MINNESOTA POWER
APPLICATION TO THE
MINNESOTA PUBLIC UTILITIES COMMISSION
FOR A ROUTING PERMIT

LASKIN ENERGY CENTER NATURAL GAS PIPELINE PROJECT

MPUC Docket No. E-015/GP-13-978

By

Minnesota Power

November 13, 2013

MINNESOTA POWER
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1.0 Introduction

Minnesota Power, an operating division of ALLETE, Inc. (ALLETE), is proposing to construct an approximate 5,900-foot-long, 10.75-inch-outside-diameter, high pressure natural gas pipeline from the Northern Natural Gas Pipeline to Minnesota Power's Laskin Energy Center in Hoyt Lakes, Minnesota. The project, referred to as the Laskin Energy Center Natural Gas Pipeline Project (Project), will allow for the conversion of a coal-fired station into a natural gas-fired station at the Laskin Energy Center. Minnesota Power proposes to locate the Project in T58W, R15N, Section 12 and T58W, R14N, Section 7 in St. Louis County, Minnesota (Figure 1). The evaluation of the proposed Project route is discussed in this application.

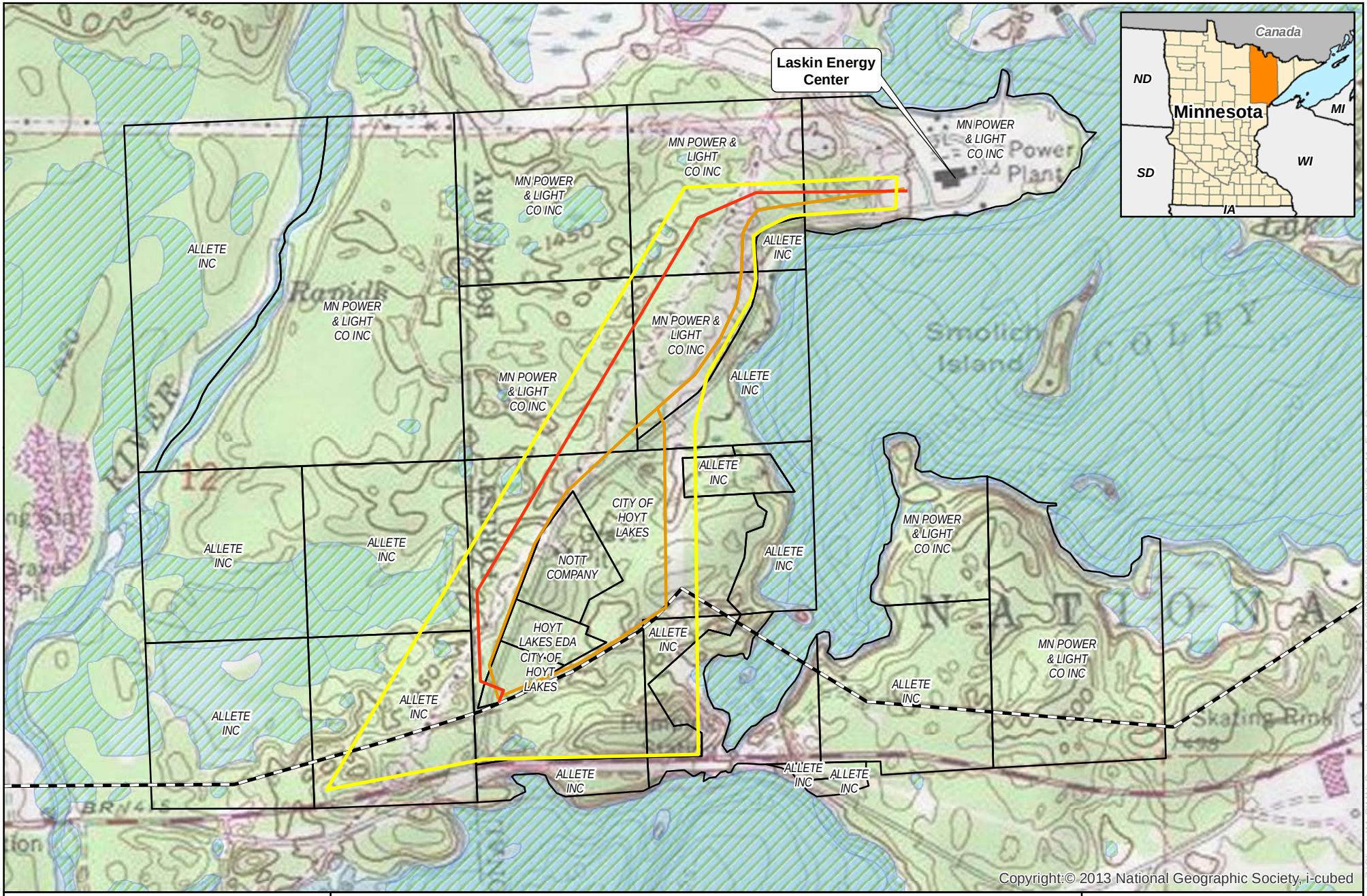
1.1 Project Area

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 studied a route ranging from 250 to 1,400 feet in width between the start of the proposed pipeline Project at the Northern Natural Gas Pipeline and its terminus at Minnesota Power's Laskin Energy Center in Hoyt Lakes. This proposed route should allow sufficient flexibility for selection of centerline and construction right-of-way during final pipeline design, and field routing decisions. Although this application is being submitted for a preferred pipeline alignment, two other alternative alignments were considered, as discussed in Section 4.6.

In this Application, Minnesota Power has analyzed and presented data for an approximate 250- to 1,400-foot-wide proposed route, which is requested for flexibility to adjust the alignment based on site-specific engineering and design. Minnesota Power requests that the Commission approve this proposed route as illustrated on Figures 1 and 2.

The proposed route is located approximately one mile west of Hoyt Lakes, west of Colby Lake and southwest of Minnesota Power's Laskin Energy Center. Minnesota Power's preferred pipeline alignment will originate from Northern Natural Gas Company's pipeline system and traverse approximately 5,900 feet in a northeasterly direction to its terminus at the Laskin Energy Center.

The preferred pipeline alignment traverses a developed area with existing infrastructure, including road and transmission line rights-of-way. The pipeline is expected to be placed immediately adjacent to an existing transmission line easement for much of its length. The majority of land (63 percent) crossed by the Project is owned by Minnesota Power. Additionally, about 37 percent is owned by the City of Hoyt Lakes.



0 500 1,000 Feet

1 inch = 1,000 feet

N W E S

minnesota power

Figure 1

MN Power

Laskin Pipeline Project

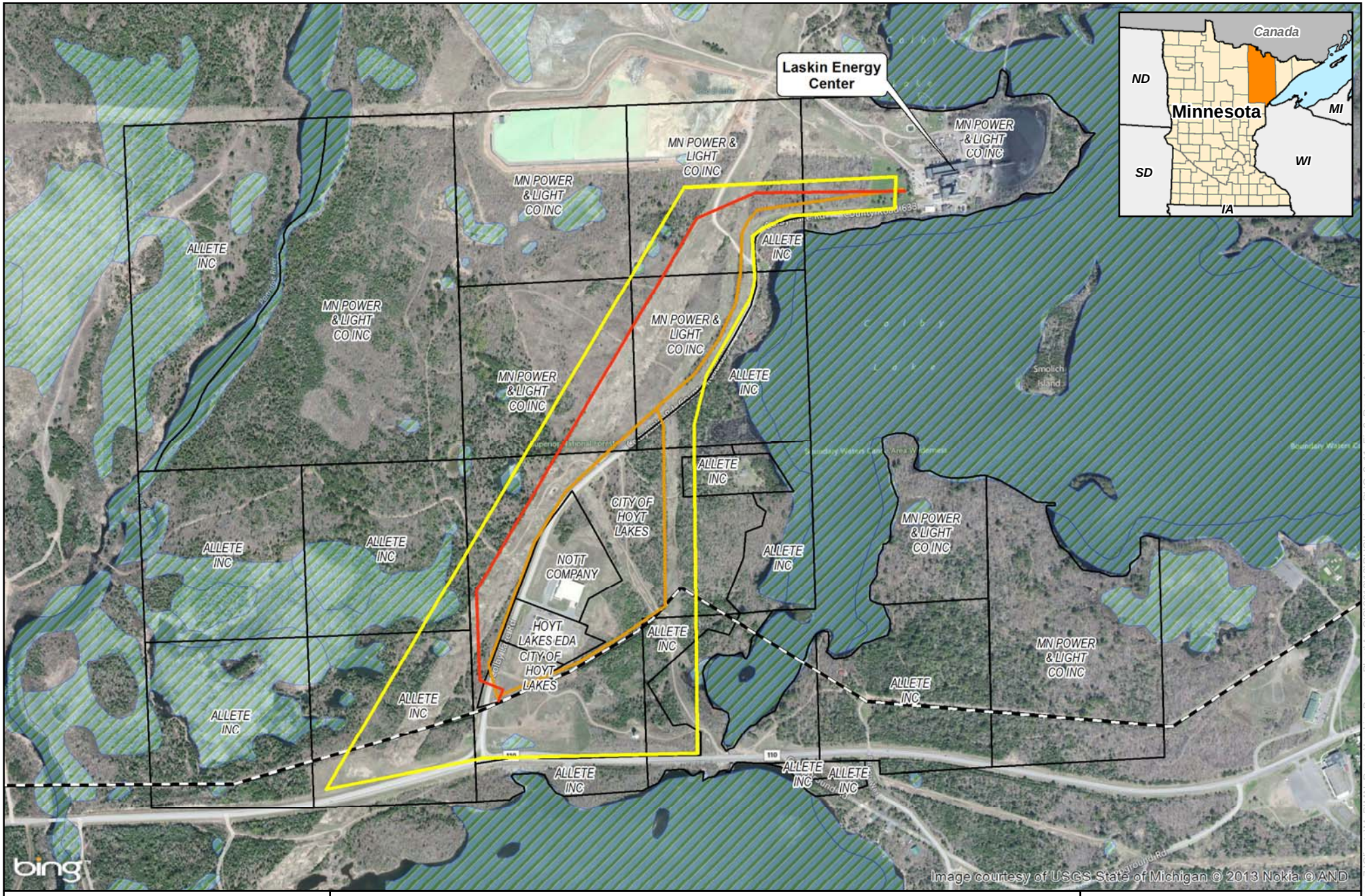
Laskin Proposed Route - Topographic Coverage

St. Louis County, Minnesota

- Proposed Route
- Preferred Pipeline Alignment
- Alternative Pipeline Alignments
- Northern Natural Gas Pipeline
- Land Tract
- NWI Wetland

Source: Z:\Clients\M_P\MN_Power\Laskin_Power_Plant\ArcGIS\2013\10\PUC\Laskin_PUC_8x11_Fig1_Route_Topo.mxd

Date: (11/11/2013)



0 500 1,000 Feet

1 inch = 1,000 feet

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AN ALLETE COMPANY

Figure 2

MN Power

Laskin Pipeline Project

Laskin Proposed Route - Aerial Photographic Coverage

St. Louis County, Minnesota

- Proposed Route
- Preferred Pipeline Alignment
- Alternative Pipeline Alignments
- Northern Natural Gas Pipeline
- Land Tract
- NWI Wetland

Source: Z:\Clients\M_P\MN_Power\Laskin_Power_Plant\ArcGIS\2013\10\PUC\Laskin_PUC_8x11_Fig2_Route_Aerial.mxd

Date: (11/11/2013)

1.2 Permitting Process

Minnesota Power is filing this Application to the Minnesota Public Utilities Commission (MPUC or Commission) for a Gas Pipeline Route Permit under its partial exemption of pipeline route selection procedures (Minnesota Rules Chapter 7852.0700). The Application describes the Project in accordance with Minnesota Statutes Chapter 216G and Minnesota Rules Chapter 7852.

Although the Project lies within the boundary of the Superior National Forest, all land is owned by Minnesota Power/ALLETE and the City of Hoyt lakes. Therefore, the Project does not trigger federal oversight from the U.S. Forest Service.

1.3 Completeness Checklist

Application submittal requirements are listed in the following completeness checklist and cites where information can be found within the Application.

Table 1—Completeness Checklist

MN Rules Chapter	Description of Requirement	Section
7852.2100 GENERAL INFORMATION.		
Subp. 1	**Cover letter**: 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.	NA
Subp. 2	**Title page and table of contents:** Each application must contain a title page and a complete table of contents.	NA
Subp. 3	**Statement of ownership:** 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.	2.1
Subp. 4	**Background information:** Each application must contain the following information: A. the applicant's complete name, address, and telephone number; B. the complete name, title, address, and telephone number of the authorized representative or agent to be contacted concerning the applicant's filing; 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 D. a brief description of the proposed project which includes: 1) general location; 2) planned use and purpose; 3) estimated cost; 4) planned in-service date; and 5) general design and operational specifications for the type of pipeline for which an application is submitted.	2.3, 3.0, 4.1, 4.2, 4.3

MN Rules Chapter	Description of Requirement	Section
7852.2200 PROPOSED PIPELINE AND ASSOCIATED FACILITIES DESCRIPTION.		
Subp. 1	**Pipeline design specifications:** 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: A. pipe size (outside diameter) in inches; B. pipe type; C. nominal wall thickness in inches; D. pipe design factor; E. longitudinal or seam joint factor; F. class location and requirements, where applicable; G. specified minimum yield strength in pounds per square inch; and H. tensile strength in pounds per square inch.	4.1, 4.2
Subp. 2	**Operating pressure:** Operating pressure must include: A. operating pressure (psig); and B. maximum allowable operating pressure (psig).	4.3
Subp. 3	**Description of associated facilities:** For public information purposes, the applicant shall provide a general description of all pertinent associated facilities on the right-of-way.	4.4
Subp. 4	**Product capacity information:** 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 7852.0100.	4.5
Subp. 5	**Product description:** 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.	4.6
Subp. 6	**Material safety data sheet:** 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.	4.7

MN Rules Chapter	Description of Requirement	Section
7852.2300 LAND REQUIREMENTS.		
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.		5.0
7852.2400 PROJECT EXPANSION.		
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.		4.10
7852.2500 ROW PREPARATION PROCEDURES AND CONSTRUCTION ACTIVITY SEQUENCE.		
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.		6.0
7852.2600 PREFERRED ROUTE LOCATION; ENVIRONMENT DESCRIPTION.		
Subp. 1	**Preferred route location:** 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.	3.1, 4.9, 4.9.3; Figures 1, 2, B-1, and B-2
Subp. 2	**Other route locations:** 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.	4.9, 4.9.1, 4.9.2; Figures 1 and 2
Subp. 3	**Description of environment:** The applicant must provide a description of the existing environment along the preferred route.	8.1
7852.2700 ENVIRONMENTAL IMPACT OF PREFERRED ROUTE.		
	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	8.0

MN Rules Chapter	Description of Requirement	Section
	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.	
7852.2800 RIGHT-OF-WAY PROTECTION AND RESTORATION MEASURES.		
Subp. 1	**Protection:** 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.	6.1, 6.2, 8.1
Subp. 2	**Restoration:** 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.	6.12
7852.2900 OPERATION AND MAINTENANCE.		
	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.	7.0
7852.3000 LIST OF GOVERNMENT AGENCIES AND PERMITS.		
	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.	9.5, Table 6

2.0 Statement of Ownership and Regulatory Requirements

2.1 Statement of Ownership

Minnesota Power, an operating division of ALLETE, Inc., will own, construct and operate the proposed natural gas pipeline. Minnesota Power is an investor-owned public utility with headquarters in Duluth, Minnesota. Minnesota Power supplies retail electric service to 144,000 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 transmission and distribution lines and substations throughout northeastern Minnesota. Minnesota Power has historically maintained an energy resource portfolio of coal, hydro, and biomass and with this Project will add gas generation resources. Minnesota Power's transmission network is interconnected with the regional transmission grid to promote reliability and Minnesota Power is a member of the Midwest Reliability Organization and the Midcontinent Transmission System Operator (MISO).

2.2 Requested Action and Alternative

This application for a pipeline Routing Permit by Minnesota Power is submitted for the preferred pipeline alignment under Minnesota Rules 7852.2600 Subp. 1. Minnesota Power identified two other alignments that were rejected as discussed in Section 4.9 per Minnesota Rules 7852.2600 Subp. 2. For the reasons discussed within this application, Minnesota Power prefers the proposed pipeline alignment.

2.3 Permittee

ALLETE, Inc./Minnesota Power

James B. Atkinson
Environmental Siting and Permitting Manager
30 West Superior St.
Duluth, MN 55802

Phone: (218) 355-3561
Email: jbatkinson@allete.com

David R. Moeller
Senior Attorney
30 West Superior St.
Duluth, MN 55802

Phone: (218) 723-3963
Email: dmoeller@allete.com

2.4 Certificate of Need

A Certificate of Need is not required for the Project since it is not classified as a large energy facility under Minnesota Statutes Section 216B.2421, subd. 2 or large pipeline under Minnesota Rules 7851.0010 Subp. 13. Therefore, the Project is exempt from the Certificate of Need requirements. However, information regarding the need for the Project is presented in Section 3.3.

2.5 Routing Permit and Partial Exemption

Minnesota Statutes Section 216G.03, subd. 4 requires that the Commission issue a pipeline Routing Permit for qualifying pipelines prior to construction, which applies to the Project. Accordingly, Minnesota Power is following the provisions of the permitting process outlined in Minnesota Rules 7852 to apply for a natural gas pipeline routing permit under its partial exemption of pipeline route selection procedures (Minnesota Rules Chapter 7852.0700) for the Project.

3.0 Project Information

3.1 Project Location

The Project is located in Hoyt Lakes at T58W, R15N, Section 12 and T58W, R14N, Section 7 in St. Louis County, Minnesota. The preferred pipeline alignment will run from the Northern Natural Gas transmission pipeline to Minnesota Power's Laskin Energy Center plant in Hoyt Lakes as illustrated on U.S. Geological Survey (USGS) topographical map and aerial photographic coverage on Figures 1 and 2, respectively. Similar maps at a 1:24,000 scale are presented in Figures B-1 and B-2 in Appendix B.

3.2 Project Proposal

To support the conversion from coal-fired electrical generators to a gas-fired facility, Minnesota Power has proposed the Project to supply natural gas to the proposed facility modification.

3.3 Need for Project

Laskin Energy Center is currently a coal fired generating station with two generating units. Units 1 and 2 are sister boilers, similar in design and intended operation. The units are tangentially-fired steam generators and were both put into service in 1953. Laskin Units 1 and 2 each operate with a gross generation capability of 60 MW gross (55 MW net) with 5 MW of existing station service steam to operate auxiliary equipment. As part of Minnesota Power's 2013 Integrated Resource Plan, which has been approved by the MPUC, the Laskin Energy Center is being converted from a coal-fired electric generating station to a natural gas-fired electric generating station with approximately the same generating capacity. The pipeline proposed in this Application will transport natural gas from the transmission pipeline system to the plant site where it will be used as a substitute fuel for coal. Associated work will take place within the overall gas conversion project to allow the boiler to burn natural gas. Conversion from coal to natural gas carries many environmental benefits including reduction of mercury, sulfur dioxide and other pollutants as well as elimination of coal ash. The conversion of Laskin Energy Center to natural gas also provides the best value to Minnesota Power's customers compared to the addition of further pollution controls to meet the EPA's Mercury and Air Toxics Standards (MATS).

3.4 Project Schedule

Minnesota Power anticipates beginning construction of the Project in the third quarter of 2014 following its attainment of the required regulatory permits and approvals. Table 2 provides an estimated permitting and construction schedule summary.

Table 2—Estimated Project Schedule

Project Task	Date
File Routing Permit Application with the Commission	November 13, 2013
Anticipated Routing Permit Issuance	July 2014
Begin Pipeline Construction	August – September 2014
In-Service Date	May – June 2015

The Project schedule is based on information known as of the date of this filing and upon planning assumptions that balance the timing of implementation with the availability of crews and materials and with other practical considerations. This schedule may be subject to revision as further information is developed.

3.5 Project Cost

Minnesota Power estimates the total Project costs to be as much as $2 million. Operation and maintenance costs for the pipeline will be nominal for several years, since the line will be new and minimal vegetation maintenance will be required. The annual operating and maintenance cost for the Laskin pipeline is expected to be $10,000 per year.

4.0 Facility Description and Route Selection Rationale

4.1 General Design and Operational Specifications

The proposed Project will include the installation of approximately 5,900 feet of 10.75-inch nominal diameter pipeline from the Northern Natural Gas transmission pipeline to Minnesota Power's Laskin Energy Center plant in Hoyt Lakes (Figures 1 and 2). The pipeline Maximum Allowable Operating Pressure (MAOP) will be 1,480 pounds per square inch gauge (psig) and established by the company metering the natural gas (Northern Natural Gas). The wall thickness and pipe grade will be established in part by pipe availability with a minimum nominal wall thickness of 0.255 inch used for open areas and a minimum nominal wall thickness of 0.330 inch used for road crossings, railroad crossings, and horizontal directional drills (HDDs). The pipeline will be buried to a depth of at least three feet to the top of the pipe.

4.2 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 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 Electrical Resistance Welded (ERW) longitudinal seam welded.
C. Nominal wall thickness (in inches): A minimum of 0.255-inch wall thickness will be used for line pipe. A minimum of 0.330-inch wall thickness will be used at road crossings and HDDs.
D. Pipe Design Factor: The pipe will meet or exceed a design factor of 0.6.
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 and facilities will be designed to a minimum of a Class 3 location.[1]
G. Specified minimum yield strength (SMYS): A minimum SMYS of 52,000 psig is anticipated to be used, based on current pipeline design. Final engineering

[1] 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.

design could use pipe with a SMYS ranging between 35,000 and 80,000 psig, resulting in different wall thickness.

H. Anticipated tensile strength: 66,000 psig minimum.

4.3 Operating Pressure

A. Proposed operating pressure: 0 to 1,480 psig.

B. MAOP: 1,480 psig in accordance with 49 CFR Part 192.105.

4.4 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, alternating 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.

4.4.1 Gas Delivery Station

Minnesota Power will install a fenced gas delivery station at the juncture of the pipeline and the Northern Natural Gas pipeline. The gas delivery station will contain all required valving, odorization, an in-line inspection tool launcher/receiver, and necessary equipment required for custody transfer of gas. This facility will be approximately 100 feet long by 100 feet wide.

4.4.2 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. One launcher/receiver will be installed at the gas delivery station and one will be installed at the regulation facility near the Laskin Energy Center.

4.4.3 Valves and Flanges

Ball and or plug valves (ANSI 600) and flanges will be installed at metering facility of the gas delivery station and at the regulation facility at the Laskin Energy Center. The design, construction, testing and marking of the valves will comply with the requirements of 49 CFR Part 192.145 and Part 192.147.

4.4.4 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.

4.4.5 Alternating Current Mitigation

Along some portions of the preferred alignment, the pipeline is in proximity to high voltage electric transmission lines that could potentially result in Alternating Current (AC)

interference effects. Minnesota Power will contract with a firm that specializes in the evaluation and mitigation of AC interference to minimize the risk of hazardous touch and step potentials, as well as risks associated with power line fault conditions and AC corrosion. AC mitigation procedures will be implemented during construction, and measures will be permanently installed, as required, following appropriate evaluations in accordance with 49 CFR Part 192, Subpart G, and NACE Standard Practice 0177: Mitigation of Alternating Current and Lightning Effects on Metallic Structures and Corrosion Control Systems. Following construction, these measures will be appropriately tested and a monitoring program will be implemented to ensure continued proper function.

4.4.6 Gas Odorizing Station

Minnesota Power plans to install a gas odorizing system at the gas delivery station. Minnesota Power currently plans to use ethyl mercaptan to odorize the natural gas. The injection rate will be adequate to achieve detection of gas at 20% lower explosive limit (LEL) or approximately 0.25 to 0.75 lb/million cubic standard feet. 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.

4.5 Product Capacity Information

The planned minimum design capacity of the Project is 0 million standard cubic feet per hour (Mscfh). 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 requirement of this system is approximately 1500 Mscfh.

4.6 Product Description

The proposed pipeline will carry sweet processed natural gas (methane) from the Northern Natural Gas system to the Laskin Energy Center. Natural gas is a non-hazardous, but highly flammable substance.

4.7 Material Safety Data Sheets

Material Safety Data Sheets for natural gas and the gas odorant ethyl mercaptan are enclosed in Appendix A.

4.8 Alignment Width and Selection Process

4.8.1 Alignment Width

The right-of way for the natural gas pipeline will be 30 feet wide for the permanent easement; 20 feet wide on the working side and 10 feet on the non-working side. During construction, the standard workspace will be 100 feet wide with 75 feet on the working side and 25 feet on the non-working side.

4.8.2 Alignment Selection Process

In developing the preferred pipeline alignment, Minnesota Power analyzed the statutory and rule criteria (Minnesota Statutes Chapter 216G and Minnesota Rules Chapter 7852), and

gave consideration to the State of Minnesota's policy of non-proliferation of new infrastructure rights-of-way.

The general vicinity of the Project was initially studied during the planning process by a team of siting, right-of-way, planning, environmental, ecological, and engineering personnel. Minnesota Power also reviewed the general area surrounding the Project to help identify anticipated and significant routing issues that might arise.

As demonstrated in this application, Minnesota Power has also performed an analysis of environmental resources in the vicinity of the Project by using computer mapping of data, including aerial photographs and topographic maps. The preferred pipeline alignment is designed to best minimize overall impacts of the Project while still fulfilling the request of Minnesota Power.

The proposed pipeline alignment was developed with the following primary objectives:

- minimize land use impacts by routing along existing roads and utility rights-of-way;
- minimize use of new rights-of-way; and
- minimize impacts on environmental and sensitive resources.

The preferred pipeline alignment is approximately 5,900 feet in length. Assuming a 100-foot wide construction right-of-way, approximately 13.5 acres would be disturbed along this alignment.

4.9 Alignment Alternatives

Project alternatives represent potential variations the pipeline could follow that vary from the preferred alignment. An alternative will deviate from the preferred alignment for its entire length or at least a large portion of its total length, and is 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 alignment, the alternatives could follow significantly different alignments.

The following text describes the three alternative alignments that were evaluated and considered for the Project. The preferred pipeline alignment and two alternatives are depicted in the USGS topographic maps and aerial-based photographs on Figures 1 and 2, respectively. Table 3 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 3—Comparison of Preferred and Alternative Pipeline Alignments

	Total Length (ft.) [1]	Parallel to Existing Utility		Parallel to Existing Road		Wetland Crossed		Land-owners Crossed	Occupied Resi-dential Land Crossed	Active Ind./Com. Land Crossed
		ft.	%	ft.	%	ft.	%			
Alternative (northwest)	5,600	2,650	47	3,960	70	0	0	3	0	0
Alternative (southeast)	5,900	3,030	51	1,560	26	0	0	2	0	0
Preferred	5,900	3,420	58	100	2	0	0	2	0	0

[1] 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.

4.9.1 Alternative Alignment (northwest)

This alternative alignment is shown on Figures 1 and 2 against backgrounds of USGS topographic and aerial photographic coverage, respectively. The alignment crosses Colby Lake Road immediately after leaving the Northern Natural Gas Facility, and runs parallel to the road along its west side to the energy plant. At 5,600 feet, this alignment has the shortest total length of all the three that were considered. Assuming a 100-foot wide construction right-of-way, approximately 12.9 acres would be disturbed along this alternative alignment. Use of this alignment would entail the least amount of clearing of the three alternatives considered.

This alternative alignment encounters obstacles, such as power poles, guy wires, and underground utilities. It will need to be necked-down considerably in the southern half to avoid transmission lines and poles. Multiple utilities on the northern half of the alignment will require the cutting of several trees. Also, the northern half may be contained within an area that is considered a future Economic Development Area (EDA). Additionally, it will cross smaller transmission rights-of-way at three locations. It will need to be routed around a water line and fire hydrant near the right-angle turn from east to south near the plant.

4.9.2 Alternative Alignment (southeast)

As depicted on a USGS topographic map (Figure 1) and aerial-based photograph (Figure 2), this alternative alignment originates at the Northern Natural Gas facility and travels in a northeasterly direction before heading north and crossing Colby Lake Road and then following the road right-of-way until reaching the plant. For roughly the southern half of the alignment, it is located southeast of the alternative previously discussed. It has a length of approximately 5,900 feet. Assuming a 100-foot wide construction right-of-way, approximately 13.5 acres would be disturbed by construction of this alternative alignment.

This alignment avoids the poles and guy wires along the transmission right-of-way with less above-ground utilities to parallel through the southern portion. While this alternative would parallel an existing pipeline right-of-way, the location of the pipeline on the east side of County Road 663 and on the northern half of the alternative alignment may limit future construction in an area which may be considered a future EDA. This alternative also poses construction concerns in the parking lot corner of the EDA property which contains, at a

minimum, a waterline and fire hydrant. Following the parking lot, uneven terrain must be traversed and vegetation cleared.

Several underground utilities and power lines exist along this alternative alignment. Both sewer and waterline utilities exist along the westernmost transmission line right-of-way will need to be crossed. The multiple utilities on the northern half of the alignment in the area between Colby Lake Road and the wood line immediately west of the road will force the cutting of all the trees in this area. Near the right angle turn from east to south near the plant end of the pipeline, the alignment will need to be rerouted around the water line and fire hydrant that follow the tree line. This will place the centerline near a smaller transmission line. Additionally, it will cross smaller transmission rights-of-way at three locations.

4.9.3 Preferred Alignment

Minnesota Power is requesting a Routing Permit from the MPUC for preferred pipeline alignment as depicted on Figures 1, 2, and, 3. This alignment crosses Colby Lake Road immediately after leaving the Northern Natural Gas pipeline, then crosses the transmission line right-of-way, avoiding a wetland, and then parallels the transmission line easement along its northwesterly side. The total length of the preferred pipeline alignment is 5,900 feet. Assuming a 100-foot wide construction right-of-way, approximately 13.5 acres would be disturbed along its length.

The preferred pipeline alignment avoids more underground utilities, but requires two crossings of larger transmission rights-of-way. However, collocating with the transmission line has potential to restrict the ability of Minnesota Power to construct future transmission lines along the right-of-way. If the western side of the transmission right-of-way is considered a future EDA, this location could also restrict development. Although a previously disturbed wetland lies in proximity to this alignment, trenching through this wetland can be avoided during construction.

4.9.4 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 Laskin Energy Center. As a result, coal would remain the only fuel option for the plant. Therefore, Minnesota Power rejected the no action alternative

4.10 Design Options to Accommodate Future Expansion

Although the proposed gas pipeline is designed to meet foreseeable natural gas supply needs for the plant, flow rates could be increased in the pipeline or an additional pipeline could be constructed within the permanent easement if the need arises in the future.

5.0 Land Requirements

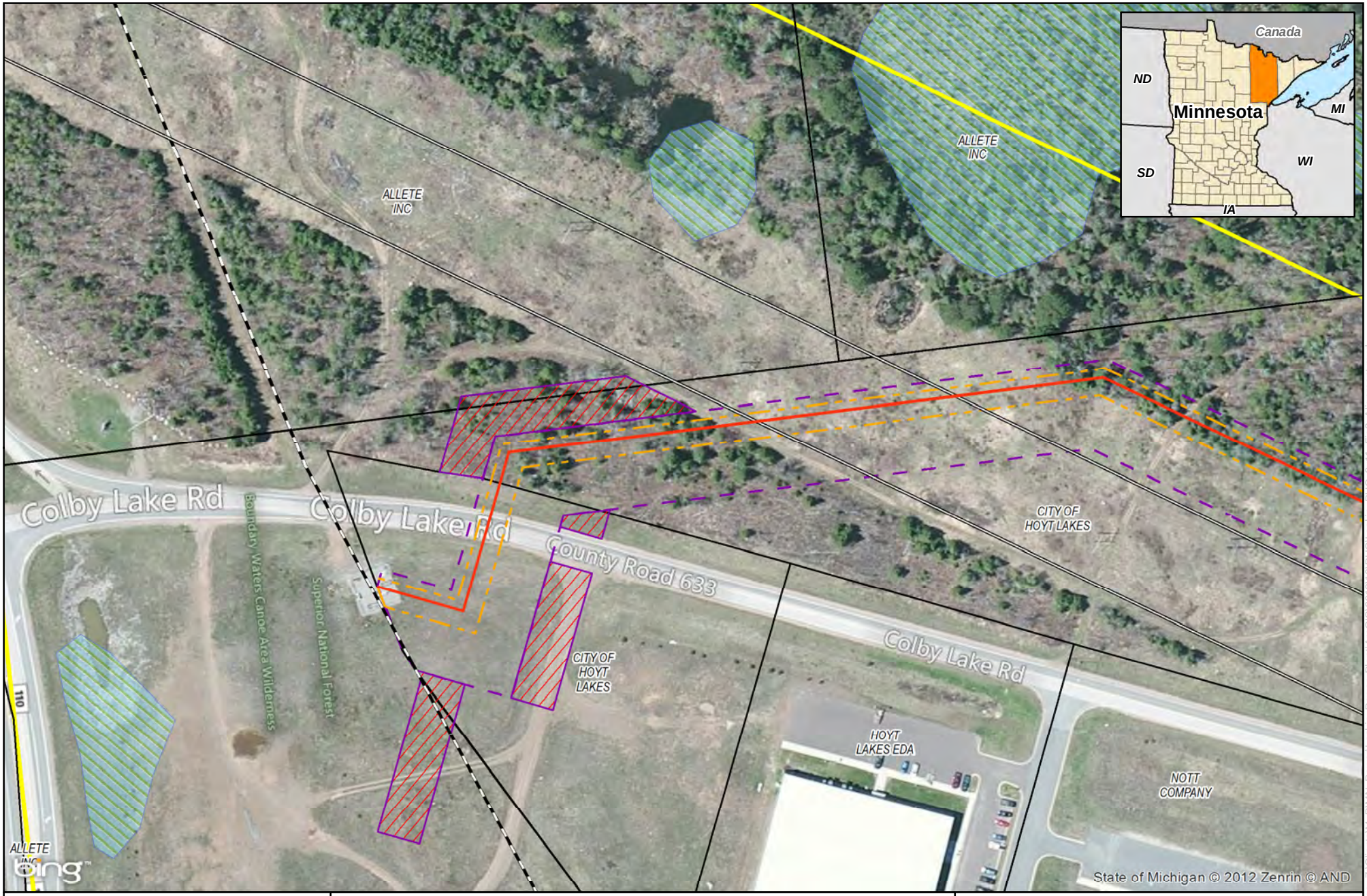
The proposed pipeline alignment will be approximately 5,900 feet long. As depicted on Figure 3, a 100-foot-wide construction right-of-way will be used to facilitate safe construction. The construction right-of-way consists of 30-foot-wide permanent right-of-way with an additional 70 feet in temporary right-of-way width. 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 4 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.

Table 4 - Land Requirements

Facility	Land Requirements (acres)
PIPELINE FACILITIES	
Permanent Right-of-Way	4.1
Temporary Right-of-Way (includes permanent right-of-way)	13.6
Additional Temporary Workspaces	1.1
Sub-Total:	**14.7**
ABOVEGROUND FACILITIES	
Gas Delivery/Meter Station	0.25
Regulation Facility	0.25
Sub-Total:	**0.50**
Total:	**15.20**



0 75 150 Feet

1 inch = 150 feet

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Figure 3
MN Power
Laskin Pipeline Project
Laskin Pipeline Preferred Alignment Maps
St. Louis County, Minnesota

Map 1 of 5

- Preferred Pipeline Alignment
- Proposed Route
- Transmission Line
- Northern Natural Gas Pipeline
- Permanent Easement
- Temporary Workspace
- Additional Temporary Workspace
- Land Tract
- NWI Wetland

Source: Z:\Clients\M_P\MN_Power\Laskin_Power_Plant\ArcGIS\2013\10\PUC\Laskin_PUC_8x11_Fig3_Alignment.mxd

Date: (11/11/2013)

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1 inch = 150 feet

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Figure 3
MN Power
Laskin Pipeline Project
Laskin Pipeline Preferred Alignment Maps
St. Louis County, Minnesota

Map 2 of 5

- Preferred Pipeline Alignment
- Proposed Route
- Transmission Line
- Northern Natural Gas Pipeline
- Permanent Easement
- Temporary Workspace
- Additional Temporary Workspace
- Land Tract
- NWI Wetland

Source: Z:\Clients\M_P\MN_Power\Laskin_Power_Plant\ArcGIS\2013\10\PUC\Laskin_PUC_8x11_Fig3_Alignment.mxd

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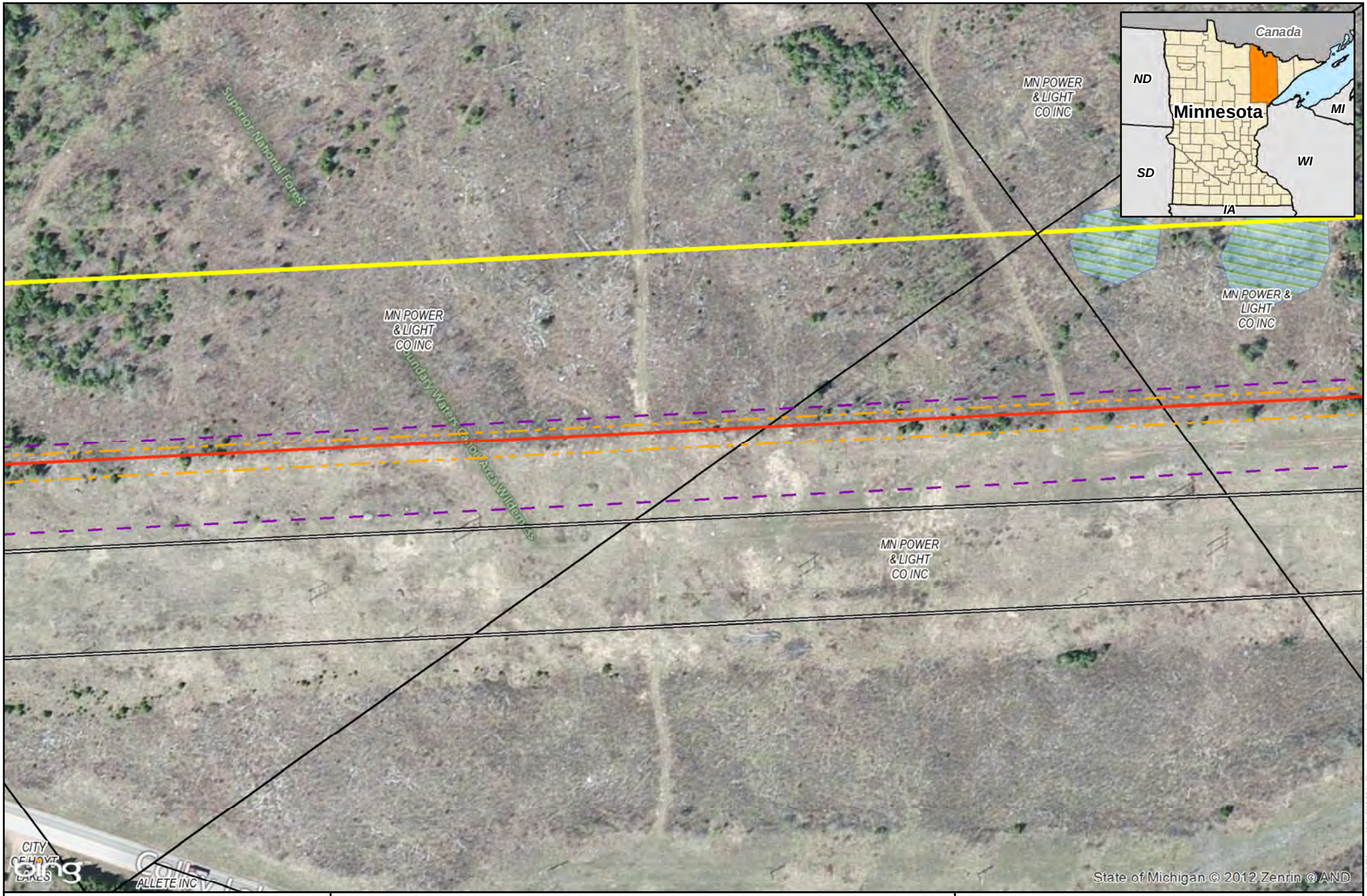

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Figure 3
MN Power
Laskin Pipeline Project
Laskin Pipeline Preferred Alignment Maps
St. Louis County, Minnesota

Map 3 of 5

- Preferred Pipeline Alignment
- Proposed Route
- Transmission Line
- Northern Natural Gas Pipeline
- Permanent Easement
- Temporary Workspace
- Additional Temporary Workspace
- Land Tract
- NWI Wetland

Source: Z:\Clients\M_P\MN_Power\Laskin_Power_Plant\ArcGIS\2013\10\PUC\Laskin_PUC_8x11_Fig3_Alignment.mxd
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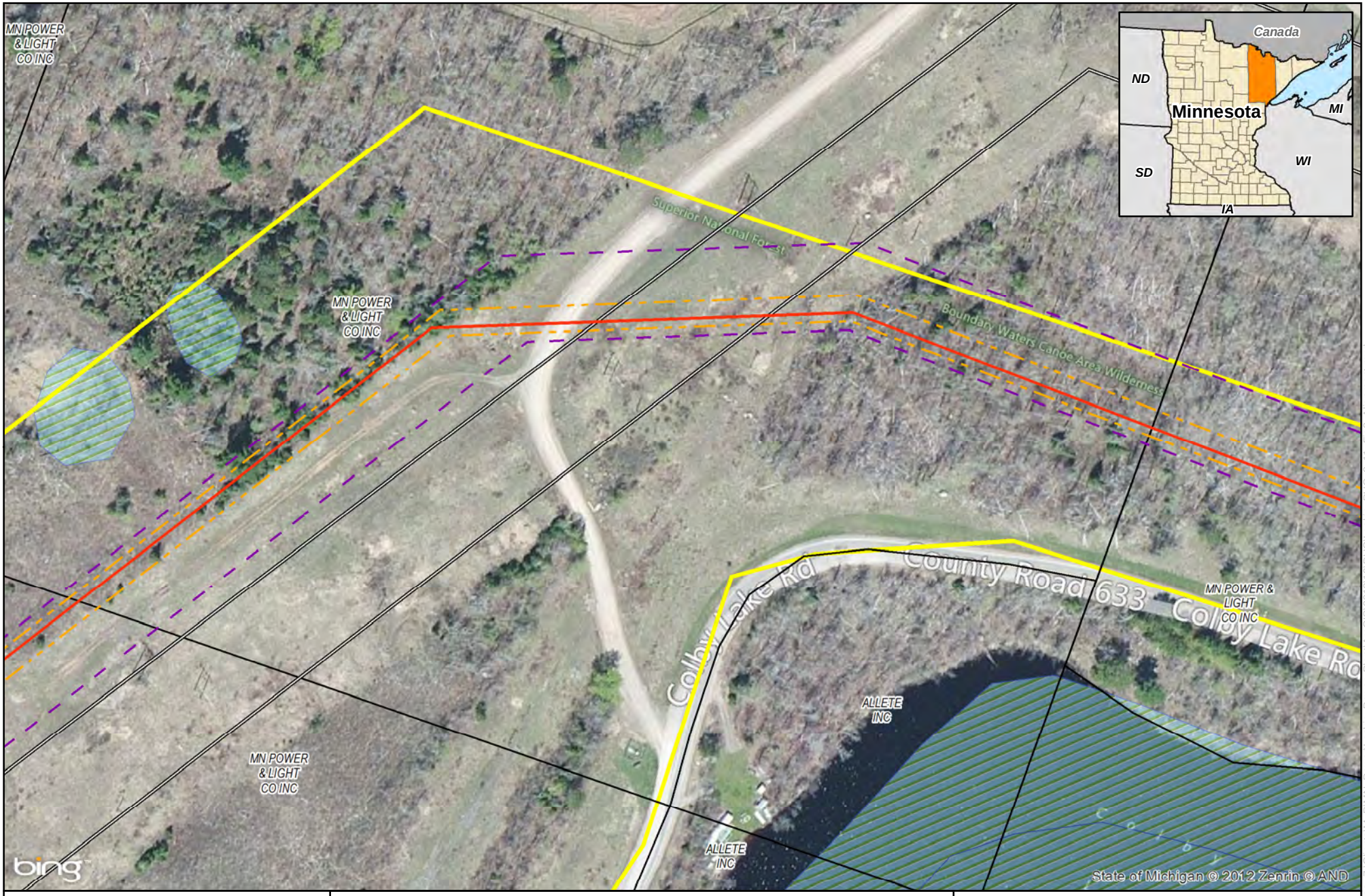

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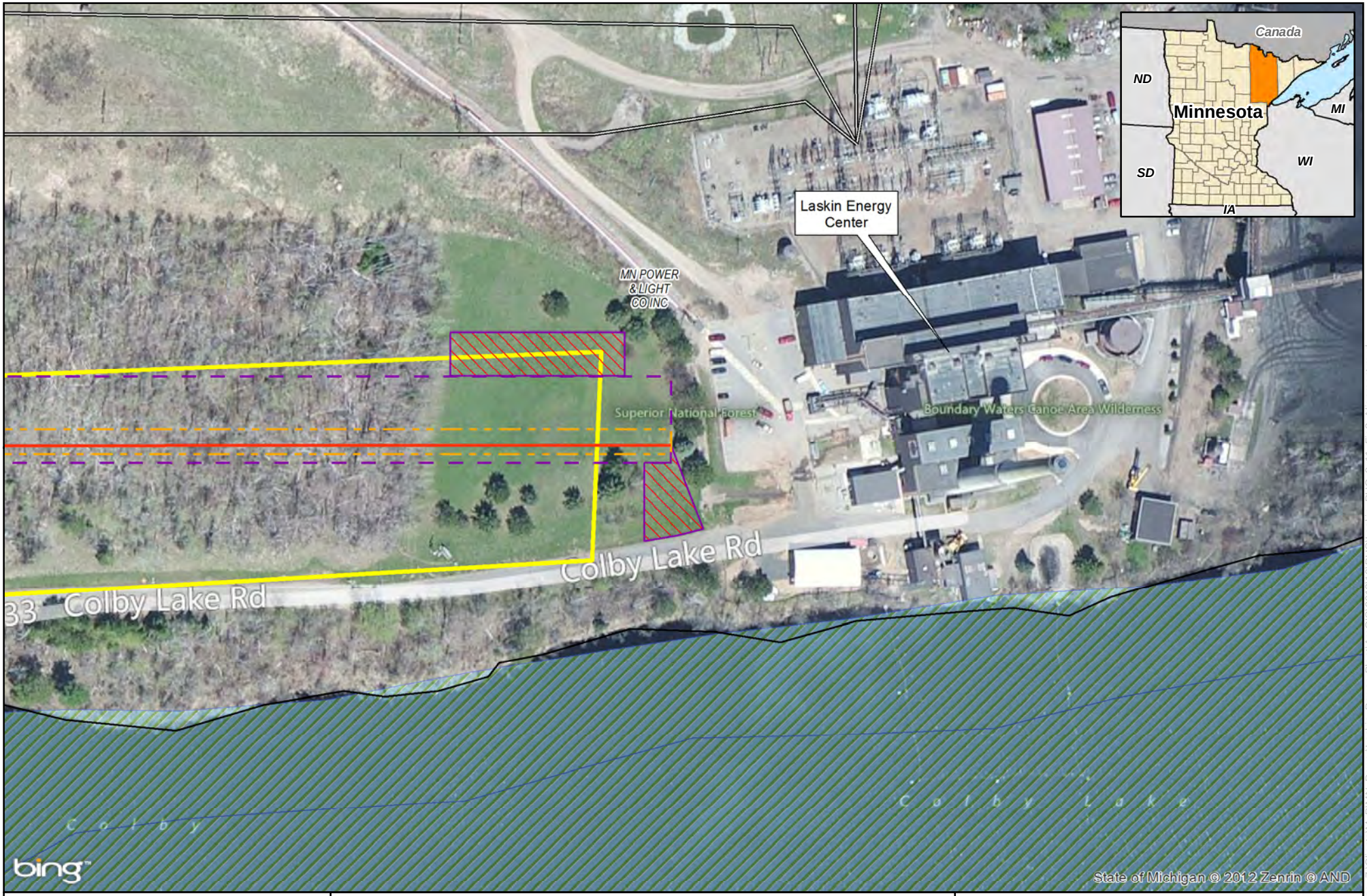
Figure 3
MN Power
Laskin Pipeline Project
Laskin Pipeline Preferred Alignment Maps
St. Louis County, Minnesota

Map 4 of 5

- Preferred Pipeline Alignment
- Proposed Route
- Transmission Line
- Northern Natural Gas Pipeline
- Permanent Easement
- Temporary Workspace
- Additional Temporary Workspace
- Land Tract
- NWI Wetland

Source: Z:\Clients\M_P\MN_Power\Laskin_Power_Plant\ArcGIS\2013\10\PUC\Laskin_PUC_8x11_Fig3_Alignment.mxd

Date: (11/11/2013)



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1 inch = 150 feet

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Figure 3
MN Power
Laskin Pipeline Project
Laskin Pipeline Preferred Alignment Maps
St. Louis County, Minnesota

Map 5 of 5

- Preferred Pipeline Alignment
- Proposed Route
- Transmission Line
- Northern Natural Gas Pipeline
- Permanent Easement
- Temporary Workspace
- Additional Temporary Workspace
- Land Tract
- NWI Wetland

Source: Z:\Clients\M_P\MN_Power\Laskin_Power_Plant\ArcGIS\2013\10\PUC\Laskin_PUC_8x11_Fig3_Alignment.mxd

Date: (1/11/2013)

5.1 Permanent and Temporary Rights-of-Way

Of the 100-foot-wide construction right-of-way, 75 feet will be on the working side and 25 feet will be on the non-working side, as illustrated on Figure B-3 in Appendix B. Over a length of 5,900 feet, the construction right-of-way will impact approximately 13.5 acres. Following construction, the temporary right-of-way will be allowed to revert back to its previous condition, leaving a 30-foot-wide permanent right-of-way for pipeline operation. A maximum of 4.1 acres of new permanent right-of-way is expected to result from the proposed Project.

5.2 Additional Temporary Workspace

In some cases, site-specific conditions may dictate the need for additional temporary workspace 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 13.6 acres assuming the temporary right-of-way will be 100 feet wide.

In addition to the construction right-of-way (permanent and temporary rights-of-way), additional temporary 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. The additional temporary workspaces have dimensions ranging from approximately 50 to 282 feet in length, and are located adjacent or proximal to the proposed construction right-of-way. Minnesota Power estimates that approximately six temporary extra workspaces will be needed to facilitate construction. As listed in Table 4, the total land area required for additional temporary workspaces is estimated to be approximately 1.1 acres. Following construction, additional temporary workspace will be allowed to revert back to its previous conditions.

5.3 Associated Aboveground Facilities

In addition to installing the pipeline, associated aboveground facilities will be installed at the Northern Natural Gas pipeline, where the proposed pipeline will be receiving the natural gas and at the Laskin Energy Center station at the terminus of the proposed pipeline (see Section 4.4). An approximate 100-foot by 100-foot area will be occupied by the gas delivery/meter station, and a 100-foot by 100-foot area regulation facility will be installed within the Laskin Energy Center. The total land area required for associated aboveground facilities is estimated to be .50 acres. Following construction, these areas will be maintained as fenced and graveled facilities.

5.4 Pipe Trench Dimensions

The depth of the trench will generally be five feet deep. Allowing for a nominal 10.75-inch-outside-diameter pipe, the top of the pipe will be approximately four feet below the ground surface. The bottom of the pipe trench will be approximately three feet wide and the top of the trench approximately five feet wide. If the preferred alignment is chosen, the pipe will be installed underneath Colby Lake Road (County Road 633) near the Northern Natural Gas juncture by using the boring method, open cut or horizontal directional drilling technique, thereby reducing the estimated total trench length by approximately 300 feet. There would

be approximately 5,600 feet of trench excavation, amounting to approximately 5,460 cubic yards of soil excavated from the proposed pipe trench.

5.5 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.

5.6 Rights-of-Way Sharing or Collocation

Of the 5,900 feet crossed by the preferred pipeline alignment, 3,420 feet are collocated with existing high voltage power line rights-of-way amounting to approximately 58 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.

5.7 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.

5.8 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 potential need to use a pipe offloading area adjacent to a rail line or truck unloading area 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).

5.9 Right-of-Way Evaluation and Acquisition

This project will require approximately 5,900 feet of right-of-way, much of it collocated with existing infrastructure. Utilities acquire easement rights across certain parcels to accommodate the pipeline rights-of-way. The evaluation and acquisition process includes title examination, initial owner contacts, survey work, document preparation, and purchase.

6.0 Right-of-Way Preparation Procedures and Construction Activity Sequence

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 B-4).

6.1 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.

6.2 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 6.10). After construction is completed, graded areas will be restored as close as possible to pre-construction contours.

6.3 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 five feet deep (to allow for about four feet of cover) and about five 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 along the preferred alignment will cross Colby Lake Road/ Co. Rd. 633. These features will be crossed by mechanically boring beneath the road or open cut. 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 or open cut 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 crossings.

6.4 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.

6.5 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.

6.6 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.

6.7 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.

6.8 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.

6.9 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.

6.10 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 6.4.

6.11 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.

6.12 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 30-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.

Minnesota Power may use both herbicides and/or mechanical methods to control the spread of noxious weeds. All herbicides used by Minnesota Power are approved by the U.S. Environmental Protection Agency and the Minnesota Department of Agriculture. These herbicides are applied by commercial pesticide applicators that are licensed by the Minnesota Department of Agriculture. If during post-construction monitoring of the restored right-of-way a higher density and cover of noxious weeds on the right-of-way is noted when compared to adjacent off right-of-way areas, Minnesota Power will obtain landowner permission and work to mitigate noxious weed concerns.

7.0 Operation and Maintenance

Minnesota Power will own and operate the pipeline or contract with a firm that will 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 (HCA); 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.

7.1 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.

7.2 Natural Gas Pipeline Markers

Natural gas pipeline markers will be installed and maintained over the buried pipeline at Colby Lake Road (County Road 633) 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.

7.3 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).

7.4 Gas Odorizing

A gas odorizing system may be installed at the gas delivery station at the connection between the Northern Natural Gas pipeline and the Laskin pipeline. The odorizing system will control odorant flow based on the gas flow rate input signal.

7.5 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. A valve will be installed at both the gas delivery station and at the regulation site near the Laskin Energy Center.

7.6 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. Project 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.

7.7 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.

<u>General Safety Procedures:</u>

- 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; and
- aboveground facilities will be painted or coated to prevent atmospheric corrosion.

7.8 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 (Minnesota Statutes Section 299F.63) to ensure compliance with safety requirements pursuant to Minnesota Statutes Section 299F.57. 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.

7.9 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.

7.10 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.

7.11 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.

7.12 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.

8.0 Environmental Setting and Project Impacts

This section discusses the environmental and socioeconomic setting of the Project and the potential impacts that may be incurred.

8.1 Natural Environment

8.1.1 Land Use

The Project traverses land that has undergone significant development, including commercial facilities as well as rights-of-way for road, pipeline, and electrical transmission lines. As illustrated in Figure B-5 (Appendix B), the entire preferred alignment lies in land that has been zoned as industrial by the City of Hoyt Lakes. 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.

Land use and land cover are illustrated in Figure B-6 (Appendix B). Table 5 presents temporary and permanent impacts to the land uses found along the preferred pipeline alignment. The land cover is mixed with grassland/herbaceous, deciduous forest, and shrub/scrub accounting for approximately 76 percent of the land cover. Note that no agricultural and minimal forest lands will be impacted by the Project. The land use/land cover indicates the presence of a wetland within the preferred alignment that was not indicated by NWI. Field surveys will be required to confirm the presence of the wetland. If the wetland is found to be present, the alignment would be modified to avoid it.

Table 5—Preferred Pipeline Alignment Land Uses

	Temporary Workspace (Includes Permanent ROW)		**Additional Temporary Workspace**		**Permanent Right-of-Way**	
Land Use Category	*Acres*	*Percent*	*Acres*	*Percent*	*Acres*	*Percent*
Grassland/Herbaceous	1.66	12.20	0.00	0.00	0.28	6.88
Barren Land	0.86	6.30	0.21	19.33	0.27	6.49
Deciduous Forest	2.85	20.90	0.18	16.40	0.90	21.94
Developed, Open Space	0.45	3.30	0.10	9.14	0.14	3.54
Evergreen Forest	0.96	7.10	0.00	0.00	0.39	9.63
Shrub/Scrub	5.90	43.3	0.60	55.13	1.74	42.49
Woody Wetlands [1]	0.96	7.00	0.00	0.00	0.37	9.02
Totals:	**13.62**	**100.00**	**1.09**	**100.00**	**4.09**	**100.00**

[1] Although the Land Use/Land Cover database indicates the presence of some wetland, no wetlands were in the NWI database were found to be impacted by the Project. This wetland will need to be confirmed through field survey. If present, the alignment will be modified to avoid any impact to it.

8.1.2 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 may be minimized by installing the pipeline underneath these features by using the boring or HDD method as described in Section 6.3. 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.

8.1.3 Vegetation and Wildlife

Impacts to vegetation and wildlife along the preferred pipeline alignment 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 alignment 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.

8.1.4 Geology

The preferred Project alignment overlies an area where the surficial geology is dominated by unconsolidated end moraine till deposited by glaciation during the Pleistocene epoch (Hobbs and Goebel, 1982). The terrain along the preferred alignment has moderate relief owing to the hummocky topography that typifies end moraine deposits. Elevation along the preferred alignment ranges from 1,444 to 1,489 feet above mean sea level. Given that the alignment will be collocated with existing utilities and/or roads, 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 since the trenching for pipeline installation will be within the unconsolidated glacial drift. The limited shallow excavation of the five-foot-deep trench will not have a significant effect on geology.

8.1.5 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 in 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.

8.1.6 Water Resources

<u>Surface Water</u>

The Project area is located within the St. Louis River watershed within the Western Lake Superior Basin. A watershed is defined as the entire physical area or basin drained by a distinct stream or riverine system, physically separated from other watersheds by ridgetop boundaries. No surface waters will be impacted by the Project, including those listed on the MN DNR's Public Waters Inventory (PWI). Figure B-7 illustrates waterbodies and wetlands that were identified and discussed in this section.

<u>Wetlands</u>

Wetland areas were initially identified using National Wetlands Inventory (NWI) data to assess wetlands that may be present within the Project area. The preferred pipeline alignment does not cross any wetlands in the NWI dataset or in the PWI dataset. Prior to construction, Minnesota Power will sponsor a formal wetland delineation of the Project area

to field verify the presence of any wetlands. If wetlands are found within the preferred Project alignment, it will be modified to ensure that they are avoided.

The MN DNR, and the U.S. Army Corps of Engineers (COE) regulate construction activities in wetlands in Minnesota. Since the alignment will avoid all wetlands, no permits or approvals will be necessary from these agencies for the Project.

Groundwater

Construction of the proposed pipeline may cause a minor short-term impact on shallow groundwater if locally present, 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 were found within 200 feet of the preferred pipeline alignment using the County Well Index database that is maintained by the Minnesota Departments of Health and Natural Resources.

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.

8.1.7 Biological Resources

Flora

The Project is located within the Laurentian Mixed Forest Province, which, in Minnesota, is characterized by broad areas of conifer forest, mixed hardwood and conifer forests, and conifer bogs and swamps (MN DNR, 2013a). Common tree and plant species in central St. Louis County include, but is not limited to, various species of firs, pines, maples, birch, willow, basswood, ash, juneberry, sedge, honeysuckle, pondweed, goldenrod, aster, and rush (MN DNR, 2012b).

Impacts to vegetation along the preferred alignment 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 the developed nature of the Project area, 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.

Minnesota Power will consult with the appropriate agencies to confirm that no known areas within the Project location are currently within the Conservation Reserve Program (CRP). The CRP program provides an opportunity to convert highly erodible cropland or environmentally sensitive area to permanent vegetative cover, such as grasses or trees. For a discussion on agriculture impacts, see Section 8.7.1.

Fauna

The forested and open areas in the Project area can provide habitat for a variety of wildlife. The largest mammals typically found in the area are the black bear, wolves, moose, and white-tailed deer. Other animal species include coyotes, fox, raccoons, beaver, opossum, woodchucks, squirrels, muskrats, nesting boreal and great gray owls, spruce grouse, and many warblers of coniferous habitats like the black-throated blue, Tennessee, and bay-breasted. Other nongame species include the gray jay, boreal chickadee, osprey, red-shouldered hawk, bald eagle, common loon, Blanding's turtle, and wood turtle (MN DNR, 2012c).

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.

It is anticipated that most wildlife displacement and habitat impacts will be temporary and that no significant or adverse impacts on wildlife will occur as a result of the Project.

Threatened and Endangered Species

Minnesota Power is consulting with the U.S. Fish and Wildlife Service (FWS) and the MN DNR regarding the potential impacts to federal and state-listed threatened or endangered species. The Canada lynx (*Lynx canadensis*), a federally threatened species, and piping

plover (Great Lakes population; *Charadrius melodus*) have been known to occur in St. Louis County.

The project area is in close proximity to populated/industrial areas, lacks extensive boreal forest habitat, and is not specifically designated by the FWS 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. As a result, Minnesota Power believes the Project is *not likely to adversely affect* the Canada lynx, subject to concurrence of the FWS.

The Great Lakes population of piping plovers utilizes the open, sandy beaches, barrier islands, and sand spits formed along the perimeter of the Great Lakes. They do not inhabit lakeshore areas where high bluffs formed by severe erosion have replaced beach habitat. They prefer sparsely vegetated open sand, gravel, or cobble for their nesting sites. Many of the coastal beaches traditionally used by piping plovers for nesting have been lost to commercial, residential, and recreational developments. The Project avoids undeveloped shoreline, and the habitat within the Project area is not comprised of shoreline habitat. As a result, Minnesota Power believes the Project will have *no effect* on the piping plover.

A query of MN DNR's Natural Heritage Inventory Database was conducted 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 the results, the wood turtle (*Glyptemys insculpta)* is a rare species that has been found to occur in lands lying to the west of the preferred pipeline alignment as illustrated in Figure B-8. The wood turtle is largely aquatic, preferring small- to medium-sized, fast-moving rivers and streams with adjacent deciduous and coniferous forests. The substrates of wood turtle streams typically consist of sand or gravel. Wood turtles will occupy adjacent alder thickets, forest, and grassland habitat for basking and foraging, typically staying within 0.25 mile of the river or stream. Sandy, sparsely vegetated areas that are not prone to flooding and have ample exposure to direct sunlight provide important nesting sites. Based on the location of the project area in relation to the wood turtles preferred habitat, Minnesota Power believes the Project is not likely to impact the wood turtle, subject to concurrence from the MN DNR.

8.1.8 Air Quality

Potential air quality effects related to pipeline construction facilities include fugitive dust emissions during construction, and exhaust emissions from construction equipment. All of these potential effects are considered to be relatively minor and of short duration. The pipeline by itself will not have any long-term impacts on air quality As part the overall project to convert the Laskin Energy Center to natural gas pollutants such as Particulate Matter, Sulfur Dioxide and Mercury will be dramatically reduced; a major air permit modification has been submitted to the MPCA.

8.1.9 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.

A listing of each environmental permit required for the Project is found in Section 9.0 of this application. Engineering regulatory requirements include U.S. DOT Pipeline and Hazardous Materials Safety Administration (PHMSA) material specifications, and pipeline construction and operational standards, and building permit standards. U.S. DOT PHMSA construction and operation requirements are discussed in sections 4, 6, and 7 of this application. Additional protection is provided by on-site third party inspectors and agency oversight.

8.2 Recreational Areas

The only recreational area impacted by the project is a snowmobile trail that is part of the East Range Trails system, as illustrated in Figure B-9 (Appendix B). Any impacts on the trail by the Project would be temporary in nature, and would not likely impact its use given that construction will likely occur during warmer months when the trail is not used.

8.3 Cultural Resources

On behalf of Minnesota Power, Merjent, Inc. conducted a literature review, and concluded that the Project will not affect properties listed on, or eligible for listing on, the National Register of Historic Places, and no known or suspected archaeological properties in the area will be affected by the Project. The assessment further concluded that no cultural resources field inventory is required. Figure B-10 (Appendix B) shows the result of cultural resources assessment. A report summarizing the findings was sent to the Minnesota State Historic Preservation Office (SHPO) on October 7, 2013. A response letter was issued by the Minnesota SHPO on November 4, 2013 concluding that there are no properties listed in the National or State Registers of Historic Places, and no known or suspected archaeological properties in the area that will be affected by the Project. Copies of the literature review report and Minnesota SHPO response letter are enclosed in Appendix C-1.

Although the potential for undiscovered cultural resources is considered low based on several factors, a Plan for the Unanticipated Discovery of Cultural Resources (Unanticipated Discovery Plan) will be implemented during Project construction. 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.

8.4 Use of Existing Rights-of-way

The preferred pipeline alignment was selected to maximize the use of existing rights-of-way. As described in Section 5.6, 3,420 feet of the 5,900 feet crossed by the preferred alignment parallels Minnesota Power's high voltage power line rights-of-way amounting to approximately 58 percent of the lands crossed. Figure 3 depicts the anticipated configuration of the proposed construction right-of-way in relation to Minnesota Power's high voltage power line rights-of-way.

8.5 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 an existing natural gas pipeline, and high voltage transmission 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.

8.6 Human Settlement

The Project area has been heavily disturbed by development activities. The Project area includes at least one road, transmission line, and natural gas pipeline.

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 would be minimized by installing the pipeline underneath these features through the use of the boring or HDD method as described in Sections 4.1 and 6.3. 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.

8.6.1 Public Health and Safety

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 include:

- strict adherence to an operations and maintenance plan;
- 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; and
- Above ground facilities will be painted or coated to prevent atmospheric corrosion.

Minnesota Power will implement proper safeguards during construction and operation to avoid potential impacts public health and safety. The Project will be designed in compliance with local, state, National Electric Safety Code (NESC), and Minnesota Power standards for, crossing utilities and buildings, strength of materials, and right-of-way widths. Minnesota Power will ensure that construction and contract crews comply with local, state, and

company standards for installation of facilities and standard construction practices. Minnesota Power-established and industry safety procedures will also be followed after the transmission line is installed. This will include clear signage during all construction activities.

With implementation of safeguards and protective measures, the Project is not anticipated to result in adverse or significant impacts on public health and safety.

8.6.2 Recreation and Public Services and Infrastructure

No known federal, state, or county parks, forests, recreational areas, wildlife refuges, wildlife protection areas, trails, or natural areas will be affected by the Project. While the City of Hoyt Lakes offers several recreational opportunities and public infrastructure, the Project is located to the west of the city and would not affect these facilities (see Figure). The general area supports recreational activities such as hiking, snowmobiling, biking, hunting, and fishing.

Direct impacts on existing recreational opportunities and public services within the Project location will be avoided because the proposed pipeline alignment will not cross these areas and it is collocated with existing road and utility rights-of-way for the majority of its length. Other than in the case of an emergency, the Project will not affect area fire, medical, or police services, and should not conflict with commuters of local highways, roads, and airports. Users of nearby recreational opportunities may experience indirect and temporary impacts such as visual and noise impacts during the time of construction. The Project is not anticipated to result in adverse or significant impacts on recreation or public services.

8.7 Land-Based Economics

8.7.1 Agriculture

The Project area is not located in an agricultural area (see Figure B-6) and, therefore, is not expected to impact agricultural lands.

8.7.2 Forestry

Based on property parcel data, no economically significant forestry resources are located within the Project area.

8.7.3 Tourism

The primary tourism activities in the county include camping, recreational use of lakes for fishing and boating, snowmobiling, bicycling, hiking, bird or wildlife viewing, or cross country skiing. Direct impacts on existing tourist attractions within the Project location will be avoided because the proposed alignment will not cross these areas and it is collocated with existing road and utility rights-of-way for the majority of its length. However, indirect and temporary impacts such as visual and noise impacts will occur during the time of construction, but is not anticipated to result in adverse or significant impacts on the area's tourism.

9.0 Agency Involvement, Public Participation, and Required Permits and Approvals

9.1 U.S. Fish and Wildlife Service

Minnesota Power submitted a review request letter to the FWS on October 3, 2013 (see Appendix C-2), and requested review and concurrence with its preliminary review and determinations for federally listed species and habitats in the project area (see Section 8.1.7). To date a response has not been received.

9.2 Minnesota Department of Natural Resources

Minnesota Power submitted a review request via e-mail to the Minnesota DNR (Appendix C-3). The e-mail was sent on October 2, 2013 and requested review and concurrence with its review and determination for rare plants, animals, and natural communities or other significant natural features known to occur within the Project area (see Section 8.1.7). To date a response has not been received.

9.3 Minnesota State Historic Preservation Office

A Phase Ia cultural resources assessment and recommendations report, which presented the findings summarized in Section 8.3, was submitted to Minnesota SHPO on October 7, 2013. A response letter was issued by the Minnesota SHPO on November 4, 2013 concluding that there are no properties listed in the National or State Registers of Historic Places, and no known or suspected archaeological properties in the area that will be affected by the Project. See Appendix C-1 for the letters to and from the Minnesota SHPO.

9.4 Identification of Landowners

Aside from ALLETE/Minnesota Power, the only adjacent and affected property owner is the City of Hoyt Lakes. Minnesota Power sent a project notification letter to the city on October 25, 2013 and is currently coordinating with them.

9.5 Required Permits and Approvals

Table 6 identifies federal, state, and local permits and approvals that could potentially be required for the Project.

Table 6 - Required Permits

Jurisdiction and Permit	Requirement
State	
MPUC, Pipeline Routing Permit	Required for any natural gas pipeline.
Minnesota DOT, Utility Permit	Required if placing utilities on or across a Minnesota trunk highway right-of-way.
MPCA, NPDES/SDS General Stormwater Permit for Construction Activity	Required under the NPDES/SDS General Stormwater Permit for Construction Activity where construction activities will cause more than one acre of ground disturbance.
Local	
Moving Permit (Hauling)	Required whenever legal dimensions and/or axle weights are exceeded per county regulations.
Oversize/Overweight Vehicle Permit	Required on all county highways. May be required to move over-width loads on county, township, or city roads.

10.0 References

Hobbs, H.C. and J.E. Goebel. 1982. Geologic Map of Minnesota—Quaternary Geology. Minnesota Geological Survey State Map Series S-1.

Minnesota Department of Natural Resources. 2013a Laurentian Mixed Forest Province. Available online at http://www.dnr.state.mn.us/ecs/212/index.html.

Minnesota Department of Natural Resources. 2012b. MNTaxa: The State of Minnesota Vascular Plant Checklist. Available online at http://www.dnr.state.mn.us/eco/mcbs/plant_lists.html.

Minnesota Department of Natural Resources. 2013c. Nongame Wildlife—Northeast Region. Available online at http://www.dnr.state.mn.us/eco/nongame/ne.html.

11.0 Acronyms

AC	Alternating Current
ALLETE	ALLETE, Inc.
API	American Petroleum Institute
COE	U.S. Army Corps of Engineers
CRP	Conservation Reserve Program
DNR	Department of Natural Resources
DOT	Department of Transportation
EDA	Economic Development Area
ERW	Electrical Resistance Welded
FWS	U.S. Fish and Wildlife Service
HCA	High Consequence Area
HDD	Horizontal directional drill
HVTL	High voltage transmission line
LEL	Lower Explosive Limit
LGU	Local government units
MAOP	Maximum Allowable Operating Pressure
MATS	Mercury and Air Toxics Standards
MN DNR	Minnesota Department of Natural Resources
MNOPS	Minnesota Office of Pipeline Safety
MPCA	Minnesota Pollution Control Agency
MPUC or Commission	Minnesota Public Utilities Commission
Mscfh	Million standard cubic feet per hour
NESC	National Electric Safety Code
NHIS	Nature Heritage Information System
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
PHMSA	Pipeline and Hazardous Materials Safety Administration
Project	Laskin Pipeline Project
psig	Pounds per square inch gauge
PWI	Public Waters Inventory
SHPO	State Historic Preservation Office
SMYS	Specified minimum yield strength
SPCC Plan	Spill Prevention Containment and Countermeasure Plan
Unanticipated Discovery Plan	Plan for the Unanticipated Discovery of Cultural Resources
U.S. DOT	United States Department of Transportation
USGS	U.S. Geological Survey