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April 20, 2022

***Via eFiling***

Ms. Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E.  
Washington, D.C. 20426

Re: Northern Natural Gas Company  
Northern Lights 2023 Expansion  
Docket No. CP22-138-000  
Supplemental Document

Dear Ms. Bose:

Northern Natural Gas (Northern) submits for filing with the Federal Energy Regulatory Commission (FERC) in the above-referenced docket the attached supplemental document to aid FERC staff in the preparation of their environmental document for the project.

Any questions regarding this filing should be directed to the undersigned at (402) 398-7103.

Respectfully submitted,

/signed/ Michael T. Loeffler

Michael T. Loeffler, senior director, certificates

Cc: Parties of Record



Federal Energy  
Regulatory  
Commission

Office of  
Energy

FERC/XXX-XXXX

April 2022

# Northern Lights 2023 Expansion Project

## DRAFT ENVIRONMENTAL IMPACT STATEMENT

Northern Natural Gas

Docket No. CP22-138-000

### Abstract:

The staff of the Federal Energy Regulatory Commission (Commission) prepared a draft environmental impact statement (EIS) for the Northern Lights 2023 Expansion (Project) proposed by Northern Natural Gas (Northern) in Minnesota and Wisconsin. The Project would involve the construction and operation of a 36-inch-diameter pipeline extension totaling 2.8 miles; a 30-inch-diameter pipeline loop totaling 1.1 miles; a 24-inch-diameter pipeline extension totaling 1.1 miles; 8-inch-diameter pipeline extensions totaling 2.8 miles; a 4-inch-diameter pipeline loop totaling 2.0 miles; a launcher and tie-over valve settings; and associated facilities, all located in various counties in Minnesota and Wisconsin. When placed in service in November 2023, the proposed facilities would provide for incremental winter firm service of 44,222 dekatherms per day (Dth/day) serving residential, commercial and industrial customer market growth in Northern's Market Area and 6,667 Dth/day of additional firm service that would allow a shipper enhanced reliability and flexibility in scheduling their transportation capacity. Commission staff conclude that construction and operation of the Project, with the mitigation measures recommended in the EIS, would result in some adverse environmental impacts; however, with the exception of climate change impacts, those impacts would not be significant.

Comments on the draft EIS are due to the Commission on or before 5:00pm Eastern Time on XXXX XX, 2022.

### Contact:

Office of External Affairs, (866) 208-FERC  
Federal Energy Regulatory Commission

Office of Energy Projects

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# TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>i</b>
<b>1.0 INTRODUCTION .....</b>	<b>1-1</b>
1.1 PROJECT PURPOSE AND NEED .....	1-4
1.2 PURPOSE AND SCOPE OF THIS EIS.....	1-4
1.2.1 Federal Energy Regulatory Commission.....	1-5
1.2.2 Cooperating Agencies.....	1-5
1.3 PUBLIC REVIEW AND COMMENT .....	1-6
1.3.1 Issues Identified During Scoping.....	1-7
1.3.2 Submitted Alternatives, Information, and Analyses.....	1-7
1.4 NON-JURISDICTIONAL FACILITIES .....	1-9
1.5 PERMITS, APPROVALS, AND REGULATORY REVIEWS .....	1-9
<b>2.0 DESCRIPTION OF THE PROPOSED ACTION.....</b>	<b>2-1</b>
2.1 PROPOSED FACILITIES .....	2-1
2.1.1 Pipeline Facilities.....	2-1
2.2 LAND REQUIREMENTS .....	2-4
2.2.1 Pipeline Right-of-Way .....	2-4
2.2.2 Additional Temporary Workspace and Staging Areas .....	2-4
2.2.3 Access Roads .....	2-5
2.2.4 Aboveground Facilities.....	2-5
2.3 CONSTRUCTION SCHEDULE AND WORKFORCE.....	2-5
2.4 CONSTRUCTION PROCEDURES .....	2-6
2.4.1 Conventional Pipeline Construction Sequence.....	2-7
2.4.2 Special Pipeline Construction Procedures .....	2-12
2.5 ABOVEGROUND FACILITIES CONSTRUCTION .....	2-16
2.6 ENVIRONMENTAL COMPLIANCE.....	2-17
2.7 OPERATION AND MAINTENANCE PROCEDURES .....	2-18
<b>3.0 ALTERNATIVES.....</b>	<b>3-1</b>
3.1 NO-ACTION ALTERNATIVE .....	3-2
3.2 SYSTEM ALTERNATIVES .....	3-3
3.2.1 Other Pipeline Systems.....	3-3
3.2.2 Compression Alternative .....	3-3

3.3	MINOR ROUTE DEVIATIONS .....	3-4
3.3.1	Ventura North E-Line .....	3-4
3.3.2	Elk River 3 <sup>rd</sup> Branch Line .....	3-8
3.3.3	Willmar D Branch Line .....	3-10
3.3.4	Princeton Tie-Over Loop .....	3-12
3.3.5	Paynesville 2 <sup>nd</sup> Branch Line.....	3-14
3.4	ABOVEGROUND SITE ALTERNATIVES .....	3-16
3.5	ALTERNATIVES CONCLUSIONS .....	3-17
<b>4.0</b>	<b>ENVIRONMENTAL IMPACT ANALYSIS.....</b>	<b>4-1</b>
4.1	BASELINE ENVIRONMENTAL TRENDS AND PLANNED ACTIVITIES .....	4-1
4.2	GEOLOGY .....	4-6
4.2.1	Geologic Setting.....	4-6
4.2.2	Mineral Resources .....	4-7
4.2.3	Geologic Hazards.....	4-8
4.2.4	Geotechnical Investigation.....	4-10
4.2.6	Paleontological Resources .....	4-11
4.3	SOILS .....	4-12
4.3.1	Existing Soil Resources .....	4-12
4.3.2	Prime Farmland.....	4-14
4.3.3	Compaction Potential.....	4-15
4.3.4	Soil Erosion and Revegetation Potential.....	4-16
4.3.5	Soil Contamination .....	4-17
4.4	WATER RESOURCES .....	4-18
4.4.1	Groundwater Resources .....	4-18
4.4.2	Surface Water Resources .....	4-20
4.4.3	Floodplains.....	4-24
4.4.4	Anticipated Water Withdrawals.....	4-24
4.5	WETLANDS .....	4-25
4.6	FISHERIES AND AQUATIC RESOURCES.....	4-27
4.6.1	Construction and Operation Impacts and Mitigation Measures .....	4-27
4.7	VEGETATION.....	4-28
4.8	WILDLIFE .....	4-31
4.8.1	General Wildlife Resources .....	4-31

4.8.2	Migratory Birds.....	4-33
4.9	<b>SPECIAL STATUS SPECIES .....</b>	<b>4-35</b>
4.9.1	Federally Protected Threatened and Endangered Species .....	4-35
4.9.2	State-Protected Species.....	4-40
4.10	<b>LAND USE, RECREATION, AND VISUAL RESOURCES.....</b>	<b>4-43</b>
4.10.1	Existing Land Use Impacts and Mitigation .....	4-43
4.10.2	Planned Developments .....	4-47
4.10.3	Recreation and Special Interest Areas .....	4-47
4.10.4	Visual Resources .....	4-48
4.11	<b>ENVIRONMENTAL JUSTICE.....</b>	<b>4-50</b>
4.12	<b>CULTURAL RESOURCES.....</b>	<b>4-57</b>
4.12.1	Cultural Resources Surveys.....	4-58
4.12.2	Unanticipated Discovery Plan .....	4-58
4.12.3	Native American Consultation .....	4-59
4.13	<b>AIR AND NOISE.....</b>	<b>4-59</b>
4.13.1	Air Quality.....	4-59
4.13.2	Climate Change .....	4-66
4.13.3	Noise.....	4-68
4.14	<b>RELIABILITY AND SAFETY.....</b>	<b>4-73</b>
4.14.1	DOT Safety Standards.....	4-73
4.14.2	Project Design Requirements .....	4-74
4.14.3	Pipeline Safety .....	4-74
4.14.4	Emergencies.....	4-77
4.14.5	Pipeline Accident Data .....	4-78
4.14.6	Impact on Public Safety.....	80
<b>5.0</b>	<b>SUMMARY OF THE ENVIRONMENTAL ANALYSIS .....</b>	<b>5-1</b>
5.1	<b>FERC STAFF'S RECOMMENDED MITIGATION .....</b>	<b>5-1</b>

## **LIST OF TABLES**

Table 1.3-1	Environmental Issues and Concerns Raised During Public Scoping for the Project
Table 1.5-1	Permits, Approvals, and Consultations for the Project
Table 2.1.1-1	Planned Pipeline Facilities
Table 2.1.1-2	Valve Settings and Launcher
Table 2.4.2-1	Proposed HDD Locations for the Project
Table 3.3-1	Analysis of Route Deviation 1 for the Ventura North E-Line
Table 3.3-2	Analysis of Route Deviation 2 for the Ventura North E-Line
Table 3.3-3	Analysis of Route Deviation 3 for the Elk River 3 <sup>rd</sup> Branch Line
Table 3.3-4	Analysis of Route Deviation 4 for the Willmar D Branch Line
Table 3.3-5	Analysis of Route Deviation 5 for the Princeton Tie-Over Loop
Table 3.3-6	Analysis of Route Deviation 6 for the Paynesville 2 <sup>nd</sup> Branch Line
Table 4.3.1-1	Soil Limitations Affected by the Proposed Project
Table 4.4.2-1	Watersheds Crossed by the Project
Table 4.4.2-2	Waterbodies Crossed by the Project
Table 4.6-1	Surface Water Locations
Table 4.7-1	Noxious Weed Species Observed
Table 4.10-1	Land Use Types Affected by Construction and Operation of the Project
Table 4.11-7	Minority Populations by Race and Ethnicity and Low-Income Populations in the Project Area
Table 4.13-1	Construction Emissions Summary
Table 4.13-2	Operations Emissions from the Project
Table 4.13-3	Summary of HDD Crossings
Table 4.13-4	Background Ambient Sound Pressure Levels for the Monitoring Locations
Table 4.14-1	Class Locations of Pipeline Facilities
Table 4.14-2	Natural Gas Transmission Pipeline Significant Incidents by Cause (2001-2020)
Table 4.14-3	Nationwide Accidental Fatalities by Cause

## **LIST OF FIGURES**

Figure 1-1	Project Location
Figure 2-1	Pipeline Construction Sequence
Figure 3-1	Route Deviation 1 for the Ventura North E-Line
Figure 3-2	Route Deviation 2 for the Ventura North E-Line
Figure 3-3	Route Deviation for the Elk River 3 <sup>rd</sup> Branch Line
Figure 3-4	Route Deviation for the Willmar D Branch Line
Figure 3-5	Route Deviation for the Princeton Tie-Over Loop
Figure 3-6	Route Deviation for the Paynesville 2 <sup>nd</sup> Branch Line

## **LIST OF APPENDICES**

Appendix A	Land Requirements for the Northern Lights 2023 Expansion Project
Appendix B	Table B-1 Additional Temporary Workspace and Staging Areas for the Project
	Table B-2 Temporary and Permanent Access Roads for the Project
	Table B-3 Aboveground Facilities for the Project
Appendix C	Wetlands Crossed by the Project
Appendix D	Vegetation Impacts from Construction and Operation of the Project

Appendix E	Distribution List for the Notice of Availability of the final EIS– <b><i>PENDING DEVELOPMENT</i></b>
Appendix F	Construction Diagrams
Appendix G	Project Location Maps
Appendix H	Requested Modifications to FERC’s <i>Wetland and Waterbody Construction and Mitigation Procedures</i>
Appendix I	Federally and State-listed Species Potentially Occurring in the Vicinity of the Project
Appendix J	List of Migratory Bird Species That May be Affected by the Project
Appendix K	Acreage Affected by Construction and Operation of the Project
Appendix L	References
Appendix M	List of Preparers

## ABBREVIATIONS AND ACRONYMS

AIMP	Agricultural Impact Mitigation Plan
APE	Area of Potential Effect
API	American Petroleum Institute
ATWS	additional temporary workspace
BCR	Bird Conservation Region
BGEPA	Bald and Gold Eagle Protection Act
BMP	best management practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
Certificate	Certificate of Public Convenience and Necessity
CESCP	Construction Erosion and Sediment Control Plan
CFR	Code of Federal Regulations
CH <sub>4</sub>	Methane
Commission	Federal Energy Regulatory Commission
CO	Carbon monoxide
CO <sub>2e</sub>	Carbon dioxide equivalent
CP	Cathodic protection
CT	Census Tract
CWA	Clean Water Act
dB	Decibel
dB(A) or dBA	Decibel (A-weighted)
DOT	Department of Transportation
Dth/day	Dekatherms per day
DWSMA	Drinking Water Supply Management Area
EA	environmental assessment
EAB	emerald ash borer
EI	environmental inspector
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
ER	Endangered resources
ESA	Endangered Species Act
F	Fahrenheit
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FTA	Federal Transit Administration
g	percent of gravity
GHG	greenhouse gases
HAP	Hazardous air pollutant
HCA	High consequence area
HDD	horizontal directional drill
HDD Plan	Horizontal Directional Drill Monitoring, Inadvertent Return Response, and Contingency Plan

HUC	Hydrologic Unit Code
Hz	Hertz
IPaC	Information for Planning and Consultation
KBB	Karner blue butterfly
K <sub>w</sub>	Soil Erodibility Factor
LEPC	Local emergency planning committees
L <sub>eq</sub>	Equivalent continuous sound level
L <sub>dn</sub>	Day-night average sound level
L <sub>p</sub>	Sound pressure level
MAC	Minnesota Administrative Code
MAOP	maximum allowable operating pressure
MBTA	Migratory Bird Treaty Act
MCA	Moderate consequence area
MDA	Minnesota Department of Agriculture
MDH	Minnesota Department of Health
MDNR	Minnesota Department of Natural Resources
MPCA	Minnesota Pollution Control Agency
MP	milepost
NAAQS	National Ambient Air Quality Standards
NAC	Noise Area Classification
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NGA	Natural Gas Act
NHIS	Natural Heritage Information System
NHPA	National Historic Preservation Act
NLEB	Northern Long-eared Bat
NNSR	Nonattainment Area New Source Review
NO <sub>2</sub>	Nitrogen dioxide
NO <sub>x</sub>	Nitrogen oxides
Northern	Northern Natural Gas
NPDES	National Pollutant Discharge Elimination System
NR	Natural Resources
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSA	noise sensitive area
NSPS	New Source Performance Standards
NSR	New Source Review
OCC	Northern's Operations Communication Center
OEP	Office of Energy Projects
OQP	Operator Qualification Plan
OSHA	Occupational Safety and Health Administration
Pb	Lead
pga	peak ground acceleration
PHMSA	Pipeline and Hazardous Materials Safety Administration

PIR	Potential impact radius
Plan	Upland Erosion Control, Revegetation, and Maintenance Plan
PM	Particulate matter
PM <sub>2.5</sub>	Particulate matter 2.5 microns or less
PM <sub>10</sub>	Particulate matter 10 microns or less
ppb	Parts per billion
ppm	Parts per million
Procedures	Wetland and Waterbody Construction and Mitigation Procedures
Project	Northern Lights 2023 Expansion Project
PSD	Prevention of Significant Deterioration
psi	pound per square inch
RSEA	Regionally Significant Ecological Area
SCADA	Supervisory control and data acquisition
scf	standard cubic feet
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SLM	Sound level meter
SPCC plan	Spill Prevention Control and Countermeasure Plan
SO <sub>2</sub>	Sulfur dioxide
SSURGO	Soil Survey Geographic Database
STAR	Science to Achieve Results
SWPPP	Stormwater Pollution Prevention Plan
TBS	Town Border Station
tpy	Tons per year
TWS	temporary workspace
UDP	Unanticipated Discovery Plan
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound
WDNR	Wisconsin Department of Natural Resources
WEG	Wind Erodibility Group
WHPA	Wellhead Protection Area

## EXECUTIVE SUMMARY

The staff of the Federal Energy Regulatory Commission (FERC or Commission) prepared this final Environmental Impact Statement (EIS) to assess the environmental impacts associated with construction and operation of facilities proposed by Northern Natural Gas (Northern). The EIS was prepared in accordance with the requirements of the National Environmental Policy Act of 1969 (NEPA) and the Commission's implementing regulations under Title 18 of the Code of Federal Regulations, Part 380 (18 CFR 380). This EIS assesses the potential environmental impacts that could result from constructing and operating the Northern Lights 2023 Expansion Project (Project).

On March 28, 2022, Northern filed an application with FERC for the Project in Docket No. CP22-138-000 pursuant to section 7(c) of the Natural Gas Act (NGA) and Parts 157 and 284 of the Commission's regulations. Northern owns and operates a 14,500-mile interstate natural gas pipeline across 11 states. Northern proposes to construct, own, operate, and maintain six natural gas pipelines and aboveground pipeline facilities in six counties in Minnesota and Wisconsin that would provide natural gas transportation to deliver incremental winter peak service to residential, commercial and industrial customers in Northern's Market Area.

The purpose of the EIS is to inform FERC decision-makers, the public, and the permitting agencies about the potential environmental impacts of the proposed Project and its alternatives and recommend mitigation measures that would reduce adverse impacts to the extent practicable. We prepared our analysis based on information provided by Northern and further developed from data requests; field investigations; scoping; literature research; and contacts with or comments from federal, state, and local agencies, Native American tribes, and individual members of the public.

FERC is the federal agency responsible for authorizing interstate natural gas transmission facilities under the NGA and is the lead federal agency for the preparation of this EIS in compliance with the requirements of NEPA. The Minnesota Department of Natural Resources (MDNR) and Minnesota Pollution Control Agency (MPCA) are cooperating agencies for development of this EIS consistent with 40 CFR 1501.8. A cooperating agency has jurisdiction by law or has special expertise with respect to environmental resource issues associated with a proposed action and participates in the NEPA analysis with the lead agency.

### PROPOSED NORTHERN LIGHTS 2023 EXPANSION PROJECT

The Project would involve the construction and operation of a 36-inch-diameter pipeline extension totaling 2.8 miles; a 30-inch-diameter pipeline loop totaling 1.1 miles; a 24-inch-diameter pipeline extension totaling 1.1 miles; 8-inch-diameter pipeline extensions totaling 2.8 miles; a 4-inch-diameter pipeline loop totaling 2.0 miles; a launcher and tie-over valve settings; and associated facilities, all located in various counties in Minnesota and Wisconsin. When placed in service in November 2023, the proposed facilities would provide for incremental winter firm service of 44,222 dekatherms per day (Dth/day) serving residential, commercial and industrial customer market growth in Northern's Market Area and 6,667 Dth/day of additional firm service that would allow a shipper enhanced reliability and flexibility in scheduling their transportation capacity.

Dependent upon Commission approval and receipt of all other necessary permits and approvals, Northern proposes to begin construction in the spring of 2023 to place the Project

facilities into service in the fourth quarter of 2023, following a determination by the Commission that restoration is proceeding satisfactorily.

## **PUBLIC INVOLVEMENT**

Northern conducted three public open houses, two on March 9, 2022, and one on March 10, 2022, in Twin Lakes and Princeton, Minnesota, respectively. The open houses provided an opportunity for stakeholders to ask questions and express concerns. At the open houses, a table with FERC information was provided for attendees. Each open house was publicized via local newspapers and through direct mail invitation to property owners, regulatory agencies, and public officials. Impacted landowners were also contacted through phone calls or in-person contacts. Twenty-four individuals attended the open houses. Affected landowners were provided with a landowner-specific aerial map that detailed the proposed construction plan for their parcels. Landowners were able to review this map with Northern's land agents. Northern also maintains a 24/7 toll-free number (1-888-367-6671) that stakeholders could use to contact Northern. Northern also established a dedicated website and email address for use by stakeholders.

On January 4, 2021, we issued in Docket No. CP22-138-000 a Notice of Scoping Period Requesting Comments on Environmental Issues for the Planned Project. This notice was mailed to approximately 120 entities, including affected landowners (as defined in the Commission's regulations); federal, state, and local officials; Native American tribes; agency representatives; environmental and public interest groups; and local libraries and newspapers. This notice also initiated consultation for the Project under Section 106 of the National Historic Preservation Act. We received four comment letters during the scoping period. Written comments were filed to the docket by two federal agencies (U.S. Environmental Protection Agency [EPA] and BLM-FFO), one state agency (Utah's Public Lands Policy Coordination Office), and one organization (Teamsters National Pipeline Labor Management Cooperation Trust). The EPA commented on hydrostatic testing, pipeline metering facilities, wetlands, and dust control. The State of Utah commented on historic and cultural resources, and the Teamsters identified general support for the Project.

On March 28, 2022, we issued in Docket No. CP22-138-000 the Notice of Intent to prepare an Environmental Impact Statement for the Proposed Project, Request for Comments on Environmental Issues, and a Schedule for Environmental Review. This notice was mailed similar to the above. Written comments were filed to the docket by Sindy Smith, stating general support for the Project and recommending that Project be consistent with state and local planning efforts, and by Joyce Barney who inquired about pipeline risks and hazards. The Office of the Governor of Utah, through its Public Lands Policy Coordinating Office, commented expressing general support for the Project while providing specific comments on consistency with state and local plans, possible impacts on livestock grazing, fisheries, county roads, greenhouse gas emissions, operational restrictions on uses of land, and alternatives. The EPA Region 8 requested that the EIS include a quantitative comparison of total greenhouse gas (GHG) annual emissions, estimate upstream and downstream GHG emissions, and that the EIS discuss GHG emissions in the context of national GHG emission goals, as well as use the social cost of GHG methodology to assess climate impacts. The EPA also recommends that the EIS disclose impacts on environmental justice communities and that Northern provide outreach and engagement with low income and minority populations in proximity to the proposed Project.

## **PROJECT IMPACTS**

Construction and operation of the Project would impact the environment. We evaluated the impacts of construction and operation of the Project, taking into consideration Northern's proposed impact avoidance, minimization, and mitigation measures on geology; soils; groundwater; surface water; wetlands; vegetation; wildlife; fisheries; threatened, endangered, and special-status species; land use, recreation; visual resources; socioeconomics; environmental justice; cultural resources; air quality; climate change; noise; and reliability and safety. Where necessary, we recommend additional mitigation to minimize or avoid these impacts. Section 5.1 of the EIS contains a compilation of our recommendations. Cumulative impacts of the Project with other past, present, and reasonably foreseeable actions in the Project area are also assessed. In section 3 of this EIS, we evaluate alternatives to the Project, including the no-action alternative, the potential use of other natural gas transmission systems in the region, a compression alternative, and pipeline route alternatives.

Overall, construction of the Project would disturb about 255.4 acres of land and open water, and operation of the Project would require about 52.4 acres. About 69 percent of the Project would be on agricultural land. For the land not used permanently to operate the Project, Northern would stabilize and restore the remaining land disturbed during construction, which would return to pre-construction uses. Northern proposes to use a typical 75- to 100-foot-wide construction right-of-way and maintain a 50-foot-wide permanent right-of-way for the six pipeline segments.

Based on the public's involvement in the pre-filing and post-application review processes, agency consultations, and our analysis, the major issues associated with the Project are impacts on surface waters, wetlands, vegetation and forests, environmental justice communities, air quality and climate change, and noise. Our analysis of these specific issues is summarized below. Sections 3 and 4 of this EIS include our detailed analysis of Project alternatives and other environmental issues, respectively, and section 5.1 contain our conclusions and a compilation of our recommended mitigation measures, respectively.

### **Soils**

Construction of the Project could affect soil resources by increasing the potential for erosion, compaction, mixing of topsoil, and rutting. Based on the soil properties reviewed, less than 3 percent of Project area soils are classified as highly erodible. About 15 percent of Project area soils are highly erodible by wind. Less than 35 percent of Project area soils are classified as having poor revegetation potential or highly compaction prone. About half of Project area soils are classified as highly corrosive to steel. Northern has committed to segregating topsoil along the length of the pipelines and has developed an Agricultural Impact Mitigation Plan, Stormwater Pollution Prevention Plans (SWPPPs) and a construction erosion and sediment control plan (CESCP) to describe construction and restoration mitigation practices. The erosion potential of soils within the construction workspace is low because of the generally level topography of the area; in addition, Northern would use erosion control and revegetation measures as described in its SWPPPs and CESCP.

Contamination from spills or leaks of fuels, lubricants, and coolant from construction equipment could also adversely affect soils. Northern would implement mitigation measures included in its Spill Prevention, Control and Countermeasure Plan (SPCC), which would specify cleanup and reporting procedures to minimize the potential for soil contamination from such spills

or leaks. With implementation of the proposed mitigation measures and plans, we conclude that impacts on soil resources would be adequately minimized.

## **Surface Water**

Three waterbodies would be crossed by the Project. Two waterbodies are unnamed perennial waterbodies while the third is an unnamed open water feature (lake).

Northern proposes to cross all three waterbodies using horizontal directional drill (HDD) methods, eliminating direct impacts to these areas. Only foot traffic and potentially minor hand-clearing of vegetation would occur between the HDD entry and exit points. HDDs generally avoid impacts on the bed and banks of waterbodies and prevent turbidity and sedimentation that could otherwise result when using open-cut crossing methods. **We reviewed Northern's site-specific crossing plans and the HDD Monitoring, Inadvertent Return Response and Contingency Plan (HDD Plan) and find them acceptable.**

Northern would also construct the Project according to its Spill Prevention Control and Countermeasure Plan (SPCC plan) and Northern's<sup>1</sup> Wetland and Waterbody Construction and Mitigation Procedure (Procedures) and in accordance with applicable permits to prevent or mitigate contamination in waterbody crossings. In the event of an inadvertent release of drilling fluid during the HDDs, Northern would implement measures in its HDD Plan. Northern proposes to obtain water from local municipal or other public sources for the HDD drilling fluid. Northern estimates 1,066,500 gallons of water would be necessary for all the HDDs. Water uptake and discharge would be conducted in accordance with Northern's Procedures and state regulations and existing water rights.

With implementation of Northern's project-specific plans, construction plans, and the proposed mitigation measures discussed in this EIS, we conclude that impacts on surface waters would be adequately minimized.

## **Wetlands**

Construction of the Project would impact 13 wetlands. One wooded wetland (hardwood swamp) would be crossed by the Project via HDD, eliminating tree clearing actions during both construction and operation. The only temporary impact to the wooded wetland would result from the construction HDD travel lane used for foot traffic. Seven palustrine emergent wetlands would be crossed via HDD or conventional bore. Five palustrine emergent wetlands would be crossed via open cut methods or would be impacted by temporary workspaces. To minimize impact on wetlands, Northern proposes to implement the mitigation measures included in its Procedures.

The Project would cross about 0.4 mile of wetlands and would temporarily impact 0.5 acre of wetlands due to construction. The primary impact of Project construction on wetlands would be the potential alteration of current or potential wetland vegetation due to the clearing, excavation, rutting, compaction, and mixing of topsoil and subsoil. Northern has developed a Wetland Restoration Plan to mitigate impacts from temporary construction. **We have reviewed this plan and find it acceptable.**

No permanent impacts on wetlands are expected as a result of the Project, as all wetlands crossed via open cut methods are emergent, and no woody wetland vegetation would be removed

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<sup>1</sup> Northern adopted FERC's Procedures with the exceptions discussed in appendix H and sections 2.4.2.3 and 2.4.2.4

within the construction right-of-way. Operational impacts on wetlands (0.1 acre) are based on a 10-foot-wide corridor centered on the pipelines that would be cleared at a frequency necessary to maintain the right-of-way in an herbaceous state.

With the implementation of Northern's Procedures, its Wetland Restoration Plan, and the proposed mitigation measures discussed in this EIS, significant impacts on wetlands due to construction and operation of the Project are not anticipated.

## **Vegetation**

Construction of the Project would affect about 245.7 acres of vegetation — 175.4 acres of agricultural, 64.7 acres of open land, 5.1 acres of woodland, and 0.5 acre of wetland. Following construction, areas not needed for operations would be restored to their original contours and revegetated in accordance with the SWPPPs and CESCO, the Commission's Upland Erosion Control, Revegetation, and Maintenance Plan (Plan) and Northern's Procedures, or landowner recommendations. Operation of the Project would affect about 47.9 acres of vegetation. Aboveground facilities would permanently convert 0.4 acre of agricultural and 0.1 acre of open land to industrial use while operation of the pipelines would affect about 30.4 acres of agricultural, 16.0 acres of open land, 0.9 acre of woodland, and 0.1 acre of wetlands that would be maintained for the pipeline rights-of-way.

Impacts on forest land outside of the maintained permanent right-of-way would take longer (5 or more years) to return to preconstruction conditions. Impacts on riparian vegetation would be avoided because Northern proposes to use HDDs to cross the waterbodies where riparian vegetation is concentrated.

During operation and excluding agricultural land, Northern would limit permanent right-of-way mowing to no more than once every 3 years to clearly delineate the right-of-way for pipeline integrity monitoring purposes; however, a 10-foot-wide swath centered over the pipelines may be mowed more frequently to facilitate routine patrols and emergency access. In accordance with the Commission's Plan, maintenance clearing would not be conducted between April 15 and August 1 to avoid impacts on nesting migratory birds. Northern would not conduct any routine vegetation mowing or clearing in wetlands or riverine environments that are located between HDD or conventional bore entry and exit points. In wetlands, a 10-foot-wide corridor centered on the pipelines would be cleared at a frequency necessary to maintain an herbaceous state.

To minimize the spread of invasive species, Northern would implement its Noxious Weed Control Plan, which outlines methods to prevent, mitigate, and control the spread of noxious and invasive weeds during ground-disturbing activities. Northern also would implement the measures in the Commission's Plan and its Procedures, which require post-construction monitoring for the first and second growing seasons in uplands, and for 3 years in wetlands, to evaluate the success of revegetation.

With the implementation of Northern's SWPPPs, CESCO, SPCC Plan, Noxious Weed Control Plan, and the Commission's Plan and Northern's Procedures, we conclude that construction and operation of the Project would not have a significant impact on vegetation.

## **Wildlife**

Wildlife species in the Project area are characteristic of the communities that inhabit the local vegetation habitats. About 245.7 acres of wildlife habitat would be affected by construction

of the Project, and 47.9 acres would be affected during operations. Overall, the greatest impacts would be on agricultural and open land, with smaller impacts to forested and wetland habitats.

Construction activities, such as clearing of the right-of-way and workspaces, would reduce vegetation cover, causing a decrease in foraging, nesting, and cover habitat until vegetation is reestablished. Mobile species may be displaced temporarily during construction due to noise and human presence as well as temporary loss of habitat; and mortality of less mobile species, such as some small mammals, reptiles, or amphibians, may occur. Construction noise and human presence would result in temporary impacts and could include abandonment of nests and burrows, displacement of individuals, and avoidance of work areas. Impacts on wildlife within the Project workspaces would be short in duration and limited to the period of construction. It is anticipated that displaced wildlife would use similar habitats, which are prevalent throughout the region of the Project.

Additionally, increased human presence and construction-related noise may temporarily displace reptiles and amphibians from the Project area. Construction noise impacts on wildlife would be mitigated by implementation of various measures during construction including restricting onsite vehicle idle times; using sound control devices in accordance with manufacturer's recommendations; and preparing the layout of the construction activities with the goal of reducing noise from back-up alarms. The proposed HDD crossings would produce noise from the HDD equipment, and 6 of the 10 HDDs may be operated 24 hours per day if necessary. Northern has committed to reducing nighttime noise to nearby noise sensitive areas (NSAs) Northern would reduce noise impacts on wildlife by installing noise barrier walls as detailed in its HDD Plan.

Following construction, workspaces would be restored in accordance with our Plan and Northern's Procedures. Impacts on upland and wetland habitats disturbed by construction, but not within the operational footprint of the Project, would be temporary and are expected to return to preconstruction vegetation cover within one or two growing seasons after construction is completed. Impacts on forested vegetation would take longer (5 years or more) to return to preconstruction vegetation cover. Routine vegetation maintenance would occur outside of the April 15 to August 1 migratory bird nesting avoidance window, unless the appropriate field surveys are conducted, and the necessary approvals are obtained.

Based on the vegetation types present; siting the Project adjacent to existing (disturbed) rights-of-way; the presence of similar habitats adjacent to and in the vicinity of construction activities; and the implementation of best management practices and our Plan and Northern's Procedures, we conclude that construction and operation of the Project would not have a significant impact on wildlife.

### **Environmental Justice**

According to U.S. Census Bureau information, no minority populations exist in the Project area. However, the Ventura North E-Line is located entirely within a census block group with a higher population of low-income residents than the county, and therefore, is considered an environmental justice community based on poverty level. Potential impacts on area residents may include traffic delays during construction, changes in the existing viewsheds during construction, and air emissions and noise during construction of the short pipeline segment. The surrounding landscape is generally flat and open terrain used for farming. Impacts on visual and/or aesthetic resources from the presence of construction equipment are anticipated to be minor and temporary

during construction. Northern proposes to remove an existing aboveground facility from the south end of the Ventura North E-Line and replace the facility (valve site) at the north end. The closest residence is located 500 feet west of the new aboveground valve site. Existing tree buffers would limit visual impacts on the residences closest to the valve site within the environmental justice community.

Regarding Project impacts on traffic, the movement of construction personnel, equipment, and materials would result in short-term impacts on roadways. Northern has developed a Traffic Control Plan which discusses mitigation measures to limit impacts. Additionally, Northern would employ traffic control measures and schedule deliveries to minimize impacts on local traffic. **We have reviewed this plan and find it acceptable.**

Air emissions, exhaust emissions and fugitive dust would result in short-term, localized impacts in the immediate vicinity of construction work areas. Northern would use gasoline or diesel fuel for vehicles and equipment compliant with current federal regulations and operated with required emission control devices. Northern would also reduce vehicle and equipment speed in construction work areas and on access roads to account for adverse weather conditions (e.g., high-wind velocities, dry soil conditions, etc.). Based on the methods discussed in the Traffic Control Plan and the other mitigation measures proposed by Northern, we conclude that air quality impacts from construction of pipeline segment would not result in a significant impact on local or regional air quality for environmental justice communities.

Regarding noise impacts, there are no HDDs proposed for the Ventura North E-Line; noise-generating activity will be limited to equipment required for standard overland construction and conventional bores. Northern proposes to limit pipeline construction on the Ventura North E-Line to daytime hours with the exception of specific, limited construction activities such as tie-ins, testing and commissioning, and hydrostatic testing. We determined that the temporary nature of construction activities would not result in significant noise impacts on NSAs during construction.

Northern has conducted two open houses for the Ventura North E-Line and invited landowners, elected officials, community leaders, and the general public through direct mailings, phone calls, and public notices. Ten of the 11 impacted landowners along with 6 other stakeholders attended the open houses. Northern indicated landowner concerns were addressed at the open houses.

The Project area is generally distanced from nearby residences, commercial areas, schools, and churches; no new employees would be hired to operate the modified facilities. Therefore, impacts on socioeconomic resources within the environmental justice communities (e.g., population, housing demand, or the provision of community services such as police, fire, or schools) would be minor and temporary, as there would be a negligible change from current conditions. Potential environmental justice concerns are similarly not present for other resource areas such as geology, wetlands, wildlife impacts, etc., due to the minimal overall impact the Project would have on these resources and the absence of any suggested connection between such resources and environmental justice communities.

We conclude that impacts on environmental justice communities would not be disproportionately high and adverse because impacts in the Project area would not be predominantly borne by environmental justice communities. Further, as described in section 4.11 of this EIS, impacts on environmental justice communities would be less than significant and mostly temporary.

## **Air Quality and Noise**

### Air Quality Regulatory Requirements

The Project would not result in the installation or operation of major sources of air pollutants. There would be no point sources of operational emissions, and only minor amounts of volatile organic compounds (VOC) and GHG would be produced from venting and fugitive emissions from the aboveground pipeline facilities. Therefore, the Project is not subject to New Source Review or Title V (major source) operating permit program. The Project area is not classified as nonattainment or maintenance for any criteria pollutant; therefore, the General Conformity Rule (40 CFR 51.850 to 51.860 and 40 CFR 93.150 to 93.160) does not apply. The requirements of 40 CFR 60 Subpart OOOOb in a proposed rule issued by the EPA on November 15, 2021, would apply to the Project, as further described in section 4.13.1.4.

The reporting requirements for the petroleum and natural gas industry under Subpart W of 40 CFR 98 require petroleum and natural gas facilities that emit 25,000 metric tons or more of carbon dioxide equivalent (CO<sub>2e</sub>) per year to report annual emissions of specified GHGs from various processes within the facilities. The Project would not be required to report because none of the Project's aboveground facilities would meet or exceed this reporting threshold.

### Construction Impacts

Construction activities include installation of the pipelines and associated aboveground facilities, including valve assemblies and an in-line inspection device (pig) launcher. Based on Northern's anticipated scheduling, construction is expected to primarily take place from April 2023 to October 2023, with restoration potentially extending into spring 2024. Northern proposes typical construction hours as Monday through Saturday from 7 a.m. to 7 p.m. However, certain conditions, discussed in section 2.3, may necessitate construction outside of these hours.

Construction of the Project would result in intermittent and temporary emissions of criteria pollutants, including fugitive dust. The amount of dust generated during construction would be a function of precipitation, vehicle numbers and types, vehicle speeds, and roadway characteristics. Dust emissions would be greater during dry periods and in areas of fine-textured soils. Construction also results in combustion emissions from diesel- and gasoline-fueled vehicles used in various construction activities. Construction-related emissions on the Project would be temporary and localized and would dissipate with time and distance from areas of active construction. Further, construction emissions along the pipelines would subside once construction is complete. Based on the mitigation measures outlined in Northern's Section 7 Application, the commitment to adhere to air quality regulations, and the temporary nature of pipeline construction, we conclude that construction of the Project would not have a significant impact on local or regional air quality.

### Operational Impacts

Potential emissions from operation of the pipeline aboveground facilities (valves and a launcher) would consist of VOC and GHG emissions from minor instrument venting, and fugitive emissions from pipe components, such as connectors and valves at the valve assemblies and launchers. The pipelines would be internally inspected every 7 years. During the inspections, only a launcher and receiver for each pipeline segment would be blown down, which would result in the release of a small quantity of gas. No compression or other aboveground equipment such

as dehydrators, generators, line heaters, or other combustion equipment are part of the Project and, therefore, there would be no GHG emissions from these types of sources.

As a part of standard operations, Northern monitors methane emissions and uses standardized methods to detect, monitor, and repair leaks for all facilities across its system. Northern is a member of industry partnership groups, such as Our Nation's Energy Future Coalition Inc. (ONE Future) and two voluntary programs administered by the EPA (the Natural Gas STAR and Methane Challenge Programs).

Construction and operation of the Project would increase the atmospheric concentration of greenhouse gases (GHGs) in combination with past, current, and future emissions from all other sources globally and contribute incrementally to future climate change impacts. The Project's annual operational and downstream emissions, assuming the full-burn scenario, would result in an additional 702,000 metric tons per year of CO<sub>2e</sub>. We are unable to assess the Project's contribution to climate change through any objective analysis of physical impacts attributable to the Project. As such, we are unable to determine significance regarding the Project's impacts on climate change. However, we acknowledge the Project would increase the atmospheric concentration of GHGs, in combination with past and future emissions from all other sources and would contribute to climate change.

#### Construction Noise Impacts

Noise would be generated during construction of the pipelines and aboveground facilities for the Project and would vary depending on the number and type of construction equipment at construction sites. Noise levels would be highest in the immediate vicinity of construction activities and would diminish with distance from the work areas. Construction would generally not affect nighttime noise levels as most activity would be limited to 7 a.m. to 7 p.m., Monday through Saturday, except for 6 of the 10 HDDs, and specific, limited construction activities such as tie-ins, testing and commissioning, and hydrostatic testing.

Noise impacts associated with construction would be localized and temporary, and would be mitigated by implementation of various measures during construction including positioning equipment so noise propagates away from the nearest Noise Sensitive Areas (NSAs); restricting onsite vehicle idle times; using sound control devices in accordance with manufacturer's recommendations; and preparing the layout of the construction activities with the goal of reducing noise from back-up alarms. Regarding the six HDDs with potential for work to extend past 7 p.m., Northern would reduce noise impacts on impacted NSAs by installing noise barrier walls as detailed in its HDD Plan. In addition, Northern would perform noise monitoring during HDD activities and employ additional noise mitigation measures as necessary. As such, we conclude that construction noise impacts would be negligible.

#### Operational Noise Impacts

Operation of the Project pipelines would not produce continuous noise since no continuous noise sources would be located along the pipelines. Operation of the launcher may produce minor noise levels due to pipeline inspections every seven years when the pig launcher is in use.

Because of the lack of significant operational noise-producing sources from the Project and infrequent (once every 7 years) pipeline inspection activity, we conclude that existing ambient noise levels would not be affected in the local environment during operation of the Project.

## **ALTERNATIVES CONSIDERED**

In accordance with NEPA and FERC policy, we evaluated a range of alternatives. These alternatives include the no-action alternative, the potential use of other natural gas transmission systems in the region, additional compression on Northern's system, and pipeline route alternatives. Implementing the no-action alternative would result in no impacts on the environment; however, the Project's goals would not be met. The Commission decision, in its Order, would review the need for the Project. Because the Commission will ultimately determine Project need, and because staff has not identified a significant impact associated with the proposed action, we do not recommend the no-action alternative.

We assessed alternatives utilizing portions of Northern's existing pipeline system as well as two other existing interstate natural gas pipeline systems in the Project area. Our analysis concluded that other existing natural gas transmission systems in the Project area could not meet the widespread delivery points required by the end users. Modifying these systems owned by others could result in impacts similar to or greater than those of the proposed Project or would be economically impractical. Additional compression would not offer a significant environmental advantage over the proposed action. We conclude that the use of a system alternative is not preferable to the proposed action.

Major route alternatives were not evaluated as the Project consists of looping and extensions adjacent to existing natural gas facilities. Northern incorporated minor route variations into five of the six pipeline segments as a result of environmental and engineering investigations, and landowner comments. As a result of these routing considerations during early Project design, route modifications to avoid or reduce environmental impacts were already incorporated as part of Northern's proposed action.

Based on our evaluations of alternative routes for the proposed pipeline segments, we conclude that the pipeline route alternatives do not offer a significant environmental advantage when compared to the proposed routes or would not be economically practical; and therefore, are not preferable to the proposed action.

## **CONCLUSIONS**

As described in this executive summary and throughout the environmental analysis section of this draft EIS, we conclude that construction and operation of the Project would result in some adverse environmental impacts. Most of these impacts would be temporary and occur during construction (e.g., impacts on land use, traffic, and noise). Although impacts associated with construction of one of the six pipeline segments would be predominately borne by an environmental justice community, the impacts would be short in duration and equivalent to the impacts at the other five pipeline segments, which are not located in environmental justice communities; therefore, impacts on environmental justice communities from the Project as a whole would not be disproportionately high and adverse. With implementation of Northern's impact avoidance, minimization, and mitigation measures, as well as their adherence to our recommendations, we conclude that Project effects would be reduced to less-than-significant levels. We are unable to assess the Project's contribution to climate change through any objective analysis of physical impacts attributable to the Project. Additionally, we are unaware of an established threshold for determining the Project's significance when compared to established

GHG reduction targets at the state or federal level. As such, we are unable to determine significance regarding the Project's impacts on climate change.

In addition, we recommend additional mitigation measures that Northern should implement to further reduce the environmental impacts that would otherwise result from construction and operation of the Project. We recommend that Northern file certain information during the draft EIS comment period, whereas other recommendations should be met prior to construction and during operation, if the Project is approved. We will recommend that these mitigation measures be attached as conditions to any authorization issued by the Commission. These recommended mitigation measures are presented throughout section 4 of the draft EIS in bulleted, bold text and are summarized in section 5.1.

## 1.0 INTRODUCTION

On March 28, 2022, Northern Natural Gas (Northern) filed an application with the Federal Energy Regulatory Commission (FERC or Commission) (Docket No. CP22-138-000) pursuant to section 7(c) of the Natural Gas Act (NGA), as amended, and Part 157 of the Commission’s regulations. Northern is seeking authorization to construct a 36-inch-diameter pipeline extension totaling 2.8 miles; a 30-inch diameter pipeline loop totaling 1.1 miles; a 24-inch-diameter extension totaling 1.1 miles; 8-inch-diameter pipeline extensions totaling 2.8 miles; a 4-inch-diameter pipeline loop totaling 2.0 miles; a launcher and tie-over valve settings, and associated facilities all located in various counties in Minnesota and Wisconsin and hereafter referred to as the Project. When placed in service in November 2023, the proposed facilities would provide for incremental winter firm service of 44,222 dekatherms per day (Dth/day) serving residential, commercial and industrial customer market growth in Northern’s Market Area and 6,667 Dth/day of additional firm service that would allow a shipper enhanced reliability and flexibility in scheduling their transportation capacity.

The staff of the Commission prepared this Environmental Impact Statement (EIS) in compliance with the requirements of the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) regulations for implementing NEPA (Title 40 of the Code of Federal Regulations Parts 1500–1508 (2020) [40 Code of Federal Regulations “CFR” 1055–1508]) and the Commission’s implementing regulations under 18 CFR 380.

FERC is the lead federal agency for authorizing interstate natural gas transmission facilities under the NGA and the lead federal agency for preparation of this EIS. **The XX elected to become a cooperating agency for preparation of this EIS because XX.**

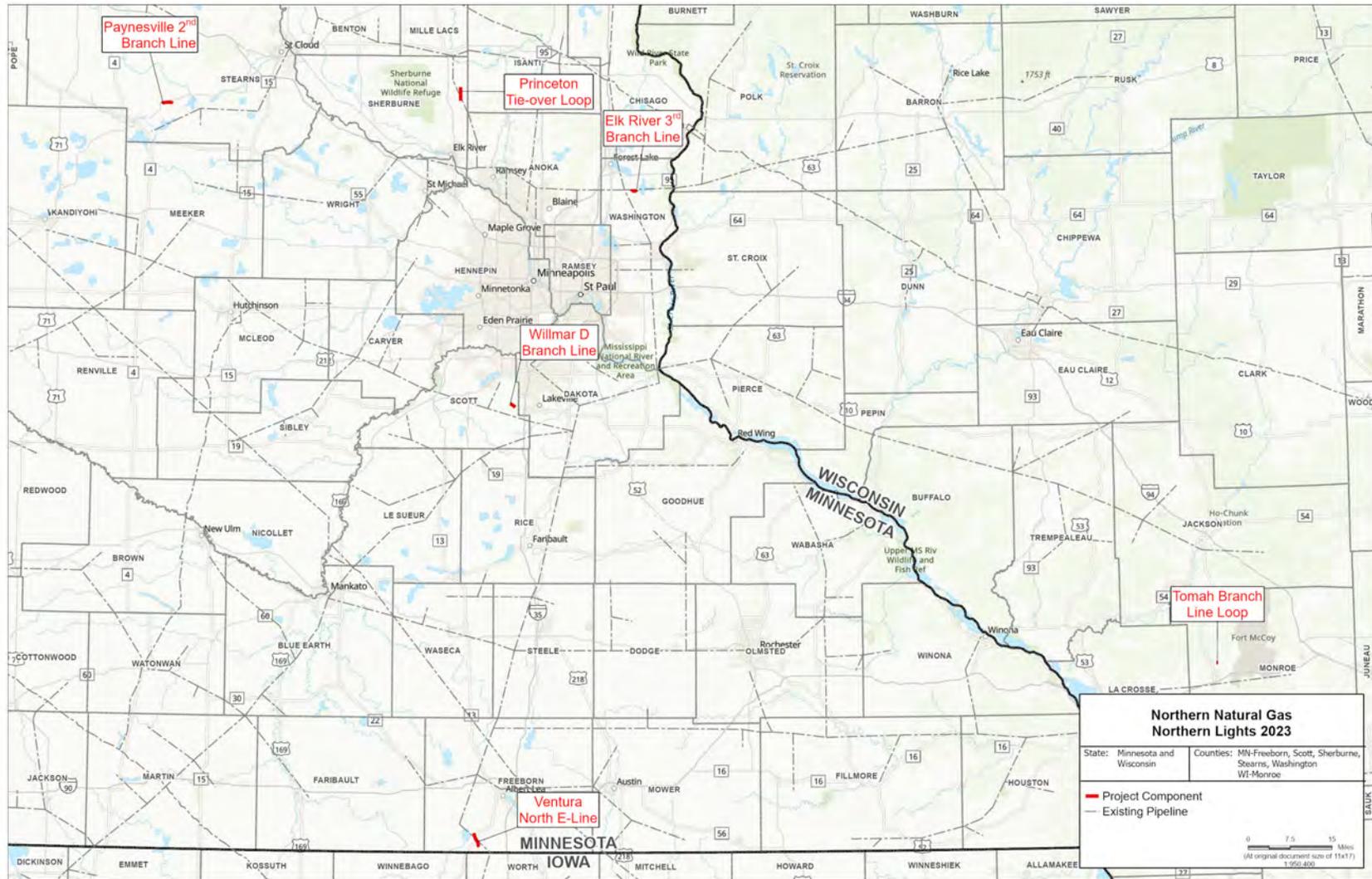
The EIS is an integral part of the Commission’s decision-making process on whether to issue Northern a Certificate of Public Convenience and Necessity (Certificate) to construct and operate the proposed facilities. We prepared this EIS to assess the environmental impacts that would likely occur as a result of construction of the Project. The Project would include construction of the following facilities:

- about 2.8 miles of 36-inch-diameter Ventura North E-Line in Freeborn County, Minnesota;
- about 1.1 miles of 30-inch-diameter Elk River 3<sup>rd</sup> Branch Line Loop in Washington County, Minnesota;
- about 1.1 miles of 24-inch-diameter Willmar D Branch Line in Scott County, Minnesota;
- about 2.5 miles of 8-inch-diameter Princeton Tie-Over Loop in Sherburne County, Minnesota;
- about 2.0 miles of 4-inch-diameter Paynesville 2<sup>nd</sup> Branch Line Loop in Stearns County, Minnesota;
- about 0.3 mile of 8-inch-diameter Tomah Branch Line Loop in Monroe County, Wisconsin;
- aboveground facilities including one new pig launcher, four new valve settings, replacement of valves and piping inside four facilities, removal of three valve settings, and associated piping in Freeborn, Washington, Scott, Sherburne, and Stearns counties, Minnesota and Monroe County, Wisconsin.

See figure 1-1 for the Project location. Additionally, 27 temporary access roads, 4 new facility access roads, 6 existing facility access roads (2 require expansion), and 14 staging areas are proposed for use during construction of the Project.

Northern has requested a Certificate in the spring of 2023. Northern anticipates it would commence construction of the Project following the receipt of FERC authorization and all other applicable permits, authorizations, and approvals. Based on these assumptions, Northern proposes to begin construction in April 2023 and conclude in October 2023, for an in-service date on or before November 1, 2023. Areas disturbed during construction would be restored (e.g., recontoured and reseeded), weather permitting, by the end of December 2023.

**Figure 1-1 Project Location**



## **1.1 PROJECT PURPOSE AND NEED**

According to Northern, the proposed facilities are required to serve the firm transportation requirements of Northern's customers associated with increased energy needs, which were identified through an open season held May 3 through June 3, 2021. If constructed, the proposed facilities would provide for incremental winter firm service of 44,222 Dth/day serving residential, commercial and industrial customer market growth in Northern's Market Area and 6,667 Dth/day of additional firm service that would allow a shipper enhanced reliability and flexibility in scheduling their transportation capacity.

Under Section 7 of the NGA, the Commission determines whether interstate natural gas transportation facilities are in the public convenience and necessity and, if so, grants a Certificate to construct and operate these facilities. FERC's Certificate Policy Statement provides guidance as to how the Commission evaluates proposals for new construction and establishes criteria for determining whether there is a need for a proposed project and whether it would serve the public interest. The Commission bases its decision on technical competence, financing, rates, market demand, gas supply, environmental and landowner impact, long-term feasibility, and other issues concerning a proposed project. The Commission does not direct the development of the gas industry's infrastructure regionally or on a project-by-project basis or redefine an applicant's stated purpose.

## **1.2 PURPOSE AND SCOPE OF THIS EIS**

The principal purposes in preparing this EIS are to:

- identify and assess potential impacts on the human environment that would result from implementation of the proposed action;
- identify and assess reasonable alternatives to the proposed action and/or specific mitigation measures that would avoid or minimize environmental impacts and adverse effects on the human environment; and
- encourage and facilitate involvement by the public and interested agencies in the environmental review process.

The topics addressed in this EIS include geology; soils; water use and quality; wetlands; vegetation; wildlife; threatened, endangered, and special status species; land use, recreation, and visual resources; environmental justice; cultural resources; air quality; climate change; noise; reliability and safety; and alternatives. This EIS describes the affected environment as it currently exists, discusses the potential environmental consequences of the proposed Project, and compares the Project's potential impact to that of identified alternatives. This EIS also presents our conclusions and recommended mitigation measures. We will recommend to the Commission that these recommended mitigation measures (summarized in section 5.1 of this EIS) be included as conditions to any Certificate issued for the Project. The Energy Policy Act of 2005 provides that the FERC shall act as the lead agency for coordinating all applicable authorizations related to jurisdictional natural gas facilities and for purposes of complying with NEPA. Based on its authority under the NGA, the FERC is the lead agency for preparation of this EIS in compliance with the requirements of NEPA, the CEQ regulations for implementing NEPA, and FERC regulations implementing NEPA (18 CFR 380). As the lead federal agency for the Project, FERC

is required to comply with applicable statutes; for this Project, that includes Section 7 of the Endangered Species Act of 1973, as amended (ESA) and Section 106 of the National Historic Preservation Act (NHPA). Both of these statutes have been taken into account in the preparation of this EIS. The Commission will use this document to consider the environmental impacts that could result if it issues a Certificate to Northern under section 7(c) of the NGA.

### **1.2.1 Federal Energy Regulatory Commission**

FERC is the federal agency responsible for authorizing interstate pipeline facilities. The identification of environmental impacts related to the construction and operation of the Project, and the mitigation of those impacts, as disclosed in this EIS, would be components of the Commission's decision-making process. The Commission would issue its decision in an Order. If the Project is approved, the Order would specify that the pipeline and related facilities can be constructed and operated under the authority of section 7 of the NGA. The Commission may attach environmental conditions to the Order that would be enforceable actions to assure that the proper mitigation measures are implemented during construction and prior to the Project going into service.

We prepared this EIS to assess the environmental impacts that could result from constructing and operating the Project. This document was prepared in compliance with the requirements of NEPA, the CEQ's regulations implementing procedural provisions of NEPA in 40 CFR 1500-1508, and the FERC's regulations implementing NEPA in 18 CFR 380.

Other regulatory agencies also may include terms and conditions or stipulations as part of their permits or approvals. While there would be jurisdictional differences between the FERC's and other agencies' conditions, Northern's environmental inspection program for the Project would address all environmental or construction-related conditions or other permit requirements placed on Northern by all regulatory agencies.

In accordance with CEQ regulations implementing NEPA, no agency decision on a proposed action may be made until 30 days after the U.S. Environmental Protection Agency (EPA) publishes a notice of availability of the final EIS in the Federal Register. However, the CEQ regulations provide an exception to this rule when an agency decision is subject to a formal internal appeal process that allows other agencies or the public to make their views known. In such cases, the agency decision may be made at the same time the notice of the final EIS is published, allowing both periods to run concurrently. The Commission decision for this proposed action is subject to a 30-day rehearing period. Therefore, the FERC decision may be made and recorded concurrently with the publication of the final EIS.

### **1.2.2 Cooperating Agencies**

The regulations that implement NEPA and establish the CEQ's regulations call on federal, state, and local government agencies to cooperate in the preparation of environmental documents (40 CFR 1501.8). A "cooperating agency" is another agency participating in the NEPA process that has jurisdiction by law over all or part of the project and/or one that has special expertise with respect to environmental issues. Cooperating agencies are intended to have a significant role in shaping plans and environmental analyses according to their particular jurisdiction and expertise. **The review of the proposed Project herein was undertaken with the participation and assistance of**

the MDNR as a cooperating agency under NEPA because it has specific permitting requirements and special expertise on environmental resources associated with the Project.

The EIS provides a basis for coordinated federal decision-making in a single document, avoiding duplication among federal agencies in the NEPA environmental review process. In addition to the lead and cooperating agencies, other federal, state, and local agencies may use this EIS in approving or issuing permits for all or part of the proposed Project. Federal, state, and local permits, approvals, and consultations for the Project are discussed in section 1.5.

### **1.3 PUBLIC REVIEW AND COMMENT**

On **Month XX**, 2022, FERC issued a Notice of Application and Establishing Intervention Deadline for Northern's Project in Docket No. CP22-138-000. The notice announced the receipt of Northern's application pursuant to section 7(c) of the NGA, identified ways for the public to provide comments on the Project, and established a deadline for submitting a motion to intervene in the proceeding.

Northern conducted three public open house meetings, two on March 9, 2022 in Twin Lakes, Minnesota and one on March 10, 2022 in Princeton, Minnesota. Information on the FERC process and contact information was provided to attendees by Northern. The open houses provided an opportunity for stakeholders to ask questions and express concerns. Each open house was publicized via local newspapers, and through direct mail to landowners and stakeholders and by phone invitations or in-person contacts to property owners. Twenty four individuals attended the open houses. Affected landowners were provided with a landowner-specific aerial map that detailed the proposed construction plan for their parcels. Landowners were able to review this map with Northern's land agents. Northern also maintains a 24/7 toll-free number (1-888-367-6671) that stakeholders can use to contact Northern. Northern also established a dedicated website and email address for use by interested stakeholders. **Northern has developed an Environmental Complaint Resolution Procedure that was mailed to affected landowners.**

**On January 4, 2021**, we issued in Docket No. CP22-138-000 a Notice of Scoping Period Requesting Comments on Environmental Issues for the Proposed Northern Lights 2023 Expansion Project (Project). **This notice was mailed to approximately 120 entities, including affected landowners (as defined in the Commission's regulations); federal, state, and local officials; Native American tribes; agency representatives; environmental and public interest groups; and local libraries and newspapers.** This notice also initiated consultation for the Project under Section 106 of the NHPA. Comments received in response to the scoping notice are summarized below.

On **Month XX, 2022**, we issued in Docket No. CP22-138-000 the Notice of Intent to Prepare an EIS for the proposed Project, Request for Comments on Environmental Issues, and Schedule for Environmental Review. This notice was mailed to the same list as described above. Comments received in response to the notice of intent are summarized below.

**The draft EIS was filed with the EPA, and the Notice of Availability of the draft EIS was mailed as above, along with other interested parties (i.e., individuals who provided scoping comments or asked to be on the mailing list). A formal notice indicating the draft EIS was available for review and comment was published in the Federal Register and opened a 45-day comment period.**

All comments that were received on the draft EIS related to environmental issues are addressed in this final EIS. This final EIS has been issued in Docket No. CP22-138-000 and filed with the EPA. The distribution list for the Notice of Availability of the final EIS is provided in appendix E.

### **1.3.1 Issues Identified During Scoping**

TBD

### **1.3.2 Submitted Alternatives, Information, and Analyses**

We issued the draft EIS on Month XX, 2022 and received comments from the XX, XX, and XX. <insert info on comments>

This EIS addresses the potential environmental impacts of Northern’s proposed Project and the concerns identified by commenters and permitting or resource agencies that responded to the Notice of Scoping and/or the Notice of Intent, or commented on the draft EIS, as well as our own independent evaluation of environmental resource impacts and other issues. The environmental comments received are summarized below and are further addressed, as applicable, in the relevant sections of this EIS as summarized in table 1.3-1. Non-environmental comments, such as those declaring general support for the Project, or that focused on general energy policy concerns were noted but are considered outside the scope of the EIS.

**Table 1.3-1  
Environmental Issues and Concerns Raised During Public Scoping for the Project**

<b>Issue</b>	<b>EIS Section Addressing Issue</b>
<b>General Project Description</b>	<b>2.0</b>
Pipeline pressure testing	2.3.3
Pipeline metering	2.1
Right-of-way width	2.1
Roadway crossings and access	2.3.2
<b>Alternatives</b>	<b>3.0</b>
No Action Alternative	3.1
System Alternatives	3.2
<b>Soils</b>	<b>4.3</b>
<b>Vegetation</b>	<b>4.7</b>
<b>Water Resources, Wetlands, and Fisheries</b>	<b>4.4, 4.5, 4.6</b>
Fish	4.6
Floodplains	4.4.3
Water rights	4.4.4
Wetland, riparian and waterbody impacts and mitigation	4.4.2, 4.5
<b>Wildlife and Threatened and Endangered Species</b>	<b>4.8, 4.9</b>
Reptile and mammal mitigation measures	4.8
Fish and Wildlife Habitat	4.6, 4.8, 4.9.2
Threatened, Endangered, Candidate or Special Status Plant Species	4.9
Section 7 consultation	4.9.1
Migratory birds	4.8.2
Rusty-patched bumble bee	4.9.2
Blanding's turtle	4.9.2
<b>Environmental Justice Communities</b>	<b>4.11.3</b>
<b>Land Use, Visual Resources, and Recreation</b>	<b>4.10</b>
Restrictions on future uses of the land	4.10.1
<b>Cultural Resources</b>	<b>4.12</b>
Prehistoric archaeological sites	4.12.1
<b>Air Quality</b>	<b>4.13</b>
Dust suppression	4.13.1.6
Greenhouse Gas emissions	4.13.2
<b>Pipeline Safety</b>	<b>4.14</b>

## **1.4 NON-JURISDICTIONAL FACILITIES**

Under section 7 of the NGA, FERC is required to consider, as part of a decision to authorize jurisdictional facilities, all facilities that are directly related to a proposed project where there is sufficient federal control and responsibility to warrant environmental analysis as part of the NEPA review. Some proposed projects have associated facilities that do not come under the jurisdiction of the Commission. These “non-jurisdictional” facilities may be integral to the need for the proposed facilities, or they may be merely associated as minor components of the jurisdictional facilities that would be constructed and operated as a result of authorization of the proposed facilities.

No non-jurisdictional facilities are planned for the Project.

## **1.5 PERMITS, APPROVALS, AND REGULATORY REVIEWS**

FERC has exclusive authority for siting interstate natural gas pipeline projects; however, other agencies also have responsibilities for other federal authorizations, such as the Clean Air Act (CAA), the Clean Water Act (CWA), and Section 10 of the Rivers and Harbors Act of 1899. As a federal agency, FERC is required to comply with a number of regulatory statutes including, but not limited to NEPA, section 7 of the ESA, and Section 106 of the NHPA. Each of these statutes has been taken into account in the preparation of this EIS. The major permits, approvals, and consultations for the Project are identified in table 1.5-1.

Section 7 of the ESA states that any project authorized, funded, or conducted by any federal agency should not “...jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined...to be critical... .” (16 USC 1536[a][2][1988]). FERC is required to determine whether any federally listed or proposed endangered or threatened species or their designated critical habitat occur in the vicinity of the proposed Project, and conduct consultations with the U.S. Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Service, if necessary. As identified in Section 4.9.1, we have concluded that the Project would have no effect on federally listed or proposed endangered or threatened species or their designated critical habitat and that additional review is not necessary.

The Migratory Bird Treaty Act of 1918 (MBTA) implements various treaties and conventions between the United States, Mexico, Canada, Japan, and Russia for the protection of migratory birds. Birds protected under the MBTA include all common songbirds, waterfowl, shorebirds, hawks, owls, eagles, ravens, crows, native doves and pigeons, swifts, martins, swallows, and others, including their body parts (e.g., feathers, plumes), nests, and eggs. The act makes it unlawful to pursue, hunt, take, capture, or kill; attempt to take, capture, or kill; possess, offer to or sell, barter, purchase, deliver, or cause to be shipped, exported, imported, transported, carried, or received any migratory bird, part, nest, egg, or product, manufactured or not, without a permit. The MBTA is discussed further in in section 4.8.2.

The Bald and Golden Eagle Protection Act of 1940, as amended (BGEPA) prohibits taking without a permit or taking with wanton disregard for the consequences of an activity any bald or golden eagle or their body parts, nests, chicks, or eggs, which includes collection, molestation, disturbance, or killing. The BGEPA protections include provisions not included in the MBTA,

such as the protection of unoccupied nests and a prohibition on disturbing eagles. We discuss compliance with the BGEPA in section 4.8.2.

Section 106 of the NHPA requires that FERC take into account the effects of its undertakings on properties listed, or eligible for listing, in the National Register of Historic Places (NRHP), including prehistoric or historic sites, districts, buildings, structures, objects, or properties of traditional religious or cultural importance, and to afford the Advisory Council on Historic Preservation an opportunity to comment on the undertaking. Northern, as a non-federal party, is assisting FERC in meeting our obligations under section 106 by preparing the necessary information, analyses, and recommendations under Advisory Council regulations in 36 CFR 800. EIS section 4.12 provides information on the status of this review.

Northern must comply with sections 401, 402, and 404 of the CWA. Water quality certification (section 401) has been delegated to the state agencies, with review by the EPA. Water used for hydrostatic testing that is point-source discharged into waterbodies would require a National Pollutant Discharge Elimination System (NPDES) permit (section 402) issued by the Minnesota Pollution Control Agency (MPCA) and the Wisconsin Department of Natural Resources (WDNR). The U.S. Army Corps of Engineers (USACE) has responsibility for determining compliance with all regulatory requirements associated with section 404 of the CWA. The EPA also independently reviews section 404 applications for wetland dredge-and-fill applications for the USACE and has section 404(c) veto power for wetland permits issued by the USACE. The section 404 permitting process regulates the discharge of dredged and fill material associated with the construction of pipelines across streams and in wetlands. Our analyses of water resources and wetland impacts is provided in sections 4.4 and 4.5, respectively.

The CAA was enacted by Congress to protect the health and welfare of the public from the adverse effects of air pollution. The CAA is the basic federal statute governing air pollution. Federal and state air quality regulations established as a result of the CAA include, but are not limited to, Title V operating permit requirements and Prevention of Significant Deterioration (PSD) Review. The EPA is the federal agency responsible for regulating stationary sources of air pollutant emissions; however, the federal permitting process has been delegated to the MPCA and WDNR. Air quality impacts that could occur as a result of construction and operation of the Project are evaluated in EIS section 4.13.1.

Table 1.5-1 lists the major permits, consultations, and approvals for the Project. Northern is responsible for obtaining all permits and approvals required to implement the Project, regardless of whether they appear in the table.

<b>Table 1.5-1 Permits, Approvals, and Consultations for the Project</b>		
<b>Administering Agency</b>	<b>Permit or Approval</b>	<b>Status</b>
<b>Federal</b>		
FERC	Certificate for construction and operation of interstate natural gas transmission pipeline facilities	Section 7 application filed March 28, 2022
USACE, St. Paul District	CWA Section 404 – Dredge and Fill Utility Regional General Permit 3	USACE notification submitted February 15, 2022. Wetland impacts qualify under Regional General Permit 3 - non-reporting. No USACE response is required; confirmations received for 3 Project components
USFWS, Twin Cities Field Office	Section 7 ESA, BGEPA, and MBTA – consultation clearance request for Minnesota	Initial coordination submitted March 1, 2022. USFWS approved Northern’s survey plan for the RPBB. Section 7 consultation <b>will be submitted October 2022</b>
Native American Tribes	NHPA, Section 106 Consultation to determine impacts on Traditional Cultural Properties	Submission of cultural reports and Unanticipated Discovery Plan (UDP) completed February 22 and 24, 2022. Consultation ongoing.
<b>State – Minnesota</b>		
MPCA	Section 401 Water Quality Certification	To be authorized as part of Regional General Permit 3
	NPDES Stormwater Permit MNR100001	<b>Permit application submittals anticipated February/March 2023</b>
	NPDES Trench Water Discharge Permit	Authorization would be included in NPDES stormwater permit
Minnesota Department of Natural Resources (MDNR)	MPARS Water Appropriation Permit for Pit Trench Water	<b>Permit application submittals anticipated February/March 2023</b>
	State Protected Species Consultation	<b>Consultation initiated January 2022.</b> Northern submitted Blanding’s Turtle Mitigation and Avoidance Plan. Response from MDNR anticipated October/November 2022
State Historical Society of Minnesota	Section 106 Consultation, NHPA	Submission of cultural reports and UDP January 26, 2022. No effect concurrence received February 15, 2022, consultation complete.
Minnesota Department of Agriculture (MDA)	Comments on Northern’s Agricultural mitigation plan and Noxious Weed Mitigation Plan	<b>Coordination initiated February 17, 2022</b>
<b>State - Wisconsin</b>		
WDNR	WPDES Construction Site Stormwater Runoff General Permit No. WI-S067831-6	<b>Permit application submittals anticipated February/March 2023</b>
	WPDES Hydrostatic Test Water Discharge Permit No. WI-A0057681-5	<b>Permit application submittals anticipated February/March 2023</b>
	WPDES Pit Trench Water Discharge Permit No. WI-0049344-5	Authorization would be included in NPDES stormwater permit
	State Protected Species Consultation	Consultation initiated January 2022. Consultation complete January 7, 2022 under the WDNR Broad Incidental Take Permit/Authorization for no to low impact projects.
Wisconsin State Historical Society	Section 106 Consultation, NHPA	Submission of cultural reports and UDP January 27, 2022. No effect concurrence received January 31, 2022. Consultation complete.

## **2.0 DESCRIPTION OF THE PROPOSED ACTION**

### **2.1 PROPOSED FACILITIES**

This section describes the proposed pipeline system facilities, land requirements, construction procedures, schedule, environmental compliance and inspection monitoring, operation and maintenance procedures, and safety controls for the Project. Figure 1-1 shows the locations of Northern's Project. U.S. Geological Survey (USGS) topographic base maps are in appendix B. Northern also provided aerial photographic base maps, referred to as alignment sheets, depicting the proposed pipeline facilities and associated construction and operation rights-of-way. The alignment sheets can be accessed on our eLibrary at [www.ferc.gov](http://www.ferc.gov). The exact location data of the Project facilities as reviewed by staff is shown on the alignment sheets. Specifically, the Project would include the following facilities:

- about 2.8 miles of 36-inch-diameter Ventura North E-Line in Freeborn County, Minnesota;
- about 1.1 miles of 30-inch-diameter Elk River 3<sup>rd</sup> Branch Line in Washington County, Minnesota;
- about 1.1 miles of 24-inch-diameter Willmar D Branch Line in Scott County, Minnesota;
- about 2.5 miles of 8-inch-diameter Princeton Tie-Over Loop in Sherburne County, Minnesota;
- about 2.0 miles of 4-inch-diameter Paynesville 2<sup>nd</sup> Branch Line in Stearns County, Minnesota;
- about 0.3 mile of 8-inch-diameter Tomah Branch Line Loop in Monroe County, Wisconsin;
- aboveground pipeline facilities including one new pig launcher, four new valve settings, replacement of valves and piping inside four facilities, removal of three valve settings, and associated piping in Freeborn, Washington, Scott, Sherburne, and Stearns counties, Minnesota and Monroe County, Wisconsin.

Additionally, 27 temporary access roads, 4 new facility access roads, 6 existing facility access roads (2 requiring expansion), and 14 staging areas are proposed for use during construction of the Project.

#### **2.1.1 Pipeline Facilities**

The planned pipeline facilities are summarized in Table 2.1.1-1 and described below. The land requirements for the pipeline facilities are summarized in section 2.2.

<b>Table 2.1.1-1 Planned Pipeline Facilities</b>						
<b>Facility</b>	<b>Pipeline Diameter and Type</b>	<b>MAOP (psig)</b>	<b>Approximate Length</b>	<b>Milepost (MP)</b>	<b>County</b>	<b>State</b>
Ventura North E-Line	36-inch-diameter extension	1,050	2.8 miles	28.42 to 31.21	Freeborn	MN
Elk River 3 <sup>rd</sup> Branch Line	30-inch-diameter loop	1,000	1.1 miles	0.00 to 1.07	Washington	MN
Willmar D Branch Line	24-inch-diameter extension	950	1.1 miles	2.20 to 3.34	Scott	MN
Princeton Tie-Over Loop	8-inch-diameter extension	1,099	2.5 miles	8.78 to 11.26	Sherburne	MN
Paynesville 2 <sup>nd</sup> Branch Line	4-inch-diameter loop	950	2.0 miles	0.00 to 2.01	Stearns	MN
Tomah Branch Line Loop	8-inch-diameter extension	800	0.3 mile	1.92 to 2.26	Monroe	WI

**2.1.1.1 Ventura North E-Line**

The Ventura North E-Line consists of 2.8 miles of 36-inch-diameter pipeline extension partially collocated with other Northern pipelines in Freeborn County, Minnesota. The Ventura North E-Line would originate at the current terminus of the E-Line and extend northwest to its terminus at the tie-in to Northern’s D-Line pipeline. A valve setting will be relocated from the origination location to the terminus of the extension.

**2.1.1.2 Elk River 3<sup>rd</sup> Branch Line**

The Elk River 3<sup>rd</sup> Branch Line consists of 1.1 miles of 30-inch-diameter pipeline loop partially collocated with other Northern pipelines in Washington County, Minnesota. The Elk River 3<sup>rd</sup> Branch Line would originate inside Northern’s existing Hugo Compressor Station and extend west to its terminus within a new proposed valve setting.

**2.1.1.3 Willmar D Branch Line**

The Willmar D Branch Line consists of 1.1 miles of 24-inch-diameter pipeline extension partially collocated with other Northern pipelines in Scott County, Minnesota. The Willmar D Branch Line would originate at the current terminus of the Willmar D Branch Line and extend west to its terminus within a new proposed valve setting.

**2.1.1.4 Princeton Tie-Over Loop**

The Princeton Tie-Over Loop consists of 2.5 miles of 8-inch-diameter pipeline extension partially collocated with other Northern pipelines in Sherburne County, Minnesota. The Princeton Tie-Over Loop would originate at the current terminus of the Princeton Branch Line and extend south to its terminus within the existing Princeton Tie-Over Launcher Facility. A valve setting will be relocated from the origination location to the terminus of the extension.

### **2.1.1.5 Paynesville 2<sup>nd</sup> Branch Line**

The Paynesville 2<sup>nd</sup> Branch Line consists of 2.0 miles of 4-inch-diameter pipeline loop collocated with other Northern pipelines in Stearns County, Minnesota. The Paynesville 2<sup>nd</sup> Branch Line would originate within Northern's Dooley's MN Town Border Station (TBS) and extend west to its terminus within the existing Roscoe take-off facility.

### **2.1.1.6 Tomah Branch Line Loop**

The Tomah Branch Line Loop consists of 0.3 mile of 8-inch-diameter pipeline extension collocated with other Northern pipelines in Monroe County, Wisconsin. The Tomah Branch Line Loop would originate within the Tomah Branch Line Loop receiver facility and extend east to its terminus within a new proposed valve setting.

### **2.1.1.7 Aboveground Facilities**

Valve settings consist of a small system of aboveground and underground piping and valves that control the flow of gas within the pipeline and can also be used to vacate, or blow-off, the gas within a pipeline segment, if necessary. The Project includes relocation of three valve settings and construction of four new valve settings. The new or relocated valve settings would be installed within the operational rights-of-way of the pipeline facilities, within the footprint of existing aboveground facilities, or within an existing compressor station.

Pig launchers are facilities where internal pipeline cleaning and inspection tools, referred to as "pigs," could be inserted or retrieved from the pipeline. The new launcher associated with the Elk River 3<sup>rd</sup> Branch Line would be installed within Northern's Hugo Compressor Station as part of a land purchase for a separate unrelated action.

Table 2.1.1-2 lists the valve settings and launcher associated with the Project.

<b>Table 2.1.1-2 Valve Settings and Launcher</b>				
<b>Pipeline Segment</b>	<b>County/State</b>	<b>MP</b>	<b>Facility Name</b>	<b>Description</b>
Ventura North E-Line	Freeborn, MN	28.42	E-Line tie-over valve setting (existing)	To be removed
Ventura North E-Line	Freeborn, MN	31.21	E-Line tie-over valve setting	New valve setting
Elk River 3 <sup>rd</sup> Branch Line	Washington, MN	0.00	Hugo Compressor Station (existing)	Add new launcher and valves
Elk River 3 <sup>rd</sup> Branch Line	Washington, MN	1.07	Elk River tie-over valve setting	New valve setting
Willmar D Branch Line	Scott, MN	2.21	Willmar tie-over valve setting (existing)	To be removed
Willmar D Branch Line	Scott, MN	3.34	Willmar tie-over valve setting	New valve setting
Princeton Tie-Over Loop	Sherburne, MN	8.78	Princeton tie-over valve setting (existing)	To be removed
Princeton Tie-Over Loop	Sherburne, MN	11.26	Princeton tie-over launcher facility (existing)	Add new valves
Paynesville 2 <sup>nd</sup> Branch Line	Stearns, MN	0.00	Dooley's MN #2 TBS (existing)	Add new valves
Paynesville 2 <sup>nd</sup> Branch Line	Stearns, MN	2.01	Roscoe Branch Line take off facility (existing)	Add new valves
Tomah Branch Line Loop	Monroe, WI	1.92	Tomah Branch Line Loop receiver facility (existing)	Only belowground work at this location
Tomah Branch Line Loop	Monroe, WI	2.26	Tomah tie-over valve setting	New valve setting

## **2.2 LAND REQUIREMENTS**

Construction of the Project would disturb about 255.4 acres of land. The total acreage required for operation of all Project facilities is 52.4 acres. Land requirements for construction and operation of the Project are summarized in appendix A, table 2.2-1, and typical right-of-way construction diagrams are included in appendix F. See section 4.10 for more detailed information regarding land uses affected by the Project. The land disturbed by construction of the Project pipeline facilities would include the temporary construction right-of-way, permanent right-of-way, additional temporary workspace (ATWS), staging areas, and temporary and permanent access roads or facility access roads.

### **2.2.1 Pipeline Right-of-Way**

Northern would use a 100-foot-wide or 75-foot-wide construction right-of-way in upland areas; a 75- or 50-foot-wide construction right-of-way would be used across wetlands. The permanent right-of-way would be 50 feet wide, except in wetlands, where it would be reduced to 10 feet wide.

### **2.2.2 Additional Temporary Workspace and Staging Areas**

Varying widths and sizes of ATWS would be required adjacent to the temporary workspace in certain locations for specialized construction methods, such as horizontal directional drilling (HDD), wetland and waterbody crossings, and road crossings.

Northern is proposing to use 14 staging areas. Northern would restore each staging area after completion of construction (see table B-1 in appendix B for land use types). Appendix B includes the locations of the staging areas.

In total, ATWS and staging areas for the Project would disturb 147.4 acres of land during construction. Table B-1 in appendix B identifies staging areas and locations where Northern has requested extra workspace, including workspace acreage of impact and the justification for their use.

### **2.2.3 Access Roads**

Temporary access roads would be needed to access the construction right-of-way and ATWS. The proposed access roads generally originate at existing public roads. A total of 27 temporary access roads would be used during construction and would be restored to preconstruction conditions to the extent practicable. Four permanent access roads would be constructed and two existing access roads would be expanded to access the aboveground facilities. Additionally, Northern would use four existing permanent access roads without modification. In total, the temporary and permanent access roads would disturb 18.5 acres of land. Table B-2 in appendix B identifies the temporary and permanent access roads proposed for the Project. Access roads are depicted on the Project location maps provided in appendix G.

### **2.2.4 Aboveground Facilities**

Construction and operation of the aboveground facilities would permanently impact 3.1 acres of land. The affected acreage for each of the aboveground facilities by existing land use type is detailed in table B-3 in appendix B.

## **2.3 CONSTRUCTION SCHEDULE AND WORKFORCE**

Northern proposes to begin construction in April 2023 and conclude in October 2023, for an in-service date on or before November 1, 2023. Areas disturbed during construction would be restored (e.g., recontoured and reseeded), weather permitting, by the end of December 2023. Northern has indicated that in the event final restoration (i.e., final grading, reseeded, and installation of permanent erosion-control measures) is not completed by October 31, 2023, Northern would abide by its winter construction plan. **We have reviewed this plan and find it acceptable.** Temporary erosion-control measures would remain in place, as needed, until revegetation is successful.

Construction would be carried out across six spreads with a total of about 150 to 300 construction workers. Construction crews typically would work 12 hours per day, 6 days per week. Northern has indicated that construction would “generally” take place Monday through Saturday, from 7 a.m. to 7 p.m.; however, Northern states that circumstances may arise where, for safety or technical reasons, work may extend into nighttime hours. In that event, Northern would cease construction as soon as it could do so in a safe and responsible manner. Construction would generally not take place on federal holidays or at night, but Northern allows for the possibility that work may need to continue through a holiday period. If Northern believes nighttime work near noise sensitive areas (NSAs) is necessary, except for tie-ins, pressure testing, testing and commissioning, electrical work, inspections, and 6 of 10 HDDs, authorization would be required via the variance process described in recommended Environmental Condition No. 1 (Section 5.1),

and be considered in such a way as to not increase nighttime noise and lighting impacts on nearby residents beyond that disclosed in the EIS.

## 2.4 CONSTRUCTION PROCEDURES

The Project would be designed, constructed, operated, and maintained in accordance with the U.S. Department of Transportation (DOT) regulations in 49 CFR 192 (2017), and other applicable federal and state regulations. During all phases of the Project, applicable Occupational Safety and Health Administration requirements would be followed (OSHA, 2020). The requirements set forth in applicable regulations and the conditions of the Certificate and other required permits would be provided to Northern's employees and contractors engaged in the construction, maintenance and operation of the Project and would also be provided to Northern's construction contractors and third-party inspectors. These employees and contractors have been, or would be, instructed to follow these requirements, as applicable, when planning, installing, and operating the facilities. In accordance with 49 CFR 192, the pipeline would be inspected for leakage as part of scheduled operations and maintenance. Northern also would participate in the local One Call systems. These standards are in accordance with the National Pipeline Safety Act of 1968, as amended.

Northern would adopt our *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures)<sup>2</sup> for the Project. Northern has requested modifications of the requirements of the Procedures in eight locations, which are listed in appendix H and further discussed in sections 2.4.2.3 and 2.4.2.4. **We have reviewed these modifications and find them acceptable.**

Northern would also implement the following construction and mitigation plans for the Project, which **we have reviewed and find acceptable**:

- HDD Plan and Profiles and Site-Specific HDD Plans;
- Horizontal Directional Drill Monitoring, Inadvertent Return Response, and Contingency Plan (HDD Plan);
- Winter Construction Plan;
- Wetland Restoration Plan;
- Spill Prevention, Control, and Countermeasures Plan (SPCC plan);
- Agricultural Impact Mitigation Plan (AIMP);
- Stormwater Pollution Prevention Plans (SWPPPs) and a Construction Erosion and Sediment Control Plan (CESCP);
- Site-Specific Residential Construction Plans;
- Traffic Control Plan;

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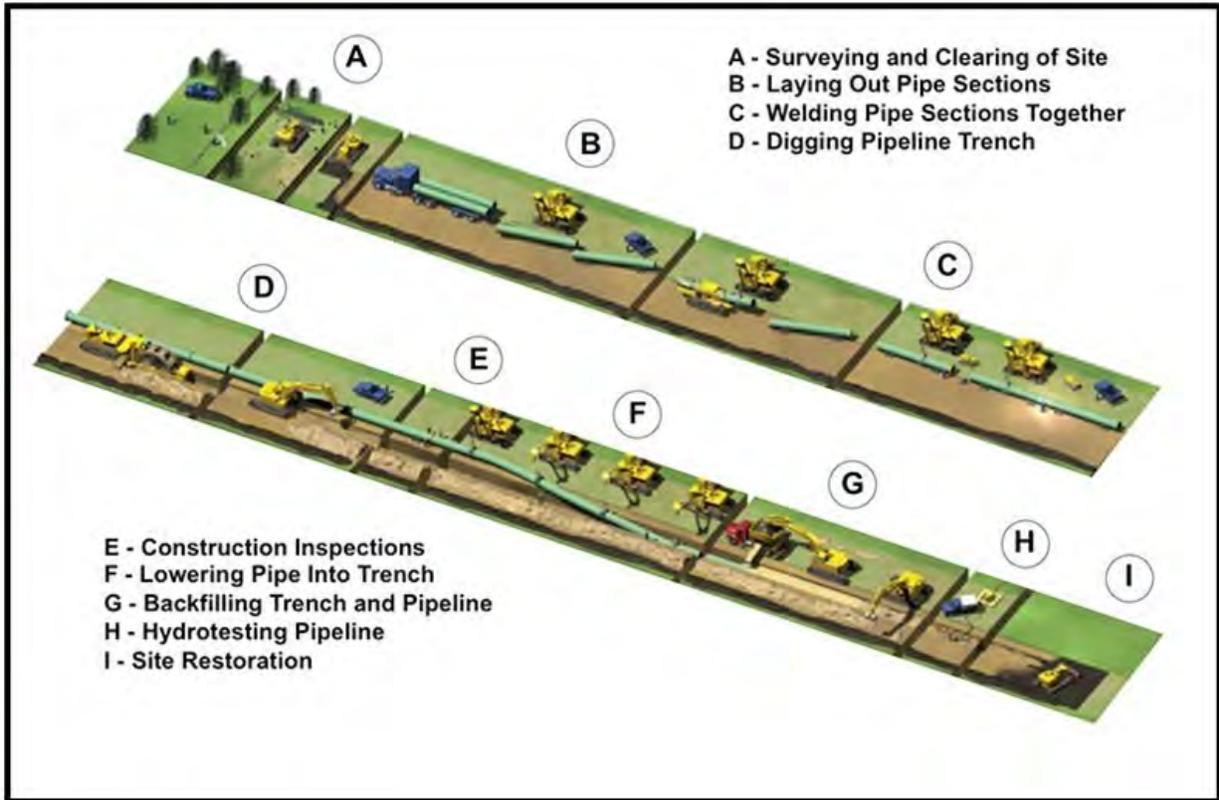
<sup>2</sup> The FERC Plan and Procedures are a set of construction and mitigation measures that were developed in collaboration with other federal and state agencies and the natural gas pipeline industry to minimize the potential environmental impacts of the construction of pipeline projects in general. The FERC Plan and Procedures can be viewed on the FERC website at [www.ferc.gov/industries/gas/enviro/plan.pdf](http://www.ferc.gov/industries/gas/enviro/plan.pdf) and <http://www.ferc.gov/industries/gas/enviro/procedures.pdf>.

- Noxious Weed Control Plan; and
- UDPs for Cultural Resources and Human Remains.

#### **2.4.1 Conventional Pipeline Construction Sequence**

Construction of each proposed pipeline facility for the Project would incorporate conventional overland construction techniques and standard sequences of activities. This typically consists of a sequential process of surveying, clearing, grading, excavating, pipe stringing and bending, welding, lowering-in and backfilling, hydrostatic testing, cleanup, and restoration. Crews working on each stage of construction generally proceed along the pipeline right-of-way in one continuous operation. Figure 2-1 shows the typical construction sequence for installation of a new pipeline. The entire process would be coordinated to minimize the total time a tract of land would be disturbed and, therefore, exposed to erosion and temporarily precluded from normal use. The activities at any single point would last about 6 to 18 weeks.

**Figure 2-1 Pipeline Construction Sequence**



### **2.4.1.1 Surveying and Staking**

The initial step in the preparation of the right-of-way for construction is the preconstruction survey. Affected landowners would be notified prior to the preconstruction survey. Civil survey crews survey and stake the outside limits of the right-of-way and temporary workspace (TWS), the centerline of the pipeline trench, highway and road crossings, sensitive environmental feature boundaries, access roads, and all known underground facilities. Northern would ensure the local One Call notification systems (Gopher State One Call and Wisconsin Digger's Hotline) are contacted to allow utilities with facilities in the Project area to locate and mark utility lines to prevent accidental damage during pipeline construction.

### **2.4.1.2 Clearing and Grading**

Following the installation of the staking and flagging, the right-of-way would be cleared and graded as needed to provide a safe and efficient working space for construction workers and equipment. Fences along the rights-of-way would be cut and braced, and temporary gates and fences would be installed to contain livestock, if present. Clearing and grading would remove trees, shrubs, brush, roots, and large rocks from the construction work area and would level the right-of-way surface to allow operation of construction equipment.

Timber would be removed only when necessary for construction purposes and worker safety. Northern would engage the applicable landowner to determine the landowner's preference for timber handling and use. Merchantable timber may be limbed, cut and removed from the right-of-way. Timber that is not merchantable and other vegetative debris may be chipped and disposed of according to applicable regulations or landowner request. Rock and vegetative debris would be disposed of in accordance with applicable local regulations and landowner requests.

Grading would be conducted where necessary to provide a reasonably level work surface. More extensive grading would be required in uneven terrain and where the right-of-way traverses steep slopes and side slopes. Northern has indicated that it would conduct full right-of-way topsoil removal in agricultural land that is annually cultivated or has rotating cropland. Topsoil will be removed to a maximum depth of 12 inches or the actual depth of the existing topsoil horizon. Where the topsoil horizon is less than 12 inches, topsoil would be removed to such depth as can be removed without mixing topsoil with subsoil. These areas are typically determined by the difference in color between the topsoil and subsoil units. In agricultural areas, conserved topsoil would be stockpiled along one side of the right-of-way allowing the other side to be used for access, material transport and pipe assembly.

Northern would not remove topsoil in areas outside the construction temporary workspace or those areas that will have a permanent gravel footprint installed. Topsoil would not be removed from existing improved (i.e., graveled) public or farm roads. In residential areas, a maximum of 12 inches of topsoil would be removed and segregated unless topsoil replacement is deemed more efficient by the contractor and is requested by the landowner.

Following clearing and grading activities, soil erosion and sedimentation control measures would be installed along the right-of-way, access roads, staging areas, and ATWS. Temporary erosion control measures would remain in place until permanent erosion controls are installed or restoration is completed.

### **2.4.1.3 Trenching**

Trench excavation is necessary to install and bury the pipeline. Clearing and grading of the right-of-way would precede excavation of the trench. The trench would be excavated with a rotary trenching machine, a track-mounted backhoe, or similar equipment. Excavated subsoil would be stockpiled along the right-of-way on the side of the trench away from the construction traffic and pipe assembly area, and the topsoil piles protected against erosion. In agricultural areas, subsoil would be stockpiled separately from topsoil until backfill. Northern has indicated it will limit open trench to no more than 5,280 feet per component for the five components in Minnesota to conform with MPCA requirements.

Crossovers for livestock and wildlife consisting of gaps in the spoil piles and pre-welded pipe and areas of unexcavated trench spoils would be created along the Project corridor. Wildlife escape ramps and passages would be constructed to reduce wildlife entrapment in the excavated trenches. Northern would minimize the length of time the trenches are open to minimize the chance of wildlife entrapment. Northern's EIs would inspect the trench on a daily basis. If a trapped species is identified as threatened or endangered, Northern would consult with the appropriate regional MDNR or WDNR non-game wildlife specialist prior to proceeding with removal of the species.

Pursuant to DOT requirements, the proposed pipelines would have a minimum of 30 to 36 inches of cover from the top of the pipeline to the natural ground surface in normal soil conditions and a minimum of 36 inches of cover in agricultural land. The pipelines would have a minimum of 48 inches of cover from the top of the pipeline to the natural ground surface in irrigated agricultural lands. Additional depth of cover to address landowner concerns (e.g., for agricultural lands) would be determined during the rights-of-way negotiation process.

### **2.4.1.4 Pipe Stringing, Bending, Welding, and Coating**

After trenching, sections of pipe typically between 40 and 60 feet long (also referred to as "joints") would be transported to the staging areas or right-of-way by truck and strung beside the trench in a continuous line. The pipe would be delivered to the job site with a protective coating of fusion-bonded epoxy. The stringing trucks would travel along the right-of-way and place the pipeline joints on temporary supports in a single, continuous line adjacent to the trench. Stringing pipe allows for easy access for the construction personnel on the working side of the proposed pipeline centerline, opposite the spoil side.

Some bending of the pipe would be required to allow the pipeline to follow natural grade changes and directional changes of the right-of-way. Selected joints would be field bent by hydraulic bending machines, as necessary, prior to line-up and welding.

After the pipe joints are bent, they would be aligned, welded together into a long segment, and placed on temporary supports at the edge of the trench. Northern would use welders who are qualified according to applicable standards in 49 CFR 192 Subpart E, American Petroleum Standard 1104, and other requirements.

Once the welds are made, a coating crew would coat the area around the weld before the pipeline is lowered into the trench. Prior to application, the coating crew would thoroughly clean the bare pipe areas with a power wire brush or sandblast machine to remove dirt, mill scale, and debris. The crew would then apply the coating and allow the coating to dry. The pipeline would be inspected electronically for faults or voids in the coating and would be visually inspected for

scratches and other defects. Northern would repair any damage to the coating that may have occurred before the pipeline is lowered into the trench.

#### **2.4.1.5 Lowering-In and Backfilling**

The trench would be inspected to be sure it is free of rocks and other debris that could damage the pipe or protective coating before the pipe would be lowered into the trench. Trench dewatering may be necessary to inspect the bottom of the trench in areas where water has accumulated. The pipeline would then be lowered into the trench by a series of side-boom tractors or similar equipment. Sandbags or concrete-type trench breakers will be placed across the trench prior to backfilling, as necessary.

After the pipe is lowered into the trench, the trench would be backfilled. Previously excavated materials would be pushed back into the trench using bladed equipment or backhoes. Backfill material typically consists of the subsoil excavated from the trench. Where the previously excavated material contains large rocks or other materials that could damage the pipe or coating, clean fill and/or protective coating (i.e., padding material) would be placed around the pipe prior to backfilling. Rock excavated from the pipeline trench may be used to backfill the trench only to the depth of the existing bedrock profile. Rock that is not returned to the trench would be disposed of on-site per the landowner request or off-site as construction waste.

#### **2.4.1.6 Hydrostatic Testing**

Hydrostatic testing would be conducted in accordance with DOT regulations codified at Title 49 CFR Part 192 to verify the integrity of the pipeline before being placed into service. Hydrostatic test water would be obtained from public or municipal sources in compliance with state regulations and existing water rights. In Minnesota, the hydrostatic test water would be hauled off for disposal at an approved facility. In Wisconsin, hydrostatic test water would be containerized, tested, and discharged on-site in upland areas in accordance with the applicable state and local permit requirements or transported to an approved wastewater disposal facility.

#### **2.4.1.7 Cleanup and Restoration**

Following trenching, pipe lowering, and backfilling, all disturbed areas would be final-graded and restored as closely as possible to preconstruction contours. In accordance with our Plan, weather and season permitting, Northern would complete final cleanup (including replacement of topsoil where applicable, final grading, and installation of permanent erosion control devices) within 20 days after the trench is backfilled. In residential areas, cleanup and restoration would occur within 10 days of backfilling. Construction debris, trash, surplus materials, and temporary structures would be removed from the construction rights-of-way and disposed of in accordance with applicable federal, state, and local regulations.

Cathodic protection is an electrochemical process that applies electric current to a metal to slow or stop corrosion rates compared to unprotected or partially protected pipe. Cathodic protection facilities would be installed, as applicable, within one year, post-construction, along the pipelines. The cathodic protection system would be maintained through bimonthly rectifier inspection readings and annual cathodic potential readings to ensure that proper cathodic protection levels are maintained. Northern would tie the new pipelines into its existing cathodic protection system and conduct impressed current testing to determine the additional amount of current needed to place the pipelines under cathodic protection. Northern would complete

modifications or additions, as needed, to the current cathodic protection system to include the new pipelines.

## **2.4.2 Special Pipeline Construction Procedures**

In addition to the standard pipeline construction method discussed above, Northern would implement special construction procedures where warranted by site-specific conditions, as discussed below.

### **2.4.2.1 Horizontal Directional Drill**

The HDD method is achieved by drilling a small-diameter pilot hole under the area to be crossed and enlarging the hole through successive reaming until it is large enough to accommodate a prefabricated segment of pipe. A slurry of drilling mud is circulated through the drilling tools to lubricate the drill bit, remove drill cuttings, and promote borehole stability during drilling and/or the reaming process. Drilling mud primarily consists of bentonite, a non-toxic, naturally occurring sedimentary clay mixed with water. Northern would restrict the use of drilling additives to those on the Minnesota Department of Health (MDH) approved list of drilling fluids and additives for work in both states. Northern has committed to submitting the actual additives to us once a drilling contractor is retained.

Pipe sections are generally staged and welded within an ATWS area on the opposite side of the crossing and then pulled through the drilled hole. During drilling, the pilot hole and other pre-ream efforts can be shut down at the end of each day in appropriate working conditions; however, the pullback would likely be done in one continuous effort, which could extend after normal working hours. The pullback for some of the shorter crossings can likely be done in one daytime shift (e.g., 12 hours); however, for the longer crossings and those involving multiple pullback (welding) sections, the pullback would likely extend beyond a daytime shift into the nighttime (after 7 p.m.).

Table 2.4.2-1 lists the crossing locations, length, approximate duration, and specific features that would be avoided by each crossing. HDDs would not be used to cross under any residences. Northern plans to complete 10 HDDs for the Project; 6 HDDs have the potential for the drilling, reaming, or pull-backs to extend past 7 p.m. These HDDs are indicated by footnote “b” in table 2.4.2-1. Northern has indicated that pullback activities for these six HDDs would commence no later than 9 a.m. to reduce the potential for work to extend past 7 p.m. Northern has stated that no state or local permits would be required to complete nighttime work on the six HDDs.

<b>Table 2.4.2-1 Proposed HDD Locations for the Project</b>					
<b>HDD Crossing Drawing<sup>a</sup></b>	<b>Begin MP</b>	<b>End MP</b>	<b>Length (feet)</b>	<b>Approx. Duration (days)</b>	<b>Features Avoided by HDD</b>
<b>Elk River 3<sup>rd</sup> Branch Line</b>					
ERT P4-2 <sup>b</sup>	0.33	0.52	1,050	16	Multiple roads and wetlands ERT-W24 and ERT-W25
ERT P4-3 <sup>b</sup>	0.71	0.98	1,421	20	Open water ERT-OW8
<b>Willmar D Branch Line</b>					
WIL P4-2 <sup>b</sup>	2.37	2.47	646	13	Wetland WIL-W12
WIL P4-3 <sup>b</sup>	2.47	3.02	2,926	23	Lynn Drive, multiple driveways, wetland WIL-W15 and waterbody WIL-S09
<b>Princeton Tie-Over Loop</b>					
PRB P4-1	8.77	8.81	208	8	281 <sup>st</sup> Avenue NW
PRB P4-2 <sup>b</sup>	9.16	9.46	1,603	14	275 <sup>th</sup> Avenue NW, wetland PRB-W03, waterbody PRB-S01
PRB P4-5	9.93	10.08	798	12	Wetlands PRB-W04 and PRB-W05
PRB P4-6	10.26	10.35	518	9	269 <sup>th</sup> Avenue NW
PRB P4-7 <sup>b</sup>	10.75	10.98	1,230	12	265 <sup>th</sup> Avenue NW and 264 <sup>th</sup> Avenue
<b>Tomah Branch Line Loop</b>					
TBL P4-1	1.92	1.98	315	8	County Highway B
<p>a Plan and Profile Drawings (e.g., P4-1) are provided in appendix 1A (Northern's HDD Plan) of Northern's Resource Report 1, which can be accessed via FERC's eLibrary at Accession no. 20220328-5297.</p> <p>b HDDs with the highest potential to require nighttime work.</p>					

### 2.4.2.2 Road Crossings

Northern would construct across public roads using open cut, conventional bore, or HDD. The crossings would be completed in accordance with DOT requirements (49 CFR Part 192) and the requirements of any crossing permits obtained for the Project. Northern would implement appropriate safety procedures, and traffic warning signs, detour signs, and other traffic control devices would be used, as applicable.

Conventional bores consist of digging a bell hole on each side of the feature to be crossed and using a drill to cut a hole between the bell holes. A dummy casing that would be slightly larger than the diameter of the pipeline may be installed and an auger would be used to remove the cuttings from the casing. Once the bore is completed, the pipeline is welded to the boring pipe and pulled into place. The boring pipe is then removed. If required, voids between the pipeline and soil may be filled with a sand-cement mix.

Utilizing conventional bore or HDD would avoid restrictions to access for residential owners and the general public. The public roads that would be crossed by the Project, including

the two public gravel roads that would be crossed with an open-cut crossing, are located in rural areas with typically low-flow traffic patterns. The impact on traffic and transportation facilities and public inconvenience at crossings would be minimized by Northern's road crossing plans. The pipeline would be buried to a depth of at least 4 feet below the road ditch, or in accordance with permit requirements, and would be designed to withstand anticipated external loading. Northern has indicated it would coordinate with local highway departments in advance of construction of each Project component. Northern developed a traffic control plan for the Project. **We have reviewed the content of this plan and find it acceptable.**

### **2.4.2.3 Waterbody Crossings**

Northern's pipeline facilities would cross waterbodies using HDD methods as described in section 2.4.2.1. Northern completed field surveys for the Project in September and November 2021. Crossings would be constructed in accordance with the measures specified in Northern's Procedures and construction plans. HDDs have been designed by a qualified crossing engineer. An on-site engineer or EI would inspect all waterbody crossings during construction to document compliance with design criteria and permit conditions.

Northern has requested a modification to the FERC Procedures for the Willmar D Branch Line as described in appendix H. Further details regarding waterbody crossing impacts and mitigation for this Project are discussed in section 4.4.

### **2.4.2.4 Wetland Crossings**

Northern completed field surveys for the Project in September and November 2021. Northern would cross wetlands using the HDD method as described in section 2.4.2.1, conventional bore as described in Section 2.4.2.2., or the open-cut method described below. Crossing of wetlands would be completed in accordance with the measures specified in Northern's Procedures, USACE permit conditions, and Northern's construction plans. Northern is requesting modifications to the FERC Procedures for the Ventura North E-Line, Elk River 3<sup>rd</sup> Branch Line, Willmar D Branch Line, and the Paynesville 2<sup>nd</sup> Branch Line as described in appendix H.

Wetlands crossed via HDD would require no removal of vegetation or direct impact from construction equipment. Foot-traffic travel lanes would be utilized for temporary placement of guide wires to follow the drill head and monitor for inadvertent releases of drilling mud. Minimal hand-clearing of vegetation could occur within the foot-traffic travel lane. Sediment barriers would be installed between the edges of the construction workspace and the wetland boundaries.

While open cutting wetlands, the clearing of vegetation would be limited to trees and shrubs, which would be cut flush with the surface of the ground and removed from the wetland. Stump removal, grading, topsoil segregation, and excavation would be limited to the area immediately over the trenchline. During clearing, sediment barriers, such as silt fence and staked straw bales, would be installed and maintained adjacent to wetlands and within ATWS as necessary to minimize the potential for sediment runoff. Sediment barriers would be installed across the full width of the construction rights-of-way at the base of slopes adjacent to wetland boundaries. Silt fence or straw bales installed across the working side of the rights-of-way may be removed during the day when vehicle traffic is present and would be replaced each night. Sediment barriers would also be installed within wetlands along the edge of the rights-of-way, where necessary, to minimize the potential for sediment to run off the construction rights-of-way and into wetland or other sensitive areas outside the construction work area. If trench dewatering

is necessary in wetlands, the trench water would be discharged in stable, vegetated, upland areas and/or through a filter bag or siltation barrier. No heavily silt-laden water would be allowed to flow into a wetland.

Construction equipment working in wetlands would be limited to that essential for rights-of-way clearing, excavating the trench, fabricating and installing the pipeline, backfilling the trench, and restoring the rights-of-way. In areas of saturated soils or standing water, low-ground-weight construction equipment and/or timber riprap, prefabricated equipment mats, or terra mats would be used to reduce rutting, mixing of topsoil and subsoil, and compaction. In unsaturated wetlands, the top layer of topsoil, up to 12 inches, would be stripped from the trenchline and stored separately from the subsoil. Northern also would attempt to segregate wetland topsoil of vegetative mass in mucky or inundated wetlands to replenish the native seed bank during restoration.

Where wetland soils are saturated and/or inundated, the pipeline may be installed using the push-pull technique. The push-pull technique generally involves stringing and welding the pipeline outside of the wetland and excavating the trench through the wetland using a backhoe supported by equipment mats. The water that seeps into the trench can be used to “float” the pipeline into place together with a winch and flotation devices attached to the pipe. After the pipeline is floated into place, the floats are removed and the pipeline allowed to sink into place. Pipe installed in saturated wetlands is typically coated with concrete or equipped with set-on weights to provide negative buoyancy. After the pipeline sinks to the bottom of the trench, a backhoe working on equipment mats backfills the trench and completes cleanup. For wetlands crossed using the push-pull method, Northern would install the pipeline a minimum of 4 feet below the benthic soil surface.

Prior to backfilling, Northern would install trench breakers where necessary to prevent the subsurface drainage of water from wetlands. Where topsoil has been segregated from subsoil, the subsoil would be backfilled first followed by the topsoil. Equipment mats, terra mats, and timber riprap would be removed from wetlands following backfilling. Further details regarding wetland impacts and mitigation for this Project are discussed in section 4.5.

#### **2.4.2.5 Residential Areas**

Four residences are within 25 feet of the edge of the proposed construction workspaces. An additional five residences are located within 50 feet of the edge of workspace. Northern would attempt to limit impact to property owners and would use special construction techniques, such as installation of safety fencing along the construction corridor in residential areas; and/or providing flagmen or installing signage on either side of road crossings to direct traffic during construction. Northern has developed site-specific residential construction plans for the four residences within 25 feet. See section 4.10.1 for additional discussion on residential areas.

#### **2.4.2.6 Active Cropland**

Construction in agricultural areas would be conducted in accordance with our Plan and Northern’s Procedures. To conserve topsoil, full rights-of-way topsoil removal would be conducted in actively cultivated and rotated cropland and improved pasture. A maximum of 12 inches of topsoil would be segregated. Where the existing topsoil is less than 12 inches, Northern would remove and segregate the actual depth of the topsoil to the extent practicable. The topsoil and subsoil would be stored in separate windrows on the construction rights-of-way and

would not be allowed to mix. Also, following construction, Northern would remove excess rock in cultivated cropland, pastures, and hayfields and would test topsoil and subsoil for compaction. Further information regarding soils and agricultural land is provided in section 4.3.

Northern did not identify any existing drain tile in the Project area. Previously undocumented drain tiles discovered during grading or trenching would be flagged at each right-of-way edge and survey data would be collected at the location of any broken tiles. Northern commits to repair damaged or broken drain tiles following construction. Drain tile repairs would be made by a qualified drain tile specialist, the landowner, or a landowner's representative. The quality, size, and flow of replacement tile would equal or exceed that of the damaged tile.

Prior to and following construction, topsoil and subsoil would be tested for compaction in agricultural areas. As applicable, the contractor would plow subsoil in accordance with the soil compaction mitigation procedures described in our Plan. Compaction testing would be conducted to verify compaction is relieved to a level equal to or better than adjacent undisturbed areas. Once plowing of the subsoil is complete, the segregated topsoil would be returned to the rights-of-way. The restoration activity would be considered complete once the topsoil has been disked and raked to near pre-construction conditions. Northern would remove excess rock from at least the top 12 inches of soil in all cultivated or rotated cropland, managed pastures, hayfields, and residential areas, as well as other areas at the landowner's request such that the size, density, and distribution of rock on the construction work area shall be similar to adjacent areas not disturbed by construction.

If construction requires the removal of private property features, such as gates or fences, they would be repaired following construction. Northern would implement its project-specific Noxious Weed Plan to prevent, mitigate, and control the spread of noxious weeds during construction and operation of the Project.

#### **2.4.2.7 Blasting**

No blasting is anticipated in association with the Project. If an area of unrippable shallow bedrock is encountered and blasting becomes necessary, Northern would develop a site-specific Blasting Plan, which would be submitted to us, and comply with any required permits.

### **2.5 ABOVEGROUND FACILITIES CONSTRUCTION**

Construction of aboveground pipeline facilities would include general activities such as clearing and grading, access road installation, foundation installation, erection of aboveground facilities, installation of piping equipment, testing of equipment, and timely clean-up and restoration of the Project area. Construction activity and storage of construction material would be limited to the approved Project workspaces, and waste materials would be disposed of in a manner consistent with state and local regulations.

Aboveground piping would be cleaned and painted according to Northern's specifications and in accordance with regulatory requirements. Upon completion, the Project areas would be cleaned and restored in accordance with applicable state and federal permits and plans. Final grading would be completed, gravel surfaces refreshed (as needed), and grass or appropriate vegetation seeded per specifications. Compliance with the individual project SWPPPs, CEMCP, and other permanent mitigation measures would be verified in accordance with applicable permits.

## 2.6 ENVIRONMENTAL COMPLIANCE

FERC may impose conditions on any Certificate granted for the Project. These conditions could include requirements and mitigation measures identified in this EIS to minimize environmental impacts associated with the Project (see section 5.1). We will recommend to the Commission that these requirements and mitigation measures be included as conditions to any approving Certificate issued for the Project. Once a project is authorized, FERC staff monitors compliance by conducting on-site inspections, reviewing post-authorization filings, and reviewing construction status reports depending on the project phase. Northern would be required to implement the construction procedures and mitigation measures it has proposed in its filings with FERC, unless specifically modified by other Certificate conditions.

Other regulatory agencies also may include terms and conditions or stipulations as part of their permits or approvals. While there would be jurisdictional differences between the FERC's and other agencies' conditions, the environmental inspection program for the Project would address all environmental or construction-related conditions or other permit requirements placed on the Project by all regulatory agencies.

Northern would employ at least one environmental inspector (EI) per spread for the Project. Northern would conduct training for field construction and contractor personnel before and during installation of the Project. The training would focus on Project permit requirements; individual Project plan requirements, such as those listed in the SWPPPs and CEMCP; our Plan and Northern's Procedures; and the conditions of the FERC Certificate.

To ensure that all individuals working on the Project are familiar with the EI's authority and the environmental mitigation measures appropriate to their jobs, Northern would conduct environmental training sessions in advance of and during construction. Northern would be represented on each construction spread by a chief inspector for quality assurance and compliance with mitigation measures. The chief inspector would be assisted by a team of craft inspectors and at least one EI. The EI position would be a third-party, full-time, position with stop-work authority that reports directly to Northern's environmental department. The EI's duties would be consistent with those contained in section II.B of FERC's Plan (Responsibilities of the EI), which include ensuring compliance with environmental conditions identified within the FERC Certificate, Northern's environmental designs and specifications, and environmental conditions identified within other permits or authorizations. An appropriate number of copies of the construction drawing package would be distributed to Northern's inspectors and to contractor supervisory personnel. If a contractor's performance is unsatisfactory, the terms of the contract would allow Northern to stop work in progress and require the contractor to begin and complete remedial work.

The FERC staff would also conduct field inspections during construction. Other federal and state agencies may also conduct oversight of inspection to the extent determined necessary by the individual agency. After construction is completed, the FERC staff would continue to conduct oversight inspections and/or monitoring during operation of the Project to ensure successful restoration.

## **2.7 OPERATION AND MAINTENANCE PROCEDURES**

The Project would be designed, constructed, tested, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR Part 192, FERC directives in 18 CFR 380.15, and maintenance requirements in our Plan and Northern's Procedures. All Project facilities would be marked and identified in accordance with applicable regulations.

The pipelines would be inspected on a routine basis, which would provide information on possible leaks, third-party construction activities, erosion, encroachment, and other potential problems that may affect the safety and operation of the pipelines. Cathodic protection facilities would be installed, as applicable, within one year along the pipelines and would be regularly monitored and inspected periodically to ensure proper and adequate corrosion protection.

Routine vegetation maintenance is normally not required in agricultural cropland or grazing areas, residential areas, or in herbaceous wetlands. However, large brush and trees may be periodically removed in accordance with the Plan and Northern's Procedures if Northern determines trees or deep-rooted shrubs in the area could damage the pipelines' protective coating, obscure periodic surveillance, or interfere with potential repairs.

Routine vegetation maintenance in upland areas would be conducted on a 50-foot-wide strip centered over the pipelines with a frequency of not more than once every three years; however, a corridor about 10 feet in width and centered over the pipelines will be cleared at a frequency necessary to maintain the 10-foot-wide corridor in an herbaceous state. In wetlands, a 10-foot-wide corridor centered on the pipelines will be cleared at a frequency necessary to maintain an herbaceous state. In addition, trees within 15 feet of the pipelines with roots that will compromise the integrity of the pipeline coating will be selectively removed from the rights-of-way. Northern would not conduct any routine vegetation mowing or clearing in wetlands or riverine environments that are between HDD entry and exit points. Also, Northern would not clear vegetation across waterbodies crossed by conventional bores; Northern would maintain a 25-foot buffer between any clearing activities and the edge of the waterbody banks. Routine vegetation maintenance would not occur between April 15 and August 1 to protect nesting migratory birds and other animals (including pollinators). Herbicides would be used only in accordance with applicable agency requirements and with landowner approval. Northern has stated that herbicides would not be used in open water areas and will only use chemicals approved by the EPA in other areas.

Northern would also perform regular operation and maintenance activities on equipment at the aboveground pipeline facilities associated with the Project. These activities would include inspection and scheduled routine maintenance. Within one year of construction, Northern would conduct an evaluation of the cathodic protection system requirements. Northern would install cathodic protection upgrades as required under the appropriate regulatory authority.

### 3.0 ALTERNATIVES

As required by NEPA and Commission policy, we identified and evaluated several reasonable alternatives to the Project to determine whether the implementation of an alternative would be environmentally preferable to the proposed action. A reasonable alternative would meet the Project's purpose and would be technically and economically feasible and practical. These alternatives include the no-action alternative and system alternatives (including a compression alternative and systems owned by others). No site alternatives for aboveground facilities were evaluated as the aboveground facilities proposed for the Project are located due to engineering constraints and any alternative would result in greater environmental impacts. The Project consists of loops and extensions to existing pipelines and will be collocated or occur adjacent to existing facilities where practicable; therefore, we did not evaluate major route alternatives for any of the pipeline segments. An alternative would be environmentally preferable if it offers a significant environmental advantage over the proposed action.

To ensure a consistent environmental comparison and to normalize the comparison factors, we generally use desktop sources of information (e.g., publicly available data, geographic information system data, aerial imagery). Where appropriate, we also use site-specific information (e.g., field surveys or detailed designs). Our environmental evaluation considers quantitative data (e.g., acreage or mileage) and uses common comparative factors such as total length, amount of collocation, and land requirements. In recognition of the competing interests and the different nature of impacts that sometimes exist (i.e., impacts on the natural environment versus impacts on the human environment), we also consider other factors that are relevant to a particular alternative and discount or eliminate factors that are not relevant or may have less weight or significance.

We generally consider an alternative to be preferable to a proposed action using three evaluation criteria, as discussed in greater detail below. These criteria include:

1. the alternative meets the stated purpose of the project;
2. is technically and economically feasible and practical; and
3. offers a significant environmental advantage over a proposed action.

The alternatives were reviewed against the evaluation criteria in the sequence presented above. The first consideration for including an alternative in our analysis is whether or not it could satisfy the stated purpose of the Project. A preferable alternative must meet the stated purpose of the Project. A preferable alternative also would need to provide service within a reasonably similar timeframe, which is providing natural gas by November 2023. It is important to recognize that not all conceivable alternatives can meet the Project's purpose, and an alternative that does not meet the Project's purpose cannot be considered a viable alternative.

Many alternatives are technically and economically feasible but not practical. Technically practical alternatives, with exceptions, would generally require the use of common construction methods. An alternative that would require the use of a new, unique, or experimental construction method may not be technically practical because the required technology is not available or is unproven. Economically practical alternatives would result in an action that generally maintains the price competitive nature of the proposed action. Generally, we do not consider the cost of an alternative as a critical factor unless the added cost to design, permit, and construct the alternative would render a project economically impractical. Alternatives that would not meet the Project's purpose or were not technically/economically feasible or practical were not brought forward to the next level of review.

Determining if an alternative provides a significant environmental advantage requires a comparison of the impacts on each resource as well as an analysis of impacts on resources that are not common to the alternatives being considered. The determination must then balance the overall impacts and all other relevant considerations. In comparing the impact between resources, we also considered the degree of impact anticipated on each resource. Ultimately, an alternative that results in equal or minor advantages in terms of environmental impact would not compel us to shift the impacts from the current set of landowners to a new set of landowners.

Using the evaluation criteria discussed above, each alternative was considered to the point where it was clear that the alternative was either not reasonable, would result in greater environmental impacts that could not be readily mitigated, offered no significant environmental advantages over the proposed Project, or could not meet the Project's purpose. Alternatives that appeared to result in less than or similar levels of environmental impact were reviewed in greater detail. The following sections discuss and analyze alternatives that warranted further review and provide sufficient detail to explain why they were eliminated from further consideration or are recommended for adoption into the Project.

### **3.1 NO-ACTION ALTERNATIVE**

The Commission has two courses of action in processing applications under section 7 of the NGA: 1) deny the requested actions (the no-action alternative); or 2) grant the Certificate, with or without conditions. If the no-action alternative is selected by the Commission, the proposed facilities would not be constructed and the environmental impacts associated with the Project would not occur. In addition, if the no-action alternative is selected, the stated purpose of the Project would not be met and the proposed transportation of natural gas supply to Northern's Market Region would not occur. Because any replacement project capable of transporting similar volumes of natural gas to the currently proposed customers may result in the expansion of existing natural gas transportation systems or the construction of new infrastructure, both of which are likely to result in impacts comparable to those described in section 4.0 of this EIS, we conclude that in addition to not meeting the Project objective, the No Action Alternative is also not likely to provide a significant environmental advantage. Therefore, we dismiss it from further consideration.

The EPA recommends FERC should consider and evaluate non-gas energy alternatives as well as other non-project alternatives that satisfy the need for the Project under the No-Action Alternative. We note that the Project purpose is to transport natural gas to serve residential, commercial, and industrial customer market growth in Northern's Market Area. FERC is tasked with authorizing infrastructure to be used for the transportation of natural gas, not the consumption of natural gas. The consumption of natural gas for activities such as building heating and electricity generation may be the proposed action of the downstream entities; however, alternatives that do not also facilitate the transportation of natural gas cannot be a function surrogate. Therefore, we have not identified any non-gas energy alternatives or other non-Project alternatives that satisfy the need for the Project. As these do not meet the purpose of the Project and are not a reasonable or practicable alternative to the proposed action, they are not considered further in this analysis.

## **3.2 SYSTEM ALTERNATIVES**

System alternatives would generally use existing, modified, or proposed pipeline systems to meet the purpose and need of the Project. We evaluated several system alternatives that could meet the objectives of the Project but would utilize a different existing natural gas pipeline system or a different configuration of Northern's pipeline facilities including a compression only option.

A viable system alternative to the Project would have to provide sufficient pipeline capacity to meet the Project's stated purpose within a timeframe reasonably similar to the proposed Project. Additionally, the system alternative must be technically and economically practical and offer a significant environmental advantage over the proposed Project. Our analysis of system alternatives includes an examination of existing and proposed natural gas transportation systems that currently serve or eventually would serve the markets targeted by the Project. It also includes the analysis of using the existing pipeline system without modification by adding compression to meet the need for additional gas deliveries.

### **3.2.1 Other Pipeline Systems**

There are other interstate natural gas pipelines operating within a reasonable distance of the southern Minnesota area, including Northern Border Pipeline Company and Viking Gas Transmission Company, that were analyzed as possible alternatives to the Project. The locations of other pipeline systems are much further away from the delivery points than Northern's system. To properly deliver gas to their customers, Northern's system would need to be replicated, resulting in significant financial investment and environmental impacts. We did not identify any other companies' existing systems that could meet (or be feasibly adjusted to meet) the purpose and need for the Project. Due to the distance from the other interstate natural gas pipelines to the Project area and the widespread delivery points served by the Project, we have concluded that the Northern Border and Viking Gas Transmission pipeline systems are not viable alternatives to the proposed Project.

### **3.2.2 Compression Alternative**

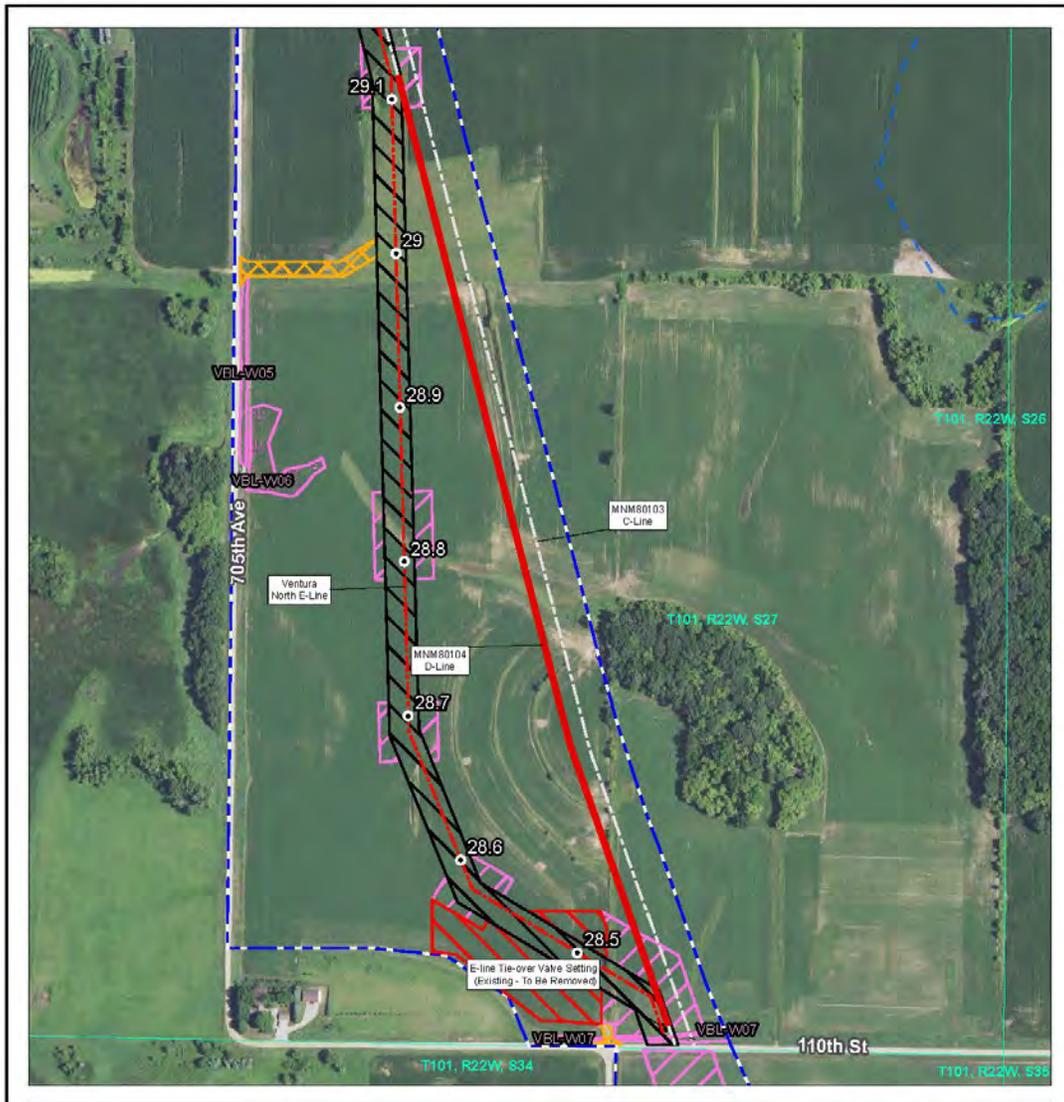
In order to reduce impacts related to constructing additional pipelines, we evaluated an alternative that would add compression to the existing system. To avoid installation of additional pipelines, Northern determined that additional compressor units would be required at two existing compressor stations in Minnesota and two greenfield compressor stations would be required in Minnesota and Wisconsin. Our evaluation indicated that compression addition is not technically a feasible alternative due to the short pipeline lengths and geographically varied delivery receipt points for the proposed Project. In addition, portions of the system are at the maximum allowable operating pressure (MAOP), which does not facilitate additional natural gas throughput without the addition of more pipeline. We believe that the greater permanent environmental impacts including additional air and noise impacts do not offer a significant environmental advantage over the proposed Project; therefore, we dismiss it from further consideration.

### **3.3 MINOR ROUTE DEVIATIONS**

During initial and early Project development, Northern incorporated minor route variations into the Project routes as a result of environmental and engineering investigations and stakeholder outreach efforts. As a result of these routing considerations during early Project design, six route modifications to avoid or reduce environmental impacts were eventually proposed as part of the Project in Northern's March 28, 2022, Section 7(c) application. We did not receive any comments or specific recommendations regarding alternative pipeline routes during scoping or in response to the draft EIS; and our review of resource impacts did not discover any significant impacts that would be addressed by alternate routing. Thus, we did not evaluate alternative pipeline routes.

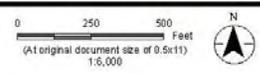
#### **3.3.1 Ventura North E-Line**

We evaluated two route deviations for the Ventura North E-Line. For the first route deviation, the original design was to complete an open-cut crossing of an agricultural field paralleling the existing pipeline and crossing three agricultural terraces. The route deviation included an open-cut crossing of an agricultural field, avoiding the three agricultural terraces between MP 28.42 and MP 29.10. Deviation 1 is depicted on Figure 3-1 and impacts from the original route as compared to the route deviation are presented in table 3.3-1.



**Notes:**  
 1. Coordinate System: NAD 1983 UTM Zone 15N  
 2. Data Sources: Stantec, NND, NADS, UGOS  
 3. Background: 2021 NAIP

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Milepost</li> <li>■ HDD Entry/Exit</li> <li>■ Bore Entry/Exit</li> <li>— Original Route</li> <li>— Proposed Centerline</li> <li>— Existing Centerline</li> <li>■ Approaches</li> <li>— Existing Driveway</li> <li>— Environmental Survey Boundary</li> <li>■ Existing Facility</li> <li>■ Extra Temporary Workspace</li> <li>■ Proposed Driveway</li> </ul> | <ul style="list-style-type: none"> <li>■ Proposed Lot</li> <li>■ Staging Area</li> <li>■ Temporary Access Road</li> <li>■ Temporary Workspace</li> <li>— Field Delineated Waterway Line</li> <li>— Field Delineated Waterway Area</li> <li>— Field Delineated Open Water Area</li> <li>— Field Delineated Wetland Area</li> <li>— National Hydrography Dataset</li> <li>— Perennial Stream</li> <li>— Intermittent Stream</li> <li>— Waterbody</li> </ul> |
|--|---|



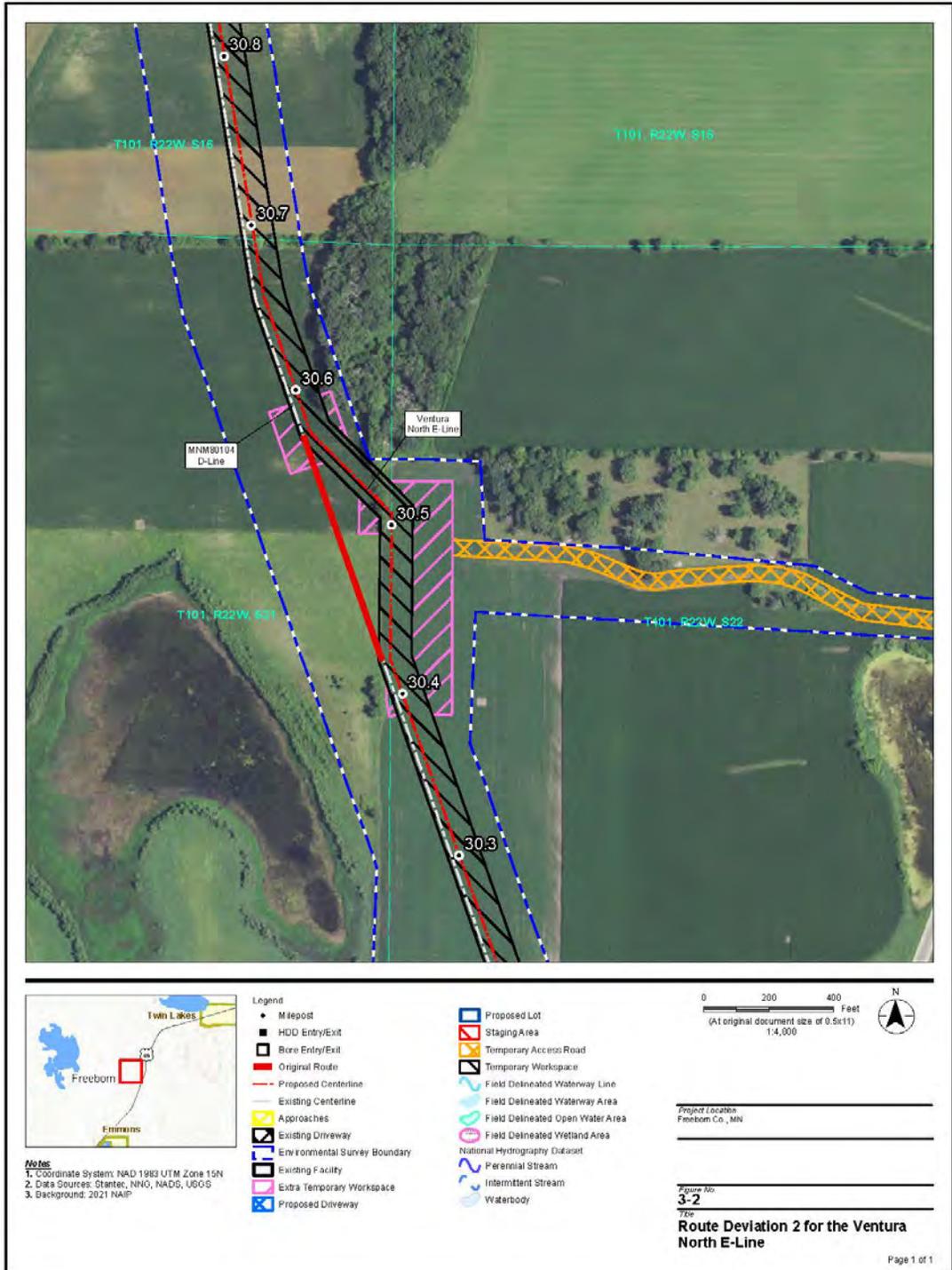
Freeborn Co., MN

Figure No.  
**3-1**  
 Title  
**Route Deviation 1 for the Ventura North E-Line**

<b>Table 3.3-1 Analysis of Route Deviation 1 for the Ventura North E-Line</b>			
<b>Environmental Factor</b>	<b>Unit</b>	<b>Original Route</b>	<b>Route Deviation (Proposed Route)</b>
Total Length	feet	3,382	3,642
Adjacent to existing ROW	feet	3,382	0
Construction ROW <sup>1</sup>	acres	7.8	8.4
Permanent ROW <sup>2</sup>	acres	3.9	4.2
Total field delineated wetlands crossed	number	0	0
Total waterbodies crossed	number	0	0
Residences within 50 feet of construction work area	number	0	0
Cultural resources crossed	number	0	0
Land Use	feet	3,382	3,642
Agricultural	feet	1,618	2,922
Agricultural Terraces	feet	1,052	0
Forested	feet	0	0
Open Land	feet	712	714
Industrial/Commercial	feet	0	6
MP range (start and end)	miles	N/A	28.42-29.10
<sup>1</sup> Based on a 100-foot-wide construction ROW			
<sup>2</sup> Based on a 50-foot-wide permanent ROW			

The original route would have crossed three major agricultural terraces, which would require pre-construction surveys and significant restoration. An open-cut crossing of the three terraces also had the potential to create short-term impacts on the landowner’s remaining cropland due to temporary drainage and waterflow changes. While the route deviation is slightly longer and is not adjacent to the existing right-of-way, it has the potential for fewer impacts on the landowner’s farming practices (agricultural terraces) while maintaining similar environmental impacts as the original route. The route deviation presents fewer impacts on the landowner and less potential for erosion. We recommend Route Deviation 1 be incorporated as part of the Project proposed route.

The second route deviation located on the Ventura North E-Line is between MP 30.42 and MP 30.57 and was designed to avoid a high-quality native prairie identified during environmental field surveys. Deviation 2 is depicted on Figure 3-2 and impacts from the original route as compared to the route deviation are presented in table 3.3-2.

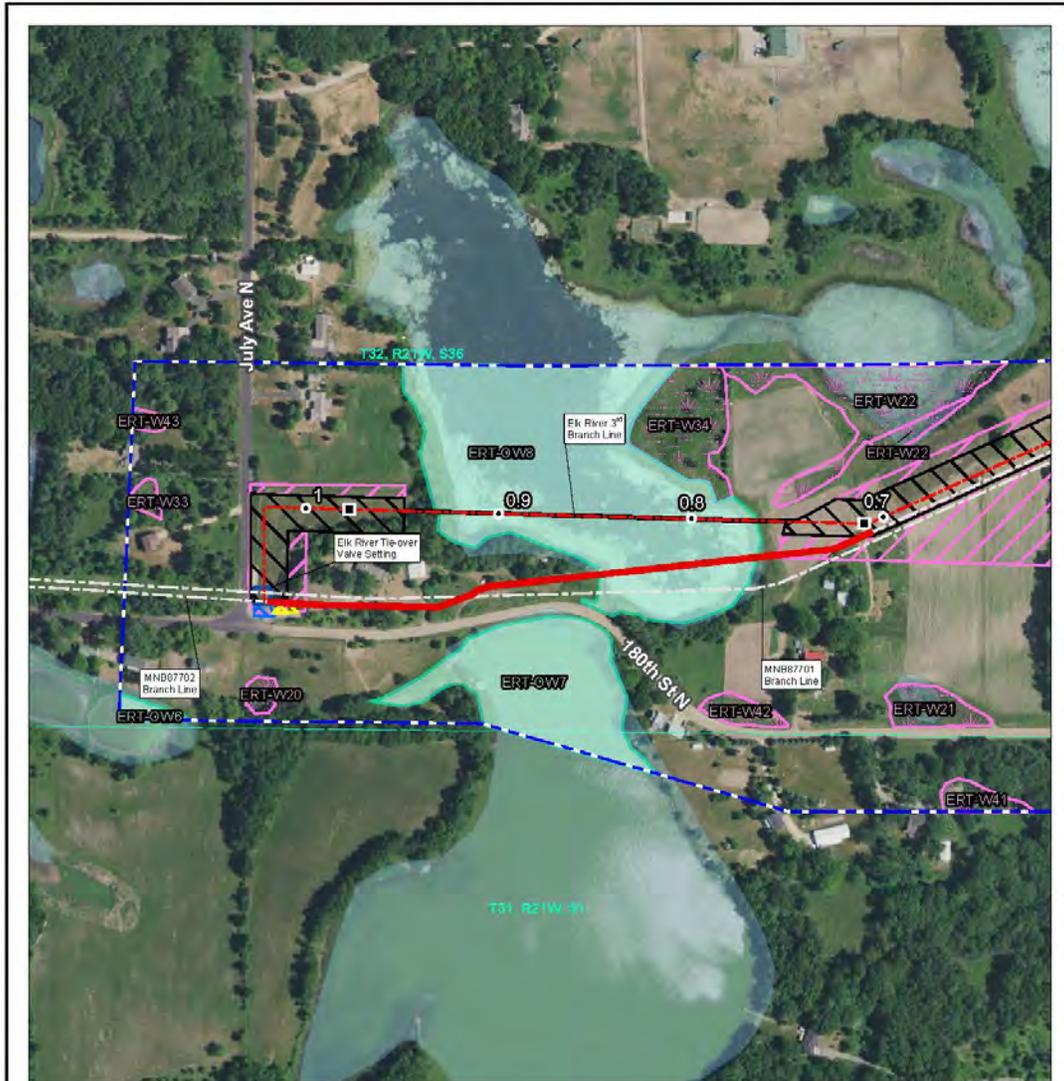


<b>Table 3.3-2 Analysis of Route Deviation 2 for the Ventura North E-Line</b>			
<b>Environmental Factor</b>	<b>Unit</b>	<b>Original Route</b>	<b>Route Deviation (Proposed Route)</b>
Total Length	feet	735	802
Adjacent to existing ROW	feet	735	0
Construction ROW <sup>1</sup>	acres	1.7	1.8
Permanent ROW <sup>2</sup>	acres	0.8	0.9
Total field delineated wetlands crossed	number	0	0
Total waterbodies crossed	number	0	0
Residences within 50 feet of construction work area	number	0	0
Cultural resources crossed	number	0	0
Land Use	feet	735	802
Agricultural	feet	346	802
Forested	feet	0	0
Open Land <sup>3</sup>	feet	389	0
MP range (start and end)	miles	N/A	30.42-30.57
<sup>1</sup> Based on a 100-foot-wide construction ROW			
<sup>2</sup> Based on a 50-foot-wide permanent ROW			
<sup>3</sup> Open land is the high-quality native prairie			

While the second route deviation is slightly longer and is not adjacent to the existing right-of-way, it avoids impact on a high-quality native prairie and any threatened and endangered species associated with the prairie. The proposed route is located within agricultural fields, which typically can be restored and returned to agricultural land use in a much shorter timeframe than restoration of a native prairie. The route deviation avoids all impacts to the high-quality native prairie. We recommend Route Deviation 2 be incorporated as part of the Project proposed route.

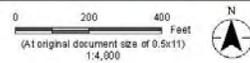
### **3.3.2 Elk River 3<sup>rd</sup> Branch Line**

We evaluated a route deviation for the Elk River 3<sup>rd</sup> Branch Line between MP 0.70 and MP 1.07. The original design paralleled the existing pipelines and would have included an HDD close to a residential garage and driveway. The route deviation included an HDD that eliminated the HDD close to the residential garage and driveway. Deviation 3 is depicted on Figure 3-3 and impacts from the original route as compared to the route deviation are presented in table 3.3-3.



**Notes**  
 1. Coordinate System: NAD 1983 UTM Zone 15N  
 2. Data Sources: Stantec, NND, NADS, UGOS  
 3. Background: 2021 NAIP

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Milepost</li> <li>■ HDD Entry/Exit</li> <li>□ Bore Entry/Exit</li> <li>— Original Route</li> <li>— Proposed Centerline</li> <li>— Existing Centerline</li> <li>■ Approaches</li> <li>— Existing Driveway</li> <li>— Environmental Survey Boundary</li> <li>— Existing Facility</li> <li>— Extra Temporary Workspace</li> <li>— Proposed Driveway</li> </ul> | <ul style="list-style-type: none"> <li>■ Proposed Lot</li> <li>■ Staging Area</li> <li>— Temporary Access Road</li> <li>■ Temporary Workspace</li> <li>— Field Delineated Waterway Line</li> <li>— Field Delineated Waterway Area</li> <li>— Field Delineated Open Water Area</li> <li>— Field Delineated Wetland Area</li> <li>— National Hydrography Dataset</li> <li>— Perennial Stream</li> <li>— Intermittent Stream</li> <li>— Waterbody</li> </ul> |
|--|---|



Project Location  
 Washington Co., MN

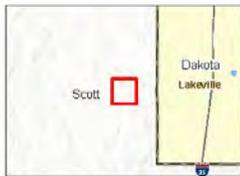
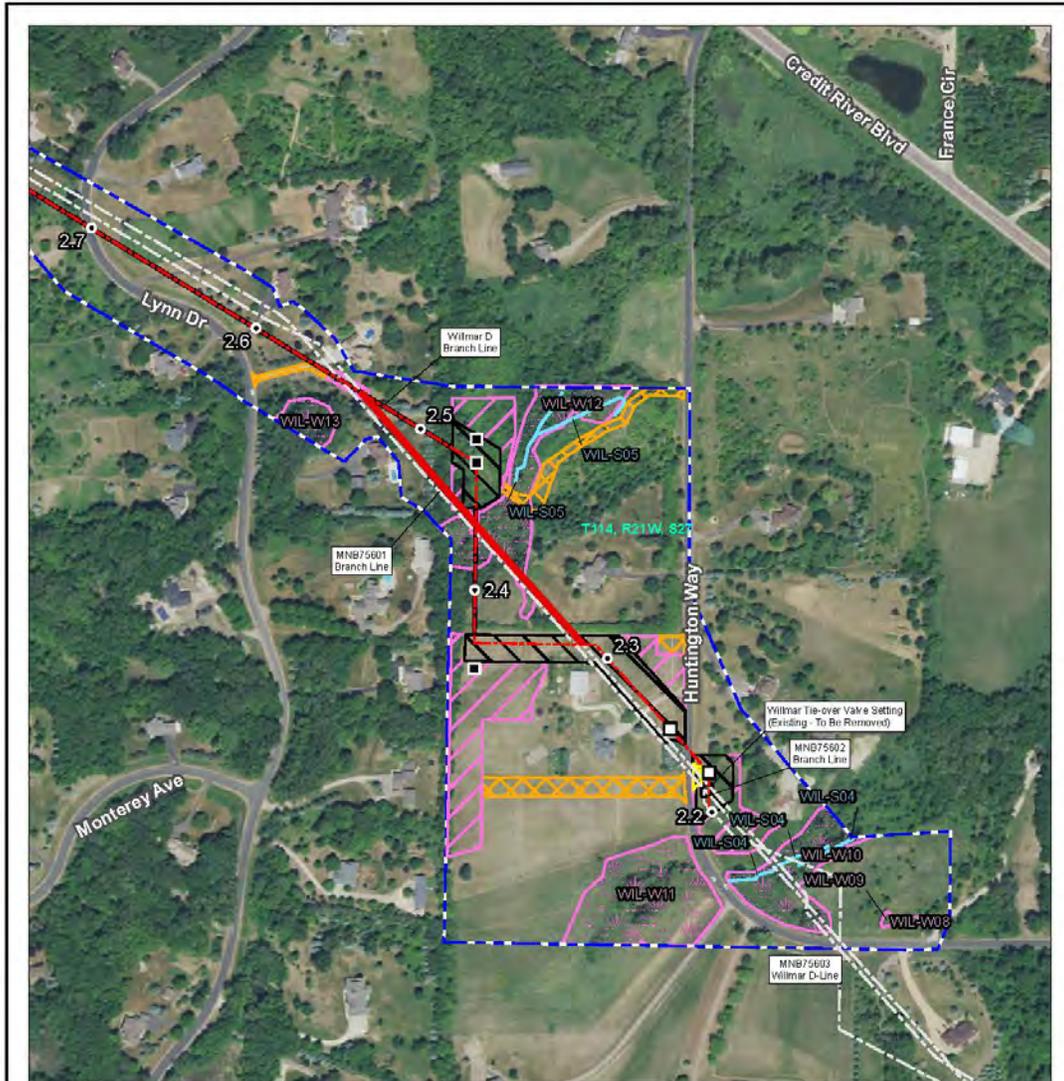
Figure No.  
**3-3**  
 Title  
**Route Deviation for the Elk River  
 3rd Branch Line**

<b>Table 3.3-3 Analysis of Route Deviation 3 for the Elk River 3<sup>rd</sup> Branch Line</b>			
<b>Environmental Factor</b>	<b>Unit</b>	<b>Original Route</b>	<b>Route Deviation (Proposed Route)</b>
Total Length	feet	1,684	1,873
Adjacent to existing ROW	feet	1,684	233
Construction ROW <sup>1</sup>	acres	3.9	4.3
Permanent ROW <sup>2</sup>	acres	1.9	2.2
Total field delineated wetlands crossed	number	0	0
Total waterbodies crossed	number	1	1
Perennial waterbodies	number	1	1
Intermittent waterbodies	number	0	0
Residences within 50 feet of construction work area	number	0	0
Cultural resources crossed	number	0	0
Land Use	feet	1,684	1,873
Agricultural	feet	0	614
Forested	feet	68	84
Open Land	feet	807	309
Residential	feet	374	0
Open Water	feet	435	866
MP range (start and end)	miles	N/A	0.70-1.07
<sup>1</sup> Based on a 100-foot-wide construction ROW			
<sup>2</sup> Based on a 50-foot-wide permanent ROW			

Construction of the original route would have resulted in a pipeline close to a residential garage and home and potentially limited the homeowner use of their driveway during construction. The HDD for the original route would have been more constrained due to space limitations caused by wetlands and a residence. The route deviation allows for an optimized HDD set-up and avoids workspace around a residence. We recommend Route Deviation 3 be incorporated as part of the Project proposed route.

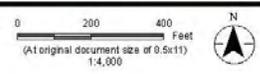
### **3.3.3 Willmar D Branch Line**

We evaluated a route deviation for the Willmar D Branch Line between MP 2.31 and MP 2.53. The original route was designed to parallel the existing pipelines with an HDD, crossing a landowner's property that would require tree removal along the property line. While the route deviation is slightly longer, it accommodates a landowner request to avoid impacts to specific trees by adjusting the location of an HDD entry/exit pit. Additionally, this routes the pipeline further away from houses in the area. Deviation 4 is depicted on figure 3-4, and impacts from the original route as compared to the route deviation are presented in table 3.3-4.



**Notes:**  
 1. Coordinate System: NAD 1983 UTM Zone 15N  
 2. Data Sources: Stantec, NNO, NADS, UGOS  
 3. Background: 2021 NAIP

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Milepost</li> <li>■ HDD Entry/Exit</li> <li>■ Bore Entry/Exit</li> <li>— Original Route</li> <li>— Proposed Centerline</li> <li>— Existing Centerline</li> <li>■ Approaches</li> <li>— Existing Driveway</li> <li>— Environmental Survey Boundary</li> <li>■ Existing Facility</li> <li>■ Extra Temporary Workspace</li> <li>■ Proposed Driveway</li> </ul> | <ul style="list-style-type: none"> <li>■ Proposed Lot</li> <li>■ Staging Area</li> <li>— Temporary Access Road</li> <li>■ Temporary Workspace</li> <li>— Field Delineated Waterway Line</li> <li>— Field Delineated Waterway Area</li> <li>— Field Delineated Open Water Area</li> <li>— Field Delineated Wetland Area</li> <li>— National Hydrography Dataset</li> <li>— Perennial Stream</li> <li>— Intermittent Stream</li> <li>— Waterbody</li> </ul> |
|--|---|



Project Location  
 Scott Co., MN

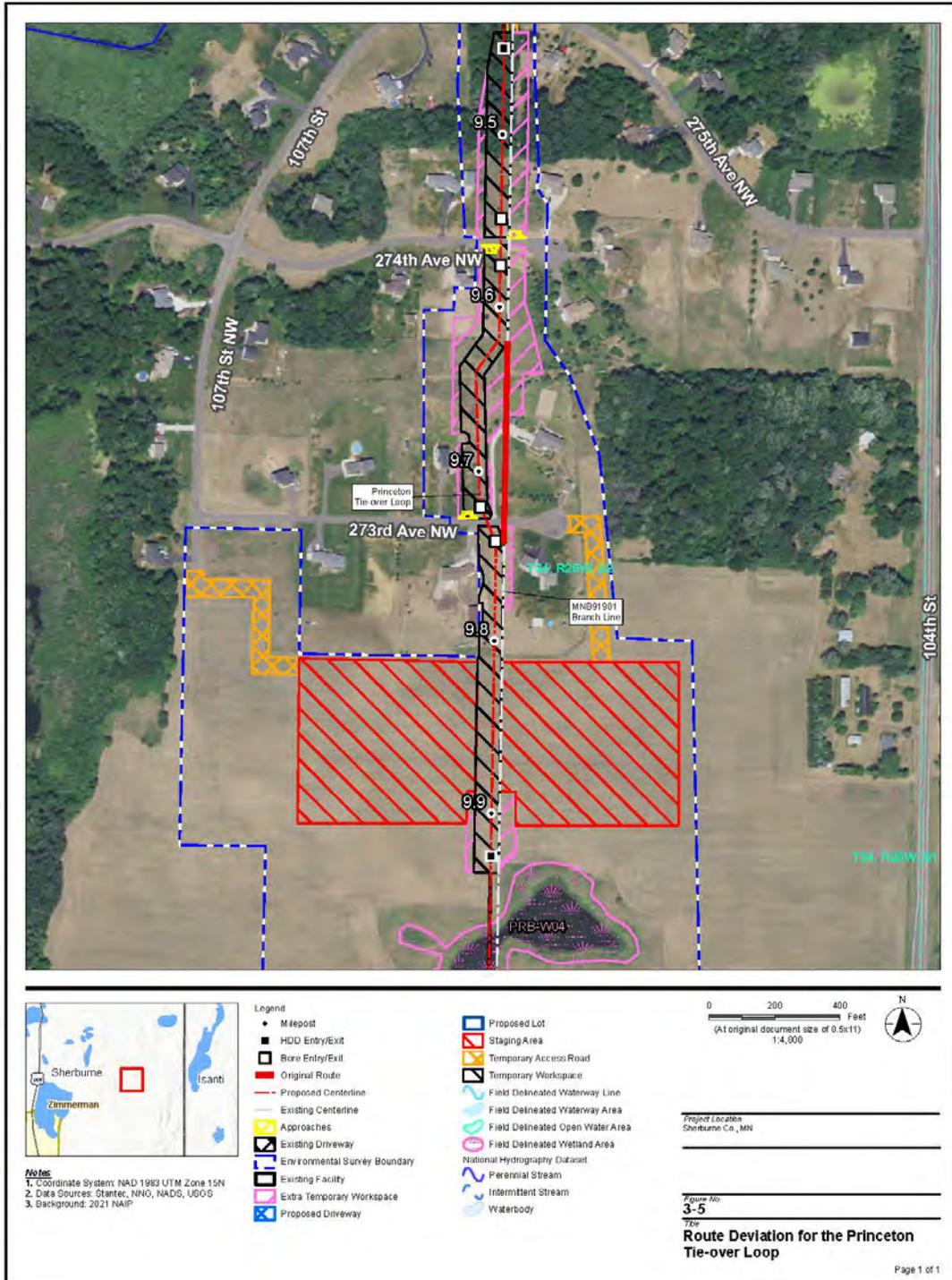
Figure No.  
**3-4**  
 Title  
**Route Deviation for the Willmar D Branch Line**

<b>Table 3.3-4 Analysis of Route Deviation 4 for the Willmar D Branch Line</b>			
<b>Environmental Factor</b>	<b>Unit</b>	<b>Original Route</b>	<b>Route Deviation (Proposed Route)</b>
Total Length	feet	917	1,197
Adjacent to existing ROW	feet	917	0
Construction ROW <sup>1</sup>	acres	2.1	2.7
Permanent ROW <sup>2</sup>	acres	1.1	1.4
Total field delineated wetlands crossed	number	1	1
Forested wetlands	number	0	0
Emergent wetlands	number	1	1
Total waterbodies crossed	number	0	0
Residences within 50 feet of construction work area	number	0	0
Cultural resources crossed	number	0	0
Land Use	feet	917	1,197
Forested	feet	354	424
Open Land	feet	129	593
Residential	feet	146	29
Wetland	feet	288	151
Industrial/Commercial	feet	0	0
Open Water	feet	0	0
MP range (start and end)	miles	N/A	2.31-2.53
<sup>1</sup> Based on a 100-foot-wide construction ROW			
<sup>2</sup> Based on a 50-foot-wide permanent ROW			

The route deviation accommodates a landowner request to keep trees along a property line and results in fewer impacts on landowners as the pipeline would be further from their residences. We recommend Route Deviation 4 be incorporated as part of the Project proposed route.

**3.3.4 Princeton Tie-Over Loop**

We evaluated a route deviation for the Princeton Tie-Over Loop between MP 9.63 and MP 9.74. The original design paralleled the existing pipeline resulting in a bore and pipeline workspace located in a landowner’s driveway, preventing access to the residence during construction. The route deviation included an angled bore crossing 273<sup>rd</sup> Avenue Northwest and open-cut construction to avoid impacts on the driveway and landowner’s landscaping. Deviation 5 is depicted on Figure 3-5, and impacts from the original route as compared to the route deviation are presented in table 3.3-5.

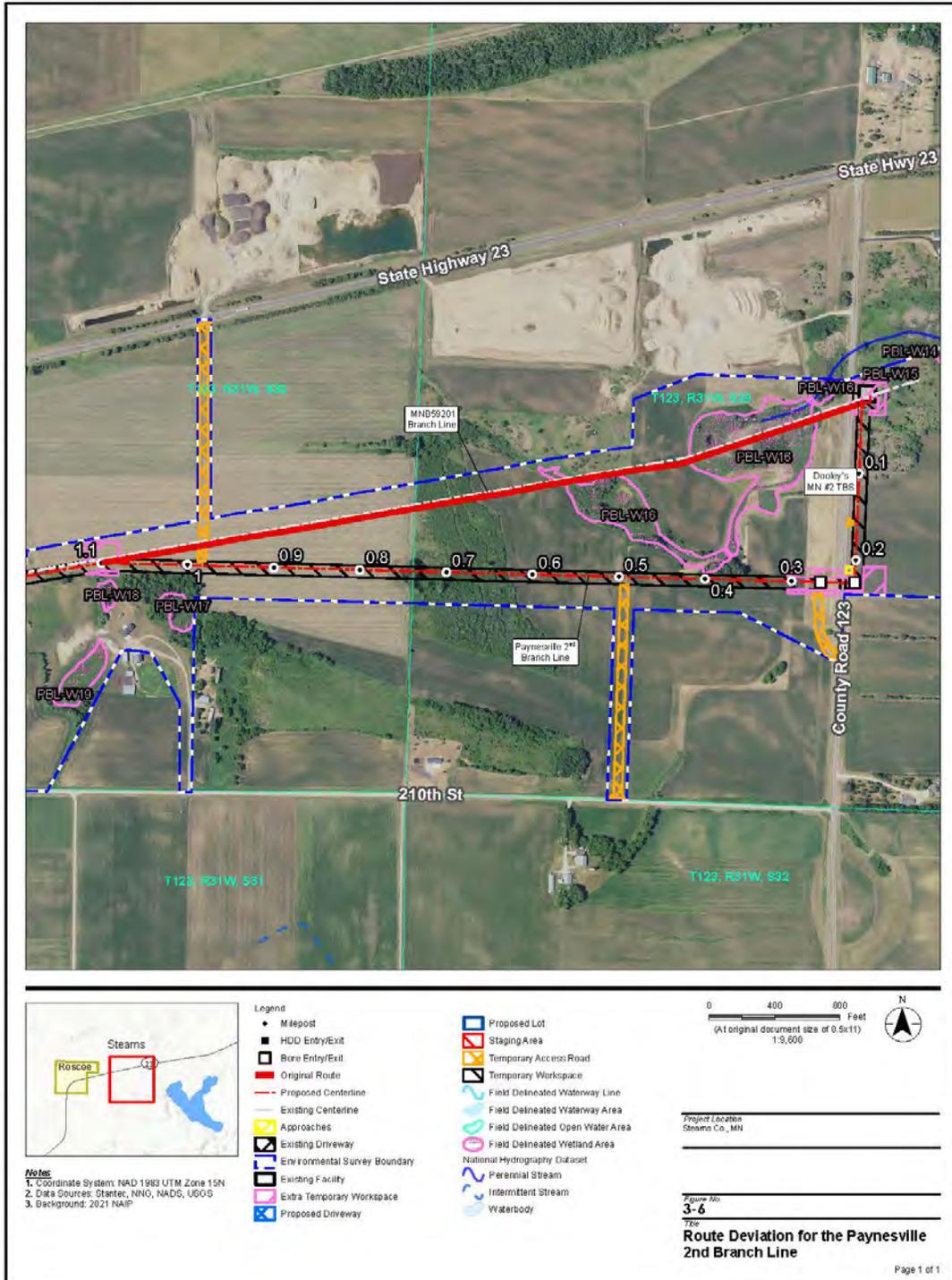


<b>Table 3.3-5 Analysis of Route Deviation 5 for the Princeton Tie-Over Loop</b>			
<b>Environmental Factor</b>	<b>Unit</b>	<b>Original Route</b>	<b>Route Deviation (Proposed Route)</b>
Total Length	feet	618	655
Adjacent to existing ROW	feet	618	0
Construction ROW <sup>1</sup>	acres	1.1	1.1
Permanent ROW <sup>2</sup>	acres	0.7	0.8
Total field delineated wetlands crossed	number	0	0
Total waterbodies crossed	number	0	0
Residences within 50 feet of construction work area	number	0	1
Cultural resources crossed	number	0	0
Land Use	feet	618	655
Open Land	feet	192	297
Residential	feet	399	326
Industrial/Commercial	feet	27	32
MP range (start and end)	miles	N/A	9.63-9.74
<sup>1</sup> Based on a 75-foot-wide construction ROW			
<sup>2</sup> Based on a 50-foot-wide permanent ROW			

While the route deviation is slightly longer, it avoids impact on a landowner’s driveway allowing them to access the residence during construction. The route deviation reduces impact on the landowner. We recommend Route Deviation 5 be incorporated as part of the Project proposed route.

**3.3.5 Paynesville 2<sup>nd</sup> Branch Line**

We evaluated a route deviation for the Paynesville 2<sup>nd</sup> Branch Line between MP 0.00 and MP 1.10. The original route was designed with an HDD crossing under County Road 123 and a wetland complex that parallels an existing pipeline. Northern has stated that geotechnical data collected indicated that the HDD was not feasible due to existing soil conditions. To avoid an HDD or an open-cut crossing of a major wetland complex, a route deviation was designed to maximize open-cut construction methods. Deviation 6 is depicted on figure 3-6 and impacts from the original route as compared to the route deviation are presented in table 3.3-6.



**Table 3.3-6  
Analysis of Route Deviation 6 for the Paynesville 2<sup>nd</sup> Branch Line**

<b>Environmental Factor</b>	<b>Unit</b>	<b>Original Route</b>	<b>Route Deviation (Proposed Route)</b>
Total Length	feet	4,772	5,740
Adjacent to existing ROW	feet	4,772	1,100 <sup>3</sup>
Construction ROW <sup>1</sup>	acres	8.2	9.9
Permanent ROW <sup>2</sup>	acres	5.5	6.6
Total field delineated wetlands crossed	number	1	0
Forested wetlands	number	0	0
Emergent wetlands	number	1	0
Total waterbodies crossed	number	0	0
Residences within 50 feet of construction work area	number	0	0
Cultural resources crossed	number	0	0
Land Use	feet	4,772	5,740
Agricultural	feet	2,912	4,249
Forested	feet	0	304
Open Land	feet	946	1,117
Wetland	feet	884	0
Industrial/Commercial	feet	30	70
MP range (start and end)	miles	N/A	0-1.10
<sup>1</sup> Based on a 75-foot-wide construction ROW			
<sup>2</sup> Based on a 50-foot-wide permanent ROW			
<sup>3</sup> Adjacent to road ROW			

The route deviation parallels County Road 123 for about 1,100 feet using open-cut construction, a conventional bore under County Road 123, followed by additional open-cut until the proposed pipeline parallels the existing branch line. While the route deviation is longer and would impact more forested land, it avoids impacts on wetlands and provides a feasible alternative to the HDD. We recommend Route Deviation 6 be incorporated as part of the Project proposed route.

### **3.4 ABOVEGROUND SITE ALTERNATIVES**

We did not consider alternatives for the proposed aboveground pipeline facilities. The proposed facilities are either located within or adjacent to existing aboveground facilities or are located within the pipeline construction and operational footprints, as is required for pipeline tie-ins.

### **3.5 ALTERNATIVES CONCLUSIONS**

We considered alternatives to Northern's proposal, and conclude that no system, route, or other alternative would provide a significant environmental advantage over the Project as proposed. We did identify minor route deviations that resulted in preferred alignments for the Project. We conclude that the proposed Project, with our recommended mitigation measures and minor route deviations, is the preferred alternative to meet the Project objectives.

## **4.0 ENVIRONMENTAL IMPACT ANALYSIS**

This section of the EIS provides our analysis of impacts on the affected environment as it currently exists and the environmental consequences of construction and operation of the Project. The section is organized by the following major resource topics: geology; soils; water resources; wetlands; fisheries; vegetation; wildlife; special status species; land use, recreation, special interest areas, and visual resources; socioeconomics and environmental justice; cultural resources; air quality and noise; and reliability and safety.

The environmental consequences of constructing and operating the Project would vary in duration and significance. Four levels of impact duration were considered: temporary, short-term, long-term, and permanent. Temporary impacts generally occur during construction with the resource returning to pre-construction condition almost immediately afterward. Short-term impacts could continue for up to 3 years following construction. Impacts were considered long-term if the resource would require more than 3 years to recover. A permanent impact could occur as a result of any activity that modifies a resource to the extent that it would not return to pre-construction conditions during the life of the Project.

We considered an impact to be significant if it would result in a substantial adverse change in the physical environment. Northern, as part of its proposal, developed certain mitigation measures to reduce the impact of the Project. In some cases, we determined that additional mitigation measures could further reduce the Project's impacts. Our additional mitigation measures appear as bulleted, boldfaced paragraphs in the text of this EIS and are also included in section 5.1. We are recommending to the Commission that these measures be included as specific conditions in any Certificate the Commission may issue to Northern for the Project.

The conclusions in the EIS are based on our analysis of environmental impacts and the following assumptions:

- Northern would comply with all applicable laws and regulations.
- The proposed facilities would be constructed as described in Northern's various application materials and filed supplements, as summarized in section 2.0 of the EIS.
- Northern would implement the mitigation measures included in its application and supplemental filings to the FERC, and in other applicable permits and approvals.
- Northern would comply with our recommended mitigation measures that become conditions in any Commission authorization.

## **4.1 BASELINE ENVIRONMENTAL TRENDS AND PLANNED ACTIVITIES**

The Project is composed of six distinct locations in five counties of central and southern Minnesota and one county in western Wisconsin:

- The Ventura North E-Line in Freeborn County, Minnesota is located between Twin Lakes and Emmons in a primarily agricultural area.
- The Elk River 3<sup>rd</sup> Branch Line in Washington County, Minnesota is located west of Big Marine Lake in a residential and agricultural area.

- The Willmar D Branch Line in Scott County, Minnesota is located southwest of the Credit River Township in an agricultural and residential area.
- The Princeton Tie-Over Loop in Sherburne County, Minnesota is located east of Zimmerman and west of Blue Lake in a residential area with scattered agricultural fields.
- The Paynesville 2<sup>nd</sup> Branch Line in Stearns County, Minnesota is located southwest of Roscoe in a primarily agricultural area.
- The Tomah Branch Line Loop in Monroe County, Wisconsin is located north of Sparta in a primarily agricultural area.

The Project lies within the Western Corn Belt Plains, North Central Hardwoods, and Driftless Area ecoregions of the Great Plains and Eastern Temperate Forest (White, 2020; Omernik, 2000).

The Western Corn Belt Plains of Minnesota are considered a highly productive agricultural area due to its fertile soils, temperate climate, and adequate precipitation during the growing season. This ecoregion has a relatively homogeneous topography of level to gently rolling glacial plains. The original tallgrass prairie vegetation has been converted to intensive row crop agriculture of corn, soybeans, and feed grains to support livestock production (White, 2020).

The North Central Hardwood Forests of Minnesota are considered transitional between the predominantly forested areas to the north and the Western Corn Belt Plains to the south and are comprised of nearly level to rolling plains, lake basins, outwash plains, and rolling to hilly moraines. The land use and land cover in this ecoregion consists of deciduous forests, wetlands and lakes, cropland agriculture, pasture, and dairy operations. This ecoregion also contains the urban metropolis of Minneapolis and St. Paul. The growing season is generally longer and warmer than the forested areas to the north, and the soils are more arable and fertile, contributing to the greater agricultural component of the land use (White, 2020).

The Driftless Area of Wisconsin is comprised of hilly uplands and is easily distinguished from its surrounding ecoregions. In contrast to the adjacent glaciated ecoregions, the Driftless Area has few lakes, and a stream density and flow that is generally greater than neighboring ecoregions (Omernik, 2000).

Planned development in the Project area may influence the environmental baseline in which the Project would be constructed. Northern identified permitted or planned developments with potential to occur in the vicinity of the Project between 2022 and 2024 by contacting local planning and zoning officials, coordination with landowners, and reviewing publicly available databases. The projects' combined impacts on groundwater, wetlands and surface water resources, vegetation and wildlife, land use, visual impacts, noise during construction, air quality during construction, and traffic and safety during construction were considered based on each project's potential impacts as indicated below.

Seven projects are proposed in the vicinity of the Project:

- Five residential actions are planned within the vicinity of the Project: a single residence 130 feet from the Elk River 3<sup>rd</sup> Branch Line and four proposed subdivisions between 0.5 and 5.1 miles of the Willmar D Branch Line. The impact of the single residence was not considered significant and was not addressed further. The impact from the

subdivisions was considered on groundwater, wetlands and surface water, vegetation and wildlife, and traffic and safety.

- Two roadway projects, a widening of State Highway 23 by the Minnesota DOT 0.2 mile north of the Paynesville 2<sup>nd</sup> Branch Line and a resurfacing project by the Wisconsin DOT about 1.0 mile southeast of the Tomah Branch Line, are planned within the vicinity of the Project. The impact of the roadway projects was considered on traffic and safety.

Additionally, five Northern actions would be in the vicinity of the Project between 2022 and 2024:

- In 2022, Northern would install a new launcher and receiver and expand the existing compressor station footprint at the Hugo Compressor Station within the workspace of the Elk River 3<sup>rd</sup> Branch Line. No change in compressor station operational air emissions is expected as a result of this project. The impact of this project was considered on land use, visual impacts, and traffic and safety.
- In 2022, Northern would install a new 3.3-mile 4-inch-diameter branch line to the Glenville TBS and modify the TBS, beginning east of MP 0.3 of the Ventura North E-Line. The impact of this project was considered on traffic and safety.
- In 2022, Northern would install a new line connection and remove the existing line connections at an existing Northern facility, about 1.6 miles southwest of the Ventura North E-Line. The impact of this project was considered on traffic and safety.
- In 2022, Northern would install a new Credit River TBS with several hundred feet of pipeline about 1.5 mile west-northwest of the Willmar D Branch Line terminus. The impact of this project was not considered significant and was not addressed further.
- In 2023, Northern would replace the grounding system inside the existing Hugo Compressor Station (grounding project). Work would occur within the existing compressor station footprint but be located in a separate area of the facility than the Project. The impact of this project was considered on groundwater, surface water, land use, visual impacts, noise during construction, air quality during construction, and traffic and safety.

Once in operation, the Project would have only minor amounts of fugitive emissions or leaks (0.96 tons per year [tpy] methane, 124 tpy CO<sub>2</sub>e), and would therefore not have long-term environmental impacts on socioeconomic or environmental resources in combination with the above-referenced facilities.

### Groundwater

Projects that could impact groundwater because of a shallow water table include the construction of the Hugo Compressor Station grounding project along with the Elk River 3<sup>rd</sup> Branch Line (located in Hydrologic Unit Code [HUC]-12 70300050906), as well as three of the proposed residential developments and the Willmar D Branch Line (located in HUC-12 70200121107). Construction of these projects may cause short-term changes in the water level and turbidity of shallow groundwater resources. These impacts are expected to be localized and short-term as water levels would quickly re-establish equilibrium and turbidity levels would subside. Construction and operations activities are not expected to impact groundwater quality

from releases of fuel or hazardous materials given that protocols prescribed in the SPCC plan would be followed. A majority of residents in the area of the Elk River 3<sup>rd</sup> Branch Line are on city water and sewer so any short-term impacts on the groundwater table would not substantially impact local residents. No long-term effects are anticipated as the proposed subdivisions near the Willmar D Branch Line would utilize public water and sewer services.

#### Wetlands and Surface Water Resources

Three of the proposed residential developments and the Willmar D Branch Line share a HUC-12 (70200121107). Construction of the Willmar D Branch Line would temporarily impact less than 0.1 acre of two wetlands from HDD travel lanes. Additionally, Northern would impact less than 0.1 acre of wetland for workspace to expose active natural gas pipelines while they are being crossed. There is no permanent wetland fill or wetland conversion associated with Northern's Project. There are 62.4 acres of wetland within the footprint of the three subdivisions. It is assumed the developers would be required to minimize their impacts on wetlands or mitigate for their loss in each subdivision based on the USACE and MPCA wetland permitting requirements. Northern has minimized its impacts on wetlands from the Willmar D Branch Line component to the extent practicable. Wetland impacts from Northern's Project would be minimized by use of standard construction methods and mitigation measures in the Plan, Northern's Procedures and Northern's SPCC plan.

The total temporary wetland impacts of the combined projects in the shared HUC-12 would be 62.5 acres. When compared to the total acres of wetland in the HUC-12, 62.5 acres represents less than 1 percent of overall wetlands. Cumulative impacts from the four projects that occur in the same HUC are not likely to have a significant impact on surface water resources.

#### Vegetation and Wildlife Resources

Three of the proposed residential developments and the Willmar D Branch Line share a HUC-12 (70200121107). Northern anticipates that residential construction would likely be complete by spring 2023. As new subdivisions, most impacts associated with the residential development would permanently alter the vegetation and landscape. However, Northern's proposed pipeline would have only temporary and minor impacts. The residential subdivisions consist of wetland, forested wetland, agricultural land, open land and forest and would disturb about 441 acres of vegetated cover. A wide variety of local species may inhabit these areas. Northern's Willmar D Branch Line would disturb about 41.6 acres of vegetation cover, of which 0.2 acre is permanent.

Construction and operation of the Willmar D Branch Line is not likely to result in long-term or cumulative impacts on vegetation or wildlife. No substantial changes in land cover, habitat availability, or suitability are anticipated as a result of the proposed Project.

The total temporary impact on vegetation of the combined projects in the shared HUC-12 would be 482.6 acres. When compared to the total acres of vegetation in the HUC-12, these numbers represent less than 1 percent of overall vegetated areas. Cumulative impacts from the four projects that occur in the same HUC-12 are not likely to have a cumulative impact on vegetation or wildlife.

### Land Use

The Hugo Compressor Station launcher and receiver and the Hugo Compressor Station grounding project along with the Elk River 3<sup>rd</sup> Branch Line were considered for combined impacts to land use. The Hugo Compressor Station would result in the permanent conversion of about 4.5 acres of open and agricultural land to industrial/commercial land for operation of the compressor station. The remaining areas disturbed during construction would be temporarily impacted and restored in accordance with our Plan and Northern's Procedures and the project SWPPPs. The Hugo Compressor Station grounding project would be entirely contained within the existing facility footprint and no land use impacts or changes would occur. Due to the minor impacts on land use associated with these projects, the contribution to cumulative impacts on land use would be minimal.

The Elk River 3<sup>rd</sup> Branch Line would increase the amount of right-of-way that Northern would maintain but, overall, would not significantly affect land use as there is limited forested land in the area. Areas disturbed during construction would be temporarily impacted and restored in accordance with our Plan and Northern's Procedures and the project SWPPPs and CESCOP.

The Project and other actions would not significantly change the character of the land, and the land use types impacted are abundant in the geographic scope. Cumulative impacts on land use would not be significant.

### Visual Resources

The Hugo Compressor Station launcher and receiver and the Hugo Compressor Station grounding project along with the Elk River 3<sup>rd</sup> Branch Line were considered for combined impacts to visual resources. Visual impacts, in general, during construction of the Elk River 3<sup>rd</sup> Branch Line would be minor and temporary. The Hugo Compressor Station launcher and receiver action would expand the current compressor station footprint and add a launcher and receiver. Northern also would install visual screening along the newly expanded station fence. As the launcher and receiver are less than 8 feet in height and the current visual screening would be replaced, the expansion of the compressor station would not have visual impacts. The Hugo Compressor Station grounding project would be contained entirely within the facility footprint, consist of below-ground ground bed replacements, and not impact the existing visual screening. The Project and other actions would have a negligible contribution to visual cumulative impacts.

### Noise – Construction

Construction of the Hugo Compressor Station grounding project and the Elk River 3<sup>rd</sup> Branch Line would occur concurrently and both would occupy areas within the Hugo Compressor Station. Noise impacts associated with construction of the projects would be temporary. Northern has designed both its projects to comply with noise requirements in 18 CFR 380.12. The general area is sparsely settled with scattered residents and the Hugo Compressor Station is surrounded by a barrier fence and mature trees, which would provide some screening. Based on short-term construction windows and the surrounding landscape, Northern's Project would not contribute to cumulative noise impacts.

### Air Quality – Construction

Construction of the Hugo Compressor Station grounding project and the Elk River 3<sup>rd</sup> Branch Line would occur concurrently and both would occupy areas within the Hugo Compressor Station. Construction emissions from construction of the two projects would be temporary and minor. Neither of the actions would require construction or operations permits for air emissions. Simultaneous construction of the two projects may result in cumulative air quality impacts from fugitive dust generation due to soil disturbance and the operation of vehicles and equipment.

The cumulative impact contribution to air quality from the proposed construction activities and the other action is expected to be minimal.

### Traffic/Safety

Ten actions are within the geographic and temporal scope for traffic and safety and have the potential to contribute to cumulative effects. Eight actions would occur in 2022, prior to the Project, and one would occur after completion of construction of the Project, in 2024. The State Highway 23 widening project (in 2022) would not cross workspaces for Northern's Paynesville 2<sup>nd</sup> Branch Line; however, one access road for Northern's Paynesville 2<sup>nd</sup> Branch Line is currently proposed off State Highway 23. Northern would work with its contractor to develop travel routes for construction vehicles that would avoid the Minnesota DOT construction project to the extent practicable.

The Hugo Compressor Station grounding project would occur in 2023 and likely cause a slight increase in construction traffic on 180<sup>th</sup> Street North as it overlaps with the Elk River 3<sup>rd</sup> Branch Line. The Hugo Compressor Station grounding project would need about 5 to 10 workers with an additional 20 to 40 workers for the Elk River 3<sup>rd</sup> Branch Line. The projects are less than 0.25 mile from Highway 15 which could handle increased traffic. Northern has stated that no roads would be closed during construction of either action. Impacts on traffic associated with construction of the Project would be localized, minor, and temporary.

The four proposed residential developments are within the same county as the Willmar D Branch Line; due to the proposed staffing of 30 to 70 workers during pipeline construction and that the residential developments are already under construction, cumulative traffic impacts in Scott County, Minnesota are not anticipated. Based on the review of the potential cumulative impacts, Northern concludes that there would be no significant cumulative traffic or safety impacts due to construction and operation of Project facilities.

The environmental resources that would be affected by the proposed Project are discussed in the sections below.

## **4.2 GEOLOGY**

### **4.2.1 Geologic Setting**

The Project is located within the Central Lowlands physiographic province of the Interior Plains (Fenneman, 1928). The Central Lowlands is the largest physiographic province in the continental U.S., which was subjected to repeated glaciations during the Pleistocene epoch. During the Pleistocene Epoch of the Quaternary Period (which ranges from about 2,500,000 to 11,700 years ago), most of the region that encompasses the states of Minnesota and Wisconsin

experienced a series of glacial and interglacial periods. During this time, large lobes of ice periodically covered all but the southeast corner of Minnesota and southwest corner of Wisconsin, which is known as the "driftless area." When glaciers advanced, eroded material was entrained in the ice sheets and then deposited as thick layers of drift as the glaciers receded (Lusardi et al., 2019). Aboveground facilities and pipelines for the Project are underlain by 50 feet or more of glacial drift, with the exception of the Paynesville 2<sup>nd</sup> Branch Line, which is underlain by less than 50 feet of glacial drift, and the Tomah Branch Line Loop, which is underlain by less than 50 feet of colluvium (Bauer, 2016; Lusardi, 2013; Meyer, 1995; Quade, H.W. and Rongstad, J., 1991; Setterholm, 2006; Trotta and Cotter, 1973).

Generally, the topography of the Project area in Minnesota consists of level to gently rolling terrain, with occasional hills formed by glacial moraines, or valleys formed by flowing water. The Paynesville 2<sup>nd</sup> Branch Line has the greatest topographic relief of the Project components in Minnesota at 1,100 to 1,216 feet above mean sea level. The topography of the Project area in Wisconsin consists of a rolling terrain with dissected bedrock valleys. The topographic relief of the Tomah Branch Line Loop is between 823 and 888 feet above mean sea level.

Geotechnical borings conducted by Northern did not encounter areas of bedrock at depths that would impact open-cut trenching or aboveground facility construction. Limestone bedrock of the Platteville and Glenwood Formations was encountered at depths between 45.0 and 79.5 feet below ground surface on the Elk River 3<sup>rd</sup> Branch Line. Graywacke from an undifferentiated Cretaceous Period formation was encountered at depths between 44.5 and 64.5 feet below ground surface was encountered in two borings on the Paynesville 2<sup>nd</sup> Branch Line. Sandstone, of undivided Cambrian Trempealeau, Tunnel City and Elk Mound Formations, was encountered at depths between 49 and 53 feet below ground surface on the Tomah Branch Line Loop. Based on the Natural Resources Conservation Service (NRCS) soil survey data and the site-specific geotechnical soil borings, blasting is not anticipated during construction. Bedrock was not encountered in other geotechnical borings for Project components.

#### **4.2.2 Mineral Resources**

No active, inactive, or planned coal or metallic (e.g., iron ore, copper, nickel, or titanium) mines were identified within 0.25 mile of the Project area, and no oil or gas production wells were identified within 0.25 mile of the Project area. While some oil and gas exploration has occurred in Minnesota, no commercially viable oil and gas extraction has occurred in Minnesota and Wisconsin, and the geologic characteristics of the states make any future petroleum discoveries highly unlikely (USEIA, 2022a; USEIA, 2022b). The MDNR Division of Lands and Minerals and USGS Mineral Resources Data System websites indicate four surface-mined mineral resources are located within 0.25 mile of the Paynesville 2<sup>nd</sup> Branch Line (MDNR, 2022a; USGS, 2022). The identified surface mines are a source of sand and gravel. One mine identified to the east of MP 0.0 has been reclaimed; two mines to the north of MP 0.0 are identified as inactive and active, respectively; and a mine to the north of MP 0.9 is identified as active. The original pipeline route was modified to avoid conflicts with the surface mines at MP 0.0, and the mine to the north of MP 0.9 is separated from the Project on the opposite side of State Highway 23. Therefore, we conclude that the Project would not impact mineral and non-mineral resources.

### 4.2.3 Geologic Hazards

Geologic hazards are natural physical conditions that can, when present, result in damage to land and structures, or injury to people. Such hazards typically are seismic-related, including earthquakes, surface faulting, and soil liquefaction. Geologic hazards discussed below also include landslides, ground subsidence, and flood hazards.

**Seismic Hazard.** The shaking during an earthquake can be expressed in terms of the acceleration as a percent of gravity (g), and seismic risk can be quantified by the motions experienced at the ground surface or by structures during a given earthquake expressed in terms of g. USGS National Seismic Hazard Probability Mapping shows that for the Project area, within a 50-year period, there is a 2 percent probability of an earthquake with an effective peak ground acceleration (PGA) of 2 to 4 percent g; and a 10 percent probability of an earthquake with an effective PGA of less than 2 percent g being exceeded (Peterson et al, 2019). For reference, a PGA of 10 percent g (0.1 g) is generally considered the minimum threshold for damage to older structures or structures not constructed to resist earthquakes. These ground accelerations would be expected to correlate with approximate intensities between IV and VII on the Modified Mercalli Intensity scale, associated with up to “moderate” damage potential for aboveground structures. However, at these intensities, damage is negligible in buildings of good design and construction. In general, modern electric arc welded steel pipelines have not sustained damage during seismic events except due to permanent ground deformation or traveling ground-wave propagation greater than or equal to a Modified Mercalli Intensity of VIII (O’Rourke and Palmer, 1996). The main risk to pipelines and aboveground facilities would be a fault that displaces laterally during an earthquake. Project facilities are not underlain by this type of feature (USGS, 2022d).

While Minnesota and Wisconsin are two of the least seismically active states in the U.S., there have been at least 14 earthquakes in Minnesota over the last 160 years with a maximum magnitude of 4.6 on the Richter scale (Minnesota Geological Survey, 1979; USGS, 2022b) and at least 30 earthquakes in Wisconsin over the last 120 years with a maximum magnitude of 5.1 on the Richter scale (Mudrey, 1984; USGS, 2022c). The closest recorded earthquake to the Project is the Willmar/Svea earthquake that occurred February 9, 1994 (USGS, 2022b). This earthquake had a magnitude of 3.1 on the Richter scale and was located about 35 miles southwest of the Paynesville 2<sup>nd</sup> Branch Line. Based on the magnitude of recent and historic seismic activity and the distance of earthquake epicenters from the Project area, as well as the absence of active faults underlying the Project area, we conclude that the Project is not likely to be significantly impacted by future seismicity.

**Liquefaction Potential.** Soil liquefaction is a phenomenon associated with seismic activity in which saturated, non-cohesive soils temporarily lose their strength and liquefy (i.e., behave like a viscous liquid). All three conditions (non-cohesive soils, near surface saturation, and seismicity) are necessary for soil liquefaction to occur. Deposits most susceptible to liquefaction are sands and non-plastic silty soils deposited within the last 10,000 years and saturated with water. Since the glacial deposits in the Project area occurred over 11,000 years ago and due to the lack of seismic activity in the Project area, the potential for soil liquefaction within the Project area is minimal.

**Landslide Susceptibility.** USGS landslide incidence and susceptibility mapping within the Project area indicates the Project is in areas of low landslide incidence and low landslide susceptibility (Radbruch-Hall et al., 1982). The USGS Landslide Inventory did not indicate the

presence of landslides within the Project area (USGS, 2022e). Northern reviewed site-specific civil survey elevation data to identify steep slopes present in the Project area. No slopes in excess of 15 percent were identified within the Project area, except for three slopes in one isolated area. Between MP 29.49 and 29.51 on the Ventura North E-Line, three slopes each less than 40 feet long contain slopes between 15 and 30 percent along the road grade for 120<sup>th</sup> Street. Because this area would be crossed using a conventional bore, the Project would not impact these steep slopes.

In accordance with our Plan, Northern would install temporary trench plugs and temporary slope breakers during construction on slopes greater than 5 percent. The temporary slope breakers would channel water off the right-of-way through a J-hook or other baffling device to limit water flow down long steep slopes. Temporary trench plugs would reduce the velocity of water flowing along the trench and volume of water that collects at the bottom of slopes. Northern would also install permanent trench breakers and permanent slope breakers in areas of steep slopes. Used in combination, these structures prevent subsurface piping of soils that can lead to slope instability and failure.

**Ground Subsidence.** Ground subsidence, involving the localized or regional lowering of the ground surface, may be caused by karst dissolution, sediment compaction, oil and natural gas extraction, underground mines, and groundwater over pumping. As described previously, there are no subsurface mines or oil and gas wells within 0.25 mile of the Project area. The USGS mapping depicts no extensive historical subsidence has occurred within the Project area (USGS, 2000).

The effects of glaciation influence the development and preservation of karst areas in the midwestern United States. Surface expression of sinkholes is unlikely in areas where carbonate bedrock is covered by more than 50 feet of glacially derived sediments such as stratified drift and till (Weary and Doctor, 2014).

The USGS map of karst and potential karst areas in the United States identifies portions of the Ventura North E-Line, Elk River 3<sup>rd</sup> Branch Line, and Willmar D Branch Line as underlain by carbonate bedrock (Weary and Doctor, 2014). USGS mapping indicates the carbonate bedrock near these Project components is overlain by over 50 feet of unconsolidated glacial material. Northern completed five geotechnical borings to depths between 61 and 81 feet below ground surface for the Ventura North E-Line. Bedrock was not encountered in any of the borings.

Northern completed seven geotechnical borings to depths between 61 and 100 feet below ground surface for the Elk River 3<sup>rd</sup> Branch Line. Limestone bedrock from the Platteville and Glenwood Formations was encountered in three borings at depths between 45 and 79.5 feet below ground surface. Due to its HDD designs, Northern indicated the depth of the limestone bedrock would not impact construction or operation of the Elk River 3<sup>rd</sup> Branch Line.

Northern completed five geotechnical borings to depths between 30 and 150 feet below ground surface for the Willmar D Branch Line. Bedrock was not encountered in any of the borings.

According to the USGS, the Princeton Tie-Over, the Paynesville 2<sup>nd</sup> Branch Line, and the Tomah Branch Line are not located in karst areas. Northern does not anticipate encountering bedrock during construction. Due to the thickness of the unconsolidated overburden and results of the geotechnical borings, we conclude the Project would not be significantly impacted by subsidence, karst hazards, or significantly contribute to karst development.

**Flood Hazards.** The Project could be impacted by flash flooding due to its proximity to streams, rivers, and other nearby waterbodies. The Project crosses a single Federal Emergency Management Agency (FEMA)-mapped floodplain between MPs 0.76 and 0.93 on the Elk River 3<sup>rd</sup> Branch Line; however, pipeline in this area will be crossed via HDD and would result in no grading or ground disturbance within the floodplain. No aboveground facilities will be constructed in FEMA-mapped floodplain, and therefore would not impact floodplain storage capacity.

The pipeline would be buried, and the surface restored to preconstruction contours to the extent practicable. The pipeline would be installed at a depth sufficient to provide a minimum of 36 inches of cover after grading, reducing the threat of scour to expose the pipeline. The only two perennial waterbodies crossed by the Project would be crossed via the HDD method, and the pipe would be buried 40 and 58 feet, respectively, below the base of each waterbody, minimizing the threat of exposure of the pipeline due to scour.

#### **4.2.4 Geotechnical Investigation**

Northern completed geotechnical borings at the proposed HDD and conventional bore locations to characterize subsurface geology and to investigate the feasibility of successfully utilizing the HDD method for the Project (see section 2.4.2.1). Northern also utilized a geophysical study, specifically electrical resistivity tomography, to supplement geotechnical data at the Elk River 3<sup>rd</sup> Branch Line, where drilling fluid losses were observed.

Ventura North E-Line. Northern completed five geotechnical borings to depths between 61 and 81 feet below ground surface for the Ventura North E-Line. The borings were completed near the proposed conventional bores. The most prevalent soil type encountered was sandy lean clay. Several borings also contained poorly graded sand, sandy silt, and clayey sand at depths below 40 feet. Bedrock was not encountered in any of the borings.

Elk River 3<sup>rd</sup> Branch Line. Northern completed seven geotechnical borings to depths between 61 and 100 feet below ground surface for the Elk River 3<sup>rd</sup> Branch Line. Borings were completed near the proposed conventional bore and HDDs, except in locations where standing water limited access. The most common soil types encountered were sand, silty sand, clayey sand, and sandy lean clay. Bedrock was encountered in three borings, at depths between 45 and 79.5 feet below ground surface, consisting of limestone from the Platteville and Glenwood Formations. Sandstone from the St. Peter Sandstone was encountered below the limestone in one boring. Drilling fluid loss was recorded in borings conducted between MPs 0.7 and 0.9.

Additional investigation, using electrical resistivity tomography, was completed between MPs 0.7 and 0.9 to evaluate subsurface soil conditions and to detect underground anomalies that may be problematic during construction. Near MP 0.9, high resistivity zones at depths of 30 feet and 80 feet were interpreted as an increase in sand and gravel content and bedrock contact, respectively. High resistivity zones near MP 0.7 are interpreted as the bedrock boundary. The boundary is uneven and ranges from 40 to 100 feet below ground surface. The uneven boundary may be caused by an erosional event, such as glaciation or riverine environment, followed by an infilling of fine-grained material into the fractures. Deeper troughs where glacial till deposits and interglacial buried outwash and river valleys were also observed in the data.

Northern used the results of the geotechnical borings and electrical resistivity tomography surveys on the Elk River 3<sup>rd</sup> Branch Line to redesign the HDDs, specifically decreasing the angle of entry and adjusting the entry and exit pit locations. The current HDD design indicates the drills

would be completed at depths above the uneven bedrock surface and above the depths where the drilling contractor lost returns.

Willmar D Branch Line. Northern completed five geotechnical borings to depths between 30 and 150 feet for the Willmar D Branch Line. The borings were completed near the proposed conventional bore and HDDs. The most prevalent soil type encountered was sandy lean clay. Several borings also contained silty sand at depths below 20 feet. Bedrock was not encountered in any of the borings.

Princeton Tie-Over Loop. Northern completed 14 geotechnical borings to depths between 31 and 101 feet below ground surface for the Princeton Tie-Over Loop. The borings were completed near the proposed conventional bores and HDDs. The most prevalent soil type encountered was poorly graded sand. Bedrock was not encountered in any of the borings for the Princeton Tie-Over Loop.

Paynesville 2<sup>nd</sup> Branch Line. Northern completed three geotechnical borings to depths between 40 and 81 feet below ground surface for the Paynesville 2<sup>nd</sup> Branch Line. Two borings were completed in the vicinity of a wetland located along a pipeline centerline that was originally planned but has since been rejected by Northern. A third boring was completed near a proposed conventional bore. The most prevalent soil types were silty sand and poorly graded sand. Bedrock was encountered in two borings, at depths between 44.5 and 64.5 feet below ground surface, consisting of graywacke from an undifferentiated Cretaceous formation.

Tomah Branch Line Loop. Northern completed two geotechnical borings to depths between 54.6 and 59.6 feet below ground surface for the Tomah Branch Line Loop. The borings were completed along the pipeline centerline in the vicinity of a proposed conventional bore. The most prevalent soil types encountered were poorly graded sand and silty sand, underlain by bedrock. Bedrock was encountered in both borings, at depths between 49 and 53 feet below ground surface, consisting of sandstone from undivided Cambrian Trempealeau, Tunnel City, and Elk Mound Formations.

Based on the results above, the proposed HDDs and conventional bores for the Project would not encounter bedrock. Northern designed its HDDs for the unconsolidated materials expected along the profiles.

In the event of an inadvertent return, Northern would implement measures outlined in its HDD Plan. Northern's HDD Plan would ensure drill operations are monitored and adjusted to avoid potential inadvertent returns, and if one should occur, the release would be contained to the extent practicable and remediated.

We conclude subsurface conditions identified by the geotechnical borings would not render the HDDs infeasible. Therefore, and with Northern's implementation of its HDD Plan, we conclude that impacts from HDD construction and potential inadvertent returns of drilling fluid to the ground surface would not be significant.

#### **4.2.6 Paleontological Resources**

Northern conducted a review of existing paleontological information for Minnesota and Wisconsin. While fossils may be found throughout the two states, unique paleontological resources are not known to exist within the proposed locations of the Project (MDNR, 2022b; Paleobiology Database, 2022; WGNHS, 2022). If significant paleontological resources are

encountered during construction, the construction contractor would report the findings to Northern's on-site EI. The EI would temporarily suspend construction activities in the immediate area of the paleontological finding while a qualified paleontologist is consulted. In addition, Northern would notify us and the MDNR or Wisconsin Geological and Natural History Survey. Therefore, we conclude that significant paleontological resources are unlikely to be affected by construction or operation of the Project.

## **4.3 SOILS**

### **4.3.1 Existing Soil Resources**

Northern obtained the information for soil characteristics from the U.S. Department of Agriculture (USDA), NRCS, Soil Survey Geographic Database (SSURGO), and the Web Soil Survey (USDA NRCS, 2022a). Project activities, such as clearing, grading, excavation, backfilling, heavy equipment traffic, and restoration have the potential to adversely affect soil characteristics such as water infiltration, storage and routing, and soil nutrient levels, consequently reducing soil productivity. Soils were evaluated for characteristics that could affect construction or increase the potential for soil impacts during construction, restoration, and/or operation. These characteristics include prime farmland designation, drainage classification and hydric soils, compaction potential, erodibility by wind and water, revegetation potential, and depth to bedrock. A description of these soil characteristics within the Project area, including impacts and mitigation measures, is provided below and summarized by Project component in table 4.3.1-1.

Project area soils are generally classified as clay loams, loams, loamy sands, and sands. None of the soils within the Project area are classified as stony and rocky or hydric. Few Project area soils (<0.1 acre) have a shallow depth to bedrock. Less than 3 percent (6.4 acres) of Project area soils are classified as highly erodible by water. About 15 percent of Project area soils are highly erodible by wind (39.1 acres). Less than 35 percent of Project area soils are classified as having poor revegetation potential (72.1 acres) and classified as highly compaction prone (88.6 acres). About half of Project area soils are classified as highly corrosive to steel (125.1 acres).

**Table 4.3.1-1<sup>a</sup>**  
**Soil Limitations Affected by the Proposed Project**

Project Component	Total Ac	Prime Farmland <sup>1</sup>		Farmland of Statewide Importance		Erosion Factor Kw <sup>2</sup>		Wind Erodible <sup>3</sup>		Hydric <sup>4</sup>		Highly Compaction Prone <sup>5</sup>		Highly Corrosive to Steel		Shallow to Bedrock <sup>6</sup>		Revegetation Concerns <sup>7</sup>	
		Ac	%	Ac	%	Ac	%	Ac	%	Ac	%	Ac	%	Ac	%	Ac	%	Ac	%
Ventura North E-Line	87.2	71.2	81.7	12.2	14.0	0.0	0.0	0.3	0.4	0.0	0.0	57.0	65.4	74.7	85.8	0.0	0.0	47.2	54.2
Elk River 3 <sup>rd</sup> Branch Line	24.6	10.8	44.0	1.7	6.8	5.4	21.9	12.0	48.7	0.0	0.0	5.4	21.9	9.8	39.8	0.0	0.0	0.0	0.0
Willmar D Branch Line	41.8	24.0	57.6	10.6	25.5	0.0	0.0	0.7	1.7	0.0	0.0	20.1	48.2	24.7	59.2	0.0	0.0	20.1	48.2
Princeton Tie-Over Loop	53.0	3.1	5.9	27.1	51.1	0.0	0.0	22.8	42.9	0.0	0.0	0.1	0.3	0.1	0.3	0.0	0.0	0.1	0.3
Paynesville 2 <sup>nd</sup> Branch Line	37.3	17.6	47.1	14.1	37.9	0.0	0.0	1.3	3.4	0.0	0.0	6.0	16.2	6.1	16.4	0.0	0.0	4.7	12.5
Tomah Branch Line Loop	11.7	9.7	82.8	0.0	0.0	1.0	8.9	2.0	16.9	0.0	0.0	0.0	0.0	9.7	82.8	0.0	0.3	0.0	0.0

<sup>a</sup> The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

<sup>1</sup> Includes 'all areas are prime farmland' and 'prime farmland if drained.' Total acres of agricultural land are digitized in GIS based on field observations and desktop review and represent current land use. Prime farmland is based on NRCS soil classifications and may not match actual agricultural land use.

<sup>2</sup> Includes soils that have Erosion Factor Kw rating of 0.40-0.69 (High).

<sup>3</sup> Includes soils that have Wind Erodible Group rating of 1 or 2.

<sup>4</sup> Includes soils that have a Hydric Rating of Hydric.

<sup>5</sup> Includes soils that have a Compaction Potential rating of High.

<sup>6</sup> Includes soils that have lithic or paralithic bedrock within 60 inches or less of the soil surface.

<sup>7</sup> Revegetation is based on potential for seedling mortality rate class. A seedling mortality rate of high indicates the soil has properties that will decrease the potential for successful revegetation.

### 4.3.2 Prime Farmland

The USDA defines prime farmland as land that has the best combination of physical and chemical characteristics for growing food, feed, forage, fiber, and oilseed crops (USDA NRCS, 2022b). Unique farmland is land that is used to produce specific high-value food and fiber crops. In addition, soils may be considered of statewide or local importance if those soils are capable of producing a high yield of crops when managed according to accepted farming methods. Construction in agricultural areas and pasture areas would temporarily disrupt ongoing agricultural activities and eliminate use of the land for the duration of construction, with permanently impacted areas at aboveground facilities converted to industrial use.

Within the Project area, the following acres are designated as prime farmland:

- About 71.2 acres (82%) of the Ventura North E-Line construction workspaces. About 0.1 acre of prime farmland would be permanently impacted due to operation of an aboveground facility.
- About 10.8 acres (44%) of the Elk River 3<sup>rd</sup> Branch Line construction workspaces. No prime farmland would be permanently impacted.
- About 24.0 acres (58%) of the Willmar D Branch Line construction workspaces. About 0.2 acre of prime farmland would be permanently impacted due to operation of an aboveground facility.
- About 3.1 acres (6%) of the Princeton Tie-Over Loop construction workspaces. Less than 0.1 acre of prime farmland would be permanently impacted due to expansion of a driveway at an existing aboveground facility.
- About 17.6 acres (47%) of the Paynesville 2<sup>nd</sup> Branch Line construction workspaces. About 0.1 acre of prime farmland would be permanently impacted due to expansion of an existing aboveground facility.
- About 9.7 acres (83%) of the Tomah Branch Line Loop construction workspaces. Less than 0.1 acre of prime farmland would be permanently impacted due to operation of an aboveground facility.

Northern's existing facilities within the Project footprint currently occupy 1.1 acres of designated prime farmland. Three existing aboveground facilities would be removed, and their combined footprints total less than 0.1 acre of prime farmland. Landowners would have the option to farm this less than 0.1 acre following removal of the facilities. Northern's proposed facilities would result in a loss of about 0.5 acre of prime farmland in Freeborn, Scott, Sherburne, Stearns Counties, Minnesota and Monroe County, Wisconsin; this is significantly less than the 942,210 acres of prime farmland in these five counties.

Within the Project area, the following acres are designated as farmland of statewide importance:

- 12.2 acres (14%) of the Ventura North E-Line construction area;
- 1.7 acres (7%) of the Elk River 3<sup>rd</sup> Branch Line construction area;
- 10.6 acres (25%) of the Willmar D Branch Line construction area;

- 27.1 acres (51%) of the Princeton Tie-Over Loop construction area; and
- 14.1 acres (38%) of the Paynesville 2<sup>nd</sup> Branch Line construction area.
- The Tomah Branch Line Loop does not contain soils that are designated as farmland of statewide importance

Northern's existing facilities within the Project footprint currently occupy less than 0.1 acre of farmland of statewide importance. Northern would permanently impact 0.3 acre of farmland of statewide importance at the Willmar D Branch Line in Scott County and the Princeton Tie-Over Loop in Sherburne County by the construction and operation of aboveground facilities. About 69,753 acres of farmland of statewide importance are identified in Scott and Sherburne counties; therefore, the impact to farmland of statewide importance by the Project would be minimal.

During construction, potential impacts on agricultural soils would be minimized and mitigated in accordance with our Plan and the AIMP. These include measures to conserve and segregate the upper 12 inches of topsoil, alleviate soil compaction, protect and maintain existing drainage tiles and irrigation systems, prevent the introduction of weeds, and retain existing soil productivity. The AIMP also includes restoration and revegetation measures, such as seedbed preparation, fertilization, and seeding to actively promote revegetation. Following construction, agricultural activities would be allowed to resume without restrictions except within the fence lines of aboveground facilities and within the footprint of permanent access roads. We conclude that impacts on prime farmland soils would be temporary and not significant.

### **4.3.3 Compaction Potential**

Soil compaction can occur by the repeated movement of heavy machinery across soils with the potential for compaction, particularly soils with high shrink-swell potential and poor drainage characteristics (e.g., soils with high clay content). These impacts can result in an increase in agricultural operating and labor costs, decreased productivity, and damage to field equipment. Within the Project area, as determined by an NRCS Compaction Potential rating of "High", the following acres are identified as highly prone to compaction:

- 57.0 acres (66%) of the Ventura North E-Line construction area;
- 5.4 acres (22%) of the Elk River 3<sup>rd</sup> Branch Line construction area;
- 20.1 acres (48%) of the Willmar D Branch Line construction area;
- 0.1 acre (<1%) of the Princeton Tie-Over Loop construction area; and,
- 6.0 acres (16%) of the Paynesville 2<sup>nd</sup> Branch Line construction area.

Soils within the Tomah Branch Line Loop have a low compaction potential.

Northern would de-compact subsoil in accordance with our Plan. Northern would perform soil compaction mitigation in severely compacted residential areas based on coordination with landowners. In agricultural land, these measures include using appropriate deep-tillage equipment such as a paraplow, or chisel plow. In agricultural and residential lands, compaction testing would be conducted to verify compaction is relieved to a level equal to or better than adjacent undisturbed areas. Once decompaction of the subsoil is complete, the segregated topsoil would be returned to

the right-of-way. Decompaction would be completed on the restored topsoil using shallow-ripping tools.

Based on these measures, we conclude that soil compaction resulting from Project activities would be minimized and that resulting impacts would not be significant.

#### **4.3.4 Soil Erosion and Revegetation Potential**

Soil erosion is the wearing away of physical soil properties by wind and water and could result in a loss of soil structure, organic matter, and nutrients, all of which, when present, contribute to healthy plant growth and ecosystem stability. Soil erosion potential is affected by numerous factors including soil texture, soil structure, organic matter content, and permeability, and is influenced by slope and the intensity of the exposure to erosive forces. Clearing, grading, and equipment movement removes the protective vegetation cover and exposes soils to the effects of wind and water, which can accelerate the erosion process and increase sediment discharge to waterbodies and wetlands. Increased rainfall in the spring and fall can also result in increased erosion in agricultural areas where vegetation has been cleared.

Soil erosion potential is affected by the soil lithology, including mineralogy, grain size, texture, and organic content. Soil erosion potential is also influenced by slope and exposure to erosion mechanisms. Soils identified as having an NRCS rating of "high" for the NRCS Soil Erodibility Factor (Kw) are considered highly erodible by water. A high Kw corresponds to a  $Kw \geq 0.40$ . About 5.4 acres (22% of the total affected acreage) of the Elk River 3<sup>rd</sup> Branch Line and 1.0 acre (9%) of the Tomah Branch Line Loop are classified as highly erodible soil. No other Project components contain soils that are highly erodible by water.

A Wind Erodibility Group (WEG) is a grouping of soils that have similar properties affecting their resistance to soil blowing in cultivated areas. Soils are placed into WEGs ranging from 1 to 8 on the basis of the properties of the soil surface layer, where a rating of 1 being the most susceptible to wind erosion, and 8 is the least susceptible to wind erosion. Accordingly, the WEG ratings (1 to 8) corresponds to the estimated loss of soil particles ranging from 310 to 0 tons per acre per year. Soils with a WEG rating of 1 or 2 (soil loss of 134 to 310 tons per acre per year) are identified as highly wind erodible. Within the Project area, the following acres are designated as highly wind erodible:

- About 0.3 acre (<1%) of the Ventura North E-Line construction area;
- About 12.0 acres (49%) of the Elk River 3<sup>rd</sup> Branch Line construction area;
- About 0.7 acre (2%) of the Willmar D Branch Line construction area;
- About 22.8 acres (43%) of the Princeton Tie-Over Loop construction area;
- About 1.3 acres (3%) of the Paynesville 2<sup>nd</sup> Branch Line construction area; and,
- About 2.0 acres (17%) of the Tomah Branch Line Loop construction area.

To minimize soil erosion from wind and water, Northern would implement measures, as specified in our Plan, the SWPPPs, CESCO, and applicable Project-specific permits. Temporary erosion control measures, including interceptor diversions (e.g., slope breakers) and sediment filter devices (e.g., straw bales, silt fence, sediment basins), would be installed prior to initial ground disturbance, where feasible. If some limited clearing and grubbing is necessary to allow for

installation, temporary erosion control measures would be installed immediately following ground disturbance. As required, temporary trench breakers would be installed immediately following ditch excavation to reduce runoff velocities in the trench during construction. Mulch or erosion control matting may be used on slopes to prevent erosion during construction. Best Management Practices (BMPs), such as spraying water as needed, would be implemented to limit wind erosion. Per the MDNR, Northern would commit to limiting the use of erosion control blanket to "bio-netting" or "natural netting" types. Also, Northern would not use hydro-mulch products with synthetic (plastic) fiber additives in areas that drain to Minnesota Public Waters; Northern would not use either product in Wisconsin.

The temporary erosion control devices would be inspected on a daily basis by Northern and after each rainfall event of 0.5 inch or greater to ensure controls function properly. Northern would re-seed temporary workspaces in accordance with individual landowner requirements, the SWPPPs, the CESCO, and/or NRCS recommendations. Graded areas and other disturbed areas requiring revegetation would be seeded to establish a permanent vegetation cover. Depending on site conditions, revegetation could include soil amendments such as lime, fertilizing, seeding, and mulching. Seedbed preparation would not be undertaken when excessively wet or frozen conditions exist. After a relatively smooth seedbed has been prepared, seed would be applied to all areas with exposed soils using a broadcast spreader or a seed drill. Northern would use seed mixes and seeding rates recommended by state and local agencies. Mulch would be applied as needed.

Revegetation is part of the final restoration required for the Project. Revegetation would be required on all land except active croplands. Revegetation would be required to terminate the erosion control permits obtained for the Project. The revegetation potential of soils that would be disturbed by the Project is based on the potential for seeding mortality class rating developed by the NRCS. The Elk River 3<sup>rd</sup> Branch Line and Tomah Branch Line Loop do not contain soils identified with low revegetation potential. Within the Project area, the following acres are identified as having low vegetation potential:

- About 47.2 acres (54%) of the Ventura North E-Line construction area;
- About 20.1 acres (48%) of the Willmar D Branch Line construction area;
- About 0.1 acre (<1%) of the Princeton Tie-Over Loop construction area; and,
- About 4.7 acres (13%) of the Paynesville 2<sup>nd</sup> Branch Line construction area.

Temporary erosion control measures would remain in-place until restoration is successful. Permanent erosion control devices would be monitored by Northern during the long-term operation and maintenance of the Project. Given Northern's proposed mitigation measures and because disturbed areas would be restored, returned to pre-construction land use, or otherwise stabilized, permanent impacts due to soil erosion or poor revegetation are not anticipated.

#### **4.3.5 Soil Contamination**

Northern conducted a search using publicly available databases to identify facilities with potential and/or actual sources of contamination within a 0.25-mile buffer, including the EPA's Facility Registry System database (EPA, 2022), the MDH's Petroleum Remediation Program Map (MPCA, 2022), the Bureau of Remediation and Redevelopment Tracking System database

(BRRT, 2022), and the WDNR's Wisconsin Remediation and Redevelopment Database (WRRD, 2022). The search was expanded to include review of databases maintained by the MPCA and MDA in Minnesota and the Department of Agriculture, Trade and Consumer Protection in Wisconsin. No known contaminated areas, landfills, hazardous waste sites, or other special use areas are within 0.25 mile of the Project workspaces.

Project-related soil contamination resulting from spills or leaks of fuels, lubricants, and coolant from construction equipment would be minimized by Northern's adherence to its SPCC Plan to contain a spill of any material that may contaminate soils and to ensure that the spill area is cleaned up and the materials are disposed of in an appropriate manner.

Northern would follow the measures outlined in its SPCC Plan in the event contaminated soils are encountered during construction. Should Northern encounter contaminated soil during construction, Northern would stop work in the vicinity of the contaminated soil. Northern would assess the contamination to determine the type and extent of contamination. Depending on the type and extent of the contamination, Northern would implement appropriate measures to contain the contamination and create a safe work environment. Measures could include over-excavation, containerizing the contaminated media, and appropriate disposal. Work in the vicinity of the contamination would only resume after appropriate containment and remediation efforts are completed, in consultation with the appropriate state or federal environmental agencies.

Given the characteristics of Project area soils and the impact minimization measures that would be implemented through adherence to our Plan and Northern's Procedures and the SPCC Plan, we conclude that impacts on soils would be minor.

## **4.4 WATER RESOURCES**

### **4.4.1 Groundwater Resources**

The Project, with the exception of the Paynesville 2<sup>nd</sup> Branch Line Loop, crosses the Cambrian-Ordovician Aquifer System, which the USGS identifies within Minnesota, Wisconsin, Iowa, Michigan and Illinois (USGS, 2003). Aquifers in this system are hydraulically connected with the overlying surficial aquifers. Well-yields and groundwater quality within these aquifers are variable (USGS, 1992).

The Paynesville 2<sup>nd</sup> Branch Line Loop is not underlain by a principal aquifer but underlain by a surficial sand aquifer. Groundwater in the surficial aquifer is linked to surface water in rivers, lakes and wetlands to various degrees. Well-yields within the system are less than 100 gallons per minute (MDNR, 1998).

A sole source aquifer is defined by the EPA as an aquifer that supplies greater than 50 percent of the drinking water for an area, and for which there are no alternative water sources that could reasonably be expected to replace the water supplied by the aquifer should it become contaminated (EPA, 2022a). There are no sole source aquifers within one mile of the Project (EPA, 2022a).

In Minnesota, wellhead protection areas (WHPAs) are determined by the MDH through the Wellhead Protection Program. Additionally, Minnesota has established Drinking Water Supply Management Areas (DWSMAs) that surround both surface and subsurface public water supply wells that contain WHPAs (MDA, 2020). The Paynesville 2<sup>nd</sup> Branch Line Loop is located

within the WHPA and a low vulnerability DWSMA area for the City of Roscoe. Northern reviewed the state regulations (Minn. Admin. 4720) and has determined no measures in addition to those in our Plan and Northern's Procedures are required to protect these areas.

In Wisconsin, WHPAs are documented by the WDNR's Surface Water Data Viewer. No community or non-community wells or water systems are located within 400 feet of the Tomah Branch Line Loop.

Northern identified private water supply wells within 150 feet of construction workspaces and public water supply wells within 400 feet of construction workspaces using the following sources and methods:

- Minnesota's County Well Index, maintained by the Minnesota Geological Survey in cooperation with the MDH;
- WDNR's Well Driller Viewer; and
- environmental surveys and direct communication with landowners.

No known private or public wells were identified within a Project workspace.

A total of 29 private wells are located within 150 feet of the Project workspaces: one private well is located within 150 feet of the Ventura North E-Line; 10 private wells are located within 150 feet of the Willmar D Branch Line; 16 private wells are located within 150 feet of the Princeton Tie-Over Loop; and 2 private wells are located within 150 feet of the Paynesville 2<sup>nd</sup> Branch Line.

No known private or public wells were located within 150 feet or 400 feet, respectively, of the Tomah Branch Line Loop. Additionally, no known active private or public wells were located within 150 feet or 400 feet, respectively, of the Elk River 3<sup>rd</sup> Branch Line. One public observation well and one public test well are located within 400 feet of the Elk River 3<sup>rd</sup> Branch Line; however, these two public wells are currently inactive and sealed and are not used for public consumption. Northern has determined the Project would have no impact on the two sealed public wells located within 400 feet of the Elk River 3<sup>rd</sup> Branch Line.

Northern identified springs within 150 feet of construction workspaces using the following sources and methods:

- MDNR's Minnesota Spring Inventory;
- Wisconsin Geological and Natural History Survey's Wisconsin Spring Inventory; and
- environmental surveys and direct communication with landowners.

No springs within 150 feet of the Project were identified through these sources.

Northern identified no sites with a potential for contaminated groundwater within 0.25 mile of the Project.

Minnesota's County Well Index and WDNR's Well Driller Viewer indicated there are no protected watersheds or locally zoned aquifer protection areas within the Project area.

**Construction and Operation Impacts and Mitigation.** Surface drainage and groundwater recharge patterns could be temporarily altered by clearing, grading, trenching,

dewatering, and soil stockpiling activities, potentially causing minor fluctuations in groundwater levels and/or increased turbidity, particularly in shallow surficial aquifers. We expect the resulting changes in water levels and/or turbidity in these aquifers to be localized and temporary because water levels quickly re-establish equilibrium and turbidity levels rapidly subside. The addition of impervious surfaces at aboveground facilities may affect overland flow patterns and subsurface hydrology. However, these effects would be highly localized and minor.

The pipeline facilities would be constructed using new steel pipe free of chemicals, lubricants, and additives to prevent long-term leaching of these materials into the soil or groundwater.

Northern has adopted the construction standards set forth in our Plan and its Procedures. Northern would also adhere to BMPs included in the Project-specific HDD Plan. Some of the principal BMPs that Northern would follow to protect groundwater in the Project area include the following:

- prohibiting overnight parking, refueling, and the storage of hazardous chemicals within 200 feet of wells and springs;
- installing secondary containment around stationary equipment with leak potential;
- inspecting equipment regularly and allowing refueling and maintenance only in designated areas;
- installing trench breakers to mitigate groundwater diversion along the pipeline;
- using drilling fluid composed primarily of water and non-toxic bentonite; and
- prohibiting refueling or storage of hazardous liquids within between MPs 1.76 and 2.01 on the Paynesville 2<sup>nd</sup> Branch Line Loop.

The Project's impacts on groundwater resources would be largely temporary and minor due to the limited vertical extent of excavations and other ground disturbances and the relatively short duration of construction. Minor, permanent impacts on subsurface hydrology from the installation of new, impermeable surface associated with aboveground facilities are anticipated. Northern's commitment to implement the BMPs in its HDD Plan and SPCC Plan, as well as our Plan and Northern's Procedures, would mitigate impacts on groundwater resources. Therefore, we conclude that impacts on groundwater would be minor and not significant.

#### **4.4.2 Surface Water Resources**

The Project is located within 5 river basins and crosses 10 watershed subregions within the basin (i.e., hydrologic unit codes) as defined by the USGS (2006). Table 4.4.2-1 provides a summary of the basins and watersheds that would be crossed by the Project.

<b>Table 4.4.2-1 Watersheds Crossed by the Project</b>				
<b>Facility</b>	<b>MP</b>		<b>Watershed (Hydrology Unit Code 12)</b>	<b>River Basin (Hydrology Unit Code 4)</b>
	<b>From</b>	<b>To</b>		
Ventura North E-Line	28.42	30.24	State Line Lake-Lime Creek (70802030102)	Cedar River
	30.24	31.08	County Ditch No 55 (70802020106)	Cedar River
	31.08	31.21	Bear Lake (70802030101)	Cedar River
Elk River 3 <sup>rd</sup> Branch Line	0.00	0.03	Big Marine Lake (70300050906)	St. Croix River
	0.03	0.14	Hardwood Creek (70102060302)	Mississippi River – Headwaters
	0.14	0.16	Big Marine Lake (70300050906)	St. Croix River
	0.16	1.07	Hardwood Creek (70102060302)	Mississippi River – Headwaters
Willmar D Branch Line	2.20	3.34	Credit River (70200121107)	Minnesota River
Princeton Tie-Over Loop	8.78	11.11	Spencer Brook (70102070502)	Mississippi River – Headwaters
	11.11	11.26	Tibberts Brook (70102030506)	Mississippi River – Headwaters
Paynesville 2 <sup>nd</sup> Branch Line	0.00	2.01	Kolling Creek (70102020601)	Mississippi River – Headwaters
Tomah Branch Line Loop	1.92	2.26	Beaver Creek (70400060302)	Lower Mississippi River
Source: USGS, 2006; MDNR, 2022b; WDNR, 2021				

No waterbodies designated by the State of Minnesota for domestic consumption are crossed by the Project; no waterbodies in Wisconsin will be crossed. Watershed inventory databases maintained by the MDNR and WDNR indicated no municipal watersheds, watershed protection areas, or watershed protection programs would be crossed by the Project (MDNR, 2022c; WDNR, 2021).

Northern completed field surveys in September and November 2021 to delineate all surface water resources within the Project construction workspace. Waterbodies are classified as perennial or open water. Perennial waterbodies flow or contain standing water year-round and are typically capable of supporting populations of fish and macroinvertebrates; open water waterbodies are lakes, ponds and water crossings greater than 100 feet. A total of three waterbodies were identified within the Project construction workspace during field surveys. Table 4.4.2-2 provides a summary of the waterbodies that would be crossed by the Project.

Table 4.4.2-2 Waterbodies Crossed by the Project						
MP	Waterbody	Waterbody Type	Crossing Width (feet)	State Water Quality Use Designations <sup>1</sup>	Fishery Type	Crossing Method (Contingency)
<b>Elk River 3<sup>rd</sup> Branch Line</b>						
0.77-0.93	ERT-OW8	Open Water	866	2B, 3C, 4A, 4B, 5, 6	2B	HDD (Re-drill)
<b>Willmar D Branch Line</b>						
2.93-2.94	WIL-S09	Perennial	12	2B, 3C, 4A, 4B, 5, 6	2B	HDD (Re-drill)
<b>Princeton Tie-Over Loop</b>						
9.30	PRB-S01	Perennial	6	2B, 3C, 4A, 4B, 5, 6	2B	HDD (Re-drill)
<sup>1</sup> State Water Classification: Class 1 = Domestic Consumption. Class 2 = Aquatic Life and Recreation; A = cold water, B = warm water, g= applies for general warm water streams. Class 3 = Industrial Consumption; A – D refers to chlorides standards. Class 4 = Agriculture and Wildlife; A = applies to irrigation purposes, B = applies to use by livestock and wildlife. Class 5 = Aesthetic Enjoyment and Navigation. Class 6 = Other Uses and Protection of Border Waters.						

The MPCA classifies waterbodies for the state of Minnesota. Each of the three waterbodies that would be crossed by the Project default to Class 2B (aquatic warm water community), Class 3C (industrial consumption), Class 4A (irrigation), Class 4B (livestock and wildlife), Class 5 (aesthetic enjoyment and navigation), and Class 6 (other uses).

Northern proposes to cross the three waterbodies using HDD methods, eliminating direct impacts on these waterbodies. Only foot traffic and potentially minor hand-clearing of vegetation would take place along the surface of the HDD crossing. Routine vegetation maintenance for pipeline operations would not be conducted between the entry and exit pits.

The CWA requires that each state review, establish, and revise water quality standards for the surface waters within the state. States develop monitoring and mitigation programs to ensure that water standards are attained as designated. Waters that fail to meet their designated beneficial use(s) are considered impaired and are listed under a state’s Section 303(d) list of impaired waters. The Project would not cross any waterbodies listed as impaired per the criteria and requirements set forth in the CWA.

In addition to the Section 303(d) list of impaired waterbodies, sensitive waterbodies include waters that have been specifically designated by the state as high-quality or exceptional value waterbodies, wild and scenic rivers, and waters supporting fisheries of special concern. The Project would not cross any waters included in the National Wild and Scenic Rivers System or the National Rivers Inventory (National Park Service, n.d.). Minnesota designates certain surface waters as Outstanding Resource Value Waters because of their exceptional qualities. Wisconsin designates certain surface features as Areas of Special Natural Resource Interest due to their exceptional qualities, values, wilderness characteristics, unique scientific or ecological significance, exceptional recreational value or other special qualities which warrant stringent protection (WDNR, 2022). The Project would not cross any waterbodies designated as Outstanding Resource Value Waters or Areas of Special Natural Resource Interest.

**Construction and Operation Impacts and Mitigation.** Construction activities associated with the Project that have the potential to impact surface water include waterbody crossings, hydrostatic test water discharges, vegetation clearing and grading on stream banks, and spills or

leaks of hazardous liquids. These construction activities could result in temporary modification of aquatic habitats through indirect impacts such as increased erosion, sedimentation and/or turbidity.

Waterbody crossings would be completed in accordance with applicable permit conditions and the measures specified in Northern's Procedures. Northern's Procedures include BMPs intended to clearly identify Project workspaces, reduce ground disturbance, minimize erosion, and limit runoff. Northern would also construct the Project according to its SPCC Plan and in accordance with applicable permits to prevent or mitigate contamination in waterbody crossings. Some of the principal BMPs that Northern would follow to protect surface waters in the Project area include:

- prohibiting refueling and the storage of hazardous materials within 100 feet of a waterbody and installing signage that clearly indicates these setbacks prior to construction;
- installing erosion-control devices, such as haybales and silt fence, to prevent the release of sediment into nearby waterbodies during storm events; and
- controlling the discharge of silt-laden water associated with trench dewatering activities and discharging this water to well-vegetated upland areas.

As mentioned above, Northern proposes to cross all three waterbodies using HDD. HDDs would generally avoid impacts to the bed and banks of waterbodies and minimize turbidity and sedimentation that could otherwise occur when using open-cut crossing methods. Storage of spoil material would be in accordance with our Plan and Northern's Procedures and includes sediment barriers or functional equivalents, where necessary.

Northern proposes to obtain freshwater from a regulated water supply for use in the HDD drilling fluid; source water, if required, would be permitted in compliance with state regulations and existing water rights. Water uptake and discharge would be conducted in accordance with Northern's Procedures.

Northern proposes to obtain water from off-site sources for use in hydrostatic testing, in compliance with state regulations and existing water rights. Water uptake and discharge would be conducted in accordance with Northern's Procedures. In Minnesota, Northern would transport hydrostatic test water offsite to a local disposal facility. The hydrostatic test water would be tested according to local disposal facility requirements. In Wisconsin, Northern would either discharge the water to the ground surface within the Tomah Branch Line Loop project area or haul off for disposal at an approved facility. Discharge of test water would be conducted in accordance with issued NPDES permits and would employ an energy-dissipating device such as a straw bale dewatering structure. Discharge rates would be controlled to prevent erosion, scouring and sedimentation, flooding, or the introduction of foreign or toxic substances into adjacent waterbodies. Hydrostatic test waters discharged in well-vegetated upland areas would be at sufficient distances from surface waters and low enough discharge rates that waterbodies would not be impacted. Water quality sampling of discharge would be conducted as dictated by permit conditions.

Northern would implement BMPs and stage inadvertent return containment materials prior to the start of HDD. In the event of an inadvertent release of drilling fluid, Northern would implement measures per its HDD Plan to include:

- Immediately on discovery, drilling operations will be suspended, and containment measures will be implemented by the contractor. Documentation of any containment measure employed will be completed by the EI.
- The HDD contractor or EI will notify the Construction Inspector, Northern's Environmental Management Team, and Northern's Right of Way department. Upon receiving a notification, Northern will complete external notifications per sections 3.3.3 and 3.3.4 of the HDD Plan.
- The EI will document the location, approximate area impacted, approximate volume and actual or potential inadvertent release impacts to aquatic or sensitive resources.
- The EI will monitor and document both the release and the effectiveness of the containment measures. Periods of contractor downtime and the contractor's drilling fluid pumping rates also will be documented in case it should become necessary to estimate inadvertent release volumes. Drilling operations will be allowed to resume when the return is contained and while clean up, removal, and disposal activities continue at the inadvertent release location.

Additional BMPs associated with the HDD are outlined in Northern's HDD Plan. We have reviewed Northern's HDD Plan and find that impacts on waterbodies due to an inadvertent release would be minimized to the extent practicable.

With implementation of the mitigation measures identified for each proposed activity described above including Northern's use of HDD to avoid impacts on surface waters, our Plan, Northern's Procedures and HDD Plan, and the Project-specific SPCC Plan, we conclude that impacts on surface waters would be temporary to short-term and not significant.

#### **4.4.3 Floodplains**

According to FEMA flood hazard maps, the Project would cross one 100-year mapped floodplain between MPs 0.76 and 0.93 of the Elk River 3<sup>rd</sup> Branch Line (FEMA, 2015). This area would be crossed via HDD and the HDD entry and exit points and associated workspaces are not located in the 100-year mapped floodplain. No 500-year-mapped floodplain would be crossed by the Project (FEMA, 2015). Because the Project proposes to cross the mapped floodplain via HDD and no associated workspaces are located within the floodplain, no flood storage capacity would be displaced as a result of the Project.

#### **4.4.4 Anticipated Water Withdrawals**

Northern would conduct hydrostatic testing of all pipeline components according to DOT Regulation 49 CFR 192 to verify the integrity of the pipeline prior to operation. Northern proposes to obtain water from off-site municipal or public sources for use in hydrostatic testing, in compliance with state regulations and existing water rights.

Northern would also require water for HDD and dust control during construction. Water for dust control is typically provided by contractors utilizing water tanker trucks, and water is obtained from an off-site municipal or public source, as necessary. Water withdrawal for dust control would be conducted according to Northern's Procedures.

Northern proposes to obtain water from a regulated water supply for use in the HDD drilling fluid. During the HDD, Northern's contractor would add bentonite and other approved

additives as needed to the water, and fluids would be mixed and maintained within a holding tank. Upon completion of the successful HDD, the HDD drilling fluid would be properly disposed of according to the HDD Plan.

**Construction and Operation Impacts and Mitigation.** Chemical additives would not be added to the hydrostatic test water, and the pipeline would be constructed with new steel pipe free of lubricants and other chemicals. In Minnesota, Northern would transport hydrostatic test water offsite to a local disposal facility. The hydrostatic test water would be tested according to local disposal facility requirements. In Wisconsin, Northern would either discharge the water to the ground surface within the Tomah Branch Line Loop or haul off for disposal at an approved facility. Discharge of test water would be conducted in accordance with issued NPDES permits and would employ an energy-dissipating device such as a straw bale dewatering structure.

Discharge rates would be controlled to prevent erosion, scouring and sedimentation, flooding, or the introduction of foreign or toxic substances into adjacent waterbodies. Hydrostatic test waters discharged in well-vegetated upland areas would be at sufficient distances from surface waters and low enough discharge rates that waterbodies would not be impacted. Water quality sampling of discharge would be conducted as dictated by permit conditions.

We conclude that impacts on water quality resulting from the discharge of water used for hydrostatic testing, dust control, and HDD operation would be negligible.

#### **4.5 WETLANDS**

Northern performed wetland delineations in accordance with the *1987 Corps of Engineers Wetlands Delineation Manual* (USACE, 1987), subsequent guidance documents (USACE, 1991 and 1992), the Northcentral Northeast Regional Supplement (USACE, 2012) and the Midwest Regional Supplement (USACE, 2010) in September and November 2021 for all Project workspaces. Delineated wetlands crossed by the Project are summarized in appendix C.

Project workspaces would cross 13 wetlands; 12 wetlands crossed by Project workspaces are palustrine emergent and 1 wetland is classified as palustrine forested. Palustrine emergent wetlands have vegetation standing in up to 3 feet of water; dominated by erect, rooted herbaceous freshwater hydrophytic vegetation. Palustrine forested wetlands have vegetation at least 20 feet tall and are typically dominated by trees and shrubs (Cowardin et al., 1979).

Northern proposes to cross seven wetlands, including the forested wetland, via HDD. Between HDD entry and exit points, impacts will be limited to foot traffic within a 4- or 6-foot-wide travel lane, either of which could be divided into two equal-width travel lanes. No fill, excavation, mechanical clearing, or vegetative community conversion would occur between the HDD entry and exit points. Northern proposes to cross one wetland via conventional bore and the remaining five emergent wetlands would be open cut and/or impacted by Project workspace or an access road during pipeline construction.

On February 15, 2022, Northern submitted a courtesy notification to the USACE – St Paul District, the MPCA, the Minnesota Board of Water and Soil Resources, and applicable Local Governmental Units stating the Project qualifies for the Utility Regional General Permit for Minnesota and Wisconsin coverage without the need for Preconstruction Notification. Additionally, Northern intends to use the Federal Approvals exemption from the Minnesota

Wetland Conservation Act, as outlined in WCA Chapter 8420.0420, Subpart 4, to comply with Section 404 of the CWA.

**Construction and Operation Impacts and Mitigation.** The Project would result in a total of 0.5 acre of temporary impact and 0.1 acre of operational impact on wetlands. The Project would result in no permanent fill or conversion of wetland. Operational impacts would be caused by mowing operations to maintain the permanent right-of-way in an herbaceous state. Wetland impacts by Project component are described in appendix C. No individual wetland construction/temporary or operational impacts exceed 0.1 acre. Wetland impacts are geographically isolated and individual wetland impacts on a single and complete project would not exceed 0.5 acre.

Northern would complete work near wetlands in accordance with our Plan and Northern's Procedures, with the exception of extra workspaces and access roads listed in appendix C. Northern is requesting a modification to FERC Procedures for these extra workspaces and access roads within 50 feet of wetlands.

The primary impact of Project construction on wetlands would be the potential alteration of current or potential wetland vegetation due to the clearing, excavation, rutting, compaction, and mixing of topsoil and subsoil. Construction could also affect water quality within wetlands due to sediment loading or inadvertent spills of fuel or chemicals. Temporary construction impacts on wetlands could include the loss of vegetation; soil disturbance associated with grading, trenching, and stump removal; and changes in the hydrological profile. Additionally, using HDD methods could result in an inadvertent release, adversely affecting wetland vegetation and soils. To reduce the potential for an inadvertent release and to minimize any impacts should one occur, Northern would implement measures described in its HDD Plan. Following construction, affected lands would be restored, and previous land uses could resume.

Impacts on wetlands would be greatest during and immediately following construction. The majority of these effects would be short-term in nature and would cease when, or shortly after, the wetlands are restored and revegetated. Following revegetation, the wetland would eventually transition back into a vegetation community similar to that of the pre-construction state. Because all of the wetlands crossed by open cut or conventional bore are emergent wetlands and/or are crossed via HDD, the herbaceous vegetation would regenerate quickly (typically within 1 to 3 years).

Northern has committed to adhere to our Plan and Northern's Procedures, and in accordance with all Project permits. Additionally, Northern's SPCC Plan includes restrictions and mitigation measures to limit potential impacts associated with the accidental release of toxic substances, such as fuels and lubricants. Principal BMPs that Northern would follow to protect wetlands in the Project area include:

- prohibiting refueling and the storage of hazardous materials within 100 feet of a wetland, and installing signage that clearly indicates these setbacks prior to construction;
- limiting construction equipment working in wetlands to that essential for clearing the construction right-of-way, excavating the trench, fabricating and installing the pipeline, backfilling the trench, and restoring the construction right-of-way;
- installing temporary erosion and sediment control devices near wetlands before or

immediately following construction and ensuring they remain in working order until the area is successfully restored;

- installing trench plugs at the entrance and exit of the pipeline through a wetland as necessary to ensure that the wetland is not drained along the pipeline;
- restoring each wetland to preconstruction contours; and
- controlling the discharge of silt-laden water associated with any necessary trench dewatering activities and discharging this water to well-vegetated upland areas.

Based on Northern’s proposed crossing methods and BMPs listed above, we conclude that impacts on wetlands would not be significant.

**Northern shall file the complete water quality certification issued categorically by the appropriate state agency, including all conditions, and all conditions attached to the water quality certification constitute mandatory conditions of this Certificate Order. Prior to construction, Northern shall file, for review and written approval by the Director of OEP, or the Director’s designee, any revisions to its Project design necessary to comply with the water quality certification conditions.**

#### 4.6 FISHERIES AND AQUATIC RESOURCES

The Project would cross three waterbodies: one open water feature and two perennial waterbodies that contain fish populations (see table 4.6-1). Northern would complete all waterbody crossings via HDD.

Northern obtained sensitive fish distribution data from the USFWS Information for Planning and Consultation (IPaC) system, the MDNR NHIS database, and the WDNR ER Review. The three databases indicate no federally or state-listed threatened or endangered or special concern fish species are known to occur near the Project area, and no coldwater fisheries or trout streams would be crossed by the Project. No essential fish habitat occurs within or near the Project area.

Surface Waterbody	MP	State Fisheries Classification
<b>Elk River 3<sup>rd</sup> Branch Line</b>		
ERT-OW8	0.77 – 0.93	2B Warmwater Fishery
<b>Willmar D Branch Line</b>		
WIL-S09	2.93 – 2.94	2B Warmwater Fishery
<b>Princeton Tie-Over Loop</b>		
PRB-S01	9.30	2B Warmwater Fishery

##### 4.6.1 Construction and Operation Impacts and Mitigation Measures

Potential impacts on the aquatic species within the three waterbodies crossed by the Project would be avoided through use of HDD methods.

Inadvertent release of drilling fluid or a spill of fuel or equipment-related fluids could impact water quality and, consequentially, impact fisheries. To minimize the potential for an inadvertent release of drilling fluid to impact fisheries, Northern would implement its HDD Plan. Northern's HDD Plan includes procedures for monitoring, detection, isolation, stopping, and restoring inadvertent releases, and would make all necessary agency notifications. During construction, Northern would ensure its contractors have sufficient spill containment material and supplies needed to contain any inadvertent release of drilling fluid if it were to occur near a waterbody.

Based on Northern's proposed HDD and BMPs listed above, we conclude that the Project would not have a significant impact on fisheries or aquatic resources.

#### **4.7 VEGETATION**

Vegetation types crossed by the Project are based on the results of field surveys conducted by Northern in September and November 2021. Major vegetation cover types crossed by the Project include agricultural, forested habitat, open land, and wetland. Descriptions of these vegetation types along with acres impacted by each project component are provided below and in appendix D.

- Agriculture – pasture and active cropland, including corn, soybeans, and alfalfa.
- Forested – upland forested areas, including hardwood forest, mixed hardwood-conifer forest, and pine plantation that are dominated by woody coniferous and deciduous vegetation. Common species in these areas include American elm, Amur maple, basswood, bigtooth aspen, black cherry, black raspberry, blue spruce, box elder, common buckthorn, and quacking aspen.
- Open Land – non-forested herbaceous uplands, rangeland, farrow land, scrub-shrub wetlands used for open space or pasture, grasslands, early successional old fields, areas used to grow hay, non-agricultural fields and/or other herbaceous areas that are dominated by a mixture of mid-grass or short-grass species, introduced grass species, and annual species. Open land also includes mowed areas and areas of mixed weeds and grass along roadsides.
- Wetland – wetlands that would be crossed by the Project are classified as palustrine emergent and palustrine forested. Vegetation in the emergent wetlands includes American pussy willow, black willow, barnyard grass, blunt spikerush, Canada bluejoint, common buckthorn, fall panicum, foxtail barley, gray dogwood, hybrid cattail, Kentucky bluegrass, lake sedge, reed canary grass, red osier dogwood, rice cutgrass, riverbank grape, Siberian elm, spotted water hemlock, Virginia creeper, and water smartweed. Vegetation in the forested wetlands includes boxelder, common buckthorn, meadow willow, reed canary grass, eastern cottonwood, giant goldenrod, red osier dogwood, green ash, nannyberry, balsam poplar, black ash, Canada bluejoint, cinnamon fern, lake sedge, narrowleaf cattail, American elm, paper birch, and speckled alder.

Northern reviewed information available from the USDA's Introduced, Invasive and Noxious Plants database (USDA, 2010), the MDA (MDA, 2022a), and the WDNR. Based on results of Northern's field surveys completed in September and November 2021, six noxious and invasive weed species were identified in the Project area: spotted knapweed, Canada thistle, Asian

bush honeysuckle, plumeless thistle, and wild parsnip. Table 4.7-1 lists the noxious species observed, including their location and respective component. No noxious weed species were observed along the Tomah Branch Line Loop.

<b>Table 4.7-1 Noxious Weed Species Observed</b>		
<b>Facility</b>	<b>MP</b>	<b>Noxious Species Observed</b>
Ventura North E-Line	28.42, 29.88, 29.00, 29.90, 30.42, 31.18, 31.20, Access Road AR06	Wild parsnip
	28.42, 29.00, 29.88, 29.10, 29.95, 30.42, 31.20, Access Road AR06	Canada thistle
Elk River 3 <sup>rd</sup> Branch Line	0.32, 0.40	Canada thistle
Willmar D Branch Line	2.20, 2.90, 3.00	Canada thistle
	2.20	Spotted knapweed
Princeton Tie-Over Loop	9.16, 10.70, 10.76, 10.78, 10.94, 10.96, 11.04, 11.10	Spotted knapweed
	10.70	Canada thistle
Paynesville 2 <sup>nd</sup> Branch Line	0.01	Plumeless thistle
	0.01	Asian bush honeysuckle
	0.01, 0.03, 0.04, 0.08, 0.10, 1.10, 1.40, 1.41, 1.76, Access Roads AR05 and AR06	Canada thistle

Northern would implement preventive measures detailed in the Noxious Weed Control Plan to minimize the establishment and spread of noxious weeds during construction.

Northern reviewed data obtained from the Minnesota Geospatial Commons website to determine the presence or absence of Regionally Significant Ecological Areas (RSEA), which are natural areas or ecologically significant terrestrial or wetland areas identified by the MDNR. Two RSEAs were mapped for the Project, one within the Elk River 3<sup>rd</sup> Branch Line Loop (ecological score 3) and one within the Willmar D Branch Line (ecological score 1). A score of “1” is used for areas that are smaller in size; may have less diversity of vegetation cover types; may have more adjacent cover types or land uses that could adversely affect the area; or may be an isolated native plant community mapped and given a score of moderate biodiversity significance by the Minnesota County Biological Survey. A score of “3” is used for areas that are larger, have greater connectivity, have diverse vegetation and native plant communities, and can provide habitat for game and non-game, including threatened, endangered, and special concern animals.

Freeborn, Washington, Scott and Stearns counties in Minnesota are listed as counties with a quarantine for emerald ash borer (EAB; MDA, 2022b). The Ventura North-E Line, Elk River 3<sup>rd</sup> Branch Line, Willmar D Branch Line and Paynesville 2<sup>nd</sup> Branch Line are within the EAB county quarantine.

According to the mapping maintained by the MDNR, all of the Minnesota components of the Project are within oak-wilt infected areas.

No other unique, sensitive or protected vegetation types were identified in the Project area.

**Construction and Operation Impacts and Mitigation Measures.** Construction of the Project would impact 245.7 acres: 175.4 acres of agricultural land (71 percent), 5.1 acres of open land (2 percent), 0.5 acre of wetland vegetation (less than 1 percent), and 64.7 acres of open land (26 percent). Of the 245.7 acres, 83.8 acres (34 percent) are associated with construction of

pipeline rights-of-ways; 159.9 (65 percent) are associated with ATWS, staging areas, and access roads; and 0.5 acre (less than 1 percent) are associated with aboveground facilities, proposed and existing.

Operation of the Project would impact 47.9 acres of vegetation, comprised of 30.8 acres of agricultural land (64 percent of operational impacts), 0.9 acre of forested/woodland (2 of operational impacts), 0.1 acre of wetland vegetation (less than 1 percent of operational impacts), and 16.1 acres of open land (34 percent of operational impacts).

The Elk River 3<sup>rd</sup> Branch Line and Willmar D Branch Line cross through Regionally Significant Ecological Areas (RSEAs) and scored a 3 and 1, respectively. The Elk River 3<sup>rd</sup> Branch Line crosses through the RSEA on private land from MPs 2.1 to 2.2 and from MP 2.7 to 2.8. The pipeline would be installed by open-cut excavation within the agricultural, industrial/commercial and open lands, and the wetland and open water areas would be crossed by HDD. The Willmar D Branch Line crosses through the RSEA on private land at MP 0.2, between MPs 0.5 and 0.7, and at MP 0.8. The pipeline would be installed by open-cut excavation within the residential, agricultural, industrial/commercial, open lands, and the wetland and wooded area would be crossed via HDD. Impacts on the RSEAs outside of the HDD areas would be to herbaceous pasture and residential areas and would be of short duration. Northern would restore its workspaces to pre-construction condition; therefore, the impacts on the RSEAs would be temporary and limited to one construction season. No long-term permanent impacts would occur.

During construction of the Ventura North E-Line, Elk River 3<sup>rd</sup> Branch Line, Willmar D Branch Line, and Paynesville 2<sup>nd</sup> Branch Line, Northern would comply with the MDA EAB quarantine regulations and would not transport ash trees (limbs, branches, stumps, or chips) outside of the quarantine zone. Northern typically would leave cut trees on the landowner's property for landowner use. If a landowner requests that Northern remove cut trees, Northern would find a disposal location within each EAB quarantine area to prevent transportation of potentially infected wood outside of the quarantine area. The Princeton Tie-Over Loop is not located in MDA-mapped EAB infestation areas.

The high-risk time when oaks are most susceptible to oak wilt infection is April 1 through July 15. Northern would attempt to limit disturbance to oak stands during this time; however, avoidance of all oak removal may not be possible. If Northern removes oaks between April 1 and July 15, Northern would comply with MDNR recommendations to apply water-soluble paint or shellac to fully cover the outer three growth rings and bark within 10 minutes to the cuts. If an infected oak tree is cut, Northern would not remove it from the property but instead tarp the infected tree to prevent the spread of the disease. After July 15, Northern would chip or bark infected oak trees.

Northern would not transport cut elm trees outside of the counties where they originated. Further, if a tree is suspected to be infected with Dutch elm disease, Northern would follow MDNR recommendations and chip or bury the tree.

The primary impact on vegetation would be a temporary loss of vegetative cover associated with construction of the Project. The greatest impact on vegetation would be on forested areas because of the length of time required for woody vegetation to revert to its preconstruction condition. Construction in forested lands would remove mature trees in the construction right-of-way. Trees would be cut into lengths, chipped, and/or removed. The removal of mature trees could also result in secondary impacts such as increased erosion. Incremental fragmentation of

upland forest habitat could occur due to the expansion of the existing rights-of-way where the pipelines are not adjacent to existing utilities in forested areas. The loss of forest habitat and the expansion of existing corridors could also decrease the quality of habitat for forest wildlife species, including alteration of habitat resulting from increased light levels into interior forest and a subsequent loss of soil moisture as a result of an expanded right-of-way. Expansion of the existing corridor could also result in an increased opportunity for invasive plants to displace native species. After construction, forested vegetation would be allowed to recover within the construction right-of-way and ATWS; however, the impact in these areas would be long term. The potential acreage of temporary and permanent impacts by existing vegetation cover types are summarized in appendix D.

Routine vegetation maintenance along the permanent right-of-way would be conducted periodically, in accordance with our Plan and Northern's Procedures. Routine vegetation mowing or clearing over the full width of the permanent right-of-way in uplands would not be conducted more frequently than every three years, with the exception of a 10-foot-wide corridor centered on the pipeline that would be cleared at a frequency necessary to maintain the 10-foot-wide corridor in an herbaceous state to allow for periodic corrosion and leak surveys. Northern would not conduct any routine vegetation mowing or clearing in wetlands that are located between HDD or bore entry and exit points. In wetlands, a 10-foot-wide corridor centered on the pipeline would be cleared at a frequency necessary to maintain an herbaceous state.

In conclusion, construction and operation of the Project would result in primarily temporary impacts on vegetation. Additionally, with the implementation of restoration methods outlined in our Plan, as well as Northern's Procedures, SPCC Plan and Noxious Weed Control Plan, we conclude that impacts on vegetation would not be significant.

## **4.8 WILDLIFE**

### **4.8.1 General Wildlife Resources**

Major wildlife species common in the Project area include white-tailed deer, gray fox, coyote, eastern cottontail rabbit, gray squirrel, red squirrel, field mice, skunk and chipmunk. Woodchuck, muskrat and beaver may occasionally be present, and less common animals in the area include otter and mink. House wrens, northern cardinals, American goldfinches, blue jays, song sparrows, chickadees and common yellowthroats are common in open land and residential areas. Woodland bird species that could be present include wood thrush, scarlet tanager and ovenbird. Game birds that could be present include Canada goose, ring-necked pheasant, wild turkey and gray partridge. Waterfowl such as wood ducks, mallards, blue-winged teal, ruddy duck, common loon and hooded mergansers are found in and around the wetlands and waterways within the Project area. Raptor species that could be present include bald eagles, red-tailed hawk, turkey vulture, sharp-shinned hawk, Cooper's hawk, broad-winged hawk and great horned owl.

Northern conducted environmental assessments of the Project area in September and November 2021. Wildlife observations made during the 2021 field surveys included turkey vulture, tundra swans, wild turkeys and an active fox den on the Ventura North E-Line; a bald eagle was observed flying over the Princeton Tie-Over Loop; a rabbit was observed on the Paynesville Branch Line Loop; and a white-tail deer and rabbit were noted on the Tomah Branch Line Loop. No additional wildlife, birds, or raptor observations were noted on the Elk River 3<sup>rd</sup> Branch Line or Willmar D Branch Line.

To assess the potential for impact on raptors, Northern's field surveys of the Project area in September and November 2021 included line-of-sight raptor nest surveys. A bald eagle was observed flying over the Princeton Tie-Over Loop; however, an associated nest was not observed. No other raptor, bald eagle or golden eagle nests were observed during these surveys.

**Construction and Operation Impacts and Mitigation Measures.** Construction activities, such as clearing of the right-of-way and workspaces, would reduce vegetation cover, causing a decrease in foraging, nesting, and cover habitat until vegetation is reestablished. Mobile species may be displaced temporarily during construction due to noise and human presence, as well as temporary loss of habitat, and mortality of less mobile species, such as some small mammals, reptiles, or amphibians, may occur. Construction noise and human presence would result in temporary impacts and could include abandonment of nests and burrows, displacement, and avoidance of work areas. Impacts on wildlife within the Project right-of-way would be short in duration and limited to the period of construction. It is anticipated that displaced wildlife would use similar habitats, which are prevalent throughout the region of the Project.

Northern would utilize HDD at a majority of the wetlands and forested areas and all of the waterbodies within the Project area to minimize habitat disturbance and fragmentation. Northern would utilize various measures described in section 4.13, to reduce noise impacts on surrounding wildlife.

Wildlife escape ramps and passages would be constructed to prevent wildlife entrapment in the excavated trenches. Northern would minimize the amount of time the trenches are open to minimize the chance of wildlife entrapment. Open trenches would be inspected daily for trapped wildlife. If present, wildlife would be removed prior to construction activities beginning each day. If the species is identified as threatened or endangered, Northern would consult with the appropriate regional MDNR and or WDNR non-game wildlife specialist prior to proceeding with removal of the species.

Northern would temporarily impact 0.5 acre of wetland and would have 0.1 acre of operational impact on wetlands; the wetlands will be allowed to revegetate naturally; if seeding is required, Northern will utilize a pollinator friendly mix. The grass and flower mix also contains plants for pollinators, including Monarch butterflies.

As of July 16, 2020, Northern belongs to the WDNR Karner Blue Butterfly Habitat Conservation Plan Partnership. Northern joined the USFWS Nationwide Monarch Butterfly Candidate Conservation Agreement on Energy and Transportation Lands in 2020. As part of the commitment to these conservation plans Northern would plant pollinator-friendly vegetation on Northern-owned property on the Paynesville 2<sup>nd</sup> Branch Line. Northern would also offer landowners the option of utilizing pollinator-friendly seed mixtures on privately owned lands within the Project workspaces.

Significant and sensitive wildlife habitats (e.g., large tracts of contiguous forest, migration routes, and protected federal, state or private wildlife management areas) are not present within the Project area; therefore, the Project will have no effects on significant or sensitive habitats.

Following construction, workspaces outside the permanent right-of-way would revert or be restored in accordance with our Plan and Northern's Procedures. Based on the vegetation types present and implementation of our Plan and Northern's Procedures, we conclude that construction and operation of the Project would not have a significant impact on wildlife.

## 4.8.2 Migratory Birds

Migratory birds are protected under the MBTA (16 USC 703-711), which generally prohibits the taking of any migratory bird, or a part, nest, or eggs of any such bird. Bald and golden eagles are also protected under the BGEPA (16 USC Part 668-668d).

Executive Order 13186 (66 Federal Register 3853) directs federal agencies to identify areas where unintentional take is likely to have a measurable negative effect on migratory bird populations and to avoid or minimize adverse effects to migratory birds through enhanced collaboration with the USFWS. Executive Order 13186 states that emphasis should be placed on species of concern, priority habitats, and key risk factors and that particular focus should be given to addressing population-level impacts. On March 30, 2011, the USFWS and the Commission entered into a Memorandum of Understanding that focuses on avoiding or minimizing adverse effects on migratory birds and strengthening migratory bird conservation through enhanced collaboration between the two agencies.

Bird Conservation Regions (BCR) are ecologically distinct regions in North America with similar bird communities, habitats and resource management issues. The Project crosses the Prairie Potholes (BCR 11), Eastern Tallgrass Prairie (BCR 22) and Prairie Hardwood Transition (BCR 23) BCRs.

BCR 11-Prairie Potholes was once dominated by mixed-grass and tall grass prairies and served as a waterfowl production area in North America. The region serves as the core breeding range for dabbling and diving ducks, as well as other bird species, including Franklin's gull, yellow rail, piping plover, Baird's sparrow, Sprague's pipit, chestnut-collared longspur, Wilson's phalarope, marbled godwit, American avocet, Hudsonian godwit, American golden-plover, white-rumped sandpiper, and buff-breasted sandpiper (NABCI, 2021).

BCR 22-Eastern Tallgrass Prairie was formerly dominated by grasslands of the Great Plains where beech and maple forests and oak-savannahs were the dominant hardwood habitats of woodlands. Grassland birds include greater prairie-chicken and Henslow's sparrow, and woodland birds include cerulean warbler and red-headed woodpeckers (NABCI, 2021).

BCR 23-Prairie Hardwood Transition was once dominated by prairies in the west and south and beech-maple forest in the north and east, separated by an oak savanna. There are still remnant populations of greater prairie-chicken in grasslands and cerulean warbler and other forest-breeding migrants to the northeast. Early successional habitat is used by golden-winged warblers, Henslow's sparrows, and American woodcock. Glaciation has resulted in numerous pothole-type wetlands and shallow lakes, and the Great Lakes' coastal estuaries are the destinations of many rivers. Additional important waterfowl lakeshore-wetland habitats range from emergent marshes and diked impoundments to normally ice-free deep water habitats valuable for diving ducks. This region is second only to the Prairie Pothole region in terms of supporting high densities of breeding waterfowl, including mallard, blue-winged teal, wood duck, and redhead (NABCI, 2021).

The 2008 USFWS Birds of Conservation Concern report (USFWS, 2008) identifies birds of conservation concern within BCRs 11, 22, and 23. The USFWS IPaC system, in conjunction with the Birds of Conservation Concern lists, was utilized to obtain a current list of migratory bird species that may be affected by the Project. Appendix J lists these migratory bird species, as well as additional species identified in IPaC.

Important Bird Areas are discrete sites that provide essential habitat for one or more bird species and include habitat for breeding, wintering and/or migrating birds (Audubon, 2021). None of the Project components crosses an Important Bird Area.

**Construction and Operation Impacts and Mitigation Measures.** Impacts from construction-related activities may include temporary displacement of migratory birds in the Project area. Construction of the Project would result in temporary to permanent loss of vegetation within the construction right-of-way and workspaces associated with aboveground facilities. Loss of suitable habitat could result in a decrease in bird density and diversity within construction workspaces. However, the broader Project region contains similar habitat, and as such, displaced birds are expected to utilize adjacent habitats for forage, shelter, and nesting. Construction-related activities occurring during the bird nesting season could result in nest abandonment from increased human presence and noise or direct mortality of nesting birds or nestlings and fledglings, which are less mobile.

Northern proposes to begin construction spring 2023, within the primary nesting season of mid-April to mid-July. Construction would continue through November 1, 2023. Northern would limit vegetation removal or impacts on vegetation during the primary nesting season of breeding birds, as practicable. If construction work cannot be avoided during the peak breeding season, Northern would have a biologist conduct a pre-construction nest survey for breeding birds within the Project workspaces. The nest survey would determine the absence or presence of breeding birds and their nests. Pre-construction nest surveys would be completed according to the following procedures.

- No more than seven days before construction activities commence, pre-construction nest surveys for migratory birds would be completed by a qualified avian biologist. The area surveyed would include the proposed workspaces or areas where potentially suitable habitat has been identified.
- If an occupied raptor nest is observed during the survey, construction activities would not be permitted within a 660-foot buffer of the raptor nest site during the breeding season or until the fledglings have left the area. Northern would initiate consultation with the USFWS, MDNR and/or the WDNR if an active raptor nest is observed.
- If a nest, other than a raptor nest, is observed during the survey, construction activities would not be permitted within a 100-foot buffer of the nest until consultation with USFWS, MDNR and/or the WDNR occurs. Northern would implement buffers and practices recommended by agencies during the consultation.
- Upon completion of the nest surveys, the survey results would be submitted to the USFWS, MDNR and/or the WDNR, as appropriate. If breeding birds are not present, construction can proceed with no restrictions. If breeding birds or active nests are present, additional consultation would be completed.

Nest surveys for migratory bird surveys would be conducted prior to any clearing or construction activity; therefore, the Project would have no effect to nesting migratory birds of concern.

To assess the potential for impact on raptors, Northern's field surveys for the Project area during September and November 2021 included 0.5-mile line-of-sight raptor nest surveys. A bald

eagle was observed flying over the Princeton Tie-Over Loop; however, no associated nest was observed. No other raptor, bald eagle or golden eagle nests were observed during these surveys.

Northern would consult with the USFWS Twin Cities Ecological Services Field Office regarding impacts on migratory birds. Due to the use of pre-construction nesting bird surveys, which would minimize potential effects of the Project on nesting migratory birds, Northern determined the Project would have a less than significant impact to birds protected under the MBTA.

Based on the characteristics and habitat requirements of migratory birds known to occur in the Project area, the amount of similar habitat adjacent to and in the vicinity of the Project, Northern's implementation of the measures in our Plan and Northern's Procedures and use of timing restrictions for clearing of vegetation, we have determined that the Project would not result in population-level impacts on migratory birds or measurable negative impacts on their habitat.

#### **4.9 SPECIAL STATUS SPECIES**

Special status species are those species for which state or federal agencies afford an additional level of protection by law, regulation, or policy. Included in this category are federally listed species that are protected under the ESA and those species that are state endangered or threatened. Section 7 of the ESA requires FERC as the lead federal agency to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of a federally listed endangered or threatened species or result in the destruction or adverse modification of the designated critical habitat of a federally listed species. The agency is required to consult with the USFWS to determine whether any federally listed endangered or threatened species or any of their designated critical habitat are located in the vicinity of a proposed project and to determine the proposed action's potential effects on those species or critical habitats.

Northern reviewed the USFWS IPaC System, the MDNR Natural Heritage Information System (NHIS) database, and completed a WDNR Endangered Resources (ER) Review Verification to identify a list of federally and state-listed species that could potentially occur within the Project area. Field surveys to identify habitat were conducted by Northern in September and November 2021. Appendix I lists the special status species potentially occurring within the Project area and provides a summary of habitat within the Project.

##### **4.9.1 Federally Protected Threatened and Endangered Species**

Based on review of the USFWS IPaC System, eight species are federally listed as threatened or endangered; one species is listed as a candidate, the monarch butterfly (*Danaus plexippus*); and one species is listed as an experimental population, non-essential, the whooping crane (*Grus americana*). Of the listed threatened or endangered species, two are listed as threatened, a mammal, the northern long-eared bat (NLEB) (*Myotis septentrionalis*); and a plant, the northern wild monkshood (*Aconitum noveboracense*). Six species are listed as endangered, including four clams, the Higgins eye pearlymussel (*Lampsilis higginsii*), the snuffbox mussel (*Epioblasma triquetra*), the spectaclecase mussel (*Cumberlandia monodonta*), and the winged mapleleaf (*Quadrula fragosa*); and two invertebrates, the rusty patched bumble bee (*Bombus affinis*) (RPBB) and the Karner blue butterfly (*Lycaeides melissa samuelis*) (KBB).

### Monarch butterfly

The monarch butterfly is a migratory butterfly that exists in two main populations within the U.S. divided by the Rocky Mountains: the eastern population that overwinters in the mountains of Mexico, and the western population that overwinters along the southern Pacific coast of California (USDA, undated). This species generally occurs in areas with high densities of nectar sources, preferably native prairies. The presence of milkweeds (genus *Asclepias*) is required for the survival of caterpillars, as it is the only plant on which they feed (National Wildlife Federation, undated). The monarch butterfly is a candidate for federal listing due to habitat loss, relating mainly to the loss of milkweeds and native prairies.

Northern joined the USFWS Nationwide Monarch Butterfly Candidate Conservation Agreement on Energy and Transportation Lands in 2020 and committed to the restoration and preservation of pollinator habitat. As part of this Project, Northern would plant pollinator-friendly seed mix within Northern owned properties, where feasible. Northern would offer landowners the option of utilizing pollinator-friendly seed mixtures on privately owned lands within the Project workspaces.

Though the USFWS has indicated on past projects that an effect determination is not needed for candidate species, Northern determined through field investigations during September and November 2021 that suitable habitat is not present within the Project area, and no effects to the monarch butterfly are anticipated from the Project. In the event the monarch butterfly is proposed or listed under the ESA during construction of the Project, Northern and FERC staff would consult under section 7 of the ESA with the USFWS on effects to the species.

### Whooping crane

The whooping crane is a migratory bird species that once nested in northern prairies but now breeds in remote northern forests in Canada, as well as in an experimental population in Wisconsin preferably within coniferous habitat containing swamps and nearby lakes or ponds. Winter habitat consists of coastal marshes (e.g., Texas, Louisiana, and Florida). The diet of the whooping crane in summer months is not well known, but it is thought to be similar to their wintering diet of shellfish, frogs, snakes, insects, small fish and plant matter like roots and berries. Whooping cranes are listed as federally endangered due to anthropogenic causes including hunting and the destruction of native prairies (Audubon, undated).

The Tomah Branch Line Loop does not contain any large prairies or coniferous forests with swamps that would support breeding or nesting requirements for the whooping crane, and therefore, would have no effect on the species. Additionally, the WDNR indicated January 7, 2022, that the Tomah Branch Line Loop would be covered under the Broad Incidental Take Permit/Authorization for No/Low Impact activities and as such would result in no to low impacts on endangered species and their habitats. WDNR would not require further action regarding the whooping crane on the Tomah Branch Line Loop. Species occurrence is not anticipated, and suitable habitat is not present in the other Project components.

### Northern long-eared bat

During winter, NLEBs use large caves and mines that have large passages and entrances, constant temperatures and high humidity with no air currents; however, large caves and mines are not present in the Project area. Portions of all Project components ESBs may contain suitable summer habitat for the NLEB. Tree clearing within the workspaces is proposed within the Project

workspaces. Potential impacts on individual bats may occur if clearing or construction takes place when the species is breeding, foraging, or raising pups in its summer habitat. Bats may be injured or killed if occupied trees are cleared during this active window, and the species may be disturbed during clearing or construction activities due to noise or human presence.

Freeborn County (Ventura North E-Line), Scott County (Willmar D Branch Line), Sherburne County (Princeton Tie-Over Loop), and Stearns County (Paynesville 2<sup>nd</sup> Branch Line) are not listed as counties with documented white-nose syndrome according to the White-Nose Syndrome Response Team individual spread maps (White-nose Syndrome Response Team, 2021). No known hibernacula or roost trees were noted in the initial MDNR NHIS query, and the Project is not within 0.25 mile of a known, occupied hibernaculum, or within 150 feet of known, occupied maternity roost trees (MDNR and USFWS, 2021). Monroe County (Tomah Branch Line Loop) is not listed as a county with documented white-nose syndrome according to the white-nose Syndrome Response Team individual spread maps (White-nose Syndrome Response Team, 2021), and the WDNR ER Review did not note any known hibernacula or roost resources. Additionally, the WDNR indicated January 7, 2022, that the Tomah Branch Line Loop would be covered under the Broad Incidental Take Permit/Authorization for No/Low Impact activities and, as such, impacts to the endangered species and their habitat would be minimized. WDNR would not require further action regarding NLEB on the Tomah Branch Line Loop.

Washington County (Elk River 3<sup>rd</sup> Branch Line) is listed as a county with documented occurrences of white-nose syndrome (White-nose Syndrome Response Team, 2021); however, no known hibernacula or roost trees were noted in the initial MDNR NHIS query, and the Project is not within 0.25 mile of a known, occupied hibernaculum, or within 150 feet of known, occupied maternity roost trees (MDNR and USFWS, 2021).

Tree clearing is scheduled to occur early spring 2023; however, Northern may complete tree clearing throughout the construction window (April to October 2023), depending on receipt of federal permit authorizations. The NLEB 4(d) Rule Streamlined Consultation Form would be utilized to ensure that any incidental take of the NLEB is not prohibited by the Final 4(d) Rule; therefore, the Project components may affect but are not likely to adversely affect the NLEB and would not cause prohibited take.

#### Northern Wild Monkshood

Northern monkshood is known for its distinctive, blue hood-shaped flowers and is found on moist moss ledges and cliff bases with cold air drainage resulting in a cool soil environment. It is also found on partially shaded sandstone cliffs and talus slopes. Threats to the northern monkshood includes contamination and filling of sinkholes, grazing and trampling by livestock, human foot traffic, logging, maintenance of highways, powerlines, and misapplication of pesticides (USFWS, 2019d).

No suitable habitat such as shaded cliffs, algific talus slopes or on cool, streamside sites, exist within the Tomah Branch Line Loop; therefore, the Project would have no effect to this species. Additionally, the WDNR indicated January 7, 2022, that the Tomah Branch Line Loop would be covered under the Broad Incidental Take Permit/Authorization for No/Low Impact activities and, as such, impacts to the endangered species and their habitat would be minimized. WDNR would not require further action regarding northern wild monkshood on the Tomah Branch Line Loop. Species occurrence is not anticipated and suitable habitat is not present in the other Project components.

### Higgins eye pearl mussel

This freshwater mussel is found in larger rivers in deep water with moderate currents. The Higgins eye pearl mussel bury themselves in sand and gravel river bottoms with the edge of their partially opened shell exposed. They utilize the current of the river to siphon water for microorganisms such as algae and bacteria, which they use for food (MDNR, 2021a).

The Elk River 3<sup>rd</sup> Branch Line does not contain any habitat such as large rivers; therefore, Northern's contractor has determined the Project would have no effect on the Higgins eye pearl mussel. Species occurrence is not anticipated and suitable habitat is not present in the other Project components.

### Snuffbox mussel

The snuffbox mussel is a freshwater mussel that is currently found in streams within 14 different states and Lake Erie. Habitats for the snuffbox mussel are small to medium sized creeks with a swift current. Adults often burrow deep in sand, gravel and cobble substrates and typically feed on algae, detritus, microscopic animals and dissolved organic material. Threats to the snuffbox mussel includes dams, pollution, sedimentation, and nonnative species (MDNR, 2021b).

Suitable habitat such as medium size streams and creeks are not present in the Elk River 3<sup>rd</sup> Branch Line project area; therefore, there would be no effect on the snuffbox mussel. Species occurrence is not anticipated and suitable habitat is not present in the other Project components.

### Spectaclecase

This large freshwater mussel inhabits large rivers sheltered from the current. They often cluster in firm mud, beneath rock slabs, between boulders, and under tree roots. Their small population size, dams, sedimentation, pollution, channelization and competing with nonnative species are a few of the threats to the spectaclecase mussel population (MDNR, 2021c).

Suitable habitat such as large rivers or other large aquatic features, are not present within the Elk River 3<sup>rd</sup> branch line; therefore, there would be no effect on the spectaclecase. Species occurrence is not anticipated and suitable habitat is not present in the other Project components.

### Winged mapleleaf

The winged mapleleaf is a medium freshwater mussel. In 1987, the only population of winged mapleleaf known to be present in Minnesota was found in the St. Croix River on the border of Minnesota and Wisconsin. Extensive surveys in the last 15 years indicate the distribution of the species in Minnesota is limited to a 12-mile segment of the St. Croix River south of Taylors Falls, Minnesota. They are known to live in habitat that includes riffles with clean gravel, sand and rubble bottoms in clear high-quality water (MDNR, 2021d).

The Elk River 3<sup>rd</sup> Branch Line does not contain suitable habitat, such as streams or other large rivers; therefore, there would be no effect to the winged mapleleaf. Species occurrence is not anticipated and suitable habitat is not present in the other Project components.

### Rusty patched bumble bee

RPBBs have been observed in a variety of habitats, including prairies, woodlands, marshes, agricultural landscapes, and residential parks and gardens. They require habitat with floral resources (which provide them nectar and pollen) April to September, undisturbed nesting sites (underground and abandoned rodent cavities or clumps of grasses) with proximity to floral

resources, and overwintering sites for hibernating queens (USFWS, 2019a).

No MDNR NHIS occurrences for the RPBB are present within the environmental survey boundary. According to the NHIS database, the proposed workspaces for the Willmar D Branch Line extend across the USFWS High Potential Zone between MP 2.20 and MP 2.73. Land cover within the workspace is a mix of shrub thicket, fallow fields, pastures, open land, hardwood forest, mixed hardwood/conifer forest, residential housing, and industrial lands. The pastures, open land, and woodlands are all potential foraging habitat for the RPBB. The woodland habitat is potential overwintering habitat. The upland open land and woodland edges are potential nesting habitat. Temporary construction workspaces and access roads are located in these different habitats.

Northern is coordinating with the USFWS Twin Cities Field Office regarding the potential for RPBB to be present within the Willmar D Branch Line extension. Northern prepared a survey protocol for conducting floristic surveys and presence/absence surveys for the RPBB and submitted these protocols to the USFWS Twin Cities Field Office for review March 1, 2022. USFWS approved the proposed RPBB survey protocols March 2, 2022.

In the survey protocols, Northern committed to conduct four floristic surveys, initiating in May 2022 and subsequently every 5 weeks after the initial survey. The surveys cover the portions of the Willmar D Branch Line extension where vegetation would be cleared during construction but would not be conducted in areas where impacts are avoided through HDD.

Per USFWS RPBB survey protocols (USFWS, 2019b), which have been incorporated into Northern's survey protocols, each suitable habitat patch would be surveyed for one person-hour per 3 acres of the highest quality habitat in the survey area, or until at least 150 bumble bees are sighted, whichever comes first. The protocol includes capturing bees that match the description of RPBB and estimating the number of other bumble bee species (*Bombus* spp.) encountered. Each survey would be conducted over the course of one day using non-lethal netting techniques. Northern would complete three rounds of presence/absence surveys in summer 2022. Northern would continue coordination with the USFWS and FERC to determine if the Project would affect the RPBB. Species occurrence is not anticipated and suitable habitat is not present in the other Project components.

#### Karner blue butterfly

The KBB occurs in oak savannahs and pine barren habitats with a variety of herbaceous plants and scattered woody groves. The presence of wild lupine (*Lupinus perennis*) is required for the survival of caterpillars, as it is the only plant on which they feed; adult KBB rely on other native plant species such as bee balm (*Monarda fistulosa*), butterfly weed (*Asclepias tuberosa*), and bachelor's button (*Centaurea cyanus*). KBB is listed as endangered due to habitat loss, in part due to the lack of natural grazing and wildfires that maintained canopy openings to allow sunlight to reach the herbaceous layers. (USFWS, 2019c).

Northern is committed to the restoration and preservation of pollinator habitat. On July 16, 2020, Northern joined the WDNR KBB Habitat Conservation Plan Partnership. Northern would plant pollinator-friendly species within Northern-owned properties as part of the Project. Northern would offer landowners the option of utilizing pollinator-friendly seed mixtures on privately owned lands within the Project workspaces. Northern has successfully seeded public areas disturbed by construction creating a dense pollinator habitat within the following growing season.

The Tomah Branch Line Loop does not contain any oak savannah or pine barren ecosystems. Additionally, Northern conducted and reviewed WDNR ER Review, which contains an extensive inventory of KBB habitat and element occurrences. The ER Review did not indicate any habitat for or occurrences of KBB within the Tomah Branch Line Loop; therefore, the Project would have no effect to this species. Additionally, the WDNR indicated January 7, 2022, that the Tomah Branch Line Loop would be covered under the Broad Incidental Take Permit/Authorization for No/Low Impact activities and, as such, impacts to the endangered species and their habitat would be minimized. WDNR would not require further action regarding KBB on the Tomah Branch Line Loop. Species occurrence is not anticipated and suitable habitat is not present in the other Project components.

#### **4.9.2 State-Protected Species**

In addition to the federally listed species, there are 10 state-listed species known to occur or potentially occur within the Project in Washington, Scott, Sherburne, and Stearns Counties, Minnesota and Monroe County, Wisconsin. No state-listed species occur in Freeborn County, the location of the Ventura North E-Line. The state-listed species include three reptiles, the Blanding's turtle (*Emydoidea blandingii*), gopher snake (*Pituophis catenifer*), and wood turtle (*Glyptemys insculpta*); one bird, the marbled godwit (*Limosa fedoa*); two fish, the least darter (*Etheostoma microperca*) and redbfin shiner (*Lythrurus umbratilis*); one invertebrate, the regal fritillary (*Speyeria idalia*); and three plants, autumn fimbry (*Fimbristylis autumnalis*), narrow-leaved water plantain (*Alisma gramineum*), and Hill's thistle (*Cirsium pumilum var. hillii*). Field surveys to identify habitat were conducted by Northern in September and November 2021. Table 4.9-1 lists the special status species potentially occurring within the Project area and provides a summary of habitat within the Project.

##### Blanding's turtle

Blanding's turtle requires wetland complexes with adjacent sand uplands to sustain viable populations. Calm, shallow waters, including wetlands associated with rivers and streams with rich aquatic vegetation, are preferred. This turtle occurs on a variety of wetland and riverine types throughout Minnesota. Loss and degradation of upland and wetland habitats and mortality on roads are primary threats to the species (MDNR, 2008).

Northern would not propose species surveys but rather assume the presence of Blanding's turtles where Blanding's turtles have been documented and suitable habitat is present. The Elk River 3<sup>rd</sup> Branch Line, Willmar D Branch Line, and Princeton Tie-Over Loop contain suitable habitat for the Blanding's turtle (wetlands with open water features); however, no Blanding's turtles were identified within the Project area during field habitat assessments in September and November 2021. The MDNR NHIS review indicated Blanding's turtle elemental occurrences within one mile of the following components: one for the Elk River 3<sup>rd</sup> Branch Line, three for the Willmar D Branch Line, and two for the Princeton Tie-Over Loop.

Northern currently plans to use HDD to cross under the waterbody and wetland complexes with suitable Blanding's turtle habitat. Northern would install turtle fence between the entry and exit points and any suitable turtle habitat.

Based on Northern's past project experience in Minnesota, the MDNR would likely recommend additional measures to avoid and minimize impacts on Blanding's turtles should they occur within the Project workspace. Northern would implement the MDNR recommendations and

would train construction personnel regarding identification of the Blanding's turtle and the proper implementation of the MDNR recommendations. Northern has developed, per the request of the MDNR on past projects, and would implement a Blanding's Turtle Avoidance Plan. Northern submitted the Blanding's Turtle Avoidance Plan to the MDNR February 14, 2022, for review and comments by MDNR staff. The mitigation measures would minimize potential impacts on the Blanding's turtle; therefore, the Project is not likely to adversely affect the Blanding's turtle.

Habitat for Blanding's turtle is not present within the Ventura North E-Line, Paynesville 2<sup>nd</sup> Branch Line, and Tomah Branch Line Loop. Additionally, the WDNR indicated January 7, 2022, that the Tomah Branch Line Loop would be covered under the Broad Incidental Take Permit/Authorization for No/Low Impact activities and, as such, impacts to the endangered species and their habitat would be minimized. WDNR would not require further action regarding Blanding's turtle on the Tomah Branch Line Loop. The Project would have no effect on this species.

#### Gopher snake

Preferred habitat for the gopher snake includes sand prairies, bluff prairies and rock outcrops, all of which contain well-drained soils and sparse vegetation. During winter, the gopher snake uses the burrows of mammals or rock fissures along bluffs for hibernation, and females also use mammal burrows or sandy soils as nesting sites (MDNR, 2021e).

The Princeton Tie-Over Loop does not have suitable habitat for the gopher snake (sand/bluff prairies or rock outcrops); therefore, the Project would have no effect on this species. Species occurrence is not anticipated and suitable habitat is not present in the other Project components.

#### Wood turtle

The wood turtle prefers rivers and streams with adjacent riparian wetlands and upland deciduous forests. This species often forages in open wet meadows or in shrub habitats dominated by speckled alder. They overwinter in streams and rivers in deep holes or undercut banks where there is enough water flow to prevent freezing. This semi-terrestrial species typically remains within 300 meters (984 feet) of rivers and streams. This species becomes active in spring as soon as the ice has melted and air temperatures reach around 50 degrees Fahrenheit, which can occur as early as mid-March (WDNR, 2020a).

Habitat for the wood turtle does not occur within the vicinity of the Tomah Branch Line Loop; therefore, the Project would have no effect on this species. Additionally, the WDNR indicated January 7, 2022, that the Tomah Branch Line Loop would be covered under the Broad Incidental Take Permit/Authorization for No/Low Impact activities and as such would result in no to low impacts on endangered species and their habitats. WDNR would not require further action regarding wood turtle on the Tomah Branch Line Loop. Species occurrence is not anticipated and suitable habitat is not present in the other Project components.

#### Marbled godwit

The marbled godwit is a large, vocal shorebird that can be found in the Prairie Pothole region of the northern U.S. and southern Canada, inhabiting native grasslands and ephemeral and semipermanent wetlands. In Minnesota specifically, this species is found in large prairies on the eastern edge of the Red River Valley and within the Lac qui Parle Wildlife Management Area. In winter, this species migrates to coastal regions of the Americas (MDNR, 2021f).

The Paynesville 2<sup>nd</sup> Branch Line does not include suitable habitat for the marbled godwit (large prairies or ephemeral and semipermanent wetlands); therefore, the Project would have no effect on the marbled godwit. Species occurrence is not anticipated and suitable habitat is not present in the other Project components.

#### Least darter

The least darter is a small fish species averaging 3.8 centimeters in total length. They prefer freshwater streams and lakes that are crystal clear and have dense, submerged aquatic vegetation. During the spawning season, they typically use weedy shallow pools and move to deeper pools post spawning season. The greatest threats to the population of the least darter include habitat loss and degradation, loss of aquatic plants, pesticide use, and loss of forested habitats around streams (MDNR, 2021g).

The Elk River 3<sup>rd</sup> Branch Line does not include suitable habitat for the least darter (clear lakes and streams with dense aquatic vegetation) and would have no effect on this species. Species occurrence is not anticipated and suitable habitat is not present in the other Project components.

#### Redfin shiner

Redfin shiner prefers turbid waters of pools in low-gradient streams over substrates of boulders, sand, silt, or detritus. Spawning occurs from early June through mid-August in sunfish nests, and they coexist with the sunfish in the nesting territory (WDNR, 2020b).

Habitat for redfin shiner does not occur within the Tomah Branch Line Loop; therefore, there would be no effect to the redfish shiner. Additionally, the WDNR indicated January 7, 2022, that the Tomah Branch Line Loop would be covered under the Broad Incidental Take Permit/Authorization for No/Low Impact activities and as such would result in no to low impacts on endangered species and their habitats. WDNR would not require further action regarding redfin shiner on the Tomah Branch Line Loop. Species occurrence is not anticipated and suitable habitat is not present in the other Project components.

#### Regal fritillary

The regal fritillary is found only in native prairies, including both upland and wetland prairies. However, the larvae tend to be restricted to upland prairie where they feed exclusively on the nectar of violets (*Viola* spp.) such as prairie violet (*Viola palmata* var. *pedatifida*) and bird's-foot violet (*V. pedata*), the latter of which is utilized in the southeast section of the state (MDNR, 2021h).

The Paynesville 2<sup>nd</sup> Branch Line does not contain suitable habitat for this species; therefore, the Project would have no effect on the regal fritillary. Species occurrence is not anticipated and suitable habitat is not present in the other Project components.

#### Autumn fimbry

The autumn fimbry is a common plant found in the eastern parts of the U.S. Due to its stringent habitat requirements, it is uncommon in Minnesota and surrounding states. The autumn fimbry grows along the margins of shallow lakes and ponds with a sandy substrate particularly in the Anoka Sand Plain region of Minnesota. These habitats fluctuate with seasonal ground water tables and are easily affected due to human activity. The autumn fimbry is commonly outcompeted by non-native plants including reed canary grass (*Phalaris arundinacea*) and the hybrid cattail (*Typha x glauca*) (MDNR, 2021i).

The Elk River 3<sup>rd</sup> Branch Line does not contain potentially suitable habitat for autumn fimbry (sandy substrate along shallow lakes or ponds); therefore, the Project would have no effect to this species. Species occurrence is not anticipated and suitable habitat is not present in the other Project components.

#### Narrow-leaved water plantain

Narrow-leaved water plantain has been recorded in 16 lakes throughout Minnesota. It is a perennial aquatic plant in which the stem is submerged under the surface of the water and the emergent part of the plant can reach up to 50 centimeters tall. Narrow-leaved water plantain have been observed to prefer habitat in shallow water that is less than one meter deep in sandy substrate of larger wind-swept lakes. The primary threat to narrow-leaved water plantain is loss of habitat through recreational activity, destructive shoreline management and herbicide run off (MDNR, 2021j).

Potentially suitable habitat for the narrow-leaved water plantain exists at three locations in open water features within the Elk River 3<sup>rd</sup> Branch Line environmental survey boundary. Northern designed the Project to avoid two of the open water features and cross the third open water feature (ERT-OW8) via HDD. As such, direct impacts on suitable habitat for narrow-leaved plantain are not anticipated. Additionally, no narrow-leaved water plantain or suitable habitat were observed during the field habitat assessments completed in September and November 2021. Northern has determined the Project would have no effect to this species. Species occurrence is not anticipated and suitable habitat is not present in the other Project components.

#### Hill's thistle

The Hill's thistle inhabits dry areas, primarily southern dry prairies and southern dry savannas. Occasionally, this species can also be found in drier southern mesic prairies, central dry pine woodlands and bedrock bluff prairies over thin soil (MDNR, 2021k).

Suitable habitat for the Hill's thistle does not occur within the Paynesville 2<sup>nd</sup> Branch Line; therefore, the Project would have no effect to this species. Species occurrence is not anticipated and suitable habitat is not present in the other Project components.

#### **Northern shall not begin construction activities until:**

- a. Northern files with the Secretary the USFWS concurrence regarding its Section 7 ESA review including comments on the RPBB floristic surveys and mitigation measures;**
- b. Northern files with the Secretary written comments from MDNR regarding Northern's Blanding's Turtle Avoidance and Mitigation Plan.**

## **4.10 LAND USE, RECREATION, AND VISUAL RESOURCES**

### **4.10.1 Existing Land Use Impacts and Mitigation**

Northern identified land use categories in the Project area using field observations made in September and November 2021 and interpretation of 2020 and 2021 aerial imagery. Predominant land uses consist of agricultural, forest/woodland (upland), wetlands, open land, residential, industrial/commercial and open water.

A total of 255.4 acres would be temporarily disturbed during construction of the Project. Land temporarily impacted during construction but not required for permanent operations would be allowed to revert to preconstruction uses. Operation of the Project, including the pipeline and aboveground facilities, would disturb 52.4 acres. A summary of the existing land use categories affected by construction and operation of the Project is provided in appendix K.

A total of 27 temporary access roads affecting 18.1 acres would be used during construction and would be restored to preconstruction conditions. Four new facility access roads would be constructed to access the aboveground facilities. These would permanently affect 0.4 acre. appendix B, Table B-2 contains a table of the temporary and permanent access roads identifying their location, purpose, characteristics, and land uses impacted.

Northern would obtain easements from landowners and land-managing agencies to construct and operate natural gas facilities or acquire the land on which the facilities would be located. Easements would either be temporary, granting the operator the use of the land during construction (e.g., for temporary workspace, access roads, yards); or permanent, granting the operator the right to operate and maintain the facilities after construction.

For the Project, all temporary construction easements (e.g., ATWS, access roads, and staging areas) would be restored, returned to the landowners in accordance with the terms of the landowner agreement, and allowed to revert to prior uses. The land retained as permanent right-of-way would generally be allowed to revert to its former use, except certain activities, such as the construction of permanent structures, including houses, house additions, trailers, tool sheds, garages, poles, patios, pools, septic tanks, or other objects not easily removable, or the planting of trees, would be prohibited within the 50-foot-wide permanent right-of-way.

**Agricultural.** Agricultural land is defined as areas of active farmed cropland and specialty crop production. The cropland crossed by the Project is used for a variety of crops including corn, alfalfa and soybeans. No specialty crops, including nurseries, vineyards, orchards, citrus groves, dairies, aquaculture or tree farms were identified near Project facilities. Specialty crops were reviewed through aerial images, field surveys, and landowner consultation.

The Project crosses 5.0 miles of agricultural land. About 175.4 acres of agricultural land would be affected by construction, and about 30.84 acres of which would be affected by operations (see table 4.10-1).

Agricultural lands would be restored to their former use following construction; therefore, the pipelines' construction and operation would not result in a long-term impact on farmland with the exception of 0.4 acre required for aboveground facilities.

The effects of construction to agricultural land would generally be minor and short term except where new aboveground facilities are installed. Short-term impacts on agricultural areas would include the temporary loss of standing and row crops within the construction work area and the disruption of farming operations for the growing season during the year of construction; however, it may take a few years to reach production levels experienced prior to construction. To reduce construction impacts, Northern would follow our Plan, which includes employing erosion and sediment control and restoration measures (e.g., soil stabilization, topsoil segregation, compaction avoidance) to minimize and mitigate impacts on agricultural lands. To preserve soil fertility on agricultural lands, Northern would strip topsoil up to 12 inches in depth, segregate it from subsoil, and replace it as the surface layer during restoration to preserve soil productivity.

If present, agricultural drain tiles could be damaged during pipeline construction. Northern would work with landowners during the easement negotiation process to identify existing drain tiles that would be crossed by the Project. If damage to existing drain tiles occurs as a result of pipeline construction, Northern would work with the landowner to restore the damaged drain tiles or compensate the landowner for repairs, relocation, reconfiguration, or replacement.

Following restoration, agricultural activities would be allowed to continue over the permanent pipeline rights-of-way. Agricultural land in the construction area generally would be taken out of production for one growing season while Project facilities are constructed. However, it is possible that saturated or frozen soil conditions could delay topsoil replacement and final grading until conditions allow for proper soil handling and restoration. In addition, some restoration issues within agricultural areas may develop over time after initial restoration (e.g., trench subsidence, revegetation concerns) that may require additional disturbance of the rights-of-way by Northern to correct. Problems with topsoil replacement, compaction, subsidence, rocks, and drainage and irrigation systems resulting from construction in active agricultural areas would continue to be monitored and corrected until restoration is successful. Revegetation of agricultural areas would be considered successful when crop growth and vigor are similar to adjacent undisturbed portions of the same field, subject to the easement agreement held by Northern. Based on these measures, we conclude impacts on agricultural land would be minimized to the extent practicable.

As stated above, at the completion of construction all agricultural lands would be allowed to revert to prior use with the exception of 0.4 acre required for aboveground facilities. We conclude that impacts on agricultural land would be temporary and minor.

**Forest/Woodland (Upland).** Forest/Woodland (Upland) is composed of mixed hardwood forests, mixed evergreen and hardwood forests. Construction of the Project in forest/woodland areas would require the removal of trees to prepare the construction workspace. However, Northern would minimize forest/woodland impacts by siting the proposed facilities within existing rights-of-way, minimizing the construction workspace, and utilizing open, industrial/commercial, or agricultural land for aboveground facilities or staging areas to the extent practicable.

The Project crosses 0.6 mile of forest/woodland. About 5.1 acres of forest/woodland would be temporarily affected by construction, including TWS, ATWS, staging areas, access roads, and aboveground facilities. Trees would be cleared within the construction footprint to provide a safe work area; however, the woody vegetation would be allowed to regrow in areas only used as extra workspace. A total of 0.9 acre of forested/woodland land would undergo routine vegetation maintenance within a 50-foot-wide corridor in uplands. No forested/woodland land would be impacted by the construction or operation of the aboveground facilities for the Project.

**Wetlands.** Wetland areas crossed by the Project are composed of field-delineated emergent and forested wetlands.

The Project crosses 0.4 mile of wetlands. About 0.5 acre of wetlands would be temporarily affected by construction of the Project. Following construction, about 0.1 acre of wetland would be included in the permanent right-of-way; however, no wetlands would be filled or permanently lost because of Project construction.

Northern would restore wetlands as near as practicable to preconstruction conditions. Construction and restoration would be completed in accordance with Northern's Procedures.

Section 4.5 provides additional discussions of wetlands, including descriptions, length of wetlands crossed, and acreages affected by construction and operation, as well as measures to avoid and reduce potential wetland impacts.

**Open Land.** Open land is upland including non-forested rangeland, scrub-shrub land, non-agricultural fields, prairie, and mowed areas of mixed weeds and grass along roadsides and existing access roads.

The Project crosses 3.0 miles of open land. About 64.7 acres of open land would be temporarily impacted during construction of the Project. The majority of the open land that would be impacted by the Project is associated with Northern's existing utility rights-of-way, unmaintained open fields, or lawns. Temporary impacts on open land are expected during grading, trenching, backfilling, and restoration; however, Northern's use of our Plan would minimize impacts. Routine vegetation maintenance would be conducted by mowing, cutting, or clearing.

Within 1 to 5 years following construction, most open land uses would return to preconstruction conditions. About 16.1 acres of impact from routine maintenance on open land would occur during operation. We conclude that impacts on open land would be temporary and negligible.

**Residential.** Residential land consists primarily of housing and other dwellings, including residentially zoned areas that have been developed. Residential lands may also overlap with other land use categories such as forest/woodland and open land. The Project crosses a total of 0.5 mile of residential land. About 5.5 acres of residential land would be temporarily impacted by construction of the Project. The temporary construction impacts result from TWS, ATWS and access roads located on residential land. About 1.7 acres of residential land would be affected by operation and maintenance of the Project facilities.

In general, as the distance to the construction work area increases, the impacts on residences decrease. In residential areas, typically the greatest impacts associated with construction and operation of a pipeline are temporary disturbances during construction and the burden of the permanent easement, which would prevent the construction of permanent structures within the permanent right-of-way. Temporary construction impacts on residential areas could include inconvenience caused by noise and dust generated by construction equipment, personnel, trenching of roads or driveways, traffic congestion, removal of aboveground structures such as fences, ground disturbance of lawns, removal of trees, landscaped shrubs, or other vegetation screening between residences and/or adjacent rights-of-way. In addition, there is potential for damage to existing septic systems or wells and other utilities. Northern would consult with the landowners prior to construction to identify any known wells or septic systems on the property and clearly mark the locations. If any septic systems are damaged, Northern would be responsible for repair or replacement.

Four residences are located within 25 feet of the Princeton Tie-Over Loop. Northern would minimize impacts on the residential properties by implementing mitigation measures in compliance with our Plan. Before mobilizing any equipment, Northern would stake the limits of disturbance and the centerline of the pipeline. Northern would utilize special construction methods designed for working in residential areas. These special construction methods are shown on Northern's site-specific residential construction plans, **which we have reviewed and found acceptable**. Northern would negotiate with landowners during the right-of-way acquisition process concerning impacts on their property. In addition, Northern would implement the following

general measures to minimize construction-related impacts on all residences and other structures within 25 feet of the construction right-of-way:

- leave mature trees and landscaping intact within the construction work area, unless the trees or landscaping interfere with the installation techniques or present unsafe working conditions;
- regularly water the construction workspace to control fugitive dust emissions;
- segregate topsoil from subsoil in residential areas;
- secure the trench within residential areas with safety fencing at the end of each day of construction;
- restrict vehicle speeds on the right-of-way in the vicinity of the residences;
- fence the edge of the construction workspace with safety fencing; and
- restore lawn and landscape areas in the construction workspace immediately after cleanup operations, or as specified in landowner agreements, consistent with the requirements of our Plan.

**Industrial Land/Commercial Land.** Industrial/commercial land is defined as land containing or associated with energy facilities, industrial plants, roads and railroads, mines or quarries, landfills, and certain other facilities. The Project crosses a total of 0.2 mile of industrial/commercial land, and Project impact is limited to existing Northern facilities, roads and associated road rights-of-way. About 4.1 acres of industrial/commercial land would be temporarily affected by construction of the Project. The operational impact on industrial/commercial land by the Project is 2.7 acres.

**Open Water.** Open water crossed by the Project is comprised of lakes, ponds and water crossings greater than 100 feet. The Project crosses a total of 0.2 mile of open water. About 0.1 acre of open water would be traversed by boat for the Elk River 3<sup>rd</sup> Branch Line HDD travel lane. Northern would cross open water using HDD, and no open water areas would be permanently filled or rediverted as a result of the Project. Construction and restoration would be completed in accordance with Northern's Procedures. Section 4.4.2 provides additional discussion of waterbodies, including descriptions, distances traversed, and measures to avoid, reduce, or mitigate potential effects.

#### **4.10.2 Planned Developments**

Northern contacted the Planning and Zoning administrator, or equivalent, for Freeborn, Washington, Scott, Sherburne, and Stearns Counties, Minnesota and Monroe County, Wisconsin to identify proposed development or construction within the Project vicinity. No Project components are anticipated to restrict growth within the respective counties.

#### **4.10.3 Recreation and Special Interest Areas**

Other than the exceptions discussed below, the Project would not cross any public lands managed by the local, state or federal agencies; Wildlife Management Areas; conservation lands; parks; trails; or designated natural or scenic areas. No NHRP sites and culturally significant areas are potentially affected by the proposed Project.

The Ventura North E-Line at MP 28.5 is located about 40 feet east of a Minnesota Board of Water and Soil Resources conservation easement. The Ventura North E-Line at MP 29.0 is located about 50 feet east of a Wetlands Reserve Program conservation easement. The Ventura North E-Line workspace would run adjacent to a Wetlands Reserve Program conservation easement, which is privately owned and federally managed, between MP 30.4 and 30.5. Northern would install erosion and sediment control devices between the easement and workspace, which would limit impacts to the conservation easement.

The Willmar D Branch Line would pass through a natural area corridor, near MP 2.9, a voluntary conservation program which offers owners incentives for preserving the land. This segment of the Willmar D Branch Line would be crossed via HDD, which would eliminate direct impacts on the corridor and minimize construction traffic to just that of the travel lane and associated foot traffic.

The Princeton Tie-Over Loop would cross two expired Minnesota Board of Water and Soil Resources conservation easements, which were privately owned and state managed. Northern has confirmed via title searches that both conservation easements expired in 1997 and were not renewed.

The Paynesville 2<sup>nd</sup> Branch Line generally parallels the Glacial Lakes State Trail, a paved multi-use recreational trail that is located on a former railroad grade. The trail is located about 0.5 mile north of the proposed pipeline centerline. Additionally, one temporary access road, AR04 located at MP 0.98, is located about 0.3 mile south of the Glacial Lakes State Trail. Impacts on the use of the trail near the Project area include temporary noise disturbances. Significant impacts on the use of the recreational trail are not expected due to the distance between construction activities and the trail.

The Tomah Branch Line Loop component would cross lands owned by Monroe County Hospital and Monroe County from the staging area by County Highway B to MP 2.2. Northern has previously negotiated with the landowners to construct across their properties and would implement the same measures as used previously.

The Elk River 3<sup>rd</sup> Branch Line would not cross any public lands managed by the local, state or federal agencies; Wildlife Management Areas; conservation lands; parks; trails; or designated natural or scenic areas.

#### **4.10.4 Visual Resources**

The topography of the areas affected by the Project is generally flat with rural and residential developments, numerous roadways and utility rights-of-way and facilities.

There are no special or unique scenic features in the Project area, nor are there any designated scenic areas or viewsheds. Construction activities would be relatively short term, and long-term changes would be relatively minor.

The most notable impacts on visual resources would be temporary, short-term changes from exposed soils created during construction. Exposed soils may contrast with the surrounding colors and textures found adjacent to construction sites. Additional visual impacts associated with the Project include the removal of existing vegetation and the exposure of bare soils within construction workspaces, as well as grading, trenching, and equipment storage. Northern proposes to use a nominal 100-foot-wide or 75-foot-wide construction right-of-way in upland areas.

Construction in flat, open terrain would temporarily disrupt and dominate the foreground and middle ground views with the introduction of equipment, materials, trenches, and soil piles.

Construction and operation of the pipeline would cause temporary visual impacts; however, it would not result in any long-term impacts. To minimize impacts on visual resources, Northern aligned the proposed pipeline routes, where feasible, adjacent to existing pipeline and road right-of-way. Northern also attempted to align the pipeline to avoid aesthetic features to the extent possible.

The Ventura North E-Line consists largely of buried pipeline with the exception of a new valve setting; therefore, visual effects of this Project facility would be minimal. The existing aboveground valve setting, guardrail and gravel would be removed and the ground would be restored to natural conditions. The proposed valve setting measures about 40 feet by 40 feet and would be surrounded by guardrail. Based on the location and height of the new aboveground facility, minimal permanent visual impacts would occur in the vicinity of the Ventura North E-Line.

The Elk River 3<sup>rd</sup> Branch Line consists largely of buried pipeline with the exception of a new launcher to be installed within the existing Hugo Compressor Station and a new valve setting; therefore, visual effects of this Project facility would be minimal. The proposed valve setting measures about 45 feet by 45 feet and would be surrounded by black-colored fencing to minimize visual impacts to local landowners. Based on the location and height of the new aboveground facility, minimal permanent visual impacts would occur in the vicinity of the Elk River 3<sup>rd</sup> Branch.

The Willmar D Branch Line consists largely of buried pipeline with the exception of a new valve setting at the terminus; therefore, visual effects of this Project facility would be minimal. The existing aboveground valve setting, guardrail, and gravel at the takeoff would be removed. The proposed valve setting measures about 40 feet by 40 feet and would be surrounded by guardrail. Based on the location and height of the new aboveground facility, minimal permanent visual impacts would occur in the vicinity of the Willmar D Branch Line.

The Princeton Tie-Over Loop consists largely of buried pipeline with the exception of a new valve inside the existing launcher facility at the terminus; therefore, visual effects of this Project facility would be minimal. The existing aboveground valve setting, guardrail, and gravel at the takeoff would be removed. Fencing around the existing launcher facility would be replaced. Based on the location and height of the new aboveground facility, minimal permanent visual impacts would occur in the vicinity of the Princeton Tie-Over Loop.

The Paynesville 2<sup>nd</sup> Branch Line consists largely of buried pipeline with the exception of valves inside an existing facility and a facility expansion to 100 foot by 100 foot at the terminus; therefore, visual effects of this Project facility would be minimal. Northern would install a 10-foot buffer of native grasses and pollinator-friendly seed mix to provide visual screening. Based on the location and height of the new aboveground facility, minimal permanent visual impacts would occur in the vicinity of the Paynesville 2<sup>nd</sup> Branch Line.

The Tomah Branch Line loop consists largely of buried pipeline with the exception of a new valve setting at the terminus; therefore, visual effects of this Project facility would be minimal. The proposed valve setting measures about 15 feet by 15 feet and would be surrounded by guardrail. Based on the location and height of the new aboveground facility, minimal permanent visual impacts would occur in the vicinity of the Tomah Branch Line Loop.

Construction and operation of the pipeline would cause mostly minor and temporary visual impacts, although a right-of-way “scar” could persist for some time. To minimize impacts on visual resources, Northern sited the pipeline lateral, where feasible, adjacent to existing pipeline and roadway rights-of-ways. We conclude that impacts to visual resources would not be significant.

#### 4.11 ENVIRONMENTAL JUSTICE

The EPA recommends that (1) the EIS consider and disclose impacts on communities with environmental justice concerns in light of past, present, and reasonably foreseeable planned actions; (2) the Commission engage communities with potential environmental justice concerns where regional impacts on various resources areas, such as climate change and air quality, may occur; (3) the Commission develop a comprehensive outreach strategy to engage minority and low-income populations in proximity of the proposed Project and foster meaningful participation and coordination with these populations, applicable stakeholders, and external organizations and entities. The EPA also suggests the EIS describe any outreach activities conducted to involve all communities that could be affected by the proposed Project, along with discussion of any environmental justice concerns by communities.

As stated, the EPA recommends that the EIS include impacts on environmental justice communities from the Project. The EPA’s environmental justice policies are directed, in part, by the recent Executive Order 14008, Tackling the Climate Crisis at Home and Abroad, and Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, as amended, which require federal agencies to consider if impacts on human health or the environment would be disproportionately high and adverse for environmental justice communities in the surrounding community resulting from the programs, policies, or activities of federal agencies. The term “environmental justice community” could encompass (i) populations of color; (ii) communities of color; (iii) Native communities; and (iv) and low-income rural and urban communities who are exposed to a disproportionate burden of the negative human health and environmental impacts of pollution or other environmental hazards.

In this EIS, a disproportionately high and adverse effect on an environmental justice community means the adverse effect is predominately borne by such population or is appreciably more severe or greater in magnitude on the minority or low-income population than the adverse effect suffered by the non-minority or non-low-income population. The EPA’s Federal Interagency Working Group on Environmental Justice and NEPA Committee’s publication, *Promising Practices for EJ Methodologies in NEPA Reviews* (EPA, 2016), provide methodologies for conducting environmental justice analyses. Issues considered in the evaluation of environmental justice include human health or environmental hazards; the natural physical environment; and associated social, economic, and cultural factors.

According to the CEQ’s environmental justice guidance under NEPA (CEQ, 1997) and *Promising Practices for EJ Methodologies in NEPA Reviews*, minorities are those groups that include American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. Following the recommendations set forth in *Promising Practices for EJ Methodologies in NEPA Reviews*, minority populations are defined in this EIS where either: (a) the minority population of the affected area exceeds 50 percent; or (b) the aggregate minority population of the affected area is meaningfully greater (10% greater) than the aggregate minority

population percentage in the general population or other appropriate unit of geographic analysis. The guidance also directs low-income populations to be identified based on the annual statistical poverty thresholds from the U.S. Census Bureau. Low-income populations are identified as census block groups where the low-income individuals (or households) are greater than or equal to that of the county.

Table 4.11-7 below identifies the minority populations by race and ethnicity and low-income populations of Minnesota and Wisconsin, the counties affected by the Project, and the census block groups crossed by the pipeline and intersected by the proposed *Northern Lights 2023 Expansion Project* survey corridor. As stated above, we used the EPA's *Promising Practices for EJ Methodologies in NEPA Reviews* to determine methodologies for conducting environmental justice analyses. To ensure we are using the most recent available data, we also used the source data: the U.S. Census American Community Survey File# B17017 and File# B03002 for the race, ethnicity, and poverty data at the census block group level.

The environmental justice analysis used census block groups crossed by the Project to identify affected minority and low-income populations. Because the proposed Project consists of emissions generated from soil-disturbing activities such as earthmoving, wind erosion of disturbed areas, and vehicle traffic during construction, the impacts would be intermittent and temporary emissions of criteria pollutants. The amount of dust generated during construction would be a function of vehicle numbers and types, vehicle on the potential environmental justice community would be construction-period dust, noise, visual, and air quality impacts. These effects would be experienced by residents living close to the proposed facilities, generally within 0.25 mile, with the effects diminishing with further distances from the proposed facilities.

As presented in table 4.11-7, none of the census block groups crossed by the Project have minority populations greater than 50 percent. Further, none of the census block groups crossed by the proposed Project have minority populations meaningfully greater (10% greater) than their respective county. The census tract (CT) block groups crossed by the Project have low-income population percentages lower than their respective counties with the exception of CT 1803 Block Group 1, in Freeborn County, Minnesota (Ventura North E-Line). The CT 1803 Block Group 1 has a two percent higher low-income population than Freeborn County, Minnesota. (U.S. Census, 2020). No other census block groups crossed by the Project were identified as having minority or low-income populations; therefore, only the Ventura North E-Line, which would be constructed in CT 1803 Block Group 1, is discussed further regarding environmental justice impacts.

**Table 4.11-7  
Minority Populations by Race and Ethnicity and Low-Income Populations in the Project Area**

State/County/ Tract/Block Group	RACE <sup>a</sup> AND ETHNICITY COLUMNS									LOW-INCOME COLUMN
	White (%)	Black or African American (%)	American Indian and Alaska Native (%)	Asian (%)	Native Hawaiian and Other Pacific Islander (%)	Some other race* (%)	Two or more races (%)	Hispanic or Latino (of any race) (%)	Total Minority (%)	Total Persons Below Poverty Level (%)
United States	76.3	13.4	1.3	5.9	0.2	4.5	2.8	18.5	28.1	18.1
State of Minnesota	83.8	7.0	1.4	5.2	0.1	1.4	2.6	5.6	17.7	7.9
State of Wisconsin	85.4	6.4	0.9	2.8	0.0	2.0	2.4	6.8	14.5	9.0
Freeborn County, MN	93.1	1.6	0.6	3.0	0.2	1.0	1.5	10.2	7.9	10.1
<i>CT 1803 Block Group 1</i>	89.7	0.5	0.0	0.5	0.0	2.7	6.6	7.8	10.3	12.1
Scott County, MN	84.5	5.4	1.1	6.4	0.1	1.4	2.5	5.3	16.9	8.2
<i>CT 810.02 Block Group 2</i>	92.7	0.5	0.1	1.5	0.0	0.6	4.5	1.4	7.3	1.3
<i>CT 810.02 Block Group 3</i>	94.7	0.4	0.4	1.0	0.0	0.7	2.8	1.0	5.3	1.3
Washington County, MN	85.4	5.0	0.6	6.4	0.1	0.7	2.5	4.5	15.3	8.1
<i>CT 701.08 Block Group 3</i>	87.7	0.0	0.0	8.9	0.0	0.6	2.7	2.6	12.3	4.3
<i>CT 702.05 Block Group 2</i>	91.9	0.3	0.2	0.4	0.0	0.7	6.5	1.8	8.1	2.9
<i>CT 702.06 Block Group 1</i>	94.7	0.3	0.0	1.0	0.0	0.8	3.2	1.3	5.3	5.5
<i>CT 702.08 Block Group 1</i>	81.6	0.0	1.3	7.1	0.0	3.3	6.7	6.1	18.4	5.8
Sherburne County, MN	92.8	3.2	0.6	1.3	0.0	0.0	2.1	2.8	7.2	8.8
<i>CT 301.04 Block Group 2</i>	93.9	0.3	0.3	0.5	0.0	0.3	4.7	1.4	6.1	7.6
<i>CT 301.05 Block Group 3</i>	91.6	0.6	0.2	1.2	0.1	1.6	4.7	3.2	8.4	1.3
Stearns County, MN	87.5	7.8	0.4	2.4	0.1	1.1	1.8	3.6	13.6	17.2
<i>CT 111.01 Block Group 3</i>	97.5	0.2	0.2	0.1	0.0	0.7	1.3	0.8	2.5	11.8
Monroe County, WI	94.0	1.8	1.5	0.9	0.1	1.1	1.7	4.9	7.1	8.6
<i>CT 9502 Block Group 1</i>	90.0	1.9	0.1	1.0	0.4	1.0	5.6	5.6	10.0	8.4
<i>CT 9502 Block Group 3</i>	95.0	0.4	0.1	0.6	0.0	0.4	3.3	2.0	5.0	4.4

Construction of the Project would have temporary visual impacts resulting from the presence of construction equipment and related activity. The Ventura North E-Line consists of a new pipeline in an area that is primarily agricultural and distanced from nearby residences, commercial areas, schools, and churches. The closest residence to the new pipeline is 331 feet south of a temporary access road and 662 feet southwest of the pipeline centerline. Construction-related visual impacts associated with the Project would result from the removal of existing vegetation, the soil stockpiles within construction workspaces and the presence of the construction equipment. The introduction of equipment, materials, trenches, and soil piles in flat, open terrain would temporarily disrupt middle to far-field views, however, due to the temporary nature of the work and distance from any receptors, their impact on the visual environment would not be significant.

Upon construction completion, Northern has stated that the ground surface above the pipeline will be restored per Northern's agreements with the individual landowners. Construction of the underground pipeline would have no long-term visual impacts within CT 1803 Block Group 1. Following completion of the Project, the Ventura North E-Line would be maintained and operated by existing Northern staff, and no new permanent workers would be hired post-construction. No residences, schools, businesses, or community resources would be temporarily affected or displaced during construction or operation of the Ventura North E-Line.

Potential impacts on area residents could occur during construction and may include traffic delays during the construction period, changes in the existing viewsheds during construction of the Project, air emissions, and noise. Northern estimates that the construction work force would vary, with 30 to 70 construction workers being present. Northern has stated the intent to draw from the local workforce, where practicable. Therefore, we conclude that impacts on socioeconomic resources within the environmental justice communities (e.g., population, housing demand, or the provision of community services such as police, fire, or schools) would be minor and temporary, as there would be a negligible change from current conditions. Environmental justice concerns are similarly not present for other resource areas such as geology, wetlands, wildlife impacts, etc., due to the minimal overall impact the Project would have on these resources and the absence of any suggested connection between such resources and environmental justice communities.

With respect to visual impacts on environmental justice populations, as described in section 4.10.4 of this EIS, the land along the right-of-way is primarily agricultural land with scattered residences. Construction of the pipeline lateral would have temporary visual impacts resulting from the presence of construction equipment and related activity. Northern proposes to use a nominal 100-foot-wide construction right-of-way in upland areas. Visual impacts associated with the Project would result from the removal of existing vegetation and the soil stockpiles within construction workspaces, the presence of the conventional bore rig, trailers, and other equipment necessary for the conventional bores, as well as grading, trenching, side booms and other equipment use and storage on either side of the conventional bore workspaces

As part of the Ventura North E-Line, Northern would remove an existing valve setting from the south end and install a new valve setting at the north end of the pipeline. The closest residence to the new valve setting is about 500 feet west and surrounded by a large buffer of mature trees; therefore, the tie-over valve setting would not be visible at the residence. The second closest residence is about 2,000 feet north of the new valve setting, which would not be visible due to the distance and presence of a mature tree visual buffer. Therefore, we conclude that visual impacts

within CT 1803 Block Group 1 would be a negligible change from current conditions.

There are 11 landowners that currently have existing Northern pipelines on their properties, no new landowners would be added. The Ventura North E-Line would not displace any landowners with residences or agricultural buildings and would temporarily impact a small portion of each landowner's farming operations. Northern has stated that they would negotiate with individual landowners to determine a compensation agreement for the temporary loss of farmable land and the long-term operation of the Ventura North E-Line.

The Ventura North E-Line component would cross four roads, of which two would be open cut and two would be crossed via conventional bore. Northern has developed a traffic control plan to ensure that local and community residents are not impacted. Due to the low number of road crossings, the development of the traffic control plan, and limited construction workers, construction would not place an undue burden on the local drivers, nor would it cause a significant increase in traffic volumes on local roads.

Construction air emissions from the Project, when considered with background concentrations, would be below the National Ambient Air Quality Standards (NAAQS), which are designated to protect public health. Construction emissions would occur over the duration of construction activity and would be emitted at different times along the proposed pipeline lateral. Construction emissions in the form of particulate matter (e.g., dust) would occur, and construction emissions from equipment exhaust would result in short-term, localized impacts in the immediate vicinity of construction work areas. To mitigate exhaust and dust emissions during construction, vehicles and equipment would use gasoline or diesel fuel compliant with current federal regulations and would be operated with required emission control devices. Northern would also implement mitigation measures to control fugitive dust during construction. These measures includes techniques such as reducing vehicle and equipment speed in construction work areas and on access roads to account for adverse weather conditions (e.g., high-velocity winds, dry soil conditions). With the mitigation measures proposed by Northern, air quality impacts from construction activities would be temporary and would not have significant adverse air quality impacts on local residents and the surrounding communities, including the environmental justice community.

Noise impacts from construction would be limited to the construction equipment and two road crossings via conventional bore. Northern has indicated that they would limit pipeline construction activities between 7 a.m. and 7 p.m. Construction and operation of the Ventura North E-Line is not expected to impact the long-term health of the community. Therefore, we conclude that air and noise impacts to residents within CT 1803 Block Group 1 would be a negligible change from current conditions.

Local county officials, community leaders, and 25 individual landowners in the EJ block group were contacted during Project development. Northern also conducted two open houses for the Ventura North E-Line on March 9, 2022, and invited landowners, local officials, other Minnesota elected officials, community leaders, and the general public. To notify local residents about the open houses, invitations were sent directly to impacted landowners and the local library, and published information about the open houses in the local newspaper. Northern indicated that they also contacted the impacted landowners through phone calls or in-person.

During the open houses, Northern stated that they provided Project-specific information, addressed attendees' questions, and compiled a list of any concerns raised by the open-house

attendees. Ten of the 11 impacted landowners from CT 1803 Block Group 1 attended the open houses. Three landowners with abutting property, two elected city officials and one county commissioner also attended. Northern has indicated that there were no unresolved landowner issues at the end of the open houses. The public information in the Section 7 application has been made available for viewing at local libraries to each component. In addition, notice of the application was posted in the local newspapers.

The EPA commented that the Commission should engage communities with potential environmental justice concerns where regional impacts to various resources areas, such as air quality and climate change, may occur. Air quality, climate change, and community engagement regarding environmental justice communities are addressed below.

The EPA has promulgated NAAQS to protect human health and welfare. The NAAQS include primary standards, which are designed to protect human health, including the health of sensitive subpopulations, such as children and those with chronic respiratory problems. The NAAQS also include secondary standards designed to protect public welfare, including economic interests, visibility, vegetation, animal species, and other concerns not related to human health. Attainment areas are those meeting the NAAQS, and non-attainment areas are those not meeting the NAAQS. Areas that have insufficient data to make a determination of attainment or non-attainment are unclassified or are not designated but are treated as being attainment areas for permitting purposes. The attainment designation of an area is determined on a pollutant-by-pollutant basis and for each established primary standard. The Project would be in Freeborn, Washington, Scott, Sherburne, Stearns, and Monroe counties in Minnesota and Wisconsin which are classified as in attainment or unclassifiable with all NAAQS.

Although no exceedances of NAAQS are anticipated to occur, and the NAAQS are designated to protect sensitive populations, we acknowledge that NAAQS attainment alone may not assure there is no localized harm to such populations due to project emissions of volatile organic compounds (VOC), hazardous air pollutants, as well as issues such as the presence of non-Project related pollution sources, local health risk factors, disease prevalence, and access (or lack thereof) to adequate care.

Vulnerable populations (e.g., groups with high asthma rates) may exist within the study area, and disproportionate impacts on these populations could occur as they would be impacted more than the general population due to air quality impacts during construction and operation. Overall, the construction and operational emissions from the Project are very minor and they would not have significant adverse air quality impacts on the low-income populations in the Project area. Air quality impacts are discussed in more detail below within section 4.13.1 of this EIS.

The EPA states that climate change may have impacts on broader, regional scale than the direct impacts of the proposed Project for environmental justice communities. Section 4.13.2 of this EIS addresses impacts associated with climate change. The construction and operation of the Project would increase the atmospheric concentration of greenhouse gases (GHGs), in combination with past and future emissions from all other sources and would contribute incrementally to future climate change impacts. However, it should be noted that the purpose of the Project is to serve the firm transportation requirements of Northern's customers associated with increased energy needs. While the climate change impacts described below, taken individually, may be manageable for certain communities, the impacts of compound extreme events (such as simultaneous heat and drought, or flooding associated with high precipitation on top of saturated

soils) can be greater than the sum of its parts for nearby environmental justice communities. However, as indicated in section 4.13.2, Commission staff are unable to determine the significance that the Project would make on climate change. Should the Commission or other federal agency, such as the EPA or CEQ establish a threshold for determining whether a project's impact on climate change would be significant, that threshold would be considered in the Commission staff's environmental analysis.

The EPA recommends we evaluate the cumulative impacts of the proposed Project on environmental justice communities. Specifically, the EPA suggests that the EIS should consider whether communities may be experiencing existing pollution burdens and level of social or health burdens and how the proposed Project may potentially result in a disproportionate impact in that context. Section 4.1 of this EIS describes environmental trends and reasonably foreseeable planned activities in the Project area. The Project area is primarily agricultural land. The Project contains 9.83 miles of new pipe, one new launcher, four new valve settings and associated valves and piping, valves and piping inside four existing facilities, and removal of three existing tie-over valve settings. Impacts from the construction and operation of the compressor station in the Project area could affect land use, visual resources, traffic, and safety of the region. Although other planned activities may influence the environmental conditions present at the time of Project construction (e.g., the environmental baseline) by impacting environmental resources that would also be affected by the proposed Project (e.g., air quality, noise, visual resources, land use), we conclude the potential for cumulative impacts to result would not be significant, and in some cases would be minor or negligible.

The EPA states that the EIS should include a description of a comprehensive outreach strategy developed by FERC to inform minority and low-income populations. Specifically, the EPA recommends engagement of minority and low-income populations in proximity of the proposed project and fostering meaningful participation and coordination with minority and low-income populations, applicable stakeholders and external organizations and entities. The EPA also suggests more broadly that FERC employ a comprehensive communication strategy in various forms of media, such as community's preferred radio stations, local television channels, library, food establishments as well as school and religious institutions, to inform the communities with environmental justice concerns.

On March 28, 2022, FERC issued in Docket No. CP22-138-000, a *Notice of Scoping Period Requesting Comments on Environmental Issues for the Northern Lights 2023 Expansion Project* which opened a 30-day formal scoping period that expired on February 3, 2022. The Notice of Scoping was mailed to parties on our environmental mailing list, which included federal and state resource agencies; elected officials; environmental groups and non-governmental organizations; Native Americans tribes; potentially affected landowners; local libraries and newspapers; and other stakeholders who had indicated an interest in the Project. FERC's communication and involvement with the surrounding communities continued when Northern filed its formal FERC application for the Project on March 28, 2022, in Docket No. CP22-138-000. On May 5, 2022, FERC issued a Notice of Application which was published in the *Federal Register* on May 28, 2022 (86 FR 25848). On August 26, 2022, FERC issued in Docket No. CP22-138-000 the *Notice of Intent to prepare an Environmental Impact Statement for the Northern Lights 2023 Expansion Project, Request for Comments on Environmental Issues, and a Schedule for Environmental Review* which was published in the *Federal Register* on September 1, 2022 (86 FR 49017). The Notice of Intent was mailed to the same list as described above. Issuance of the

NOI opened a 30-day formal comment period which expired on **September 27, 2022**. On **November 4, 2022**, FERC issued a *Notice of Availability of the Draft Environmental Impact Statement for the Northern Lights 2023 Expansion Project*, which was published in the Federal Register on **November 12, 2022 (86 FR 62808)** opening a 45-day formal comment period.

In 2021, the Commission established the Office of Public Participation to support meaningful public engagement and participation in Commission proceedings. The Office of Public Participation provides members of the public, including environmental justice communities, landowners, Tribal citizens, and consumer advocates, with assistance in FERC proceedings—including navigating Commission processes and activities relating to the Project. For assistance with interventions, comments, requests for rehearing, or other filings, and for information about any applicable deadlines for such filings, members of the public are encouraged to contact OPP directly at 202-502-6592 or [OPP@ferc.gov](mailto:OPP@ferc.gov) for further information. **Targeted in-person meetings have continued to occur to confirm if potential environmental justice communities are interested in participating in the Project development.**

As described throughout this EIS, the proposed Project would not have a significant adverse impact on the environment or on individuals living in the vicinity of the Project facilities, including environmental justice communities. Based on our analysis, impacts on environmental justice communities would not be disproportionately high and adverse as impacts in the Project area would not be predominantly borne by environmental justice communities. Further, as previously described, impacts on environmental justice communities would be less than significant and mostly temporary.

#### **4.12 CULTURAL RESOURCES**

Section 106 of the NHPA, as amended, requires FERC to take into account the effect of its undertakings on properties listed, or eligible for listing, on the NRHP and to afford the ACHP an opportunity to comment. Northern, as a nonfederal party, is assisting FERC in meeting our obligations under section 106 and the implementing regulations at 36 CFR 800.

As defined in 36 CFR 800.16(d), the area of potential effect (APE) is the “geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties.” For this Project, the APE is defined based on the potential for effect, which may differ for aboveground resources (historic structures and landscapes) and subsurface resources (archaeological sites). The Project APE comprises two distinct types of potential impacts: direct, and indirect or viewshed. The direct APE utilized for the Project includes the footprints of proposed facilities, ATWS temporary workspaces, staging areas, and access roads, as well as the right-of-way required for construction. The direct APE applies primarily to archaeological resources; however, direct effects are also considered for historic structures and landscapes. The direct APE also includes areas that will be installed using HDD methods.

The historical/architectural APE is referred to as the indirect APE. The indirect APE for the Project includes the viewshed and other areas where direct and indirect project impacts have the potential to alter character-defining features of an applicable property’s significance. Based on an agreement reached with the Minnesota State Historic Preservation Office (SHPO) and Northern in 2018 and discussions with the Wisconsin SHPO, the indirect APE for small pipeline fixtures (not exceeding 10 feet in height) is set within an area defined as a line of site extending 500 feet outward from the limits of the planned fixtures or aboveground facilities. The radius

may be expanded if a portion of the survey area crosses a property with a building or structure more than 45 years old, such as a farmstead. The assessment of visual effects for resources within the indirect APE must include an assessment of the impact of long-term maintenance.

#### **4.12.1 Cultural Resources Surveys**

Northern completed surveys for cultural resources for 100 percent of the Project area. Surveys were conducted from October through November 2019 and in August, September, and November 2021. The surveys included both archaeological and architectural resources and covered a total of 1,068.6 acres. A general survey corridor ranging from 170 to 1,700 feet wide was surveyed for the pipeline in order to include coverage for any proposed facilities, extra temporary workspaces, staging areas, and access roads.

The cultural resource survey for the Project did not identify any NRHP potentially eligible architectural resources, archaeological sites or other types of cultural resources within the direct or indirect APEs for the Project. In addition, surveys did not identify any Minnesota Standing Structures Inventory, Wisconsin Architecture and History Inventory, NRHP-listed properties, or NRHP-eligible properties that would be indirectly impacted by the Project. Northern recommended that the proposed Project construction activities would not have a direct or indirect effect on any historic properties.

Archaeological survey reports for the Project were submitted to the FERC and the Minnesota and Wisconsin SHPOs. The Wisconsin SHPO responded on January 31, 2022, with a concurrence of “No Effect on historic or cultural resources eligible for, or included on, the NRHP.” The Minnesota SHPO responded on February 15, 2022, with a concurrence that “no historic properties will be affected.” We agree with the SHPO and have determined that the Project would have no effect on historic properties. Accordingly, FERC has completed its compliance requirements with section 106 of the NHPA for the Project.

Cultural resources surveys are complete for the Project and the SHPO and FERC concur that no historic properties would be adversely affected. Therefore, compliance with section 106 of the NHPA is complete.

#### **4.12.2 Unanticipated Discovery Plan**

Northern provided UDPs to the Minnesota and Wisconsin SHPOs. The UDPs are designed to address the unanticipated discovery of archaeological materials and human remains during Project activities. The UDPs describe the process of halting construction activities in the vicinity of the discovery and notifying FERC and interested parties, including federally recognized Native American Tribes who request notification. Northern submitted the UDPs for review and comment to the Minnesota SHPO January 26, 2022, and to the Wisconsin SHPO January 27, 2022. The Wisconsin SHPO responded on January 31, 2022, and the Minnesota SHPO responded on February 15, 2022. Both found the UDPs to be acceptable. **We have reviewed the UDPs and found them acceptable.**

### **4.12.3 Native American Consultation**

Northern sent Project notification letters to 29 federally recognized Native American Tribes and informed them about the Project on February 22 and 24, 2022. On March 1, 2022, Northern submitted the results of the cultural resources surveys and the UDPs regarding the Project to the Bureau of Indian Affairs – Midwest Region. The letters introduced the Project and provided Project mapping, cultural resource survey reports, and the UDPs.

The 29 Tribes include: Apache Tribe of Oklahoma, Bad River Band of the Lake Superior Tribe of Chippewa Indians, Cheyenne and Arapaho Tribes, Oklahoma, Flandreau Santee Sioux Tribe, Fond du Lac Band of the Minnesota Chippewa Tribe, Fort Belknap Indian Community, Grand Portage Band of the Minnesota Chippewa Tribe, Ho-Chunk Nation of Wisconsin, Iowa Tribe of Kansas and Nebraska, Keweenaw Bay Indian Community, Kickapoo Tribe of Oklahoma, Lac du Flambeau Band of Lake Superior Chippewa Indians, Lac Vieux Desert Band of Lake Superior Chippewa Indians, Leech Lake Band of the Minnesota Chippewa Tribe, Lower Sioux Indian Community, Menominee Indian Tribe of Wisconsin, Miami Tribe of Oklahoma, Mille Lacs Band of Ojibwe (The Mille Lacs Band of the Minnesota Chippewa Tribe), Minnesota Chippewa Tribe, Prairie Island Indian Community, Red Cliff Band of Lake Superior Chippewa Indians, Santee Sioux Nation, Shakopee Mdewakanton Sioux Community, Sisseton-Wahpeton Oyate of the Lake Traverse Reservation, Sokaogon Chippewa Community, Spirit Lake Tribe, Upper Sioux Community, White Earth Band of the Minnesota Chippewa Tribe and the Winnebago Tribe of Nebraska.

The Tribal Historic Preservation Officer from the Menominee Indian Tribe of Wisconsin responded on February 23, 2022, and stated that he concurred with the findings in the cultural reports. The Tribal Historic Preservation Officer requested immediate notification if human remains or other cultural materials are discovered during ground disturbing activities associated with the Project. At the time of preparation of this document, no comments have been received from the remaining Tribes that were provided Project notification.

## **4.13 AIR AND NOISE**

### **4.13.1 Air Quality**

The Project would result in temporary impacts on local air quality through short-term construction activities; however, the Project would not result in significant, permanent impacts on local or regional air quality. Construction and operation air emissions and mitigation measures are discussed in section 4.13.1.6.

#### **4.13.1.1 Existing Air Quality**

Ambient air quality is protected by federal and state regulations. Under the CAA and its amendments, the EPA has established NAAQS for carbon monoxide (CO), lead, nitrogen dioxide (NO<sub>2</sub>), ozone, particulate matter less than 10 microns (PM<sub>10</sub>), particulate matter less than 2.5 microns (PM<sub>2.5</sub>), and sulfur dioxide (SO<sub>2</sub>). These standards incorporate short-term (1-hour, 3-hour, 8-hour, and 24-hour) and long-term (3-month and annual) concentration levels to address acute and chronic exposures to the pollutants. The NAAQS primary standards are designed to protect human health and the health of sensitive subpopulations such as children and those with chronic respiratory problems. The NAAQS secondary standards are designed to protect public

welfare concerns such as economic interests, visibility, vegetation, animal species, and other concerns not related to human health. The MPCA and WDNR has the authority to enforce these standards under the CAA for the Project.

Air quality in Freeborn, Washington, Scott, Sherburne, and Steans Counties in Minnesota and Monroe County, Wisconsin are designated as in attainment/unclassifiable with the NAAQS for all criteria pollutants. The Project is not within 25 miles of any area that is designated as a Class I area. Class I areas are areas of special national value (e.g., national parks and wilderness areas) for which enhanced protection of air quality is required. The closest Class I area is the Superior National Forest approximately 180 miles to the north.

GHGs occur in the atmosphere both naturally and as a result of human activities, such as the burning of fossil fuels. GHGs absorb infrared radiation in the atmosphere, and an increase in emissions of these gases has been determined by the EPA to endanger public health and welfare by contributing to global climate change. The most common GHGs emitted during fossil fuel combustion and natural gas transportation are carbon dioxide (CO<sub>2</sub>), methane, and nitrous oxide. Emissions of GHGs are typically expressed in terms of CO<sub>2e</sub>, where the potential of each gas to increase heating in the atmosphere is expressed as a multiple of the heating potential of CO<sub>2</sub> over a specific timeframe, also known as its global warming potential (GWP). We have selected the 100-year GWP over other published GWPs for other timeframes because these are the GWPs the EPA has established for reporting of GHG emissions and air permitting requirements. This allows for a consistent comparison with these regulatory requirements. The 100-year GWP of CO<sub>2</sub> is 1, methane is 25, and nitrous oxide is 298. During construction and operation of the Project, these GHGs would be emitted from fossil-fuel-powered engines used in construction and from fugitive methane through leaks associated with aboveground valves, flanges, and relief valves, and the operation of the launcher.

#### **4.13.1.2 Federal Requirements**

The CAA of 1970, 42 USC Part 7401 et seq., amended in 1977 and 1990, is the basic federal statute governing air quality.

#### **4.13.1.3 New Source Review**

Proposed new or modified air pollutant emission sources must undergo a New Source Review (NSR) prior to construction or operation. Through the NSR permitting process, state and federal regulatory agencies review and approve project emissions increases or changes, emissions controls, and various other details to ensure air quality does not deteriorate as a result of new or modified existing emission sources. The two basic groups of NSR are major source NSR and minor source NSR. Major source NSR has two components: PSD and Nonattainment New Source Review. PSD, Nonattainment New Source Review, and minor source NSR are applicable to projects depending on the size of the proposed project, the projected emissions, and if the project is proposed in an attainment area or nonattainment/maintenance area. PSD regulations define a major source as any source type belonging to a list of 28 specifically listed source categories that have a potential to emit 100 tpy or more of any regulated pollutant or 250 tpy for sources not among the listed source categories (such as natural gas compressor stations). These emission rate levels are referred to as the PSD major source thresholds.

The Project would not result in the installation and operation of major sources of air pollutants. There would be no point sources of operational emissions, and only minor amounts of VOCs and GHGs would be produced from fugitive equipment leaks and operation of the launcher. Therefore, the Project is not subject to NSR.

#### *Title V Operating Permit Applicability*

Title V is an operating air permit program run by each state for each facility that is considered a “major source.” The Title V operating permit major source applicability threshold is 100 tpy of one or more criteria pollutants, 10 tpy of an individual hazardous air pollutant (HAP) or 25 tpy of total HAPs. The Project is not subject to the Title V (major source) operating permit program.

#### *New Source Performance Standards Applicability*

The EPA promulgates New Source Performance Standards (NSPS), codified in 40 CFR 60, that require new, modified, or reconstructed sources to control emissions as specified in the applicable source category provisions. Any source that is subject to provisions under an NSPS subpart is also subject to the general monitoring, reporting, and record keeping provisions of NSPS Subpart A (*General Provisions*), except as noted in the applicable subpart. This section outlines the applicability of NSPS subparts for the Project facilities.

On August 13, 2020, the EPA issued a final rule to remove the natural gas transmission and storage segment from the NSPS Subpart OOOOa (Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015) and rescind VOC and methane emissions standards for this segment. The Project is in the natural gas transmission and storage segment. Therefore, NSPS Subpart OOOOa does not apply. The requirements of 40 CFR 60 Subpart OOOOb in a proposed rule issued by the EPA on November 15, 2021, would apply to the Project.

#### *National Emission Standards for Hazardous Air Pollutants*

Federal NESHAP regulations promulgated pursuant to Section 112 of the CAA are found in 40 CFR Parts 61 and 63. NESHAP or Maximum Allowable Control Technology standards were promulgated for major sources of HAP emissions. A major source is defined as a facility with the potential to emit 10 tons or more per year of any single HAP or 25 tons or more per year of any combination of HAPs. Subsequently, standards have been created that apply to minor or area stationary sources of HAP emissions. An area stationary source has emissions less than the thresholds for a major source. The following NESHAP rules were evaluated and do not apply.

- Subpart HHH - National Emission Standards for HAPs for Natural Gas Transmission and Storage Facilities
- Subpart YYYY - National Emission Standards for HAPs for Stationary Combustion Turbines
- Subpart ZZZZ - National Emission Standards for HAPs for Reciprocating Internal Combustion Engines

### *General Conformity Applicability*

Section 176 of the 1990 CAA Amendments requires the EPA to promulgate rules to ensure federal actions conform to the appropriate state implementation plan. These rules, known collectively as the General Conformity Rule (40 CFR 51.850 to 51.860 and 40 CFR 93.150 to 93.160), require any federal agency responsible for an action in a nonattainment or maintenance area for any criteria pollutant to address General Conformity Rule requirements. The Project would be located in areas that are not classified as nonattainment or maintenance for any criteria pollutant; therefore, the General Conformity Rule does not apply.

### *Greenhouse Gas Reporting Rule*

On November 8, 2010, the EPA signed a rule that finalized reporting requirements for the petroleum and natural gas industry under 40 CFR 98. Subpart W of Part 98 requires petroleum and natural gas facilities that emit 25,000 metric tons or more of CO<sub>2e</sub> per year to report annual emissions of specified GHGs from various processes within the facilities. The Project's aboveground facilities would be below this reporting threshold; therefore, the Project would not be required to report under Subpart W. Construction emissions are not covered under the GHG Reporting Rule.

#### **4.13.1.4 State Requirements**

Minnesota requires that stationary sources subject to NSPS or NESHAP requirements must obtain a state permit under Minnesota Rule 7007.0250. Minnesota state air permitting would not be required for the Project. Wisconsin requires stationary sources of regulated air pollutants obtain approval prior to construction under NR 406.03. Wisconsin state air permitting would not be required for the Project.

#### **4.13.1.5 Air Quality Impacts and Mitigation**

##### *Construction Emissions*

Construction activities and emission estimates include installation of the pipelines and associated aboveground facilities, valves and in-line device launcher. Construction is expected to primarily occur over seven months beginning in April 2023 and concluding in April 2024; however, the majority of construction would be completed between March and October 2023, Monday through Saturday from 7 a.m. to 7 p.m. However, certain conditions, discussed in section 2.2, may necessitate construction outside of these hours. Some final construction activities such as final cleanup and commissioning would be complete by April 2024.

Dust emissions would result from earthmoving and heavy equipment use. These emissions would be generated from ground excavation, cut-and-fill operations, and use of access roads. Dust emissions would vary from day to day depending on the level of activity, the specific operations, and the prevailing weather. Predominantly, these emissions would likely result from equipment traffic over existing unpaved access roads and wind. Blasting and open burning would not be conducted.

Emissions would also be produced from fuel combustion in construction equipment engines. Vehicles and equipment would use gasoline or diesel fuel compliant with current federal regulations and would be operated with required emission control devices. Gasoline used in vehicles and equipment would meet current Tier 3 standards. Equipment diesel fuel would meet

current requirements for using ultra-low-sulfur (15 parts per million) diesel fuel specifications. Construction equipment would typically include bulldozers, graders, backhoes, front-end loaders, welding machines, trucks, pickups, and other miscellaneous equipment. Northern would request contractors to use the lowest-emitting equipment available in the local area. A summary of fugitive dust and exhaust emissions from construction activities is shown in table 4.13-1.

Construction also results in combustion emissions from diesel- and gasoline-fueled vehicles used in various construction activities. Combustion-related emissions would include NO<sub>x</sub>, CO, VOC, SO<sub>2</sub>, PM, small amounts of HAPs, and GHGs.

The MAC Rule 7011.0150 and NR 415.04 states a person shall take reasonable precautions to prevent PM from becoming airborne in quantities sufficient to cause a nuisance. PM should not remain visible beyond the property where it originates. The MPCA and WDNR would require Northern to conduct reasonable measures as necessary to minimize the generation of airborne dust.

Construction also results in combustion emissions from diesel and gasoline-fueled vehicles used in various construction activities. Combustion-related emissions will include NO<sub>x</sub>, CO, VOCs, SO<sub>2</sub>, PM, and small amounts of HAPs.

Construction-related emission estimates are based on typical diesel-fueled construction equipment, hours of operation, and vehicle miles traveled by the construction equipment and supporting vehicles for each construction spread. Combustion emissions from on-road vehicles (e.g., delivery and material removal vehicles) and non-road construction equipment operation were estimated using tiered engine emissions standards and the EPA's Compilation of Air Pollutant Emission Factors (AP-42) recommended emission factors for heavy construction equipment, combined with estimates of the extent and duration of active surface disturbance during construction. GHG emissions were estimated from non-road construction equipment using factors from the EPA's Emission Factors for Greenhouse Gas Inventories (EPA, 2021). HAP emissions from non-road construction equipment were estimated using EPA AP-42 factors.

The EPA requires manufacturers of on- and off-road engines to certify their products to engine emission standards based on the year of manufacture. For diesel engines, the emission standards have been phased in over the past two decades in four steps, referred to as Tier 1 to Tier 4. To mitigate exhaust emissions during construction, each engine must comply with the emission standards throughout its life, equipment would be operated on an as-needed basis. In 2010, the EPA required the sulfur concentration in diesel fuels be lowered from historical concentration of 500 parts per million to 15 parts per million (ultra-low sulfur diesel fuel), which allows diesel engines to meet current Tier 4 emission requirements. Northern would satisfy the applicable requirements of 40 CFR 80 Subpart I by using low-sulfur diesel fuel in non-road construction equipment.

Construction of the Project will also require venting of existing pipeline segments. Approximately 0.15 million scf of gas would be vented for the Project. The fugitive dust from the construction activities, engine emissions from the construction equipment for the Project, and pipeline venting emissions are summarized in Table 4.13-1.

**Table 4.13-1  
Construction Emissions Summary (tons/year)**

<b>Project Component/ Activity</b>	<b>EmissionSource</b>	<b>CO</b>	<b>NOx</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	<b>VOC</b>	<b>CO<sub>2e</sub></b>	<b>Total HAPs</b>
<b>Ventura North E-Line</b>	<b>Engine Emissions</b>	7.1	35.1	0.0	1.1	1.1	2.0	1,624	0.4
	<b>Unpaved Roads</b>	0.0	0.0	0.0	7.2	0.7	0.0	0.0	0.0
	<b>Earthmoving</b>	0.0	0.0	0.0	4.3	0.5	0.0	0.0	0.0
	<b>Venting for Tie-Ins</b>	0.0	0.0	0.0	0.0	0.0	2.9	72	0.0
	<b>Subtotal</b>	7.1	35.1	0.0	12.6	2.3	4.9	1,696	0.4
<b>Elk River 3<sup>rd</sup> Branch Line</b>	<b>Engine Emissions</b>	6.7	33.1	0.0	1.1	1.0	1.8	1,529	0.4
	<b>Unpaved Roads</b>	0.0	0.0	0.0	5.8	0.6	0.0	0.0	0.0
	<b>Earthmoving</b>	0.0	0.0	0.0	1.7	0.2	0.0	0.0	0.0
	<b>Venting for Tie-Ins</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	<b>Subtotal</b>	6.7	33.1	0.0	8.6	1.8	1.8	1,529	0.4
<b>Willmar D Branch Line</b>	<b>Engine Emissions</b>	6.3	31.5	0.0	1.0	1.0	1.8	1,456	0.3
	<b>Unpaved Roads</b>	0.0	0.0	0.0	5.8	0.6	0.0	0.0	0.0
	<b>Earthmoving</b>	0.0	0.0	0.0	1.7	0.2	0.0	0.0	0.0
	<b>Venting for Tie-Ins</b>	0.0	0.0	0.0	0.0	0.0	0.3	6.3	0.0
	<b>Subtotal</b>	6.3	31.2	0.0	8.5	1.8	2.1	1,462	0.3
<b>Princeton Tie- Over Loop</b>	<b>Engine Emissions</b>	8.8	43.7	0.0	1.4	1.4	2.5	2,010	0.5
	<b>Unpaved Roads</b>	0.0	0.0	0.0	6.7	0.7	0.0	0.0	0.0
	<b>Earthmoving</b>	0.0	0.0	0.0	3.9	0.4	0.0	0.0	0.0
	<b>Venting for Tie-Ins</b>	0.0	0.0	0.0	0.0	0.0	0.01	1.7	0.0
	<b>Subtotal</b>	8.8	43.7	0.0	11.8	2.5	2.5	2,012	0.5
<b>Paynesville 2<sup>nd</sup> Branch Line</b>	<b>Engine Emissions</b>	8.8	43.7	0.0	1.4	1.4	2.5	2,010	0.5
	<b>Unpaved Roads</b>	0.0	0.0	0.0	6.7	0.7	0.0	0.0	0.0
	<b>Earthmoving</b>	0.0	0.0	0.0	3.2	0.3	0.0	0.0	0.0
	<b>Venting for Tie-Ins</b>	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0
	<b>Subtotal</b>	8.8	43.7	0.0	11.1	2.4	2.5	2,013	0.5

Table 4.13-1 Construction Emissions Summary (tons/year)									
Project Component/ Activity	EmissionSource	CO	NOx	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	VOC	CO <sub>2e</sub>	Total HAPs
Tomah Branch Line Loop	Engine Emissions	6.1	30.3	0.0	1.0	0.9	1.6	1,393	0.3
	Unpaved Roads	0.0	0.0	0.0	4.8	0.5	0.0	0.0	0.0
	Earthmoving	0.0	0.0	0.0	0.7	0.1	0.0	0.0	0.0
	Venting for Tie-Ins	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0
	<b>Subtotal</b>	6.1	30.3	0.0	6.5	1.5	1.6	1,396	0.3
<b>Total</b>		43.8	217.4	0.0	59.1	12.3	15.4	10,108	2.4

Construction-related emissions from the Project would be temporary and localized and would dissipate with time and distance from areas of active construction. Further, construction emissions along the pipelines would subside once construction is complete. Based on the mitigation measures outlined in Northern's Resource Report 7, which contains dust mitigation measures, which we reviewed and find acceptable, and adhere to air quality regulations, and the temporary nature of pipeline construction, we conclude that construction of the Project would not have a significant impact on regional air quality.

#### *Operational Emissions*

After the pipelines are in-service, emissions from the pipelines and the related aboveground facilities would be low. Fugitive emissions due to leaks may occur at the aboveground appurtenances. The pipelines would be internally inspected every seven years. During the inspection, only the launcher is blown down, which would result in the release of a small quantity of gas. No compression or other aboveground equipment such as dehydrators, generators, line heaters, or other combustion equipment are part of the Project and, therefore, there would be no GHG emissions from these other sources.

Estimated operational emissions, including GHGs, are shown in table 4.13-2.

TABLE 4.13-2

#### Operational Emissions from the Project <sup>a</sup>

Emission Source	Methane (tons/year)	CO <sub>2e</sub> (tons/year)
Ancillary Facility Fugitive <sup>b</sup>	0.06	22.8
Launcher	0.9	101.4
<b>Total Operational</b>	<b>0.96</b>	<b>124.2</b>

a Annualized Emissions – assumes one pig event every seven years, consisting of five pig launches/receipts per event

b Other ancillary facilities include aboveground valves, flanges, and relief valves

Based on an inventory of components (e.g., valves, connectors, instruments, vents and other leak points), fugitive CO<sub>2e</sub> emissions from the Project would be less than the reporting threshold (25,000 metric tons of CO<sub>2e</sub> per year).

Northern states it takes active steps to monitor and reduce methane emissions and uses standardized methods to detect, monitor, and repair leaks for all facilities across its system. Northern also participates in industry partnership groups, such as Our Nation's Energy Future Coalition Inc. (ONE Future) and two voluntary programs administered by the EPA, the Natural Gas STAR and Methane Challenge Programs. Because of the minor quantity of operational emissions produced by the Project is low, mitigation is not required.

We conclude that emissions generated during operation would not have significant impacts on local or regional air quality.

#### **4.13.2 Climate Change**

Climate change is the variation in the Earth's climate (including temperature, precipitation, humidity, wind, and other meteorological variables) over time. Climate change is driven by accumulation of GHGs in the atmosphere due to the increased consumption of fossil fuels (e.g., coal, petroleum, and natural gas) since the early beginnings of the industrial age and accelerating in the mid- to late-20th century. The GHGs produced by fossil-fuel combustion are carbon dioxide, methane, and nitrous oxide.

In 2017 and 2018, the U.S. Global Change Research Program (USGCRP) issued its Climate Science Special Report: Fourth National Climate Assessment, Volumes I and II. This report and the recently released report by the Intergovernmental Panel on Climate Change (IPCC), Climate Change 2021: The Physical Science Basis state that climate change has resulted in a wide range of impacts across every region of the country and the globe. Those impacts extend beyond atmospheric climate change alone and include changes to water resources, agriculture, ecosystems, human health, and ocean systems. According to the Fourth Assessment Report, the U.S. and the world are warming; global sea level is rising, and oceans are acidifying; and certain weather events are becoming more frequent and more severe. These impacts have accelerated throughout the end of the 20<sup>th</sup> and into the 21<sup>st</sup> century.

GHG emissions do not result in proportional local and immediate impacts; it is the combined concentration in the atmosphere that affects the global climate system. These are fundamentally global impacts that feedback to local and regional climate change impacts. Thus, the geographic scope for analysis of GHG emissions is global, rather than local or regional. For example, a project 1 mile away emitting 1 ton of GHGs would contribute to climate change in a similar manner as a project 2,000 miles distant also emitting 1 ton of GHGs.

Climate change is a global phenomenon; however, for this analysis, we will focus on the existing and potential cumulative climate change impacts in the Project area. The USGCRP's Fourth Assessment Report notes that the following observations of environmental impacts are attributed to climate change in the Midwest region (USGCRP, 2018):

- Increases in growing-season temperature in the Midwest are projected to be the largest contributing factor to declines in the productivity of U.S. agriculture.
- Climate change is expected to worsen existing health conditions and introduce new health threats by increasing the frequency and intensity of poor air quality days,

extreme high temperature events, and heavy rainfalls; extending pollen seasons; and modifying the distribution of disease-carrying pests and insects;

- An increase in localized extreme precipitation and storm events can lead to an increase in flooding. River flooding in large rivers like the Mississippi, Ohio, and Missouri Rivers and their tributaries can flood surface streets and low-lying areas, resulting in drinking water contamination, evacuations, damage to buildings, injury, and death;
- Midwestern populations are already experiencing adverse health impacts from climate change, and these impacts are expected to worsen in the future. In the absence of mitigation, ground-level ozone concentrations are projected to increase across most of the Midwest, resulting in an additional 200 to 550 premature deaths in the region per year by 2050 heat-associated deaths and illnesses, vulnerabilities to chronic disease, and other health risks to people in the Southwest continue to result from increases in extreme heat, poor air quality, and conditions that foster pathogen growth and spread.

It should be noted that while the impacts described above taken individually may be manageable for certain communities, the impacts of compound events (such as simultaneous heat and drought, wildfires associated with hot and dry conditions, or flooding associated with high precipitation on top of saturated soils) can be greater than the sum of the parts (USGCRP, 2018).

#### *Potential Greenhouse Gas Impacts*

GHG emissions associated with construction and operation of the Project were identified and quantified in section 4.13.1.6 of the EIS. Emissions of GHGs are typically expressed in terms of carbon dioxide equivalents (CO<sub>2</sub>e). The Project may result in emissions of up to 9,170 metric tons of CO<sub>2</sub>e over the duration of construction. Operation of the Project would result in about 112.7 metric tpy of CO<sub>2</sub>e annually from operational fugitive emissions.

For informational purposes, here we estimate the downstream GHG emissions from the Project assuming 100 percent utilization of the 13,218,320 dk/year per year of natural gas that Northern would transport to downstream end users. Combustion of 13,218,320 dekatherms per year of natural gas would result in up to 702,000 metric tpy of CO<sub>2</sub>e annually. We note that this represents an upper bound estimate of end-use combustion that could result from the gas transported by the Project. This estimate assumes the maximum capacity is transported 365 days per year.

Northern provided additional analysis regarding alternate downstream scenarios for an initial load factor scenario and an average load factor scenario. We provide this additional information for informational and decision-making purposes. The initial load scenario considers Northern's current system capacity and ability to meet peak demand. The incremental GHG emissions increase in this scenario reflects the 1% of the year when the current system cannot meet peak demand. The initial load scenario would result in 132,183 dekatherms per year of natural gas transported to downstream end users which would result in up to 7,000 metric tpy of CO<sub>2</sub>e annually. The average load factor scenario applies shipper-specific average summer and winter seasonal load factors to the Project. The average load factor scenario would represent future system utilization in line with the current system assuming demand for gas continues to grow at the current rate. The average load factor scenario would result in an additional 5,611,550 dekatherms per year transported downstream and would result in 298,000 metric tpy of CO<sub>2</sub>e annually.

Construction and operation of the Project would increase the atmospheric concentration of GHGs in combination with past, current, and future emissions from all other sources globally and contribute incrementally to future climate change impacts. The Project operations and downstream combustion of gas transported, assuming 100 percent utilization, by the Project could potentially increase emissions by over 711,000 metric tpy of CO<sub>2</sub>e. For the initial load scenario, the Project could potentially increase emissions by over 16,000 metric tpy of CO<sub>2</sub>e. For the average load scenario, the Project could potentially increase emissions by over 307,000 metric tpy of CO<sub>2</sub>e.

Above, we discuss the Project's potential downstream emissions. Related to comments on upstream emissions impacts, the specific sources of natural gas to be transported by the Project are unknown and would likely change throughout the Project's operational lifetime. It is also unknown whether transported gas would come from new or existing production. Therefore, we conclude the environmental impacts of upstream natural gas production, including hydraulic fracturing activities, would not be caused by the Project or be a reasonably foreseeable consequence of the Project. The Commission will continue to determine, on a case-by-case basis, whether GHG emissions from upstream production activities are a reasonably foreseeable and causally connected result of a proposed project.

The EPA's scoping comments state that the draft EIS should use the social cost of GHGs (also referred to as the "social cost of carbon" [SCC]) to assess climate impacts generated by each additional ton of GHGs emitted or saved by the Project. The SCC estimates the monetized climate change damage associated with an incremental increase in CO<sub>2</sub> emissions in a given year. We recognize that the SCC methodology constitutes a tool that can be used to estimate incremental physical climate change impacts, either on the national or global scale. The integrated assessment models underlying the SCC tool were developed to estimate certain global and regional physical climate change impacts due to incremental GHG emissions under specific socioeconomic scenarios. However, the Commission has previously indicated that it is not appropriate for use in our Project-specific analyses for the following reasons: (1) the incorporation of the SCC tool into our review under NEPA cannot meaningfully inform the Commission's decision whether and how to authorize a proposed project under the NGA; (2) the Commission does not use monetized cost-benefit analyses as part of the review under NEPA or the decision under the NGA; and (3) the SCC tool has methodological limitations (e.g., different discount rates introduce substantial variation in results and no basis exists to designate a particular monetized value as significant) that limit the tool's usefulness in our review under NEPA and the Commission's decision under the NGA (FERC, 2018). As such, we do not use the SCC tool in this NEPA analysis.

Based on our analysis in this EIS, we are unable to assess the Project's contribution to climate change through any objective analysis of physical impacts attributable to the Project. Additionally, we are unaware of an established threshold for determining the Project's significance when compared to established GHG reduction targets at the state or federal level. As such, we are unable to determine significance regarding the Project's impacts on climate change. However, we acknowledge the Project would increase the atmospheric concentration of GHGs, in combination with past and future emissions from all other sources and would contribute to climate change.

#### **4.13.3 Noise**

Impacts on the noise environment can result from construction and operation of a natural gas pipeline. The EPA has determined that a day-night sound level of 55 A-weighted decibels (dBA) protects the public from indoor and outdoor activity interference. We have adopted this

criterion and used it to evaluate the potential noise impacts from the Project at NSAs within specified distances of the noise source. NSAs include, but are not limited to, residences, schools, hospitals, campgrounds, parks, and other areas valued for their solitude and tranquility. In general, a person's threshold for perceiving a change in loudness on the A-weighted sound scale is 3 dBA, whereas a 5 dBA change is clearly noticeable, and a 10 dBA change is perceived as either twice or half as loud.

We have adopted distance criteria for determining when analysis of potential noise effects at NSAs should be conducted for construction and for operation of several types of natural gas and liquefied natural gas facilities. For this Project, NSAs within 0.5 mile of an HDD entry or exit location are evaluated for noise impacts during construction. We also have NSA evaluation distance criteria for compressor stations and liquefied natural gas facilities, but neither of these are components of the Project.

A review of applicable state noise regulations identified Minnesota Rules Chapter 7030, which provides the Minnesota standards for noise. No applicable state noise regulations were identified for Wisconsin. These standards describe the limiting levels of sound established on the basis of present knowledge for the preservation of health and welfare. These standards are designed to be consistent with sleep, speech, annoyance, and hearing conservation requirements for receivers within areas grouped according to land use activities. No applicable local noise regulations were found for Freeborn, Washington, Scott, Sherburne, or Stearns Counties in Minnesota. No applicable local noise regulations were found for Monroe County, Wisconsin.

#### *Construction Noise*

Noise would be generated during construction of the pipeline and aboveground facilities for the Project. Noise levels would be highest in the immediate vicinity of construction activities and would diminish with distance from the work areas. These impacts would be localized and temporary. The changing number and type of construction equipment at construction sites would result in varying levels of noise. Construction activities associated with the Project would be performed with standard heavy equipment such as track-excavators, backhoes, cranes, bulldozers, dump trucks, and boring equipment. Noise would also be generated by trucks and other light vehicles traveling in and near areas under construction. Construction would generally not affect nighttime noise levels as most activity would be limited to 7 a.m. to 7 p.m., Monday through Saturday, except for HDD activities, and specific, limited construction activities such as tie-ins and hydrostatic testing.

Surface topography, vegetation cover, wind, and weather conditions also affect the distance that construction-related noise extends from a work area. Tall, dense vegetation and rolling topography typically attenuates noise when compared to less vegetated, open land. For the Project, the most prevalent sound source during construction would typically be the internal combustion engines used to power the construction equipment. In order to mitigate construction noise, the following work practices and measures would be implemented by the companies during construction:

Northern would inform nearby residents of the Project and the upcoming construction activities and respond to and investigate concerns.

- Northern's contractors would position equipment so noise propagates away from the nearest NSAs and position non-noise generating equipment between the drilling operation and the nearby NSAs, where possible, to provide shielding.

- Northern would restrict onsite vehicle idle time while in the construction area for all equipment and vehicles that are not using their engines to operate a loading, unloading, or processing device (e.g., concrete mixing trucks) or are otherwise required for the proper operation of the engine.
- Contractors would be required to use sound control devices no less effective than those provided by the manufacturer and to maintain equipment in accordance with manufacturer's recommendations. No equipment would have un-muffled exhausts.
- When possible, Northern would use construction equipment specifically designed for low noise emissions (e.g., generators with noise enclosures).
- Northern would prepare the layout of the construction activities with the goal of reducing noise from back-up alarms (alarms that signal vehicle travel in reverse).

Construction of the aboveground facilities would consist of earth work (e.g., site grading, clearing, grubbing, trenching operations) and construction of the site foundations and equipment. Construction of the pipeline loops would be performed with standard heavy-duty construction equipment, such as trucks, backhoes, excavators, loaders, and cranes. Noise from pipeline construction would be limited to short durations over a period of 6 to 18 weeks at any one location. Blasting is not anticipated on this Project.

#### *HDDs*

Northern proposes to use the HDD method at 10 locations on the Project. HDD activities would generate continuous noise at entry and exit points and could last several days to several weeks depending on the length of the drills and the hardness of the substrate.

Typical noise-generating equipment used at the HDD entry sites would include:

- drill rig, mud pump engines, mud cleaner, shaker, bentonite mixer, and excavator;
- engine-driven mud pump(s) and engine-driven generator set(s);
- drilling fluid cleaning system including cleaner, shaker and bentonite mixer;
- mobile equipment including backhoe, front loader and/or side boom, forklift, trucks, welding machines;
- frac tanks; and
- engine-driven lights.

Noise associated with the HDD exit sites could result from use of the following equipment:

- engine-driven mud pump(s) and engine-driven generator set(s);
- drilling fluid cleaning system including cleaner, shaker and bentonite mixer;
- mobile equipment including backhoe, front loader and/or side boom, forklift, trucks, welding machines;
- frac tanks; and
- engine-driven lights.

Northern completed an acoustical assessment of cumulative noise impacts from the proposed HDD crossings on nearby NSAs summarized in Table 4.13-3. Table 4.13-4 lists the ambient and estimated unmitigated noise levels anticipated at NSAs based on trenchless crossing activities.

<b>Table 4.13-3 Summary of HDD Crossings</b>			
<b>Pipeline Facility</b>	<b>Crossing Number/ Ref. Drawing</b>	<b>Duration of HDD</b>	<b>Mitigation Measures for HDD, if 24-hour operation is required<sup>a</sup></b>
Elk River 3rd Branch Line	ERT P4-2 <sup>1</sup>	16 days	A,D,F
	ERT P4-3 <sup>1</sup>	20 days	A,D,F
Willmar D Branch Line	WIL P4-2 <sup>1</sup>	13 days	A,D,F
	WIL P4-3 <sup>1</sup>	23 days	A,D,F
Princeton Tie-Over Loop	PRB P4-1	8 days	A,D,F
	PRB P4-2 <sup>1</sup>	14 days	A,D,F
	PRB P4-5	12 days	A,D,F
	PRB P4-6	9 days	A,D,F
	PRB P4-7 <sup>1</sup>	12 days	A,D,F
Tomah Branch Line Loop	TBL P4-1	8 days	
<sup>a</sup> Noise Mitigation Measures: <ul style="list-style-type: none"> <li>A. Institute work practices such as reduced idling, fitting equipment with residential mufflers</li> <li>B. Utilize a small and more modern HDD rig than was utilized for the noise model</li> <li>C. Install sound barrier walls between entry pit and NSA</li> <li>D. Install sound barrier walls between entry and exit pits and NSAs</li> <li>E. Install sound enclosures around critical equipment such as the drill rig, mud pump engine, shaker</li> <li>F. Offer temporary relocation to residents</li> </ul> <sup>1</sup> HDD operations may extend past 7 p.m. during drilling, reaming and pullback and other time-sensitive activities <sup>2</sup> Noise barrier walls will have a minimum height of 20 feet			

Table 4.13-4 Background Ambient Sound Pressure Levels for the Monitoring Locations									
Facility <sup>1</sup>	Measurement Location	NSA(s) Represented	Measured (L <sub>Aeq</sub> )		Modelled (L <sub>Aeq</sub> )		Minimum Value (L <sub>Aeq</sub> )		L <sub>dn</sub> (dBA)
			Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)	Day (dBA)	Night (dBA)	
Elk River 3 <sup>rd</sup> Branch Line	ML-14	NSA001-035	24	16	49	49	24	16	25
	ML-15	-	30	23	49	43	30	23	31
	ML-16	-	38	30	56	43	38	30	39
Willmar D Branch Line	ML-41	NSA001-045, NSA047,NSA048	32	25	46	39	32	25	33
	ML-42	-	32	25	52	44	32	25	34
	ML-43	NSA046, NSA049	52	45	65	44	52	44	53
Princeton Tie-Over Loop	ML-17	NSA196-206	34	26	40	34	34	26	35
	ML-18	NSA191-195	34	27	- <sup>1</sup>	- <sup>1</sup>	34	27	35
	ML-19	NSA147-190	33	26	57	35	33	26	35
	ML-20	NSA111-146	36	28	- <sup>1</sup>	- <sup>1</sup>	36	28	37
	ML-21	NSA101-111	34	27	52	34	34	27	36
	ML-22	NSA019-100	34	27	45	31	34	27	35
	ML-23	NSA001-018	33	26	72	50	33	26	35
Paynesville 2 <sup>nd</sup> Branch Line	ML-1	NSA01-03	37	29	57	46	37	29	38
	ML-2	-	24	16	56	45	24	16	25
Tomah Branch Line Loop	ML-29	NSA011	62	54	70	57	62	54	63

<sup>1</sup> Measurement locations were inaccessible during site visits

As shown in Table 4.13-3, mitigation is required at nine HDDs to meet the 55 dBA L<sub>dn</sub> at nearby NSAs, if nighttime operations are required. Northern anticipates that six of these HDDs may extend beyond 7 p.m. Northern would commit to reduce noise impacts on the NSAs to below 55 dBA L<sub>dn</sub>. Noise mitigation measures employed at the entry and exit sites would provide noise reduction equal to or greater than installation of a temporary sound barrier (minimum 20 feet high) that will encompass the main noise generating equipment entry and exit pits as required. For those HDDs that have a potential to extend into night-time hours, Northern has indicated it would commence pullback activities by 9 a.m. reduce the potential for work to extend past 7 p.m.

Northern has completed an HDD Plan, which includes site-specific HDD drawings showing locations of the proposed noise barrier walls. We have reviewed these plans and find them acceptable.

Northern would perform noise monitoring during HDD activities and employ additional noise mitigation measures as necessary.

Noise mitigation measures, may include:

- Institute work practices such as reduced idling, fitting equipment with residential mufflers

- Utilize a small and more modern HDD rig than was utilized for the noise model
- Install sound barrier walls between entry pit and NSA
- Install sound barrier walls between entry and exit pits and NSAs
- Install sound enclosures around critical equipment such as the drill rig, mud pump engine, shaker
- Offer temporary relocation to residents

Construction noise for the Project would be short-term and temporary. Based on Northern's proposed mitigation measures, we conclude that construction noise resulting from the Project would not be significant.

#### *Operational Noise*

Operation of the Project pipelines would not produce continuous noise since no continuous noise sources would be located along the pipeline's rights-of-way. Routine blowdowns of the pipelines are not expected for the life of the pipeline. Operation of the aboveground facilities may produce minor noise levels due to pipeline inspections every seven years when the pig launcher is in use.

Because of the lack of significant operational noise-producing sources from the Project and infrequent (once every seven years) pipeline inspection activities, we conclude that existing ambient noise levels would not be affected in the local environment during operation of the Project.

## **4.14 RELIABILITY AND SAFETY**

The transportation of natural gas by pipeline involves some incremental risk to the public due to the potential for accidental release of natural gas. The greatest hazard is a fire or explosion following a major pipeline rupture.

Methane, the primary component of natural gas, is colorless, odorless, and tasteless. Methane is non-toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death. Methane has an autoignition temperature of 1,000 degrees Fahrenheit and is flammable at concentrations between 5.0 percent and 15.0 percent in air. An unconfined mixture of methane and air is not explosive; however, it may ignite and burn if there is an ignition source. A flammable concentration within an enclosed space in the presence of an ignition source can explode. Methane is buoyant at atmospheric temperatures and disperses rapidly in air.

### **4.14.1 DOT Safety Standards**

The DOT's PHMSA is mandated to provide pipeline safety under 49 USC Chapter 601. PHMSA administers the national regulatory program to ensure the safe transportation of natural gas and other hazardous materials by pipeline. PHMSA develops safety regulations and other approaches to risk management that ensure safety in the design, construction, testing, operation, maintenance, and emergency response of pipeline facilities. Many of the regulations are written as performance standards that set the level of safety to be attained and allow the pipeline operator to use various technologies to achieve safety. PHMSA ensures that people and the environment

are protected from the risk of pipeline incidents. This work is shared with state agency partners and others at the federal, state, and local level.

Title 49 USC Chapter 601 provides for a state agency to assume all aspects of the safety program for intrastate facilities by adopting and enforcing the federal standards. A state may also act as the DOT's agent to inspect interstate facilities within its boundaries; however, the DOT is responsible for enforcement actions. The Minnesota Office of Pipeline Safety Department of Public Safety and the Public Service Commission of Wisconsin are authorized by PHMSA under section 5(a) of the NGA to assume all aspects of the safety program for intrastate, but not interstate, facilities. Interstate pipelines in these states are regulated by PHMSA.

The DOT pipeline standards are published in 49 CFR 190 to 199. Part 192 specifically addresses natural gas pipeline safety issues. Under a Memorandum of Understanding on Natural Gas Transportation Facilities between the DOT and FERC dated January 15, 1993 (Memorandum), PHMSA has the exclusive authority to promulgate federal safety standards used in the transportation of natural gas. Section 157.14(a)(9)(vi) of FERC's regulations require that an applicant certify that it would design, install, inspect, test, construct, operate, replace, and maintain the facility for which a Certificate is requested in accordance with federal safety standards and plans for maintenance and inspection. Alternatively, an applicant must certify that it has been granted a waiver of the requirements of the safety standards by PHMSA in accordance with section 3(e) of the Natural Gas Pipeline Safety Act. FERC accepts this certification and does not impose additional safety standards.

If the Commission becomes aware of an existing or potential safety problem, there is a provision in the Memorandum to promptly alert PHMSA. The Memorandum also provides for referring complaints and inquiries made by state and local governments and the general public involving safety matters related to pipelines under the Commission's jurisdiction. FERC also participates as a member of PHMSA's Technical Pipeline Safety Standards Committee, which determines whether proposed safety regulations are reasonable, feasible, and practicable.

#### **4.14.2 Project Design Requirements**

The pipelines and aboveground facilities associated with the Project must be designed, constructed, operated, and maintained in accordance with the PHMSA Minimum Federal Safety Standards in 49 CFR 192. The regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures. PHMSA specifies material selection and qualification, minimum design requirements, and protection from internal, external, and atmospheric corrosion.

#### **4.14.3 Pipeline Safety**

The PHMSA also defines area classifications, based on population density in the vicinity of a pipeline, and specifies more rigorous safety requirements for populated areas. The class location unit is an area that extends 220 yards on either side of the centerline of any continuous 1-mile length of pipeline. The four area classifications are defined below:

- Class 1**      Location with 10 or fewer buildings intended for human occupancy.
- Class 2**      Location with more than 10 but fewer than 46 buildings intended for human occupancy.

- Class 3** Location with 46 or more buildings intended for human occupancy or where the pipeline lies within 100 yards of any building, or small well-defined outside area occupied by 20 or more people on at least 5 days a week for 10 weeks in any 12- month period.
- Class 4** Location where buildings with four or more stories aboveground are prevalent.

Class locations representing more populated areas require higher safety factors in pipeline design, testing, and operation. For instance, pipelines constructed on land in Class 1 locations must be installed with a minimum depth of cover of 30 inches in normal soil and 18 inches in consolidated rock. Class 2, 3, and 4 locations, as well as drainage ditches of public roads and railroad crossings, require a minimum cover of 36 inches in normal soil and 24 inches in consolidated rock.

Class locations also specify the maximum distance to a sectionalizing block valve (e.g., 10.0 miles in Class 1; 7.5 miles in Class 2; 4.0 miles in Class 3; and 2.5 miles in Class 4). Pipe wall thickness and pipeline design pressures, hydrostatic test pressures, MAOP, inspection and testing of welds, and frequency of pipeline patrols and leak surveys must also conform to higher standards in more populated areas.

The Project would be constructed through Class 1 and 2 areas as summarized in Table 4.14-1. Northern would design sections of its pipelines with a design factor to allow for at least one future class location change. Through the life of the pipelines and aboveground facilities, changes in population density near the proposed facilities would be monitored to document that the new facilities meet the appropriate design criteria and safety standards where class locations change in accordance with 49 CFR 192, Subpart L, sections 192.609 and 192.611. When changes in population density occur in an area, Northern would modify the pipeline to comply with DOT requirements by replacing sections of pipe, reducing the operating pressure in the line, or taking other similar safety measures.

<b>Table 4.14-1 Class Locations of Pipeline Facilities</b>			
<b>Beginning MP</b>	<b>Ending MP</b>	<b>Existing Class for Proposed Facilities</b>	<b>Design Class for Proposed Facilities</b>
<b>Ventura North E-Line</b>			
28.42	31.21	Class 1	Class 2 for Open Cut Class 3 for Trenchless
<b>Elk River 3<sup>rd</sup> Branch Line</b>			
0.00	0.11	Class 1	Class 2 for Open Cut Class 3 for Trenchless
0.11	0.65	Class 2	Class 2 for Open Cut Class 3 for Trenchless
0.65	0.82	Class 1	Class 2 for Open Cut Class 3 for Trenchless
0.82	1.07	Class 2	Class 2 for Open Cut Class 3 for Trenchless
<b>Willmar D Branch Line</b>			
2.20	2.87	Class 2	Class 3
2.87	3.34	Class 1	Class 3
<b>Princeton Tie-Over Loop</b>			
8.78	8.95	Class 2	Class 3
8.95	9.28	Class 1	Class 3
9.28	9.89	Class 2	Class 3
9.89	9.40	Class 1	Class 3
9.40	11.17	Class 2	Class 3
11.17	11.26	Class 1	Class 3
<b>Paynesville 2<sup>nd</sup> Branch Line</b>			
0.00	2.01	Class 1	Class 3
<b>Tomah Branch Line Loop</b>			
1.92	2.12	Class 1	Class 3
2.12	2.26	Class 2	Class 3

The DOT’s pipeline safety regulations require operators to develop and follow a written integrity management program that (1) contains all the elements described in 49 CFR 192.911 and (2) addresses the risks on each transmission pipeline component. The integrity management program applies to all high consequence areas (HCA).

The DOT has published rules that define HCAs as places where a gas pipeline accident could do considerable harm to people and their property and requires an integrity management program to minimize the potential for an accident. This definition satisfies, in part, the Congressional mandate for the DOT to prescribe standards that establish criteria for identifying each gas pipeline facility in a high-density population area. The HCAs may be defined in one of two ways. In the first method, an HCA includes:

- current Class 3 and 4 locations under 49 CFR 192.5; or
- any area in Class 1 or 2 where the potential impact radius<sup>3</sup> is greater than 660 feet, and there are 20 or more buildings intended for human occupancy within the potential impact circle<sup>4</sup>; or
- any area in Class 1 or 2 where the potential impact circle includes an identified site.<sup>5</sup>

In the second method, an HCA includes any area within a potential impact circle containing:

- 20 or more buildings intended for human occupancy; or
- an identified site.

Once a pipeline operator has determined the HCAs along its pipelines, it must apply the elements of its integrity management program to those segments of the pipelines within HCAs. The DOT regulations specify the requirements for the integrity management plan at 49 CFR 192.911. Northern has determined the Project, as designed, would not affect any HCAs, alleviating the need for further consideration relative to 49 CFR 192.761(f).

#### **4.14.4 Emergencies**

On October 1, 2019, the PHMSA issued new regulations modifying and expanding the standard pipeline safety standards under 49 CFR Parts 191 and 192. These regulations, in part, established: new standards for in-line inspections; requirements for newly established moderate consequence areas (MCA); explicitly requires consideration of seismicity and geotechnical risks in its integrity management plan for the pipeline; new regulations on pipeline patrol frequency for HCAs, MCAs, and grandfathered pipelines; a policy to reconfirm MAOP for certain pipelines; installation of pressure relief for pig launcher/receivers; and report exceedances of MAOP to PHMSA. These regulations went into effect on July 1, 2020.

Under 49 CFR 192.615, each pipeline operator must establish an emergency plan that includes procedures to minimize the hazards in a natural gas pipeline emergency. Northern would implement existing an Emergency Response Plan that would be used for its system. Key elements of the plan include procedures for the following:

- receiving, identifying, and classifying emergency events, gas leakage, fires, explosions, and natural disasters;
- establishing and maintaining communications with local fire, police, and public officials, and coordinating emergency response;
- implementing emergency system shutdown and safe restoration of service;

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<sup>3</sup> The potential impact radius is calculated as the product of 0.69 and the square root of: the MAOP of the pipeline in psig multiplied by the square of the pipeline diameter in inches.

<sup>4</sup> The potential impact circle is a circle of radius equal to the potential impact radius.

<sup>5</sup> An identified site is an outside area or open structure that is occupied by 20 or more persons on at least 50 days in any 12-month period; a building that is occupied by 20 or more persons on at least 5 days a week for any 10 weeks in any 12-month period; or a facility that is occupied by persons who are confined, are of impaired mobility, or would be difficult to evacuate.

- making personnel, equipment, tools, and materials available at the scene of an emergency; and
- protecting people first and then property and making them safe from actual or potential hazards.

The DOT requires that each operator establish and maintain liaison with appropriate fire, police, and public officials to learn the resources and responsibilities of each organization that may respond to a natural gas pipeline emergency and to coordinate mutual assistance. Operators must also establish a continuing education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas pipeline emergency, and report it to appropriate public officials. Northern would provide the appropriate training to local emergency service personnel before the Project is placed in-service.

Northern would establish site-specific emergency procedures for the Project that would ensure, but are not limited to, the prompt and effective response to facility emergencies, annual training for appropriate operating personnel to effectively respond to an emergency, and establishing and maintaining communication with local fire, police, and other public officials. Northern would implement its existing Public Awareness and Damage Prevention Program and provide access to its 24-hour emergency response capabilities including an emergency-only phone number.

#### **4.14.5 Pipeline Accident Data**

The DOT requires all operators of natural gas transmission pipelines to notify the National Response Center at the earliest practicable moment following the discovery of an incident and to submit a report within 30 days to PHMSA. Significant incidents are defined as any leaks that:

- caused a death or personal injury requiring hospitalization; or
- involve property damage of more than \$50,000 in 1984 dollars<sup>6</sup>.

During the 20-year period from 2001 through 2020, a total of 1,421 significant incidents were reported on the more than 300,000 total miles of natural gas transmission pipelines nationwide (PHMSA, 2021). Additional insight into the nature of service incidents may be found by examining the primary factors that caused the failures. Table 4.14-2 provides a distribution of the causal factors as well as the number of each incident by cause.

The dominant causes of pipeline incidents are pipeline material, weld, or equipment failure and corrosion, which constitute approximately 55.4 percent of all significant incidents. The pipelines included in the data set in table 4.14-2 vary widely in terms of age, diameter, and level of corrosion control. Each variable influences the incident frequency that may be expected for a specific segment of pipeline.

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<sup>6</sup> \$50,000 in April 1984 dollars is approximately \$134,795 as of November 2021 (U.S. Bureau of Labor Statistics, 2021).

**Table 4.14-2  
Natural Gas Transmission Pipeline Significant Incidents by Cause (2001-2020)**

Cause	Number of Incidents <u>a/</u>	Percentage of All Incidents
Pipeline material, weld, or equipment failure	466	32.8
Corrosion	321	22.6
Excavation	185	13.0
Natural force damage	160	11.3
All other causes <u>b/</u>	119	8.4
Outside force <u>c/</u>	103	7.2
Incorrect operation	67	4.7
<b>Total</b>	<b>1,421</b>	<b>100</b>

a All data acquired from the PHMSA Significant Incident files, June 2021.

b Miscellaneous causes or other unknown causes.

c Fire, explosion, vehicle damage, previous damage, intentional damage.

Source: U.S. Department of Transportation, 2021.

<https://www.phmsa.dot.gov/data-and-statistics/pipeline/pipeline-incident-20-year-trends>.

The frequency of significant incidents is strongly dependent on pipeline age. Older pipelines have a higher frequency of corrosion incidents and material failure, since corrosion and pipeline stress and strain are time-dependent processes. The use of both an external protective coating and a cathodic protection system<sup>7</sup>, required on all pipelines installed after July 1971, significantly reduces the corrosion rate compared to unprotected or partially protected pipe.

Excavation, natural forces and miscellaneous other causes are the next three most significant causes of pipeline incidents, totaling 32.7 percent of significant pipeline incidents. These result from earth movements due to soil settlement, washouts, or geologic hazards; weather effects such as winds, storms, and thermal strains; and miscellaneous or other unknown causes. Older pipelines have a higher frequency of outside force incidents, in part because their location may be less well known and less well marked as compared to newer pipelines. In addition, older pipelines contain a disproportionate number of smaller-diameter pipelines; which have a greater rate of outside forces incidents. Small-diameter pipelines are more easily crushed or broken by mechanical equipment or earth movement.

Since 1982, operators have been required to participate in One Call public utility programs in populated areas to minimize unauthorized excavation activities in the vicinity of pipelines. The One Call program is a service used by public utilities and some private sector companies (e.g., oil pipelines and cable television) to provide preconstruction information to contractors or other maintenance workers on the underground location of pipes, cables, and culverts. Northern would use Minnesota and Wisconsin's state One-Call systems for utility line locations prior to excavation.

<sup>7</sup> Cathodic protection is a technique to reduce corrosion (rust) of the natural gas pipeline through the use of an induced current or sacrificial anode (like zinc) that corrodes at a faster rate to reduce corrosion.

#### 4.14.6 Impact on Public Safety

Northern would follow all applicable PHMSA pipeline safety standards as well as regular monitoring and testing of the pipeline. While pipeline failures are rare, the potential for pipeline systems to rupture and the risk to nearby residents is discussed below.

The nationwide totals of accidental fatalities from various anthropogenic and natural hazards are listed in table 4.14-3 in order to provide a relative measure of the industry-wide safety of natural gas transmission pipelines. Direct comparisons between accident categories should be made cautiously, however, because individual exposures to hazards are not uniform among all categories. The data nonetheless indicate a low risk of death due to incidents involving natural gas transmission pipelines compared to the other categories. Furthermore, the fatality rate is much lower than the fatalities from natural hazards such as lightning, tornados, or floods.

The available data show that natural gas transmission pipelines continue to be a safe, reliable means of energy transportation.

The Project would represent a minimum increase in risk to the nearby public and we are confident that with adherence to the DOT Minimum Federal Safety Standards in 49 CFR Part 192 as well as regular monitoring and testing of the pipeline and aboveground facilities, the Project would be constructed and operated safely.

<b>Type of Accident <sup>a</sup></b>	<b>Fatalities</b>
Poisoning	62,399
Motor vehicle	39,404
Falls	37,455
Pedestrian-vehicle crash <sup>b</sup>	6,205
Drowning	3,710
Fire, smoke inhalation, burns	2,972
Floods <sup>c</sup>	88
Tornado <sup>c</sup>	68
Hurricane <sup>c</sup>	45
Lightning <sup>c</sup>	41
Natural gas distribution lines <sup>d</sup>	9
Natural gas transmission pipelines <sup>d</sup>	2

<sup>a</sup> All data, unless otherwise noted, reflects 2018 statistics from: Murphy et al., 2021. <https://www.cdc.gov/nchs/data/nvsr/nvsr69/nvsr69-13-508.pdf>.

<sup>b</sup> National Highway Traffic Safety Administration 2019 data, Accessed June 9, 2021 <https://cdan.nhtsa.gov/tsftables/National%20Statistics.pdf>.

<sup>c</sup> Accident data presented for floods, tornados, lightning, and hurricanes represent the 30-year average of accidental deaths between 1990 and 2019 (National Oceanic and Atmospheric Administration, 2021).

<sup>d</sup> Accident data presented for natural gas distribution lines and transmission pipelines represent the 20-year average between 2001 and 2020 (U.S. Department of Transportation, 2021. Pipeline and Hazardous Materials Safety Administration, Pipeline Incident 20 Year Trends; Available at: <https://www.phmsa.dot.gov/data-and-statistics/pipeline/pipeline-incident-20-year-trends>. Accessed 6/9/2021.)

## 5.0 SUMMARY OF THE ENVIRONMENTAL ANALYSIS

The conclusions and recommendations presented in this section are those of the FERC environmental staff. Our conclusions and recommendations were developed with input from the MDNR and MPCA as cooperating agencies. A cooperating agency may adopt this EIS per 40 CFR 1506.3 if, after an independent review of the document, it concludes that its permitting requirements and/or regulatory responsibilities have been satisfied. However, the MDNR and MPCA will issue subsequent decisions, determinations, or authorizations for the Project in accordance with its individual agency regulatory requirements.

We conclude that construction and operation of the Project would result in limited adverse environmental impacts. Most adverse environmental impacts would be temporary or short-term during construction and have minimal effects on existing land use as new Project facilities would be added within an area characterized by agricultural and open land. This determination is based on a review of the information provided by Northern and further developed from data requests; scoping; literature research; alternatives analysis; and contacts with federal, state, and local agencies as well as individual members of the public.

Overall, Commission staff concludes that approval of the Project would not result in significant environmental impacts, with the exception of climate change impacts resulting from GHG emissions. We also conclude that no system, route, or other alternative would provide a significant environmental advantage over the Project as proposed. Therefore, we conclude that the proposed Project, with our recommended mitigation measures, is the preferred alternative to meet the Project objectives.

### 5.1 FERC STAFF'S RECOMMENDED MITIGATION

If the Commission authorizes the Project, we recommend that the following measures be included as specific conditions in the Commission's Order. We conclude these measures would further mitigate the environmental impact associated with the construction and operation of the Project.

1. Northern shall follow the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests) and as identified in the EIS, unless modified by the Order. Northern must:
  - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary of the Commission (Secretary);
  - b. justify each modification relative to site-specific conditions;
  - c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
  - d. receive approval in writing from the Director of the Office of Energy Projects (OEP), or the Director's designee, **before using that modification.**
2. The Director of OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the Order, and take whatever steps are necessary to ensure the protection of environmental resources during construction and operation of the Project. This authority shall allow:

- a. the modification of conditions of the Order;
  - b. stop-work authority; and
  - c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from Project construction and operation.
3. **Prior to any construction**, Northern shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, EIs, and contractor personnel will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.
  4. The authorized facility locations shall be as shown in the EIS, as supplemented by filed alignment sheets. **As soon as they are available, and before the start of construction**, Northern shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

Northern's exercise of eminent domain authority granted under the NGA section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. Northern's right of eminent domain granted under NGA section 7(h) does not authorize it to increase the size of its natural gas pipeline facilities to accommodate future needs or to acquire right-of-way for a pipeline to transport a commodity other than natural gas.

5. Northern shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval of each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP, or the Director's designee, **before construction in or near that area**.

This requirement does not apply to extra workspace allowed by the Commission's *Upland Erosion Control, Revegetation, and Maintenance Plan* and/or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

- a. implementation of cultural resources mitigation measures;
  - b. implementation of endangered, threatened, or special concern species mitigation measures;
  - c. recommendations by state regulatory authorities; and
  - d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.
6. **Within 60 days of the acceptance of the Certificate and before construction begins,** Northern shall file an Implementation Plan with the Secretary for review and written approval by the Director of OEP, or the Director's designee. Northern must file revisions to the plan as schedules change. The plan shall identify:
- a. how Northern will implement the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests) identified in the EIS, and required by the Order;
  - b. how Northern will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to on-site construction and inspection personnel;
  - c. the number of EIs assigned, and how Northern will ensure that sufficient personnel are available to implement the environmental mitigation;
  - d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;
  - e. the location and dates of the environmental compliance training and instructions Northern will give to all personnel involved with construction and restoration (initial and refresher training as the Project progresses and personnel change);
  - f. the company personnel (if known) and specific portion of Northern's organization having responsibility for compliance;
  - g. the procedures (including use of contract penalties) Northern will follow if noncompliance occurs; and
  - h. for each discrete facility, a Gantt or PERT chart (or similar Project scheduling diagram), and dates for:
    - (1) the completion of all required surveys and reports;
    - (2) the environmental compliance training of on-site personnel;
    - (3) the start of construction; and
    - (4) the start and completion of restoration.
7. Northern shall employ at least one EI for each pipeline spread. The EI shall be:
- a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;

- b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 6 above) and any other authorizing document;
  - c. empowered to order correction of acts that violate the environmental conditions of the Order, and any other authorizing document;
  - d. a full-time position, separate from all other activity inspectors;
  - e. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
  - f. responsible for maintaining status reports.
8. Beginning with the filing of its Implementation Plan, Northern shall file updated status reports for the Project with the Secretary on a **biweekly** basis until all construction and restoration activities are complete. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:
- a. an update on Northern's efforts to obtain the necessary federal authorizations;
  - b. the construction status of the Project, work planned for the following reporting period and any scheduled changes for stream crossings or work in other environmentally sensitive areas;
  - c. a listing of all problems encountered and each instance of noncompliance observed by the EI during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
  - d. a description of the corrective actions implemented in response to all instances of noncompliance;
  - e. the effectiveness of all corrective actions implemented;
  - f. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and
  - g. copies of any correspondence received by Northern from other federal, state, or local permitting agencies concerning instances of noncompliance, and Northern's response.
9. Northern shall develop and implement an environmental complaint resolution procedure, and file such procedure with the Secretary, for review and approval by the Director of OEP, or the Director's designee. The procedure shall provide landowners with clear and simple directions for identifying and resolving their environmental mitigation problems/concerns during construction of the Project and restoration of the right-of-way. **Prior to construction**, Northern shall mail the complaint procedures to each landowner whose property will be crossed by the Project.

- a. In its letter to affected landowners, Northern shall:
    - i. provide a local contact that the landowners should call first with their concerns; the letter should indicate how soon a landowner should expect a response;
    - ii. instruct the landowners that if they are not satisfied with the response, they should call Northern's Hotline; the letter should indicate how soon to expect a response; and
    - iii. instruct the landowners that if they are still not satisfied with the response from Northern's Hotline, they should contact the Commission's Landowner Helpline at 877-337-2237 or at [LandownerHelp@ferc.gov](mailto:LandownerHelp@ferc.gov).
  - b. In addition, Northern shall include in its biweekly status report a copy of a table that contains the following information for each problem/concern:
    - i. the identity of the caller and date of the call;
    - ii. the location by milepost and identification number from the authorized alignment sheet(s) of the affected property;
    - iii. a description of the problem/concern; and
    - iv. an explanation of how and when the problem was resolved, will be resolved, or why it has not been resolved.
10. Northern must receive written authorization from the Director of OEP, or the Director's designee, **before commencing construction of any Project facilities**. To obtain such authorization, Northern must file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).
  11. Northern must receive written authorization from the Director of OEP, or the Director's designee, **before placing the Project into service**. Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way and other areas affected by the Project are proceeding satisfactorily.
  12. **Within 30 days of placing the authorized facilities in service**, Northern shall file an affirmative statement with the Secretary, certified by a senior company official:
    - a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
    - b. identifying which of the conditions in the Order Northern has complied with or will comply with. This statement shall also identify any areas affected by the Project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.
  13. Northern shall file the complete water quality certification issued categorically by the appropriate state agency, including all conditions, and all conditions attached to the water quality certification constitute mandatory conditions of this Certificate Order. **Prior to construction**, Northern shall file, for review and written approval by the Director of OEP, or the Director's designee, any revisions to its Project design necessary to comply with the water quality certification conditions.

14. Northern shall not begin construction activities until:
  - a. Northern files with the Secretary the USFWS concurrence regarding its Section 7 ESA review including comments on the RPBB floristic surveys and mitigation measures;
  - b. Northern files with the Secretary written comments from MDNR regarding Northern's Blanding's Turtle Avoidance and Mitigation Plan.

**Appendix A**  
**Land Requirements for the Northern Lights 2023 Expansion Project**

**Appendix A**  
**Land Requirements for the Northern Lights 2023 Expansion Project <sup>a</sup>**

Facility	Land Affected During Construction (acres)	Land Affected During Operation (acres)	
<b>Pipeline Facilities</b>			
<b>Ventura North E-Line Extension</b>			
Pipeline ROW (Temporary Work Space [TWS])	33.4	16.7	
Additional Temporary Work Space (ATWS)	17.5	0.0	
Temporary access roads	6.6	0.0	
Staging areas	29.4	0.0	
<b>Subtotal</b>	<b>87.0</b>	<b>16.7</b>	
<b>Elk River 3rd Branch Line Loop</b>			
Pipeline ROW (TWS)	8.8	4.7	
ATWS	8.1	0.0	
Temporary access roads	0.0	0.0	
Staging area	6.0	0.0	
<b>Subtotal</b>	<b>22.9</b>	<b>4.7</b>	
<b>Willmar D Branch Line Extension</b>			
Pipeline ROW (TWS)	7.2	3.5	
ATWS	5.7	0.0	
Temporary access roads	3.3	0.0	
Staging area	25.4	0.0	
<b>Subtotal</b>	<b>41.5</b>	<b>3.5</b>	
<b>Princeton Tie-Over Loop Extension</b>			
Pipeline ROW (TWS)	16.6	10.5	
ATWS	10.1	0.0	
Temporary access roads	2.5	0.0	
Staging areas	23.6	0.0	
<b>Subtotal</b>	<b>52.8</b>	<b>10.5</b>	
<b>Paynesville 2nd Branch Line Loop</b>			
Pipeline ROW (TWS)	18.0	12.0	
ATWS	4.3	0.0	
Temporary access roads	5.7	0.0	
Staging area	8.8	0.0	
<b>Subtotal</b>	<b>36.8</b>	<b>12.0</b>	
<b>Tomah Branch Line Loop Extension</b>			
Pipeline ROW (TWS)	2.9	1.9	
ATWS	2.9	0.0	
Temporary access roads	0.0	0.0	
Staging area	5.6	0.0	
<b>Subtotal</b>	<b>11.3</b>	<b>1.9</b>	
<b>Pipeline Total</b>			
	<b>252.4</b>	<b>49.3</b>	
<b>Pipeline Aboveground Facilities</b>			
Ventura North E-Line Extension	E-Line tie-over valve setting (existing)	<0.1	<0.1
	E-Line tie-over valve setting	0.1	0.1
Elk River 3rd Branch Line Loop	Hugo Compressor Station (existing)	1.6	1.6
	Elk River tie-over valve setting	0.1	0.1
Willmar D Branch Line Extension	Willmar tie-over valve setting (existing)	<0.1	<0.1
	Willmar tie-over valve setting	0.2	0.2
Princeton Tie-Over Loop Extension	Princeton tie-over valve setting (existing)	<0.1	<0.1
	Princeton tie-over launcher facility (existing with expanded driveway)	0.2	0.2
	Dooley's MN #2 TBS (existing)	0.3	0.3

**Appendix A**  
**Land Requirements for the Northern Lights 2023 Expansion Project <sup>a</sup>**

<b>Facility</b>		<b>Land Affected During Construction (acres)</b>	<b>Land Affected During Operation (acres)</b>
Paynesville 2nd Branch Line Loop	Roscoe Branch Line take off facility (existing with expanded driveway)	0.2	0.2
Tomah Branch Line Loop Extension	Tomah Branch Line Loop receiver (existing)	0.3	0.3
	Tomah tie-over valve setting	<0.1	<0.1
<b>Facility Subtotal</b>		<b>3.1</b>	<b>3.1</b>
<b>Project Total</b>		<b>255.4</b>	<b>52.4</b>

a The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

**Appendix B**

**Table B-1 Additional Temporary Workspace and Staging Areas for the Project**

<b>Table B-1</b>				
<b>Additional Temporary Workspace and Staging Areas for the Project</b>				
<b>ID</b>	<b>MP</b>	<b>Type</b>	<b>Existing Land Use</b>	<b>Total Area (acres)</b>
<b>Ventura North E-Line</b>				
ETWS00	28.41	ATWS	Agricultural, Industrial/Commercial	1.0
ETWS01	28.42	ATWS	Agricultural	0.3
ETWS02	28.42	ATWS	Agricultural	1.3
SA01	28.47	Staging Area	Agricultural	2.4
SA02	28.48	Staging Area	Agricultural	0.5
ETWS03	28.56	ATWS	Agricultural	0.2
ETWS04	28.56	ATWS	Agricultural	0.2
ETWS05	28.67	ATWS	Agricultural	0.2
ETWS06	28.67	ATWS	Agricultural	0.3
ETWS07	28.79	ATWS	Agricultural	0.2
ETWS08	28.79	ATWS	Agricultural	0.5
ETWS09	29.1	ATWS	Agricultural, Open Land	0.1
ETWS10	29.1	ATWS	Agricultural, Open Land	0.3
ETWS11	29.35	ATWS	Agricultural, Industrial/Commercial	0.6
ETWS12	29.42	ATWS	Agricultural, Industrial/Commercial	1.3
SA03	29.45	Staging Area	Agricultural, Industrial/Commercial	7.1
ETWS13	29.50	ATWS	Agricultural	2.7
ETWS14	29.52	ATWS	Agricultural	0.8
ETWS15	29.63	ATWS	Agricultural	1.0
ETWS16	29.79	ATWS	Agricultural	0.1
ETWS17	29.80	ATWS	Agricultural	0.4
ETWS18	29.90	ATWS	Agricultural	2.6
SA04	29.97	Staging Area	Agricultural	15.4
ETWS19	29.92	ATWS	Agricultural	0.1
ETWS20	30.39	ATWS	Agricultural	<0.1
ETWS21	30.38	ATWS	Agricultural	2.0
ETWS22	30.49	ATWS	Agricultural	0.1
ETWS23	30.56	ATWS	Agricultural	0.3
ETWS24	30.56	ATWS	Agricultural, Forested/Woodland	0.1
ETWS25	31.13	ATWS	Agricultural, Industrial/Commercial	0.3
ETWS26	31.13	ATWS	Agricultural	0.1
ETWS27	31.19	ATWS	Industrial/Commercial, Open Land	0.7
SA05	31.19	Staging Area	Industrial/Commercial, Open Land	4.1
<b>Subtotal Acreage for Ventura North E-Line</b>				<b>47.0</b>
<b>Elk River 3<sup>rd</sup> Branch Line</b>				
SA01	0.00	Staging Area	Open Land	6.0
ETWS01	0.00	ATWS	Open Land	0.9
ETWS02	0.12	ATWS	Forested/Woodland, Open Land	0.2
ETWS03	0.12	ATWS	Forested/Woodland, Open Land	0.6
ETWS04	0.30	ATWS	Open Land	0.2
ETWS05	0.50	ATWS	Industrial/Commercial, Open Land	0.3
ETWS06	0.50	ATWS	Industrial/Commercial, Open Land	1.1

<b>Table B-1</b>				
<b>Additional Temporary Workspace and Staging Areas for the Project</b>				
<b>ID</b>	<b>MP</b>	<b>Type</b>	<b>Existing Land Use</b>	<b>Total Area (acres)</b>
ETWS07	0.56	ATWS	Agricultural, Forested/Woodland, Open Land, Wetland	4.2
ETWS08	0.95	ATWS	Agricultural	0.3
ETWS09	1.03	ATWS	Agricultural, Forested/Woodland, Residential	0.3
<b>Subtotal Acreage for Elk River 3<sup>rd</sup> Branch Line</b>				<b>14.1</b>
<b>Willmar D Branch Line</b>				
ETWS01	2.20	ATWS	Forested/Woodland, Industrial/Commercial, Open Land	0.5
ETWS02	2.25	ATWS	Forested/Woodland, Industrial/Commercial, Open Land, Residential	0.3
ETWS03	2.33	ATWS	Forested/Woodland, Open Land	1.7
ETWS04	2.43	ATWS	Wetland	<0.1
ETWS05	2.44	ATWS	Forested/Woodland	0.1
ETWS06	2.45	ATWS	Forested/Woodland, Open Land	0.5
ETWS07	2.53	ATWS	Residential	0.1
ETWS08	2.96	ATWS	Agricultural	0.5
ETWS09	2.96	ATWS	Agricultural	1.4
SA01	3.11	Staging Area	Agricultural, Industrial/Commercial	25.4
ETWS10	3.31	ATWS	Agricultural, Industrial/Commercial	0.5
ETWS11	3.32	ATWS	Agricultural, Industrial/Commercial	0.1
<b>Subtotal Acreage for Willmar D Branch Line</b>				<b>31.0</b>
<b>Princeton Tie-Over Loop</b>				
SA01	8.78	Staging Area	Open Land	1.3
ETWS01	8.78	ATWS	Open Land	0.2
ETWS02	8.79	ATWS	Open Land, Residential	0.3
ETWS03	8.79	ATWS	Forested/Woodland, Open Land	1.6
SA02	9.05	Staging Area	Open Land	5.8
ETWS04	9.13	ATWS	Forested/Woodland, Open Land	0.2
ETWS05	9.44	ATWS	Forested/Woodland, Open Land	0.4
ETWS06	9.44	ATWS	Forested/Woodland, Open Land, Residential	0.7
ETWS07	9.56	ATWS	Open Land, Residential	1.1
ETWS08	9.56	ATWS	Open Land, Residential	0.4
ETWS09	9.68	ATWS	Residential	0.1
ETWS10	9.69	ATWS	Residential	<0.1
ETWS11	9.74	ATWS	Residential	0.2
SA03	9.81	Staging Area	Agricultural	6.2
SA04	9.81	Staging Area	Agricultural	6.1
ETWS12	9.89	ATWS	Agricultural	0.1
ETWS13	9.89	ATWS	Agricultural, Open Land	0.3
ETWS14	10.07	ATWS	Agricultural, Open Land	0.2
ETWS15	10.07	ATWS	Open Land	0.3
ETWS16	10.17	ATWS	Agricultural	0.7
ETWS17	10.18	ATWS	Agricultural	0.6
ETWS 18	10.34	ATWS	Open Land	0.1

<b>Table B-1</b>				
<b>Additional Temporary Workspace and Staging Areas for the Project</b>				
<b>ID</b>	<b>MP</b>	<b>Type</b>	<b>Existing Land Use</b>	<b>Total Area (acres)</b>
ETWS 19	10.34	ATWS	Open Land	0.3
ETWS20	10.48	ATWS	Open Land, Residential	0.1
ETWS21	10.48	ATWS	Open Land, Residential	0.6
ETWS22	10.52	ATWS	Open Land, Residential	0.2
ETWS23	10.71	ATWS	Open Land	0.1
ETWS24	10.71	ATWS	Forested/Woodland, Open Land	0.3
ETWS25	10.97	ATWS	Residential	0.5
ETWS26	10.97	ATWS	Open Land	0.1
SA05	11.21	Staging Area	Open Land	4.2
ETWS27	11.22	ATWS	Industrial/Commercial, Open Land	0.5
<b>Subtotal Acreage for Princeton Tie-Over Loop</b>				<b>33.7</b>
<b>Paynesville 2<sup>nd</sup> Branch Line</b>				
ETWS01	0.00	ATWS	Industrial/Commercial, Open Land	0.5
ETWS02	0.21	ATWS	Agricultural	0.1
ETWS03	0.21	ATWS	Agricultural	0.6
ETWS04	0.24	ATWS	Agricultural, Industrial/Commercial	0.4
ETWS05	0.24	ATWS	Agricultural, Industrial/Commercial	0.2
ETWS06	1.08	ATWS	Agricultural	0.5
ETWS07	1.08	ATWS	Agricultural	0.1
ETWS08	1.23	ATWS	Open Land	0.1
ETWS09	1.30	ATWS	Open Land	0.1
ETWS10	1.76	ATWS	Agricultural	1.2
ETWS11	1.86	ATWS	Agricultural	0.3
SA01	1.91	Staging Area	Agricultural	8.8
ETWS12	1.98	ATWS	Agricultural, Industrial/Commercial	0.6
<b>Subtotal Acreage for Paynesville 2<sup>nd</sup> Branch Line</b>				<b>13.1</b>
<b>Tomah Branch Line Loop</b>				
SA01	1.92	Staging Area	Agricultural	5.6
ETWS01	1.92	ATWS	Agricultural, Industrial/Commercial	0.7
ETWS02	1.95	ATWS	Agricultural	0.8
ETWS03	1.95	ATWS	Agricultural	0.9
ETWS04	2.24	ATWS	Forested/Woodland, Open Land, Residential	0.4
<b>Subtotal Acreage for Tomah Branch Line Loop</b>				<b>8.4</b>
<b>Total Acreage</b>				<b>147.4</b>

**Appendix B**

**Table B-2 Temporary and Permanent Access Roads for the Project**

**Table B-2  
Aboveground Facilities**

<b>MP</b>	<b>Type</b>	<b>Description</b>	<b>Length (feet)</b>	<b>Width (feet)</b>	<b>Existing Land Use</b>	<b>Total Area (acres)</b>
<b>Ventura Northern E-Line</b>						
28.42	Temporary	From 110 <sup>th</sup> Street to workspace	75	50-30	Agricultural	0.1
29.00	Temporary	From 705 <sup>th</sup> Avenue to workspace	490	50	Agricultural, Open Land	0.6
29.79	Temporary	From 120 <sup>th</sup> Street to workspace	1,305	100-50	Agricultural	1.5
29.88	Temporary	From U.S. Hwy 69 to workspace	65	55	Agricultural and Industrial/Commercial	0.1
29.93	Temporary	Access between SA04 and ETWS18	945	50	Agricultural	1.5
30.48	Temporary	From U.S. Hwy 69 to workspace	1,850	50	Agricultural	2.1
31.19	Temporary	From County Hwy 9 to Staging area	845	45	Industrial/Commercial and Open Land	0.8
31.19	Permanent	From County Hwy 9 to proposed valve	75	20	Open Land	0.1
<b>Subtotal for Ventura Northern E-Line</b>						<b>6.7</b>
<b>Elk River 3<sup>rd</sup> Branch Line</b>						
0.47	Temporary	From 182 <sup>nd</sup> Street N	10	60	Open Land	<0.1
1.07	Permanent	From private driveway to proposed valve	25	45	Residential	<0.1
<b>Subtotal for Elk River 3<sup>rd</sup> Branch Line</b>						<b>0.1</b>
<b>Willmar D Branch Line</b>						
2.21	Temporary	From Huntington Way to workspace	560	50	Industrial/Commercial, Open Land, and Residential	0.7
2.27	Temporary	From Huntington Way to workspace	80	50	Industrial/Commercial, Open Land	0.1
2.45	Temporary	From Huntington Way to workspace	665	45-20	Forested/Woodland, Open Land, Wetland	0.4
2.55	Temporary	From Lynn Drive to workspace	220	15	Residential	0.1
3.10	Temporary	Continuation of AR06 from Vernon Avenue	625	50	Agricultural	0.7
3.13	Temporary	From Vernon Avenue to workspace	1,230	50-35	Agricultural, Industrial/Commercial	1.3
3.34	Permanent	From Vernon Avenue to proposed valve	35	40	Agricultural, Industrial/Commercial	<0.1
3.33	Permanent	From private driveway to proposed valve	270	30	Agricultural	0.2
<b>Subtotal for Willmar D Branch Line</b>						<b>3.5</b>
<b>Princeton Tie-Over Loop</b>						
9.05	Temporary	From 104 <sup>th</sup> Street NW to workspace	1,295	20	Industrial/Commercial, Open Land	0.6

**Table B-2  
Aboveground Facilities**

<b>MP</b>	<b>Type</b>	<b>Description</b>	<b>Length (feet)</b>	<b>Width (feet)</b>	<b>Existing Land Use</b>	<b>Total Area (acres)</b>
9.44	Temporary	From 275 <sup>th</sup> Avenue NW to workspace	75	30	Industrial/Commercial, Residential	0.1
9.81	Temporary	From 273 <sup>rd</sup> Avenue NW to Staging area	490	50	Agricultural, Residential	0.6
9.81	Temporary	From 107 <sup>th</sup> St NW to workspace	605	50	Agricultural, Open Land	0.7
10.27	Temporary	From 269 <sup>th</sup> Avenue NW to workspace	370	30-20	Industrial/Commercial, Open Land	0.3
10.66	Temporary	From 265 <sup>th</sup> Avenue NW to workspace	515	65-20	Open Land	0.3
10.94	Temporary	From 264 <sup>th</sup> Avenue to workspace	187	10	Industrial/Commercial	<0.1
11.26	Permanent (to be expanded)	From 261 <sup>st</sup> Ave NW to Princeton Tie-Over launcher facility	35	30	Industrial/Commercial	<0.1
<b>Subtotal for Princeton tie-over loop</b>						<b>2.5</b>
<b>Paynesville 2<sup>nd</sup> Branch Line</b>						
0.15	Temporary	From County Road 123 to workspace	35	30	Agricultural, Industrial/Commercial	<0.1
0.26	Temporary	From County Road 123 to workspace	420	50	Agricultural, Industrial/Commercial	0.5
0.49	Temporary	From 210 <sup>th</sup> Street to workspace	1,310	50	Agricultural	1.5
0.98	Temporary	From State Highway 23 to workspace	1,455	50	Agricultural	1.7
1.51	Temporary	From 210 <sup>th</sup> Street to workspace	955	50	Open Land, Agricultural	1.1
1.76	Temporary	From 210 <sup>th</sup> Street to workspace and staging area	720	50	Agricultural	0.9
2.01	Permanent (to be expanded)	Expanded - From 210 <sup>th</sup> Street to Roscoe branch line take-off facility	24	20	Industrial/Commercial	<0.1
<b>Subtotal for Paynesville 2<sup>nd</sup> branch line</b>						<b>5.7</b>
<b>Tomah Branch Line Loop</b>						
2.25	Permanent	From private driveway (Gemini Road) to the Tomah tie-over valve setting	50	20	Open Land	0.1
<b>Subtotal for Tomah Branch Line Loop</b>						<b>0.1</b>
<b>Project Total</b>						<b>18.5</b>

**Appendix B**  
**Table B-3 Aboveground Facilities for the Project**

<b>Table B-3 Aboveground Facilities<sup>a</sup></b>				
<b>Project Component</b>	<b>Proposed Activity</b>	<b>Existing Land Use</b>	<b>Total Area (acres)</b>	<b>Facility Total Area (acres)<sup>1</sup></b>
<b>Ventura North E-Line</b>				
E-Line Tie-over valve setting	Existing – to be removed	Industrial/ Commercial	<0.1	<0.1
E-Line tie-over valve setting	Valve installation	Open Land	0.1	0.1
<b>Elk River 3<sup>rd</sup> Branch Line</b>				
Hugo Compressor Station <sup>2</sup>	Launcher installation inside existing facility	Industrial/ Commercial	1.6	1.6
Elk River Tie-Over valve setting	Valve installation	Agricultural	<0.1	0.1
		Residential	0.1	
<b>Willmar D Branch Line</b>				
Willmar Tie-Over valve setting	Existing – to be removed	Industrial/ Commercial	<0.1	<0.1
Willmar Tie-Over valve setting	Valve installation	Agricultural	0.2	0.2
		Industrial/ Commercial	<0.1	
<b>Princeton Tie-Over Loop</b>				
Princeton Tie-Over valve setting	Existing – to be removed	Industrial/ Commercial	<0.1	<0.1
Princeton Tie-Over launcher facility	Valve installation inside existing facility	Industrial/ Commercial	0.2	0.2
<b>Paynesville 2<sup>nd</sup> Branch Line</b>				
Dooley’s MN #2 TBS	Valve installation inside existing TBS	Industrial/ Commercial	0.3	0.3
Roscoe Branch Line takeoff facility	Valve installation inside expanded facility	Agricultural	0.1	0.2
		Industrial/ Commercial	0.1	
<b>Tomah Branch Line Loop</b>				
Tomah Branch Line loop receiver	Only belowground work at this facility	Industrial/ Commercial	0.3	0.3
Tomah Tie-Over valve setting	Valve installation	Open Land	0.1	0.1
<b>Project Total</b>				<b>3.1</b>

<sup>a</sup> The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

<sup>1</sup> Includes permanent driveway(s)

<sup>2</sup> New in-line inspection tool receiver will be wholly within the existing Hugo compressor station.

**Appendix C**  
**Wetlands Crossed by the Project**

**Appendix C Wetlands Crossed by the Project<sup>a</sup>**

Unique Wetland Identifier	MP		Field Determined Wetland Classification <sup>1</sup>	Length of Crossing (feet) <sup>2</sup>	Primary Wetland Crossing Method	Area Affected by Construction (acres)	Area Affected by Operation (acres)		Wetland Setting	Wetland Function	Aquatic Resource	USACE Regulated (Y/N) <sup>7</sup>
	From	To					Operational Fill	Operational Maintenance <sup>3,5</sup>				
<b>Ventura North E-Line</b>												
VBL-W07	28.40		Wet Meadow / PEM1B	N/A	Open Cut	<0.1	0.0	<0.1	Depressional/Tributary	Ground-water Recharge	Groundwater	N
VBL-W09	29.90	29.91	Wet Meadow / PEM1B	32	Conventional Bore	<0.1	0.0	<0.1 <sup>4</sup>	Depressional/Isolated	Ground-water Recharge	Groundwater	N
VBL-W04	29.50		Wet Meadow / PEM1B	21	Open cut	<0.1	0.0	<0.1	Depressional	Ground-water Recharge	Groundwater	N
VBL-W03	29.52		Wet Meadow / PEM1B	5	Open Cut	<0.1	0.0	0.0	Depressional/Tributary	Wildlife Habitat	Unnamed intermittent channel	Y
VBL-W02	29.78	29.79	Wet Meadow / PEM1B	19	Open Cut	<0.1	0.0	<0.1	Depressional/Tributary	Ground-water Recharge	Groundwater	Y
<b>Subtotal</b>				<b>72</b>		<b>0.1</b>	<b>0.0</b>	<b>0.1</b>				
<b>Elk River 3<sup>rd</sup> Branch Line</b>												
ERT-W25	0.37	0.38	Seasonally Flooded / PEM1A	37	HDD	0.0 <sup>8,9</sup>	0.0	0.0 <sup>4</sup>	Depressional	Ground-water Recharge	Groundwater	N
ERT-W24	0.41	0.42	Seasonally Flooded / PEM1A	52	HDD	0.0 <sup>8,9</sup>	0.0	0.0 <sup>4</sup>	Depressional	Ground-water Recharge	Groundwater	N
ERT-W23	0.52		Shallow Marsh / PEM1C	N/A	ETWS <sup>6</sup>	0.1	0.0	0.0	Depressional	Ground-water Recharge	Groundwater	N
<b>Subtotal</b>				<b>89</b>		<b>0.1</b>	<b>0.0</b>	<b>0.0</b>				
<b>Willmar D Branch Line</b>												
WIL-W12	2.43		Wet Meadow / PEM1B	50	ETWS	<0.1 <sup>6</sup>	0.0	0.0	Depressional/Tributary	Wildlife Habitat	WIL-S05	Y
	2.41	2.44	Wet Meadow / PEM1B	151	HDD	<0.1 <sup>9</sup>	0.0	0.0 <sup>4</sup>	Depressional/Tributary	Wildlife Habitat	WIL-S05	Y

**Appendix C Wetlands Crossed by the Project<sup>a</sup>**

Unique Wetland Identifier	MP		Field Determined Wetland Classification <sup>1</sup>	Length of Crossing (feet) <sup>2</sup>	Primary Wetland Crossing Method	Area Affected by Construction (acres)	Area Affected by Operation (acres)		Wetland Setting	Wetland Function	Aquatic Resource	USACE Regulated (Y/N) <sup>7</sup>
	From	To					Operational Fill	Operational Maintenance <sup>3,5</sup>				
	2.45		Wet Meadow / PEM1B	N/A	Temporary Access Road	<0.1 <sup>6</sup>	0.0	0.0	Depressional/ Tributary	Wildlife Habitat	WIL-S05	Y
WIL-W12 Subtotal						0.1	0.0	0.0				
WIL-W15	2.82	2.85	Wet Meadow / PEM1B	149	HDD	<0.1 <sup>9</sup>	0.0	0.0 <sup>4</sup>	Depressional/ Tributary	Wildlife Habitat	WIL-S09	Y
	2.89	2.92	Hardwood Swamp / PFO1A	182	HDD	<0.1 <sup>9</sup>	0.0	0.0 <sup>4</sup>	Depressional/ Tributary	Wildlife Habitat	WIL-S09	Y
	WIL-W15 Subtotal						0.1	0.0	0.0			
<b>Subtotal</b>				<b>532</b>		<b>0.13</b>	<b>0.0</b>	<b>0.0</b>				
<b>Princeton Tie-Over Loop</b>												
PBR-W03	9.19	9.35	Wet Meadow / PEM1B	855	HDD	0.1 <sup>10</sup>	0.0	0.0 <sup>4</sup>	Tributary	Wildlife Habitat	PRB-S01	Y
PRB-W04	9.96	10.03	Wet Meadow / PEM1B	346	HDD	<0.1 <sup>9</sup>	0.0	0.0 <sup>4</sup>	Depressional	Wildlife Habitat	Groundwater	N
<b>Subtotal</b>				<b>1,201</b>		<b>0.1</b>	<b>0.0</b>	<b>0.0</b>				
<b>Paynesville 2<sup>nd</sup> Branch Line</b>												
PBL-W20	1.25	1.27	Wet Meadow / PEM1B	87	Open Cut	0.1	0.0	0.1	Depressional	Ground-water Recharge	Groundwater	N
<b>Subtotal</b>				<b>87</b>		<b>0.1</b>	<b>0.0</b>	0.1				
<b>Total</b>				<b>1,981</b>		<b>0.5</b>	<b>0.0</b>	<b>0.1</b>				

**Appendix D**  
**Vegetation Impacts from Construction and Operation of the Project**

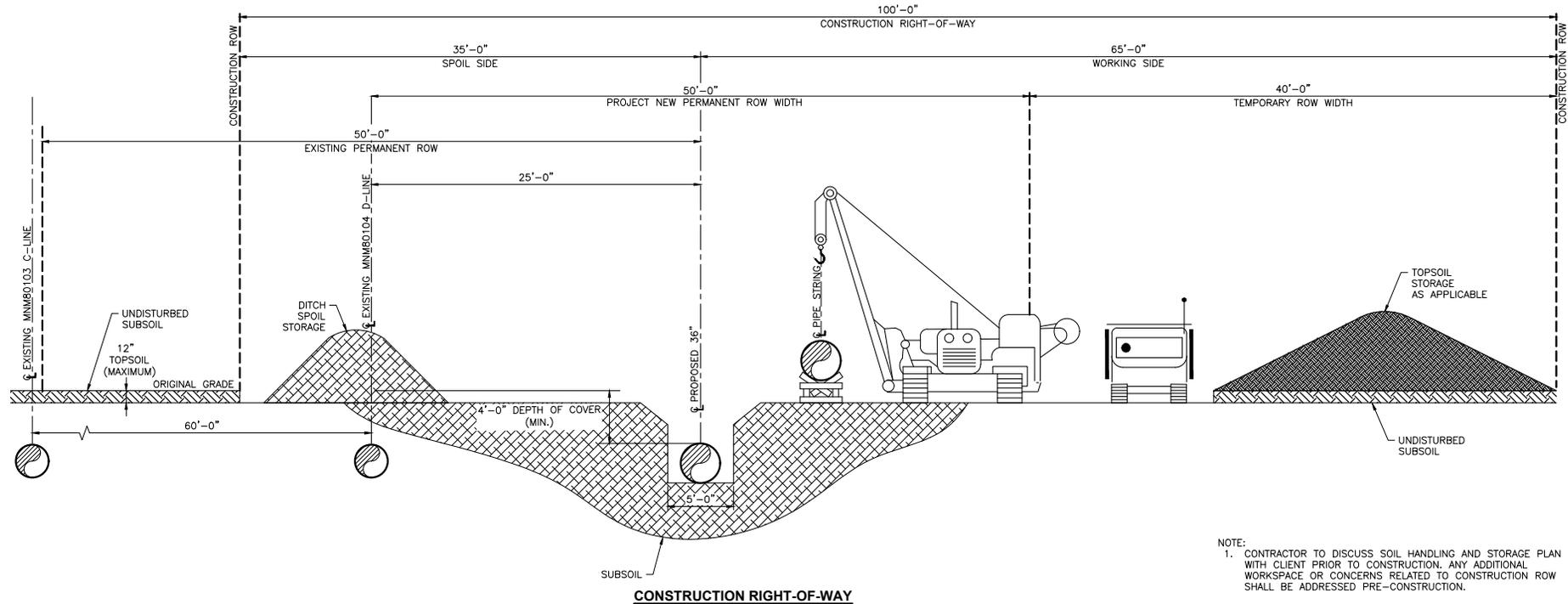


**Appendix D <sup>a,b</sup>**  
**Vegetation Impacts from Construction and Operation of the Project**

Facility	Agricultural		Forest/ Woodland		Wetland		Open Land	
	Const. (acres)	Oper. (acres)	Const. (acres)	Oper. (acres)	Const. (acres)	Oper. (acres)	Const. (acres)	Oper. (acres)
Access Roads <sup>3</sup>	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Existing Aboveground Facilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proposed Aboveground Facilities	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
<b>Subtotal</b>	31.0	8.7	0.2	0.2	0.1	0.1	5.5	3.2
<b>Tomah Branch Line Loop</b>								
Pipeline ROW <sup>1,2</sup>	2.2	1.5	0.0	0.0	0.0	0.0	0.5	0.3
ATWS	2.4	0.0	0.1	0.0	0.0	0.0	0.1	0.0
Staging Area <sup>3</sup>	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Existing Aboveground Facilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proposed Aboveground Facilities	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
<b>Subtotal</b>	10.2	1.5	0.1	0.0	0.0	0.0	0.6	0.3
Project Within Existing Easement	18.4	10.4	0.6	0.2	0.1	0.1	10.1	5.7
Project Outside of Existing Easement	156.9	20.4	4.5	0.7	0.4	0.1	54.7	10.4
<b>PROJECT TOTAL</b>	175.4	30.8	5.1	0.9	0.5	0.1	64.7	16.1

**Appendix E**  
**Distribution List for the Notice of Availability of the final EIS**

**Appendix F**  
**Construction Diagrams**



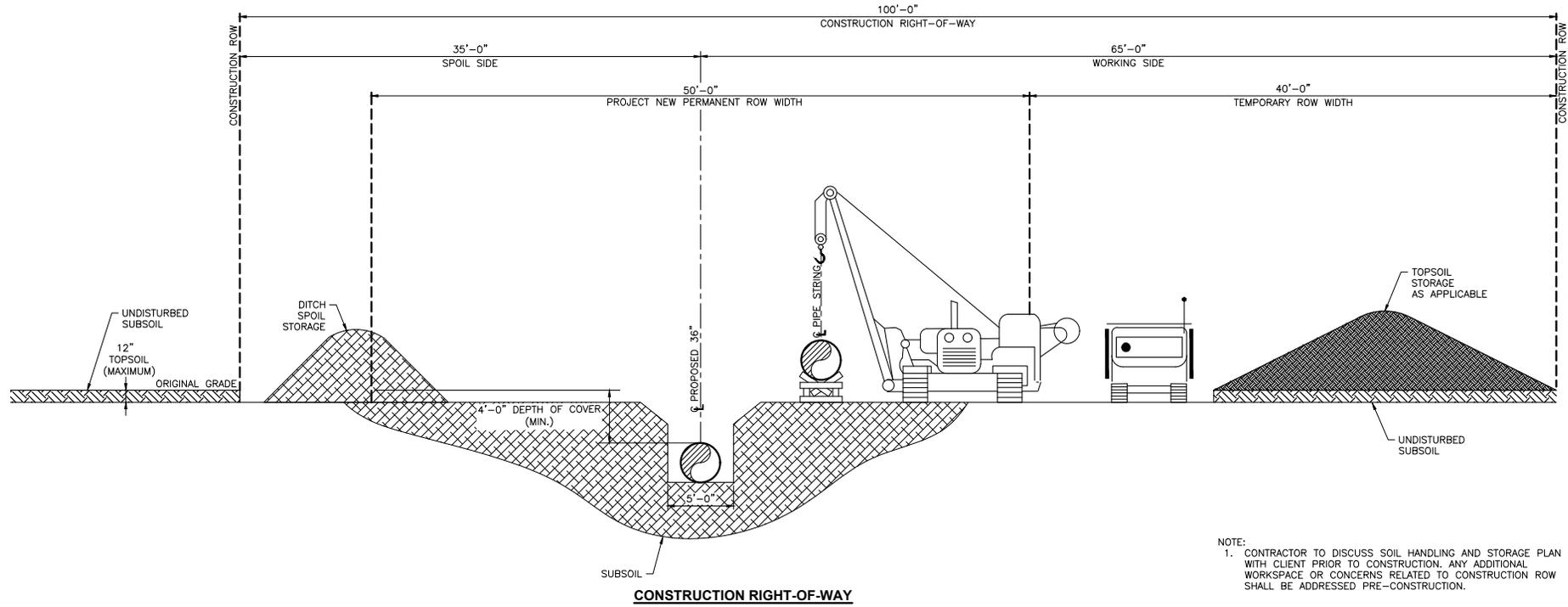
**CONSTRUCTION RIGHT-OF-WAY**

MP FROM	MP TO	DIRECTION OF LAY	REF DWG
28.42	28.45	SOUTH TO NORTH	VBL P3-1
29.10	29.44	SOUTH TO NORTH	VBL P3-2 TO VBL P3-3

**LEGEND**

	TOPSOIL
	SUBSOIL

NORTHERN LIGHTS 2023 EXPANSION PROJECT  
 VENTURA NORTH E-LINE  
 CONSTRUCTION ROW  
 SEC. 27,22,21 & 16, T101N, R22W  
 FREEBORN COUNTY, MINNESOTA

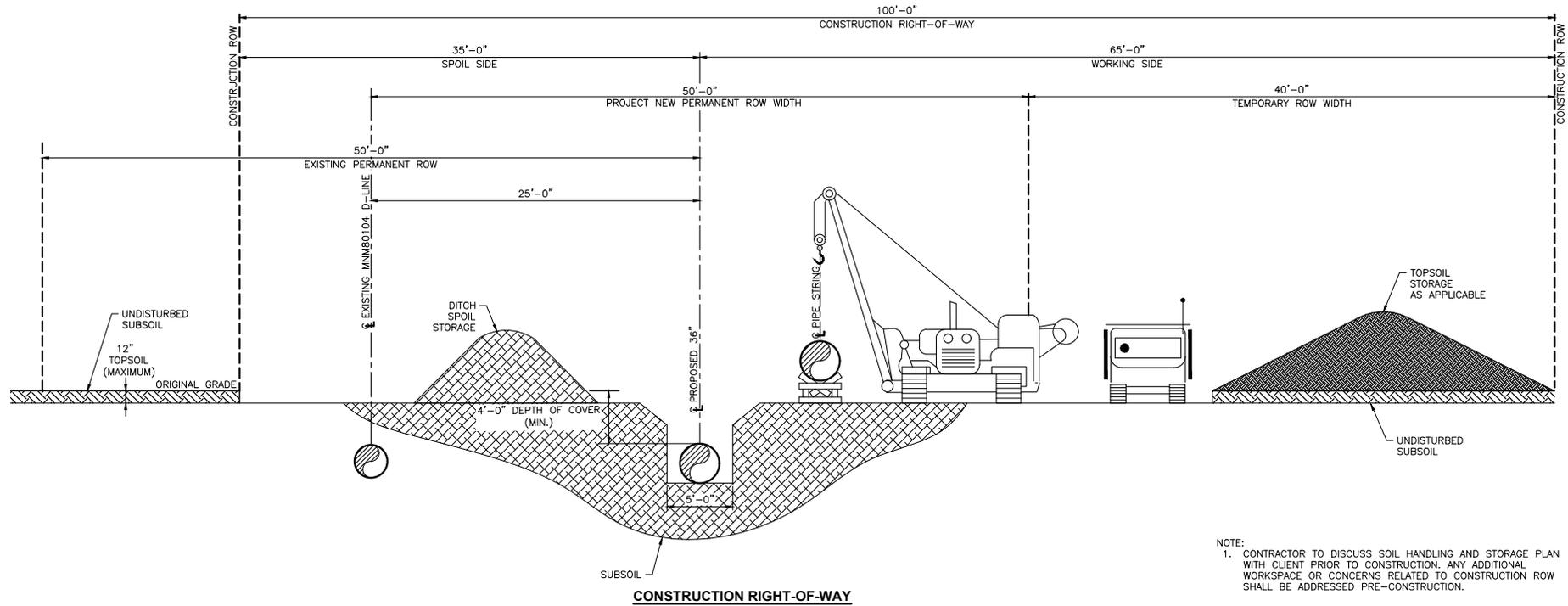


NOTE:  
 1. CONTRACTOR TO DISCUSS SOIL HANDLING AND STORAGE PLAN WITH CLIENT PRIOR TO CONSTRUCTION. ANY ADDITIONAL WORKSPACE OR CONCERNS RELATED TO CONSTRUCTION ROW SHALL BE ADDRESSED PRE-CONSTRUCTION.

MP FROM	MP TO	DIRECTION OF LAY	REF DWG
28.45	29.10	SOUTH TO NORTH	VBL P3-1 TO VBL P3-2
30.42	30.57	NORTH TO SOUTH	VBL P3-6

**LEGEND**  
 TOPSOIL  
 SUBSOIL

NORTHERN LIGHTS 2023 EXPANSION PROJECT  
 VENTURA NORTH E-LINE  
 CONSTRUCTION ROW  
 SEC. 27,22,21 & 16, T101N, R22W  
 FREEBORN COUNTY, MINNESOTA

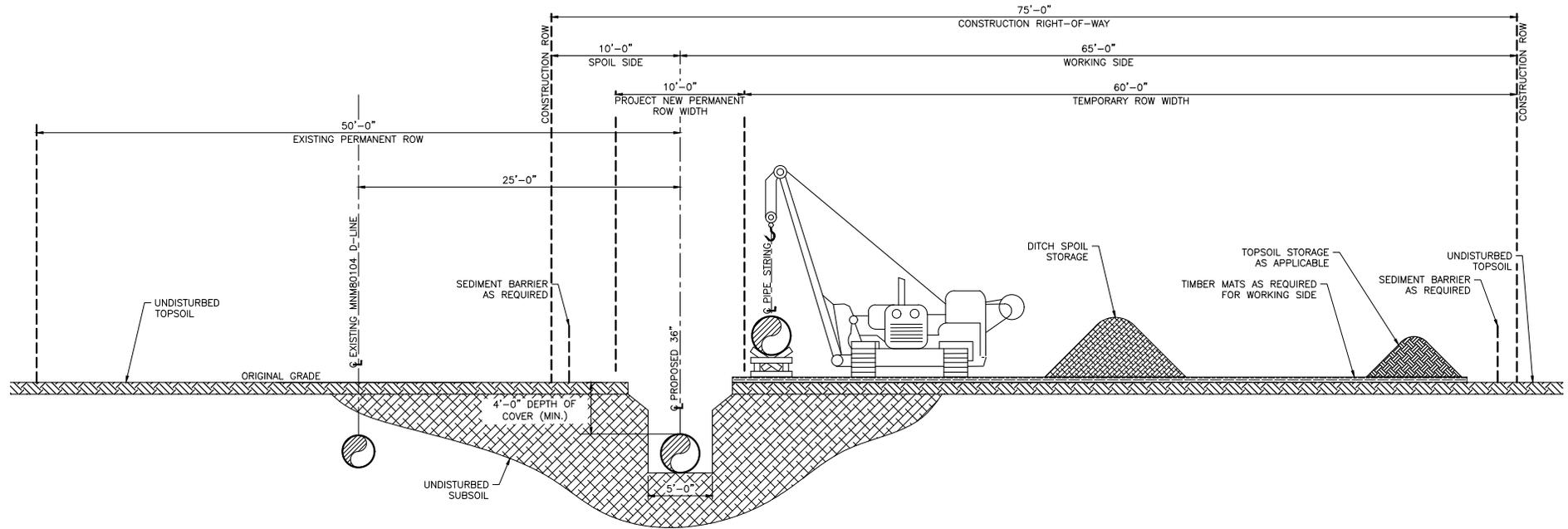


NOTE:  
 1. CONTRACTOR TO DISCUSS SOIL HANDLING AND STORAGE PLAN WITH CLIENT PRIOR TO CONSTRUCTION. ANY ADDITIONAL WORKSPACE OR CONCERNS RELATED TO CONSTRUCTION ROW SHALL BE ADDRESSED PRE-CONSTRUCTION.

MP FROM	MP TO	DIRECTION OF LAY	REF DWG
29.44	29.48	SOUTHEAST TO NORTHWEST	VBL P3-3
29.53	29.60	SOUTHEAST TO NORTHWEST	VBL P3-3 TO VBL P3-4
29.60	29.77	NORTHWEST TO SOUTHEAST	VBL P3-4
29.80	30.42	NORTH TO SOUTH	VBL P3-4 TO VBL P3-6
30.57	31.21	NORTHWEST TO SOUTHEAST	VBL P3-6 TO VBL P3-8

**LEGEND**  
 TOPSOIL  
 SUBSOIL

NORTHERN LIGHTS 2023 EXPANSION PROJECT  
 VENTURA NORTH E-LINE  
 CONSTRUCTION ROW  
 SEC. 27,22,21 & 16, T101N, R22W  
 FREEBORN COUNTY, MINNESOTA



**75' WIDE CONSTRUCTION RIGHT-OF-WAY WITHIN A WETLAND**

MP FROM	MP TO	DIRECTION OF LAY	REF DWG
29.77	29.80	NORTHWEST TO SOUTHEAST	VBL P3-4

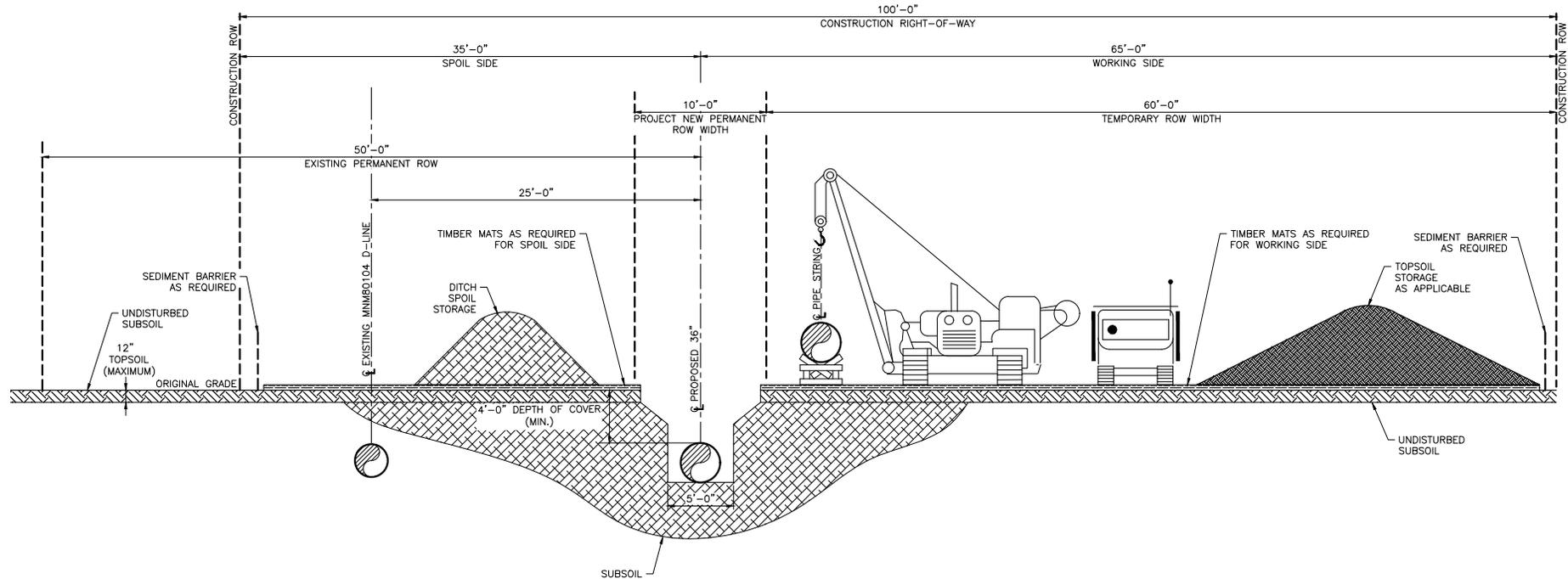
**NOTE:**

1. CONTRACTOR TO DISCUSS SOIL HANDLING AND STORAGE PLAN WITH CLIENT PRIOR TO CONSTRUCTION. ANY ADDITIONAL WORKSPACE OR CONCERNS RELATED TO CONSTRUCTION ROW SHALL BE ADDRESSED PRE-CONSTRUCTION.
2. DUE TO A REDUCED CONSTRUCTION RIGHT OF WAY WIDTH, SUBSOIL WILL BE STORED ON TIMBER MATS OR TRANSPORTED TO ADJACENT UPLANDS FOR STORAGE.

**LEGEND**

-  TOPSOIL
-  SUBSOIL

**NORTHERN LIGHTS 2023 EXPANSION PROJECT  
VENTURA NORTH E-LINE  
CONSTRUCTION ROW  
SEC. 22, T101N, R22W  
FREEBORN COUNTY, MINNESOTA**



**100' WIDE CONSTRUCTION RIGHT-OF-WAY WITHIN A WETLAND**

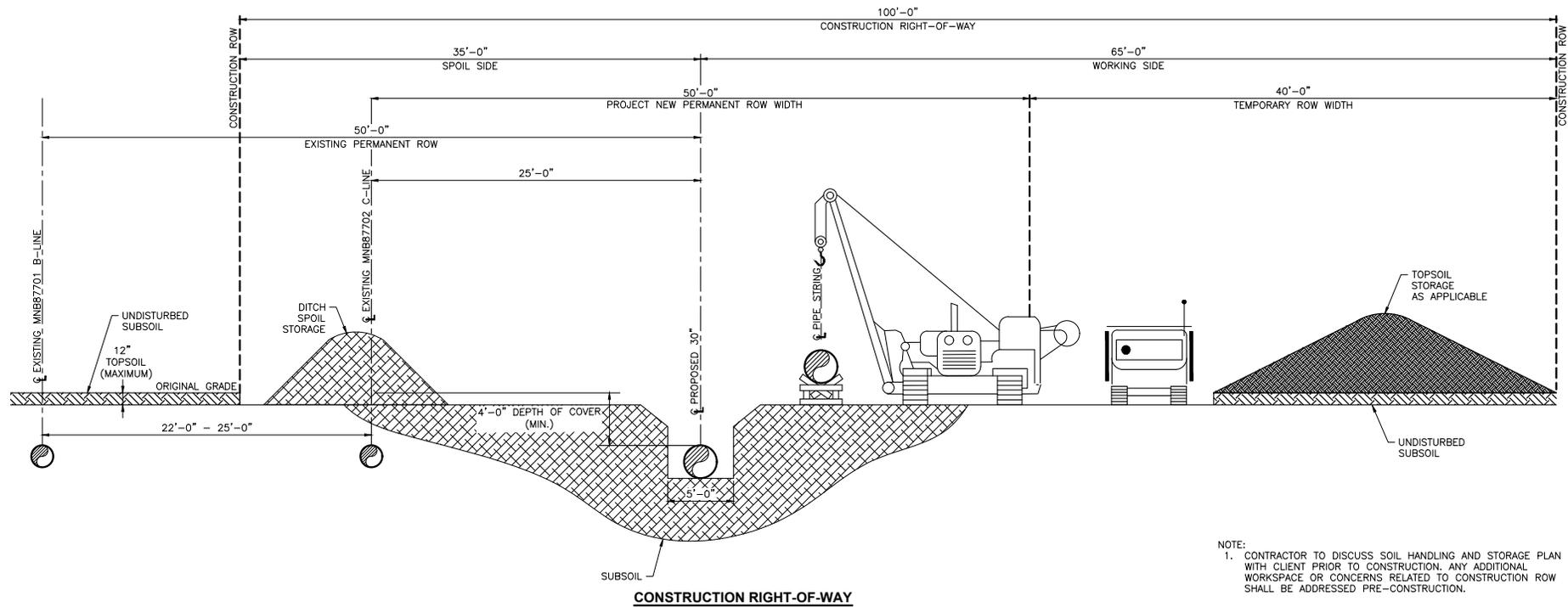
MP FROM	MP TO	DIRECTION OF LAY	REF DWG
29.48	29.53	NORTHWEST TO SOUTHEAST	VBL P3-4

- NOTE:
1. CONTRACTOR TO DISCUSS SOIL HANDLING AND STORAGE PLAN WITH CLIENT PRIOR TO CONSTRUCTION. ANY ADDITIONAL WORKSPACE OR CONCERNS RELATED TO CONSTRUCTION ROW SHALL BE ADDRESSED PRE-CONSTRUCTION.
  2. DUE TO A REDUCED CONSTRUCTION RIGHT OF WAY WIDTH, SUBSOIL WILL BE STORED ON TIMBER MATS OR TRANSPORTED TO ADJACENT UPLANDS FOR STORAGE.

**LEGEND**

- TOPSOIL
- SUBSOIL

**NORTHERN LIGHTS 2023 EXPANSION PROJECT**  
**VENTURA NORTH E-LINE**  
**CONSTRUCTION ROW**  
**SEC. 27,22,21 & 16, T101N, R22W**  
**FREEBORN COUNTY, MINNESOTA**

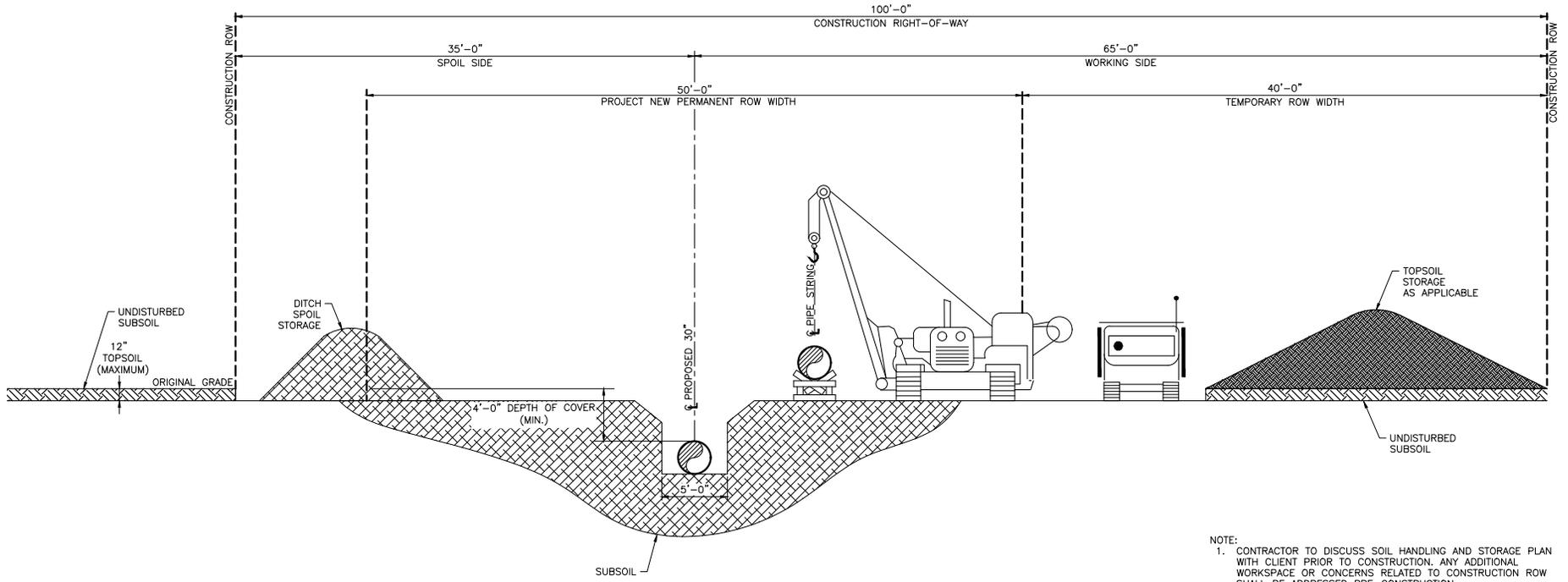


NOTE:  
 1. CONTRACTOR TO DISCUSS SOIL HANDLING AND STORAGE PLAN WITH CLIENT PRIOR TO CONSTRUCTION. ANY ADDITIONAL WORKSPACE OR CONCERNS RELATED TO CONSTRUCTION ROW SHALL BE ADDRESSED PRE-CONSTRUCTION.

MP FROM	MP TO	DIRECTION OF LAY	REF DWG
0.16	0.72	WEST TO EAST	ERT P3-1 TO ERT P3-2

**LEGEND**  
 TOPSOIL  
 SUBSOIL

**NORTHERN LIGHTS 2023 EXPANSION PROJECT  
 ELK RIVER 3RD BRANCH LINE  
 CONSTRUCTION ROW  
 SEC. 6, T31N, R20W & SEC. 31 & 36, T32N, R20W  
 WASHINGTON COUNTY, MINNESOTA**



**CONSTRUCTION RIGHT-OF-WAY**

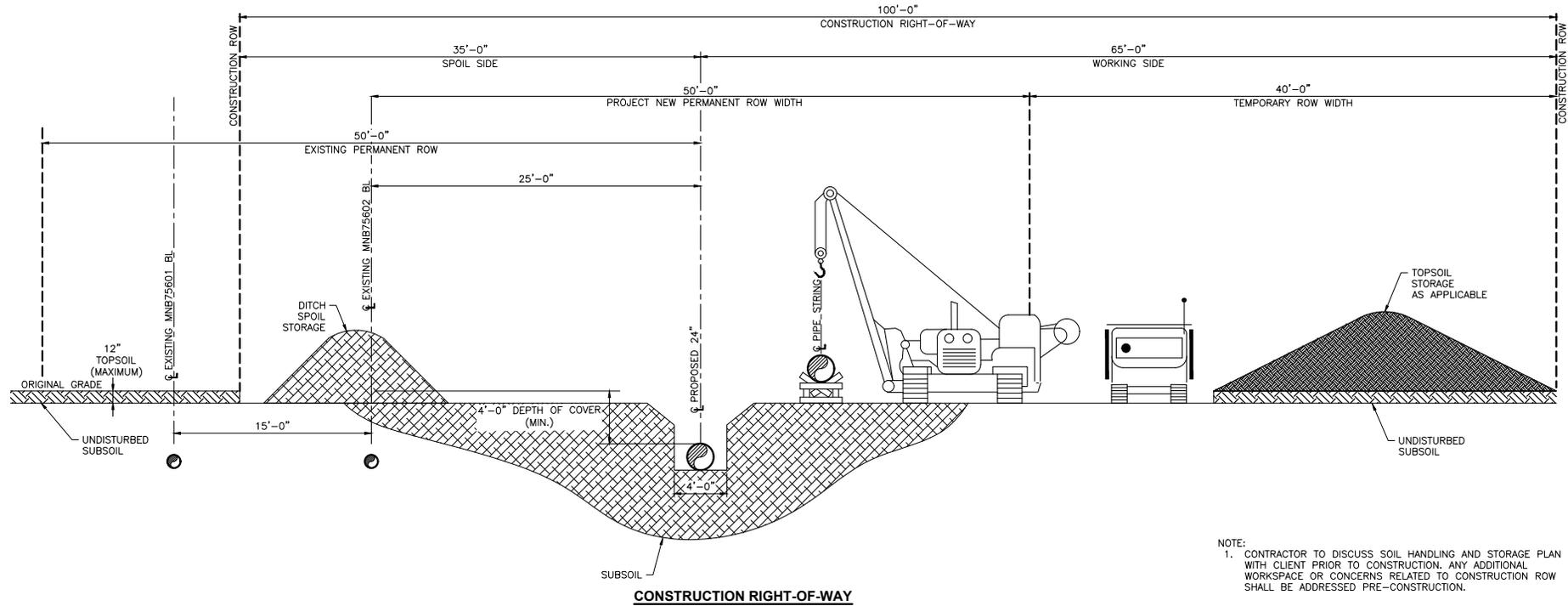
NOTE:  
 1. CONTRACTOR TO DISCUSS SOIL HANDLING AND STORAGE PLAN WITH CLIENT PRIOR TO CONSTRUCTION. ANY ADDITIONAL WORKSPACE OR CONCERNS RELATED TO CONSTRUCTION ROW SHALL BE ADDRESSED PRE-CONSTRUCTION.

MP FROM	MP TO	DIRECTION OF LAY	REF DWG
0.00	0.16	SOUTH TO NORTH	ERT P3-1
0.96	1.06	EAST TO WEST	ERT P3-3

**LEGEND**

	TOPSOIL
	SUBSOIL

**NORTHERN LIGHTS 2023 EXPANSION PROJECT  
 ELK RIVER 3RD BRANCH LINE  
 CONSTRUCTION ROW  
 SEC. 6, T31N, R20W & SEC. 31 & 36, T32N, R20W  
 WASHINGTON COUNTY, MINNESOTA**



NOTE:  
 1. CONTRACTOR TO DISCUSS SOIL HANDLING AND STORAGE PLAN WITH CLIENT PRIOR TO CONSTRUCTION. ANY ADDITIONAL WORKSPACE OR CONCERNS RELATED TO CONSTRUCTION ROW SHALL BE ADDRESSED PRE-CONSTRUCTION.

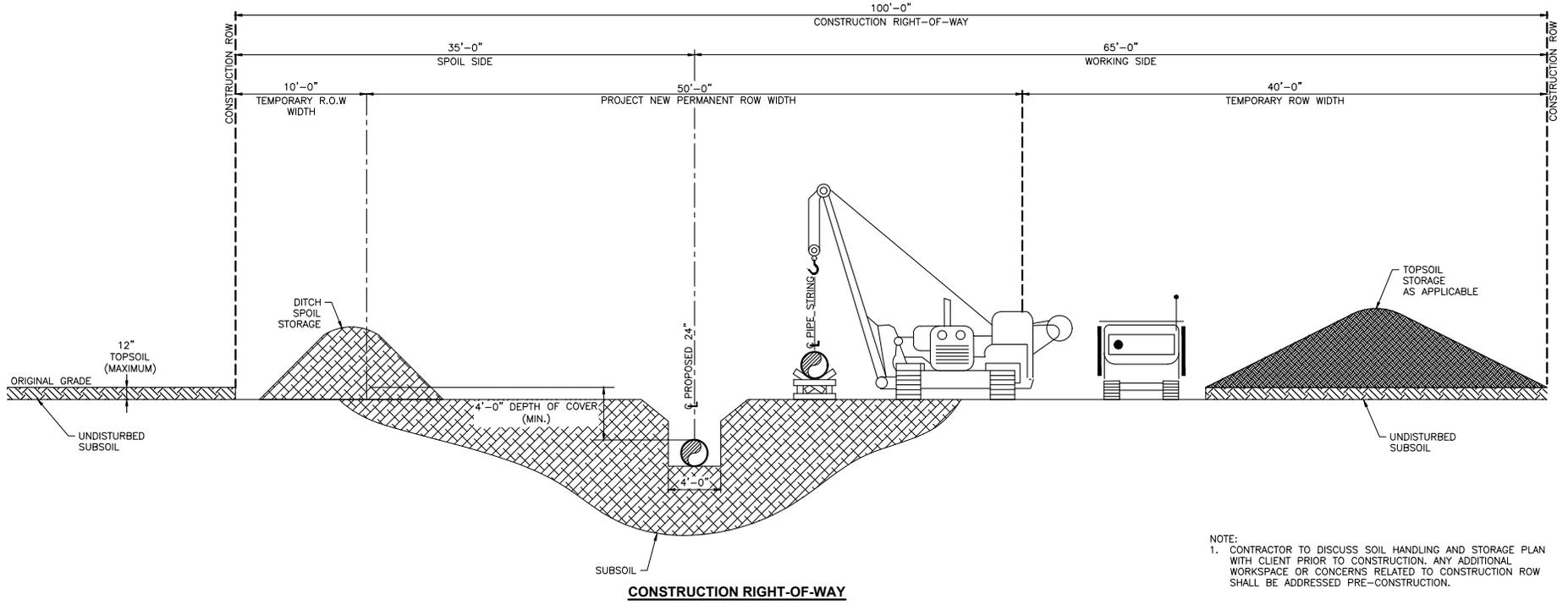
**CONSTRUCTION RIGHT-OF-WAY**

MP FROM	MP TO	DIRECTION OF LAY	REF DWG
2.20	2.31	NORTHWEST TO SOUTHEAST	WIL P3-1
2.97	3.34	SOUTHEAST TO NORTHWEST	WIL P3-2 TO WIL P3-3

**LEGEND**

	TOPSOIL
	SUBSOIL

**NORTHERN LIGHTS 2023 EXPANSION PROJECT  
 WILLMAR D BRANCH LINE  
 CONSTRUCTION ROW  
 SEC. 27 28, T114N, R21W  
 SCOTT COUNTY, MINNESOTA**

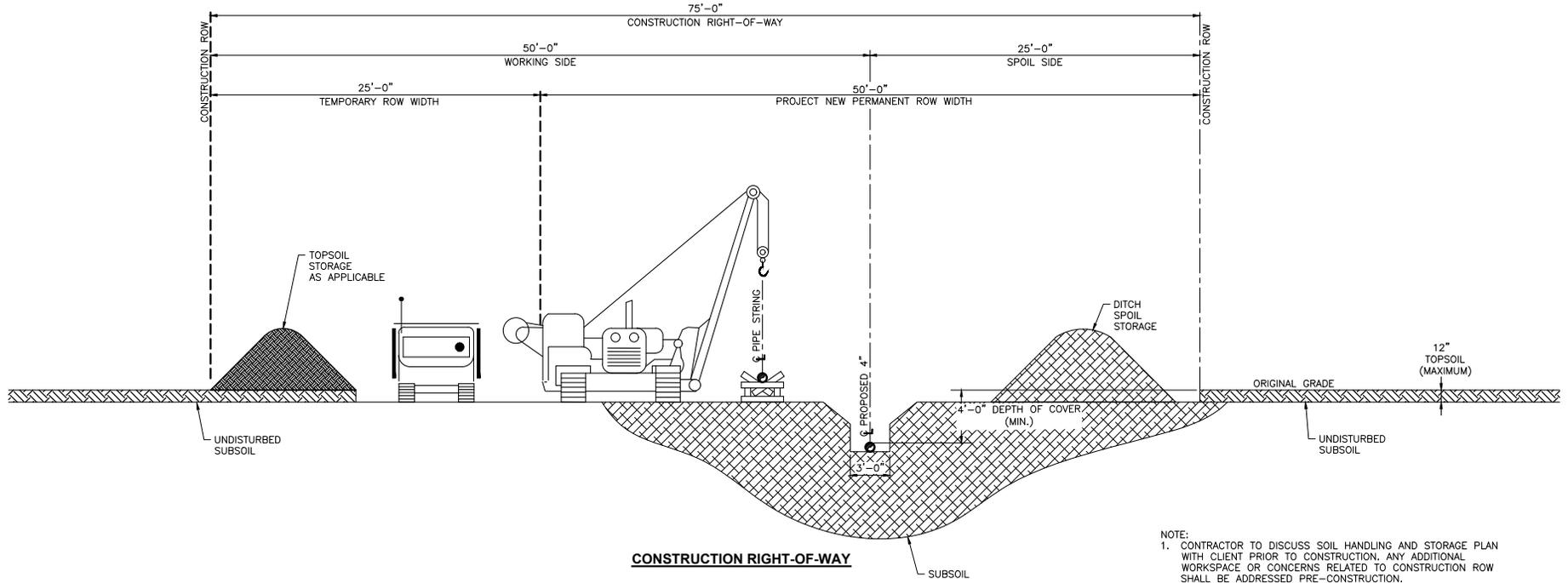


NOTE:  
 1. CONTRACTOR TO DISCUSS SOIL HANDLING AND STORAGE PLAN WITH CLIENT PRIOR TO CONSTRUCTION. ANY ADDITIONAL WORKSPACE OR CONCERNS RELATED TO CONSTRUCTION ROW SHALL BE ADDRESSED PRE-CONSTRUCTION.

MP FROM	MP TO	DIRECTION OF LAY	REF DWG
2.44	2.48	NORTHWEST TO SOUTHEAST	WIL P3-1

**LEGEND**  
  
 TOPSOIL  
 SUBSOIL

NORTHERN LIGHTS 2023 EXPANSION PROJECT  
 WILLMAR D BRANCH LINE  
 CONSTRUCTION ROW  
 SEC. 27 28, T114N, R21W  
 SCOTT COUNTY, MINNESOTA



**CONSTRUCTION RIGHT-OF-WAY**

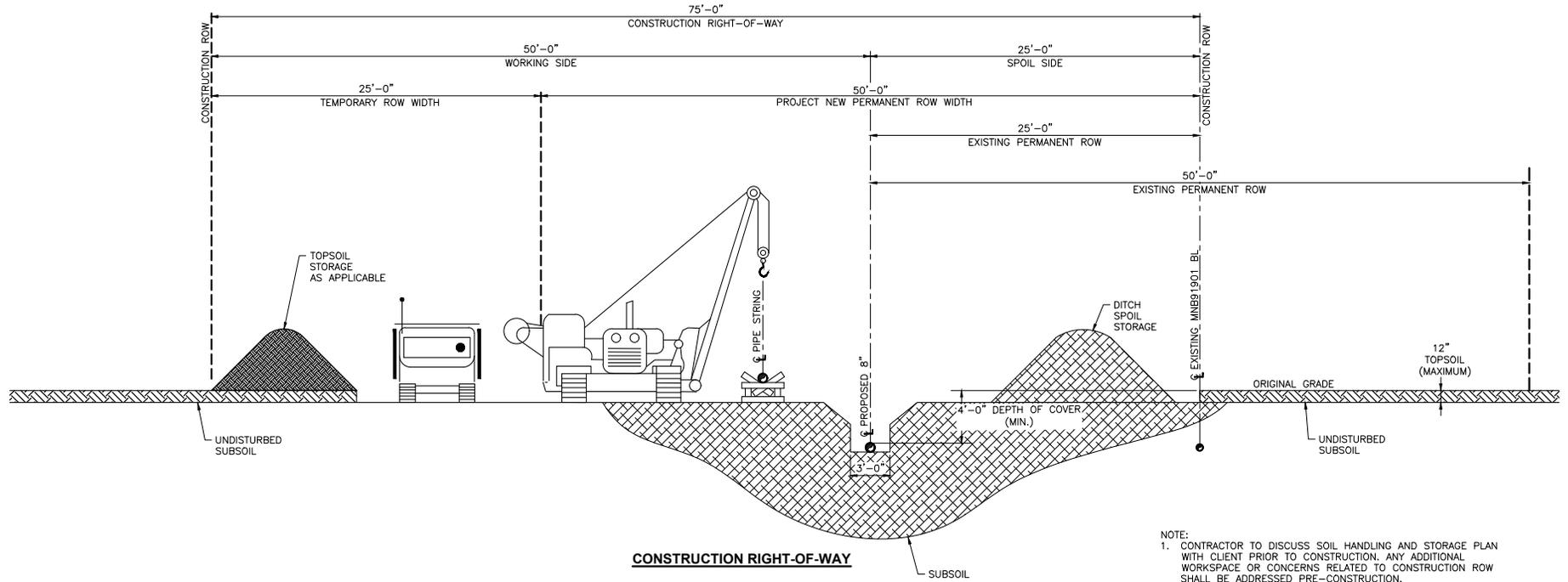
NOTE:  
 1. CONTRACTOR TO DISCUSS SOIL HANDLING AND STORAGE PLAN WITH CLIENT PRIOR TO CONSTRUCTION, ANY ADDITIONAL WORKSPACE OR CONCERNS RELATED TO CONSTRUCTION ROW SHALL BE ADDRESSED PRE-CONSTRUCTION.

MP FROM	MP TO	DIRECTION OF LAY	REF DWG
2.31	2.38	WEST TO EAST	WL P3-1

**LEGEND**

-  TOPSOIL
-  SUBSOIL

NORTHERN LIGHTS 2023 EXPANSION PROJECT  
 WILLMAR D BRANCH LINE  
 CONSTRUCTION ROW  
 SEC. 27 & 28, T114N, R21W  
 SCOTT COUNTY, MINNESOTA



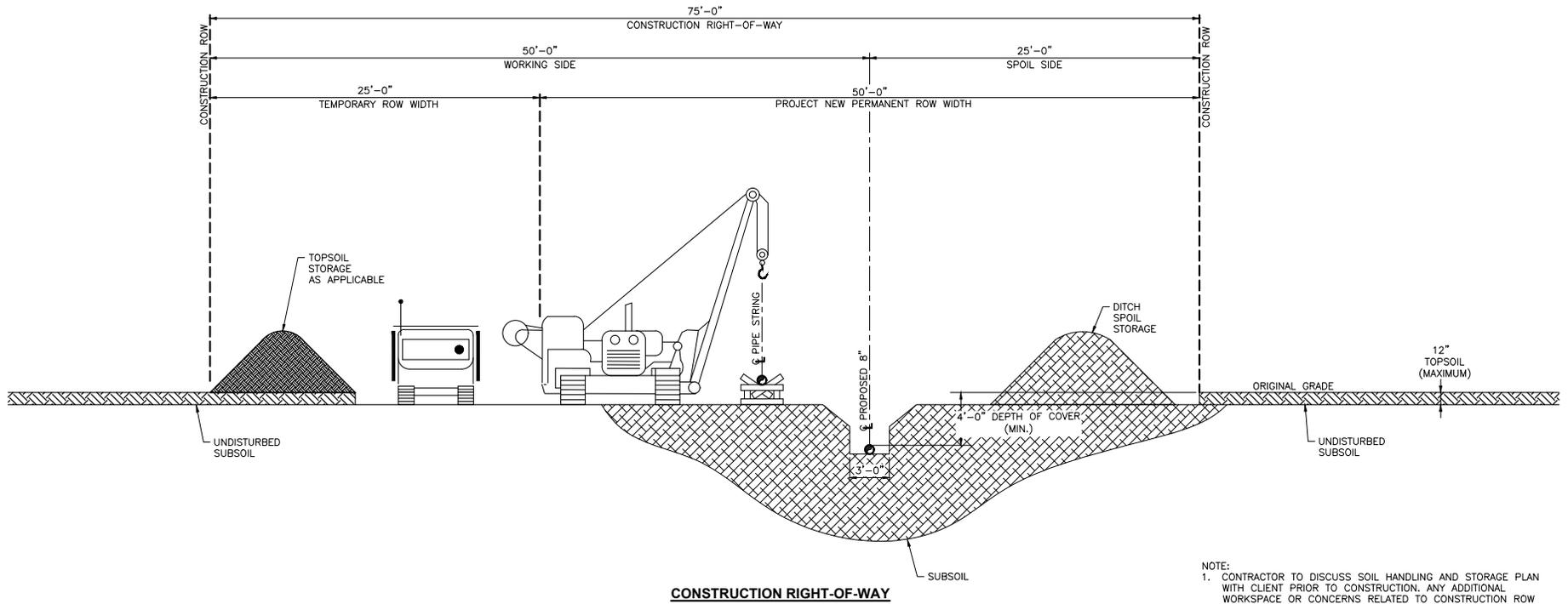
**CONSTRUCTION RIGHT-OF-WAY**

NOTE:  
 1. CONTRACTOR TO DISCUSS SOIL HANDLING AND STORAGE PLAN WITH CLIENT PRIOR TO CONSTRUCTION. ANY ADDITIONAL WORKSPACE OR CONCERNS RELATED TO CONSTRUCTION ROW SHALL BE ADDRESSED PRE-CONSTRUCTION.

MP FROM	MP TO	DIRECTION OF LAY	REF DWG
8.78	9.63	NORTH TO SOUTH	PRB P3-1 TO PRB P3-3
9.75	10.19	NORTH TO SOUTH	PRB P3-3 TO PRB P3-4
10.19	10.53	SOUTH TO NORTH	PRB P3-4 TO PRB P3-5
10.53	11.25	NORTH TO SOUTH	PRB P3-5 TO PRB P3-7

**LEGEND**  
 TOPSOIL  
 SUBSOIL

**NORTHERN LIGHTS 2023 EXPANSION PROJECT**  
**PRINCETON TIE-OVER LOOP**  
**CONSTRUCTION ROW**  
 SEC. 35, T35N, R26W, SEC. 2 & 11, T34N, R26W  
 SHERBURNE COUNTY, MINNESOTA



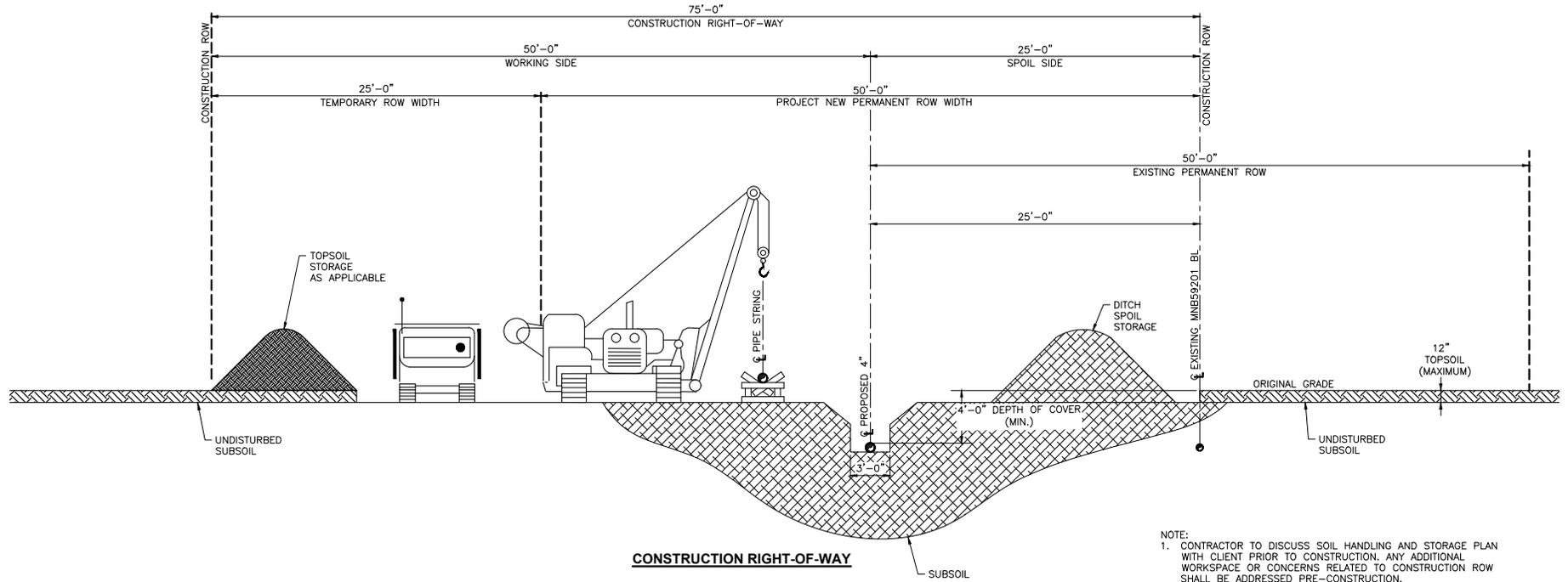
**CONSTRUCTION RIGHT-OF-WAY**

MP FROM	MP TO	DIRECTION OF LAY	REF DWG
9.63	9.75	NORTH TO SOUTH	PRB P3-3

**LEGEND**

	TOPSOIL
	SUBSOIL

**NORTHERN LIGHTS 2023 EXPANSION PROJECT  
PRINCETON TIE-OVER LOOP  
CONSTRUCTION ROW  
SEC. 35, T35N, R26W, SEC. 2 & 11, T34N, R26W  
SHERBURNE COUNTY, MINNESOTA**

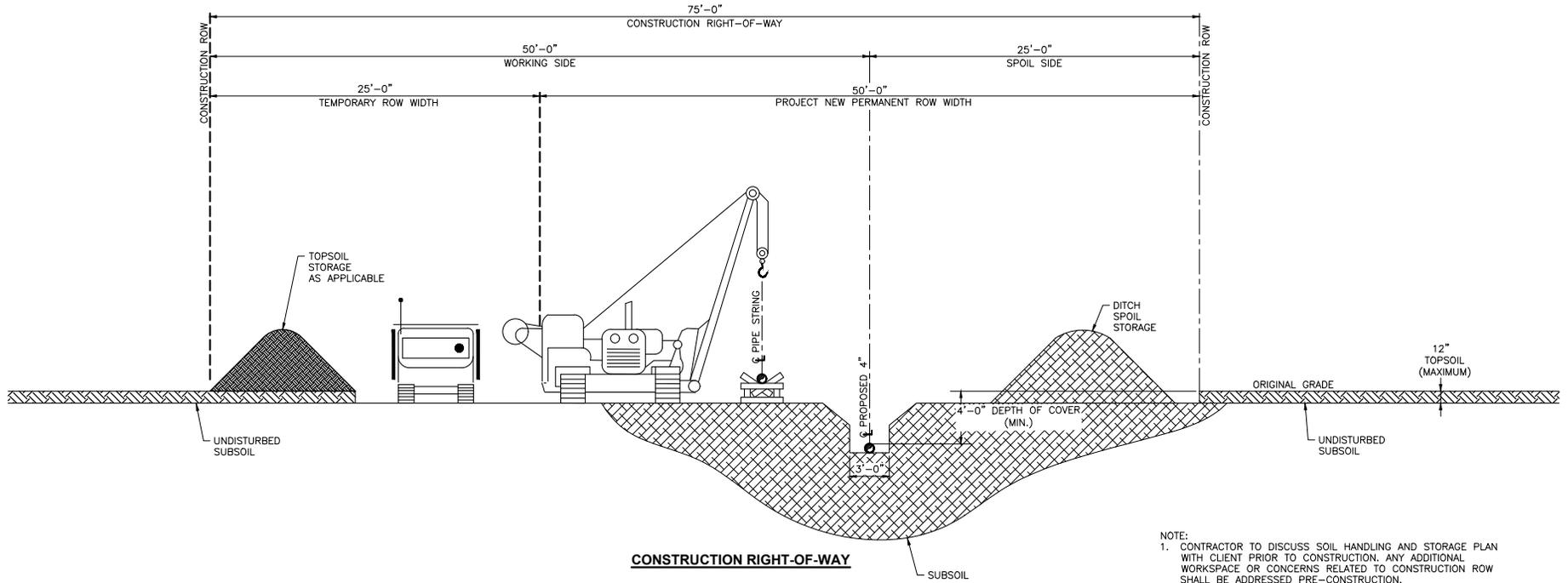


MP FROM	MP TO	DIRECTION OF LAY	REF DWG
1.11	1.25	WEST TO EAST	PBL P3-3 TO PBL P3-4
1.29	2.01	WEST TO EAST	PBL P3-4 TO PBL P3-6

**LEGEND**

- TOPSOIL
- SUBSOIL

**NORTHERN LIGHTS 2023 EXPANSION PROJECT**  
**PAYNESVILLE 2ND BRANCH LINE**  
**CONSTRUCTION ROW**  
**SEC. 29 & 30, T123N, R31W**  
**STEARNS COUNTY, MINNESOTA**



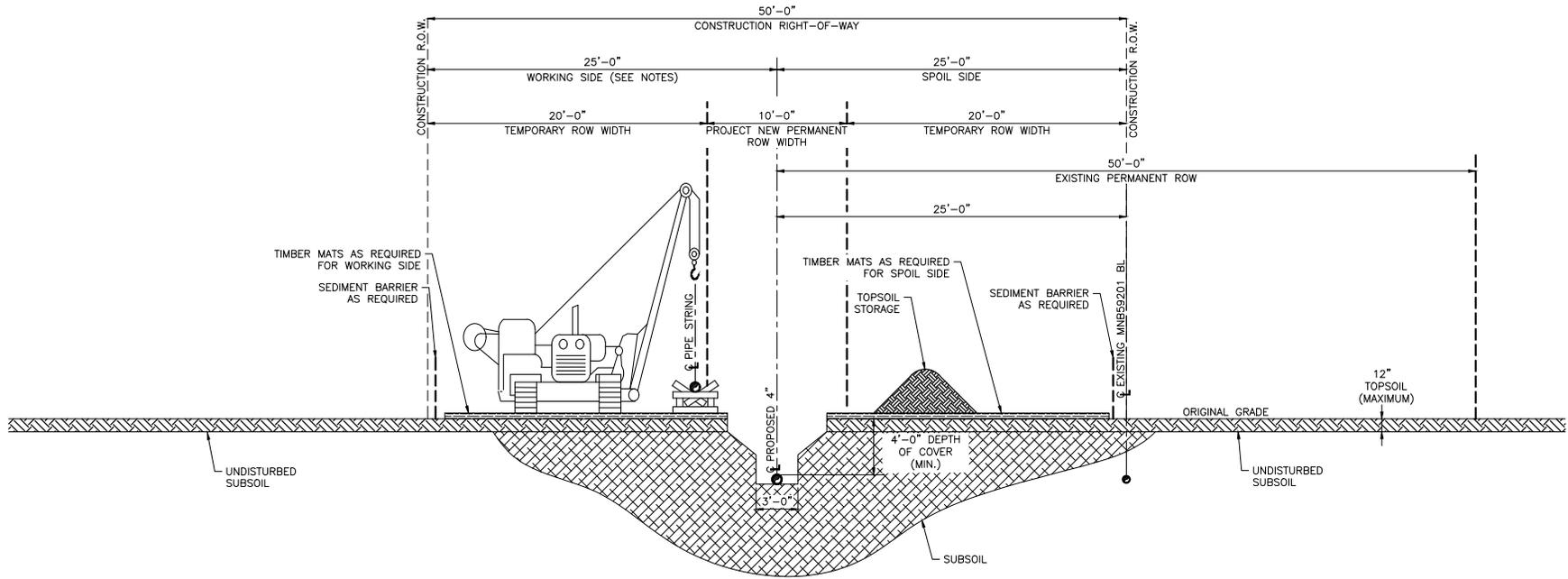
**CONSTRUCTION RIGHT-OF-WAY**

MP FROM	MP TO	DIRECTION OF LAY	REF DWG
0.02	0.23	SOUTH TO NORTH	PBL P3-1
0.23	1.10	WEST TO EAST	PBL P3-1 TO PBL P3-3

**LEGEND**

	TOPSOIL
	SUBSOIL

NORTHERN LIGHTS 2023 EXPANSION PROJECT  
 PAYNESVILLE 2ND BRANCH LINE  
 CONSTRUCTION ROW  
 SEC. 29 & 30, T123N, R31W  
 STEARNS COUNTY, MINNESOTA



**50' WIDE CONSTRUCTION RIGHT-OF-WAY WITHIN A WETLAND**

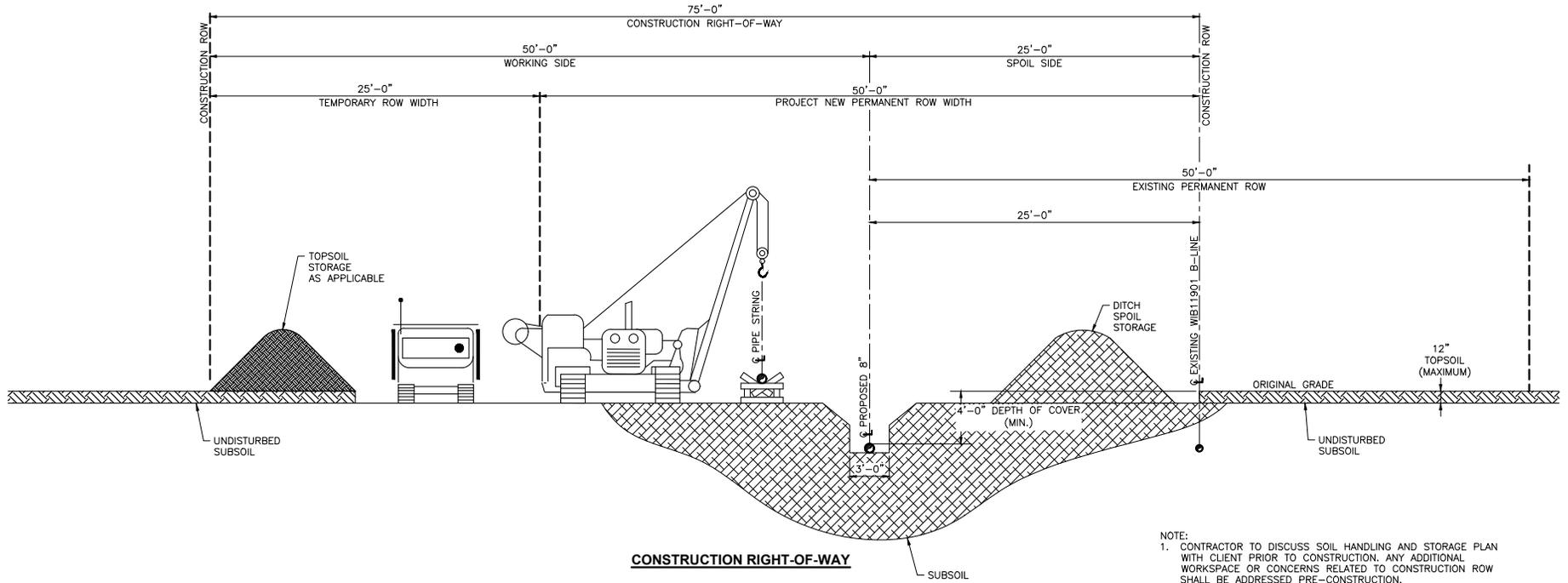
MP FROM	MP TO	DIRECTION OF LAY	REF DWG
1.25	1.29	WEST TO EAST	PBL P3-4

- NOTE:
1. CONTRACTOR TO DISCUSS SOIL HANDLING AND STORAGE PLAN WITH CLIENT PRIOR TO CONSTRUCTION. ANY ADDITIONAL WORKSPACE OR CONCERNS RELATED TO CONSTRUCTION ROW SHALL BE ADDRESSED PRE-CONSTRUCTION.
  2. DUE TO A REDUCED CONSTRUCTION RIGHT OF WAY WIDTH, SUBSOIL WILL BE STORED ON TIMBER MATS OR TRANSPORTED TO ADJACENT UPLANDS FOR STORAGE.

**LEGEND**

- TOPSOIL
- SUBSOIL

**NORTHERN LIGHTS 2023 EXPANSION PROJECT**  
**PAYNESVILLE 2ND BRANCH LINE**  
**CONSTRUCTION ROW**  
**SEC. 29 & 30, T123N, R31W**  
**STEARNS COUNTY, MINNESOTA**



**CONSTRUCTION RIGHT-OF-WAY**

NOTE:  
 1. CONTRACTOR TO DISCUSS SOIL HANDLING AND STORAGE PLAN WITH CLIENT PRIOR TO CONSTRUCTION. ANY ADDITIONAL WORKSPACE OR CONCERNS RELATED TO CONSTRUCTION ROW SHALL BE ADDRESSED PRE-CONSTRUCTION.

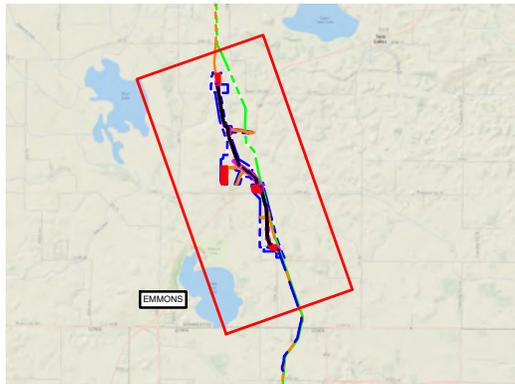
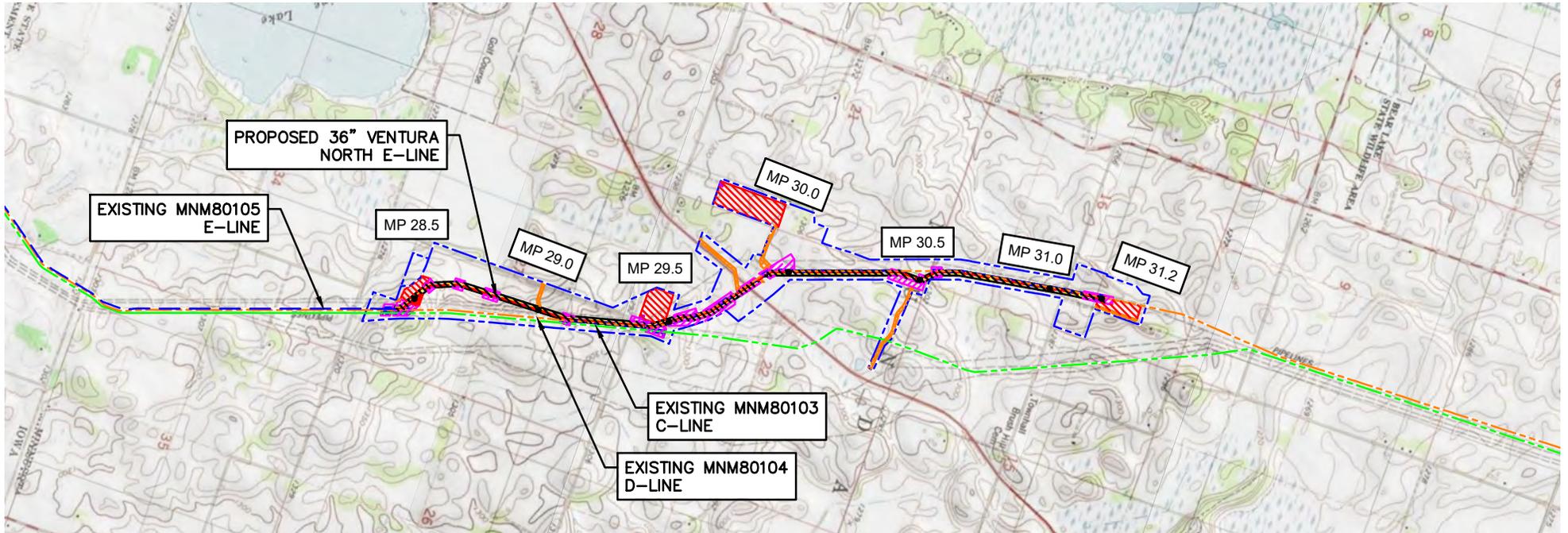
MP FROM	MP TO	DIRECTION OF LAY	REF DWG
1.92	2.26	EAST TO WEST	TBL P3-1

**LEGEND**

	TOPSOIL
	SUBSOIL

NORTHERN LIGHTS 2023 EXPANSION PROJECT  
 TOMAH BRANCH LINE LOOP  
 CONSTRUCTION ROW  
 SEC. 2 & 1, T34N, R26W  
 MONROE COUNTY, WISCONSIN

**Appendix G**  
**Project Location Maps**



**LEGEND**

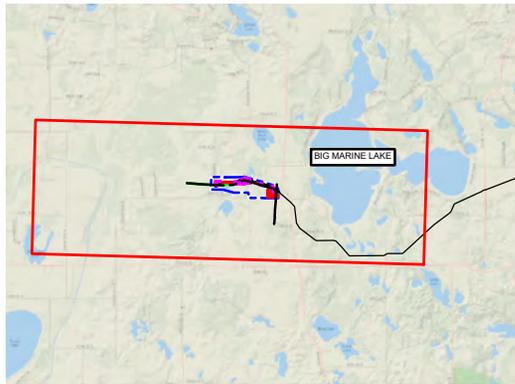
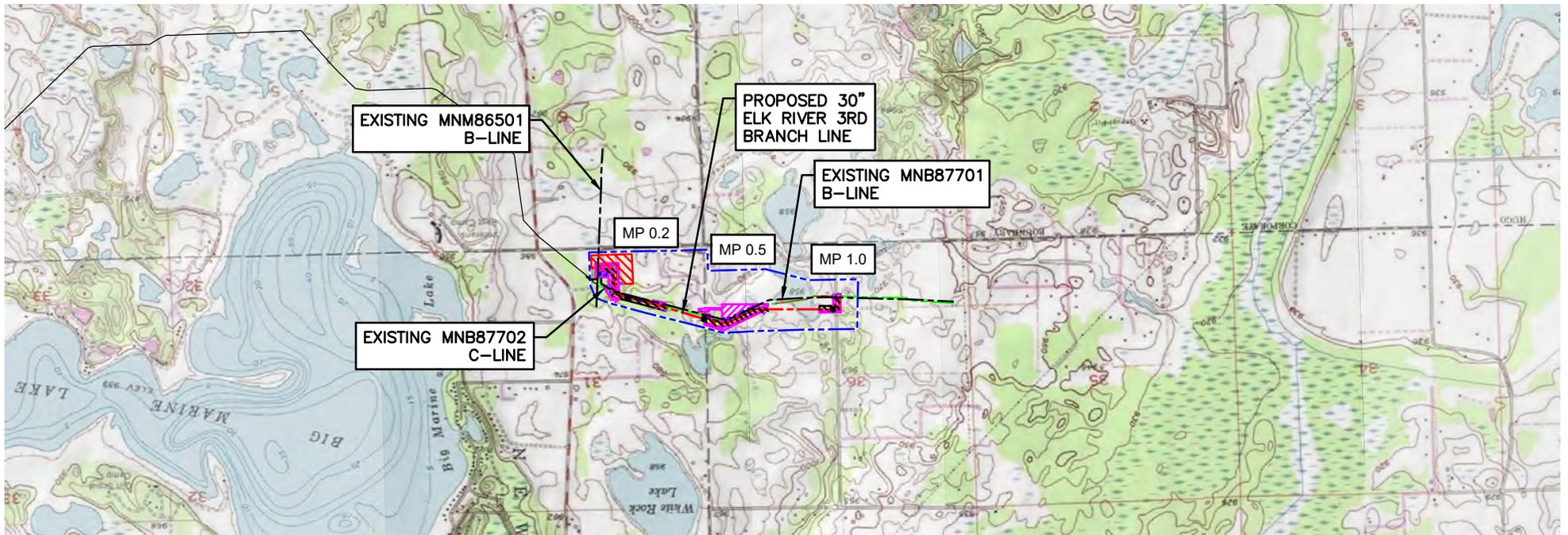
- MILEPOST •
- PROPOSED 36" VENTURA NORTH E-LINE ---
- EXISTING MNM80103 C-LINE ---
- EXISTING MNM80104 D-LINE ---
- EXISTING MNM80105 E-LINE ---
- ENVIRONMENTAL SURVEY BOUNDARY [ ]
- PROJECT PERMANENT ROW [ ]
- TEMP. WORKSPACE [ ]
- EXTRA TEMP. WORKSPACE [ ]
- TEMP. ACCESS ROAD [ ]
- EXISTING PERMANENT ROW [ ]
- STAGING AREA [ ]
- ROAD APPROACH [ ]

NOTES:  
 COORDINATE SYSTEM: NAD 1983 UTM ZONE 15F  
 DATA SOURCES INCLUDE: STANTEC, NNC, NADS, ESRI



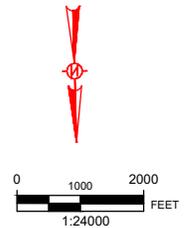
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NORTHERN LIGHTS 2023 EXPANSION PROJECT  
 VENTURA NORTH E-LINE  
 PROJECT LOCATION AND TOPOGRAPHIC  
 SEC. 27, T101N, R22W  
 FREEBORN COUNTY, MINNESOTA



**LEGEND**

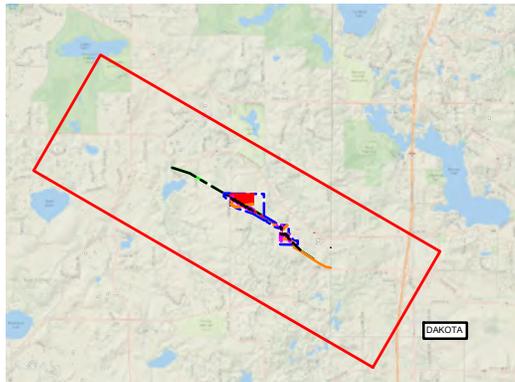
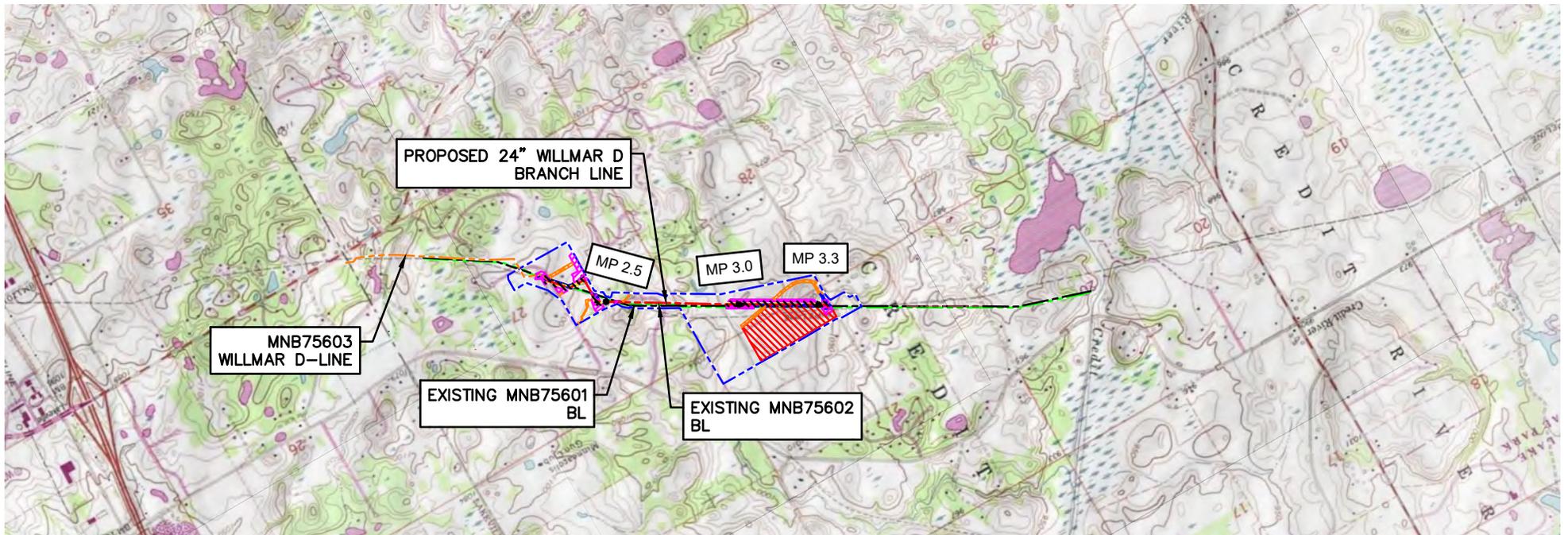
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- PROPOSED 30" ELK RIVER 3RD BRANC LINE — · — ·
- EXISTING MNB87702 C-LINE - · - · - ·
- EXISTING MNB87701 B-LINE - - - -
- EXISTING MNM86501 B-LINE — · — ·
- ENVIRONMENTAL SURVEY BOUNDARY [ ]
- PROJECT PERMANENT ROW [ ]
- TEMP. WORKSPACE [ ]
- EXTRA TEMP. WORKSPACE [ ]
- TEMP. ACCESS ROAD [ ]
- EXISTING PERMANENT ROW [ ]
- STAGING AREA [ ]
- ROAD APPROACH [ ]



NOTES:  
 COORDINATE SYSTEM: NAD 1983 UTM ZONE 15F  
 DATA SOURCES INCLUDE: STANTEC, NNC, NADS, ESRI

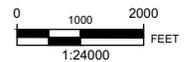
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NORTHERN LIGHTS 2023 EXPANSION PROJECT  
 ELK RIVER 3RD BRANCH LINE  
 PROJECT LOCATION AND TOPOGRAPHIC  
 SEC. 6, T31N, R20W & SEC. 31, T32N, R20W  
 WASHINGTON COUNTY, MINNESOTA



**LEGEND**

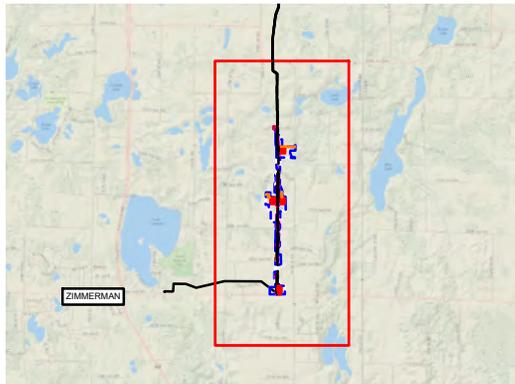
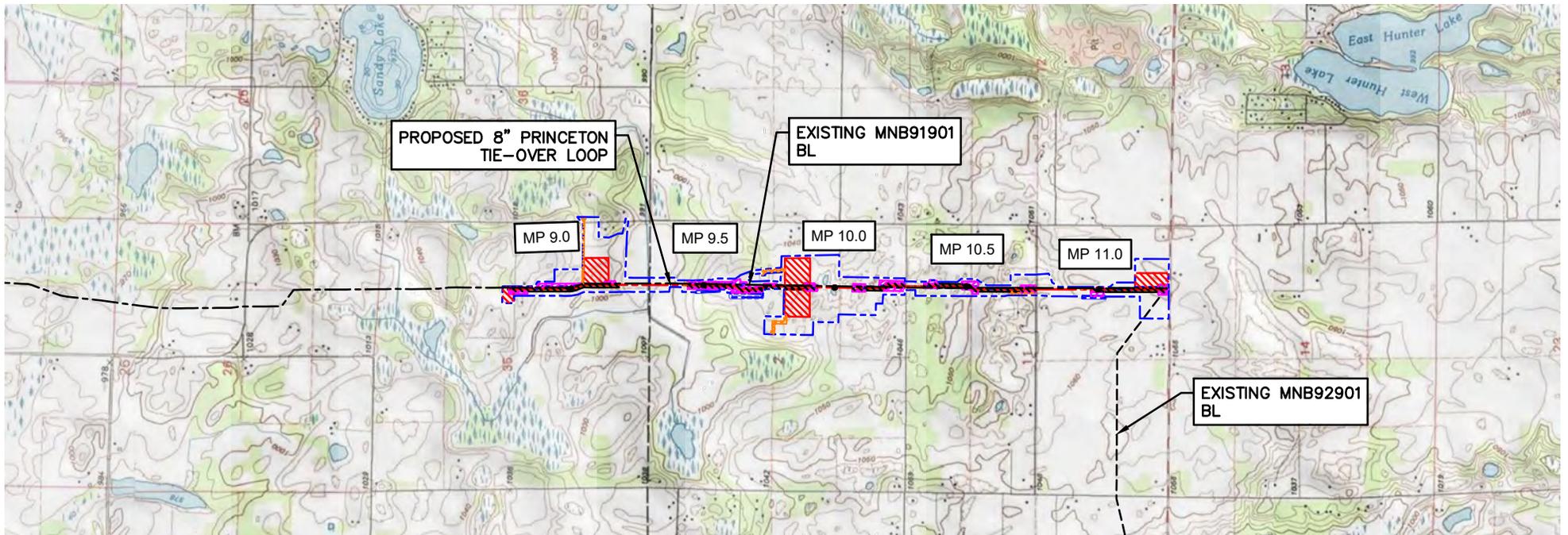
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- EXISTING MNB75601 BL — · — ·
- EXISTING MNB75602 BL — · — ·
- MNB7503 WILLMAR D-LINE — · — ·
- ENVIRONMENTAL SURVEY BOUNDARY [Blue dashed box]
- PROJECT PERMANENT ROW [Yellow dashed box]
- TEMP. WORKSPACE [Black hatched box]
- EXTRA TEMP. WORKSPACE [Pink hatched box]
- TEMP. ACCESS ROAD [Orange hatched box]
- EXISTING PERMANENT ROW [Blue dashed box]
- STAGING AREA [Red hatched box]
- ROAD APPROACH [Purple solid box]



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NOTES:  
 COORDINATE SYSTEM: NAD 1983 UTM ZONE 15F  
 DATA SOURCES INCLUDE: STANTEC, NNC, NADS, ESRI

NORTHERN LIGHTS 2023 EXPANSION PROJECT  
 WILLMAR D BRANCH LINE  
 PROJECT LOCATION AND TOPOGRAPHIC  
 SEC. 27, T114N, R21W  
 SCOTT COUNTY, MINNESOTA



**LEGEND**

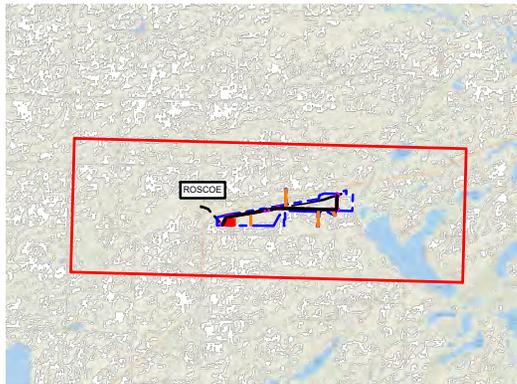
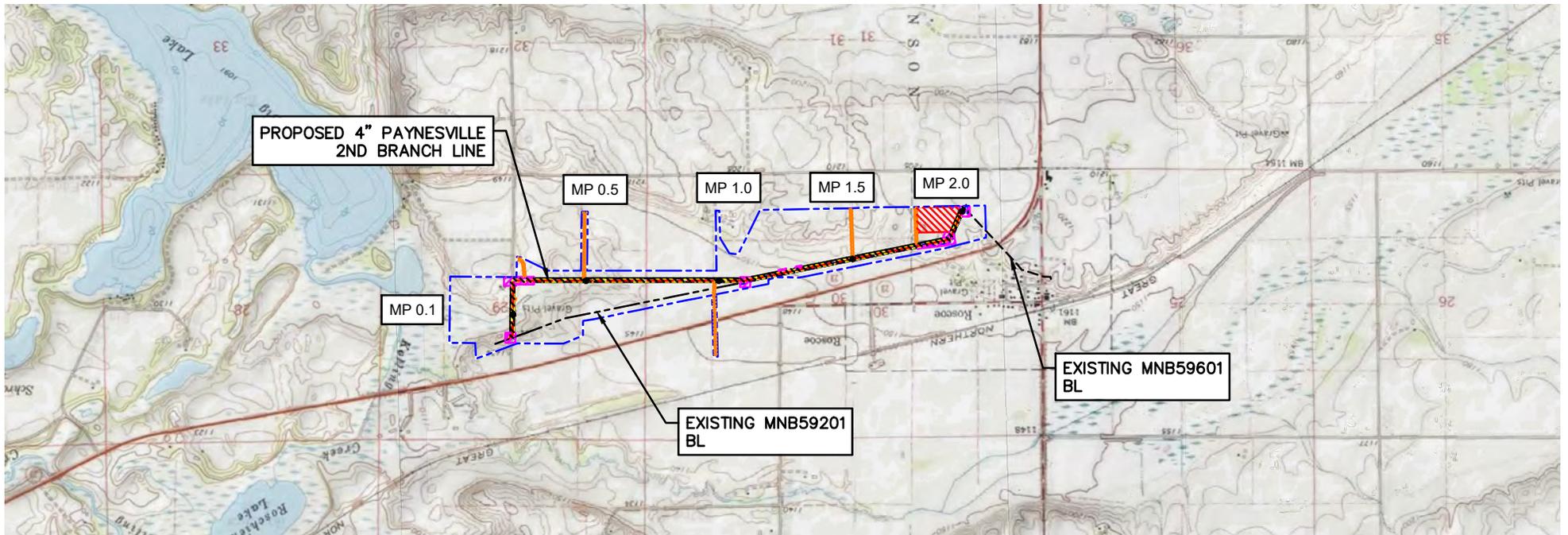
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- EXISTING MNB92901 BL - - - - -
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- PROJECT PERMANENT ROW [ ]
- TEMP. WORKSPACE [ ]
- EXTRA TEMP. WORKSPACE [ ]
- TEMP. ACCESS ROAD [ ]
- EXISTING PERMANENT ROW [ ]
- STAGING AREA [ ]
- ROAD APPROACH [ ]



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NOTES:  
 COORDINATE SYSTEM: NAD 1983 UTM ZONE 15F  
 DATA SOURCES INCLUDE: STANTEC, NNC, NADS, ESRI

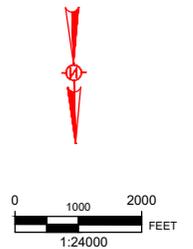
NORTHERN LIGHTS 2023 EXPANSION PROJECT  
 PRINCETON TIE-OVER LOOP  
 PROJECT LOCATION AND TOPOGRAPHIC  
 SEC. 35, T35N, R26W  
 SHERBURNE, MINNESOTA



**LEGEND**

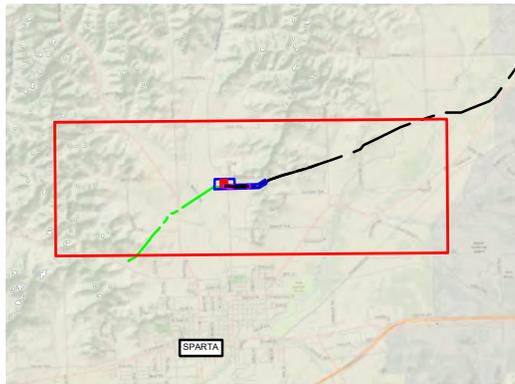
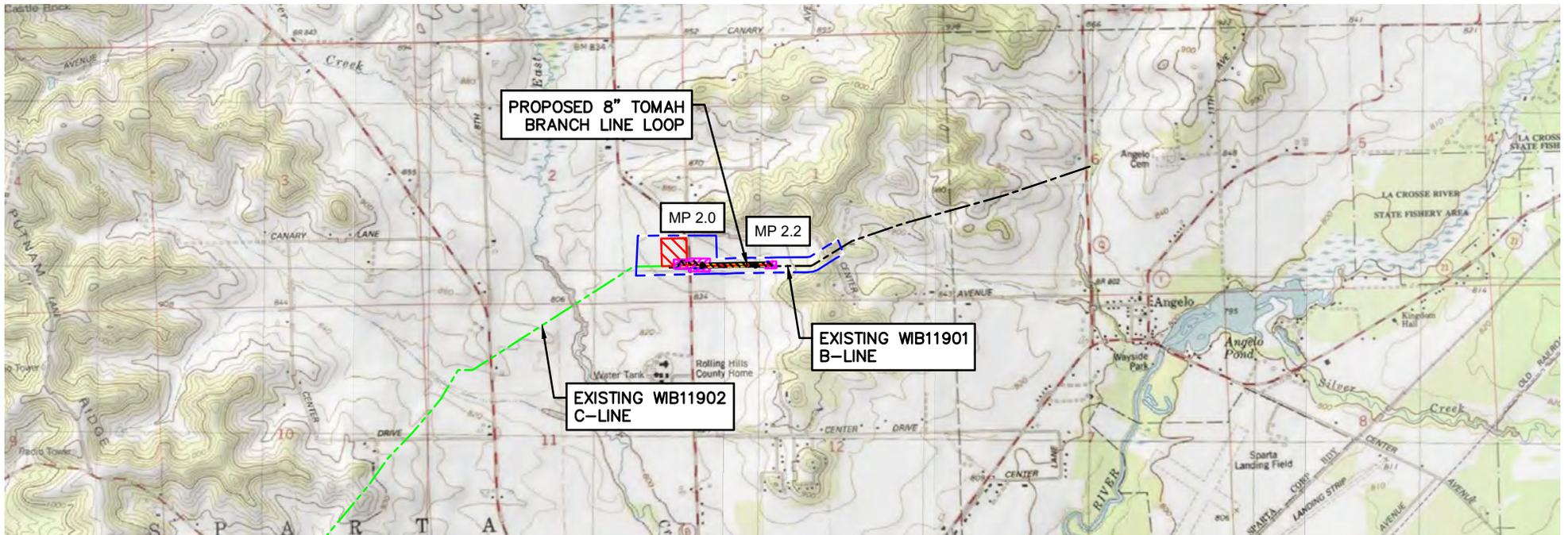
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- ENVIRONMENTAL SURVEY BOUNDARY
- PROJECT PERMANENT ROW
- TEMP. WORKSPACE
- EXTRA TEMP. WORKSPACE
- TEMP. ACCESS ROAD
- EXISTING PERMANENT ROW
- STAGING AREA
- ROAD APPROACH

NOTES:  
 COORDINATE SYSTEM: NAD 1983 UTM ZONE 15F  
 DATA SOURCES INCLUDE: STANTEC, NNC, NADS, ESRI



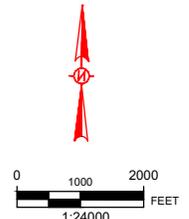
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NORTHERN LIGHTS 2023 EXPANSION PROJECT  
 PAYNESVILLE 2ND BRANCH LINE  
 PROJECT LOCATION AND TOPOGRAPHIC  
 SEC. 30, T123N, R31W  
 STEARNS COUNTY, MINNESOTA



**LEGEND**

- MILEPOST ●
- PROPOSED 8" TOMAH BRANCH LINE LOOP - - - - -
- EXISTING WIB11901 B-LINE - - - - -
- EXISTING WIB11902 C-LINE - - - - -
- ENVIRONMENTAL SURVEY BOUNDARY [ ]
- PROJECT PERMANENT ROW [ ]
- TEMP. WORKSPACE [ ]
- EXTRA TEMP. WORKSPACE [ ]
- TEMP. ACCESS ROAD [ ]
- EXISTING PERMANENT ROW [ ]
- STAGING AREA [ ]
- ROAD APPROACH [ ]



NOTES:  
 COORDINATE SYSTEM: NAD 1983 UTM ZONE 15F  
 DATA SOURCES INCLUDE: STANTEC, NRC, NADS, ESRI

1:24,000 (AT ORIGINAL DOCUMENT SIZE OF 11x17)

NORTHERN LIGHTS 2023 EXPANSION PROJECT  
 TOMAH BRANCH LINE LOOP  
 PROJECT LOCATION AND TOPOGRAPHIC  
 SEC. 1, 2, 11 & 12, T17N, R4W  
 MONROE COUNTY, WISCONSIN

**Appendix H**  
**Requested Modifications to FERC's *Wetland and Waterbody Construction and Mitigation Procedures***

**Appendix H**  
**Additional Temporary Workspace Within 50 Feet of Wetland or Waterbody**

MP	Feature Type	Temporary Impact (Acres)	Description	Alternatives to Procedures	Justification
<b>Ventura North E-Line</b>					
28.42	PEM1B	<0.1	ETWS00, ETWS01 and ETWS02, and AR01, located approximately 33 feet, 5 feet, 5 feet, and 1 foot respectively, from field-delineated wetland VBL-W07	VI.B.1.a Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland and waterbody boundaries, except where adjacent upland consists of actively cultivated or rotated cropland or other disturbed land.	No direct impact to the wetland, ATWS required for tie-in of large diameter pipeline. Northern estimates tie-in to be only 10 feet from wetland boundary.
29.52	PEM1B	<0.1	ETWS14 located approximately 11 feet from field-delineated wetland VBL-W03	VI.B.1.a Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland and waterbody boundaries, except where adjacent upland consists of actively cultivated or rotated cropland or other disturbed land.	No direct impact to the wetland, ATWS required for open cut crossing of 120 <sup>th</sup> Street.
29.91	PEM1B	<0.1	ETWS18 and ETWS19 each located approximately 5 feet from field-delineated wetland VBL-W09	VI.B.1.a Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland and waterbody boundaries, except where adjacent upland consists of actively cultivated or rotated cropland or other disturbed land.	No direct impact to the wetland, ATWS required for conventional bore of U.S. Highway 69. Due to the constraints of the 36-inch-diameter pipe, the conventional bore was designed shorter than 350 feet in order to maximize the probability of a successful bore.
<b>Elk River 3<sup>rd</sup> Branch Line</b>					
0.54	PEM1C	0.1	ETWS07 located within field delineated wetlands ERT-W23	VI.B.1.a Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland and waterbody boundaries, except where adjacent upland consists of actively cultivated or rotated cropland or other disturbed land.	ATWS is required to complete the pullback for HDD ERT P4-3 in one string section. Northern has necked-down the width of the ATWS in the wetland to minimize wetland impacts to the extent practicable. Northern will install timber mats in the wetland and redundant silt fence to protect the undisturbed wetland.

**Appendix H**  
**Additional Temporary Workspace Within 50 Feet of Wetland or Waterbody**

<b>MP</b>	<b>Feature Type</b>	<b>Temporary Impact (Acres)</b>	<b>Description</b>	<b>Alternatives to Procedures</b>	<b>Justification</b>
<b>Willmar D Branch Line</b>					
2.43	PFO1A	0.1	ETWS04 located within field-delineated wetland WIL-W12; ETWS05 and ETWS06 are located within 17 and 10 feet, respectively, of the same wetland. Temporary AR03 is located partially within WIL-W12.	VI.B.1.a Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland and waterbody boundaries, except where adjacent upland consists of actively cultivated or rotated cropland or other disturbed land.	ETWS04 is required to daylight a pipeline crossing in the middle of an HDD WIL P4-2; the remaining ATWS are for the HDD rig/supporting equipment set up. Northern has minimized the daylight ETWS to the extent practicable. Northern will install redundant silt fence to protect the wetland. AR03 is required to provide access to the north side of the HDD under WIL-W12.
2.43	Intermittent waterbody	<0.1	Temporary AR03 is located approximately 10 feet from waterbody WIL-S05	V.B.2.a Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland and waterbody boundaries, except where adjacent upland consists of actively cultivated or rotated cropland or other disturbed land.	Access road is required for an HDD; access road follows a mowed trail so it has the least impact on environment. Northern will install redundant silt fence to protect the waterbody.
<b>Paynesville 2<sup>nd</sup> Branch Line</b>					
0.00	PEM1B/PEM1C	<0.1	ETWS01 is located within 28 feet of wetland PBL-W15	VI.B.1.a Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland and waterbody boundaries, except where adjacent upland consists of actively cultivated or rotated cropland or other disturbed land.	ATWS required for work at the take off
1.08	PUBG	<0.1	ETWS07 located within 33 feet of field delineated wetland PBL-W18	VI.B.1.a Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland and waterbody boundaries, except where adjacent upland consists of actively cultivated or rotated cropland or other disturbed land.	ATWS required for point of inflection.

**Appendix I**  
**Federally and State-listed Species Potentially Occurring in the Vicinity of the**  
**Project**

Common Name	Scientific Name	Federal Status	State Status	County	Project Component	Habitat Description	Suitable Habitat Present
<b>Reptiles/Amphibians</b>							
Blanding's turtle	<i>Emydoidea blandingii</i>	None	Threatened	Washington	Elk River 3 <sup>rd</sup> branch Line	Blanding's turtles are semi-aquatic, living mostly in shallow wetland habitats where aquatic vegetation is abundant. These reptiles will specifically live in ephemeral wetlands in attempts to keep away from predators that are more prevalent in permanent wetlands.	<i>May occur</i> Suitable habitat is present within the Project area. <i>Not likely to adversely affect</i>
				Scott	Willmar D Branch Line		<i>May occur</i> Project area is within species known range, and contains or is adjacent to suitable habitat. <i>Not likely to adversely affect</i>
				Sherburne	Princeton Tie-Over Loop		<i>May occur</i> Project area is within species known range, and potential suitable habitat was identified within the Project area. <i>Not likely to adversely affect.</i>
			Special Concern	Monroe	Tomah Branch Line		<i>Does not occur</i> The Project area does not include or abut aquatic features <i>No effect</i>
Gopher snake	<i>Pituophis catenifer</i>	None	Special Concern	Sherburne	Princeton Tie-Over Loop	Found in dry sand and bluff prairie habitat. This snake will hibernate in the rock fissures of bluffs as well as in rodent burrows.	<i>Unlikely to occur</i> Project area is within species known range, but no suitable habitat was identified within the Project area. <i>No effect</i>
Wood turtle	<i>Glyptemys insculpta</i>	Species of Concern	Threatened	Monroe	Tomah Branch Line	Rivers and streams with adjacent riparian wetlands and upland deciduous forests.	<i>Does not occur</i> The Project area does not include or abut aquatic features <i>No effect</i>

Common Name	Scientific Name	Federal Status	State Status	County	Project Component	Habitat Description	Suitable Habitat Present
<b>Mammals</b>							
NLEB	<i>Myotis septentrionalis</i>	Threatened	Special Concern	Freeborn	Ventura North E-Line	Summer habitat includes tree cavities and crevices, loose bark of live or dead trees. Winter habitat includes large caves and mines.	<i>May occur</i> Project area contains suitable summer habitat. <i>May affect, but is not likely to adversely affect</i>
				Washington	Elk River 3 <sup>rd</sup> Branch Line		<i>May occur</i> Project area is within species known range and suitable habitat was identified within the Project area. <i>May affect, but is not likely to adversely affect</i>
				Scott	Willmar D Branch Line		<i>May occur</i> Project area is within species known range, and contains suitable summer habitat <i>May affect, but is not likely to adversely affect</i>
				Sherburne	Princeton Tie-Over Loop		<i>May occur</i> Project area is within species known range and suitable habitat was identified within the Project area <i>May affect, but is not likely to adversely affect</i>
				Stearns	Paynesville 2 <sup>nd</sup> Branch Line		<i>May occur</i> Project area is within species known range, and tree clearing will occur within the Project area. <i>May affect, but is not likely to adversely affect</i>
			Threatened	Monroe	Tomah Branch Line		<i>May occur</i> Potential habitat may be present in the Project area. <i>May affect, but is not likely to adversely affect</i>

Common Name	Scientific Name	Federal Status	State Status	County	Project Component	Habitat Description	Suitable Habitat Present
<b>Birds</b>							
Marbled godwit	<i>Limosa fedoa</i>	None	Special Concern	Stearns	Paynesville 2 <sup>nd</sup> Branch Line	Habitat that supports the marbled godwit includes native grasslands and ephemeral and semipermanent wetlands.	<b>Unlikely to occur</b> Project area is within species known range, but no suitable habitat was identified within the Project area. <b>No effect</b>
Whooping crane	<i>Grus americana</i>	Experimental Population, Non-Essential	None	Monroe	Tomah Branch Line	Large, open wetland ecosystems.	<b>Unlikely to occur</b> The Project area does not include large wetland systems. <b>No effect</b>
<b>Plants</b>							
Autumn fimbry	<i>Fimbristylis autumnalis</i>	None	Special Concern	Washington	Elk River 3 <sup>rd</sup> Branch Line	Autumn fimbry grows along the margins of shallow lakes and ponds with a sandy substrate particularly in the Anoka Sand Plain Region of Minnesota. These habitats fluctuate with seasonal ground water tables.	<b>Unlikely to occur</b> Project area is within species known range, but no suitable habitat was identified within the Project area. <b>No effect</b>
Narrow-leaved water plantain	<i>Alisma gramineum</i>	None	Special Concern	Washington	Elk River 3 <sup>rd</sup> Branch Line	Narrow-leaved water plantain have been observed to prefer habitat in shallow water that is less than 1 one meter deep in sandy substrate of larger wind-swept lakes.	<b>May occur</b> Project area is within species known range, but no suitable habitat was identified within the Project area. <b>No effect</b>
Hill's thistle	<i>Cirsium pumilum var. hillii</i>	None	Special Concern	Stearns	Paynesville 2 <sup>nd</sup> Branch Line	The Hill's thistle inhabits dry areas, primarily southern dry prairies, and southern dry savannas. Occasionally, this species also can be found in drier southern mesic prairies, central dry pine woodlands, and bedrock bluff prairies over thin soil	<b>Unlikely to occur</b> Project area is within species known range, but no suitable habitat was identified within the Project area. <b>No effect</b>

Common Name	Scientific Name	Federal Status	State Status	County	Project Component	Habitat Description	Suitable Habitat Present
Northern wild monkshood	<i>Aconitum noveboracense</i>	Threatened	Threatened	Monroe	Tomah Branch Line	Found on moist, moss ledges and cliff bases with cold air drainage resulting in a cool soil environment.	<b><i>Does not occur</i></b> The Project area does not include ledges or cliffs <b><i>No effect</i></b>
<b>Clams</b>							
Higgins eye pearlymussel	<i>Lampsilis higginsii</i>	Endangered	Endangered	Washington	Elk River 3 <sup>rd</sup> Branch Line	Higgins eye pearlymussels are found in larger rivers in deep water with moderate currents. They bury themselves in sand and gravel river bottoms.	<b><i>Unlikely to occur.</i></b> Project area is within species known range, but no suitable habitat was identified within the Project area. <b><i>No effect.</i></b>
Snuffbox mussel	<i>Epioblasma triquetra</i>	Endangered	Endangered	Washington	Elk River 3 <sup>rd</sup> Branch Line	Habitats for the snuffbox mussel are small to medium sized creeks with a swift current.	<b><i>Unlikely to occur</i></b> Project area is within species known range, but no suitable habitat was identified within the Project area. <b><i>No effect</i></b>
Spectaclecase mussel	<i>Cumberlandia monodonta</i>	Endangered	Endangered	Washington	Elk River 3 <sup>rd</sup> Branch Line	Freshwater mussel inhabits large rivers sheltered from the current. They often cluster in firm mud, beneath rock slabs, between boulders and under tree roots.	<b><i>Unlikely to occur</i></b> Project area is within species known range, but no suitable habitat was identified within the Project area. <b><i>No effect</i></b>
Winged mapleleaf	<i>Quadrula fragosa</i>	Endangered	Endangered	Washington	Elk River 3 <sup>rd</sup> Branch Line	They are known to live in large rivers that includes riffles with clean gravel, sand, rubble bottoms in clear high quality water.	<b><i>Unlikely to occur</i></b> Project area is within species known range, but no suitable habitat was identified within the Project area. <b><i>No effect</i></b>

Common Name	Scientific Name	Federal Status	State Status	County	Project Component	Habitat Description	Suitable Habitat Present
<b>Fish</b>							
Least darter	<i>Etheostoma microperca</i>	None	Special Concern	Washington	Elk River 3 <sup>rd</sup> Branch Line	Habitat includes crystal clear freshwater lakes and streams with dense submergent aquatic vegetation. In Minnesota least darters are usually found in low-velocity streams that are connected to a lake or stream system.	<b><i>Unlikely to occur</i></b> Project area is within species known range, but no suitable habitat was identified within the Project area. <b><i>No effect</i></b>
Redfin shiner	<i>Lythrurus umbratilis</i>	None	Special Concern	Monroe	Tomah Branch Line	Turbid waters of pools in low-gradient streams over substrates of boulders, sand, silt, or detritus	<b><i>Does not occur</i></b> The project area does not include waterways <b><i>No effect</i></b>
<b>Invertebrate</b>							
RPBB	<i>Bombus affinis</i>	Endangered	None	Scott	Willmar D Branch Line	Habitat generalist; can be found in grasslands, shrublands, and forested areas, as well as tall grass prairies, sedge meadows, and unplowed calcareous prairies/fens.	<b><i>May occur</i></b> Project area is within species known range, and suitable habitat was identified within the Project area. <b><i>To be determined</i></b>
Regal fritillary	<i>Speyeria idalia</i>	None	Special Concern	Stearns	Paynesville 2 <sup>nd</sup> Branch Line	In Minnesota the regal fritillary inhabits native prairie habitats. Adults can be found in both upland prairies and wet prairies.	<b><i>Unlikely to occur</i></b> Project area is within species known range, but no suitable habitat was identified within the Project area. <b><i>No effect</i></b>
KBB	<i>Lycaeides melissa samuelis</i>	Endangered	Special Concern	Monroe	Tomah Branch Line	Pine barrens and oak savanna in close association with its larval hostplant lupine. In Wisconsin, also found along utility and road right of ways, abandoned agricultural fields, and managed forests.	<b><i>May occur</i></b> Potential habitat may be present in the Project area. Not located in a High Potential Range area and host plant is not present. <b><i>No effect</i></b>

Common Name	Scientific Name	Federal Status	State Status	County	Project Component	Habitat Description	Suitable Habitat Present
Monarch butterfly	<i>Danaus plexippus</i>	Candidate	None	Freeborn	Ventura North E-Line	Habitat includes roadside ditches and open prairies where milkweed and other flowering plants are present. Milkweed is needed for breeding and flowering plants provide nectar for Monarch's to feed on.	<b><i>Unlikely to occur</i></b> Project area is within species known range, but no suitable habitat was identified within the Project area. <b><i>No effect</i></b>
				Washington	Elk River 3 <sup>rd</sup> Branch Line		<b><i>Unlikely to occur</i></b> Project area is within species known range, but no suitable habitat was identified within the Project area. <b><i>No effect.</i></b>
				Scott	Willmar D Branch Line		<b><i>Unlikely to occur</i></b> Project area is within species known range, but no suitable habitat was identified within the Project area. <b><i>No effect</i></b>
				Sherburne	Princeton Tie-Over Loop		<b><i>Unlikely to occur</i></b> Project area is within species known range, but no suitable habitat was identified within the Project area. <b><i>No effect</i></b>
				Stearns	Paynesville 2 <sup>nd</sup> Branch Line		<b><i>Unlikely to occur</i></b> Project area is within species known range, but no suitable habitat was identified within the Project area. <b><i>No effect</i></b>
				Monroe	Tomah Branch Line		<b><i>May occur</i></b> Project area is within species known range, but no suitable habitat was identified within the Project area. <b><i>No effect</i></b>

**Appendix J**  
**List of Migratory Bird Species That May be Affected by the Project**

Common Name	Scientific Name	Seasonal Occurrence in the Project Area	Habitat
American bittern	<i>Botaurus lentiginosus</i>	Breeding	Breeding habitat includes freshwater marshes, large, shallow wetlands with abundant tall marsh vegetation, and areas of open shallow water
Acadian flycatcher	<i>Empidonax virescens</i>	Breeding	Breeding habitat includes undisturbed, mature forests, as well as streams, wooded ravines, and river bottoms
Baird's sparrow	<i>Centronyx bairdii</i>	Not breeding	Habitat includes undisturbed mixed or tallgrass prairies; they can sometimes be found in hayfields or pastures with some native grasses
Bald eagle	<i>Haliaeetus leucocephalus</i>	Year-round Breeds December 1st to August 31st	Breeding habitat includes areas near coastal areas, bays, rivers, lakes, reservoirs, or other large bodies of water; nests are usually in tall trees or on pinnacles or cliffs near water
Bell's vireo	<i>Vireo bellii</i>	Not breeding	Habitat includes low, dense, shrubby areas; examples include brushy fields, riverine scrub, coastal chaparral, scrub oak, and shrubs and trees in prairies
Bewick's wren (bewickii spp.)	<i>Thryomanes bewickii</i>	Not breeding	Habitat includes open country or woodland with brushy areas, scrub, or thickets, as well as, oak woodlands, mixed evergreen forests, desert scrub, or suburban gardens
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	Breeding (May 15th to October 10th)	Breeding habitat includes deciduous thickets and shrubby places, as well as the edges of woodlands or around marshes

Common Name	Scientific Name	Seasonal Occurrence in the Project Area	Habitat
Black-crowned night-heron	<i>Nycticorax</i>	Breeding	Breeding habitat includes a variety of wetlands, such as saltmarshes, freshwater marshes, swamps, streams, rivers, lakes, ponds, lagoons, tidal mudflats, canals, reservoirs, and wet agricultural fields
Black rail	<i>Laterallus jamaicensis</i>	Not breeding	Habitat includes wet meadows, riparian marshes, saltmarshes, coastal prairies, and impounded wetlands that are stable, shallow, and no more than 1.2 inches deep
Black tern	<i>Chlidonias niger</i>	Breeding (May 15th to August 20th)	Breeding habitat includes fresh marshes and lakes, fresh water with extensive marsh vegetation, open water, smaller marshes, and wet meadows
Blue-winged warbler	<i>Vermivora cyanoptera</i>	Breeding in southern MN and WI	Breeding habitat includes shrublands, scrubby areas, thickets, and forest edges
Bobolink	<i>Dolichonyx oryzivorus</i>	Breeding (May 20th to July 31st)	Breeding habitat includes damp meadows and natural prairies with dense growth of grass, weeds, and a few low bushes
Brown thrasher	<i>Toxostoma rufum</i>	Breeding	Thickets, brush, shrubbery, thorn scrub; breeds in areas of dense low growth, especially thickets around edges of deciduous or mixed woods, shrubby edges of swamps, or undergrowth in open pine woods; also in suburban neighborhoods with abundant shrubs and hedges

Common Name	Scientific Name	Seasonal Occurrence in the Project Area	Habitat
Buff-breasted sandpiper	<i>Calidris subruficollis</i>	Migrant	Shortgrass prairies; in summer, tundra ridges; migrates to mostly dry open ground, such as prairies, pastures, airports, stubble fields, plowed fields. Sometimes on shores of lakes or ponds, or on coastal flats, but even there tends to be on higher, drier sections
Canada warbler	<i>Cardellina canadensis</i>	Breeding (May 20th to August 10th)	Forest undergrowth, shady thickets; breeds in mature mixed hardwoods of extensive forests and streamside thickets; prefers to nest in moist habitat near swamps, on stream banks, in rhododendron thickets, in deep, rocky ravines, and in moist deciduous second-growth
Cerulean warbler	<i>Setophaga cerulea</i>	Breeding (April 22nd to July 20th)	Deciduous forests, especially in river valleys; breeds in mature hardwoods either in uplands or along streams; prefers elm, soft maple, oak, birch, hickory, beech, basswood, linden, sycamore, or black; nests only in tall forests with a clear understory
Chestnut-collared longspur	<i>Calcarius ornatus</i>	Not breeding	Dry areas that have been recently grazed, shortgrass and mixed-grass prairies, but generally within grasses that are shorter than one foot
Common tern	<i>Sterna hirundo</i>	Migrant Breeding in interspersed areas of central MN	Wide range of aquatic habitats, inland waters in low-lying, open country where shallow waters for fishing are close to undisturbed flat islands or beaches; breeding habitats include rocky islands, barrier beaches, and saltmarshes

Common Name	Scientific Name	Seasonal Occurrence in the Project Area	Habitat
Dickcissel	<i>Spiza americana</i>	Breeding	Fields of alfalfa, clover, timothy, or other crops; grassy or weedy fields
Field sparrow	<i>Spizella pusilla</i>	Breeding	Open habitat with low perches, such as agricultural fields, pastures, fencerows, road and forest edges, and open wooded areas; breeding habitat is away from human settlements; they seek out fields that have been cultivated or burned with nearby perches
Franklin's Gull	<i>Leucophaeus pipixcan</i>	Breeding (May 1st to July 31st) and late fall migrant	Breeding habitat consists of freshwater marshes with emergent vegetation as well as open water; during migration, they are found in most habitats, but they seek agricultural areas, pastures, and wetlands for feeding
Golden-winged warbler	<i>Vermivora chrysoptera</i>	Breeding (May 1st to July 20th) and late summer	Habitat includes open woodlands, brushy clearings, undergrowth; breeding habitat includes bushy areas with patches of weeds, shrubs, and scattered trees such as older pine, marshes and tamarack bogs
Grasshopper sparrow	<i>Ammodramus savannarum</i>	Breeding	Breeding habitat includes grasslands, prairies, hayfields, and open pastures with little ground cover
Henslow's sparrow	<i>Centronyx henslowii</i>	Breeding (May 1st to August 31st)	Breeding habitat includes fields and meadows, often in low-lying or damp areas with tall grass, standing dead weeds, and scattered shrubs
Horned grebe	<i>Podiceps auritus</i>	Not breeding Migrant	Lakes, ponds, and large rivers having both open water and marsh vegetation, surrounded by northern forest or prairie

Common Name	Scientific Name	Seasonal Occurrence in the Project Area	Habitat
Hudsonian godwit	<i>Limosa haemastica</i>	Not breeding Spring	Spring migrants are on shallow, marshy lakes, flooded pastures, rice fields, or mudflats around ponds
Kentucky warbler	<i>Geothlypis formosa</i>	Breeding in southwestern WI Not breeding in MN	Breeding habitat includes large tracts of lowland hardwood forest near streams with Mayapple, white avens, spicebush, and other dense understory plants for nesting
Least bittern	<i>Ixobrychus exilis</i>	Breeding	Breeding habitat includes freshwater and brackish marshes that include reeds and rushes, woody vegetation, and patches with open water; less commonly they are found in mangroves and saltmarshes
Lesser Yellowlegs	<i>Tringa flavipes</i>	Not breeding Spring and late summer migration	Migration habitat includes a variety of wetlands, including mudflats, marshes, lake and pond edges, wet meadows, sewage ponds, and flooded agricultural fields
Loggerhead shrike	<i>Lanius ludovicianus</i>	Breeding	Open country with short vegetation and shrubs or low trees with spines or thorns; also found in agricultural fields, pastures, old orchards, riparian areas, desert scrublands, savannas, prairies, golf courses, cemeteries, and mowed roadsides with fence lines
Long-billed curlew	<i>Numenius americanus</i>	Not breeding	When traveling to wintering grounds they utilize shortgrass prairies, alkali lakes, wet pastures, tidal mudflats, and agricultural fields

Common Name	Scientific Name	Seasonal Occurrence in the Project Area	Habitat
Marbled godwit	<i>Limos fedoa</i>	Not breeding	Habitat includes shortgrass prairies, preferably with green needle grass, western wheatgrass, blue grama, needle-and-thread, little blue stem, and nearby wetlands
Marsh wren	<i>Cistothorus palustris</i>	Breeding	Marshes (cattail, bulrush, or brackish); breeds in many fresh and brackish marsh situations, usually within a large area of cattails, bulrushes, or cordgrass; also in other kinds of low rank growth along shallow water
McCown's longspur/Thick-billed longspur	<i>Rhynchophanes mccownii</i>	Not breeding	Short, open habitats such as agricultural fields, dry lake beds, and areas that include blue grama, buffalo grass, purple three-awn, western wheatgrass, needle-and-thread, opuntia cacti, broom snakeweed, rabbitbrush, and prairie sagebrush
Mountain plover	<i>Charadrius montanus</i>	Not breeding	Shortgrass prairies with blue grama, buffalo grass, and western wheatgrass; grassy semidesert, as well as agricultural fields and overgrazed landscapes
Nelson's sparrow	<i>Ammospiza nelsoni</i>	Migrant	Migration habitat includes varied wetlands, including bogs and freshwater marshes with cattails, cordgrass, sedges, reeds, rivergrass, and foxtail barley

Common Name	Scientific Name	Seasonal Occurrence in the Project Area	Habitat
Northern flicker	<i>Colaptes auratus</i>	Year-round	Habitat includes woodlands, forest edges, open fields with scattered trees, city parks, suburbs, streamside woods, flooded swamps, and marsh edges
Peregrine falcon	<i>Falco peregrinus</i>	Year-round along Mississippi River and Migrant	Open country, cliffs (mountains to coast); sometimes cities over its wide range, found in a wide variety of open habitat often near water; moves into cities nesting on building ledges and feeding on pigeons
Pied-billed grebe	<i>Podilymbus podiceps</i>	Breeding	Heavy marsh vegetation, but also in open water; fresh to brackish water; habitat types include freshwater wetlands, wet fields, bays, sloughs, marshes, lakes, slow-moving rivers, and sewage ponds; use emergent vegetation to construct floating nests
Prothonotary warbler	<i>Protonotaria citrea</i>	Breeding	Breeding habitat includes flooded bottomland forests and wooded swamps near lakes and streams; forests generally must be larger than 250 acres or the forest border must be greater than 100 feet wide
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	Breeding (May 10th to September 10th) and spring	Breeding habitat includes open woodland, especially with beech or oak and dead or dying trees, open areas with scattered trees, parks, cultivated areas, and gardens
Red knot (roselaari spp.)	<i>Roselaari ssp.</i>	Not breeding Migrant	Mudflats and sandy beaches

Common Name	Scientific Name	Seasonal Occurrence in the Project Area	Habitat
Red knot (rufa spp.)	<i>Rufa ssp.</i>	Not breeding Migrant	Mudflats and sandy beaches
Ruddy Turnstone	<i>Arenaria interpres</i>	Not breeding Spring migration	Migration habitats include freshwater lake shorelines, coastal rocky or sandy beaches, and mudflats
Rusty blackbird	<i>Euphagus carolinus</i>	Not breeding Spring and fall migration	Migration habitat includes areas with trees near water, open fields, and cattle fields
Short-billed dowitcher	<i>Limnodromus griseus</i>	Not breeding	Habitat includes freshwater ponds with muddy margins
Short-eared owl	<i>Asio flammeus</i>	Not breeding Winter	Found in open country supporting high numbers of small rodents including stubble fields, small meadows, and shrubby areas
Smith's longspur	<i>Calcarius pictus</i>	Migrant	Migrant habitat includes grasslands, stubble fields, mowed fields, airports, heavily-grazed cattle pastures, and grassy areas around remote lakes; they prefer silver beardgrass, little bluestem, purple three-awn grass, and the panic-grasses
Solitary sandpiper	<i>Tringa solitaria</i>	Migrant	Streamsides, wooded swamps and ponds, fresh marshes; generally along shaded streams and ponds, riverbanks, and narrow channels in marshes

Common Name	Scientific Name	Seasonal Occurrence in the Project Area	Habitat
Sprague's pipit	<i>Anthus spragueii</i>	Not breeding	Habitat includes native mixed-grass prairie with little bare ground and grass species that are no more than 6-12 inches tall including blue grama, junegrass, fescues, wheatgrass, foxtail barley, Canby blue, speargrasses, salt grass, plains muhly, and threadleaf sedge; uncommon in cropland and non-native grasslands
Swainson's hawk	<i>Buteo swainsoni</i>	Breeding	Open habitats, preferably native prairie and grassland, but they are well adapted to alfalfa fields, pastures, and perching on fence posts and sprinkler systems; breeding habitat includes scattered trees near agricultural fields and grasslands
Upland sandpiper	<i>Bartramia longicauda</i>	Breeding	Grassy prairies, open meadows, fields; favored nesting habitat is native grasslands with a mixture of tall grass and broad-leaved weeds; in migration they stop on open pastures and lawns
Whimbrel	<i>Numenius phaeopus</i>	Not breeding	Habitat includes marshes, meadows, fields, dunes, oyster beds, small islands, and mangrove trees
Whip-poor-will (eastern)	<i>Antrostomus vociferus</i>	Breeding	Breeding habitat includes dry deciduous forest or evergreen-deciduous forest with little underbrush and within the vicinity of open areas, particularly pine-oak with juniper, pine plantations, pine flatwoods, northern hardwood forests, low-elevation white pine, oak, aspen, birch, and scrubby woodlands with pitch pine, scrub oak, and hickory

Common Name	Scientific Name	Seasonal Occurrence in the Project Area	Habitat
Willow flycatcher	<i>Empidonax traillii</i>	Breeding	Breeding habitat includes thickets of deciduous trees and shrubs, especially willows, or along woodland edges; often near streams or marshes
Wood thrush	<i>Hylocichla mustelina</i>	Breeding (May 10th to August 31st) and late spring	Breeding habitat includes the understory of woodlands, damp forests and near streams
Yellow rail	<i>Coturnicops noveboracensis</i>	Breeding in northern MN and migrant in southern MN; breeding in northern WI and migrant in western WI	Grassy marshes, meadows; favors large wet meadows or shallow marshes dominated by sedges and grasses with water no more than one foot deep

**Appendix K**  
**Acreage Affected by Construction and Operation of the Project**

**Appendix K - Acreage Affected by Construction and Operation of the Project<sup>a</sup>**

Facility	Agricultural		Forest/ Woodland		Wetland		Open Land		Residential		Industrial/ Commercial		Open Water		Total	
	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper
<b>Ventura North E-Line</b>																
Pipeline ROW <sup>1,2</sup>	30.7	15.4	0.2	<0.1	0.1	0.1	2.1	1.0	0.0	0.0	0.4	0.2	0.0	0.0	33.4	16.7
<i>Within Existing Easement</i>	8.0	5.7	0.0	0.0	<0.1	<0.1	0.2	0.1	0.0	0.0	0.1	0.1	0.0	0.0	8.4	5.9
<i>Outside of Existing Easement</i>	22.7	9.8	0.2	<0.1	0.1	<0.1	1.9	0.9	0.0	0.0	0.3	0.1	0.0	0.0	25.1	10.8
ETWS	16.1	0.0	0.1	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	17.5	0.0
<i>Within Existing Easement</i>	2.3	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	2.5	0.0
<i>Outside of Existing Easement</i>	13.9	0.0	0.1	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.3	0.0	0.0	0.0	15.1	0.0
Staging Area <sup>3</sup>	25.3	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	29.4	0.0
Access Roads <sup>3</sup>	5.6	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	6.6	0.0
Existing Aboveground Facilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1	0.0	0.0	0.0	0.0
<i>Within Existing Easement</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1	0.0	0.0	0.0	0.0
<i>Outside of Existing Easement</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proposed Aboveground Facilities	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
<i>Within Existing Easement</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
<i>Outside of Existing Easement</i>	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Subtotal</b>	<b>77.7</b>	<b>15.4</b>	<b>0.3</b>	<b>0.0</b>	<b>0.1</b>	<b>0.1</b>	<b>8.2</b>	<b>1.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.9</b>	<b>0.2</b>	<b>0.0</b>	<b>0.0</b>	<b>87.2</b>	<b>16.8</b>
<b>Elk River 3<sup>rd</sup> Branch Line</b>																
Pipeline ROW <sup>1,2</sup>	1.8	1.1	0.5	0.1	0.0	0.0	6.4	3.5	<0.1	0.0	0.1	<0.1	0.1	0.0	8.8	4.7
<i>Within Existing Easement</i>	0.4	0.3	<0.1	0.0	0.0	0.0	1.2	0.8	<0.1	0.0	0.0	0.0	0.0	0.0	1.6	1.1
<i>Outside of Existing Easement</i>	1.4	0.8	0.5	0.1	0.0	0.0	5.1	2.7	0.0	0.0	0.1	<0.1	0.1	0.0	7.2	3.6
ETWS	2.2	0.0	1.0	0.0	0.1	0.0	4.7	0.0	<0.1	0.0	<0.1	0.0	0.0	0.0	8.1	0.0
<i>Within Existing Easement</i>	0.4	0.0	0.2	0.0	0.0	0.0	1.3	0.0	<0.1	0.0	<0.1	0.0	0.0	0.0	1.9	0.0
<i>Outside of Existing Easement</i>	1.8	0.0	0.8	0.0	0.1	0.0	3.4	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	6.2	0.0

**Appendix K - Acreage Affected by Construction and Operation of the Project<sup>a</sup>**

Facility	Agricultural		Forest/ Woodland		Wetland		Open Land		Residential		Industrial/ Commercial		Open Water		Total	
	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper
Staging Area <sup>3</sup>	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0
Access Roads <sup>3</sup>	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0
Existing Aboveground Facilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	1.6	0.0	0.0	1.6	1.6
<i>Within Existing Easement</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.3	0.3
<i>Outside of Existing Easement</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	0.0	0.0	1.2	1.2
Proposed Aboveground Facilities	<0.1	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	<0.1	0.0	0.0	0.0	0.0	0.1	0.1
<i>Within Existing Easement</i>	<0.1	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1	0.0	0.0	0.0	0.0	0.1	0.1
<i>Outside of Existing Easement</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1	0.0	0.0	0.0	0.0	<0.1	<0.1
<b>Subtotal</b>	<b>4.0</b>	<b>1.1</b>	<b>1.5</b>	<b>0.1</b>	<b>0.1</b>	<b>0.0</b>	<b>17.1</b>	<b>3.5</b>	<b>0.1</b>	<b>0.1</b>	<b>1.7</b>	<b>1.6</b>	<b>0.1</b>	<b>0.0</b>	<b>24.6</b>	<b>6.4</b>
<b>Willmar D Branch Line</b>																
Pipeline ROW <sup>1,2</sup>	4.6	2.3	0.5	0.1	0.1	0.0	1.6	0.9	0.4	0.2	<0.1	<0.1	0.0	0.0	7.2	3.5
<i>Within Existing Easement</i>	1.6	1.2	0.0	0.0	<0.1	0.0	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.0	2.2	1.5
<i>Outside of Existing Easement</i>	3.0	1.1	0.5	0.1	0.1	0.0	1.2	0.6	0.3	0.1	<0.1	<0.1	0.0	0.0	5.0	2.0
ETWS	2.4	0.0	0.8	0.0	<0.1	0.0	2.3	0.0	0.1	0.0	0.1	0.0	0.0	0.0	5.7	0.0
<i>Within Existing Easement</i>	0.6	0.0	<0.1	0.0	<0.1	0.0	0.2	0.0	0.1	0.0	<0.1	0.0	0.0	0.0	1.0	0.0
<i>Outside of Existing Easement</i>	1.8	0.0	0.8	0.0	0.0	0.0	2.1	0.0	<0.1	0.0	0.1	0.0	0.0	0.0	4.7	0.0
Staging Area <sup>3</sup>	25.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	25.4	0.0
Access Roads <sup>3</sup>	2.1	0.0	0.3	0.0	<0.1	0.0	0.6	0.0	0.2	0.0	<0.1	0.0	0.0	0.0	3.3	0.0
Existing Aboveground Facilities <sup>4</sup>	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
Proposed Aboveground Facilities	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1	0.0	0.0	0.2	0.2
<i>Within Existing Easement</i>	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1	0.0	0.0	0.1	0.1
<i>Outside of Existing Easement</i>	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2
<b>Subtotal</b>	<b>34.7</b>	<b>2.5</b>	<b>1.6</b>	<b>0.1</b>	<b>0.1</b>	<b>0.0</b>	<b>4.5</b>	<b>0.9</b>	<b>0.7</b>	<b>0.2</b>	<b>0.2</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>41.8</b>	<b>3.8</b>

**Appendix K - Acreage Affected by Construction and Operation of the Project<sup>a</sup>**

Facility	Agricultural		Forest/ Woodland		Wetland		Open Land		Residential		Industrial/ Commercial		Open Water		Total	
	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper
<b>Princeton Tie-Over Loop</b>																
Pipeline ROW <sup>1,2</sup>	2.5	1.6	0.9	0.5	0.1	0.0	10.8	7.0	2.1	1.4	0.1	<0.1	0.0	0.0	16.6	10.5
<i>Within Existing Easement</i>	0.8	0.8	0.2	0.2	0.0	0.0	3.4	3.4	0.7	0.6	0.0	0.0	0.0	0.0	5.1	4.9
<i>Outside of Existing Easement</i>	1.7	0.8	0.7	0.3	0.1	0.0	7.4	3.7	1.5	0.8	0.1	<0.1	0.0	0.0	11.5	5.6
ETWS	1.7	0.0	0.5	0.0	0.0	0.0	5.7	0.0	2.1	0.0	0.1	0.0	0.0	0.0	10.1	0.0
<i>Within Existing Easement</i>	0.2	0.0	0.2	0.0	0.0	0.0	1.7	0.0	0.5	0.0	0.0	0.0	0.0	0.0	2.5	0.0
<i>Outside of Existing Easement</i>	1.6	0.0	0.3	0.0	0.0	0.0	4.0	0.0	1.6	0.0	0.1	0.0	0.0	0.0	7.6	0.0
Staging Area	12.3	0.0	0.0	0.0	0.0	0.0	11.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.6	0.0
<i>Within Existing Easement</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
<i>Outside of Existing Easement</i>	12.3	0.0	0.0	0.0	0.0	0.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.3	0.0
Access Roads <sup>3</sup>	1.2	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	2.5	0.0
Existing Aboveground Facilities <sup>5</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.2	0.2
<i>Within Existing Easement</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1
<i>Outside of Existing Easement</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1
Proposed Aboveground Facilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1	0.0	0.0	<0.1	<0.1
<i>Within Existing Easement</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Outside of Existing Easement</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	<0.1	<0.1
<b>Subtotal</b>	<b>17.7</b>	<b>1.6</b>	<b>1.4</b>	<b>0.5</b>	<b>0.1</b>	<b>0.0</b>	<b>28.9</b>	<b>7.0</b>	<b>4.4</b>	<b>1.4</b>	<b>0.5</b>	<b>0.2</b>	<b>0.0</b>	<b>0.0</b>	<b>53.0</b>	<b>10.7</b>
<b>Paynesville 2<sup>nd</sup> Branch Line</b>																
Pipeline ROW <sup>1,2</sup>	12.8	8.5	0.2	0.2	0.1	0.1	4.9	3.2	0.0	0.0	<0.1	<0.1	0.0	0.0	18.0	12.0
<i>Within Existing Easement</i>	1.8	1.8	0.0	0.0	0.1	0.1	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	2.8	2.8
<i>Outside of Existing Easement</i>	11.0	6.7	0.2	0.2	<0.1	<0.1	4.0	2.3	0.0	0.0	<0.1	<0.1	0.0	0.0	15.2	9.2
ETWS	3.6	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.2	0.0	0.0	0.0	4.3	0.0



Appendix K - Acreage Affected by Construction and Operation of the Project <sup>a</sup>																
Facility	Agricultural		Forest/ Woodland		Wetland		Open Land		Residential		Industrial/ Commercial		Open Water		Total	
	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper
<i>Within Existing Easement</i>	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
<i>Outside of Existing Easement</i>	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
<b>Subtotal</b>	<b>10.2</b>	<b>1.5</b>	<b>0.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.6</b>	<b>0.3</b>	<b>0.3</b>	<b>0.1</b>	<b>0.4</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>	<b>11.7</b>	<b>2.2</b>
Project Within Existing Easement	18.4	10.4	0.6	0.2	0.1	0.1	10.1	5.7	1.7	0.8	0.8	0.7	0.0	0.0	31.6	17.9
Project Outside of Existing Easement	156.9	20.4	4.5	0.7	0.4	0.1	54.7	10.4	3.8	0.9	3.3	2.1	0.1	0.0	223.8	34.5
<b>PROJECT TOTAL</b>	<b>175.4</b>	<b>30.8</b>	<b>5.1</b>	<b>0.9</b>	<b>0.5</b>	<b>0.1</b>	<b>64.7</b>	<b>16.1</b>	<b>5.5</b>	<b>1.7</b>	<b>4.1</b>	<b>2.7</b>	<b>0.1</b>	<b>0.0</b>	<b>255.4</b>	<b>52.4</b>

<sup>a</sup>The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

<sup>1</sup> Construction ROW is based on 100-foot-wide or 75-foot-wide corridors in uplands and a 75-foot-wide corridor in wetlands, with the exception of PBL-W20 which is 50 feet. Operational ROW is based on 50-foot-wide corridor in uplands and 10-foot-wide corridor in wetlands.

<sup>2</sup> Northern also included impacts for a single 6-foot-wide or two 3-foot-wide parallel travel lanes between HDD entry and exit points in the pipeline ROW calculations. Travel lane for PRB P4-2 will be a single 4-foot-wide or two 2-foot wide parallel travel lanes.

<sup>3</sup> Outside existing easement.

<sup>4</sup> Within existing easement.

<sup>5</sup> Includes acres of existing facility at both north and south end of pipeline.

## **Appendix L**

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29 CFR 1910 Occupational Safety and Health Standards.

29 CFR 1926 Safety and Health Regulations for Construction.

49 CFR Part 192 Transportation of Natural and other Gas by Pipeline: Minimum Federal Safety Standards.

16 USC 703-711 Migratory Bird Treaty Act

16 USC Part 668-668d Bald and Golden Eagle Protection Act

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**Appendix M**  
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