



**Federal Energy
Regulatory
Commission**

**Office of
Energy Projects**

May 2019

Northern Natural Gas Company

Docket No. CP19-1-000

Palmyra to Ogden A-line Project

Environmental Assessment

Washington, DC 20426

FEDERAL ENERGY REGULATORY COMMISSION

WASHINGTON, D.C. 20426

OFFICE OF ENERGY PROJECTS

In Reply Refer To:
OEP/DG2E/Gas 3
Northern Natural Gas Company
Palmyra to Ogden A-Line Project
Docket No. CP19-1-000

TO THE INTERESTED PARTY:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared an environmental assessment (EA) for the Palmyra to Ogden A-Line Project, involving abandonment by sale of facilities by Northern Natural Gas Company (Northern) to DKM Enterprises, LLC (DKM) in Otoe and Cass counties in Nebraska, and Mills, Pottawattamie, Cass, Audubon, Guthrie, Greene, and Boone counties in Iowa.

The EA assesses the potential environmental effects of the Palmyra to Ogden A-Line Project in accordance with the requirements of the National Environmental Policy Act. The FERC staff concludes that approval of the proposed project, with appropriate mitigating measures, would not constitute a major federal action significantly affecting the quality of the human environment.

Northern proposes to isolate and abandon by sale to DKM approximately 146.6 miles of 24-inch-diameter pipeline on Northern's M580A and M530A system (collectively referred to as the "A-line") from Palmyra, Nebraska, to Ogden, Iowa. Northern indicates that DKM intends to salvage the abandoned pipeline.

To abandon the pipeline, Northern would disconnect and cap the A-line at five interconnections where it is linked to other system facilities. Ground disturbances would be limited to one location in Otoe County, Nebraska, and four locations in Mills, Guthrie, and Boone counties, Iowa, where the A-line would be disconnected from Northern's existing pipeline system.

The Commission mailed a copy of the *Notice of Availability* to federal, state, and local government representatives and agencies; elected officials; Native American Tribes; other interested parties; local libraries and newspapers; and other interested individuals and groups, including commenters. The EA is only available in electronic format. It may be viewed and downloaded from FERC's website (<http://www.ferc.gov>), on the Environmental Documents page (<https://www.ferc.gov/industries/gas/enviro/eis.asp>). In

addition, the EA may be accessed by using the eLibrary link on the FERC's website. Click on the eLibrary link (<https://www.ferc.gov/docs-filing/elibrary.asp>), click on General Search, and enter the docket number in the "Docket Number" field, excluding the last three digits (i.e. CP19-1). Be sure you have selected an appropriate date range. For assistance, please contact FERC Online Support at FercOnlineSupport@ferc.gov or toll free at (866) 208-3676, or for TTY, contact (202) 502-8659.

Any person wishing to comment on the EA may do so. Your comments should focus on the EA's disclosure and discussion of potential environmental effects, reasonable alternatives, and measures to avoid or lessen environmental impacts. The more specific your comments, the more useful they will be. To ensure that the Commission has the opportunity to consider your comments prior to making its decision on this project, it is important that we receive your comments in Washington, DC on or before 5:00 pm Eastern Time on **June 12, 2019**.

For your convenience, there are three methods you can use to file your comments with the Commission. The Commission encourages electronic filing of comments and has staff available to assist you at (866) 208-3676 or FercOnlineSupport@ferc.gov. Please carefully follow these instructions so that your comments are properly recorded.

- (1) You can file your comments electronically using the [eComment](#) feature located on the Commission's website (www.ferc.gov) under the link to [Documents and Filings](#). This is an easy method for submitting brief, text-only comments on a project;
- (2) You can also file your comments electronically using the [eFiling](#) feature on the Commission's website (www.ferc.gov) under the link to [Documents and Filings](#). With eFiling, you can provide comments in a variety of formats by attaching them as a file with your submission. New eFiling users must first create an account by clicking on "[eRegister](#)." You must select the type of filing you are making. If you are filing a comment on a particular project, please select "Comment on a Filing"; or
- (3) You can file a paper copy of your comments by mailing them to the following address. Be sure to reference the project docket number (CP19-1-000) with your submission: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 888 First Street NE, Room 1A, Washington, DC 20426.

Any person seeking to become a party to the proceeding must file a motion to intervene pursuant to Rule 214 of the Commission's Rules of Practice and Procedures (18 CFR 385.214). Motions to intervene are more fully described at <http://www.ferc.gov/resources/guides/how-to/intervene.asp>. Only intervenors have the

right to seek rehearing or judicial review of the Commission's decision. The Commission may grant affected landowners and others with environmental concerns intervenor status upon showing good cause by stating that they have a clear and direct interest in this proceeding which no other party can adequately represent. **Simply filing environmental comments will not give you intervenor status, but you do not need intervenor status to have your comments considered.**

Additional information about the project is available from the Commission's Office of External Affairs, at **(866) 208-FERC**, or on the FERC website (www.ferc.gov) using the [eLibrary](#) link. The eLibrary link also provides access to the texts of formal documents issued by the Commission, such as orders, notices, and rulemakings.

In addition, the Commission offers a free service called eSubscription which allows you to keep track of all formal issuances and submittals in specific dockets. This can reduce the amount of time you spend researching proceedings by automatically providing you with notification of these filings, document summaries, and direct links to the documents. Go to www.ferc.gov/docs-filing/esubscription.asp.

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TECHNICAL ABBREVIATIONS AND ACRONYMS

ACHP	Advisory Council on Historic Preservation
ACM	asbestos containing material
APE	area of potential effect
ATWS	additional temporary workspace
BCC	Birds of Conservation Concern
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
Commission	Federal Energy Regulatory Commission
Commonwealth	Commonwealth Heritage Group
DKM	DKM Enterprises, LLC
DOT	U.S. Department of Transportation
EA	Environmental Assessment
ECB	environmental clearance boundary
EI	Environmental Inspector
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
FWS	U.S. Fish and Wildlife Service
GHG	greenhouse gases
IDNR	Iowa Department of Natural Resources
MBTA	Migratory Bird Treaty Act
MOU	memorandum of understanding
MP	Milepost
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NGA	Natural Gas Act
NHPA	National Historic Preservation Act
NOI	<i>Notice of Intent to Prepare an Environmental Assessment for the Proposed Palmyra to Ogden A-line Project and Request for Comments on Environmental Issues</i>
Northern	Northern Natural Gas Company
NOx	oxides of nitrogen
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OEP	Office of Energy Projects
PM _{2.5}	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns

PM ₁₀	particulate matter with an aerodynamic diameter less than or equal to 10 microns
PCB	polychlorinated biphenyls
Plan	FERC's <i>Upland Erosion Control, Revegetation, and Maintenance Plan</i>
Project	Palmyra to Ogden A-line Project
PSA	Purchase and Sale Agreement
Secretary	Secretary of the Commission
SHPO	State Historic Preservation Offices
SPCC Plan	Spill Prevention, Control, and Countermeasure Plan
THPO	Tribal Historic Preservation Office
UDP	Unanticipated Discoveries Plan
µg/cm ²	micrograms per square centimeters
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
VOC	volatile organic compounds
Weed Management Plan	Noxious Weed/Invasive Plant Control and Mitigation Plan

SECTION A. PROPOSED ACTION

1. INTRODUCTION

The staff of the Federal Energy Regulatory Commission (Commission or FERC) prepared this environmental assessment (EA) to assess the environmental impacts of the proposed Palmyra to Ogden A-line Project (Project). On October 3, 2018, Northern Natural Gas Company (Northern) filed an application with the Commission pursuant to Section 7(b) of the Natural Gas Act (NGA) (Docket No. CP19-1-000), seeking authorization to abandon by sale to DKM Enterprises, LLC (DKM) about 146.6 miles of 24-inch-diameter natural gas transmission pipeline on Northern's M580A and M530A systems and other appurtenant facilities in Nebraska and Iowa.

Pipeline facilities to be abandoned by sale include:

- 67.6 miles of 24-inch-diameter A-line (M580A Mainline) in Otoe and Cass Counties, Nebraska; and Pottawattamie and Mills Counties, Iowa; and
- 79.0 miles of 24-inch-diameter A-line (M530A Mainline) in Boone, Greene, Guthrie, Audubon, Cass, and Pottawattamie Counties, Iowa.

To abandon the pipeline, Northern would disconnect and cap the A-line at five interconnections where it is linked to other system facilities (refer to table 1). The general location of the Project is shown in figure 1.

Table 1 Proposed Pipeline Disconnect Sites		
Facility/County, State	MP	Disconnection Site Name
M580A Mainline		
Otoe, Nebraska	0.2	M581A Palmyra takeoff
Mills, Iowa	36.6	Glenwood IAB87501 tie-over
M530A Mainline		
Guthrie, Iowa	50.0	Guthrie Center Branch Line
	54.8	Carroll Branch Line takeoff
Boone, Iowa	83.7	Block Valve 0A

After assuming ownership of the A-line, DKM intends to reclaim most of the abandoned pipeline for salvage. Because the A-line would no longer be used for the interstate transportation of natural gas after the sale is complete, the pipeline and associated facilities would no longer be under the jurisdiction of FERC.

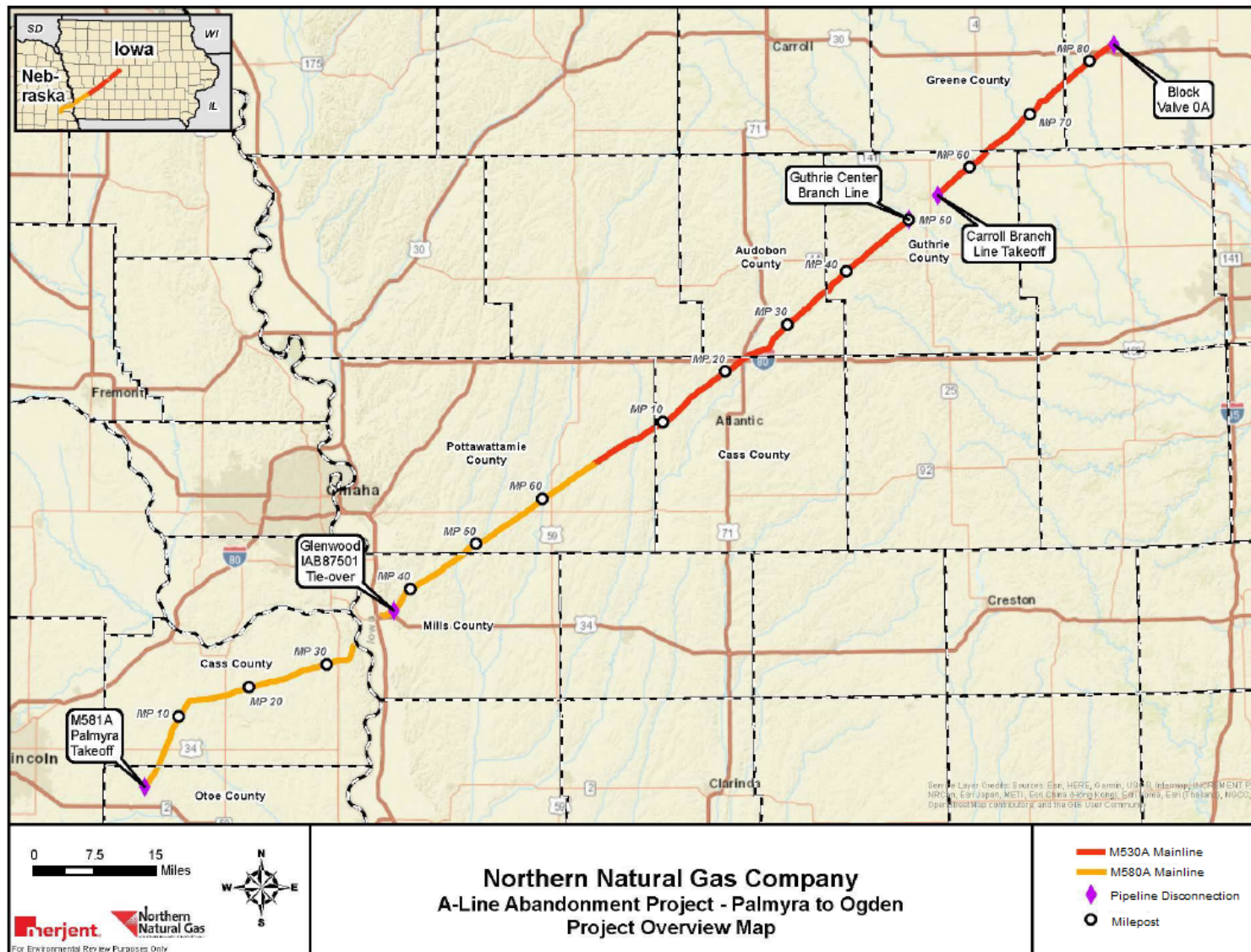


Figure 1 Project Overview

We¹ prepared this EA in compliance with the requirements of the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulations for implementing NEPA (Title 40 of the Code of Federal Regulations [CFR] 1500-1508 [40 CFR 1500-1508]), and the Commission's implementing regulations at 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 EA. No other federal agencies elected to become cooperating agencies for the preparation of this EA.

The assessment of environmental impacts is an integral part of the Commission's decision making process to determine whether to authorize Northern's proposal. Our principal purposes in preparing this EA are to:

- identify and assess potential impacts on the natural and human environment that would result from the implementation of the proposed action;
- identify and recommend reasonable alternatives to avoid or minimize adverse environmental impacts;
- identify and recommend mitigation measures, as necessary, to minimize environmental impacts; and
- facilitate public involvement in the environmental review process.

2. PROJECT PURPOSE AND NEED

Northern's stated purpose for this Project is to enhance the safety and operational efficiency of its pipeline system. The need for this Project arises from the fact that Northern's M580A and M530A Mainlines, which were originally placed in service in the 1930s, have substantially escalating maintenance demands and are no longer necessary to support customers' current or future natural gas needs. Northern has been operating these segments at a reduced pressure (200 to 300 pounds per square inch gauge) to minimize the risk of leaks and pipeline stress.

Section 7(b) of the NGA specifies that no natural gas company shall abandon any portion of its facilities subject to the Commission's jurisdiction without the Commission first finding that the abandonment will not negatively affect the present or future public convenience and necessity. The modifications made as part of the Project, and ancillary activities completed under Northern's Blanket Certificate (discussed, as applicable, in our cumulative impacts analysis in section B.9), would transfer all service from the A-line to

¹ "We," "us," and "our" refers to environmental staff of the Commission's Office of Energy Projects.

other parts of Northern's existing system. There would be no impacts on existing customers from the Project.

3. SCOPE OF THIS ENVIRONMENTAL ASSESSMENT

The topics addressed in this EA include geology and soils; groundwater; vegetation, wildlife, and special status species; cultural resources; land use and visual resources; air quality and noise; and cumulative impacts. The EA also assesses the no-action alternative. The EA describes the affected environment as it currently exists, discusses the environmental consequences of the Project, and presents our recommended mitigation measures.

4. PUBLIC REVIEW AND COMMENT

On November 14, 2018, we issued a *Notice of Intent to Prepare an Environmental Assessment for the Proposed Palmyra to Ogden A-Line Project and Request for Comments on Environmental Issues* (NOI). The NOI was mailed to about 670 entities including federal, state, and local officials; Indian tribes; agency representatives; potentially affected landowners; other interested individuals; and local libraries and newspapers. The NOI established a 30-day scoping period and requested comments on specific concerns about the Project or issues that should be considered during the preparation of the EA. The scoping period ended on December 14, 2018.

In response to the NOI, we received comment letters from the U.S. Department of Agriculture (USDA) National Resources Conservation Service (NRCS), Teamsters National Pipeline Labor Management Cooperation Trust, the National Park Service (NPS), the Tribal Historic Preservation Office (THPO) of the Northern Cheyenne Tribe, the THPO of the Southern Cheyenne and Arapaho Tribes, and from nine affected landowners. The USDA-NRCS letter confirmed that the Project does not meet the purpose of the Farmland Protection Policy Act and that a Farmland Conversion Impact Rating would not be necessary for the Project. USDA-NRCS also confirmed the Project would not cross NRCS Conservation Easements. Teamsters National Pipeline Labor Management Cooperation Trust expressed a preference for using union members for Project construction activities. The NPS expressed concern that the Project could affect the Mormon Pioneer, California, and Pony Express National Historic Trails. THPOs did not express concerns about the Project but the Northern Cheyenne THPO requested that tribal monitors be present during ground-disturbing activities. Concerns of the NPS and comments from THPOs are addressed in section B.6.

The majority of concerns brought up by the affected landowners were related to the DKM Project (the future salvage of the abandoned A-line). Although Northern has indicated that DKM intends to salvage the abandoned pipeline, the eventual salvage of the pipeline after abandonment, if it does occur, is not part of Northern's proposed action. We discuss the DKM Project in more detail in section A.9; however, if the Commission

grants the abandonment, the pipeline would no longer be under the Commission's jurisdiction. Any subsequent construction by DKM or any other entity related to the abandoned pipeline would also not be under the Commission's jurisdiction. Further, while the abandonment would allow for whatever future use DKM ultimately decides to undertake, the abandonment would not be the cause of the future use as contemplated by CEQ regulations. However, this EA does disclose available resource impact information for the DKM Project in section B.10 to inform stakeholders and decision makers. A portion of the DKM Project would be within the geographic scope of the cumulative impacts analysis for the Project and is included in that analysis (see section B.9).

5. LAND REQUIREMENTS

As described in table 2, the Project would require the use of approximately 28.8 acres of land. Northern would use existing public and private roads and the A-line right-of-way to gain access to work areas. During disconnection activities, one temporary access road would be needed to access the temporary workspace and additional temporary workspace (ATWS) area at the Glenwood IAB87501 tie-over disconnect site from nearby public roads. At the remaining disconnect sites, Northern would install temporary driveways, within ATWS, from public roadways. These driveways are included in the impact calculations for ATWS.

Table 2 Land Required for Pipeline Disconnections					
Disconnect Site	MP	Temporary Workspace (acres)	ATWS (acres)	Access Roads (acres)	Total acres
M581A Palmyra takeoff	0.2	3.1	4.3	-	7.5
Glenwood IAB87501 tie-over	36.6	0.4	0.2	0.1	0.7
M580A Subtotal		3.5	4.5	0.1	8.2
Guthrie Center Branch Line	50.0	0.8	3.9	-	4.8
Carroll Branch Line takeoff	54.8	0.6	0.9	-	1.6
Block Valve 0A ^a	83.7	2.1	12.2	-	14.3
M530A Subtotal		3.5	17.1	-	20.6
Project Total		7.0	21.6	0.1	28.8
^a Workspace is within the fenced area of the existing Ogden Compressor Station. Note: Due to rounding, totals may not equal the sum of addends. MP=Milepost					

Following disconnection of the A-line, disturbed portions of the temporary workspaces and ATWS would be restored to pre-construction land cover. Northern would not relinquish its rights under its existing easement agreements where other pipelines in the right-of-way are covered under these same easements, and Northern would continue to operate the other pipelines in the right-of-way and maintain its pipeline easements (approximately 62 miles). Where the A-line is the only pipeline within the easement, Northern would transfer the easement to DKM upon sale of the pipeline. At the disconnect sites, 100 percent of the A-line is co-located with other Northern pipelines.

6. CONSTRUCTION SCHEDULE

Northern plans to begin disconnecting the pipeline in August 2019. Northern plans to complete disconnection activities by November 2019. Work at the five disconnect sites would be conducted in one spread by one crew. The spread/crew would employ between six and nine workers; approximately 50 percent of the crew would be local workers. Work would occur Monday through Saturday from 7 a.m. to 10 p.m. except within 0.5 mile of residences, where Northern would construct only from 7 a.m. to 7 p.m.

7. ABANDONMENT PROCEDURES

Northern would disconnect and isolate the A-line in accordance with the U.S. Department of Transportation (DOT) regulations at 49 CFR Part 192 – Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards, and other applicable federal, state, and local regulations. Northern would construct the Project in accordance with our *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan), without deviation.² To protect surface and groundwater resources from inadvertent releases of fuel and other mechanical fluids, Northern has prepared a Project-specific Spill Prevention, Control, and Countermeasures Plan (SPCC Plan). Northern would also implement the following construction-related plans to minimize environmental impacts: Fugitive Dust Control Plan, Noxious Weed/Invasive Plant Control and Mitigation Plan (Weed Management Plan), Unanticipated Discoveries Plan for Archaeological Resources and Human Remains in Nebraska, Unanticipated Discoveries Plan for Archaeological Resources and Human Remains in Iowa, Northern's Environmental Procedure 410.301 for polychlorinated biphenyls (PCB) Disposal Requirements, Northern's Environmental Procedure 410.404 for Abandonment of Pipeline, and Northern's Environmental Procedure 410.405 for Sampling for PCBs During Pipeline Removal. We have reviewed these plans and find them acceptable.

² Copies of our Plan are available for review on the FERC website (www.ferc.gov) under the environmental guidelines for the natural gas industry at: <http://www.ferc.gov/industries/gas/enviro/guidelines.asp>.

An environmental inspector (EI) would ensure that Project activities comply with mitigation measures identified in this EA, the requirements of other federal and state permitting agencies, and easement agreements. The EI would be present throughout construction, and would have the authority to enforce permit conditions. The EI would report directly to Northern's environmental department and has stop work authority. The EI's duties are contained in paragraph II.B ("Responsibilities of the EI") of our Plan.

Prior to disconnecting the A-line, Northern would notify affected landowners of the upcoming activities. Once landowners have been notified, Northern would mobilize survey crews to stake the limits of the approved work areas. Northern would contact the One Call system for each state (Nebraska 811 or Iowa One Call) to locate, identify, and flag existing underground utilities to prevent accidental damage during disconnection activities.

Northern would install erosion controls along the edges of the approved work areas immediately after initial soil disturbance and would maintain the controls throughout construction until permanent erosion controls are installed, or restoration is completed.

Grading would be conducted where necessary to provide a safe and level work surface. Northern would separate topsoil from subsoil in agricultural areas, and in other areas at the landowner's request.

Once a work site has been cleared and graded, Northern would isolate segments to be abandoned, and blow down and purge natural gas from the pipeline. The pipeline would then be excavated and exposed at system disconnect sites (refer to appendix B of this EA). Excavated materials would be stockpiled within the approved work area. If dewatering is necessary, the water would be discharged to adjacent well-vegetated upland areas and/or filtered through a filter bag or sediment barrier.

A small section of the pipe would be cut out and removed and steel caps would be welded onto both ends of the pipe remaining in-place. Secondary containment would be placed below the pipe at each cut to catch unexpected liquids that may be present in the pipe. Liquids captured in secondary containment would be tested for PCBs and disposed of properly.

After the pipe has been capped, the trench would be backfilled. In areas where topsoil was segregated, subsoils would be backfilled first, followed by topsoil. Portions of pipe and related appurtenances and structures that are more than 3 feet below ground would be abandoned in-place.

Disconnection activities at any given site are expected to take up to 10 days but may take longer if PCBs are encountered. Once disconnection of the A-line is complete, construction debris would be removed from the Project area and disposed of at appropriate facilities in compliance with applicable regulations, and disturbed work areas

would be final graded to restore pre-construction contours and natural drainage patterns. Northern would test and mitigate for compaction in disturbed agricultural lands. Northern would seed non-agricultural uplands in accordance with the landowner request or as recommended by the local conservation authority. Cultivated croplands would not be seeded unless requested by the landowner.

8. PERMITS, APPROVALS, AND REGULATORY CONSULTATIONS

Table 3 lists the major federal, state, and local permits, approvals, and consultations for Project abandonment activities and provides the current status of each. Northern would be responsible for obtaining and abiding by all permits and approvals required for the Project.

Table 3 Permits, Approvals, and Consultations for Abandonment Activities		
Agency or Organization	Permit/Approval	Submittal/Action
Federal		
FERC	Order Approving Abandonment	Application submitted 10/03/2018 Notice of Schedule issued 12/07/2018
U.S. Fish and Wildlife Service (FWS) Nebraska Ecological Services Field Office	Section 7 Endangered Species Act (ESA), Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act	Consultation initiated 08/13/2018. Response received 08/24/18
FWS Rock Island Ecological Services Field Office	Section 7 ESA, Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act	Consultation initiated 08/13/2018 The Rock Island Field Office will not respond to “no effect” determinations; consultation is complete.
USDA-NRCS	Conservation Easement Program and seeding recommendations.	Consultations submitted February 2018. Responses received March 2018.
Farm Service Agency Conservation	Reserve Program Consultations	Submitted February 2018. Responses received March 2018.
Indian tribes	National Historic Preservation Act (NHPA), Section 106 consultation	Consultation initiated 08/13/2018. Follow-up emails sent 09/09/2018. Additional information in section B.6.
State		
Nebraska Department of Environmental Quality Water Quality Division - Stormwater	Section 402 Clean Water Act, National Pollution Discharge Elimination System and Title 119 of Nebraska Administrative Code	Application and authorization anticipated June 2019.
	Title 456, Chapter 6 Groundwater Appropriation	Application and authorization anticipated June 2019.

Table 3 Permits, Approvals, and Consultations for Abandonment Activities		
Agency or Organization	Permit/Approval	Submittal/Action
Nebraska Natural Heritage Program Nebraska Game and Parks Commission	Nebraska Nongame and Endangered Species Conservation Act	Environmental Review Report completed 08/13/2018.
Nebraska State Historical Society	Section 106 NHPA Consultation	Consultation letter and Unanticipated Discoveries Plan (UDP) submitted 08/10/2018. Concurrence of No Historic Properties Affected 08/24/18.
Iowa Department of Natural Resources (IDNR)	National Pollution Discharge Elimination System – General Permit No. 2 for Stormwater	Application anticipated June 2019 Authorization anticipated July 2019
	National Pollution Discharge Elimination System General Permit No. 9 for Dewatering	Automatic Authorization when meeting permit conditions. No submittal required.
	State Protected Species Consultations	Environmental Review requested 08/10/2018. Final response received 09/28/2018.
	A Registration of a Minor Non-Recurring Use of Water	Application and authorization anticipated June 2019
State Historical Society of Iowa	Section 106 NHPA Consultation	Consultation letter and UDP submitted on 08/23/2018. Concurrence of No Historic Properties Affected 09/24/2018

9. NON-JURISDICTIONAL FUTURE USE

Under Section 7 of the NGA, FERC is required to consider, as part of its decision to certificate jurisdictional facilities, related non-jurisdictional facilities that would be constructed in association with a project. No non-jurisdictional facilities are proposed as part of the Project.

As described previously, if the Commission approves the Project, Northern has indicated that it would sell the pipeline facilities to DKM. After assuming ownership of the A-line, DKM intends to reclaim most of the facilities for salvage. A brief overview of the DKM Project is given below and a more detailed description is presented in the cumulative impacts analysis in sections B.9 and B.10.

The Purchase and Sale Agreement (PSA) between Northern and DKM, executed on September 27, 2018,³ outlines certain environmental provisions agreed upon by both

³ FERC Docket CP19-1-000; accession number 20181003-5156.

parties that are relevant to the assessment of potential impacts. DKM would reclaim the pipeline within two years of the executed PSA and would be responsible for coordinating reclamation activities with landowners. DKM would use a 75-foot-wide corridor centered on the pipeline, and reclamation activities would occur within Northern's easement. DKM would use existing public and private roads and the A-line right-of-way to gain access to the work area.

Per the PSA, DKM and the respective landowners may agree that the facilities may be abandoned in-place. Any facilities left in-place based on landowner preference would be transferred to and owned by the respective landowners. DKM would also abandon the pipeline in-place beneath the seven National Register of Historic Places (NRHP)-eligible and unevaluated historic properties crossed by the A-line. Other segments of the pipeline (e.g., pipe at road crossings, wetlands and waterbodies) may also not be removed. At these locations, the pipeline would instead be cut and capped/grouted, as deemed necessary. If DKM elects to remove the pipeline segments under environmentally sensitive areas, DKM would be responsible for obtaining all applicable permits and authorizations. Following salvage operations, DKM would restore the land to pre-existing conditions.

SECTION B. ENVIRONMENTAL ANALYSIS

The following analysis addresses the expected range of impacts associated with Northern's five disconnect sites. The environmental consequences of the Project would vary in duration and significance. Four levels of impact duration would occur: temporary, short-term, long-term, and permanent. Temporary impacts generally occur during construction with the resource returning to preconstruction condition almost immediately afterward. Short-term impacts could continue between two to five years following construction. Impacts are considered long-term if the resource would require more than five 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 preconstruction conditions.

In the following sections, we address direct and indirect effects collectively, by resource. No surface waters, wetlands or fisheries would be affected by the Project. Consequently, these resources are not addressed in our analysis. In addition, operational pipeline reliability and safety is not discussed because the Project involves the cessation of natural gas transportation through the abandoned of facilities.

The analysis contained in this EA is based upon Northern's application and supplemental filings and our experience with the construction and operation of natural gas infrastructure. However, if the Project is approved and proceeds to the removal/construction phase, it is not uncommon for a project proponent to require minor modifications (e.g., minor changes in workspace configurations).

1. GEOLOGY

The Project would be in the Western Lake and Dissected Till Plains sections of the Central Lowlands physiographic province (NPS, 2018). The Dissected Till Plains is characterized by moderately dissected, flat to rolling plains, whereas the topography of the Western Lake section is notably more subdued. Elevations in the Project areas range from 600 to 1,500 feet above sea level with a typical local relief of 20 to 50 feet, although the workspaces associated with the Project are level or of little relief.

Surficial deposits in the Project areas consist of unconsolidated glacial deposits of clay loam or loamy clay till, alluvium in stream bottoms, isolated occurrences of glacial outwash sand and loess, and colluvium derived from weathered sedimentary bedrock. These unconsolidated deposits are typically 100 to 250 feet thick in the Project vicinity, with areas of shallow bedrock and bedrock exposure limited to scattered stream and river drainages (Witzke, B.J. et al., 2003).

1.1. Mineral Resources

Based on a review of recent high resolution digital aerial photography, U.S. Geological Survey (USGS) topographic and mineral resources maps (USGS, 2011), and

information from the Iowa Geological Survey (2018a) and Nebraska Geological Survey (Burchett and Eversoll, 1994), active, inactive, or historic mineral resource operations (quarries or mines) were not identified within 0.25 mile of the Project disconnect sites. Further, there are no active, inactive, or abandoned oil or natural gas extraction wells within 0.25 mile of the Project areas (Nebraska Oil and Gas Conservation Commission, 2018; U.S. Energy Information Administration, 2018). Therefore, we conclude the Project would not impact mineral resources.

1.2. Geologic Hazards

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

The Project would be in an area with low seismicity (USGS, 2014). A review of high-resolution aerial photography did not identify any apparent landslide activity at or near proposed workspaces and Project workspaces are level or gently sloping.

Ground subsidence, involving the localized or regional lowering of the ground surface, may be caused by karst formation due to limestone or gypsum bedrock dissolution; or sediment compaction due to groundwater pumping. Project areas do not overlie karst terrain or lithology that could lead to bedrock dissolution and karst development (Weary, D.J. and D.H. Doctor, 2014; Iowa Geological Survey, 2018b). Further, given the nature of Project activities (abandonment), regional lowering of the ground surface from excessive groundwater extraction would not be a hazard to the Project. As such, we conclude that the impact from geologic hazards on the Project would be minimal and the Project would not have significant impacts on geologic resources.

2. SOILS

Soils at the Project disconnect sites have largely been disturbed by previous construction/pipeline activities. Per the NRCS, Project area soils consist predominantly of moderately well drained to well drained loams, clay loams, and silty clay loams with slopes ranging from 0 to 30 percent. Project area soils are generally not hydric, highly wind or water erodible, or compaction prone. The majority of soils have high revegetation potential and are not underlain by shallow bedrock (bedrock 60 inches or less from the ground surface). Project activities would disturb approximately 28 acres classified as prime farmland or farmland of statewide importance.

Construction activities such as clearing, grading, trench 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, thus reducing soil productivity. Clearing removes protective vegetative cover and exposes

soils to the effects of wind and water which potentially increases soil erosion and the transport of sediment to sensitive resource areas. Other possible soils impacts include mixing of topsoil and subsoil layers, compaction, rutting, and alteration of drainage characteristics.

Prime Farmland

The USDA defines prime farmland as land that has the best combination of physical and chemical characteristics for the production of food, feed, fiber, and oilseed crops. Construction in agricultural and pasture areas would temporarily disrupt ongoing agricultural activities; however, following construction, agricultural activities would be allowed to resume without restrictions.

Potential impacts on agricultural soils would be minimized and mitigated in accordance with our Plan. These include measures to conserve and segregate the upper 12 inches of topsoil, alleviate soil compaction, protect and maintain existing drainage tile and irrigation systems, prevent the introduction of weeds, and retain existing soil productivity. The Plan also includes restoration and revegetation measures such as seedbed preparation, fertilization, and seeding to actively promote revegetation. Therefore, we conclude that impacts on prime farmland soils would be temporary and not significant.

Soil Rutting and Compaction

To minimize rutting, Northern would stabilize the proposed access road using gravel or equipment mats. If rutting 6 inches or greater occurs along ungraded portions of the Project areas, Northern would immediately limit activities in that area or implement protective measures (e.g., install equipment mats) to prevent additional rutting. If rutting occurs along the access road, Northern would repair the ruts to pre-construction conditions or better as soon as ground conditions permit.

The use of heavy mechanical equipment could compact soils. Compaction would be minimized through implementation of the measures outlined in our Plan, including topsoil segregation and de-compaction in agricultural areas.

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. To minimize soil erosion, Northern would install temporary and permanent erosion control devices as specified in our Plan and applicable Project-specific permits. The effectiveness of temporary erosion control devices would be monitored by Northern's EI and modified by Northern's construction contractor. Temporary erosion control devices would be

inspected on a regular basis and after each rainfall event of 0.5 inch or greater to ensure controls function properly.

Inadvertent Spills or Discovery of Contaminants

Northern conducted a database search using publicly available databases to identify facilities with potential and/or actual sources of contamination within 500 feet of the Project's construction workspace. The U.S. Environmental Protection Agency (EPA) Facility Registry Service (EPA, 2018a) and databases maintained by the Iowa Department of Natural Resources (IDNR) were reviewed.

One location of potential contamination was identified, a small oil spill at Northern's compressor station site near Ogden, Iowa (M530A Mainline milepost [MP] 83.6). The spill was remediated and the spill status was closed (IDNR, 2018a). Therefore, we conclude that the Project is unlikely to encounter existing contamination resulting from this incident. No other known sites with potential for contamination were identified within 500 feet of the workspaces. During Project activities, contamination from accidental spills or leaks of fuels, lubricants, and coolant from equipment could adversely impact soils. To minimize impacts, Northern would implement measures contained in its SPCC Plan which specifies cleanup procedures in the event of inadvertent spills.

Given Northern's proposed mitigation measures and because it would return disturbed areas to pre-construction conditions, permanent impacts on soils would be minor and not significant.

3. GROUNDWATER RESOURCES

The Project is predominantly over Mesozoic and Paleozoic age sedimentary bedrock strata, separated by a layer of glacial drift materials. Aquifers occur in both the unconsolidated glacial drift and sedimentary rock sequences. In eastern Nebraska and southern Iowa, glacial drift and buried valley aquifers are the predominant source of water. Bedrock aquifers are generally unusable due to high levels of total dissolved solids (Miller and Appel, 1997; Prior et al., 2003).

The Project area does not overlie any EPA-designated sole-source aquifers (EPA, 2018b) and no wellhead or source water protection areas would be affected (Nebraska Department of Environmental Quality, 2018; IDNR, 2018b). Further, well records data from the Nebraska Department of Natural Resources (2018) and the IDNR (2018c), did not identify potable water wells within 150 feet of the Project area. Northern did not identify springs within 150 feet of Project workspaces during field surveys.

Surface drainage and groundwater recharge patterns can be temporarily affected by construction activities. Changes to these patterns can cause minor fluctuations in

groundwater levels and/or increased turbidity; however, we expect water levels to quickly re-establish equilibrium and turbidity levels to rapidly subside.

Northern would not appropriate groundwater, other than as necessary to dewater the pipeline trench for disconnection activities. Excavations required to expose the pipeline for disconnection activities would typically be above the minimum depth of the bedrock aquifers and is expected to be above the water table in surficial aquifers underlying the Project.

Groundwater Contamination

Northern conducted a database search using publicly available databases to identify facilities with potential and/or actual sources of contamination within 500 feet of the Project's construction workspace. The EPA's Facility Registry Service (EPA, 2018a) and databases maintained by the IDNR were reviewed.

One location of potential contamination was identified, a small oil spill at Northern's compressor station site near Ogden, Iowa (M530A Mainline MP 83.6). The spill was remediated and the spill status was closed (IDNR, 2018a). Therefore, we conclude that the Project is unlikely to encounter existing contamination resulting from this incident. No other known sites with potential for contamination were identified within 500 feet of the workspace.

The introduction of contaminants into groundwater due to accidental release of Project-related chemicals, fuels, or hydraulic fluid during isolation activities could have an adverse effect on groundwater quality. To avoid spill-related impacts, Northern would implement its SPCC Plan. In the unlikely event that contaminated groundwater is encountered, Northern would immediately notify the appropriate state and federal agencies. Containment measures would be implemented to isolate and contain the suspected groundwater contamination. Northern would collect and test samples of the substrate or groundwater to identify the contaminants. Once the type, magnitude, and extent of the contamination are determined, the material would be disposed of at a licensed facility and/or backfilled in the trench, dependent on agency consultation.

We conclude that the mitigation measures proposed by Northern would adequately avoid or minimize potential impacts on groundwater resources. Therefore, we do not anticipate any significant impacts on groundwater resources as a result the Project.

4. VEGETATION AND WILDLIFE

4.1. Vegetation

The majority of disturbance would occur within Northern's existing right-of-way. The Project area primarily consists of developed land (industrial land; roads and road/utility rights-of-way; and impervious surfaces), which is generally devoid of native

vegetation and provides little habitat value. However, Project abandonment activities would temporarily impact 5.7 acres of agricultural vegetation and 5.3 acres of upland herbaceous vegetation (non-forested, non-wetland). No forested vegetation would be affected and no tree clearing is proposed. No areas of unique, sensitive, or protected vegetation would be affected by the Project. Abandoning the pipeline would result in the temporary loss of vegetation. Northern would restore the Project area to pre-existing conditions after cutting and capping the existing pipeline and would revegetate, stabilize, and reseed disturbed areas in accordance with the FERC Plan and with recommended seed mixtures from the NRCS. Following restoration, the right-of-way at the disconnect sites would continue to be maintained similar to the adjacent right-of-way.

Noxious and Invasive Species

An invasive species is a plant which is of foreign origin and is new to or not widely prevalent in the United States. No noxious or invasive weeds were observed in the Nebraska portion of the Project; however, the following four species are known to occur within workspaces associated with the Guthrie Center Branch Line and Carroll Branch Line takeoff disconnect sites in Iowa based on field surveys conducted during fall 2017 and April and May 2018: Velvetleaf, Canada thistle, field bindweed, and wild carrot.

Project activities could introduce and increase the spread of noxious weed species, particularly in areas where vegetation is cleared. Once established, noxious weeds can become permanent if left uncontrolled. To prevent, control, and mitigate the spread of noxious weeds and invasive species, Northern would implement measures described in its Project-specific Weed Management Plan. Following construction, Northern would monitor the construction corridor in accordance with the FERC Plan and Weed Management Plan to ensure that the noxious weeds do not spread outside of the areas where they have been identified. Therefore, we conclude Project impacts on vegetation would be temporary and not significant.

4.2. Wildlife

A majority of the wildlife habitat within the Project area consists of developed lands and agricultural lands which have been extensively modified, often resulting in reduced numbers of individuals and diversity of wildlife species. The Project area has limited upland herbaceous vegetation. Common wildlife in the area include a wide variety of mammal species, such as, bobcat, white-tailed deer, eastern cottontail, black-tailed and white-tailed jackrabbit, least shrew, spotted skink, and plain pocket mouse; reptile species, such as, brown snake, western fox snake, speckled king snake, ornate box turtle, and six lined racerunner; bird species, such as, Canada goose, henslow's sparrow,

bobwhite quail, barn owls, and broad-winged hawk; and amphibian species, such as, great plains toad and plains leopard frog.

Abandoning the pipeline could impact wildlife. These impacts include the mortality of less mobile species. However, more mobile species such as birds and larger mammals would likely avoid the Project area during removal and construction activities, and relocate to other nearby suitable habitat. If trenches at the disconnect sites are left open overnight, Northern may install ramps where livestock may be present. Impacts on wildlife would be limited to the period of removal and construction activities. Northern would restore the Project area once abandonment activities are complete. After abandonment activities are complete, wildlife would be expected to return. Given Northern's commitment to revegetate disturbed areas, and the abundance of similar habitat adjacent to the Project area, we conclude that the Project would not have significant or long-term impacts on wildlife or wildlife habitat.

4.2.1 Migratory Birds

Migratory birds are protected under the Migratory Bird Treaty Act ([MBTA] – 16 U.S. Code 703-711), and bald and golden eagles are additionally protected under the Bald and Golden Eagle Protection Act (16 U.S. Code 668-668d). The MBTA, as amended, prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. In March 2011, FERC entered into a memorandum of understanding (MOU) with the U.S. Fish and Wildlife Service (FWS), which focuses on avoiding or minimizing adverse impacts on migratory birds and strengthening migratory bird conservation through enhanced collaboration between the two agencies.

Though all migratory birds are afforded protection under the MBTA, both Executive Order 13186 and the MOU require that Birds of Conservation Concern (BCC) and federally-listed species be given priority when considering effects on migratory birds. BCCs are a subset of MBTA-protected species identified by the FWS as those in the greatest need of additional conservation action to avoid future listing under the Endangered Species Act (ESA). In accordance with Executive Order 13186 and the MOU, Northern has identified BCCs within the Project area. The Project would be located within BCC Region 11 (Prairie Potholes) and BCC Region 22 (Eastern Tallgrass Prairie). Table C-1 in appendix C of this EA lists migratory bird species potentially occurring in the Project area.

The Project area is within the Central and Mississippi flyways for waterfowl. Many species of migratory birds such as ducks, geese, doves, and pigeons, as well as Sandhill and whooping cranes, use the flyways during spring and fall migration between the Gulf of Mexico and Central Canada. All of these species use open land and wetland areas and could be sensitive to Project activities. The nesting season for migratory birds in Nebraska and Iowa is generally from April 1 to August 31. Project activities could result in short-term disturbance of migratory bird habitat, causing birds to temporarily

relocate. Birds fleeing an area of disturbance could be injured or suffer mortality, or abandon nests, affecting egg-laying and potentially causing the mortality of young. Depending on the season, construction could also disrupt bird courting or nesting, including destruction of nests and eggs. The Project has the potential to alter or otherwise affect migratory bird foraging habitat temporarily. Impacts would be minimal, given the limited area of disturbance and the amount of similar habitat available outside of the Project area; migratory birds not already nesting would be able to avoid these activities and move to abundant habitat adjacent to the existing right-of-way.

Northern has committed to inspecting all construction areas immediately prior to construction for the presence of any bird nests. If any nests are observed, Northern would suspend ground-disturbing activities (e.g., grading, trenching) within 100 feet of the nest while the FWS and Nebraska Game and Parks Commission and/or IDNR are contacted to determine any necessary avoidance or mitigation measures prior to continuing ground-disturbing activities in the vicinity of an active nest. Additionally, Northern commits to conduct raptor surveys immediately prior to construction. If active bald eagle nests are observed, Northern would adhere to the FWS's Bald Eagle conservation measures and would suspend ground-disturbing activities within 660 feet of the nest while the FWS is contacted to determine any necessary avoidance or mitigation measures prior to continuing ground-disturbing activities. Based on the mitigation measures described above, we conclude that the Project would not adversely impact migratory bird populations.

4.3. Threatened, Endangered, and Special Status Species

Special status species are those species for which state or federal agencies provide an additional level of protection by law, regulation, or policy.

Federally-listed Species

Eight federally-listed species have the potential to occur in the Project area (see table 4 below). Suitable habitat for only one species, the federally threatened northern long-eared bat, was found (at the Glenwood IAB87501 tie-over disconnect site). No tree clearing would be necessary for disconnection activities. As such, the Project would have no effect on the northern-long eared bat.

Northern submitted Project notification letters to the FWS Rock Island Field Office and the FWS Nebraska Ecological Services Field Office requesting confirmation of the threatened and endangered species identified within the Project area and comments on the species, their habitats, or designated critical habitat areas that may occur in the counties crossed by the Project. The FWS Nebraska Ecological Services Field Office responded on August 24, 2018 that it had no concerns regarding potential Project impacts on federally listed species. Northern submitted its findings of a *no effect* determination to the FWS Rock Island Field Office on August 10, 2018. No response was received from the FWS Rock Island Field Office of the *no effect* determination. On March 22, 2019,

FERC staff communicated with FWS Rock Island Field Office staff and confirmed that because the Project would have a *no effect* determination no further consultation under Section 7 of the ESA is required.

Table 4			
Federally-Listed Species Potentially Occurring in the Vicinity of the Project			
Species Name	Common Name	Status	Occurrence - State: Counties
Mammals			
<i>Myotis septentrionalis</i>	Northern long-eared bat	Threatened	All
<i>Myotis sodalis</i>	Indiana bat	Endangered	IA: Boone, Guthrie
Birds			
<i>Charadrius melodus</i>	Piping plover	Threatened	IA: Mills
<i>Sterna antillarum</i>	Least tern	Endangered	IA: Mills
Fish			
<i>Scaphirhynchus albus</i>	Pallid sturgeon	Endangered	IA: Mills NE:Otoe
<i>Notropis topeka</i>	Topeka shiner	Endangered	IA: Boone, Guthrie
		Critical habitat	IA: Boone, Guthrie
Plants			
<i>Lespedeza leptostachya</i>	Prairie bush clover	Threatened	IA: Boone, Guthrie, Mills
<i>Platanthera praeclara</i>	Western prairie fringed orchid	Threatened	All

State-listed Species

On September 28, 2018, the IDNR indicated that no site-specific records for rare species and significant natural communities within the Project area were located. In August 2018, Northern requested an environmental review from the Nebraska Game and Parks Commission via its online Conservation and Environmental Review program. On August 13, 2018, the Conservation and Environmental Review report indicated that the Project does not appear to impact suitable habitat for state-listed species that may occur in Otoe County, Nebraska (i.e., American ginseng, southern flying squirrel, lake sturgeon, sturgeon chub, or river otter). Therefore, due to the limited scope of the Project and the absence of suitable habitat and sensitive species in the Project areas, we conclude that the Project would have no effect on state-listed species.

5. LAND USE, RECREATION, AND VISUAL RESOURCES

5.1. Land Use

Land use in the Project area consists of agriculture (row crops), open land (non-forested, non-wetland herbaceous vegetation cover), and developed land (industrial land; roads and road/utility rights-of-way; and impervious surfaces). As described previously, the Project would temporarily impact a total of 28.8 acres of land, including 5.7 acres of

agricultural land, 5.3 acres of open land, and 17.8 acres of developed land. Northern either owns, holds the easements on, or would have temporary agreements in-place with landowners for the use of Project workspaces and access roads. No federal, state, or county lands would be crossed or affected by the Project. Following construction, disturbed areas would be restored to pre-construction conditions in accordance with our Plan and similar to adjacent land use.

The five disconnect sites are not located in or adjacent to any Tribal lands or Indian Reservations; wilderness areas; wild or scenic rivers; wildlife refuges or fish hatcheries; units of the NPS; or other parks or recreation areas. No residences or other buildings would be within 50 feet of the Project workspaces and no public roads or railroads would be crossed.

Agricultural Land

Crop production on some agricultural lands would be temporarily interrupted for one growing season while pipeline facilities are disconnected. Landowners would be compensated for any crop loss resulting from the Project. Northern would maintain landowner access to fields and other agricultural facilities during construction.

Northern would protect existing drainage tile and irrigation systems (if identified), prevent the introduction of weeds, retain existing soil productivity, replace fencing that is damaged, and implement topsoil segregation per our Plan.

Open and Developed Lands

In open land, clearing would occur, as necessary, within the Project workspaces. Project workspaces would be restored and allowed to revert to previous uses following construction. Northern would minimize impacts on developed lands within the Project workspaces through restricting timing of construction activities to avoid peak road use periods, maintaining access to businesses at all times, and expediting construction through these areas.

5.2. Visual Resources

Disconnection activities would temporarily impact visual resources in the Project area from earth disturbance, removal of existing vegetation that may provide a visual barrier, and the presence of construction vehicles and equipment. Visual impacts would be greatest where the workspace areas are adjacent to roads and may be seen by passing motorists or from residences. However, visual impacts would be limited to the period of construction (approximately 10 days) at each disconnection site.

Based on the scope and duration of construction and because disturbed areas would be returned to pre-construction conditions and contours, impacts on visual resources would be temporary, localized, and negligible.

6. CULTURAL RESOURCES

Cultural resources include any prehistoric or historic archaeological site, district, object, cultural feature, building or structure, cultural landscape, or traditional cultural property. Although “cultural resources” are not defined in 36 CFR 800, it is a “term-of-art” in the field of historic preservation and archaeological research. Indian tribes believe that cultural resources could include natural resources, such as plants and animals of traditional importance to tribes, topographic features that may be sacred, and viewsheds.

The National Historic Preservation Act (NHPA) is the cornerstone of the federal government’s historic preservation program. Section 101(d)(6) of the NHPA states that properties of traditional religious and cultural importance to Indian tribes⁴ may be determined eligible for the NRHP. FERC conducted government-to-government consultations with Indian tribes that may attach religious and cultural importance to properties in the area of potential effect (APE), in accordance with the implementing regulations at 36 CFR 800.2(c)(2)(ii). Consultations with Indian tribes are detailed below.

Section 106 of the NHPA requires that FERC take into account the effect of its undertakings⁵ (including authorizations under Section 7 of the NGA) on historic properties,⁶ and afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment. Northern, as a non-federal applicant, is assisting FERC staff in meeting our obligations under Section 106 by providing data, analyses, and recommendations in accordance with 36 CFR 800.2(a)(3) and FERC’s regulations at 18 CFR 380.12(f). Cultural resources information was gathered for Northern by its consultants, Commonwealth Heritage Group (Commonwealth) and Merjent, Inc. FERC remains responsible for all final determinations under the NHPA. Below, we summarize the status of compliance with Section 106 for this Project.

⁴ Indian tribes are defined in 36 CFR 800.16(m) as: “an Indian tribe, band, nation, or other organized group or community, including a Native village, Regional Corporation, or Village Corporation, as those terms are defined in Section 3 of the Alaska Native Claims Settlement Act (43 U.S.C. 1602), which is recognized as eligible for the special programs and services provided by the United States to Indians because of their special status as Indians.”

⁵ “Undertaking means a project activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; those requiring a Federal permit, license or approval; and those subject to state or local regulation administered pursuant to a delegation or approval by a Federal agency,” as defined in 36 CFR 800.16(y).

⁶ Historic properties include prehistoric or historic sites, districts, buildings, structures, objects, landscapes, or properties of traditional religious or cultural importance listed on or eligible for listing on the NRHP, as defined in 36 CFR 800.16(l).

6.1. Consultations

FERC sent copies of our November 14, 2018 NOI for the Project to a wide range of stakeholders, including other federal agencies, such as the ACHP, U.S. Army Corps of Engineers, EPA, U.S. Department of the Interior Bureau of Indian Affairs, and NPS; state and local government agencies, such as the State Historic Preservation Offices (SHPO) for Nebraska and Iowa; affected landowners; and Indian tribes that may have an interest in the Project area. The NOI contained a paragraph about Section 106 of the NHPA, which stated that we use the NOI to initiate consultations with the SHPOs as well as to solicit their views and those of other government agencies, interested Indian tribes, and the public on the Project's potential effects on historic properties.

6.1.1 Consultations with the SHPO

In an email to FERC staff on December 3, 2018, the Iowa SHPO acknowledged receipt of our NOI. The Nebraska SHPO did not respond to our NOI. In other emails to FERC staff, dated January 16 and 24, 2019, the Iowa SHPO misinterpreted the extent of the FERC undertaking, thinking it applied to the salvage of the pipeline. The possible future salvage of the pipeline by a third-party buyer is not a FERC-jurisdictional action, and is outside of the boundaries of our NHPA review, as FERC has no authority to authorize, deny, or otherwise modify the possible future salvage. However, we do consider non-jurisdictional activities in section B.9 and B.10 of this EA.

In letters dated August 23, 2018 and September 24, 2018, both the Nebraska SHPO and the Iowa SHPO made a finding of "no historic properties affected" for this Project. In a letter to Northern dated March 13, 2019, the Nebraska SHPO reaffirmed its finding.

6.1.2 Consultations with Indian Tribes

We identified Indian tribes that historically used or occupied the Project area through basic ethno-historical sources such as the *Handbook of North American Indians* (DeMallie, 2001), communications with the SHPOs, information provided by the applicant and its cultural resources consultants, and scoping responses to our NOI.

The NOI for this Project was sent to 27 Indian tribes (see appendix D). Four federally-recognized tribes responded to FERC. On December 3, 2018, the Southern Cheyenne and Arapaho Tribes of Oklahoma stated that the Project would have "No Adverse Effect." In a December 13, 2018 filing with FERC, the Northern Cheyenne Tribe expressed its desire to consult on the Project, requested copies of cultural resources reports, and requested that tribal monitors be present during ground-disturbing activities. In response to a request from FERC staff, Northern sent the Northern Cheyenne Tribe a copy of the Commonwealth's Project survey report (Jones et al, 2018) on April 10, 2019, with a request for comments and clarification if the tribe still wanted to monitor

construction/removal activities at the disconnect sites. The Iowa Tribe of Kansas and Nebraska, in a January 14, 2019 email to FERC staff, indicated that it did not concur that the removal of the pipeline is not part of the abandonment Project.

The Winnebago Tribe of Nebraska, in a January 28, 2019 email to staff, stated that it does not consider the NOI to be consultation, and requested a face-to-face meeting. The implementing regulations for Section 106 at 36 CFR 800.2(a)(4) allow for paper consultations and we conclude that consultation with the NOI is sufficient for a Project of this scope.

In letters dated August 15, 2018, Northern contacted 21 federally-recognized Indian tribes with information about the Project, and requested comments. Follow-up emails to tribes were sent by Northern’s consultant (Merjent, Inc.) on September 18, 2018. Responses were received from four tribes, as documented in appendix D.

The Spirit Lake Tribe requested to be a consulting party for this Project, and FERC staff considers the Tribe to be such, in accordance with 36 CFR 800.2(c)(3). FERC staff requested that Northern provide the Spirit Lake Tribe with copies of cultural resources investigation reports. Northern mailed a copy of Commonwealth’s survey report (Jones et al., 2018) to the THPO for the Spirit Lake Tribe on March 4, 2019. The Tribe has not yet filed comments on the report.

6.2. Identification of Historic Properties

6.2.1 Area of Potential Effect

We define the direct APE as all areas subject to ground disturbance. Northern defined the APE as the environmental clearance boundary (ECB), temporary workspaces, and access roads needed at five disconnect locations. About 59 acres total were surveyed for cultural resources at the four disconnect locations in Iowa combined (Jones et al., 2018). FERC staff agrees with the APE as defined by Northern (see table 5 below).

In a letter to the Nebraska SHPO on August 10, 2018, Northern stated that the Project would consist of one disconnect location in Otoe County, covering about 8 acres. On August 23, 2018, the Nebraska SHPO accepted that letter. In a letter to Northern dated March 13, 2019, the Nebraska SHPO reaffirmed its finding of “No Historic Properties Affected” for the Project.

Table 5 Area of Potential Effect		
Project Element (Location)	Construction/Removal Acres ^a	Cultural Resources Survey Acres
M581A Palmyra takeoff MP 02 - Otoe County, NE	7.5	0
Glenwood IAB87501 tie-over MP 36.6 - Mills County, IA	0.7	2.8

Table 5 Area of Potential Effect		
Project Element (Location)	Construction/Removal Acres ^a	Cultural Resources Survey Acres
Guthrie Center Branch Line MP 50.0 - Guthrie County, IA	4.8	4.9
Carroll Branch Line takeoff MP 54.8 - Guthrie County, IA	1.6	2.2
Block Valve 0A MP 83.7 - Boone County, IA	14.3	49.0
^a Includes temporary workspaces, ATWS, and the access road.		

6.2.2 Results of Investigations

Northern's cultural resources consultant indicated that only one prehistoric site (13ML40) was previously recorded within the APE for one disconnect location (Glenwood IAB87501 tie-over). Site 13ML40 was not relocated during the Commonwealth survey of the Glenwood IAB87501 tie-over (Jones et al., 2018). Site 13ML40 was previously evaluated as being not eligible for the NRHP.

The A-line itself, which was originally constructed beginning in 1930, was determined eligible for the NRHP. Impacts on the pipeline were mitigated through the 2002 publication of *Natural Gas Comes to Iowa: What it Meant When the A-Line Arrived*, by Christopher Castaneda, filed under Docket No. CP99-75-000,⁷ in accordance with the ACHP's *Exemption Regarding Historic Preservation Review Process for Projects Involving Historic Natural Gas Pipelines* (April 5, 2002, *Federal Register* vol. 67, no. 66).

The NPS expressed concern that the Project could affect the Mormon Pioneer, California, and Pony Express National Historic Trails. In a filing with FERC on February 12, 2019, Northern stated that the Pony Express National Historic Trail would not be crossed. The Mormon Pioneer and California National Historic Trails are located over 17 miles northeast of the Glenwood IAB87501 tie-over (Mills County, Iowa). Northern provided a trails impact assessment produced by Commonwealth, in a March 6, 2019 filing with FERC. Commonwealth concluded that the Project would have no impacts on any of these National Historic Trails (Rainka, 2019).

6.2.3 Inventories

The Palmyra Takeoff (Otoe County, Nebraska, MP 0.2) is within the existing Palmyra Compressor Station. In 2006, archaeologists declined to survey the compressor station because it was previously disturbed (Vermeer and Bradley, 2006). The Nebraska

⁷ On February 12, 2019, Northern filed with FERC, in Docket No. CP19-1-000, a copy of an Historic Context for the A-line, written by Dr. Castaneda in 2000.

SHPO concurred with the recommendations of that report in a letter to Merjent, Inc. dated February 5, 2019. About 1.2 acres adjacent to the east side of the Palmyra Compressor Station was inspected in November 2017; no cultural resources were identified (Buhta, 2017).

The Glenwood IAB87501 tie-over (Mills County, Iowa, MP 36.6) was inventoried by Commonwealth in 2017-2018. The survey covered 2.8 acres, and included shovel testing. No cultural resources were found (Jones et al., 2018).

The northern third of the ECB for the Guthrie Center Branch Line, M530A-50, (Guthrie County, Iowa, MP 50.0) was previously inspected for cultural resources in February 2009 by The Louis Berger Group, Inc. No cultural resources were identified during that inventory (Dolan, 2009). This disconnect location was re-surveyed by Commonwealth in 2018; no cultural resources were found (Jones et al. August 2018).

A portion of the ECB for the Carroll Branch Line takeoff, M530A (Guthrie County, Iowa, MP 54.8), covering about 2.2 acres, was surveyed in 2014; no cultural resources were recorded (Koszarek, 2014). Commonwealth inspected about 2 acres at this disconnect location in 2017-2018; with a single shovel test. No cultural resources were found (Jones et al., 2018).

Block Valve 0A, M530A (Boone County, Iowa, MP 83.7) is within the existing Ogden Compressor Station. A portion of the compressor station tract disconnect location was surveyed in 1989; no cultural resources identified in the ECB (Lueck and Winham, 1990). The entire compressor station was surveyed in 2017; no cultural resources were identified (Lueck and Buhta, 2017).

6.3. Unanticipated Discoveries Plan

Northern developed an “Unanticipated Discoveries Plan (UDP) for Archaeological Resources and Human Remains, Otoe County, Nebraska,” that was submitted to the Nebraska SHPO on August 10, 2018. On February 12, 2019, Northern filed with FERC a copy of a letter from the Nebraska SHPO, dated December 4, 2017, approving Northern’s UDP for the A-line Abandonment Project. The Nebraska SHPO reaffirmed its approval of the UDP in a March 13, 2019 letter to Northern. We also found Northern’s UDP for Nebraska to be acceptable.

Northern submitted its “Unanticipated Discoveries Plan for Archaeological Resources and Human Remains, Boone, Guthrie, and Mills Counties, Iowa,” to the Iowa SHPO on August 23, 2018. The Iowa State Archaeologist commented on the UDP on September 12, 2018, and March 5, 2019. On January 28, 2019, FERC staff requested that Northern revise the Iowa UDP. A revised UDP for Iowa was produced by Northern on March 6, 2019. We find this version acceptable.

6.4. Compliance with the NHPA

No traditional cultural properties or properties of religious or cultural importance to Indian tribes were identified in the APE by Northern or its consultants, the SHPOs of Nebraska and Iowa, the U.S. Department of the Interior's Bureau of Indian Affairs, NPS, or Indian tribes contacted. Therefore, we have complied with the intent of Section 101(d)(6) of the NHPA.

We and the SHPOs of Nebraska and Iowa agree that abandonment and disconnection activities associated with this Project should have no effects on historic properties. No additional investigations are required at the disconnect locations. We have completed the process of complying with Section 106 of the NHPA, in accordance with 36 CFR Part 800, for this Project.

7. AIR QUALITY AND NOISE

7.1. Air Quality

Federal and state air quality standards are designed to protect human health. The EPA has developed National Ambient Air Quality Standards (NAAQS) for criteria air pollutants such as oxides of nitrogen (NO_x) and carbon monoxide, sulfur dioxide, and inhalable particulate matter ($\text{PM}_{2.5}$ and PM_{10}).⁸ $\text{PM}_{2.5}$ includes particles with an aerodynamic diameter less than or equal to 2.5 micrometers, and PM_{10} includes particles with an aerodynamic diameter less than or equal to 10 micrometers. The NAAQS were set at levels the EPA believes are necessary to protect human health and welfare. Volatile organic compounds (VOC) are regulated by EPA mostly to prevent the formation of ozone, a constituent of photochemical smog. Many VOCs form ground-level ozone by reacting with sources of oxygen molecules such as NO_x in the atmosphere in the presence of sunlight. NO_x and VOCs are referred to as ozone precursors. Hazardous air pollutants are also emitted during fossil fuel combustion and are suspected or known to cause cancer or other serious health effects; such as reproductive effects or birth defects; or adverse environmental effects.

Fugitive dust is particulate matter of varying sizes that arises from the mechanical disturbance of soil or rock material and is lifted into the air. Fugitive dust is generated by activities such as the physical movement of soil, vehicles traveling over unpaved surfaces, heavy equipment operation, blasting, and wind. Fugitive dust typically contains a mix of particle sizes ($\text{PM}_{2.5}$, PM_{10} and larger particulates). Smaller particulates can be health hazards while larger particulates may be a public nuisance (visibility impacts, deposition, and physical irritant).

Greenhouse Gases (GHG) produced by fossil-fuel combustion are carbon dioxide, methane, and nitrous oxide. GHGs status as a pollutant is not related to toxicity. GHGs

⁸ The current NAAQS are listed on EPA's website at <https://www.epa.gov/criteria-air-pollutants/naaqs-table>

are non-toxic and non-hazardous at normal ambient concentrations, and there are no applicable ambient standards or emission limits for GHG under the Clean Air Act (CAA). Elevated levels of GHGs are the primary cause of warming of the climatic system. During construction of the Project, GHGs would be emitted from construction equipment.

If measured ambient air pollutant concentrations for a subject area remain below the NAAQS criteria, the area is considered to be in attainment with the NAAQS. Ground disturbances would be limited to one location in Otoe County, Nebraska, and four locations in Mills, Guthrie, and Boone Counties, Iowa. The Project areas are in attainment for the NAAQS for all criteria pollutants.

The CAA is the basic federal statute governing air pollution in the United States. We have reviewed federal permitting and CAA requirements and determined that none are applicable to the proposed Project as there would not be any stationary emission sources.

Construction Emissions Impacts and Mitigation

During construction, a temporary reduction in ambient air quality may result from criteria pollutant, VOC, and hazardous air pollutant emissions; as well as fugitive dust generated by construction equipment. The quantity of fugitive dust emissions would depend on the moisture content and texture of the soils that would be disturbed and the nature of the ground disturbing activities. Fugitive dust and other emissions due to construction activities generally do not cause a significant increase in regional pollutant levels; however, local particulate matter levels could increase.

Northern has adopted a Fugitive Dust Control Plan that includes the following mitigations:

- applying water or suitable chemical suppressants (such as calcium chloride) on dirt roads, material stockpiles, and other surfaces which may create significant airborne dust;
- removing spilled or tracked dirt or other materials from paved roads;
- reducing the speed of vehicular traffic to minimize significant dust emissions;
- covering open-bodied haul trucks, as appropriate; and
- installing stone construction entrances to transition from unpaved to paved roads to limit sediment transported onto paved surfaces.

Based on the scope of the Project and the short duration of construction activities, we conclude that there would be no regionally significant impacts on air quality.

7.2. Noise

Construction noise is highly variable. Many construction machines operate intermittently, and the types of machines in use at a construction site change with the construction phase. The sound level impacts on residences due the construction activities would depend on the type of equipment used, the duration of use for each piece of equipment, the number of construction vehicles and machines used simultaneously, and the distance between the sound source and receptor. Typically, the most prevalent sound source during construction would be the internal combustion engines used to power the construction equipment. Noise levels of major construction equipment including cranes, rollers, and trucks have a measured sound level of 85 decibels on the A-weighted scale at 50 feet from the source, diminishing with distance. Nighttime noise due to construction would be limited since construction within 0.5 mile of residences would be limited to between 7:00 a.m. and 7:00 p.m. At distances of greater than 0.5 mile from residences, Northern would extend construction hours to 10 p.m. Because of the short duration of construction activities, we conclude that no significant noise impacts are anticipated from the proposed Project.

8. POLYCHLORINATED BIPHENYLS AND ASBESTOS

Many older pipeline facilities used oils in compressor station operations containing PCBs. PCBs have been demonstrated to cause a variety of adverse health impacts. These types of oils are no longer allowed for use in pipeline facility operations, but because of past use at older facilities, these facilities and associated pipelines may still have levels of PCBs above regulatory limits.

EPA's regulations at 40 CFR 761 specifically address requirements for removal and abandonment of facilities containing PCBs. In accordance with 40 CFR 761, Subpart M procedures, Northern must remove and sample free flowing liquids (if present) from the facilities to be removed to determine disposal options. Removed pipe and valves with wipe sampling results less than or equal to 10 micrograms per 100 square centimeters ($10\mu\text{g}/100\text{ cm}^2$ or 50 parts per million) PCBs could be managed as scrap material. Pipe facilities with wipe sampling results greater than $10\mu\text{g}/100\text{ cm}^2$ PCBs with or without asbestos coating would need to be managed by:

- disposal at a Toxic Substances Control Act permitted landfill; or
- decontaminated and wipe sampled until PCBs results are less than or equal to $10\mu\text{g}/100\text{ cm}^2$.

Northern previously abandoned segments of pipeline on its M580A and M530A pipelines under FERC Docket Nos. CP99-75-000 and CP14-536-000, respectively; no liquids were encountered during these removals. Further, Northern has reviewed PCB wipe sampling results taken on the A-line between the Palmyra Compressor Station and Ogden Compressor Station since 2010 and the highest level of PCBs measured was 125

parts per million at an existing block valve. Northern would adhere to its PCB disposal procedures during Project activities. These procedures meet the requirements outlined in the Toxic Substances Control Act.

Based on the age of the pipeline segments to be abandoned, these facilities could have been coated with asphalt material that may also contain asbestos. EPA federal regulations for the handling and disposal of asbestos containing materials (ACM) under the National Emissions Standards for Hazardous Air Pollutants at 40 CFR 61, Subpart M. Northern has not identified measures it would take to identify facilities to be abandoned that may have ACMs, provide worker safety while working with ACMs, or provide for the proper disposal of any ACMs. Therefore, **we recommend that:**

- **Prior to any abandonment activities, Northern should file the following information with the Secretary of the Commission (Secretary) for review and written approval by the Director of the Office of Energy Projects (OEP):**
 - a. **identify any known facilities to be disturbed having ACMs;**
 - b. **develop protocols to comply with the appropriate requirements to identify ACMs that might be encountered;**
 - c. **if facilities with ACMs would be disturbed, identify how any abandoned ACM-contaminated material would be properly disposed of; and**
 - d. **develop worker protection protocols for handling ACM-contaminated materials.**

9. CUMULATIVE IMPACTS

Although the individual impacts of each project might not be significant, the cumulative impacts of multiple projects could be significant. In accordance with NEPA, the cumulative impacts of the Project along with other projects were considered. The CEQ regulations for implementing NEPA, at 40 CFR 1508.7, define cumulative impacts as: “impacts on the environment which result from incremental impact of the [proposed] action when added to other past, present, and reasonably foreseeable future actions....”

The current environment of the Project area reflects a mixture of natural processes and human influences across a range of conditions. Current conditions have been affected by innumerable activities over thousands of years; but primarily during the period since the Civil War. The CEQ issued an interpretive memorandum on June 24, 2005, regarding analysis of past actions, which stated: “agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions.” In order to

understand the contribution of past actions to the cumulative effects of the proposed action, this analysis relies on current environmental conditions as a proxy for the impacts of past actions. This is because existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects. In this analysis, we generally consider the impacts of past projects within the resource-specific geographic scopes as part of the affected environment (environmental baseline), which was described under the specific resources discussed throughout section B. However, this analysis does include the present effects of past actions that are relevant and useful.

Our review of the estimated Project impacts concludes that nearly all construction impacts would be contained within the extra workspaces. Erosion control measures included in FERC's Plan, for example, would keep disturbed soils within work areas. Consequently, most of the construction impacts would be temporary and localized and are not expected to contribute to regional cumulative impacts. Exceptions exist where the impacts may migrate outside of designated work areas (e.g., construction emissions). The Project is expected to have no impact or a negligible impact on geologic resources and geologic hazards, land use, cultural resources, water resources and wetland resources, and fisheries. Therefore, we conclude that the impacts from this Project, when considered cumulatively with past, present, and reasonably foreseeable projects, would not contribute to significant cumulative impacts on these resources, and these resources will not be discussed further in this section.

Inclusion of other actions is based on identifying commonalities of impacts from other actions along with those of the Project. An action must meet the following criteria:

- impact a resource potentially affected by the proposed action;
- cause the impact within all, or part of, the Project vicinity (spatial overlap); and
- cause the impact within all, or part of, the period in which impacts of the Project would occur (temporal overlap).

We attempted to identify projects with discernable impacts, which include infrastructure construction, FERC jurisdictional and non-jurisdictional pipeline projects, commercial and residential developments, and large industrial facilities construction and operation.

Consistent with CEQ guidance, we identified and considered other actions within an appropriate "geographic scope." The geographic scopes considered in this analysis vary depending on the environmental resource and are described below. Actions located outside the geographic scopes are not evaluated because their potential to contribute to a cumulative impact diminishes with increasing distance from the Project.

- **Soils:** Impacts on soils would largely be contained within the Project workspaces. Cumulative impacts on soils resources could occur within the same footprint as the Project.
- **Cultural resources:** Impacts on cultural resources are highly localized and generally confined to the historic property or resource that is affected. Therefore, the geographic scope for cultural resources impacts is limited to the Project APE, and encompassing any overlapping effects to cultural resources and historic properties.
- **Vegetation, and wildlife:** Impacts on vegetation and wildlife would occur as a result of temporary ground disturbance and vegetation clearing. Impacts on biological resources may also use the watershed scale as it provides a natural boundary and geographic proxy to accommodate wildlife habitat and ecosystem characteristics in the Project area. Therefore, the cumulative impacts analysis for these resources is focused on those projects that occur within the same Hydrologic Unit Code 12 subwatersheds crossed by the Project.
- **Land use:** Impacts on land use resources would occur as a result of temporary vegetation clearing, ground disturbance, and increases in noise and dust during construction activities. The cumulative impacts analysis for land use and recreational resources is focused on those projects that occur within 1 mile of a Project workspace.
- **Visual Resources:** Impacts on visual resources may extend outside of the Project footprint to include projects in the same viewshed that would be affected by the Project facilities. Impacts on visual resources near the Project were assumed to extend up to 1 mile.
- **Air Quality:** Temporary impacts on air quality, including fugitive dust, would be largely limited to areas within 0.25 mile of active construction. Since the Project would not result in operational emissions, long-term impacts from operation were not evaluated.
- **Noise:** Impacts from construction and operation noise could potentially contribute to cumulative impacts or overlap with noise from other construction projects, which would be limited to areas within 0.25 mile of Project construction workspaces. Since the Project would not result in operational noise, long-term impacts from operational noise were not evaluated.

The projects considered in this analysis are listed in table 6. The potential cumulative impacts associated with each resource are discussed in the following subsections.

<p align="center">Table 6 Past, Present, and Reasonably Foreseeable Activities in the Geographic Scope</p>					
Project/Proponent	Approximate Distance from Project ^a	Description	Status or Timeframe	Within Geographic Scope	Impacts within Geographic Scope (acres)
Pipeline System Projects					
2020 Palmyra to South Sioux City A-line Abandonment/Northern	Partially overlapping footprint with M581A Palmyra takeoff	Abandonment by sale of approximately 117.7 miles of pipeline; ground disturbance at three disconnect locations. Construction of approximately 4.2 miles of new natural gas pipeline, including several aboveground valve settings.	Anticipated construction August 2020.	Soils, Vegetation, Wildlife.	7.5 acres (soils); 258.4 acres (vegetation and wildlife).
Palmyra Compressor Station A-line Disconnect/Northern	< 0.1 mile from the M581A Palmyra takeoff	Removal of the existing manifold connection of the A-line to the Palmyra Compressor Station.	Construction is complete. Restoration to be completed in 2019.	Vegetation, Wildlife	13.1
M580B 26" ILI Mods-Palmyra to Oakland/Northern	< 0.2 mile from the M581A Palmyra takeoff	Modifications to allow for launching and receiving inspection tools.	Construction is complete. Restoration to be completed in 2019.	Vegetation, Wildlife	52.5
Woodland Hills Town Border Station Removal/Northern	Approximately 2.1 miles from the M581A Palmyra takeoff	Removal of existing town border station.	In permitting; construction scheduled for spring 2019	Vegetation, Wildlife	0.9
Woodland Hills New Town Border Station/Northern	Approximately 0.9 mile from the M581A Palmyra takeoff	Town border station relocation project; new town border station will be sited at this location.	In permitting; construction scheduled for spring 2019	Vegetation, Wildlife	0.6

Table 6 Past, Present, and Reasonably Foreseeable Activities in the Geographic Scope					
Project/Proponent	Approximate Distance from Project ^a	Description	Status or Timeframe	Within Geographic Scope	Impacts within Geographic Scope (acres)
M580B 26" ILI Modifications - Palmyra to Oakland BBB07 Launcher Installation/Northern	Approximately 0.2 mile from the Glenwood IAB87501 tie-over	Remove and cap an existing aboveground tie-in between Northern's A-line and discharge manifold.	Construction completed in 2018. Restoration to be completed in 2019.	Vegetation, Wildlife	0.2
Warren A-Line Farm Tap Relocation/Northern	Approximately 0.8 mile from the Glenwood IAB87501 tie-over	Relocate the existing farm tap from the A-line to the B-line.	Construction is complete. Restoration to be completed in 2019.	Vegetation, Wildlife	0.7
Guthrie Center Tie-Over/Northern	Approximately 0.5 mile from the Guthrie Center Branch Line	Install a new tie-over between Northern's Guthrie Center Branch Line and the C-line.	Construction completed in 2018. Restoration to be completed in 2019.	Vegetation, Wildlife	2.0
ABA09 Block Valve 9 Tie-Over and Ogden Compressor Station/Northern	Approximately 0.1 mile from the Block Valve 0A	Removal of an existing tie-over and valve, installation of a dual regulator run and plug valve.	Construction completed in 2018. Restoration to be completed in 2019.	Vegetation, Wildlife	1.3
IAB65002 16" – Des Moines B Branch Line/Northern	Approximately 1.0 mile from the Block Valve 0A	Installation of approximately 13.9 miles of 20-inch-diameter pipeline.	Construction completed in 2018; pipeline restoration is complete except at one location where restoration will be completed in 2019	Vegetation, Wildlife	0.3
Industrial and Commercial Developments					
Unknown/DKM Enterprises, LLC ^b	Adjacent to each disconnect site	Removal of existing A-line for salvage	Start of construction tentatively December 2019 (after Project completion)	Soils, Vegetation, Wildlife	5.0 acres (soils); 130.7 acres (vegetation and wildlife)

Table 6 Past, Present, and Reasonably Foreseeable Activities in the Geographic Scope					
Project/Proponent	Approximate Distance from Project ^a	Description	Status or Timeframe	Within Geographic Scope	Impacts within Geographic Scope (acres)
Proposed Industrial Rail Project/Unknown	Approximately 3.1 miles from the Glenwood IAB87501 tie-over	Proposed future development of an industrial rail project south of the City of Pacific Junction, Iowa, near the intersection of 221st Street and 195th Street, east of Interstate 29.	Exact schedule unknown	Vegetation, Wildlife	Unknown
Seed Sales and Storage Facility/Coleman Ag	Approximately 2.3 miles from the Block Valve 0A	Commercial agricultural seed business expansion.	Construction and restoration to be completed spring 2019	Vegetation, Wildlife	Unknown
^a Approximate distance listed represents the feature or facility closest to the Project. ^b Assesses only the portion of the DKM Project that would be within the geographic scope of the Project.					

Soils

Due to the limited extent of overlapping footprints as well as soil conservation and restoration measures that would be implemented by all projects within the geographic scope to prevent erosion and stabilize disturbed areas, cumulative impacts on soils are anticipated to be short-term, minor, and not significant.

Vegetation and Wildlife

Approximately 5.7 acres of agricultural vegetation and 5.3 acres of upland vegetation would be temporarily affected by the Project (see section B.4.1). All other areas affected by the Project are developed and have low suitability for wildlife. The Project would have no effect on state-listed species and threatened and endangered species potentially occurring within the Project area (see section B.4.3). Impacts associated with projects within the geographic scope are generally anticipated to be similar to the Project (temporary construction impacts), with most habitat types returning to pre-construction conditions following the completion of construction activities. Therefore, due to the abundance of open land in the geographic scopes and the limited suitability of actively cultivated areas to serve as wildlife habitat, cumulative impacts on vegetation and wildlife habitat are anticipated to be minimal.

10. NON-JURISDICTIONAL FUTURE USE

Based on stakeholder comments related to the DKM Project, we include in this section the best available information regarding the overall impacts of the DKM Project. The following section describes general impacts that would occur from the overall DKM Project, whereas the cumulative impact analysis above assessed only the portion of the DKM Project within the geographic scope of the Project. Although the Commission has no authority to approve or deny the DKM Project and no ability to require any avoidance or minimization of related impacts, we provide information here to inform stakeholders and decision-makers.

As described previously, after assuming ownership of the A-line, DKM intends to reclaim most of the facilities for salvage. DKM would be required to obtain all applicable permits and approvals from federal, state, and local regulatory agencies prior to initiating activities, and to abide by permit requirements during removal of the pipeline. Appendix E of this EA provides a summary of the permits, approvals, and consultations DKM would obtain prior to commencing salvage operations.

Northern has stated that DKM would use a 75-foot-wide corridor centered on the pipeline, and reclamation activities would occur within Northern's easement. Prior to removal of the pipeline, DKM would contact Nebraska 811 or Iowa One Call, as appropriate, to locate, identify, and flag existing underground utilities to prevent accidental damage during reclamation activities. DKM would use existing public and

private roads and the A-line right of way to gain access to the work area. Temporary gates would be installed to allow access at fences.

Grading may occur in areas where the existing topography must be modified to create a safe and level working surface. Generally, the pipeline would be removed with trackhoes equipped with low ground-weight construction equipment. As the pipeline is lifted from the trench, it would be placed on cribbing adjacent to the trench. The pipeline would be continuously removed and breaks in the pipeline would be determined by foreign line crossings, road crossings, wetland/waterbody crossings and points of inflection where bends in the pipeline preclude continuous removal. Once placed on cribbing, the pipeline would be cut into sections as needed for transport and storage. Pipe joints would be stacked within the corridor in designated load-out areas. Semi-trucks and trailers equipped with custom pipe stakes would be used to safely haul the pipe joints from the corridor.

Backfill operations would begin immediately following removal of the pipeline. The trench would be backfilled using a dozer equipped with low ground-weight equipment. The backfill operations would keep pace with the pipeline removal to minimize the amount of trench left open overnight. Any area near a trench left open overnight would be secured with safety fencing. Cleanup would be conducted in conjunction with backfill operations and land contours would be restored to pre-removal conditions. In accordance with the terms of the PSA, DKM would be responsible for coordinating reclamation activities with landowners, and would assume all costs, risks, and liabilities for damages to private property.

Northern conducted a desktop review of publicly available data to identify the potential environmental effects of DKM's planned pipeline reclamation. In accordance with DKM's description of its planned reclamation activities, a 75-foot-wide corridor centered on the A-line was used to estimate environmental effects. DKM Project activities and associated land requirements are summarized in table 7.

Table 7 Summary of Potential Environmental Effects of DKM's Pipeline Reclamation	
Facility/Resource	Potential Effects ^a
M580A Mainline	
Length	69.6 miles
Total Impact	614.6 acres
Wetlands	
Forested/Shrub Wetlands	2.5 acres
Emergent Wetlands	2.2 acres
Pond	0.7 acres
Riverine	3.9 acres
Waterbodies Crossed	

Table 7 Summary of Potential Environmental Effects of DKM's Pipeline Reclamation	
Facility/Resource	Potential Effects ^a
Perennial	18
Ephemeral	1
Intermittent	88
Land Cover/Use	
Agricultural	500.1 acres
Developed	33.9 acres
Forested	14.7 acres
Open Land	67.5 acres
Open Water	0.2 acres
Land Ownership	
Federal	0 acres
State	5.1 acres
County/Local	0.2 acres
Private	609.3 acres
Water wells within 150 feet	12
Public water supply within 150 feet	0
Residences within 50 feet	7
Cultural Resources Sites Crossed	
NRHP-eligible	2
Not NRHP-eligible	2
Unevaluated	5
M530A Mainline	
Length	79.0 miles
Total Impact	717.2 acres
Wetlands	
Forested/Shrub Wetlands	3.1 acres
Emergent Wetlands	6.3 acres
Pond	0.6 acres
Riverine	3.5 acres
Waterbodies	
Perennial	19
Ephemeral	0
Intermittent	61
Land Cover/Use	
Agricultural	652.1 acres
Developed	41.8 acres
Forested	11.7 acres
Open Land	10.9 acres
Open Water	1.2 acres

Table 7 Summary of Potential Environmental Effects of DKM's Pipeline Reclamation	
Facility/Resource	Potential Effects ^a
Land Ownership	
Federal	3.1 acres
State	11.3 acres
County/Local	0.4 acres
Private	702.4 acres
Water wells within 150 feet	3
Public water supply within 150 feet	0
Residences within 50 feet	1
Cultural Resources Sites Crossed	
NRHP-eligible	0
Not NRHP-eligible	1
Unevaluated	0
^a Acreages are based on an assumed 75-foot-wide temporary construction right of way, centered on the existing A-line, and do not include ATWS, access roads, or contractor yards. <i>Sources: FWS National Wetlands Inventory; USGS National Hydrography Dataset; National Land Cover Database; Protected Areas Database of the United States; IDNR Conservation and Recreation Lands</i>	

The PSA between Northern and DKM, executed on September 27, 2018, outlines certain environmental provisions agreed upon by both parties. Per this PSA, DKM would reclaim the pipeline within two years of the executed purchase and sale agreement and regulated substances in the pipeline (such as naturally occurring radioactive materials, pipeline coatings comprised of asbestos containing material, and PCBs) would be appropriately managed.

To reduce potential impacts on soils, topsoil would be segregated within the ditch and spoil storage areas in agricultural land. To minimize disturbance in agricultural land, topsoil would not be removed in the remaining temporary workspace. In areas where topsoil is segregated, the soils would be replaced in reverse order of removal to ensure the topsoil remains in the upper horizon. Installation of permanent erosion control devices would consist of water bars and terraces where required. Seeding would occur in accordance with the seeding recommendations provided by the local NRCS and/or landowner request. Areas requiring reseeding would be seeded within 20 days of backfill but seeding may be delayed based on the NRCS-recommended seeding window. All temporary fencing would be removed following seeding activities and the permanent fences would be replaced.

Some segments of the pipeline (e.g., pipe at road crossings, wetlands and waterbodies) would not be removed. At these locations, the pipeline would instead be cut

and capped/grouted, as deemed necessary. If DKM elects to remove the pipeline segments under environmentally sensitive areas, DKM would be responsible for obtaining all applicable permits and authorizations for its project (refer to table E-1 in appendix E of this EA). Tables 1F-1 and 1F-2 in appendix F of this EA provide a list of waterbodies and wetlands crossed by the A-line in Nebraska and Iowa.

In accordance with the terms of the PSA, DKM would abandon the pipeline in-place beneath the seven NRHP-eligible and unevaluated historic properties crossed by the A-line. The A-line crosses a portion of the route of the Mormon Pioneer National Historic Trail in an agricultural field west of Silver Creek in Pottawattamie County, Iowa, where no known intact trail remnants were identified. The closest intact portion of the trail was found to be about 6.8 miles west of the A-line. The route of the California National Historic Trail crosses the A-line at a farmstead south of the Platte River in Cass County, Nebraska, where no intact trail remnants were identified. The closest historic site associated with the California Trail would be the Saline/Oxbow Cutoff, about 11.3 miles northwest of the A-line. The closest portion of the Pony Express route is located in eastern Nebraska, about 60 miles southwest of the A-line.

Visual impacts would be greatest where workspace areas are adjacent to roads and may be seen by passing motorists or from residences if vegetation that provides visual screening is removed. In accordance with the terms of the PSA, DKM would restore land to its present condition after reclamation of the pipeline is complete; however, the duration of visual impacts would depend on the type of vegetation that is cleared or altered and would be shortest in open areas where the re-establishment of vegetation following construction would be relatively rapid.

Air quality and noise associated with salvage of the A-line would be localized. Construction emissions would result from heavy equipment burning fossil fuels and fugitive dust from ground-disturbing activities, and construction noise would result from the use of heavy equipment.

SECTION C. ALTERNATIVES

In accordance with NEPA and Commission policy, we considered alternatives to the proposed action. We evaluate alternatives using a specific set of criteria. The evaluation criteria applied to each alternative include a determination whether the alternative:

- meets the objective of the proposed Project;
- is technically and economically feasible and practical; and
- offers a significant environmental advantage over the proposed Project.

Through environmental comparison and application of our professional judgment, each alternative is considered to a point where it becomes clear if the alternative could or could not meet the three evaluation criteria.

Alternatives are 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. An alternative that cannot achieve the purpose for the Project cannot be considered as an acceptable replacement for the Project.

Many alternatives are technically and economically feasible. 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 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 the project economically impractical.

Alternatives that would not meet the Project's objective or are not feasible are not brought forward to the next level of review (i.e., the third evaluation criterion). 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.

In preparing this EA, we considered the no-action alternative to the proposed action to determine whether it would be reasonable and environmentally preferable over the Project. We did not identify, and we received no requests to evaluate, other reasonable alternatives that would meet the Project objectives.

Under the no-action alternative, Northern would not implement the proposed action, thus avoiding the potential environmental impacts associated with the Project as described in this EA; however, the Project's purpose and need would not be met. Due to the age and condition of the pipeline, implementing the no-action alternative would result in continued and increasing maintenance activities, with associated costs and service disruptions, to meet DOT safety requirements. These activities would include, among other things, maintenance digs to inspect, repair, and/or replace the pipeline which would have environmental impacts of their own and, due to their ongoing nature, would likely exceed the impacts associated with abandoning the pipeline. As the pipeline is not needed to support current customer requirements, it would not be practical to implement the no-action alternative. Therefore, we conclude that the proposed Project is the preferred alternative to meet the Project objectives.

SECTION D. STAFF'S CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis in this EA, we have determined that approval of the Project would not constitute a major federal action significantly affecting the quality of the human environment. We recommend that the Commission Order contain a finding of no significant impact and that the following mitigation measures be included as conditions to any certificate the Commission may issue:

1. Northern shall follow the abandonment procedures and mitigation measures described in its application and supplements (including responses to staff data requests) and as identified in the EA, unless modified by the Order. Northern must:
 - a. request any modification to these procedures, measures, or conditions in a filing with 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 OEP **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 all environmental resources during activities associated with abandonment and restoration. 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 abandonment and restoration activities.
3. **Prior to any construction or abandonment activities**, Northern shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, EIs, and contractor personnel shall be informed of the EIs' authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with abandonment and restoration activities.

4. The authorized abandonment activities shall be as shown in the EA, 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 work 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.
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 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 for 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 **before construction in or near that area**.

This requirement does not apply to extra workspaces allowed by the Commission's Plan and/or minor field realignments per landowner needs and requirements that 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 authorization and before abandonment activities begin**, Northern shall file an Implementation Plan with the Secretary for review and written approval by the Director of OEP. Northern must file revisions to the plan as schedules change. The plan shall identify:

- a. how Northern would implement the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests), identified in the EA, and required by the Order;
 - b. how Northern would 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 onsite construction and inspection personnel;
 - c. the number of EIs assigned, and how the company would ensure that sufficient personnel are available to implement the environmental mitigation;
 - d. company personnel, including EIs and contractors, who would receive copies of the appropriate material;
 - e. the location and dates of the environmental compliance training and instructions Northern would 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 would follow if noncompliance occurs; and
 - h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for the:
 - i. completion of all required surveys and reports;
 - ii. environmental compliance training of onsite personnel;
 - iii. start of construction; and
 - iv. start and completion of restoration.
7. Northern shall employ at least one EI. The EI(s) 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 with the Secretary on a **biweekly** basis until all abandonment and restoration activities are complete. On request, these status reports shall 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 schedule changes for work in environmentally sensitive areas;
 - c. a listing of all problems encountered and each instance of noncompliance observed by the EI(s) 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, and their cost;
 - e. the effectiveness of all corrective actions implemented;
 - f. a description of any landowner/resident complaints that 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 must receive written authorization from the Director of OEP **before commencing abandonment activities**. 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).

10. **Within 30 days of completing Project abandonment**, Northern shall file an affirmative statement with the Secretary, certified by a senior company official:
 - a. that the facilities have been abandoned in compliance with all applicable conditions, and that continuing activities would 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.
11. **Prior to any abandonment activities**, Northern shall file the following information with the Secretary for review and written approval by the Director of the OEP:
 - a. identify any known facilities to be disturbed having ACMs;
 - b. develop protocols to comply with the appropriate requirements to identify ACMs that might be encountered;
 - c. if facilities with ACMs would be disturbed, identify how any abandoned ACM-contaminated material would be properly disposed of; and
 - d. develop worker protection protocols for handling ACM-contaminated materials.

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M.S., 2000, Chemical Engineering, Pennsylvania State University

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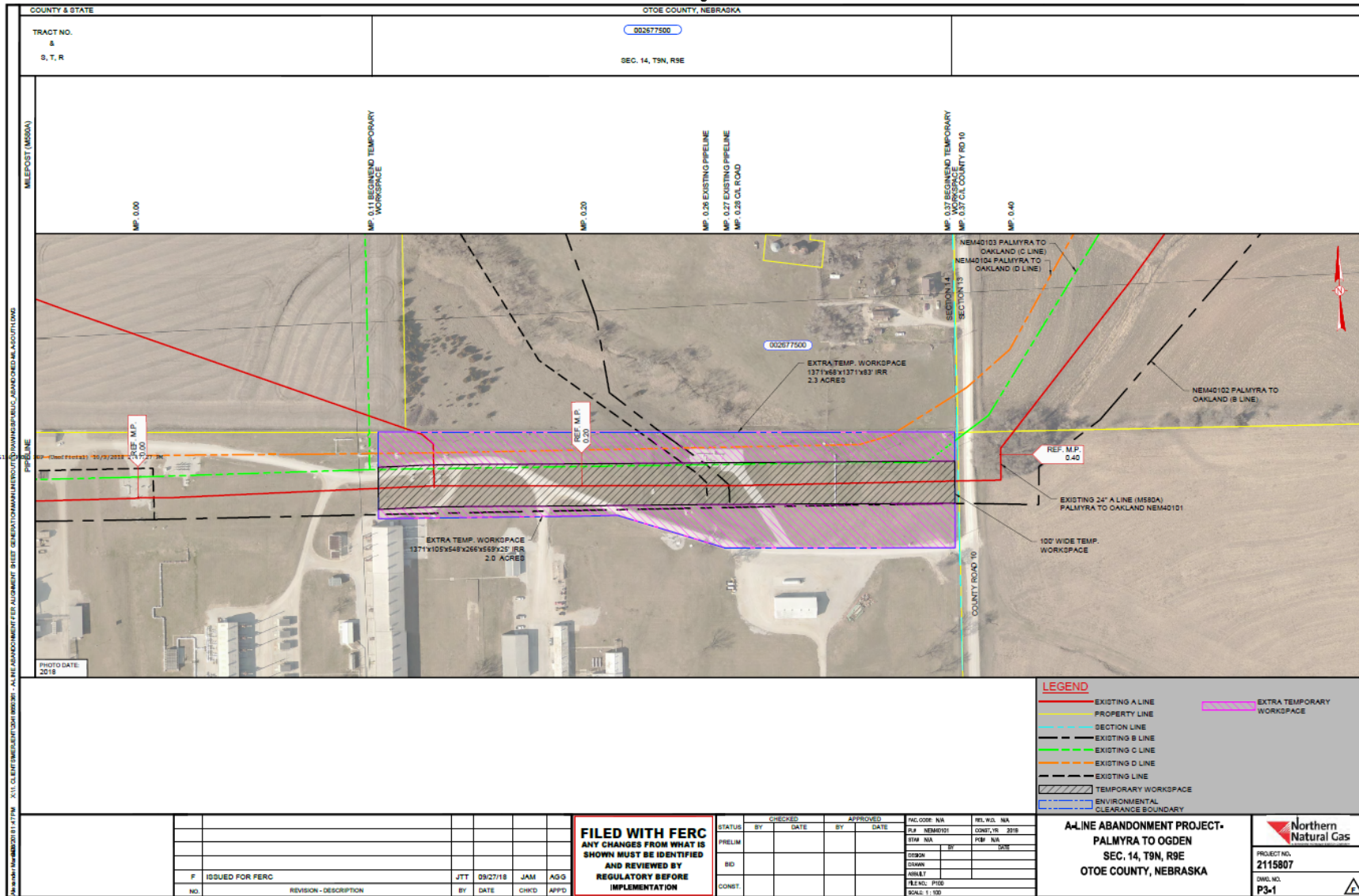
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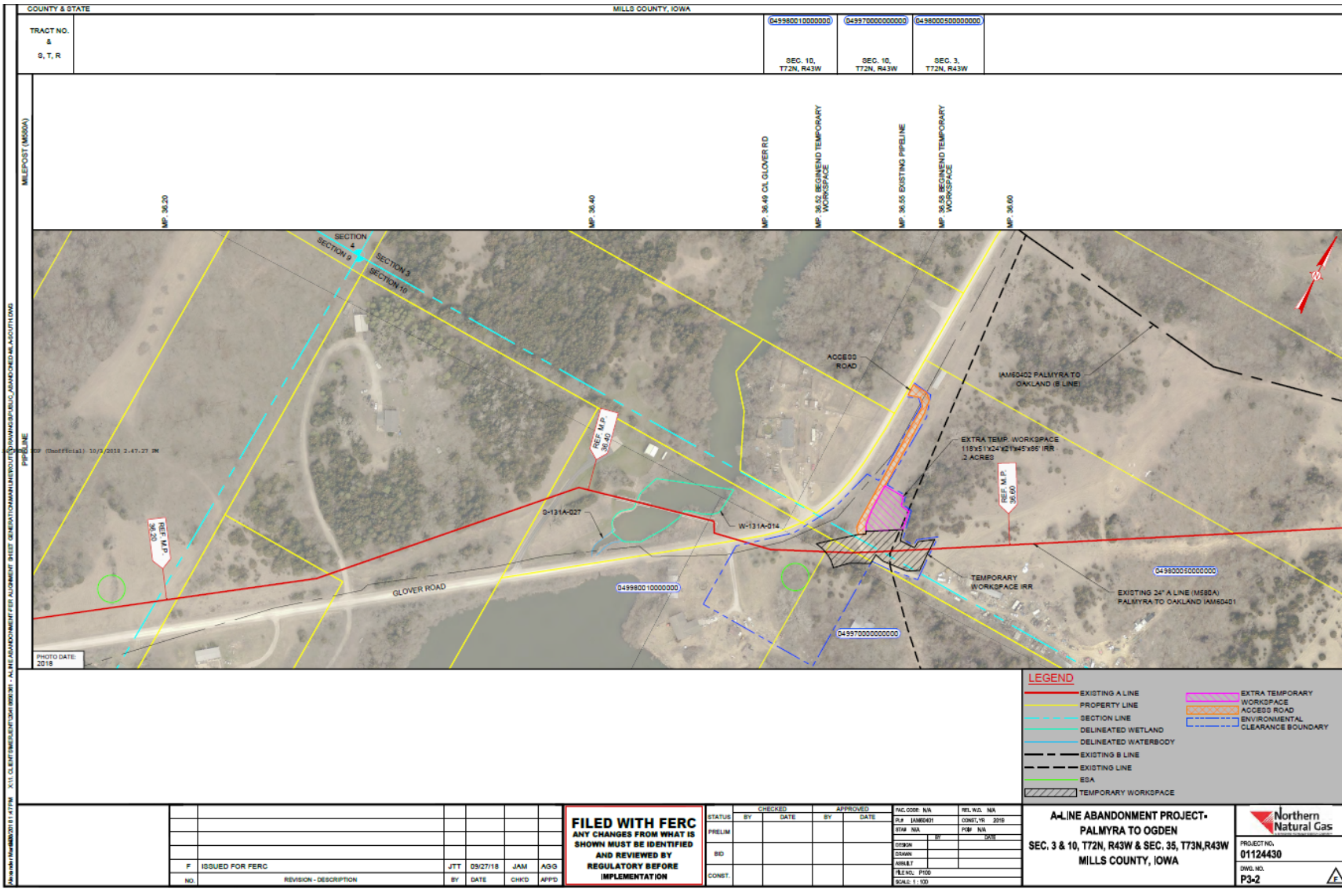
APPENDIX A

Project Area Maps

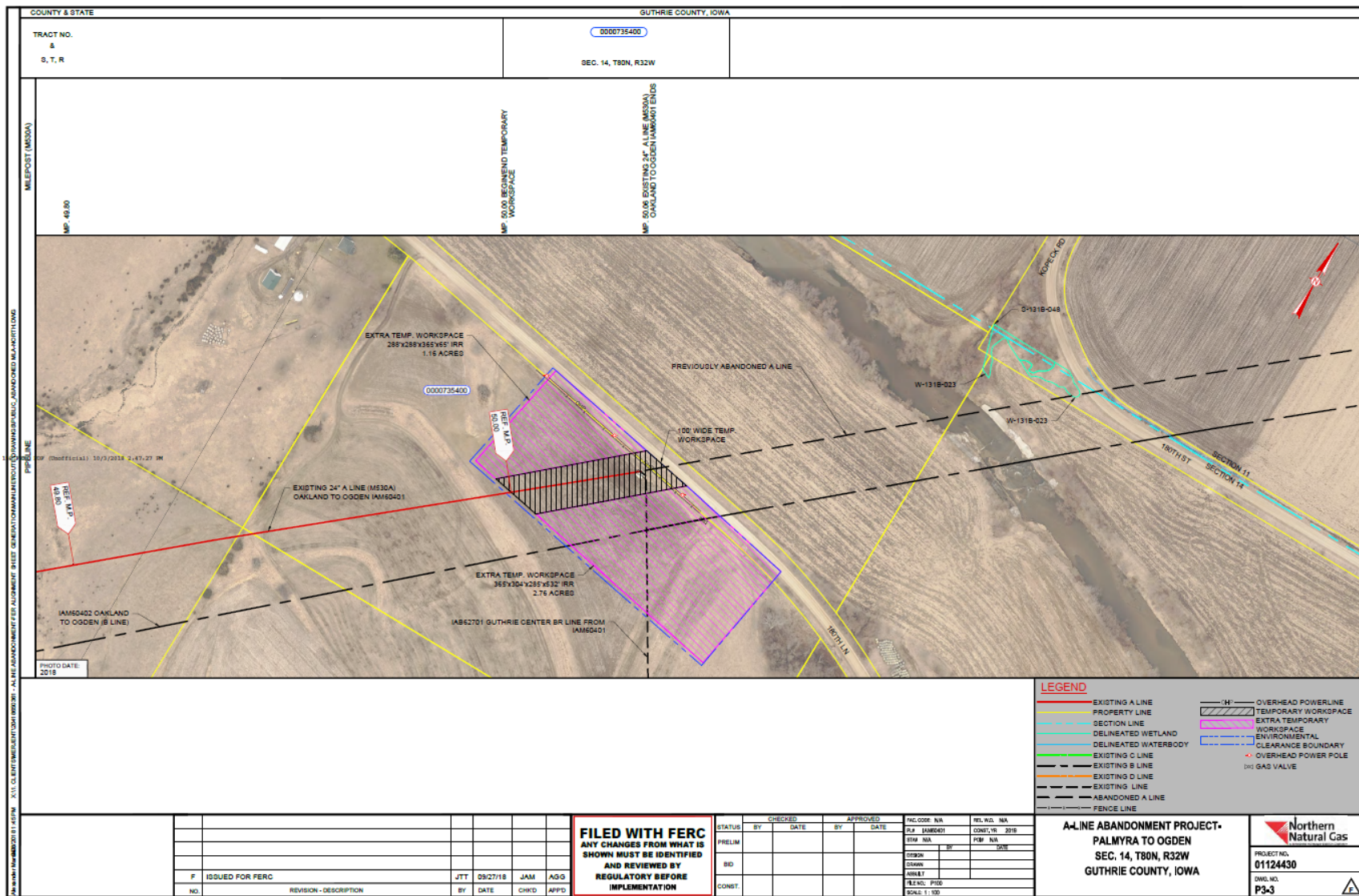
M581A Palmyra takeoff



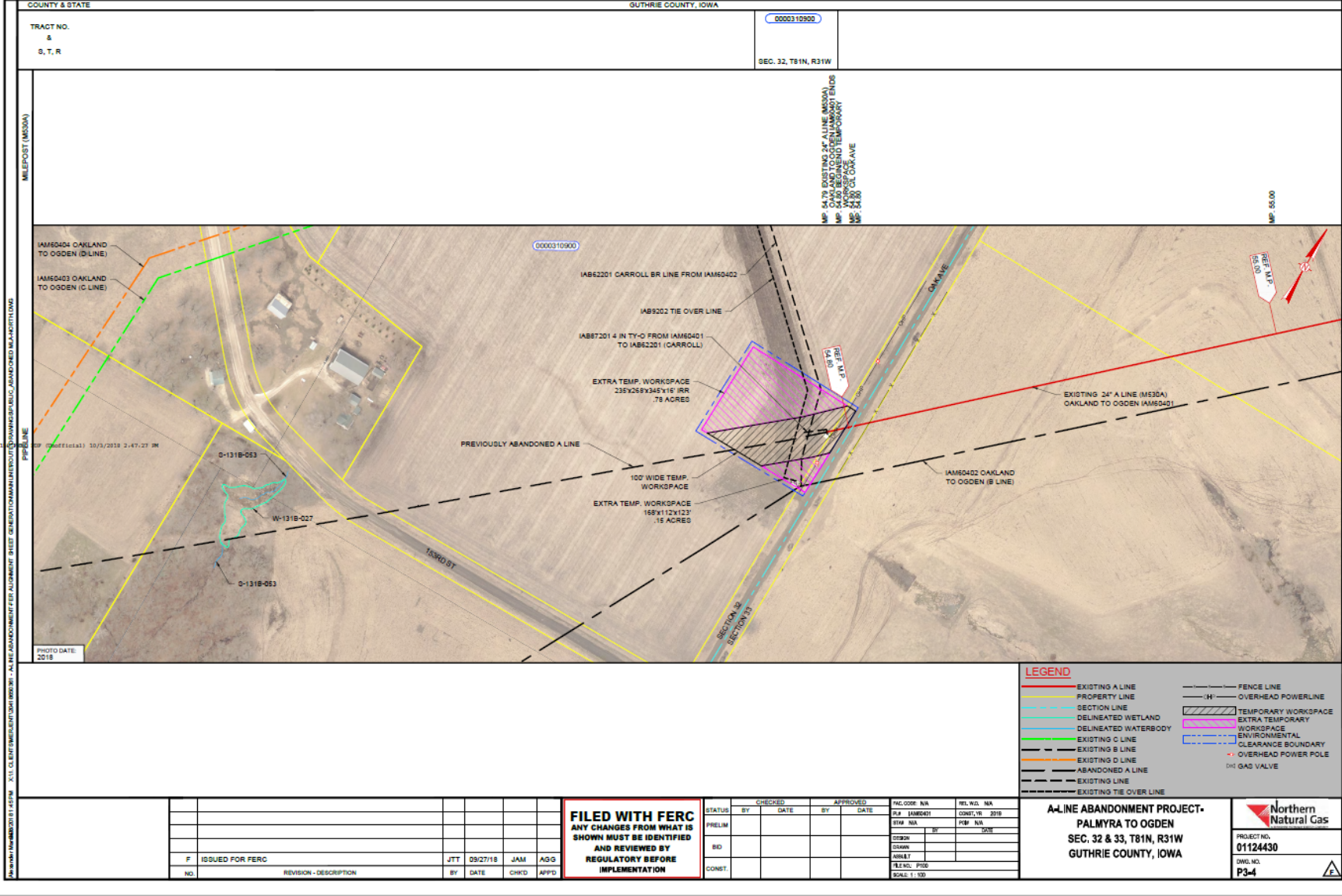
Glenwood IAB87501 tie-over



Guthrie Center Branch Line



Carroll Branch Line takeoff

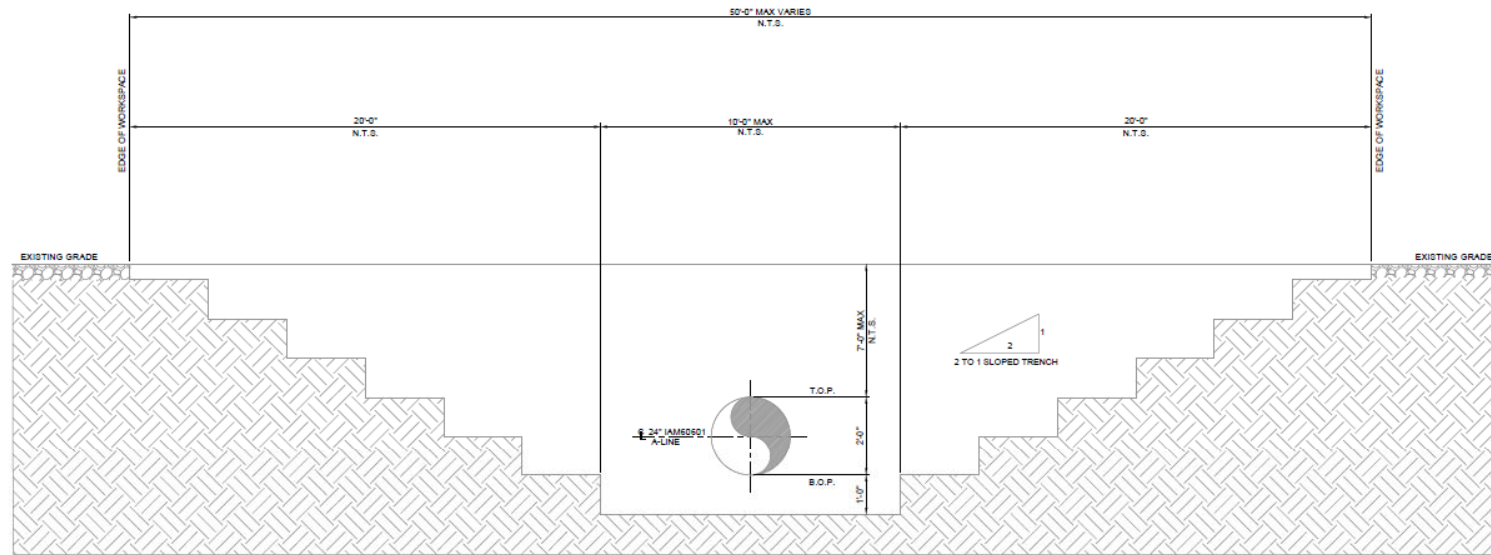


Block Valve 0A

[illegible]

APPENDIX B

Construction Typical Drawings



*N.T.S. ABBREVIATION = NOT TO SCALE

NOTES:

1. ALL REMOVAL TO BE DONE BY CONTRACTOR.
2. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO REMOVAL.
3. REMOVED MATERIAL TO BE TRANSPORTED BY CONTRACTOR TO SITE DESIGNATED BY NNG COMPANY REPRESENTATIVE & LIST ITEMS ON REMOVAL MATERIAL LIST, SEE DWG PM-01-R.

LEGEND

EXISTING FACILITIES
SCALE DISCLAIMER
NOTED SCALE APPLIES TO 22"x34" PAPER SIZE ONLY

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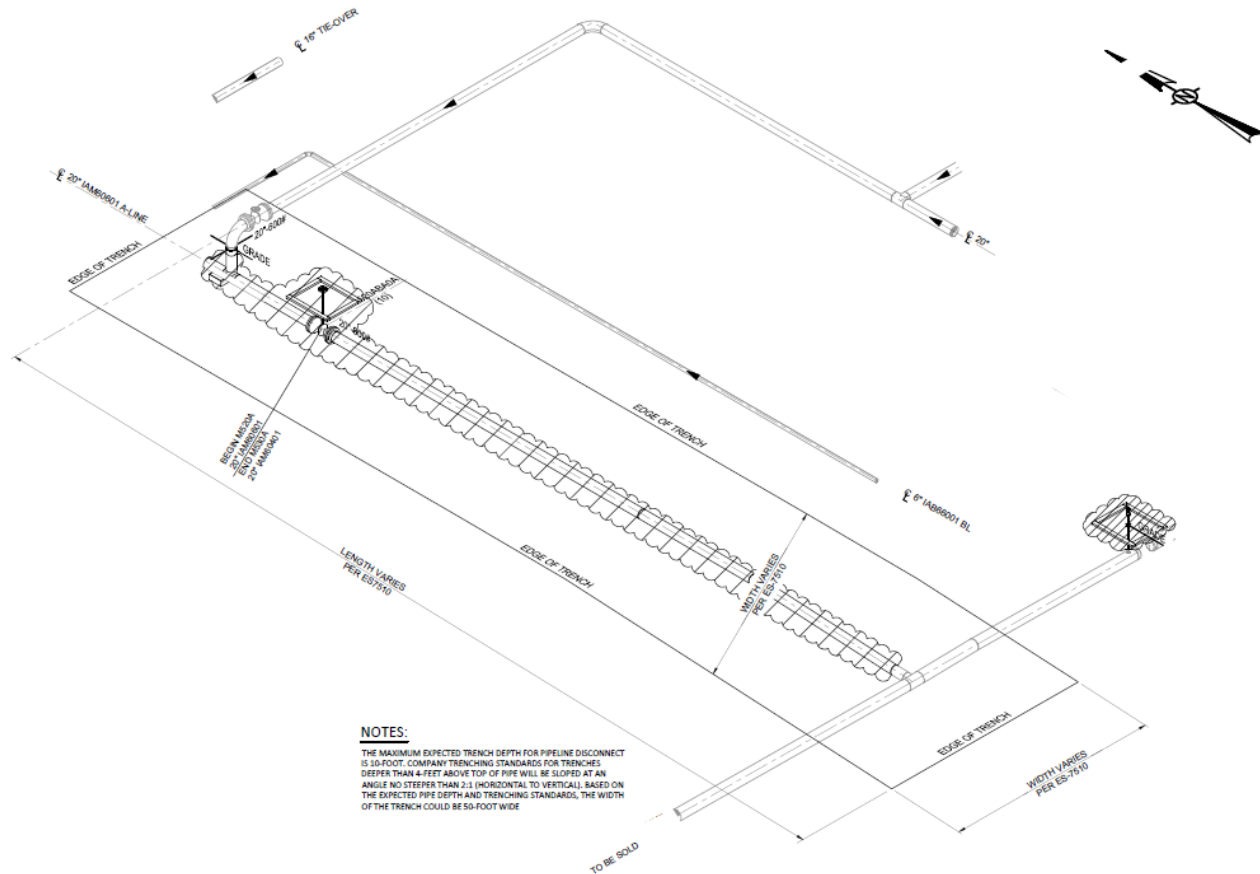
FILED WITH FERC
ANY CHANGES FROM WHAT IS SHOWN MUST BE IDENTIFIED AND REVIEWED BY REGULATORY BEFORE IMPLEMENTATION

STATUS	BY	DATE	BY	DATE	FILED WITH FERC	FILED WITH FERC
PRELIM	SPS	10/19/18	SPS	10/19/18	FILED WITH FERC	FILED WITH FERC
REV	AP	11/21/18	AP	11/21/18	FILED WITH FERC	FILED WITH FERC

IAM60401 AND IAM60601
A-LINE DISCONNECT - OGDEN
TYPICAL OPEN TRENCH REMOVAL SECTION
VARIOUS
VARIOUS COUNTIES, IOWA

Northern Natural Gas
WORK ORDER NO.
01127551
P6-3-R

2:00:19 PM 4/4 AM J:\PROJECTS\BOONE\PIPELINE EXPANSION & FACILITY PLANNING\IAM60401 A-LINE DISCONNECT\ISOMETRIC DETAIL REMOVAL\ISOMETRIC DETAIL REMOVAL.DWG



NOTES:
THE MAXIMUM EXPECTED TRENCH DEPTH FOR PIPELINE DISCONNECT IS 10-FOOT. COMPANY TRENCHING STANDARDS FOR TRENCHES DEEPER THAN 4 FEET ABOVE TOP OF PIPE WILL BE SLOPED AT AN ANGLE NO STEEPER THAN 2:1 HORIZONTAL TO VERTICAL. BASED ON THE EXPECTED PIPE DEPTH AND TRENCHING STANDARDS, THE WIDTH OF THE TRENCH COULD BE 50-FOOT WIDE

REF DWG P6-1-R

LEGEND
--- EXISTING FACILITIES
--- EXISTING TO BE REMOVED

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DISTRIBUTION/COPIES LIMITED TO
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A	ISSUED FOR BID	JPL	11/21/18		

**BID
DRAWING
DO NOT USE FOR
CONSTRUCTION**

STATUS	BY	DATE	CHECKED		BY	DATE	APPROVED		INCL/REV	NA
			BY	DATE			BY	DATE		
PRELIM	JPL	10/19/18	ENR	10/19/18					CONTRACT	2018
BID	JPL	11/21/18	ENR	11/21/18					CONTRACT	2018
CONST									CONTRACT	2018

IAM60401 AND IAM60601
A-LINE DISCONNECT - OGDEN
PROJECT ISOMETRIC DETAIL REMOVAL
SEC, 31, T84N, R27W
BOONE COUNTY, IOWA

WORK ORDER NO.
01127551
DWG NO.
P1-IC-R



APPENDIX C

Birds of Conservation Concern with Potential to Occur in the Project Area

Table C-1. Birds of Conservation Concern with Potential to Occur in the Project Area		
Bird Conservation Region	Listed Birds	
	Common Name¹	Scientific Name
11 (Prairie Potholes U.S. Portion only)	Horned grebe	<i>Podiceps auritus</i>
	American bittern	<i>Botaurus lentiginosus</i>
	Least bittern	<i>Ixobrychus exilis</i>
	Bald eagle (b)	<i>Haliaeetus leucocephalus</i>
	Swainson's hawk	<i>Buteo swainsoni</i>
	Peregrine falcon (b)	<i>Falco peregrinus</i>
	Yellow rail	<i>Coturnicops noveboracensis</i>
	Mountain plover	<i>Charadrius montanus</i>
	Solitary sandpiper (nb)	<i>Tringa solitaria</i>
	Upland sandpiper	<i>Bartramia longicauda</i>
	Long-billed curlew	<i>Numenius americanus</i>
	Hudsonian godwit (nb)	<i>Limosa haemastica</i>
	Marbled godwit	<i>Limosa fedoa</i>
	Buff-breasted sandpiper (nb)	<i>Tryngites subruficollis</i>
	Short-billed dowitcher (nb)	<i>Limnodromus griseus</i>
	Black tern	<i>Chlidonias niger</i>
	Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>
	Short-eared owl	<i>Asio flammeus</i>
	Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>
	Sprague's pipit	<i>Anthus spragueii</i>
	Grasshopper sparrow	<i>Ammodramus savannarum ammodramus</i>
	Baird's sparrow	<i>Ammodramus bairdii</i>
	Nelson's sharp-tailed sparrow	<i>Ammodramus nelsoni</i>
	McCown's longspur	<i>Rhynchophanes mccownii</i>
	Smith's longspur (nb)	<i>Calcarius pictus</i>
	Chestnut-collared longspur	<i>Calcarius ornatus</i>
	Dickcissel	<i>Spiza americana</i>
22 (Eastern Tallgrass Praire)	Pied-billed grebe	<i>Podilymbus podiceps</i>
	Horned grebe (nb)	<i>Podiceps auritus</i>
	American bittern	<i>Botaurus lentiginosus</i>
	Least bittern	<i>Ixobrychus exilis</i>
	Black-crowned night-heron	<i>Nycticorax nycticorax</i>
	Bald eagle (b)	<i>Haliaeetus leucocephalus</i>
	Peregrine falcon (b)	<i>Falco peregrinus</i>
	Black rail	<i>Laterallus jamaicensis</i>
	Solitary sandpiper (nb)	<i>Tringa solitaria</i>
	Upland sandpiper	<i>Bartramia longicauda</i>
	Whimbrel (nb)	<i>Numenius phaeopus</i>
	Hudsonian godwit (nb)	<i>Limosa haemastica</i>
	Marbled godwit (nb)	<i>Limosa fedoa</i>
	Red knot (roselaari ssp.) (nb)	<i>Roselaari ssp.</i>
	Red knot (rufa ssp.) (a) (nb)	<i>Rufa ssp.</i>
	Buff-breasted sandpiper (nb)	<i>Tryngites subruficollis</i>

Table C-1. Birds of Conservation Concern with Potential to Occur in the Project Area		
Bird Conservation Region	Listed Birds	
	Common Name ¹	Scientific Name
22 (Eastern Tallgrass Prairie)	Short-billed dowitcher (nb)	<i>Limnodromus griseus</i>
	Black tern	<i>Chlidonias niger</i>
	Common tern	<i>Sterna hirundo</i>
	Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>
	Short-eared owl (nb)	<i>Asio flammeus</i>
	Whip-poor-will	<i>Caprimulgus vociferous</i>
	Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>
	Northern flicker	<i>Colaptes auratus</i>
	Acadian flycatcher	<i>Empidonax vireescens</i>
	Loggerhead shrike	<i>Lanius ludovicianus</i>
	Bell's vireo (c)	<i>Vireo bellii</i>
	Bewick's wren (bewickii ssp.)	<i>Thryomanes bewickii bewickii</i>
	Wood thrush	<i>Hylocichla mustelina</i>
	Blue-winged warbler	<i>Vermivora cyanoptera</i>
	Cerulean warbler	<i>Setophaga cerulea</i>
	Prothonotary warbler	<i>Protonotaria citrea</i>
	Kentucky warbler	<i>Oporornis formosus</i>
	Field sparrow	<i>Spizella pusilla</i>
	Grasshopper sparrow	<i>Ammodramus savannarum ammodramus</i>
	Henslow's sparrow	<i>Ammodramus henslowii</i>
	Smith's longspur (nb)	<i>Calcarius pictus</i>
	Dickcissel	<i>Spiza Americana</i>
	Rusty blackbird (nb)	<i>Euphagus carolinus</i>

¹ (a) ESA candidate, (b) ESA delisted, (c) non-listed subspecies or population of Threatened or Endangered species, (d) MBTA protection uncertain or lacking, (nb) non-breeding in this BCC.

APPENDIX D

Indian Tribes Contacted

Table D-1. Indian Tribes Contacted		
Tribes Sent FERC's 11/14/18 NOI	Tribes Sent 8/15/18 Letter from Northern ^a	Responses
Apache Tribe of Oklahoma c/o Bob Komardley, Chair	Apache Tribe of Oklahoma c/o Bob Komardley, Chair	None filed to date
Assiniboine & Sioux Tribes of the Fort Peck Reservation in Montana c/o Floyd Azure, Chair; Dyan Youpee, THPO		None filed to date
Cheyenne and Arapaho Tribes in Oklahoma c/o Eddie Hamilton, Governor; Margaret Sutton, THPO	Cheyenne and Arapaho Tribes in Oklahoma c/o Margaret Sutton, THPO	9/6/18 letter to Northern, Cheyenne and Arapaho Tribes stated "No Properties" in Project area
		12/3/18 letter to FERC, from Micah Lopper, Tribal Historic Preservation, stated that the Project would have "No Adverse Effect." The Tribes should be contacted in the event of a discovery.
Cheyenne River Sioux Tribe in South Dakota c/o Harold Frazier, Chair; Steve Vance, THPO		None filed to date
Flandreau Santee Sioux Tribe in South Dakota c/o Anthony Reider, President; Garrie Kills a Hundred, THPO	Flandreau Santee Sioux Tribe in South Dakota c/o Garrie Kills a Hundred, THPO	None filed to date
Iowa Tribe of Kansas and Nebraska c/o Tim Rhodd, Chair; Lance Foster, THPO	Iowa Tribe of Kansas and Nebraska c/o Lance Foster, THPO	1/24/19 email to FERC staff from Lance Foster THPO stated that Tribe does not concur that the removal of the pipeline is not part of the abandonment project
Iowa Tribe of Oklahoma c/o Bobby Walkup, Chair; Amy Scott, THPO	Iowa Tribe of Oklahoma c/o Amy Scott, THPO	None filed to date
Little Traverse Bay Bands of Odawa Indians in Wisconsin c/o Regina Gasco-Bentley, Chair; Wesley Andrews, THPO	Little Traverse Bay Bands of Odawa Indians in Wisconsin c/o Regina Gasco-Bentley, Chair	None filed to date
Lower Sioux Indian Community in Minnesota c/o Brian Pendleton, President; Cheyanne St. John, THPO	Lower Sioux Indian Community in Minnesota c/o Brian Pendleton, President	9/18/18 email to Merjent, Inc. Lower Sioux continues its research

Table D-1. Indian Tribes Contacted		
Tribes Sent FERC's 11/14/18 NOI	Tribes Sent 8/15/18 Letter from Northern ^a	Responses
Mandan, Hidatsa, and Arikara Nation in North Dakota c/o Mark Fox, Chair; Elgin Crows Breast, THPO	Mandan, Hidatsa, and Arikara Nation in North Dakota c/o Elgin Crows Breast, THPO	None filed to date
Menominee Indian Tribe of Wisconsin c/o Gary Besaw, Chair; David Grignon, THPO	Menominee Indian Tribe of Wisconsin c/o Gary Besaw, Chair	None filed to date
Northern Arapaho Tribe in Wyoming c/o Ron Brown, Chair; Devin Oldman, THPO		None filed to date
Northern Cheyenne Tribe in Montana c/o Lawrence Killsback, President; Teanna Limpy, THPO		12/13/18 filing with FERC from Teanna Limpy stated that Northern Cheyenne Tribe wishes to consult on the Project, requests copies of cultural resources reports, and would like opportunity to monitor construction
Omaha Tribe of Nebraska c/o Rodney Morris, Chair; Thomas Parker, THPO	Omaha Tribe of Nebraska c/o Rodney Morris, Chair	None filed to date
Otoe-Missouria Tribe of Indians in Oklahoma c/o John Shotton; Chair; Elsie Whitehorn, THPO	Otoe-Missouria Tribe of Indians in Oklahoma c/o John Shotton, Chair	None filed to date
Pawnee Nation in Oklahoma c/o Bruce Pratt, President; Joseph Reed, THPO		None filed to date
Ponca Tribe of Nebraska c/o Larry Wright, Chair; Sharon Wright, THPO	Ponca Tribe of Nebraska c/o Larry Wright, Chair	None filed to date
Prairie Band of Potawatomi Nation in Kansas c/o Liana Onnen, Chair; Hattie Mitchell, NAGPRA Representative	Prairie Band of Potawatomi Nation in Kansas c/o Liana Onnen, Chair	None filed to date
Rosebud Sioux Tribe in South Dakota c/o Rocky Bordeaux, President; Russell Eagle Bear, THPO		None filed to date

Table D-1. Indian Tribes Contacted		
Tribes Sent FERC's 11/14/18 NOI	Tribes Sent 8/15/18 Letter from Northern ^a	Responses
Sac and Fox Nation of Missouri in Kansas and Nebraska c/o Tiauna Carnes, Chair	Sac and Fox Nation of Missouri in Kansas and Nebraska c/o Tiauna Carnes, Chair	None filed to date
Sac and Fox Nation of Oklahoma c/o Kay Rhoads, Chief; Sandra Massey, THPO	Sac and Fox Nation of Oklahoma c/o Sandra Massey, THPO	None filed to date
Sac and Fox Nation of the Mississippi in Iowa c/o Anthony Waseskuk, Chair; Jonathan Buffalo, THPO	Sac and Fox Nation of the Mississippi in Iowa c/o Anthony Waseskuk, Chair	None filed to date
Santee Sioux Tribe of Nebraska c/o Rodger Trudell, Chair; Duane Whipple, THPO	Santee Sioux Tribe of Nebraska c/o Rodger Trudell, Chair	9/18/18 email to Merjent, Inc., Santee Sioux has no comments or concerns about the Project
Sisseton-Wahpeton Oyate in South Dakota c/o Dave Flute, Chair; Diane Desrosiers, THPO	Sisseton-Wahpeton Oyate in South Dakota c/o Diane Desrosiers, THPO	None filed to date
Spirit Lake Tribe of Fort Totten in North Dakota c/o Myra Pearson, Chair; Eric Longie, THPO	Spirit Lake Tribe of Fort Totten in North Dakota c/o Myra Pearson, Chair	9/19/18 email to Merjent, Inc., Spirit Lake Tribe is interested in consulting on the Project
Standing Rock Sioux Tribe in North Dakota c/o Dave Archambault, Chair; Jon Eagle, THPO	Standing Rock Sioux Tribe in North Dakota c/o Jon Eagle, THPO	None filed to date
Upper Sioux Community in Minnesota c/o Kevin Kensvold, Chair; Samantha Odegard, THPO	Upper Sioux Community in Minnesota c/o Samantha Odegard, THPO	None filed to date
Yankton Sioux Tribe in South Dakota c/o Robert Flying Hawk, Chair; Kip Spotted Eagle, THPO		None filed to date
THPO = Tribal Historic Preservation Officer ^a Follow-up emails to tribes were sent by Northern's consultant (Merjent, Inc.) on September 18, 2018.		

APPENDIX E

Permits, Approvals, and Consultations for the DKM Project

Table E-1. Permits, Approvals, and Consultations Potentially Required for DKM's Pipeline Reclamation		
Administering Agency	Permit or Approval	Requirements
Federal		
U.S. Army Corps of Engineers <ul style="list-style-type: none"> Omaha District Rock Island District 	Section 404 Clean Water Act – Dredge and Fill – Nationwide Permit 3 or 12,	Nationwide Permit 12 authorizes activities which cause permanent impacts to no more than 0.5 acre of waters of the U.S., subject to the permit conditions. Nationwide Permit 12 requires filing a pre-construction notification only for those crossings greater than 500 feet and/or which will impact no more than 0.1 acre of waters of the U.S.
	River and Harbors Act Section 10	No Section 10 water would be crossed.
U.S. Fish and Wildlife Service <ul style="list-style-type: none"> Nebraska Ecological Services Field Office Rock Island Ecological Services Field Office 	Incidental Take Permit Section 10	The permit is required if the pipeline removal has a potential to cause a taking of a Federally Listed Threatened or Endangered Species, or to significantly impact critical habitat for a Threatened or Endangered Species.
U.S. Fish and Wildlife Service <ul style="list-style-type: none"> Nebraska Ecological Services Field Office Rock Island Ecological Services Field Office 	Special Use Permit	This permit is required for pipeline removal on federally owned or managed lands.
State of Nebraska		
Nebraska Department of Environmental Quality	Section 401 Clean Water Act Water Quality Certification	The pipeline removal will require approval request to be filed jointly with the 404 Nationwide Permit Application
	Water Quality Division - Stormwater	This permit is required for any ground disturbing activity one acre or more and will require filing of a Notice of Intent and preparation of a Stormwater Pollution Prevention Plan to obtain coverage under General Permit NER160000.

**Table E-1.
Permits, Approvals, and Consultations Potentially Required for DKM's Pipeline Reclamation**

Administering Agency	Permit or Approval	Requirements
	Water Appropriation	Permits are required for the appropriation of surface and groundwater associated with construction methods and/or construction dewatering.
State of Iowa		
Iowa Department of Natural Resources	Section 401 Clean Water Act Water Quality Certification	The pipeline removal will require approval request to be filed jointly with the 404 Nationwide Permit Application
	National Pollution Discharge Elimination System – General Permit No. 2 for Stormwater	This permit is required for any ground disturbing activity one acre or more and will require filing of a Notice of Intent and preparation of a Stormwater Pollution Prevention Plan to obtain coverage under General Permit No. 2.
	Sovereign Lands and Water Permits	This permit is required for any pipeline removal activities on state-owned or managed lands and/or meandered lakes or waters.
	Water Appropriation	Permits are required for the appropriation of surface and groundwater associated with construction methods and/or construction dewatering.
Local/County		
Various	Floodplain, Grading Erosion Control, Driveway permit, drainage ditch	DKM will consult with each applicable local regulatory agency and obtain all applicable permits.

APPENDIX F

Wetlands and Waterbodies Crossed by the DKM Project

**Table F-1.
Waterbodies Crossed by the A-line in Nebraska and Iowa**

Facility, State, County, Milepost	Waterbody Name (if any)	Flow Regime	303(d) List (Yes/No)	Section 10 Water (Yes/No)	Wild and Scenic River (Yes/No)	Iowa Meandered Water (Sovereign) (Yes/No)
M580A Mainline						
Nebraska, Otoe County						
0.4		Intermittent	No	No	No	No
0.8	Hooper Creek	Perennial	No	No	No	No
2.7		Intermittent	No	No	No	No
3.3		Intermittent	No	No	No	No
Cass County						
4.1		Intermittent	No	No	No	No
4.5		Intermittent	No	No	No	No
5.1		Intermittent	No	No	No	No
5.7	Stove Creek	Intermittent	No	No	No	No
7.0		Intermittent	No	No	No	No
7.5		Intermittent	No	No	No	No
7.8		Intermittent	No	No	No	No
8.3		Intermittent	No	No	No	No
8.5	Weeping Water Creek	Perennial	No	No	No	No
8.6		Intermittent	No	No	No	No
9.2		Intermittent	No	No	No	No
9.6		Intermittent	No	No	No	No
10.6	Beaver Creek	Perennial	No	No	No	No
11.2		Perennial	No	No	No	No
11.6		Intermittent	No	No	No	No
13.6		Perennial	No	No	No	No
13.7		Intermittent	No	No	No	No
14.5		Intermittent	No	No	No	No
15.1		Intermittent	No	No	No	No
15.5		Intermittent	No	No	No	No
15.8		Intermittent	No	No	No	No
16.2		Intermittent	No	No	No	No
17.0		Intermittent	No	No	No	No
17.6	South Cedar Creek	Perennial	No	No	No	No
17.8		Intermittent	No	No	No	No
18.6		Intermittent	No	No	No	No
19.0		Intermittent	No	No	No	No
19.5		Intermittent	No	No	No	No
20.3		Intermittent	No	No	No	No
20.4		Intermittent	No	No	No	No
20.8	Cedar Creek	Perennial	No	No	No	No
21.5		Intermittent	No	No	No	No

**Table F-1.
Waterbodies Crossed by the A-line in Nebraska and Iowa**

Facility, State, County, Milepost	Waterbody Name (if any)	Flow Regime	303(d) List (Yes/No)	Section 10 Water (Yes/No)	Wild and Scenic River (Yes/No)	Iowa Meandered Water (Sovereign) (Yes/No)
21.7		Intermittent	No	No	No	No
22.0		Intermittent	No	No	No	No
22.6		Perennial	No	No	No	No
22.7		Intermittent	No	No	No	No
23.9		Intermittent	No	No	No	No
25.3		Intermittent	No	No	No	No
25.5		Intermittent	No	No	No	No
25.8		Intermittent	No	No	No	No
26.4	Eightmile Creek	Perennial	No	No	No	No
26.6		Intermittent	No	No	No	No
27.3		Intermittent	No	No	No	No
28.4	Fourmile Creek	Perennial	No	No	No	No
29.0		Intermittent	No	No	No	No
29.5		Intermittent	No	No	No	No
30.2		Perennial	No	No	No	No
31.2		Intermittent	No	No	No	No
31.6		Intermittent	No	No	No	No
31.6		Intermittent	No	No	No	No
31.7		Intermittent	No	No	No	No
34.0		Intermittent	No	No	No	No
Iowa Mills County						
34.9		Canal/Ditch	No	No	No	No
35.8		Intermittent	No	No	No	No
35.9	Pony Creek	Intermittent	No	No	No	No
36.4		Intermittent	No	No	No	No
37.0		Intermittent	No	No	No	No
38.8		Intermittent	No	No	No	No
40.1		Intermittent	No	No	No	No
40.9		Intermittent	No	No	No	No
41.4	Keg Creek	Perennial	Yes	No	No	No
41.7		Intermittent	No	No	No	No
42.5		Intermittent	No	No	No	No
43.0		Intermittent	No	No	No	No
43.1		Intermittent	No	No	No	No
43.8		Intermittent	No	No	No	No
44.1		Intermittent	No	No	No	No
44.4		Intermittent	No	No	No	No
45.6		Intermittent	No	No	No	No
46.3		Intermittent	No	No	No	No
46.3		Intermittent	No	No	No	No
46.8		Intermittent	No	No	No	No
47.2		Intermittent	No	No	No	No

**Table F-1.
Waterbodies Crossed by the A-line in Nebraska and Iowa**

Facility, State, County, Milepost	Waterbody Name (if any)	Flow Regime	303(d) List (Yes/No)	Section 10 Water (Yes/No)	Wild and Scenic River (Yes/No)	Iowa Meandered Water (Sovereign) (Yes/No)
47.6		Intermittent	No	No	No	No
47.9		Intermittent	No	No	No	No
Pottawattamie County						
48.3		Intermittent	No	No	No	No
49.2	Little Silver Creek	Perennial	No	No	No	No
49.6		Intermittent	No	No	No	No
50.0		Intermittent	No	No	No	No
50.2	Silver Creek	Perennial	Yes	No	No	No
50.4		Intermittent	No	No	No	No
50.8		Intermittent	No	No	No	No
51.2		Intermittent	No	No	No	No
52.9		Intermittent	No	No	No	No
53.2		Intermittent	No	No	No	No
54.5		Intermittent	No	No	No	No
54.8	Mud Creek	Perennial	No	No	No	No
55.5		Intermittent	No	No	No	No
56.1		Intermittent	No	No	No	No
56.4		Intermittent	No	No	No	No
57.1		Intermittent	No	No	No	No
57.7		Intermittent	No	No	No	No
58.5		Intermittent	No	No	No	No
59.6		Perennial	No	No	No	No
60.1	West Nishnabotna	Perennial	No	No	No	No
61.0		Intermittent	No	No	No	No
62.0		Intermittent	No	No	No	No
63.0		Intermittent	No	No	No	No
63.9		Intermittent	No	No	No	No
64.2		Intermittent	No	No	No	No
64.5		Intermittent	No	No	No	No
65.3	Graybill Creek	Perennial	No	No	No	No
65.7		Intermittent	No	No	No	No
M530A Mainline						
Iowa Pottawattamie County						
0.2		Intermittent	No	No	No	No
0.6		Intermittent	No	No	No	No
2.3	Jordan Creek	Intermittent	No	No	No	No
3.3		Intermittent	No	No	No	No
4.0		Intermittent	No	No	No	No
4.7	Little Walnut Creek	Perennial	No	No	No	No
5.7		Intermittent	No	No	No	No
6.4	Walnut Creek	Perennial	No	No	No	No
6.7		Intermittent	No	No	No	No

**Table F-1.
Waterbodies Crossed by the A-line in Nebraska and Iowa**

Facility, State, County, Milepost	Waterbody Name (if any)	Flow Regime	303(d) List (Yes/No)	Section 10 Water (Yes/No)	Wild and Scenic River (Yes/No)	Iowa Meandered Water (Sovereign) (Yes/No)
6.8		Intermittent	No	No	No	No
7.2		Intermittent	No	No	No	No
7.3		Intermittent	No	No	No	No
7.3		Intermittent	No	No	No	No
7.6		Intermittent	No	No	No	No
8.3		Intermittent	No	No	No	No
8.6		Intermittent	No	No	No	No
Cass County						
9.1		Intermittent	No	No	No	No
9.9		Intermittent	No	No	No	No
10.2	Indian Creek	Perennial	No	No	No	No
11.2		Intermittent	No	No	No	No
12.2	Spring Creek	Intermittent	No	No	No	No
14.8		Intermittent	No	No	No	No
15.6		Intermittent	No	No	No	No
15.8		Intermittent	No	No	No	No
16.2		Intermittent	No	No	No	No
16.9	Buck Creek	Perennial	No	No	No	No
17.2		Intermittent	No	No	No	No
18.6		Intermittent	No	No	No	No
19.2		Intermittent	No	No	No	No
19.8		Intermittent	No	No	No	No
20.4		Intermittent	No	No	No	No
21.0		Intermittent	No	No	No	No
21.4		Intermittent	No	No	No	No
21.7		Intermittent	No	No	No	No
22.8		Intermittent	No	No	No	No
Audubon County						
23.4	East Nishnabotna	Perennial River	No	No	No	No
25.3		Intermittent	No	No	No	No
26.1		Intermittent	No	No	No	No
26.4		Intermittent	No	No	No	No
29.4		Intermittent	No	No	No	No
30.0		Intermittent	No	No	No	No
30.3		Perennial	No	No	No	No
31.0		Intermittent	No	No	No	No
31.2		Intermittent	No	No	No	No
31.5		Intermittent	No	No	No	No
31.9		Perennial	No	No	No	No
32.3		Perennial	No	No	No	No
32.9	Fourmile Creek	Perennial	No	No	No	No

**Table F-1.
Waterbodies Crossed by the A-line in Nebraska and Iowa**

Facility, State, County, Milepost	Waterbody Name (if any)	Flow Regime	303(d) List (Yes/No)	Section 10 Water (Yes/No)	Wild and Scenic River (Yes/No)	Iowa Meandered Water (Sovereign) (Yes/No)
35.9		Intermittent	No	No	No	No
Guthrie County						
36.4		Intermittent	No	No	No	No
37.4		Intermittent	No	No	No	No
38.0		Intermittent	No	No	No	No
38.8		Intermittent	No	No	No	No
39.1		Intermittent	No	No	No	No
39.8		Intermittent	No	No	No	No
41.4		Intermittent	No	No	No	No
43.2	Lone Grove Creek	Intermittent	No	No	No	No
44.2		Intermittent	No	No	No	No
46.2		Intermittent	No	No	No	No
46.8	South Raccoon River	Perennial	No	No	No	No
47.9		Intermittent	No	No	No	No
48.3		Intermittent	No	No	No	No
49.1		Intermittent	No	No	No	No
49.1		Intermittent	No	No	No	No
49.6		Intermittent	No	No	No	No
55.2		Intermittent	No	No	No	No
60.9	Mosquito Creek	Perennial	No	No	No	No
62.3		Intermittent	No	No	No	No
62.5		Intermittent	No	No	No	No
62.6	Greenbrier Creek	Perennial Greene County	No	No	No	No
63.9		Intermittent	No	No	No	No
65.7	Dead Brier Creek	Perennial	No	No	No	No
68.1		Perennial	No	No	No	No
68.3	North Raccoon River	Perennial	No	No	No	No
73.4	Snake Creek	Perennial	No	No	No	No
73.6	Parrish Branch	Perennial	No	No	No	No
Boone County						
77.5		Intermittent	No	No	No	No
78.0	Beaver Creek	Perennial	No	No	No	No
79.4	Middle Beaver Creek	Perennial	No	No	No	No
80.3		Intermittent	No	No	No	No

Table F-1.
Waterbodies Crossed by the A-line in Nebraska and Iowa

[illegible]

Table F-2.
Wetlands Crossed by the A-line in Nebraska and Iowa

Facility, State, County, Milepost	Approximate Crossing Length (feet)	Within 75-foot Construction Workspace (acres)	Wetland Type
M580A Mainline			
Nebraska			
Otoe County			
0.4	25	0.04	Riverine
0.8	27	0.05	Riverine
2.7	35	0.06	Freshwater Forested/Shrub Wetland
3.3	24	0.04	Freshwater Emergent Wetland
Cass County			
4.1	41	0.07	Riverine
4.5	23	0.04	Riverine
5.1	48	0.08	Riverine
5.7	20	0.04	Freshwater Emergent Wetland
7.0	20	0.03	Freshwater Emergent Wetland
7.5	20	0.03	Riverine
7.7	28	0.05	Riverine
8.3	43	0.07	Riverine
8.5	20	0.03	Riverine
8.5	157	0.27	Freshwater Emergent Wetland
9.2	27	0.05	Riverine
9.6	26	0.04	Riverine
10.6	21	0.04	Freshwater Forested/Shrub Wetland
11.2	24	0.04	Freshwater Emergent Wetland
11.6	25	0.04	Freshwater Forested/Shrub Wetland
13.3	21	0.04	Freshwater Forested/Shrub Wetland
13.6	25	0.04	Riverine
13.7	36	0.06	Freshwater Forested/Shrub Wetland
14.5	20	0.03	Freshwater Forested/Shrub Wetland
15.1	20	0.03	Freshwater Emergent Wetland
15.5	20	0.03	Freshwater Emergent Wetland
15.8	21	0.04	Riverine
16.2	20	0.03	Riverine
17.0	30	0.05	Freshwater Forested/Shrub Wetland
17.6	21	0.04	Freshwater Forested/Shrub Wetland
17.8	20	0.03	Freshwater Forested/Shrub Wetland
18.6	25	0.04	Riverine
19.0	21	0.04	Riverine
19.5	15	0.03	Freshwater Emergent Wetland
19.5	24	0.04	Freshwater Emergent Wetland
20.2	20	0.03	Riverine
20.3	26	0.04	Riverine
20.4	22	0.04	Riverine
20.8	30	0.05	Riverine

Table F-2.
Wetlands Crossed by the A-line in Nebraska and Iowa

Facility, State, County, Milepost	Approximate Crossing Length (feet)	Within 75-foot Construction Workspace (acres)	Wetland Type
21.1	35	0.06	Freshwater Emergent Wetland
21.5	21	0.04	Riverine
21.7	21	0.04	Freshwater Emergent Wetland
22.0	20	0.04	Riverine
22.6	20	0.03	Freshwater Emergent Wetland
22.7	43	0.07	Riverine
23.8	148	0.26	Freshwater Emergent Wetland
25.3	31	0.05	Freshwater Forested/Shrub Wetland
25.4	83	0.14	Freshwater Emergent Wetland
25.5	28	0.05	Riverine
25.8	23	0.04	Riverine
26.4	34	0.06	Riverine
26.6	23	0.04	Riverine
27.3	20	0.04	Riverine
27.3	20	0.04	Riverine
28.4	20	0.03	Riverine
28.4	20	0.03	Riverine
29.0	20	0.03	Riverine
29.0	20	0.03	Riverine
29.5	20	0.03	Riverine
29.5	20	0.03	Riverine
30.2	22	0.04	Riverine
30.2	22	0.04	Riverine
31.2	25	0.04	Riverine
31.2	25	0.04	Riverine
31.6	20	0.03	Freshwater Emergent Wetland
31.6	20	0.03	Freshwater Emergent Wetland
31.6	35	0.06	Freshwater Emergent Wetland
31.6	35	0.06	Freshwater Emergent Wetland
31.7	32	0.06	Freshwater Emergent Wetland
31.7	32	0.06	Freshwater Emergent Wetland
34.0	60	0.10	Riverine
34.0	60	0.10	Riverine
Iowa			
Mills County			
34.9	15	0.03	Riverine
34.9	15	0.03	Riverine
35.5	21	0.04	Freshwater Pond
35.5	21	0.04	Freshwater Pond
35.8	20	0.03	Freshwater Pond
35.8	20	0.03	Freshwater Pond
35.8	1	0.00	Riverine

Table F-2.
Wetlands Crossed by the A-line in Nebraska and Iowa

Facility, State, County, Milepost	Approximate Crossing Length (feet)	Within 75-foot Construction Workspace (acres)	Wetland Type
35.8	1	0.00	Riverine
35.9	29	0.05	Riverine
35.9	29	0.05	Riverine
36.4	161	0.28	Freshwater Pond
36.4	161	0.28	Freshwater Pond
37.0	20	0.03	Riverine
37.0	20	0.03	Riverine
38.8	21	0.04	Riverine
38.8	21	0.04	Riverine
40.1	23	0.04	Riverine
40.9	43	0.07	Riverine
41.4	38	0.07	Riverine
41.6	46	0.08	Freshwater Forested/Shrub Wetland
42.5	22	0.04	Riverine
43.0	21	0.04	Freshwater Forested/Shrub Wetland
43.1	23	0.04	Riverine
43.8	20	0.03	Riverine
44.1	22	0.04	Riverine
44.3	23	0.04	Riverine
45.6	20	0.03	Riverine
46.3	31	0.05	Riverine
46.3	20	0.03	Freshwater Emergent Wetland
46.8	21	0.04	Freshwater Forested/Shrub Wetland
47.2	20	0.03	Riverine
47.6	25	0.04	Freshwater Emergent Wetland
47.9	25	0.04	Freshwater Forested/Shrub Wetland
Pottawattamie County			
48.3	25	0.04	Riverine
49.2	27	0.05	Riverine
49.6	25	0.04	Riverine
49.9	213	0.37	Freshwater Emergent Wetland
49.9	60	0.10	Freshwater Forested/Shrub Wetland
49.9	23	0.04	Riverine
50.2	26	0.05	Riverine
50.4	84	0.14	Freshwater Emergent Wetland
50.4	8	0.01	Riverine
50.8	32	0.05	Riverine
51.2	25	0.04	Riverine
51.5	87	0.15	Freshwater Emergent Wetland
52.9	26	0.04	Riverine
53.2	26	0.04	Freshwater Emergent Wetland
54.5	20	0.03	Freshwater Forested/Shrub Wetland

Table F-2.
Wetlands Crossed by the A-line in Nebraska and Iowa

Facility, State, County, Milepost	Approximate Crossing Length (feet)	Within 75-foot Construction Workspace (acres)	Wetland Type
54.8	28	0.05	Riverine
55.5	38	0.07	Riverine
56.1	20	0.03	Riverine
56.4	20	0.03	Riverine
57.1	26	0.05	Riverine
57.7	20	0.03	Riverine
58.4	512	0.88	Freshwater Forested/Shrub Wetland
59.6	27	0.05	Riverine
60.1	232	0.40	Freshwater Forested/Shrub Wetland
60.1	55	0.09	Riverine
60.1	75	0.13	Riverine
60.1	230	0.40	Freshwater Forested/Shrub Wetland
61.0	23	0.04	Freshwater Forested/Shrub Wetland
62.0	21	0.04	Riverine
63.0	24	0.04	Riverine
63.9	24	0.04	Riverine
64.2	20	0.03	Riverine
64.5	21	0.04	Riverine
65.3	45	0.08	Riverine
65.7	26	0.04	Riverine
Subtotal M580A Mainline	5,378	9.26	
M530A Mainline			
Iowa			
Pottawattamie County			
0.2	20	0.03	Riverine
0.6	68	0.12	Riverine
2.3	22	0.04	Freshwater Emergent Wetland
3.3	20	0.04	Freshwater Emergent Wetland
3.4	20	0.03	Freshwater Emergent Wetland
4.0	25	0.04	Riverine
4.7	28	0.05	Riverine
5.7	24	0.04	Riverine
6.3	351	0.60	Freshwater Emergent Wetland
6.4	34	0.06	Riverine
6.7	30	0.05	Riverine
6.8	34	0.06	Riverine
6.8	76	0.13	Riverine
6.9	31	0.05	Riverine
7.2	160	0.27	Freshwater Emergent Wetland
7.3	30	0.05	Freshwater Emergent Wetland

**Table F-2.
Wetlands Crossed by the A-line in Nebraska and Iowa**

Facility, State, County, Milepost	Approximate Crossing Length (feet)	Within 75-foot Construction Workspace (acres)	Wetland Type
7.6	37	0.06	Freshwater Emergent Wetland
8.3	20	0.03	Riverine
8.6	21	0.04	Riverine
Cass County			
9.0	29	0.05	Freshwater Emergent Wetland
9.9	40	0.07	Freshwater Emergent Wetland
10.2	59	0.10	Riverine
10.4	21	0.04	Freshwater Emergent Wetland
11.2	24	0.04	Riverine
12.1	31	0.05	Freshwater Emergent Wetland
12.2	181	0.31	Freshwater Emergent Wetland
14.8	24	0.04	Riverine
15.6	36	0.06	Freshwater Emergent Wetland
15.8	22	0.04	Riverine
16.2	26	0.04	Riverine
16.9	30	0.05	Riverine
17.2	25	0.04	Freshwater Emergent Wetland
18.6	47	0.08	Riverine
19.1	40	0.07	Riverine
19.8	20	0.03	Riverine
20.4	37	0.06	Riverine
21.0	21	0.04	Riverine
21.4	20	0.03	Riverine
21.7	23	0.04	Riverine
22.8	33	0.06	Riverine
Audubon County			
23.4	85	0.15	Riverine
25.2	47	0.08	Freshwater Pond
26.1	20	0.03	Riverine
26.4	53	0.09	Riverine
28.6	22	0.04	Riverine
29.4	23	0.04	Riverine
30.0	20	0.03	Riverine
30.3	20	0.03	Riverine
30.9	23	0.04	Freshwater Emergent Wetland
31.0	27	0.05	Freshwater Emergent Wetland
31.0	20	0.03	Riverine
31.2	20	0.03	Riverine
31.5	20	0.03	Riverine
31.9	20	0.03	Riverine
32.3	20	0.03	Riverine

Table F-2.
Wetlands Crossed by the A-line in Nebraska and Iowa

Facility, State, County, Milepost	Approximate Crossing Length (feet)	Within 75-foot Construction Workspace (acres)	Wetland Type
32.9	33	0.06	Riverine
35.9	23	0.04	Riverine
Guthrie County			
36.4	20	0.04	Freshwater Emergent Wetland
36.4	25	0.04	Freshwater Emergent Wetland
37.1	128	0.22	Freshwater Forested/Shrub Wetland
37.4	48	0.08	Riverine
37.5	229	0.39	Freshwater Pond
38.0	20	0.03	Freshwater Emergent Wetland
38.8	86	0.15	Freshwater Emergent Wetland
39.1	33	0.06	Riverine
39.8	20	0.03	Freshwater Emergent Wetland
41.4	31	0.05	Freshwater Emergent Wetland
43.1	73	0.13	Freshwater Emergent Wetland
43.2	28	0.05	Riverine
44.2	21	0.04	Riverine
46.1	22	0.04	Freshwater Emergent Wetland
46.2	31	0.05	Riverine
46.2	73	0.12	Freshwater Emergent Wetland
46.8	66	0.11	Riverine
47.9	27	0.05	Riverine
48.3	40	0.07	Riverine
49.1	25	0.04	Freshwater Emergent Wetland
49.6	26	0.04	Freshwater Emergent Wetland
49.8	57	0.10	Freshwater Pond
55.2	20	0.03	Freshwater Forested/Shrub Wetland
60.8	153	0.26	Freshwater Emergent Wetland
60.9	35	0.06	Riverine
60.9	8	0.01	Freshwater Emergent Wetland
62.3	23	0.04	Freshwater Emergent Wetland
62.5	31	0.05	Freshwater Emergent Wetland
62.6	39	0.07	Riverine
62.7	23	0.04	Freshwater Emergent Wetland
62.7	23	0.04	Freshwater Emergent Wetland
62.8	109	0.19	Freshwater Emergent Wetland
Greene County			
63.9	23	0.04	Riverine
65.7	30	0.05	Riverine
68.1	87	0.15	Freshwater Forested/Shrub Wetland

Table F-2.
Wetlands Crossed by the A-line in Nebraska and Iowa

Facility, State, County, Milepost	Approximate Crossing Length (feet)	Within 75-foot Construction Workspace (acres)	Wetland Type
68.1	26	0.05	Riverine
68.1	612	1.05	Freshwater Forested/Shrub Wetland
68.3	207	0.36	Riverine
68.3	960	1.65	Freshwater Forested/Shrub Wetland
68.6	118	0.20	Freshwater Emergent Wetland
73.4	42	0.07	Freshwater Emergent Wetland
73.4	235	0.40	Freshwater Emergent Wetland
73.5	352	0.61	Freshwater Emergent Wetland
73.6	825	1.42	Freshwater Emergent Wetland
73.7	158	0.27	Freshwater Emergent Wetland
Boone County			
77.5	31	0.05	Riverine
78.0	22	0.04	Riverine
78.0	52	0.09	Riverine
78.0	23	0.04	Freshwater Emergent Wetland
78.1	20	0.03	Freshwater Emergent Wetland
78.1	20	0.03	Freshwater Emergent Wetland
79.4	31	0.05	Riverine
80.3	21	0.04	Riverine
Subtotal M530A Mainline	7,823	13.47	
Project Total	13,201	22.73	
<i>Source: FWS National Wetland Inventory</i> Notes: Totals may vary slightly due to rounding.			