



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

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TABLE OF CONTENTS

<u>Description</u>	<u>Page</u>
1.0 INTRODUCTION	1
2.0 GENERAL MITIGATION MEASURES	1
2.1 Contractor.....	1
2.2 Line List and Permits.....	1
2.3 Third-party Inspector	1
2.4 Rights-Of-Way.....	2
2.5 Dust Control	2
2.6 Undesirable Species Control.....	2
2.7 Non-hazardous Wastes.....	3
2.8 Hazardous Wastes.....	3
2.9 Burning and Fire Prevention	3
2.10 Wet Weather	4
3.0 SPILL PREVENTION	4
3.1 General.....	4
3.2 Storage.....	4
3.3 Refueling	4
3.4 Cleanup and Emergency Notification.....	5
4.0 TEMPORARY EROSION AND SEDIMENT CONTROL	5
4.1 General.....	5
4.2 Sediment Barriers	5
4.3 Temporary Slope Breakers	6
4.4 Temporary Mulching	6
5.0 HIGHWAY AND ROAD CROSSINGS.....	7
6.0 UPLANDS	7
6.1 Clearing.....	7
6.2 Grading.....	7
6.3 Topsoil Removal and Storage.....	7
6.4 Tree and Shrub Mitigation.....	7
6.5 Trenching	8
6.6 Pipe Preparation and Installation	8
6.7 Backfilling	9
6.8 Cleanup	9
6.9 Permanent Erosion and Sediment Control	9

6.10	Reclamation and Revegetation.....	10
6.10.1	<i>Soil Compaction</i>	10
6.10.2	<i>Rock Removal</i>	10
6.10.3	<i>Seeding and Mulching</i>	11
6.10.4	<i>Fences</i>	12
6.10.5	<i>Right-of-Way and Pipeline Markers</i>	12
7.0	WETLAND CROSSINGS.....	12
7.1	General.....	12
7.2	Easement and Workspace.....	12
7.3	Wetland Crossing Methods.....	13
7.3.1	General Mitigation Measures.....	13
7.3.2	Restoration and Reclamation	14
8.0	WATERBODIES AND RIPARIAN AREAS	14
8.1	General.....	14
8.2	Easement and Workspace.....	15
8.3	Waterbody Crossing Methods.....	15
8.3.1	<i>Horizontal Directional Drill Crossing</i>	15
8.3.2	<i>Boring Crossing Method</i>	15
9.0	HYDROSTATIC TESTING.....	16
9.1	General.....	16
9.2	Test Water Source	16
9.3	Water Discharge	16

List of Tables

Table 1.	Spacing for Temporary Slope Breakers	6
Table 2.	Spacing for Permanent Slope Breakers	10

List of Appendices

- Appendix A: Construction Schematics
- Appendix B: Frac-out Contingency Plan

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 expeditiously 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 Code 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 Channel 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.

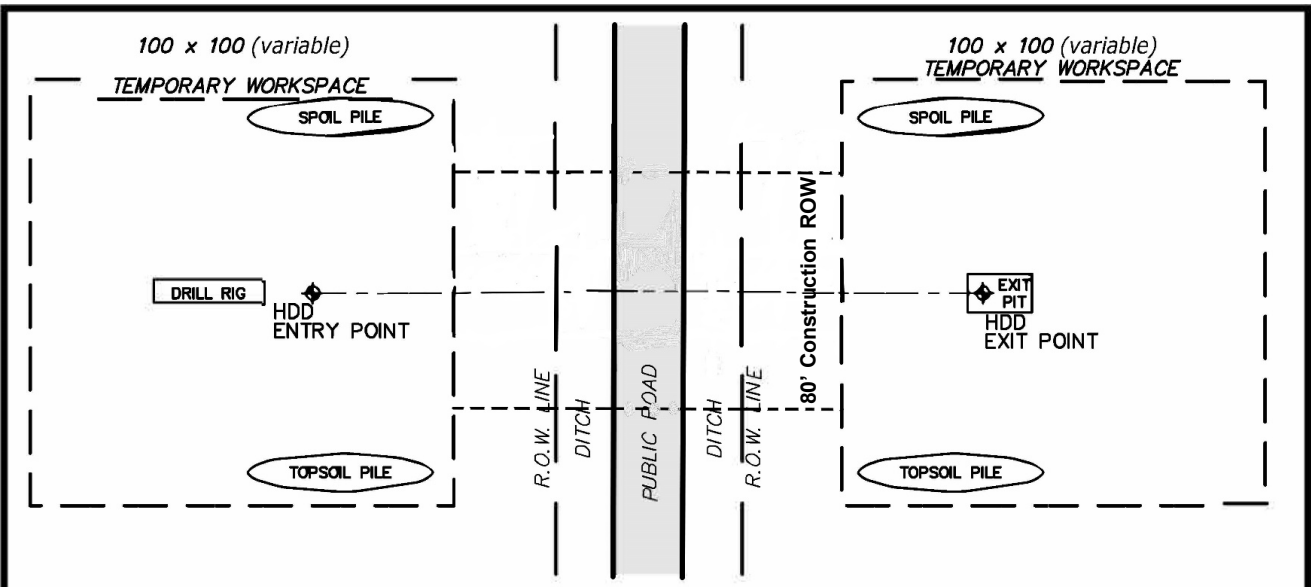
The contractor will not discharge into state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate federal, state, and local permitting agencies grant written 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.

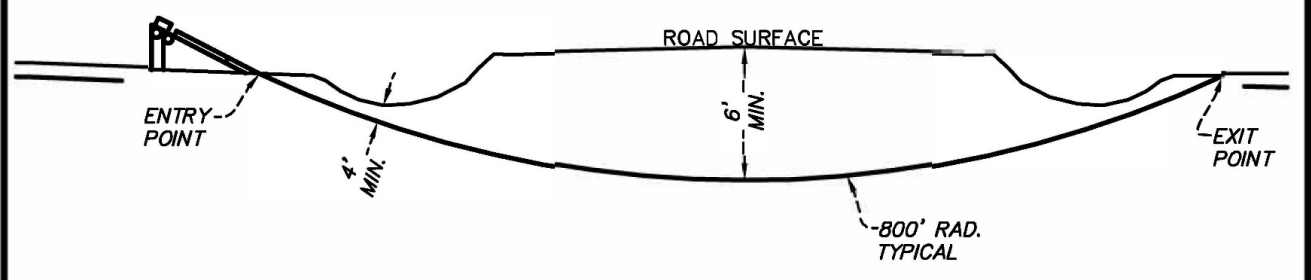
The contractor will regulate the PIG velocity discharge rate (3,000 gpm maximum), use energy dissipation devices, and install sediment barriers, as necessary, to prevent erosion, streambed scour, suspension of sediments, or excessive stream flow. Water must be disposed of using good engineering judgment 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



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.



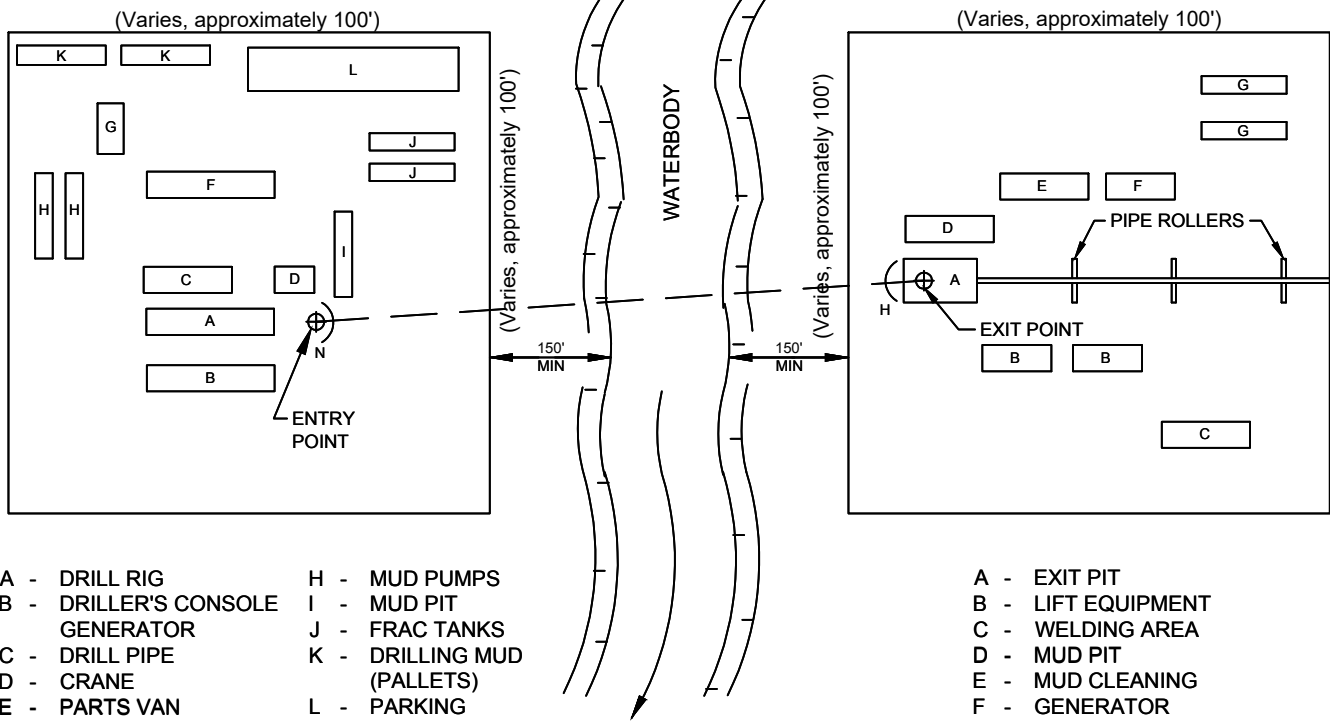
PIPELINE OPERATING PARTNERSHIP, L.P.

TYPICAL ROAD CROSSING
NORTH SYSTEM PIPELINE RELOCATION PROJECT
HORIZONTAL DIRECTIONAL DRILL

CASS COUNTY

NORTH DAKOTA

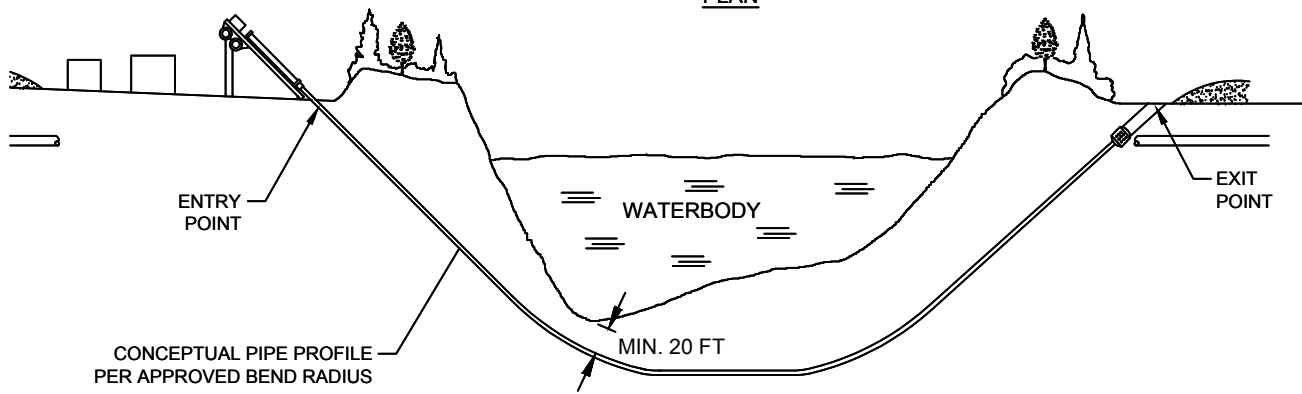
IMAGERY DATE:	DRAWN BY:	
SURVEY BY:	DRAWING DATE:	
DWG BY: EFN	APPROVED:	SCALE: 1" = 10'
CHECKED BY:		SHEET: 1 OF 1



- A - DRILL RIG
- B - DRILLER'S CONSOLE
- 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 OPTIC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.

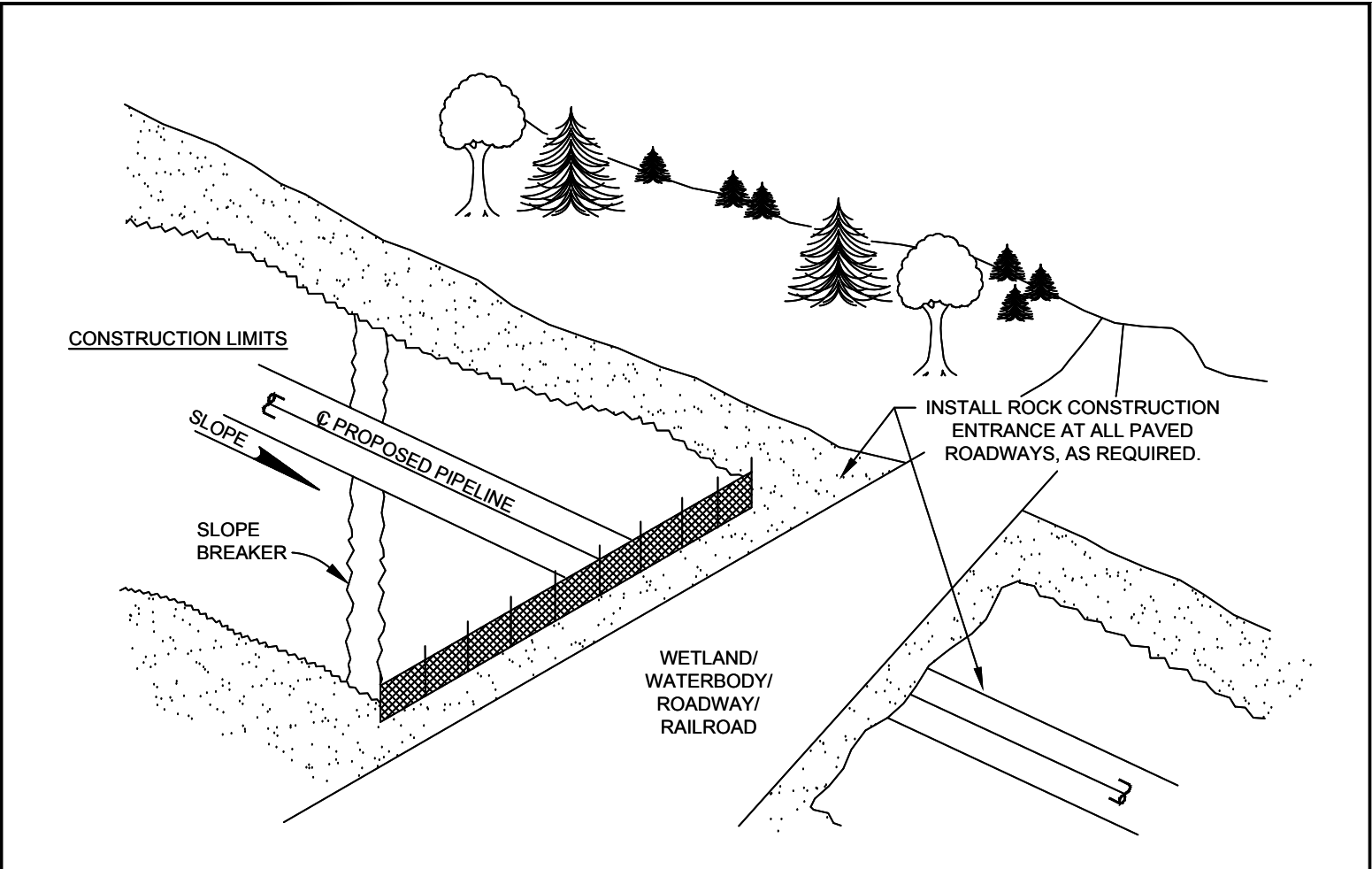
PREPARED BY:

 ENVIRONMENTAL CONSULTANTS
 Sound Science. Creative Solutions.®

REV. LEVEL	DATE	BY	DESCRIPTION	CK.	APP.

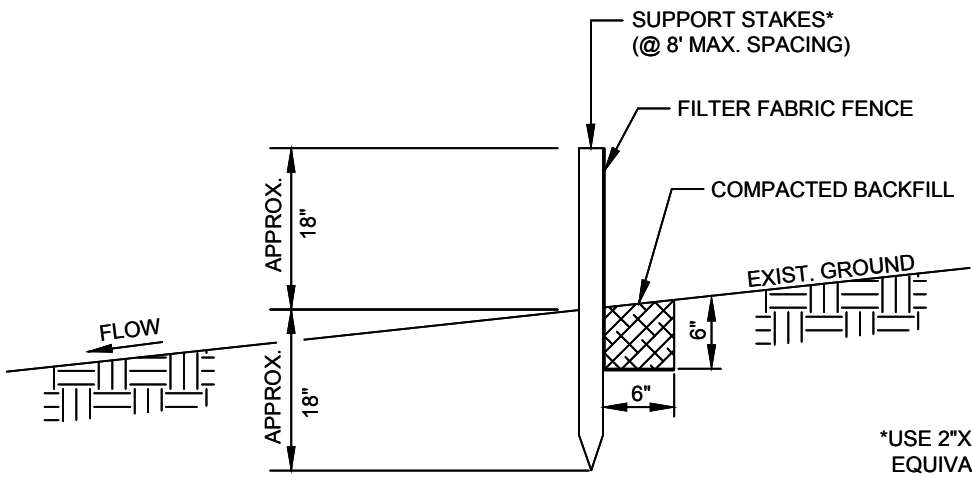
REVISIONS

**TYPICAL WATERBODY CROSSING
HORIZONTAL DIRECTIONAL DRILLING**

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



NOTES:



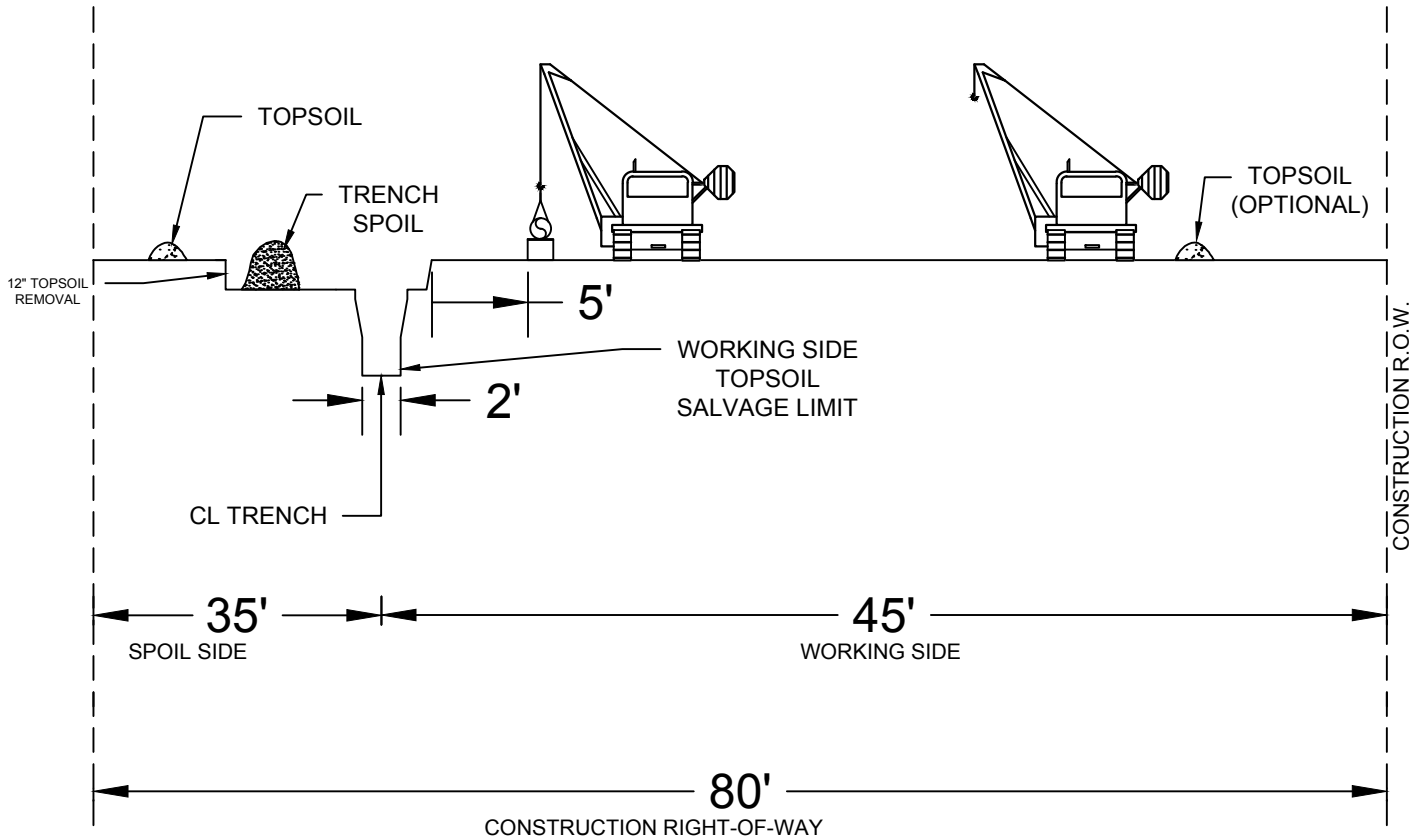
*USE 2"X2" WOOD OR EQUIVALENT STEEL STAKES

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.

								TYPICAL STANDARD 18" SILT FENCE INSTALLATION (SHEET 1 OF 2)						
		REVISIONS												
REV. LEVEL	DATE	BY	DESCRIPTION			CK.	APP.	DATE	REV. 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

TABLE OF CONTENTS

<u>Description</u>	<u>Page</u>
1.0 INTRODUCTION	1
2.0 DRILLING PROCESS AND DRILLING FLUID SYSTEMS	1
3.0 HDD CONTRACTOR RESPONSIBILITIES AND REQUIREMENTS.....	3
4.0 FRACTURE DETECTION.....	4
5.0 CORRECTIVE ACTIONS FOR AN INADVERTANT RELEASE.....	5
7.0 CLEAN-UP OF RELEASESE.....	5
8.0 AGENCY NOTIFICATION PROCEDURES.....	6

LIST OF TABLES

Table 1. Notification of Government Agencies.....	7
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LIST OF FIGURES

Figure 1. North System Pipeline Replacement Project Location Map	2
Figure 2. Typical Surface Expression of a Frac-Out	4

LIST OF APPENDICES

Appendix A	Safety Data Sheets
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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.

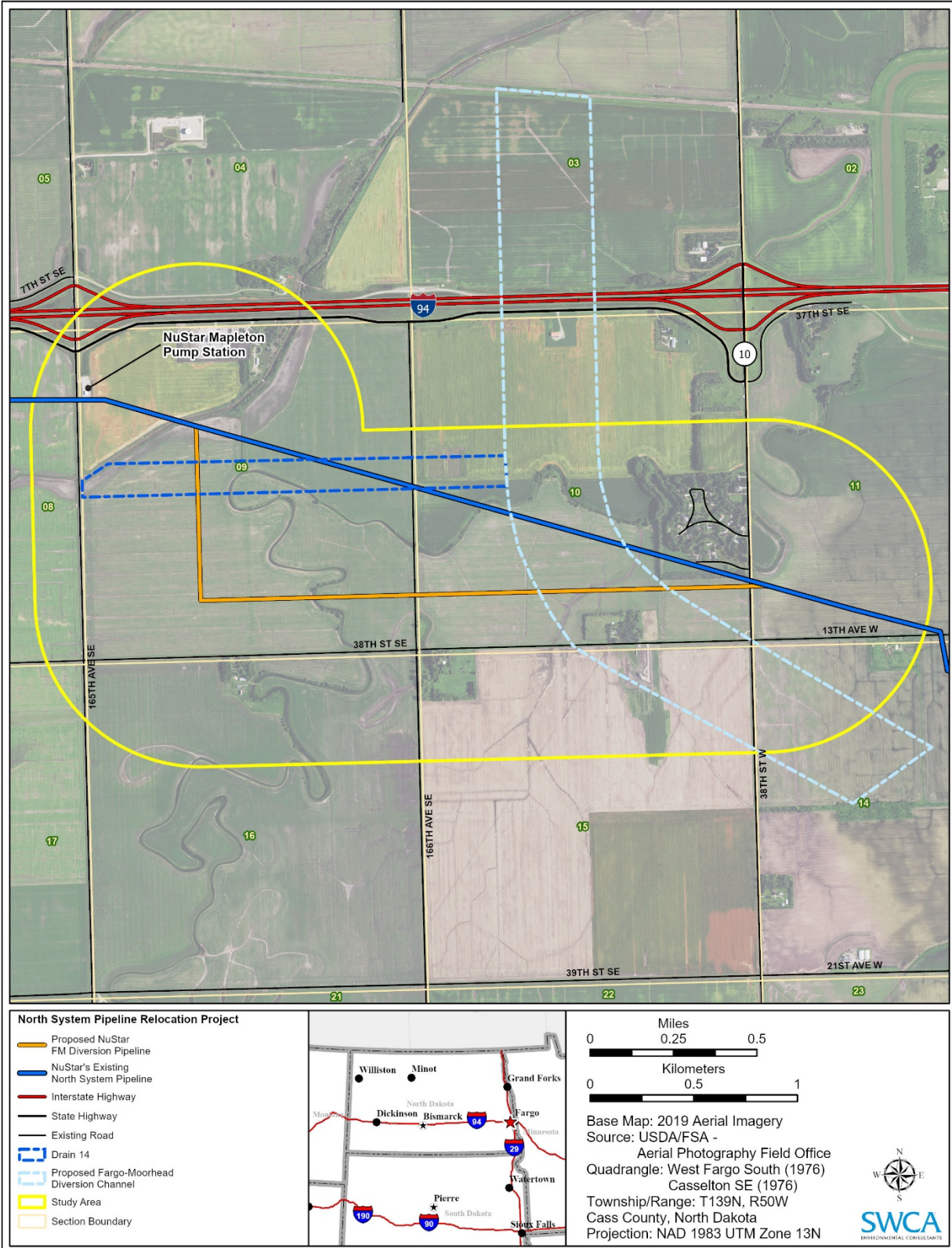


Figure 1. North System Pipeline Replacement Project Location Map

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

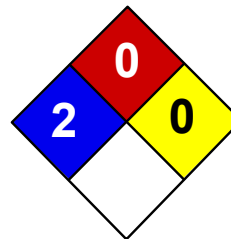
Cass County

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,Fe_{1.67}Mg_{.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.

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