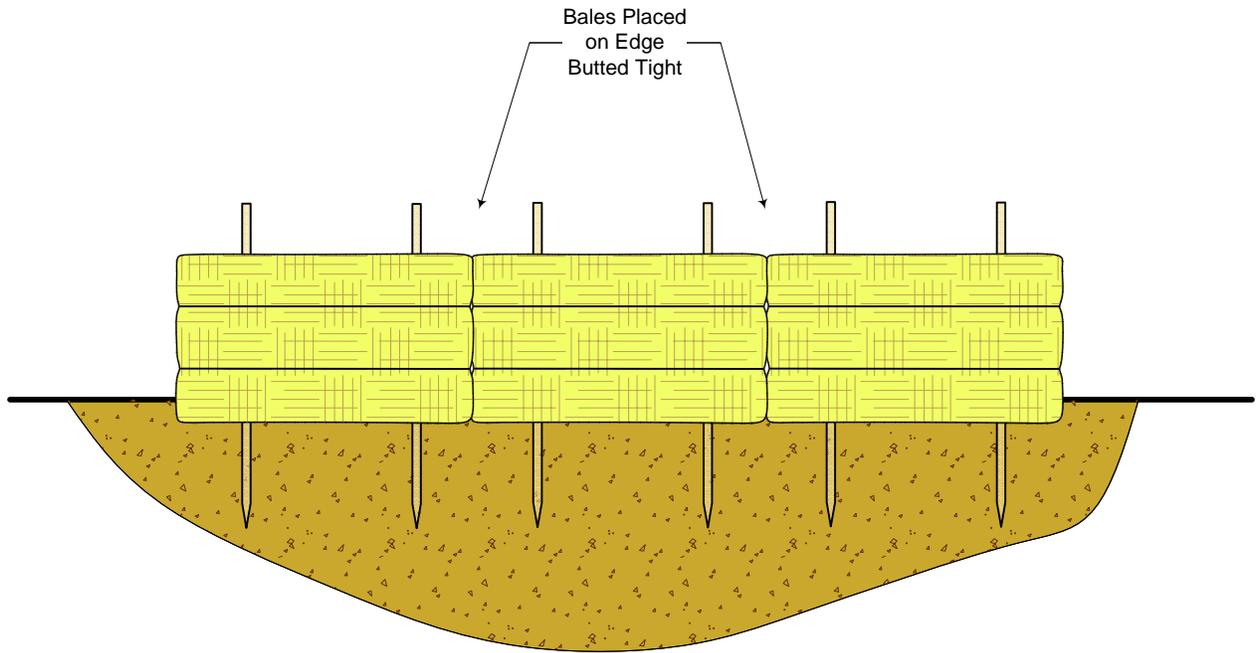
Figure 6

Prepared By:

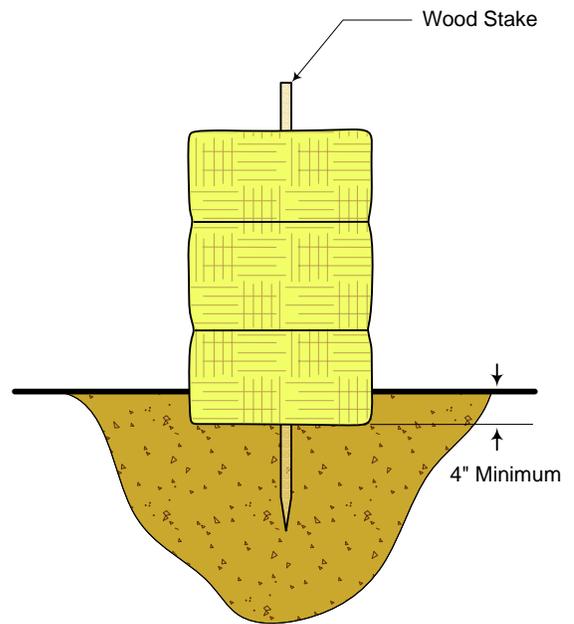


## TYPICAL SILT FENCE INSTALLATION





STRAW/HAY BALES & SILT FENCE



STRAW/HAY BALES ONLY

Figure 7

For environmental review purposes only.

**MINNESOTA POWER  
BOSWELL ENERGY CENTER GAS TRANSMISSION PIPELINE PROJECT**

**APPLICATION TO THE MINNESOTA PUBLIC UTILITIES COMMISSION  
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AND PARTIAL EXEMPTION OF PIPELINE ROUTE SELECTION PROCEDURES**

**APPENDIX C: MATERIALS SAFETY DATA SHEETS**

## 1. Product and Company Identification

**Product Name:** Natural Gas (Sweet)  
**Synonyms:** Marsh Gas, Methane (CH<sub>4</sub>), Fuel Gas  
**Intended Use:** Fuel Gas  
**Chemical Family:** Petroleum hydrocarbons  
**Supplier:** TransCanada Pipelines Limited  
 450 – First Street S.W.,  
 P.O. Box 1000, Station M  
 Calgary, Alberta, CANADA, T2P 4K6

**Emergency Phone: 1-888-982-7222 (24 Hour)**

## 2. Composition/Information on Ingredients

### Hazardous Ingredients:

Ingredient	CAS No	Concentration: %	Exposure Limits	LD50data	LC50 data
Methane	74-82-8	95-99	1000 ppm TLV-TWA (2005)	Not Applicable	Asphyxiant
Nitrogen	7727-37-9	0-2	1000 ppm TLV-TWA (2005)	Not Applicable	Asphyxiant
Ethane	74-84-0	0-3	Not Applicable Asphyxiant	Not Applicable	Asphyxiant
Propane	74-98-6	0-3	1000 ppm TLV-TWA (2005)	Not Available	Asphyxiant
Butane	106-97-8	0-3	1000 ppm TLV-TWA (2005)	Not Available	202,000 ppm/mouse/4 hrs
Pentane	109-66-0	0-3	600 ppm TLV-TWA (2005)	Not Available	117000 ppm/rat/4 hrs

Natural Gas is considered a complex mixture with the CAS Number 8006-14-2. The concentration ranges listed are regarded as typical for pipeline quality natural gas.



### 3. Hazards Identification Emergency Overview

**Flammable Gas.** Can cause flash fire. Contents under pressure. Keep away from heat, sparks, flames, static electricity or other sources of ignition. Health effects of Natural Gas below the Lower Explosive Limit (LEL) are minimal. At high concentrations Natural Gas will displace air thereby reducing oxygen available for breathing. Symptoms of overexposure, which are reversible if exposure is stopped in time, can include shortness of breath, drowsiness, headaches, confusion, decreased coordination, visual disturbances and vomiting. Continued exposure can lead to hypoxia (inadequate oxygen), cyanosis (bluish discoloration of the skin), numbness of the extremities, central nervous system depression, cardiac sensitization, unconsciousness and death.

**Inhalation (Breathing):** Asphyxiant – high concentrations in confined spaces may limit oxygen available for breathing.

**Skin:** Not known to be a skin irritant. Skin absorption is unlikely.

**Eye:** Not known to be an eye irritant.

**Ingestion (Swallowing):** This material is a gas under normal atmospheric conditions and ingestion is unlikely.

**Signs and Symptoms:** Light hydrocarbon gases are simple asphyxiants and can cause anesthetic effects at high concentrations. Symptoms of overexposure, which are reversible if exposure is stopped, can include shortness of breath, drowsiness, headaches, confusion, decreased coordination, visual disturbances and vomiting. Continued exposure can lead to hypoxia (inadequate oxygen), cyanosis (bluish discoloration of the skin), numbness of the extremities, central nervous system depression, cardiac sensitization, unconsciousness and death.

#### Potential Health Effects

**Cancer:** Not considered Carcinogenic by IARC, NTP, ACGIH or OSHA.

**Target Organs:** No data available for this material.

**Developmental:** No data available for this material.

**Other Comments:** High concentrations may reduce the amount of oxygen available for breathing, especially in confined spaces. Hypoxia (inadequate oxygen) during pregnancy may have adverse effects on the developing fetus. Exposure during pregnancy to high concentrations of carbon monoxide or carbon dioxide, which are produced during the combustion of hydrocarbon gases, can also cause harm to the developing fetus. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

**Pre-Existing Medical Conditions:** Exposure to high concentrations of this material may increase the sensitivity of the heart to certain drugs. Persons with pre-existing heart disorders may be more susceptible to this effect (see Section 4 – Note to Physicians).



## 4. First Aid Measures

**Eye:** If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water. If symptoms persist, seek medical attention.

**Skin:** First aid is not normally required. However, it is good practice to wash any chemical from the skin. Direct contact with rapidly depressurizing gas or liquefied gas can result in frostbite burns to the skin or eyes.

**Inhalation (Breathing):** If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, qualified personnel should administer oxygen. Seek immediate medical attention.

**Ingestion (Swallowing):** This material is a gas under normal atmospheric conditions and ingestion is unlikely.

**Note to Physicians:** Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high concentrations of hydrocarbon solvents (e.g., in enclosed spaces or with deliberate abuse). The use of other drugs with less arrhythmogenic potential should be considered. If sympathomimetic drugs are administered, observe for the development of cardiac arrhythmias.

## 5. Fire Fighting Measures

**Flammability:** Flammable Gas

**Flash Point:** Not applicable - Flammable Gas

**Explosive Limits:** LEL%: 5.3 / UEL%: 14.0

**Autoignition Temperature:** 537°C (999°F)

**Unusual Fire & Explosion Hazards:** It is extremely important to eliminate the fire fuel sources of compressed flammable gasses prior to extinguishing a fire to avoid another flammable gas cloud from forming.

**Extinguishing Media:** Dry chemical or carbon dioxide is recommended. Carbon dioxide can displace oxygen; use caution when applying carbon dioxide in confined spaces. It is extremely important to eliminate the fire fuel sources of compressed flammable gasses prior to extinguishing a fire to avoid another flammable gas cloud from forming.

**Fire Fighting Instructions:** Natural gas is flammable and may be ignited by heat, sparks, flames, or other sources of ignition (e.g. static electricity, pilot lights, or mechanical/electrical equipment). Vapors may travel considerable distances to a source of ignition where they can ignite, flashback, or explode. May create vapor/air explosion hazard indoors, outdoors, or in sewers. If container is not properly cooled, it can explode in the heat of a fire. For fires beyond the initial stage, emergency responders in the immediate hazard area should wear bunker gear. For large fires nonessential personnel should be evacuated beyond 750 meters.



When the potential chemical hazard is unknown, in enclosed or confined spaces, a self-contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8). Isolate immediate hazard area; keep unauthorized personnel away. Stop spill/release if it can be done with minimal risk. If this cannot be done, allow fire to burn. Move undamaged containers from immediate hazard area if it can be done with minimal risk. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done with minimal risk.

## 6. Accidental Release Measures

**Flammable Gas – Eliminate All Sources of Ignition.** Stop spill/release if it can be done with minimal risk. Keep all sources of ignition and hot metal surfaces away from spill/release. The use of explosion-proof equipment is recommended. Stay up wind and away from spill/release. Notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. For large spills nonessential personnel should be evacuated beyond 750 meters. Wear appropriate protective equipment including respiratory protection as conditions warrant (see Section 8). Notify fire authorities and appropriate federal, provincial/state, and local agencies. Water spray may be useful in minimizing or dispersing vapors (see Section 5).

**North American Emergency Response Guide (NAERG): 115**

## 7. Handling and Storage

**Handling:** Do not cut, puncture or weld on containers without appropriate procedures. Ground and bond all lines and equipment. Keep away from heat, sparks, open flames and other sources of ignition. Rapid escape of gas may generate static charge. Use of explosion proof electrical equipment is required. Practice good personal hygiene. Wash hands after handling and before eating. Launder work clothes frequently.

**Storage:** Keep containers tightly closed and store in a cool, well ventilated area away from heat, incompatibles, sparks, open flames and other sources of ignition. Outside storage is preferred. All containers should be inspected for leakage on a regular basis. Ground all equipment containing materials. Contents under pressure. The use of explosion-proof equipment is recommended and may be required (see appropriate fire codes). Post area "No Smoking or Open Flame." Store only in approved containers. Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage.



## 8. Exposure Controls/Personal Protection

**Engineering controls:** Use mechanical or natural ventilation to maintain airborne concentrations below the established exposure limits and below explosive limits. Use makeup air to balance air removed from exhaust system. Where explosive mixtures may be present, electrical systems safe for such locations must be used (see appropriate electrical codes).

### Personal Protective Equipment (PPE):

**Respiratory:** Where concentrations of components of natural gas may exceed occupational exposure limits ensure a flammable atmosphere does not exist, and wear a NIOSH approved positive pressure air supplied respirator.

**Skin:** Chemical resistant gloves are not needed for handling natural gas. They are not required based on the hazards of the material. However, it is considered good practice to wear gloves when handling chemicals. Flame retardant clothing should be worn in potentially flammable areas.

**Eye/Face:** Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended. Depending on conditions of use, a face shield may be necessary.

**Other Protective Equipment:** A source of clean water should be available in the work area for flushing eyes and skin. Impervious clothing should be worn as needed. Users should check with specific manufacturers to confirm the performance of their products.

## 9. Physical and Chemical Properties

<b>Appearance:</b>	Colorless
<b>Physical State:</b>	Gas
<b>Odour:</b>	Slight hydrocarbon odour not detectable by all people
<b>Vapor Pressure (mm Hg):</b>	>1000
<b>Vapor Density:</b>	0.5 (Estimate)
<b>Boiling Point/Range:</b>	-259°F / -162°C (Estimate)
<b>Freezing/Melting Point:</b>	-305 to -295°F/-187 to -182°C (Estimate)
<b>Solubility in Water:</b>	Negligible
<b>Specific Gravity:</b>	0.74 (Estimate)
<b>Percent Volatile:</b>	100 vol. %
<b>Evaporation Rate (nButAc=1):</b>	>1

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm).



## 10. Stability and Reactivity

**Stability:** This material is stable

**Conditions To Avoid:** High heat

**Hazardous Decomposition Products:** May release COx

**Hazardous Polymerization:** Flammable gas. Avoid all possible sources of ignition (see Sections 5 and 7). Prevent vapor accumulation. Combustion can yield carbon, nitrogen and sulfur oxides. Stable under normal ambient temperature and pressure. Values are determined at 20°C (68°F) and 760 mm Hg (1 atm).

**Materials to Avoid (Incompatible Materials):** Avoid contact with strong oxidizing agents.

## 11. Toxicological Information

**Inhalation (Breathing):** Asphyxiant – high concentrations in confined spaces may limit oxygen available for breathing.

**Skin:** Not known to be a skin irritant. Skin absorption is unlikely.

**Eye:** Not known to be an eye irritant.

**Ingestion (Swallowing):** This material is a gas under normal atmospheric conditions and ingestion is unlikely.

**Signs and Symptoms:** Light hydrocarbon gases are simple asphyxiants and can cause anesthetic effects at high concentrations. Symptoms of overexposure, which are reversible if exposure is stopped, can include shortness of breath, drowsiness, headaches, confusion, decreased coordination, visual disturbances and vomiting. Continued exposure can lead to hypoxia (inadequate oxygen), cyanosis (bluish discoloration of the skin), numbness of the extremities, central nervous system depression, cardiac sensitization, unconsciousness and death.

### Potential Health Effects

**Cancer:** Not considered carcinogenic by IARC, NTP, ACGIH or OSHA.

**Target Organs:** Central nervous system depression and cardiac sensitization.

**Developmental:** No data available for this material.

**Other Comments:** High concentrations may reduce the amount of oxygen available for breathing, especially in confined spaces. Hypoxia (inadequate oxygen) during pregnancy may have adverse effects on the developing fetus. Exposure during pregnancy to high concentrations of carbon monoxide or carbon dioxide, which are produced during the combustion of hydrocarbon gases, can also cause harm to the developing fetus. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

**Pre-Existing Medical Conditions:** Exposure to high concentrations of Natural Gas may increase the sensitivity of the heart to certain drugs. Persons with pre-existing heart disorders may be more susceptible to this effect (see Section 4 - Note to Physicians).



## 12. Ecological Information

There is no information available on the ecotoxicological effects of petroleum gases. Because of their high volatility, they are unlikely to cause ground or water pollution. Petroleum gases released into the environment will rapidly disperse into the atmosphere and undergo photochemical degradation.

**North American Emergency Response Guide (NAERG):** 115

## 13. Disposal Considerations

If permissible under applicable federal, provincial/state and municipal requirements, allow complete dissipation of natural gas. Vent gas to a safe location, preferably by burning in a flare. If gas cannot be flared, special care must be taken to ensure complete dissipation of the gas to a concentration below its flammable limits.

## 14. Transport Information

**TDG Shipping Description:** COMPRESSED GAS FLAMMABLE, N.O.S. (Methane), 2.1, UN1954

**North American Emergency Response Guide (NAERG):** 115

## 15. Regulatory Information

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation (CPR) and this MSDS contains all of the information required by the CPR.

**WHMIS Classification:** Class A – Compressed Gas; Class B-1 Flammable Gas

**Canadian Domestic Substances List:** All ingredients are on the DSL

**NFPA Hazard Class:** HMIS Hazard Class

**Health:** 1 (Slight) Health: 1 (Slight)

**Flammability:** 4 (Extreme) Flammability: 4 (Extreme)

**Reactivity:** 0 (Least) Physical Hazard: 0 (Least)

**HMIS Hazard Class**

**Health:** 1 (Slight) Health: 1 (Slight)

**Flammability:** 4 (Extreme) Flammability: 4 (Extreme)

**Reactivity:** 0 (Least) Physical Hazard: 0 (Least)

**Personal Protection:** K (K = Air line hood or mask, gloves, full chemical suit, boots)



## 16. Other Information

**Prepared by:** Health and Industrial Hygiene  
TransCanada PipeLines Limited  
450 – First Street S.W.  
Calgary, Alberta, CANADA T2P 4K6

**Telephone:** (403) 920-2972

**Issue Date:** February 27, 2006



# Natural Gas Odorizing



## MATERIAL SAFETY DATA SHEET

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### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

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**Natural Gas Odorizing**

**3601 Decker Drive**

**P.O. Box 1429**

**Baytown, Texas 77522-1429**

**24 HOUR EMERGENCY TELEPHONE:**

**1-800-733-3665 or 1-972-404-3228 (U.S.);**

**32.3.575.55.55 (Europe);**

**1800-033-111 (Australia)**

**TO REQUEST AN MSDS:**

**1-866-295-5278 or 1-615-399-5148**

**CUSTOMER SERVICE:**

**1-281-424-5568**

**MSDS NUMBER:** M36034

**SUBSTANCE:** RP CAPTAN (V)

**SYNONYMS:**

Mercaptan and alkyl sulfide

**PRODUCT USE:** gas odorant

**REVISION DATE:** May 13 2004

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### 2. COMPOSITION, INFORMATION ON INGREDIENTS

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**COMPONENT:** TERT-BUTYL MERCAPTAN

**CAS NUMBER:** 75-66-1

**PERCENTAGE:** 75-81

**COMPONENT:** ETHYL METHYL SULFIDE

**CAS NUMBER:** 624-89-5

**PERCENTAGE:** 18-25

---

### 3. HAZARDS IDENTIFICATION

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**NFPA RATINGS (SCALE 0-4):** HEALTH=2 FIRE=3 REACTIVITY=0

**HMIS RATINGS (SCALE 0-4):** HEALTH=2 FLAMMABILITY=3 REACTIVITY=0

**EMERGENCY OVERVIEW:****COLOR:** colorless**PHYSICAL FORM:** liquid**ODOR:** gassy odor**MAJOR HEALTH HAZARDS:** MAY BE IRRITATING TO RESPIRATORY TRACT, SKIN AND EYES. MAY CAUSE CENTRAL NERVOUS SYSTEM EFFECTS.**PHYSICAL HAZARDS:** Extremely flammable liquid and vapor.**POTENTIAL HEALTH EFFECTS:****INHALATION:****SHORT TERM EXPOSURE:** irritation, central nervous system effects**LONG TERM EXPOSURE:** irritation**SKIN CONTACT:****SHORT TERM EXPOSURE:** irritation**LONG TERM EXPOSURE:** dermatitis**EYE CONTACT:****SHORT TERM EXPOSURE:** irritation, tearing**LONG TERM EXPOSURE:** irritation**INGESTION:****SHORT TERM EXPOSURE:** nausea, vomiting, central nervous system effects**LONG TERM EXPOSURE:** to our knowledge, no effects are known**CARCINOGEN STATUS:****OSHA:** No**NTP:** No**IARC:** No

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**4. FIRST AID MEASURES**

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**INHALATION:** If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. If respiration or pulse has stopped, have a trained person administer Basic Life Support (Cardio-Pulmonary Resuscitation/Automatic External Defibrillator) and CALL FOR EMERGENCY SERVICES IMMEDIATELY.**SKIN CONTACT:** Wash contaminated areas with soap and water. Thoroughly clean and dry contaminated clothing and shoes before reuse. IF IRRITATION OCCURS, GET MEDICAL ATTENTION.**EYE CONTACT:** Immediately flush eyes with a directed stream of water for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissues. Washing eyes within several seconds is essential to achieve maximum effectiveness. GET MEDICAL ATTENTION IMMEDIATELY.**INGESTION:** Never give anything by mouth to an unconscious or convulsive person. If swallowed, do not induce vomiting. If vomiting occurs spontaneously, keep airway clear. Give water when vomiting stops. GET MEDICAL ATTENTION.

---

**5. FIRE FIGHTING MEASURES**

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**FIRE AND EXPLOSION HAZARDS:** Severe fire hazard. Vapor/air mixtures are explosive. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back.**EXTINGUISHING MEDIA:** Use carbon dioxide, regular dry chemical, foam or water.

**FIRE FIGHTING:** Water may be ineffective as an extinguishing media. Wear NIOSH approved positive-pressure self-contained breathing apparatus. Eliminate all sources of ignition. Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Flood with fine water spray. Do not scatter spilled material with high-pressure water streams. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

**SENSITIVITY TO MECHANICAL IMPACT:** Not sensitive

**SENSITIVITY TO STATIC DISCHARGE:** Electrostatic charges may build up during handling. Grounding of equipment is recommended.

**FLASH POINT:** -9.9 F (-23.3 C) (OC)

**LOWER FLAMMABLE LIMIT:** 1.7% estimated

**UPPER FLAMMABLE LIMIT:** 10% estimated

**HAZARDOUS COMBUSTION PRODUCTS:**

Thermal decomposition products or combustion: oxides of sulfur (combustion product), hydrogen sulfide (decomposition product)

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## 6. ACCIDENTAL RELEASE MEASURES

---

**OCCUPATIONAL RELEASE:**

Remove sources of ignition. Ventilate closed spaces before entering. Stop leak if possible without personal risk. Collect with absorbent into suitable container. Keep container tightly closed. Liquid material may be removed with a vacuum truck. Keep out of water supplies and sewers. Releases should be reported, if required, to appropriate agencies.

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## 7. HANDLING AND STORAGE

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**STORAGE:** Store and handle in accordance with all current regulations and standards. Store in a cool, dry place. Store in a well-ventilated area. Avoid heat, flames, sparks and other sources of ignition. Subject to storage and handling regulations: U.S. OSHA 29 CFR 1910.106. Keep separated from incompatible substances.

**HANDLING:** Avoid breathing vapor or mist. Avoid contact with eyes, skin and clothing. Keep away from heat, sparks and flame. Keep container tightly closed. Use only with adequate ventilation. Do not reuse containers.

---

## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

---

**EXPOSURE LIMITS:**

**RP CAPTAN (V):**

**TERT-BUTYL MERCAPTAN:**

75 ppm recommended TWA 8 hour(s) (internal Occupational Exposure Limit based on acute toxicity data)

**ETHYL METHYL SULFIDE:**

50 ppm recommended TWA 8 hour(s) (internal Occupational Exposure Limit based on data from analogous chemicals)

**VENTILATION:** Use explosion-proof equipment. Use engineering controls if feasible. Provide local exhaust ventilation where vapor may be generated. Ensure compliance with applicable exposure limits.

**EYE PROTECTION:** Wear chemical resistant safety goggles if eye contact is likely. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**CLOTHING:** Wear protective clothing to minimize skin contact.

**GLOVES:** Wear appropriate chemical resistant gloves. May be based on plant experience, not ASTM permeation testing.

**PROTECTIVE MATERIAL TYPES:** 4H(R), nitrile, Silver Shield(R)

**RESPIRATOR:** A NIOSH approved respirator with organic vapor cartridges may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure.

**SHORT ORGANIC VAPOR SERVICE LIFE.**

A full facepiece air-purifying respirator may be used in concentrations up to 50X the acceptable exposure level. Supplied air should be used when the level is expected to be above 50X the acceptable level, or when there is a potential for uncontrolled release.

A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

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**PHYSICAL STATE:** liquid

**APPEARANCE:** clear

**COLOR:** colorless

**ODOR:** gassy odor

**BOILING POINT:** 145-151 F (62.8-66.1 C)

**FREEZING POINT:** <-60.0 F (<-51.1 C)

**VAPOR PRESSURE:** 5.6 psia @ 38 C

**VAPOR DENSITY (air=1):** 3.0

**SPECIFIC GRAVITY (water=1):** 0.811

**DENSITY:** 6.76 lbs/gal @ 15.6 C

**WATER SOLUBILITY:** negligible

**PH:** Not available

**VOLATILITY:** 100%

**ODOR THRESHOLD:** 0.008 ppb (TERT-BUTYL MERCAPTAN)

**EVAPORATION RATE:** Not available

**COEFFICIENT OF WATER/OIL DISTRIBUTION:** Not available

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## 10. STABILITY AND REACTIVITY

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**REACTIVITY:** Stable at normal temperatures and pressure.

**CONDITIONS TO AVOID:** Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat. Keep out of water supplies and sewers.

**INCOMPATIBILITIES:** oxidizing materials

**HAZARDOUS DECOMPOSITION:**

Thermal decomposition products or combustion: oxides of sulfur (combustion product), hydrogen sulfide (decomposition product)

**POLYMERIZATION:** Will not polymerize.

---

## 11. TOXICOLOGICAL INFORMATION

---

**RP CAPTAN (V):**

**TOXICITY DATA:** This material is considered to be a moderate to strong irritant to the respiratory tract, skin and eyes (with burning sensation). High exposure levels may lead to central nervous system effects, including CNS depression, headache, nausea, weak pain, a sense of coldness in the extremities, unconsciousness and death. Overexposure may cause pulmonary edema. Repeated contact with this material to the skin may result in dermatitis. Inhalation may cause loss of smell. Ingestion of this material may cause nausea, vomiting, irritation to mouth, esophagus and stomach, potential CNS depression and unconsciousness.

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## 12. ECOLOGICAL INFORMATION

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**ECOTOXICITY DATA:**

**FISH TOXICITY:** No data available. However, if released in water, it rapidly dissipates through evaporation.

**FATE AND TRANSPORT:**

**BIODEGRADATION:** This material may biodegrade in soil and water.

**PERSISTENCE:** Based on volatilization and degradation rates, this material is believed not to persist in the environment.

**BIOCONCENTRATION:** This material is believed not to bioaccumulate.

**OTHER ECOLOGICAL INFORMATION:** This material is expected to rapidly oxidize in the atmosphere.

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## 13. DISPOSAL CONSIDERATIONS

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Reuse or reprocess if possible. Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.

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## 14. TRANSPORT INFORMATION

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**U.S. DOT 49 CFR 172.101:**

**PROPER SHIPPING NAME:** Flammable liquids, n.o.s. (TERT-BUTYL MERCAPTAN, ETHYL METHYL SULFIDE)

**ID NUMBER:** UN1993

**HAZARD CLASS OR DIVISION:** 3

**PACKING GROUP:** II

**LABELING REQUIREMENTS:** 3

**ADDITIONAL SHIPPING DESCRIPTION:** Transport by vessel domestic requires flashpoint on shipping papers.

**CANADIAN TRANSPORTATION OF DANGEROUS GOODS:**

**SHIPPING NAME:** Flammable liquid, n.o.s. (TERT-BUTYL MERCAPTAN, ETHYL METHYL SULFIDE)

**UN NUMBER:** UN1993

**CLASS:** 3

**PACKING GROUP/RISK GROUP:** II

---

## 15. REGULATORY INFORMATION

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### **U.S. REGULATIONS:**

**CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):** Not regulated.

**SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30):** Not regulated.

**SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):**

ACUTE: Yes

CHRONIC: No

FIRE: Yes

REACTIVE: No

SUDDEN RELEASE: No

**SARA TITLE III SECTION 313 (40 CFR 372.65):** Not regulated.

**OSHA PROCESS SAFETY (29CFR1910.119):** Not regulated.

### **STATE REGULATIONS:**

**California Proposition 65:** Not regulated.

**NEW JERSEY WORKER AND COMMUNITY RIGHT TO KNOW:**

**REPORTING REQUIREMENT:**

TERT-BUTYL MERCAPTAN 75-66-1 75-81%

ETHYL METHYL SULFIDE 624-89-5 18-25%

**RIGHT TO KNOW HAZARDOUS SUBSTANCE LIST:**

Not regulated.

**SPECIAL HEALTH HAZARD SUBSTANCE LIST:**

Not regulated.

**PENNSYLVANIA RIGHT TO KNOW:**

**REPORTING REQUIREMENT:**

TERT-BUTYL MERCAPTAN 75-66-1 75-81%

ETHYL METHYL SULFIDE 624-89-5 18-25%

**HAZARDOUS SUBSTANCE LIST:**

TERT-BUTYL MERCAPTAN 75-66-1 75-81%

**ENVIRONMENTAL HAZARDOUS SUBSTANCE LIST:**

Not regulated.

**SPECIAL HAZARDOUS SUBSTANCE LIST:**

Not regulated.

### **CANADIAN REGULATIONS:**

**CONTROLLED PRODUCTS REGULATIONS (CPR):** This product has been classified in accordance with the criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

**WHMIS CLASSIFICATION:** B2, D2B.

**NATIONAL INVENTORY STATUS:**

**U.S. INVENTORY (TSCA):** All the components of this substance are listed on or are exempt from the inventory.

**TSCA 12(b) EXPORT NOTIFICATION:** Not listed.

**CANADA INVENTORY (DSL/NDSL):** All components of this product are listed on the DSL.

---

**16. OTHER INFORMATION**

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**MSDS SUMMARY OF CHANGES****8. EXPOSURE CONTROLS, PERSONAL PROTECTION**

**IMPORTANT:** The information presented herein, while not guaranteed, was prepared by competent technical personnel and is true and accurate to the best of our knowledge. **NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTY OR GUARANTY OF ANY OTHER KIND, EXPRESS OR IMPLIED, IS MADE REGARDING PERFORMANCE, SUITABILITY, STABILITY OR OTHERWISE.** The information included herein is not intended to be all-inclusive as to the appropriate manner and/or conditions of use, handling and/or storage. Factors pertaining to certain conditions of storage, handling, or use of this product may involve other or additional safety or performance considerations. While our technical personnel will be happy to respond to questions regarding safe handling and use procedures, safe handling and use remains the responsibility of the customer. No suggestions for use are intended to, and nothing herein shall be construed as a recommendation to, infringe any existing patents or violate any laws, rules, regulations or ordinances of any governmental entity.

**MINNESOTA POWER  
BOSWELL ENERGY CENTER GAS TRANSMISSION PIPELINE PROJECT**

**APPLICATION TO THE MINNESOTA PUBLIC UTILITIES COMMISSION  
FOR A GAS PIPELINE ROUTING PERMIT  
AND PARTIAL EXEMPTION OF PIPELINE ROUTE SELECTION PROCEDURES**

**APPENDIX D: CULTURAL RESOURCE LITERATURE REVIEW**

**Cultural Resources Literature Review for the  
Boswell Energy Center High Pressure Gas  
Transmission Line Project,  
Itasca County, Minnesota**

*May 2008*



**A WOMAN-OWNED, HUB-ZONE  
CERTIFIED SMALL BUSINESS**

**TEL: 651.298.0926 ■ FAX: 651.330.7256  
267 MARIA AVE, ST. PAUL, MN 55106**

---

**TITLE PAGE**

Report Title: Cultural Resources Literature Review for the Boswell Energy Center High Pressure Gas Transmission Line Project, Itasca County, Minnesota

Report Prepared by: 4G Consulting, LLC



Report Author: Peggy J. Boden, PhD

Date of Report: May 5, 2008

Report Submitted to: Merjent, Inc.  
615 1<sup>st</sup> Avenue SE, Suite 425  
Minneapolis, Minnesota

USGS Quadrangle: Cohasset West 7.5 minute USGS topographic map (1953, photo revised 1969)  
Cohasset East 7.5 minute USGS topographic map (1953, photo revised 1969)  
Grand Rapids 7.5 minute USGS topographic Map (1953, photo revised 1969)  
Siseebakwet Lake 7.5 minute USGS topographic map (1953, photo revised 1969)

Project Location: Sections 3, 4, 9, and 10, T55N, R26W  
Itasca County, Minnesota

## MANAGEMENT SUMMARY

As part of their effort to secure regulatory permits and approvals for construction of an approximately two-mile-long natural gas transmission pipeline by Minnesota Power, Merjent, Inc. requested a cultural resources literature review in order to determine any potential effect on archaeological and historic properties within the proposed project area in Itasca County, Minnesota. The literature review determined that no recorded archaeological sites or historic properties are present in the project area. The potential for undiscovered cultural resources is low, and it is recommended that the proposed project will have no effect on archaeological or historic resources.

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## INTRODUCTION

### ***Project Description***

Minnesota Power (Mn Power) proposes to construct an approximately two-mile-long 10-inch-diameter, high pressure natural gas transmission pipeline that will connect the Great Lakes Gas Transmission pipeline system in Cohasset, Minnesota with Mn Power's Boswell Energy Center, located about one-mile west of Cohasset (Figure 1). Merjent is assisting Mn Power to acquire the necessary permits and approvals and as part of their responsibilities, they requested a cultural resources literature review in order to determine the potential effects on archaeological or historic properties within the project area. Peggy J. Boden of 4G Consulting completed the literature review in April and May of 2008.

At this time there is no federal support or permitting for this proposed pipeline construction. If there is federal involvement in the future, a 106 cultural resources review, pursuant to the National Historic Preservation Act of 1966 (as amended) may be necessary.

### ***Project Location***

The project area is two optional pipeline routes located on the western edge and just outside of Cohasset, Minnesota. For the purposes of this literature review, the study area is the two optional routes and the surrounding area, an approximately 1000 feet buffer. The legal location of the project area is the SW ¼ of Section 3, the S SE ¼ of Section 4, the NE ¼ of Section 9, and the NW ¼ of Section 10, all in T55N, R26W, in Itasca County, Minnesota (see Figure 1).

### ***Background***

The project area is located in southwestern Itasca County, in a region of low-lying lakes and wetlands located in north-central Minnesota. The Mississippi River flows through the southwestern corner of the county, and is just a few hundred feet south of the project area. The terrain is marked by frequent lakes and bogs, with forests of aspen, upland conifers, and lowland species such as black spruce, northern white-cedar, and tamarack. Occasional small parcels have been cleared for agriculture, although farming has never exceeded 10 percent of the total area of the county (Nyberg 1987:1).

The landscape of the county was formed by the Des Moines and Wadena Lobes of the Middle to Late Wisconsin glaciation. Through the complex forces of glaciation, deep lacustrine plains were

**FIGURE 1**

**Project Location Map**

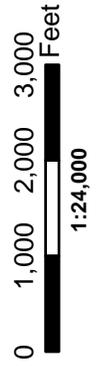
Boswell Energy Center  
High Pressure Gas  
Transmission Line Project

**LEGEND**

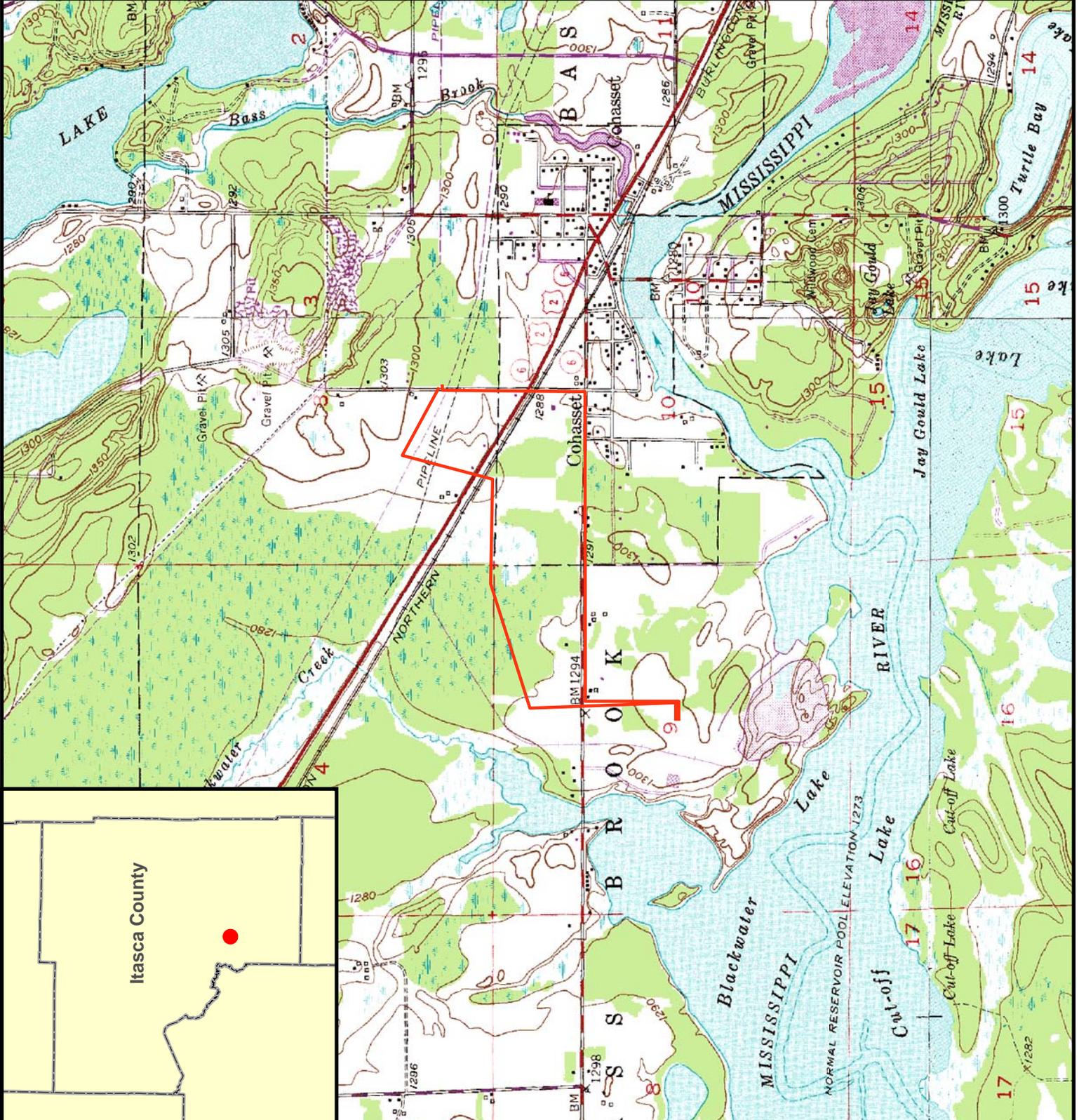
— Proposed Pipeline Options

**LOCATION**

Sections 3, 4, 9, & 10  
T55N, R26W  
Itasca County, Minnesota



Prepared by: **merjent**



formed, as well as numerous moraines, small, medium, and large lakes, and in the northeastern portion of the county, bedrock-controlled topography that has been mined for its iron content.

The region has a contrast in soil types between very well drained sands and silts formed by glacial processes, and poorly drained mucks and peats formed by organic material. In the project area, the northern-most proposed pipeline route is dominated by poorly drained soils including Spooner silt loam, Greenwood peat, and Tawas Muck (Figure 2), with only the western portion lying in well-drained soils. The other proposed route, which partially parallels CR 87, lies primarily in well-drained soils such as Wawina loamy very fine sand, although portions of this route also lie in poorly drained soils. In both cases, the well-drained soils are located closer to the Mississippi River to the south and Blackwater Lake to the southwest (Nyberg 1987).

The Minnesota Historic Preservation Office (SHPO) has identified nine archaeological regions defined by terrain, resources, and drainage systems (Anfinson 1990). The project area lies within Region 5, the Central Coniferous Lakes region, described as a mosaic of lakes, rugged end moraines, and glacial outwash features. Cultural activity in the Central Coniferous Lakes Region is recorded for all known cultural periods, beginning with the earliest Pre-contact periods - PaleoIndian and Archaic. Sites dating to these periods have been found along former lake shorelines and abandoned river channels. Woodland period sites are well represented in the region. These sites are concentrated on the shores of medium to large lakes, and along rivers, notably at river inlets where wild rice grows well.

Fur traders were active in the region during the Contact period, with fur trading posts constructed along prominent river transportation routes. We also know from early accounts that Ojibwa peoples lived in villages and seasonal outposts during the Contact period and subsequent historic periods. Euro-American activity intensified in the region during the last half of the nineteenth century when the timber industry began harvesting the extensive forests. Some parcels were cleared for agriculture but farming has never been a primary factor in the economy of the region. In the twentieth century, the timber industry made a comeback after a major decline, and iron mining was active in the Mesabi Iron Range. Tourism and recreation gained importance in the last half of the twentieth century, and continue to be a significant contribution to the economy.

**FIGURE 2**

**SSURGO Soils Data**

Boswell Energy Center  
High Pressure Gas  
Transmission Line Project

**LEGEND**

— Proposed Pipeline Options

SSURGO Soils Data  
(Mapping Units)

**MAPPING UNITS**

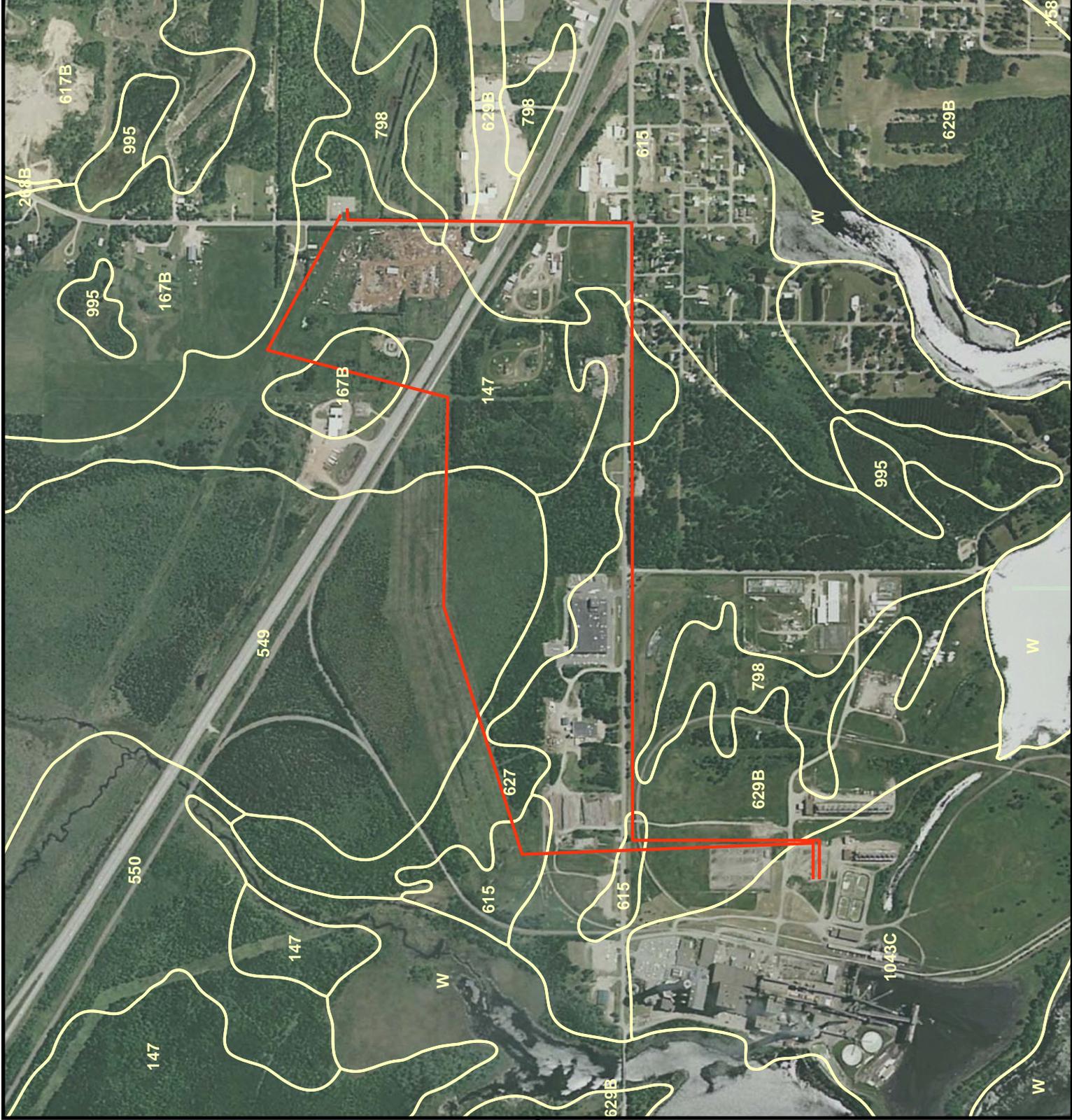
- 167B Baudette silt loam (Well Drained)
- 615 Cowhorn loamy very fine sand (Poorly Drained)
- 549 Greenwood peat (Poorly Drained)
- 798 Sago & Roscommon soils (Poorly Drained)
- 147 Spooner silt loam (Poorly Drained)
- 627 Tawasa muck (Poorly Drained)
- 1043C Udorthents (Well Drained)
- 629B Wawina loamy very fine sand (Well Drained)

**LOCATION**

Sections 3, 4, 9, & 10  
T55N, R26W  
Itasca County, Minnesota



Prepared by: **merjent**



## METHODS

The main objective in reviewing the cultural resources literature is to determine the potential effects to archaeological and historic resources by construction of the pipeline. Files at the SHPO Offices, located within the Minnesota History Center, were examined to identify previously recorded archaeological sites, architectural history properties (standing structures), and previously conducted surveys within the project area. In order to establish the archaeological context and aid in understanding the cultural history in and around the project area, recorded archaeological sites within one mile of the project area were also reviewed.

Historic maps on file in the Minnesota History Center Library were examined to identify any potential historic archaeological sites, that is, structures or cultural features that were present in the project area during historic periods.

Historic aerial photographs were examined at the Borchert Map Library at the University of Minnesota in Minneapolis in order to examine the historic changes in the landscape of the study area.

The Itasca County Soil Survey and cultural resources reports were consulted at the Minnesota Office of the State Archaeologist at Fort Snelling History Center.

## LITERATURE REVIEW RESULTS

### ***Previously Recorded Archaeological Sites and Standing Structures***

The literature review determined that no archaeological sites have been recorded, and no standing structures have been inventoried within the project area. Within one mile of the project area, nine pre-contact archaeological sites have been recorded, and two pre-contact sites have been reported, but not professionally confirmed. Table 1 summarizes these archaeological sites, and they are plotted on Figure 3.

**Table 1. Previously recorded archaeological sites within one mile of the project area.**

Site Number	Site Type	Cultural Affiliation	Site Report
21IC0048	Artifact Scatter	Woodland	Johnson 1979
21IC0064	Artifact Scatter	Woodland (Blackduck, Sandy Lake); Historic Ojibwa	Johnson 1979
21IC0065	Artifact Scatter	Woodland (Blackduck, Sandy Lake); Historic Ojibwa	Johnson 1979; Manger and Emerson 2004
21IC0066	Artifact Scatter	Woodland (Blackduck)	Johnson 1979
21IC0070	Artifact Scatter	Woodland	Johnson 1979
21IC0077	Artifact Scatter	Archaic; Woodland (Brainerd, Malmo)	Johnson 1979; Magner and Emerson 2004
21IC0082	Lithic Artifact Scatter	Pre-contact	Johnson 1979
21IC0083	Artifact Scatter	Late Pre-contact	Johnson 1979
21IC0084	Artifact Scatter	Late Pre-contact	Johnson 1979; Magner and Emerson 2004
21ICan	Lithic flake	Pre-contact	1978 site report; flake found in garden
21ICao	Lithic projectile point	Possibly Paleo-Indian	Site report 1978; Point collected by Grand Rapids resident; possible burial site reported destroyed

The eleven archaeological sites are all located along the shoreline of the Mississippi River and associated lakes south of the project area. The nine professionally recorded sites were discovered by Elden Johnson during a 1979 survey of the Lake Pokegama reservoir shoreline. Three of these sites (21IC0065, 21IC0077, and 21IC0084) were revisited and tested by the Department of Natural Resources in 2003 prior to a planned timber sale (Magner and Emerson 2004).

The archaeological sites within one mile of the project area indicate that the area was occupied during several Pre-contact periods. Site 21IC0077 was occupied during the Archaic period, than several hundred years later during the Woodland period, evidenced by subsurface testing that revealed an aceramic soil horizon with lithic artifacts, followed by 10-20 cm of sterile soil, then a soil horizon containing Woodland period artifacts, including ceramics datable to the Brainerd and Malmo phases (Mangar and Emerson 2004:8). In the case of 21IC0064 and 21IC0065, the sites were reported by locals as known locations where historic Ojibwa camped and processed wild rice (Johnson 1979:228).

The sites discovered to date have confirmed that Pre-contact occupation of this region is strongly concentrated along lake and river shorelines. Occupation is closely associated with the aquatic resources of the region; in addition to fish and water fowl, wild rice is known to grow among shallows and lake and river outlets. The land away from lakes and river was heavily forested or swampy. Although such areas contained resources that would have been collected, such as berries and wile rice, the majority of activities and resulting archaeological sites, were located at well drained shorelines. The 1979 survey of the Great Lakes pipeline corridor discovered only one archaeological site in Itasca County (Weir 1981), and a 2001 survey for the Lakehead pipeline corridor that cut diagonally across Itasca County, and just north of the current project area, did not discover any archaeological sites in the entire county (Abel and Murray 2001).

Regarding architectural history properties that may be affected by the proposed project, no such properties have been recorded within the project area. Four buildings in Cohasset, none within the project area, were inventoried during a 1980 MHS standing structures survey. The inventoried houses and church were not evaluated regarding their eligibility for listing on the National Register of Historic Places, and no further action has been taken.

**FIGURE 3**

# Previously Recorded Archaeological Sites and Surveys

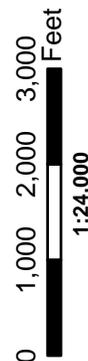
Boswell Energy Center  
High Pressure Gas  
Transmission Line Project

**LEGEND**

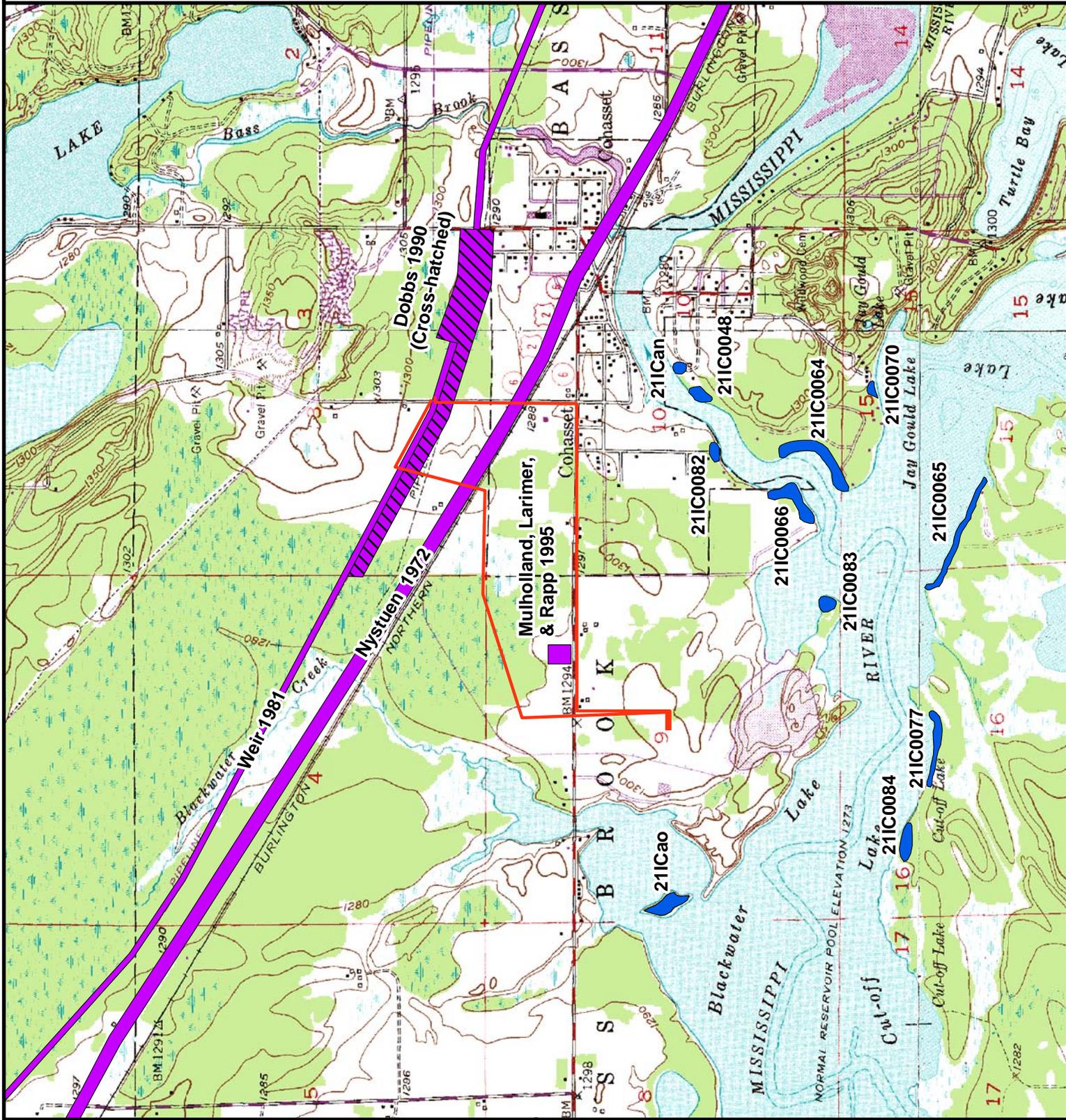
-  Proposed Pipeline Options
-  One-Mile Buffer Around Proposed Pipelines
-  Previously Recorded Archaeological Sites
-  Previous Archaeological Studies

**LOCATION**

Sections 3, 4, 9, & 10  
T55N, R26W  
Itasca County, Minnesota



Prepared by:



***Cultural Resources Surveys***

A review of the cultural resources reports on file determined that four archaeological surveys have been conducted within portions of the project area (see Figure 3). As part of the Trunk Highway Archaeological Reconnaissance Survey, the section of Highway 2 between Deer River and Cohasset was surveyed in 1971. No sites were discovered along this twelve-mile section, although the survey report noted that dense vegetation and wooded terrain hampered the discovery of artifacts (Nystuen 1972:12).

In 1979 Commonwealth Associates surveyed the 75-foot right of way for the existing Great Lakes Gas Transmission Pipeline (installed in 1968-1969) that lies in the project area (Weir 1981). This survey effort discovered only one archaeological site in Itasca County, and none in or near the current project area. Beginning in 1990, a series of cultural resources surveys along the same Great Lakes Gas Transmission Pipeline was undertaken prior to looping projects to expand the capacity of the original pipeline. A parcel located within the project area was surveyed by the Institute for Minnesota Archaeology at that time with negative results (Dobbs 1990).

Prior to building construction, in 1995 the Archaeometry Laboratory at the University of Minnesota, Duluth conducted a cultural resources survey of a 2.5 acre parcel in the NE ¼ of Section 9, T55N, R26W. This parcel is part of the Mn Power Energy Center located just west of Cohasset. Fifty shovel tests were excavated over the 2.5 acres; the results were negative for archaeological sites.

**Table 2. Previous cultural resources surveys in the project area.**

<b>Report Title</b>	<b>Report author</b>	<b>Date</b>	<b>Findings</b>
The Minnesota Trunk Highway Archaeological Reconnaissance Survey: Annual Report 1972	David W. Nystuen	1972	Survey of TH No. 2 in Itasca County: negative findings for project area
A Cultural Resources Inventory – St. Vincent to St. Clair Gas and Sault Lateral Pipelines, Minnesota, Wisconsin and Michigan	Donald J. Weir	1981	Survey of existing pipeline: negative findings for project area.
1990 Great Lakes Gas Transmission Company Pipeline Expansion Project: Phase I Cultural Resources Survey, Supplement 1.	Clark A. Dobbs	1990	Survey of parcels prior to pipeline expansion: negative findings for project area.
Archaeological Survey of Boswell Energy Center Parcel, Cohasset, Itasca County, Minnesota	Susan C. Mulholland, Grayson E. Larimer, and George Rapp, Jr.	1995	Survey of 2.5 acres in project area: negative findings.

## ***Potential for Archaeological Site Discovery***

### *Pre-contact Sites*

Archaeological investigations have identified several predictors for site discovery. The primary factor for site discovery is relatively undisturbed soils. Archaeological knowledge comes from analyzing data from the past as they are deposited. If the sequence of deposits is moved or mixed, any knowledge that might be gained is compromised. Another basic factor for site discovery is terrain that supports sustained human activities and occupation. This excludes poorly draining terrain such as standing water, wetlands, and bogs.

Other factors for Pre-contact site discovery, assuming undisturbed soil deposits and reasonably well-drained terrain, include the proximity to large bodies of water (40 acres or more) or perennial rivers or streams. Generally, the probability of site discovery is significantly higher within 500 feet of existing or former shorelines of significant bodies of water. Pre-contact sites are also more likely to be found on prominent landscape features such as river bluffs, and near previously recorded sites, within about 500 feet (see Minnesota Department of Transportation 2000 for discussion of archaeological predictive models).

Considering the factors that predict site discovery, the probability is low for discovery of Pre-contact archaeological sites in the two optional corridors (Figure 4). Large areas have been disturbed through construction of Highway 2, CR 87, access roads, buildings, parking lots, and yards. Portions of the proposed pipeline routes also lie within wetland and poorly-drained soils. The routes are not located within 500 feet of a significant body of water, nor are they located on prominent landscape features.

### *Contact and Post-Contact (Historic) Sites*

There is a history of European exploration, Ojibwa occupation, and fur trading throughout Itasca County. From the first contacts between American Indians and Europeans in this region, it has been reported that the Ojibwa Indians camped along the lakes and rivers. Sites 21IC0064 and 21IC0065, located south but within one mile of the project area, contain historic Ojibwa components.

Historical maps are used to look for historic buildings and features that may indicate historical archaeological sites. Such maps are rare for Itasca County, however. The only historic map available for review at MHS was a township plat map from the Hixon 1916 Atlas. This map shows only parcels and roadways, and does not depict buildings, so it is of limited use in identifying potential historical archaeological sites.

The historic aerial maps provide more information, but were also of limited use. The 1939 aerial shows that the project area was a mix of forested and cultivated parcels at that time, with a few buildings or cultural features present in the project area. It is not always possible to discern the type of object in these early aerial photos, especially with this set of photos which display deep shadows. What appear to be buildings may be tractors or large trucks, or only temporary storage bins in a clearing. The 1947 aerial photos are overexposed but do appear to confirm the 1939 locations of clearings with possible structures on them.

The 1966 aeriels show considerable changes to the landscape of the project area. Many additional buildings are present along CR 87 and along Highways 2 and Pincherry Road, and new road construction is evident in the NE ¼ of Section 9 and the SE ¼ of Section 4, just north of the currently proposed pipeline routes. Modern aeriels show even more construction along CR 87 and Pincherry Road. With the exception of the Cohasset city blocks located south of CR 87 at Pincherry Road, the possible buildings viewed in the 1939 and 1947 aeriels are not visible in the modern aeriels. New construction or clearings are present on the possible earlier building sites. Without further investigation, it remains uncertain whether the objects visible in the earlier aeriels were permanent buildings or something else like temporary or movable objects. If they were permanent buildings that were moved or torn down, it is unlikely that intact historic archaeological deposits are present following construction or other ground disturbance. Nonetheless, there is a slight possibility that historical archaeological deposits are present.

# FIGURE 4

## Archaeological Discovery Potential

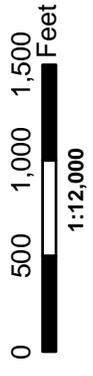
Boswell Energy Center  
High Pressure Gas  
Transmission Line Project

### LEGEND

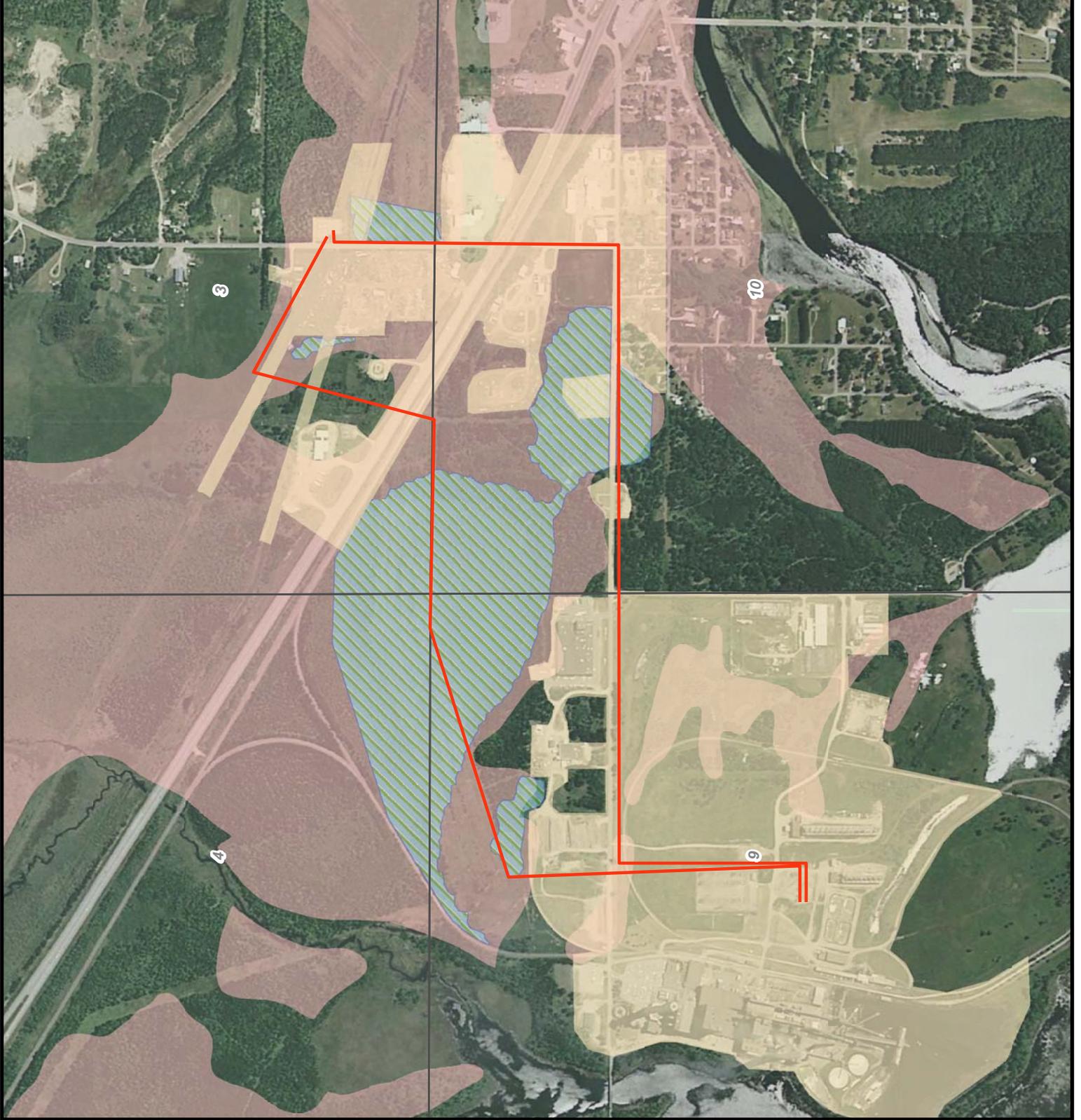
- Proposed Pipeline Options
- Section Boundaries
- Delineated Wetland Boundaries
- Existing Structures or Disturbed Areas
- Poorly Drained Soils (SSURGO Soils Data)

### LOCATION

Sections 3, 4, 9, & 10  
T55N, R26W  
Itasca County, Minnesota



Prepared by: 



## SUMMARY AND RECOMMENDATIONS

Mn Power proposes to construct an approximately two-mile-long 10-inch-diameter, high pressure natural gas transmission pipeline that will connect the Great Lakes Gas Transmission pipeline system in Cohasset, Minnesota with Mn Power's Boswell Energy Center. 4G Consulting conducted a cultural resources literature review to determine the potential effects of the project on archaeological and historic resources. No archaeological or historic resources have been recorded within the project area. The potential for undiscovered cultural resources is considered low based on several factors including ground disturbance, the presence of wetlands and poorly drained soils, and the lack of a significant water source within 500 feet. It is recommended that no cultural resources will be adversely affected by construction along either of the two proposed pipeline routes.

If federal funding, permitting, or licensing is a factor for this project, a 106 process review, pursuant to the National Historic Preservation Act of 1966 (as amended) may be necessary. The lead federal agency should be consulted as needed.

## REFERENCES

Abel, Elizabeth and Matthew Murray

- 2001 *Phase I and II Archaeological Investigations for the Minnesota Portion of Lakehead Pipeline Company's Proposed 36-inch Looping Project from Clearbrook, Minnesota, to Superior, Wisconsin: Clearbrook, Beltrami, Itasca, St. Louis, and Carlton Counties, Minnesota*. Report prepared by The 106 Group for Natural Resources Group, Inc.

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- 1990 *1990 Great Lakes Gas Transmission Company Pipeline Expansion Project: Phase I Cultural Resource Inventory of the Pipeline Corridor and Access Roads in Minnesota, Wisconsin and the Western Upper Peninsula of Michigan*. Supplement 1: Additional Phase I Survey in Marshall, Cass, and Itasca Counties, Minnesota. Institute for Minnesota Archaeology Reports of Investigations Number 98, prepared for Great Lakes Gas Transmission Company.

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- 2000 *Mn/Model Statewide Archaeological Predictive Model*. Available online at [www.mnmodel.dot.state.mn.us](http://www.mnmodel.dot.state.mn.us).

Mulholland, Susan C., Grayson E. Larimer and George Rapp, Jr.

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- 1987 *Soil Survey of Itasca County, Minnesota*. United States Department of Agriculture, Soil Conservation Service.

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- 1981 A Cultural Resource Inventory – St. Vincent to St. Clair Gas and Sault Lateral Pipelines, Minnesota, Wisconsin and Michigan. Report prepared by Commonwealth Associates Inc. for the Great Lakes Gas Transmission Company.

**MINNESOTA POWER  
BOSWELL ENERGY CENTER GAS TRANSMISSION PIPELINE PROJECT**

**APPLICATION TO THE MINNESOTA PUBLIC UTILITIES COMMISSION  
FOR A GAS PIPELINE ROUTING PERMIT  
AND PARTIAL EXEMPTION OF PIPELINE ROUTE SELECTION PROCEDURES**

**APPENDIX E: AGENCY CONSULTATIONS**



# Minnesota Department of Natural Resources

Division of Ecological Resources, Box 25

500 Lafayette Road

St. Paul, Minnesota 55155-4025

Phone: (651) 259-5107 Fax: (651) 296-1811 E-mail: [krista.larson@dnr.state.mn.us](mailto:krista.larson@dnr.state.mn.us)

May 12, 2008

Mr. Robert Lindholm  
Minnesota Power  
30 West Superior Street  
Duluth, MN 55802

Re: Request for Natural Heritage information for vicinity of proposed Boswell Energy Center High Pressure Gas Transmission Line Project, T55N R26W Sections 3, 4, 9, & 10, Itasca County  
Correspondence #: ERDB 20080724

Dear Mr. Lindholm,

As requested, the Minnesota Natural Heritage Information System has been queried to determine if any rare species or other significant natural features are known to occur within an approximate one-mile radius of the proposed project. Based on this query, there are rare features in the area searched (for query results, see the enclosed database reports). However, given the nature and location of the proposed project, I do not believe the project will negatively affect any known occurrences of rare features.

The Natural Heritage Information System (NHIS), a collection of databases that contain information about Minnesota's rare natural features, is maintained by the Division of Ecological Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist on the project area.

The enclosed results include an Index Report and a Detail Report of records in the Rare Features Database, the main database of the NHIS. To control the release of specific location information, which might result in the destruction of a rare feature, both reports are copyrighted.

The Index Report provides rare feature locations only to the nearest section, and may be reprinted, unaltered, in an environmental review document (e.g., EAW or EIS), municipal natural resource plan, or report compiled by your company for the project listed above. If you wish to reproduce the index report for any other purpose, please contact me to request written permission. **The Detail Report may include specific location information, and is for your personal use only. If you wish to reprint or publish the detail report for any purpose, please contact me to request written permission.**

Please be aware that this letter focuses only on potential effects to *rare natural features*; there may be other natural resource concerns associated with the proposed project. This letter does not constitute review or approval by the Department of Natural Resources as a whole.

An invoice in the amount of \$119.89 will be mailed to you under separate cover within two weeks of the date of this letter. You are being billed for the database search and printouts, and staff scientist review. Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources.

Sincerely,

A handwritten signature in black ink that reads "Krista A. Larson". The signature is written in a cursive, flowing style.

Krista A. Larson  
Endangered Species Environmental Review Technician

encl: Rare Features Database: Index Report  
Rare Features Database: Detail Report  
Rare Features Database Reports: An Explanation of Fields