North System Pipeline Relocation Project
Consolidated Application for a Certificate of Corridor Compatibility and Route Permit

AUGUST 2020

PREPARED FOR

NuStar Pipeline Operating Partnership, L.P.

PREPARED BY

SWCA Environmental Consultants

NORTH SYSTEM PIPELINE RELOCATION PROJECT
CONSOLIDATED APPLICATION FOR A CERTIFICATE OF CORRIDOR COMPATIBILITY AND ROUTE PERMIT

Prepared for

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ACRONYMS AND ABBREVIATIONS

BMP	best management practice
NuStar	NuStar Pipeline Operating Partnership L.P.
CFR	Code of Federal Regulations
Commission	North Dakota Public Service Commission
Consolidated Application	Consolidated Certificate of Corridor Compatibility and Route Permit Application
EMP	Environmental Mitigation Plan
HDD	horizontal directional drilling
NDAC	North Dakota Administrative Code
NDCC	North Dakota Century Code
NDDOT	North Dakota Department of Transportation
NDSWC	North Dakota State Water Commission
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
PHMSA	Pipeline Hazardous Materials Safety Administration
Project	North System Pipeline Relocation Project
ROW	right-of-way
SHSND	State Historical Society of North Dakota
Study Area	1-mile-wide Corridor between the connection point of the North System Pipeline relocation segment to its reconnection point to the North System Pipeline
SWCA	SWCA Environmental Consultants
USACE	U.S. Army Corps of Engineers
USDOT	U.S. Department of Transportation

CHECKLIST FOR COMBINED CORRIDOR COMPATIBILITY AND ROUTE PERMIT APPLICATION

Authority	Description	Section(s)
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49-22.1-06	Application for a Certificate for a Corridor (CC)	
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1.b.	Summary of any studies of environmental impacts	14.0
1.c.	Need for the facility	4.0
1.d.	Site for energy conversion facility	N/A
1.e.	Preferred transmission (pipeline) Corridor	3.2
1.f.	Analysis of merits and detriments of facility location	1.0, 4.4, 12.0
1.g.	Mitigating measures	21.0
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49-22.1-07	Application for Route Permit (RP)	
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1.b.	Description of the location	3.0
1.c.	Route evaluation relative to 49-22.1-03 and 49-22.1-09	17.0, 18.0, 19.0
1.d.	Mitigating measures	20.0
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2	Effects of transmission technology and design to minimize adverse effects	18.2
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69-06-05-01	Application for a Transmission Facility Permit (CC)	
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2.a.(2)	Purpose of facility	4.0
2.a.(3)	Technology to be deployed	6.0
2.a.(4)	Type of product to be transmitted	5.1
2.a.(5)	Source of product being transmitted	5.2
2.a.(6)	Final destination of product being transmitted	5.3

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1 INTRODUCTION

NuStar Pipeline Operating Partnership L.P. (NuStar) is proposing to construct the North System Pipeline Relocation project (Project). The Project involves relocating the portion of NuStar's existing North System Pipeline that will be impacted by construction of the Fargo-Moorhead Diversion Channel in Cass County, North Dakota (Figure 1). The Project will involve installation of approximately 2.21 miles of approximately 10-inch inside diameter welded steel pipeline. As shown in Figure 2, the pipeline relocation Route will go directly south from its starting point for approximately 2,750 feet then turn east and go for approximately 8,945 feet to its endpoint. The segment that will be taken out of service by the relocation pipeline will be purged clean of petroleum products, capped, and abandoned in place, except for the segments directly impacted by construction of the Diversion Channel and Drain 14 which will be removed for disposal at an offsite facility.

NuStar is submitting this Consolidated Certificate of Corridor Compatibility and Route Permit Application (Consolidated Application) to the North Dakota Public Service Commission (Commission) requesting a Certificate of Corridor Compatibility and Route Permit for construction of the North System Pipeline Relocation Project.

This Consolidated Application supports NuStar's request for a Certificate of Corridor Compatibility and Route Permit and complies with Chapter 49-22.1 of the North Dakota Century Code (NDCC) and Chapters 69-06-05 and 69-06-08 of the North Dakota Administrative Code (NDAC).

2 FACILITY TYPE

The proposed Project is composed of one underground pipeline and associated facilities for the relocation of the portion of the North System Pipeline that will be impacted by construction of the Fargo-Moorhead Diversion Channel. NuStar's North System Pipeline transports refined petroleum products from the Tesoro Refinery in Mandan, North Dakota to Fargo, North Dakota, and points east.

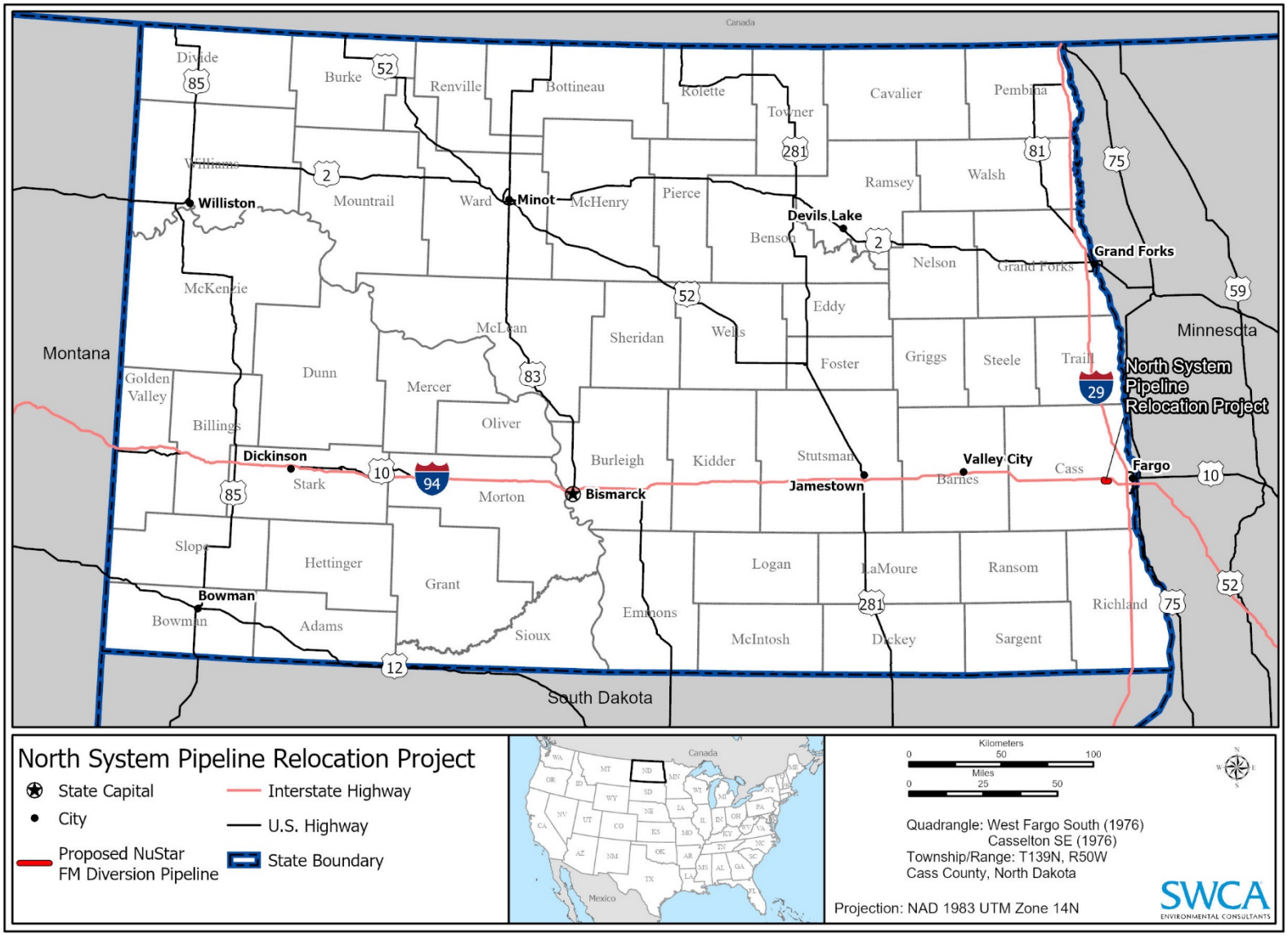

Figure 1. North System Pipeline Relocation Project location map.

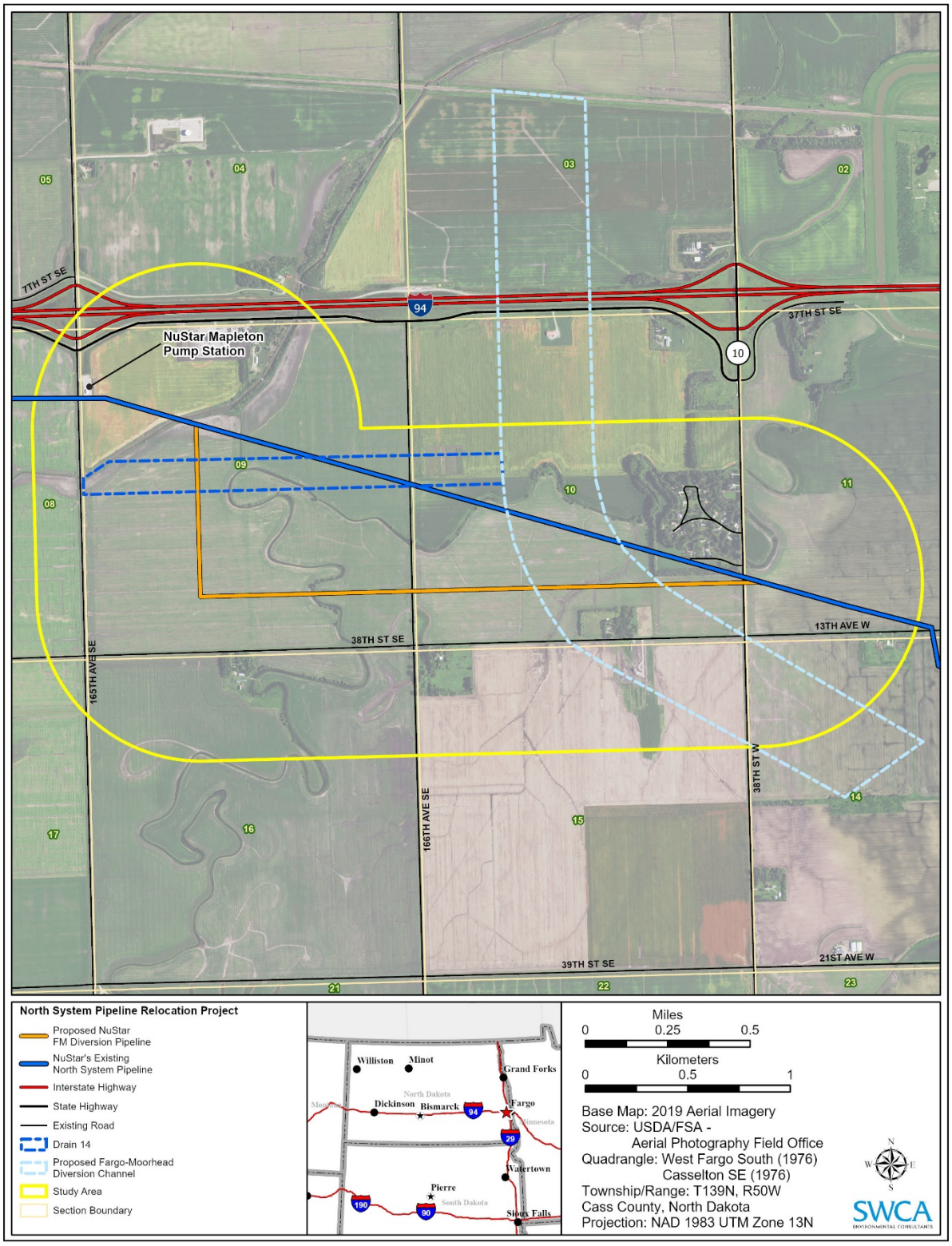

Figure 2. North System Pipeline Relocation Project route and 1-mile wide study area.

3 LOCATION

3.1 Project Study Area

NuStar defined the Project Study Area as 1.0-mile-wide (0.5 mile on either side of the proposed pipeline centerline) between the starting point of where the pipeline relocation Route leaves from the existing North System Pipeline to its endpoint where it reconnects to the existing North System Pipeline in Cass County, North Dakota (Figure 1 and Figure 2).

3.2 Proposed Location of Project Corridor and Route

NuStar is seeking approval of a 200-foot-wide pipeline corridor (Corridor) centered on the proposed alignment (Route). The Corridor is the same as the environmental field survey corridor and encompasses the temporary workspace for the Project. The pipeline relocation Route starts in the SE¼NW¼ of Section 9, Township (T) 139 North (N), Range (R) 50 West (W), heads in a southerly direction for approximately 2,750 feet to the SE¼SW¼ of Section 9, T139N, R50W where it turns to the east and extends for approximately 8,945 to its end point in the SW¼SW¼ of Section 11, T139N, R50W. The location and width of the proposed Corridor are illustrated on the aerial maps in Appendix A, as is the location of the proposed Route within the proposed Corridor.

NuStar's proposed Corridor and Route are the result of a thorough site analysis, and coordination between NuStar, landowners, local officials, agencies, existing infrastructure owners, and the Fargo-Moorhead Diversion Authority. NuStar obtained and analyzed public and proprietary information to identify sensitive areas and features within the Project Study Area, such as exclusion and avoidance areas, populated areas, wetlands, waterbodies, natural resources, areas of cultural significance, and public lands. In addition, NuStar considered existing ROWs (e.g., pipelines and roads) to maximize co-location with other infrastructure, where appropriate. NuStar also sought input from agencies, local governments, and other infrastructure owners, and refined the Corridor and Route based on input received. NuStar completed civil and environmental field surveys and additional constructability reviews to further refine its Route. Ultimately, the Corridor and Route presented in this Combined Application were selected to meet 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 13.0, 17.0, and 18.0 of this Consolidated Application.

4 PURPOSE AND NEED OF THE FACILITY

Relocation of the North System Pipeline at this location is required due to impacts from construction of the Fargo-Moorhead (FM) Area Diversion Project which is designed to protect the Fargo-Moorhead-West Fargo metro area during times of extreme flooding. Construction of Drain 14 and the FM Area Diversion Channel (Figure 2) will intersect with the existing North System Pipeline in the SE¼SW¼ and SE¼SE¼ of Section 9, T139N, R50W and the NE¼SW¼ and SW¼SE¼ of Section 10, T139N, R50W, respectively.

The proposed burial depths for the relocated section of the North System Pipeline are 39 feet below the bottom of Drain 14, 10 feet below the tributary to the Sheyenne River, 10 feet below the roadside ditches alongside 166th Avenue SE, 34 feet below the FM Area Diversion Channel, and 10 feet below the roadside ditches alongside 38th Street W. The burial depth of the existing North System Pipeline in those areas is approximately 3 feet, except where the pipeline crosses 166th Avenue SE and 38th Street W. Thus, relocation and installation of the North System Pipeline to depths below the proposed bottom elevations of Drain 14 and the FM Area Diversion Channel is required to allow construction of these drainage features and to provide buffer zones between the relocated pipeline and these features.

In addition to accommodating the FM Area Diversion Channel, the Project will provide direct benefits to the local community through potential temporary construction employment, with additional indirect benefits from Project-related purchases of local goods and services, such as fuel, food/restaurant and lodging by Project construction and operations personnel. Additionally, as part of NuStar's existing North System Pipeline, the Project will enable continued transportation of refined petroleum products from the Tesoro Refinery in Mandan, North Dakota to Fargo, North Dakota, as well as to locations further east.

A map showing the Route of the proposed NuStar North System Pipeline Relocation Project is provided in Appendix A.

5 PRODUCT

5.1 Type of Product to be Transmitted

The Project will transmit refined petroleum products (e.g., gasoline, diesel fuel).

5.2 Source of Product

The refined petroleum products come from the Tesoro Refineries in Mandan, North Dakota and Laurel, Montana.

5.3 Final Destination of Product

The refined petroleum products are transmitted to NuStar terminals in Moorhead, Sauk Centre, and Roseville, Minnesota and points east.

6 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 the following.

- Use of an external protective coating and cathodic protection to prevent external pipeline corrosion.
- Regular internal pipeline inspections using in-line inspection tools to detect internal anomalies, including corrosion or denting.
- Regular aerial and foot patrols of the permanent ROW.
- Installation of a monitoring and alarm system that continuously monitors the flow and pressure of the system via NuStar's Pipeline Control Center and triggers alarms for anything outside normal operating conditions.

Construction and installation of the pipeline will use horizontal directional drilling [HDD] to avoid impacts to wetlands and identified road and ditch crossings. This technique is discussed further in Section 11.0.

7 ESTIMATED TOTAL COST FOR CONSTRUCTION

The estimated total cost for construction is $4.1 million.

8 SCHEDULE

8.1 Obtaining Certificate of Corridor Compatibility

NuStar requests a Certificate of Corridor Compatibility from the Commission by the Fourth Quarter 2020.

8.2 Obtaining Route Permit

NuStar requests a Route Permit from the Commission by the Fourth Quarter 2020.

8.3 Completing Right-of-Way Acquisition

NuStar has existing easements along the proposed Corridor and Route and thus, NuStar has the easement rights needed to construct the Project as proposed.

8.4 Starting Construction

Construction of the Project is scheduled to begin in the Second Quarter 2021.

8.5 Completing Construction

NuStar expects to complete construction of the Project in the Third Quarter 2021.

8.6 Testing Operations

NuStar expects to conduct hydrostatic testing of the relocation pipeline segment and associated equipment and systems in the Third Quarter 2021. Once the pipeline is placed into service, an internal inspection tool will be run to establish a baseline assessment of the pipeline.

8.7 Commencing Operations

The Project will commence operations in the Third Quarter 2021.

9 FACILITY SIZE AND DESIGN

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

9.1 Pipeline

9.1.1 *Width of Right-of-Way*

In general, the Project will utilize an 80-foot-wide construction ROW. The pipeline will be offset in the construction ROW, as shown in the Topsoil Salvage Trench and Spoil Side schematic included in Appendix A, which is an overview of the proposed pipeline construction process. Additional temporary workspace areas, ranging in size from approximately 100 feet x 100 feet up to 150 feet x 350 feet, will be required to accommodate HDD boring crossings at Drain 14, the Sheyenne River tributary, 166th Avenue SE, the FM Area Diversion Channel, and 38th Street W locations, as shown on the Project ROW map in Appendix A.

9.1.2 *Length of Facility*

The NuStar North System Pipeline Relocation Route will be approximately 2.21 miles in length.

9.1.3 *Pipe Size*

The Project will require installation of a welded steel pipeline with the following specifications:

- Conventional lay pipe: 10.750-inch outside diameter (O.D.), 0.250-inch nominal wall thickness (10.25-inch inside diameter [I.D.]), American Petroleum Institute (API) 5LX-52 Electric Resistance Welded (ERW) Steel line pipe with 14 – 16 mils fusion bonded epoxy (FBE) coating.

- HDD installed pipe: 10.750-inch O.D., 0.250 nominal wall thickness (10.25-inch ID), API 5LX-52 ERW Steel line pipe with 14 –16 mils FBE and 30 mils of abrasion resistant overcoat (ARO).

9.1.4 *Maximum Design Operating Pressure and Temperature*

The maximum anticipated operating pressure of the entire North System Pipeline, including the relocation segment, is 1,440 pounds per square inch, with a maximum operating temperature of 100 degrees Fahrenheit.

9.2 Aboveground Facilities

9.2.1 *General Location of New Associated Facilities*

No new pump stations are required for this relocation project. The North System Pipeline has three existing pump stations, located in Mandan, Medina, and Mapleton, North Dakota and none of these pump stations will be modified for this pipeline relocation.

Existing block valves are present at the Mapleton Pump Station in the NW¼NW¼ of Section 9, T139N, R50W and the Sheyenne Block Valve on Township Road in the NW¼SW¼ of Section 18, T139N, R49W. The Sheyenne Block Valve will be modified to provide for remote monitoring and operation from the Pipeline Control Center in NuStar's Corporate Office in San Antonio, Texas. No new block valves or new access roads will be required for the Project.

9.2.2 *Estimated Distance between Surface Structures*

The only surface structures associated with the North System Pipeline Relocation are the existing Mapleton Pump Station and the existing Sheyenne Block Valve and the distance between these two structures is approximately 4.24 miles. The Sheyenne Block Valve will be modified to provide for remote monitoring and operation from the Pipeline Control Center in NuStar's Corporate Office in San Antonio, Texas. Pipeline markers will also be placed at designated locations along the relocation Route (e.g., public road crossings) as required by local, state, and federal regulations.

9.2.3 *Maximum Design Flow Rate for Pipeline Facilities*

The maximum design flow rate for the NuStar North System Pipeline is 3,000 barrels per hour (3,024,000 gallons per day).

9.2.4 *Number and Location for Compressor and/or Pumping Stations*

The North System Pipeline has existing pump stations in Mandan, Medina, and Mapleton, North Dakota. No new pump stations will be installed for this relocation project.

10 EASEMENT ACQUISITION

10.1 Informing Landowners of Easement Acquisition

Upon identifying the preliminary relocation Route, NuStar used publicly available information to identify landowners along the proposed Route and contacted landowners via telephone to introduce and discuss the Project. During in-person meetings with landowners, the NuStar land agent presented proposed Route maps for landowner review and input. NuStar has received all necessary permissions to complete the

survey of the Corridor and Route. Additionally, NuStar has existing easement rights that authorize construction of the pipeline along the proposed Corridor and Route

10.2 Compensation for Easement

As noted above, NuStar has existing easement rights adequate to construct the Project as proposed, and landowners are being compensated per the terms of the existing easements. As applicable, landowners will also receive payment for any crop damage resulting from Project construction activities.

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

The relocated segment of the North System Pipeline will be installed using the horizontal directional drilling (HDD) method where it crosses Drain No. 14, 166th Avenue SE, the FM Diversion Channel, and 38th Street W, while the conventional trenching/pipe lay method will be used for the remainder of the Route. The proposed separation distances between the relocated section of the North System Pipeline are 39 feet below the bottom of Drain 14, 10 feet below the tributary to the Sheyenne River, 10 feet below the roadside ditches alongside 166th Avenue SE, 34 feet below the FM Area Diversion Channel, and 10 feet below the roadside ditches alongside 38th Street W. In areas where the conventional trenching/pipe lay method is used, the relocation pipeline segment will be buried a minimum of 4 feet below ground surface.

11.1 Right-of-Way Preparation and Conventional Pipeline Construction

The proposed Project will be designed, constructed, tested, operated, and maintained in accordance with applicable requirements under the USDOT regulations in Title 49 Code of Federal Regulations (CFR) Part 195, U.S. Department of Labor regulations, Occupation Safety and Health Administration requirements, and other applicable federal and state regulations. Among other design standards, 49 CFR Part 195 specifies pipeline material selection; minimum design requirements; protection from internal, external, and atmospheric corrosion; and qualification procedures for welding and operations personnel.

Prior to the start of construction, a pre-construction safety and environmental orientation will be held with all contractors and personnel involved in the Project. The orientation will review safety compliance; incident reporting; protocols for determining, correcting, and documenting safety non-compliance; and expectations for compliance enforcement. All construction personnel will be briefed and trained on all construction and environmental requirements, including laws, rules, and regulations applicable to the work. NuStar will have a designated environmental inspector and safety representative on-site throughout construction.

Construction will typically take place during daylight hours. Spill prevention measures will be in place to maintain construction personnel safety and to protect the environment.

The standard pipeline construction process includes clearing and grading the ROW; pipe stringing, bending, and welding; trenching; lowering the pipeline; padding and backfilling; hydrostatic testing; and ROW cleanup and restoration (see Pipeline Construction Sequence schematic drawing in Appendix A). Each of these activities is discussed in more detail below.

11.1.1 *Clearing and Grading*

Once the limits of the approved work area (the construction ROW and temporary workspaces), pipeline centerline, access roads, aboveground facilities, and sensitive areas (e.g., wetland and waterbody boundaries) have been staked and flagged, the construction area will be cleared and graded. The ROW will be graded to provide a relatively level surface that is wide enough to allow for the passage of heavy construction equipment.

To prevent soil mixing, topsoil will be removed and segregated from the underlying subsoil. Topsoil will be removed from the entire ROW for the entire length of the pipeline and stored along the edge of the construction ROW. Construction activities will be suspended during abnormally wet conditions to prevent excessive rutting or mixing of topsoil with subsurface soils. Refer to the Pipeline Construction Sequence and Topsoil Salvage Trench and Spoil Side schematic drawings in Appendix A for additional detail.

Fences and gates will be constructed during the clearing and grading operations to allow continuous use of pastures, grazing units, and livestock facilities. Best management practices (BMPs) such as silt fences will be installed along the ROW adjacent to wetlands and waterbodies to prevent sediment from entering these areas. Temporary erosion controls will be installed after initial disturbance of soils, where necessary, to minimize erosion. Erosion-control BMPs will be monitored by the environmental inspector and maintained by the construction contractor throughout construction.

11.1.2 *Pipe Stringing, Bending, and Welding*

Pipe will be either stored at storage yards or transported directly to the pipeline ROW. Following trenching, pipe will be strung along the ROW. A stringing crew using special trailers will move the pipe along the ROW. Pipe joint lengths are typically 40 to 80 feet long.

A pipe-bending machine will be used for making slight bends in the pipe to accommodate variations in the pipeline Route or to conform to the topography. Using a series of clamps and hydraulic pressure, the bending machine is used to make a smooth, controlled bend in the pipe. Bending will be in accordance with federal standards to ensure integrity of the bend. Pipe used for sharp bends is bent at the mill or will be forged pipeline fittings. The pipe will be pre-coated with a fusion-bonded epoxy external coating to provide corrosion protection.

The welding process joins the sections of pipe into one continuous length. All welders will be required to pass an approved qualification test; the test will use Project-specific weld procedures developed in accordance with federally adopted welding standards. All field welds will be nondestructively tested to ensure structural integrity and compliance with USDOT regulations. Once welds are approved, the 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 the pipe into the trench.

11.1.3 *Trenching*

Trenches will be excavated using a wheel trencher, backhoe or track hoe to a depth sufficient to provide the minimum cover required by federal, state, or local regulations, as well as landowner requirements. If areas of solid rock are encountered, special excavation equipment and/or techniques will be used, such as backhoe-mounted pneumatic chisels.

The amount of open trench permitted at any time during the Project will be dependent on the stability of the trench and weather conditions. In areas where livestock is confined or in cultivated fields, temporary

fences, gates, and/or bridges will be installed to provide appropriate restriction or safe access across the open trench.

11.1.4 *Pipeline Installation and Trench Backfilling*

Several side-boom tractors, or track hoes, will simultaneously lift the welded sections of pipe and lower them into the trench. Non-metallic slings will be used to protect the pipe and coating as it is raised and lowered into position. Sandbags or foam blocks will be placed at the bottom of the trench prior to laying the pipe in rocky areas to protect the pipe and coating from damage.

As necessary, trench breakers will be installed adjacent to wetlands and in steep topography to eliminate water migration along the trench. When required, the trench will be dewatered prior to lowering in the pipe. Dewatering effluent will pass through sediment filters such as hay bale structures and/or filter bags to ensure compliance with applicable water quality requirements.

After pipeline installation is complete, the subsoil will be replaced in the pipeline trench and the adjacent areas restored to the land's natural contours. Then the topsoil will be replaced in the locations from which it was originally removed. The trench line will be compacted with a wheeled-roller or other suitable construction equipment, if needed. If the excavated material contains rocks that could damage the pipe and/or coating, a rock shield will be used to protect the pipe. Topsoil will not be used for padding.

11.2 HDD Construction Method

HDD is a trenchless technique for installing pipelines or other linear utilities to avoid or minimize surface or sensitive area disruptions and to install pipe where conventional installation techniques are unfavorable. NuStar proposes to use the HDD method for the crossings of Drain 14, the unnamed tributary to the Sheyenne River, 166th Avenue S.E., the FM Area Diversion Channel, and 38th Street W.

The first step in HDD construction involves drilling a directionally controlled pilot hole along a predetermined path extending from grade at one end to grade at the opposite end. The entry and exit holes for the HDD are designed to be set-back from the area of avoidance to allow for the geometry of the drill to reach the desired target depth.

The second step consists of enlarging (reaming) the pilot hole to a size that will facilitate pulling the pipeline through the enlarged hole, which is approximately 1.5 to 2.0 times larger than the outside diameter of the pipe. Reaming of the pilot hole is accomplished by pulling reaming heads of specific diameters through the hole, in stages if necessary, to create a larger diameter hole. Each stage involves circulating drilling fluid from equipment on the surface through the drill pipe to a downhole bit or reamer, and back to the surface through the annular space between the pipe and the wall of the hole. The circulating fluid primarily consists of bentonite, which is a non-toxic, naturally occurring sedimentary clay composed of weathered and aged volcanic ash.

Prior to drilling the bore, pipe sections are welded together to fabricate a pipeline segment of sufficient length for the bore. After welding the pipe sections together and performing non-destructive weld testing (e.g., radioactive photography), the pipeline segment for the bore is hydrostatically pressure tested prior to installation. Once the bore hole has been enlarged and is stable, the welded pipeline segment is pulled through the hole. Generally, the pipe is laid out and welded on the exit side of the bore. This approach will be followed for all crossings, except the FM Area Diversion Channel and the 38th Street W. bores. Due to the length of the combined channel and the 38th Street W. bore (approximately 3,200 feet) and to minimize the land disturbance area on the exit side of the bore (i.e., east of 38th Street W.), the pipeline segments will be fabricated and tested on the entry side of the HDD bores. Once the bore has been

completed, the drill rig will be moved to the exit side and will then pull the pipeline segment through the bore from that side. Refer to the Typical Waterbody Crossing Horizontal Directional Drill schematic drawing in Appendix A for details.

11.2.1 *Waterbody and Wetland 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. As noted in the *Natural Resources and Wetland Delineation Report for the NuStar North System Pipeline Replacement Project* (SWCA Environmental Consultants [SWCA] 2020) and discussed in Section 14.2, wetlands and waterbodies were identified and delineated in the pipeline ROW. Two wetlands will be crossed by the Project using the HDD method and the crossings will be in compliance with the requirements of the USACE Nationwide Permit 12. See the Typical Wetland Crossing schematic and Typical HDD Boring Schematic drawings in Appendix A.

The proposed Project stormwater pollution prevention plan will specify measures based on BMPs that will address erosion control, equipment refueling, temporary bridge crossings, construction timing and methods, and restoration. Temporary workspaces are typically required on each side of a wetland crossing to stage construction, fabricate the pipeline, and store materials. Temporary workspaces will be located within the ROW at upland areas a minimum of 50 feet from the edge of the wetland. Sediment barriers, such as a silt fence, will be installed to prevent spoil and sediment-laden water from entering the wetland.

11.3 Restoration Procedures

Once construction is complete, the pipeline ROW and temporary workspaces will be restored to their prior contour and condition to the extent practicable, except that trees and shrubs will be regularly removed from the ROW to facilitate Project inspection and maintenance. All timber riprap, timber mats, and prefabricated equipment mats and other construction debris will be removed. Topsoil will be replaced, and approximate original contours restored. If required, permanent erosion-control measures will be installed as directed by the environmental inspector. Disturbed areas will be revegetated using seeding requirements specified by the Natural Resources Conservation Service or as required by the landowner except for cultivated lands. Specific restoration measures are described in the Environmental Mitigation Plan (EMP) that is provided in Appendix B.

12 OPERATION AND MAINTENANCE

During Project operation, pipeline pressure, temperature, and flow rate data will be monitored from the Pipeline Control Center in NuStar's Corporate Office in San Antonio, Texas. The Control Center will provide continuous monitoring of pipeline operations data 24 hours a day, 7 days a week. Where changes in the data occur that indicate a potential issue with the pipeline or facilities, alarms will be triggered, notifying operations personnel of the potential issue. NuStar will amend the current North System Pipeline Integrity Management Plan to incorporate the relocation pipeline segment. This Integrity Management Plan complies with applicable federal regulations (49 CFR 195.400) and outlines preventive maintenance, inspection, line patrol, leak detection systems, and other pipeline integrity procedures that are implemented to ensure the safe operation of the North System Pipeline.

In the event of an emergency, NuStar will implement emergency response measures to address the situation. NuStar contracts with an experienced emergency response service provider, whose experience includes implementing emergency response protocols for releases impacting surface waters, wetlands, or

other environmentally sensitive areas. Further, as required by 49 CFR 194, NuStar will amend the existing North System Pipeline Emergency Response Plan (Plan) to include the relocation pipeline segment. The Plan outlines specific protocols to be implemented in the event of a pipeline release or other emergency.

During operations, NuStar will conduct inspections and perform maintenance activities. Maintenance activities will include making any necessary pipeline and facility repairs and removing any vegetation on the ROW that impacts the safe and reliable inspection and operation of the pipeline. Inspections and maintenance will be performed in compliance with applicable USDOT regulations.

13 ALTERNATIVES CONSIDERED

13.1 Project Alternatives

13.1.1 *No Action*

Under the No Action Alternative, the Project would not be constructed. Without this Project, construction of Drain 14 and the FM Area Diversion Channel by the Fargo-Moorhead Diversion Authority could not proceed. For this reason, No Action is not an alternative for the Project.

13.1.2 *Route Alternatives*

As discussed below, three alternatives were considered for the North System Pipeline Replacement Project, with the following considerations:

- Complying with Commission siting criteria, including exclusion area, avoidance area, selection, and policy criteria.
- Co-locating with existing infrastructure where possible.
- Avoiding and minimizing potential impacts to existing infrastructure, landowners, and environmentally sensitive areas.
- Using constructability and operational efficiencies.
- Minimizing safety concerns.
- Ensuring the ability to acquire ROW from landowners.
- Meeting USACE and FM Diversion Authority requirements.

13.1.2.1 NORTHERN ROUTE

NuStar considered a Route that went due east from the Mapleton Pump Station for approximately 8,628 feet, then turned southeast and south-southeast for another 5,872 feet for a total of 14,500 feet. This Route consisted of approximately 11,000 feet of conventional lay pipeline and 3,500 feet of HDD pipeline installation. However, NuStar did not select this route because NuStar does not have any easement rights in the northern half of Section 10, T139N, R50W and would have needed to negotiate easements with two new landowners. Additionally, this route is longer than the proposed Route.

13.1.2.2 EXISTING NORTH SYSTEM PIPELINE ROW

NuStar considered installing the replacement pipeline segment in the same ROW as the existing North System Pipeline, as shown in Figure 2. However, doing so would have resulted in total HDD boring lengths of approximately 3,100 feet and 5,100 feet for the Drain 14 and the FM Area Diversion Channel crossings, respectively. Not only would material costs be higher, but a more specialized HDD boring contractor would be required for these longer boring lengths, resulting in almost one million dollars more in project costs. Additionally, the long, angled HDD bores would not adhere to the crossing requirements of the USACE and are not preferred from a construction safety standpoint.

13.1.2.3 THE PROPOSED ROUTE

The southern Route shown in Figure 2 is the proposed Route for the Project. This Route is shorter than the northern Route, consisting of 7,419 feet of convention lay pipeline and approximately 4,301 feet of HDD pipeline installation, for a total of 11,720 feet. Additionally, NuStar has existing blanket easements for Sections 9, 10, and 11, T139N, R50W, and thus, does not need to acquire new easements for the Project.

13.1.3 *Other Alternatives*

Other alternatives, such as trucking or rail transportation, were not considered because they were impractical given that the Project involves a relocation of an existing pipeline.

14 ENVIRONMENTAL STUDIES

14.1 Cultural Resource Inventory

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 Study Area and surrounding 1.0-mile-wide survey area on April 7, 2020. SWCA searched relevant records holdings at the State Historical Society of North Dakota for information regarding previously conducted cultural resource inventories and previously recorded historic and prehistoric sites located within the Project Study Area. Additionally, SWCA searched historic General Land Office survey maps dated to 1871 that show no historic roads or trails within the survey area (North Dakota State Water Commission 2019).

Based on the records search results, seven previous cultural resource inventories and investigations were conducted in the 1-mile-wide survey area between 2012 and 2018. The inventories were conducted for flood-control projects, oil and gas pipelines, road improvements, and a geothermal building. The seven previous inventories within the 1-mile-wide Project Study Area recorded an average of one resource for every 149 acres surveyed.

Results of the background search identified three previously recorded cultural resources within the 1-mile-wide Project Study Area. These cultural resources consist of one historic shed site, one prehistoric village site lead, and one prehistoric isolated find. The historic shed site (32CS5260) and the isolated find (32CSX401) have been recommended not eligible for inclusion in the National Register of Historic Places (NRHP). The remaining site lead (32CSX0209) has been left unevaluated regarding its eligibility for the NRHP. None of the previously recorded resources occur within the proposed Corridor.

SWCA conducted a Class III inventory of the 200-foot wide survey Corridor on May 21, 2020. Vegetation typically within the Project area (cultivated corn) had not yet been planted for the growing

season. Ground surface visibility during the survey was considered adequate to conduct the pedestrian survey. Impacts to the project area include plowing and cultivation for agriculture, oil and gas pipeline construction, road construction and maintenance, and installation of buried utilities within the road right-of-way. No cultural resources were encountered during the inventory.

14.2 Wetland and Waterbody Inventory

Prior to conducting field surveys, SWCA reviewed applicable National Wetlands Inventory (NWI) data, National Hydrography Dataset flowline data, and preliminary National Weather Service climatic data. NWI mapping for the region indicated the presence of wetlands within the Study Area. The results of the desktop analysis and field survey are presented in the Natural Resources Report (Bachhuber 2020), presented as Appendix D to this application.

SWCA conducted field surveys of the 200-foot-wide Corridor on May 14, 2020, to determine the potential presence and extent of wetlands and waterbodies, including those that are likely jurisdictional waters of the U.S. according to the U.S. Army Corps of Engineers (USACE) regulatory program. Wetland delineations were 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). According to the Manual, an area is a wetland if three specific wetland indicators—hydrophytic vegetation, wetland hydrology, and hydric soils—are present, with certain exceptions. All wetlands and waterbodies geographically referenced within the survey Corridor during field survey are depicted on the site layout maps in Appendix A. Wetland delineation data forms are provided in Appendix C of the Natural Resources Report.

SWCA delineated two palustrine emergent (PEM) wetlands within the 200-foot-wide survey Corridor, totaling approximately 0.427 acre. One of these wetlands is associated with a National Hydrography Dataset flowline that is a tributary to the Sheyenne River and may be jurisdictional, while the other wetland is the roadside ditch along the western side of 166th Avenue SE. Both wetlands will be crossed using the HDD method.

SWCA did not identify any waterbodies within the survey Corridor with an ordinary high water mark (OHWM), in accordance with USACE guidance (USACE 2008). Common identifiable indicators of an OHWM include physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter and debris; or other appropriate means that consider the characteristics of the surrounding areas. 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. An unnamed tributary to the Sheyenne River is present within the survey Corridor, but this tributary did not exhibit the OHWM characteristics and was delineated as a PEM wetland.

14.3 Habitat Assessment

14.3.1 *Tree/Sapling/Shrub Inventory*

SWCA conducted field surveys of the Corridor on May 14, 2020, to confirm the presence or absence of woody vegetation. An SWCA biologist recorded all trees with a DBH equal to or greater than 1 inch and all coniferous trees and shrubs, regardless of DBH. Five peach-leaf willow (*Salix amygdaloides*) shrubs were geographically referenced within the survey Corridor and occur within the PEM wetland associated

with the unnamed tributary to the Sheyenne River, which will be crossed via HDD and will not be impacted by construction. Therefore, no trees, saplings, or shrubs will need to be replanted to fulfill the NDPSC tree and shrub mitigation requirement (NDPSC 2020). Refer to Appendix D, Natural Resources Report, for additional information on these features and mapped locations.

14.3.2 *Wildlife*

Two wildlife species listed as threatened or endangered under the Endangered Species Act have the potential to occur in Cass County (U.S. Fish and Wildlife Service 2020): northern long-eared bat (*Myotis septentrionalis*; threatened) and whooping crane (*Grus americana*; endangered).

Review of the USFWS Critical Habitat Portal (USFWS 2020c) indicates that critical habitat for threatened and endangered species has not been designated in Cass County. SWCA conducted a cursory threatened and endangered species habitat survey concurrently with the aquatic resource delineation. Additionally, SWCA assessed the Project area for the presence of migratory bird nesting habitat, as well as habitat that could be used by nesting bald or golden eagles. SWCA also conducted 0.5-mile line-of-sight surveys for bald and golden eagle nests or other raptor nests.

SWCA's biologist did not observe any primary (i.e., actual sighting) or secondary (i.e., tracks, scat, fur) indication of the presence of threatened or endangered species. The Project area lacks suitable habitat for both the northern long-eared bat and the whooping crane; therefore, the Project is not expected to result in impacts to either species. These species, their habitats, and their potential to occur in the Project area are described below. 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. Refer to Appendix D, Natural Resources Report, for additional information on these species.

14.3.2.1 NORTHERN LONG-EARED BAT

This medium-sized bat ranges across the eastern and north-central United States and all Canadian provinces. 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 in North Dakota, due to either no suitable hibernacula present or a lack of survey effort.

Field surveys indicate that no trees are present within the Corridor that would be suitable roosting habitat for the northern long-eared bat. Suitable roost trees were observed adjacent to the Project Study Area, and suitable foraging habitat is present along the wetlands within the Project Study Area that may be used by northern long-eared bats. However, because no suitable roost trees are present within the survey Corridor, no impact to the northern long-eared bat is anticipated.

14.3.2.2 WHOOPING CRANE

The USFWS indicates that North Dakota is within the whooping crane migration Corridor and that the species may stop over in suitable habitat, which includes cropland and pastures, wet meadows, shallow marshes, and waterbodies (USFWS 2010). The Project is approximately 50 miles east and outside of the 95% whooping crane migration Corridor at its closest point, which indicates that it is relatively less likely for the species to be present within the survey Corridor than in areas closer to the migration Corridor. Review of the USFWS Whooping Crane Tracking Project Database did not return any whooping crane

observation records within the Project Study Area, with the closest whooping crane observation being in the spring of 1976, at a location approximately 23 miles to the southwest of the Project (USFWS 2019c).

Field surveys indicate that agricultural land and wetlands within the Project Study Area could provide potentially suitable stopover habitat for the whooping crane. However, because the Project is outside of the whooping crane migration Corridor, the potential for the whooping crane as an overhead migrant within the Project is low during spring and fall and is not expected during summer or winter. SWCA recommends that if a whooping crane(s) is sighted within 1.0 mile of the Project, NuStar should stop construction in that area until the whooping crane(s) leaves the area and NuStar should notify the USFWS of the sighting. Therefore, no impact to the whooping crane is anticipated.

14.3.3 *Migratory Bird Treaty Act*

The Migratory Bird Treaty Act makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to federal regulations. The migratory bird species protected by the MBTA are listed in Title 50 Code of Federal Regulations (CFR) Part 10.13. Review of land cover data and aerial imagery as well as the results of field surveys indicate that limited suitable habitat for migratory birds exists within the Project area which mostly consists of cultivated cropland with limited potential for use by nesting migratory birds; however, some limited wetland habitat is present that could be used by migratory birds. NuStar has committed to crossing wetland habitat using the HDD method and therefore, impacts to migratory birds and/or their nesting habitat are not anticipated. Refer to Appendix D, Natural Resources Report, for additional information on migratory birds.

14.3.4 *Bald and Golden Eagle Protection Act Consultation*

The Bald and Golden Eagle Protection Act provides for the protection of the bald eagle and the golden eagle (as amended in 1962) by prohibiting the take, possession, sale, purchase, barter; offer to sell, purchase, or barter; transport; export; or import of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit (16 United States Code 66a; 50 CFR Part 22). “Take” includes to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb. The bald eagle (*Haliaeetus leucocephalus*) feeds on fish and carrion and typically roosts in large trees near a water source. Bald eagle nesting habitat typically consists of any mature stands of conifer or cottonwood trees in association with rivers, streams, reservoirs, lakes, or any significant body of water. The bald eagle primary range within the state includes eastern North Dakota and the Missouri River Corridor (Dyke et al. 2015) and Cass County is included in the primary range for this species. The bald eagle is both a year-round resident, as well as a migrant species, in the state. Bald eagles in eastern North Dakota are usually observed along the Red River and Sheyenne River.

A 2009 statewide census conducted by the North Dakota Game and Fish Department (NDGFD) documented 66 nests that were thought to be occupied by bald eagles, four of which occurred in Cass County (Johnson 2009). The number of recent bald eagle observations in the vicinity of the Project include: one observation approximately 1.5 miles east of the Project area in 2017; one observation approximately 1.8 miles north of the Project in 2018; and several recent observations near the West Fargo Water Treatment Plant, approximately 2 miles northeast of the Project between 2017 and 2019 (AKN 2020). Therefore, the potential exists for bald eagles to pass through the Project Study Area, but no bald eagles or nests were observed during the field surveys.

Golden eagles favor partially or completely open country, especially around mountains, hills, and cliffs. They use a variety of habitats ranging from arctic to desert, including tundra, shrublands, grasslands, coniferous forests, farmland, and areas along rivers and streams (Cornell Lab of Ornithology 2019).

Golden eagles are uncommon in North Dakota and the species' primary and secondary ranges in the state are over 169 miles west of the Project area, from the Missouri River Valley westward, including the badlands of western North Dakota and the Lake Sakakawea breaks (Dyke et al. 2015). The Project is within the migration range for this species and thus, there is the potential for golden eagles to pass through the Project area at low frequencies during spring and fall migration (Cornell Lab of Ornithology 2019), though nesting is not likely. Refer to Appendix D, Natural Resources Report, for additional information on these species.

15 CONSULTATION

On June 1, 2020, SWCA, on behalf of NuStar, sent letters to various agencies and officials, including those identified in NDAC Section 69-06-01-05, providing information regarding the Project and requesting input. The responses received to-date are summarized below. Please refer to Appendix E Agency Correspondence/Consultation, for copies of the consultation letters sent and the agency responses received, as summarized below.

15.1 North Dakota Geological Survey

In a letter dated June 11, 2020, the ND Geological Survey stated that they had reviewed the alignment of the planned pipeline Route and did not note any concerns with the project at this time.

15.2 North Dakota Department of Environmental Quality

In a letter dated June 10, 2020, the NDEQ stated that environmental impacts from the proposed construction will be minor and can be controlled by proper construction methods. The NDEQ provided the following comments regarding construction of the project:

1. Care is to be taken during construction activity near any water of the state to minimize adverse effects on a water body.

2. Projects disturbing one or more acres are required to have a permit to discharge stormwater runoff until the site is stabilized by reestablishment of vegetation or other permanent cover.

3. All solid water materials must be managed and transported in accordance with the state's solid and hazardous waste rules.

4. 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.

NuStar has designed and will construct the Project in a manner consistent with the NDDEQ's recommendations.

15.3 North Dakota State Historic Preservation Office

In a letter dated June 15, 2020, the SHSND recommended a Class I Inventory and Class III (pedestrian) survey of the pipeline Route be conducted. SWCA completed a Class I background search of files maintained at the State Historical Society of North Dakota and historic survey plats for the Study Area on April 7, 2020 and completed a Class III cultural resource inventory on May 25, 2020. The results of these

investigations are discussed in Section 14.1. In the cultural resources report submitted to the SHSND on July 14, 2020, SWCA recommended that a determination of *No Significant Sites Affected* be issued for the Project (see Appendix E).

SWCA completed an Unanticipated Discovery Plan and submitted it to SHSND on July 10, 2020, as well (Appendix E).

15.4 City of West Fargo

In a letter dated June 19, 2020, the City of West Fargo Planning and Zoning Commission recommended locating the proposed pipeline alignment along section lines or half-section lines to better accommodate future development and minimize costly or dangerous construction activities when infrastructure is extended into this area. On July 13, 2020, NuStar and the City of West Fargo Planning and Zoning Commission had a conference call to discuss the Project and the recommendation. On July 14, 2020, NuStar sent a letter to the Planning and Zoning Commission providing additional information regarding its Route development process and the rationale for selecting the proposed Route. On July 15, 2020, the City Engineer and the Director of Planning and Zoning sent a letter to NuStar indicating that the Planning and Zoning Commission was withdrawing its prior alignment recommendation.

15.5 Maple River Water Resource District

In a letter dated June 29, 2020, the Maple River Water Resource District stated that a Utility Permit from the Maple River Water Resource District will be required for the crossing of Cass County Drain No. 14 and provided contact information to obtain said permit. NuStar will obtain the Utility Permit, as required.

15.6 North Dakota State Water Commission

In a letter dated June 30, 2020, the North Dakota State Water Commission stated that the Project had been reviewed by State Water Commission staff and had the following comments:

1. The state has no formal permitting authority for the identified and/or mapped floodplains in the proposed project area and suggested working closely with the local Floodplain Administrator.

2. The Office of the State Engineer (OSE) Engineering and Permitting Section reviewed the project Route and determined that the project Route traverses over or through surface water resources. The OSE requests to be notified regarding the proposed project's impacts, if any, to water resources such as watercourses, agricultural drains, and wetlands. Any alterations, modifications, improvements, or impacts to those water resources may require a drainage permit(s) or a construction permit(s) from the OSE.

3. The project appears to intercept Cass County Drain No. 14 and a diversion located in the N½ of Section 9, T139N, R50W, Cass County, which is permitted under Construction Permit No. 2151 (see attached). The OSE requests to be notified of any alterations, modifications, or improvements to these structures as drainage and (or) construction permit(s) may be required.

4. Initial review indicates the project does not require a conditional or temporary water appropriation permit; 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, and suggest consulting with the OSE Water Appropriations Division with any questions.

In a July 13, 2020 letter, NuStar responded with the following information:

1. The Cass County Floodplain Administrated has been contacted to determine if a Floodplain Development Permit would be required. Project information was sent to Mr. Bob Staloch (Cass County Floodplain Administrator) on July 30, 2020 and in an August 3, 2020, telephone call, Mr. Staloch indicated that a Floodplain Development Permit was required and would be issued for the Project, but that a building permit would not be required for the Project.

2. The proposed pipeline route encounters two Palustrine Emergent (PEM) wetlands associated with the unnamed tributary to the Sheyenne River in Section 9, T139N, R50W and the western roadside ditch along 166th Avenue SE for a total of approximately 0.427 acre in size. NuStar is proposing to install the pipeline underneath the wetland areas using the horizontal directional drilling (HDD) method and thus, there should be no impacts to surface water resources from the pipeline construction.

3. The proposed relocation pipeline Route will not intersect the existing Drain No. 14, but the Route would cross the proposed location of the new Drain No. 14. This crossing will be constructed using the horizontal directional drilling (HDD) method and has been designed to provide a minimum of 15 feet of separation between the bottom of the new drain and the pipeline. Thus, no alteration, modification, or improvement to either the existing or future drains is anticipated.

4. Shallow groundwater or surface water diversions may be required to facilitate pipeline construction. If construction dewatering is required, said discharges would be permitted under the NDPDES General Permit for Temporary Discharges (NDG07000), issued by the North Dakota Department of Environmental Quality, and the Water Appropriations Division of the OSE will be contacted to determine if a temporary appropriation permit would be required for these diversions.

16 IDENTIFICATION OF POTENTIAL PERMITS/APPROVALS

A permitting matrix was created showing potential federal, state, and local permits that may be needed for construction of the Project, as summarized in Table 1.

Table 1. Potential Permits/Approvals

Agency	Permit/Approval	Status
Federal		
U.S. Army Corps of Engineers	Section 404 permit for dredge/fill in jurisdictional wetlands	Project qualifies for Nationwide Permit 12 and a preconstruction notification is not required.
U.S. Fish and Wildlife Service	Consultation and review of the proposed Project regarding impact to federally threatened and endangered species, migratory birds, and bald and golden eagles	Consultation requested and received.
State		
North Dakota Public Service Commission	Certificate of Corridor Compatibility and Route Permit	Application pending.
North Dakota Department of Environmental Quality, Water Quality Division	National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction Activity	Submit Notice of Intent at least 7 days prior to construction and develop/implement Stormwater Pollution Prevention Plan.

Agency	Permit/Approval	Status
	NPDES General Permit for Temporary Dewatering/Hydrostatic Testing	Submit Notice of Intent at least 30 days prior to discharge date.
State Historical Society of North Dakota (SHSND)	Cultural and historic resources consultation and review. Unanticipated Discovery Plan (UDP) for discovery of human/historic remains.	Class I inventory and Class III pedestrian survey completed for the Corridor and SHSND concurrence was received. UDP submitted to SHSND for review.
North Dakota State Water Commission	Temporary Water Appropriation Permit	May be required for construction dewatering. Requested clarification from the State Water Commission.
Cass County	County Road Crossing Permits.	To be obtained prior to Project construction.
Maple River Water Resource District	Utility Permit	Required for crossing the proposed location for the new Cass County Drain No. 14.

17 SITING CRITERIA

17.1 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 2.

Table 2. Exclusion Areas Summary

Feature	Within Corridor (Y/N)	Route Crosses (Y/N)	Description	Section Addressed
Designated or registered national parks, memorial parks, historic sites and landmarks, natural landmarks, monuments, and wilderness areas.	N	N	N/A	17.1.1
Designated or registered state parks, historic sites, monuments, historical markers, archaeological sites, and natural preserves.	N	N	N/A	17.1.2
County parks and recreational areas, municipal parks, and parks owned or administered by other governmental subdivisions.	N	N	N/A	17.1.3
Areas critical to the life stages of threatened or endangered animal or plant species.	N	N	N/A	17.1.4
Areas where animal or plant species that are unique or rare to this state would be irreversibly damaged.	N	N	N/A	17.1.5
Areas within 1,200 feet of the geographic center of an intercontinental ballistic missile (ICBM) launch or launch control facility.	N	N	N/A	17.1.6
Areas within 30 feet on either side of a direct line between an ICBM launch facility and a missile alert or launch control facilities to avoid microwave interference. This restriction only applies to aboveground structures, not to surface features, such as roads, or belowground infrastructure.	N	N	N/A	17.1.7

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

No designated or registered national parks, memorial parks, historic sites and landmarks, natural landmarks, monuments, and wilderness areas would be crossed by the Corridor or Route. See also Section 14.1 of this Consolidated Application.

17.1.2 *Designated or Registered State Parks, Historic Sites, Monuments, Historical Markers, Archaeological Sites, and Natural Preserves*

No designated or registered state parks, historic sites, monuments, historical markers, archaeological sites, and natural preserves would be crossed by the Corridor or Route. See also Section 14.1 of this Consolidated Application.

17.1.3 *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.

17.1.4 *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 (see Section 14.3.2).

17.1.5 *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 (see Sections 14.3.3 and 14.3.4).

17.1.6 *Areas within 1,200 Feet of the Geographic Center of an Intercontinental Ballistic Missile Launch or Launch Control Facility*

The Corridor and Route are not located within 1,200 feet of the geographic center of an intercontinental ballistic missile launch or launch control facility.

17.1.7 *Areas within 30 Feet on Either Side of a Direct Line between Intercontinental Ballistic Missile 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 intercontinental ballistic missile launch or launch control facility.

17.2 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 in relation to the Corridor and Route is provided in Table 3.

Table 3. Avoidance Areas Summary

Feature	Within Corridor (Y/N)	Route Crosses (Y/N)	Description	Section Addressed
Designated or registered national historic districts; wildlife areas; wild, scenic, or recreational rivers; wildlife refuges; and grasslands.	N	N	N/A	17.2.1
Designated or registered state wild, scenic, or recreational rivers; game refuges; game management areas; management areas; forests; forest management lands; and grasslands.	N	N	N/A	17.2.2
Historical resources which are not specifically designated as exclusion or avoidance areas.	N	N	N/A	17.2.3
Areas which are geologically unstable.	N	N	N/A	17.2.4
Within 500 feet of a residence, school, or place of business.	N	N	N/A	17.2.5
Reservoirs and municipal water supplies.	N	N	N/A	17.2.6
Water sources for organized rural water districts.	N	N	N/A	17.2.7
Areas of recreational significance which are not designated as exclusion areas.	N	N	N/A	17.2.8

17.2.1 *Scenic or Recreational Rivers; Wildlife Refuges; and Grasslands*

No designated or registered national historic districts; wildlife areas; wild, scenic, or recreational rivers; wildlife refuges; or grasslands are crossed by the Corridor and Route.

17.2.2 *Designated or Registered State Wild, Scenic, or Recreational Rivers; Game Refuges; Game Management Areas; Management Areas; Forests; Forest Management Lands; and Grasslands*

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.

17.2.3 *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 (see Section 14.1).

17.2.4 *Areas that are Geologically Unstable*

The Corridor and Route do not cross geologically unstable areas.

17.2.5 *Within 500 Feet of a Residence, School, or Place of Business*

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

17.2.6 *Reservoirs and Municipal Water Supplies*

No reservoirs and municipal water supplies were identified in the Corridor or Route.

17.2.7 *Water Sources for Organized Rural Water Districts*

No water sources for organized rural water districts are present in the Corridor or Route.

17.2.8 *Areas of Recreational Significance that are not Designated as Exclusion Areas*

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

17.3 Selection Criteria

17.3.1 *Agricultural Production*

The Project Route principally crosses cultivated agricultural lands, with the predominant land use comprised of planted corn, with tall prairie grasses in the undeveloped areas immediately surrounding stream and roadsides. Construction of the Project would temporarily impact approximately 2.11 acres of prime farmland and approximately 19.43 acres of prime farmland, if drained, for a total of 21.34 acres (Table 5). Once construction is complete, the ROW may return to its prior agricultural use. As such, impacts to agricultural production along the Route will be minimal and temporary.

Table 4. Farmland in Study Area

Farmland Classification	Area in Survey Corridor		Area in ROW	
	Acres	%	Acres	%
All Prime Farmland	5.88	10.89	2.11	9.89
Prime Farmland, if Drained	48.16	89.11	19.23	90.11
Total	**54.05**	**100.0**	**21.34**	**100.0**

17.3.2 *Family Farms and Ranches*

A total of three family farms or ranches are crossed by the Project Route. Construction impacts to family farms and ranches will be short term and minor, with the primary impact being the use of the land within the work areas during construction activities as well as potentially diminished yields the next growing season following construction. NuStar will implement mitigation measures to minimize potential impacts to family farms and ranches, as outlined in the EMP (Appendix B).

No long-term or permanent impacts are expected to family farms and ranches. Post-construction restoration will return the ROW to pre-construction contours, and farming or ranching operations will continue over the operational ROW. NuStar has existing easements and landowners will be compensated in accordance with the terms of those easements.

17.3.3 *Land Economically Suitable for Irrigation*

NuStar has not identified any center-pivot irrigation within the Project Corridor or Route, or any land that is planned to be irrigated. Thus, the Project is not anticipated to impact irrigated land or any irrigation systems. If irrigation systems are encountered, NuStar will compensate the owner(s) and/or repair any damages to the systems that may result from Project construction activities.

17.3.4 *Surface Drainage Patterns and Groundwater Flow Patterns*

17.3.4.1 SURFACE DRAINAGE

Surface drainage patterns will not be altered by construction of the pipeline. Swales, ditches, and other natural drains will be restored to approximate pre-construction contours after construction is complete. The pipeline will be installed at a depth that will not interfere with surface water flow patterns or future maintenance efforts by landowners.

17.3.4.2 GROUNDWATER FLOW PATTERNS

All of Cass County is covered with glacial drift that ranges in thickness from 132 to 470 feet, with Lake Agassiz plain deposits occupying approximately the eastern one-half of the county (Klausing 1968). In the Project area, the lake plain deposits are comprised of two units: an upper silty yellow clay deposit that ranges in thickness from 0 to about 50 feet; and, a lower silty, olive-gray, plastic clay deposit that ranges in thickness from 0 to about 80 feet.

As described by Klausing (1968), the West Fargo Aquifer underlies a portion of the Project Study Area in Sections 10 and 11, T139N, R50W and is described as a buried glaciofluvial deposit that extends in a north-south direction and ranges in thickness from 0 to 140 feet, with an average thickness of 60 feet. The aquifer material is composed of sediments ranging in size from fine sand to boulder-sized but is

predominantly fine- to coarse-grained sand. This is an artesian aquifer system that is confined by the overlying lake plain silt and clay deposits which appear to range in thickness from 60 to 90 feet in the Project study area. The basal confining unit may be composed of either weathered granite, Cretaceous-age shale and/or sandstone, or glacial till.

The groundwater flow direction in the Project study is principally to the east towards the Sheyenne River and centers of groundwater pumping operated by the City of West Fargo and Cass Rural Water Users, Inc. Local groundwater flow directions along the Route would be towards the unnamed tributary to the Sheyenne River and nearby agricultural drains.

Any construction impacts that may occur to groundwater flow would be in surficial aquifers and would be highly localized and temporary in nature. No permanent impacts to groundwater flow are expected because of the Project.

17.3.5 *Sound Sensitive Land Uses*

The proposed Project is in a sparsely populated rural agricultural area in Mapleton Township and is partially within the extraterritorial jurisdiction zone of the City of West Fargo. Interstate Highway 94 is less than one mile to the north, while 165th Avenue SE is near the eastern end of the Project and 38th Street W is at the western end of the Route. Sound intensity is measured by the decibel; the A-weighted scale is used in most noise ordinances and standards and approximates the range of human hearing by filtering out lower frequency noises, which are not as damaging as higher frequency noises. In rural areas, background noise is generally at levels of 40 to 50 A-weighted decibel (McCain and Associates, Inc. 2011), which is anticipated for the Project Study Area. Due to the surrounding transportation corridors, the background noise level may be higher than this range.

Construction-related activities are expected to be short-term and will occur during the daytime; therefore, impacts to area residents will be minimal. During operations, noise will be limited to occasional vehicle access to the ROW for inspection and/or maintenance activities, so impacts will be negligible. NuStar and its contractors will comply with all state and local noise requirements during construction and operation of the Project.

17.3.6 *Visual Effect on Adjacent Areas*

Impacts to visual resources because of Project development are assessed by the degree of modification to the existing landscape and sensitivity of the viewer. Changes to the line, form, and character of the existing landscape can result in a level of contrast that will attract the attention of those in the area. The number of viewers, their activities, and the extent their activities are related to the visual quality of the area and determine the level of viewer sensitivity.

The Project is in a sparsely populated rural agricultural area and viewers of the landscape will be limited to area residents and travelers along local roadways. Based on the number of viewers and the duration of their views, viewer sensitivity is considered low.

The relocated pipeline will be buried, with no aboveground facilities along the Route. During construction, vegetation will be removed, temporarily resulting in distinct contrasting lines within the landscape. However, once vegetation is re-established or agricultural operations resume within the construction ROW, there will be no visual impacts from the Project.

17.3.7 *Extractive and Storage Resources*

No mineable coal, geothermal or uranium resources, clay deposits, or sand or gravel deposits are in the Study Area (North Dakota Department of Mineral Resources 2019b). Therefore, construction and operation of the proposed Project will not impact access to, or the operations of, mineral resource extraction.

17.3.8 *Wetlands, Woodlands, and Wooded Areas*

A desktop review was completed of the Study Area and included the review of aerial imagery, NWI data, and LANDFIRE dataset to identify any wetlands, woodlands, and wooded areas with the Study Area. Field surveys were conducted on May 14, 2020, within the Corridor. Please refer to Sections 14.2 and 14.3 for further discussion on the results of the desktop analysis and field surveys with respect to these resources.

SWCA counted a total of 5 peach-leaf willow (*Salix amygdaloides*) shrubs in one of the PEM wetlands. Because wetlands will be crossed using the HDD method, there will be no impact to these trees from pipeline construction and thus, no trees or shrubs will be needed to be replanted to fulfill the Commission's mitigation requirement.

17.3.9 *Radio and Television Reception and Other Communication or Electronic Facilities*

No radio and television reception and/or other communications and electronic facilities are located within the Corridor or Route. NuStar does not anticipate the Project will impact radio and television reception and/or other communications and electronic facilities.

17.3.10 *Human Health and Safety*

Construction of the proposed Project could generate a possible risk to local citizens' public safety from increased traffic along rural roadways. Increased truck traffic and transport of heavy equipment will be temporary during construction. NuStar contractors will obtain requisite local oversize and overweight permits, as required, for the transport of equipment and materials on local and state highways. If required, pilot vehicles will be utilized to escort oversize and overweight vehicles while travelling on public roadways.

Transport of petroleum products by pipeline involves some risk in the event of an accident and the release of the product. To minimize this risk, the NuStar North System Pipeline is currently and will continue to be remotely monitored using NuStar's Pipeline Control Center 24 hours a day, 7 days a week. In addition, routine pedestrian and aerial patrols will continue to be conducted, as will internal inspections using in-line inspection tools. NuStar will continue to comply with the safety measures set forth in 49 CFR Part 195, as required by PHMSA.

To minimize potential impacts during operation, the Emergency Response Plan will be updated, as needed. In addition to the Emergency Response Plan, the Project will be incorporated into NuStar's existing Pipeline Integrity Management Plan, which outlines pipeline integrity management procedures to be implemented during operation.

17.3.11 *Animal Health and Safety*

No threatened or endangered species were observed in the Study 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.

17.3.12 *Plant Life*

Plants species currently inhabiting the Corridor are common. Impacts to plant species in the Study Area from the Project are anticipated to be temporary and minimal.

17.4 Policy Criteria

17.4.1 *Location and Design*

NuStar selected the Corridor and Route based on several factors, including environmental, engineering, and constructability considerations.

NuStar 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 siting process to avoid or minimize impacts to sensitive resources.

17.4.2 *Training and Use of In-State Labor*

NuStar expects to employ approximately 20 to 30 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 for hire within the state, contractors may need to employ workers from out-of-state.

17.4.3 *Economies of Construction and Operation*

Direct and indirect economic benefits to the state of North Dakota resulting from construction of the proposed Project are discussed in Sections 17.4.2 and 18.7. Once the Project is constructed and online, NuStar expects annual maintenance and operation costs to be minimal, as the Project will be part of an existing operating pipeline system.

17.4.4 *Use of Citizen Coordinating Committees*

NuStar worked closely with local officials, agencies, utility companies, and others throughout development of the proposed Project. 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.

17.4.5 *Commitment of a Portion of Transmitted Product for Use in State*

A portion of the refined petroleum products transported by the North System Pipeline will be used in eastern North Dakota, while the remainder will be transported to Minnesota and points east.

17.4.6 *Labor Relations*

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

17.4.7 *Coordination of Facilities*

NuStar performed a centerline survey of the Route and identified all third-party entities/utilities that will be encountered (e.g., petroleum, water, electric, highways). NuStar then contacted each entity to obtain its respective crossing and encroachment guidelines and requirements. NuStar has incorporated these requirements into the Project design and will work closely with each entity during construction and future operation and maintenance to ensure the safe construction and operation of the Project around these adjacent utilities/entities. Refer to the Typical Foreign Pipeline Crossing schematic in Appendix A for more information.

17.4.8 *Monitoring Impacts*

NuStar is committed to the protection of the environment as well as public and employee safety. 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. An EMP has been developed specifically for this Project (see Appendix B).

In addition, NuStar will provide construction oversight to confirm contractor compliance with mitigation measures, landowner agreements, and applicable permits. NuStar will have an inspector who is knowledgeable of the environmental mitigation requirements for the Project. The inspector will have the authority to stop construction activities and order corrective mitigation and will maintain appropriate compliance documents.

During Project operation, NuStar will conduct regular aerial and foot patrols of the ROW to identify issues of concern, including operational issues and ROW encroachment. In addition, NuStar's Pipeline Control Center will continuously monitor pressure, temperature, and product flow 24 hours a day, 7 days a week, with information transmitted to NuStar's Corporate Office located in San Antonio, Texas, which will promptly respond to any anomalies. NuStar will monitor landowner and community concerns throughout Project operations and respond appropriately.

17.4.9 *Using Existing and Proposed Rights-of-Way and Corridors*

NuStar's proposed Route was sited based on a number of factors, including constructability, compliance with siting requirements, and cost. Three separate Routes were considered: (1) the northern Route consisting of approximately 14,500 feet of relocated pipe (3,500 feet of HDD and 11,000 feet of conventional lay pipe); (2) within the existing North System Pipeline ROW consisting of approximately 8,700 feet of relocated pipe (8,200 feet of HDD and 500 feet of conventional lay pipe; and, (3) the

southern Route consisting of approximately 11,720 feet of relocated pipe (4,301 feet of HDD and 7,419 feet of conventional lay pipe).

Installing the relocated pipeline in the same ROW as the existing North System Pipeline was not selected because it would have required long, angled HDD bores of Drain 14, the Diversion Channel, and 38th Street West, which would not adhere to the crossing requirements of USACE and is not preferred from a construction safety standpoint.

Additionally, NuStar analyzed following section lines and quarter section lines. However, following such features was not preferable because it would have resulted in crossing Drain 14 at a location that would not be allowed by the USACE, would be unacceptable for pipeline maintenance and safety, would increase the overall length of the line compared to the proposed Route, and would place the pipeline within 500 feet of residences.

NuStar also analyzed routing in terms of the existing roadways. NuStar's proposed Route parallels both 165th Avenue SE and 38th Street West, rather than diagonally crossing these roads. NuStar also selected a Route set back from 165th Avenue SE and 38th West to minimize potential impacts on future development along these roadways when compared to being adjacent to the roads.

17.4.10 *Other Existing or Proposed Transmission Facilities*

With the exception of the North System Pipeline, there are no other existing or proposed transmission facilities in the Project area.

18 EVALUATION OF NDCC SECTION 49-22.1-09 FACTORS

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

18.1 Effects on Public Health, Welfare, Natural Resources, and the Environment

Please see Sections 13.0, 14.0, 17.0, and 18.0 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.

18.2 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 HDD bores at road 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, the Project will be monitored remotely via NuStar's Pipeline Control Center 24 hours a day, 7 days a week.

18.3 Potential for Beneficial Uses of Waste Energy from a Proposed Energy Conversion Facility

The Project does not include any energy conversion facilities; therefore, the potential for beneficial uses of waste energy from a proposed energy conversion facility does not apply.

18.4 Unavoidable Adverse Direct and Indirect Environmental Effects

Unavoidable adverse direct and indirect environmental impacts from the Project will be temporary and minimized using mitigation measures and BMPs. See Sections 12.0, 13.0, 16.0, and 17.0 for further discussion of the Project's potential direct and indirect environmental effects, as well as planned mitigation measures.

18.5 Corridor or Route Alternatives Developed During the Hearing that Minimize Adverse Effects

A description of the Route selection process is presented in Section 13.0. In coordination with the FM Diversion Authority and the USACE, NuStar analyzed three Route alternatives, ultimately selecting the proposed Corridor and Route based on existing land rights, evaluation of constructability characteristics, minimization of environmental impacts, compliance with applicable routing requirements, and cost. As a result, NuStar has identified a Project Corridor and Route that meet 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, NuStar will analyze those alternatives, as necessary.

18.6 Irreversible and Irretrievable Commitments of Natural Resources if Designated

Irreversible or irretrievable commitments of natural resources include steel for the pipeline and ancillary facilities; and petroleum products to power construction equipment, and other pipeline facilities.

18.7 Direct and Indirect Economic Impacts of the Facility

Direct and indirect economic impacts from Project construction include short-term employment opportunities during construction and increased local revenue for Project-related expenditures. Project-related local expenditures during the construction, for example, will include lodging and food, fuel, and construction materials and equipment. Taxes will be paid on an annual basis during the Project's operational phase.

18.8 Existing Plans for Other Developments (State, Local, and Private) in the Vicinity of the Project

NuStar has been in consultation with federal, state, and local governments, landowners, existing infrastructure owners, and water districts, and NuStar has not identified any potential conflicts with existing or planned developments. NuStar will obtain all necessary permits and approvals for the Project from federal, state, and local governments and agencies, and will comply with applicable local land use requirements. Improvements to 166th Avenue SE are currently planned, but the Project will not impact the planned improvements.

18.9 Effects of the Proposed Route on Existing Scenic Areas, Historic Sites and Structures, and Cultural Resources

No scenic areas, historic sites or structures, or cultural resources are present within the Corridor or crossed by the Route; therefore, the Project is not anticipated to impact these resources. For further discussion, please see Sections 13.0, 14.0, 17.0, and 18.0 of this Consolidated Application.

18.10 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 Project location is such that the likelihood of migratory birds being impacted by the Project is extremely low. No 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 13.0, 14.0, 17.0, and 18.0 of this Consolidated Application.

18.11 Problems Raised by Federal Agencies, other State Agencies, and Local Entities

A summary of consultations, notifications, and agency responses is provided in Section 15.0; copies of correspondence are provided in Appendix E. Consultation is ongoing and NuStar will respond to and address concerns if raised.

19 OTHER FACTORS CONSIDERED

19.1 Design Construction Limitations

Specific factors considered in the selection of the Corridor and Route, including design and construction limitations, are identified in Sections 3.0 and 13.0 and discussed throughout this Consolidated Application. In particular, road crossings and wetland crossings will require HDD installation, which has been incorporated into the proposed Project design (see Section 11.2).

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 195.

19.2 Economic Considerations

In selecting the Corridor and Route, one of many factors NuStar considered was facilitating construction of the Project in the most economical and efficient manner. However, Corridor and Route selection required balancing of a number of factors, as discussed specifically in Sections 3.2 and 13.0 of this Consolidated Application.

Other economic considerations associated with the Project include the positive direct and indirect economic benefits that the Project will provide. As discussed in Sections 17.4.2 and 18.7 of this Consolidated Application, the Project will provide short-term employment of workers during construction and increased revenues from local expenditures.

19.3 Present and Future Natural Resource Development

As discussed in Section 17.1.1, there are no national parks, national memorial parks, national historic sites or landmarks, national wilderness areas, or national monuments located within the Corridor and 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 17.2.1, there are no wildlife areas; wild, scenic, or recreational rivers; wildlife refuges; or grasslands within the Corridor or 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 land used for agricultural crop production. Once construction is complete, the ROW will be restored to its prior use. Further, as discussed in Sections 17.3.7 and 17.4.7, NuStar 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.

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

NuStar 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, NuStar has developed an EMP, presented as Appendix B, which outlines 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. Specifically, the

EMP provides a detailed description of the mitigation measures that will be implemented during Project construction, including the following.

- General mitigation measures
- Spill prevention
- Temporary erosion and sediment control
- Highway and road crossings
- Uplands
- Wetland crossings
- Hydrostatic testing

NuStar is also developing specific plans for the Project, including a Stormwater Pollution Prevention Plan and a Frac-Out Contingency Plan.

21 QUALIFICATIONS OF PREPARERS

Mr. Jim Dawson
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Mr. Dawson is a senior environmental specialist/project manager who provides regulatory compliance consulting services for oil and gas operations, including environmental site assessments and due diligence activities; stormwater permitting and inspections; preparation of Spill Prevention, Contingency and Countermeasure Plans, Facility Response Plans, and Pipeline Spill Response Plans; spill investigation, assessment, and cleanup services; and investigation and cleanup/remediation of reserve pits and legacy contamination sites.

Mr. Dawson is a Professional Geologist and Certified Hazardous Materials Manager with extensive field, regulatory, managerial, and consulting experience throughout the United States with diverse project experience, including contaminated soil and groundwater investigation, monitoring, and remediation; environmental site assessments and due diligence activities; solid and hazardous waste management; environmental regulatory permitting and compliance assistance; groundwater resources studies; and unexploded ordnance detection, discrimination, and remediation technologies.

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Ms. Smith assists clients with pipeline, wind farm, solar, and transmission line permitting matters in North Dakota, South Dakota, and Minnesota. Her experience includes representing clients in state and local administrative proceedings, including certificate of corridor compatibility, route permit, and certificate of site compatibility proceedings before the North Dakota Public Service Commission; facility permit proceedings before the South Dakota Public Utilities Commission; and certificate of need, Route permit and site permit proceedings before the Minnesota Public Utilities Commission. Ms. Smith has a

B.A. in English from Northern State University, Aberdeen, SD; a M.A. in Literature from Colorado State University, Fort Collins, CO; and a J.D. from the University of Minnesota Law School, Minneapolis, MN**.**

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Manager, Project Engineering
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Mr. Smith is a project manager who provides management over all phases of company projects including design, development and construction for pipeline systems and relocations, pump station and storage tank terminal facilities, truck loading and unloading facilities. Experience has been on crude oil pipelines, refined petroleum pipelines, as well as anhydrous ammonia pipelines. Mr. Smith attended Wichita State University and has over 40-years of pipeline industry experience ranging from drafting & design, project and construction development and management.

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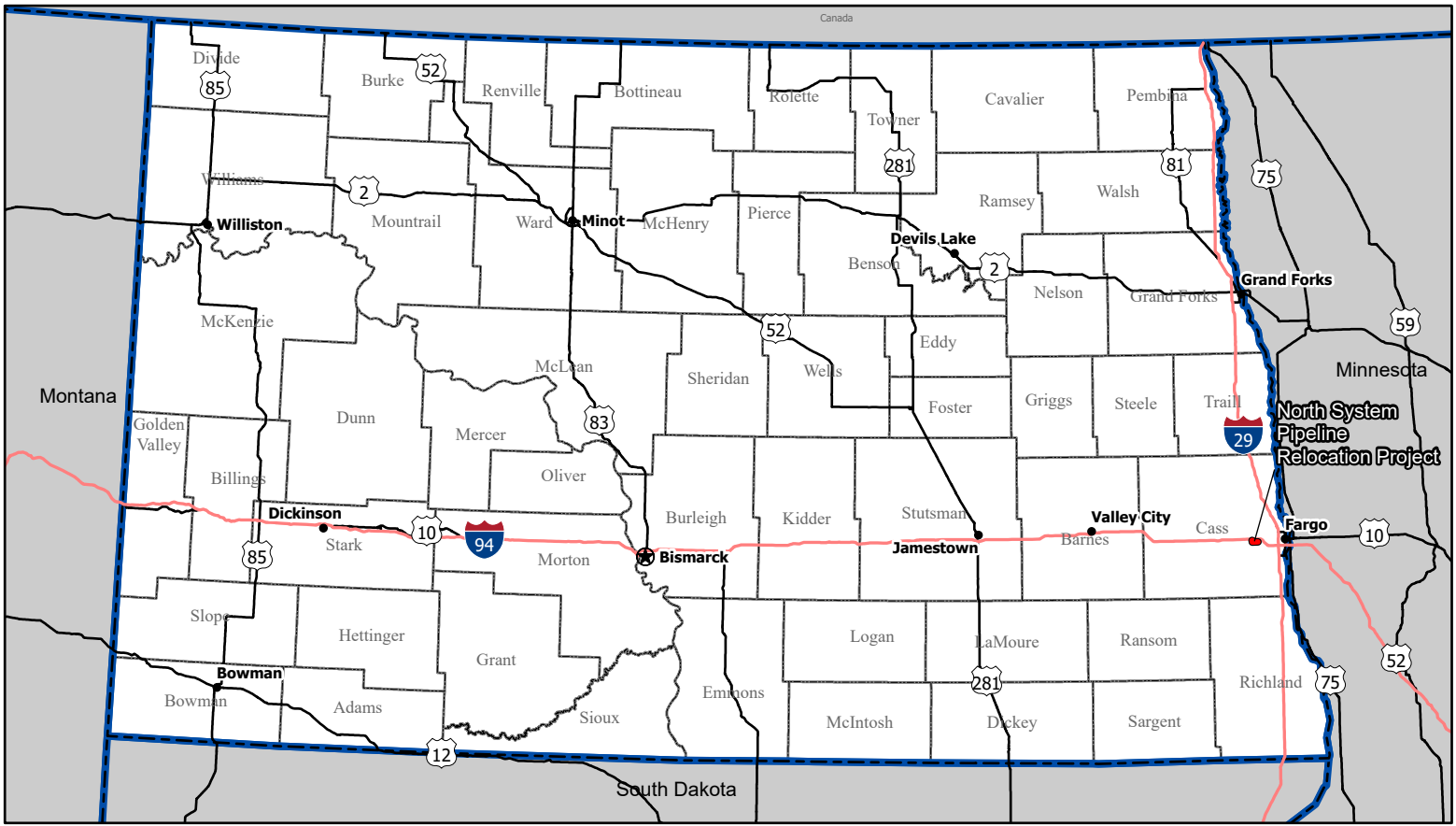
APPENDIX A

Project Overview Maps, Pipeline Schematics, ROW Detail, Corridor Exclusion and Avoidance Area Maps, and Engineering Drawings

PROJECT OVERVIEW MAPS
Figure 1. Project Location
Figure 2. Project Study Area



North System Pipeline Relocation Project

- State Capital
- City
- Proposed NuStar FM Diversion Pipeline
- Interstate Highway
- U.S. Highway
- State Boundary

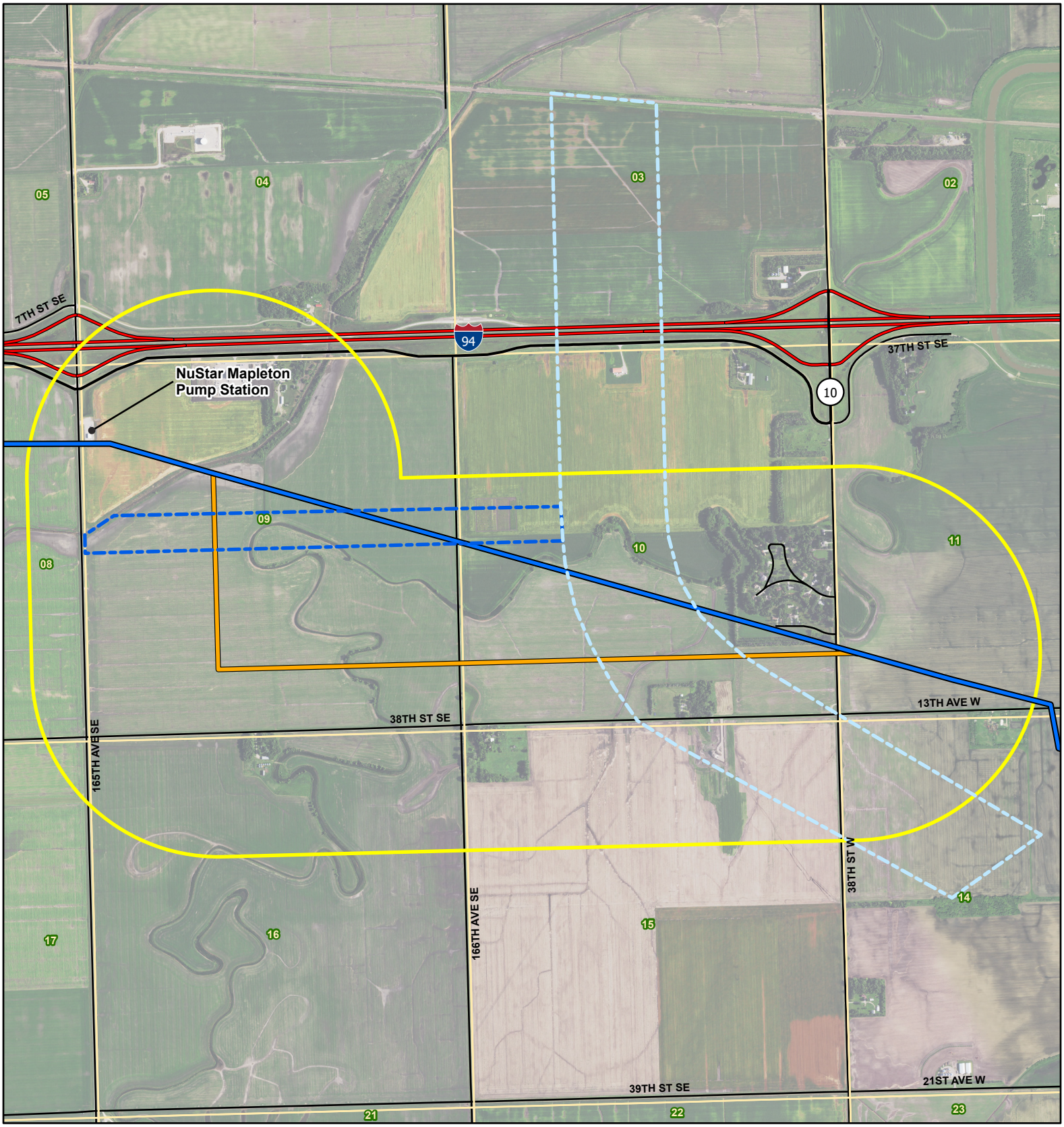
Kilometers
0 50 100
Miles
0 25 50

Quadrangle: West Fargo South (1976)
Casselton SE (1976)
Township/Range: T139N, R50W
Cass County, North Dakota

Projection: NAD 1983 UTM Zone 14N

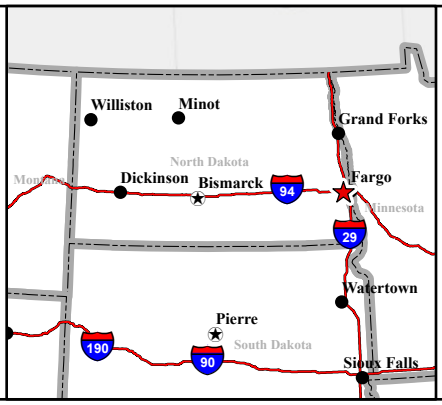
SWCA ENVIRONMENTAL CONSULTANTS

Figure 1. Project Location Map



North System Pipeline Relocation Project

- Proposed NuStar FM Diversion Pipeline
- NuStar's Existing North System Pipeline
- Interstate Highway
- State Highway
- Existing Road
- Drain 14
- Proposed Fargo-Moorhead Diversion Channel
- Study Area
- Section Boundary



Miles
0 0.25 0.5

Kilometers
0 0.5 1

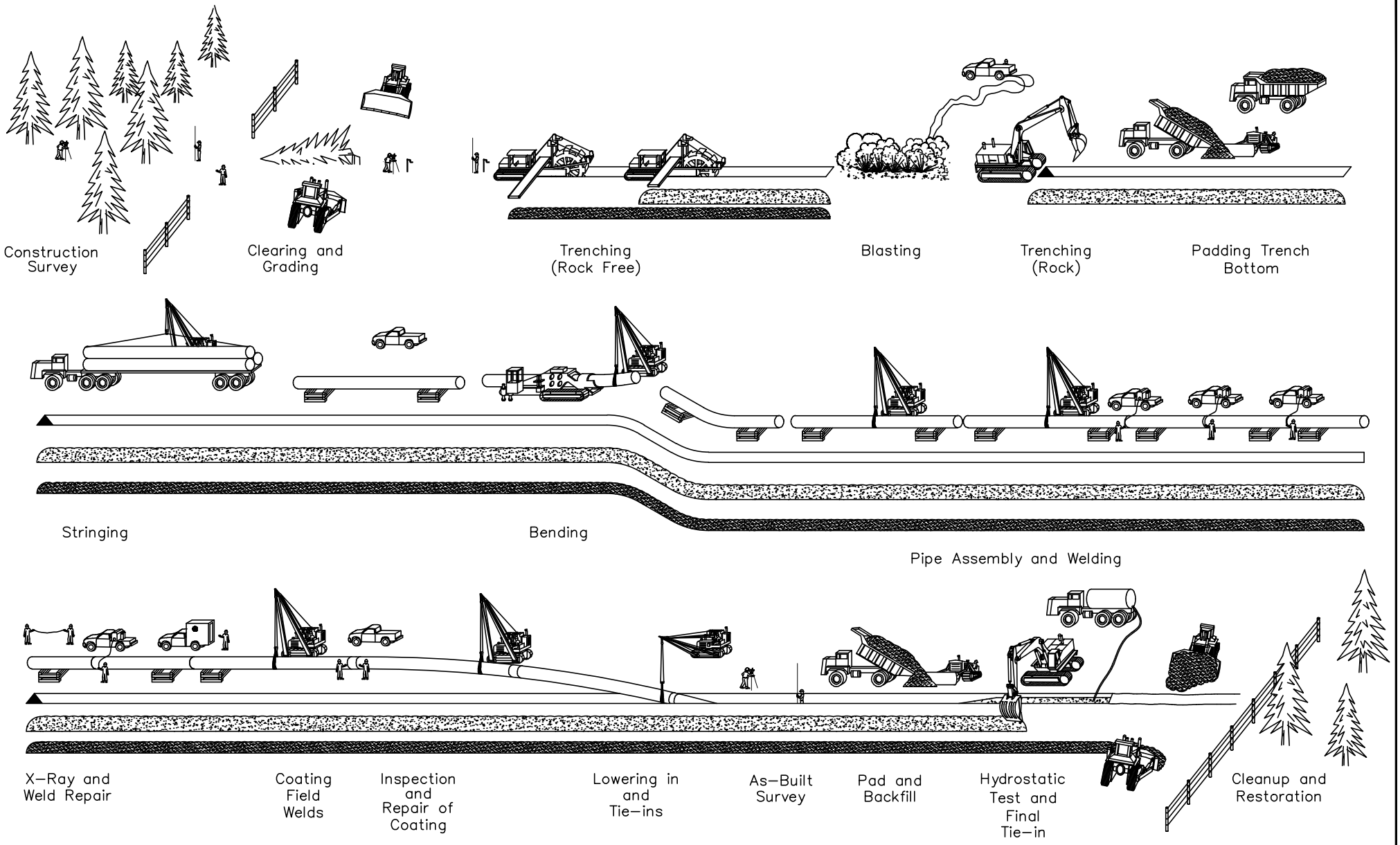
Base Map: 2019 Aerial Imagery
Source: USDA/FSA -
Aerial Photography Field Office
Quadrangle: West Fargo South (1976)
Casselton SE (1976)
Township/Range: T139N, R50W
Cass County, North Dakota
Projection: NAD 1983 UTM Zone 13N

SWCA ENVIRONMENTAL CONSULTANTS

Figure 2. Project Study Area

PIPELINE SCHEMATICS AND DETAILS

Construction Sequence
Roadway HDD Bore
Water Crossing HDD Bore
Silt Fence Installation 1
Silt Fence Installation 2
Fiber Roll/Filter Sock Installation
Strawbale Installation



REV LEVEL	DATE	BY	DESCRIPTION	CK.	APP.

REVISIONS

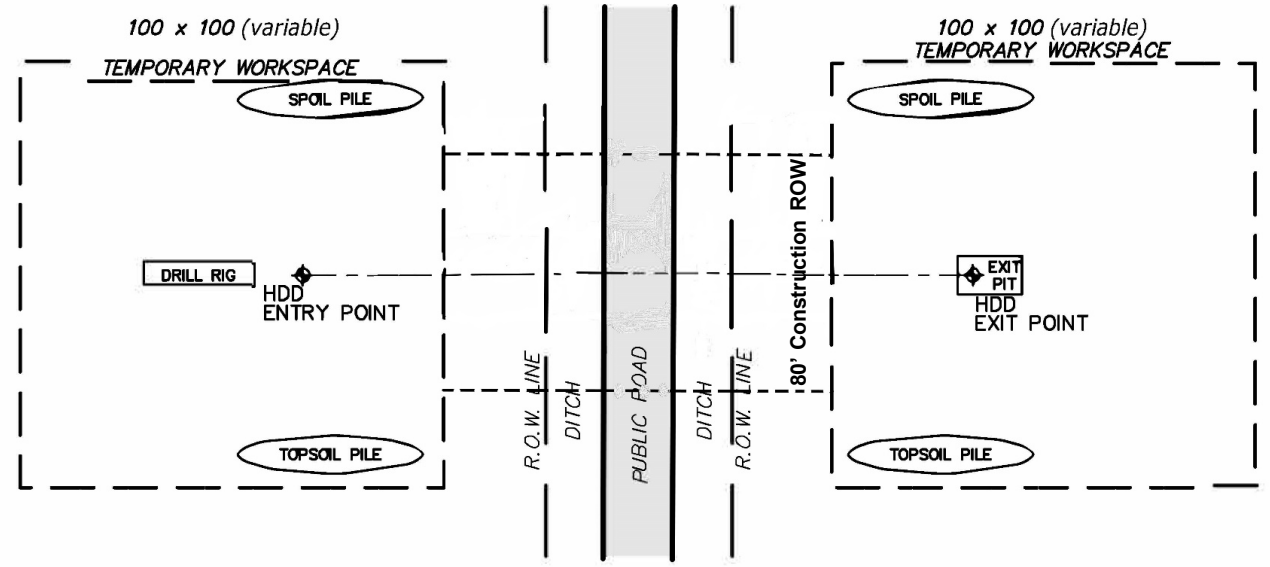
NuStar

North System Pipeline Relocation Project

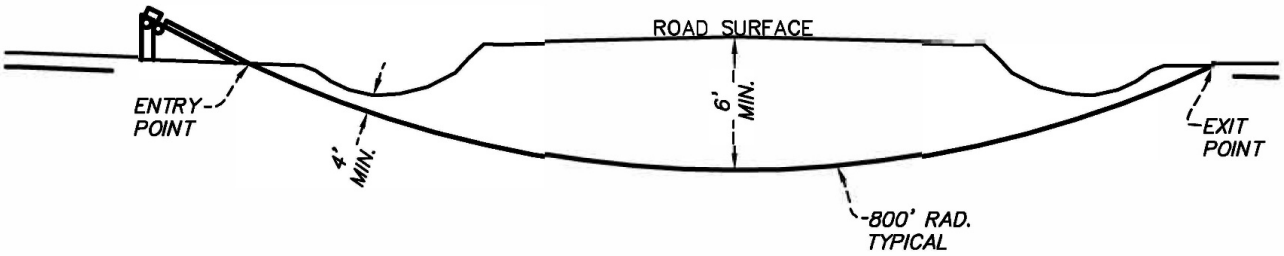
PIPELINE CONSTRUCTION SEQUENCE

CASS COUNTY NORTH DAKOTA

DATE:	PLOT DATE:	DRAWN BY:	LOC. NO:	DRAWING NUMBER:	SHEET NO:	REV:



PLAN



PROFILE

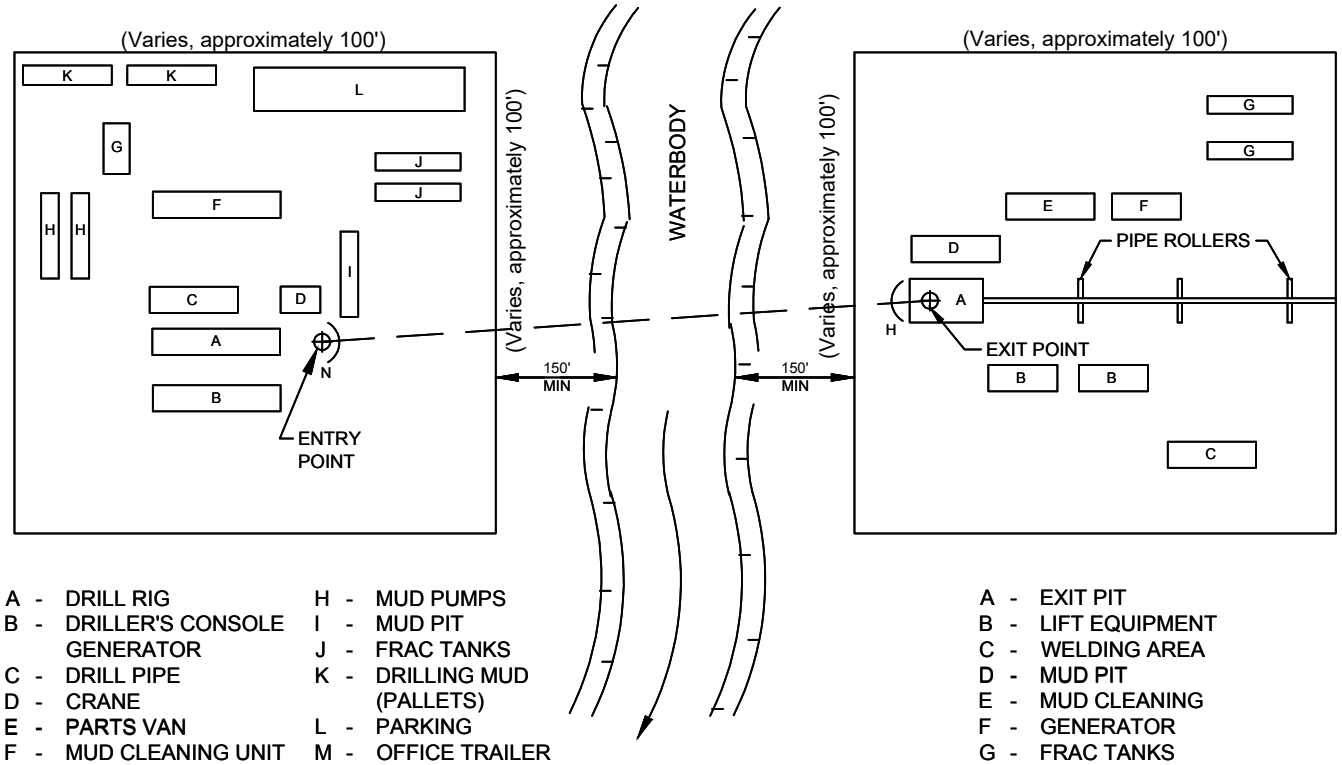
NOTES:
1. PROTECTIVE LAYER SHALL BE USED ON PAVED ROAD SURFACES TO PREVENT DAMAGE FROM TRACKED EQUIPMENT.
2. IF NECESSARY, INSTALL TEMPORARY CULVERT AND FILL IN BORROW PIT.
3. MAINTAIN EXISTING VEGETATION IN BORROW PITS. STRIPPING SHOULD BE LIMITED TO THE AREA OF TEMPORARY CROSSING. PROVIDE SEDIMENT CONTROLS IN ACCORDANCE WITH STORM WATER MANAGEMENT PLAN.
4. ELEVATION OF BORE PIT AND BELL HOLE FLOORS TO BE ADJUSTED TO PROVIDE MINIMUM COVER BELOW ROADWAY AND BORROW PITS.
5. THIS DETAIL HAS BEEN PREPARED FOR ENVIRONMENTAL REVIEW PURPOSES ONLY.

NuStar
PIPELINE OPERATING PARTNERSHIP, L.P.

TYPICAL ROAD CROSSING
NORTH SYSTEM PIPELINE RELOCATION PROJECT
HORIZONTAL DIRECTIONAL DRILL

CASS COUNTY NORTH DAKOTA

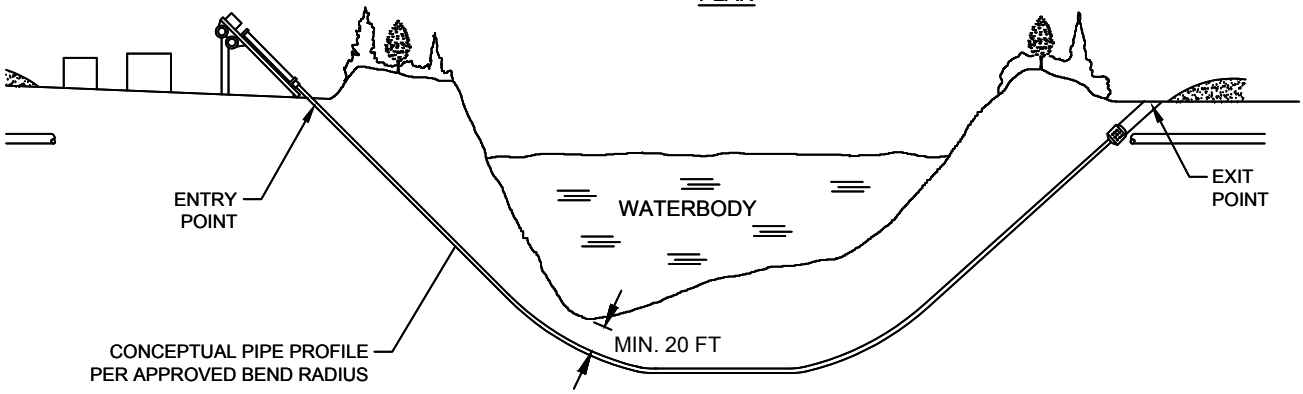
IMAGERY DATE:	DRAWN BY:	
SURVEY BY:	DRAWING DATE:	
DWG BY: EFN	APPROVED:	SCALE: NOT TO SCALE
	CHECKED BY:	SHEET: 1 OF 1



A - DRILL RIG
B - DRILLER'S CONSOLE GENERATOR
C - DRILL PIPE
D - CRANE
E - PARTS VAN
F - MUD CLEANING UNIT
G - MUD MIXING TANK
H - MUD PUMPS
I - MUD PIT
J - FRAC TANKS
K - DRILLING MUD (PALLETS)
L - PARKING
M - OFFICE TRAILER
N - CONTAINMENT BERM

A - EXIT PIT
B - LIFT EQUIPMENT
C - WELDING AREA
D - MUD PIT
E - MUD CLEANING
F - GENERATOR
G - FRAC TANKS
H - CONTAINMENT BERM

PLAN



PROFILE

NOTES:

1. SET UP DRILLING EQUIPMENT A MINIMUM OF 150 FEET FROM THE EDGE OF THE WATERCOURSE. DO NOT CLEAR OR GRADE WITHIN THE 50-FOOT ZONE.
2. ENSURE THAT ONLY BENTONITE BASED DRILLING MUD IS USED. DO NOT ALLOW THE USE OF ANY ADDITIVES TO THE DRILLING MUD WITHOUT THE APPROVAL OF COMPANY'S INSPECTOR.
3. INSTALL SUITABLE DRILLING MUD TANKS OR SUMPS TO PREVENT CONTAMINATION OF WATERCOURSE.
4. INSTALL COMPACTED EARTHEN BERMS DOWNSLOPE FROM THE DRILL ENTRY AND ANTICIPATED EXIT POINTS TO CONTAIN ANY RELEASE OF DRILLING MUD.
5. DISPOSE OF DRILLING MUD IN ACCORDANCE WITH THE APPROPRIATE REGULATORY AUTHORITY REQUIREMENTS.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

DESIGNED IN ACCORDANCE WITH TITLE 49 PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND GPTC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.

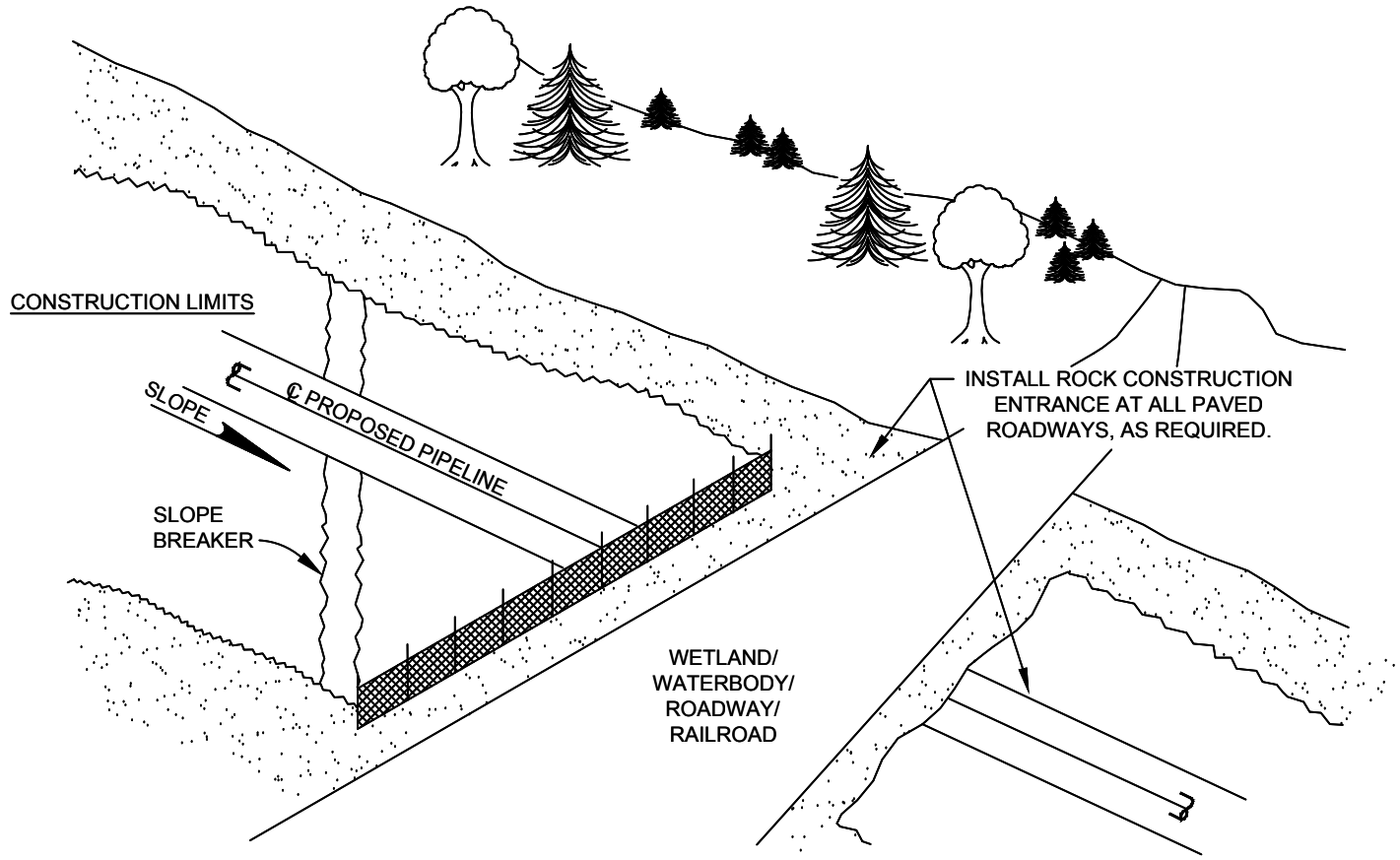
PREPARED BY:
SWCA ENVIRONMENTAL CONSULTANTS
Sound Science. Creative Solutions.®

REV LEVEL	DATE	BY	DESCRIPTION	CK.	APP.

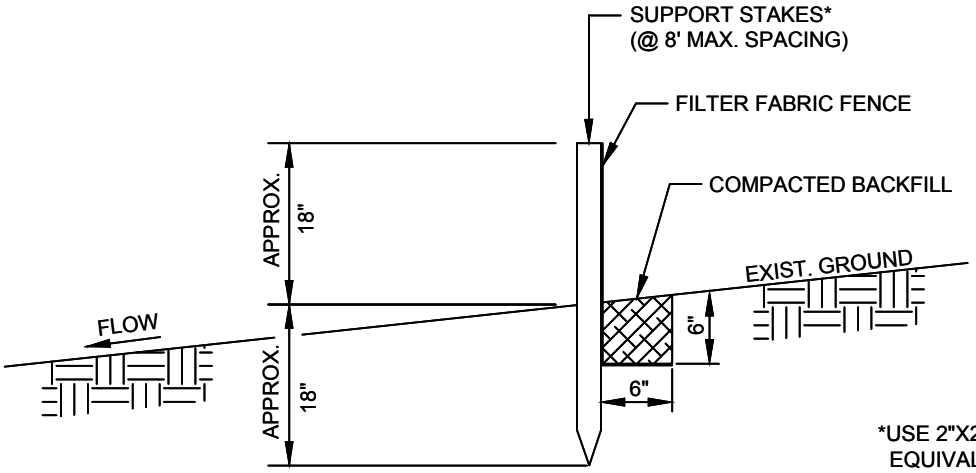
REVISIONS

TYPICAL WATERBODY CROSSING
HORIZONTAL DIRECTIONAL DRILLING

DATE: | PLOT DATE: | DRAWN BY: | LOC. NO: | DRAWING NUMBER: | SHEET NO: | REV:



NOTES:



*USE 2"X2" WOOD OR EQUIVALENT STEEL STAKES

PERMANENT STABILIZATION IS DEFINED AS MINIMUM, UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION.

REV. LEVEL	DATE	BY	DESCRIPTION	CK.	APP.

REVISIONS

TYPICAL STANDARD
18" SILT FENCE INSTALLATION
(SHEET 1 OF 2)

DATE:	PLOT DATE:	DRAWN BY:	LOC. NO:	DRAWING NUMBER:	SHEET NO:	REV:

NOTES:

1. SILT FENCE MUST BE LEFT IN PLACE UNTIL PERMANENT STABILIZATION.
2. FILTER FABRIC FENCE MUST BE INSTALLED AT EXISTING LEVEL GRADE.
3. SEDIMENT MUST BE REMOVED WHERE ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.
4. ANY SECTION OF SILT FENCE WHICH HAS BEEN UNDERMINED OR TOPPED MUST BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET.
5. AT A MINIMUM, THE FABRIC SHOULD HAVE THE FOLLOWING PROPERTIES:

FABRIC PROPERTY	MINIMUM ACCEPTABLE VALUE	TEST METHOD
GRAB TENSILE STRENGTH (lb)	120	ASTM D1682
ELONGATION AT FAILURE (%)	20% MAX.	ASTM D1682
MULLEN BURST STRENGTH (lb)	200	ASTM D3786
TRAPEZOIDAL TEAR STRENGTH (lb)	50	
PUNCTURE STRENGTH (lb)	40	ASTM D 751 (MODIFIED)
SLURRY FLOW RATE (gal/min/sf)	0.3	
EQUIVALENT OPENING SIZE	30	US STD. SIEVE CW-02215
ULTRAVIOLET RADIATION STABILITY (%)	80	ASTM G-26

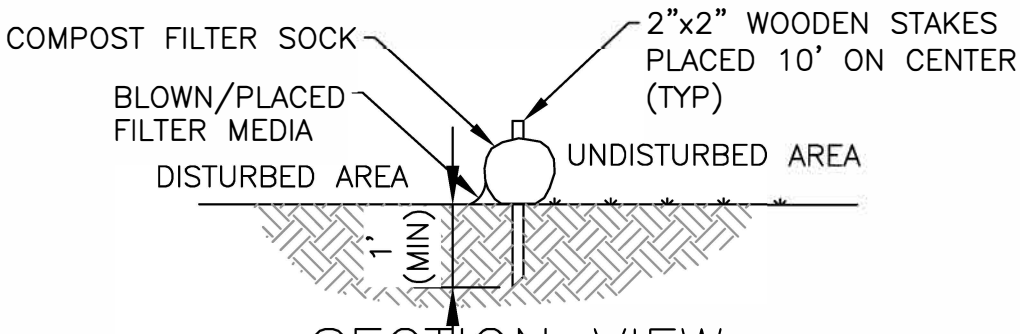
6. SILT FENCE MUST BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER WILL BE EXTENDED 8' UPSLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT.

REV LEVEL	DATE	BY	DESCRIPTION	CK.	APP.

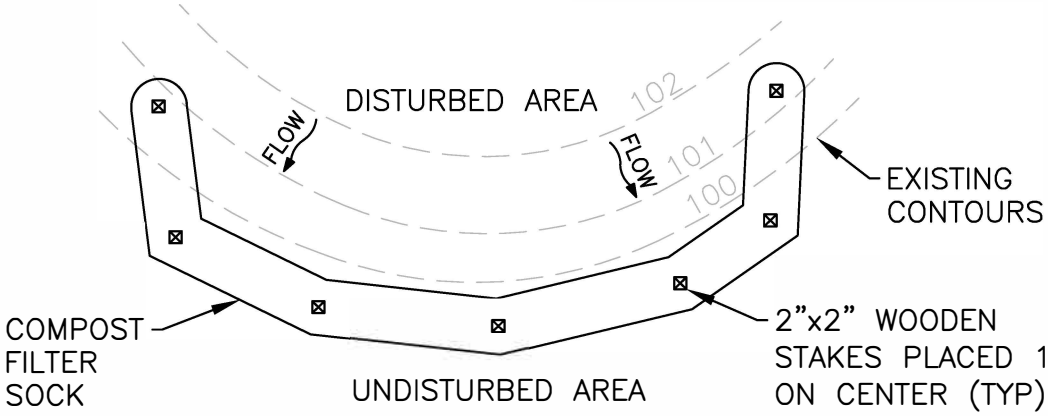
REVISIONS

TYPICAL STANDARD
18" SILT FENCE INSTALLATION
(SHEET 2 OF 2)

DATE: | PLOT DATE: | DRAWN BY: | LOC. NO: | DRAWING NUMBER: | SHEET NO: | REV:



SECTION VIEW



PLAN VIEW

NOTES:

1. SOCK FABRIC AND COMPOST MATERIAL SHALL MEET ALL STATE STANDARDS.
2. COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.
3. TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.
4. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.
5. COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
6. BIO–DEGRADEABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTO–DEGRADEABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
7. UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS SOIL SUPPLEMENT.

COMPOST FILTER SOCK DETAIL

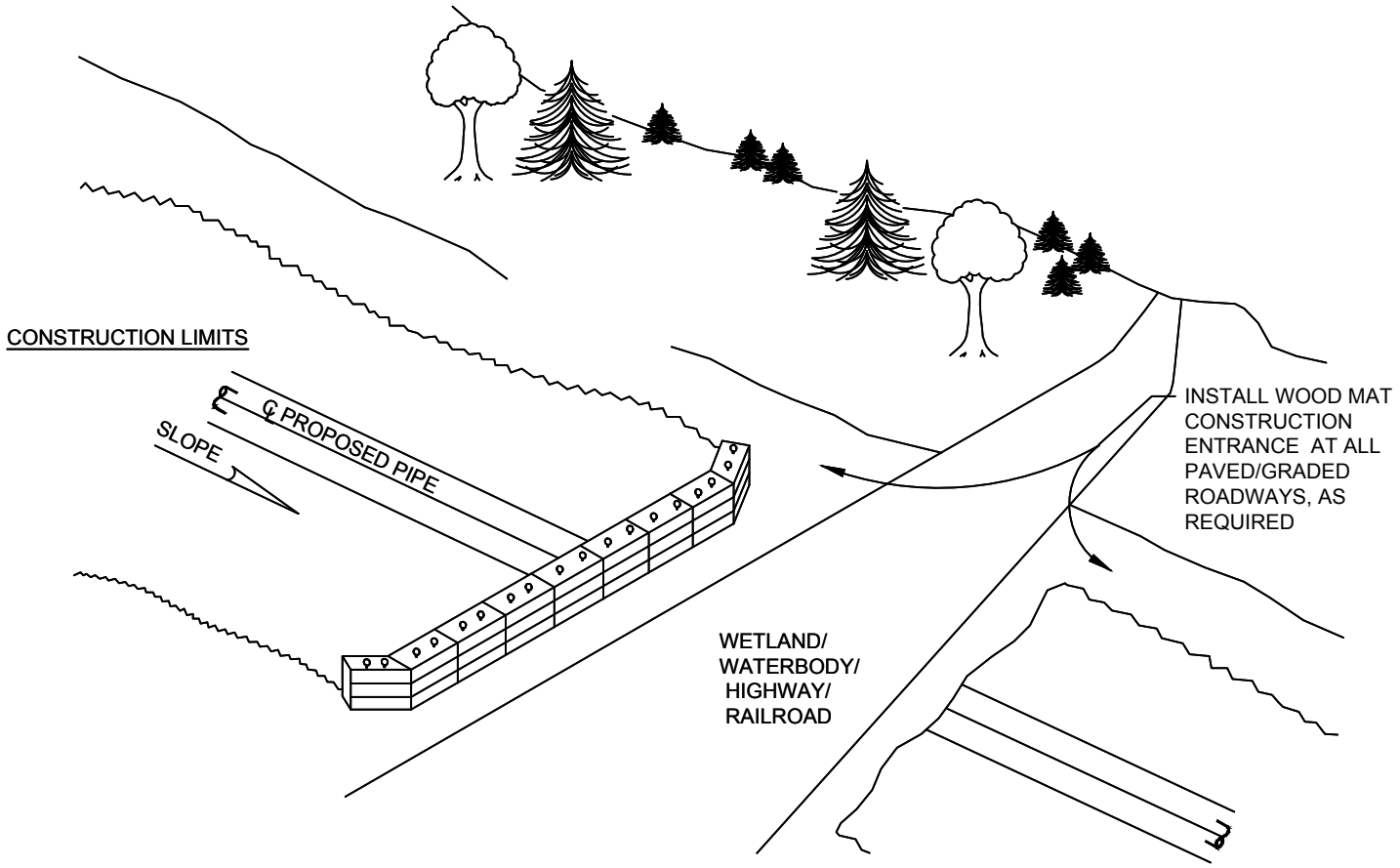
SCALE: NOT TO SCALE

REV LEVEL	DATE	BY	DESCRIPTION	CK.	APP.

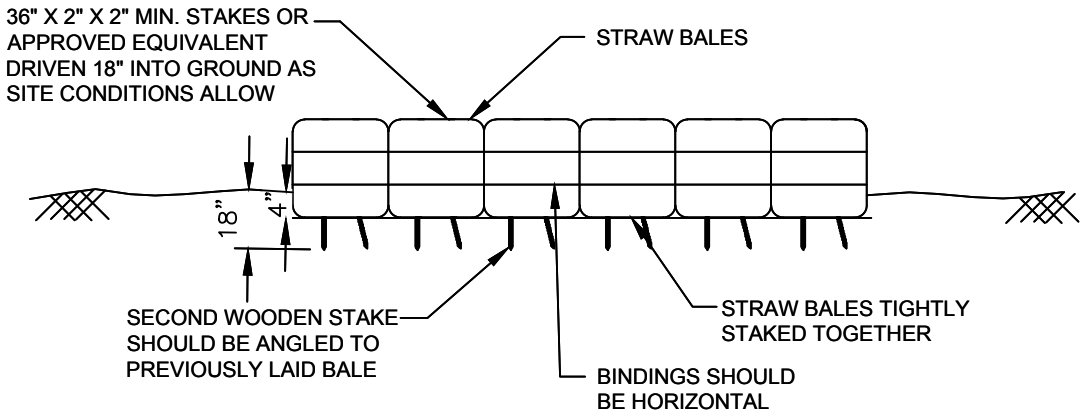
REVISIONS

COMPOST FILTER SOCK DETAIL

DATE: | PLOT DATE: | DRAWN BY | LOC. NO | DRAWING NUMBER: | SHEET NO. | REV.



FRONT VIEW



NOTES:

1. STRAW BALES TO BE EMBEDDED 4" MIN. INTO GROUND AS SITE CONDITIONS ALLOW.
2. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE ABOVE GROUNDS HEIGHT OF THE BARRIER.
3. STRAW BALES REMOVED FOR ACCESS PURPOSES DURING THE DAY MUST BE REINSTALLED AFTER THE CONSTRUCTION ACTIVITY HAS PASSED THROUGH OR BY THE END OF THE DAY.
4. STRAW BALES SHOULD NOT BE USED FOR PROJECTS LASTING MORE THAN 3 MONTHS.
5. STAKES TO BE DRIVEN FLUSH WITH THE TOP OF THE BALE. BOTH ENDS OF THE BARRIER TO BE EXTENDED AT LEAST 8' UP SLOPE AT 45 DEGREES TO MAIN BARRIER ALIGNMENT.
6. STRAW BALE BARRIERS THAT ARE UNDERMINED OR TOPPED SHALL BE REPLACED WITH A ROCK FILTER OUTLET.
7. BALES WILL BE REMOVED WHEN PERMANENT STABILAZATION IS ACHIEVED.
8. COMPACTED BACKFILL WILL BE PLACED ON DISTURBED SIDE.

REV LEVEL	DATE	BY	DESCRIPTION	CK.	APP.

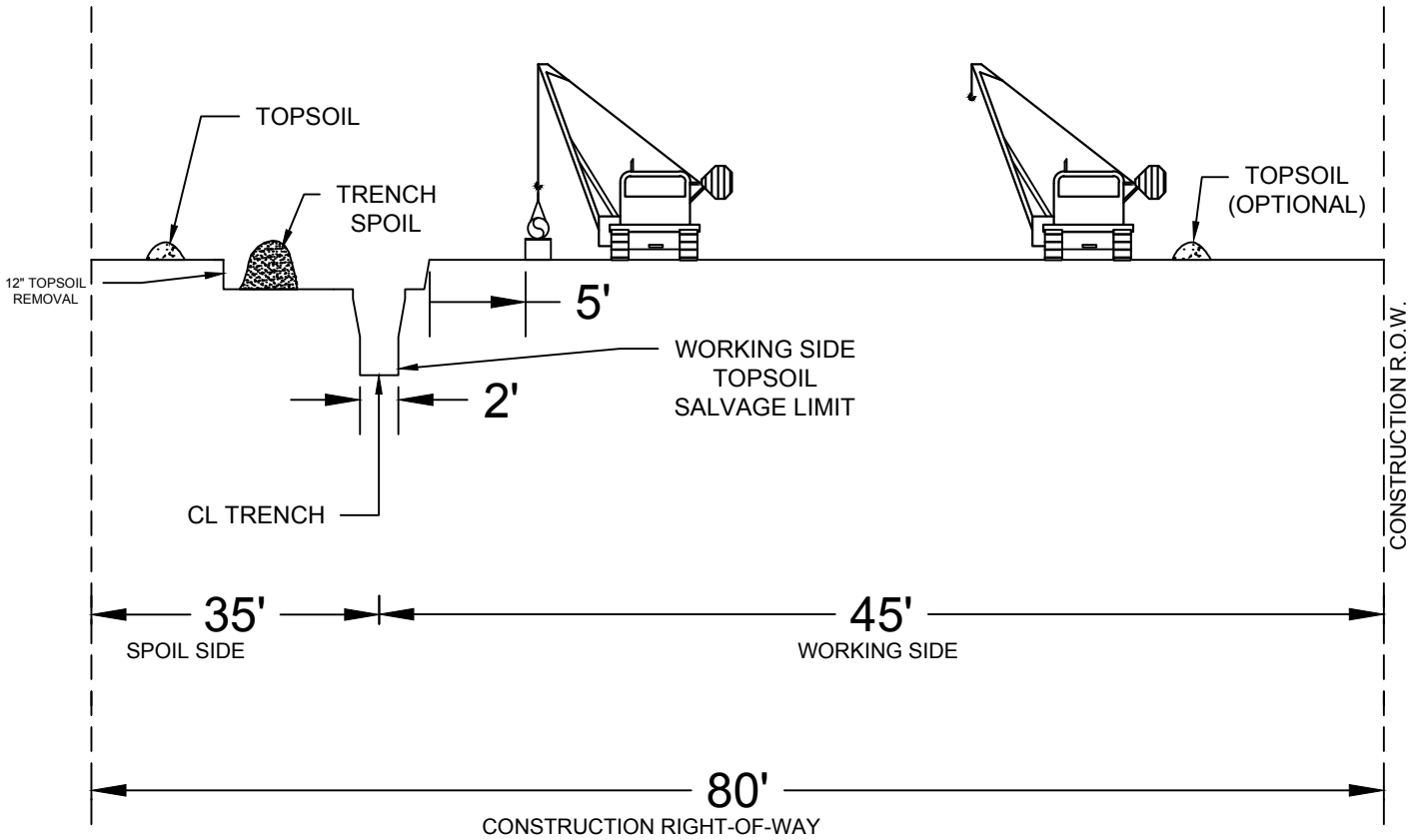
REVISIONS

TYPICAL STRAW BALE INSTALLATION

DATE: | PLOT DATE: | DRAWN BY: | LOC. NO: | DRAWING NUMBER: | SHEET NO: | REV:

RIGHT-OF-WAY (ROW) DETAIL

CONSTRUCTION RIGHT-OF-WAY DETAIL



PROFILE
NOT TO SCALE

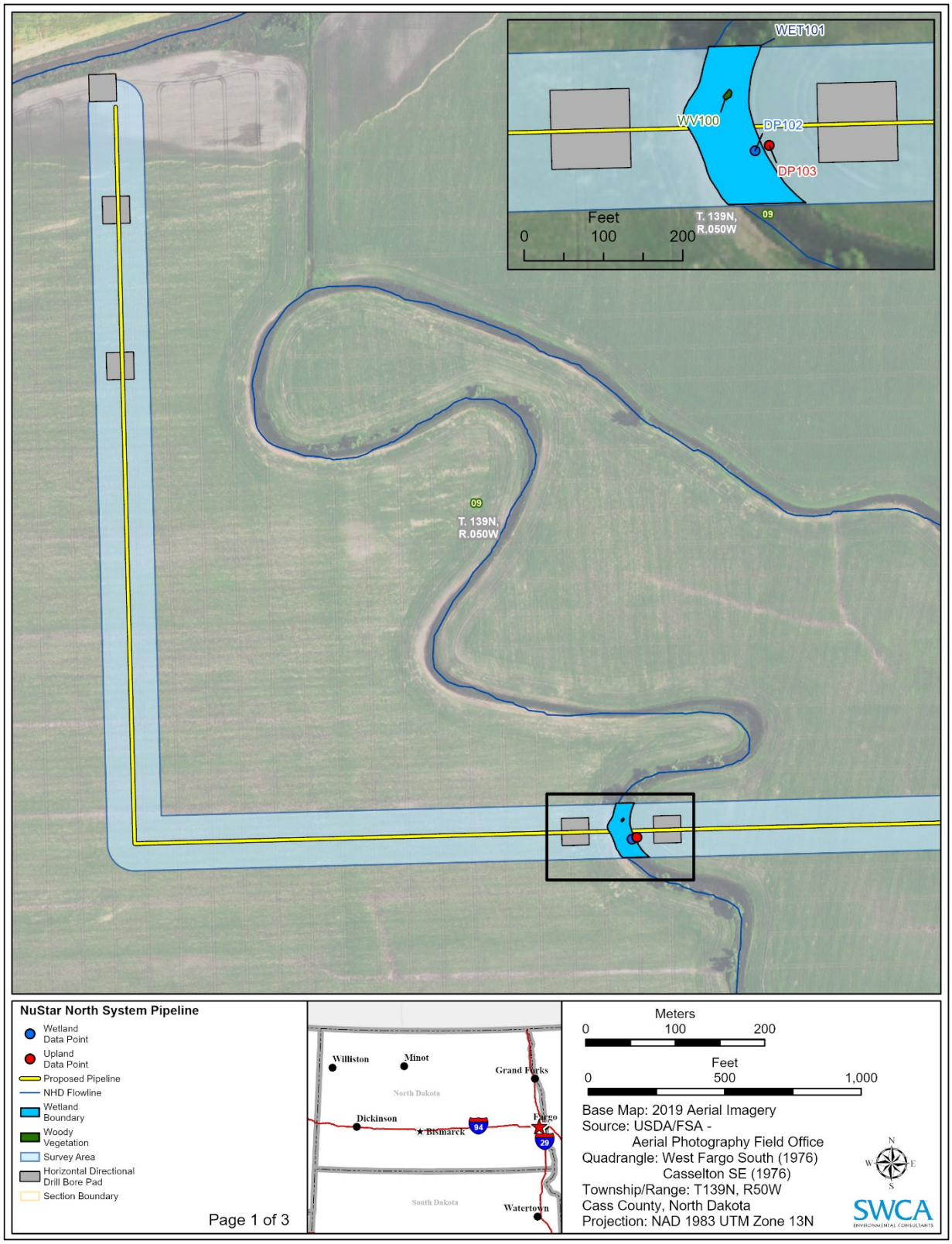
NOTES:

- CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 80' WIDE OF TEMPORARY WORKSPACE. ADDITIONAL TEMPORARY WORKSPACE WILL BE NECESSARY AT MAJOR ROAD AND RIVER CROSSINGS AND OTHER SPECIAL CIRCUMSTANCES, AS REQUIRED. CERTAIN SITUATIONS MAY REQUIRE A NARROWER WIDTH.
- THIS DRAWING REFLECTS "TRENCH AND SPOIL SIDE" TOPSOIL STRIPPING PROCEDURE. SALVAGE TOPSOIL OVER TRENCH AND UNDER THE SPOIL PILE AT LOCATION IDENTIFIED ON THE CONSTRUCTION ALIGNMENT SHEETS, OR AS DIRECTED BY THE COMPANY INSPECTOR. DEPTH OF TOPSOIL STRIPPING IS THE DEPTH OF CULTIVATION OR 12," WHICHEVER IS GREATER.
- STOCKPILE TOPSOIL AS SHOW OR IN ANY CONFIGURATION APPROVED BY THE COMPANY INSPECTOR. KEEP TOPSOIL AND SPOIL PILES CLEAN OF ALL CONSTRUCTION DEBRIS. MAINTAIN A MINIMUM OF 12" OF SEPARATION BETWEEN TOPSOIL AND TRENCH SPOIL PILES. ENSURE THAT TOPSOIL AND TRENCH SPOIL DO NOT MIX.
- LEAVE GAPS IN TOPSOIL AND SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS. DO NOT USE TOPSOIL FOR PADDING. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING TOPSOIL AND SPOILS PILES.
- THE OFFSET FROM AN EXISTING PIPELINE, WHERE APPLICABLE, WILL BE 25', BUT MAY BE INCREASED OR DECREASED DEPENDING ON THE SITE SPECIFIC CONSTRUCTION REQUIREMENTS.
- TEMPORARILY SUSPEND TOPSOIL HANDLING OPERATION DURING EXCESSIVELY WINDY CONDITIONS UNTIL MITIGATIVE MEASURES TO MINIMIZE WIND EROSION CAN BE IMPLEMENTED.
- BOTTOM OF TRENCH WIDTH WILL BE AN AVERAGE OF 2' (TYPICAL). HOWEVER, UNDER CERTAIN CIRCUMSTANCES, THE TRENCH MAY BE A MAXIMUM OF 10' WIDE.
- TOPSOIL AND TRENCH SPOIL RELATIVE POSITIONS CAN, AS DIRECTED BY THE COMPANY INSPECTOR, BE REVERSED.

SWCA ENVIRONMENTAL CONSULTANTS

CORRIDOR EXCLUSION AND AVOIDANCE AREA MAPS

- **Exclusion Areas: none identified**
- **Avoidance Areas: 2 wetlands**



NuStar North System Pipeline

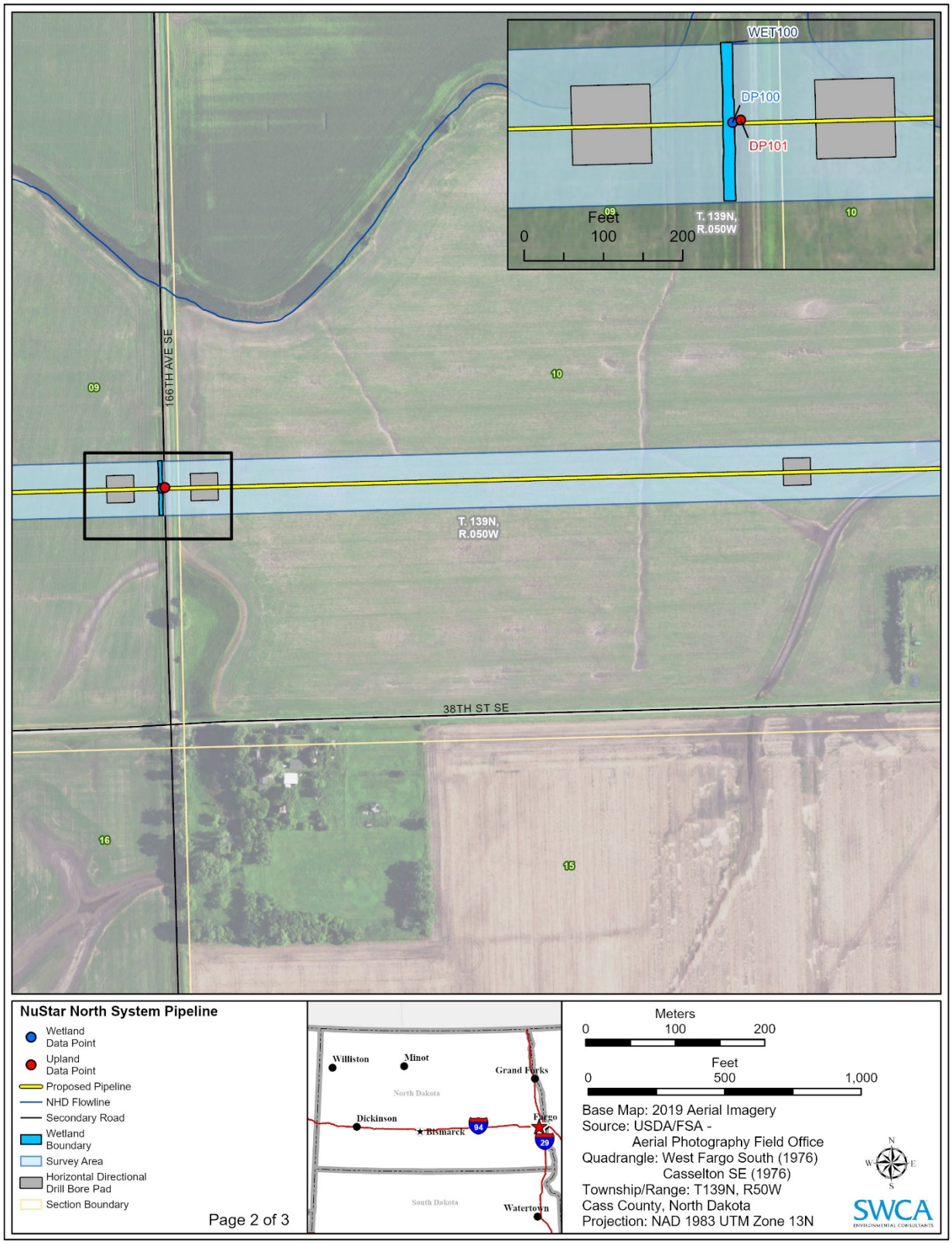
- Wetland Data Point
- Upland Data Point
- Proposed Pipeline
- NHD Flowline
- Wetland Boundary
- Woody Vegetation
- Survey Area
- Horizontal Directional Drill Bore Pad
- Section Boundary

Meters
0 100 200

Feet
0 500 1,000

Base Map: 2019 Aerial Imagery
Source: USDA/FSA -
Aerial Photography Field Office
Quadrangle: West Fargo South (1976)
Casselton SE (1976)
Township/Range: T139N, R50W
Cass County, North Dakota
Projection: NAD 1983 UTM Zone 13N

SWCA
ENVIRONMENTAL CONSULTANTS



NuStar North System Pipeline

- Wetland Data Point
- Upland Data Point
- Proposed Pipeline
- NHD Flowline
- Secondary Road
- Wetland Boundary
- Survey Area
- Horizontal Directional Drill Bore Pad
- Section Boundary

Meters
0 100 200

Feet
0 500 1,000

Base Map: 2019 Aerial Imagery
Source: USDA/FSA -
Aerial Photography Field Office
Quadrangle: West Fargo South (1976)
Casselton SE (1976)
Township/Range: T139N, R50W
Cass County, North Dakota
Projection: NAD 1983 UTM Zone 13N

SWCA
ENVIRONMENTAL CONSULTANTS

NuStar North System Pipeline

- Proposed Pipeline
- NHD Flowline
- Secondary Road
- Survey Area
- Horizontal Directional Drill Bore Pad
- Section Boundary

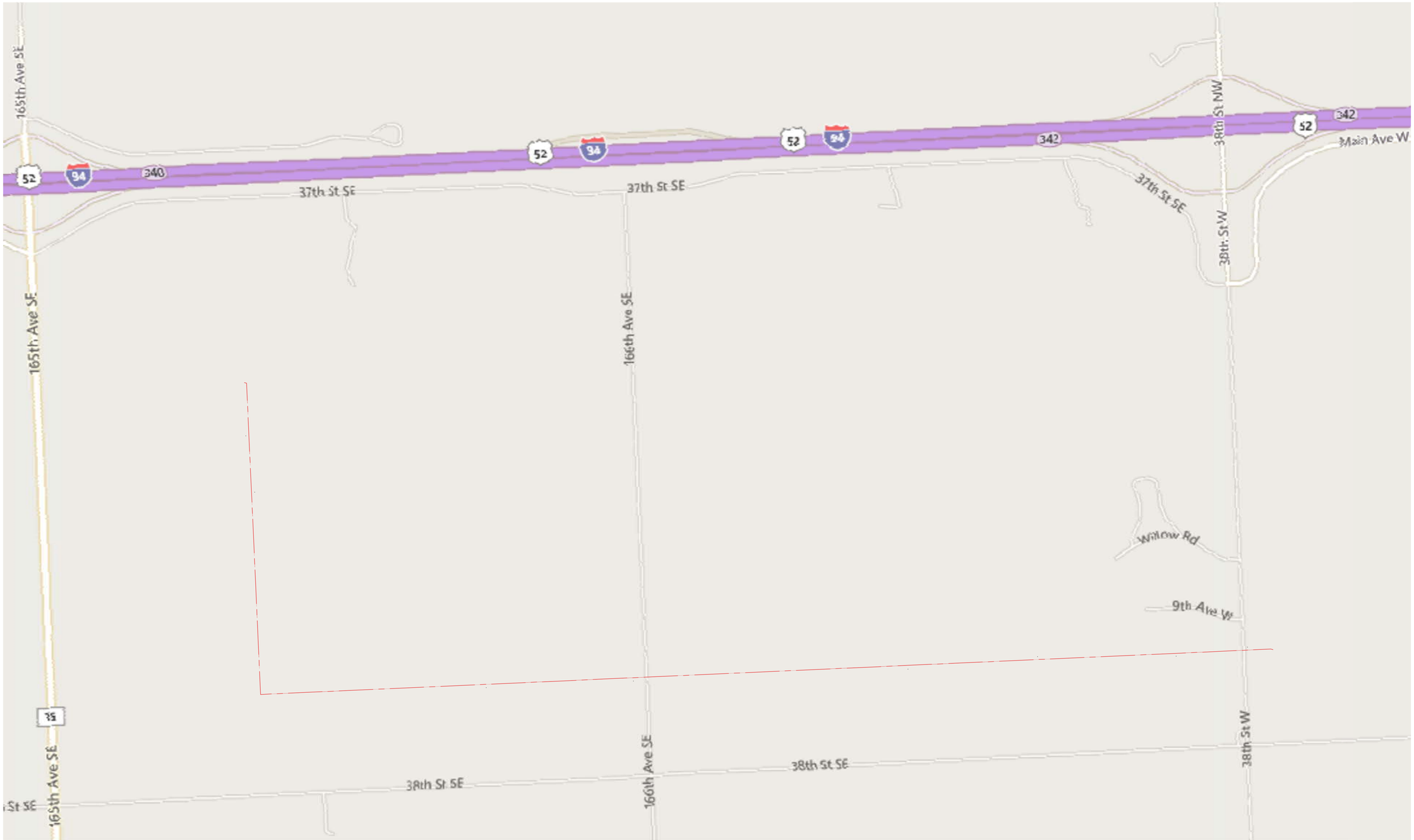
Meters
0 100 200

Feet
0 500 1,000

Base Map: 2019 Aerial Imagery
Source: USDA/FSA - Aerial Photography Field Office
Quadrangle: West Fargo South (1976), Casselton SE (1976)
Township/Range: T139N, R50W
Cass County, North Dakota
Projection: NAD 1983 UTM Zone 13N

SWCA ENVIRONMENTAL CONSULTANTS

ENGINEERING DRAWINGS
Alignment Sheets
Crossing Plan and Profile Sheets



PRELIMINARY

0 400
SCALE IN INT. FEET

SUMMARY

BILL OF MATERIALS

NO.	DESCRIPTION	QUANTITY	NO.	DESCRIPTION	QUANTITY

REFERENCE DRAWINGS

DESCRIPTION	DWG FILE

DRAWING REVISION

NO.	DATE	BY	DESCRIPTION	CHK	ENG	APP	CLIENT
1	4/13/20	KTB	ALIGNMENT & WORKSPACE	GKD			
2	7/22/20	KTB	HDD & STATIONING				
3	7/24/20	KTB	WORKSPACE				
4	8/26/20	KTB	WETLANDS				

NuStar
PIPELINE OPERATING PARTNERSHIP, L.P.

Egan, Field & Nowak, Inc.
land surveyors since 1872
1229 Tyler Street NE, Suite 100
Minneapolis, Minnesota 55413
PHONE: (612) 466-3300
FAX: (612) 466-3363
WWW.EFNSURVEY.COM

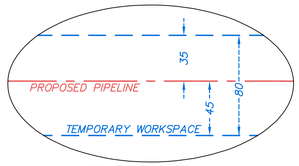
ALIGNMENT SKETCH
MAPLETON DIVERSION

CASS COUNTY — NORTH DAKOTA

IMAGERY DATE:	DRAWN BY: KTB	CLIENT PROJECT NO:
SURVEY BY: KB, DF	DRAWING DATE: 3/30/20	EFN PROJECT NO.: 39039
DWG BY: KTB	APPROVED:	SCALE: 1" = 400'
	CHECKED BY: GKD	SHEET: 1 OF 6

SURVEY/ABSTRACT					
OWNER	TRACT	0+00	PARENT PIN 53000009053020 JANET WANZEK ETAL	10+19	PARENT PIN 53000009054000 JANET WANZEK ETAL
	RODS		61.76		92.79
ENVIRONMENTAL	TIMING RESTRICTIONS				
	WETLAND / WATERBODY ID				
	WETLAND / WATERBODY TYPE				
	WATERBODY CLASSIFICATION				
	CONSTRUCTION METHOD	OPEN CUT	HDD		OPEN CUT
	REGULATORY SPECIFICATION				
	AC MITIGATION				

PLAN



TYPICAL DETAIL

0+00 TIE-IN
0+20 PI 71°23' RT

2+06 DRILL ENTRY/EXIT
2+28 DRILL TIE-IN

7+46 C/L PROPOSED DIVERSION

10+19 1/4 SECTION LINE

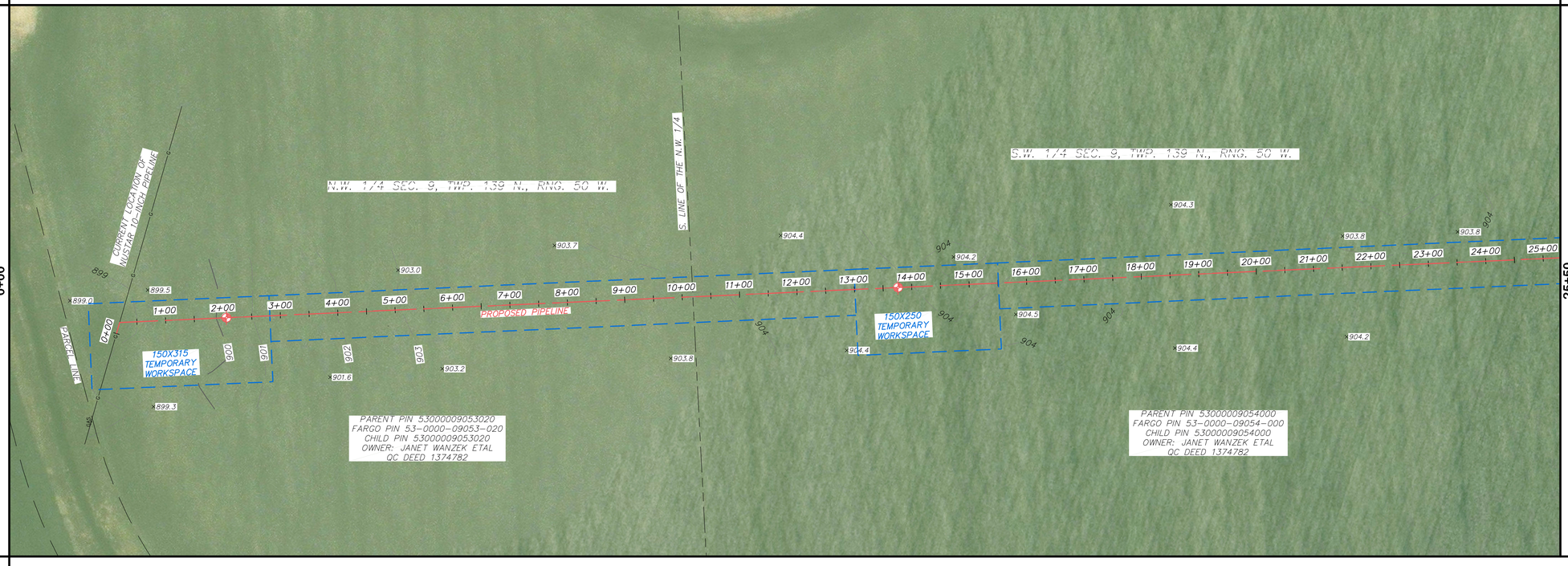
13+41 DRILL TIE-IN
13+76 DRILL ENTRY/EXIT

LEGEND

- PROPOSED 8-INCH PIPELINE
- PROPOSED WORKSPACE
- PROPOSED DRILL ENTRY/EXIT
- GAS SIGN
- UNDERGROUND GAS
- x 920.1 SPOT ELEVATION
- 920 EXISTING CONTOUR LINE

PRELIMINARY

0+00



25+50

0 100
SCALE IN FEET
Bearings based on NAD 83, North Dakota North, Int. Ft. grid system

PROFILE

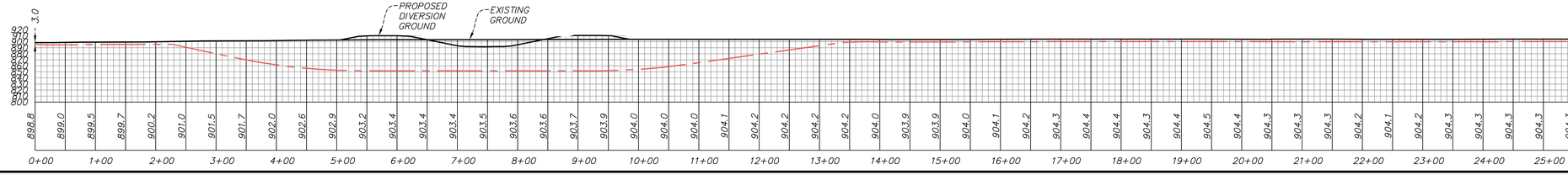
SCALE HORIZONTAL: 1" = 100'
VERTICAL: 1" = 100'

NOTES:

1. EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. CONTRACTOR SHALL CALL NORTH DAKOTA ONE CALL AT 811 48 HOURS PRIOR TO CONSTRUCTION.

2. HEAVY EQUIPMENT WORKING IN WETLANDS OR LOW LANDS MUST BE PLACED ON MATS, OR OTHER MEASURES MUST BE TAKEN TO MINIMIZE SOIL DISTURBANCE.

0+00



25+50

PIPE DATA

CLASSIFICATION	
DESIGN PRESSURE	
MAX ALLOWABLE OPERATING PRESSURE	
NORMAL OPERATING PRESSURE	
DESIGN FACTOR	

SUMMARY

BILL OF MATERIALS

NO.	DESCRIPTION	QUANTITY	NO.	DESCRIPTION	QUANTITY
1		1437'			
2		1113'			
3	PIPELINE MARKERS	2			

REFERENCE DRAWINGS

DESCRIPTION	DWG FILE

DRAWING REVISION

NO.	DATE	BY	DESCRIPTION	CHK	ENG	APP	CLIENT
1	4/13/20	KTB	ALIGNMENT & WORKSPACE	GKD			
2	7/22/20	KTB	HDD & STATIONING				
3	7/24/20	KTB	WORKSPACE WIDTH				

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FAX: (612) 466-3383
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ALIGNMENT SKETCH
MAPLETON DIVERSION

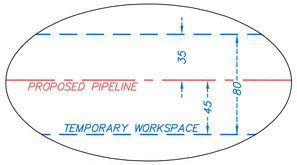
CASS COUNTY NORTH DAKOTA

IMAGERY DATE:	DRAWN BY: KTB	CLIENT PROJECT NO:
SURVEY BY: KB, DF	DRAWING DATE: 3/30/20	EFN PROJECT NO.: 39039
DWG BY: KTB	APPROVED:	SCALE: 1" = 100'
	CHECKED BY: GKD	SHEET: 2 OF 6

SURVEY/ABSTRACT					
OWNER	TRACT	25+50	PARENT PIN 53000009054000 JANET WANZEK ETAL	35+43	PARENT PIN 53000009055000 JANET WANZEK ETAL
	RODS		60.18		103.45

ENVIRONMENTAL				
TIMING RESTRICTIONS				
WETLAND / WATERBODY ID				
WETLAND / WATERBODY TYPE				
WATERBODY CLASSIFICATION				
CONSTRUCTION METHOD	OPEN CUT	HDD	OPEN CUT	
REGULATORY SPECIFICATION				
AC MITIGATION				

PLAN



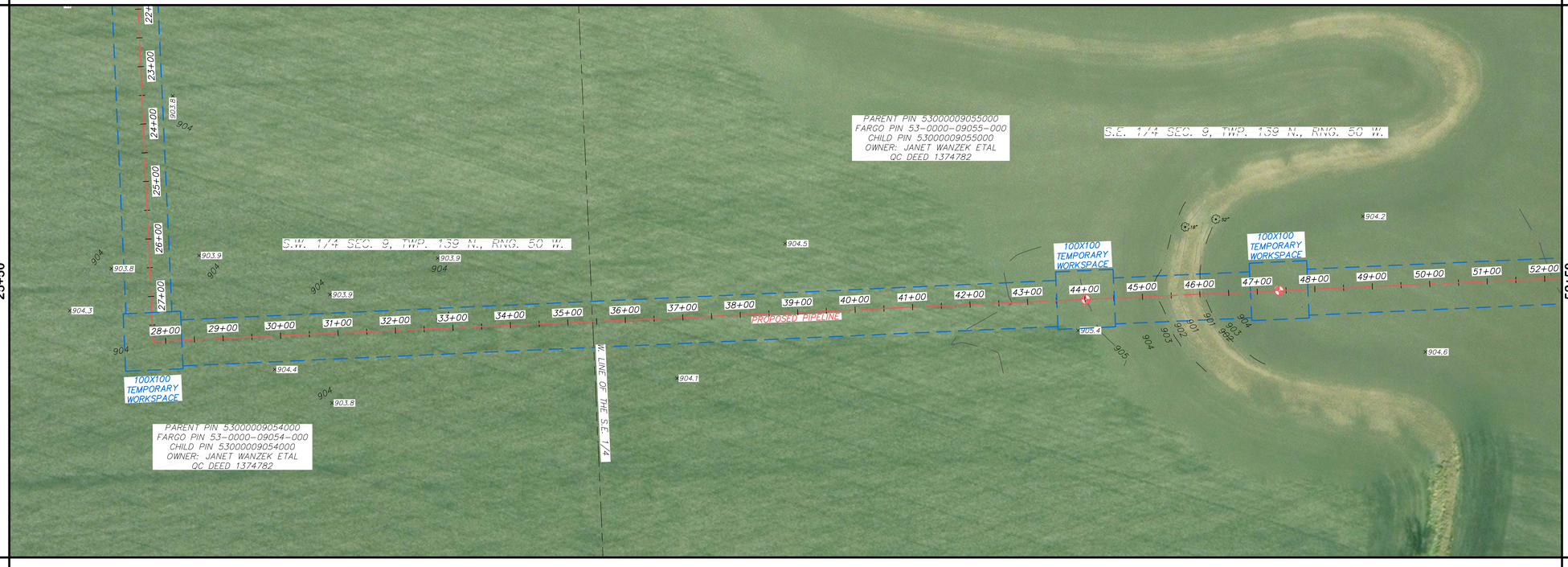
TYPICAL DETAIL

27+78 90° PI TL
35+43 1/4 SECTION LINE
44+01 DRILL ENTRY/EXIT
44+37 DRILL TIE-IN
45+23 BEGIN WETLAND
45+70 C/L DITCH
46+07 END WETLAND
47+02 DRILL TIE-IN
47+37 DRILL ENTRY/EXIT

LEGEND

- PROPOSED 8-INCH PIPELINE
- PROPOSED WORKSPACE
- PROPOSED DRILL ENTRY/EXIT
- x 920.1 SPOT ELEVATION
- 920 EXISTING CONTOUR LINE
- OR TREE

PRELIMINARY



0 100
SCALE IN INT. FEET
Bearings based on NAD 83, North Dakota North, Int. Ft. grid system

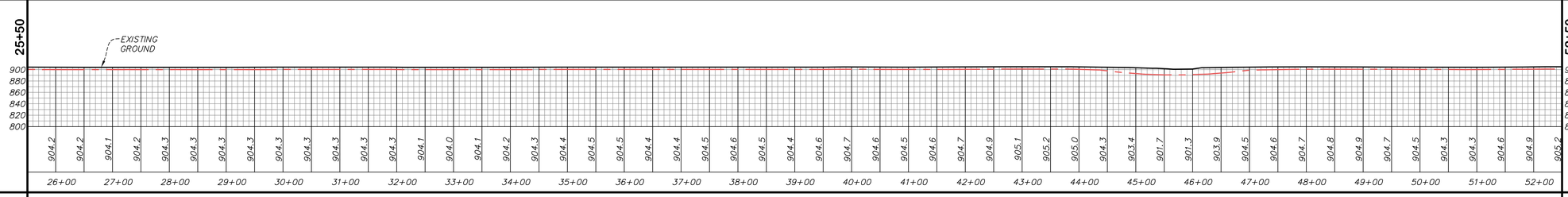
PROFILE

HORIZONTAL: 1" = 100'
VERTICAL: 1" = 100'
SCALE

NOTES:

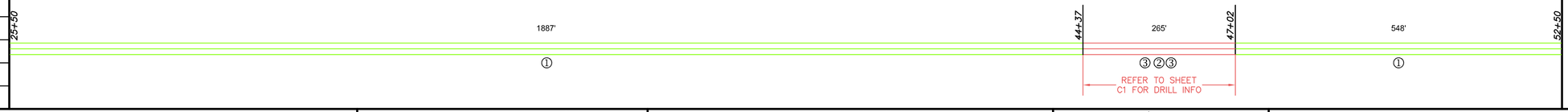
1. EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. CONTRACTOR SHALL CALL NORTH DAKOTA ONE CALL AT 811 48 HOURS PRIOR TO CONSTRUCTION.

2. HEAVY EQUIPMENT WORKING IN WETLANDS OR LOW LANDS MUST BE PLACED ON MATS, OR OTHER MEASURES MUST BE TAKEN TO MINIMIZE SOIL DISTURBANCE.



PIPE DATA

CLASSIFICATION	
DESIGN PRESSURE	
MAX ALLOWABLE OPERATING PRESSURE	
NORMAL OPERATING PRESSURE	
DESIGN FACTOR	



SUMMARY

BILL OF MATERIALS

NO.	DESCRIPTION	QUANTITY	NO.	DESCRIPTION	QUANTITY
1		2435'			
2		265'			
3	PIPELINE MARKERS	2			

REFERENCE DRAWINGS

DESCRIPTION	DWG FILE

DRAWING REVISION

NO.	DATE	BY	DESCRIPTION	CHK	ENG	APP	CLIENT
1	4/13/20	KTB	ALIGNMENT & WORKSPACE	GKD			
2	7/22/20	KTB	HDD & STATIONING				
3	7/24/20	KTB	WORKSPACE WIDTH & ADDITIONAL WORKSPACE				
4	8/26/20	KTB	WETLANDS				

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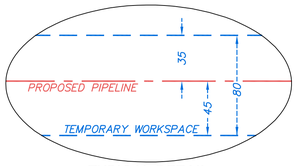
ALIGNMENT SKETCH
MAPLETON DIVERSION

CASS COUNTY NORTH DAKOTA

IMAGERY DATE:	DRAWN BY: KTB	CLIENT PROJECT NO:
SURVEY BY: KB, DF	DRAWING DATE: 3/30/20	EFN PROJECT NO.: 39039
DWG BY: KTB	APPROVED:	SCALE: 1" = 100'
	CHECKED BY: GKD	SHEET: 3 OF 6

SURVEY/ABSTRACT					
OWNER	TRACT	52+50	PARENT PIN 53000009055000 JANET WANZEK ETAL	61+84	PARENT PIN 53000009060000 MARY ANN TINTES
	RODS		56.61		107.03
ENVIRONMENTAL	TIMING RESTRICTIONS				
	WETLAND / WATERBODY ID				
	WETLAND / WATERBODY TYPE				
	WATERBODY CLASSIFICATION				
	CONSTRUCTION METHOD	OPEN CUT	HDD		OPEN CUT
	REGULATORY SPECIFICATION		CASS CO.		
	AC MITIGATION				

PLAN



TYPICAL DETAIL

60+08 DRILL ENTRY/EXIT
60+43 DRILL TIE-IN
61+38 U/G FIBER OPTIC
61+39 BEGIN WETLAND
61+43 END WETLAND
61+76 GRAVEL EDGE
61+84 166TH AVE. S.E.
61+88 C/L 166TH AVE. S.E.
61+99 GRAVEL EDGE
62+17 ROAD R.O.W.
62+78 DRILL TIE-IN
63+16 DRILL ENTRY/EXIT

LEGEND

- PROPOSED 8-INCH PIPELINE
- PROPOSED WORKSPACE
- PROPOSED DRILL ENTRY/EXIT
- fo — UNDERGROUND FIBER OPTIC
- x 920.1 SPOT ELEVATION
- 920 EXISTING CONTOUR LINE

PRELIMINARY

0 100
SCALE IN INT. FEET
Bearings based on NAD 83, North Dakota North, Int. Ft. grid system

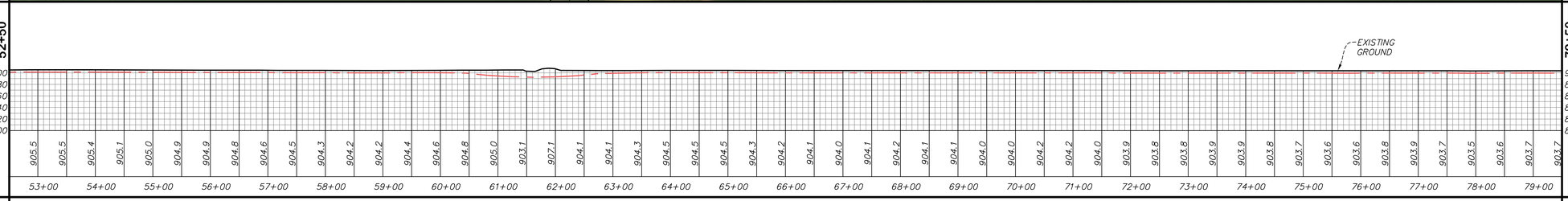
PROFILE

HORIZONTAL: 1" = 100'
VERTICAL: 1" = 100'
SCALE

NOTES:

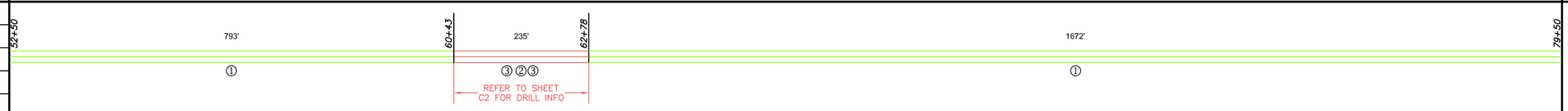
1. EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. CONTRACTOR SHALL CALL NORTH DAKOTA ONE CALL AT 811 48 HOURS PRIOR TO CONSTRUCTION.

2. HEAVY EQUIPMENT WORKING IN WETLANDS OR LOW LANDS MUST BE PLACED ON MATS, OR OTHER MEASURES MUST BE TAKEN TO MINIMIZE SOIL DISTURBANCE.



PIPE DATA

CLASSIFICATION	
DESIGN PRESSURE	
MAX ALLOWABLE OPERATING PRESSURE	
NORMAL OPERATING PRESSURE	
DESIGN FACTOR	



SUMMARY

BILL OF MATERIALS

NO.	DESCRIPTION	QUANTITY	NO.	DESCRIPTION	QUANTITY
1		2465'			
2		235'			
3	PIPELINE MARKERS	2			

REFERENCE DRAWINGS

DESCRIPTION	DWG FILE

DRAWING REVISION

NO.	DATE	BY	DESCRIPTION	CHK	ENG	APP	CLIENT
1	4/13/20	KTB	ALIGNMENT & WORKSPACE	GKD			
2	7/22/20	KTB	HDD & STATIONING				
3	7/24/20	KTB	WORKSPACE WIDTH				
4	8/26/20	KTB	WETLANDS				

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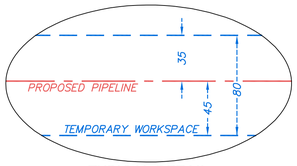
ALIGNMENT SKETCH
MAPLETON DIVERSION

CASS COUNTY — NORTH DAKOTA

IMAGERY DATE:	DRAWN BY: KTB	CLIENT PROJECT NO:
SURVEY BY: KB, DF	DRAWING DATE: 3/30/20	EFN PROJECT NO.: 39039
DWG BY: KTB	APPROVED:	SCALE: 1" = 100'
	CHECKED BY: GKD	SHEET: 4 OF 6

SURVEY/ABSTRACT						
OWNER	TRACT	79+50	PARENT PIN 53000009060000 MARY ANN TINTES	88+29	PARENT PIN 53000009061005 MARY ANN TINTES	100+43	PARENT PIN 53000009061007 JANET WANZEK ETAL	106+50
	RODS		53.27		73.58		36.79	
ENVIRONMENTAL	TIMING RESTRICTIONS							
	WETLAND / WATERBODY ID							
	WETLAND / WATERBODY TYPE							
	WATERBODY CLASSIFICATION							
	CONSTRUCTION METHOD		OPEN CUT		HDD			
	REGULATORY SPECIFICATION							
	AC MITIGATION							

PLAN



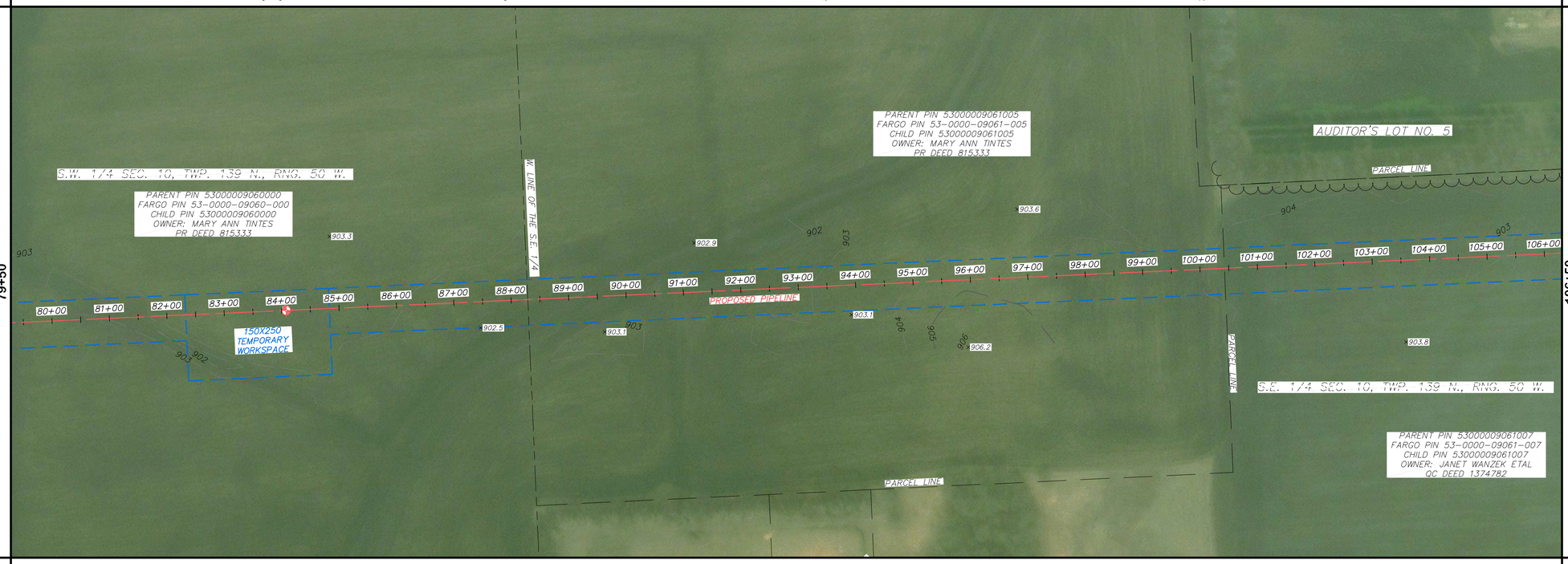
TYPICAL DETAIL

84+08 DRILL ENTRY/EXIT
84+36 DRILL TIE-IN
88+29 1/4 SECTION LINE
93+86 C/L PROPOSED DIVERSION
100+43 PARCEL LINE

LEGEND

- PROPOSED 8-INCH PIPELINE
- PROPOSED WORKSPACE
- PROPOSED DRILL ENTRY/EXIT
- TREELINE
- x 920.1 SPOT ELEVATION
- 920 EXISTING CONTOUR LINE

PRELIMINARY



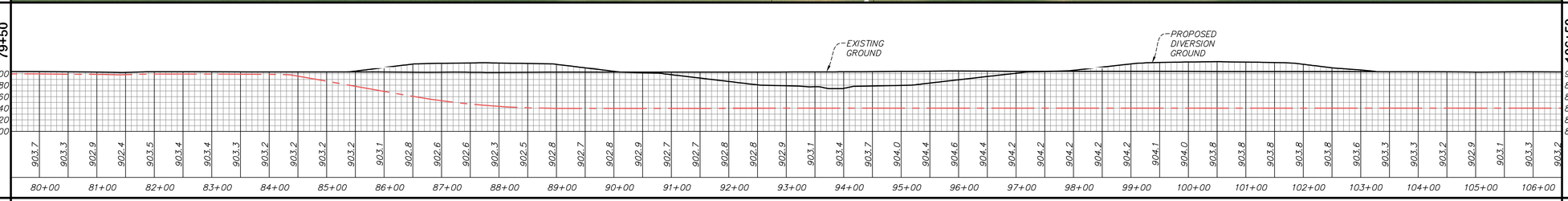
0 100
SCALE IN INT. FEET
Bearings based on NAD 83, North Dakota North, Int. Ft. grid system

PROFILE

HORIZONTAL: 1" = 100'
VERTICAL: 1" = 100'
SCALE

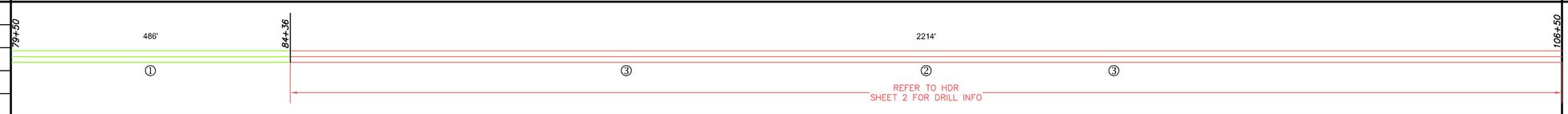
NOTES:

1. *EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. CONTRACTOR SHALL CALL NORTH DAKOTA ONE CALL AT 811 48 HOURS PRIOR TO CONSTRUCTION.*
2. *HEAVY EQUIPMENT WORKING IN WETLANDS OR LOW LANDS MUST BE PLACED ON MATS, OR OTHER MEASURES MUST BE TAKEN TO MINIMIZE SOIL DISTURBANCE.*



PIPE DATA

CLASSIFICATION						
DESIGN PRESSURE						
MAX ALLOWABLE OPERATING PRESSURE						
NORMAL OPERATING PRESSURE						
DESIGN FACTOR						



SUMMARY

BILL OF MATERIALS

NO.	DESCRIPTION	QUANTITY	NO.	DESCRIPTION	QUANTITY
1		486'			
2		2214'			
3	PIPELINE MARKERS	2			

REFERENCE DRAWINGS

DESCRIPTION	DWG FILE

DRAWING REVISION

NO.	DATE	BY	DESCRIPTION	CHK	ENG	APP	CLIENT
1	4/13/20	KTB	ALIGNMENT & WORKSPACE	GKD			
2	7/22/20	KTB	HDD & STATIONING				
3	7/24/20	KTB	WORKSPACE WIDTH				

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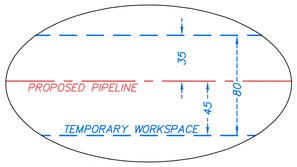
ALIGNMENT SKETCH
MAPLETON DIVERSION

CASS COUNTY — NORTH DAKOTA

IMAGERY DATE:	DRAWN BY: KTB	CLIENT PROJECT NO:
SURVEY BY: KB, DF	DRAWING DATE: 3/30/20	EFN PROJECT NO.: 39039
DWG BY: KTB	APPROVED:	SCALE: 1" = 100'
	CHECKED BY: GKD	SHEET: 5 OF 6

SURVEY/ABSTRACT					
OWNER / TRACT	106+50	PARENT PIN 53000009061007 JANET WAZNEK ETAL	PARENT PIN 53000009065020 CASS COUNTY JOINT WATER RESOURCE DISTRICT	114+74 / 115+24	PARENT PIN 53000009065010 BETTE J DEEDE TRUST ETAL	117+48
OWNER / RODS		49.94	3.03		16.61	
ENVIRONMENTAL: TIMING RESTRICTIONS						
ENVIRONMENTAL: WETLAND / WATERBODY ID						
ENVIRONMENTAL: WETLAND / WATERBODY TYPE						
ENVIRONMENTAL: WATERBODY CLASSIFICATION						
ENVIRONMENTAL: CONSTRUCTION METHOD		HDD			OPEN CUT	
ENVIRONMENTAL: REGULATORY SPECIFICATION			CASS CO.			
ENVIRONMENTAL: AC MITIGATION						

PLAN



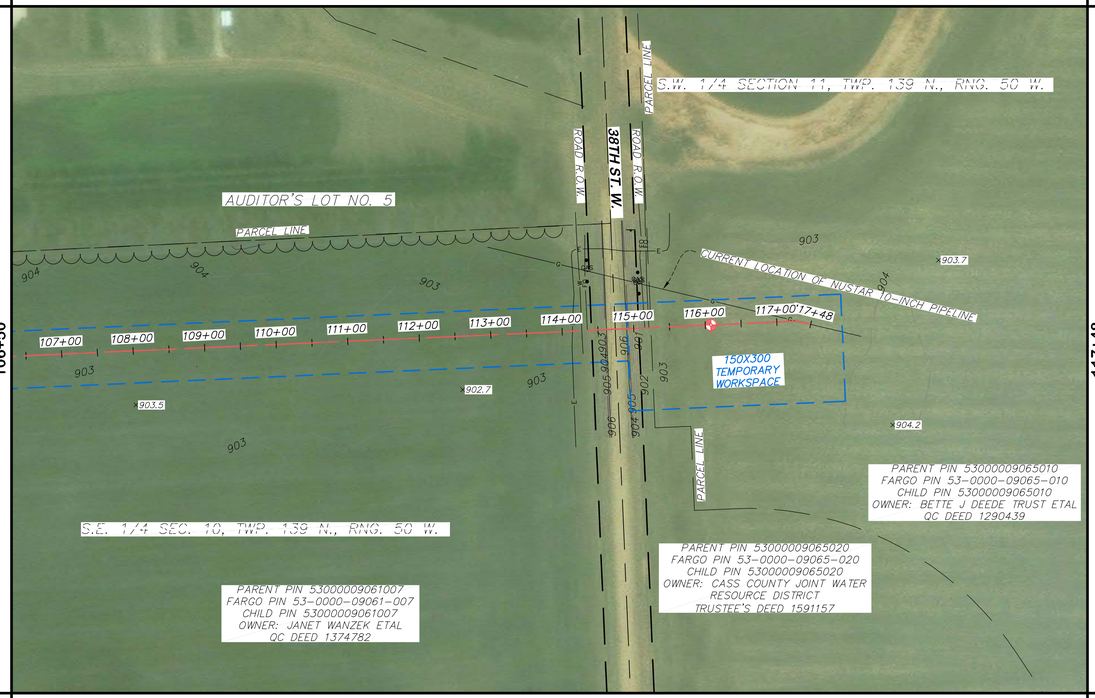
TYPICAL DETAIL

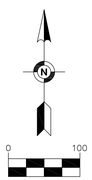
114+14 U/G ELECTRIC
114+27 U/G WATERMAIN
114+35 U/G FIBER OPTIC
114+41 ROAD R.O.W.
114+62 GRAVEL EDGE
114+74 C/L 38TH ST. W.
114+90 S-N SECTION LINE
115+07 ROAD R.O.W.
115+24 PARCEL LINE
115+79 DRILL TIE-IN
116+08 DRILL ENTRY/EXIT
117+28 PI 16'01" RT
117+48 TIE-IN

LEGEND

- PROPOSED 8-INCH PIPELINE
- PROPOSED WORKSPACE
- PROPOSED DRILL ENTRY/EXIT
- GAS SIGN
- SIGN
- BOLLARD
- W — WATERMAIN
- E — UNDERGROUND ELECTRIC
- FO — UNDERGROUND FIBER OPTIC
- G — UNDERGROUND GAS
- TREELINE
- x 920.1 — SPOT ELEVATION
- 920 — EXISTING CONTOUR LINE

PRELIMINARY





SCALE IN INT. FEET
Bearings based on NAD 83, North Dakota North, Int. Ft. grid system

PROFILE

SCALE — HORIZONTAL: 1" = 100'
VERTICAL: 1" = 100'

NOTES:

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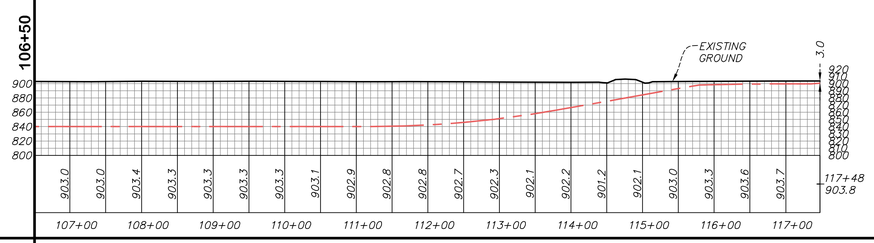
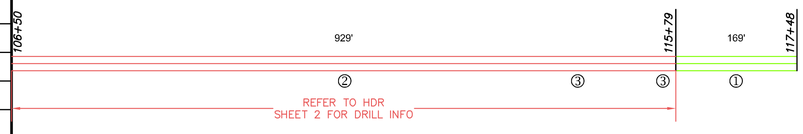


PIPE DATA

CLASSIFICATION		
DESIGN PRESSURE		
MAX ALLOWABLE OPERATING PRESSURE		
NORMAL OPERATING PRESSURE		
DESIGN FACTOR		



SUMMARY

BILL OF MATERIALS

NO.	DESCRIPTION	QUANTITY	NO.	DESCRIPTION	QUANTITY
1		169'			
2		929'			
3	PIPELINE MARKERS	2			

REFERENCE DRAWINGS

DESCRIPTION	DWG FILE

DRAWING REVISION

NO.	DATE	BY	DESCRIPTION	CHK	ENG	APP	CLIENT
1	4/13/20	KTB	ALIGNMENT & WORKSPACE	GKD			
2	7/22/20	KTB	HDD & STATIONING				
3	7/24/20	KTB	WORKSPACE WIDTH				

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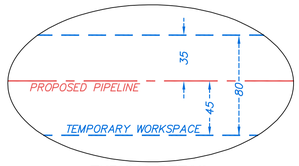
ALIGNMENT SKETCH
MAPLETON DIVERSION

CASS COUNTY — NORTH DAKOTA

IMAGERY DATE:	DRAWN BY: KTB	CLIENT PROJECT NO:
SURVEY BY: KB, DF	DRAWING DATE: 3/30/20	EFN PROJECT NO.: 39039
DWG BY: KTB	APPROVED:	SCALE: 1" = 100'
	CHECKED BY: GKD	SHEET: 6 OF 6

PLAN



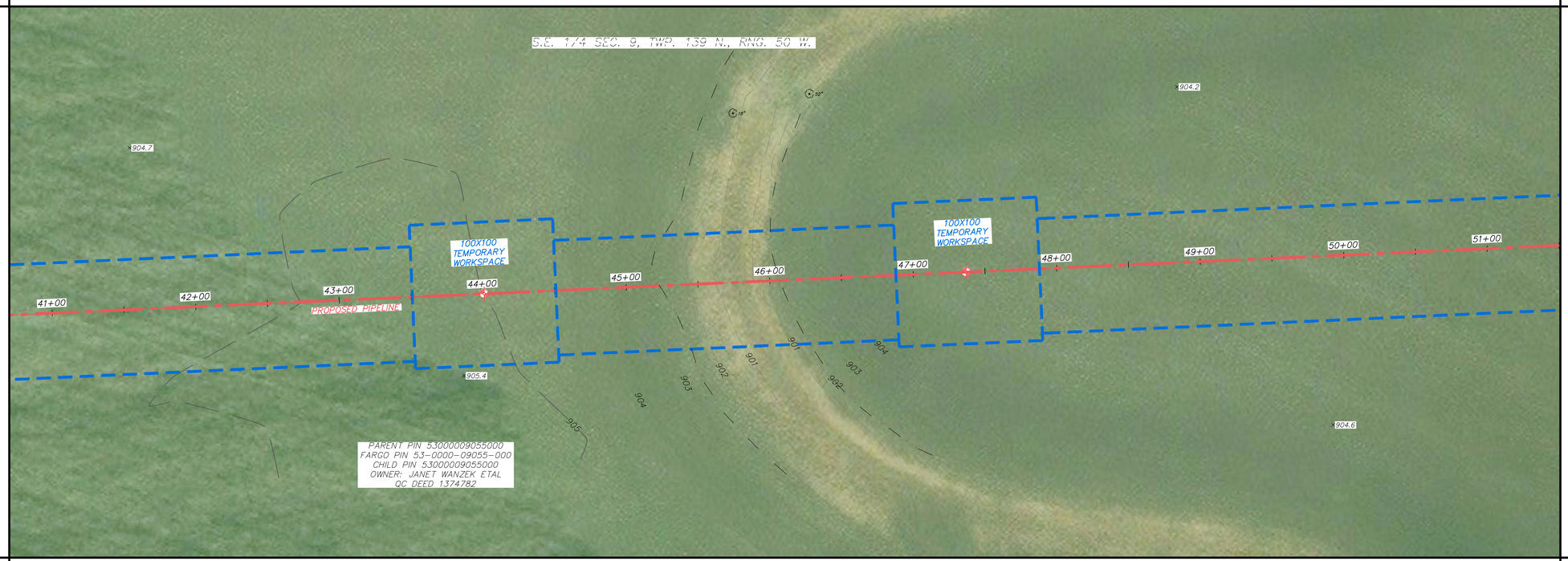
TYPICAL DETAIL

LEGEND

- PROPOSED 8-INCH PIPELINE
- PROPOSED WORKSPACE
- PROPOSED DRILL ENTRY/EXIT
- x 920.1 SPOT ELEVATION
- 920 EXISTING CONTOUR LINE
- OR TREE

0 40

SCALE IN INT. FEET
Bearings based on NAD 83, North Dakota North, Int. Ft. grid system



PROFILE

SCALE HORIZONTAL: 1" = 40'
VERTICAL: 1" = 40'

NOTES:

1. EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. CONTRACTOR SHALL CALL NORTH DAKOTA ONE CALL AT 811 48 HOURS PRIOR TO CONSTRUCTION.

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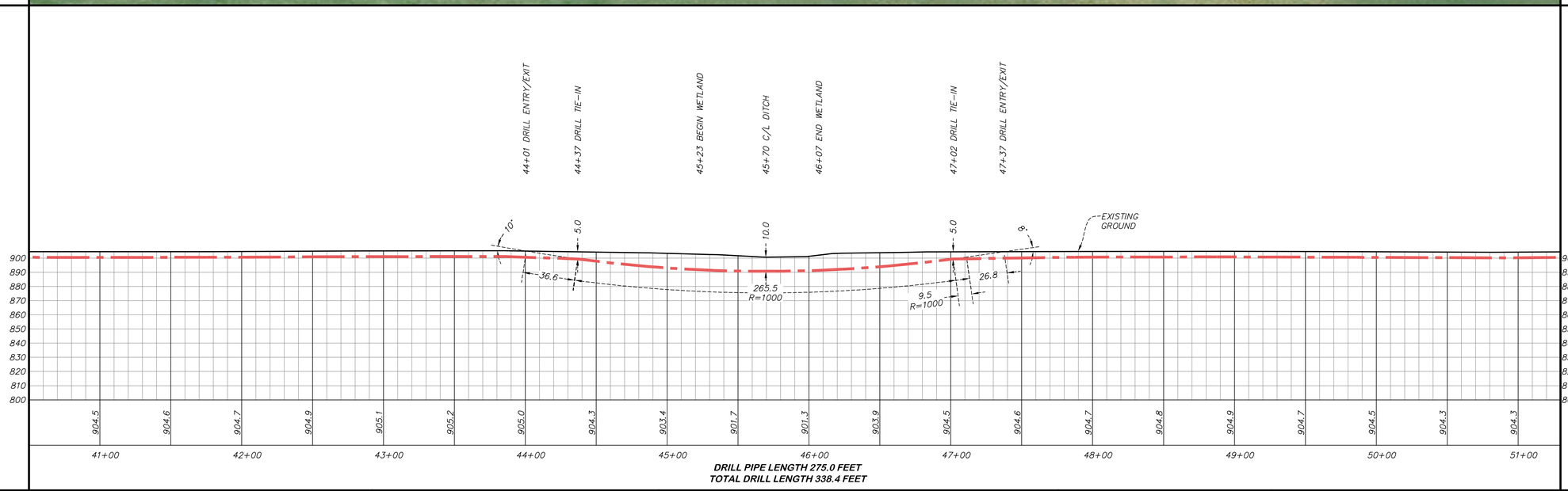
PRELIMINARY



DRILL PIPE LENGTH 275.0 FEET
TOTAL DRILL LENGTH 338.4 FEET

SUMMARY

BILL OF MATERIALS

NO.	DESCRIPTION	QUANTITY	NO.	DESCRIPTION	QUANTITY

REFERENCE DRAWINGS

DESCRIPTION	DWG FILE

DRAWING REVISION

NO.	DATE	BY	DESCRIPTION	CHK	ENG	APP	CLIENT
1	4/13/20	KTB	ALIGNMENT & WORKSPACE				
2	7/22/20	KTB	STATIONING				
3	7/24/20	KTB	WORKSPACE WIDTH				
4	8/26/20	KTB	WETLANDS				

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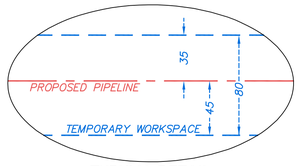
DRILL PROFILE
MAPLETON DIVERSION

CASS COUNTY — NORTH DAKOTA

IMAGERY DATE:	DRAWN BY: KTB	CLIENT PROJECT NO:
SURVEY BY: KB, DF	DRAWING DATE: 4/3/20	EFN PROJECT NO.: 39039
DWG BY: KTB	APPROVED:	SCALE: 1" = 40'
	CHECKED BY: GKD	SHEET: C1 OF C2

PLAN



TYPICAL DETAIL

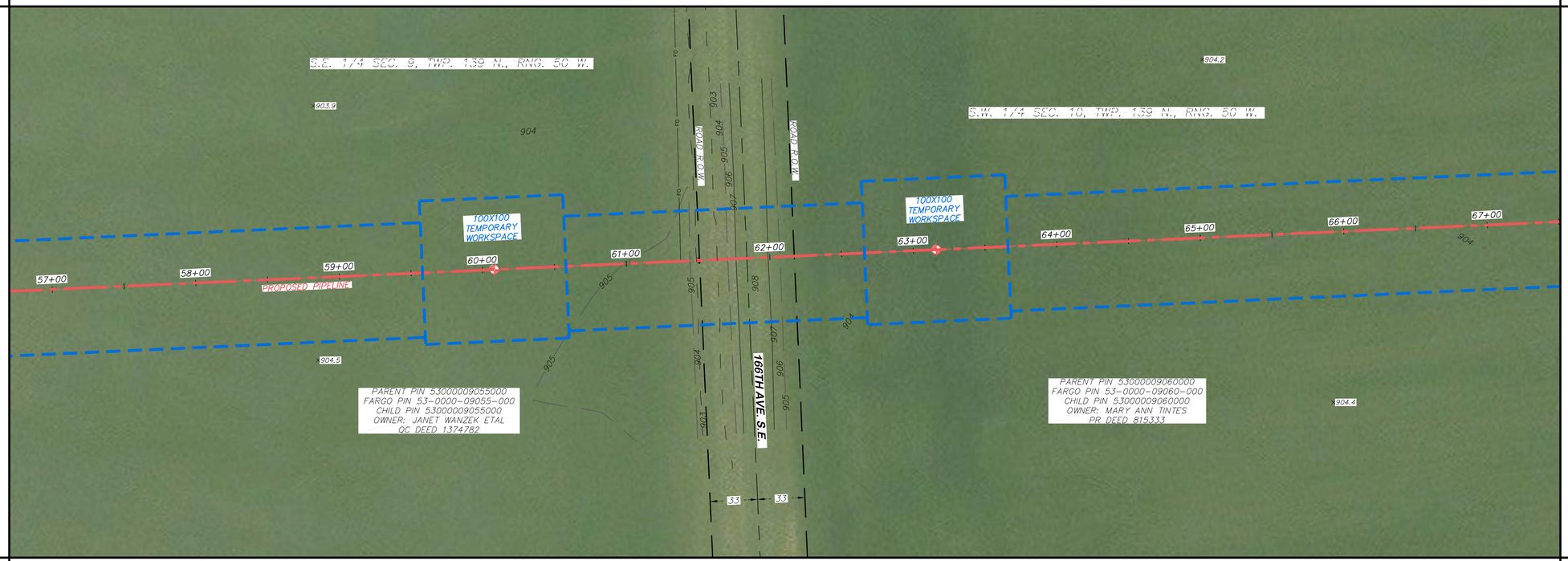
LEGEND

- PROPOSED 8-INCH PIPELINE
- PROPOSED WORKSPACE
- PROPOSED DRILL ENTRY/EXIT
- fo — UNDERGROUND FIBER OPTIC
- x 920.1 — SPOT ELEVATION
- 920 — EXISTING CONTOUR LINE

N

0 40

SCALE IN INT. FEET
Bearings based on NAD 83, North Dakota North, Int. Ft. grid system



PROFILE

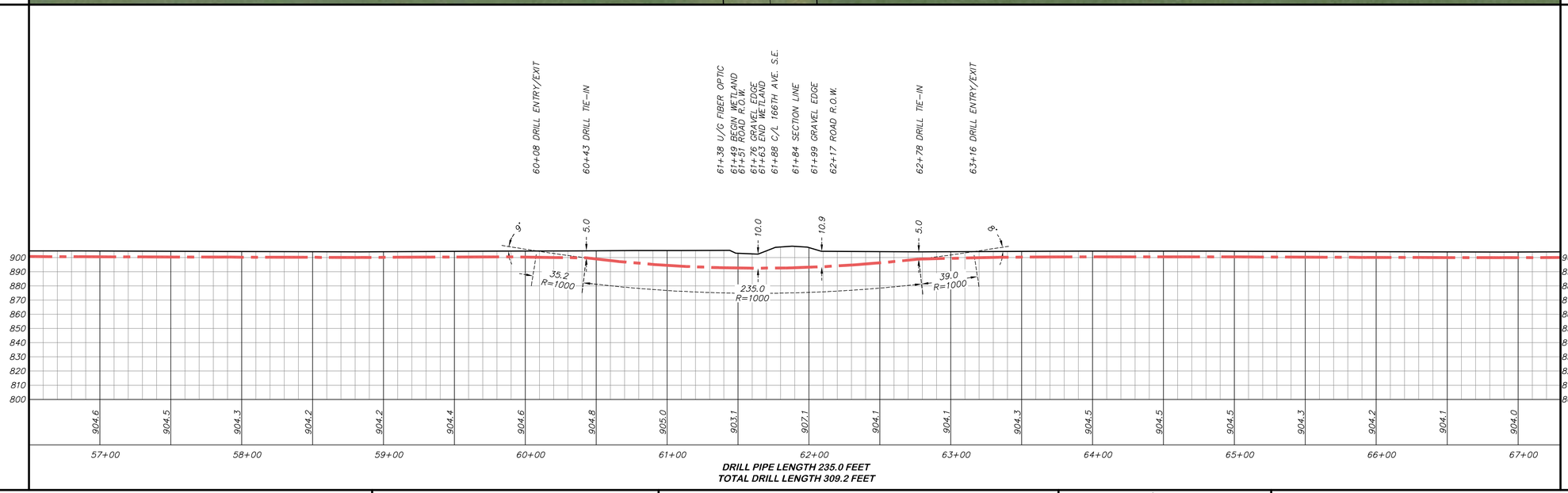
SCALE HORIZONTAL: 1" = 40'
VERTICAL: 1" = 40'

NOTES:

1. EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. CONTRACTOR SHALL CALL NORTH DAKOTA ONE CALL AT 811 48 HOURS PRIOR TO CONSTRUCTION.

2. HEAVY EQUIPMENT WORKING IN WETLANDS OR LOW LANDS MUST BE PLACED ON MATS, OR OTHER MEASURES MUST BE TAKEN TO MINIMIZE SOIL DISTURBANCE.

PRELIMINARY



DRILL PIPE LENGTH 235.0 FEET
TOTAL DRILL LENGTH 309.2 FEET

SUMMARY

BILL OF MATERIALS

NO.	DESCRIPTION	QUANTITY	NO.	DESCRIPTION	QUANTITY

REFERENCE DRAWINGS

DESCRIPTION	DWG FILE

DRAWING REVISION

NO.	DATE	BY	DESCRIPTION	CHK	ENG	APP	CLIENT
1	4/13/20	KTB	ALIGNMENT & WORKSPACE				
2	7/22/20	KTB	STATIONING				
3	7/24/20	KTB	WORKSPACE WIDTH				
4	8/26/20	KTB	WETLANDS				

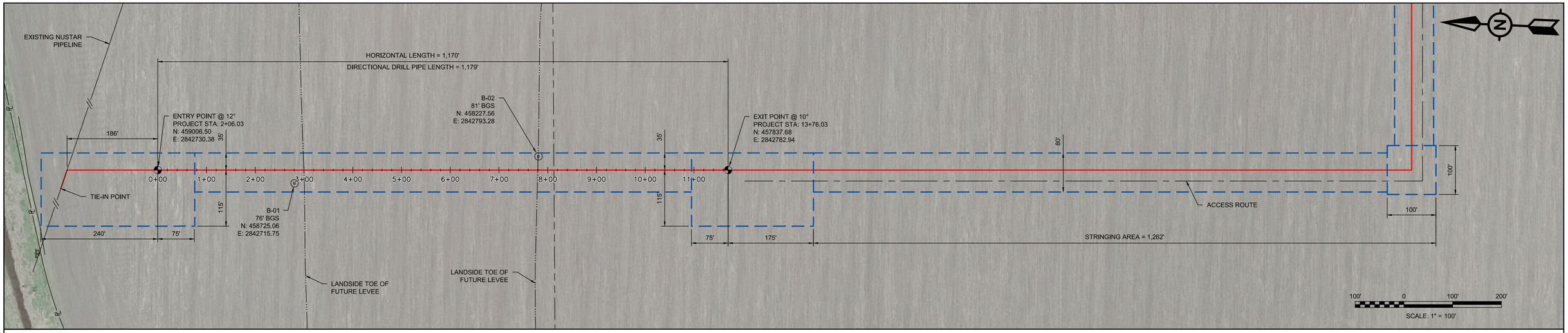
NuStar PIPELINE OPERATING PARTNERSHIP, L.P.

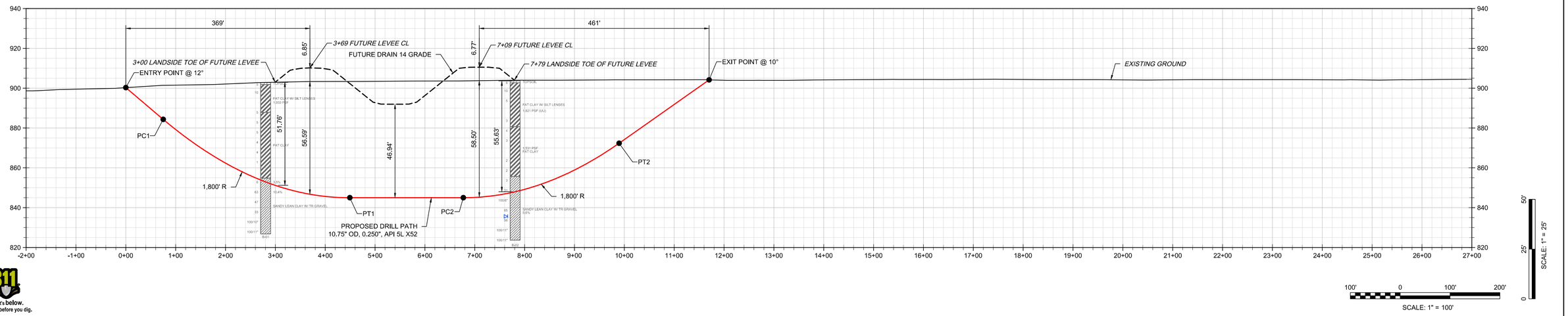
Egan, Field & Nowak, Inc.
land surveyors since 1872
1229 Tyler Street NE, Suite 100
Minneapolis, Minnesota 55413
PHONE: (612) 466-3300
FAX: (612) 466-3383
WWW.EFNSURVEY.COM

DRILL PROFILE
MAPLETON DIVERSION

CASS COUNTY — NORTH DAKOTA

IMAGERY DATE:	DRAWN BY: KTB	CLIENT PROJECT NO:
SURVEY BY: KB, DF	DRAWING DATE: 4/3/20	EFN PROJECT NO.: 39039
DWG BY: KTB	APPROVED:	SCALE: 1" = 40'
	CHECKED BY: GKD	SHEET: C2 OF C2





Know what's **below.** **Call** before you dig.

DIRECTIONAL DRILL DATA		
DESCRIPTION	STATION (ft)	ELEVATION (ft)
ENTRY POINT @ 12°	0+00.00	900.28
PC 1 (1,800' R)	0+75.02	884.33
PT 1	4+49.26	845.00
PC 2 (1,800' R)	6+76.89	845.00
PT 2	9+89.46	872.35
EXIT POINT @ 10°	11+70.00	904.18
HORIZONTAL DISTANCE (ft) = 1,170.00		
DIRECTIONAL DRILL PIPE LENGTH (ft) = 1,178.80		

GENERAL NOTES

1. DRILL PATH STATIONING IS IN FEET BY HORIZONTAL MEASUREMENT AND IS REFERENCED TO THE CONTROL POSITION FOR THE CROSSING.
2. ALL COMPANY SPECIFICATIONS, PERMIT REQUIREMENTS AND CONTRACT DOCUMENTS SHALL BE ADHERED TO BY CONTRACTOR.
3. CONTRACTOR SHALL PLACE ONE CALL/811 NOTIFICATIONS AND ABIDE BY STATE REGULATIONS BEFORE DRILLING COMMENCES.
4. PRESENCE, LOCATION, AND ELEVATIONS (POTHOLE IF NEEDED) OF ALL UTILITIES/FACILITIES TO BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION AND CLEARLY MARKED AND EXPOSED (IF NECESSARY).
5. DRILLING PRACTICES AND DOWNHOLE ASSEMBLIES SHALL BE MODIFIED TO PREVENT DAMAGE TO UNDERGROUND FACILITIES.
6. CONTRACTOR SHALL MONITOR TRENCHLESS OPERATIONS FOR AREA IMPACTS SUCH AS GROUND DISTURBANCE AND INADVERTENT RETURNS.
7. PILOT HOLE TOLERANCES AND MINIMUM THREE JOINT RADIUS SHALL BE MAINTAINED DURING PILOT HOLE OPERATIONS. TOLERANCES AND MINIMUM RADIUS SHALL BE REVIEWED BY COMPANY FOR APPROVAL.
8. CONTRACTOR HAS THE OPTION TO USE DUEL RIGS AND/OR RIG PLACEMENT IN REFERENCE TO ENTRY AND EXIT.
9. GEOTECHNICAL DATA AND INFORMATION IS PRESENTED FOR REFERENCE ONLY. REVIEW THE ASSOCIATED GEOTECHNICAL REPORT FOR ALL INTERPRETATIONS AND DETERMINATIONS REGARDING SUBSURFACE CONDITIONS.
10. ONE CONTINUOUS STRING OF PIPE SHALL BE UTILIZED DURING PULLBACK (NO MID-PULLBACK WELDS ALLOWED).
11. THE MINIMUM EXTENT OF THE GROUTING WILL BE TO COMPLETELY SEAL AND FILL THE UPPER 50 LINEAR FEET OF HOLE (IMMEDIATELY BELOW TIE-IN ELEVATION) ENTIRELY WITH GROUT AND A MINIMUM OF THE TOP 5 VERTICAL FEET FILLED WITH BACKFILL MATERIAL TO MATCH SURROUNDING SOIL CONDITIONS.

NOT FOR CONSTRUCTION

MATERIAL SPECIFICATIONS AND TOLERANCES	
ITEM	SPECIFICATIONS
PRODUCT PIPE	10.75" OD, 0.250", API 5L X52
EXTERNAL COATING	14-16 MILS FBE, 40-60 MILS ARO
OPERATING CONDITIONS	MAOP = 1480 PSIG ASSUMED MAXIMUM OPERATING TEMP = 80°F
ITEM	TOLERANCE
PILOT HOLE ENTRY ANGLE	INCREASE ANGLE UP TO 1° (STEEPER). NO DECREASE IN ANGLE ALLOWED.
PILOT HOLE ENTRY LOCATION	AS PER COORDINATES PROVIDED BY COMPANY. NO CHANGES WITHOUT COMPANY APPROVAL.
PILOT HOLE EXIT ANGLE	INCREASE ANGLE UP TO 1° (STEEPER) OR DECREASE UP TO 2° (FLATTER).
PILOT HOLE EXIT LOCATION	UP TO 20 FEET BEYOND OR 10 FEET SHORT OF THE EXIT STAKE. BETWEEN 5 FEET LEFT AND 5 FEET RIGHT OF CENTERLINE.
PILOT HOLE DEPTH	UP TO 2 FEET ABOVE THE DESIGN DRILL PROFILE OR 8 FEET BELOW THE DESIGN DRILL PROFILE.
PILOT HOLE ALIGNMENT	SHALL REMAIN WITHIN 5 FEET LEFT OR RIGHT OF THE HDD CENTERLINE.
MINIMUM RADIUS OF CURVATURE	MINIMUM COMBINED (HORIZONTAL AND VERTICAL) RADIUS OF CURVATURE = 1,300' OVER EACH 3 JOINT SEGMENT

LEGEND

- PROPOSED PIPELINE
- PROPOSED TEMPORARY WORKSPACE
- PIPELINE
- E — ELECTRIC
- W — WATER LINE
- ROAD ROW
- PL — PROPERTY LINE
- FO — FIBER LINE
- SECTION LINE
- QUARTER SECTION LINE
- EDGE OF GRAVEL
- ACCESS ROUTE
- LANDSIDE TOE OF FUTURE LEVEE
- TREE LINE
- BOLLARD
- SIGN
- PIPE — PIPELINE MARKER
- PROPOSED HDD ENTRY/EXIT POINT
- R — GEOTECHNICAL BORE

COHESIVE SOILS, UCS, TONS/FT² — N VALUES — ROCK CORE RECOVERY, % — MATERIAL GRAPHIC — GRAVEL CONTENT — UCS, PSF — ROCK CORE RQD, %

NOTE:
(UU) INDICATES UCS VALUE WAS CALCULATED FROM TRIAXIAL TESTING

DI — POSSIBLE ARTESIAN AQUIFER

REVISION			APPROVAL		
REV	DATE	DESCRIPTION	CAD	CHK	APP
1	08/28/20	ISSUED FOR PERMIT	TSV	MAH	RJS

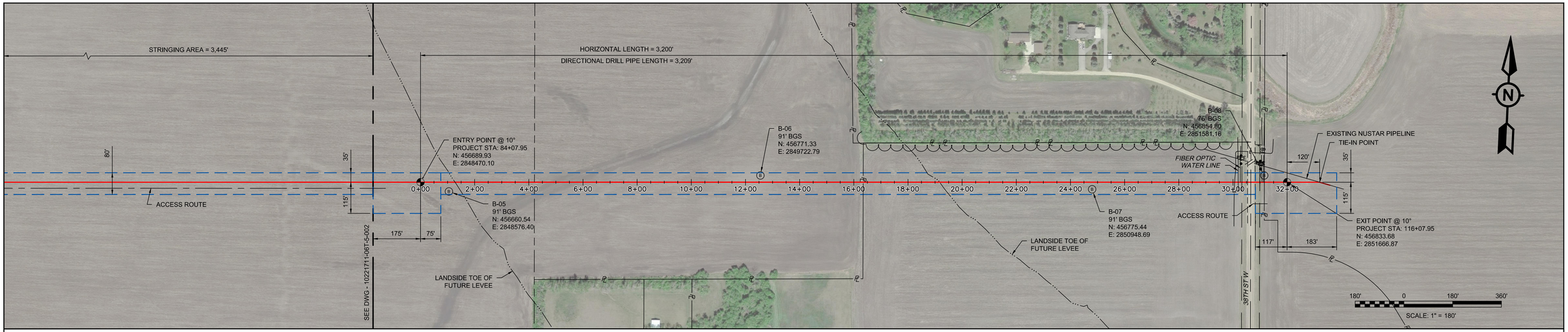
HDR

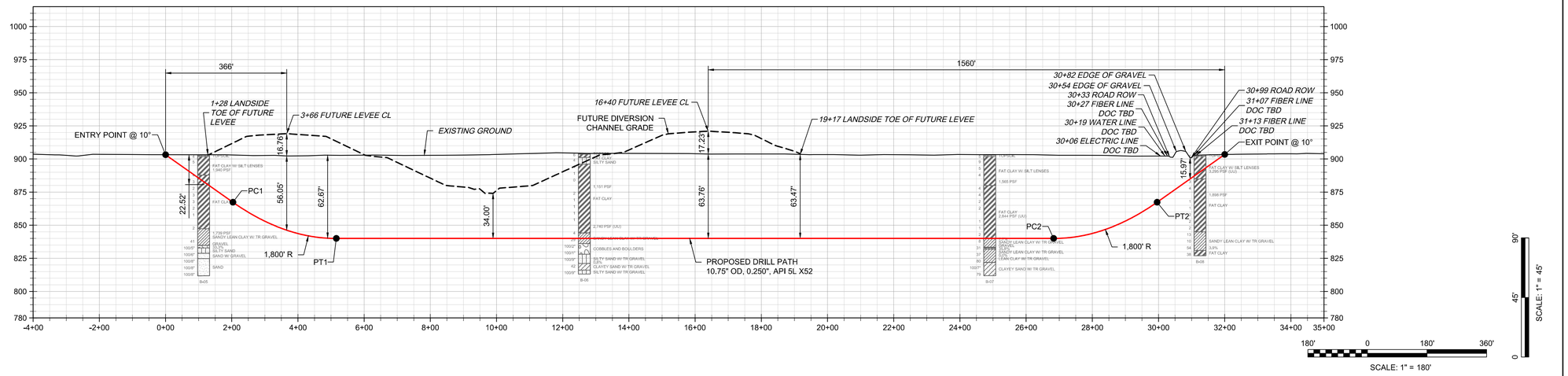
NuStar PIPELINE OPERATING PARTNERSHIP, L.P.

PROJECT INFORMATION	
NUSTAR ENERGY, L.P. 10-INCH PIPELINE RELOCATION CASS COUNTY, NORTH DAKOTA	
COORDINATE SYSTEM	NAD83 NORTH DAKOTA SOUTH US FEET
VERTICAL DATUM	NAVD88
TOPOGRAPHIC DATA	EFN, INC
AERIAL IMAGERY	GOOGLE EARTH
SURVEY COMPANY	EFN, INC

DRAWING INFORMATION		
10-INCH DIAMETER HORIZONTAL DIRECTIONAL DRILL DRAIN 14 INLET CROSSING PLAN AND PROFILE		
LOCATION	CASS COUNTY, NORTH DAKOTA	
SCALE NOTED	SHEET 1 OF 1	10221711-01T-5-001

SIZE - ANSI D (34x22)





Know what's below. Call before you dig.

DIRECTIONAL DRILL DATA		
DESCRIPTION	STATION (ft)	ELEVATION (ft)
ENTRY POINT @ 10°	0+00.00	903.21
PC 1 (1,800' R)	2+03.38	867.35
PT 1	5+15.94	840.00
PC 2 (1,800' R)	26+83.11	840.00
PT 2	29+95.68	867.35
EXIT POINT @ 10°	32+00.00	903.37
HORIZONTAL DISTANCE (ft) = 3,200.00		
DIRECTIONAL DRILL PIPE LENGTH (ft) = 3,209.48		

GENERAL NOTES

1. DRILL PATH STATIONING IS IN FEET BY HORIZONTAL MEASUREMENT AND IS REFERENCED TO THE CONTROL POSITION FOR THE CROSSING.
2. ALL COMPANY SPECIFICATIONS, PERMIT REQUIREMENTS AND CONTRACT DOCUMENTS SHALL BE ADHERED TO BY CONTRACTOR.
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5. DRILLING PRACTICES AND DOWNHOLE ASSEMBLIES SHALL BE MODIFIED TO PREVENT DAMAGE TO UNDERGROUND FACILITIES.
6. CONTRACTOR SHALL MONITOR TRENCHLESS OPERATIONS FOR AREA IMPACTS SUCH AS GROUND DISTURBANCE AND INADVERTENT RETURNS.
7. PILOT HOLE TOLERANCES AND MINIMUM THREE JOINT RADIUS SHALL BE MAINTAINED DURING PILOT HOLE OPERATIONS. TOLERANCES AND MINIMUM RADIUS SHALL BE REVIEWED BY COMPANY FOR APPROVAL.
8. CONTRACTOR MUST DRILL THE PILOT HOLE FROM WEST TO EAST, AND MOVE THE DRILL RIG TO THE EXIT SIDE LOCATION AFTER PILOT HOLE OPERATIONS, AND PRIOR TO PULLBACK. CONTRACTOR ALSO HAS THE OPTION TO USE DUEL RIGS.
9. GEOTECHNICAL DATA AND INFORMATION IS PRESENTED FOR REFERENCE ONLY. REVIEW THE ASSOCIATED GEOTECHNICAL REPORT FOR ALL INTERPRETATIONS AND DETERMINATIONS REGARDING SUBSURFACE CONDITIONS.
10. CONTRACTOR TO CLOSE 166TH AVE DURING PULLBACK TO ALLOW FOR ONE CONTINUOUS STRING OF PIPE TO BE UTILIZED (NO MID-PULLBACK WELDS ALLOWED).
11. THE MINIMUM EXTENT OF THE GROUTING WILL BE TO COMPLETELY SEAL AND FILL THE UPPER 50 LINEAR FEET OF HOLE (IMMEDIATELY BELOW TIE-IN ELEVATION) ENTIRELY WITH GROUT AND A MINIMUM OF THE TOP 5 VERTICAL FEET FILLED WITH BACKFILL MATERIAL TO MATCH SURROUNDING SOIL CONDITIONS.

NOT FOR CONSTRUCTION

MATERIAL SPECIFICATIONS AND TOLERANCES	
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PRODUCT PIPE	10.75" OD, 0.250", API 5L X52
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OPERATING CONDITIONS	MAOP = 1480 PSIG ASSUMED MAXIMUM OPERATING TEMP = 80°F
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NOTE:
(UU) INDICATES UCS VALUE WAS CALCULATED FROM TRIAXIAL TESTING

POSSIBLE ARTESIAN AQUIFER

REVISION			APPROVAL		
REV	DATE	DESCRIPTION	CAD	CHK	APP
1	08/28/20	ISSUED FOR PERMIT	TSV	MAH	RJS

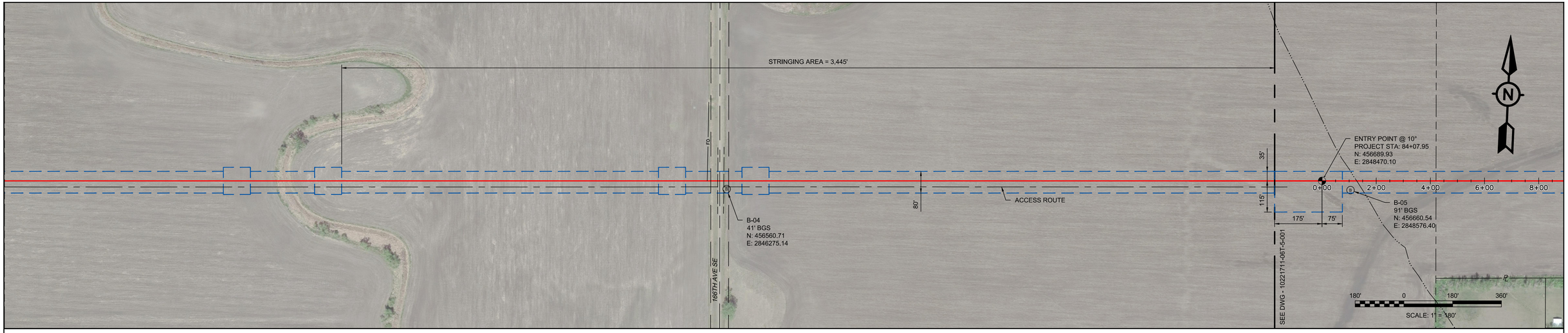
HDR

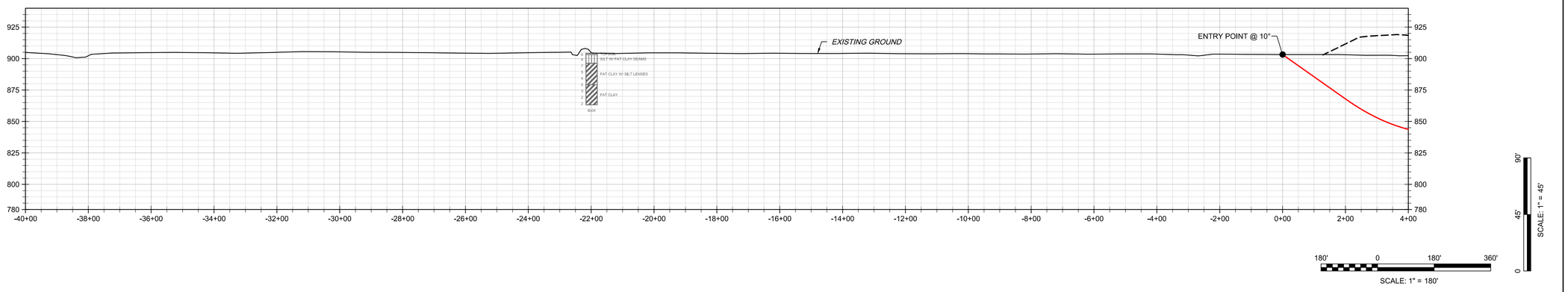
NuStar PIPELINE OPERATING PARTNERSHIP, L.P.

PROJECT INFORMATION	
NUSTAR ENERGY, L.P. 10-INCH PIPELINE RELOCATION CASS COUNTY, NORTH DAKOTA	
COORDINATE SYSTEM	NAD83 NORTH DAKOTA SOUTH US FEET
VERTICAL DATUM	NAVD88
TOPOGRAPHIC DATA	EFN, INC
AERIAL IMAGERY	GOOGLE EARTH
SURVEY COMPANY	EFN, INC

DRAWING INFORMATION		
10-INCH DIAMETER HORIZONTAL DIRECTIONAL DRILL DIVERSION CHANNEL CROSSING PLAN AND PROFILE		
LOCATION	CASS COUNTY, NORTH DAKOTA	
SCALE NOTED	SHEET 1 OF 2	10221711-06T-5-001

SIZE - ANSI D (34x22)





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POSSIBLE ARTESIAN AQUIFER

NOT FOR CONSTRUCTION

REVISION			APPROVAL		
REV	DATE	DESCRIPTION	CAD	CHK	APP
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HDR

NuStar PIPELINE OPERATING PARTNERSHIP, L.P.

PROJECT INFORMATION	
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COORDINATE SYSTEM	NAD83 NORTH DAKOTA SOUTH US FEET
VERTICAL DATUM	NAVD88
TOPOGRAPHIC DATA	EFN, INC
AERIAL IMAGERY	GOOGLE EARTH
SURVEY COMPANY	EFN, INC

DRAWING INFORMATION		
10-INCH DIAMETER HORIZONTAL DIRECTIONAL DRILL DIVERSION CHANNEL CROSSING PLAN AND PROFILE		
LOCATION	CASS COUNTY, NORTH DAKOTA	
SCALE NOTED	SHEET 2 OF 2	10221711-06T-5-002

SIZE - ANSI D (34x22)

Environmental Mitigation Plan for the North System Pipeline Relocation Project, Cass County, North Dakota

JULY 2020

PREPARED FOR

NuStar Pipeline Operating Partnership L.P.

PREPARED BY

SWCA Environmental Consultants

North System Pipeline Relocation Project

Environmental Mitigation Plan

ND PSC Case No. PU-20-xxx

July 2020

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Description **Page**

List of Tables

List of Appendices

1.0 INTRODUCTION

NuStar Pipeline Operating Partnership L.P (NuStar) has prepared this Environmental Mitigation Plan (EMP) for the relocation of a section of NuStar's existing North System Pipeline in Cass County, North Dakota. The North System Pipeline Relocation Project (Project) is required to accommodate the construction of the Fargo-Moorhead Area Diversion Channel. The replacement pipeline will consist of approximately 2.21 miles of 10-inch inside diameter pipe. The entire project is in Cass County, North Dakota.

This EMP outlines general construction-related mitigation measures that will be implemented by NuStar and its construction contractor (contractor) during construction of the Project. Specific conditions associated with agency permits are not specifically addressed herein.

This EMP has been developed to meet or exceed applicable industry standards and regulatory requirements. Guidance documents used in the preparation of this EMP include: *North Dakota's Guide to Temporary Erosion-Control Measures for contractors, Designers, and Inspectors* (2001); *North Dakota Department of Transportation Erosion and Sediment Control Handbook* (2004); *U.S. Bureau of Reclamation Engineering and O&M Guidelines for Crossings* (2008); and, several U.S. Army Corps of Engineers (USACE) regional conditions for projects operating under Nationwide Permits in North Dakota.

The Project will cross the location for a new Cass County Drain No. 14, two wetlands (one of which is an intermittent tributary to the Sheyenne River), two county or township roads, and the proposed location for the Fargo-Moorhead Area Diversion Channel. NuStar proposes to cross these features the using horizontal directional drilling (HDD) method. The unnamed tributary to the Sheyenne River and the other two wetland are most likely jurisdictional waters under the Clean Water Act and are under the jurisdiction of the USACE. The use of the HDD method to install the pipeline under those waters will preclude impacts to them; however, if those waters were to be impacted by construction activities, NuStar will conduct such construction under the USACE Nationwide Permit 12 (NWP 12). Specific details of the HDD borings are not included in this EMP. NuStar will coordinate with the Cass County Joint Water Resources District for crossing irrigation canals, ditches, and/or drains along the ROW.

2.0 GENERAL MITIGATION MEASURES

2.1 Contractor

NuStar will make the requirements of this EMP and applicable environmental permits a contractual obligation for the contractor. The contractor will ensure that persons engaged in construction of the Project are informed of these construction requirements.

2.2 Line List and Permits

NuStar will provide the contractor with a construction list that describes special requirements, as agreed upon with private landowners and as required through agency permitting processes (e.g., wetland crossing, and road crossing permits).

2.3 Environmental Inspector

NuStar will provide construction oversight to confirm contractor compliance with the measures of this EMP and any landowner agreements as well as applicable federal,

state, and local environmental permits. NuStar will have an environmental inspector, who is knowledgeable of the environmental mitigation requirements for this Project, and who will have the authority to stop construction activities and order corrective mitigation for actions that are not in compliance with this EMP, any landowner agreements, or environmental permit requirements. The inspector will maintain appropriate records to document compliance with these and other applicable environmental permit conditions. At the end of each month, the inspector will summarize daily reports into a monthly report that will be submitted to NuStar and the North Dakota Public Service Commission (NDPSC).

2.4 Rights-Of-Way

Access to the pipeline construction ROW (ROW) will be from public roadways and private landowner-approved access roads. The contractor will mark access routes with signs to clearly identify approved access roads.

All construction equipment and vehicles will be confined to approved access roads, the pipeline construction ROW, and additional temporary workspaces.

2.5 Dust Control

Dust control related to construction activities will be accomplished through administrative and physical means.

All construction-related vehicles will adhere to posted speed limits on public roadways and as designated in landowner agreements on private lands. Work hours near residential areas may be limited.

The contractor may use multiple methods to wet the ROW to control airborne dust, including water trucks and sprinklers, or additional appropriate measures, such as chemical application and/or reduced speed limits, based on site-specific conditions.

2.6 Undesirable Species Control

NuStar will require that all construction-related equipment be thoroughly cleaned prior to moving the equipment to the job site to limit the potential for the spread of noxious weeds, insects and soil-borne pests. All equipment will be cleaned with high-pressure washing equipment.

NuStar performed a noxious weed survey of the proposed pipeline route on May 14, 2020 and no noxious weeds species were observed. If a noxious weed species is observed within the construction ROW at the time construction commences, the extent of any infestation areas will be clearly demarcated in the field with flagging or staking prior to clearing and grubbing operations so that the infestation area can be segregated and the vegetative materials destroyed or removed prior to ROW reclamation.

During construction, the contractor will clean the surface area of all vehicles and construction machinery, including the undercarriage, to remove excess soil and vegetative debris, if that equipment is known to have passed through a weed or soil-borne pest infested area.

Only certified weed free vegetative components (e.g., mulch, straw/hay bales, seed

mixes) will be used on the Project.

2.7 Non-hazardous Wastes

The contractor will handle and dispose of human wastes by use of portable, self- contained chemical toilets. Wastes from these units will be collected by a licensed contractor for disposal only at licensed and approved facilities.

The contractor will remove all trash from the construction ROW on a daily basis unless otherwise approved or directed by NuStar.

The contractor will dispose of horizontal directional drilling (HDD) cuttings and drilling mud at an approved landfill or disposal area located off the ROW.

2.8 Hazardous Wastes

The contractor will ensure that all hazardous and potentially hazardous materials are transported, stored, and handled in accordance with all applicable regulations. Workers exposed to or required to handle hazardous materials will have received proper training in use of those materials, in accordance with the applicable regulations and the manufacturer's recommendations.

The contractor will dispose of all hazardous materials at licensed waste disposal facilities.

If toxic or hazardous waste materials or containers are encountered during construction, the contractor will stop work immediately and notify NuStar. The contractor will not restart work until clearance is granted by NuStar.

2.9 Burning and Fire Prevention

The contractor will comply with all federal, state, county, and local fire regulations regarding prevention of uncontrolled fires.

The contractor will maintain a contact list and information of jurisdictional fire authorities. Fire control equipment, including water and chemical fire extinguishers, will be available at construction sites and construction personnel will be properly trained in the use of such equipment.

Flammable materials kept on a construction site will be stored in approved containers away from ignition sources. All flammable wastes will be removed from construction sites on a regular basis.

Smoking will be prohibited at construction sites, except in designated areas away from flammable materials.

2.10 Wet Weather

The contractor will restrict certain construction activities and work during excessively wet soil conditions to minimize rutting and soil compaction. Activities may be suspended based on the following conditions:

- Type of equipment and nature of construction activity planned for that day.
- Potential that rutting may cause mixing of topsoil with subsoil layers.
- Extent of surface ponding.
- Potential for excessive soil compaction.

If these conditions cannot be appropriately mitigated through equipment rerouting or the use of construction mats, then construction work will be suspended until adequate protection measures, approved by the NDPSC's construction inspector are taken to avoid irreparable damage to roads or land.

3.0 SPILL PREVENTION

3.1 General

The contractor will ensure that all equipment is free of leaks prior to use on the construction ROW and access roads. Throughout the period of construction, the contractor will conduct regular maintenance and inspections of the equipment to reduce the potential for spills or leaks.

All equipment parked overnight will be at least 100 feet from a watercourse or wetland, unless otherwise approved by the environmental inspector.

Stationary equipment will be placed within a secondary containment if it will be operated or require refueling within 100 feet of a wetland or waterbody boundary.

3.2 Storage

Fuels and lubricants will be stored only at designated staging areas. Storage of fuel and lubricants will be at least 100 feet away from the edge of any perennial watercourse, wetland, storm drain, or any identified environmentally sensitive area.

No bulk fuel or storage tanks will be placed in the construction ROW. Bulk fuel storage at temporary work or construction staging areas will be located in a secondary containment structure with sufficient capacity to capture spills or leaks during filling and/or dispensing activities.

3.3 Refueling

Refueling and lubrication of equipment will be restricted to upland areas at least 100 feet away from any perennial watercourse, wetland, storm drain, or any environmentally sensitive area, except where equipment is required to be within 100 feet of a waterbody (e.g., trench dewatering pump).

Rubber-tired vehicles (e.g., pickup trucks) normally will refuel at the construction staging areas or commercial gas stations. Tracked machinery (e.g., backhoes, bulldozers) will

be refueled and lubricated on the construction ROW. Equipment maintenance will be conducted in staging areas when practical. When necessary and with EI approval, equipment repairs may be made on the construction ROW.

Each fuel truck that transports and dispenses fuel to construction equipment or Project vehicles along the construction ROW or within equipment staging areas will carry oil spill response equipment and materials onboard at all times. Truck drivers and construction crew personnel will be trained on proper use of this equipment and materials.

3.4 Cleanup and Emergency Notification

Construction activities will be conducted to allow for prompt and effective cleanup of spills of fuel and other hazardous materials. Each construction crew will have sufficient tools and material to stop leaks and supplies of absorbent and barrier materials to allow rapid containment and recovery of spilled materials. Crew members must know and follow the procedure for reporting spills.

Emergency notification procedures between the contractor and NuStar will be established in the planning stages of construction. In the event of a spill meeting agency reporting criteria, the contractor will immediately notify NuStar who will then promptly notify the appropriate regulatory agency.

4.0 TEMPORARY EROSION AND SEDIMENT CONTROL

4.1 General

Temporary erosion and sediment control measures will be installed as detailed in the Stormwater Pollution Prevention Plan (SWPPP) for this Project prior to initial disturbance of the soil, maintained throughout construction, and reinstalled as necessary until replaced by permanent erosion control structures or restoration of the construction ROW is complete.

The contractor will inspect all temporary erosion control measures within 24 hours of each significant rainfall event of 0.25 inches or greater. The contractor will repair or replace all ineffective temporary erosion control measures as expediently as practicable, but prior to the next rainfall event.

4.2 Sediment Barriers

Sediment barriers will be constructed of silt fence, staked hay or straw bales, fiber rolls, compacted earth (e.g., drivable berms across travel lanes), sandbags, or other appropriate materials.

Sediment barriers will be installed below disturbed areas where there is the potential for offsite sedimentation. Areas where temporary sediment barriers will be placed include: the base of sloped approaches to roadways, and wetlands; along the edge of the construction ROW, as needed to prevent downslope siltation of adjacent waterbodies and wetlands; and, along trench or test water discharge locations, as required.

Sections of temporary sediment barriers may be designed to allow passage of construction equipment. Sediment barriers will be reinstalled to their original specifications when equipment passage is no longer required, heavy precipitation is

imminent, or at the end of the work day, whichever is sooner.

The contractor will maintain hay or straw bale/wattle and silt fence sediment barriers by removing collected sediment when it reaches one-half the height of the barrier and replacing the damaged control. If bale filters cannot be replaced due to access problems, the contractor will place a new row of sediment barriers upslope.

The contractor will use hay or straw bales that are free of noxious weeds.

The contractor will remove sediment barriers, except those needed for permanent erosion and sediment control, during cleanup of the construction ROW.

4.3 Temporary Slope Breakers

Temporary slope breakers will be installed to minimize concentrated or sheet flow runoff in disturbed areas at the spacing recommended in Table 1.

Table 1. Spacing for Temporary Slope Breakers

Slope (%)	Spacing (feet)
1	300
2	200
3–5	150
.>5	100

Temporary slope breakers will be constructed of earthen material, silt fence, staked hay or straw bales, fiber rolls, sandbags, or similar materials.

When earthen berms are constructed, they will be constructed of subsoil material, when practical, and have a 2% to 8% slope with a 4-foot base and 1.5-foot height, or as site conditions require.

Temporary slope breakers will direct outfall to a stable, well-vegetated area or an appropriate energy-dissipating device (e.g., silt fencing, hay or straw bales/wattles) at the end of the slope breaker and off the construction ROW. The outfall of each temporary slope breaker will be installed to prevent sediment discharge into wetlands, waterbodies, or other sensitive resources.

A hard plug will be left in place where a slope breaker crosses an open trench.

Temporary slope breakers will not be installed on cultivated land except by landowner request.

4.4 Temporary Mulching

If a disturbed construction work area is inactive for one month or is expected to be inactive for at least 1 month, the contractor will apply temporary seed and/or mulch to reduce risk of erosion. The contractor will not apply temporary mulch in cultivated areas unless specifically requested by the landowner. The contractor will not apply mulch within wetland boundaries.

Temporary mulch of straw or equivalent applied on slopes will be spread uniformly to cover at least 75% of the ground surface at an approximate rate of 2 tons per acre of straw or its equivalent. Mulch application on slopes within 100 feet of waterbodies and wetlands will be increased to an approximate rate of 3 tons per acre.

5.0 HIGHWAY AND ROAD CROSSINGS

Construction across paved roads and highways will be in accordance with the requirements of the road and railroad crossing permits and approvals obtained by NuStar. All graded roads will be bored. The contractor will take measures, such as posting informational signs along the routes being bored to ensure traffic safety.

6.0 UPLANDS

6.1 Clearing

The initial stage of construction will involve clearing the construction ROW to allow for a safe operating environment. The pipeline ROW traverses agricultural lands which does not contain trees, brush, and other vegetation, other than crop residuals from the previous planting season. Thus, only minimal clearing of the ROW will be required. Any cleared vegetative material will be mulched onsite or hauled off to an appropriate disposal location, or as otherwise directed by the landowner. No burning will be conducted as part of this project.

6.2 Grading

After clearing, the construction ROW will be graded to develop a ROW that allows for a safe working surface for equipment and pipeline fabrication and bending requirements. All work will be conducted in accordance with applicable permits, regulations, or guidelines. All grading will be undertaken with the understanding that original contours and drainage patterns will be re-established to the extent practicable.

6.3 Topsoil Removal and Storage

Measures will be taken to preserve the physical and chemical property integrity of topsoil so it may be used during final reclamation of the construction ROW. Generally, these measures will segregate the topsoil from underlying subsoil layers to prevent mixing during construction and to allow for easy retrieval during reclamation. Topsoil will not be used for construction of earthen berms, trench breakers, to fill low areas, or to backfill the trench.

Topsoil, to a maximum depth of 12 inches or to the depth of cultivation, whichever is greater, will be stripped. Stripped topsoil will be stockpiled in a windrow along the edge of the ROW. After backfilling is completed, excess subsoil must be placed over the excavation area and blending the grade to the existing topography. Topsoil is replaced to the area of excavation after the subsoil is replaced.

6.4 Tree and Shrub Mitigation

No trees are within the Project ROW, and the five shrubs inventoried are located within a wetland that will be crossed using HDD; as a result, the shrubs will not be disturbed by

construction activities. Therefore, no replacement trees or shrubs will need to be planted pursuant to the NDPSC's Tree and Shrub Mitigation Specifications.

6.5 Trenching

Trenching in uplands is typically accomplished with a backhoe excavator or a rotary wheel ditching machine to provide a ditch of sufficient depth and width, with a bottom to continuously support the pipeline. The trench will be excavated to a depth that will enable the pipeline to be installed in accordance with the NDPSC requirements (i.e. 48 inches in rangeland, 48 inches in cultivated land, 48 inches at the bottom of the ditch for road crossings, and 72 inches across undeveloped section lines) and in accordance with applicable U.S. Department of Transportation regulations. If an increased pipeline depth is requested by a state-level agency, modifications to additional temporary workspace may be necessary to accommodate the increased amount of trench spoil.

Excavated material will be sidecast within the construction ROW with consideration for topsoil segregation, as noted in Section 6.3. Excavated material will be stored in a manner to minimize erosion and sedimentation.

Gaps will be left in the ROW lateral spoil piles that coincide with breaks in the strung pipe to facilitate natural drainage patterns and to allow the passage of livestock or wildlife.

Trenching operations will be followed as closely as practicable by lower-in and backfill operations to minimize the length of time the ditch is open.

When pumping captured stormwater from the trench, the contractor will ensure that adequate pumping capacity and sufficient hose is available. The discharge of pumped water will be through filter bags or another method detailed in the SWPPP and in accordance with the environmental mitigation measures outlined throughout this EMP. If shallow groundwater is encountered during trenching that requires more extensive dewatering, a separate dewatering discharge permit will be obtained.

If drain tile is encountered during construction, the contractor will repair and/or replace the drain tile. Additionally, if any culverts are disturbed during construction the contractor will repair and/or replace the culverts.

6.6 Pipe Preparation and Installation

Prior to lowering into the trench, pipe section ends are beveled to prepare them for welding. This process produces shavings that will be removed, to the extent practicable, immediately following beveling. Sections are then welded together to form a continuous pipe.

The pipe may be wrapped with a protective shielding (e.g., epoxy, urethane epoxy) to protect the pipe coating during backfilling. This process is typically completed prior to pipeline delivery to the ROW, except for a 3- to 6-inch section at each end to prevent the coating from interfering with the welding process. This bare section of pipe will be coated with a two-part epoxy liquid coating that will be brush applied. Any residual material from this coating process will be disposed of in accordance with measures outlined in Section 2.8.

Prior to lowering into the trench, the coated and welded pipeline will be inspected to ensure

it is free of defects.

6.7 Backfilling

The subsoil excavated during the trenching process is initially used to backfill the trench. Prior to backfilling, the trench will be dewatered and trench breakers (soft plugs) installed on slopes where necessary to minimize the potential for water movement and erosion of the trench after the trench is backfilled. Trench breakers will be constructed of materials such as sand bags, sand/cement bags, bentonite bags, or other suitable materials. Topsoil will not be used to construct trench breakers.

Stormwater accumulated in the trench will be removed and discharged in accordance with the SWPPP and the environmental mitigation measures outlined throughout this EMP.

Backfill will be comprised of soil material excavated from the trench. If rocky conditions, as determined by the NuStar inspector, are encountered so that the backfill will contain rocks that could cause damage to the pipeline or the pipeline coatings, the pipe will be shielded or padded with an approved material for at least 6 inches above the pipeline before any rock is introduced back into the ditch.

The lesser of 4 feet or the actual depth of topsoil cover, will not be backfilled with soil containing rocks of any greater concentration or size than existed prior to pipeline construction in the pipeline trench, bore pits, or other excavations.

To reduce the potential for ditch line subsidence, spoil will be replaced and compacted by backhoe bucket or roller or by the wheels or tracks of equipment traversing down the trench.

6.8 Cleanup

Cleanup activities to restore the ROW and other disturbed areas to the approximate pre-construction conditions will be conducted immediately following backfilling operations, as weather conditions permit.

All non-hazardous and hazardous materials will be disposed of in accordance with measures outlined in Section 2.7 and Section 2.8.

The ROW will be re-contoured with spoil material to approximate pre-construction contours and surface drainage patterns. Loading of slopes with unconsolidated spoil material will be avoided during slope re-contouring. Topsoil will be replaced after re-contouring of the grade with subsoil. The topsoil will be replaced on the subsoil storage area and over the trench so that after settling occurs, the topsoil's approximate original depth and contour (with an allowance for settling) will be achieved. Subsoil will not be placed on top of topsoil.

Temporary sediment barriers will be removed and accumulated sediment will be re-contoured with the rest of the ROW. As needed, permanent erosion controls will be installed.

6.9 Permanent Erosion and Sediment Control

After final grading and contouring of upland areas, sloped areas will be stabilized with permanent erosion control structures. Permanent slope breakers (e.g., diversion

berms/ditches and level spreaders) will be installed to minimize concentrated or sheet flow runoff in disturbed areas. Permanent slope breakers will be constructed of earthen material. Slope breakers will divert surface runoff to adjacent stable vegetated areas or to energy-dissipating devices. In general, permanent slope breakers should be installed immediately downslope of all trench breakers. Permanent slope breakers will be installed as specified on the construction drawings or generally with a minimum spacing as shown Table 2.

Table 2. Spacing for Permanent Slope Breakers

Slope (%)	Spacing (feet)
<5	125
5–10	100
10–20	75
20–30	50
>30	25

The gradient (fall) for each slope breaker will be 2% to 8% to eight percent unless otherwise modified as required by site-specific conditions.

6.10 Reclamation and Revegetation

Reclamation and revegetation activities are designed to return disturbed areas to approximately pre-construction use and capability. The following mitigation measures will be utilized, unless otherwise modified to address site specific conditions or circumstances.

6.10.1 Soil Compaction

Compacted cultivated land and any other severely compacted or rutted areas within the construction ROW will be tilled or chiseled to loosen compacted soils. The subsoil surface will be graded smooth and any subsoil clumps broken up (disc and harrow) in an effort to avoid topsoil mixing. NuStar will pay the landowner for any such activities in agricultural areas.

Plowing under of organic matter, including wood chips and manure, or planting of a green crop such as alfalfa, to decrease soil bulk density and improve soil structure or any other measures will be considered, in consultation with the Natural Resources Conservation Service (NRCS), if mechanical relief of compaction is unsuccessful.

6.10.2 Rock Removal

On agricultural land, rocks greater than 4 inches in diameter that are exposed on the surface due to construction activity will be removed from the ROW prior to and after topsoil replacement.

Clearing of rocks may be conducted with a mechanical rock picker or by manual means, provided that preservation of topsoil is ensured. Rock removed from the

ROW will be hauled off the landowner's premises or disposed of on the landowner's premises at a location that is mutually acceptable to the landowner and to NuStar.

6.10.3 Seeding and Mulching

The final seed mixture will be based on recommendations from the local Natural Resources Conservation Service office or otherwise specified by the landowner with NDPSC approval.

Certificates of seed analysis are required for all seed mixtures to restrict the introduction of noxious weeds.

Seed will be used within 12 months of testing. Seeding will follow cleanup, re-grading, and topsoil replacement as closely as possible. Seed will be applied to all disturbed surfaces, except cultivated fields unless requested by the landowner.

If mulch was applied for temporary erosion control during construction activities, the contractor will remove and dispose of the excess mulch prior to seedbed preparation to ensure that seedbed preparation equipment and seed drills do not become plugged with mulch. After seeding, the contractor may evenly re-apply and anchor (straw crimp) the removed temporary mulch on the construction ROW.

Seeding will be completed at a rate appropriate for the region and stability of the reclaimed surface. Seeding rates will be based on pure live seed specifications for the seed mix.

The contractor will use a drill seeder equipped with a cultipacker designed and equipped to apply grass and grass-legume seed mixtures. Equipment will include mechanisms (e.g., seed box agitator) to allow even distribution of all species in each seed mix, an adjustable metering mechanism to accurately deliver the specified seeding rate, and with a mechanism (e.g., depth bands) to accurately place the seed at the specified depth.

The contractor will plant seed at depths consistent with the local or regional agricultural practices.

Broadcast or hydro seeding, used in lieu of drilling, will require double the recommended seeding rates. Where seed is broadcast, a cultipacker or other equipment will be used immediately following broadcasting to incorporate the seed to the specified depth and to firm the seedbed.

Areas that are too steep or otherwise cannot be safely harrowed or cultipacked will be hand-raked in order to incorporate the broadcast seed to the specified depth.

NuStar will work with landowners to discourage intense livestock grazing of the construction ROW during the first growing season by use of temporary fencing or a decreased grazing regimen.

Immediately after seeding, the contractor will apply certified weed free mulch on all areas with high erosion potential and on slopes greater than 5%. The contractor will

spread mulch uniformly over the area to cover at least 75% of the ground surface at an approximate rate of 2 tons per acre of hay or straw or their equivalent. The contractor will not apply mulch in cultivated areas unless requested by the landowner.

If a mulch blower is used, the majority of strands of the mulching material will not be shredded to less than 8 inches in length to allow anchoring. The contractor will anchor mulch immediately after application to minimize loss by wind and water. Depending upon the length of straw mulch, a soil tackifier may be applied to the soil before the mulch is blown onto help anchor the mulch.

When anchoring (straw crimping) by mechanical means, the contractor will ensure that the straw stalks are a minimum of 12 inches in length and will use a tool specifically designed for mulch anchoring with flat, notched disks to properly crimp the mulch to a depth of 2 to 3 inches.

6.10.4 Fences

Upon completion of all backfilling, cleanup, and restoration, including mulching and seeding of the construction ROW, permanent repairs will be made to all fences by using either the original material or good quality new material similar to existing fences.

Historic fences will be carefully reassembled by hand from the original material. Where the original material has deteriorated to a state that makes it unsalvageable, replacement material similar to the original will be used if possible.

6.10.5 Right-of-Way and Pipeline Markers

Upon completion of all cleanup and restoration activities and during the time when the contractor is making permanent repairs to fences, the contractor will install pipeline markers on each side of all roads, railroads, section line crossings, fence lines, stream crossings, and other areas where the pipeline markers do not conflict with intended land use or as required by Title 49 Coder of Federal Regulations Part 195.

7.0 WETLAND CROSSINGS

7.1 General

The contractor will comply with requirements of all permits issued for the wetland crossings by federal, state or local agencies.

Wetland boundaries will be clearly marked in the field with signs and/or highly visible flagging during construction.

In the event a waterbody crossing is located within or adjacent to a wetland crossing, the measures of both Section 7 and Section 8 will be implemented to the extent practicable.

7.2 Easement and Workspace

The contractor will maintain wetland boundary markers during construction in all areas and until permanent seeding is complete in non-cultivated areas.

The contractor will locate extra work areas (such as staging areas and additional spoil storage areas) at least 100 feet away from wetland boundaries, where topographic conditions permit.

The contractor will limit clearing of vegetation between extra work areas and the edge of the wetland to the construction ROW and limit the size of extra work areas to the minimum needed to construct the wetland crossing.

7.3 Wetland Crossing Methods

Wetlands will be crossed using the HDD method and thus, no permanent impacts to wetlands are anticipated. However, the ROW travel path may cross the wetlands associated with the unnamed tributary to the Sheyenne River and the roadside ditches along 166th Avenue SE and thus, mitigation measures will be required to minimize wetland impacts from the ROW travel path.

7.3.1 General Mitigation Measures

The general mitigation measures outlined below will be followed for the ROW travel paths that cross wetlands:

- All work will be conducted in accordance with applicable permits.
- Erosion and sediment controls will be installed along the ROW and around the perimeter of the temporary workspaces to prevent runoff of sediment and/or drilling mud from HDD operations.
- Follow the provisions in the Frac-Out Contingency Plan (Appendix B) during HDD operations.
- Comply with the conditions of the general permit for stormwater discharges associated with construction activities (NDR10-0000) and the requirements of the Project stormwater pollution prevention plan. Limit the duration of construction-related disturbance within wetlands to the extent practicable.
- Use no more than two layers of timber riprap to stabilize the construction ROW travel path.
- Remove all timber riprap and prefabricated equipment mats upon completion of construction.
- Locate hydrostatic test manifolds outside wetlands and riparian areas to the maximum extent practicable.
- Prohibit storing hazardous materials, chemicals, fuels, or lubricating oils, or performing concrete coating activities in a wetland, or within 100 feet of any wetland boundary.
- Perform all equipment maintenance and repairs in upland locations at

least 100 feet from waterbodies and wetlands.

- Avoid parking equipment overnight within 100 feet of a watercourse or wetland.
- Prohibit washing equipment in streams or wetlands.
- Refuel all construction equipment in an upland area at least 100 feet from a wetland boundary.

7.3.2 Restoration and Reclamation

All timber riprap, timber mats, and prefabricated equipment mats and other construction debris shall be removed upon completion of construction. As much as is feasible, the contractor shall replace topsoil and restore original contours with no crown over the trench. Any excess spoil shall be removed from the wetland. The contractor shall stabilize wetland edges and adjacent upland areas by establishing permanent erosion control measures and revegetation, as applicable, during final clean up.

In the absence of detailed revegetation plans or until the appropriate seeding season for permanent wetland vegetation in standard wetlands, the contractor shall apply a temporary cover crop on the construction ROW at a rate adequate for germination and ground cover unless standing water is present. The contractor shall apply the temporary cover crop during final cleanup. For farmed wetlands, the contractor shall apply seeding requirements for agricultural lands or as required by the landowner.

The contractor shall not use fertilizer, lime, or mulch in wetlands unless required in writing by the appropriate land management agency.

All wetland areas within conservation lands or easements shall be restored to a level consistent with any additional criteria established by the relevant managing agency.

8.0 WATERBODIES AND RIPARIAN AREAS

8.1 General

The contractor will comply with requirements of all permits issued for the waterbody crossings by federal, state or local agencies.

Waterbody is defined as 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.

In the event a waterbody crossing is located within or adjacent to a wetland crossing, the measures of both Section 7 and Section 8 will be implemented to the extent practicable.

The use and storage of chemicals, fuels, lubricating oils, or other hazardous materials will be performed according to measures outlined in Section 2 and Section 3.

NuStar will complete site-specific crossing plans for waterbody crossings if required by the applicable regulatory agencies during federal or state permitting processes.

NuStar may allow modification of the following specifications as necessary to accommodate specific situations or procedures. Any modifications must comply with all

applicable regulations and permits.

8.2 Easement and Workspace

Extra work areas will be limited to the minimum size needed to construct the stream crossing. Construction activities will be contained within these areas and the construction ROW.

The contractor will locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet from the water's edge taking into account engineering and topographic constraints. If conditions do not allow for a 50-foot setback, extra work areas will be located no closer than 10 feet from the water's edge.

At all waterbody crossings, the contractor will install flagging across the construction ROW at least 10 feet from the water's edge prior to clearing and ensure that riparian cover is maintained where practicable during construction.

8.3 Waterbody Crossing Methods

Construction methods pertinent to waterbody crossings are presented below.

8.3.1 Horizontal Directional Drill Crossing

NuStar has developed specific crossing plans for the proposed location of the new Cass County Drain No. 14, the unnamed intermittent tributary to the Sheyenne River, the proposed location of the FM Area Diversion Channel, and county roadways. The contractor shall construct each HDD waterbody crossing in accordance with a site-specific plan as shown in the construction drawings.

Drilling fluids and additives utilized during implementation of a directional drill shall be non-toxic to the aquatic environment.

The contractor will follow the Frac-out Contingency Plan included as Appendix B or will develop his own, equivalent contingency plan to address a frac-out during a directional drill. The plan shall include instructions for monitoring during the directional drill and mitigation in the event that there is a release of drilling fluids. Additionally, the waterbody shall be monitored downstream by the contractor for any signs of drilling fluid.

The contractor shall dispose of all drill cuttings and drilling mud at a NuStar-approved location. Disposal options may include spreading over the construction ROW in an upland location approved by NuStar or hauling to an approved licensed landfill or other site approved by NuStar.

8.3.2 Boring Crossing Method

The Relocation Pipeline for the North System will utilize the HDD slick-bore process for boring under the proposed location of Cass County Drain No. 14, wetlands, roadways, and the proposed location of the FM Area Diversion

Channel. With this method, an entry bore pit and exit bore pit will be excavated on both sides of the crossing. The boring machine shall be placed in the entry pit where it will drill a pilot hole through to the exit pit. This hole will then be widened to accept the carrier pipe by back reaming. A section of pipeline that is already welded together, inspected, and pressure tested is then pulled back through the drilled hole. The minimum depth of cover for the roadway ditch crossings is 10 feet as is the crossing of the unnamed tributary to the Sheyenne River. The depth of the pipeline below the bottom of Cass County Drain No. 14 and the FM Area Diversion Chanel will be 39 feet and 34 feet, respectively. The bored crossing pipe will extend at least 10 feet beyond either side of the road ROW and 25 feet beyond the toe of the drain and channel. A pipeline marker shall be placed at either end of the bored crossing when completed.

9.0 HYDROSTATIC TESTING

9.1 General

The contractor will provide for the safety of all pipeline construction personnel and the general public during hydrostatic test operations by placing warning signs in populated areas.

Staging and work areas for filling the pipeline with water will be located a minimum of 100 feet from a waterbody or wetland boundary if topographic conditions permit.

The contractor will locate hydrostatic test manifolds 100 feet outside wetlands and riparian areas to the extent practicable.

9.2 Test Water Source

NuStar will provide the contractor with a copy of the appropriate withdrawal/discharge permits for hydrostatic test water. The contractor will keep water withdrawal/discharge permits on site at all times during testing operations.

In some instances, sufficient quantities of water may not be available from the permitted water sources at the time of testing. Withdrawal rates may be limited as stated by the permit. If the quantity of water from the permitted source is insufficient to allow for hydrostatic testing of the pipeline, an alternative source will be identified and permit authorization sought by NuStar.

The contractor will be responsible for obtaining any required water analyses from each source to be used in sufficient time to have a lab analysis performed prior to any filling operations. The analysis will determine the pH value and total suspended solids and other parameters that may be required by the North Dakota Department of Health.

No chemicals will be used in the test water.

9.3 Water Discharge

The contractor will comply with state-issued National Pollutant Discharge Elimination System permits for discharging test water.

The contractor will not discharge any water containing oil or other substances that are in sufficient amounts as to create a visible color film ("sheen") on the surface of the receiving water.

The contractor will not discharge into state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate federal, state, and local permitting agencies grant written permission. To avoid impacts from introduced species, no inter-basin transfers (discharge) of hydrostatic test water will occur.

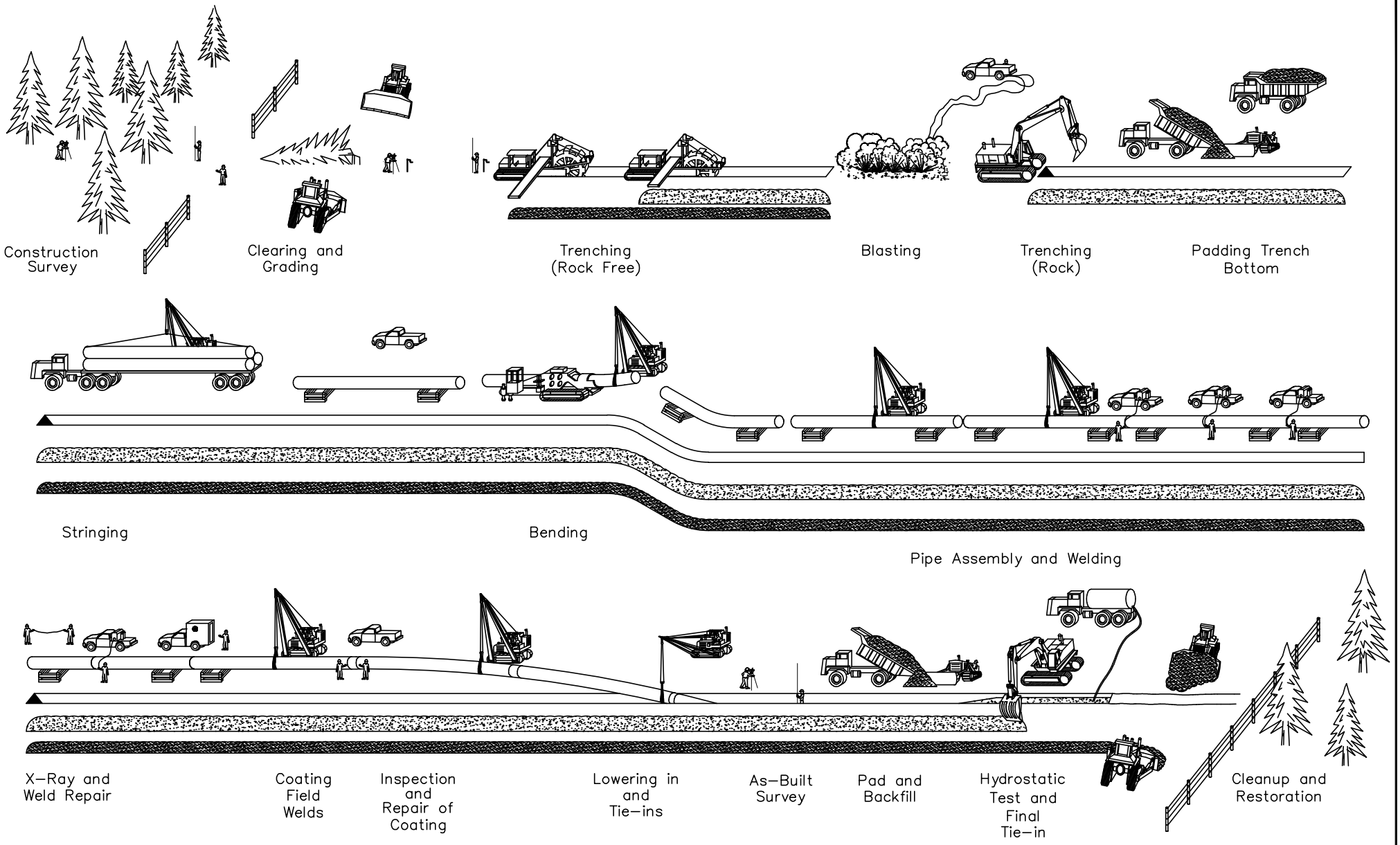
The discharge operation will be monitored and water samples will be collected and analyzed prior to the beginning of the discharge to ensure that it complies with the Project and permit requirements. If required by state permits, additional water quality testing will be conducted during discharge, in accordance with permit conditions.

The contractor will regulate the PIG velocity discharge rate (3,000 gpm maximum), use energy dissipation devices, and install sediment barriers, as necessary, to prevent erosion, streambed scour, suspension of sediments, or excessive stream flow. Water must be disposed of using good engineering judgment so that all federal, state, and local environmental standards are met. Dewatering lines will be of sufficient strength and be securely supported and tied down at the discharge end to prevent whipping during this operation.

Selected road and highway, Drain 14, and Diversion Channel crossing pipe sections will be pressure tested for 4 hours to installation in the bore and the entire completed pipeline will be pressure tested for 8 hours after construction has been completed. The water for pre-testing of any crossings will be hauled by a tanker truck from an approved water source. Since the volume of water utilized in these pre-tests will be relatively small, the water will be discharged overland along the construction ROW and allowed to soak into the ground utilizing erosion and sediment control measures.

APPENDIX A

CONSTRUCTION SCHEMATICS



REV LEVEL	DATE	BY	DESCRIPTION	CK.	APP.

REVISIONS

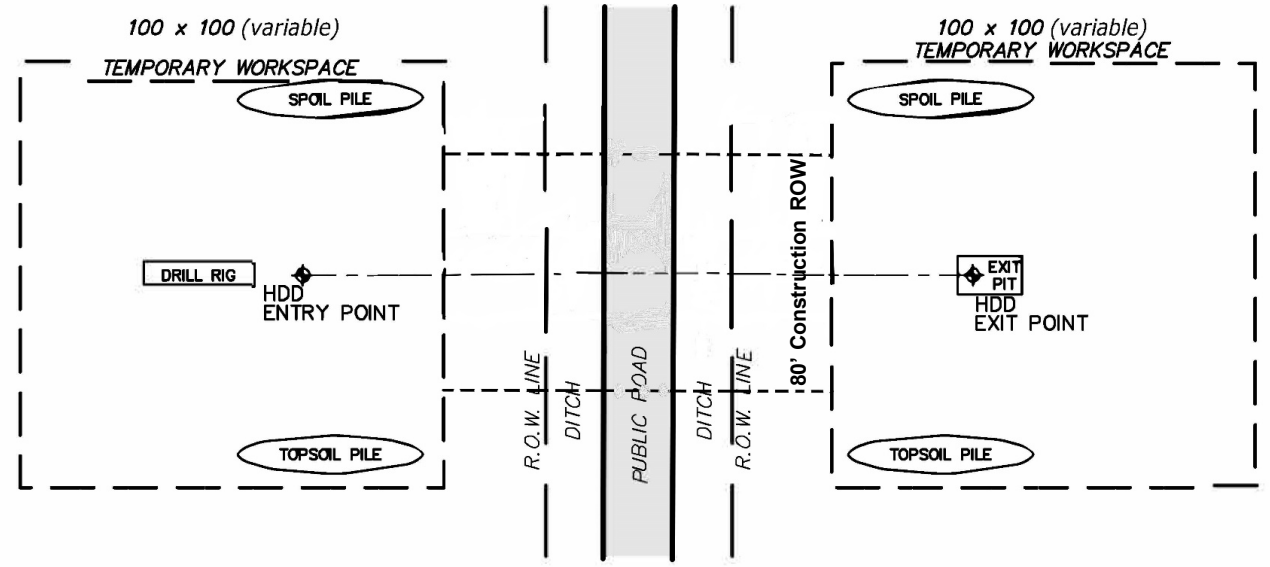
NuStar

North System Pipeline Relocation Project

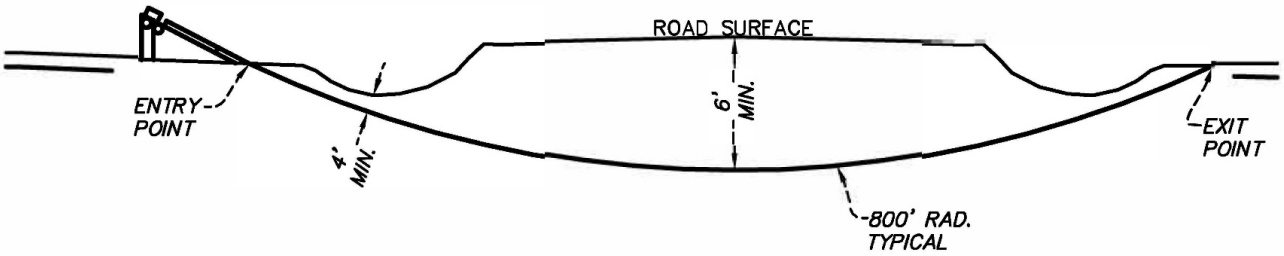
PIPELINE CONSTRUCTION SEQUENCE

CASS COUNTY NORTH DAKOTA

DATE:	PLOT DATE:	DRAWN BY:	LOC. NO:	DRAWING NUMBER:	SHEET NO:	REV:



PLAN



PROFILE

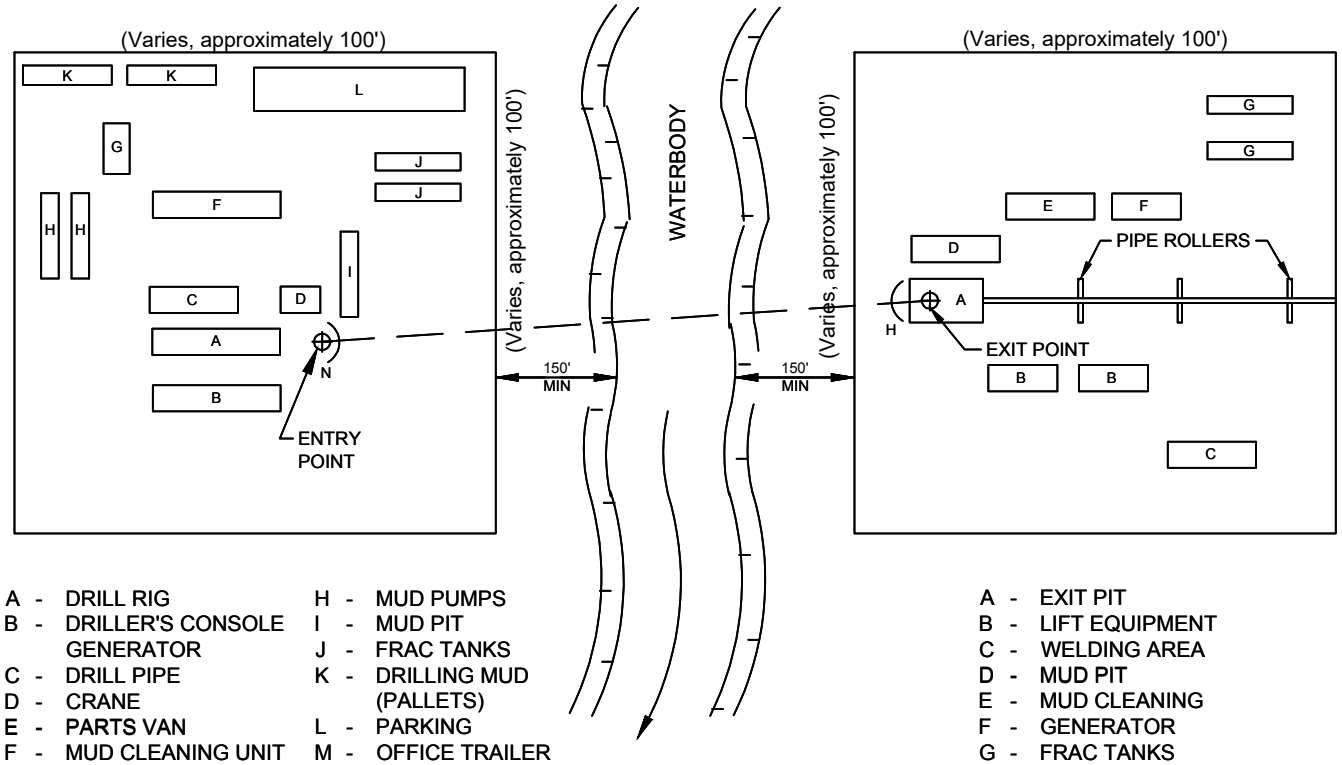
NOTES:
1. PROTECTIVE LAYER SHALL BE USED ON PAVED ROAD SURFACES TO PREVENT DAMAGE FROM TRACKED EQUIPMENT.
2. IF NECESSARY, INSTALL TEMPORARY CULVERT AND FILL IN BORROW PIT.
3. MAINTAIN EXISTING VEGETATION IN BORROW PITS. STRIPPING SHOULD BE LIMITED TO THE AREA OF TEMPORARY CROSSING. PROVIDE SEDIMENT CONTROLS IN ACCORDANCE WITH STORM WATER MANAGEMENT PLAN.
4. ELEVATION OF BORE PIT AND BELL HOLE FLOORS TO BE ADJUSTED TO PROVIDE MINIMUM COVER BELOW ROADWAY AND BORROW PITS.
5. THIS DETAIL HAS BEEN PREPARED FOR ENVIRONMENTAL REVIEW PURPOSES ONLY.

NuStar
PIPELINE OPERATING PARTNERSHIP, L.P.

TYPICAL ROAD CROSSING
NORTH SYSTEM PIPELINE RELOCATION PROJECT
HORIZONTAL DIRECTIONAL DRILL

CASS COUNTY NORTH DAKOTA

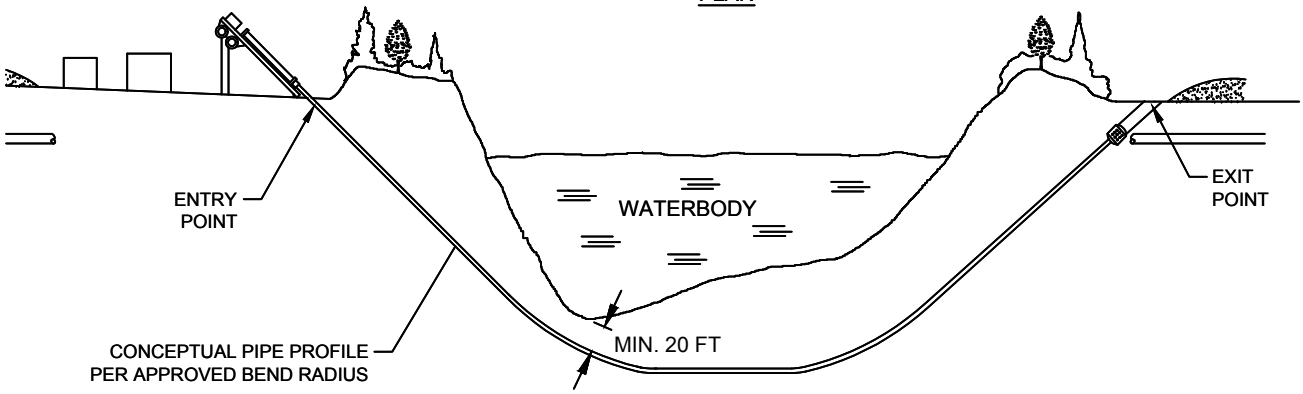
IMAGERY DATE:	DRAWN BY:	
SURVEY BY:	DRAWING DATE:	
DWG BY: EFN	APPROVED:	SCALE: NOT TO SCALE
	CHECKED BY:	SHEET: 1 OF 1



A - DRILL RIG
B - DRILLER'S CONSOLE GENERATOR
C - DRILL PIPE
D - CRANE
E - PARTS VAN
F - MUD CLEANING UNIT
G - MUD MIXING TANK
H - MUD PUMPS
I - MUD PIT
J - FRAC TANKS
K - DRILLING MUD (PALLETS)
L - PARKING
M - OFFICE TRAILER
N - CONTAINMENT BERM

A - EXIT PIT
B - LIFT EQUIPMENT
C - WELDING AREA
D - MUD PIT
E - MUD CLEANING
F - GENERATOR
G - FRAC TANKS
H - CONTAINMENT BERM

PLAN



PROFILE

NOTES:

1. SET UP DRILLING EQUIPMENT A MINIMUM OF 150 FEET FROM THE EDGE OF THE WATERCOURSE. DO NOT CLEAR OR GRADE WITHIN THE 50-FOOT ZONE.
2. ENSURE THAT ONLY BENTONITE BASED DRILLING MUD IS USED. DO NOT ALLOW THE USE OF ANY ADDITIVES TO THE DRILLING MUD WITHOUT THE APPROVAL OF COMPANY'S INSPECTOR.
3. INSTALL SUITABLE DRILLING MUD TANKS OR SUMPS TO PREVENT CONTAMINATION OF WATERCOURSE.
4. INSTALL COMPACTED EARTHEN BERMS DOWNSLOPE FROM THE DRILL ENTRY AND ANTICIPATED EXIT POINTS TO CONTAIN ANY RELEASE OF DRILLING MUD.
5. DISPOSE OF DRILLING MUD IN ACCORDANCE WITH THE APPROPRIATE REGULATORY AUTHORITY REQUIREMENTS.

DRAWING DEPICTED IS SUPERSEDED BY WRITTEN STANDARD, SCOPE OF WORK OR LINE LIST.

DESIGNED IN ACCORDANCE WITH TITLE 49 PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND GPTC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.

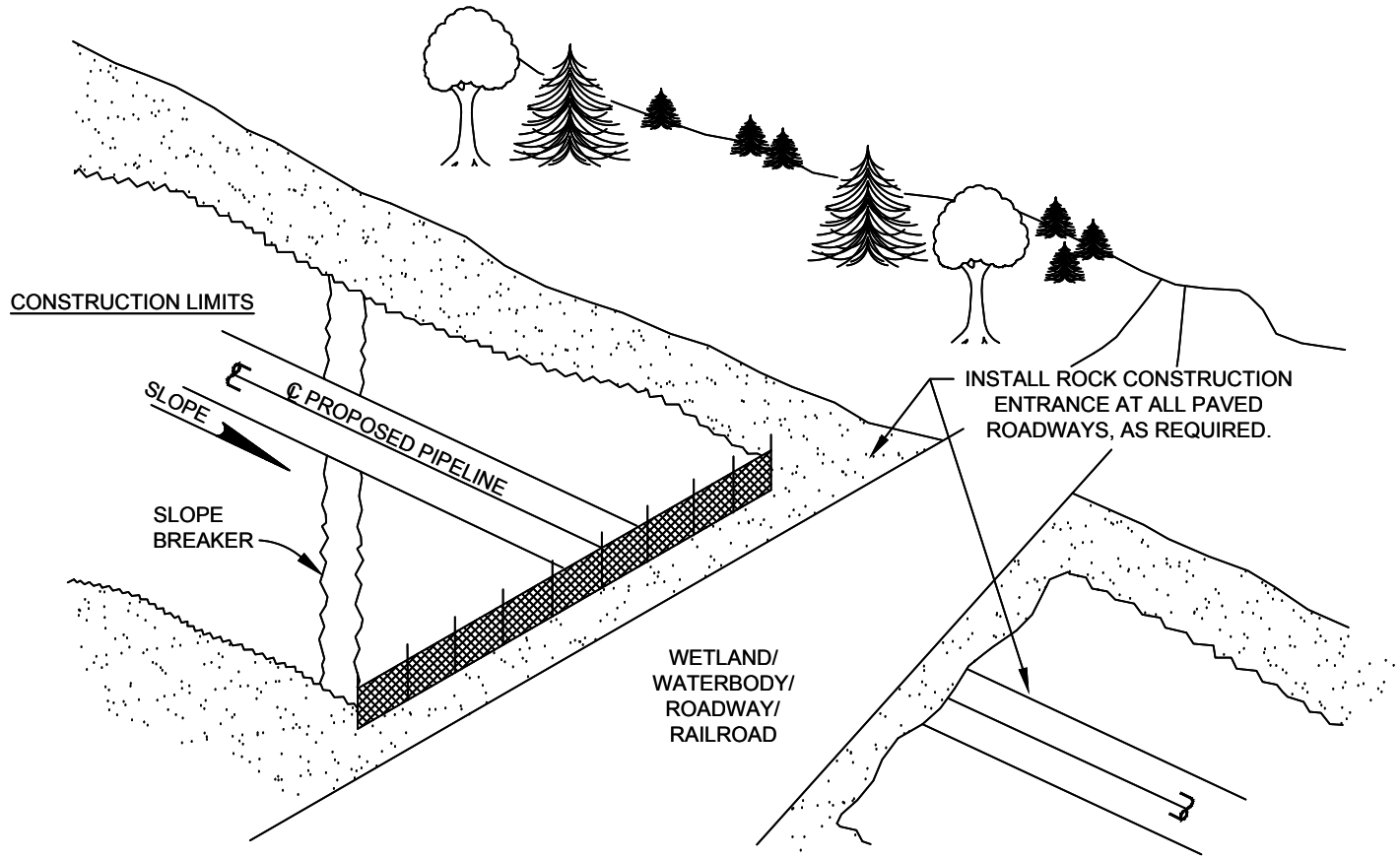
PREPARED BY:
SWCA ENVIRONMENTAL CONSULTANTS
Sound Science. Creative Solutions.®

REV LEVEL	DATE	BY	DESCRIPTION	CK.	APP.

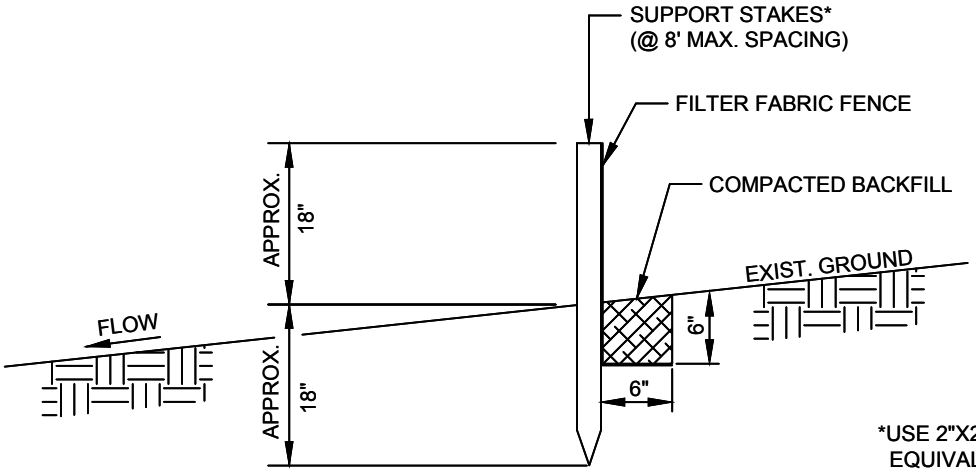
REVISIONS

TYPICAL WATERBODY CROSSING
HORIZONTAL DIRECTIONAL DRILLING

DATE: | PLOT DATE: | DRAWN BY: | LOC. NO: | DRAWING NUMBER: | SHEET NO: | REV:



NOTES:



*USE 2"X2" WOOD OR EQUIVALENT STEEL STAKES

PERMANENT STABILIZATION IS DEFINED AS MINIMUM, UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION.

REV. LEVEL	DATE	BY	DESCRIPTION	CK.	APP.

REVISIONS

TYPICAL STANDARD
18" SILT FENCE INSTALLATION
(SHEET 1 OF 2)

DATE:	PLOT DATE:	DRAWN BY:	LOC. NO:	DRAWING NUMBER:	SHEET NO:	REV:

NOTES:

1. SILT FENCE MUST BE LEFT IN PLACE UNTIL PERMANENT STABILIZATION.
2. FILTER FABRIC FENCE MUST BE INSTALLED AT EXISTING LEVEL GRADE.
3. SEDIMENT MUST BE REMOVED WHERE ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.
4. ANY SECTION OF SILT FENCE WHICH HAS BEEN UNDERMINED OR TOPPED MUST BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET.
5. AT A MINIMUM, THE FABRIC SHOULD HAVE THE FOLLOWING PROPERTIES:

FABRIC PROPERTY	MINIMUM ACCEPTABLE VALUE	TEST METHOD
GRAB TENSILE STRENGTH (lb)	120	ASTM D1682
ELONGATION AT FAILURE (%)	20% MAX.	ASTM D1682
MULLEN BURST STRENGTH (lb)	200	ASTM D3786
TRAPEZOIDAL TEAR STRENGTH (lb)	50	
PUNCTURE STRENGTH (lb)	40	ASTM D 751 (MODIFIED)
SLURRY FLOW RATE (gal/min/sf)	0.3	
EQUIVALENT OPENING SIZE	30	US STD. SIEVE CW-02215
ULTRAVIOLET RADIATION STABILITY (%)	80	ASTM G-26

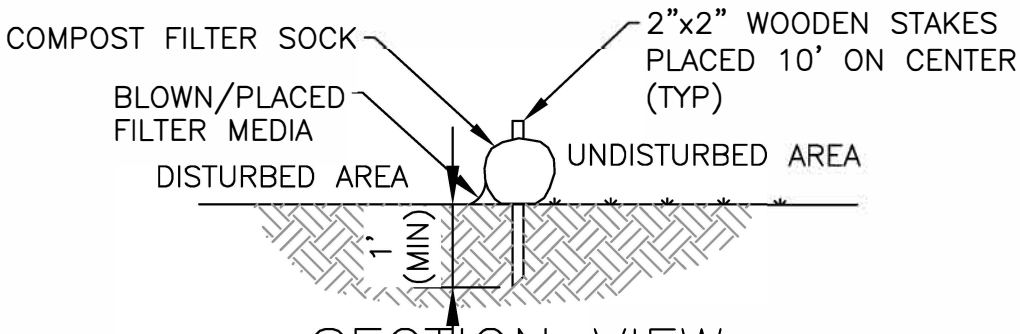
6. SILT FENCE MUST BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER WILL BE EXTENDED 8' UPSLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT.

REV LEVEL	DATE	BY	DESCRIPTION	CK.	APP.

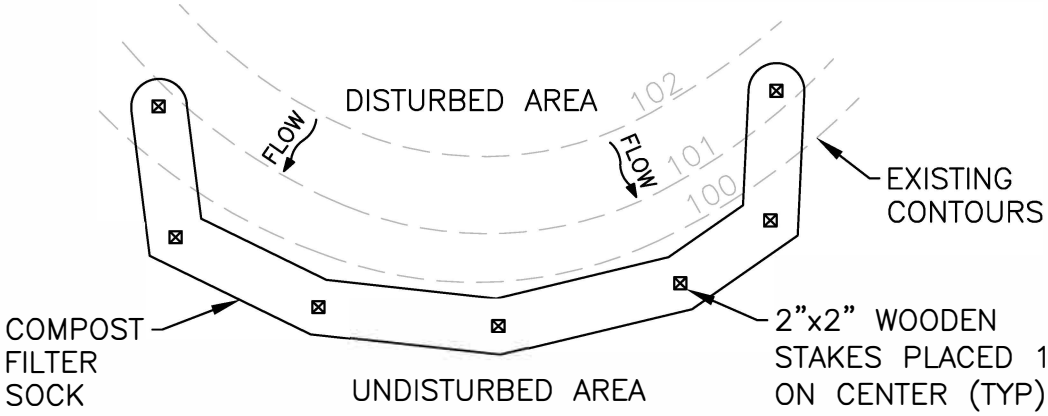
REVISIONS

TYPICAL STANDARD
18" SILT FENCE INSTALLATION
(SHEET 2 OF 2)

DATE: | PLOT DATE: | DRAWN BY: | LOC. NO: | DRAWING NUMBER: | SHEET NO: | REV:



SECTION VIEW



PLAN VIEW

NOTES:

1. SOCK FABRIC AND COMPOST MATERIAL SHALL MEET ALL STATE STANDARDS.
2. COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.
3. TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.
4. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.
5. COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
6. BIO–DEGRADEABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTO–DEGRADEABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
7. UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS SOIL SUPPLEMENT.

COMPOST FILTER SOCK DETAIL

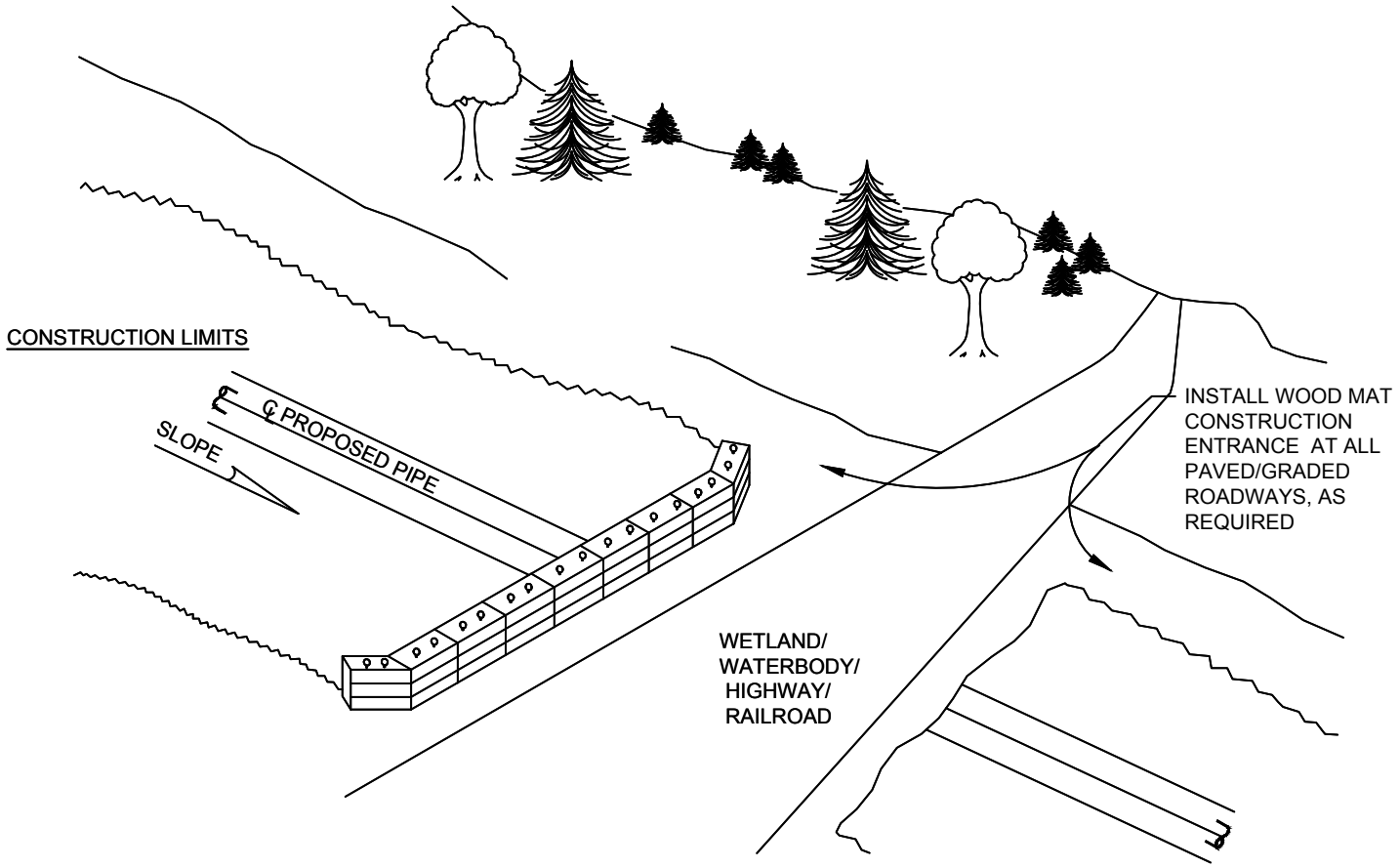
SCALE: NOT TO SCALE

REV LEVEL	DATE	BY	DESCRIPTION	CK.	APP.

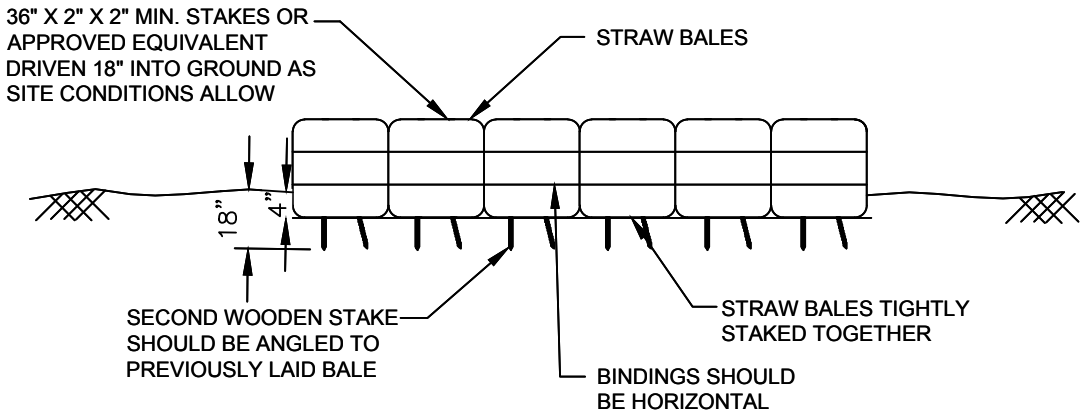
REVISIONS

COMPOST FILTER SOCK DETAIL

DATE: | PLOT DATE: | DRAWN BY | LOC. NO | DRAWING NUMBER: | SHEET NO. | REV.



FRONT VIEW



NOTES:

1. STRAW BALES TO BE EMBEDDED 4" MIN. INTO GROUND AS SITE CONDITIONS ALLOW.
2. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE ABOVE GROUNDS HEIGHT OF THE BARRIER.
3. STRAW BALES REMOVED FOR ACCESS PURPOSES DURING THE DAY MUST BE REINSTALLED AFTER THE CONSTRUCTION ACTIVITY HAS PASSED THROUGH OR BY THE END OF THE DAY.
4. STRAW BALES SHOULD NOT BE USED FOR PROJECTS LASTING MORE THAN 3 MONTHS.
5. STAKES TO BE DRIVEN FLUSH WITH THE TOP OF THE BALE. BOTH ENDS OF THE BARRIER TO BE EXTENDED AT LEAST 8' UP SLOPE AT 45 DEGREES TO MAIN BARRIER ALIGNMENT.
6. STRAW BALE BARRIERS THAT ARE UNDERMINED OR TOPPED SHALL BE REPLACED WITH A ROCK FILTER OUTLET.
7. BALES WILL BE REMOVED WHEN PERMANENT STABILAZATION IS ACHIEVED.
8. COMPACTED BACKFILL WILL BE PLACED ON DISTURBED SIDE.

REV LEVEL	DATE	BY	DESCRIPTION	CK.	APP.

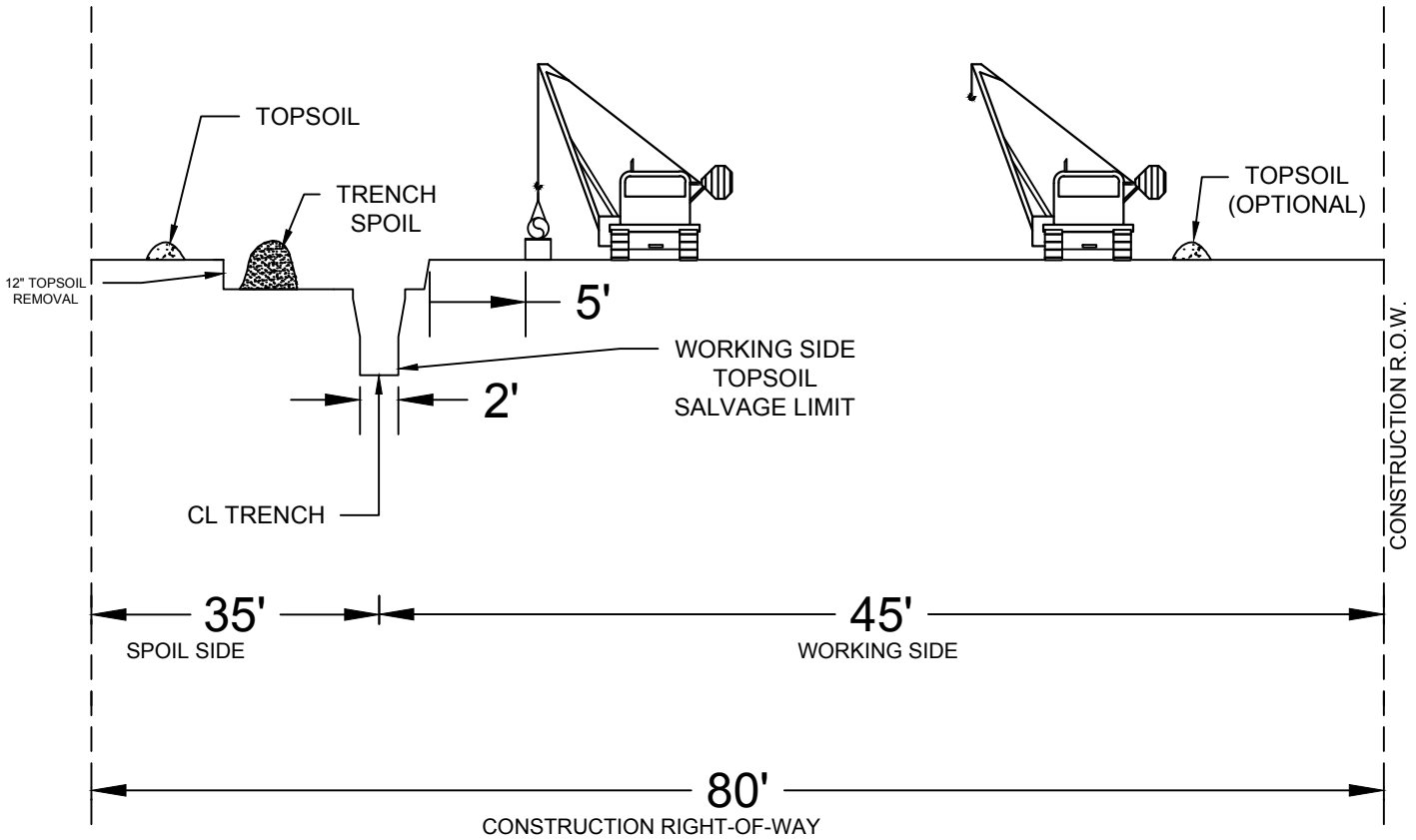
REVISIONS

TYPICAL STRAW BALE INSTALLATION

DATE: | PLOT DATE: | DRAWN BY: | LOC. NO: | DRAWING NUMBER: | SHEET NO: | REV:

RIGHT-OF-WAY (ROW) DETAIL

CONSTRUCTION RIGHT-OF-WAY DETAIL



PROFILE
NOT TO SCALE

NOTES:

- CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 80' WIDE OF TEMPORARY WORKSPACE. ADDITIONAL TEMPORARY WORKSPACE WILL BE NECESSARY AT MAJOR ROAD, RAIL, RIVER CROSSINGS AND OTHER SPECIAL CIRCUMSTANCES, AS REQUIRED. CERTAIN SITUATIONS MAY REQUIRE A NARROWER WIDTH.
- THIS DRAWING REFLECTS "TRENCH AND SPOIL SIDE" TOPSOIL STRIPPING PROCEDURE. SALVAGE TOPSOIL OVER TRENCH AND UNDER THE SPOIL PILE AT LOCATION IDENTIFIED ON THE CONSTRUCTION ALIGNMENT SHEETS, OR AS DIRECTED BY THE COMPANY INSPECTOR. DEPTH OF TOPSOIL STRIPPING IS THE DEPTH OF CULTIVATION OR 12," WHICHEVER IS GREATER.
- STOCKPILE TOPSOIL AS SHOW OR IN ANY CONFIGURATION APPROVED BY THE COMPANY INSPECTOR. KEEP TOPSOIL AND SPOIL PILES CLEAN OF ALL CONSTRUCTION DEBRIS. MAINTAIN A MINIMUM OF 12" OF SEPARATION BETWEEN TOPSOIL AND TRENCH SPOIL PILES. ENSURE THAT TOPSOIL AND TRENCH SPOIL DO NOT MIX.
- LEAVE GAPS IN TOPSOIL AND SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS. DO NOT USE TOPSOIL FOR PADDING. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING TOPSOIL AND SPOILS PILES.
- THE OFFSET FROM AN EXISTING PIPELINE, WHERE APPLICABLE, WILL BE 25', BUT MAY BE INCREASED OR DECREASED DEPENDING ON THE SITE SPECIFIC CONSTRUCTION REQUIREMENTS.
- TEMPORARILY SUSPEND TOPSOIL HANDLING OPERATION DURING EXCESSIVELY WINDY CONDITIONS UNTIL MITIGATIVE MEASURES TO MINIMIZE WIND EROSION CAN BE IMPLEMENTED.
- BOTTOM OF TRENCH WIDTH WILL BE AN AVERAGE OF 2' (TYPICAL). HOWEVER, UNDER CERTAIN CIRCUMSTANCES, THE TRENCH MAY BE A MAXIMUM OF 10' WIDE.
- TOPSOIL AND TRENCH SPOIL RELATIVE POSITIONS CAN, AS DIRECTED BY THE COMPANY INSPECTOR, BE REVERSED.

SWCA ENVIRONMENTAL CONSULTANTS

APPENDIX B

FRAC-OUT CONTINGENCY PLAN

FRAC-OUT CONTINGENCY PLAN

NORTH SYSTEM PIPELINE

Prepared for:

NuStar Pipeline Operating Partnership L.P.

Main Office:
19003 IH-10 West
San Antonio, Texas 78247

Prepared by:

SWCA Environmental Consultants 116
North 4th Street, Suite 200
Bismarck, ND 58801

July 2020

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1.0 INTRODUCTION

This Frac-out Contingency Plan (Plan) provides specific procedures and steps to contain the inadvertent releases of drilling mud (frac-outs) for wetlands, lakes, ponds, highways, roads and other areas or structures that are crossed underneath using the horizontal directional drilling (HDD) method and is intended to:

- Provide for the timely detection of frac-outs.
- Ensure an organized, timely, and "minimum-impact" response in the event of a frac-out.
- Ensure that the HDD Contractor makes all the appropriate notifications.

This Plan is applicable for the NuStar Pipeline Operating Partnership L.P. (NuStar) North System Pipeline Relocation Project (Project) in Cass County, North Dakota. As illustrated in Figure 1, the Project will involve replacement of section of the existing North System Pipeline to accommodate construction of the Fargo-Moorhead Area Diversion Channel. The Project will require installation of approximately 2.21 miles of 10-inch inside diameter pipe. Along the proposed route, the Project will cross two waterbodies (e.g., streams and wetlands), two county or township roads, the proposed location for a new Cass County Drain No. 14, and the proposed location of the Fargo-Moorhead Area Diversion Channel.

2.0 DRILLING PROCESS AND DRILLING FLUID SYSTEMS

The drilling process begins when the HDD machine pushes a bore head connected to hollow pipe into the ground at an angle. As each joint of drill pipe is pushed into the ground, a new one is added behind it. This process is continued until the bore head comes out of the ground at the end of the bore.

The most used equipment for determining the location of the bore head is called a 'Walk Over' Locating system, which uses a transmitter behind the drill bit that registers angle, rotation, magnetic direction and temperature data. The information is then encoded into an electro-magnetic signal, which is transmitted through the ground to the surface. At the surface, a receiver is manually positioned over the transmitting signal where the signal is decoded and steering directions are relayed to the operator of the drill machine.

The HDD process involves the use of drilling fluids (referred to as drilling mud) that consist primarily of water. Bentonite clay is added to the water to enhance lubrication, soil cuttings transport and caking properties of the drilling fluid. Bentonite is a naturally occurring, non-toxic, inert substance that meets NSF/ANSI 60 NSF Drinking Water Additives Standards and is frequently used as a component in drilling mud for drilling potable water wells.

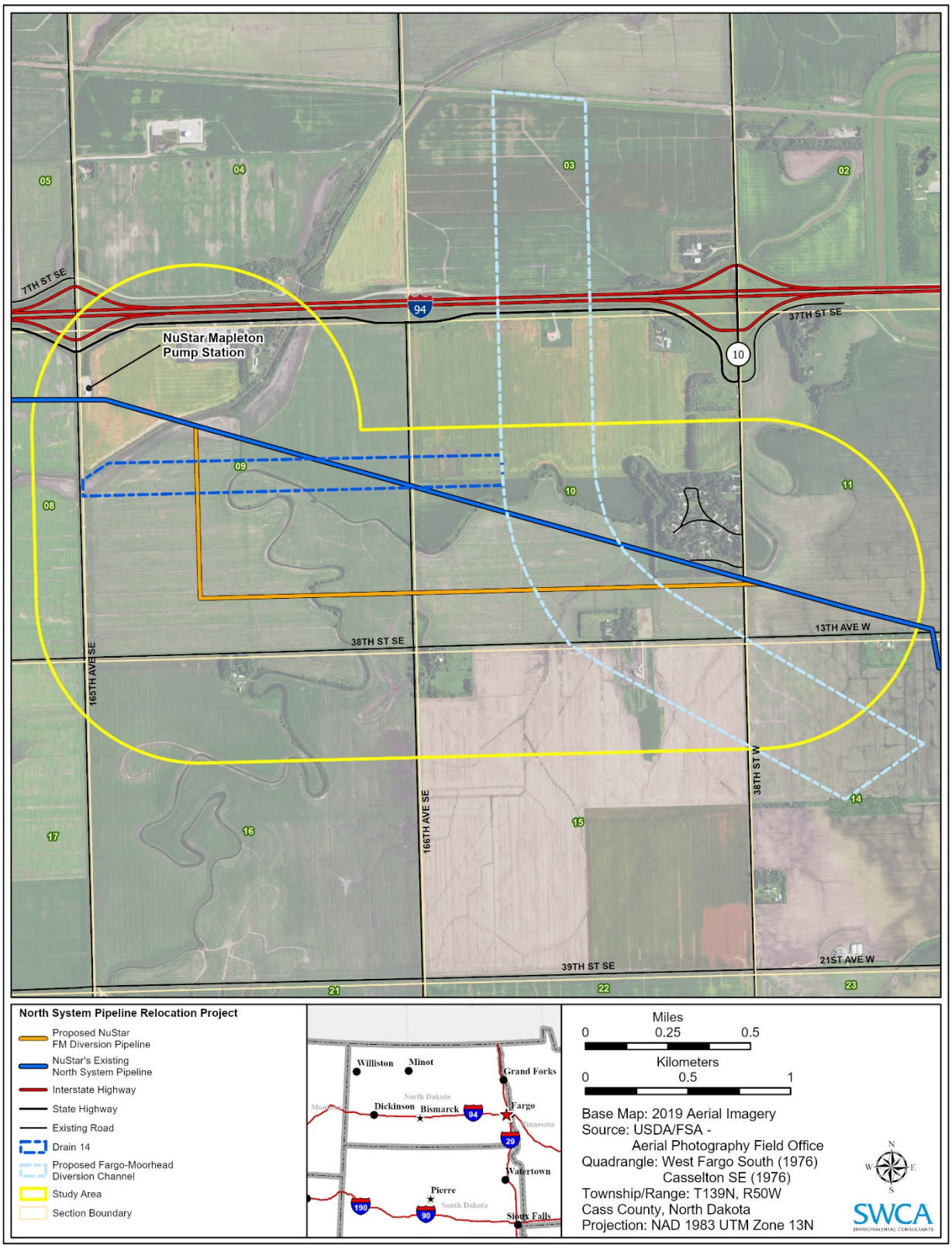


Figure 1. North System Pipeline Replacement Project Location Map

The drilling fluid is prepared in a mixing tank containing both new and clean recycled drilling fluid. The drilling fluids to be used in this project may include Extra High Yield bentonite, Pipeclad 2000 Slow Gel, and FlowPac™. The Safety Data Sheets (SDS) for these materials are in Appendix A. The fluid is pumped at a rate of 100 to 1,000 gallons per minute (gpm) through the center of the drill pipe to the drill head bit.

Return flow is through the annulus created between the wall of the boring and the drill pipe. The cuttings are then carried back to either the entry or the exit pit, depending on a combination of elevation difference and drilling/hole opening direction. Once in the entry pit, the fluid moves to the pickup pit to be pumped to the fluid processing equipment. Typically, shaker screens, desanders and desilters remove increasingly finer cuttings from the drilling fluid. The cleaned and recycled fluid is returned to the mixing tank and pumps for reuse in the borehole.

Upon reaching the exit point, the drill bit is detached, and a reamer tool is attached. The reamer is pulled back while rotating the drill pipe, with as many passes as required to widen the borehole to the desired diameter (about 1.5 times the diameter of the pipe). Once the borehole is the correct size for the pipe to be installed, it is attached to the end of the reamer and pulled through the hole. Throughout this process, bore fluid is being continually pumped into the hole to ensure that the hole is sealed, with no void being left between the pipe and the native soil.

The HDD method has the potential for loss or seepage of drilling fluid into subsurface unconsolidated soil through which the drill passes. In some cases, the drilling fluid may be forced to the surface resulting in what is commonly referred to as an inadvertent release or a frac-out. Drilling fluid release is typically caused by pressurization of the drill hole beyond the containment capability of the overburden soil material or due to an inherent weakness within the overlying soils, such as a fissure, fracture, or other pathway.

The HDD operation is a closed system to minimize the discharge of drilling mud and cuttings outside the work area. To minimize the possibility of fluid escape, berms will be constructed around reserve pits used to contain the drilling fluid. Any drilling mud that inadvertently exits at points other than the entry and exit points will be contained and collected to the extent practical. Additional frac-out response actions are provided in the following sections.

3.0 HDD CONTRACTOR RESPONSIBILITIES AND REQUIREMENTS

The HDD contractor is responsible for detecting and controlling the inadvertent release of drilling fluid. A NuStar inspector will closely observe the progress and actions of the HDD contractor.

The HDD contractor will be equipped with a trachoe excavator, straw bales, stakes to secure bales, silt fence, sandbags, shovels, pumps, and any other materials or equipment necessary to contain and clean up inadvertent releases. A vacuum truck will be on call and available to respond to frac-out events during drilling operations.

4.0 FRACTURE DETECTION

Drilling crew personnel, the mud system operator, and the NuStar inspector will be responsible for the detection and monitoring of frac-outs. The most obvious signs of a frac-out are the visible pooling of drilling mud on the surface, a sudden decrease in mud volume returns during drilling operations, or loss in drilling mud pump pressure. The mud system operator will observe the volume of drilling fluid return and immediately report reductions to the drilling supervisor and NuStar inspector.

The mud system operator will monitor actual drilling fluid volumes from the pumps and the return flow from the borehole and will alert the on-site personnel if there is a significant variance. In the event of partial circulation loss, pumping of drilling fluid may be decreased to reduce borehole mud pressures applied to subsurface soil materials. Figure 2 illustrates a typical frac-out surface expression.

Figure 2. Typical Surface Expression of a Frac-Out

5.0 CORRECTIVE ACTIONS FOR AN INADVERTANT RELEASE

In the event of an inadvertent release to the surface, the following actions will be taken:

If the release is large, mud circulation will cease immediately as practical. If the spill is small to moderate, the contractor will continue circulation to maintain pressure in the borehole. Maintaining circulation may be necessary to maintain borehole stability.

In all cases, the HDD contractor will proceed as follows:

- Contain any drilling fluid that has surfaced.
- Notify the NuStar inspector.
- Reduce circulation pressure and evaluate the circumstances leading to the circulation loss to determine if the fracture can be sealed.
- Thicken the drilling fluid in an attempt to seal off the location of the release, if practical.

6.1 CONTAINMENT OF DRILLING FLUID RELEASE

Immediately following the detection of the inadvertent drilling fluid release, containment and clean-up operations will begin. For releases on land, the HDD contractor will use straw bales, silt fences, sandbags, hand tools and earthen berms to prevent fluid from migrating or flowing from the immediate area of the discharge. If the volume released is too small for containment measures or if the release occurs in an environmentally sensitive area where cleanup actions would cause environmental surface damage, the receiving area will be allowed to dry naturally. If there is a threat to a sensitive resource, or a threat to public safety, HDD activities will cease immediately until a plan to proceed is discussed and approved by NuStar.

Other containment measures include the following:

- Additional berms and sediment control devices may be constructed around the release area as directed by the NuStar inspector to prevent the release of drilling mud into an adjacent water body.
- If hand tools cannot contain a small on-land release, small collection sumps may be constructed to pump the released material into the mud processing systems.
- Sump pumps or vacuum trucks will be used to remove and dispose of any drilling fluids as needed.

In cases of inadvertent releases to open water or flooded wetlands, it may be impractical or impossible to contain the release. For releases in shallow water, the HDD contractor will shut down drilling fluid circulation to minimize the volume of the release.

The decision to proceed with the HDD drilling operation will be at the sole discretion of NuStar after all practical methods to seal off the release location of the discharge have been attempted.

7.0 CLEAN-UP OF RELEASE

Cleanup activities will start immediately after the release has been contained and will entail removal

of as much bentonite drilling mud as can be collected. Removal methods will vary based on the volume of the release and site-specific conditions. Removal equipment may include vacuum trucks, loader and trackhoe buckets, small pumps, and hand tools (e.g., shovels and buckets). In some instances, the bentonite drilling mud may remain in place because cleanup operations would cause more harm to the wetland or water body. Special tools, such as open-ended wooden boxes, opened ended steel drums or other similar equipment, may be used to isolate the drilling fluid in water so it can be removed using a vacuum truck. After removal of the released drilling fluid, the release area will be returned as close to the original condition as possible.

8.0 AGENCY NOTIFICATION PROCEDURES

If an inadvertent release is discovered, steps will be taken to contain the release as described in Section 6.0. Notification procedures for NuStar construction management personnel and regulatory agencies are as follows:

- When monitoring indicates that a wetland or surface water body release has occurred, the NuStar inspector will notify the NuStar Project Manager as soon as possible. The nature of the release will be described, and corrective actions will be detailed. The Project Manager will determine if additional measures are required and if drilling operations should continue.
- The Project Manager will notify the appropriate government agencies listed in Table 1 as soon as possible, depending on site conditions, but no later than 24 hours after the release.

Table 1. Notification of Government Agencies

NOTIFICATION OF OUTSIDE PARTIES
PUBLIC SAFETY OFFICIALS AND GOVERNMENT AGENCIES

NuStar Pipeline Operating Partnership L.P.
North System Pipeline Replacement Project

PUBLIC SAFETY NOTIFICATION

Fire 911
Police 911

GOVERNMENT AGENCY NOTIFICATIONS

National Response Center **1-800-424-8802**
(24 hr/day-7 days/week)

North Dakota Department of Environmental Quality (toll free) ..... ….**1-800-472-2121**
Division of Water Quality 701-328-5210
North Dakota Department of Emergency Services 701-328-8100

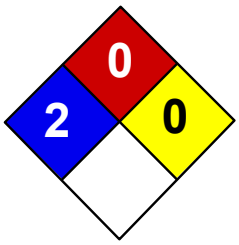
Cass County

Cass County Highway Department (Jason Benson, County Engineer) 701-298-2370
Emergency Management (Jim Prochniak, Emergency Manager) 701-476-4068
Cass County Sheriff's Department (Jesse Jahner, Sheriff) 701-241-5800
City of West Fargo Police Department 701-433-5500
City of West Fargo Emergency Management 701-433-5500

APPENDIX A

SAFETY DATA SHEETS

Health	2
Fire	0
Reactivity	0
Personal Protection	E



Material Safety Data Sheet
Bentonite MSDS

Section 1: Chemical Product and Company Identification

Product Name: Bentonite

Catalog Codes: SLB1441, SLB2935, SLB4435

CAS#: 1302-78-9

RTECS: CT9450000

TSCA: TSCA 8(b) inventory: Bentonite

CI#: Not applicable.

Synonym: Montmorillonite;

Chemical Name: Not available.

Chemical Formula:
(Al,Fe1.67Mg.33)Si10(OH)2Na(+)Ca(++)/2.33

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Bentonite	1302-78-9	100

Toxicological Data on Ingredients: Bentonite LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of eye contact (irritant), of inhalation. Slightly hazardous in case of skin contact (irritant), of ingestion.

Potential Chronic Health Effects:
Hazardous in case of inhalation. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Do not breathe dust. Avoid contact with eyes. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 10 from ACGIH (TLV) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid.

Odor: Odorless.

Taste: Not available.

Molecular Weight: Not available.

Color: Beige. (Light.)

pH (1% soln/water): Not available.

Boiling Point: Not available.

Melting Point: Decomposes.

Critical Temperature: Not available.

Specific Gravity: 2.5 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility:
Very slightly soluble in cold water, hot water. Insoluble in methanol, diethyl ether, n-octanol, acetone.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Not available.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Eye contact. Inhalation.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: Causes damage to the following organs: lungs.

Other Toxic Effects on Humans:
Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant), of ingestion.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the original product.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations: TSCA 8(b) inventory: Bentonite

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC): R36- Irritating to eyes.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:14 PM

Last Updated: 11/01/2010 12:00 PM

Natural Resources and Aquatic Resources Delineation Report for the North System Pipeline Relocation Project, Cass County, North Dakota

JULY 2020

PREPARED FOR

NuStar Pipeline Operating Partnership, LP

PREPARED BY

SWCA Environmental Consultants

NATURAL RESOURCES AND AQUATIC RESOURCES DELINEATION REPORT FOR THE NORTH SYSTEM PIPELINE RELOCATION PROJECT, CASS COUNTY, NORTH DAKOTA

Prepared for

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San Antonio, Texas 78257

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July 7, 2020

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Appendices

Tables

1 INTRODUCTION

NuStar Pipeline Operating Partnership, LP (NuStar) contracted SWCA Environmental Consultants (SWCA) to conduct a natural resources assessment and aquatic resources delineation for the approximately 2.21-mile-long North System Pipeline Relocation Project (Project) in Cass County, North Dakota. SWCA assessed a 100-foot survey corridor on either side of the alignment provided by NuStar for a total 200-foot-wide survey corridor comprising approximately 53.6 acres (survey area). The Project will be located entirely on private land, with a construction start date of November 2020. The Project falls under the jurisdiction of the North Dakota Public Service Commission (NDPSC).

The Project is located approximately 1.2 miles west of the City of West Fargo, North Dakota, in Sections 9, 10, and 11, Township 139 North, Range 50 West. The proposed Project will include the installation of approximately 2.2 miles of 10-inch diameter welded steel pipeline to replace a section of NuStar's existing North System Pipeline that will be impacted by construction of the Fargo-Moorhead Area Diversion Project. All aquatic resources will be crossed via horizontal directional drilling (HDD).

SWCA conducted the natural resources assessment and aquatic resources delineation to identify exclusion and avoidance areas as specified in North Dakota Administrative Code 69-06-08-02. The natural resources assessment included woody vegetation surveys; noxious weed surveys; threatened and endangered species habitat surveys; migratory bird habitat surveys; and bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) habitat surveys. This report presents the results of wetland delineations and natural resources field surveys that SWCA conducted on May 14, 2020, to facilitate siting and permitting for the Project. This report includes the following items.

- Descriptions of the aquatic resources delineated during the field surveys.
- Maps illustrating the extent of aquatic resources potentially requiring Clean Water Act (CWA) Section 404 permitting within the survey area and boundaries of wetlands and non-wetland waterbodies (reservoirs, ponds, and streams) with ordinary high-water marks (OHWMs) (Appendix A).
- U.S. Army Corps of Engineers (USACE) datapoint datasheets (Appendix B) and photographs (Appendix C) of the aquatic resources delineated during the survey.

1.1 Environmental Setting

The survey area is within the Red River Valley of the North major land resource area (MLRA) 56 (Natural Resources Conservation Service [NRCS] 2006). This area is in the Western Lake section of the Central Lowland Province of the Interior Plains. This MLRA is on a nearly level glacial lake plain that is bordered on the east by outwash plains.

The average annual precipitation in this area is 18 to 23 inches (455 to 585 millimeters). About 70% of the rainfall occurs as high-intensity, convective thunderstorms during the growing season. Precipitation in winter occurs mostly as snow, which accounts for about 15% of the annual precipitation. The average annual temperature is 36 to 44 degrees Fahrenheit (°F) (2 to 7 degrees Celsius). The freeze-free period averages about 145 days and ranges from 125 to 170 days. The freeze-free period is shortest in the northern part of this area and longest in the southern part (NRCS 2006). The survey area is primarily composed of cultivated fields.

1.2 Regulatory Background

1.2.1 U.S. Army Corps of Engineers Jurisdictional Waters

Pursuant to Section 404 of the CWA, the USACE regulates the discharge of dredge and/or fill material into waters of the U.S. (WOTUS). Section 404 requires that any entity proposing an activity that would discharge such materials into a WOTUS must obtain a permit from the USACE.

Designation as a WOTUS applies to the jurisdictional limits of USACE authority under the CWA and typically includes traditional navigable waters, interstate waters, and wetlands; impoundments, tributaries, and wetlands adjacent to those waters; and territorial seas. Most rivers, creeks, streams, arroyos, lakes, special aquatic sites, and their tributaries are typically designated as WOTUS. Wetlands are the most common special aquatic site and are defined as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (USACE 1987:9). To be classified as a wetland under federal definition, an area must meet the following three criteria under normal circumstances: 1) have a predominance of hydrophytic vegetation, 2) contain soils that are characteristic of frequent saturation (i.e., hydric soils), and 3) have the presence of hydrology showing regular inundation or saturation (USACE 1987). The OHWM is a defining element for identifying the lateral limits of waterbodies lacking adjacent wetlands and typically represents the outer limits of potential USACE jurisdiction.

SWCA conducted the delineations to assist the USACE in determining jurisdiction and to support Section 404 permitting. The USACE has final and legal authority in determining the presence of jurisdictional WOTUS and the extent of their boundaries.

1.2.2 North Dakota Public Services Commission

Section 49-22.1-02 of the North Dakota Century Code states that it is necessary to ensure that the location, construction, and operation of energy conversion facilities and transmission facilities will produce minimal adverse effects on the environment and welfare of the citizens of North Dakota by prohibiting energy conversion facilities and transmission facilities from being located, constructed, or operated without a certificate of site compatibility or a route permit acquired under Chapter 49-22.1. Section 49-22.1-02 requires that energy conversion facilities and route transmission facilities be sited in an orderly manner that is compatible with environmental preservation and the efficient use of resources and that sites and routes must be selected to minimize adverse human and environmental impacts. The North Dakota Public Service Commission (NDPSC) has the authority to grant a certificate of site compatibility and route permits.

SWCA conducted natural resources field surveys to assist the NDPSC in determining that the Project will be compatible with environmental preservation and will minimize adverse environmental impacts.

1.2.3 Endangered Species Act

Section 7 of the Endangered Species Act (ESA) requires federal agencies, in consultation with the U.S. Fish and Wildlife Service (USFWS), to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The ESA also prohibits any action that causes the take of any listed species of endangered plants or animals without special exception. If any federal action may affect a federally listed species or its designated critical habitat, consultation with and

concurrence from the USFWS is required to ensure compliance with the ESA. The State of North Dakota does not have a state threatened and endangered species list; therefore, only species listed by the federal ESA are considered threatened or endangered in North Dakota.

1.2.4 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to federal regulations. The migratory bird species protected by the MBTA are listed in Title 50 Code of Federal Regulations (CFR) Part 10.13.

1.2.5 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) provides for the protection of the bald eagle and the golden eagle (as amended in 1962) by prohibiting the take, possession, sale, purchase, barter; offer to sell, purchase, or barter; transport; export; or import of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit (16 United States Code 66a; 50 CFR Part 22). "Take" includes to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb.

2 METHODS

SWCA identified and delineated aquatic resources within the survey area (as described in Section 1 and illustrated on the overview map in Appendix A) using a combination of desktop review and field surveys.

2.1 Desktop Review

Prior to conducting field surveys, SWCA completed a desktop review of the Project area to identify land use; potential USACE jurisdictional waters; known threatened and endangered species concerns; recorded locations of bald and golden eagles (which are protected under the MBTA and BGEPA) and their habitat; and general soils information. SWCA reviewed recent aerial imagery and assumed that the ground conditions represented in this imagery are accurate depictions of the current landscape. Datasets and resources reviewed include, but are not limited to, the following:

- U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) (USGS 2020)
- NRCS Web Soil Survey (NRCS 2020)
- USFWS National Wetlands Inventory (NWI) (USFWS 2020a)
- USFWS Information for Planning and Consultation (IPaC) tool (USFWS 2020b)
- North Dakota State Wildlife Action Plan 2015 (Dyke et al. 2015)
- Avian Knowledge Network (AKN) (2020)
- Cornell Lab of Ornithology (2019)

The NWI is a USFWS database that identifies and categorizes wetland areas based primarily on aerial imagery interpretation. Maintained by the USGS, the NHD identifies surface water systems in the United States, including lakes, streams, rivers, and canals (USGS 2020). SWCA used NRCS soil survey data (NRCS 2020) to review area soils. This desktop review identified locations of potential aquatic resources for investigation during the field surveys.

2.2 Field Surveys

SWCA wetland biologists conducted pedestrian delineations for aquatic resources on May 14, 2020. The field delineations were conducted to verify the results of the desktop review and to delineate all aquatic resources in the survey area that are potential WOTUS. Additionally, SWCA biologists conducted pedestrian field surveys for land use (vegetation), including general land cover; state- and county-listed noxious weeds; woody vegetation including performing tree, sapling, and shrub counts; and threatened and endangered species habitat surveys.

A global positioning system (GPS) unit with sub-meter accuracy was used in the field to map the spatial extent of features, geographically reference datapoints, and delineate boundaries during the field surveys. Geographic information system (GIS) software was used in the office to analyze the delineated features, calculate areas, and generate report maps. Please note that all data recorded using the GPS unit and illustrated in the maps are for review purposes only and do not represent a professional civil survey; however, the recorded accuracy was less than 1 meter.

2.2.1 Wetlands

SWCA conducted the delineations in accordance with the *Corps of Engineers Wetland Delineation Manual* (the Manual) (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* (the Supplement) (USACE 2010).

Potential wetlands encountered during the field surveys were investigated to determine if a wetland was present. If potential wetland characteristics were observed in an area, the wetland biologists recorded a datapoint(s) to determine the wetland status of the area. Additionally, the wetland biologists assessed all NWI polygons mapped for the Project area to determine if any of them met USACE wetland criteria. Representative photographs and/or datapoints were also recorded in upland areas to document the presence or lack of wetland criteria and to further refine the wetland boundary.

In the areas surveyed, wetland boundaries were delineated where all three fundamental characteristics of hydrophytic vegetation, hydric soils, and wetland hydrology were present. Wetlands that satisfy all three criteria may be subject to regulation by the USACE under Section 404 of the CWA.

The plant species identified, their percent cover, and their indicator status according to the 2018 national wetland plant list (USACE 2020) were used to indicate the presence of hydrophytic vegetation. To determine if hydric soils were present, SWCA's biologists extracted a soil profile to a sufficient depth (generally 20 inches) to document the presence or absence of all applicable hydric soil indicators. Inundation, saturation, and other physical indicators suggesting the presence of water were used to determine wetland hydrology at each site.

Wetlands were classified using the Cowardin classification system (Cowardin et al. 1979). The five principal systems are marine, estuarine, riverine, lacustrine, and palustrine. The Project area features riverine and palustrine systems.

The riverine system includes all wetlands and deep-water habitats contained within a channel except those wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, or that have habitats with ocean-derived salinities exceeding 0.5 part per thousand (‰) (Cowardin et al. 1979).

The palustrine system includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and all such wetlands that exist in tidal areas where salinity resulting from ocean-derived salts is below 0.5‰ (Cowardin et al. 1979). The palustrine system also includes wetlands

lacking such vegetation but exhibiting the following four characteristics: 1) area less than 8 hectares (20 acres); 2) a lack of active wave-formed or bedrock shoreline features; 3) water depth in the deepest part of basin less than 2 meters at low water; and 4) salinity from ocean-derived salts of less than 0.5‰.

In certain situations, normal seasonal or annual variation in environmental conditions can lead to the development of "problem areas" in which wetland vegetation, hydric soils, or wetland hydrology may not be readily identifiable. These problem areas may require additional investigation to determine the presence or absence of wetland indicators. In other situations, recent human activities or natural events can create "atypical situations" in which positive indicators of wetland hydrology, hydric soils, and hydrophytic vegetation are absent or unreliable. As with problem areas, these situations may require additional investigation to determine if a wetland is present.

SWCA recorded data on USACE Great Plains regional wetland determination datasheets to verify the presence and extent of wetlands (see Appendix B). Details recorded at each datapoint consisted of vegetation within prescribed sampling plots, soil characteristics, and hydrology information. The biologists took overview photographs of the sample area and detailed photographs of vegetation, soils, and hydrology at each datapoint (see Appendix C). Datapoints that exhibited positive indicators of hydrophytic vegetation, hydric soils, and wetland hydrology were classified as wetlands. Datapoints that did not contain wetland indicators for all three criteria were classified as uplands.

2.2.1.1 VEGETATION

At each datapoint, SWCA recorded the binomial scientific name and absolute percent ground cover of all vascular plants within prescribed plot sizes for each vegetative stratum. The Supplement (USACE 2010) defines the tree stratum as a woody-stemmed plant with a trunk diameter at breast height (DBH) of equal to or greater than 3 inches, regardless of height; the sapling and shrub stratum as consisting of woody-stemmed plants with a trunk DBH of less than 3 inches, regardless of height; the herbaceous stratum as including all non-woody-stemmed plants, regardless of height; and the woody vine stratum as including all woody-stemmed vines, regardless of diameter. Typical plot size was a 30-foot radius for the tree stratum, a 15-foot radius for the sapling and shrub stratum, a 5-foot radius for the herbaceous stratum, and a 30-foot radius for the woody vine stratum. However, in some instances, the biologists changed plot sizes to conform to the actual wetland size or shape. The wetland indicator status of each plant species was determined using the 2018 national wetland plant list (USACE 2020), which divides plant species into five categories that reflect the range of estimated probabilities of a species existing in a wetland versus an upland. The five categories of wetland indicator statuses are as follows.

- Obligate (OBL): almost always occurs in wetlands
- Facultative Wetland (FACW): usually occurs in wetlands, but may occur in non-wetlands
- Facultative (FAC): occurs in wetlands or non-wetlands
- Facultative Upland (FACU): usually occurs in non-wetlands, but may occur in wetlands
- Upland (UPL): almost never occurs in wetlands

Any plant community with greater than 50% dominant hydrophytes (OBL, FACW, and FAC) across all strata was determined to meet the USACE criteria of a hydrophytic community. In cases where disturbance had created problematic hydrophytic vegetation, visual observations of other hydrophytic vegetation indicators and site conditions, such as livestock grazing or presence of human-made features, were evaluated to clarify wetland boundaries.

2.2.1.2 SOILS

Hydric soil determinations were made according to criteria listed in the Manual (USACE 1987), the Supplement (USACE 2010), and *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils, Version 8.2* (U.S. Department of Agriculture 2018). The wetland biologists excavated soil pits to a depth of at least 20 inches and described each soil profile by horizon. Each horizon was evaluated for soil color; thickness; color, abundance, and contrast of redoximorphic features (mottles); and soil texture. Munsell soil color charts were used to determine the color of the soil matrix and redoximorphic features. The "feel" or "ribbon" test was used to determine soil texture. The soil profile was studied for the hydric soil indicators listed in the Manual (USACE 1987) and the Supplement (USACE 2010). If the soil profile displayed at least one primary or two secondary hydric soil indicators, a positive hydric soil determination was made.

Some soils that meet the hydric soil definition may not exhibit any indicators. These problematic hydric soils may lack indicators because of the color of the parent material from which the soils develop, because site conditions may inhibit the development of redoximorphic features, or because not enough time has passed to develop hydric soil indicators (USACE 2010). For areas with problematic soils, hydric soil conditions were assumed when there was a dominant hydrophytic plant community and the area exhibited wetland hydrology indicators, as listed in the Supplement (USACE 2010).

2.2.1.3 HYDROLOGY

Wetland hydrology was primarily determined in the field using the hydrology indicators detailed in the Manual (USACE 1987) and the Supplement (USACE 2010). To determine whether wetland hydrology was present at a datapoint, the SWCA biologists considered the frequency and duration of inundation; used visual observation of saturation in the upper 12 inches of the soil profile; and used the presence of other primary wetland hydrology indicators, such as oxidized root channels, water-stained leaves, surface soil cracks, water marks (nonriverine), sediment deposits (nonriverine), or the presence of biotic crusts. Secondary indicators used to determine wetland hydrology consisted of drainage patterns, the presence of a dry-season water table, or saturation visible on aerial imagery. If the area contained one or more primary hydrology indicator or two or more secondary hydrology indicators, a positive hydrology determination was made.

2.2.2 Waterbodies

SWCA biologists used *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual* (Lichvar and McColley 2008) as a reference for delineating aquatic resources with OHWMs.

NHD flowlines and other non-wetland waterbodies (e.g., streams, rivers, canals, and ponds) encountered during the field surveys were assessed for the presence of an OHWM, which was indicated by the presence of distinguishing physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of soil; the absence of terrestrial vegetation; or the presence of litter and debris. Channel characteristics such as OHWM indicators, width, bank slope and height, substrate, and channel condition were recorded for each stream. Swales and erosional features without OHWMs were not delineated.

Streams with OHWMs were classified as perennial, intermittent, or ephemeral based on field observations of perceived flow regimes. A perennial stream features flowing water year-round during a typical year. The water table of a perennial stream is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow, and runoff from rainfall is a supplemental source of water for

stream flow. An intermittent stream features flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not feature flowing water. Runoff from rainfall is a supplemental source of water for stream flow. An ephemeral stream features flowing water only during, and shortly 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 an ephemeral stream. Runoff from rainfall is the primary source of water for stream flow.

2.2.3 Noxious Weeds

"Noxious weeds" is a general term used to describe plant species that are not native to a given area, spread rapidly, and have adverse ecological and economic impacts. These 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 weeds have the potential to detrimentally affect public health, ecological stability, and agricultural practices. SWCA conducted a noxious weed survey of all populations of North Dakota state- or county-listed noxious weeds within the survey area.

2.2.4 Tree, Sapling, and Shrub Count

An SWCA biologist determined the total number of trees, saplings, and shrubs present within the survey area using 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 survey area. The boundary of all forested upland, shrubland, and shelterbelt habitat was geographically referenced using a Trimble GeoXT series handheld global positioning system (GPS) unit. In forested upland and shrubland habitat, SWCA counted the number of all woody-stemmed vegetation with a DBH up to and greater than 1 inch. In shelterbelt areas, coniferous trees and shrubs, regardless of DBH, were inventoried via direct count. Ecologists taxonomically identified all recorded individuals to the species level within each habitat type.

2.2.5 Wildlife, Including Threatened and Endangered Species

Prior to conducting field surveys, SWCA reviewed information obtained from the USFWS IPaC report to identify threatened and endangered species with the potential to occur within the survey area (USFWS 2020b). This document does not represent a comprehensive survey, but rather acknowledges the past and/or current presence of listed species. The lack of discovery of threatened or endangered species does not signify their non-existence within the survey area, but only that no primary or secondary indications of these species were recorded. SWCA completed a habitat survey for all listed species. Specific occupancy surveys for federally listed species were not conducted; however, the biologist noted any incidental observations of listed species.

An SWCA biologist noted all wildlife observed during the field survey. Wildlife sightings can involve primary observations (i.e., actual sighting of an animal) or secondary observations (i.e., observation of scat, tracks, or fur deposits).

2.2.5.1 MIGRATORY BIRD TREATY ACT

An SWCA biologist assessed the survey area for the presence of migratory birds, nests, and potential migratory bird nesting habitat. A line-of-sight binocular survey for raptor species was also conducted for a distance of approximately 0.5 mile.

2.2.5.2 BALD AND GOLDEN EAGLE PROTECTION ACT

An SWCA biologist assessed the survey area for the presence of bald and golden eagle nests, and habitat that could be used by nesting bald and golden eagles. A line-of-sight binocular survey for raptor species was also conducted for a distance of approximately 0.5 mile.

3 RESULTS

3.1 Land Use

During the field surveys, an SWCA biologist identified four general types of vegetative communities within the survey area. These vegetative communities were classified as herbaceous upland, upland woody vegetation, cropland, and palustrine emergent (PEM) wetland. PEM wetlands are characterized by the presence of herbaceous hydrophytic or submergent aquatic macrophytes.

The herbaceous upland community consists of areas dominated by non-woody vegetation such as grasses and forbs. Herbaceous uplands observed commonly consisted of smooth brome (*Bromus inermis*), common dandelion (*Taraxum officinale*), and alsike clover (*Trifolium hybridum*). Cultivated cropland was confirmed in the survey area during field surveys. The crops were primarily corn (*Zea mays*).

3.2 Wetlands

SWCA delineated two wetlands in the survey area. The survey area, the delineated aquatic features, and the datapoint locations are illustrated in the maps in Appendix A; datapoint datasheets are provided in Appendix B; and photographs are provided in Appendix C. Feature identification numbers in this report were kept the same as the field-assigned feature identification numbers to maintain accurate tracking of data. In some cases, feature identification numbers were started at different points or rejected during quality assurance or quality control review, therefore the feature numbers may not be continuous.

The wetlands delineated during the field surveys, their acreage, and the datapoint(s) associated with each delineated wetland are summarized in Table 1. All the delineated wetlands are PEM wetlands as defined in Cowardin et al. (1979). Some of these wetlands extend beyond the survey area boundary; only the acreages within the survey area boundary are summarized in Table 1. The wetland feature identification numbers listed in Table 1 correspond to the wetland feature identification numbers shown on the results maps in Appendix A.

Table 1. Acreages and Associated Datapoints of Wetlands Delineated in the Survey Area

Wetland Name	Wetland Acreage (acres)	Wetland Datapoint(s)	Upland Datapoint(s)
WET100	0.066	DP100	DP101
WET101	0.361	DP102	DP103

Additional datapoint information associated with the datasheets in Appendix B is provided in Table 2, including location, soil map unit, and the NWI polygon that is intersected with the point, if applicable.

Table 2. Additional Datapoint Information

Datapoint Number	Latitude	Longitude	Section	Township, Range	NWI Polygon	Soil Map Unit
DP100	46.864890	-96.989918	10	T139N, R50W	None	Fargo-Hegne silty clays, 0 to 1 percent slopes
DP101	46.894898	-96.989877	10	T139N, R50W	None	Fargo-Hegne silty clays, 0 to 1 percent slopes
DP102	46.864802	-96.996127	9	T139N, R50W	PEM1C	Dovray silty clay, 0 to 1 percent slopes
DP103	46.864819	-96.996055	9	T139N, R50W	None	Dovray silty clay, 0 to 1 percent slopes

3.2.1 Wetland Vegetation

All the wetlands delineated were dominated by emergent vegetation. Dominant emergent vegetation included hybrid cattail (*Typha x glauca*), reed canarygrass (*Phalaris arundinacea*), and common reed (*Phragmites australis*).

3.2.2 Wetland Soils

Wetland datapoint hydric soil indicators observed were Depleted Below Dark Surface (A11) and Thick Dark Surface (A12).

3.2.3 Wetland Hydrology

The primary wetland hydrology indicators were Saturation (A3), Surface Water (A1), and High Water Table (A2). Secondary indicators were Geomorphic Position (D2) and FAC-Neutral Test (D5).

According to National Weather Service preliminary climatological data for Jamestown, North Dakota (approximately 79 miles west of the Project area), 2.56 inches of precipitation were recorded from March 1 through May 31, 2020 (Table 3). This amount is 2.14 inches below normal for this time period.

Table 3. Monthly Recorded Rainfall at National Weather Service Station in Jamestown, North Dakota

Month	Recorded Precipitation (inches)	Normal Precipitation (inches)	Difference (inches)
March 2020	0.05	0.84	-0.79
April 2020	0.30	1.20	-0.90
May 2020	2.21	2.66	-0.45
Total	**2.56**	**4.70**	**-2.14**

Source: National Oceanic and Atmospheric Administration (2020).

3.3 Waterbodies

No waterbodies with OHWMs were identified within the survey area.

3.4 Project Area Soils

Based on NRCS mapping (NRCS 2020), five soil types are present in the Project area (see Appendix A). All mapped soil units within the Project area are listed in Table 4. The following soil component descriptions represent the most prevalent soil series found within the Project area.

Table 4. Mapped Soil Types within the Project Area

Soil Name	Acreage within Project Area	Percentage of Project Area
Fargo-Hegne silty clays, 0 to 1 percent slopes	14.6	83.7
Overly-Bearden silt loams, 0 to 2 percent slopes	1.5	8.6
Bearden silty clay loam, 0 to 2 percent slopes	0.5	3.1
Fargo silty clay, depressional, 0 to 1 percent slopes	0.5	2.6
Dovray silty clay, 0 to 1 percent slopes	0.3	1.9
Total	**17.5**	**100.0**

Note: Totals may not be exact due to rounding.

3.4.1 Fargo

The Fargo series consists of very deep, poorly drained, slowly permeable soils found on glacial lake plains, floodplains, and gently sloping side slopes of streams within glacial lake plains. The soil slopes range between 0 and 2 percent. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 16 inches and the mean annual air temperature is approximately 41°F. Soils are cropped to corn, small grains, soybeans (*Glycine max*), and sugar beets (*Beta vulgaris*). The most common native vegetation species found on this soil type are western wheatgrass (*Pascopyrum smithii*), Kentucky bluegrass (*Poa pratensis*), and a variety of forbs (NRCS 2020).

3.4.2 Bearden

The Bearden soil series consists of very deep, somewhat poorly drained soils found in glacial lake plains. These soils are moderately to slowly permeable. The slope ranges from 0 to 3 percent. The mean annual precipitation found throughout the spatial extent of this soil type is 18 inches and the mean annual air temperature is 39°F. Soils are cropped to small grains and row crops such as sugar beets. The native vegetation is principally big bluestem (*Andropogon gerardii*), switchgrass (*Panicum virgatum*), western wheatgrass, and a variety of forbs (NRCS 2020).

3.5 Noxious Weeds

The North Dakota Century Code (Chapter 4.1-47) and the North Dakota Department of Agriculture recognize 13 species as noxious, as shown in Table 5 (North Dakota Department of Agriculture [NDDA] 2020). Each county has the authority to add additional species to their list of noxious weeds. Cass County does not list any additional noxious weeds beyond those listed by the State of North Dakota (NDDA 2020).

No noxious weeds were observed during the field surveys.

Table 5. North Dakota Noxious Weeds List

Common Name	Scientific Name
Absinth wormwood	*Artemisia absinthium* L.
Canada thistle	*Cirsium arvense* (L.) Scop.
Dalmatian toadflax	*Linaria dalmatica*
Diffuse knapweed	*Centaurea diffusa Lam.*
Houndstongue	*Cynoglossum officinale*
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	*Rhaponticum repens*
Saltcedar	*Tamarix* spp.
Spotted knapweed	*Centaurea stoebe*
Yellow toadflax	*Linaria vulgaris*

3.6 Tree, Sapling, and Shrub Count

During the field survey, an SWCA biologist recorded all trees, saplings, or shrubs with a DBH up to and greater than 1 inch. Five peach-leaf willow (*Salix amygdaloides*) shrubs were geographically referenced within the survey area. The peach-leaf willow shrubs occur within wetland WET101, which will be crossed via HDD and will not be impacted by construction. Therefore, no trees, saplings, or shrubs will need to be replanted to fulfill the NDPSC mitigation requirement (NDPSC 2020).

3.7 Wildlife, Including Threatened and Endangered Species

The IPaC (USFWS 2020b) identifies two federally listed species as having the potential to occur within the Project area: northern long-eared bat (*Myotis septentrionalis*; threatened) and whooping crane (*Grus americana*; endangered). Review of the USFWS Critical Habitat Portal (USFWS 2020c) indicates that critical habitat for threatened and endangered species has not been designated in Cass County. SWCA conducted a cursory threatened and endangered species habitat survey concurrently with the aquatic resources delineation. Additionally, SWCA assessed the Project area for the presence of migratory bird nesting habitat, as well as habitat that could be used by nesting bald or golden eagles. SWCA also conducted 0.5-mile line-of-sight surveys for bald and golden eagle nests or other raptor nests.

SWCA's biologist did not observe any primary (i.e., actual sighting) or secondary (i.e., tracks, scat, fur) indication of the presence of threatened or endangered species. The Project area lacks suitable habitat for both the northern long-eared bat and the whooping crane; therefore, the Project is not expected to result in impacts to either species. These species, their habitats, and their potential to occur in the Project area are described below.

3.7.1 Northern Long-eared Bat

The federally threatened northern long-eared bat range extends throughout most of southern Canada, as well as the eastern and midwestern United States (excluding parts of the southeast United States) and is

primarily associated with North American forests (USFWS 2018a). The northern long-eared bat hibernates during winter months in caves and mines with constant temperatures and very high humidity (USFWS 2019a). Summer habitat for the northern long-eared bat consists of forested areas with trees greater than 3 inches DBH (USFWS 2019a). Northern long-eared bats roost in live trees and/or snags that have exfoliating bark, cracks, crevices, and/or cavities (USFWS 2020d). The species typically forages in forest interiors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure (USFWS 2020d). Northern long-eared bats also may roost in human-made structures such as buildings, barns, bridges, and bat houses (USFWS 2019b).

The USFWS lists the northern long-eared bat as possibly present in Cass County, indicating that Cass County is within the range of the species and may contain suitable habitat. However, the species is considered rare in North Dakota and has only been identified in a few locations in the state. The species has been recorded in forested habitat in the Turtle Mountains approximately 187 miles northwest of the survey area, and in the riparian corridors of the Little Missouri and Missouri Rivers approximately 169 miles west of the survey area at the closest (Dyke et al. 2015). To date, no hibernacula have been identified in North Dakota (Dyke et al. 2015). The closest known hibernacula to the survey area occur near the Mississippi River in Stearns, Benton, and Sherburne Counties, Minnesota, approximately 155 miles southeast of the survey area (Minnesota Department of Natural Resources 2019). The closest known maternity roost trees occur in the northeast corner of Becker County and the southeast corner of Clearwater County, Minnesota, approximately 82 miles northeast of the survey area.

Northern long-eared bats are considered a forest interior species. A study of northern long-eared bats within a managed forest in West Virginia found that this species forages in areas with forest patch sizes between 114 and 161 acres (Owen et al. 2003). Research conducted in Michigan and Prince Edward Island, Canada, within a landscape dominated by agricultural activity showed that northern long-eared bats may use woodlots as small as 15 acres (Foster and Kurta 1999; Henderson and Broders 2008).

Field surveys indicate that no trees are present within the Project area; therefore, roosting habitat for the northern long-eared bat does not exist within the Project area. Suitable roost trees were observed adjacent to the Project area, and suitable foraging habitat is present along the wetlands within the Project area that may be used by northern long-eared bats. However, since no suitable roost trees are present within the Project area, **no unauthorized take is anticipated** for the northern long-eared bat.

3.7.2 Whooping Crane

The whooping crane was listed as federally endangered in 1967 (USFWS 2018b). The USFWS indicates that North Dakota is within the whooping crane migration corridor and that the species may stop over in suitable habitat, including cropland and pastures, wet meadows, shallow marshes, and waterbodies (USFWS 2010).

The 95% whooping crane migration corridor is an area that describes 95% of all whooping crane sightings recorded during seasonal migrations from Aransas National Wildlife Refuge in Texas to Wood Buffalo National Park in Alberta, Canada (as delineated by Pearse, Rabbe, Bidwell et al. 2018 and Pearse, Rabbe, Juliusson et al. 2018). The Project area is approximately 50 miles east, and outside, of the 95% core migration corridor at its closest point, which indicates that it is relatively less likely for the species to be present within the survey area than in areas closer to the migration corridor. Review of the USFWS Whooping Crane Tracking Project Database did not return any whooping crane observation records within the Project area. The closest whooping crane observation is from spring 1976, approximately 23 miles southwest of the Project area (USFWS 2019c).

Field surveys indicate that agricultural land and wetlands within the Project area and vicinity could provide potentially suitable stopover habitat for the whooping crane. However, as the Project area is outside of the whooping crane migration corridor, the potential for occurrence of the whooping crane as an overhead migrant within the Project area is low during spring and fall and is not expected during summer or winter. SWCA recommends that if a whooping crane(s) is sited within 1.0 mile of the project area, NuStar will stop construction until the whooping crane(s) leaves the area and notify the USFWS of the sighting. Therefore, **no unauthorized take is anticipated** for the whooping crane.

3.7.3 Migratory Bird Treaty Act

No raptor nests were identified during the 0.5-mile line-of-sight field surveys. Field surveys indicate that limited suitable habitat for migratory birds exists within the Project area. Most of the Project area consists of cultivated cropland with limited potential for use by nesting migratory birds; however, some limited wetland habitat is present that could be used by migratory birds. NuStar has committed to crossing wetland habitat via HDD; therefore, impacts to migratory birds and/or their nesting habitat are not anticipated. Although limited migratory bird nesting habitat is present within the Project area, several options are available to NuStar to avoid all incidental take during construction of the Project, including the following.

- Complete all construction outside of the migratory bird breeding season, which occurs generally between February 1 and July 15.
- Clear and grub or mow the Project alignment prior to the bird breeding season and maintain vegetation in a degraded state within the Project construction area during the breeding season to deter migratory birds from nesting in the Project area until construction is completed.
- If Project construction commences during the bird breeding season, have a qualified avian biologist conduct a survey of breeding birds in the Project area no more than 5 days before construction begins, and if active nests are discovered, notify the USFWS for further direction.
- If active nests are identified in the Project area, they will be taxonomically identified by a qualified avian biologist to determine if the species are considered migratory. If the species are migratory, a 100-foot set back from active nests will be maintained. Per the recommendation of the USFWS, no ground clearing may commence within a setback area, including mowing, until the identified nest ceases to be active.

With one of the proposed options listed above followed by NuStar, the proposed Project is **unlikely to cause unauthorized take of any migratory birds or active nests**.

3.7.4 Bald and Golden Eagle Protection Act

The bald eagle primary range within the state includes eastern North Dakota and the Missouri River corridor (Dyke et al. 2015), which includes Cass County. The bald eagle is both a year-round resident, as well as a migrant species, in the state. A 2009 statewide census conducted by the North Dakota Game and Fish Department (NDGFD) documented 66 nests that were thought to be occupied by bald eagles, four of which occurred in Cass County (Johnson 2009), with the majority of nests being located in live cottonwood (*Populus* spp.) trees. The AKN (2020) returned a number of recent bald eagle observations in the vicinity of the Project area: one observation was recorded approximately 1.5 miles east of the Project area in 2017, and one observation was recorded approximately 1.8 miles north of the Project area in 2018. Several other recent observations have been recorded in the vicinity of the West Fargo Water Treatment Plant approximately 2 miles northeast of the Project area between 2017 and 2019. Therefore, the potential exists for bald eagles to pass through the Project area.

Golden eagles favor partially or completely open country, especially around mountains, hills, and cliffs. They use a variety of habitats ranging from arctic to desert, including tundra, shrublands, grasslands, coniferous forests, farmland, and areas along rivers and streams (Cornell Lab of Ornithology 2019). Golden eagles are uncommon in North Dakota and the species' primary and secondary ranges in the state are over 169 miles west of the Project area, from the Missouri River Valley westward (Dyke et al. 2015). Key areas for the golden eagle in the state include the badlands of western North Dakota and the Lake Sakakawea breaks (Dyke et al. 2015). The Project area is within the migration range for this species, and there is potential for golden eagles to pass through the Project area at low frequencies during spring and fall migration (Cornell Lab of Ornithology 2019), though nesting is not likely.

No bald or golden eagles were observed during the field surveys and no trees that could be used for roosting or nesting, or open water features that are large enough to provide potential foraging resources for bald eagles, are present within the Project area. Golden eagles would only be expected to occur during spring and fall migration with a low potential for occurrence during summer and winter. Due to the lack of suitable nesting habitat for bald and golden eagles within the Project area, these species are only expected to occasionally pass through the Project area. Therefore, **no unauthorized take is anticipated** for bald or golden eagles.

3.7.5 Wildlife Observed

During the field surveys, SWCA biologists observed various wildlife species within the Project area (Table 6). Common wildlife species may be affected both directly through incidents with construction equipment or indirectly through the temporary fragmentation of habitat as a result of construction activities.

Table 6. Wildlife Observed during Field Surveys of the Project Area

Common Name	Scientific Name	Observation Type
American crow	*Corvus brachyrhynchos*	Primary
American robin	*Turdus migratorius*	Primary
Red-winged blackbird	*Agelaius phoeniceus*	Primary

4 CONCLUSIONS AND RECOMMENDATIONS

- SWCA delineated approximately 0.427 acre of wetlands within the Project area. Because NuStar has committed to cross the wetlands via HDD, no permanent impacts are anticipated during construction.
- SWCA recorded five peach-leaf willow shrubs within the survey area. The peach-leaf willow shrubs occur within wetland WET101, which will be crossed via HDD and will not be impacted by construction. Therefore, no trees, saplings, or shrubs will need to be replanted to fulfill the NDPSC tree and shrub mitigation requirement.
- No threatened or endangered species were observed during the field surveys, though specific occupancy surveys were not conducted.
- The Project area is outside of the delineated 95% migration corridor for the whooping crane. Therefore, no unauthorized take of the whooping crane is anticipated. SWCA recommends that if construction is to occur within whooping crane spring and fall migration periods, and a whooping crane is observed within 1 mile of the Project area, to stop construction until the whooping crane(s) have left the area and to notify the USFWS at 701-250-4481 of the sighting.

- No roosting habitat was observed for the northern long-eared bat. Therefore, no unauthorized take of the northern long-eared bat is anticipated.
- Migratory birds were observed during the field surveys within the Project area; however, only limited migratory bird nesting habitat was identified within the Project area. A 0.5-mile line-of-sight survey for raptor nests was conducted throughout the Project area. No raptor nests were observed during the survey.
- To avoid unauthorized take of migratory birds, SWCA recommends conducting all construction outside of the migratory bird breeding season (February 1–July 15). If construction occurs during the bird breeding season, SWCA recommends to either mow, maintain in a degraded state, or completely remove vegetation within the Project area, where necessary, or conduct an avian survey of the Project area no more than 5 days before construction begins. If active nests are discovered, either notify the USFWS for further direction or the nests will be taxonomically identified by a qualified avian biologist to determine if the species are considered migratory. If the species are migratory, a 100-foot set back from active nests will be maintained. Per the recommendation of the USFWS, no ground clearing may commence within the setback area, including mowing, until the identified nest ceases to be active.
- No areas of noxious weeds were identified in the Project area. If noxious weeds are confirmed during construction activities, actions should be taken to reduce the potential to spread any state-listed noxious weed species.

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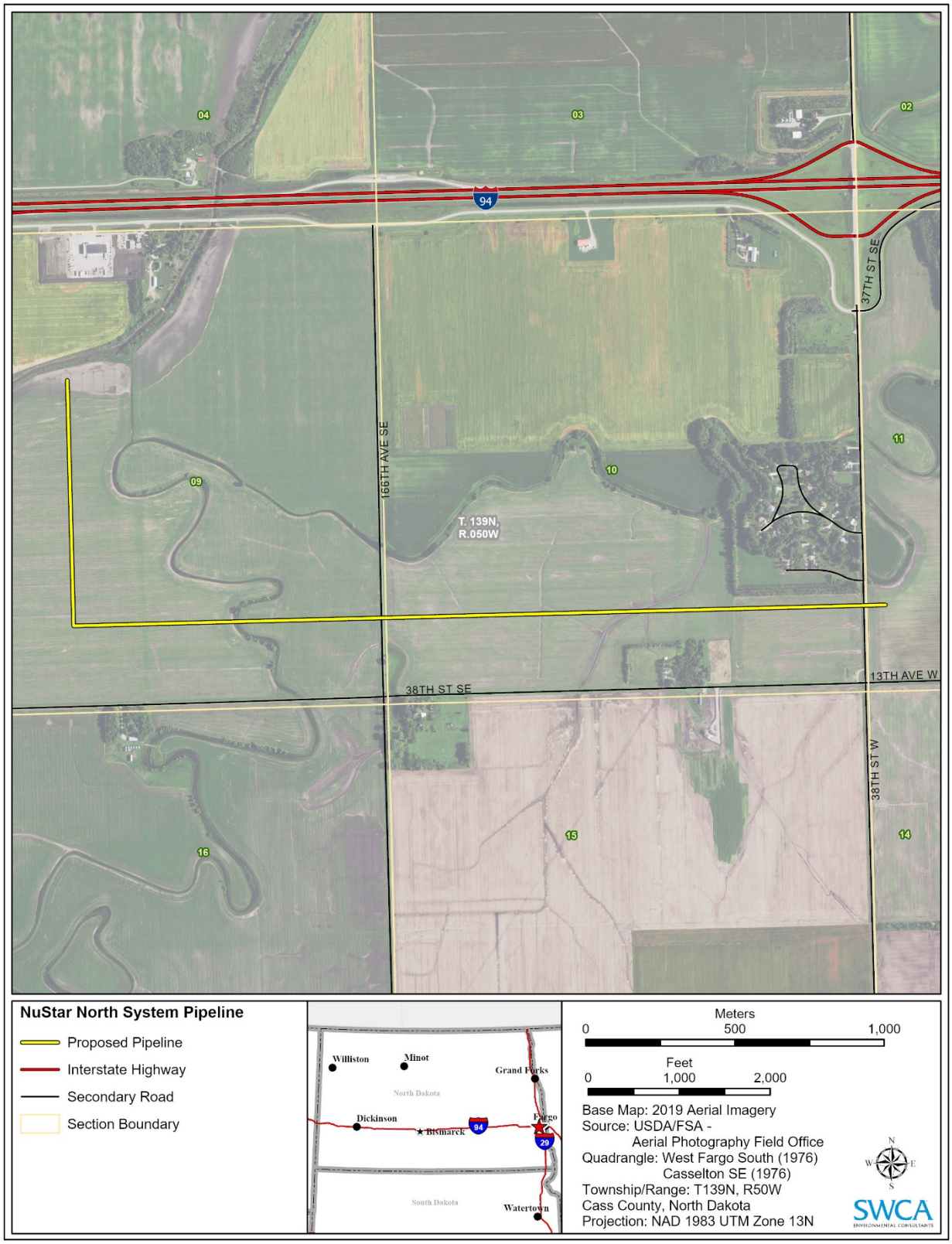
APPENDIX A

Overview and Survey Results Maps



NuStar North System Pipeline

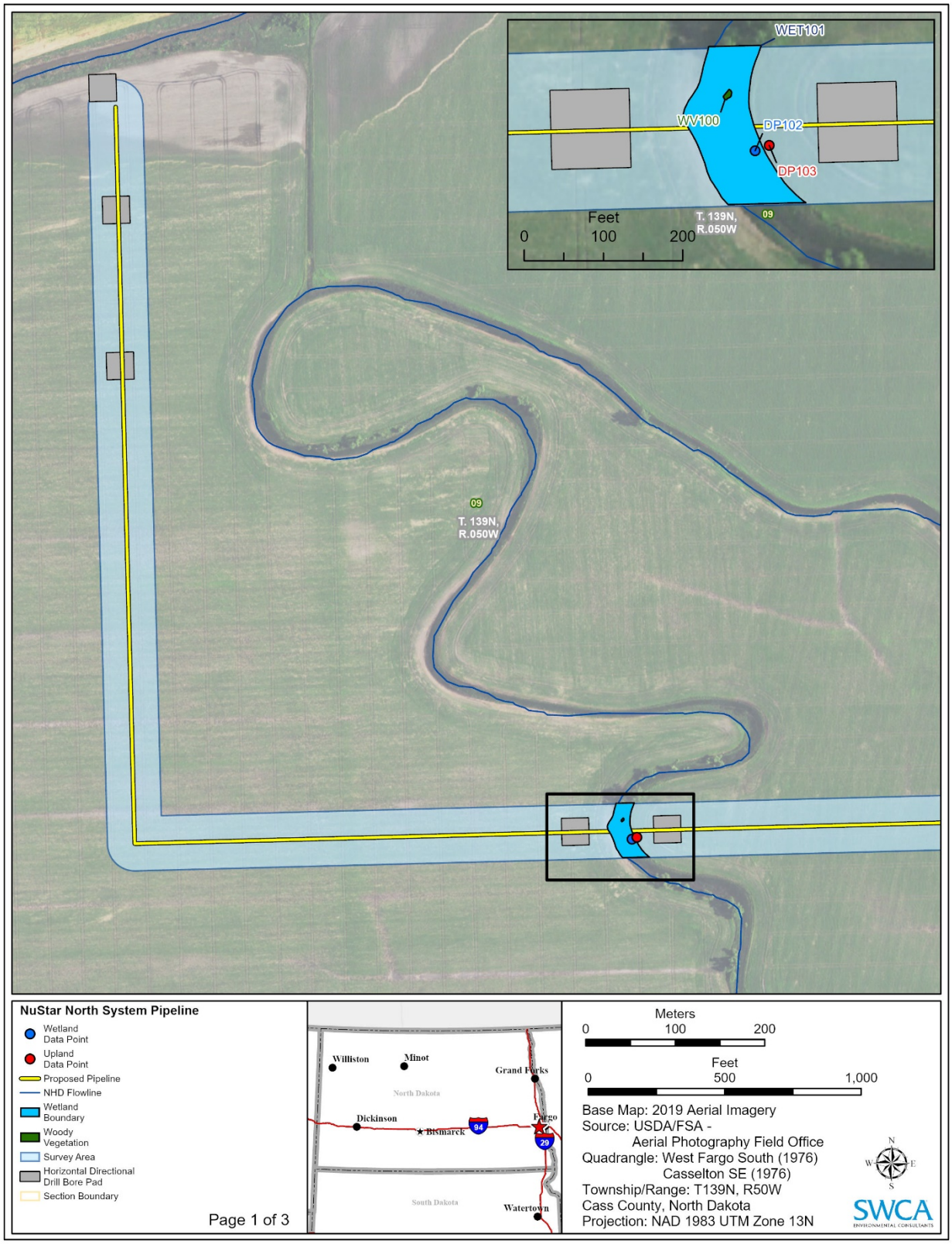
- Proposed Pipeline
- Interstate Highway
- Secondary Road
- Section Boundary

Meters
0 500 1,000

Feet
0 1,000 2,000

Base Map: 2019 Aerial Imagery
Source: USDA/FSA -
Aerial Photography Field Office
Quadrangle: West Fargo South (1976)
Casselton SE (1976)
Township/Range: T139N, R50W
Cass County, North Dakota
Projection: NAD 1983 UTM Zone 13N

SWCA
ENVIRONMENTAL CONSULTANTS



NuStar North System Pipeline

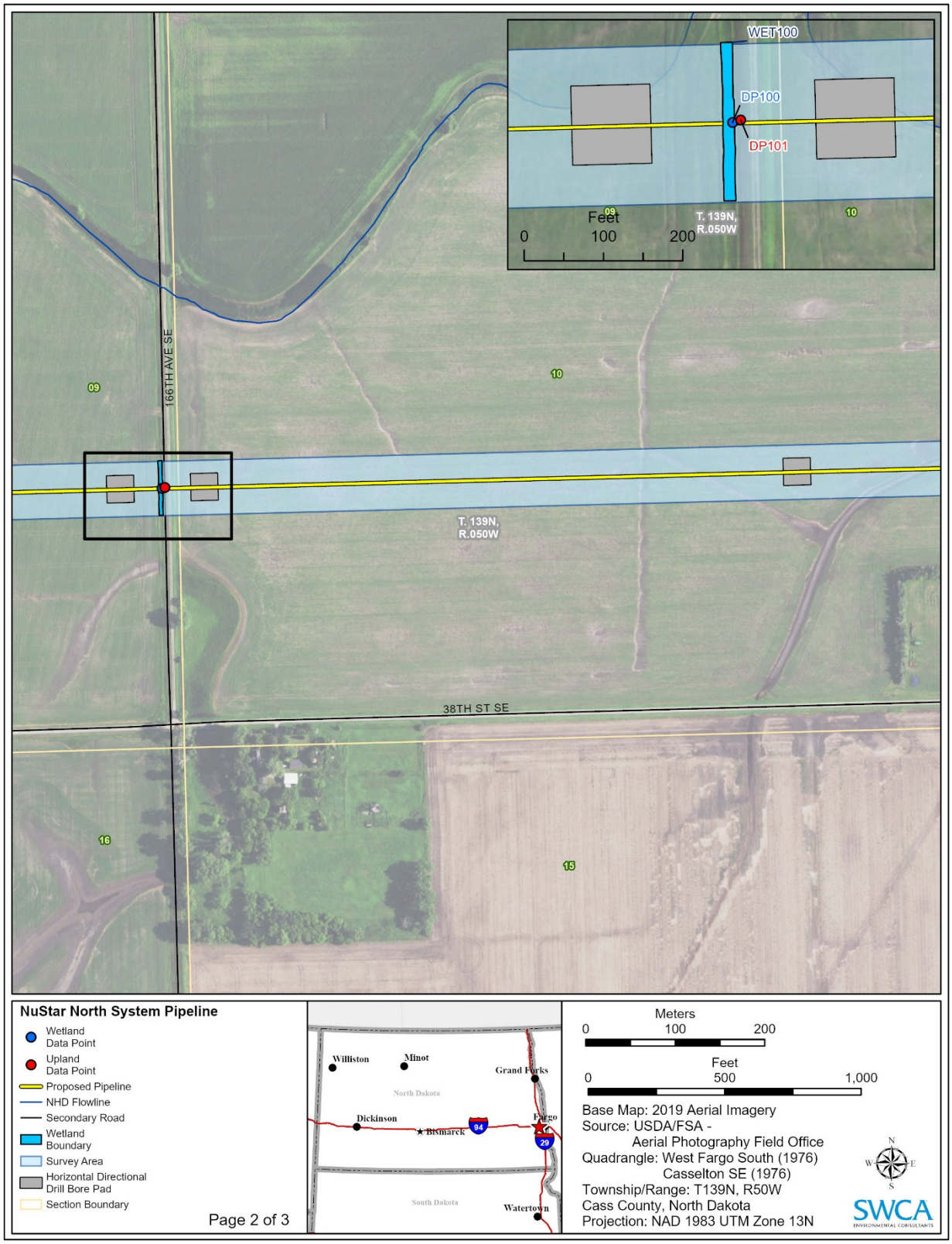
- Wetland Data Point
- Upland Data Point
- Proposed Pipeline
- NHD Flowline
- Wetland Boundary
- Woody Vegetation
- Survey Area
- Horizontal Directional Drill Bore Pad
- Section Boundary

Meters
0 100 200

Feet
0 500 1,000

Base Map: 2019 Aerial Imagery
Source: USDA/FSA -
Aerial Photography Field Office
Quadrangle: West Fargo South (1976)
Casselton SE (1976)
Township/Range: T139N, R50W
Cass County, North Dakota
Projection: NAD 1983 UTM Zone 13N

SWCA
ENVIRONMENTAL CONSULTANTS



NuStar North System Pipeline

- Wetland Data Point
- Upland Data Point
- Proposed Pipeline
- NHD Flowline
- Secondary Road
- Wetland Boundary
- Survey Area
- Horizontal Directional Drill Bore Pad
- Section Boundary

Meters
0 100 200

Feet
0 500 1,000

Base Map: 2019 Aerial Imagery
Source: USDA/FSA -
Aerial Photography Field Office
Quadrangle: West Fargo South (1976)
Casselton SE (1976)
Township/Range: T139N, R50W
Cass County, North Dakota
Projection: NAD 1983 UTM Zone 13N

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NuStar North System Pipeline

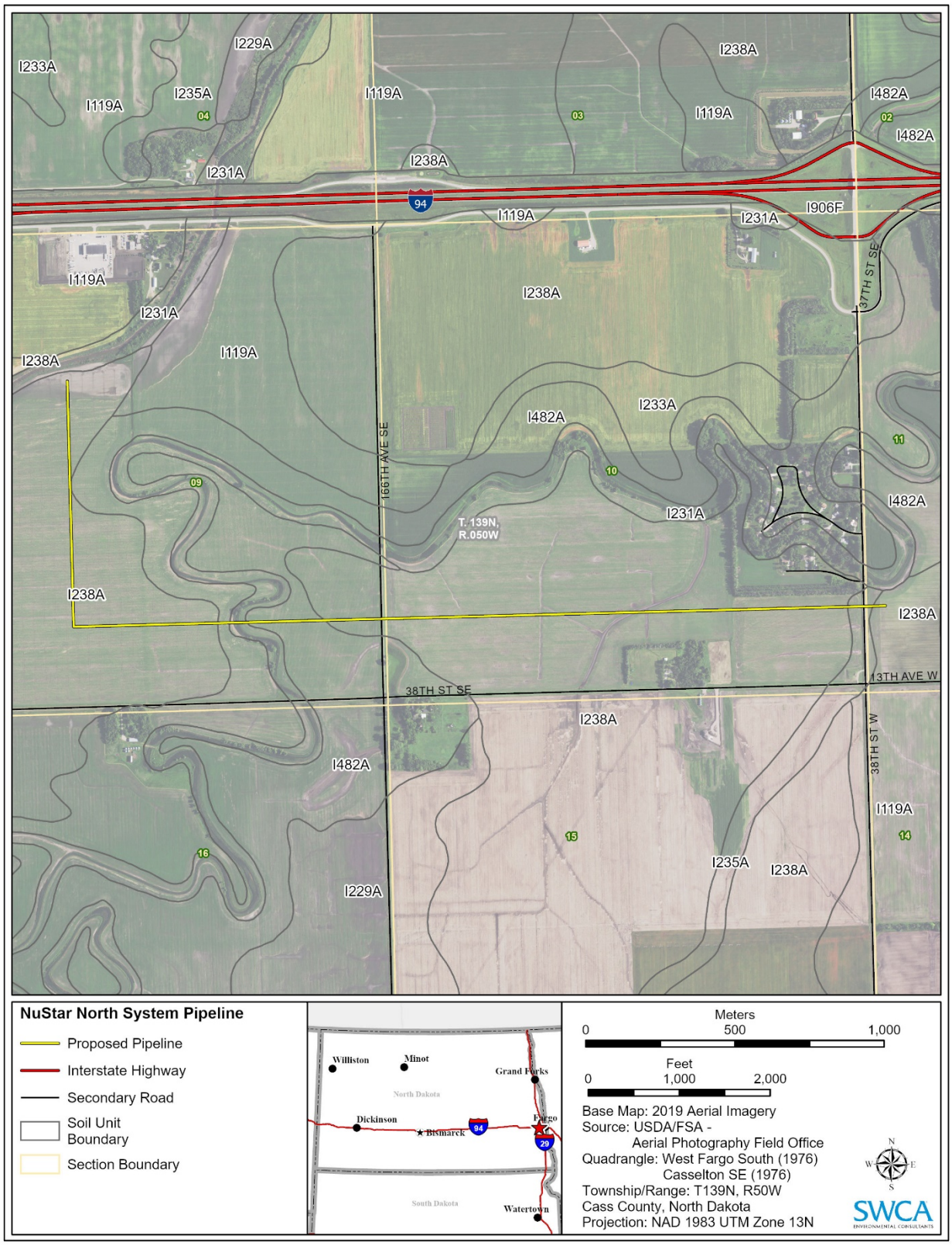
- Proposed Pipeline
- NHD Flowline
- Secondary Road
- Survey Area
- Horizontal Directional Drill Bore Pad
- Section Boundary

Meters
0 100 200

Feet
0 500 1,000

Base Map: 2019 Aerial Imagery
Source: USDA/FSA - Aerial Photography Field Office
Quadrangle: West Fargo South (1976), Casselton SE (1976)
Township/Range: T139N, R50W
Cass County, North Dakota
Projection: NAD 1983 UTM Zone 13N

SWCA ENVIRONMENTAL CONSULTANTS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15
16
166TH AVE SE
37TH ST SE
38TH ST SE
38TH ST W
13TH AVE W
T. 139N,
R.050W
NuStar North System Pipeline
Proposed Pipeline
Interstate Highway
Secondary Road
Soil Unit Boundary
Section Boundary
Williston
Minot
Grand Forks
North Dakota
Dickinson
Bismarck
Fargo
29
South Dakota
Watertown
Meters
0
500
1,000
Feet
0
1,000
2,000
Base Map: 2019 Aerial Imagery
Source: USDA/FSA -
Aerial Photography Field Office
Quadrangle: West Fargo South (1976)
Casselton SE (1976)
Township/Range: T139N, R50W
Cass County, North Dakota
Projection: NAD 1983 UTM Zone 13N
N
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ENVIRONMENTAL CONSULTANTS

APPENDIX B

Datapoint Datasheets

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: NuStar North System FM Diversion Pipeline City/County: Cass County Sampling Date: 5/14/2020
Applicant/Owner: NuStar Logistics, L.P. State: ND Sampling Point: DP100
Investigator(s): Reagan Section, Township, Range: , ,
Landform (hillslope, terrace, etc.): drainageway Local relief (concave, convex, none): Linear Slope Slope (%): <5%
Subregion (LRR): F Lat: Long: Datum: NAD83
Soil Map Unit Name: NWI classification:
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 Yes , 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:
Wetland within a roadside ditch.

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. *Typha X glauca*	50%	Y	OBL
2. *Phalaris arundinacea*	50%	Y	FACW
3.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

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	50%	x 1	50.0%
FACW species	50%	x 2	100.0%
FAC species	0%	x 3	0.0%
FACU species	0%	x 4	0.0%
UPL species	0%	x 5	0.0%
Column Totals:	100.0% (A)		150% (B)

Prevalence Index = B/A = 1.50

Hydrophytic Vegetation Indicators:

Y 1 - Rapid Test for Hydrophytic Vegetation
Y 2 - Dominance Test if >50%
Y 3 - Prevalence Index is ≤ 3.0
N 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
N 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:

Sampling Point: DP100

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:
0-6	10YR 2/1	100%					Clay Loam	
6-18	2.5Y 5/2	70%	5GY 5/1	30%	D	M	Clay	

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)
- ___ 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: Clay

Depth (inches): 6

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)
- ___ 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)
- 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): 2
Water Table Present?	Yes	X	No	___	Depth (inches): 0
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:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: NuStar North System FM Diversion Pipeline City/County: Cass County Sampling Date: 5/14/2020
Applicant/Owner: NuStar Logistics, L.P. State: ND Sampling Point: DP101
Investigator(s): Reagan Section, Township, Range: , ,
Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Linear Slope Slope (%): <5%
Subregion (LRR): F Lat: Long: Datum: NAD83
Soil Map Unit Name: NWI classification:
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 Yes , 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:
Roadside area built up with fill.

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. *Bromus inermis*	90%	Y	UPL
2. *Trifolium hybridum*	10%	N	FACU
3.			
	100%	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (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	10%	x 4	40.0%
UPL species	90%	x 5	450.0%
Column Totals:	100.0% (A)		490% (B)

Prevalence Index = B/A = 4.90

Hydrophytic Vegetation Indicators:

N 1 - Rapid Test for Hydrophytic Vegetation
2 - Dominance Test if >50%
3 - Prevalence Index is ≤ 3.0
N 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
N 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:

Sampling Point: DP101

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:
0-20	10YR 2/1	100%					Clay Loam	
20-24	2.5Y 5/2	100%					Clay	

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: Clay

Depth (inches): 20

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:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: NuStar North System FM Diversion Pipeline City/County: Cass County Sampling Date: 5/14/2020
Applicant/Owner: NuStar Logistics, L.P. State: ND Sampling Point: DP102
Investigator(s): Reagan Section, Township, Range: , ,
Landform (hillslope, terrace, etc.): drainageway Local relief (concave, convex, none): Concave Slope (%): <5%
Subregion (LRR): F Lat: Long: Datum: NAD83
Soil Map Unit Name: NWI classification:
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:
Palustrine emergent wetland within drainage. Algal communities present due to nutrient runoff from surrounding agricultural watershed.

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. *Typha X glauca*	90%	Y	OBL
2. *Phalaris arundinacea*	20%	N	FACW
3. *Phragmites australis*	7%	N	FACW
4.			
	117%	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (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	90%	x 1	90.0%
FACW species	27%	x 2	54.0%
FAC species	0%	x 3	0.0%
FACU species	0%	x 4	0.0%
UPL species	0%	x 5	0.0%
Column Totals:	117.0% (A)		144% (B)

Prevalence Index = B/A = 1.23

Hydrophytic Vegetation Indicators:

Y 1 - Rapid Test for Hydrophytic Vegetation
Y 2 - Dominance Test if >50%
Y 3 - Prevalence Index is ≤ 3.0
N 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
N 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:

Sampling Point: DP102

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:
0-14	10YR 2/1	100%					Clay Loam	
14-22	2.5Y 5/2	85%	5GY 5/1	15%	D	M	Clay	

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)
- 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: Clay

Depth (inches): 14

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)
- ___ 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	X	No	___	Depth (inches): 5
Water Table Present?	Yes	X	No	___	Depth (inches): 0
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:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: NuStar North System FM Diversion Pipeline City/County: Cass County Sampling Date: 5/14/2020
Applicant/Owner: NuStar Logistics, L.P. State: ND Sampling Point: DP103
Investigator(s): Reagan Section, Township, Range: , ,
Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): None Slope (%): <5%
Subregion (LRR): F Lat: Long: Datum: NAD83
Soil Map Unit Name: NWI classification:
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:
Cornfield.

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. *Dactylis glomerata*	3%	Y	FACU
2. *Taraxacum officinale*	2%	Y	FACU
3.			
	5%	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
	= Total Cover		

% Bare Ground in Herb Stratum 95.00%

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	5%	x 4	20.0%
UPL species	0%	x 5	0.0%
Column Totals:	5.0% (A)		20% (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

N 1 - Rapid Test for Hydrophytic Vegetation
2 - Dominance Test if >50%
3 - Prevalence Index is ≤ 3.0
N 4 - Morphological Adaptations (Provide supporting data in Remarks or on a seperate sheet)
N 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: Recently plowed cornfield

Sampling Point: DP103

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:
0-24	10YR 3/1	100%					Clay Loam	
24-28	2.5Y 5/2	100%					Clay	

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: Clay

Depth (inches): 24

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks: No hydric soils present.

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 X	No ___	Depth (inches):	20	**Wetland Hydrology Present?** **Yes** ___ **No** **X**
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches):	22	

Describe Recorded Data (stream guage, monitoring well, aerial photos, previous inspections), if available:

Remarks: No wetland hydrology indicators present.

APPENDIX C

Photographs

Figure C-1. Overview of datapoint DP100, facing east from DP100 (46.864890, -96.989918).
Photograph taken May 14, 2020.

Figure C-2. Soil profile of DP100 (46.864890, -96.989918).
Photograph taken May 14, 2020.

Figure C-3. Vegetation at datapoint DP100 (46.864890, -96.989918).
Photograph taken May 14, 2020.

Figure C-4. Vegetation at datapoint DP101 (46.894898, -96.989877).
Photograph taken May 14, 2020.

Figure C-5. Soil profile of DP101 (46.894898, -96.989877).
Photograph taken May 14, 2020.

Figure C-6. Overview of datapoint DP102, facing east from DP102 (46.864802, -96.996127).
Photograph taken May 14, 2020.

Figure C-7. Soil profile of DP102 (46.864802, -96.996127).
Photograph taken May 14, 2020.

Figure C-8. Vegetation at datapoint DP102 (46.864802, -96.996127).
Photograph taken May 14, 2020.

Figure C-9. Soil profile of datapoint DP103 (46.864819, -96.996055).
Photograph taken May 14, 2020.

Figure C-10. Vegetation at DP103 (46.864819, -96.996055).
Photograph taken May 14, 2020.

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APPENDIX E

AGENCY CORRESPONDENCE

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Bismarck Office
116 North 4th Street, Suite 200
Bismarck, North Dakota 58501
701.258.6622
701.258.5957
www.swca.com

May 27, 2020

{Name}
{Agency}
{Street}
{City, State, Zip}

Re: NuStar North System Pipeline Relocation Project
Cass County, North Dakota

Dear {Name}:

NuStar Pipeline Operating Partnership L.P. (NuStar) is proposing the North System Pipeline Relocation project (Project) that will consist of a 10-inch diameter, approximately 2.21-mile-long welded steel pipeline that will relocate the portion of NuStar's existing North System Pipeline that will be impacted by construction of the Fargo-Moorhead Diversion Channel in Cass County, North Dakota. As shown on the enclosed Project Location Map, the pipeline relocation route will go directly south from its starting point for approximately 2,750 feet then turn east and go for approximately 8,945 feet to its endpoint. The entire segment that will be taken out of service by the relocation pipeline will be completely purged clean of any petroleum products, capped, and abandoned in place, except for the segment directly impacted by construction of the Diversion Channel and Drain 14. The Project analysis area is a one-mile wide corridor centered on the pipeline centerline that encompasses the following legal locations in North Dakota:

- Cass County – Sections 9, 10, and 11, Township 139 North, Range 50 West

The Project is scheduled to begin construction in the fall of 2020.

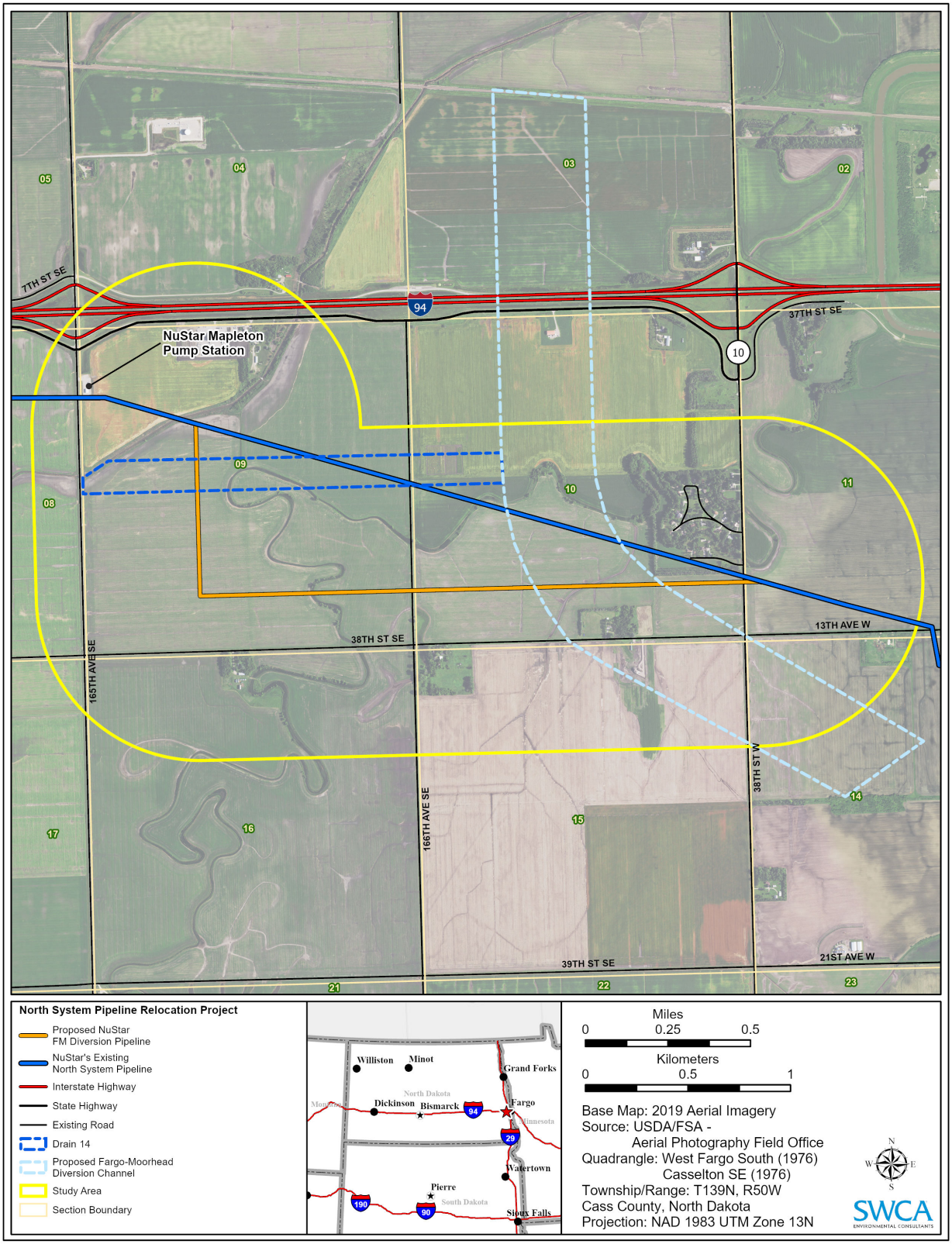
SWCA Environmental Consultants is notifying the {Agency} of the proposed Project and offering the opportunity for comments. Information received from the {Agency} will be used in a North Dakota Public Service Commission application being prepared for the Project. Please send your replies and/or requests for additional project information to:

James W. Dawson, Senior Project Manager
SWCA Environmental Consultants
116 North 4th Street, Suite 200
Bismarck, North Dakota 58501 (701) 258-6622
jdawson@swca.com

Sincerely,

James W. Dawson

James W. Dawson
Enclosure: Project Location Map



Proposed North System Pipeline Relocation Project Location Map

CONSULTATION LETTER AGENCIES

Name	Agency	Street	CITY, STATE ZIP	STATE	ZIP
Kyle C. Wanner	North Dakota Aeronautics Commission	PO Box 5020	Bismarck	ND	58502
Wayne Stenehjem	Attorney General	600 East Boulevard Avenue, Dept 125	Bismarck	ND	58505
Doug Goehring	North Dakota Department of Agriculture	600 E. Boulevard Avenue, Dept 602	Bismarck	ND	58505
David Glatt	North Dakota Department of Environmental Quality	918 Divide Avenue, 4th Floor	Bismarck	ND	58501
Maggie D. Anderson	North Dakota Department of Human Services	600 East Boulevard Avenue, Dept 325	Bismarck	ND	58505-0250
Michelle Kommer	North Dakota Department of Labor	600 East Boulevard Avenue, Dept 406	Bismarck	ND	58505-0340
Wayne Sick	North Dakota Department of Career and Technical Education	600 East Boulevard Avenue, Dept. 270	Bismarck	ND	58505-0610
Shawn Kessel	North Dakota Department of Commerce	1600 E. Century Ave., Suite 2	Bismarck	ND	58503
Gerry Fisher	North Dakota Energy Infrastructure and Impact Office	1707 North 9th Street	Bismarck	ND	58506-5523
Terry Steinwand	North Dakota Game & Fish Department	100 N. Bismarck Expressway	Bismarck	ND	58501
Lynn Helms	NDIC Oil and Gas Division	600 East Boulevard Avenue, Dept 405	Bismarck	ND	58505-0840
Doug Burgum	State Capitol 14th Floor	600 East Boulevard Avenue, Dept 405	Bismarck	ND	58505-0840
Tom Sorel	North Dakota Department of Transportation	608 East Boulevard Avenue	Bismarck	ND	58505-0700
Claudia J. Berg	State Historical Society of North Dakota	612 East Boulevard Avenue	Bismarck	ND	58505-0830
Scott Davis	North Dakota Indian Affairs Commission	600 East Boulevard Avenue	Bismarck	ND	58505-0300
Michelle Kommer	Job Service North Dakota	PO Box 5507	Bismarck	ND	58506-5507
Jodi A. Smith	North Dakota State Trust Lands Department	1707 North 9th Street	Bismarck	ND	58506-5523
Melissa Baker	North Dakota Parks and Recreation Department	1600 East Century Avenue, Suite 3	Bismarck	ND	58503
Barton Schott	North Dakota State Soil Conservation Committee	2718 Gateway Avenue, Suite 104	Bismarck	ND	58503
Garland Erbele	North Dakota State Water Commission	900 East Boulevard Avenue	Bismarck	ND	58505
Sandi Tabor	North Dakota Transmission Authority	600 E Boulevard Ave. Dept. 405	Bismarck	ND	58505-0840
Justin Kringstad	North Dakota Pipeline Authority	600 E. Boulevard Ave. Dept. 405	Bismarck	ND	58505-0840
Chief Missile Engineer	U.S. Department of Defense, Minot AFB	320 Peacekeeper PL	Minot AFB	ND	58705
Al Sapa	U.S. Fish and Wildlife Service	3425 Miriam Avenue	Bismarck	ND	58501
U.S. Army Corps of Engineers	U.S. Army Corps of Engineers, North Dakota Regulatory Office	1513 South 12th Street	Bismarck	ND	58504
Laurie Suttmeier	U.S Federal Aviation Administration	2301 University Drive	Bismarck	ND	58504
Nick Chevance	U.S. National Park Service	601 Riverfront Drive	Omaha	NE	68102
Kelly McPhillips	U.S. Bureau of Reclamation, Great Plains Region	P.O. Box 1017	Bismarck	ND	58502
Senator Gary A. Lee	North Dakota Legislature	P.O. Box 3	Casselton	ND	58012-0003
Representative Michael Howe	North Dakota Legislature	1011 Westport Parkway	West Fargo	ND	58078-8291
Representative Brandy Pyle	North Dakota Legislature	P.O. Box 337	Casselton	ND	58012-0337
Chad M. Peterson	Cass County Board of County Commissioners	Cass County Courthouse, 211 9th Street S	Fargo	ND	58103
John Rutten	Mapleton Township Board of Supervisors	Cass County Courthouse, 211 9th Street S	Fargo	ND	58103
Bob Staloch	Mapleton Township Zoning Administrator	Cass County Courthouse, 211 9th Street S	Fargo	ND	58103
Dan Jacobson	Cass County Joint Water Resource District	1201 Main Ave. W.	West Fargo	ND	58078
Bernie Dardis	West Fargo City Commission	800 Fourth Ave. E., Suite 1	West Fargo	ND	58078
Tom McDougall	West Fargo Planning and Zoning Commission	800 Fourth Ave. E., Suite 1	West Fargo	ND	58078

NORTH Dakota | Mineral Resources
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June 11, 2020

James W. Dawson
SWCA Environmental Consultants
116 North 4th Street, Suite 200
Bismarck, ND 58501

Re: Proposed NuStar North System Pipeline Relocation Project

The North Dakota Geological Survey appreciates the notification and opportunity to review and provide comment on the proposed pipeline project. We reviewed the alignment of the planned pipeline route and would not note any concerns with the project at this time.

I would mention that we do have recently completed LiDAR elevation data sets and maps for this project area that you may find of interest.

These are available on our website at: https://www.dmr.nd.gov/ndgs/lidar/

If there are any additional questions or comments, please contact us at (701) 328-8000.

Sincerely,

North Dakota Geological Survey:

Fred Anderson

Fred Anderson
Geologist
fjanderson@nd.gov

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Bismarck Office
116 North 4th Street, Suite 200
Bismarck, ND 58501
701.258.6622
701.258.5957
www.swca.com

July 13, 2020

Mr. Fred Anderson
North Dakota Geological Survey
600 E Boulevard Avenue, Department 405
Bismarck, North Dakota 58505-0840
Submitted via email: fjanderson@nd.gov

Re: NuStar North System Pipeline Relocation Project

Dear Mr. Anderson:

On behalf of NuStar Pipeline Operating Partnership, LP, thank you for your letter of June 11, 2020, regarding the North Dakota Geological Survey's review of the proposed alignment for the referenced project and noting no concerns about the proposed route.

I will review the recently completed LiDAR elevation data sets and maps for the project area and appreciate your reference to that new data.

Sincerely,

James W. Dawson, PG, CHMM
Senior Project Manager

June 10, 2020

James Dawson
Senior Project Manager
SWCA Environmental Consultants
116 North 4th Street, Suite 200
Bismarck, ND 58501

Re: NuStar North System Pipeline Relocation Project in Cass County

Dear Mr. Dawson:

The North Dakota Department of Environmental Quality has reviewed the information concerning the above-referenced project received at the department on June 4, 2020 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. 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.

2. Projects disturbing one or more acres are required to have a permit to discharge stormwater runoff until the site is stabilized by the reestablishment of vegetation or other permanent cover. Projects involving temporary dewatering or hydrostatic testing are required to have a permit to discharge. Further information on the stormwater permit and temporary dewatering and hydrostatic testing 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 stormwater management considerations are addressed.

3. 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.

4. 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.

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.

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701.258.5957
www.swca.com

July 13, 2020

Mr. L. David Glatt
North Dakota Department of Environmental Quality
918 East Divide Avenue
Bismarck, North Dakota 58501-1947
Submitted via email: dglatt@nd.gov

Re: NuStar North System Pipeline Relocation Project

Dear Mr. Glatt:

On behalf of NuStar Pipeline Operating Partnership, LP (NuStar), thank you for your letter of June 10, 2020, regarding the North Dakota Department of Environmental Quality's review of the referenced project and the conclusion that environmental impacts from construction of the project will be minor and can be controlled by the use of the proper construction methods outlined in your letter.

NuStar will utilize the horizontal directional drilling (HDD) method for crossing waters of the state (i.e., wetlands and waterbodies) and thus, adverse impacts to those waters will be avoided or minimized. NuStar will obtain a stormwater discharge permit (NDR10-0000) and develop and implement a stormwater pollution prevention plan (SWPPP) for the project that will incorporate the guidelines included in your letter as well as requirements for erosion and sediment controls, petroleum products spill prevention, equipment, and response procedures, waste management (e.g., good housekeeping), and final stabilization to mention a few. The proposed relocation pipeline route and construction methods (e.g., conventional pipe laying and HDD method) were selected to minimize potential impacts to human health and the environment during and after construction. Review of community and non-community source water protection areas and aquifer data obtained from the North Dakota GIS Hub Center indicates that the relocation pipeline route avoids those areas.

If you have any questions or additional input on the project, please do not hesitate to contact me.

Sincerely,

James W. Dawson

James W. Dawson, PG, CHMM
Senior Project Manager

June 15, 2020

James W. Dawson
SWCA
116 N 4th St, Ste 200
Bismarck, ND 58501

ND SHPO Ref.: 20-0382, NuStar North System Pipeline Relocation Project in portions of [T139N R50W Sections 9-11] in Cass County, North Dakota

Mr. Dawson,

We reviewed ND SHPO Ref.: 20-0382, NuStar North System Pipeline Relocation Project in portions of [T139N R50W Sections 9-11] in Cass County, North Dakota. We recommend a Class I (literature review) and Class III (pedestrian survey) of archaeological resources in the project area.

Thank you for the opportunity to review this project to date. We look forward to review of the Class I and Class III surveys for archaeological resources.

Thank you for the opportunity to review this project. If you have any questions please contact Lorna Meidinger, Historic Preservation Specialist at (701) 328-2089 or lbmeidinger@nd.gov

Sincerely,

for Claudia J. Berg
State Historic Preservation Officer
(North Dakota)

20-0382

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116 North 4th Street, Suite 200
Bismarck, ND 58501
701.258.6622
701.258.5957
www.swca.com

July 13, 2020

Ms. Lorna Meidinger
State Historical Society of North Dakota
612 East Boulevard Avenue
Bismarck, North Dakota 58505-0830
Submitted via email: lbmeidinger@nd.gov

Re: ND SHPO Ref.: 20-0382, NuStar North System Pipeline Relocation Project in portions of [T139N R50W Sections 9-11] in Cass County, North Dakota

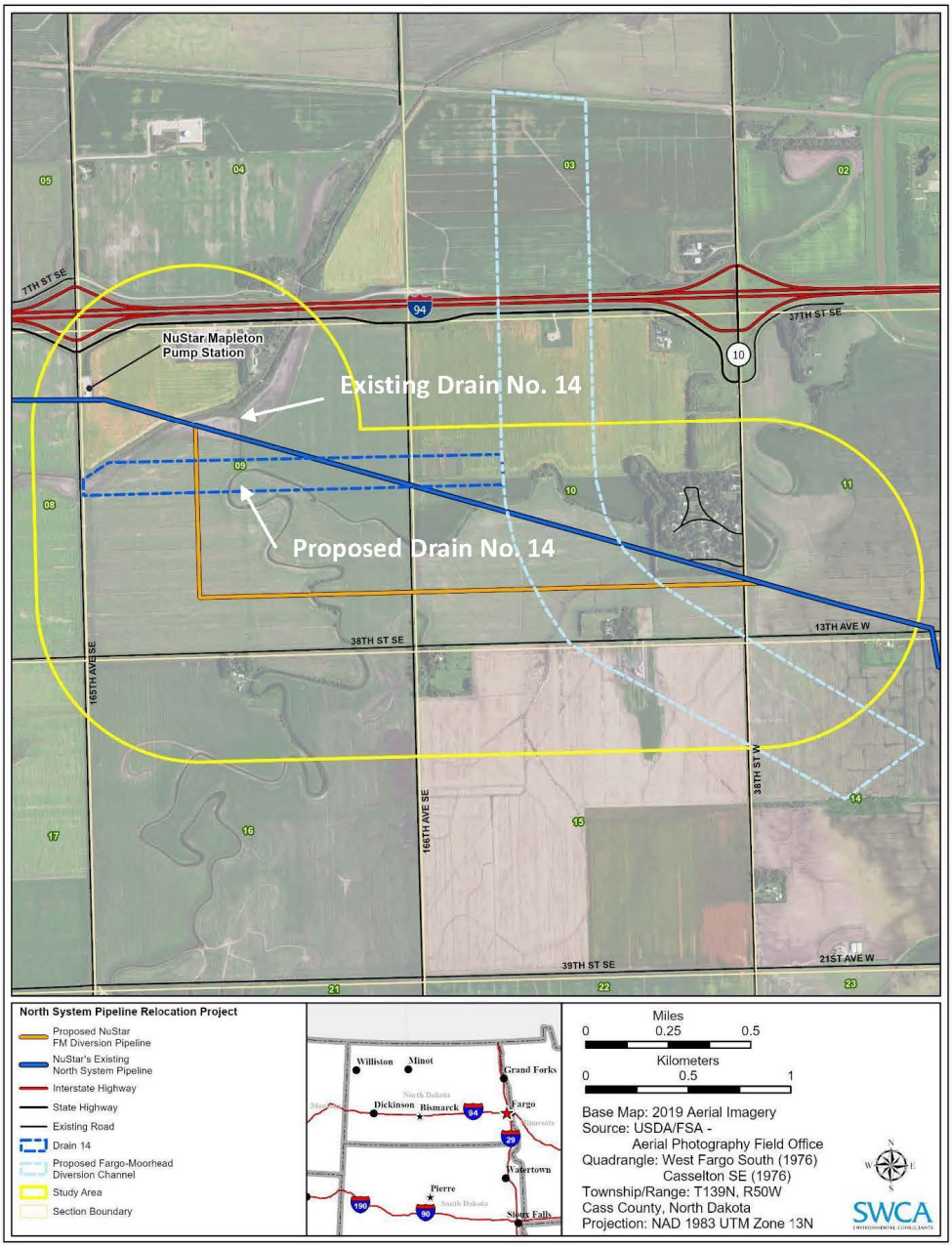
Dear Ms. Meidinger:

On behalf of NuStar Pipeline Operating Partnership, LP, thank you for the letter of June 15, 2020, regarding the State Historical Society of North Dakota's review of the referenced project. A Class I inventory and a Class III survey of archeological resources of the project area have been completed and an Unanticipated Discovery Plan (UDP) has been prepared as well. The Class I and Class III report and the UDP will be submitted to your agency for review and concurrence forthwith.

Sincerely,

James W. Dawson

James W. Dawson, PG, CHMM
Senior Project Manager



Proposed North System Pipeline Relocation Project Location Map

City of WEST FARGO

www.westfargond.gov

June 19, 2020

James W. Dawson, Senior Project Manager
SWCA Environmental Consultants
116 North 4th Street, Suite 200
Bismarck, North Dakota 58501

Re: NuStar North System Pipeline Relocation Project
Cass County, North Dakota

Dear Mr. James Dawson:

We are writing on behalf of the City of West Fargo Planning and Zoning Commission in response to your invitation to provide comments on the referenced project highlighted in the map you provided entitled "Proposed North System Pipeline Relocation Project Location Map". The City of West Fargo Planning and Zoning Commission wishes to express its preference that the alignment of this proposed pipeline be placed along section lines or half-section lines to better accommodate future development and minimize costly or dangerous construction activities when infrastructure is extended into this area.

We thank you for you're the opportunity to comment on this project.

Respectfully,

Dustin Scott, PE
City Engineer

Tim Solberg, AICP
Director of Planning and Zoning

July 14, 2020

City of West Fargo Planning and Zoning
Mr. Tim Solberg
Director of Planning and Zoning
800 4th Ave. E.
West Fargo, North Dakota 58078

RE: NuStar North System Pipeline Relocation Project
Cass County, North Dakota

Dear Mr. Solberg,

As you know, NuStar Pipeline Operating Partnership L.P. ("NuStar") is currently working with the Fargo Moorhead Diversion Authority ("FMDA") to relocate a portion of NuStar's existing NuStar North System pipeline (the "Pipeline Relocation Project" – depicted on Exhibit "A") to accommodate the FMDA's Diversion Project (the "FMDA Project"). As part of that process, NuStar (through its contractor, SWCA Environmental Consultants) sent a consultation letter to the City of West Fargo ("West Fargo") on May 27, 2020. In a response letter dated June 19, 2020, West Fargo requested that NuStar consider placing the pipeline "along section lines or half-section lines to better accommodate future development and minimize costly or dangerous construction activities when infrastructure is extended into this area." On July 13, 2020, NuStar and West Fargo had a conference call to discuss the Pipeline Relocation Project and West Fargo's correspondence.

As a follow up to the July 13, 2020 conference call, NuStar provides the additional information below regarding NuStar's route development analysis. The information, we think, illustrates that the proposed route is the preferred route considering all of the various stakeholders' interests.

- Analysis of Relocating the Pipeline at its Present Location: NuStar evaluated relocating the pipeline so as to track the existing North System Pipeline. NuStar rejected this option for several reasons. First, doing so would result in the Pipeline Relocation Project crossing the FMDA Project's diversion channel and Drain No. 14 at long angles, which would be at odds with industry regulations and best practices. The United States Army Corp of Engineers ("USACE"), the Department of Transportation Pipeline and Hazardous Materials Safety Administration ("PHMSA"), and industry best practice counsel that utility crossings in these circumstances be installed as close as possible to a 90 degree angle to minimize the size of impact area under the channel and drain. Further, due to the depth required to construct under the diversion channel and Drain No. 14 (as stipulated by the USACE), the crossings must be installed using the horizontal directional drilling ("HDD") method. To construct the new pipeline under the drain, the channel, and 38th St. W would require two HDD installations: one approximately 5,100 feet long and another approximately 3,100 feet long. These would be very long and resource-intensive drills and thus, this option is not preferred from a construction safety or overall FMDA Project or Pipeline Relocation Project perspective.

- Analysis of Following Section Lines/Quarter Section Lines: NuStar evaluated routing the Pipeline Relocation Project along section lines or quarter section lines. Applying industry standard routing criteria, NuStar determined that such a route was not preferable for NuStar or West Fargo. First, the pipeline cannot be placed on the quarter section line, as this would place the location of the pipeline farther down Drain No. 14, which would not be allowed by the USACE. That location would be unacceptable for pipeline maintenance and safety, as it would interfere with and/or prevent necessary inspection and maintenance activities. Second, placing the pipeline in this location would require installation of approximately 5,500 feet more pipeline than will be required for NuStar's proposed route. That added length would result in additional construction and operational risks, as well as substantial additional costs, when compared with the proposed route. Further, this placement would put the pipeline within 500 feet of certain residences and, therefore, those landowners would need to provide a written waiver pursuant to North Dakota Century Code § 49-22.1-03 and North Dakota Administrative Code § 69-06-08-02(2)(e). Finally, NuStar expects that it will be able to work cooperatively with anyone looking to develop this area in the future to allow for efficient development, while at the same time ensuring the integrity of the pipeline.

- Proposed Route: The proposed pipeline relocation Project route was developed by NuStar in coordination with the USACE and FMDA stakeholders. As proposed, the pipeline relocation Project route meets the design requirements of the USACE and has been approved by the USACE; has been reviewed and approved by the FMDA and their engineers; follows the guidance of PHMSA; aligns with best industry practice; allows for future maintenance, inspection, and operation; and complies with applicable permitting and zoning requirements. In addition, it parallels both 165th Street and 13th Street, rather than diagonally crossing each. Further, given the distance from 165th Avenue SE and 38th Street Se/13th Ave W, the route should have significantly less impact on future development compared to being adjacent to the roads. NuStar will encourage future developers to coordinate with NuStar when designing projects to ensure the safety of existing infrastructure, while also promoting property development.

Per the request of West Fargo during the conference call on Monday, NuStar would be willing to make the following commitments with respect to the property outlined in red on Exhibit "A":

- NuStar would, after putting the Pipeline Relocation Project in-service, confine the existing blanket easement width for the relocation pipeline to 100 feet (assuming no unforeseen issues for underlying landowners) across this tract; and

- NuStar would abandon in-place the existing segment of the North System Pipeline from the east toe of the proposed diversion channel to the west edge of the right-of-way of 38th Street W. This would limit NuStar's right-of-way within the property outlined in red on Exhibit "A" to a single easement.

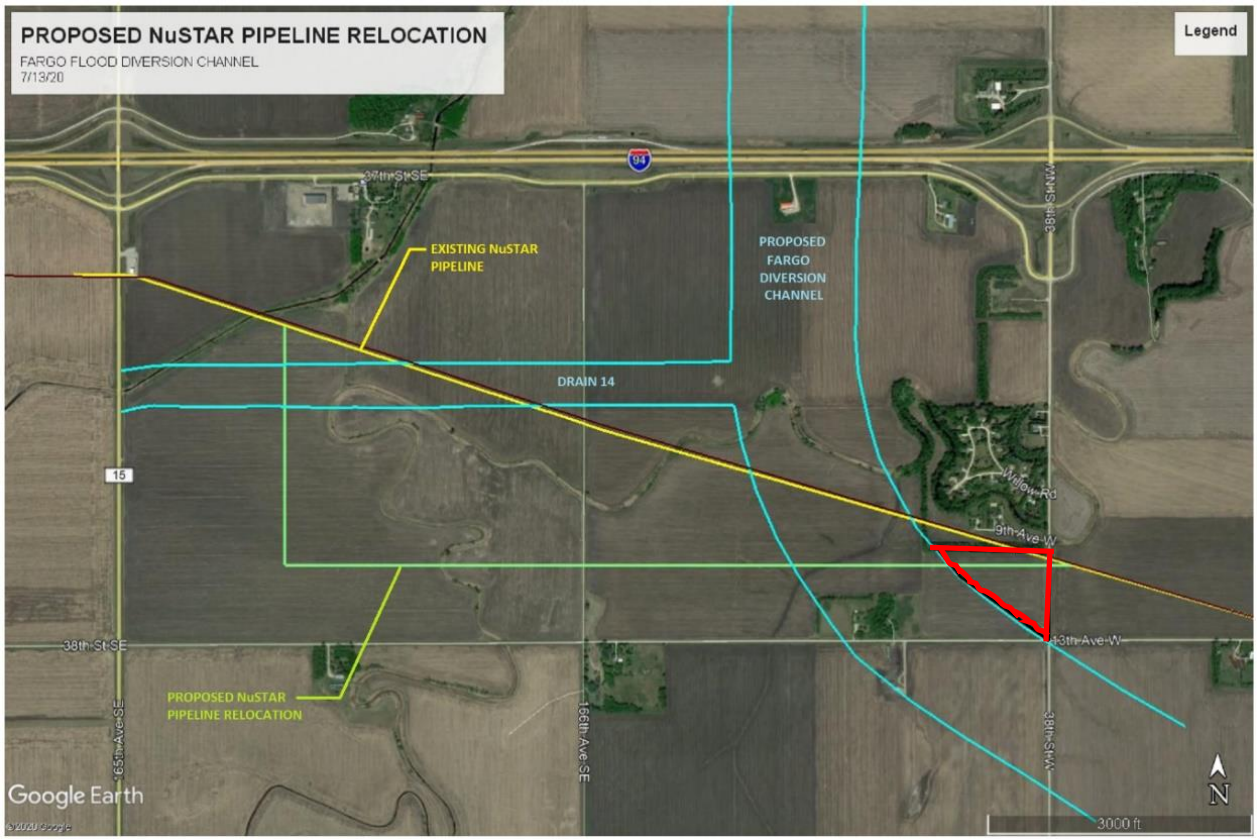
Again, we appreciate your time and the discussion on the rationale behind the chosen location for NuStar's Pipeline Relocation Project. We further appreciate the Planning Commission's review of this matter and look forward to working with West Fargo and its residents on this and future projects.

Should you have any questions, please feel free to contact me at (210) 918-2245 or matt.mcgee@nustarenergy.com.

Regards,

Matt McGee
Real Estate & Survey Department
NuStar Pipeline Operating Partnership L.P.
19003 IH-10 West
San Antonio, Texas 78257

Exhibit "A"


PROPOSED NuSTAR PIPELINE RELOCATION
FARGO FLOOD DIVERSION CHANNEL
7/13/20
Legend
94
37th St SE
38th St SW
EXISTING NuSTAR PIPELINE
PROPOSED FARGO DIVERSION CHANNEL
DRAIN 14
15
Willow Rd
9th Ave W
13th Ave W
38th St SE
PROPOSED NuSTAR PIPELINE RELOCATION
65th Ave SE
166th Ave SE
38th St SW
Google Earth
3000 ft
N

City of WEST FARGO

www.westfargond.gov

July 15, 2020

James W. Dawson, Senior Project Manager
SWCA Environmental Consultants
116 North 4th Street, Suite 200
Bismarck, North Dakota 58501

Re: NuStar North System Pipeline Relocation Project
Cass County, North Dakota

Dear Mr. James Dawson:

We are writing on behalf of the City of West Fargo Planning and Zoning Commission in response to invitation to provide comments on the referenced project highlighted in an attached map entitled "Proposed North System Pipeline Relocation Project Location Map". The City of West Fargo Planning and Zoning Commission had expressed its preference that alignment of pipeline be placed along section lines or half-section lines to allow for development to occur without costly or dangerous construction activities in a June 19, 2020 letter.

Subsequently, City staff met with representatives of the project and later received a letter from said representatives on July 14, 2020 and presented that letter to the Planning Commission at their July 14, 2020 regularly scheduled meeting. Acting upon the wishes of the City of West Fargo Planning and Zoning Commission we wish to respectfully accept the additional information provided and withdraw our previous comment for preference in the alignment of the pipeline.

Respectfully,

Dustin Scott, PE
City Engineer

Tim Solberg, AICP
Director of Planning and Zoning

CASS COUNTY GOVERNMENT

SENT VIA EMAIL

Maple River Water Resource District

Rodger Olson
Chairman
Leonard, North Dakota

Gerald Melvin
Manager
Buffalo, North Dakota

Chad Miller
Manager
Buffalo, North Dakota

June 29, 2020

James W. Dawson
Senior Project Manager
SWCA Environmental Consultants
116 North 4th Street, Suite 200
Bismarck, ND 56501

Dear James:

RE: NuStar North System Pipeline Relocation Project
Sections 9, 10 and 11 in Mapleton Township
Cass County Drain No. 14

Thank you for your letter to the Cass County Joint Water Resource District dated May 27, 2020. Our understanding is the Diversion Authority is negotiating a *Memorandum of Understanding* with you regarding the relocation of your infrastructure to accommodate the Metro Flood Diversion Project. Please continue those negotiations.

In addition, any impacts to Cass County Drain No. 14 as a result of your relocation will require NuStar to obtain a *Utility Permit* from the Maple River Water Resource District, the entity that owns and operates Drain 14. Please contact the Maple River Water Resource District's engineer, Kurt Lysne, Moore Engineering, Inc., at 701-282-4692 to discuss impacts to Drain 14 and the necessary *Utility Permit*.

Thank you.

Sincerely,

MAPLE RIVER WATER RESOURCE DISTRICT

Carol Harbeke Lewis
Secretary-Treasurer

Carol Harbeke Lewis
Secretary-Treasurer

1201 Main Avenue West
West Fargo, ND 58078-1301

701-298-2381
FAX 701-298-2397
wrd@casscountynd.gov
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701.258.5957
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July 13, 2020

Ms. Carol Harbeke Lewis
Maple River Water Resource District
1201 Main Avenue West
West Fargo, North Dakota 58078-1301
Submitted via email: wrd@casscountynd.gov

Re: NuStar North System Pipeline Relocation Project

Dear Ms. Harbeke Lewis:

On behalf of NuStar Pipeline Operating Partnership, LP, thank you for your letter of June 29, 2020, regarding the Maple River Water Resource District's review of the proposed alignment for the referenced project. With respect to potential impacts to Cass County Drain No. 14, the proposed relocation route starts at a point approximately 250 southeast of the existing Drain No. 14 and heads due south for approximately 480 feet at which point it will cross the proposed location of the new Drain No. 14. This crossing will be constructed using the horizontal directional drilling (HDD) method and has been designed to provide a minimum of 15 feet of separation between the bottom of the new Drain No. 14 and the pipeline.

As requested in your letter, I have contacted Mr. Kurt Lysne, Maple River Water Resource District engineer, for clarification on whether a Utility Permit will be required for the crossing of the new Drain No. 14 location, considering that the drain has not been constructed yet. If said Utility Permit will be required, NuStar will obtain said permit prior to the start of project construction.

Sincerely,

James W. Dawson, PG, CHMM
Senior Project Manager

NORTH Dakota | Water Commission

Be Legendary.™

June 30, 2020

James Dawson
SWCA Environmental Consultants
Bismarck Office
116 N 4th Street, STE 200
Bismarck, ND 58501

Dear Mr. Dawson:

This is in response to your request for a review of the environmental impacts associated with the NuStar North System Pipeline Relocation Project located in Cass County, ND.

The proposed project has been reviewed by State Water Commission staff, and the following comments are provided:

- There are floodplains identified and/or mapped where this proposed project is to take place. Areas are designated to be in Zone A. North Dakota has no formal 'permitting' authority as a state entity in NFIP identified floodplain areas. The permitting is always done by the local entity, which has jurisdiction in the area in question. Please work closely with the local Floodplain Administrator.

- The Office of the State Engineer (OSE) Engineering and Permitting Section reviewed the project route and determined that the project route traverses over or through surface water resources. The OSE requests to be notified regarding the proposed project's impacts, if any, to water resources such as watercourses (i.e. streams or rivers), agricultural drains, and wetlands (i.e. ponds, sloughs, lakes, or any series thereof) as any alterations, modifications, improvements, or impacts to those water resources may require a drainage permit(s) or a construction permit(s) from the OSE.

In addition, the project appears to intercept Cass County Drain No. 14 and a diversion located in the N ½ of Section 9, T139N, R50W, Cass County, permitted under Construction Permit No. 2151 (see attached). The OSE requests to be notified of any alterations, modifications, or improvements to these structures as drainage and (or) construction permit(s) may be required. Please contact the OSE Engineering and Permitting Section at 701-328-4288 if you have any questions.

- 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

State of North Dakota
Permit to Construct or Modify

Permit No. **2151**

This permit authorizes the permittee to construct or modify a structure, pursuant to Section 61-16.1-38 NDCC.

Name of Permittee: **Leo Wanzek**
PO Box 1157
Fargo, ND 58107-0000

Structure Type: **Diversion Ditch**
Purpose: **Flood Control**

Location and Waterway on which Project will be constructed:

Location: **SE1/4, SW1/4, Sec. 09 Township 139 North, Range 050 West, Cass County**
Stream: unnamed
Basin: **Maple River**

Design Data:

a.	Length of Ditch	**1060**	Feet
b.	Bottom Width	**6**	Feet
c.	Side Slopes	**3**	:1
d.	Maximum Cut	**5**	Feet
e.	Gradient	**0**	foot/foot

Location Map: **See Attachment A**

Construction must be completed within two years of approval date.
This permit can be extended by the State Engineer. The permittee must request an extension in writing.

Conditions

1 At the discretion of the State Engineer, in accordance with the exercise of any of his duties, the project is subject to modification at the expense of the owner.

2 That by granting this permit no liability for damages caused by improper design, construction, operation, or maintenance, or failure in materials, or workmanship is assumed by or transferred to the State Engineer, the State Water Commission, the County Water Resource District, or their employees, agents, or assigns.

3 Access to the project for the purpose of inspection shall not be denied to either the County Water Resource District or State Water Commission staff.

4 Prior to repair, modification, or construction, all topsoil, vegetation, and other unsuitable material, which may include sod, riprap, and loose, soft or spongy soil must be removed from all areas to be repaired or modified.

5 Fill material must not be frozen, and shall be free of sod, brush, or other organic material and rock larger than 3-inch in diameter. Fill material shall be of a non-permeable type soil and be able to maintain the constructed permeability. Top soil shall not be allowed as fill, but may be used for vegetative cover.

6 A sustainable vegetative cover must be reestablished as soon as possible upon completion of construction. No trees, shrubs, or other woody vegetation shall be allowed in the channel and side slopes.

7 Construction of this project does not grant a water right.

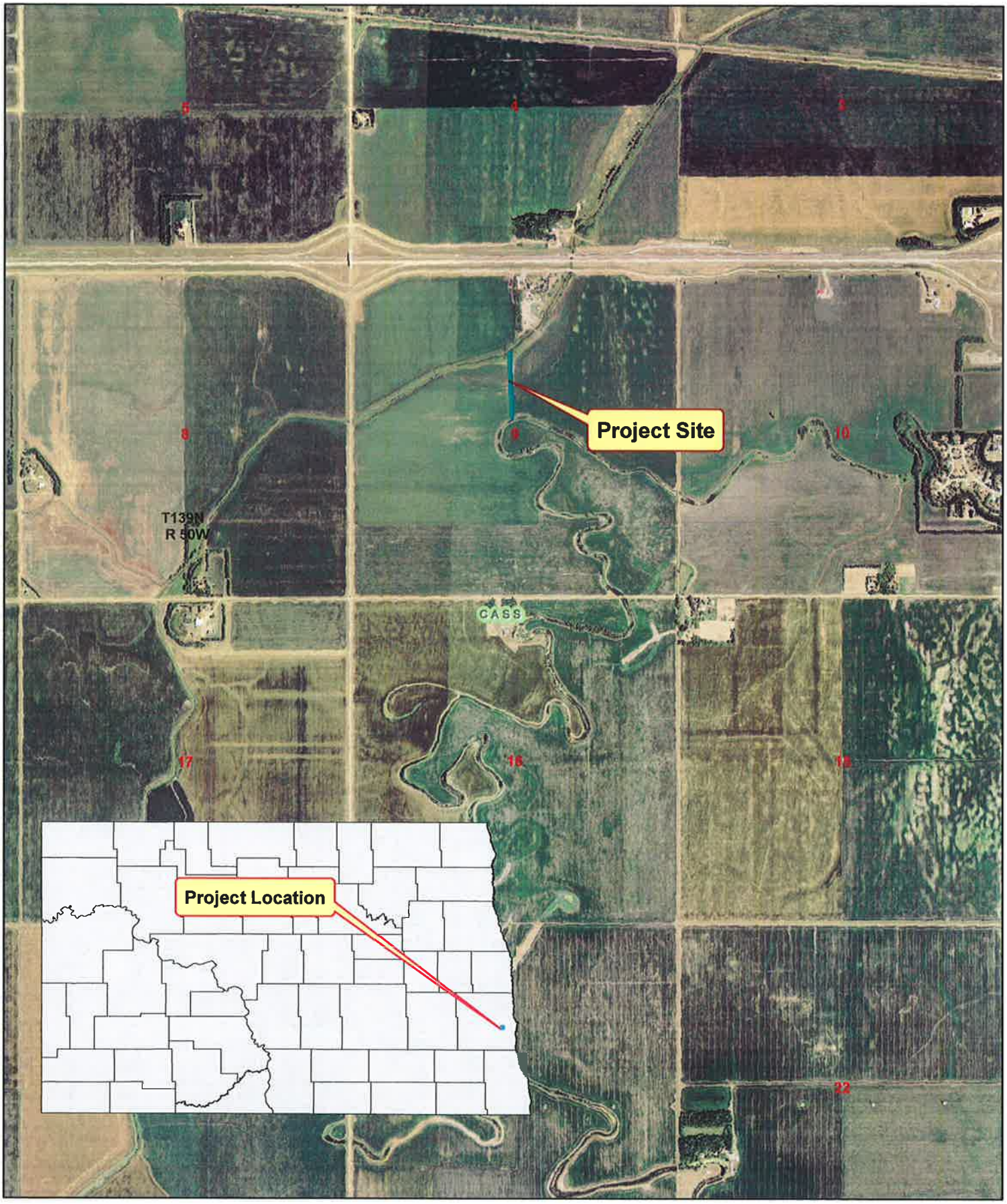
8 By constructing this structure, the permittee acknowledges responsibility for its safety and maintenance. This maintenance will include correction of slumping or erosion problems, removal of all woody vegetation and maintenance of vegetative cover.

9 If prior to or during construction, items of substantial archeological value are discovered or a deposit of such items are disturbed, the Permittee shall cease construction activities in the area so affected. The State Engineer shall be promptly notified to the discovery and construction will not resume until the State Engineer gives written permission.

10 The applicant or sponsor (Mapleton Township) shall consult with and follow the directions of the Maple River Water Resource District in the installation of a gated culvert as discussed in the December 1, 2006 and January 5, 2007 meeting of the District. A written description and an aerial photo map with the culvert location and direction of water flow indicated shall be returned by the applicant or sponsor to the State Engineer as part of the permit record.

Dale L. Frink
State Engineer

Date: August 31, 2009



N

Leo Wanzek
T139N, R50W Section 9

Cass Co.
Permit No. 2151

interoffice
MEMORANDUM

To: John Paczkowski, Chief, Regulatory Section
Todd Sando, Director Water Development Division, Assistant State Engineer
Dale Frink, State Engineer

From: Jim Lindseth, Water Resources Engineer

Subject: Application to Construct or Modify Other Water Facility #2151

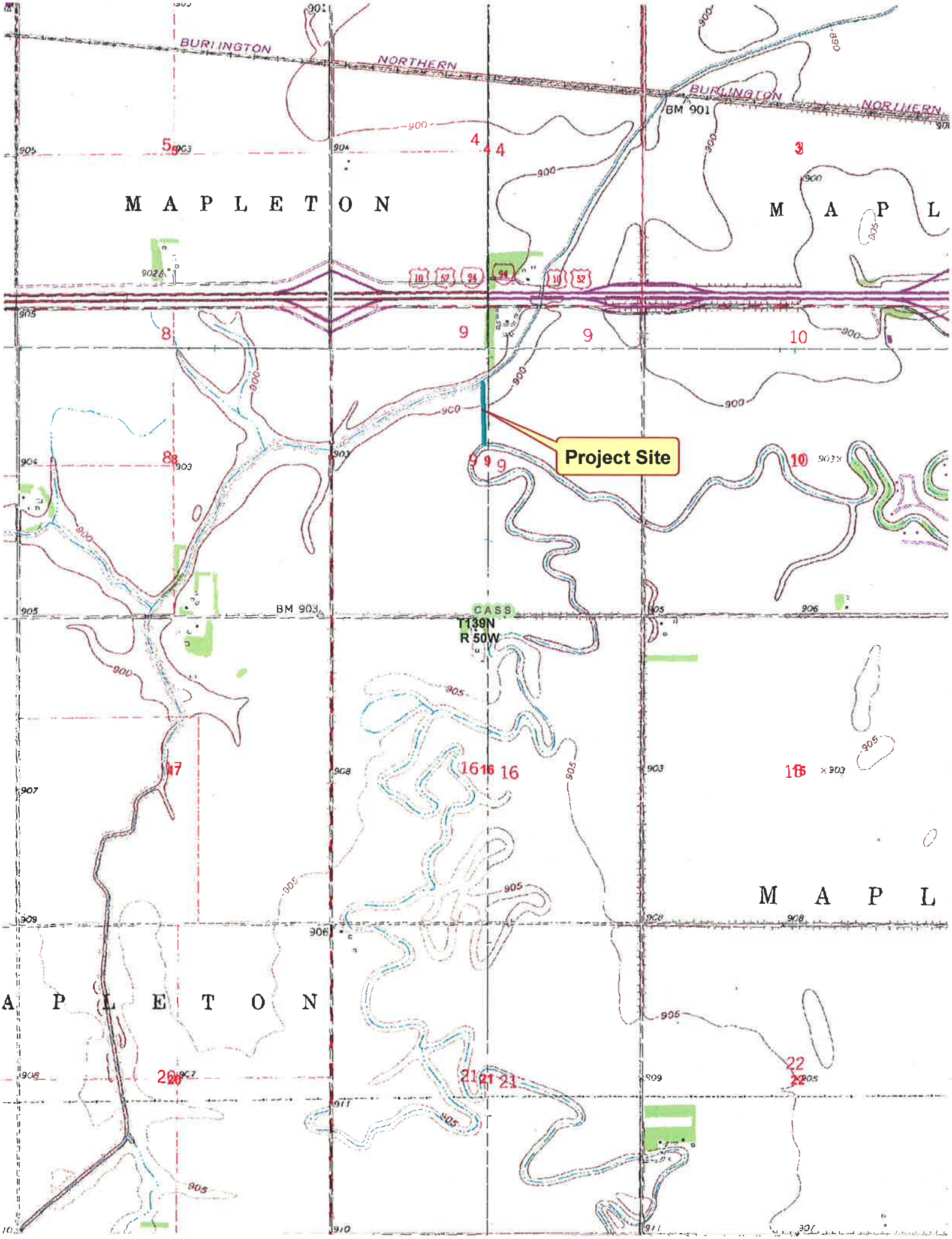
Date: August 27, 2009

The above application was received from Leo Wanzek, landowner and John Rutten, Chairman, Mapleton Township Board, the project sponsor. The application is for the cleaning and reconstruction of an existing diversion ditch between a tributary of the Maple River and Cass County Drain #14. Originally the applicants applied to do the work under drain permit #3146. Following with past practices I determined that it was a diversion and not a drain, requested that the drain application be withdrawn and they apply for a diversion permit. The age of this permit application is due to the applicants loosing the application before it was filed with this office and a copy eventually being accepted as an original. The after the fact request for a permit developed after a drainage complaint by Willow Creek Association over the existing ditch and potential flooding problem to the Associations property. Willow Creek is a housing subdivision one and a half miles east of the ditch in Section 10, Mapleton Township. It is located on the inside bend of a meander in tributary of the Maple River. To try to satisfy the complaint when this project was viewed by the District as a drain their minutes indicated they were going to attach conditions for placing gated culvert in the channel, as I understand for field access, and the operation of the gate as a condition. Since the District is not the approving authority under diversion construction permits I have included a condition that the applicant or sponsor is to consult with the District to satisfy this concern. In part, based on that condition, the complaint was withdrawn without prejudice provided a culvert with a flap gate is installed through the highest point of the ridge the ditch cut through.

Legal description the east edge of the NW¼ along the SE corner of the quarter Section 9, Tier 139 North and Range 50 West, Mapleton Township, in Cass County.

The application indicates the diversion will be 1,060 feet long with a 6-foot bottom width and 3:1 side slopes. The maximum cut is expected to be 5 feet with a 2-foot drop over the length of the diversion ditch.

I do not feel that there is significant hazard to life and property created by the cleaning and reconstruction of an existing diversion ditch. I recommend final approval of Application No. 2151 subject to its conditions.


BURLINGTON NORTHERN
BURLINGTON NORTHERN
BM 901
MAPLETON
MAPL
Project Site
BM 903
CASS
T139N
R 50W
MAPL
APLETON

New Diversion

APPLICATION/NOTIFICATION TO CONSTRUCT OR MODIFY A DAM, DIKE, RING DIKE OR OTHER WATER RESOURCE FACILITY

Office of the State Engineer
900 East Boulevard -- Bismarck, ND 58505-0850
SFN 51695 (11/03)

I, the undersigned, do hereby submit the following information to the Office of the State Engineer for determination and use as a filing of information required under North Dakota Century Code §61-04-02 or as an application to construct or modify a facility under North Dakota Century Code §61-16.1-38.

(SWC USE ONLY) No. 2151

A. GENERAL INFORMATION:

(1) This Application/Notification must include a map from an actual survey, aerial photo or topographic map. The size of the map shall be 8½ by 11 inches. The map shall have a north arrow and approximate scale. If, in the opinion of the State Engineer, the map does not contain information to properly evaluate the project, it will be returned.

(2) The proposed facility is a:

- ☐ Dam (Complete Sections A, C & F)
- ☐ Dike (Complete Sections A, D & F)
- ☐ Ring Dike (Complete Sections A, D & F)
- ☐ Wetland Restoration (Complete Sections A, C, E & F)
- ☐ Pond, Lagoon, or Dugout (Complete Sections A, B & F)
- ☒ Diversion Ditch (Complete Sections A, B & F)
- ☐ Other (Complete Sections A, B & F)

(3) Is this Application/Notification for modification of an existing structure? ☒ Yes ☐ No

If so, what year was existing structure constructed? early 1960's By whom? Gerald Hageson

(4) Project will be located in the Maple River Water Resource District

(5) Legal description to the nearest forty-acre tract: SE ¼ ~~SW~~ NW ¼ Section 9 Township 139 Range 50

(Optional) Latitude _____ Longitude _____

(6) Waterway on which project will be located: Drain # 14

(7) A tributary to: Maple River

(8) Will the project, including any area inundated as a result of the project, be located entirely on land owned by the applicant?

☒ Yes ☐ No If any portion of the project will be constructed on land not owned in fee title by the applicant, written authorization to construct the project must be obtained from the landowner of record and a copy of the authorization provided to this office. If the project will impound water on land not owned in fee title by the applicant, a flowage easement must be obtained by the applicant and a copy of the easement provided to this office. If any portion of the project will be constructed within the right-of-way of a section line, roadway, or railroad, or if the project will impound water within the right-of-way of a section line, roadway, or railroad, written authorization to do so must be obtained from the appropriate authority and a copy provided to this office.

(9) Project sponsor (Water Resource District/City/US Fish & Wildlife Service, etc.) if applicable _____

(10) Contractor, if known Dirt Works

(11) Anticipated construction start date November 2006 Completion date November 6 2006

(12) Who will be responsible for the operation and maintenance of this project? Landowner / Tenant

B. POND, LAGOON, DUGOUT, DIVERSION DITCH, OR OTHER WATER RESOURCE FACILITY:

(1) Design Data:

a. Pond, Lagoon, or Dugout (complete below and diagram next page for each pond or cell, photocopy if necessary)

1. Surface area:	top of structure	_____	acres
	service level	_____	acres
2. Storage:	top of structure	_____	acre-feet
	service level	_____	acre-feet
3. Maximum depth of water		_____	feet
4. Maximum embankment height		_____	feet

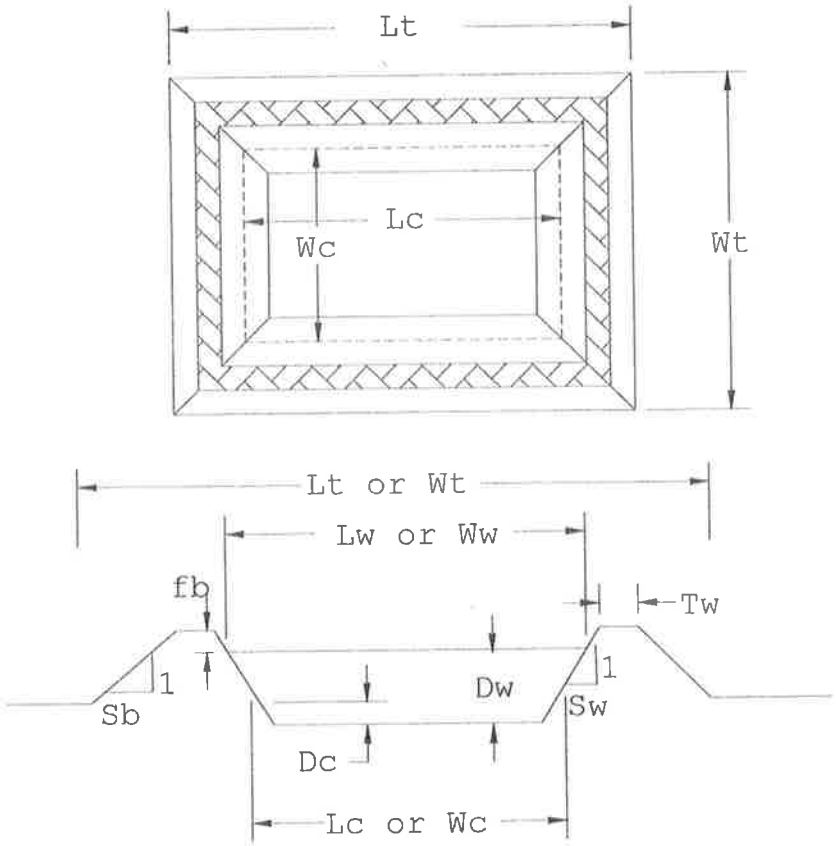
b. Diversion Ditch

1. Length	1060	feet
2. Bottom width	6	feet
3. Side slopes	3:1	feet
4. Maximum cut	5	feet
5. Gradient	_____	foot/foot

Drops 2 feet the length of ditch

(2) Description of project, if not a Pond, Lagoon, Dugout, or Diversion Ditch: _____

B. OTHER WATER RESOURCE FACILITY (continued):



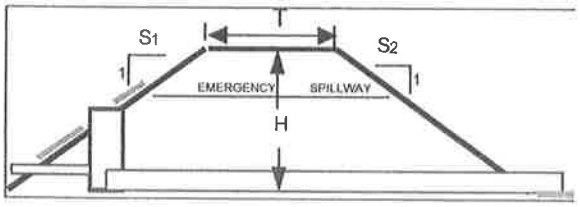
DESCRIPTION	ABBREVIATION	DIMENSION (feet)
Total length of pond (includes banks)	Lt	
Total width of pond (includes banks)	Wt	
Length of water surface at full service level	Lw	
Width of water surface at full service level	Ww	
Length of cut into the soil surface	Lc	
Width of cut into the soil surface	Wc	
Depth of cut into soil surface	Dc	
Depth of water in the pond at the full service level	Dw	
Freeboard (the distance between the full service level and the top of the structure that is used to manage wave action, usually 2-3 feet)	fb	
Top width of embankment surrounding the pond	Tw	
Outside bank sideslope ratio (usually 4:1, which is 4 horizontal feet for every 1 foot of rise)	Sb	
Inside bank sideslope ratio (will vary between 4:1 and 6:1, depending on the soil type)	Sw	

C. DAMS

(1) Drainage area above dam _____ square miles or _____ acres

(2) Purpose: _____

(3) Geometric description of dam:



a. Maximum height (H) _____ feet, elevation _____ feet msl

b. Top width (T) _____ feet

c. Side slopes: upstream (S_1) _____:1

downstream (S_2) _____:1

d. Type of embankment protection _____

e. Emergency spillway: type _____

If earthen: width _____ ft, side slopes _____:1, level section length _____ ft

Dimensions if other than earthen _____

f. Principal spillway:

Outlet pipe: type _____ diameter _____ length _____ ft

Riser: type _____ diameter _____

Control gate: type _____ dimensions _____

g. Drawdown Pipe: type _____ diameter _____

(4) Distance to nearest downstream occupied dwelling(s) _____

	ELEVATION (feet) Indicate datum: ☐ local ☐ NGVD 29 ☐ NAVD 88	RESERVOIR SURFACE AREA (acres)	RESERVOIR CAPACITY (acre-feet)
Top of Dam			
Emergency Spillway			
Principal Spillway			
Drawdown Pipe			
Streambed at Dam			

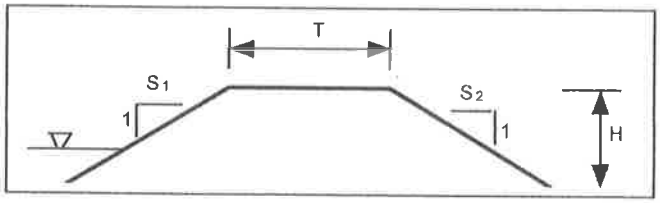
D. DIKE

(1) Is this application/notification for the construction of a ring dike? ☐ Yes ☐ No

If so, will the ring dike tie into existing? ☐ dike ☐ roadway ☐ high ground ☐ other _____

(2) Purpose: _____

_____



(3) Area of land to be protected by dike _____ acres

(4) Description of Dike:

a. Dike length _____ feet

b. Dike design:

1. Top width (T) _____ feet

2. Side slopes: interior (S_1) _____:1

exterior (S_2) _____:1

3. Maximum height (H) _____ feet, elevation _____ feet msl

Minimum height (H) _____ feet, elevation _____ feet msl

4. Embankment erosion protection: _____

(5) Will the dike flood or adversely affect adjacent, upstream or downstream land? ☐ Yes ☐ No

If yes, attach flowage easements. Easements must include a description of provisions, and names and signatures of grantors.

E. WETLAND RESTORATION

(1) The proposed wetlands are: ☐ Temporary ☐ Permanent

(2) Drainage area above dam _____ square miles or _____ acres

(3) Is this project mitigation for another project? ☐ Yes ☐ No

If yes, please describe: _____

(4) Describe the proposed operation plan for the wetland: _____

	OVERFLOW ELEVATION (feet) Indicate datum: ☐ local ☐ NGVD 29 ☐ NAVD 88	CAPACITY (acre-feet)	SURFACE AREA (acres)
Existing			
Natural			
Proposed			
Top of Structure			

F. ADDITIONAL INFORMATION, AFFIDAVIT OF DESIGN ENGINEER, AND SIGNATURE

(1) Additional information and comments: _____

(2) A complete set of plans and specifications prepared by a professional engineer registered in the State of North Dakota must be submitted with and made part of this Application/Notification if the proposed structure will be capable of retaining, obstructing, or diverting more than 50 acre-feet of water, or if the structure is a medium or high hazard dam, as determined by the State Engineer, capable of retaining more than 25 acre-feet of water. Low hazard dams, as determined by the State Engineer, less than 10 feet in height are exempt from the requirement for professional engineering services. If plans and specifications are required, the following affidavit must be completed:

I, _____ (name), _____ (PE license number), a Professional Engineer registered in the State of North Dakota, designed and/or personally supervised the design of the project as described in this application and on any attached sheets, and construction will be inspected in accordance with North Dakota Administrative Code §89-08-03-01. Date: _____

(3) The filing of this Application/Notification in no way relieves the applicant or landowner from any responsibility or liability resulting from the construction, operation or failure of the project.

Land Owner (Print): Leo Wanzek

Address: PO Box 1757

Phone: 701 282 6171

Signature: Leo Wanzek Date: 7/18/07

Sponsoring Agency: Mapleton twp Board

Address: 16522 41st st SE
Mapleton ND 58059

Phone: 701-282-4676

Signature: John Rutten (chairman) Date: 7/18/07

DIVERSION DITCH
CONST P. #2151

State of North Dakota

Office of the State Engineer

900 EAST BOULEVARD AVE. • BISMARCK, ND 58505-0850
701-328-2750 • FAX 701-328-3696 • http://swc.nd.gov

September 28, 2009

Leo Wanzek
PO Box 1157
Fargo, ND 58107-0000

Dear Leo Wanzek:

Enclosed is Construction Permit # 2151 issued pursuant to Section 61.16.1-38 NDCC. The application has been reviewed by the Maple River Water Resource District and the State Engineer. This permit is issued subject to all conditions listed. It is suggested that you file this permit with the County register of deeds in which the works are located.

If you have any questions regarding Construction Permit # 2151, please feel free to contact Jim Lindseth at (701) 328-2752.

Sincerely,

Ed Gall

Ed Gall
Regulatory Section

Enclosure

cc: Maple River WRD

Leo Wanzek

Feb. 1, 1928-April 16, 2008

Leo A. Wanzek, age 80, of Fargo, ND, died in his home surrounded by his wife and family on Wednesday, April 16, 2008.

Leo was born February 1, 1928, to Vincent and Agnes Wanzek of Windsor, ND, the third out of ten children. His childhood was spent on the farm just southwest of Windsor. There he farmed and the North Dakota Prairie built his spirit and character. He attended school at St. John's Academy. He received his Civil Engineering degree from NDSU in 1951 and was an ROTC officer in the Air Force.

In 1951 he began dating Janet Lucille Whitmer of Medina, ND. On one occasion when meeting for a date, they had agreed to meet at a specific time and place, while Janet was staying at a farm south of Medina to teach school. The roads had become impassible due to drifting snow so Janet road a horse to the meeting place where Leo was promptly waiting. They enjoyed the local weekend dances of the era and the song "Blue Moon" was played at their first dance together.

Leo was married to Janet on December 27, 1952, in St. Mary's Catholic Church of Medina, ND. Leo was sent to Korea to serve as a Lieutenant with the Air Force in the Korean War and was in charge of building U.S. air bases and runways during the war.

Leo worked for a local highway/heavy construction company before starting his own business with Janet in 1971. Upon founding Wanzek Construction, Inc., Leo's first project was for the U.S. Army Corps of Engineers, building the visitor center at Lake Ashtabula on the east side of the reservoir above the Baldhill Dam just north of Valley City. The building was made of split-face fieldstone which Wanzek's crews split onsite. The visitor's center is still in use today. Leo was a true construction man. He enjoyed the projects, the challenges and had a deep empathy and respect for all people. Leo was President of the company until most recently becoming Chairman of the Board. He enjoyed the fact that his son Jon joined him in the firm and they were able to work together as a father and son team building a business of which they were proud.

Wanzek Construction continued to grow over the years and Leo enjoyed the everyday challenges that the business presented to him. Leo constructed many notable projects in the area and across the Midwest including more than 100 bridges, flood control projects, water treatment plants, dams, reservoirs, pump and lift stations, Wal-Mart stores, swimming pools, sugar plants, ethanol plants and wind farms. Today the firm he founded employs more than 800 people and is building projects in more than 14 states. Wanzek Construction was also recently added to the ENR 400 list as one of the 400 largest construction companies in America. Think of Leo when you drive over a bridge.

Leo was a member of St. Mary's Cathedral, Fargo. Leo was active with the Holy Cross South Cemetery committee - he designed, built and donated the gate at the entrance. Leo was past President of the North Dakota Chapter of the Associated General Contractors of America.

Leo loved his family, figuring and estimating construction bids, visiting jobsites, hunting ducks and geese, skiing with his family, playing with his grandchildren and planting his garden.

Leo is survived by: his wife, Janet; their three children: Juliet (Neal) Everist, Sioux City, IA, Jantze (Dennis) Haley, Minneapolis, MN, Jon (Lori) Wanzek, Fargo, ND. Leo is also survived by his nine grandchildren: Anna, Janelle, Erich, Heidi, Maria, Jack and Grace (Jon and Lori), Nik Larsen (Jantze) and Daniel Everist (Juliet); three brothers: Ronald Wanzek, Jamestown, ND, Marvin (Donna) Wanzek, Windsor, ND, Richard (Alice) Wanzek, Jamestown, ND; two sisters: Virginia Weckman, Shakopee, MN, and Dorothy Flynn, Moorhead, MN.

Leo was preceded in death by his parents: Vincent and Agnes Wanzek; brothers: Vincent Wanzek,

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International News

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Hometown 2008
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AP HEADLINE NEWS VIDEO

Jerome Wanzek, Casimir Wanzek; sister: Isabel Maddock; and his grandson, Thomas Wanzek.

Leo's strong Catholic faith has been a witness to many. He always would say "Thanks be to the Lord" when arriving home safely or enjoying any blessing with his family – such as their presence or a beautiful sunset. Leo's suffering with illness in his last days was in his faith in Christ. His strength, faith, courage and his spirit during his illness was an inspiration to many.

Visitation: Today, April 18, 2008, from 5 to 7 p.m. at St. Mary's Cathedral, Fargo, and one hour prior to the Funeral Mass in the church on Saturday, April 19.

Prayer Service: Today at 7 p.m. at St. Mary's Cathedral.

Funeral Mass: Saturday at 11 a.m. at St. Mary's Cathedral.

Interment: Holy Cross South Cemetery, Fargo.

Arrangements entrusted to Boulger Funeral Home, Fargo. Online guestbook at (www.boulgerfuneralhome.com).

The Minot Daily News
301 4th St. SE
Minot, North Dakota 58703
(701) 852-1900

Subject: Application to divert water in Section 9 of Mapleton Township
Date: Wednesday, July 23, 2008 3:33 PM
From: Lewis, Carol <LewisC@casscountynd.gov>
To: Jim Lindseth <jlindseth@state.nd.us>
Conversation: Application to divert water in Section 9 of Mapleton Township

Jim,

I sent you a letter regarding the above referenced matter on July 10, 2008. Barry Johnson asked that I provide you with a little more clarification as to where the culvert and flap gate is located that I referred to in that letter.

There is a natural ridge northwest of the Willow Creek development and the ditch that was constructed (for which the permit is for) cut through that ridge. At the request of Willow Creek, dirt was placed across the ditch where it intersects with the ridge and a culvert and flap gate was installed through it. That is the culvert and flap gate that Willow Creek wants to be sure remains in place and is property maintained.

If you have any questions or need further clarification as to where the pipe and flap gate is, please feel free to contact us. Thanks.

Carol

Carol Harbeke Lewis
Secretary-Treasurer
Cass County Water Resource Districts
1201 Main Avenue West
West Fargo, ND 58078-1301
Phone: 701-298-2381
Fax: 701-298-2397
Lewisc@co.cass.nd.us <mailto:Lewisc@co.cass.nd.us>
www.casscountygov.com <http://www.casscountygov.com>

CASS COUNTY GOVERNMENT

July 10, 2008

Jim Lindseth
Water Resource Engineer
Office of the State Engineer
900 East Boulevard Avenue
Bismarck, ND 58505-0850

Dear Jim:

RE: Application to divert water in Section 9 of Mapleton Township

Enclosed please find a copy of the above referenced application for Leo Wanzek (deceased) and the Mapleton Township Board. As discussed and set out in your e-mail of June 24, 2007, the original application has been lost or misplaced and you would accept this copy in order to proceed with the matter.

The Maple River Water Resource District Board reviewed the application at their July 2, 2008, meeting and moved to recommend approval, provided the culvert and flap gate located west of the Willow Creek development remains in place and is properly maintained to prevent Drain #14 breakout water from reaching the development. The Board also approves the use of Drain #14 as the outlet for the diversion channel.

If you have any questions, please feel free to contact us.

Sincerely,

MAPLE RIVER WATER RESOURCE DISTRICT

Carol Harbeke Lewis
Secretary-Treasurer

Carol Harbeke Lewis
Secretary-Treasurer

1201 Main Avenue West
West Fargo, ND 58078-1301

701-298-2381
FAX 701-298-2397
wrd@co.cass.nd.us
www.casscountygov.com

Enclosures

cc: John Rutten
Barry Johnson

Lindseth, Jim C.

From: Spies, Jewel [Jewel.Spies@co.cass.nd.us]
Sent: Thursday, April 26, 2007 9:15 AM
To: Lindseth, Jim C.
Subject: RE: Land Ownership Question

Good Morning Jim

I have been out of the office for a few days. But, here is the information we have. Recorded on 4/03/06 Doc #1167220 is a Trustees deed from Cliff & Gladys Moe Family Trust to Leo A & Janet L Wanzek for all of section 9 with several exceptions. If you subscribe to the NDRIN network, you can view this document there.

Jewel A Spies
Recorder
Cass County
211 9th ST S
Fargo ND 58103
701-241-5625

-----Original Message-----
From: Lindseth, Jim C. [mailto:jlindseth@nd.gov]
Posted At: Tuesday, April 17, 2007 2:02 PM
Posted To: Recorders E-mail
Conversation: Land Ownership Question
Subject: Land Ownership Question
Importance: High

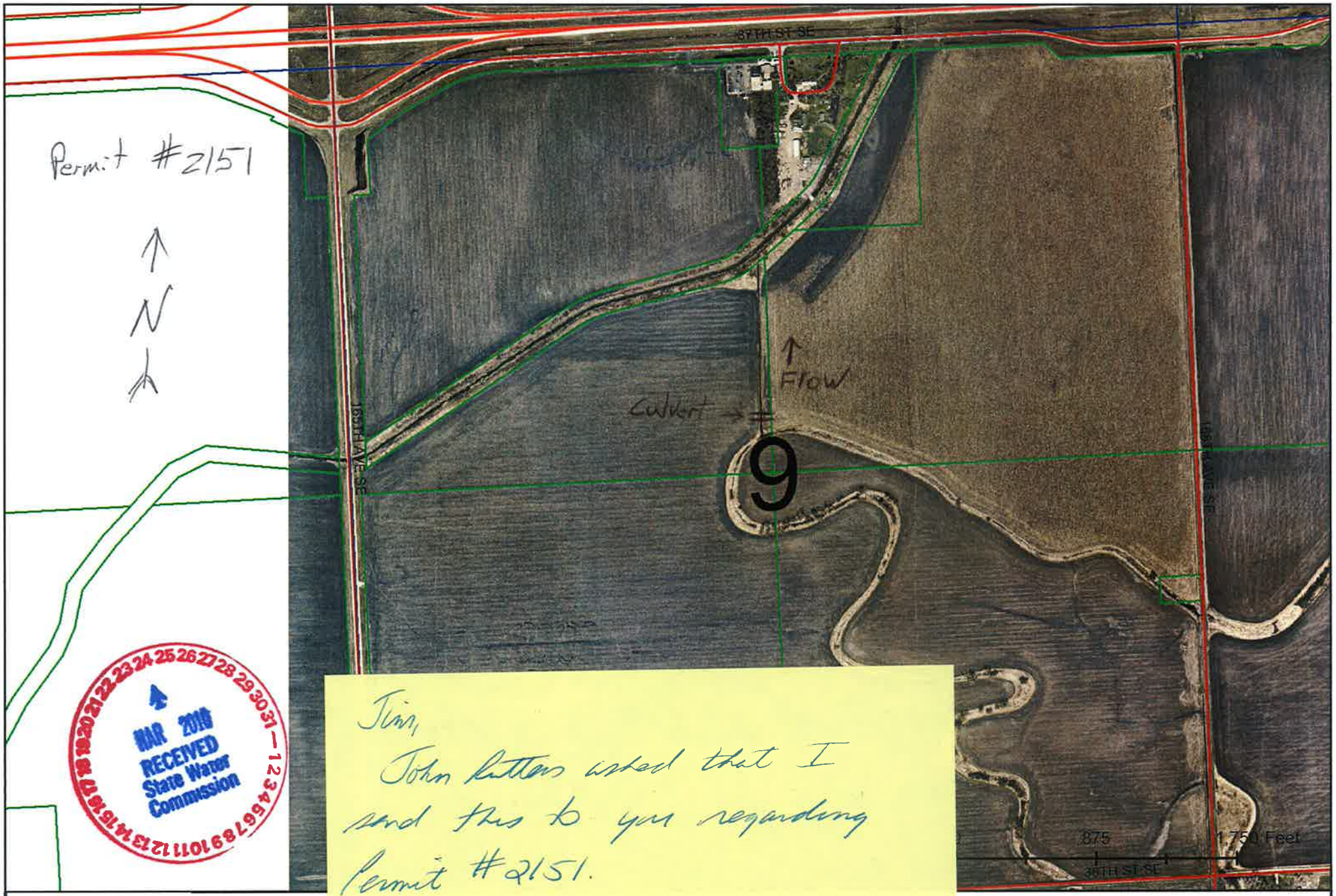
To Cass County Recorder

I have received a permit application in which the application indicates the landowner to be Leo Wanzek and our county atlas indicates the owner is Clifford and Gladys Moe. The location is Mapleton Township, T139-R50, Section 9. Can you confirm who the landowner of record is for that section? Thank You for your time.

Jim Lindseth

Water Resource Engineer

State Water Commission/State Engineers Office



MAR 2019
RECEIVED
State Water
Commission

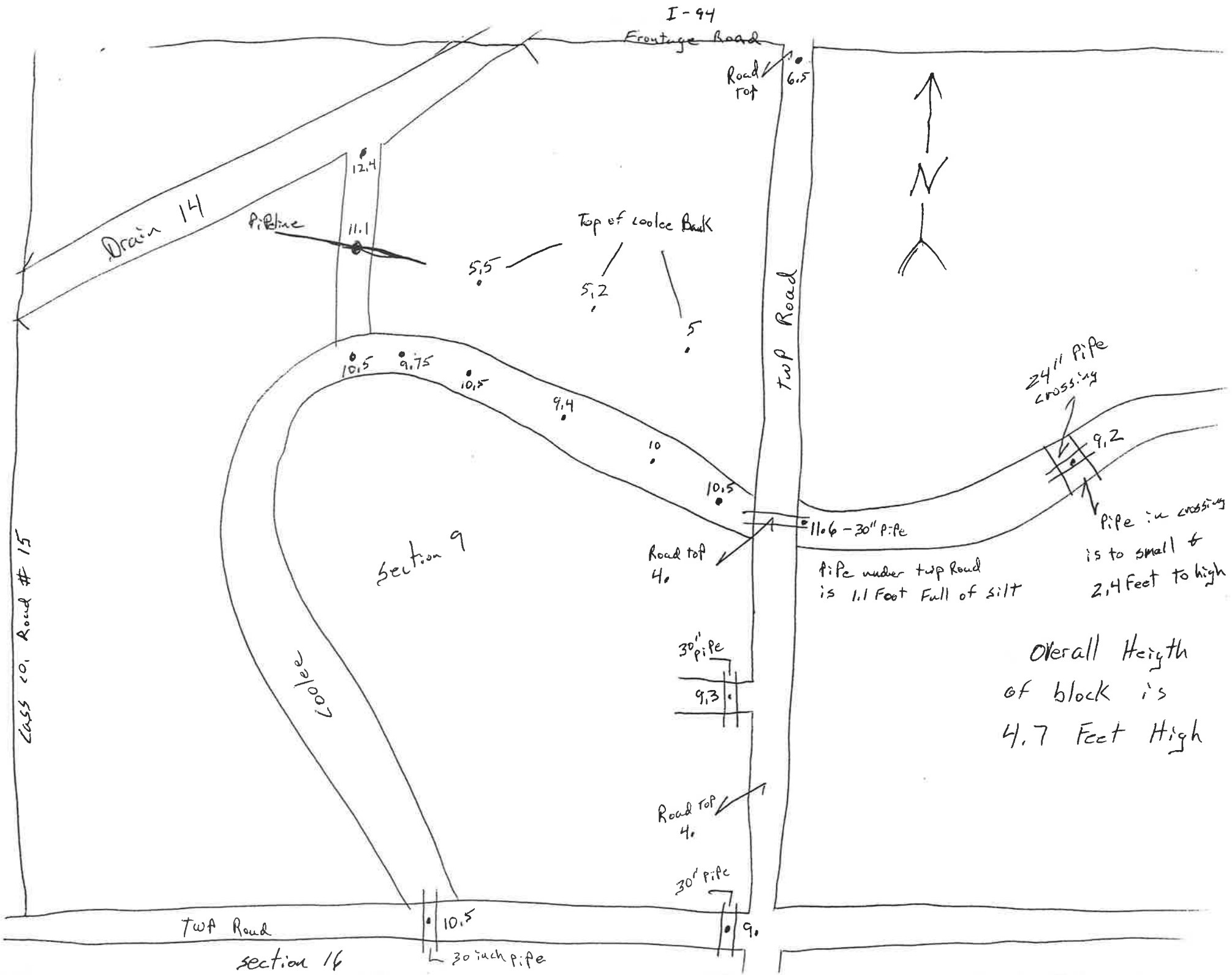
Jim,

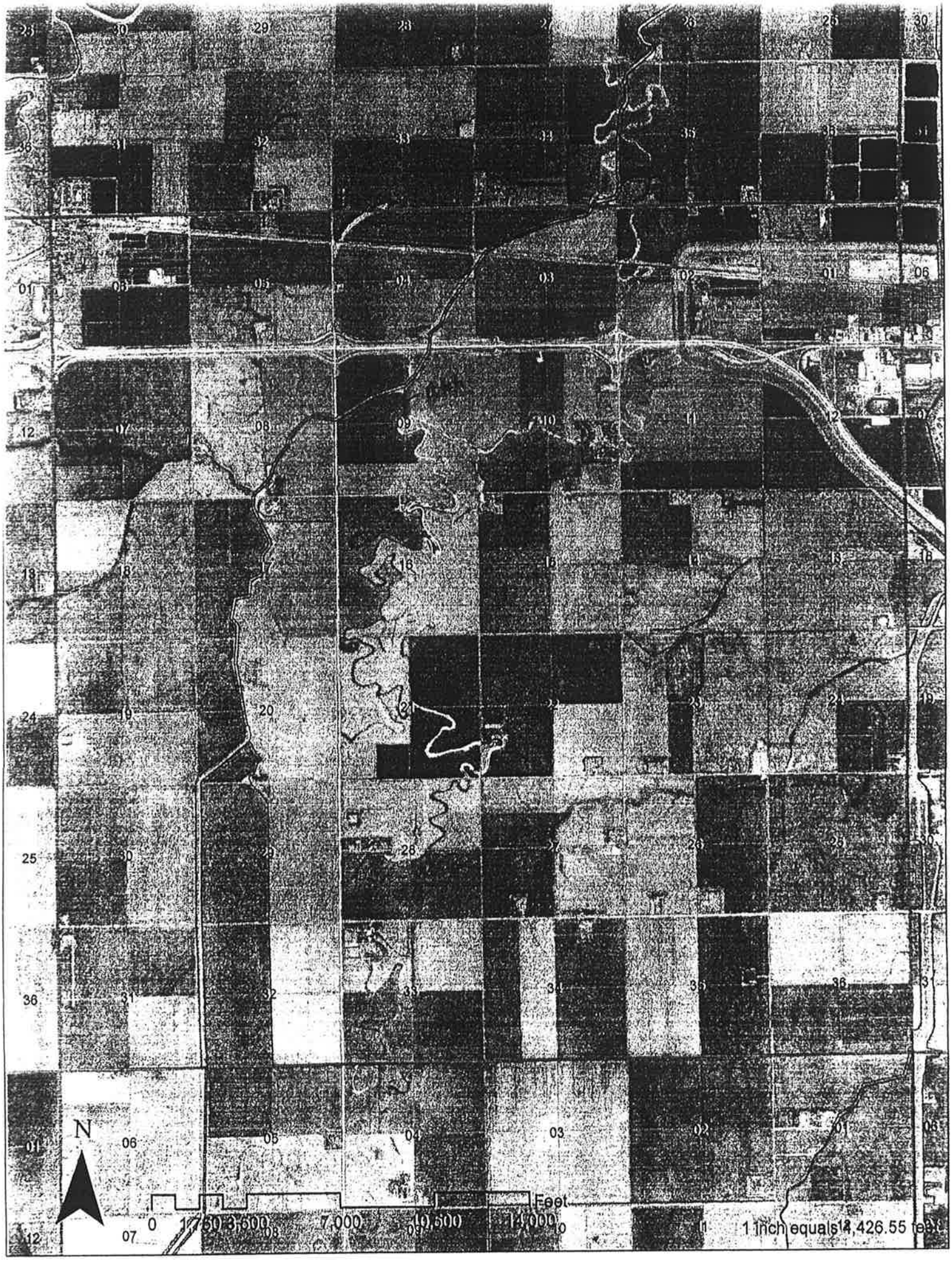
John Lutter asked that I send this to you regarding Permit #2151.

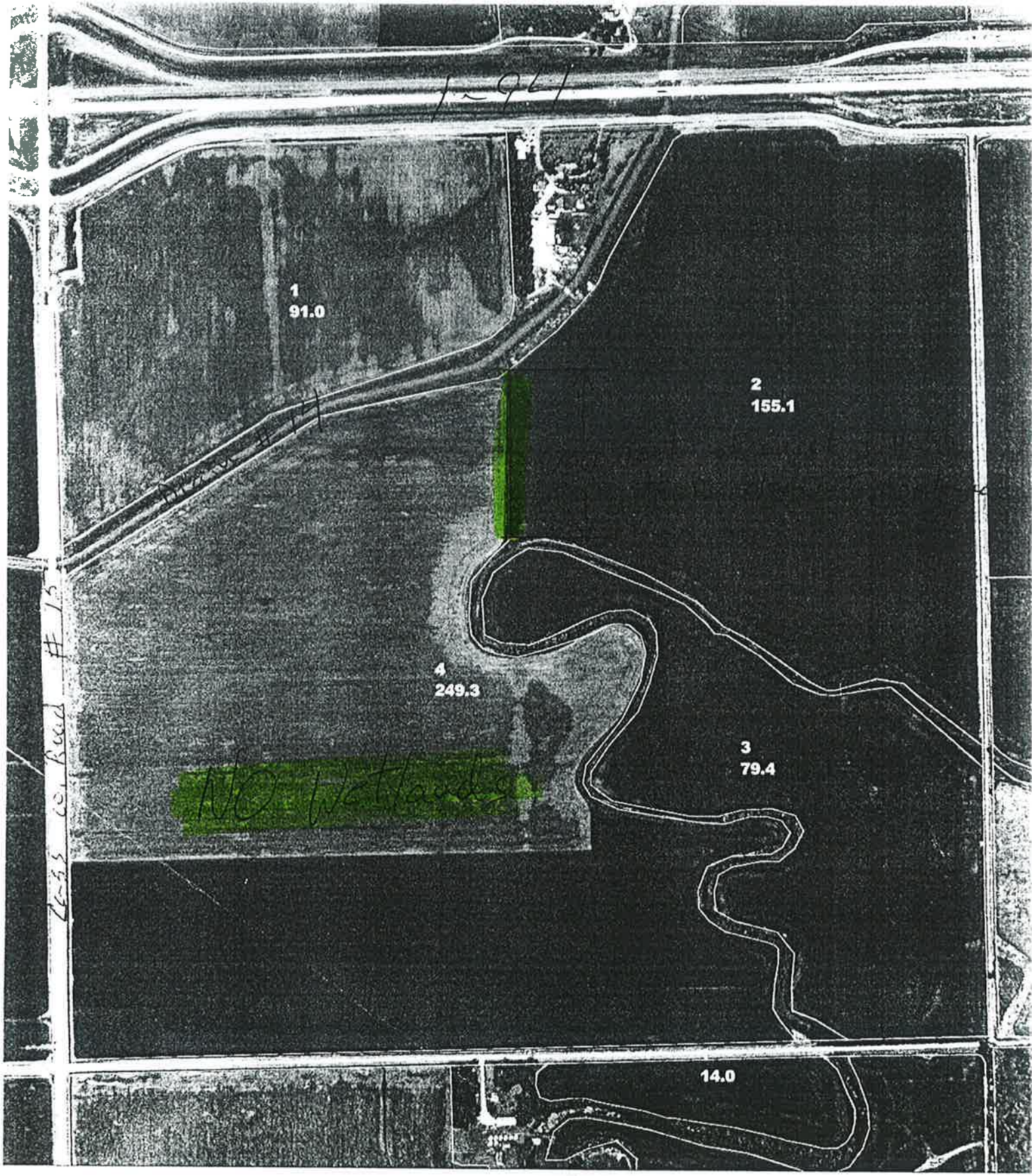
Thanks.

Condition #10

CASS COUNTY
GOVERNMENT


I-94
Frontage Road
Road top
6.5
Drain 14
Pipeline
12.4
11.1
Top of coolee Bank
5.5
5.2
5
Twp Road
10.5
9.75
10.5
9.4
10
10.5
24" pipe crossing
9.2
Pipe in crossing is to small & 2.4 Feet to high
11.6 - 30" pipe
Pipe under twp Road is 1.1 Feet Full of silt
Section 9
Road top 4.
Coolee
30" pipe
9.3
Overall Heigth of block is 4.7 Feet High
Road top 4.
30" pipe
9.
Cass Co. Road # 15
Twp Road
10.5
30 inch pipe
section 16


N
0
1,750
3,500
7,000
10,500
14,000
Feet
1 inch equals 14,426.55 feet

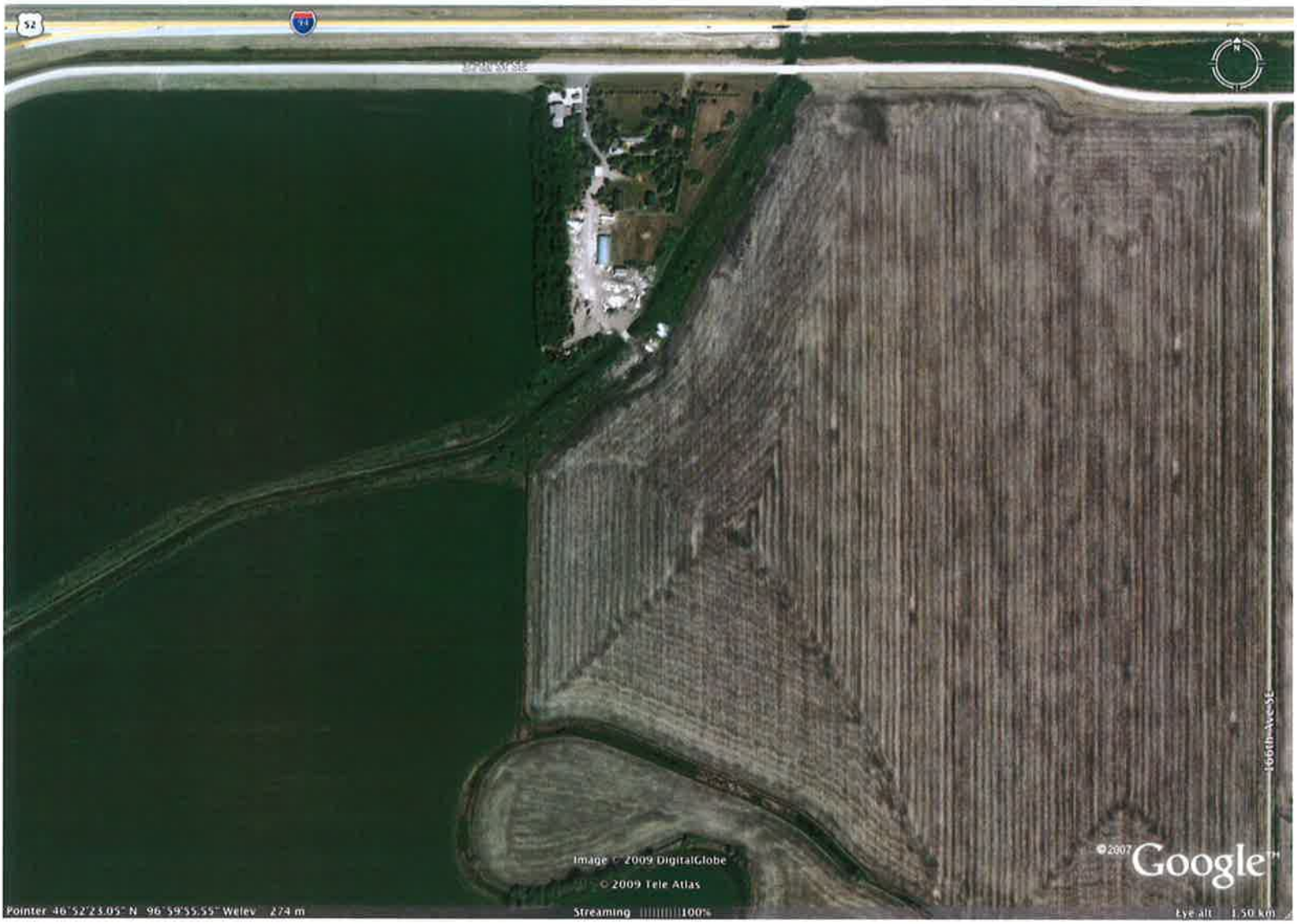


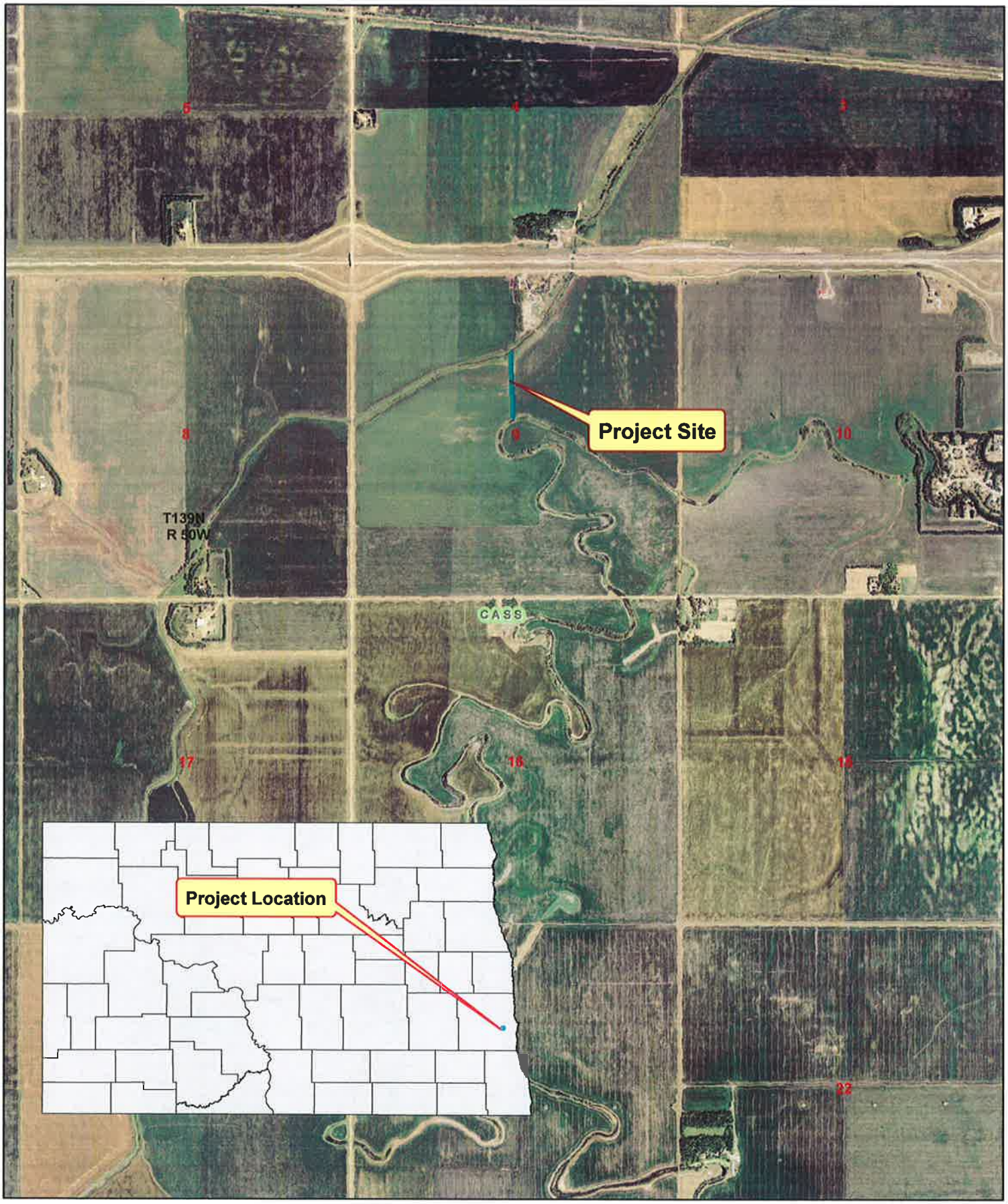
USDA

1:8820
1 inch = 735 feet

9 - 139 - 50
Cass County, North Dakota

Map Created Thursday, May 25, 2006


52
94
166th Ave SE
166th Ave SE
Image © 2009 DigitalGlobe
© 2009 Tele Atlas
©2007 Google™
Pointer 46°52'23.05" N 96°59'55.55" W elev 274 m
Streaming 100%
Eye alt 1.50 km



Leo Wanzek
T139N, R50W Section 9

Cass Co.
Permit No. 2151

SWCA
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July 13, 2020

Mr. Steven Best
North Dakota State Water Commission
900 East Boulevard Avenue
Bismarck, North Dakota 58505
Submitted via email: stevebest@nd.gov

Re: NuStar North System Pipeline Relocation Project

Dear Mr. Best:

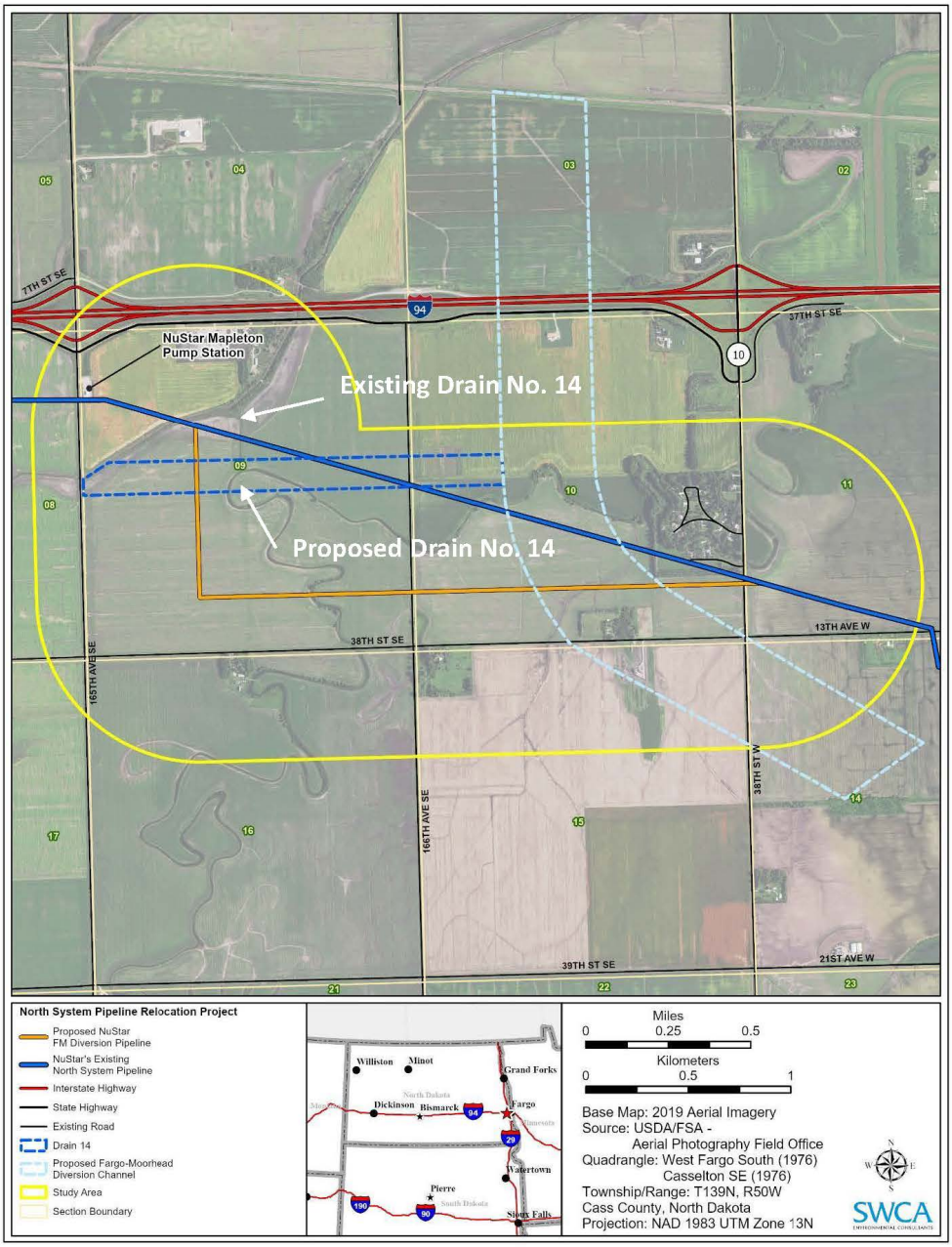
On behalf of NuStar Pipeline Operating Partnership, LP (NuStar), thank you for the State Water Commission's (SWC) letter of June 30, 2020, regarding review of environmental impacts associated with the referenced project. With respect to the SWC's review comments, the following information is provided:

- **Floodplains** – portions of the proposed pipeline route traverse Floodplain Zone A, while the majority is in Zone F (Area of Minimal Flood Hazard). The relocated pipeline will be underground and there will not be any surface appurtenances associated with it. The Cass County Floodplain Administrator has been contacted to determine if a Floodplain Development Permit will be required for the project.
- **Surface Water Resources** – the proposed pipeline route encounters two Palustrine Emergent (PEM) wetlands that total approximately 0.427 acre in size. The larger of the two wetlands is associated with the unnamed tributary to the Sheyenne River in Section 9, T139N, R50W, while the smaller wetland is the western roadside ditch along 166th Avenue SE. NuStar is proposing to install the pipeline underneath the wetland areas using the horizontal directional drilling (HDD) method and thus, there should be no impacts to surface water resources from the pipeline construction.
- **Cass County Drain No. 14** – the existing North System Pipeline does pass underneath the existing Drain No. 14, but the proposed relocation pipeline route will start about 250 feet southeast of that location and will head due south for approximately 480 feet at which point it will cross the proposed location of the new Drain No. 14 (see enclosed map). This crossing will be constructed using the horizontal directional drilling (HDD) method and has been designed to provide a minimum of 15 feet of separation between the bottom of the new drain and the pipeline. Thus, we do not anticipate any alteration, modification, or improvement to either the existing or future drains.
- **Surface Water or Groundwater Diversions** – there is the potential that shallow groundwater dewatering will be required to facilitate pipeline construction. Said construction dewatering would be permitted under the NDPDES General Permit for Temporary Discharges (NDG07000), issued by the North Dakota Department of Environmental Quality. If the construction dewatering discharge is returned to a nearby surface water location (e.g., unnamed tributary to the Sheyenne River), I question if a temporary appropriation permit would be required, but will contact the Water Appropriations Division of the OSE for clarification.

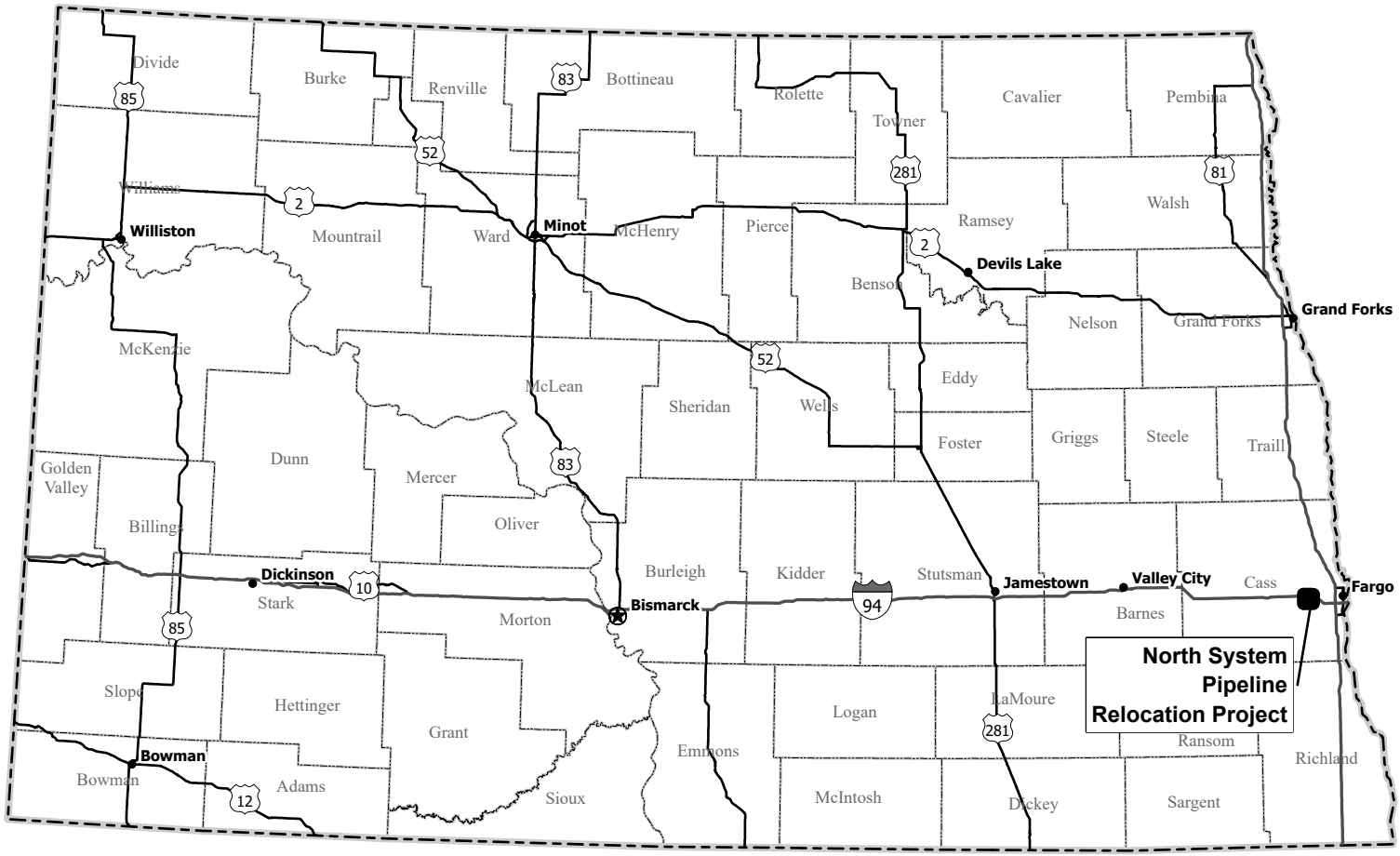
Thank you for the SWC's comments regarding the subject project. If you have any questions or require additional information, please do not hesitate to contact me.

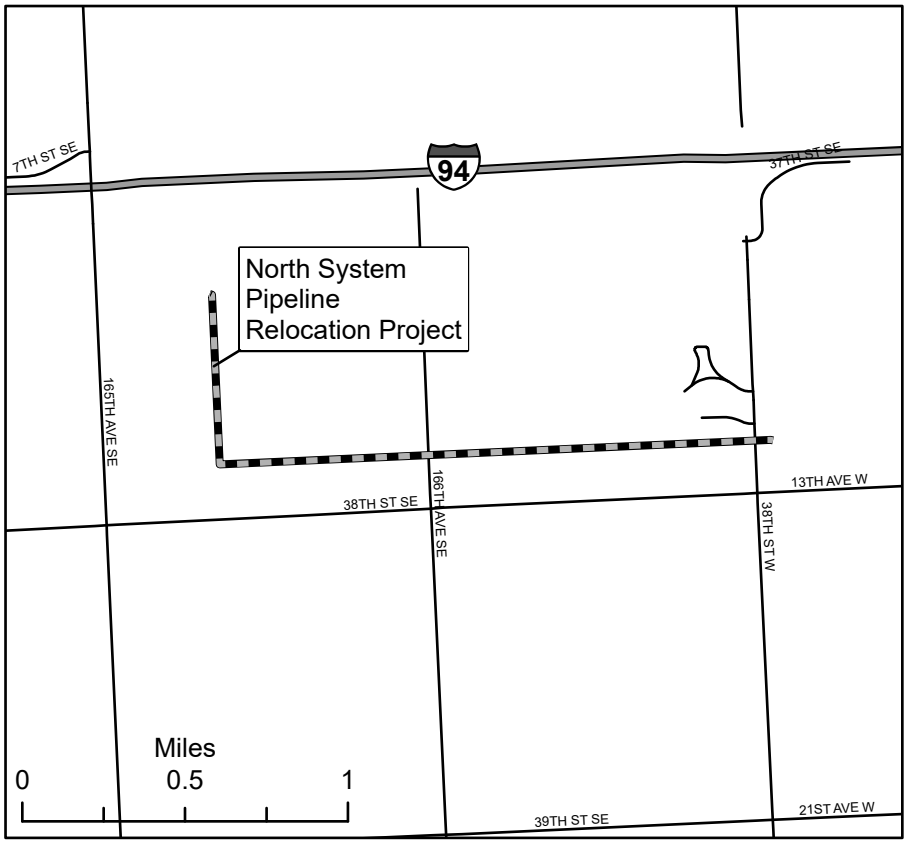
Sincerely,

James W. Dawson, PG, CHMM
Senior Project Manager



Proposed North System Pipeline Relocation Project Location Map





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