The logo for SWCA (Soil Water Conservation Agency) is positioned vertically on the left side of the page. It consists of the letters 'S', 'W', 'C', and 'A' stacked vertically in a large, light blue, serif font.

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**

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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	<i>Artemisia absinthium</i> L.
Canada thistle	<i>Cirsium arvense</i> (L.) Scop.
Dalmatian toadflax	<i>Linaria dalmatica</i>
Diffuse knapweed	<i>Centaurea diffusa</i> Lam.
Houndstongue	<i>Cynoglossum officinale</i>
Leafy spurge	<i>Euphorbia esula</i> L.
Musk thistle	<i>Carduus nutans</i> L.
Palmer amaranth	<i>Amaranthus palmeri</i>
Purple loosestrife	<i>Lythrum salicaria</i> L., <i>Lythrum virgatum</i> L., and all cultivars
Russian knapweed	<i>Rhaponticum repens</i>
Saltcedar	<i>Tamarix</i> spp.
Spotted knapweed	<i>Centaurea stoebe</i>
Yellow toadflax	<i>Linaria vulgaris</i>

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	<i>Corvus brachyrhynchos</i>	Primary
American robin	<i>Turdus migratorius</i>	Primary
Red-winged blackbird	<i>Agelaius phoeniceus</i>	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 NDPS 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.

5 LITERATURE CITED

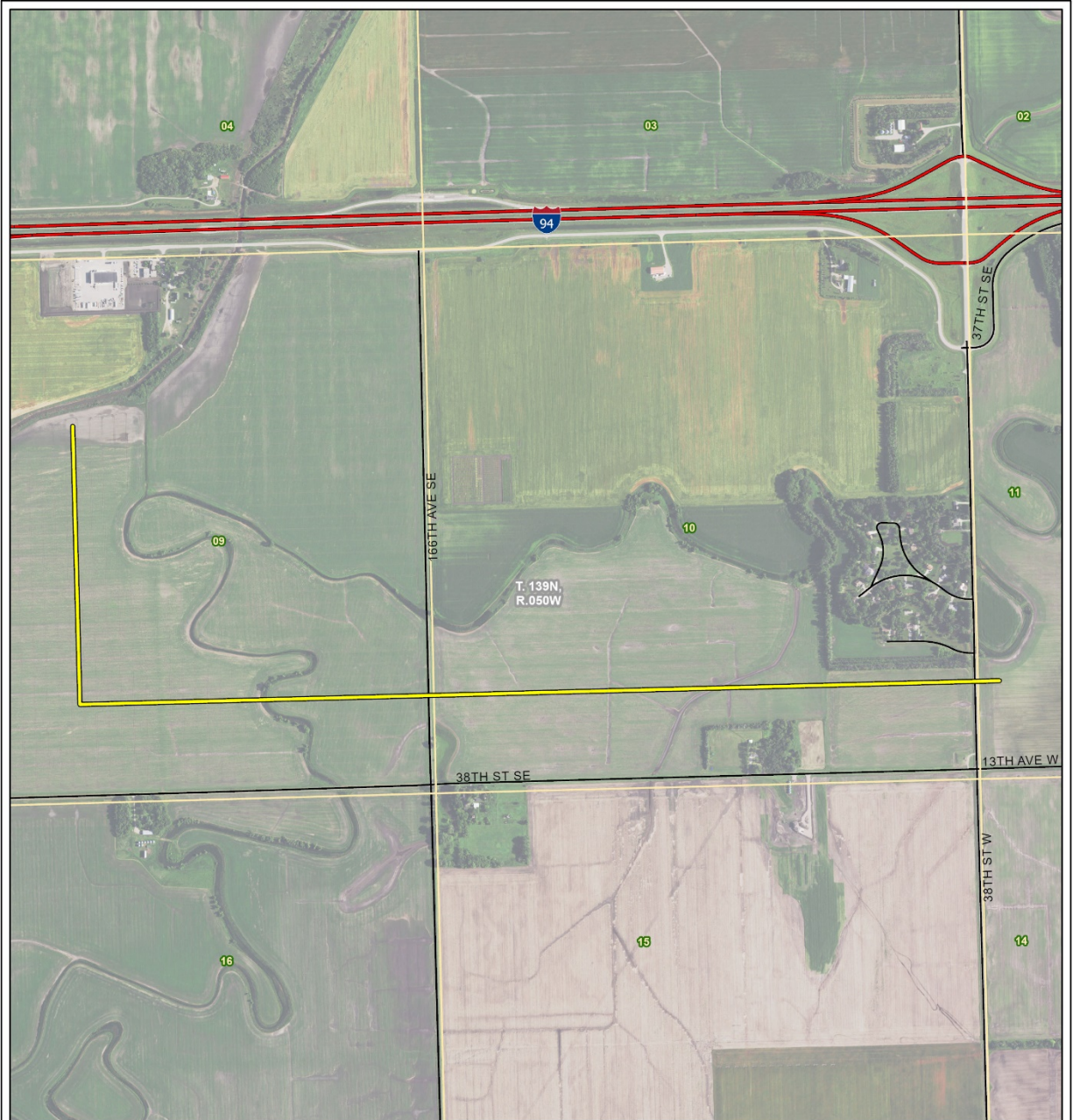
- Avian Knowledge Network (AKN). 2020. Species Maps. Available at: www.avianknowledge.net. Accessed March 2020.
- Cornell Lab of Ornithology. 2019. All About Birds. Available at: <https://www.allaboutbirds.org/>. Accessed March 2020.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-79/31. Washington, D.C.: U.S. Fish and Wildlife Service.
- Dyke, S., S. Johnson, and P. Isakson. 2015. *North Dakota State Wildlife Action Plan 2015*. North Dakota Game and Fish Department.
- Foster, R.W., and A. Kurta. 1999. Roosting ecology of the northern bat (*Myotis septentrionalis*) and comparisons with the endangered Indiana bat (*Myotis sodalis*). *Journal of Mammalogy* 80:659–672.
- Henderson, L.E., and H.G. Broders. 2008. Movements and resource selection of the northern long-eared myotis (*Myotis septentrionalis*) in a forest-agriculture landscape. *Journal of Mammalogy* 89:952–963.
- Johnson, S. 2009. *North Dakota Bald Eagle Nest Summary*. Available at: https://efotg.sc.egov.usda.gov/references/public/ND/ND_Bald_Eagle_Nest_Summary_2009.pdf. Accessed March 2020.
- Lichvar, R.W., and S.M. McColley. 2008. *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*. ERDC/CRREL TR-08-12. Hanover, New Hampshire: U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory.
- Minnesota Department of Natural Resources. 2019. *Townships Containing Documented Northern Long-eared Bat (NLEB) Maternity Roost Trees and/or Hibernacula Entrances in Minnesota*. Available at: https://files.dnr.state.mn.us/eco/ereview/minnesota_nleb_township_list_and_map.pdf. Accessed July 2020.
- National Oceanic and Atmospheric Administration. 2020. Bismarck, North Dakota. Preliminary Monthly Climate Data Reports. Available at: <https://w2.weather.gov/climate/index.php?wfo=bis>. Accessed June 2020.
- Natural Resources Conservation Service (NRCS). 2006. *Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin*. United States Department of Agriculture Handbook 296. U.S. Department of Agriculture, NRCS.
- . 2020. Web Soil Survey. Available at: <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>. Accessed June 2020.
- North Dakota Department of Agriculture. 2020. Noxious Weeds. Available at: <https://www.nd.gov/ndda/plant-industries/noxious-weeds>. Accessed July 2020.
- North Dakota Public Service Commission (NDPSC). 2020. Tree and Shrub Mitigation Specifications.

- Owen, S., M.A. Menzel, M.W. Ford, B.R. Chapman, K.V. Miller, J. Edwards, and P. Wood. 2003. Home range size and habitat use by northern Myotis (*Myotis septentrionalis*). *American Midland Naturalist* 150:352–359.
- Pearse, A.T., M. Rabbe, M.T. Bidwell, L.M. Juliusson, L. Craig-Moore, D.A. Brandt, and W. Harrell. 2018. Map of whooping crane migration corridor. U.S. Geological Survey data release. Available at: <https://doi.org/10.5066/F7FT8K74>. Accessed March 2020.
- Pearse, A.T., M. Rabbe, L.M. Juliusson, M.T. Bidwell, L. Craig-Moore, D.A. Brandt, and W. Harrell. 2018. Delineating and Identifying Long-Term Changes in the Whooping Crane (*Grus americana*) Migration Corridor. *PLoS ONE* 13:e0192737. Available at: <https://doi.org/10.1371/journal.pone.0192737>. Accessed March 2020.
- U.S. Army Corps of Engineers (USACE). 1987. *Corps of Engineers Wetland Delineation Manual*. Technical Report Y-87-1. Vicksburg, Mississippi: U.S. Army Engineers Waterways Experiment Station.
- . 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)*. ERDC/EL TR-10-16. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center, Environmental Laboratory.
- . 2020. 2018 National Wetland Plant List. Effective May 18, 2020. Available at http://wetland-plants.usace.army.mil/nwpl_static/v34/home/home.html. Accessed June 2020.
- U.S. Department of Agriculture. 2018. *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils, Version 8.2*. Prepared in cooperation with the National Technical Committee for Hydric Soils. Edited by L.M. Vasilas, G.W. Hurt, and J.F. Berkowitz. U.S. Department of Agriculture, Natural Resources Conservation Service
- U.S. Fish and Wildlife Service (USFWS). 2010. Whooping crane (*Grus americana*). Available at: <https://ecos.fws.gov/ecp0/profile/speciesProfile?sId=758>. Accessed March 2020.
- . 2018a. Northern Long-Eared Bat (*Myotis septentrionalis*) Fact Sheet. Available at: <https://www.fws.gov/Midwest/endangered/mammals/nleb/nlebFactSheet.html>. Accessed July 2020.
- . 2018b. Species Status and Fact Sheet. Whooping crane. Available at: <https://www.fws.gov/northflorida/whoopingcrane/whoopingcrane-fact-2001.htm>. Accessed March 2020.
- . 2019a. Species Profile for Northern long-eared Bat (*Myotis septentrionalis*). Available at: <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=A0JE>. Accessed July 2020.
- . 2019b. *Northern Long-Eared Bat Final 4(d) Rule: White-Nose Syndrome Zone Around WNS/Pd Positive Counties/Districts*. Available at: <https://www.fws.gov/Midwest/endangered/mammals/nleb/pdf/WNSZone.pdf>. Accessed March 2020.
- . 2019c. Central Flyway Whooping Crane Sightings through Spring 2019. USFWS, Nebraska Ecological Services Field Office.
- . 2020a. National Wetlands Inventory. Available at: <http://www.fws.gov/wetlands/>. Accessed June 2020.





- . 2020b. IPaC: Information for Planning and Consultation. Available at: <https://ecos.fws.gov/ipac/>. Accessed June 2020.
- . 2020c. Threatened and Endangered Species Active Critical Habitat Report. Available at: <https://ecos.fws.gov/ecp/report/table/critical-habitat.html>. Accessed June 2020.
- . 2020d. *2020 Range-Wide Indiana Bat Summer Survey Guidelines*. March 2020. Available at: <https://www.fws.gov/midwest/Endangered/mammals/inba/surveys/pdf/FINAL%20Range-wide%20IBat%20Survey%20Guidelines%203.23.20.pdf>. Accessed July 2020.
- U.S. Geological Survey (USGS). 2020. National Hydrography Dataset (NHD). Available at: <http://viewer.nationalmap.gov/viewer/nhd.html?p=nhd>. Accessed June 2020.

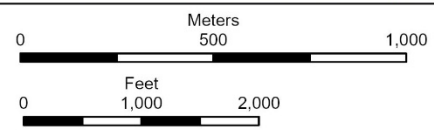
APPENDIX A

Overview and Survey Results Maps



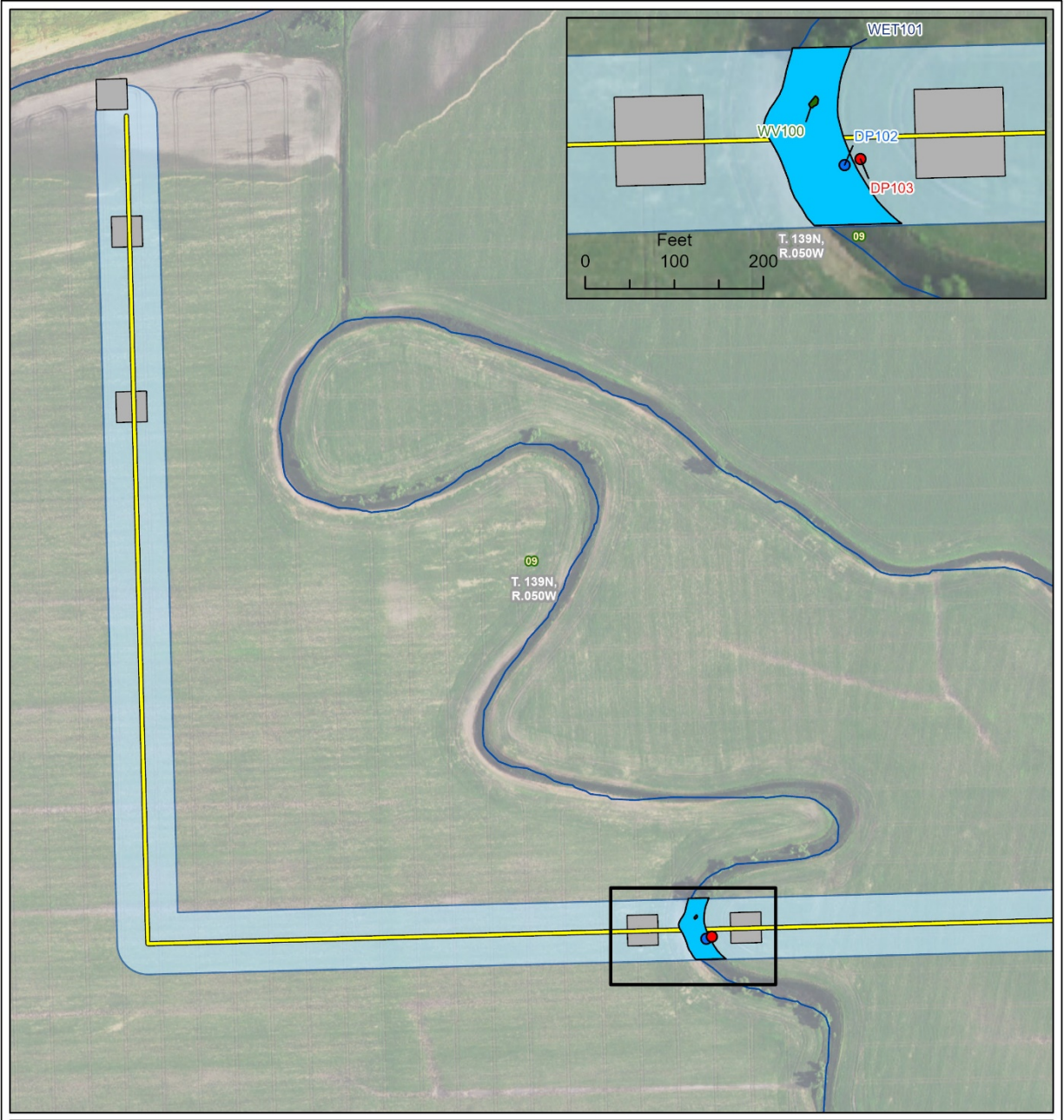
NuStar North System Pipeline

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



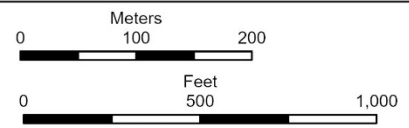
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 Source: USDA/FSA -
 Aerial Photography Field Office
 Quadrangle: West Fargo South (1976)
 Casselton SE (1976)
 Township/Range: T139N, R50W
 Cass County, North Dakota
 Projection: NAD 1983 UTM Zone 13N





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



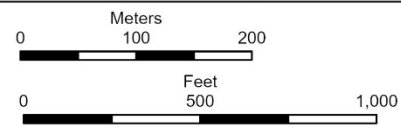
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NuStar North System Pipeline

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









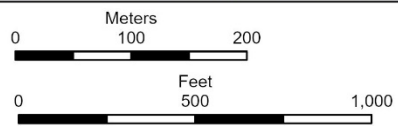
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NuStar North System Pipeline

-  Proposed Pipeline
-  NHD Flowline
-  Secondary Road
-  Survey Area
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Base Map: 2019 Aerial Imagery
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 Cass County, North Dakota
 Projection: NAD 1983 UTM Zone 13N



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 No _____ (if no, explain in Remarks.)
 Are Vegetation No, Soil Yes, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes 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 features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	

Remarks:
 Wetland within a roadside ditch.

VEGETATION – Use scientific names of plants

	Absolute % Cover	Dominant Species?	Indicator Status
<u>Tree Stratum</u> (Plot size: <u>30</u>)			
1. _____			
_____ = Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u>)			
1. _____			
_____ = Total Cover			
<u>Herb Stratum</u> (Plot size: <u>5</u>)			
1. <u>Typha X glauca</u>	50%	Y	OBL
2. <u>Phalaris arundinacea</u>	50%	Y	FACW
3. _____			
_____ = Total Cover			
<u>Woody Vine Stratum</u> (Plot size: <u>30</u>)			
1. _____			
_____ = Total Cover			
% Bare Ground in Herb Stratum _____			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100.0%</u> (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species <u>50%</u>	x 1	<u>50.0%</u>
FACW species <u>50%</u>	x 2	<u>100.0%</u>
FAC species <u>0%</u>	x 3	<u>0.0%</u>
FACU species <u>0%</u>	x 4	<u>0.0%</u>
UPL species <u>0%</u>	x 5	<u>0.0%</u>
Column Totals:	<u>100.0%</u> (A)	<u>150%</u> (B)
Prevalence Index = B/A = <u>1.50</u>		

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 separate 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 _____

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth (inches)	Matrix		Redox Features				Texture:	Remarks:
	Color:	%	Color:	%	Type:	Loc:		
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.)	Indicators for Problematic Hydric Soils
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 1 cm Muck (A9)(LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9)(LRR F, G, H)	<input type="checkbox"/> Reduced Vertic (F18)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Muck Mineral (S1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	

Restrictive Layer (if present):
 Type: Clay
 Depth (inches): 6

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> (where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:	Wetland Hydrology Present?
Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>2</u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u>	
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	

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 features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	

Remarks:
 Roadside area built up with fill.

VEGETATION – Use scientific names of plants

Tree Stratum	Plot size: <u>30</u>	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	_____	
_____ = Total Cover					
Sapling/Shrub Stratum (Plot size: <u>15</u>)					
1. _____	_____	_____	_____	_____	Prevalence Index Worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0%</u> x 1 <u>0.0%</u> FACW species <u>0%</u> x 2 <u>0.0%</u> FAC species <u>0%</u> x 3 <u>0.0%</u> FACU species <u>10%</u> x 4 <u>40.0%</u> UPL species <u>90%</u> x 5 <u>450.0%</u> Column Totals: <u>100.0%</u> (A) <u>490%</u> (B) Prevalence Index = B/A = <u>4.90</u>
_____ = Total Cover					
Herb Stratum (Plot size: <u>5</u>)					
1. <u>Bromus inermis</u>		<u>90%</u>	<u>Y</u>	<u>UPL</u>	Hydrophytic Vegetation Indicators: <u>N</u> 1 - Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test if >50% _____ 3 - Prevalence Index is ≤ 3.0 <u>N</u> 4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) <u>N</u> Problematic Hydrophytic Vegetation (Explain)
2. <u>Trifolium hybridum</u>		<u>10%</u>	<u>N</u>	<u>FACU</u>	
3. _____		_____	_____	_____	
_____ = Total Cover					
Woody Vine Stratum (Plot size: <u>30</u>)					
1. _____	_____	_____	_____	_____	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
_____ = Total Cover					
% Bare Ground in Herb Stratum _____					

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth (inches)	Matrix		Redox Features				Texture:	Remarks:
	Color:	%	Color:	%	Type:	Loc:		
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.)	Indicators for Problematic Hydric Soils
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 1 cm Muck (A9)(LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9)(LRR F, G, H)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Muck Mineral (S1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	

Restrictive Layer (if present):
 Type: Clay
 Depth (inches): 20

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> (where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:	Wetland Hydrology Present?
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>N/A</u>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>N/A</u>	
Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>N/A</u>	

Describe Recorded Data (stream gauge, 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 No _____ (if no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes 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 features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No _____	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No _____	

Remarks:
 Palustrine emergent wetland within drainage. Algal communities present due to nutrient runoff from surrounding agricultural watershed.

VEGETATION – Use scientific names of plants

Stratum	Plot size	Absolute % Cover	Dominant Species?	Indicator Status
<u>Tree Stratum</u>	(Plot size: <u>30</u>)			
1. _____				
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u>	(Plot size: <u>15</u>)			
1. _____				
_____ = Total Cover				
<u>Herb Stratum</u>	(Plot size: <u>5</u>)			
1. <u><i>Typha X glauca</i></u>		90%	Y	OBL
2. <u><i>Phalaris arundinacea</i></u>		20%	N	FACW
3. <u><i>Phragmites australis</i></u>		7%	N	FACW
4. _____				
_____ = Total Cover				
<u>Woody Vine Stratum</u>	(Plot size: <u>30</u>)			
1. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	<u>1</u> (A)
Total Number of Dominant Species Across All Strata:	<u>1</u> (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100.0%</u> (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:	
OBL species <u>90%</u>	x 1	<u>90.0%</u>
FACW species <u>27%</u>	x 2	<u>54.0%</u>
FAC species <u>0%</u>	x 3	<u>0.0%</u>
FACU species <u>0%</u>	x 4	<u>0.0%</u>
UPL species <u>0%</u>	x 5	<u>0.0%</u>
Column Totals:	<u>117.0%</u> (A)	<u>144%</u> (B)
Prevalence Index = B/A = <u>1.23</u>		

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 separate 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 _____

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth (inches)	Matrix		Redox Features				Texture:	Remarks:
	Color:	%	Color:	%	Type:	Loc:		
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.)	Indicators for Problematic Hydric Soils
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 1 cm Muck (A9)(LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9)(LRR F, G, H)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Red Parent Material (TF2)
<input checked="" type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Muck Mineral (S1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	

Restrictive Layer (if present):
 Type: Clay
 Depth (inches): 14

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators

Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> (where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:	Wetland Hydrology Present?
Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>5</u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u>	
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	

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 features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes _____	No <u>X</u>	

Remarks:
 Cornfield.

VEGETATION – Use scientific names of plants

	Absolute % Cover	Dominant Species?	Indicator Status
<u>Tree Stratum</u> (Plot size: <u>30</u>)			
1. _____			
_____ = Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u>)			
1. _____			
_____ = Total Cover			
<u>Herb Stratum</u> (Plot size: <u>5</u>)			
1. <u>Dactylis glomerata</u>	3%	Y	FACU
2. <u>Taraxacum officinale</u>	2%	Y	FACU
3. _____			
_____ = Total Cover			
<u>Woody Vine Stratum</u> (Plot size: <u>30</u>)			
1. _____			
_____ = Total Cover			
% Bare Ground in Herb Stratum	<u>95.00%</u>		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u>	(A)
Total Number of Dominant Species Across All Strata:	<u>2</u>	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>0.0%</u>	(A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	<u>0%</u>	x 1	<u>0.0%</u>
FACW species	<u>0%</u>	x 2	<u>0.0%</u>
FAC species	<u>0%</u>	x 3	<u>0.0%</u>
FACU species	<u>5%</u>	x 4	<u>20.0%</u>
UPL species	<u>0%</u>	x 5	<u>0.0%</u>
Column Totals:	<u>5.0%</u>	(A)	<u>20%</u> (B)
Prevalence Index = B/A =			<u>4.00</u>

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 separate sheet)
 Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic Vegetation Present? Yes _____ No X

Remarks: Recently plowed cornfield

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth (inches)	Matrix		Redox Features				Texture:	Remarks:
	Color:	%	Color:	%	Type:	Loc:		
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 Prairie 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

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 Depth (inches): N/A
 Water Table Present? Yes No Depth (inches): 20
 Saturation Present? Yes No Depth (inches): 22
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

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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