

APPENDIX F

Ecological Assessment Report



REPORT

Ecological Assessment Report

WTT PIPELINE
MCKENZIE COUNTY, NORTH DAKOTA

T152N R102W, 5th P.M.
Section 24

T152N R101W, 5th P.M.
Sections 19, 30 - 32

T151N R101W, 5th P.M.
Section 5

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NST Express WTT Pipeline Ecological Assessment Report

INTRODUCTION

At the request of NST Express, LLC (NST Express), Arcadis U.S., Inc. (Arcadis) performed an ecological assessment survey for the proposed WTT Pipeline project (Project) in McKenzie County, North Dakota. The purpose of the field assessment was to document any sensitive ecological resources including exclusion and avoidance areas as specified in North Dakota Administrative Code Section 69-06-08-02. Resources considered in this analysis include endangered or threatened species, sensitive habitat types, weed species, tree and shrub communities, and aquatic features including streams and wetlands.

Agencies that could possess jurisdiction within the Project area or those who would require coordination if any sensitive ecological resources were detected include: the United States Fish and Wildlife Service (USFWS), the North Dakota Game and Fish Department (NDGFD), the North Dakota Public Service Commission (NDPSC), and the United States Army Corps of Engineers (USACE). In addition, a summary of delineated wetlands encountered along the corridor are included within this report for planning purposes.

PROJECT DESCRIPTION

NST Express proposes to construct an approximately 3.6-mile-long crude oil pipeline connecting two facilities in McKenzie County, North Dakota. The pipeline will originate at Tesoro Logistics GP, LLC's (Tesoro) existing crude oil, break-out tank (Tesoro Site) located north of Alexander, North Dakota, and terminate at the NST Express market hub facility located northwest of Alexander, North Dakota (NST Express Alexander Facility), which is currently under construction. The proposed pipeline connecting the facilities is referred to as the NST Express WTT Pipeline Project (Project).

PROJECT LOCATION

The Project is situated in the northwest region of North Dakota entirely within McKenzie County. The majority of the Project occurs on the east side of U.S. Highway 85 (State Highway 200) between Alexander and Williston, North Dakota. The Project is located entirely within Sections 5 and 6, T151N-R101W; Sections 19, 30-32, T152N-R101W; and Section 24, T152N-R102W. The pipeline will originate at Tesoro existing crude oil, break-out tank located north of Alexander, North Dakota and terminate at the NST Express market hub facility located northwest of Alexander, North Dakota (NST Express Facility), which is permitted and currently under construction. The Project location is depicted in Figure 1 – Appendix A.

EXISTING CONDITIONS

The majority of the proposed route occurs within or adjacent to an existing pipeline ROW covered in reclaimed vegetation. Other existing infrastructure and disturbances noted within and near the survey area include: overhead transmission line, single phase power line, cultivated fields and oil and gas facilities. Observed existing conditions noted within the Project area are depicted on Figure 2 – Appendix A.

GENERAL PROJECT AREA

Ecoregions are used to implement structured management strategies across federal and state agencies, as well as nongovernmental organizations responsible for natural resources within a geographical area. The Level IV ecoregion described for the Project area serves as a spatial framework for research, assessment, management, and monitoring of ecosystem components and its probable response to disturbance. The Project area is located within the Missouri Plateau subregion of the Northwestern Great Plains Level IV ecoregion of North Dakota. The topography of this region includes unglaciated, moderately dissected level to rolling plains with isolated sandstone buttes. Where the Project area occurs is indicative of the dissected rolling plains of the Missouri Plateau subregion, with the near-level terraces used for agriculture. Mean annual precipitation is 15 to 17 inches. Land uses generally include dryland farming and cattle grazing. Predominant crops are barley, oats and sunflowers. Native areas consist of mixed grasses. Natural vegetation is characterized by the predominance of: blue grama, western wheatgrass, needleandthread, little bluestem and prairie sandreed (Bailey et al. 1994).

MAJOR VEGETATION

The field survey occurred early in the growing season with many species recently emerging from dormancy. Identifiable vegetative species noted within the Project corridor included: smooth brome (*Bromus inermis*), common dandelion (*Taraxacum officinale*), blue grama (*Bouteloua gracilis*), little bluestem (*Schizachyrium scoparium*), crested wheatgrass (*Agropyron cristatum*), fringed sagewort (*Artemisia frigida*), yellow clover (*Melilotus officinalis*), prairie chordgrass (*Spartina pectinata*), common reed (*Phragmites australis*), currant (*Ribes spp.*), silver buffaloberry (*Shepherdia argentea*), cattail (*Typha latifolia*), Chinese elm (*Ulmus parvifolia*) and creeping juniper (*Juniperus horizontalis*).

REGULATORY BACKGROUND

Within the scope of this Project agencies may require consultation or a permit following an evaluation of potential impacts to sensitive natural resources. The four key regulations that need to be addressed are the Endangered Species Act (ESA) of 1973, the Clean Water Act (CWA) of 1972, the Migratory Bird Treaty Act (MBTA) of 1918, and the Bald and Golden Eagle Protection Act of 1940.

METHODOLOGY

Prior to field reconnaissance, Arcadis obtained proposed alignment information from NST Express. The Survey Area is defined as an area between 200 and 400 feet wide that covers proposed permanent rights-of-way and temporary workspace areas (Figure 1 – Appendix A). The alignment and Survey Area buffers were loaded onto a global positioning system (GPS) to guide the survey extent during fieldwork.

The USFWS website was queried to acquire a list of Threatened, Endangered and Candidate (TEC) species with the potential to occur in McKenzie County, North Dakota (USFWS 2016). In addition, the North Dakota Fish and Game Department, National Wetland Inventory (NWI), USGS, and USFWS data sources were queried in an effort to obtain any pertinent Geographic Information Systems (GIS) data or mapped sensitive species habitats to incorporate onto topographic and aerial photo maps. Arcadis conducted a biological and habitat survey for the Survey area on April 28th and 29th, 2016. Surveys were conducted by foot with the aid of binoculars.

Starting at the south end of the alignment, a biologist walked northerly in a systematic fashion, examining habitats from different angles to ensure complete coverage. A GPS receiver, using North American Datum (1983) and Universal Transverse Mercator (UTM) coordinate system in Zone 13 North, USGS 7.5-minute topographic maps, and a digital camera were used to document relevant wildlife features observed during the survey such as wetlands, shrublands and potential avian nesting habitats. Arcadis performed a wetland survey concurrently with the ecological evaluation.

For planning purposes, wetland features were identified within the Survey Area using the 1987 USACE Manual and Great Plains Regional Supplement (Version 2.0). In order to be considered as a wetland, the feature had to contain qualifying characteristics across three criteria: hydrology, soils and vegetation.

WEATHER CONDITIONS DURING SURVEY

Weather conditions during the site visit were sunny with partly cloudy skies. Winds were 10-15 miles per hour (mph) and the temperature was approximately 55 degrees Fahrenheit during the survey.

WILDLIFE OBSERVED

Incidental wildlife and avian observations noted during the field effort include: Western Meadowlark (*Sturnella neglecta*), northern harrier (*Circus cyaneus*), mourning dove (*Zenaidura macroura*), sharp-tailed grouse (*Tympanuchus phasianellus*), ring-necked pheasant (*Phasianus colchicus*), cottontail rabbit (*Sylvilagus audubonii*) and red-winged blackbird (*Agelaius phoeniceus*).

NOXIOUS WEED SURVEYS

The North Dakota Department of Agriculture coordinates efforts of county weed boards and state and federal land managers to implement weed management programs as established in North Dakota Law (NDCC Section 4.1-47-02). State designated weeds are defined as those species that are difficult to control, easily spread, and injurious to public health, crops, livestock, land or other property. State designated weeds in North Dakota include: Absinth wormwood (*Artemisia absinthium*), Canada thistle (*Cirsium arvense*), Dalmatian toadflax (*Linaria genistifolia*), diffuse knapweed (*Centaurea diffusa*), leafy spurge (*Euphorbia esula*), musk thistle (*Carduus nutans*), purple loosestrife (*Lythrum salicaria*), Russian knapweed (*Centaurea repens*), saltcedar (*Tamarisk spp.*), spotted knapweed (*Centaurea maculosa*), and yellow toadflax (*Linaria vulgaris*). Designated weed species listed for McKenzie County include: black henbane (*Hyoscyamus niger*), common burdock (*Arctium spp.*), houndstongue (*Cynoglossum officinale*), halogeton (*Halogeton glomeratus*) and baby's breath (*Gypsophila spp.*) (NDDA 2015).

None of the state or county designated weed species were observed within the Survey Area by Arcadis. Since the field reconnaissance occurred early in the growing season, emerging plants would have been difficult to detect and possibly overlooked. Arcadis recommends the implementation of best management practices to minimize the risk of importing or transporting any weed species. Equipment and tools should be cleaned of any plant debris prior to ingress and egress from the Project area.

FEDERALLY LISTED THREATENED, ENDANGERED AND CANDIDATE SPECIES

Those species federally listed as threatened, endangered, or candidate by the USFWS that could potentially occur in McKenzie County, North Dakota and the likelihood of their occurrence in the Project area are described below. This evaluation does not include a review of historic observations but rather the likelihood of occurrence based on present day habitat conditions.

Black-footed Ferret (*Mustela nigripes*)

Black-footed ferrets are listed as Endangered and Experimental / Non-essential in North Dakota. Black-footed ferrets are nocturnal, solitary carnivores of the weasel family. They have been largely extirpated from the wild primarily due to range-wide decimation of the prairie dog (*Cynomys sp.*) ecosystem due to sylvatic plague (Kotliar et al. 1999). Black-footed ferrets depend on prairie dogs as their primary food source and reside in prairie dog burrows (USFWS 2016b). No prairie dog colonies occur within the Project area, therefore no impacts to this species are expected.

Gray Wolf (*Canis Lupus*)

The gray wolf has been listed as endangered in the Rocky Mountain west since 1978. Populations in Idaho and Montana were delisted in 2011 due to recovery. A keystone predator, the gray wolf is an

integral component of the ecosystems to which it typically belongs. The wide range of habitats in which wolves can thrive reflects their adaptability as a species, and includes temperate forests, mountains, tundra, taiga, and grasslands (USFWS 2015). Wolves are dependent upon movements of big game and they have the potential to occupy large ungulate migration or wintering areas. Due to a lack of forested habitat, distance from Minnesota and Manitoba populations, as well as the troubled relationship between humans and wolves (Licht and Huffman 1996), the re-establishment of gray wolf populations in North Dakota is unlikely. Since there is a lack of montane habitat and large prey bases within the Project area, no impacts to this species are expected.

Least Tern (*Sterna antillarum*)

The least tern is listed as endangered within North Dakota. This species is the smallest member of the gull and tern family, measuring approximately nine inches in length. Unlike gulls, terns will dive into the water for small fish. In North Dakota, the least tern utilizes sparsely vegetated sandbars on the Missouri and Yellowstone Rivers. Birds nest, raise young, and relax on barren river sandbars (USFWS 2016d). One reason for species decline has been attributed to construction of dams and river channelization throughout major waterways thereby reducing breeding habitats. The Missouri River and Yellowstone River is located over five and thirteen miles from the ROW, respectively. No shoreline habitats occur within the Project area, therefore no impacts to least terns are expected.

Northern Long-Eared Bat (*Myotis septentrionalis*)

The northern long-eared bat is listed as Threatened under the ESA (Final Rule January 14, 2016, 81 FR 1900 1922) with critical habitat not proposed at this time (USFWS 2016c). The range of the northern long-eared bat occurs from Manitoba across southern Canada to Newfoundland, south to northern Florida, with Wyoming at the extreme western boundary (Hester et al. 2005). This bat primarily feeds and inhabits forested regions, including wooded riparian zones in badlands and prairies, to higher elevation conifer and deciduous woodlands. Hibernacula are known to occur in caves and abandoned mines that provide relatively constant, low temperatures, high humidity and no air currents. Hibernacula are difficult to observe and easily overlooked because this species often roosts in deep crevices. Due to the lack of forest habitat in the vicinity of the proposed Project it is unlikely that these bats would either roost or forage near the ROW. Therefore, the proposed Project should have no impact on the northern long-eared bat.

Piping Plover (*Charadrius melodus*)

The piping plover is a small shorebird which breeds only in three geographic regions of North America: the Atlantic Coast, the Northern Great Plains, and the Great Lakes. The Northern Great Plains population including North Dakota is listed as Threatened. North Dakota is the most important State in the Great Plains for nesting piping plovers. More than three-fourths of plover in North Dakota nest on prairie alkali

lakes, with the remainder using the Missouri River. The shorelines of lakes of the Missouri River constitute significant nesting areas for the bird.

Anthropogenic alterations of the landscape along rivers and lakes where piping plover nest have increased the number and type of predators, subsequently decreasing nest success and chick survival. The Northern Great Plains population has continued to decline despite federal listing, with population estimates of 1,500 breeding pairs in 1985 reduced to fewer than 1,100 in 1990. As part of the conservation strategy for this species critical habitat has been designated by USFWS including the shores of the Missouri River in North Dakota.

Suitable shoreline habitat for breeding and nesting plovers does not occur within the Project area and the Missouri River is over five miles from the proposed ROW; however, it is possible that migrating plovers may traverse the Project area during their migration. Due to a lack of suitable breeding and nesting habitat, the proposed Project should have no impact on piping plovers or designated critical habitat.

Red Knot (*Calidris canutus rufa*)

The red knot was listed as threatened on September 27, 2013. This bird is known to migrate over 9,300 miles from South America to the Arctic tundra every spring while repeating the trip in early fall (Boere et. al. 2006). The red knot nests in a scrape on the ground lined with leaves, lichens and moss usually near water. This species would likely only be passing through North Dakota as part of their annual migration and may exhibit avoidance to active construction. If a red knot is observed within 1.0 mile of the ROW with active construction, it is recommended construction activities in that area cease until the bird leaves or the USFWS should be notified. Since the Project does not occur in suitable nesting habitat no direct impacts to this species are anticipated.

Whooping Crane (*Grus americana*)

The whooping crane is listed as endangered in North Dakota. Whooping cranes occur only in North America and is North America's tallest bird, with males approaching 1.5 m (5 ft) when standing erect. Whooping cranes currently exist in the wild at 3 locations and in captivity at 12 sites. The July 2010 total wild population was estimated at 383. There is only one self-sustaining wild population, the Aransas-Wood Buffalo National Park population, which nests in Wood Buffalo National Park and adjacent areas in Canada, and winters in coastal marshes in Texas at Aransas. The Aransas Wood Buffalo population migrates through North Dakota (USFWS 2016e). While the proposed Project will not impact nesting habitat, an incidental observation during the migration season is possible. If a whooping crane is observed within 1.0 mile of the ROW with active construction, it is recommended construction activities in that area cease until the bird leaves or the USFWS should be notified. Since the Project does not occur in suitable nesting habitat no direct impacts to this species are anticipated.

Pallid Sturgeon (*Scaphirhynchus albus*)

The pallid sturgeon was listed as endangered in 1990 in the United States by the USFWS. The primary factor leading to the decline of this species is the alteration of habitat through river channelization, creation of impoundments, and alteration of flow regimes. These alterations within the Missouri and Yellowstone Rivers have blocked movements to spawning, feeding, and rearing areas; destroyed spawning habitat; altered flow conditions which can delay spawning cues; and reduced food sources by lowering productivity (USFWS 1990). Pallid sturgeons require large, turbid, free-flowing riverine habitat with rocky or sandy substrate (Gilbraith et al. 1988). The proposed Project is located over five miles from the Missouri River and over 13 miles from the Yellowstone River. Construction activities will not alter water quality or quantity of these rivers or their tributaries, therefore no adverse impacts to this species will occur.

Dakota Skipper (*Hesperia dacotae*)

The Dakota skipper is a small to medium-sized North American butterfly with a wingspan of approximately one inch. Their actual historic range is unknown due to the widespread land conversion of native prairie habitats in the central United States. Since 2002, places where Dakota skippers are known to occur have decreased steadily. More significant populations are thought to be in western Minnesota, northeastern South Dakota, north-central North Dakota and southern Manitoba. This species inhabits two types of prairies. One type is moist bluestem prairie in which three wildflower species are usually blooming when Dakota skippers are adults: wood lily (*Lilium philadelphicum*), harebell (*Campanula rotundifolia*) and smooth camas (*Zygadenus elegans*). The second type is upland prairie that is relatively dry and often found on ridges and hillsides. Bluestem grasses and needlegrasses dominate these prairies; purple coneflower (*Echinacea angustifolia*) is typical of high quality sites (USFWS 2016f). The Dakota skipper was listed as threatened in 2014 and critical habitat for this species has been designated by USFWS. The closest area of designated critical habitat is identified as DS ND Unit 12, located over 32 miles east of the ROW in Township 153 North Range 96 West. In addition the Project area does not contain native tall grass prairie communities dominated by little bluestem, big bluestem, prairie sandreed or other associated flora described above. Conversely the majority of proposed disturbance will occur on reclaimed ground or agricultural fields. Since the Project area lacks suitable habitat and does not occur in a designated critical habitat, no adverse impacts to this species are expected.

WETLANDS AND STREAMS

Wetlands are defined by the U.S. Army Corps of Engineers (USACE; 33 Code of Federal Regulations [CFR] 328.3, 1986) and the U.S. Environmental Protection Agency (USEPA; 40 CFR 230.3, 1980) as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and that under normal circumstances do support, a prevalence of vegetation typically adapted for

life in saturated soil conditions.” Many wetlands and other aquatic features, including ephemeral, intermittent, and perennial streams, are considered waters of the U.S. by the USACE and these “jurisdictional” areas are protected under Section 404 of the Clean Water Act (CWA). Waters of the U.S. are defined as all waters that are, were, or may be used in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide. Waters of the U.S. generally include all interstate waters as well as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds (see 40 CFR 232.3 for complete definition).

The USACE and USEPA regulate the discharge of dredged or fill material into waters of the U.S. under Section 404 of the CWA. A Section 404 permit is required if a project will result in the discharge of dredged material (i.e., material excavated from waters) or fill material (i.e., material placed in waters such that dry land replaces water—or a portion thereof—or the water’s bottom elevation changes) into a water.

According to National Wetlands Inventory (NWI) data, no wetland features occur within the Project Survey Area (USFWS 2016g). Arcadis identified two wetland features within the Survey Area during field reconnaissance. Each of the wetland features were characterized by the presence of hydrophytic plants, hydric soil indicators and qualifying hydrologic evidence. The location of these features in relation to the Survey Area are depicted on Figure 3 - Appendix A and summarized below in Table 1. Based on the proposed alignment, no streams or drainages that would be considered a jurisdictional water were identified within the Survey Area.

Table 1. Identified Wetlands within Survey Area

Wetland ID	Legal Location	Area within Survey Corridor (Acres)	Wetland Type
Wetland 1	SENE S30 T152N-R101W	.04	PEMB
Wetland 2	NENW S30 T152N-R101W	.42	PEMB

Relevant wetlands are provided to NST Express for planning purposes and will not be submitted to the USACE. Following Arcadis’ field reconnaissance, NST Express has indicated horizontal directional drilling (HDD) techniques will be used for some of the wetland features, while the open-cut method will be used for some wetlands. If a qualifying disturbance or fill will occur to a wetland, Arcadis recommends seeking coverage under a Nationwide Permit (NWP) through the USACE. Coverage related to the proposed project would typically fall under a NWP 12, summarized below:

- *NWP 12 – Utility Line Activities: is for the construction, maintenance, repair, and removal of utility lines and associated facilities in waters of the U.S., provided the activity does not result in the loss of greater than 1/2-acre of waters of the U.S. for each single and complete project. This NWP authorizes the construction or repair of utility lines, including outfall and intake structures and associated excavation and backfill. Under this NWP, utility line is defined as any pipe or pipeline for the transportation of gaseous, liquid, or slurry substance.*

A pre-construction notification is required to the USACE district engineer if certain NWP thresholds are exceeded. If the open-cut method is selected over HDD, a pre-construction notice would not be required due to the linear impacts of the Project being less than 500 feet.

MIGRATORY BIRDS AND EAGLES

Raptors and the majority of other birds in the United States are protected by the Migratory Bird Treaty Act (MBTA). The MBTA protects migratory birds, eggs and nests from possession, sale, purchase, barter, transport, import, export, and take (USFWS 2008). The USFWS recommends maintaining disturbance free zones around nesting raptors to avoid the possibility of “take” under the Migratory Bird Treaty Act (MBTA).

Trees and shrubs offer suitable nesting substrates for raptors and passerine bird species. Four shrub areas and four stands of trees were documented within the Survey Area (Figure 3); one shrub area (Shrub 1) occurs adjacent to the Survey Area. Such substrates were delineated with a GPS receiver and photographed when encountered within the Survey Area. Passerine bird nests were found in Shrub areas 1 and 2, and should be avoided if possible. Nest clearance surveys for migratory birds may be required if clearing and grading occurs during the breeding season, April 15 – August 1. If an active migratory bird nest is found, appropriate buffers should be applied according to recommended conservation measures set forth by the USFWS.

Tree areas 3 and 4 are shelterbelts located near the terminus of the WTT pipeline. Trees areas 1 and 2 are isolated individuals or stands located in close proximity to the pipeline alignment.

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act, enacted in 1940. The Act makes it unlawful, except under permitted conditions, to “take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle (or golden eagle), alive or dead, or any part, nest, or egg thereof” (16 U.S.C 668-668D). Bald eagle nesting habitat is typically any mature stands of conifer (*Pinophyta* species) or cottonwood (*Populus* sp.) trees in association with rivers, streams, reservoirs, lakes, or any significant body of water.

A visual survey of eagle nests was performed within line-of-sight from the ROW generally extending out 0.5-miles. Very few potential nesting substrates (i.e mature trees, cliffs) capable of supporting eagle

nests occur in the general area and no nests were observed. Furthermore, according to communication received by Arcadis from the North Dakota Game and Fish Department (NDGFD), the agency database indicates an absence of raptor nests within 1.0-mile of the Project (Johnson, written communication 5/23/2016). It is Arcadis’ understanding that if construction will occur between February 1 and July 15, it is typically recommended that an aerial raptor survey be performed prior to construction, extending 0.5-miles from the ROW.

TREES AND SHRUBS

Arcadis biologists documented the presence of trees, sapling and shrubs containing a diameter at breast height of 1 inch or greater (DBH >1 inch) within the Survey Area. A Trimble Nomad was used to delineate stands of multiple plants and individuals with DBH >1 inch within each stand were enumerated (Table 2). All documented shrubs and trees are depicted on Figure 3. Since the actual extent of disturbance was unknown at the time of the survey all qualifying shrubs and trees within the Survey Area are included in Table 2. Once the disturbance extent is verified within the construction Corridor, trees and shrubs with DBH >1 inch that will not be avoided, should be enumerated by direct count per NDPSC’s Tree and Shrub Mitigation Specifications.

Table 2. Summary of Trees and Shrubs > 1” DBH within Survey Area

Tree/Shrub ID	Species	Type	Number within Survey Area (>1” DBH)
Shrub 2	Silver Buffaloberry	Shrub	12
Shrub 3	Silver Buffaloberry	Shrub	4
Shrub 4	Silver Buffaloberry	Shrub	3
Shrub 5	Silver Buffaloberry	Shrub	12
	<i>Ulmus spp.</i>	Tree	4
Tree 1	<i>Populus spp.</i>	Tree	14
	<i>Ulmus spp.</i>		
Tree 2	<i>Populus spp.</i>	Tree	1
Tree 3	<i>Ulmus spp.</i>	Tree	17
Tree 4	<i>Ulmus spp.</i>	Tree	16

SUMMARY AND RECOMMENDATIONS

Based on Arcadis' preliminary evaluation and findings from the field reconnaissance effort it is reasonable to assume the proposed Project should not significantly impact any sensitive ecological resources, designated critical habitats, or listed TEC species for McKenzie County, North Dakota. The following items should be considered during the planning and construction phase for NST Express' WTT Pipeline:

1. The Project is located within potential migratory corridors for whooping crane and the red knot which allows for the potential of incidental interactions during the migration season. If either species is observed within 1.0 mile of the ROW undergoing active construction, work should cease until the bird naturally leaves the area or the USFWS should be notified.
2. Two wetland features were identified within the Survey Area. Based on Arcadis' understanding of construction plans, both wetlands will comply and fall under the coverage of Nationwide Permit 12.
3. Passerine bird nests were identified in shrubs within the Survey Area. If disturbances to trees or shrubs are planned during the migratory bird nesting season (April 15 – August 1), preconstruction clearance surveys should be performed. It is Arcadis' understanding that if construction will occur between February 1 and July 15, it is typically recommended that an aerial raptor survey be performed prior to construction, extending 0.5-miles from the ROW.
4. Areas of trees and shrubs were identified and enumerated along the pipeline Survey Area. The Project construction plan is designed to utilize HDD, temporary workspace area reductions, and woody vegetation removal avoidance to remove impacts to shrubs and trees. If construction plans are modified prior to removal, trees and shrubs will be inventoried and mitigated in accordance with the NDPSC's Tree and Shrub Mitigation Specifications.

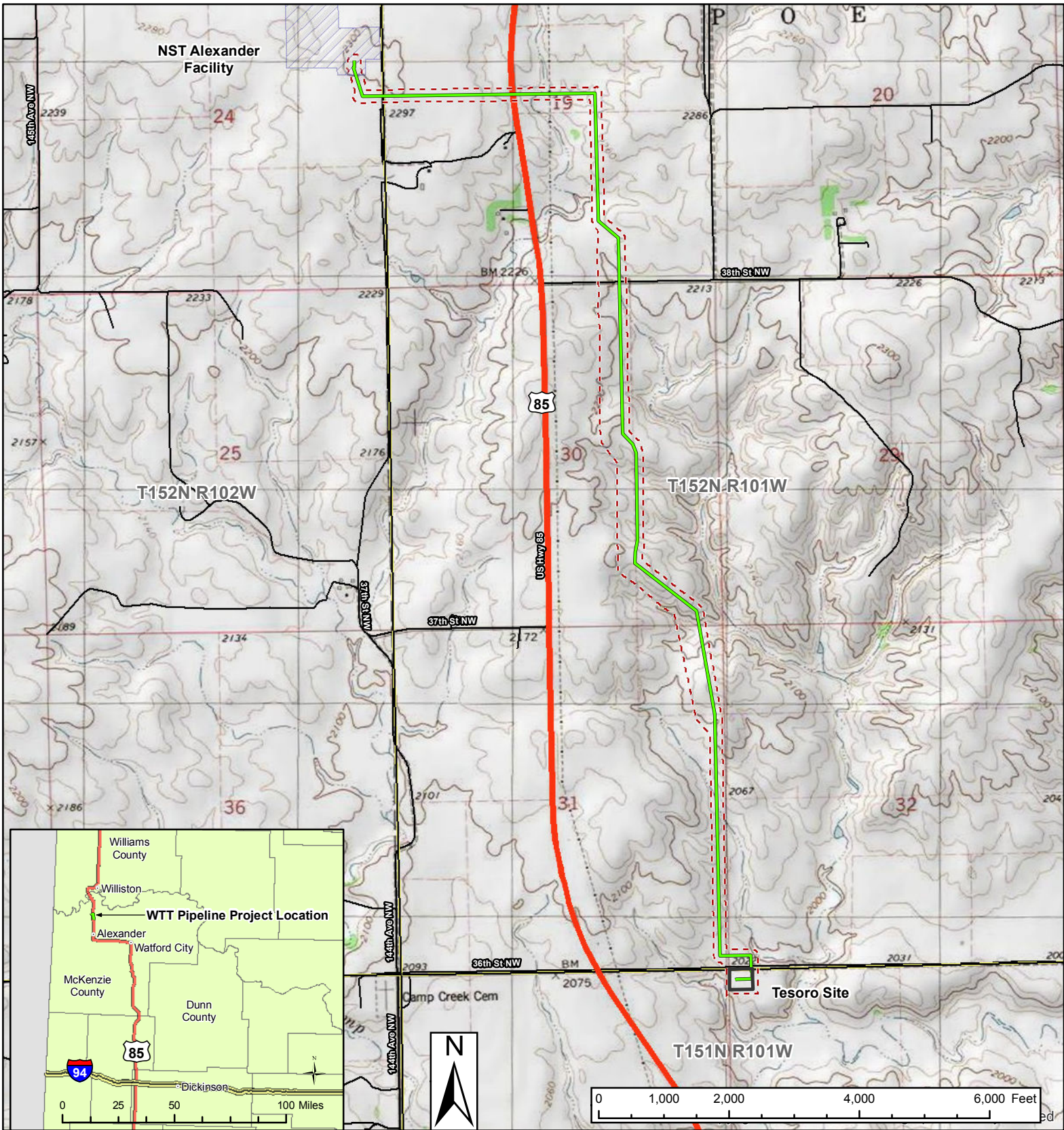
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APPENDIX A - MAPS



189 North Cedar Street
Buffalo, WY 82834

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Projection: NAD 1983, UTM Z13N Meter
Source: USGS 7.5' Topographic Series
O43105-b3, c3, e8, f5/6/8, O43106-e1, f1
O44105-a6/7, b2/4/6/7, c3/4

NST Express WTT Pipeline Project

McKenzie County, North Dakota

Scale: 1:24,000 1" = 2000'

Legend

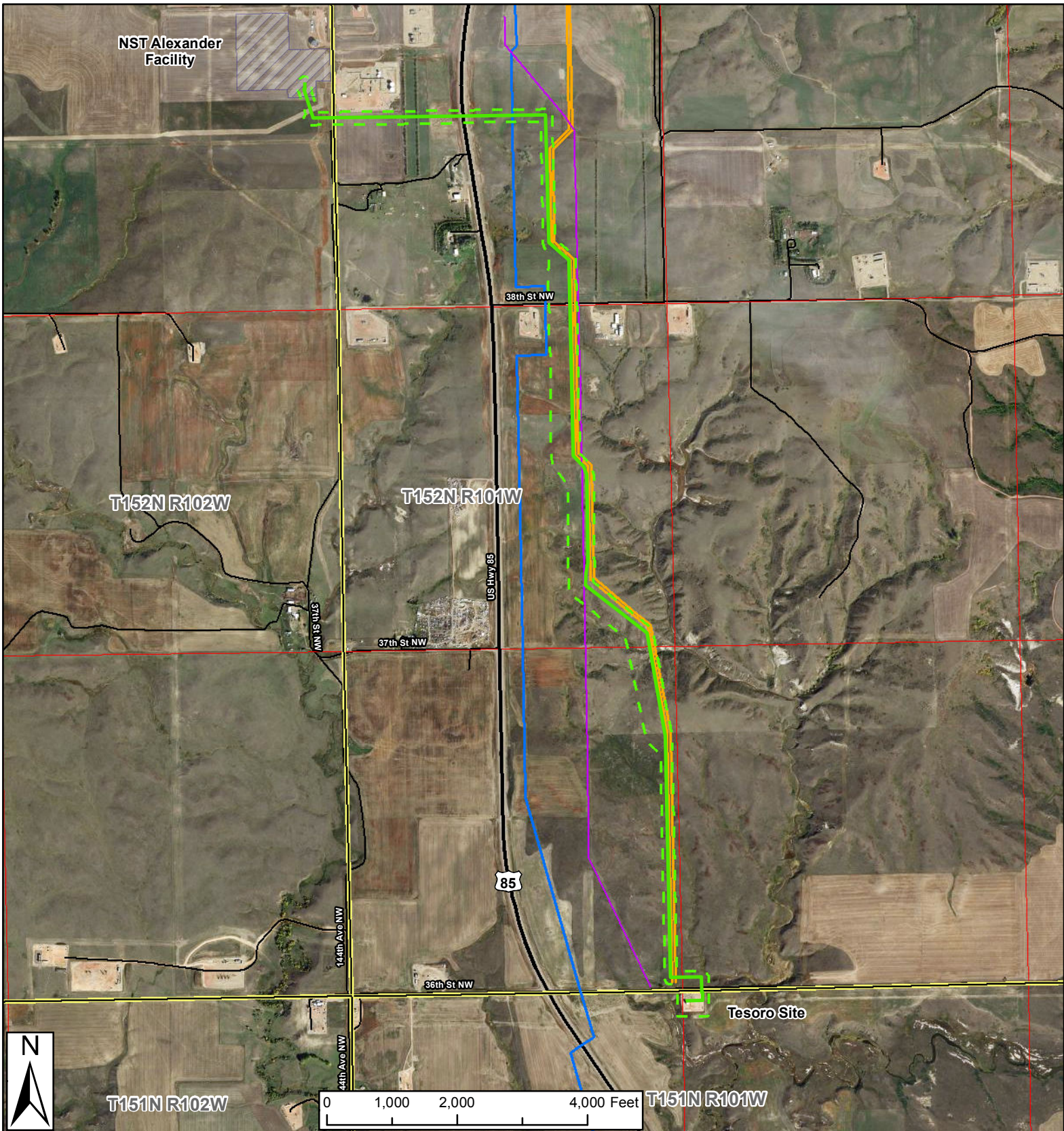
— WTT Pipeline Route - - - Proposed Corridor



Date: 6/1/2016

Figure

1



189 North Cedar Street
Buffalo, WY 82834

Phone # (307) 684-5891
Fax # (307) 684-5961

Projection: NAD 1983, UTM Z13N Meter

Source: USGS 7.5' Topographic Series
O43105-b3, c3, e8, f5/6/8, O43106-e1, f1
O44105-a6/7, b2/4/6/7, c3/4

NST Express WTT Pipeline Project Existing Conditions

McKenzie County, North Dakota

Scale: 1:24,000 1" = 2000'

Legend

- | Symbol | |
|--------|---------------------------------|
| | Existing Transmission Powerline |
| | WTT Pipeline Route |
| | Proposed Corridor |
| | Existing Natural Gas ROW |
| | WAWSA Main Transmission |



Date: 6/8/2016

Figure

2



ARCADIS Design & Consultancy for natural and built assets

189 North Cedar Street
Buffalo, WY 82834

Phone # (307) 684-5891
Fax # (307) 684-5961

Projection: NAD 1983, UTM Z13N Meter

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

NST Express WTT Pipeline Sensitive Ecological Resources

McKenzie County, North Dakota

Scale 1:2,400 1"=200'

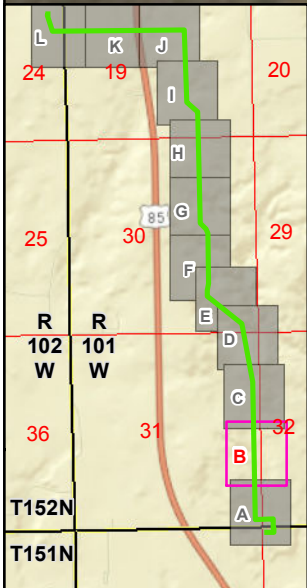
- Legend**
- WTT Pipeline Route
 - Project Corridor
 - Wetland Area
 - Wetland Sample Point
 - Tree Area
 - Shrub Area
 - Township Boundary



Date: 6/8/2016

Figure

3A



ARCADIS Design & Consultancy
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built assets

189 North Cedar Street
Buffalo, WY 82834

Phone # (307) 684-5891
Fax # (307) 684-5961

Projection: NAD 1983, UTM Z13N Meter

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,
CNES/Airbus DS, USDA, USGS, AEX, Getmapping,
Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

NST Express WTT Pipeline Sensitive Ecological Resources

McKenzie County, North Dakota

Scale 1:2,400 1"=200'

- Legend**
- WTT Pipeline Route
 - Wetland Sample Point
 - Township Boundary
 - Project Corridor
 - Tree Area
 - Wetland Area
 - Shrub Area

NST EXPRESS

Date: 6/8/2016

Figure

3B



ARCADIS Design & Consultancy
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built assets

189 North Cedar Street
Buffalo, WY 82834

Phone # (307) 684-5891
Fax # (307) 684-5961

Projection: NAD 1983, UTM Z13N Meter

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,
CNES/Airbus DS, USDA, USGS, AEX, Getmapping,
Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

NST Express WTT Pipeline Sensitive Ecological Resources

McKenzie County, North Dakota

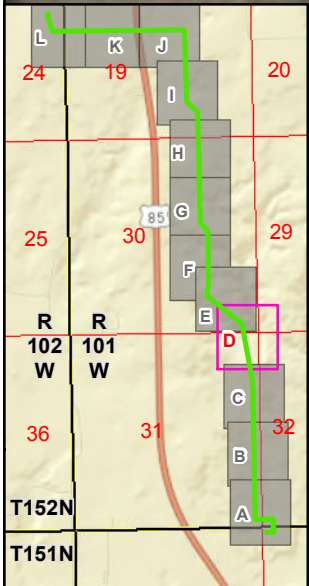
Scale 1:2,400 1"=200'

- Legend**
- WTT Pipeline Route
 - Project Corridor
 - Wetland Area
 - Wetland Sample Point
 - Tree Area
 - Shrub Area
 - Township Boundary



Date: 6/8/2016

Figure
3C



ARCADIS Design & Consultancy
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189 North Cedar Street
Buffalo, WY 82834

Phone # (307) 684-5891
Fax # (307) 684-5961

Projection: NAD 1983, UTM Z13N Meter

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NST Express WTT Pipeline Sensitive Ecological Resources

McKenzie County, North Dakota

Scale 1:2,400 1"=200'

Legend

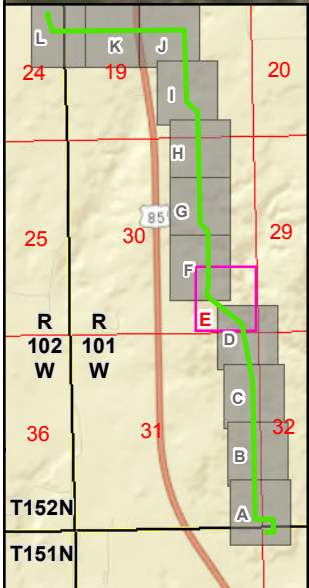
WTT Pipeline Route	Wetland Sample Point	Township Boundary
Project Corridor	Tree Area	Shrub Area
Wetland Area		

NST EXPRESS

Date: 6/8/2016

Figure

3D



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189 North Cedar Street
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Projection: NAD 1983, UTM Z13N Meter

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NST Express WTT Pipeline Sensitive Ecological Resources

McKenzie County, North Dakota

Scale 1:2,400 1"=200'

Legend

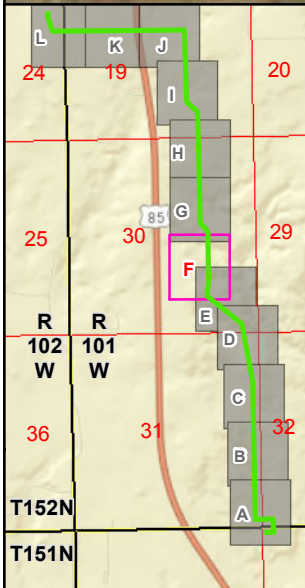
- WTT Pipeline Route
- Project Corridor
- Wetland Area
- Wetland Sample Point
- Tree Area
- Shrub Area
- Township Boundary



Date: 6/8/2016

Figure

3E



ARCADIS Design & Consultancy
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built assets

189 North Cedar Street
Buffalo, WY 82834

Phone # (307) 684-5891
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Projection: NAD 1983, UTM Z13N Meter

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,
CNES/Airbus DS, USDA, USGS, AEX, Getmapping,
Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

NST Express WTT Pipeline Sensitive Ecological Resources

McKenzie County, North Dakota

Scale 1:2,400 1"=200'

- Legend**
- WTT Pipeline Route
 - - - Project Corridor
 - Township Boundary
 - Wetland Sample Point
 - Tree Area
 - Wetland Area
 - Shrub Area

NST EXPRESS

Date: 6/8/2016

Figure

3F



ARCADIS Design & Consultancy
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189 North Cedar Street
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Phone # (307) 684-5891
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Projection: NAD 1983, UTM Z13N Meter

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,
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Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

NST Express WTT Pipeline Sensitive Ecological Resources

McKenzie County, North Dakota

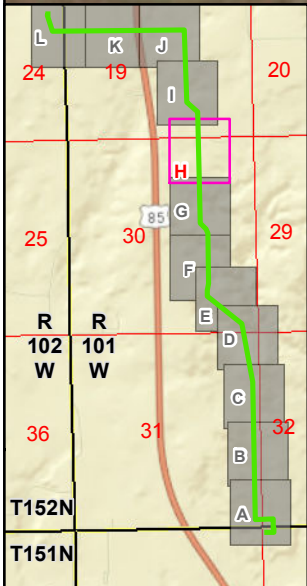
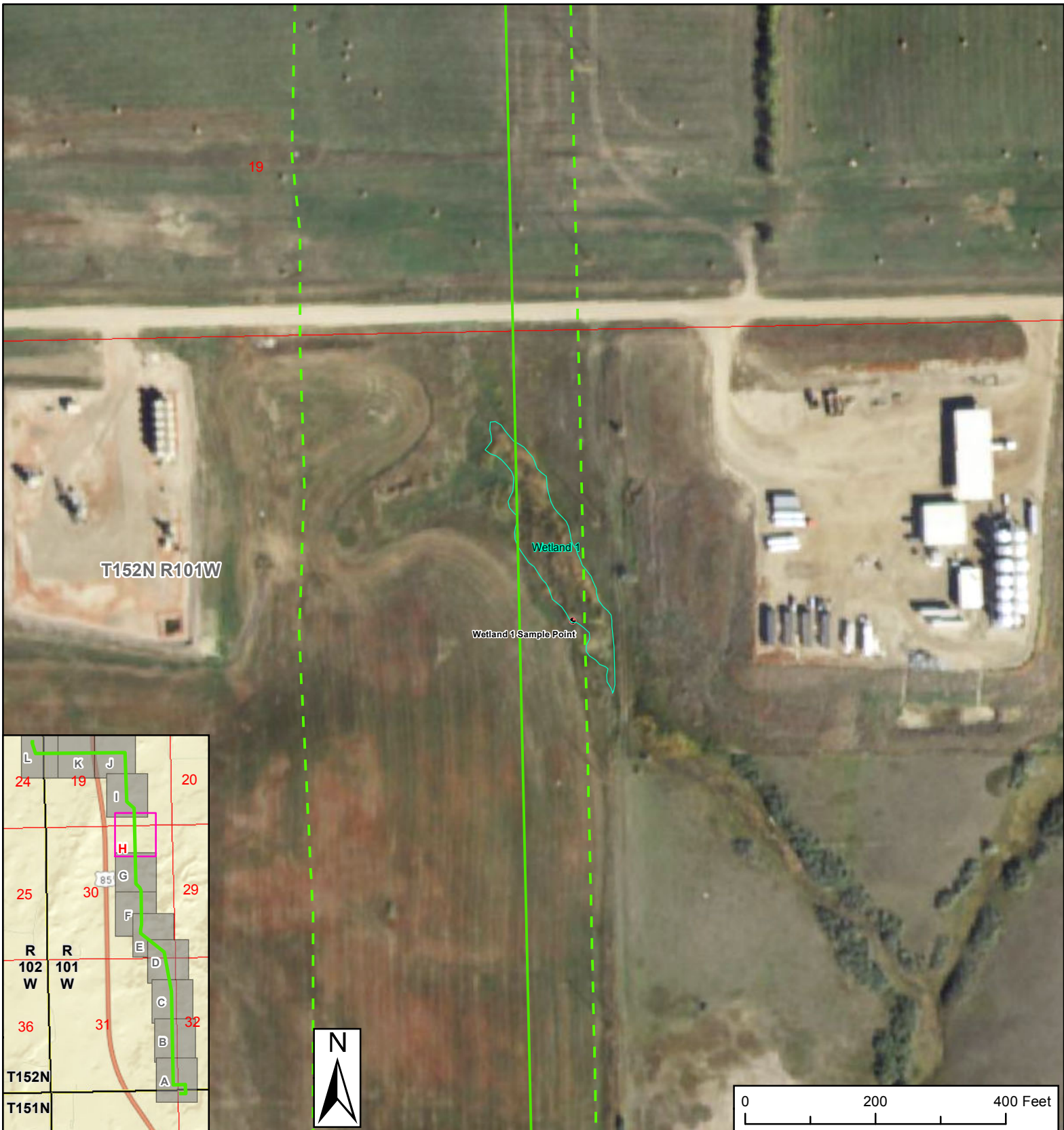
Scale 1:2,400 1"=200'

- Legend**
- WTT Pipeline Route
 - - - Project Corridor
 - Township Boundary
 - Tree Area
 - Wetland Area
 - Wetland Sample Point
 - Shrub Area

NST EXPRESS

Date: 6/8/2016

Figure
3G



ARCADIS Design & Consultancy
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built assets

189 North Cedar Street
Buffalo, WY 82834

Phone # (307) 684-5891
Fax # (307) 684-5961

Projection: NAD 1983, UTM Z13N Meter

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics,
CNES/Airbus DS, USDA, USGS, AEX, Getmapping,
Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

NST Express WTT Pipeline Sensitive Ecological Resources

McKenzie County, North Dakota

Scale 1:2,400 1"=200'

Legend

- WTT Pipeline Route
- Project Corridor
- Wetland Area
- Wetland Sample Point
- Tree Area
- Shrub Area
- Township Boundary



Date: 6/8/2016

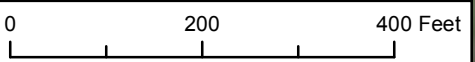
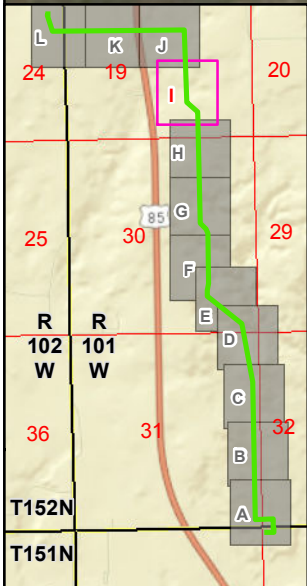
Figure

3H



T152N R101W

19



189 North Cedar Street
Buffalo, WY 82834

Phone # (307) 684-5891
Fax # (307) 684-5961

Projection: NAD 1983, UTM Z13N Meter

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

NST Express WTT Pipeline Sensitive Ecological Resources

McKenzie County, North Dakota

Scale 1:2,400 1"=200'

Legend

- WTT Pipeline Route
- Wetland Sample Point
- Township Boundary
- Project Corridor
- Tree Area
- Wetland Area
- Shrub Area



Date: 6/8/2016

Figure

31



ARCADIS Design & Consultancy
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built assets

189 North Cedar Street
Buffalo, WY 82834

Phone # (307) 684-5891
Fax # (307) 684-5961

Projection: NAD 1983, UTM Z13N Meter

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NST Express WTT Pipeline Sensitive Ecological Resources

McKenzie County, North Dakota

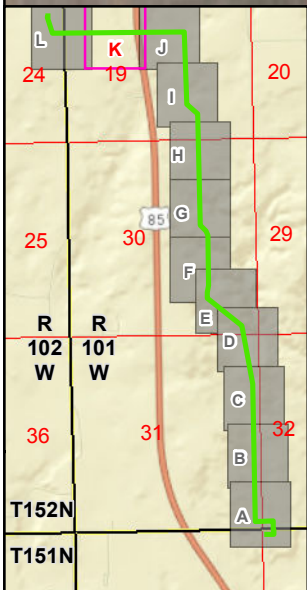
Scale 1:2,400 1"=200'

- Legend**
- WTT Pipeline Route
 - Wetland Sample Point
 - Township Boundary
 - Project Corridor
 - Tree Area
 - Wetland Area
 - Shrub Area



Date: 6/8/2016

Figure
3J



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NST Express WTT Pipeline Sensitive Ecological Resources

McKenzie County, North Dakota

Scale 1:2,400 1"=200'

Legend

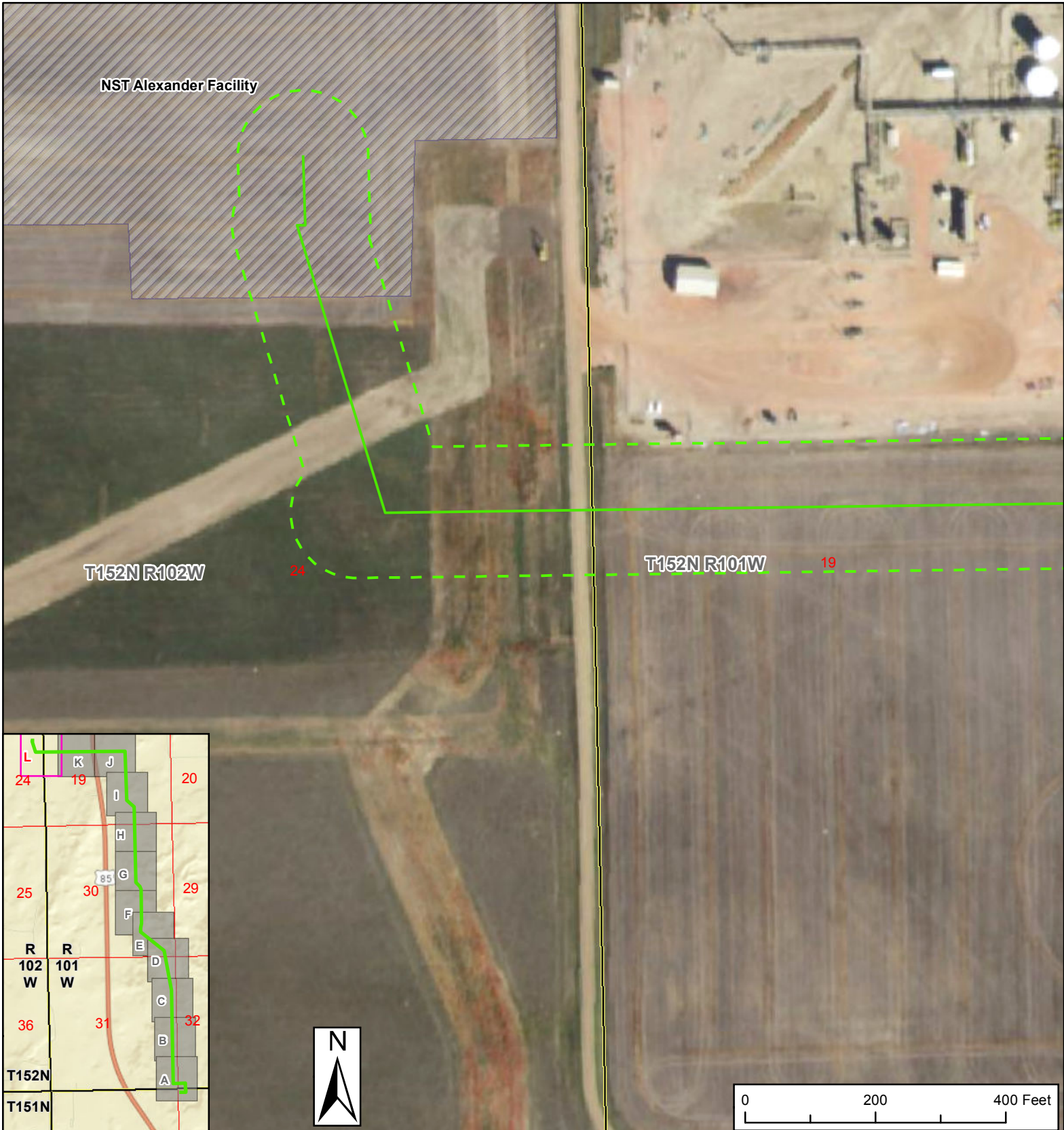
- WTT Pipeline Route
- Wetland Sample Point
- Township Boundary
- Project Corridor
- Tree Area
- Wetland Area
- Shrub Area



Date: 6/8/2016

Figure

3K



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NST Express WTT Pipeline Sensitive Ecological Resources

McKenzie County, North Dakota

Scale 1:2,400 1"=200'

Legend

- WTT Pipeline Route
- Wetland Sample Point
- Township Boundary
- Project Corridor
- Tree Area
- Wetland Area
- Shrub Area



Date: 6/8/2016

Figure

3L

APPENDIX B – PHOTO LOG

WTT Pipeline Photographic Log

Table of Contents

SOUTH PORTION.....	1
CENTRAL PORTION.....	4
NORTH PORTION	6

SOUTH PORTION



Photo No 1:

Description: View north on centerline from Tesoro Site.



Photo No 2:

Description: Shallow depression located on the proposed center line. Feature does not qualify as a wetland.



Photo No 3:

Description: Shrub area 1, silver buffaloberry.



Photo No 4:

Description: Passerine nest located in shrub area 1.



Photo No 5:

Description: Shrub area 2, silver buffaloberry.

CENTRAL PORTION



Photo No 6:

Description:
Overview of Wetland
1 and Tree area 1.



Photo No 7:

Description: View
south towards
Wetland 1.



Photo No 8:

Description:
Wetland area 2.



Photo No 6:

Description:
Agriculture field just south of Wetland 2.

NORTH PORTION



Photo No10:

Description: View from the route towards Hwy 85. HDD will occur here. Note shelterbelt in background.



Photo No11:

Description: View of WTT Pipeline northern terminus.