CONSOLIDATED APPLICATION
CERTIFICATE OF CORRIDOR COMPATIBILITY AND ROUTE PERMIT

Alliance Sales Line Project

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LMS 001

EXHIBIT 1

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ACRONYMS AND ABBREVIATIONS

API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
BMPs	Best Management Practices
BTU	British thermal units
CFR	Code of Federal Regulations
Commission	North Dakota Public Service Commission
ESA	Endangered Species Act
GIS	Geographic Information System
HDD	Horizontal Directional Drilling
LMS	Liberty Midstream Solutions
MBTA	Migratory Bird Treaty Act
MMCFD	million cubic feet per day
NDAC	North Dakota Administrative Code
NDCC	North Dakota Century Code
NGL	natural gas liquids
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
NWP	Nationwide Permit
OSHA	Occupational Safety and Health Administration
PEM	palustrine emergent
PHMSA	Pipeline Hazardous Materials Safety Administration
PSC	Public Service Commission
Project	Alliance Sales Line Project
ROW	Right-of-Way
SCF	standard cubic feet
SHPO	State Historic Preservation Office
SWCA	SWCA Environmental Consultants, Inc.
SWPPP	Storm Water Pollution Prevention Plan
UDP	Unanticipated Discovery Plan
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WBI	Williston Basin Interstate

CHECKLIST FOR COMBINED CERTIFICATE OF CORRIDOR COMPATIBILITY AND ROUTE PERMIT APPLICATION

Authority	Description	Section(s)
Chapter 49-22.1 CENTURY CODE		
49-22.1-06	Application for a Certificate for a Corridor	
1.a	Description of size and type of facility	1.0, 8.0
1.b	Summary of any studies of environmental impacts	13.0
1.c	Need for the facility	3.0
1.d	Site for energy conversion facility	N/A
1.e	Preferred transmission (pipeline) corridor	2.2
1.f	Analysis of merits and detriments of facility location	2.2, 12.0
1.g	Mitigating measures	19.0
1.h	Corridor evaluation pursuant to 49-22.1-09 and 49-22.1-03	17.0, 16.1, 16.2
49-22.1-07	Application for Route Permit	
1.a	Description of size and type of facility	1.0, 8.0
1.b	Description of the location	2.0
1.c	Route evaluation relative to 49-22.1-09 and 49-22.1-03	17.0, 16.1, 16.2
1.d	Mitigating measures	19.0
1.e	Right-of-way preparation, construction, and reclamation	10.0
1.f	Statement identifying how: 1) landowners informed of right-of-way acquisition; and 2) how landowners will be compensated	9.0
1.g	Other relevant information	18.0
49-22.1-09	Factors to be considered in evaluating corridor and route applications	17.0
1	Research and investigation into effects of the project on public health, welfare, natural resources, and the environment	17.1
2	Effects of transmission technology and design to minimize adverse effects	17.2
3	Potential beneficial uses of waste energy from energy conversion facility	17.3
4	Unavoidable adverse direct and indirect environmental effects	17.4
5	Corridor or route alternatives developed during the hearing which minimize adverse effects	17.5
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9	Effect of project on scenic areas, historic sites and structures, paleontological and archaeological sites	17.9
10	Effect of route on unique biological areas	17.10
11	Problems raised by federal, state, or local entities	17.11

Authority	Description	Section(s)
ADMINISTRATIVE CODE – ARTICLE 69-06		
69-06-05-01	Application for a Transmission Facility Permit	
2.a.(1)	Type of facility proposed	1.0
2.a.(2)	Purpose of facility	3.0
2.a.(3)	Technology to be deployed	5.0
2.a.(4)	Type of product to be transmitted	4.1
2.a.(5)	Source of product being transmitted	4.2
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2.a.(7)	Size and design detail and any alternative size and design	8.0
2.a.(7)(a)	The width of right-of-way	8.1.1
2.a.(7)(b)	The approximate length of facility	8.1.2
2.a.(7)(c)	The estimated span length for electric facilities	N/A
2.a.(7)(d)	The anticipated type of structure for electric facilities	N/A
2.a.(7)(e)	The voltage for electric facilities	N/A
2.a.(7)(f)	The requirement for and general location of any associated facilities	8.2.1
2.a.(7)(g)	The estimated distance between pipeline surface structures	8.2.2
2.a.(7)(h)	The pipe size	8.1.3
2.a.(7)(i)	The maximum design for pipeline operating pressure and temperature	8.1.4
2.a.(7)(j)	The maximum design pipeline flow rate	8.2.2
2.a.(7)(k)	The number and general location of compressor or pumping stations	8.2.3
2.b	Time schedule	7.0
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2.b.(2)	Obtaining route permit	7.2
2.b.(3)	Completing right-of-way acquisition	7.3
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2.b.(6)	Testing operations	7.6
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2.c	A copy of each evaluative study or assessment of environmental impact of the proposed facility submitted to the agencies listed in section 69-06-01-05 and each response received	Appendix D, F, and G
2.d	Need for facility	3.0
2.e	Description of alternatives	12.0
2.f	Corridor width	2.2, 9.1.1
2.g	Study area to enable the Commission to evaluate the factors in the Century Code section 49-22-09	2.1, 17.0
2.h	Discussion of factors in Century Code section 49-22-09 to air Commission's evaluation	17.0

Authority	Description	Section(s)
2.i	A discussion of the applicant's policies and commitments to limit the environmental impact of its facilities, including copies of board resolutions and management directives	19.0
2.j	Map of criteria that led to route location	Appendix A
2.k	Discuss relative value of each criteria and how the location was selected; how operation will affect criteria	17.0
2.l	Mitigating measures	19.0
2.m	Qualifications of each person involved in location study	20.0
2.n	Map identifying criteria that led to the route location and new facilities	Appendix A
2.o	8½ × 11 black and white map suitable for newspaper publication	Separate Document
2.p	Discussion of present and future natural resource development in the area	18.3
2.q	Maps and GIS data meeting PSC requirements	Appendix A
69-06-06-01	Application for Waiver of Procedures and Time Schedule	Separate Document
69-06-08-02	Transmission Facility Corridor and Route Criteria	
1	Exclusion areas	16.1
1.a	Designated or registered national: parks, sites, landmarks, monuments, wilderness	16.1.1
1.b	Designated or registered state: parks, sites, monuments, archeological sites, natural preserves	16.1.2
1.c	County parks and recreational areas, municipal parks, parks owned or administered by other governmental subdivisions	16.1.3
1.d	Areas of critical habitat	16.1.4
1.e	Areas where unique or rare species would be irreversibly damaged	16.1.5
1.f	Area within 1,200 feet of ICBM facility	16.1.6
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2.a	Designated or registered national: historic districts; wildlife areas; wild, scenic, or recreational rivers; wildlife refuges; grasslands	16.2.1
2.b	Designated or registered state: wild, scenic, or recreational rivers; game refuges; game management areas; forest management lands; grasslands	16.2.2
2.c	Historical resources which are not specifically designated as exclusion or avoidance areas	16.2.3
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2.e	Within 500 feet of a residence, school, or place of business	16.2.5
2.f	Reservoirs and municipal water supplies	16.2.6

Authority	Description	Section(s)
2.g	Water sources for organized rural water districts	16.2.7
2.h	Irrigated land (does not apply to underground transmission facility)	N/A
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3	Selection criteria. Impact on:	16.3
3.a.(1)	Agricultural production	16.3
3.a.(2)	Family farms and ranches	16.3
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3.a.(4)	Surface drainage patterns and groundwater flow patterns	16.3
3.b.(1)	Sound sensitive land uses	16.3
3.b.(2)	Visual effect on adjacent area	16.3
3.b.(3)	Extractive and storage resources	16.3
3.b.(4)	Wetlands, woodlands, and wooded areas	16.3
3.b.(5)	Radio and TV reception and other communication or electronic facilities	16.3
3.b.(6)	Human health and safety	16.3
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CONSOLIDATED APPLICATION
CERTIFICATE OF CORRIDOR COMPATIBILITY AND ROUTE PERMIT
ALLIANCE SALES LINE PROJECT

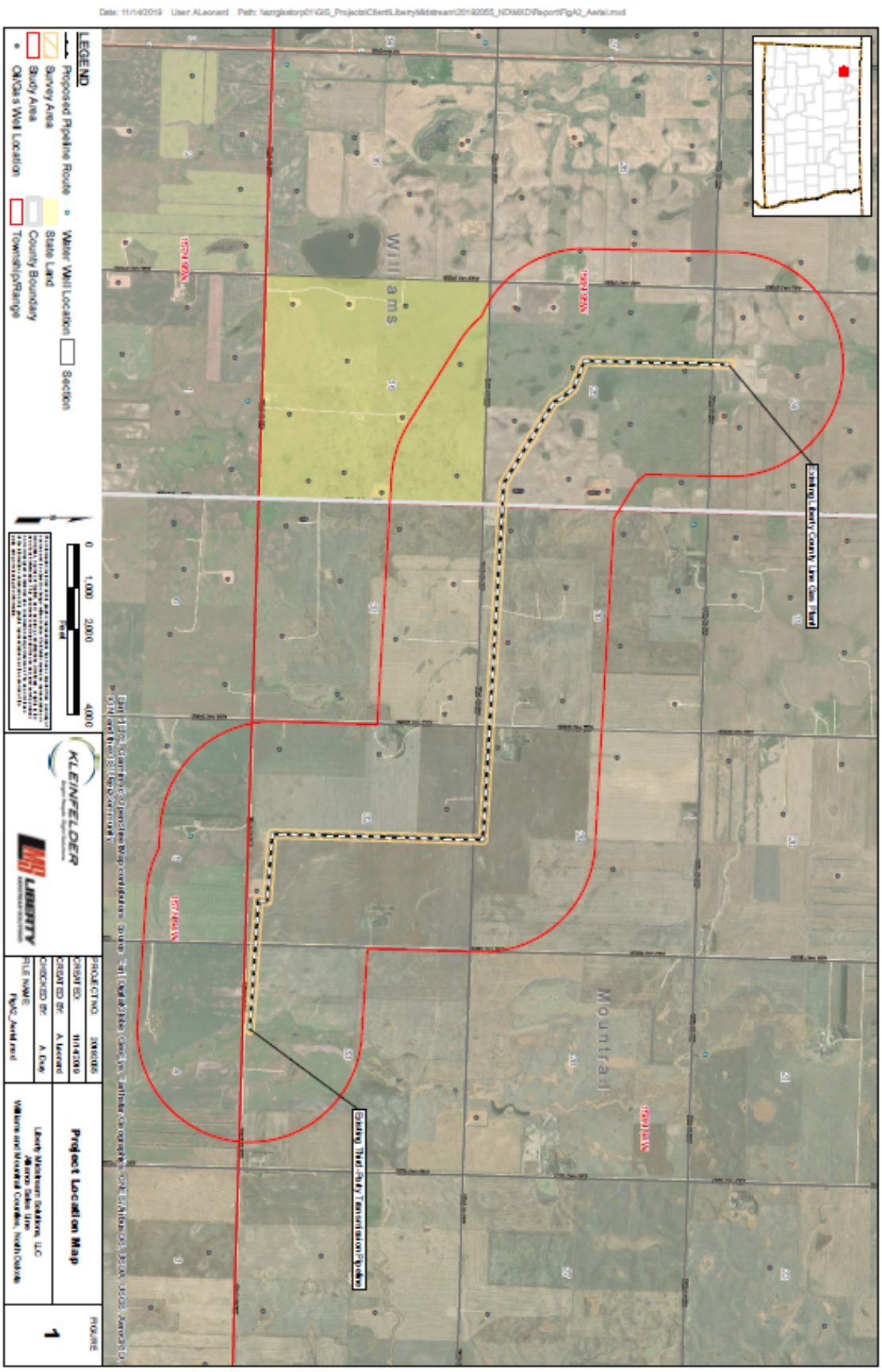
INTRODUCTION

Liberty Midstream Solutions, LLC (LMS) is a Denver-based company focused on providing producer-oriented midstream services in emerging oil and gas resource plays to help producers maximize returns on investments through reliable and efficient oil, gas, and water gathering, gas processing, water delivery and produced water disposal services. Current LMS operations are located in Williams and Mountrail Counties, North Dakota.

LMS is proposing to construct and operate approximately 4.7 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line (Project) located entirely on privately owned lands in Mountrail and Williams County, North Dakota (as shown on Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline. Detailed Criteria Maps for the proposed Project are included in **Appendix A**

This application has been prepared in accordance with Chapter 49-22.1 of the North Dakota Century Code governing Energy Conversion and Transmission Facilities, and the North Dakota Administrative Code (Chapter 69-06-05), Transmission Facility Permit.

Figure 1



LMS 012

1 FACILITY TYPE

The Project is a residue gas pipeline consisting of construction of approximately 4.7 miles of new 8-inch steel pipeline. This pipeline is located entirely on private lands in Mountrail and Williams Counties, North Dakota. The pipeline begins at the existing Liberty County Line Gas Plant located in Section 14, Township 158N, Range 95W and the alignment goes south and east to a proposed connection to an existing third-party transmission pipeline in Section 33, Township 158N, Range 94W.

2 LOCATION

2.1 PROJECT STUDY AREA

LMS defined the Study Area as a 1-mile-wide area (0.5-mile buffer on either side of the proposed centerline) and the Survey Area as a 200-foot-wide corridor (100 feet on either side of the proposed centerline). The Study Area and Survey Area are shown on Figure 1, with the U.S. Geological Survey (USGS) Tioga (1979), Mandaree NEW (1970), and White Earth (1991), North Dakota quadrangles.

2.2 PREFERRED LOCATION OF PROJECT CORRIDOR AND ROUTE

LMS is seeking approval of a Corridor that will align with the survey area used for conducting environmental field surveys. The permanent Corridor (or right-of-way [ROW]) for the proposed pipeline would be 25 feet wide, offset depending on the location of existing parallel pipeline(s) in the area; the temporary corridor for construction would be an additional 75 feet, for a total of 100 feet. Surveys were conducted in October 2018 and again in November 2019 for the Survey Area (200 feet) centered on the proposed pipeline. All areas surveyed and requested as the designated corridor will hereinafter be referred to as the Corridor. The location and width of the proposed Corridor are illustrated on the topographic and aerial maps included in Appendix A. The location of the proposed route (Route) within the proposed Corridor is also depicted on the topographic and aerial maps provided in Appendix A.

LMS's proposed Corridor and Route are the result of a thorough site analysis and coordination with LMS, landowners, local officials, agencies, and existing infrastructure owners. LMS obtained and analyzed public and proprietary information to identify sensitive areas and features within the one-mile wide Study Area, such as exclusion and avoidance areas, populated areas,

wetlands, waterbodies, natural resources, areas of cultural significance, and public lands. In addition, LMS considered existing ROWs (e.g., pipelines and roads) in an effort to maximize co-location with other infrastructure, where appropriate. LMS also sought input from affected landowners, agencies, local governments, and other infrastructure owners, and refined the Corridor and Route based on input received. LMS completed civil and environmental field surveys and additional constructability reviews to further refine its Route. Ultimately, the Corridor and Route presented in this Consolidated Application were selected to meet the Project needs, comply with the Commission's siting criteria, and minimize impacts to landowners, the environment, and existing infrastructure.

Additional discussion of the factors considered in selecting the Corridor and the Route is provided in Sections 13, 16, 17, and 18 of this Consolidated Application.

3 PURPOSE AND NEED OF THE FACILITY

LMS is proposing to construct the Project, which consists of an 8-inch residue gas pipeline to deliver processed gas from LMS's County Line Plant near Tioga, North Dakota to Alliance Pipeline's Tioga Lateral, ultimately delivering to consumers in the Chicago area.

The Project will address regional pipeline constraints as development in the Bakken continues. Williston Basin Interstate's (WBI) planned expansion to their system will not be in-service until fourth quarter 2021, but their Line 7 that currently serves that area is fully subscribed and is constrained on a regular basis. Further, with the impending change to Northern Border Pipeline's British thermal unit (BTU) limit, existing refrigeration gas plants near Tioga like LMS' County Line Plant will be unable to meet the revised specification and will need to connect to an alternate market. The Project will provide LMS customers with a much-needed alternative for marketing and transporting higher-BTU gas without requiring a costly upgrade from the refrigeration-style dew point plant to a cryogenic recovery plant.

4 PRODUCT

4.1 TYPE OF PRODUCT TO BE TRANSMITTED

The proposed Project will provide pipeline capacity to transport the increasing supplies of residue gas produced in portions of Williams, Mountrail, Burke, and Divide Counties, North Dakota.

4.2 SOURCE OF PRODUCT

The residue gas will be produced at the existing Liberty County Line Gas Plant.

4.3 FINAL DESTINATION OF PRODUCT

The Project terminus is a new delivery point that will be constructed by Alliance Pipeline in Q1 2020.

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5 TECHNOLOGY TO BE DEPLOYED

The Project will be designed, constructed, maintained, inspected, and operated to meet or exceed the U.S. Department of Transportation (USDOT) Pipeline Hazardous Materials Safety Administration (PHMSA) regulations, and in accordance with industry standards and company policies. Technologies used to satisfy these requirements and standards include:

- Use of an external protective coating and cathodic protection to prevent external pipeline corrosion
- Regular foot patrols of the permanent ROW
- Leak detection and monitoring systems will be employed utilizing a pressure transmitter at the Liberty County Line Gas Plant that continually monitors pipeline pressure.

Construction and installation of the pipelines will use different techniques to avoid or minimize impacts to sensitive areas and identified road and ditch crossings, such as trenchless construction methods (e.g., borings). These techniques are discussed further in Section 10.

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6 ESTIMATED TOTAL COST FOR CONSTRUCTION

The estimated total cost for construction is $4.6 million.

7 SCHEDULE

7.1 OBTAINING CERTIFICATE OF CORRIDOR COMPATIBILITY

LMS requests a Certificate of Corridor Compatibility and Route Permit from the Commission in January of 2020.

7.2 OBTAINING ROUTE PERMIT

LMS requests a Certificate of Corridor Compatibility and Route Permit from the Commission in January of 2020.

7.3 COMPLETING RIGHT-OF-WAY ACQUISITION

LMS completed ROW acquisition for the proposed route in 2018.

7.4 STARTING CONSTRUCTION

Construction of the Project is scheduled to begin by February 2020, or upon receipt of all necessary permits and approvals.

7.5 COMPLETING CONSTRUCTION

LMS expects to complete construction of the Project by April 1, 2020.

7.6 TESTING OPERATIONS

LMS expects to conduct hydrostatic testing of the pipeline and associated facilities prior to placing the pipeline in service April 1, 2020.

7.7 COMMENCING OPERATIONS

The Project is anticipated to be operational April 1, 2020.

8 FACILITY SIZE AND DESIGN

The following provides a description of the Project design, including the pipeline infrastructure and aboveground facilities.

8.1 PIPELINE

8.1.1 Width of Right-of Way

The temporary construction ROW will be 100 feet wide (including the permanent ROW). The temporary construction ROW may be reduced in some areas as necessary to avoid impacts to environmentally sensitive areas.

The permanent ROW will be 25 feet wide. The location of the pipeline within the permanent ROW may vary, however, depending on terrain, the presence of other existing facilities, and landowner concerns. The Project will follow existing pipeline and utility easements where feasible. LMS is in the process of acquiring easements and crossing permits.

8.1.2 Length of Facility

The entirety of the new construction for the Project is 4.7 miles of new pipeline.

8.1.3 Pipe Size

The proposed pipeline would be new 8-inch steel pipeline.

8.1.4 Maximum Design Operating Pressure and Temperature

The proposed Project is designed to initially carry up to 80 million cubic feet per day (MMCFD). The Project will be designed, constructed, and operated in compliance with applicable portions of the USDOT regulations as set forth in Chapter 49 of the Code of Federal Regulations (CFR) Part 192 (49 CFR 192), Transportation of Natural and Other Gas by Pipeline. These regulations encompass general requirements, accident reporting and safety related condition reporting, design requirements, construction, pressure testing, operation and maintenance, qualification of pipeline personnel, and corrosion control. Relevant industry standards are incorporated into these regulations by reference, including those of the American Petroleum Institute (API), American Society of Mechanical Engineers (ASME), the American Standard for Testing and Materials (ASTM), and others.

8.2 ABOVEGROUND FACILITIES

8.2.1 General Location of New Associated Facilities

Surface facilities will be limited to pipeline markers and cathodic test stations along the Route.

8.2.2 Maximum Design Flow Rate for Pipeline Facilities

The maximum design flow rate of the pipeline is 80 MMCFD.

8.2.3 Number and Location for Compressor and/or Pumping Stations

No compressor stations will be built as part of the Project. The pressure provided by input at the existing Liberty County Line Gas Plant will be adequate for operation of the pipeline at the current projected flow rates.

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9 EASEMENT ACQUISITION

LMS secured the ROW by obtaining easements from landowners whose property is crossed by the Project. During easement negotiations, landowners were informed of the easement conditions and restrictions. Landowners have been compensated for the easement and will be compensated for damages resulting from construction of the Project. Landowners have been contacted to obtain permission to survey and to conduct necessary soil investigations. As the Project progresses, landowners will be advised of the survey and construction schedule, necessary site access, and any vegetation clearing and grading required for construction.

Staging and lay down areas will be located within the ROW and limited to previously disturbed or developed areas. Temporary easements/workspaces will be obtained from landowners, as needed, for the duration of construction.

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10 RIGHT-OF-WAY PREPARATION, CONSTRUCTION, AND RECLAMATION PROCEDURES

10.1 DESCRIPTION OF RIGHT-OF-WAY PREPARATION AND CONSTRUCTION

LMS's facilities will be designed, constructed, tested, operated, and maintained in accordance with applicable requirements of the USDOT regulations in 49 CFR Part 192, United States Department of Labor regulations, Occupational Safety and Health Administration (OSHA)

requirements, and other applicable federal and state regulations. Among other design standards, 49 CFR Part 192 specifies pipeline material selection, minimum design requirements, protection from internal, external and atmospheric corrosion, and qualification procedures for welding and operations personnel.

Construction of the pipeline involves several procedures that are summarized in the following sections. These operations include survey and staking; clearing and grading; trenching; pipe stringing, bending, and welding; lowering the pipeline; backfilling; hydrostatic testing; and ROW cleanup and restoration.

Construction will proceed along the pipeline route in one continuous operation. As construction proceeds along a spread, construction at any single point along the pipeline, from initial surveying and clearing, to backfilling and finish grading, is anticipated to last about six to eight weeks. Multiple spreads may be constructed at the same time. The entire process will be coordinated in such a manner as to minimize the total time an individual tract of land is disturbed, exposed to erosion, or temporarily precluded from its normal use.

10.1.1 Survey and Staking

The first step of construction will involve marking the limits of the approved work area (i.e., the construction ROW and temporary workspaces), the pipeline centerline, access roads, existing utility lines, and other special areas. Sensitive areas such as wetland boundaries and cultural resource sites will be marked and flagged. LMS will notify landowners in advance of construction activities that could affect their property, business, or operations.

10.1.2 Clearing and Grading

The construction ROW will be cleared and graded (where necessary) to provide a relatively level surface for construction equipment, a sufficiently wide workspace for the passage of heavy construction equipment, and a safe work environment for the pipeline workers. Vegetation will be mowed and cleared to the edge of the work area in grassland areas where grading is not required.

To avoid soil mixing, topsoil will be removed and segregated from the underlying subsoil, stored separately from subsoil, and protected from construction-related activities. The depth of topsoil stripping will vary according to the ROW landscape position. Topsoil is typically stored at the far edge of the ROW on the opposite side of the trench from where construction machinery does its work. In some instances, topsoil may be stored off site or on the “working side” of the trench. In the latter case, the topsoil is again stored away from where machinery will operate. Construction activities will be suspended during abnormally wet conditions to prevent excessive rutting or mixing of topsoil with subsurface soils.

After pipeline installation is complete, the subsoil will be placed in the pipeline trench and adjacent areas to restore the land's natural contours. Then the topsoil will be placed back in its previous locations.

Fences and gates will be constructed during the clearing and grading operations to allow continuous use of pastures, grazing units, and livestock facilities. Silt fence will be installed along the ROW adjacent to wetlands and streams.

When crossing small water features, such as small ponds, streams, and creeks, approved temporary flumed structures will be constructed to minimize impacts to the water feature.

Temporary erosion controls will be installed after initial disturbance of soils, where necessary, to minimize erosion. Erosion controls will be maintained throughout construction.

10.1.3 Trenching

Trenches will be excavated using a wheel trencher or backhoe. Trenches will be excavated to a depth sufficient to provide a minimum of six feet of cover. The depth of cover may be increased if requested by a landowner, or as needed at road and stream crossings, and as needed for safety considerations.

10.1.4 Pipe Stringing, Bending, and Welding

After clearing and grading, the contractor will string the pipe along the ROW. Pipe will be stored at storage yards or transported directly to the pipeline ROW. The pipe lengths are typically 40 to 80 feet long. A stringing crew using special trailers will move the pipe along the ROW.

A pipe-bending machine will be used to make slight bends in the pipe to account for changes in the pipeline route and to conform to the topography. The bending machine uses a series of clamps and hydraulic pressure to make smooth, controlled bends in the pipe. All bending is performed in strict accordance with federally prescribed standards to ensure integrity of the pipe at a bend.

Pipe will be bent at the mill when necessary for sharp bends. The pipe will be pre-coated at the mill with a fusion-bonded epoxy external coating (or other coating technique) to provide corrosion protection.

A welding process will be utilized to join the sections of pipe into one continuous length. Each welder will be required to pass an approved qualification test to work on a particular pipeline aspect. The qualification tests will be conducted using project specific weld procedure(s) that will be developed in accordance with federally adopted welding standards.

Welds will be nondestructively tested to ensure structural integrity and compliance with the applicable USDOT regulations. Those welds not meeting established specifications will be repaired or removed. Once the welds are approved, the welded joints will be externally coated and the entire pipeline will be visually and electronically inspected for coating defects, scratches, or other damage. Any damage or defects will be repaired before lowering into the trench.

10.1.5 Pipeline Installation and Trench Backfilling

A series of side-boom tractors will simultaneously lift welded sections of the pipe and carefully lower the sections into the trench. Non-metallic slings protect the pipe and coating as it is raised and moved into position. In rocky areas, the contractor may place sandbags or foam blocks at the bottom of the trench prior to lowering-in to protect the pipe and coating from damage. Trench breakers or water stops will be installed, as necessary, adjacent to wetlands and stream crossings to eliminate groundwater migration along the trench.

The trench will be dewatered, as necessary, prior to lowering-in. Dewatering effluent will pass through sediment filters (hay bale structures and/or filter bags), if necessary, to ensure compliance with applicable water quality requirements.

The trench will be backfilled after the pipe has been installed. Soil will be returned to the trench in the reverse order of excavation. Where topsoil has been segregated, subsoil will be backfilled first and followed by the topsoil. The trench line (subsoil) will be compacted with a wheeled-roller or other suitable construction equipment. A crown will be left over the trench line to allow for natural subsidence. If the excavated material (e.g., rock) can damage the pipe and/or coating, the pipeline will be protected/padded with a rock shield and/or covered with select fill, obtained from commercial borrow areas or by separating suitable material from nearby trench spoils. Topsoil will not be used for padding.

10.1.6 Hydrostatic Testing

The entire length of the pipeline will be hydrostatically tested before being placed into service. Requirements for this test are prescribed in the USDOT's federal regulations. Water from municipal water sources is anticipated.

Each pipe section will be filled with water and pressured to a level higher than the operating pressure. The test pressure will be held for a specific period to confirm that it meets the design strength requirements and if any leaks are present.

Hydrostatic test water will be discharged in accordance with applicable permits. It is anticipated that hydrostatic test water will be trucked to frac tanks located at the Liberty County Line Gas Plant, then transported to a nearby saltwater disposal facility. Test water will contact only new

pipe and LMS does not anticipate the addition of chemicals to the test water. Once a test section successfully passes the hydrostatic test, the water will be emptied from the pipeline in accordance with federal and state requirements. The pipeline will then be dried to assure it has no free water in it before being put in service.

10.1.7 Cleanup

The final step in the construction process is restoring the ROW as closely as possible to its original condition. Depending on the project requirements, this typically involves loosening the soil within construction work areas, replacing the topsoil, and seeding non-cultivated land. Final grading is anticipated to occur within 20 days of backfilling the trench, or after the Spring thaw, whichever occurs last. Permanent erosion controls will be installed within the ROW during this phase.

Pipeline markers and/or warning signs will be placed along the pipeline centerline at specified intervals to identify the location of the pipe. Access roads will be restored to pre-construction conditions, unless otherwise specified by the property owner and approved by regulatory agencies. Private and public property (e.g., fences, gates, driveways, roads, etc.) that were disturbed by construction will be restored to their original or better conditions, consistent with agreements with individual landowners, counties and/or townships, and any applicable permit requirements.

10.2 SPECIAL CONSTRUCTION TECHNIQUES

10.2.1 Highway, Road, and Railroad Line Crossings

Highway, road, and railroad line crossings will be constructed according to applicable crossing permits. Primary roads are generally major roads and highways with relatively large volumes of traffic that have a well-defined traveled roadway (i.e., traffic lane) and shoulders with a granular pavement and/or concrete surface. Primary roads and railroad crossings will be constructed using the conventional bore method or by the horizontal directional drilling (HDD) method. Little or no traffic disruption is expected when using the bore or HDD method.

Secondary roads are generally roads with moderate traffic. Usually the traveled roadway will be defined but may have apparent shoulders. The road surface may contain granular material, soil, or a combination of both. Secondary roads will be crossed using the open-cut method.

Unimproved roads are generally minor roads with minimal, if any, traffic. They will normally be identified as small roadways, trailer, or tracks with no embankment or adjacent ditches and constructed/situated in natural earth material. The surface may have a light sprinkling of granular material. Unimproved roads will be crossed using the open-cut method.

10.2.2 Waterbody Crossings

"Waterbody" includes any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes. There are no waterbody crossings for this pipeline.

LMS's Stormwater Pollution Prevention Plan (SWPPP), included in **Appendix B**, specifies measures based on best management practices (BMPs) that will address erosion control, equipment refueling, timing, construction methods, and restoration to protect waterbodies in the Project area.

10.2.3 Wetland Crossings

There will be three wetland crossings for the Project. Two of the wetlands will be avoided by using the HDD construction method and one will be open cut. The impacts to the wetland will be temporary and will not result in a fill of the wetland. Therefore, the U.S. Army Corps of Engineers (USACE) Nationwide Permit (NWP) 12 will be used and a Pre-Construction Notification would not be required. The temporary impact areas would be revegetated, as applicable, and the wetland returned to the previous contours. A copy of NWP 12 will be onsite during construction.

Sediment barriers and erosion control measures will be installed and maintained adjacent to wetlands as necessary to minimize the potential for sediment runoff. Sediment barriers will also be installed where necessary to minimize the potential for sediment to run off the construction ROW and into wetland areas outside of work areas. Sediment barriers will be installed across the full width of the construction ROW at the base of slopes adjacent to wetlands. Sediment barriers installed across the working side of the ROW will be removed when construction equipment is present to allow orderly progression along the ROW. Sediment barriers will be replaced at the end of the day.

Temporary erosion control devices will be installed where necessary until vegetation of adjacent upland areas is successful. Permanent slope breakers may be installed across the ROW in upland areas adjacent to the wetland boundary. The SWPPP included in **Appendix B** has the locations of these BMPs clearly shown on the site plans.

Temporary workspace will be located within the temporary ROW on both sides of the wetland to stage construction, fabricate the pipeline, and store materials. Temporary workspaces will be located in upland areas at least 50 feet from the wetland edge.

10.2.4 Open Cut Construction

The open cut crossing method of construction involves excavating a pipeline trench, installing a section of pipe, and then backfilling the trench with material excavated from the trench. Excavation and backfilling of the trench will be performed using backhoes or other excavation equipment.

10.2.5 HDD Technology

HDD can reduce or mitigate surface disturbance, traffic interruptions, damage to roads, and environmental impacts to streams, wetlands, cultural resources or other sensitive areas. LMS will use HDD technology for some of the pipeline crossings and two of the three wetlands crossed by the pipeline. HDD technology requires specialized equipment and personnel.

10.3 RESTORATION PROCEDURES

The construction contractor will limit ground disturbance wherever possible and use appropriate erosion and sediment control measures. Disturbed areas will be restored to their original contours and condition to the extent practical, unless landowner consent is obtained to do otherwise. Post- construction reclamation activities include removing and disposing of debris, dismantling temporary facilities, leveling or filling tire ruts, loosening soil, and reseeding non-cultivated areas.

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11 OPERATION AND MAINTENANCE

The following measures will be implemented to prevent or mitigate any adverse effects resulting from the Project operations:

1. LMS will follow a written manual of procedures for conducting normal operations and maintenance activities and for handling abnormal operations and emergencies. The manual will delineate the responsibilities of both management and operating personnel and will be reviewed each calendar year to confirm its effectiveness. The manual will include provisions that address the following:

    a. Retention of important construction, operation, and maintenance records, including records of pipeline and equipment inspections.
    b. Procedures for reporting spills, accidents, and safety related conditions.
    c. Identification of sensitive areas along the Project route that would require an immediate response to prevent hazards to the public if the facilities failed or malfunctioned.
    d. Procedures for receiving, identifying, and classifying notices of events that need either an immediate response by Project personnel or a notice to fire, police, or other appropriate public officials.

e. Establishing and maintaining liaison with fire, police, and other appropriate public officials. Procedures will be included for notifying these officials of pipeline emergencies and coordinating with them on pre-planned and actual responses during such emergency.
f. Maintaining a list and contact information of area contractors that may be used to respond to a spill or emergency.

2. LMS will monitor pipeline inlet pressure at the existing Liberty County Line Gas Plant. There will also be a relief valve at the existing Liberty County Line Gas Plant to protect the pipeline from overpressure.

3. A continuing training program will be implemented to instruct personnel in safely carrying out the operations, maintenance, and emergency procedures related to their assignments. This will include instruction on the characteristics and hazards of the residue gas being transported, the recognition of conditions that are likely to cause emergencies, and the steps necessary to control or minimize the impacts of an accidental release. A copy of LMS' Emergency Action Plan is included in **Appendix C**.

4. A damage prevention program will be established to prevent damage to the pipeline from excavation activities or other encroachments on the ROW. The damage prevention program will include participation in the North Dakota "One-Call" system that requires prior notification when excavation by third parties is to occur near the Project.

12 ALTERNATIVES CONSIDERED

As part of Project development, LMS analyzed alternatives to the proposed Project. The alternatives analysis considered a no action/no build alternative, shipping alternatives via other pipelines, rail, or truck, and different routes.

12.1 NO-ACTION ALTERNATIVE

If this alternative were selected, LMS would segregate the high-BTU gas from the existing plant's de-ethanizer tower and use it as a fuel, as opposed to putting it into the proposed new pipeline.

LMS has determined that the no-action alternative is not an acceptable long-term alternative to the proposed Project due to the fact that the amount of gas that would need to be used as fuel would generate far more power than what's needed at the County Line Plant.

12.2 NORTH DAKOTA PIPELINE ALTERNATIVES

Residue gas export pipeline capacity near Tioga is becoming increasingly constrained as a result of increasing oil production. As additional natural gas is produced, captured, and processed, residue gas will continue to increase. A new long-haul pipeline has been proposed by WBI, but will not be online until the fourth quarter of 2021, and will likely be limited to 1,100 BTU/SCF which cannot be achieved with a traditional refrigeration plant like many of those used in the Tioga area.

The Project will bring new inter-basin pipeline capacity close to existing and expanding natural gas processing plants. The Project will bring pipeline capacity closer to these plants and provide an alternative high-BTU gas market for these producers.

There are no currently available viable pipeline alternatives to the Project. Furthermore, the Project should enhance overall economic values of the existing residue gas production within North Dakota as well as adding needed capacity in new areas of the Bakken play.

12.3 ROUTE ALTERNATIVES

The proposed route was determined based on the location of existing Liberty County Line Gas Plant and the route of the existing third-party pipeline. No other route would capture the efficiencies of following the existing easement. Any other route would result in greater overall impacts.

13 ENVIRONMENTAL STUDIES

Resource assessments, both field and desktop, were performed based on the Commission's siting requirements. The Study Area is a one-mile wide area centered on the proposed alignment, consisting of 0.5-mile buffer on either side of the pipeline centerline (i.e., the Study Area). The Study Area refers to the desktop review conducted prior to field surveys. The Survey Area consists of a 200-foot wide corridor centered on the proposed pipeline and included those areas where construction and installation of new pipe is anticipated. This Survey Area boundary was utilized for the field surveys for both natural and cultural resources. The permanent disturbance for the Project would be a 25-foot corridor, with an additional temporary disturbance corridor of 75 feet, for a total temporary construction corridor of 100 feet. The Study Area, Survey Area, and proposed temporary and permanent corridors are shown on all maps included in **Appendix A**.

LMS performed the following resource assessments for the Project:

- A Class I and Class III Cultural Resource Inventory;
- A wetland and waterbody delineation, consultation and assessment for threatened and endangered species; and
- Field surveys that determined tree, shrub, and noxious weed locations in the Project area, as applicable.

13.1 CULTURAL RESOURCE INVENTORY

On behalf of LMS, SWCA Environmental Consultants (SWCA) conducted a Class I and Class III cultural resource inventory in support of the proposed Project in Williams and Mountrail Counties. The Class I was conducted on September 27, 2018, and the Class III was conducted on October 2 through 4 and 13, 2018. An update to the Class I was conducted on October 21, 2019, and an additional Class III survey was conducted on November 19, 2019. The inventory was undertaken to assist LMS in meeting the cultural resource requirements within the Commission's Certificate of Corridor Compatibility and Route Permit application for the proposed Project. Additionally, SWCA's inventory assists LMS in achieving compliance with the USACE NWP General Conditions pertaining to Section 106 of the National Historic Preservation Act (NHPA).

During the inventory, SWCA personnel recorded two newly identified sites: 32WI2307, a historic farmstead site, and 32MN1516, a historic foundation site. 32WI2307 and 32MN1516 have been recommended as "not eligible" for inclusion in the National Register of Historic Places (NRHP); therefore, no further work is recommended for these sites. SWCA recommends the Project be granted a determination of No Historic Properties Affected and clearance to proceed as planned.

The complete Class I and Class III Cultural Resource Inventory for the Project is included in **Appendix D**. The Inventory was submitted to the North Dakota State Historical Preservation Office (SHPO).

SHPO concurrence, with respect to the effects on known resources and appropriate mitigation measures, is currently pending. A copy of the SHPO concurrence letter will be submitted to the Commission upon receipt. In addition, LMS has developed an Unanticipated Discovery Plan (UDP) to guide procedures if unknown cultural resource or human remains are encountered during construction. The UDP outlines the framework for handling such discoveries in an efficient and legally compliant manner. This plan is included in **Appendix E**.

13.2 WETLAND AND WATERBODY INVENTORY

Prior to conducting surveys, SWCA reviewed the US Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) data, topographic maps (USGS 2011), and recent aerial photography (U.S. Department of Agriculture, Farm Service Agency 2016) to determine the location and extent of mapped wetlands and waterbodies within the Study Area. The NWI records identified approximately 1.08 acres of wetlands in the Survey Area (as seen in Table 1). SWCA performed a field survey on October 2, 2018 and additional field survey for a minor route shift on October 29, 2019 to confirm the presence of the NWI-mapped wetlands in the Survey Area. The three wetlands identified within the Survey Area are palustrine emergent (PEM) wetlands characterized by the presence of herbaceous hydrophytic or submergent aquatic macrophytes. Table 1 summarizes the results of the wetland and waterbody field survey.

Table 1
PEM Wetland Acreage within the Survey Area

Feature ID	Associated Sampling Point	Sampling Point Location		Total Size (acres)	Total Size within 100-foot Construction ROW (acres)
		Latitude	Longitude		
WET01	DP2U	48.482827	-102.900126	0.31	0.21
	DP3W	48.482622	-102.900157		
WET02	DP4W	48.478949	-102.897051	0.33	0.15
	DP5U	48.479168	-102.896918		
WET03	DP7U	48.476796	-102.892475	0.45	0.30
	DP8W	48.476732	-102.89223		
Total				**1.08**	**0.67**

The three wetlands, identified as WET01, WET02, and WET03, are isolated and likely non-jurisdictional; however, the USACE has the final authority to determine jurisdictional status. WET01 and WET02 are seasonal wetlands. WET03 is a semi-permanent wetland in an agricultural field. Proposed impacts to WET01 would be temporary, not resulting in loss or fill, and therefore fall under NWP 12 criteria. Proposed impacts to WET02 and WET03 would be avoided as they would be crossed by HDD. No other non-wetland waterbodies (e.g., streams, rivers, lakes, etc.) were identified within the Survey Area during the field survey. Additionally, no Waters of the State are present in the Survey Area. The locations of the delineated wetlands are shown on Figure A4 of **Appendix A**.

The complete *Natural Resources and Wetland Delineation Report for the Liberty Midstream Residue Pipeline Project* is included in **Appendix F**.

13.3 HABITAT ASSESSMENT

13.3.1 Tree/Sapling/Shrub Inventory

The Commission requires 2:1 mitigation for all trees that are 1-inch diameter or greater at breast height and all shrubs that will be impacted during the construction of the Project. SWCA conducted field surveys of the Corridor on October 2, 2018, to confirm the presence or absence of woody vegetation. Based on their findings, approximately fourteen 2-year-old sapling individuals would need to be replanted in order to fulfill the 2:1 mitigation requirement. Tree/stem counts will be conducted prior to construction and LMS will comply with the Commission tree and shrub mitigation specifications for replacement.

13.3.2 Federally Protected Species

The Endangered Species Act ([ESA], 16 U.S.C. §§ 1531-1544) ensures that any actions authorized, funded, or carried out by federal agencies do not jeopardize the existence of any listed endangered, threatened, or candidate species. The USFWS ranks potential candidates based upon the species' biological vulnerability. Species listed as endangered or threatened are provided full protection, which includes prohibition of destruction of critical habitat. Sensitive species are identified within North Dakota although they are not afforded formal protection under the Act.

At this time, the USFWS includes eight listed species, identified as threatened or endangered, that have potential to occur in the Mountrail and Williams Counties. The listed endangered species include the gray wolf (*Canis lupus*), whooping crane (*Grus americana*), interior least tern (*Sterna antillarum*), and pallid sturgeon (*Scaphirhynchus albus*). The listed threatened species include the piping plover (*Charadrius melodus*) and its designated critical habitat, Dakota skipper (*Hesperia dacotae*) and its designated critical habitat, rufa red knot (*Calidris canutus rufa*), and northern long-eared bat (*Myotis septentrionalis*). These species are discussed below along with an analysis of the potential impacts to the species.

Interior Least Tern (Federal Status: Endangered)

The interior population of the least tern is listed as endangered by the USFWS (1985a). This bird is the smallest member of the gull and tern family, measuring approximately nine inches in length. Terns remain near flowing water, where they feed by hovering over and diving into standing or flowing water to catch small fish (USFWS 2013b).

The interior population of least terns breeds in isolated areas along the Missouri, Mississippi, Ohio, Red, and Rio Grande river systems where they nest in small colonies. From late April to August, terns nest in a shallow hole scraped in an open sandy area, gravel patch, or exposed

flat; and in bare sandbars along rivers, sand and gravel pits, or lake and reservoir shorelines. The adults continue to care for chicks after they hatch. Least terns in North Dakota often will be found sharing sandbars with the piping plover, a threatened species (USFWS 2013b).

Census data indicate over 8,000 least terns in the interior population. In North Dakota, the least tern is found mainly on the Missouri River from Garrison Dam south to Lake Oahe, and on the Missouri and Yellowstone Rivers upstream of Lake Sakakawea (USFWS 1990, 2013b). Approximately 100 pairs breed in North Dakota (USFWS 2013b). Details of their migration are not known, but their winter range is reported to include the Gulf of Mexico and Caribbean Islands (USFWS 1990, 2013b).

Loss of suitable breeding and nesting habitat for terns has resulted from dam construction and river channelization on major rivers throughout the Mississippi, Missouri, and Rio Grande river systems. River and reservoir changes have led to reduced sandbar formation and other shoreline habitats for breeding, resulting in population declines. In addition, other human shoreline disturbances affect the species (USFWS 1990). Critical habitat has not been designated for the species (USFWS 2013b). Current conservation strategies include identification and avoidance of known nesting areas, public education, and limiting or preventing shoreline disturbances near nests and hatched chicks (USFWS 2013b).

Given the distance to suitable habitat, the likelihood of observing a tern in the project area is relatively low. The interior least tern is not expected to be impacted by the proposed project.

Whooping Crane (Federal Status: Endangered)

The whooping crane was listed as endangered in 1970 in the United States by the USFWS and in 1978 in Canada. Historically, population declines were caused by shooting and destruction of nesting habitat in the prairies from agricultural development. Current threats to the species include habitat destruction, especially suitable wetland habitats that support breeding and nesting, as well as feeding and roosting during their fall and spring migration (Canadian Wildlife Service and USFWS 2007).

During the winter of 2015/2016, the total wild population of the Wood Buffalo-Aransas population was estimated at 329 birds (USFWS 2016a). There is only one self-sustaining wild population, the Aransas-Wood Buffalo National Park population, which nests in Wood Buffalo National Park and adjacent areas in Canada, where approximately 83 percent of the wild nesting sites occur (Canadian Wildlife Service and USFWS 2007; USFWS 2013a). Mountrail and Williams Counties, including the Project area, are within the primary migratory flyway of whooping cranes.

Whooping cranes probe the soil subsurface with their bills for food on the soil or vegetation substrate (Canadian Wildlife Service and USFWS 2007). Whooping cranes are omnivores, and foods typically include agricultural grains, as well as insects, frogs, rodents, small birds, minnows, berries, and plant tubers. The largest amount of time during migration is spent feeding in harvested grain fields (Canadian Wildlife Service and USFWS 2007). Studies indicate that whooping cranes use a variety of habitats during migration, in addition to cultivated croplands, and generally roost in small palustrine (marshy) wetlands within 0.62 mile of suitable feeding areas (Howe 1987, 1989). Whooping cranes have been recorded in riverine habitats during their migration, with eight sightings along the Missouri River in North Dakota (Canadian Wildlife Service and USFWS 2007:18). In these cases, they roost on submerged sandbars in wide, unobstructed channels that are isolated from human disturbance (Armbruster 1990).

It is well-documented that migrating whooping cranes use habitats in the vicinity of the Project for roosting and feeding. The Project area is located within the migratory corridor for the whooping crane, with the nearest sighting being approximately 4.7 miles west of the pipeline corridor (USFWS, M. Tacha, unpublished data). Suitable whooping crane foraging habitat (i.e., cultivated cropland) was observed within the Survey Area; however, high levels of disturbance near the Project area from existing roads, agriculture production, oil and gas activity, etc., minimize the likelihood for cranes to use the area within or near the pipeline corridor. The whooping crane is not expected to be impacted by the proposed Project.

Pallid Sturgeon (Federal Status: Endangered)

The pallid sturgeon has no potential habitat within the proposed Project area and was therefore not analyzed for potential impacts.

Gray Wolf (Federal Status: Endangered)

The gray wolf, listed as endangered in the United States in 1978, was believed extirpated from North Dakota in the 1920s and 1930s, with only sporadic reports from the 1930s to the present (Licht and Huffman 1996; USFWS 1978). The presence of wolves in most of North Dakota consists of occasional dispersing animals from Minnesota and Manitoba (Licht and Fritts 1994; Licht and Huffman 1996). Most documented gray wolf sightings within western North Dakota are believed to be young males seeking to establish territory (Hagen et al. 2005). The Turtle Mountain region of north-central North Dakota provides marginal habitat that may be able to support a very small population of wolves. The closest known pack of wolves is the Minnesota population located approximately 17 miles from the northeast corner of North Dakota. The gray wolf uses a variety of habitats that support a large prey base, including montane and low-elevation forests, grasslands, and desert scrub (USFWS 2018c).

Due to a lack of forested habitat and the distance from Minnesota and Manitoba populations, as well as the troubled relationship between humans and wolves and their vulnerability to being shot in open habitats (Licht and Huffman 1996), the reestablishment of gray wolf populations in North Dakota is unlikely. Additionally, habitat fragmentation may further act as a barrier against wolf recolonization in western North Dakota. Therefore, the gray wolf is not expected to be impacted by the proposed Project.

Piping Plover (Federal Status: Threatened)

The piping plover is a small shorebird that breeds only in three geographic regions of North America: the Atlantic Coast, the Northern Great Plains, and the Great Lakes. Piping plover populations were federally listed as threatened and endangered in 1985, with the Northern Great Plains and Atlantic Coast populations listed as threatened and the Great Lakes population listed as endangered (USFWS 1985b).

Plovers in the Great Plains make their nests on open, sparsely vegetated sand or gravel beaches adjacent to alkali wetlands and on beaches, sand bars, and dredged material islands of major river systems (USFWS 2002, 2018d). The shorelines of lakes of the Missouri River constitute significant nesting areas for the bird. Piping plover nest on the ground, making shallow scrapes in the sand, which they line with small pebbles or rocks (USFWS 1988). Anthropogenic alterations of the landscape along rivers and lakes where piping plover nest have increased the number and type of predators, subsequently decreasing nest success and chick survival (USFWS 2002, 2018d). The birds fly south by mid- to late-August to areas along the Texas coast and Mexico (USFWS 2002). The Northern Great Plains population has continued to decline despite federal listing, with population estimates of 1,500 breeding pairs in 1985 reduced to fewer than 1,100 in 1990. Low survival of adult birds has been identified as a factor (Root et al. 1992). Current conservation strategies include identification and preservation of known nesting sites, public education, and limiting or preventing shoreline disturbances near nests and hatched chicks (USFWS 1988, 2018d).

The lack of alkali wetlands, minimal disturbance to foraging wetlands, and distance to critical habitat deem the likelihood of a piping plover occurring as relatively low. The piping plover is not expected to be impacted by the proposed Project.

Desktop analysis concluded that designated critical habitat for the threatened piping plover is not present in the pipeline ROW. The nearest designated critical habitat for piping plovers is approximately 10.18 miles south of the proposed pipeline. The proposed pipeline would not modify, alter, disturb, or affect the shoreline within ND Unit 11 or the alkaline lakes and wetlands within ND Units 1 through 10. Therefore, designated critical habitat of the piping plover is not expected to be impacted by the proposed Project.

Northern Long-Eared Bat (Federal Status: Threatened)

On May 4, 2015, the USFWS listed the northern-long eared bat as threatened under the ESA (USFWS 2015b). The USFWS also issued an interim rule pursuant to Section 4(d) of the ESA in conjunction with the final rule (50 CFR Part 17). For areas within the species' range that are not affected by white-nose syndrome (i.e., areas outside the 150-mile white-nose syndrome buffer zone), including all of North Dakota, the interim 4(d) rule exempts incidental take from certain activities.

This medium-sized bat ranges across the eastern and north-central United States and all of the Canadian provinces (USFWS 2015b). Throughout most of this species' range, populations are patchily distributed. They emerge at dusk to fly through the understory of forested hillsides and ridges, feeding on moths, flies, leafhoppers, caddisflies, and beetles.

Most records of northern long-eared bats are from winter hibernacula surveys, with more than 780 hibernacula identified within the United States. No known hibernacula are located in North Dakota, due to either no suitable hibernacula present or a lack of survey effort (USFWS 2013d). This bat species occupies a wide range of rocky and forested habitats. Suitable winter habitat includes large caves and mines (USFWS 2015b). Summer day roosts include abandoned buildings, bridges, hollow trees, stumps, under loose bark, and rock fissures (Jones and Choate 1978). The summer roosting period is from May through October. Removal of any potential roost trees may impact the northern long-eared bat.

Suitable winter habitat for northern long-eared bats does not occur in the pipeline ROW. Nearby trees, including quaking aspen trees recorded at sample point WV01 (Appendix A of the Natural Resources Report), and rocky outcrops can act as suitable summer day roosts. Suitable habitat in the Project area is minimal, and the 4(d) rule exempts incidental take for the proposed Project; therefore, the northern long-eared bat is not expected to be impacted by the proposed Project.

Dakota Skipper (Federal Status: Threatened)

The Dakota skipper is a small butterfly with a 1-inch wingspan. The male wing ranges from a tawny-orange to brown, and the female wing is darker brown with tawny-orange spots and faint white spots (USFWS 2014). On October 24, 2014, the USFWS determined a threatened species status for the Dakota skipper, and the final rule became effective November 24, 2014 (USFWS 2014). One unit of designated critical habitat, Unit 12, is located on the Little Missouri National Grassland.

The primary cause for the decline of this species includes the loss of high-quality native prairie habitat due to overgrazing, conversion to agriculture, and disruption of natural prairie fire cycles (USFWS 2014). 'Type A' habitat is low wet-mesic prairie with little topographic relief occurring in near-shore glacial lake deposits (Royer and Marrone 1992). Three plants species dominate 'Type A' habitat: wood lily (*Lilium philadelphicum*), bluebell bellflower (*Campanula rotundifolia*), and mountain deathcamas (*Zigadenus elegans*) (McCabe 1981). 'Type B' habitat of the Dakota skipper occurs on rolling terrain over gravelly glacial moraine deposits and is dominated by big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), and needlegrasses (*Stipa spp.*), and may include bluebell bellflower and wood lily (USFWS 2016c). Additionally, 'Type B' habitat supports extensive stands of blacksamson echinacea (*Echinacea angustifolia*), upright prairie coneflower (*Ratibida columnifera*), and blanketflower (*Gaillardia aristata*) (USFWS 2016c).

During the surveys, nonnative grasslands and cropland were dominant in the Project area. Dominant species recorded during surveys included Kentucky bluegrass (*Poa pratensis*), smooth brome (*Bromus inermis*), intermediate wheatgrass (*Thinopyrum intermedium*), and western wheatgrass (*Pascopyrum smithii*).

Dakota skippers are not known to occur in the Project area. Adult Dakota skipper dispersal is limited due to a short adult life span of three weeks (Dana 1991) and one annual flight per year (USFWS 2016c). The Dakota skipper may disperse an average of 0.62 mile to an area that contains sufficient vegetative diversity and emigrants (Cochrane and Delphey 2002). Unless a site is within about 0.62 mile of an area that generates a sufficient number of emigrants, the species' extirpation from the site is likely permanent.

Larval Dakota skipper habitat within dry-mesic habitat is associated with more gravelly glacial landscapes of relatively higher relief, more variable soil moisture, and somewhat higher soil temperatures (Royer et al. 2008). Soils in these habitats are classified predominantly as sandy loams and occasionally as loamy sands (Royer et al. 2008). Soil compaction and vegetation removal substantially alter soil water movement and evaporation, thereby altering near-surface humidity (Royer et al. 2008). Livestock grazing has been shown to increase bulk density and soil compaction, which are correlated with decreased soil water content and hydraulic conductivity (Royer et al. 2008). Dakota skippers will tolerate little to no grazing in mixed-grass prairie (Cochrane and Delphey 2002; McCabe 1981). Grazing pressure within the pastureland found in the Project area is categorized as moderate to severe based on visual observance by SWCA in the field.

The nearest designated USFWS critical habitat unit, Unit 11 in Mountrail County, is located 25.63 miles south of the Project area. Additionally, Unit 12 in Williams County is located 25.98 miles south of the project area. Because of the lack of suitable habitat and the distance to the nearest known population, the Dakota skipper is not expected to be impacted by the proposed Project.

Rufa Red Knot (Federal Status: Threatened)

The rufa red knot is a medium-sized shorebird approximately 9 to 11 inches in height with breeding plumage consisting of red around the face and a prominent stripe above the eye, breast, and upper belly, and non-breeding plumage a dusky gray and white (USFWS 2013c). The USFWS published a proposal to list the rufa red knot as threatened under the ESA in the Federal Register in September 2013 (78 Federal Register 60023). On December 11, 2014, the USFWS determined a threatened species status for the rufa red knot, and the final rule became effective January 12, 2015 (79 Federal Register 73705).

The primary reason for the decline of this species includes reduced food supplies in Delaware Bay due to commercial harvest of horseshoe crabs, but also includes areas of range loss due to rising sea levels, shorelines project, and development (USFWS 2013c). The rufa red knot breeds in the Canadian Arctic and migrates 19,000 miles to winter on the U.S. Gulf Coast and in South America. The species generally occurs along the ocean coasts during migration, but a small number have been reported across the interior United States.

Suitable habitat along Lake Sakakawea is approximately 20.17 miles northwest of the Project area. The likelihood of the rufa red knot occurring in the proposed pipeline ROW is very low due to the distance to Lake Sakakawea. The rufa red knot is not expected to be impacted by the proposed Project.

13.3.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918, 16 U.S.C. §§ 703-712, protects bird species, including, but not limited to, cranes, ducks, geese, shorebirds, hawks, and songbirds and their nests. Suitable habitat for migratory birds exists in the entire pipeline ROW.

To protect species under the MBTA, a presence/absence survey for active nests will be conducted prior to construction. To minimize impacts, migratory birds and nests will be avoided during construction and operation of the pipeline. Any wildlife encountered during work activities will be avoided to the extent possible. Consultation with the USFWS regarding nesting avian species will be continued during construction activities as necessary. To avoid or minimize potential impacts of the proposed Project on migratory birds, LMS will use standard construction practices associated with migratory birds. As such, migratory birds are not expected to be impacted by the proposed Project. Refer to **Appendix F**, Natural Resources Report, for additional information on migratory birds.

13.3.4 Bald and Golden Eagle Protection Act Consultation

The bald eagle (*Haliaeetus leucocephalus*) feeds on fish and carrion and typically roosts in large trees near a water source. Bald eagle nesting habitat is typically any mature stands of conifer (*Pinophyta sp.*) or cottonwood (*Populus sp.*) trees in association with rivers, streams, reservoirs, lakes, or any significant body of water. Bald eagles in North Dakota are usually observed along the Missouri River (North Dakota Game and Fish Department 2016) and Yellowstone River. Bald eagles frequently migrate through the grassland habitats. The nearest known bald eagle nest is approximately 27.35 miles from the pipeline ROW (North Dakota Game and Fish Department 2015). The USFWS generally recommends a buffer of 0.5 mile from any eagle nest. If any active nests are discovered within 0.5 mile of the pipeline ROW, construction should halt and the USFWS should be contacted for further direction. If these recommendations are followed, bald eagles are not expected to be impacted by the proposed Project.

The golden eagle (*Aquila chrysaetos*) prefers habitat characterized by open prairie, plains, and forested areas. Usually, golden eagles can be found in proximity to badland cliffs, which provide suitable nesting habitat. The USFWS generally recommends a buffer of 0.5 mile from any eagle nest. If any active nests are discovered within 0.5 mile of the pipeline ROW, construction should halt and the USFWS should be contacted for further direction. If these recommendations are followed, golden eagles are not expected to be impacted by the proposed Project.

A 0.5-mile line-of-sight binocular survey for raptor nests was conducted by SWCA in October 2018. Due to the lack of occupied bald and golden eagle nests in the Survey Area and lack of suitable habitat within the Corridor, bald and golden eagles are not expected to be impacted by the proposed Project.

The complete *Natural Resources and Wetland Delineation Report for the Liberty Midstream Residue Pipeline Project* is included in **Appendix F**.

13.4 NOXIOUS WEEDS

In 2017, no state-listed noxious weeds were found in Mountrail and Williams Counties (North Dakota Department of Agriculture 2017a). However, in the same year, Mountrail County found two species of county-listed noxious weeds on 3,600 and 1,600 acres respectively, totaling 5,200 acres of known noxious weeds. Table 2 breaks down the state- and county-listed noxious weeds by aces covered in the county per species.

Table 2.

Noxious Weeds in Williams and Mountrail Counties, North Dakota (2017)

Common Name	Scientific Name	Williams County (acres)	Mountrail County (acres)
State-Listed Noxious Weeds			
Absinthium	*Artemisia absinthium*	0.0	0.0
Canada thistle	*Cirsium arvense*	0.0	0.0
Dalmatian toadflax	*Linaria dalmatica*	0.0	0.0
Diffuse knapweed	*Centaurea diffusa*	0.0	0.0
Leafy spurge	*Euphorbia esula*	0.0	0.0
Nodding plumeless thistle	*Carduus nutans*	0.0	0.0
Purple loosestrife	*Lythrum salicaria*	0.0	0.0
Russian knapweed	*Acroptilon repens*	0.0	0.0
Saltcedar	*Tamarix ramosissima*	0.0	0.0
Spotted knapweed	*Centaurea stoebe*	0.0	0.0
Yellow toadflax	*Linaria vulgaris*	0.0	0.0
County-Listed Noxious Weeds			
Common tansy	*Tanacetum vulgare*	--	1,600.0
Gypsyflower	*Cynoglossum officinale*	0.0	3,600.0
Narrowleaf hawksbeard	*Crepis tectorum*	0.0	--
Palmer amaranth	*Amaranthus palmeri*	0.0	--
Total		**0.0**	**5,200.0**

Sources: North Dakota Department of Agriculture (2017 and 2017b)

SWCA did not identify any occurrences of state-listed or county-listed noxious weeds within the Survey Area during the field surveys in October 2018. Surveys were conducted outside of the optimal growing season; however, residual plant matter would have likely been observed if large stands of noxious weed(s) were present. LMS will monitor and control noxious weeds within the Corridor prior to and subsequent to construction.

14 CONSULTATION

Consultation letters were mailed in October 2019 to various agencies and officials, including those identified in N.D.A.C. Section 69-06-01-05, providing information regarding the Project and requesting input. Letters were sent to the following agencies:

- Federal Aviation Administration
- Job Service of North Dakota
- Mountrail County Commission

- North Dakota Aeronautics Commission
- North Dakota Attorney General
- North Dakota Department of Agriculture
- North Dakota Department of Career and Technical Education
- North Dakota Department of Environmental Quality
- North Dakota Department of Health
- North Dakota Department of Human Services
- North Dakota Department of Transportation
- North Dakota Energy Development Impact Office
- North Dakota Game and Fish Department
- North Dakota Indian Affairs Commission
- North Dakota Industrial Commission
- North Dakota Labor Department
- North Dakota Parks and Recreation Department
- North Dakota Pipeline Authority
- North Dakota Soil Conservation Committee
- North Dakota State Water Commission
- North Dakota Transmission Authority
- North Dakota Trust Lands
- Office of Governor
- U.S. Army Corps of Engineers
- U.S. Department of Defense
- U.S. Fish and Wildlife
- Williams County Commission

Please refer to **Appendix G**, Agency Correspondence/Consultation, for a tracking table and copies of the consultation letters that have been sent out and received.

15 IDENTIFICATION OF POTENTIAL PERMITS/APPROVALS

LMS will comply with all agency rules and regulations having jurisdiction over the proposed Project and will obtain all other necessary licenses and permits prior to construction. Potential federal, state, and local permits and approvals required are shown in Table 3.

Table 3

Potential Permits/Approvals

Agency	Type of Approval	Status	Need
Federal Permits			
U.S. Army Corps of Engineers – Omaha District, Bismarck Office	Section 404 Clean Water Act – Nationwide Permit 12 (NWP 12)	N/A	Based on field survey results, a Pre-Construction Notification (PCN) will not be required for this Project.
U.S. Fish and Wildlife Service – Region 6 Mountain- Prairie Region	Section 7 Consultation	Allow 60 days for informal USFWS consultation	If necessary
State of North Dakota Permits			
North Dakota Public Service Commission (PSC)	Certificate of Corridor Compatibility and Route Permit	Pending	Required to construct a transmission facility.
North Dakota Department of Environmental Quality – Division of Water Quality	NDPDES Permit to Discharge Hydrostatic Test Water (NDG07- 0000)	N/A	Required for dewatering of pipeline following hydrostatic testing.
North Dakota Department of Health	Section 401 Clean Water Act Certification	N/A	Required for projects that require a USACE approval and may result in any discharge into the navigable waters of the United States.
North Dakota Department of Environmental Quality – Division of Water Quality	NDPDES Construction Stormwater General Permit (NDR10-0000)	Pending	Required for all construction projects that disturb one or more acres, including smaller projects within or part of a larger development. Includes the development of a Stormwater Pollution Prevention Plan (SWPPP).
State Historical Society of North Dakota (SHPO)	Cultural Resource Review	Pending	Compliance with N.D.C.C. Ch. 55-03 to assess the potential Project impacts to cultural resources.
County Permits			
Williams County Road Department	Williams County Road Crossing Permit and Road Approach Permit	Pending	Individual crossing permit will be required for each county road crossed by the pipeline. Temporary or Permanent Road Approach Permits will be required when the pipeline route must be accessed from a county roadway.

Agency	Type of Approval	Status	Need
Mountrail County Road Department	Mountrail County Road Crossing Permit and Road Approach Permit	Pending	Individual crossing permit will be required for each county road crossed by the pipeline. Temporary or Permanent Road Approach Permits will be required when the pipeline route must be accessed from a county roadway.

16 SITING CRITERIA

The exclusion and avoidance area criteria set forth in North Dakota Administrative Code (NDAC) § 69-06-08-02(1) and (2) were taken into consideration when establishing the location of the proposed route. Any exclusion and avoidance areas located within the Corridor are depicted on the figures in **Appendix A**. Further discussion of these areas, the selection criteria, the policy criteria and other criteria considered is provided in the following Sections. The criteria set forth in North Dakota Century Code (NDCC) § 49-22.1-09 were also evaluated, as discussed in the following Sections.

16.1 EXCLUSION AREAS

In accordance with NDAC § 69-06-08-02(1), certain geographical areas shall be excluded from consideration for a transmission facility route. A buffer zone of a reasonable width to protect the integrity of the area must be included. Exclusion areas may be located within a corridor, but at no given point may such an area or areas encompass more than 50% of the corridor unless there is no reasonable alternative. A summary of exclusion areas in relation to the Corridor and Route is provided in Table 4.

Table 4
Exclusion Areas Summary

Geographic Area	Present within 1-mile- wide Study Area	Present within 200-foot-wide Survey Area Corridor	Crossed by Route
Designated or registered national: parks; memorial parks; historic sites and landmarks; natural landmarks; monuments; and wilderness areas.	No	No	No
Designated or registered state: parks; historic sites; monuments; historical markers; archaeological sites; and nature preserves.	No	No	No

Geographic Area	Present within 1-mile- wide Study Area	Present within 200-foot-wide Survey Area Corridor	Crossed by Route
County parks and recreational areas; municipal parks; and parks owned or administered by other governmental subdivisions.	No	No	No
Areas critical to the life stages of threatened or endangered animal or plant species.	No	No	No
Areas where animal or plant species that are unique or rare to this state would be irreversibly damaged.	No	No	No
Areas within 1,200 feet of the geographic center of an intercontinental ballistic missile (ICBM) launch or launch control facility.	No	No	No
Areas within 30 feet on either side of a direct line between ICBM launch or launch control facility.	No	No	No

16.1.1 Designated or Registered National Parks, Memorial Parks, Historic Sites and Landmarks, Natural Landmarks, Monuments, and Wilderness Areas

The Corridor and Route do not cross designated or registered national parks, memorial parks, historic sites and landmarks, natural landmarks, monuments, and wilderness areas.

16.1.2 Designated or Registered State Parks, Historic Sites, Monuments, Historical Markers, Archaeological Sites, and Nature Preserves

The Corridor and Route do not cross designated or registered state parks, historic sites, monuments, historical markers, archaeological sites, and nature preserves.

16.1.3 County Parks and Recreational Areas, Municipal Parks, and Parks Owned or Administered by Other Governmental Subdivisions

The Corridor and Route do not cross any county parks and recreational areas, municipal parks, or parks owned or administered by other governmental subdivisions.

16.1.4 Areas Critical to the Life Stages of Threatened or Endangered Animal or Plant Species

The Corridor and Route do not cross any areas critical to the life stages of threatened or endangered animal or plant species.

16.1.5 Areas Where Animal or Plant Species that are Unique or Rare to This State Would be Irreversibly Damaged

The Corridor and Route do not cross any areas where animal or plant species that are unique or rare to this state would be irreversibly damaged by the Project.

16.1.6 Areas within 1,200 Feet of the Geographic Center of an ICBM Launch or Launch Control Facility

The Corridor and Route are not located within 1,200 feet of the geographic center of an ICBM Launch or Launch Control Facility.

16.1.7 Areas within 30 Feet on Either Side of a Direct Line between ICBM Launch or Launch Control Facility

The Project Corridor and Route do not cross areas within 30 feet on either side of a direct line between an ICBM Launch or Launch Control Facility.

16.2 AVOIDANCE AREAS

In accordance with NDAC § 69-06-08-02(2), certain geographical areas may not be considered in the routing of a transmission facility unless the applicant shows that, under the circumstances, there is no reasonable alternative. In determining whether an avoidance area should be designated for a facility, the Commission may consider, among other things, the proposed management of adverse impacts; the orderly siting of facilities; system reliability and integrity; the efficient use of resources; and alternative routes. In addition, a buffer zone of a reasonable width to protect the integrity of the area must be included, unless a distance is specified in the criteria. Avoidance areas may be located within a corridor, but at no given point may such an area or areas encompass more than 50% of the corridor unless there is no reasonable alternative. A summary of avoidance areas is provided in Table 5.

Table 5
Avoidance Areas Summary

Avoidance Area	Present within 1- mile-wide Study Area	Present within 200-foot-wide Survey Area Corridor	Crossed by Route	>50% of Study Area Corridor Width
Designated or registered national: historic districts; wildlife areas; wild, scenic, or recreational rivers; wildlife refuges; and grasslands.	No	No	No	No

Avoidance Area	Present within 1- mile-wide Study Area	Present within 200-foot-wide Survey Area Corridor	Crossed by Route	>50% of Study Area Corridor Width
Designated or registered state: wild, scenic, or recreational rivers; game refuges; game management areas; management areas; forests; forest management lands; and grasslands.	No	No	No	No
Historical resources which are not specifically designated as exclusion or avoidance areas.	No	No	No	No
Areas that are geologically unstable.	No	No	No	No
Within five hundred feet of a residence, school, or place of business.	No	No	No	No
Reservoirs and municipal water supplies	No	No	No	No
Water sources for organized rural water districts.	No	No	No	No
Irrigated land. This criterion shall not apply to an underground transmission facility.	N/A	N/A	N/A	N/A
Areas of recreational significance which are not designated as exclusion areas	No	No	No	No

16.2.1 Designated or Registered National Avoidance Areas

No designated or registered national historic districts, wildlife areas, wild, scenic, or recreational rivers, wildlife refuges, or grasslands are located within the Study Area, Survey Area, or Route.

16.2.2 Designated or Registered State Avoidance Areas

The Corridor and Route do not cross any designated or registered state, wild, scenic, or recreational rivers, game refuges, game management areas, management areas, forests, forest management lands, or grasslands.

16.2.3 Historical Resources Not Specifically Designated as Exclusion or Avoidance Areas

No historical resources not specifically designated as exclusion or avoidance areas are within the proposed Corridor or crossed by the Route.

16.2.4 Areas that are Geologically Unstable

The Corridor and Route do not cross geologically unstable areas.

16.2.5 Areas Within 500 Feet of a Residence, School, or Place of Business

The Corridor and Route are not located within 500 feet of an inhabited rural residence, school, or place of business.

16.2.6 Reservoirs and Municipal Water Supplies

There are no reservoirs or municipal water supplies crossed by the Corridor and Route.

16.2.7 Water Sources for Organized Rural Water Districts

The Corridor and Route do not cross any water sources for organized rural water districts.

16.2.8 Areas of Recreational Significance that are not Designated as Exclusion Areas

No areas of recreational significance which are not designated as exclusion areas are crossed by the Project Corridor or Route.

16.3 SELECTION CRITERIA

Pursuant to NDAC § 69-06-08-02(3), a corridor or route shall be approved only when it has been demonstrated that any significant adverse effects resulting from the location, construction, and maintenance of the facility as they relate to the criteria shown in Table 6, will be at an acceptable minimum, or that those effects will be managed and maintained at an acceptable minimum. The proposed Project satisfies the Selection Criteria requirements.

Table 6
Selection Criteria

Selection Criteria	Anticipated Impact
Land which the owner can demonstrate has soil, topography, drainage, and an available water supply that cause the land to be economically suitable for irrigation.	No permanent impacts are anticipated.
Surface drainage patterns and ground water flow patterns.	No permanent impacts are anticipated.
Noise-sensitive land uses.	Noise-sensitive areas include residences near the Project. Increased noise may be experienced at these locations during construction of the project, but no long-term noise impacts are anticipated.
The visual effect on the adjacent area.	No permanent impacts are anticipated.
Extractive and storage resources.	No permanent impacts are anticipated.
Wetlands, woodlands, and wooded areas.	Temporary impacts may occur. Mitigation measures are discussed in Section 10.2.

Radio and television reception, and other communication or electronic control facilities.	No permanent impacts are anticipated.
Human health and safety.	No permanent impacts are anticipated. Mitigation measures will be implemented as discussed throughout this application.
Animal health and safety.	No threatened or endangered species were observed in the Survey Area. Wildlife species currently inhabiting the Corridor are common and likely will not be permanently displaced by the proposed Project. Temporary disturbance will occur during construction of the proposed Project; however, no direct, long-term impacts to wildlife are anticipated from the Project.
Plant life.	Plants species currently inhabiting the Corridor are common. No permanent impacts are anticipated.

16.4 POLICY CRITERIA

16.4.1 Location and Design

LMS selected the Corridor and Route based on a number of factors, including environmental, engineering, and constructability considerations.

LMS worked with landowners and consulted with local, state, and federal agencies to identify siting constraints and inform the siting of the proposed Corridor and Route. Field surveys, including those assessing natural and cultural resources, provided supplemental information to assist in refining the route to avoid or minimize impacts to sensitive resources.

16.4.2 Training and Use of In-State Labor

LMS expects to employ approximately 20 workers during peak Project construction. Local, in-state labor will be used to the extent practicable. However, if specialized skilled workers (e.g., licensed welders) are not available within the state, LMS may need to employ workers from out-of-state.

16.4.3 Economies of Construction and Operation

LMS will explore all economic efficiencies for construction and operations. Efficiencies may include starting pipeline construction with completion of similar pipeline projects in order to minimize mobilization/demobilization costs, timing pipe acquisition and delivery with other projects in the area, and constructing the pipeline using multiple spreads in order to minimize overall construction time.

16.4.4 Use of Citizen Coordinating Committees

Other than one-on-one communication with landowners, no formal Citizen Coordinating Committees were used for communications and outreach to the public or jurisdictional entities.

16.4.5 Commitment of a Portion of Transmitted Product for Use in State

The entirety of the residue gas will be delivered to third-party natural gas transmission facilities for transport to out-of-state markets.

16.4.6 Labor Relations

LMS maintains a positive relationship with its employees, contractors, and the public, and is committed to a safe working environment. LMS is an Equal Opportunity Employer and expects to use local personnel for construction of the proposed Project when possible.

16.4.7 Coordination of Facilities

LMS performed a centerline survey of the Route and, based on that survey, LMS identified all third-party entities/utilities that will be encountered (e.g., petroleum, water, electric, highways). LMS will also utilize a portion of the pipeline and share resources during operation and maintenance.

16.4.8 Monitoring Impacts

LMS is committed to ensuring that BMPs are utilized during construction to minimize environmental impacts and will monitor construction compliance with the commitments made in this application and applicable permit conditions. The proposed Project will be constructed and maintained in accordance with industry and government requirements and will meet or exceed all applicable federal, state, and local environmental laws, regulations, and standards, including those regulations stipulated by PHMSA.

In addition, LMS will provide construction oversight to confirm contractor compliance with mitigation measures, landowner agreements, and applicable permits. LMS will have third-party inspectors who are knowledgeable of the environmental mitigation requirements for the Project. The inspectors will have the authority to stop construction activities and order corrective mitigation and will maintain appropriate compliance documents.

16.4.9 Using Existing and Proposed ROW and Corridors

LMS's proposed Route was sited to co-locate with existing utility corridors, roads, and other existing linear features to the extent practical.

16.4.10 Other Existing or Proposed Transmission Facilities

The Project will provide an outlet for residue gas from the existing Liberty County Line Gas Plant and will tie into an existing third-party pipeline for distribution.

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17 EVALUATION OF N.D.C.C. SECTION 49-22.1-09

In selecting the proposed Corridor and Route for the Project, LMS evaluated the factors set forth in N.D.C.C. Section 49-22.1-09. A discussion of each factor is provided below.

17.1 EFFECTS ON PUBLIC HEALTH, WELFARE, NATURAL RESOURCES, AND THE ENVIRONMENT

Please see Sections 13, 14, 16, and 19 of this Consolidated Application for a discussion of available research and investigations relating to the effects of the location, construction, and operation of the proposed Project on public health and welfare, natural resources, and the environment. As discussed further in those sections, the Project is not anticipated to have any significant or long-term negative impacts on public health and welfare, natural resources, or the environment.

17.2 TRANSMISSION TECHNOLOGIES AND SYSTEMS DESIGNED TO MINIMIZE ADVERSE ENVIRONMENTAL EFFECTS

The Project design is consistent with existing pipeline technologies. Mitigation measures have been or will be used to avoid or minimize any potential impacts to sensitive resources, including use of trenchless construction (bores) at road and wetland crossings or due to constructability concerns. In addition, throughout construction, BMPs will be implemented to reduce any potential impacts to resources from ROW clearing, grading, trenching, and pipe and facility installation. Once constructed, leak detection and monitoring systems will be employed.

17.3 POTENTIAL FOR BENEFICIAL USES OF WASTE ENERGY FROM A PROPOSED ENERGY CONVERSION FACILITY

The proposed Project does not include any energy conversion facilities. As such, the proposed Project does not offer the possibility for the beneficial use of waste energy.

17.4 UNAVOIDABLE ADVERSE DIRECT AND INDIRECT ENVIRONMENTAL EFFECTS

Unavoidable adverse direct and indirect environmental impacts from the Project would be temporary and minimized through the use of mitigation measures and BMPs. See Sections 13, 14, 16, and 19 for further discussion of the Project's potential direct and indirect environmental effects, as well as planned mitigation measures.

17.5 CORRIDOR OR ROUTE ALTERNATIVES DEVELOPED DURING THE HEARING THAT MINIMIZE ADVERSE EFFECTS

LMS analyzed alternatives during selection of the proposed Corridor and Route through landowner discussions, and incorporated route deviations proposed by landowners and others in its Route to the extent practicable. As a result, LMS has identified a Project Corridor and Route that meets the needs of the Project, as well as the Commission's siting criteria, while minimizing potential impacts to landowners, existing infrastructure, and the environment.

If other corridor or route alternatives are developed during the Commission's hearing process, LMS will analyze those alternatives, as necessary.

17.6 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF NATURAL RESOURCES IF DESIGNATED

Irreversible and irretrievable commitments of natural resources will be limited in nature and include such resources as steel for the pipeline and associated facilities, gravel/scoria for improvements to service roads, and fossil fuels used to power construction equipment and to provide power to Project facilities.

17.7 DIRECT AND INDIRECT ECONOMIC IMPACTS OF THE FACILITY

Direct and indirect economic impacts from Project construction include short-term employment opportunities during construction, increased local revenue for Project-related expenditures, and increased local and state tax revenues. Local property taxes would be realized on an annual basis during the Project's operational phase. Project-related local expenditures during the construction, for example, would include lodging and food, fuel, and construction materials and equipment.

17.8 EXISTING PLANS FOR OTHER DEVELOPMENTS (STATE, LOCAL, AND PRIVATE) IN THE VICINITY OF THE PROJECT

LMS has consulted with various federal, state, and local governments, as well as local businesses and residents, and has not identified any conflicts with proposed developments in the vicinity of the Project.

17.9 EFFECTS OF THE PROPOSED ROUTE ON EXISTING SCENIC AREAS, HISTORIC SITES AND STRUCTURES, AND CULTURAL RESOURCES

The Project avoids all known scenic areas, historic sites and structures, and cultural resources; therefore, the Project is not anticipated to impact these resources. For further discussion, please see Sections 13, 14, 16, and 19 of this Consolidated Application.

17.10 EFFECTS OF THE PROPOSED ROUTE ON AREAS WHICH ARE UNIQUE BECAUSE OF BIOLOGICAL WEALTH OR RARE AND ENDANGERED SPECIES HABITATS

Although suitable nesting and foraging habitat and migratory birds are present in the Study Area, the timing of Project construction (February) is such that the likelihood of migratory birds being impacted by the Project is extremely low. No other potential areas that are unique because of biological wealth or because they are habitats for rare and endangered species are located within the Corridor or crossed by the Route and thus, the Project is not anticipated to impact these resources. For further discussion, please see Sections 13, 14, 16, and 19 of this Consolidated Application.

17.11 PROBLEMS RAISED BY FEDERAL AGENCIES, OTHER STATE AGENCIES, AND LOCAL ENTITIES

Consultation letters that were sent out to agencies are listed in Section 14. Copies of this correspondence are provided in **Appendix G**. LMS has not received any responses to date as consultation is ongoing; LMS will respond to and address concerns if raised from the agencies and will provide copies of correspondence to the Commission as they are received.

18 OTHER FACTORS CONSIDERED

18.1 DESIGN CONSTRUCTION LIMITATIONS

Specific factors considered in the selection of the Corridor and Route, including design and construction limitations, are identified in Sections 2 and 12 and discussed throughout this Consolidated Application. HDD crossings will require special construction techniques, which have been incorporated into the proposed Project design (see Section 10.2). The Project will be designed, constructed, and operated in accordance with USDOT regulations governing the transportation of hazardous liquids by pipeline, which are set forth in 49 CFR Part 192.

18.2 ECONOMIC CONSIDERATIONS

In selecting the Corridor and Route, one of many factors LMS considered was facilitating construction of the Project in the most economic and efficient manner. However, Corridor and Route selection required balancing of a number of factors, as discussed specifically in Sections 2.2 and 12 of this Consolidated Application.

Other economic considerations associated with the Project include the positive direct and indirect economic benefits the Project will provide within and beyond North Dakota. As discussed in Section 17.7 of this Consolidated Application, the Project will provide short-term employment of workers during construction, increased revenues from local expenditures, and increased tax revenues.

18.3 PRESENT AND FUTURE NATURAL RESOURCE DEVELOPMENT

As discussed in Section 16.1, there are no national parks, national memorial parks, national historic sites or landmarks, national wilderness areas, or national monuments located within the Corridor and along the Route. Similarly, there are no designated or registered state parks, sites, monuments, or nature preserves along the Route. There are also no county parks, municipal parks, or parks owned or administered by other governmental subdivisions along the Project Route.

In addition, as discussed in Section 16.2, there are no wildlife areas; wild, scenic, or recreational rivers; wildlife refuges; or grasslands within the Corridor or along the Route. Also, no designated or registered state wild or recreational rivers, game refuges, game management and management areas, forests, forest management lands, or grasslands will be crossed by the Corridor or Route.

The Project will cross range land and land used for agricultural crop production. Once construction is complete, the ROW will be restored to its prior use. Further, as discussed in Section 16.4.7, LMS will continue to work closely with existing infrastructure owners to safely construct and operate the Project and to minimize the potential for impacts to existing facilities. Thus, impacts along the Route are anticipated to be primarily temporary and minimal.

19 APPLICANT'S MITIGATION MEASURES AND POLICIES AND COMMITMENTS TO LIMIT ENVIRONMENTAL IMPACT

LMS is committed to avoiding, minimizing, and mitigating the environmental impacts of the Project. The Project has been designed and routed with these commitments in mind. The Project will be constructed and operated to meet or exceed federal, state, local, and industry safety, environmental, and operational standards.

In addition to the mitigation measures discussed throughout this Consolidated Application, LMS has developed general construction related mitigation measures to minimize impacts to natural and cultural resources from Project development. These measures meet or exceed applicable industry standards and regulatory requirements.

LMS has also developed a SWPPP for the Project (included in **Appendix B**), which addresses BMPs, temporary erosion and sediment control, inspections, and various other requirements.

20 QUALIFICATIONS OF PREPARERS

Eric Bengtson, PE, LMS – Director of Operations and Engineering

Mr. Bengtson has 23 years of experience in the design, construction and operation of midstream pipelines and surface facilities as a process engineer, project manager, engineering manager and operations manager. Eric has extensive experience in gathering, treating, and processing of natural gas and produced water systems.

Education

B.S. Chemical and Petroleum Refining Engineering, Colorado School of Mines, 1996

Registration

Registered Professional Engineer: CO

Nanette Elzinga, PE, Kleinfelder – Project Manager III

Ms. Elzinga has more than 31 years of experience in environmental permitting and review of pipeline and transmission projects, NEPA documentation, environmental construction services, and remediation. Ms. Elzinga's pipeline experience includes compiling FERC Resource Reports, preparing Environmental Assessments and Environmental Impact Statements, preparing SPCC Plans, Facility Response Plans, and Emergency Response plans, as well as environmental compliance activities.

Education

B.S. Mechanical Engineering, Bucknell University, 1988

Registration

Registered Professional Engineer: CO, WY, UT, AZ, NM, TX, MN

Annie Daniel, Kleinfelder – Project Professional

Ms. Daniel has 11 years' experience in environmental studies and environmental project permitting and coordination. This experience includes Federal Energy Regulatory Commission (FERC) pipeline and facility permitting, National Environmental Policy Act (NEPA) coordination and support, and environmental planning and permitting for energy projects. She specializes in federal, state, and local permitting for projects as well as coordination and communication with agencies on behalf of clients.

Education

M.S. Environmental Policy and Management, University of Denver, 2013

B.A. English, Colorado State University, 2008

Sarah Sappington, Bismarck Office Director – SWCA Environmental Consultants, Inc.

Ms. Sappington has more than 18 years of experience conducting full-spectrum projects in anthropology, archaeology, and historic archaeology to fulfill NHPA Section 106 compliance. She is permitted to lead archaeological investigations throughout the Rocky Mountain West, Great Basin, and Great Plains regions. Her responsibilities include project scoping; research design and logistics; field inventory, including excavation and evaluative testing; mapping; laboratory analysis; and report writing, including impacts analyses for NEPA compliance and documentation.

Education

A.A., Science, Ricks College,1998

B.A., Anthropology, e: Archaeology, Brigham Young University, 2001

M.A., Anthropology, e: Archaeology, Brigham Young University, 2003

Jolene Schleicher, Archaeologist/Project Manager – SWCA Environmental Consultants, Inc.

Ms. Schleicher has more than 11 years of professional experience in the field of cultural resource management in the Great Plains, High Plains, and Great Basin. Ms. Schleicher has experience coordinating, leading, and conducting Class I and Class III Investigations conducted

for a variety of purposes, including but not limited to: well pads, access roads, pipelines, seismic studies and wind farms. Additionally, she has been a project manager for six years, managing several cultural resource and NEPA projects. Ms. Schleicher is knowledgeable in all facets of Class I and Class III inventory, site recordation, and reporting, and has experience in supervising the progress of a project from beginning to end.

Education

B.Sc., Archaeology, University College London, 2007

Rio Franzman, Sheridan Office Director – SWCA Environmental Consultants, Inc.

Mr. Franzman has extensive experience in wetland delineations, vegetation ecology, reclamation planning, threatened & endangered species management, and has written numerous technical documents for both state and federal agencies. Mr. Franzman has experience working with various mining and oil and gas producers and has successfully completed projects in Wyoming, Montana, North Dakota, Colorado, New Mexico, and Texas.

Education

B.S., Zoology, 2011. Southern Utah University.

Graduate Studies, Natural Resource/Ecology. Utah State University.

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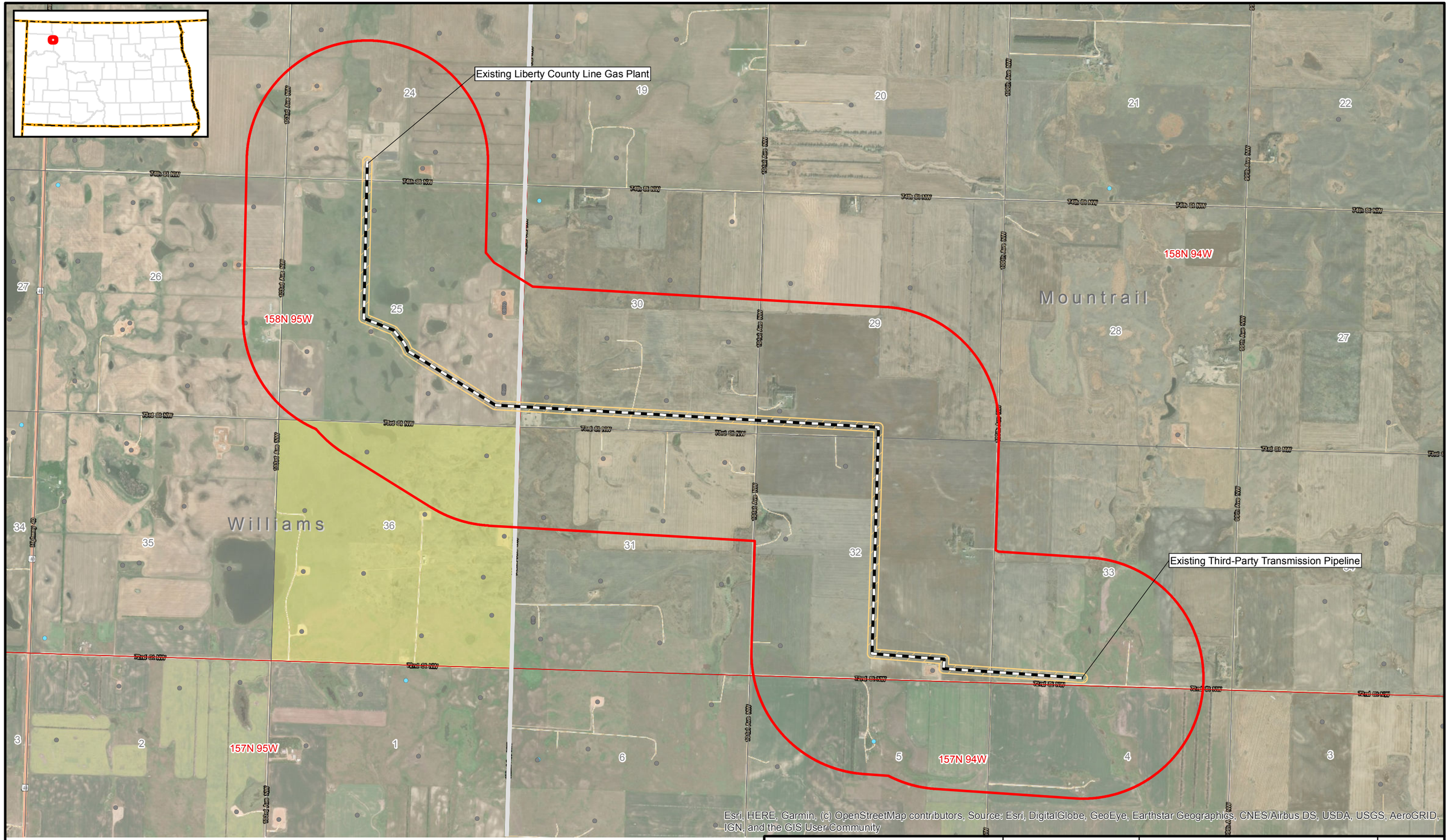
APPENDIX A
CRITERIA MAPS



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LEGEND

- Proposed Pipeline Route
- Survey Area
- Study Area
- Oil/Gas Well Location
- Water Well Location
- State Land
- County Boundary
- Township/Range
- Section

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Feet

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LIBERTY MIDSTREAM SOLUTIONS

PROJECT NO.	20192055
CREATED:	11/14/2019
CREATED BY:	A. Leonard
CHECKED BY:	A. Dury
FILE NAME:	FigA2_Aerial.mxd

Project Location Map

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

FIGURE

1

LMS 059

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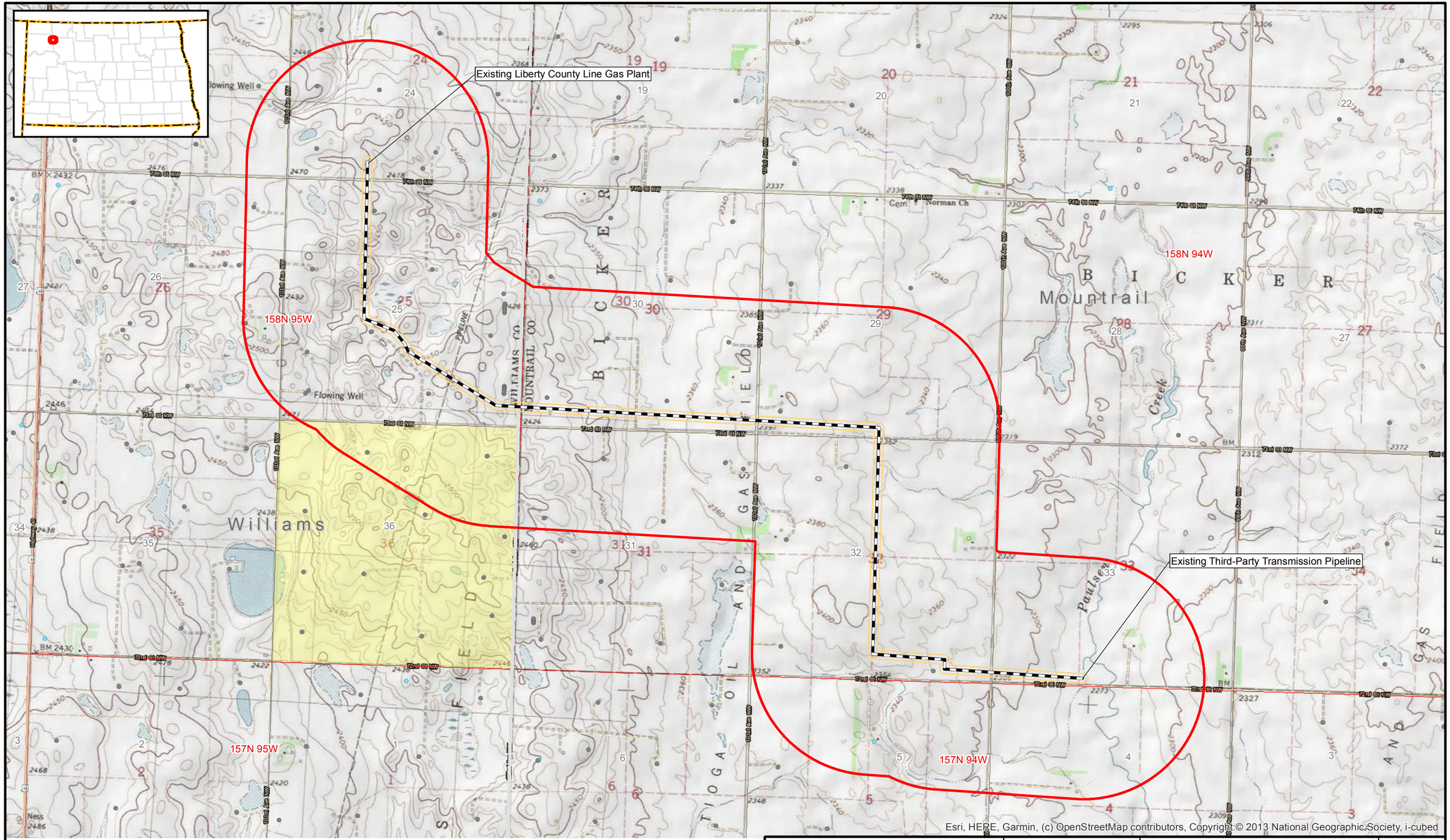

LEGEND

- Proposed Pipeline Route
- Survey Area
- Study Area
- Oil/Gas Well Location
- Water Well Location
- State Land
- County Boundary
- Township/Range
- Section

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PROJECT NO.	20192055
CREATED:	11/14/2019
CREATED BY:	A. Leonard
CHECKED BY:	A. Dury
FILE NAME:	FigA1_Topo.mxd

Topography Map

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

FIGURE

A-1

LMS 060

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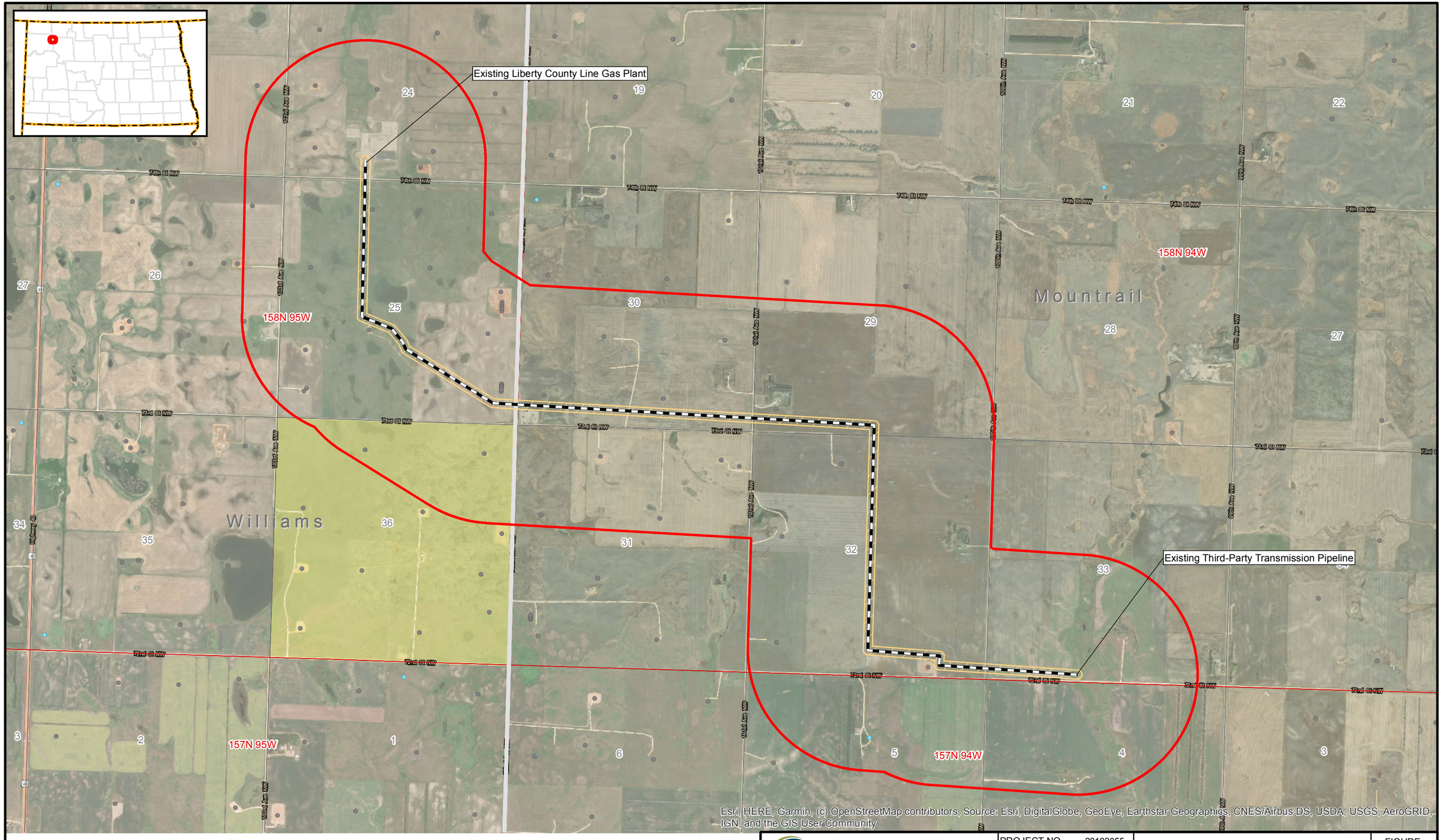

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LEGEND

- Proposed Pipeline Route
- Survey Area
- Study Area
- Oil/Gas Well Location
- Water Well Location
- State Land
- County Boundary
- Township/Range
- Section

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PROJECT NO.	20192055
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CHECKED BY:	A. Dury
FILE NAME:	FigA2_Aerial.mxd

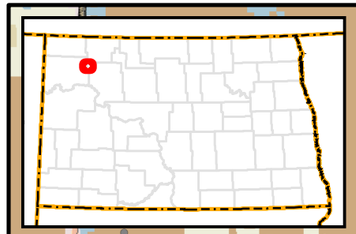
Aerial Map

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

FIGURE

A-2

Date: 11/14/2019 User: ALeonard Path: \\azrgisstorp01\GIS_Projects\Client\LibertyMidstream\20192055_ND\MXD\Report\FigA2_Aerial.mxd



Existing Liberty County Line Gas Plant

Existing Third-Party Transmission Pipeline

158N 95W

158N 94W

157N 95W

157N 94W

Williams

Mountrail

NLCD LEGEND

- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Deciduous Forest
- Shrub/Scrub
- Herbaceuous
- Hay/Pasture
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceuous Wetlands

LEGEND

- Proposed Pipeline Route
- Survey Area
- Study Area
- Oil/Gas Well Location
- Water Well Location
- State Land
- County Boundary
- Township/Range
- Section

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PROJECT NO.	20192055
CREATED:	11/14/2019
CREATED BY:	A. Leonard
CHECKED BY:	A. Dury
FILE NAME:	FigA3_LandUse.mxd

Land Use Map

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

FIGURE

A-3

LMS 062

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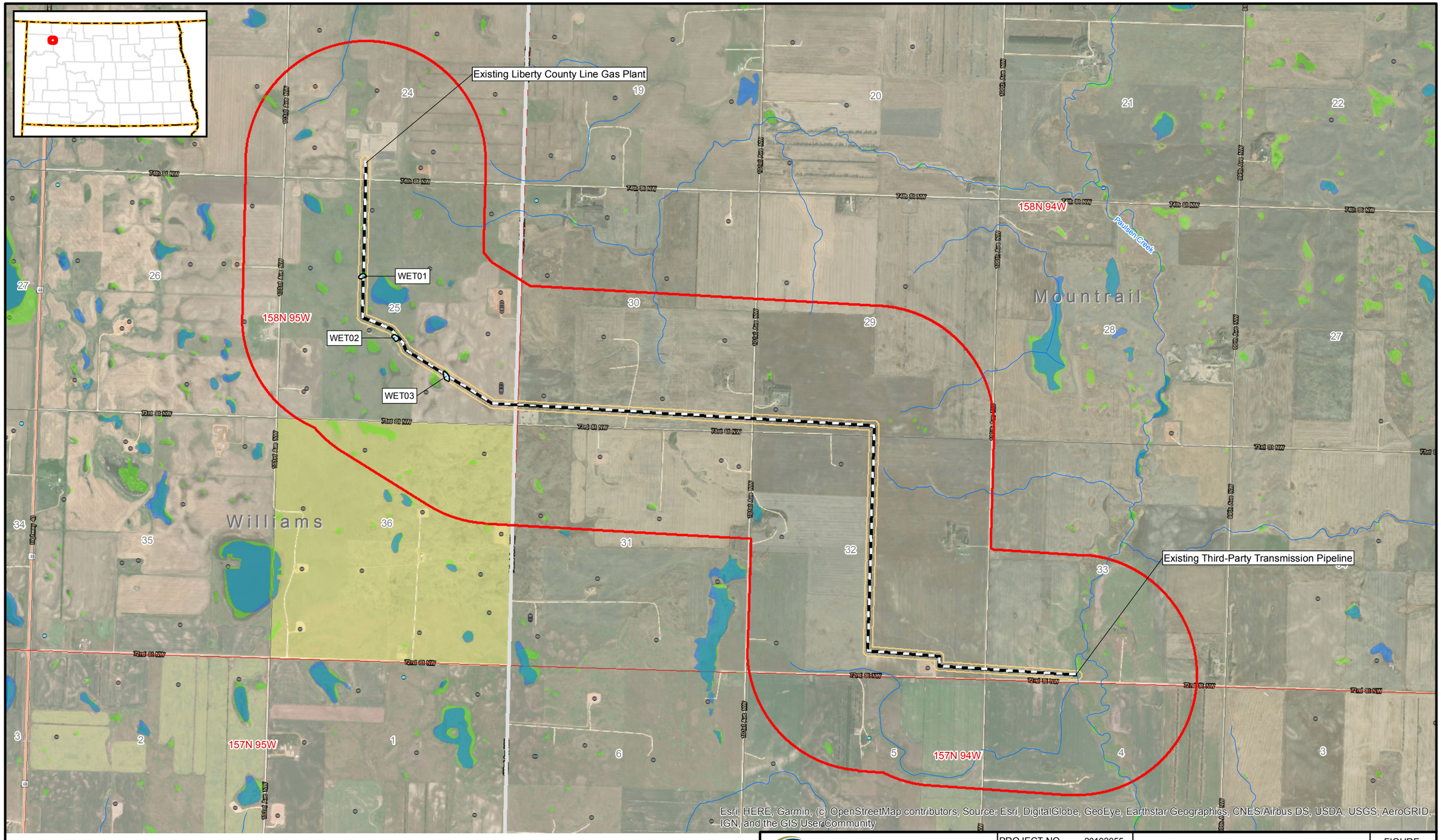

Esri, HERE, Garmin, (c) OpenStreetMap contributors, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

LEGEND

- Proposed Pipeline Route
- Delineated Features (SWCA)
- NHD Flowline
- NHD Waterbody
- NWI Wetlands
- Survey Area
- Study Area
- Oil/Gas Well Location
- Water Well Location
- State Land
- County Boundary
- Township/Range
- Section

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LIBERTY MIDSTREAM SOLUTIONS

PROJECT NO.	20192055
CREATED:	11/14/2019
CREATED BY:	A. Leonard
CHECKED BY:	A. Dury
FILE NAME:	FigA4_Hydro.mxd

Wetlands and Waterbodies Map

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

FIGURE

A-4

LMS 063

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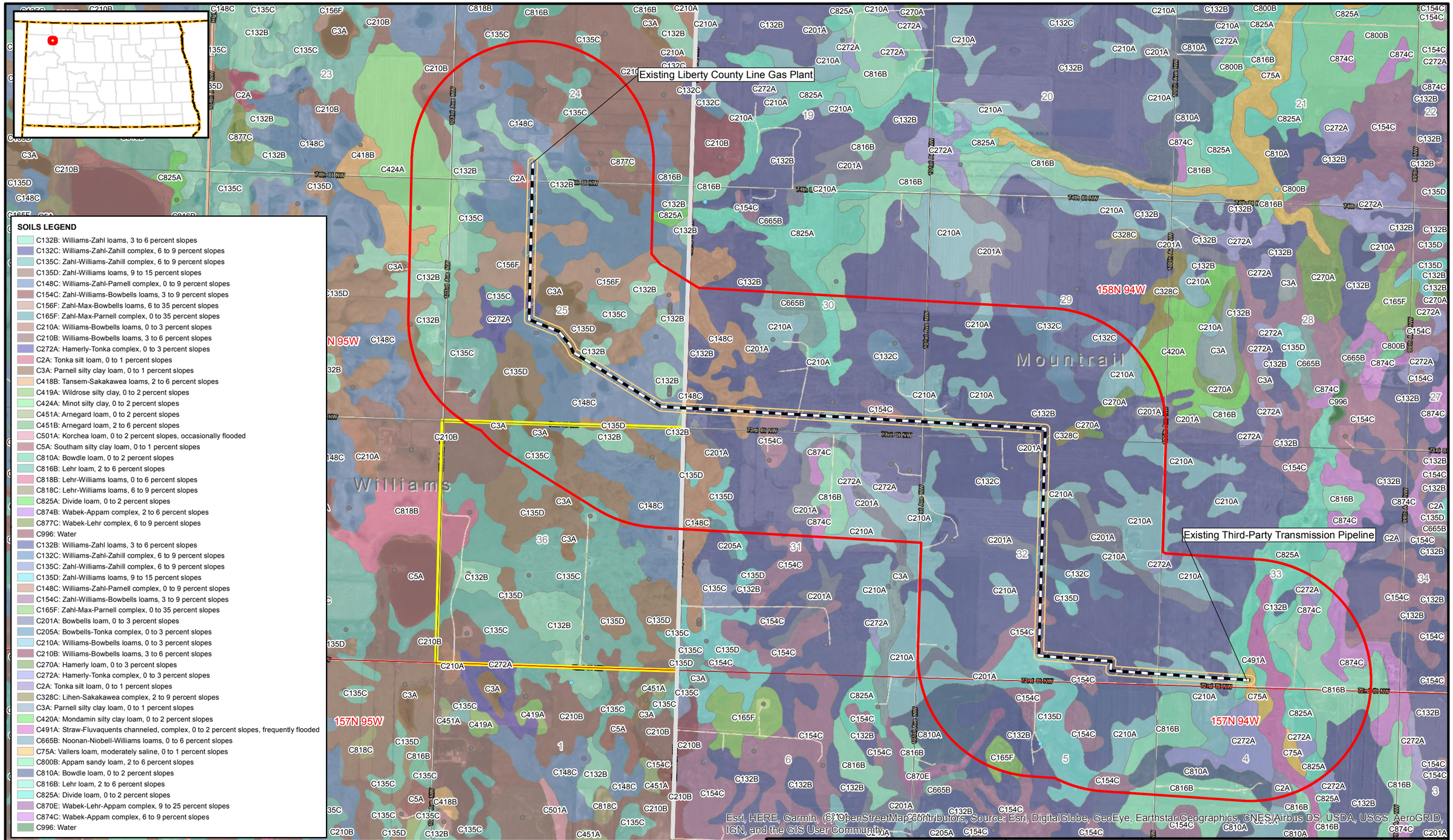

SOILS LEGEND

- C132B: Williams-Zahl loams, 3 to 6 percent slopes
- C132C: Williams-Zahl-Zahill complex, 6 to 9 percent slopes
- C135C: Zahl-Williams-Zahill complex, 6 to 9 percent slopes
- C135D: Zahl-Williams loams, 9 to 15 percent slopes
- C148C: Williams-Zahl-Parnell complex, 0 to 9 percent slopes
- C154C: Zahl-Williams-Bowbells loams, 3 to 9 percent slopes
- C156F: Zahl-Max-Bowbells loams, 6 to 35 percent slopes
- C165F: Zahl-Max-Parnell complex, 0 to 35 percent slopes
- C210A: Williams-Bowbells loams, 0 to 3 percent slopes
- C210B: Williams-Bowbells loams, 3 to 6 percent slopes
- C272A: Hamerly-Tonka complex, 0 to 3 percent slopes
- C2A: Tonka silt loam, 0 to 1 percent slopes
- C3A: Parnell silty clay loam, 0 to 1 percent slopes
- C418B: Tansem-Sakakawea loams, 2 to 6 percent slopes
- C419A: Wildrose silty clay, 0 to 2 percent slopes
- C424A: Minot silty clay, 0 to 2 percent slopes
- C451A: Arnegard loam, 0 to 2 percent slopes
- C451B: Arnegard loam, 2 to 6 percent slopes
- C501A: Korchea loam, 0 to 2 percent slopes, occasionally flooded
- C5A: Southam silty clay loam, 0 to 1 percent slopes
- C810A: Bowdle loam, 0 to 2 percent slopes
- C816B: Lehr loam, 2 to 6 percent slopes
- C818B: Lehr-Williams loams, 0 to 6 percent slopes
- C818C: Lehr-Williams loams, 6 to 9 percent slopes
- C825A: Divide loam, 0 to 2 percent slopes
- C874B: Wabek-Appam complex, 2 to 6 percent slopes
- C877C: Wabek-Lehr complex, 6 to 9 percent slopes
- C996: Water
- C132B: Williams-Zahl loams, 3 to 6 percent slopes
- C132C: Williams-Zahl-Zahill complex, 6 to 9 percent slopes
- C135C: Zahl-Williams-Zahill complex, 6 to 9 percent slopes
- C135D: Zahl-Williams loams, 9 to 15 percent slopes
- C148C: Williams-Zahl-Parnell complex, 0 to 9 percent slopes
- C154C: Zahl-Williams-Bowbells loams, 3 to 9 percent slopes
- C165F: Zahl-Max-Parnell complex, 0 to 35 percent slopes
- C201A: Bowbells loam, 0 to 3 percent slopes
- C205A: Bowbells-Tonka complex, 0 to 3 percent slopes
- C210A: Williams-Bowbells loams, 0 to 3 percent slopes
- C210B: Williams-Bowbells loams, 3 to 6 percent slopes
- C270A: Hamerly loam, 0 to 3 percent slopes
- C272A: Hamerly-Tonka complex, 0 to 3 percent slopes
- C2A: Tonka silt loam, 0 to 1 percent slopes
- C328C: Lihen-Sakakawea complex, 2 to 9 percent slopes
- C3A: Parnell silty clay loam, 0 to 1 percent slopes
- C420A: Mondamin silty clay loam, 0 to 2 percent slopes
- C491A: Straw-Fluvaquents channeled, complex, 0 to 2 percent slopes, frequently flooded
- C665B: Noonan-Niobell-Williams loams, 0 to 6 percent slopes
- C75A: Vallers loam, moderately saline, 0 to 1 percent slopes
- C800B: Appam sandy loam, 2 to 6 percent slopes
- C810A: Bowdle loam, 0 to 2 percent slopes
- C816B: Lehr loam, 2 to 6 percent slopes
- C825A: Divide loam, 0 to 2 percent slopes
- C870E: Wabek-Lehr-Appam complex, 9 to 25 percent slopes
- C874C: Wabek-Appam complex, 6 to 9 percent slopes
- C996: Water

LEGEND

- Proposed Pipeline Route
- Survey Area
- Study Area
- Oil/Gas Well Location
- Water Well Location
- State Land
- County Boundary
- Township/Range
- Section

0 1,000 2,000 4,000
Feet

N

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CHECKED BY:	A. Dury
FILE NAME:	FigA5_Soils.mxd

Soils Map

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

FIGURE
A-5

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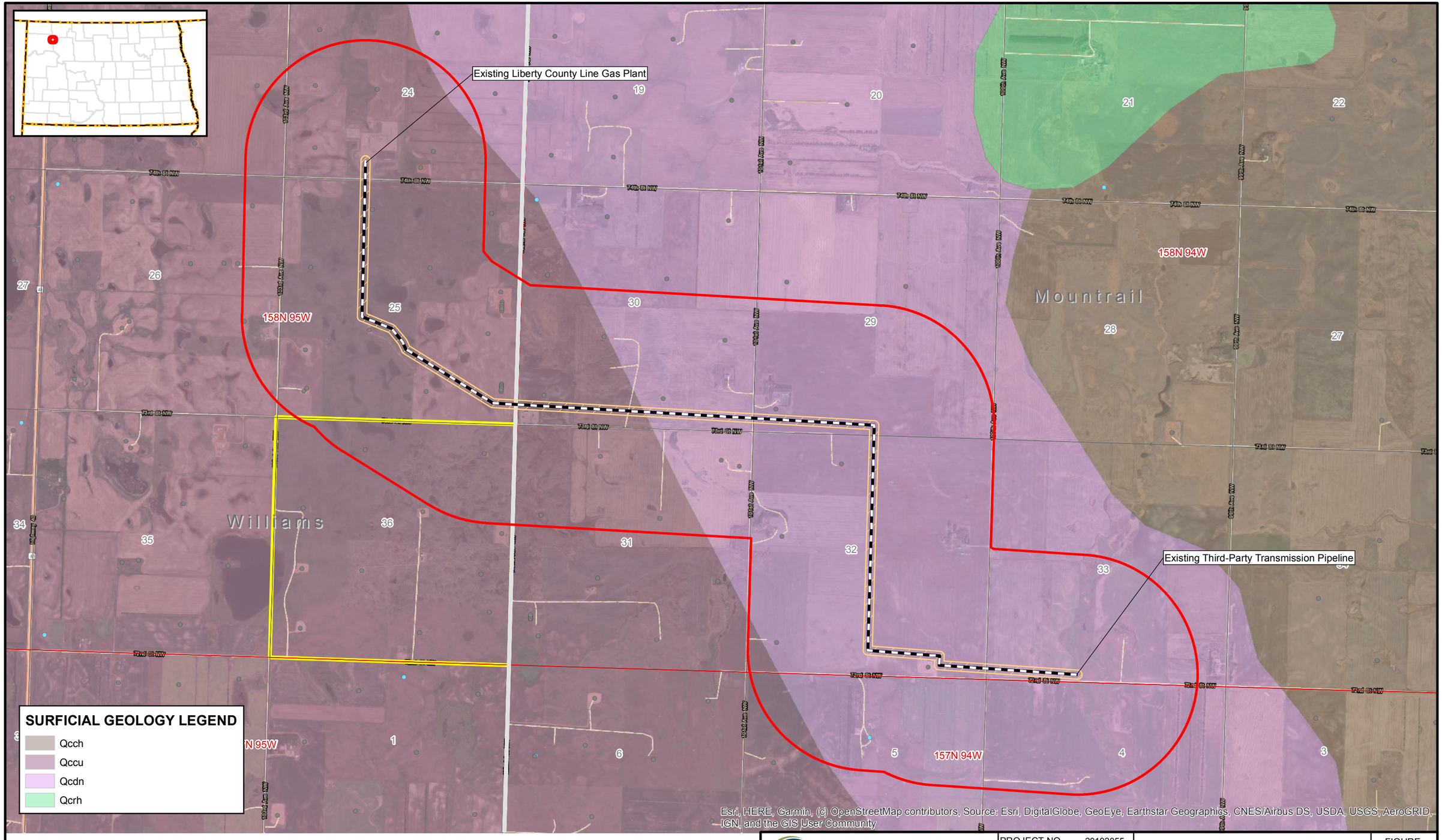
LMS 064



LEGEND

- Proposed Pipeline Route
- Survey Area
- Study Area
- Oil/Gas Well Location
- Water Well Location
- State Land
- County Boundary
- Township/Range
- Section

0 1,000 2,000 4,000
Feet

N

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Surficial Geology Map

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

FIGURE
A-6

LMS 065

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APPENDIX B
STORM WATER POLLUTION PREVENTION PLAN

LIBERTY MIDSTREAM SOLUTIONS, LLC
STORMWATER POLLUTION PREVENTION PLAN
FOR THE ALLIANCE SALES LINE PROJECT

PERMIT NDR10-0000
WILLIAMS AND MOUNTRAIL COUNTIES, NORTH DAKOTA

DECEMBER 2019

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ONLY THE CLIENT OR ITS DESIGNATED REPRESENTATIVES MAY USE THIS DOCUMENT AND ONLY FOR THE SPECIFIC PROJECT FOR WHICH THIS REPORT WAS PREPARED.

A Report Prepared for:

Liberty Midstream Solutions, LLC
1200 17th Street, Suite 2200
Denver, CO 80202

LIBERTY MIDSTREAM SOLUTIONS, LLC
STORMWATER POLLUTION PREVENTION PLAN (SWPPP)
FOR THE
ALLIANCE SALES LINE PROJECT

PERMIT NDR10-0000
WILLIAMS AND MOUNTRAIL COUNTIES, NORTH DAKOTA

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December 2019
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Appendix D BMP Details
Appendix E Maps of Soils, Vegetation, and Hydrology in the Project Area
Appendix F Stormwater Inspection Reports

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Table 1. Amendments to Stormwater Pollution Prevention Plan

SWPPP Modification Log			
Name of Construction Site		**Location of Construction Site**	
Type of Modification		**Description of Modification**	**Location of Modification**
☐ **Major** ☐ **Minor**			
Start Date:			
Completion Date:			
Reason for Modifications:		**Approved/Implemented By:**	
Type of Modification		**Description of Modification**	**Location of Modification**
☐ **Major** ☐ **Minor**			
Start Date:			
Completion Date:			
Reason for Modifications:		**Approved/Implemented By:**	
Type of Modification		**Description of Modification**	**Location of Modification**
☐ **Major** ☐ **Minor**			
Start Date:			
Completion Date:			
Reason for Modifications:		**Approved/Implemented By:**	

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CERTIFICATION	
"I _____, certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	
Printed Name of Applicant	Title
Signature of Applicant	Date

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1 PROJECT INFORMATION

This Stormwater Pollution Prevention Plan (SWPPP) was written to comply with the North Dakota Department of Environmental Quality (NDDEQ) General Permit NDR10-0000 (the "Permit"), which provides authorization to discharge stormwater associated with new and large construction activities. This SWPPP was prepared with the objective to inventory pollutants that have potential to leave the construction site in stormwater runoff, identify best management practices (BMPs) to eliminate or minimize pollutants in runoff, meet the conditions of the Permit, and not cause contamination or degradation to waters of the state.

Liberty Midstream Solutions, LLC (LMS) is seeking to obtain coverage under the General Stormwater Permit (NDR10-0000, **Appendix A**) for the construction of their Alliance Sales Line Project (Project). This SWPPP addresses construction activities associated with the construction of approximately 4.72 miles of new 8-inch residue gas pipeline in Williams and Mountrail Counties, North Dakota. **Appendix B** provides an Overview Map of the Project, as well as the specific site maps that show the BMPs to be utilized during construction; these figures will be periodically added to and updated as site conditions change and as LMS proceeds through construction to restoration.

This SWPPP was prepared in accordance with good engineering, hydrologic, and pollution control practices. This SWPPP is a dynamic document that will be updated, as needed, to address planned development, new disturbances, and other changes needed to manage stormwater and protect surface water quality. The SWPPP will be modified whenever there is a change in design, construction, operation, or maintenance that changes the potential for the discharge of pollutants to the waters of the state. The SWPPP will also be modified if elements prove ineffective in eliminating or minimizing pollutants present in stormwater. Table 1 on page v lists all modifications to this SWPPP.

The most current SWPPP is to be retained on site or may be located off-site when the Project is shut down for the season or when completion of construction occurs. The complete SWPPP will be maintained at LMS' field office at the existing Liberty County Line Gas Plant. A copy will also be kept with the SWPPP administrator when practical.

1.1 Stormwater Administrator

Stormwater management involves LMS as well as an outside consultant. This SWPPP was prepared on behalf of LMS by Kleinfelder, Inc.; however, the implementation and execution of the plan will be conducted by LMS or their construction contractor. The authorized officer for this SWPPP is listed below:

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SWPPP Administrator and Legally Responsible Person:
Jerry Weiland
LMS Operations Manager
10261 74th Street NW
Tioga, ND 58852
406-860-8319

Jerry.Weiland@lmsllc.com

1.2 Site Description

LMS is proposing to construct and operate the Alliance Sales Line Project (Project) which consists of construction of a new 8-inch residue gas pipeline beginning at the existing Liberty County Line Gas Plant and terminating at a tie-in with a third-party operated pipeline. The pipeline is located in Williams and Mountrail Counties, North Dakota. The proposed pipeline will have a 25-foot permanent right-of-way (ROW) with an additional 75 feet of temporary ROW (centered on the proposed pipeline where feasible) for a total of 100 feet of temporary construction ROW. The Project location is depicted in the Project Overview Map included in **Appendix B**.

The Project is located entirely on private lands. The observed land use along the alignment is primarily ranchland and agricultural plots, as well as some existing oil and gas facilities. The site-specific stormwater diagrams and suggested stormwater BMPs for each project component can be found in **Appendix C**. Acreages of disturbance for the pipeline construction ROW is estimated to be 57.21 acres.

1.3 Proposed Sequence of Construction Activities

The Project includes construction and installation of approximately 4.72 miles of new 8-inch residue gas pipeline within a 100-foot construction ROW. Construction and development is anticipated to begin in February 2020 and will continue for approximately 8 weeks. Reclamation will begin immediately after construction is complete and the final restoration including adequate vegetative cover will be dependent on weather conditions.

All BMPs will be installed in a phased approach by activity (for example, Construction and Development followed by Operation and Reclamation) as outlined in accordance with **Table 2**.

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Table 2. BMPs Recommended During Each Project Phase

Construction and Development	Operation	Reclamation
Erosion and Sediment Control (Structural)		
Dust Control	Dust Control	Dust Control
Earthen Berms	Earthen Berms	Earthen Berms
Fiber Roll	Fiber Roll	Fiber Roll
Silt Fence	Silt Fence	Silt Fence
Temporary Slope Drains	Temporary Slope Drains	Temporary Slope Drains
Sediment Traps	Sediment Traps	Sediment Traps
Trench Plug		
Water Bar		
Erosion and Sediment Control (Non-structural)		
Phased Construction	Phased Construction	Phased Construction
Protect/Preserve Vegetation	Protect/Preserve Vegetation	Protect/Preserve Vegetation
Re-vegetation	Re-vegetation	Re-vegetation
Mulching	Mulching	Mulching
Surface Roughening	Surface Roughening	Surface Roughening
Proper Track Walking During Land Grading	Proper Track Walking During Land Grading	Proper Track Walking During Land Grading
Slope Stabilization	Slope Stabilization	Slope Stabilization
Operational Controls		
Good Housekeeping	Good Housekeeping	Good Housekeeping
Employee Training	Employee Training	Employee Training
Bulk Storage of Petroleum	Bulk Storage of Petroleum	
Concrete Washout		
Maintenance of Equipment	Maintenance of Equipment	
Dewatering BMPs		
Settling/Filtration		
Velocity Dissipation		

1.3.1 Construction and Development

Construction of pipelines and appurtenances is subject to safety regulations specified in U.S. Department of Transportation (USDOT) CFR, Title 49, Part 192 (49 CFR § 192), Transportation of Natural and Other Gas by Pipeline Minimum Federal Safety Standards, and other applicable regulations.

The first phase of construction would involve staking the pipeline centerline and the construction ROW. Clearing of trees and brush would be performed after staking is completed. Vegetative debris would be managed in accordance with applicable regulations; the resulting materials would be beneficially used where possible (that is, timber, mulch, firewood), or hauled away for off-site management or disposal in accordance with applicable local and state requirements and/or restrictions. Topsoil segregation would be performed ahead of trenching and subsoil would be stockpiled separately from topsoil.

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Stormwater inspections would begin once the soil or vegetation is disturbed. Temporary or permanent on-site perimeter erosion and sediment control BMPs will be installed as appropriate (that is, before, during, and after all grading activities and development).

Individual sections of pipe would be strung along the ROW, which can be done either before or after trenching. Trenching would be accomplished by backhoe or trenching machine, keeping trench spoil separate from topsoil. Generally, the trench would be excavated 12 inches wider than the diameter of the pipe. Trench width is dependent on pipe size and trenching method; for the proposed 8-inch pipeline the trench would be up to 20 inches wide using a backhoe.

Pipe would be bent where necessary, aligned, and welded. All welds would be visually and radiographically inspected. The pipe assembly would be lowered into the trench and backfilled with the previously excavated soil. The depth of soil cover over the top of pipe would be at least 60 inches. After backfilling, the pipe would be hydrostatically tested in accordance with USDOT regulations specified in 49 CFR 192.

Sequencing of construction activities will progress as rapidly as practicable to minimize the amount of time that portions of the site are disturbed. Inactive areas will be temporarily stabilized to reduce erosion potential, slow runoff velocity, and promote infiltration and will be temporarily seeded where applicable.

The Site Maps showing the limits of disturbance are as well as the specific BMPs to be used during construction of the pipeline are included in **Appendix C**.

1.3.2 Operation

All proposed facilities covered under this SWPPP will be operated and maintained in compliance with USDOT regulations (49 CFR 192), and in a manner consistent with industry standards. Procedures will include periodic inspection and maintenance of pipelines and appurtenances.

Operational activity on the pipeline would be limited primarily to maintenance of the ROW and inspection, repair, and cleaning of the pipeline. Periodic ground inspections by pipeline personnel would identify:

- Soil erosion that may expose the pipe
- Dead vegetation that may indicate a leak in the line
- Conditions of the vegetation cover and erosion control measures
- Unauthorized encroachment on the ROW, such as buildings and other substantial structures
- Other conditions that could present a safety hazard or require preventive maintenance or repairs

The pipeline cathodic protection system would also be monitored and inspected periodically to ensure proper and adequate corrosion protection. During the Operation Phase, appropriate BMPs will be maintained and remain in place until final stabilization is achieved.

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1.3.3 Reclamation

After construction and operation activities are complete, the grades of the slopes will be reduced and returned to approximately the original topography. All reclaimed areas will be permanently seeded and mulched according to the standard details included in **Appendix D**. Final seeding of the reclaimed area will be done in the spring depending on the completion time of the reclamation and weather conditions.

Following completion of final revegetation, a qualified representative will inspect areas that have been seeded to ensure that the revegetation has been successful. If revegetation is not successful, spot revegetation or other remedial actions will be implemented to assure compliance with the Permit. An Inactivation Notice will be filed for the project once all of the construction activities have been completed and all areas have reached final stabilization or 70 percent of pre-disturbed vegetative conditions.

1.4 Potential Pollution Sources

Potential pollution sources associated with construction and operation activities includes:

- Sediment resulting from erosion of soil stockpiles and other areas cleared of vegetation
- Fugitive dust
- Off-site vehicle tracking
- Leakage of fuels and lubricants from equipment and spills from fueling or equipment failures during earth moving activities
- Solid waste and debris from clearing activities, construction materials, and workers
- Construction material storage areas
- Chemicals associated with temporary portable toilet services for construction workers

The most common source of pollution anticipated during construction and development is sediment which may potentially impact the water quality of receiving waterbodies via clearing, grading, and altering previously undisturbed lands. Fugitive dust associated with construction activities may transport sediment during heavy traffic periods, grading, clearing, or grubbing activities. Off-site vehicle tracking will need to be minimized or eliminated through the use of vehicle tracking control BMPs when necessary.

Petroleum products utilized on-site can be potential stormwater pollutants. These products are used in project construction to power or lubricate equipment and include the following: fuel, gear and hydraulic oils, brake fluids, and grease. Leakage from fueling or other site operations will be handled in accordance with BMPs included in **Appendices C and D** and as described in Section 2.2 – Operational Controls. Designated areas for storing petroleum products will need to be updated on site-specific maps if locations change.

Debris from construction, residue from equipment cleaning and maintenance, and solid waste generated from land clearing operations and human activities present other potential pollution

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sources within the construction site(s). Please refer to the BMPs and site-specific maps that address these non-stormwater issues.

Construction material storage areas may be potential pollution sources if materials are improperly stored or exposed to precipitation. Construction material storage areas may include petroleum products, fertilizers, chemicals, or paints associated with proposed activities on site. Secondary containment BMPs should be updated on the site-specific maps and in stormwater BMPs located in **Appendices C and D**. Additional chemicals associated with toilets for construction workers will need to be sited in areas that will not impact waterways or storm drains.

Potential pollutant sources will be inspected on a regular basis and include:

1) Disturbed and stored soils

There is a potential for disturbed and stored soils to contribute pollutants to stormwater discharges; however, as part of the regular stormwater inspections, all disturbed and stored soils will be monitored to ensure sediment transport is not occurring. BMPs will be installed and maintained along these areas.

2) Vehicle tracking of sediments

There is a low potential for vehicle tracking of sediments to contribute pollutants to stormwater discharges given that the roads in the area are not paved.

3) Management of contaminated soils

There is a low potential for contaminated soils to contribute pollutants to stormwater discharges. Areas of contaminated soils will be disposed of in an appropriate facility and soil sampling will be conducted to ensure contaminated soils have been removed.

4) Loading and unloading operations

There is a low potential for loading and unloading operations to contribute pollutants to stormwater discharges, because BMPs will be installed before items necessary for pipelines, and gas treatment are put in place.

5) Outdoor storage activities (building materials, fertilizers, and chemicals)

There is a low potential for outdoor storage activities to contribute pollutants to stormwater discharges. No fertilizers or building materials will be kept on-site and chemicals used for plant operations will be stored within a weatherproof structure or will be kept off the ground and covered to ensure precipitation does not come in contact with the materials.

6) Vehicle and equipment maintenance and fueling

There is a low potential for vehicle and equipment maintenance and fueling to contribute pollutants to stormwater discharges. No vehicle and equipment maintenance and fueling will take place at the Project facilities. On-site maintenance and fueling will be done in designated areas cleared of vegetation and located away from any drainage areas.

7) Significant dust or particulate generating processes

There is a moderate potential for dust or particulate-generating processes to contribute pollutants to stormwater discharges. During summer months, winds carry dust and

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sediment from construction activity or moving vehicles and deposit it along waterways. However, areas of disturbed soils will be stabilized, and areas needed for post-construction operations will be hard surfaced after construction operations are completed.

8) Routine maintenance activities involving fertilizers, pesticides, detergents, fuels, solvents, oils

Oils and antifreeze will be used for plant maintenance.

9) On-site waste management practices (waste piles, liquid wastes)

There is a low potential for on-site waste management practices to contribute pollutants to stormwater discharges. Waste piles will be contained using BMPs to minimize sediment transport. During construction operations, dumpsters may be retained on-site for worker trash and will be emptied as necessary.

10) Concrete truck/equipment washing, including the concrete truck chute and associated fixtures and equipment

There is a very low potential for concrete truck/equipment washing to contribute pollutants to stormwater discharge. There will be a designated washout area and concrete will be disposed of properly.

11) Dedicated asphalt and concrete batch plants

There is no potential for dedicated asphalt and concrete batch plants to contribute pollutants to stormwater discharges as there are no asphalt or concrete batch plants associated with the project.

12) Non-industrial waste sources such as worker trash and portable toilets

There is a low potential for non-industrial waste sources to contribute pollutants to stormwater discharges. Dumpsters for worker trash will be kept on-site and portable toilets will be staked down and will be located in a safe area where accidental tipping will not occur. Dumpsters and portable toilets will only be on-site during construction operations.

13) Other areas or procedures where potential spills can occur

Spills may occur from vehicles accessing each location during construction and daily activities. Observations for soil staining will be conducted during routine inspections.

Non-stormwater discharges are not expected from the Project. There are no municipal discharge outfalls within the Project Area. Storm culverts and diversion ditches in close proximity to construction activities associated with this Project are depicted on the site-specific maps.

1.5 Existing Topography, Vegetation, and Soils

Other relevant characteristics include runoff characteristics, site elevations, and soil units. Runoff characteristics are based on site topography, soil type, and soil/vegetative cover. The facilities are mainly located on flat tracks of land where the potential for soil loss due to topography is considered minimal. The elevation in the Project Area generally ranges from 5,700 to 6,200 feet.

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Vegetative communities primarily consist of shrubland, herbaceous upland (grasses and forbs), upland woody vegetation, cropland (small grains), and palustrine emergent (PEM) wetland. Vegetative cover ranges from 90-percent to 100-percent. Vegetation maps can be found in **Appendix E**.

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web based soil survey was used to determine soil types within the Project corridor. The web-based soil maps, including a name and designation index, are included in **Appendix E.** Soils crossed by the proposed ROW are listed below:

- Williams-Zahl loams, 3 to 6 percent slopes
- Zahl-Max-Bowbells loams, 6 to 35 percent slopes
- Williams-Zahl- Parnell complex, 0 to 9 percent slopes
- Zahl-Williams loams, 9 to 15 percent slopes
- Hamerly-Tonka complex, 0 to 3 percent slopes
- Williams-Zahl loams, 3 to 6 percent slopes
- Williams-Bowbells loams, 0 to 3 percent slopes
- Zahl-Wiliams-Bowbells loams, 3 to 9 percent slopes
- Bowbells loam, 0 to 3 percent slopes
- Zahl-Wiliams loams, 9 to 15 percent slopes
- Williams-Zahl-Zahill complex, 6 to 9 percent slopes
- Vallers loam, moderately saline, 0 to 1 percent slopes
- Divide loam, 0 to 2 percent slopes

1.6 Receiving Waters

The Project Area is located within one hydrologic unit, the Upper White Earth Creek (HUC 101101011203). From the Project Area, stormwater runoff would flow into White Earth Creek and its tributaries and other intermittent drainages located near and within the Project Area. Outfalls potentially consist of overland flows from the locations described in this plan to the above-mentioned drainages which subsequently drain into the White Earth River. Hydrology Maps, including features delineated during field surveys, are included in **Appendix E**.

1.6.1 Impaired Waters

There are no receiving water(s) that are listed on the state's most recent 303(d) report as impaired within 2,000 feet of the Project Area. There are no receiving water(s) that are listed on the state's most recent 303(d) that have an approved Total Maximum Daily Load (TMDL) for sediment, suspended solids or turbidity within 2,000 feet of the construction site and that may receive runoff from the construction site or will receive construction site stormwater discharge that enter a storm sewer system.

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2 BEST MANAGEMENT PRACTICES (BMPS) FOR STORMWATER POLLUTION PREVENTION

The selection of erosion and sediment control BMPs is contingent upon site-specific conditions during construction. The objective of the selected erosion and sediment controls is to minimize erosion and sedimentation via the utilization of a combination of structural and nonstructural controls. The types and locations of structural BMPs for construction of the proposed pipeline are depicted on the Site Plans in **Appendix C**.

2.1 Erosion and Sediment Controls

Erosion prevention BMPs prevent soil or sediment movement by wind or water and retain soil in its original location within the construction site. Temporary erosion protection may be needed for some activities, in particular where further work is not anticipated for 28 calendar days or more. Ditches, berms, and soil stockpiles may require temporary erosion protection. Sedimentation controls prevent soil from eroding and being transported from the original location on-site and from entering waters of the state. Appropriate control measures for erosion and sediment control of the Project Area are described as follows:

1) Structural Practices for Erosion and Sediment Control

There are a number of structural practices which may be used on the project including: various dust control methods, waterbars, trench plugs, silt fence with outlets, and sediment traps, re-establishing/replacing vegetation, mulching, and rolled erosion control products. The locations of structural BMP practices are depicted on the Site Plans in **Appendix C**.

2) Non-Structural Practices for Erosion and Sediment Control

Non-structural erosion and sediment control BMPs include phasing construction, minimizing disturbances to existing vegetation, and preservation of natural vegetation, surface roughening, and proper track walking during land grading activities. The location of non-structural BMPs practices are depicted on the Site Plans in **Appendix C**.

3) Phased BMP Implementation

BMPs for these sites will be implemented in three phases – construction, operation, and reclamation. **Table 2** lists the BMPs that may be used during each of the aforementioned phases of the project.

2.1.1 Construction and Development

The Construction Phase will begin with the clearing and grubbing of all necessary areas to construct the proposed 8-inch pipeline. The temporary construction ROW will be cleared of trees and obstructions and graded to a relatively flat surface to accommodate construction equipment. Stormwater inspections begin once the soil or vegetation is disturbed. The facilities and associated private access road will be constructed utilizing standard cut and fill techniques.

Structural sediment control BMPs will be installed below the limits of disturbance to prevent sediment from leaving the construction site. These BMPs will be installed prior to starting any

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earthwork activities. If site berms are installed, they will encompass the facility surface and will be constructed at the top of the fill slopes to act as run on control. BMPs will be maintained during construction to the standards outlined in the BMP details located in **Appendix D**.

In areas disturbed by construction, topsoil will be stripped and stockpiled on-site. Soil materials will be managed so erosion and sediment transport are minimized. Nearby drainages will be protected by appropriate BMPs. Any stockpiled excess cut-material or topsoil will be segregated during construction and appropriate erosion and sediment control BMPs will be utilized to minimize sediment transport during temporary storage.

The pipeline trenches will be excavated to provide a depth of cover required by the USDOT, Williams and Mountrail Counties, or LMS Standards. At roadways the pipeline will be bored using standard construction techniques. Temporary BMPs will be implemented to prevent sediment transport from stockpiles where applicable.

Pipe segments will be strung along the ROW parallel to the trench, and will be bent (where required), welded, and lowered into the trench. Once the pipeline is placed in the trench, a bulldozer or other appropriate equipment will backfill the trench with fill or native subsoil. Topsoil that was segregated during grading operations will be placed over the subsoil. The ROW will be re-graded to its preconstruction contour and seeded to encourage revegetation. Any excavated materials not used as backfill will be disposed of properly. After installation, the pipeline will undergo hydrostatic testing to ensure its integrity.

Sequencing of construction activities will progress as rapidly as practicable to minimize the amount of time portions of the site are disturbed. Inactive areas, where ground disturbing activity has ceased for more than 14 calendar days, will be stabilized to reduce erosion potential, slow runoff velocity, and promote infiltration and will be temporarily seeded where applicable.

The construction phase will last approximately 8 weeks. All ground disturbing activities will be conducted on the working surface of the construction site during the development phase.

During construction and development, all structural BMPs used for sediment control during the construction phase will be maintained or be replaced, and any necessary additional BMPs will be installed. Possible BMPs include sit fencing, vehicle traction control, timber matting, trench plugs and water bars, and erosion control blankets.

Depending on site conditions, a variety of erosion control practices may be necessary to stabilize areas of disturbed soil that do not have gravel or that have not been surface hardened. Seed and mulch or erosion control blankets should be applied to disturbed areas such as topsoil stockpiles and cut and fill slopes. Slopes may also be track walked to provide soil roughening.

2.1.2 Operation

Once constructed, the pipeline will operate 24 hours a day, 365 days a year. Once operating, there is no intention of removing or terminating use of the compressor station or the pipeline. Should any portion of the facilities require decommissioning, the pipeline would be isolated, cleaned, and abandoned in place per State of Wyoming and local regulations and per the landowner agreement.

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The pipeline will be un-manned during operation. The ROW may be periodically driven by one or two employees for regular inspection and/or maintenance. All non-emergency work will take place between 6:00 AM and 5:00 PM, Monday through Friday. Daily visits to the pipeline ROW are not anticipated. During the Operation Phase, appropriate BMPs will be maintained and remain in place until final stabilization is achieved.

2.1.3 Reclamation

Interim or final stabilization activities will begin once all construction and development activities have been completed or will cease for more than 14 days. The slopes and disturbed soils will be re-contoured to match preexisting conditions, stockpiled topsoil should be applied to the slopes and then track walked, seeded, and mulched.

After final stabilization, the site will continue to be monitored on a monthly basis while the vegetation cover is established to ensure that the proposed activities to achieve final stabilization are adequate. Once uniform vegetative cover has been established with a plant density of at least 70 percent of pre-existing conditions on all reclaimed areas, the site will be considered stabilized and inspections may cease. Structural BMPs, if present, may be removed after these conditions have been met.

Seeding can be conducted at any time of the year; however, the middle of winter and the middle of summer can be problematic. If applied in the winter, seed will lie dormant and will be in place to grow as soon as spring arrives accompanied by warmer temperatures and moisture from precipitation or snowmelt. However, seed cannot be applied when there is more than an inch of snow on the ground. If seed is applied in the middle of summer, extreme heat and limited moisture will reduce effectiveness. Therefore, the recommended times for seeding are spring (after snowmelt begins but generally mid-March to mid-June) and fall (generally from late August until the first heavy snow).

Final stabilization practices for obtaining a minimal 70 percent pre-disturbance vegetative cover will include selecting a seed mix and application methods, soil preparation and amendments when necessary, implementing soil stabilization practices, and utilizing appropriate sediment control BMPs, as needed, until final stabilization is achieved. The temporary ROW will be re-graded to reduce cut and fill slopes and be re-seeded. The seeding and stabilization practices may include drill- or broadcast-seeding, mulching and crimping, erosion control matting, or hydro-seeding. The BMPs implemented may be modified as needed to ensure site reclamation and stabilization leading to 70 percent of pre-disturbance vegetative cover.

2.1.4 Construction Site Dewatering

If groundwater is encountered during proposed activities, a separate groundwater permit may be acquired by LMS from NDDEQ and monitoring will need to be conducted in accordance with the groundwater permit requirements. Other dewatering activities should include BMPs that remove sediments suspended in the water as well as velocity dissipation devices (for example, rock riprap, sandbags, plastic sheeting, or equivalent) to control erosion during the discharge process.

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2.2 Operational Controls

2.2.1 Spill Response

Spills at the site can be largely prevented through proper training and the conscientious efforts of personnel during the performance of routine activities. Efforts should be made to refuel equipment away from drainages and waterways. If possible, attempts should be made to use the same location for refueling activities, such as a designated equipment refueling/staging area. If a release of a hazardous substance does occur during construction activities, construction personnel will take appropriate action to minimize the impact of the spill through the use of absorbent material stored at the construction site. Absorbent material may consist of clay, sawdust, straw, kitty litter, booms, absorbent pads, or other suitable materials.

In the event of a release of fuel, lubricant, or coolant from equipment, efforts will be made to stop the release. Spilled fluids will be cleaned up as soon as possible. All contaminated soils and spent/used clean up materials shall be containerized (drums or dumpsters) and stored on site, until appropriate disposal methods have been identified. **Jerry Weiland (LMS) is to be contacted at 406-860-8319, to report any spills over five gallons.** The necessary repairs will be made to the equipment to prevent a continued release of potential pollutants.

LMS will report any spill that may seriously endanger health or the environment as soon as possible, but no later than 24 hours from the time LMS became aware of the spill.

Immediate response by trained emergency personnel may be coordinated through the Department of Health, Department of Emergency Services and any other state or local emergency response agencies that may be needed. If there is any question as to proper response, call the 24-hour North Dakota hazardous materials emergency assistance and spill reporting number (800.472.2121) and provide all relevant information about the incident.

North Dakota Department of Health:

Division of Water Quality	701.328.5210
Division of Waste Management	701.328.5166
Division of Air Quality	701.328.5188
Division of Municipal Facilities	701.328.5211

Report Spills to http://www.ndhealth.gov/EHS/Spills/

3 GOOD HOUSEKEEPING

A list of all potentially toxic or hazardous chemicals used during the Project will be maintained and kept on-site. Warning labels must be attached to all potentially toxic or hazardous chemicals. Safety Data Sheets (SDS) and other safety information will be on file and accessible during all periods in which the chemicals are used or stored. Construction site personnel must follow spill prevention and control practices as outlined in the SPCC plan developed for the existing gas plant.

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In addition to maintaining an inventory of potentially toxic, hazardous materials and associated safety information, the following materials management practices will be followed:

- Materials will be handled in accordance with Occupational Safety and Health Administration (OSHA) requirements and manufacturers' instructions.
- Chemicals regulated under the Resource Conservation and Recovery Act (RCRA) will be reported and handled in accordance with relevant regulations.
- Materials stored at the construction site will be covered or otherwise protected from the elements.
- The quantity of fuel and lubricants stored on the construction site will be limited to the amount that is reasonable to support the specific construction or maintenance activity.
- Bulk storage areas for materials not consumed daily will be enclosed and protected from the elements and contained in a manner to prevent release to the environment.
- Petroleum products and fertilizers will be stored at separate facilities or isolated by impermeable barriers.
- General construction site debris will be stored in trash containers and removed from the job site on a regular basis to prevent overflowing.

3.1 Bulk Storage of Petroleum Products

Lubricant, hydraulic, and miscellaneous oils and solvents will be stored in 55-gallon or smaller containers. Pollutants from petroleum products used during construction activities adhere easily to soil particles and other surfaces. In case of a spill or leak, soils contaminated with petroleum products will be contained and removed to a proper disposal site. Proposed soil erosion and sediment control practices will aid in retention of spills or leaks. Use of secondary containment and drip pans will reduce the likelihood of spills or leaks contacting the ground. Proposed maintenance and safe storage practices will reduce the chance of petroleum products contaminating on-site soils and drainages. Oily wastes such as cans, rags, and paper containing oils will be placed in proper receptacles and disposed of or recycled. Additional sources of petroleum contamination are leaks from equipment and vehicles. Routine daily inspections will be conducted to identify leaks and initiate corrective actions, if needed.

The following guidelines for storing petroleum products will be used:

- All product containers will be clearly labeled.
- Drums will be kept off the ground within secondary containment and stored under cover, if needed.
- Emergency spill response procedures will be available on-site. Persons trained in handling spills will be on call at all times.
- Spill cleanup and containment materials (absorbent, shovels, etc.) will be easily accessible. Spills will be cleaned in a timely manner and reported as required in accordance with applicable regulations.

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- Contaminated materials will be properly stored on-site until they can be disposed of in accordance with applicable regulations.

Storage areas and containers will be regularly monitored for leaks and repaired or replaced as necessary. Workers will be reminded about proper storage and handling of materials during safety meetings.

Each of these wastes will be managed so as to not contribute to stormwater pollution.

1) Dedicated Concrete or Asphalt Batch Plants

   No concrete or asphalt batch plants are included as part of this project.

2) Vehicle Tracking Controls

   Vehicle tracking controls (VTCs) are used to reduce the potential for sediment to leave a construction area. If tracking does become an issue, VTC will be implemented.

3) Concrete Washout

   During plant construction, the concrete washout will be addressed by properly containing all waste within a lined pit or manufactured tank facility to prevent concrete wash waters from entering surface waters of the state.

4) Waste Management and Disposal

   Construction will generate various other wastes, possibly including the following:

   - Vegetation from clearing operations
   - Trash and debris from construction materials and workers
   - Sanitary sewage

Vegetation may be piled along the toe of fill slopes to provide additional sediment control or be hauled off-site. Construction trash and debris will be collected in containers and hauled off-site for disposal in suitable landfills. Temporary portable toilets will be staked to prevent accidental spillage.

3.2 Employee Training

Scheduled “tail gate” trainings will be provided for on-site personnel. These trainings will review important components of the SWPPP with a focus on general BMP awareness and site controls and maintenance responsibilities.

4 MAINTENANCE

All erosion and sediment control practices and other protective measures included in the SWPPP will be maintained in effective operating condition. Proper selection and installation of BMPs and development of comprehensive inspection and maintenance procedures are planned to meet this condition.

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Should inspections reveal that BMPs are not operating in accordance with good engineering, hydrologic, and pollution control practices then maintenance will be initiated. Maintenance activities may include removal of collected sediment outside the acceptable tolerances of the BMPs and other activities for preparation for post-construction stormwater control. BMP maintenance is intended to be proactive, not reactive. Equipment used on-site is to be maintained in accordance with applicable manufacturer and/or industry standards.

Temporary and permanent sedimentation ponds or basins, if used, must be drained and sediment removed when the depth of sediment collected in the basin reaches ½ the sediment storage volume. Drainage and removal must be completed for active construction site within 72 hours and on inactive construction sites within 14 days of discovery, or as soon as field conditions allow access.

Construction site egress locations must be inspected for evidence of sediment being tracked off-site by vehicles or equipment onto paved surfaces. Accumulation of tracked and deposited sediment must be removed from paved surfaces within 24 hours of discovery.

Observations resulting in BMP maintenance activities can be made during a site inspection or during general observations of site conditions. The BMP maintenance standards are outlined in the BMP details located in **Appendix D**.

Adequate site assessment will be performed as part of a comprehensive inspection and maintenance procedures. Site assessment evaluates the adequacy of BMPs at the site and the necessity of changes to those BMPs to assure continued effective performance. Where BMPs have failed, resulting in non-compliance with the Permit, they must be addressed as soon as possible, (that is, immediately in most cases), to minimize the discharge of pollutants. When new BMPs are installed or replaced with different BMPs, the SWPPP must be updated.

5 INSPECTION

To meet requirements of the Permit, inspection and maintenance of erosion and sediment controls must occur during the project construction or until a Notice of Termination is submitted to NDDEQ. Continued inspection and maintenance are required for specific structures after construction is completed. The inspection program will include the following:

1) A qualified person familiar with the SWPPP and control measures will conduct the inspections.
2) Inspections will cover these areas of the construction site:
    - Disturbed areas
    - Material storage areas
    - BMPs
    - Surface water diversions
    - Up-gradient and down gradient areas (run-on and run-off)
3) A log of inspections will be kept at the site when practical, a copy of all inspection reports

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will be filed in **Appendix F** of the SWPPP.

4) Sediment control BMPs will be inspected for evidence of deterioration, under-cutting, and buildup of sediment.

5) Following each inspection, the SWPPP will be updated as necessary to include additional controls designed to correct problems. Revisions to the SWPPP will be made after the changes to BMP installations or implementations occur to the site within 30 days following the inspection.

6) A signed inspection report summarizing the scope of the inspection, the name of the person conducting the inspection, date of inspection, and observations will be prepared and placed into the SWPPP. Inspection reports will be retained by the Impact SWPPP Administrator for at least 3 years from the date that the site is finally stabilized.

7) Actions taken to modify any stormwater control measure will be recorded and maintained with the SWPPP. Once adequate corrective action(s) have been taken, or where an inspection report does not indicate incidents requiring corrective action, the report shall be signed by a qualified person indicating the site is in compliance. An updated site map will accompany each inspection report.

5.1 Minimum Inspection Schedule

The stormwater inspections will be conducted in accordance with the following inspection schedule to meet the requirements of the Permit. The minimum inspection schedules are allowed:

1) Active Construction Sites/Areas

   During active construction, qualified personnel shall inspect disturbed areas, control measures, and locations where vehicles enter or exit the site at least once every 14 calendar days and within 24 hours of any precipitation and/or snow melt event which exceeds 0.5 inches. The permittee must either maintain a rain gauge at the site or use the nearest National Weather Service precipitation gauge station. Any rain measurement shall be taken from an area within 10 miles of the construction project, or at least once every 7 days.

2) Inspections at Completed Sites/Areas

   For sites, or portions of sites, that meet the following criteria but where final stabilization has not yet been achieved due to a vegetative cover that has not become established, an inspection will be conducted at least once every month and post-storm event inspections are not required. This reduced inspection schedule is allowed *only* if:

   - All construction activities that will result in surface ground disturbance are completed.
   - All activities required for final stabilization, in accordance with the SWPPP, have been completed, with the exception of the application of seed that has not occurred due to seasonal conditions or the necessity for additional seed application to augment previous efforts.

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- The SWPPP must be amended to indicate those areas that will be inspected in accordance with the reduced schedule allowed for in this subsection.

3) Inactive Construction Sites/Areas

   During seasonal shutdowns and periods following completion of construction, but before the site has achieved "final stabilization" conditions and termination of coverage under the General Permit, qualified personnel is required to inspect the site at least once each month.

4) Weather-Related Delays

   Operators of projects in remote, rural sites that do not have "all season" road access may delay inspections until site conditions are appropriate for access. The reason for such a delay must be documented in the SWPPP. Inspections must occur as soon as access is feasible.

5) Alternative Inspection Plans and Schedules

   A permittee may submit an alternative inspection plan for long, narrow, linear construction projects such as pipeline or utility line installation, and other projects in remote areas where vehicle traffic is restricted or could compromise native vegetation or stabilization measures. A copy of the SWPPP and alternative inspection plan must be submitted to the Department at least 30 days prior to implementing the plan. An alternative plan must provide for the timely recognition and repair of erosion or sedimentation. For an alternative inspection plan to be valid, it must be approved in writing by NDDEQ.

6) Winter Conditions Inspections Exclusion

   Inspections will not be performed at sites where construction activities are temporarily halted, snow cover exists over the entire site for an extended period, and melting conditions posing a risk of surface erosion do not exist. This exception is applicable *only* during the period where melting conditions do not exist and applies to the routine 14-day and monthly inspections as well as post-storm event inspections. The following information will be documented in the inspection record for use of this exclusion:

   - Dates when snow cover occurred
   - Date when construction ceased
   - Date melting conditions began

7) Completed Construction

   Where there are areas that have achieved final stabilization, the operator may document such in the facility SWPPP and omit those areas from further routine inspections. Examples of where this provision may apply include specific well pads or pipeline segments that have been stabilized that are part of a larger plan of development covered under a single stormwater permit. Or the earlier phases of a large, phased development which may be stabilized before the later phases are completed.

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5.2 Inspection Requirement

1) Inspection Scope

The construction site perimeter, all disturbed areas, material or waste storage areas that are exposed to precipitation, discharge locations, and locations where vehicles access the site will be inspected for evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the stormwater drainage system, or discharging to waters of the state. All erosion and sediment control practices identified in the SWPPP will be evaluated to confirm that they are operating correctly.

The stormwater inspector will be trained and knowledgeable about implementing the practices and controls included in the SWPPP such as spill response, good housekeeping and sediment controls. Employee training will be provided at least annually, as new employees are hired, as site conditions change, or as necessary to ensure compliance with the SWPPP and General Permit.

2) Inspection Report/Records

A record will be kept of inspections. Measurable quantities of sediment or other pollutants that have been transported off site are to be included in inspection record. Inspection reports will identify any incidents of non-compliance with the terms and conditions of the Permit and a diagram will accompany each report. The measures taken to correct deficiencies are to be recorded.

Copies of the inspection reports shall be retained with the SWPPP (**Appendix F**) at the LMS Field Office at the County Line Gas Plant during construction, interim and final reclamation operations and for a minimum of three years following the completion of the activities. The most current version of the SWPPP and inspection records shall be retained at the construction site during active construction unless infeasible. If keeping a copy of the SWPPP and inspection records on-site is infeasible (such as on a site where there is no construction trailer or other structure where the SWPPP can be kept), the permittee shall provide the location of an off-site SWPPP to the NDDEQ either by letter or e-mail. Such notice must include the facility stormwater permit authorization number, location of the SWPPP and the name, address and a contact telephone number for a person with access to the SWPPP. All reports will be provided to the Administrator upon request.

The inspection reports will include:

- The inspection date
- Names and title of the personnel making the inspection
- Location of discharges of sediment or other pollutants from the site
- Location of BMPs that need to be maintained

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- Location of BMPs that failed to operate as designed or proved inadequate for a particular location
- Location where additional BMPs are needed that were not in place at the time of the inspection
- Deviations from the minimum inspection schedule
- Description of corrective action for above items, date corrective action taken, and measures taken to prevent future violations, including requisite changes to the SWPPP as necessary
- Dates and amount of all rainfall events greater than 0.5 inches in a 24-hour period for active construction projects that are inspected under the 14-day inspection schedule
- Documentation of any changes made to the SWPPP and SWPPP site map as a result of the inspection
- After corrective action has been taken, or where a report does not identify any incidents requiring corrective action, the report will contain a signed statement indicating that it is in compliance with the SWPPP and the General Permit to the best of the signatory's knowledge and belief

5.3 Required Actions Following Site Inspections

Where site inspections note the need for BMP maintenance activities, BMPs will be maintained in accordance with the SWPPP. Repair, replacement, or installation of new BMPs determined necessary during site inspections to address ineffective or inadequate BMPs will be conducted as described below. Guidelines for specific BMP installation and maintenance are included in **Appendix D**.

Upon written request from the Administrator of the Water Quality Division of NDDEQ or his agent, stormwater effluent or ambient water quality data will be collected of the type and at the frequency specified. Monitoring records shall include the following information:

- The date, exact place, and time of sampling or measurements
- The initials or name(s) of the individual(s) who performed the sampling or measurements
- The date(s) analyses were performed
- The time(s) analyses were initiated
- The initials or name(s) of the individual(s) who performed the analyses
- References and written procedures for the analytical techniques or methods used
- The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results

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Monitoring will be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in the general NPDES permit NDR10-0000.

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APPENDIX A
NDPDES STORMWATER GENERAL PERMIT NDR10-0000

Permit No: NDR10-0000
Effective Date: April 01, 2015
Expiration Date: March 31, 2020

AUTHORIZATION TO DISCHARGE UNDER THE

NORTH DAKOTA POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with Chapter 33-16-01 of the North Dakota Department of Health rules as promulgated under Chapter 61-28 (North Dakota Water Pollution Control Act) of the North Dakota Century Code,

Facilities both qualifying for and satisfying the requirements identified in Part I of the permit

are authorized to discharge stormwater associated with **construction activity**

to waters of the state

in accordance with conditions set forth in this permit.

This permit and the authorization to discharge shall expire at midnight,

March 31, 2020.

Signed this 31 day of March, 2015.

Karl H. Rockeman, P.E.
Director
Division of Water Quality

BP 2014.06.12

LMS 094

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I. PERMIT COVERAGE AND LIMITATIONS

A. Discharges Covered

1. This permit applies to all areas within the state of North Dakota, except for those areas defined as Indian Country. Construction activity located within Indian Country within the state of North Dakota must obtain a permit through the United States Environmental Protection Agency. If the construction activity is located with the jurisdiction of the state of North Dakota, and the United States Environmental Protection Agency, a permit must be obtained from both regulatory entities.

2. This permit applies to stormwater discharges associated with construction activity and small construction activity as defined in Title 40 of the Code of Federal Regulations (CFR), Parts 122.26(b)(14)(x) and (b)(15), respectively. The reference to construction activity in this permit includes both large construction activity and small construction activity as described below.

   a. Large construction activity includes clearing, grading and excavation, that disturbs land of equal to or greater than five (5) acres and includes the disturbance of less than five (5) acres of total land area that is a part of a larger common plan of development or sale if the larger common plan will ultimately disturb five (5) acres or more.

   b. Small construction activity includes clearing, grading and excavation, that disturbs land of equal to or greater than one (1) acre, and includes the disturbance of less than one (1) acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater that one (1) and less than five (5) acres.

   c. Discharges of stormwater from oil and gas exploration, production, processing or treatment operations, or transmission facilities composed of contaminated runoff by contact with or that has come into contact with, any overburden, raw material, intermediate products, finished product, byproduct, or waste products located on the site of such operations.

3. Stormwater discharges from support activities (e.g., equipment staging yards, material storage areas, excavated material disposal areas, borrow areas) may be covered by this permit as part of a related construction site. The support activities may only be in association with one project. If the support activity is associated with more than one project, a separate stormwater permit (Industrial or mining, extraction or paving material preparation) is required.

4. Certain non-stormwater discharges from facilities covered by this permit and meeting the requirements specified in Part II(A).

5. Stormwater discharges from construction activity covered by the previous permit, issued October 12, 2009, where a notice has been submitted to obtain coverage under this permit.

6. Projects which have obtained coverage under this permit shall amend and implement a Stormwater Pollution Prevention Plan (SWPPP) that meets the requirements of this permit within ninety (90) days of the effective date of this permit.

7. Discharges from dewatering activities related to construction activities (discharges of uncontaminated stormwater).

8. Local Authority. This permit does not preempt or supersede the authority of local agencies or operators of municipal separate storm sewer systems to prohibit, restrict, or control discharges of stormwater to storm sewer systems or other water courses within their jurisdiction. **LMS 096**

B. Discharges Not Covered

1. Stormwater discharges associated with industrial activity from any source other than construction activities described in Part I(A).

2. Post-construction discharges from industrial activity that originate from the site after construction activities have been completed at the site. Industrial and post-construction stormwater discharges may need to be covered by a separate stormwater permit.

3. The placement of fill into waters of the state requiring local, state, or federal authorizations (such as U.S. Army Corps of Engineers Section 404 permits).

4. This permit does not substitute for obligations under the National Environmental Policy Act (NEPA), Endangered Species Act (ESA), Wild and Scenic Rivers Act, or National Historic Preservation Act (NHPA), it is your responsibility to ensure the project and resulting discharges comply with the respective requirements.

5. Discharges to waters for which there is a total maximum daily load (TMDL) allocation for sediment and/or parameters associated with sediment transport are not covered unless you develop a Stormwater Pollution Prevention plan (SWPPP) that is consistent with the assumptions and requirements in the approved TMDL. To be eligible for coverage under this general permit, the SWPPP must incorporate the conditions applicable to the discharge necessary for consistency with the assumptions, allocations and requirements of the TMDL. If a specific numeric wasteload allocation has been established that would apply to discharges from construction activity, the permittee must incorporate that allocation into the SWPPP and implement necessary steps to meet that allocation. Information about TMDL allocations may be found at the following website: www.ndhealth.gov/WQ/SW/Z2_TMDL/default.htm.

6. Stormwater discharges that the department determines will cause, or have the reasonable potential to cause or contribute to a violation of the standards for quality for waters of the state (North Dakota Administrative Code (N.D.A.C.) 33-16-02.1).

7. Discharges from hydrostatic testing, well points, water line disinfection and treatment of gasoline or diesel contaminated groundwater.

8. Discharges of wash water using detergents, wastewater, or sanitary waste.

C. Obtaining Coverage and Authorization Effective Date

1. To obtain authorization under this general permit for stormwater discharges you must submit a complete application and develop a SWPPP in accordance with Part II(C) of this permit. A SWPPP must be in place as a condition of the permit and a copy of the SWPPP must be retained by the permittee.

2. Permit coverage will become effective seven (7) days after you submit a complete application unless otherwise notified by the department (based on the department receipt date).

3. Upon the effective date of permit coverage you, as the permit applicant, are authorized to discharge stormwater from eligible activities under the terms and conditions of this permit.

D. Application (Notice of Intent) Process

1. You must use a Notice of Intent (NOI) to complete your application. An NOI form (or a replacement application form) is available at the following website: www.ndhealth.gov/WQ/Storm/Construction/ConstructionHome.htm.

2. Application Content and Conditions.

   a. The owner, or owner jointly with the operator (usually the general contractor), shall submit a completed application for this permit. The owner is responsible for compliance with all terms and conditions of this permit. The operator has day to day supervision of construction activities and is jointly responsible with the owner for compliance with the permit conditions as they pertain to the construction activities delegated to the operator.

   b. The application (Notice of Intent) shall contain, at a minimum, the following information:

      (1) Owner name, mailing address and phone number;
      (2) Project contact name and phone number;
      (3) Project/site name;
      (4) Project/site location (street address; section, township, range; or latitude and longitude) and county;
      (5) A brief description of the construction activity;
      (6) The anticipated start date and the anticipated completion date for the project (if known);
      (7) The estimated total area of the site and the total area of disturbance in acres;
      (8) The name of receiving water(s), or the name of the municipal storm sewer system and receiving water(s);
      (9) The signature of the applicant(s), owner (and operator if co-applicants) signed in accordance with the signatory requirements in Part IV(A)(6) of this permit.

   c. A SWPPP (Part II(C)) for the project must be prepared and available for review, upon request, by the department at the time of application. A partially complete plan is acceptable when it clearly identifies the item(s) to be completed, the person(s) responsible for completing the item(s) and the deadline for completing the item(s). The SWPPP must be completed prior to the start of construction (or the applicable construction phase). You are not required to submit the SWPPP with the application unless otherwise notified by the department.

3. For residential construction activity occurring within a common plan of development (such as a subdivision) subject to the permit requirements, coverage may be obtained by the following:

   a. The owner of the lot(s) shall submit one (1) NOI for all of the owner's construction activity within the common plan of development, or

   b. The operator, such as a homebuilder who may represent one (1) or more lot owners, shall submit one (1) NOI for all of the operator's construction activity within each addition of the common plan of development.

      In addition, a SWPPP must be developed and implemented for the permittee's activities within the common plan of development. Additional phases of the common plan of development may be included under the initial application and permit coverage provided the SWPPP is amended to include the additional area or phases.

4. For oil and gas exploration, production, processing, treatment operations, or transmission facilities, which discharge contaminated stormwater, permit applications may be submitted for individual project sites or for an area of operations such as well field or by county.

5. Completed applications and any reports required by this permit shall be submitted to:

North Dakota Department of Health
Division of Water Quality
918 East Divide Avenue
Bismarck, ND 58501-1947

E. Notice of Termination (NOT)

1. Permittees wishing to terminate coverage under this permit must submit a Notice of Termination (NOT) or other written request identifying the facility, reason why the permit is no longer needed and signed in accordance with Part IV(A)(6) of this permit. Compliance with the conditions of this permit is required until a NOT is submitted to the department.

2. Permittees may only submit a NOT after one of the following conditions have been met:

   a. Final stabilization (Part II(E)) has been achieved on all portions of the site for which the permittee is responsible.

   b. Another owner/operator/permittee has assumed control, in accordance with the transfer provisions (Part I(F)), over all areas of the site that have not achieved final stabilization.

   c. For residential construction only, a NOT is not required for each lot that is sold, transferred, or has achieved final stabilization. The permittee must modify their SWPPP to indicate that permit coverage is no longer required for that lot. The SWPPP shall indicate the reason why coverage is no longer needed and the date the lot was sold, transferred, or achieved final stabilization. In order to terminate coverage, all lots under the control of the owner or operator must be sold, transferred, or achieved final stabilization (Part II(E)).

F. Transfer of Ownership or Control

1. When the owner or operator of a construction project changes, the new owner or operator must submit a written request for permit transfer/modification within fourteen (14) days of assuming control of the site or commencing work on-site, or of the legal transfer, sale or closing on the property; except as provided in Part I(F)(2). Late submittals will not be rejected; however the department reserves the right to take enforcement for any unpermitted discharges or permit noncompliance. For stormwater discharges from construction activities where the owner or operator changes, the new owner or operator can implement the original SWPPP created for the project or develop and implement their own SWPPP. Permittee(s) shall ensure either directly or through coordination with other operators that their SWPPP meets all terms and conditions of this permit and that their activities do not interfere with another party's erosion and sediment control practices.

2. A permit transfer/modification request is not required for the legal transfer, sale or closing on a property between permittees covered by this permit. Examples include the sale of a property parcel from a developer to a builder, or the transfer of an easement from a developer to a local government authority. If the new party is not covered by this permit at the time of transfer or sale, then the new owner/operator must submit a completed application/NOI within 14 days of assuming control of the site.

II. STORMWATER DISCHARGE REQUIREMENTS

A. Prohibition of Non-Stormwater Discharges

The discharge of wastewater is not authorized by this permit. The following sources of non-stormwater discharges are allowed if they are not a significant source of pollution and are identified in the SWPPP: fire-fighting, fire hydrant flushing, potable water line flushing, equipment wash down without detergents or hazardous cleaning products, uncontaminated foundation drains, springs, surface water, lawn watering, chemical treatment of stormwater and air conditioning condensate. Impervious surface wash water may not be directed into any surface water or storm drain inlet unless appropriate pollution prevention measures have been implemented. Discharges may not come into contact with oil and grease deposits or any other toxic or hazardous materials (unless cleaned up using dry clean-up methods). The SWPPP must include a description of the pollution prevention measures to be implemented while non-stormwater discharges are occurring.

If chemical treatment for sediment removal is intended to be used on-site, the permittee shall provide the department with the information outlined in Appendix 1(A)(14) of this permit for approval prior to use. This information shall be provided to the department no later than sixty (60) days prior to use.

B. Releases in Excess of Reportable Quantities

This permit does not relieve the permittee of the reporting requirements of 40 CFR 110, 40 CFR 117, and 40 CFR 302, nor the reporting requirements found in Chapter 33-16-02.1 of the North Dakota Administrative Code. Any releases which meet any reporting requirement, must be reported to the agencies identified in Part IV(A)(7).

C. Stormwater Pollution Prevention Plans

All permittees shall implement a SWPPP for any construction activity requiring this permit until final stabilization is achieved. The SWPPP and revisions are subject to review by the department. The objectives of the SWPPP is to identify potential sources of sediment and other sources of pollution associated with construction activity, and to ensure practices are implemented and maintained to reduce the contribution of pollutants in stormwater discharges from the construction site to waters of the state and storm sewer systems. Stormwater management documents developed under other regulatory programs may be included or incorporated by reference in the SWPPP, or used in whole as a SWPPP if it meets the requirements of this part.

The SWPPP may identify more than one permittee and may specify the responsibilities of each permittee by task, area, and/or timing. Permittees may coordinate and prepare more than one SWPPP to accomplish this. However, in the event there is a requirement under the SWPPP for which responsibility is ambiguous or is not included in the SWPPP, each permittee shall be responsible for implementation of that requirement. Each permittee is responsible for assuring that their activities do not render another permittee's controls ineffective.

The SWPPP must incorporate the requirements provided in Appendix 1 and shall include the following information.

1. **Site Description**. Each plan shall provide a description of the construction activity and potential sources of pollution as indicated below:

    a. A description of the overall project and the type of construction activity;

b. Estimates of the total area of the site and the total area that is expected to be disturbed by excavation, grading, grubbing, or other activities during the life of the project;

c. A proposed timetable/schedule, or chart, of activities that includes major phases/stages, BMP implementation, BMP removal, disturbances, and stabilization for major portions of the site;

d. A description of the soil within the disturbed area(s);

e. The name of the surface water(s) and municipal storm sewer system at or near the disturbed area that will receive stormwater runoff from the project site; and

f. A site map which indicates the following items as applicable (more than one (1) map may be needed). If an item is not applicable, provide rationale describing why the item is not applicable to the construction activity:

1) Project boundaries;
2) Areas of ground disturbance during each phase/stage of the project;
3) Areas where disturbance will not occur, such as avoidance areas (e.g. wetlands, critical habitat, Threatened and Endangered Species, etc);
4) Drainage patterns including: flow direction (run-on and runoff);
5) Dividing lines, discharge points, and storm sewer system inlets which the site drains to or may be affected by the activity;
6) Pre-existing and final grades;
7) Location of all temporary and permanent sediment and erosion controls during each particular phase;
8) Location of any stormwater conveyances such as: retention ponds, detention ponds, ditches, pipes, swales, stormwater diversions, culverts, and ditch blocks;
9) Location of potential sources of pollution (e.g. portable toilets, trash receptacles, etc.);
10) Location of soil stockpiles;
11) Identify steep slopes;
12) Surface waters, including an aerial extent of wetland acreage;
13) Location of surface water crossings;
14) Locations where stormwater is discharged to surface waters;
15) Location of dewatering discharge points;
16) Locations of where chemical treatment of stormwater will be performed, including discharge points;
17) Fueling locations, vehicle and equipment maintenance areas, designated wash water collection site, lubricant and chemical storage, paint storage, material storage, staging areas, and debris collection area;
18) Location of any impervious surfaces upon completion of construction; and
19) Where included as part of the project, the site maps for off-site concrete/asphalt batch plants, equipment staging areas, borrow sites or excavated fill material disposal sites. Site maps must show items 1 through 18 of this section.

g. Projects that discharge stormwater which flows to a water body listed as impaired under section 303(d) of the Federal Clean Water Act due to sediment, suspended solids or turbidity must identify the water body and impairment in the SWPPP. The Department's 303(d) list may be found at the following website under Integrated Reports: www.ndhealth.gov/WQ/SW/Z2_TMDL/Integrated_Reports/B_Integrated_Reports.htm.

h. For water bodies which have a TMDL, the SWPPP must describe and conform to the Waste Load Allocations (WLA) of the water body as per Part II(C)(4)(g) of this permit. Information about TMDL allocations may be found at the following website: www.ndhealth.gov/WQ/SW/Z2_TMDL/default.htm.

2. **Narrative.** The SWPPP must include a narrative description of the selected operational controls and sediment and erosion controls as outlined in Part II(C)(3), Part II(C)(4), and Appendix 1 of this permit. When applicable, a description of the requirements for any additional environmental regulations (federal) and local requirements related to the project, as it relates to waters of the state, must also be included or incorporated by reference (e.g. The Wild and Scenic Rivers Act, The National Historic Preservation Act, The Endangered Species Act, Fish and Wildlife Coordination Act, National Environmental Policy Act, Section 404 of the Clean Water Act, etc.).

   The narrative shall describe at a minimum:

   a. The installation, removal (if applicable), and maintenance requirements of selected Best Management Practices (BMPs) for each phase/stage of construction activity;
   b. The rationale for the selection of all BMPs (calculations should be included if appropriate);
   c. Whether selected BMPs are temporary or permanent;
   d. Any descriptions of infeasibility or explanations as required in Part II, Part III(A), and Appendix 1 of this permit.

3. **Operational Controls**. The SWPPP shall describe the BMPs used in day to day operations on the project site that reduce the contribution of pollutants in stormwater runoff.

   a. The SWPPP must identify a person knowledgeable and experienced in the application of erosion and sediment control BMPs who will oversee the implementation of the SWPPP, and the installation, inspection and maintenance of the erosion and sediment control BMPs before and during construction, until a NOT is filed or the permit is transferred. A knowledgeable and experienced person is someone who meets the requirements of Part II(C)(3)(e) of this permit.

      The owner shall develop a chain of responsibility with all operators on the site to ensure that the SWPPP will be implemented and stay in effect until the construction project is complete, the entire site has undergone final stabilization, and a NOT has been submitted to the department.

   b. The SWPPP must include a description of good housekeeping practices used to maintain a clean and orderly site. The SWPPP shall describe how litter, debris, chemicals and parts will be handled to minimize exposure to stormwater. The SWPPP also shall describe what measures will be used to reduce and remove sediment tracked off-site by vehicles or equipment. In addition, the SWPPP shall describe methods which will be used to reduce the generation of dust.

   c. The SWPPP shall describe preventative maintenance practices used to ensure the proper operation of erosion and sediment control devices (e.g., fiber rolls, erosion control blankets and silt fences) and equipment used or stored on site. The SWPPP shall describe proper inspection procedures for ensuring proper operation of erosion and sediment control devices.

   d. The SWPPP shall describe spill prevention and response procedures where potential spills can occur. Specific handling procedures, storage requirements, spill containment, cleanup procedures, and disposal must be identified. Storage structures for petroleum products and other chemicals shall have adequate leak and spill protection to prevent any spilled materials from entering waters of the state or storm sewer systems.

      The potential discharge of hazardous substances in stormwater discharges shall be minimized by including measures onsite, detailed in the SWPPP to prevent and respond to releases of hazardous substances. If a reportable quantity release occurs, the SWPPP shall be revised to prevent the reoccurrence of such a release.

e. The SWPP shall outline how employees and responsible parties shall be trained on the implementation of the SWPPP. Training must be provided at least annually, as new employees or responsible parties are hired or as necessary to ensure compliance with the SWPPP and the general permit. Employees and responsible parties include individuals who are responsible for design, installation, maintenance and repair of stormwater controls and conducting inspections.

    1) On-site personnel must understand the requirements of this permit as it pertains to their role in implementing the SWPPP. On-site personnel must know:

        a. The purpose of the SWPPP, requirements of the SWPPP, and how the SWPPP will be implemented;

        b. The location of all BMPs identified in the SWPPP; and

        c. Correct installation, function, maintenance and removal (if applicable) of BMPs identified in the SWPPP.

    2) Personnel responsible for performing site inspections must understand when inspections must be conducted (Part III(A)), what must be inspected (Part II(C)(7), how to record findings, when to initiate corrective actions, and properly document corrective actions.

    3) Maintenance personnel must understand when maintenance must be performed on BMPs in order to maintain properly functioning BMPs and what needs to be recorded for corrective actions/maintenance records in accordance with Part III(A)(5) of this permit.

f. The SWPPP must describe how concrete grindings and slurry will be managed. Wastewater from concrete washout, cleanout or washout from: stucco, paint, joint compound, and other building materials shall not be discharged to waters of the state, storm sewer systems or curb and gutter systems.

    1) Wash water must be collected in leak-proof containers or leak-proof pits. Containers or pits must be designed and maintained so that overflows cannot occur due to inadequate sizing, precipitation events, or snowmelt.

g. The SWPPP shall describe any dewatering activities planned at the site. Dewatering or basin draining (e.g., pumped discharges, trench/ditch cuts for drainage) related to the permitted activity must be managed with appropriate BMPs, such that the discharge does not adversely affect the receiving water. The following conditions apply to dewatering activities:

    1) Dewatering is limited to un-contaminated stormwater, surface water, and groundwater that may collect on-site and those sources identified in Part II(A), if they are not a significant source of pollution. A separate permit must be obtained to discharge water from other sources such as hydrostatic testing of pipes, tanks, or other similar vessels; disinfection of potable water lines; pump testing of water wells; and the treatment of gasoline or diesel contaminated groundwater or surface water.

    2) The permittee(s) must operate the discharge to minimize the release of sediment and provide adequate BMPs where necessary to minimize erosion due to the discharge. Discharges must not lead to the deposition of sediment within stormwater conveyance systems or surface waters. Discharges must not cause or potentially cause a visible plume within a surface water body.

3) When dewatering, utilize structures or BMPs which allow for draw down to occur from the surface of the water, unless infeasible. If infeasible, documentation must be provided in the SWPPP. In addition, you must describe what BMP(s) will be used in its place.

4) In addition to the inspection requirements in Part III, dewatering activities shall be inspected daily. The inspection must include the dewatering site, areas where BMPs are being implemented and the discharge location. A record shall be maintained to document the inspections of the dewatering operation and actions taken to correct any problems that may be identified.

   a. Records shall contain at a minimum:

      i. Date and time of the inspection,
      ii. Inspector name,
      iii. Approximate volume of water discharged,
      iv. Findings of the inspection, including recommendations and schedule for corrective actions;
      v. Corrective actions taken (including dates, times, and party completing maintenance activities); and
      vi. Documentation that the SWPPP has been amended when changes are made to the dewatering activity in response to inspections.

5) Local authorities may require specific BMPs for discharges affecting their storm sewer system.

4. **Erosion and Sediment Controls**. Erosion and sediment controls and stabilization requirements must be implemented for each major phase of site activity (e.g., clearing, grading, building, and landscaping phases). A description of the erosion and sediment controls and site stabilization methods must be provided in accordance with Part II(C)(2) of this permit. Erosion and sediment controls, and site stabilization must conform to the requirements provided in Appendix 1. The description and implementation of controls shall address the following minimum components:

   a. The selection of erosion and sediment controls, and site stabilization shall consider the following:

      1. The expected amount, frequency, intensity, and duration of precipitation events;

      2. The nature of stormwater run-on and runoff from the site as well as changes during, and as a result of, construction activity. This includes changes to impervious surfaces, slopes, seasonal changes, and drainage features on-site;

      3. Channelized flow, must be handled in order to minimize erosion at outlets and to minimize impacts to downstream receiving waters;

      4. Soil types (wind and water erodibility, and settling time); and

      5. Seasonal conditions.

   b. Sediment basins, or an appropriate combination of equivalent sediment controls such as smaller sediment basins and/or sediment traps, silt fences, fiber logs, vegetative buffer strips, berms, etc., are required for all down slope boundaries of the disturbance area and for those side slope boundaries as may be appropriate for site conditions.

c. Temporary or permanent erosion protection and stabilization (such as cover crop planting or mulching) must be initiated immediately, as described in Appendix 1(A), for all exposed soil areas where activities have been completed or temporarily ceased.

d. All control measures must be properly selected, installed and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections or other information indicates a control has been used inappropriately or incorrectly, the permittee must replace or modify the control for site situations. Corrective actions must be made prior to the next anticipated rainfall event of within 24 hours of discovery (whichever comes first) or as soon as field conditions allow. Documentation must be provided in the maintenance records if field conditions do not allow access along with a plan of action for performing maintenance activities.

   The permittee may deviate from the manufacturer's specifications and erosion and sediment control requirements in Appendix 1 if they provide justification for the deviation and document the rationale for the deviation in the SWPPP. Any deviation must provide equivalent erosion and sediment control.

e. If sediment escapes from the site, off-site accumulations of sediment must be removed in a manner and frequency sufficient to minimize off-site impacts as outlined in Appendix 1(B). The SWPPP must be modified to prevent further sediment deposition off-site.

f. Stormwater controls are expected to withstand and function properly during precipitation events of up to the 2-year, 24-hour storm event. Visible erosion and/or off-site sediment deposition from such storm events should be minimal. The 2-year, 24-hour rainfall event in North Dakota ranges from about 1.9 inches in the west to 2.3 inches in the east.

g. For projects that discharge stormwater which flows to a water body for which there is a TMDL allocation for sediment and/or parameters associated with sediment transport, the SWPPP must be consistent with the assumptions, allocations, and requirements in the approved TMDL. If a TMDL specifies certain BMPs or controls to meet a WLA applicable to the project's discharges, the BMPs or controls must be incorporated into the SWPPP. Information about TMDL allocations may be found at the following website: www.ndhealth.gov/WQ/SW/Z2_TMDL/default.htm.

5. **Stormwater Management**. The SWPPP must identify permanent practices incorporated into the project to control pollutants in stormwater discharges occurring after construction operations have been completed.

   a. Identify stormwater ponds; flow reduction methods; infiltration of runoff on-site; sequential systems which combine several practices or other post-construction stormwater management features.

   b. Identify velocity / energy dissipation devices placed at discharge locations and appropriate erosion protection for outfall channels and ditches.

   c. Maintenance for on-site stormwater management features is the responsibility of the permittee until the NOT is submitted or the feature is accepted by the party responsible for long term maintenance.

   d. The design, installation and use of stormwater management features must comply with applicable local, state or federal requirements.

6. **Maintenance**. All erosion and sediment control measures and other protective measures identified in the SWPPP must be maintained in effective operating condition. The SWPPP must indicate, as appropriate, the maintenance or clean out interval for sediment controls. If site inspections, required in Part III of this permit, identify BMPs that are not operating effectively, maintenance shall be arranged and accomplished in accordance to Appendix 1 or as soon as practicable.

7. **Inspections**. The SWPPP must provide for site inspections as outlined in Part III. The permittee shall ensure that personnel conducting site inspections are familiar with permit conditions and the proper installation and operation of control measures. Inspectors must be knowledgeable in their role of the SWPPP, as outlined in Part II(C)(3)(e) of this permit. The erosion and sediment control measures and stabilized areas identified in the SWPPP shall be observed to ensure they are operating correctly and in serviceable condition. Inspections shall include areas used for storage of materials, permanent stormwater control measures and vehicle maintenance areas. These areas shall be inspected for evidence of, or the potential for, pollutants entering a drainage system. If necessary, the plan shall be revised based on the observations and deficiencies noted during the inspection.

8. **SWPPP Review and Revisions**.

   a. The SWPPP shall be signed in accordance with the Signatory Requirements, Part IV(A)(6), and retained on-site for the duration of activity as outlined in Part III(B).

   b. The permittee shall make the SWPPP available upon request to the department, EPA, or, in the case of discharges to a municipal storm sewer system, the operator of the municipal system.

   c. The permittee shall amend the SWPPP whenever there is a change in design, construction, operation, maintenance, or BMPs. The SWPPP shall be amended if the plan is found to be ineffective in controlling pollutants present in stormwater. The SWPPP shall be amended as soon as practicable.

D. Local Requirements

All stormwater discharges must comply with the requirements, policies, or guidelines of municipalities and other local agencies as applicable to the construction site. Any discharges to a storm sewer, ditch or other water course under the jurisdiction of a municipality must comply with any specific conditions or BMPs required by the municipality or agency.

E. Final Stabilization

The permittee(s) must ensure final stabilization of the site. The permittee(s) should submit a NOT within 30 days after final stabilization has been achieved, or another owner/operator (permittee) has assumed control according to Part I(F) for all areas of the site that have not undergone final stabilization. Final stabilization can be achieved in one of the following ways.

1. All soil disturbing activities at the site have been completed and all soils must be stabilized by a uniform perennial vegetative cover with a density of 70 percent of the pre-existing cover over the entire pervious surface area, or other equivalent means necessary to prevent soil failure under erosive conditions and;

   a. All drainage ditches, constructed to drain water from the site after construction is complete, must be stabilized to preclude erosion;

b. All temporary erosion prevention and sediment control BMPs (such as silt fence) must be removed as part of the site final stabilization; and

c. The permittee(s) must remove all sediment from conveyances and temporary sedimentation basins that will be used as permanent water quality management basins. Sediment must be stabilized to prevent it from being washed into basins, conveyances or drainage ways discharging off-site or to surface waters. The cleanout of permanent basins must be sufficient to return the basin to design capacity.

2. For areas of the state where the average annual rainfall is less than 20 inches, all soil disturbing activities at the site have been completed and erosion control measures (e.g., degradable rolled erosion control product) and stabilization methods are selected, designed, and installed along with an appropriate seed base to provide erosion control for at least three years and achieve 70 percent of the pre-existing vegetative cover within three (3) years without active maintenance. Sites must meet the criteria outlined in items 1(a), (b), and (c) above.

3. Disturbed areas on land used for agricultural purposes that are restored to their pre-construction agricultural use are not subject to these final stabilization criteria. If the construction activity removed standing crop, the area must be restored in accordance with the landowner.

   Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to waters of the state, and areas which are not being returned to their pre-disturbance use must meet the final stabilization criteria in (1) or (2) above.

4. For residential construction only, final stabilization may be achieved when soil is stabilized (see Appendix 1(A)(3)) and down gradient perimeter control for individual lots has been implemented and the residence has been transferred to the homeowner. Additionally, the permittee must distribute a “homeowner fact sheet” to the homeowner to inform the homeowner of the need for, and benefits of, final stabilization. The permittee also must demonstrate that the homeowner received the fact sheet.

III. SELF MONITORING AND REPORTING

A. Inspection and Maintenance Requirements

1. Inspections shall be performed by or under the direction of the permittee at least once every 14 calendar days and within 24 hours after any storm event of greater than 0.25 inches of rain per 24-hour period. Inspections are only required during normal working hours. The permittee shall use a rain gauge on-site or utilize the nearest National Weather Service precipitation gauge station. Rain gauge locations or stations must be representative of the site.

   a. “Within 24 hours after any storm event greater than 0.25 inches rain per 24-hour period” means that you are required to conduct an inspection within 24 hours once a storm event has produced 0.25 inches, even if the storm event is still continuing. If there is a storm event at your site that continues for multiple days, and each day of the storm produces 0.25 inches or more rain, you are required to conduct an inspection within 24 hours of the first day of the storm and within 24 hours after the end of the storm.

2. There may be times when a site inspection may not be practical at the specified time. Adverse climatic conditions, such as flooding, high winds, tornadoes, electrical storms, site access constraints, etc., may prohibit inspections. The permittee must include a description of why the inspection(s) could not be performed at the designated time in the next inspection record. If an inspection is delayed due to adverse weather conditions or rain events outside normal working hours, an inspection must be conducted during the next working day, or as conditions allow.

3. Some erosion and sediment control measures may require more frequent inspection based on location (e.g., sensitive areas or waters of the state) or as a result of recurring maintenance issues. Erosion or sediment control measures found in need of maintenance between inspections must be repaired or supplemented with appropriate measures as soon as practicable. Erosion and sediment control measures which require more frequent inspection based on location or as a result of recurring maintenance issues must be identified in the SWPPP.

4. All inspections conducted during construction must be recorded in writing and these records must be retained in accordance with Part III(B). Records of each inspection activity shall include:

    a. Date and time of inspections;

    b. Name of person(s) conducting inspections;

    c. Findings of inspections, including recommendations and schedule for corrective actions;

    d. Date and amount of all rainfall events greater than 1/4 inch (0.25 inches) in 24 hours; and

    e. Documentation that the SWPPP has been amended when changes are made to BMPs in response to inspections.

    f. All inspection reports shall be signed in accordance with Part IV(A)(6) of this permit.

5. Corrective actions (maintenance activities) performed during construction must be recorded in writing and these records must be retained in accordance with Part III(B). Records for maintenance activity shall include:

    a. Best Management Practice corrected;

    b. Date and time of corrective action;

    c. Name of person(s) performing corrective actions;

    d. Corrective actions taken; and

    e. Corrective actions/maintenance records shall be signed in accordance with Part IV(A)(6) of this permit.

6. Completed areas that have been stabilized but do not meet the 70 percent perennial vegetative cover criteria for final stabilization may be inspected once per month. Inspections may be suspended for parts of the construction site that meet final stabilization requirements of Part II(E) of this permit. The SWPPP must update to identify any areas which meet this condition.

7. Inspections may be suspended where earthwork has been suspended due to frozen ground conditions. The required inspections and maintenance must resume as soon as runoff occurs or the ground begins to thaw at the site. The permittee must record freeze/thaw and runoff dates as part of the inspection records.

B. Records Location

A copy of the completed and signed NOI, coverage letter from the department, SWPPP, site inspection records, and this general permit shall be kept at the site of the construction activity in a field office, trailer, shed, or in a vehicle that is on-site during normal working hours. If the site does not have a reasonable on-site location, then the documents must be retained at a readily available alternative location; preferably with the individual responsible for overseeing the implementation of the SWPPP. Electronic copies of records are acceptable if the records can be accessed on-site. If the site is inactive, then the documents may be stored at a local office. Permittees should avoid using personal electronic devices for storing electronic records.

IV. STANDARD CONDITIONS

A. COMPLIANCE RESPONSIBILITIES BP 2014.12.08

1. Duty to Comply
The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

2. Proper Operation and Maintenance
The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. If necessary to achieve compliance with the conditions of this permit, this shall include the operation and maintenance of backup or auxiliary systems.

3. Planned Changes
The department shall be given advance notice of any planned changes at the permitted facility or of an activity which may result in permit noncompliance. Any anticipated facility expansions, production increase, or process modifications which might result in new, different, or increased discharges of pollutants shall be reported to the department as soon as possible. Changes which may result in a facility being designated a "new source" as determined in 40 CFR 122.29(b) shall also be reported.

4. Duty to Provide Information
The permittee shall furnish to the department, within a reasonable time, any information which the department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the department, upon request, copies of records required to be kept by this permit. When a permittee becomes aware that it failed to submit any relevant facts or submitted incorrect information in a permit application or any report, it shall promptly submit such facts or information.

5. Records Retention
All records and information (including calibration and maintenance) required by this permit shall be kept for at least three years or longer if requested by the department or EPA.

6. Signatory Requirements
All applications, reports, or information submitted to the department shall be signed and certified.

All permit applications shall be signed by a responsible corporate officer, a general partner, or a principal executive officer or ranking elected official.

All reports required by the permit and other information requested by the department shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described above and submitted to the department; and

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

If an authorization under 6. Signatory Requirements is no longer accurate for any reason, a new authorization satisfying the above requirements must be submitted to the department prior to or together with any reports, information, or applications to be signed by an authorized representative.

Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

7. Twenty-four Hour Notice of Noncompliance Reporting

1. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of the circumstances. The following occurrences of noncompliance shall be included in the oral report to the department at 701.328.5210:

    a. Any lagoon cell overflow or any unanticipated bypass which exceeds any effluent limitation in the permit under 8. Bypass of Treatment Facilities;

    b. Any upset which exceeds any effluent limitation in the permit under 9. Upset Conditions; or

    c. Violation of any daily maximum effluent or instantaneous discharge limitation for any of the pollutants listed in the permit.

2. A written submission shall also be provided within five days of the time that the permittee became aware of the circumstances. The written submission shall contain:

    a. A description of the noncompliance and its cause;

    b. The period of noncompliance, including exact dates and times;

    c. The estimated time noncompliance is expected to continue if it has not been corrected; and

    d. Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

    Reports shall be submitted to the address in **Part I(D) Application (Notice of Intent) Process**. The department may waive the written report on a case by case basis if the oral report has been received within 24 hours by the department at 701.328.5210 as identified above.

    All other instances of noncompliance shall be reported no later than at the time of the next Discharge Monitoring Report submittal. The report shall include the four items listed in this subsection.

8. Bypass of Treatment Facilities

1. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to any of the following provisions in this section.

Bypass exceeding limitations-notification requirements.

a. Anticipated Bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten (10) days before the date of bypass.

b. Unanticipated Bypass. The permittee shall submit notice of an unanticipated bypass as required under 7. Twenty-four Hour Notice of Noncompliance Reporting.

2. Prohibition of Bypass. Bypass is prohibited, and the department may take enforcement action against a permittee for bypass, unless:

a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

c. The permittee submitted notices as required under the 8(a). Anticipated Bypass subsection of this section.

The department may approve an anticipated bypass, after considering its adverse effects, if the department determines that it will meet the three (3) conditions listed above.

9. Upset Conditions

An upset constitutes an affirmative defense to an action brought for noncompliance with erosion and sediment or site stabilization methods if the requirements of the following paragraph are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

1. An upset occurred and the permittee can identify its cause(s);

2. The permitted facility was, at the time being, properly operated;

3. The permittee submitted notice of the upset as required under 7. Twenty-four Hour Notice of Noncompliance Reporting and

4. The permittee complied with any remedial measures required under 10. Duty to Mitigate.

In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

10. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. The permittee, at the department's request, shall provide accelerated or additional monitoring as necessary to determine the nature and impact of any discharge.

11. Removed Materials

Collected screenings, grit, solids, sludges, or other pollutants removed in the course of treatment shall be buried or disposed of in such a manner to prevent any pollutant from entering any waters of the state or creating a health hazard.

12. Duty to Reapply

Any request to have this permit renewed should be made 15 days prior to its expiration date.

B. GENERAL REQUIREMENTS

1. Inspection and Entry

The permittee shall allow department and EPA representatives, at reasonable times and upon the presentation of credentials if requested, to enter the permittee's premises to inspect the construction activity and monitoring equipment, to sample any discharges, and to have access to and copy any records required to be kept by this permit.

2. Availability of Reports

Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the department and EPA. As required by the Act, permit applications, permits, and effluent data shall not be considered confidential.

3. Transfers

This permit is not transferable except upon the filing of a Transfer/Modification request (Part I(F)) by the new party. The current permit holder should inform the new controller, operator, or owner of the existence of this permit and also notify the Department of the possible change.

4. New Limitations or Prohibitions

The permittee shall comply with any effluent standards or prohibitions established under Section 306(a), Section 307(a), or Section 405 of the Act for any pollutant (toxic or conventional) present in the discharge or removed substances within the time identified in the regulations even if the permit has not yet been modified to incorporate the requirements.

5. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. This includes the establishment of limitations or prohibitions based on changes to Water Quality Standards, the development and approval of waste load allocation plans, the development or revision to water quality management plans, or the establishment of prohibitions or more stringent limitations for toxic or conventional pollutants and/or sewage sludges. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

6. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

7. State Laws

Nothing in this permit shall be construed to preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation preserved under Section 510 of the Act.

8. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act.

9. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

10. Severability

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

V. DEFINITIONS Permit Specific BP 2009.02.05

"303(d) List" or "Section 303(d) List" means a list of North Dakota's water quality-limited waters needing total maximum daily loads or TMDLs developed to comply with section 303(d) of the Clean Water Act. A copy of the latest integrated report is available on the state's web site at: www.ndhealth.gov/WQ/SW/Z2_TMDL/Integrated_Reports/B_Integrated_Reports.htm.

"Act" means the Clean Water Act.

"Bankfull" means the channel is filled to the top of one or both of its banks.

"BMP" or "Best Management Practices" means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the state. BMPs also include treatment requirements, operating procedures and practices to control construction site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

"Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

"Common Plan of Development or Sale" means a contiguous area where multiple separate and distinct land disturbing activities may be taking place at different times, on different schedules, but under one proposed plan. One plan is broadly defined to include design, permit application, advertisement or physical demarcation indicating that land-disturbing activities may occur.

"Construction Activity" means construction activity as defined in 40 CFR part 122.26(b)(14)(x) and small construction activity as defined in 40 CFR part 122.26(b)(15). This includes a disturbance to the land that results in a change in topography, existing soil cover (both vegetative and non-vegetative), or the existing soil topography that may result in accelerated stormwater runoff, leading to soil erosion and movement of sediment into surface waters or drainage systems. Examples of construction activity may include clearing, grading, filling and excavating. Construction activity includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb one (1) acre or more. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility.

"Department" means the North Dakota Department of Health, Division of Water Quality.

"Energy Dissipation" means methods employed at pipe outlets to prevent erosion. Examples include, but are not limited to: concrete aprons, riprap, splash pads, and gabions that are designed to prevent erosion.

"Indian Country" means (1) All land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and including rights-of-way running through the reservations; (2) All dependent Indian communities within the borders of the United States whether within the originally or subsequently acquired territory thereof, and whether within or without the limits of a state; and (3) All Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

"Infeasible" means not technologically possible or not economically practicable and achievable in light of best industry practices.

"Immediately" means as soon as practicable, but no later than the end of the next work day, following the day when the earth-disturbing activities have temporarily or permanently ceased.

“Large Construction Activity” means land disturbance of equal to or greater than five (5) acres. Large construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale, if the larger common plan will ultimately disturb equal to or greater that five acres.

“Normal Wetted Perimeter” means the area of a conveyance, such as a ditch, channel, or pipe that is in contact with water during flow events that are expected to occur once every year.

“Non-Stormwater Discharges” means discharges other than stormwater. The term includes both process and non-process sources. Process wastewater sources that require a separate NDPDES permit include, but are not limited to industrial processes, domestic facilities and cooling water. Non-stormwater sources that may be addressed in this permit include, but are not limited to: fire-fighting, fire hydrant flushing, potable water line flushing, equipment wash down without detergents or hazardous cleaning products, uncontaminated foundation drains, springs, surface water, lawn watering, chemical treatment of stormwater and air conditioning condensate.

“Operator” means the person (usually the general contractor) designated by the owner who has day to day operational control and/or the ability to modify project plans and specifications related to the SWPPP. The person must be knowledgeable in those areas of the permit for which the operator is responsible and must perform those responsibilities in a workmanlike manner.

“Owner” means the person or party possessing the title of the land on which the construction activities will occur; or if the construction activity is for a lease holder, the party or individual identified as the lease holder; or the contracting government agency responsible for the construction activity.

“Permanently Ceased” means clearing and excavation within any area of your construction site that will not include permanent structures has been completed.

“Permanent Cover” means final stabilization. Examples include grass, gravel, asphalt, and concrete.

"Severe Property Damage" means substantial physical damage to property, damage to best management practices which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in construction.

"Significant Materials" includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; hazardous substances designated under Section 101(14) of CERCLA; any chemical the facility is required to report pursuant to Section 313 of Title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with stormwater discharges.

"Significant Spills" includes, but is not limited to: releases of oil or hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (see 40 CFR 110.10 and CFR 117.21) or Section 102 of CERCLA (see 40 CFR 302.4).

“Small Construction Activity” means land disturbance of equal to or greater than one acre and less than five acres. Small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale, if the larger common plan will ultimately disturb equal to or greater than one and less than five acres

"Stabilized" means the exposed ground surface has been covered by appropriate materials such as mulch, staked sod, riprap, erosion control blanket, or other material that prevents erosion from occurring. Grass seeding alone is not stabilization. Snow cover and frozen ground conditions are not considered stabilized.

“Steep Slopes” means slopes which are fifteen (15) percent or greater in grade.

"Stormwater" means stormwater runoff, snow melt runoff, and surface runoff and drainage.

“Stormwater Associated with Industrial Activity” means stormwater runoff, snow melt runoff, or surface runoff and drainage from industrial activities as defined in 40 CFR 122.26(b)(14).

“Stormwater Associated with Small Construction Activity” means the discharge of stormwater from:

(i) Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than once acre and less than five acres. Small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one and less than five acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility.

(ii) Any other construction activity designated by EPA or the department, based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the state.

“Temporarily Ceased” means clearing, grading, and excavation within any area of the site that will not include permanent structures, will not resume (i.e., the land will be idle) for a period of 14 or more calendar days, but such activities will resume in the future.

"Temporary Erosion Protection" means methods employed to prevent erosion. Examples of temporary cover include; mulch, straw, erosion control blanket, wood chips, tackifiers, and erosion netting.

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with permit requirements because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed erosion and sediment controls or site stabilization methods, inadequate erosion and sediment controls or site stabilization methods, lack of preventive maintenance, or careless or improper operation.

“Waters of the State” means any and all surface waters that are contained in or flow in or through the state of North Dakota as defined in NDCC 61-28-02. This definition includes all water courses, even if they are usually dry.

“You” means the owner, operator or permittee as appropriate.

Appendix 1 – Erosion and Sediment Control Requirements

Requirements for designing, implementing and maintaining erosion and sediment controls.

A. Erosion and Sediment Control Practices

1. Sites using temporary (or permanent) sediment basins must meet the following requirements:

    a. Sediment basins shall be designed for a calculated volume of runoff from a 2-year, 24-hour storm per acre drained to the basin and provides not less than 1,800 cubic feet of sediment storage below the invert of the outlet pipe from each acre drained to the basin; or

    b. Basins shall be sized to provide 3,600 cubic feet of sediment storage below the invert of the outlet pipe per acre drained to the basin if calculations are not performed.

    c. Basin outlets must be designed to avoid short-circuiting and the discharge of floating debris. Basins must be designed with the ability to allow complete basin drawdown for maintenance activities. Basins must release the storage volume in at least 24 hours. Outlet structures must be designed to withdraw water from the surface, unless not practicable. If not practicable, rationale must be provided in the SWPPP. The basin must have a stabilized emergency overflow to prevent failure of pond integrity. Energy dissipation must be provided for the basin outlet.

2. Erosion, sediment, and stabilization practices shall be provided. Erosion, sediment and stabilization practices include such things as: silt fences, fiber logs, vegetative buffer strips, erosion control blankets, mulch, hydro-seeding combined with mulch or tackifiers, etc.

3. All exposed soil areas must be stabilized (see definitions). Stabilization must be initiated immediately where activities have been permanently or temporarily ceased on any portion of the site and will not resume for a period exceeding fourteen (14) calendar days. Stabilization must be completed as soon as practicable, but no later than fourteen (14) calendar days after the initiation of soil stabilization. Temporary stockpiles without significant silt, clay or organic components (e.g., clean aggregate stockpiles, demolition concrete stockpiles, sand stockpiles) are exempt from this requirement.

    a. For slopes with a grade of 3:1 or greater, stabilization must be initiated immediately once activities have been completed or temporarily ceased. Stabilization must be completed as soon as practicable, but no later than seven (7) calendar days after the initiation of soil stabilization.

4. Temporary soil stockpiles must have effective sediment controls, and cannot be placed in surface waters, including stormwater conveyances such as curb and gutter systems, or conduits and ditches.

5. The normal wetted perimeter of any temporary or permanent drainage ditch that drains water from a construction site, or diverts water around a site, must be stabilized at least 200 linear feet from the property edge, or from the point of discharge to any surface water. Stabilization shall be completed prior to connection with a surface water. Any remaining portion of the temporary or permanent drainage ditch must be stabilized within fourteen (14) calendar days for portions which construction activities have temporarily or permanently ceased.

6. If stabilization requirements cannot be met due to circumstances beyond the control of the permittee, the permittee may comply with following:

    a. If vegetative stabilization is to be used, immediately initiate, and within 14 calendars days complete, the installation of temporary non-vegetated stabilization; or

    b. Complete all methods of initiating stabilization as soon as conditions or circumstances allow.

If any conditions in parts a or b above are encountered, the permittee must document the circumstances which prevented you from meeting the stabilization requirements in the SWPPP of this paragraph and provide a schedule in the SWPPP which will be followed in order to meet the stabilization requirements.

Permittees are responsible for implementing winter stabilization methods during frozen ground conditions if the site was not stabilized prior to the ground freezing.

7. Stream diversions or any temporary or permanent drainage ditch or trench, which will have continuous flow, shall be stabilized with appropriate controls prior to connection with any surface water. The entire area (channel and bank) of the stream diversion or temporary or permanent drainage ditch, or trench, must be appropriately stabilized to bankfull height.

8. While working in or around surface waters, sediment and erosion controls must be used above the anticipated level of the surface water. Floating silt curtain does not satisfy the down slope and side slope boundary requirements in Part II(C)(4)(b) of this permit, unless the construction activity is on or below the elevation of the surface water. The floating silt curtain must be placed as close to shore as possible. Sediment control must be installed where exposed soils drain to the surface water immediately after construction activity along the waterline has been completed.

9. Pipe and culvert outlets must be provided with energy dissipation within 24 hours of connection to a surface water.

10. Splash pads and/or downspout extensions must be provided for roof drains to prevent erosion from roof runoff.

11. All storm drain inlets in the immediate vicinity of the construction site must be protected by appropriate BMPs during construction until all disturbed areas and stockpiles with the potential to discharge to the inlet have been stabilized. This includes storm drain inlets which may be affected by sediment tracked onto paved surfaces by vehicles or equipment.

12. Inlet protection devices are a last line of control – erosion and sediment control practices must be used on-site. Inlet protection devices must conform to local ordinances or regulations. In general, inlet protection devices need to provide for adequate drainage to prevent excessive roadway flooding. Inlet protection may be removed for a particular inlet if a specific concern (i.e., street flooding/freezing, snow removal) has been identified and documented in the SWPPP. In this situation, additional erosion and sediment control practices, or stabilization methods must be used to supplement the loss of the inlet protection device to prevent sediment from entering the storm sewer system.

13. Vegetated buffers must have a minimum width of 1 foot for every 5 feet of disturbed area that drains to the buffer. The width of the buffer shall have a slope of 5 percent or less and the area draining to the buffer shall have a slope of 6 percent or less. Concentrated flows should be minimized throughout the buffer.

    Buffers shall consist of dense grassy vegetation, 3 to 12 inches tall with uniform coverage over 90 percent of the buffer. Woody vegetation shall not be counted for the 90 percent coverage. No more than 10 percent of the overall buffer may be comprised of woody vegetation.

14. A 50 foot natural buffer or equivalent erosion and sediment controls must be provided when a project is within 50 feet of a surface water and stormwater flows to the surface water. If equivalent erosion and sediment controls are used, rationale for using equivalent controls must be provided in the SWPPP.

If working within 100 feet of a surface water listed as impaired for sediment, suspended solids or turbidity, a 100 foot natural buffer or equivalent sediment and erosion controls must be provided. If equivalent erosion and sediment controls are to be used, rationale for using equivalent controls must be provided in the SWPPP.

15. If the permittee(s) intend to use chemical treatment for sediment removal, they must be used in accordance with the manufacturer's specifications. Treatment chemicals must be selected appropriately for the anticipated soil particle size and characteristics of the stormwater (pH, turbidity, flow rate of stormwater flowing into the chemical treatment system, etc.). A description of the chemical treatment process must be included in the SWPPP.

    a. To ensure selection and management of chemicals minimize the potential for harmful effects in the discharge, the permittee shall provide a written request to the department for review and approval. Additional monitoring and reporting may be required as a condition for the approval to discharge.

       A request to discharge chemically treated water shall include all of the following information and be provided sixty (60) days prior to use:

       i. Material Safety Data Sheet/Safety Data Sheet (MSDS/SDS);
       ii. Proposed water additive discharge concentration;
       iii. Discharge frequency (i.e., number of hours per day and number of days per year);
       iv. Monitoring point for product discharge;
       v. Type of removal treatment, if any, that the water additive receives prior to discharge;
       vi. Product function (e.g., coagulant, flocculant, etc.);
       vii. A 48-hour LC_{50} or EC_{50} for a North American freshwater planktonic crustacean (*Ceriodaphnia* sp., *Daphnia* sp., or *Simocephalus* sp.); and
       viii. Results for a toxicity test for one other North American freshwater aquatic species (other than a planktonic crustacean).

    b. Discharges from the chemical treatment of stormwater must not cause a violation of the standards of quality for waters of the state (N.D.A.C. § 33-16-02.1). The discharge must meet the dewatering or basin draining requirements provided in Part II(C)(3)(g) of this permit.

16. Minimize the duration of exposed soils on steep slopes.

B. Maintenance Requirements for Erosion and Sediment Controls

1. All erosion prevention and sediment control BMPs must be inspected to ensure integrity and effectiveness. All nonfunctional BMPs must be repaired, replaced, maintained or supplemented with functional BMPs. If a nonfunctioning BMP is supplemented, the nonfunctional BMP shall be removed. Corrective actions must be made prior to the next anticipated rainfall event or within 24 hours of discovery (whichever comes first), or as soon as field conditions allow access. Documentation must be provided in the maintenance records if field conditions do not allow access along with a plan of action for performing maintenance activities.

   Permittee(s) must investigate and comply with the following inspection and maintenance requirements:

   a. All control devices similar to, and including, silt fence or fiber rolls must be repaired, replaced, maintained or supplemented when they become nonfunctional (torn from posts, visible tears, etc.). Collected sediment must be removed as it approaches 1/2 of the above ground capacity of the control device.

   b. Fiber rolls must be replaced when 1/2 of the original above ground height of the device when it was installed has been lost as a result of flattening or other damage.

c. Sedimentation basins must be drained and the sediment removed when the depth of sediment collected in the basin reaches 1/2 the storage volume. Drainage and removal must be completed within 72 hours of discovery, or as soon as field conditions allow access. Documentation must be provided in the maintenance records if field conditions do not allow access along with a plan of action for performing maintenance activities.

d. Maintenance and cleaning of inlet protection devices must be performed when sediment accumulates, the filter becomes clogged, and/or performance is compromised.

2. Surface waters, including drainage ditches and conveyance systems, must be inspected for evidence of sediment deposited by erosion. Permittees must remove all deltas and sediment deposits in surface waters, drainage ways, catch basins, and other drainage systems. Areas where sediment removal results in exposed soil must be stabilized. Removal and stabilization must take place immediately, but no more than, seven (7) calendar days after the discovery unless precluded by legal, regulatory or physical access constraints. Permittees shall use all reasonable efforts to obtain access. If precluded, removal and stabilization shall take place immediately, but no more than, seven (7) calendar days after obtaining access. Permittees are responsible for contacting all local, regional, state, and federal authorities, and receiving any applicable permits prior to conducting any work.

3. Vehicle tracking of sediment from the site must be minimized by BMPs. This may include having a designated egress with aggregate surfacing from the site or by designating off-site parking. Permittees are responsible for (or making the arrangements for) street sweeping and/or scraping if BMPs are not adequate to prevent sediment from being tracked onto the street from the site.

   Construction site egress locations must be inspected for evidence of sediment being tracked offsite by vehicles or equipment onto paved surfaces. Accumulations of tracked and deposited sediment must be removed from all off-site paved surfaces by the end of the work day, shift or if applicable, within a shorter time specified by local authorities or the department.

4. If sediment escapes the construction site, off-site accumulations of sediment must be removed in a manner and at a frequency sufficient to minimize off-site impacts (e.g., fugitive sediment in streets could be washed into storm sewers by the next rain event and/or pose a safety hazard to users of public streets).

5. Vegetative buffers must be inspected for proper distribution of flows, sediment accumulation and signs of rill formation. If a buffer becomes silt covered, contains rills, or is otherwise rendered ineffective, other control measures shall be implemented. Eroded areas shall be repaired and stabilized within 24 hours of discovery, or as soon as conditions allow access. Documentation must be provided in the maintenance records if field conditions do not allow access along with a plan of action for performing maintenance activities.

C. **Operational Controls**

1. Properly handle construction debris and waste materials.

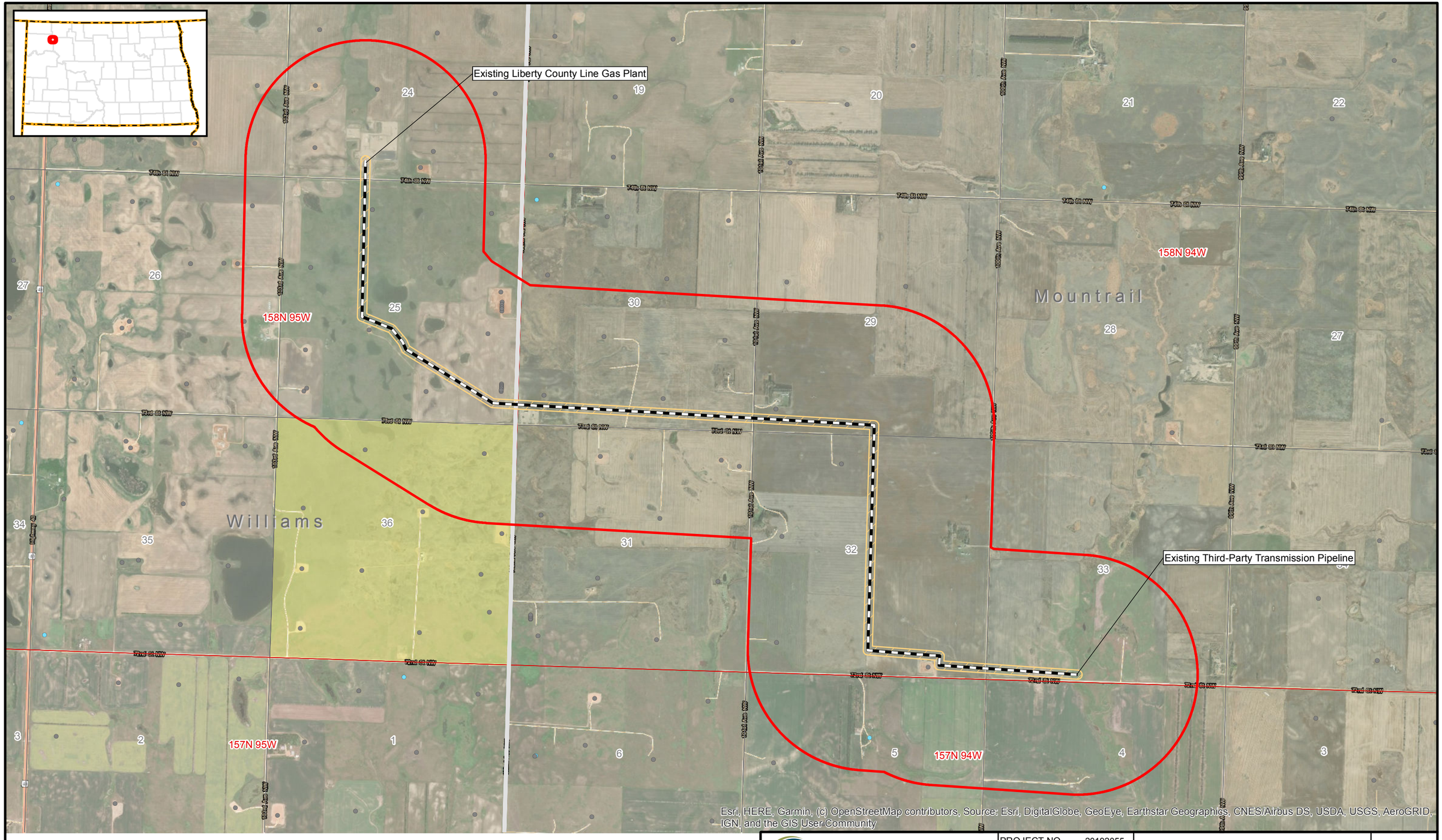
   a. Debris and waste must be handled appropriately until disposal. Litter and debris shall be collected and stored to reduce the potential for wind and water to carry the materials off-site or leachate discharging from a site. Collected material shall be taken to the appropriate facility for disposal or recycling.

   b. Liquid or soluble materials including oil, fuel, paint and any other hazardous substances must be properly stored, to prevent spills, leaks or other discharges. Restricted access to storage areas must be provided to prevent vandalism. Storage and disposal of liquid or soluble material must be in compliance with applicable regulations.

2. Wash water containments must be cleaned out (solids and liquid) before 80 percent of storage capacity is attained.

3. Best management practices used in surface waters must be cleaned immediately upon removal from surface waters to prevent the transfer of aquatic nuisance species.

APPENDIX B
PROJECT OVERVIEW MAP



LEGEND

- Proposed Pipeline Route
- Survey Area
- Study Area
- Oil/Gas Well Location
- Water Well Location
- State Land
- County Boundary
- Township/Range
- Section

0 1,000 2,000 4,000
Feet

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LIBERTY MIDSTREAM SOLUTIONS

PROJECT NO.	20192055
CREATED:	11/14/2019
CREATED BY:	A. Leonard
CHECKED BY:	A. Dury
FILE NAME:	FigA2_Aerial.mxd

Project Overview Map

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

Date: 11/14/2019 User: ALeonard Path: \\azrgisstorp01\GIS_Projects\Client\LibertyMidstream\20192055_ND\MXD\Report\FigA2_Aerial.mxd

APPENDIX C
SWPPP SITE MAPS

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LEGEND

- Alliance Sales Line
- Permanent Limits of Disturbance
- Temporary Limits of Disturbance
- Boring Location
- Vehicle Tracking Control
- Silt Fence
- Trench Plug
- Water Bar
- Timber Matting
- Delineated Features (SWCA)
- NHD Flowline
- State Land
- County Boundary
- Township/Range
- Section

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N

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CREATED BY:	A. Leonard
CHECKED BY:	A. Dury
FILE NAME:	Fig1_SWPPP.mxd

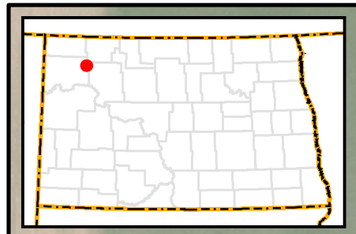
Erosion & Sediment Control Site Maps

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

FIGURE
1

LMS 126

Date: 11/27/2019 User: ALeonard Path: \\azrgisstorp01\GIS_Projects\Client\LiberryMidstream\20192055_ND\MXD\Report\Fig1_SWPPP.mxd



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LEGEND

- Alliance Sales Line
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0 100 200 400

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N

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CHECKED BY:	A. Dury
FILE NAME:	Fig1_SWPPP.mxd

Erosion & Sediment Control Site Maps

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

FIGURE

1

LMS 127

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LEGEND

- Alliance Sales Line
- Permanent Limits of Disturbance
- Temporary Limits of Disturbance
- Boring Location
- Vehicle Tracking Control
- Silt Fence
- Trench Plug
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0 100 200 400
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CREATED:	11/27/2019
CREATED BY:	A. Leonard
CHECKED BY:	A. Dury
FILE NAME:	Fig1_SWPPP.mxd

Erosion & Sediment Control Site Maps

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

FIGURE
1

LMS 128

Date: 11/27/2019 User: ALeonard Path: \\azrgisstorp01\GIS_Projects\Client\LibertyMidstream\20192055_ND\MXD\Report\Fig1_SWPPP.mxd

LEGEND

- Alliance Sales Line
- Permanent Limits of Disturbance
- Temporary Limits of Disturbance
- Boring Location
- Vehicle Tracking Control
- Silt Fence
- Trench Plug
- Water Bar
- Timber Matting
- Delineated Features (SWCA)
- NHD Flowline
- State Land
- County Boundary
- Township/Range
- Section

0 100 200 400
Feet

N

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LIBERTY MIDSTREAM SOLUTIONS

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CREATED BY:	A. Leonard
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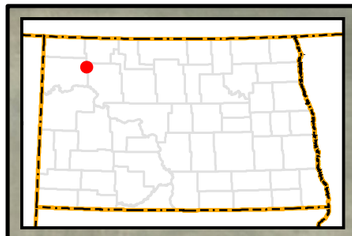
Erosion & Sediment Control Site Maps

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

FIGURE **1**

LMS 129

Date: 11/27/2019 User: ALeonard Path: \\azrgisstorp01\GIS_Projects\Client\LibertyMidstream\20192055_ND\MXD\Report\Fig1_SWPPP.mxd



30

158N 94W

Mountrail

31

10177 73rd St NW

10174 73rd St NW

10174 73rd St NW

10157 73rd St NW

10154 73rd St NW

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Erosion & Sediment Control Site Maps

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

FIGURE

1

LMS 130

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Erosion & Sediment Control Site Maps

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

FIGURE
1

LMS 131

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Date: 11/27/2019 User: ALeonard Path: \\azrgisstorp01\GIS_Projects\Client\Liberry\Midstream\20192055_ND\MXD\Report\Fig1_SWPPP.mxd

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Erosion & Sediment Control Site Maps

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

FIGURE
1

LMS 132

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Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

FIGURE
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Erosion & Sediment Control Site Maps

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

FIGURE

1

LMS 134

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Erosion & Sediment Control Site Maps

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

FIGURE
1

LMS 135

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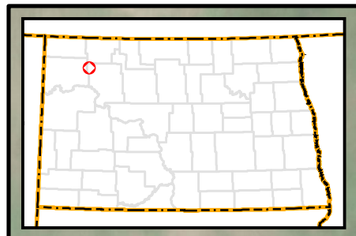

33

158N 94W

Paulsen Creek

Mountrail

9045
72nd St NW

9045
72nd St NW

72nd St NW

157N 94W

4

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Erosion & Sediment Control Site Maps

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

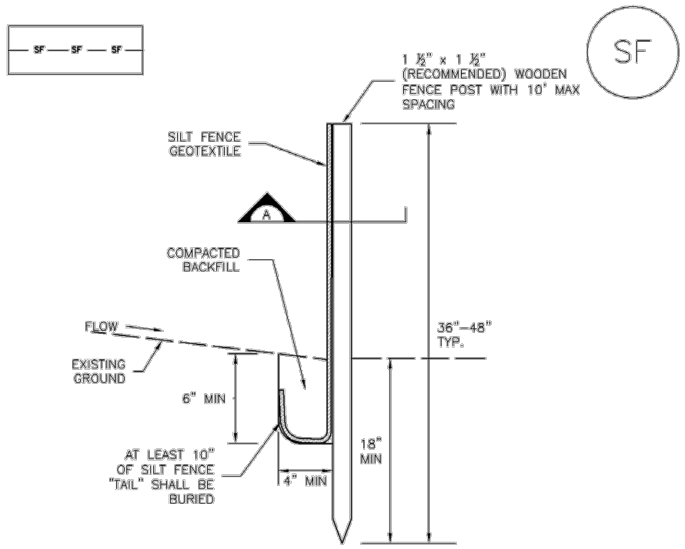
FIGURE
1

Date: 11/27/2019 User: ALeonard Path: \\azrgisstorp01\GIS_Projects\Client\Liberty\Midstream\20192055_ND\MXD\Report\Fig1_SWPPP.mxd

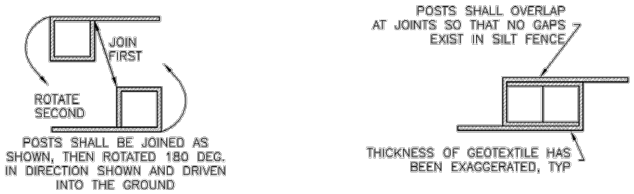
LMS 136

APPENDIX D
BMP DETAILS

Silt Fence (SF) SC-1



SILT FENCE



SECTION A

SF–1. SILT FENCE

SC-1 Silt Fence (SF)

SILT FENCE INSTALLATION NOTES

1. SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2–5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.

2. A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.

3. COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.

4. SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.

5. SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.

6. AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J–HOOK." THE "J–HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' – 20').

7. SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.

2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.

3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.

4. SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".

5. REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.

6. SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.

7. WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

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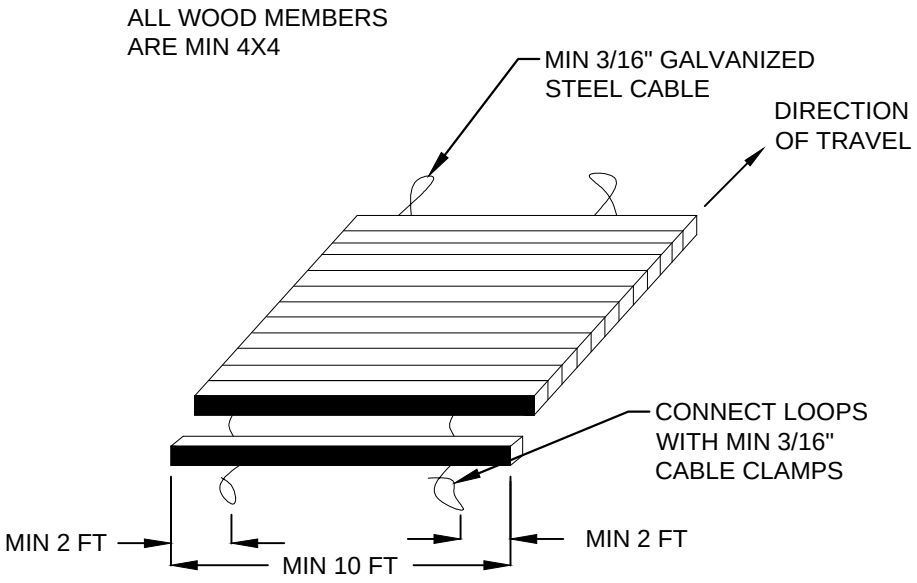
CHECKED BY:	NE
FILE NAME:	Liberty - Details.dwg

SILT FENCE

LIBERTY MIDSTREAM
ALLIANCE PIPELINE

FIGURE
-



NOTES:

1. THERE SHALL BE NO SPACING BETWEEN MATS.
2. ALL MATS SHALL BE PROVIDED WITH SIDE BOARDS AND A SOLID DECK.
3. MATS SHALL BE ABLE TO SUPPORT THE WEIGHT OF THE EQUIPMENT TO PREVENT EXCESSIVE RUTTING IN WETLAND AREAS.
4. THE LENGTH OF TIMBER MAT REQUIRED SHALL BE SUCH THAT THE TIMBER MAT EXTENDS PAST THE WETLAND EDGES ON EACH SIDE OF THE CROSSING A SUFFICIENT DISTANCE TO SUPPORT THE MAXIMUM EQUIPMENT SIZE USING THE CROSSING.

MAINTENANCE:

1. INSPECT CROSSINGS AFTER RUNOFF-PRODUCING RAINS TO CHECK FOR BLOCKAGE IN CHANNEL, EROSION OF ABUTMENTS, CHANNEL SCOUR, RIPRAP DISPLACEMENT, OR PIPING. MAKE ALL REPAIRS IMMEDIATELY TO PREVENT FURTHER DAMAGE TO THE INSTALLATION.
2. AT THE END OF CONSTRUCTION, MATS SHALL BE HOSED CLEAN OF SEDIMENT ON-SITE TO PREVENT OFFSITE SEDIMENTATION.

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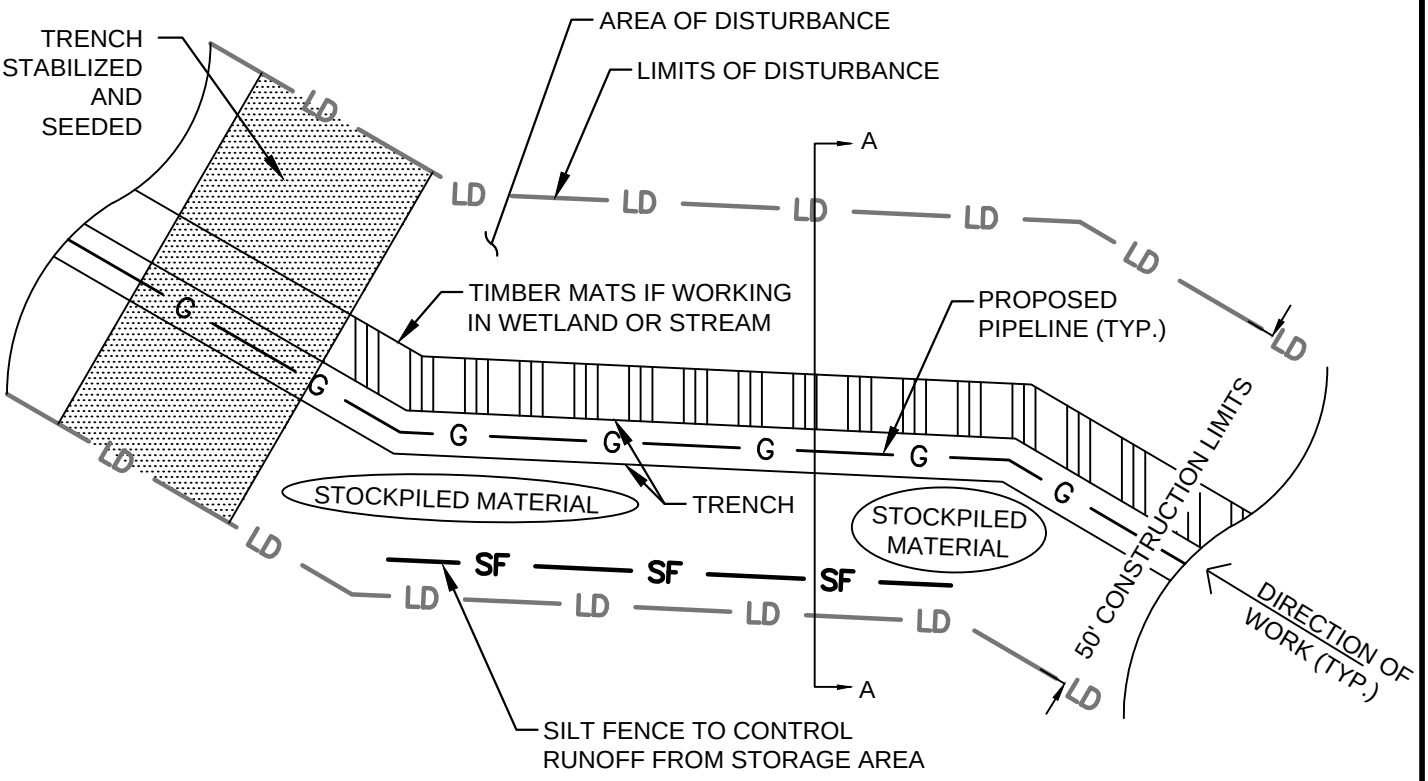
CHECKED BY:	NE
FILE NAME:	Liberty - Details.dwg

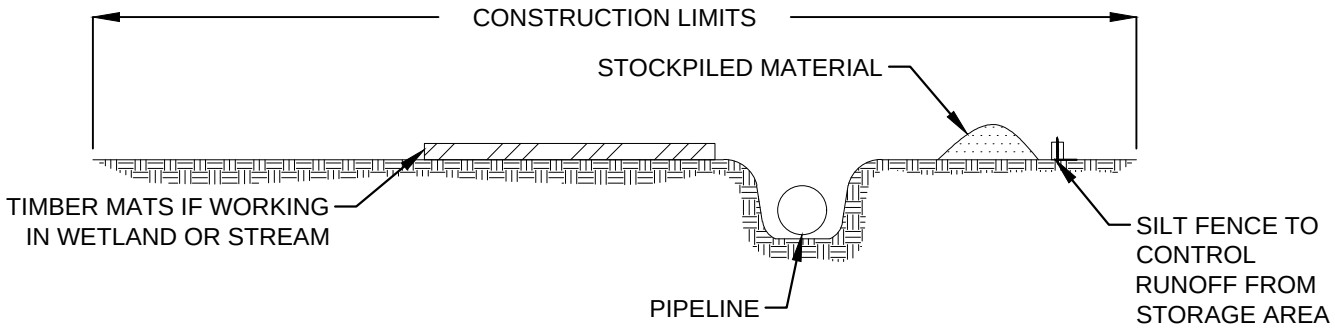
TIMBER MAT

LIBERTY MIDSTREAM
ALLIANCE PIPELINE

FIGURE
–

ATTACHED IMAGES:
ATTACHED XREFS: XRef: Chalk Bluff Access - Titleblock
CAD FILE: \\sandiegolsandiego-data\GRAPHICS\Civil\Design_Clients\Liberty Midstream\20192055\CAD\ LAYOUT: Detail 4





SECTION A-A

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TYPICAL TRENCH E&S CONTROLS

LIBERTY MIDSTREAM ALLIANCE PIPELINE

FIGURE

-

LMS 140

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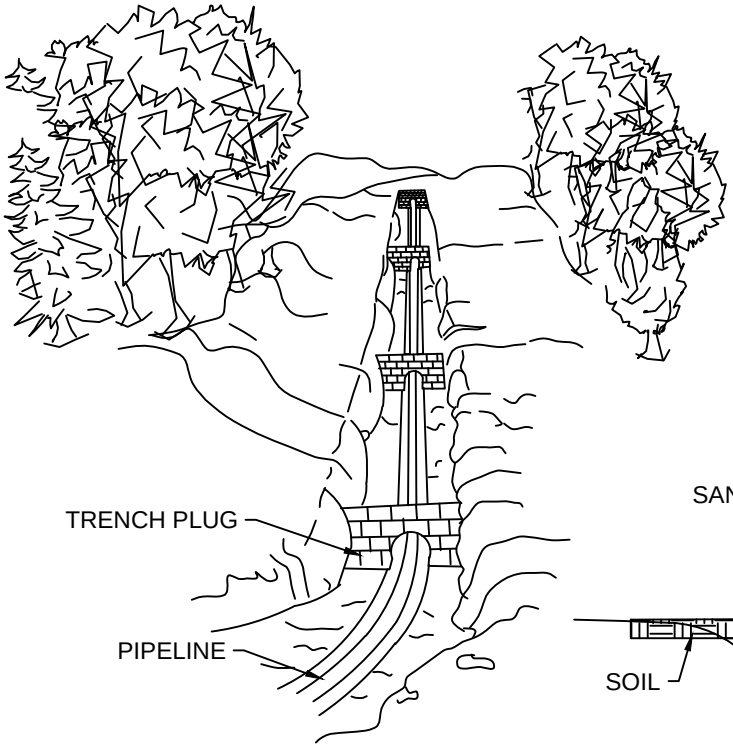
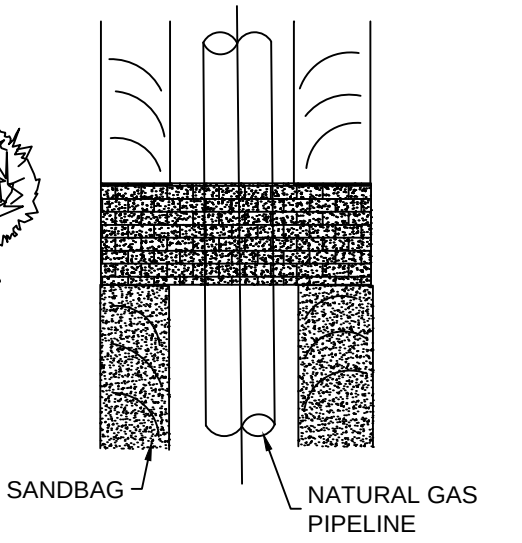
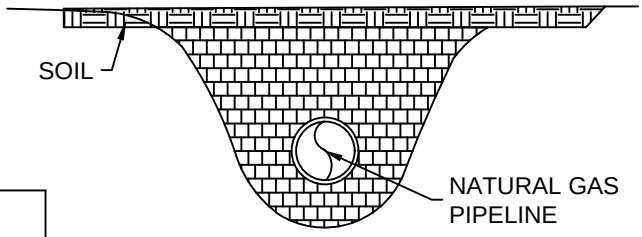
ATTACHED XREFS: XRef: Chalk Bluff Access - Titleblock
CAD FILE: \\sandiego\sandiego-data\GRAPHICS\CivilDesign_Clients\Liberty Midstream\20192055\CAD\ LAYOUT: Detail 1





PLAN VIEW



PROFILE VIEW

TRENCH PLUG SPACING

ALIGNMENT SLOPE %*	SPACING L (FT)	PLUG MATERIAL
5-15 %	500	* EARTH FILLED SACKS
15-30 %	300	* EARTH FILLED SACKS
>30 %	200	* EARTH FILLED SACKS

* FOAM PLUGS MAY BE USED IN LIEU OF EARTH FILLED SACKS

NOTES:

1. ROARING FORK REPRESENTATIVE SHALL DETERMINE REQUIREMENTS FOR, AND SPACING OF, TRENCH PLUGS.
2. TRENCH PLUGS SHALL BE INSTALLED AT THE SAME SPACING AS, AND UPSLOPE OF, TERRACES AND/OR PERMANENT SLOPE BREAKERS.
3. IN AGRICULTURAL FIELDS AND RESIDENTIAL AREAS WHERE SLOPE BREAKERS ARE NOT TYPICALLY REQUIRED, TRENCH PLUGS SHALL BE INSTALLED AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WERE REQUIRED.
4. TRENCH PLUGS SHALL BE INSTALLED AT THE BASE OF SLOPES GREATER THAN 5% WHERE THE BASE OF THE SLOPE IS LESS THAN 50 FEET FROM A WATER BODY OR WETLAND.
5. TRENCH PLUGS SHALL BE INSTALLED WHERE NEEDED TO AVOID DRAINING A WATER BODY OR WETLAND (TO PREVENT SEDIMENT FLOW INTO WETLANDS).
6. TRENCH PLUGS SHALL NOT BE CONSTRUCTED OF TOPSOIL. SAND MAY BE USED AS A SUBSTITUTE.

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CAD FILE: \\sandiego\sandiego-data\GRAPHICS\Civil\Design_Clients\Liberty Midstream\20192055\CAD\ LAYOUT: Detail 2

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DRAWN BY:	JP
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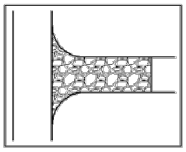
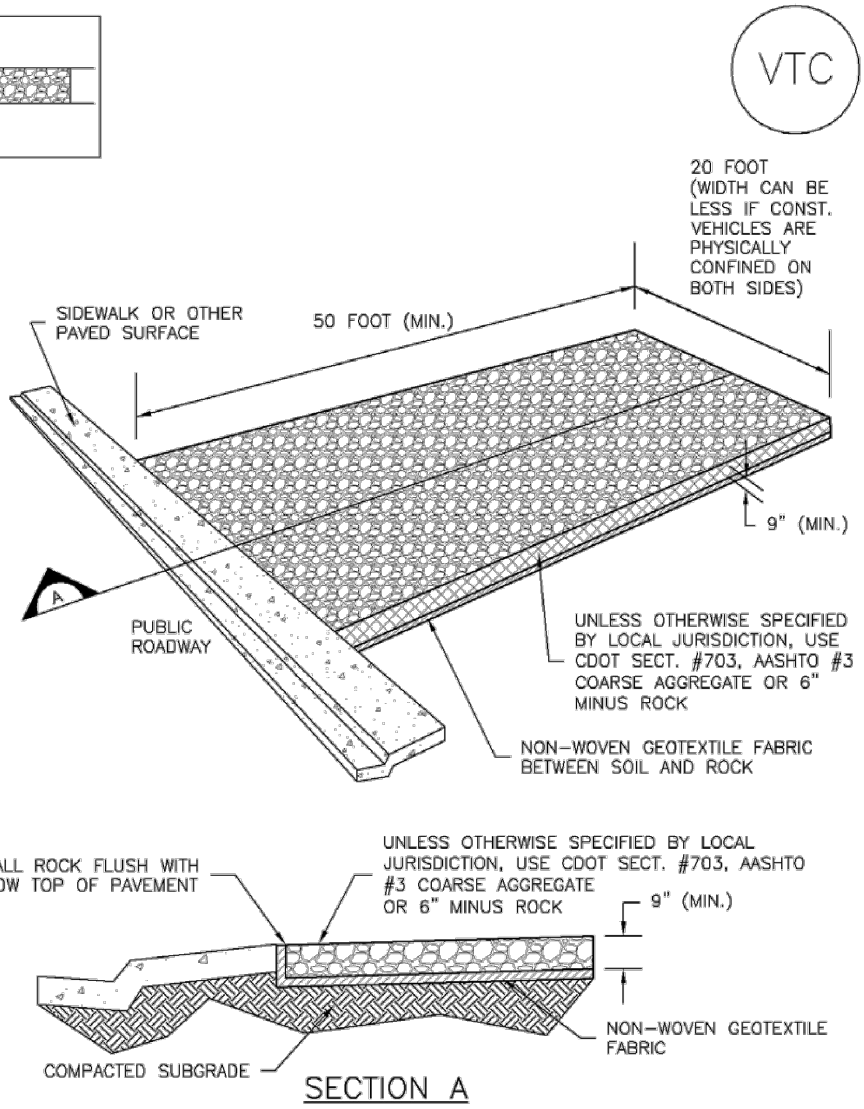
FILE NAME:	Liberty - Details.dwg

TRENCH PLUG

LIBERTY MIDSTREAM
ALLIANCE PIPELINE

FIGURE
-





VTC-1. AGGREGATE VEHICLE TRACKING CONTROL

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NOT TO SCALE

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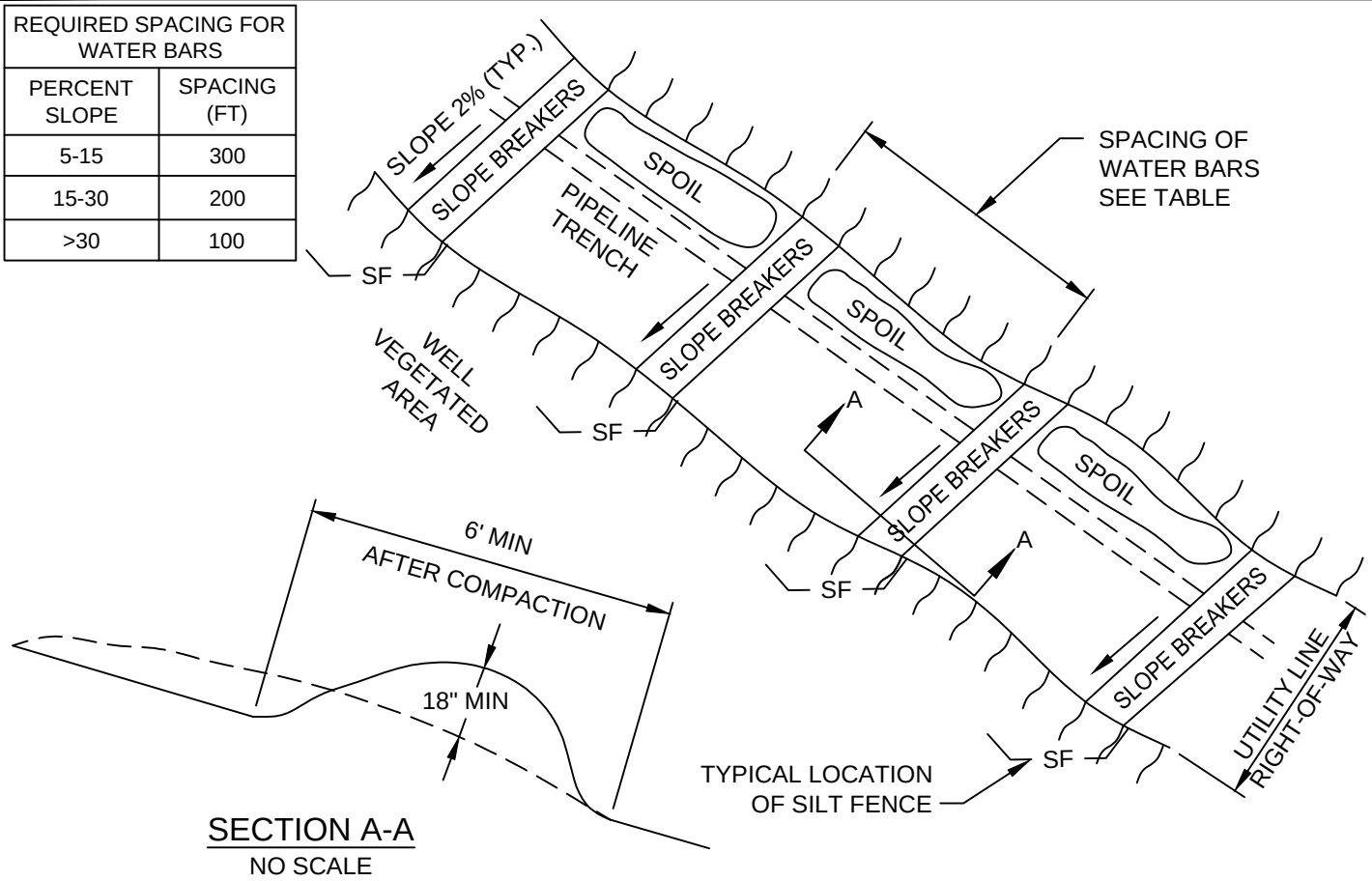
AGGREGATE VEHICLE TRACKING CONTROL

LIBERTY MIDSTREAM
ALLIANCE PIPELINE

FIGURE
-

REQUIRED SPACING FOR WATER BARS	
PERCENT SLOPE	SPACING (FT)
5-15	300
15-30	200
>30	100



SECTION A-A
NO SCALE

NOTES:

1. WATER BARS (TEMPORARY RIGHT-OF-WAY DIVERSIONS) SHOULD BE INSTALLED ACROSS THE ENTIRE RIGHT-OF-WAY ON ALL SLOPES.

2. WATER BARS SHOULD BE CONSTRUCTED AT A SLOPE OF 2% AND DISCHARGE TO A WELL-VEGETATED AREA. WATER BARS SHOULD NOT DISCHARGE INTO AN OPEN TRENCH. WATER BARS SHOULD BE ORIENTED SO THAT THE DISCHARGE DOES NOT FLOW BACK ONTO THE RIGHT-OF-WAY. OBSTRUCTIONS, (E.G. STRAW BALES, SILT FENCE, ROCK FILTERS, ETC.) SHOULD NOT BE PLACED IN ANY WATER BARS. WHERE NEEDED, THEY SHOULD BE LOCATED BELOW THE DISCHARGE END OF THE WATER BAR.

3. WATER BARS SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION IS REACHED.

4. WATER BARS SHALL BE INSPECTED EVERYDAY OF CONSTRUCTION ACTIVITY AND AFTER EACH RAIN EVENT FOR DEGRADATION IN SIZE AND FOR WATER BUILDUP. IF REPAIR IS NECESSARY, THE WATER BARS SHALL BE REPLACED/RESLOPED WITHIN 24 HOURS OF INSPECTION TO PREVENT FURTHER WATER BUILDUP.

5. WATER BARS SHALL REMAIN AFTER STABILIZATION IS ACHIEVED, EXCEPT IN AGRICULTURAL AREAS.

6. SILT FENCE SHALL BE INSTALLED AT ALL DISCHARGING POINTS.

7. WATER BARS THAT MAY DISCHARGE OVER FILL SLOPES, SHOULD HAVE SCOUR PROTECTION INSTALLED SUCH AS GEOTEXTILE MATERIAL AND NATIVE STONE ALONG DISCHARGE PATH OVER FILL SLOPE.

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WATERBAR

LIBERTY MIDSTREAM
ALLIANCE PIPELINE

FIGURE
-

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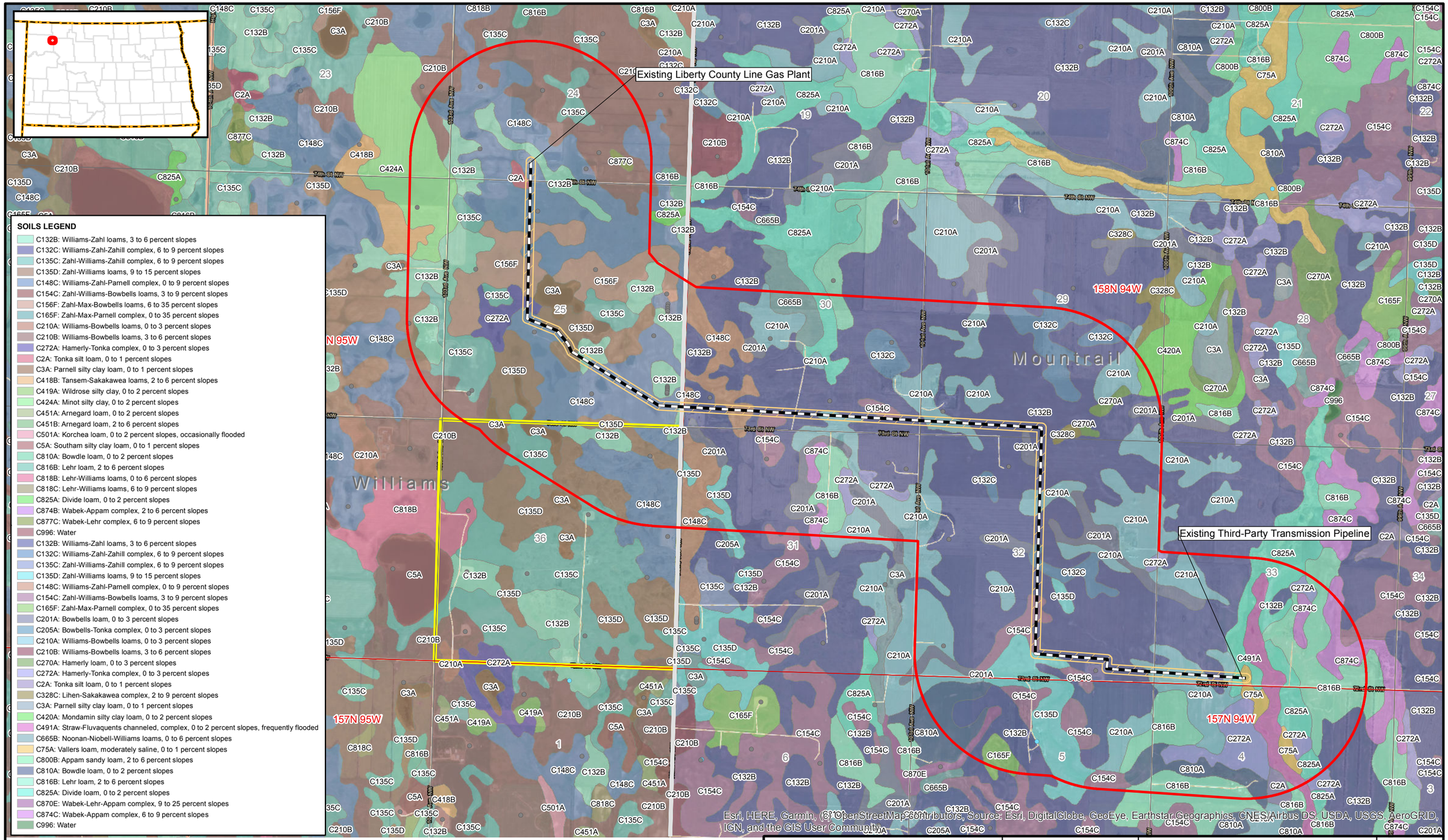
APPENDIX E
MAPS OF SOILS, VEGETATION, AND HYDROLOGY IN THE PROJECT AREA



SOILS LEGEND

- C132B: Williams-Zahl loams, 3 to 6 percent slopes
- C132C: Williams-Zahl-Zahill complex, 6 to 9 percent slopes
- C135C: Zahl-Williams-Zahill complex, 6 to 9 percent slopes
- C135D: Zahl-Williams loams, 9 to 15 percent slopes
- C148C: Williams-Zahl-Parnell complex, 0 to 9 percent slopes
- C154C: Zahl-Williams-Bowbells loams, 3 to 9 percent slopes
- C156F: Zahl-Max-Bowbells loams, 6 to 35 percent slopes
- C165F: Zahl-Max-Parnell complex, 0 to 35 percent slopes
- C210A: Williams-Bowbells loams, 0 to 3 percent slopes
- C210B: Williams-Bowbells loams, 3 to 6 percent slopes
- C272A: Hamerly-Tonka complex, 0 to 3 percent slopes
- C2A: Tonka silt loam, 0 to 1 percent slopes
- C3A: Parnell silty clay loam, 0 to 1 percent slopes
- C418B: Tansem-Sakakawea loams, 2 to 6 percent slopes
- C419A: Wildrose silty clay, 0 to 2 percent slopes
- C424A: Minot silty clay, 0 to 2 percent slopes
- C451A: Arnegard loam, 0 to 2 percent slopes
- C451B: Arnegard loam, 2 to 6 percent slopes
- C501A: Korchea loam, 0 to 2 percent slopes, occasionally flooded
- C5A: Southam silty clay loam, 0 to 1 percent slopes
- C810A: Bowdle loam, 0 to 2 percent slopes
- C816B: Lehr loam, 2 to 6 percent slopes
- C818B: Lehr-Williams loams, 0 to 6 percent slopes
- C818C: Lehr-Williams loams, 6 to 9 percent slopes
- C825A: Divide loam, 0 to 2 percent slopes
- C874B: Wabek-Appam complex, 2 to 6 percent slopes
- C877C: Wabek-Lehr complex, 6 to 9 percent slopes
- C996: Water
- C132B: Williams-Zahl loams, 3 to 6 percent slopes
- C132C: Williams-Zahl-Zahill complex, 6 to 9 percent slopes
- C135C: Zahl-Williams-Zahill complex, 6 to 9 percent slopes
- C135D: Zahl-Williams loams, 9 to 15 percent slopes
- C148C: Williams-Zahl-Parnell complex, 0 to 9 percent slopes
- C154C: Zahl-Williams-Bowbells loams, 3 to 9 percent slopes
- C165F: Zahl-Max-Parnell complex, 0 to 35 percent slopes
- C201A: Bowbells loam, 0 to 3 percent slopes
- C205A: Bowbells-Tonka complex, 0 to 3 percent slopes
- C210A: Williams-Bowbells loams, 0 to 3 percent slopes
- C210B: Williams-Bowbells loams, 3 to 6 percent slopes
- C270A: Hamerly loam, 0 to 3 percent slopes
- C272A: Hamerly-Tonka complex, 0 to 3 percent slopes
- C2A: Tonka silt loam, 0 to 1 percent slopes
- C328C: Lihen-Sakakawea complex, 2 to 9 percent slopes
- C3A: Parnell silty clay loam, 0 to 1 percent slopes
- C420A: Mondamin silty clay loam, 0 to 2 percent slopes
- C491A: Straw-Fluvaquents channeled, complex, 0 to 2 percent slopes, frequently flooded
- C665B: Noonan-Niobell-Williams loams, 0 to 6 percent slopes
- C75A: Vallers loam, moderately saline, 0 to 1 percent slopes
- C800B: Appam sandy loam, 2 to 6 percent slopes
- C810A: Bowdle loam, 0 to 2 percent slopes
- C816B: Lehr loam, 2 to 6 percent slopes
- C825A: Divide loam, 0 to 2 percent slopes
- C870E: Wabek-Lehr-Appam complex, 9 to 25 percent slopes
- C874C: Wabek-Appam complex, 6 to 9 percent slopes
- C996: Water

LEGEND

- Proposed Pipeline Route
- Survey Area
- Study Area
- Oil/Gas Well Location
- Water Well Location
- State Land
- County Boundary
- Township/Range
- Section

0 1,000 2,000 4,000
Feet

N

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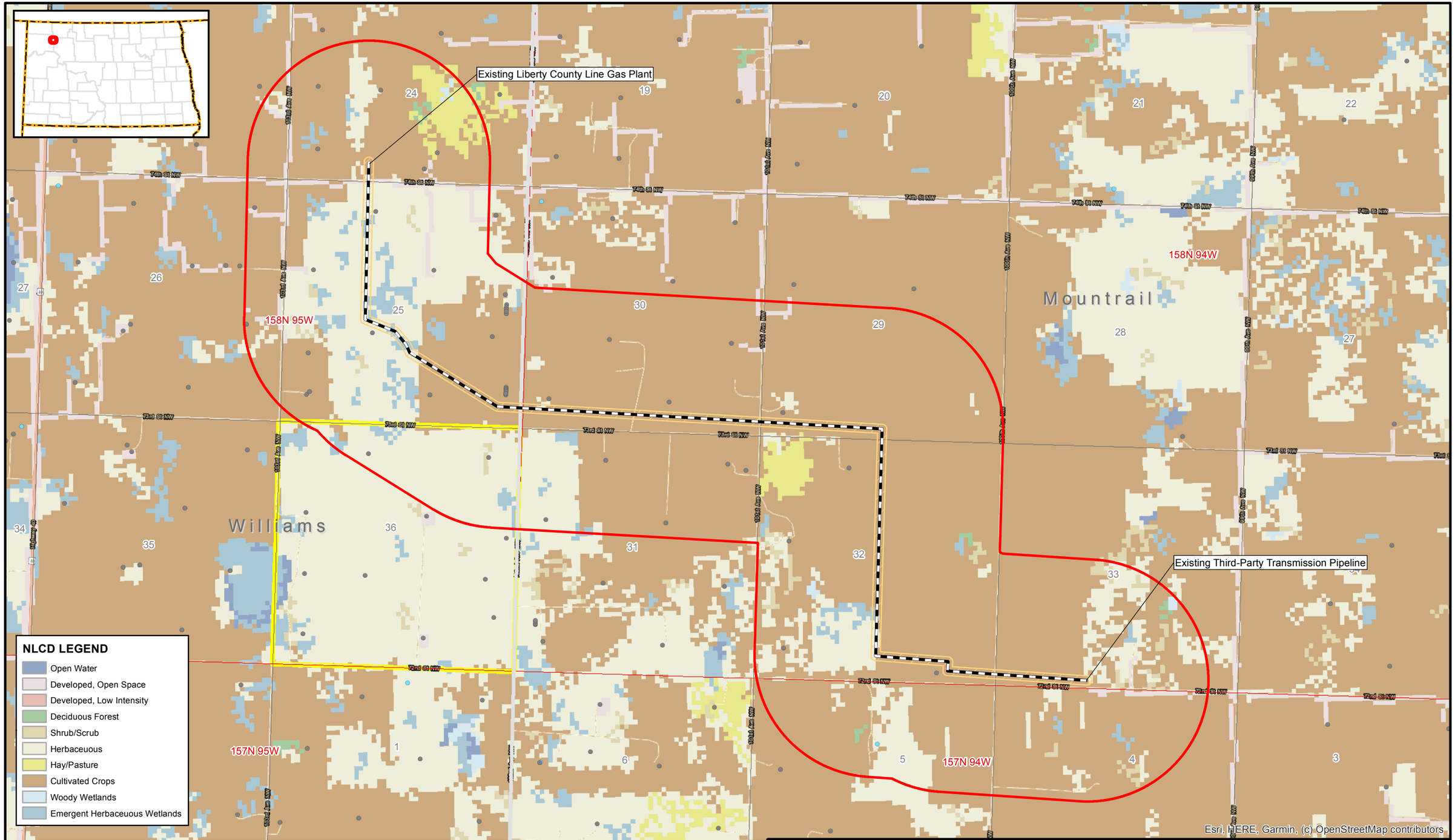
LIBERTY MIDSTREAM SOLUTIONS

PROJECT NO.	20192055
CREATED:	11/14/2019
CREATED BY:	A. Leonard
CHECKED BY:	A. Dury
FILE NAME:	FigA5_Soils.mxd

Soils Map

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

Date: 11/14/2019 User: ALeonard Path: \\azrgisstorp01\GIS_Projects\Client\LibertyMidstream\20192055_ND\MXD\Report\FigA5_Soils.mxd



LEGEND

- Proposed Pipeline Route
- Survey Area
- Study Area
- Oil/Gas Well Location
- Water Well Location
- State Land
- County Boundary
- Township/Range
- Section

0 1,000 2,000 4,000
Feet

N

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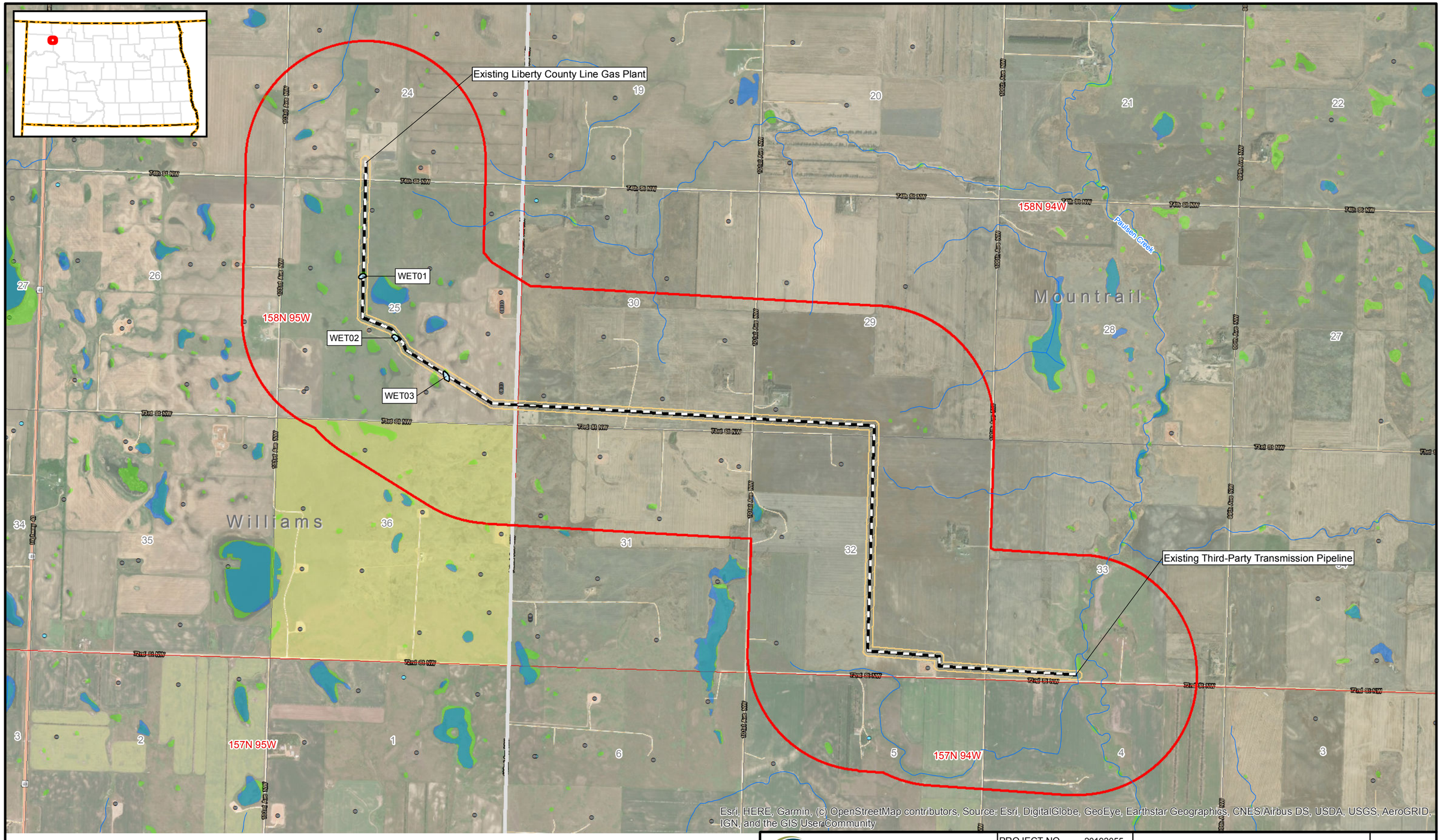
LIBERTY MIDSTREAM SOLUTIONS

PROJECT NO.	20192055
CREATED:	11/14/2019
CREATED BY:	A. Leonard
CHECKED BY:	A. Dury
FILE NAME:	FigA3_LandUse.mxd

Land Use Map

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

Date: 11/14/2019 User: ALeonard Path: \\azrgisstorp01\GIS_Projects\Client\LibertyMidstream\20192055_ND\MXD\Report\FigA3_LandUse.mxd



Esri, HERE, Garmin, (c) OpenStreetMap contributors, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

LEGEND

- Proposed Pipeline Route
- Delineated Features (SWCA)
- NHD Flowline
- NHD Waterbody
- NWI Wetlands
- Survey Area
- Study Area
- Oil/Gas Well Location
- Water Well Location
- State Land
- County Boundary
- Township/Range
- Section

0 1,000 2,000 4,000
Feet

N

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LIBERTY MIDSTREAM SOLUTIONS

PROJECT NO.	20192055
CREATED:	11/14/2019
CREATED BY:	A. Leonard
CHECKED BY:	A. Dury
FILE NAME:	FigA4_Hydro.mxd

Wetlands and Waterbodies Map

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

Date: 11/14/2019 User: ALeonard Path: \\azrgisstorp01\GIS_Projects\Client\LibertyMidstream\20192055_ND\MXD\Report\FigA4_Hydro.mxd

APPENDIX F
STORMWATER INSPECTION REPORTS

Site Inspection Record Template
Construction
(07-2010)

Project Name: _____

Coverage Number: _____

Inspector: _____ Date: _____ Time: _____

Precipitation Amount: _____ Date: _____

Areas Inspected (Choose Applicable): ☐ Active areas

☐ Stabilized areas with less than 70% cover

☐ Areas that have achieved final stabilization

Is there evidence of, or the potential for, pollutants entering drainage systems or waters of the state from:

- Material Storage Areas ☐ Y ☐ N
- Vehicle Maintenance Areas ☐ Y ☐ N

Observations / Corrective Actions:

_____

_____

_____

☐ Y ☐ N	Have all erosion and sediment controls and best management practices identified in the plan been installed or implemented?
☐ Y ☐ N	Are erosion and sediment controls operating correctly and in serviceable condition?
☐ Y ☐ N	Are erosion and sediment controls operating consistently and effectively?
☐ Y ☐ N	Are there any devices similar to silt fence or fiber rolls where sediment has reached more than 1/3 the height of the device? (Removal and repairs must be made within 24 hours.)
☐ Y ☐ N	Are there any sediment basins where collected sediment has reduced the storage capacity by 1/2? (Drainage and removal must be completed within 72 hours.)
☐ Y ☐ N	Is there evidence of sediment deposits in surface waters, drainage ditches or other stormwater conveyance systems? (Removal and stabilization must be completed within 7 days unless prohibited by legal, regulatory or physical access constrains. All reasonable efforts must be made to obtain access. Once permission is granted, removal must take place within 7 days.)
☐ Y ☐ N ☐ NA	Is there evidence of sediment being tracked off-site by vehicles or equipment? (Sediment tracked or deposited on paved surfaces must be removed within 24 hours.)
☐ Y ☐ N	Is there evidence of sediment depositing off-site other than in surface waters, drainage ditches and stormwater conveyance systems? (Sediment must be recovered in a manner and frequency sufficient to minimize off-site impacts – for example, sediment could wash away during the next precipitation event.)
☐ Y ☐ N ☐ NA ☐ Y ☐ N ☐ NA ☐ Y ☐ N ☐ NA	Is stormwater flow distributed evenly over vegetative buffers? Is sediment accumulating in vegetative buffers? Are rills forming within vegetative buffers? (If vegetative buffers are silted covered, contain rills or are otherwise rendered ineffective, other erosion and sediment controls must be implemented. Eroded areas must be repaired and stabilized.)
☐ Y ☐ N	Are litter, debris, chemicals and parts being managed properly to minimize stormwater pollution?
☐ Y ☐ N	Are liquid or soluble materials like oil, fuel, paint, etc., properly stored to prevent spills, leaks or other discharges?

☐ Y ☐ N	Is there evidence of concrete wash water discharging to waters of the state, storm sewer systems or onto adjacent properties?
☐ Y ☐ N	Is there evidence of wastewater from processing operations or sanitary facilities (i.e., portable toilets) discharging from the site? (These types of discharges are not covered by the construction general permit, NDR10-0000. They must be stopped immediately if they are not covered by another type of permit. The following non-stormwater discharges are allowable if the appropriate prevention measures are in place: fire-fighting, fire hydrant flushing, potable water line flushing, infrequent building and equipment wash down without detergents, uncontaminated foundation drains, springs, lawn watering and air conditioning condensate. Please note that discharges from temporary dewatering activities, such as hydrostatic testing or disinfection of new pipelines may require coverage under the temporary dewatering general permit, NDG07-0000.)
☐ Y ☐ N	Is there evidence of wash water from tools or equipment draining to waters of the state, drainage ditches or storm sewer systems?
☐ Y ☐ N ☐ NA	Are permanent stormwater management measures (e.g., oil-water separators, rain gardens) functioning properly?

Corrective Actions and Schedule:

_____

_____

_____

- Are best management practices effective to minimize the discharge of sediment from the site? ☐ Y ☐ N
- Do best management practices need to be adjusted? ☐ Y ☐ N
- Are additional best management practices needed? ☐ Y ☐ N

Comments:

_____

_____

_____

List all spills, leaks or hose-breaks that have occurred since the last inspection:

-Size	-Location	-Was it reportable?	-Was it reported?
_____	_____	☐ Y ☐ N	☐ Y ☐ N
_____	_____	☐ Y ☐ N	☐ Y ☐ N
_____	_____	☐ Y ☐ N	☐ Y ☐ N

- Were Spill Prevention Procedures adequate? ☐ Y ☐ N
- What Spill Response Procedures were used?

Comments

_____

_____

_____

- Has the SWPP Plan been updated as a result of this inspection? ☐ Y ☐ N
- Has the Site Map been updated as a result of this inspection? ☐ Y ☐ N

APPENDIX C
EMERGENCY ACTION PLAN

EMERGENCY RESPONSE PLAN

REVISION: 2
August 7, 2019

LMS 152

REVIEW AND REVISION LOG

This Emergency Response Plan shall be reviewed at intervals not exceeding 15 months, but at least once each calendar year, and appropriate changes shall be made as necessary to ensure that the manual is current, complete, and effective.

Revision Number	Revision Date	Annual Review Y/N	Approval	Revision Description
0	3/15/2017		Eric Bengtson	Initial Issue
1	4/15/2018	Y	Eric Bengtson	Annual Review Added controlled version of document on LMS server to footer Updated definition of Incident in 4.3 Notification to NRC Added to contact Fire, Police and other Public Official of Pipeline Emergencies in 5.1 General Emergency Response Changed Area Manager to Local Management Added Safely reinstate operations when the state of emergency is over in sections 5.2 and 5.4 Changed the next level of Supervisor or designated alternate to “Appropriate Personnel in Section 5.0 Emergency Response Appendix A – Formatted Phone numbers Appendix A – Removed Stretch Wempen and Phone #, replaced with Jerry Weiland and cell number Removed name of Williams Co. Sheriff name in the Local Agency and Responders section
2	8/7/2019	Y		Annual Review and Update for Alliance Sales Line Section 1.3 added information on Alliance Sales Line Added Appendix D

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ABBREVIATIONS/ACRONYMS

Acronym	Meaning
EMT	Emergency Management Team
ERP	Emergency Response Plan
DOT	Department of Transportation
LMS	Liberty Midstream Solutions
NRC	National Response Center
OSHA	Occupational Safety & Health Administration
PPE	Personal Protective Equipment
PSOM	Pipeline Specific Operation Manual

1 OVERVIEW

1.1 Purpose

The purpose of this Emergency Response Plan (ERP) is to provide written procedures on how to respond to an emergency arising in association with Liberty Midstream Solutions' (LMS) natural gas transmission pipelines, and to address the requirements of the U.S. Department of Transportation (DOT) Natural Gas Pipeline Safety Regulations presented in 49 CFR §192.615.

This ERP will identify emergency events and scenarios arising from LMS operations that may impact people, property, or the environment. The plan details the organizational responsibilities, actions, available resources and reporting requirements to ensure effective and timely management of an incident by LMS personnel. This response plan can be used in conjunction with Procedure *P-191.5 Reporting Incidents*.

1.2 General

When using this procedure, it is the responsibility of the operator to remember that these are only general guidelines and one must use their best judgment at all times to protect people first and then the environment. It is also the operator's responsibility to take into consideration other emergency response guidelines (ex OSHA regulations). These should be considered and used to compliment the guidelines of this procedure throughout the emergency response.

1.3 System Overview

LMS operates two natural gas transmission pipelines, the WBI Interconnect Pipeline and the Alliance Sales Line. The WBI Interconnect Pipeline is a 0.77-mile long, 8" natural gas transmission pipeline. It is located in Williams County, ND beginning at LMS's County Line Plant and terminating at the WBI Meter Station. The WBI Interconnect consists of a single lateral that delivers gas to WBI Energy Midstream. Custody transfer of the pipeline occurs at the WBI Meter Station downstream of valve #1133101. The entire pipeline is in Class 1 locations, as defined by 49 CFR §192.5(b). See *Appendix B: WBI Interconnect Pipeline Map*. The Alliance Sales Line is a 4.72-mile long, 8" natural gas transmission pipeline. It is located in Williams and Mountrail Counties, ND beginning at LMS's County Line Plant and terminating at the Alliance interconnect. The Alliance Sales Line consists of a single lateral that delivers gas to Alliance Pipeline's Tioga Lateral. Custody transfer of the pipeline occurs at the Alliance Interconnect, just upstream of valve A1. The entire pipeline is in Class 1 locations, as defined by 49 CFR §192.5(b). See Appendix C: WBI Sales Line Pipeline Map.

2 EMERGENCY PLAN ADMINISTRATION

2.1 Plan Review and Distribution

The Director of Operations and Engineering will conduct a review of this plan annually, not to exceed 15 months to consider any updates or revisions to the plan based on legislative changes, industry trends, company experience, and best practices. All revisions will be documented in the *Review and Revision Log* at the beginning of this manual. Copies of the latest edition shall be distributed to all appropriate emergency response personnel, including supervisors.

2.2 Training

All appropriate employees and contractors shall be informed, instructed, and trained in executing the emergency procedures. Training may include classroom discussions on the procedures to be followed or field demonstration. Documentation of compliance will be on *F-192.615(b)(2): Emergency Response Training Form*. LMS management shall verify the effectiveness of this training.

Employee activities after a qualified incident shall be reviewed to determine whether the procedures were effectively followed and response times were adequate. Additional training shall be implemented if needed.

2.3 Investigation after Emergency

All investigations following an incident or emergency will follow Procedure *P-192.617 Investigating and Analyzing Incidents and Failures*. The investigation's primary purpose is to determine facts and obtain information, which will help to prevent recurrence of incidents. All incident investigations shall be performed as soon as possible following the emergency, and will include the selection of samples of the failed pipeline or equipment for laboratory examination, interviewing all personnel participating, and reviewing the emergency procedures. This review will be documented on form *F-191.1: Incident Notification Reporting and Investigation Packet*.

3 IDENTIFYING AND CLASSIFYING EMERGENCIES

3.1 Definition of Emergencies

For the purposes of this plan, an emergency is considered to be any hazardous or potentially hazardous situation presenting danger to personnel, the environment or property. If there is any doubt as to whether a hazardous situation constitutes an emergency, then it must be treated as an emergency.

There are several broad categories of emergencies that are likely to occur in relation to the operations:

- Gas Leak
- Fire/Explosion
- Injury/Illness to Personnel/Public
- Major Property Damage
- Natural Events (brush fires, flooding, earth slippage)
- Third-Party Damage

3.2 Classification of Emergencies

In the event of an emergency, the Emergency Management Team (EMT) will classify the situation under the category of Minor, Serious or Major.

3.2.1 Minor Emergency

A *minor emergency* is one that can be satisfactorily handled by company personnel and does not affect or threaten parties beyond the scope of the direct operations. A minor emergency would involve:

- Minor injuries to on-site personnel.
- Public safety is not threatened.
- Environmental impacts are confined to the location.
- No external assistance is needed.

3.2.2 Serious Emergency

A *serious emergency* is one that has implications beyond the control of local personnel. It would generally involve parties outside the direct scope of the operations including Government Agencies and outside contractors. A serious emergency would involve:

- Recordable and/or lost time injuries to multiple persons on site.
- Limited environmental impacts off-site with no long-term effects.
- Potential or actual threat to public safety.
- Risk of reputational damage or media coverage.

3.2.3 Major Emergency

A *major emergency* is an incident having major safety, environmental, Governmental, economic or public welfare implications. A major emergency would involve:

- Multiple lost time injuries or a fatality
- Public health and/or safety has been or is threatened.
- Long-term environmental effects expected.
- Environmental impacts are extended off site.
- Outside responders are involved.
- Major property damage.
- Media coverage expected.
- Potential reputational damage.

4 EMERGENCY COMMUNICATIONS

4.1 Required Information

When an employee discovers or is notified of a pipeline leak, break, or emergency situation that requires prompt and effective response, they should obtain the following information on form *F-191.1: Incident Notification Reporting and Investigation Packet*.

- Name of person finding or reporting the leak or emergency situation;
- Telephone number and location where this person can be contacted;
- Description of emergency
- Severity of leak, break or emergency;
- Location of emergency;
- Cause of emergency;
- Description of injuries;
- Distance to nearest structure; and
- Damage to property or structure.

The Director of Operations and Engineering or his designee shall handle all calls pertaining to emergency pipeline activities. After steps have been taken to protect people first, then property, steps shall be taken to make safe any actual or potential hazard and to notify the appropriate public officials required at the emergency scene. If an outside party notifies LMS of a possible emergency situation, the Director of Operations and Engineering will investigate further, and take appropriate action.

LMS's Emergency Contacts are listed in *Appendix A: Emergency Contact Numbers.*

4.2 Liaison with Public Officials

In accordance with LMS's Public Awareness Program, regular meetings and/or exercises are conducted with public officials/agencies in the vicinity of the pipeline. Methods of establishing and maintaining emergency communication and coordination are pre-planned in these meetings. The purpose of these meetings will be to:

- Allow LMS to learn about the responsibilities and resources of appropriate government organizations such as Fire and Police Departments.
- Acquaint Public Officials with LMS's ability to respond to gas pipeline emergencies.
- Review LMS's Emergency Response Plan and to identify the types of gas pipeline emergencies requiring notification of public officials.
- Plan how LMS and public officials can engage in mutual assistance to minimize hazards to life or property. A record of material covered and attendees, including LMS representatives conducting the meeting, shall be maintained.

4.3 Notification to the National Response Center

National Response Center 1-800-424-8802 or
electronically at http://www.nrc.uscg.mil
and North Dakota PSC at 877-245-6685

The LMS will notify the National Response Center (NRC) and North Dakota Public Service Commission (PSC) within one hour as soon as possible of confirmed discovery of an Incident involving pipeline facilities that meet any of the following:

1. An event that involves a release of gas from a pipeline and results in one or more of the following consequences.
    a. A death, or personal injury necessitating in-patient hospitalization; or
    b. Estimated property damage of $50,000 or more including loss to LMS and others, or both, but excluding cost of gas lost; or
    c. Unintentional estimated gas loss of three million cubic feet or more.
2. An event that is considered significant even though it did not meet the criteria above

See procedure*, P-191.5: Reporting Incidents,* for additional reporting requirements

5 EMERGENCY RESPONSE PROCEDURES

5.1 General Emergency Response

The following emergencies will be responded to immediately:

- Gas detected inside or near a building
- Fire located near or directly involving a pipeline facility
- Explosion involving or near LMS's pipeline
- Natural Disasters (such as earthquake, hurricane, tornado and severe flooding).

After steps have been taken to protect people first, then property, steps shall be taken to make safe any actual or potential hazard and to notify the appropriate fire, police, and other public officials of the gas pipeline emergency. Coordinate with them the planned and actual responses during the emergency.

5.2 Gas Detected in or Near a Building

Reports of gas detected in or near a building are considered emergencies and shall be responded to promptly and will take precedence over all non-emergency orders.

Detecting or Receiving Notice of the Leak

1. Report the suspected leak location to the local Management immediately.
2. Evacuate all persons in the building.
3. In the event the leak may affect the public, immediately notify the appropriate public safety officials, businesses and the general public to initiate an evacuation.
4. Shut in the appropriate pipeline segment (and/or booster site if necessary) to cut off the gas supply using the Pipeline Specific Operation Manual (PSOM) Shutdown Procedure. Take the necessary steps to prevent ignition of the released gas. Utilize the appropriate personal protective equipment (PPE) and "back-up" personnel.
5. Determine if any persons are missing. Initiate rescue activities (as necessary). Re-entry into an area of unknown concentration of H_2S will require the use of self-contained breathing equipment and "back-up" personnel.

Local Management

1. Confirm that personnel and public safety precautions appropriate for the circumstances are being taken. Evacuate personnel and the public from the areas most likely affected by the gas released (i.e. roadblocks, ambient air testing).
2. Notify Upper Management of the condition and actions to be taken.
3. Verify that public safety officials have been notified as necessary.
4. Ensure that additional personnel, equipment, tools and materials are dispatched as needed to the scene of the emergency.
5. Confirm that steps have been taken to stop the source of the release through the use of emergency shutdown systems or manual valves at safe locations.

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6. Start an Emergency Log to collect data for required Agency reporting.
7. Coordinate with local public safety officials as necessary.
8. Confirm appropriate personnel have the following information which is necessary for reporting to the appropriate state and federal agencies and to assure that the adequate safety precautions are being taken:
    a. Location of leak.
    b. Time of detection of the leak.
    c. Fatalities or personal injuries, if any.
    d. Cause of the leak.
    e. Amount and H_2S content of the gas released.
    f. Present location of the gas released and direction of travel.
    g. Possibilities of eminent danger or damage.
    h. Weather Conditions.
    i. Containment actions taken.
    j. Risk to the public.
9. Consult with the Director of Operations and Engineering for required agency notifications.
10. Initiate site security measures.
11. Consider the need for specialized company assistance (i.e. Industrial Hygiene, Environmental, Security, etc.).
12. Safely reinstate operations when the state of emergency is over.

5.3 Fire located near or directly involving a pipeline facility

Discovering or Receiving Notice of the Fire

1. If you are the person discovering the explosion, confirm you are at a safe distance and call 911.
2. Contact the Local Management and advise of situation.
3. Discontinue all tasks in progress in the area (hot work, maintenance, etc.).
4. Evacuate personnel and the public from the area most likely affected by the fire (i.e. roadblocks).
5. If the fire threatens the public (roads, homes, businesses) call the necessary public safety officials (police, fire, ambulance, etc.) to assist in the emergency. Contact any effective public in the affected area to initiate an evacuation if necessary.
6. Shut in and depressurize the appropriate pipelines by engaging emergency shutdowns and/or manually closing the appropriate valves from a safe distance to isolate the fuel source using the Shutdown Procedures located in the PSOM.
7. Continue measures to contain the fire, apply water to protect adjacent equipment from a safe distance.

8. Extinguish gas fires only if the source of the fuel can be stopped.

Local Management

1. Confirm that personnel and public safety precautions appropriate for the circumstances are being taken.
2. Notify Upper Management of the condition and actions to be taken.
3. Verify that public safety officials have been notified as necessary.
4. Confirm that steps have been taken to stop the source of the release through the use of emergency shutdown systems or manual valves at safe locations.
5. Ensure that the appropriate personnel, equipment, tools and materials are dispatched as needed to the scene of the emergency.
6. Start an Emergency Log to collect data for required Agency reporting.
7. Coordinate with local public safety officials as necessary.
8. Confirm appropriate personnel have the following information which is necessary for reporting to the appropriate state and federal agencies and to assure that the adequate safety precautions are being taken:
    a. Location of fire.
    b. Time of discovery.
    c. Fatalities or personal injuries, if any.
    d. Cause of the fire.
    e. Present location of the fire and direction of travel.
    f. Amount and H2S content of the gas released.
    g. Possibilities of eminent danger or damage.
    h. Weather Conditions.
    i. Containment actions taken.
    j. Risk to the public.
9. Consider the need for specialized company assistance, i.e. Industrial Hygiene, Environmental, Security, etc.
10. Consult with Director of Operations and Engineering for required agency notifications.
11. Initiate site security measures as required.
12. Safely reinstate operations when the state of emergency is over.

5.4 Explosions Involving or Near a Pipeline Facility

Discovering or Receiving Notice of the Explosion

1. If you are the person discovering the explosion, confirm you are at a safe distance and call 911.

2. Report the explosion to the Local Management from a safe distance.
3. Check for possible sources of ignition close by.
4. Where it is safe to do so; evacuate all persons in the immediate area by an escape route upwind of the released materials.
5. In the event of an explosion, which has affected or may affect the public, immediately notify the appropriate public safety officials (police, fire, ambulance, etc.), and the general public to initiate an evacuation of the area.
6. Shut in and depressurize the appropriate pipelines and facilities by engaging emergency shutdowns and/or manually closing the appropriate valves from a safe distance to isolate the source using the Shutdown Procedures located in the PSOM.
7. Take the necessary steps to prevent ignition of the released material.
8. Utilize the appropriate PPE and "back-up" personnel.
9. Determine all persons are accounted for.

Local Management

1. Confirm that personnel and public safety precautions are appropriate for the circumstances and are being taken. Ensure that personnel and the public are evacuated from the areas most likely affected by the released materials (i.e. roadblocks, ambient air testing).
2. Notify Upper Management of the condition and actions to be taken.
3. Verify that public safety officials have been notified as necessary.
4. Ensure that the appropriate personnel, equipment, tools and materials are dispatched as needed to the scene of the emergency.
5. Confirm that steps have been taken to stop the source of the release through the use of emergency shutdown systems or manual valves at safe locations.
6. Start an Emergency Log to collect data for required Agency reporting.
7. Coordinate with local public safety officials as necessary.
8. Confirm appropriate personnel have the following information which is necessary for reporting to the appropriate state and federal agencies and to assure that the adequate safety precautions are being taken:
    a. Location of explosion.
    b. Time of occurrence or discovery of the explosion.
    c. Fatalities or personal injuries, if any.
    d. Cause of the explosion if known.
    e. Amount and type and of material released.
    f. Present location of materials released and direction of travel.
    g. Possibilities of eminent danger or damage.

h. Weather conditions.

i. Containment and cleanup actions taken.

j. Risk to the public.

9. Verify that appropriate environmental protection measures are being taken (igniting the released gas, diking, skimmers, etc.) and that the appropriate external contacts have been made.
10. Consider the need for specialized company assistance (i.e. Industrial Hygiene, Environmental, Security, etc.).
11. Consult with Director of Operations and Engineering for required agency notifications.
12. Initiate site security measures.
13. Safely reinstate operations when the state of emergency is over.

5.5 Natural Disasters

Earthquake

During an earthquake, all LMS personnel are to first protect themselves. When the ground shaking stops, the actions listed below are to be taken.

1. If a release or a fire results, take action in accordance with the applicable LMS procedures.
2. Evaluate the extent of the emergency.
3. Shut in the affected pipelines if necessary by engaging the emergency shutdowns and/or manually closing the appropriate valves using the Shutdown Procedures located in the PSOM.
4. Divide the pipeline system among available personnel and conduct a thorough search of the system for ruptures, leaks, and equipment failures.
5. Contact the Local Management and advise of situation and any need for repairs or other assistance.
6. Contact local public safety officials as required.
7. Conduct a thorough follow-up inspection for residual safety hazards while observing the need for PPE.
8. Arrange for necessary repairs.
9. Safely reinstate operations when the state of emergency is over.

Severe Weather/Tornado

When a tornado is approaching the area, the following actions are to be taken:

1. Alert LMS personnel of the sighting of a tornado or the presence of severe weather.
2. Instruct personnel to seek cover in low areas or ditches. Do not seek refuge in processing areas or vehicles.
3. Shut in the affected pipelines if necessary using the Shutdown Procedures located in the PSOM.

4. After the storm has passed, conduct a thorough search of the system for ruptures, leaks, and equipment failures.
5. Contact local public safety officials as required.
6. Contact the Local Management and advise of situation and any need for repairs or other assistance.
7. Conduct a thorough follow-up inspection for residual safety hazards while observing the need for PPE.
8. Arrange for necessary repairs.
9. Safely reinstate operations when the state of emergency is over.

Natural Disaster – Severe Flooding

1. LMS personnel should first protect themselves when severe flooding is in the area
2. Evaluate the accessibility of pipeline facilities that may be in jeopardy
3. Determine if pipeline facilities have become submerged and in danger of being struck by vessel or debris
4. Deploy operating personnel in positions to take emergency action
5. Contact local public safety officials as required.
6. Contact the Local Management and advise of situation and any need for repairs or other assistance.
7. Conduct a thorough follow-up inspection for exposed pipe, and other residual safety hazards while observing the need for PPE.
8. Arrange for necessary repairs.
9. Safely reinstate operations when the state of emergency is over.

5.6 Determining the End of an Emergency

1. The highest-ranking LMS employee at the scene of an emergency will be responsible for determining when an emergency situation is over.
2. The end of an emergency should be communicated to all employees responding to that emergency. The minimum criteria listed below must be met before declaring the end of an emergency
    a. LMS facilities no longer pose a threat to the public, employees or property.
    b. Any fires resulting from the incident have been extinguished.
    c. Natural gas or other products are no longer being released to the atmosphere, ground or water.
    d. The probability of additional releases of natural gas or other products are unlikely.
    e. The incident scene is secure from any unauthorized entry.
    f. Service outages have been safely restored.

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6 APPENDICES

APPENDIX A: Emergency Contact Numbers

APPENDIX B: WBI Interconnect Pipeline Map

APPENDIX C: Safety Data Sheet

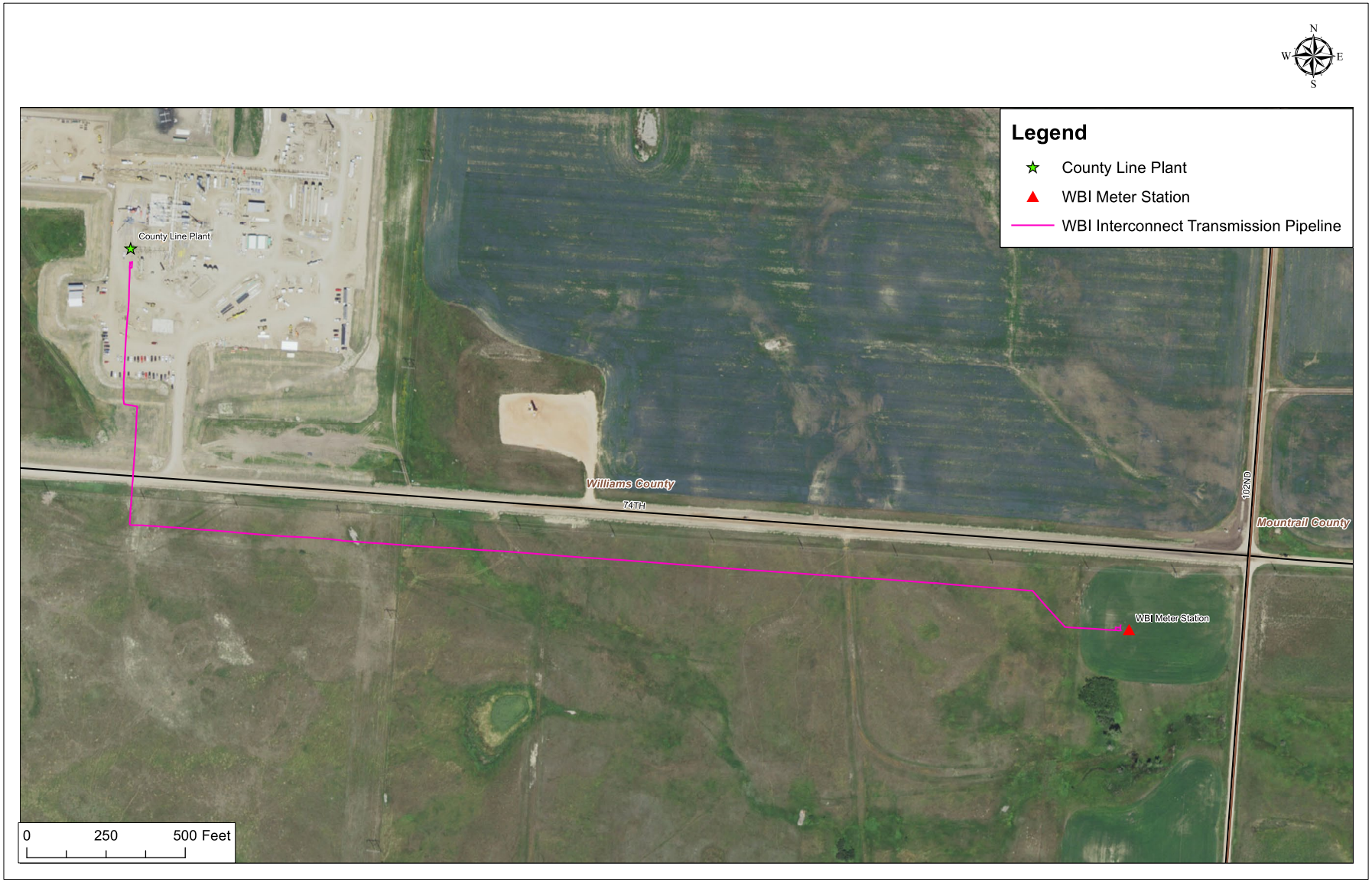
APPENDIX D: Alliance Sales Line Pipeline Map

APPENDIX A – Emergency Contact Numbers

Federal and State Agencies, North Dakota	Phone Numbers:
National Response Center (24-hour)	(800) 424-8802
Pipeline and Hazardous Materials Safety Administration (PHMSA) Central Region Office	(816) 329-3800
U.S. Department of Transportation: OPS	(202) 366-4595
North Dakota Public Service Commission	(877) 245-6685
U.S. Environmental Protection Agency: Regional Office Denver, CO.	(800) 227-8917
Federal Emergency Management Agency (24-hour)	(202) 646-2500
U.S. Department of Agriculture	(202) 720-2791
Occupational Safety & Health Administration: OSHA	(800) 321-6742
Agency for Toxic Substances & Disease Registry (24-hour)	(800) 232-4636
Local Agencies and Responders	**Phone Numbers:**
Law Enforcement	
Williams Co. Sheriff Dept.	(701) 577-7700
Tioga, ND Police Dept.	(701) 664-2514
North Dakota State Highway Patrol	(844) 474-6347

Local Agencies and Responders	Phone Numbers:
Fire and Rescue	
Tioga, ND Volunteer Fire Dept.	911
Other Important Numbers:	**Phone Numbers:**
Liberty Midstream Solutions Emergency Number	(701) 664-3035
Jerry Weiland (Local Management)	(406) 860-8319
Eric Bengtson (Director of Operations and Engineering)	(303) 886-7046
Receipts and Deliveries:	
**See Operations & Maintenance Plan*	

APPENDIX B – WBI Interconnect Pipeline Map



Appendix C: Safety Data Sheet

LIBERTY MIDSTREAM SOLUTIONS

SAFETY DATA SHEET

SECTION 1 : IDENTIFICATION

Product identifier used on the label:

Product Name: **Natural Gas**

SDS Manufacturer Number: 724330

Other means of identification:

Synonyms: Synonyms/ Fuel Gas; Residue Gas; Processed Gas; Natural Gas, Dry; Compressed Natural Gas

Recommended use of the chemical and restrictions on use:

Product Use/Restriction: Intended Use: Fuel

Chemical manufacturer address and telephone number:

Manufacturer Name: Conoco Phillips

Address: 600 N. Dairy Ashford
Houston, TX 77079-1175

Website: www.conocophillips.com

General Phone Number: 855-244-0762.....E-mail: SDS@conocophillips.com

Emergency phone number:

Emergency Phone Number: Chemtrec: 800-424-9300 (24 Hours)

SECTION 2 : HAZARD(S) IDENTIFICATION

Classification of the chemical in accordance with CFR 1910.1200(d)(f):

GHS Pictograms:

Signal Word: DANGER.

GHS Class: Flammable gases,. Category 1.
Compressed gases under pressure.
Simple Asphyxiant.

Hazard Statements: H220 - Extremely flammable gas.
H280 - Contains gas under pressure; may explode if heated.

Precautionary Statements: P210 - Keep away from heat/sparks/open flames/hotsurfaces. — No smoking.
P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 - Eliminate all ignition sources if safe to do so.
P410+P403 - Protect from sunlight. Store in a well-ventilated place.

Hazards not otherwise classified that have been identified during the classification process:

Natural gas, dried

Carcinogenicity: Not expected to cause cancer. This substance is not listed as a carcinogen by IARC, NTP or OSHA.

SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS

Mixtures:

Chemical Name	CAS#	Ingredient Percent	EC Num.
Natural gas, dried	68410-63-9	100 %	

Notes : [1] All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

SECTION 4 : FIRST AID MEASURES

Description of necessary measures:

Eye Contact:	If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.
Skin Contact:	First aid is not normally required. However, it is good practice to wash any chemical from the skin.
Inhalation:	(Breathing): If respiratory symptoms develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. If breathing is difficult, oxygen or artificial respiration should be administered by qualified personnel. If symptoms persist, seek medical attention.
Ingestion:	(Swallowing): This material is a gas under normal atmospheric conditions and ingestion is unlikely.

Indication of immediate medical attention and special treatment needed:

Note to Physicians:	Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high concentrations of hydrocarbon solvents (e.g., in enclosed spaces or with deliberate abuse). The use of other drugs with less arrhythmogenic potential should be considered. If sympathomimetic drugs are administered, observe for the development of cardiac arrhythmias.
Notes :	Most important symptoms and effects: Acute: Anesthetic effects at high concentrations. Delayed: None known or anticipated. See Section 11 for information on effects from chronic exposure, if any.

SECTION 5 : FIRE FIGHTING MEASURES

Suitable and unsuitable extinguishing media:

Suitable Extinguishing Media:	Dry chemical or carbon dioxide is recommended. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces.

Specific hazards arising from the chemical:

Hazardous Combustion Byproducts:	Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Oxides of nitrogen and sulfur may also be formed.
Unusual Fire Hazards:	Extremely flammable. This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. If container is not properly cooled, it can rupture in the heat of a fire. Contents under pressure.
Fire Fighting Instructions:	For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8). Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. If this cannot be done, allow fire to burn. Move undamaged containers from immediate hazard area if it can be done safely. Stay away from ends of container. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done safely.

NFPA Ratings:

NFPA Health:	1
NFPA Flammability:	4
NFPA Reactivity:	0

Notes :	NFPA 704 Hazard Class: (0-Minimal, 1-Slight, 2-Moderate, 3-Serious, 4-Severe) See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

SECTION 6 : ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Personnel Precautions:	Extremely flammable. Spillages of liquid product will create a fire hazard and may form an explosive atmosphere. Keep all sources of ignition and hot metal surfaces away from spill/release if safe to do so. The use of explosion-proof electrical equipment is recommended. Beware of accumulation of gas in low areas or contained areas, where explosive concentrations may occur. Prevent from entering drains or any place where accumulation may occur. Ventilate area and allow to evaporate. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

Environmental precautions:

Environmental Precautions:	Stop spill/release if it can be done safely. Water spray may be useful in minimizing or dispersing vapors. If spill occurs on water notify appropriate authorities and advise shipping of any hazard.
Methods for cleanup:	Notify relevant authorities in accordance with all applicable regulations. Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken.

SECTION 7 : HANDLING and STORAGE

Precautions for safe handling:

Handling:	Precautions for safe handling: Keep away from ignition sources such as heat/sparks/open flame – No smoking. Take precautionary measures against static discharge. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8). . .Contents under pressure. Gas can accumulate in confined spaces and limit oxygen available for breathing. Use only with adequate ventilation. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-70 and/or API RP 2003 for specific bonding/grounding requirements. Electrostatic charge may accumulate and create a hazardous condition when handling or processing this material. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. Cold burns may occur during filling operations. Containers and delivery lines may become cold enough to present cold burn hazard. The use of hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of incomplete combustion products (e.g. carbon monoxide, oxides of sulfur and nitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels.

Conditions for safe storage, including any incompatibilities:

Storage:	Conditions for safe storage: Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Store only in approved containers. Post area "No Smoking or Open Flame." Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes. "Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. Avoid exposing any part of a compressed-gas cylinder to temperatures above 125 deg F(51.6 deg C). Gas cylinders should be stored outdoors or in well ventilated storerooms at no lower than ground level and should be quickly removable in an emergency.

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Information related to product mixture :

Guideline Info:	Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Natural gas, dried :

Guideline ACGIH:	1000 ppm TWA as Aliphatic Hydrocarbons C1-4

Appropriate engineering controls:

Engineering Controls:	If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Individual protection measures:

Eye/Face Protection:	The use of eye/face protection is not normally required; however, good industrial hygiene practice suggests the use of eye protection that meets or exceeds ANSI Z.87.1 whenever working with chemicals.
Skin Protection Description:	The use of skin protection is not normally required; however, good industrial hygiene practice suggests the use of gloves or other appropriate skin protection whenever working with chemicals.
Respiratory Protection:	NIOSH approved, self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode should be used in situations of oxygen deficiency (oxygen content less than 19.5 percent), unknown exposure concentrations, or situations that are immediately dangerous to life or health (IDLH). A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use.
Notes :	Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

SECTION 9 : PHYSICAL and CHEMICAL PROPERTIES

PHYSICAL AND CHEMICAL PROPERTIES:

Physical State:	Physical Form: Compressed Gas
Color:	Colorless
Odor:	Slight hydrocarbon
Odor Threshold:	No Data
Boiling Point:	Initial Boiling Point/Range: No data
Melting Point:	No Data
Solubility:	Slight
Vapor Density:	(Air=1): 0.5
Percent Volatile:	100%
Evaporation Rate:	(nBuAc=1): No data
pH:	Not Applicable
Coefficient of Water/Oil Distribution:	(n-octanol/water) (Kow): No data

Flash Point:	-299 deg F/-184 deg C
Flash Point Method:	(estimate)
Lower Flammable/Explosive Limit:	(vol % in air): 2.0
Upper Flammable/Explosive Limit:	(vol % in air): 10.0
Auto Ignition Temperature:	999 deg F/537 deg C

9.2. Other information:

Notes :	Flammability (solid, gas): Extremely Flammable
	Note: Unless otherwise stated, values are determined at 20 deg C (68 deg F) and 760 mm Hg (1 atm). Data represent typical values and are not intended to be specifications.

SECTION 10 : STABILITY and REACTIVITY

Chemical Stability:

Chemical Stability:	Stable under normal ambient and anticipated conditions of use.

Possibility of hazardous reactions:

Hazardous Polymerization:	Not known to occur.

Conditions To Avoid:

Conditions to Avoid:	Avoid all possible sources of ignition. Heat will increase pressure in the storage tank.

Incompatible Materials:

Incompatible Materials:	Avoid contact with acids, aluminum chloride, chlorine, chlorine dioxide, halogens and oxidizing agents.

Hazardous Decomposition Products:

Special Decomposition Products:	Not anticipated under normal conditions of use.

SECTION 11 : TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION:

Natural gas, dried :

Eye:	Not expected to be irritating.
Skin:	Skin Absorption: Hazard: Skin absorption is not anticipated LD50: Not Applicable
	Skin exposure is not anticipated.
Inhalation:	Hazard: Unlikely to be harmful
	Additional Information: Asphyxiant. High concentrations in confined spaces may limit oxygen available for breathing. See Signs and Symptoms.
	LC50: > 20,000 ppm (gas)
Ingestion:	Ingestion (Swallowing): Hazard: Ingestion is not anticipated LD50: Not Applicable
Sensitization:	Skin Sensitization: Skin contact is not anticipated. Respiratory Sensitization: Not expected to be a respiratory sensitizer.
Carcinogenicity:	Not expected to cause cancer. This substance is not listed as a carcinogen by IARC, NTP or OSHA.
Mutagenicity:	Germ Cell Mutagenicity: Not expected to cause heritable genetic effects.
Reproductive Toxicity:	Not expected to cause reproductive toxicity.
Other Toxicological Information:	Signs and Symptoms: Light hydrocarbon gases are simple asphyxiants and can cause anesthetic effects at high concentrations. Symptoms of overexposure, which are reversible if exposure is stopped, can include shortness of breath, drowsiness, headaches, confusion, decreased coordination, visual disturbances and vomiting. Continued exposure can lead to hypoxia (inadequate oxygen), rapid breathing, cyanosis (bluish discoloration of the skin), numbness of the extremities, unconsciousness and death.
	Other Comments: High concentrations may reduce the amount of oxygen available for breathing, especially in confined spaces. Hypoxia (inadequate oxygen) during pregnancy may have adverse effects on the developing fetus.
Target Organ Single Exposures:	Not expected to cause organ effects from single exposure.
Target Organ Repeated Exposures:	Not expected to cause organ effects from repeated exposure.
Aspiration:	Not Applicable

SECTION 12 : ECOLOGICAL INFORMATION

Natural gas, dried :

Ecotoxicity:

Ecotoxicity:	Petroleum gases will readily evaporate from the surface and would not be expected to have significant

adverse effects in the aquatic environment. Classification: No classified hazards.

Persistence and degradability:

Biodegradation: Persistence and Degradability: The hydrocarbons in this material are expected to be inherently biodegradable. In practice, hydrocarbon gases are not likely to remain in solution long enough for biodegradation to be a significant loss process. Hydrogen sulfide, if present in refinery gas streams, will be rapidly oxidized in water and insoluble sulfides precipitated from water when metallic radicals are present.

Bioaccumulative potential:

Bioaccumulation: Bioaccumulative Potential: Since the log Kow values measured for refinery gas constituents are below 3, they are not regarded as having the potential to bioaccumulate.

Mobility in soil:

Mobility In Environmental Media: Mobility in Soil: Due to the extreme volatility of petroleum gases, air is the only environmental compartment in which they will be found. In air, these hydrocarbons undergo photodegradation by reaction with hydroxyl radicals with half-lives ranging from 3.2 days for n-butane to 7 days for propane.

Other Adverse Effects: None anticipated.

SECTION 13 : DISPOSAL CONSIDERATIONS

Description of waste:

Information related to product mixture:

Waste Disposal: This material is a gas and would not typically be managed as a waste.

SECTION 14 : TRANSPORT INFORMATION

DOT Shipping Name:
Shipping Description: UN1971, Natural gas, compressed, 2.1
Non-Bulk Package Marking: Natural gas, compressed, UN1971
Non-Bulk Package Labeling: Flammable gas
Bulk Package/Placard Marking: Flammable gas / 1971
Packaging - References: 49 CFR 173.306; 173.302; 173.302 (Exceptions; Non-bulk; Bulk)
Hazardous Substance: None
Emergency Response Guide: 115

Note: Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

IATA Shipping Name:
UN/ID : UN1971
Proper Shipping Name: Natural gas, compressed
Hazard Class/Division: 2.1
Subsidiary risk: None
Packing Group: None
Non-Bulk Package Marking: Natural gas, compressed, UN1971
Labels: Flammable gas , Cargo Aircraft Only
ERG Code: 10L
Packaging Instruction : LTD. QTY : Forbidden, Passenger Aircraft : Forbidden, Cargo Aircraft Only: 200
Max. Net Qty. Per Package: LTD. QTY : Forbidden, Passenger Aircraft : Forbidden, Cargo Aircraft Only: 150 kg

IMDG Shipping Name :
Shipping Description: UN1971, Natural gas, compressed, 2.1
Non-Bulk Package Marking: Natural gas, compressed, UN1971
Labels: Flammable gas
Placards/Marking (Bulk): Flammable gas / 1971
Packaging - Non-Bulk: P200
EMS: F-D, S-U

ICAO Shipping Name:
UN/ID : UN1971
Proper Shipping Name: Natural gas, compressed
Hazard Class/Division: 2.1
Subsidiary risk: None
Packing Group: None
Non-Bulk Package Marking: Natural gas, compressed, UN1971
Labels: Flammable gas , Cargo Aircraft Only
ERG Code: 10L
Packaging Instruction : LTD. QTY : Forbidden, Passenger Aircraft : Forbidden, Cargo Aircraft Only: 200
Max. Net Qty. Per Package: LTD. QTY : Forbidden, Passenger Aircraft : Forbidden, Cargo Aircraft Only: 150 kg

SECTION 15 : REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product:

Information related to product mixture:

TSCA Inventory Status: All components are either listed on the US TSCA Inventory, or are not regulated under TSCA

TSCA 12(b) Export Notification: U.S. Export Control Classification Number: EAR99

CERCLA Section 302: CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds): This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

Section 311/312 Hazard Categories:
CERCLA/SARA - Section 311/312 (Title III Hazard Categories)
Acute Health: Yes
Chronic Health: No
Fire Hazard: Yes
Pressure Hazard: Yes
Reactive Hazard: No

Section 313: CERCLA/SARA - Section 313 and 40 CFR 372: This material does not contain any chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372.

EPA (CERCLA) Reportable Quantity (in pounds): EPA's Petroleum Exclusion applies to this material - (CERCLA 101(14

California PROP 65:	California Proposition 65: This material does not contain any chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm at concentrations that trigger the warning requirements of California Proposition 65.
Canada DSL:	All components are either on the DSL, or are exempt from DSL listing requirements
Canada WHMIS:	WHMIS Hazard Class: A - Compressed Gas B1 - Flammable Gases

SECTION 16 : ADDITIONAL INFORMATION

HMIS Ratings:

HMIS Personal Protection:

Health Hazard	
Fire Hazard	
Reactivity	
Personal Protection	

Other Information:	SDS Number: 724330
SDS Revision Date:	October 08, 2015
MSDS Revision Notes:	Supersedes: 02/09/2012 Format change
Guide to Abbreviations:	ACGIH = American Conference of Governmental Industrial Hygienists; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; GHS = Globally Harmonized System; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)
Disclaimer:	The information presented in this Material Safety Data Sheet is based on data believed to be accurate as of the date this Material Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

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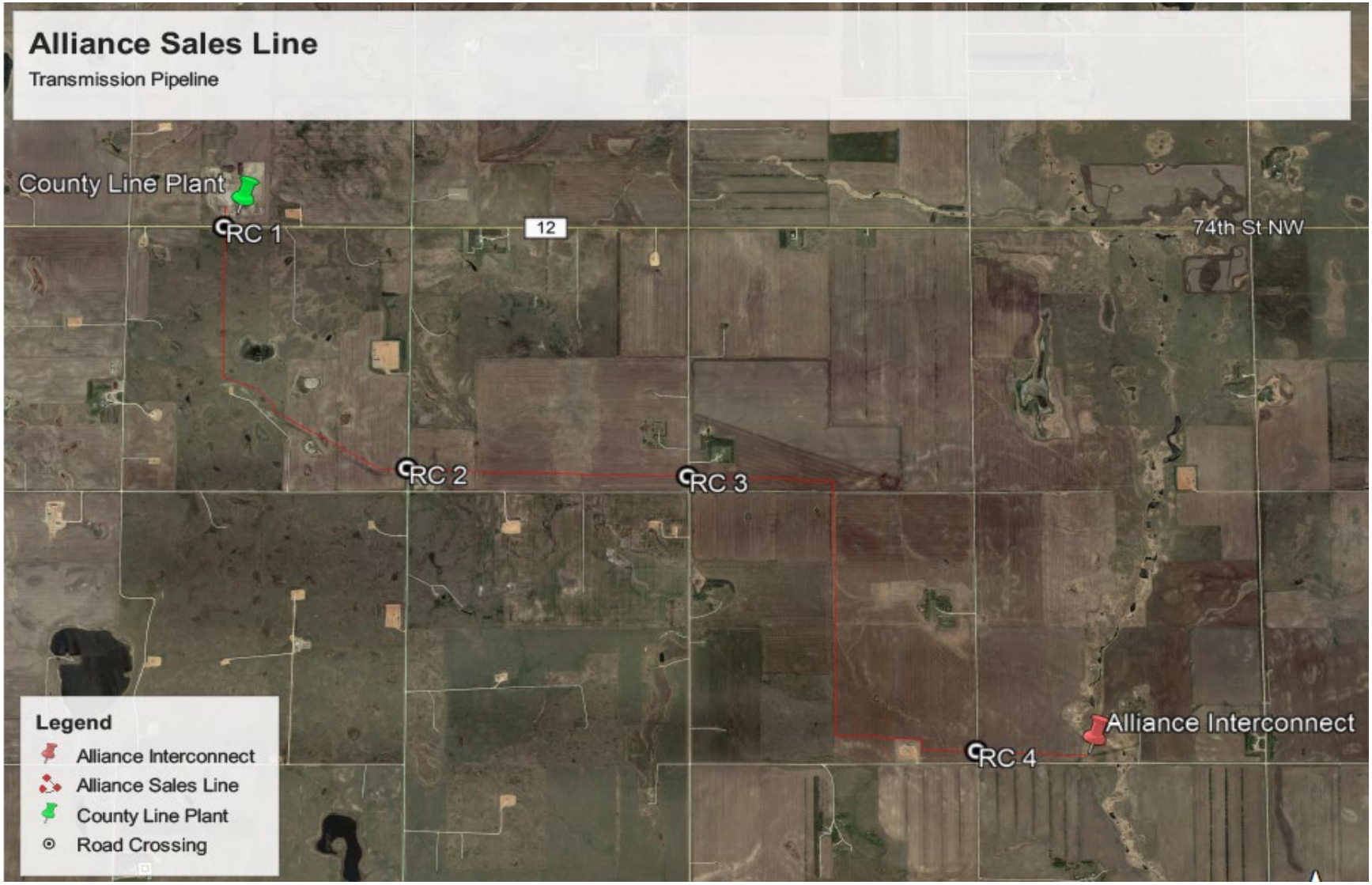
Appendix D: Alliance Sales Line Map



APPENDIX D
CULTURAL RESOURCE REPORT

A Class I and Class III Cultural Resource Inventory for the Liberty Midstream Residue Pipeline, Williams and Mountrail Counties, North Dakota

DECEMBER 2019

CONTAINS PRIVILEGED INFORMATION – DO NOT RELEASE

PREPARED FOR

Liberty Midstream Solutions, LLC

PREPARED BY

SWCA Environmental Consultants

LMS 179

MANUSCRIPT DATA RECORD FORM

1. Manuscript Number:
2. SHPO Reference #:
3. Author(s): Anastasia Gilmer and Jolene Schleicher
4. Title: A Class I and Class III Cultural Resource Inventory for the Liberty Midstream Residue Pipeline, Williams and Mountrail Counties, North Dakota
5. Report Date: December 4, 2019
6. Number of Pages: 44
7. Type – I

   I=Inventory; T=Formal Testing; E=Excavation; O=Other
8. List formally tested or excavated sites (not probes): N/A
9. Acres: 121.61
10. List the legal description* and study unit. For study unit assignment, use the township tables in the *State Plan*, http://history.nd.gov/hp/stateplan_arch.html.
    Study Units: LM, CB, KN, HE, SM, GA, JA, GR, NR, SR, SO, SH, YE

**For inventory*, *formal testing* and *excavation* projects, *list the CLASS III legal locations only*.

County	Township	Range	Sections	Study Unit
Williams	158N	95W	25	GA
Mountrail	158N	94W	29, 30, 32, 33	GA
Mountrail	157N	94W	4	GA

A CLASS I AND CLASS III CULTURAL RESOURCE INVENTORY FOR THE LIBERTY MIDSTREAM RESIDUE PIPELINE, WILLIAMS AND MOUNTRAIL COUNTIES, NORTH DAKOTA

Prepared for

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Submitted to

State Historical Society of North Dakota

Prepared by

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SWCA Cultural Resource Report No. 18-780
SWCA Project No. 51523

December 4, 2019

CONTAINS PRIVILEGED INFORMATION – DO NOT RELEASE

LMS 181

ABSTRACT

SWCA Environmental Consultants (SWCA) conducted a Class I and Class III cultural resource inventory in support of the proposed Liberty Midstream Solutions, LLC (LMS) Residue pipeline project in Williams and Mountrail Counties, North Dakota. The Class I was conducted on September 27, 2018, and the Class III was conducted on October 2 through 4 and 13, 2018. An update to the Class I was conducted on October 21, 2019, and an additional Class III survey was conducted on November 19, 2019. LMS proposes to construct the 4.76-mile-long pipeline on private land. The inventory was undertaken to assist LMS in meeting the cultural resource requirements within the North Dakota Public Service Commission's Certificate of Corridor Compatibility and Route Permit application for the proposed project. Additionally, SWCA's inventory assists LMS in achieving compliance with the Nationwide Permit General Conditions pertaining to Section 106 of the National Historic Preservation Act.

A 200-foot-wide area was inventoried centered on the proposed 4.76-mile-long pipeline, with additional inventory conducted to accommodate a shift in the pipeline alignment. The total Class III inventory consists of a 121.61-acre non-overlapping survey area for the proposed pipeline. Portions of the project are within previously inventoried areas. The current inventoried area is in Sections 29, 30, 32, and 33, Township (T) 158 North (N), Range (R) 94 West (W); Section 25, T158N, R95W; and Section 4, T157N, R94W.

During the inventory, SWCA personnel recorded two newly identified sites: 32WI2307, a historic farmstead site, and 32MN1516, a historic foundation site. 32WI2307 and 32MN1516 have been recommended not eligible for inclusion in the National Register of Historic Places; therefore, no further work is recommended for these sites. SWCA recommends the project be granted a determination of *No Significant Sites Affected* and clearance to proceed as planned.

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INTRODUCTION

SWCA Environmental Consultants (SWCA) conducted a Class I and Class III cultural resource inventory for the proposed Liberty Midstream Solutions, LLC (LMS) Residue pipeline project. LMS proposes to construct the 4.76-mile-long pipeline on privately owned land in Williams and Mountrail Counties, North Dakota.

The inventoried area is located in Sections 29, 30, 32, and 33, Township (T) 158 North (N), Range (R) 94 West (W); Section 25, T158N, R95W; and Section 4, T157N, R94W; as depicted on the Tioga (1979) and White Earth (1991), North Dakota, U.S. Geological Survey (USGS) 7.5-minute quadrangle (Figures 1a and 1b). A 200-foot-wide area was inventoried centered on the proposed pipeline centerline, with additional survey conducted to accommodate a shift in the pipeline alignment. In total, 121.61 non-overlapping acres were inventoried for the Class III inventory to ensure full survey coverage of the LMS Residue pipeline. Portions of the project are within previously inventoried areas (Bluemle 2002; Cox et al. 2013; McLean et al. 2012; Olson 1998); these areas were not re-inventoried for the current project. As proposed, the pipeline would be located fully within the current and previously inventoried areas.

The North Dakota Public Service Commission is the lead regulatory agency under the North Dakota Energy Conversion and Transmission Facility Siting Act (excluding any applicable county or local requirements). SWCA's Class I and Class III inventory of the project area assists LMS in meeting the cultural resource requirements within the North Dakota Public Service Commission's Certificate of Corridor Compatibility and Route Permit application for the proposed project. Additionally, SWCA's inventory assists LMS in achieving compliance with the Nationwide Permit General Conditions pertaining to Section 106 of the National Historic Preservation Act.

For the cultural resource inventory, Sarah Baer and Michael J. Retter served as co-principal investigators. The Class III inventory was completed by SWCA archaeologist Laci Paul. All field notes and photographs are on file at SWCA's Bismarck, North Dakota, office under project number 51523. The North Dakota State Historic Preservation Office is the lead agency for this undertaking.

Contains Privileged Information -- Do Not Release

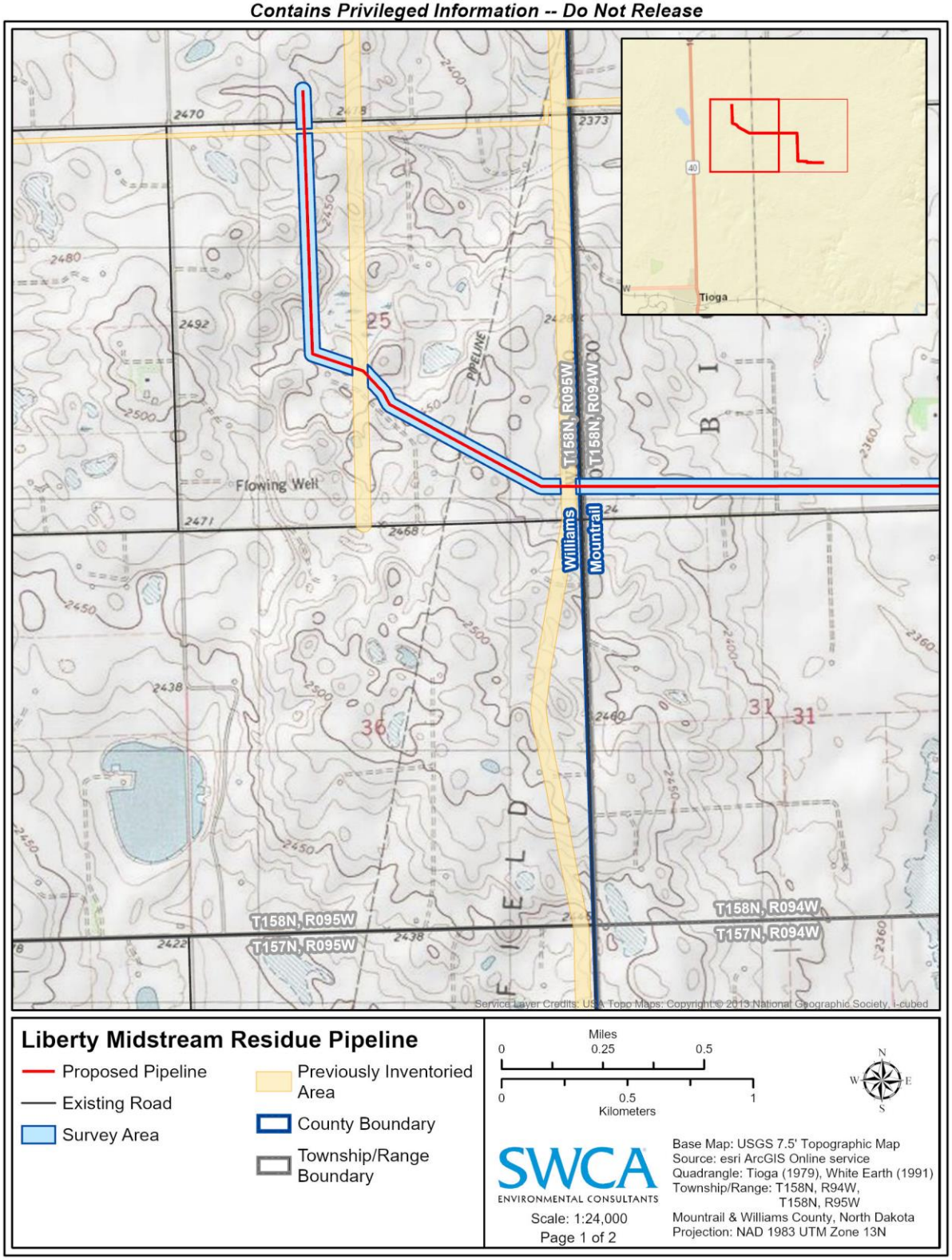

Figure 1a. Project location map, page 1 of 2.

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Contains Privileged Information -- Do Not Release

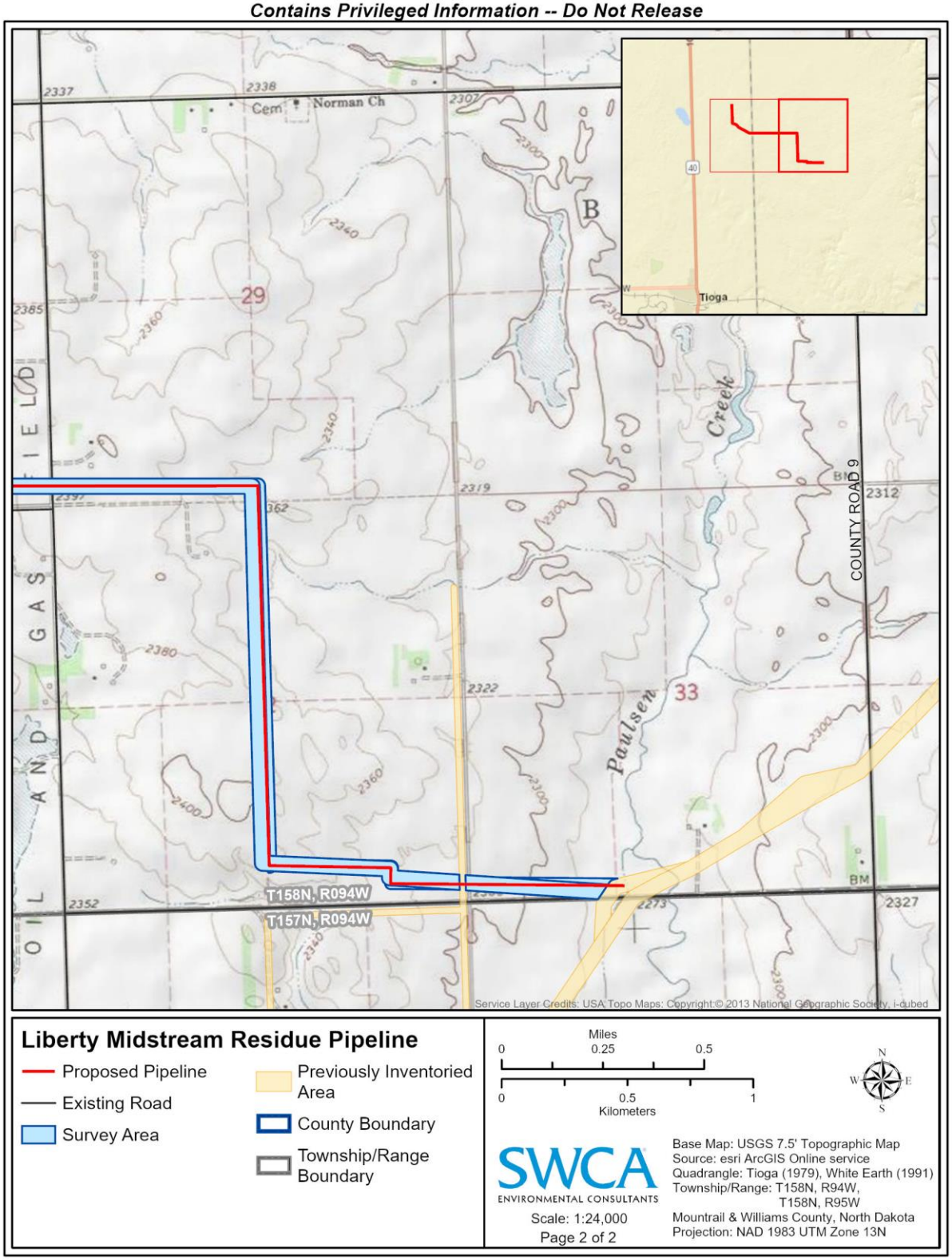

Figure 1b. Project location map, page 2 of 2.

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ENVIRONMENTAL SETTING

Topography

The project area is located in the unglaciated Missouri Plateau section of the Great Plains physiographic province in west-central North Dakota. The unglaciated Missouri Plateau section is characterized by old plateaus, terrace lands, local badlands, and isolated mountains (Fenneman 1931). The elevation in the project area ranges from approximately 2,185 to 2,420 feet above mean sea level. The topography within the project area is illustrated in Figures 2 and 3.

Figure 2. Overview of the topography within the project area, facing south near the northwestern end of the proposed pipeline.

Figure 3. Overview of the topography within the project area, facing west from near the southeastern end of the proposed pipeline.

Hydrology

The project area is within the Missouri River drainage system (North Dakota Geographic Information Systems 2018) and is drained by intermittent drainages that cross the survey area. These drainages flow generally southeast into Paulsen Creek. Paulsen Creek flows generally south to southeast to drain into White Earth River approximately 6.68 miles southeast of the project area. The White Earth River flows south to drain into Lake Sakakawea and the Missouri River approximately 23.9 miles south-southeast of the project area.

Geology

The geology of the western portion of the project area is characterized by Glacial Sediment-Collapsed Glacial Sediment and the eastern portion of the project area is characterized by Glacial Sediment-Glacial Sediment Draped Over Pre-existing Topography. Both geological features in the project area date to the Pleistocene and Holocene epochs and consist primarily of an unbedded, unsorted mixture of clay, silt, sand, and pebbles, and a few cobbles and boulders, up to 100 feet thick (Clayton 1980).

Soils

Eleven soil series are present within the project area, which generally consist of fine-loamy alluvium derived from fine-loamy glacial till within the project area. Williams Zahl loams, Williams Zahl Parnell complex, and Williams Bowbells loams are the most common soil series within the project area (Natural Resources Conservation Service 2018). William Zahl loams are concentrated in the western portion of the project area. The soils series features well-drained, deep deposits and is found on hillslopes of 3 to 6 percent. Williams Bowbells loams are concentrated in the western portion of the project area as well. Similarly, this soil series features well-drained, deep deposits, although it is found on rises with 0 to 3

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percent slope. Williams Zahl Parnell complex soils are concentrated in the eastern portion of the project area. The soils series features well-drained, deep deposits and is found on hillslopes of 0 to 9 percent.

The eight soil series representing the remaining portions of the project area include Bowbells loam, Divide loam, Hamerly-Tonka complex, Tonka silt loam, Williams-Zahl-Zahill complex, Zahl-Williams loams, Zahl-Max-Bowbells loam, and Zahl-Williams-Bowbells loams. The soils series features well-drained, deep deposits. Slope percentage within the project area ranges between 0 and 35 percent.

The soil types present have some depth but consistently occur on steep slopes, suggesting there is generally low potential for intact subsurface cultural deposits across the survey area. Williams-Bowbells loams, concentrated in the western portion of the project area, have an elevated potential for subsurface deposits because the low slope percentages and relative depth of this series indicate a stable landform, which is required for deposition to occur.

Flora and Fauna

The project area is within the Missouri Coteau Slope Level IV ecoregion within the Level III Northwestern Glaciated Plains ecoregion. The landscape is dominated by native mixed-grass prairie and associated wetlands. Vegetation known to occur in the Missouri Coteau Slope ecoregion includes prairie junegrass (*Koeleria macrantha*), blue grama (*Bouteloua gracilis*), western wheatgrass (*Pascopyrum smithii*), green needlegrass (*Nassella viridula*), and little bluestem (*Schizachyrium scoparium*) (North Dakota Game and Fish Department 2018). Vegetation observed within the project area consisted of little bluestem, western snowberry (*Symphoricarpos occidentalis*), prairie sagewort (*Artemisia frigida*), smooth brome (*bromus inermis*), and other grasses and forbs consistent with mixed-grass prairies. The vegetation communities observed within the project area are illustrated in Figure 4.

Figure 4. Overview of the vegetation within the project area, facing north.

Approximately 160 wildlife species are resident or seasonal visitors to the Missouri River ecosystem, and hundreds of native fish species live in the mainstem and tributaries. Some of the animal species that

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would have been common and available for human use in the Missouri River Valley area—both prehistorically and historically—include fur-bearing mammals such as beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), eastern cottontail (*Sylvilagus floridanus*), elk (*Cervus canadensis*), moose (*Alces alces*), mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), pronghorn (*Antilocapra americana*), and bison (*Bison bison*), as well as bird and waterfowl species such as mallard (*Anas platyrhynchos*), Canada goose (*Branta canadensis*), sharp-tailed grouse (*Tympanuchus phasianellus campestris*), golden eagle (*Aquila chrysaetos*), and bald eagle (*Haliaeetus leucocephalus*) (Seabloom et al. 1978).

At present, eight federally listed threatened and endangered species reside in Williams and Mountrail Counties: the whooping crane (*Grus americana*), piping plover (*Charadrius melodus*), interior least tern (*Sterna antillarum*), rufa red knot (*Calidris canutus rufa*), pallid sturgeon (*Scaphirhynchus albus*), Dakota skipper (*Hesperia dacotae*), gray wolf (*Canis lupus*), and northern long-eared bat (*Myotis septentrionalis*) (U.S. Fish and Wildlife Service 2018).

Environmental Constraints

The potential for preservation of archaeological materials within or adjacent to the project area has been impacted by farming, cattle grazing, and nearby oil and gas activity, including nearby well pads and access roads. Oil and gas development has occurred near the project area; although the recent drop in oil prices has slowed production, the overall demand for domestic energy sources has grown in recent years and is projected to increase in the near future. In some places, these land uses have resulted in increased ground visibility and removal of overburden, allowing for the identification of numerous sites and an interpretation of high site density. In other cases, though, these impacts have simply removed the archaeological materials and resulted in the identification of low site densities. In combination, these factors may have disrupted the contexts of a low percentage of cultural materials.

CULTURAL/HISTORICAL OVERVIEW

The prehistoric chronology for west-central North Dakota is typically divided into five major periods based on adaptive strategies and technological developments. These major periods are the Paleoindian, Plains Archaic, Late Prehistoric (which includes the Plains Woodland and the Plains Village traditions), Protohistoric, and Historic. At a minimum, humans have lived in western North Dakota since the end of the Pleistocene geologic epoch, based on occasional surface finds of Clovis and Folsom projectile points.

Dating of the Paleoindian period in the region ranges between 12,000 and 8,000 years before present (B.P.) (Frison 2001). The Paleoindian period is subdivided here into six main complexes: Clovis, Goshen, Folsom, Hell Gap/Agate Basin, Alberta/Cody, and Parallel Oblique Flaked.

The transition from Paleoindian to Archaic is archaeologically visible as an abrupt shift to large notched projectile points (Frison 1991), perhaps indicating a shift to atlatl propelled darts from hand-thrown spears. This transition is also associated with warming/drying trends that prompted diverse subsistence adaptations among hunter-gatherers (Carlson 1994). Temporally overlapping with the Northwestern Plains Late Archaic, the Plains Woodland tradition is characterized by increased sedentism, garden horticultural activity, expanding regional exchange networks with eastern Woodland populations (Adena and Hopewell), and the elaboration of ceremonial activities and mortuary practices, specifically mound burials (Griffin 1967). Lehmer (1971) defined the Plains Village tradition as possessing equal horticulture and hunting and gathering strategies, semipermanent villages near the Missouri River floodplain, earthlodges, large storage and refuse pits, distinctive ceramics, abundant end scrapers and arrow points, bison scapula hoes, and a well-developed bone tool industry. The Plains Village tradition is divided into

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the Middle Missouri tradition (A.D. 969–1500) and the Coalescent tradition (A.D. 1300–1650). A notable prehistoric site in Mountrail County is the Beacon Island Agate Basin Site (32MN234), which was an Agate Basin-age bison kill and processing site that has been determined eligible for inclusion in the National Register of Historic Places (NRHP) by the Keeper of the Register. A notable prehistoric site in Williams County is 32WI132, a stone circle site that has been tested, resulting in documentation of buried hearths and a lithic assemblage; the site has been recommended eligible for inclusion in the NRHP. Neither of these sites occur near the current project area.

The historic chronology of western North Dakota has been characterized by 32 diverse themes. A representative sample includes fur trade; exploration; Native American reservations; commerce; education; energy development; farming; irrigation and conservation; and roads, trails, and highways (North Dakota State Historic Preservation Office 2003). The characteristics of the Prehistoric and Historic periods are summarized in Figure 5.

From these overlapping series of prehistoric contexts and historic chronologies, a number of relevant and potentially relevant prehistoric and historic research themes are distillable in relation to the resource potential identified for the current project area. The types of prehistoric resources already identified within the area—cairns, cultural material scatters, stone circles, and isolated chipped stone—readily point to certain themes such as hunting and gathering, seasonal occupations, and possibly ceremonial activities. The types of historic sites and the historic use of the area point toward agriculture as the primary historic theme.

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<table>
<tr><th>Years BP</th><th>Period</th><th>Climate</th><th>Characteristics</th><th>Complexes/Traditions</th></tr>
<tr><td>0
100</td><td>Historic</td><td>Warmer and dryer</td><td>Advent of written records</td><td>Euro-American settlement</td></tr>
<tr><td>200
300</td><td>Protohistoric</td><td>Warmer, xeric</td><td>Euro-American trade goods introduced</td><td>Post-contact Coalescent</td></tr>
<tr><td>350
400
450
500
550
600</td><td rowspan="13">Plains Archaic Tradition
Plains Woodland Tradition
Plains Village Tradition</td><td>Little Ice Age</td><td rowspan="13">Increased sedentism, horticulture, regional exchange networks with eastern populations, the elaboration of ceremonial activities and mortuary practices, mound burials, ceramics appear, small notched points, warfare</td><td>Coalescent</td></tr>
<tr><td>650
700
750
800
850
900
950
1,000
1,050</td><td>Warmer, mesic</td><td>Middle Missouri:
Blackduck,
Old Womans,
Avonlea,
Laurel,
Besant</td></tr>
<tr><td>1,500
2,000
2,500
3,000
3,500</td><td>Warmer and xeric</td><td>Ground stone,
shift to large notched projectile points,
pithouses, storage pits, bison kills, transient camps</td><td>Pelican Lake,
McKean,
Oxbow,
Logan Creek/Mummy Cave</td></tr>
</table>

Figure 5. Characteristics of cultural periods in North Dakota.

BACKGROUND RESEARCH

As part of the initial phase of this investigation, SWCA conducted a Class I background search of archaeological and historical literature and records for the project area and surrounding 1.0-mile-wide survey area (0.5 mile either side of the proposed pipeline) on September 27, 2018. An updated Class I search was conducted on October 21, 2019. Researchers searched relevant records holdings at the State Historical Society of North Dakota for information regarding previously conducted cultural resource

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inventories and previously recorded historic and prehistoric sites located within the survey area. Additionally, SWCA searched historical survey maps of the survey area. The historic General Land Office survey plat dated to 1900 does not show any historic features within the survey area (North Dakota State Water Commission 2018).

Based on the records search results, 15 previous cultural resource inventories and investigations were conducted in the 1-mile survey area between 1980 and 2018 (Table 1). The inventories were conducted for oil and gas development of the area, including access roads and pipelines; transportation projects; power projects; communication projects; and water-related projects. The 15 inventories that have occurred within the 1-mile survey area recorded an average of one resource for every 12.89 acres surveyed.

Results of the background search identified nine previously recorded cultural resources within the 1-mile survey area (Table 2). Of the nine cultural resources, seven are historic and consist of one Lutheran Church and associated cemetery, one schoolhouse structure, and five homesteads. The remaining two sites are of unknown age and consist of one stone circle site and one stone cairn site. Four of the sites—the stone circle site (32WI00354), the cairn site (32WI01630), and two architectural structures (32MN00692 and 32MN01393)—remain unevaluated regarding their eligibility for inclusion in the NRHP. The remaining five resources are recommended not eligible for inclusion in the NRHP. None of the previously recorded cultural resources are located within the current survey area.

Table 1. Previous Inventories within 1-mile Survey Area

Manuscript Number	Location	Title	Author	Year
000970	Sections 24, 25, and 36, T158N, R95W	Cultural Resource Inventory of the Proposed Saskatchewan, Canada, Intertie Transmission Line Right of Way, Northwestern North Dakota, Vol. 1, Ward, Mountrail, Williams, Divide, & Burke Counties	R. Fox	1980
007144	Sections 24, 25, and 36, T158N, R95W	Dakota Gasification Company CO2 Pipeline Selected Segments in Mercer, Dunn, McKenzie, Williams and Divide Counties, North Dakota: A Class III Cultural Resources Inventory and Appendix B: USGS Topographic Coverage of the Pipeline	B. Olson	1998
007299	Section 36, T158N, R95W	Final Report of Evaluative Testing of Sites Impacted by the Dakota Gasification Company CO2 Pipeline: Mercer, Dunn, McKenzie, and Williams Counties, North Dakota	B. Olson	1999
008271	Sections 4 and 5, T157N, R94W; Section 32, T158N, R94W; Sections 23-26 and 35, T158N, R95W	Four NCC Exchanges: A Class II & Class III Cultural Resources Inventory, Burke, Divide, Williams and Mountrail Counties, North Dakota	W. Bluemle	2002
008611	Section 4, T157N, R94W; Section 33, T158N, R94W	Road Improvement Project, Class III Cultural Resources Inventory, Mountrail County, North Dakota	J. Hertaus	2003
011870	Sections 23 and 26, T158N, R95W	Cultural Resources Survey Report State Route 40: Near Tioga North to East Junction ND 50 State Route 50: McGregor South to West Junction ND 40, Williams and Burke Counties, North Dakota	K. Gilmore	2010
012951	Sections 4 and 5, T157N, R94W; Section 33, T158N, R94W	Class II-III Cultural Resources Investigations for the Tioga Lateral Project in Williams, Mountrail, Burke, Ward, and Renville Counties, North Dakota	J. McLean	2012

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Manuscript Number	Location	Title	Author	Year
013588	Sections 4 and 5, T157N, R94W; Sections 32 and 33, T158N, R94W	Addendum Report 2: Supplemental Class III Cultural Resources Investigations for the Tioga Lateral Project in Williams, Mountrail, Burke, and Renville Counties, North Dakota & Archeological Assessment of 32BK116, Burke County, North Dakota	J. Evans	2012
013588	Sections 4 and 5, T157N, R94W	Addendum Report 2: Supplemental Class III Cultural Resources Investigations for the Tioga Lateral Project in Williams, Mountrail, Burke, and Renville Counties, North Dakota & Archeological Assessment of 32BK116, Burke County, North Dakota	J. Evans	2012
013948	Sections 24, 25, and 36, T158N, R95W	A Class I and Class III Cultural Resource Inventory of the Hess Avalanche Pipeline, Burke, Divide, Mountrail, and Williams Counties, North Dakota	M. Cox	2013
014725	Section 23, T154N, R95W	Hove Material Source Area: A Class III Cultural Resource Inventory in Williams County, North Dakota	E. McCann	2013
014824	Section 26, T158N, R95W	Tioga Material Source Area: A Class III Cultural Resource Inventory, Williams County, North Dakota	L. Reiners	2012
016725	Section 25, T158N, R95W	WBI Energy's Liberty Receipt Station and Access Road: A Class III Cultural Resource Inventory in Williams County, North Dakota	B. Snortland	2016
017819	Section 4, T157N, R94W	Update to the West White Earth Waterline Service Area: A Class III Cultural Resource Inventory, Mountrail and Williams Counties, North Dakota	J. Morrison	2018
018235	Sections 25 and 36, T158N, R95W	Class III Cultural Resource Inventory of the Upland Pipeline System Project Study Corridor and Addendum, McKenzie, Williams, Mountrail and Burke Counties, North Dakota (EEU4936-EXP-EN-RP-0024 & EEU4936-EXP-EN-RP-0031)	D. Davidson, B. Fandrich, P. Kuntz, L. Peterson, J. Thomas, C. Tinti	2015

Table 2. Previously Recorded Resources with 1-mile Survey Area

Site Number	Site Type	Cultural Affiliation	NRHP Eligibility
32MN00692	Lutheran Church and Cemetery	Historic	Unevaluated
32MN01393	Schoolhouse	Historic	Unevaluated
32WIX0233	Homestead	Historic	Not eligible
32WI01497	Homestead	Historic	Not eligible
32WIX0234	Homestead	Historic	Not eligible
32WI01361	Homestead	Historic	Not eligible
32WIX0235	Homestead	Historic	Not eligible
32WI00354	Stone circle site	Unknown	Unevaluated
32WI01630	Stone cairn site	Unknown	Unevaluated

STATEMENT OF OBJECTIVES/RESEARCH DESIGN

Objectives

The overall goal of this cultural resource inventory is to assist LMS in the identification, evaluation, and management of identified cultural resources that might be affected by the proposed project. In general, the objectives of the inventory were to 1) identify all cultural and historic resources within survey area; 2)

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make an initial recommendation regarding identified resources' eligibility for inclusion in the NRHP; and 3) make the appropriate recommendations regarding the treatment of all identified resources. The inventory was undertaken to assist LMS in meeting the cultural resource requirements within the North Dakota Public Service Commission's Certificate of Corridor Compatibility and Route Permit application for the proposed project. Additionally, SWCA's inventory assists LMS in achieving compliance with the Nationwide Permit General Conditions pertaining to Section 106 of the National Historic Preservation Act.

Expected Results

Small, localized prehistoric activity sites are common within the general region. Due to substantial historic grazing activities in the project area and, more recently, urban development and oil and gas infrastructure construction, it is not expected that significant prehistoric resources remain in undisturbed surface exposures. However, buried cultural deposits could coincide with deeper soils along ridgetops. Regardless, the limited extent of the project area is anticipated to minimize the possibility of encountering significant (NRHP-eligible) prehistoric archaeological sites. Likewise, no significant subsurface historic resources are expected to be recorded as a result of this inventory, unless previously identified. Identifiable historic resources were expected to be represented by isolated historic materials related to road development, farming, and ranching.

FIELD METHODS

Fieldwork was designed so that project archaeologists could record all appropriate and necessary data for the completion of the project report, to convey Class I and Class III cultural resource inventory results and recommendations, and to ensure accurate completion of site forms for all resources encountered.

In accordance with the scope of work, archaeologists inventoried the survey area using parallel linear transects with spacing not exceeding 15 meters (m). The ground surface was examined for artifacts, features, or other evidence of cultural occupation. Cut banks, eroded surfaces, and other areas with significant exposure were examined intensively throughout the fieldwork.

When cultural resources are located, project archaeologists make an intensive effort to fully and accurately establish the extent and boundaries of newly identified and previously recorded sites. Sites are mapped using Trimble global positioning system (GPS) units with submeter accuracy. When detailed mapping or remapping is required, all linear site features (such as site boundaries, roads, and fence lines), as well as point features (such as the site datum, cultural features, artifact concentrations, diagnostic artifacts and tools, and other necessary data) are mapped with the Trimble GPS unit for post-processing into ArcMap 10.3 shapefiles, and for plotting onto associated USGS 7.5-minute quadrangles to ensure accuracy and to produce required location maps of all sites and resources.

In addition to site mapping, project personnel photograph sites in overview and for other data collection needs. Associated features and diagnostic artifacts are described, measured, recorded using handheld GPS units, and photographed, as appropriate. Field personnel note the environmental setting, context, topography, and geographical location for each cultural resource.

Site Evaluation

SWCA evaluates sites and their significance, as defined by the following criteria set forth in Title 36 Code of Federal Regulations 60.4 (National Park Service 1991).

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A) that are associated with events that have made a significant contribution to the broad patterns of our history;

B) that are associated with the lives of persons significant in our past;

C) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D) that have yielded, or may be likely to yield, information important in prehistory or history.

Sites that are not eligible are unlikely to contribute further data significant to our knowledge of prehistory or history and/or may no longer possess integrity.

Prehistoric Archaeological Sites

Prehistoric lithic scatters/campsites (sites without any structures or association with known significant events or persons) generally will not require discussion of Criteria A, B, and C. Instead, for NRHP recommendation purposes, these properties are discussed for their potential to yield information significant to prehistory or the archaeological record under NRHP Criterion D. Special cases generally relate to Criterion A, where a prehistoric site type (such as a stone circle site) may not be recommended eligible for the NRHP from an archaeological perspective but may be considered important to cultures of Native American peoples.

Evaluation of the significance of archaeological sites under Criterion D involves considering general characteristics such as the nature, size, and diversity of the site assemblage; the potential presence or absence of subsurface cultural deposits; the nature of any features within the site (construction techniques, building materials, structural integrity); and the age range reflected by the site assemblage. Sites considered to be significant generally contain an assemblage of cultural remains that reflects sufficient diversity to permit identification of activities and allow confirmation of the period of site use. Sites with the most potential to address research questions about human lifeways contain associated features, structures, and/or relatively intact and dateable artifacts.

Historic Archaeological Sites or Components

Historic sites containing or consisting of preserved features or structures are evaluated primarily under Criteria A, B, and C. Historic trash scatters lacking associated features or structures are primarily evaluated under Criterion D. In general, these types of sites represent ephemeral prospecting or stock management activities, but they lack identifiable or important association with specific persons or events of regional or national history (Criteria A and B), and they lack the formal and structural attributes necessary to qualify as eligible under Criterion C. The evaluation of significance of historic archaeological sites under Criterion D focuses on the capacity of the sites or components to yield significant information regarding knowledge of history during the period(s) of site significance. Evaluation of the significance of historic sites considers general characteristics such as the nature, size, and diversity of the site assemblage; the potential presence or absence of subsurface cultural deposits; the nature of any features within the site; construction techniques; building materials; structural integrity; and the age range reflected by the site assemblage.

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Historic sites considered to be significant under Criterion D generally contain an assemblage of cultural remains that reflects sufficient diversity to permit identification of activities and allow confirmation of the period of site use. Sites with the most potential to address research questions contain associated features, structures, and relatively intact and datable artifacts. Significant sites are those that could impart information not available solely from historical documents. Although archival research may provide an essential form of information, often historical records are inaccurate or incomplete. For example, examination of construction techniques or household assemblages can provide information on economic slumps, reuse of structures for other than original purposes, and re-occupation cycles. As a result, insight may be gained into questions about human lifeways that are often asked in archaeology, but rarely answered directly in historical documentation.

Non-Archaeological Historic Sites or Components

Non-archaeological historic sites or sites with non-archaeological components are those primarily assessed for NRHP eligibility under Criteria A, B, and C, rather than Criterion D, and typically are not subject to subsurface testing. Individual segments of significant historic sites are evaluated as contributing or non-contributing in terms of physical and environmental integrity. Examples of historic site types include linear historic features, such as transportation routes and water conduits, standing buildings, and structure sites. Historic site types potentially include any historic feature on an otherwise archaeological site, such as traditional cultural property features. Historic and ethnographic sites evaluated for potential contributions to history or cultural traditions for reasons beyond their possible future research value tend to have different evaluation and management considerations than archaeological sites. Typically, the integrity of historic sites is addressed using the guidelines presented in National Register Bulletin 15 (National Park Service 1991), which defines the seven elements of integrity as location, design, setting, materials, workmanship, feeling, and association. Properties are basically evaluated in consideration of their physical integrity and the integrity of their surroundings. Traditional cultural properties are also considered under the guidelines of National Register Bulletin 38 (Parker and King 1998).

RESULTS

SWCA conducted a Class III inventory of the project area on October 2 through 4 and 13, 2018, and November 19, 2019. During the inventory, SWCA personnel newly recorded two sites: 32WI2307 and 32MN1516. The location of both resources is illustrated in the maps provided in Appendix A, and copies of the North Dakota site forms are provided in Appendix B (detached). Additionally, 15 field clearing piles and gravel piles were noted but not recorded (see maps in Appendix A).

Vegetation within the project area consists of little bluestem, western snowberry, prairie sagewort, buffaloberry (*Shepherdia argentea*), goldenrod (*Solidago* sp.), smooth brome, and various grasses and forbs. Agricultural fields planted with wheat (*Triticum* sp.) and bean (Fabaceae) crops were encountered as well. Ground surface visibility during the survey ranged from 10 to 60 percent, with higher surface visibility in agricultural fields compared to pastures. Impacts to the project area include agricultural activities, such as plowing, cattle grazing, and ranching.

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Newly Recorded Sites

32WI2307

Site Type:	Farmstead
Association:	Historic
Site Size:	136.72 × 167.58 feet (23,086.80 feet squared)
Surface Ownership:	Private
NRHP Recommendation:	Not Eligible
Management Recommendation:	No Further Work

Site Description

32WI2307 is a newly recorded historic farmstead site situated on top of a hill within rolling grassland topography (Figures 6 and 7). The site is situated between wetlands, one small one to the north and a larger one to the southeast; 103rd Avenue NW is to the west. Vegetation present includes various sedges, short prairie grasses, and forbs. The primary impact to the site is a small two-track road traversing to the west and south.

Figure 6. 32WI2307 overview, facing southeast.

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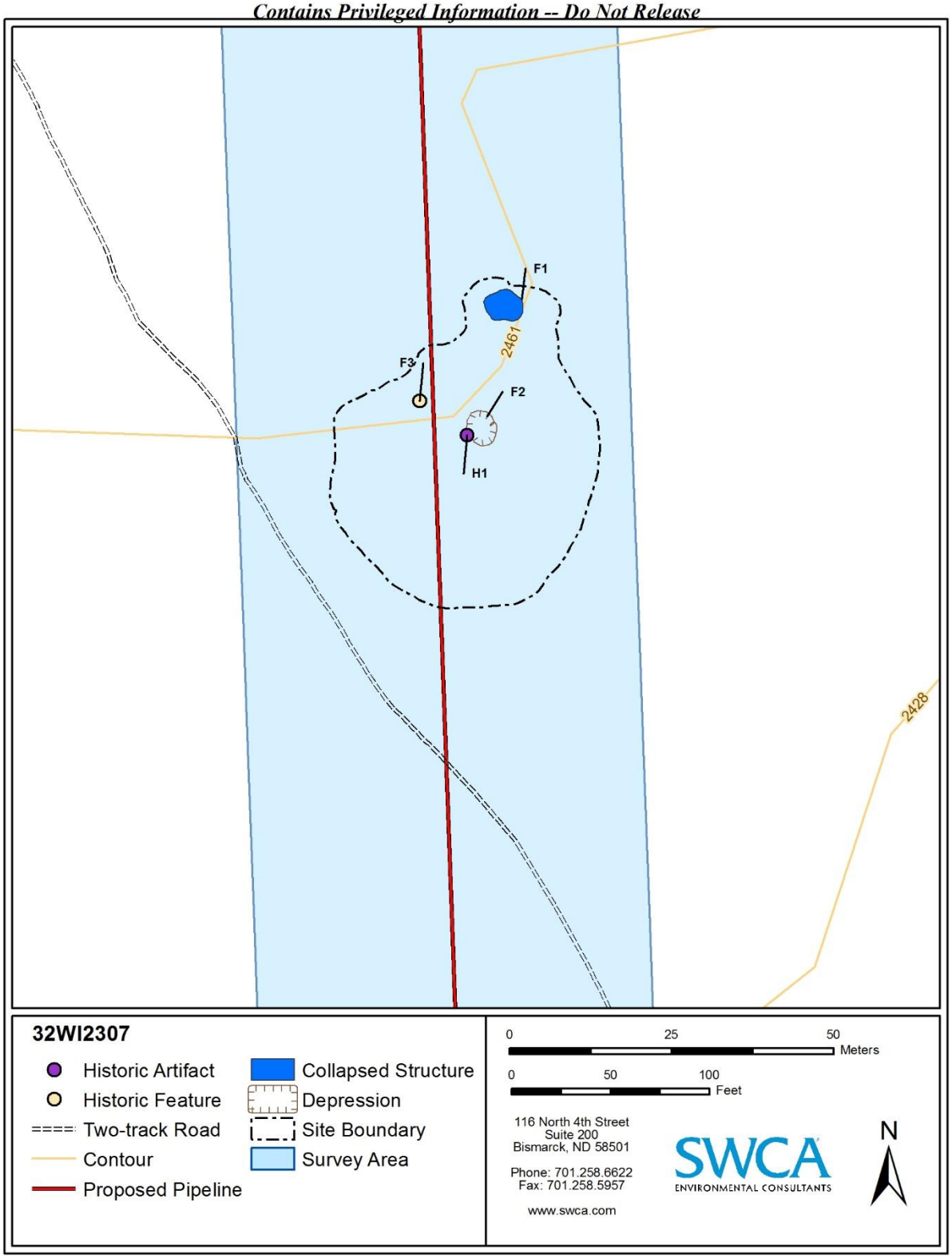

Figure 7. 32WI2307 sketch map.

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Survey Results

SWCA recorded 32WI2307 on October 2, 2018. The site consists of three features: a possible collapsed structure (Feature 1) and two depressions (Features 2 and 3).

Feature 1 is downed trees on top of historic building materials, including milled wood, a stove pipe, miscellaneous metal fragments, and wire nails (Figure 8). The stove pipe has gray metal sheeting, a concrete interior, and an internal metal cylinder.

Feature 2 is a slight, 4-inch-deep depression measuring 15 feet north–south × 12 feet east–west, adjacent to a historic stove, milled lumber, and a spring mattress (Figure 9). The stove is embossed with JUNGERS STOVE & RANGE CO., GRAFTON WIS. on the front and JUNGERS, PATENTED NO. 1, MODEL E RANGE on the door (Figure 10). The Jungers Model E Range came into production circa 1922 (*American Artist and Hardware* 1922:35).

Feature 3 is a circular depression measuring 4 × 4 feet in diameter and is 10 to 11 inches deep (Figure 11). A single crushed sanitary can was recorded within the depression.

Figure 8. 32WI2307 Feature 1 overview, facing east.

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Figure 9. 32WI2307 Feature 2 overview, facing west.

Figure 10. 32WI2307 Feature 2 historic artifact, detail view.

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Figure 11. 32WI2307 Feature 3 overview, facing south.

Milled lumber is scattered across the site. Other artifacts include small pieces of railroad ties, metal pipe, wire nails, and fragments of concrete. Subsurface testing was not performed. The site generally lacks physical condition as no structural components remain standing.

Historic Background

SWCA conducted historic research on the site location by conducting a deed search at the Williams County Recorder office, as well as using Bureau of Land Management (BLM) General Land Office records (GLO). The results of both the deed search and the GLO record search indicate that the land on which the site is located was originally patented by Kari E. Sletta on August 13, 1908, under a homestead patent (BLM 2018 [1907]:Accession Number 7419). It should be noted that the BLM's transcribed records mistakenly list Karl E. Sletta as holding the patent, while the image of the patent document clearly lists Kari E. Sletta. According to records available on Ancestry.com (2018a), Kari E. Sletta emigrated to North Dakota from Norway in 1913 (Ancestry.com 2018b). She became a naturalized citizen on October 18, 1913, in Williams, North Dakota (Ancestry.com 2018b). The deed search indicated that Ms. Sletta lost the land between 1929 and 1933 due to non-payment of taxes. No additional records of Kari E. Sletta could be found.

According to the deed search, the property was acquired by Hjalmer Ives from Williams County in 1947 and remains in the Ives family. Census records available on Ancestry.com (2019a) indicate that Hjalmer Ives was born in 1906 in North Dakota, and in 1940, he was a farmer in Lindahl Township, Williams County, North Dakota. In 1940, he was renting the home where he lived with his wife, Mabel. Hjalmer Ives died in Tioga, North Dakota, in 1973 (locateancestors.com 2019a). No additional records of Hjalmer Ives could be found. The patents issued nearby are to a variety of families, none of which appear to be related to Kari E. Sletta. However, the deed search indicates that the surrounding area is also currently owned by the Ives family. Based on the deed search and patent records, 32WI2307 is likely related to Kari E. Sletta and may have continued occupancy through Hjalmer Ives, although a direct connection to neither party could be made through the features and materials present on-site or the available records.

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NRHP Eligibility Recommendation

32WI2307 is a newly recorded historic farmstead site situated on top of a hill within rolling grassland topography. Based on the information provided in the deed and GLO searches, the earliest date of occupation would be 1908. The style of wood stove present is consistent with early 1900s occupation. This corresponds with a period of mass settlement and homesteading, particularly in Williams County and elsewhere in northwestern North Dakota. Significance of the site relates to the settlement of the area during that era and coincides with those associated events.

Although the site maintains general integrity of location and setting, the site's integrity of material, workmanship, and design has been impacted through the deterioration of the features and the absence of standing structures. The site further lacks integrity of association and feeling with the most recognizable features that would have defined site character being absent.

As stated above, the site has potential significance in connection with events important to the historic settlement of the area; however, it lacks intact structures or materials that might convey that significance within the context of initial settlement. Therefore, SWCA recommends the site not eligible for inclusion to the NRHP under Criterion A.

While Kari E. Sletta may have contributed to the settlement of the area as an initial homesteader, no available record indicates that she is of specific importance within local, regional, or national history in connection with her homestead site or otherwise. Should she have been, the site further lacks the integrity necessary to convey any significance of Ms. Sletta's connection. Therefore, SWCA recommends the site not eligible for inclusion to the NRHP under Criterion B. Mr. Ives' association with the site appears outside of the period of significance for area settlement history; also, no available record indicates his specific importance to local, regional, or national history in connection with the site or otherwise.

As stated above, the site lacks a building superstructure and, as such, does not convey any distinctive characteristics of type, period, and method of constructions, nor does the site convey the work of a master had one been found to be the designer. Therefore, SWCA recommends the site not eligible for inclusion to the NRHP under Criterion C.

Although a limited scatter of cultural materials is present at the site and the few features retain sufficient form pattering to suggest a homestead/farm occupation along with the artifact scatter, the site lacks sufficient archaeological features and materials to support research that would contribute significantly to local or regional understanding of historic settlement or other themes important in history. Therefore, SWCA recommends the site not eligible for inclusion to the NRHP under Criterion D.

Management Recommendation

32WI2307 is a historic farmstead site that is recommended not eligible for the NRHP. SWCA recommends no further work for this site.

32MN1516

Site Type:	Foundation
Association:	Historic
Site Size:	132.88 × 92.29 feet (12,196.80 feet squared)
Surface Ownership:	Private
NRHP Recommendation:	Not Eligible

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Management Recommendation: No Further Work

Site Description

32MN1516 is a newly recorded historic foundation site situated in an active agricultural field within the rolling topography of a former grassland environment (Figures 12 and 13). The site consists of a foundation feature and associated scatter of historic and modern materials. The site is situated to the south of two east-northeast-trending drainages that feed into Paulsen Creek. A belt of trees that shelters a farmhouse and barn is visible to the northwest, and 73rd Street NW lies to the south. At the time of recording, the field was planted with soybeans, allowing for 50 percent ground surface visibility. Vegetation present around the base of the foundation feature includes smooth brome, various sedges, and short prairie grasses, where plowing has avoided the concrete feature and rubble. Surface soil is a rocky brown clay loam residuum. Current impacts occurring on the site are the agricultural activities.

Figure 12. 32MN1516 site overview, facing west.

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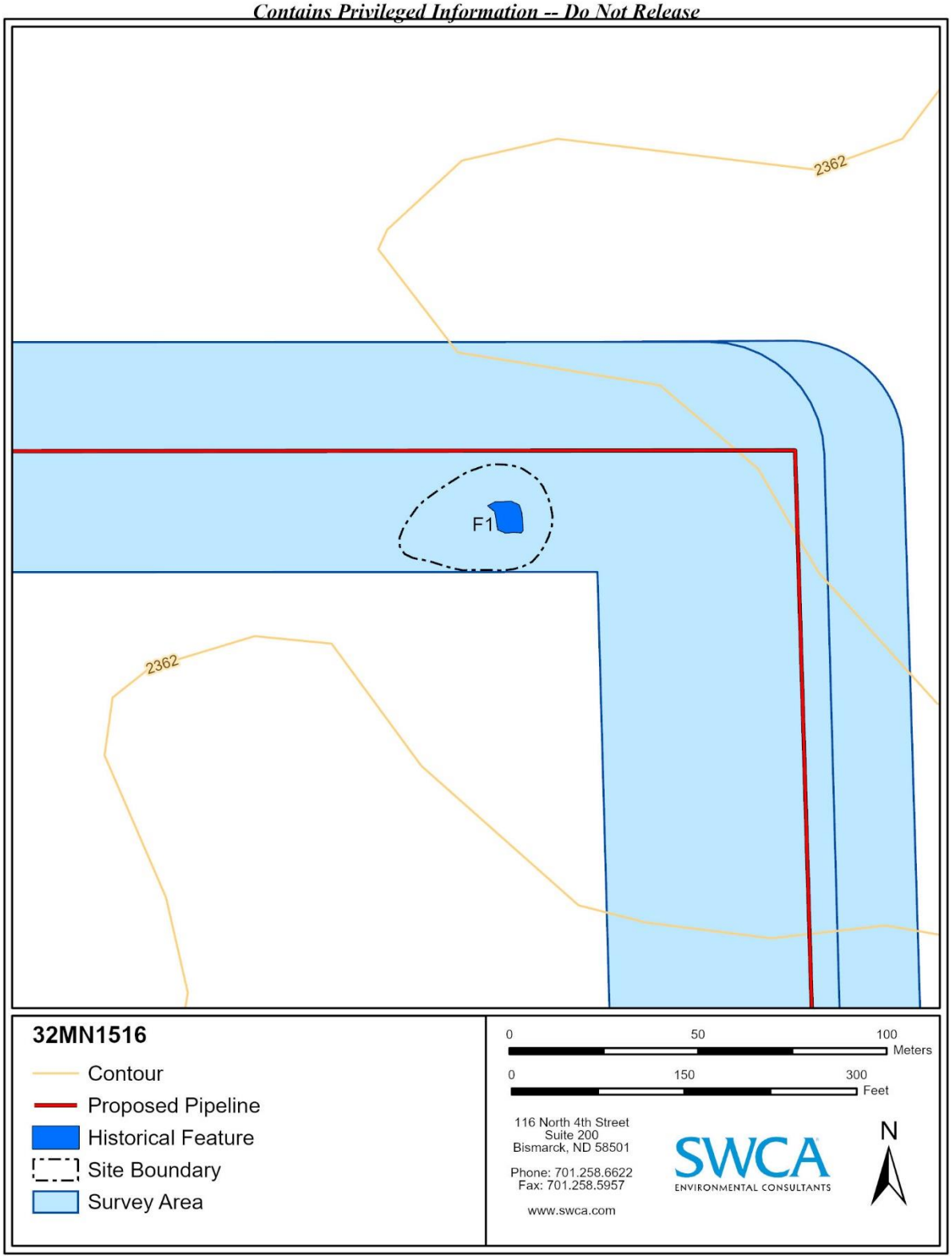

Figure 13. 32MN1516 sketch map.

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Survey Results

SWCA recorded 32MN1516 on October 13, 2018. The site consists of a single feature, a foundation (Feature 1). The crumbling foundation is comprised of 14-inch-wide concrete walls and stone cobbles/rubble. The foundation is a rectangle with maximum dimensions of 25.0 feet north–south × 19.2 feet east–west. A depression within its footprint is filled with historic and non-historic debris, including milled lumber, metal plow pieces, plastic containers, and metal oil filters (Figure 14). Diagnostic historic artifacts include milk glass, transfer-ware, sun-colored amethyst glass, and aqua glass. Subsurface testing was not performed. The site generally lacks physical condition since no standing structural components remain and the surrounding yard is reclaimed for agricultural field use.

Figure 14. 32MN1516 Feature 1 overview, facing north.

Historic Background

SWCA conducted historic research on the site location by conducting a deed search at the Mountrail County Recorder office, as well as using BLM General Land Office records. Search results indicate that the land on which the site is located was originally patented by Olaf Karlgaard on August 2, 1907, under a homestead patent (BLM 2018 [1907]:Accession Number MV-0624-430). According to census records available on Ancestry.com (2018c), Olaf D. Karlgaard was born about 1880 in Norway. Olaf emigrated to Williams County, North Dakota, in 1903 or 1906 (Ancestry.com 2018a). He became a naturalized citizen on June 23, 1910, in Mountrail, North Dakota (Ancestry.com 2018b). The 1910 US Census lists Olaf as married, to Bertha Karlgaard, with one child. Bertha was born in Norway about 1882 and emigrated to the United States in 1900. Their daughter was named A. Dores Karlgaard and was born in 1909 in North Dakota. Olaf lists his profession in the 1910 census as a laborer engaged in farm work. Although no record of Olaf's or Bertha's deaths could be found, records indicate Olaf and Bertha Karlgaard lived on this property through at least 1917. The deed search indicated that Olaf and Bertha Karlgaard defaulted on a mortgage for the land in 1922, and the land was then transferred to the Farmers Trust Company.

In 1923, the land was sold by Farmers Trust Company to Maggie M. Brown of Austin, Minnesota, and the transfer of deed for this sale was finalized in 1927. According to census records, Maggie M. Brown

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was born about 1862 in New York (Ancestry.com 2019b). In 1930, Maggie M. Brown was a widow living with her son, Justin, and his family in Austin, Minnesota. No record of Maggie M. Brown's death could be found. Information from the deed search indicates that Maggie M. Brown sold the land to Ole K. Stenbak in 1929.

Ole K. Stenbak was born about 1880 in Norway and immigrated to the United States in 1904 (Ancestry.com 2014b). According to 1930 census records, Ole K. Stenbak lived in Bicker Township, Mountrail County, North Dakota, where he worked as a farmer. Ole was married to Dena O. Stenbak, who was born about 1886 in Minnesota. They had five children, Oliver C. Stenbak, Ralph H. Stenbak, Irene D. Stenbeck, Gerald R. Stenbak, and Neva B. Stenbak. Ole K. Stenbak died in 1959 and is buried in White Earth, North Dakota (Find A Grave 2019a). At an unknown date, though likely after his death, the land transferred from Ole K. Stenbak to his eldest son, Oliver C. Stenbak. Oliver C. Stenbak was born in 1914 and owned the land until he died in 1988 (Find A Grave 2019b).

Based on the deed search and patent records, 32MN1516 is likely related to Olaf and Bertha Karlgaard and may have continued occupancy through Maggie M. Brown, Ole K. Stenbak, and Oliver C. Stenbak, although a direct connection could not be made to any of these individuals through the features and materials present on-site or the available records.

NRHP Eligibility Recommendation

32MN1516 is a newly recorded historic foundation situated in an active agricultural field within rolling topography that originally supported a grassland environment. Based on the information provided in the deed and GLO searches, the earliest date of occupation would be in the years for proving-up the original homestead patent by 1907. The materials present are consistent with occupation in the early 1900s, although the presence of oil filters and plastic containers indicates litter introduced through the mid-1900s. This range corresponds with a period of mass settlement and homesteading, particularly in Mountrail County and elsewhere in northwestern North Dakota in the early twentieth century. Significance of the site relates to the settlement of the area during that era and coinciding with the events of that era.

Although the site maintains general integrity of location, the site's integrity of setting, material, workmanship, and design has been impacted through the agricultural activity encroaching on the site, the absence of standing structures, and the deterioration of the feature. The site further lacks integrity of association and feeling, with the most recognizable features that would have defined the site character being absent.

As stated above, the site has potential significance in connection with events important to the historic settlement of the area; however, it lacks intact structures or materials that might convey that significance within the context of early twentieth century settlement. Therefore, SWCA recommends the site not eligible for inclusion to the NRHP under Criterion A.

While Olaf D. Karlgaard may have contributed to the settlement of the area as an initial homesteader, no available record indicates that he is of specific importance within local, regional, or national history in connection with this homestead site or otherwise. Should he have been, the site further lacks the integrity necessary to convey any significance of Mr. Karlgaard's connection. Therefore, SWCA recommends the site not eligible for inclusion to the NRHP under Criterion B. Likewise, the subsequent indicates no known importance within local, regional, or national history in connection with the site or otherwise.

As stated above, the site lacks a building superstructure and, as such, does not convey any distinctive characteristics of type, period, and method of constructions, nor does the site convey the work of a master

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had one been found to be the designer. Therefore, SWCA recommends the site not eligible for inclusion to the NRHP under Criterion C.

Although a limited scatter of cultural materials is present at the site and the feature suggests a homestead/farm occupation along with the artifact scatter, the site lacks sufficient archaeological features and materials to support research that would contribute significantly to local or regional understanding of historic settlement or other themes important in history. Therefore, SWCA recommends the site not eligible for inclusion to the NRHP under Criterion D.

Management Recommendation

32MN1516 is a historic foundation site that is recommended not eligible for the NRHP. SWCA recommends no further work for this site.

CONCLUSIONS

SWCA conducted a Class I and Class III cultural resource inventory in support of the proposed Liberty Midstream Residue pipeline project. The inventory was undertaken to assist LMS in meeting the cultural resource requirements within the North Dakota Public Service Commission's Certificate of Corridor Compatibility and Route Permit application for the proposed project. Additionally, SWCA's inventory assists LMS in achieving compliance with the Nationwide Permit General Conditions pertaining to Section 106 of the National Historic Preservation Act.

During the inventory, SWCA personnel recorded two newly identified sites: 32WI2307, a historic farmstead site, and 32MN1516, a historic foundation site. 32WI2307 and 32MN1516 have been recommended not eligible for inclusion in the NRHP, therefore no further work is recommended for these sites. SWCA recommends the project be granted a determination of *No Historic Properties Affected* and clearance to proceed as planned.

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APPENDIX A

Resource Location Maps

(Redacted)

APPENDIX B
(Detached)

North Dakota Cultural Resource Site Forms

APPENDIX E
UNANTICIPATED DISCOVERY PLAN

The purpose of this Unanticipated Discovery Plan (UDP) is to assist Liberty Midstream Solutions, LLC (LMS) with meeting the requirements of Section 106 as defined in the Advisory Council on Historic Preservation (Council) regulations "Protection of Historic Properties" (36 Code of Federal Regulation [CFR] Part 800), as well as the applicable North Dakota laws related to human remains. This UDP is specific to LMS construction projects located in North Dakota (Projects) and is to be implemented should cultural resources be found after construction has begun on a Project.

This UDP has been developed in reference to the regulations embodied in “Protection of Historic Properties” issued by the Council (revised August 2004, www.achp.gov/regs- rev04.pdf).

Termed "unanticipated discovery" or “post-review discovery,” the identification of new cultural resources during implementation of an undertaking typically occurs in the case of projects that involve excavation or ground-disturbing activities. The plan detailed here will be implemented by LMS if previously undiscovered archaeological resources and/or human remains are identified during soil disturbance (excavation, boring, and coring) or during pipeline construction. Development of this plan reflects provisions in 36 CFR 800.13, which state that when agency identification efforts in accordance with Section 800.4 indicate that cultural resources are likely to be discovered during an undertaking, then a plan for treatment of such properties should be developed.

Some projects will have clearances and/or permits with specific requirements and/or mitigation commitments to be followed in the event of an unanticipated discovery, for example on Tribal land. Applicable project-specific requirements must always be followed at a minimum; this plan serves as a supplement to any project-specific requirements.

The following steps will be implemented should an unanticipated discovery be made by an LMS employee, inspector, contractor, or subcontractor during an undertaking:

1) Construction activities within the immediate area of an unanticipated discovery will be halted ("immediate area" is a context-specific measure. However, approximately 30 to 50 feet (10-15 meters) feet should be adequate, although special attention should be given to the possible extension of a new find beyond this buffer zone), and the discovery protected from further disturbance.
2) LMS will notify their cultural resources consultant (consultants with offices in North Dakota are listed at the end of this plan) on the Project who will notify by telephone the North Dakota State Historic Preservation Office (SHPO) contact, Tribal Historic Preservation Office (THPO) contact and/or Bureau of Indian Affairs (BIA) contact as applicable, and, if necessary, the applicable law enforcement agency and coroner (the latter parties will be notified only in the case of a finding of human remains). These notifications will take place within 24 hours of an unanticipated discovery. In addition, interested Native American tribes will be contacted; these tribes will be identified by the SHPO, THPO, BIA and/or cultural resources consultant.
3) Specific SHPO/ THPO/ BIA instructions concerning an unanticipated discovery resulting from the notification as described above will be followed. At a minimum, sufficient archaeological work will be performed on the unanticipated discovery location to stabilize deposits, protect deposits from scavengers or looters, and to collect readily available samples (e.g., for radiocarbon dating) that may help pinpoint the age of deposits or the presence (in the case of burials) of data that may serve to identify lineal or cultural descendants.
4) LMS and their cultural resources consultant will consult with the SHPO/ THPO/ BIA to follow

through on the course of action. This may involve further archaeological study or consultation with Native American groups. Construction activities will remain halted until the agency with jurisdiction indicates to LMS that it may proceed in the area of a specific unanticipated discovery.

In the case of an unanticipated discovery of human remains, LMS will follow all relevant federal and/or state law:

Federal Statutes and Guidelines:

- Native American Graves Repatriation Act (NAGPRA) – Public Law 101-601; 25 U.S.C. 3001 et seq.
- Advisory Council on Historic Preservation (ACHP) Policy Statement Regarding Treatment of Burial Sites, Human Remains and Funerary Objects.

North Dakota Statutes and Regulations:

- North Dakota Century Code §23-06-27: Protection of human burial sites, human remains, and burial goods.
- North Dakota Century Code §55-03-06: Protection of prehistoric sites and deposits: upon sale of land by state or municipality archeological or paleontological materials retained.
- North Dakota Century Code §55-03-07: Protection of prehistoric sites and deposits: violation; penalty.
- North Dakota Administrative Code §40-02-03: Protection of prehistoric and historic human burial sites, human remains, and burial goods

LMS recognizes the importance of providing careful and respectful treatment for human remains recovered as an unanticipated discovery or as part of an archaeological investigation. In the event of an unanticipated discovery of human remains, LMS will contact the applicable SHPO/ THPO/ BIA to identify and coordinate consultation with the appropriate Native American groups. Lastly, in coordination with the SHPO/ THPO/ BIA and other interested parties, a decision will be made for the treatment of the remains (e.g., reburial, preservation in place, scientific study, sacred rituals, or a combination thereof).

The following table provides the contact information for the LMS point of contact, the North Dakota SHPO, and potential cultural resources consultants with offices in North Dakota that can be contacted in the event of an unanticipated discovery during the construction of pipeline projects.

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APPENDIX F
NATURAL RESOURCES REPORT

Natural Resources and Wetland Delineation Report for the Liberty Midstream Residue Pipeline Project, Mountrail and Williams Counties, North Dakota

NOVEMBER 2018

REVISED NOVEMBER 2019

PREPARED FOR

Liberty Midstream Solutions

PREPARED BY

SWCA Environmental Consultants

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NATURAL RESOURCES AND WETLAND DELINEATION REPORT FOR THE LIBERTY MIDSTREAM RESIDUE PIPELINE PROJECT, MOUNTRAIL AND WILLIAMS COUNTIES, NORTH DAKOTA

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1 INTRODUCTION

1.1 Background

Liberty Midstream Solutions (LMS) is proposing to construct and operate the Liberty Midstream Residue Pipeline system on privately owned lands in Mountrail and Williams County, North Dakota (project area). SWCA Environmental Consultants (SWCA) conducted natural resources field surveys to identify exclusion and avoidance areas as specified in North Dakota Administrative Code 69-06-08-02 for the proposed pipeline system.

As proposed, the pipeline will be used to transfer residue gas and natural gas liquid (NGL) to existing third-party transmission pipelines. Residue gas and NGL will be transferred through 10- and 8-inch-diameter welded steel pipelines, respectively. The project falls under the jurisdiction of the North Dakota Public Service Commission (NDPSC); therefore, SWCA was contracted to conduct natural resources field services.

SWCA conducted field surveys of a 200-foot-wide pipeline survey corridor (100-foot-wide right-of-way [ROW]) for the original proposed 4.72-mile pipeline alignment on October 2, 2018, to determine the potential presence and extent of wetlands and waterbodies that were within the survey and project area, not just those that are likely jurisdictional waters of the U.S., according to the U.S. Army Corps of Engineers (USACE) regulatory program. LMS provided SWCA a modified 4.76-mile alignment in October 2019; therefore, an additional field survey of the revised alignment was conducted on October 29, 2019. Concurrently with the wetland determinations, SWCA conducted a cursory threatened and endangered species survey and habitat assessment; a tree, sapling, and shrub enumeration survey; and a noxious weed survey. Site layout maps of the survey area and natural resource features identified during the field surveys are provided in Appendix A.

This report describes the methodology used by SWCA to complete each of the aforementioned surveys. Additionally, this report presents the results of the completed field surveys and provides regulatory recommendations to comply with the Clean Water Act of 1972 (33 United States Code [USC] 1251–1387). Lastly, this report ensures observance of and offers mitigation measures for resources protected by the Endangered Species Act of 1973 (ESA) (16 USC 1531–1544), Migratory Bird Treaty Act of 1918 (MBTA) (16 USC 703–712), and Bald and Golden Eagle Protection Act of 1940 (BGEPA) (16 USC 668).

1.2 Survey Area

The survey area for the project, a 200-foot-wide corridor for the planned 100-foot-wide-ROW, discussed herein (Figure 1) is situated on the U.S. Geological Survey (USGS) Tioga (1979), Mandaree NE (1970), Whiteearth (1991), North Dakota, quadrangles. The project corridor that was surveyed in October 2018 and October 2019 is located in Sections 24, 25, 29, 30, 32, and 33, Township (T) 158 North (N), Ranges (R) 94 and 95 West (W), Mountrail and Williams Counties, North Dakota.

Overall, northwest North Dakota is characterized by a moderate to cool climate, with cold, dry winters and mild to warm summers. Mean annual precipitation for the area is 14 to 16 inches. The project is located in the Northwestern Glaciated Plains (Level III ecoregion), which is a semiarid rolling plain of shale and sandstone-derived soils punctuated by occasional buttes and badlands (USGS 2014).

Figure 1. General topography within the project area.

1.3 Regulatory Background

1.3.1 North Dakota Administrative Code Section 69-06-08-02

In accordance with North Dakota Administrative Code Section 69-06-08-02, Transmission Facility Corridor and Route Criteria, certain geographical areas shall be either excluded or avoided from consideration for a transmission facility route.

1.3.1.1 EXCLUSION AREAS

Per North Dakota Century Code (NDCC) 69-06-08-02.1, the following geographical areas must be excluded in the consideration of a route for a transmission facility. A buffer zone of a reasonable width to protect the integrity of the area must be included.

- National: parks, memorial parks, historic sites and landmarks, natural landmarks, monuments, and wilderness areas.
- State: parks, historic sites, monuments, historical markers, archaeological sites, and nature preserves.
- County parks and recreational areas and municipal parks.
- Areas critical to life stages of threatened or endangered species.
- Areas where animal or plant species that are unique or rate to North Dakota would be irreversibly damaged.
- Areas within 1,200 feet of an intercontinental ballistic missile launch or control facility.

1.3.1.2 AVOIDANCE AREAS

Per NDCC 69-06-08-02.2 the following geographical areas may not be considered in routing of a transmission facility unless there is no reasonable alternative.

- Designated or registered national: historic districts; wildlife areas; wild, scenic, or recreational rivers; wildlife refuges; and grasslands.
- Designated or registered state: wild, scenic, or recreational rivers; game refuges; game management areas; management areas; forests; forest management lands; and grasslands.
- Historical resources not specifically designated as exclusion or avoidance areas.
- Areas that are geologically unstable.
- Areas within 500 feet of a residence, school, or place of business.
- Reservoirs and municipal water supplies.
- Water sources for rural water districts.
- Areas of recreational significance that are not designated as an exclusion area.

1.3.2 North Dakota Law Section 4.1-47-02

Per North Dakota Law Section 4.1-47-02, "each person shall do all things necessary and proper to control the spread of noxious weeds."

1.3.3 Clean Water Act, Section 404

Section 404 of the Clean Water Act prohibits the discharge of dredged or fill material into waters of the U.S., including certain wetlands, also known as jurisdictional waters, without an authorization from the USACE.

1.3.3.1 USACE NATIONWIDE PERMIT 12

Nationwide Permit (NWP) 12 authorizes the construction of utility line projects in non-tidal waters of the U.S., provided the activity at each individual crossing does not result in the permanent loss of greater than 0.5 acre of waters of the U.S., including wetlands (Appendix B). In conjunction with NWP 12, Section 401 certification is required for all Section 404 permits that impact Waters of the State (i.e., NWP 12). Section 401 certification is mandated by the North Dakota Department of Health (NDDH) and requires all projects under this certification to follow their Standards of Quality for Waters of the State guidelines (Appendix C).

NWP 12 requires that the permittee submit a pre-construction notification prior to commencing construction if any of the following criteria are met.

- The activity involves mechanized land clearing in a forested wetland.
- The utility line exceeds 500 feet in length through any single crossing of a water of the U.S.
- The utility line is placed within a jurisdictional area (i.e., water of the U.S.), and it runs parallel to a streambed that is within that jurisdictional area.
- Discharges result in the permanent loss of greater than 0.1 acre of waters of the U.S.
- Permanent access roads are constructed above grade in waters of the U.S. for a distance of more than 500 feet.
- Permanent access roads are constructed in waters of the U.S. with impervious materials.

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1.3.3.2 USACE REGIONAL CONDITIONS

The USACE has published several regional conditions for projects operating under NWPs in North Dakota (USACE 2010). The regional conditions apply to wetlands classified as "fens," waters adjacent to natural springs, the Missouri River, historic properties, and fish-spawning areas.

1.3.4 Endangered Species Act

In the absence of a federal nexus (i.e., any action carried out, funded, or permitted by a federal agency), the ESA protects endangered and threatened species and their habitats by prohibiting the "take" of a listed animal, except as authorized by the U.S. Fish and Wildlife Service (USFWS) pursuant to Section 10 of the ESA.

The lack of discovery of threatened or endangered species does not signify their non-existence within any particular area, but only that no primary or secondary indications of these species were recorded.

1.3.5 Migratory Bird Treaty Act

The MBTA provides that it is unlawful to pursue, hunt, take, capture, or kill; attempt to take, capture, or kill; possess, offer to sell, barter, purchase, deliver, or cause to be shipped, exported, imported, transported, carried, or received any migratory bird, part, nest, egg, or product, manufactured or not. Oil and gas developments are advised to consider this federal act when considering seasonal timing, best management practices, and pre-construction survey requirements.

1.3.6 Bald and Golden Eagle Protection Act

The BGEPA prohibits anyone, without a take permit issued by the Secretary of the Interior, from "take" of an eagle. This may include 1) injury to an eagle; 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. Oil and gas developments in North Dakota are subject to compliance with the BGEPA and should consider this federal act when planning spatial and temporal aspects of construction or other disruptive activities, best management practices, and pre-construction survey requirements.

2 METHODS

2.1 Pre-Field Review

Prior to conducting field surveys, SWCA reviewed applicable National Wetlands Inventory (NWI) data (USFWS 2018a), National Hydrography Dataset (NHD) flowline data (USGS 2011), the threatened and endangered species list for Mountrail and Williams Counties (USFWS 2018b), as well as preliminary National Weather Service climatic data.

The NHD is a digital vector data set referred to by SWCA biologists in the field to confirm or disprove the existence of features such as lakes, ponds, streams, rivers, canals, dams, and stream gages (USGS 2011). NHD flowlines are features that contain flow direction and form a network (USGS 2011). In the field, SWCA can confirm or disprove NHD flowlines lines based on the presence of streams, ordinary high-water marks (OHWMs), hydrophytic vegetation, wetland hydrology, and hydric soils. A desktop analysis is then performed to determine if the confirmed waterbodies show significant nexus to waters as

described in Definition of Waters of the United States (Title 33 Code of Federal Regulations [CFR] Part 328.3 [a] [1]–[3]).

2.2 Wetlands

NWI mapping for the region indicates the presence of wetlands within the project area (USFWS 2018a). SWCA biologists conducted wetland delineations within the survey area based on the principles and guidelines provided in the Corps of Engineers Wetlands Determination Manual (Manual) (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Determination Manual: Great Plains Region Version 2.0 (Supplement) (USACE 2010). All wetlands and waterbodies geographically referenced within the survey area during the field surveys are depicted on the site layout maps in Appendix A. Wetland delineation data forms are provided in Appendix D.

Please note that the USACE has full discretion in determining the jurisdictional status of referenced wetlands and waterbodies.

2.2.1 Hydrophytic Vegetation

SWCA recorded all plants within the vegetative community of the data point survey area based on the respective stratum in which each species is located. SWCA recorded the binomial scientific name and percent cover of all plants within a 30-foot radius for the tree stratum, a 15-foot radius for the sapling/shrub stratum, a 5-foot radius for the herbaceous stratum, and a 30-foot radius for the woody vine stratum. SWCA noted each plant species' respective USFWS wetland indicator status (i.e., upland [UPL], facultative upland [FACU], facultative [FAC], facultative wetland [FACW], and obligate [OBL]). Common hydrophytic indicators include Rapid Test, for which all dominant species across all strata are rated OBL or FACW based on visual assessment; Dominance Test, for which using the "50/20 rule" greater than 50% of dominant species had an indicator status of FAC, FACW, or OBL; and Prevalence Index (PI), for which the PI is 3.0 or less.

2.2.2 Wetland Hydrology

A wetland was determined to contain wetland hydrology if at least one primary indicator or at least two secondary indicators of wetland hydrology were present, as defined by the Manual and Supplement.

2.2.3 Hydric Soil

Biologists recorded detailed notes regarding soil profiles including the hue, value, and chroma (i.e., color) of the soil (using Munsell Soil Color Charts); the depth and extent of that soil color within the entire soil profile; the concentration of any redoximorphic concentrations or depletions; and the texture of the soil at each depth where a color change was observed.

2.3 Waterbodies

The lateral extent of jurisdictional waterbodies (i.e., ponds, creeks, streams, lakes) was identified by the presence of an ordinary OHWM, if present. The OHWM typically represents the potential limits of USACE jurisdiction, unless there is a wetland adjacent to the waterbody (USACE 2008).

Please note that the USACE has full discretion in determining the jurisdictional status of referenced wetlands and waterbodies.

SWCA classified streams as perennial, intermittent, or ephemeral based on field observations. During a typical year, a perennial stream contains flowing water year-round and the water table is located above the streambed. Groundwater is the primary water source for stream flow, while precipitation runoff is supplemental. An intermittent stream has flowing water for only portions of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow. An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

2.4 Tree, Sapling, and Shrub Count

SWCA biologists determined the total number of trees, saplings, and shrubs present within the survey area by employing several different techniques depending on the type of woody vegetation habitat (i.e., forested upland, shrubland, or shelterbelt) encountered and the overall extent of each habitat within the ROW. The boundary of all forested upland, shrubland, and shelterbelt habitat were mapped using a Trimble GeoXT (Section 2.7). In forested upland and shrubland habitat, SWCA counted the number of all woody-stemmed vegetation with a diameter at breast height (DBH) of 3 inches or greater. In shelterbelt areas, all woody-stemmed vegetation, regardless of DBH, were inventoried via direct count. Vegetation with a DBH of at least 3 inches are used by bats, such as the northern long-eared bat (*Myotis septentrionalis*), as roosting locations, and larger trees are also used by raptors and other birds of prey. It is also important to count the number of individuals because of the North Dakota Public Service Commission regulation of a 2:1 mitigation replacement ratio. Biologists taxonomically identified all recorded individuals to the species level within each habitat type.

2.5 Noxious Weed Survey

"Noxious weeds" are plant species designated as state-listed or county-listed noxious weeds. They generally are not native to a given area, spread rapidly, and have adverse ecological and economic impacts. Noxious weed species may have high reproduction rates and are usually adapted to occupy a diverse range of habitats otherwise occupied by native species. These species may subsequently out-compete native plant species for resources, causing a reduction in native plant populations. Noxious weed communities (both alive and residual) were identified and mapped during field surveys by visual inspection of the survey corridor. Noxious weeds are included in surveying for county purposes and North Dakota Law § 4.1-47-02, which requires every person to do all things necessary and proper to control the spread of noxious weeds.

Noxious weeds have the potential to detrimentally affect public health, ecological stability, and agricultural practices. NDCC (Chapter 63-01.1) and the North Dakota Department of Agriculture (NDDA) recognize 11 species as noxious (NDDA 2017a). Individual counties have the authority to add additional species to their list of noxious weeds. Williams County added three additional species to its noxious weed list, and Mountrail added two additions species, with one being the same as Williams County (NDDA 2017b).

2.6 Wildlife Including Threatened and Endangered Species

Prior to conducting field surveys, SWCA reviewed information obtained from the USFWS list of threatened and endangered species by North Dakota county (USFWS 2018b) regarding the presence of threatened or endangered species that may occur within the project area. This document does not

represent a comprehensive survey but rather acknowledges the potential presence of listed species. Wildlife sightings can involve primary observations (i.e., actual sighting of an animal) or secondary observations (i.e., observation of scat, tracks, feathers, or fur deposits). SWCA completed surveys for suitable habitats that would have the potential to support any listed species. No occupancy or species-specific surveys were conducted.

A 0.5-mile line-of-sight binocular survey for raptor nests was conducted. SWCA noted all wildlife observed during the field surveys.

2.7 Mapping

The boundaries of each wetland, waterbody, and woody vegetation habitat were geographically recorded using a Trimble GeoXT global positioning system (GPS) unit. The GPS unit is capable of recording geographic data with submeter accuracy. SWCA used Universal Transverse Mercator Zone 13 North as the projected coordinate system and North American Datum 1983 as the datum. ArcGIS v10.3 (ESRI Redlands, California) was used to analyze recorded features, calculate areas, and generate the maps provided in Appendix A. Please note that all data recorded using the GPS unit and displayed on the maps in Appendix A are for review purposes only and do not represent a professional civil survey.

3 RESULTS

3.1 Wetland Delineation

3.1.1 Vegetation

During the field surveys, SWCA biologists identified four general types of vegetative communities within the survey area. These vegetative communities were classified as herbaceous upland, shrubland and upland woody vegetation, cropland, and palustrine emergent (PEM) wetland. PEM wetlands are characterized by the presence of herbaceous hydrophytic or submergent aquatic macrophytes. Photographs of the survey area are provided in Appendix E.

Vegetation communities met the hydrophytic vegetation criterion for wetlands if any of the hydrophytic indicators described in the Supplement were met. The upland communities failed to meet at least one of the three assessed wetland criteria.

3.1.1.1 HERBACEOUS UPLAND

The herbaceous upland community identified in the survey area was dominated by non-woody vegetation such as grasses and forbs. The dominant herbaceous community within the proposed pipeline survey area includes native and nonnative grasses and forbs such as Kentucky bluegrass (*Poa pratensis*), smooth brome (*Bromus inermis*), and western wheatgrass (*Pascopyrum smithii*).

3.1.1.2 CROPLAND

The cropland identified in the survey area were small grains. Common crops in the area include durum wheat (*Triticum durum*), canola (*Brassica napus*), and soybean (*Glycine max*) (U.S. Department of Agriculture 2017).

3.1.1.3 HYDROPHYTIC VEGETATION

Aquatic vegetation species identified during the survey included broadleaf cattail (*Typha latifolia*), American sloughgrass (*Beckmannia syzigachne*), common rivergrass (*Scolochloa festucacea*), foxtail barley (*Hordeum jubatum*), reed canarygrass (*Phalaris arundinacea*), redtop (*Agrostis gigantea*), and curly dock (*Rumex crispus*).

3.1.2 Hydrology

Although precipitation data are not available for the exact site of the project, it is likely analogous to the precipitation data for Williston, Williams County, North Dakota, due to proximity of the Williston weather station to the project area (approximately 40.5 miles southwest).

According to National Weather Service preliminary climatological data for Williston, 8.14 inches of precipitation were recorded from June 1 through September 30, 2018 (Table 1) and 10.93 inches of precipitation were recorded from June 1 through September 30, 2019 (Table 2). In 2018, the amount was 0.57 inch above normal for that time period, and in 2019, the amount was 3.36 inch above normal, suggesting wetter than normal conditions.

Table 1. 2018 Monthly Recorded Rainfall at National Weather Service Station in Williston, North Dakota

Month	Recorded Precipitation (inches)	Normal Precipitation (inches)	Difference (inches)
June 2018	3.01	2.52	0.49
July 2018	3.00	2.54	0.46
August 2018	0.67	1.45	-0.78
September 2018	1.46	1.06	0.40
Total	**8.14**	**7.57**	**0.57**

Table 2. 2019 Monthly Recorded Rainfall at National Weather Service Station in Williston, North Dakota

Month	Recorded Precipitation (inches)	Normal Precipitation (inches)	Difference (inches)
June 2019	2.66	2.52	0.14
July 2019	3.23	2.54	0.69
August 2019	1.96	1.45	0.51
September 2019	3.08	1.06	2.02
Total	**10.93**	**7.57**	**3.36**

Source: National Oceanic and Atmospheric Administration 2018.

Wetland communities observed during the delineation effort displayed at least one primary or two secondary indicators of wetland hydrology, as defined by the Manual and Supplement. Upland communities either failed to display hydrologic indicators or failed to meet the hydrophytic vegetation and hydric soils criteria defined by the Manual and Supplement. Appendix D details indicators found at each sampling location.

3.1.3 Wetlands

SWCA recorded four PEM wetlands within the 200-foot-wide survey corridor, totaling approximately 1.72 acres (Table 3 and Appendix A). WET01 and WET02 are seasonal wetlands. WET03 and WET001B are semipermanent wetlands. SWCA's preliminary determination is that WET01, WET02, and WET03 are isolated and likely non-jurisdictional. Due to the proximity of wetland WET001B to Paulsen Creek, which is a tributary of the Missouri River, SWCA believes that WET001B has the potential to be a jurisdictional waters of the U.S. However, the USACE has the final authority to determine jurisdictional status. Proposed impacts to WET01, WET02, WET03, and WET001B would be temporary, not resulting in loss, and fall under NWP 12 criteria (see Section 1.3.3).

Table 3. PEM Wetland Acreage within the Survey Area

Feature ID	Associated Sampling Point	Sampling Point Location		Total Size (acres)	Total Size within 100-foot Construction ROW (acres)
		Latitude	Longitude		
WET01	DP2U (2018)	48.482827	-102.900126	0.31	0.21
	DP3W (2018)	48.482622	-102.900157		
WET02	DP4W (2018)	48.478949	-102.897051	0.33	0.15
	DP5U (2018)	48.479168	-102.896918		
WET03	DP7U (2018)	48.476796	-102.892475	0.45	0.30
	DP8W (2018)	48.476732	-102.89223		
WET001B	DP01W (2019)	48.460038	-102.834263	0.62	0.43
	DP02U (2019)	48.460071	-102.834628		
Total				**1.72**	**1.09**

3.1.4 Waterbodies

SWCA did not identify any non-wetland waterbodies (streams, rivers, lakes, etc.) in the survey area; however, WET001B is associated with an NHD flowline and is adjacent to Paulsen Creek. Additionally, no Waters of the State are present in the survey area.

3.1.5 Soils

Based on Natural Resources Conservation Service (NRCS) mapping (NRCS 2019), 12 soil map units are present in the project corridor. The project area analyzed for soils covers the 200-foot-wide survey corridor. All soil map units within the survey area are listed in Table 4.

Table 4. Soil Map Units Present within the Survey Area

Soil Map Units	Map Unit Symbol	Hydric* (Yes/No)	% Slope	Area within 200-foot Survey Corridor (acres)	% of Total Area
Williams-Zahl loams	C132B	Yes	3 to 6	55.47	44.0
Williams-Zahl-Zahill complex	C132C	Yes	6 to 9	2.72	2.2
Zahl-Williams loams	C135D	Yes	9 to 15	5.08	4.0
Williams-Zahl-Parnell complex	C148C	Yes	0 to 9	24.94	19.8
Zahl-Williams-Bowbells loams	C154C	Yes	3 to 9	8.22	6.5
Zahl-Max-Bowbells loams	C156F	Yes	6 to 35	5.78	4.6
Bowbells loam	C201A	Yes	0 to 3	1.46	1.2

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Soil Map Units	Map Unit Symbol	Hydric* (Yes/No)	% Slope	Area within 200-foot Survey Corridor (acres)	% of Total Area
Williams-Bowbells loams	C210A	Yes	0 to 3	18.67	14.8
Hamerly-Tonka complex	C272A	Yes	0 to 3	1.30	1.0
Tonka silt loam	C2A	Yes	0 to 1	0.30	0.2
Vallers loam, moderately saline	C75A	Yes	0 to 1	0.75	0.6
Divide loam	C825A	Yes	0 to 2	1.36	1.1

Source: NRCS 2019.

* A map unit component is classified as a "hydric soil" by NRCS, soils that are sufficiently wet in the upper part to develop anaerobic conditions during the growing season.

The soil series that are most prevalent within the survey area are described in Sections 3.1.5.1 through 3.1.5.5 (USDA 1999).

3.1.5.1 WILLIAMS

The Williams series consists of very deep, slowly permeable, well-drained soils found on glacial till plains and moraines with slopes at approximately 0 to 35 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 14 inches, and the mean annual air temperature is approximately 42 degrees Fahrenheit (°F). This soil type is largely used for cultivation. Native vegetation species common to this soil type include western wheatgrass, needle and thread (*Hesperostipa comata*), blue grama (*Bouteloua gracilis*), and green needlegrass (*Stipa viridula*) (USDA 1999).

3.1.5.2 ZAHL

The Zahl series consists of very deep, slowly permeable, well-drained soils found on glacial till plains, moraines, and valley side slopes at approximately 1 to 60 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 14 inches, and the mean annual air temperature is approximately 40°F. This soil type is largely used for rangeland foraging. Native vegetation species common to this soil type include western wheatgrass, little bluestem (*Schizachyrium scoparium*), and needle and thread (USDA 1999).

3.1.5.3 ZAHILL

The Zahill series consists of very deep, well-drained soils that formed in till. These soils can be found on till plains, hills, moraines, and escarpments at approximately 0 to 65 percent. The mean annual precipitation is about 13 inches and the mean annual air temperature is around 42°F. This soil type is well drained. Runoff is negligible to high depending on the slope, with moderately slow permeability above the till and slow permeability in the till. Zahill soils are used mainly in range and dryland crop areas. Native vegetation is mainly western wheatgrass, needle and thread, green needlegrass, little bluestem, prairie sandreed (*Calamovilfa longifolia*), bluebunch wheatgrass (*Pseudoroegneria spicata*), prairie Junegrass (*Koeleria macrantha*) blue grama, sedges, and other forbs (USDA 1999).

3.1.5.4 PARNELL

The Parnell series consists of very deep, very poorly drained and poorly drained soils that formed in water-sorted sediments from glacial drift in depressions, swales, and drainageways on glacial moraines. These soils have slow permeability. Slopes range from 0 to 3 percent. Mean annual precipitation is about 20 inches, and mean annual air temperature is about 41°F. Most undrained areas are in native vegetation

with some used for pasture or hayland. Drained areas are typically used to grow corn, soybeans, and small grains. Native vegetation is mostly marsh grasses, reeds, and sedges (*Carex* spp.) (USDA 1999).

3.1.5.5 BOWBELLS

The Bowbells series consists of very deep, well- and moderately well-drained soils found on glacial till plains and moraines. Permeability is moderate in the upper portions and moderately slow to slow in the substratum. Slopes range from approximately 0 to 9 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 14 inches, and the mean annual air temperature is approximately 42°F. This soil type is used for cultivation of small grains. Native vegetation species historically common to this soil type include western wheatgrass, green needlegrass, and big bluestem (*Andropogon gerardii*) (USDA 1999).

3.2 State Requirement Results

3.2.1 Exclusion Areas

No exclusion areas were encountered during pre-field review or during surveys.

3.2.2 Avoidance Areas

No avoidance areas were encountered during pre-field review or during surveys.

3.2.3 Tree, Sapling, and Shrub Count

Per the Tree and Shrub Mitigation Specifications by the North Dakota Public Service Commission (NDPSC), a 2:1 post- to pre-construction mitigation is typically required for all trees, saplings, and shrubs impacted during the construction of the proposed pipeline.

During SWCA's field surveys, two tree and shrubland areas were identified within the survey area. The number of trees SWCA counted that may be impacted by the project as currently proposed for sample points WV1 and WV2 are summarized in Table 5 (see sample points locations on Appendix A figures). Therefore, SWCA estimates approximately 14 2-year-old sapling individuals would need to be replanted in order to fulfill the 2:1 mitigation requirement.

SWCA recommends that only native species of trees and shrubs be used and that they be planted in habitats where they are typically found on the landscape. Trees and shrubs should avoid being planted in native prairie.

Table 5. Tree, Sapling, and Shrub Counts

Woody Vegetation (WV) ID	Species	Type	Number of Trees		Estimated Mitigation Commitment
			Survey Corridor	100-foot-wide Construction ROW	
WV1	Quaking aspen (*Populus tremuloides*)	Planted	10	5	10
WV1	Russian olive *(Elaeagnus angustifolia*)	Planted	1	1	2
WV2	Siberian elm (*Ulmus pumila*)	Planted	5	1	2

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Woody Vegetation (WV) ID	Species	Type	Number of Trees		Estimated Mitigation Commitment
			Survey Corridor	100-foot-wide Construction ROW	
Total			**16**	**7**	**14**

3.2.4 Noxious Weeds

In 2017, no state listed noxious weeds were found in Mountrail and Williams Counties (NDDA 2017). However, in that same year, Mountrail County found two species of county-listed noxious weeds on 3,600 and 1,600 acres, respectively, totaling 5,200 acres of known noxious weeds. Table 6 breaks down the state- and county-listed noxious weeds by acres covered in the county per species. SWCA did not identify any occurrences of state-listed or county-listed noxious weeds within the survey corridor.

Surveys were conducted outside of the optimal growing season; however, residual plant matter would have likely been observed if large stands of noxious weed(s) were present. The proponents of the proposed project will monitor and control noxious weeds within their ROW prior to and subsequent to construction.

Table 6. Noxious Weeds in Williams and Mountrail Counties, North Dakota (2017)

Common Name	Scientific Name	Williams County (acres)	Mountrail County (acres)
State-Listed Noxious Weeds			
Absinthium	*Artemisia absinthium*	0.0	0.0
Canada thistle	*Cirsium arvense*	0.0	0.0
Dalmatian toadflax	*Linaria dalmatica*	0.0	0.0
Diffuse knapweed	*Centaurea diffusa*	0.0	0.0
Leafy spurge	*Euphorbia esula*	0.0	0.0
Nodding plumeless thistle	*Carduus nutans*	0.0	0.0
Purple loosestrife	*Lythrum salicaria*	0.0	0.0
Russian knapweed	*Acroptilon repens*	0.0	0.0
Saltcedar	*Tamarix ramosissima*	0.0	0.0
Spotted knapweed	*Centaurea stoebe*	0.0	0.0
Yellow toadflax	*Linaria vulgaris*	0.0	0.0
County-Listed Noxious Weeds			
Common tansy	*Tanacetum vulgare*	--	1,600.0
Gypsyflower	*Cynoglossum officinale*	0.0	3,600.0
Narrowleaf hawksbeard	*Crepis tectorum*	0.0	--
Palmer amaranth	*Amaranthus palmeri*	0.0	--
Total		**0.0**	**5,200.0**

Sources: North Dakota Department of Agriculture (2017 and 2018)

3.3 Wildlife

Eight wildlife species listed as threatened or endangered under the ESA have potential to occur in Mountrail and Williams Counties (USFWS 2018b), The listed endangered species include the gray wolf (*Canis lupus*), whooping crane (*Grus americana*), interior least tern (*Sterna antillarum*), and pallid

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sturgeon (*Scaphirhynchus albus*). The listed threatened species include the piping plover (*Charadrius melodus*) and its designated critical habitat, Dakota skipper (*Hesperia dacotae*) and its designated critical habitat, rufa red knot (*Calidris canutus rufa*), and northern long-eared bat. However, the pallid sturgeon has no potential habitat with the proposed project area.

SWCA conducted a threatened and endangered species suitable habitat survey concurrently with the wetland determinations. SWCA did not observe any primary (i.e., actual sighting) or secondary (i.e., tracks, scat, feather, or fur) indications of the presence of threatened or endangered species. However, the lack of discovery of threatened or endangered species does not signify their non-existence within the area, but only that no primary or secondary indications of these species were recorded.

3.3.1 Gray Wolf

Federal Status: Endangered

The gray wolf, listed as endangered in the United States in 1978, was believed extirpated from North Dakota in the 1920s and 1930s, with only sporadic reports from the 1930s to the present (Licht and Huffman 1996; USFWS 1978). The presence of wolves in most of North Dakota consists of occasional dispersing animals from Minnesota and Manitoba (Licht and Fritts 1994; Licht and Huffman 1996). Most documented gray wolf sightings within western North Dakota are believed to be young males seeking to establish territory (Hagen et al. 2005). The Turtle Mountain region of north-central North Dakota provides marginal habitat that may be able to support a very small population of wolves. The closest known pack of wolves is the Minnesota population located approximately 17 miles from the northeast corner of North Dakota.

The gray wolf uses a variety of habitats that support a large prey base, including montane and low-elevation forests, grasslands, and desertscrub (USFWS 2018c). Due to a lack of forested habitat and the distance from Minnesota and Manitoba populations, as well as the troubled relationship between humans and wolves and their vulnerability to being shot in open habitats (Licht and Huffman 1996), the reestablishment of gray wolf populations in North Dakota is unlikely. Additionally, habitat fragmentation may further act as a barrier against wolf recolonization in western North Dakota. The gray wolf is not expected to be impacted by the proposed project.

3.3.2 Whooping Crane

Federal Status: Endangered

The whooping crane was listed as endangered in 1970 in the United States by the USFWS and in 1978 in Canada. Historically, population declines were caused by shooting and destruction of nesting habitat in the prairies from agricultural development. Current threats to the species include habitat destruction, especially suitable wetland habitats that support breeding and nesting, as well as feeding and roosting during their fall and spring migration (Canadian Wildlife Service and USFWS 2007).

The winter 2015–2016 total wild population of the Wood Buffalo-Aransas population was estimated at 329 birds (USFWS 2016a). There is only one self-sustaining wild population, the Aransas-Wood Buffalo National Park population, which nests in Wood Buffalo National Park and adjacent areas in Canada, where approximately 83% of the wild nesting sites occur (Canadian Wildlife Service and USFWS 2007; USFWS 2013a). Mountrail and Williams Counties, including the project area, are within the primary migratory flyway of whooping cranes.

Whooping cranes probe the soil subsurface with their bills for foods on the soil or vegetation substrate (Canadian Wildlife Service and USFWS 2007). Whooping cranes are omnivores, and foods typically include agricultural grains, as well as insects, frogs, rodents, small birds, minnows, berries, and plant tubers. The largest amount of time during migration is spent feeding in harvested grain fields (Canadian Wildlife Service and USFWS 2007). Studies indicate that whooping cranes use a variety of habitats during migration, in addition to cultivated croplands, and generally roost in small palustrine (marshy) wetlands within 0.62 mile of suitable feeding areas (Howe 1987, 1989). Whooping cranes have been recorded in riverine habitats during their migration, with eight sightings along the Missouri River in North Dakota (Canadian Wildlife Service and USFWS 2007:18). In these cases, they roost on submerged sandbars in wide, unobstructed channels that are isolated from human disturbance (Armbruster 1990).

It is well-documented that migrating whooping cranes use habitats in the vicinity of the project for roosting and feeding. The project area is located within the migratory corridor for the whooping crane, with the nearest sighting being approximately 4.7 miles west of the pipeline corridor (USFWS, M. Tacha, unpublished data). Suitable whooping crane foraging habitat (i.e., cultivated cropland) was observed within the survey area; however, high levels of disturbance near the project area from existing roads, agriculture production, oil and gas activity, etc., minimize the likelihood for cranes to use the area within or near the pipeline corridor. The whooping crane is not expected to be impacted by the proposed project.

3.3.3 Interior Least Tern

Federal Status: Endangered

The interior population of the least tern is listed as endangered by the USFWS (1985a). This bird is the smallest member of the gull and tern family, measuring approximately 9 inches in length. Terns remain near flowing water, where they feed by hovering over and diving into standing or flowing water to catch small fish (USFWS 2013b).

The interior population of least terns breeds in isolated areas along the Missouri, Mississippi, Ohio, Red, and Rio Grande river systems, where they nest in small colonies. From late April to August, terns nest in a shallow hole scraped in an open sandy area, gravel patch, or exposed flat; and in bare sandbars along rivers, sand and gravel pits, or lake and reservoir shorelines. The adults continue to care for chicks after they hatch. Least terns in North Dakota often will be found sharing sandbars with the piping plover, a threatened species (USFWS 2013b).

Census data indicate over 8,000 least terns in the interior population. In North Dakota, the least tern is found mainly on the Missouri River from Garrison Dam south to Lake Oahe, and on the Missouri and Yellowstone Rivers upstream of Lake Sakakawea (USFWS 1990, 2013b). Approximately 100 pairs breed in North Dakota (USFWS 2013b). Details of their migration are not known, but their winter range is reported to include the Gulf of Mexico and Caribbean Islands (USFWS 1990, 2013b).

Loss of suitable breeding and nesting habitat for terns has resulted from dam construction and river channelization on major rivers throughout the Mississippi, Missouri, and Rio Grande river systems. River and reservoir changes have led to reduced sandbar formation and other shoreline habitats for breeding, resulting in population declines. In addition, other human shoreline disturbances affect the species (USFWS 1990). Critical habitat has not been designated for the species (USFWS 2013b). Current conservation strategies include identification and avoidance of known nesting areas, public education, and limiting or preventing shoreline disturbances near nests and hatched chicks (USFWS 2013b).

Given the distance to suitable habitat, the likelihood of observing a tern in the project area is relatively low. The interior least tern is not expected to be impacted by the proposed project.

3.3.4 Piping Plover

Federal Status: Threatened

The piping plover is a small shorebird that breeds only in three geographic regions of North America: the Atlantic Coast, the Northern Great Plains, and the Great Lakes. Piping plover populations were federally listed as threatened and endangered in 1985, with the Northern Great Plains and Atlantic Coast populations listed as threatened, and the Great Lakes population listed as endangered (USFWS 1985b).

Plovers in the Great Plains make their nests on open, sparsely vegetated sand or gravel beaches adjacent to alkali wetlands and on beaches, sand bars, and dredged material islands of major river systems (USFWS 2002, 2018d). The shorelines of lakes of the Missouri River constitute significant nesting areas for the bird. Piping plover nest on the ground, making shallow scrapes in the sand, which they line with small pebbles or rocks (USFWS 1988). Anthropogenic alterations of the landscape along rivers and lakes where piping plover nest have increased the number and type of predators, subsequently decreasing nest success and chick survival (USFWS 2002, 2018d). The birds fly south by mid to late August to areas along the Texas coast and Mexico (USFWS 2002). The Northern Great Plains population has continued to decline despite federal listing, with population estimates of 1,500 breeding pairs in 1985 reduced to fewer than 1,100 in 1990. Low survival of adult birds has been identified as a factor (Root et al. 1992). Current conservation strategies include identification and preservation of known nesting sites, public education, and limiting or preventing shoreline disturbances near nests and hatched chicks (USFWS 1988, 2018d).

The lack of alkali wetlands, minimal disturbance to foraging wetlands, and distance to critical habitat deem the likelihood of a piping plover occurring as relatively low. The piping plover is not expected to be impacted by the proposed project.

Desktop analysis concluded that designated critical habitat for the threatened piping plover is not present in the pipeline ROW. The nearest designated critical habitat for piping plovers is approximately 10.18 miles south of the proposed pipeline. The proposed pipeline would not modify, alter, disturb, or affect the shoreline within ND Unit 11 or the alkaline lakes and wetlands within ND Units 1 through 10. Designated critical habitat of the piping plover is not expected to be impacted by the proposed project.

3.3.5 Dakota Skipper

Federal Status: Threatened

The Dakota skipper is a small butterfly with a 1-inch wingspan. The male wing ranges from a tawny-orange to brown, and the female wing is darker brown with tawny-orange spots and faint white spots (USFWS 2014). On October 24, 2014, the USFWS determined a threatened species status for the Dakota skipper, and the final rule became effective November 24, 2014 (USFWS 2014). One unit of designated critical habitat—Unit 12 is located on the Little Missouri National Grassland.

The primary cause for the decline of this species includes the loss of high-quality native prairie habitat due to overgrazing, conversion to agriculture, and disruption of natural prairie fire cycles (USFWS 2014). 'Type A' habitat is low wet-mesic prairie with little topographic relief occurring in near-shore glacial lake deposits (Royer and Marrone 1992). Three plants species dominate 'Type A' habitat: wood lily (*Lilium philadelphicum*), bluebell bellflower (*Campanula rotundifolia*), and mountain deathcamas (*Zigadenus elegans*) (McCabe 1981). 'Type B' habitat of the Dakota skipper occurs on rolling terrain over gravelly glacial moraine deposits and is dominated by big bluestem, little bluestem, and needlegrasses (*Stipa* spp.), and may include bluebell bellflower and wood lily (USFWS 2016c). Additionally, 'Type B' habitat

supports extensive stands of blacksamson echinacea (*Echinacea angustifolia*), upright prairie coneflower (*Ratibida columnifera*), and blanketflower (*Gaillardia aristata*) (USFWS 2016c).

During the surveys, nonnative grasslands and cropland were dominant in the project area. Dominant species recorded during surveys included Kentucky bluegrass, smooth brome, intermediate wheatgrass (*Thinopyrum intermedium*), and western wheatgrass.

Dakota skippers are not known to occur in the project area. Adult Dakota skipper dispersal is limited due to a short adult life span of 3 weeks (Dana 1991) and one annual flight per year (USFWS 2016c). The Dakota skipper may disperse an average of 0.62 mile to an area that contains sufficient vegetative diversity and emigrants (Cochrane and Delphey 2002). Unless a site is within about 0.62 mile of an area that generates a sufficient number of emigrants, the species' extirpation from the site is likely permanent.

Larval Dakota skipper habitat within dry-mesic habitat is associated with more gravelly glacial landscapes of relatively higher relief, more variable soil moisture, and somewhat higher soil temperatures (Royer et al. 2008). Soils in these habitats are classified predominantly as sandy loams and occasionally as loamy sands (Royer et al. 2008). Soil compaction and vegetation removal substantially alter soil water movement and evaporation, thereby altering near-surface humidity (Royer et al. 2008). Livestock grazing has been shown to increase bulk density and soil compaction, which are correlated with decreased soil water content and hydraulic conductivity (Royer et al. 2008). Dakota skippers will tolerate little to no grazing in mixed-grass prairie (Cochrane and Delphey 2002; McCabe 1981). Grazing pressure within the pasture land found in the project area is categorized as moderate to severe based on visual observance by SWCA in the field.

The nearest designated USFWS critical habitat unit, Unit 11 in Mountrail County, is located 25.63 miles south of the project area. Additionally, Unit 12 in Williams County is located 25.98 miles south of the project area. Because of the lack of suitable habitat and the distance to the nearest known population, the Dakota skipper is not expected to be impacted by the proposed project.

3.3.6 Rufa Red Knot

Federal Status: Threatened

The rufa red knot is a medium-sized shorebird approximately 9 to 11 inches in height with breeding plumage consisting of red around the face and a prominent stripe above the eye, breast, and upper belly, and non-breeding plumage a dusky gray and white (USFWS 2013c). The USFWS published a proposal to list the rufa red knot as threatened under the ESA in the *Federal Register* in September 2013 (78 *Federal Register* 60023). On December 11, 2014, the USFWS determined a threatened species status for the rufa red knot, and the final rule became effective January 12, 2015 (79 *Federal Register* 73705).

The primary reason for the decline of this species includes reduced food supplies in Delaware Bay due to commercial harvest of horseshoe crabs, but also includes areas of range loss due to rising sea levels, shorelines project, and development (USFWS 2013c). The rufa red knot breeds in the Canadian Arctic and migrates 19,000 miles to winter on the U.S. Gulf Coast and in South America. The species generally occurs along the ocean coasts during migration, but a small number have been reported across the interior United States.

Suitable habitat along Lake Sakakawea is approximately 20.17 miles northwest of the project area. The likelihood of the rufa red knot occurring in the proposed pipeline ROW is very low due to the distance to Lake Sakakawea. The rufa red knot is not expected to be impacted by the proposed project.

3.3.7 Northern Long-Eared Bat

Federal Status: Threatened

On May 4, 2015, the USFWS listed the northern-long eared bat as threatened under the ESA (USFWS 2015b. The USFWS also issued an interim rule pursuant to Section 4(d) of the ESA in conjunction with the final rule (50 CFR Part 17). For areas within the species' range that are not affected by white-nose syndrome (i.e., areas outside the 150-mile white-nose syndrome buffer zone), including all of North Dakota, the interim 4(d) rule exempts incidental take from certain activities.

This medium-sized bat ranges across the eastern and north-central United States and all of the Canadian provinces (USFWS 2015b). Throughout most of this species' range, populations are patchily distributed. They emerge at dusk to fly through the understory of forested hillsides and ridges, feeding on moths, flies, leafhoppers, caddisflies, and beetles.

Most records of northern long-eared bats are from winter hibernacula surveys, with more than 780 hibernacula identified within the United States. No known hibernacula are located in North Dakota, due to either no suitable hibernacula present or a lack of survey effort (USFWS 2013d). This bat species occupies a wide range of rocky and forested habitats. Suitable winter habitat includes large caves and mines (USFWS 2015b). Summer day roosts include abandoned buildings, bridges, hollow trees, stumps, under loose bark, and rock fissures (Jones and Choate 1978). The summer roosting period is from May through October. Removal of any potential roost trees may impact the northern long-eared bat.

Suitable winter habitat for northern long-eared bats does not occur in the pipeline ROW. Nearby trees, including quaking aspen trees recorded at sample point WV1 (Appendix A), and rocky outcrops can act as suitable summer day roosts. Suitable habitat in the project area is minimal, and the 4(d) rule exempts incidental take for the proposed project; therefore, the northern long-eared bat is not expected to be impacted by the proposed project.

3.3.8 Migratory Birds

Status: Protected under the MBTA

Suitable habitat for migratory birds exists in the entire pipeline ROW. Specifically, grassland nesting birds have the potential to occur, feed, and nest in the project area, especially during the migratory bird breeding season, which generally occurs between February 1 and July 15. Suitable woodland nesting habitat occurs in the project area but it is minimal. All take of migratory birds, their parts, or their active nests, including eggs and young, must be avoided to prevent a violation of the MBTA.

3.3.9 Bald Eagle

Federal Status: Delisted in 2007; protected under the MBTA and the BGEPA

The bald eagle (*Haliaeetus leucocephalus*) feeds on fish and carrion and typically roosts in large trees near a water source. Bald eagle nesting habitat is typically any mature stands of conifer (*Pinophyta* sp.) or cottonwood (*Populus* sp.) trees in association with rivers, streams, reservoirs, lakes, or any significant body of water. Bald eagles in North Dakota are usually observed along the Missouri River (North Dakota Game and Fish Department 2016) and Yellowstone River. Bald eagles frequently migrate through the grassland habitats. The nearest known bald eagle nest is approximately 27.35 miles from the pipeline ROW (North Dakota Game and Fish Department 2015). The USFWS generally recommends a buffer of 0.5 mile from any eagle nest. If any active nests are discovered within 0.5 mile of the pipeline ROW,

construction should halt and the USFWS should be contacted for further direction. If these recommendations are followed, bald eagles are not expected to be impacted by the proposed project.

3.3.10 Golden Eagle

Federal Status: Unlisted; protected under the MBTA and the BGEPA

The golden eagle (*Aquila chrysaetos*) prefers habitat characterized by open prairie, plains, and forested areas. Usually, golden eagles can be found in proximity to badland cliffs, which provide suitable nesting habitat. The USFWS generally recommends a buffer of 0.5 mile from any eagle nest. If any active nests are discovered within 0.5 mile of the pipeline ROW, construction should halt and the USFWS should be contacted for further direction. If these recommendations are followed, golden eagles are not expected to be impacted by the proposed project.

3.3.11 Wildlife Observed

During the field surveys, SWCA observed various wildlife species within the survey area (Table 7). Common wildlife species may be affected both directly via death or injury from construction activities or indirectly through the temporary fragmentation of habitat as a result of construction activities and disturbance, which may disrupt normal activities such as breeding, feeding, and sheltering.

Table 7. Wildlife Observed during Field Surveys of the Pipeline Route

Common Name	Scientific Name
Ring-necked pheasant	*Phasianus colchicus*
Red-tailed hawk	*Buteo jamaicensis*
Black-tailed jackrabbit	*Lepus californicus*
Western meadowlark	*Sturnella neglecta*

4 CONCLUSIONS AND RECOMMENDATIONS

- SWCA biologists recorded three wetlands during the 2018 surveys and one additional wetland (WET001B) during 2019 surveys, totaling approximately 1.72 acres, within the 200-foot-wide survey area; 1.09 acres will be impacted by project construction. However, impacts to each individual wetland will be under 0.5 acre.
- SWCA did not record any waterbodies within the survey area.
- Each of the four wetland crossings should be considered a single and complete project as defined by the USACE and can be constructed under NWP 12. Following are the details on the use of NWP 12 for this project.
    - The impacts to the wetlands from the pipeline construction will be temporary, and no permanent loss of wetlands will occur.
    - A pre-construction notice will not be required for the use of NWP 12 due to it not meeting the notice requirements in the permit.
    - No USACE regional conditions are applicable to this project.
    - The guidelines for construction described in NWP 12 (Appendix B) will be followed; the temporary impact area must be revegetated, as applicable, and the bed returned to pre-disturbance elevation.

  - The construction manager should keep a copy of NWP 12 onsite during construction of the three wetland crossings.
  - In conjunction with NWP 12, Section 401 certification is required for impacts to Waters of the State. There are no Waters of the State present in the project area; therefore, no action is needed.

- SWCA counted seven tree, sapling, and shrub individuals that may be impacted by construction activities. Therefore, approximately fourteen 2-year-old saplings may need to be replanted to fulfill the NDPSC's 2:1 mitigation requirement. According to the recommendations of the North Dakota Forest Service, tree species selection for replacement should be accomplished through collaboration with a reputable area nursery. This will allow for species to be selected based on various factors, including species hardiness and area soil type.
- No threatened or endangered species or habitat were observed during the field surveys.
- Migratory birds and suitable nesting habitat were observed throughout the survey area. In order to avoid unauthorized take of migratory birds and active nests, SWCA recommends conducting construction outside of the migratory bird breeding season as practicable. If construction occurs during the bird breeding season (February 1–July 15), SWCA recommends to either mow, maintain, or completely remove vegetation within the project construction area outside the migratory bird nesting season; conduct migratory bird nesting surveys 5 days prior to construction; or prepare a habitat mitigation plan for approval by the USFWS that, once approved, would allow for clearing active nests and habitat during any time of year. If active nests (i.e., nests with eggs or young) are identified, the USFWS should be notified.
- No active raptor nests were observed within 0.5 mile of the project area. No bald or golden eagle nests were observed. No impacts to eagles are anticipated.

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APPENDIX A

Vicinity Site Layout and Soil Maps

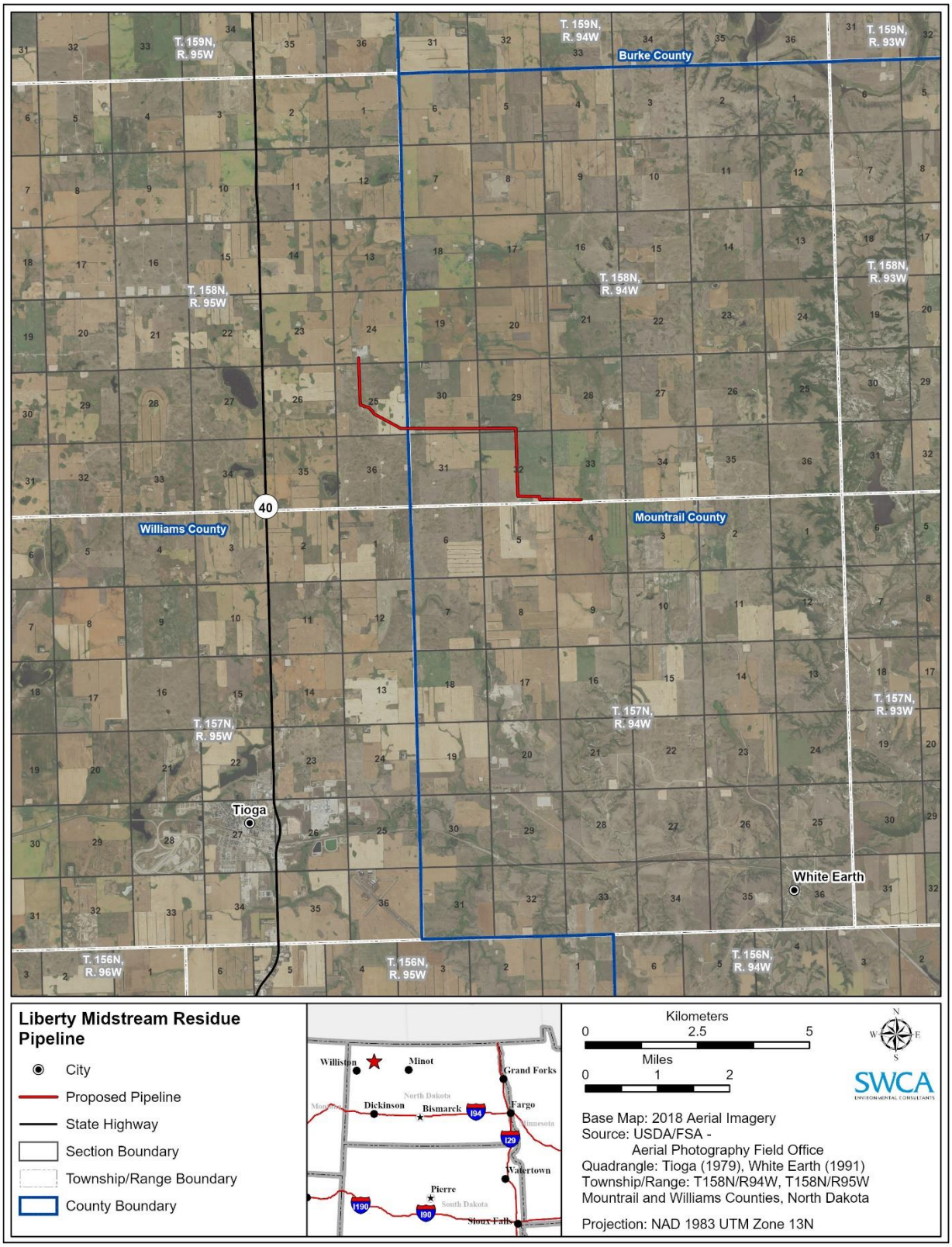

Figure A-1. General location of the Liberty Midstream Residue Pipeline.

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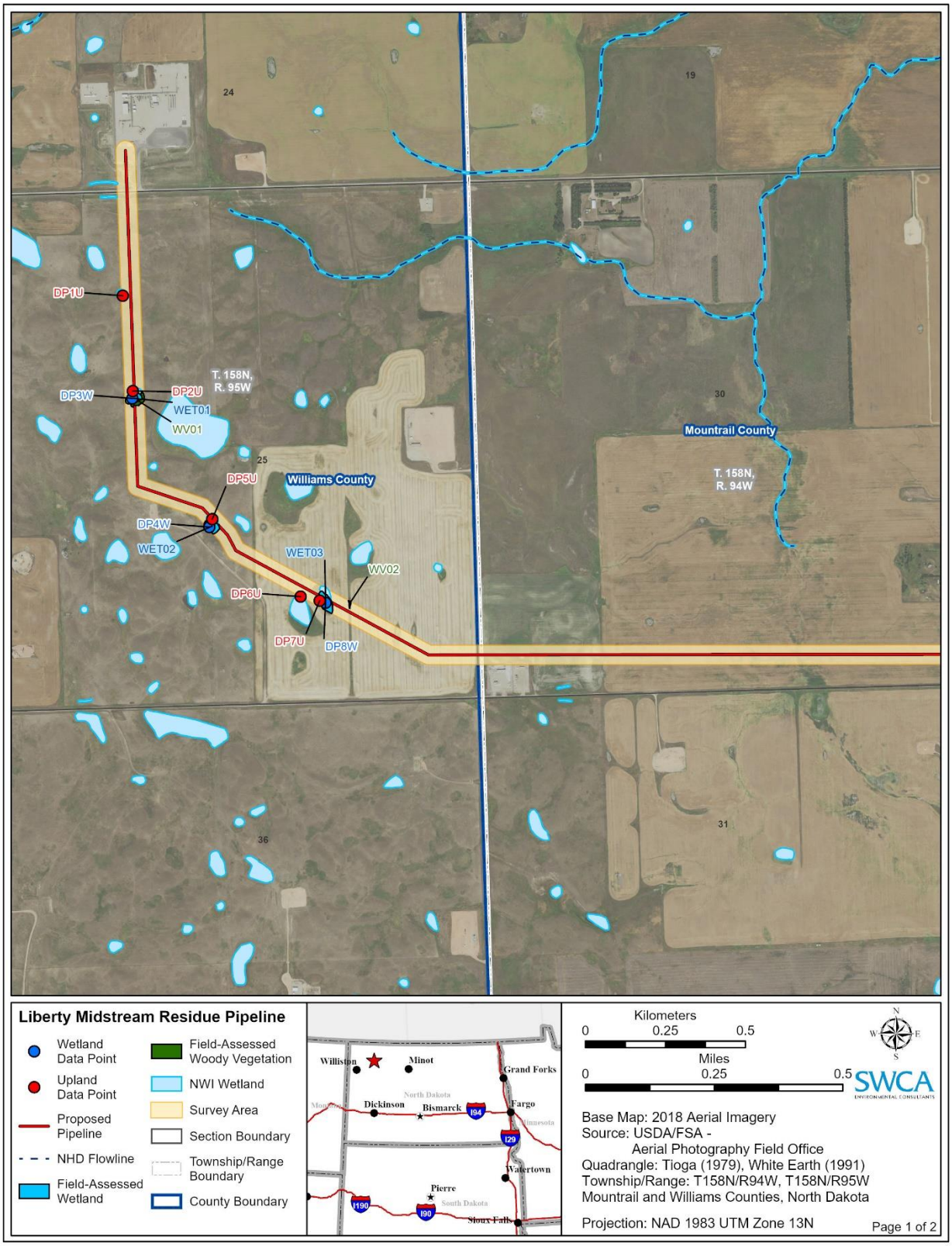

Figure A-2. Liberty Midstream Residue Pipeline project location (map 1 of 2).

LMS 251

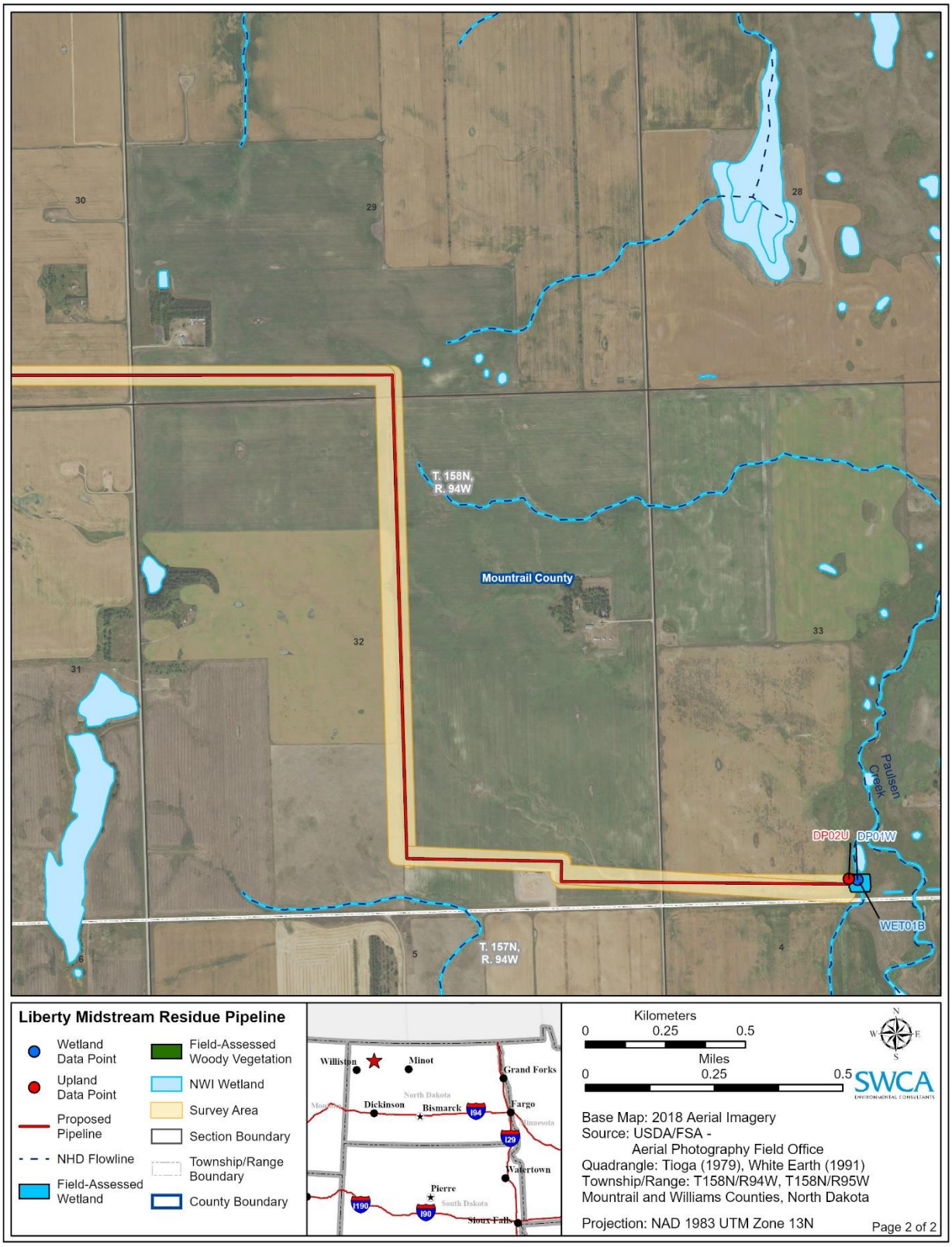

Figure A-3. Liberty Midstream Residue Pipeline project location (map 2 of 2).

LMS 252

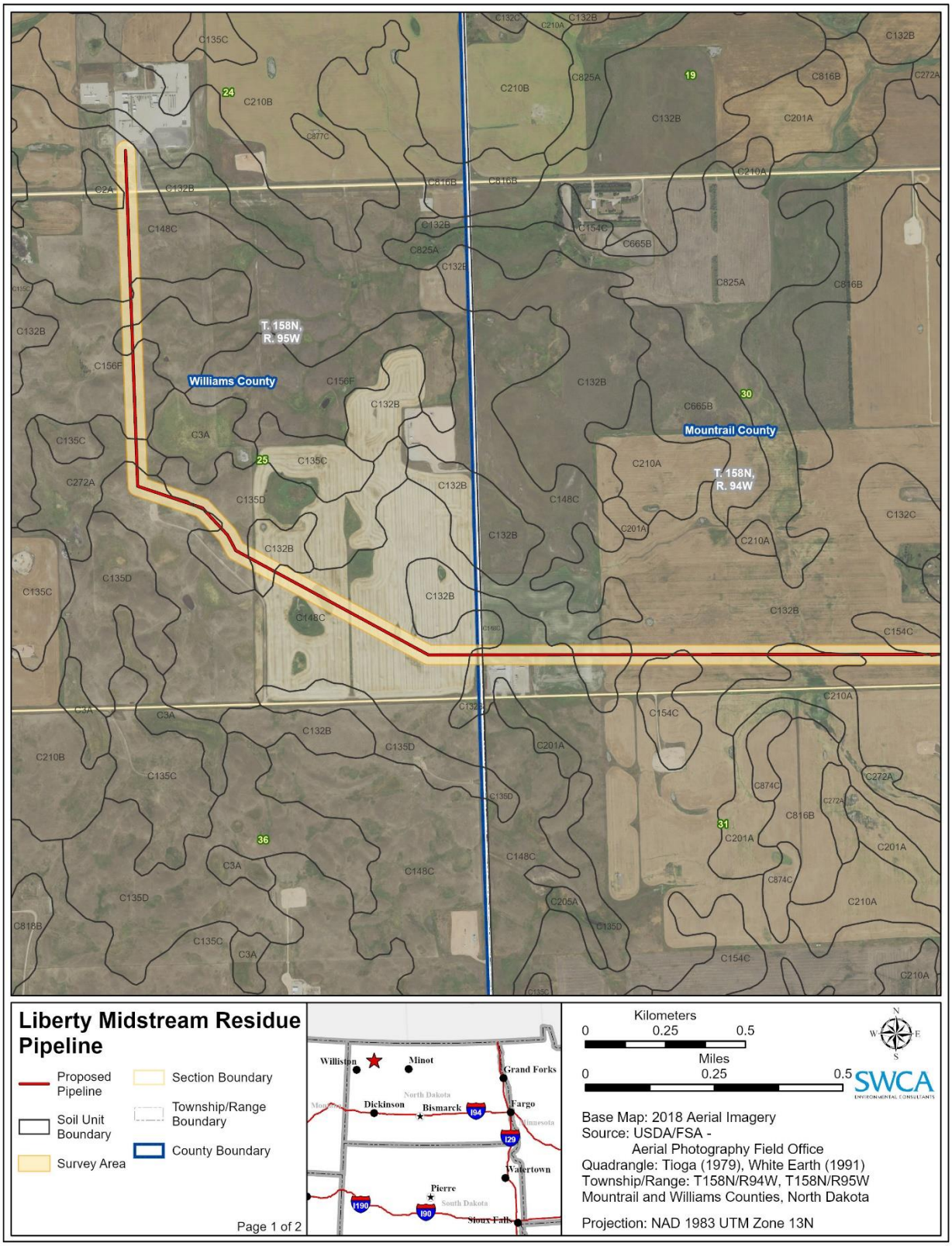

Figure A-4. Liberty Midstream Residue Pipeline project location soils (map 1 of 2).

LMS 253

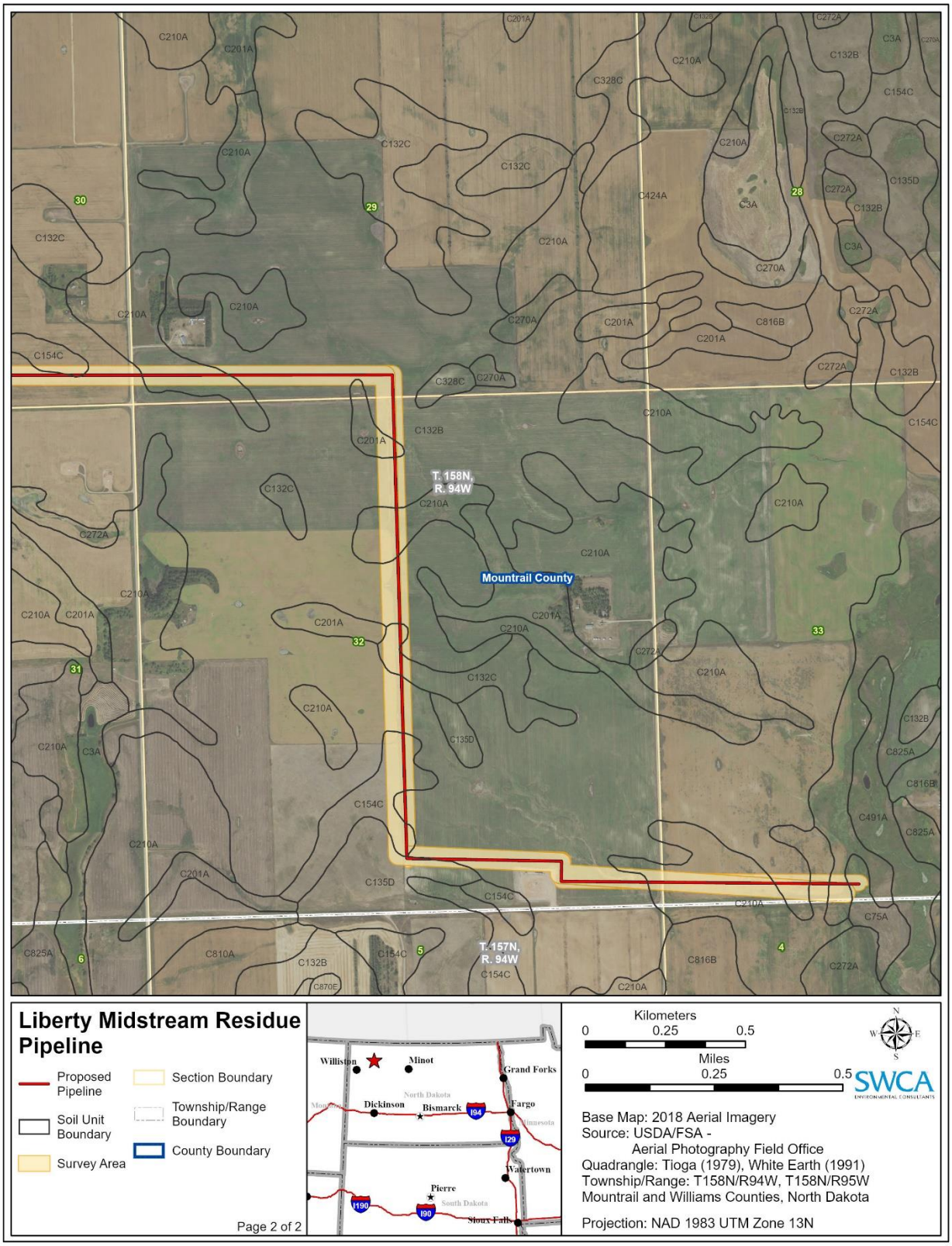

Figure A-5. Liberty Midstream Residue Pipeline project location soils (map 2 of 2).

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APPENDIX B

NWP 12 Summary

DECISION DOCUMENT
NATIONWIDE PERMIT 12

This document discusses the factors considered by the Corps of Engineers (Corps) during the issuance process for this Nationwide Permit (NWP). This document contains: (1) the public interest review required by Corps regulations at 33 CFR 320.4(a)(1) and (2); (2) a discussion of the environmental considerations necessary to comply with the National Environmental Policy Act; and (3) the impact analysis specified in Subparts C through F of the 404(b)(1) Guidelines (40 CFR Part 230). This evaluation of the NWP includes a discussion of compliance with applicable laws, consideration of public comments, an alternatives analysis, and a general assessment of individual and cumulative effects, including the general potential effects on each of the public interest factors specified at 33 CFR 320.4(a).

1.0 Text of the Nationwide Permit

Utility Line Activities. Activities required for the construction, maintenance, repair, and removal of utility lines and associated facilities in waters of the United States, provided the activity does not result in the loss of greater than 1/2-acre of waters of the United States for each single and complete project.

Utility lines: This NWP authorizes discharges of dredged or fill material into waters of the United States and structures or work in navigable waters for crossings of those waters associated with the construction, maintenance, or repair of utility lines, including outfall and intake structures. There must be no change in pre-construction contours of waters of the United States. A "utility line" is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, and telegraph messages, and internet, radio, and television communication. The term "utility line" does not include activities that drain a water of the United States, such as drainage tile or french drains, but it does apply to pipes conveying drainage from another area.

Material resulting from trench excavation may be temporarily sidecast into waters of the United States for no more than three months, provided the material is not placed in such a manner that it is dispersed by currents or other forces. The district engineer may extend the period of temporary side casting for no more than a total of 180 days, where appropriate. In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench. The trench cannot be constructed or backfilled in such a manner as to drain waters of the United States (e.g., backfilling with extensive gravel layers, creating a french drain effect). Any exposed slopes and stream banks must be stabilized immediately upon completion of the utility line crossing of each waterbody.

Utility line substations: This NWP authorizes the construction, maintenance, or expansion of substation facilities associated with a power line or utility line in non-tidal waters of the United States, provided the activity, in combination with all other activities included in one

single and complete project, does not result in the loss of greater than 1/2-acre of waters of the United States. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters of the United States to construct, maintain, or expand substation facilities.

Foundations for overhead utility line towers, poles, and anchors: This NWP authorizes the construction or maintenance of foundations for overhead utility line towers, poles, and anchors in all waters of the United States, provided the foundations are the minimum size necessary and separate footings for each tower leg (rather than a larger single pad) are used where feasible.

Access roads: This NWP authorizes the construction of access roads for the construction and maintenance of utility lines, including overhead power lines and utility line substations, in non-tidal waters of the United States, provided the activity, in combination with all other activities included in one single and complete project, does not cause the loss of greater than 1/2-acre of non-tidal waters of the United States. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters for access roads. Access roads must be the minimum width necessary (see Note 2, below). Access roads must be constructed so that the length of the road minimizes any adverse effects on waters of the United States and must be as near as possible to pre-construction contours and elevations (e.g., at grade corduroy roads or geotextile/gravel roads). Access roads constructed above pre-construction contours and elevations in waters of the United States must be properly bridged or culverted to maintain surface flows.

This NWP may authorize utility lines in or affecting navigable waters of the United States even if there is no associated discharge of dredged or fill material (See 33 CFR part 322). Overhead utility lines constructed over section 10 waters and utility lines that are routed in or under section 10 waters without a discharge of dredged or fill material require a section 10 permit.

This NWP authorizes, to the extent that Department of the Army authorization is required, temporary structures, fills, and work necessary for the remediation of inadvertent returns of drilling fluids to waters of the United States through sub-soil fissures or fractures that might occur during horizontal directional drilling activities conducted for the purpose of installing or replacing utility lines. These remediation activities must be done as soon as practicable, to restore the affected waterbody. District engineers may add special conditions to this NWP to require a remediation plan for addressing inadvertent returns of drilling fluids to waters of the United States during horizontal directional drilling activities conducted for the purpose of installing or replacing utility lines.

This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the utility line activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. After construction, temporary fills must be removed in their entirety

and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if any of the following criteria are met: (1) the activity involves mechanized land clearing in a forested wetland for the utility line right-of-way; (2) a section 10 permit is required; (3) the utility line in waters of the United States, excluding overhead lines, exceeds 500 feet; (4) the utility line is placed within a jurisdictional area (i.e., water of the United States), and it runs parallel to or along a stream bed that is within that jurisdictional area; (5) discharges that result in the loss of greater than 1/10-acre of waters of the United States; (6) permanent access roads are constructed above grade in waters of the United States for a distance of more than 500 feet; or (7) permanent access roads are constructed in waters of the United States with impervious materials. (See general condition 32.) (Authorities: Sections 10 and 404)

Note 1: Where the utility line is constructed or installed in navigable waters of the United States (i.e., section 10 waters) within the coastal United States, the Great Lakes, and United States territories, a copy of the NWP verification will be sent by the Corps to the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS), for charting the utility line to protect navigation.

Note 2: For utility line activities crossing a single waterbody more than one time at separate and distant locations, or multiple waterbodies at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. Utility line activities must comply with 33 CFR 330.6(d).

Note 3: Utility lines consisting of aerial electric power transmission lines crossing navigable waters of the United States (which are defined at 33 CFR part 329) must comply with the applicable minimum clearances specified in 33 CFR 322.5(i).

Note 4: Access roads used for both construction and maintenance may be authorized, provided they meet the terms and conditions of this NWP. Access roads used solely for construction of the utility line must be removed upon completion of the work, in accordance with the requirements for temporary fills.

Note 5: Pipes or pipelines used to transport gaseous, liquid, liquescent, or slurry substances over navigable waters of the United States are considered to be bridges, not utility lines, and may require a permit from the U.S. Coast Guard pursuant to section 9 of the Rivers and Harbors Act of 1899. However, any discharges of dredged or fill material into waters of the United States associated with such pipelines will require a section 404 permit (see NWP 15).

Note 6: This NWP authorizes utility line maintenance and repair activities that do not qualify for the Clean Water Act section 404(f) exemption for maintenance of currently serviceable fills or fill structures.

Note 7: For overhead utility lines authorized by this NWP, a copy of the PCN and NWP verification will be provided to the Department of Defense Siting Clearinghouse, which will evaluate potential effects on military activities.

Note 8: For NWP 12 activities that require pre-construction notification, the PCN must include any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings that require Department of the Army authorization but do not require pre-construction notification (see paragraph (b) of general condition 32). The district engineer will evaluate the PCN in accordance with Section D, "District Engineer's Decision." The district engineer may require mitigation to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see general condition 23).

1.1 Requirements

General conditions of the NWPs are in the Federal Register notice announcing the issuance of this NWP. Pre-construction notification requirements, additional conditions, limitations, and restrictions are in 33 CFR part 330.

1.2 Statutory Authorities

- Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403)
- Section 404 of the Clean Water Act (33 U.S.C. 1344)

1.3 Compliance with Related Laws (33 CFR 320.3)

1.3.1 General

NWPs are a type of general permit designed to authorize certain activities that have no more than minimal individual and cumulative adverse environmental effects and generally comply with the related laws cited in 33 CFR 320.3. Activities that result in more than minimal individual and cumulative adverse environmental effects cannot be authorized by NWPs. Individual review of each activity authorized by an NWP will not normally be performed, except when pre-construction notification to the Corps is required or when an applicant requests verification that an activity complies with an NWP. Potential adverse impacts and compliance with the laws cited in 33 CFR 320.3 are controlled by the terms and conditions of each NWP, regional and case-specific conditions, and the review process that is undertaken prior to the issuance of NWPs.

The evaluation of this NWP, and related documentation, considers compliance with each of the following laws, where applicable: Sections 401, 402, and 404 of the Clean Water Act; Section 307(c) of the Coastal Zone Management Act of 1972, as amended; Section 302 of

the Marine Protection, Research and Sanctuaries Act of 1972, as amended; the National Environmental Policy Act of 1969; the Fish and Wildlife Act of 1956; the Migratory Marine Game-Fish Act; the Fish and Wildlife Coordination Act, the Federal Power Act of 1920, as amended; the National Historic Preservation Act of 1966; the Interstate Land Sales Full Disclosure Act; the Endangered Species Act; the Deepwater Port Act of 1974; the Marine Mammal Protection Act of 1972; Section 7(a) of the Wild and Scenic Rivers Act; the Ocean Thermal Energy Act of 1980; the National Fishing Enhancement Act of 1984; the Magnuson-Stevens Fishery and Conservation and Management Act, the Bald and Golden Eagle Protection Act; and the Migratory Bird Treaty Act. In addition, compliance of the NWP with other Federal requirements, such as Executive Orders and Federal regulations addressing issues such as floodplains, essential fish habitat, and critical resource waters is considered.

1.3.2 Terms and Conditions

Many NWPs have pre-construction notification requirements that trigger case-by-case review of certain activities. Two NWP general conditions require case-by-case review of all activities that may adversely affect Federally-listed endangered or threatened species or historic properties (i.e., general conditions 18 and 20, respectively). General condition 16 restricts the use of NWPs for activities that are located in Federally-designated wild and scenic rivers. None of the NWPs authorize the construction of artificial reefs. General condition 28 prohibits the use of an NWP with other NWPs, except when the acreage loss of waters of the United States does not exceed the highest specified acreage limit of the NWPs used to authorize the single and complete project.

In some cases, activities authorized by an NWP may require other federal, state, or local authorizations. Examples of such cases include, but are not limited to: activities that are in marine sanctuaries or affect marine sanctuaries or marine mammals; the ownership, construction, location, and operation of ocean thermal conversion facilities or deep water ports beyond the territorial seas; activities that result in discharges of dredged or fill material into waters of the United States and require Clean Water Act Section 401 water quality certification; or activities in a state operating under a coastal zone management program approved by the Secretary of Commerce under the Coastal Zone Management Act. In such cases, a provision of the NWPs states that an NWP does not obviate the need to obtain other authorizations required by law. [33 CFR 330.4(b)(2)]

Additional safeguards include provisions that allow the Chief of Engineers, division engineers, and/or district engineers to: assert discretionary authority and require an individual permit for a specific activity; modify NWPs for specific activities by adding special conditions on a case-by-case basis; add conditions on a regional or nationwide basis to certain NWPs; or take action to suspend or revoke an NWP or NWP authorization for activities within a region or state. Regional conditions are imposed to protect important regional concerns and resources. [33 CFR 330.4(e) and 330.5]

1.3.3 Review Process

APPENDIX C

Standards of Quality for Waters of the State

CHAPTER 33.1-16-02.1
STANDARDS OF QUALITY FOR WATERS OF THE STATE

Section
33.1-16-02.1-01 Authority
33.1-16-02.1-02 Purpose
33.1-16-02.1-03 Applicability
33.1-16-02.1-04 Definitions
33.1-16-02.1-05 Variances and Compliance Schedules
33.1-16-02.1-06 Severability
33.1-16-02.1-07 Classification of Waters of the State
33.1-16-02.1-08 General Water Quality Standards
33.1-16-02.1-09 Surface Water Classifications, Mixing Zones, and Numeric Standards
33.1-16-02.1-10 Ground Water Classifications and Standards
33.1-16-02.1-11 Discharge of Wastes

33.1-16-02.1-01. Authority.

These rules are promulgated pursuant to North Dakota Century Code chapters 61-28 and 23.1-11; specifically, sections 61-28-04 and 23.1-11-05, respectively.

History: Effective January 1, 2019.
General Authority: NDCC 61-28-04; S.L. 2017, ch. 199, § 1
Law Implemented: NDCC 23.1-11, 61-28; S.L. 2017, ch. 199, § 26

33.1-16-02.1-02. Purpose.

1. The purposes of this chapter are to establish a system for classifying waters of the state; provide standards of water quality for waters of the state; and protect existing and potential beneficial uses of waters of the state.

2. The state and public policy is to maintain or improve, or both, the quality of the waters of the state and to maintain and protect existing uses. Classifications and standards are established for the protection of public health and environmental resources and for the enjoyment of these waters, to ensure the propagation and well-being of resident fish, wildlife, and all biota associated with, or dependent upon, these waters; and to safeguard social, economical, and industrial development. Waters not being put to use shall be protected for all reasonable uses for which these waters are suitable. All known and reasonable methods to control and prevent pollution of the waters of this state are required, including improvement in quality of these waters, when feasible.

   a. The "quality of the waters" shall be the quality of record existing at the time the first standards were established in 1967, or later records if these indicate an improved quality. Waters with existing quality that is higher than established standards will be maintained at the higher quality unless affirmatively demonstrated, after full satisfaction of the intergovernmental coordination and public participation provisions of the continuing planning process, that a change in quality is necessary to accommodate important social or economic development in the area in which the waters are located. In allowing the lowering of existing quality, the department shall assure that existing uses are fully protected and that the highest statutory and regulatory requirements for all point sources and cost-effective and reasonable best management practices for nonpoint sources are achieved.

   b. Waters of the state having unique or high-quality characteristics that may constitute an outstanding state resource shall be maintained and protected.

c. Any public or private project or development which constitutes a source of pollution shall provide the best degree of treatment as designated by the department in the North Dakota pollutant discharge elimination system. If review of data and public input indicates any detrimental water quality changes, appropriate actions will be taken by the department following procedures approved by the environmental protection agency. (North Dakota Antidegradation Implementation Procedure, Appendix IV.)

History: Effective January 1, 2019.
General Authority: NDCC 61-28-04, 61-28-05; S.L. 2017, ch. 199, § 1
Law Implemented: NDCC 23.1-11, 61-28-04; S.L. 2017, ch. 199, § 26

33.1-16-02.1-03. Applicability.

Nothing in this chapter may be construed to limit or interfere with the jurisdiction, duties, or authorities of other North Dakota state agencies.

History: Effective January 1, 2019.
General Authority: NDCC 61-28-04; S.L. 2017, ch. 199, § 1
Law Implemented: NDCC 23.1-11, 61-28; S.L. 2017, ch. 199, § 26

33.1-16-02.1-04. Definitions.

The terms used in this chapter have the same meaning as in North Dakota Century Code chapter 61-28, except:

1. "Acute standard" means the one-hour average concentration does not exceed the listed concentration more than once every three years.

2. "Best management practices" are methods, measures, or procedures selected by the department to control nonpoint source pollution. Best management practices include structural and nonstructural measures and operation and maintenance procedures.

3. "Chronic standard" means the four-day average concentration does not exceed the listed concentration more than once every three years.

4. "Consecutive thirty-day average" is the average of samples taken during any consecutive thirty-day period. It is not a requirement for thirty consecutive daily samples.

5. "Department" means the department of environmental quality.

6. A standard defined as "dissolved" means the total quantity of a given material present in a filtered water sample, regardless of the form or nature of its occurrence.

7. "Eutrophication" means the process of enrichment of rivers, streams, lakes, reservoirs, and wetlands with nutrients needed to maintain primary production.

8. "Nutrients" mean the chemical elements, primarily nitrogen and phosphorus, which are critical to the growth of aquatic plants and animals.

9. "Pollution" means such contamination, or other alteration of the physical, chemical, or biological properties, of any waters of the state, including change in temperature, taste, color, turbidity, or odor. Pollution includes discharge of any liquid, gaseous, solid, radioactive, or other substance into any waters of the state that will or is likely to create a nuisance or render such waters harmful, detrimental, or injurious to public health, safety, or welfare; domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses; or livestock, wild animals, birds, fish, or other aquatic biota.

10. "Site-specific standards" mean water quality criteria developed to reflect local environmental conditions to protect the uses of a specific water body.

11. A standard defined as "total" means the entire quantity of a given material present in an unfiltered water sample regardless of the form or nature of its occurrence. This includes both dissolved and suspended forms of a substance, including the entire amount of the substance present as a constituent of the particulate material. Total recoverable is the quantity of a given material in an unfiltered aqueous sample following digestion by refluxing with hot dilute mineral acid.

12. "Water usage". The best usage for the waters shall be those uses determined to be the most consistent with present and potential uses in accordance with the economic and social development of the area. Present principal best uses are those defined in subdivisions a, b, c, d, and e. These are not to be construed to be the only possible usages.

    a. Municipal and domestic water. Waters suitable for use as a source of water supply for drinking and culinary purposes after treatment to a level approved by the department.

    b. Fish and aquatic biota. Waters suitable for the propagation and support of fish and other aquatic biota and waters that will not adversely affect wildlife in the area. Low flows or natural physical and chemical conditions in some waters may limit their value for fish propagation or aquatic biota.

    c. Recreation. Primary recreational waters are suitable for recreation where direct body contact is involved, such as bathing and swimming, and where secondary recreational activities such as boating, fishing, and wading are involved. Natural high turbidities in some waters and physical characteristics of banks and streambeds of many streams are factors that limit their value for bathing.

    d. Agricultural uses. Waters suitable for irrigation, stock watering, and other agricultural uses, but not suitable for use as a source of domestic supply for the farm unless satisfactory treatment is provided.

    e. Industrial water. Waters suitable for industrial purposes, including food processing, after treatment. Treatment may include that necessary for prevention of boiler scale and corrosion.

History: Effective January 1, 2019.
General Authority: NDCC 61-28-04, 61-28-05; S.L. 2017, ch. 199, § 1
Law Implemented: NDCC 23.1-11, 61-28; S.L. 2017, ch. 199, § 26

33.1-16-02.1-05. Variances and compliance schedules.

Upon written application by the responsible discharger, the department finds that by reason of substantial and widespread economic and social impacts the strict enforcement of state water quality criteria is not feasible, the department can permit a variance to the water quality standard for the affected segment. The department can set conditions and time limitations with the intent that progress toward improvements in water quality will be made. This can include interim criteria which must be reviewed at least once every three years. A variance will be granted only after fulfillment of the approved requirements at 40 CFR section 131.14, including public participation requirements and environmental protection agency approval. A variance will not preclude an existing use.

A North Dakota pollutant discharge elimination system permit may contain a schedule to return a permittee to compliance with water quality based effluent limits consistent with federal and state regulations. Compliance schedules in North Dakota pollutant discharge elimination system permits are subject to the requirements of section 33.1-16-01-15 and cannot be issued for new discharges or sources.

History: Effective January 1, 2019.
General Authority: NDCC 61-28-04, 61-28-05; S.L. 2017, ch. 199, § 1
Law Implemented: NDCC 23.1-11, 61-28; S.L. 2017, ch. 199, § 26

33.1-16-02.1-06. Severability.

The rules contained in this chapter are severable. If any rules, or part thereof, or the application of such rules to any person or circumstance are declared invalid, that invalidity does not affect the validity of any remaining portion of this chapter.

History: Effective January 1, 2019.
General Authority: NDCC 61-28-04; S.L. 2017, ch. 199, § 1
Law Implemented: NDCC 23.1-11, 61-28; S.L. 2017, ch. 199, § 26

33.1-16-02.1-07. Classification of waters of the state.

General. Classification of waters of the state shall be used to maintain and protect the present and future beneficial uses of these waters. Classification of waters of the state shall be made or changed whenever new or additional data warrant the classification or a change of an existing classification.

History: Effective January 1, 2019.
General Authority: NDCC 61-28-04; S.L. 2017, ch. 199, § 1
Law Implemented: NDCC 23.1-11, 61-28; S.L. 2017, ch. 199, § 26

33.1-16-02.1-08. General water quality standards.

1. **Narrative standards.**

   a. The following minimum conditions are applicable to all waters of the state except for class II ground waters. All waters of the state shall be:

      (1) Free from substances attributable to municipal, industrial, or other discharges or agricultural practices that will cause the formation of putrescent or otherwise objectionable sludge deposits.

      (2) Free from floating debris, oil, scum, and other floating materials attributable to municipal, industrial, or other discharges or agricultural practices in sufficient amounts to be unsightly or deleterious.

      (3) Free from materials attributable to municipal, industrial, or other discharges or agricultural practices producing color, odor, or other conditions to such a degree as to create a nuisance or render any undesirable taste to fish flesh or, in any way, make fish inedible.

      (4) Free from substances attributable to municipal, industrial, or other discharges or agricultural practices in concentrations or combinations which are toxic or harmful to humans, animals, plants, or resident aquatic biota. For surface water, this standard will be enforced in part through appropriate whole effluent toxicity requirements in North Dakota pollutant discharge elimination system permits.

      (5) Free from oil or grease residue attributable to wastewater, which causes a visible film or sheen upon the waters or any discoloration of the surface of adjoining shoreline or causes a sludge or emulsion to be deposited beneath the surface of the water or upon the adjoining shorelines or prevents classified uses of such waters.

      (6) Free from nutrients attributed to municipal, industrial, or other discharges or agricultural practices, in concentrations or loadings which will cause accelerated

eutrophication resulting in the objectionable growth of aquatic vegetation or algae or other impairments to the extent that it threatens public health or welfare or impairs present or future beneficial uses.

b. There shall be no materials such as garbage, rubbish, offal, trash, cans, bottles, drums, or any unwanted or discarded material disposed of into the waters of the state.

c. There shall be no disposal of livestock or domestic animals in waters of the state.

d. The department shall propose and submit to the state engineer the minimum streamflows of major rivers in the state necessary to protect the public health and welfare. The department's determination shall address the present and prospective future use of the rivers for public water supplies, propagation of fish and aquatic life and wildlife, recreational purposes, and agricultural, industrial, and other legitimate uses.

e. No discharge of pollutants, which alone or in combination with other substances, shall:

(1) Cause a public health hazard or injury to environmental resources;

(2) Impair existing or reasonable beneficial uses of the receiving waters; or

(3) Directly or indirectly cause concentrations of pollutants to exceed applicable standards of the receiving waters.

f. If the department determines that site-specific criteria are necessary and appropriate for the protection of designated uses, procedures described in the environmental protection agency's Water Quality Standards Handbook 1994 or other defensible methods may be utilized to determine maximum limits. Where natural chemical, physical, and biological characteristics result in exceedences of the limits set forth in this section, the department may derive site-specific criteria based on the natural background level or condition. All available information shall be examined, and all possible sources of a contaminant will be identified in determining the naturally occurring concentration. All site-specific criteria shall be noticed for public comment and subjected to other applicable public participation requirements prior to being adopted.

2. **Narrative biological goal.**

a. Goal. The biological condition of surface waters shall be similar to that of sites or water bodies determined by the department to be regional reference sites.

b. Definitions.

(1) "Assemblage" means an association of aquatic organisms of similar taxonomic classification living in the same area. Examples of assemblages include fish, macroinvertebrates, algae, and vascular plants.

(2) "Aquatic organism" means any plant or animal which lives at least part of its life cycle in water.

(3) "Biological condition" means the taxonomic composition, richness, and functional organization of an assemblage of aquatic organisms at a site or within a water body.

(4) "Functional organization" means the number of species or abundance of organisms within an assemblage which perform the same or similar ecological functions.

(5) "Metric" means an expression of biological community composition, richness, or function which displays a predictable, measurable change in value along a gradient of pollution or other anthropogenic disturbance.

(6) "Regional reference sites" are sites or water bodies which are determined by the department to be representative of sites or water bodies of similar type (e.g., hydrology and ecoregion) and are least impaired with respect to habitat, water quality, watershed land use, and riparian and biological condition.

(7) "Richness" means the absolute number of taxa in an assemblage at a site or within a water body.

(8) "Taxonomic composition" means the identity and abundance of species or taxonomic groupings within an assemblage at a site or within a water body.

c. Implementation. The intent of the state in adopting a narrative biological goal is solely to provide an additional assessment method that can be used to identify impaired surface waters. Regulatory or enforcement actions based solely on a narrative biological goal, such as the development and enforcement of North Dakota pollutant discharge elimination system permit limits, are not authorized. However, adequate and representative biological assessment information may be used in combination with other information to assist in determining whether designated uses are attained and to assist in determining whether new or revised chemical-specific permit limitations may be needed. Implementation will be based on the comparison of current biological conditions at a particular site to the biological conditions deemed attainable based on regional reference sites. In implementing a narrative biological goal, biological condition may be expressed through an index composed of multiple metrics or through appropriate statistical procedures.

History: Effective January 1, 2019.
General Authority: NDCC 61-28-04; S.L. 2017, ch. 199, § 1
Law Implemented: NDCC 23.1-11, 61-28; S.L. 2017, ch. 199, § 26

33.1-16-02.1-09. Surface water classifications, mixing zones, and numeric standards.

1. **Surface water classifications.** Procedures for the classifications of streams and lakes of the state shall follow this subsection. Classifications of streams and lakes are listed in appendix I and appendix II, respectively.

   a. Class I streams. The quality of the waters in this class shall be suitable for the propagation or protection, or both, of resident fish species and other aquatic biota and for swimming, boating, and other water recreation. The quality of the waters shall be suitable for irrigation, stock watering, and wildlife without injurious effects. After treatment consisting of coagulation, settling, filtration, and chlorination, or equivalent treatment processes, the water quality shall meet the bacteriological, physical, and chemical requirements of the department for municipal or domestic use.

   b. Class IA streams. The quality of the waters in this class shall be the same as the quality of class I streams, except that where natural conditions exceed class I criteria for municipal and domestic use, the availability of softening or other treatment methods may be considered in determining whether ambient water quality meets the drinking water requirements of the department.

      The Sheyenne River from its headwaters to one-tenth mile downstream from Baldhill Dam is not classified for municipal or domestic use.

   c. Class II streams. The quality of the waters in this class shall be the same as the quality of class I streams, except that additional treatment may be required to meet the drinking water requirements of the department. Streams in this classification may be intermittent

in nature which would make these waters of limited value for beneficial uses such as municipal water, fish life, irrigation, bathing, or swimming.

d. Class III streams. The quality of the waters in this class shall be suitable for agricultural and industrial uses. Streams in this class generally have low average flows with prolonged periods of no flow. During periods of no flow, they are of limited value for recreation and fish and aquatic biota. The quality of these waters must be maintained to protect secondary contact recreation uses (e.g., wading), fish and aquatic biota, and wildlife uses.

e. Wetlands. These water bodies, including isolated ponds, sloughs, and marshes, are to be considered waters of the state and will be protected under section 33.1-16-02.1-08.

f. Lakes and reservoirs. The type of fishery a lake or reservoir may be capable of supporting is based on the lake's or reservoir's geophysical characteristics. The capability of a lake or reservoir to support a fishery may be affected by seasonal or climatic variability or other natural occurrences, which may alter the physical and chemical characteristics of the lake or reservoir.

Class	Characteristics
1	Cold water fishery. Waters capable of supporting growth of cold water fish species (e.g., salmonids) and associated aquatic biota.
2	Cool water fishery. Waters capable of supporting natural reproduction and growth of cool water fishes (e.g., northern pike and walleye) and associated aquatic biota. These waters are also capable of supporting the growth and marginal survival of cold water species and associated biota.
3	Warm water fishery. Waters capable of supporting natural reproduction and growth of warm water fishes (e.g., largemouth bass and bluegill) and associated aquatic biota. Some cool water species may also be present.
4	Marginal fishery. Waters capable of supporting a fishery on a short-term or seasonal basis (generally a "put and take" fishery).
5	Not capable of supporting a fishery due to high salinity.

2. **Mixing zones.** North Dakota mixing zone and dilution policy is contained in appendix III.

3. **Numeric standards.**

a. Class I streams. The physical and chemical criteria for class I streams are listed in table 1 and table 2.

b. Class IA streams. The physical and chemical criteria shall be those for class I streams, with the exceptions for chloride, percent sodium, and sulfate as listed in table 1.

c. Site-specific sulfate standard. The physical and chemical criteria for the Sheyenne River from its headwaters to one-tenth of a mile downstream from Baldhill Dam shall be those for class IA streams, with the exception of sulfate as listed in table 1.

d. Class II streams. The physical and chemical criteria shall be those for class IA, with the chloride and pH as listed in table 1.

e. Class III streams. The physical and chemical criteria shall be those for class II, with the exceptions for sulfate as listed in table 1.

f. Wetlands, including isolated ponds, class 4 lakes not listed in appendix II, sloughs and marshes. The physical and chemical criteria shall be those for class III streams, with exceptions for temperature, dissolved oxygen as listed in paragraph 6 of subdivision g, and other conditions not attributable to municipal, industrial, domestic, or agricultural sources.

g. Lakes and reservoirs.

(1) The physical and chemical criteria for class I streams shall apply to all classified lakes or reservoirs listed in appendix II.

(2) In addition, a guideline for use as a goal in any lake or reservoir improvement or maintenance program is a growing season (April through November) average chlorophyll-a concentration of twenty µg/l.

(3) The temperature standard for class I streams does not apply to Nelson Lake in Oliver County. The temperature of any discharge to Nelson Lake shall not have an adverse effect on fish, aquatic biota, recreation, and wildlife.

(4) A numeric temperature standard of not greater than fifty-nine degrees Fahrenheit [15 degrees Celsius] shall be maintained in the hypolimnion of class I lakes and reservoirs during periods of thermal stratification.

(5) The numeric dissolved oxygen standard of five mg/l as a daily minimum does not apply to the hypolimnion of class III and IV lakes and reservoirs during periods of thermal stratification.

(6) The numeric dissolved oxygen standard of five mg/l as a daily minimum and the maximum temperature of eighty-five degrees Fahrenheit [29.44 degrees Celsius] shall not apply to wetlands and class 4 lakes.

(7) Lake Sakakawea must maintain a minimum volume of water of five hundred thousand-acre feet [61,674-hectare meters] that has a temperature of fifty-nine degrees Fahrenheit [15 degrees Celsius] or less and a dissolved oxygen concentration of not less than five mg/l.

History: Effective January 1, 2019.
General Authority: NDCC 61-28-04; S.L. 2017, ch. 199, § 1
Law Implemented: NDCC 23.1-11, 61-28; S.L. 2017, ch. 199, § 26

TABLE 1

MAXIMUM LIMITS FOR SUBSTANCES IN
OR CHARACTERISTICS OF CLASSES I, IA, II, AND III STREAMS

CAS[1] No.	Substance or Characteristic (a = aquatic life) (b = municipal & domestic drinking water) (c = agricultural, irrigation, industrial) (d = recreation)	Maximum Limit
7429905	Aluminum (a)	**Acute Standard** 750 micrograms per liter (µg/l) **Chronic Standard** 87 µg/l Where the pH is equal to or greater than 7.0, and the hardness is equal to or greater than 50 mg/l as $CaCO_3$ in the receiving water after mixing, the 87 µg/l chronic total recoverable aluminum criterion will not apply, and aluminum will be regulated based on compliance with the 750 µg/l acute total recoverable aluminum criterion.
7446-41-7	Ammonia (Total as N) (a)	**Acute Standard** The one-hour average concentration of total ammonia (expressed as N in mg/l) does not exceed, more often than once every three years on the average, the numerical value given by the following formula: $$\frac{0.411}{1+10^{7.204-pH}}+\frac{58.4}{1+10^{pH-7.204}}$$ where salmonids are absent; or $$\frac{0.275}{1+10^{7.204-pH}}+\frac{39.0}{1+10^{pH-7.204}}$$ where salmonids are present. **Chronic Standard** The 30-day average concentration of total ammonia (expressed as N in mg/l) does not exceed, more often than once every three years on the average, the numerical value given by the following formula; and the highest 4-day average concentration of total ammonia within the 30-day averaging period does not exceed 2.5 times the numerical value given by the following formula:

$$(CV)\left(\frac{0.0577}{1+10^{7.688-pH}}\right)+\left(\frac{2.487}{1+10^{pH-7.688}}\right)$$

where CV = 2.85, when temperature (T) is ≤ 14°C;

or

where:

$$(CV)=1.45^{10^{0.028(25-T)}}$$

when T > 14°C

Site-Specific Chronic Standard

The following site-specific standard applies to the Red River of the North beginning at the 12th Avenue North bridge in Fargo, North Dakota, and extending approximately 32 miles downstream to its confluence with the Buffalo River, Minnesota. This site-specific standard applies only during the months of October, November, December, January, and February. During the months of March through September, the statewide chronic ammonia standard applies.

The 30-day average concentration of total ammonia (expressed as N in mg/l) does not exceed, more often than once every three years on the average, the numerical value given by the following formula; and the highest 4-day average concentration of total ammonia within the 30-day averaging period does not exceed 2.5 times the numerical value given by the following formula:

$$(CV)\left(\frac{0.0577}{1+10^{7.688-pH}}\right)+\left(\frac{2.487}{1+10^{pH-7.688}}\right)$$

where CV = 4.63, when T ≤ 7° C; or

or

where:

$$(CV)=1.45^{10^{0.028(25-T)}}$$

when T > 7°C

7440-39-3	Barium (Total) (b)	1.0 mg/l (1-day arithmetic average)
7440-42-8	Boron (Total) (c)	0.75 mg/l (30-day arithmetic average)
16887-00-6	Chloride (Total) (a, b, c)	**Class I:** 100 mg/l (30-day arithmetic average) **Class IA:** 175 mg/l (30-day arithmetic average)

		Class II and Class III: 250 mg/l (30-day arithmetic average)
7782-50-5	Chlorine Residual (Total) (a)	**Acute:** 0.019 mg/l **Chronic:** 0.011 mg/l
7782-44-7	Dissolved Oxygen (a)	5 mg/l as a daily minimum (up to 10% of representative samples collected during any 3-year period may be less than this value provided that lethal conditions are avoided)
14797-55-8	Nitrate as N^2 (a, b)	1.0 mg/l (up to 10% of samples may exceed)
14797-65-0	Nitrite as N (b)	1.0 mg/l
	E. coli[3] (d)	Not to exceed 126 organisms per 100 ml as a geometric mean of representative samples collected during any 30-day consecutive period, nor shall more than 10 percent of samples collected during any 30-day consecutive period individually exceed 409 organisms per 100 ml. For assessment purposes, the 30-day consecutive period shall follow the calendar month. This standard shall apply only during the recreation season May 1 to September 30.
	pH (a)	**Class I and IA:** 7.0 - 9.0 (up to 10% of representative samples collected during any 3-year period may exceed this range, provided that lethal conditions are avoided). **Class II and Class III:** 6.0 - 9.0 (up to 10% of representative samples collected during any 3-year period may exceed this range, provided that lethal conditions are avoided).
108-95-2	Phenols (Total) (b)	0.3 mg/l (organoleptic criterion) (one-day arithmetic average)
7440-23-5	Sodium (b, c)	**Class I:** 50 percent of total cations as milliequivalents per liter (mEq/l) **Class IA, II, and III:** 60 percent of total cations as mEq/l
18785-72-3	Sulfates (Total as SO_4) (b)	**Class I:** 250 mg/l (30-day arithmetic average) **Class IA and II:** 450 mg/l (30-day arithmetic average) **Class III:** 750 mg/l (30-day arithmetic average)
	Sulfates (Total as SO_4) (a, b)	**Site Specific:** 750 mg/l (maximum) applies to the Sheyenne River from its headwaters to 0.1 mile downstream from Baldhill Dam **131.10(b) requirement:** The water quality standards for the Red River and the portions of the Sheyenne River located downstream from the segment of the Sheyenne River to which the site-specific sulfate standard applies must continue to be maintained. The Sheyenne River from 0.1 mile downstream from Baldhill Dam to the confluence with the Red River shall not exceed 450 mg/l sulfate (total) 30-day arithmetic average, and the Red River shall not exceed 250 mg/l sulfate (total) 30-day arithmetic average after mixing downstream from the confluence of the Sheyenne River. Regulated pollution control efforts must be developed to achieve compliance with these water quality standards.
	Temperature (a)	Eighty-five degrees Fahrenheit [29.44 degrees Celsius]. The maximum increase shall not be greater than five degrees

		Fahrenheit [2.78 degrees Celsius] above natural background conditions.
	Combined radium 226 and radium 228 (Total) (b)	5 pCi/l (30-day arithmetic average)
	Gross alpha particle activity, including radium 226, but excluding radon and uranium (b)	15 pCi/l (30-day arithmetic average)

[1] CAS No. is the chemical abstract service registry number. The registry database contains records for specific substances identified by the chemical abstract service.

[2] The standard for nitrates (N) is intended as benchmark concentration when stream or lake specific data is insufficient to determine the concentration that will cause excessive plant growth (eutrophication). However, in no case shall the concentration for nitrate plus nitrite N exceed 10 mg/l for any waters used as a municipal or domestic drinking water supply.

[3] Where the E. Coli criteria are exceeded and there are natural sources, the criteria may be considered attained, provided there is reasonable basis for concluding that the indicator bacteria density attributable to anthropogenic sources is consistent with the level of water quality required by the criteria. This may be the situation, for example, in headwater streams that are minimally affected by anthropogenic activities.

TABLE 2

WATER QUALITY CRITERIA[1]
(MICROGRAMS PER LITER)

		Aquatic Life Value Classes I, IA, II, III		Human Health Value	
CAS No.	Pollutant (Compounds)	Acute	Chronic	Classes I, IA, II[2]	Class III[3]
71-55-6	1,1,1-Trichloroethane			10,000[7]	200,000
79-00-5	1,1,2-Trichloroethane[4]			0.55	8.9
79-34-5	1,1,2,2-Tetrachloroethane[4]			0.2	3
75-35-4	1,1-Dichloroethylene[4]			300	20,000
156-60-5	1,2-trans-Dichloroethylene[7]			100	4,000
120-82-1	1,2,4-Trichlorobenzene			0.071	0.076
95-50-1	1,2-Dichlorobenzene[7]			1,000	3,000
541-73-1	1,3-Dichlorobenzene			7	10
106-46-7	1,4-Dichlorobenzene[7]			300	900
107-06-2	1,2-Dichloroethane[4]			9.9	650
78-87-5	1,2-Dichloropropane			0.90	31
542-75-6	1,3-Dichloropropylene (1,3-Dichloropropene) (cis and trans isomers)			0.27	12
122-66-7	1,2-Diphenylhydrazine[4]			0.03	0.20
121-14-2	2,4-Dinitrotoluene[4]			0.049	1.7
95-57-8	2-Chlorophenol			30	800
120-83-2	2,4-Dichlorophenol			10	60
88-06-2	2,4,6-Trichlorophenol[4]			1.5	2.8
91-58-7	2-Chloronaphthalene			800	1,000
91-94-1	3,3'-Dichlorobenzidine[4]			0.049	0.15
105-67-9	2,4-Dimethylphenol			100	3,000
51-28-5	2,4-Dinitrophenol			10	300
94-75-7	2,4-D			1,300	12,000
72-54-8	4,4'-DDD[4]			0.00012	0.00012
75-55-9	4,4'-DDE[4]			0.000018	0.000018
50-29-3	4,4'-DDT[4]	0.55[12]	0.001[12]	0.000030	0.000030
534-52-1	2-Methyl-4,6-Dinitrophenol			2	30
59-50-7	3-Methyl-4-Chlorophenol			500	2,000
83-32-9	Acenaphthene			70	90
107-02-8	Acrolein	3	3	3	400
107-13-1	Acrylonitrile[4]			0.061	7.0
15972-60-8	Alachlor			2[7]	
309-00-2	Aldrin[4]	1.5		7.7E-07	7.7E-07
319-84-6	alpha-BHC[4] (Hexachlorocyclohexane-alpha)			0.00036	0.00039
319-85-7	beta-BHC[4] (Hexachlorocyclohexane-beta)			0.008	0.014
58-89-9	gamma-BHC (Lindane)[4] (Hexachlorocyclohexane-gamma)	0.95		4.2[7]	4.4
959-98-8	alpha-Endosulfan	0.11[11]	0.056[11]	20	30

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33213-65-9	beta-Endosulfan	0.11[11]	0.056[11]	20	40
120-12-7	Anthracene (PAH)[5]			300	400
1332-21-4	Asbestos[4,7]			7,000,000 f/l	7,000,000 f/l
1912-24-9	Atrazine			3[7]	
71-43-2	Benzene[4]			2.1	58
92-87-5	Benzidine[4]			0.00014	0.011
56-55-3	Benzo(a)anthracene (PAH)[4] (1,2-Benzanthracene)			0.0012	0.0013
50-32-8	Benzo(a)pyrene (PAH)[4] (3,4-Benzopyrene)			0.00012	0.00013
205-99-2	Benzo(b)fluoranthene (PAH)[4] (3,4-Benzofluoranthene)			0.0012	0.0013
207-08-9	Benzo(k)fluoranthene (PAH)[4] (11,12-Benzofluoranthene)			0.012	0.013
12587-47-2	Beta/photon emitters			4 mrem/yr[7]	
111-44-4	Bis(2-chloroethyl) ether[4]			0.030	2.2
108-60-1	Bis(2-chloro-1-Methylethyl) ether			200	4,000
117-81-7	Bis(2-ethylhexyl) phthalate[4]			0.32	0.37
15541-45-4	Bromate			10[7]	
75-25-2	Bromoform (HM)[5] (Tribromomethane)			7.0	120
85-68-7	Butyl benzyl phthalate			0.10	0.10
63-25-2	Carbaryl (1-naphthyl-N-methycarbamate)	2.1	2.1		
1563-66-2	Carbofuran			40[7]	
56-23-5	Carbon tetrachloride[4] (Tetrachloromethane)			0.40	5
57-74-9	Chlordane[4]	1.2	0.0043	0.00031	0.00032
14998-27-7	Chlorite			1,000[7]	
108-90-7	Chlorobenzene (Monochlorobenzene)			100[7]	800
124-48-1	Chlorodibromomethane (HM)[5]			0.80	21
67-66-3	Chloroform (HM)[4] (Trichloromethane)			60	2,000
2921-88-2	Chlorpyrifos	0.083	0.041		
218-01-9	Chrysene (PAH)[4]			0.12	0.13
57-12-5	Cyanide (total)	22	5.2	4	400
75-99-0	Dalapon			200[7]	
103-23-1	Di(2-ethylhexyl)adipate			400[7]	
333-41-5	Diazinon	0.17	0.17		
53-70-3	Dibenzo(a,h)anthracene (PAH)[4] (1,2,5,6-Dibenzanthracene)			0.00012	0.00013
67708-83-2	Dibromochloropropane			0.2[7]	
75-27-4	Dichlorobromomethane (HM)[5]			0.95	27
156-59-2	Dichloroethylene (cis-1,2-)			70[7]	
60-57-1	Dieldrin[4]	0.24	0.056	1.2E-06	1.2E-06
84-66-2	Diethyl phthalate			600	600
131-11-3	Dimethyl phthalate			2,000	2,000
84-74-2	Di-n-butyl phthalate			20	30
88-85-7	Dinoseb			7[7]	
1746-01-6	Dioxin (2,3,7,8-TCDD)[4]			5.00E-09	5.10E-09

85-00-7	Diquat			20[7]	
1031-07-8	Endosulfan sulfate			20	40
145-73-3	Endothall			100[7]	
72-20-8	Endrin	0.086	0.036	0.03	0.03
7421-93-4	Endrin aldehyde			1	1
100-41-4	Ethylbenzene[7]			68	130
106-93-4	Ethylene dibromide (EDB)			0.05[7]	
206-44-0	Fluoranthene			20	20
86-73-7	Fluorene (PAH)[5]			50	70
1071-83-6	Glyphosate			700[7]	
	Halocetic acids[14]			60[7]	
1024-57-3	Heptachlor epoxide[4]	0.26	0.0038	0.000032	0.000032
76-44-8	Heptachlor[4]	0.26	0.0038	0.0000059	0.0000059
118-74-1	Hexachlorobenzene[4]			0.000079	0.000079
87-68-3	Hexachlorobutadiene[4]			0.01	0.01
77-47-4	Hexachlorocyclopentadiene			4	4
67-72-1	Hexachloroethane[4]			0.10	0.10
193-39-5	Indeno(1,2,3-cd) pyrene (PAH)[4]			0.0012	0.0013
78-59-1	Isophorone[4]			34	1,800
72-43-5	Methoxychlor			0.02	0.02
74-83-9	Methyl bromide (HM) (Bromomethane)			100	10,000
75-09-2	Methylene chloride (HM)[4] (Dichloromethane)			20	1,000
98-95-3	Nitrobenzene			10	600
62-75-9	N-Nitrosodimethylamine[4]			0.00069	3
621-64-7	N-Nitrosodi-n-propylamine[4]			0.005	0.51
86-30-6	N-Nitrosodiphenylamine[4]			3.3	6
84852-15-3	Nonylphenol (Isomer mixture)[13]	28	6.6		
23135-22-0	Oxamyl (Vydate)			200[7]	
56-38-2	Parathion	0.065	0.013		
53469-21-9	PCB-1242 (Arochlor 1242)[4]		0.014[10]	0.000064[10]	0.000064[10]
126764-11-2	PCB-1016 (Arochlor 1016)[4]		0.014[10]	0.000064[10]	0.000064[10]
11104-28-2	PCB-1221 (Arochlor 1221)[4]		0.014[10]	0.000064[10]	0.000064[10]
11141-16-5	PCB-1232 (Arochlor 1232)[4]		0.014[10]	0.000064[10]	0.000064[10]
12672-29-6	PCB-1248 (Arochlor 1248)[4]		0.014[10]	0.000064[10]	0.000064[10]
11097-69-1	PCB-1254 (Arochlor 1254)[4]		0.014[10]	0.000064[10]	0.000064[10]
11096-82-5	PCB-1260 (Arochlor 1260)[4]		0.014[10]	0.000064[10]	0.000064[10]
87-86-5	Pentachlorophenol	19[8]	15[8]	0.03	0.04
108-95-2	Phenol			4,000	300,000
1918-02-1	Picloram			500[7]	
129-00-0	Pyrene (PAH)[5]			20	30
122-34-9	Simazine			4[7]	
100-42-5	Styrene			100[7]	
127-18-4	Tetrachloroethylene[4]			10	29
108-88-3	Toluene			57	520

8001-35-2	Toxaphene[4]	0.73	0.0002	0.0007	0.00071
688-73-3	Tributyltin	0.46	0.072		
79-01-6	Trichloroethylene[4]			0.60	7
75-01-4	Vinyl chloride[4] (Cloroethylene)			0.022	1.6
1330-20-7	Xylenes			10,000[7]	
		Aquatic Life Value Classes I, IA, II, III		Human Health Value	
CAS No.	Pollutant (Elements)	Acute	Chronic	Classes I, IA, II[2]	Class III[3]
7440-36-0	Antimony			5.6	640
7440-38-2	Arsenic[7]	340[9]	150[9]	10[7]	
7440-41-7	Beryllium[4]			4[7]	
7440-43-9	Cadmium	1.8[6,15]	0.72[6,15]	5[7]	
16065-83-1	Chromium (III)	1,800[6,15]	86[6,15]	100(total)[7]	
18540-29-9	Chromium (VI)	16	11	100(total)[7]	
7440-50-8	Copper	14.0[6,15,16]	9.3[6,15,16]	1000	
7782-41-4	Fluoride			4,000[7]	
7439-92-1	Lead	82[6]	3.2[6]	15[7]	
7439-97-6	Mercury	1.7	0.012	0.050	0.051
7440-02-0	Nickel	470[6,15]	52[6,15]	100[7]	4,200
7782-49-2	Selenium	20	5	50[7]	
7440-22-4	Silver	3.8[6,15]			
7440-28-0	Thallium			0.24	0.47
7440-61-1	Uranium			30[7]	
7440-66-6	Zinc	120[6,15]	120[6,15]	7,400	26,000

1 Except for the aquatic life values for metals, the values given in this appendix refer to the total (dissolved plus suspended) amount of each substance. For the aquatic life values for metals, the values refer to the total recoverable method for ambient metals analyses.

2 Based on two routes of exposure - ingestion of contaminated aquatic organisms and drinking water.

3 Based on one route of exposure - ingestion of contaminated aquatic organisms only.

4 Substance classified as a carcinogen, with the value based on an incremental risk of one additional instance of cancer in one million persons.

5 Chemicals which are not individually classified as carcinogens but which are contained within a class of chemicals, with carcinogenicity as the basis for the criteria derivation for that class of chemicals; an individual carcinogenicity assessment for these chemicals is pending.

6 Hardness dependent criteria. Value given is an example only and is based on a $CaCO_3$ hardness of 100 mg/l. Criteria for each case must be calculated using the following formula:

For the Criterion Maximum Concentration (CMC):

Cadmium	$CMC = e^{0.9789[\ln(\text{hardness})]-3.866}$
Chromum (III)	$CMC = e^{0.8190[\ln(\text{hardness})]+3.7256}$
Copper	$CMC = e^{0.9422[\ln(\text{hardness})]-1.7000}$
Lead	$CMC = e^{1.2730[\ln(\text{hardness})]-1.4600}$
Nickel	$CMC = e^{0.8460[\ln(\text{hardness})]+2.2550}$
Silver	$CMC = e^{1.7200[\ln(\text{hardness})]-6.5900}$
Zinc	$CMC = e^{0.8473[\ln(\text{hardness})]+0.8840}$

CMC = Criterion Maximum Concentration (acute exposure value)
The threshold value at or below which there should be no unacceptable effects to freshwater aquatic organisms and

their uses if the one-hour concentration does not exceed that CMC value more than once every three years on the average.

For the Criterion Continuous Concentration (CCC):

Cadmium	$CCC = e^{0.7977[\ln(\text{hardness})]-3.909}$
Chromium (III)	$CCC = e^{0.8190[\ln(\text{hardness})]+0.6848}$
Copper	$CCC = e^{0.8545[\ln(\text{hardness})]-1.7020}$
Lead	$CCC = e^{1.2730[\ln(\text{hardness})]-4.7050}$
Nickel	$CCC = e^{0.8460[\ln(\text{hardness})]+0.0584}$
Silver	No CCC criterion for silver
Zinc	$CCC = e^{0.8473[\ln(\text{hardness})]+0.8840}$

CCC = Criterion Continuous Concentration (chronic exposure value)
The threshold value at or below which there should be no unacceptable effects to freshwater aquatic organisms and their uses if the four-day concentration does not exceed that CCC value more than once every three years on the average.

[7] Safe Drinking Water Act (MCL).

[8] Freshwater aquatic life criteria for pentachlorophenol are expressed as a function of pH. Values displayed in the table correspond to a pH of 7.8 and are calculated as follows:

$CMC = \exp[1.005(pH) - 4.869]$ $CCC = \exp[1.005(pH) - 5.134]$

[9] This criterion applies to total arsenic.

[10] This criterion applies to total PCBs (i.e., the sum of all congener or all isomer or homolog or Arochlor analyses).

[11] This criterion applies to the sum of alpha-endosulfan and beta-endosulfan.

[12] This criterion applies to DDT and its metabolites (i.e., the total concentration of DDT and its metabolites should not exceed this value).

[13] The nonylphenol criteria address CAS numbers 84852-15-3 and 25154-52-3.

[14] The criterion is for a total measurement of 5 haloacetic acids, dichloroacetic acid, trichloroacetic acid, monochloroacetic acid, bromoacetic acid, and dibromoacetic acid.

[15] Hardness values shall be no greater than 400 mg/l. For waters with hardness concentrations greater than 400 mg/l, the actual ambient hardness may be used where a site-specific water effect ratio has been determined consistent with the environmental protection agency's water effect ratio procedure.

[16] The department will recognize the biotic ligand model as an appropriate tool for developing site-specific limits for copper as well as the water-effects ratio (WER) method.

33.1-16-02.1-10. Ground water classifications and standards.

1. Class I ground waters. Class I ground waters are those with a total dissolved solids concentration of less than 10,000 mg/l. The minimum conditions described in subsection 1 of section 33.1-16-02.1-08 apply. Class I ground waters are not exempt under the North Dakota underground injection control program in section 33.1-25-01-05.

2. Class II ground waters. Class II ground waters are those with a total dissolved solids concentration of 10,000 mg/l or greater. Class II ground waters are exempt under the North Dakota underground injection control program in section 33.1-25-01-05.

History: Effective January 1, 2019.
General Authority: NDCC 61-28-04, 61-28-05; S.L. 2017, ch. 199, § 1
Law Implemented: NDCC 61-28-04

33.1-16-02.1-11. Discharge of wastes.

On-surface discharges. The following are general requirements for all waste discharges or chemical additions:

1. No untreated domestic sewage shall be discharged into the waters of the state.

2. No untreated industrial wastes or other wastes which contain substances or organisms which may endanger public health or degrade the water quality of water usage shall be discharged into the waters of the state.

3. The department must be notified at least twenty days prior to the application of any herbicide or pesticide to surface waters of the state for control of aquatic pests. Only certified applicators are allowed to apply chemicals. The notification must include the following information:

    a. Chemical name and composition.

    b. Map which identifies the area of application and aerial extent (e.g., acres or square feet).

    c. A list of target species of aquatic biota the applicant desires to control.

    d. The calculated concentration of the active ingredient in surface waters immediately after application.

    e. Name, address, and telephone number of the certified applicator.

4. Any spill or discharge of waste which causes or is likely to cause pollution of waters of the state must be reported immediately. The owner, operator, or person responsible for a spill or discharge must notify the department as soon as possible (701-328-5210) or the North Dakota hazardous materials emergency assistance and spill reporting number (1-800-472-2121) and provide all relevant information about the spill. Depending on the severity of the spill or accidental discharge, the department may require the owner or operator to:

    a. Take immediate remedial measures;

    b. Determine the extent of pollution to waters of the state;

    c. Provide alternate water sources to water users impacted by the spill or accidental discharge; or

    d. Any other actions necessary to comply with this chapter.

History: Effective January 1, 2019.
General Authority: NDCC 61-28-04; S.L. 2017, ch. 199, § 1
Law Implemented: NDCC 23.1-11, 61-28; S.L. 2017, ch. 199, § 26

APPENDIX I

STREAM CLASSIFICATIONS

The following intrastate and interstate streams are classified as the class of water quality which is to be maintained in the specified stream or segments noted. All tributaries, minor or intermittently flowing watercourse, unnamed creeks, or draws not specifically mentioned are classified as class III streams.

RIVER BASINS, SUBBASINS, AND TRIBUTARIES	CLASSIFICATION
Missouri River, including Lake Sakakawea and Oahe Reservoir	I
Yellowstone	I
Little Muddy Creek near Williston	II
White Earth River	II
Little Missouri River	II
Knife River	II
Spring Creek	IA
Square Butte Creek below Nelson Lake	IA
Heart River	IA
Green River	IA
Antelope Creek	II
Muddy Creek	II
Apple Creek	II
Cannonball River	II
Cedar Creek	II
Beaver Creek near Linton	II
Grand River	IA
Spring Creek	II
Souris River	IA
Des Lacs River	II
Willow Creek	II
Deep River	III
Mauvais Coulee	I
James River	IA
Pipestem	IA
Cottonwood Creek	II
Beaver Creek	II
Elm River	II
Maple River	II
Bois de Sioux	I
Red River	I

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RIVER BASINS, SUBBASINS, AND TRIBUTARIES	CLASSIFICATION
Wild Rice River	II
Antelope Creek	III
Sheyenne River (except as noted below)	IA
Baldhill Creek	II
Maple River	II
Rush River	III
Elm River	II
Goose River	IA
Turtle River	II
Forest River	II
North Branch	III
Park River	II
North Branch	III
South Branch	II
Middle Branch	III
Cart Creek	III
Pembina River	IA
Tongue River	II

The Sheyenne River from its headwaters to 0.1 mile downstream from Baldhill Dam is not classified for municipal or domestic use.

APPENDIX II

LAKE AND RESERVOIR CLASSIFICATION

Lakes and reservoirs are classified according to the water characteristics which are to be maintained in the specified lakes and reservoirs. The physical and chemical criteria for class I streams shall apply to all classified lakes and reservoirs listed. For lakes and other lentic water bodies not listed, the physical and chemical criteria designated for class III streams shall apply.

COUNTY	LAKE	CLASSIFICATION
Adams	Mirror Lake	3
Adams	N. Lemmon Lake	1
Barnes	Lake Ashtabula	3
Barnes	Moon Lake	2
Barnes	Clausen Springs	3
Benson	Wood Lake	2
Benson	Graves	3
Benson	Reeves	3
Bottineau	Lake Metigoshe	2
Bottineau	Long Lake	2
Bottineau	Pelican Lake	3
Bottineau	Carbury Dam	2
Bottineau	Cassidy Lake	4
Bottineau	Strawberry Lake	2
Bowman	Bowman-Haley Dam	3

COUNTY	LAKE	CLASSIFICATION
Bowman	Gascoyne Lake	3
Bowman	Kalina Dam	3
Bowman	Lutz Dam	2
Bowman	Spring Lake	3
Burke	Powers Lake	3
Burke	Short Creek Dam	2
Burke	Smishek Dam	2
Burke	Northgate Dam	2
Burleigh	McDowell Dam	3
Burleigh	Mitchell Lake	3
Burleigh	New Johns Lake	2
Cass	Casselton Reservoir	3
Cass	Brewer Lake	2
Cavalier	Mt. Carmel Dam	2
Dickey	Moores Lake	3
Dickey	Pheasant Lake	3
Dickey	Wilson Dam	3
Divide	Baukol-Noonan Dam	2

COUNTY	LAKE	CLASSIFICATION
Divide	Baukol-Noonan East Mine Pond	2
Divide	Skjermo Dam	2
Dunn	Lake Ilo	3
Eddy	Battle Lake	3
Eddy	Warsing Dam	3
Emmons	Braddock Dam	3
Emmons	Nieuwsma Dam	2
Emmons	Rice Lake	3
Foster	Juanita Lake	3
Golden Valley	South Buffalo Gap Dam	4
Golden Valley	Camel Hump Dam	1
Golden Valley	Odland Dam	3
Grand Forks	Fordville Dam	2
Grand Forks	Kolding Dam	3
Grand Forks	Larimore Dam	2
Grand Forks	Niagara Dam	3
Grant	Heart Butte Dam (Lake Tschida)	2
Grant	Niagara Dam	3

COUNTY	LAKE	CLASSIFICATION
Grant	Raleigh Reservoir	2
Grant	Sheep Creek Dam	2
Griggs	Carlson-Tande Dam	3
Griggs	Red Willow Lake	2
Hettinger	Blickensderfer Dam	2
Hettinger	Castle Rock Dam	4
Hettinger	Indian Creek	2
Hettinger	Larson Lake	3
Hettinger	Mott Watershed Dam	3
Kidder	Alkaline Lake	2
Kidder	Cherry Lake	3
Kidder	Crystal Springs	3
Kidder	Frettim Lake	2
Kidder	George Lake	5
Kidder	Horsehead Lake	2
Kidder	Lake Isabel	3
Kidder	Lake Josephine	2
Kidder	Lake Williams	3

COUNTY	LAKE	CLASSIFICATION
Kidder	Round Lake	2
LaMoure	Heinrich-Martin Dam	3
LaMoure	Kalmbach Lake	3
LaMoure	Kulm-Edgeley Dam	3
LaMoure	Lake LaMoure	3
LaMoure	Lehr Dam	3
LaMoure	Limesand-Seefeldt Dam	3
LaMoure	Schlecht-Thom Dam	3
LaMoure	Schlecht-Weix Dam	3
Logan	Beaver Lake	3
Logan	Mundt Lake	3
Logan	Rudolph Lake	3
McHenry	Cottonwood Lake	3
McHenry	George Lake	3
McHenry	Round Lake	3
McHenry	Buffalo Lodge Lake	3
McIntosh	Blumhardt Dam	2
McIntosh	Clear Lake	3

COUNTY	LAKE	CLASSIFICATION
McIntosh	Coldwater Lake	3
McIntosh	Dry Lake	2
McIntosh	Green Lake	2
McIntosh	Lake Hoskins	3
McKenzie	Arnegard Dam	4
McKenzie	Leland Dam	2
McKenzie	Sather Dam	2
McLean	Brush Lake	3
McLean	Crooked Lake	3
McLean	Custer Mine Pond	2
McLean	East Park Lake	2
McLean	Lake Audubon	2
McLean	Lake Brekken	2
McLean	Lake Holmes	2
McLean	Lightning Lake	1
McLean	Long Lake	4
McLean	Riverdale Spillway Lake	1
McLean	Strawberry Lake	3

COUNTY	LAKE	CLASSIFICATION
McLean	West Park Lake	2
Mercer	Harmony Lake	3
Morton	Crown Butte Dam	3
Morton	Danzig Dam	3
Morton	Fish Creek Dam	1
Morton	Harmon Lake	3
Morton	Nygren Dam	2
Morton	Sweetbriar Dam	2
Mountrail	Clearwater Lake	3
Mountrail	Stanley City Pond	3
Mountrail	Stanley Reservoir	3
Mountrail	White Earth Dam	2
Nelson	McVille Dam	2
Nelson	Tolna Dam	2
Nelson	Whitman Dam	2
Oliver	East Arroda Lake	2
Oliver	Nelson Lake	3
Oliver	West Arroda Lake	2

COUNTY	LAKE	CLASSIFICATION
Pembina	Renwick Dam	3
Pierce	Balta Dam	3
Pierce	Buffalo Lake	3
Ramsey	Cavanaugh Lake	3
Ramsey	Devils Lake	2
Ransom	Dead Colt Creek Dam	3
Renville	Lake Darling	2
Richland	Lake Elsie	3
Richland	Mooreton Pond	3
Rolette	Belcourt Lake	2
Rolette	Carpenter Lake	2
Rolette	Dion Lake	2
Rolette	Gordon Lake	2
Rolette	Gravel Lake	2
Rolette	Hooker Lake	2
Rolette	Island Lake	3
Rolette	Jensen Lake	3
Rolette	School Section Lake	2

COUNTY	LAKE	CLASSIFICATION
Rolette	Upsilon Lake	2
Rolette	Shutte Lake	2
Sargent	Alkali Lake	3
Sargent	Buffalo Lake	3
Sargent	Lake Tewaukon	3
Sargent	Silver Lake	3
Sargent	Sprague Lake	3
Sheridan	Hecker Lake	2
Sheridan	South McClusky Lake (Hoffer Lake)	2
Sioux	Froelich Dam	2
Slope	Cedar Lake	3
Slope	Davis Dam	2
Slope	Stewart Lake	3
Stark	Belfield Pond	1
Stark	Dickinson Dike	1
Stark	Patterson Lake	3
Steele	North Golden Lake	3
Steele	North Tobiason Lake	3

COUNTY	LAKE	CLASSIFICATION
Steele	South Golden Lake	3
Stutsman	Arrowwood Lake	4
Stutsman	Bader Lake	3
Stutsman	Barnes Lake	3
Stutsman	Clark Lake	3
Stutsman	Crystal Springs	3
Stutsman	Hehn-Schaffer Lake	3
Stutsman	Jamestown Reservoir	3
Stutsman	Jim Lake	4
Stutsman	Spiritwood Lake	3
Stutsman	Pipestem Reservoir	3
Towner	Armourdale Dam	2
Towner	Bisbee Dam	2
Walsh	Bylin Dam	3
Walsh	Homme Dam	3
Walsh	Matejcek Dam	3
Ward	Hiddenwood Lake	3
Ward	Makoti Lake	4

COUNTY	LAKE	CLASSIFICATION
Ward	North-Carlson Lake	3
Ward	Rice Lake	3
Ward	Velva Sportsmans Pond	1
Wells	Harvey Dam	3
Wells	Lake Hiawatha (Sykeston Dam)	4
Williams	Blacktail Dam	3
Williams	Cottonwood Lake	3
Williams	East Spring Lake Pond	3
Williams	Epping-Springbrook Dam	3
Williams	Iverson Dam	2
Williams	Kettle Lake	2
Williams	Kota-Ray Dam	1
Williams	McCleod (Ray) Reservoir	3
Williams	McGregor Dam	1
Williams	Tioga Dam	3
Williams	Trenton Lake	2
Williams	West Spring Lake Pond	3
	Lake Oahe	1

COUNTY	LAKE	CLASSIFICATION
	Lake Sakakawea	1

APPENDIX III

MIXING ZONE AND DILUTION POLICY
AND
IMPLEMENTATION PROCEDURE

PURPOSE

This policy addresses how mixing and dilution of point source discharges with receiving waters will be addressed in developing chemical-specific and whole effluent toxicity discharge limitations for point source discharges. Depending upon site-specific mixing patterns and environmental concerns, some pollutants/criteria may be allowed a mixing zone or dilution while others may not. In all cases, mixing zone and dilution allowances shall be limited, as necessary, to protect the integrity of the receiving water's ecosystem and designated uses.

MIXING ZONES

Where dilution is available and the discharge does not mix at a near instantaneous and complete rate with the receiving water (incomplete mixing), an appropriate mixing zone may be designated. In addition, a mixing zone may only be designated if it is not possible to achieve chemical-specific standards and whole effluent toxicity objectives at the end-of-pipe with no allowance for dilution. The size and shape of a mixing zone will be determined on a case-by-case basis. At a maximum, mixing zones for streams and rivers shall not exceed one-half the cross-sectional area or a length ten times the stream width at critical low flows, whichever is more limiting. Also, at a maximum, mixing zones in lakes shall not exceed five percent of lake surface area or two hundred feet in radius, whichever is more limiting. Individual mixing zones may be limited or denied in consideration of designated beneficial uses or presence of the following concerns in the area affected by the discharge:

1. There is the potential for bioaccumulation in fish tissues or wildlife.
2. The area is biologically important, such as fish spawning/nursery areas.
3. The pollutant of concern exhibits a low acute to chronic ratio.
4. There is a potential for human exposure to pollutants resulting from drinking water use or recreational activities.
5. The effluent and resultant mixing zone results in an attraction of aquatic life to the effluent plume.
6. The pollutant of concern is extremely toxic and persistent in the environment.
7. The mixing zone would prohibit a zone of passage for migrating fish or other species (including access to tributaries).
8. There are cumulative effects of multiple discharges and their mixing zones.

Within the mixing zone designated for a particular pollutant, certain numeric water quality criteria for that substance may not apply. However, all mixing zones shall meet the general conditions set forth in section 33-16-02-08 of the state water quality standards.

While exceedences of acute chemical specific numeric standards are not allowed within the entire mixing zone, a portion of the mixing zone (the zone of initial dilution or ZID) may exceed acute chemical-specific numeric standards established for the protection of aquatic life. The ZID shall be determined on a case-by-case basis where the statement of basis for the discharge permit includes a rationale for concluding that a zone of initial dilution poses no unacceptable risks to aquatic life. Acute whole effluent toxicity (WET) limits shall be achieved at the end-of-pipe with no allowance for a ZID.

DILUTION ALLOWANCES

An appropriate dilution allowance may be provided in calculating chemical-specific acute and chronic and WET discharge limitations where: 1) the discharge is to a river or stream, 2) dilution is available at low-flow conditions, and 3) available information is sufficient to reasonably conclude that there is near instantaneous and complete mixing of the discharge with the receiving water (complete mixing). The basis for concluding that such near instantaneous and complete mixing is occurring shall be documented in the statement of basis for the North Dakota pollutant discharge elimination system permit. In the case of field studies, the dilution allowance for continuous dischargers shall be based on the critical low flow (or some portion of the critical low flow). The requirements and environmental concerns identified in the paragraphs above may be considered in deciding the portion of the critical low flow to provide as dilution. The following critical low flows shall be used for streams and effluents:

Stream Flows	
Aquatic life, chronic	4-day, 3-year flow (biologically based*)**
Aquatic life, acute	1-day, 3-year flow (biologically based)
Human health (carcinogens)	Harmonic mean flow
Human health (noncarcinogens)	4-day, 3-year flow (biologically based) or 1-day, 3-year flow (biologically based)

Effluent Flows	
Aquatic life, chronic	Mean daily flow
Aquatic life, acute	Maximum daily flow
Human health (all)	Mean daily flow

* Biologically based refers to the biologically based design flow method developed by the environmental protection agency. It differs from the hydrologically based design flow method in that it directly uses the averaging periods and frequencies specified in the aquatic life water quality criteria for individual pollutants and whole effluents for determining design flows.

** A 30-day, 10-year flow (biologically based) can be used for ammonia or other chronic standard with a 30-day averaging period.

For chemical-specific and chronic WET limits, an appropriate dilution allowance may also be provided for certain minor publicly owned treatment works where allowing such dilution will pose insignificant environmental risks. For acute WET limits, an allowance for dilution is authorized only where dilution is available and mixing is complete.

For controlled discharges, such as lagoon facilities that discharge during high ambient flows, the stream flow to be used in the mixing zone analysis should be the lowest statistical flow expected to occur during the period of discharge.

Where a discharger has installed a diffuser in the receiving water, all or a portion of the critical low stream flow may be provided as a dilution allowance. The determination shall depend on the diffuser design and on the requirements and potential environmental concerns identified in the above paragraphs. Where a diffuser is installed across the entire river/stream width (at critical low flow), it will generally be presumed that near instantaneous and complete mixing is achieved and that providing the entire critical low flow as dilution is appropriate.

OTHER CONSIDERATIONS

Where dilution flow is not available at critical conditions (i.e., the water body is dry), the discharge limits will be based on achieving applicable water quality criteria (i.e., narrative and numeric, chronic and acute) at the end-of-pipe; neither a mixing zone or an allowance for dilution will be provided.

All mixing zone dilution assumptions are subject to review and revision as information on the nature and impacts of the discharge becomes available (e.g., chemical or biological monitoring at the mixing zone boundary). At a minimum, mixing zone and dilution decisions are subject to review and revision, along with all other aspects of the discharge permit upon expiration of the permit.

For certain pollutants (e.g., ammonia, dissolved oxygen, metals) that may exhibit increased toxicity or other effects on water quality after dilution and complete mixing is achieved, the waste load allocation shall address such effects on water quality, as necessary, to fully protect designated and existing uses. In other words, the point of compliance may be something other than the mixing zone boundary or the point where complete mixing is achieved.

The discharge will be consistent with the Antidegradation Procedure.

IMPLEMENTATION PROCEDURE

This procedure describes how dilution and mixing of point source discharges with receiving waters will be addressed in developing discharge limitations for point source discharges. For the purposes of this procedure, a mixing zone is defined as a designated area or volume of water surrounding or downstream of a point source discharge where the discharge is progressively diluted by the receiving water and numerical water quality criteria may not apply. Based on site-specific considerations, such a mixing zone may be designated in the context of an individual permit decision. Discharges may also be provided an allowance for dilution where it is determined that the discharge mixes with the receiving water in near instantaneous and complete fashion. Such mixing zones and allowances for dilution will be granted on a parameter-by-parameter and criterion-by-criterion basis as necessary to fully protect existing and designated uses.

The procedure to be followed is composed of six individual elements or steps. The relationship of the six steps and an overview of the mixing zone/dilution procedure is shown in figure 1.

Step 1 - No dilution available during critical conditions

Where dilution flow is not available at critical low-flow conditions, discharge limitations will be based on achieving applicable narrative and numeric water quality criteria at the end-of-pipe.

Step 2 - Dilution categorically prohibited for wetland discharges

Permit limitations for discharges to a wetland shall be based on achieving all applicable water quality criteria (i.e., narrative and numeric, chronic and acute) at end-of-pipe.

Step 3 - Procedure for certain minor publicly owned treatment works

Minor publicly owned treatment works that discharge to a lake or to a river/stream at a dilution greater than a 50-to-1 ratio qualify for this procedure. Minor publicly owned treatment works with dilution ratios less than a 50-to-1 ratio may also qualify (at the discretion of the permit writer) where it can be adequately demonstrated that this procedure poses insignificant environmental risks. For the purposes of this procedure, the river/stream dilution ratio is defined as the chronic low flow of the segment upstream of the publicly owned treatment works discharge divided by the mean daily flow of the publicly owned treatment works. For controlled discharges from lagoon facilities (discharging during high flows), the river/stream dilution ratio is defined as the lowest upstream flow expected during the period of discharge divided by the mean daily flow of the discharge.

For minor publicly owned treatment works that qualify for this procedure and discharge to lakes, the allowance for dilution for chemical-specific and chronic WET limits will be determined on a case-by-case basis. Dilution up to a 19-to-1 ratio (five percent effluent) may be provided.

For minor publicly owned treatment works that qualify for this procedure and discharge to a river/stream segment, dilution up to the full chronic aquatic life, acute aquatic life, and human health critical flows may be provided.

Step 4 - Site-specific risk considerations

Where allowing a mixing zone or a dilution allowance would pose unacceptable environmental risks, the discharge limitations will be based on achieving applicable narrative and numeric water quality criteria at the end-of-pipe. The existence of environmental risks may also be the basis for a site-specific mixing zone or dilution allowance. Such risk determinations will be made on a case-by-case and parameter-by-parameter basis. These decisions will take into account the designated and existing uses and all relevant site-specific environmental concerns, including the following:

1. Bioaccummulation in fish tissues or wildlife.
2. Biologically important areas such as fish spawning areas.
3. Low acute to chronic ratio.
4. Potential human exposure to pollutants resulting from drinking water or recreational areas.
5. Attraction of aquatic life to the effluent plume.
6. Toxicity/persistence of the substance discharged.
7. Zone of passage for migrating fish or other species (including access to tributaries).
8. Cumulative effects of multiple discharges and mixing zones.

Step 5 - Complete mix procedures

For point source discharges to rivers/streams where available data are adequate to support a conclusion that there is near instantaneous and complete mixing of the discharge with the receiving water (complete mix) the full critical low flow or a portion thereof may be provided as dilution for chemical-specific and WET limitations. Such determinations of complete mixing will be made on a case-by-case basis using best professional judgement. Presence of an effluent diffuser that covers the entire river/stream width at critical low flow will generally be assumed to provide complete mixing. Also, where the mean daily flow of the discharge exceeds the chronic low stream flow of the receiving water, complete mixing will generally be assumed. In addition, where the mean daily flow of the discharge is less than or equal to the chronic low flow of the receiving water, it will generally be assumed that complete mixing does not occur unless otherwise demonstrated by the permittee. Demonstrations for complete mixing should be consistent with the study plan developed in cooperation with the states/tribes and environmental protection agency region VIII. Near instantaneous and complete mixing is defined as no more than a ten percent difference in bank-to-bank concentrations within a longitudinal distance not greater than two river/stream widths. For controlled discharges (lagoon facilities), the test of near instantaneous and complete mixing will be made using the expected rate of effluent discharge and the lowest upstream flow expected to occur during the period of discharge.

The following critical low flows shall be applied for streams and effluents:

Stream Flows	
Aquatic life, chronic	4-day, 3-year flow (biologically based*)**
Aquatic life, acute	1-day, 3-year flow (biologically based)

Human health (carcinogens)	Harmonic mean flow
Human health (noncarcinogens)	4-day, 3-year flow (biologically based) or 1-day, 3-year flow (biologically based)

Effluent Flows

Aquatic life, chronic	Mean daily flow
Aquatic life, acute	Maximum daily flow
Human health (all)	Mean daily flow

* Biologically based refers to the biologically based design flow method developed by the environmental protection agency. It differs from the hydrologically based design flow method in that it directly uses the averaging periods and frequencies specified in the aquatic life water quality criteria for individual pollutants and whole effluents for determining design flows.

** A 30-day, 10-year flow (biologically based) can be used for ammonia or other chronic standard with a 30-day averaging period.

Where complete mixing can be concluded and the environmental concerns identified in step 4 do not justify denying dilution, but are nevertheless significant, some portion of the critical low flows identified above may be provided as dilution. Such decisions will take site-specific environmental concerns into account as necessary to ensure adequate protection of designated and existing uses.

Step 6 - Incomplete mix procedures

This step addresses point source discharges that exhibit incomplete mixing. Because acute WET limits are achieved at the end-of-pipe in incomplete mix situations, this step provides mixing zone procedures for chronic aquatic life, human health, and WET limits, and ZID procedures for acute chemical-specific limits. Where a ZID is allowed for chemical limits, the size of the ZID shall be limited as follows:

Lakes:	The ZID volume shall not exceed ten percent of the volume of the chronic mixing zone.
Rivers and Streams:	The ZID shall not exceed ten percent of the chronic mixing zone volume or flow, nor shall the ZID exceed a maximum downstream length of one hundred feet, whichever is more restrictive.

The following provides guidelines for determining the amount of dilution available for dischargers that exhibit incomplete mixing.

Default Method

This method addresses situations where information needed for modeling is not available or there are concerns about potential environmental impacts of allowing a mixing zone. The default method provides a conservative dilution allowance.

Stream/river dischargers: Dilution calculation which uses up to ten percent of the critical low flow for chronic aquatic life limits or human health limits. However, this allowance may be adjusted downward on a case-by-case basis depending upon relevant site-specific information, designed and existing uses of the segment, and especially the uses of the segment portion affected by the discharge.

Lake/reservoir dischargers: Dilution up to a 4-to-1 ratio (twenty percent effluent) may be provided for chronic aquatic life analyses or human health analyses. However, this allowance may be adjusted downward on a case-by-case basis depending upon discharge flow, lake size, lake

flushing potential, designated and existing uses of the lake, and uses of the lake portion affected by the discharge.

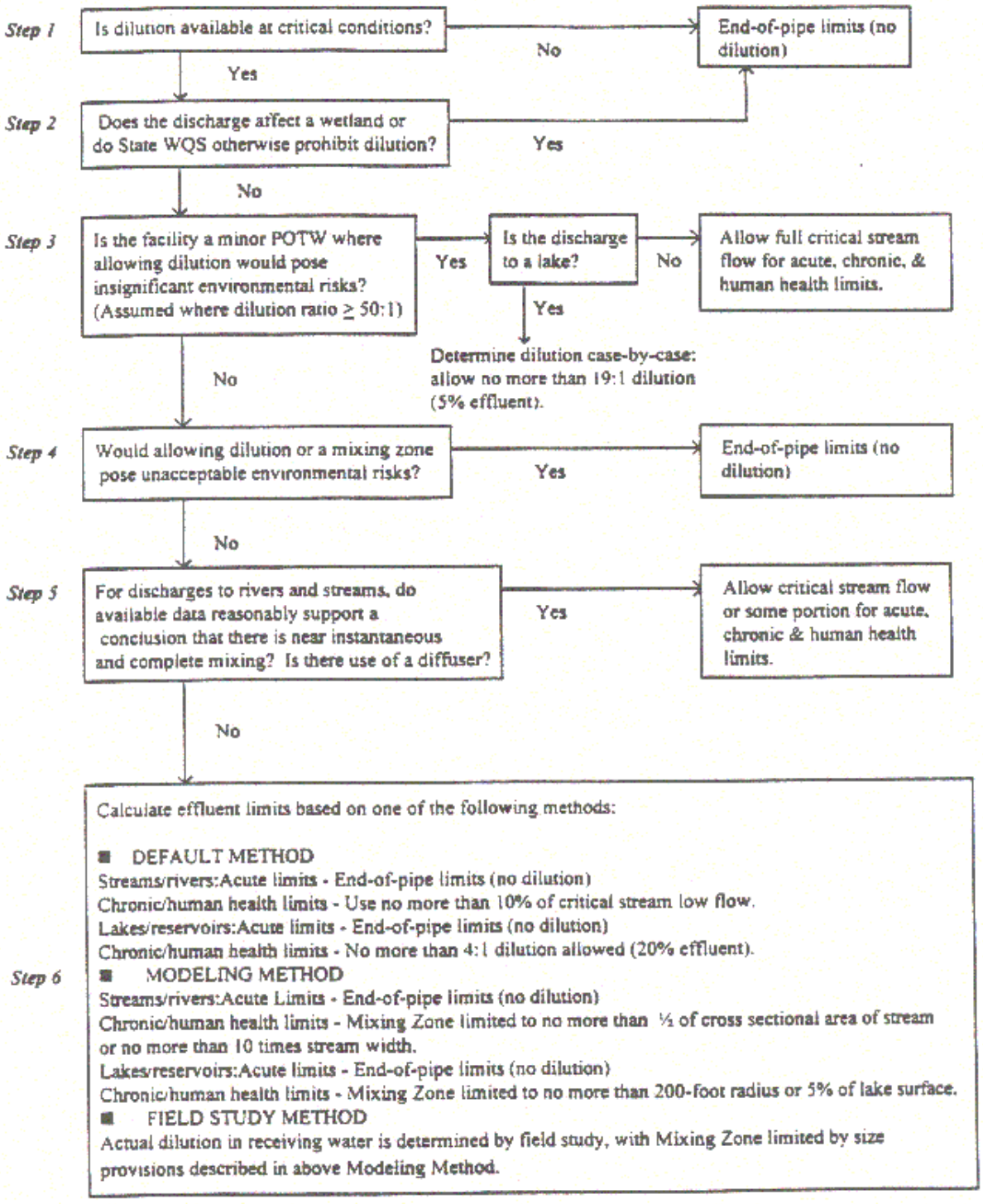
Modeling Method

An appropriate mixing zone model is used to calculate the dilution flow that will allow mixing zone limits to be achieved at the critical low flow. Prior to initiating modeling studies, it should be determined that compliance with criteria at the end-of-pipe is not practicable.

Field Study Method

Field studies which document the actual mixing characteristics in the receiving water are used to determine the dilution flow that will allow mixing zone size limits to be achieved at the critical low flow. For the purposes of field studies, "near instantaneous and complete mixing" is operationally defined as no more than a ten percent difference in bank-to-bank concentrations within a longitudinal distance not greater than two stream/river widths.

FIGURE 1
NORTH DAKOTA MODEL MIXING ZONE/DILUTION PROCEDURE*



* This procedure is applied to both chemical-specific and WET limits. In the case of complex discharges, the dilution or mixing zone may vary parameter-by-parameter.

APPENDIX IV

NORTH DAKOTA ANTIDEGRADATION
PROCEDURE

I. INTRODUCTION

This antidegradation implementation procedure delineates the process that will be followed by the department of environmental quality for implementing the antidegradation policy found in Standards of Quality for Waters of the State, chapter 33.1-16-02.1.

Under this implementation procedure, all waters of the state are afforded one of three different levels of antidegradation protection. All existing uses, and the water quality necessary for those uses, shall be maintained and protected. Antidegradation requirements are necessary whenever a regulated activity is proposed that may have some effect on water quality. Regulated actions include permits issued under sections 402 (North Dakota pollutant discharge elimination system) and 404 (dredge and fill) of the Clean Water Act, and any other activity requiring section 401 water quality certification. Nonpoint sources of pollution are not included. When reviewing section 404 nationwide permits, the department will issue section 401 certifications only where it determines that the conditions imposed by such permits are expected to result in attainment of the applicable water quality standards, including the antidegradation requirements. However, it is anticipated that the department will exclude certain nationwide permits from the antidegradation procedures for category 1 waters on the basis that the category of activities covered by the permit is not expected to have significant permanent effects on the quality and beneficial uses of those waters, or the effects will be appropriately minimized and temporary.

II. EXISTING USE PROTECTION FOR CATEGORY 1, 2, AND 3 WATERS

Existing use means a use that was actually attained in the water body on or after 1967, whether or not it is included in the water quality standards. This procedure presumes that attainment of the criteria assigned to protect the current water body classification will serve to maintain and protect all existing uses. However, where an existing use has water quality requirements that are clearly defined, but are not addressed by the current classification and criteria, the department will ensure that such existing uses are protected fully, based on implementation of appropriate numeric or narrative water quality criteria or criteria guidance. In some cases, water quality may have improved in the segment since the classification was assigned, resulting in attainment of a higher use. In other cases, the classification may have been assigned based on inadequate information, resulting in a classification that does not describe or adequately protect actual uses of the segment. In such cases, the department will develop requirements necessary to protect the existing uses and, where appropriate, recommend reclassification of the segment.

III. ANTIDEGRADATION REVIEW PROCEDURE

The department will complete an antidegradation review for all proposed regulated activities. The findings of these reviews will be summarized using an antidegradation worksheet. A statement of basis for all conclusions will be attached to the completed worksheet. The level of detail of the review will depend upon the antidegradation protection applicable to the various classes of water.

In conducting an antidegradation review, the division of water quality will sequentially apply the following steps:

A. Determine which level of antidegradation applies.

B. Determine whether authorizing the proposed regulated activity is consistent with antidegradation requirements.

C. Review existing water quality data and other information submitted by the project applicant.

D. Determine if additional information or assessment is necessary to make a decision.

E. A preliminary decision is made by the department and subsequently distributed for public participation and intergovernmental coordination.

- The content of public notices will be determined case by case. In preparing a public notice, the department may address: a) the department's preliminary antidegradation review conclusions; b) a request for public input on particular aspects of the antidegradation review that might be improved based on public input (e.g., existing uses of a segment that needs to be protected); c) notice of the availability of the antidegradation review worksheet; d) notice of the availability of general information regarding the state antidegradation program; and e) a reference to the state antidegradation policy.

- The antidegradation review findings will be available for public comment; however, publication of a separate notice for purposes of antidegradation is not necessary. For example, the antidegradation preliminary findings may be included in the public notice issued for purposes of a North Dakota pollutant discharge elimination system permit or Clean Water Act section 401 certification.

The department will ensure appropriate intergovernmental coordination on all antidegradation reviews. At a minimum, the department will provide copies of the completed antidegradation review worksheet and/or the public notice to appropriate local, state, and federal government agencies, along with a written request to provide comments by the public comment deadline.

F. Comments are considered.

G. The department determines if the change in quality is necessary to accommodate important economic or social development.

H. The department makes a final decision.

The level of antidegradation protection afforded each water body in the state is consistent with beneficial uses of those water bodies. Appendix I and appendix II of the Standards of Quality for Waters of the State identify rivers, streams, and lakes in the state with their classification. The classification shall be consistent with the following categories:

Category 1: Very high level of protection that automatically applies to class I and class IA streams and class I, II, and III lakes, and wetlands that are functioning at their optimal level. In addition, category 1 is presumed to apply to class II and class III streams. Particular class II and class III streams may be excluded from category 1 if, at the time of the antidegradation review, it is determined that one or both of the following criteria are applicable: 1) there is no remaining assimilative capacity for any of the parameters that may potentially be affected by the proposed regulated activity in the segment in question, or 2) an evaluation submitted by the project applicant demonstrates (based on adequate and representative chemical, physical, and biological data) that aquatic life and primary contact recreation uses are not currently being attained because of stressors that will require a long-term effort to remedy. Evaluations in response to criterion #2 must include more than an identification of current water quality levels. They must include evidence of the current status of the aquatic life and primary contact recreation uses of the segment.

Category 2: Class 4 and class 5 lakes and particular wetlands after antidegradation review. In addition, class II and class III streams or wetlands meeting one of the criteria identified above at the time of the antidegradation review shall be included in category 2.

Category 3: Highest level of protection; outstanding state resource waters.

Procedures for Category 1 Waters

Regulated activities that result in a new or expanded source of pollutants to this category of water are subject to the review process, unless the source would have no significant permanent effect on the quality and beneficial uses of those waters, or if the effects will be appropriately minimized and temporary.

- Proposed activities that would lower the ambient quality in a water body of any parameter by more than fifteen percent, reduce the available assimilative capacity by more than fifteen percent, or increase permitted pollutant loadings to a water body by more than fifteen percent will be deemed to have significant effects.

- The department will identify and eliminate from further review those proposed activities that will have no significant effect on water quality or beneficial uses. Category 1 reviews will be conducted where significant effects are projected for one or more water quality parameters. Findings of significant effects may be based on the following factors: a) percent change in ambient concentrations predicted at the appropriate conditions; b) percent change in loadings for the individual discharge or to the segment from all discharges; c) reduction in available assimilative capacity; d) nature, persistence, and potential effects of the parameter; e) potential for cumulative effects; f) predicted impacts to aquatic biota; and g) degree of confidence in any modeling techniques utilized.

- The applicant may be required to provide available monitoring data or other information about the affected water body and/or proposed activity to help determine the significance of the proposed degradation for specific parameters. The information includes recent ambient chemical, physical, or biological monitoring data sufficient to characterize, during the appropriate conditions, the spatial and temporal variability of existing background quality of the segment for the parameters that would be affected by the proposed activity. The information would also describe the water quality that would result if the proposed activity were authorized.

The project applicant is required to provide an evaluation of the water quality effects of the project. This evaluation may consist of the following components:

1. Pollution prevention measures.
2. Reduction in scale of the project.
3. Water recycle or reuse.
4. Process changes.
5. Alternative treatment technology.
6. Advanced treatment technology.
7. Seasonal or controlled discharge options to avoid critical water quality periods.
8. Improved operation and maintenance of existing facilities.
9. Alternative discharge locations.

The primary emphasis of the category 1 reviews will be to determine whether reasonable nondegrading or less-degrading alternatives to the proposed degradation are available. The department will first evaluate any alternatives analysis submitted by the applicant for adherence to the minimum requirements described below. If an acceptable analysis of alternatives was completed and submitted to the department as part of the initial project proposal, no further evaluation of alternatives will be required of the applicant. If an acceptable alternatives analysis has not been completed, the department will work with the project applicant to ensure that an acceptable alternatives analysis is developed.

Once the department has determined that feasible alternatives to allowing the degradation have been adequately evaluated, the department shall make a preliminary determination regarding whether reasonable nondegrading or less-degrading alternatives are available. This determination will be based primarily on the alternatives analysis developed by the project applicant, but may be supplemented with other information or data. As a rule-of-thumb, nondegrading or less-degrading pollution control alternatives with costs that are similar to the costs of the applicant's favored alternative shall be considered reasonable. If the department determines that reasonable alternatives to allowing the degradation do not exist, the department shall continue with the antidegradation review and document the basis for the preliminary determination.

If the department makes a preliminary determination that one or more reasonable alternatives exist, the department will work with the applicant to revise the project design. If a mutually acceptable resolution cannot be reached, the department will document the alternative analysis findings and provide public notice of a preliminary decision to deny the activity.

Although it is recognized that any activity resulting in a discharge to surface waters may have positive and negative aspects, the applicant must show that any discharge or increased discharge will be of economic or social importance in the area. Where there are existing regulated sources located in the area, the department will assure that those sources are complying with applicable requirements prior to authorizing the proposed regulated activity. New sources of a particular parameter will not be allowed where there are existing unresolved compliance problems (involving the same parameter) in the zone of influence of the proposed activity. The "zone of influence" is determined as appropriate for the parameter of concern, the characteristics of the receiving water body (e.g., lake versus river, etc.), and other relevant factors. Where available, a total maximum daily load analysis or other watershed-scale plan will be the basis for identifying the appropriate zone of influence. The department may conclude that such compliance has not been achieved where existing sources are violating their North Dakota pollutant discharge elimination system permit limits. However, the existence of a compliance schedule in the North Dakota pollutant discharge elimination system permit may be taken into consideration in such cases. Required controls on existing regulated sources need not be finally achieved prior to authorizing a proposed activity provided there is reasonable assurance of future compliance.

Procedures for Category 2 Waters

Regulated activities that result in a permanent or temporary, new or expanded source of pollution to this category of water are permitted if the following conditions are met:

1. The classified uses of the water would be maintained.

2. The assimilative capacity of the water is available for the parameters that would be affected by the regulated activity, and existing uses would be protected as discussed in section II.

A decision will be made on a case-by-case basis, using available data and best professional judgment. The applicant may be required to provide additional information necessary for the department to characterize or otherwise predict changes to the physical, chemical, and/or biological condition of the water.

Procedures for Category 3 Waters

Outstanding state resource waters - Eligibility. Outstanding state resource waters may be designated category 3 waters only after they have been determined to have exceptional value for present or prospective future use for public water supplies, propagation of fish or aquatic life, wildlife, recreational purposes, or agricultural, industrial, or other legitimate beneficial uses. The factors that may be considered in determining whether a water body is eligible for inclusion in category 3 include the following: a) location, b) previous special designations, c) existing water quality, d) physical characteristics, e) ecological value, and f) recreational value.

Nomination. Any person may nominate any waters of the state for designation as outstanding state resource waters. The nomination must be made in writing to the department, must describe its specific location and present uses, and must state the reasons why the resource has exceptional value for present or prospective future beneficial use.

Review process. The department with cooperation of the state water commission shall review any nomination to determine whether the nominated waters of the state are eligible, clearly defined, and identify beneficial uses of exceptional value for present or prospective future use. The department of environmental quality with cooperation of the state water commission shall provide as a part of its assessment: 1) a verification of the uses, properties, and attributes that define the proposed "exceptional" value; 2) an evaluation of the current and historical condition of the water with respect to the proposed value using the best data available; and 3) an estimate of likely regulatory measures needed to achieve the desired level of protection. If the identified waters of the state are eligible, clearly defined, and appear to identify beneficial uses of exceptional value for present or prospective future use, the water pollution control board, the department, and the state water commission will solicit public comment and/or hold a public hearing regarding the nomination. The water pollution control board will review the application record and the public comments, and make a recommendation to the department. After reviewing the board's recommendation, the department jointly with the state water commission will make a decision on whether to designate the defined water body as an outstanding state water resource. If both the department and the state water commission agree that the defined water body should be designated as an outstanding state water resource, the department shall submit the recommendation to the environmental review advisory council as part of the water quality standard revision process. The designation, if made, may be reviewed on a periodic basis.

Implementation process. Effects on category 3 waters resulting from regulated activity will be determined by appropriate evaluation and assessment techniques and best professional judgment. Any proposed regulated activity that would result in a new or expanded source of pollutants to a segment located in or upstream of a category 3 segment will be allowed only if there are appropriate restrictions to maintain and protect existing water quality. Reductions in water quality may be allowed only if they are temporary and negligible. Factors that may be considered in judging whether the quality of a category 3 water would be affected include: a) percent change in ambient concentrations predicted at the appropriate critical conditions; b) percent change in loadings; c) percent reduction in available assimilative capacity; d) nature, persistence, and potential effects of the parameter; e) potential for cumulative effects; and f) degree of confidence in any modeling techniques utilized.

APPENDIX D

Wetland Delineation Data Forms

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Liberty Midstream Residue Pipeline Project City/County: Mountrail Sampling Date: 10/2/2018
Applicant/Owner: Liberty Midstream Solutions State: ND Sampling Point: DP1U
Investigator(s): Megan Schwarz and Heather Doyle Section, Township, Range: S25 , T158N, R95W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): F Lat: 48.485530 Long: -102.900440 Datum: NAD83
Soil Map Unit Name: Williams-Zahl-Parnell Complex NWI classification: Freshwater Emergent
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:
No aquatic resource indicators observed. No soil pit dug due to lack of hyrophytic vegetation or hydrology present.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
		= Total Cover	
Herb Stratum (Plot size: 5)			
1. *Pascopyrum smithii*	50%	Y	FACU
2. *Thinopyrum intermedium*	50%	Y	UPL
3. *Rumex crispus*	10%	N	FAC
4.			
	110%	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
		= Total Cover	

% Bare Ground in Herb Stratum 10.00%

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1	0.0%
FACW species	0%	x 2	0.0%
FAC species	10%	x 3	30.0%
FACU species	50%	x 4	200.0%
UPL species	50%	x 5	250.0%
Column Totals:	110.0% (A)		480% (B)

Prevalence Index = B/A = 4.36

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test if >50%
____ 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks:

LMS 308

SOIL

Sampling Point: DP1U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks: No soil pit dug due to no hydrophytic vegetation or hydrology observed.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks: No hydrology observed.

LMS 309

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Liberty Mistream Residue Pipeline Project City/County: Mountrail Sampling Date: 10/2/2018
Applicant/Owner: Liberty Midstream Solutions State: ND Sampling Point: DP2U
Investigator(s): Megan Schwarz and Heather Doyle Section, Township, Range: S25 , T158N, R95W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): None Slope (%): <5%
Subregion (LRR): F Lat: 48.482827 Long: -102.900126 Datum: NAD83
Soil Map Unit Name: Zahl-Max-Bowbells Loams NWI classification: Freshwater Emergent
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Symphoricarpos occidentalis*	15%	Y	UPL
2.			
	15% = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Poa pratensis*	70%	Y	FACU
2. *Cirsium arvense*	15%	N	FACU
3. *Artemisia ludoviciana*	10%	N	UPL
4. *Bromus inermis*	7%	N	UPL
5.			
	102% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum 0.00%

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1	0.0%
FACW species	0%	x 2	0.0%
FAC species	0%	x 3	0.0%
FACU species	85%	x 4	340.0%
UPL species	32%	x 5	160.0%
Column Totals:	117.0% (A)		500% (B)

Prevalence Index = B/A = 4.27

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test if >50%
____ 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks:

LMS 310

Sampling Point: DP2U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-2	10YR 3/3	100%					Sandy Clay Loam	
2-4	10YR 2/2	95%	10YR 3/6	5%	C	PL	Sandy Loam	
4-8	10YR 3/2	95%	10YR 3/6	5%	C	PL	Sandy Clay Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): _____

Water Table Present? Yes ___ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

LMS 311

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Liberty Midstream Residue Pipeline Project City/County: Mountrail Sampling Date: 10/2/2018
Applicant/Owner: Liberty Midstream Solutions State: ND Sampling Point: DP3W
Investigator(s): Megan Schwarz and Heather Doyle Section, Township, Range: S25 , T158N, R95W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): F Lat: 48.482622 Long: -102.900157 Datum: NAD83
Soil Map Unit Name: Zahl-Max-Bowbells Loams NWI classification: Freshwater Emergent
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Hordeum jubatum*	35%	Y	FACW
2. *Pascopyrum smithii*	30%	Y	FACU
3. *Carex nebrascensis*	25%	Y	OBL
4. *Cirsium arvense*	20%	N	FACU
5. *Rumex crispus*	10%	N	FAC
6. *Lepidium draba*	10%	N	UPL
7.			
	130% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum 0.00%

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	25%	x 1	25.0%
FACW species	35%	x 2	70.0%
FAC species	10%	x 3	30.0%
FACU species	50%	x 4	200.0%
UPL species	10%	x 5	50.0%
Column Totals:	130.0% (A)		375% (B)

Prevalence Index = B/A = 2.88

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- Y 2 - Dominance Test if >50%
- Y 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

LMS 312

SOIL

Sampling Point: DP3W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
2-14	10YR 3/2	100%					Loam	
2	10YR 3/1	100%		0%			Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- X Loamy Mucky Mineral (F1
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** **X** **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- X Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** **X** **No** _____

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

LMS 313

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Liberty Midstream Residue Pipeline Project City/County: Mountrail Sampling Date: 10/2/2018
Applicant/Owner: Liberty Midstream Solutions State: ND Sampling Point: DP4W
Investigator(s): Megan Schwarz and Heather Doyle Section, Township, Range: S25 , T158N, R95W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): F Lat: 48.478949 Long: -102.897051 Datum: NAD83
Soil Map Unit Name: Williams-Zahl-Parnell Complex NWI classification: Freshwater Emergent
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No**

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Carex nebrascensis*	30%	Y	OBL
2. *Cirsium arvense*	20%	Y	FACU
3. *Mentha arvensis*	15%	N	FACW
4. *Rumex crispus*	15%	N	FAC
5. *Pascopyrum smithii*	10%	N	FACU
6.			
	90% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum 10.00%

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	30%	x 1	30.0%
FACW species	15%	x 2	30.0%
FAC species	15%	x 3	45.0%
FACU species	30%	x 4	120.0%
UPL species	0%	x 5	0.0%
Column Totals:	90.0% (A)		225% (B)

Prevalence Index = B/A = 2.50

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test if >50%
- Y 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

LMS 314

Sampling Point: DP4W

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-2	10YR 2/1	100%					Clay Loam	
2-10	10YR 5/1	80%	10YR 5/8	20%	C	M	Clay Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- X Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks: Salts observed throughout soil profile.

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- X Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- X Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 4

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

LMS 315

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Liberty Midstream Residue Pipeline Project City/County: Mountrail Sampling Date: 10/2/2018
Applicant/Owner: Liberty Midstream Solutions State: ND Sampling Point: DP5U
Investigator(s): Megan Schwarz and Heather Doyle Section, Township, Range: S25 , T158N, R95W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): F Lat: 48.479168 Long: -102.896918 Datum: NAD83
Soil Map Unit Name: Williams-Zahl-Parnell Complex NWI classification: Freshwater Emergent
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Poa pratensis*	45%	Y	FACU
2. *Bromus inermis*	20%	Y	UPL
3. *Solidago canadensis*	15%	N	FACU
4. *Ratibida columnifera*	10%	N	UPL
5.			
	90% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1. *Symphoricarpos occidentalis*	10%	Y	UPL
2. *Rosa acicularis*	10%	Y	FACU
3.			
	20% = Total Cover		

% Bare Ground in Herb Stratum 10.00%

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1	0.0%
FACW species	0%	x 2	0.0%
FAC species	0%	x 3	0.0%
FACU species	70%	x 4	280.0%
UPL species	40%	x 5	200.0%
Column Totals:	110.0% (A)		480% (B)

Prevalence Index = B/A = 4.36

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test if >50%
____ 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks:

LMS 316

Sampling Point: DP5U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-2	10YR 3/2	100%					Loam	
2-4	10YR 2/1	100%					Clay Loam	
4-5	10YR 3/1	99%	10YR 6/8	1%	C	M	Sand	
5-8	10YR 6/1	100%					Sand	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

LMS 317

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Liberty Midstream Residue Pipeline Project City/County: Mountrail Sampling Date: 10/2/2018
Applicant/Owner: Liberty Midstream Solutions State: ND Sampling Point: DP6U
Investigator(s): Megan Schwarz and Heather Doyle Section, Township, Range: S25 , T158N, R95W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): <5%
Subregion (LRR): F Lat: 48.477002 Long: -102.893407 Datum: NAD83
Soil Map Unit Name: Williams-Zahl-Parnell Complex NWI classification: Freshwater Emergent
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:
No aquatic resource indicators present within survey area.

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
		= Total Cover	
Herb Stratum (Plot size: 5)			
1. *Cirsium arvense*	60%	Y	FACU
2. *Bromus inermis*	40%	Y	UPL
3.			
	100%	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
		= Total Cover	

% Bare Ground in Herb Stratum 0.00%

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1	0.0%
FACW species	0%	x 2	0.0%
FAC species	0%	x 3	0.0%
FACU species	60%	x 4	240.0%
UPL species	40%	x 5	200.0%
Column Totals:	100.0% (A)		440% (B)

Prevalence Index = B/A = 4.40

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test if >50%
____ 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks:

LMS 318

Sampling Point: DP6U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

LMS 319

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Liberty Midstream Residue Pipeline Project City/County: Mountrail Sampling Date: 10/2/2018
Applicant/Owner: Liberty Midstream Solutions State: ND Sampling Point: DP7U
Investigator(s): Megan Schwarz and Heather Doyle Section, Township, Range: S25 , T158N, R95W
Landform (hillslope, terrace, etc.): alluvial fan Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): F Lat: 48.476796 Long: -102.892475 Datum: NAD83
Soil Map Unit Name: Williams-Zahl-Parnell Complex NWI classification: Freshwater Emergent
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes		No	X
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
		= Total Cover	
Herb Stratum (Plot size: 5)			
1. *Cirsium arvense*	50%	Y	FACU
2. *Bromus inermis*	20%	Y	UPL
3. *Solidago missouriensis*	10%	N	UPL
4. *Solidago canadensis*	10%	N	FACU
5. *Persicaria amphibia*	10%	N	OBL
6.			
	100%	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
		= Total Cover	

% Bare Ground in Herb Stratum 0.00%

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	10%	x 1	10.0%
FACW species	0%	x 2	0.0%
FAC species	0%	x 3	0.0%
FACU species	60%	x 4	240.0%
UPL species	30%	x 5	150.0%
Column Totals:	100.0% (A)		400% (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test if >50%
____ 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks:

LMS 320

Sampling Point: DP7U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-10	10YR 3/1	100%		0%			Sandy Clay Loam	
10-12	10YR 3/1	100%		0%			Sandy Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

LMS 321

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Liberty Midstream Residue Pipeline Project City/County: Mountrail Sampling Date: 10/2/2018
Applicant/Owner: Liberty Midstream Solutions State: ND Sampling Point: DP8W
Investigator(s): Megan Schwarz and Heather Doyle Section, Township, Range: S25 , T158N, R95W
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): F Lat: 48.476732 Long: -102.892230 Datum: NAD83
Soil Map Unit Name: Williams-Zahl-Parnell Complex NWI classification: Freshwater Emergent
Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No X (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? **Yes X No ____**

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
		= Total Cover	
Herb Stratum (Plot size: 5)			
1. *Spartina pectinata*	65%	Y	FACW
2. *Carex nebrascensis*	35%	Y	OBL
3. *Phalaris arundinacea*	15%	N	FACW
4. *Persicaria amphibia*	10%	N	OBL
5.			
	125%	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
		= Total Cover	

% Bare Ground in Herb Stratum 0.00%

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	45%	x 1	45.0%
FACW species	80%	x 2	160.0%
FAC species	0%	x 3	0.0%
FACU species	0%	x 4	0.0%
UPL species	0%	x 5	0.0%
Column Totals:	125.0% (A)		205% (B)

Prevalence Index = B/A = 1.64

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
Y 2 - Dominance Test if >50%
Y 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No ____**

Remarks:

LMS 322

Sampling Point: DP8W

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-2	10YR 3/3	100%		0%			Loam	
2-8	10YR 3/2	100%		0%			Loam	
8-16	10YR 4/2	100%		0%			Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- X Depleted Below Dark Surface (A11)
- X Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 2

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

LMS 323

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Liberty Midstream City/County: Mountrail County Sampling Date: 10/29/2019
Applicant/Owner: Kleinfelder State: ND Sampling Point: DP01W
Investigator(s): Connor McCarty, Clayton Wammack Section, Township, Range: 33 , 158 North, 94 West
Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): Concave Slope (%): 1%
Subregion (LRR): LRR F Lat: 48.460037 Long: -102.834266 Datum: NAD83
Soil Map Unit Name: Vallers Loam, moderately saline NWI classification: R4SBC
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?**	**Yes X No**
Hydric Soil Present?	Yes X	No		
Wetland Hydrology Present?	Yes X	No		

Remarks: WET001B

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	50%	Y	FACW
2. *Elymus repens*	20%	Y	FACU
3. *Agrostis gigantea*	5%	N	FACW
4.			
	75%	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum 20.00%

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1	0.0%
FACW species	55%	x 2	110.0%
FAC species	0%	x 3	0.0%
FACU species	20%	x 4	80.0%
UPL species	0%	x 5	0.0%
Column Totals:	75.0% (A)		190% (B)

Prevalence Index = B/A = 2.53

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test if >50%
- Y 3 - Prevalence Index is ≤ 3.0
- 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
- Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

LMS 324

Sampling Point: DP01W

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-12	10YR 3/1	100%					Clay Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** **X** **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- X Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes	X	No	___	Depth (inches): 6
Water Table Present?	Yes	X	No	___	Depth (inches): 2
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 0

Wetland Hydrology Present? **Yes** **X** **No** ___

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

LMS 325

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Liberty Midstream | City/County: Mountrail County | Sampling Date: 10/29/2019
Applicant/Owner: Kleinfelder | State: ND | Sampling Point: DP02U
Investigator(s): Connor McCarty, Clayton Wammack | Section, Township, Range: 33 , 158 North, 94 West
Landform (hillslope, terrace, etc.): stream terrace | Local relief (concave, convex, none): Linear Slope | Slope (%): 1%
Subregion (LRR): LRR R | Lat: 48.460071 | Long: -102.834628 | Datum: NAD83
Soil Map Unit Name: Vallers Loam, moderately saline | NWI classification: None
Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No ____ (if no, explain in Remarks.)
Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No , Soil No , or Hydrology No naturally problematic? (if needed, explain in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important feautres, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** **X**
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: WET001B

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Cirsium arvense*	20%	Y	FACU
2. *Rosa arkansana*	10%	Y	FACU
3.			
	30% = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Bromus inermis*	60%	Y	UPL
2.			
	60% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum 10.00%

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	0%	x 1	0.0%
FACW species	0%	x 2	0.0%
FAC species	0%	x 3	0.0%
FACU species	30%	x 4	120.0%
UPL species	60%	x 5	300.0%
Column Totals:	90.0% (A)		420% (B)

Prevalence Index = B/A = 4.67

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test if >50%
____ 3 - Prevalence Index is ≤ 3.0
____ 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? **Yes** ____ **No** **X**

Remarks:

LMS 326

Sampling Point: DP02U

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators

Depth (inches)	Matrix Color:	Matrix %	Redox Features Color:	Redox Features %	Redox Features Type:	Redox Features Loc:	Texture:	Remarks:
0-12	10YR 3/3	100%					Clay Loam	

Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9)**(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Muck Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High PLains Depression (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils

- ___ 1 cm Muck (A9)**(LRR I, J)**
- ___ Coast Prarie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): N/A

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks:

LMS 327

APPENDIX E

Photographs of Project Area

Figure E-1. WET01 overview, facing west (photograph taken October 2, 2018).

Figure E-2. WV1 overview, facing south (photograph taken October 2, 2018).

LMS 329

Figure E-3. WET02 overview, facing north (photograph taken October 2, 2018).

Figure E-4. DP6U overview, point recorded to disprove NWI wetland, facing east-southeast (photograph taken October 2, 2018).

Figure E5. WET03 overview, facing southeast (photograph taken October 2, 2018).

Figure E6. WET001B overview, facing south (photograph taken October 29, 2019).

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APPENDIX G
AGENCY CORRESPONDENCE

ADDRESSEE	DATE LETTER SENT	DATE RESPONSE RECEIVED
Federal Aviation Administration	10/30/2019	Not yet received
Job Service of North Dakota	10/31/2019	Not yet received
Mountrail County Commission	10/31/2019	Not yet received
North Dakota Aeronautics Commission	10/30/2019	Not yet received
North Dakota Attorney General	10/30/2019	Not yet received
North Dakota Department of Agriculture	10/30/2019	Not yet received
North Dakota Department of Career and Technical Education	10/30/2019	Not yet received
North Dakota Department of Commerce	10/30/2019	Not yet received
North Dakota Department of Environmental Quality	10/30/2019	11/20/2019
North Dakota Department of Health	10/30/2019	Not yet received
North Dakota Department of Human Services	10/30/2019	Not yet received
North Dakota Department of Transportation	10/30/2019	Not yet received
North Dakota Department of Trust Lands	10/30/2019	11/15/2019
North Dakota Energy Development Impact office	10/30/2019	Not yet received
North Dakota Game & Fish Department	10/30/2019	11/18/2019
North Dakota Indian Affairs Commission	10/30/2019	Not yet received
North Dakota Industrial Commission	10/30/2019	Not yet received
North Dakota Labor Department	10/30/2019	Not yet received
North Dakota Parks and Recreation Department	10/30/2019	11/15/2019
North Dakota Pipeline Authority	10/30/2019	Not yet received
North Dakota Soil Conservation Committee	10/30/2019	Not yet received
North Dakota State Water Commission	10/30/2019	11/25/2019
North Dakota Transmission Authority	10/31/2019	Not yet received
Office of Governor	10/30/2019	Not yet received
US Army Corps of Engineers	10/31/2019	Not yet received
US Department of Defense	10/30/2019	Not yet received
US Fish and Wildlife Service	10/31/2019	12/4/2019
Williams County Commission	10/31/2019	Not yet received

LETTERS SENT TO AGENCIES

October 30, 2019

Federal Aviation Administration
FAA Logistics Center
6500 S. MacArthur Boulevard
Bldg 2 (LSF), Mail Stop AML030
Oklahoma City, OK 73169

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

Sincerely,

KLEINFELDER

Nan Elzinga, PE
Project Manager III

1801 California Street, Suite 1100
Denver, CO 80202
d|303.297.5791
o| 303.237.6601
m| 303.909.7359

LMS 336

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October 30, 2019

Job Service North Dakota
PO Box 5507
Bismarck, ND 58506-5507

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

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Sincerely,

KLEINFELDER

Nan Elzinga, PE
Project Manager III

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Denver, CO 80202
d|303.297.5791
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LMS 337

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October 30, 2019

Mountrail County Commission
Planning & Zoning Department
PO Box 248
Stanley, ND 58784-0248

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

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Nan Elzinga, PE
Project Manager III

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October 30, 2019

North Dakota Aeronautics Commission
2301 University Drive #22
Bismarck, ND 58504

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

Sincerely,

KLEINFELDER

Nan Elzinga, PE
Project Manager III

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Denver, CO 80202
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October 30, 2019

Wayne Stenehjem
North Dakota Attorney General
Office of the Attorney General
600 East Boulevard Avenue, Department 125
Bismarck, ND 58505-0040

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

Dear Mr. Stenehjem,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

Sincerely,

KLEINFELDER

Nan Elzinga, PE
Project Manager III

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Denver, CO 80202
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October 30, 2019

North Dakota Department of Agriculture
600 E Boulevard Ave Dept 602
Bismarck, ND 58505-0020

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

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Sincerely,

KLEINFELDER

Nan Elzinga, PE
Project Manager III

1801 California Street, Suite 1100
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October 30, 2019

North Dakota Department of Career and Technical Education
600 E Boulevard Ave #15
Bismarck, ND 58505

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

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Sincerely,

KLEINFELDER

Nan Elzinga, PE
Project Manager III

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Denver, CO 80202
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October 30, 2019

North Dakota Department of Health
600 E Boulevard Ave
Bismarck, ND 58505

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

Sincerely,

KLEINFELDER

Nan Elzinga, PE
Project Manager III

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October 30, 2019

North Dakota Department of Human Services
600 E. Boulevard Ave Dept. 325
Bismarck, ND 58505

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

Sincerely,

KLEINFELDER

Nan Elzinga, PE
Project Manager III

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LMS 344

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October 30, 2019

North Dakota Department of Transportation
608 E Boulevard Ave
Bismarck, ND 58505-0700

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

Sincerely,

KLEINFELDER

Nan Elzinga, PE
Project Manager III

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LMS 345

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Bright People. Right Solutions.

October 30, 2019

North Dakota Energy Development Impact Office
1707 N 9th Street
Bismarck, ND 58501

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

Sincerely,

KLEINFELDER

Nan Elzinga, PE
Project Manager III

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October 30, 2019

North Dakota Game and Fish
100 N E Bismarck Expressway
Bismarck, ND 58501

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

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KLEINFELDER

Nan Elzinga, PE
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October 30, 2019

North Dakota Indian Affairs Commission
600 East Boulevard Avenue #316
Bismarck, ND 58505

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

Sincerely,

KLEINFELDER

Nan Elzinga, PE
Project Manager III

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Denver, CO 80202
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October 30, 2019

Karlene Fine
North Dakota Industrial Commission
State Capitol 14th Floor
600 E Boulevard Ave. Dept. 405
Bismarck, ND 58505-0840

SUBJECT: Proposed Alliance Sale Line Project
Liberty Midstream Solutions, LLC

Dear Ms. Fine,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

Sincerely,

KLEINFELDER

Nan Elzinga, PE
Project Manager III

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October 30, 2019

North Dakota Labor Department
600 E Boulevard Ave Ste 406
Bismarck, ND 58505

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

Sincerely,

KLEINFELDER

Nan Elzinga, PE
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October 30, 2019

North Dakota Parks & Recreation
1600 E Century Ave Ste 3
Bismarck, ND 58503

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

Sincerely,

KLEINFELDER

Nan Elzinga, PE
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October 30, 2019

North Dakota Pipeline Authority
600 E Boulevard Ave Dept. 405
Bismarck, ND 58505-0840

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

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KLEINFELDER

Nan Elzinga, PE
Project Manager III

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North Dakota State Soil Conservation
NDSU Extension
2718 Gateway Avenue Ste 304
Bismarck, ND 58503

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

Sincerely,

KLEINFELDER

Nan Elzinga, PE
Project Manager III

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North Dakota State Water Commission
900 E Boulevard Ave
Bismarck, ND 58505

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

Sincerely,

KLEINFELDER

Nan Elzinga, PE
Project Manager III

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October 30, 2019

John Weeda
North Dakota Transmission Authority
1016 E Owens
PO Box 2277
Bismarck, ND 58502-2277

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

Dear Mr. Weeda,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

Sincerely,

KLEINFELDER

Nan Elzinga, PE
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North Dakota Department of Trust Lands
1701 N 9th Street
Bismarck, ND 58501

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

Sincerely,

KLEINFELDER

Nan Elzinga, PE
Project Manager III

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October 30, 2019

Doug Burgum
North Dakota Governor
Office of the Governor
600 East Boulevard Avenue
Bismarck, ND 58505-0001

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

Dear Governor Burgum,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

Sincerely,

KLEINFELDER

Nan Elzinga, PE
Project Manager III

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October 31, 2019

US Army Corps of Engineers
1513 South 12th Street
Bismarck, ND 58504

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project (Project) on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

SWCA was contracted to conduct natural resources field surveys for the Project. SWCA conducted field surveys of a 200-foot-wide pipeline survey corridor (100-foot-wide right-of-way [ROW]) on October 2, 2018, to determine the potential presence and extent of wetlands and waterbodies that are within the survey and project area, not just those that are likely jurisdictional waters of the U.S. according to the U.S. Army Corps of Engineers (USACE) regulatory program. Concurrently with the wetland determinations, SWCA conducted a cursory threatened and endangered species survey and habitat assessment; a tree, sapling, and shrub enumeration survey; and a noxious weed survey.

Below is a description of temporary impacts expected for wetlands and waterbodies in the Project Area.

Wetlands and Waterbodies

SWCA recorded three palustrine emergent (PEM) wetlands within the 200-foot-wide survey corridor, totaling approximately 1.08 acres. WET01 and WET02 are seasonal wetlands. WET03 is a semi-permanent wetland in an agricultural field. SWCA's preliminary determination is that WET01, WET02, and WET03 are isolated and likely non-jurisdictional; however, the USACE has the final authority to determine jurisdictional status. Proposed impacts to WET01, WET02, and WET03 would be temporary, not resulting in loss.

SWCA did not identify any non-wetland waterbodies (streams, rivers, lakes, etc.) in the survey area. Additionally, no Waters of the State are present in the survey area.

At this time, we anticipate that construction will occur in compliance with the requirements of Nationwide Permit 12, and no permit application will be submitted for the proposed pipeline. If

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changes to the route and/or construction procedures occur, we will notify your office for permitting instructions.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

Sincerely,

KLEINFELDER

Nan Elzinga, PE
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October 30, 2019

US Department of Defense
1400 Defense Pentagon
Washington, DC 20301-1400

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

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KLEINFELDER

Nan Elzinga, PE
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US Fish & Wildlife Service
3425 Miriam Avenue
Bismarck, ND 58501

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project (Project) on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

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Below is a description of temporary impacts expected for wetlands and waterbodies, migratory birds and raptors, and habitats associated with federally threatened and endangered species in the Project Area.

Wetlands and Waterbodies
A survey was conducted, and three wetlands were identified within the project area. All three are characterized as palustrine emergent (PEM) wetlands, covering a total of approximately 1.08 acres. They are isolated and were determined to be non-jurisdictional. No other non-wetland waterbodies (streams, rivers, lakes, etc.) were identified within the project area. Additionally, no Waters of the State are present in the Project Area.

Migratory Birds and Raptors
A 0.5-mile line-of-sight binocular survey for raptor nests was conducted. Due to the lack of occupied bald and golden eagle nests in the Study Area and lack of suitable habitat within the Corridor, bald and golden eagles are not expected to be impacted by the proposed Project. The proposed Project construction timeline will also fall outside of MBTA nesting season (February 1 – July 15).

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Threatened and Endangered Species

Assessments for federally listed threatened and endangered species were conducted by evaluating historic and present occurrences and by determining if potential habitat exists within the Project Area. A determination was made concerning direct and cumulative effects of the proposed activities on each species and habitat. Determinations made for federally listed species are:

- No effect
- May affect, but is not likely to adversely affect
- May affect, and is likely to adversely affect
- Is likely to jeopardize a proposed species or adversely modify critical habitat
- Is not likely to jeopardize a proposed species or adversely modify critical habitat

Threatened and endangered species that may occur in Williams and Mountrail Counties are listed in the table below. Determinations concerning direct and cumulative effects of the proposed activities on each species and their habitat are presented in the following paragraphs.

Species	County Status		Project Effects Determination
	Williams	Mountrail	
Gray Wolf *(Canis lupus)*	Endangered	Endangered	No Effect
Interior Least Tern *(Sterna antillarum)*	Endangered	Endangered	May affect, is not likely to adversely affect
Pallid Sturqeon *(Scaphirvnchus albus)*	Endangered	Endangered	No Effect
Piping Plover *(Charadrius melodus)*	Threatened	Threatened	No Effect
Whoopinq Crane *(Grus americana)*	Endangered	Endangered	May affect, is not likely to adversely affect
Dakota Skipper *(Hesperia dacotae)*	Threatened	Threatened	No Effect
Northern Long-Eared Bat *(Myotis septentrionalis)*	Threatened	Threatened	May affect, is not likely to adversely affect
Rufa Red knot *(Calidris canuta rufa)*	Threatened	Threatened	No Effect

Gray Wolf

The gray wolf, listed as endangered in the United States in 1978, was believed extirpated from North Dakota in the 1920s and 1930s, with only sporadic reports from the 1930s to the present (Licht and Huffman 1996; USFWS 1978). The presence of wolves in most of North Dakota consists of occasional dispersing animals from Minnesota and Manitoba (Licht and Fritts 1994; Licht and Huffman 1996). Most documented gray wolf sightings within western North Dakota are believed to be young males seeking to establish territory (Hagen et al. 2005). The Turtle Mountain region of north-central North Dakota provides marginal habitat that may be able to support a very small population of wolves. The closest known pack of wolves is the Minnesota population located approximately 17 miles from the northeast corner of North Dakota. The gray wolf uses a variety of habitats that support a large prey base, including montane and low-elevation forests, grasslands, and desert scrub (USFWS 2018c).

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Due to a lack of forested habitat and the distance from Minnesota and Manitoba populations, as well as the troubled relationship between humans and wolves and their vulnerability to being shot in open habitats (Licht and Huffman 1996), the reestablishment of gray wolf populations in North Dakota is unlikely. Additionally, habitat fragmentation may further act as a barrier against wolf recolonization in western North Dakota. The gray wolf is not expected to be impacted by the proposed project.

Interior Least Tern

The interior population of the least tern is listed as endangered by the USFWS (1985a). This bird is the smallest member of the gull and tern family, measuring approximately 9 inches in length. Terns remain near flowing water, where they feed by hovering over and diving into standing or flowing water to catch small fish (USFWS 2013b).

The interior population of least terns breeds in isolated areas along the Missouri, Mississippi, Ohio, Red, and Rio Grande river systems, where they nest in small colonies. From late April to August, terns nest in a shallow hole scraped in an open sandy area, gravel patch, or exposed flat; and in bare sandbars along rivers, sand and gravel pits, or lake and reservoir shorelines. The adults continue to care for chicks after they hatch. Least terns in North Dakota often will be found sharing sandbars with the piping plover, a threatened species (USFWS 2013b).

Census data indicate over 8,000 least terns in the interior population. In North Dakota, the least tern is found mainly on the Missouri River from Garrison Dam south to Lake Oahe, and on the Missouri and Yellowstone Rivers upstream of Lake Sakakawea (USFWS 1990, 2013b). Approximately 100 pairs breed in North Dakota (USFWS 2013b). Details of their migration are not known, but their winter range is reported to include the Gulf of Mexico and Caribbean Islands (USFWS 1990, 2013b).

Loss of suitable breeding and nesting habitat for terns has resulted from dam construction and river channelization on major rivers throughout the Mississippi, Missouri, and Rio Grande river systems. River and reservoir changes have led to reduced sandbar formation and other shoreline habitats for breeding, resulting in population declines. In addition, other human shoreline disturbances affect the species (USFWS 1990). Critical habitat has not been designated for the species (USFWS 2013b). Current conservation strategies include identification and avoidance of known nesting areas, public education, and limiting or preventing shoreline disturbances near nests and hatched chicks (USFWS 2013b).

Given the distance to suitable habitat, the likelihood of observing a tern in the project area is relatively low. The interior least tern is not expected to be impacted by the proposed project.

Pallid Sturgeon

The pallid sturgeon has no potential habitat within the proposed Project Area.

Piping Plover

The piping plover is a small shorebird that breeds only in three geographic regions of North America: the Atlantic Coast, the Northern Great Plains, and the Great Lakes. Piping plover populations were federally listed as threatened and endangered in 1985, with the Northern Great Plains and Atlantic Coast populations listed as threatened, and the Great Lakes population listed as endangered (USFWS 1985b).

Plovers in the Great Plains make their nests on open, sparsely vegetated sand or gravel beaches

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adjacent to alkali wetlands and on beaches, sand bars, and dredged material islands of major river systems (USFWS 2002, 2018d). The shorelines of lakes of the Missouri River constitute significant nesting areas for the bird. Piping plover nest on the ground, making shallow scrapes in the sand, which they line with small pebbles or rocks (USFWS 1988). Anthropogenic alterations of the landscape along rivers and lakes where piping plover nest have increased the number and type of predators, subsequently decreasing nest success and chick survival (USFWS 2002, 2018d). The birds fly south by mid to late August to areas along the Texas coast and Mexico (USFWS 2002). The Northern Great Plains population has continued to decline despite federal listing, with population estimates of 1,500 breeding pairs in 1985 reduced to fewer than 1,100 in 1990. Low survival of adult birds has been identified as a factor (Root et al. 1992). Current conservation strategies include identification and preservation of known nesting sites, public education, and limiting or preventing shoreline disturbances near nests and hatched chicks (USFWS 1988, 2018d).

The lack of alkali wetlands, minimal disturbance to foraging wetlands, and distance to critical habitat deem the likelihood of a piping plover occurring as relatively low. The piping plover is not expected to be impacted by the proposed project.

Desktop analysis concluded that designated critical habitat for the threatened piping plover is not present in the pipeline ROW. The nearest designated critical habitat for piping plovers is approximately 10.18 miles south of the proposed pipeline. The proposed pipeline would not modify, alter, disturb, or affect the shoreline within ND Unit 11 or the alkaline lakes and wetlands within ND Units 1 through 10. Designated critical habitat of the piping plover is not expected to be impacted by the proposed project.

Whooping Crane

The whooping crane was listed as endangered in 1970 in the United States by the USFWS and in 1978 in Canada. Historically, population declines were caused by shooting and destruction of nesting habitat in the prairies from agricultural development. Current threats to the species include habitat destruction, especially suitable wetland habitats that support breeding and nesting, as well as feeding and roosting during their fall and spring migration (Canadian Wildlife Service and USFWS 2007).

The winter 2015–2016 total wild population of the Wood Buffalo-Aransas population was estimated at 329 birds (USFWS 2016a). There is only one self-sustaining wild population, the Aransas-Wood Buffalo National Park population, which nests in Wood Buffalo National Park and adjacent areas in Canada, where approximately 83% of the wild nesting sites occur (Canadian Wildlife Service and USFWS 2007; USFWS 2013a). Mountrail and Williams Counties, including the project area, are within the primary migratory flyway of whooping cranes.

Whooping cranes probe the soil subsurface with their bills for foods on the soil or vegetation substrate (Canadian Wildlife Service and USFWS 2007). Whooping cranes are omnivores, and foods typically include agricultural grains, as well as insects, frogs, rodents, small birds, minnows, berries, and plant tubers. The largest amount of time during migration is spent feeding in harvested grain fields (Canadian Wildlife Service and USFWS 2007). Studies indicate that whooping cranes use a variety of habitats during migration, in addition to cultivated croplands, and generally roost in small palustrine (marshy) wetlands within 0.62 mile of suitable feeding areas (Howe 1987, 1989). Whooping cranes have been recorded in riverine habitats during their migration, with eight sightings along the Missouri River in North Dakota (Canadian Wildlife Service and USFWS 2007:18). In these cases, they roost on submerged sandbars in wide, unobstructed channels that are isolated from human disturbance (Armbruster 1990).

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It is well-documented that migrating whooping cranes use habitats in the vicinity of the project for roosting and feeding. The project area is located within the migratory corridor for the whooping crane, with the nearest sighting being approximately 4.7 miles west of the pipeline corridor (USFWS, M. Tacha, unpublished data). Suitable whooping crane foraging habitat (i.e., cultivated cropland) was observed within the survey area; however, high levels of disturbance near the project area from existing roads, agriculture production, oil and gas activity, etc., minimize the likelihood for cranes to use the area within or near the pipeline corridor. The whooping crane is not expected to be impacted by the proposed project.

Dakota Skipper

The Dakota skipper is a small butterfly with a 1-inch wingspan. The male wing ranges from a tawny-orange to brown, and the female wing is darker brown with tawny-orange spots and faint white spots (USFWS 2014). On October 24, 2014, the USFWS determined a threatened species status for the Dakota skipper, and the final rule became effective November 24, 2014 (USFWS 2014). One unit of designated critical habitat—Unit 12 is located on the Little Missouri National Grassland.

The primary cause for the decline of this species includes the loss of high-quality native prairie habitat due to overgrazing, conversion to agriculture, and disruption of natural prairie fire cycles (USFWS 2014). 'Type A' habitat is low wet-mesic prairie with little topographic relief occurring in near-shore glacial lake deposits (Royer and Marrone 1992). Three plants species dominate 'Type A' habitat: wood lily (Lilium philadelphicum), bluebell bellflower (Campanula rotundifolia), and mountain deathcamas (Zigadenus elegans) (McCabe 1981). 'Type B' habitat of the Dakota skipper occurs on rolling terrain over gravelly glacial moraine deposits and is dominated by big bluestem, little bluestem, and needlegrasses (Stipa spp.), and may include bluebell bellflower and wood lily (USFWS 2016c). Additionally, 'Type B' habitat supports extensive stands of blacksamson echinacea (Echinacea angustifolia), upright prairie coneflower (Ratibida columnifera), and blanketflower (Gaillardia aristata) (USFWS 2016c).

During the surveys, nonnative grasslands and cropland were dominant in the project area. Dominant species recorded during surveys included Kentucky bluegrass, smooth brome, intermediate wheatgrass (*Thinopyrum intermedium*), and western wheatgrass.

Dakota skippers are not known to occur in the project area. Adult Dakota skipper dispersal is limited due to a short adult life span of 3 weeks (Dana 1991) and one annual flight per year (USFWS 2016c). The Dakota skipper may disperse an average of 0.62 mile to an area that contains sufficient vegetative diversity and emigrants (Cochrane and Delphey 2002). Unless a site is within about 0.62 mile of an area that generates a enough emigrants, the species' extirpation from the site is likely permanent.

Larval Dakota skipper habitat within dry-mesic habitat is associated with more gravelly glacial landscapes of relatively higher relief, more variable soil moisture, and somewhat higher soil temperatures (Royer et al. 2008). Soils in these habitats are classified predominantly as sandy loams and occasionally as loamy sands (Royer et al. 2008). Soil compaction and vegetation removal substantially alter soil water movement and evaporation, thereby altering near-surface humidity (Royer et al. 2008). Livestock grazing has been shown to increase bulk density and soil compaction, which are correlated with decreased soil water content and hydraulic conductivity (Royer et al. 2008). Dakota skippers will tolerate little to no grazing in mixed-grass prairie (Cochrane and Delphey 2002; McCabe 1981). Grazing pressure within the pastureland found in the project area is categorized as moderate to severe based on visual observance by

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SWCA in the field.

The nearest designated USFWS critical habitat unit, Unit 11 in Mountrail County, is located 25.63 miles south of the project area. Additionally, Unit 12 in Williams County is located 25.98 miles south of the project area. Because of the lack of suitable habitat and the distance to the nearest known population, the Dakota skipper is not expected to be impacted by the proposed project.

Northern Long-Eared Bat

On May 4, 2015, the USFWS listed the northern-long eared bat as threatened under the ESA (USFWS 2015b. The USFWS also issued an interim rule pursuant to Section 4(d) of the ESA in conjunction with the final rule (50 CFR Part 17). For areas within the species' range that are not affected by white-nose syndrome (i.e., areas outside the 150-mile white-nose syndrome buffer zone), including all of North Dakota, the interim 4(d) rule exempts incidental take from certain activities.

This medium-sized bat ranges across the eastern and north-central United States and all the Canadian provinces (USFWS 2015b). Throughout most of this species' range, populations are patchily distributed. They emerge at dusk to fly through the understory of forested hillsides and ridges, feeding on moths, flies, leafhoppers, caddisflies, and beetles.

Most records of northern long-eared bats are from winter hibernacula surveys, with more than 780 hibernacula identified within the United States. No known hibernacula are located in North Dakota, due to either no suitable hibernacula present or a lack of survey effort (USFWS 2013d). This bat species occupies a wide range of rocky and forested habitats. Suitable winter habitat includes large caves and mines (USFWS 2015b). Summer day roosts include abandoned buildings, bridges, hollow trees, stumps, under loose bark, and rock fissures (Jones and Choate 1978). The summer roosting period is from May through October. Removal of any potential roost trees may impact the northern long-eared bat.

Suitable winter habitat for northern long-eared bats does not occur in the pipeline ROW. Nearby trees, including quaking aspen trees recorded at sample point WV1 (Appendix A), and rocky outcrops can act as suitable summer day roosts. Suitable habitat in the project area is minimal, and the 4(d) rule exempts incidental take for the proposed project; therefore, the northern long-eared bat is not expected to be impacted by the proposed project.

Rufa Red Knot

The rufa red knot is a medium-sized shorebird approximately 9 to 11 inches in height with breeding plumage consisting of red around the face and a prominent stripe above the eye, breast, and upper belly, and non-breeding plumage a dusky gray and white (USFWS 2013c). The USFWS published a proposal to list the rufa red knot as threatened under the ESA in the Federal Register in September 2013 (78 Federal Register 60023). On December 11, 2014, the USFWS determined a threatened species status for the rufa red knot, and the final rule became effective January 12, 2015 (79 Federal Register 73705).

The primary reason for the decline of this species includes reduced food supplies in Delaware Bay due to commercial harvest of horseshoe crabs, but also includes areas of range loss due to rising sea levels, shorelines project, and development (USFWS 2013c). The rufa red knot breeds in the Canadian Arctic and migrates 19,000 miles to winter on the U.S. Gulf Coast and in South America. The species generally occurs along the ocean coasts during migration, but a small number have been reported across the interior United States.

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Suitable habitat along Lake Sakakawea is approximately 20.17 miles northwest of the project area. The likelihood of the rufa red knot occurring in the proposed pipeline ROW is very low due to the distance to Lake Sakakawea. The rufa red knot is not expected to be impacted by the proposed project.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

Sincerely,

KLEINFELDER

Nan Elzinga, PE
Project Manager III

1801 California Street, Suite 1100
Denver, CO 80202
d|303.297.5791
o| 303.237.6601
m| 303.909.7359

LMS 367

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October 30, 2019

Williams County Commission
Planning and Zoning Division
PO Box 2047
Williston, ND 58802-2047

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by November 28, 2019. Please call me at 303-297-5791 if you have any questions.

Sincerely,

KLEINFELDER

Nan Elzinga, PE
Project Manager III

1801 California Street, Suite 1100
Denver, CO 80202
d|303.297.5791
o| 303.237.6601
m| 303.909.7359

LMS 368

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RESPONSES RECEIVED FROM AGENCIES

November 20, 2019

Nan Elzinga P.E.
Project Manager
Kleinfelder
1801 California Street, Suite 1100
Denver, CO 80202

Re: Liberty Midstream Solutions Alliance Sales Pipeline Project in Mountrail, Williams Counties

Dear Ms. Elzinga:

The North Dakota Department of Environmental Quality has reviewed the information concerning the above-referenced project received at the department on November 01, 2019, with respect to possible environmental impacts.

This department believes that environmental impacts from the proposed construction will be minor and can be controlled by proper construction methods. With respect to construction, we have the following comments:

1. Development of the production facilities and any access roads, well pads or pipelines should have a minimal effect on air quality provided measures are taken to minimize fugitive dust. However, operation of the wells has the potential to release air contaminants capable of causing or contributing to air pollution. We encourage the development and operation of the wells in a manner that is consistent with good air pollution control practices for minimizing emissions. Emission control requirements are specified in 40 CFR 49.140 through 49.147 and other applicable Federal regulations.

   Any questions about air pollution control or permitting requirements should be addressed to the U.S. Environmental Protection Agency, Region 8. They can be reached at (303) 312-6312 or r8eisc@epa.gov.

2. Care is to be taken during construction activity near any water of the state to minimize adverse effects on a water body. This includes minimal disturbance of stream beds and banks to prevent excess siltation, and the replacement and revegetation of any disturbed area as soon as possible after work has been completed. Caution must also be taken to prevent spills of oil and grease that may reach the receiving water from equipment maintenance, and/or the handling of fuels on the site. **Guidelines for minimizing degradation to waterways during construction are attached.**

3. Projects disturbing one or more acres are required to have a permit to discharge storm water runoff until the site is stabilized by the reestablishment of vegetation or other permanent cover. Further information on the storm water permit may be obtained from the department's website or by calling the Division of Water Quality (701-328-5210). Also, cities may impose additional requirements and/or specific best management practices for construction affecting their storm drainage system. Check with the local officials to be sure any local storm water management considerations are addressed.

4. The proposed construction project does not overlie a defined glacial drift aquifer; however, several domestic water supply wells are located in the vicinity of the southern portion of the project's intended route. Care should be taken to avoid spills of any materials that may have an adverse effect on groundwater quality. All spills must be immediately reported to this department and appropriate remedial actions performed.

5. Noise from construction activities may have adverse effects on persons who live near the construction area. Noise levels can be minimized by ensuring that construction equipment is equipped with a recommended muffler in good working order. Noise effects can also be minimized by ensuring that construction activities are not conducted during early morning or late evening hours.

6. All solid waste materials must be managed and transported in accordance with the state's solid and hazardous waste rules. Appropriate efforts to reduce, reuse and/or recycle waste materials are strongly encouraged. As appropriate, segregation of inert waste from non-inert waste can generally reduce the cost of waste management. Further information on waste management and recycling is available from the department's Division of Waste Management at (701) 328-5166.

7. Projects that involve construction of pipelines should select locations that minimize the potential for impacts to human health and the environment during and after construction by avoiding, when possible, source water protection areas and sensitive surface and groundwater environments. Additionally, when possible, pipeline routes should select areas with natural barriers to both surface and ground waters. Human health and the environment should be further protected by developing a spill response plan that emphasizes rapid deployment of prepositioned assets necessary to contain spills and subsequent cleanup. Proper surveillance and monitoring for early detection of leaks should be required.

These comments are based on the information provided about the project in the above-referenced submittal. The U.S. Army Corps of Engineers may require a water quality certification from this department for the project if the project is subject to their Section 404 permitting process. Any additional information which may be required by the U.S. Army Corps of Engineers under the process will be considered by this department in our determination regarding the issuance of such a certification.

The department owns no land in or adjacent to the proposed improvements, nor does it have any projects scheduled in the area. In addition, we believe the proposed activities are consistent with the State Implementation Plan for the Control of Air Pollution for the State of North Dakota.

If you have any questions regarding our comments, please feel free to contact this office.

Sincerely,

L. David Glatt, P.E., Director
North Dakota Department of Environmental Quality

LDG:dlp
Attach.

LMS 371

Construction and Environmental Disturbance Requirements

The following are the minimum requirements of the North Dakota Department of Environmental Quality for projects that involve construction or environmental disturbance in or near waters of the State of North Dakota. They ensure that minimal environmental degradation occurs as a result of construction or related work which has the potential to affect waters of the state. All projects must be constructed to minimize the loss of soil, vegetative cover, and pollutants (chemical or biological) from a site.

Soils

Prevent the erosion of soil and sediment loss using erosion and sediment controls. Fragile and sensitive areas such as wetlands, riparian zones, delicate flora, and land resources must be protected against compaction, vegetation loss, and unnecessary damage.

Surface Waters

All construction must be managed to minimize impacts to aquatic systems. Follow safe storage and handling procedures to prevent the contamination of water from fuel spills, lubricants, and chemicals. Stream bank and stream bed disturbances must be controlled to minimize slit movement, nutrient upsurges, plant dislocations, and any physical, chemicals, or biological disruption. The use of pesticides or herbicides in or near surface waters is allowed under the department's pesticide application permit with notification to the department.

Fill Material

Any fill material placed below the ordinary high-water mark must be free of topsoil, decomposable materials, and persistent synthetic organic compounds; including, but not limited to, asphalt, tires, treated lumber, and construction debris. The department may require testing of fill materials. All temporary fill must be removed. Debris and solid wastes must be properly disposed or recycled. Impacted areas must be restored to near original condition.

GOVERNOR, Doug Burgum
DIRECTOR, Terry Steinwand
DEPUTY, Scott A. Peterson

"VARIETY IN HUNTING AND FISHING"

NORTH DAKOTA GAME AND FISH DEPARTMENT
100 NORTH BISMARCK EXPRESSWAY BISMARCK, NORTH DAKOTA 58501-5095 PHONE 701-328-6300 FAX 701-328-6352

November 18, 2019

Nan Elzinga, PE
Project Manager III
Kleinfelder
1801 California Street, Suite 1100
Denver, CO 80202

Dear Ms. Elzinga:

RE: Proposed Alliance Sales Line Project

Liberty Midstream Solutions, LLC is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline, originating from the existing Liberty County Line Gas Plant and terminating at an existing third-party transmission line, in Mountrail and Williams Counties, North Dakota.

A primary concern with pipeline projects is the possible disturbance of native prairie and wooded draws associated with construction of the pipeline and access roads. Avoidance of native prairie areas reduces impacts to several grassland species including many of the species of conservation priority. We ask that work within these areas be avoided to the extent possible, every effort be made to prevent destruction of woody vegetation, and disturbed areas be reclaimed to pre-project conditions.

The National Wetland Inventory indicates several wetlands within the proposed project corridor. Steps should be taken to protect any wetlands that cannot be avoided, no alterations should be made to existing drainage patterns, and above-ground appurtenances should not be placed in wetland areas. Unavoidable destruction or degradation of wetland acres should be mitigated in kind.

We do not believe this project will have significant adverse effects on wildlife or wildlife habitat provided these recommendations are implemented where appropriate during project construction.

Sincerely,

Greg Link
Chief
Conservation & Communication Division

js

LMS 373

NORTH Dakota | Parks & Recreation
Be Legendary.™

November 15, 2019

Nan Elzinga, PE
Kleinfelder
1801 California Street
Suite 1100
Denver, CO 80202

Re: Alliance Sales Line Project – Mountrail and Williams County

Dear Nan Elzinga,

The North Dakota Parks and Recreation Department has reviewed the above referenced proposed Alliance Sales Line project in Mountrail and Williams Counties, North Dakota.

Our agency scope of authority and expertise covers recreation and biological resources (in particular rare plants and ecological communities). The project as defined does not affect state park lands that we manage or affect Land and Water Conservation Fund recreation projects that we coordinate.

The North Dakota Natural Heritage biological conservation database has reviewed the project to determine if any current or historical plant or animal species of concern or other significant ecological communities are known to occur within an approximate one-mile radius of the project area. Based on this review, we have no rare species or significant ecological community documented within or adjacent to project site. The absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources.

We appreciate your commitment to rare plant, animal and ecological community conservation, management and inter-agency cooperation to date. For additional information, please contact me at (701-328-5370 or kgduttenhefner@nd.gov Thank you for the opportunity to comment on this proposed project.

Sincerely,

Kathy Duttenhefner

Kathy Duttenhefner
Coordinator/Biologist II, Natural Resources Division

LMS 374

1600 East Century Ave. Ste. 3 | Bismarck, ND 58503
PHONE: 701-328-5357 | FAX: 701-328-5363 | EMAIL: parkrec@nd.gov | WEBSITE: www.parkrec.nd.gov

NORTH Dakota | Water Commission

Be Legendary.™

November 25, 2019

Nan Elzinga
Kleinfelder
1801 California Street, STE 1100
Denver, CO 80202

Dear Mr. Elzinga:

This is in response to your request for a review of the environmental impacts associated with the proposed Alliance Sales Line Project located in Mountrail and Williams County, ND.

The proposed project has been reviewed by State Water Commission staff, and the following comments are provided:

- There are no floodplains identified and/or mapped where this proposed project is to take place. No permits relative to the NFIP are required based on the current effective FIRM and State minimum standards.

- Initial review indicates the project does not require a conditional or temporary permit for water appropriation. However, if surface water or groundwater will be diverted for construction of the project, a water permit will be required per North Dakota Century Code § 61-04-02. Please consult with the Water Appropriations Division of the Office of the State Engineer if you have any questions at (701) 328-2754 or waterpermits@nd.gov.

Thank you for the opportunity to provide review comments. Should you have further questions, please contact me at 701-328-4970 or stevebest@nd.gov.

Sincerely,

Steven Best
Planner III

SB:dm/1570

LMS 375

1707 North 9th Street
PO Box 5523
Bismarck, ND 58506-5523
Phone: (701) 328 – 2800
Fax: (701) 328 – 3650

land.nd.gov

DEPARTMENT OF
NDTRUST LANDS
INVESTING FOR EDUCATION

Jodi Smith, Commissioner

November 15, 2019

NAN ELZINGA
KLEINFELDER
1801 CALIFORNIA STREET, SUITE 1100
DENVER, CO 80202

RE: PROPOSED ALLIANCE SALES LINE PROJECT – LIBERTY MIDSTREAM SOLUTIONS, LLC

To Whom It May Concern:

The North Dakota Department of Trust lands (NDDTL) received a letter dated October 30, 2019, from Kleinfelder regarding a request for comment on the proposed Alliance Sales Line Project in Mountrail and Williams County, North Dakota.

Below is a list of surface tracts managed by NDDTL on behalf of the Board of University and School Lands located near the proposed project boundary area(s) as depicted via the received letter and map.

NDDTL managed tracts near in the proposed project area			
County	**Township**	**Range**	**Section**
WIL	157	95	36

Any proposed projects crossing NDDTL managed property would need to apply for a Rights of Way and would be subject to review and approval by the Board of University and School Lands. NDDTL reviews the financial benefit to the trusts; availability of alternate encumbrance site or route; least environmentally damaging site or route regardless of property ownership; physical stability of the landscape; other potential future uses for the trust lands, including urban development; potential mineral and other material development including oil, gas, coal, construction aggregate, sodium sulfate, chemical substances, metallic ore, or uranium ore; feasibility for reclamation; maintenance of existing wetlands and water flows; any cultural, historical, archeological, and paleontological resources; habitat for federally listed threatened and endangered species; location of the proposed route or site in relation to section lines, quarter section lines and corridors; potential liability to the trusts; applicant's past encumbrances on trust lands; applicant's financial stability; and any other information relevant to the application which would assist in the determination.

If you have any questions, please contact the office at (701) 328-2800.

Sincerely,

Kayla Spangelo

Kayla Spangelo
Natural Resources Professional

LMS 376

United States Department of the Interior

FISH AND WILDLIFE SERVICE
North Dakota Ecological Services

3425 Miriam Avenue
Bismarck, North Dakota 58501

IN REPLY REFER TO:
2020-CPA-0043
Proposed Alliance
Sales Pipeline

December 4, 2019

Ms. Nan Elzinga
Project Manager III
Kleinfelder
1801 California Street, Suite 1100
Denver, Colorado 80202

Dear Ms. Elzinga:

The U.S. Fish and Wildlife Service (Service) received a request dated October 31, 2019 from Kleinfelder on behalf of Liberty Midstream Solutions, LLC requesting comments for a North Dakota Public Service Commission (NDPSC) application. The applications is for the proposed 4.72 mile Alliance Sales Line Project carrying residue gas in an 8-inch pipeline in Mountrail and Williams County, North Dakota. We appreciate the write-up and the desire to cooperate. We have reviewed the project and we have no objections to the project.

Thank you for the opportunity to comment on this project. If you require further information, please have your staff contact Jessica Johnson of my staff at (701) 355-8507 or you can contact me at (701) 355-8512.

Sincerely,

Deputy Field Supervisor
North and South Dakota Field Office

cc: Greg link, Division Chief, North Dakota Game and Fish Department
Brian Kroshus, Commissioner, NDPSC
Julie Fedorchak, Commissioner, NDPSC
Randy Christmann, Commissioner, NDPSC

LMS 377

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF NORTH DAKOTA

IN THE MATTER OF THE APPLICATION OF LIBERTY MIDSTREAM SOLUTIONS, LLC FOR A CERTIFICATE OF CORRIDOR COMPATIBILITY AND ROUTE PERMIT FOR THE ALLIANCE SALES LINE PIPELINE PROJECT IN WILLIAMS AND MOUNTRAIL COUNTIES, NORTH DAKOTA	CASE NO. PU-20-_____

Application of Liberty Midstream Solutions, LLC
for Waiver or Reduction of Procedures and Time Schedules

In connection with its submission of a consolidated application for a Certificate of Corridor Compatibility and Route Permit ("Consolidated Application") for the construction of the Alliance Sales Line (the "Project"), Liberty Midstream Solutions, LLC ("Liberty"), submits to the North Dakota Public Service Commission (the "Commission") this application for a waiver or reduction of procedures and time schedules set forth in Chapter 49-22.1 of the North Dakota Century Code ("Siting Act") and Article 69-06 of the North Dakota Administrative Code ("Siting Rules"). Liberty requests the Commission waive and/or reduce procedures and time schedules required by the Siting Act and Siting Rules to accomplish the purposes as requested herein. In accordance with North Dakota Century Code Sections 49-22.1-05 and 49-22.1-10, and North Dakota Administrative Code Section 69-06-01-02 and Chapter 69-06-06, Liberty's request includes, but is not limited to:

1. That the Commission waive the provisions of North Dakota Century Code Sections 49-22.1-06, 49-22.1-07, and 49-22.1-10, and North Dakota Administrative Code Section 69-06-01-02 insofar as they require separate notices of filing of applications for a Certificate of Corridor Compatibility ("Corridor Certificate"), a Route Permit, and the application for waiver of procedures and time schedules

("Waiver Application"), separate hearings on such applications, and certain time schedules as set forth in said statutes and rules.

2. That the Commission waive the requirements of Section 49-22.1-10 of the North Dakota Century Code insofar as this section requires separate hearings to be held in each of the counties affected by the Project, and instead hold only one hearing addressing all affected counties.

3. That the Commission hold a single consolidated hearing on this Waiver Application and the Consolidated Application.

4. That the Commission allow for a consolidated notice of publication with respect to the Consolidated Application and Waiver Application.

5. That the Commission waive the requirements of Section 69-06-05-01(2)(f) of the North Dakota Administrative Code insofar as this section may require a corridor width of ten percent of the corridor's length with a maximum width of six miles, reducing the required corridor width to between 200 feet and one mile for the Project.

Consistent with Section 69-06-06-01(2) of the North Dakota Administrative Code, Liberty provides the following information in support of its waiver requests:

A. <u>Description of Proposed Project.</u>

1. **<u>Type</u>**: The Project will transport processed natural gas, or residue gas, from Liberty's existing natural gas plant near Tioga, North Dakota, to an existing third-party transmission pipeline, ultimately delivering the processed gas to consumers in the Chicago, Illinois area. The proposed Project consists of construction of one (1) buried 8-inch steel pipeline commencing at Liberty's County Line Gas Plant in Williams County, North Dakota, and terminating at Alliance Pipeline's Tioga Lateral transmission line in Mountrail County, North Dakota, a distance of approximately 4.7 miles. Surface facilities related to the pipeline will be limited to pipeline markers and cathodic test stations along the proposed route.

2. **Product**: The Project will transport residue gas.

3. **Capacity and Design**: The Project will require installation of 8-inch diameter steel pipeline with a nominal wall thickness of 0.322-inches. The maximum operating pressure for the pipeline is 2,180 pounds per square inch gauge (psig), with the normal operating pressure being 2,000 psig. The pipeline will be designed to operate at a maximum of 120 degrees Fahrenheit. The pipeline is designed to initially carry up to 80 million cubic feet per day (MMCFD) and will have expansion capabilities of up to 120 MMCFD. The Project will be designed, constructed, operated, and maintained in compliance with applicable portions of the U.S. Department of Transportation regulations set forth in 49 C.F.R. Part 192, Transportation of Natural and Other Gas by Pipeline.

For additional analysis of the capacity, design and technology utilized for the proposed Project, please see Sections 5 and 8 of Liberty's Consolidated Application, which accompanies this Waiver Application.

4. **Location**: As explained above, the Project consists of one (1) buried residue gas pipeline consisting of approximately 4.7 miles of new 8-inch steel pipeline extending from Liberty's existing natural gas plant near Tioga, North Dakota, to Alliance Pipeline's Tioga Lateral transmission line in Mountrail County, North Dakota. The pipeline begins in Section 14, Township 158 North, Range 95 West, and travels south and east to the proposed connection point in Section 33, Township 158 North, Range 94 West. Maps of the proposed Project and route of the pipeline are provided in Appendix A to the Consolidated Application filed herewith.

5. **Geographical Service Area**: As noted above, the Project is located in Williams and Mountrail Counties. The Project will consist of a pipeline to collect residue gas from Liberty's existing County Line Plant near Tioga, North Dakota. Liberty's County Line Plant

processes natural gas produced in portions of Williams, Mountrail, Burke and Divide Counties. From Liberty's County Line Plant, the residue gas will be transported via the Project to Alliance Pipeline's Tioga Lateral transmission line in Mountrail County, North Dakota, ultimately to consumers in the Chicago, Illinois area.

6. **Time Schedule**: Liberty proposes to develop the Project on the following schedule:

- January 2020 – The Commission issues a Corridor Certificate and Route Permit for the Project.
- February 2020 – Liberty will begin construction of the Project.
- April 2020 – Liberty will have completed construction of the Project.
- Commissioning and restoration activities will commence immediately following construction of the Project, and the Project is anticipated to be operational in April 2020.

7. **Future Plans**: Liberty has no specific plans for additions to or modification of the Project at this time.

8. **Need for the Facility and Alternatives Considered.**

Liberty is proposing to construct the Project, which consists of one (1) buried residue gas pipeline consisting of approximately 4.7 miles of new 8-inch steel pipeline extending from Liberty's existing natural gas plant near Tioga, North Dakota, to Alliance Pipeline's Tioga Lateral transmission line in Mountrail County. With outlet via Alliance Pipeline's Tioga Lateral pipeline, the Project will address anticipated regional pipeline and outlet constraints as development of the Bakken continues. In addition, the Project will provide gas producers and processors in western North Dakota with a much needed alternative for marketing and transporting higher-BTU gas without requiring costly upgrades from refrigeration-style dew point plants to cryogenic recovery plants.

For additional analysis of the need for the Project, including a discussion of alternatives evaluated, please see Sections 3 and 12 of the Consolidated Application, which accompanies this Waiver Application.

9. **Cost.**

The total estimated cost of the Project is $4.6 million.

B. Waiver Request.

Liberty requests that the Commission grant the waivers requested herein because these waivers are needed to prevent potentially significant delays to the Project. Without the waivers of time schedules and procedures requested, completion of Liberty's proposed Project will be delayed, which in turn, will delay the environmentally sound and economic development and utilization of the oil and gas resources in western North Dakota.

Section 49-22.1-05 of the North Dakota Century Code provides that the Commission may waive procedures and time schedules upon a finding that "the proposed facility is of a length, design, location, or purpose that it will produce minimal adverse effects." Based upon the investigation and analysis set forth in Liberty's Consolidated Application, granting the requested waivers is appropriate because the proposed Project will produce minimal adverse effects due to its length (approximately 4.7 miles of new construction), its design (underground piping and limited above-ground appurtenances associated with an underground pipeline), its location (located in rural Williams and Mountrail Counties, and avoiding Exclusion and Avoidance Areas, as set forth in Section 69-06-08-02 of the North Dakota Administrative Code), and its purpose (underground transportation of residue gas).

In determining whether the proposed facility will result in adverse impacts on the environment, Liberty evaluated the Project using the criteria set forth in the Siting Act, the Siting

Rules, and the Commission's Guidelines. More specifically, Liberty evaluated the impacts of the Project and associated facilities considering the siting criteria set forth in Section 69-06-08-02 of the North Dakota Administrative Code and the factors set forth in Section 49-22.1-09 of the North Dakota Century Code. Impacts associated with the Project, and mitigation measures that will be taken with respect to said impacts, are summarized in Sections 10, 11, 13, 16, 17 and 19 of Liberty's Consolidated Application. Based upon Liberty's siting criteria evaluation, and the factors set forth in the Siting Rules, the Project will have minimal adverse effects.

Accordingly, Liberty respectfully requests the Commission grant the requested waivers and render an expeditious decision.

Dated this 16th day of January, 2020.

FREDRIKSON & BYRON, P.A.

By: _____

LAWRENCE BENDER, ND Bar #03908
1133 College Drive, Suite 1000
Bismarck, ND 58501
(701) 221-8700
lbender@fredlaw.com

Attorneys for
Liberty Midstream Solutions, LLC

STATE OF NORTH DAKOTA)
) ss.
COUNTY OF BURLEIGH)

LAWRENCE BENDER, of lawful age, being first duly sworn, on oath deposes and says:

That he is the duly elected and qualified attorney for Liberty Midstream Solutions, LLC, the applicant in the foregoing application; that he executed the foregoing application for and on behalf of said applicant and as its said attorney that he has read said application and knows the contents thereof, and that the statements made and contained therein are, to the best of his knowledge and belief, true and correct.

LAWRENCE BENDER

Subscribed and sworn to before me this 16th day of January, 2020.

EMILY LEWIS
Notary Public
State of North Dakota
My Commission Expires December 3, 2021

Notary Public

69024324 v1

Fredrikson & BYRON, P.A.

January 31, 2020

HAND DELIVERED

Mr. Steve Kahl
Interim Executive Director
North Dakota Public Service Commission
600 E. Boulevard, Dept. 408
Bismarck, ND 58505-0480

RE: Case No. PU-20-022
Liberty Midstream Solutions, LLC
8-inch Alliance Pipeline

Dear Mr. Kahl:

In response to Mr. Adam Renfandt's letter dated January 22, 2020, requesting certain information from Liberty Midstream Solutions, LLC ("Liberty") in connection with the above-referenced case before the North Dakota Public Service Commission ("Commission"), Liberty provides the following:

1. An electronic mailing address, preferably, or mailing address for the following in which any part of the study corridor is located:

   (1) An officer of each township with retained zoning authority:

Lindahl Township, Williams County

Jerol Gohrick
10619 77th Street NW
McGregor, ND 58755
(701) 641-2077

Bicker Township, Mountrail County

Brian Skaar
7470 100th Avenue NW
Tioga, ND 58852
(701) 664-2723

(2) The chief executive officer of each city:

Not applicable.

(3) The chairman of the board of county commissioners and the county auditor of each county:

Williams County

Steve Kemp, Chairman
stevek@co.williams.nd.us

Beth M. Innis, Auditor
bethi@co.williams.nd.us

Mountrail County

Trudy Ruland, Chairman
truland@restel.com

Stephanie Pappa, Auditor
stephp@co.mountrail.nd.us

2. An eight and one-half-inch by eleven-inch black and white map suitable for newspaper publication depicting the site area:

Enclosed herewith.

3. Certificate of Good Standing issued by the North Dakota Secretary of State for Liberty Midstream Solutions, LLC:

Enclosed herewith.

In response to Mr. Adam Renfandt's letter dated January 23, 2020, requesting certain information from Liberty in connection with the above-referenced case before the Commission, Liberty provides the following:

1. GIS layers will be forthcoming.

2. A discussion of present and future natural resource development in the area:

There are no designated or registered state parks, sites, monuments, or nature preserves along the Project Corridor. There are no county parks, recreational areas, municipal parks, or parks owned or administered by other governmental subdivisions crossed by the route. As such, there will be no direct impacts on national parks, sites, monuments, or wilderness. There are no federally

managed wildlife areas; wild, scenic, or recreational rivers; or wildlife refuges within the study area, Project Corridor, or Route. The land use along the pipeline route is primarily in agricultural production with a significant number of oil wells and other pipeline systems and associated infrastructure in the area. As the pipeline is a buried utility, surface land use will generally return to preexisting conditions once the pipeline is installed. Liberty is not aware of any federal, state, or local natural resource development plans within the Project Corridor or study area.

3. The effects of the "Agricultural production" and "Family farms and ranches" selection criteria on adverse effects resulting from the location, construction, and maintenance of the facility, and how such effects will be at an acceptable minimum, or how those effects will be managed and maintained at an acceptable minimum:

   Response forthcoming.

4. The percentage of the project pipeline that is co-located with existing utility corridors:

   0%

5. Copies of all correspondence with the North Dakota Geological Survey, and if no correspondence was sent, provide an explanation of why the agency was not notified:

   Liberty inadvertently failed to notify the agency. Liberty will engage the agency and provide the Commission with all relevant correspondence.

6. A response regarding the requested Project control documents and/or reports will be forthcoming.

Should have any questions, please advise.

Sincerely,

LAWRENCE BENDER

LB/tjg
Enclosures

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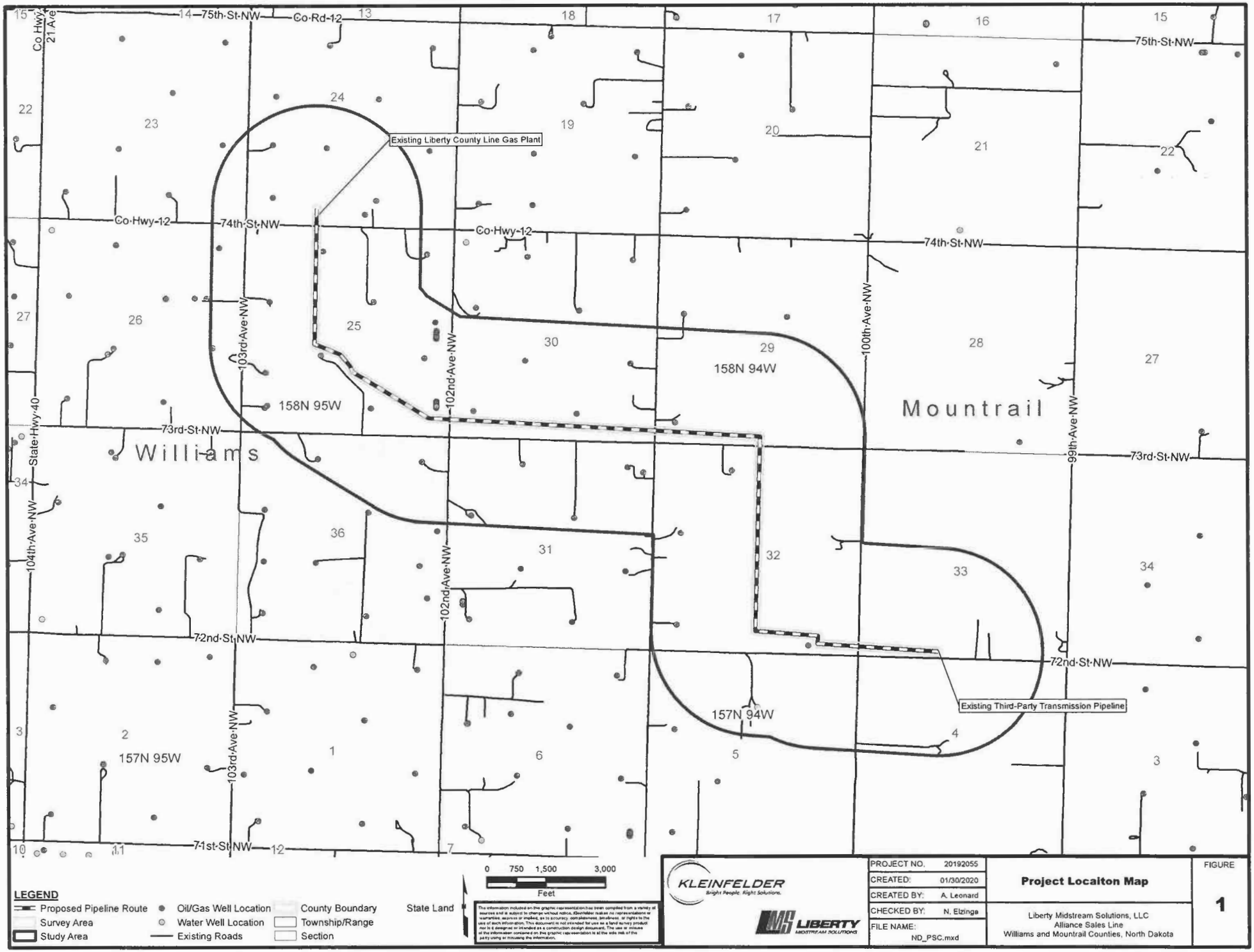
Existing Liberty County Line Gas Plant
Existing Third-Party Transmission Pipeline
Williams
Mountrail
158N 95W
158N 94W
157N 95W
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74th St NW
73rd St NW
72nd St NW
71st St NW
Co Rd 12
Co Hwy 12
Co Hwy 21 Ave
State Hwy 40
103rd Ave NW
102nd Ave NW
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104th Ave NW
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Feet
LEGEND
Proposed Pipeline Route
Survey Area
Study Area
Oil/Gas Well Location
Water Well Location
Existing Roads
County Boundary
Township/Range
Section
State Land
KLEINFELDER
Bright People. Right Solutions.
LIBERTY MIDSTREAM SOLUTIONS
PROJECT NO. 20192055
CREATED: 01/30/2020
CREATED BY: A. Leonard
CHECKED BY: N. Elzinga
FILE NAME: ND_PSC.mxd
Project Locaiton Map
Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota
FIGURE
1

LMS 388

State of North Dakota
SECRETARY OF STATE

Certificate of Good Standing
of
LIBERTY MIDSTREAM SOLUTIONS, LLC

SOS Control ID#: 0000142217

Certificate #: 017785124

The undersigned, as Secretary of State of the state of North Dakota, hereby certifies that, according to the records of this office,

LIBERTY MIDSTREAM SOLUTIONS, LLC

a Limited Liability Company - Business - Foreign was formed under the laws of DELAWARE and filed with this office effective November 21, 2014. This entity has, as of the date set forth below, complied with all applicable North Dakota laws.

ACCORDINGLY, the undersigned, as such Secretary of State, and by virtue of the authority vested in him by law, hereby issues this Certificate of Good Standing.

DATE: January 27, 2020

Alvin A. Jaeger
Secretary of State

Fredrikson & BYRON, P.A.

February 6, 2020

HAND DELIVERED

Mr. Steve Kahl
Interim Executive Director
North Dakota Public Service Commission
600 E. Boulevard, Dept. 408
Bismarck, ND 58505-0480

RE: Case No. PU-20-022
Liberty Midstream Solutions, LLC
8-inch Alliance Pipeline

Dear Mr. Kahl:

As a follow up to my letter dated January 31, 2020, Liberty Midstream Solutions, LLC ("Liberty") submits the following in response to the North Dakota Public Service Commission's ("Commission") request for additional information in the above-referenced case:

1. An updated eight and one-half-inch by eleven-inch black and white map suitable for newspaper publication depicting the site area is enclosed herewith.

2. A compact disc containing the requested GIS layers is enclosed herewith.

3. With respect to the information requested in paragraph 3 of Mr. Adam Renfandt's letter dated January 23, 2020, Liberty responds as follows:

   The proposed 4.7-mile Alliance Sales Line would cross through agricultural and rural ranch land for the majority of the route. Liberty has acquired 100 percent of the right-of-way (ROW) from the landowners to date, and arrangements have been made in regard to protecting the ability to continue agricultural and ranching uses of the land. During easement negotiations, landowners were informed of the easement conditions and restrictions. Landowners have been compensated for the easement and will be compensated for damages resulting from construction of the Project.

   The construction of the proposed pipeline will temporarily affect the ability of the affected landowners to cultivate the land within the ROW.

Attorneys & Advisors
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Fredrikson & Byron, P.A.
1133 College Drive, Suite 1000
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58501-1215

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The period of construction is anticipated to be 8 weeks. During construction Liberty will employ several construction standards and policies to help preserve the integrity of agricultural and ranch land affected by the project. These include:

- **Soil Removal and Replacement** – Liberty will conduct topsoil stripping to the actual depth of topsoil, not to exceed 12 inches, along the construction ROW. The topsoil will be stored in a windrow parallel to the pipeline trench in such a manner that it will not become intermixed with subsoil materials. All subsoil material that is removed from the trench will be placed in a second windrow parallel to the pipeline trench that is separate from the topsoil windrow. In backfilling the trench, the stockpiled subsoil material will be placed back into the trench before replacing the topsoil. The topsoil will be replaced so that after settling occurs, the topsoil's original depth and contour will be restored.

- **Compaction, Rutting, Fertilization, and Liming** – In all agricultural sections of the ROW that were traversed by vehicles and construction equipment, where topsoil is stripped and prior to topsoil replacement, the subsoil shall be fractured by deep ripping to a depth of 16 inches below the surface of the subsoil with the appropriate agricultural ripper. Subsurface features (i.e. drain tiles, other utilities) may warrant less depth. The ripper shall have maximum teeth spacing of 24 inches. The ripping shall be performed at two opposing angles to the pipeline. The entire ROW will then be finish tilled. Sufficient passes will be made across any agricultural land that is ripped, in order to leave a proper seed bed. Ripping and disking will be done at a time when the soil is dry enough for normal tillage operations to occur on undisturbed farmland adjacent to the areas to be ripped. Liberty will restore all compacted or rutted land as near as practicable to its original condition.

    - If yield deficiencies are caused by pipeline construction, the cost of applying fertilizer or manure to remedy soil nutrient levels will be paid to the landowner, thereby allowing the landowner to apply the appropriate type and amounts of fertilizer or manure as needed.

- **Land Leveling** – Following the completion of the pipeline, Liberty will restore any ROW to its original pre-construction elevation and contour should uneven settling

occur, or surface drainage problems develop as a result of pipeline construction.

- **Repair of Damaged Soil Conservation Practices** – All soil conservation practices (such as spring developments and pipelines, terraces, grassed waterways, critical area seedings, etc.), which are damaged by the pipeline's construction, will be restored to their pre-construction condition.

- **Weed Control** – Liberty will provide for weed control in a manner that prevents the spread of weeds onto adjacent lands used for agricultural purposes. Spraying will be done by a pesticide applicator that is appropriately licensed for doing such work in the state of North Dakota.

Once construction of the pipeline is completed, the landowners will be able to resume agricultural and ranching land uses over the Alliance Sales Line ROW. Maintenance of the pipeline during the operation phase of the work will be minimal and will primarily consist of monitoring the pipeline inlet pressure at the existing Liberty County Line Gas Plant. Trips out to the pipeline ROW would primarily be conducted in response to an emergency or spill. Routine drive by inspections of the ROW may be necessary to be sure the ROW is being maintained, but would not interfere with the landowner's ability to continue to utilize the land for agricultural and ranching uses.

By implementing these practices during construction and operation of the pipeline, the effects of the project will be managed and maintained at an acceptable minimum in regard to agricultural production and family farms and ranches.

4. With respect to the information requested in paragraph 6 of Mr. Adam Renfandt's letter dated January 23, 2020, Liberty will provide the Commission with a response on or before February 14, 2020.

Should have any questions, please advise.

Sincerely,

LAWRENCE BENDER

LB/tjg
Enclosures

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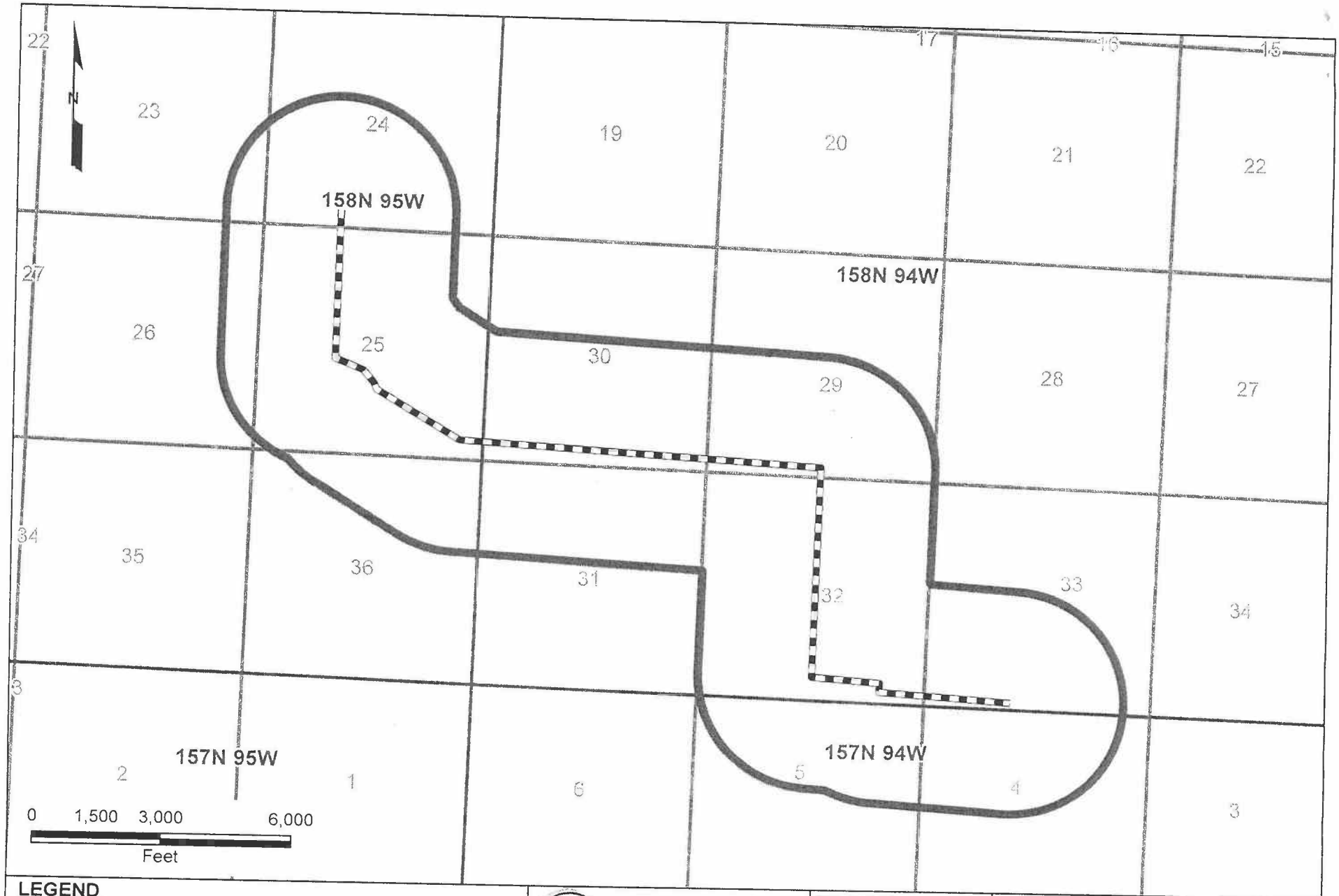


LEGEND

- Proposed Pipeline Route
- Section
- Study Area
- Township/Range

The information included on this graphic representation has been compiled from a variety of sources and is subject to change without notice. Kleinfelder makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. This document is not intended for use as a land survey product nor is it designed or intended as a construction design document. The use or misuse of the information contained on this graphic representation is at the sole risk of the party using or misusing the information.

KLEINFELDER
Bright People. Right Solutions.

LIBERTY MIDSTREAM SOLUTIONS

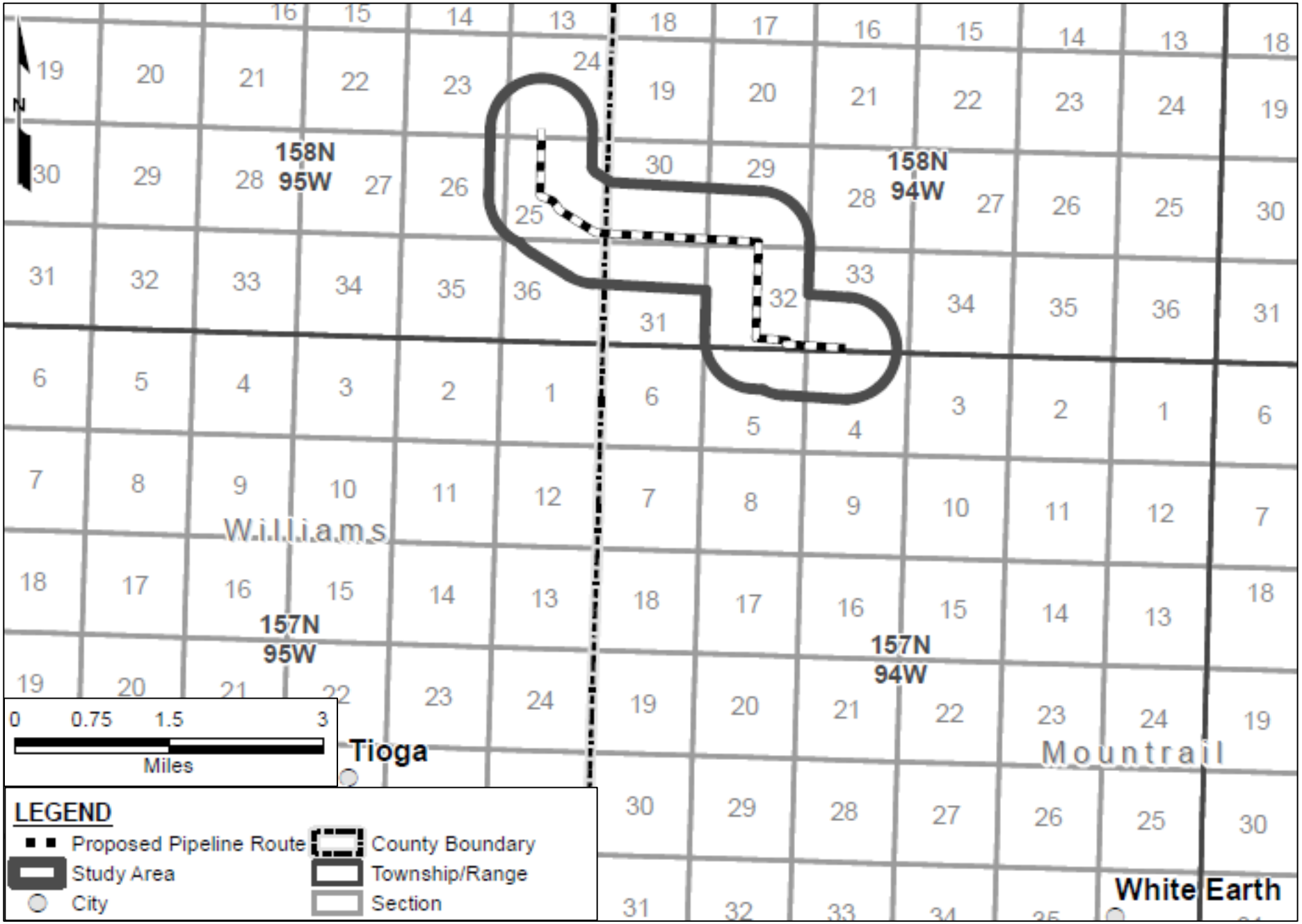
PROJECT NO.	20192055
DRAWN:	02/05/2020
DRAWN BY:	A.Leonard
CHECKED BY:	N. Elzinga
FILE NAME:	ProjectArea_1.mxd

Project Location Map

Liberty Midstream Solutions, LLC
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

FIGURE 1

LMS 393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LEGEND
Proposed Pipeline Route
Study Area
City
County Boundary
Township/Range
Section

LMS 394

Fredrikson & BYRON, P.A.

March 13, 2020

HAND DELIVERED

Mr. Steve Kahl
Interim Executive Director
North Dakota Public Service Commission
600 E. Boulevard, Dept. 408
Bismarck, ND 58505-0480

RE: Case No. PU-20-022
OAH File No. 20200058
Liberty Midstream Solutions, LLC
8-inch Alliance Pipeline

Dear Mr. Kahl:

Please find enclosed for filing in the above-referenced matter an original and ten (10) copies of the following documents:

1. Consolidated response of Liberty Midstream Solutions, LLC to the requests for additional information submitted by the North Dakota Public Service Commission ("Commission") in its letters dated January 23, 2020 and February 7, 2020;

2. Compact disc containing the GIS layers requested by the Commission in its February 7, 2020 letter; and

3. Certificate of Service.

A compact disc containing PDF copies of the documents set forth in paragraphs 1 and 3, above, is also enclosed herewith.

Should have any questions, please advise.

Sincerely,

LAWRENCE BENDER

LB/tjg

Enclosures

69564482.1

Liberty Midstream Solutions, LLC Alliance Sales Line PU-20-022 Response to ND PSC Staff's January 23, 2020 and February 7, 2020 Information Request			
Item	***Request for Information***	***Response***	***Attachment***
January 23, 2020 Information Request			
6	**The following Project control documents, and for those not complete, provide the status and completion date(s):**		
6a	10-year spill history report	Liberty Midstream Solutions' 10-year spill history is included as Attachment 1 to this response.	Yes
6b	Construction and Environment Program Plan	Construction and environmental controls are included in the Project SWPPP included as an attachment to this response. The SWPPP was submitted as Appendix B of the original Consolidated Application.	No
6c	Erosion Control Plan	Erosion control details are included in the Project SWPPP which was included as Appendix B of the original Consolidated Application.	No
6d	Horizontal Directional Drilling inadvertent release control and mitigation contingency plan	N/A	No
6e	Revegetation Plan	Revegetation details were included in the Project SWPPP which was included as Appendix B of the original Consolidated Application. Liberty will work with each landowner to revegetate per their direction. Typically, cultivated lands are taken care of by the landowners and the non-cultivated lands will be re-seeded with the native seed mix included in the Project SWPPP	No
6f	Weed Management Plan	A Weed Management Plan for the Project is included as Attachment 2 to this response.	Yes
6g	Dust Control Plan	A Dust Control Plan for the Project is included as Attachment 3 to this response.	Yes

Liberty Midstream Solutions, LLC Alliance Sales Line PU-20-022 Response to ND PSC Staff's January 23, 2020 and February 7, 2020 Information Request			
Item	***Request for Information***	***Response***	***Attachment***
6h	Environmental Training Plan	Prior to commencing construction of the Project, Liberty Midstream will conduct a comprehensive environmental training for all Project personnel and contractors who will be working in the field. Liberty Midstream will conduct a Project-specific training presentation for Project personnel that covers all aspects of environmental expectations, regulations, and Liberty Midstream policy. Topics covered will include General Guidelines & Contractor Expectations, Project Staff, Project Permits and Plans, Compliance and Mitigation Measures, Migratory Bird Treaty Act, Cultural Resources and Unanticipated Discoveries, Environmentally Sensitive Areas, and Public Relations. An open question and answer session will be provided to ensure contractors and all Project personnel have an understanding of Project-related environmental requirements and processes.	No
6i	Baseline soil analysis used for determining topsoil depth along the Project route	A baseline soil analysis has not been conducted. Topsoil depth will be estimated in the field using best practices and provided to the Commission.	No
7	All correspondence with the North Dakota Geological Survey	A letter was sent to the North Dakota Geological Survey on February 4, 2020. It is included as Attachment 4 to this response. A response from the North Dakota Geological Survey has not been received to date.	Yes
February 7, 2020 Information Request			
In order to deliver notification of Liberty Midstream Solutions' siting application regarding the 8-inch residue gas pipeline project, provide the Commission with the following as soon as possible:			
7	Each GIS layer under the NLCD Legend located on Figure A-3 of Appendix A of the Consolidated Application of Corridor Compatibility and Route Permit.	The requested GIS layer is included with this submittal.	Sent via email
8	Each GIS layer under the Soils Legend located on Figure A-5 of Appendix A of the Consolidated Application of Corridor Compatibility and Route Permit.	The requested GIS layer is included with this submittal.	Sent via email

Liberty Midstream Solutions, LLC Alliance Sales Line PU-20-022 Response to ND PSC Staff's January 23, 2020 and February 7, 2020 Information Request			
Item	***Request for Information***	***Response***	***Attachment***
9	The GIS layer for the Soil Unit Boundary located on Figure A-4 of Appendix F of the Consolidated Application of Corridor Compatibility and Route Permit.	The requested GIS layer is included with this submittal.	Sent via email
10	Table 5 of the Natural Resources Report located in Appendix F of the Consolidated Application of Corridor Compatibility and Route Permit lists Woody Vegetation (VW) identifications as VW1 and WV2. Section 3.2.3 reads that the sample points are located on the Appendix A figures. Please provide the location labels of these points on the Appendix A figures.	The reference to "Appendix A Figures" was to Appendix A of the Natural Resources Report, on which the Woody Vegetation (WV1 and WV2) are labeled (Figure A-2). For your review, Figure A-2 from the Natural Resources Report is included as Attachment 5 to this response.	Yes
11	An eight and one-half-inch by eleven-inch black and white map suitable for newspaper publication depicting the site area, county names and dividing lines, and the cities of Tioga and White Earth, North Dakota. The text, features, and landmarks should be sufficient size that when the map is reduced in size to 3 columns wide in landscape mode should be of sufficient size to be legible. The submitted map should be 8.5 inches by 11 inches.	The map for newspaper publication for the Project was submitted to the PSC in February 2020.	No

Attachment 1
LMS 10-Year Spill History Report

Liberty Midstream Solutions, LLC 10-Year Spill History Report						
Event Date	**Event Title**	**Report**	**Agency Notified**	**Estimated Quantity (bbls)**	**Contained on Site?**	**Materials**
8/31/2017	Release	Pipeline valve leak during pigging operations, release of approximately 1 bbl on pipeline ROW.	DMR	1	Yes	Condensate/water
9/10/2017	Release	Hose connection rupture, resulting in 90 bbls released onto location.	DMR	90	Yes	Brine
1/21/2018	Release	Line strike during boring operation causing release of produced water.	DMR	125	Yes	Brine
3/29/2018	Release	Fiberglass line break at saltwater disposal facility, resulting in 390 bbls released into secondary containment.	DMR	390	Yes	Brine
6/10/2018	Release	Cap on a produced water filter housing came loose, releasing 168 Bbls of produced water. 160 bbls contained in secondary containment, remainder was contained on site.	DMR	168	Yes	Brine

Attachment 2
Weed Management Plan

Alliance Sales Line Project

Weed Management Plan

March 2020

LMS 403

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5.0 NOXIOUS WEED SPECIES MANAGEMENT **2**
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ATTACHMENTS

Attachment 1 Noxious Weed Fact Sheets – North Dakota State University

LIST OF ACRONYMS AND ABBREVIATIONS

EI	Environmental Inspectors
LMS	Liberty Midstream Solutions LLC
Plan	Weed Management Plan
Project	Alliance Sales Line Project
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

Noxious weed control practices for the Liberty Midstream Solutions (LMS) Alliance Sales Line Project (Project) described in this *Weed Management Plan (Plan)* are being developed in compliance with the Williams County Weed District, the Mountrail County Extension, and the 2020 North Dakota Weed Control Guide.

2.0 GOALS AND OBJECTIVES

This Plan prescribes methods to prevent and control the spread of noxious weeds during and following construction of the Project. LMS and its contractors will be responsible for implementing the methods described in this Plan.

This Plan is applicable to the construction and operation of the proposed 4.7-mile proposed pipeline right-of-way (ROW) that is disturbed during the construction and operation of the proposed facilities.

3.0 NOTIFICATION AND APPROVAL

LMS will execute the following notification procedure:

1. At least 15 days prior to ground-disturbing activity, submit this Plan and the Project revegetation information included in the Project Stormwater Pollution Prevention Plan (SWPPP) to the Williams County Weed District and the Mountrail County Extension in North Dakota.
2. Allow the County weed agency to identify revisions to bring the Plan into compliance with the district weed management plan.

4.0 NOXIOUS WEED SPECIES LISTS

A weed is commonly defined as a plant that grows out of place. A noxious weed is any plant officially designated by a federal, state, or county government as injurious to public health, agriculture, recreation, wildlife, or property (Sheley, Petroff, and Borman, 1999). Noxious weeds are opportunistic plant species that readily flourish in disturbed areas, thereby preventing native plant species from establishing successive communities.

4.1 North Dakota

Invasive species in North Dakota are controlled and regulated under North Dakota Law (NDCC § 4.1-47-02). Counties and cities have the option to add additional weeds for enforcement only in their jurisdiction.

The State of North Dakota has 13 state-listed noxious weeds:

- Absinth Wormwood (*Artemisia absinthium L.)*
- Canada Thistle (*Cirsium arvense (L.) Scop.*)
- Dalmatian Toadflax (*Linaria genistifolia spp. dalmatica*)
- Diffuse Knapweed (*Centaurea diffusa Lam.*)
- Houndstongue (*Cynoglossum officinale L.*)
- Leafy Spurge (*Euphorbia esula L.*)
- Musk Thistle (*Carduus nutans L.*)
- Palmer amaranth (*Amaranthus palmeri*)
- Purple Loosestrife (*Lythrum salicaria L., Lythrum virgatum L.,* and all cultivars)
- Russian Knapweed (*Centaurea repens L.*)

- Saltcedar (*Tamarisk spp.*)
- Spotted Knapweed (*Centaurea maculosa Lam.*)
- Yellow Toadflax (*Linaria vulgaris*)

Williams County, North Dakota recognizes the following additional plant as an invasive weed:

- Narrowleaf Hawksbeard (*Crepis tectorum*)

Mountrail County, North Dakota recognizes the following additional plant as an invasive weed:

- Common tansy (*Tanacetum vulgare L.*)

To comply with North Dakota Law (NDCC § 4.1-47-02), LMS has prepared this Plan specifying the weed management procedures to be implemented. **Attachment 1** to this Weed Management Plan includes the fact sheets for the *Identification and Control of Invasive and Troublesome Weeds in North Dakota* developed by the North Dakota State University (NDSU) for each of the species listed above. Regulations also require that LMS reseed, plant, or otherwise manage the area to establish a beneficial plant cover. To this end, LMS has included the methods to be used to accomplish revegetation, the time and method of seeding, fertilization practices, and recommended plant species for the Project in the Project SWPPP document.

5.0 NOXIOUS WEED SPECIES MANAGEMENT

This Plan is designed to:

- Treat specific infestation areas as recommended by weed districts prior to construction, pending seasonal limitations;
- Prevent the introduction and spread of weeds via construction equipment during construction;
- Contain weed seeds and propagules by preventing segregated topsoil from being spread to adjacent areas; and
- Treat infestations that may develop during operations.

5.1 Identification of Problem Areas

LMS will work with the County Weed Control Board to identify known locations of weed infestations in the Project area. In addition to infestation areas identified by the weed districts and landowners, additional areas containing noxious species may be identified prior to construction by the Environmental Inspectors (EI), which will be demarcated using color-coded flagging or signage along the ROW. Identification of existing noxious weed locations will alert environmental inspection and construction personnel to implement weed control measures during construction.

5.2 Treatment Measures

LMS will implement weed control at identified infestation areas based on County weed agency input or by the EIs. Weed control measures may include the application of herbicide or mechanical, and/or alternative methods. The weed control measure chosen will be the best method available for the time, place, and species of weed as identified through consultation with the appropriate regulatory agencies. LMS will follow the treatment measures listed on the Fact Sheets for each of the species of concern included in **Attachment 1**.

Herbicide application is an effective means of reducing the size of weed populations. Herbicide treatment methods will be based on species-specific and area-specific conditions (e.g., proximity to

wetlands, open water, riparian areas or agricultural areas, and time of year) and will be applied in accordance to the *2020 North Dakota Weed Control Guide* (available online). Spot herbicide applications will be the preferred option. In areas of dense infestation, a broader application may be used. Pending the seasonal start of construction, preconstruction treatment of infestation areas may be conducted and will be controlled as described in Section 7.1, to minimize the impacts on the surrounding vegetation. Preconstruction applications will be completed in accordance with applicable chemical contact times (as specified by the manufacturer) in advance of clearing and grading within the construction ROW. Treatment may be restricted in areas that are not readily accessible (e.g., difficult topography, saturated/inundated soils, etc.).

Mechanical control (e.g., mowing) can also be an effective control measure specifically for annual species (i.e., not for perennial rhizomatous species). The efficacy of mechanical control measures is dependent upon proper timing to cut the vegetation prior to the maturation of seed and may require multiple treatments during the growing season.

5.3 Preventative Measures

The following measures will be implemented to prevent the spread of noxious weeds.

- Prior to the beginning of construction of the Project, all contractor vehicles and equipment (including timber mats) will be cleaned of soil and debris capable of transporting weed propagules. The contractor will maintain logs documenting the cleaning history of each piece of equipment and will make logs available to LMS, upon request. Contractor vehicles and equipment will be inspected and may require additional cleaning, if necessary, prior to mobilization to the Project ROW. Cleaning will be conducted using high pressure washing equipment or compressed air, and/or manually remove excess soil from the tracks, tires, and blades of equipment.
- Areas of the ROW where weed infestations are identified will be clearly marked prior to construction. In these areas, the contractor may elect to conduct full topsoil stripping and will stockpile cleared vegetation and segregated topsoil within the Site. The stockpiles will be identified as noxious weed stockpiles with signs and be maintained adjacent to the areas from which they were obtained to eliminate the transport of soil-borne noxious weed propagules to other areas within the ROW. During reclamation, the contractor will return topsoil and vegetative material to the areas from which they were obtained. Alternately, for annual weed species the contractor may elect to mow the infested area before the species begins seeding, thus eliminating the threat of spreading seeds during topsoiling and construction.
- In areas where full topsoil stripping is implemented, equipment required for initial vegetation clearing and topsoil segregation will be cleaned using one of the methods described above prior to leaving the area. Once the topsoil has been segregated, subsequent equipment will not require cleaning, as it will not come into contact with noxious weeds or the topsoil containing weed seeds and propagules.
- The contractor will ensure straw bales used to construct sediment control devices or used as mulch applications are certified weed free and obtained from approved certified sources as recommended by the County weed agency.
- The contractor will ensure seed mixes and mulching materials used for revegetation are certified weed free and obtained from approved certified sources as recommended by County

weed agencies.

5.4 Post-Construction Treatment Methods

LMS's objective is to comply with the requirements to prevent the spread of noxious weeds and treat areas of the ROW where weed species form a significant portion of the vegetation community in comparison to adjacent undisturbed areas.

In the event noxious weed species become established in the ROW, LMS will make good faith efforts to control weeds within the Project Site and to work with adjacent landowners to prevent the spread of the species to adjacent lands. Post-construction weed control measures may include the application of herbicide or mechanical methods. LMS will control noxious weed species at LMS-managed ROW to prevent the spread onto adjacent properties.

Post-construction herbicide applications will be conducted prior to seed maturation where possible. Applications will be controlled, as described in Section 7, to minimize the impacts on the surrounding vegetation. As discussed in Section 5.2, herbicide treatment methods will be based on species-specific and area-specific conditions (e.g., proximity to water, riparian areas or agricultural areas, and time of year) and will be coordinated with the local county and regulatory agencies. Spot herbicide applications will be the preferred option. In areas of dense infestation, a broader application will be used and a follow-up seeding program implemented according to revegetation measures discussed in the Project SWPPP. The timing of subsequent revegetation efforts will be based on the persistence of the selected herbicide. LMS will communicate with a designated representative of each county to inform them of the location and type of treatment administered by LMS or its contractor.

Mechanical methods entail the use of equipment to mow weed populations for annual species (i.e., not for perennial rhizomatous species). Mechanical treatments will be conducted prior to seed maturation where required. If such a method is used, subsequent seeding will be conducted if necessary to re-establish a desirable vegetative cover that will stabilize the soils and slow the potential re-invasion of weeds.

During routine operations activities, if noxious weed species are identified that are not listed on the county or state weed lists, LMS will treat the affected area as quickly as possible by means of chemical, cultural, or biological control measures.

6.0 MONITORING

EIs will periodically monitor the ROW to capture revegetation growth. Should the EIs identify noxious weed populations in the ROW, they will report their findings to the LMS operations and maintenance division to determine the appropriate action to control the spread of the weeds. Noxious weed management will be conducted in accordance with state and county regulations.

7.0 HERBICIDE USE

7.1 Herbicide Application and Handling

Herbicide application will be based on information gathered from consultations with local weed districts and state agencies. Before application, LMS or its contractor will obtain required permits from the local weed district or the state agency. Herbicide application will be conducted in accordance with applicable laws and regulations by a state-licensed contractor

All herbicide applications will follow United States Environmental Protection Agency (USEPA) label

instructions. Application of herbicides will be suspended when any of the following conditions exists:

- Wind velocity exceeds 6 miles per hour during application of liquid or granular herbicides;
- Snow or ice covers the foliage of noxious weeds; or
- Precipitation is occurring or is imminent.

Vehicle-mounted sprayers (e.g., handgun, boom, and injector) may be used mainly in open areas that are readily accessible by vehicle. Hand application methods (e.g., backpack spraying) that target individual plants may be used to treat small or scattered weed populations or in rough terrain. Calibration checks of equipment will be conducted at the beginning of spraying and periodically to ensure that proper application rates are achieved.

Herbicides will be transported to the Project Site daily with the following provisions:

- On-site herbicide quantities will be limited where practical;
- Concentrate will be transported in approved containers only, in a manner that will prevent tipping or spilling, and in a compartment that is isolated from food, clothing, and safety equipment;
- Mixing will be conducted in an upland area at a distance greater than 100 feet from open or flowing water and wetlands, greater than 200 feet from private wells, and greater than 400 feet from public wells. The property owner would be consulted about the presence and location of wells prior to herbicide application; and
- All herbicide equipment and containers will be maintained as needed and inspected for leaks daily.

7.2 Herbicide Spills and Cleanup

LMS incorporates all reasonable precautions to be taken to avoid spills of potentially hazardous materials. In the event of a spill, cleanup will be immediate and will be conducted in accordance with the Spill Response (Section 2.2.1) referenced in the SWPPP.

7.3 Worker Safety and Spill Reporting

All herbicide contractors will obtain and have readily available copies of the appropriate safety data sheets and the herbicide labels for the herbicides used. All herbicide spills will be reported in accordance with applicable laws and requirements. Further information regarding spill response and reporting is detailed in the SWPPP.

Attachment 1
Noxious Weed Fact Sheets – North Dakota State University

ABSINTH WORMWOOD

(*Artemisia absinthium* L.)

ABSINTH WORMWOOD

State Listed Noxious Weed

Absinth wormwood is a member of the sagebrush family, which is easily recognized by the strong sage odor. The plant also is known as American or common wormwood, mugwort or madderwort, and wormwood sage. Unlike other plants in the sagebrush family, absinth wormwood dies back to the root crown each winter, with new shoots emerging each spring. Absinth wormwood is grown in herb gardens for the sage flavor of the leaves. The young flower heads are the source of aromatic oil used to prepare vermouth and absinth. The oil of absinth wormwood is also an active ingredient in antiseptic liniments.

Identification and growth form:

Absinth wormwood is a perennial fragrant forb or herb. The plant commonly grows 3 to 5 feet tall at maturity. Absinth wormwood is woody at the base and regrows from the soil level each spring from a large taproot. Leaves are light to olive green, 2 to 5 inches long and divided two or three times into deeply lobed leaflets. Leaves and stems are covered with fine, silky hairs that give the plant a grayish appearance. Flower stalks appear at each upper leaf node and produce numerous yellow flower heads 1/8 inch in diameter, which appear from late July through mid-August in North Dakota. Each fruit contains one seed, which is less than 1/16 inch long, smooth, flattened and light gray-brown. These small seeds are scattered easily by wind, water and animals, and in hay. Absinth wormwood is a prolific seed producer but also can spread by short roots. The plant is most often found on dry soils, in overgrazed pasture and rangeland, wastelands and roadsides.

Why is this plant a concern?

Absinth wormwood causes economic losses by reducing available forage, tainting the milk of cattle that graze it, and medically as a pollen source for allergies and asthma. Absinth wormwood can reduce forage production severely in pasture and rangeland and is especially troublesome when land is overgrazed. Allergy sufferers should avoid walking through absinth wormwood infestations when the plant is flowering in late July and August.

How do I control this plant?

Chemical. A variety of auxin-type herbicides, including products that contain clopyralid (Stinger, Transline or Curtail), dicamba (various), Milestone (aminopyralid), 2,4-D, Tordon (picloram) and glyphosate (various), will control absinth wormwood. These herbicides should be applied when the plant is at least 12 inches tall and actively growing. Herbicides applied too early in the growing season generally result in poor control. If a fall treatment is desired, the plants should be mowed in early to midsummer to promote active regrowth and to improve herbicide coverage.

Cultural. Livestock generally will not graze absinth wormwood except in early spring. Mowing and cultivation do not control this weed.

Biological. No biological control agents or pathogens are available for this weed.

CANADA THISTLE

[*Cirsium arvense* (L.) Scop.]

Female flower

Male flower

LMS 413

CANADA THISTLE

State Listed Noxious Weed

Canada thistle was introduced in North America as a seed contaminant in both French and British colonies. The first legislation to control the weed was passed by Vermont in 1795. Canada thistle has the dubious distinction of being one of three weeds listed in 1885 by Dakota Territory as required of "every person" to be destroyed. The native distribution of Canada thistle includes Europe, North Africa and central Asia. It also is found in China and Japan and has spread so extensively that it is difficult to distinguish the plant's original native range. Canada thistle is considered to be naturalized in the northern Great Plains

Identification and growth form:

Canada thistle is a long-lived perennial that usually grows 2 to 3 feet tall and bears alternate, dark green leaves that vary in size. The leaves are oblong, usually deeply cut, and have spiny, toothed edges. Canada thistle has small (3/4 inch diameter), compact flower heads that appear on the upper stems.

Canada thistle has been classified into several varieties. Within these varieties are many ecotypes, which differ in growth characteristics, response to day length, and susceptibility to herbicides and cultivation. For example, leaf shape, head structure, and the number and size of spines can differ with ecotypes. Canada thistle requires a 14- to 16-hour photoperiod to bolt and flower (April 19 to Aug. 22 in North Dakota). Flower color can range from purple to light lavender or even white. Stem color also can differ from green to lavender.

Flowering occurs from June to September. Male and female flowers are produced on different plants, so cross-pollination is necessary for seed production. Flowers produce from 40 to 80 seeds per head, which can move long distances, although most seed remain in the head until winter and eventually germinate nearby.

The smooth, light brown seeds (achenes) have a conical point and are loosely attached to a tannish pappus at the tip, which aids in seed dispersal by wind. Seeds mature rapidly and are able to germinate within eight to 10 days after pollination. Canada thistle overwinters in the rosette growth stage.

Canada thistle has an extensive underground root system that may penetrate the soil to a depth of 10 feet or more and grow laterally 12 to 15 feet per year. Root buds occur randomly along the roots and initiate new shoots whenever environmental conditions are favorable. Root segments as small as 0.6 inch can initiate shoot growth and become established. Canada thistle is adapted to a wide range of soils, but it produces deeper roots in clay or muck soils than in sand, gravel or limestone soils.

Root bud development can occur nearly anytime during the growing season, but is greatest when soil temperatures are warm, air temperatures are cool and the photoperiod shortens to 13 hours. These conditions generally are found during the fall growing season. Therefore, more Canada thistle root-bud development occurs in the fall than any other time of the year. Canada thistle grows best in the northern regions of North America where temperature and rainfall are moderate. Growth ceases when temperatures exceed 85 degrees for extended periods.

Why is this plant a concern?

Canada thistle has the potential to form dense infestations rapidly through vegetative reproduction, and the spread of these clones may continue indefinitely, crowding out and displacing native grasses and forbs through shading, competition and possibly allelopathy. Canada thistle spread can change structure and species composition of natural areas and reduce plant and animal diversity. Infestations of Canada thistle may contribute to the elimination of endangered and/or endemic plant species. In wildlands, Canada thistle has the potential to increase fire frequency and perhaps severity as a result of its abundant and readily ignited litter and flammable above-ground biomass.

Canada thistle can reduce yield of many crops severely. Yield losses are directly proportional to the density and patchiness of the infestation, with more than $40 million annually lost in production in North Dakota alone. Wheat is a poor competitor and Canada thistle infestations often increase in a continuous-wheat farming program. Canada thistle also can be a severe problem in corn and soybean grown in rotation, with greater losses in soybean than corn.

CANADA THISTLE

How do I control this plant?

Canada thistle is the only thistle in North Dakota that has become a cropland pest. Control strategies differ for Canada thistle in cropland compared with pasture, range and wildland.

Chemical. *Cropland.* The best approach to Canada thistle control in cropland should include an in-crop herbicide treatment to suppress Canada thistle growth, minimize crop yield losses and prepare the thistle for a fall postharvest treatment. Preharvest and fall-applied treatments provide the most effective long-term control. The best herbicide to use will vary depending on crop rotation. However, the control program must be uninterrupted for two to three years if the infestation is to be reduced.

Glyphosate (various trade names) can be used to control Canada thistle in glyphosate-resistant crops. In-crop applications will not kill established thistle stands. However, when used as part of an overall management program, glyphosate can reduce infestations.

Pasture, range and wildlands. Herbicides that control Canada thistle in noncropland include products that contain clopyralid (various), Tordon (picloram), dicamba (various) dicamba plus diflufenzopyr (Overdrive), Method (aminocyclopyrachlor) and Milestone (aminopyralid). Control is greatest when applied to Canada thistle at the early bud growth stage (early summer) or in the fall to plants in the rosette form. These herbicides applied at low rates may be the most cost-effective method for controlling dense infestations that require broadcast application. Re-treatment will be necessary for several years to obtain long-term control.

Cultural. *Cropland.* Canada thistle roots are much less winter hardy then many other perennial weeds and timely cultivation actually can increase winter kill. Soil temperatures of 20 degrees or colder can reduce Canada thistle regrowth from roots by more than 50 percent. Following crop harvest, cultivate fields before the Canada thistle is 3 inches tall and repeat before regrowth reaches 3 inches tall until freeze-up. This method has the combined advantage of decreasing carbohydrate root reserves and the bare ground from the tillage will lead to colder soil temperatures, which increases winter-kill.

An option for Canada thistle in row crops and fallow that includes both tillage and herbicides is known as the rosette technique. The objective is to prevent the plants from bolting by using tillage and/or herbicide treatments until the day length is less than 15 hours, the photoperiod required for most Canada thistle plants to bolt. The thistles then will regrow as rosettes only. Research at North Dakota State University has found herbicide absorption and translocation to the roots of Canada thistle is greater when applied to the rosette growth stage than when applied to bolted plants, making fall treatment of rosettes the most cost-effective method for long-term Canada thistle control.

The rosette technique for Canada thistle control in fallow includes the use of tillage and fall-applied herbicides, while control in row crops includes in-crop herbicide treatments, tillage and fall-applied herbicides. Periodic tillage in fallow is used to control Canada thistle shoots and other weeds until late July, when the day length is less than 15 hours. Herbicides used for Canada thistle control, such as glyphosate or clopyralid, then are applied to rosettes in late September or early October. Research at NDSU has found that cultivation until late June prevented more than 90 percent of Canada thistle from bolting in corn and soybean.

CANADA THISTLE

Pasture, range, and wildlands. Repeated mowing will reduce Canada thistle infestations. Mow whenever the plants are in the early bud growth stage to prevent seed-set. Several mowings a year are needed because plant populations vary in maturity. Mow as close to the surface as possible. If plants are cut above the terminal bud before the stems elongate, they likely will regrow. Mowing before the flowers start showing color is important because plants mowed after that likely will produce some viable seed. Mowing for several years will reduce the root vitality of Canada thistle and will prevent seed production, reducing the seed reserve. Mowing should be combined with a chemical control program for best results.

Controlled burns often are used to help restore wildlands to a more natural plant community. Contrary to popular thought, research at North Dakota State University found that fall prescribed burns did not cause a long-term increase in Canada thistle density; rather, Canada thistle emerged earlier in the burned compared with the nonburned areas. The effect was short-lived and Canada thistle densities were similar regardless of burn treatment the second growing season after the burn. Also, no differences in Canada thistle control occurred when herbicides were used alone or combined with a prescribed burn.

Biological. Two biological control agents have been introduced for Canada thistle control, and a third was introduced accidentally. To date, none have been effective at reducing the weed on a large scale. The most widespread insect is *Hadroplontus litura* (formerly *Ceutorhynchus litura*) weevil, which first was released in North Dakota in the 1970s. The larvae feed on the underground parts of Canada thistle for a short time but infestations generally are not reduced. One may take advantage of the early season stress on Canada thistle from *H. litura* feeding by using additional control methods such as mowing or applying herbicides. In addition, natural soil pathogens may become more destructive due to multiple entry sites established by the insect. However, do not expect these insects alone to reduce a Canada thistle infestation.

A gall-producing fly, *Urophora cardui*, causes meristematic galls but does little long-term damage to the perennial thistle. The Canada thistle bud weevil *Larinus planus* was an accidental introduction into North America and is not permitted for distribution. The insect feeds on developing flowers to prevent seed production. Although *L. planus* can survive under a wide range of climates, it has not reduced established Canada thistle stands.

The painted lady butterfly *(Vanessa cardui)* can be a very effective biological control agent but only on an intermittent basis. Larvae of the butterfly feed on Canada thistle plants and can eliminate an infestation. However, the insect generally is found only in southern states such as Arizona and New Mexico and will build up populations large enough to migrate north only once every eight to 11 years. The insect will migrate north as far as Canada and those fortunate enough to reside within the migratory pathway will see a dramatic decrease in the Canada thistle population. Unfortunately, the insect feeds on many plants, including crops such as soybean and sunflower, and is not a candidate for long-term biological control of Canada thistle.

A native pathogen, *Pseudomonas syringae* pv. *tagetis* (Pst), causes the top of Canada thistle plants to turn yellow to white. This pathogen may release a toxin into the phloem of Canada thistle and kill the plant. The pathogen is most widespread during wet periods. Attempts to produce this pathogen as a commercial biocide have not been successful. A native rust (*Puccinia punctiformis*) has reduced Canada thistle in the wild but has not been introduced successfully as an effective biological control agent.

DALMATIAN TOADFLAX and YELLOW TOADFLAX

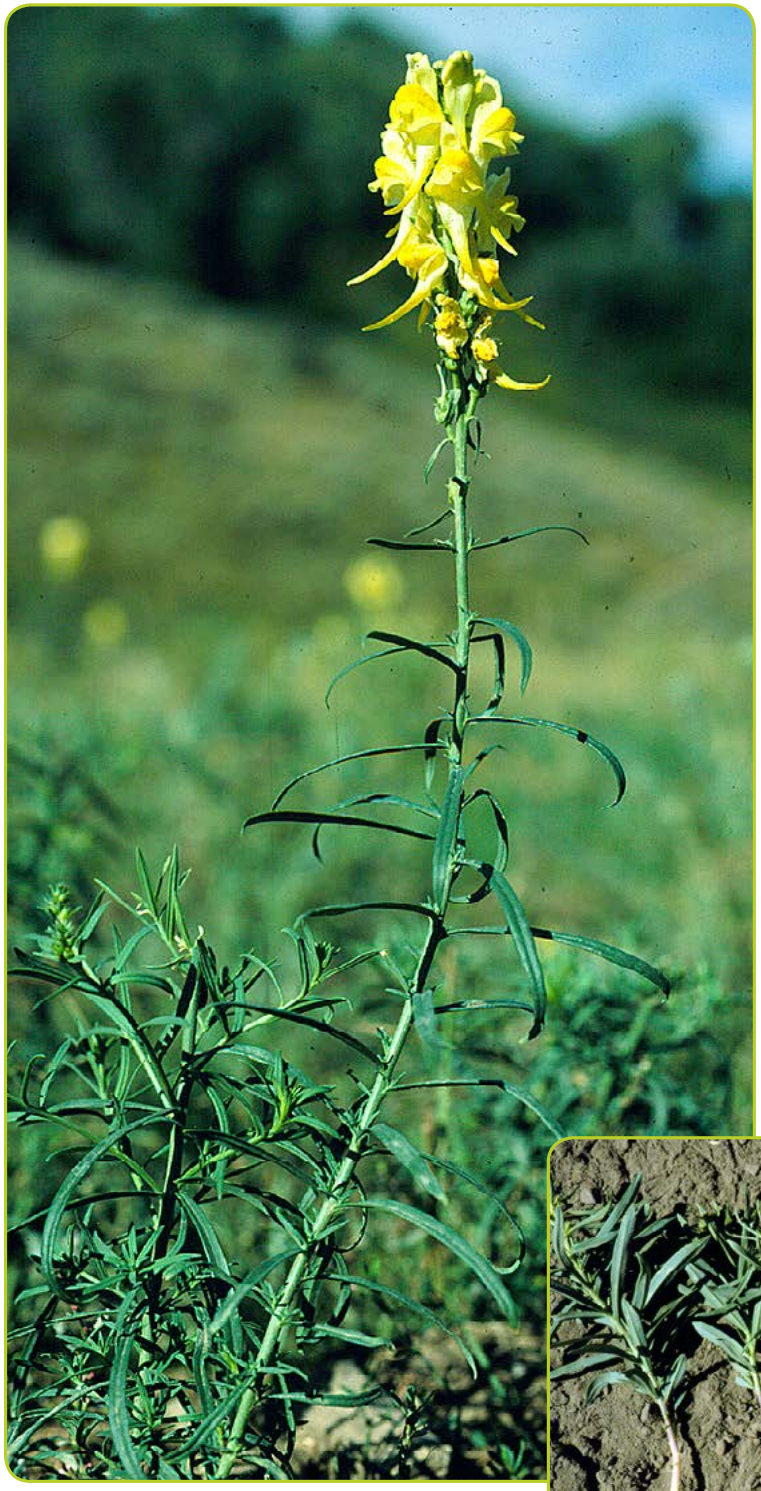
[*Linaria dalmatica* (L.) Mill.] and (*Linaria vulgaris* Mill.)

Dalmatian toadflax

Dalmatian toadflax has broad heart-shaped leaves

LMS 417

DALMATIAN TOADFLAX and YELLOW TOADFLAX



Yellow toadflax

Yellow toadflax has narrow linnear leaves

Yellow toadflax flowers have orange throats

DALMATIAN TOADFLAX and YELLOW TOADFLAX

State Listed Noxious Weed – both species

Both Dalmatian and yellow toadflax are escaped perennial ornamental plants that were introduced in the mid-1800s. Dalmatian toadflax is native to the Mediterranean region, specifically the Dalmatian Coast of Croatia, while yellow toadflax is from Eurasia. Yellow toadflax first was recorded in North Dakota by H.L. Bolley from a collection made in Fargo and described as "most abundant in Barnes County" in the 1940s by O.A. Stevens. The first record of Dalmatian toadflax is from Walhalla in Pembina County in 1937 by Stevens.

The toadflaxes are most likely to be found along highways, railroad tracks and other transportation or communication lines, or anywhere livestock is brought into the state. Often the origins of an infested area can be traced back to an escape from an ornamental planting. Dalmatian toadflax has been reported only as small patches in a few counties, generally in the western part of North Dakota. However, yellow toadflax has been found in many counties across the state and is on the verge of becoming a major problem for land managers in North Dakota.

Identification and growth form:

Dalmatian and yellow toadflax are members of the snapdragon family and thus easily recognizable by the bright yellow flowers, which have swollen corolla tubes that flare into two "lips" with an orange throat (yellow toadflax) and long spur. The flowers are 1 to 1.5 inches long with many flowers on a raceme. Both species have an extensive creeping rhizomatous root system that spreads like leafy spurge. The most distinctive difference between the species is that Dalmatian toadflax has broad, heart-shaped leaves that clasp a woody stem, whereas yellow toadflax has narrow, linear leaves with a narrow stem.

The plants begin regrowth from the roots as soon as the soil warms in early spring. Toadflax flowers from late June through August in North Dakota and single plants may produce more than 500,000 seeds that are dispersed by wind, rain, wildlife, and movement of forage and livestock. The seed is disk-shaped, 0.08 inch in diameter and dark brown to black, and often have irregular papery wings. Seed dispersal begins a few weeks after flowering and continues into winter. The roots of a single plant can extend 10 feet and give rise to daughter plants every few inches.

Why are these plants a concern?

The toadflax species are aggressive and will displace forage in pastureland and native species in wildland. Yellow toadflax can be mildly poisonous to livestock that graze it. Although the toadflaxes may be slow to establish, once plants take root, control is very difficult since most herbicides are ineffective.

Dalmatian toadflax seedlings are relatively poor competitors with grass species, but once established, the weed can become extremely invasive, especially on dryland sites, disturbed areas and roadsides. Yellow toadflax is adapted to more moist sites than Dalmatian toadflax and often is found in pasture, meadows and ditches.

DALMATIAN TOADFLAX and YELLOW TOADFLAX

How do I control these plants?

Prevention is the best method to keep Dalmatian and yellow toadflax from invading North Dakota pasture, rangeland and wildlands. Herbicides can be effective but require repeated treatments at high rates.

Chemical. Tordon (picloram), Plateau (imazapic) and Telar (chlorsulfuron) will control Dalmatian toadflax when applied at maximum use rates during flowering or late fall. No herbicide is labeled for yellow toadflax control, but research has found that a combination treatment of Tordon plus Overdrive (dicamba plus diflufenzopyr) applied from mid-June through mid-September will reduce yellow toadflax infestations for a least two years. See the latest edition of the "North Dakota Weed Control Guide" for application rate and timing recommendations.

Cultural. The long-term use of proper stocking rates to maintain competitive forage species has helped reduce the spread of toadflax into grazing lands. Burning is not effective because soil temperatures do not get high enough to kill the roots. Burning even may have a detrimental effect and cause an increase in the number of stems due to reduced cover.

Biological. Several insects have been introduced for toadflax control. The stem-boring weevil *Mecinus janthiniformis* has been the most successful and can reduce Dalmatian toadflax stands relatively quickly. *M. janthiniformis* larvae mine in Dalmatian toadflax stems, which slowly causes the plants to wilt and die. Repeated attempts to establish *M. janthiniformis* on yellow toadflax in North Dakota have failed, likely because the larvae cannot survive in the much narrower diameter stem of yellow compared with Dalmatian toadflax. *Mecinus janthinus* is currently being evaluated for yellow toadflax control.

A foliage feeding moth, *Calophasie lunula*, was introduced in the U.S. in 1968 but has had little effect on controlling yellow toadflax. Several other insects have been introduced for biological control of both toadflax species but have not established or have not controlled the weeds

SPOTTED and DIFFUSE KNAPWEED

[*Centaurea stoebe* spp. *micranthos* (Gugler) Hyek] and (*C. diffusa* Lam.)

Diffuse knapweed flower with spiny bracts

Spotted and diffuse knapweed

Spotted knapweed flower with black bracts

SPOTTED and DIFFUSE KNAPWEED

State Listed Noxious Weed (both species)

The knapweeds are one of the most rapidly spreading invasive species in the western U.S. Knapweeds already infest more acreage than leafy spurge in Montana and Minnesota, and have been found in more than 25 counties in North Dakota. Knapweeds are related to thistles and can spread even faster. For instance, spotted knapweed infested approximately 25 acres in eight North Dakota counties in 1984 and had spread to more than 1,000 acres in 14 counties by 1997. Diffuse knapweed can spread as quickly as spotted knapweed but has been kept in check in North Dakota and infests less than 650 acres. Spotted knapweed had infested more than 30,000 acres by 2017.

Identification and growth form:

Both are short-lived perennials or sometimes biennial plants reproducing solely by seed. Seed remains viable in the soil five years or more, so infestations may occur a number of years after vegetative plants have been eliminated. The seeds can germinate from spring through early fall. Seedlings emerging in the fall often overwinter as a rosette of leaves, resuming growth again in the spring. The plants grow 2 to 4 feet tall with one or more stems. The leaves are pale green and 3 to 4 inches long. Rosette leaves are deeply lobed. The physical appearance of these two knapweed species is similar, except diffuse knapweed is generally shorter and more highly branched. Plants flower from early July through August and produce 1,000 or more seeds per plant.

These species are distinguished by the bracts below the flower. Spotted knapweed has stiff, black-tipped bracts while diffuse knapweed has a rigid terminal spine about one-third of an inch long with four to five pairs of shorter, lateral spines (crablike). If the plant is not flowering, search for last season's flower stalk and identify the plant based on the flower bracts. Both species have pink to light purple and occasionally white flowers.

Why is this plant a concern?

Spotted and diffuse knapweed are aggressive, introduced weed species that rapidly invade pasture, rangeland and fallow land and cause a serious decline in forage and crop production. Spotted knapweed has few natural enemies and is not preferred by livestock as forage. Knapweed infestations in North Dakota largely can be traced to seed or hay brought in from neighboring states. Researchers in Montana have observed that spotted knapweed may remain in a confined location for several years and then spread rapidly to adjacent areas. Controlling spotted and diffuse knapweed plants when they are first observed and monitoring the site for several years to prevent reinfestation from seed are important

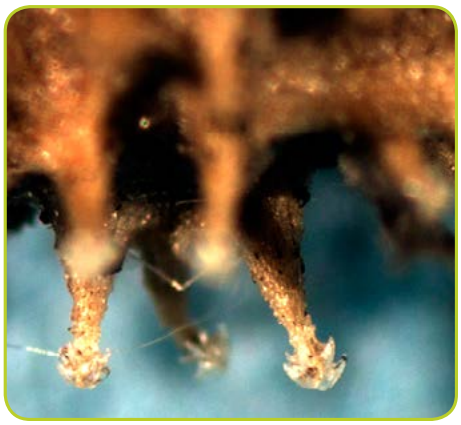
How do I control these plants?

Chemical and Cultural. Spotted and diffuse knapweed confined to small, well-defined areas should be pulled by hand or treated with a herbicide as soon as detected to avoid spread of the weed. First, all visible knapweed plants should be removed and destroyed by burning or mulching. Then the areas should be treated with a herbicide to prevent reinfestation from seedlings. The most effective herbicides for spotted and diffuse knapweed control include Milestone (aminopyralid), Tordon (picloram) and dicamba (various). Treat an extra 10 to 15 feet around the knapweed patches to control seedlings. A careful follow-up program is necessary to control missed plants and seedlings. Many attempts to control knapweed have failed because follow-up treatments were not applied.

Biological. In general, the knapweed infestations are small enough that herbicide and hand removal are the best and most cost-effective treatments in North Dakota. Biological control agents have been introduced in neighboring states to control spotted knapweed. There are 13 biological control agents currently permitted for use against knapweed species. Consult the N.D. Dept. of Agriculture or NDSU weed specialists for the latest information on which agents may be successful in the state

HOUNDSTONGUE

(*Cynoglossum officinale* L.)



HOUNDSTONGUE

State Listed Noxious Weed

Houndstongue is a biennial poisonous herb that is native to Eurasia. The plant is a member of the Borage family, which includes more commonly known plants such as Virginia Bluebells, Forget-Me-Nots and the fiddlenecks. Houndstongue commonly is found in disturbed areas, including roadsides, trails, and in pasture and woodlands following soil disturbance or overgrazing.

Identification and growth form:

Houndstongue is a biennial that forms a rosette the first year of growth and bolts and flowers the second season. The plant only reproduces from seed, but can spread great distances because the barbs on the nutlets cling to clothing, machinery and animals. The leaves are oblong, very pubescent and rough, which resembles a hound's tongue. Plants bolt during early summer, the second year of growth, to a height of 1 to 4 feet and flower in mid-June. The flowers are small, arranged in clusters and not showy. Flower color ranges from red to burgundy. Each flower produces three to four nutlets, which are flat and tear-drop shaped with a very hard seed coat and numerous barbs. Plants generally are found along trails and roadsides, on the edge of wooded areas and in disturbed habitats. Infestations often establish near areas where cattle and other livestock rub against something such as fence posts and trees or shrubs.

Why is this plant a concern?

Houndstongue tends to be a nuisance weed rather than a noxious plant unless infestations grow to become large patches. The nutlets often become imbedded in the wool or hair of livestock, which can cause a loss of value of the wool and/or increase costs to remove the burs. Eye damage can occur if burs become embedded in the eye or eyelids. The burs can be problematic for hikers, hunters and fishermen and also to their pets.

Houndstongue contains alkaloids that are especially toxic to cattle and horses. The plant is rarely eaten in the green state; however, animals will eat the dried plant in hay. Sheep are more resistant to the pyrrolizidine alkaloids than other livestock, while horses, especially when confined to small areas infested with houndstongue, are more likely to ingest toxic levels. Fatal liver disease in horses occurred following two weeks of feeding hay with as little as 6 percent houndstongue.

How do I control this plant?

Prevention is the best method to keep houndstongue from invading North Dakota. Use only certified weed seed-free hay and eradicate new infestations before the plant can spread.

Chemical. Escort (metsulfuron) is very effective for controlling houndstongue and can be applied throughout the growing season. First-year houndstongue rosettes are easily controlled with 2,4-D applied from late May to mid-June. Second-year plants are much less susceptible to 2,4-D. Plateau (imazapic) at high rates will control houndstongue both pre- and post-emergence, but grass injury, especially to the cool season species is likely when Plateau is applied at the maximum rate.

Biological. A root weevil, *Mogulones crucifer,* has been released for control of houndstongue in Canada. The insect has become well-established in Alberta and has greatly reduced the houndstongue infestation in that province. The insect has spread naturally and become established in Washington state. However, this biological control agent has not been approved for release in the U.S. and interstate movement is not allowed. Several other insects have been evaluated for biological control of houndstongue; however, initial results were not nearly as promising as those of the root weevil.

LEAFY SPURGE

(*Euphorbia esula* L.)

State Listed Noxious Weed

Leafy spurge was once the most difficult noxious weed to control in North Dakota and infests all 53 counties. Scientists at the North Dakota Agricultural College (NDAC) recognized leafy spurge could be a problem soon after it was first identified in the state, growing along a Fargo street in 1909. However, the plant was not added to the state noxious weed list until 1935, when leafy spurge was found growing in all but 10 counties. The largest single infestation at that time was estimated to be 193 acres in Foster County.

Latex is found in all plant parts

True flower

Leafy spurge gall

Aphthona lacertosa

Aphthona nigriscutis

LEAFY SPURGE

Despite several control programs led by the State Agriculture Department and NDSU Extension, leafy spurge doubled in acreage every 10 years, reaching nearly 1.8 million acres in the 1980s. A coordinated integrated program of biological, chemical and cultural methods directly led to the first-ever reports of a decline in leafy spurge infestation in the state in the 1990s.

Identification and growth form:

Leafy spurge is a long-lived perennial that normally grows 2 to 3 feet tall from a woody crown from below the soil surface. Each crown area produces several upright stems, giving the plant a clumplike appearance. The plant bears numerous linear-shaped leaves with smooth margins. The leaves have a characteristic bluish-green color but turn yellow or reddish orange in the fall. Stems originating from crown buds and roots begin growth in late April, making leafy spurge one of the first plants to emerge in the spring. The early and rapid growth gives leafy spurge a competitive advantage over crop and pasture plants. All parts of the plant contain a milky juice called latex, which is a useful identifying characteristic.

Leafy spurge produces a flat-topped cluster of yellowish-green petal-like structures called bracts, which surround the true flowers. The showy, yellow bracts appear in late May and early June, giving the plant the appearance of "blooming." However, the true flowers, which are small and green, do not develop until mid-June. Spring-applied herbicides are more effective on plants with developing true flower parts than on plants with developed bracts but undeveloped flowers.

Seeds are borne in pods, which contain three gray-brown, oblong, smooth seeds. After the seed has matured, the seed pods burst explosively and throw seeds up to 15 feet from the parent plant. An average of 140 seeds is produced per stem, and seeds may remain viable in the soil at least eight years.

Leafy spurge seeds may germinate to re-establish infestations where total control of leafy spurge tops and roots has been achieved. The peak period of germination is late May and early June, but seeds can germinate and seedlings become established throughout the growing season. Leafy spurge seedlings have a remarkable capacity for vegetative reproduction and can reproduce vegetatively within seven to 10 days after emergence. Seedlings typically do not flower during the first year.

The root system of leafy spurge is extensive and consists of numerous coarse and fine roots that occupy a large volume of soil. Roots are most abundant in the upper foot of soil, but some roots can extend to a depth of 15 feet or more. The roots are woody and durable in structure, with numerous buds capable of producing new shoots. The root system contains a large nutrient reserve capable of sustaining the plant for years.

Why is this plant a concern?

Leafy spurge infestations may have more than 200 stems per square yard in sandy soil and even higher densities in heavy clay soil. Patches of leafy spurge usually spread vegetatively from 1 to 3 feet per year and form dense stands that crowd out other plants by shading and competing for moisture and nutrients. Forage production may be reduced to 20 percent or less and most native plants are eliminated because they cannot out-compete this weed.

Leafy spurge contains a toxic substance that, when consumed by livestock, is an irritant, emetic and purgative. It causes scours and weakness in cattle and may result in death. The toxin has produced inflammation and loss of hair on the feet of horses from freshly mowed stubble during haying and has caused mortality of sheep that grazed leafy spurge exclusively. However, sheep and goats will graze leafy spurge as a portion of their diet and can be used as a form of cultural control. Animals will eat dried plants in hay, but many livestock, particularly cattle, avoid eating live plants

LEAFY SPURGE

How do I control this plant?

Leafy spurge control must be considered a long-term management program. Generally, less than 6 inches of the root system is destroyed regardless if the control method is biological, chemical or cultural. Research at North Dakota State University has shown that more of the root system is killed when a combination of control methods are used, compared with any method used alone.

Chemical. Proper timing of herbicide applications is essential for good leafy spurge control. Leafy spurge is most susceptible to dicamba (Banvel and other trade names), Facet L (quinclorac), Method (aminocyclopyrachlor), and Tordon (picloram). Plateau (imazapic), fall-applied, provides better long-term control and less grass injury than spring or summer treatments. Combinations of Tordon plus Plateau or Tordon plus Plateau plus 2,4-D applied in June provide improved leafy spurge control compared with Tordon plus 2,4-D or Plateau applied alone in June. The Tordon plus Plateau combination is not recommended for use in the fall.

The combination of Tordon plus Overdrive also will improve leafy spurge control compared with Tordon used alone. Overdrive contains dicamba plus difluenzopyr, which is an anti-auxin compound that often improves broadleaf weed control when applied with auxin-like herbicides such as Tordon, dicamba and 2,4-D.

Glyphosate (various) applied for leafy spurge control has a different optimum application timing than the auxin herbicides (2,4-D, dicamba, picloram and quinclorac) or Plateau. Glyphosate is most effective for leafy spurge control when applied either after seed filling in midsummer or after fall regrowth has begun but before a killing frost. Glyphosate alone applied during spring growth stages generally provides poor long-term control.

Grazing. Sheep and goats provide an alternative for controlling leafy spurge top growth in pasture and rangeland. Grazing alone will not eradicate leafy spurge but will reduce the infestation, slow the spread of the weed and allow grasses to be grazed by cattle and horses.

Aphthona larvae

Longhorned beetle larvae

Leafy spurge hawkmoth

Grazing should be started early in the spring when the plant first emerges. On large infestations, pastures should be divided so animals can be rotated regularly and the entire infestation grazed in a timely manner.

Sheep and goats are best suited to control leafy spurge on large infestations or along waterways and tree areas where chemical control is restricted or cost is prohibitive and/or where success with biological control agents has been minimal.

Leafy spurge provides good forage value and compares favorably with widely used regional forages such as alfalfa (*Medicago sativa* L.), smooth brome (*Bromus inermis* Leyss.) and crested wheatgrass (*Agropyron desertorum* Fischer ex Link). Before moving animals to a leafy spurge-free area, they should be contained for three to five days so viable seed can pass through the digestive system.

Biological. Biological control of leafy spurge was initiated in the mid-1980s. To date, 10 species of insects have been released in North Dakota for control of leafy spurge, and six have become established. Four of the six established insects are flea beetles (*Aphthona* spp.), which have reduced the leafy spurge density more than any other agent.

LEAFY SPURGE

The first flea beetle released in North Dakota was *Aphthona flava* Guill in 1986. This flea beetle has established at only a few sites in the state and occurs at densities too low to be effective. In 1988, a mixed population of *Aphthona czwalinae* Weise and *Aphthona lacertosa* Rosenhauer were released near Valley City, N.D. By 1995, the majority (greater than 90 percent) of this mixed population was *A. lacertosa*. Two additional flea beetles, *Aphthona cyparissiae* Koch and *Aphthona nigriscutis* Foudras, were released the following year. *A. lacertosa* and *A. nigriscutis* were established in almost every county in North Dakota by 1996 and have become the major biocontrol agents used for leafy spurge control.

Although *Aphthona* spp. adults feed on leafy spurge foliage, the major damage to the plant occurs when the larvae feed on the roots. Larvae feed on both the fine feeder roots used by the plant to absorb water and nutrients and the storage tissue of the root crown. This feeding both destroys root tissue directly and causes the plant to be more susceptible to other methods of control, such as herbicides and infection from soil borne pathogens.

Research at North Dakota State University found flea beetle establishment was best on silt loam, silt clay loam, clay loam and clay soils with an organic matter content of 6 percent to 9.5 percent. Flea beetles were least productive in fine sand to loamy fine sand soils with an organic matter content of 1 percent to 3 percent. In addition, the release area needs to be well-drained and not subject to frequent prolonged flooding or standing water, which will kill the larvae. Generally, flea beetles have not been very successful in controlling leafy spurge growing along waterways, in shaded areas or in very sandy soil.

The *Spurgia esulae* gall midge causes stem tip galls on leafy spurge, thereby decreasing seed production. It has been most successful near wooded areas. However, a second control method was needed to reduce the original leafy spurge infestation and to prevent spread from roots. A stem-boring beetle, *Oberea erythrocephala* Shrank, has been released and established in North Dakota in the 1980s, but to date, the population never has increased to sufficient numbers to decrease leafy spurge. The spurge hawkmoth (*Hyles euphorbiae* L.), a foliar feeder, was introduced in the 1970s but generally has not survived and when it did survive, control was too late in the growing season to be very useful.

Limitations to biological control. Although flea beetles have become established throughout North Dakota, they have not been successful in all environments. To date, approximately 30 percent of the releases have established and the leafy spurge stem density has been reduced. In another 30 percent of the releases, the insects have become established but the population density is too low to be effective. In the remaining releases, flea beetles have not established.

Cultural. Cultural control of leafy spurge includes properly timed cultivation and/or planting of competitive grass species. Cultural methods that only control leafy spurge top growth include mowing and fire. All cultural control methods are more successful when combined with herbicide treatments than when used alone.

Leafy spurge infestations must be controlled with herbicides such as glyphosate prior to seeding grass species. Some perennial grass species that have competed effectively to provide leafy spurge control include: Bozoisky Russian wildrye [*Psathyrostachys juncea* (Fisch.) Nevski] and Luna pubescent wheatgrass [*Agropyron trichophorum* (Link) Richter], Rebound smooth brome (*Bromus inermis* Leyss.) and Rodan western wheatgrass [*Pascopyrum smithi* (Rydb.) A. Löve]. They are examples of grass species that can compete relatively well with leafy spurge. Not only were the grasses very competitive with leafy spurge, but they also provided high yields and good nutritive value for grazing. Grazing following grass establishment should be limited and conducted at the proper growth stage of the grasses or leafy spurge will re-infest the seeded area rapidly.

Mowing and burning have been ineffective for reducing leafy spurge infestations, but may result in uniform regrowth that allows a more timely herbicide treatment. Also, mowing will reduce seed production if repeated every two to four weeks during the growing season.

MUSK THISTLE

(*Carduus nutans* L.)

State Listed Noxious Weed

Musk thistle is the most common biennial invasive thistle in North Dakota. Musk thistle is native in southern Europe and western Asia and was introduced into North America in the early 1900s. Two subspecies that differ in flower size and pubescence occur in North Dakota.

Identification and growth form:

Musk thistle likely is the most easily identified invasive thistle in North Dakota, yet many people confuse this plant with either bull thistle or plumeless thistle. Musk thistle often grows in excess of 6 feet tall, has very large flowers that tend to droop, and the flower has very characteristic brown bracts that resemble a pine cone. The flowers usually are deep rose, solitary and very large, ranging from 1.5 to 3 inches in diameter. Rosettes are dark green with a light green midrib, usually smooth and lacking pubescence and often grow 2 feet or more in diameter.

Musk thistle stems are usually very branched with spiny wings; however, the wings are interrupted and not complete along the stem as with bull or plumeless thistle. The leaves are oblong to lanceolate and lobed with slender spines along the margin. They generally have little pubescence underneath, which helps distinguish musk thistle from plumeless thistle. However, the subspecies *C. nutans macrocephalus* (Desf.) has very pubescent leaves.

Musk thistle flowers from July to late September. The average musk thistle plant produces in excess of 10,000 seeds per plant and, under favorable conditions, may produce 120,000 seeds per plant. Seed germination averages 30 percent. The seed generally germinates in the summer and fall, and the plant overwinters as a rosette. The following spring, the plant resumes vegetative growth, bolts and flowers. After setting seed, the plant

MUSK THISTLE

dies, thereby completing the life cycle. Occasionally biennial thistles have winter annual, annual or short-lived perennial characteristics.

Why is this plant a concern?

Musk thistle tends to invade overgrazed or otherwise disturbed pastures, rangeland, roadsides and waste areas. Movement into cropland is generally from nearby noncropland or roadsides. Musk thistle spreads rapidly and can form very dense stands that crowd out desirable forages and native species.

How do I control this plant?

Since biennial plants such as musk thistle reproduce only from seed, the key to a successful management program is to control the plants before flowering.

Chemical. Fall is the preferred time for applying herbicides for biennial thistle control. Fall treatment allows more time for herbicide application than in the spring and thistle control is generally best with fall treatments. Seedlings that emerge in summer after tillage or previous herbicide applications will not bolt but remain in the rosette stage. Biennial thistles are most susceptible to herbicides in the rosette form.

Biennial thistles can be controlled effectively with Milestone (aminopyralid), Stinger, Transline or Curtail (clopyralid), Tordon (picloram), Method (aminocyclopyrachlor), or dicamba (various) or dicamba plus diflufenzopyr (Overdrive). Products that contain metsulfuron (Escort, Cimarron Max, others) will control biennial thistles in the spring and will eliminate seed production when applied in the bolting to bud growth stages.

Cultural. Repeated mowing will reduce musk thistle infestations. Mow whenever the plants are in the early bud growth stage to prevent seed-set. Several mowings a year are needed because plant populations vary in maturity. Mow as close to the surface as possible. Plants should be cut below the terminal bud before the stem elongates or the weed will regrow. Mowing before the flowers start showing color is important because plants mowed after that likely will produce some viable seed. Mowing should be combined with a chemical control program for best results.

Biological. The seed weevil *Rhinocyllus conicus* was introduced from Eurasia to control musk thistle by reducing seed production. Larvae develop in the flower head and consume the seed as it develops. The weevils can reduce seed production by nearly 80 percent, but they are attracted more to earlier blooming rather than to later blooming flowers. The late-season flowers produce seeds with little damage from the weevil, which sustains the musk thistle population. Building a high enough population of insects to greatly reduce seed production takes five to 10 years. These insects first were introduced into North Dakota in the early 1970s. *R. conicus* is not specific to musk thistle and has been found feeding on other invasive thistles, such as Canada thistle. However, this insect also feeds on native thistles, including several that are on the protected or endangered species list and interstate transport is not permitted.

The thistle crown weevil *(Trichosirocalus horridus)* was introduced into North America from Europe in the mid-1970s. Larvae of this insect feed on the growing tip as the musk thistle rosette bolts. While seldom effective by itself, it does help control musk thistle when combined with *Rhinocyllus conicus.* Feeding by *T. horridus* larvae on musk thistle growing tips causes the plant to produce multiple shoots. The resulting flower heads are reduced in size and produce fewer seeds, and the increased number of flower heads results in an increased population of *R. conicus*. Interstate transport of *T. horridus* is no longer permitted.

The rust fungus *Puccinia carduorum* was released in the eastern U.S. in 1987 for Canada thistle control. The rust has moved westward by natural unaided spread and can reduce musk thistle, especially when in combination with the previously mentioned insects.

PALMER AMARANTH

(*Amaranthus palmeri* S. Watson)

County Listed Noxious Weed

Palmer amaranth is a member of the pigweed family and is native to the southwestern and southcentral U.S. as far south as northwestern Mexico and as far north as southern Nebraska. The plant is one of the more aggressive pigweed species and often hybridizes with other pigweeds, including redroot pigweed (*A. retroflexus* L.) and waterhemp [*A. rudis tuberculatus* (Moq.) Sauer]. Palmer amaranth has developed resistance to multiple classes of herbicides and become one of the most difficult to control weeds in croplands of the Midwest and northern Great Plains.

Identification and growth form:

Palmer amaranth is a summer annual that emerges from seed throughout the growing season. The plant commonly grows 6 to 8 feet tall and can reach more than 10 feet in height. The plant has one very thick central stem, often more than 5 inches in diameter, which supports many lateral

PALMER AMARANTH

branches. Under optimum conditions, the plant can grow 2 to 3 inches per day. Palmer amaranth leaves are smooth, 2 to 8 inches long, arranged in an alternate pattern and lance or egg-shaped. The leaves have a small, sharp spine on the leaf tip. A whitish V-shaped or thumbprint mark is found on leaves of some but not all plants. Palmer amaranth is dioecious, with male and female flowers appearing on long leafless branching spikes at the top of the plant. The flowers are green, not showy, and end in three spiny bracts. The seed head spikes can be up to 3 feet long, and the female flowers are very prickly.

Palmer amaranth reproduces only by seed. Seed viability is more than 90 percent the first year after flowering and declines slowly through time, with some seed remaining viable for three to five years. Each plant can produce from 100,000 to more than 500,000 seeds, which are small (1 to 1.3 millimeters) and dark reddish brown. Palmer amaranth spreads from region to region as a contaminant in seed, livestock feed and hay. Once established in an area, the plant can be spread on farm equipment, in manure and by wildlife that feed on the seed.

Why is this plant a concern?

Palmer amaranth has reduced yield up to 91 percent in corn and 79 percent in soybean. The weed has a wide genetic diversity, which allows the plant to adapt to new environments and has enabled the weed to develop resistance to many herbicides used to control pigweed species. Palmer amaranth has developed resistance to ALS, HPPD and PPO inhibitors, dinitroanilines triazines and glyphosate, leaving few options for control in cropland. Once introduced, Palmer amaranth can spread quickly. For instance, it infested four southern Iowa counties in 2016 but was found statewide in more than a third of the counties one year later.

How do I control this plant?

Chemical. Palmer amaranth is difficult to control because it can be resistant to multiple classes of herbicides and their different modes of action. Foliar-applied herbicides must be applied before Palmer amaranth plants are taller than 4 inches. Herbicides that control or suppress susceptible Palmer amaranth include auxins such as dicamba, chloroacetamide, diphenylethers, glufosinate, glyphosate and HPPD inhibitors. Consult the latest edition of the "North Dakota Weed Control Guide" (W253) and the NDSU Palmer amaranth website (www.ag.ndsu.edu/palmeramaranth) for updates on controlling Palmer amaranth infestations.

Cultural. Early identification and eradication are the best method to prevent Palmer amaranth from becoming established in North Dakota. Use seed from reliable sources that are certified weed-free. Much of the spread of Palmer amaranth in neighboring states was due to planting infested seed. If plants are found, they should be removed by hand and destroyed. Place plants into large plastic garbage bags when removing them from fields to prevent seed spread, then burn or compost the plant material. Mowing is not an effective control method because plants will regrow from cut stalks and set-seed, often out of sight below the crop canopy.

Crop rotation is important to prevent Palmer amaranth from becoming established in North Dakota. Rotate soybean with grass crops such as wheat or corn or a perennial forage to help prevent the weed from spreading. Rotating crops allows the use of herbicides from various chemical families that are more effective on Palmer amaranth and other pigweed species than soybean herbicides and will reduce the buildup of herbicide-resistant populations.

Palmer amaranth sometimes is called carelessweed. Carelessness in allowing just a few plants to become established can result in large crop losses in only a few years. Be vigilant in scouting and removing even a single Palmer amaranth plant.

Biological. No biological control agents or pathogens are available for this weed.

PURPLE LOOSESTRIFE

(*Lythrum salicaria* L.)

State Listed Noxious Weed

Purple loosestrife, a beautiful garden plant with an aggressive nature, first was introduced into North America in the early 1800s. The plant was sold in North Dakota by its genus name, *Lythrum,* for at least 50 years. Lythrum plants were brought to North Dakota for flower gardens because of their striking color, ease of growth, winter hardiness and lack of insect or disease problems. The garden varieties of purple loosestrife were sold by many cultivar names, including Morden Pink, Dropmore Purple and Morden Gleam. These garden cultivars were thought to be sterile but now have been shown to cross-pollinate with the wild *Lythrum* type and sometimes with other *Lythrum* cultivars.

Identification and growth form:

Purple loosestrife is a rhizomatous perennial forb. Wild infestations are associated with moist or marshy sites. The stems are erect (1.5 to 8 or more feet tall) and four to six angled, and can be smooth or pubescent with few branches. Leaves are simple (0.75 to 4 inches long, 0.2 to 0.5 inch wide), entire, and can be opposite or whorled.

The most identifiable characteristic of purple loosestrife is the striking rose to purple flowers. The flowers are

Galerucella spp. feeding on leaves

PURPLE LOOSESTRIFE

arranged on a spike, which can be a few inches to 3 feet long. Each flower has five to seven petals arising from a cylindrical green tube. The plant usually flowers from early July to mid-September in North Dakota. The seed capsule is two-celled and contains many very small seeds (1 millimeter long or less). The roots become thick and woody in mature plants. The aerial shoots die in the fall and new shoots arise the following spring from buds at the top of the root crown. Although the root crown expands and produces more shoots each year, the maximum growth of the root crown diameter is limited to about 20 inches.

Spread of purple loosestrife is primarily by seed, but the plant also can spread vegetatively from stem cuttings. Research at NDSU has shown that seed viability of purple loosestrife growing in North Dakota wetlands ranged from 50 percent to 100 percent. With approximately 2.7 million seeds produced per plant, purple loosestrife has the potential to spread rapidly once established in an area.

Why is this plant a concern?

The most destructive impact of purple loosestrife invasions is on the ecology of aquatic sites. Purple loosestrife forms dense monotypic stands as it displaces native wetland plants. Under optimum conditions, a small, isolated group of purple loosestrife plants can spread to cover aquatic sites in just one growing season. When purple loosestrife replaces native vegetation, it also can displace wildlife. Waterfowl, especially ducks, avoid wetlands that have become dominated with purple loosestrife. In addition, overall waterfowl production decreases as suitable nesting habitat is eliminated. The plant's growth is generally too compact to offer cover, and cover may be as crucial to wildlife as food.

How do I control this plant?

Several methods are available for purple loosestrife control, including mechanical, biological and chemical. The size and location of a specific infestation will determine the best control methods. In general, small infestations of a few plants can be controlled by digging, especially when plants are only a few years old. Larger infestations require treatment with herbicides and/or biological control agents.

Chemical. Herbicides can be used to control purple loosestrife in areas too large to be controlled by digging. Also, herbicides can be applied to individual plants selectively in landscape situations to prevent killing desirable plants. Infestations growing along streams or in marshy areas may require specialized equipment and application by trained professionals.

Glyphosate (various trade names) will provide good control of purple loosestrife when applied from July to early September. Many formulations of glyphosate are sold but only those labeled for aquatic use can be applied in or near water. Garlon (triclopyr) is a selective broadleaf herbicide that will not kill cattail or other desirable monocot species. Garlon will provide good to excellent purple loosestrife control when applied in the pre- to early flower or late-flower growth stages but should not be used in landscapes or flower beds because soil residual of the herbicide may prevent establishment of other horticultural plants. Milestone (aminopyralid) and Capstone (aminopyralid plus triclopyer) can be used in seasonally dry wetlands.

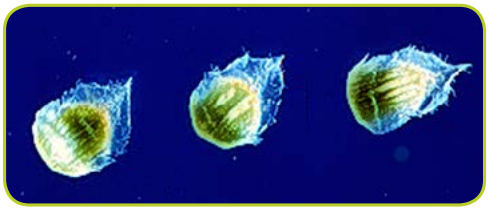
Biological. Three biocontrol insect species were introduced in North Dakota in 1997. They were:

Galerucella pusilla — a leaf-feeding beetle
Galerucella calmariensis — a leaf-feeding beetle
Hylobius transversovittatus — a root-mining weevil

Of these insects, the two *Galerucella* spp. leaf-feeding beetles have been most successful. These insects overwinter as adults and lay eggs in early June in North Dakota. The adults and especially the larvae feed on the leaves and flowers of purple loosestrife. Following several summers of heavy feeding, purple loosestrife infestations have been reduced greatly. However, since the largest infestations in North Dakota are in urban areas, mosquito control programs have kept these insects from becoming well established.

RUSSIAN KNAPWEED

[*Acroptilon repens* (L.) DC.] syn. (*Centaurea repens* L.)



RUSSIAN KNAPWEED

State Listed Noxious Weed

Russian knapweed is the most widespread of the knapweeds in North Dakota. It also is the only perennial of the noxious knapweeds and is the most difficult to control. Russian knapweed often is found in poorly drained and saline/alkaline soils with supplemental water sources such as rivers and streams. This persistent weed often is found in southwestern North Dakota, but increasingly infestations have been found statewide. Russian knapweed grows especially well in areas with supplemental water sources such as the Little Missouri and Heart rivers in North Dakota.

Identification and growth form:

Russian knapweed is a long-lived, deep-rooted perennial with growth characteristics similar to Canada thistle. The weed emerges in the spring from roots and grows to 2 to 3 feet tall and is shrublike with spreading branches. Once established, Russian knapweed spreads mainly by underground root stocks as seed production is limited compared with other knapweed species. The leaves are alternate and lobed lower on the plant while upper leaves are entire. Flowering occurs from June to September and flowers vary from light pink to lavender. The stems die back to the soil surface each year.

Two key characteristics distinguish Russian knapweed from spotted and diffuse knapweed. First, the flowers have rounded bracts with transparent tips that are quite different in appearance than the dark bracts of spotted and diffuse knapweed. Second, the root of this perennial is dark brown to black, scaly as if the plant had been burned, and can grow to depths of greater than 20 feet. The flowers of Russian knapweed vary from light pink to lavender.

Why is this plant a concern?

Russian knapweed can spread rapidly and is very competitive with native species. Russian knapweed will reduce forage production to near zero as the site often becomes a monoculture. Russian knapweed also will infest roadsides, pasture and rangeland and is the only knapweed in the state that causes significant losses in cropland.

How do I control this plant?

Russian knapweed is one of the most difficult perennial weeds to control. If the plant is found in cropland, then a combination of cultivation and herbicide treatments will suppress the plant. However, herbicides at labeled rates for cropland use will not control Russian knapweed.

Chemical. Tordon (picloram) is one of the most effective herbicides used for Russian knapweed control. The best control is obtained when picloram is applied following several hard frosts (mid-October). Russian knapweed plants may be dormant with gray stems and no leaves, but control the following spring is nearly 100 percent. Application in mid-September or during flowering in midsummer provides shorter-term control than late applications. Other herbicides used for Russian knapweed control include Escort (metsulfuron) and Milestone (aminopyralid).

Cultural. Livestock generally will not graze Russian knapweed. Mowing and cultivation do not control this weed.

Biological. Exploration and evaluation of biocontrol agents for Russian knapweed are in progress. The gall fly *Jaapiella ivannikovi* was released in 2009, has established and will be available for wider distribution. A gall wasp, *Aulacidea acroptilonica*, also was released but has had minimal impact.

LMS 436

SALTCEDAR

(*Tamarix* spp.)

SALTCEDAR

State Listed Noxious Weed

Saltcedar is the common name for several introduced species of shrubs or small trees, including *Tamarix chinensis, T. parviflora* and *T. ramosissima.* Saltcedar is native to Eurasia and first was introduced into the U.S. to reclaim eroded areas and prevent further loss of stream banks, primarily in the southwest. Saltcedar has been sold in the horticultural industry, primarily for its wide adaptability and pink flowers. Saltcedar became established in North Dakota as escapes from ornamental plantings or from seed floating along rivers.

Identification and growth form:

Saltcedar is a shrubby bush or tree that can range in size from 5 to 20 feet tall. The bark is a reddish brown, especially on younger branches. The leaves are small and flat and resemble evergreen shrubs such as arborvitae. Flowers are pink to white and five-petaled, and appear from mid to late summer. The seeds are extremely tiny and similar in size and color to pepper. Each seed has a pappus, which allows it to float long distances in water or move in the wind. Seeds are short-lived and usually germinate within a few months after dispersal.

Once saltcedar seed germinates, it can grow rapidly to a small flowering shrub in one to two years. The plant is deciduous and very hardy, and horticultural varieties are advertised to grow "in sun or shade, and in wet or dry areas" from USDA hardiness zones 2 to 7. The plant quickly establishes a long, woody taproot to support a voracious thirst for water. The root system is capable of producing many new shoots if the top growth is removed by mechanical control methods or fire.

Why is this plant a concern?

Saltcedar can become a monoculture quickly along lakes and waterways. In the early morning and evening, moisture with high salt content is exuded from the foliage, causing the soil to become saline. Saltcedar can choke waterways and even has dried up entire lakes. Native riparian species are quickly displaced by saltcedar, which in turn causes displacement of native birds and animals that generally do not feed on the leaves or eat the saltcedar seeds. Saltcedar, even in the seedling stage, will tolerate short-term flooding and can establish away from waterways when seeds are washed in during flooding. Once established, the plants can become so thick cattle will not graze the area.

How do I control this plant?

Prevention is the best method to keep saltcedar from invading North Dakota wetlands and wildlands. Scouting along waterways and removal of ornamental plantings have been effective in reducing the spread of saltcedar in North Dakota.

Chemical. Arsenal (imazapyr) is the most widely used herbicide to control saltcedar. Arsenal also can be applied with a glyphosate formulation labeled for use in water. Do not remove saltcedar top growth for three years following herbicide application or resprouting will occur. Garlon (triclopyr) has been effective when applied in the spring or late fall.

Cultural. Control methods such as burning or bulldozing have not been successful.

Biological. Several leaf beetles (*Diorhabda* spp.) have been released in North America to control saltcedar. The insects feed on leaves of saltcedar and slowly reduces plant vigor. However, the insects have not been consistently successful in reducing saltcedar infestations. Biological control of saltcedar in North Dakota is not recommended because of the small size of most plants and low infestation levels in the state.

NARROWLEAF HAWKSBEARD

(*Crepis tectorum* L.)

County Listed Noxious Weed

Narrowleaf hawksbeard is native to Siberia and much of Eurasia. The plant is a member of the sunflower family and has bright yellow flowers very similar to dandelion or sowthistle. Narrowleaf hawksbeard commonly is found in most of Canada, including the neighboring provinces of Manitoba and Saskatchewan, where it is listed as a noxious weed. Narrowleaf hawksbeard will grow in many ecological zones, ranging from forests, lakeshores and seashores to dry prairies, mountains and parklands. Although narrowleaf hawksbeard can be found as far south as New Mexico and north to Alaska, the weed is primarily problematic in the northern tier of U.S. states and Canadian Prairie Provinces. Prior to 1950, O.A. Stevens of the North Dakota Ag College reported narrowleaf hawksbeard was well-established along a road in Walhalla, N.D., and had collected samples from Bottineau and Stark counties.

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NARROWLEAF HAWKSBEARD

Identification and growth form:

Narrowleaf hawksbeard is a winter or spring annual that grows 2 to 3 feet tall from a tap-rooted basal rosette. The plant has a single main stem and often branches. The leaf shape gradually changes, going from the base to the tip of the plant. Rosette leaves are up to 6 inches long, 1 inch wide and coarsely toothed with a pointed tip. Basal leaves die off as the plant matures, which can help distinguish this plant from common dandelion or annual sowthistle. Stem leaves are alternate, and go from 4 inches long to less than an inch at the tip of the plant. Leaves are wider at the tip than the stem and often have a pair of small lobes at the base and curled edges. A white milky sap is found throughout the plant.

Mature narrowleaf hawksbeard has bright yellow dandelion-like flowers, which are found from late May through September in North Dakota. The seed are dark purple to brown, ribbed and attached to a pappus that will carry them in the wind or on animals. Each plant contains 30 to 70 flowers and can produce up to 50,000 seeds. Narrowleaf hawksbeard reproduces only by seed, which has a short dormancy and can germinate shortly after dispersal. Up to 90 percent of the seedlings that emerge from August to mid-September will overwinter. Survival declines the later in the season that seeds germinate, but even those that emerge in early to mid-October can overwinter and should be controlled.

Why is this plant a concern?

Narrowleaf hawksbeard traditionally was found along roadsides and disturbed land in North Dakota but now has become especially troublesome in no-till cropland, cropland seeded with cereals, pulses or oilseed crops, hay fields, and along newly established pipelines. Narrowleaf hawksbeard develops rapidly in the spring, which gives the species a competitive advantage, especially in forage crops. The weed will outcompete annual crops for nutrients and moisture, thus reducing yield, and can displace native plants in wildlands.

How do I control this plant?

Chemical. Narrowleaf hawksbeard is best controlled in late fall or very early spring with herbicides. The plant is much more difficult to control after bolting. Glyphosate applied alone or with other herbicides such as dicamba or 2,4-D will control rosettes in the fall. High rates of 2,4-D alone will control narrowleaf hawksbeard but can damage some crops. 2,4-DB is more effective than 2,4-D for control of this weed and is useful in forage crops such as alfalfa. Low rates of 2,4-D and dicamba generally do not control narrow leaf hawksbeard in the spring; rather glyphosate at 2 quarts per acre or more is required. ALS-inhibiting herbicides such as metsulfuron or tribenuron also will control this weed and often are mixed with glyphosate. Consult the latest edition of the "North Dakota Weed Control Guide" (W253) for additional herbicides used to control narrowleaf hawksbeard.

Cultural. Because narrowleaf hawksbeard only spreads by seed, plant certified weed-free seed and clean all farm equipment before moving from an infested to a noninfested field. Cultivation in late fall or very early spring will remove this weed from cropland. Preventive management such as maintaining good crop cover, minimizing disturbance and removing infestations when they are small will help contain the spread of narrowleaf hawksbeard. Mowing of noncrop sites before seed-set will reduce the spread of this weed.

Biological. No biological control agents or pathogens are available for this weed.

COMMON TANSY

(*Tanacetum vulgare* L.)

LMS 441

COMMON TANSY

County Listed Noxious Weed

Common tansy, also referred to as garden tansy, golden buttons and bitter buttons, is a member of the Asteraceae or sunflower family. Common tansy is native to Europe and first was introduced to the United States as early as the 1600s as an ornamental plant and for medicinal purposes. The plant contains alkaloids that can be toxic to humans and livestock if consumed in large quantities. However, animals rarely ingest common tansy due to the strong smell of the plant. Illnesses in humans have been reported after hand pulling, suggesting toxins may be absorbed through unprotected skin. Common tansy still is used in some medicines and is listed in the United States Pharmacopoeia as a treatment for colds and fever.

Identification and growth form:

Common tansy is an aromatic perennial forb or herb that commonly grows from 1.5 to 6 feet tall. The plant reproduces both by seed and creeping rootstocks. Roots of the plant are fibrous and produce rhizomes. Stems of the plant are purplish-red. Leaves are alternate, smooth to slightly pubescent, 2 to 10 inches long and 1.5 to 3 inches wide, and deeply divided into numerous narrow, toothed segments that appear fernlike. Glandular dots on the leaves of the plant produce the strong, unique odor of the plant. Flowers of the plant are yellow, 0.25 to 0.5 inch across and buttonlike in flat-topped, dense clusters. Each head is composed of mainly yellow disk flowers that are arranged at the stem top in a flat-top cluster in which the outer flowers bloom first. Flowering typically occurs from July to September. Flower heads turn brown and maintain their shape at seed set. Seeds are yellowish brown with short five-toothed crowns.

Common tansy sometimes is confused with tansy ragwort (*Senecio jacobaea* L.). However, tansy ragwort is nonaromatic, has ray flowers and does not have the sharp, toothed leaves found on common tansy.

Why is this plant a concern?

Common tansy is an aggressive plant that can form dense vegetative colonies on disturbed sites and generally is found on roadsides, fence rows, pastures, vacant lands, stream bank, and waste areas. Disturbances can promote the colonization and spread of the plant. Common tansy reduces overall pasture productivity because the plant displaces desirable grasses and forbs and animals are reluctant to graze it. In addition, unpleasant tasting milk may result when dairy cattle graze the leaves of common tansy. Wildlife habitat also is affected negatively by the plant.

How do I control this plant?

Chemical. Herbicides for common tansy control include Escort (metsulfuron) and Telar (chlorsulfuron). Chaparral (aminopyralid plus metsulfuron) works well when infestations of common tansy also include thistle species. Herbicides may be most effective when applied in the spring during early bud development.

Cultural. Hand-pulling or digging may provide control for small infestations of common tansy if the entire root system is removed. However, gloves and protective clothing should be worn to prevent absorption of toxins through the skin. Mowing can reduce seed production if conducted during the bud stage; however, plants are able to regrow from rootstock.

Biological. No biological agents or pathogens are available for this weed.

Attachment 3
Dust Control Plan

Alliance Sales Line Project

Dust Control Plan

March 2020

LMS 444

Introduction

Liberty Midstream Solutions LLC (LMS) proposes to construct the Alliance Sales Line Project (Project), a residue gas pipeline permitted under the North Dakota Public Service Commission (PSC) Certificate of Site Compatibility. The Project will include construction of approximately 4.7 miles of new 8-inch steel pipeline designed to carry up to 80 million cubic feet per day (MMCFD).The pipeline is located entirely on private land, and begins at the existing Liberty County Line Gas Plant located in Section 14, Township 158N, Range 95W and the alignment goes south and east to an existing third-party transmission pipeline in Section 33, Township 158N, Range 94W (henceforth referred to as the Project Site).

Construction of the Project will involve land-disturbing activities, which can increase the susceptibility of soils to erosion caused by wind and water. Wind erosion can damage the productivity of the land by reducing soil moisture, altering soil structure, and carrying away soil nutrients and topsoil. A small amount of soil loss from wind erosion occurs naturally; however, human activity, such as construction of a gas gathering pipeline, can dramatically increase soil loss due to wind erosion (fugitive dust) and potentially create conditions that could affect air quality and safety. Fugitive dust is a type of non-point source air pollution that can cause respiratory distress for construction workers, as well as for nearby residents and wildlife. Additionally, fugitive dust can create a safety hazard by obscuring visibility for equipment operators, construction personnel, and traffic on public roads near the Project.

LMS has developed this *Dust Control Plan* as a guide for construction and field personnel on implementation of appropriate measures to minimize and control the generation of fugitive dust during construction activities associated with the Project. It will be the responsibility of the Project contractors, working with LMS's field representatives, to identify activities that are generating dust and to at all times control airborne dust levels during construction activities to acceptable levels that are in compliance with any applicable standards, including those established by the North Dakota Department of Health (NDDOH), and other regulating agencies and local ordinances.

Fugitive Dust Sources

LMS has attempted to identify the primary potential sources of fugitive dust, which include:

- Vegetation clearing activities;
- Initial grading of topsoil and subsoil;
- Excavation and backfilling;
- Grading associated with reestablishing contours and restoring segregated topsoil;
- Vehicle traffic on unimproved public and private access roads;
- Vehicle and equipment travel within the right-of-way (ROW);
- Open-bodied trucks hauling sand, soil, gravel, or other materials; and
- Activities at Project facilities such as material storage yards, contractor yards, parking areas, and aboveground facility locations.

LMS's Contractors and field representatives will identify activities that are generating fugitive dust, implement feasible dust abatement techniques or best management practices (BMPs) to control dust, and maintain compliance with applicable fugitive dust regulations.

Fugitive Dust Control Measures

Dust suppression measures will be employed as necessary to control fugitive dust emissions during the construction of the proposed Project where dust could compromise safety or become a public nuisance. This will also apply to access roads where dust raised by construction vehicles may irritate or inconvenience local residents as they approach the Project Site. To minimize wind erosion and fugitive dust emissions during construction, LMS will implement the following reasonably available control measures:

- Disturb no more earth than required for construction to occur;
- Use dust abatement techniques (i.e., applying water or approved nontoxic chemical dust suppressants) on unpaved or un-vegetated areas or other areas susceptible to wind erosion within the Project ROW. (Note: utilization of chloride-containing additives is limited to roads. Application of dust suppressants will be repeated as necessary and as determined by the Environmental Inspector (EI) or LMS representative);
- Water for dust control will be obtained from wells, municipal sources, and nearby rivers where the necessary water purchase agreements and permits required by federal, state, and local agencies for the procurement of water have been secured. No unapproved water sources will be used for Project activities, including dust control;
- Temporarily stockpiled soils (topsoil and spoil) will be sprayed with water or approved chemical dust suppressant to create a semi-hard protective layer to minimize wind erosion, if necessary, and as determined by the EI or LMS representative. (Note: utilization of chloride-containing additives is limited to roads and is not permitted on stockpiled soils);
- Emissions from construction equipment combustion, open burning, and temporary fuel transfer systems and associated tanks will be controlled to the extent required by state and local agencies through the permitting process;
- Project-related traffic speeds will be controlled within the Project area and at the access road to the Project Site; where construction activities approach dwellings, farm buildings, commercial areas, and other areas occupied by people; and on unpaved access roads. A speed limit of 25 mph will be followed on unimproved roads. Additional speed limit restrictions may be required by the property owner/tenant on private lands or by the county on public roads (e.g., posted speed limits);
- Speed limits will be decreased when excessive winds prevail and where sensitive areas such as public roads are adjacent to access roads or the Project ROW;
- Open-bodied trucks carrying sand, soil, gravel, or other materials will be covered where necessary to prevent such materials from being expelled;
- Construction entrance/exit access locations onto paved roads will be cleaned at a minimum of once every 48 hours, or as needed or specified by the EI if materials are observed to be accumulating on the road surface;

- When opacity along dirt roads exceeds 20 percent (objects partially obscured), construction activity will cease until dust control measures are employed; and
- Other dust control measures, such as the use of wind fences or berms, may also be implemented as needed.

The frequency of water application will largely depend on weather conditions. If seasonal or other weather conditions prevent compliance with the time frames, the contractor will stabilize the Project Site and maintain erosion and sediment control measures until cleanup can be conducted.

Regulatory Applicability

The following agencies are responsible for air quality management in areas of Project construction activities:

- North Dakota Department of Health

This Dust Control Plan has been developed to meet the regulatory requirements of North Dakota Administrative Code Article 33-15. While the state of North Dakota has no specific regulations in relation to construction dust control, LMS and its contractors will utilize measures outlined in this Plan to minimize dust during construction.

Attachment 4
Letter to the North Dakota Geological Survey

KLEINFELDER
Bright People. Right Solutions.

February 4, 2020

North Dakota Geological Survey
1016 E Calgary Ave
Bismarck, ND 58503

SUBJECT: Proposed Alliance Sales Line Project
Liberty Midstream Solutions, LLC

To Whom it May Concern,

Liberty Midstream Solutions, LLC (LMS) is proposing to construct and operate approximately 4.72 miles of 8-inch residue gas pipeline that will be known as the Alliance Sales Line Project on privately owned lands in Mountrail and Williams County, North Dakota (as shown on attached Figure 1). The proposed 8-inch pipeline will carry the residue gas from the existing Liberty County Line Gas Plant to an existing third-party transmission pipeline.

On behalf of LMS, Kleinfelder is seeking comments regarding the referenced project in compliance with the North Dakota Energy Conversion and Transmission Facility Siting Act. We request comments be submitted by March 5, 2020. Please call me at 303-297-5791 if you have any questions.

Sincerely,

KLEINFELDER

Nan Elzinga, PE
Project Manager III

1801 California Street, Suite 1100
Denver, CO 80202
d|303.297.5791
o| 303.237.6601
m| 303.909.7359

LMS 449

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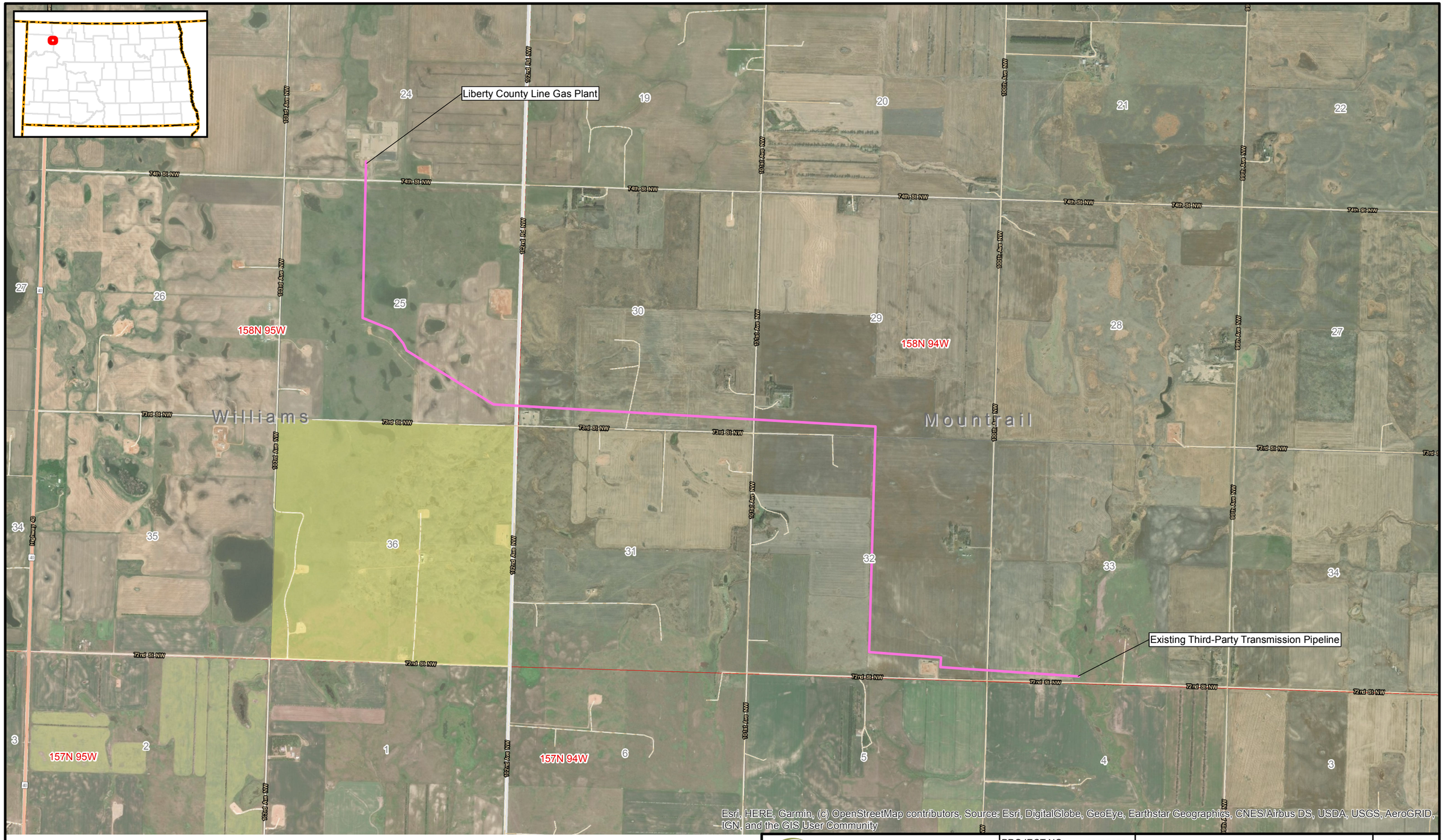

LEGEND

- Proposed Pipeline Route
- State Land
- County Boundary
- Township/Range
- Section

0 500 1,000 2,000
Feet

N

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KLEINFELDER
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LIBERTY MIDSTREAM SOLUTIONS

PROJECT NO.	20192055
CREATED:	10/29/2019
CREATED BY:	A. Leonard
CHECKED BY:	A. Dury
FILE NAME:	Fig1_Aerial.mxd

Liberty Midstream

Proposed Route Location Map
Alliance Sales Line
Williams and Mountrail Counties, North Dakota

FIGURE

1

LMS 450

Date: 10/29/2019 User: ALeonard Path: \\azrgisstorp01\GIS_Projects\Client\Liberty\Midstream\20192055_ND\MXD\Fig1_Aerial.mxd

Attachment 5
Appendix A Figure from the Natural Resources Report

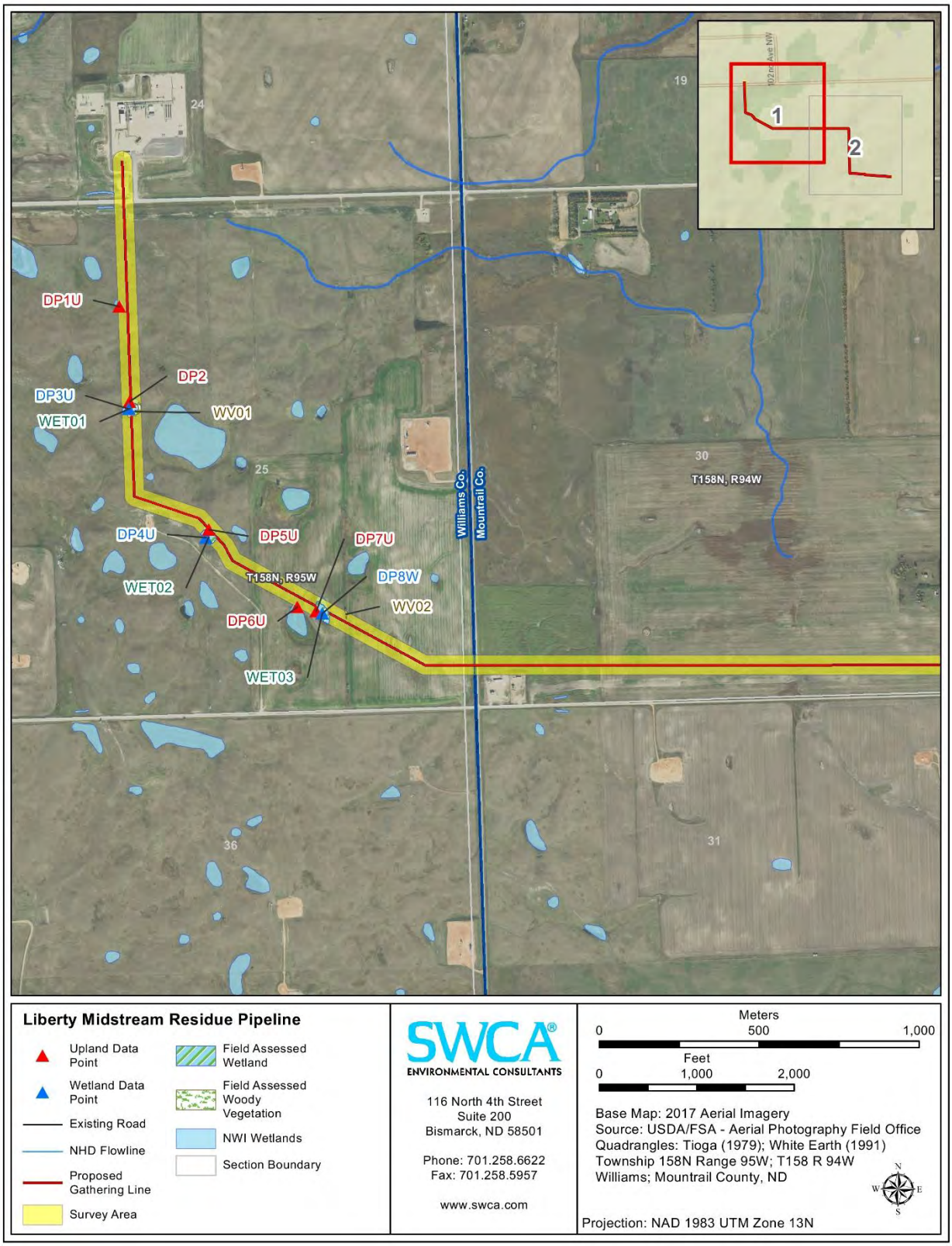

Figure A-2. Liberty Midstream Residue Pipeline project location (map 1 of 2).

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF NORTH DAKOTA

Liberty Midstream Solutions, LLC — **Case No. PU-20-022**
8-inch Residue Gas Pipeline – Mountrail & Williams Counties — **OAH File No. 20200058**

CERTIFICATE OF SERVICE

I, the undersigned, hereby certify that a true and correct copy of the Letter to Mr. Steve Kahl, at the North Dakota Public Service Commission forwarding the following documents:

1. Consolidated response of Liberty Midstream Solutions, LLC to the requests for additional information submitted by the North Dakota Public Service Commission ("Commission") in its letters dated January 23, 2020 and February 7, 2020;

2. Compact disc containing the GIS layers requested by the Commission in its February 7, 2020 letter;

for filing in the above-referenced case were, on March 13th, 2020, served by placing the same in the United States mail, postage prepaid, properly addressed to the following:

Timothy J. Dawson
ND Office of Administrative Hearings
2911 N 14th Street
Bismarck, ND 58503

DATED this 13th day of March, 2020.

FREDRIKSON & BYRON P.A.

By: _____
Lawrence Bender, ND Bar #03908
1133 College Drive, Suite 1000
Bismarck, ND 58501-1215
701.221.8700
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Counsel for Liberty Midstream Solutions, LLC

69564813.1