E3 ENVIRONMENTAL™
Enhancing Execution with Experience™

North Dakota Public Service Commission
Consolidated Application

Certificate of Corridor Compatibility and Route Permit

Johnsons Corner to Dakota Access Pipeline Project

Prepared for:
Plains Terminals North Dakota LLC

Prepared by:
E3 Environmental, LLC

March 2016

PLAINS
Terminals North Dakota LLC

1 PU-16-140 Filed 03/28/2016 Pages: 183
Consolidated Application for Corridor Compatibility Certificate and route Permit
Plains Terminals North Dakota LLC
Lawrence Bender, Fredrikson&Byron, P.A.

E3 ENVIRONMENTAL™
Enhancing Execution with Experience™

North Dakota Public Service Commission

Certificate of Corridor Compatibility

Plains Terminals North Dakota LLC

Johnsons Corner to Dakota Access Pipeline Project

Prepared by:
E3 Environmental, LLC

March 2016

PLAINS
Terminals North Dakota LLC

Authority	List of Contents Required by 69-06-05-01: Application for Transmission Facility Permit	Section(s)
2.a.(1)	Type of facility proposed	1.1
2.a.(2)	Purpose of facility	1.2
2.a.(3)	Technology to be deployed	1.1
2.a.(4)	Type of product to be transmitted	1.1
2.a.(5)	Source of product being transmitted	3.0
2.a.(6)	Final destination of product being transmitted	1.2
2.a.(7)	Size and design detail and any alterative size and design	1.1
2.a.(7)(a)	The width of right-of-way	N/A – Refer to Route Permit
2.a.(7)(b)	The approximate length of facility	1.1.3
2.a.(7)(c)	The estimated span length for electric facilities	N/A
2.a.(7)(d)	The anticipated type of structure for electric facilities	N/A
2.a.(7)(e)	The voltage for electric facilities	N/A
2.a.(7)(f)	The requirement for and general location of any new associated facilities	1.4
2.a.(7)(g)	The estimated distance between pipeline surface structures	1.4
2.a.(7)(h)	The pipe size	1.1.2
2.a.(7)(i)	The maximum design for pipeline operating pressure and temperature	1.1.2
2.a.(7)(j)	The maximum design pipeline flow rate	1.1.2
2.a.(7)(k)	The number and general location of compressor or pumping stations	1.4
2.b.	Time schedule	1.5
2.b.(1)	Obtaining the certificate of corridor compatibility	1.5.1
2.b.(2)	Obtaining the route permit	1.5.2
2.b.(3)	Completing right-of-way acquisition	1.5.3
2.b.(4)	Starting construction	1.5.4
2.b.(5)	Completing construction	1.5.4
2.b.(6)	Testing operations	1.5.4

2.b.(7)	Commencing operations	1.5.4
2.c.	A copy of each evaluative study or assessment of the environmental impact of the proposed facility submitted to the agencies listed in section 69-06-01-05 and each response received	2.3, Appendix C
2.d.	Need for the facility	3.0
2.e.	Description of alternatives	4.2.1
2.f.	Corridor width	4.1
2.g.	Study area to enable the Commission to evaluate the factors in the Century Code section 49-22-09;	2.1, 4.0
2.h.	Discussion of factors in Century Code 49-22-09 to aid Commission's evaluation	2.2, 4.0
2.i.	A discussion of the applicant's policies and commitments to limit the environmental impact of its facilities, including copies of the board resolutions and management directives	4.6
2.j.	Map of criteria that led to route location	Appendix B
2.k.	Discuss relative value of each criteria and how the location was selected; how operation will affect criteria	4.3, 4.4, 4.5
2.l.	Mitigating measures	5.0
2.m.	Qualifications of each person involved in location study	6.0
2.n.	Map identifying criteria that led to the route location and new facilities	Appendix B
2.o.	8 ½ X 11 black and white map suitable for newspaper publication	Located in digital copy of Consolidated Application
2.p.	Discussion of present and future natural resource development in the area	4.3, 4.4
2.q.	Maps and GIS data for the project meeting the PSC requirements	Appendix B, electronic GIS data located in digital copy of Consolidated Application

Authority	List of Contents Required by 69-06-08-02: Transmission Facility Corridor Criteria	Section(s)
1	**Exclusion Areas**	4.3
1.a	Designated or registered nation: parks; memorial parks; historic sites and landmarks; natural landmarks; monuments; and wilderness areas	2.3.1.4, 2.3.5, 4.3.1
1.b.	Designated or registered state: parks; historic sites; monuments; historical markers; archaeological sites; and nature preserves	2.3.2, 2.3.3, 2.3.5, 4.3.2
1.c.	County parks and recreational areas; municipal parks; and parks owned or administered by other governmental subdivisions.	2.3.3, 4.3.3
1.d.	Areas critical to the life stages of threatened or endangered animal or plant species.	2.2.1, 2.3.1, 2.3.2, 2.3.3, 4.3.4
1.e.	Areas where animal or plant species that are unique or rare to this state would be irreversibly damaged.	2.2.1, 2.3.1, 2.3.2, 2.3.3, 4.3.5
1.f.	Areas within one thousand two hundred feet of the geographic center of an intercontinental ballistic missile (ICBM) launch or launch control facility.	4.3.6
1.g.	Areas within thirty feet on either side of a direct line between intercontinental ballistic missile (ICBM) launch or launch control facilities to avoid microwave interference.	4.3.7
2	**Avoidance Areas**	4.4
2.a.	Designated or registered national: historic districts; wildlife areas; wild, scenic, or recreational rivers; wildlife refuges; and grasslands.	2.3.1.4, 2.3.5, 4.4.1
2.b.	Designated or registered state: wild, scenic, or recreational rivers; game refuges; game management areas; management areas; forests; forest management lands; and grasslands.	2.3.2, 2.3.3, 2.3.4, 4.4.2
2.c.	Historical resources which are not specifically designated as exclusion or avoidance areas.	4.4.3

2.d.	Areas which are geologically unstable.	4.4.4
2.e.	Within five hundred feet [152.4 meters] of a residence, school, or place of business. This criterion shall not apply to a water pipeline transmission facility.	4.4.5
2.f.	Reservoirs and municipal water supplies.	4.4.6
2.g.	Water sources for organized rural water districts.	4.4.7
2.h.	Irrigated land. This criterion shall not apply to an underground transmission facility.	4.4.8
2.i.	Areas of recreational significance which are not designated as exclusion areas.	4.4.9
3	**Selection Criteria**	4.5
	The impact upon agriculture:	4.5.1
3.a.(1)	Agricultural production.	4.5.1
3.a.(2)	Family farms and ranches.	4.5.1
3.a.(3)	Land which the owner can demonstrate has soil, topography, drainage, and an available water supply that cause the land to be economically suitable for irrigation.	4.5.1
3.a.(4)	Surface drainage patterns and ground water flow patterns.	4.5.1
	The impact upon:	4.5.2
3.b.(1)	Sound-sensitive land uses.	4.5.2
3.b.(2)	The visual effect on the adjacent area.	4.5.2
3.b.(3)	Extractive and storage resources.	4.5.2
3.b.(4)	Wetlands, woodlands, and wooded areas.	2.2.2, 2.2.3, 4.5.2
3.b.(5)	Radio and television reception, and other communication or electronic control facilities.	4.5.2
3.b.(6)	Human health and safety.	4.5.2
3.b.(7)	Animal health and safety.	2.2.1, 2.3.1, 2.3.2, 2.3.3, 4.3.4, 4.5.2

3.b.(8)	Plant life.	2.2.3, 2.3.1, 2.3.2, 2.3.3, 4.5.2
4	**Policy Criteria**	4.6
4.a.	Location and design.	1.1, 1.3, 1.4, 4.6.2, 5.1
4.b.	Training and utilization of available labor in this state for the general and specialized skills required.	4.6.3
4.c.	Economies of construction and operation.	1.5.4, 4.6.4, 5.2
4.d.	Use of citizen coordinating committees.	4.6.5
4.e.	A commitment of a portion of the transmitted product for use in this state.	4.6.6
4.f.	Labor relations.	4.6.7
4.g.	The coordination of facilities.	4.6.8
4.h.	Monitoring of impacts.	4.6.9
4.i.	Utilization of existing and proposed rights of way and corridors.	4.6.10
4.j.	Other existing or proposed transmission facilities.	4.6.11

TABLE OF CONTENTS

APPENDICES

INTRODUCTION

Plains All American Pipeline, L.P. (PAA) is a publicly traded limited partnership formed in Delaware in 1998. PAA's operations are conducted directly and indirectly through its primary operating subsidiaries. PAA owns and operates midstream energy infrastructure and provides logistics services for crude oil, natural gas liquids (NGL), natural gas, and refined products. PAA owns an extensive network of pipeline transportation, terminalling, storage, and gathering assets in key crude oil and NGL producing basins and transportation corridors, and at major market hubs in the United States and Canada.

Plains Terminals North Dakota LLC (Plains) is a Delaware limited liability company formed in 2013 with its principal place of business at 333 Clay Street, Suite 1600, Houston, Texas, 77002. Plains is a subsidiary of PAA.

Plains is proposing to construct and own the Johnsons Corner to Dakota Access Pipeline Project (Project), located in McKenzie County, North Dakota. The Project scope includes approximately 3.5 miles of new, crude oil pipeline with an outside diameter of 24-inches. The Project will originate at the Plains Johnsons Corner Terminal (JCT) and terminate at the Dakota Access Pipeline Johnsons Corner Terminal Facility (hereinafter referred to as "DAPL" or "DAPL Terminal"). The Project will be constructed to allow crude to flow in either direction. Refer to the maps in Appendix B for an overview of the Project.

Plains submits to the North Dakota Public Service Commission (PSC) a single consolidated application for a Certificate of Corridor Compatibility and Route Permit for the Project.

The application provides the requisite information as stipulated by:

- North Dakota Century Code, Energy Conversion and Transmission Facility Siting Act, Section 49-22-08; and,
- North Dakota Administrative Code, Chapter 69-06-05, Transmission Facility Permit.

SECTION 1: **DESCRIPTION**

1.1 TYPE AND SIZE OF FACILITY

1.1.1 TYPE

The Project will result in a new crude oil transmission pipeline. The steel pipeline will meet U.S. Department of Transportation (DOT) regulations, specifically the design criteria outlined in 49 C.F.R. part 195 subpart C. The Project will be constructed per 49 C.F.R. part 195 subpart D, and operated and maintained per 49 C.F.R. part 195 subpart F.

1.1.2 SIZE

The Project pipeline specifications are the following:

- 24-inch outside diameter steel pipe
- 0.375-inch line pipe wall thickness, 0.688-inch bore pipe wall thickness
- Normal Operating Pressure: 1,440 pounds per square inch gauge (psig)
- Maximum Operating Pressure: 1,480 psig
- Normal Throughput: approximately 50,000 barrels per day (bpd)
- Maximum Throughput: approximately 150,000 bpd
- Maximum Operating Temperature: 100 degrees Fahrenheit

1.1.3 LENGTH

The Project is approximately 3.5 miles in length.

1.2 PURPOSE OF FACILITY

The purpose of the Project is to transport crude oil from the JCT to the DAPL Terminal. From the DAPL Terminal, the product will be transported via interconnecting pipelines for distribution to refineries across the United States. The Project will also be constructed to allow crude to flow in either direction.

1.3 LOCATION

The Project will be located in McKenzie County, North Dakota and will result in a transmission pipeline originating at the JCT, approximately three (3) miles east of Johnsons Corner, North Dakota, and will extend to the northwest to terminate at the DAPL, located approximately one (1) mile southeast of Johnsons Corner. Refer to the Project maps provided in Appendix B.

1.4 ABOVEGROUND FACILITIES

Aboveground structures outside of existing fenced facilities are not anticipated.

1.5 PROJECT SCHEDULE

1.5.1 CERTIFICATE OF CORRIDOR COMPATIBILITY

Plains seeks a Certificate of Corridor Compatibility by or before June 2016.

1.5.2 ROUTE PERMIT

Plains seeks a Route Permit by or before June 2016.

1.5.3 RIGHT-OF-WAY ACQUISITION

Plains has completed right-of-way acquisition for the Project.

1.5.4 CONSTRUCTION SCHEDULE

Plains has scheduled construction activities to commence during the third quarter of 2016. The construction activities will take approximately two (2) months to complete. Commissioning and restoration activities will commence immediately after construction is complete.

1.5.5 ADDITIONAL PROJECT PERMITS OR AUTHORIZATIONS

The Project will be constructed in compliance with applicable federal, state and local laws, regulations or plans. Plains will obtain necessary permits or approvals for the construction and operation of the Project.

SECTION 2: **STUDIES**

1.6 CORRIDOR

Plains selected the proposed corridor based upon several criteria designed to conform to the PSC's siting requirements and to avoid and minimize socioeconomic and environmental impacts, while maximizing the benefits to local resource developers in the Williston Basin. The location of existing assets were also considered during the selection process. Plains's process of selecting a corridor to site a pipeline between two (2) fixed assets was influenced by the opportunity to parallel with other utility corridors.

The proposed corridor is a one-mile-wide area centered upon a proposed alignment which was selected utilizing web-based mapping tools (*i.e.*, one-half mile on either side of the proposed alignment) (Corridor). The Corridor is illustrated on the maps in Appendix B.

A comprehensive desktop analysis of the Corridor included consultations with the federal and state agencies identified below. These consultations were conducted for the purpose of environmental resource assessment as stipulated by the PSC's siting requirements for a Transmission Facility Corridor. Consultation letters were distributed on January 6, 2016. The results of the environmental analysis are summarized in Section 2.2 of this document. Records of the agency consultations are provided in Appendix C.

- U.S. Fish and Wildlife Service (USFWS)
- North Dakota Game and Fish Department (NDGFD)
- North Dakota Parks and Recreation – Natural Heritage Program (NDPRD)
- North Dakota Department of Trust Lands (NDDTL)
- North Dakota State Historic Preservation Office (NDSHPO)
- North Dakota Department of Health (NDDoH)

1.7 ENVIRONMENTAL DESKTOP ANALYSIS

1.7.1 WILDLIFE INVENTORY

Approximately 160 wildlife species are residents or seasonal visitors to the greater Missouri River ecosystem, and hundreds of native fish species live in the mainstream and its tributaries. Some of these animal species include fur-bearing mammals (*e.g.*, beaver, muskrat, moose, eastern cottontail, elk, moose and mule deer), birds and waterfowl species (*e.g.*, mallard, Canada goose, sharp-tailed grouse and golden and bald eagles). Species classified as threatened or endangered by the Endangered Species Act (ESA) may occur within the Project County.

Plains engaged federal and state agencies in consultations to identify potential occurrences of sensitive species or their critical habitats. Refer to Appendix C for a complete record of agency consultations.

1.7.2 WETLAND AND WATERBODIES ANALYSIS

To evaluate the location and extent of mapped wetlands and waterbodies within the Corridor, a desktop analysis of aerial photography, National Hydrography Data set (NHD) and National Wetland Inventory (NWI) maps was completed. The desktop analysis identified five (5) waterbodies, four (4) waterways, and approximately fourteen (14) wetland features within the Corridor. Plains commissioned field studies to augment the desktop analysis. The field study results are discussed in the associated Route Permit Application.

1.7.3 TREE/SAPLING/SHRUB ANALYSIS

A desktop analysis of aerial photography was used to evaluate the location and extent of woody vegetation within the Corridor. The density of the woody cover in this region is generally sparse, and typically associated with significant topographic relief such as defined banks, incised drainage channels, or agricultural windrows. The desktop analysis was augmented with field surveys. The field survey results are contained in Appendix D and discussed in detail in the Route Permit Application.

1.8 AGENCY CONSULTATIONS

1.8.1 U.S. FISH AND WILDLIFE SERVICE

The USFWS administers several programs designed to identify and protect special status plant and animal species, critical habitats and lands managed by the agency. E3 Environmental, LLC (E3), on behalf of Plains, sent a Project consultation letter with maps of the Corridor on January 6, 2016. A response from the USFWS is pending. Refer to Appendix C for a record of this consultation.

1.8.1.1 FEDERALLY PROTECTED SPECIES REVIEW

The USFWS identifies and maintains a list of species and critical habitats that have been afforded protection by the ESA. The ESA provides a program for the conservation of threatened and endangered plants and animals and their critical habitats.

E3 reviewed USFWS published data and identified the following listed species and the potential for the species to occur within the Corridor.

- Whooping crane (*Grus americana*) – Endangered
- Least tern (*Sternula antillarum*) – Endangered
- Pallid sturgeon (*Scaphirhynchus albus*) – Endangered
- Gray wolf (*Canis lupus*) – Endangered
- Red Knot (*Calidris canutus rufa*) – Threatened
- Piping plover (*Charadrius melodus*) – Threatened, and final designated critical habitat
- Dakota skipper (*Hesperia dacotae*) – Threatened, and proposed critical habitat
- Northern long-eared bat (*Myoyis septenrionnalis*) – Threatened

E3 reviewed available information describing the life history, critical habitats, and conservation measures associated with each species to assess the potential effects of the Project on these resources. The results of the assessment are provided below.

Whooping crane: The Aransas Wood Buffalo Population of Whooping Cranes engages in semi-annual migration through North Dakota. This flock breeds in the Wood Buffalo National Park in Alberta and Northwest Territories, Canada, and winters in the Aransas National Wildlife Refuge in Texas. North Dakota provides migratory habitat for the species, providing roosting and feeding opportunities during migration. During migration, the species is most closely associated with larger wetland complexes for roosting habitat, typically using adjacent uplands to forage. Desktop screening identified the Project is located within the migratory corridor for the whopping crane and potential foraging habitat exists within the Corridor.

Least tern: Lake Sakakawea and the Missouri River, located approximately eleven (11) miles to the east of the Project, provide suitable breeding and nesting habitat for least terns. The Corridor does not contain the sandbars and riverbanks necessary for nesting, so impacts to the interior least tern are not anticipated.

Pallid sturgeon: The preferred habitat of the pallid sturgeon includes the benthic environment associated with swift waters of large turbid, free-flowing rivers with braided channels, dynamic flow patterns, periodic flooding of terrestrial habitats, and requires extensive micro habitat diversity. The species inhabits the Missouri and Mississippi Rivers from Montana to Louisiana. In North Dakota, reaches of the Missouri River system have been cited as providing suitable habitat for the pallid sturgeon. However, much of the habitat has been compromised from channelization, installation of impoundments, and altered flow regimes. Potential suitable habitat is not present in the Corridor, so impacts to the pallid sturgeon are not anticipated.

Gray wolf: The gray wolf uses a variety of habitats that support a large prey base including montane and low-elevation forests, grasslands and desert scrub. The Corridor generally lacks forested habitat and is a great distance from the know Minnesota and Manitoba populations. This species is not tolerant of human disturbance and will tend to avoid interaction with humans. The activities associated with construction and later operations will likely serve as a deterrent to this species. Therefore, impacts to the gray wolf are not anticipated.

Rufa red knot: North Dakota is a possible migration stopover in spring and autumn for the rufa red knot, particularly within Lake Sakakawea and its major tributaries. The rufa red knot migrates between breeding grounds in Canada and wintering grounds in South America. A significant factor threatening the rufa red knot is the loss or modification of its habitat due to beach erosion and shoreline protection efforts. Migratory behavior and habitat requirements of this species are poorly understood particularly for those populations occupying the midcontinent flyways. Inland stopovers include the Mississippi Valley, Great Lakes, and Great Plains. Suitable habitat is not present within the Corridor; therefore, impacts to the rufa red knot are not anticipated.

Piping plover: The piping plover is a small shorebird which nests on open, sparsely vegetated sand or gravel beaches adjacent to alkali wetlands and on beaches, sand bars, and dredged material islands of major river systems. The shorelines of the Missouri River and Lake Sakakawea provide suitable habitat for breeding and nesting, however, the shoreline of the Missouri River is located approximately eleven (11) miles east of the Project. Additionally, the Project will not intersect any prairie pothole wetlands, which may provide suitable alkali wetland habitat. Thus, impacts to the piping plover are not anticipated.

Dakota skipper: Dakota skippers require untilled, high-quality prairie. Habitat preferred by the skipper is wet-mesic prairie with little topographic relief on near-shore glacial lake deposits and in rolling native-prairie terrain over gravelly glacial moraine deposits. Larvae feed on grasses, favoring little bluestem (*Schizachyrium scoparium*). Adults commonly feed on nectar of flowering native forbs such as harebell (*Campanula rotundifolia*), wood lily (*Lilium philadelphicum*), and purple coneflower (*Echinacea angustifolia*). Review of aerial photos and soil survey data indicate that areas that are untilled, high-quality prairie dominated by native grasses which contain a high diversity of native forbs do not appear to be located within the Corridor. The Corridor does appear to contain areas that could be classified as marginal quality Dakota skipper habitat. Field surveys were completed to augment this desktop effort; the results are found in Appendix C and further detailed in the Route Permit Application.

Northern long-eared bat: The northern long-eared bat roost underneath bark, in cavities, or in crevices of both live and dead trees. Populations have also been found in cool environments such as caves and mines and prefer to spend winter hibernating in locations with high humidity and no air currents. Breeding occurs in late summer or early fall in maternity colonies where females give birth around the same time, which may occur anywhere from late May to late July. Most records of northern long-eared bats are from winter hibernacula surveys, and no known hibernacula are located in North Dakota. Northern long-eared bats are not known to occur in the Project area; therefore, no impacts to the species are anticipated.

1.8.1.2 MIGRATORY BIRD TREATY ACT CONSULTATION

The USFWS is responsible for the protection of migratory birds. Management of this responsibility has largely focused on protection of the birds while on their breeding grounds during the breeding season. In North Dakota, species protected under the MBTA are present throughout the year. However, it is generally acknowledged that the majority of protected species seasonally present in North Dakota nest from February 1st through July 15th annually. The proposed Project construction is scheduled to commence in June of 2016 and take approximately two (2) months to reach completion. Due to the Project schedule and phenology of resident birds, MBTA mitigation may be required. Should mitigation be required, Plains will continue to consult with agencies as necessary and will develop MBTA mitigation plans as appropriate.

1.8.1.3 BALD AND GOLDEN EAGLE PROTECTION ACT CONSULTATION

The Bald and Golden Eagle Act (BGEA) prohibits anyone without a permit from taking a bald or golden eagle including their parts, nests, or eggs. The BGEA defines "take" as to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb. The BGEA also addresses impacts resulting from human-induced alterations occurring around previously used nesting sites.

1.8.1.4 U.S. FISH AND WILDLIFE SERVICE MANAGED LANDS

The USFWS administers National Wildlife Refuges and Waterfowl Production Areas (WPAs) as well as wetland and grassland easements throughout North Dakota. A desktop review of information available in the public domain, including U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle maps, USGS PAD-US dataset, and the USFWS Information, Planning, and Conservation System (IPaC) has been completed for the Corridor. The desktop analysis indicates no USFWS managed lands are located within the Corridor.

1.8.2 NORTH DAKOTA GAME AND FISH DEPARTMENT

The NDGFD has oversight of the State's game species. On January 6, 2016, E3, on behalf of Plains, initiated consultations with the NDGFD requesting information regarding the presence or absence of State Conservation Priority Species within the Corridor. The NDGFD provided a written response on February 2, 2016. Refer to Appendix C for a copy of this correspondence.

The NDGFD's response concluded that the Project will not have significant adverse effects on wildlife or wildlife habitat, including species of conservation priority. The NDGFD also provided the following recommendations to be implemented where appropriate.

- Steps should be taken to protect wetlands that cannot be avoided;
- Alterations to existing drainage patterns should be avoided;
- Aboveground appurtenances should not be placed in wetland areas;
- Work within wooded draws and native prairie areas should be avoided; and
- Reclaim disturbed areas to pre-project conditions.

1.8.3 NORTH DAKOTA PARKS AND RECREATION DEPARTMENT

The NDPRD Natural Resource Division's scope of authority and expertise covers recreation and biological resources (in particular, rare species and ecological communities). The NDPRD also maintains a database comprised of the location and recorded occurrences of plant and animal species of special concern. The NDPRD authority includes management of state park lands and Land and Water Conservation funded recreation projects.

On January 6, 2016, E3, on behalf of Plains, initiated consultations with the NDPRD seeking confirmation regarding the presence or absence of managed lands, ecological resources, rare species or their critical habitats within the Corridor. A written response was received on February 2, 2016. See Appendix C for a copy of the correspondence.

1.8.4 NORTH DAKOTA DEPARTMENT OF TRUST LANDS, MINERALS AND SURFACE MANAGEMENT

The NDDTL is in charge of managing surface acres and mineral interests held in trust for various schools and institutions. Based on a review of publically available information, state trust land is crossed by the Corridor.

On January 6, 2016, E3, on behalf of Plains, initiated consultations with the NDDTL Surface Management Division requesting comments regarding the presence of School Trust Lands within the Corridor. The NDDTL responded on January 6, 2016 confirming the absence of state trust land tracts within the Corridor. Refer to Appendix C for a copy of this correspondence.

Also on January 6, 2016, E3, on behalf of Plains, initiated consultations with the NDDTL Minerals Management Division requesting comments regarding the presence or absence of State Mineral Trust lands within the Corridor. The NDDTL responded on January 8, 2016 confirming the presence of Mineral Trust land tracts within the Corridor as depicted in the consultation map. See Appendix C for a copy of the correspondence.

1.8.5 NORTH DAKOTA STATE HISTORIC PRESERVATION OFFICE

The NDSHPO is responsible for managing the historic and archaeological resources of the state; as such, the NDSHPO maintains records of all previously recorded cultural resources within the state.

A Class I inventory was conducted in November 2015, which identified fourteen (14) completed cultural resources surveys (MS#6051, MS#7144, MS#11710, MS#11791 MS#12014, MS#12150, MS#13002, MS#13099, MS#13515, MS#13847, MS#14081, MS#14475, MS#14839, and MS#43847) within one-half mile of the Corridor. Five (5) previously recorded cultural resources are located within the Corridor including five (5) isolated finds (32MZX1094, 32MZX1119, 32MZX1190, 32MZX1214, and 32MZX1542).

To augment the Class I inventory, a Class III field investigation was conducted, with the details of this effort included in the associated Route Permit Application. The full cultural resources report is privileged and not included in this Application. Refer to Appendix E for guidance from the NDSHPO on cultural resource report submittal and the Cultural Resources Report Executive Summary.

1.8.6 NORTH DAKOTA DEPARTMENT OF HEALTH

The NDDoH administers various water quality regulatory programs. These programs include construction stormwater permitting, hydrostatic test water discharges and other water discharges.

1.8.6.1 NDDOH POLLUTION DISCHARGE ELIMINATION SYSTEM

The North Dakota Pollution Discharge Elimination System (NDPDES) is the regulatory program for water discharges such as construction stormwater, site dewatering, and hydrostatic water discharges. Plains will procure NDPDES permits from the NDDoH as necessary prior to engaging in regulated activities.

SECTION 3: **NEED FOR FACILITY**

1.9 ANALYSIS OF NEED BASED ON PRESENT AND PROJECTED DEMAND, INCLUDING SYSTEM STUDIES

The Project will transport product from formations in the Williston Basin. The development of hydrocarbon production in the Williston Basin has increased significantly in recent years due to advancements in deep horizontal directional drilling techniques and subsequent oil extraction in the Bakken and Three Forks Shale formations. The total recoverable amount of Bakken Shale and Three Forks oil reserves are subject to interpretation and speculation. Studies conducted by the North Dakota Department of Mineral Resources and the USGS in 2010 estimated mean undiscovered volumes of 3.65 billion barrels of recoverable crude oil reserves may be available in North Dakota's deep shale formations. Information from the Department of Mineral Resources indicates that oil production has increased dramatically over the past five years. In January of 2011, North Dakota produced 342,923 barrels of oil per day. That figure has increased to 1,122,106 barrels per day in January of 2016.

A major constraint in transporting hydrocarbons from North Dakota to distribution centers and eventual end users in the United States is the lack of pipeline capacity. To relieve the pipeline constraints, several projects have been planned to address the growing volumes of crude oil, natural gas and natural gas liquids. However, pipeline capacity is not expected to keep pace with production, leaving incremental volumes to find alternative transportation methods, primarily rail or other surface transportation alternatives.

Construction of the Project will provide firm, reliable transport of 50,000 bpd of crude oil between the JCT and the DAPL. From the DAPL, the product will be transported via interconnecting pipelines for distribution to refineries in mid-continent and gulf coast area refineries. Recently, the DAPL received the final regulatory approvals and is poised to move into the construction phase of the project.

SECTION 4: **CORRIDOR LOCATION AND CRITERIA EVALUATION**

Plains has conducted a thorough inventory of the Corridor and evaluated the resources within it to assess the compatibility of the Project with the PSC's siting criteria. The following sections identify and discuss the presence or absence of siting criteria within the Corridor. Where siting criteria are identified, the location of each is shown on the maps in Appendix B.

1.10 CORRIDOR LOCATION

Plains identified a preferred Corridor, which is a one mile-wide area centered upon the preferred pipeline alignment. The selection of the proposed Corridor was a multi-disciplinary effort, which included socioeconomic, environmental, logistics, engineering, and financial considerations. The Corridor described in this application provides Plains with the opportunity to utilize existing assets, and minimize landowner and environmental impacts.

Plains initiated landowner negotiations, agency consultations, and performed internet-based research and desktop analysis of the Corridor. These efforts were augmented by field studies, including natural and cultural resource field surveys. The results of the field studies are discussed in detail in the associated Route Permit Application.

1.11 FACTORS TO BE CONSIDERED IN EVALUATING APPLICATIONS AND DESIGNATION OF CORRIDORS AND ROUTES (NDCC 49-22-09)

1.11.1 FEASIBLE ALTERNATIVES TO THE PROPOSED CORRIDOR OR ROUTE

Construction of the Project will provide firm, reliable service for 50,000 barrels of crude oil per day from the JCT to the DAPL. From the DAPL, the product will be transported to refineries across the United States. Plains identified and evaluated several project alternatives; however, none of these alternatives effectively satisfied the Project objective. These alternatives included:

- No Action Alternative;
- Trucking Alternative; and
- Rail Alternative.

4.2.1.1 No Action Alternative

This alternative would leave the region constrained by limited transport capacity for safe and reliable transmission of crude oil products to markets. A no action alternative could result in the curtailment of crude oil production. For these reasons, Plains rejected a *No Action Alternative*.

4.2.1.2 Trucking Alternative

This alternative was reviewed and eliminated due to the volume of crude oil to be transported. The normal daily throughput of the Project would be approximately 50,000 barrels or 2,100,000 gallons of crude oil. The average load for a truck carrying crude oil

is approximately 178 barrels (approximately 7,500 gallons) per truck. Thus, it would require 281 trucks per day, an average of 12 trucks every hour for twenty-four (24) hours a day to transport the volume of product the pipeline would transport to the DAPL. This level of truck activity is not logistically feasible as it would cause significant amounts of heavy vehicle traffic for area residents, as well as additional wear and tear on the infrastructure. Disruption in the trucking capacity due to seasonal load restrictions on roads, inclement weather or road repairs would cause a delay in delivering this valuable resource to market. This alternative is not desirable; therefore, Plains rejected a *Trucking Alternative*.

4.2.1.3 Rail Alternative

A Rail Alternative was also evaluated as a surface transportation alternative. However, this alternative was determined not feasible because of the associated environmental impacts and financial, logistic and time constraints necessary to acquire land and construct the requisite rail infrastructure. This alternative would also require a third party rail operator. For these reasons, Plains rejected a *Rail Alternative.*

1.11.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF NATURAL RESOURCES SHOULD THE PROPOSED CORRIDOR BE DESIGNATED

Plains is not aware of any irreversible or irretrievable commitments of natural resources that will result from the requested approvals.

1.11.3 EXISTING PLANS OF THE STATE, LOCAL GOVERNMENT AND PRIVATE ENTITIES FOR OTHER DEVELOPMENTS AT OR IN THE VICINITY OF THE PROPOSED ROUTE

Plains is aware of possible future development in the vicinity of the Route; however, the Project will not conflict with any known developments planned in the area.

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

Plains has consulted with federal and state agencies to identify possible environmental resources within the Corridor and any related agency concerns. A complete record of these consultations is provided in Appendix C.

1.12 EXCLUSION AREAS (NDAC 69-06-08-02(1))

Exclusion areas are geographical areas that must be excluded from consideration when siting an energy transmission facility. A proposed corridor may contain exclusion areas; however, exclusion areas may not encompass more than 50% of the corridor width at any point, unless there is no reasonable alternative. The following table and text identify and discuss exclusion areas identified within the Corridor.

Exclusion Area	Within Corridor	50% or More of Corridor	Section Providing Discussion of Resource
Federal			
National Parks or Memorial Parks	No	No	4.3.1
Historic Sites, or Landmarks	No	No	4.3.1
Natural Landmarks or Monuments	No	No	4.3.1
Wilderness Areas	No	No	4.3.1
State			
Historic Sites, Monuments, or Historical Markers	No	No	4.3.2
Archaeological Sites	No	No	4.3.2
Parks	No	No	4.3.2
Nature Preserves	No	No	4.3.2
County			
Parks	No	No	4.3.3
Recreation Areas	No	No	4.3.3
Municipal Parks	No	No	4.3.3
Other			
Areas Critical to the Life Stages of Threatened and Endangered Animal or Plant Species	No	No	4.3.4
Areas where Animal or Plant Species that are Unique or Rare to this State would be Irreversibly Damaged	No	No	4.3.5
Areas within 1,200 feet of a geographic center of an intercontinental ballistic missile (ICBM) launch or launch control facility.	No	No	4.3.6
Areas within 30 feet on either side of a direct line between (ICBM) launch or launch control facilities to avoid microwave interference.	No	No	4.3.7

1.12.1 FEDERAL RESOURCE REVIEW

Plains has initiated consultations with federal and state agencies and conducted a comprehensive review of published information. Plains concluded no national or memorial parks, natural landmarks or monuments, or wilderness areas will be crossed or affected by the Project.

1.12.2 STATE RESOURCE REVIEW

Plains has initiated consultations with federal and state agencies and conducted a comprehensive review of published information. Plains confirmed the absence of state parks, monuments, historical markers, archaeological sites or nature preserves within the proposed Corridor.

1.12.3 COUNTY RESOURCE REVIEW

Plains has confirmed through a combination of agency consultations and review of publicly available information the absence of county parks or recreation areas, municipal parks, or parks owned by other subdivisions of government bodies within the proposed Corridor. Refer to Section 2 of this document for a comprehensive discussion of Plains consultations, and Appendix C for documentation of agency consultations.

1.12.4 AREAS CRITICAL TO THE LIFE STAGES OF THREATENED AND ENDANGERED ANIMAL OR PLANT SPECIES

Plains conducted a comprehensive desktop review of the Corridor; these efforts were augmented with agency consultations and additional field surveys to confirm the presence or absence of critical habitat.

Refer to Appendix C for documentation of the agency consultations, and Section 2 of the associated Route Permit Application for details of the field studies.

1.12.5 AREAS WHERE ANIMAL OR PLANT SPECIES THAT ARE UNIQUE OR RARE TO THIS STATE WOULD BE IRREVERSIBLY DAMAGED

Plains has engaged in federal and state agency consultations, reviewed published information and conducted a desktop analysis of the Corridor to determine if areas of critical animal or plant habitat may occur. Based on these studies, Plains has confirmed the absence of protected species and/or their critical habitats. Refer to Appendix C for supporting documentation of agency consultations.

1.12.6 AREAS WITHIN 1,200 FEET OF THE GEOGRAPHIC CENTER OF AN ICBM LAUNCH OR LAUNCH CONTROL FACILITY

Upon review of tabular location data and aerial imagery which was compiled by the University of Wyoming, there are no areas within 1,200 feet of the geographic center of an Intercontinental Ballistic Missile (ICBM) launch or launch control facility located within the Corridor.

1.12.7 AREAS WITHIN THIRTY (30) FEET ON EITHER SIDE OF A DIRECT LINE BETWEEN ICBM LAUNCH OR LAUNCH CONTROL FACILITIES TO AVOID MICROWAVE INTERFERENCE

A review of data compiled by the University of Wyoming that contained tabular location data and aerial imagery was completed. This review confirmed the absence of areas within thirty (30) feet on either side of a direct line between ICBM launch or launch control facilities within the Corridor.

1.13 AVOIDANCE AREAS (NDAC 69-06-08-02(2))

Avoidance areas are geographic areas that may not be considered in the routing of a transmission facility unless it is shown there is no reasonable alternative under the circumstances. A proposed corridor may contain avoidance areas; however, avoidance areas may not encompass more than 50% of the corridor width at any point, unless there is no reasonable alternative. The following table and text identify and discuss avoidance areas within the proposed Corridor

Avoidance Area	Within Corridor	50% or More of Corridor	Section Providing Discussion of Resource
Federal			
Historic Districts	No	No	4.4.1
Wildlife Areas	No	No	4.4.1
Wild, Scenic or Recreational Rivers	No	No	4.4.1
Wildlife Refuges	No	No	4.4.1
Grasslands	No	No	4.4.1
State			
Wild, Scenic, or Recreational Rivers	No	No	4.4.2
Game Refuges or Game Management Areas	No	No	4.4.2
Forests or Forest Management Areas	No	No	4.4.2
Grasslands	No	No	4.4.2
Other			
Historical Resources not specifically designated as Exclusion or Avoidance Areas	No	No	4.4.3
Areas of Known Geologic Instability	Yes	No	4.4.4
Areas within 500 Feet of a Residence, School, or Place of Business	Yes	No	4.4.5
Reservoirs and Municipal Water Supplies	No	No	4.4.6
Water Sources for Organized Rural Water Districts	No	No	4.4.7
Irrigated Land (not applicable to underground facilities)	N/A	N/A	4.4.8
Areas of Recreational Significance which are not designated as Exclusion Areas	No	No	4.4.9

1.13.1 FEDERAL RESOURCE REVIEW

Plains conducted agency consultations and a comprehensive review of publicly available information. This review indicated the absence of designated or registered historic districts, refuges, grasslands, and wild, scenic or recreational rivers within the Corridor. Refer to Appendix C for documentation of agency consultations.

1.13.2 STATE RESOURCE REVIEW

Plains conducted a review of publicly available information and initiated project specific agency consultations and through these efforts has concluded there are no designated or registered management areas, forests, forest management lands, grasslands or wild, scenic, or recreational rivers within the Corridor. Refer to Appendix C for documentation of agency consultations.

1.13.3 HISTORICAL RESOURCES NOT SPECIFICALLY DESIGNATED AS EXCLUSION OR AVOIDANCE AREAS

Plains conducted a review of publicly available information, initiated project specific agency consultations, and augmented the agency review with field studies. Through these efforts, Plains has confirmed the absence of historical resources which are not specifically designated as exclusion or avoidance areas within the Corridor. Refer to Appendix C for documentation of agency consultations and Appendix E for guidance from the NDSHPO on cultural resource report submittal and the Cultural Resources Report Executive Summary. The full cultural resources report is privileged and not included in this Application.

1.13.4 AREAS OF KNOWN GEOLOGIC INSTABILITY

Geologic instability generally refers to surface geology and areas where landslides have occurred. The North Dakota Geological Survey (NDGS) landslide mapping data was consulted for information regarding areas of landslides near the Project area. Review of landslide deposit data from the North Dakota Geological Survey indicated the presence of four (4) landslide deposits totaling 6.4 acres within the Corridor. These areas consist of a variable mixture of strata and deposits that have slid to the base of steep slopes. Most of the landslides in this area are hundreds, if not thousands of years old.

North Dakota has not experienced an earthquake of sufficient magnitude to damage steel welded pipe or structural steel structures in recorded history. Sinkholes are known to occur in the region, but these are related to subsurface mining activities as opposed to limestone dissolution. According to a review of PSC abandoned mine data, three abandoned surface mines are located in the Corridor. Refer to the maps in Appendix B for the location of landslide deposits and abandoned mines within the Corridor.

1.13.5 AREAS WITHIN 500 FEET OF A RESIDENCE, SCHOOL OR PLACE OF BUSINESS

Aerial photography was utilized to identify structures located within the Corridor. Approximately seven (7) potentially occupied structures were identified within the Corridor. However, none of the potentially occupied structures are located within 500 feet of the route, as further discussed in the associated Route Permit Application.

1.13.6 RESERVOIRS AND MUNICIPAL WATER SUPPLIES

The Corridor occurs entirely within the Western Area Water Supply Authority's (WAWSA) five county jurisdiction. WAWSA works with the counties to ensure a regional approach to the water needs of the rural residents, communities, and industries are met. There were no reservoirs or municipal water supplies identified within the Corridor.

No wells were identified within the Corridor.

1.13.7 WATER SOURCES FOR ORGANIZED RURAL WATER DISTRICTS

The McKenzie County Water Resource District (MCWRD) has water resources located throughout McKenzie County, and as such, the Corridor is wholly within the MCWRD. The MCWRD oversees waterlines which occur within the Corridor.

1.13.8 IRRIGATED LAND

This criterion does not apply to underground transmission facilities; as such, it is not applicable to this Project.

1.13.9 AREAS OF RECREATIONAL SIGNIFICANCE WHICH ARE NOT DESIGNATED AS EXCLUSION AREAS

Plains confirmed the Corridor does not contain any other areas of recreational significance.

1.14 SELECTION CRITERIA (NDAC 69-06-08-02(3))

The selection criteria require assessment of the environmental impacts and alterations to land use that may result from the siting of the Project. Through this process, Plains believes the Project will successfully avoid or minimize these effects to the maximum extent practicable.

1.14.1 AGRICULTURAL IMPACT

Agricultural Production: The Corridor contains approximately 2,497 acres of private land. According to land cover data maintained by the USGS, approximately 187 of these acres are categorized as agricultural vegetation. An additional 2,016 acres are classified as shrub land or grasslands. Refer to Appendix B for maps depicting land cover within the Corridor.

Family Farms and Ranches: The Project will have no permanent impacts to lifestyle or farm/ranch operations once construction has been completed. The Corridor contains approximately 2,497 acres of private land. According to land cover data maintained by the USGS, approximately 187 of these acres are categorized as agricultural vegetation. An additional 2,016 acres are classified as shrub land or grasslands. Refer to Appendix B for maps depicting land cover within the Corridor.

Lands Suitable for Irrigation: This section is not applicable to buried pipelines (NDAC 69-06-08-02(2)(h)).

Surface Drainage: Standard construction techniques will be employed and significant modifications to surface drainage patterns are not anticipated. Care will be taken throughout the construction process to minimize environmental impacts, including modification of drainage patterns. During restoration, those areas that were disturbed during construction will be restored, the local topography will be restored to its original contours, vegetation will be reestablished, and impacts shall be minimal and temporary. Best management practices will be implemented to prevent erosion and off site travel of sediments.

Ground Water: Well data, recorded by the State Water Commission, has been reviewed for the Project area. Well data indicates groundwater in upland areas is located more than twenty (20) feet below the surface. Typical subsurface excavations associated with the Project will not extend to more than ten (10) feet below the ground surface. At that depth, the Project will not intersect the groundwater table, nor will the Project alter recharge rates or the infiltration, permeability, or percolation of water into the groundwater reservoir. Additionally, construction will not affect the lateral movement and groundwater quality.

1.14.2 THE IMPACTS UPON OTHER RESOURCES

Noise-Sensitive Land Uses: The Project is located in a rural setting, effectively isolating it from the majority of sensitive receptors. Construction of the Project will temporarily affect the local noise environment. The ambient sound level of a region is defined by the total noise generated within the specific environment and is usually comprised of sounds emanating from natural and artificial sources.

Construction of the Project will be conducted during typical working hours and is expected to cause temporary increases in ambient sound within and adjacent to the Project area. The use of heavy equipment or trucks will be the primary noise source during construction and excavation. The level of impact may vary by equipment type, duration of construction activity, and the distance between the noise source and the receptor. Once constructed and in-service, normal pipeline operations are not audible.

Visual Effect on Adjacent Areas: Tie-in facilities will be placed within the boundaries of existing operating terminals. As such, impacts to the view shed are not anticipated.

Extractive and Storage Resources: This Project will not affect any extractive or storage resources.

Wetlands, Woodlands and Wooded Areas: A comprehensive desktop review of published data, including aerial photography and NWI data, was conducted to assess the presence or absence of wetlands, woodlands and wooded areas. The review of the proposed Corridor confirmed the presence of these resources. Plains commissioned field surveys to identify and record the locations of these resources along the proposed route. Refer to Section 2 in this document for a comprehensive discussion of the field studies results, as well as Appendix C for copies of the agency consultations. Mitigation details are discussed in the associated Route Permit Application.

Radio and Television Reception, and other Communication or Electronic Control Facilities: Plains does not anticipate the Project will affect radio, television, or other electronic control facilities.

Human Health and Safety: Plains's Environmental, Health and Safety Policy meets federal and state laws, rules and regulations, and is enforced equally with respect to both Plains and its contractors. The implementation of this policy promotes a safe and healthy workplace during construction and operation of all Plains's assets. In addition, the operation of the pipeline will be monitored in accordance with DOT regulations.

Animal Health and Safety: The wildlife currently inhabiting the Corridor is common and is generally mobile. The local wildlife inhabitants will not be displaced by the Project and no measurable impact to the viability of these populations will occur. Plains does not anticipate species of special concern to experience direct impacts due to construction or operation of the Project.

Plant Life: There will be no impacts to plant life associated with the construction or operation of the pipeline. No species of special concern will be impacted by the Project.

1.15 POLICY CRITERIA

1.15.1 POLICIES AND COMMITMENTS TO LIMIT ENVIRONMENTAL IMPACT

Plains is committed to conducting its business in compliance with all applicable environmental laws and regulations. These laws, regulations and standards are designed to safeguard the environment, human health, wildlife and natural resources. Plains will conduct its activities with the objectives of providing a healthful and safe workplace for its employees, and preventing accidents and environmental incidents. All persons and firms providing service to Plains are required to conduct their work in compliance with environmental conditions, permit authorizations, and applicable regulations.

1.15.2 LOCATION AND DESIGN

The Project will be located in McKenzie County, North Dakota and result in a transmission pipeline originating at the JSC, approximately three (3) miles east of Johnsons Corner, North Dakota and will extend to the northwest to terminate at the DAPL, located approximately one (1) mile southeast from Johnsons Corner. Refer to the Project maps provided in Appendix B.

The Project will be approximately 3.5 miles in length constructed of steel, and will be a 24-inch outside diameter pipe. The pipe installed will have a line pipe wall thickness of 0.375-inches and bore pipe wall thickness of 0.688-inches denoted as the American Petroleum Institute (API) Code 5L specification GR B pipeline pipe. The maximum operating pressure of the pipeline will be 1,480 psig.

The proposed pipeline will meet U.S. DOT regulations, specifically the design criteria outlined in 49 C.F.R. part 195 subpart C, and will be constructed per 49 C.F.R. part 195 subpart D, and operated and maintained per 49 C.F.R. part 195 subpart F.

1.15.3 TRAINING AND UTILIZATION OF AVAILABLE LABOR IN THIS STATE FOR THE GENERAL AND SPECIALIZED SKILLS REQUIRED

Pipeline construction is a specialized niche construction market and the labor force needed to build the Project will be primarily comprised of a specialized workforce. The primary contractor will supply specialized skilled labor. The workforce is anticipated to reach a peak of approximately 100 personnel.

1.15.4 ECONOMIES OF CONSTRUCTION AND OPERATION

Plains will invest approximately $5 million in North Dakota to develop this Project, generating approximately $20,619 of additional ad valorem tax revenues annually. Once constructed and in-service, the continued costs of maintenance and operation of the proposed pipeline are minimal.

1.15.5 USE OF CITIZEN COORDINATING COMMITTEES

Plains has established and maintains a good relationship with the local community officials and the local population. These relationships provide multiple grass roots communication channels to inform local residents regarding the developments associated with the Project.

1.15.6 COMMITMENT OF A PORTION OF THE TRANSMITTED PRODUCT FOR USE IN THIS STATE

The Project will interconnect with existing facilities. The products handled, transferred and shipped at these facilities are currently delivered to markets both in and out of state.

1.15.7 LABOR RELATIONS

Plains maintains positive labor relations with its staff and contract work force and does not anticipate encountering any adverse labor relations on this Project. The labor market in the region is generally supportive of the oil and gas industry.

1.15.8 THE COORDINATION OF FACILITIES

Plains and its affiliates own and operate the JCT; thus, coordination will be seamless and executed from within Plains's internal management systems.

1.15.9 MONITORING OF IMPACTS

Plains has established and maintained positive landowner and community relationships throughout the region through its open communication and commitment to corporate citizenship standards that are based on integrity. Plains will monitor landowner concerns through its right-of-way (ROW) department and will respond to all reasonable requests. In a similar manner, Plains will monitor community concerns and will respond to all reasonable concerns brought to its attention by local community leaders. Plains will select a contractor for construction of the Project and will coordinate the oversight responsibilities for construction activities with this contractor throughout the Project. Environmental responsibilities will be coordinated in the same manner.

1.15.10 UTILIZATION OF EXISTING AND PROPOSED RIGHTS-OF-WAY AND CORRIDORS

Plains chose the preferred Project alignment in an effort to maximize the use of existing utility corridors. Approximately 90% (3.1 miles) of the Project is co-located with existing utility corridors. Refer to Appendix B for maps depicting portions of the Project that is collocated with other utilities.

1.15.11 OTHER EXISTING OR PROPOSED TRANSMISSION FACILITIES

Appendix F contains Plains's 10-Year Plan, which contains details regarding existing and planned Plains assets.

SECTION 5: **MITIGATIVE MEASURES**

1.16 LOCATION

The selection of the Corridor was a multi-disciplinary effort, which included socioeconomic, environmental, logistics, engineering, and financial considerations. The Corridor described in this application meets the siting criteria, and provides Plains with the opportunity to utilize existing assets, and minimize landowner and environmental impacts.

Landowner considerations also factored into the Corridor selection. The proposed Corridor limits the number of potentially affected landowners while providing potential routing opportunities that will further minimize individual impacts to current land practices. All affected landowners will be compensated for Project impacts through negotiated easement agreements and settlements for seasonal crop losses.

The proposed Corridor selection was also influenced by environmental studies that suggested the area lacked sensitive features such as critical wildlife habitat, major wetlands or waterbodies, or other unique environmental features. The proposed Corridor will allow routing options that will further minimize waterbody crossings and potentially avoid all the wetland crossings entirely. In addition to these routing considerations, compliance with environmental permits procured for the Project will effectively mitigate the impacts of construction along with the final approved route. Standard pipeline construction techniques will involve temporary impacts, but long term or permanent impacts will be avoided through implementation of modern construction techniques, adherence to permit requirements, and avoidance of sensitive features identified during routing studies.

Plains and its affiliates own and operate other assets in the region. Planning and development of these assets are conducted in a manner that maximizes the benefits to the region's resources. The proposed Corridor and route will allow Plains to draw upon existing pipeline and facility assets in the region.

1.17 CONSTRUCTION

The proposed construction of the Project will be conducted in an orderly sequence designed to complete the Project in the minimum amount of time required to safely prepare the site, install the pipeline, and restore the areas disturbed by construction.

Construction is estimated to require a minimum of two (2) months to complete. Construction techniques will be employed that minimize the area of ground disturbance, off site deposition of sediments, and long-term impacts to agricultural productivity. Construction activities shall conform to all applicable permit stipulations; these requirements are mandated by the agency and implemented by the project sponsor for minimizing impacts to the environment.

Restoration will immediately follow pipeline construction. Final grading will restore the original contours of the land. Disturbed areas will be prepared for re-seeding and restoration will be coordinated to meet landowner specifications.

1.18 OPERATION

Once put into service, the Project will operate continuously, delivering crude oil from the JCT to the DAPL. Normal pipeline operations are imperceptible to the public, as they are silent, buried and therefore not visible, and require only minimal aboveground activity. Standard operating procedures will conform to applicable DOT requirements, which include regular pipeline monitoring and periodic inspection. Additionally, routine maintenance of the ROW will likely be required to remain in compliance.

SECTION 6: **LIST OF PREPARERS**

William McCarthy, C.W.B.
Senior Environmental Compliance Analyst
E3 Environmental, LLC, 871 West Jefferson Avenue, St. Paul, MN 55102

M.S. Wildlife Biology, University of Minnesota – Twin Cities; and B.S. Wildlife Biology, Michigan State University. Mr. McCarthy is an environmental compliance analyst with 20 years of environmental consulting experience working with various energy assets and regulatory agencies. As a compliance analyst, he has managed the environmental requirements for facility siting, pipeline routing, federal licensing and various federal, state and local permits. Mr. McCarthy is a certified wildlife biologist, and in this role conducts and coordinates field studies, agency consultations, mitigation and avoidance plans.

Katie Schmidt, EIT
Environmental Engineer and Senior Consultant
E3 Environmental, LLC, 871 West Jefferson Avenue, St. Paul, MN 55102

B.S. Civil Engineering with an emphasis in Environmental Engineering-Iowa State University. Ms. Schmidt is a Senior Environmental Consultant with ten years of experience working with various energy assets and regulatory agencies. As a consultant, she has managed multiple pipeline projects supporting clients through the construction permitting and siting processes, which included coordination with various federal, state and local agencies.

Jon Knudsen
Wildlife Biologist
E3 Environmental, LLC, 871 Jefferson Avenue, St. Paul, MN 55102

M.S. Biology, Idaho State University – Pocatello, ID; and B.S. Zoology, University of Wisconsin – Madison, WI. Mr. Knudsen has 10 years of environmental consulting and biological monitoring experience, which includes horizontal project management of oil, gas, wind, and mining projects in Colorado, Wyoming, Montana, and North Dakota. His expertise includes surveying sensitive species, writing technical reports, and consulting with regulatory agencies to ensure clients are in compliance with associated rules and regulations. In addition, Mr. Knudsen specializes in training energy development companies on wildlife-related issues, including the Endangered Species Act and Migratory Bird Treaty Act.

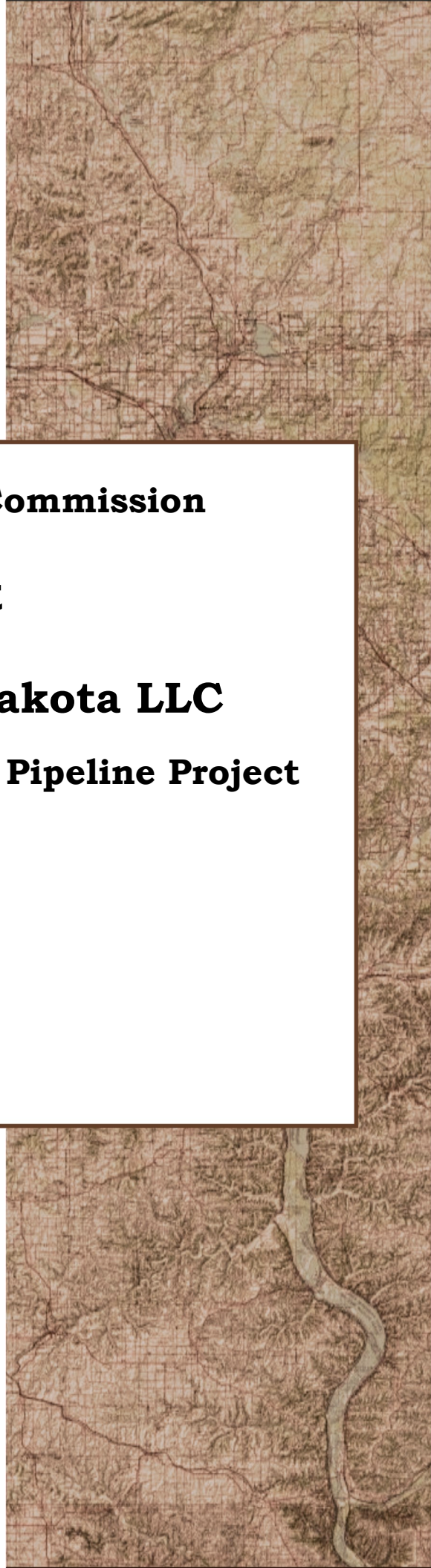
Garrett Knudsen, RPA
Senior Cultural Resource Specialist
E3 Environmental, LLC, 871 Jefferson Avenue, St. Paul, MN 55102

Ph. D. (candidate), Faculty of Archaeology and Anthropology, University of Cambridge, M.A. Anthropology, Idaho State University – Pocatello, ID; and B.S. Anthropology and Zoology, University of Wisconsin – Madison, WI. Mr. Knudsen is a Secretary of Interior qualified archaeologist with over 15 years of experience in cultural resource management, heritage preservation, and environmental compliance for private and public clients in the transportation, energy, and mining industries. Mr. Knudsen's regions of expertise include greater western North America; Midwest, Great Plains, Southwest, California, Texas, Great Basin, Plateau, Northwest Coast, and Alaska. He is also a specialist in archaeological landscapes, remote sensing, human skeletal remains, and predictive models.

Lindsey Danielson
GIS Analyst
E3 Environmental, LLC, 871 Jefferson Avenue, St. Paul, MN 55102

M.S. in Geographic Information Science with concentrations in Homeland Security/Emergency Management as well as Natural Resource Management, St. Mary's University of Minnesota; B.S. Geoscience: Geology, Winona State University. Ms. Danielson has 5 years of professional experience analyzing GIS data to identify spatial relationships and display the results of analyses via maps, graphs, and tables. She excels at data creation and manipulation, database management, advanced spatial analysis, and advanced cartography.

E3 ENVIRONMENTAL™
Enhancing Execution with Experience™



North Dakota Public Service Commission

Route Permit

Plains Terminals North Dakota LLC

Johnsons Corner to Dakota Access Pipeline Project

Prepared by:
E3 Environmental, LLC

March 2016

PLAINS
Terminals North Dakota LLC

Authority	List of Contents Required by 69-06-05-01: Application for Transmission Facility Permit	Section(s)
2.a.(1)	Type of facility proposed	1.1
2.a.(2)	Purpose of facility	1.2
2.a.(3)	Technology to be deployed	1.3
2.a.(4)	Type of product to be transmitted	1.1
2.a.(5)	Source of product being transmitted	3.0
2.a.(6)	Final destination of product being transmitted	1.2
2.a.(7)	Size and design detail and any alterative size and design	1.3
2.a.(7)(a)	The width of right-of-way	1.5
2.a.(7)(b)	The approximate length of facility	1.3.1
2.a.(7)(c)	The estimated span length for electric facilities	N/A
2.a.(7)(d)	The anticipated type of structure for electric facilities	N/A
2.a.(7)(e)	The voltage for electric facilities	N/A
2.a.(7)(f)	The requirement for and general location of any new associated facilities	1.4
2.a.(7)(g)	The estimated distance between pipeline surface structures	1.3.1
2.a.(7)(h)	The pipe size	1.3.2
2.a.(7)(i)	The maximum design for pipeline operating pressure and temperature	1.3.3
2.a.(7)(j)	The maximum design pipeline flow rate	1.3.3
2.a.(7)(k)	The number and general location of compressor or pumping stations	1.4
2.b.	Time schedule	1.7
2.b.(1)	Obtaining the certificate of corridor compatibility	1.7.2
2.b.(2)	Obtaining the route permit	1.7.1
2.b.(3)	Completing right-of-way acquisition	1.7.3, 7.1
2.b.(4)	Starting construction	1.7.4
2.b.(5)	Completing construction	1.7.4
2.b.(6)	Testing operations	1.7.4
2.b.(7)	Commencing operations	1.7.4

2.c.	A copy of each evaluative study or assessment of the environmental impact of the proposed facility submitted to the agencies listed in section 69-06-01-05 and each response received	Appendix C
2.d.	Need for the facility	3.0
2.e.	Description of alternatives	2.2
2.f.	Corridor width	N/A – Refer to Certificate of Corridor Compatibility
2.g.	Study area to enable the Commission to evaluate the factors in the Century Code section 49-22-09;	2.1, 4.1.1
2.h.	Discussion of factors in Century Code 49-22-09 to aid Commission's evaluation	4.1
2.i.	A discussion of the applicant's policies and commitments to limit the environmental impact of its facilities, including copies of the board resolutions and management directives	4.5
2.j.	Map of criteria that led to route location	Appendix B
2.k.	Discuss relative value of each criteria and how the location was selected; how operation will affect criteria	4.2, 4.3
2.l.	Mitigating measures	5.0
2.m.	Qualifications of each person involved in location study	8.0
2.n.	Map identifying criteria that led to the route location and new facilities	Appendix B
2.o.	8 ½ X 11 black and white map suitable for newspaper publication	Located in digital copy of Consolidated Application
2.p.	Discussion of present and future natural resource development in the area	4.2, 4.3

2.q.	Maps and GIS data for the project meeting the PSC requirements	Appendix B, electronic GIS data located in digital copy of Consolidated Application

Authority	List of Contents Required by 69-06-08-02: Transmission Facility Route Criteria	Section(s)
1	**Exclusion Areas**	4.2
1.a	Designated or registered nation: parks; memorial parks; historic sites and landmarks; natural landmarks; monuments; and wilderness areas	2.3.5, 2.3.6, 4.1.8, 4.2.1, 5.1
1.b.	Designated or registered state: parks; historic sites; monuments; historical markers; archaeological sites; and nature preserves	2.3.5, 2.3.6, 4.1.8, 4.2.2, 5.1
1.c.	County parks and recreational areas; municipal parks; and parks owned or administered by other governmental subdivisions.	4.1.7, 4.1.10, 4.2.3
1.d.	Areas critical to the life stages of threatened or endangered animal or plant species.	2.3.4, 4.1.9, 4.2.4, 5.1
1.e.	Areas where animal or plant species that are unique or rare to this state would be irreversibly damaged.	2.3.4, 4.1.9, 4.2.5, 5.1
1.f.	Areas within one thousand two hundred feet of the geographic center of an intercontinental ballistic missile (ICBM) launch or launch control facility.	4.2.6
1.g.	Areas within thirty feet on either side of a direct line between intercontinental ballistic missile (ICBM) launch or launch control facilities to avoid microwave interference.	4.2.7
2	**Avoidance Areas**	4.3
2.a.	Designated or registered national: historic districts; wildlife areas; wild, scenic, or recreational rivers; wildlife refuges; and grasslands.	2.3.5, 2.3.6, 4.1.8, 4.3.1

2.b.	Designated or registered state: wild, scenic, or recreational rivers; game refuges; game management areas; management areas; forests; forest management lands; and grasslands.	4.1.8, 4.3.2
2.c.	Historical resources which are not specifically designated as exclusion or avoidance areas.	4.3.3
2.d.	Areas which are geologically unstable.	4.3.4
2.e.	Within five hundred feet [152.4 meters] of a residence, school, or place of business. This criterion shall not apply to a water pipeline transmission facility.	4.3.5
2.f.	Reservoirs and municipal water supplies.	4.3.6
2.g.	Water sources for organized rural water districts.	4.3.7
2.h.	Irrigated land. This criterion shall not apply to an underground transmission facility.	4.3.8
2.i.	Areas of recreational significance which are not designated as exclusion areas.	4.3.9
3	**Selection Criteria**	4.4
	The impact upon agriculture:	4.4.1
3.a.(1)	Agricultural production.	4.4.1, 6.1
3.a.(2)	Family farms and ranches.	4.4.1
3.a.(3)	Land which the owner can demonstrate has soil, topography, drainage, and an available water supply that cause the land to be economically suitable for irrigation.	4.4.1
3.a.(4)	Surface drainage patterns and ground water flow patterns.	2.3.3, 4.4.1
	The impact upon:	4.4.2
3.b.(1)	Sound-sensitive land uses.	4.4.2
3.b.(2)	The visual effect on the adjacent area.	4.4.2
3.b.(3)	Extractive and storage resources.	4.4.2
3.b.(4)	Wetlands, woodlands, and wooded areas.	2.3.2, 2.3.3, 4.4.2, 5.1, 6.1
3.b.(5)	Radio and television reception, and other communication or electronic control facilities.	4.4.2
3.b.(6)	Human health and safety.	4.1.1, 4.4.2

3.b.(7)	Animal health and safety.	2.3.4, 4.1.9, 4.4.2, 5.1
3.b.(8)	Plant life.	2.3.1, 2.3.2, 4.1.9, 4.4.2, 5.1
4	**Policy Criteria**	4.5
4.a.	Location and design.	1.3, 1.6, 4.5.2, 5.1
4.b.	Training and utilization of available labor in this state for the general and specialized skills required.	4.5.3
4.c.	Economies of construction and operation.	1.7.3, 4.5.4, 6.1
4.d.	Use of citizen coordinating committees.	4.5.5
4.e.	A commitment of a portion of the transmitted product for use in this state.	4.5.6
4.f.	Labor relations.	4.5.7
4.g.	The coordination of facilities.	4.5.8
4.h.	Monitoring of impacts.	4.5.9
4.i.	Utilization of existing and proposed rights of way and corridors.	2.1, 4.5.10
4.j.	Other existing or proposed transmission facilities.	4.5.11

TABLE OF CONTENTS

APPENDICES

INTRODUCTION

Plains All American Pipeline, L.P. (PAA) is a publicly traded limited partnership formed in Delaware in 1998. PAA's operations are conducted directly and indirectly through its primary operating subsidiaries. PAA owns and operates midstream energy infrastructure and provides logistics services for crude oil, natural gas liquids (NGL), natural gas, and refined products. PAA owns an extensive network of pipeline transportation, terminalling, storage, and gathering assets in key crude oil and NGL producing basins and transportation corridors, and at major market hubs in the United States and Canada.

Plains Terminals North Dakota LLC (Plains) is a Delaware limited liability company formed in 2013 with its principal place of business at 333 Clay Street, Suite 1600, Houston, Texas, 77002. Plains is a subsidiary of PAA.

Plains is proposing to construct and own the Johnsons Corner to Dakota Access Pipeline Project (Project), located in McKenzie County, North Dakota. The Project scope includes approximately 3.5 miles of new, crude oil pipeline with an outside diameter of 24-inches. The Project will originate at the Plains Johnsons Corner Terminal (JCT) and terminate at the Dakota Access Pipeline Johnsons Corner Terminal Facility (hereinafter referred to as "DAPL" or "DAPL Terminal"). The Project will be constructed to allow crude to flow in either direction. Refer to the maps in Appendix B for an overview of the Project.

Plains submits to the North Dakota Public Service Commission (PSC) a single consolidated application for a Certificate of Corridor Compatibility and Route Permit for the Project.

The application provides the requisite information as stipulated by:

- North Dakota Century Code, Energy Conversion and Transmission Facility Siting Act, Section 49-22-08.1; and,
- North Dakota Administrative Code, Chapter 69-06-05, Transmission Facility Permit.

SECTION 1: DESCRIPTION

1.1 Type Of Transmission Facility

The Project will result in a new crude oil transmission pipeline. The steel pipeline will meet U.S. Department of Transportation (DOT) regulations, specifically the design criteria outlined in 49 C.F.R. part 195 subpart C. The Project will be constructed per 49 C.F.R. part 195 subpart D, and operated and maintained per 49 C.F.R. part 195 subpart F.

1.2 PURPOSE OF TRANSMISSION FACILITY

The purpose of the Project is to transport crude oil from the JCT to the DAPL. From the DAPL, the product will be transported via interconnecting pipelines for distribution to refineries across the United States. Plains estimates the Project will cost approximately $5 million to develop.

1.3 LENGTH, SIZE AND DESIGN OF PIPELINE FACILITY

1.3.1 LENGTH OF FACILITY

The Project is approximately 3.5 miles in length.

1.3.2 PIPE SIZE

The Project pipeline specifications are detailed below:

- 24-inch outside diameter steel pipe
- 0.375-inch line pipe wall thickness, 0.688-inch bore pipe wall thickness

1.3.3 OPERATING PRESSURE AND THROUGHPUT

The Project has been designed with the following design parameters listed below:

- Normal Operating Pressure: 1,440 pounds per square inch gauge (psig)
- Maximum Operating Pressure: 1,480 psig
- Normal Throughput: approximately 50,000 barrels per day (bpd)
- Maximum Throughput: approximately 150,000 bpd
- Maximum Operating Temperature: 100 degrees Fahrenheit

1.4 ABOVEGROUND FACILITIES

All tie-in facilities will be located within the existing terminal facility fence lines. No aboveground structures are anticipated to be constructed outside of the existing terminals.

1.5 WIDTH OF RIGHT-OF-WAY

The Project will be constructed utilizing a seventy-five (75) foot construction right-of-way (ROW). Plains will maintain an average twenty-five (25) foot permanent ROW along the entire length of the pipeline.

1.6 LOCATION

The Project will be located in McKenzie County, North Dakota and result in a transmission pipeline originating at the JCT, approximately three (3) miles east of Johnsons Corner, North Dakota and will extend to the northwest to terminate at the DAPL, located approximately one (1) mile southeast of Johnsons Corner. Refer to the Project maps provided in Appendix B.

1.7 PROJECT SCHEDULE

1.7.1 ROUTE PERMIT

Plains seeks a Route Permit by or before June 2016.

1.7.2 CERTIFICATE OF CORRIDOR COMPATIBILITY

Plains seeks a Certificate of Corridor Compatibility by or before June 2016.

1.7.3 RIGHT-OF-WAY ACQUISITION

Plains has completed right-of-way acquisition for the Project.

1.7.4 CONSTRUCTION SCHEDULE

Plains has scheduled construction activities to commence during the third quarter of 2016. The construction activities will take approximately two (2) months to complete. Commissioning and restoration activities will commence immediately after construction is complete.

1.7.5 ADDITIONAL PROJECT PERMITS OR AUTHORIZATIONS

The Project will be constructed in compliance with applicable federal, state and local laws, regulations or plans. Plains will obtain necessary permits or approvals for the construction and operation of the Project.

SECTION 2: ROUTE ANALYSIS AND ENVIRONMENTAL STUDIES

2.1 PIPELINE ROUTE

Plains has conducted a thorough analysis of the Project corridor as reported in the Application for a Certificate of Corridor Compatibility. This analysis was a broad based study of the proposed corridor (a one-mile corridor centered upon a proposed route). The purpose of this analysis is to confirm the Project corridor is suitable and will cause minimal environmental impacts, thus conforming to the PSC siting criteria.

In conjunction with these efforts, Plains studied routing alternatives and developed the Project alignment (Route). Plains chose this Route to meet landowner requests and to minimize impacts to environmental features. The Route meets the Project's objectives while conforming to the PSC's transmission route siting requirements. In support of Plains's route selection, the desktop studies from the corridor were refined and augmented with field studies of the Route.

Trained natural and cultural resource specialists conducted field studies in October and November 2015. The purpose of the field studies was two-fold: (1) to definitively identify any potential resource issues (*e.g.*, wetlands, waterbodies, protected species, critical habitats or cultural resources) within the survey corridor; and (2) to provide the baseline field data necessary to prescribe alternative routing or mitigation as necessary to minimize environmental impacts. The environmental survey corridor was a minimum of 250 feet centered on the proposed Route (Survey Corridor). The results of these field surveys are summarized in the following sections. The Natural Resources Report is located in Appendix D. Per guidance from the NDSHPO on cultural resource report submittal, the Cultural Resources Report Executive Summary and the NDSHPO guidance can be found in Appendix E. However, the full cultural resources report is privileged and not included in this Application. The Survey Corridor is depicted on the maps in Appendix B.

2.2 ROUTE ALTERNATIVES

Construction of the Project will provide firm, reliable service for 50,000 barrels of crude oil per day from the JCT to the DAPL. From the DAPL, the product will be transported to refineries across the United States. Plains identified and evaluated several project alternatives; however, none of these alternatives effectively satisfied the Project objective. These alternatives included:

- No Action Alternative;
- Trucking Alternative; and
- Rail Alternative.

No Action Alternative:

This alternative would leave the region constrained by limited transport capacity for safe and reliable transmission of crude oil products to markets. A no action alternative could result in the curtailment of crude oil production. For these reasons, Plains rejected a *No Action Alternative*.

Trucking Alternative:

This alternative was reviewed and eliminated due to the volume of crude oil to be transported. The normal daily throughput of the Project will be approximately 50,000 barrels or 2,100,000 gallons of crude oil. The average load for a truck carrying crude oil is approximately 178 barrels (approximately 7,500 gallons) per truck. Thus, it would require 281 trucks per day, an average of twelve (12) trucks every hour for twenty-four (24) hours a day to transport the volume of product the pipeline would transport to the DAPL. This level of truck activity is not logistically feasible as it would cause significant amounts of heavy vehicle traffic for area residents, as well as additional wear and tear on the infrastructure. Disruption in the trucking capacity due to seasonal load restrictions on roads, inclement weather or road repairs would cause a delay in delivering this valuable resource to market. This alternative is not desirable; therefore, Plains rejected a *Trucking Alternative*.

Rail Alternative:

A Rail Alternative was also evaluated as a surface transportation alternative. However, this alternative was determined not feasible because of the associated environmental impacts and financial, logistic and time constraints necessary to acquire land and construct the requisite rail infrastructure. This alternative would also require a third party rail operator. For these reasons, Plains rejected a *Rail Alternative.*

2.3 ENVIRONMENTAL SURVEY

Field surveys were conducted in October and November of 2015. The Survey Corridor was typically a 250 foot corridor centered upon the proposed Route. The Survey Corridor is depicted on the maps in Appendix B.

2.3.1 NOXIOUS WEEDS

"Noxious weed" is a general term used to describe fast-spreading, non-native plant species in a given area. Noxious weeds have adverse ecological and economic impacts due to their ability to outcompete native plant species for habitat and resources. Twelve (12) patches of noxious weeds were identified within the Survey Corridor during field surveys. Refer to Appendix D for the Natural Resource Report and Section 5 for proposed mitigation procedures that will be implemented in the event that noxious weeds are encountered during construction activities.

2.3.2 TREE/SAPLING/SHRUB SURVEY

During the field surveys, crews performed a detailed tree/shrub inventory. This inventory recorded the pre-construction status of these resources, which will form the baseline for restoration and mitigation reconciliation. Based on this effort, eighty-eight (88) tree and shrub areas were located within the Survey Corridor. Of these, only eight (8) areas are crossed by the Route. See Appendix D for the complete Natural Resources Report and Section 5 for planned mitigation measures.

2.3.3 WETLAND AND WATERBODIES SURVEY

The Survey Corridor was inventoried for wetland and waterbody features (*i.e.*, creek, pond, streams, rivers). Field crews identified features, characterized these features as a wetland or waterbody, and recorded feature boundaries relative to the proposed Route to facilitate avoidance mitigation where practicable. Appendix D contains the Natural Resources Report, which outlines the results of these field studies.

2.3.3.1 WETLAND SURVEY

No wetland features were identified during the field surveys. Refer to Appendix D for the Natural Resources Report, and Section 5 for mitigation measures.

2.3.3.2 WATERBODIES SURVEY

Field surveys identified two (2) streams within the Survey Corridor. One stream is crossed by the Route. Refer to Appendix B for the mapped location of each feature, Appendix D for the Natural Resources Report and Section 5 for mitigation measures.

2.3.4 WILDLIFE INVENTORY

Approximately 160 wildlife species are resident or seasonal visitors to the Project area. These include common mammals (*i.e.*, white-tailed deer, mule deer, raccoon and pronghorn antelope); various song birds (*i.e.*, western meadowlark, LeConte's sparrow, horned lark); raptors (*i.e.*, bald eagle, golden eagle, red-tailed hawk, rough-legged hawk) and numerous other fauna. The Survey Corridor was inventoried for sensitive species and their critical habitat. No threatened or endangered species or their critical habitats were observed by field biologists. Appendix D contains the Natural Resources Report, which outlines the results of these field studies.

2.3.4.1 FEDERALLY PROTECTED SPECIES SURVEY

Under authority of the Endangered Species Act (ESA), the U.S. Fish and Wildlife Service (USFWS) and the Fisheries Service division of the National Oceanic and Atmospheric Administration (NOAA) have identified and maintain a list of species and critical habitats that have been afforded protection under the ESA. The ESA also provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they live.

On January 6, 2016, E3 Environmental, LLC (E3), on behalf of Plains, requested a USFWS review of the Project, requesting information relating to the presence or

absence of threatened and endangered species within the Project area. A response from the USFWS is pending. Refer to Appendix C for agency correspondence.

Plains commissioned field studies to confirm the presence or absence of these species and/or their critical habitats along the proposed Route. The results of this assessment are provided below. Refer to Appendix D for the Natural Resources Report, which outlines the results of these field studies, and Section 5 for proposed mitigation measures.

Whooping crane: The Aransas Wood Buffalo Population of Whooping Cranes engages in semi-annual migration through North Dakota. This flock breeds in the Wood Buffalo National Park in Alberta and Northwest Territories, Canada, and winters in the Aransas National Wildlife Refuge in Texas. North Dakota provides migratory habitat for the species, providing roosting and feeding opportunities during migration. During migration, the species is most closely associated with larger wetland complexes for roosting habitat, typically using adjacent uplands to forage. Foraging habitat (*i.e.*, cultivated cropland and wetlands) was observed within the Survey Corridor. The Project is located within the migratory corridor for the whooping crane, however, due to the planned construction schedule (*i.e.*, June 2016), the Project is not likely to impact the whooping crane.

Least tern: Suitable shoreline habitat for breeding and nesting terns does not occur in the Survey Corridor. Least terns may transition through the Project area during migration, however, impacts to the terns are not anticipated.

Pallid sturgeon: The preferred habitat of the pallid sturgeon does not occur in the Survey Corridor. Therefore, impacts to the species are not anticipated.

Gray wolf: Suitable habitat for the gray wolf does not occur in the Survey Corridor. Additionally, the activities associated with construction and later operations will likely serve as a deterrent to this species. Therefore, impacts to the gray wolf are not anticipated.

Rufa Red knot: Suitable habitat is not present within the Survey Corridor. The red knot may occur within the Project area as a migrant; however, adverse impacts to the red knot are not anticipated as a result of the Project.

Piping plover: The Survey Corridor does not contain suitable habitat for breeding and nesting. The piping plover may occur within the Project area as a migrant; however, adverse impacts to the piping plover are not anticipated.

Dakota Skipper: In McKenzie County, the USFWS has designated critical Dakota skipper habitat but it is located approximately ten (10) miles southwest of the Project. The Dakota skipper's preferred habitat is generally described as native prairie grassland. The species is sensitive to disturbance of its preferred habitat and is rarely observed in areas that have been previously disturbed or developed in any manner. Agricultural land practices including active rangelands are considered contra

indicators for potential skipper occurrences. Encroachment of woody vegetation and/or noxious weeds will also present unsuitable habitat for this species. As such, due to the co-location of the Project in areas previously disturbed, coupled with the presence of woody vegetation and noxious weeds, any remnant potential skipper habitat is considered degraded and not likely to support Dakota skippers.

Northern long-eared bat: No mapped hibernacula (*e.g.*, winter habitat) has been recorded and mapped in North Dakota. Therefore, potential suitable habit will be limited to potential roost trees utilized seasonally from late-spring through fall. Potentially suitable habitat occurs in the Project on a limited basis where the Project intersects trees of sufficient size (typically 4-inches or greater in diameter at chest height) that also present exfoliating bark. Refer to Section 5 for mitigation measures.

Bald and Golden Eagle: Field surveys conducted in October and November of 2015 confirmed suitable habitat is present within the Survey Corridor or within line-of-site of the Survey Corridor. No bald or golden eagle nests were observed during field surveys. Refer to Section 5 for mitigation measures should a bald or golden eagle be observed during construction.

Migratory Birds: Field studies confirmed suitable habitat for migratory birds exists within the Survey Corridor. Two (2) potential raptor nests were observed within 0.5 miles of the Survey Corridor, but these nests were not active at the time of observation. Section 5 contains mitigation measures to be implemented should migratory birds be encountered during construction.

2.3.5 NORTH DAKOTA STATE HISTORIC PRESERVATION OFFICE

The North Dakota State Historic Preservation Office (NDSHPO) is responsible for managing the historic and archaeological resources of the state; as such, the NDSHPO maintains records of all previously recorded cultural resources within the state.

A Class I cultural resources inventory (literature review) was conducted of records from the State Historical Society of North Dakota to identify previously completed cultural resource investigations and recorded cultural resources within one mile of the Corridor.

The Class I cultural resources inventory identified five (5) recorded cultural resources within the Corridor.

The ensuing Class III cultural resource inventory of the Survey Corridor was completed in October and November 2015. No cultural resources were identified within the Survey Corridor.

The Cultural Resources Report was submitted to the NDSHPO on February 5, 2016 requesting concurrence with the recommendation of *No Significant Sites Affected* for the Project. A response from the NDSHPO was received on February 26, 2016. Refer to Appendix C for documentation of agency consultations and Appendix E for the

Cultural Resources Report Executive Summary. The full cultural resources report is privileged and not included in this Application.

2.3.6 U.S. FISH AND WILDLIFE SERVICE MANAGED LANDS

On January 6, 2016, E3, on behalf of Plains, requested a USFWS review of the Project and information relating to the presence or absence of USFWS managed land within the Survey Corridor. The USFWS response is pending. Refer to Appendix C for a record of this correspondence.

SECTION 3: ANALYSIS OF NEED BASED ON PRESENT AND PROJECTED DEMAND, INCLUDING SYSTEM STUDIES

The Project will transport product from formations in the Williston Basin. The development of hydrocarbon production in the Williston Basin has increased significantly in recent years due to advancements in deep horizontal directional drilling techniques and subsequent oil extraction in the Bakken and Three Forks Shale formations. Studies conducted by the North Dakota Department of Mineral Resources and the USGS in 2010 estimated mean undiscovered volumes of 3.65 billion barrels of recoverable crude oil reserves may be available in North Dakota's deep shale formations. Information from the Department of Mineral Resources indicates that oil production has increased dramatically over the past five years. In January of 2011, North Dakota produced 342,923 barrels of oil per day. That figure has increased to 1,122,106 barrels per day in January of 2016.

A major constraint in transporting hydrocarbons from North Dakota to distribution centers and eventual end users in the United States is the lack of pipeline capacity. To relieve the pipeline constraints, several projects have been planned to address the growing volumes of crude oil, natural gas, and natural gas liquids. However, pipeline capacity is not expected to keep pace with production, leaving incremental volumes to find alternative transportation methods, primarily rail or other surface transportation alternatives.

Construction of the Project will provide firm, reliable transport of 50,000 bpd of crude oil between the JCT and the DAPL. From the DAPL, the product will be transported via interconnecting pipelines for distribution to refineries in mid-continent and gulf coast area refineries. Recently, the DAPL received the final regulatory approvals and is poised to move into the construction phase of the project.

SECTION 4: SITING CRITERIA ANALYSIS

4.1 FACTORS TO BE CONSIDERED IN EVALUATING APPLICATIONS AND DESIGNATIONS OF SITES, CORRIDORS AND ROUTES (NDCC 49-22-09)

4.1.1 AVAILABLE RESEARCH AND INVESTIGATION RELATING TO THE EFFECTS OF THE LOCATION, CONSTRUCTION, AND OPERATION OF THE PROPOSED FACILITY ON PUBLIC HEALTH AND WELFARE, NATURAL RESOURCES AND THE ENVIRONMENT:

The Project is designed to provide delivery throughput from the JCT to the DAPL Terminal for distribution to market hubs/centers and markets nationwide. Plains and its affiliates own and operate the JCT. As such, all routing was anchored from this location to potential destinations. The DAPL was chosen due to the capacity of product being transported and to provide greater access to more markets. The Project will also be constructed to allow crude to flow in either direction.

Route planning between the JCT and the DAPL identified and evaluated several options for routing this Project. These studies were designed to define a preferred route that achieves project objectives, is technologically and economically feasible to construct, and minimizes impacts to landowners and the environment. The key logistical considerations included the location of the JCT, identification of existing utility corridors for collocation, and acquisition of pipeline ROW from area landowners.

Field studies were conducted to identify environmental, biological and cultural resources along the Route; the results of this effort are discussed in Section 2 of this document. The full Natural Resources report is provided in Appendix D. Refer to Appendix E for the Cultural Resources Report Executive Summary. The sections below discuss possible effects on the public health and welfare.

4.1.2 THE EFFECTS OF NEW ENERGY CONVERSION AND TRANSMISSION TECHNOLOGIES AND SYSTEMS DESIGNED TO MINIMIZE ADVERSE ENVIRONMENTAL EFFECTS:

The Project does not include energy conversion or transmission technologies/systems specifically designed to minimize adverse environmental impacts.

The Project will be constructed in compliance with environmental permits; the conditions of these permits are designed to minimize adverse environmental impacts. Refer to Section 5 of this document for a full description of the mitigation measures.

4.1.3 ADVERSE DIRECT AND INDIRECT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSED SITE OR ROUTE BE DESIGNATED:

Unavoidable adverse direct and indirect environmental effects will be temporary and minimized through compliance with environmental permits. The potential impacts to resources including vegetation, wildlife, agricultural operations, transportation and

noise levels are discussed in the following sections. Plains will mitigate these temporary impacts to the maximum extent possible.

The Project will be constructed in compliance with environmental permits; the conditions of these permits are designed to minimize adverse environmental impacts. Refer to Section 5 for a full description of the mitigative measures planned to minimize impacts resulting from the Project's location, construction and operation.

4.1.4 ALTERNATIVES TO THE PROPOSED CORRIDOR OR ROUTE WHICH ARE DEVELOPED DURING THE HEARING PROCESS AND WHICH MINIMIZE ADVERSE EFFECTS:

Plains will fully participate in the hearing process and will address any alternatives developed during the hearing process, as applicable.

4.1.5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF NATURAL RESOURCES SHOULD THE PROPOSED CORRIDOR AND ROUTE BE DESIGNATED:

Plains is not aware of any irreversible or irretrievable commitments of natural resources that will result from the requested approvals.

4.1.6 DIRECT AND INDIRECT ECONOMIC IMPACTS OF THE PROPOSED FACILITY:

Plains will invest approximately $5 million in North Dakota to develop this Project, generating approximately $20,619 of additional ad valorem tax revenues annually. Once constructed and in-service, the continued costs of maintenance and operation of the Project are minimal. While the pipeline itself will not generate any direct tariff revenues for the state of North Dakota, it is estimated the gross product value produced and transported through the Project would be in excess of $100 million annually, generating significant producer, royalty and state tax revenues in the most efficient and minimally intrusive way possible.

4.1.7 EXISTING PLANS OF THE STATE, LOCAL GOVERNMENT, AND PRIVATE ENTITIES FOR OTHER DEVELOPMENTS AT OR IN THE VICINITY OF THE PROPOSED ROUTE:

Plains is aware of possible future development in the vicinity of the Route; however, the Project will not conflict with any known developments planned in the area.

4.1.8 THE EFFECT OF THE PROPOSED ROUTE ON EXISTING SCENIC AREAS, HISTORIC SITES AND STRUCTURES AND PALEONTOLOGICAL OR ARCHAEOLOGICAL SITES:

Plains commissioned Class I and Class III cultural resource inventories. No cultural resources were identified within the Survey Corridor. All related agency consultations can be found in Appendix C, and supporting documentation of field studies can be found in Appendix E. The full cultural resources report is privileged and not included in this Application.

Project-specific consultation with various federal, state and local agencies did not identify any scenic areas along the Route. Refer to Appendix C for a record of these consultations.

4.1.9 THE EFFECT OF THE PROPOSED ROUTE ON AREAS WHICH ARE UNIQUE BECAUSE OF BIOLOGICAL WEALTH OR BECAUSE THEY ARE HABITATS FOR RARE AND ENDANGERED SPECIES:

The proposed Route is not anticipated to result in permanent impacts to the environment. *See* Section 2 for a comprehensive discussion of Plains's effort to identify sensitive environmental resources along the proposed Route and Section 5 for a comprehensive discussion of proposed mitigation. Plains has worked with agencies to develop a route that avoids or minimizes environmental impacts. Provided the mitigation plans are fully implemented and environmental permit conditions are executed, the Project will not result in any impact to listed or sensitive species or their habitats. *See* Appendix C for complete federal and state agency consultations. Detailed survey results can be found in Appendix D.

4.1.10 PROBLEMS RAISED BY FEDERAL AGENCIES, OTHER STATE AGENCIES AND LOCAL ENTITIES:

Plains provided Project specific consultations to various federal, state and local agencies. Through this consultation process, these agencies had the opportunity to identify possible sensitive environmental resources along the Route and any related agency concerns. A summary of these concerns are below; a complete record of these communications can be found in Appendix C; mitigation measures to address these concerns are discussed in Section 5 of this document.

On February 2, 2016, the North Dakota Game and Fish Department (NDGF) provided comments to Plains regarding the Project. The NDGF provided the following recommendations:

- Measures be taken to protect wetlands that cannot be avoided;
- No alterations to existing drainage patterns; and
- No placement of above-ground appurtenances in wetland areas.

The NDGF expressed no other concerns.

Plains will implement standard best management practices (BMPs) which include measures specific to protecting wetlands when constructing in wetlands.

The drainage patterns will not be altered, and Plains will restore the original contours and revegetate areas disturbed by pipeline construction.

The placement of above-ground appurtenances will avoid wetland areas.

On January 26, 2016, the North Dakota Parks and Recreation Department (NDPRD) provided comments to Plains regarding the Project recommending that Plains

revegetate impacted areas with native species. The agency expressed no other concerns.

Plains will revegetate disturbed areas to landowner specifications. In the absence of a landowner request, Plains will use a native seed mix.

4.2 EXCLUSION AREAS (NDAC 69-06-08-02(1))

Exclusion areas are geographical areas that must be excluded in the consideration of a route for a transmission facility. A route cannot intersect the following areas and a buffer zone of a reasonable width to protect the integrity of the area must be implemented. A survey corridor may contain exclusion areas; however, exclusion areas may not encompass more than 50% of the survey corridor width at any point, unless there is no reasonable alternative. The following table and text identify and discuss exclusion areas within the Survey Corridor.

Exclusion Area	Within Project Survey Corridor	Crossed by Route	50% or More of Survey Corridor	Section Providing Discussion of Resource
Federal				
National Parks or Memorial Parks	No	No	No	4.2.1
Historic Sites or Landmarks	No	No	No	2.3.5, 4.2.1
Natural Landmarks or Monuments	No	No	No	4.2.1
Wilderness Areas	No	No	No	4.2.1
State				
Historic Sites, Monuments, or Historical Markers;	No	No	No	4.2.2
Archaeological Sites	No	No	No	2.3.5, 4.2.2
Parks	No	No	No	4.2.2
Nature Preserves	No	No	No	4.2.2
County				
Parks	No	No	No	4.2.3
Recreation Areas	No	No	No	4.2.3
Municipal Parks	No	No	No	4.2.3
Other				
Areas Critical to the Life Stages of Threatened or Endangered Animal or Plant Species	No	No	No	Section 2.3, 4.2.4, Section 5
Areas where Animal or Plant Species that are Unique or Rare to this State would be Irreversibly Damaged	No	No	No	4.2.5

Exclusion Area	Within Project Survey Corridor	Crossed by Route	50% or More of Survey Corridor	Section Providing Discussion of Resource
Areas within 1,200 feet of a geographic center of an intercontinental ballistic missile (ICBM) launch or launch control facility.	No	No	No	4.2.6
Areas within 30 feet on either side of a direct line between (ICBM) launch or launch control facilities to avoid microwave interference.	No	No	No	4.2.7

4.2.1 FEDERAL RESOURCE REVIEW

Plains has initiated consultations with federal and state agencies and conducted a comprehensive review of published information. Plains confirmed no national parks, memorial parks, historic sites or landmarks, natural landmarks, historic sites, monuments, or wilderness areas within the Survey Corridor.

4.2.2 STATE RESOURCE REVIEW

Plains has initiated consultations with federal and state agencies and conducted a comprehensive review of published information. Plains confirmed the absence of state parks, monuments, historical markers, archaeological sites or nature preserves within the Survey Corridor.

4.2.3 COUNTY RESOURCE REVIEW

Plains has confirmed through a combination of agency coordination, review of publicly available information, and field studies that no county parks, recreation areas, municipal parks, or parks owned by other subdivisions of government bodies are located within the Survey Corridor. Refer to Appendix C for documentation of agency correspondence.

4.2.4 AREAS CRITICAL TO THE LIFE STAGES OF THREATENED AND ENDANGERED ANIMAL OR PLANT SPECIES

Plains commissioned natural resource surveys of the proposed Route. The scope of the surveys included documentation for the presence or absence of federally listed and state listed species of concern or evidence of suitable habitats for these species. Emphasis was placed on those species identified through project consultations for the corridor analysis that agencies indicated had the potential to occur within the Survey Corridor and, therefore, the Route. The results of these field efforts are detailed in Section 2.3 and planned mitigative measures are discussed in Section 5 of this document. Refer to Appendix D for the complete Natural Resources Report.

4.2.5 AREAS WHERE ANIMAL OR PLANT SPECIES THAT ARE UNIQUE OR RARE TO THIS STATE WOULD BE IRREVERSIBLY DAMAGED

Based upon agency consultations and subsequent field surveys, the Project will not result in irreversible impacts that would be detrimental to sensitive plant and animal species or their habitats. The implementation of the proposed mitigation plans and full compliance with environmental permits will fully mitigate the potential for irreversible damage.

4.2.6 AREAS WITHIN 1,200 FEET OF THE GEOGRAPHIC CENTER OF AN ICBM LAUNCH OR LAUNCH CONTROL FACILITY

Upon review of tabular location data and aerial imagery compiled by the University of Wyoming, there are no areas within 1,200 feet of the geographic center of an Intercontinental Ballistic Missile (ICBM) launch or launch control facility located within the Survey Corridor or crossed by the Route.

4.2.7 AREAS WITHIN THIRTY (30) FEET ON EITHER SIDE OF A DIRECT LINE BETWEEN ICBM LAUNCH OR LAUNCH CONTROL FACILITIES TO AVOID MICROWAVE INTERFERENCE

A review of data compiled by the University of Wyoming that contained tabular location data and aerial imagery was completed. This review confirmed the absence of areas within thirty (30) feet on either side of a direct line between ICBM launch or launch control facilities within the Survey Corridor or crossed by the Route.

4.3 AVOIDANCE AREAS (NDAC 69-06-08-02(2))

Avoidance areas are geographic areas that may not be considered in the routing of a transmission facility unless it is shown there is no reasonable alternative under the circumstances. A survey corridor may contain avoidance areas; however, avoidance areas may not encompass more than 50% of the survey corridor width at any point, unless there is no reasonable alternative. The following table and text identify and discuss avoidance areas within the Survey Corridor.

Avoidance Area	Within Project Survey Corridor	Crossed By Route	50 % or More of Survey Corridor	Section Providing Discussion
Federal				
Historic Districts	No	No	No	4.3.1
Wildlife Areas	No	No	No	4.3.1
Wild, Scenic or Recreational Rivers	No	No	No	4.3.1
Wildlife Refuges	No	No	No	4.3.1
Grasslands	No	No	No	4.3.1
State				
Wild, Scenic or Recreational Rivers	No	No	No	4.3.2
Game Refuges or Game Management Areas	No	No	No	4.3.2

Forests or Forest Management Lands	No	No	No	4.3.2
Grasslands	No	No	No	4.3.2
Other				
Historical Resources not specifically designated as Exclusion or Avoidance Areas	No	No	No	4.3.3
Areas of Known Geologic Instability	No	No	No	4.3.4
Areas within 500 Feet of a Residence, School, or Place of Business	No	No	No	4.3.5
Reservoirs and Municipal Water Supplies	No	No	No	4.3.6
Water Sources for Organized Rural Water Districts	No	No	No	4.3.7
Irrigated Land (not applicable to underground facilities)	N/A	N/A	N/A	4.3.8
Areas of Recreational Significance which are not Designated as Exclusion Areas	No	No	No	4.3.9

4.3.1 FEDERAL RESOURCE REVIEW

Plains conducted agency consultations, a comprehensive review of publicly available information, and field studies of the Survey Corridor. This review indicated the absence of designated or registered historic districts, refuges, grasslands, and wild, scenic or recreational rivers in the Survey Corridor.

4.3.2 STATE RESOURCE REVIEW

Plains conducted a review of publicly available resources and concluded no designated or registered state wild, scenic or recreational rivers, game refuges, game management areas, management areas, forests, forest management lands, or grasslands are crossed by the Survey Corridor.

4.3.3 HISTORICAL RESOURCES NOT SPECIFICALLY DESIGNATED AS EXCLUSION OR AVOIDANCE AREAS

Plains conducted a review of publicly available information, initiated project specific agency consultations, and augmented the agency review with field studies. Through these efforts, Plains has confirmed the absence of historical resources which are not specifically designated as exclusion or avoidance areas within the Survey Corridor. Refer to Appendix C for documentation of agency consultations and Appendix E for the Cultural Resources Report Executive Summary. The full cultural resources report is privileged and not included in this Application.

4.3.4 AREAS OF KNOWN GEOLOGIC INSTABILITY

Geologic instability generally refers to surface geology and areas where landslides have occurred. The North Dakota Geological Survey (NDGS) landslide mapping data was consulted for information regarding areas of landslides near the Project area. Review

of landslide deposit data from the North Dakota Geological Survey indicated the absence of deposits within the Survey Corridor.

North Dakota has not experienced an earthquake of sufficient magnitude to damage steel welded pipe or structural steel structures in recorded history. Sinkholes are known to occur in the region, but these are related to subsurface mining activities as opposed to limestone dissolution. According to a review of PSC abandoned mine data, no mining activities are located within the Survey Corridor.

4.3.5 AREAS WITHIN 500 FEET OF A RESIDENCE, SCHOOL OR PLACE OF BUSINESS

Aerial photography was utilized to identify structures located within 500 feet of the proposed pipeline alignment. Plains confirmed the absence of potentially occupied structures within 500 feet of the Route.

4.3.6 RESERVOIRS AND MUNICIPAL WATER SUPPLIES

The Route occurs entirely within the Western Area Water Supply Authority's (WAWSA) five county jurisdiction. WAWSA works with the counties to ensure a regional approach to the water needs of the rural residents, communities, and industries are met. No reservoirs or municipal water supplies are crossed by the Route or were identified within the Survey Corridor.

4.3.7 WATER SOURCES FOR ORGANIZED RURAL WATER DISTRICTS

The McKenzie County Water Resource District (MCWRD) has water resources located throughout McKenzie County, and as such, the Corridor is wholly within the MCWRD. However, no water sources are crossed by the Route, nor were any identified within the Survey Corridor.

4.3.8 IRRIGATED LAND

This criterion does not apply to underground transmission facilities; as such, it is not applicable to this project.

4.3.9 AREAS OF RECREATIONAL SIGNIFICANCE WHICH ARE NOT DESIGNATED AS EXCLUSION AREAS

Plains has confirmed the Route does not traverse areas of recreational significance.

4.4 SELECTION CRITERIA (NDAC 69-06-08-02(3))

The selection criteria require assessment of the environmental impacts and alterations to land use that may result from the siting of the Project. Through this process, Plains believes the Project will successfully avoid or minimize these effects to the maximum extent practicable.

4.4.1 AGRICULTURAL IMPACTS

Agricultural Production: The Project will temporarily affect approximately 103 acres of private land in North Dakota. Of the 103 acres, approximately thirty-four (34) acres are located on privately owned cropland. Once construction is complete, the land will

be restored to its pre-construction contours and land use. Plains will provide settlements to landowners for crop loss resulting from Project construction.

Family Farms and Ranches: The Project will temporarily affect approximately 103 acres of private land in North Dakota. Of the 103 acres, approximately thirty-four (34) acres are located on privately owned cropland. Once construction is complete, the land will be restored to its pre-construction contours and land use. Plains will negotiate easements with all affected landowners. The Project will have no permanent impacts to lifestyle or farm/ranch operations once construction is completed.

The location of pipeline markers is defined under 49 C.F.R. 195. Plains works with local landowners and county officials to ensure pipeline markers are located where required but also in an acceptable location for these parties. These markers are to be placed in full view so they are not accidentally damaged by or cause damage to landowner or county equipment.

Lands Suitable for Irrigation: This section is not applicable to buried pipelines (NDAC 69-06-08-02(2)(h)).

Surface Drainage: Standard construction techniques will be employed and significant modifications to surface drainage patterns are not anticipated. Care will be taken throughout the construction process to minimize environmental impacts, including modification of drainage patterns. During restoration, those areas that were disturbed during construction will be restored, the local topography shall be restored to its original contours, vegetation shall be reestablished, and impacts shall be minimal and temporary. BMPs will be implemented to provide proper erosion and sediment control. Permanent impacts to surface drainage are not anticipated but will be minimized to the maximum extent possible.

Ground Water: Well data, recorded by the State Water Commission, has been reviewed for the Project area. Well data indicates groundwater in upland areas is located more than twenty (20) feet below the surface. Typical subsurface excavations associated with the Project will not extend to more than ten (10) feet below the ground surface. At that depth, the Project will not intersect the groundwater table, nor will the Project alter recharge rates or the infiltration, permeability, or percolation of water into the groundwater reservoir. Additionally, construction will not affect the lateral movement and groundwater quality.

4.4.2 THE IMPACTS UPON OTHER RESOURCES

Noise-Sensitive Land Uses: The Project is located in a rural setting, effectively isolating it from the majority of sensitive receptors. Construction of the Project will temporarily affect the local noise environment. The ambient sound level of a region is defined by the total noise generated within the specific environment and is usually comprised of sounds emanating from natural and artificial sources. Construction of the Project will be conducted during typical working hours and is expected to cause temporary increases in ambient sound within and adjacent to the Project. The use of

heavy equipment or trucks will be the primary noise source during construction and excavation. The level of impact may vary by equipment type, duration of construction activity, and the distance between the noise source and the receptor. Once constructed and in-service, normal pipeline operations are not audible.

Visual Effect on Adjacent Areas: Tie-in facilities will be placed within the boundaries of existing operating terminals. As such, impacts to the view shed are not anticipated.

Extractive and Storage Resources: This Project will not affect any extractive or storage resources.

Wetlands, Woodlands and Wooded Areas: Plains commissioned field surveys to identify and record the locations of these resources along the proposed Route. Refer to Section 2 for a comprehensive discussion of the field studies results, Appendix C for copies of related agency correspondence, and Section 5 for proposed mitigation.

Radio and Television Reception, and other Communication or Electronic Control Facilities: Plains does not anticipate the Project will affect radio, television, or other electronic control facilities.

Human Health and Safety: Plains's Environmental, Health and Safety Policy meets federal and state laws, rules and regulations, and is enforced equally with respect to both Plains and its contractors. The implementation of this policy promotes a safe and healthy workplace during construction and operation of all Plains's assets. In addition, the operation of the pipeline will be monitored in accordance with DOT regulations.

Animal Health and Safety: The wildlife currently inhabiting the Survey Corridor is common and is generally mobile. The local wildlife inhabitants will not be permanently displaced by the Project and no measurable impact to the viability of these populations will occur. Plains does not anticipate species of special concern to experience direct impacts due to construction or operation of the Project.

Plant Life: There will be no impacts to plant life associated with the construction or operation of the pipeline. No species of special concern will be impacted by the Project.

4.5 POLICY CRITERIA (NDAC 69-06-08-02.4)

4.5.1 POLICIES AND COMMITMENTS TO LIMIT ENVIRONMENTAL IMPACT

Plains is committed to conducting its business in compliance with all applicable environmental laws and regulations. These laws, regulations and standards are designed to safeguard the environment, human health, wildlife and natural resources. Plains will conduct its activities with the objectives of providing a healthful and safe workplace for its employees and preventing accidents and environmental incidents. All persons and firms providing service to Plains are required to conduct their work in

compliance with environmental conditions, permit authorizations, and applicable regulations.

4.5.2 LOCATION AND DESIGN

The Project will be located in McKenzie County, North Dakota and result in a transmission pipeline originating at the JCT, approximately three (3) miles east of Johnsons Corner, North Dakota and will extend to the northwest to terminate at the DAPL Terminal, located approximately one (1) mile southeast of Johnsons Corner. Refer to the Project maps provided in Appendix B.

The Project will be approximately 3.5 miles in length constructed of steel and will utilize a 24-inch outside diameter pipe. The pipe installed will have a line pipe wall thickness of 0.375-inches and bore pipe wall thickness of 0.688-inches denoted as the American Petroleum Institute (API) Code 5L specification GR B pipeline pipe. The maximum operating pressure of the pipeline will be 1,480 psig.

The proposed pipeline will meet U.S. DOT regulations, specifically the design criteria outlined in 49 C.F.R. part 195 subpart C, and will be constructed per 49 C.F.R. part 195 subpart D, and operated and maintained per 49 C.F.R. part 195 subpart F.

4.5.3 TRAINING AND UTILIZATION OF AVAILABLE LABOR IN THIS STATE FOR THE GENERAL AND SPECIALIZED SKILLS REQUIRED

Pipeline construction is a specialized niche construction market. The primary contractor will supply specialized skilled labor. Plains will draw upon the local labor force to supply labor as appropriate. The workforce is anticipated to reach a peak of approximately 100 personnel.

4.5.4 ECONOMIES OF CONSTRUCTION AND OPERATION

Plains will invest approximately $5 million in North Dakota to develop this Project, generating approximately $20,619 of additional ad valorem tax revenues annually. Once constructed and in-service, the continued costs of maintenance and operation of the proposed pipeline are minimal. While the Project itself will not generate any direct tariff revenues, it is estimated the gross crude oil product value transported through the Project would be in excess of $100 million annually, generating significant producer, royalty and state tax revenues in the most efficient and minimally intrusive way possible.

4.5.5 USE OF CITIZEN COORDINATING COMMITTEES

Plains has established and maintained a good relationship with the local residents through its long-term regional presence operating various assets in the area. Through these relationships, Plains has maintained several grass roots communication channels to inform local residents regarding the developments associated with the Project. Plains will continue to maintain contact with local government officials. Through this contact, Project related information will be exchanged and should concerns arise, Plains will work with officials to resolve those issues.

4.5.6 COMMITMENT OF A PORTION OF THE TRANSMITTED PRODUCT FOR USE IN THIS STATE

The Project will interconnect with existing facilities. The products handled, transferred, and shipped at these facilities are currently delivered to markets located inside and outside of the state.

4.5.7 LABOR RELATIONS

Plains maintains positive labor relations with its staff and contract work force and does not anticipate encountering any adverse labor relations on this Project. The labor market in the region is generally supportive of the oil and gas industry.

4.5.8 THE COORDINATION OF FACILITIES

Plains or its affiliates own and operate the JCT, and operations will be coordinated by its management.

4.5.9 MONITORING OF IMPACTS

Plains has established and maintained positive landowner and community relationships throughout the region. Plains's operations reflect its commitment to corporate citizenship standards founded on integrity. Plains will monitor landowner concerns, if any, through its Land Department and will respond to all reasonable concerns. Similarly, Plains will monitor community concerns and will respond to all reasonable concerns brought to its attention by local community leaders.

4.5.10 UTILIZATION OF EXISTING AND PROPOSED ROW AND CORRIDORS

Plains chose the preferred Project alignment in an effort to maximize the use of existing utility corridors. Approximately 90% (3.1 miles) of the Project is co-located with existing utility corridors. Refer to Appendix B for maps depicting portions of the Project which are collocated with other utilities.

4.5.11 OTHER EXISTING OR PROPOSED TRANSMISSION FACILITIES

Appendix F contains Plains's 10-Year Plan, which contains details regarding existing and planned Plains assets.

SECTION 5: MITIGATIVE MEASURES

5.1 LOCATION

The Project is a new approximately 3.5 mile, crude oil pipeline with an outside diameter of 24-inches. The pipeline will originate at the JSC, approximately three (3) miles east of Johnsons Corner, North Dakota and will extend to the northwest to terminate at the DAPL, located approximately one (1) mile southeast of Johnsons Corner. Refer to the project maps provided in Appendix B.

Trees and shrubs: Plains will comply with the Commission's tree and shrub mitigation specifications. Field surveys included a pre-construction tree and shrub inventory. The clearing or removal of trees or shrubs will be done selectively, in a manner that minimizes the disturbance to woody vegetation and in compliance with the Commission's specifications. The replacement of trees and shrubs will be based upon actual impacts due to construction, shall meet the 2:1 ratio specified, and shall be fully documented.

Wetlands and Waterbodies: Plains will minimize impacts to wetland and waterbodies by minimizing workspace through these features and by utilizing low-impact crossing methods such as horizontal directional drilling where appropriate. Furthermore, Plains will conduct all jurisdictional crossings in compliance with the U.S. Army Corps of Engineers (USACE) Nationwide Permit #12. Features will be returned to their pre-construction condition and contours.

Whooping crane: The whooping crane is federally listed as an endangered species. It is present in North Dakota on a semi-annual basis during the spring and fall migration between breeding grounds in Wood Buffalo National Park in Alberta and Northwest Territories, Canada, and winter grounds in the Aransas National Wildlife Refuge in the Gulf of Mexico. Field surveys identified potential migratory foraging and roosting habitat in the Survey Corridor.

In North Dakota, the cranes will typically pass through the state during the spring migration occurring March through early June. Construction activities for the Project are scheduled to begin as early as the third quarter of 2016, which should largely mitigate impacts to this species. Additionally, to mitigate potential impacts to migratory cranes, Plains will suspend heavy equipment operations if whooping cranes are observed within 0.5 miles (line of sight) from active construction activities. Suspended activities will resume in the absence of whooping cranes. See Appendix C for Plains's consultation with the USFWS.

Dakota skipper: Impacts to the Dakota skipper are unlikely due to the lack of suitable habitat crossed by the Project Route. To mitigate impacts, restoration of native prairie disturbed by the Project shall be accomplished utilizing a comparable native seed mix.

Northern long-eared bat: To mitigate potential impacts to the Northern long-eared bat, Plains shall adhere to the Commission's Tree and Mitigation Plan, which reduces the clearing of woody vegetation to a maximum of fifty (50) feet and recommends the avoidance of taking trees and shrubs unnecessarily.

Bald and Golden Eagle: To mitigate potential adverse effects on nesting and breeding eagles, a line of site survey will be conducted prior to clearing activities where suitable habitat is present within 0.5 miles of the Project.

Migratory Bird Treaty Act: When Project activities occur within the active breeding season, Plains shall conduct a sweep of the Project area, prior to clearing activities to identify potential active nesting birds. If an active nest is observed, Plains shall establish and maintain an exclusion buffer around the site until the site is no longer active.

Cultural Resources: Plains submitted the Cultural Resources Report to the NDSHPO on February 5, 2016 requesting concurrence with the recommendation of *No Significant Sites Affected* for the Project. A response from the NDSHPO was received on February 26, 2016. No resources were identified during field surveys. In the event of an unanticipated discovery, the Project's Unanticipated Discovery Plan will be implemented.

Noxious Weeds: Noxious weeds were identified within the Survey Corridor during field surveys. Equipment leaving infested areas will be inspected visually prior to leaving the area. The vehicles and equipment shall be cleaned (*e.g.*, power washed) to remove remaining soils and vegetation prior to entering uninfected tracts.

5.2 CONSTRUCTION

The construction of the proposed pipeline will be conducted in an orderly sequence designed to complete the Project in the minimum amount of time required to safely prepare the site, install the pipeline, and restore the areas disturbed by construction.

Construction is estimated to require approximately two (2) months. Construction techniques will be employed to minimize the area of ground disturbance, off site deposition of sediments, and long-term impacts to agricultural productivity. Construction activities shall conform to all applicable permit stipulations; these requirements are mandated by the agency and implemented by the Project sponsor for minimizing impacts to the environment.

Restoration will immediately follow pipeline construction. Final grading will restore the original contours of the land. Disturbed areas will be prepared for re-seeding and restoration will be coordinated to meet landowner specifications.

5.3 OPERATION

Once put into service, the Project will operate continuously, delivering crude oil from the JCT to the DAPL Terminal. Normal pipeline operations are imperceptible to the public, as they are buried and therefore not visible, and require only minimal

aboveground activity. Standard operating procedures will conform to applicable DOT requirements, which include regular pipeline monitoring and periodic inspection. Additionally, routine maintenance of the ROW will likely be required to remain in compliance.

SECTION 6: DESCRIPTION OF RIGHT-OF-WAY PREPARATION, CONSTRUCTION AND RECLAMATION PROCEDURES

6.1 TYPICAL PIPELINE CONSTRUCTION PROCEDURES

Construction will be an assembly-line process and will include the following general tasks: surveying and staking, clearing and grading, trenching, pipe stringing, pipe bending, welding, coating, hydrostatic testing, lowering in, tie-ins, backfilling, rough grading, and final restoration (*e.g.*, topsoil replacement, final grading, seeding and mulching, where required). The pipeline may be placed into service before final restoration has been completed in all areas.

At any location in the Project area, construction activities will require approximately two (2) months to complete from start to finish, except when weather-related delays affect the schedule. However, construction activity at any location will not be continual but occurs in distinct phases with several days or weeks between each phase. For example, clearing and grading may require ten hours to progress for one mile along the pipeline ROW, but trenching may not follow in the area for several weeks. During the interim, activity in the area may be completely lacking or limited to occasional vehicular or pedestrian traffic.

Surveying and Staking: Prior to construction activities, Plains will stake the centerline and establish the boundaries of the approved work areas (*e.g.*, the construction ROW boundaries and temporary extra workspace areas) and flag the location of approved access roads and foreign utility lines. Wetland boundaries and other environmentally sensitive areas also will be marked or fenced for protection at this time.

Clearing and Grading: Prior to clearing, landowner fences will be braced and cut, and temporary gates and fences will be installed to control livestock where necessary. A clearing crew will clear the work area of vegetation and obstacles that may be encountered (*e.g.,* remaining trees, stumps, logs, brush, and rocks) in the work area.

The ROW will be graded, where necessary, to provide a reasonably level work surface and to segregate topsoil. Topsoil will be carefully removed and stored along the edge(s) of the ROW in a manner that allows for a haul road and trench line. The topsoil depth in the area is variable, but generally, the topsoil is between 2-inches and 9-inches deep with the deepest topsoil in valleys and the thinnest topsoil on the hillsides and hilltops. The topsoil depth and the layer removed will be determined in the field; upon completion of pipeline construction, the trench will be backfilled and topsoil will be returned to the upper soil horizon. All disturbed areas shall be graded to restore the original contours.

Where steep slopes or side slopes are encountered, the construction contractor may re-grade the slope, or in areas of side slopes, two-tone the area to create level working surface. At these locations, excess spoil will be pushed to the side of the construction ROW, distributed over the working area and travel lane, or stored in alternative

temporary workspace (ATWS). This material will be returned to the original location and preconstruction contours reestablished during restoration.

Concurrent with grading, erosion and sediment control devices will be installed as required by state stormwater permit conditions. Waterbodies may be bored using horizontal directional drilling (HDD) methods to place pipe under the waterbody without disturbing it. The pipeline will be placed such that adequate cover from the bottom of the waterbody will be in place. This will be individual to the waterbody but will be no closer than five (5) feet to the bottom of the waterbody. Construction mats will also be installed across saturated wetlands to prevent rutting as equipment traveled the ROW. Erosion and sediment control devices, which may include silt fences, straw wattles, straw bales and road access pads, will be installed where necessary to prevent soil and sediment from leaving the construction work area.

Following installation of the pipe and backfilling of subsoil in the trench, the ROW will be returned to the original grade and the topsoil will be redistributed over the work area.

Trenching: The trench will be excavated by using backhoes to a depth that provides sufficient cover over the pipeline after backfilling. The bottom width of the trench will be sufficient to accommodate the 24-inch diameter pipeline. Typically, the trench will be excavated to an approximate depth of six (6) feet to allow for a minimum of four (4) feet of cover after construction. In cultivated areas, the depth of cover will be sufficient and safely below the maximum tillage depth. Additional cover requirements may be applicable at public road crossings.

Trench spoil will be stored adjacent to but will not be mixed with topsoil on the non-working side of the ROW. In some cases, however, where sufficient space will be lacking on the non-working side, trench spoil may be side cast on the travel lane and spread over the working side of the ROW.

Pipe Stringing, Bending, and Welding: Sections of externally coated pipe up to sixty (60) feet long (*e.g.*, joints) will be transported over public roads to the ROW by truck and placed or "strung" along the ROW parallel to the trench in a continuous line. After the pipe sections are strung along the trench and before they are welded together, individual sections of the pipe may be bent, where necessary, so the finished pipeline sections conform to the natural contours of the land. Typically, a track-mounted, hydraulic pipe-bending machine would be used. Where multiple or complex bends greater than what can be properly bent in the field are required, a factory made "fitting" will be used.

After the pipe sections are bent, the joints will be welded together into sections and placed on temporary supports. Welding will comply with requirements listed in Title 49 C.F.R. Part 195 and API Standard 1104 *Welding of Pipelines and Related Facilities*. Each weld will be tested by using radiographic non-destructive examination to ensure no defective welds were present and Plains engineering standards were met. Welds that do not meet standards and specifications will be removed and/or repaired.

A third-party contractor certified in non-destructive inspection will be used and inspections will be performed as outlined in Title 49 C.F.R. Part 195. After the welds are approved, a protective epoxy coating will be applied to the welded joints. The pipeline will subsequently be electronically and visually inspected for defects in the epoxy coating. Damage to or defects in the coating will be repaired prior to lowering-in the pipeline. Cathodic protection systems will also be directly bonded to the pipe at that time.

Lowering-in and Backfilling: The trench will be inspected for the presence of rocks and other debris which could damage the pipe or protective coating. If rocks or other obstructions are observed, these will be removed or the pipeline trench bottom will be padded with subsoil or sand prior to the pipeline being lowered into the trench.

If the trench bottom were obscured by water, the trench will be dewatered. Where dewatering may be required, Plains will pump water from the trench into well-vegetated upland areas or into sediment filtration/energy dissipation devices.

In areas of steep slopes, breakers consisting of sand bags or foam will be installed to prevent 'piping' from occurring along the pipe in the trench after the area was backfilled.

The trench will be backfilled using the native material removed and compacted; however, the trench may be crowned slightly to accommodate settling.

Hydrostatic Testing: Plains will hydrostatically test the pipeline. Hydrostatic testing will conform to DOT standards and will establish the maximum operating pressure for the pipeline when it is operational. Testing involves installation of test headers, which control the pressure applied. The test headers will be later removed upon the completion of a successful pressure test. The test procedures are a function of pressure and time. Once the desired test pressure has been achieved, the test section must hold the pressure for an eight (8) hour period, without a significant change in pressure. Once testing is completed, the test water will be evacuated. The line is then dried and prepared for commissioning. Plains will either procure discharge permit(s) from the North Dakota Department of Health, with the ensuing discharge conforming to the conditions stipulated in the permit, or capture the water and transport it offsite for disposal.

Final Tie-in and Commissioning: Following successful pressure testing, test manifolds will be removed and the final pipeline tie-ins will be made. After final tie-ins are complete, the tie-in welds are inspected, and the line is sufficiently dried, the pipeline will be commissioned. Commissioning involves activities to verify equipment is properly installed and working, the controls and communications systems are functional, and the pipeline is ready for service. The pipeline will be cleaned and dried using mechanical devices; the line will be purged of air and then loaded with product.

Cleanup and Restoration: Final cleanup will begin after backfilling as soon as weather and site conditions permit. During cleanup, construction debris remaining

on the ROW will be collected and disposed of properly. Work areas will be graded and restored to preconstruction contours as closely as practical.

During restoration, segregated topsoil will be spread over the surface after final grading and permanent erosion controls will be installed. After permanent erosion control devices are installed, disturbed, non-cultivated areas will be seeded and slopes mulched where required. Seed mixes will be approved in advanced by the landowner, and seeding will occur within the recommended seeding dates for the Project area.

For cultivated areas, no seed or mulch will be applied after the topsoil was replaced unless specifically requested by the landowner.

Every reasonable effort will be made to complete final cleanup (including final grading and installation of erosion control devices) in accordance with landowner requests or permit conditions within twenty-one (21) days of backfilling.

Markers showing the location of the pipeline will be installed at fence and road crossings in order to identify the owner of the pipeline and convey emergency information in accordance with applicable governmental regulations, including DOT safety requirements. Special markers providing information and guidance to aerial patrol pilots will also be installed.

6.2 WETLAND AND WATERBODY CONSTRUCTION PROCEDURES

Waterbody Construction and Restoration: One identified stream will be crossed by the Project. If necessary, Plains will cross this feature using methods which will minimize the length of time necessary to install the pipeline and restore the stream bank, as well as to prevent sediment from entering the waterbody during construction to reduce the impacts to the waterbody. Plains will implement the following mitigative measures:

- Temporary extra workspaces will be located at least fifty (50) feet from the edges of the waterbody, unless a ten (10) foot setback was identified for waterbodies located in actively cultivated agricultural fields.
- Temporary extra workspaces will be limited to the minimum size needed to construct the waterbody crossing.
- Riparian vegetation will be preserved by limiting clearing of vegetation between temporary extra workspace areas and waterbody edges.
- Temporary sediment and erosion control devices will be installed across the width of the ROW after clearing but before ground disturbance. These devices will remain in place throughout construction until stream banks and adjacent upland areas are stabilized.
- Trench spoil placement will be restricted to at least ten (10) feet from the water's edge on the ROW, or in temporary extra workspace areas.
- Waterbody buffers will be maintained (*e.g.*, temporary extra workspace area setbacks, refueling restrictions) in the field with signs until construction related ground-disturbing activities are complete.

- The use of equipment operating in the waterbody will be limited to that needed to construct the crossing.
- Storage and refueling activities will be restricted near surface waters and procedures in the Spill Prevention, Containment and Countermeasure (SPCC) Plan will be promptly implemented if a spill or leak occurs during construction.
- Bank stabilization and re-establishment of streambed and bank contours will be completed as soon as practicable after construction.

6.3 AGRICULTURAL LAND CONSTRUCTION AND RESTORATION PROCEDURES

Portions of the Project occur in agricultural areas. These areas consist of active croplands predominately used to grow durum, hard red spring wheat, red winter wheat, barley, sunflowers and canola. Additionally, agricultural lands are used as range or pasture land for livestock production. Plains will utilize the following general construction methods in agricultural areas, consistent with the requirements of landowners:

- Prior to construction, landowners will be contacted and irrigation facilities, wells, waterlines, and other livestock watering systems will be located.
- Water flow will be maintained in supply systems unless shutoff was coordinated with the affected parties.
- Existing fences will be cut and braced along the ROW, and temporary gates and fences, if necessary, will be installed to control livestock and limit public access.
- On all active agricultural lands, which include fallow or rotated cropland, hayfields, improved pastures and rangeland, Plains will remove the topsoil and segregate the soil from subsoil.
- Plains will decompact the travel lane on the ROW if requested by the landowner.
- On all actively cultivated lands free of shallow bedrock, the trench will be excavated to sufficient depth to allow a minimum of four (4) feet of soil cover between the top of the pipe and the final land surface after backfilling.
- Restoration and revegetation practices (*i.e.*, seeding) will comply with the requirements outlined in the landowner line list.
- Plains will not plant an annual cover crop on actively cultivated land unless requested by the landowner.
- Weed-free mulch will be used on steep slopes to control erosion unless the landowner requests mulch not be applied. Mulch will be crimped into the soil.
- Earthen diversion berms will be constructed to reduce runoff on steep slopes only when the landowner approves.
- No erosion control fabric will be used in rangeland without having landowner approval.
- Fences and gates will be replaced in accordance with landowner agreements.

- Private roads will be restored to equal pre-construction conditions.
- Plains will respond promptly to landowner concerns following construction to mitigate areas of subsidence and erosion problems should they occur.
- Plains will require the contractor to clean thoroughly the equipment and materials (*e.g.*, timber mats, bridges, etc.) at the contractor yard prior to mobilization to the ROW to prevent spread of nuisance weeds.

SECTION 7: EASEMENT, ACQUISITION, LANDOWNER NOTIFICATION AND EASEMENT COMPENSATION PLAN

7.1 LANDOWNER INFORMATION REGARDING EASEMENT ACQUISITION, AND NECESSARY EASEMENT CONDITIONS AND RESTRICTIONS

Once a preliminary route has been established, a title review is conducted of courthouse records for the purpose of identifying the current landowner. Plains initiates contacts with affected landowners via telephone to be followed with personal visits and e-mail correspondence. Contact by surface mail may be used as a last resort if no other means of landowner contact is successful.

The refinement of the Route includes adjustments made per landowner request. Plains negotiates with landowners in good faith, and necessary easement conditions and restrictions are presented and discussed. Plains is negotiating the easement for the connection to the DAPL Johnsons Corner Terminal Facility with Dakota Access, LLC. All other ROW has been acquired.

7.2 COMPENSATION POLICY

Plains's practice for determining landowner compensation for easements is based on research of comparable fair market pricing and prior experience negotiating easements locally.

SECTION 8: LIST OF PREPARERS

William McCarthy, C.W.B.
Senior Environmental Compliance Analyst
E3 Environmental, LLC, 871 Jefferson Avenue, St. Paul, MN 55102

M.S. Wildlife Biology, University of Minnesota – Twin Cities; and B.S. Wildlife Biology, Michigan State University. Mr. McCarthy is an environmental compliance analyst with 20 years of environmental consulting experience working with various energy assets and regulatory agencies. As a compliance analyst, he has managed the environmental requirements for facility siting, pipeline routing, federal licensing and various federal, state and local permits. Mr. McCarthy is a certified wildlife biologist, and in this role conducts and coordinates field studies, agency consolations, mitigation and avoidance plans.

Katie Schmidt, EIT
Environmental Engineer and Senior Consultant
E3 Environmental, LLC, 871 West Jefferson Avenue, St. Paul, MN 55102

B.S. Civil Engineering with an emphasis in Environmental Engineering-Iowa State University. Ms. Schmidt is a Senior Environmental Consultant with ten years of experience working with various energy assets and regulatory agencies. As a consultant, she has managed multiple pipeline projects supporting clients through the construction permitting and siting processes, which included coordination with various federal, state and local agencies.

Jon Knudsen
Wildlife Biologist
E3 Environmental, LLC, 871 Jefferson Avenue, St. Paul, MN 55102

M.S. Biology, Idaho State University – Pocatello, ID; and B.S. Zoology, University of Wisconsin – Madison, WI. Mr. Knudsen has 10 years of environmental consulting and biological monitoring experience, which includes horizontal project management of oil, gas, wind, and mining projects in Colorado, Wyoming, Montana, and North Dakota. His expertise includes surveying sensitive species, writing technical reports, and consulting with regulatory agencies to ensure clients are in compliance with associated rules and regulations. In addition, Mr. Knudsen specializes in training energy development companies on wildlife-related issues, including the Endangered Species Act and Migratory Bird Treaty Act.

Garrett Knudsen, RPA
Senior Cultural Resource Specialist
E3 Environmental, LLC, 871 Jefferson Avenue, St. Paul, MN 55102

Ph. D. (candidate), Faculty of Archaeology and Anthropology, University of Cambridge, M.A. Anthropology, Idaho State University – Pocatello, ID; and B.S. Anthropology and Zoology, University of Wisconsin – Madison, WI. Mr. Knudsen is a Secretary of Interior qualified archaeologist with over 15 years of experience in cultural resource management, heritage preservation, and environmental compliance for private and public clients in the transportation, energy, and mining industries. Mr. Knudsen's regions of expertise include greater western North America; Midwest, Great Plains, Southwest, California, Texas, Great Basin, Plateau, Northwest Coast, and Alaska. He is also a specialist in archaeological landscapes, remote sensing, human skeletal remains, and predictive models.

Lindsey Danielson
GIS Analyst
E3 Environmental, LLC, 871 Jefferson Avenue, St. Paul, MN 55102

M.S. in Geographic Information Science with concentrations in Homeland Security/Emergency Management as well as Natural Resource Management, St. Mary's University of Minnesota; B.S. Geoscience: Geology, Winona State University. Ms. Danielson has 5 years of professional experience analyzing GIS data to identify spatial relationships and display the results of analyses via maps, graphs, and tables. She excels at data creation and manipulation, database management, advanced spatial analysis, and advanced cartography.

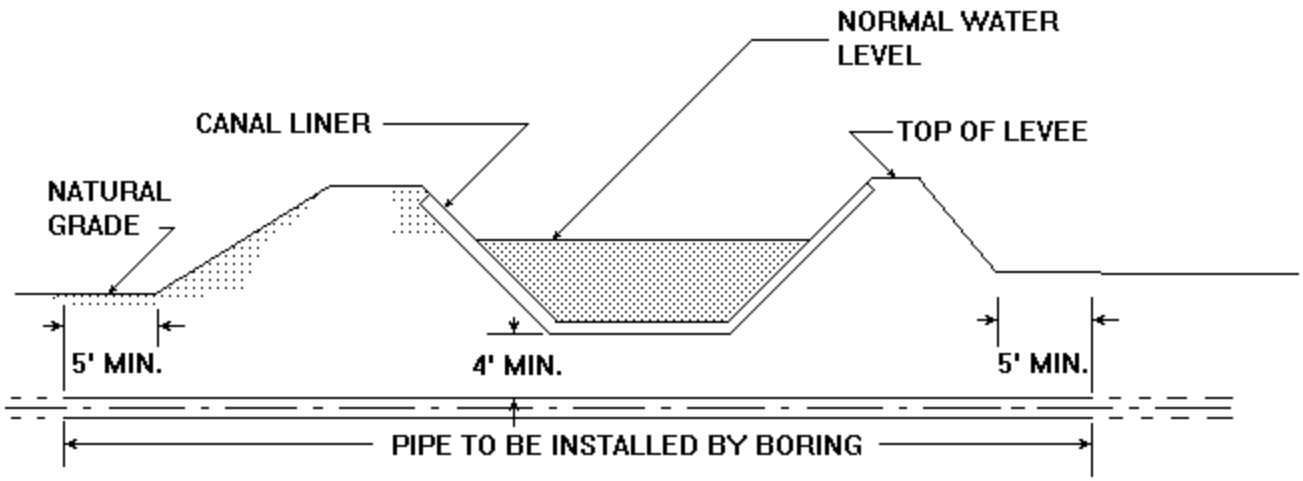
Appendix A

Engineering Documents

PLAINS ALL AMERICAN PIPELINE, L.P.

TYPICAL CANAL UNDERCROSSING LINED OR UNLINED

DOC NO: PAALP-ENG-GUI-PRW-032	REV NO: 0	SHEET NO: 1 of 1
REVIEWED BY: Frank J. Hayes	APPROVED BY: John N. Haldiman	APP DATE: 10/31/2008



ELEVATION

NOTES:

1. Limits of boring to extend a minimum of 5’ - 0” beyond toe of slope on each side of canal.
2. Contractor shall be responsible for any damage to canal and levees and shall repair any damage to the satisfaction of the canal owner or governing authority.

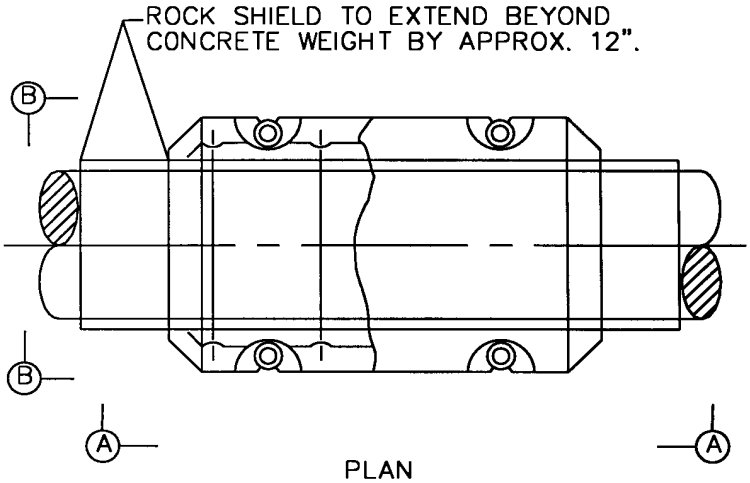
PLAINS ALL AMERICAN PIPELINE, L.P.

TYPICAL PIPELINE BOLT ON TYPE CONCRETE WEIGHT

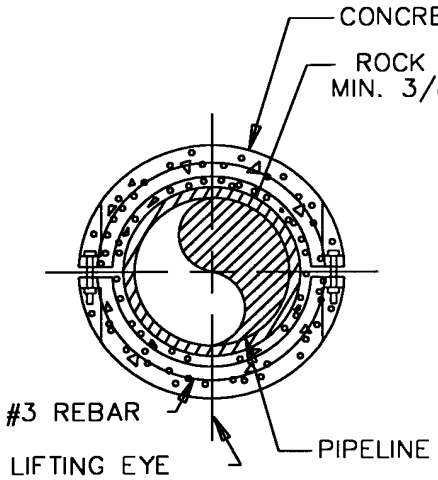
DOC NO: PAALP-ENG-GUI-PRW-035	REV NO: 0	SHEET NO: 1 of 1
REVIEWED BY: Frank J. Hayes	APPROVED BY: John N. Haldiman	APP DATE: 10/31/2008

NOM. PIPE DIA.	APPROX. WGT. (AIR)	RECOMMENDED SPACING
4"	450 LBS.	15 FT.
6"	450 LBS.	20 FT.
8"	1000 LBS.	25 FT.
10"	1100 LBS.	20 FT.

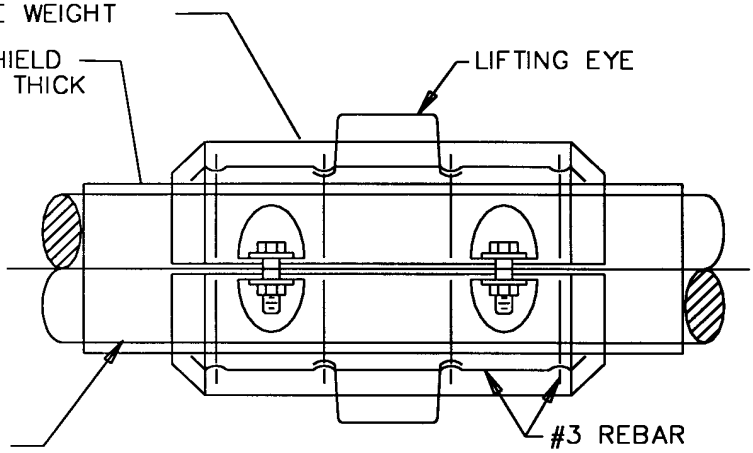
WEIGHT FOR LINE SIZES LARGER THAN THOSE LISTED ABOVE SHALL BE CALCULATED INDIVIDUALLY ALONG WITH SPACING REQUIREMENTS.



PLAN



SECTION B–B



SECTION A–A

NOTE:

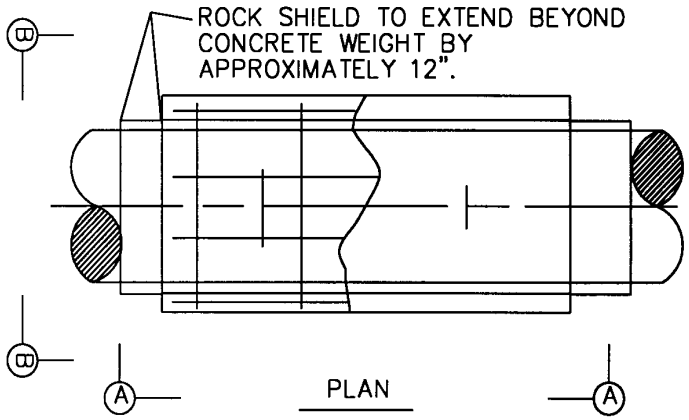
1. CONCRETE WEIGHTS, BOLTS, AND ROCK SHIELD FURNISHED AND INSTALLED BY CONTRACTOR, AS SHOWN ON CONSTRUCTION DRAWINGS OR AS DIRECTED BY COMPANY REPRESENTATIVE.
2. CONCRETE TO HAVE MIN. COMP. STRENGTH OF 3000 PSI AT 28 DAYS.
3. BOLTS AND NUTS SHALL MEET ASTM A 307 AND BE HOT DIP GALVANIZED ACCORDING TO ASTM A153.
4. STEEL REINFORCEMENT F =40,000 PSI (MIN.)
5. LIFTING EYES SHALL INTERLOCK WITH REINFORCING STEEL. 6"–16" PIPE DIA. #4 LIFTING EYE; 18"–30" PIPE DIA. #5 LIFTING EYE

TYPICAL PIPELINE SET ON TYPE CONCRETE WEIGHT

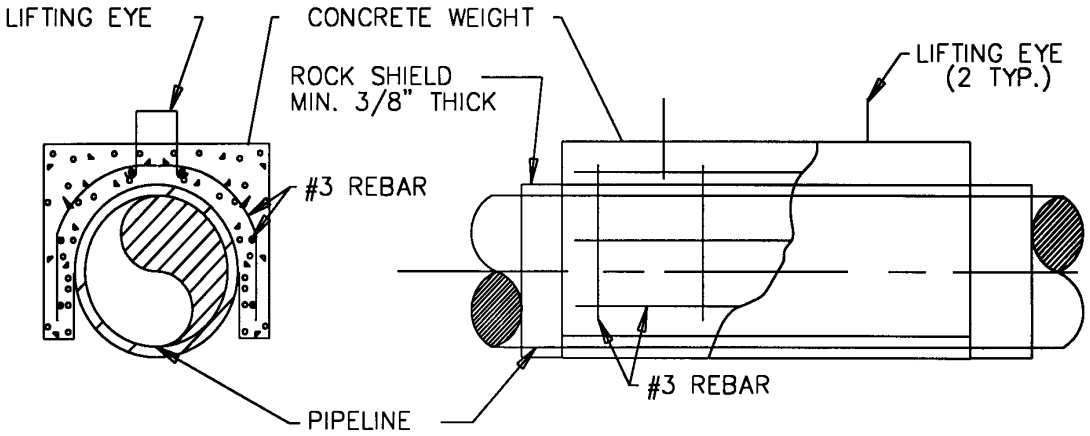
DOC NO: PAALP-ENG-GUI-PRW-036	REV NO: 0	SHEET NO: 1 of 1
REVIEWED BY: Frank J. Hayes	APPROVED BY: John N. Haldiman	APP DATE: 10/31/2008

NOM. PIPE DIA.	APPROX. WGT. (AIR)	RECOMMENDED SPACING
4"	450 LBS.	15 FT.
6"	450 LBS.	20 FT.
8"	1000 LBS.	25 FT.
10"	1100 LBS.	20 FT.

WEIGHT FOR LINE SIZES LARGER THAN THOSE LISTED ABOVE SHALL BE CALCULATED INDIVIDUALLY ALONG WITH SPACING REQUIREMENTS.



PLAN



SECTION B–B

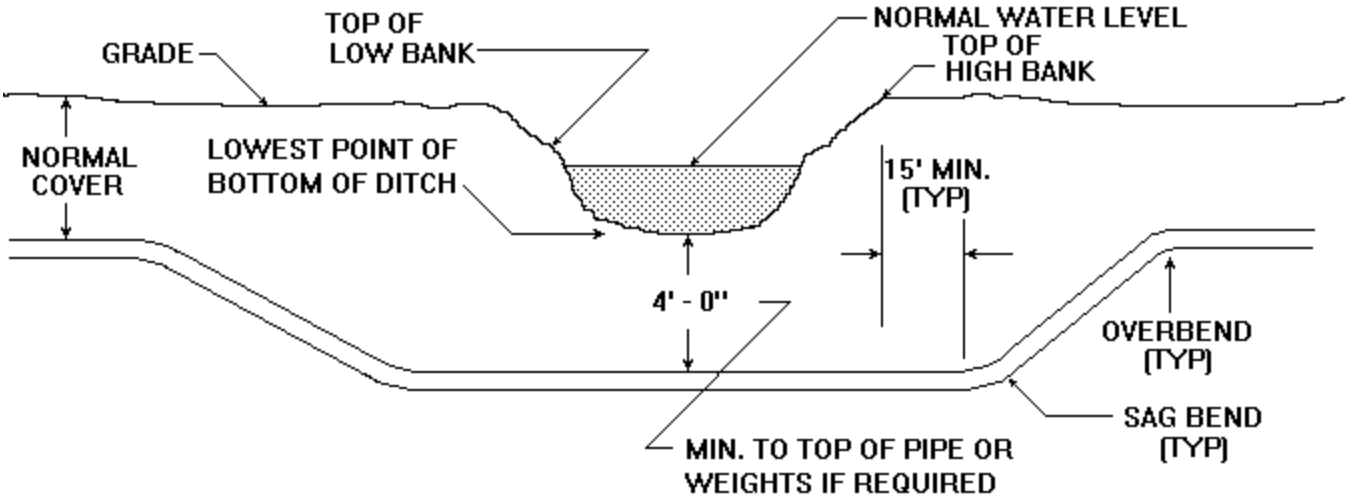
SECTION A–A

NOTE:

1. CONCRETE WEIGHTS, BOLTS, AND ROCK SHIELD FURNISHED AND INSTALLED BY CONTRACTOR AS SHOWN ON CONSTRUCTION DRAWINGS OR AS DIRECTED BY COMPANY REPRESENTATIVE.
2. CONCRETE TO HAVE MIN. COMPR. STRENGTH OF 3000 PSI AT 28 DAYS.
3. STEEL REINFORCEMENT F y =40,000 PSI (MIN.).
4. LIFTING EYES SHALL INTERLOCK WITH REINFORCING STEEL. 6"–14" PIPE DIA. #4 LIFTING EYE; 16"–20" PIPE DIA. #5 LIFTING EYE 20"–30" PIPE DIA. #6 LIFTING EYE.

TYPICAL STREAM OR DITCH PIPELINE CROSSING

DOC NO: PAALP-ENG-GUI-PRW-037	REV NO: 0	SHEET NO: 1 of 1
REVIEWED BY: Frank J. Hayes	APPROVED BY: John N. Haldiman	APP DATE: 10/31/2008



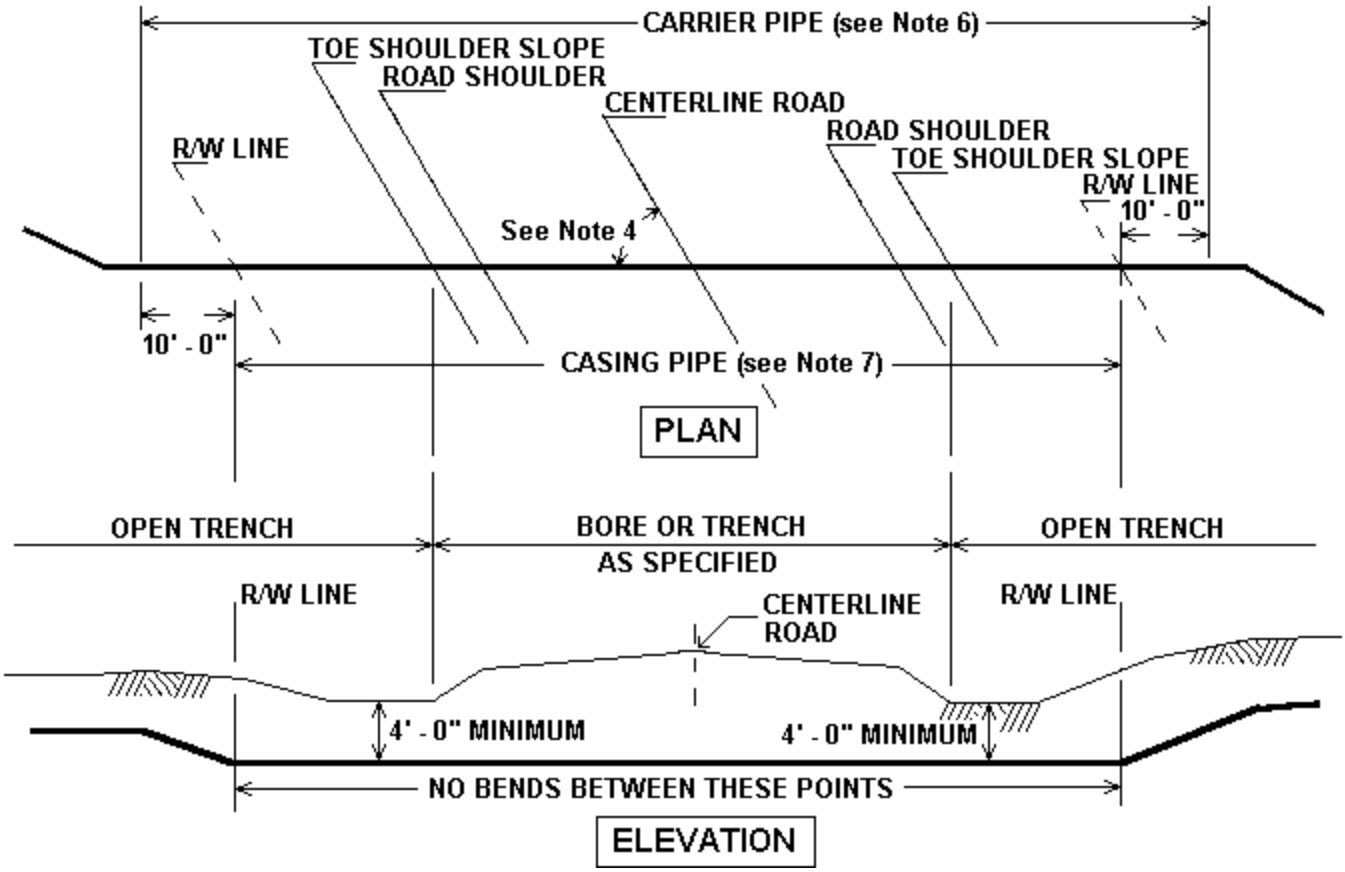
TYPICAL STREAM UNDERCROSSING

NOTES:

1. This drawing is applicable to all stream or ditch crossings not shown individually designed on other construction drawings.
2. Weights or anchors to be installed as directed by the Company.
3. All new construction to be done by Contractor.

TYPICAL UNDERCROSSING ALL ROADS

DOC NO: PAALP-ENG-GUI-PRW-038	REV NO: 0	SHEET NO: 1 of 1
REVIEWED BY: Frank J. Hayes	APPROVED BY: John N. Haldiman	APP DATE: 10/31/2008

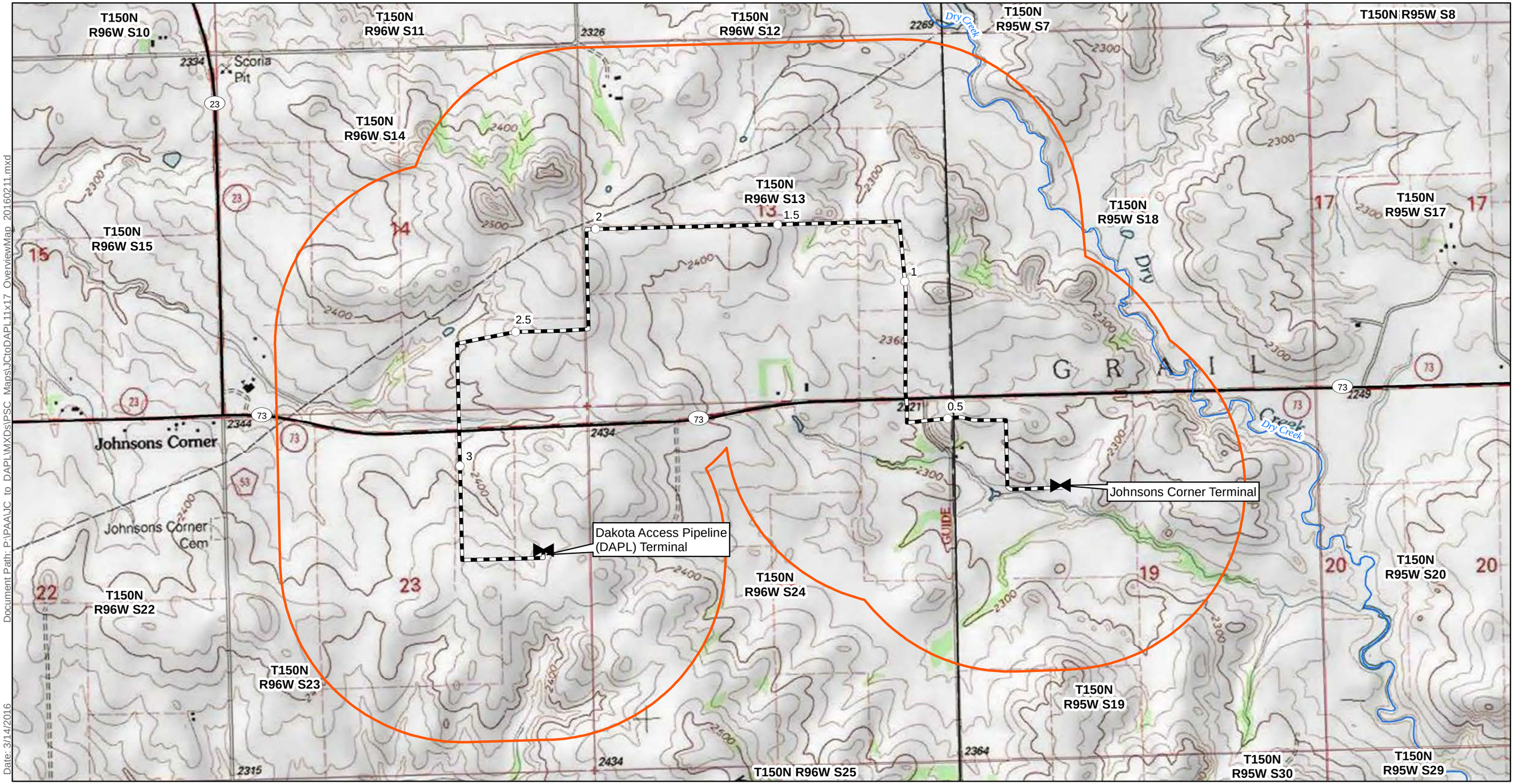


GENERAL SPECIFICATIONS:

1. Contractor to install pipeline under all public roads as shown in the sketch above, or as shown on approved construction drawings.
2. All voids developed by boring under surface of road bed shall be repaired.
   a. Voids developed under hard surface roads (bituminous mat or concrete) shall be filled by pressure grouting. Grout shall consist of a sand-cement slurry of at least 2 sacks of cement per cubic yard.
   b. Voids developed under non-hard surface roads (graded gravel or crushed rock and dirt) shall be filled by removal of road bed and backfilling with suitable material pneumatically tamped in 6" layers to density of surrounding undisturbed earth and replacing surface material to original condition.
3. Pipeline undercrossings of all roads shall be installed in accordance with Engineering Standards and/or permit requirements or specifications provided by the Company.
4. The pipeline should cross as near to right angles as possible and economically practical.
5. For roads not having a drainage ditch, the minimum cover from the top of the road bed or the lowest elevation within the R/W shall be 4' - 0" or as specified by the permitting authorities.
6. For uncased road crossings, the pipe wallthickness and grade for the carrier pipe shall extend 10' - 0" beyond each R/W line.
7. When casing pipe is required, it shall be installed as required by the permit or extend from R/W to R/W. Carrier pipe for cased road crossings shall meet the DOT design requirements.
8. All undercrossings shall be bored unless specified otherwise in the construction drawings or specifications.

Appendix B

Project Maps



Document Path: P:\PAA\JC to DAPL\MXDs\PSC Maps\JCtoDAPL11x17 OverviewMap 20160211.mxd

Date: 3/14/2016

Author: LDanielson

- Milepost
- Valves
- Proposed Alignment
- Corridor (1 mile)
- NHD Flowline
- NHD Waterbody

Map not to scale, for environmental review purposes only.

N

0 0.25 0.5 1 Miles

1:15,840

E3 Environmental
Enhancing Execution with Experience

Plains Terminals North Dakota LLC

Johnsons Corner to Dakota Access Pipeline

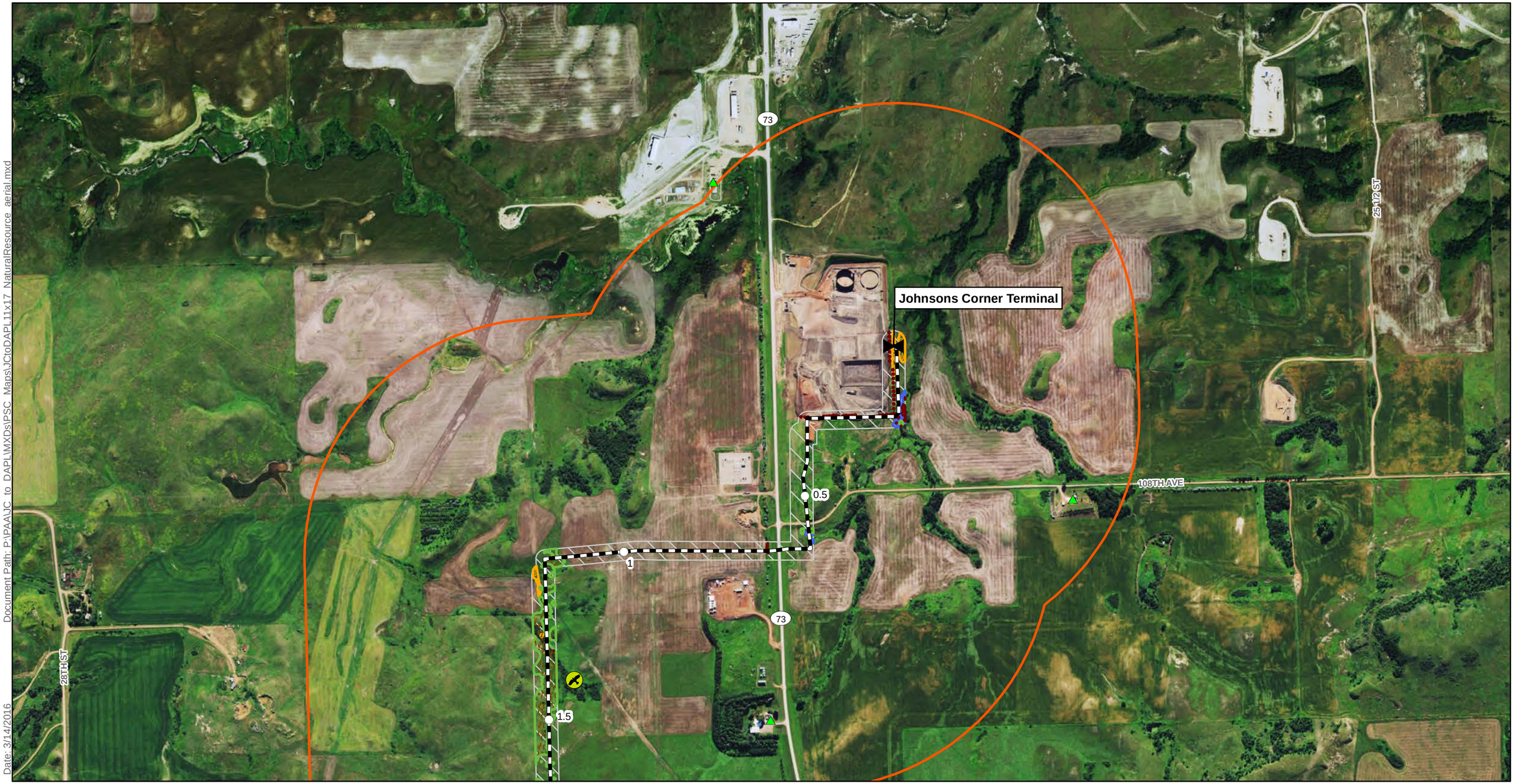
Overview Map

McKenzie County, North Dakota

Document Path: P:\PAA\JC to DAPL\MXDs\PSC Maps\JCtoDAPL11x17 NaturalResource aerial.mxd

Date: 3/14/2016

Author: LDanielson



- Milepost
- Centerline
- Valve
- Corridor (1 mile)
- Environmental Survey Corridor
- ND Well Data
- Potentially Occupied Structure
- Potentially Occupied Structure (w/in 500ft)

Natural Resource Survey Data*

- Woody Vegetation - Trees
- Woody Vegetation - Shrubs
- Waterbody
- Wetland
- Noxious Weeds
- Nest

*Refer to Natural Resource Report for detailed maps and tables.

N

0 500 1,000 2,000 Feet

1:12,000

Map not to scale, for environmental review purposes only.

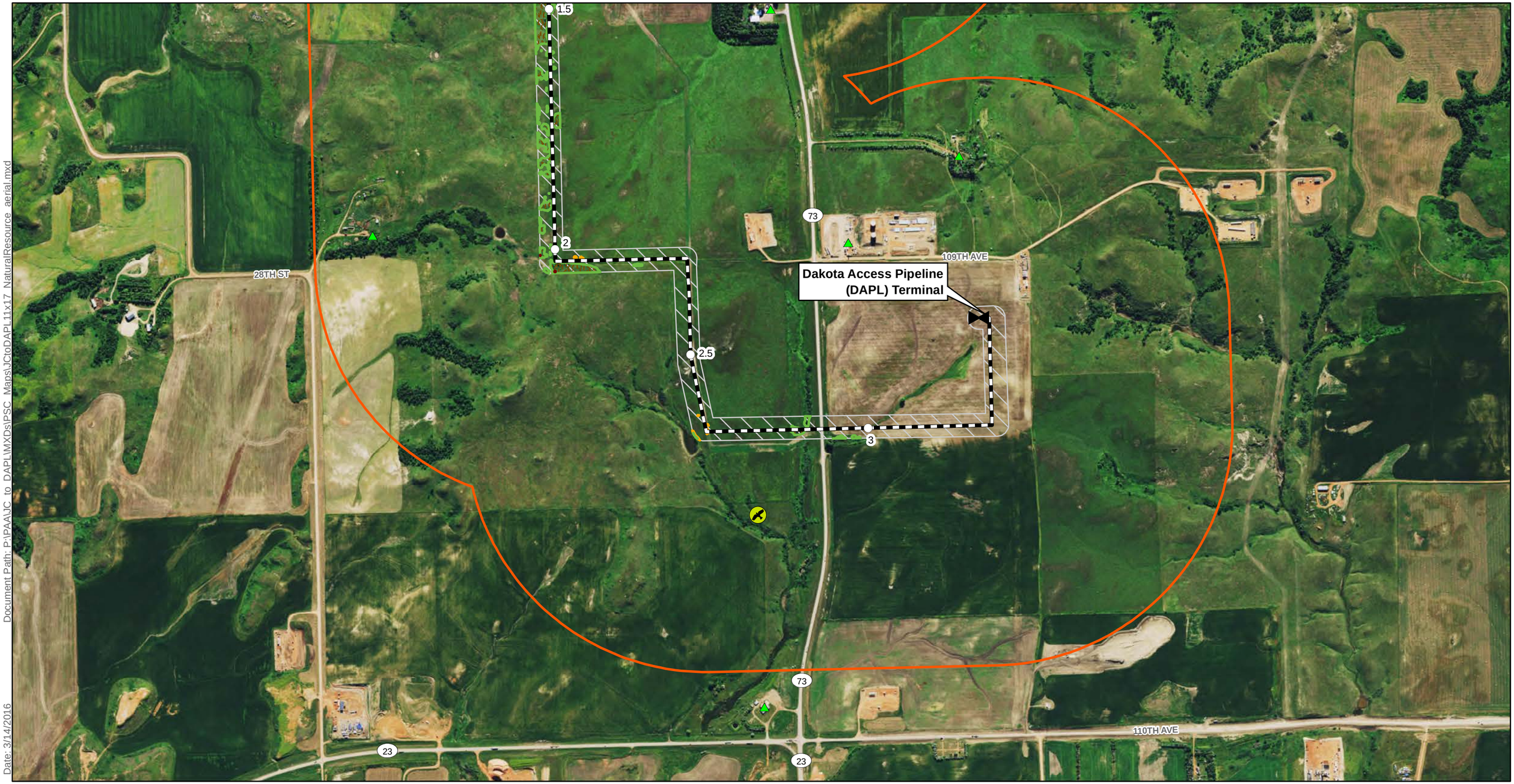
E3 Environmental
Enhancing Execution with Experience

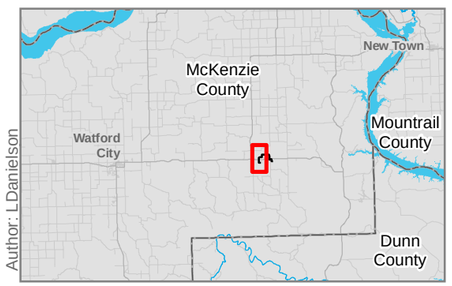
Plains Terminals
North Dakota LLC

Johnsons Corner to Dakota Access Pipeline
Siting Criteria
Natural Resource - Aerial Map

Page 1 of 2

McKenzie County, North Dakota





- Milepost
- Centerline
- Valve
- Corridor (1 mile)
- Environmental Survey Corridor
- ND Well Data
- Potentially Occupied Structure
- Potentially Occupied Structure (w/in 500ft)

Natural Resource Survey Data*

- Woody Vegetation - Trees
- Woody Vegetation - Shrubs
- Waterbody
- Wetland
- Noxious Weeds
- Nest

*Refer to Natural Resource Report for detailed maps and tables.

N

0 500 1,000 2,000 Feet

1:12,000

Map not to scale, for environmental review purposes only.

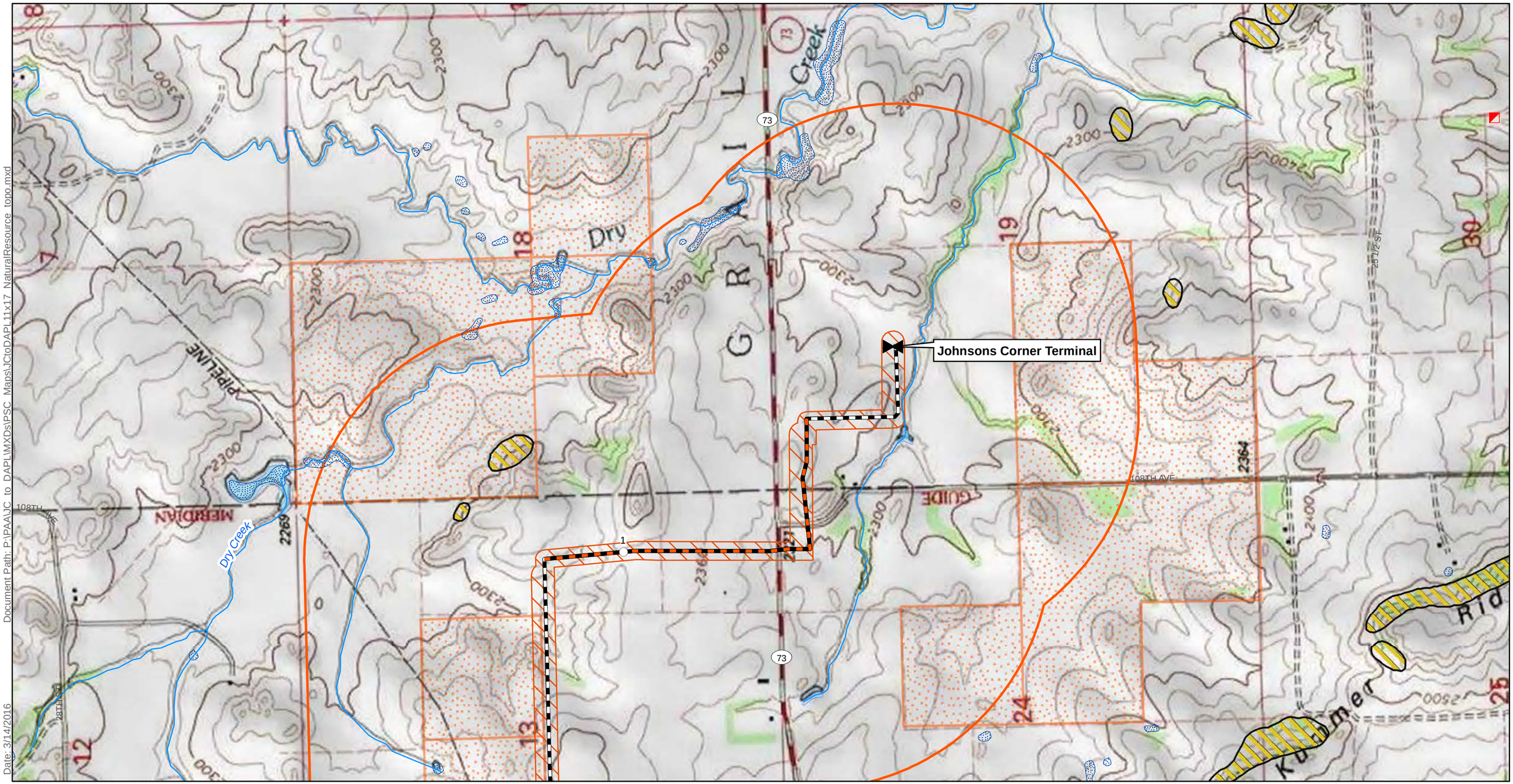
E3 Environmental
Enhancing Execution with Experience

Plains Terminals North Dakota LLC

Johnsons Corner to Dakota Access Pipeline
Siting Criteria
Natural Resource - Aerial Map

Page 2 of 2

McKenzie County, North Dakota



Document Path: P:\PAA\JC to DAPL\MXDs\PSC Maps\JCtoDAPL11x17 NaturalResource topo.mxd

Date: 3/14/2016

Author: LDanielson

- Centerline
- Co-location
- Milepost
- Valve
- Corridor (1 mile)
- Environmental Survey Corridor
- NHD Waterway
- NHD Waterbody
- NWI Wetland

Criteria Data

- Federal Land
- State Land
- Native American Land
- ICBM Facility
- ICBM Direct Line to Control Facility
- Abandoned Mine
- NDGS Landslide Deposits
- North Dakota Mineral Trust Lands
- PLOTS Land

N

E3 Environmental
Enhancing Execution with Experience

0 500 1,000 2,000 Feet

1:12,000

Map not to scale, for environmental review purposes only.

Plains Terminals North Dakota LLC

Johnsons Corner to Dakota Access Pipeline
Siting Criteria
Natural Resource - Topo Map

Page 1 of 2

McKenzie County, North Dakota

Dakota Access Pipeline (DAPL) Terminal

109TH AVE

110TH AVE

28TH ST

Dry Creek

Northfork Creek

Scoria Pit

2

3

73

23

2326

2434

2442

2315

2344

2300

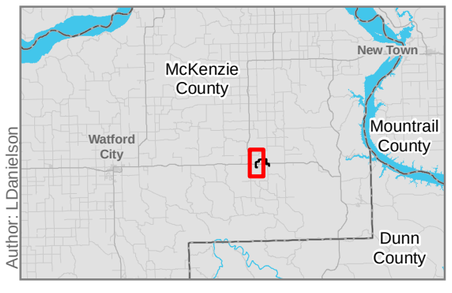
2400

2500

Author: LDanielson

Date: 3/14/2016

Document Path: P:\PAA\JC to DAPL\MXDs\PSC Maps\JCtoDAPL11x17 NaturalResource topo.mxd



- Centerline
- Co-location
- Milepost
- Valve
- Corridor (1 mile)
- Environmental Survey Corridor
- NHD Waterway
- NHD Waterbody
- NWI Wetland

Criteria Data

- Federal Land
- State Land
- Native American Land
- ICBM Facility
- ICBM Direct Line to Control Facility
- Abandoned Mine
- NDGS Landslide Deposits
- North Dakota Mineral Trust Lands
- PLOTS Land

N

E3 Environmental
Enhancing Execution with Experience

0 500 1,000 2,000 Feet

1:12,000

Map not to scale, for environmental review purposes only.

Plains Terminals North Dakota LLC

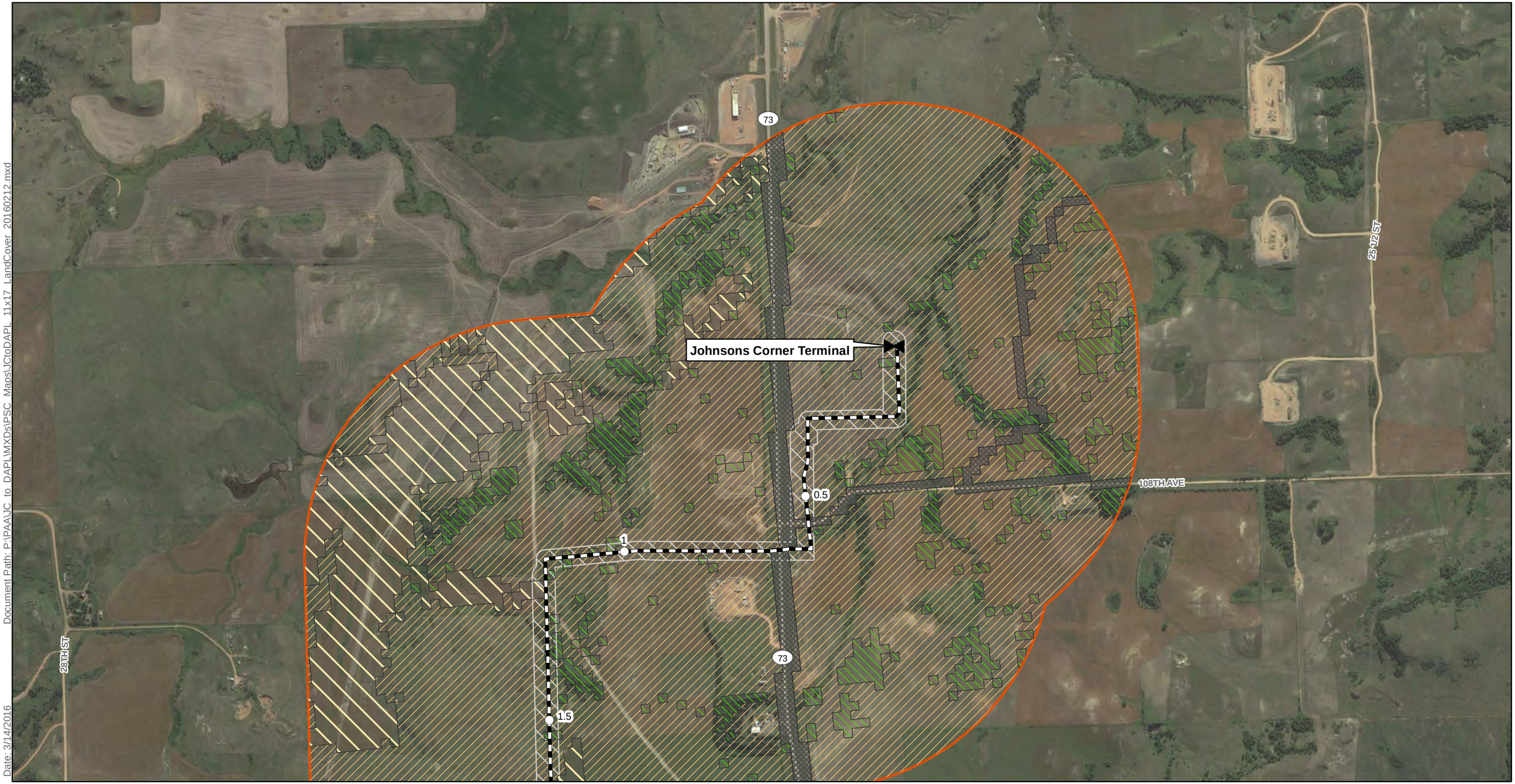
Johnsons Corner to Dakota Access Pipeline

Siting Criteria

Natural Resource - Topo Map

Page 2 of 2

McKenzie County, North Dakota



- Milepost
- Centerline
- Valve
- Corridor (1 mile)
- Environmental Survey Corridor

GAP Land Cover

- Agricultural Vegetation
- Developed and Other Human Use
- Forest and Woodland
- Introduced and Semi-Natural Vegetation
- Nonvascular and Sparse Vascular Rock Vegetation
- Open Water
- Recently Disturbed or Modified
- Semi Desert
- Shrubland and Grassland

*Refer to Natural Resource Report for detailed maps and tables.

N

0 500 1,000 2,000 Feet

1:12,000

Map not to scale, for environmental review purposes only.

E3 Environmental
Enhancing Execution with Experience

Plains Terminals North Dakota LLC

Johnsons Corner to
Dakota Access Pipeline
Siting Criteria - Land Cover Map

Page 1 of 2

McKenzie County, North Dakota

Author: LDanielson
Date: 3/14/2016
Document Path: P:\PAA\JC to DAPL\MXDs\PSC Maps\JCtoDAPL 11x17 LandCover 20160212.mxd

Document Path: P:\PAA\JC to DAPL\MXDs\PSC Maps\JCtoDAPL 11x17 LandCover 20160212.mxd

Date: 3/14/2016

Author: LDanielson

- Milepost
- Centerline
- Valve
- Corridor (1 mile)
- Environmental Survey Corridor

GAP Land Cover

- Agricultural Vegetation
- Developed and Other Human Use
- Forest and Woodland
- Introduced and Semi-Natural Vegetation
- Nonvascular and Sparse Vascular Rock Vegetation
- Open Water
- Recently Disturbed or Modified
- Semi Desert
- Shrubland and Grassland

*Refer to Natural Resource Report for detailed maps and tables.

N

0 500 1,000 2,000 Feet

1:12,000

Map not to scale, for environmental review purposes only.

E3 Environmental
Enhancing Execution with Experience

Plains Terminals North Dakota LLC

Johnsons Corner to
Dakota Access Pipeline
Siting Criteria - Land Cover Map

Page 2 of 2

McKenzie County, North Dakota

Appendix C

Agency Consultations

Johnsons Corner to Dakota Access Pipeline Project Agency Consultations and Communications

		Project Notification Sent	Type of Communication	Response Received	Agency Response Discussion	
					Certificate of Corridor Compatibility	Route Permit
U.S. Fish and Wildlife Service (USFWS)		1/6/16	Letter	Pending	Section 2.3.1	Section 2.3.4.1 2.3.6 5.1
North Dakota Game and Fish Department (NDGFD)		1/6/16	Letter	2/2/16	2.3.2	4.1.10
North Dakota Parks and Recreation (NDPRD)		1/6/16	Letter	1/26/16	2.3.3	4.1.10
North Dakota Department of Trust Lands (NDDTL)	**Surface Management Division**	1/6/16	E-mail and Letter	1/6/16	2.3.4	NA
	Minerals Management Division	1/6/16	E-mail and Letter	1/8/16	2.3.4	NA
North Dakota State Historic Preservation Office (NDSHPO)		2/5/16	Letter	2/26/2016	2.3.5	2.3.5

U.S. Fish and Wildlife Service

Consultation

March 16, 2016

Mr. Scott Larson, Field Supervisor
U.S. Fish and Wildlife Service
North Dakota Field Office
3425 Miriam Avenue
Bismarck, ND 58501-7926

Re: Johnsons Corner to DAPL Pipeline Project
Notification of Entity Correction from Plains Pipeline, L.P. to Plains Terminals North Dakota LLC

E3 Environmental (E3) on behalf of Plains All American Pipeline, L.P. (PAA), submitted a consultation letter for the Johnsons Corner to Dakota Access Pipeline Project (Project) dated January 6, 2016. The original letter mistakenly represented that Plains Pipeline, L.P., a subsidiary of PAA, would own and construct the Project. Instead, Plains Terminals North Dakota LLC, also a subsidiary of PAA, will own and construct the Project. The purpose of this letter is to provide your Agency with notification of this correction; no other Project details have been modified since the original letter.

Should you have questions or comments please contact Katie Schmidt at 651-282-0652 or via email, kschmidt@go2e3.com.

Sincerely,

Katie Schmidt

Katie Schmidt, Senior Consultant
E3 Environmental, LLC
871 Jefferson Ave.
St. Paul, MN 55102

January 6, 2016

Mr. Scott Larson, Field Supervisor
U.S. Fish and Wildlife Service
North Dakota Field Office
3425 Miriam Avenue
Bismarck, ND 58501-7926

Plains Pipeline, L.P. – Johnsons Corner to Dakota Access Pipeline Project
Threatened and Endangered Species, Migratory Bird, and Managed Lands Review

Plains Pipeline, L.P. (Plains) has proposed the construction of the Johnsons Corner to Dakota Access Pipeline Project (Project). The Project will result in an approximately 3.5 mile, 24-inch outside diameter crude oil pipeline. The Project would originate at the Plains Johnsons Corner Station and terminate at the Dakota Access Pipeline (DAPL) Johnsons Corner Terminal Facility. In McKenzie County, North Dakota the pipeline crosses Township 150N, Range 96W, Sections 11-14, 18, 19, 23, and 24.

The purpose of this request is to compile U.S. Fish and Wildlife Service's (USFWS) comments on environmental topics that are relevant to the North Dakota Public Service Commission's (PSC) siting requirements for Energy Transmission Facility Siting. This request has been prepared to augment that effort and facilitate a thorough project review.

Federally Listed Species Analysis:

Results of the review of the USFWS Information Planning and Conservation System (IPaC) database, at http://ecos.fws.gov/ipac, on December 21, 2015 listed the following species to be considered in an effects analysis for the Project:

Federally Listed Species
Whooping crane (*Grus americana*) – Endangered
Interior least tern (*Sternula antillarum*) – Endangered
Pallid sturgeon (*Scaphirhynchus albus*) – Endangered
Dakota Skipper (*Hesperia dacotae*) - Threatened
Gray wolf (*Canis lupus*) – Endangered
Red Knot (*Calidris canutus rufa*)-Threatened
Piping plover (*Charadrius melodus*) – Threatened and Designated Critical Habitat
Northern Long-eared Bat (*Myotis septenrionnalis*)- Threatened

E3 has reviewed the available data describing the life history, critical habitat, and conservation measures associated with each species to evaluate the potential effects of the Project on these resources. The results of this analysis are as follows:

E3 ENVIRONMENTAL
871 Jefferson Avenue
St. Paul, MN 55102

Whooping crane: The whooping crane is a large bodied marsh species that breeds primarily in Canada and winters in the Gulf of Mexico. This species has been closely studied and monitored in recent years due to its small population. North Dakota provides migratory habitat for the species, providing roosting and feeding opportunities during migration. This species prefers larger wetland complexes for roosting habitat, typically using adjacent uplands for foraging opportunities.

Precautionary measures will be implemented if whooping cranes are sighted in or near the Project area. Plains will voluntarily suspend all heavy equipment operation activities and notify the USFWS should a whooping crane be spotted within 0.5 mile of the Project area. Heavy equipment activities will resume upon the departure of the individual(s). The Project under consideration will not result in a loss of crane habitat. The project schedule would avoid typical migration periods coupled with restoration of disturbed areas to their original land use will largely avoid and minimize impacts to this species.

Interior least tern: The interior populations of the least tern have historically been associated with large river systems for breeding and migratory habitats. The Project is approximately 11 miles from the Missouri River. Breeding birds are known to congregate in colonies, utilizing sandbar habitat common to larger rivers. The least tern is found in North Dakota during the late spring and summer breeding season (mid-May through late August, with the peak of the nesting season occurring from mid-June to mid-July). Desktop analysis has concluded that no suitable habitat is present within the Project area; therefore, impacts to the least tern are not anticipated.

Pallid sturgeon: The pallid sturgeon's preferred habitat includes the benthic environment associated with swift waters of large turbid, free-flowing rivers with braided channels, dynamic flow patterns, periodic flooding of terrestrial habitats, and requiring extensive micro habitat diversity. The species inhabits the Missouri and Mississippi Rivers from Montana to Louisiana. In North Dakota, reaches of the Missouri River have been cited as providing suitable habitat for the pallid sturgeon. However, there is no suitable sturgeon habitat in the Project area as the Missouri River does not intersect the project corridor; as such, impacts to the pallid sturgeon are not anticipated.

Dakota skipper: Dakota skippers require untilled, high-quality prairie. Habitat preferred by the skipper is wet-mesic prairie with little topographic relief on near-shore glacial lake deposits and in rolling native-prairie terrain over gravelly glacial moraine deposits. Larvae feed on grasses, favoring little bluestem (*Schizachyrium scoparium*). Adults commonly feed on nectar of flowering native forbs such as harebell (*Campanula rotundifolia*), wood lily (*Lilium philadelphicum*), and purple coneflower (*Echinacea angustifolia*). This species is not known to disperse widely and has low mobility, dispersing a maximum of 0.6-mile. The species is threatened by conversion of native prairie to cultivated agriculture or shrublands, over-grazing, invasive species, gravel mining, and inbreeding. Desktop analysis has concluded that suitable habitat may be present within the Project area; however the closest designated critical habitat is approximately 10 miles southwest of the Project and impacts to the Dakota skipper are not anticipated.

Gray wolf: The gray wolf is a large carnivore that through conservation measures has experienced strong population recovery, particularly in the Great Lakes states of the upper Midwest. As populations rebound, individuals may break from packs to explore opportunities to establish packs in unoccupied territory. Roaming individuals can cover

E3 ENVIRONMENTAL
871 Jefferson Avenue
St. Paul, MN 55102

great distances without establishing viable breeding populations in previously unoccupied habitat(s). This species is not tolerant of human disturbance and will tend to avoid interaction with humans. The activities associated with construction and later plant operations would likely serve as a deterrent to this species. Therefore, this Project will have no impact on the gray wolf.

Rufa red knot: The Rufa red knot migrates between breeding grounds in Canada and wintering grounds in South America. A significant factor threatening the Rufa red knot is destruction and modification of its habitat due to beach erosion and shoreline protection and stabilization projects. Migratory behavior and habitat requirements of this species are poorly understood particularly for those populations occupying the midcontinent flyways. Inland stopovers include the Mississippi Valley, Great Lakes, and Great Plains. Desktop analysis has concluded that no suitable habitat is present within the Project area; therefore impacts to the Rufa red knot are not anticipated.

Piping plover: The piping plover is associated with shorelines along small alkaline lakes, large reservoir beaches, and river islands and adjacent sand pits. Breeding birds select wide beaches with highly clumped vegetation covering less than 25% of the area. Current breeding range on the Northern Great Plains extends south along major prairie rivers including the Missouri River, and in alkali wetlands including those in North Dakota. The Missouri River, the nearest designated critical habitat for the piping plover, is located approximately 0.5 mile south of the proposed Project. Breeding season in North Dakota occurs mid-April through August. The closest designated critical habitat is located approximately nine miles west of the Project. Desktop analysis has concluded that no suitable habitat is present within the Project area; therefore, impacts to the piping plover or its designated critical habitat are not anticipated.

Northern long-eared bat: The northern long-eared bat roost underneath bark, in cavities, or in crevices of both live and dead trees. Populations have also been found in cool environments such as caves and mines and prefer to spend winter hibernating in locations with high humidity and no air currents. Breeding occurs in late summer or early fall in maternity colonies where females give birth around the same time, which may occur anywhere from late May to late July. Desktop analysis has concluded that no suitable habitat is present within the Project area; therefore, impacts to the northern long-eared bat are not anticipated.

USFWS Managed Lands:
Conservation programs such as Waterfowl Production Areas and wetland and grassland easements represent an important tool used by USFWS to identify and manage high quality wildlife habitat. A review of public records did not identify any of these USFWS managed lands in the Project study area. Plains requests confirmation regarding the presence or absence of USFWS managed lands within the proposed study area.

Migratory Bird Consultation:
USFWS administers various wildlife related mandates of national concern including the Migratory Bird Treaty Act (MBTA). Plains understands that unlike the Endangered Species Act, the MBTA has no provisions for the allowance of a take and therefore compliance may best be achieved by avoiding or minimizing the potential to interact with migratory species during the active breeding season. Plains also understands that

E3 ENVIRONMENTAL
871 Jefferson Avenue
St. Paul, MN 55102

in North Dakota, the breeding season is typically defined as occurring annually from February 1 through July 15.

E3 Environmental, LLC (E3) has been retained by Plains to provide environmental consulting support for this Project. Should you have any questions or require additional information, please contact me at 651-282-0652 or kschmidt@go2e3.com.

Sincerely,

Katie Schmidt

Katie Schmidt, Senior Consultant
E3 Environmental, LLC
871 Jefferson Ave
St. Paul, MN 55102

Enclosures: Project Map – USGS topographic
Project Map - Aerial photography

cc: E3 Project Files

Document Path: P:\PAA\JC to DAPL\MXDs\PSC Maps\ConsultationMaps\JCtoDAPL AgencyNotification aerial.mxd

Date: 1/5/2016

Author: LDanielson

- Proposed Pipeline
- Corridor (1-mile)
- NHD Stream
- NHD Waterbody
- Federal Land
- Native American Land
- State Land
- County Boundary
- Township Boundary
- Section Boundary

N

E3 Environmental
Enhancing Execution with Experience

0 750 1,500 3,000 Feet

1:15,840

Map not to scale, for environmental review purposes only.

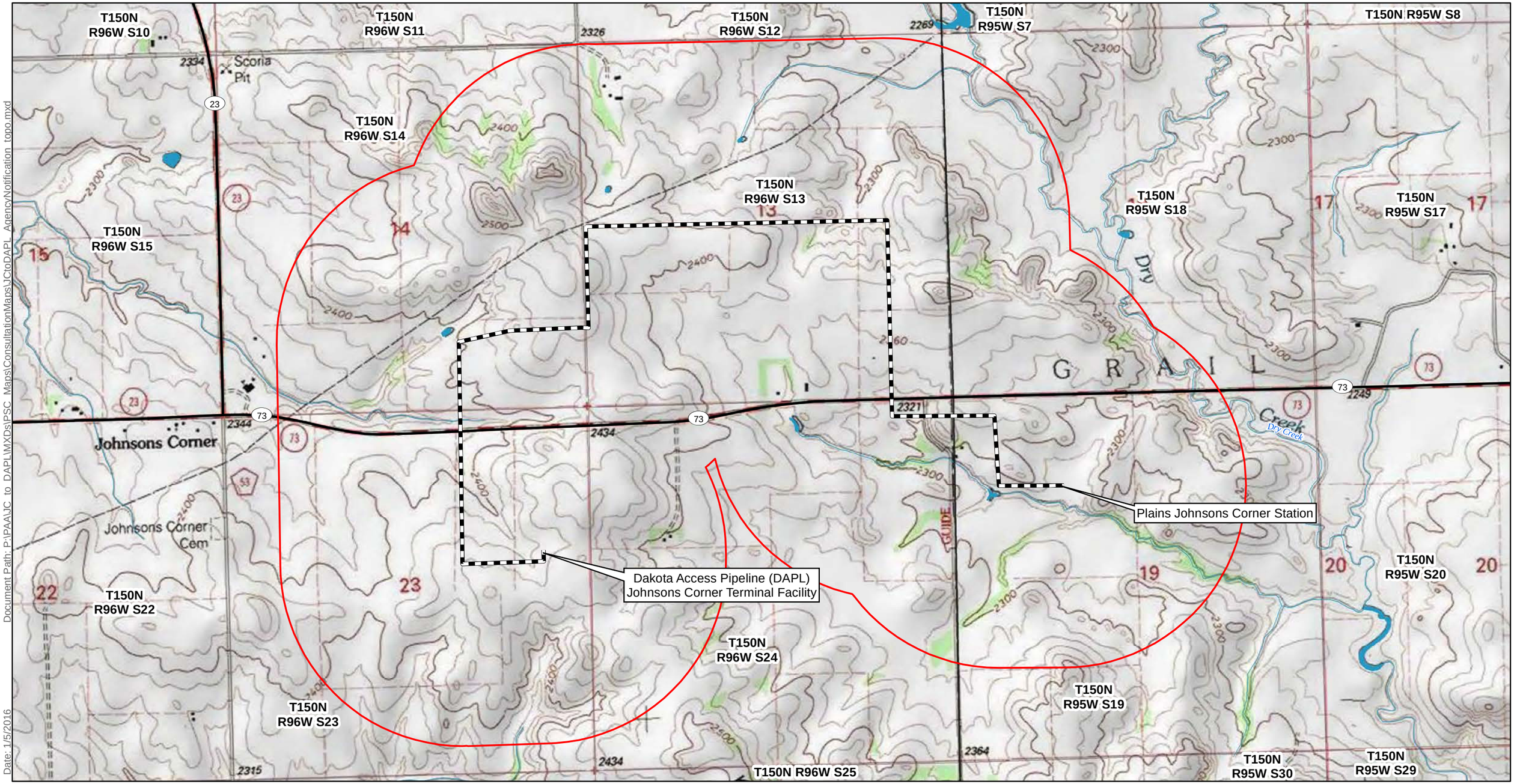
Plains Pipeline, L.P.

Johnsons Corner to Dakota Access Pipeline

Aerial Overview Map

McKenzie County, North Dakota

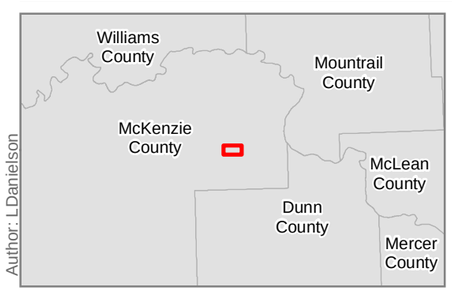
*Only one option will be utilized but comments are requested for both.



Document Path: P:\PAA\JC to DAPL\MXDs\PSC Maps\ConsultationMaps\JCtoDAPL AgencyNotification topo.mxd

Date: 1/5/2016

Author: LDanielson



Proposed Pipeline
Corridor (1-mile)
NHD Stream
NHD Waterbody
Federal Land
Native American Land
State Land
County Boundary
Township Boundary
Section Boundary

N

E3 Environmental
Enhancing Execution with Experience

0 750 1,500 3,000 Feet

1:15,840

Map not to scale, for environmental review purposes only.

Plains Pipeline, L.P.

Johnsons Corner to Dakota Access Pipeline

Topo Overview Map

McKenzie County, North Dakota

*Only one option will be utilized but comments are requested for both.

North Dakota Game and Fish Department

Consultation

March 16, 2016

Mr. Greg Link, Chief
Conservation and Communication Division
North Dakota Game and Fish Department
100 N. Bismarck Expressway
Bismarck, ND 58501-5095

Re: Johnsons Corner to DAPL Pipeline Project
Notification of Entity Correction from Plains Pipeline, L.P. to Plains Terminals North Dakota LLC

E3 Environmental (E3) on behalf of Plains All American Pipeline, L.P. (PAA), submitted a consultation letter for the Johnsons Corner to Dakota Access Pipeline Project (Project) dated January 6, 2016. The original letter mistakenly represented that Plains Pipeline, L.P., a subsidiary of PAA, would own and construct the Project. Instead, Plains Terminals North Dakota LLC, also a subsidiary of PAA, will own and construct the Project. The purpose of this letter is to provide your Agency with notification of this correction; no other Project details have been modified since the original letter.

Should you have questions or comments please contact Katie Schmidt at 651-282-0652 or via email, kschmidt@go2e3.com.

Sincerely,

Katie Schmidt

Katie Schmidt, Senior Consultant
E3 Environmental, LLC
871 Jefferson Ave.
St. Paul, MN 55102

"VARIETY IN HUNTING AND FISHING"

NORTH DAKOTA GAME AND FISH DEPARTMENT

100 NORTH BISMARCK EXPRESSWAY BISMARCK, NORTH DAKOTA 58501-5095 PHONE 701-328-6300 FAX 701-328-6352

February 2, 2016

Katie Schmidt
Senior Consultant
E3 Environmental, LLC
871 Jefferson Avenue
St. Paul, MN 55102

Dear Ms. Schmidt:

RE: Johnsons Corner to Dakota Access Pipeline Project

Plains Pipeline, LP is proposing to construct an approximately 3.5-mile, 24-inch outside diameter crude oil pipeline originating at the Plains Johnsons Corner Station and terminating at the Dakota Access Pipeline Johnsons Corner Terminal Facility in McKenzie County, North Dakota.

The National Wetland Inventory indicates various wetlands within the proposed project corridor. Steps should be taken to protect any wetlands that cannot be avoided, no alterations should be made to existing drainage patterns, and above-ground appurtenances should not be placed in wetland areas. Unavoidable destruction or degradation of wetland acres should be mitigated in kind. We ask that work within wooded draws and native prairie areas be avoided to the extent possible and disturbed areas be reclaimed to pre-project conditions.

We do not believe this project will have significant adverse effects on wildlife or wildlife habitat, including species of conservation priority, provided these recommendations are implemented where appropriate.

Sincerely,

Greg Link
Chief
Conservation & Communication Division

js

January 6, 2016

Mr. Greg Link, Chief
Conservation and Communication Division
North Dakota Game and Fish Department
100 N. Bismarck Expressway
Bismarck, ND 58501-5095

Plains Pipeline, L.P. – Johnsons Corner to Dakota Access Pipeline Project
State Conservation Priority Species Consultation

Plains Pipeline, L.P. (Plains) has proposed the construction of the Johnsons Corner to Dakota Access Pipeline Project (Project). The Project will result in an approximately 3.5 mile, 24-inch outside diameter crude oil pipeline. The Project would originate at the Plains Johnsons Corner Station and terminate at the Dakota Access Pipeline (DAPL) Johnsons Corner Terminal Facility. In McKenzie County, North Dakota the pipeline crosses Township 150N, Range 96W, Sections 11-14, 18, 19, 23, and 24.

The purpose of this correspondence is to afford the North Dakota Game and Fish Department (Department) the opportunity to assess the Project and associated Study Area for the presence or absence of State Conservation Priority Species.

The enclosed topographic map and aerial photo depict the Project site and associated Study Area. These have been provided to assist the Department's review of the Project.

In closing, E3 Environmental, LLC (E3) has been retained by Plains to provide environmental consulting support for this Project. Should you have any questions or require additional information, please contact me at 651-282-0652 or kschmidt@go2e3.com.

Sincerely,

Katie Schmidt

Katie Schmidt, Senior Consultant
E3 Environmental, LLC
871 Jefferson Ave
St. Paul, MN 55102

Enclosures: Project map – USGS topographic
Project map – Aerial photograph

cc: E3 Project Files

Document Path: P:\PAA\JC to DAPL\MXDs\PSC Maps\ConsultationMaps\JCtoDAPL AgencyNotification aerial.mxd

Date: 1/5/2016

Author: LDanielson

- Proposed Pipeline
- Corridor (1-mile)
- NHD Stream
- NHD Waterbody
- Federal Land
- Native American Land
- State Land
- County Boundary
- Township Boundary
- Section Boundary

N

E3 Environmental
Enhancing Execution with Experience

0 750 1,500 3,000 Feet

1:15,840

Map not to scale, for environmental review purposes only.

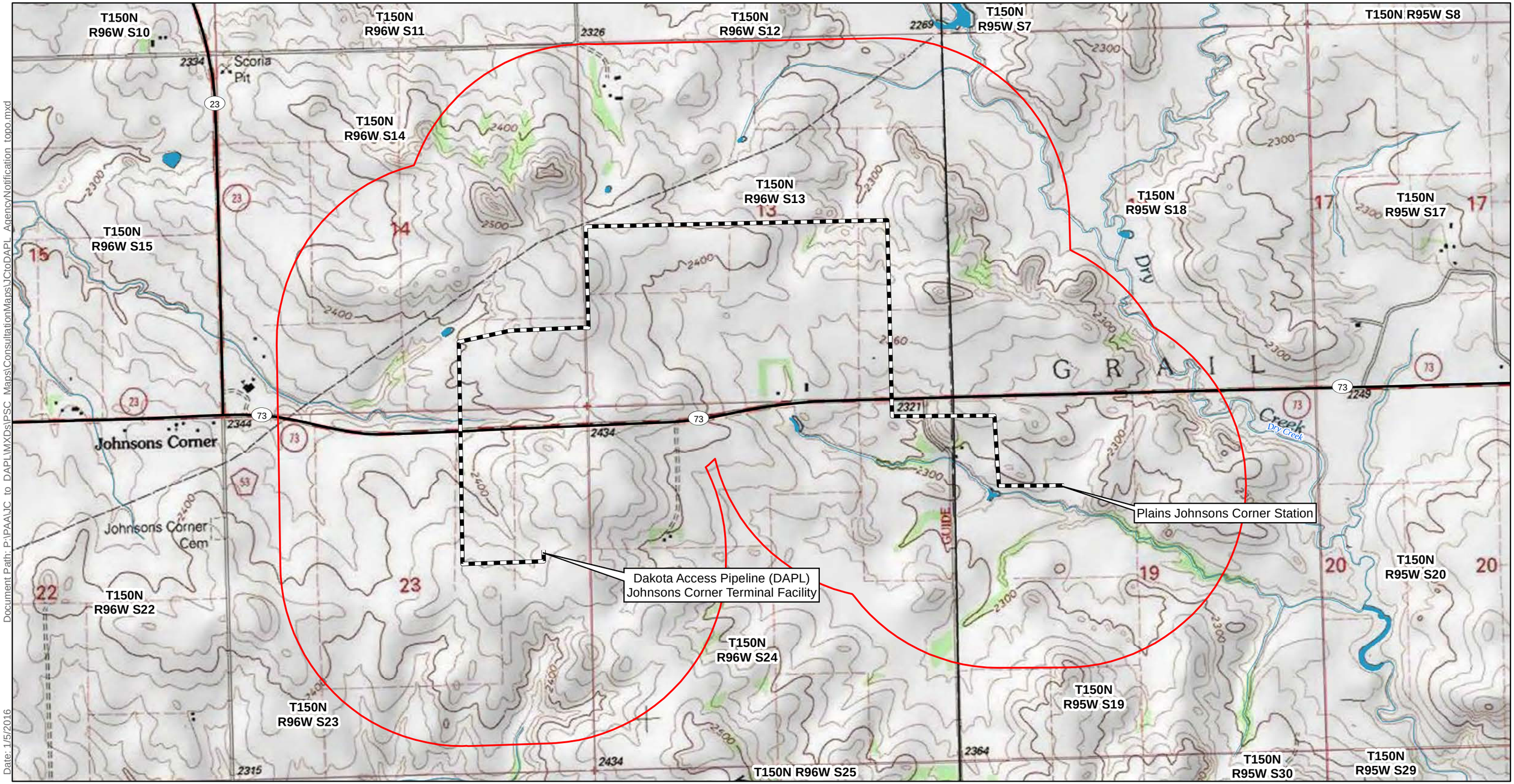
Plains Pipeline, L.P.

Johnsons Corner to Dakota Access Pipeline

Aerial Overview Map

McKenzie County, North Dakota

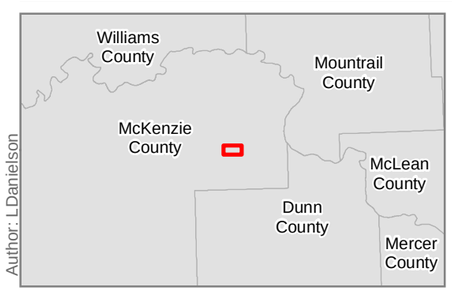
*Only one option will be utilized but comments are requested for both.



Document Path: P:\PAA\JC to DAPL\MXDs\PSC Maps\ConsultationMaps\JCtoDAPL AgencyNotification topo.mxd

Date: 1/5/2016

Author: LDanielson



Proposed Pipeline
Corridor (1-mile)
NHD Stream
NHD Waterbody
Federal Land
Native American Land
State Land
County Boundary
Township Boundary
Section Boundary

N

E3 Environmental
Enhancing Execution with Experience

0 750 1,500 3,000 Feet

1:15,840

Map not to scale, for environmental review purposes only.

Plains Pipeline, L.P.

Johnsons Corner to Dakota Access Pipeline

Topo Overview Map

McKenzie County, North Dakota

*Only one option will be utilized but comments are requested for both.

Consultation

March 16, 2016

Mr. Michael Haupt, Land Management Professional
North Dakota Department of Trust Lands
Surface Management Division
1707 North 9th Street, P.O. Box 5523
Bismarck, ND 58506-5523

Re: Johnsons Corner to DAPL Pipeline Project
Notification of Entity Correction from Plains Pipeline, L.P. to Plains Terminals North Dakota LLC

E3 Environmental (E3) on behalf of Plains All American Pipeline, L.P. (PAA), submitted a consultation letter for the Johnsons Corner to Dakota Access Pipeline Project (Project) dated January 6, 2016. The original letter mistakenly represented that Plains Pipeline, L.P., a subsidiary of PAA, would own and construct the Project. Instead, Plains Terminals North Dakota LLC, also a subsidiary of PAA, will own and construct the Project. The purpose of this letter is to provide your Agency with notification of this correction; no other Project details have been modified since the original letter.

Should you have questions or comments please contact Katie Schmidt at 651-282-0652 or via email, kschmidt@go2e3.com.

Sincerely,

Katie Schmidt

Katie Schmidt, Senior Consultant
E3 Environmental, LLC
871 Jefferson Ave.
St. Paul, MN 55102

Melissa Schmit

From: Haupt, Michael L. <mhaupt@nd.gov>
Sent: Wednesday, January 6, 2016 10:54 AM
To: Melissa Schmit
Subject: RE: Plains Pipeline: Johnsons Corner to Dakota Access Pipeline Project & Surface Trust Lands Consultation

Melissa,

Good morning! There is no ND School Trust surface located within the proposed project. Let me know if you have questions. Thanks.

Michael L. Haupt
Land Management Professional, CPRM
North Dakota Department of Trust lands
1707 Nth 9th Street
Bismarck ND 58506-5523
701-328-1916
mhaupt@nd.gov

From: Melissa Schmit [mailto:MSchmit@go2e3.com]
Sent: Wednesday, January 06, 2016 9:51 AM
To: Haupt, Michael L. <mhaupt@nd.gov>
Cc: Katie Schmidt <KSchmidt@go2e3.com>
Subject: Plains Pipeline: Johnsons Corner to Dakota Access Pipeline Project & Surface Trust Lands Consultation

Dear Mr. Haupt,

E3 Environmental, LLC (E3) has been retained by Plains Pipeline, L.P. to provide environmental consulting support for the Johnsons Corner to Dakota Access Pipeline Project (see attached). For your convenience, E3 is submitting an electronic copy of the project notification letter and maps to assist in your review of the Project.

Please let me know if I can be of further assistance, or if you have any questions or concerns regarding the attached file.

Thank you for your time and consideration.

Sincerely,

Melissa Schmit
Consultant
E3 Environmental, LLC
mschmit@go2e3.com
O: 651.282.0656
M: 651.263.7916
871 Jefferson Avenue
St. Paul, MN 55102
www.go2e3.com

E3 ENVIRONMENTAL
Enhancing Execution with Experience

January 6, 2016

Mr. Michael Haupt, Land Management Professional
North Dakota Department of Trust Lands
Surface Management Division
1707 North 9th Street, P.O. Box 5523
Bismarck, ND 58506-5523

Plains All American Pipeline, L.P. – Johnsons Corner to Dakota Access Pipeline Project - School Trust Lands Consultation

Plains Pipeline, L.P. (Plains) has proposed the construction of the Johnsons Corner to Dakota Access Pipeline Project (Project). The Project will result in an approximately 3.5 mile, 24-inch outside diameter crude oil pipeline. The Project would originate at the Plains Johnsons Corner Station and terminate at the Dakota Access Pipeline (DAPL) Johnsons Corner Terminal Facility. In McKenzie County, North Dakota the pipeline crosses Township 150N, Range 96W, Sections 11-14, 18, 19, 23, and 24.

The purpose of this correspondence is to request a review of the Project and associated Study Area (see attached) for the presence or absence of State School Trust Lands. This information will be included in a North Dakota Public Service Commission application for the Project.

The enclosed topographic map and aerial photo depict the Project site and associated Study Area. These have been provided to assist the Department's review of the Project.

In closing, E3 Environmental, LLC has been retained by Plains to provide environmental consulting support for this Project. Should you have any questions or require additional information, please contact me at 651-282-0652 or kschmidt@go2e3.com.

Sincerely,

Katie Schmidt

Katie Schmidt, Senior Consultant
E3 Environmental, LLC
871 Jefferson Ave
St. Paul, MN 55102

Enclosures: Project Map – USGS topographic
Project Map – Aerial photograph

cc: E3 Project Files

Document Path: P:\PAA\JC to DAPL\MXDs\PSC Maps\ConsultationMaps\JCtoDAPL AgencyNotification aerial.mxd

Date: 1/5/2016

Author: LDanielson

- Proposed Pipeline
- Corridor (1-mile)
- NHD Stream
- NHD Waterbody
- Federal Land
- Native American Land
- State Land
- County Boundary
- Township Boundary
- Section Boundary

N

E3 Environmental
Enhancing Execution with Experience

0 750 1,500 3,000 Feet

1:15,840

Map not to scale, for environmental review purposes only.

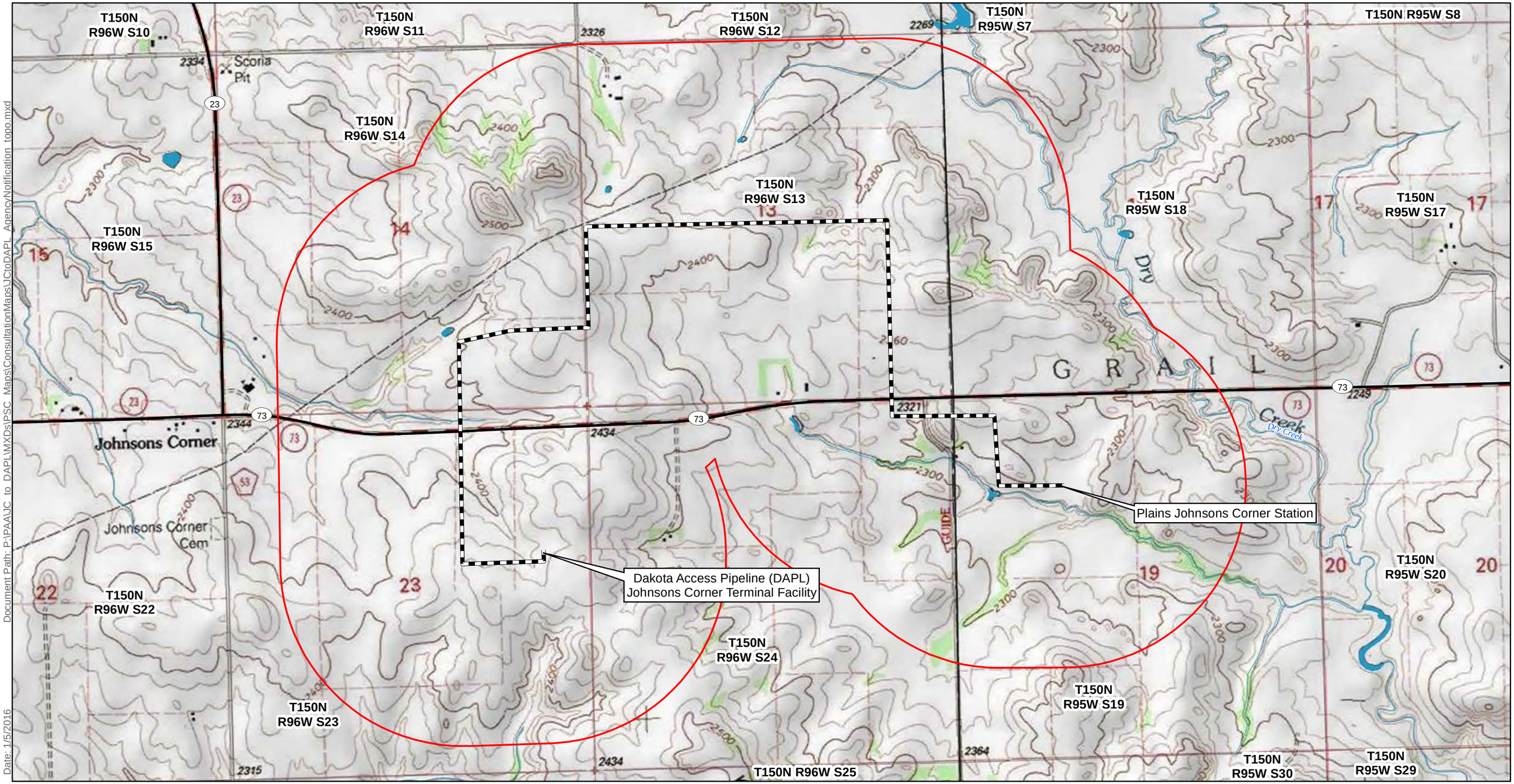
Plains Pipeline, L.P.

Johnsons Corner to Dakota Access Pipeline

Aerial Overview Map

McKenzie County, North Dakota

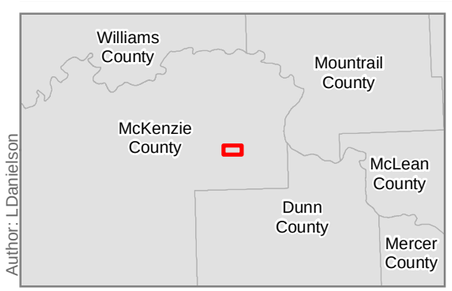
*Only one option will be utilized but comments are requested for both.



Document Path: P:\PAA\JC to DAPL\MXDs\PSC Maps\ConsultationMaps\JCtoDAPL AgencyNotification topo.mxd

Date: 1/5/2016

Author: LDanielson



Proposed Pipeline
Corridor (1-mile)
NHD Stream
NHD Waterbody
Federal Land
Native American Land
State Land
County Boundary
Township Boundary
Section Boundary

N

E3 Environmental
Enhancing Execution with Experience

0 750 1,500 3,000 Feet

1:15,840

Map not to scale, for environmental review purposes only.

Plains Pipeline, L.P.

Johnsons Corner to Dakota Access Pipeline

Topo Overview Map

McKenzie County, North Dakota

*Only one option will be utilized but comments are requested for both.

Consultation

E3 ENVIRONMENTAL
Enhancing Execution with Experience

March 16, 2016

Ms. Allisen Bement, Land Professional
North Dakota Department of Trust Lands
Mineral Management Division
1707 North 9th Street, P.O. Box 5523
Bismarck, ND 58506-5523

Re: Johnsons Corner to DAPL Pipeline Project
Notification of Entity Correction from Plains Pipeline, L.P. to Plains Terminals North Dakota LLC

E3 Environmental (E3) on behalf of Plains All American Pipeline, L.P. (PAA), submitted a consultation letter for the Johnsons Corner to Dakota Access Pipeline Project (Project) dated January 6, 2016. The original letter mistakenly represented that Plains Pipeline, L.P., a subsidiary of PAA, would own and construct the Project. Instead, Plains Terminals North Dakota LLC, also a subsidiary of PAA, will own and construct the Project. The purpose of this letter is to provide your Agency with notification of this correction; no other Project details have been modified since the original letter.

Should you have questions or comments please contact Katie Schmidt at 651-282-0652 or via email, kschmidt@go2e3.com.

Sincerely,

Katie Schmidt

Katie Schmidt, Senior Consultant
E3 Environmental, LLC
871 Jefferson Ave.
St. Paul, MN 55102

Melissa Schmit

From: Bement, Allisen C. <abement@nd.gov>
Sent: Friday, January 8, 2016 8:42 AM
To: Melissa Schmit
Cc: Katie Schmidt
Subject: RE: Plains Pipeline: Johnsons Corner to Dakota Access Pipeline Project & Mineral Management Consultation

Melissa,

We agree that the data provided fairly represents the approximate location of the pipeline route as indicated by E3 Environmental and the proximity of mineral interests managed by this office to that pipeline, for use in a filing with the PSC in the state of North Dakota.

Allisen Bement, RL
Land Professional
ND Department of Trust Lands
701.328.1952
abement@nd.gov

From: Melissa Schmit [mailto:MSchmit@go2e3.com]
Sent: Wednesday, January 06, 2016 9:50 AM
To: Bement, Allisen C. <abement@nd.gov>
Cc: Katie Schmidt <KSchmidt@go2e3.com>
Subject: Plains Pipeline: Johnsons Corner to Dakota Access Pipeline Project & Mineral Management Consultation

Dear Ms. Bement,

E3 Environmental, LLC (E3) has been retained by Plains Pipeline, L.P. to provide environmental consulting support for the Johnsons Corner to Dakota Access Pipeline Project (see attached). For your convenience, E3 is submitting an electronic copy of the project notification letter, maps, and shapefiles to assist in your review of the Project.

Please let me know if I can be of further assistance, or if you have any questions or concerns regarding the attached files.

Thank you for your time and consideration.

Sincerely,

Melissa Schmit
Consultant
E3 Environmental, LLC
mschmit@go2e3.com
O: 651.282.0656
M: 651.263.7916
871 Jefferson Avenue
St. Paul, MN 55102
www.go2e3.com

E3 ENVIRONMENTAL
Enhancing Execution with Experience

January 6, 2016

Ms. Allisen Bement, Land Professional
North Dakota Department of Trust Lands
Mineral Management Division
1707 North 9th Street, P.O. Box 5523
Bismarck, ND 58506-5523

Plains Pipeline, L.P. – Johnsons Corner to Dakota Access Pipeline Project
State Mineral Trust Lands Consultation

Plains Pipeline, L.P. (Plains) has proposed the construction of the Johnsons Corner to Dakota Access Pipeline Project (Project). The Project will result in an approximately 3.5 mile, 24-inch outside diameter crude oil pipeline. The Project would originate at the Plains Johnsons Corner Station and terminate at the Dakota Access Pipeline (DAPL) Johnsons Corner Terminal Facility. In McKenzie County, North Dakota the pipeline crosses Township 150N, Range 96W, Sections 11-14, 18, 19, 23, and 24. The proposed Project is described below and depicted on the attached maps.

A review of the Project and associated Study Area (see attached) for the presence of State Mineral Trust Lands was conducted using available information at www.land.nd.gov. The results of this search concluded that no State Lands are crossed by the Project, however State Lands parallel the Project in Township 150N, Range 96W, Section 13 in McKenzie County, which fall within the Study Area of the Project. The enclosed topographic map depicts the Project site and associated Study Area, and State Mineral Trust Lands within the Study Area. This has been provided to assist the Department's review of the Project.

The purpose of this correspondence is to seek your concurrence with this analysis. This information will be included in a North Dakota Public Service Commission application for the project. For your convenience, an electronic copy of this letter, attached map, and shapefiles have been submitted concurrently with this mailing.

In closing, E3 Environmental, LLC has been retained by Plains to provide environmental consulting support for this Project. Should you have any questions or require additional information, please contact me at 651-282-0652 or kschmidt@go2e3.com.

Sincerely,

Katie Schmidt

Katie Schmidt, Senior Consultant
E3 Environmental, LLC
871 Jefferson Ave
St. Paul, MN 55102

Enclosures: Project Map – USGS topographic, Aerial photograph, Mineral Trust Land Overview

cc: E3 Project Files

Document Path: P:\PAA\JC to DAPL\MXDs\PSC Maps\ConsultationMaps\JCtoDAPL AgencyNotification aerial.mxd

Date: 1/5/2016

Author: LDanielson

- Proposed Pipeline
- Corridor (1-mile)
- NHD Stream
- NHD Waterbody
- Federal Land
- Native American Land
- State Land
- County Boundary
- Township Boundary
- Section Boundary

N

E3 Environmental
Enhancing Execution with Experience

0 750 1,500 3,000 Feet

1:15,840

Map not to scale, for environmental review purposes only.

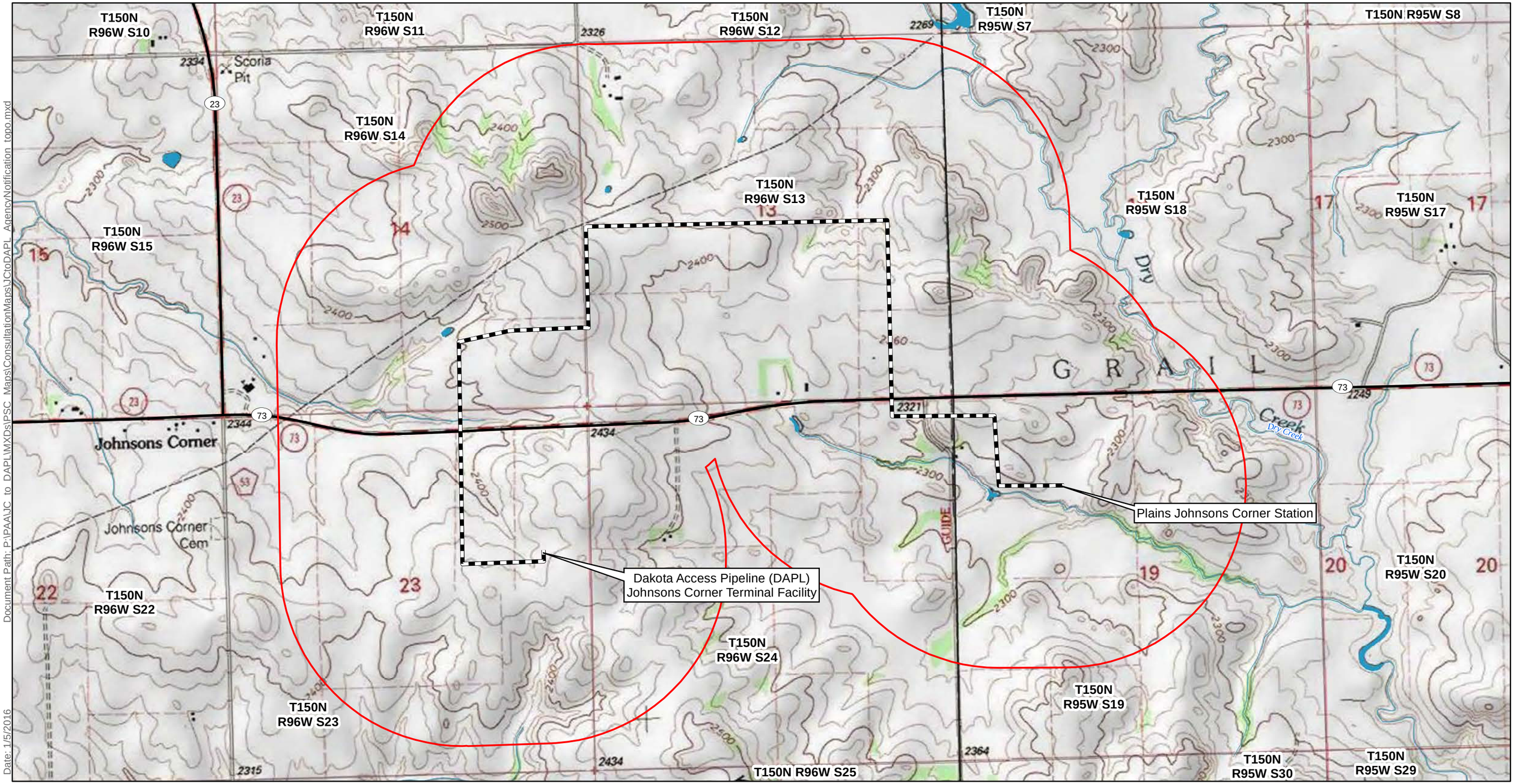
Plains Pipeline, L.P.

Johnsons Corner to Dakota Access Pipeline

Aerial Overview Map

McKenzie County, North Dakota

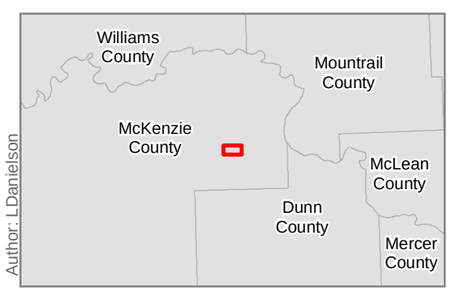
*Only one option will be utilized but comments are requested for both.



Document Path: P:\PAA\JC to DAPL\MXDs\PSC Maps\ConsultationMaps\JCtoDAPL AgencyNotification topo.mxd

Date: 1/5/2016

Author: LDanielson



Proposed Pipeline
Corridor (1-mile)
NHD Stream
NHD Waterbody
Federal Land
Native American Land
State Land
County Boundary
Township Boundary
Section Boundary

N

E3 Environmental
Enhancing Execution with Experience

0 750 1,500 3,000 Feet

1:15,840

Map not to scale, for environmental review purposes only.

Plains Pipeline, L.P.

Johnsons Corner to Dakota Access Pipeline

Topo Overview Map

McKenzie County, North Dakota

*Only one option will be utilized but comments are requested for both.

T150N R96W S10
T150N R96W S11
T150N R96W S12
T150N R95W S7
T150N R95W S8
T150N R96W S14
T150N R96W S13
T150N R95W S18
T150N R95W S17
T150N R96W S15
T150N R96W S22
T150N R96W S23
T150N R96W S24
T150N R95W S19
T150N R95W S20
T150N R95W S30
T150N R95W S29
T150N R96W S25

Scoria Pit
Johnsons Corner
Johnsons Corner Cem
GRAIL
GUIDE
Creek

Plains Johnsons Corner Station
Dakota Access Pipeline (DAPL)
Johnsons Corner Terminal Facility

Proposed Pipeline
Corridor (1-mile)
Mineral Trust Land
County Boundary
Township Boundary
Section Boundary

N

E3 Environmental
Enhancing Execution with Experience

0 750 1,500 3,000 Feet

1:15,840

Map not to scale, for environmental review purposes only.

Plains Pipeline, L.P.

Johnsons Corner to Dakota Access Pipeline

Mineral Trust Land Overview Map

McKenzie County, North Dakota

*Only one option will be utilized but comments are requested for both.

North Dakota Parks and Recreation Department

Consultation

E3 ENVIRONMENTAL
Enhancing Execution with Experience

March 16, 2016

Ms. Kathy Duttenhefner, Coordinator
Natural Resources Division
North Dakota Department of Parks and Recreation
1600 East Century Avenue, Suite 3
Bismarck, ND 58503-0649

Re: Johnsons Corner to DAPL Pipeline Project
Notification of Entity Correction from Plains Pipeline, L.P. to Plains Terminals North Dakota LLC

E3 Environmental (E3) on behalf of Plains All American Pipeline, L.P. (PAA), submitted a consultation letter for the Johnsons Corner to Dakota Access Pipeline Project (Project) dated January 6, 2016. The original letter mistakenly represented that Plains Pipeline, L.P., a subsidiary of PAA, would own and construct the Project. Instead, Plains Terminals North Dakota LLC, also a subsidiary of PAA, will own and construct the Project. The purpose of this letter is to provide your Agency with notification of this correction; no other Project details have been modified since the original letter.

Should you have questions or comments please contact Katie Schmidt at 651-282-0652 or via email, kschmidt@go2e3.com.

Sincerely,

Katie Schmidt

Katie Schmidt, Senior Consultant
E3 Environmental, LLC
871 Jefferson Ave.
St. Paul, MN 55102

Melissa Schmit

From: Bement, Allisen C. <abement@nd.gov>
Sent: Friday, January 8, 2016 8:42 AM
To: Melissa Schmit
Cc: Katie Schmidt
Subject: RE: Plains Pipeline: Johnsons Corner to Dakota Access Pipeline Project & Mineral Management Consultation

Melissa,

We agree that the data provided fairly represents the approximate location of the pipeline route as indicated by E3 Environmental and the proximity of mineral interests managed by this office to that pipeline, for use in a filing with the PSC in the state of North Dakota.

Allisen Bement, RL
Land Professional
ND Department of Trust Lands
701.328.1952
abement@nd.gov

From: Melissa Schmit [mailto:MSchmit@go2e3.com]
Sent: Wednesday, January 06, 2016 9:50 AM
To: Bement, Allisen C. <abement@nd.gov>
Cc: Katie Schmidt <KSchmidt@go2e3.com>
Subject: Plains Pipeline: Johnsons Corner to Dakota Access Pipeline Project & Mineral Management Consultation

Dear Ms. Bement,

E3 Environmental, LLC (E3) has been retained by Plains Pipeline, L.P. to provide environmental consulting support for the Johnsons Corner to Dakota Access Pipeline Project (see attached). For your convenience, E3 is submitting an electronic copy of the project notification letter, maps, and shapefiles to assist in your review of the Project.

Please let me know if I can be of further assistance, or if you have any questions or concerns regarding the attached files.

Thank you for your time and consideration.

Sincerely,

Melissa Schmit
Consultant
E3 Environmental, LLC
mschmit@go2e3.com
O: 651.282.0656
M: 651.263.7916
871 Jefferson Avenue
St. Paul, MN 55102
www.go2e3.com

E3 ENVIRONMENTAL
Enhancing Execution with Experience

January 6, 2016

Ms. Kathy Duttenhefner, Coordinator
Natural Resources Division
North Dakota Department of Parks and Recreation
1600 East Century Avenue, Suite 3
Bismarck, ND 58503-0649

Plains Pipeline, L.P. – Johnsons Corner to Dakota Access Pipeline Project
Natural Heritage Inventory Review
State Park Lands; and Land and Water Conservation Fund Review

Plains Pipeline, L.P. (Plains) has proposed the construction of the Johnsons Corner to Dakota Access Pipeline Project (Project). The Project will result in an approximately 3.5 mile, 24-inch outside diameter crude oil pipeline. The Project would originate at the Plains Johnsons Corner Station and terminate at the Dakota Access Pipeline (DAPL) Johnsons Corner Terminal Facility. In McKenzie County, North Dakota the pipeline crosses Township 150N, Range 96W, Sections 11-14, 18, 19, 23, and 24.

The purpose of this request is to provide the North Dakota Parks and Recreation Department's (Department) notice of the Project such that the environmental topics that fall under the purview of the Department that are also relevant to the North Dakota Public Service Commission's siting requirements for Energy Conversion facilities are administrated properly. It is our understanding that the Department administers the following state programs:

- State Park Lands
- Land and Water Conservation Fund
- Natural Heritage Inventory

The enclosed topographic map and aerial photo depict the Project site and associated Study Area. These have been provided to assist the Department's review of the Project for the presence or absence of any lands, projects, and sensitive species.

In closing, E3 Environmental, LLC has been retained by Plains to provide environmental consulting support for this Project. Should you have any questions or require additional information, please contact me at 651-282-0652 or kschmidt@go2e3.com.

Sincerely,

Katie Schmidt

Katie Schmidt, Senior Consultant
E3 Environmental, LLC
871 Jefferson Ave
St. Paul, MN 55102

Enclosures: Project Map – USGS topographic, Aerial photograph

cc: E3 Project Files

Document Path: P:\PAA\JC to DAPL\MXDs\PSC Maps\ConsultationMaps\JCtoDAPL AgencyNotification aerial.mxd

Date: 1/5/2016

Author: LDanielson

- Proposed Pipeline
- Corridor (1-mile)
- NHD Stream
- NHD Waterbody
- Federal Land
- Native American Land
- State Land
- County Boundary
- Township Boundary
- Section Boundary

N

E3 Environmental
Enhancing Execution with Experience

0 750 1,500 3,000 Feet

1:15,840

Map not to scale, for environmental review purposes only.

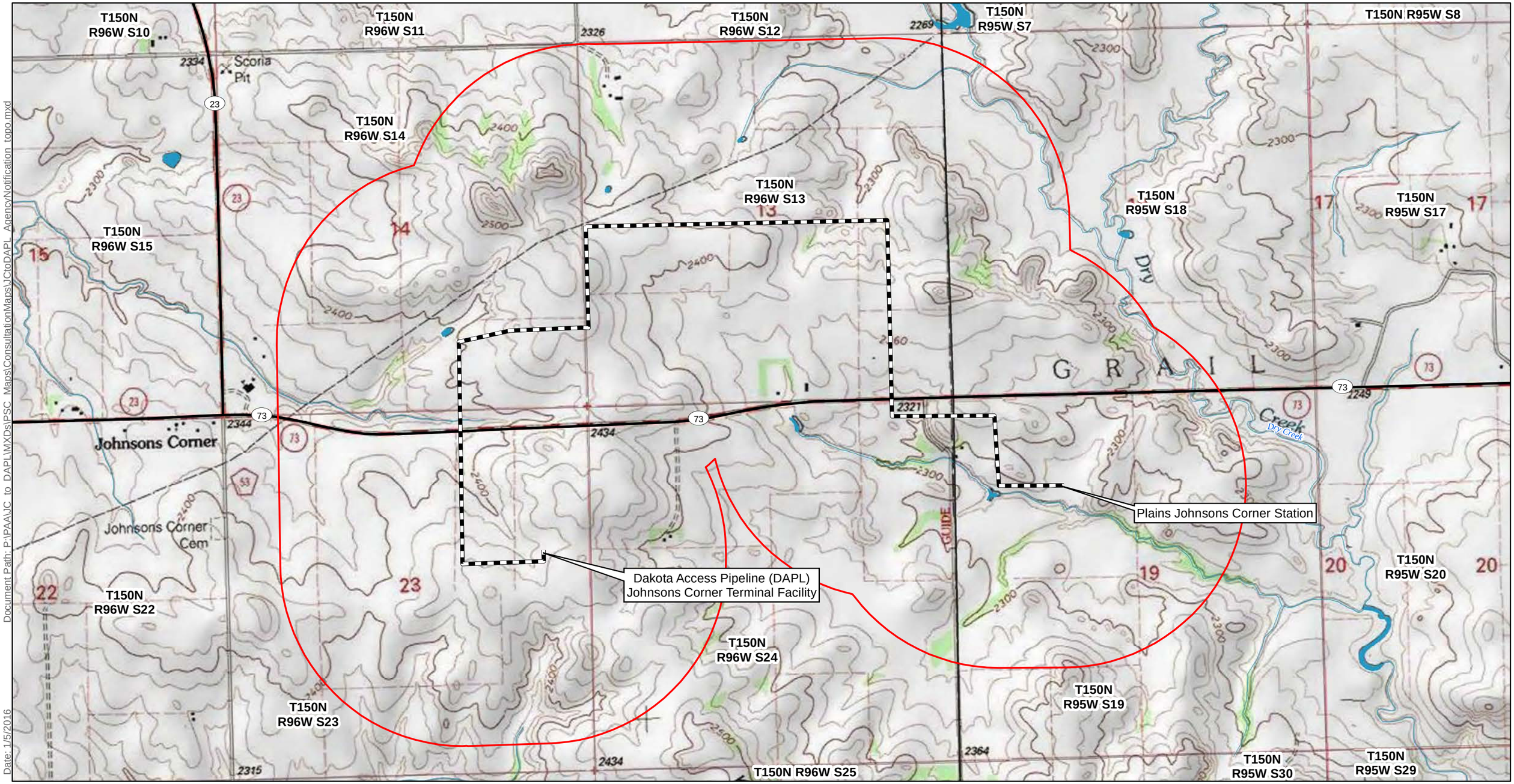
Plains Pipeline, L.P.

Johnsons Corner to Dakota Access Pipeline

Aerial Overview Map

McKenzie County, North Dakota

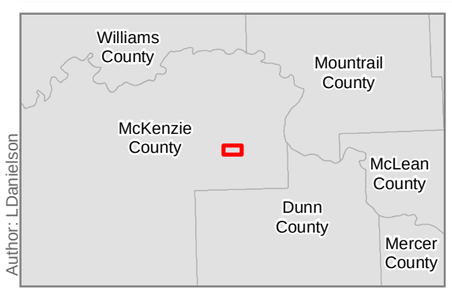
*Only one option will be utilized but comments are requested for both.



Document Path: P:\PAA\JC to DAPL\MXDs\PSC Maps\ConsultationMaps\JCtoDAPL AgencyNotification topo.mxd

Date: 1/5/2016

Author: LDanielson



Proposed Pipeline
Corridor (1-mile)
NHD Stream
NHD Waterbody
Federal Land
Native American Land
State Land
County Boundary
Township Boundary
Section Boundary

N

E3 Environmental
Enhancing Execution with Experience

0 750 1,500 3,000 Feet

1:15,840

Map not to scale, for environmental review purposes only.

Plains Pipeline, L.P.

Johnsons Corner to Dakota Access Pipeline

Topo Overview Map

McKenzie County, North Dakota

*Only one option will be utilized but comments are requested for both.

North Dakota State Historic Preservation Office

Consultation

March 16, 2016

Susan Quinnell
Review and Compliance Coordinator
State Historic Society of North Dakota
North Dakota Heritage Center
612 East Boulevard Avenue
Bismarck, ND 57505-0830

Re: ND SHPO Ref: 15-1415A
Johnsons Corner to DAPL Pipeline Project
Notification of Entity Correction from Plains Pipeline, L.P. to Plains Terminals North Dakota LLC

E3 Environmental (E3) on behalf of Plains All American Pipeline, L.P. (PAA), submitted a Class I and Class III Cultural Resource Inventory (Report) of the Johnsons Corner to Dakota Access Pipeline Project (Project) dated February 6, 2016. The ND SHPO provided concurrence with these findings on February 26, 2016. The original report mistakenly represented that Plains Pipeline, L.P., a subsidiary of PAA, would own and construct the Project. Instead, Plains Terminals North Dakota LLC, also a subsidiary of PAA, will own and construct the Project. The purpose of this letter is to provide your Agency with notification of this correction; no other Project details have been modified since the original letter.

Should you have questions or comments please contact Katie Schmidt at 651-282-0652 or via email, kschmidt@go2e3.com.

Sincerely,

Katie Schmidt

Katie Schmidt, Senior Consultant
E3 Environmental, LLC
871 Jefferson Ave.
St. Paul, MN 55102

STATE HISTORICAL SOCIETY OF NORTH DAKOTA

February 26, 2016

Mr. Garrett Knudsen
Senior Archaeologist
E3 Environmental, LLC
871 Jefferson Avenue
St. Paul, MN 55102

ND SHPO Ref: 15-1415A PSC Plains All-American Pipeline, L.P. "A Class I and Class III Cultural Resource Inventory of the Johnson's Corner Dakota Access Pipeline Project, McKenzie County, North Dakota"

Dear Mr. Knudsen,

We reviewed ND SHPO Ref: 15-1415A PSC Plains All-American Pipeline, L.P. "A Class I and Class III Cultural Resource Inventory of the Johnson's Corner Dakota Access Pipeline Project, McKenzie County, North Dakota," and find the report acceptable.

We concur with a ***"No Significant Sites Affected"*** determination provided the project remains as mapped and described.

Thank you for the opportunity to review this project. Please include the ND SHPO reference number listed above in any further correspondence for this specific project. If you have any questions, please contact either Paul Picha at (701) 328-3574 or ppicha@nd.gov or Susan Quinnell at (701) 328-3576 or squinnell@nd.gov.

Sincerely,

Claudia J. Berg
Director, State Historical Society of North Dakota

February 5, 2016

Susan Quinnell
Review and Compliance Coordinator
State Historic Society of North Dakota
North Dakota Heritage Center
612 East Boulevard Avenue
Bismarck, ND 58505-0830
Phone: (701) 328-3576
Email: squinnell@nd.gov

Plains All American L.P. – Class I and Class III Cultural Resources Inventory of the Johnson's Corner Dakota Access Pipeline Project, McKenzie County, North Dakota-Report

Dear Ms. Quinnell,

In November, 2015, E3 Environmental, LLC (E3) conducted a Class I and a Class III cultural resources inventory for the proposed Plains All American L.P. Johnson's Corner Dakota Access Pipeline Project in McKenzie County, North Dakota. The survey area is comprised of a total of 47.1 noncontiguous acres. No previously recorded or unrecorded cultural resources were documented during field survey and no additional investigation is recommended. Enclosed is a hard copy of the Class I and Class III Cultural Resources Inventory of the Johnson's Corner Dakota Access Pipeline Project, McKenzie County, North Dakota.

This survey was done to supplement areas previously surveyed and detailed in *A Class I and Class III Cultural Resources Inventory for the Johnson's Corner to Alexander Pipeline Project, McKenzie County, North Dakota* prepared in December 2015 by SWCA Environmental Consultants.

Please contact me with any questions or comments, as needed.

Sincerely,

Garrett Knudsen
Senior Archaeologist
E3 Environmental, LLC
871 W Jefferson Ave
St Paul, MN 55102
Direct: (651) 900-0501
gknudsen@go2e3.com

Enclosures: Hard copy of Class I and Class III Cultural Resources Inventory of the Johnson's Corner Dakota Access Pipeline Project, McKenzie County, North Dakota.

Appendix D

Natural Resources Report

Photos courtesy of: Jon Knudsen

Natural Resource Survey Report — Johnson's Corner to Dakota Access Pipeline Project, McKenzie County, North Dakota.

Prepared for:

Plains Terminals North Dakota LLC

Prepared by:

E3 Environmental, LLC

March 2016

E3 ENVIRONMENTAL™
Enhancing Execution with Experience™

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

SECTION 1: INTRODUCTION

1.1 BACKGROUND

E3 Environmental, LLC (E3), at the request of Plains Terminals North Dakota LLC (Plains), performed natural resource surveys and reporting necessary to obtain permits to construct the Johnson's Corner to Dakota Access Pipeline Project (Project). The Project would transport petroleum approximately 3.5 miles, originating at the Plains Johnson's Corner Terminal and terminating at the Dakota Access Pipeline Terminal.

E3 biologists conducted surveys to identify, delineate, and inventory natural resources that could potentially be impacted by pipeline construction and maintenance in order to comply with the North Dakota Public Service Commission's (PSC) siting authority requirements for the Project. These surveys included:

- Raptor nest documentation and status determination
- Wetland and waterbody delineation and jurisdictional characterization
- Woody vegetation delineation and inventory
- Noxious weed inventory and delineation
- Protected species surveillance and habitat assessment

Some portions of the Project were surveyed by SWCA. Spatial data from the SWCA survey was provided to E3, and was used to supplement data collected by E3. This report details the methodologies used by E3 biologists to complete the above surveys and presents the results and recommendations of the surveys to ensure Plains is in compliance with laws overseen by the regulatory agencies.

1.2 REGULATORY JUSTIFICATION

Several federal and state laws protect native wildlife and natural resources from being destroyed or degraded by anthropogenic disturbance. The following Acts and regulations protect certain species and natural resources within McKenzie County (Project Area), and compliance with these Acts and regulations serves as justification for conducting the completed surveys.

1.2.1 CLEAN WATER ACT

The Clean Water Act of 1972 (CWA) (33 U.S.C. §1251 et seq.) prohibits the discharge of fill materials or pollutants into Waters of the United States or associated wetlands (jurisdictional waterbodies) without a permit from the USACE. Wetland and waterbody delineations and associated jurisdictional characterizations were therefore conducted for the Project. The U.S. Army Corps of Engineers (USACE) administers the Nationwide Permit Program (NWP) which is a series of general permits that regulates construction

activities. This Project will seek coverage under the NWP No.12 utility line discharge, which regulates pipeline construction and maintenance in jurisdictional waterbodies.

1.2.2 MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act of 1918 (MBTA) (16 U.S.C. §§ 703–712) protects the majority of native birds species from being killed, sold, transported, harassed, or harmed. This also applies to bird parts, nests, feathers, and eggs. Most species found within the Project Area are protected under this Act, including raptors, which will frequently reuse nest sites.

1.2.3 BALD AND GOLDEN EAGLE PROTECTION ACT

The Bald and Golden Eagle Protection Act of 1940 (BGEPA) (16 U.S.C. §§ 668-668c) offers comprehensive protection for bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) in the United States. The BGEPA prohibits the take of eagles, including parts, nests, or eggs; and any disturbance of protected species, including any activity that could cause injury to the species, nest abandonment, or a decrease in productivity. Suitable roosting habitat, overwintering habitat, or previously-recorded nests for bald and golden eagles were not present within the Project Area.

1.2.4 ENDANGERED SPECIES ACT

The Endangered Species Act of 1973 (ESA) (16 U.S.C. § 1531 et seq.) contains a suite of protective measures pertaining to critically imperiled species at risk of extinction. These include species classified as threatened and endangered (T & E), defined as a species which has the potential of becoming endangered and a species which is in danger of extinction, respectively. Species are listed as threatened or endangered due to natural and anthropogenic factors threatening their existence, including disease, predation, habitat degradation, or inadequate regulation. The ESA also identifies habitats critical to listed species and provides mitigation strategies relating to activities within these habitats. Projects that impact listed species may be required to acquire permits to allow for take or to conduct more intensive field studies.

1.2.5 NORTH DAKOTA PUBLIC SERVICE COMMISSION MITIGATION REQUIREMENTS

The PSC requires utilities to conduct natural resource surveys to obtain a *Certificate of Corridor Compatibility and Route Permit* in order to construct an energy conversion facility or transmission facility (North Dakota Century Code, 2015)(N.D.C.C. Ch. 49-22). These surveys include T & E surveillance, noxious weed delineation, wetland and waterbody delineation and classification, and woody vegetation delineation and inventory for replacement.

SECTION 2: SURVEY CORRIDOR

The Project, which is approximately 3.5 miles in length, is located entirely within private lands in McKenzie County, North Dakota. The Project originates at the Plains Johnson's Corner Terminal within Section 19 T150N:R95W and terminates at the Dakota Access Pipeline Terminal within Section 23 T150N:R96W. E3 conducted natural resource surveys utilizing a typical 250-foot corridor mostly centered upon the proposed Project alignment; this corridor had several neck-downs and bump-outs (deviating from 250 feet), totaling approximately 102.8 acres (Survey Corridor). Natural resource data collected within the Survey Corridor by E3 and SWCA are combined throughout the document, but displayed uniquely within the Appendix A. Refer to Appendix A for maps depicting the Project layout and Survey Corridor. Natural resource surveys were conducted by E3 on November 11, 2015 and by SWCA on October 23, 2015 encompassing portions of five sections within two townships, including:

- T150N:R95W, Section 19
- T150N:R96W, Sections 13, 14, 23, 24

2.1 GENERAL LANDSCAPE CHARACTERIZATION

The Survey Corridor is located entirely within the Northwestern Great Plains (43) Level III ecoregion, encompassing the Missouri Plateau of west-central North Dakota (Omernik, 1987; United States Environmental Protection Agency, 2013). The Northwestern Great Plains is characterized as a semiarid rolling plain of shale, siltstone, and sandstone punctuated by scattered sandstone buttes and badland formations with minimal wetland basins (Omernik & Griffith, 2008). Native shortgrass prairie persists in areas devoid of steep or broken topography, but native prairie has been largely replaced by dryland farming of spring wheat, alfalfa, oats, and sunflowers and by pasture for cattle grazing throughout most of the ecoregion. Habitat zones present in both uplands and wetlands consist of cultivated cropland, introduced perennial grassland and forbland, native grassland, shrubland, forest and woodland, riparian areas, and herbaceous wetlands (Bryce, et al., 1998).

Nested within the Northwestern Great Plains ecoregion, the Survey Corridor occurs in the Missouri Plateau (43a) Level IV ecoregion (USEPA, 2013). The Missouri Plateau (43a) ecoregion was largely unaffected by glaciation and retains its original soils and complex stream drainage pattern (Bryce, et al., 1998). Physiography of the Missouri Plateau is described as moderately dissected, level to rolling plains with isolated sandstone buttes. This area is underlain by soft, calcareous shales, sandstones, and lignite coal. Dryland farming and cattle grazing are typical throughout this ecoregion.

2.2 VEGETATION COMMUNITIES

Vegetation communities are described by their location within United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Major Land Resource Areas (MLRA), which are broad geographic areas characterized by a particular pattern of soil, climate, vegetation, and land use. The Survey Corridor crosses one MLRA: Rolling Soft Shale Plains (MLRA 54)(USDA, NRCS, 2006).

The Rolling Soft Shale Plains are characterized by natural grasslands dominated by western wheatgrass (*Pascopyrum smithii*), green needlegrass (*Nassella viridula*), blue grama (*Bouteloua gracilis*), and little bluestem (*Schizachyrium scoparium*) (USDA, NRCS, 2006). Shrub and forb species including prairie rose (*Rosa arkansana*), western snowberry (*Symphoricarpos occidentalis*), and leadplant (*Amorpha canescens*) are interspersed throughout the uplands and mixed-prairie. Large patches of green ash (*Fraxinus pennsylvanica*), chokecherry (*Prunus virginiana*), and buffaloberry (*Shepherdia argentea*) typically occur in the draws and steep valleys common in this region.

Eight ground-cover types, modeled by the Gap Analysis Program (GAP) as ecological systems, occur within the Survey Corridor. The most dominant ecological systems include, Northwestern Great Plains Mixedgrass Prairie, Western Great Plains Wooded Draw and Ravine, and Western Great Plains Sand Prairie (described below). All ecological systems within the Survey Corridor are included in Table 1 based on United States Geological Survey (USGS) GAP land cover data (US Geological Survey, 2011).

- Northwestern Great Plains Mixedgrass Prairie: This vegetation cover type dominates the upland portions of the Survey Corridor undisturbed by agricultural practices, woody draws, and broken lands. Dominant grasses for this ecological system include western wheatgrass, green needlegrass, and fescue (*Festuca spp.*), although blue grama and needle-and-thread (*Hesperostipa comate*) may also dominate. Shrub species including western snowberry, fringed sagewort (*Artemisia frigida*), and silver sagebrush (*Artemisia cana*) are also associated with this ecological system, and were observed within the Survey Corridor. Cool-season exotics such as Kentucky bluegrass (*Poa pratensis*), smooth bromegrass (*Bromus inermis*), and Japanese brome (*Bromus japonicas*) can increase in dominance due to intensive grazing. This system is one of the most disturbed grassland systems in North Dakota (Comer, et al., 2003).

- Western Great Plains Wooded Draw and Ravine: This ecological system is dominant among the breaks and ravines along the tributaries to Cherry and North Fork creeks within the Survey Corridor. These areas are typically identified by woody vegetation associated with steep topography; shrublands composed of silver sagebrush and chokecherry and woodlands composed of green ash and

American elm (*Ulmus Americana*) are dominant components of the landscape (Comer, et al., 2003).

- Western Great Plains Sand Prairie: This unique ecological system is located sparing within the Survey Corridor, interspersed with mixedgrass prairie. Tallgrass, mixedgrass, and shortgrass species can all be associated with this ecological system, which is defined by its course-textured, sandy soils. Prairie sandreed (*Calamovilfa longifolia*) functions as a dominant throughout the range of the system.

Table 1. GAP vegetation types and acreages within the Survey Corridor.

Vegetation Type	Acres	% of Survey Corridor
Northwestern Great Plains Mixedgrass Prairie	90.94	88.5%
Western Great Plains Wooded Draw and Ravine	3.37	3.3 %
Western Great Plains Sand Prairie	2.67	2.6%
Developed, Low Intensity	2.05	2.0%
Developed, Open Space	1.59	1.5%
Cultivated Cropland	0.89	0.9%
Northwestern Great Plains Shrubland	0.73	0.7%
Western Great Plains Depressional Wetland Systems	0.52	0.5%
Total	**102.77**	**100.0%**

2.3 CLIMATE

The Project Area climate is semi-arid to sub-humid and continental, with warm summers and very cold winters (Aziz, Champa, & Vanderbusch, 2006). In winter, the average temperature is 13 degrees Fahrenheit, with an average daily minimum temperature of 1 degree Fahrenheit. In summer, the average temperature is 72 degrees Fahrenheit, with an average daily maximum temperature of 88 degrees Fahrenheit. Mean annual precipitation for the Project Area is 15 inches. Most of the precipitation falls during the warm period with about 80 percent falling April through September (Aziz, Champa, & Vanderbusch, 2006). The average seasonal snowfall is approximately 35 inches.

National Weather Service data for the Williston, North Dakota monitoring station (located approximately 40 miles northwest of Survey Corridor) recorded precipitation totals for the period from January 2015 to December 2015 to be 12.04 inches as described in Table 2 below (National Oceanic and Atmospheric Adminsistration (NOAA),

2015). The normal precipitation average for this time period is 14.37 inches. For this time period, rainfall was 2.33 inches below normal.

Table 2. Monthly recorded precipitation at National Weather Service Station in Williston, North Dakota.

Month	Recorded Precipitation	Normal Precipitation	Difference (inches)
January	0.48	0.59	-0.11
February	0.46	0.39	0.07
March	0.47	0.71	-0.24
April	0.27	1.00	-0.73
May	1.82	1.92	-0.10
June	1.90	2.52	-0.62
July	1.55	2.54	-0.99
August	0.89	1.45	-0.56
September	2.22	1.06	1.16
October	1.07	0.92	0.15
November	0.36	0.65	-0.29
December	0.55	0.62	-0.07
Total	**12.04**	**14.37**	**-2.33**

Source: NOAA preliminary climate Data Reports

2.4 SOILS

Soil types intersected by the Survey Corridor were analyzed through the NRCS Web Soil Survey in February of 2016 (NRCS, 2016a). Described below are the components of dominant soil orders within the Survey Corridor, including higher coverages of Amor, Belfield, Brandenberg, Cabba, Chama Daglum, Dogtooth, Farnuf, Flasher, Janesberg, Rhoads, Savage, Sen, and Zahl soils. A list of all soil classifications and the acreage encompassed by the Survey Corridor are located in Table 3.

2.4.1 BELFIELD

The Belfield soil series is composed of deep and very deep, well to moderately well drained, slowly permeable soils. These soils are formed from alkaline, calcareous residuum or alluvium, and are located in uplands, flats, terraces, and swales with slopes of 0 to 9 percent. Belfield soils are present in areas with a mean annual temperature of 43 degrees Fahrenheit, receiving 15 inches mean annual precipitation. Small grain agriculture, hay, and pasture are the primary land uses associated with soils in the Belfield series, while potential native vegetation populations include western wheatgrass, blue grama, and green needlegrass (NRCS, 2016b).

2.4.2 BRANDENBERG

The Brandenberg soil series is composed of very deep, excessively drained soils that form 10 to 20 inches above shattered porcelanite bedrock from porcelanite residuum. These soils have moderate to very rapid permeability with 2 to 70 percent slopes. Brandenberg soils are present in areas with a mean annual temperature of 43 degrees Fahrenheit, receiving 16 inches mean annual precipitation. Rangeland is the primary land use associated with soils in the Brandenberg series, while potential native vegetation populations include threadleaf sedge (*Carex filifolia*), short and mid-prairie grases, creeping juniper (*Juniperus horizontalis*), and other shrubs (NRCS, 2016b).

2.4.3 CABBA

The Cabba soil series is composed of shallow, well drained soils that are formed from residuum or colluvium or partial consolidations of loamy, sedimentary soil beds. These soils are located on sedimentary plains, escarpments, and hills with slopes of 2 to 70 perecnt. Cabba soils are present in areas with a mean annual temperature of 43 degrees Fahrenheit, receiving 16 inches mean annual precipitation. Rangeland is the primary land use associated with soils in the Cabba series, while potential native vegetation populations include little bluestem, western wheatgrass, needle-and-thread, prairie sandreed, bluebunch wheatgrass, green needlegrass, plains muhly (*Muhlenbergia cuspidate*), and many common forbs and shrubs (NRCS, 2016b).

2.4.4 CHAMA

The Chama soil series is composed of well drained, moderately to slowly moderately permeable soils that are formed from materials resulting from weathered soft siltstone, mudstone, and shale. These soils are located in upland areas with slopes of 0 to 46 percent. Chama soils are present in areas with a mean annual temperature of 42 degres Fahrenheit, receiving 15 inches mean annual precipitation. Small grain agriculture and rangeland are the primary land uses associated with soils in the Chama series, while potential native vegetation populations include western wheatgrass, needle-and-thread, and blue grama (NRCS, 2016b).

2.4.5 DAGLUM

The Daglum soils series is composed of deep and very deep, moderately well and well drained, slowly or very slowly permeable soils. These soils are formed in clayey alluvium or residuum on foot slopes and on upland or terrace swales, with slopes of 0 to 25 percent. Daglum soils are present in areas with a mean annual air temperature of about 42 degrees Fahrenheit, receiving 16 inches mean annual precipitation. Rangeland, pasture, and small grain agriculture are primary the land uses associated with soils in the Daglum series, while potential native vegetation populations include western wheatgrass, blue grama, green needlegrass, threadleaf sedge, and forbs (NRCS, 2016b).

2.4.6 DOGTOOTH

The Dogtooth soil series is composed of moderately deep, well drained, high permeability soils formed from residual components of weathered saline-alkali, calcareous, soft shale, siltstone, or mudstone. These soils are located in upland areas with slopes of 0 to 25 percent. Dogtooth soils are present in areas with a mean annual temperature of 42 degrees Fahrenheit, receiving 15 inches mean annual rainfall. Rangeland and pasture are the primary land uses associated with soils in the Dogtooth series, while potential native vegetation populations include western wheatgrass, blue grama, inland saltgrass, sedges, prickly pear (*Opuntia polyacantha*), clubmoss, and some legumes (NRCS, 2016b).

2.4.7 SAVAGE

The Savage soil series is composed of very deep, well drained soils that are formed in silty alluvium, loess, or in glaciogluvial or glaciolacustrine material. These soils are located on alluvial fans, stream terraces, drainageways, sedimentary plains, and till plains with slopes of 0 to 25 percent. Savage soils are present in areas with a mean annual temperature of 42 degrees Fahrenheit, receiving 16 inches mean annual precipitation. Rangeland, dryland, and irrigated crop agriculture are the primary land uses associated with soils in the Savage series, while potential native vegetation populations include bluebunch wheatgrass, western wheatgrass, green needlegrass, and perennial forbs (NRCS, 2016b).

2.4.8 SEN

The Sen soil series is composed of well drained, moderately permeable soils that are formed in calcareous siltstone or shale. These soils are located in upland plains with slopes of 0 to 25 percent. Sen soils are present in areas with a mean annual temperature of 42 degrees Fahrenheit, receiving 15 inches mean annual precipitation. Small grain agriculture is the primary land use associated with soils in the Sen series, while potential native vegetation populations include green needlegrass, needle-and-thread, western wheatgrass, blue grama, and a variety of forbs (NRCS, 2016b).

Table 3. Soil components and acreages within Survey Corridor.

Map Unit Symbol	Soil Types	Slopes (percent)	Acres within Survey Corridor	Percent within Map Unit
E0447B	Daglum-Belfield complex	0 to 6	3.13	2.9%
E0515B	Rhoades-Daglum complex	0 to 6	3.01	2.8%
E0559B	Dogtooth-Janesburg silt loams	0 to 6	1.51	1.4%
E0617B	Belfield-Savage-Daglum complex	0 to 6	16.31	21.1%
E0701F	Dogtooth-Janesburg-Cabba complex	6 to 35	3.22	2.9%
E0837C	Savage silty clay loam	6 to 9	2.59	2.4%
E1009B	Moreau-Barkof silty clays	3 to 6	0.04	0.0%
E2213B	Golva silt loam	2 to 6	3.29	2.3%
E2617F	Cabba-Chama-Shambo loams	9 to 50	2.82	2.6%
E2737C	Chama-Cabba-Sen silt loams	6 to 9	19.52	19.1%
E2741D	Cabba-Chama-Sen silt loams	9 to 15	22.26	19.8%
E2913B	Chama-Sen-Cabba silt loams	3 to 6	6.04	5.6%
E3013D	Brandenburg-Searing-Dogtooth complex	6 to 15	7.85	6.0%
E3013F	Brandenburg-Cabba-Dogtooth complex	15 to 70	11.20	11.0%
Survey Corridor Total			**102.77**	**100.0%**

Source: **(NRCS, 2016a)**

SECTION 3: SURVEY METHODOLOGY

E3 completed natural resource surveys within the Survey Corridor on November 11, 2015. Natural resource surveys were performed on foot by a team of E3 biologists following guidelines published by the PSC, USACE, Bureau of Land Management (BLM), and United States Forest Service (USFS). Data were collected using Trimble® Juno T41/5, Trimble® GeoExplorer 6000 XT, or Trimble® GeoExplorer 6000 XH handheld GPS units facilitated with Terrasync® GIS software. Binoculars and spotting scopes assisted biologists with the observation and identification of wildlife within the Survey Corridor. All natural resource surveys were conducted concurrently, allowing entire tracts of the Survey Corridor to be completed during a single site visit. Data acquired from SWCA collected on October 23, 2015 was used to supplement E3's data for the Survey Corridor.

3.1 RAPTOR NESTS

Pedestrian raptor nest surveys were conducted by E3 biologists within the Survey Corridor and within line-of-site from the Survey Corridor to determine activity status for known nests and record previously undocumented nests during November, 2015. These surveys were conducted to document raptor nests that could be potentially disturbed by construction activities and apply surface disturbance stipulations, if necessary, in accordance with recommendations by the USFWS to prevent violating the MBTA. Suitable nesting substrates, such as ash and elm stands, were searched for raptor nests within the Survey Corridor. Located nests were observed from a distance suitable to avoid disturbing the birds, using binoculars or spotting scopes to identify adult birds exhibiting nesting or brooding behavior (e.g. incubating or behaving agonistically). If

nests were determined inactive, the areas under, around, and in the nests were searched for signs of recent activity (fresh mute, regurgitated pellets, eggs, eggshell fragments, prey remains, etc.) if within the Survey Corridor. Accurate GPS locations of raptor nests were recorded at each nest site and the nest status, condition, substrate, and species of raptor using the nests were documented (if possible). Annual activity status and productivity determinations for nests were unlikely due surveys being conducted outside of the nesting window. However, many species of raptors (e.g. red-tailed hawks) reuse nesting sites annually; active nests in future years would have surface disturbance stipulations applied.

3.2 WETLANDS

Remote sensing of the Survey Corridor indicates both lentic and lotic wetlands are present across the landscape, especially near the Dry Creek and North Fork Creek drainages. The National Wetlands Inventory (NWI) does not contain any wetlands that intersect the Survey Corridor, but the National Hydrography Dataset (NHD) contains two combined features that occur within the Survey Corridor: an intermittent stream and palustrine emergent wetland (USFWS, 2016a and USGS, 2015). These features are described in the waterbodies section of this report. E3 biologists identified, defined, and delineated all wetlands observed during field surveys using methodology in accordance with the USACE *Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* (Environmental Laboratory, 2010). For an area to be delineated as a regulated wetland, the hydrophytic vegetative, wetland hydrology, and hydric soils must all be present and consistent with federal classification criteria. Wetlands inventoried within the Survey Corridor were classified using the Cowardin System, developed by the USFWS (Cowardin et al. 1979).

3.2.1 WETLAND VEGETATION

More than 50 percent of the vegetative cover must consist of obligate or facultative wetland species as determined by the dominance test using the 50/20 rule; the prevalence index; or by evidence of morphological adaptation (USACE 1987). Hydrophytic vegetation was determined to be present if any of these three indicators were satisfied. If none of the indicators are satisfied, then hydrophytic vegetation is absent unless (1) indicators of hydric soil and wetland hydrology are present and (2) the site meets the requirements for a problematic wetland situation.

3.2.2 WETLAND HYDROLOGY

To be considered a wetland, there must be evidence of periodic or permanent ground inundation. The presence of wetland hydrology was evaluated by recording the extent of observed surface flows, the depth of inundation, the depth to saturated soils, and the depth to free water in soil test pits. Other evidence such as water-stained leaves or general drainage patterns can indicate a site has the proper hydrology to be a wetland.

3.2.3 WETLAND SOILS

The National Technical Committee for Hydric Soils (NTCHS) defines a hydric soil as a soil that is formed under conditions of saturation, flooding, or ponding that occurs long enough during the growing season to develop anaerobic conditions (or conditions of limited oxygen) at or near the soil surface and that favor the establishment of hydrophytic vegetation. The USDA-NRCS *Field Indicators of Hydric Soils in the United States*—Guide for Identifying and Delineating Hydric Soils, Version. 7.0 was used to determine the presence of hydric soils (2010). The soil conditions within the Survey Corridor were sampled by taking cores along wetland/upland boundary to examine the water table depth and to identify hydric indicators.

3.3 WATERBODIES

A review of the National Hydrography Dataset (NHD) identified one intermittent stream and one associated palustrine emergent wetland that intersect the Survey Corridor, both of which are likely jurisdiction due to their hydrologic contribution to Dry Creek. E3 biologists confirmed the presence of these waterbodies and delineated their boundaries by identifying and mapping the ordinary high water mark (OHWM) of each feature. Common indicators of an OHWM include open water or evidence of a natural line visible on the bank, shelving or terracing, changes in soil characteristics, vegetation changes, the presence of litter and debris, and watermarks on structures that are inundated during normal high water conditions. The OHWM typically represents the potential limits of the USACE's jurisdiction. However, the USACE has full discretion in determining the jurisdictional status of referenced wetlands and waterbodies in this report.

Additional waterbodies were located and delineated in the field during field surveys to provide a comprehensive summary of wetland and waterbody features intersected by the Survey Corridor. A jurisdictional characterization was made for each waterbody, following the criteria outlined in the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (2007).

3.4 WOODY VEGETATION

The PSC requires utilities to adhere to their tree and shrub mitigation plan, which specifies replacement and monitoring requirements as well as a maximum construction corridor of 50 feet through areas of woody vegetation. E3 biologists mapped, characterized, and inventoried woody vegetation, defined as trees and shrubs, present within the Survey Corridor. The boundaries of each distinct woody vegetation habitat were mapped and are depicted on the Project maps in Appendix A. Woody vegetation within each habitat was inventoried using several PCS-approved techniques, depending on habitat type and size. Direct tallies (100%) were employed in forested upland lands, shrublands, and riparian zones for all trees greater than one-inch diameter at breast height (DBH) when possible; sub-sampling was employed in woodlands too dense to

directly count. Large shrublands (typically dominated by snowberry) were inventoried by measuring percent cover, unless habitat patches were small enough to count each individual. Regardless of DBH, all trees and shrubs were mapped, characterized, and inventoried within shelterbelts and windbreaks. E3 biologists taxonomically identified and tallied all species within each habitat. Refer to Appendix B for a table detailing the woody vegetation identified within the Survey Corridor.

3.5 NOXIOUS WEEDS

Because North Dakota is home to many large-scale energy infrastructure construction projects, the proliferation of noxious weed and invasive plant species is a growing concern. Noxious weeds are defined by the Federal Noxious Weed Act of 1974 as "a plant which is of foreign origin, is new to, or is not widely prevalent in the United States, and can directly or indirectly injure crops or other useful plants, livestock or the fish and wildlife resources of the United States, or public health" (Title 7 United States Code 2801-2814, 2011). The State of North Dakota defines noxious weeds as "weeds that are difficult to control, easily spread, and injurious to public health, crops, livestock, land, or other property" (North Dakota Century Code 4.1-47-01, 2015). North Dakota has County Weed Boards in all 53 counties, each of which has the opportunity to add noxious weeds to the state list for regulation only within their jurisdiction.

Noxious weeds are often nonnative and acclimated to survive in opportunistic conditions. Known to easily proliferate on disturbed lands, these plants actively invade landscapes and prevent native plant species from growing, often resulting in monocultures. Noxious weeds could also adversely affect a wide range of ecosystems by increasing bare soil, which could have detrimental impacts to water quality and sedimentation (U.S. Forest Service, 2007); reducing the quality of habitat for many terrestrial species, while also decreasing the carrying capacity of the land; and losses in agricultural productivity.

The North Dakota Department of Agriculture identifies 11 plant species as noxious weeds (2016). McKenzie County recognizes 18 noxious weed species, which are identified as being problematic specifically within its boundaries (North Dakota Department of Agriculture, 2016) (Table 4).

Table 4. State and County designated noxious weeds with the potential to occur within the Survey Corridor.

Common Name	Scientific Name	Noxious Designation	
		North Dakota	McKenzie County
Absinth wormwood	*Artemisia absinthium*	X	X
Baby's breath	*Gypsophila paniculata*		X
Black henbane	*Hyoscyamus niger*		X
Canada thistle	*Cirsium arvense*	X	X
Common burdock	*Arctium minus*		X
Dalmatian toadflax	*Linaria dalmatica*	X	X
Diffuse knapweed	*Centaurea diffusa*	X	X
Field bindweed	*Convolvulus arvensis*		X
Halogeton	*Halogeton glomeratus*		X
Houndstongue	*Cynoglossum officinale*		X
Leafy spurge	*Euphorbia esula*	X	X
Musk thistle	*Carduus nutans*	X	X
Purple loosestrife	*Lythrum salicaria*	X	X
Russian knapweed	*Acroptilon repens*	X	X
Saltcedar	*Tamarix ramosissima*	X	X
Spotted knapweed	*Centaurea stoebe*	X	X
Yellow starthistle	*Centaurea solstitialis*		X
Yellow toadflax	*Linaria vulgaris*	X	X

Source: North Dakota Department of Agriculture, 2016

E3 conducted surveys for noxious weeds recognized by North Dakota and McKenzie County within the Survey Corridor after the growing season in 2015; therefore, biologists could only identify noxious weeds that had residual growth. Noxious weed infestations were identified and delineated in the field by mapping their boundaries using Trimble GPS units. Percent cover for all noxious weeds within each patch was estimated for each species. Refer to the Project maps in Appendix A for the locations of these features.

3.6 THREATENED AND ENDANGERED SPECIES

The USFWS Information, Planning, and Conservation System (IPaC) was accessed on September 14, 2015 to obtain information regarding the presence of T & E species within the Survey Corridor (Table 5). This information does not represent a comprehensive survey, but rather acknowledges the potential presence of listed species within the Survey Corridor. The USFWS identifies 10 threatened, endangered, or candidate species that have the potential to occur within the Survey Corridor or could potentially be impacted by development within the Survey Corridor (USFWS, 2016b). However, no critical habitat for these species is currently identified within the Survey Corridor. These listed species were surveyed for opportunistically during field visits in 2015.

Table 5. Federally listed species with the potential to occur within the Project Area.

Common Name	Scientific Name	Federal Status
Interior least tern	*Sterna antillarum athalassos*	Endangered
Piping plover	*Charadrius melodus*	Threatened
Rufa red knot	*Calidris canutus rufa*	Threatened
Sprague's pipit	*Anthus spragueii*	Candidate
Whooping crane	*Grus americana*	Endangered
Pallid sturgeon	*Scaphirhynchus albus*	Endangered
Dakota skipper	*Hesperia dacotae*	Threatened
Black-footed ferret	*Mustela nigripes*	Experimental, non-essential
Gray wolf	*Canis lupus*	Endangered
Northern long-eared bat	*Myotis septentrionalis*	Threatened

Source: (USFWS, 2016b).

3.6.1 INTERIOR LEAST TERN

Federal Status: Endangered

The interior least tern is the smallest member of the gull and is federally listed as endangered due to river channelization and impoundment, water pollution, and lower water levels. The interior least tern is found throughout major interior rivers of the United States, including the Mississippi and Missouri rivers, where terns nest in bare, sandy areas along open water bodies. Nests are shallow holes and constructed between late April and August. Least terns prefer habitat near open or flowing water, where they hover in search of food, and dive for small fish in the water (USFWS, 2016c). The interior least tern is identifiable by its small size, measuring at approximately nine inches in length. Breeding adults have gray upper bodies and white lower bodies, with a black

cap, black nape, and black eye stripe. Vocalization is short and high pitched (USFWS, 2016c).

3.6.2 PIPING PLOVER

Federal Status: Threatened

The piping plover is a small shorebird that is federally listed as threatened due to human disturbance and habitat destruction. The piping plover is identifiable by its small size and stocky stature, with a sandy brown colored upper body, and white lower body. During the breeding season, adults have a black forehead, a black breast band, and an orange bill (USFWS, 2016c). This species nest on open, sparsely vegetated sand or gravel beaches adjacent to alkali wetlands; and on beaches, sand bars, and dredged material islands of major river systems (USFWS, 2016c).

3.6.3 RUFA RED KNOT

Federal Status: Threatened

The rufa subspecies of the red knot is a medium sized shorebird that is federally listed as threatened due to horseshoe crab overharvesting, coastal development, and climate change. The rufa red knot is identifiable by its proportionally large wingspan of 20 inches to its body length of 9 inches. This bird is a larger member of the sandpiper family, with a short, straight bill that tapers to the tip. During breeding, rufa red knots bear a reddish breeding plumage, which is gray the rest of the year (USFWS, 2016c). Migratory habits and habitat requirements of this species are poorly understood, especially for populations utilizing midcontinent and intercontinental flyways. Migration routes are typically between South America and Canada, with inland stopovers in the Great Plains, Great Lakes, and various areas within the Mississippi Valley (USFWS, 2016c).

3.6.4 SPRAGUE'S PIPIT

Federal Status: Candidate

The Sprague's pipit is a small songbird that is a candidate for federal listing due to human habitat disturbance and habitat loss. The Sprague's pipit is identified by its light gray plumage, with dark brown primaries that are edged in white. This small bird delivers a distinctive flight song, and is known to hover in the air for minutes at a time, before steeply diving down to its nest (National Audubon Society, 2015). This species prefers prairie and grassland areas with little disturbance; it is deterred by the grazing and agricultural practices which have replaced much of its natural habitat. Sprague's pipit, unlike the American pipit, does not occur in flocks and eludes observation by covering in short grass within dry prairies. Nesting occurs on bare ground within prairie depressions or grass clumps.

3.6.5 WHOOPING CRANE

Federal Status: Endangered

The whooping crane is a large bird species that is federally listed as endangered due to habitat destruction and historic over-hunting. The whooping crane is identified by its height, standing erect at five feet, and by its snow white plumage, with black primaries. This large-bodied bird is known by its vocal tone, which is a loud, single note that is vocalized when alarmed. The whooping crane may live up to 30 years (USFWS, 2016c). This species prefers a variety of wetland habitats in both salt and fresh water. Nesting occurs in wetland potholes in Canada, predominantly consisting of bulrush, but also including populations of cattail, sedge, musk-grass, and other common aquatic plants. Nest sites are typically found in shallow diatom ponds. Migration paths include stops in a variety of landscapes, although wetlands are preferred throughout the route (USFWS, 2016c).

3.6.6 PALLID STURGEON

Federal Status: Endangered

The pallid sturgeon is an aquatic fish that is federally endangered, primarily due to the habitat destruction resulting from river channelization and damming. The pallid sturgeon is identified by its flat, shovel-shaped snout, with a long, slender, and fully plated caudal peduncle. Consistent with other sturgeon species, the mouth of the pallid sturgeon is ventrally positioned, protrusible, and toothless. This species has a cartilaginous skeletal structure (USFWS, 2016c). The pallid sturgeon is a large river obligate, primarily in Missouri and Mississippi River Systems, in areas with diverse habitat options. Pallid sturgeons prefer benthic environments with predominantly sandy and fine substrates, with successful populations of micro-invertebrates and deep water for spawning activity (USFWS, 2016c).

3.6.7 DAKOTA SKIPPER

Federal Status: Threatened

The Dakota skipper is a butterfly species listed as federally threatened due to habitat replacement for agricultural development. The Dakota skipper is identified by its one-inch wingspan and thick body, with an orange-brown color and brown characteristic wing markings. This butterfly has stronger wing motions compared to other species, resulting in faster and more powerful flight (USFWS, 2016c). The Dakota skipper is a low mobility species, therefore has short dispersal ranges (USFWS, 2015). Suitable Dakota skipper habitat is described as native prairie grasslands with minimal degradation due to anthropogenic disturbance or invasive species establishment (USFWS, 2015).

3.6.8 BLACK-FOOTED FERRET

Federal Status: Experimental Population, Non-essential

The black-footed ferret is a small member of the weasel family listed as federally endangered due to habitat destruction. The black-footed ferret is identified by its slender, tan body with black limbs, and short paws developed for digging. This species has a large skull and strong jaws developed for carnivorous diets, consisting primarily of prairie dogs (USFWS, 2016c). This species is an obligate of prairie dog colonies where they predate upon prairie dogs and use their burrows to brood young. The black-footed ferret was extirpated from the wild by 1986, however numerous experimental populations have been introduced throughout the central United States and northern Mexico (USFWS, 2016c).

3.6.9 GRAY WOLF

Federal Status: Endangered

The gray wolf is a large canine species that is federally listed as endangered due to habitat destruction, human interference, and overhunting. The gray wolf is identifiable by its canine body shape, long bushy tail with a black tip, and a mix of gray and brown coat colors. The average size of a gray wolf is 3-5 feet in length, weighing approximately 60-145 pounds (USFWS, 2016c). This species prefers a wide range of habitat, including forests, plains, prairies, agricultural areas, swamps, and barren lands, but has been extirpated from most of its historic range. Dens are located near water and dug into well-drained soil on a south-facing slope, under boulders, among tree roots, or in cut banks, hollow logs, or other natural structures. This species is a roaming animal, therefore are wide-ranging and rare to encounter (USFWS, 2016c).

3.6.10 NORTHERN LONG-EARED BAT

The northern long-eared bat (NLEB) is a federally threatened species not only due to habitat destruction, but also due to onset white-nose syndrome (WNS), which affects many bat species in the United States. NLEBs are medium sized bats with a body length of 3-4 inches and a wingspan of 9-10 inches. Their fur color ranges medium to dark brown on the back and light brown on the underside. This bat is distinguished by its long ears (USFWS, 2016c). During the summer months, this small mammal roosts individually or in colonies underneath bark, or in any indentations on both live and dead trees. The NLEBs tend to select tree stand roosts based on a range of factors, including the ability of the tree to retain loose bark and provide crevices or cavities for cover. Signs of roost presence include fallen loose bark and fecal matter in concentrated areas near tree bases in older stands. Breeding begins in late summer or early fall (USFWS, 2016c). Currently, the NLEB is managed as threatened under the 4(d) rule.

SECTION 4: RESULTS

4.1 RAPTOR NESTS

Two raptor nests, a red-tailed hawk (*Buteo jamaicensis*) nest and a nest of an unknown raptor species, were recorded by E3 biologists within line-of-site of the Survey Corridor during pedestrian surveys in November of 2015. Although both nests are located outside of the Survey Corridor, their recommended disturbance buffers (when active) intersect the Survey Corridor. Both nests were inactive during field survey due to natural raptor phenology; however, they could potentially be active in subsequent years. Therefore, all nests recorded in 2015 will be re-surveyed in 2016 to evaluate activity status. In the event a nest is found to be active, appropriate measures, recommended by the USFWS, such as disturbance buffers will be implemented to mitigate Project impacts.

4.2 WETLANDS

E3 identified and delineated zero wetlands within the Survey Corridor (Table 6). However, two jurisdictional waterbodies were identified during field surveys (see below).

4.3 WATERBODIES

E3 identified and delineated two waterbodies within the Survey Corridor, totaling approximately 0.5 acres (Table 6). These features included an intermittent stream (identified by the NHD) and a palustrine emergent wetland/pond which exhibited an OHWM (not contained within available datasets). Both of these waterbodies were characterized as jurisdictional during surveys due to their semi-permanence and hydrological influence on nearby Dry Creek; however, the USACE has final authority on jurisdictional status. Refer to the Project maps in Appendix A for the location of these features.

Table 6. Wetlands, Waterbodies, and their Associated Acreages and Jurisdictional Determinations within the Survey Corridor.

Water Feature ID	Feature Type	Data Source	Jurisdictional Determination*	PCN Required	Crossing Length (ft)	Surveyed Acres
WB-01	Waterbody	NHD	Yes	No	223	0.4
WB-02	Waterbody	None	Yes	No	44	0.1

*USACE has final authority over jurisdictional status

4.4 WOODY VEGETATION

Woody vegetation was prevalent throughout the Survey Corridor, where shrub communities of western snowberry, silver buffaloberry, creeping juniper, and silver sage intermix within the grasslands, forming a mosaic across the landscape. The scattered draws and swales in region are typically dominated by narrow stands of green ash intermixed with chokecherry and elm, though these features were mostly absent from

the Survey Corridor. A total of 88 woody vegetation patches were mapped within the Survey Corridor during field surveys by E3 and SWCA, totaling 11.8 acres. Of the 88 patches, 46 (0.2 acres) are woodlands, shelterbelts, or ornamentals and 42 (11.5 acres) are shrub communities. Appendix B lists the species inventory within each patch, the estimated number of trees that will be destroyed with a 50-foot permanent ROW, and the estimated mitigation (2:1) for each woody vegetation patch. Because trees and shrubs will likely be restored using different methods, Appendix B lists the two patch-types separately. Table 7 lists all woody vegetation mapped within the Survey Corridor by species, with the total number disturbed and the estimated mitigation.

Table 7. Total number of trees/shrubs by species disturbed by the 50-ft Survey Corridor and the estimated mitigation number per species.

Tree Species	Sum within Survey Corridor	Sum within 50-ft Const. ROW	Sum of Est. Mitigation
American Elm	2	0	0
American Plum	1	0	0
Chokecherry	94	0	0
Colorado Blue Spruce	35	15	30
Green Ash	25	1	2
Peachleaf Willow	26	0	0
Plains Cottonwood	1	0	0
Rocky Mountain Juniper	1	0	0
Russian Olive	4	1	2
Siberian Elm	1	0	0
Siberian Peashrub	1	0	0
Silver Buffaloberry	19	0	0
Silver Sage Brush	2	0	0
Grand Total	**212**	**17**	**34**

4.5 NOXIOUS WEEDS

A total of 12 noxious weed patches were mapped by E3 biologists within the Survey Corridor, totaling 1.1 acres (Table 8). These patches were composed of two total species listed by McKenzie County (Canada thistle and common burdock) and one species (Canada thistle) listed by the State of North Dakota. These patches were typically located in areas disturbed by farming, grazing, or road construction. All but one weed infestation contained dense patches of Canada thistle, which was especially prevalent near roadsides and disturbed fields. One patch of common burdock was identified and mapped within a hawthorn woodland.

Table 8. Noxious weed patches within the Survey Corridor.

Weed ID	Patch Type	Percent Cover	Acres
NX-01	Canada Thistle	40	0.42
NX-02	Canada Thistle	15	0.34
NX-03	Canada Thistle	5	0.24
NX-04	Common Burdock	25	0.01
NX-05	Canada Thistle	10	0.01
NX-06	Canada Thistle	10	0.02
NX-07	Canada Thistle	3	0.00
NX-08	Canada Thistle	3	0.04
NX-09	Canada Thistle	1	0.00
NX-10	Canada Thistle	2	0.00
NX-11	Canada Thistle	2	0.00
NX-12	Canada Thistle	5	0.00

4.6 THREATENED AND ENDANGERED SPECIES

No candidate, threatened, or endangered species were encountered by E3 biologists during field surveys within the Survey Corridor. The following sections detail the potential effects the Project could have on listed species.

4.6.1 INTERIOR LEAST TERN

Federal Status: Endangered

The Missouri River, located approximately 9 miles to the east of the Project, provides suitable breeding and nesting habitat for least terns. However, the Survey Corridor does not contain the sandbars, riverbanks, and broad beaches necessary for colonial nesting. Due to the lack of nesting habitat within the Survey Corridor, impacts to the interior least tern are not anticipated.

4.6.2 PIPING PLOVER

Federal Status: Threatened

Lake Sakakawea and the Missouri River, located approximately 9 miles to the east of the Project, provide suitable breeding and nesting habitat for piping plovers. This area is mapped as critical habitat by the USFWS. However, the Survey Corridor does not contain the sandbars or gravel beaches necessary for nesting. Due to the lack of nesting habitat within the Survey Corridor, impacts to the piping plover are not anticipated.

4.6.3 RUFA RED KNOT

Federal Status: Threatened

North Dakota is a possible migration stopover in spring and autumn for the rufa red knot, particularly within Lake Sakakawea and its major tributaries. Due to the lack of suitable foraging habitat within the Survey Corridor, impacts to this species and its associated habitat are not anticipated.

4.6.4 SPRAGUE'S PIPIT

Federal Status: Candidate

Potentially suitable breeding habitat for the Sprague's pipit was identified in areas where undisturbed grasslands were observed within the Survey Corridor. If construction activities occur during the breeding season, E3 recommends a clearance sweep of the Survey Corridor to identify nesting locations. In the event that an active nest site(s) would be identified, then appropriate avoidance mitigation such as establishing a buffer is recommended to avoid direct impacts.

4.6.5 WHOOPING CRANE

Federal Status: Endangered

Suitable migratory habitat for the whooping crane is potentially located within the Survey Corridor. If whooping cranes are sighted within 0.5 miles of the Project, Plains would suspend all heavy equipment operation until birds vacate the area. Any potential sightings of whooping cranes would be verified and reported to the USFWS. Provided these measures are fully implemented, potential impacts to this species will be fully mitigated.

4.6.6 PALLID STURGEON

Federal Status: Endangered

The Project does not cross any waterbodies classified as suitable habitat for the pallid sturgeon. Therefore, the Project will have no impacts to this listed species.

4.6.7 BLACK-FOOTED FERRET

Federal Status: Experimental Population, Non-essential

The Survey Corridor falls within the black-footed ferret's historical range, however no habitat or introduced populations are present. Therefore, the Project will not affect this species.

4.6.8 GRAY WOLF

Federal Status: Endangered

The Survey Corridor intersects potentially suitable habitat for the gray wolf, however potential habitat is not expansive, and is near regular human activity. Because the Project would likely act as a deterrent to this species, impacts to this species are unlikely.

4.6.9 DAKOTA SKIPPER

Federal Status: Threatened

To date, no Dakota skippers have been identified within the Survey Corridor and the nearest critical habitat identified by the USFWS is located 10 miles southwest of the Project. The Survey Corridor intersects areas desktop and field reviews suggest are potential marginal Dakota skipper habitat. Potentially suitable habitat observed within the Survey Corridor was disturbed, with scars from other ROWs and agricultural fields dissecting patches that would otherwise be native prairie grassland. Therefore, disturbance to potential suitable habitat will be unavoidable. Project impacts on this species should remain minimal due to the marginal quality of potential habitat and the small tracts planned for construction clearance.

4.6.10 NORTHERN LONG-EARED BAT

Federal Status: Threatened

Potentially suitable habitat occurs within the Survey Corridor, characterized by stands of green ash and elm primarily associated with riparian woodlands. Therefore, E3 recommends Plains reduces clearing activities in locations with suitable habitat to minimize impacts to this species and associated habitat.

SECTION 5: RECOMMENDATIONS

Based on the findings during field surveys, E3 recommends the following guidance to maintain compliance with regulatory agencies and minimize its impact on resident natural resources:

Raptors:

- Conduct a raptor nest survey within line-of-site of the Survey Corridor prior to construction (April 15-May 15)
- Adhere to USFWS-suggested timing buffers for active raptor nests during nesting season (April 15-July 15)
- Report active nest sites to the USFWS

Woody vegetation:

- Follow PSC guidelines for tree-clearing activity

Wetlands/waterbodies:

- Minimize ground disturbance activities through wetlands
- Minimize equipment rutting
- Restore disturbed areas promptly to original contours

Noxious weeds:

- Minimize top soil spread and traffic in areas with high concentrations of noxious weeds
- Visually inspect equipment prior to leaving infested areas – clean vegetation and soils from vehicles and equipment prior to entering uninfected tracts
- Contractors will thoroughly clean the equipment and materials (e.g., timber mates, bridges, etc.) at the contractor yard prior to mobilization to the Project and upon departure from locations of infestations to prevent spread of nuisance weeds

Threatened and Endangered Species:

- If any threatened or endangered species are encountered during construction activities, contact the USFWS.
- If construction activities occur between April 15-July15, conduct a breeding bird sweep of the impacted area within two weeks of construction to minimize impacts to protected bird species (including Sprague's pipit)

SECTION 6: REFERENCES

Aziz, F. P., Champa, T., & Vanderbusch, D. (2006). Soil Survey of McKenzie County, North Dakota. United States Department of Agriculture, Natural Resources Conservation Service.

Bryce, S., Omernik, J. M., Pater, D. E., Ulmer, M., Schaar, J., Freeouf, J., . . . Azevedo, S. H. (1998). Ecoregions of North and South Dakota Scale 1:1,500,00. Reston, Virginia: U.S. Geological Survey.

Comer, P., Faber-Langendoen, D., Evans, R., Gawler, S., Josse, C., Kittel, G., . . . Teague, J. (2003). Ecological systems of the United Statess: A working classification of U.S. terrestrial systems. Natureserve.

Cowardin, L. M., Carter, F., Golet, C., & LaRoe, E. T. (1979). Classification of Wetlands and Deepwater Habitats of the United States. Washing: U.S. Department of the Interior, Fish and Wildlife Service.

Environmental Laboratory. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0).* U.S. Army Corps of Engineers, U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi, USA.

National Audubon Society. (2015). Audubon Guide to North American Birds: Sprague's Pipit [Online]. Retrieved from https://www.audubon.org/field-guide/bird/spragues-pipit

National Oceanic and Atmospheric Administration (NOAA). (2016). Williston Preliminary Monthly Climate Data Reports. Retrieved from National Weather Service Forecast Office http://w2.weather.gov/climate/index.php?wfo=bis

North Dakota Century Code. (2015). Energy Conversion and Transmission Facility Siting Act.

North Dakota Century Code (NDCC) (2015). Chapter 49-22; Energy Conversion and Transmission Facility Siting Act.

NDCC (2015). 4.1-47-01. Chapter 4.1-47; Noxious Weed Control.

Natural Resources Conservation Service (NRCS). (2016a). Web Soil Survey. (United States Department of Agriculture) Retrieved from http://www.websoilsurvey.nrcs.usda.gov

NRCS. (2016b). Official Soil Series Descriptions. (United States Department of Agriculture). Retrieved from https://soilseries.sc.egov.usda.gov

North Dakota Department of Agriculture. (2016). North Dakota Noxious Weed List. Retrieved from http://www.nd.gov/ndda/program/noxious-weeds.

Omernik, J. M. (1987). Ecoregions of the conterminous United States. Annals of the Association of American Geographers, 77(1), 118-125.

Omernik, J. M., & Griffith, G. (2008). Ecoregions of North and South Dakota (EPA). Retrieved from http://www.eoearth.org/view/article/152149

Title 7 United States Code 2801-2814. (2011). Noxious weeds - Management of undesirable weeds on federal lands.

United States Army Core of Engineers & United States Environmental Protection Agency. (2007). *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook*. Retrieved from http:// www.usace.army.mil/Portals/2/docs/civilworks/regulatory/cwa_guide/jd_guidebook_051207final.pdf.

United States Department of Agriculture (USDA) – Natural Resources Conservation Services (NRCS). 2010. *Field Indicators of Hydric Soils in the United States*—Guide for Identifying and Delineating Hydric Soils, Version. 7.0 *in* G.W. Hurt, L.M. Vasilas, and C.V. Noble, editors. USDA-NRCS in cooperation with the National Technical Committee for Hydric Soils.

USDA, NRCS. (2006). Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296.

United States Environmental Protection Agency. (2013). Level III and Level IV ecoregions of the continental United States, map scale 1:3,000,000. Corvallis, Oregon: USEPA, National Health and Environmental Effects Research Laboratory.

United States Fish and Wildlife Services (USFWS). (2016a). National Wetland Inventory: Wetlands Online Mapper. Retrieved from http://www.fws.gov/wetlands/data/mapper.HTML

USFWS. (2016b). IPaC-Information, Planning, and Conservation System. Retrieved from http://ecos.fws.gov/ipac/.

USFWS. (2016c). Listed species believed to or known to occur in North Dakota. Retrieved September 14, 2015, from ECOS: Environmental Conservation Online System: http://ecos.fws.gov/tess_public/reports/species-listed-by-state-report?state=ND&status=listed

USFWS. (2015). Dakota skipper: Interagency Cooperation under Section 7(a)(2)of the Endangered Species Act. USFWS Regions 3 & 6.

United States Forest Service. (2007). Final Environmental Impact Statement; Noxious Weed Management Project; Dakota Prairie Grasslands. U.S. Department of

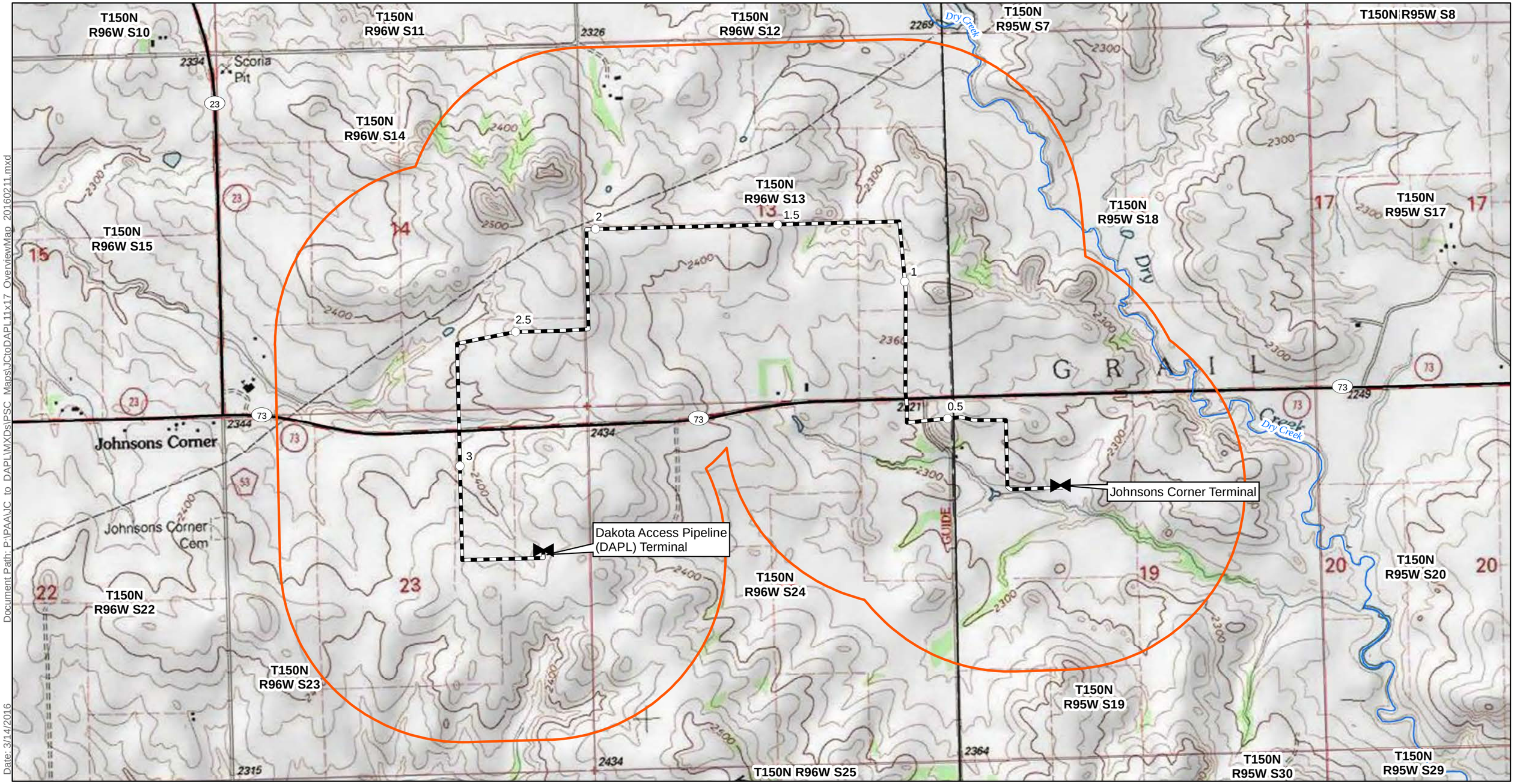
Agriculture. Retrieved July 21, 2015, from http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3818959.pdf

United States Geological Survey (USGS), Gap Analysis Program (GAP). (2011). National Land Cover, Version 2 retrieved September 12, 2015, from http://gapanalysis.usgs.gov/data/

USGS (2015). National Hydrography Dataset (NHD). Reston Virginia. Retrieved November 10, 2015, from \\igskbthifsfasd1\nvm_extracts\GDBExtractServer\Template\NHD_File_Template_High_931vjxx.gdb

Appendix A

Natural Resource Maps



Document Path: P:\PAA\JC to DAPL\MXDs\PSC Maps\JCtoDAPL11x17 OverviewMap 20160211.mxd

Date: 3/14/2016

Author: LDanielson

- Milepost
- Valves
- Proposed Alignment
- Corridor (1 mile)
- NHD Flowline
- NHD Waterbody

Map not to scale, for environmental review purposes only.

N

0 0.25 0.5 1 Miles

1:15,840

E3 Environmental
Enhancing Execution with Experience

Plains Terminals North Dakota LLC

Johnsons Corner to Dakota Access Pipeline

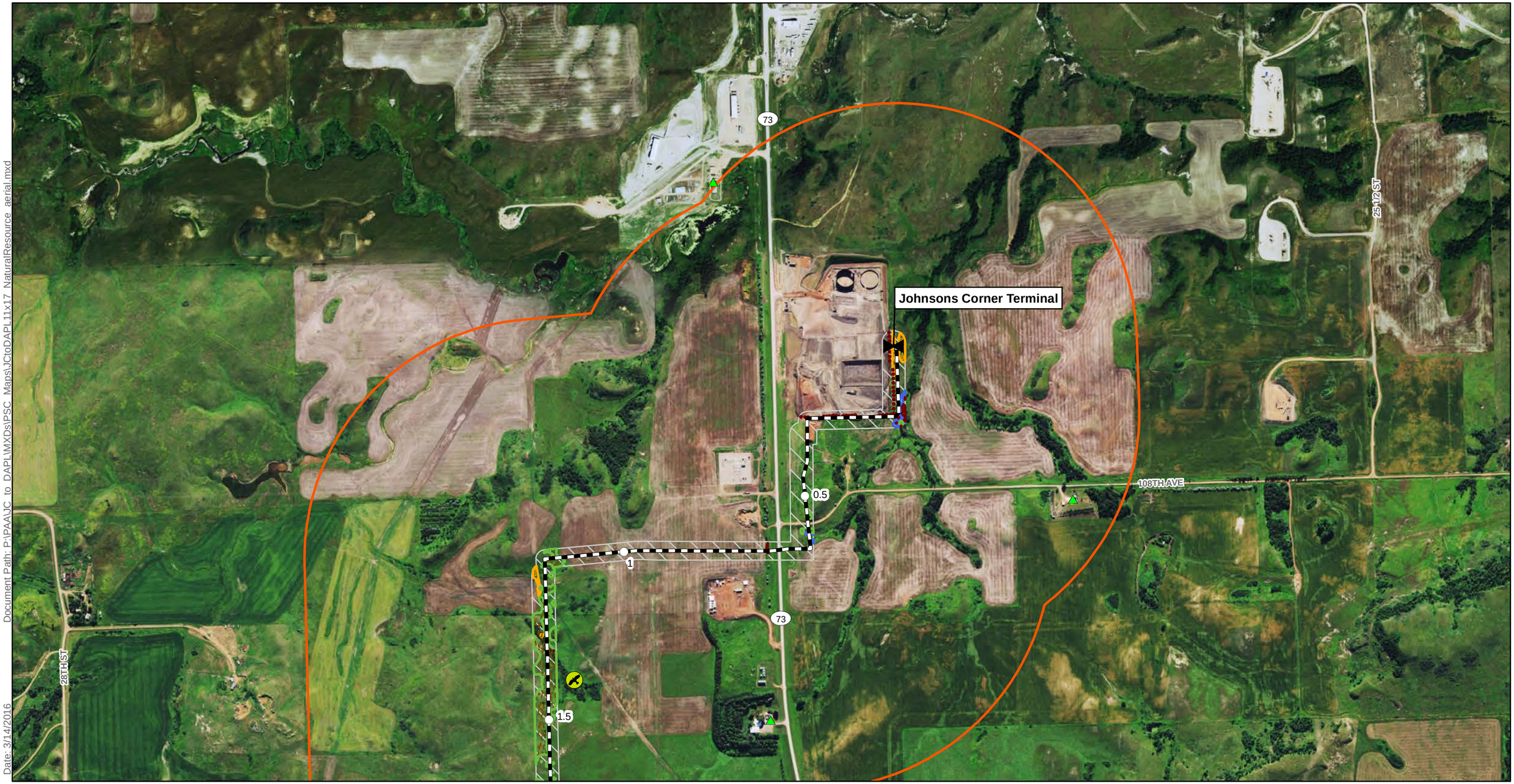
Overview Map

McKenzie County, North Dakota

Document Path: P:\PAA\JC to DAPL\MXDs\PSC Maps\JCtoDAPL11x17 NaturalResource aerial.mxd

Date: 3/14/2016

Author: LDanielson



- Milepost
- Centerline
- Valve
- Corridor (1 mile)
- Environmental Survey Corridor
- ND Well Data
- Potentially Occupied Structure
- Potentially Occupied Structure (w/in 500ft)

Natural Resource Survey Data*

- Woody Vegetation - Trees
- Woody Vegetation - Shrubs
- Waterbody
- Wetland
- Noxious Weeds
- Nest

*Refer to Natural Resource Report for detailed maps and tables.

N

0 500 1,000 2,000 Feet

1:12,000

Map not to scale, for environmental review purposes only.

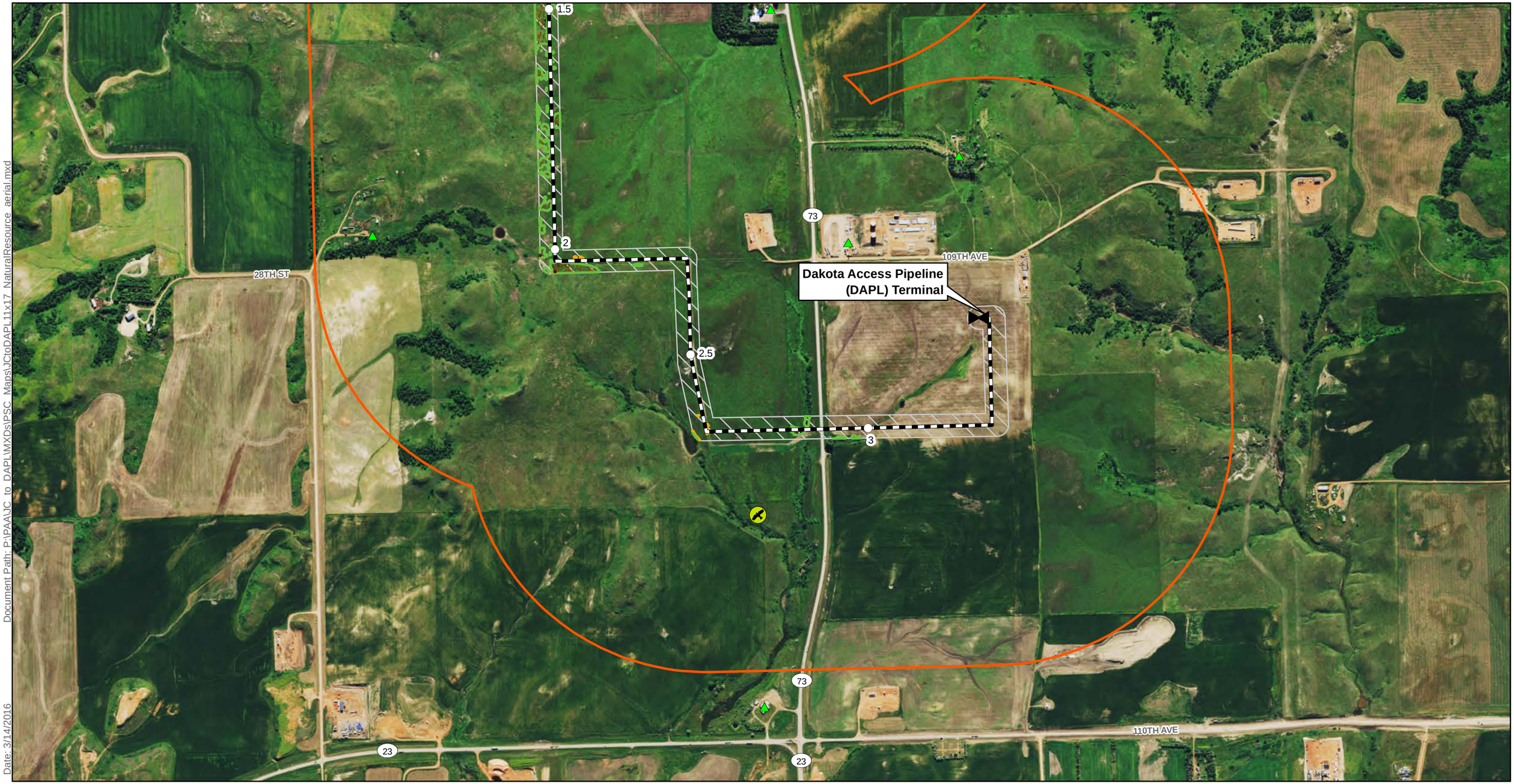
E3 Environmental
Enhancing Execution with Experience

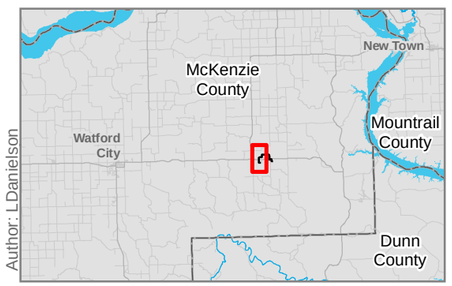
Plains Terminals
North Dakota LLC

Johnsons Corner to Dakota Access Pipeline
Siting Criteria
Natural Resource - Aerial Map

Page 1 of 2

McKenzie County, North Dakota





- Milepost
- Centerline
- Valve
- Corridor (1 mile)
- Environmental Survey Corridor
- ND Well Data
- Potentially Occupied Structure
- Potentially Occupied Structure (w/in 500ft)

Natural Resource Survey Data*

- Woody Vegetation - Trees
- Woody Vegetation - Shrubs
- Waterbody
- Wetland
- Noxious Weeds
- Nest

*Refer to Natural Resource Report for detailed maps and tables.

N

0 500 1,000 2,000 Feet

1:12,000

Map not to scale, for environmental review purposes only.

E3 Environmental
Enhancing Execution with Experience

Plains Terminals North Dakota LLC

Johnsons Corner to Dakota Access Pipeline
Siting Criteria
Natural Resource - Aerial Map

Page 2 of 2

McKenzie County, North Dakota

Appendix B

Woody Vegetation

Trees

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)
			Survey Area	Const. ROW	Estimated Mitigation		
WVT-01	Ornamental	Colorado Blue Spruce	1	0	**0**	0.003	0
WVT-02	Ornamental	Colorado Blue Spruce	1	0	**0**	0.003	0
WVT-03	Ornamental	Colorado Blue Spruce	1	0	**0**	0.003	0
WVT-04	Ornamental	Colorado Blue Spruce	1	0	**0**	0.003	0
WVT-05	Ornamental	Colorado Blue Spruce	1	0	**0**	0.003	0
WVT-06	Ornamental	Colorado Blue Spruce	1	0	**0**	0.003	0
WVT-07	Ornamental	Colorado Blue Spruce	1	1	**2**	0.003	0.003
WVT-08	Ornamental	Colorado Blue Spruce	1	1	**2**	0.003	0.003
WVT-09	Ornamental	Colorado Blue Spruce	1	1	**2**	0.003	0.003
WVT-10	Ornamental	Colorado Blue Spruce	1	1	**2**	0.003	0.003
WVT-11	Ornamental	Colorado Blue Spruce	1	1	**2**	0.003	0.003
WVT-12	Ornamental	Colorado Blue Spruce	1	1	**2**	0.003	0.003
WVT-13	Ornamental	Colorado Blue Spruce	1	1	**2**	0.003	0.003
WVT-14	Ornamental	Colorado Blue Spruce	1	1	**2**	0.003	0.003
WVT-15	Ornamental	Colorado Blue Spruce	1	1	**2**	0.003	0.003
WVT-16	Ornamental	Colorado Blue Spruce	1	1	**2**	0.003	0.003
WVT-17	Ornamental	Colorado Blue Spruce	1	1	**2**	0.003	0.003
WVT-18	Ornamental	Colorado Blue Spruce	1	0	**0**	0.003	0
WVT-19	Riparian Deciduous	Green Ash	3	0	**0**	0.002	0
WVT-20[S]	Riparian Deciduous	Green Ash	20	0	**0**	0.093	0
		Peachleaf Willow	10	0	**0**		
		Chokecherry	5	0	**0**		
WVT-21[S]	Riparian Deciduous	Plains Cottonwood	1	0	**0**	0.002	0
WVT-22[S]	Riparian Deciduous	Peachleaf Willow	12	12	**24**	0.002	0.002
WVT-23	Riparian Deciduous	Peachleaf Willow	4	0	**0**	0.003	0
WVT-24	Riparian Deciduous	Peachleaf Willow	17	0	**0**	0.036	0
WVT-25	Riparian Deciduous	Peachleaf Willow	1	0	**0**	0.003	0
WVT-26[S]	Upland Deciduous	Green Ash	1	0	**0**	0.011	0
WVT-27	Upland Deciduous	Russian Olive	1	0	**0**	0.003	0
WVT-28	Upland Deciduous	Russian Olive	1	0	**0**	0.003	0
WVT-29	Upland Deciduous	Green Ash	1	0	**0**	0.003	0
WVT-30	Upland Deciduous	Siberian Elm	1	0	**0**	0.001	0
WVT-31	Upland Deciduous	American Elm	1	0	**0**	0.001	0
WVT-32	Upland Deciduous	American Elm	1	0	**0**	0.003	0

[S] = SWCA Survey

% = Percent Cover

Shrubs

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)
			Survey Area	Const. ROW	Estimated Mitigation		
WVS-01	Riparian Shrub	Snow Berry	80%	0	**0**	0.032	0
WVS-02	Upland Shrub	Snow Berry	15%	0	**0**	0.071	0
		Chokecherry	10%	0	**0**		
WVS-03	Upland Shrub	Silver Buffaloberry	40%	0	**0**	0.044	0
		Snow Berry	10%	0	**0**		
WVS-04	Upland Shrub	Chokecherry	75	75	**150**	0.040	0.040
WVS-05	Upland Shrub	Russian Olive	1	1	**2**	0.001	0.001
WVS-06	Upland Shrub	Siberian Peashrub	1	0	**0**	0.001	0
WVS-07	Upland Shrub	Siberian Peashrub	1	0	**0**	0.001	0
WVS-08	Upland Shrub	Silver Buffaloberry	30%	30%	**30%**	0.312	0.010
		Chokecherry	20%	20%	**20%**		
		Snow Berry	5%	5%	**5%**		
WVS-09	Upland Shrub	Snow Berry	35%	35%	**35%**	0.497	0.142
		Chokecherry	10%	10%	**10%**		
		Prairie Rose	2%	2%	**2%**		
		Silver Sage Brush	2%	2%	**2%**		
WVS-10	Upland Shrub	Snow Berry	25%	25%	**25%**	0.193	0.038
		Chokecherry	10%	10%	**10%**		
		Silver Buffaloberry	5%	5%	**5%**		
		Silver Sage Brush	2%	2%	**2%**		
WVS-11	Upland Shrub	Chokecherry	10%	10%	**10%**	0.023	0.023
		Snow Berry	10%	10%	**10%**		
		Silver Sage Brush	2%	2%	**2%**		
WVS-12	Upland Shrub	Snow Berry	35%	0	**0**	0.039	0
		Chokecherry	15%	0	**0**		
WVS-13	Upland Shrub	Fireberry Hawthorn	35%	35%	**35%**	6.588	1.683
		Snow Berry	30%	30%	**30%**		
		Chokecherry	25%	25%	**25%**		
		Silver Buffaloberry	15%	15%	**15%**		
		Tatarian Honeysuckle	2%	2%	**2%**		
		American Plum	1%	1%	**1%**		
		Creeping Juniper	1%	1%	**1%**		
		Prairie Rose	1%	1%	**1%**		
		Silver Sage Brush	1%	1%	**1%**		
WVS-14	Upland Shrub	Chokecherry	35%	0	**0**	0.195	0
		Silver Buffaloberry	25%	0	**0**		
		Snow Berry	15%	0	**0**		
		Fireberry Hawthorn	5%	0	**0**		
WVS-15	Upland Shrub	Silver Buffaloberry	10	0	**0**	0.002	0
WVS-16	Upland Shrub	Silver Buffaloberry	50%	50%	**50%**	0.087	0.066
		Chokecherry	20%	20%	**20%**		
WVS-17	Upland Shrub	Silver Buffaloberry	1	0	**0**	0.001	0
WVS-18	Upland Shrub	Chokecherry	9	0	**0**	0.014	0

% = Percent Cover

Shrubs

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)
			Survey Area	Const. ROW	Estimated Mitigation		
WVS-19	Upland Shrub	Silver Sage Brush	1	0	**0**	0.223	0.051
		Snow Berry	15%	15%	**15%**		
WVS-20	Upland Shrub	American Plum	1	1	**2**	0.003	0.003
		Snow Berry	5%	5%	**5%**		
WVS-21	Upland Shrub	Snow Berry	10%	10%	**10%**	0.016	0.016
WVS-22	Upland Shrub	Chokecherry	2	1	**2**	0.376	0.113
		Snow Berry	20%	20%	**20%**		
		Prairie Rose	5%	5%	**5%**		
		Silver Sage Brush	3%	3%	**3%**		
WVS-23	Upland Shrub	Silver Buffaloberry	30%	0	**0**	0.250	0
		Snow Berry	25%	0	**0**		
		Prairie Rose	2%	0	**0**		
WVS-24	Upland Shrub	Snow Berry	17%	17%	**17%**	0.120	0.076
WVS-25	Upland Shrub	Silver Buffaloberry	4	1	**2**	0.301	0.102
		Snow Berry	20%	20%	**20%**		
WVS-26	Upland Shrub	Snow Berry	25%	25%	**25%**	0.080	0.052
WVS-27	Upland Shrub	Snow Berry	15%	0	**0**	0.017	0
WVS-28	Upland Shrub	Silver Sage Brush	1	1	**2**	0.001	0.001
WVS-29	Upland Shrub	Snow Berry	10%	0	**0**	0.008	0
WVS-30	Upland Shrub	Chokecherry	3	1	**2**	0.234	0.103
		Snow Berry	40%	40%	**40%**		
WVS-31	Upland Shrub	Snow Berry	20%	0	**0**	0.127	0
WVS-32	Upland Shrub	Fireberry Hawthorn	15%	0	**0**	0.136	0
		Snow Berry	15%	0	**0**		
WVS-33	Upland Shrub	Rocky Mountain Juniper	1	1	**2**	0.001	0.001
WVS-34	Upland Shrub	Silver Buffaloberry	1	1	**2**	0.001	0.001
WVS-35	Upland Shrub	Silver Buffaloberry	1	1	**2**	0.001	0.001
WVS-36	Upland Shrub	Silver Buffaloberry	1	1	**2**	0.001	0.001
WVS-37	Upland Shrub	Silver Buffaloberry	1	1	**2**	0.001	0.001
WVS-38	Upland Shrub	Silver Buffaloberry	70%	0	**0**	0.045	0
		Snow Berry	5%	0	**0**		
		Silver Sage Brush	2%	0	**0**		
WVS-39	Upland Shrub	Fireberry Hawthorn	15%	15%	**15%**	1.153	0.313
		Snow Berry	15%	15%	**15%**		
		Chokecherry	10%	10%	**10%**		
		Silver Sage Brush	2%	2%	**2%**		
WVS-40	Upland Shrub	Chokecherry	50%	0	**0**	0.040	0
		Snow Berry	10%	0	**0**		
		American Plum	5%	0	**0**		
WVS-41	Upland Shrub	Snow Berry	7%	0	**0**	0.005	0
		Chokecherry	5%	0	**0**		
		Prairie Rose	5%	0	**0**		
		Black Currant	3%	0	**0**		

% = Percent Cover

Shrubs

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)
			Survey Area	Const. ROW	Estimated Mitigation		
		Red-Osier Dogwood	3%	0	**0**		
WVS-42	Upland Shrub	Chokecherry	35%	35%	**35%**	0.219	0.10
		Fireberry Hawthorn	25%	25%	**25%**		
		Snow Berry	15%	15%	**15%**		
WVS-43	Upland Shrub	Chokecherry	55%	55%	**55%**	0.116	0.02
		Fireberry Hawthorn	35%	35%	**35%**		
		Snow Berry	25%	25%	**25%**		
WVS-44	Upland Shrub	Chokecherry	80%	0	**0**	0.047	0
WVS-45	Upland Shrub	Chokecherry	80%	0	**0**	0.040	0

% = Percent Cover

Appendix F

10-Year Plan

PLAINS TERMINALS NORTH DAKOTA LLC
2016-2026
TEN-YEAR PLAN

Introduction

In accordance with Section 49-22-04 of the North Dakota Century Code and Chapter 69-06-02 of the North Dakota Administrative Code, Plains Terminals North Dakota LLC ("Plains"), submits the following Ten-Year Plan for years 2016 through 2026.

1) *A description of the general location, size, and type of all facilities to be owned or operated by the utility during the ensuing ten years, as well as those facilities to be removed from service during the ten-year period.*

A) Johnsons Corner Terminal

1. East of Watford City, North Dakota, just east of Johnsons Corner intersection of Hwy 23 & 78
   a. Product type: crude oil
   b. Maximum capacity: 50,000 barrels per day
   c. Pump station specifications: Oil will be gathered from trucks from production sites in North Dakota and Montana and unloaded at this facility. A short pipeline (0.8 miles) has been installed to connect the Johnson Corner Terminal with a nearby connecting carrier to receive or deliver crude oil.
   d. Two (2) 250,000 barrel crude oil storage tanks exist at this terminal as well as associated measurement and pumping equipment.
   e. In Service date – July 2015
   f. NOTE: This asset was formerly owned by Legion Terminals, LLC and was acquired by Plains All American Pipeline, L.P., Plains's parent company, in February 2015.

B) Other Facilities

Plains is submitting a Consolidated Application for a Certificate of Corridor Compatibility and Route Permit requesting permission from the Commission to construct an approximately 3.5 mile crude oil pipeline originating at the Plains Johnsons Corner Terminal, approximately three (3) miles east of Johnsons Corner, North Dakota, and extending to the northwest to terminate at the Dakota Access Pipeline Johnsons Corner Terminal Facility, located approximately one (1) mile southeast of Johnsons Corner (hereinafter referred to as the "Johnsons Corner to Dakota Access Pipeline Project").

Plans are currently underway to connect to various pipelines in the vicinity. Those connections are undisclosed at the time of this filing.

Plains intends to expand the existing storage capacity at Johnsons Corner; however, the expansion of tank storage capacity is in preliminary planning stages and no definite project has been approved at the time of this filing.

There are no long term plans for construction at this time. Plains does not own or operate any facilities that it plans to remove from service during the next ten (10) years.

2) *An identification of the location of the tentative preferred site for all energy conversion facilities and the tentative location of all transmission facilities on which construction is intended to be commenced within the ensuing five years and such other information as may be required by the commission. The site and corridor identification shall be made in compliance with the criteria published by the commission pursuant to section 49-22-05.1.*

As noted above, Plains plans to construct the Johnsons Corner to Dakota Access Pipeline Project upon approval from the Commission. Plains evaluated a study area to determine the best location for the placement of the corridor and route for the Johnsons Corner to Dakota Access Pipeline Project in order to minimize any potential land use and environmental impacts, maximize public benefits, and to consider design and construction limitations and economics. The proposed location of the route within the corridor for the Johnsons Corner to Dakota Access Pipeline Project was made in compliance with Chapter 49-22-05.1, as discussed in the corresponding application for a Certificate of Corridor Compatibility and Route Permit filed with the Commission for the project.

Plans are currently underway to connect to various pipelines in the vicinity. Those connections are undisclosed at the time of this filing.

Plains intends to expand the existing storage capacity at Johnsons Corner; however, the expansion of tank storage capacity is in preliminary planning stages and no definite project has been approved at the time of this filing.

3) *A description of the efforts by the utility to coordinate the plan with other utilities so as to provide a coordinated regional plan for meeting the utility needs of the region.*

Oil and gas exploration activity remains uncertain due to unpredictable crude oil prices. Since petroleum exploration is a highly competitive business, regional planning for production and transportation of oil and gas production is very limited.

If the companies engaged in the exploration and production of oil and gas coordinated their plans on a regional basis in order to meet regional fuel requirements as they foresaw them, they may expose themselves to the severe penalties associated with violation of the nation’s antitrust laws.

4) *A description of the efforts to involve environmental protection and land-use planning agencies in the planning process, as well as other efforts to identify and minimize environmental problems at the earliest possible stage in the planning process.*

Plains has developed cooperative working relationships with the U.S. Forest Service, the Bureau of Land Management, the North Dakota Industrial Commission, the North Dakota Public Service Commission, the State Health Department, the State Water Commission, and those counties in which it operates.

Plains selects pipeline corridors and routing to minimize impact as required by the statutes and rules and regulations of the Public Service Commission. Whenever desirable, Plains may employ local environmentalists and archaeologists to assist with planning; local farmers may be employed for restoring cropland to tillable condition following construction. Plains is proud of its safety record in the operation of facilities in North Dakota and is prepared to meet any emergency that should arise in order to minimize the impact of any pipeline failure.

5) *A statement of the projected demand for the service rendered by the utility for the ensuing ten years and the underlying assumptions for the projection, with that information being as geographically specific as possible, and a description of the manner and extent to which the utility will meet the projected demands.*

Despite a downturn in commodity pricing, producers in the Williston Basin region remain active; many producers have contractual commitments to deliver specified volumes to third parties which creates demand for crude oil infrastructure, *i.e.*, pipelines and tank storage facilities. As development and production continues, the need for transportation capability will also increase. New facilities and pipelines may need to be constructed to meet growing demand; however, uncertainty and confidentiality of production activities leads to short range planning by the crude oil gathering and transportation industry.

Company Overview

Plains and its affiliates provides crude petroleum transportation and storage services from producing leases to various pipeline or refinery destinations. Ultimately, the crude oil is converted to marketable condition as fuels and lube products. Plains must react to the oil and gas industry's needs for its service on a much shorter time frame than five (5) or ten (10) years. The distances involved are relatively short and the need for the service is generally only foreseeable by a few short months. Long-range planning is valuable only to the extent that it permits Plains to react rapidly and efficiently to industry requirements for pipeline transportation and storage services.